

March 19, 2021

Mr. Reza Amirrezvani  
SSCW Companies  
14425 W McDowell Road, Suite F-108  
Goodyear, AZ 85395

**Subject: SuperStar Express Car Wash @ South West Corner of McDowell Road and Bullard Road – Noise Review Letter – City of Goodyear, AZ**

Dear Mr. Amirrezvani:

MD Acoustics, LLC (MD) has completed a noise assessment for the proposed SuperStar Express Car Wash located at the south west corner of McDowell Road and Bullard Road, in Goodyear, AZ. This assessment reviews the projected car wash operational noise levels and compares to the City's noise ordinance. The project proposes an approximately 4,180 square foot car wash tunnel with 28 vacuum parking stalls.

## **1.0 Assessment Overview**

This assessment evaluates the projections operational noise and compares to the City's noise ordinance for informational purposes. The project location map is located in Exhibit A. The site plan utilized for the project is indicated in Exhibit B. It should be noted that the nearest residences are located 1,600-feet to the northeast and a hotel is located 200 feet to the south. A glossary of Acoustical Terms is located in Appendix A.

## **2.0 Local Acoustical Requirements**

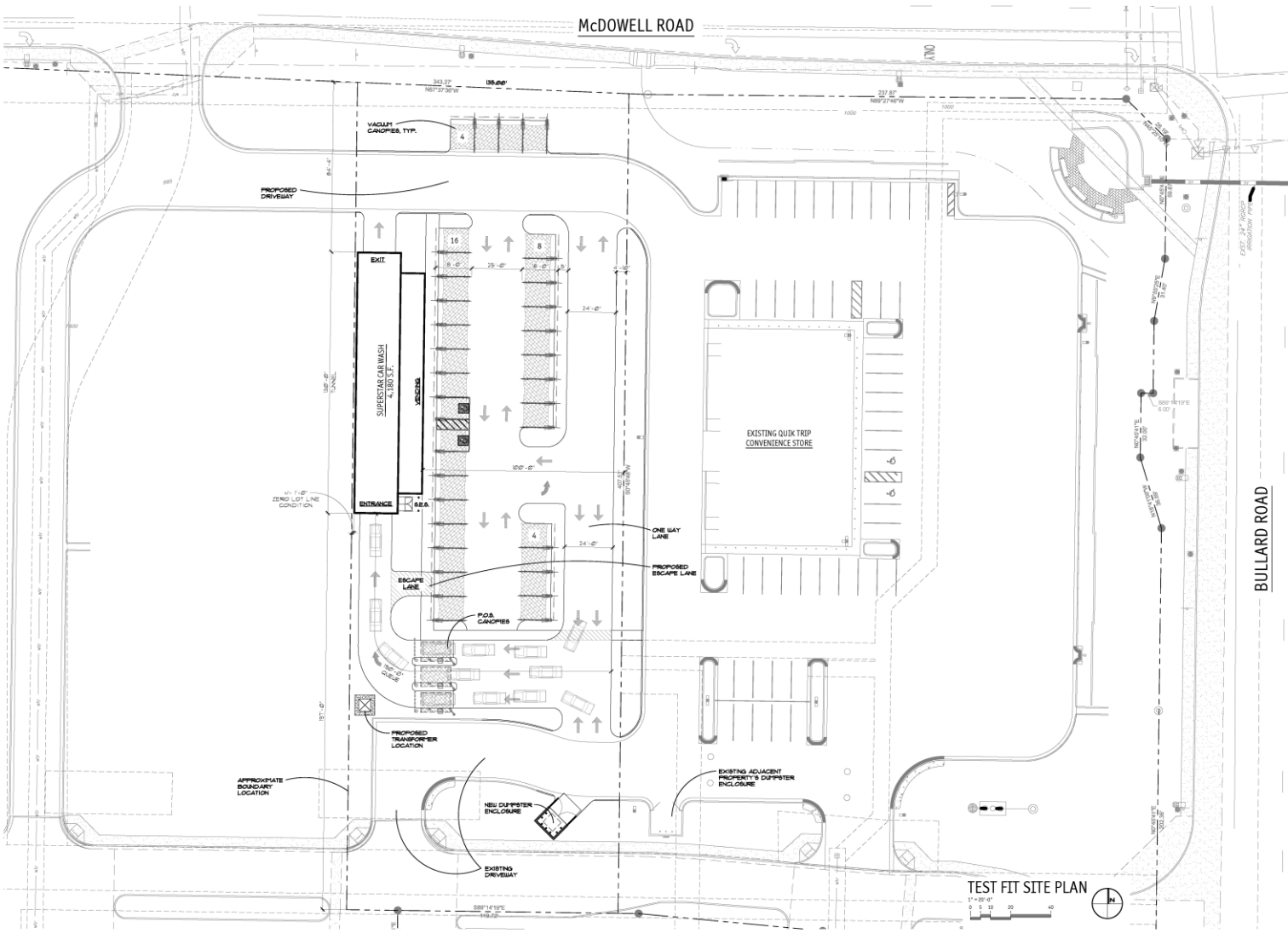
The City of Goodyear does not specifically address nor have a specific not to exceed noise limit as it relates to mechanical noise. Therefore, MD refers to the Maricopa County noise ordinance. Maricopa County outlines their noise regulations and standards within the Code of Ordinances from the Municipal Code. Ordinance P-23, Section V. Public Disturbances (A) outlines the allowable noise levels and discusses special noise sources and is as follows:

*It shall be unlawful for any person to cause, or for any person in possession of property to allow to originate from the property, any noise which disturbs the peace or quiet of any neighborhood if such noise can be heard from within closed residential structures located within 500 feet of the boundary of the property from which such noise emanates. This subsection shall not apply to noise produced in the normal conduct of business provided that such noise occurs within the normal and customary hours for the conduct of such business, which is based on the normal and customary hours of operation of similar, existing businesses, and the operation is legally conducted within the scope of all ordinances, laws, and statutes of Maricopa County and the State of Arizona*

**Exhibit A**  
**Location Map**



Exhibit B  
Site Plan



**C**  
**CAWLEY**  
**ARCHITECTS**  
730 N 52nd St. Ste. 203  
Phoenix, Arizona 85008  
P 402.393.5000  
CawleyArchitects.com



**SUPERSTAR  
CAR WASH**

SWC McDOWELL  
ROAD & BULLARD  
AVENUE  
GOODYEAR, AZ  
85338

DATE  
TEST FIT SITE PLAN  
01/14/2021

**NOTICE OF ASSUMED BILLING  
CYCLE**

The undersigned hereby certifies that the design and construction of the project shown on this plan is in accordance with the design and construction of the project shown on this plan. The undersigned hereby certifies that the design and construction of the project shown on this plan is in accordance with the design and construction of the project shown on this plan. The undersigned hereby certifies that the design and construction of the project shown on this plan is in accordance with the design and construction of the project shown on this plan.

Project: 20167

**A1.1**

### **3.0 Study Method and Procedure**

#### ***SoundPLAN Acoustic Model***

SoundPLAN (SP) acoustical modeling software was utilized to model future worst-case stationary noise impacts to the adjacent land uses. SP is capable of evaluating multiple stationary noise source impacts at various receiver locations. SP's software utilizes algorithms (based on the inverse square law and reference equipment noise level data) to calculate noise level projections.

The software allows the user to input specific noise sources, spectral content, sound barriers, building placement, topography, and sensitive receptor locations.

The model assumes that the car wash tunnel is approximately 4,180 square feet with a 9-foot-tall by 12-foot-wide exit and entrance opening and approximately 15-feet of acoustic-blok lined tunnel at the exit.

The blowers (a total of 14 MacNeil blowers or equivalent) were modeled at 10 to 12 feet high as point sources. The blowers will be located approximately 5 to 10 feet inside the exit of the tunnel. The reference equipment sound level data is provided in Appendix B.

The SP model assumes a total of 28 vacuums and the dryer system are operating simultaneously (worst-case scenario), when in actuality the noise will be intermittent and lower in noise level. The project proposes to house the vacuum turbine motor (FT-CO-T350HP4) inside a 4-sided 8-foot tall CMU enclosure with a roof. The reference vacuum equipment sound level data is provided in Appendix B.

All other noise producing equipment (e.g., compressors, pumps) will be housed within mechanical equipment rooms.

### **4.0 Findings and Recommendations**

#### ***Existing Exterior Noise***

A twenty-four (24) hour ambient noise measurement was conducted at project site approximately 133 feet from the centerline of W. McDowell Road. The measurement measured the 1-minute Leq, Lmin, Lmax and other statistical data (e.g. L2, L8...). The noise measurement was taken to determine the existing ambient noise levels. Noise data indicates that traffic along W. McDowell Road is the primary source of noise impacting the site and the adjacent uses. This assessment utilizes the ambient noise data as a basis and compares project operational levels to said data.

Noise data indicates the ambient noise level ranged between 64 dBA Leq(h) to 69 dBA Leq(h) near project site and surrounding area. Additional field notes and photographs are provided in Appendix A.

For this evaluation, MD has utilized the quietest hourly noise level (during potential operational hours) and has compared the project's projected noise levels to the said ambient level. The quietest hourly noise level was 64 dBA, Leq(h)).

#### ***Future Exterior Noise***

A total of five (5) receptors were modeled to accurately evaluate the future operational noise levels at or near the project site. A receptor is denoted by a yellow dot. R1 – R5 represent the noise level at the

existing nearest residences to the project site. A receptor is denoted by yellow dot. All yellow dots represent either a property line or a sensitive receptor such as an outdoor sensitive area (e.g. courtyard, patio, backyard, etc).

Table 1 presents the measured ambient noise level, the project's projected noise level, and the combined project plus ambient noise level condition.

**Table 1: Existing + Project Predicted Operational Noise level**

| Receptor | Existing Ambient Noise Level (dBA, Leq) | Project Noise Level (dBA, Leq) | Total Combined Noise Level (dBA, Leq) | Change in Noise Level as Result of Project |
|----------|-----------------------------------------|--------------------------------|---------------------------------------|--------------------------------------------|
| 1        | 46                                      | 45                             | 55                                    | 9                                          |
| 2        |                                         | 52                             | 53                                    | 7                                          |
| 3        |                                         | 48                             | 50                                    | 4                                          |
|          |                                         | 49                             | 50                                    | 4                                          |
| 4        |                                         | 46                             | 46                                    | 0                                          |
| 5        |                                         | 53                             | 54                                    | 8                                          |

Exhibit C shows the future noise level projections and contours based on the proposed project design. The noise levels at the various adjacent uses will range between 45 to 53 dBA, and the noise contours illustrate how the noise will propagate.

The Study compares the project's cumulative noise increase to the baseline condition and also is compared to the County's residential standard which states noise must not be heard within a closed "windows closed" residence within 500 feet of the project boundaries. It should be noted that the nearest residential uses to the project site are approximately 1,600 feet to the northeast with a hotel approximately 200 ft to the south (Receptor 3). When comparing the noise projections to the County's noise requirements, the total combines noise levels would be further reduced such that the interior noise levels would be below the typical interior noise level within a residential structure (45 dBA), Thereby complying with the County ordinance as well.

## 5.0 Conclusions

MD is pleased to provide this noise review for the SuperStar Express Car Wash project. If you have any questions regarding this analysis, please call our office at (602) 774-1950.

Sincerely,  
MD Acoustics

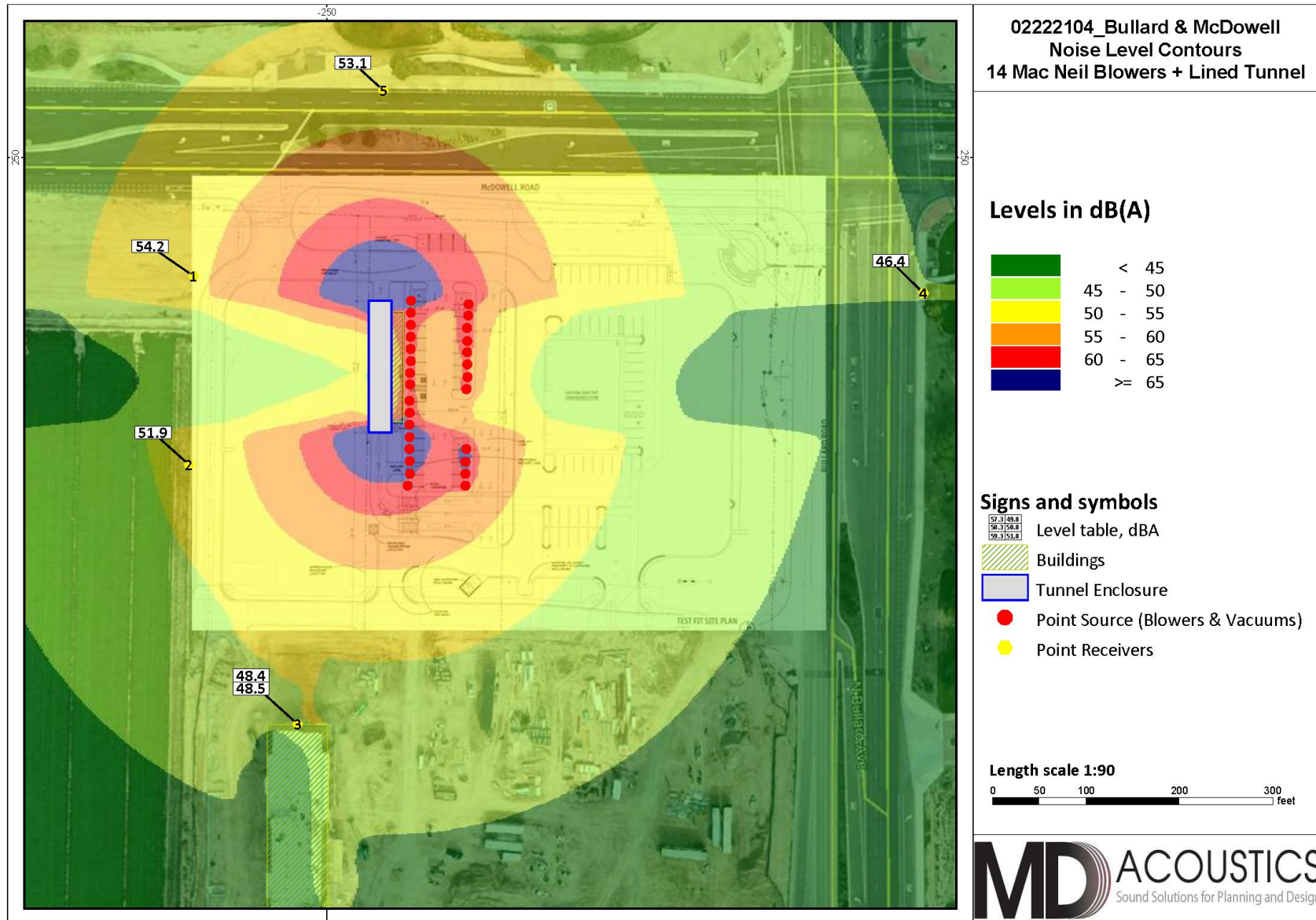


Mike Dickerson, INCE  
Principal



Robert Pearson  
Acoustical Consultant

## Exhibit C Operational Noise Levels



**Appendix A**  
Field Sheet

## 24-Hour Continuous Noise Measurement Datasheet

|                               |                                   |                           |                                                                                  |
|-------------------------------|-----------------------------------|---------------------------|----------------------------------------------------------------------------------|
| <b>Project:</b>               | Bullard and McDowell              | <b>Site Observations:</b> | Clear Sky, desert conditions little to no wind. Daytime temp 70 degrees Lows 40. |
| <b>Site Address/Location:</b> | Bullard and McDowell, Goodyear AZ |                           |                                                                                  |
| <b>Date:</b>                  | 3/5/2021 - 3/6/2021               |                           |                                                                                  |
| <b>Field Tech/Engineer:</b>   | Shon Baldwin                      |                           |                                                                                  |

### General Location:

|                             |                                           |            |       |
|-----------------------------|-------------------------------------------|------------|-------|
| <b>Sound Meter:</b>         | Piccolo 2                                 | <b>SN:</b> | 80206 |
| <b>Settings:</b>            | A-weighted, slow, 1-min, 24-hour duration |            |       |
| <b>Meteorological Con.:</b> | 2 to 5 mph wind, eastern direction        |            |       |
| <b>Site ID:</b>             | LT-1                                      |            |       |

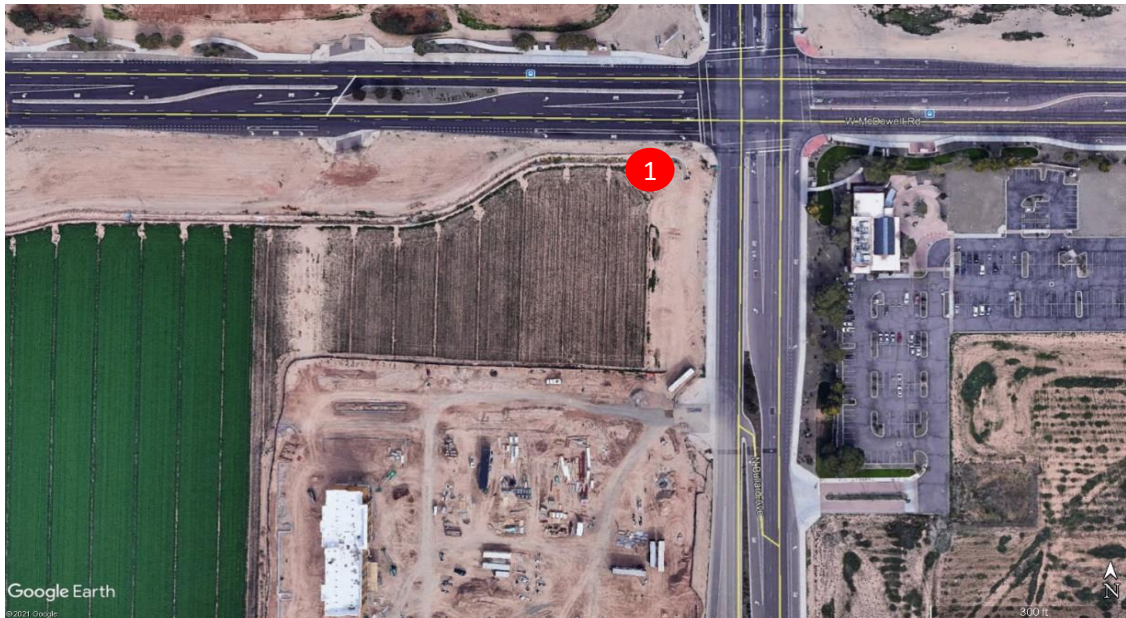
**Site Topo:** Flat

**Ground Type:** Soft site, Open raw ground with a road

### Noise Source(s) w/ Distance:

C/L of McDowell Road is 133ft from meter

**Figure 1: LT-1 Monitoring Location**



**24-Hour Noise Measurement Datasheet - Cont.**

**Project:** Bullard and Mcdowell **Day:** 1 of 1  
**Site Address/Location:** Bullard and Mcdowell, Goodyear AZ  
**Site ID:** LT-1

| Date     | Start    | Stop     | Leq  | Lmax | Lmin | L2   | L8   | L25  | L50  | L90  |
|----------|----------|----------|------|------|------|------|------|------|------|------|
| 3/5/2021 | 11:00 AM | 12:00 PM | 65.5 | 81.5 | 53.2 | 71.5 | 69.6 | 68.4 | 63.2 | 60.9 |
| 3/5/2021 | 12:00 PM | 1:00 PM  | 64.8 | 84.8 | 53.2 | 70.6 | 69.9 | 67.8 | 63.1 | 60.5 |
| 3/5/2021 | 1:00 PM  | 2:00 PM  | 64.0 | 87.1 | 50.3 | 69.0 | 67.4 | 66.5 | 62.4 | 60.0 |
| 3/5/2021 | 2:00 PM  | 3:00 PM  | 64.8 | 76.7 | 63.4 | 69.5 | 67.8 | 66.5 | 62.6 | 59.9 |
| 3/5/2021 | 3:00 PM  | 4:00 PM  | 65.7 | 87.2 | 52.9 | 71.3 | 70.3 | 67.8 | 63.9 | 60.6 |
| 3/5/2021 | 4:00 PM  | 5:00 PM  | 68.0 | 92.1 | 53.3 | 75.1 | 72.0 | 68.7 | 64.7 | 62.1 |
| 3/5/2021 | 5:00 PM  | 6:00 PM  | 66.5 | 87.9 | 55.8 | 72.3 | 71.8 | 69.0 | 65.0 | 62.8 |
| 3/5/2021 | 6:00 PM  | 7:00 PM  | 67.6 | 90.0 | 56.2 | 74.2 | 72.7 | 70.7 | 65.6 | 63.6 |
| 3/5/2021 | 7:00 PM  | 8:00 PM  | 69.1 | 92.1 | 57.7 | 74.1 | 71.5 | 71.0 | 65.9 | 64.1 |
| 3/5/2021 | 8:00 PM  | 9:00 PM  | 67.2 | 91.2 | 58.0 | 71.2 | 70.2 | 68.8 | 65.9 | 63.8 |
| 3/5/2021 | 9:00 PM  | 10:00 PM | 67.4 | 92.7 | 52.2 | 74.1 | 71.9 | 70.4 | 64.0 | 61.3 |
| 3/5/2021 | 10:00 PM | 11:00 PM | 66.1 | 88.4 | 52.0 | 75.6 | 71.6 | 68.7 | 62.2 | 59.4 |
| 3/5/2021 | 11:00 PM | 12:00 AM | 65.9 | 90.5 | 50.1 | 73.4 | 71.1 | 69.2 | 60.1 | 56.9 |
| 3/6/2021 | 12:00 AM | 1:00 AM  | 60.2 | 78.2 | 51.4 | 67.3 | 63.4 | 62.5 | 58.6 | 56.1 |
| 3/6/2021 | 1:00 AM  | 2:00 AM  | 59.1 | 83.8 | 51.5 | 61.3 | 61.1 | 59.9 | 57.7 | 55.9 |
| 3/6/2021 | 2:00 AM  | 3:00 AM  | 57.6 | 73.7 | 49.6 | 61.2 | 60.3 | 59.4 | 56.4 | 54.8 |
| 3/6/2021 | 3:00 AM  | 4:00 AM  | 58.3 | 77.7 | 49.0 | 65.4 | 62.6 | 60.9 | 56.5 | 53.1 |
| 3/6/2021 | 4:00 AM  | 5:00 AM  | 58.9 | 79.2 | 49.6 | 64.9 | 62.9 | 60.8 | 57.2 | 54.7 |
| 3/6/2021 | 5:00 AM  | 6:00 AM  | 62.8 | 80.8 | 54.6 | 68.1 | 66.1 | 65.1 | 61.8 | 58.8 |
| 3/6/2021 | 6:00 AM  | 7:00 AM  | 64.8 | 81.6 | 58.6 | 67.5 | 67.3 | 66.5 | 64.6 | 62.3 |
| 3/6/2021 | 7:00 AM  | 8:00 AM  | 64.1 | 81.3 | 57.5 | 67.4 | 66.7 | 65.6 | 63.9 | 62.1 |
| 3/6/2021 | 8:00 AM  | 9:00 AM  | 65.0 | 85.6 | 55.2 | 70.6 | 69.8 | 67.3 | 63.3 | 61.8 |
| 3/6/2021 | 9:00 AM  | 10:00 AM | 66.0 | 88.7 | 53.3 | 72.4 | 71.2 | 68.5 | 64.1 | 61.5 |
| 3/6/2021 | 10:00 AM | 11:00 AM | 66.2 | 83.9 | 56.3 | 71.3 | 70.9 | 68.9 | 64.6 | 62.7 |

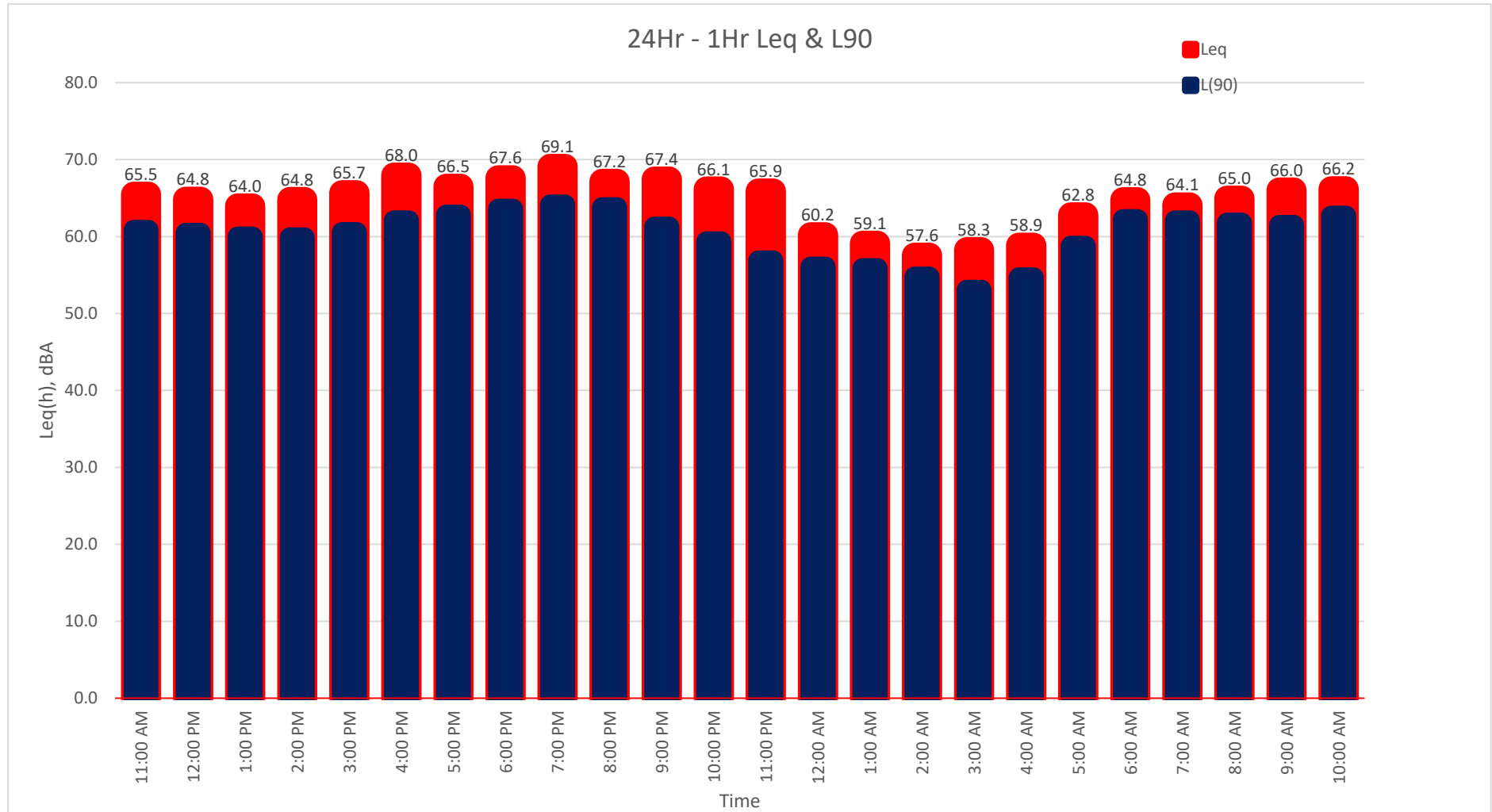
**CNEL:** 70.6

## 24-Hour Continuous Noise Measurement Datasheet - Cont.

**Project:** Bullard and Mcdowell **Day:** 1 of 1

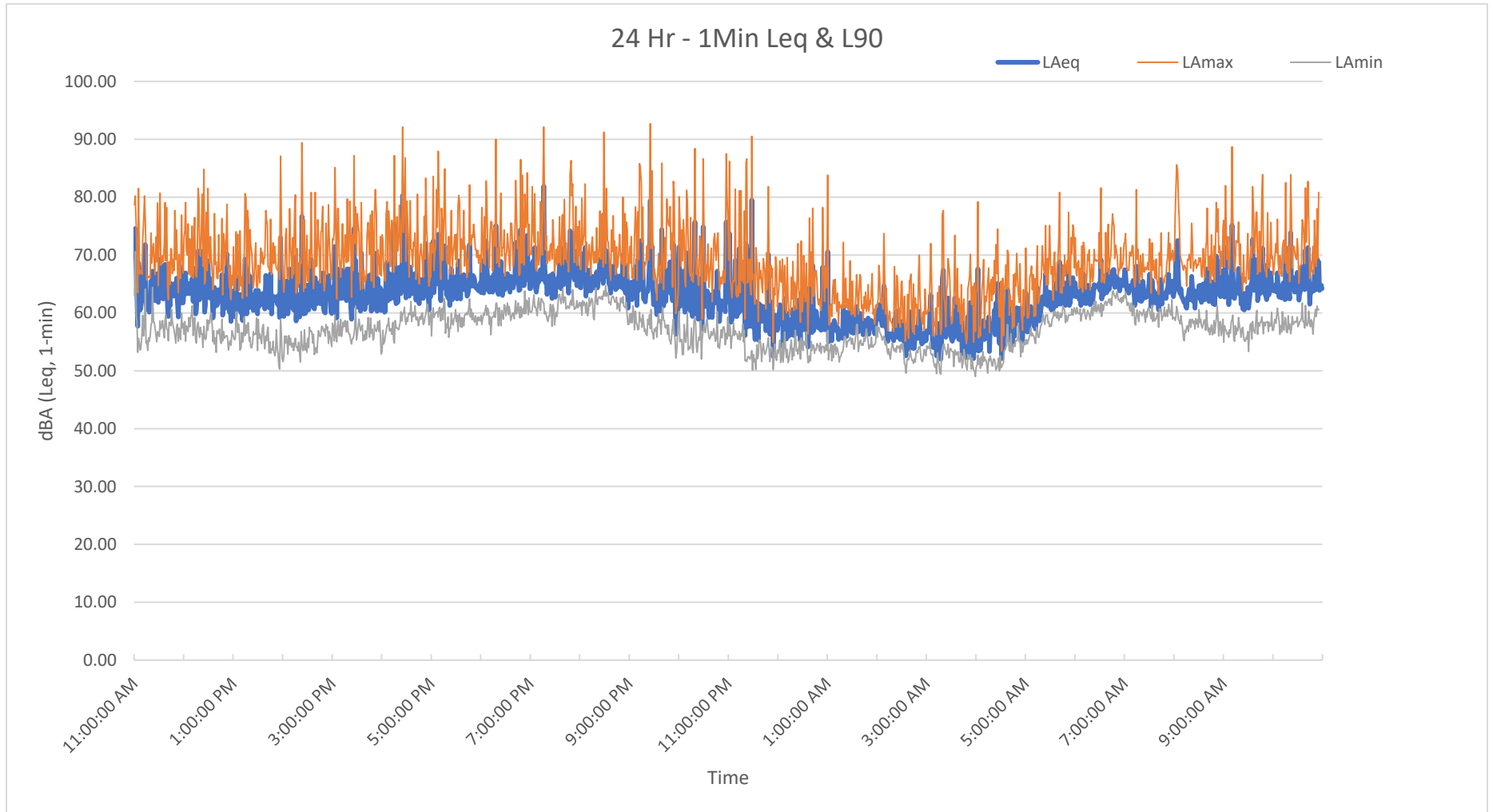
**Site Address/Location:** Bullard and Mcdowell, Goodyear AZ

**Site ID:** LT-1



## 24-Hour Continuous Noise Measurement Datasheet - Cont.

**Project:** Bullard and Mcdowell **Day:** 1 **of** 1  
**Site Address/Location:** Bullard and Mcdowell, Goodyear AZ  
**Site ID:** LT-1



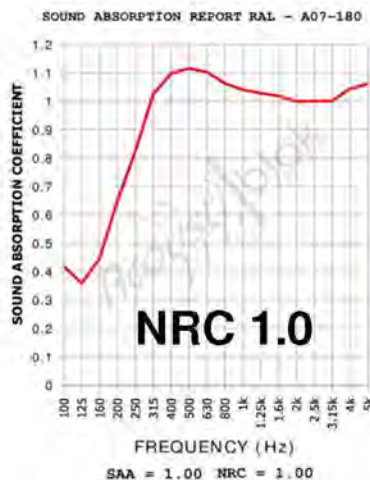
**Appendix B**  
Manufacturers Cut Sheet

## Appendix I



**North American Office**  
**Acoustiblok, Inc.**  
 6900 Interbay Boulevard  
 Tampa, FL 33616 USA  
 Phone: 813-980-1400  
 Fax: 813-549-2653  
 www.acoustiblok.com  
 sales@acoustiblok.com

### Industrial Model All Weather Sound Panel™ (Pat. Pend) Technical Data



Acoustiblok All Weather Sound Panels™ achieve high STC and NRC ratings. They have been specifically designed to withstand outdoor exposure in full sunlight, extreme weather conditions, and harsh industrial environments. (NRC of 1.0 is the highest sound absorption rating possible)

All Weather Sound Panels include an internal layer of U.L. classified Acoustiblok sound isolation material plus a specifically engineered 2" thick weather proof sound absorbing material.

| Specifications:                                                        |         |                                                                                                               |
|------------------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------------|
| NRC (Noise Reduction Coefficient):                                     | 1.00 *  | Gross dimensions: up to 48" x 120" x 2.423", $\pm 0.125"$ custom sizes available on special order.            |
| STC (Sound Transmission Class):                                        | 29 *    | Frame construction: 0.125" welded corrosion resistant 6063-T5 aluminum, mill finish, eyelets: 0.375" (18 ea.) |
| Weight: (8' panel)                                                     | 104 lbs | Front face: 0.040 corrosion resistant 5052-H32 aluminum alloy, 3/32" round holes staggered on 5/32" centers.  |
| UL Std 723 fire resistance:<br>Flame spread 0, smoke developed 0.      |         | Back face: 0.032 corrosion resistant 5052-H32 aluminum alloy, mill finish.                                    |
| UV tolerant, animal resistant, washable, does not support mold growth. |         |                                                                                                               |

\* Independent Testing by accredited NVLAP testing facility in compliance with ASTM E90, E 413, and other applicable industry standards.

Subject to change without notice, contact Acoustiblok for details.

## Product Name

### QuietFiber® Hydrophobic Noise Absorption Material – QF2

#### For Manufacturer Info:

##### Contact:

Acoustiblok, Inc.  
6900 Interbay Boulevard  
Tampa, FL 33616  
Call - (813) 980-1400  
Fax - (813)849-6347  
Email - [sales@acoustiblok.com](mailto:sales@acoustiblok.com)  
[www.acoustiblok.com](http://www.acoustiblok.com)

## Product Description

### Basic Use

QuietFiber hydrophobic noise absorption material is an easily installed solution to many noise problems. It is engineered specifically for maximum noise absorption and is used extensively for industrial and commercial applications and is now being successfully introduced into non-industrial environments where reverberant sound and echo is a problem.

### QuietFiber® QF2

QuietFiber is rated at the highest noise reduction level – NRC 1.00. Areas of high noise levels including sound reverberation can be resolved easily and economically by introducing QuietFiber into as much of the area as possible. The amount of noise reduction in highly reflective rooms will be directly relative to how much of the QuietFiber material can be installed into the room.

Unlike other fibrous materials which do not have the same high NRC ratings, QuietFiber is hydrophobic, meaning it will not absorb nor combine with water. Marine noise reduction applications are endless.



### QuietFiber® QF2

- Highest noise absorption rating of NRC 1.00
- Non Silica
- Virtually fireproof – Class A fire rating
  - o 0 Smoke + 0 Flame Development
- Hydrophobic – will not combine with water
- Will not support mold or mildew growth
- Available in plain, black or white face
- Full outdoor weather and U.V. tolerant
- Significant sound benefit v. fiberglass
- Install on top of acoustical ceiling tiles
- High temperature capable
- Comprised of up to 90% recycled material
- 100% recyclable

## Product Name

QuietFiber® Hydrophobic Noise Absorption Material – QF2

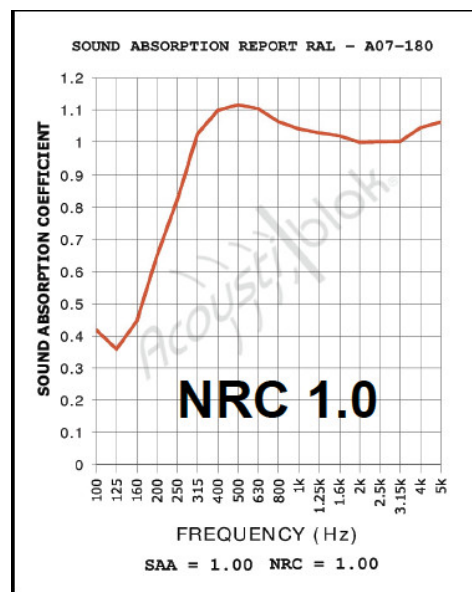
| NRC 1.0<br>Rated | 125hz | 250hz | 500hz | 1000hz | 2000hz | 4000hz |
|------------------|-------|-------|-------|--------|--------|--------|
|                  | 0.36  | 0.79  | 1.15  | 1.04   | 1.01   | 1.04   |

### Technical Data:

- ASTM C 423 – NRC 1.00
- ASTM E 84 – Class 1, 0 Flame 0 Smoke
- ASTM C 518 – R 4.2 per inch
- ASTM C 518 – 0.24 @ 75°F (24°C)

### Standards Compliance:

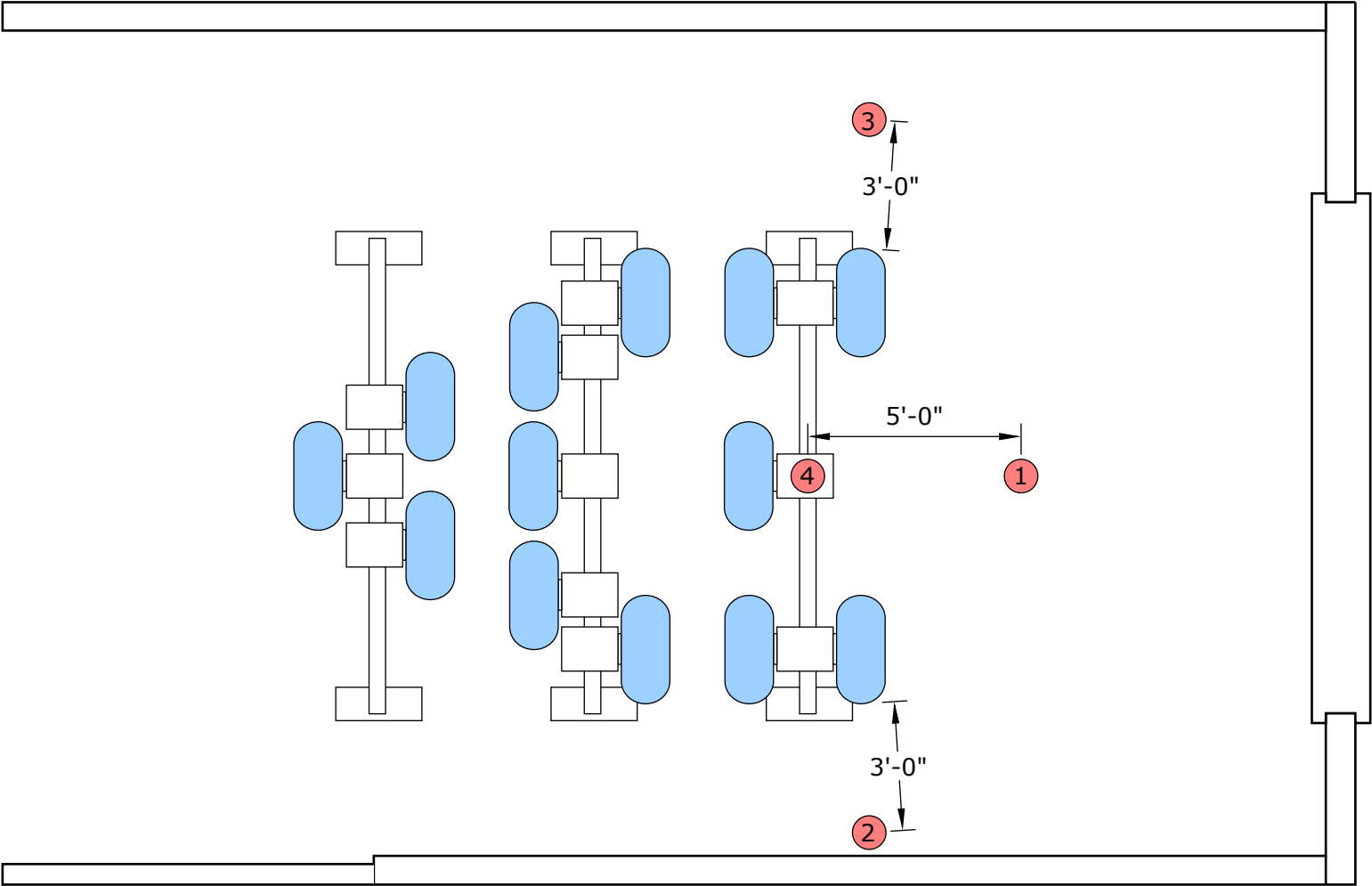
- ASTM C 665 Non-Corrosive Type I
- ASTM C 612 1A, 1B, II, III
- ASTM E 136 Rated Non-combustible per NFPA Standard 220
- ASTM C 1104 Absorption less than 1% by volume
- ASTM C 356 Linear shrinkage <2% @ 1200°F (650°C)



6900 Interbay Blvd  
Tampa, Florida USA 33616  
Telephone: (813)980-1440  
[www.Acoustiblok.com](http://www.Acoustiblok.com)  
[sales@acoustiblok.com](mailto:sales@acoustiblok.com)

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|  |                       |
|--|-----------------------|
|  | Key                   |
|  | Tech 21               |
|  | Measurement locations |



| Location | Scenario            | Distance from Blower   | Overall dBA | 1/3 Octave Band |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |       |
|----------|---------------------|------------------------|-------------|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
|          |                     |                        |             | 40              | 50   | 63   | 80   | 100  | 125  | 160  | 200  | 250  | 315  | 400  | 500  | 630  | 800  | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | 6300 | 8000 | 10000 | 12500 | 16000 | 20000 |
| 1        | All Tech 21 Blowers | 5'                     | 98.7        | 45.3            | 51.1 | 56.9 | 63.5 | 68.1 | 67.9 | 69.8 | 74.4 | 80.3 | 81.4 | 86.6 | 89.5 | 90   | 88.3 | 88.9 | 88.9 | 87.6 | 87.5 | 85.9 | 85.1 | 83.7 | 82.9 | 81   | 77.7 | 73    | 67.8  | 61.9  | 55.4  |
| 2        | All Tech 21 Blowers | 3' Left of Blowers     | 99.1        | 46.6            | 51.3 | 62.7 | 64.9 | 65   | 64.4 | 66.4 | 72.9 | 80.5 | 82.2 | 86.7 | 89.1 | 89.9 | 88.9 | 89.7 | 89.4 | 88.2 | 88.6 | 86.9 | 86   | 84.2 | 83.1 | 81.6 | 78.5 | 73.2  | 67.5  | 60.9  | 53.5  |
| 3        | All Tech 21 Blowers | 3' Right of Blowers    | 98.6        | 47.7            | 49.7 | 58.8 | 64.3 | 62.9 | 64.9 | 68.4 | 75.4 | 80.8 | 81   | 87.6 | 90   | 89.5 | 88.1 | 89.1 | 88.5 | 87.5 | 87.4 | 85.2 | 84   | 82.9 | 82.2 | 80.5 | 76.8 | 71.6  | 65.9  | 59.3  | 51.5  |
| 4        | All Tech 21 Blowers | Directly Below Blowers | 103.3       | 50.3            | 54.1 | 60.1 | 66.4 | 68.8 | 71.7 | 74.1 | 77.8 | 82.4 | 83.5 | 91.1 | 94.8 | 94.3 | 92.4 | 93.7 | 93.2 | 92.3 | 92.1 | 90.7 | 89.4 | 88.4 | 88.3 | 86.9 | 83.5 | 79.1  | 74.2  | 69.1  | 63.6  |

**Project:** SuperStar Car Wash Chula Vista  
**Site Location:** 1555 W Warner Rd, Gilbert, AZ 85233  
**Date:** 4/5/2018  
**Field Tech/Engineer:** Robert Pearson  
**Source/System:** Vacutec System

**Location:** Vac Bay 1  
**Sound Meter:** NTi XL2 **SN:** A2A-05967-E0  
**Settings:** Z-weighted, slow, 1-sec, 10-sec duration  
**Meteorological Cond.:** 80 degrees F, 2 mph wind

**Site Observations:**

Clear sky, measurements were performed within 1.5ft of source. Measurements were performed while the vacuum was positioned at threee (3) different positions. Holstered, unholstered and inside a car. This data is utilized for acoustic modeling purposes and represents an average sound level at a vacuum station.

**Table 1: Summary Measurement Data**

| Source                 | System | Overall<br>dB(A) | 3rd Octave Band Data (dBA) |    |      |    |    |    |    |     |     |     |     |     |     |     |     |     |     |    |       |      |    |      |       |    |    |      |    |     |       |     |     |
|------------------------|--------|------------------|----------------------------|----|------|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-------|------|----|------|-------|----|----|------|----|-----|-------|-----|-----|
|                        |        |                  | 20                         | 25 | 31.5 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1K | 1.25K | 1.6K | 2K | 2.5K | 3.15K | 4K | 5K | 6.3K | 8K | 10K | 12.5K | 16K | 20K |
| Vacutec (Holstered)    | Vacuum | 63.3             | 9                          | 17 | 22   | 29 | 31 | 35 | 40 | 41  | 44  | 43  | 46  | 48  | 47  | 49  | 51  | 51  | 51  | 52 | 53    | 52   | 52 | 50   | 52    | 53 | 50 | 47   | 47 | 48  | 45    | 39  | 30  |
| Vacutec (Un Holstered) | Vacuum | 80.7             | 6                          | 19 | 22   | 28 | 34 | 37 | 40 | 43  | 47  | 46  | 48  | 48  | 48  | 49  | 54  | 55  | 58  | 62 | 65    | 68   | 70 | 74   | 75    | 73 | 69 | 67   | 65 | 63  | 60    | 55  |     |
| Vacutec (Inside Car)   | Vacuum | 69.6             | 16                         | 28 | 31   | 38 | 42 | 45 | 49 | 51  | 52  | 55  | 60  | 61  | 57  | 55  | 59  | 53  | 55  | 56 | 54    | 57   | 57 | 57   | 57    | 55 | 54 | 51   | 48 | 46  | 42    | 36  |     |
| Arth. Average Level*   | Vacuum | 71.2             | 11                         | 21 | 25   | 32 | 36 | 39 | 43 | 45  | 47  | 48  | 52  | 53  | 51  | 51  | 55  | 53  | 55  | 55 | 56    | 58   | 59 | 59   | 61    | 62 | 59 | 56   | 55 | 53  | 51    | 47  | 40  |

\* Refers to the arithmetic average of all measurements. This measurement represents an average of the multiple vacuum positions.

**Figure 1: Example Measurement Position**

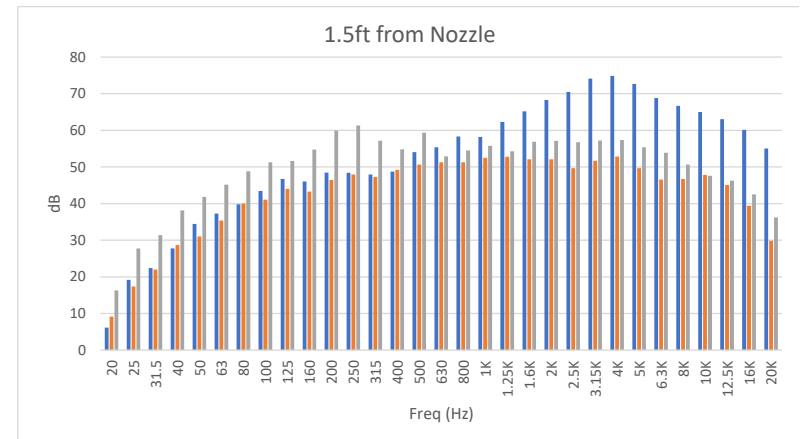
**Figure 1: Holstered**



**Figure 2: Un Holstered**



**Figure 3: Inside Car**



**Appendix C**  
SoundPlan Inputs/Outputs

# Bullard & McDowell

## Octave spectra of the sources in dB(A) - Situation 3: Outdoor SP

3

| Name                 | Source type | I or A<br>m,m² | Li<br>dB(A) | R'w<br>dB | L'w<br>dB(A) | Lw<br>dB(A) | KI<br>dB | KT<br>dB | LwMax<br>dB(A) | DO-Wall<br>dB | Time histogram | Emission spectrum        | 63Hz<br>dB(A) | 125Hz<br>dB(A) | 250Hz<br>dB(A) | 500Hz<br>dB(A) | 1kHz<br>dB(A) | 2kHz<br>dB(A) | 4kHz<br>dB(A) | 8kHz<br>dB(A) | 16kHz<br>dB(A) |
|----------------------|-------------|----------------|-------------|-----------|--------------|-------------|----------|----------|----------------|---------------|----------------|--------------------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|
| Facade 01            | Area        | 25.08          | 87.8        | 57.0      | 38.6         | 52.6        | 0.0      | 0.0      |                | 0             | 100%/24h       | 85_Facade 01_            |               | 46.5           | 50.2           | 44.7           | 35.6          | 23.1          | 9.6           |               |                |
| Facade 02            | Area        | 172.85         | 84.6        | 57.0      | 36.0         | 58.4        | 0.0      | 0.0      |                | 0             | 100%/24h       | 87_Facade 02_            |               | 53.4           | 55.6           | 49.4           | 40.3          | 27.8          | 14.5          |               |                |
| Facade 03            | Area        | 25.08          | 89.9        | 57.0      | 40.3         | 54.3        | 0.0      | 0.0      |                | 0             | 100%/24h       | 88_Facade 03_            |               | 47.6           | 51.9           | 46.8           | 38.1          | 26.0          | 13.1          |               |                |
| Facade 04            | Area        | 172.85         | 84.6        | 57.0      | 36.0         | 58.4        | 0.0      | 0.0      |                | 0             | 100%/24h       | 90_Facade 04_            |               | 53.4           | 55.6           | 49.4           | 40.3          | 27.8          | 14.5          |               |                |
| Roof 01              | Area        | 285.45         | 84.4        | 57.0      | 35.7         | 60.3        | 0.0      | 0.0      |                | 0             | 100%/24h       | 81_Roof 01_              |               | 55.1           | 57.6           | 51.5           | 42.3          | 29.7          | 16.3          |               |                |
| Transmissive area 01 | Area        | 8.37           | 87.9        | 0.0       | 87.9         | 97.1        | 0.0      | 0.0      |                | 3             | 100%/24h       | 86_Transmissive area 01_ |               | 85.8           | 91.5           | 91.9           | 91.9          | 83.4          | 72.9          |               |                |
| Transmissive area 01 | Area        | 8.37           | 90.2        | 0.0       | 90.2         | 99.4        | 0.0      | 0.0      |                | 3             | 100%/24h       | 89_Transmissive area 01_ |               | 86.6           | 93.3           | 94.3           | 94.6          | 86.5          | 76.6          |               |                |
| Transmissive area 07 | Area        | 20.57          | 89.1        | 57.0      | 39.7         | 52.9        | 0.0      | 0.0      |                | 3             | 100%/24h       | 91_Transmissive area 07_ |               | 46.7           | 50.4           | 45.0           | 36.3          | 24.2          | 11.4          |               |                |
| Transmissive area 07 | Area        | 20.57          | 89.1        | 57.0      | 39.7         | 52.8        | 0.0      | 0.0      |                | 3             | 100%/24h       | 92_Transmissive area 08_ |               | 46.6           | 50.3           | 45.0           | 36.3          | 24.1          | 11.3          |               |                |
| Transmissive area 09 | Area        | 33.98          | 91.1        | 57.0      | 41.3         | 56.6        | 0.0      | 0.0      |                | 0             | 100%/24h       | 93_Transmissive area 09_ |               | 49.5           | 54.3           | 49.4           | 40.8          | 28.7          | 16.0          |               |                |
| Vac 1                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 2                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 3                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 4                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 5                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 6                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 7                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 8                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 9                | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 10               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 11               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 12               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 13               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 14               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 15               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 16               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 17               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 18               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 19               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 20               | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'            | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |

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## Octave spectra of the sources in dB(A) - Situation 3: Outdoor SP

3

| Name   | Source type | I or A<br>m,m² | Li<br>dB(A) | R'w<br>dB | L'w<br>dB(A) | Lw<br>dB(A) | KI<br>dB | KT<br>dB | LwMax<br>dB(A) | DO-Wall<br>dB | Time histogram | Emission spectrum | 63Hz<br>dB(A) | 125Hz<br>dB(A) | 250Hz<br>dB(A) | 500Hz<br>dB(A) | 1kHz<br>dB(A) | 2kHz<br>dB(A) | 4kHz<br>dB(A) | 8kHz<br>dB(A) | 16kHz<br>dB(A) |
|--------|-------------|----------------|-------------|-----------|--------------|-------------|----------|----------|----------------|---------------|----------------|-------------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|----------------|
| Vac 21 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 22 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 23 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 24 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 25 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 26 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 27 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |
| Vac 28 | Point       |                |             |           | 73.0         | 73.0        | 0.0      | 0.0      |                | 0             | 100%/24h       | Vacutech - 3'     | 57.6          | 53.6           | 52.3           | 57.7           | 61.7          | 67.7          | 69.0          | 62.6          | 60.6           |

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## Contribution level - Situation 3: Outdoor SP

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| Source               | Source group             | Source ty    | Tr. lane         | Leq,d<br>dB(A) | A<br>dB   |  |
|----------------------|--------------------------|--------------|------------------|----------------|-----------|--|
| Receiver Receiver 1  | FI G                     | Lr,lim dB(A) | Leq,d 54.2 dB(A) | Sigma(Leq,d)   | 0.0 dB(A) |  |
| Vac 1                | Default industrial noise | Point        |                  | 24.2           | 0.0       |  |
| Vac 2                | Default industrial noise | Point        |                  | 11.4           | 0.0       |  |
| Vac 3                | Default industrial noise | Point        |                  | 7.1            | 0.0       |  |
| Vac 4                | Default industrial noise | Point        |                  | 6.2            | 0.0       |  |
| Vac 5                | Default industrial noise | Point        |                  | 5.7            | 0.0       |  |
| Vac 6                | Default industrial noise | Point        |                  | 5.4            | 0.0       |  |
| Vac 7                | Default industrial noise | Point        |                  | 5.1            | 0.0       |  |
| Vac 8                | Default industrial noise | Point        |                  | 4.9            | 0.0       |  |
| Vac 9                | Default industrial noise | Point        |                  | 4.7            | 0.0       |  |
| Vac 10               | Default industrial noise | Point        |                  | 10.2           | 0.0       |  |
| Vac 11               | Default industrial noise | Point        |                  | 10.5           | 0.0       |  |
| Vac 12               | Default industrial noise | Point        |                  | 11.7           | 0.0       |  |
| Vac 13               | Default industrial noise | Point        |                  | 13.7           | 0.0       |  |
| Vac 14               | Default industrial noise | Point        |                  | 13.7           | 0.0       |  |
| Vac 15               | Default industrial noise | Point        |                  | 21.4           | 0.0       |  |
| Vac 16               | Default industrial noise | Point        |                  | 21.0           | 0.0       |  |
| Vac 17               | Default industrial noise | Point        |                  | 21.8           | 0.0       |  |
| Vac 18               | Default industrial noise | Point        |                  | 14.4           | 0.0       |  |
| Vac 19               | Default industrial noise | Point        |                  | 10.0           | 0.0       |  |
| Vac 20               | Default industrial noise | Point        |                  | 8.5            | 0.0       |  |
| Vac 21               | Default industrial noise | Point        |                  | 8.0            | 0.0       |  |
| Vac 22               | Default industrial noise | Point        |                  | 7.5            | 0.0       |  |
| Vac 23               | Default industrial noise | Point        |                  | 7.1            | 0.0       |  |
| Vac 24               | Default industrial noise | Point        |                  | 6.9            | 0.0       |  |
| Vac 25               | Default industrial noise | Point        |                  | 7.0            | 0.0       |  |
| Vac 26               | Default industrial noise | Point        |                  | 7.3            | 0.0       |  |
| Vac 27               | Default industrial noise | Point        |                  | 8.3            | 0.0       |  |
| Vac 28               | Default industrial noise | Point        |                  | 9.3            | 0.0       |  |
| Roof 01              | Default industrial noise | Area         |                  | 9.7            | 0.0       |  |
| Transmissive area 09 | Default industrial noise | Area         |                  | 5.3            | 0.0       |  |
| Facade 01            | Default industrial noise | Area         |                  | -6.0           | 0.0       |  |
| Transmissive area 01 | Default industrial noise | Area         |                  | 37.0           | 0.0       |  |
| Facade 02            | Default industrial noise | Area         |                  | 0.3            | 0.0       |  |
| Transmissive area 07 | Default industrial noise | Area         |                  | -2.4           | 0.0       |  |
| Facade 03            | Default industrial noise | Area         |                  | 5.4            | 0.0       |  |
| Transmissive area 01 | Default industrial noise | Area         |                  | 54.1           | 0.0       |  |
| Facade 04            | Default industrial noise | Area         |                  | 9.1            | 0.0       |  |
| Transmissive area 07 | Default industrial noise | Area         |                  | 7.4            | 0.0       |  |
| Receiver Receiver 2  | FI G                     | Lr,lim dB(A) | Leq,d 51.9 dB(A) | Sigma(Leq,d)   | 0.0 dB(A) |  |
| Vac 1                | Default industrial noise | Point        |                  | 6.2            | 0.0       |  |
| Vac 2                | Default industrial noise | Point        |                  | 4.8            | 0.0       |  |
| Vac 3                | Default industrial noise | Point        |                  | 4.6            | 0.0       |  |
| Vac 4                | Default industrial noise | Point        |                  | 4.6            | 0.0       |  |

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**Contribution level - Situation 3: Outdoor SP**

**9**

| Source                                                                        | Source group             | Source ty | Tr. lane | Leq,d<br>dB(A) | A<br>dB |  |
|-------------------------------------------------------------------------------|--------------------------|-----------|----------|----------------|---------|--|
| Vac 5                                                                         | Default industrial noise | Point     |          | 4.7            | 0.0     |  |
| Vac 6                                                                         | Default industrial noise | Point     |          | 5.0            | 0.0     |  |
| Vac 7                                                                         | Default industrial noise | Point     |          | 5.1            | 0.0     |  |
| Vac 8                                                                         | Default industrial noise | Point     |          | 5.5            | 0.0     |  |
| Vac 9                                                                         | Default industrial noise | Point     |          | 6.2            | 0.0     |  |
| Vac 10                                                                        | Default industrial noise | Point     |          | 13.3           | 0.0     |  |
| Vac 11                                                                        | Default industrial noise | Point     |          | 15.8           | 0.0     |  |
| Vac 12                                                                        | Default industrial noise | Point     |          | 24.9           | 0.0     |  |
| Vac 13                                                                        | Default industrial noise | Point     |          | 24.6           | 0.0     |  |
| Vac 14                                                                        | Default industrial noise | Point     |          | 24.6           | 0.0     |  |
| Vac 15                                                                        | Default industrial noise | Point     |          | 24.4           | 0.0     |  |
| Vac 16                                                                        | Default industrial noise | Point     |          | 24.6           | 0.0     |  |
| Vac 17                                                                        | Default industrial noise | Point     |          | 11.4           | 0.0     |  |
| Vac 18                                                                        | Default industrial noise | Point     |          | 11.5           | 0.0     |  |
| Vac 19                                                                        | Default industrial noise | Point     |          | 11.7           | 0.0     |  |
| Vac 20                                                                        | Default industrial noise | Point     |          | 11.9           | 0.0     |  |
| Vac 21                                                                        | Default industrial noise | Point     |          | 12.0           | 0.0     |  |
| Vac 22                                                                        | Default industrial noise | Point     |          | 12.2           | 0.0     |  |
| Vac 23                                                                        | Default industrial noise | Point     |          | 12.6           | 0.0     |  |
| Vac 24                                                                        | Default industrial noise | Point     |          | 13.0           | 0.0     |  |
| Vac 25                                                                        | Default industrial noise | Point     |          | 22.2           | 0.0     |  |
| Vac 26                                                                        | Default industrial noise | Point     |          | 22.3           | 0.0     |  |
| Vac 27                                                                        | Default industrial noise | Point     |          | 21.8           | 0.0     |  |
| Vac 28                                                                        | Default industrial noise | Point     |          | 21.8           | 0.0     |  |
| Roof 01                                                                       | Default industrial noise | Area      |          | 9.5            | 0.0     |  |
| Transmissive area 09                                                          | Default industrial noise | Area      |          | 4.4            | 0.0     |  |
| Facade 01                                                                     | Default industrial noise | Area      |          | 3.6            | 0.0     |  |
| Transmissive area 01                                                          | Default industrial noise | Area      |          | 51.6           | 0.0     |  |
| Facade 02                                                                     | Default industrial noise | Area      |          | 0.3            | 0.0     |  |
| Transmissive area 07                                                          | Default industrial noise | Area      |          | -6.4           | 0.0     |  |
| Facade 03                                                                     | Default industrial noise | Area      |          | -4.9           | 0.0     |  |
| Transmissive area 01                                                          | Default industrial noise | Area      |          | 38.1           | 0.0     |  |
| Facade 04                                                                     | Default industrial noise | Area      |          | 9.1            | 0.0     |  |
| Transmissive area 07                                                          | Default industrial noise | Area      |          | 4.5            | 0.0     |  |
| Receiver Receiver 3 Fl G Lr,lim dB(A) Leq,d 48.4 dB(A) Sigma(Leq,d) 0.0 dB(A) |                          |           |          |                |         |  |
| Vac 1                                                                         | Default industrial noise | Point     |          | 5.1            | 0.0     |  |
| Vac 2                                                                         | Default industrial noise | Point     |          | 5.3            | 0.0     |  |
| Vac 3                                                                         | Default industrial noise | Point     |          | 5.7            | 0.0     |  |
| Vac 4                                                                         | Default industrial noise | Point     |          | 6.1            | 0.0     |  |
| Vac 5                                                                         | Default industrial noise | Point     |          | 6.6            | 0.0     |  |
| Vac 6                                                                         | Default industrial noise | Point     |          | 7.3            | 0.0     |  |
| Vac 7                                                                         | Default industrial noise | Point     |          | 8.0            | 0.0     |  |
| Vac 8                                                                         | Default industrial noise | Point     |          | 9.2            | 0.0     |  |
| Vac 9                                                                         | Default industrial noise | Point     |          | 13.3           | 0.0     |  |
| Vac 10                                                                        | Default industrial noise | Point     |          | 20.0           | 0.0     |  |

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**Contribution level - Situation 3: Outdoor SP**

**9**

| Source                                                                         | Source group             | Source ty | Tr. lane | Leq,d<br>dB(A) | A<br>dB |  |
|--------------------------------------------------------------------------------|--------------------------|-----------|----------|----------------|---------|--|
| Vac 11                                                                         | Default industrial noise | Point     |          | 20.4           | 0.0     |  |
| Vac 12                                                                         | Default industrial noise | Point     |          | 20.8           | 0.0     |  |
| Vac 13                                                                         | Default industrial noise | Point     |          | 22.8           | 0.0     |  |
| Vac 14                                                                         | Default industrial noise | Point     |          | 23.0           | 0.0     |  |
| Vac 15                                                                         | Default industrial noise | Point     |          | 22.1           | 0.0     |  |
| Vac 16                                                                         | Default industrial noise | Point     |          | 23.6           | 0.0     |  |
| Vac 17                                                                         | Default industrial noise | Point     |          | 16.7           | 0.0     |  |
| Vac 18                                                                         | Default industrial noise | Point     |          | 16.9           | 0.0     |  |
| Vac 19                                                                         | Default industrial noise | Point     |          | 17.2           | 0.0     |  |
| Vac 20                                                                         | Default industrial noise | Point     |          | 17.5           | 0.0     |  |
| Vac 21                                                                         | Default industrial noise | Point     |          | 17.8           | 0.0     |  |
| Vac 22                                                                         | Default industrial noise | Point     |          | 18.1           | 0.0     |  |
| Vac 23                                                                         | Default industrial noise | Point     |          | 18.4           | 0.0     |  |
| Vac 24                                                                         | Default industrial noise | Point     |          | 18.7           | 0.0     |  |
| Vac 25                                                                         | Default industrial noise | Point     |          | 20.3           | 0.0     |  |
| Vac 26                                                                         | Default industrial noise | Point     |          | 20.6           | 0.0     |  |
| Vac 27                                                                         | Default industrial noise | Point     |          | 21.0           | 0.0     |  |
| Vac 28                                                                         | Default industrial noise | Point     |          | 21.3           | 0.0     |  |
| Roof 01                                                                        | Default industrial noise | Area      |          | 4.6            | 0.0     |  |
| Transmissive area 09                                                           | Default industrial noise | Area      |          | -0.3           | 0.0     |  |
| Facade 01                                                                      | Default industrial noise | Area      |          | 0.9            | 0.0     |  |
| Transmissive area 01                                                           | Default industrial noise | Area      |          | 48.1           | 0.0     |  |
| Facade 02                                                                      | Default industrial noise | Area      |          | 0.2            | 0.0     |  |
| Transmissive area 07                                                           | Default industrial noise | Area      |          | -6.1           | 0.0     |  |
| Facade 03                                                                      | Default industrial noise | Area      |          | -9.8           | 0.0     |  |
| Transmissive area 01                                                           | Default industrial noise | Area      |          | 33.3           | 0.0     |  |
| Facade 04                                                                      | Default industrial noise | Area      |          | 5.1            | 0.0     |  |
| Transmissive area 07                                                           | Default industrial noise | Area      |          | 0.8            | 0.0     |  |
| Receiver Receiver 3 FI F2 Lr,lim dB(A) Leq,d 48.5 dB(A) Sigma(Leq,d) 0.0 dB(A) |                          |           |          |                |         |  |
| Vac 1                                                                          | Default industrial noise | Point     |          | 5.2            | 0.0     |  |
| Vac 2                                                                          | Default industrial noise | Point     |          | 5.5            | 0.0     |  |
| Vac 3                                                                          | Default industrial noise | Point     |          | 5.8            | 0.0     |  |
| Vac 4                                                                          | Default industrial noise | Point     |          | 6.2            | 0.0     |  |
| Vac 5                                                                          | Default industrial noise | Point     |          | 6.7            | 0.0     |  |
| Vac 6                                                                          | Default industrial noise | Point     |          | 7.4            | 0.0     |  |
| Vac 7                                                                          | Default industrial noise | Point     |          | 8.0            | 0.0     |  |
| Vac 8                                                                          | Default industrial noise | Point     |          | 9.3            | 0.0     |  |
| Vac 9                                                                          | Default industrial noise | Point     |          | 13.3           | 0.0     |  |
| Vac 10                                                                         | Default industrial noise | Point     |          | 20.0           | 0.0     |  |
| Vac 11                                                                         | Default industrial noise | Point     |          | 20.4           | 0.0     |  |
| Vac 12                                                                         | Default industrial noise | Point     |          | 20.8           | 0.0     |  |
| Vac 13                                                                         | Default industrial noise | Point     |          | 22.8           | 0.0     |  |
| Vac 14                                                                         | Default industrial noise | Point     |          | 23.0           | 0.0     |  |
| Vac 15                                                                         | Default industrial noise | Point     |          | 22.1           | 0.0     |  |
| Vac 16                                                                         | Default industrial noise | Point     |          | 23.6           | 0.0     |  |

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# Bullard & McDowell

## Contribution level - Situation 3: Outdoor SP

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| Source                                                                        | Source group             | Source ty | Tr. lane | Leq,d<br>dB(A) | A<br>dB |  |
|-------------------------------------------------------------------------------|--------------------------|-----------|----------|----------------|---------|--|
| Vac 17                                                                        | Default industrial noise | Point     |          | 16.7           | 0.0     |  |
| Vac 18                                                                        | Default industrial noise | Point     |          | 16.9           | 0.0     |  |
| Vac 19                                                                        | Default industrial noise | Point     |          | 17.2           | 0.0     |  |
| Vac 20                                                                        | Default industrial noise | Point     |          | 17.5           | 0.0     |  |
| Vac 21                                                                        | Default industrial noise | Point     |          | 17.8           | 0.0     |  |
| Vac 22                                                                        | Default industrial noise | Point     |          | 18.1           | 0.0     |  |
| Vac 23                                                                        | Default industrial noise | Point     |          | 18.4           | 0.0     |  |
| Vac 24                                                                        | Default industrial noise | Point     |          | 18.7           | 0.0     |  |
| Vac 25                                                                        | Default industrial noise | Point     |          | 20.3           | 0.0     |  |
| Vac 26                                                                        | Default industrial noise | Point     |          | 20.6           | 0.0     |  |
| Vac 27                                                                        | Default industrial noise | Point     |          | 21.0           | 0.0     |  |
| Vac 28                                                                        | Default industrial noise | Point     |          | 21.3           | 0.0     |  |
| Roof 01                                                                       | Default industrial noise | Area      |          | 4.8            | 0.0     |  |
| Transmissive area 09                                                          | Default industrial noise | Area      |          | 0.1            | 0.0     |  |
| Facade 01                                                                     | Default industrial noise | Area      |          | 1.1            | 0.0     |  |
| Transmissive area 01                                                          | Default industrial noise | Area      |          | 48.2           | 0.0     |  |
| Facade 02                                                                     | Default industrial noise | Area      |          | 0.8            | 0.0     |  |
| Transmissive area 07                                                          | Default industrial noise | Area      |          | -5.1           | 0.0     |  |
| Facade 03                                                                     | Default industrial noise | Area      |          | -9.6           | 0.0     |  |
| Transmissive area 01                                                          | Default industrial noise | Area      |          | 33.5           | 0.0     |  |
| Facade 04                                                                     | Default industrial noise | Area      |          | 5.4            | 0.0     |  |
| Transmissive area 07                                                          | Default industrial noise | Area      |          | 1.0            | 0.0     |  |
| Receiver Receiver 4 FI G Lr,lim dB(A) Leq,d 46.4 dB(A) Sigma(Leq,d) 0.0 dB(A) |                          |           |          |                |         |  |
| Vac 1                                                                         | Default industrial noise | Point     |          | 17.3           | 0.0     |  |
| Vac 2                                                                         | Default industrial noise | Point     |          | 19.6           | 0.0     |  |
| Vac 3                                                                         | Default industrial noise | Point     |          | 19.6           | 0.0     |  |
| Vac 4                                                                         | Default industrial noise | Point     |          | 19.6           | 0.0     |  |
| Vac 5                                                                         | Default industrial noise | Point     |          | 19.6           | 0.0     |  |
| Vac 6                                                                         | Default industrial noise | Point     |          | 19.6           | 0.0     |  |
| Vac 7                                                                         | Default industrial noise | Point     |          | 19.6           | 0.0     |  |
| Vac 8                                                                         | Default industrial noise | Point     |          | 19.5           | 0.0     |  |
| Vac 9                                                                         | Default industrial noise | Point     |          | 19.5           | 0.0     |  |
| Vac 10                                                                        | Default industrial noise | Point     |          | 19.4           | 0.0     |  |
| Vac 11                                                                        | Default industrial noise | Point     |          | 17.0           | 0.0     |  |
| Vac 12                                                                        | Default industrial noise | Point     |          | 16.9           | 0.0     |  |
| Vac 13                                                                        | Default industrial noise | Point     |          | 16.8           | 0.0     |  |
| Vac 14                                                                        | Default industrial noise | Point     |          | 16.8           | 0.0     |  |
| Vac 15                                                                        | Default industrial noise | Point     |          | 16.7           | 0.0     |  |
| Vac 16                                                                        | Default industrial noise | Point     |          | 16.6           | 0.0     |  |
| Vac 17                                                                        | Default industrial noise | Point     |          | 19.7           | 0.0     |  |
| Vac 18                                                                        | Default industrial noise | Point     |          | 19.9           | 0.0     |  |
| Vac 19                                                                        | Default industrial noise | Point     |          | 19.8           | 0.0     |  |
| Vac 20                                                                        | Default industrial noise | Point     |          | 19.8           | 0.0     |  |
| Vac 21                                                                        | Default industrial noise | Point     |          | 19.8           | 0.0     |  |
| Vac 22                                                                        | Default industrial noise | Point     |          | 19.8           | 0.0     |  |

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# Bullard & McDowell

## Contribution level - Situation 3: Outdoor SP

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| Source                                                                        | Source group             | Source ty | Tr. lane | Leq,d<br>dB(A) | A<br>dB |  |
|-------------------------------------------------------------------------------|--------------------------|-----------|----------|----------------|---------|--|
| Vac 23                                                                        | Default industrial noise | Point     |          | 19.7           | 0.0     |  |
| Vac 24                                                                        | Default industrial noise | Point     |          | 19.7           | 0.0     |  |
| Vac 25                                                                        | Default industrial noise | Point     |          | 18.8           | 0.0     |  |
| Vac 26                                                                        | Default industrial noise | Point     |          | 17.8           | 0.0     |  |
| Vac 27                                                                        | Default industrial noise | Point     |          | 17.7           | 0.0     |  |
| Vac 28                                                                        | Default industrial noise | Point     |          | 17.6           | 0.0     |  |
| Roof 01                                                                       | Default industrial noise | Area      |          | -3.9           | 0.0     |  |
| Transmissive area 09                                                          | Default industrial noise | Area      |          | -4.3           | 0.0     |  |
| Facade 01                                                                     | Default industrial noise | Area      |          | -11.2          | 0.0     |  |
| Transmissive area 01                                                          | Default industrial noise | Area      |          | 33.8           | 0.0     |  |
| Facade 02                                                                     | Default industrial noise | Area      |          | -9.1           | 0.0     |  |
| Transmissive area 07                                                          | Default industrial noise | Area      |          | -3.3           | 0.0     |  |
| Facade 03                                                                     | Default industrial noise | Area      |          | -4.0           | 0.0     |  |
| Transmissive area 01                                                          | Default industrial noise | Area      |          | 45.9           | 0.0     |  |
| Facade 04                                                                     | Default industrial noise | Area      |          | -12.3          | 0.0     |  |
| Transmissive area 07                                                          | Default industrial noise | Area      |          | -12.6          | 0.0     |  |
| Receiver Receiver 5 Fl G Lr,lim dB(A) Leq,d 53.1 dB(A) Sigma(Leq,d) 0.0 dB(A) |                          |           |          |                |         |  |
| Vac 1                                                                         | Default industrial noise | Point     |          | 24.5           | 0.0     |  |
| Vac 2                                                                         | Default industrial noise | Point     |          | 23.9           | 0.0     |  |
| Vac 3                                                                         | Default industrial noise | Point     |          | 23.4           | 0.0     |  |
| Vac 4                                                                         | Default industrial noise | Point     |          | 22.9           | 0.0     |  |
| Vac 5                                                                         | Default industrial noise | Point     |          | 22.4           | 0.0     |  |
| Vac 6                                                                         | Default industrial noise | Point     |          | 22.0           | 0.0     |  |
| Vac 7                                                                         | Default industrial noise | Point     |          | 21.5           | 0.0     |  |
| Vac 8                                                                         | Default industrial noise | Point     |          | 16.9           | 0.0     |  |
| Vac 9                                                                         | Default industrial noise | Point     |          | 15.6           | 0.0     |  |
| Vac 10                                                                        | Default industrial noise | Point     |          | 14.9           | 0.0     |  |
| Vac 11                                                                        | Default industrial noise | Point     |          | 14.0           | 0.0     |  |
| Vac 12                                                                        | Default industrial noise | Point     |          | 13.4           | 0.0     |  |
| Vac 13                                                                        | Default industrial noise | Point     |          | 12.8           | 0.0     |  |
| Vac 14                                                                        | Default industrial noise | Point     |          | 12.6           | 0.0     |  |
| Vac 15                                                                        | Default industrial noise | Point     |          | 12.3           | 0.0     |  |
| Vac 16                                                                        | Default industrial noise | Point     |          | 11.5           | 0.0     |  |
| Vac 17                                                                        | Default industrial noise | Point     |          | 23.7           | 0.0     |  |
| Vac 18                                                                        | Default industrial noise | Point     |          | 23.2           | 0.0     |  |
| Vac 19                                                                        | Default industrial noise | Point     |          | 22.8           | 0.0     |  |
| Vac 20                                                                        | Default industrial noise | Point     |          | 22.3           | 0.0     |  |
| Vac 21                                                                        | Default industrial noise | Point     |          | 21.9           | 0.0     |  |
| Vac 22                                                                        | Default industrial noise | Point     |          | 21.5           | 0.0     |  |
| Vac 23                                                                        | Default industrial noise | Point     |          | 21.1           | 0.0     |  |
| Vac 24                                                                        | Default industrial noise | Point     |          | 20.7           | 0.0     |  |
| Vac 25                                                                        | Default industrial noise | Point     |          | 19.1           | 0.0     |  |
| Vac 26                                                                        | Default industrial noise | Point     |          | 18.8           | 0.0     |  |
| Vac 27                                                                        | Default industrial noise | Point     |          | 18.5           | 0.0     |  |
| Vac 28                                                                        | Default industrial noise | Point     |          | 18.2           | 0.0     |  |

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**Bullard & McDowell**  
**Contribution level - Situation 3: Outdoor SP**

**9**

| Source               | Source group             | Source ty | Tr. lane | Leq,d<br>dB(A) | A<br>dB |  |
|----------------------|--------------------------|-----------|----------|----------------|---------|--|
| Roof 01              | Default industrial noise | Area      |          | 5.3            | 0.0     |  |
| Transmissive area 09 | Default industrial noise | Area      |          | 3.7            | 0.0     |  |
| Facade 01            | Default industrial noise | Area      |          | -13.2          | 0.0     |  |
| Transmissive area 01 | Default industrial noise | Area      |          | 28.4           | 0.0     |  |
| Facade 02            | Default industrial noise | Area      |          | 1.9            | 0.0     |  |
| Transmissive area 07 | Default industrial noise | Area      |          | 2.2            | 0.0     |  |
| Facade 03            | Default industrial noise | Area      |          | 4.2            | 0.0     |  |
| Transmissive area 01 | Default industrial noise | Area      |          | 53.0           | 0.0     |  |
| Facade 04            | Default industrial noise | Area      |          | 1.5            | 0.0     |  |
| Transmissive area 07 | Default industrial noise | Area      |          | 1.8            | 0.0     |  |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source               | Time slice | Sum   | 25Hz   | 31.5Hz | 40Hz  | 50Hz             | 63Hz  | 80Hz                   | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|----------------------|------------|-------|--------|--------|-------|------------------|-------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                      |            | dB(A) | dB(A)  | dB(A)  | dB(A) | dB(A)            | dB(A) | dB(A)                  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Receiver Receiver 1  |            | FI G  | Lr,lim | dB(A)  |       | Leq,d 54.2 dB(A) |       | Sigma(Leq,d) 0.0 dB(A) |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Facade 01            | Leq,d      | -6.0  |        |        |       |                  |       |                        |       | -9.2  |       |       | -9.7  |       |       | -17.0 |       |       | -26.9 |         |        | -36.0 |        |         | -54.7 |       |        |       |       |
| Facade 02            | Leq,d      | 0.3   |        |        |       |                  |       |                        |       | -2.3  |       |       | -3.6  |       |       | -13.4 |       |       | -24.7 |         |        | -39.1 |        |         | -55.3 |       |        |       |       |
| Facade 03            | Leq,d      | 5.4   |        |        |       |                  |       |                        |       | 1.1   |       |       | 1.4   |       |       | -1.9  |       |       | -8.3  |         |        | -20.2 |        |         | -34.5 |       |        |       |       |
| Facade 04            | Leq,d      | 9.1   |        |        |       |                  |       |                        |       | 6.3   |       |       | 4.3   |       |       | -0.2  |       |       | -6.6  |         |        | -18.8 |        |         | -33.7 |       |        |       |       |
| Roof 01              | Leq,d      | 9.7   |        |        |       |                  |       |                        |       | 4.7   |       |       | 7.1   |       |       | 0.9   |       |       | -7.7  |         |        | -20.5 |        |         | -36.0 |       |        |       |       |
| Transmissive area 01 | Leq,d      | 37.0  |        |        |       |                  |       |                        |       | 31.9  |       |       | 31.1  |       |       | 29.1  |       |       | 29.2  |         |        | 26.8  |        |         | 11.0  |       |        |       |       |
| Transmissive area 01 | Leq,d      | 54.1  |        |        |       |                  |       |                        |       | 43.4  |       |       | 44.7  |       |       | 47.2  |       |       | 51.2  |         |        | 43.3  |        |         | 32.0  |       |        |       |       |
| Transmissive area 07 | Leq,d      | -2.4  |        |        |       |                  |       |                        |       | -5.4  |       |       | -6.2  |       |       | -14.1 |       |       | -24.0 |         |        | -38.3 |        |         | -54.5 |       |        |       |       |
| Transmissive area 07 | Leq,d      | 7.4   |        |        |       |                  |       |                        |       | 3.7   |       |       | 3.2   |       |       | -0.5  |       |       | -6.6  |         |        | -18.4 |        |         | -32.7 |       |        |       |       |
| Transmissive area 09 | Leq,d      | 5.3   |        |        |       |                  |       |                        |       | -1.6  |       |       | 3.0   |       |       | -2.0  |       |       | -9.8  |         |        | -22.0 |        |         | -36.6 |       |        |       |       |
| Vac 1                | Leq,d      | 24.2  | -5.9   | 1.3    | 4.8   | 7.9              | 9.2   | 5.1                    | 2.0   | 1.6   | -0.5  | -7.6  | -5.3  | -4.9  | -1.6  | 2.0   | 3.3   | 7.8   | 6.3   | 11.7    | 14.1   | 14.8  | 16.4   | 17.1    | 14.4  | 12.6  | 8.2    | -0.5  | -3.6  |
| Vac 2                | Leq,d      | 11.4  | -8.9   | -1.9   | 1.2   | 4.0              | 4.8   | 0.2                    | -3.5  | -4.6  | -7.4  | -12.5 | -11.2 | -12.0 | -11.0 | -8.5  | -8.3  | -5.9  | -8.3  | -3.9    | -2.5   | -2.7  | -2.1   | -2.3    | -5.7  | -8.1  | -13.1  | -22.4 | -26.0 |
| Vac 3                | Leq,d      | 7.1   | -11.4  | -4.8   | -2.0  | 0.4              | 0.9   | -4.1                   | -8.1  | -9.4  | -12.6 | -17.4 | -16.3 | -17.2 | -16.9 | -14.7 | -14.9 | -13.8 | -16.3 | -11.4   | -9.2   | -8.9  | -7.6   | -7.2    | -10.1 | -12.0 | -16.6  | -25.5 | -28.7 |
| Vac 4                | Leq,d      | 6.2   | -12.2  | -5.6   | -3.0  | -0.6             | -0.2  | -5.2                   | -9.2  | -10.6 | -13.7 | -18.0 | -16.9 | -17.8 | -17.7 | -15.5 | -15.7 | -15.0 | -17.4 | -12.3   | -9.9   | -9.5  | -8.1   | -7.6    | -10.5 | -12.4 | -16.9  | -25.8 | -29.1 |
| Vac 5                | Leq,d      | 5.7   | -12.7  | -6.2   | -3.5  | -1.2             | -0.7  | -5.7                   | -9.8  | -11.2 | -14.3 | -18.3 | -17.2 | -18.1 | -18.0 | -15.9 | -16.1 | -15.6 | -17.9 | -12.8   | -10.3  | -9.8  | -8.4   | -7.9    | -10.8 | -12.7 | -17.2  | -26.2 | -29.4 |
| Vac 6                | Leq,d      | 5.4   | -13.1  | -6.5   | -3.8  | -1.5             | -1.0  | -6.1                   | -10.1 | -11.5 | -14.7 | -18.5 | -17.4 | -18.3 | -18.3 | -16.1 | -16.3 | -15.9 | -18.3 | -13.1   | -10.6  | -10.1 | -8.7   | -8.2    | -11.0 | -12.9 | -17.5  | -26.5 | -29.9 |
| Vac 7                | Leq,d      | 5.1   | -13.4  | -6.9   | -4.2  | -1.9             | -1.4  | -6.5                   | -10.5 | -11.9 | -15.1 | -18.9 | -17.7 | -18.7 | -18.7 | -16.5 | -16.8 | -16.4 | -18.5 | -13.0   | -10.8  | -10.3 | -8.9   | -8.4    | -11.2 | -13.2 | -17.8  | -26.8 | -30.3 |
| Vac 8                | Leq,d      | 4.9   | -13.6  | -7.0   | -4.4  | -2.0             | -1.6  | -6.6                   | -10.7 | -12.1 | -15.3 | -19.0 | -17.9 | -18.9 | -18.9 | -16.7 | -16.9 | -16.6 | -18.7 | -13.1   | -11.0  | -10.5 | -9.1   | -8.6    | -11.5 | -13.4 | -18.1  | -27.2 | -30.7 |
| Vac 9                | Leq,d      | 4.7   | -13.7  | -7.2   | -4.6  | -2.2             | -1.8  | -6.9                   | -11.0 | -12.4 | -15.6 | -19.4 | -18.3 | -19.2 | -19.3 | -17.1 | -17.3 | -16.9 | -19.0 | -12.8   | -10.7  | -10.4 | -9.1   | -8.7    | -11.7 | -13.8 | -18.5  | -27.7 | -31.4 |
| Vac 10               | Leq,d      | 10.2  | -13.6  | -7.0   | -4.4  | -2.1             | -1.7  | -6.7                   | -10.9 | -12.3 | -15.5 | -19.5 | -18.4 | -19.3 | -19.3 | -17.2 | -17.4 | -16.8 | -19.0 | -0.5    | 1.7    | 1.9   | 2.6    | 2.0     | -2.6  | -7.1  | -15.1  | -27.1 | -31.8 |
| Vac 11               | Leq,d      | 10.5  | -13.2  | -6.6   | -3.9  | -1.6             | -1.1  | -6.2                   | -10.3 | -11.7 | -14.9 | -19.4 | -18.4 | -19.3 | -19.2 | -17.1 | -17.3 | -16.4 | -18.6 | -0.4    | 1.9    | 2.0   | 2.8    | 2.2     | -2.4  | -6.9  | -15.0  | -27.2 | -32.3 |
| Vac 12               | Leq,d      | 11.7  | -11.4  | -4.5   | -1.5  | 1.2              | 1.9   | -2.8                   | -6.7  | -7.9  | -10.9 | -15.0 | -13.9 | -14.8 | -14.4 | -12.0 | -11.9 | -10.5 | -13.0 | 0.2     | 2.3    | 2.4   | 3.2    | 2.6     | -2.0  | -6.4  | -14.4  | -26.7 | -32.1 |
| Vac 13               | Leq,d      | 13.7  | -10.8  | -3.8   | -0.6  | 2.1              | 3.0   | -1.6                   | -5.4  | -6.4  | -9.3  | -14.0 | -12.8 | -13.5 | -12.8 | -10.3 | -10.1 | -7.9  | -10.3 | 2.6     | 4.8    | 4.9   | 5.6    | 5.0     | 0.3   | -4.2  | -12.4  | -25.2 | -31.2 |
| Vac 14               | Leq,d      | 13.8  | -10.3  | -3.2   | 0.2   | 3.2              | 4.3   | 0.0                    | -3.5  | -4.2  | -6.6  | -11.5 | -9.8  | -10.1 | -8.6  | -5.8  | -5.4  | -2.4  | -4.6  | 2.1     | 3.9    | 3.9   | 4.5    | 4.0     | -0.2  | -3.9  | -10.5  | -21.4 | -26.6 |
| Vac 15               | Leq,d      | 21.4  | -8.3   | -1.1   | 2.4   | 5.5              | 6.8   | 2.7                    | -0.7  | -1.1  | -3.1  | -10.9 | -8.6  | -8.2  | -4.6  | -1.1  | 0.2   | 5.1   | 3.7   | 9.1     | 11.8   | 12.4  | 13.8   | 14.2    | 11.2  | 9.0   | 3.9    | -5.9  | -10.3 |
| Vac 16               | Leq,d      | 21.0  | -8.4   | -1.2   | 2.3   | 5.4              | 6.6   | 2.5                    | -0.8  | -1.3  | -3.3  | -11.1 | -8.8  | -8.4  | -4.8  | -1.3  | 0.0   | 5.0   | 3.5   | 8.9     | 11.3   | 11.9  | 13.4   | 13.9    | 10.9  | 8.6   | 3.5    | -6.3  | -10.9 |
| Vac 17               | Leq,d      | 21.8  | -7.9   | -0.7   | 2.8   | 5.9              | 7.2   | 3.1                    | -0.2  | -0.6  | -2.6  | -10.2 | -8.0  | -7.6  | -4.1  | -0.5  | 0.8   | 5.6   | 4.2   | 9.6     | 12.0   | 12.6  | 14.1   | 14.6    | 11.7  | 9.7   | 4.7    | -4.8  | -8.9  |
| Vac 18               | Leq,d      | 14.4  | -9.9   | -2.8   | 0.6   | 3.6              | 4.8   | 0.6                    | -2.9  | -3.5  | -5.8  | -10.7 | -9.1  | -9.4  | -7.7  | -4.7  | -4.1  | -0.6  | -2.6  | 2.3     | 4.1    | 4.1   | 4.9    | 4.8     | 1.1   | -1.8  | -7.6   | -18.0 | -23.0 |
| Vac 19               | Leq,d      | 10.0  | -10.7  | -3.7   | -0.5  | 2.4              | 3.3   | -1.2                   | -5.0  | -5.9  | -8.6  | -13.3 | -11.9 | -12.5 | -11.5 | -9.0  | -8.9  | -6.7  | -9.2  | -4.8    | -3.4   | -3.8  | -3.3   | -3.7    | -7.5  | -10.3 | -15.9  | -26.0 | -30.8 |
| Vac 20               | Leq,d      | 8.5   | -11.3  | -4.4   | -1.3  | 1.4              | 2.2   | -2.4                   | -6.2  | -7.3  | -10.1 | -14.0 | -12.6 | -13.2 | -12.8 | -10.4 | -10.4 | -9.1  | -11.8 | -7.5    | -6.2   | -6.7  | -6.2   | -6.7    | -10.4 | -13.0 | -18.4  | -28.3 | -32.9 |
| Vac 21               | Leq,d      | 8.0   | -11.6  | -4.8   | -1.7  | 0.9              | 1.7   | -3.0                   | -6.8  | -7.9  | -10.7 | -14.2 | -12.8 | -13.5 | -13.2 | -10.8 | -10.9 | -10.0 | -12.7 | -8.5    | -7.3   | -7.7  | -7.3   | -7.8    | -11.5 | -14.0 | -19.3  | -29.1 | -33.6 |
| Vac 22               | Leq,d      | 7.5   | -12.0  | -5.2   | -2.1  | 0.5              | 1.3   | -3.4                   | -7.2  | -8.3  | -11.1 | -14.4 | -13.0 | -13.7 | -13.5 | -11.1 | -11.2 | -10.6 | -13.3 | -9.1    | -8.0   | -8.4  | -8.0   | -8.5    | -12.3 | -14.6 | -19.9  | -29.7 | -34.2 |
| Vac 23               | Leq,d      | 7.1   | -12.3  | -5.5   | -2.4  | 0.2              | 1.0   | -3.6                   | -7.5  | -8.6  | -11.4 | -14.6 | -13.2 | -13.9 | -13.8 | -11.5 | -11.6 | -11.4 | -14.2 | -10.1   | -9.0   | -9.5  | -9.1   | -9.6    | -13.4 | -15.7 | -20.8  | -30.6 | -35.1 |
| Vac 24               | Leq,d      | 6.9   | -12.5  | -5.7   | -2.6  | 0.0              | 0.8   | -3.8                   | -7.7  | -8.8  | -11.6 | -14.7 | -13.3 | -14.0 | -13.9 | -11.6 | -11.7 | -11.6 | -14.4 | -10.2   | -9.1   | -9.6  | -9.2   | -9.8    | -13.6 | -15.9 | -21.0  | -30.8 | -35.4 |
| Vac 25               | Leq,d      | 7.0   | -12.5  | -5.6   | -2.6  | 0.1              | 0.9   | -3.7                   | -7.8  | -8.9  | -11.7 | -15.1 | -13.7 | -14.4 | -14.2 | -11.8 | -11.9 | -11.2 | -13.9 | -9.7    | -8.5   | -9.0  | -8.6   | -9.2    | -13.3 | -16.1 | -21.6  | -31.9 | -37.1 |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                   | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                          |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Vac 26                                   | Leq,d      | 7.3   | -12.2 | -5.4   | -2.3  | 0.4   | 1.2   | -3.5  | -7.6  | -8.6  | -11.4 | -15.1 | -13.7 | -14.4 | -14.1 | -11.8 | -11.8 | -10.8 | -13.5 | -9.2    | -8.0   | -8.5  | -8.1   | -8.7    | -12.8 | -15.7 | -21.4  | -31.9 | -37.3 |
| Vac 27                                   | Leq,d      | 8.3   | -11.9 | -5.0   | -1.9  | 0.8   | 1.7   | -2.9  | -7.0  | -8.0  | -10.6 | -14.4 | -12.7 | -13.1 | -12.3 | -9.6  | -9.2  | -8.1  | -10.6 | -6.3    | -5.2   | -5.9  | -5.8   | -6.6    | -11.1 | -14.7 | -21.0  | -31.7 | -37.3 |
| Vac 28                                   | Leq,d      | 9.3   | -11.7 | -4.7   | -1.4  | 1.5   | 2.5   | -1.9  | -5.9  | -6.8  | -9.3  | -13.3 | -11.8 | -12.3 | -11.6 | -9.0  | -8.7  | -7.1  | -9.6  | -5.1    | -3.7   | -4.1  | -3.7   | -4.2    | -8.4  | -11.8 | -18.3  | -29.7 | -36.1 |
| Remaining contrib. of src "Facade 01"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 02"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 03"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 04"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Roof 01"      | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 1"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 2"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 3"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 4"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 5"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 6"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 7"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 8"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 9"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 10" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 11" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 12" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 13" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 14" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 15" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 16" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 17" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 18" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 19" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 20" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 21" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 22" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 23" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 24" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 25" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 26" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 27" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz                                    | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|-------|--------|-------|-----------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A)                                   | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 28" | Leq,d      |       |       |        |       |                                         |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Receiver Receiver 2                |            | FI    | G     | Lr,lim | dB(A) | Leq,d 51.9 dB(A) Sigma(Leq,d) 0.0 dB(A) |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Facade 01                          | Leq,d      | 3.6   |       |        |       |                                         |       |       |       | -0.3  |       |       | -0.6  |       |       | -4.3  |       |       | -10.6 |         |        | -23.0 |        |         |       | -38.1 |        |       |       |
| Facade 02                          | Leq,d      | 0.3   |       |        |       |                                         |       |       |       | -2.3  |       |       | -3.7  |       |       | -13.4 |       |       | -24.5 |         |        | -38.9 |        |         |       | -55.3 |        |       |       |
| Facade 03                          | Leq,d      | -4.9  |       |        |       |                                         |       |       |       | -8.5  |       |       | -8.3  |       |       | -15.3 |       |       | -24.8 |         |        | -39.2 |        |         |       | -56.0 |        |       |       |
| Facade 04                          | Leq,d      | 9.1   |       |        |       |                                         |       |       |       | 6.3   |       |       | 4.2   |       |       | -0.3  |       |       | -6.6  |         |        | -18.9 |        |         |       | -33.8 |        |       |       |
| Roof 01                            | Leq,d      | 9.5   |       |        |       |                                         |       |       |       | 4.5   |       |       | 6.9   |       |       | 0.7   |       |       | -7.7  |         |        | -20.6 |        |         |       | -36.1 |        |       |       |
| Transmissive area 01               | Leq,d      | 51.6  |       |        |       |                                         |       |       |       | 42.3  |       |       | 42.5  |       |       | 44.4  |       |       | 48.6  |         |        | 40.3  |        |         |       | 28.2  |        |       |       |
| Transmissive area 01               | Leq,d      | 38.1  |       |        |       |                                         |       |       |       | 32.4  |       |       | 32.6  |       |       | 31.2  |       |       | 31.7  |         |        | 21.9  |        |         |       | 8.2   |        |       |       |
| Transmissive area 07               | Leq,d      | -6.4  |       |        |       |                                         |       |       |       | -9.5  |       |       | -9.9  |       |       | -18.9 |       |       | -29.7 |         |        | -43.6 |        |         |       | -59.4 |        |       |       |
| Transmissive area 07               | Leq,d      | 4.5   |       |        |       |                                         |       |       |       | 1.0   |       |       | 0.1   |       |       | -3.5  |       |       | -9.3  |         |        | -21.2 |        |         |       | -35.9 |        |       |       |
| Transmissive area 09               | Leq,d      | 4.4   |       |        |       |                                         |       |       |       | -2.6  |       |       | 2.1   |       |       | -2.9  |       |       | -10.9 |         |        | -23.1 |        |         |       | -38.1 |        |       |       |
| Vac 1                              | Leq,d      | 6.2   | -12.4 | -5.8   | -2.9  | -0.5                                    | 0.1   | -4.8  | -8.9  | -10.2 | -13.2 | -17.2 | -15.8 | -16.5 | -16.1 | -13.6 | -13.6 | -13.0 | -15.8 | -11.5   | -10.6  | -10.8 | -9.6   | -9.3    | -12.4 | -14.7 | -19.7  | -29.4 | -33.6 |
| Vac 2                              | Leq,d      | 4.8   | -13.5 | -7.0   | -4.3  | -1.9                                    | -1.5  | -6.5  | -10.6 | -12.0 | -15.2 | -19.4 | -18.3 | -19.3 | -19.2 | -17.1 | -17.3 | -16.6 | -19.1 | -13.5   | -11.4  | -11.0 | -9.7   | -9.3    | -12.4 | -14.6 | -19.5  | -29.0 | -33.1 |
| Vac 3                              | Leq,d      | 4.6   | -13.8 | -7.2   | -4.6  | -2.3                                    | -1.8  | -6.8  | -11.0 | -12.4 | -15.6 | -19.4 | -18.3 | -19.3 | -19.3 | -17.1 | -17.3 | -16.9 | -19.3 | -13.6   | -11.5  | -11.0 | -9.6   | -9.2    | -12.2 | -14.3 | -19.2  | -28.6 | -32.5 |
| Vac 4                              | Leq,d      | 4.6   | -13.9 | -7.3   | -4.6  | -2.3                                    | -1.9  | -6.9  | -11.0 | -12.4 | -15.6 | -19.3 | -18.2 | -19.2 | -19.2 | -17.0 | -17.3 | -16.9 | -19.2 | -13.5   | -11.3  | -10.8 | -9.4   | -9.0    | -12.0 | -14.0 | -18.9  | -28.2 | -32.0 |
| Vac 5                              | Leq,d      | 4.7   | -13.7 | -7.2   | -4.5  | -2.2                                    | -1.7  | -6.8  | -10.9 | -12.3 | -15.4 | -19.1 | -18.0 | -19.0 | -19.0 | -16.8 | -17.1 | -16.7 | -19.0 | -13.3   | -11.1  | -10.6 | -9.2   | -8.7    | -11.7 | -13.7 | -18.5  | -27.7 | -31.4 |
| Vac 6                              | Leq,d      | 5.0   | -13.5 | -7.0   | -4.3  | -2.0                                    | -1.5  | -6.5  | -10.6 | -12.0 | -15.1 | -18.9 | -17.8 | -18.7 | -18.7 | -16.6 | -16.8 | -16.4 | -18.2 | -13.1   | -10.9  | -10.4 | -9.0   | -8.5    | -11.5 | -13.5 | -18.2  | -27.4 | -30.9 |
| Vac 7                              | Leq,d      | 5.1   | -13.3 | -6.8   | -4.1  | -1.8                                    | -1.3  | -6.4  | -10.5 | -11.8 | -15.0 | -18.9 | -17.8 | -18.7 | -18.6 | -16.5 | -16.7 | -16.3 | -18.0 | -12.9   | -10.7  | -10.2 | -8.8   | -8.3    | -11.2 | -13.2 | -17.8  | -26.9 | -30.4 |
| Vac 8                              | Leq,d      | 5.5   | -13.0 | -6.4   | -3.8  | -1.4                                    | -1.0  | -6.0  | -10.1 | -11.5 | -14.6 | -18.7 | -17.5 | -18.5 | -18.4 | -16.2 | -16.5 | -15.9 | -17.6 | -12.6   | -10.4  | -9.9  | -8.5   | -8.0    | -10.9 | -12.9 | -17.6  | -26.6 | -30.0 |
| Vac 9                              | Leq,d      | 6.2   | -12.2 | -5.6   | -3.0  | -0.6                                    | -0.2  | -5.2  | -9.2  | -10.6 | -13.8 | -18.3 | -17.2 | -18.1 | -17.9 | -15.7 | -15.9 | -15.1 | -16.6 | -11.8   | -9.8   | -9.4  | -8.0   | -7.6    | -10.5 | -12.5 | -17.1  | -26.1 | -29.4 |
| Vac 10                             | Leq,d      | 13.3  | -11.2 | -4.5   | -1.6  | 0.8                                     | 1.4   | -3.5  | -7.5  | -8.8  | -11.9 | -17.3 | -16.2 | -17.1 | -16.5 | -14.4 | -14.6 | -13.1 | -3.3  | 1.9     | 4.2    | 4.5   | 5.5    | 5.3     | 1.2   | -2.6  | -9.9   | -22.2 | -28.0 |
| Vac 11                             | Leq,d      | 15.8  | -8.6  | -1.6   | 1.7   | 4.5                                     | 5.6   | 1.1   | -2.4  | -3.3  | -5.8  | -11.6 | -10.1 | -10.6 | -8.8  | -6.0  | -5.5  | -2.3  | -0.9  | 4.1     | 6.1    | 6.3   | 7.2    | 7.0     | 3.0   | -0.2  | -6.6   | -17.4 | -21.9 |
| Vac 12                             | Leq,d      | 24.9  | -6.0  | 1.2    | 4.7   | 7.8                                     | 9.1   | 5.0   | 1.8   | 1.4   | -0.6  | -7.7  | -5.5  | -5.1  | -1.7  | 1.8   | 3.1   | 7.6   | 6.7   | 12.1    | 14.5   | 15.1  | 16.6   | 17.2    | 16.9  | 15.0  | 10.6   | 1.7   | -1.4  |
| Vac 13                             | Leq,d      | 24.6  | -5.9  | 1.3    | 4.7   | 7.8                                     | 9.1   | 5.0   | 1.9   | 1.5   | -0.5  | -7.7  | -5.4  | -5.0  | -1.7  | 1.9   | 3.2   | 7.7   | 7.0   | 12.4    | 14.8   | 15.4  | 16.9   | 17.5    | 14.7  | 12.8  | 8.2    | -0.6  | -3.8  |
| Vac 14                             | Leq,d      | 24.6  | -5.9  | 1.3    | 4.7   | 7.8                                     | 9.1   | 5.0   | 1.9   | 1.5   | -0.5  | -7.7  | -5.4  | -5.0  | -1.7  | 1.9   | 3.2   | 7.7   | 7.0   | 12.4    | 14.8   | 15.4  | 16.9   | 17.5    | 14.7  | 12.8  | 8.2    | -0.6  | -3.8  |
| Vac 15                             | Leq,d      | 24.4  | -6.0  | 1.2    | 4.7   | 7.8                                     | 9.1   | 5.0   | 1.9   | 1.5   | -0.5  | -7.7  | -5.4  | -5.0  | -1.7  | 1.9   | 3.2   | 7.7   | 6.7   | 12.1    | 14.5   | 15.2  | 16.7   | 17.3    | 14.5  | 12.7  | 8.2    | -0.7  | -3.8  |
| Vac 16                             | Leq,d      | 24.6  | -5.9  | 1.3    | 4.8   | 7.9                                     | 9.2   | 5.1   | 1.9   | 1.5   | -0.5  | -7.6  | -5.3  | -4.9  | -1.6  | 2.0   | 3.2   | 7.7   | 7.1   | 12.5    | 14.9   | 15.5  | 17.0   | 17.6    | 14.7  | 12.9  | 8.3    | -0.5  | -3.6  |
| Vac 17                             | Leq,d      | 11.4  | -12.8 | -6.0   | -2.9  | -0.2                                    | 0.6   | -4.1  | -8.2  | -9.2  | -12.0 | -15.1 | -13.7 | -14.4 | -14.3 | -12.0 | -12.1 | -11.9 | -14.7 | 0.3     | 2.5    | 2.7   | 3.5    | 2.9     | -1.7  | -6.2  | -14.7  | -28.6 | -36.6 |
| Vac 18                             | Leq,d      | 11.5  | -12.8 | -6.0   | -2.9  | -0.2                                    | 0.6   | -4.1  | -8.1  | -9.2  | -11.9 | -15.1 | -13.7 | -14.4 | -14.3 | -12.0 | -12.1 | -11.9 | -14.6 | 0.5     | 2.7    | 2.8   | 3.6    | 3.1     | -1.4  | -5.9  | -14.3  | -28.2 | -36.1 |
| Vac 19                             | Leq,d      | 11.7  | -12.8 | -5.9   | -2.9  | -0.2                                    | 0.6   | -4.0  | -8.0  | -9.1  | -11.9 | -15.0 | -13.6 | -14.3 | -14.2 | -11.9 | -12.0 | -11.8 | -14.6 | 0.6     | 2.8    | 3.0   | 3.8    | 3.3     | -1.2  | -5.6  | -13.9  | -27.7 | -35.5 |
| Vac 20                             | Leq,d      | 11.9  | -12.6 | -5.8   | -2.7  | -0.1                                    | 0.7   | -3.9  | -7.9  | -8.9  | -11.7 | -14.9 | -13.5 | -14.2 | -14.0 | -11.8 | -11.9 | -11.7 | -14.5 | 0.8     | 3.0    | 3.2   | 4.0    | 3.5     | -0.9  | -5.3  | -13.5  | -27.2 | -35.0 |
| Vac 21                             | Leq,d      | 12.0  | -12.4 | -5.6   | -2.6  | 0.1                                     | 0.9   | -3.8  | -7.7  | -8.8  | -11.6 | -14.8 | -13.4 | -14.1 | -13.9 | -11.7 | -11.8 | -11.6 | -14.4 | 0.9     | 3.1    | 3.3   | 4.1    | 3.7     | -0.7  | -5.0  | -13.1  | -26.8 | -34.5 |
| Vac 22                             | Leq,d      | 12.2  | -12.2 | -5.3   | -2.3  | 0.4                                     | 1.2   | -3.5  | -7.5  | -8.5  | -11.3 | -14.6 | -13.3 | -13.9 | -13.8 | -11.5 | -11.6 | -11.4 | -14.2 | 1.1     | 3.3    | 3.5   | 4.3    | 3.9     | -0.4  | -4.7  | -12.7  | -26.3 | -34.0 |
| Vac 23                             | Leq,d      | 12.6  | -11.8 | -4.9   | -1.9  | 0.8                                     | 1.6   | -3.1  | -7.0  | -8.0  | -10.8 | -14.4 | -13.0 | -13.7 | -13.4 | -11.0 | -11.1 | -10.2 | -12.9 | 1.3     | 3.5    | 3.7   | 4.6    | 4.2     | -0.1  | -4.3  | -12.2  | -25.5 | -33.1 |

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# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                   | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                          |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Vac 24                                   | Leq,d      | 13.0  | -11.5 | -4.6   | -1.4  | 1.3   | 2.1   | -2.5  | -6.4  | -7.4  | -10.2 | -14.2 | -12.8 | -13.4 | -12.9 | -10.5 | -10.6 | -9.3  | -3.5  | 1.6     | 3.8    | 4.0   | 4.9    | 4.5     | 0.2   | -3.9  | -11.6  | -24.8 | -32.2 |
| Vac 25                                   | Leq,d      | 22.2  | -7.9  | -0.7   | 2.8   | 5.9   | 7.1   | 3.0   | -0.2  | -0.6  | -2.6  | -10.3 | -8.0  | -7.6  | -4.1  | -0.5  | 0.7   | 5.6   | 4.8   | 10.2    | 12.6   | 13.2  | 14.6   | 15.1    | 12.1  | 9.8   | 4.8    | -4.8  | -6.6  |
| Vac 26                                   | Leq,d      | 22.3  | -7.9  | -0.7   | 2.8   | 5.9   | 7.2   | 3.1   | -0.2  | -0.6  | -2.6  | -10.2 | -8.0  | -7.6  | -4.1  | -0.5  | 0.8   | 5.6   | 4.9   | 10.3    | 12.7   | 13.3  | 14.7   | 15.2    | 12.1  | 9.9   | 4.9    | -4.7  | -8.9  |
| Vac 27                                   | Leq,d      | 21.8  | -7.9  | -0.7   | 2.8   | 5.9   | 7.2   | 3.1   | -0.2  | -0.6  | -2.6  | -10.2 | -8.0  | -7.6  | -4.1  | -0.5  | 0.8   | 5.6   | 4.2   | 9.6     | 12.0   | 12.6  | 14.1   | 14.7    | 11.7  | 9.7   | 4.7    | -4.8  | -8.9  |
| Vac 28                                   | Leq,d      | 21.8  | -7.9  | -0.7   | 2.8   | 5.9   | 7.2   | 3.1   | -0.2  | -0.6  | -2.6  | -10.3 | -8.0  | -7.6  | -4.1  | -0.5  | 0.7   | 5.6   | 4.1   | 9.5     | 12.0   | 12.6  | 14.1   | 14.6    | 11.7  | 9.6   | 4.7    | -4.8  | -9.0  |
| Remaining contrib. of src "Facade 01"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 02"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 03"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 04"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Roof 01"      | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 1"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 2"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 3"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 4"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 5"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 6"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 7"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 8"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 9"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 10" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 11" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 12" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 13" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 14" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 15" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 16" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 17" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 18" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 19" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 20" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 21" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 22" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 23" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 24" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 25" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 26" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                                                        | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|-------------------------------------------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                                                               |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 27"                                            | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 28"                                            | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Receiver Receiver 3 FI G Lr,l,m dB(A) Leq,d 48.4 dB(A) Sigma(Leq,d) 0.0 dB(A) |            |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Facade 01                                                                     | Leq,d      | 0.9   |       |        |       |       |       |       |       | -4.7  |       |       | -2.1  |       |       | -6.2  |       |       | -14.5 |         |        | -27.6 |        |         |       | -43.4 |        |       |       |
| Facade 02                                                                     | Leq,d      | 0.2   |       |        |       |       |       |       |       | -3.3  |       |       | -3.2  |       |       | -10.3 |       |       | -21.0 |         |        | -35.9 |        |         |       | -53.6 |        |       |       |
| Facade 03                                                                     | Leq,d      | -9.8  |       |        |       |       |       |       |       | -14.9 |       |       | -12.6 |       |       | -18.3 |       |       | -29.1 |         |        | -43.6 |        |         |       | -60.8 |        |       |       |
| Facade 04                                                                     | Leq,d      | 5.1   |       |        |       |       |       |       |       | 0.8   |       |       | 1.7   |       |       | -3.1  |       |       | -11.4 |         |        | -24.3 |        |         |       | -40.3 |        |       |       |
| Roof 01                                                                       | Leq,d      | 4.6   |       |        |       |       |       |       |       | -1.4  |       |       | 2.0   |       |       | -3.0  |       |       | -12.2 |         |        | -25.1 |        |         |       | -40.0 |        |       |       |
| Transmissive area 01                                                          | Leq,d      | 48.1  |       |        |       |       |       |       |       | 37.9  |       |       | 40.9  |       |       | 42.0  |       |       | 44.3  |         |        | 35.7  |        |         |       | 22.9  |        |       |       |
| Transmissive area 01                                                          | Leq,d      | 33.3  |       |        |       |       |       |       |       | 25.0  |       |       | 27.7  |       |       | 27.6  |       |       | 27.7  |         |        | 18.6  |        |         |       | 5.0   |        |       |       |
| Transmissive area 07                                                          | Leq,d      | -6.1  |       |        |       |       |       |       |       | -10.3 |       |       | -9.0  |       |       | -15.7 |       |       | -26.5 |         |        | -41.3 |        |         |       | -59.0 |        |       |       |
| Transmissive area 07                                                          | Leq,d      | 0.8   |       |        |       |       |       |       |       | -4.6  |       |       | -2.2  |       |       | -6.5  |       |       | -14.2 |         |        | -26.7 |        |         |       | -42.8 |        |       |       |
| Transmissive area 09                                                          | Leq,d      | -0.3  |       |        |       |       |       |       |       | -8.3  |       |       | -3.2  |       |       | -5.6  |       |       | -14.2 |         |        | -26.6 |        |         |       | -41.2 |        |       |       |
| Vac 1                                                                         | Leq,d      | 5.1   | -14.8 | -8.0   | -5.0  | -2.3  | -1.6  | -6.3  | -10.6 | -11.7 | -14.5 | -17.7 | -16.2 | -16.7 | -15.9 | -13.2 | -12.9 | -11.7 | -14.2 | -9.8    | -8.7   | -9.2  | -8.5   | -8.7    | -12.6 | -15.8 | -22.4  | -34.2 | -41.5 |
| Vac 2                                                                         | Leq,d      | 5.3   | -14.7 | -7.8   | -4.8  | -2.2  | -1.4  | -6.1  | -10.4 | -11.5 | -14.3 | -17.6 | -16.1 | -16.6 | -15.7 | -13.0 | -12.7 | -11.5 | -13.9 | -9.5    | -8.5   | -8.9  | -8.1   | -8.3    | -12.1 | -15.3 | -21.7  | -33.4 | -40.6 |
| Vac 3                                                                         | Leq,d      | 5.7   | -14.5 | -7.6   | -4.5  | -1.9  | -1.1  | -5.8  | -10.0 | -11.1 | -13.9 | -17.3 | -15.8 | -16.2 | -15.4 | -12.7 | -12.3 | -11.0 | -13.4 | -9.0    | -8.0   | -8.4  | -7.5   | -7.7    | -11.5 | -14.7 | -21.1  | -32.6 | -39.6 |
| Vac 4                                                                         | Leq,d      | 6.1   | -14.2 | -7.3   | -4.3  | -1.6  | -0.8  | -5.5  | -9.7  | -10.7 | -13.5 | -17.0 | -15.5 | -15.9 | -15.0 | -12.3 | -12.0 | -10.6 | -13.0 | -8.6    | -7.5   | -7.8  | -7.0   | -7.1    | -10.9 | -14.1 | -20.4  | -31.8 | -38.6 |
| Vac 5                                                                         | Leq,d      | 6.6   | -13.9 | -7.0   | -3.9  | -1.2  | -0.3  | -5.0  | -9.2  | -10.2 | -12.9 | -16.5 | -15.0 | -15.4 | -14.4 | -11.7 | -11.3 | -9.9  | -12.3 | -7.8    | -6.7   | -7.0  | -6.2   | -6.4    | -10.2 | -13.3 | -19.5  | -30.9 | -37.4 |
| Vac 6                                                                         | Leq,d      | 7.3   | -13.5 | -6.6   | -3.4  | -0.7  | 0.2   | -4.4  | -8.5  | -9.5  | -12.1 | -15.8 | -14.2 | -14.6 | -13.5 | -10.7 | -10.3 | -8.7  | -11.1 | -6.6    | -5.6   | -5.8  | -5.0   | -5.3    | -9.1  | -12.2 | -18.5  | -29.7 | -36.1 |
| Vac 7                                                                         | Leq,d      | 8.0   | -13.2 | -6.3   | -3.1  | -0.3  | 0.6   | -4.0  | -8.0  | -9.0  | -11.6 | -15.3 | -13.7 | -14.1 | -12.8 | -10.0 | -9.6  | -7.8  | -10.2 | -5.7    | -4.5   | -4.6  | -3.9   | -4.2    | -8.1  | -11.2 | -17.4  | -28.5 | -34.8 |
| Vac 8                                                                         | Leq,d      | 9.2   | -12.9 | -5.9   | -2.6  | 0.2   | 1.2   | -3.3  | -7.2  | -8.0  | -10.5 | -14.3 | -12.6 | -12.8 | -11.3 | -8.4  | -7.9  | -5.9  | -8.2  | -3.6    | -2.4   | -2.5  | -1.8   | -2.2    | -6.1  | -9.2  | -15.5  | -26.6 | -32.8 |
| Vac 9                                                                         | Leq,d      | 13.3  | -12.4 | -5.3   | -2.0  | 0.9   | 2.0   | -2.3  | -6.2  | -6.8  | -9.0  | -12.7 | -10.7 | -10.6 | -8.5  | -5.1  | -4.1  | -1.5  | -3.3  | 1.8     | 3.6    | 3.8   | 4.8    | 4.7     | 1.0   | -2.0  | -8.1   | -19.1 | -25.1 |
| Vac 10                                                                        | Leq,d      | 20.0  | -9.5  | -2.3   | 1.2   | 4.3   | 5.6   | 1.5   | -2.1  | -2.5  | -4.5  | -8.6  | -6.3  | -5.9  | -3.4  | 0.1   | 1.4   | 4.3   | 2.8   | 8.2     | 10.3   | 10.9  | 12.3   | 12.7    | 9.6   | 7.2   | 1.8    | -8.4  | -13.6 |
| Vac 11                                                                        | Leq,d      | 20.4  | -9.2  | -2.0   | 1.5   | 4.6   | 5.9   | 1.8   | -1.8  | -2.2  | -4.2  | -8.2  | -6.0  | -5.6  | -3.1  | 0.4   | 1.7   | 4.6   | 3.1   | 8.5     | 10.6   | 11.2  | 12.6   | 13.1    | 10.0  | 7.7   | 2.4    | -7.7  | -12.7 |
| Vac 12                                                                        | Leq,d      | 20.8  | -8.9  | -1.7   | 1.8   | 4.9   | 6.2   | 2.1   | -1.5  | -1.9  | -3.9  | -7.9  | -5.6  | -5.2  | -2.8  | 0.8   | 2.1   | 4.9   | 3.5   | 8.8     | 11.0   | 11.6  | 13.0   | 13.5    | 10.4  | 8.2   | 3.0    | -6.9  | -11.7 |
| Vac 13                                                                        | Leq,d      | 22.8  | -8.5  | -1.3   | 2.2   | 5.3   | 6.6   | 2.4   | -1.1  | -1.5  | -3.5  | -7.5  | -5.2  | -4.9  | -2.4  | 3.1   | 4.4   | 7.2   | 5.8   | 11.1    | 13.3   | 13.9  | 15.3   | 15.7    | 12.7  | 10.4  | 5.2    | -4.8  | -9.6  |
| Vac 14                                                                        | Leq,d      | 23.0  | -8.2  | -1.0   | 2.5   | 5.6   | 6.9   | 2.8   | -0.8  | -1.2  | -3.2  | -7.1  | -4.9  | -4.5  | -2.1  | 1.5   | 2.8   | 7.4   | 5.9   | 11.3    | 13.4   | 14.0  | 15.4   | 15.9    | 12.9  | 10.6  | 5.4    | -4.4  | -9.0  |
| Vac 15                                                                        | Leq,d      | 22.1  | -7.9  | -0.7   | 2.8   | 5.9   | 7.2   | 3.1   | -0.4  | -0.8  | -2.8  | -6.7  | -4.5  | -4.1  | -1.7  | 1.9   | 3.2   | 6.0   | 4.8   | 10.1    | 12.2   | 12.8  | 14.3   | 14.8    | 11.9  | 9.8   | 4.9    | -4.6  | -8.8  |
| Vac 16                                                                        | Leq,d      | 23.6  | -7.5  | -0.3   | 3.2   | 6.3   | 7.6   | 3.5   | 0.0   | -0.4  | -2.4  | -6.3  | -4.0  | -3.6  | -1.2  | 2.3   | 5.0   | 7.9   | 6.4   | 11.8    | 13.9   | 14.5  | 16.0   | 16.5    | 13.5  | 11.4  | 6.4    | -3.1  | -7.3  |
| Vac 17                                                                        | Leq,d      | 16.7  | -12.2 | -5.0   | -1.5  | 1.6   | 2.9   | -1.2  | -5.0  | -5.4  | -7.4  | -11.6 | -9.3  | -9.0  | -6.4  | -2.9  | -1.6  | 1.4   | -0.1  | 5.2     | 7.3    | 7.8   | 9.0    | 9.1     | 5.5   | 2.5   | -4.0   | -15.8 | -23.3 |
| Vac 18                                                                        | Leq,d      | 16.9  | -12.0 | -4.8   | -1.3  | 1.8   | 3.1   | -1.0  | -4.8  | -5.2  | -7.2  | -11.4 | -9.1  | -8.8  | -6.2  | -2.6  | -1.4  | 1.6   | 0.1   | 5.5     | 7.5    | 8.0   | 9.2    | 9.4     | 5.9   | 2.8   | -3.5   | -15.2 | -22.5 |
| Vac 19                                                                        | Leq,d      | 17.2  | -11.8 | -4.6   | -1.1  | 2.0   | 3.3   | -0.8  | -4.5  | -5.0  | -7.0  | -11.1 | -8.9  | -8.5  | -5.9  | -2.4  | -1.1  | 1.9   | 0.4   | 5.7     | 7.8    | 8.3   | 9.5    | 9.7     | 6.2   | 3.3   | -3.0   | -14.5 | -21.6 |
| Vac 20                                                                        | Leq,d      | 17.5  | -11.5 | -4.3   | -0.8  | 2.3   | 3.6   | -0.5  | -4.3  | -4.7  | -6.7  | -10.9 | -8.6  | -8.2  | -5.7  | -2.1  | -0.9  | 2.2   | 0.6   | 6.0     | 8.1    | 8.6   | 9.8    | 10.0    | 6.6   | 3.7   | -2.4   | -13.8 | -20.7 |
| Vac 21                                                                        | Leq,d      | 17.8  | -11.3 | -4.1   | -0.6  | 2.5   | 3.8   | -0.3  | -4.1  | -4.5  | -6.5  | -10.6 | -8.4  | -8.0  | -5.4  | -1.9  | -0.6  | 2.4   | 0.9   | 6.2     | 8.3    | 8.8   | 10.1   | 10.3    | 6.9   | 4.1   | -2.0   | -13.2 | -19.9 |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                   | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                          |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Vac 22                                   | Leq,d      | 18.1  | -11.1 | -3.9   | -0.4  | 2.7   | 4.0   | -0.1  | -3.8  | -4.2  | -6.2  | -10.4 | -8.1  | -7.7  | -5.2  | -1.6  | -0.4  | 2.6   | 1.1   | 6.5     | 8.6    | 9.1   | 10.4   | 10.6    | 7.3   | 4.5   | -1.5   | -12.6 | -19.0 |
| Vac 23                                   | Leq,d      | 18.4  | -10.8 | -3.6   | -0.1  | 3.0   | 4.3   | 0.2   | -3.5  | -4.0  | -6.0  | -10.1 | -7.8  | -7.5  | -4.9  | -1.4  | -0.1  | 2.9   | 1.4   | 6.7     | 8.8    | 9.4   | 10.7   | 11.0    | 7.6   | 4.9   | -0.9   | -11.9 | -18.1 |
| Vac 24                                   | Leq,d      | 18.7  | -10.6 | -3.4   | 0.1   | 3.2   | 4.5   | 0.4   | -3.3  | -3.7  | -5.7  | -9.8  | -7.5  | -7.2  | -4.6  | -1.1  | 0.2   | 3.2   | 1.7   | 7.0     | 9.1    | 9.7   | 11.0   | 11.3    | 8.0   | 5.4   | -0.4   | -11.2 | -17.2 |
| Vac 25                                   | Leq,d      | 20.3  | -9.3  | -2.1   | 1.4   | 4.5   | 5.8   | 1.7   | -1.9  | -2.3  | -4.3  | -8.3  | -6.1  | -5.7  | -3.2  | 0.4   | 1.6   | 4.5   | 3.0   | 8.4     | 10.5   | 11.1  | 12.5   | 13.0    | 9.9   | 7.5   | 2.2    | -7.9  | -12.9 |
| Vac 26                                   | Leq,d      | 20.6  | -9.0  | -1.8   | 1.7   | 4.8   | 6.1   | 2.0   | -1.6  | -2.0  | -4.0  | -8.0  | -5.7  | -5.3  | -2.9  | 0.7   | 2.0   | 4.8   | 3.4   | 8.7     | 10.9   | 11.5  | 12.9   | 13.4    | 10.3  | 8.0   | 2.8    | -7.2  | -12.0 |
| Vac 27                                   | Leq,d      | 21.0  | -8.7  | -1.5   | 2.0   | 5.1   | 6.4   | 2.3   | -1.3  | -1.7  | -3.7  | -7.7  | -5.4  | -5.0  | -2.6  | 1.0   | 2.3   | 5.1   | 3.7   | 9.0     | 11.2   | 11.8  | 13.2   | 13.7    | 10.7  | 8.5   | 3.3    | -6.5  | -11.1 |
| Vac 28                                   | Leq,d      | 21.3  | -8.4  | -1.2   | 2.3   | 5.4   | 6.7   | 2.6   | -1.0  | -1.4  | -3.4  | -7.3  | -5.1  | -4.7  | -2.2  | 1.3   | 2.6   | 5.4   | 4.0   | 9.4     | 11.5   | 12.1  | 13.6   | 14.1    | 11.1  | 8.9   | 3.9    | -5.8  | -10.3 |
| Remaining contrib. of src "Facade 01"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 02"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 03"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 04"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Roof 01"      | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 1"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 2"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 3"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 4"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 5"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 6"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 7"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 8"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 9"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 10" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 11" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 12" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 13" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 14" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 15" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 16" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 17" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 18" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 19" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 20" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 21" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 22" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 23" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 24" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 25" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                 | Time slice | Sum                                     | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|----------------------------------------|------------|-----------------------------------------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                        |            | dB(A)                                   | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 26"     | Leq,d      |                                         |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 27"     | Leq,d      |                                         |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 28"     | Leq,d      |                                         |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Receiver Receiver 3 FI F2 Lr,ljm dB(A) |            | Leq,d 48.5 dB(A) Sigma(Leq,d) 0.0 dB(A) |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Facade 01                              | Leq,d      | 1.1                                     |       |        |       |       |       |       |       | -4.1  |       |       | -2.1  |       |       | -6.2  |       |       | -14.6 |         |        | -27.6 |        |         | -43.4 |       |        |       |       |
| Facade 02                              | Leq,d      | 0.8                                     |       |        |       |       |       |       |       | -2.6  |       |       | -2.7  |       |       | -9.8  |       |       | -20.5 |         |        | -35.3 |        |         | -53.0 |       |        |       |       |
| Facade 03                              | Leq,d      | -9.6                                    |       |        |       |       |       |       |       | -14.5 |       |       | -12.5 |       |       | -18.3 |       |       | -29.1 |         |        | -43.6 |        |         | -60.8 |       |        |       |       |
| Facade 04                              | Leq,d      | 5.4                                     |       |        |       |       |       |       |       | 1.5   |       |       | 1.7   |       |       | -3.1  |       |       | -11.4 |         |        | -24.3 |        |         | -40.3 |       |        |       |       |
| Roof 01                                | Leq,d      | 4.8                                     |       |        |       |       |       |       |       | -1.3  |       |       | 2.2   |       |       | -2.6  |       |       | -11.1 |         |        | -22.9 |        |         | -38.0 |       |        |       |       |
| Transmissive area 01                   | Leq,d      | 48.2                                    |       |        |       |       |       |       |       | 38.5  |       |       | 40.9  |       |       | 41.9  |       |       | 44.3  |         |        | 35.7  |        |         | 22.9  |       |        |       |       |
| Transmissive area 01                   | Leq,d      | 33.5                                    |       |        |       |       |       |       |       | 25.7  |       |       | 27.8  |       |       | 27.6  |       |       | 27.7  |         |        | 18.6  |        |         | 5.0   |       |        |       |       |
| Transmissive area 07                   | Leq,d      | -5.1                                    |       |        |       |       |       |       |       | -9.4  |       |       | -8.0  |       |       | -14.6 |       |       | -25.3 |         |        | -40.2 |        |         | -58.1 |       |        |       |       |
| Transmissive area 07                   | Leq,d      | 1.0                                     |       |        |       |       |       |       |       | -3.9  |       |       | -2.2  |       |       | -6.5  |       |       | -14.2 |         |        | -26.8 |        |         | -42.8 |       |        |       |       |
| Transmissive area 09                   | Leq,d      | 0.1                                     |       |        |       |       |       |       |       | -8.2  |       |       | -3.0  |       |       | -5.1  |       |       | -13.0 |         |        | -23.1 |        |         | -39.0 |       |        |       |       |
| Vac 1                                  | Leq,d      | 5.2                                     | -14.8 | -7.9   | -4.9  | -2.3  | -1.5  | -6.2  | -9.9  | -10.9 | -13.7 | -17.5 | -16.0 | -16.3 | -15.5 | -13.0 | -12.7 | -11.5 | -14.0 | -9.5    | -8.5   | -9.0  | -8.5   | -8.7    | -12.6 | -15.8 | -22.4  | -34.2 | -41.6 |
| Vac 2                                  | Leq,d      | 5.5                                     | -14.6 | -7.8   | -4.7  | -2.1  | -1.3  | -6.0  | -9.6  | -10.7 | -13.5 | -17.4 | -15.9 | -16.3 | -15.5 | -12.8 | -12.5 | -11.3 | -13.7 | -9.3    | -8.3   | -8.7  | -8.1   | -8.3    | -12.1 | -15.3 | -21.8  | -33.4 | -40.6 |
| Vac 3                                  | Leq,d      | 5.8                                     | -14.4 | -7.5   | -4.5  | -1.8  | -1.0  | -5.7  | -9.3  | -10.4 | -13.1 | -17.1 | -15.6 | -16.0 | -15.2 | -12.5 | -12.1 | -10.9 | -13.3 | -8.8    | -7.8   | -8.2  | -7.6   | -7.7    | -11.5 | -14.7 | -21.1  | -32.6 | -39.6 |
| Vac 4                                  | Leq,d      | 6.2                                     | -14.2 | -7.3   | -4.2  | -1.5  | -0.7  | -5.4  | -9.0  | -10.0 | -12.8 | -16.8 | -15.3 | -15.7 | -14.8 | -12.1 | -11.8 | -10.4 | -12.8 | -8.4    | -7.4   | -7.8  | -7.0   | -7.2    | -10.9 | -14.1 | -20.4  | -31.8 | -38.6 |
| Vac 5                                  | Leq,d      | 6.7                                     | -13.9 | -6.9   | -3.8  | -1.1  | -0.3  | -4.9  | -8.5  | -9.5  | -12.2 | -16.3 | -14.8 | -15.2 | -14.2 | -11.5 | -11.2 | -9.7  | -12.1 | -7.7    | -6.6   | -7.0  | -6.2   | -6.4    | -10.2 | -13.3 | -19.6  | -30.9 | -37.5 |
| Vac 6                                  | Leq,d      | 7.4                                     | -13.5 | -6.5   | -3.4  | -0.6  | 0.3   | -4.3  | -7.8  | -8.7  | -11.4 | -15.6 | -14.0 | -14.4 | -13.3 | -10.6 | -10.2 | -8.6  | -11.0 | -6.5    | -5.4   | -5.8  | -5.0   | -5.3    | -9.1  | -12.3 | -18.5  | -29.7 | -36.2 |
| Vac 7                                  | Leq,d      | 8.0                                     | -13.2 | -6.2   | -3.1  | -0.3  | 0.6   | -3.9  | -7.3  | -8.2  | -10.8 | -15.2 | -13.6 | -13.9 | -12.7 | -9.9  | -9.5  | -7.8  | -10.1 | -5.6    | -4.5   | -4.6  | -3.9   | -4.2    | -8.1  | -11.2 | -17.4  | -28.6 | -34.8 |
| Vac 8                                  | Leq,d      | 9.3                                     | -12.8 | -5.8   | -2.6  | 0.3   | 1.3   | -3.2  | -6.5  | -7.3  | -9.8  | -14.2 | -12.5 | -12.7 | -11.3 | -8.4  | -7.8  | -5.9  | -8.1  | -3.6    | -2.4   | -2.5  | -1.8   | -2.2    | -6.1  | -9.3  | -15.5  | -26.7 | -32.9 |
| Vac 9                                  | Leq,d      | 13.3                                    | -12.3 | -5.3   | -2.0  | 0.9   | 2.0   | -2.3  | -5.5  | -6.1  | -8.3  | -12.6 | -10.6 | -10.5 | -8.5  | -5.1  | -4.1  | -1.5  | -3.3  | 1.8     | 3.5    | 3.8   | 4.8    | 4.7     | 1.0   | -2.0  | -8.1   | -19.1 | -25.2 |
| Vac 10                                 | Leq,d      | 20.0                                    | -9.5  | -2.3   | 1.2   | 4.3   | 5.6   | 1.5   | -1.5  | -1.9  | -3.9  | -8.6  | -6.3  | -5.9  | -3.5  | 0.1   | 1.4   | 4.3   | 2.8   | 8.2     | 10.3   | 10.9  | 12.3   | 12.7    | 9.6   | 7.2   | 1.8    | -8.5  | -13.7 |
| Vac 11                                 | Leq,d      | 20.4                                    | -9.2  | -2.0   | 1.5   | 4.6   | 5.9   | 1.8   | -1.2  | -1.6  | -3.6  | -8.2  | -6.0  | -5.6  | -3.1  | 0.4   | 1.7   | 4.6   | 3.1   | 8.5     | 10.6   | 11.2  | 12.6   | 13.1    | 10.0  | 7.7   | 2.4    | -7.7  | -12.7 |
| Vac 12                                 | Leq,d      | 20.8                                    | -8.9  | -1.7   | 1.8   | 4.9   | 6.2   | 2.1   | -0.8  | -1.2  | -3.3  | -7.9  | -5.6  | -5.2  | -2.8  | 0.8   | 2.1   | 4.9   | 3.5   | 8.8     | 10.9   | 11.6  | 13.0   | 13.5    | 10.4  | 8.2   | 3.0    | -7.0  | -11.7 |
| Vac 13                                 | Leq,d      | 22.8                                    | -8.6  | -1.4   | 2.1   | 5.2   | 6.5   | 2.4   | -0.5  | -0.9  | -2.9  | -7.5  | -5.2  | -4.8  | -2.4  | 3.1   | 4.3   | 7.2   | 5.8   | 11.1    | 13.2   | 13.8  | 15.3   | 15.7    | 12.7  | 10.4  | 5.1    | -4.8  | -9.6  |
| Vac 14                                 | Leq,d      | 23.0                                    | -8.2  | -1.0   | 2.5   | 5.6   | 6.9   | 2.8   | -0.2  | -0.6  | -2.6  | -7.1  | -4.9  | -4.5  | -2.1  | 1.5   | 2.8   | 7.3   | 5.9   | 11.2    | 13.4   | 14.0  | 15.4   | 15.9    | 12.8  | 10.6  | 5.4    | -4.5  | -9.1  |
| Vac 15                                 | Leq,d      | 22.1                                    | -7.9  | -0.7   | 2.8   | 5.9   | 7.2   | 3.1   | 0.2   | -0.2  | -2.2  | -6.7  | -4.4  | -4.1  | -1.7  | 1.9   | 3.2   | 6.0   | 4.8   | 10.2    | 12.3   | 12.9  | 14.3   | 14.8    | 11.9  | 9.8   | 4.9    | -4.7  | -8.8  |
| Vac 16                                 | Leq,d      | 23.6                                    | -7.5  | -0.3   | 3.2   | 6.3   | 7.6   | 3.5   | 0.6   | 0.2   | -1.8  | -6.3  | -4.0  | -3.6  | -1.3  | 2.3   | 5.0   | 7.8   | 6.4   | 11.8    | 13.9   | 14.5  | 16.0   | 16.5    | 13.5  | 11.4  | 6.4    | -3.2  | -7.3  |
| Vac 17                                 | Leq,d      | 16.7                                    | -12.2 | -5.0   | -1.5  | 1.6   | 2.9   | -1.2  | -4.3  | -4.7  | -6.8  | -11.6 | -9.3  | -9.0  | -6.4  | -2.9  | -1.6  | 1.4   | -0.1  | 5.2     | 7.3    | 7.8   | 9.0    | 9.1     | 5.5   | 2.4   | -4.0   | -15.8 | -23.4 |
| Vac 18                                 | Leq,d      | 16.9                                    | -12.0 | -4.8   | -1.3  | 1.8   | 3.1   | -1.0  | -4.1  | -4.5  | -6.5  | -11.4 | -9.1  | -8.7  | -6.2  | -2.7  | -1.4  | 1.6   | 0.1   | 5.5     | 7.5    | 8.0   | 9.2    | 9.4     | 5.8   | 2.8   | -3.5   | -15.2 | -22.6 |
| Vac 19                                 | Leq,d      | 17.2                                    | -11.8 | -4.6   | -1.1  | 2.0   | 3.3   | -0.8  | -3.9  | -4.3  | -6.3  | -11.1 | -8.8  | -8.5  | -6.0  | -2.4  | -1.2  | 1.9   | 0.4   | 5.7     | 7.8    | 8.3   | 9.5    | 9.7     | 6.2   | 3.2   | -3.0   | -14.5 | -21.6 |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                   | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                          |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Vac 20                                   | Leq,d      | 17.5  | -11.5 | -4.3   | -0.8  | 2.3   | 3.6   | -0.6  | -3.6  | -4.0  | -6.0  | -10.8 | -8.6  | -8.2  | -5.7  | -2.1  | -0.9  | 2.1   | 0.6   | 6.0     | 8.1    | 8.5   | 9.8    | 10.0    | 6.6   | 3.7   | -2.5   | -13.8 | -20.7 |
| Vac 21                                   | Leq,d      | 17.8  | -11.3 | -4.1   | -0.6  | 2.5   | 3.8   | -0.3  | -3.4  | -3.8  | -5.8  | -10.6 | -8.3  | -8.0  | -5.5  | -1.9  | -0.7  | 2.4   | 0.9   | 6.2     | 8.3    | 8.8   | 10.1   | 10.3    | 6.9   | 4.1   | -2.0   | -13.2 | -19.9 |
| Vac 22                                   | Leq,d      | 18.1  | -11.1 | -3.9   | -0.4  | 2.7   | 4.0   | -0.1  | -3.1  | -3.5  | -5.6  | -10.3 | -8.1  | -7.7  | -5.2  | -1.6  | -0.4  | 2.6   | 1.1   | 6.5     | 8.5    | 9.1   | 10.4   | 10.6    | 7.3   | 4.5   | -1.5   | -12.6 | -19.1 |
| Vac 23                                   | Leq,d      | 18.4  | -10.8 | -3.6   | -0.1  | 3.0   | 4.3   | 0.1   | -2.9  | -3.3  | -5.3  | -10.1 | -7.8  | -7.4  | -4.9  | -1.4  | -0.1  | 2.9   | 1.4   | 6.7     | 8.8    | 9.3   | 10.7   | 10.9    | 7.6   | 4.9   | -1.0   | -11.9 | -18.2 |
| Vac 24                                   | Leq,d      | 18.7  | -10.6 | -3.4   | 0.1   | 3.2   | 4.5   | 0.4   | -2.6  | -3.0  | -5.0  | -9.8  | -7.5  | -7.1  | -4.6  | -1.1  | 0.2   | 3.1   | 1.7   | 7.0     | 9.1    | 9.6   | 11.0   | 11.3    | 8.0   | 5.4   | -0.4   | -11.2 | -17.3 |
| Vac 25                                   | Leq,d      | 20.3  | -9.3  | -2.1   | 1.4   | 4.5   | 5.8   | 1.7   | -1.2  | -1.7  | -3.7  | -8.3  | -6.0  | -5.7  | -3.2  | 0.3   | 1.6   | 4.5   | 3.0   | 8.4     | 10.5   | 11.1  | 12.5   | 13.0    | 9.9   | 7.5   | 2.2    | -7.9  | -13.0 |
| Vac 26                                   | Leq,d      | 20.6  | -9.0  | -1.8   | 1.7   | 4.8   | 6.1   | 2.0   | -0.9  | -1.3  | -3.4  | -8.0  | -5.7  | -5.3  | -2.9  | 0.7   | 1.9   | 4.8   | 3.4   | 8.7     | 10.8   | 11.4  | 12.9   | 13.3    | 10.3  | 8.0   | 2.8    | -7.2  | -12.0 |
| Vac 27                                   | Leq,d      | 21.0  | -8.7  | -1.5   | 2.0   | 5.1   | 6.4   | 2.3   | -0.6  | -1.1  | -3.1  | -7.7  | -5.4  | -5.0  | -2.6  | 1.0   | 2.3   | 5.1   | 3.6   | 9.0     | 11.1   | 11.8  | 13.2   | 13.7    | 10.7  | 8.5   | 3.3    | -6.5  | -11.2 |
| Vac 28                                   | Leq,d      | 21.3  | -8.4  | -1.2   | 2.3   | 5.4   | 6.7   | 2.6   | -0.3  | -0.8  | -2.8  | -7.3  | -5.0  | -4.7  | -2.3  | 1.3   | 2.6   | 5.4   | 3.9   | 9.3     | 11.5   | 12.1  | 13.5   | 14.0    | 11.1  | 8.9   | 3.8    | -5.9  | -10.3 |
| Remaining contrib. of src "Facade 01"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 02"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 03"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 04"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Roof 01"      | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 1"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 2"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 3"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 4"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 5"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 6"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 7"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 8"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 9"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 10" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 11" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 12" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 13" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 14" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 15" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 16" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 17" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 18" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 19" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 20" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 21" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 22" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 23" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 24" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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## Contribution spectra - Situation 3: Outdoor SP

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| Source                                                                        | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |  |  |
|-------------------------------------------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|--|--|
|                                                                               |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |  |  |
| Remaining contrib. of src "Vac 25"                                            | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |  |  |
| Remaining contrib. of src "Vac 26"                                            | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |  |  |
| Remaining contrib. of src "Vac 27"                                            | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |  |  |
| Remaining contrib. of src "Vac 28"                                            | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |  |  |
| Receiver Receiver 4 FI G Lr,lim dB(A) Leq,d 46.4 dB(A) Sigma(Leq,d) 0.0 dB(A) |            |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |  |  |
| Facade 01                                                                     | Leq,d      | -11.2 |       |        |       |       |       |       |       | -14.3 |       |       | -15.4 |       |       | -20.5 |       |       | -28.6 |         |        | -43.3 |        |         |       | -62.9 |        |       |       |  |  |
| Facade 02                                                                     | Leq,d      | -9.1  |       |        |       |       |       |       |       | -11.6 |       |       | -14.5 |       |       | -18.1 |       |       | -25.0 |         |        | -38.3 |        |         |       | -56.1 |        |       |       |  |  |
| Facade 03                                                                     | Leq,d      | -4.0  |       |        |       |       |       |       |       | -8.5  |       |       | -9.4  |       |       | -9.6  |       |       | -15.6 |         |        | -28.4 |        |         |       | -45.7 |        |       |       |  |  |
| Facade 04                                                                     | Leq,d      | -12.3 |       |        |       |       |       |       |       | -14.5 |       |       | -17.0 |       |       | -25.6 |       |       | -36.5 |         |        | -50.8 |        |         |       | -69.3 |        |       |       |  |  |
| Roof 01                                                                       | Leq,d      | -3.9  |       |        |       |       |       |       |       | -7.9  |       |       | -7.1  |       |       | -13.8 |       |       | -25.4 |         |        | -41.0 |        |         |       | -60.2 |        |       |       |  |  |
| Transmissive area 01                                                          | Leq,d      | 33.8  |       |        |       |       |       |       |       | 27.8  |       |       | 26.5  |       |       | 27.0  |       |       | 28.9  |         |        | 18.4  |        |         |       | 1.3   |        |       |       |  |  |
| Transmissive area 01                                                          | Leq,d      | 45.9  |       |        |       |       |       |       |       | 34.1  |       |       | 33.7  |       |       | 38.4  |       |       | 43.7  |         |        | 35.3  |        |         |       | 21.0  |        |       |       |  |  |
| Transmissive area 07                                                          | Leq,d      | -3.3  |       |        |       |       |       |       |       | -6.8  |       |       | -8.8  |       |       | -10.2 |       |       | -15.3 |         |        | -27.9 |        |         |       | -45.0 |        |       |       |  |  |
| Transmissive area 07                                                          | Leq,d      | -12.6 |       |        |       |       |       |       |       | -15.5 |       |       | -16.7 |       |       | -23.8 |       |       | -33.5 |         |        | -48.0 |        |         |       | -66.8 |        |       |       |  |  |
| Transmissive area 09                                                          | Leq,d      | -4.3  |       |        |       |       |       |       |       | -11.5 |       |       | -7.1  |       |       | -10.5 |       |       | -18.7 |         |        | -31.6 |        |         |       | -48.7 |        |       |       |  |  |
| Vac 1                                                                         | Leq,d      | 17.3  | -11.9 | -4.7   | -1.2  | 1.9   | 3.2   | -1.0  | -5.4  | -5.8  | -7.9  | -16.2 | -13.9 | -13.6 | -8.0  | -4.4  | -3.2  | 2.3   | 0.8   | 6.0     | 8.4    | 8.8   | 9.8    | 9.7     | 5.8   | 2.2   | -5.0   | -17.9 | -26.8 |  |  |
| Vac 2                                                                         | Leq,d      | 19.6  | -11.9 | -4.7   | -1.2  | 4.3   | 5.6   | 1.5   | -3.0  | -3.4  | -5.4  | -13.8 | -11.5 | -11.2 | -5.5  | -2.0  | -0.8  | 4.7   | 3.2   | 8.5     | 10.8   | 11.2  | 12.2   | 12.1    | 8.2   | 4.5   | -2.8   | -15.7 | -24.8 |  |  |
| Vac 3                                                                         | Leq,d      | 19.6  | -11.9 | -4.7   | -1.2  | 4.3   | 5.6   | 1.5   | -3.0  | -3.4  | -5.5  | -13.8 | -11.5 | -11.2 | -5.5  | -2.0  | -0.8  | 4.7   | 3.2   | 8.5     | 10.8   | 11.2  | 12.2   | 12.1    | 8.2   | 4.5   | -2.8   | -15.7 | -24.8 |  |  |
| Vac 4                                                                         | Leq,d      | 19.6  | -12.0 | -4.8   | -1.3  | 4.3   | 5.6   | 1.5   | -3.0  | -3.4  | -5.5  | -13.8 | -11.6 | -11.2 | -5.6  | -2.0  | -0.8  | 4.7   | 3.2   | 8.4     | 10.8   | 11.1  | 12.2   | 12.1    | 8.1   | 4.5   | -2.8   | -15.8 | -24.9 |  |  |
| Vac 5                                                                         | Leq,d      | 19.6  | -12.0 | -4.8   | -1.3  | 4.3   | 5.6   | 1.5   | -3.0  | -3.5  | -5.5  | -13.8 | -11.6 | -11.2 | -5.6  | -2.0  | -0.8  | 4.7   | 3.1   | 8.4     | 10.8   | 11.1  | 12.2   | 12.1    | 8.1   | 4.4   | -2.9   | -15.9 | -24.9 |  |  |
| Vac 6                                                                         | Leq,d      | 19.6  | -12.0 | -4.8   | -1.3  | 4.3   | 5.6   | 1.4   | -3.1  | -3.5  | -5.5  | -13.9 | -11.6 | -11.2 | -5.6  | -2.1  | -0.8  | 4.7   | 3.1   | 8.4     | 10.7   | 11.1  | 12.2   | 12.0    | 8.1   | 4.4   | -2.9   | -15.9 | -25.0 |  |  |
| Vac 7                                                                         | Leq,d      | 19.6  | -12.0 | -4.8   | 1.1   | 4.2   | 5.5   | 1.4   | -3.1  | -3.5  | -5.5  | -13.9 | -11.6 | -11.3 | -5.6  | -2.1  | -0.9  | 4.6   | 3.1   | 8.4     | 10.7   | 11.1  | 12.1   | 12.0    | 8.0   | 4.3   | -3.0   | -16.0 | -25.2 |  |  |
| Vac 8                                                                         | Leq,d      | 19.5  | -12.0 | -4.8   | 1.1   | 4.2   | 5.5   | 1.4   | -3.1  | -3.5  | -5.6  | -13.9 | -11.7 | -11.3 | -5.7  | -2.1  | -0.9  | 4.6   | 3.1   | 8.3     | 10.7   | 11.0  | 12.1   | 12.0    | 8.0   | 4.3   | -3.0   | -16.1 | -25.3 |  |  |
| Vac 9                                                                         | Leq,d      | 19.5  | -12.1 | -4.9   | 1.1   | 4.2   | 5.5   | 1.3   | -3.2  | -3.6  | -5.6  | -14.0 | -11.7 | -11.4 | -5.7  | -2.2  | -0.9  | 4.6   | 3.0   | 8.3     | 10.6   | 11.0  | 12.0   | 11.9    | 7.9   | 4.2   | -3.2   | -16.3 | -25.5 |  |  |
| Vac 10                                                                        | Leq,d      | 19.4  | -12.1 | -4.9   | 1.0   | 4.1   | 5.4   | 1.3   | -3.2  | -3.6  | -5.7  | -14.0 | -11.8 | -11.4 | -5.7  | -2.2  | -1.0  | 4.5   | 3.0   | 8.3     | 10.6   | 11.0  | 12.0   | 11.8    | 7.8   | 4.1   | -3.3   | -16.4 | -25.7 |  |  |
| Vac 11                                                                        | Leq,d      | 17.0  | -12.2 | -5.0   | -1.5  | 1.6   | 2.9   | -1.2  | -5.7  | -6.2  | -8.2  | -16.5 | -14.3 | -13.9 | -8.2  | -4.7  | -3.5  | 2.0   | 0.5   | 5.8     | 8.1    | 8.5   | 9.5    | 9.3     | 5.4   | 1.6   | -5.7   | -18.8 | -28.1 |  |  |
| Vac 12                                                                        | Leq,d      | 16.9  | -12.2 | -5.0   | -1.5  | 1.6   | 2.9   | -1.2  | -5.8  | -6.2  | -8.2  | -16.6 | -14.3 | -14.0 | -8.3  | -4.8  | -3.5  | 2.0   | 0.4   | 5.7     | 8.0    | 8.4   | 9.4    | 9.3     | 5.3   | 1.6   | -5.8   | -19.0 | -28.3 |  |  |
| Vac 13                                                                        | Leq,d      | 16.8  | -12.3 | -5.1   | -1.6  | 1.5   | 2.8   | -1.3  | -5.8  | -6.3  | -8.3  | -16.6 | -14.4 | -14.0 | -8.3  | -4.8  | -3.6  | 1.9   | 0.4   | 5.7     | 8.0    | 8.3   | 9.4    | 9.2     | 5.2   | 1.4   | -6.0   | -19.2 | -28.6 |  |  |
| Vac 14                                                                        | Leq,d      | 16.8  | -12.3 | -5.1   | -1.6  | 1.5   | 2.8   | -1.3  | -5.9  | -6.3  | -8.3  | -16.7 | -14.4 | -14.1 | -8.4  | -4.8  | -3.6  | 1.9   | 0.3   | 5.6     | 7.9    | 8.3   | 9.3    | 9.2     | 5.1   | 1.4   | -6.1   | -19.3 | -28.8 |  |  |
| Vac 15                                                                        | Leq,d      | 16.7  | -12.3 | -5.2   | -1.7  | 1.4   | 2.7   | -1.4  | -6.0  | -6.4  | -8.4  | -16.7 | -14.5 | -14.1 | -8.4  | -4.9  | -3.7  | 1.8   | 0.3   | 5.6     | 7.9    | 8.2   | 9.2    | 9.1     | 5.0   | 1.2   | -6.2   | -19.5 | -29.1 |  |  |
| Vac 16                                                                        | Leq,d      | 16.6  | -12.4 | -5.2   | -1.7  | 1.4   | 2.7   | -1.5  | -6.1  | -6.5  | -8.5  | -16.9 | -14.6 | -14.2 | -8.5  | -5.0  | -3.8  | 1.7   | 0.2   | 5.5     | 7.8    | 8.1   | 9.1    | 8.9     | 4.9   | 1.1   | -6.5   | -19.9 | -29.5 |  |  |
| Vac 17                                                                        | Leq,d      | 19.7  | -11.1 | -3.9   | -0.4  | 2.7   | 4.0   | -0.1  | -4.4  | -4.8  | -6.8  | -15.1 | -12.8 | -12.5 | -7.0  | -3.4  | -2.2  | 4.9   | 3.4   | 8.6     | 11.0   | 11.4  | 12.5   | 12.4    | 8.5   | 5.1   | -1.9   | -14.3 | -22.3 |  |  |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                   | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                          |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Vac 18                                   | Leq,d      | 19.9  | -11.1 | -3.9   | -0.4  | 2.7   | 4.0   | -0.1  | -4.4  | -4.8  | -6.8  | -15.1 | -12.9 | -12.5 | -5.3  | -1.7  | -0.5  | 5.0   | 3.5   | 8.7     | 11.1   | 11.5  | 12.6   | 12.5    | 8.7   | 5.2   | -1.8   | -14.2 | -22.3 |
| Vac 19                                   | Leq,d      | 19.8  | -11.1 | -3.9   | -0.4  | 2.7   | 3.9   | -0.2  | -4.4  | -4.8  | -6.9  | -15.2 | -12.9 | -12.5 | -5.3  | -1.7  | -0.5  | 5.0   | 3.4   | 8.7     | 11.1   | 11.5  | 12.5   | 12.5    | 8.6   | 5.2   | -1.8   | -14.3 | -22.4 |
| Vac 20                                   | Leq,d      | 19.8  | -11.2 | -4.0   | -0.5  | 2.6   | 3.9   | -0.2  | -4.4  | -4.9  | -6.9  | -15.2 | -12.9 | -12.6 | -5.3  | -1.7  | -0.5  | 5.0   | 3.4   | 8.7     | 11.1   | 11.4  | 12.5   | 12.5    | 8.6   | 5.1   | -1.9   | -14.3 | -22.5 |
| Vac 21                                   | Leq,d      | 19.8  | -11.2 | -4.0   | -0.5  | 2.6   | 3.9   | -0.2  | -4.5  | -4.9  | -6.9  | -15.2 | -12.9 | -12.6 | -5.3  | -1.8  | -0.5  | 4.9   | 3.4   | 8.7     | 11.0   | 11.4  | 12.5   | 12.4    | 8.6   | 5.1   | -1.9   | -14.4 | -22.6 |
| Vac 22                                   | Leq,d      | 19.8  | -11.2 | -4.0   | -0.5  | 2.6   | 3.9   | -0.2  | -4.5  | -4.9  | -6.9  | -15.2 | -13.0 | -12.6 | -5.3  | -1.8  | -0.6  | 4.9   | 3.4   | 8.7     | 11.0   | 11.4  | 12.5   | 12.4    | 8.5   | 5.0   | -2.0   | -14.5 | -22.7 |
| Vac 23                                   | Leq,d      | 19.7  | -11.2 | -4.0   | -0.5  | 2.6   | 3.9   | -0.3  | -4.5  | -4.9  | -7.0  | -15.3 | -13.0 | -12.7 | -5.4  | -1.8  | -0.6  | 4.9   | 3.3   | 8.6     | 11.0   | 11.4  | 12.4   | 12.4    | 8.5   | 5.0   | -2.0   | -14.6 | -22.8 |
| Vac 24                                   | Leq,d      | 19.7  | -11.3 | -4.1   | -0.6  | 2.5   | 3.8   | -0.3  | -4.6  | -5.0  | -7.0  | -15.3 | -13.1 | -12.7 | -5.4  | -1.9  | -0.6  | 4.8   | 3.3   | 8.6     | 10.9   | 11.3  | 12.4   | 12.3    | 8.4   | 4.9   | -2.2   | -14.7 | -23.0 |
| Vac 25                                   | Leq,d      | 18.8  | -11.5 | -4.3   | -0.8  | 2.3   | 3.6   | -0.5  | -4.9  | -5.3  | -7.3  | -15.7 | -13.4 | -13.0 | -7.4  | -3.9  | -2.7  | 4.0   | 2.4   | 7.7     | 10.1   | 10.5  | 11.5   | 11.5    | 7.6   | 4.0   | -3.1   | -15.8 | -24.4 |
| Vac 26                                   | Leq,d      | 17.8  | -11.6 | -4.4   | -0.9  | 2.2   | 3.5   | -0.6  | -5.0  | -5.4  | -7.4  | -15.8 | -13.5 | -13.1 | -7.5  | -4.0  | -2.8  | 2.7   | 1.2   | 6.5     | 8.8    | 9.2   | 10.3   | 10.3    | 6.5   | 3.0   | -4.0   | -16.5 | -25.0 |
| Vac 27                                   | Leq,d      | 17.7  | -11.6 | -4.4   | -0.9  | 2.1   | 3.4   | -0.7  | -5.1  | -5.5  | -7.5  | -15.8 | -13.6 | -13.2 | -7.6  | -4.1  | -2.8  | 2.7   | 1.1   | 6.4     | 8.8    | 9.2   | 10.3   | 10.2    | 6.4   | 2.9   | -4.1   | -16.8 | -25.3 |
| Vac 28                                   | Leq,d      | 17.6  | -11.7 | -4.5   | -1.0  | 2.1   | 3.4   | -0.7  | -5.1  | -5.6  | -7.6  | -15.9 | -13.7 | -13.3 | -7.7  | -4.1  | -2.9  | 2.6   | 1.0   | 6.3     | 8.7    | 9.1   | 10.2   | 10.1    | 6.3   | 2.7   | -4.3   | -17.0 | -25.6 |
| Remaining contrib. of src "Facade 01"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 02"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 03"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 04"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Roof 01"      | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 1"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 2"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 3"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 4"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 5"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 6"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 7"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 8"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 9"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 10" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 11" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 12" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 13" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 14" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 15" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 16" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 17" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 18" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 19" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 20" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 21" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 22" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz             | 31.5Hz | 40Hz                   | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|------------------|--------|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A)            | dB(A)  | dB(A)                  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 23" | Leq,d      |       |                  |        |                        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 24" | Leq,d      |       |                  |        |                        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 25" | Leq,d      |       |                  |        |                        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 26" | Leq,d      |       |                  |        |                        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 27" | Leq,d      |       |                  |        |                        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 28" | Leq,d      |       |                  |        |                        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Receiver Receiver 5 FI G Lr,lim    |            | dB(A) | Leq,d 53.1 dB(A) |        | Sigma(Leq,d) 0.0 dB(A) |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Facade 01                          | Leq,d      | -13.2 |                  |        |                        |       |       |       |       |       | -16.0 |       |       | -17.0 |       |       | -24.9 |       |       | -35.1   |        |       | -49.9  |         |       | -67.7 |        |       |       |
| Facade 02                          | Leq,d      | 1.9   |                  |        |                        |       |       |       |       |       | -0.6  |       |       | -3.0  |       |       | -8.1  |       |       | -15.0   |        |       | -28.0  |         |       | -42.2 |        |       |       |
| Facade 03                          | Leq,d      | 4.2   |                  |        |                        |       |       |       |       |       | 0.0   |       |       | 0.1   |       |       | -3.0  |       |       | -9.3    |        |       | -21.2  |         |       | -35.7 |        |       |       |
| Facade 04                          | Leq,d      | 1.5   |                  |        |                        |       |       |       |       |       | -0.9  |       |       | -3.5  |       |       | -9.0  |       |       | -16.4   |        |       | -30.0  |         |       | -47.1 |        |       |       |
| Roof 01                            | Leq,d      | 5.3   |                  |        |                        |       |       |       |       |       | 0.4   |       |       | 2.6   |       |       | -3.7  |       |       | -12.4   |        |       | -25.6  |         |       | -41.5 |        |       |       |
| Transmissive area 01               | Leq,d      | 28.4  |                  |        |                        |       |       |       |       |       | 23.8  |       |       | 22.9  |       |       | 20.8  |       |       | 20.8    |        |       | 11.5   |         |       | -2.3  |        |       |       |
| Transmissive area 01               | Leq,d      | 53.0  |                  |        |                        |       |       |       |       |       | 42.3  |       |       | 43.3  |       |       | 45.9  |       |       | 50.2    |        |       | 42.3   |         |       | 30.8  |        |       |       |
| Transmissive area 07               | Leq,d      | 2.2   |                  |        |                        |       |       |       |       |       | -1.6  |       |       | -1.8  |       |       | -6.0  |       |       | -12.5   |        |       | -24.6  |         |       | -39.3 |        |       |       |
| Transmissive area 07               | Leq,d      | 1.8   |                  |        |                        |       |       |       |       |       | -1.9  |       |       | -2.3  |       |       | -6.5  |       |       | -13.1   |        |       | -25.4  |         |       | -40.5 |        |       |       |
| Transmissive area 09               | Leq,d      | 3.7   |                  |        |                        |       |       |       |       |       | -3.3  |       |       | 1.4   |       |       | -3.6  |       |       | -11.4   |        |       | -23.7  |         |       | -38.1 |        |       |       |
| Vac 1                              | Leq,d      | 24.5  | -5.6             | 1.6    | 5.1                    | 8.2   | 9.5   | 5.4   | 2.3   | 1.9   | -0.2  | -7.2  | -4.9  | -4.5  | -1.2  | 2.3   | 3.6   | 8.1   | 6.6   | 12.0    | 14.4   | 15.1  | 16.7   | 17.4    | 14.7  | 13.0  | 8.7    | 0.0   | -2.9  |
| Vac 2                              | Leq,d      | 23.9  | -6.1             | 1.1    | 4.6                    | 7.7   | 9.0   | 4.9   | 1.8   | 1.4   | -0.7  | -7.8  | -5.6  | -5.2  | -1.8  | 1.7   | 3.0   | 7.6   | 6.1   | 11.5    | 13.9   | 14.6  | 16.2   | 16.9    | 14.1  | 12.4  | 7.9    | -0.9  | -4.1  |
| Vac 3                              | Leq,d      | 23.4  | -6.5             | 0.7    | 4.2                    | 7.3   | 8.6   | 4.5   | 1.3   | 0.9   | -1.1  | -8.4  | -6.2  | -5.8  | -2.4  | 1.2   | 2.5   | 7.1   | 5.6   | 11.0    | 13.4   | 14.1  | 15.7   | 16.3    | 13.5  | 11.7  | 7.1    | -1.8  | -5.2  |
| Vac 4                              | Leq,d      | 22.9  | -7.0             | 0.2    | 3.7                    | 6.8   | 8.1   | 4.0   | 0.8   | 0.4   | -1.6  | -9.0  | -6.7  | -6.3  | -2.9  | 0.7   | 1.9   | 6.6   | 5.2   | 10.6    | 13.0   | 13.7  | 15.2   | 15.8    | 13.0  | 11.1  | 6.4    | -2.7  | -6.3  |
| Vac 5                              | Leq,d      | 22.4  | -7.4             | -0.2   | 3.3                    | 6.4   | 7.7   | 3.6   | 0.4   | 0.0   | -2.0  | -9.5  | -7.3  | -6.9  | -3.4  | 0.2   | 1.4   | 6.2   | 4.7   | 10.1    | 12.6   | 13.2  | 14.7   | 15.3    | 12.4  | 10.5  | 5.7    | -3.6  | -7.4  |
| Vac 6                              | Leq,d      | 22.0  | -7.8             | -0.6   | 2.9                    | 6.0   | 7.3   | 3.2   | 0.0   | -0.4  | -2.5  | -10.1 | -7.8  | -7.4  | -3.9  | -0.3  | 0.9   | 5.8   | 4.3   | 9.7     | 12.1   | 12.8  | 14.3   | 14.8    | 11.9  | 9.9   | 5.0    | -4.5  | -8.5  |
| Vac 7                              | Leq,d      | 21.5  | -8.1             | -0.9   | 2.6                    | 5.7   | 7.0   | 2.9   | -0.4  | -0.8  | -2.8  | -10.5 | -8.3  | -7.9  | -4.3  | -0.8  | 0.5   | 5.4   | 3.9   | 9.3     | 11.7   | 12.4  | 13.8   | 14.4    | 11.4  | 9.3   | 4.3    | -5.3  | -9.6  |
| Vac 8                              | Leq,d      | 16.9  | -8.3             | -1.1   | 2.3                    | 3.0   | 4.2   | -0.1  | -3.6  | -4.2  | -6.4  | -12.0 | -10.0 | -10.1 | -7.8  | -4.5  | -3.4  | 0.8   | -0.8  | 4.5     | 6.8    | 7.4   | 8.8    | 9.3     | 6.3   | 4.0   | -1.0   | -10.8 | -15.3 |
| Vac 9                              | Leq,d      | 15.6  | -8.7             | -1.5   | 2.0                    | 5.1   | 3.8   | -0.5  | -4.1  | -4.8  | -7.1  | -13.0 | -11.2 | -11.4 | -9.0  | -5.8  | -4.8  | -0.3  | -2.0  | 3.2     | 5.5    | 5.8   | 7.0    | 7.2     | 3.8   | 1.2   | -4.5   | -15.0 | -20.3 |
| Vac 10                             | Leq,d      | 14.9  | -8.9             | -1.7   | 1.8                    | 4.9   | 3.7   | -0.6  | -4.4  | -5.1  | -7.4  | -13.4 | -11.7 | -12.0 | -9.5  | -6.3  | -5.3  | -0.8  | -2.5  | 2.6     | 4.7    | 5.0   | 6.1    | 6.2     | 2.6   | -0.2  | -6.1   | -16.8 | -22.5 |
| Vac 11                             | Leq,d      | 14.0  | -9.1             | -1.9   | 1.6                    | 4.7   | 3.6   | -0.8  | -4.7  | -5.4  | -7.8  | -14.1 | -12.4 | -12.6 | -10.1 | -6.9  | -6.0  | -1.5  | -3.3  | 1.7     | 3.7    | 3.9   | 4.8    | 4.7     | 0.9   | -2.1  | -8.2   | -19.2 | -25.2 |
| Vac 12                             | Leq,d      | 13.4  | -9.3             | -2.1   | 1.4                    | 4.5   | 3.6   | -0.8  | -4.8  | -5.6  | -8.0  | -14.5 | -12.8 | -13.0 | -10.5 | -7.3  | -6.5  | -2.1  | -3.9  | 1.0     | 3.0    | 3.0   | 3.9    | 3.6     | -0.3  | -3.4  | -9.7   | -20.9 | -27.2 |
| Vac 13                             | Leq,d      | 12.8  | -9.6             | -2.4   | 1.1                    | 4.2   | 3.6   | -0.8  | -5.0  | -5.8  | -8.2  | -14.9 | -13.2 | -13.4 | -10.9 | -7.8  | -7.0  | -2.6  | -4.6  | 0.3     | 2.1    | 2.1   | 2.9    | 2.5     | -1.5  | -4.7  | -11.1  | -22.6 | -29.1 |
| Vac 14                             | Leq,d      | 12.6  | -9.8             | -2.6   | 0.9                    | 4.0   | 3.6   | -0.8  | -5.0  | -5.8  | -8.3  | -15.0 | -13.3 | -13.5 | -11.0 | -7.9  | -7.1  | -2.8  | -4.8  | 0.1     | 1.9    | 1.8   | 2.5    | 2.1     | -1.9  | -5.3  | -11.8  | -23.4 | -30.1 |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                                   | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                          |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Vac 15                                   | Leq,d      | 12.3  | -10.0 | -2.8   | 0.7   | 3.8   | 3.6   | -0.9  | -5.1  | -5.9  | -8.4  | -15.1 | -13.5 | -13.7 | -11.2 | -8.2  | -7.4  | -3.1  | -5.1  | -0.3    | 1.5    | 1.4   | 2.0    | 1.6     | -2.5  | -6.0  | -12.7  | -24.4 | -31.4 |
| Vac 16                                   | Leq,d      | 11.5  | -10.2 | -3.0   | 0.5   | 3.6   | 3.3   | -1.1  | -5.5  | -6.3  | -8.7  | -15.9 | -14.2 | -14.5 | -11.9 | -8.9  | -8.3  | -4.0  | -6.1  | -1.5    | 0.1    | -0.1  | 0.4    | -0.1    | -4.4  | -8.0  | -14.7  | -26.7 | -33.9 |
| Vac 17                                   | Leq,d      | 23.7  | -6.3  | 0.9    | 4.4   | 7.5   | 8.8   | 4.7   | 1.5   | 1.1   | -0.9  | -8.2  | -5.9  | -5.5  | -2.1  | 1.4   | 2.7   | 7.3   | 5.9   | 11.3    | 13.7   | 14.4  | 15.9   | 16.6    | 13.8  | 12.0  | 7.5    | -1.4  | -4.7  |
| Vac 18                                   | Leq,d      | 23.2  | -6.7  | 0.5    | 4.0   | 7.1   | 8.4   | 4.3   | 1.1   | 0.7   | -1.3  | -8.7  | -6.4  | -6.0  | -2.6  | 1.0   | 2.3   | 6.9   | 5.5   | 10.9    | 13.3   | 13.9  | 15.5   | 16.1    | 13.3  | 11.5  | 6.9    | -2.2  | -5.6  |
| Vac 19                                   | Leq,d      | 22.8  | -7.1  | 0.1    | 3.6   | 6.7   | 8.0   | 3.9   | 0.7   | 0.3   | -1.7  | -9.2  | -6.9  | -6.5  | -3.1  | 0.5   | 1.8   | 6.5   | 5.0   | 10.4    | 12.9   | 13.5  | 15.0   | 15.6    | 12.8  | 10.9  | 6.2    | -3.0  | -6.7  |
| Vac 20                                   | Leq,d      | 22.3  | -7.5  | -0.3   | 3.2   | 6.3   | 7.6   | 3.5   | 0.2   | -0.2  | -2.2  | -9.7  | -7.5  | -7.1  | -3.6  | 0.0   | 1.2   | 6.0   | 4.6   | 10.0    | 12.4   | 13.0  | 14.5   | 15.1    | 12.2  | 10.2  | 5.4    | -3.9  | -7.8  |
| Vac 21                                   | Leq,d      | 21.9  | -7.9  | -0.7   | 2.8   | 5.9   | 7.2   | 3.1   | -0.1  | -0.5  | -2.5  | -10.2 | -7.9  | -7.5  | -4.0  | -0.4  | 0.8   | 5.7   | 4.2   | 9.6     | 12.0   | 12.7  | 14.2   | 14.7    | 11.8  | 9.7   | 4.8    | -4.6  | -8.8  |
| Vac 22                                   | Leq,d      | 21.5  | -8.2  | -1.0   | 2.5   | 5.6   | 6.9   | 2.8   | -0.5  | -0.9  | -2.9  | -10.6 | -8.3  | -8.0  | -4.4  | -0.9  | 0.4   | 5.3   | 3.9   | 9.2     | 11.7   | 12.3  | 13.8   | 14.3    | 11.3  | 9.2   | 4.2    | -5.4  | -9.8  |
| Vac 23                                   | Leq,d      | 21.1  | -8.4  | -1.2   | 2.3   | 5.4   | 6.7   | 2.6   | -0.8  | -1.2  | -3.2  | -11.0 | -8.8  | -8.4  | -4.8  | -1.2  | 0.0   | 5.0   | 3.5   | 8.9     | 11.3   | 11.9  | 13.4   | 13.9    | 10.9  | 8.7   | 3.6    | -6.2  | -10.8 |
| Vac 24                                   | Leq,d      | 20.7  | -8.6  | -1.4   | 2.1   | 5.2   | 6.4   | 2.3   | -1.1  | -1.5  | -3.6  | -11.4 | -9.1  | -8.8  | -5.2  | -1.6  | -0.3  | 4.7   | 3.2   | 8.6     | 11.0   | 11.6  | 13.1   | 13.5    | 10.5  | 8.2   | 3.0    | -6.9  | -11.7 |
| Vac 25                                   | Leq,d      | 19.1  | -9.7  | -2.5   | 1.0   | 4.1   | 5.4   | 1.3   | -2.5  | -3.0  | -5.0  | -13.1 | -10.8 | -10.5 | -6.7  | -3.2  | -1.9  | 3.3   | 1.8   | 7.2     | 9.6    | 10.1  | 11.5   | 11.8    | 8.5   | 5.9   | 0.2    | -10.5 | -16.4 |
| Vac 26                                   | Leq,d      | 18.8  | -9.9  | -2.7   | 0.8   | 3.9   | 5.2   | 1.1   | -2.8  | -3.2  | -5.3  | -13.4 | -11.1 | -10.8 | -7.0  | -3.5  | -2.2  | 3.0   | 1.5   | 6.9     | 9.3    | 9.8   | 11.2   | 11.5    | 8.2   | 5.5   | -0.3   | -11.2 | -17.3 |
| Vac 27                                   | Leq,d      | 18.5  | -10.1 | -2.9   | 0.6   | 3.7   | 5.0   | 0.9   | -3.1  | -3.5  | -5.5  | -13.7 | -11.4 | -11.1 | -7.3  | -3.8  | -2.5  | 2.8   | 1.3   | 6.6     | 9.0    | 9.6   | 10.9   | 11.1    | 7.8   | 5.1   | -0.8   | -11.9 | -18.2 |
| Vac 28                                   | Leq,d      | 18.2  | -10.3 | -3.1   | 0.4   | 3.5   | 4.8   | 0.7   | -3.3  | -3.7  | -5.8  | -14.0 | -11.7 | -11.3 | -7.6  | -4.0  | -2.8  | 2.5   | 1.0   | 6.4     | 8.8    | 9.3   | 10.6   | 10.8    | 7.4   | 4.6   | -1.4   | -12.5 | -19.1 |
| Remaining contrib. of src "Facade 01"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 02"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 03"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Facade 04"    | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Roof 01"      | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Transmissive" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 1"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 2"        | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

# Bullard & McDowell

## Contribution spectra - Situation 3: Outdoor SP

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| Source                             | Time slice | Sum   | 25Hz  | 31.5Hz | 40Hz  | 50Hz  | 63Hz  | 80Hz  | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1kHz  | 1.25kHz | 1.6kHz | 2kHz  | 2.5kHz | 3.15kHz | 4kHz  | 5kHz  | 6.3kHz | 8kHz  | 10kHz |
|------------------------------------|------------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|--------|-------|--------|---------|-------|-------|--------|-------|-------|
|                                    |            | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A) | dB(A)   | dB(A)  | dB(A) | dB(A)  | dB(A)   | dB(A) | dB(A) | dB(A)  | dB(A) | dB(A) |
| Remaining contrib. of src "Vac 3"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 4"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 5"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 6"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 7"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 8"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 9"  | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 10" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 11" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 12" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 13" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 14" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 15" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 16" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 17" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 18" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 19" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 20" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |
| Remaining contrib. of src "Vac 21" | Leq,d      |       |       |        |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |         |        |       |        |         |       |       |        |       |       |

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| <p style="text-align: center;"><b>Bullard &amp; McDowell</b></p> <p style="text-align: center;"><b>Contribution spectra - Situation 3: Outdoor SP</b></p> | <b>23</b> |
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| <p style="text-align: center;"><b>Bullard &amp; McDowell</b></p> <p style="text-align: center;"><b>Contribution spectra - Situation 3: Outdoor SP</b></p> | <b>23</b> |
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