



MOTOROLA SOLUTIONS

August 14, 2014

(Revised Reconfiguration Implementation Phase Agreement, post-negotiation)

Oscar Montoya
Hidalgo County
Emergency Management Coordinator
302 W. University Drive
Edinburg, TX 78539

Dear Mr. Montoya,

Motorola Solutions, Inc. is pleased to present this proposal for reconfiguration services required to modify your radio system to comply with the Federal Communication Commission's Rebanding Report & Order. The FCC mandates that Hidalgo County, TX move their 800 MHz System frequencies as part of an overall effort by the FCC to reduce interference in the 800 MHz band.

Motorola has worked closely with Hidalgo County, TX to ensure that we have a complete understanding of your current operational needs and how these are to be considered while reconfiguring your 800 MHz radio system. We have completed an evaluation of your system which included the impact of the necessary changes to the newly assigned frequencies.

Motorola will commence this reconfiguration effort for the Hidalgo County, TX system once this proposal is agreed to by Sprint Nextel and the rebanding Transition Administrator. As outlined in the guidelines of the Transition Administrator, the attached Statement of Work and accompanying price page should be included with your request for reconfiguration funding forms and faxed to Transition Administrator at (888) 701-4380 or via e-mail to Comments@800TA.org. If you have any questions regarding this proposal, please contact your Motorola Rebanding Strategist, Bill McDaniel at (205) 260-7801 or your Motorola Account Manager, David Champion at (956) 532-8659.

Regards,

David C. Nash

David C. Nash
Rebanding Team Lead
Services Operations – Americas Region

Reconfiguration Implementation Phase Agreement

Motorola Solutions, Inc. ("Motorola") and Hidalgo County, TX ("Customer" or "Licensee"), whose main address is 302 W. University Drive, Edinburg, TX 78539 enter into this Reconfiguration Implementation Phase Agreement ("Agreement"), pursuant to which Licensee will purchase and Motorola will sell the Reconfiguration Implementation Phase products or services described below, and the parties will perform their duties as described in this Agreement. Motorola and Licensee may be referred to individually as a "Party" and collectively as the "Parties." This Agreement is made with reference to the following recitals.

A. On August 6, 2004, the Federal Communications Commission ("FCC") issued a Report and Order FCC 04-168 that modified its rules governing the 800 MHz band to minimize harmful interference to public safety communications systems. On December 22, 2004, the FCC issued a Supplemental Order and Order on Reconsideration FCC 04-294. The August 6 and December 22, 2004 orders, and any supplemental orders issued by the FCC, are collectively referred to as the "Order."

B. Pursuant to the Order, certain licensees of 800 MHz channels used in public safety or other systems must relinquish their existing channels and relocate their systems to other licensed channels ("Replacement Channels"); and Nextel Communications, Inc. must relinquish some of its existing channels and must provide and pay relocation funds ("Relocation Funds") to enable affected licensees (like Licensee) to relocate their systems onto Replacement Channels and reconfigure their systems so that they are "Comparable Facilities" (as defined below)

C. The FCC has appointed a Transition Administrator (the "TA") to ensure that the rebanding initiative proceeds on schedule and in a planned and coordinated manner so that disruption to a licensee's system is minimized. In the TA's "Reconfiguration Handbook," the two phases to accomplish reconfiguration are described as the "Reconfiguration Planning Phase" and the "Reconfiguration Implementation Phase." This Agreement addresses only the Reconfiguration Implementation Phase. Licensee has selected Motorola to provide the "Reconfiguration Implementation Phase Products and Services" (as defined below).

D. The Parties acknowledge that additional products or services may be needed for Licensee to achieve Comparable Facilities, and these additional products may be provided by other vendors and these additional services may be performed by Licensee's own personnel or by its other contractors. This Agreement describes only the Reconfiguration Implementation Phase Products and Services (and, if applicable, Upgrades) that Motorola is providing to Licensee.

E. This Agreement is not intended to, and does not, apply to the delivery of any products or services that are not related to the Reconfiguration Implementation Phase activities. If Licensee desires to purchase from Motorola products or services that are not related to these reconfiguration activities, the Parties will document that transaction in another separate contract. However, Licensee may use this Agreement to purchase upgraded subscriber equipment. Upgrades will be paid with Licensee's own funds and not by Nextel.

For good and valuable consideration, the Parties agree as follows:

Section 1 EXHIBITS

The exhibits listed below are incorporated into and made a part of this Agreement. In interpreting this Agreement and resolving any ambiguities, the main body of this Agreement takes precedence over the exhibits.

Exhibit A Payment Milestone Schedule (Inapplicable to Subscriber Only Transactions)

- Exhibit B System Acceptance Certificate (Inapplicable to Subscriber Only, No Services Transactions)
- Exhibit C Motorola's Proposal dated 03/21/2014 and revised 08/14/2014 which includes all of the "Technical and Implementation Documents" such as (if applicable):
- the "Reconfiguration Products List,"
 - the "Reconfiguration Services Statement of Work" or "SOW," including Benchmark Tests, if any,
 - the "Reconfiguration Acceptance Test Plan" or "ATP," and
 - the "Performance Schedule"

Section 2 DEFINITIONS

In addition to the defined terms above, capitalized terms used in this Agreement have the following meanings:

- 2.1. "Acceptance Tests" means those tests described in the Reconfiguration ATP, the primary purpose of which is to verify that the Licensee's System has been relocated onto Replacement Channels and reconfigured consistently with this Agreement.
- 2.2. "Benchmark Tests" means the initial tests performed by Motorola on behalf of Licensee to determine the current condition, capability, and functionality of Licensee's System. Depending on the complexity and specific requirements of the reconfiguration efforts, the Benchmark Tests may include testing of some or all of the following: channel capacity, signaling capacity, baud rate and access time, geographic coverage, penetration, redundancy, and other functional and operational capabilities and limitations of Licensee's existing facilities. The precise requirements of the Benchmark Tests are described in the Reconfiguration Services Statement of Work. Qualified representatives of Licensee may observe the performance of the Benchmark Tests.
- 2.3. "Comparable Facilities" means, as more fully described at Section 90.699(d) of the FCC's Rules, 47 C.F.R. §90.699(d), and as interpreted by the FCC in its orders and rulings, the Licensee's System (including the subscriber radio equipment) having at least the same operational capabilities that existed before relocation, including (1) equivalent channel capacity; (2) equivalent signaling capacity, baud rate, and access time; (3) coextensive geographical coverage; and (4) equivalent operating costs. See, 47 C.F.R. §90.677(f), referring to Section 90.699(d).
- 2.4. "Confidential Information" means any information that is disclosed in written, graphic, verbal, or machine-recognizable form, and is marked, designated, labeled or identified at the time of disclosure as being confidential or its equivalent; or if the information is in verbal form, it is identified as confidential or proprietary at the time of disclosure and is confirmed in writing within thirty (30) days of the disclosure. Confidential Information does not include any information that: is or becomes publicly known through no wrongful or negligent act of the receiving party; is already known to the receiving party without restriction when it is disclosed; is, or subsequently becomes, rightfully and without breach of this Agreement, of any other agreement between the Parties or of any applicable protective or similar order, in the receiving party's possession without any obligation restricting disclosure; is independently developed by the receiving party without breach of this Agreement; or is explicitly approved for release by written authorization of the disclosing party.
- 2.5. "Contract Price" means the price for the Reconfiguration Implementation Phase Products and Services, whether set forth in one or multiple Proposals. The Contract Price excludes any applicable sales or similar taxes, and any Rebanding Radios, Non-Kit Accessories, and Flash Kits which will be invoiced directly to Nextel pursuant to Section 5.2.1.1.
- 2.6. "Cost Estimate" means the Licensee's certified estimate of costs as provided to Nextel and the TA submitted in conjunction with a request for Relocation Funds to provide Comparable Facilities.
- 2.7. "Licensee's Final Certification" means the Licensee's final certification to Nextel and the TA certifying that (i) the Acceptance Tests described in the Reconfiguration ATP have been satisfactorily completed, (ii) all



necessary reconfiguration work has been satisfactorily completed to provide Licensee with Comparable Facilities, and (iii) Nextel and Licensee have agreed on the sum paid for such relocation of the Licensee's facilities.

2.8. "Customer Suitability Assessment" means the initial assessment services performed by Motorola to determine whether Licensee's System (infrastructure) is suitable for updating using the Motorola Software that has been especially modified for purposes of the 800 MHz band reconfiguration.

2.9. "Effective Date" means that date upon which all Parties have executed this Agreement.

2.10. "Field Services" means the reflashing and installation of a Flash Kit (as defined in Section 3.1.4), firmware, programming, creation of user templates and/or setting of local configurations or other on-site services in accordance with the FCC's 800MHz band plan on Licensee's System.

2.11. "Force Majeure" means a material event, circumstance, or act of a third party (including Nextel or the TA) that is beyond a Party's reasonable control. An act of God, the public enemy, a government entity, or another Party (including another Party's failure to comply with the 800 MHz Rules); strikes or other labor disturbances, general unavailability of necessary materials, hurricanes, earthquakes, fires, floods, epidemics, embargoes, war, and riots are examples of a Force Majeure.

2.12. "Infringement Claim" means a third-party claim alleging that the Reconfiguration Implementation Phase Products manufactured by Motorola or any Motorola Software infringes upon the third-party's United States patent or copyright.

2.13. "Motorola Software" means Software that Motorola or its affiliated company owns.

2.14. "Nextel" means Nextel Communications, Inc. and any other affiliate, including Sprint Nextel.

2.15. "Non-Motorola Software" means Software that a party other than Motorola or its affiliated company owns.

2.16. "Non-Kit Accessory" means an accessory that is used for subscriber radios but is not part of the radio kit.

2.17. "Products" means either the hardware, Software, or both, that are provided under this Agreement.

2.18. "Proprietary Rights" means the patents, patent applications, inventions, copyrights, trade secrets, trademarks, trade names, mask works, know-how, and other intellectual property rights in and to any documents delivered by Motorola under this Agreement or any Motorola Software or equipment.

2.19. "Rebanding Radio" means a Motorola manufactured rebanding subscriber radio product (mobile or portable), including the accessories in the radio kit, that is designed and manufactured specifically for the 800 MHz rebanding initiative and is designated by Motorola with an "RB" model number.

2.20. "Reconfiguration Implementation Phase Products" means those Products to be provided by Motorola under this Agreement.

2.21. "Reconfiguration Implementation Phase Services" means those implementation services to be provided by Motorola under this Agreement.

2.22. "Reconfiguration Implementation Phase Products and Services" means those Reconfiguration Implementation Phase Products and Reconfiguration Implementation Phase Services that Motorola sells under this Agreement.

- 2.23. "Software" means the Motorola and Non-Motorola Software in object code format that is furnished under this Agreement, including any releases or software kits to reprogram radios. This Agreement does not involve any source code.
- 2.24. "Specifications" means the functionality and performance requirements that are described in the Technical and Implementation Documents.
- 2.25. "System" means the hardware and software products that comprise the Licensee's existing 800 MHz radio communications system.
- 2.26. "System Acceptance" means the Acceptance Tests have been successfully completed.
- 2.27. "Trade-In Non-Kit Accessory" means a legacy accessory that is used for a Trade-In Radio but is not part of the radio kit, is owned and has been used by the Licensee, and which will be provided to Motorola as a trade-in in exchange for a Non-Kit Accessory on a one-for-one basis and which Nextel agrees to accept as a valid trade-in.
- 2.28. "Trade-In Radio" means a radio (whether manufactured by Motorola or any other manufacturer) that is owned and has been used by a Customer, and which will be provided to Motorola as a trade-in in exchange for a Rebanding Radio on a one-for-one basis and which Nextel agrees to accept as a valid trade-in.
- 2.29. "Upgrades" means upgraded features and functionalities to the Rebanding Radios that exceed what Licensee requires for Comparable Facilities. If applicable, the Upgrades are to be paid by Licensee with its own funds, and not by Nextel, and any portion of this transaction related to the Upgrades is not subject to the TA or Nextel oversight.

Section 3 SCOPE OF AGREEMENT AND TERM

3.1. SCOPE OF WORK.

3.1.1. General. The Parties will perform their respective contractual responsibilities in accordance with this Agreement, including the Technical and Implementation Documents.

3.1.2. Licensee Responsibilities. Licensee is responsible for all activities that are reasonable, necessary and prudent to make the Licensee's System satisfy the Comparable Facilities standard. Licensee has selected Motorola to assist it in accomplishing these activities and has determined that the Reconfiguration Implementation Phase Products and Services are necessary for Licensee's System to satisfy the Comparable Facilities standard.

3.1.2.1. Licensee will designate a project manager who will be Licensee's point of contact person. Licensee will employ reasonable efforts to assist Motorola in providing the Reconfiguration Implementation Phase Services, and will provide reasonable and timely access to Licensee's equipment, facilities, personnel and relevant information.

3.1.2.2. Licensee has contracted with Nextel in a Frequency Reconfiguration Agreement ("FRA") which, among other things, contractually obligates Nextel to pay directly to Motorola the Contract Price. Promptly after execution of the FRA, Licensee will provide to Motorola a copy of those portions of the FRA that pertain to Motorola's services, products, pricing and payment, including Schedules C and D to the FRA (redacted if necessary to exclude information not pertaining to Motorola).

3.1.2.3. Licensee has submitted its Cost Estimate to Nextel and the TA, and will provide amended certified Cost Estimate(s) to Nextel and the TA if and when appropriate, including when any change order is requested by either Party. For the limited purpose of assisting Nextel and the TA to evaluate Licensee's Cost Estimate, Motorola authorizes Licensee to and Licensee will provide to Nextel and the TA a copy of this Agreement, including the exhibits and pricing, but such information is and remains Motorola Confidential Information as provided below in Section 13 (and pursuant to Non-Disclosure Agreements Motorola has with Nextel and the TA). After the successful completion of the Acceptance Tests described in the Reconfiguration ATP, Licensee will perform any



other tests necessary for it to verify that its System meets the Comparable Facilities standard; and upon that verification, will submit Licensee's Final Certification to Nextel and the TA.

3.1.2.4. For the limited purpose of assisting Nextel and the TA to verify consistency concerning the rebanding products and services approved in the FRA and the rebanding Products and services ordered by Licensee and provided to Licensee under this Agreement, either Motorola or Licensee may provide to Nextel and the TA records showing the rebanding Products ordered, shipped, delivered, etc. (or a written summary of these records), and the services performed, but such records shall remain the Confidential Information of the applicable Party as determined by Section 13 below and will be protected under any non-disclosure agreements the Party has with Nextel and the TA.

3.1.3. Motorola Responsibilities. Motorola will provide the Reconfiguration Implementation Phase Products, and perform the Reconfiguration Implementation Phase Services, all in accordance with this Agreement and all of which are intended to support and assist Licensee to make appropriate judgments as to whether its System has achieved Comparable Facilities.

3.1.4. Reprogramming. (Note: this section is not applicable to every customer system.)

Motorola and Nextel have entered into an agreement (the "Development Services Agreement") to modify and test certain Motorola Software for rebanding because some customer systems have equipment that is capable of being reprogrammed rather than being replaced. The Development Services Agreement is confidential, and nothing in this Agreement is intended to reduce or nullify the confidential nature of the Development Services Agreement. As part of the Development Services Agreement and subject to various requirements, limitations and restrictions, Motorola has agreed to offer "Flash Kits" to appropriate customers so that their equipment may be reprogrammed. Concerning infrastructure equipment, Motorola will provide Flash Kits only if Motorola has performed a Customer Suitability Assessment and has determined that the customer's equipment is suitable for reprogramming. Concerning Motorola-manufactured subscriber equipment, Motorola will provide available Flash Kits without a suitability assessment, but Licensee acknowledges that not all Motorola subscriber models are capable of being reprogrammed. Even if a customer's system is of the type and model that is suitable for reprogramming, if Motorola determines that the customer's system is not on the last release of the Motorola Software, reprogramming might be infeasible or may require supplemental services, hardware, cabling, third party licensing fees, or other equipment to migrate the customer's system to the last supported version of the Motorola Software (referred to as "Direct Installation Services").

3.1.4.1 Based upon the results of the Customer Suitability Assessment, the Reconfiguration Services SOW should indicate if Direct Installation Services are known and needed and, if so, the scope of the Direct Installation Services; and the appropriate number and type of Flash Kits to be ordered from Motorola to match the requirements of Licensee's System and upgrade plan as indicated in the Customer Suitability Assessment; and whether Motorola proposes to perform the Field Services concerning the installation of the Flash Kits.

3.1.4.2. If Licensee (rather than Motorola) performs the inventory of System equipment, Licensee agrees that its inventory report will be accurate and sufficiently detailed so that Motorola may perform the Customer Suitability Assessment. If the inventory report contains inaccurate, erroneous, or incomplete inventory information, Motorola is not liable for an incorrect or incomplete Customer Suitability Assessment; and any reassessment or consequences caused by Licensee's inaccurate, erroneous, or incomplete inventory information will be the responsibility of Licensee.

3.1.4.3. Motorola is not obligated to (and does not intend to) offer, sell or provide to Licensee the Flash Kits for infrastructure equipment if Motorola does not perform the Customer Suitability Assessment and determines that Licensee's System is suitable. If Motorola performs the Customer Suitability Assessment and determines that infrastructure equipment in Licensee's System is suitable, and if Motorola performs the Direct Installation Services, if needed, and if Licensee orders the Flash Kits, then Motorola will offer to perform the Field Services (the scope and price of the Field Services will be addressed by means of a change order). To the extent applicable,



Motorola's obligations to sell and provide Flash Kits, Direct Installation Services, and/or Field Services will be expressly described in the Reconfiguration Products List and Reconfiguration Services SOW. If they are not so described, then Section 3.1.4 is not applicable to this transaction. Nothing in this Agreement shall restrict or limit a qualified third party service provider selected by Licensee from performing Field Services, but if a party other than Motorola provides the Field Services, the warranty in Section 8.2.2 is inapplicable.

3.2. CHANGE ORDERS.

3.2.1. General. Either Motorola or Licensee may request changes within the general scope of this Agreement which, if agreed, will be reflected in a written change order. Except in an emergency as described in Section 3.2.3, Licensee will not execute a change order to this Agreement until after Nextel and Licensee have agreed upon the corresponding change notice and amendment to their Frequency Reconfiguration Agreement. A change order is not effective until it is executed by each of the Parties. The Parties will negotiate in good faith any requested change order.

3.2.2. Reconfiguration Implementation Phase Products and Services. If a requested change causes (or is likely to cause) an increase in the Contract Price: (1) Motorola will provide Licensee with its written estimate of: (a) the scope of the changes to the Products and Services, and (b) the increase in the Contract Price due to the requested change, and (2) Licensee will perform its own analysis of the impact of the requested change on the Contract Price and the necessity of the changes to achieve the Comparable Facilities standard, and (3) Licensee will submit to Nextel and the TA its modified Cost Estimate and proposed FRA change notice. Licensee will provide to Motorola a copy of any approvals or rejections of modifications to the Cost Estimate and to the FRA by Nextel or the TA.

3.2.3. Emergency Change Orders. If the subject of a change order involves a total System failure or a critical failure that diminishes radio communications and causes a significant public safety risk and if Motorola and Licensee reasonably conclude that remediation efforts must occur before Licensee obtains Nextel and TA approval, then the Parties will follow the change order process to the extent reasonably practical, Motorola will perform the remediation work described in the Emergency Change Order, Licensee will promptly request approval or ratification of the Emergency Change Order by Nextel and the TA, and if Nextel or the TA withhold approval of the Emergency Change Order, additional work performed by Motorola pursuant to the Emergency Change Order will be paid by Licensee with its own funds without prejudice to Licensee's right to submit or re-submit the change order to Nextel or the TA or to dispute the decision by Nextel or the TA refusing to approve the change order.

3.3. MAINTENANCE AND SUPPORT SERVICES. Other than the warranty services described in Section 8, this Agreement does not cover any warranty, maintenance and support services. If Licensee and Motorola wish to address maintenance and support services, they may do so in a separate agreement.

3.4. SOFTWARE. Motorola Software, including subsequent releases and Flash Kits, is licensed to Licensee in accordance with Motorola's applicable standard software license agreement (a copy of which will be provided to Licensee upon request and is incorporated herein by this reference). Non-Motorola Software is licensed to Licensee in accordance with the applicable standard software license agreement of the copyright owner on the Effective Date unless the copyright owner has granted to Motorola the right to sublicense the Non-Motorola Software pursuant to the applicable Motorola software license agreement, in which case it applies and the copyright owner will have all of Licensor's rights and protections under that Motorola software license agreement. Motorola makes no representations or warranties of any kind regarding Non-Motorola Software. Licensee hereby accepts and agrees to abide by all of the terms and restrictions of the applicable software license agreement.

3.5. REBANDING RADIOS AND TRADE-IN RADIOS. Licensee agrees that for each and every Rebanding Radio (and, as applicable, Non-Kit Accessory) that Motorola provides to Licensee under this Agreement (and for each and every upgraded radio that is provided in lieu of a Rebanding Radio by Motorola under any agreement), Licensee shall deliver to Motorola a Trade-In Radio (and, as applicable, Trade-In Non-Kit Accessory) on a one-for-one basis. A Trade-In Radio or Trade-In Non-Kit Accessory will be recognized as a valid trade in only if Nextel accepts it as such during its process of inventorying, powering on, and inspecting the trade in units. Licensee will deliver the Trade-In Radios and Trade-In Non-Kit Accessories to Motorola as soon as practical after they are



replaced by the Rebanding Radios and Non-Kit Accessories or at a different time mutually agreed by the Parties but in no event later than 90 days after delivery of the corresponding Rebanding (or upgraded) Radio; partial shipments of Trade-In units are acceptable and are to occur no less frequently than monthly. Title to the Trade-In Radios and Trade-In Non-Kit Accessories shall pass from Licensee to Motorola upon delivery. Licensee acknowledges that Motorola intends to temporarily store the Trade-In Radios and Trade-In Non-Kit Accessories for inspection and inventory by Motorola and Nextel and to destroy them thereafter. Licensee shall be responsible to comply with its asset disposition policies and requirements concerning the Trade-In Radios and Trade-In Non-Kit Accessories.

3.5.1. Licensee's Failure to Deliver Trade-In Radios and/or Trade-In Non-Kit Accessories. If for any reason the number of Rebanding Radios (or upgraded radios) and/or the number of Non-Kit Accessories delivered by Motorola to Licensee exceeds the number of Trade-In Radios and/or the number of Trade-In Non-Kit Accessories delivered by Licensee to Motorola and accepted as valid by Nextel (the "Unmatched Equipment"), then Motorola will notify Licensee of this deficiency and Licensee will at its expense immediately return to Motorola the Unmatched Equipment in the same condition as received. A unit will not be considered to be new six (6) months after the date of delivery, even if it is still in its unopened box. If Licensee fails to return the Unmatched Equipment to Motorola, or if the Unmatched Equipment is no longer in the same condition as received, then Motorola may charge Licensee for retaining the Unmatched Equipment and the unit price will be the full list price of the most similar non-rebanding Motorola radio and/or Non-Kit Accessory (or such lesser price as Motorola in its sole discretion may determine). Alternatively, Motorola may resort to any other available legal or equitable remedy, including specific performance. Licensee acknowledges that Nextel is not responsible to pay for Unmatched Equipment and Licensee agrees to pay Motorola for the Unmatched Equipment. Licensee acknowledges further that its FRA with Nextel has similar provisions. Finally, Licensee acknowledges that if an Unmatched Equipment/trade-in problem arises, it (i) will work primarily with Motorola to resolve the problem only if Motorola performed the Field Services concerning the corresponding Rebanding Radios, and (ii) will work primarily with Nextel to resolve the problem if Motorola did not perform the Field Services concerning the corresponding Rebanding Radios.

Section 4 PERFORMANCE SCHEDULE

4.1. SCHEDULE. The Parties will perform their respective responsibilities in accordance with the Performance Schedule. By executing this Agreement, Licensee represents that it has obtained all necessary approvals (including Nextel, the TA, and if necessary its legislative or governing authority) and authorizes Motorola to proceed with performance of this Agreement.

4.2. DELAYS. No Party will be liable for its non-performance or delayed performance if caused by a Force Majeure. A Party will notify the other Party if it becomes aware of a Force Majeure that will significantly delay performance. The notifying Party will give the notice promptly after it discovers the Force Majeure. If a Force Majeure occurs, the Parties will execute a change order to extend the Performance Schedule for a time period that is reasonable under the circumstances. If Licensee (including its other contractors), Nextel or the TA delays the Performance Schedule, the Parties will execute a change order to extend the Performance Schedule and, if requested and justified, compensate Motorola for all reasonable charges incurred because of the delay.

Section 5 CONTRACT PRICE, PAYMENT AND INVOICING

5.1. CONTRACT PRICE.

5.1.1. Contract Price. The Contract Price for the Upgrades (if applicable) in U.S. dollars is \$0. Licensee agrees to pay the Contract Price for Upgrades and any applicable taxes and acknowledges that Nextel is not obligated to pay for Upgrades and applicable taxes. Motorola will not disclose to Licensee the price for Rebanding Radios (or RB radio equivalents if they are upgraded), Non-Kit Accessories, and Flash Kits but those items are covered by Section 5.2.1.1 below. The Contract Price in U.S. dollars for all other Reconfiguration Implementation Phase Products and Services is \$886,278.74, as set forth in the Pricing Summary sheets in the applicable Proposal. Licensee represents that (1) its Cost Estimate is sufficient to cover the Contract Price and any applicable sales or similar taxes; and (2) Nextel and the TA have reviewed and approved Licensee's Cost Estimate.



5.1.2. Payment from Nextel; Licensee Not Liable for Contract Price. Except for the Upgrades and applicable taxes, payment of the Contract Price and the price for Rebanding Radios (or RB radio equivalents if they are upgraded), Non-Kit Accessories, and Flash Kits is to come from Nextel and Licensee shall not be liable to pay Motorola these amounts. Notwithstanding the above, if Nextel pays any portion of this amount to Licensee rather than to Motorola, Licensee will immediately forward the payment to Motorola. Motorola agrees to accept direct payments from Nextel if Nextel clearly identifies the applicable Motorola invoice; Motorola further agrees to apply these direct payments from Nextel to the Contract Price.

5.1.3. Motorola's Protections Concerning Payment by Nextel. If requested by Motorola, Licensee will execute promptly upon completion of the milestone the applicable Incumbent Acknowledgement form and any other necessary documents and take all such actions that are reasonable or necessary to promote the prompt payment by Nextel to Motorola. The Parties will cooperate with each other and provide to each other, and to Nextel and the TA, such information (other than Confidential Information, which is governed by Section 13.1) as is reasonable or necessary to facilitate the prompt payment of the Contract Price to Motorola.

5.2. INVOICING AND PAYMENT.

5.2.1. Invoicing. Motorola will send to Licensee correct invoices for Upgrades upon shipment of the upgraded radio, and payment is due within thirty (30) days of receipt of invoice. Motorola will invoice Nextel for the Rebanding Radios (or RB radio equivalents if they are upgraded), Non-Kit Accessories, and Flash Kits upon shipment in accordance with a confidential agreement between Motorola and Nextel. As to the other Reconfiguration Implementation Phase Products and Services, Motorola will submit correct invoices to Licensee, with a copy to Nextel, in accordance with the pre-approved payment milestones set forth in Exhibit A. Licensee's contact person and address for invoice purposes are: **Oscar Montoya, Emergency Management Coordinator, Hidalgo County, 302 W. University Drive, Edinburg, TX 78539 ~ Phone: (956) 318-2615 ~ Fax: (956) 289-2889 ~ email: oscar.montoya@co.hidalgo.tx.us.** Licensee may change this contact person or address by written notice to Motorola. Upon receipt of an invoice, Licensee will promptly (but in no event longer than seven (7) calendar days) inspect the invoice, verify whether it correctly states the payment milestone, and notify Nextel in writing (via facsimile or priority overnight carrier) that Licensee approves the invoice and accepts the milestone (the "Approval Notification"). Licensee will attach a copy of the invoice to the Approval Notification. When Licensee sends to Nextel the Approval Notification, Licensee will concurrently provide to Motorola's project manager a copy of the Approval Notification so that Motorola may know approximately when Nextel receives it. If for any reason Licensee disapproves the invoice, Licensee will promptly give written notice to both Motorola and Nextel; the disapproval notice will explain the reasons for Licensee's disapproval. Motorola will promptly correct any inaccurate invoice that Licensee disapproves, and resubmit the corrected invoice using the same process as described above in this paragraph.

5.2.1.1. Motorola will provide to Licensee only a bill of lading for Rebanding Radios, Non-Kit Accessories, and Flash Kits, and provide the applicable invoice directly to Nextel; or Motorola may provide to Licensee an invoice at the typical sales prices/values for these products or at zero dollars (\$0) with a notation that reflects the fact that Nextel has paid (or will pay) for these products directly to Motorola. If Motorola presents to Licensee a bill of lading or an invoice as permitted by this Section 5.2.1.1, Licensee will follow the Approval Notification process as described above but may assume the invoice amount is correct (and has no liability for incorrect invoices).

5.2.2. Tax ID Number. Motorola's Federal Tax Identification Number is 36-1115800.

5.2.3. Audit of Licensee's Records. The Order provides that after the reconfiguration work is completed, the TA will perform an audit of Licensee's records and "true up" or reconciliation procedure, whereby the reconfiguration work actually performed will be examined relative to the reconfiguration work described in Licensee's Cost Estimate, and any payment adjustments will be calculated and made. Within six (6) months after Motorola completes its work under this Agreement but before this true up procedure, Motorola and Licensee will work together in good faith and will act reasonably in order for Licensee to accurately account for the invoices from and



payments to Motorola in a "project closeout" process. If necessary, during the project closeout process, the Parties will execute a change order to conform the scope of the actual reconfigured work performed to the scope of the contracted reconfigured work; this change order will be submitted for approval and may result in an increase or decrease to the Contract Price. If requested within twelve (12) months after Motorola completes its work under this Agreement, Motorola will provide reasonable but limited assistance to Licensee in its true up activities to the extent the issues were not adequately covered during the project closeout process. Nothing in this Agreement grants Nextel, the TA, the FCC, any part of the U.S. federal government, or Licensee the right to audit Motorola's records concerning this Agreement or any other matter.

5.3. **FREIGHT, TITLE, AND RISK OF LOSS.** Motorola will prepay and add all freight charges to the invoices. Title to the Products, excluding Software, will pass from Motorola to Licensee upon delivery. Software is governed by the applicable software license agreement. Risk of loss to Products will pass from Motorola to Licensee upon delivery. Motorola will pack and ship all Products in accordance with good commercial practices.

Section 6 SITES AND SITE CONDITIONS (To the extent applicable.)

6.1. **ACCESS TO SITES.** Licensee will provide any necessary construction and building permits, zoning variances, licenses, and any other approvals related to Licensee's property and equipment that are necessary to develop or use the sites or equipment; and access to the Licensee's work sites as reasonably requested by Motorola so that it may perform its duties in accordance with the Performance Schedule and Reconfiguration Services Statement of Work.

6.2 **SITE CONDITIONS.** Licensee will ensure that all work sites it provides and controls will be safe, secure, and in compliance with all applicable OSHA and industry standards. To the extent applicable, Licensee will ensure that these work sites have adequate physical space; air conditioning and other environmental conditions; electrical power outlets, distribution and equipment; and telephone or other communication lines (including modem access and adequate interfacing networking capabilities), all for the installation, use and maintenance of the System. Before installing the Products or performing services at a Licensee work site, Motorola will inspect the work site and advise Licensee of any apparent deficiencies or non-conformities with the requirements of this Section.

Section 7 SYSTEM ACCEPTANCE (Inapplicable to Subscriber Only Transactions)

7.1. **COMMENCEMENT OF ACCEPTANCE TESTING.** Motorola will provide to Licensee at least five (5) days notice before the Acceptance Tests commence. Acceptance testing will occur only in accordance with the Reconfiguration ATP.

7.2. **SYSTEM ACCEPTANCE.** System Acceptance will occur upon successful completion of the Acceptance Tests. Upon System Acceptance, Licensee and Motorola will memorialize this event by promptly executing the System Acceptance Certificate. If Licensee reasonably believes that the completed Acceptance Tests have failed, Licensee will provide to Motorola a written notice that includes the specific details of the failure. If Licensee does not provide to Motorola the notice within thirty (30) days after completion of the Acceptance Tests, System Acceptance will be deemed to have occurred as of the completion of the Acceptance Tests. Minor omissions or variances in the System that do not materially impair the operation of the System as a whole will not postpone System Acceptance, but will be corrected according to a mutually agreed punch list schedule.

7.3. **FINAL PROJECT ACCEPTANCE.** Final Project Acceptance will occur after System Acceptance and when all Motorola deliverables have been delivered and all Motorola work as described in this Agreement has been completed. When Final Project Acceptance occurs, Licensee and Motorola will promptly memorialize this final event by so indicating in the appropriate place on the System Acceptance Certificate.

7.4. **COPIES TO NEXTEL AND THE TRANSITION ADMINISTRATOR.** Licensee will provide to both Nextel and the TA a copy of all executed System Acceptance Certificates.

Section 8 REPRESENTATIONS AND WARRANTIES (To the extent applicable.)

8.1. EQUIPMENT AND PARTS WARRANTY.

8.1.1. Equipment. For one (1) year from the date of System Acceptance or Beneficial Use, whichever occurs first, Motorola warrants that newly manufactured equipment it provides under this Agreement will be free from material defects in materials and workmanship under normal use and service. As used in Section 8, the term "Beneficial Use" means use for the intended purpose, excluding testing and training. This Agreement does not create, extend, or change any warranties concerning equipment that was part of the System and was already in service at the Effective Date.

8.1.2. Parts. For ninety (90) days from the date of shipment to Licensee, Motorola warrants that component parts and boards that it provides under this Agreement will be free from material defects in materials and workmanship under normal use and service.

8.2. MOTOROLA SOFTWARE WARRANTY.

8.2.1. Standard Software Warranty in Newly Manufactured Equipment. For one (1) year from the date of System Acceptance or Beneficial Use, whichever occurs first, Motorola warrants the unmodified Motorola Software installed or embedded in newly manufactured equipment and delivered under this Agreement, when used properly and in accordance with the product documentation, will be free from a reproducible defect that eliminates the functionality or successful operation of a feature critical to the primary functionality or successful operation of the Motorola Software. Whether a defect occurs will be determined solely with reference to the published product documentation. Except as provided in Section 8.2.2, this Agreement does not create, extend, or change any warranties concerning Software that was part of the System and was already in service at the Effective Date.

8.2.2. Special Motorola Software "Flash Kit" Warranty. This special Motorola Software warranty applies only to (i) Flash Kits for subscriber radios if Motorola receives Licensee's order for the appropriate number and type of Flash Kits and performs the Field Services concerning the subscriber radios; and to (ii) Flash Kits for infrastructure Equipment if Motorola performs the Customer Suitability Assessment, determines in writing that Licensee's System is suitable, performs the Direct Installation Services, if needed, receives Licensee's order for the appropriate number and type of Flash Kits, and performs the Field Services concerning the infrastructure equipment.

THE MOTOROLA SOFTWARE, I.E., THE FLASH KITS, WHEN INSTALLED BY MOTOROLA, WILL PERFORM IN ALL MATERIAL RESPECTS AND WILL INCLUDE MATERIALLY ALL FEATURES AND FUNCTIONALITY AS THE LAST MOTOROLA-SUPPORTED VERSION OF MOTOROLA SOFTWARE IN THE SYSTEM AND SUBSCRIBER EQUIPMENT. TO FURTHER AND SPECIFICALLY CLARIFY, THE FLASH KITS MODIFY THE LAST MOTOROLA-SUPPORTED VERSION OF THE MOTOROLA SOFTWARE TO ENABLE THE EQUIPMENT IN WHICH THE MOTOROLA SOFTWARE IS INSTALLED TO OPERATE ON BOTH THE CURRENT FREQUENCY BAND AS WELL AS THE NEW FREQUENCY BAND AFTER THE EQUIPMENT IS RECONFIGURED, AND IT IS THOSE REBANDING MODIFICATIONS THAT MOTOROLA WARRANTS WILL RESULT IN MATERIALLY THE SAME FEATURES AND FUNCTIONALITY VERSUS THE LAST MOTOROLA-SUPPORTED VERSION OF THE MOTOROLA SOFTWARE. MOTOROLA IS NOT PROVIDING A WARRANTY FOR ANY CHANGES OR LOSS IN FEATURES AND FUNCTIONALITY THAT MIGHT RESULT FROM FIRST HAVING TO UPGRADE ANY EXISTING LEGACY SYSTEM OR EQUIPMENT TO THE LAST MOTOROLA-SUPPORTED VERSION OF THE MOTOROLA SOFTWARE. LICENSEE WILL HAVE NINETY (90) DAYS FROM SYSTEM ACCEPTANCE OR BENEFICIAL USE OF THE MOTOROLA SOFTWARE, WHICHEVER OCCURS FIRST, TO NOTIFY MOTOROLA IN WRITING OF A SOFTWARE WARRANTY CLAIM AS PROVIDED IN THIS SECTION 8.2.2. FOR PURPOSES OF THE PRECEDING SENTENCE, THE TERM "BENEFICIAL USE" MEANS WHEN THE EQUIPMENT CONTAINING THIS MOTOROLA SOFTWARE IS USED FOR ITS INTENDED PURPOSE, EXCLUDING TESTING AND TRAINING, AND WILL BE DETERMINED



CONCERNING TWO EVENTS: FIRST, WHEN THE MOTOROLA SOFTWARE IS INSTALLED TO OPERATE ON THE CURRENT FREQUENCY BAND, AND AGAIN AFTER THE FIXED NETWORK EQUIPMENT IS RECONFIGURED ON THE NEW FREQUENCY BAND. AFTER RECEIPT OF THE NOTICE, MOTOROLA WILL PROMPTLY MAKE A GOOD FAITH INVESTIGATION OF THE WARRANTY CLAIM; AND IF THIS INVESTIGATION CONFIRMS A VALID WARRANTY CLAIM, MOTOROLA WILL (AT ITS OPTION AND SOLE OBLIGATION AND THE CUSTOMER'S EXCLUSIVE REMEDY) EITHER: (1) CORRECT THE SOFTWARE DEFECT WITHOUT FURTHER CHARGE TO NEXTEL OR LICENSEE; (2) ACCEPT A RETURN OF THE EQUIPMENT THAT CONTAINS THE DEFECTIVE SOFTWARE AND OFFER TO EXCHANGE AN EQUIVALENT PRODUCT PURSUANT TO THIS AGREEMENT AND PROVIDE A CREDIT AGAINST THE PURCHASE PRICE IN THE AMOUNT EQUAL TO THE DIMINUTION IN VALUE OF THE EQUIPMENT CONTAINING THE DEFECTIVE SOFTWARE; OR (3) PAY TO LICENSEE AN AMOUNT EQUAL TO THE DIMINUTION IN VALUE OF THE EQUIPMENT CONTAINING THE DEFECTIVE SOFTWARE. THIS ACTION WILL BE THE FULL EXTENT OF MOTOROLA'S LIABILITY FOR THIS SOFTWARE DEFECT WARRANTY CLAIM.

8.2.3. Flash Kit Medium Warranty. For 120 days from the date of shipment to Licensee or until System Acceptance if Motorola is performing the Field Services, Motorola warrants that the Flash Kit medium (i.e., the disks and/or dongles) that it provides under this Agreement will be in usable condition. To assert a warranty claim under this Section 8.2.3, Licensee must notify Motorola in writing of the claim before the expiration of the warranty period. Upon receipt of this notice, Motorola will provide a replacement Flash Kit medium to Customer as its sole and exclusive remedy for a breach of this Flash Kit Medium warranty.

8.3. RECONFIGURATION SERVICES WARRANTY. Motorola is not providing any new or additional warranties or extensions concerning Licensee-owned equipment or previously installed Software that is modified by the Reconfiguration Implementation Phase Services (except as provided in Section 8.2.2, if applicable). However, if that equipment or Software is covered under a written warranty or a maintenance contract between Licensee and Motorola that was entered into prior to the Effective Date, this Agreement does not adversely affect those pre-existing rights of Licensee. For ninety (90) days from the date of System Acceptance, Motorola warrants that the Reconfiguration Implementation Phase Services were performed in a good and workmanlike manner. THIS RECONFIGURATION SERVICES WARRANTY DOES NOT COVER ANY SERVICES OR DUTIES PERFORMED OR OWED BY NEXTEL, LICENSEE, OR ANY OTHER CONTRACTOR HIRED BY THEM. MOTOROLA DOES NOT WARRANT THAT LICENSEE'S SYSTEM WILL BE COMPARABLE FACILITIES AFTER THE RECONFIGURATION WORK IS COMPLETED. IF LICENSEE BELIEVES ITS SYSTEM DOES NOT ACHIEVE COMPARABLE FACILITIES STATUS AFTER THE RECONFIGURATION WORK IS COMPLETED, IT MAY REQUEST FURTHER CHANGE ORDERS TO ACHIEVE COMPARABLE FACILITIES, THE CONTRACT PRICE MAY BE INCREASED IF JUSTIFIED, AND ANY DISPUTE IN THIS MATTER WILL BE SUBMITTED TO THE TRANSITION ADMINISTRATOR FOR NON-BINDING MEDIATION AND RESOLUTION.

8.4. EXCLUSIONS TO EXPRESS WARRANTIES. These warranties do not apply to: (i) defects or damage resulting from use of the Products in other than their normal, customary, and authorized manner; misuse, accident, liquids, neglect, or acts of God; testing, maintenance, disassembly, repair, installation, alteration, modification, or adjustment not provided or authorized in writing by Motorola; or Licensee's failure to comply with all applicable industry and OSHA standards; (ii) interoperability of Reconfigured Products with other subsystems (e.g., a CAD); (iii) breakage of or damage to antennas unless caused directly by defects in material or workmanship; (iv) batteries or other consumables; (v) freight costs to ship Equipment to the repair depot; (vi) scratches or other cosmetic damage to Equipment surfaces that does not affect the operation of the Equipment; and (vii) normal or customary wear and tear. In addition to the above exclusions, the following exclusion applies because some radios fail and cannot accept a rebanding flash due to their age or condition. Concerning the following Motorola radio models, MTS 2000, MCS 2000, Astro Spectra, Astro Saber, and XTS 3000, if a unit fails during an attempted installation by Motorola of a rebanding flash, then Motorola's repair depot will make a good faith effort to perform a software

recovery (with Nextel's authorization) without any warranty concerning the recovery service and Motorola will return the unit to Licensee but will not perform any other service concerning that unit. Licensee acknowledges and agrees that if such unit fails or continues to be inoperable after an actual or attempted software recovery, it will resolve the issue with Nextel and not Motorola. Licensee also acknowledges that Motorola may end this software recovery support service of the above listed obsolete radio models at any time without prior notice and if any unit failures occur after that time, Licensee will also need to resolve the issue solely with Nextel.

8.5. **WARRANTY CLAIMS.** To assert a warranty claim (other than concerning Section 8.2.2 or 8.2.3), Licensee must notify Motorola in writing of the claim before the date which is thirty (30) calendar days after the expiration of the warranty period. Upon receipt of this notice, Motorola will investigate the warranty claim. If this investigation confirms a valid warranty claim, Motorola will (at its option and at no additional charge to Licensee) repair the defective Product (or part), replace it with the same or equivalent Product (or part), or re-perform the Reconfiguration Services. This action will be the full extent of Motorola's liability hereunder and constitutes Licensee's sole remedy. If this investigation indicates the warranty claim is invalid or "out of scope," then Motorola may invoice Licensee for responding to the claim on a time and materials basis using Motorola's then current labor rates and for any new or replacement Products (or part) delivered to Licensee. Notwithstanding any reimbursement claim Licensee may have against the Relocation Funds and subject to approval of Licensee's auditor, Licensee will pay the invoice within thirty (30) days from the invoice date. Repaired or replaced Product and parts are warranted for the balance of the original applicable warranty period. All replaced Products or parts will become the property of Motorola.

8.6. **ORIGINAL END USER IS COVERED.** These express limited warranties are extended by Motorola to the original end user and are not assignable or transferable.

8.7. **DISCLAIMER OF OTHER WARRANTIES.** THESE WARRANTIES ARE THE COMPLETE WARRANTIES FOR THE PRODUCTS, EQUIPMENT, MOTOROLA SOFTWARE, AND RECONFIGURATION SERVICES PROVIDED UNDER THIS AGREEMENT AND ARE GIVEN IN LIEU OF ALL OTHER WARRANTIES. EXCEPT FOR THE FOREGOING EXPRESS WARRANTIES, THE PRODUCTS, EQUIPMENT, MOTOROLA SOFTWARE, AND RECONFIGURATION SERVICES ARE PROVIDED "AS IS" AND MOTOROLA DISCLAIMS ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. MOTOROLA DOES NOT WARRANT THAT LICENSEE'S USE OF THE MOTOROLA SOFTWARE OR PRODUCTS WILL BE UNINTERRUPTED OR ERROR-FREE OR THAT THE SOFTWARE OR THE PRODUCTS WILL MEET LICENSEE'S PARTICULAR REQUIREMENTS. MOTOROLA MAKES NO WARRANTIES CONCERNING NON-MOTOROLA SOFTWARE. LICENSEE IS RESPONSIBLE FOR, AND MOTOROLA MAKES NO WARRANTY CONCERNING, THE BACK-UP AND DISASTER RECOVERY PROCEDURES, FACILITIES AND EQUIPMENT, OR DATA ENTRY AND LOADING. MOTOROLA DOES NOT WARRANT THAT THE SYSTEM OR EQUIPMENT OR SOFTWARE IN THE SYSTEM THAT IS MODIFIED BY THE RECONFIGURATION SERVICES, OR ANY NEWLY PROVIDED EQUIPMENT OR SOFTWARE, WILL SATISFY THE COMPARABLE FACILITIES STANDARD; THAT DETERMINATION IS FOR LICENSEE TO MAKE. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS AGREEMENT.

Section 9 DISPUTES

9.1. **SETTLEMENT PREFERRED.** Except as otherwise required by the Order (e.g., Cost Estimate disputes) and except for a claim relating to intellectual property or breach of confidentiality provisions, the Parties, through their respective project managers, will attempt to settle any dispute arising from this Agreement through consultation and good faith negotiation. The dispute will be escalated to appropriate higher level managers of the Parties, if necessary. If cooperative efforts fail, the dispute will be mediated by a mediator chosen by the Parties within thirty (30) days after notice by one of the Parties demanding non-binding mediation. The Parties will not unreasonably withhold their consent to the selection of a mediator and will share the cost of the mediation equally;



may postpone mediation until they have completed some specified but limited discovery about the dispute; and may replace mediation with another form of non-binding alternative dispute resolution ("ADR").

9.2. **LITIGATION.** A Party may submit to a court of competent jurisdiction in the state in which the System is installed any claim relating to intellectual property or a breach of confidentiality provisions and any dispute that cannot be resolved between the Parties through negotiation or mediation within two (2) months after the date of the initial demand for non-binding mediation. Each Party consents to jurisdiction over it by that court. The use of ADR procedures will not be considered under the doctrine of laches, waiver, or estoppel to affect adversely the rights of either Party. Either Party may resort to the judicial proceedings described in this section before the expiration of the two-month ADR period if good faith efforts to resolve the dispute under these procedures have been unsuccessful; or interim relief from the court is necessary to prevent serious and irreparable injury to the Party.

Section 10 **DEFAULT AND TERMINATION**

If a Party fails to perform a material obligation under this Agreement, the other Party to whom performance is due may consider the non-performing Party to be in default (unless a Force Majeure causes the failure) and may assert a default claim by giving the non-performing Party a written and detailed notice of default. The defaulting Party will have thirty (30) days after receipt of the notice of default to either cure the default or, if the default is not curable within thirty (30) days, to provide a written cure plan. The defaulting Party will begin implementing the cure plan immediately after receipt of notice by the other Party that it approves the cure plan. If Licensee is the defaulting Party, Motorola may stop work on the project until it approves the cure plan or receives payment. If a defaulting Party fails to cure the default, unless otherwise agreed in writing, the non-defaulting Party may terminate any unfulfilled portion of this Agreement except that non-payment will not become a material default until 60 days after notice of default. In the event of termination for default, the defaulting Party will promptly return to the non-defaulting Parties any of its Confidential Information. Non-defaulting Parties will mitigate damages.

Section 11 **INDEMNIFICATION**

11.1. **POTENTIAL DAMAGE TO EXISTING EQUIPMENT.** Licensee acknowledges that Motorola, Licensee's employees, or others might cause damage to equipment that is part of Licensee's System when performing the Reconfiguration Services, and that such damage may occur in the absence of negligence by any party. Motorola is not responsible for damage to equipment unless it is caused by Motorola's negligence or intentional wrongdoing, in which case Motorola at its option will repair or replace the damaged equipment or refund its fair market value. Before Licensee asserts a damage claim against Motorola under this section, it will first investigate the cause of the damage and the investigation must result in adequate proof that Motorola's negligence or intentional wrongdoing caused the damage. This provision does not diminish any rights Licensee might have under any pre-existing Motorola warranty or maintenance agreement.

11.2. **INDEMNITY BY MOTOROLA.** Motorola will defend at its expense and hold harmless Licensee against any claim, suit, demand, or cause of action brought by a third party against Licensee that is based on and to the extent it is caused by the negligence or willful misconduct of Motorola, its subcontractors, or their employees or agents, while performing their duties under this Agreement, and which results in personal injury, death, or direct damage to tangible property ("Motorola Claim"). Motorola will indemnify Licensee from any liability, judgment, awards and damages resulting from a Motorola Claim and pay all losses, expenses or direct damages incurred by Licensee and caused by the Motorola Claim. The foregoing indemnity is conditioned on (i) Licensee giving Motorola prompt, written notice of any Motorola Claim, and providing to Motorola cooperation (and, if requested, reasonable assistance) in the defense of the Motorola Claim; and (ii) Motorola having sole control in the defense of the Motorola Claim and all negotiations for its settlement or compromise. Motorola will have no indemnity liability for the negligence or fault of Licensee, its other contractors, Nextel, or the TA, or any of their employees, agents or representatives. This section states the full extent of Motorola's general indemnification from liabilities that are in any way related to Motorola's performance under this Agreement. If a third party asserts a claim against both



Parties, each Party will defend itself and will pay the claim to the extent allowed by the Constitution and laws of the State of Texas.

11.3. PATENT AND COPYRIGHT INFRINGEMENT.

11.3.1. Motorola will defend at its expense any suit brought against Licensee to the extent that it is based on an Infringement Claim, and Motorola will indemnify Licensee for those costs and damages finally awarded against Licensee for an Infringement Claim. Motorola's duties to defend and indemnify are conditioned upon: Licensee promptly notifying Motorola in writing of the Infringement Claim; Motorola having sole control of the defense of the suit and all negotiations for its settlement or compromise; Licensee providing to Motorola cooperation and, if requested, reasonable assistance in the defense of the Infringement Claim.

11.3.2. If an Infringement Claim occurs, or in Motorola's opinion is likely to occur, Motorola may at its option and expense procure for Licensee the right to continue using the Products, replace or modify them so that they become non-infringing while providing functionally equivalent performance, or grant Licensee a credit for the Products as depreciated and accept their return.

11.3.3. Motorola will have no duty to defend or indemnify for any Infringement Claim that is based upon the combination of the Products with any software, apparatus or device not furnished by Motorola; the use of ancillary equipment or software not furnished by Motorola and that is attached to or used in connection with the Products; any Product that is not Motorola's design or formula; a modification of the Motorola Software by a party other than Motorola; the failure by Licensee to install an enhancement release to the Motorola Software that is intended to correct the claimed infringement, or, to the extent that the Infringement Claim could have been avoided or losses diminished if Licensee implemented Motorola's new Products as part of the reconfiguration rather than modifying existing or used products. In no event will Motorola's liability resulting from its indemnity obligation to Customer extend in any way to royalties payable on a per use basis or the Customer's revenues, or any royalty basis other than a reasonable royalty based upon revenue derived by Motorola from Customer from sales or license of the infringing Product.

11.3.4. This section provides Customer's sole and exclusive remedies and Motorola's entire liability in the event of an Infringement Claim. Customer has no right to recover and Motorola has no obligation to provide any other or further remedies, whether under another provision of this Agreement or any other legal theory or principle, in connection with an Infringement Claim. In addition, the rights and remedies provided in this Section 11 are subject to and limited by the restrictions set forth in Section 12 below.

Section 12 LIMITATION OF LIABILITY

This limitation of liability provision survives the expiration or termination of the Agreement and applies notwithstanding any contrary provision in this Agreement to the extent allowed by the Constitution and laws of the State of Texas. Except for personal injury or death caused by Motorola, Motorola's total liability, whether for breach of contract, warranty, negligence, strict liability in tort, indemnification, contribution, or otherwise, will be limited to the direct damages recoverable under law, but not to exceed the Contract Price. **ALTHOUGH THE PARTIES ACKNOWLEDGE THE POSSIBILITY OF SUCH LOSSES OR DAMAGES, AND TO THE EXTENT ALLOWED BY THE CONSTITUTION AND LAWS OF THE STATE OF TEXAS, THEY AGREE THAT MOTOROLA (AND ITS OFFICERS, DIRECTORS, EMPLOYEES, SHAREHOLDERS, AGENTS AND REPRESENTATIVES) WILL NOT BE LIABLE FOR ANY COMMERCIAL LOSS; INCONVENIENCE; LOSS OF USE, TIME, DATA, GOOD WILL, REVENUES, PROFITS, OPPORTUNITIES OR SAVINGS; OR OTHER SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO OR ARISING FROM THIS AGREEMENT (REGARDLESS OF THE FORM OF ACTION), THE SALE OR USE OF THE PRODUCTS, EQUIPMENT OR SOFTWARE, OR THE PERFORMANCE OF SERVICES BY MOTOROLA PURSUANT TO THIS AGREEMENT. ALL CLAIMS BY A PARTY AGAINST ANOTHER PARTY, WHETHER IN TORT, CONTRACT, STRICT LIABILITY OR OTHERWISE, MUST BE BROUGHT WITHIN**



Motorola Proprietary and Confidential

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

TWO YEARS FROM THE DATE THE CAUSE OF ACTION ACCRUES EXCEPT FOR MONEY DUE UPON AN OPEN ACCOUNT. Some states do not allow the exclusion or limitation of implied warranties or limitation of liability for incidental or consequential damages, so the above limitations or exclusions may not apply in those states. However, the Parties intend for this Section 12 to apply to the maximum extent allowed under applicable law.

Section 13 CONFIDENTIALITY AND PROPRIETARY RIGHTS

13.1. **CONFIDENTIAL INFORMATION.** During the term of this Agreement, the Parties may provide each other with Confidential Information. Any inventory report or Customer Suitability Assessment concerning Licensee's System that Motorola prepares for and delivers to Licensee shall be the Confidential Information of Licensee unless otherwise agreed by the Parties in writing. Any other document concerning the reconfiguration of Licensee's System that Motorola prepares for and delivers to Licensee under this Agreement (collectively, "Documentary Deliverable") shall be the Confidential Information of Motorola unless otherwise agreed by the Parties in writing.

13.1.1. Non-Disclosure. Subject to applicable public records laws, each Party will; maintain the confidentiality of the other Party's Confidential Information and not disclose it to any third party, except as authorized by the disclosing Party in writing or as required by law or a court of competent jurisdiction; restrict disclosure of Confidential Information to its employees who have a "need to know" and not copy or reproduce the Confidential Information; take necessary and appropriate precautions to guard the confidentiality of the Confidential Information, including informing its employees who have access to it that it is confidential and not to be disclosed to others, but those precautions will be at least the same degree of care that the receiving Party applies to its own confidential information and will not be less than reasonable care. The confidentiality restrictions and obligations contained herein shall be in addition to any confidentiality restrictions or obligations contained in any other agreement (whether prior to, contemporaneous or subsequent to the date of this Agreement) between Motorola on the one hand and the TA, Nextel or Licensee on the other hand, as well any protective order or confidentiality restrictions or rules issued by the FCC or the TA.

13.1.2. Use. Unless otherwise provided in this Agreement, a Party may use the Confidential Information of the other Party only in furtherance of the performance of this Agreement or any other agreement between the Parties. Notwithstanding the preceding sentence, Motorola may use the information in any inventory report or Customer Suitability Assessment for its own business purposes or to assist Licensee or its other contractors or consultants in the overall effort to plan and reconfigure Licensee's System. Except for a Documentary Deliverable, Confidential Information is and will at all times remain the property of the disclosing Party, and no grant of any proprietary rights in the Confidential Information is hereby given or intended, including any express or implied license, other than the limited right of the recipient to use the Confidential Information in the manner and to the extent permitted by this Agreement or any other agreement between the Parties.

13.2. **PRESERVATION OF MOTOROLA'S PROPRIETARY RIGHTS.** Motorola, the third party manufacturer of any Equipment, and the owner of any Non-Motorola Software own and retain all of their respective Proprietary Rights in the Equipment and Software. Nothing in this Agreement is intended to restrict the Proprietary Rights of Motorola, any owner of Non-Motorola Software, or any third party manufacturer of Equipment. All intellectual property developed, originated, or prepared by Motorola in connection with providing to Licensee the Products or services remain vested exclusively in Motorola, and this Agreement does not grant to Licensee (or Nextel) any shared development rights of intellectual property.

Except as explicitly provided in the applicable Software License Agreement, Motorola does not grant to Licensee (or Nextel), either directly or by implication, estoppel, or otherwise, any right, title or interest in Motorola's Proprietary Rights. Licensee (and Nextel) will not modify, disassemble, peel components, decompile, otherwise reverse engineer or attempt to reverse engineer, derive source code or create derivative works from, adapt, translate, merge with other software, reproduce, distribute, sublicense, sell or export the Software, or permit or encourage any third party to do so. The preceding sentence will not apply to Open Source Software, if any, which is governed by the standard license of the copyright owner.



Section 14 GENERAL

14.1. **TAXES.** The Contract Price does not include any amount for taxes, assessments or duties, all of which will be paid by Nextel or by Licensee as to the Upgrades, except as exempt by law.

14.2. **ASSIGNABILITY AND SUBCONTRACTING.** No Party may assign this Agreement without the prior written consent of the other Party. Motorola may subcontract any portion of the work, but subcontracting will not relieve Motorola of its duties under this Agreement. Notwithstanding the foregoing, Motorola may assign this Agreement to any of its affiliates or its right to receive payment without the prior consent of Licensee. In addition, in the event Motorola separates one or more of its businesses (each a "Separated Business"), whether by way of a sale, establishment of a joint venture, spin-off or otherwise (each a "Separation Event"), Motorola may, without the prior written consent of the other Party and at no additional cost to Motorola, assign this Agreement such that it will continue to benefit the Separated Business and its affiliates (and Motorola and its affiliates, to the extent applicable) following the Separation Event.

14.3. **WAIVER.** Failure or delay by a Party to exercise any right or power under this Agreement will not operate as a waiver of the right or power. For a waiver of a right or power to be effective, it must be in writing signed by the waiving Party. An effective waiver of a right or power will not be construed as either a future or continuing waiver of that same right or power, or the waiver of any other right or power.

14.4. **SEVERABILITY.** If a court of competent jurisdiction renders any provision of this Agreement (or portion of a provision) to be invalid or otherwise unenforceable, that provision or portion of the provision will be severed and the remainder of this Agreement will continue in full force and effect as if the invalid provision or portion of the provision were not part of this Agreement.

14.5. **INDEPENDENT CONTRACTORS.** Each Party is an independent contractor with respect to the other, and a Party and its personnel will not be considered to be employees or agents of the other Party. Nothing in this Agreement grants a Party the right or authority to make commitments of any kind for the other. This Agreement will not constitute, create, or in any way be interpreted as a joint venture, partnership or formal business organization of any kind.

14.6. **HEADINGS AND SECTION REFERENCES.** The section headings in this Agreement are inserted only for convenience and are not to be construed as part of this Agreement or as a limitation of the scope of the particular section to which the heading refers. This Agreement is an arm's length transaction and will be fairly interpreted in accordance with its terms and conditions and not for or against a Party.

14.7. **GOVERNING LAW.** This Agreement and the rights and duties of the parties will be governed by and interpreted in accordance with the laws of the State in which the System is installed.

14.8. **ENTIRE AGREEMENT.** This Agreement, including all Exhibits and the applicable Software License Agreement, constitutes the entire agreement of the Parties regarding the subject matter of this Agreement and supersedes all previous agreements, proposals, and understandings, whether written or oral, relating to that subject matter (but not any other product sales, software license, or maintenance and support agreements). This Agreement may be amended or modified only by a written instrument signed by authorized representatives of the Parties. The preprinted terms and conditions found on any Licensee purchase order, acknowledgment or other form will not be considered an amendment or modification of this Agreement, even if a representative of each Party signs the document.

14.9. **NOTICES.** Notices required to be given by a Party to the others must be in writing and either delivered in person or sent to the address shown below by certified mail, return receipt requested and postage prepaid (or by a recognized courier service, such as Federal Express, UPS, or DHL), or by facsimile with correct answerback received, and will be effective upon receipt:



Motorola Solutions, Inc.

Licensee

Attn:	<u>Keith Toborg, Resource Manager T6</u>	Attn:	<u>Oscar Montoya, Emergency Management Coordinator</u>
	<u>Motorola Solutions, Inc.</u>		<u>Hidalgo County</u>
	<u>1301 E Algonquin Road</u>		<u>302 W. University Drive</u>
	<u>Schaumburg, Illinois 60196-1078</u>		<u>Edinburg, TX 78539</u>
Ph:	<u>(847) 576-6021</u>	Ph:	<u>(956) 318-2615</u>
Fax:	<u></u>	Fax:	<u>(956) 289-2889</u>
E-mail:	<u>c17107@motorolasolutions.com</u>	E-mail:	<u>oscar.montoya@co.hidalgo.tx.us</u>

14.10. COMPLIANCE WITH APPLICABLE LAWS. Each Party will comply with all applicable federal, state, and local laws, regulations and rules concerning the performance of this Agreement or use of the System. Licensee will obtain and comply with all FCC licenses and authorizations required for the installation, operation and use of the System before the scheduled installation of the Equipment.

14.11. AUTHORITY TO EXECUTE AGREEMENT. Each Party represents to the other that it has obtained all necessary approvals, consents and authorizations to enter into this Agreement and to perform its duties under this Agreement; the person executing this Agreement on its behalf has the authority to do so; upon execution and delivery of this Agreement by the Parties, it is a valid and binding contract, enforceable in accordance with its terms; and the execution, delivery, and performance of this Agreement does not violate any bylaw, charter, regulation, law or any other governing authority of the Party.

14.12. VOLUNTARY AGREEMENT. Each Party represents and warrants that it is fully aware of the terms contained in this Agreement and has voluntarily entered into this Agreement, having had a full and fair opportunity to seek the advice of counsel and other professionals or consultants as it considers necessary.

14.13. NO LIENS. Motorola agrees not to lien Licensee's System to secure payment of the Contract Price.

14.14. SURVIVAL OF TERMS. The following provisions survive the expiration or termination of this Agreement for any reason: Section 3.4 (Software); Section 3.5 (Rebanding Radios and Trade-In Radios); if any payment obligations exist, Section 5 (Contract Price, Payment and Invoicing); to the extent applicable, Section 8 (Representations and Warranties); Section 9 (Disputes); Section 11 (Indemnification); Section 12 (Limitation of Liability); and Section 13 (Confidentiality and Proprietary Rights); and all of the General provisions in Section 14.

The Parties hereby enter into this Agreement as of the Effective Date.

Motorola Solutions, Inc.

Licensee

By:	<u>David C. Nash</u>	By:	<u></u>
Name:	<u>DAVID C. NASH</u>	Name:	<u></u>
Title:	<u>REBANDING TEAM LEAD</u>	Title:	<u></u>
Date:	<u>AUG. 14, 2014</u>	Date:	<u></u>

Nextel Assigned Deal Number: DL8910458248



Exhibit A

Payment Milestone Schedule

Depending on the Contract Price set forth in Section 5.1.1, the following payment milestones apply:

1. Contract Price < \$300,000

Mobilization (i.e., contract execution)	50%
Motorola SOW Complete/System Acceptance	50%

2. Contract Price \$300,000 to \$1,000,000

Mobilization (i.e., contract execution)	35%
Complete Programming & Installation of Subscriber Equipment	45%
Motorola SOW Complete/System Acceptance	20%

3. Contract Price > \$1,000,000

Mobilization (i.e., contract execution)	35%
Shipment of Subscriber Equipment	20%
Complete Programming & Installation of Subscriber Equipment	15%
Complete Rebanding Infrastructure/Final Cutover	15%
Motorola SOW Complete/System Acceptance	15%

Exhibit B
System Acceptance Certificate

Licensee Name: Hidalgo County, TX

Project Name: Motorola 800 MHz Rebanding Project

This System Acceptance Certificate memorializes the occurrence of System Acceptance. Motorola and Licensee acknowledge that:

1. The Acceptance Tests set forth in the Acceptance Test Plan have been successfully completed.
2. The System is accepted.

Licensee Representative:

Motorola Solutions, Inc. Representative:

Signature: _____

Signature: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

FINAL PROJECT ACCEPTANCE:

Motorola has provided and Licensee has received all deliverables, and Motorola has performed all other work required for Final Project Acceptance.

Licensee Representative:

Motorola Solutions, Inc. Representative:

Signature: _____

Signature: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____



Exhibit C

**Motorola's Proposal
Including the Technical and Implementation Documents**



Motorola Proprietary and Confidential

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.



MOTOROLA SOLUTIONS

**RECONFIGURATION PROPOSAL
INCLUDING PLANNING PHASE DELIVERABLES**

Hidalgo County

Four Site P25 7.11 Smartzone System



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp
Rev Executable 08/14/2014
Page 21

TABLE OF CONTENTS

- 1.0 INTRODUCTION**
- 2.0 SYSTEM DESCRIPTION**
- 3.0 INTERMODULATION STUDY (IM)**
- 4.0 SYSTEM INVENTORY AND SUITABILITY ASSESSMENT**
- 5.0 INTEROPERABILITY**
- 6.0 IMPLEMENTATION PLAN FOR SYSTEM RECONFIGURATION**
- 7.0 MOTOROLA PROFESSIONAL SERVICES**
- 8.0 LOCAL SERVICE SUPPORT**
- 9.0 NOTIFICATION AND CONDITIONS FOR WORK**
- 10.0 LICENSING**
- 11.0 RISKS**
- 12.0 FRA NEGOTIATION SUPPORT**
- 13.0 SYSTEM ACCEPTANCE**
- 14.0 RECONFIGURATION PRICING**

ATTACHMENTS



1.0 INTRODUCTION

This document provides the deliverables as described in the *Reconfiguration Planning Statement of Work* as well as the proposal to reconfigure the Hidalgo County radio communications system.

2.0 SYSTEM DESCRIPTION

Hidalgo County operates a four site, six channel non-simulcast, P25 7.11 Smartzone system which is part of a larger regional radio system. This system's Hidalgo County sites are located at McAllen, La Joya, Weslaco, and Linn. Each site utilizes one transmit antenna, one receive antenna, and one tower-top amplifier / receive multi-coupler. The Prime Zone Controller is located at McAllen.

Hidalgo County has two dispatch centers located at the Sheriff's Office and the DPS Office. The dispatch centers have a total of three operator positions. There are 1,089 portable radios and 1,017 mobile radios affiliated with the system.

ASSUMPTIONS

This quotation to provide rebanding services to Hidalgo County is based upon information supplied by Hidalgo County or those authorized to act on its behalf. Motorola deems this information credible, accurate and current.

Any missing information should be provided to Motorola as soon as possible. Any unconfirmed information should be validated as soon as possible. Inaccurate information could alter or modify the terms of this quotation.

Motorola understands that Hidalgo County will negotiate directly with Sprint Nextel for any parts inventory items stocked by Hidalgo County and its representatives used to maintain their system. Therefore, these items have not been included as part of this proposal.

The proposed system cutover plan listed in this reconfiguration proposal is specific only to the Licensee to whom this proposal is addressed. The proposed cutover plan may not be final and is subject to revision with the approval of the Licensee. It does not take into account any unforeseen delays, frequency changes, TA blocking report engineering analysis or a need for additional mobilizations that may result from region-wide reconfiguration coordination planning (to be performed by others). If any changes occur as mentioned above or if any FNE cutover design modifications are needed, including an update to the cutover plan and schedule, a change order will be required.

Subscriber template development time listed in this proposal may need to be adjusted due to design/implementation changes that could not be foreseen during the planning phase. If any modifications are needed, a change order will be required.

Motorola has examined the TA Blocking Reports and found that at this time there are no U.S. systems blocking the replacement channels assigned to the reconfiguration of Hidalgo County.



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp
Rev Executable 08/14/2014
Page 23

Motorola understands that Hidalgo County's FNE will be rebanded only after notification is provided by Sprint and the TA that all frequencies (U.S. and Mexico) are cleared.

Intermodulation studies are based on the final frequencies assigned by the TA. The intermodulation studies do not include any transitional configurations necessitated by the TA's Blocking Reports or by a regional cutover plan. If the TA makes any frequency reassignments after the initial Frequency Reports are distributed, Motorola will identify the costs of new intermodulation studies and new Blocking Report analysis in a Change Order.

Motorola understands that Hidalgo County has agreed to cutover one channel at a time during the reconfiguration phase.

Motorola will swap Channel 2 and Channel 6 at the McAllen, La Joya, and Linn sites (changing the control channel list) so that the lowest replacement channel can be used as the Base Station Identifier per FCC rules. Motorola will swap Channel 1 and Channel 6 at the Weslaco site for the same reason (see Frequency tables below).

All users that are part of the larger regional P25 system must maintain the capability to interoperate with each other regardless of being primary or secondary to the Hidalgo County system. Due to the unique nature of the sharing and ownership of the regional system it will be necessary to reband all tenant subscribers that are associated with the overall regional system prior to rebanding any of the Hidalgo County Fixed Network Equipment (FNE).

Furthermore, depending on when all tenants to the regional system have completed their subscriber first touch efforts, there may be a significant lag between Hidalgo County's first touch subscriber completion, and when the rebanding of its FNE can occur, as well as when second touch subscriber programming efforts can begin. A Change Order may be necessary if there are project delays due to these coordination challenges.



FREQUENCIES

As provided by Hidalgo County, the following tables list the original transmit and receive (Tx/Rx) frequencies in MHz, and the corresponding post rebanding frequencies as assigned to the customer, listed by site:

Trunking Frequencies McAllen					
Channel #	Original		After re-banding		License - FCC Call Signs
	Transmit frequency, MHz	Receive frequency, MHz	Transmit frequency, MHz	Receive frequency, MHz	
1-CC	868.0625	823.0625	853.0625	808.0625	WQLJ634
2-CC	866.0750	821.0750	852.9625	807.9625	WQLJ634
3	866.9625	821.9625	851.9625	806.9625	WQLJ634
4	867.5625	822.5625	852.5625	807.5625	WQLJ634
5	868.5750*	823.5750	853.5750	808.5750	WQLJ634
6	867.9625	822.9625	851.0750**	806.0750	WQLJ634

Notes: Those frequencies impacted by rebanding are marked in bold.

* Base Station Identifier pre-rebanding – this is not a control channel.

**Base Station Identifier post- rebanding - will cause a change in the control channel list (see a more detailed explanation in the assumptions section above).

Trunking Frequencies Linn					
Channel #	Original		After re-banding		License - FCC Call Signs
	Transmit frequency, MHz	Receive frequency, MHz	Transmit frequency, MHz	Receive frequency, MHz	
1-CC	868.4625	823.4625	853.4625	808.4625	WQLJ634
2-CC	866.4250	821.4250	853.9875	808.9875	WQLJ634
3	866.6375	821.6375	851.6375	806.6375	WQLJ634
4	867.1250	822.1250	852.1250	807.1250	WQLJ634
5	867.9875*	822.9875	852.9875	807.9875	WQLJ634
6	868.9875	823.9875	851.4250**	806.4250	WQLJ634

Notes: Those frequencies impacted by rebanding are marked in bold.

* Base Station Identifier pre-rebanding – this is not a control channel.

**Base Station Identifier post- rebanding - will cause a change in the control channel list (see a more detailed explanation in the assumptions section above).



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp
Rev Executable 08/14/2014
Page 25

Trunking Frequencies La Joya					
Channel #	Original		After re-banding		License - FCC Call Signs
	Transmit frequency, MHz	Receive frequency, MHz	Transmit frequency, MHz	Receive frequency, MHz	
1-CC	867.6875	822.6875	852.6875	807.6875	WQLJ634
2-CC	866.4750	821.4750	853.9500	808.9500	WQLJ634
3	867.4750	822.4750	852.4750	807.4750	WQLJ634
4	868.1125	823.1125	853.1125	808.1125	WQLJ634
5	868.4750*	823.4750	853.4750	808.4750	WQLJ634
6	868.9500	823.9500	851.4750**	806.4750	WQLJ634

Notes: Those frequencies impacted by rebanding are marked in bold.

* Base Station Identifier pre-rebanding – this is not a control channel.

**Base Station Identifier post- rebanding - will cause a change in the control channel list (see a more detailed explanation in the assumptions section above).

Trunking Frequencies Weslaco					
Channel #	Original		After re-banding		License - FCC Call Signs
	Transmit frequency, MHz	Receive frequency, MHz	Transmit frequency, MHz	Receive frequency, MHz	
1-CC	866.5375	821.5375	852.9500	807.9500	WQLJ634
2-CC	866.9875	821.9875	851.9875	806.9875	WQLJ634
3	867.5875	822.5875	852.5875	807.5875	WQLJ634
4	868.3875	823.3875	853.3875	808.3875	WQLJ634
5	867.4125*	822.4125	852.4125	807.4125	WQLJ634
6	867.9500	822.9500	851.5375**	806.5375	WQLJ634

Notes: Those frequencies impacted by rebanding are marked in bold.

* Base Station Identifier pre-rebanding – this is not a control channel.

**Base Station Identifier post- rebanding - will cause a change in the control channel list (see a more detailed explanation in the assumptions section above).

FIXED NETWORK EQUIPMENT

Motorola collected detail on the fixed network equipment. Highlights of the inventory gathered at each site are as follows:

McAllen,

Prime Zone Controller	ASTRO 7.11
Alternate Zone Controller	ASTRO 7.11
Transmit Antenna	Sinclair DSSC412HF2LDFE5765
Receive Antenna	Sinclair DSSC412HF2LDFE5765
Tower Top Amplifier	Bird Tech. / TX RX DS42883H01T



MOTOROLA SOLUTIONS

MOTO 6sp

Rev Executable 08/14/2014

Page 26

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

La Joya

Main Controller	ASTRO 7.11
Alternate Controller	ASTRO 7.11
Transmit Antenna	Sinclair DSSC412HF2LDFE5765
Receive Antenna	Sinclair DSSC412HF2LDFE5765
Tower Top Amplifier	Bird Tech. / TX RX DS42883H01T

Weslaco

Main Controller	ASTRO 7.11
Alternate Controller	ASTRO 7.11
Transmit Antenna	Sinclair DSSC412HF2LDFE5765
Receive Antenna	Sinclair DSSC412HF2LDFE5765
Tower Top Amplifier	Bird Tech. / TX RX DS42883H01T

Linn

Main Controller	ASTRO 7.11
Alternate Controller	ASTRO 7.11
Transmit Antenna	RFS TDF7320
Receive Antenna	RFS TDF7320
Tower Top Amplifier	Bird Tech. / TX RX DS42883H01T

3.0 INTERMODULATION STUDY (IM)

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmitting frequency at a site, an IM analysis is necessary to check for possible IM interference problems. This IM study has been performed to predict IM products that could be generated as a specific result of adding the newly proposed frequencies as listed in the Transition Administrators Frequency Proposal Report (FPR), to the existing sites. Please see the complete *Intermodulation Study*; Attachment A.

4.0 SYSTEM INVENTORY AND SUITABILITY ASSESSMENT

Motorola completed detailed audits of the customer's system inventory and a *Suitability Assessment Impact Report (SAIR)* has been produced based on that data collection. The proposed rebanding operation is based on specific impacts anticipated for this system and all of its components. Specifically the report indicates whether each of these system components may be easily retuned, whether they first require reprogramming to allow retuning, or whether they must be replaced to accomplish the migration to the new frequencies prescribed in the FCC order. Please review the *Suitability Assessment Impact Report*; Attachment B.

5.0 INTEROPERABILITY

Hidalgo County has indicated interoperability requirements with the Project 25 Overlay System for this trunked radio system. All tenant subscribers that are primary to the Hidalgo County system will be rebanded with those of Hidalgo County and are included in this proposal.



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp
Rev Executable 08/14/2014
Page 27

As stated in the "Assumptions" in Section 2.0, all tenants that use this regional system will need to have their subscriber first touch efforts completed before any of Hidalgo's FNE rebanding can begin. A project delay Change Order will be necessary if the schedule is impacted as a result of these coordination risks.

The conventional frequencies that are used for Mutual Aid in the valley are licensed to the Lower Rio Grande Valley Development Council. It is Motorola's understanding that Sprint and the Lower Rio Grande Valley Development Council will be performing the rebanding of those licensed channels in a separate contract. Therefore, rebanding of the Mutual Aid repeaters are not part of this proposal.

However, in order to maintain Mutual Aid communications between users in the valley area, subscriber second touch efforts will not be able to proceed until either:

- a) the Mutual Aid channels are placed in a back-to-back (B2B) configuration; or
- b) all subscribers throughout the valley that require Mutual Aid interoperability have completed their first touch rebanding and have both the old and new mutual aid channels programmed in them.

Once all first touch subscribers within the valley have been completed, and the Mutual Aid stations and all P25 Overlay System FNE have been rebanded, then the second touch programming coordination efforts can begin. A project delay Change Order will be necessary if second touch delays are incurred.

Additionally, the Texas Statewide Interoperability Channel Plan (TSICP) requires that all first responders communicate using 800 MHz NPSPAC Interoperability Channels (20 kHz). There are tactical simplex channels in use today that must remain in the radios throughout first touch to maintain this critical interoperable need throughout the rebanding process. Thus, even if there are back to back repeaters installed for the NPSPAC MA Frequencies, a second touch will be required to remove the old tactical simplex channels.

6.0 IMPLEMENTATION PLAN FOR SYSTEM RECONFIGURATION

The following information provides an overview of how the Hidalgo County system rebanding plan will be implemented and how those activities will impact the fixed network equipment and subscriber units. Additional details may also be found in Attachment B.

Motorola has produced Baseline and Acceptance Test Plans to demonstrate comparable operation before and after reconfiguration. Please see the attached *Functional Acceptance Test Procedures* and *RF Performance Verification Plan*; Attachments C and D.

Motorola has also produced a Cutover and Fall Back Plan to be used in conjunction with the Project Schedule. The Cutover and Fall Back Plan outlines the transition from the current frequencies to the new ones. The Cutover and Fall Back plans ensure consistent operation of all system functionality throughout the rebanding reconfiguration. Please see *Cutover and Fall Back Plan* in Attachment E, and the *Reconfiguration Project Schedule* in Attachment F.



IMPACT ON SUBSCRIBERS

Motorola has carefully analyzed the Subscriber and Fixed Network Equipment (FNE) inventory data. The Suitability Assessment results dictate that the following actions be taken with regard to subscribers:

<i>Subscribers Impact</i>			
Subscriber Model	Action	Qty	Replacement Radio
APX4000	Retune	253	N/A
APX4500	Retune	170	N/A
APX6000	Retune	75	N/A
APX6500	Retune	49	N/A
APX7000	Retune	553	N/A
APX7500	Retune	626	N/A
XTL1500	Retune	119	N/A
XTL2500	Retune	37	N/A
XTL5000	Retune	16	N/A
XTS1500	Retune	31	N/A
XTS2500	Retune	146	N/A
XTS5000	Retune	11	N/A
XTS5000	Reprogram	1	N/A
XTS1500	Reprogram	19	N/A
Total Subscribers		2106	

Definitions

- Retune:** Update the channel frequencies via the Customer Programming Software/Radio Service Software.
Replace: Cannot be updated to support new frequencies or band plans. A new radio is required.
Reprogram: Update operating software via software FLASH with new frequencies & band plan. Any reprogramming activity requires flashing. After applying flash, program the radio with the new frequency.

IMPACT ON FIXED NETWORK EQUIPMENT

ASTRO 25 7.11 Master Site – No equipment at the Master Site will need to be upgraded or replaced. Motorola will program the new frequencies in the Unified Network Configurator (UNC) for each trunking channel that is changing, and push the new frequencies to each site/channel.

Base Stations – The GTR 8000 base stations do not need to be upgraded to accommodate the rebanding frequencies. Motorola will reprogram each station using the proper Configuration/Service Software (CSS), replacing the old transmit/receive frequencies with the new frequencies.



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp
Rev Executable 08/14/2014
Page 29

Celwave Transmit Combiners – Motorola will retune the Celwave transmit combiner to the new frequencies.

Transmit and Receive Antennas – Motorola has determined that the electrical characteristics of the antennas are sufficient to meet the operational requirements of rebanding. Motorola shall not perform any modifications to this antenna system.

TX/RX Receive Multicouplers and Tower Top Amplifiers - Motorola has determined that the electrical characteristics of these devices are sufficient to meet the operational requirements of rebanding. Motorola shall not perform any modifications to the multicouplers.

7.0 MOTOROLA PROFESSIONAL SERVICES

MOTOROLA PROJECT MANAGER (PM):

The Motorola PM will oversee the activities for each stage of the rebanding effort to ensure a smooth execution of all deliverables and that the requirements of Hidalgo County's system are fully met. The Project Manager will coordinate with Hidalgo County's System Manager and any subcontractor or other third-party organization participating in this work; to keep this effort within the schedule to be agreed upon and finalized at the kick-off meeting.

During the rebanding of all affected equipment, a representative from Hidalgo County will serve as a single point of contact for Motorola. Assuming no unanticipated delays, the project is estimated to be completed 279 work days from Notice to Proceed. A work day is defined as 8:00 AM to 5:00 PM, Monday through Friday unless specified above.

Motorola Project Manager - Project Administration Activities:

1. Generate preliminary Project Schedule
2. Provide Project Schedule status updates
3. Manage project SOW and change orders
4. Reconcile Equipment Lists to the contract
5. Arrange equipment inventory process and logistics
6. Provide contract administration
7. Provide project resource management
8. Assure proper archiving of project information
9. Provide Customer and project team communications management
10. Assure project level deliverables
11. Coordinate and chair customer meetings
12. Generate written reports as required
13. Maintain and facilitate resolution of general system punch list items

Motorola Project Manager – Infrastructure

1. Coordinate and direct internal and external project resources
2. Manage infrastructure equipment rebanding and assure documentation of deliverables
3. Maintain and facilitate resolution of infrastructure punch list items



Motorola Project Manager – Infrastructure Test Plans

1. Manage overall infrastructure test plans and execution
2. Manage *punch list* of issues to be resolved
3. Facilitate acceptance test plan completion and documentation

Motorola Project Manager - Subscriber Programming Activities:

1. Facilitate Customer meetings to determine information for programming templates
2. Obtain Customer / Agency Approval of programming templates prior to initiating programming
3. Plan and manage delivery of reprogrammed or replaced subscriber units for all required departments and agencies
4. Plan and manage subscriber unit collection and return of replaced radios & accessories
5. Manage subscriber equipment rebanding and assure documentation of deliverables
6. Maintain and facilitate resolution of subscriber *punch list* items

MOTOROLA SYSTEMS ENGINEER (SE):

The Motorola Systems Engineer has the responsibility for system design and technical performance. The Motorola Engineer will be responsible for “as is” coverage evaluation, post rebanding comparative analysis and intermodulation studies, order write up, Acceptance Test Plan (ATP) development, and system programming parameters. Additionally, the Motorola Systems Engineer will participate in the planning process and will be available to assist the customer in fleet mapping and determining the subscriber unit configurations. The Motorola Systems Engineer will perform the following activities:

Motorola Systems Engineer - Project Administration Activities:

1. Validate system design specifications in accordance with customer needs.
2. Validate and obtain customer approval for a preliminary *Cutover Plan*.
3. Validate preliminary equipment lists.
4. Validate equipment orders for Motorola and 3rd party equipment to accommodate inventory shipping schedules.
5. Validate equipment lists by model, versions, and options.
6. Validate the Customer Requirements Test and Verification Matrix.

Motorola Systems Engineer – Infrastructure

1. Provide technical design for 3rd party interfaces.

Motorola Systems Engineer - Subscriber Programming Activities:

1. Assess Equipment/Template Suitability and Resolve Issues



MOTOROLA SYSTEMS TECHNOLOGIST (ST):

The Motorola Systems Technologist is highly experienced and trained, specializing in the optimization and trouble shooting of two-way RF communication systems. The ST will perform the optimization process working with service technicians. Additionally, this individual will work with the Motorola Systems Engineer and the customer representative to determine the best configuration and programming of the system parameters. The Motorola Systems Technologist will perform the following activities:

Motorola Systems Technologist – Infrastructure

1. Confirm system configuration and software compatibility to the existing system.
2. Oversee execution of antenna network compatibility checks/optimization.
3. Oversee loading of rebanding firmware/software into system controller(s).
4. Supervise completion of the reprogramming of all RF equipment.
5. Supervise the power up and programming of all rebanded FNE.
6. Oversee upgrades to affected third party FNE.

Motorola Systems Technologist – Infrastructure Test Plans

1. Oversee site and system level testing.
2. Supervise execution of the *Functional Acceptance Test Procedures* per Attachment C.

Motorola Systems Technologist - Subscriber Programming Activities:

1. Validate "as built" template documentation.
2. Provide ownership of technical issues.

MOTOROLA RESPONSIBILITIES

Motorola will:

1. Schedule a project kick off meeting with Hidalgo County at the project's start.
2. Execute the project contract deliverables and coordinate ensuing project activities with appropriate Motorola and Hidalgo County resources.
3. After project kick-off, Motorola will provide Hidalgo County with preliminary schedule and progress updates (see *Project Schedule*; Attachment F). This schedule will outline a cutover plan used during the reconfiguration process to ensure disruptions are minimized. The schedule should reflect the following:
 - a. Timeline of events, and
 - b. Identified deliverables
4. Create subscriber programming templates (rebanding related only) based upon customer provided information:
 - a. Conduct meetings with department and/or agency representatives designated by Hidalgo County. These meetings will gather the necessary information for Motorola to create the templates.
 - b. Will review and coordinate the development of the programming templates with its technical staff and Hidalgo County representatives.



- c. Conduct final meeting with Hidalgo County and its representatives to achieve final approval of templates prior to subscriber programming.
5. Work with Hidalgo County users to provide fleet coordination to ensure on-time project completion.
6. Return all Sprint Nextel provided directional couplers to Sprint in Abilene, TX within 30-days after their needed use is completed. Follow the NextelERTS process for this equipment return: <http://nextelerts.com/UserGuide.aspx> (dependent on obtaining equipment return site access information from the County).

HIDALGO COUNTY RESPONSIBILITIES

Hidalgo County will:

1. Provide a signatory who has authority to sign all appropriate project documents required for this project and any other agreements required.
2. Before or at the Licensee/Motorola kick-off meeting and prior to any reconfiguration work being performed, confirm the following two documents have been received:
 - a. FCC License(s): All rebanding impacted radio transmitters are licensed properly on their new rebanding frequencies and Licensee has received their new FCC license(s).
 - b. Sprint Nextel Authorization to Move: The Licensee has received a separate Sprint Nextel letter (sent via FedEx) authorizing the Licensee to move to the new frequencies.
3. Provide site access to Hidalgo County owned and controlled sites for Motorola personnel and Motorola's subcontractors for the purpose of reconfiguring the equipment located at that site.
4. Provide support and approval for subscriber programming templates (rebanding related only):
 - a. Identify agency/department representatives that are needed to participate in the subscriber programming template process:
 - b. Hidalgo County department and/or agency representatives will gather necessary information to create subscriber programming templates and provide this information to Motorola.
 - c. Hidalgo County department and/or agency representatives will review draft templates with Motorola and will advise on any changes that may be required.
 - d. Hidalgo County will provide written approval of templates prior to subscriber programming.
5. Provide the Programming Access Key (PAK) for each system that has to be programmed into this licensee's subscriber units.
6. Provide the subscriber radios and assist Motorola with fleet coordination to ensure on-time project completion.
7. Provide all spare units identified in preliminary inventory, if any at the beginning of the project.
8. Not unreasonably delay the execution of work by Motorola and will extend the timeline of the project when delays caused by Hidalgo County are experienced.



9. Set up and register a NextelERTS user account and password with Sprint Nextel for any equipment that needs to be returned to Sprint in Abilene, TX. This account needs to be set up in advance of fixed equipment being rebanded. Follow the account set-up and equipment return process via the tutorial videos and User Guide PDF available on line at: <http://nextelerts.com/UserGuide.aspx>. Provide NextelERTS access information to the Motorola Project Manager or their authorized representative in order to assure equipment is properly returned.
10. May be required to provide personnel during the reconfiguration process.
11. Identify any outstanding Motorola deliverables and formally request their completion through the mutual development of a project punchlist.
12. Grant final acceptance upon completion of Hidalgo County system reconfiguration.

8.0 LOCAL SERVICE SUPPORT

Motorola will utilize its authorized service center network and/or approved third party contractors to perform the reconfiguration of the equipment.

9.0 NOTIFICATION AND CONDITIONS FOR WORK

Motorola will notify Hidalgo County assigned point of contact a minimum of five (5) business days prior to starting any work on the system. Motorola will commence work at the designated location only after Hidalgo County has notified Motorola with instructions to proceed. Whenever possible, prior notification of at least 24 hours will be given when expected disruptions are to occur.

10.0 LICENSING

The Hidalgo County is responsible for updating, filing, and coordinating the frequency changes that become a part of this Rebanding program with the FCC. As a note, all radio transmitters must be properly licensed by the FCC.

11.0 RISKS

Motorola is committed to mitigating all known risks and will engage Hidalgo County whenever situations are identified in which a risk situation presents itself. Any event or occurrence that affects the project schedule is to be immediately reported to the Project Managers. A decision will be jointly made between Motorola and Hidalgo County to consider the options and develop a mutually agreed-to solution.

There are risks associated with the work that needs to be performed on each piece of equipment. It is conceivable that a particular piece of equipment can be functional at the time of inventory but when rebanded, failures may occur when re-initializing the unit. Motorola will make every effort to ensure that any failure occurring in this situation be rectified immediately. In some cases adequate spares may not be available and could lead to a prolonged outage of equipment while obtaining replacement parts. If the system in question is currently under a direct service agreement with Motorola, any resolution to correct the failure will be covered under the agreement. If the equipment involved is not covered under a direct Motorola Service



Agreement, resolution may require reimbursement for material and labor to correct the failure and restore the defective equipment from Sprint Nextel.

12.0 FREQUENCY RECONFIGURATION AGREEMENT (FRA) NEGOTIATION SUPPORT

At the Licensee's request, Motorola will support its RIPA proposal concerning the Reconfiguration Cost Estimate that Licensee submits for approval to Sprint Nextel and the TA. Reconfiguration cost estimates are frequently negotiated between the Licensee and Sprint Nextel. Although Motorola is not a party to these negotiations, it will support the Licensee during the negotiations (and any mediation if needed) by providing explanations for technical or other content in Motorola's RIPA proposal. Motorola will show a line item in the Pricing Summary Table to insert estimated Mediation costs. At the conclusion of Mediation (if applicable), Motorola's reimbursable cost for Mediation support will be adjusted (lower or higher) to actual costs incurred and inserted in Motorola's final RIPA. These FRA Mediation support costs, like the other reimbursable costs on Licensee's Reconfiguration Cost Estimate for Motorola's reconfiguration work, should be paid by Sprint Nextel as part of the Frequency Reconfiguration Agreement entered into with the Licensee.

13.0 SYSTEM ACCEPTANCE

Upon successful completion of the Acceptance Tests for Hidalgo County, a System Acceptance Certificate will be provided for customer signature. (See *Reconfiguration Implementation Phase Agreement, Terms and Conditions*, Exhibit B.) This certificate acknowledges that all of the Motorola contracted work to reconfigure the Hidalgo County system has been completed.



14.0 RECONFIGURATION PRICING

PRICING SUMMARY

Hidalgo County, TX Reconfiguration Services Quote					
Infrastructure					
Service	Resource	Qty-Units	Total-Hours	Rate	Price
Reband Site # 1 <u>McAllen</u>	MSS				
Controllers		1	2	\$182	\$364
Repeaters / Base Stations		6	6	\$182	\$1,092
Retune Combiners & Duplexer		6	6	\$182	\$1,092
Mobilization and Travel		3	2	\$182	\$364
Site 1 Total					\$2,912
Reband Site # 2 <u>La Jova</u>	MSS				
Repeaters / Base Stations		6	6	\$182	\$1,092
Retune Combiners & Duplexer		6	6	\$182	\$1,092
Mobilization and Travel		3	2	\$182	\$364
Site 2 Total					\$2,548
Reband Site # 3 <u>Linn</u>	MSS				
Repeaters / Base Stations		6	6	\$182	\$1,092
Retune Combiners & Duplexer		6	6	\$182	\$1,092
Mobilization and Travel		3	2	\$182	\$364
Site 3 Total					\$2,548
Reband Site # 4 <u>Weslaco</u>	MSS				
Repeaters / Base Stations		6	6	\$182	\$1,092
Retune Combiners & Duplexer		6	6	\$182	\$1,092
Mobilization and Travel		3	2	\$182	\$364
Site 4 Total					\$2,548
FNE - Sites Sub Total					\$10,556
		Quantity	Unit	Rate	Total
Project Manager	PM	40	Hours	\$190	\$7,600
System Engineer	SE	12	Hours	\$190	\$2,280
System Technologist	ST	36	Hours	\$190	\$6,840
Infrastructure Total					\$27,276
Subscribers					
Service	Resource	Total Units		Rate	Extended Price
Mobiles Total **	MSS	1017			\$129,606.12
Portables Total **	MSS	1089			\$107,941.38
Templates Total **	MSS	251			\$59,235.83
Second programming of subsc.Mobiles **	MSS	1017			\$129,606.12
Second programming of subsc.Portables **	MSS	1089			\$107,941.38
Templates second touch	MSS	251			\$29,617.92
Project Manager on Site Supervision & Coordination	PM	408	Hours	\$190	\$77,520.00
ST Templates & procedures supervision and approvals	ST	275	Hours	\$190	\$52,250.00
** See details on attached "Subsc.Detail Forms"					
Subscriber Total					\$693,718.74

(Continued on following page)



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp

Rev Executable 08/14/2014

Page 36

PRICING SUMMARY, CONTINUED

Hidalgo County, TX Reconfiguration Services Quote					
Testing					
Service	Resource	Quantity	Unit	Rate	Extended Price
Pre Rebanding Benchmark Testing	MSS	24	Hours	\$182	\$4,368
Post Rebanding Testing	MSS	24	Hours	\$182	\$4,368
Functional Acceptance Testing	MSS	4	Hours	\$182	\$728
Project Manager	PM	4	Hours	\$190	\$760
System Engineer	SE	8	Hours	\$190	\$1,520
System Technologist	ST	12	Hours	\$190	\$2,280
Testing Total					\$14,024
Project Administration Services					
Kick off & Status Meetings, On Site Coordination, Subcontracting, Close out					
Service	Resource	Quantity	Unit	Rate	Extended Price
Project Manager	PM	349	Hours	\$190	\$66,310
System Engineer	SE	107.7	Hours	\$190	\$20,463
System Technologist	ST	135.6	Hours	\$190	\$25,764
Travel Expenses	TE				\$38,723
Proj. Administration Activities Total					\$151,260
Equipment					
Directional Couplers	Nextel	4	Each	Supplied/Paid by Sprint-Nextel	
* See attached table for details		Equipment Total			\$0
Total Reconfiguration Price					\$886,278.74

Rev. 08.13.2014

Price Validity:

Motorola reserves the right to increase the pricing for such Products and Reconfiguration Implementation Phase Services in a manner that is consistent with its confidential Master Purchase Agreement with Sprint/Nextel. In addition, for Products that are priced based upon a discount from Motorola's published list prices, price adjustments will occur if and when Motorola's published list prices are modified and the adjusted prices will apply to any Products that are delivered after the modification to the published list prices. Subcontractor quotations are normally valid for a limited time period; if a Motorola subcontractor increases its subcontract price, then Motorola may increase its prime contract price for subcontracted work that is performed at the increased subcontract price. In all of these situations, any increase in the Contract Price will be reflected in a change order.



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp
Rev Executable 08/14/2014
Page 37

SERVICES DETAIL

Professional Services

Project Administration Activities	Project Manager		System Engineer		System Technologist	
	Manhours	Days	Manhours	Days	Manhours	Days
Project Summary						
Customer Status Meetings & Project Administration	279.0	34.9	83.7	10.5	111.6	14.0
Project Kickoff						
Preplanning and Coordination Meeting/Order processing	24.0	3.0	16.0	2.0	16.0	2.0
Project Close-Out						
Punch List resolution / Reconciliation	30.0	3.8	8.0	1.0	8.0	1.0
Final Acceptance	16.0	2.0	0.0	0.0	0.0	0.0
Total hours for Project Administration Activities	349.0	43.6	107.7	13.5	135.6	17.0
FNE Reconfiguration						
FNE						
Preplanning and Coordination Meeting	16.0	2.0	12.0	1.5	12.0	1.5
FNE Reconfiguration	24.0	3.0	0.0	0.0	24.0	3.0
Total hours for Infrastructure	40.0	5.0	12.0	1.5	36.0	4.5
Testing						
Conduct Pre Rebanding Verification Test(s)	0.0	0.0	4.0	0.5	4.0	0.5
Conduct Post Rebanding Verification Test(s)	0.0	0.0	4.0	0.5	4.0	0.5
Functional Acceptance Testing	4.0	0.5	0.0	0.0	4.0	0.5
Total hours for Testing	4.0	0.5	8.0	1.0	12.0	1.5
Subscriber Reconfiguration						
Preplanning and Coordination Meeting	24.0	3.0	0.0	0.0	16.0	2.0
Subscriber Coordination	140.0	17.5	0.0	0.0	0.0	0.0
Template & flash/program procedures	40.0	5.0	0.0	0.0	125.5	15.7
	204.0	25.5	0.0	0.0	141.5	17.7
Subscriber Reconfiguration - (Second touch)						
Preplanning and Coordination Meeting	24.0	3.0	0.0	0.0	8.0	1.0
Subscriber Coordination	140.0	17.5	0.0	0.0	0.0	0.0
Template & flash/program procedures	40.0	5.0	0.0	0.0	125.5	15.7
	204.0	25.5	0.0	0.0	133.5	16.7
Totals for Subscribers Reconfiguration	408.0	51.0	0.0	0.0	275.0	34.4
TOTAL PROFESSIONAL SERVICES TIME	801.0	101.0	127.7	16.0	458.6	58.0



MOTOROLA SOLUTIONS

MOTO 6sp

Rev Executable 08/14/2014

Page 38

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

SERVICES DETAIL CONTINUED

Travel Detail

					Per diem	Air fare	Car rental			
Labor Category	Project Phase	Number of resources	Number of trips	Days out per week	\$200.00	\$1,000.00	\$225.00	Totals/ Trip	Project totals	Agreed 5% mark up
Project Manager	Infrastructure	1	1	5	\$200.00	\$1,000.00	\$225.00	\$2,225.00	\$2,225.00	\$2,337.00
	Subscribers	1	9	4	\$200.00	\$1,000.00	\$225.00	\$2,025.00	\$18,225.00	\$19,137.00
	Overall Project	1	4	3	\$200.00	\$1,000.00	\$225.00	\$1,825.00	\$7,300.00	\$7,665.00
Systems Engineer	Overall Project	1	1	3	\$200.00	\$1,000.00	\$225.00	\$1,825.00	\$1,825.00	\$1,917.00
Systems Technologist	Infrastructure	1	1	5	\$200.00	\$1,000.00	\$225.00	\$2,225.00	\$2,225.00	\$2,337.00
	Subscribers	1	1	1	\$200.00	\$1,000.00	\$225.00	\$1,425.00	\$1,425.00	\$1,497.00
	Overall Project	1	2	3	\$200.00	\$1,000.00	\$225.00	\$1,825.00	\$3,650.00	\$3,833.00
						Estimated Total Travel Expenses				\$38,723.00
Note: Expenses shown are estimates based on the Scope of Work and required travel for completing the Reconfiguration Design. Sprint/Nextel will be billed actual expenses plus 5% markup.										

Subscriber Deployment Form (SED) – Page 1 of 2

Level of Effort							
Retune Existing Mobile Radios							
Task	Description	Per Unit Time In Hrs	Quantity	Total Time Hrs	Rate \$	Total \$	LOE for a task on a per unit basis in man-hours
3	• Functional Pre-Test of existing radio - Talk group call on system						
	• Retune existing radio (no obstruction to retuning of radio)						
	• Functional post test of existing radio - Talk group call on system	0.90	1017	915.30	\$141.60	\$ 129,606.12	0.90
TOTAL MOBILE RADIOS						\$ 129,606.12	
Portable Radios							
Task	Description	Per Unit Time In Hrs	Quantity	Total Time Hrs	Rate \$	Total \$	LOE for a task on a per unit basis in man-hours
5	<u>Retune Existing Portable</u>						
	• Functional Pre-Test of existing radio - Talk group call on system						
	• Retune existing radio (no obstruction to retuning of radio)						
5a	• Functional post test of existing radio - Talk group call on system	0.70	1069	748.30	\$141.60	\$ 105,958.98	0.70
	<u>Flashing and Retuning of Existing Portable Radio</u>						
	• Functional Pre-Test of existing radio - Talk group call on system						
5a	• Flash existing radio with Rebanding software						
	• Load programming template into existing radio						
	• Functional post test of existing radio - Talk group call on system	0.70	20	14.00	\$141.60	\$ 1,982.39	0.70
TOTAL PORTABLES RADIOS						\$ 107,941.38	



MOTOROLA SOLUTIONS

MOTO 6sp
Rev Executable 08/14/2014
Page 39

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Subscriber Deployment Form (SED), Continued – Page 2 of 2

Level of Effort (Continued)							
Radio Templates (Masks)							
Task	Description	Per Unit Time in Hrs	Quantity	Total Time Hrs	Rate \$	Total \$	LOE for a task on a per unit basis in man-hours
6	Modify Radio Templates (Masks) for Replaced Units	0.00	0	0.00	\$0.00	\$ -	4.00
6a	Modify Radio Templates (Masks) for Flashed Units	2.00	251	502.00	\$118.00	\$ 59,235.83	2.50
TEMPLATES TOTAL						\$ 59,235.83	

Other Tasks							
Task	Description	Per Unit Time in Hrs	Quantity	Total Time Hrs	Rate \$	Total \$	LOE for a task on a per unit basis in man-hours
7	Second programming of subscribers(remove old freqs) Mobiles	0.90	1017	915.30	\$141.60	\$ 129,606.12	By Quote
7a	Second programming of subscribers(remove old freqs) Portables	0.70	1089	762.30	\$141.60	\$ 107,941.38	By Quote
7b	Modify Templates - 2nd. Programming	1.00	251	251.00	\$118.00	\$ 29,617.92	By Quote
7c	Subscriber logistics and coordination 1st touch	0.00	0	0.00	\$118.00	\$ -	By Quote
7d	Subscriber logistics and coordination 2nd touch	0.00	0	0.00	\$118.00	\$ -	By Quote
7e	Travel for subscriber rebanding 1st touch	0.00	0	0.00	\$141.60	\$ -	By Quote
7f	Travel for subscriber rebanding 2nd touch	0.00	0	0.00	\$141.60	\$ -	By Quote
Grand Total						\$ 563,948.74	

EQUIPMENT DETAIL

Flashkits Order

Generic Radio Model	Radio Model Number	Item or flashkit type required	QTY Flashes per kit	T Model	Flashcode	Option	Price
XTS1500	H66UCC9PW5AN	3600 IMBE/Analog & P25	19	T7017	500008-000410-5	Q880AD	Paid by Sprint/Nextel
XTS5000	H18UCH9PW7AN	3600 IMBE/Analog & P25	1	T6751	100008-000000-0	Q880AA	Paid by Sprint/Nextel
			2	Total Flash Kits			
			20	Total Flashes			

Equipment Detail – Provided by Sprint Nextel

Qty.	Model	Description	Unit Discounted Price	Total Discounted Price
4	441382	Directional Coupler (DIN)	Provided by Sprint/Nextel	



MOTOROLA SOLUTIONS

MOTO 6sp

Rev Executable 08/14/2014

Page 40

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

ATTACHMENTS

- A INTERMODULATION REPORT***
- B SUITABILITY ASSESSMENT IMPACT REPORT***
- C FUNCTIONAL ACCEPTANCE TEST PROCEDURES (FATP)***
- D RF PERFORMANCE VERIFICATION PLAN***
- E CUTOVER & FALL BACK PLAN***
- F RECONFIGURATION PROJECT SCHEDULE***



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

MOTO 6sp
Rev Executable 08/14/2014
Page 41

ATTACHMENT A

INTERMODULATION REPORT



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 42

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.



MOTOROLA SOLUTIONS

**800 MHz Rebanding
La Joya Site,
Hidalgo County, TX
Intermodulation Analysis**

IM Run Date: 1/15/2014



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 43

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermodulation Summary:

Table 1 below lists the total quantity of 800 MHz frequencies for **Hidalgo County, TX** at **La Joya** as well as the quantity of Hidalgo County, TX 800 MHz frequencies changing during reconfiguration.

	Total	Quantity Changing
800 MHz	6	6

Table 1

Table 2 below is the summary of possible intermodulation hits for La Joya.

	Hits to new 800 MHz	Hits to Existing Frequencies
3 rd Order	0	N/A
5 th Order	0	N/A
7 th Order	0	N/A

Table 2

The detailed intermodulation analysis is included in the following sections.

Analysis Introduction:

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmit frequency at a site an IM analysis is necessary to check for possible IM interference problems. There are three basic categories of Intermodulation (IM) interference. They are receiver produced, transmitter produced, and "other" radiated IM. Transmitter produced IM is the result of one or more transmitters impressing a signal in the non-linear final output stage circuitry of another transmitter, usually via antenna coupling. The IM product frequency is then re-radiated from the transmitter's antenna. Receiver produced IM is the result of two or more transmitter signals mixing in a receiver RF amplifier or mixer stage when operating in a non-linear range. "Other" radiated IM is the result of transmitter signals mixing in other non-linear junctions. These junctions are usually metallic, such as rusty bolts on a tower, dissimilar metallic junctions, or other non-linear metallic junctions in the area. IM products can also be caused by non-linearity in the transmission system such as antenna, transmission line, or connectors.

This IM study has been performed to predict possible IM products that could be generated by the potential new frequencies as they are used at the **La Joya** site after Rebanding. **La Joya** is one of the sites used in the **Hidalgo County, TX** project. There may be other frequencies used by Cellular providers at the **La Joya** site. Cellular providers often license a range of frequencies to a site. These frequencies may or may not be in use at any given time. Therefore, the intermodulation study as provided is based on frequencies at the site which **do not** belong to a cellular service provider. All frequencies included in this intermodulation study are a result of information provided to Motorola during the data collection exercise.



Analysis Factors:

Following are the frequencies used in generating the La Joya site IM report:

BOLD frequencies in table 4 are new rebanding frequencies at the site. *Italicized* frequencies in table 4 are frequencies at the site that did not change due to rebanding.

<<Customer>>	Transmit Frequency:	Receive Frequency:
Hidalgo County - La Joya-Site - Ch1	852.6875	807.6875
Hidalgo County - La Joya-Site - Ch2	851.4750	806.4750
Hidalgo County - La Joya-Site - Ch3	852.4750	807.4750
Hidalgo County - La Joya-Site - Ch4	853.1125	808.1125
Hidalgo County - La Joya-Site - Ch5	853.4750	808.4750
Hidalgo County - La Joya-Site - Ch6	853.9500	808.9500

Table 4

The analysis calculates possible IM product frequencies through the seventh (7th) order that could potentially interfere with receivers at the communications site based on each receiver's individual bandwidth. The results can be used to develop an IM mitigation strategy. The parameters that affect the IM product calculations are: Order of IM products, the number of transmitters, the number of harmonics, and the half window (bandwidth) of the receiver.

Following are the parameters used for the La Joya site IM analysis:

Minimum Number Transmitters = 2
Maximum Number Transmitters = 7
Minimum Order = 2
Maximum Order = 7
Minimum Harmonic = 1
Maximum Harmonic = 7
Half Window = 12.5 kHz

The product order is equal to the harmonic multiples of the transmitter frequencies added together. For this IM analysis, 3rd, 5th and 7th order IM study reports were created. There is a possibility of higher order IM product interference. As the product order increases, the magnitude of the interfering signal decreases. Once the magnitude of the signal drops below the sensitivity of the target receiver, it is considered a minimal threat. For this reason 7th order is the maximum product order considered in this analysis. To generate 7th order IM products, the maximum of 7 transmitters are required to broadcast simultaneously, or a combination sum of the harmonic factors of the transmitters is equal to 7(e.g. 3A+4B or 3A-4B).

A harmonic represents the multiple of the original transmitter's carrier frequency. The greater the harmonic multiple of a transmitter signal, the lower the power will be relative to the transmitter signal and therefore, the smaller the level of the interfering signal. For the 7th order IM products, the maximum harmonic required is 6 for minimum two transmit frequency assuming that one transmitter alone will not create IM interference.



Half window of the receiver is the most critical parameter which takes into consideration the receiver bandwidth. During calculation, Hydra checks IM products within (+/- (Half window) KHz) of all Rx frequencies. For this analysis 12.5 KHz was used as receiver half bandwidth.

Analysis Results:

Hydra was used to generate a 3rd, 5th, and 7th order IM report.

Intermod Hits Summary

```
*****
Minimum Number Transmitters = 2
Maximum Number Transmitters = 6
Minimum Order = 2
Maximum Order = 7
Minimum Harmonic = 1
Maximum Harmonic = 7
Half Window = 12.5 kHz
*****
```

```
*****
Receive                               Frequencies
Hidalgo County - LaJoy-Site - Ch1 807.68750
Hidalgo County - LaJoy-Site - Ch2 806.47500
Hidalgo County - LaJoy-Site - Ch3 807.47500
Hidalgo County - LaJoy-Site - Ch4 808.11250
Hidalgo County - LaJoy-Site - Ch5 808.47500
Hidalgo County - LaJoy-Site - Ch6 808.95000
*****
```

```
*****
Transmit                               Frequencies
Hidalgo County - LaJoy-Site - Ch1 852.68750
Hidalgo County - LaJoy-Site - Ch2 851.47500
Hidalgo County - LaJoy-Site - Ch3 852.47500
Hidalgo County - LaJoy-Site - Ch4 853.11250
Hidalgo County - LaJoy-Site - Ch5 853.47500
Hidalgo County - LaJoy-Site - Ch6 853.95000
*****
```

Intermod Hits Summary

RX ID	RX Frequency	Total Hits	Direct Hits
-------	--------------	------------	-------------

Intermod Hits By Order

RX ID	RX Frequency
-------	--------------



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Rev Executable 08/14/2014

Page 46

Intermod Hits By Number of Transmitters

RX ID RX Frequency

***** NO INTERMOD HITS DETECTED *****

Table 5 below lists possible intermodulation direct hits by order as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	0	N/A	N/A	N/A	N/A

Table 5

Table 6 below lists the indirect intermodulation hits as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	0	N/A	N/A	N/A	N/A

Table 6

VHF, Low-band, and UHF channels are usually spaced very close to one another which can result in intermodulation hits. It should be noted that simplex channels may cause IM products, but the receiver and transmitter in these stations are never engaged simultaneously and should be disregarded when the transmitter of the simplex frequency registers IM products upon its own receiver as is the case in this scenario. Any even order IM products are prevented by the equipment design of the system.

The presence of calculated IM products does not necessarily indicate an IM hit will occur on the site. To evaluate the impact of direct and indirect IM products, further investigation is needed which could include identification of mixing point, determining probability of transmission on each frequency, power level at mixing point, site configuration, and etc. Generally 5th order IM products have a lower impact than 3rd order, but can cause significant IM problems if the power level at the mixing point is high, further investigation would be needed. The severity of the 7th order IM products is relatively low and can be ignored if the power level is low.

These results were generated assuming the presence of only the frequencies mentioned in Analysis Factor section. If there is a change in the frequencies used at the site, another IM analysis should be done to re-evaluate the impact of intermodulation.



Recommendations:

1. Avoid using frequencies that have direct 3rd order IM products or create direct 3rd order IM products.
2. Not all of the mixing possibilities are significant in creating interference signals. Higher order IM products are usually weaker in signal strength. Also, the interference depends on the power level of the mixing signal. Impact of higher order IM products can be mitigated by controlling the power level of the mixing signal.
3. Provide separate transmit and receive cables. This would move the mixing point far from both the transmitters and receivers resulting in less probability of an IM problem.
4. Replace all connectors in the system with premium grade connectors where VHF, lower UHF, and 800MHz frequencies are present.
5. In addition to the connectors, quality components should be used throughout the system, such as power dividers and cross-band couplers. The installation must always be of the highest quality. A premium component will cause problems if not installed properly.
6. Direct IM products are more significant than indirect IM products. The impact of indirect IM products will depend on signal level and how far apart is the IM product from the receiver frequency.

Disclaimer:

Intermodulation distortion products (IM) are always present where two or more collocated transmitters are operating simultaneously. Managing the power levels of the IM signals developed through proper system design will determine whether they cause harmful interference to communications.

The IM analysis is simply one of the tools used to guide proper design and must be used by a trained technical person competent to understand its meaning and limitations. The appearance of an IM product in the analysis does not mean such a product will cause harmful interference, or indeed even be present. It simply indicates the mathematical possibility of a product being produced.





MOTOROLA SOLUTIONS

**800 MHz Rebanding
Linn Site,
Hidalgo County, TX
Intermodulation Analysis**

IM Run Date: 1/15/2014



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 49

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermodulation Summary:

Table 1 below lists the total quantity of 800 MHz frequencies for **Hidalgo County, TX** at **Linn** as well as the quantity of Hidalgo County, TX 800 MHz frequencies changing during reconfiguration.

	Total	Quantity Changing
800 MHz	6	6

Table 1

Table 2 below is the summary of possible intermodulation hits for Linn.

	Hits to new 800 MHz	Hits to Existing Frequencies
3 rd Order	0	N/A
5 th Order	0	N/A
7 th Order	0	N/A

Table 2

The detailed intermodulation analysis is included in the following sections.

Analysis Introduction:

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmit frequency at a site an IM analysis is necessary to check for possible IM interference problems. There are three basic categories of Intermodulation (IM) interference. They are receiver produced, transmitter produced, and "other" radiated IM. Transmitter produced IM is the result of one or more transmitters impressing a signal in the non-linear final output stage circuitry of another transmitter, usually via antenna coupling. The IM product frequency is then re-radiated from the transmitter's antenna. Receiver produced IM is the result of two or more transmitter signals mixing in a receiver RF amplifier or mixer stage when operating in a non-linear range. "Other" radiated IM is the result of transmitter signals mixing in other non-linear junctions. These junctions are usually metallic, such as rusty bolts on a tower, dissimilar metallic junctions, or other non-linear metallic junctions in the area. IM products can also be caused by non-linearity in the transmission system such as antenna, transmission line, or connectors.

This IM study has been performed to predict possible IM products that could be generated by the potential new frequencies as they are used at the **Linn** site after Rebanding. **Linn** site is one of the sites used in the **Hidalgo County, TX** project. There may be other frequencies used by Cellular providers at the **Linn** site. Cellular providers often license a range of frequencies to a site. These frequencies may or may not be in use at any given time. Therefore, the intermodulation study as provided is based on frequencies at the site which **do not** belong to a cellular service provider. All frequencies included in this intermodulation study are a result of information provided to Motorola during the data collection exercise.



Analysis Factors:

Following are the frequencies used in generating the Linn site IM report:

BOLD frequencies in table 4 are new rebanding frequencies at the site. *Italicized* frequencies in table 4 are frequencies at the site that did not change due to rebanding.

Hidalgo County, TX	Transmit Frequency:	Receive Frequency:
Hidalgo County - Linn-Site - Ch1	853.4625	808.4625
Hidalgo County - Linn-Site - Ch2	851.4250	806.4250
Hidalgo County - Linn-Site - Ch3	851.6375	806.6375
Hidalgo County - Linn-Site - Ch4	852.1250	807.1250
Hidalgo County - Linn-Site - Ch5	852.9875	807.9875
Hidalgo County - Linn-Site - Ch6	853.9875	808.9875

Table 4

The analysis calculates possible IM product frequencies through the seventh (7th) order that could potentially interfere with receivers at the communications site based on each receiver's individual bandwidth. The results can be used to develop an IM mitigation strategy. The parameters that affect the IM product calculations are: Order of IM products, the number of transmitters, the number of harmonics, and the half window (bandwidth) of the receiver.

Following are the parameters used for the Linn site IM analysis:

Minimum Number Transmitters = 2
Maximum Number Transmitters = 7
Minimum Order = 2
Maximum Order = 7
Minimum Harmonic = 1
Maximum Harmonic = 7
Half Window = 12.5 kHz

The product order is equal to the harmonic multiples of the transmitter frequencies added together. For this IM analysis, 3rd, 5th and 7th order IM study reports were created. There is a possibility of higher order IM product interference. As the product order increases, the magnitude of the interfering signal decreases. Once the magnitude of the signal drops below the sensitivity of the target receiver, it is considered a minimal threat. For this reason 7th order is the maximum product order considered in this analysis. To generate 7th order IM products, the maximum of 7 transmitters are required to broadcast simultaneously, or a combination sum of the harmonic factors of the transmitters is equal to 7(e.g. 3A+4B or 3A-4B).

A harmonic represents the multiple of the original transmitter's carrier frequency. The greater the harmonic multiple of a transmitter signal, the lower the power will be relative to the transmitter signal and therefore, the smaller the level of the interfering signal. For the 7th order IM products, the maximum harmonic required is 6 for minimum two transmit frequency assuming that one transmitter alone will not create IM interference.



Half window of the receiver is the most critical parameter which takes into consideration the receiver bandwidth. During calculation, Hydra checks IM products within (+/- (Half window) KHz) of all Rx frequencies. For this analysis 12.5 KHz was used as receiver half bandwidth.

Analysis Results:

Hydra was used to generate a 3rd, 5th, and 7th order IM report.

Intermod Hits Summary

```
*****
Minimum Number Transmitters = 2
Maximum Number Transmitters = 5
Minimum Order = 2
Maximum Order = 5
Minimum Harmonic = 1
Maximum Harmonic = 5
Half Window = 0 kHz
*****
```

```
*****
Receive                               Frequencies
Hidalgo County - Linn-Site - Ch1 808.46250
Hidalgo County - Linn-Site - Ch2 806.42500
Hidalgo County - Linn-Site - Ch3 806.63750
Hidalgo County - Linn-Site - Ch4 807.12500
Hidalgo County - Linn-Site - Ch5 807.98750
Hidalgo County - Linn-Site - Ch6 808.98750
*****
```

```
*****
Transmit                               Frequencies
Hidalgo County - Linn-Site - Ch1 853.46250
Hidalgo County - Linn-Site - Ch2 851.42500
Hidalgo County - Linn-Site - Ch3 851.63750
Hidalgo County - Linn-Site - Ch4 852.12500
Hidalgo County - Linn-Site - Ch5 852.98750
Hidalgo County - Linn-Site - Ch6 853.98750
*****
```

Intermod Hits Summary

RX ID	RX Frequency	Total Hits	Direct Hits
-------	--------------	------------	-------------

Intermod Hits By Order

RX ID	RX Frequency
-------	--------------



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 52

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermod Hits By Number of Transmitters

RX ID RX Frequency

***** NO INTERMOD HITS DETECTED *****

Table 5 below lists possible intermodulation direct hits by order as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	0	N/A	N/A	N/A	N/A

Table 5

Table 6 below lists the indirect intermodulation hits as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	0	N/A	N/A	N/A	N/A

Table 6

VHF, Low-band, and UHF channels are usually spaced very close to one another which can result in intermodulation hits. It should be noted that simplex channels may cause IM products, but the receiver and transmitter in these stations are never engaged simultaneously and should be disregarded when the transmitter of the simplex frequency registers IM products upon its own receiver as is the case in this scenario. Any even order IM products are prevented by the equipment design of the system.

The presence of calculated IM products does not necessarily indicate an IM hit will occur on the site. To evaluate the impact of direct and indirect IM products, further investigation is needed which could include identification of mixing point, determining probability of transmission on each frequency, power level at mixing point, site configuration, and etc. Generally 5th order IM products have a lower impact than 3rd order, but can cause significant IM problems if the power level at the mixing point is high, further investigation would be needed. The severity of the 7th order IM products is relatively low and can be ignored if the power level is low.

These results were generated assuming the presence of only the frequencies mentioned in Analysis Factor section. If there is a change in the frequencies used at the site, another IM analysis should be done to re-evaluate the impact of intermodulation.



Recommendations:

1. Avoid using frequencies that have direct 3rd order IM products or create direct 3rd order IM products.
2. Not all of the mixing possibilities are significant in creating interference signals. Higher order IM products are usually weaker in signal strength. Also, the interference depends on the power level of the mixing signal. Impact of higher order IM products can be mitigated by controlling the power level of the mixing signal.
3. Provide separate transmit and receive cables. This would move the mixing point far from both the transmitters and receivers resulting in less probability of an IM problem.
4. Replace all connectors in the system with premium grade connectors where VHF, lower UHF, and 800MHz frequencies are present.
5. In addition to the connectors, quality components should be used throughout the system, such as power dividers and cross-band couplers. The installation must always be of the highest quality. A premium component will cause problems if not installed properly.
6. Direct IM products are more significant than indirect IM products. The impact of indirect IM products will depend on signal level and how far apart is the IM product from the receiver frequency.

Disclaimer:

Intermodulation distortion products (IM) are always present where two or more collocated transmitters are operating simultaneously. Managing the power levels of the IM signals developed through proper system design will determine whether they cause harmful interference to communications.

The IM analysis is simply one of the tools used to guide proper design and must be used by a trained technical person competent to understand its meaning and limitations. The appearance of an IM product in the analysis does not mean such a product will cause harmful interference, or indeed even be present. It simply indicates the mathematical possibility of a product being produced.





MOTOROLA SOLUTIONS

**800 MHz Rebanding
McAllen Site,
Hidalgo County, TX
Intermodulation Analysis**

IM Run Date: 1/15/2014



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 55

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermodulation Summary:

Table 1 below lists the total quantity of 800 MHz frequencies for **Hidalgo County, TX** at **McAllen** as well as the quantity of Hidalgo County, TX 800 MHz frequencies changing during reconfiguration.

	Total	Quantity Changing
800 MHz	6	6

Table 1

Table 2 below is the summary of possible intermodulation hits for McAllen.

	Hits to new 800 MHz	Hits to Existing Frequencies
3 rd Order	0	See summary below
5 th Order	0	See summary below
7 th Order	See summary below	See summary below

Table 2

The detailed intermodulation analysis is included in the following sections.

Analysis Introduction:

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmit frequency at a site an IM analysis is necessary to check for possible IM interference problems. There are three basic categories of Intermodulation (IM) interference. They are receiver produced, transmitter produced, and "other" radiated IM. Transmitter produced IM is the result of one or more transmitters impressing a signal in the non-linear final output stage circuitry of another transmitter, usually via antenna coupling. The IM product frequency is then re-radiated from the transmitter's antenna. Receiver produced IM is the result of two or more transmitter signals mixing in a receiver RF amplifier or mixer stage when operating in a non-linear range. "Other" radiated IM is the result of transmitter signals mixing in other non-linear junctions. These junctions are usually metallic, such as rusty bolts on a tower, dissimilar metallic junctions, or other non-linear metallic junctions in the area. IM products can also be caused by non-linearity in the transmission system such as antenna, transmission line, or connectors.

This IM study has been performed to predict possible IM products that could be generated by the potential new frequencies as they are used at the **McAllen** site after Rebanding. **McAllen** site is one of the sites used in the **Hidalgo County, TX** project. There may be other frequencies used by Cellular providers at the **McAllen** site. Cellular providers often license a range of frequencies to a site. These frequencies may or may not be in use at any given time. Therefore, the intermodulation study as provided is based on frequencies at the site which **do not** belong to a



cellular service provider. All frequencies included in this intermodulation study are a result of information provided to Motorola during the data collection exercise.

Analysis Factors:

Following are the frequencies used in generating the McAllen site IM report:

BOLD frequencies in table 4 are new rebanding frequencies at the site. *Italicized* frequencies in table 4 are frequencies at the site that did not change due to rebanding.

Hidalgo County (McAllen Site)	Transmit Frequency:	Receive Frequency:
Hidalgo County - McAllen Site - 1	853.0625	808.0625
Hidalgo County - McAllen Site - 2	851.0750	806.0750
Hidalgo County - McAllen Site - 3	851.9625	806.9625
Hidalgo County - McAllen Site - 4	852.5625	807.5625
Hidalgo County - McAllen Site - 5	853.5750	808.5750
Hidalgo County - McAllen Site - 6	852.9625	807.9625
Lower Rio Grande Valley Development Council - 1	851.0125	806.0125
Lower Rio Grande Valley Development Council - 2	851.5125	806.5125
Lower Rio Grande Valley Development Council - 3	852.0125	807.0125
Lower Rio Grande Valley Development Council - 4	852.5125	807.5125
Lower Rio Grande Valley Development Council - 5	853.0125	808.0125
McAllen Independent School District - 1	857.2250	812.2250
McAllen Independent School District - 2	858.2250	813.2250
City of McAllen - 01	856.0500	811.0500
City of McAllen - 02	857.0500	812.0500
City of McAllen - 03	858.0500	813.0500
City of McAllen - 04	859.0500	814.0500
City of McAllen - 05	860.0500	815.0500
City of McAllen - 06	861.0500	816.0500
City of McAllen - 07	862.0500	817.0500
City of McAllen - 08	863.0500	818.0500
City of McAllen - 09	864.0500	819.0500
City of McAllen - 10	865.0500	820.0500
Med Care EMS - 1	858.0000	813.0000
Med Care EMS - 2	860.0000	815.0000
NEXTEL WIP License Corp - 01	856.6250	811.6250
NEXTEL WIP License Corp - 02	856.6750	811.6750
NEXTEL WIP License Corp - 03	856.9250	811.9250
NEXTEL WIP License Corp - 04	856.9500	811.9500
NEXTEL WIP License Corp - 05	857.5250	812.5250
NEXTEL WIP License Corp - 06	857.5500	812.5500
NEXTEL WIP License Corp - 07	857.6000	812.6000
NEXTEL WIP License Corp - 08	857.6250	812.6250
NEXTEL WIP License Corp - 09	857.6500	812.6500



NEXTEL WIP License Corp - 10	857.6750	812.6750
NEXTEL WIP License Corp - 11	857.7000	812.7000
NEXTEL WIP License Corp - 12	857.9250	812.9250
NEXTEL WIP License Corp - 13	857.9500	812.9500
NEXTEL WIP License Corp - 14	858.5000	813.5000
NEXTEL WIP License Corp - 15	858.5250	813.5250
NEXTEL WIP License Corp - 16	858.5500	813.5500
NEXTEL WIP License Corp - 17	858.6000	813.6000
NEXTEL WIP License Corp - 18	858.6250	813.6250
NEXTEL WIP License Corp - 19	858.6500	813.6500
NEXTEL WIP License Corp - 20	858.6750	813.6750
NEXTEL WIP License Corp - 21	858.7000	813.7000
NEXTEL WIP License Corp - 22	858.9250	813.9250
NEXTEL WIP License Corp - 23	858.9500	813.9500
NEXTEL WIP License Corp - 24	859.4750	814.4750
NEXTEL WIP License Corp - 25	859.5250	814.5250
NEXTEL WIP License Corp - 26	859.5500	814.5500
NEXTEL WIP License Corp - 27	859.6000	814.6000
NEXTEL WIP License Corp - 28	859.6250	814.6250
NEXTEL WIP License Corp - 29	859.6500	814.6500
NEXTEL WIP License Corp - 30	859.6750	814.6750
NEXTEL WIP License Corp - 31	859.7000	814.7000
NEXTEL WIP License Corp - 32	859.9250	814.9250
NEXTEL WIP License Corp - 33	859.9500	814.9500
NEXTEL WIP License Corp - 34	860.4750	815.4750
NEXTEL WIP License Corp - 35	860.5250	815.5250
NEXTEL WIP License Corp - 36	860.5500	815.5500
NEXTEL WIP License Corp - 37	860.6000	815.6000
NEXTEL WIP License Corp - 38	860.6500	815.6500
NEXTEL WIP License Corp - 39	860.6750	815.6750
NEXTEL WIP License Corp - 40	860.7000	815.7000
NEXTEL WIP License Corp - 41	860.9250	815.9250
NEXTEL WIP License Corp - 42	860.9500	815.9500
NEXTEL WIP License Corp - 43	861.5000	816.5000
NEXTEL WIP License Corp - 44	861.7500	816.7500
NEXTEL WIP License Corp - 45	861.8000	816.8000
NEXTEL WIP License Corp - 46	862.5000	817.5000
NEXTEL WIP License Corp - 47	862.7500	817.7500
NEXTEL WIP License Corp - 48	862.8000	817.8000
NEXTEL WIP License Corp - 49	863.5000	818.5000
NEXTEL WIP License Corp - 50	863.7500	818.7500
NEXTEL WIP License Corp - 51	863.8000	818.8000
NEXTEL WIP License Corp - 52	864.5000	819.5000



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 58

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

NEXTEL WIP License Corp - 53	864.7500	819.7500
NEXTEL WIP License Corp - 54	864.8000	819.8000
NEXTEL WIP License Corp - 55	865.5000	820.5000
NEXTEL WIP License Corp - 56	865.7500	820.7500
NEXTEL WIP License Corp - 57	865.8000	820.8000
NEXTEL WIP License Corp - 58	856.5000	811.5000
NEXTEL WIP License Corp - 59	856.9250	811.9250
NEXTEL WIP License Corp - 60	857.5000	812.5000
NEXTEL WIP License Corp - 61	858.9250	813.9250
NEXTEL WIP License Corp - 62	861.8500	816.8500
NEXTEL WIP License Corp - 63	862.8500	817.8500
NEXTEL WIP License Corp - 64	863.8500	818.8500
NEXTEL WIP License Corp - 65	864.8500	819.8500
NEXTEL WIP License Corp - 66	865.8500	820.8500

Table 4

The analysis calculates possible IM product frequencies through the seventh (7th) order that could potentially interfere with receivers at the communications site based on each receiver's individual bandwidth. The results can be used to develop an IM mitigation strategy. The parameters that affect the IM product calculations are: Order of IM products, the number of transmitters, the number of harmonics, and the half window (bandwidth) of the receiver.

Following are the parameters used for the McAllen site IM analysis:

Minimum Number Transmitters = 2
Maximum Number Transmitters = 5
Minimum Order = 2
Maximum Order = 7
Minimum Harmonic = 1
Maximum Harmonic = 7
Half Window = 12.5 kHz

The product order is equal to the harmonic multiples of the transmitter frequencies added together. For this IM analysis, 3rd, 5th and 7th order IM study reports were created. There is a possibility of higher order IM product interference. As the product order increases, the magnitude of the interfering signal decreases. Once the magnitude of the signal drops below the sensitivity of the target receiver, it is considered a minimal threat. For this reason 7th order is the maximum product order considered in this analysis. To generate 7th order IM products, the maximum of 7 transmitters are required to broadcast simultaneously, or a combination sum of the harmonic factors of the transmitters is equal to 7(e.g. 3A+4B or 3A-4B).

A harmonic represents the multiple of the original transmitter's carrier frequency. The greater the harmonic multiple of a transmitter signal, the lower the power will be relative to the transmitter signal and therefore, the smaller the level of the interfering signal. For the 7th order IM products, the maximum harmonic required is 6 for minimum two transmit frequency assuming that one transmitter alone will not create IM interference.



Half window of the receiver is the most critical parameter which takes into consideration the receiver bandwidth. During calculation, Hydra checks IM products within (+/- (Half window) KHz) of all Rx frequencies. For this analysis 12.5 KHz was used as receiver half bandwidth.

Analysis Results:

Hydra was used to generate a 3rd, 5th, and 7th order IM report.

Intermod Hits Summary

```
*****
Minimum Number Transmitters = 2
Maximum Number Transmitters = 5
Minimum Order = 2
Maximum Order = 7
Minimum Harmonic = 1
Maximum Harmonic = 4
Half Window = 12.5 kHz
*****
```

Receive Frequencies

Hidalgo County - McAllen Site - 1	808.06250
Hidalgo County - McAllen Site - 2	806.07500
Hidalgo County - McAllen Site - 3	806.96250
Hidalgo County - McAllen Site - 4	807.56250
Hidalgo County - McAllen Site - 5	808.57500
Hidalgo County - McAllen Site - 6	807.96250
Lower Rio Grande Valley Development Council - 1	806.01250
Lower Rio Grande Valley Development Council - 2	806.51250
Lower Rio Grande Valley Development Council - 3	807.01250
Lower Rio Grande Valley Development Council - 4	807.51250
Lower Rio Grande Valley Development Council - 5	808.01250
McAllen Independent School District - 1	812.22500
McAllen Independent School District - 2	813.22500
City of McAllen - 01	811.05000
City of McAllen - 02	812.05000
City of McAllen - 03	813.05000
City of McAllen - 04	814.05000
City of McAllen - 05	815.05000
City of McAllen - 06	816.05000
City of McAllen - 07	817.05000
City of McAllen - 08	818.05000
City of McAllen - 09	819.05000
City of McAllen - 10	820.05000
Med Care EMS - 1	813.00000
Med Care EMS - 2	815.00000
NEXTEL WIP License Corp - 01	811.62500
NEXTEL WIP License Corp - 02	811.67500
NEXTEL WIP License Corp - 03	811.92500
NEXTEL WIP License Corp - 04	811.95000
NEXTEL WIP License Corp - 05	812.52500
NEXTEL WIP License Corp - 06	812.55000
NEXTEL WIP License Corp - 07	812.60000



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 60

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Receive Frequencies (Cont.)

NEXTEL WIP License Corp - 08	812.62500
NEXTEL WIP License Corp - 09	812.65000
NEXTEL WIP License Corp - 10	812.67500
NEXTEL WIP License Corp - 11	812.70000
NEXTEL WIP License Corp - 12	812.92500
NEXTEL WIP License Corp - 13	812.95000
NEXTEL WIP License Corp - 14	813.50000
NEXTEL WIP License Corp - 15	813.52500
NEXTEL WIP License Corp - 16	813.55000
NEXTEL WIP License Corp - 17	813.60000
NEXTEL WIP License Corp - 18	813.62500
NEXTEL WIP License Corp - 19	813.65000
NEXTEL WIP License Corp - 20	813.67500
NEXTEL WIP License Corp - 21	813.70000
NEXTEL WIP License Corp - 22	813.92500
NEXTEL WIP License Corp - 23	813.95000
NEXTEL WIP License Corp - 24	814.47500
NEXTEL WIP License Corp - 25	814.52500
NEXTEL WIP License Corp - 26	814.55000
NEXTEL WIP License Corp - 27	814.60000
NEXTEL WIP License Corp - 28	814.62500
NEXTEL WIP License Corp - 29	814.65000
NEXTEL WIP License Corp - 30	814.67500
NEXTEL WIP License Corp - 31	814.70000
NEXTEL WIP License Corp - 32	814.92500
NEXTEL WIP License Corp - 33	814.95000
NEXTEL WIP License Corp - 34	815.47500
NEXTEL WIP License Corp - 35	815.52500
NEXTEL WIP License Corp - 36	815.55000
NEXTEL WIP License Corp - 37	815.60000
NEXTEL WIP License Corp - 38	815.65000
NEXTEL WIP License Corp - 39	815.67500
NEXTEL WIP License Corp - 40	815.70000
NEXTEL WIP License Corp - 41	815.92500
NEXTEL WIP License Corp - 42	815.95000
NEXTEL WIP License Corp - 43	816.50000
NEXTEL WIP License Corp - 44	816.75000
NEXTEL WIP License Corp - 45	816.80000
NEXTEL WIP License Corp - 46	817.50000
NEXTEL WIP License Corp - 47	817.75000
NEXTEL WIP License Corp - 48	817.80000
NEXTEL WIP License Corp - 49	818.50000
NEXTEL WIP License Corp - 50	818.75000
NEXTEL WIP License Corp - 51	818.80000
NEXTEL WIP License Corp - 52	819.50000
NEXTEL WIP License Corp - 53	819.75000
NEXTEL WIP License Corp - 54	819.80000
NEXTEL WIP License Corp - 55	820.50000
NEXTEL WIP License Corp - 56	820.75000
NEXTEL WIP License Corp - 57	820.80000
NEXTEL WIP License Corp - 58	811.50000
NEXTEL WIP License Corp - 59	811.92500
NEXTEL WIP License Corp - 60	812.50000
NEXTEL WIP License Corp - 61	813.92500



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 61

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Receive Frequencies (Cont.)

NEXTEL WIP License Corp - 62	816.85000
NEXTEL WIP License Corp - 63	817.85000
NEXTEL WIP License Corp - 64	818.85000
NEXTEL WIP License Corp - 65	819.85000
NEXTEL WIP License Corp - 66	820.85000

Transmit Frequencies

Hidalgo County - McAllen Site - 1	853.06250
Hidalgo County - McAllen Site - 2	851.07500
Hidalgo County - McAllen Site - 3	851.96250
Hidalgo County - McAllen Site - 4	852.56250
Hidalgo County - McAllen Site - 5	853.57500
Hidalgo County - McAllen Site - 6	852.96250
Lower Rio Grande Valley Development Council - 1	851.01250
Lower Rio Grande Valley Development Council - 2	851.51250
Lower Rio Grande Valley Development Council - 3	852.01250
Lower Rio Grande Valley Development Council - 4	852.51250
Lower Rio Grande Valley Development Council - 5	853.01250
McAllen Independent School District - 1	857.22500
McAllen Independent School District - 2	858.22500
City of McAllen - 01	856.05000
City of McAllen - 02	857.05000
City of McAllen - 03	858.05000
City of McAllen - 04	859.05000
City of McAllen - 05	860.05000
City of McAllen - 06	861.05000
City of McAllen - 07	862.05000
City of McAllen - 08	863.05000
City of McAllen - 09	864.05000
City of McAllen - 10	865.05000
Med Care EMS - 1	858.00000
Med Care EMS - 2	860.00000
NEXTEL WIP License Corp - 01	856.62500
NEXTEL WIP License Corp - 02	856.67500
NEXTEL WIP License Corp - 03	856.92500
NEXTEL WIP License Corp - 04	856.95000
NEXTEL WIP License Corp - 05	857.52500
NEXTEL WIP License Corp - 06	857.55000
NEXTEL WIP License Corp - 07	857.60000
NEXTEL WIP License Corp - 08	857.62500
NEXTEL WIP License Corp - 09	857.65000
NEXTEL WIP License Corp - 10	857.67500
NEXTEL WIP License Corp - 11	857.70000
NEXTEL WIP License Corp - 12	857.92500
NEXTEL WIP License Corp - 13	857.95000
NEXTEL WIP License Corp - 14	858.50000
NEXTEL WIP License Corp - 15	858.52500
NEXTEL WIP License Corp - 16	858.55000
NEXTEL WIP License Corp - 17	858.60000
NEXTEL WIP License Corp - 18	858.62500
NEXTEL WIP License Corp - 19	858.65000
NEXTEL WIP License Corp - 20	858.67500



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 62

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Transmit Frequencies (Cont.)

NEXTEL WIP License Corp - 21	858.70000
NEXTEL WIP License Corp - 22	858.92500
NEXTEL WIP License Corp - 23	858.95000
NEXTEL WIP License Corp - 24	859.47500
NEXTEL WIP License Corp - 25	859.52500
NEXTEL WIP License Corp - 26	859.55000
NEXTEL WIP License Corp - 27	859.60000
NEXTEL WIP License Corp - 28	859.62500
NEXTEL WIP License Corp - 29	859.65000
NEXTEL WIP License Corp - 30	859.67500
NEXTEL WIP License Corp - 31	859.70000
NEXTEL WIP License Corp - 32	859.92500
NEXTEL WIP License Corp - 33	859.95000
NEXTEL WIP License Corp - 34	860.47500
NEXTEL WIP License Corp - 35	860.52500
NEXTEL WIP License Corp - 36	860.55000
NEXTEL WIP License Corp - 37	860.60000
NEXTEL WIP License Corp - 38	860.65000
NEXTEL WIP License Corp - 39	860.67500
NEXTEL WIP License Corp - 40	860.70000
NEXTEL WIP License Corp - 41	860.92500
NEXTEL WIP License Corp - 42	860.95000
NEXTEL WIP License Corp - 43	861.50000
NEXTEL WIP License Corp - 44	861.75000
NEXTEL WIP License Corp - 45	861.80000
NEXTEL WIP License Corp - 46	862.50000
NEXTEL WIP License Corp - 47	862.75000
NEXTEL WIP License Corp - 48	862.80000
NEXTEL WIP License Corp - 49	863.50000
NEXTEL WIP License Corp - 50	863.75000
NEXTEL WIP License Corp - 51	863.80000
NEXTEL WIP License Corp - 52	864.50000
NEXTEL WIP License Corp - 53	864.75000
NEXTEL WIP License Corp - 54	864.80000
NEXTEL WIP License Corp - 55	865.50000
NEXTEL WIP License Corp - 56	865.75000
NEXTEL WIP License Corp - 57	865.80000
NEXTEL WIP License Corp - 58	856.50000
NEXTEL WIP License Corp - 59	856.92500
NEXTEL WIP License Corp - 60	857.50000
NEXTEL WIP License Corp - 61	858.92500
NEXTEL WIP License Corp - 62	861.85000
NEXTEL WIP License Corp - 63	862.85000
NEXTEL WIP License Corp - 64	863.85000
NEXTEL WIP License Corp - 65	864.85000
NEXTEL WIP License Corp - 66	865.85000



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 63

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermod Hits Summary (Cont.)

RX ID	RX Freq	Total Hits	Direct Hits
Hidalgo County - McAllen Site - 1	808.0625	33	10
Hidalgo County - McAllen Site - 3	806.9625	6	1
Hidalgo County - McAllen Site - 4	807.5625	18	5
Hidalgo County - McAllen Site - 5	808.575	47	13
Hidalgo County - McAllen Site - 6	807.9625	26	5
Lwr Rio Grande Valley Devel Council - 2	806.5125	1	0
Lwr Rio Grande Valley Devel Council - 3	807.0125	6	2
Lwr Rio Grande Valley Devel Council - 4	807.5125	12	3
Lwr Rio Grande Valley Devel Council - 5	808.0125	30	8
McAllen Independent School District - 1	812.225	553	181
McAllen Independent School District - 2	813.225	981	312
City of McAllen - 01	811.05	489	297
City of McAllen - 02	812.05	887	558
City of McAllen - 03	813.05	1531	957
City of McAllen - 04	814.05	2607	1557
City of McAllen - 05	815.05	4311	2366
City of McAllen - 06	816.05	6890	3443
City of McAllen - 07	817.05	10559	4821
City of McAllen - 08	818.05	15593	6544
City of McAllen - 09	819.05	22419	8718
City of McAllen - 10	820.05	31648	11594
Med Care EMS - 1	813.0	1564	1043
Med Care EMS - 2	815.0	4357	2484
NEXTEL WIP License Corp - 01	811.625	469	145
NEXTEL WIP License Corp - 02	811.675	498	173
NEXTEL WIP License Corp - 03	811.925	417	144
NEXTEL WIP License Corp - 04	811.95	913	613
NEXTEL WIP License Corp - 05	812.525	645	209
NEXTEL WIP License Corp - 06	812.55	1339	862
NEXTEL WIP License Corp - 07	812.6	1443	916
NEXTEL WIP License Corp - 08	812.625	775	235
NEXTEL WIP License Corp - 09	812.65	1630	1075
NEXTEL WIP License Corp - 10	812.675	811	268
NEXTEL WIP License Corp - 11	812.7	1629	1074
NEXTEL WIP License Corp - 12	812.925	760	255
NEXTEL WIP License Corp - 13	812.95	1574	1033
NEXTEL WIP License Corp - 14	813.5	2118	1352
NEXTEL WIP License Corp - 15	813.525	1179	390
NEXTEL WIP License Corp - 16	813.55	2216	1385
NEXTEL WIP License Corp - 17	813.6	2380	1456
NEXTEL WIP License Corp - 18	813.625	1323	387
NEXTEL WIP License Corp - 19	813.65	2652	1692
NEXTEL WIP License Corp - 20	813.675	1372	439
NEXTEL WIP License Corp - 21	813.7	2649	1696
NEXTEL WIP License Corp - 22	813.925	1436	477
NEXTEL WIP License Corp - 23	813.95	2636	1623
NEXTEL WIP License Corp - 24	814.475	2012	642
NEXTEL WIP License Corp - 25	814.525	2198	747
NEXTEL WIP License Corp - 26	814.55	3648	2138
NEXTEL WIP License Corp - 27	814.6	3847	2196



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 64

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermod Hits Summary (Cont.)

RX ID	RX Freq	Total Hits	Direct Hits
NEXTEL WIP License Corp - 28	814.625	2352	690
NEXTEL WIP License Corp - 29	814.65	4232	2516
NEXTEL WIP License Corp - 30	814.675	2441	751
NEXTEL WIP License Corp - 31	814.7	4283	2551
NEXTEL WIP License Corp - 32	814.925	2693	874
NEXTEL WIP License Corp - 33	814.95	4307	2428
NEXTEL WIP License Corp - 34	815.475	3675	1166
NEXTEL WIP License Corp - 35	815.525	3949	1339
NEXTEL WIP License Corp - 36	815.55	5822	3153
NEXTEL WIP License Corp - 37	815.6	6090	3181
NEXTEL WIP License Corp - 38	815.65	6556	3561
NEXTEL WIP License Corp - 39	815.675	4250	1289
NEXTEL WIP License Corp - 40	815.7	6703	3640
NEXTEL WIP License Corp - 41	815.925	4742	1518
NEXTEL WIP License Corp - 42	815.95	6805	3495
NEXTEL WIP License Corp - 43	816.5	8703	4418
NEXTEL WIP License Corp - 44	816.75	10186	5154
NEXTEL WIP License Corp - 46	817.5	12975	6062
NEXTEL WIP License Corp - 47	817.75	14937	6976
NEXTEL WIP License Corp - 48	817.8	14674	6839
NEXTEL WIP License Corp - 49	818.5	18785	8114
NEXTEL WIP License Corp - 50	818.75	21287	9187
NEXTEL WIP License Corp - 51	818.8	21160	9175
NEXTEL WIP License Corp - 52	819.5	26634	10666
NEXTEL WIP License Corp - 53	819.75	29664	11916
NEXTEL WIP License Corp - 54	819.8	29783	12083
NEXTEL WIP License Corp - 55	820.5	37224	13964
NEXTEL WIP License Corp - 56	820.75	40654	15396
NEXTEL WIP License Corp - 57	820.8	41099	15750
NEXTEL WIP License Corp - 58	811.5	716	464
NEXTEL WIP License Corp - 59	811.925	417	144
NEXTEL WIP License Corp - 60	812.5	1254	827
NEXTEL WIP License Corp - 61	813.925	1436	477
NEXTEL WIP License Corp - 62	816.85	9995	4862
NEXTEL WIP License Corp - 63	817.85	14865	6772
NEXTEL WIP License Corp - 64	818.85	21442	9162
NEXTEL WIP License Corp - 65	819.85	30204	12155
NEXTEL WIP License Corp - 66	820.85	41749	15959

Intermod Hits By Order

RX ID	RX Frequency	Order 7
Hidalgo County - McAllen Site - 1	808.0625	33
Hidalgo County - McAllen Site - 3	806.9625	6
Hidalgo County - McAllen Site - 4	807.5625	18
Hidalgo County - McAllen Site - 5	808.575	47
Hidalgo County - McAllen Site - 6	807.9625	26
Lwr Rio Grande Valley Devel Council - 2	806.5125	1
Lwr Rio Grande Valley Devel Council - 3	807.0125	6
Lwr Rio Grande Valley Devel Council - 4	807.5125	12
Lwr Rio Grande Valley Devel Council - 5	808.0125	30



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 65

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermod Hits Summary (Cont.)

RX ID	RX Freq	Total Hits	Direct Hits
McAllen Independent School District - 1	812.225	553	
McAllen Independent School District - 2	813.225	981	
City of McAllen - 01	811.05	489	
City of McAllen - 02	812.05	887	
City of McAllen - 03	813.05	1531	
City of McAllen - 04	814.05	2607	
City of McAllen - 05	815.05	4311	
City of McAllen - 06	816.05	6890	
City of McAllen - 07	817.05	10559	
City of McAllen - 08	818.05	15593	
City of McAllen - 09	819.05	22419	
City of McAllen - 10	820.05	31648	
Med Care EMS - 1	813.0	1564	
Med Care EMS - 2	815.0	4357	
NEXTEL WIP License Corp - 01	811.625	469	
NEXTEL WIP License Corp - 02	811.675	498	
NEXTEL WIP License Corp - 03	811.925	417	
NEXTEL WIP License Corp - 04	811.95	913	
NEXTEL WIP License Corp - 05	812.525	645	
NEXTEL WIP License Corp - 06	812.55	1339	
NEXTEL WIP License Corp - 07	812.6	1443	
NEXTEL WIP License Corp - 08	812.625	775	
NEXTEL WIP License Corp - 09	812.65	1630	
NEXTEL WIP License Corp - 10	812.675	811	
NEXTEL WIP License Corp - 11	812.7	1629	
NEXTEL WIP License Corp - 12	812.925	760	
NEXTEL WIP License Corp - 13	812.95	1574	
NEXTEL WIP License Corp - 14	813.5	2118	
NEXTEL WIP License Corp - 15	813.525	1179	
NEXTEL WIP License Corp - 16	813.55	2216	
NEXTEL WIP License Corp - 17	813.6	2380	
NEXTEL WIP License Corp - 18	813.625	1323	
NEXTEL WIP License Corp - 19	813.65	2652	
NEXTEL WIP License Corp - 20	813.675	1372	
NEXTEL WIP License Corp - 21	813.7	2649	
NEXTEL WIP License Corp - 22	813.925	1436	
NEXTEL WIP License Corp - 23	813.95	2636	
NEXTEL WIP License Corp - 24	814.475	2012	
NEXTEL WIP License Corp - 25	814.525	2198	
NEXTEL WIP License Corp - 26	814.55	3648	
NEXTEL WIP License Corp - 27	814.6	3847	
NEXTEL WIP License Corp - 28	814.625	2352	
NEXTEL WIP License Corp - 29	814.65	4232	
NEXTEL WIP License Corp - 30	814.675	2441	
NEXTEL WIP License Corp - 31	814.7	4283	
NEXTEL WIP License Corp - 32	814.925	2693	
NEXTEL WIP License Corp - 33	814.95	4307	
NEXTEL WIP License Corp - 34	815.475	3675	
NEXTEL WIP License Corp - 35	815.525	3949	
NEXTEL WIP License Corp - 36	815.55	5822	
NEXTEL WIP License Corp - 37	815.6	6090	
NEXTEL WIP License Corp - 38	815.65	6556	



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 66

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermod Hits Summary (Cont.)

RX ID	RX Freq	Total Hits	Direct Hits
NEXTEL WIP License Corp - 39	815.675	4250	
NEXTEL WIP License Corp - 40	815.7	6703	
NEXTEL WIP License Corp - 41	815.925	4742	
NEXTEL WIP License Corp - 42	815.95	6805	
NEXTEL WIP License Corp - 43	816.5	8703	
NEXTEL WIP License Corp - 44	816.75	10186	
NEXTEL WIP License Corp - 45	816.8	9834	
NEXTEL WIP License Corp - 46	817.5	12975	
NEXTEL WIP License Corp - 47	817.75	14937	
NEXTEL WIP License Corp - 48	817.8	14674	
NEXTEL WIP License Corp - 49	818.5	18785	
NEXTEL WIP License Corp - 50	818.75	21287	
NEXTEL WIP License Corp - 51	818.8	21160	
NEXTEL WIP License Corp - 52	819.5	26634	
NEXTEL WIP License Corp - 53	819.75	29664	
NEXTEL WIP License Corp - 54	819.8	29783	
NEXTEL WIP License Corp - 55	820.5	37224	
NEXTEL WIP License Corp - 56	820.75	40654	
NEXTEL WIP License Corp - 57	820.8	41099	
NEXTEL WIP License Corp - 58	811.5	716	
NEXTEL WIP License Corp - 59	811.925	417	
NEXTEL WIP License Corp - 60	812.5	1254	
NEXTEL WIP License Corp - 61	813.925	1436	
NEXTEL WIP License Corp - 62	816.85	9995	
NEXTEL WIP License Corp - 63	817.85	14865	
NEXTEL WIP License Corp - 64	818.85	21442	
NEXTEL WIP License Corp - 65	819.85	30204	
NEXTEL WIP License Corp - 66	820.85	41749	

Table 5 below lists possible intermodulation direct hits by order as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	(above)	N/A	N/A	N/A	N/A

Table 5

Table 6 below lists the indirect intermodulation hits as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	(above)	N/A	N/A	N/A	N/A

Table 6



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 67

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

VHF, Low-band, and UHF channels are usually spaced very close to one another which can result in intermodulation hits. It should be noted that simplex channels may cause IM products, but the receiver and transmitter in these stations are never engaged simultaneously and should be disregarded when the transmitter of the simplex frequency registers IM products upon its own receiver as is the case in this scenario. Any even order IM products are prevented by the equipment design of the system.

The presence of calculated IM products does not necessarily indicate an IM hit will occur on the site. To evaluate the impact of direct and indirect IM products, further investigation is needed which could include identification of mixing point, determining probability of transmission on each frequency, power level at mixing point, site configuration, and etc. Generally 5th order IM products have a lower impact than 3rd order, but can cause significant IM problems if the power level at the mixing point is high, further investigation would be needed. The severity of the 7th order IM products is relatively low and can be ignored if the power level is low.

These results were generated assuming the presence of only the frequencies mentioned in Analysis Factor section. If there is a change in the frequencies used at the site, another IM analysis should be done to re-evaluate the impact of intermodulation.

Recommendations:

1. Avoid using frequencies that have direct 3rd order IM products or create direct 3rd order IM products.
2. Not all of the mixing possibilities are significant in creating interference signals. Higher order IM products are usually weaker in signal strength. Also, the interference depends on the power level of the mixing signal. Impact of higher order IM products can be mitigated by controlling the power level of the mixing signal.
3. Provide separate transmit and receive cables. This would move the mixing point far from both the transmitters and receivers resulting in less probability of an IM problem.
4. Replace all connectors in the system with premium grade connectors where VHF, lower UHF, and 800MHz frequencies are present.
5. In addition to the connectors, quality components should be used throughout the system, such as power dividers and cross-band couplers. The installation must always be of the highest quality. A premium component will cause problems if not installed properly.
6. Direct IM products are more significant than indirect IM products. The impact of indirect IM products will depend on signal level and how far apart is the IM product from the receiver frequency.

Disclaimer:

Intermodulation distortion products (IM) are always present where two or more collocated transmitters are operating simultaneously. Managing the power levels of the IM signals developed through proper system design will determine whether they cause harmful interference to communications.



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 68

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

The IM analysis is simply one of the tools used to guide proper design and must be used by a trained technical person competent to understand its meaning and limitations. The appearance of an IM product in the analysis does not mean such a product will cause harmful interference, or indeed even be present. It simply indicates the mathematical possibility of a product being produced.





MOTOROLA SOLUTIONS

**800 MHz Rebanding
Weslaco Site,
Hidalgo County, TX
Intermodulation Analysis**

IM Run Date: 1/15/2014



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 70

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Intermodulation Summary:

Table 1 below lists the total quantity of 800 MHz frequencies for **Hidalgo County, TX** at **Weslaco** as well as the quantity of Hidalgo County, TX 800 MHz frequencies changing during reconfiguration.

	Total	Quantity Changing
800 MHz	6	6

Table 1

Table 2 below is the summary of possible intermodulation hits for Weslaco.

	Hits to new 800 MHz	Hits to Existing Frequencies
3 rd Order	0	N/A
5 th Order	0	N/A
7 th Order	0	N/A

Table 2

The detailed intermodulation analysis is included in the following sections.

Analysis Introduction:

Intermodulation (IM) products are generated whenever two or more transmit frequencies mix together. If there is more than one transmit frequency at a site an IM analysis is necessary to check for possible IM interference problems. There are three basic categories of Intermodulation (IM) interference. They are receiver produced, transmitter produced, and "other" radiated IM. Transmitter produced IM is the result of one or more transmitters impressing a signal in the non-linear final output stage circuitry of another transmitter, usually via antenna coupling. The IM product frequency is then re-radiated from the transmitter's antenna. Receiver produced IM is the result of two or more transmitter signals mixing in a receiver RF amplifier or mixer stage when operating in a non-linear range. "Other" radiated IM is the result of transmitter signals mixing in other non-linear junctions. These junctions are usually metallic, such as rusty bolts on a tower, dissimilar metallic junctions, or other non-linear metallic junctions in the area. IM products can also be caused by non-linearity in the transmission system such as antenna, transmission line, or connectors.

This IM study has been performed to predict possible IM products that could be generated by the potential new frequencies as they are used at the **Weslaco** site after Rebanding. **Weslaco** is one of the sites used in the **Hidalgo County, TX** project. There may be other frequencies used by Cellular providers at the **Weslaco** site. Cellular providers often license a range of frequencies to a site. These frequencies may or may not be in use at any given time. Therefore, the intermodulation study as provided is based on frequencies at the site which do not belong to a cellular service provider. All frequencies included in this intermodulation study are a result of information provided to Motorola during the data collection exercise.



Analysis Factors:

Following are the frequencies used in generating the Weslaco site IM report:

BOLD frequencies in table 4 are new rebanding frequencies at the site. *Italicized* frequencies in table 4 are frequencies at the site that did not change due to rebanding.

Hidalgo County, TX	Transmit Frequency:	Receive Frequency:
Hidalgo-County - Weslaco Site - Channel 1	851.5375	806.5375
Hidalgo-County - Weslaco Site - Channel 2	851.9875	806.9875
Hidalgo-County - Weslaco Site - Channel 3	852.5875	807.5875
Hidalgo-County - Weslaco Site - Channel 4	853.3875	808.3875
Hidalgo-County - Weslaco Site - Channel 5	852.4125	807.4125
Hidalgo-County - Weslaco Site - Channel 6	852.95	807.95

Table 4

The analysis calculates possible IM product frequencies through the seventh (7th) order that could potentially interfere with receivers at the communications site based on each receiver's individual bandwidth. The results can be used to develop an IM mitigation strategy. The parameters that affect the IM product calculations are: Order of IM products, the number of transmitters, the number of harmonics, and the half window (bandwidth) of the receiver.

Following are the parameters used for the Weslaco site IM analysis:

Minimum Number Transmitters = 2
Maximum Number Transmitters = 7
Minimum Order = 2
Maximum Order = 7
Minimum Harmonic = 1
Maximum Harmonic = 7
Half Window = 12.5 kHz

The product order is equal to the harmonic multiples of the transmitter frequencies added together. For this IM analysis, 3rd, 5th and 7th order IM study reports were created. There is a possibility of higher order IM product interference. As the product order increases, the magnitude of the interfering signal decreases. Once the magnitude of the signal drops below the sensitivity of the target receiver, it is considered a minimal threat. For this reason 7th order is the maximum product order considered in this analysis. To generate 7th order IM products, the maximum of 7 transmitters are required to broadcast simultaneously, or a combination sum of the harmonic factors of the transmitters is equal to 7(e.g. 3A+4B or 3A-4B).

A harmonic represents the multiple of the original transmitter's carrier frequency. The greater the harmonic multiple of a transmitter signal, the lower the power will be relative to the transmitter signal and therefore, the smaller the level of the interfering signal. For the 7th order IM products, the maximum harmonic required is 6 for minimum two transmit frequency assuming that one transmitter alone will not create IM interference.



Half window of the receiver is the most critical parameter which takes into consideration the receiver bandwidth. During calculation, Hydra checks IM products within (+/- (Half window) KHz) of all Rx frequencies. For this analysis 12.5 KHz was used as receiver half bandwidth.

Analysis Results:

Hydra was used to generate a 3rd, 5th, and 7th order IM report.

Intermod Hits Summary

```
*****
Minimum Number Transmitters = 2
Maximum Number Transmitters = 6
Minimum Order = 2
Maximum Order = 7
Minimum Harmonic = 1
Maximum Harmonic = 7
Half Window = 12.5 kHz
*****
```

```
*****
Receive                               Frequencies
Hidalgo-County - Weslaco Site - Channel 1 806.53750
Hidalgo-County - Weslaco Site - Channel 2 806.98750
Hidalgo-County - Weslaco Site - Channel 3 807.58750
Hidalgo-County - Weslaco Site - Channel 4 808.38750
Hidalgo-County - Weslaco Site - Channel 5 807.41250
Hidalgo-County - Weslaco Site - Channel 6 807.95000
*****
```

```
*****
Transmit                               Frequencies
Hidalgo-County - Weslaco Site - Channel 1 851.53750
Hidalgo-County - Weslaco Site - Channel 2 851.98750
Hidalgo-County - Weslaco Site - Channel 3 852.58750
Hidalgo-County - Weslaco Site - Channel 4 853.38750
Hidalgo-County - Weslaco Site - Channel 5 852.41250
Hidalgo-County - Weslaco Site - Channel 6 852.95000
*****
```

```
*****
```

Intermod Hits Summary

RX ID	RX Frequency	Total Hits	Direct Hits
-------	--------------	------------	-------------

Intermod Hits By Order

RX ID	RX Frequency
-------	--------------



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Rev Executable 08/14/2014

Page 73

Intermod Hits By Number of Transmitters

RX ID RX Frequency

***** NO INTERMOD HITS DETECTED *****

Table 5 below lists possible intermodulation direct hits by order as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	0	N/A	N/A	N/A	N/A

Table 5

Table 6 below lists the indirect intermodulation hits as seen in the report.

	800 MHz	VHF	UHF	Other	Other
3 rd Order	0	N/A	N/A	N/A	N/A
5 th Order	0	N/A	N/A	N/A	N/A
7 th Order	0	N/A	N/A	N/A	N/A

Table 6

VHF, Low-band, and UHF channels are usually spaced very close to one another which can result in intermodulation hits. It should be noted that simplex channels may cause IM products, but the receiver and transmitter in these stations are never engaged simultaneously and should be disregarded when the transmitter of the simplex frequency registers IM products upon its own receiver as is the case in this scenario. Any even order IM products are prevented by the equipment design of the system.

The presence of calculated IM products does not necessarily indicate an IM hit will occur on the site. To evaluate the impact of direct and indirect IM products, further investigation is needed which could include identification of mixing point, determining probability of transmission on each frequency, power level at mixing point, site configuration, and etc. Generally 5th order IM products have a lower impact than 3rd order, but can cause significant IM problems if the power level at the mixing point is high, further investigation would be needed. The severity of the 7th order IM products is relatively low and can be ignored if the power level is low.

These results were generated assuming the presence of only the frequencies mentioned in Analysis Factor section. If there is a change in the frequencies used at the site, another IM analysis should be done to re-evaluate the impact of intermodulation.



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Rev Executable 08/14/2014

Page 74

Recommendations:

1. Avoid using frequencies that have direct 3rd order IM products or create direct 3rd order IM products.
2. Not all of the mixing possibilities are significant in creating interference signals. Higher order IM products are usually weaker in signal strength. Also, the interference depends on the power level of the mixing signal. Impact of higher order IM products can be mitigated by controlling the power level of the mixing signal.
3. Provide separate transmit and receive cables. This would move the mixing point far from both the transmitters and receivers resulting in less probability of an IM problem.
4. Replace all connectors in the system with premium grade connectors where VHF, lower UHF, and 800MHz frequencies are present.
5. In addition to the connectors, quality components should be used throughout the system, such as power dividers and cross-band couplers. The installation must always be of the highest quality. A premium component will cause problems if not installed properly.
6. Direct IM products are more significant than indirect IM products. The impact of indirect IM products will depend on signal level and how far apart is the IM product from the receiver frequency.

Disclaimer:

Intermodulation distortion products (IM) are always present where two or more collocated transmitters are operating simultaneously. Managing the power levels of the IM signals developed through proper system design will determine whether they cause harmful interference to communications.

The IM analysis is simply one of the tools used to guide proper design and must be used by a trained technical person competent to understand its meaning and limitations. The appearance of an IM product in the analysis does not mean such a product will cause harmful interference, or indeed even be present. It simply indicates the mathematical possibility of a product being produced.



ATTACHMENT B

***SUITABILITY ASSESSMENT IMPACT REPORT
(SAIR)***



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 76

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.



Suitability Assessment Impact Report

Licensee Name: Hidalgo County, TX

Customer Name: Hidalgo County, TX

Submitted by: Motorola Solutions Inc.

System Type: ASTRO 6.X/7.X

Preparation Date: Monday, February 17, 2014

The content of this report is dependent upon the data entered into the inventory workbook as supplied by the Customer or the Customer's agent

Concerning the Suitability Assessment Process, Motorola has completed its preliminary evaluation and has determined that the products listed in the inventory you provided will be impacted as described in the following text. However, Motorola may perform additional regression tests as required on these products. In the unlikely event the regression testing indicates the above information is incorrect, Motorola will gladly provide corrected information to you and advise you of the effects of rebanding; further, if it is appropriate, Motorola will provide to you a quote for software, hardware or services to address the effects of rebanding.

Impact to Base Stations or Repeaters

Retune the GTR8000 base station frequency with the RSS/CSS software.

Impact to System Controllers

Program new frequencies in Zone Controller database and push the new frequencies to each site/channel.

Impact to Management Terminals

There is no Rebanding impact to the ASTRO 6.X/7.X Management Terminals or Servers.

Impact to Subscribers

Retune the APX4000 with APX CPS.

Retune the APX4500 with APX CPS.

Retune the APX6000 with APX CPS.

Retune the APX6500 with APX CPS.

Retune the APX7000 with APX CPS.

Retune the APX7500 with APX CPS.

XTL1500 radios shipped after Jan. 2006: retune with new RVN4185 CPS software.

XTL2500 radios shipped after Jan. 2006: retune with new RVN4185 CPS software.

XTL5000 radios shipped after Jan. 2006: retune with new RVN4185 CPS software.

XTS1500 radios shipped after Jan. 2006: retune with new RVN4181 CPS software.

XTS1500 radios shipped before Feb. 2006: flash with rebanding firmware then retune with new RVN4181T CPS software. Radios shipped after Jan. 2006 retune with new RVN4181 CPS software.

XTS2500 radios shipped after Jan. 2006 retune with new RVN4181 CPS software.

XTS5000 radios shipped before Feb. 2006: flash with rebanding firmware then retune with new RVN4181 CPS software. Radios shipped after Jan. 2006 retune with new RVN4181T CPS software.

XTS5000 radios shipped after Jan. 2006: retune with new RVN4181 CPS software.



Impact to RF Antenna Site Equipment

Retune each port of the transmit combiner for the new frequency.

No Action Required for the Tx-Rx Tower Mounted Amplifier or Receive Multicoupler.

No action required for the receive antenna.

No action required for the transmit antenna.

Impact to Dispatch Console Systems

No impact with the MCC7500 console system due to Rebanding.

Impact to MOSCAD Sub-Systems

No MOSCAD Inventory Input Provided.



ATTACHMENT C

FUNCTIONAL ACCEPTANCE TEST PROCEDURES (FATP)



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 80

Motorola Confidential Proprietary
Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

**Hidalgo County, TX
Functional Acceptance Test Plan (FATP)**

TRUNKED REBANDED CHANNELS

DESCRIPTION

After each portion of the system is rebanded, the following test will be conducted to verify that each channel will transport audio from the initiating subscriber to other subscribers.

SETUP

Radio 1—Talkgroup 1

Radio 2—Talkgroup 1

TEST

Initiate a talk group call on Radio 1. Take note from the controller which channel is used. Verify from Radio 2 that audio is passed through the system, indicating correct frequency assignments by the system as well as proper combiner tuning and appropriate multicoupler filter bandwidth.

While watching the controller assignment lights, key Radio 1 repeatedly until an untested rebanded channel is assigned. Repeat the test described in the previous paragraph until it is confirmed that all rebanded channels will pass audio.

Pass____ Fail____

Signoff Certificate

By their signatures below, the following witnesses certify they have observed the In-Field System Verification Test Procedures.

Signatures

LICENSEE WITNESS:

Date: _____

Please Print Name: _____

WITNESS:

Date: _____

Please Print Name: _____



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 81

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

ATTACHMENT D

RF PERFORMANCE VERIFICATION PLAN



MOTOROLA SOLUTIONS

Motorola Confidential Proprietary

Rev Executable 08/14/2014

Page 82

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Hidalgo County, TX Method I RF Performance Verification Plan

Hidalgo County operates a four site, six channel P25 non-simulcast trunked system which is a part of a larger regional system. The County's sites are located at McAllen La Joya, Weslaco and Linn. The sites utilize one transmit antenna, one receive antenna, and one tower-top amplifier / receive multi-coupler.

Before a device is rebanded, it will be inspected for any preexisting defects that may impede the rebanding process. Motorola will report all identifiable defects to Hidalgo County. It will be the County's responsibility to correct these issues through its normal service channels prior to rebanding.

RF performance verification procedures for systems of this type are defined by the Transition Administrator (TA) as follows:

Method I – Repeater Site Measurements

This method is appropriate for sites where reconfiguration does not require substantial changes to the antenna or coax feed line. This method can be used if other transmission elements such as transmitter combiners, or filtering devices change, if those changes do not result in a change to the transmit power into the feed line. For those systems where the transmit power to the feed line does not change, it is sufficient to make a series of measurements at the repeater site.

This method assumes all existing equipment is specified to operate with comparable losses for the new channels compared to the existing channels. If the antenna bandwidth specifications include the new channels, then the radiated pattern and signal strength should not change assuming that equivalent transmit power is delivered to the antenna.

Prior to reconfiguring RF components at a site, measured losses for each component are recorded including the transmit power entering the antenna's transmission line (baseline measurements). The measurements should include the return loss of the transmission line and antenna. After reconfiguration, the same measurements are made and compared to the baseline measurements. If the two sets of measurements are comparable, then RF performance will be comparable.

The RF performance verification plan that follows has been designed to closely align with the Transition Administrator's guidance.



Method I Verification Procedures

These checks will be performed on each applicable base station prior to changing the frequency.

Transmitter

- Measure and record the frequency.
- Measure and record the transmit RF power output
- Measure and record the transmitter modulation deviation.

Receiver

- Measure and record the frequency
- Measure and record the sensitivity (Sinad or BER).
- Measure and record the effective receiver sensitivity.

These checks were performed on each applicable transmit combiner component (and if applicable duplexer) prior to changing the frequency.

Combiner

- Measure and record the transmit RF power into each port of the combiner or station duplexer.
- Measure and record the transmit RF power out of the combiner or duplexer for each applicable channel.
- Measure and record the reflected RF power from the antenna.

The Tower Mounted Amplifier and Multicoupler checks to perform are:

TMA/Multicoupler

- Measure and record the system gain.
- Measure and record the bandwidth of filters.
- Measure and record the noise floor in the pass-band.

Antenna

- Measure and record antenna bandwidth.
- Sweep and record antenna feed-line.

Once these tests are completed, the trunking system will be rebanded and the tests repeated. The results of both exercises will be compared and the findings presented to Hidalgo County for approval.

Per the TA, the "focus of any testing must be on showing if comparable coverage is achieved". For the Hidalgo County system, Motorola believes these procedures adequately meet this goal.



ATTACHMENT E

CUTOVER & FALL BACK PLAN



MOTOROLA SOLUTIONS

Rev Executable 08/14/2014

Page 85

Motorola Confidential Proprietary

Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Hidalgo County, TX ASTRO 7.11 Rebanding Cutover and Fallback Plans

Overview

The Hidalgo County System consists primarily of a P25 SmartZone 7.11 trunking system.

The trunking system includes four repeater sites with six unique channels each. Each site uses one transmit combiner with one antenna and one multicoupler with receive antenna.

There are two MCC7500 IP based Console Dispatch systems with three operator positions. One console is located at the DPS Office and two consoles are located at the Sherriff's Office.

Rebanding of the Hidalgo County System will be performed according to Motorola's standard MOP. Per agreement with Hidalgo County the system will be rebanded one channel at a time. The work will be performed during times agreed upon by Hidalgo County and Motorola. Teams will arrive on site well before the scheduled outage time to collect, record, and verify site information. Before proceeding with the rebanding, the transmitter combining system and the receive antenna system must be verified. A technologist will record which channel is connected to each combiner port and then confirm that the combiner's minimum frequency separation specification will not be exceeded with the new frequency plan. The technologist will also use a simple over the air test to confirm receive antenna system performance in the 806-809 MHz band for NPSPAC relative to its performance in the 821-824 MHz band.

Cutover and Fallback

The cutover plan must start with ensuring the current system configuration is operating as expected. This is accomplished by performing basic functionality tests to verify that all modes of operation are working to the expected level. If an issue is found then the issue is resolved prior to engaging the reconfiguration process. Refer to the functional ATP processes to understand what tests will be required to verify system operation.

Rebanding the site includes:

- Collect RSSI data
- Collect transmitter data
- Retune combiner
- Balance power
- Collect post-rebanding transmitter data
- Realign repeaters
- Collect post-rebanding RSSI data
- Perform functional acceptance test
- Perform interoperability test (if needed)



Before an effective cutover plan is possible the current system configuration, programming, database files, and etc must be retrieved and archived in case they are needed to recover from a failure in the reconfiguration process. Furthermore each subsystem impacted by reconfiguration or not must be studied to determine how it operates within the overall system and what changes in each subsystem will impact others. Understanding what parts or subsystems can be changed without impact to other subsystems or the overall system performance is required.

The fallback plan is directly related to the system cutover plan. Each step or group of steps in the cutover plan will have a recovery process. The first step in the development of a fallback plan is to fully understand each step in the cutover plan and how it impacts the system. The fallback plan will match the cutover plan process, just in reverse.

The following description details the work to be performed on subscriber and infrastructure equipment.

This cutover-fallback plan incorporates both the cutover process and fallback plan into one integrated document. The fallback portion provides plans to recover system operation in case an issue occurs during the reconfiguration process. Each functional change during the reconfiguration will have its set of fallback steps so reconfiguring the system to its original state will not be necessary. This will allow for quicker recovery in the event an issue arises during system reconfiguration.

The fallback processes shown in a **bold and underlined** text.

This process does not take into consideration such items as travel, logistics of getting access to radio units, time of day, or etc. These items will be defined and scheduled in detail based on operations and agency requirements at the project kick-off and the time frame of the implementation. The intent of this section is to describe the step by step process to actually make the changes in the system equipment.

The system migration will be performed in two distinct steps. First the subscriber units will be Rebanded by either replacement or reprogramming. Once ALL of the subscribers are complete then the Fixed Network Equipment (FNE) will be rebanded.

SUBSCRIBER PLAN

Subscriber Retuning Process

1. Select an existing radio to be reprogrammed for Rebanding.
2. Perform a quick test of the radio to ensure it is working properly.
If the radio does not work properly submit it for repair under the repair procedures defined by Hidalgo County contract or agreement with the assigned service prior to proceeding with this unit.
3. Read the radio with the new CPS software.
4. Save the radio programming template to the computer.



5. Program the new control and failsoft channel frequencies into the radio programming template.
6. Save this newly modified template to the computer.
7. Program the radio with the newly modified template.
8. Test the radio to ensure it operates properly on the system.

If the radio fails to operate properly review the programming template for errors and correct. Re-program and re-test the radio.

9. Select the next radio in this group and clone with the template saved in step 6 above.
10. Test the radio.
11. If a radio of the same configuration is not available proceed with another unit and perform steps 1 through 8 above for the next radio configuration. Use the saved radio programming template to "clone" the next radio of this configuration as it comes available.

Subscriber Flashing Process

Use the following process to flash radios on a select number of radios first. Once the operation is verified continue with the other radios.

1. Select an existing radio to be flashed and programmed for reconfiguration.
2. Perform a quick test of the radio to ensure it is working properly.

If the radio does not work properly submit it for repair under the repair procedures defined by the City of Harlingen contract or agreement with the assigned servicer prior to proceeding with this unit.

3. Read the radio with the new CPS software.
4. Save the radio programming template to the computer.
5. Flash the radio with Rebanding firmware using the radio flashing procedure defined in the CPS software documentation.
6. Program the new control channel and failsoft channel frequencies into the radio programming template leaving the existing control and failsoft frequencies intact.
7. Save this newly modified template to the computer.
8. Program the radio with the newly modified template.
9. Test the radio to ensure it operates properly on the system.

If the radio fails to operate properly review the programming template for errors and correct. Re-program and re-test the radio.

10. Select the next radio and pre-test the radio to ensure it works properly prior to cloning.

If the radio does not work properly submit it for repair under the repair procedures defined by the Brown County / Green Bay contract or agreement with the assigned servicer prior to proceeding with this unit.

11. Clone the radio with the template saved in step 7 above.
12. Test the radio.

If the radio fails to operate properly with the new programming repair the unit while tracking the time to effect the repair to account for the repair time to Sprint/Nextel for recovery of costs.



13. If a radio of the same configuration is not available proceed with another unit and perform steps 1 through 12 above for the next radio configuration. Use the saved radio programming template to "clone" the next radio of this configuration as it comes available.

INFRASTRUCTURE PLAN

Proposed Transition Procedures

Rebanding of this system requires the following actions to be completed in the following order.

Pre-configuration

Motorola will back up the zone controller data base and mark the media appropriately. Reconfiguration will take place during working hours as established and agreed to at the kickoff meeting with Hidalgo County. Reconfiguration will be done in multiple phases. One channel will be reconfigured at a time based on agreement with Hidalgo County.

The field team should locate and ensure that there is a working set of base station spares. If not, Motorola will get agreement from Hidalgo County that a certain number of channels can be down until repairs are made.

Baseline Test Plan

All RF Sites

Perform "Baseline Check" before and after retuning stations and antenna equipment. These checks will be administered during the reconfiguration process. These procedures will be performed on each base station prior to changing the frequency. This consists of the following items:

Transmitter

- Measure and record the frequency
- Measure and record the transmit RF power output compared to the Customer license or previous measurements (if available)
- Measure and record transmit reflected power from the combiner port or duplexer
- Measure and record the transmitter modulation

Receiver

- Measure and record the frequency
- Measure and record the sensitivity
- Measure and record the effective receiver sensitivity



Transmit Combiner

Measure and record the transmit RF power into each port of the combiner or the input of the station duplexer

Measure and record the transmit RF power out of the combiner or duplexer for each channel.

Measure and record the reflected power from the antenna.

Receiver Multicoupler

Verify the bandwidth of filters.

Measure and record the noise floor in the pass-band.

CUTOVER PLAN

Smartzone 7.11 Non-simulcast System

1. Notify System Support Center that reconfiguration work is beginning on the Hidalgo County system by referring to the Upgrade Operations (UO) CASE that was opened when the reconfiguration project was started.
2. Back Up the zone controller data base and mark the media appropriately. Keep this backup data available in case it's needed to recover from a failure.
3. Inform Hidalgo County that a site will be taken off line for a short time period while the directional coupler is installed on the combiner. Obtain approval from Hidalgo County to proceed.
4. Disable the channels connected to the impacted combiner and install a directional coupler on the output port of the combiner used for the channels that are being reconfigured. Re-enable the channels and notify Hidalgo County that the site is back on line.
5. Inform Hidalgo County that the first new frequencies are ready to be reconfigured in the Zone Controller Database Server. Obtain approval from Hidalgo County to proceed.
6. Disable the channel to be reconfigured. This is determined by agreement with Hidalgo County.
7. Test the base station and log the results in the log sheet provided by Motorola.
If a station is not fully functional submit a request for service using the established service procedures defined by Hidalgo County
8. Test the transmit combiner port for loss and record the results in the log sheet provided by Motorola.
If the transmit combiner port is not working properly submit a request for service using the established service procedures defined by Hidalgo County.
9. Retune the base station to their new frequency.
10. Push the new frequency from the master site.
11. Retune the appropriate transmit combiner port to the new frequency.
12. Test the base station and log the results in the log sheet provided by Motorola.



If the transmit combiner port is not fully functional; repair the combiner and keep track of the time and costs of repair so these costs can be added to the final Rebanding cost as part of the “true up process”.

13. Re-test the transmit combiner port logging the results in the provided log worksheet.

If the transmit combiner port is not fully functional; repair the combiner and keep track of the time and costs of repair so these costs can be added to the final Rebanding cost as part of the “true up process”.

14. Reactivate the base station.
15. Monitor the system to ensure proper communications are taking place.
If not, capture the controller diagnostics and switch back to the previous controller. Call Motorola SSC for support.
16. Perform steps 5 through 16 for the remaining stations in this set of channels to be rebanded.
17. Conduct basic functionality tests to ensure proper operation of the site and of the site as part of the system.
18. Inform Hidalgo County that a site will be taken off line for a few seconds while the directional coupler is removed. Obtain approval from Hidalgo County to proceed.
19. Remove directional coupler installed on step 4.
20. Continue repeating steps for the next site until all channels and sites are completed.

FALLBACK PLAN

1. Disable the reconfigured stations that do not operate properly.
2. Fully characterize the failure modes so it can be reported to Motorola.
3. Reinstall the original software and firmware.
4. Reinstall any pre-reconfiguration controller cards if necessary.
5. Reprogram the base stations with the archive previously saved.
6. Retune the transmit combiner ports to the original frequency.
7. Open a sub-CASE to the original project CASE with the SSC to get assistance in resolving the issue.

SYSTEM IMPACT

This section describes the system impact and downtime that may occur for those tasks that require system interruption.

1. Base Stations and TX combiners – Reconfiguring one channel at a time will impact available channels by a reduction of one from the current operation. The system will still be communicating on the remaining active channels.
2. Several channels will be down for a short time period before and after reconfiguration to install and remove the directional coupler on the combiner.



ATTACHMENT F

RECONFIGURATION PROJECT SCHEDULE



MOTOROLA SOLUTIONS

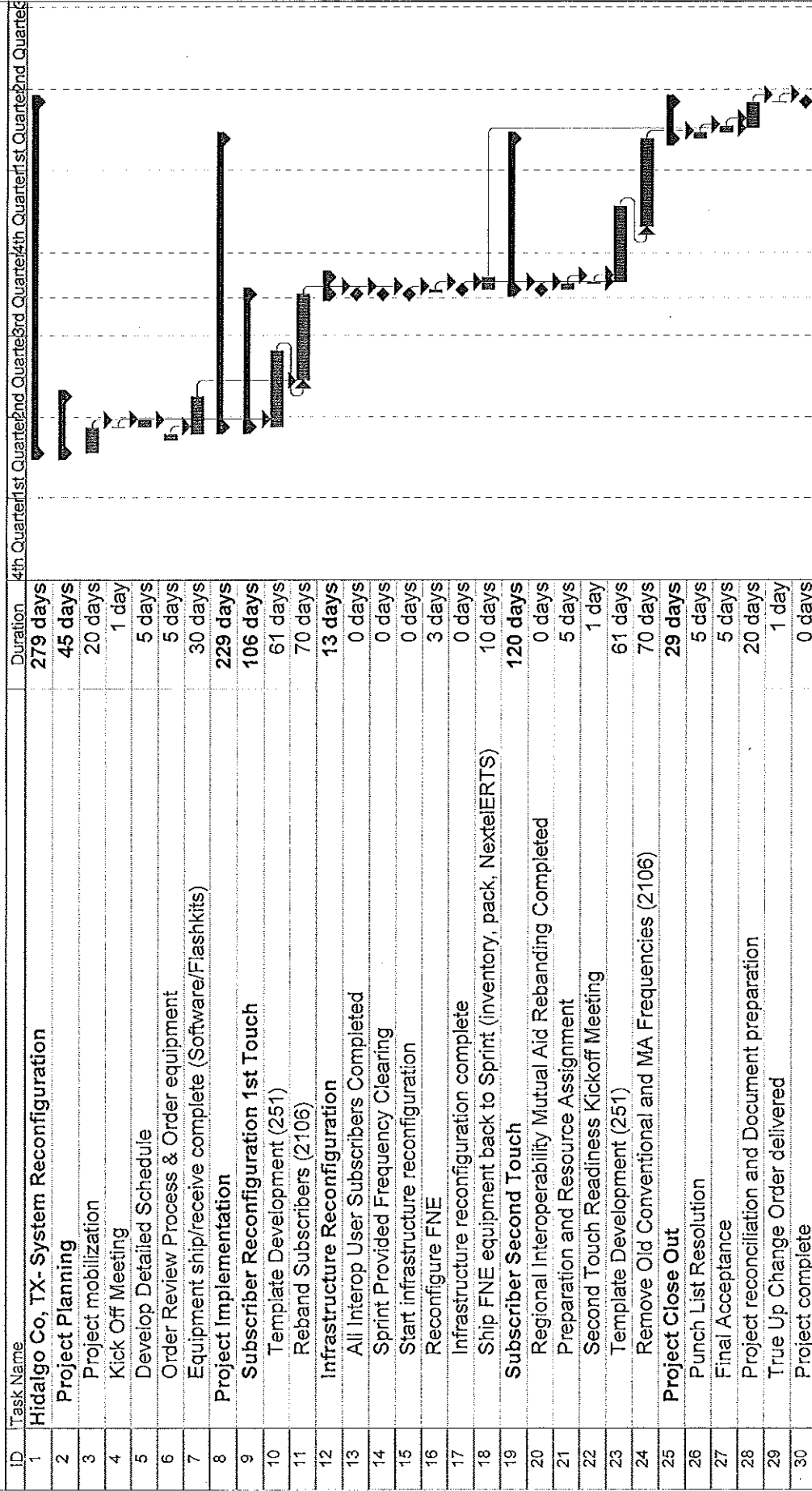
Rev Executable 08/14/2014

Page 92

Motorola Confidential Proprietary
Design, technical and pricing information contained in this offering is considered proprietary and may not be shared with
any person or agency not directly associated with the addressee without the express written consent of Motorola Solutions, Inc., or its designees.

Motorola 800 MHz Rebanding Project
Hidalgo County, TX

Reconfiguration Proposal / Attachment F



Task	External Tasks	Duration-only
Milestone	Project Summary	Manual Summary Rollup
Summary	Group By Summary	Manual Summary
Roll Up Task	Inactive Task	Start-only
Roll Up Milestone	Inactive Milestone	Finish-only
Roll Up Progress	Inactive Summary	Progress
Split	Manual Task	Deadline

Project: Hidalgo Co, TX
Date: Tue 8/12/14

Rev Executable 08/14/2014
Page 93