

**AMENDED NARRATIVE STATEMENT**

Pursuant to Section 5.3(d) and (f) and Section 5.61 of the Federal Communications Commission (“FCC”) rules, 47 C.F.R. §§ 5.3(d), (f), 5.61 (2010), Motorola Solutions, Inc., hereby respectfully requests special temporary authority (“STA”) from **February 15 through April 30, 2012**, to operate in the 763-768/793-798 MHz public safety band for the purpose of conducting multiple, short-term demonstrations of prototype broadband Long-Term Evolution (“LTE”) devices in coordination with public safety agencies in the southern Texas and Arizona border area.

Letters from both the Public Safety Spectrum Trust (“PSST”) and the State of Texas in support of this request are attached. The PSST holds the nationwide license for this spectrum. The State of Texas has received a waiver from the FCC to operate on this spectrum, and the State entered into a spectrum lease agreement with the PSST to use the spectrum in Texas. There is no similar waiver grantee in the state of Arizona that would be affected by the operation proposed in this request.

This amendment revises the technical parameters as originally proposed to comply with the signal strength limitations at the border specified in the November 8, 2006 U.S. – Mexico protocol on allotment and use of the 698-806 MHz band in the border area (“2006 U.S. – Mexico Protocol”).<sup>1</sup> In addition, Section D of this narrative provides an analysis of the potential for interference to other authorized stations in the U.S., as well as to all known stations in Mexico.

**A. Purpose of Operation and Need for STA:**

Motorola Solutions is a leading manufacturer of mobile radio equipment for the public safety and homeland security community and is continually engaged in the design and development of new and innovative communications equipment. The experimental authority requested herein will allow the company to demonstrate the functionality of prototype devices designed to support the needs of the public safety and homeland security community along the U.S. border with Mexico. Meeting the communications needs of public safety entities is especially critical in this border region, which is experiencing significant problems associated with drug smuggling and human trafficking.

Motorola Solutions proposes to conduct a demonstration of limited duration to help evaluate the technical and operational capabilities of prototype LTE network to support public safety communications requirements, including interoperability. For

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<sup>1</sup> Protocol Between the Department of State of the United States of America and the Secretariat of Communications and Transportation of the United Mexican States Concerning the Allotment and Use of the 698-806 MHz Band for Terrestrial Non-Broadcasting Radiocommunication Services Along the Common Border, entered into force on the eighth day of November, 2006.

example, Motorola Solutions proposes to test and demonstrate capabilities for transmitting streaming video uplink and downlink to and from vehicles to a dispatch center and from fixed cameras to a dispatch center. It also proposes to test the functionality and speeds to make data queries of state, local and Federal databases.

Motorola Solutions is not seeking authority to perform a market study under this STA. Moreover, no fees will be charged to entities using the equipment during this test. After the test is completed, Motorola Solutions will recall and recover all devices that do not comply with FCC regulations.

Grant of an STA will allow Motorola Solutions to demonstrate prototype equipment and obtain additional feedback so that it may enhance the company's efforts to design, develop and improve its equipment to meet the communications needs of potential users.

**B. Location of Proposed Operation:**

Motorola Solutions proposes to conduct its demonstrations in the vicinity of McAllen, Texas and Yuma, Arizona, two key problem areas of activity along the border. Equipment would include five temporary fixed base stations and associated antennas, two in the McAllen, TX area and three in the Yuma, AZ area. A small number of mobile units, limited to no more than 15 units per base site (75 units total for all 5 sites) would operate around the base stations within a maximum distance of 20 miles from the base stations.

The address and approximate reference coordinates for the initial locations of the temporary fixed base station deployments are provided below. To accommodate minor changes needed during the tests, Motorola Solutions also seeks authority to relocate one or more of these temporary fixed sites within 1 mile of an original site. Such modifications, however, would not increase the total number of temporary fixed sites or mobiles as requested above. Furthermore, any alternate temporary sites chosen would be located in such a manner to comply with the signal strength limits at the border addressed in the *2006 U.S. – Mexico Protocol*.

<b>In Texas:</b>		
McAllen Police Dept. 1601 N. Bicentennial Blvd. McAllen, TX 78501  26° 13' 11" North Latitude 98° 14' 15" West Longitude Datum: NAD83	Hidalgo Site. 401 N. 4th Street. Hidalgo, TX 78557  26° 06' 19" North Latitude 98° 15' 23" West Longitude Datum: NAD83	
<b>In Arizona:</b>		
Existing Tower San Luis, AZ  32° 30' 09" North Latitude 114° 46' 36" West Longitude Datum: NAD83	Existing Tower Somerton, AZ  32° 35' 45" North Latitude 114° 42' 20" West Longitude Datum: NAD83	Existing Tower at Black Hill Yuma, AZ  32° 42' 48" North Latitude 114° 37' 11" West Longitude Datum: NAD83

## C. Technical Specifications:

### 1. Frequencies Desired

Motorola Solutions requests authorization to operate in the 763-768/793-798 MHz public safety band licensed on a nationwide basis to the PSST.

### 2. Effective Radiated Power

All power levels will comply with the limits set forth in the FCC's rules, including those relating to human exposure to radiation.

As noted above, a maximum of 15 mobile/portable units per temporary fixed site (for a total of 75 mobile/portable units overall) will be deployed and configured to operate at a maximum effective radiated power ("ERP") of 200 milliwatts. Base station power levels will vary by site. In addition, each base station site will use a 3 sector antenna. The specific power and downtilt will vary across each sector at a given base station site, as set forth in the following table:

Site	Antenna Elevation (Above Ground Level)	Base Station Power Level (ERP at Antenna)	Sector 1 Transmit Azimuth and Down Tilt in Degrees	Sector 2 Transmit Azimuth and Down Tilt in Degrees	Sector 3 Transmit Azimuth and Down Tilt in Degrees
McAllen, TX	100'	403 Watts, each sector	75 Azimuth 4 degrees downtilt	195 Azimuth 4 degrees downtilt	315 Azimuth 4 degrees downtilt
Hidalgo, TX	150'	403 Watts Sector 1 0 Watts Sector 2 0 Watts Sector 3	60 Azimuth 4 degrees downtilt	180 Azimuth (no transmission)	300 Azimuth (no transmission)
Black Hill, Yuma, AZ	70'	432 Watts Sector 1; 403 Watts Sector 2; 110 Watts Sector 3	60 Azimuth, 4 degrees downtilt	190 Azimuth, 2 degrees downtilt	300 Azimuth, 15 degrees downtilt
San Luis, AZ	50'	66 Watts Sector 1 57 Watts Sector 2 129 Watts Sector 3	221 Azimuth, 16 degrees downtilt	1 Azimuth, 14 degrees downtilt	121 Azimuth, 4 degrees downtilt
Somerton AZ	50'	432 Watts Sector 1 432 Watts Sector 2 221 Watts Sector 3	30 Azimuth, 4 degrees downtilt	150 Azimuth, 4 degrees downtilt	270 Azimuth, 7 degrees downtilt

Motorola Solutions will reduce the actual powers to the minimum power needed for successful operation, based on set-up and testing at the demonstration site.

In addition, Motorola Solutions will evaluate environmental considerations to ensure compliance with Section 1.1306 of the FCC's rules, 47 C.F.R. § 1.1306 (2009), and, in particular, the human exposure requirements set forth in FCC OET Bulletin No. 65.

### 3. Modulation and Emissions

Motorola Solutions proposes to operate using OFDM modulation. The primary emission designators are 5M0G7D, 5M0W7W, 5M0G2D, and 5M0D7D. Other emission modes may be utilized, but in no event will the emissions extend beyond the frequency bands requested.

#### **4. Antenna Information**

Sectorized antennas for the five temporary fixed base stations will be located on existing structures at heights above ground levels as shown in the previous table. Mobile/ portable units in and around the demonstration site will be located as required for successful testing and demonstration.

No antennas will be mounted in a fashion that will require approval under FAA and FCC rules and regulations.

#### **5. Equipment To Be Used**

Motorola Solutions expects to conduct its demonstration with prototype LTE eNodeB Ericsson base stations and up to 15 prototype Motorola Solutions mobile/portable units at each of the 5 sites, *i.e.*, for a maximum of 75 mobile/portable units overall. Moreover, Motorola Solutions will limit the power, area of operation, and transmitting times to the minimum necessary to provide an effective test and demonstration.

#### **D. Protection Against Causing Interference:**

As noted above, Motorola Solutions has requested authority to operate in the 763-768/793-798 MHz public safety broadband spectrum licensed on a nationwide basis to the PSST. Attached are letters of consent from the PSST, which holds the nationwide license, and from the State of Texas, which holds a conditional waiver for the proposed spectrum.

Motorola Solutions conducted a search of the Commission's Universal Licensing System ("ULS") database and found no active public safety operations on the broadband spectrum within 75 miles of the McAllen, TX or Yuma, AZ test areas proposed for testing.

Test parameters at all five of the proposed sites have been designed using sectorized directional antennas with downtilt and power limits as shown in the table above to meet the restricted power flux density level of  $-120 \text{ dB(W/m}^2\text{)/kHz}$ , when adjusted for bandwidth, at the Mexican border.

Motorola Solutions also searched the FCC's TV database to identify any Low Power TV or TV stations in the area. This analysis covered four areas as follows: (1) U.S. LPTV stations near McAllen, TX; (2) U.S. LPTV stations near Yuma, AZ; (3) Mexican LPTV or TV stations near McAllen, TX; and (4) Mexican LPTV or TV stations near Yuma, AZ. The following describes the results of this analysis:

##### **1. U.S. LPTV stations near McAllen, TX**

LPTV stations that are co-channel with the proposed test operations near McAllen, TX are in Corpus Christi, TX 115 miles away. Therefore, no interference would be caused to these stations.

KSFE-LP has ceased operation on TV channel 67 and has migrated operations to digital LPTV station KSFE-LD on Channel 20.

KNUC-LP, licensed for operation on TV channel 69 is 2.6 miles from the McAllen Police site and 10.6 miles from Hidalgo site. Channel 69 (800-806 MHz) is 2 MHz removed from public safety portable/mobile transmit spectrum at 793-798 MHz. Given the low powers proposed for portable/mobile transmit and the 2 MHz of spectrum buffer, Motorola Solutions would not expect any interference to be caused to station KNUC-LP. Station KNUC-LP must also cease operations on TV channel 69 by 12/31/2011, prior to commencement of the proposed demo operations on 2/15/2012.

KNWS-LP, licensed for operation on TV channel 64 in Brownsville, TX is approximately 47 miles from the McAllen Police site and the Hidalgo site. While this station would normally be required to cease operation on channel 64 by 12/31/2011, KNWS-LP received extension of an STA on 07/21/2011, allowing operation on channel 64 until 01/19/2012, which is still prior to commencement of the proposed testing. Also, Channel 64 (770-776 MHz) is 2 MHz away from the public safety broadband base transmit spectrum block at 763-768 MHz. Given both the geographic and frequency separation, Motorola Solutions does not expect interference to station KNWS-LP from the proposed operation. KNWS-LD digital station is shown as already being operational on Channel 27.

## **2. U.S. LPTV stations near Yuma, AZ**

There are no licensed co-channel LPTV stations shown in the Commission's data base within interference range of the proposed testing in the Yuma, AZ area.

Translator station K61AX licensed to operate on channel 61 in Wellton-Mohawk, AZ is approximately 16 miles away from the proposed experimental base station. This station is removed from the proposed testing frequencies by 5 MHz so no interference is expected. Station K61AX must also cease operations in the 700 MHz band by 12/31/2011, prior to commencement of the proposed demo operations.

## **3. Mexican LPTV or TV stations near McAllen, TX**

Based on Motorola Solutions review of available information regarding TV/DTV and LPTV stations in Mexico, there does not appear to be any conflicts with the proposed test operations near McAllen, TX.

## **4. Mexican LPTV or TV stations near Yuma, AZ**

Based on a review of available information regarding TV/DTV and LPTV stations in Mexico, there does not appear to be any co-channel stations with which the proposed test operations near Yuma, AZ would conflict.

XHILA-TV is a full-power TV station authorized to operate on TV channel 66 in Mexicali, Baja California over 50 miles away from the proposed test operation. Given the 5 MHz frequency separation between channel 66 and the proposed broadband test operation, together with the 50 mile geographic spacing, Motorola Solutions does not expect interference to this station.

**E. Restrictions on Operation:**

As noted above, Motorola Solutions is not seeking authority to perform a market study under this STA. Moreover, no fees will be charged to entities using the equipment during this test. After the test is completed, Motorola Solutions will recall and recover all devices that do not comply with FCC regulations.

Motorola Solutions also recognizes that the operation of any equipment under experimental authority must not cause harmful interference to authorized facilities. Should interference occur, Motorola Solutions will take immediate steps to resolve the interference, including if necessary, arranging for the discontinuance of operation.

Entities will be advised in accordance with Section 2.803 of the Commission's rules, 47 C.F.R. §2.803 (2010), that any unapproved devices which have not been authorized as required by the FCC are not being offered for sale or lease, or sold or leased, until authorization is obtained.

**F. Public Interest:**

Motorola Solutions submits that issuance of an STA as requested is in the public interest, convenience, and necessity. Grant of an STA will help Motorola Solutions to develop innovative equipment that will accommodate the communications needs of the public safety community.

**G. Contact Information:**

For questions about this application, please contact:

Kurt DeSoto, Counsel to Motorola Solutions, Inc.  
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1776 K Street, N.W.  
Washington, DC 20006  
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[kdesoto@wileyrein.com](mailto:kdesoto@wileyrein.com)

In the unlikely event interference concerns should arise during the period of authorization for this STA, please contact:

Stu Overby  
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December 13, 2011

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Room TWA325  
Washington, DC 20554

**Re: Application of Motorola for Temporary Spectrum Use  
Texas at McAllen and Hidalgo; Arizona at Yuma, San Luis, and Somerton  
February 15, 2012, to April 30, 2012**

Dear Ms. Dortch:

The Public Safety Spectrum Trust ("PSST") hereby provides its consent to the application of Motorola Solutions, Inc. for experimental special temporary authority ("Experimental STA") regarding its proposed temporary operation in the PSST's 700 MHz band spectrum to demonstrate Long Term Evolution ("LTE") equipment to public safety entities in the vicinity of McAllen, Texas, and Yuma, Arizona, from February 15, 2012 to April 30, 2012, as described in more detail below. The PSST understands that the demo operation planned would conform to the following parameters:

- 1) Operation will be conducted in the McAllen, Texas, and Yuma, Arizona areas to demonstrate the functionality of prototype devices designed to support the needs of the public safety and homeland security community along the U.S. border with Mexico. Equipment would include five temporary base stations and associated antennas with a site in McAllen, TX, Hidalgo, TX, Yuma, AZ, San Luis, AZ, and Somerton, AZ. Up to 15 mobile/portable units would operate up to 20 miles from each base site. The actual radius of coverage is one of the parameters to be tested and demonstrated.
- 2) Motorola Solutions will request authority from the FCC to operate over the 763-768/793-798 MHz band which is currently licensed on a nationwide basis to the PSST.

3) Operation will occur between February 15, 2012 and April 30, 2012, allowing time during that period for setup and testing, demonstrations, and teardown. The time period is needed to accommodate multiple short-term demonstrations.

We understand that Motorola Solutions has analyzed information from the FCC's license databases and has determined that the proposed operation would not interfere or create a significant potential for interference with any public safety operations in the 700 MHz band.

Attached is a letter sent to the PSST from the State of Texas that supports the application of Motorola Solutions. The State of Texas holds an FCC approved lease for use of the PSST licensed broadband spectrum within the State of Texas.

Given the above information, the PSST concurs with the proposed operation by Motorola Solutions on certain frequencies currently licensed to the PSST as part of the 700 MHz Public Safety Broadband License for purposes of demonstrating LTE equipment to public safety entities in the vicinity of McAllen, Texas and Yuma, Arizona.

This consent is subject to the PSST's ongoing ability to monitor any operations and use of the PSST's licensed spectrum.

Respectfully submitted,



Chief Harlin R. McEwen  
Chairman  
Public Safety Spectrum Trust Corporation  
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cc: Stu Overby, Motorola Solutions  
Todd M. Early, State of Texas





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December 13, 2011

Chief Harlin R. McEwen, Chairman  
Public Safety Spectrum Trust  
1101 K Street, NW, Suite 8100  
Washington, DC 20005

**Re: Application of Motorola Solutions to the FCC for Temporary Spectrum Use  
Texas at McAllen and Hidalgo; Arizona at Yuma, San Luis, and Somerton  
February 15, 2012 – April 30, 2012**

Dear Chief McEwen:

The State of Texas hereby provides its concurrence to the request by Motorola Solutions for the Public Safety Spectrum Trust (PSST) to issue a letter of consent for experimental special temporary authority ("Experimental STA") to authorize temporary operation in the PSST's 700 MHz band spectrum within the State of Texas.

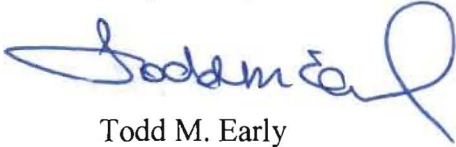
The Motorola Solutions request is to allow them to demonstrate Long Term Evolution ("LTE") equipment to public safety entities in the vicinity of McAllen, Texas and Yuma, Arizona, from February 15, 2012 to April 30, 2012. The State of Texas has a conditional FCC waiver and holds a lease with the PSST for use of this spectrum in the State of Texas.

The State of Texas understands that the Motorola demonstration planned would conform to the following parameters:

1. Operations will be conducted in the McAllen, Texas and Yuma, Arizona areas to demonstrate the functionality of prototype devices designed to support the needs of the public safety and homeland security community along the U.S. border with Mexico. Equipment would include five base stations and associated antennas with a site in McAllen, TX, Hidalgo, TX, Yuma, AZ, San Luis, AZ, and Somerton, AZ. Up to 15 mobile/portable units per site would operate up to 20 miles from each base site. The actual radius of coverage is one of the parameters to be tested.
2. Motorola Solutions will request authority from the FCC to operate over the 763-768/793-798 MHz band which is currently licensed on a nationwide basis to the PSST.

3. Operation will occur between February 15, 2012 and April 30, 2012, allowing time during that period for setup and testing, demonstrations, and teardown. This time period is needed to accommodate multiple short-term demonstrations.
4. Motorola Solutions has analyzed information from the FCC's license database and has determined that the proposed operation would not interfere or create a significant potential for interference with any public safety operations in the 700 MHz band.

Respectfully submitted for the State of Texas,

A handwritten signature in blue ink, appearing to read "Todd M. Early". The signature is stylized with a large loop at the end.

Todd M. Early  
Deputy Assistant Director  
Texas Department of Public Safety  
5805 N. Lamar Blvd.  
Austin, TX 78752