



MOTOROLA

Cellular Networks

APPLICANT: MOTOROLA

FCC ID: IHET4KJ1

Motorola Test Report

Applicant: Motorola
5555 N. Beach Street
Fort Worth, TX 76137
USA

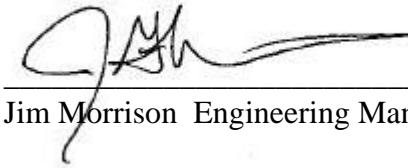
Equipment Under Test:
LTE WBR FDD Frame Based Radio @ 700MHz

In Accordance With: FCC PART 27, Subpart B
700MHz Upper Block C
FCC PART 27, Subpart N
700MHz Public/Private Partnership
FCC PART 90, Subpart R
Regulations Governing the Licensing and Use of
Frequencies in the 764-776 and 794-806 MHz Bands

Tested By: Motorola
5555 N. Beach Street
Fort Worth, TX 76137
USA

TESTED BY: 
Melissa A. VanDrie Test Engineer

DATE: 15April2010

APPROVE BY: 
Jim Morrison Engineering Manager

DATE: 15April2010

Total Pages: **49**



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APPLICANT: MOTOROLA

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APPLICANT: MOTOROLA

FCC ID: IJHET4KJ1

Manufacturer: Motorola

Model No.: LTE WBR FDD Frame Based Radio @ 700MHz

Serial No.: 550HAA05S2

General: All measurements are traceable to national standards

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 27 and Part 90,

New Submission Production Unit

Class II Permissive Change Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE: NONE

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1**

NAME OF TEST	PARA. NO.	SPEC. LIMIT	RESULTS
RF Power Output	2.1046	33 dBW + 10log(X/Y) dBW	Complies
Occupied Bandwidth	2.1049	Not Specified	Complies
Spurious Emissions at Antenna Terminals	2.1051	-13 dBm	Complies
Field Strength of Spurious Radiation	2.1053	-13 dBm	Complies
Frequency Stability	2.1055	Must remain within authorized bandwidth	Complies

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Section 2****General Equipment Specification**

Power Supply:	27 VDC
Frequency Range:	749 to 765.5MHz (center to center) for 5MHz
Frequency Range:	751.5 to 763MHz (center to center) for 10MHz
Type(s) of Modulation:	F3E (Voice) F1D F2D W7D F9W _____ _____ _____ <u>X</u> _____
Emissions Designator:	10M0W7D and 5M00W7D
Output Impedance:	50 ohms
RF Power Output:	46dBm Conducted
Selection of Operating Frequency:	Selectable by operator
Power Output Adjustment Capability:	28dBm minimum power



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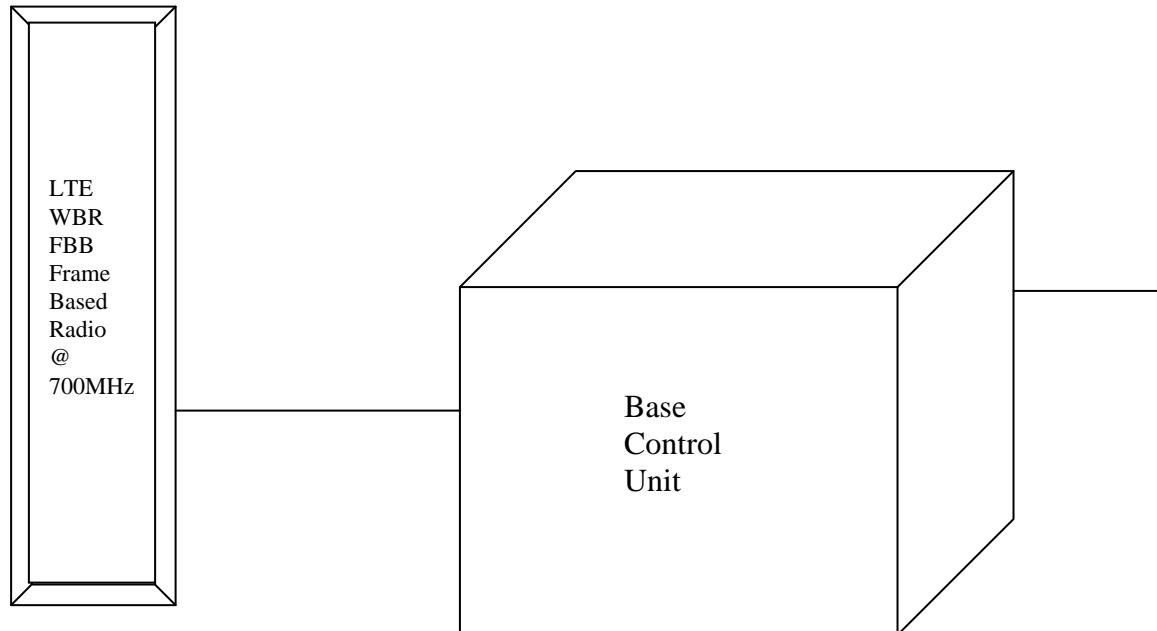
APPLICANT: MOTOROLA

FCC ID: IHET4KJ1

Description of EUT

The LTE WBR FBB Frame Based Radio @ 700MHz is a Base Station transceiver.

System Diagram



**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Section 3****RF Power Output**

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: Morrison Jim	DATE: April 14, 2010

Test Result: Complies

Measurement Data: See Tables

Test Equipment: 13, 15, 16

MAX RF POWER OUTPUT

10MHz Mode		
Frequency (MHz)	RMS Power (dBm)	RMS Power (Watts)
751.5	46.12	40.93
763	46.38	43.45

5MHz Mode		
Frequency (MHz)	RMS Power (dBm)	RMS Power (Watts)
749	46.12	40.92
754	45.49	35.40
765.5	45.66	36.81

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Section 4****Occupied Bandwidth**

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: Morrison Jim	DATE: April 14, 2010

Test Result: Complies

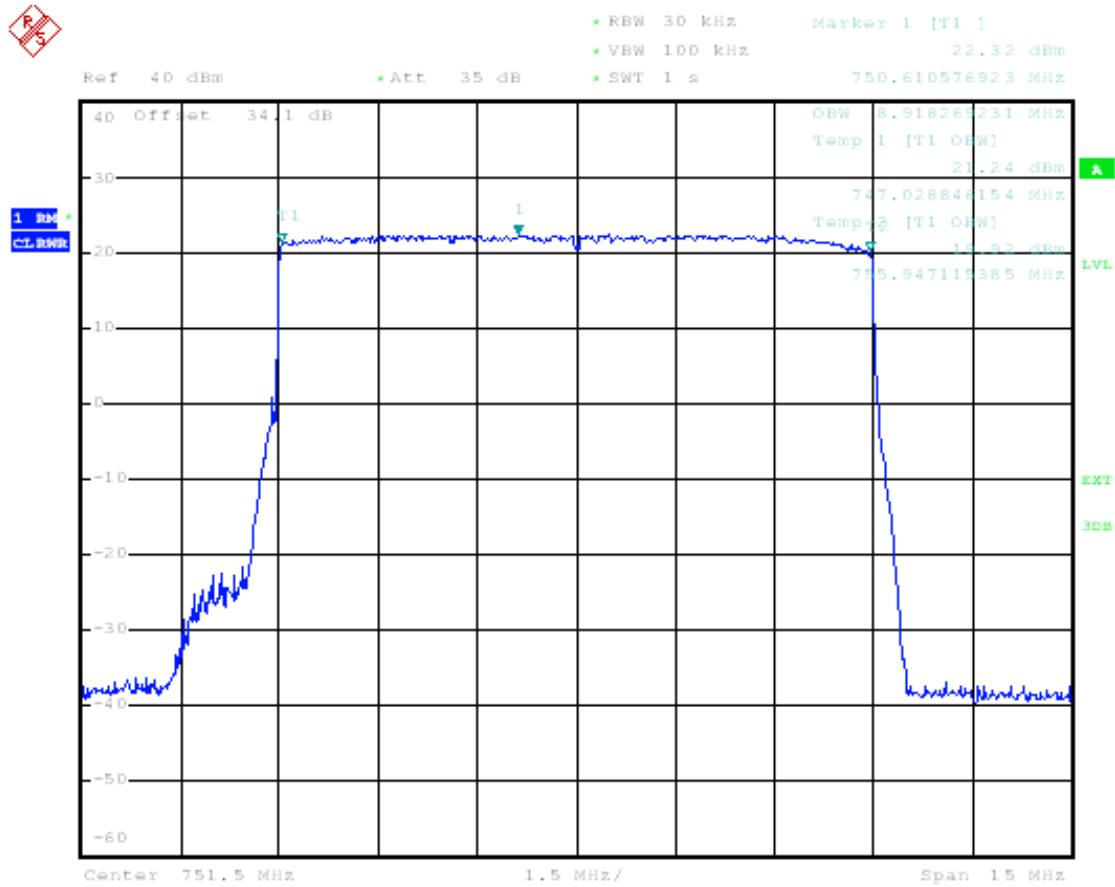
Measurement Data: See Attached Tables and Plots

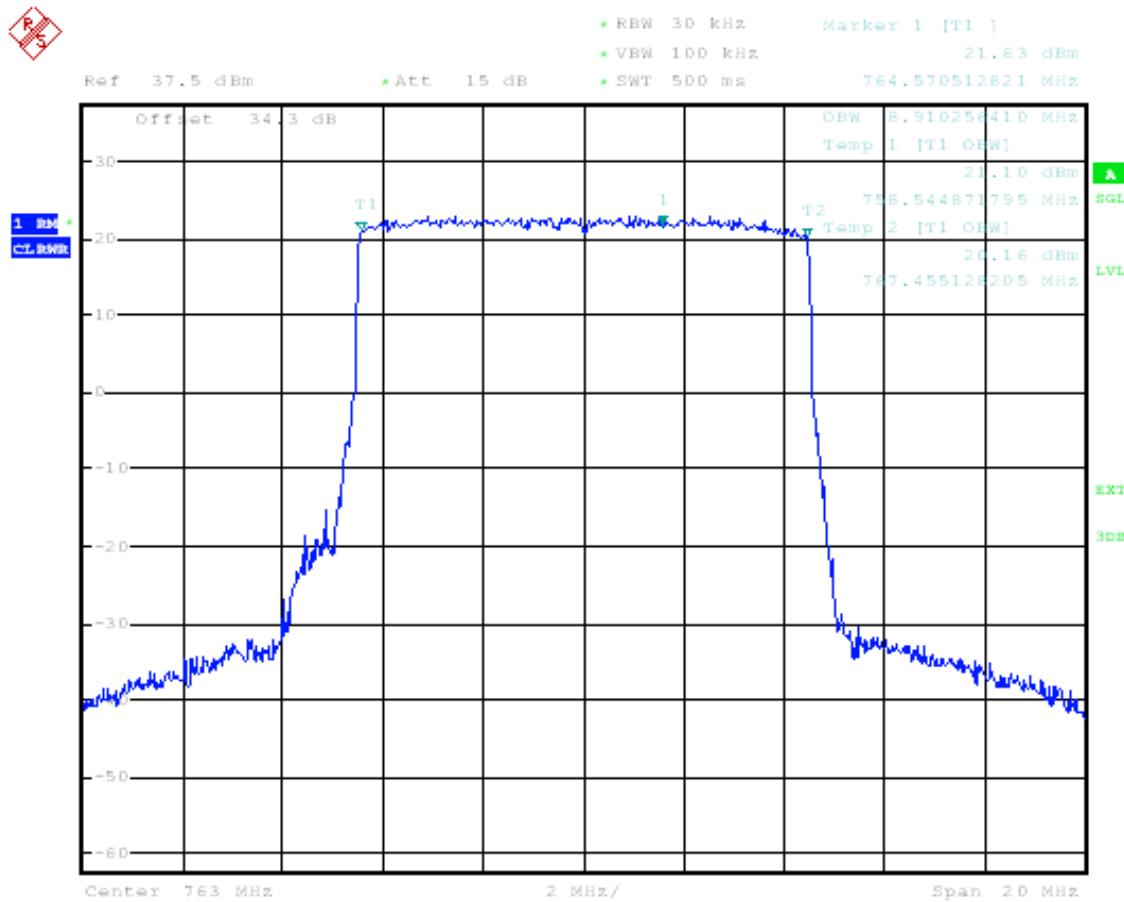
Test Equipment: 13, 15, 16

OCCUPIED BANDWIDTH

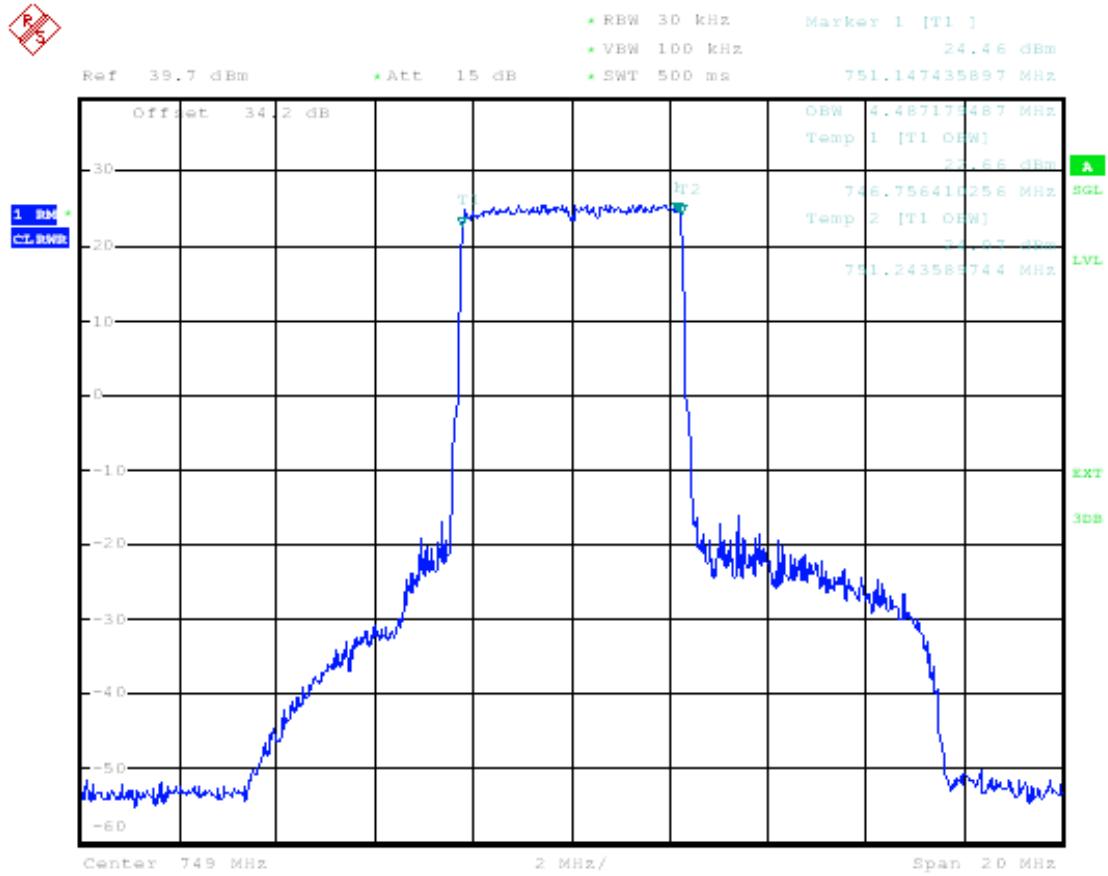
10MHz Mode		
Frequency (MHz)	Occupied BW (MHz)	Maximum Limit (MHz)
751.5	8.92	10
763	8.91	10

5MHz Mode		
Frequency (MHz)	Occupied BW (MHz)	Maximum Limit (MHz)
749	4.49	5
754	4.23	5
765.5	4.38	5

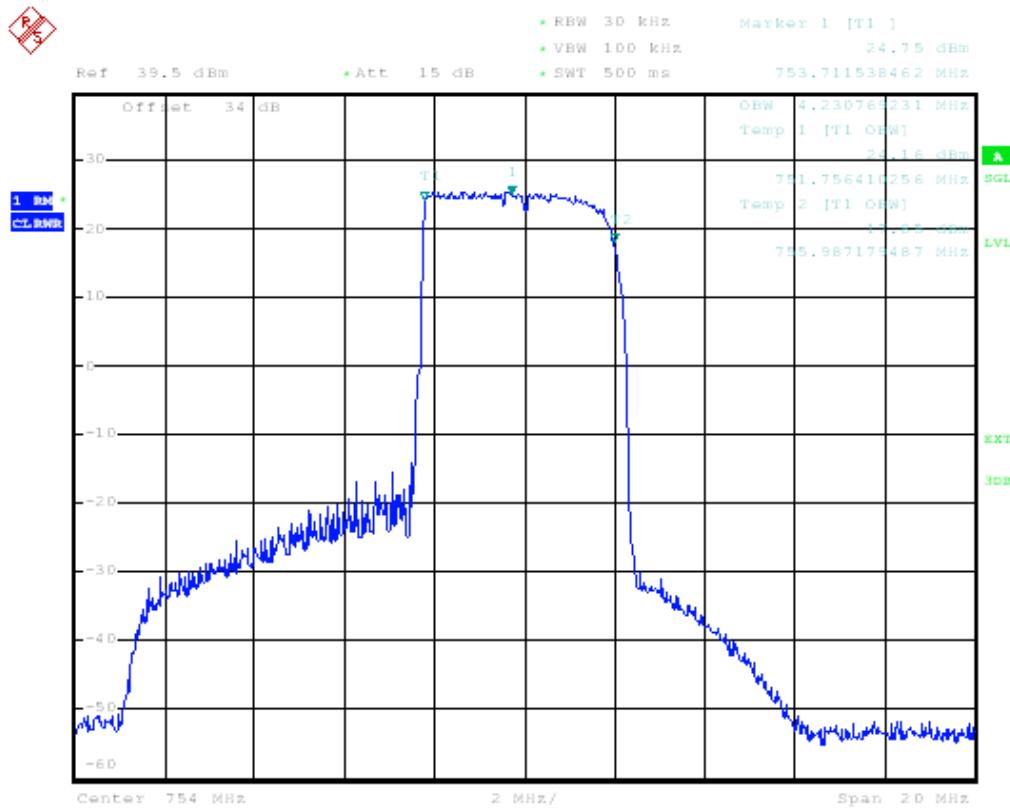
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Occupied Bandwidth 751.5 MHz in 10MHz mode****Date: 15.APR.2010 14:26:21**

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Occupied Bandwidth 763 MHz in 10MHz mode**

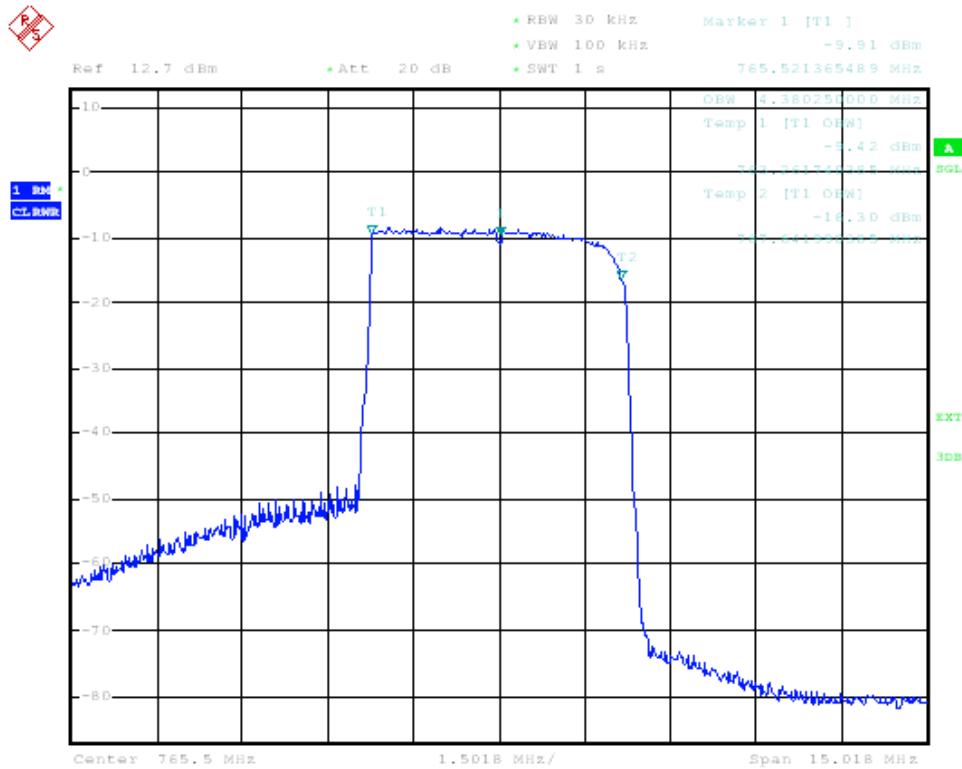
Date: 14.APR.2010 16:48:00

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Occupied Bandwidth 749 MHz in 5MHz mode**

Date: 15.APR.2010 15:49:37

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Occupied Bandwidth 754 MHz in 5MHz mode**

Date: 15.APR.2010 17:29:34

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Occupied Bandwidth 765.5 MHz in 5MHz mode****Date: 15.APR.2010 13:29:41**



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APPLICANT: MOTOROLA

FCC ID: IHET4KJ1

Section 5 Spurious Emissions at Antenna Terminals

NAME OF TEST: Spurious Emissions at Antenna Terminals PARA. NO.: 2.1051

TESTED BY: Morrison Jim

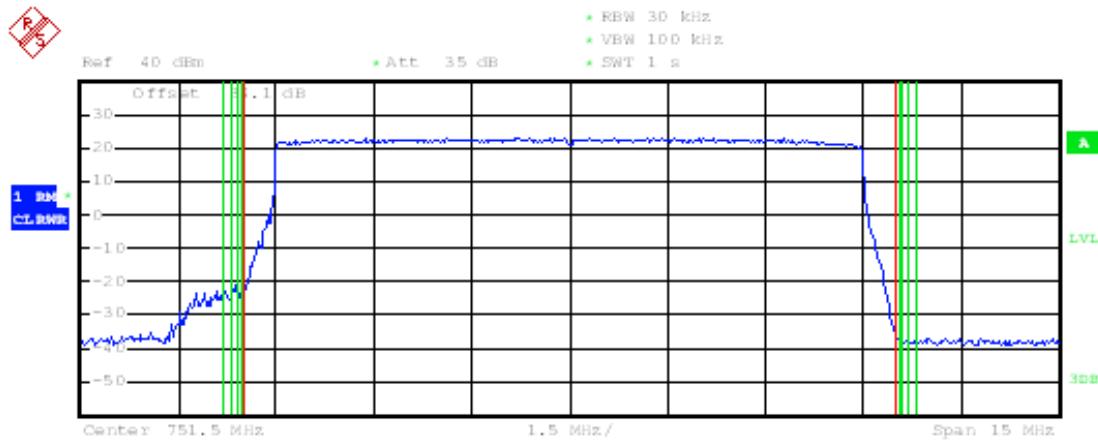
DATE: April 14, 2010

Test Result: Complies

Measurement Data: See Attached Plots

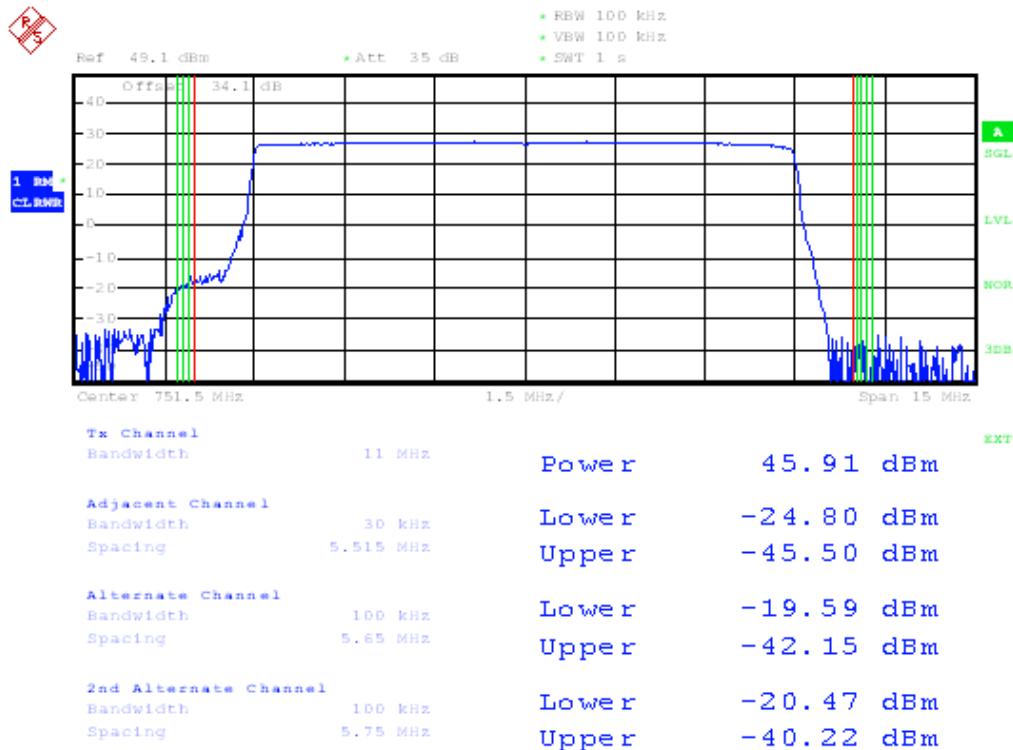
Test Equipment: 13, 15, 16, 17

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

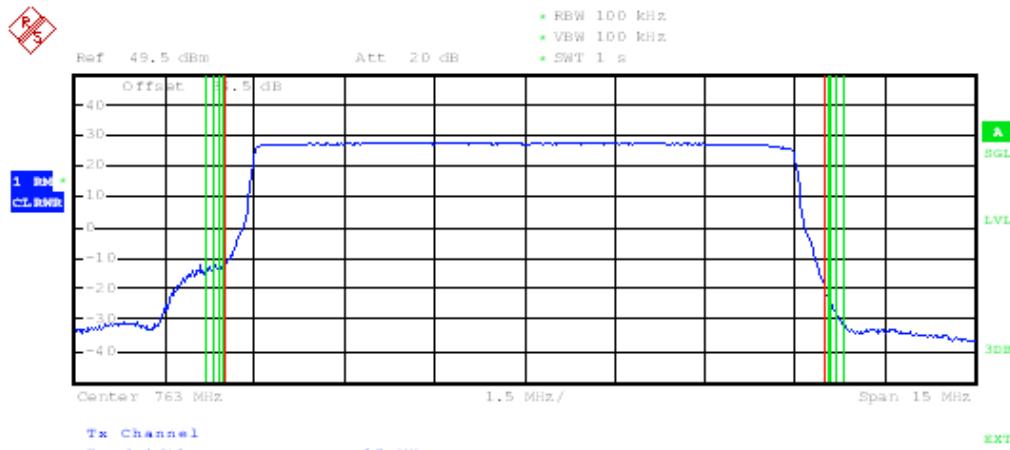
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Lower Band Edge 10MHz**

Tx Channel	Bandwidth	10 MHz	Power	46.11 dBm	EXT
Adjacent Channel	Bandwidth	30 kHz	Lower	-23.14 dBm	
Spacing	5.015 MHz	Upper	-37.68 dBm		
Alternate Channel	Bandwidth	100 kHz	Lower	-18.19 dBm	
Spacing	5.15 MHz	Upper	-33.50 dBm		
2nd Alternate Channel	Bandwidth	100 kHz	Lower	-19.56 dBm	
Spacing	5.25 MHz	Upper	-33.63 dBm		

Date: 15.APR.2010 14:25:48

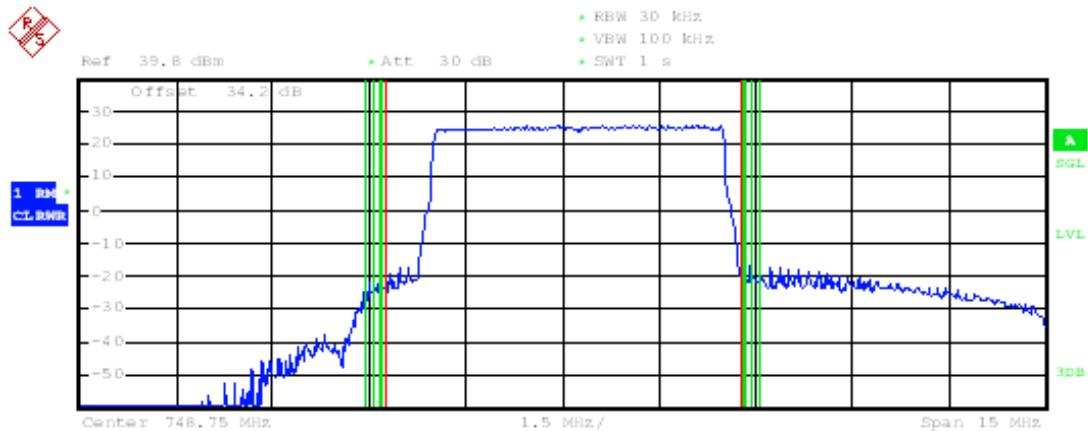
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Band Edge 10MHz**

Date: 27.APR.2010 06:05:06

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Upper Band Edge 10MHz**

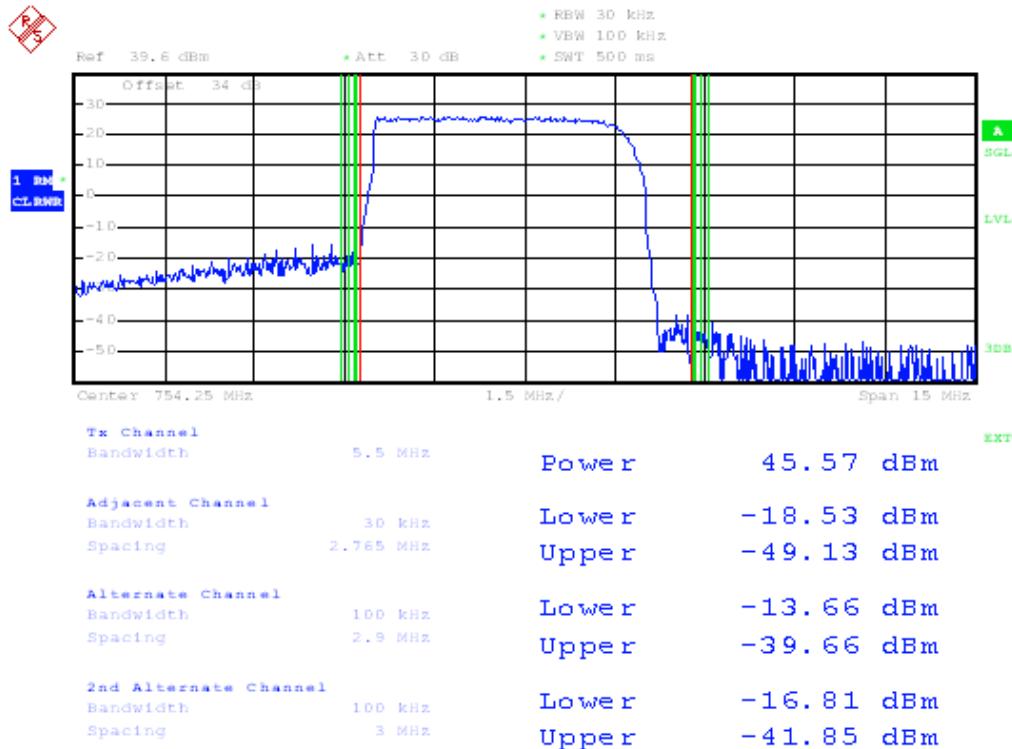
Tx Channel	Bandwidth	10 MHz	Power	46.18 dBm
Adjacent Channel	Bandwidth	30 kHz	Lower	-18.04 dBm
	Spacing	5.015 MHz	Upper	-27.23 dBm
Alternate Channel	Bandwidth	100 kHz	Lower	-13.44 dBm
	Spacing	5.15 MHz	Upper	-26.50 dBm
2nd Alternate Channel	Bandwidth	100 kHz	Lower	-14.12 dBm
	Spacing	5.25 MHz	Upper	-30.33 dBm

Date: 14.APR.2010 17:08:29

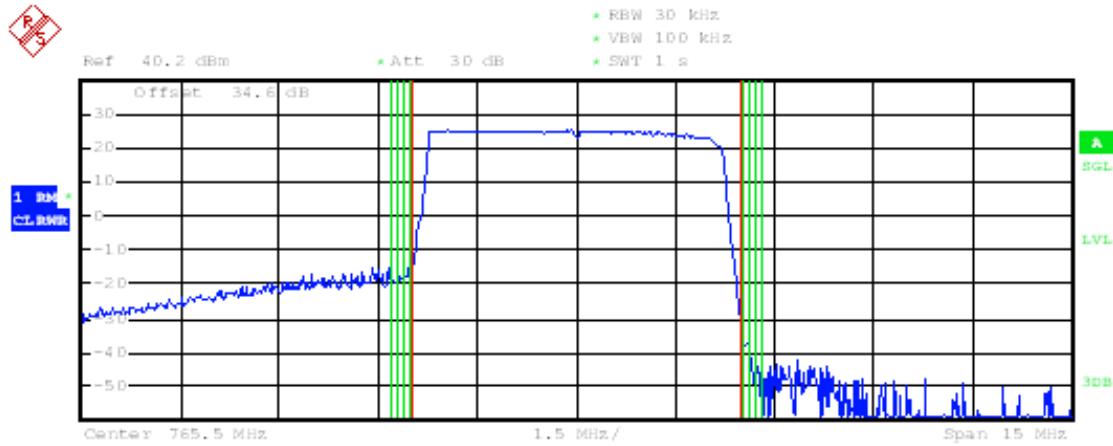
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Lower Band Edge 5MHz**

Tx Channel	Bandwidth	Power	EXT
Adjacent Channel			
Bandwidth	30 kHz	Lower	-23.80 dBm
Spacing	2.765 MHz	Upper	-19.40 dBm
Alternate Channel			
Bandwidth	100 kHz	Lower	-19.15 dBm
Spacing	2.9 MHz	Upper	-14.78 dBm
2nd Alternate Channel			
Bandwidth	100 kHz	Lower	-20.17 dBm
Spacing	3 MHz	Upper	-15.48 dBm

Date: 15.APR.2010 18:03:37

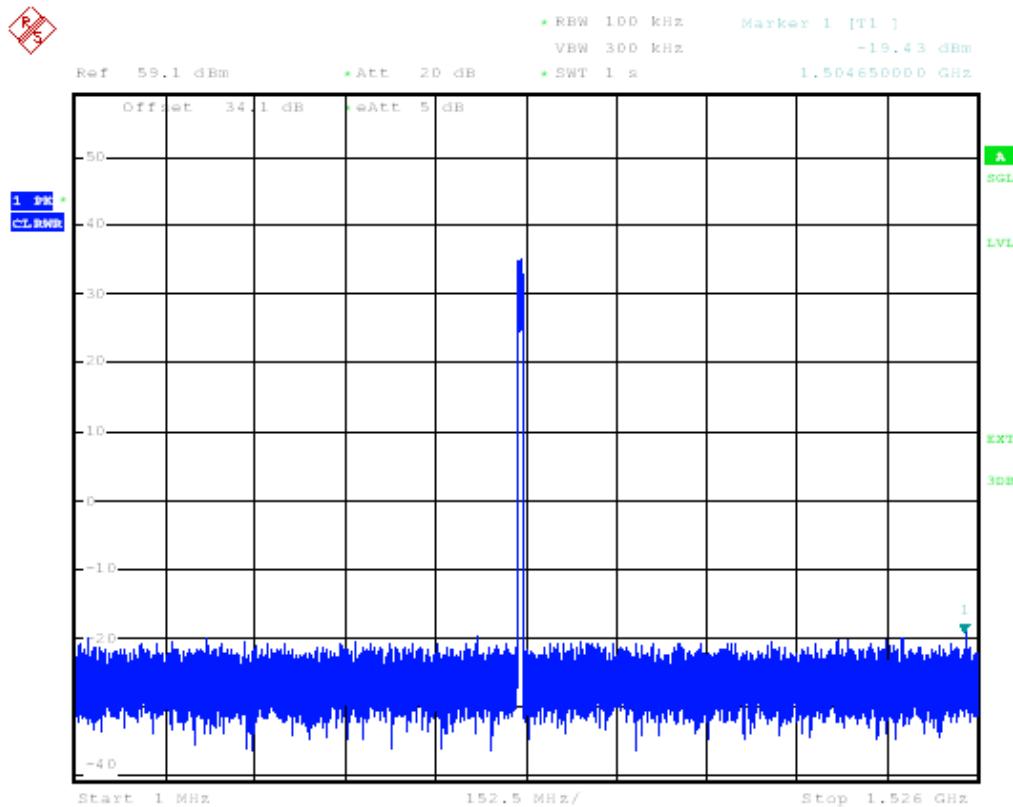
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Band Edge 5MHz**

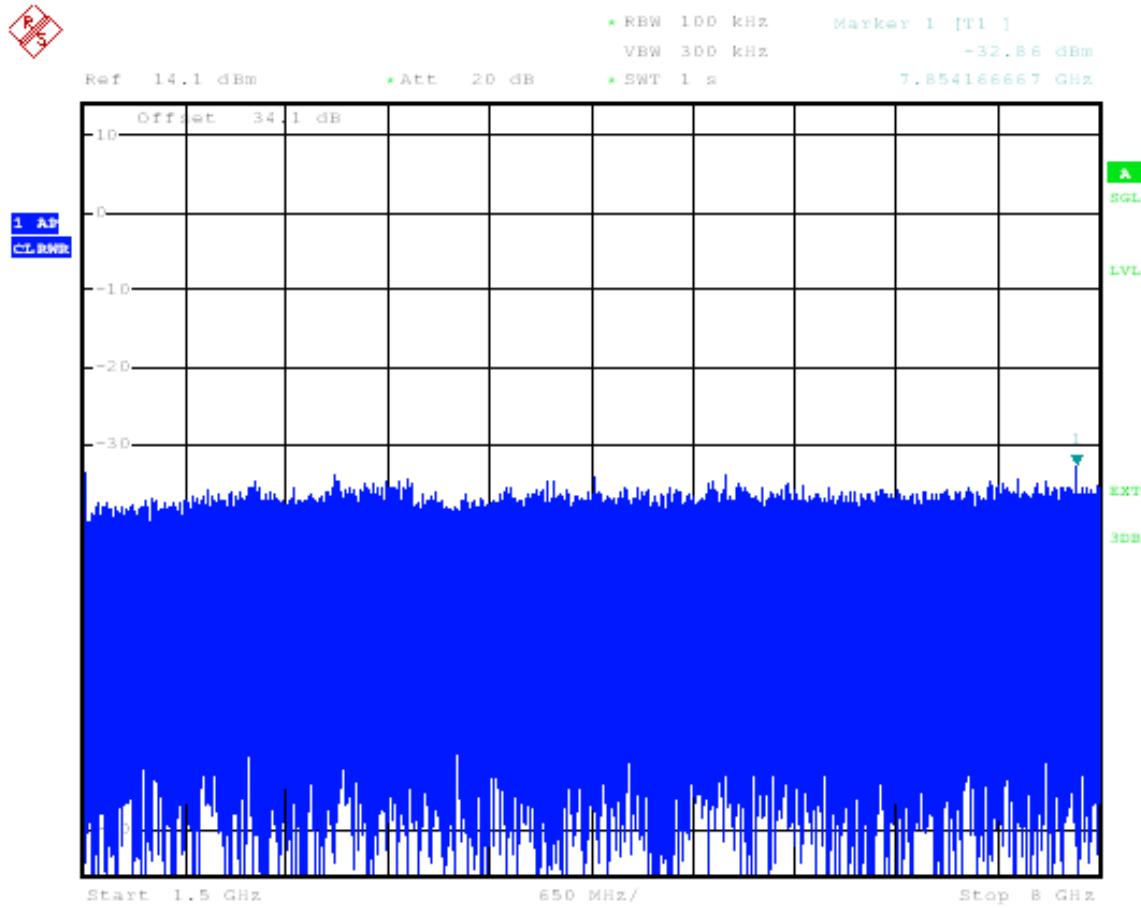
Date: 15.APR.2010 17:25:44

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Upper Band Edge 5MHz**

Tx Channel	Bandwidth	5 MHz	Power	45.69 dBm	EXT
Adjacent Channel	Bandwidth	30 kHz	Lower	-17.62 dBm	
	Spacing	2.515 MHz	Upper	-34.06 dBm	
Alternate Channel	Bandwidth	100 kHz	Lower	-13.77 dBm	
	Spacing	2.65 MHz	Upper	-36.72 dBm	
2nd Alternate Channel	Bandwidth	100 kHz	Lower	-13.11 dBm	
	Spacing	2.75 MHz	Upper	-41.92 dBm	

Date: 15.APR.2010 12:58:26

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Low Channel 10MHz Spurious 1MHz to 1.526GHz****Date: 15.APR.2010 14:28:39**

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Low Channel 10MHz Spurious 1.5GHz to 8GHz**

Date: 15.APR.2010 14:29:36



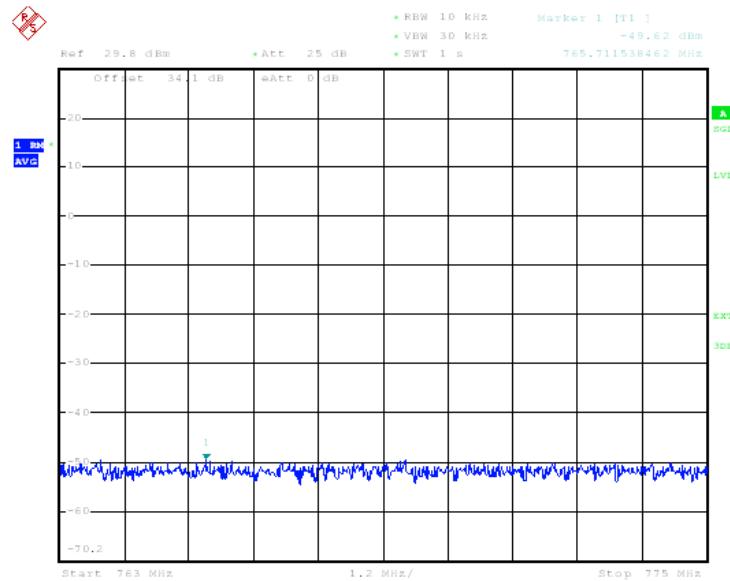
MOTOROLA

Cellular Networks

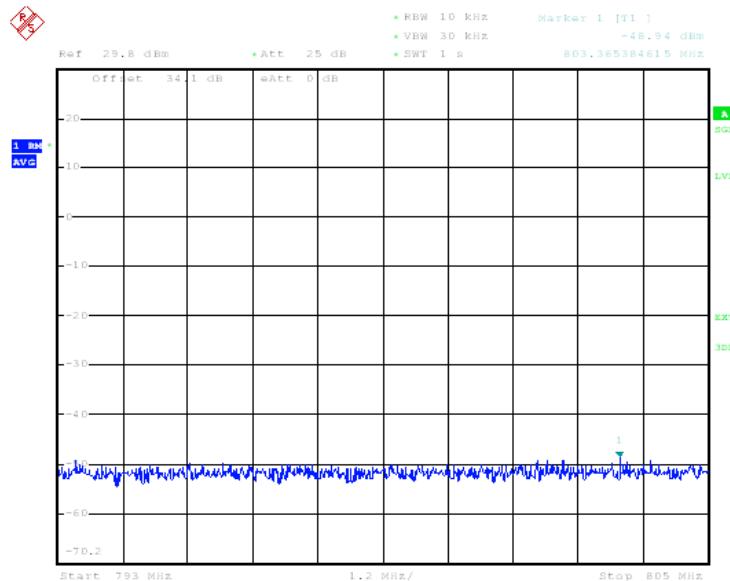
APPLICANT: MOTOROLA

FCC ID: 1A2ET4KJ1

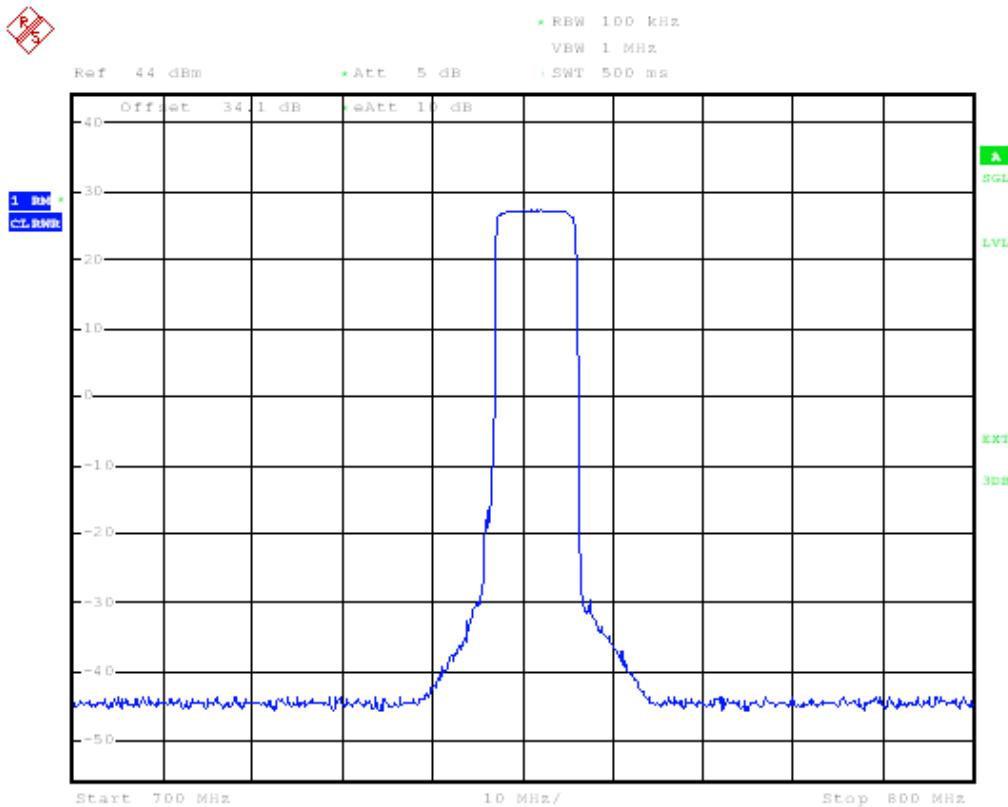
Low Channel 10MHz Public Safety

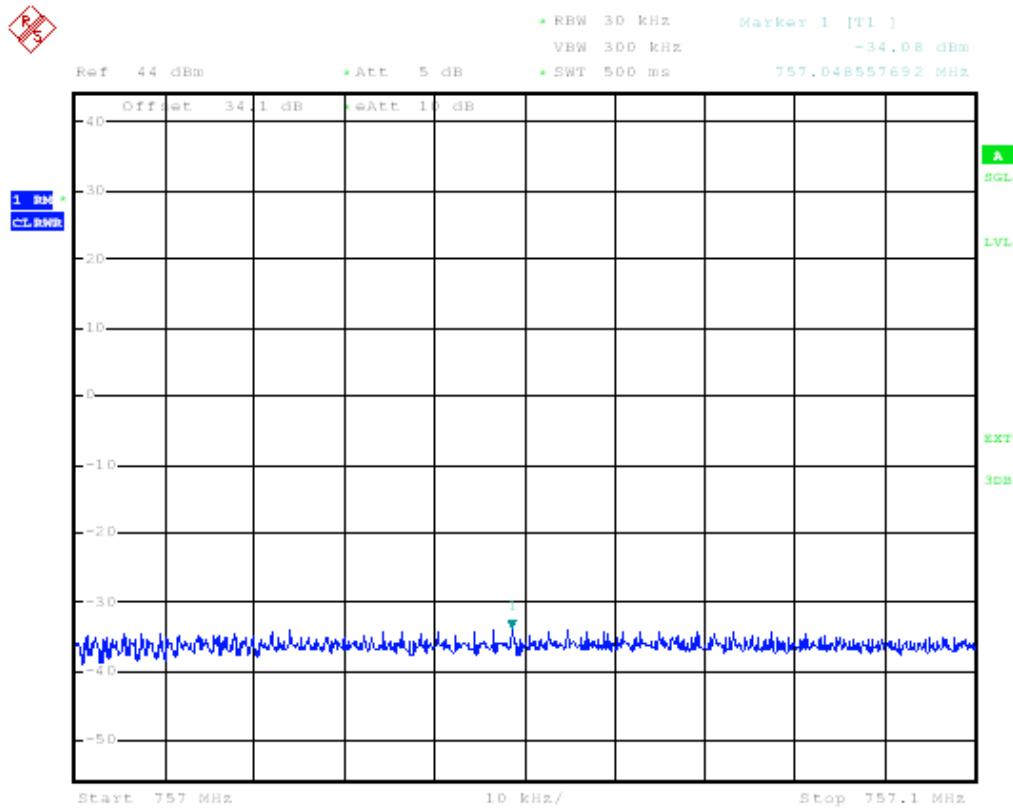


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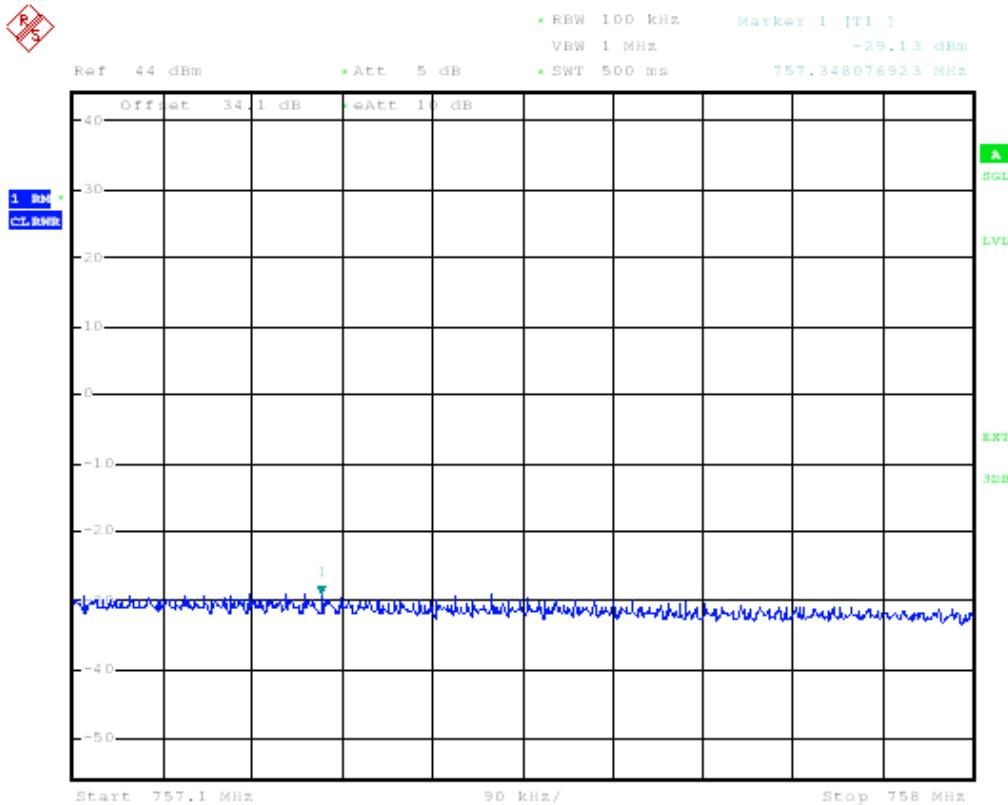


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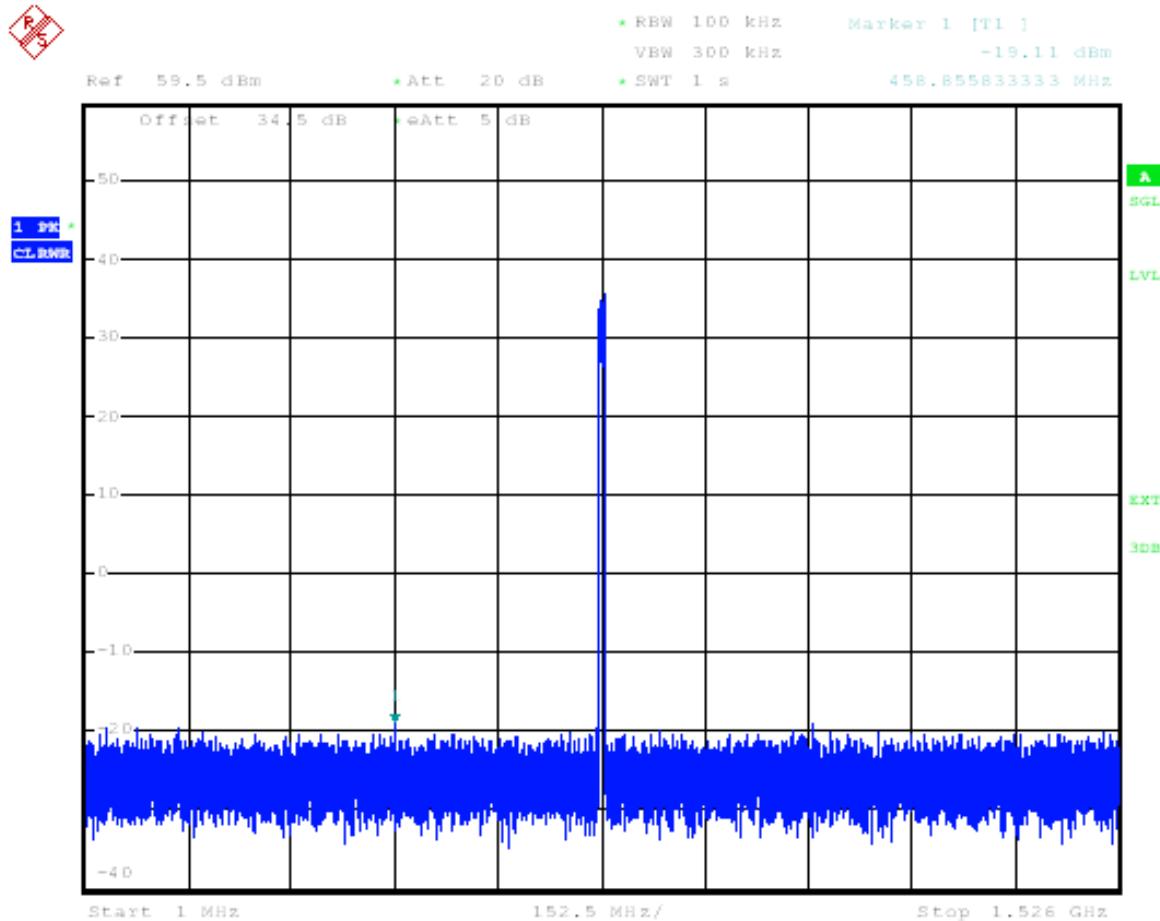
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Channel 10MHz Spurious 700MHz - 800MHz****Date: 27.APR.2010 07:54:10**

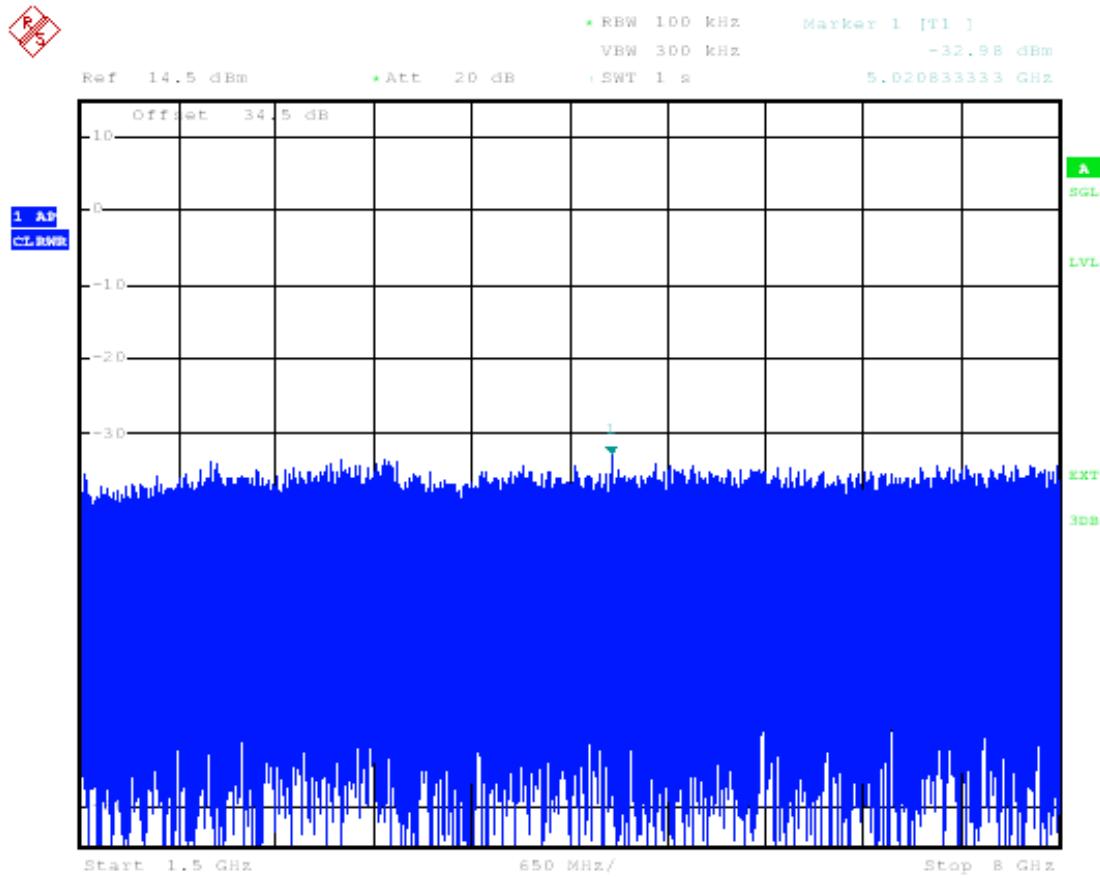
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Channel 10MHz Zoom 757MHz (30k RBW)**

Date: 27.APR.2010 07:58:18

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Channel 10MHz 757MHz – 758MHz (100k RBW)**

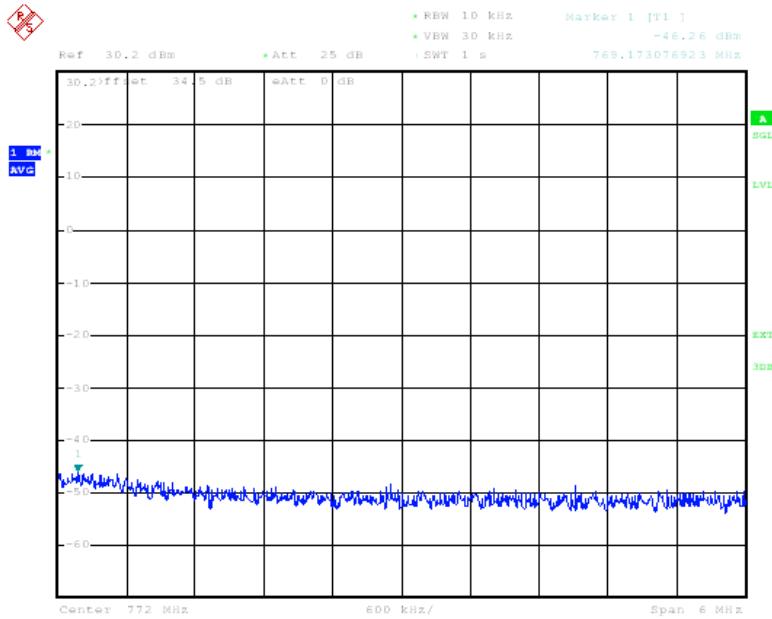
Date: 27.APR.2010 07:56:11

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****High Channel 10MHz Spurious 1MHz to 1.526GHz****Date: 14.APR.2010 20:06:49**

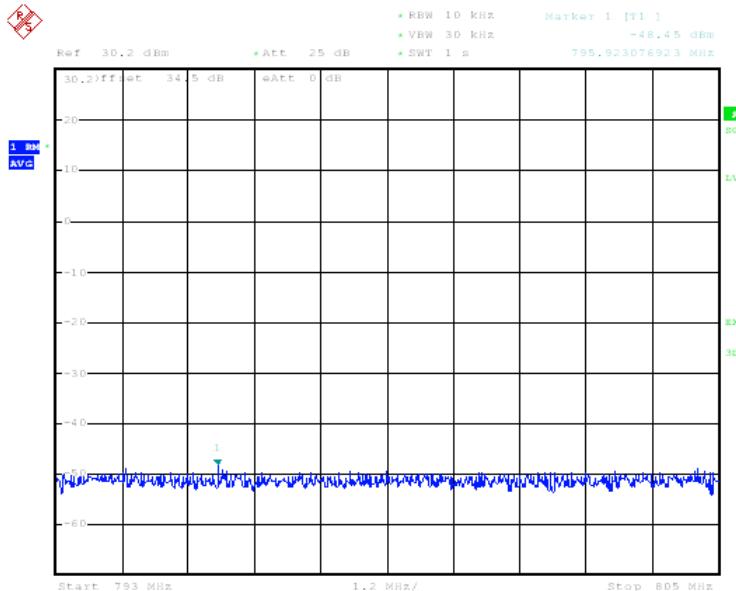
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**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1**

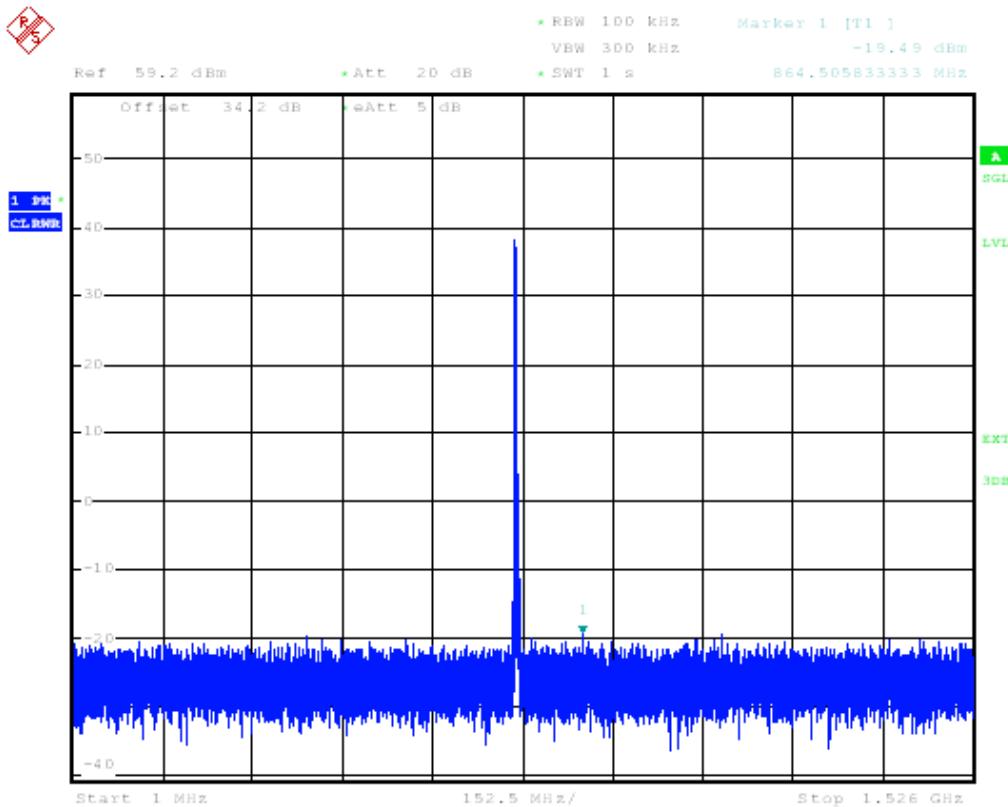
High Channel 10MHz Public Safety

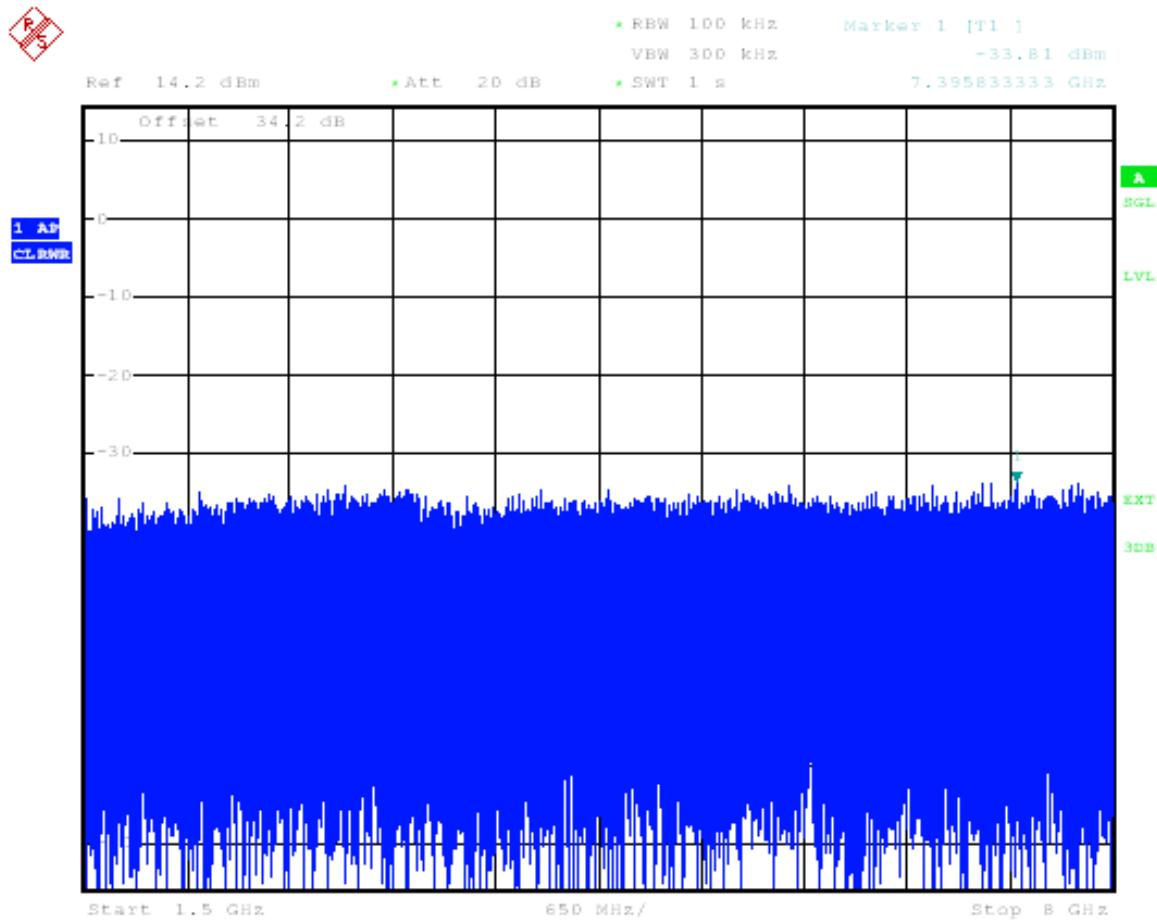


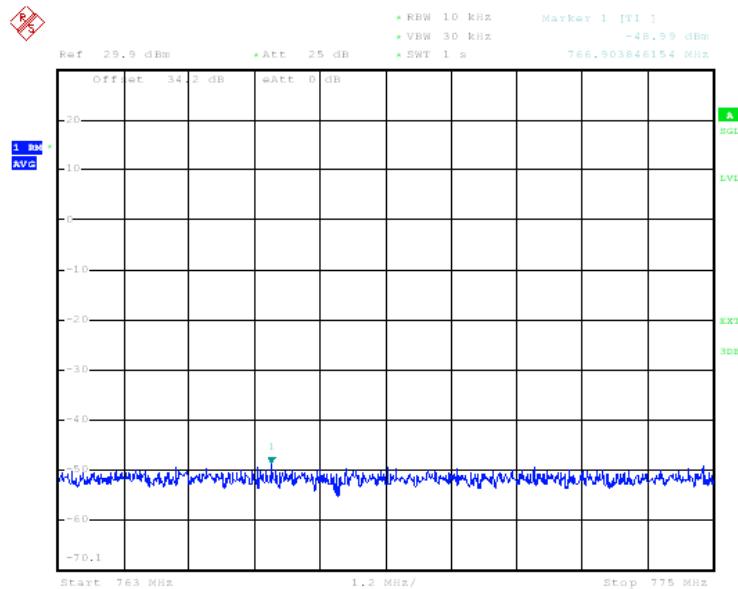
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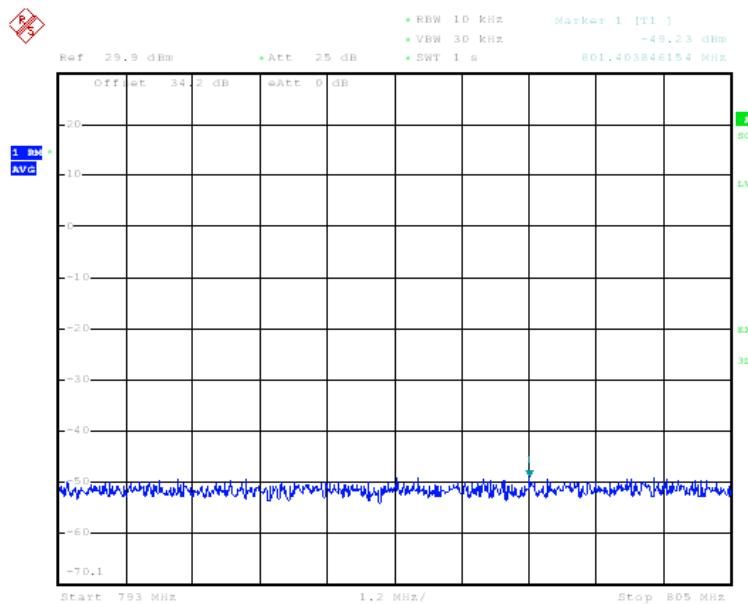
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**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Low Channel 5MHz Spurious 1MHz to 1.526GHz****Date: 15.APR.2010 15:51:09**

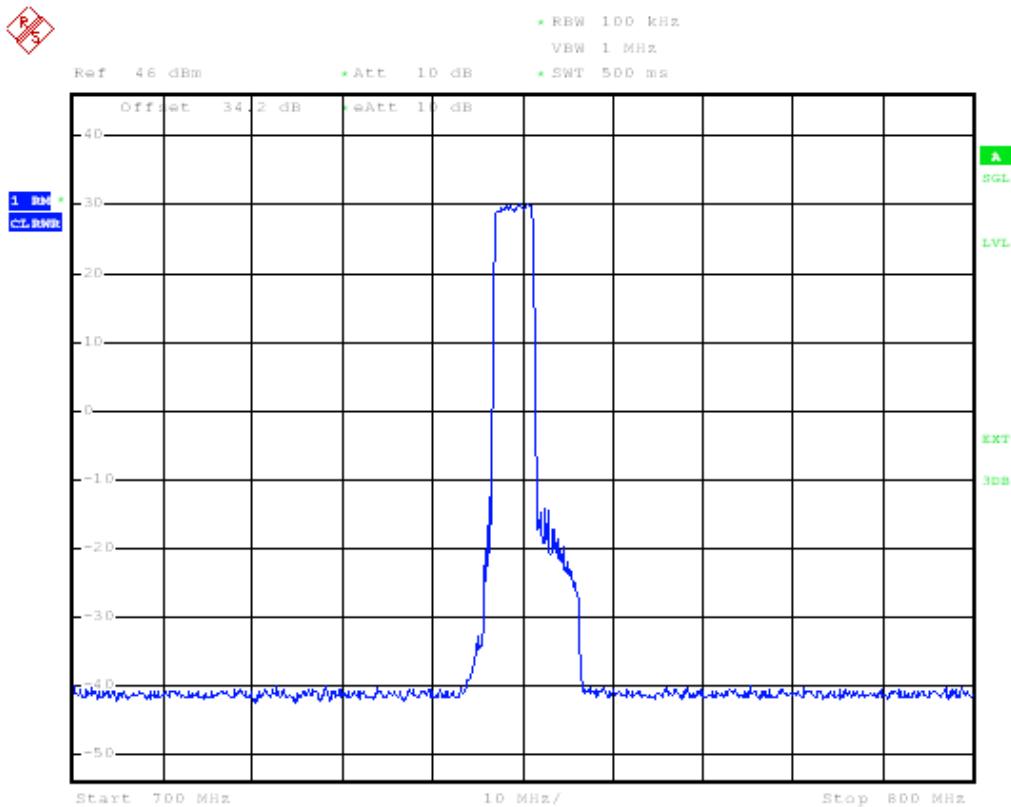
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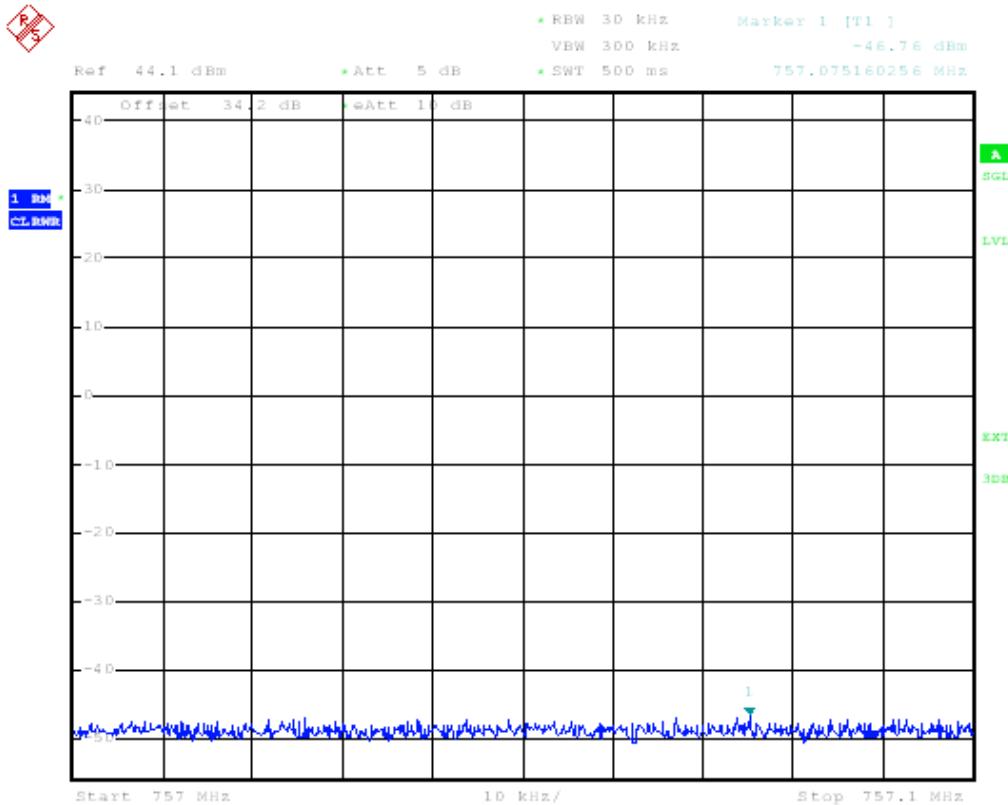
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Date: 15.APR.2010 15:53:05

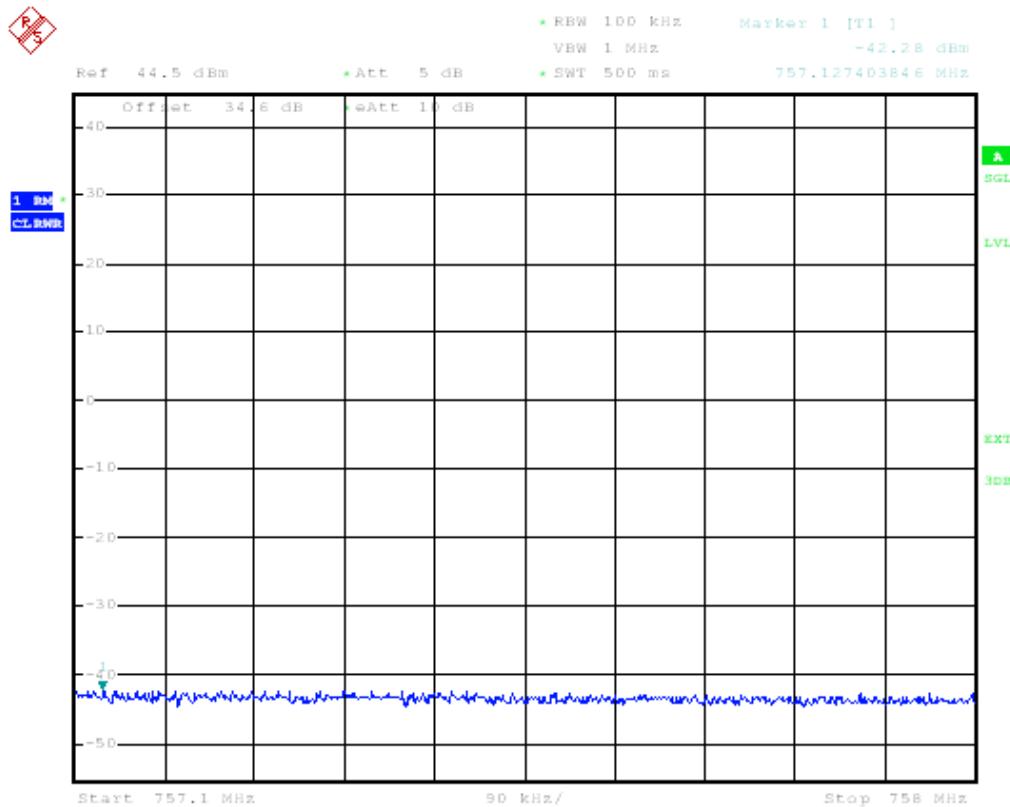


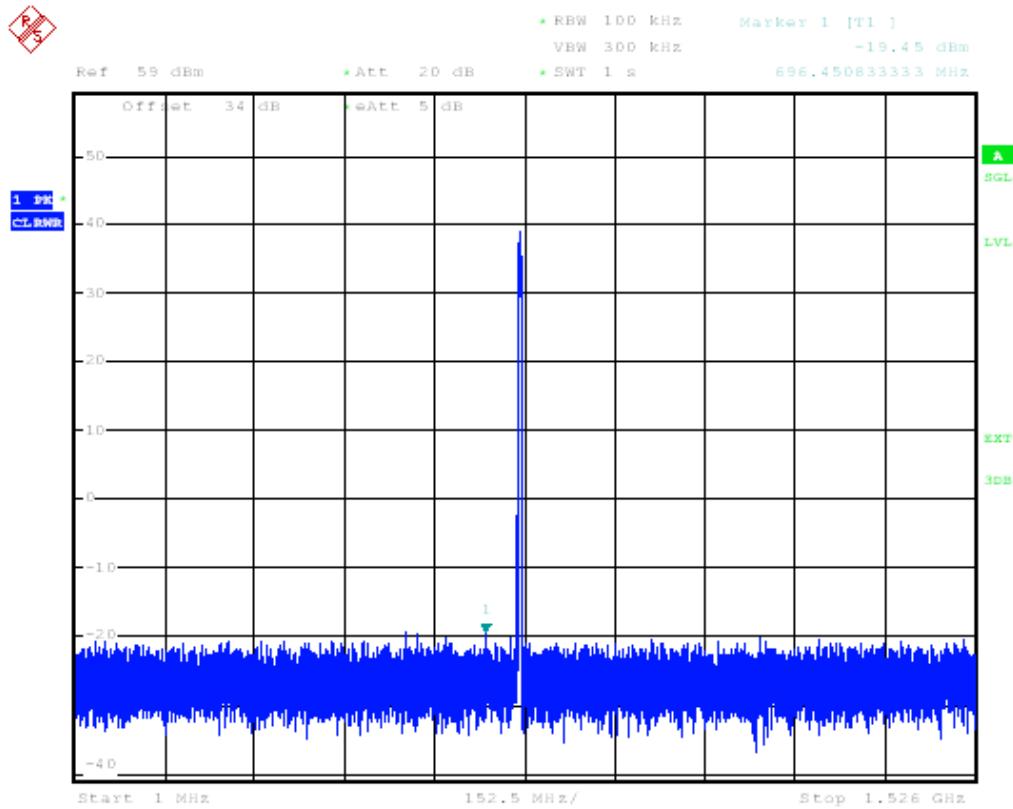
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**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Low Channel 5MHz Spurious 700MHz – 800MHz****Date: 27.APR.2010 06:49:16**

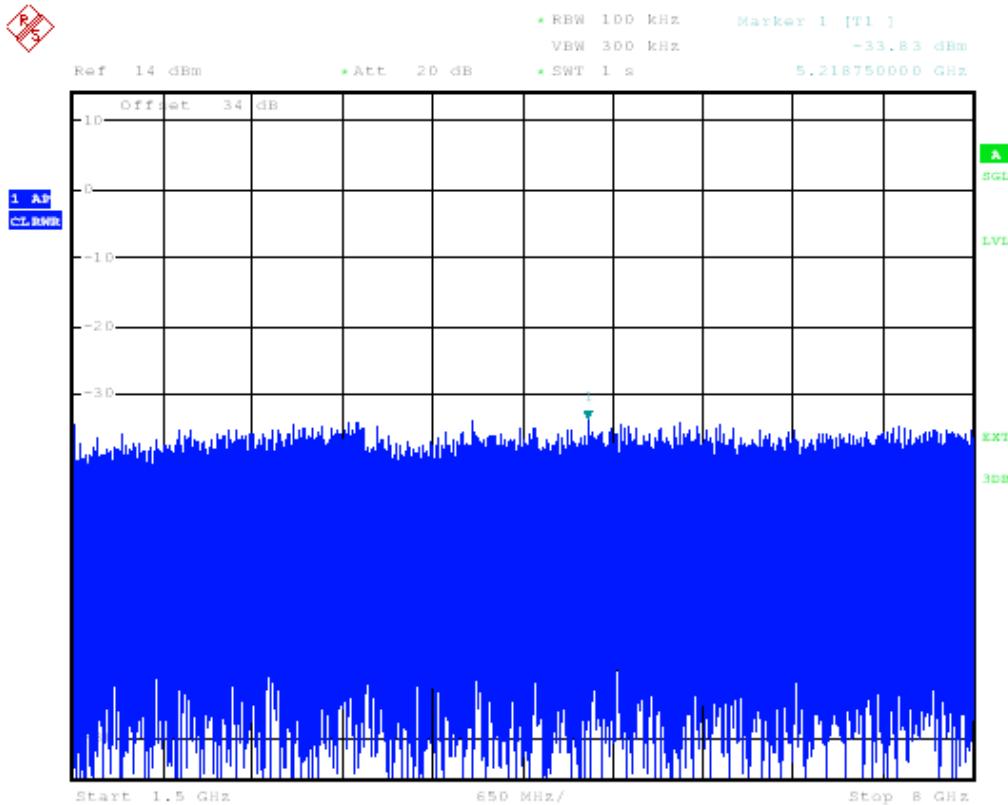
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Low Channel 5MHz Spurious 757MHz (30k RBW)**

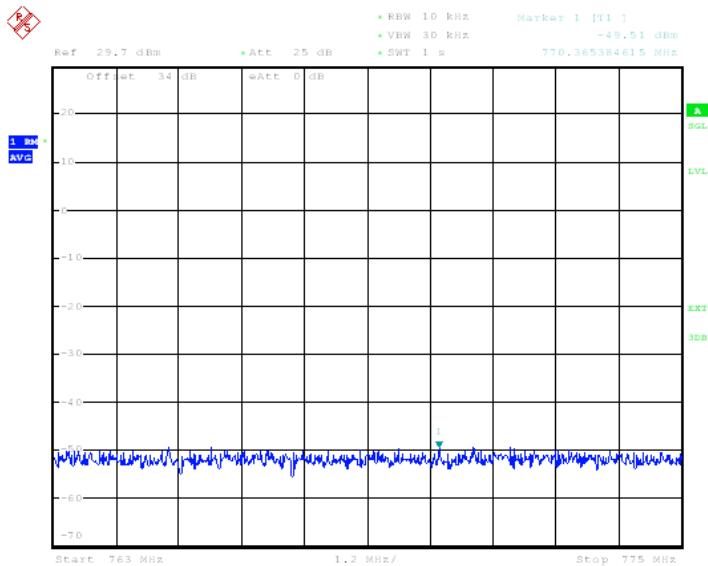
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**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional Low Channel 5MHz Spurious 757MHz – 758MHz (100k RBW)****Date: 27.APR.2010 06:53:03**

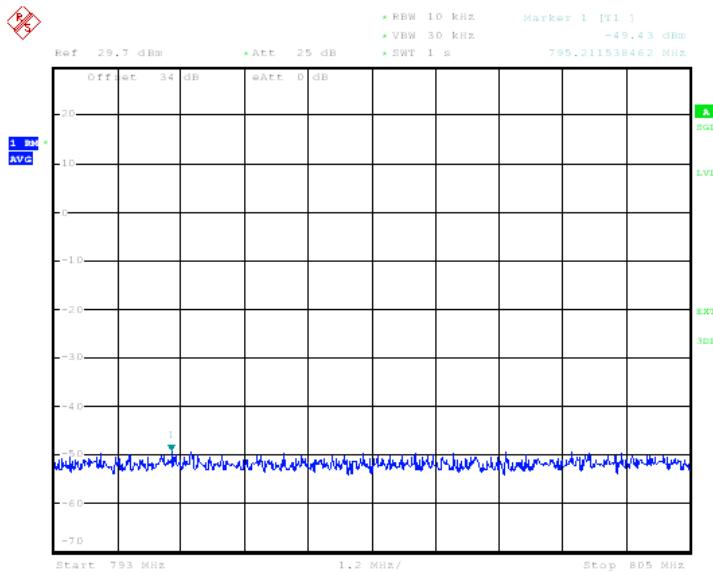
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional (Mid) Channel 5MHz Spurious 1MHz to 1.526GHz**

Date: 15.APR.2010 17:32:49

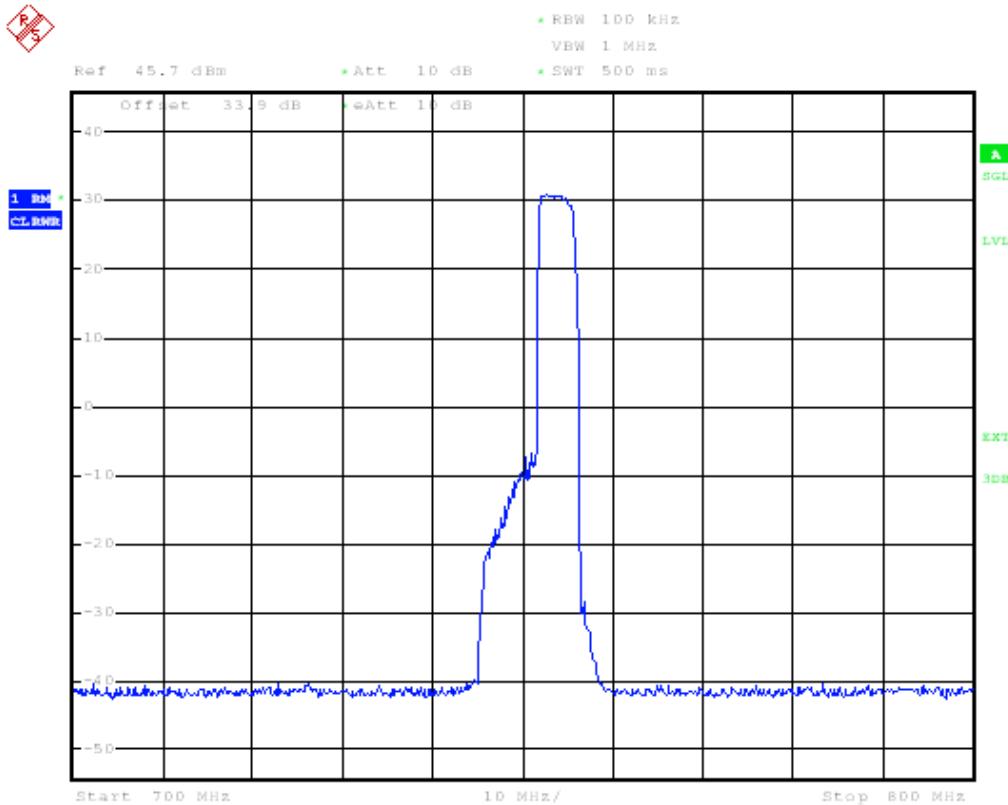
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional (Mid) Channel 5MHz Spurious 1.5GHz to 8GHz****Date: 15.APR.2010 17:33:42**

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional (Mid) Channel 5MHz Public Safety**

Date: 15.APR.2010 17:34:31



Date: 15.APR.2010 17:35:25

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Additional High Channel 5MHz Spurious 700MHz – 800MHz****Date: 27.APR.2010 06:34:42**



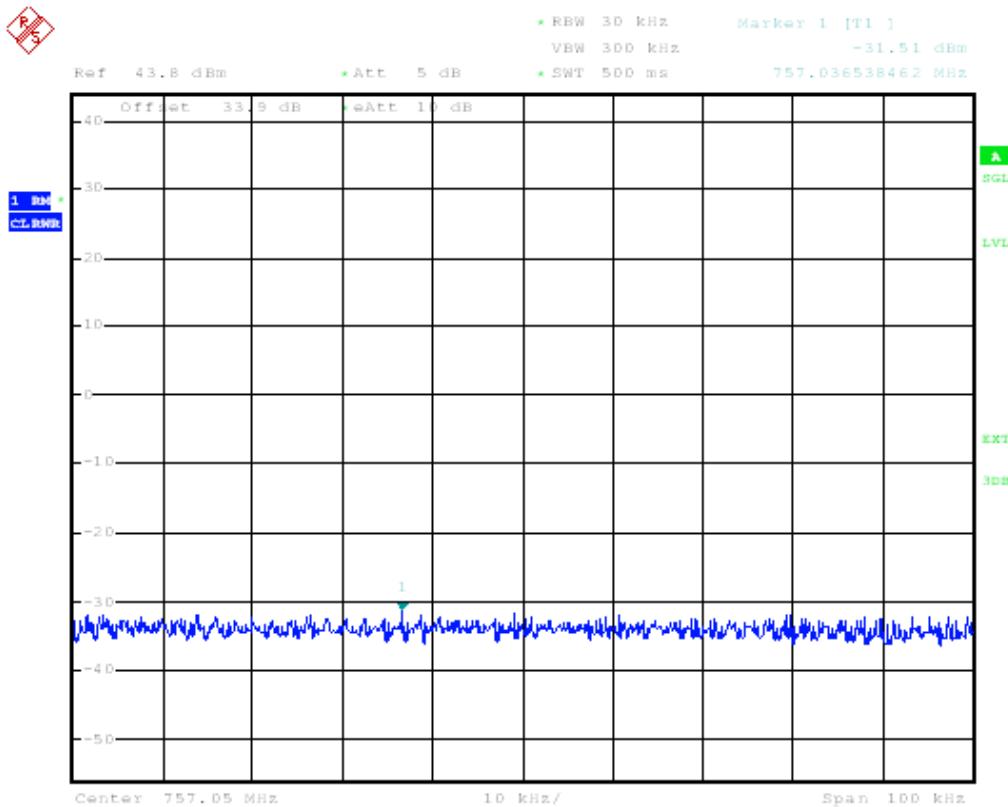
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APPLICANT: MOTOROLA

FCC ID: JHET4KJ1

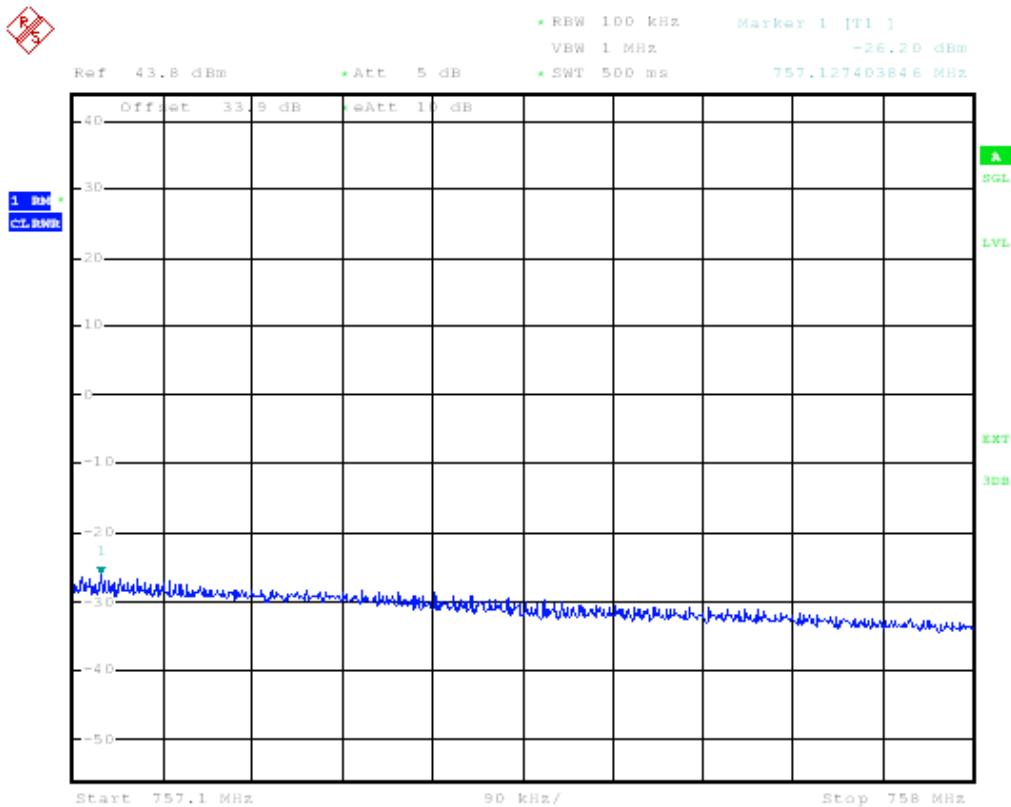
Additional High Channel 5MHz Spurious 757MHz (30k RBW)



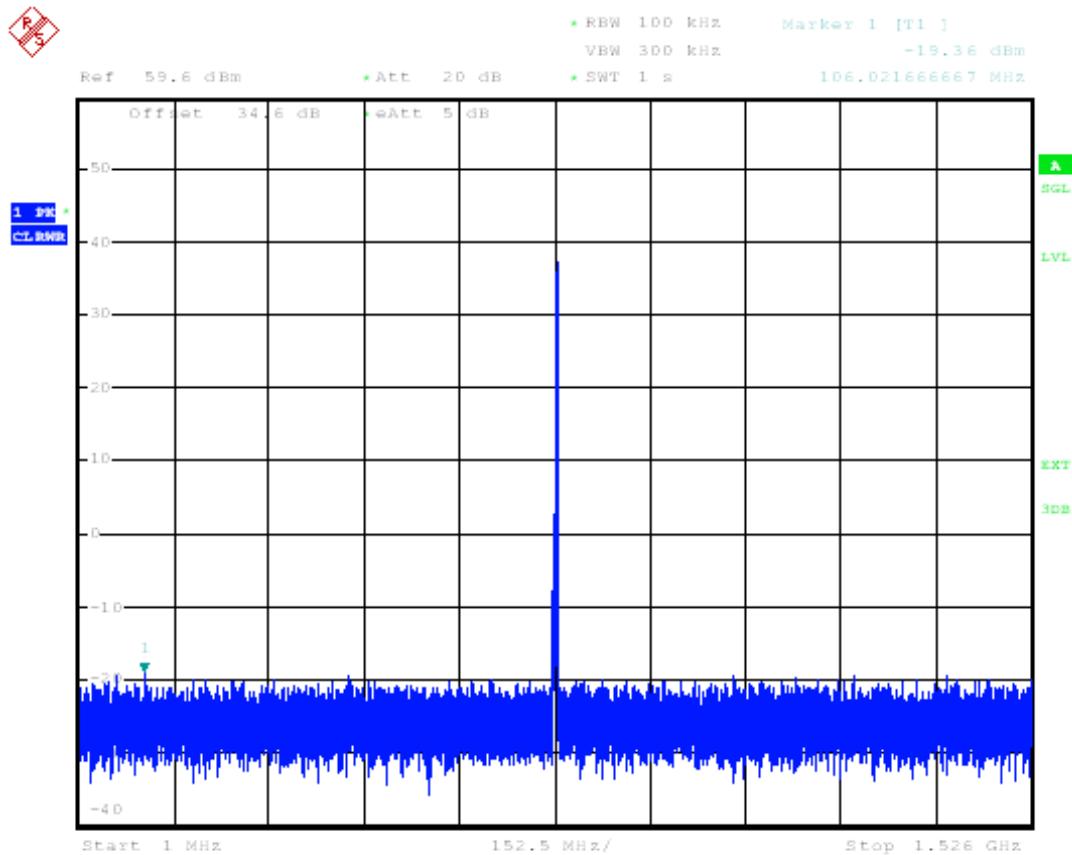
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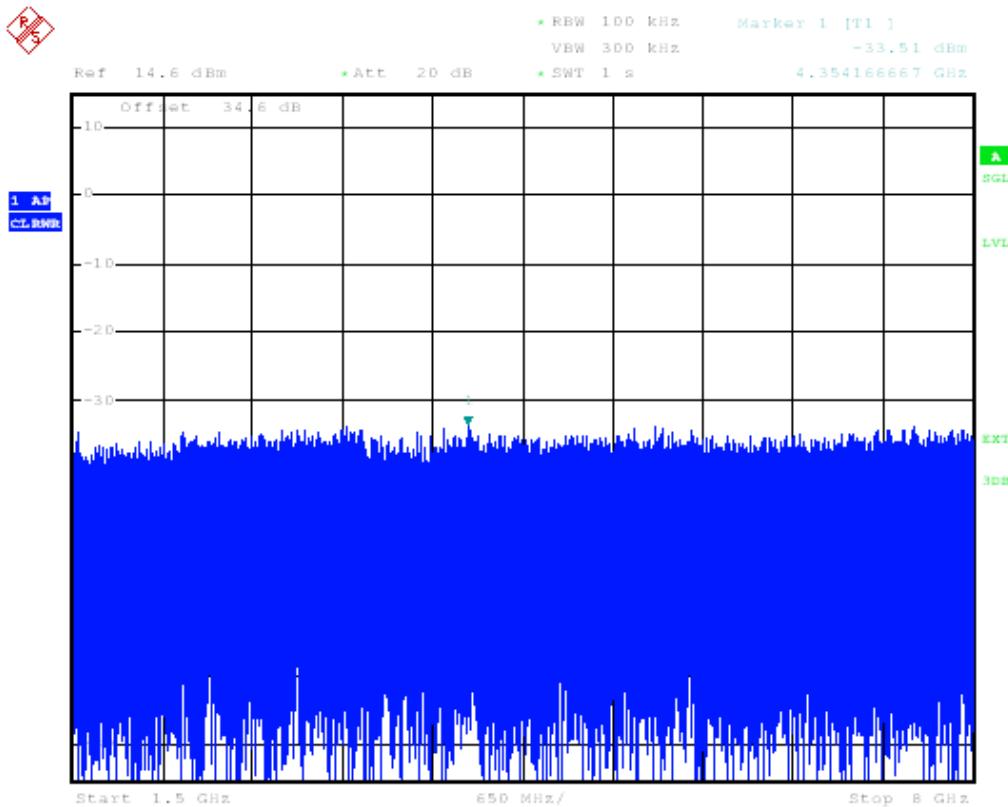
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1**

Additional High Channel 5MHz Spurious 757MHz – 758MHz (100k RBW)



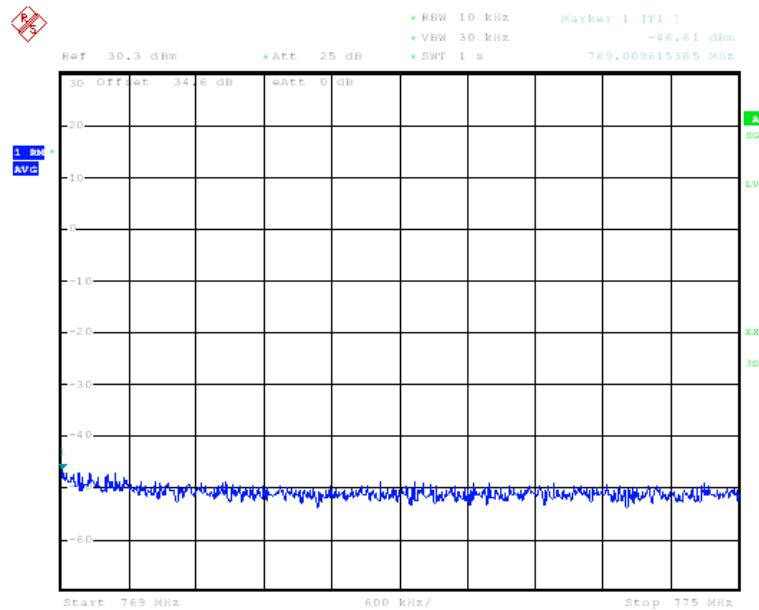
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**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****High Channel 5MHz Spurious 1MHz to 1.526GHz****Date: 15.APR.2010 13:08:25**

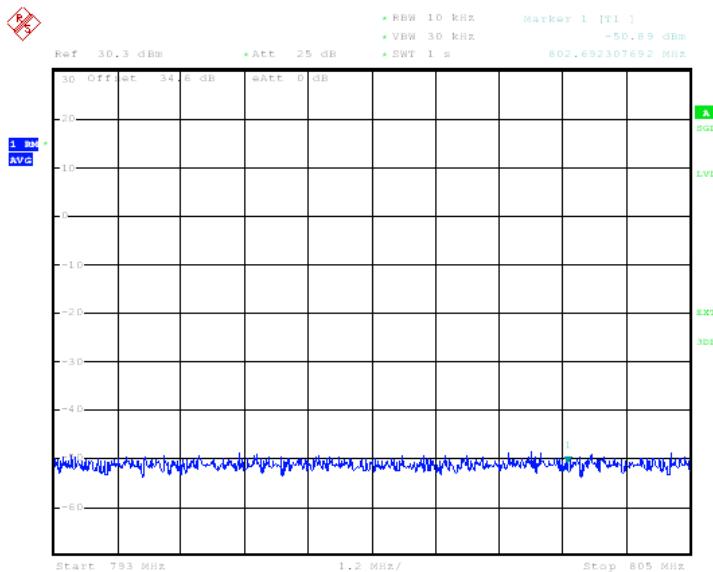
**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****High Channel 5MHz Spurious 1.5GHz to 8GHz****Date: 15.APR.2010 13:07:09**

**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1**

High Channel 5MHz Public Safety



Date: 15.APR.2010 13:12:50



Date: 15.APR.2010 13:15:28



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APPLICANT: MOTOROLA

FCC ID: 1A2ET4KJ1

Section 6 Field Strength of Spurious

NAME OF TEST: Field Strength of Spurious	PARA. NO.: 2.1053
TESTED BY: Morrison, Jim	DATE: 11/22/2009

Test Result: Complies

Measurement Data: See Attached Table

Test Equipment: 1-12,14

FIELD STRENGTH OF SPURIOUS

The spectrum was searched from 30MHz to the 10th harmonic of the carrier

SPUR FREQUENCY (MHz)	DISTANCE MEASURED (meters)	WORST CASE SPUR LEVEL MEASURED (dBuV/meter)	WORST CASE SPUR LEVEL MEASURED (dBm)	FCC MAX LIMIT (dBm)
5323.500 (Vert)	3	61.917	-33.31	-13



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APPLICANT: MOTOROLA

FCC ID: IHET4KJ1

Section 7

Frequency Stability

NAME OF TEST: Frequency Stability

PARA. NO.: 2.1055

TESTED BY: VanDrie Melissa

DATE: April 14, 2010

Test Result: Complies

Measurement Data: See Plots

Test Equipment: 13, 15, 16



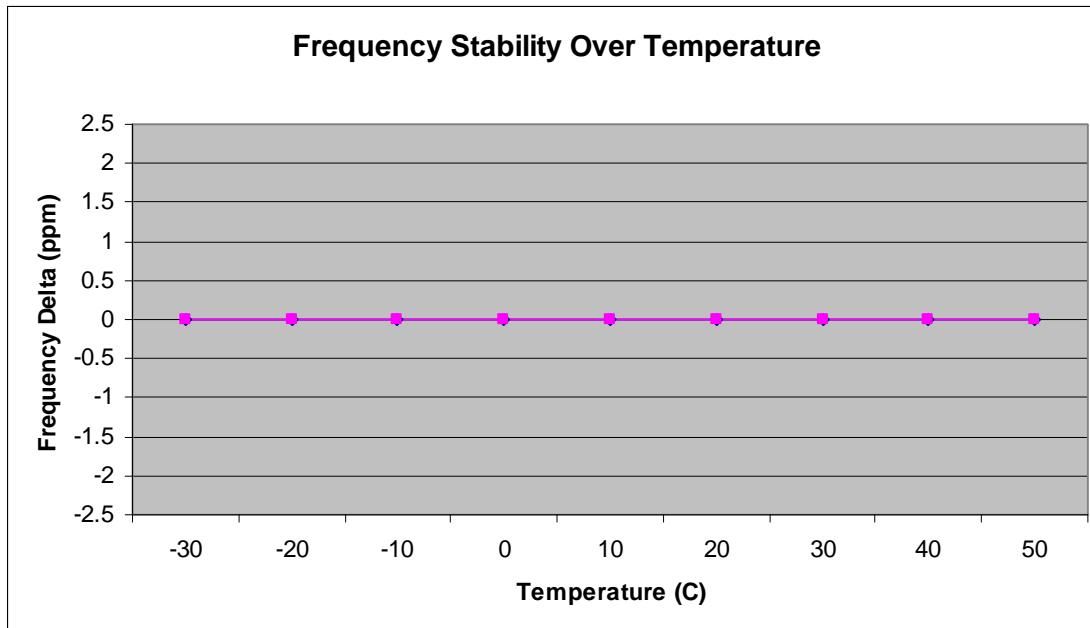
MOTOROLA

Cellular Networks

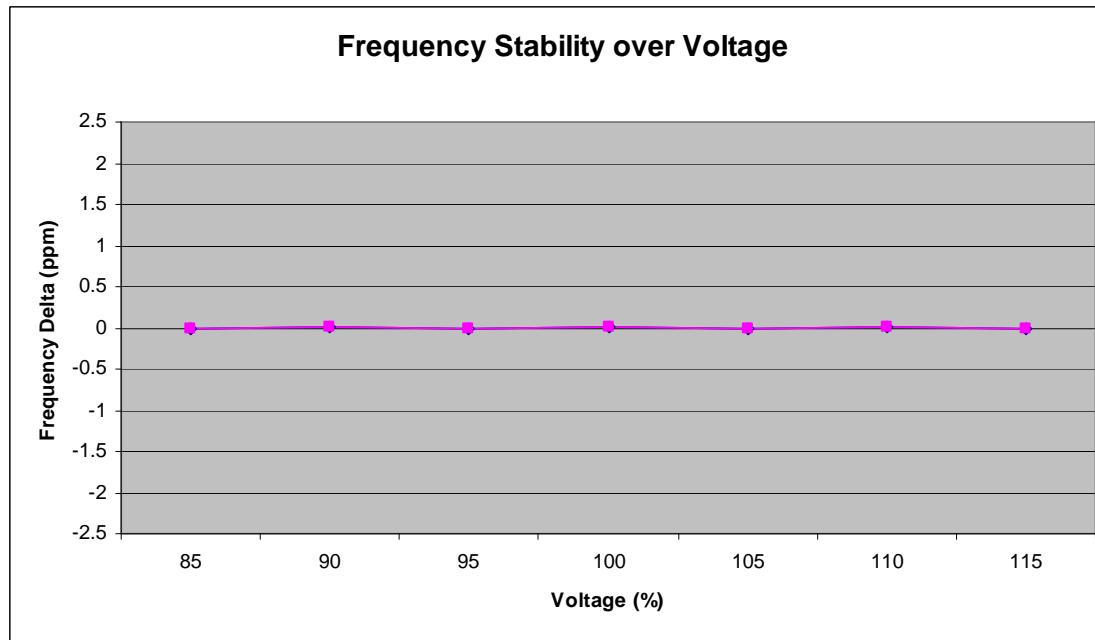
APPLICANT: MOTOROLA

FCC ID: IHET4KJ1

FREQUENCY STABILITY OVER TEMPERATURE



FREQUENCY STABILITY OVER VOLTAGE



**MOTOROLA****Cellular Networks****APPLICANT: MOTOROLA****FCC ID: IHET4KJ1****Section 8****Test Equipment List**

Item #	Motorola ID	Description	Model	Serial No.	Cal Date	Cal Due Date
1	118938	Pre-Amp	HP83006A	3950M0013 6	N/A	N/A
2	118937	Pre-Amp	HP83006A	3950M0013 5	N/A	N/A
3	505082	Antenna, Log Periodic	EMCO 3146	9303-3597	7/13/2009	7/13/2010
4	500301	Antenna, Biconnical	EMCO 3104C	8905-3974	7/13/2009	7/13/2010
5	502512	Antenna, Double Ridged Guide	EMCO 3115	2021	7/13/2009	7/13/2010
6	112019	Spectrum Analyzer	HP8593EM	3628A00164	4/27/2009	4/27/2010
7	508768	Power Meter	HP438A	3513U03967	4/27/2009	4/27/2010
8	116232	Power Sensor	HP8481A	2702A61832	4/27/2009	4/27/2010
9	509002	Signal Generator	HP83712A	3429A00422	4/28/2009	4/28/2010
10	N/A	Cable, Heliax 1/2" - 100 feet	Andrew	N/A	N/A	N/A
11	N/A	Cable, Coax - 6 feet	Microcoax	N/A	N/A	N/A
12	N/A	Cable, Coax - 6 feet	Microcoax	N/A	N/A	N/A
13	N/A	Cable, Coax - 6 feet	Microcoax	N/A	N/A	N/A
14	N/A	Cable, Reel - 20 feet	Emco	N/A	N/A	N/A
15	122804	Spectrum Analyzer	FSQ26	200123	1/19/2010	1/22/2011
16	N/A	Attenuator, 20dB	Wienschel	N/A	N/A	N/A
17	N/A	Low Pass Filter	Teledyne	N/A	N/A	N/A