

Report on Test Measurements

Measurements Report

The measurement report shows compliance information against the pertinent technical standards. Each parameter is measured generally at the low end, middle, and at the high end of the applicable frequency band. Each section of the report contains either verbiage or graphs which show compliance to applicable standards as required, explains testing method used, and indicates what the applicable specification is.

A list of test equipment and certification signoff page are included at the end of the measurement report.

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Report on Test Measurements

RF Power Output Data

The RF power output was measured with the indicated voltage applied to and current into the final RF amplifying device. The DC current indicated is the total for the final RF amplifier stage, consisting of six parallel power transistors.

High Performance Data Modulation Mode:

	768 MHz	772 MHz	776 MHz	
Measured RF output	<u>50</u>	<u>50</u>	<u>50</u>	Watts, Average
DC Voltage, final RF amplifier stage/stages	<u>24.7</u>	<u>24.7</u>	<u>24.7</u>	Volts
DC Current, final RF amplifier stage/stages	<u>10.1</u>	<u>10.1</u>	<u>10.0</u>	Amperes
Input power for final RF amplifying device(s)	<u>249</u>	<u>247</u>	<u>247</u>	Watts
Primary Radio Input Supply Voltage	<u>120</u>	<u>120</u>	<u>120</u>	Volts AC
Minimum Measured RF output	<u>2</u>	<u>2</u>	<u>2</u>	Watts, Average
Normal DC Voltage	<u>19.0</u>	<u>19.0</u>	<u>19.0</u>	Volts
Normal DC Current	<u>2.9</u>	<u>3.0</u>	<u>3.0</u>	Amperes
Input power for final RF amplifying device(s)	<u>55</u>	<u>57</u>	<u>57</u>	Watts
Primary Radio Input Supply Voltage	<u>120</u>	<u>120</u>	<u>120</u>	Volts AC

Linear Simulcast Modulation Mode:

	768 MHz	772 MHz	776 MHz	
Measured RF output	<u>100</u>	<u>100</u>	<u>100</u>	Watts, Average
DC Voltage, final RF amplifier stage/stages	<u>23.7</u>	<u>23.7</u>	<u>23.7</u>	Volts
DC Current, final RF amplifier stage/stages	<u>12.1</u>	<u>12.1</u>	<u>12.0</u>	Amperes
Input power for final RF amplifying device(s)	<u>287</u>	<u>287</u>	<u>284</u>	Watts
Primary Radio Input Supply Voltage	<u>120</u>	<u>120</u>	<u>120</u>	Volts AC
Minimum Measured RF output	<u>2</u>	<u>2</u>	<u>2</u>	Watts, Average
Normal DC Voltage	<u>19.0</u>	<u>19.0</u>	<u>19.0</u>	Volts
Normal DC Current	<u>2.5</u>	<u>2.5</u>	<u>2.5</u>	Amperes
Input power for final RF amplifying device(s)	<u>48</u>	<u>48</u>	<u>48</u>	Watts
Primary Radio Input Supply Voltage	<u>120</u>	<u>120</u>	<u>120</u>	Volts AC

Compatible 4-Level Frequency Modulation Mode:

	768 MHz	772 MHz	776 MHz	
Measured RF output	<u>100</u>	<u>100</u>	<u>100</u>	Watts
DC Voltage, final RF amplifier stage/stages	<u>19.5</u>	<u>19.5</u>	<u>19.5</u>	Volts
DC Current, final RF amplifier stage/stages	<u>13.3</u>	<u>13.3</u>	<u>13.2</u>	Amperes
Input power for final RF amplifying device(s)	<u>259</u>	<u>259</u>	<u>257</u>	Watts
Primary Radio Input Supply Voltage	<u>120</u>	<u>120</u>	<u>120</u>	Volts AC
Minimum Measured RF output	<u>2</u>	<u>2</u>	<u>2</u>	Watts, Average
Normal DC Voltage	<u>19.0</u>	<u>19.0</u>	<u>19.0</u>	Volts
Normal DC Current	<u>2.6</u>	<u>2.6</u>	<u>2.6</u>	Amperes
Input power for final RF amplifying device(s)	<u>49</u>	<u>49</u>	<u>49</u>	Watts
Primary Radio Input Supply Voltage	<u>120</u>	<u>120</u>	<u>120</u>	Volts AC

Report on Test Measurements

Adjacent Channel Power (ACP) Requirements

The transmitter can utilize various modulation modes as determined by customer requirements, channel usage, and system configuration as described in Exhibit B. These modulations are: High Performance Data (HPD) which operates at 50 Watts (average) in 25 kHz channels; linear modulations which operate at 100 Watts (average) in 12.5 kHz channels, and Compatible 4-Level Frequency Modulation (C4FM) which is a non linear modulation and operates in 12.5 kHz channels at 100 Watts. The two types of linear modulations are similar, Linear Simulcast Modulation (LSM) is for FDMA applications, and H-DQPSK is for TDMA applications. For purposes of the ACP performance present in this exhibit, both of these linear modulations perform similarly and data from only one of them is presented. All of the following charts reference the following setup and specification requirements for the modes summarized as follows:

Modulation Type:	HPD	LSM / H-DQPSK	C4FM
Channelization:	25 kHz	12.5 kHz	12.5 kHz
Power Setting:	50 Watts, Average	100 Watts, Average	100 Watts

Specification Requirement Limits: FCC §90.543, §27.53 and IC RSS-119 section 5.8.9

§ 90.543 Emission limits: For operation in the 769-775 MHz Band

§ 27.53 Emission limits: For operation in the 775-776 MHz Band

119-5.8.9 Emission limits: For operation in the 768-776 MHz Band

ACCP Tables per 90.543(a), 27.53(e)(6), RSS-119 Sec 5.8.9 Table 13 & 14: For base transmitters designed to operate with a 12.5 kHz channel bandwidth, the ACCP shall be in accordance to the following table.

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACCP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.50	25	-60
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
≥ 400 kHz to 12 MHz	30 (swept)	-80
12 MHz to paired receive band	30 (swept)	-80
In the paired receive band	30 (swept)	-100

For base transmitters designed to operate with a 25 kHz channel bandwidth, the ACCP shall be in accordance to the following table.

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACCP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.50	25	-60
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
≥ 400 kHz to 12 MHz	30 (swept)	-80
12 MHz to paired receive band	30 (swept)	-80
In the paired receive band	30 (swept)	-100

Report on Test Measurements***Adjacent Channel Coupled Power (ACCP) Requirements***

ACP measurement procedure: For all measurements modulate the transmitter as it would be modulated in normal operating conditions. The ACP measurements may be made with a spectrum analyzer capable of making direct ACP measurements. "Measurement bandwidth", as used for non-swept measurements, implies an instrument that measures the power in many narrow bandwidths equal to the nominal resolution bandwidth and integrates these powers to determine the total power in the specified measurement bandwidth.

(1) *Setting reference level.* Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the "reference power level".

(2) *Non-swept power measurement.* Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth and frequency offset from the assigned center frequency as shown in the tables above. Any value of resolution bandwidth may be used as long as it does not exceed 2 percent of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by subtracting the reference power level measured in (1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(3) *Swept power measurement.* Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by subtracting the reference power level measured in (1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

Measurement results:

For measurements less than or equal to 400 kHz offset from the center frequency, the ACCP results are shown in Tabular format. For measurements great than 400 kHz offset from the center frequency, the ACCP results are shown in Graphical format. The results shown are from testing performed at the base radio level without the use of any external transmit filtering.

All results show sufficient margin to the specified requirements.

EXHIBIT DESCRIPTION

E1-2.1	ACP Tabular Results – Offsets \leq 400 kHz for HPD, H-DQPSK / LSM, and C4FM Modes
E1-2.2, 3, 4	ACP Results $>$ 400 kHz for H-DQPSK / LSM, Low End / Middle / High End of band
E1-2.5, 6, 7	ACP Results $>$ 400 kHz for C4FM, Low End / Middle / High End of band
E1-2.8, 9, 10	ACP Results $>$ 400 kHz for HPD, Low End / Middle / High End of band

Report on Test Measurements

Adjacent Channel Power (ACP) Requirements

ACP Test Results for offset frequencies \leq 400 kHz

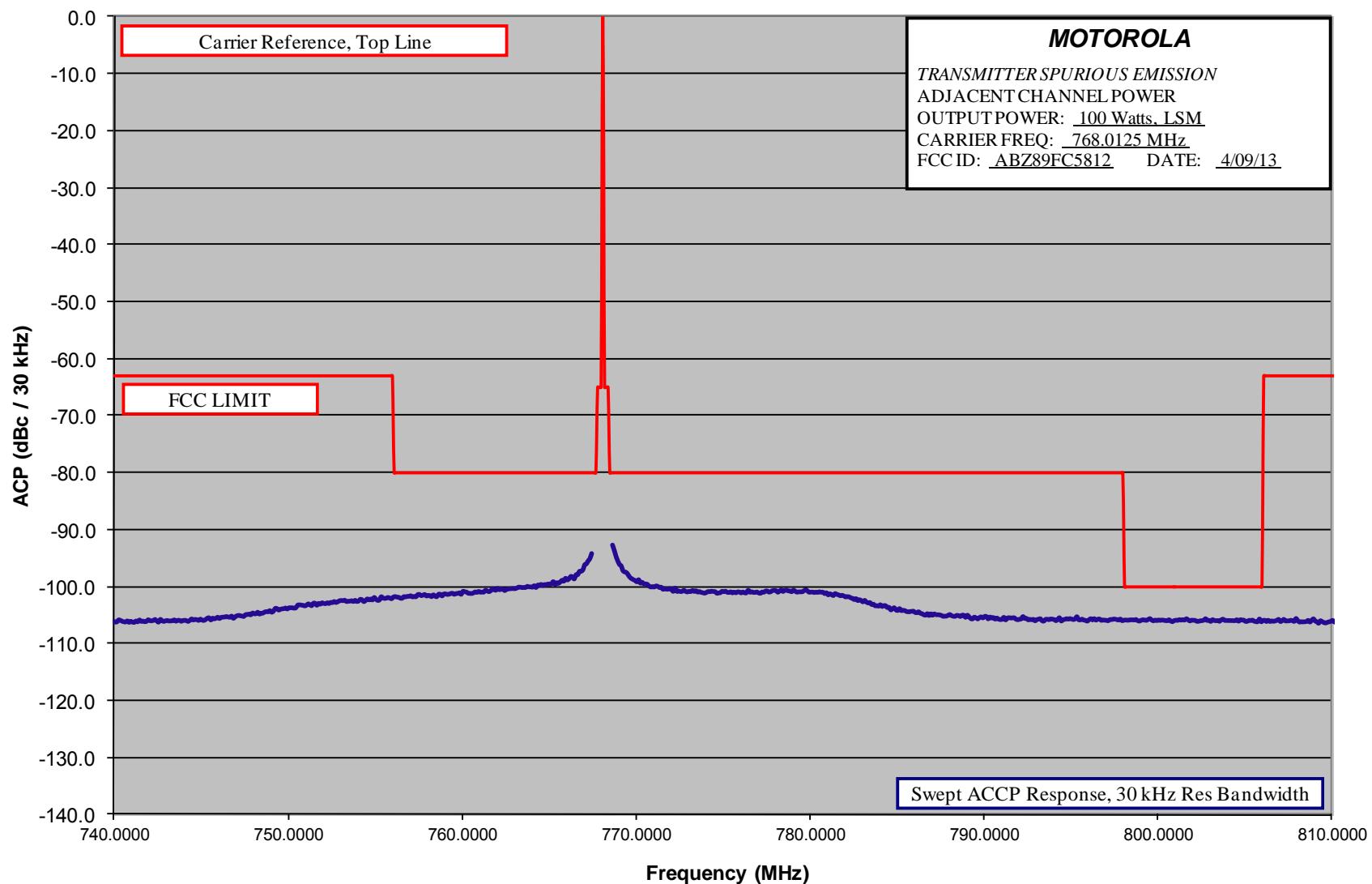
ACP Test Results: HPD Modulation, Pout = 50 Watts (avg), Channel Spacing = 25 kHz								
FCC / IC Requirements			Measurement Results					
Offset from Center Freq (kHz)	Measurement BW (kHz)	Maximum ACP (dBc)	768.0125 MHz		772.0125 MHz		775.9875 MHz	
			Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)
+/- 15.625	6.25	-40	-52.6	-52.5	-53.0	-53.1	-52.3	-52.4
+/- 21.875	6.25	-60	-73.9	-73.7	-74.0	-73.7	-73.9	-73.7
+/- 37.5	25	-60	-71.6	-71.9	-71.1	-71.7	-71.0	-71.5
+/- 62.5	25	-65	-75.7	-75.7	-75.4	-75.7	-75.4	-75.8
+/- 87.5	25	-65	-78.8	-78.5	-78.9	-78.1	-78.7	-78.1
+/- 150	100	-65	-76.0	-75.7	-75.8	-75.6	-76.0	-75.7
+/- 250	100	-65	-77.7	-77.0	-77.7	-76.9	-78.3	-76.9
+/- 350	100	-65	-79.5	-78.5	-79.9	-78.6	-80.3	-79.0
+/- 400	30 (swept)	-80	-81.5	-80.4	-82.3	-80.6	-86.9	-84.8

ACP Test Results: Linear Modulation (H-DQPSK shown), Pout = 100 Watts (avg), Channel Spacing = 12.5 kHz								
FCC / IC Requirements			Measurement Results					
Offset from Center Freq (kHz)	Measurement BW (kHz)	Maximum ACP (dBc)	768.0125 MHz		772.0125 MHz		775.9875 MHz	
			Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)
+/- 9.375	6.25	-40	-41.1	-40.1	-41.3	-40.5	-40.3	-40.6
+/- 15.625	6.25	-60	-81.6	-81.0	-81.8	-81.6	-81.3	-81.3
+/- 21.875	6.25	-60	-84.7	-85.6	-84.9	-85.8	-83.8	-84.2
+/- 37.5	25	-60	-76.6	-77.3	-81.4	-81.7	-77.7	-78.3
+/- 62.5	25	-65	-70.3	-69.3	-83.4	-82.2	-82.3	-81.8
+/- 87.5	25	-65	-83.7	-82.6	-83.8	-82.7	-78.2	-77.8
+/- 150	100	-65	-76.9	-76.0	-77.3	-76.6	-67.2	-66.4
+/- 250	100	-65	-80.0	-78.2	-78.7	-77.2	-80.0	-78.3
+/- 350	100	-65	-82.9	-81.6	-83.2	-81.8	-82.8	-81.4
+/- 400	30 (swept)	-80	-92.0	-89.0	-92.0	-89.1	-92.00112	-88.715813

ACP Test Results: C4FM Modulation, Pout = 100 Watts, Channel Spacing = 12.5 kHz								
FCC / IC Requirements			Measurement Results					
Offset from Center Freq (kHz)	Measurement BW (kHz)	Maximum ACP (dBc)	768.0125 MHz		772.0125 MHz		775.9875 MHz	
			Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)
+/- 9.375	6.25	-40	-40.6	-41.1	-41.2	-41.8	-41.0	-41.2
+/- 15.625	6.25	-60	-84.5	-84.3	-84.4	-84.1	-83.5	-83.4
+/- 21.875	6.25	-60	-86.3	-86.2	-86.2	-86.5	-85.4	-85.6
+/- 37.5	25	-60	-82.1	-82.0	-82.1	-81.8	-81.6	-81.2
+/- 62.5	25	-65	-83.5	-82.6	-83.4	-82.1	-82.7	-81.7
+/- 87.5	25	-65	-84.1	-82.9	-84.2	-82.6	-83.4	-82.1
+/- 150	100	-65	-77.5	-76.4	-77.7	-76.5	-77.5	-76.4
+/- 250	100	-65	-80.4	-78.1	-80.7	-78.3	-80.7	-78.5
+/- 350	100	-65	-83.5	-81.8	-83.6	-81.8	-83.6	-81.9
+/- 400	30 (swept)	-80	-92.5	-89.0	-92.8	-89.2	-92.6	-89.2

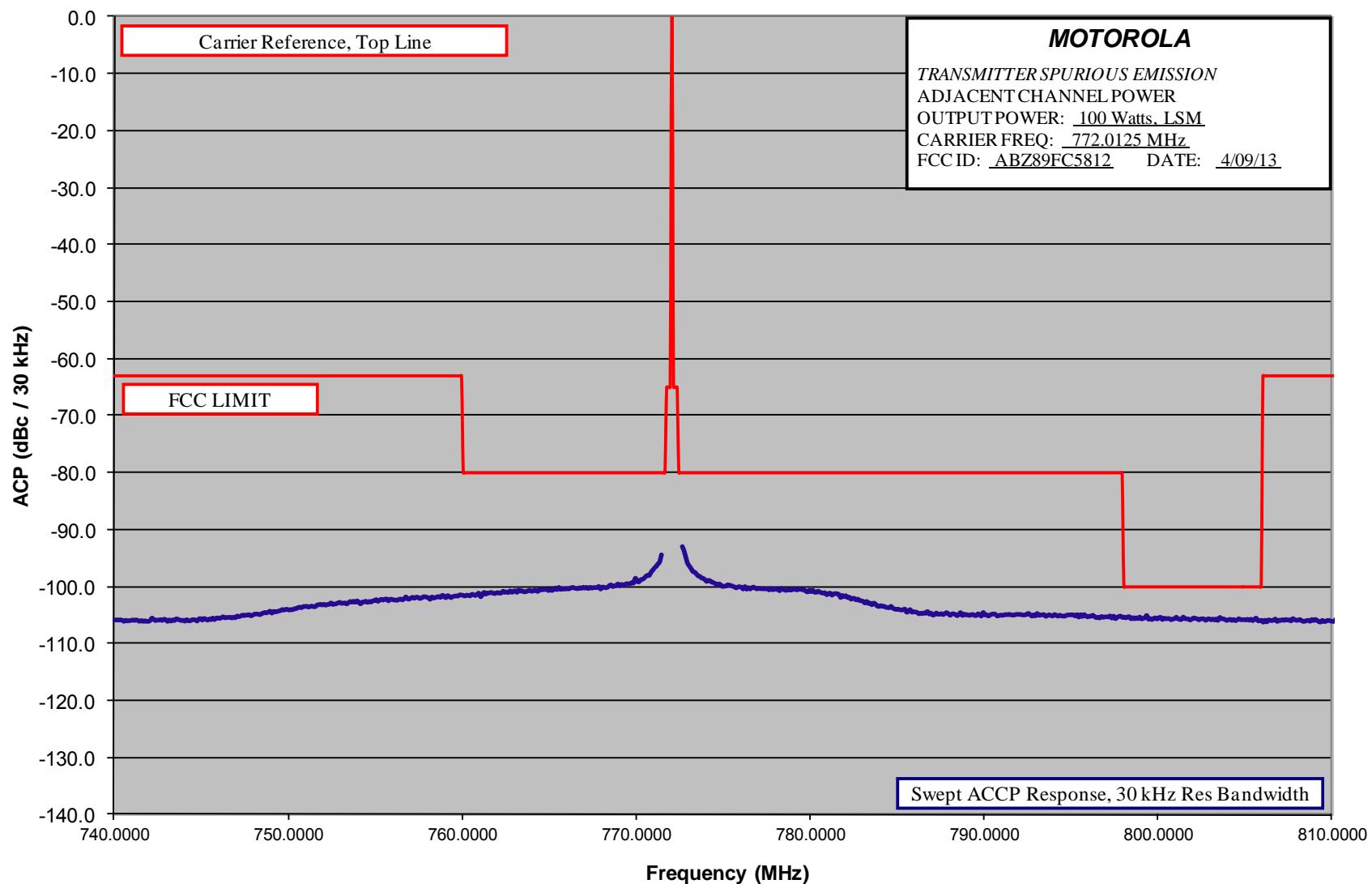
Report on Test Measurements

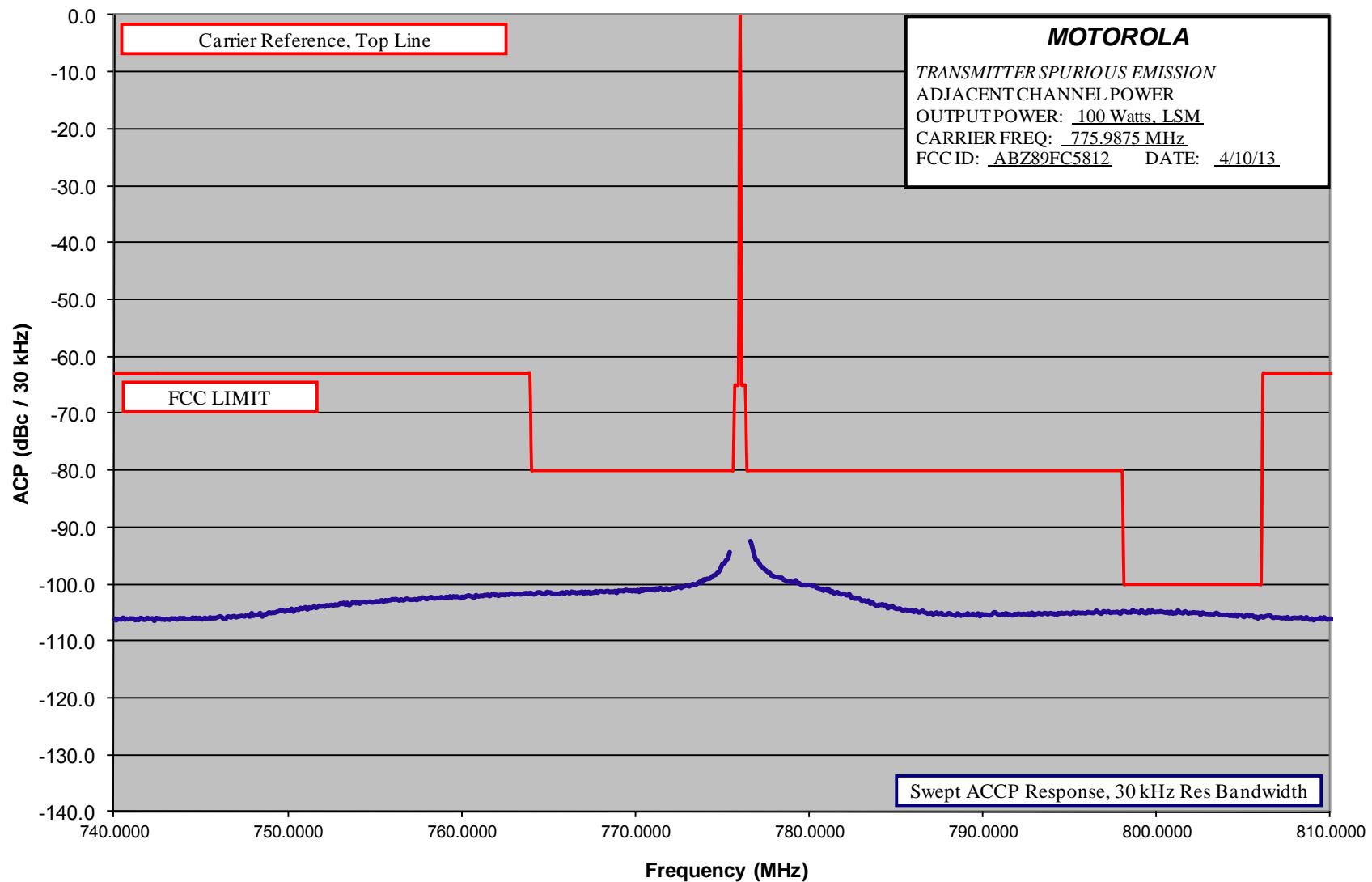
ACP – Linear Simulcast Modulation – offset > 400 kHz – Low End of Band



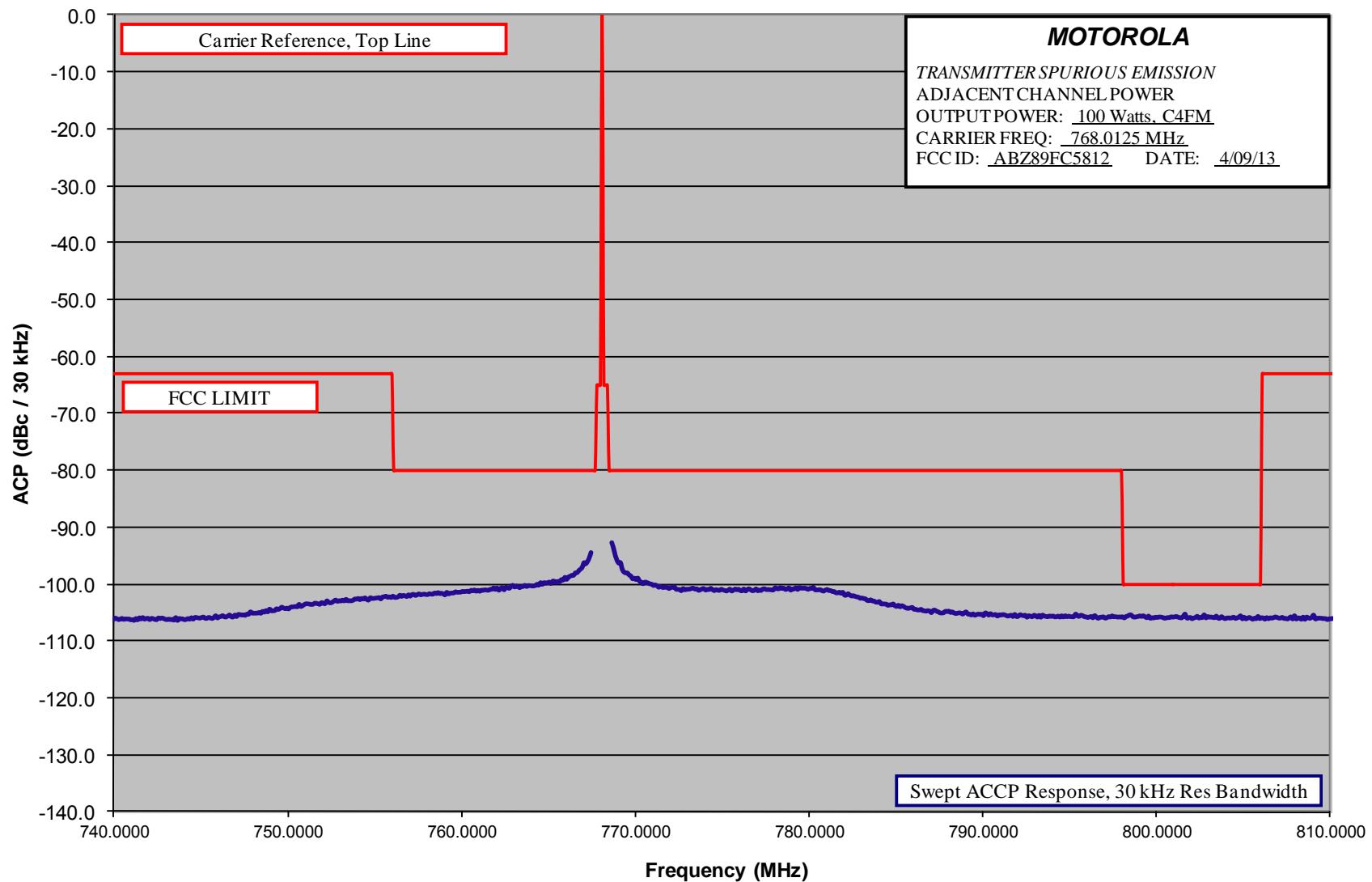
Report on Test Measurements

ACP – Linear Simulcast Modulation – offset > 400 kHz – Middle of Band

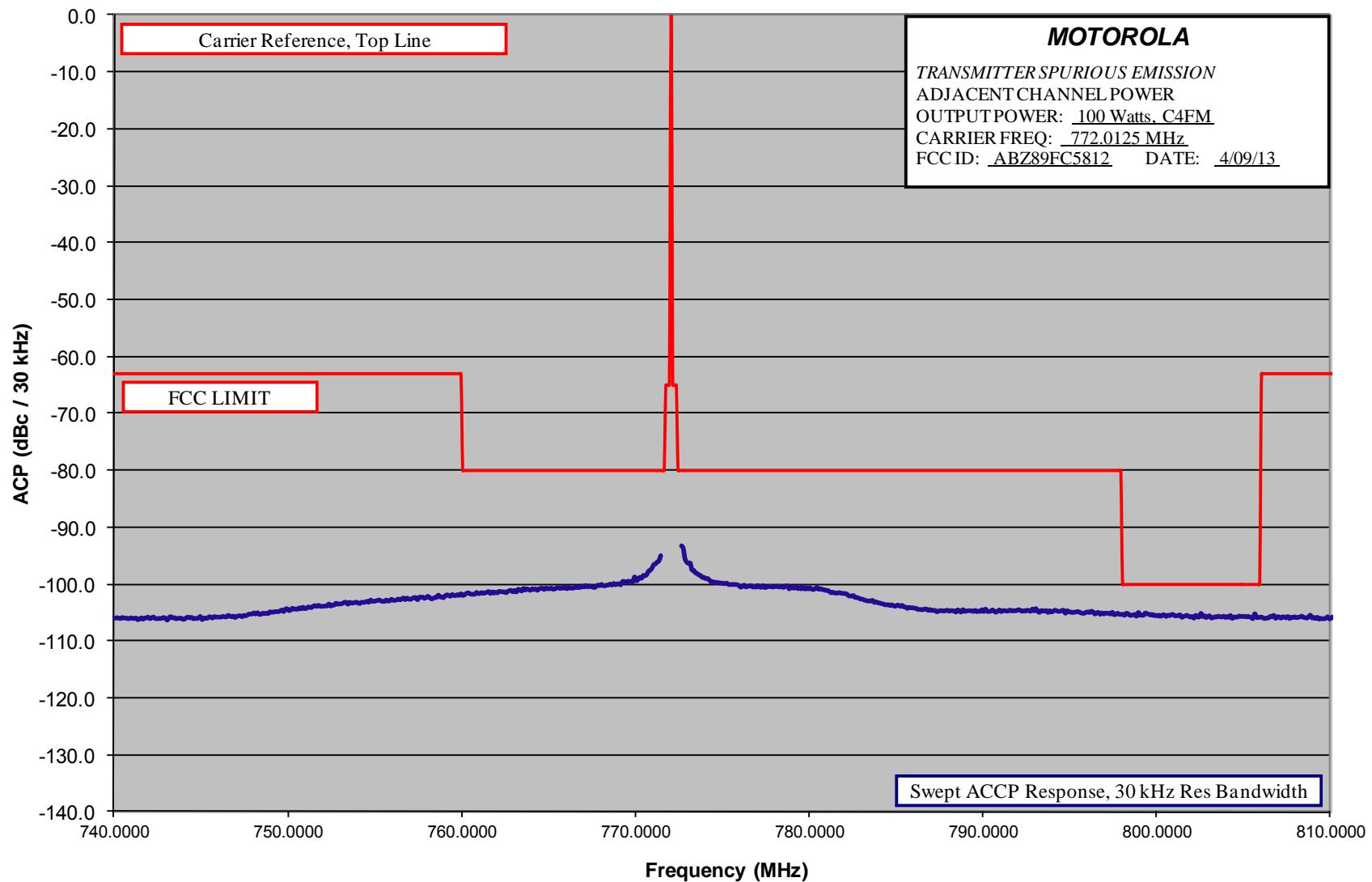


Report on Test Measurements
ACP – Linear Simulcast Modulation – offset > 400 kHz – High End of Band

Report on Test Measurements
ACP – Compatible 4-Level Frequency Modulation – offset > 400 kHz – Low End of Band

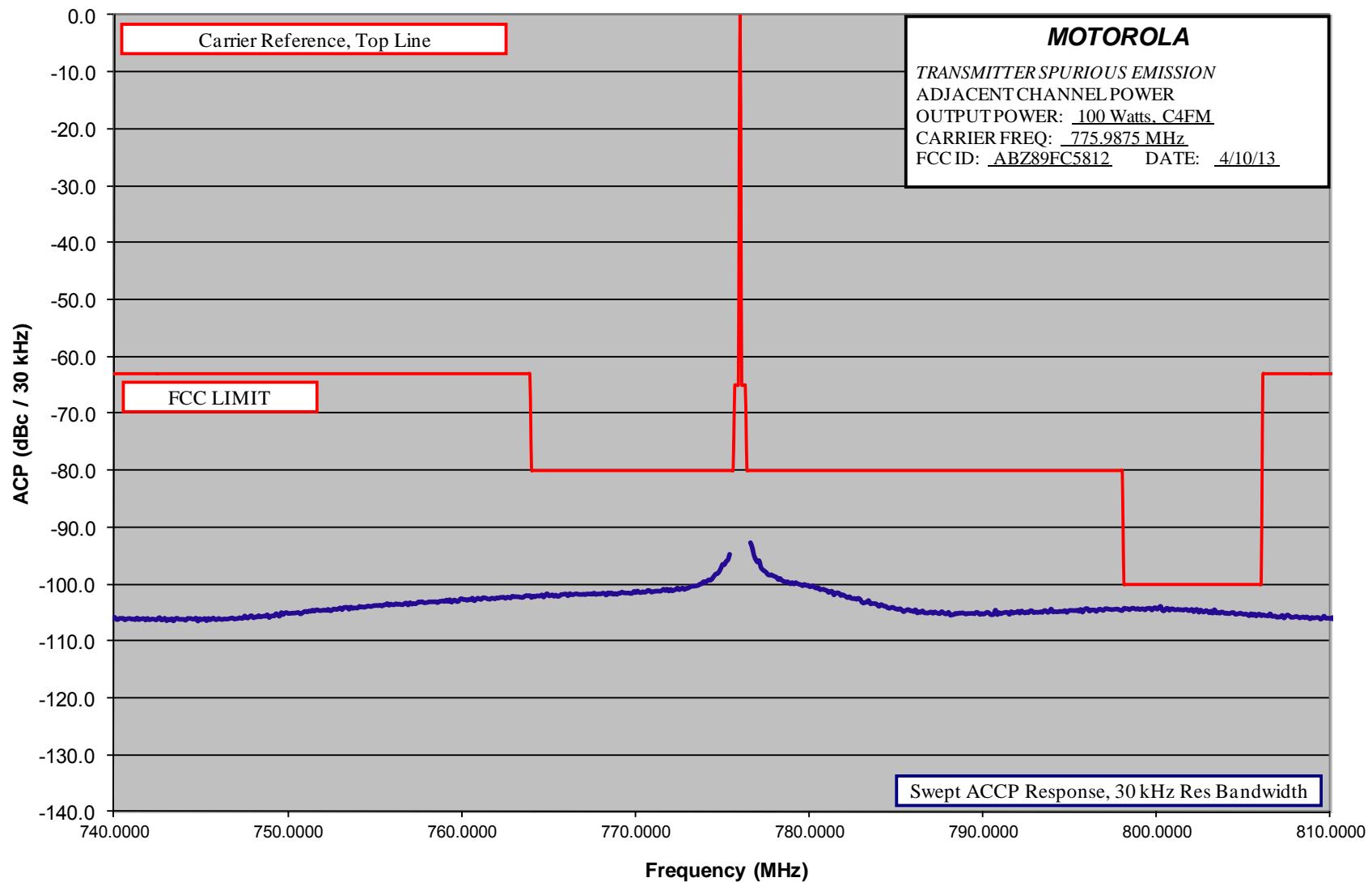


Report on Test Measurements
ACP – Compatible 4-Level Frequency Modulation – offset > 400 kHz – Middle of Band



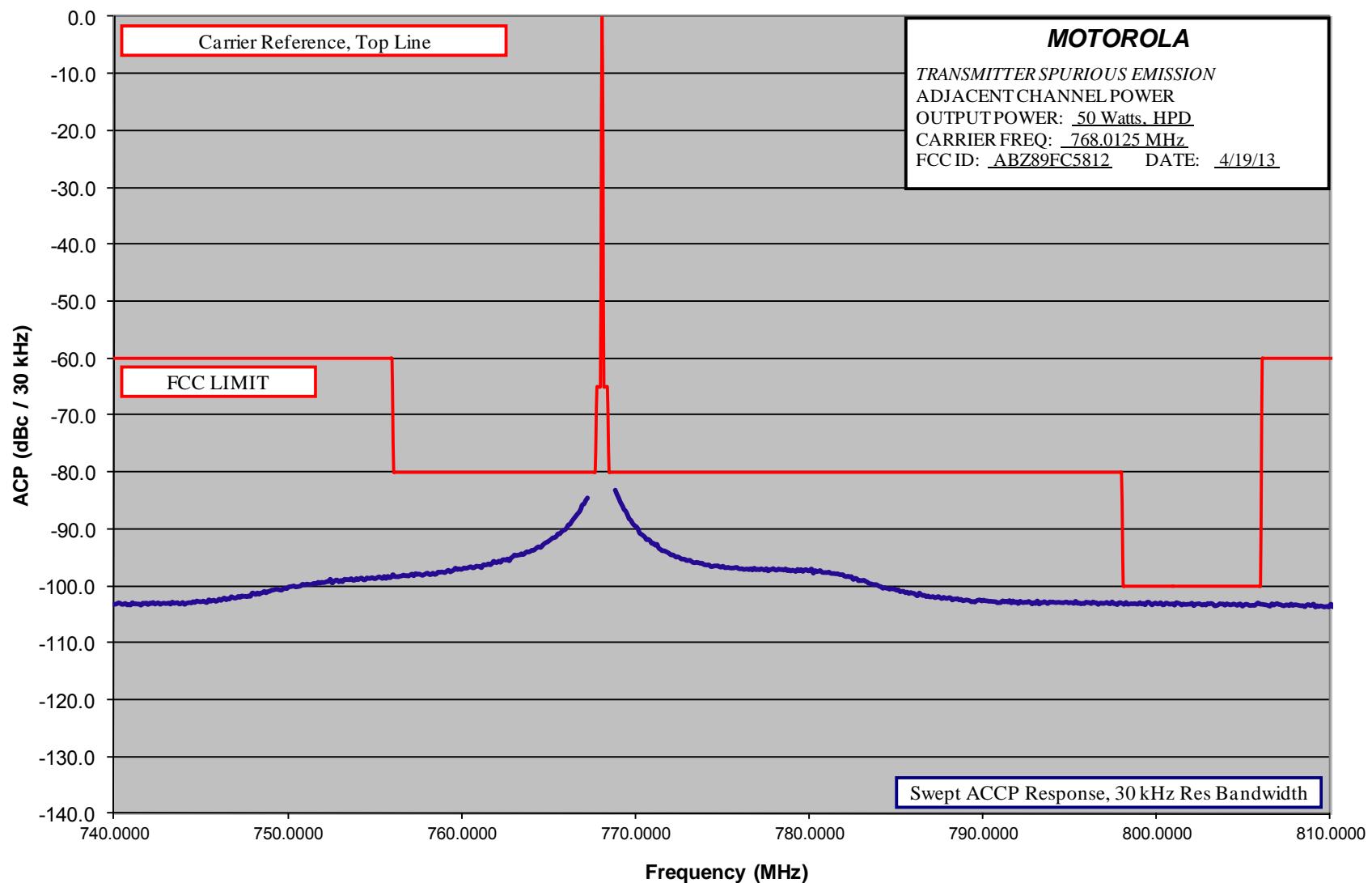
Report on Test Measurements

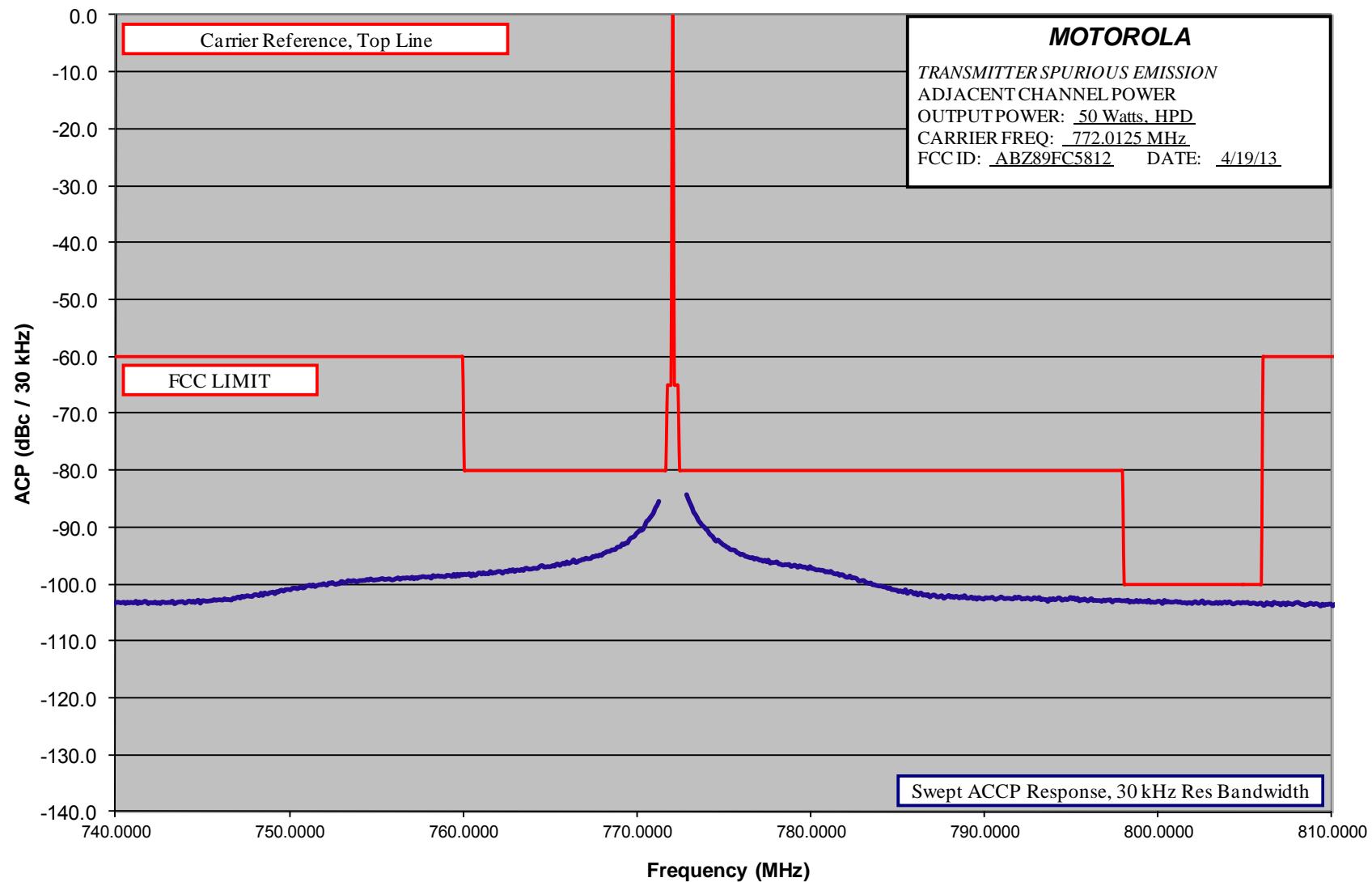
ACP – Compatible 4-Level Frequency Modulation – offset > 400 kHz – High End of Band

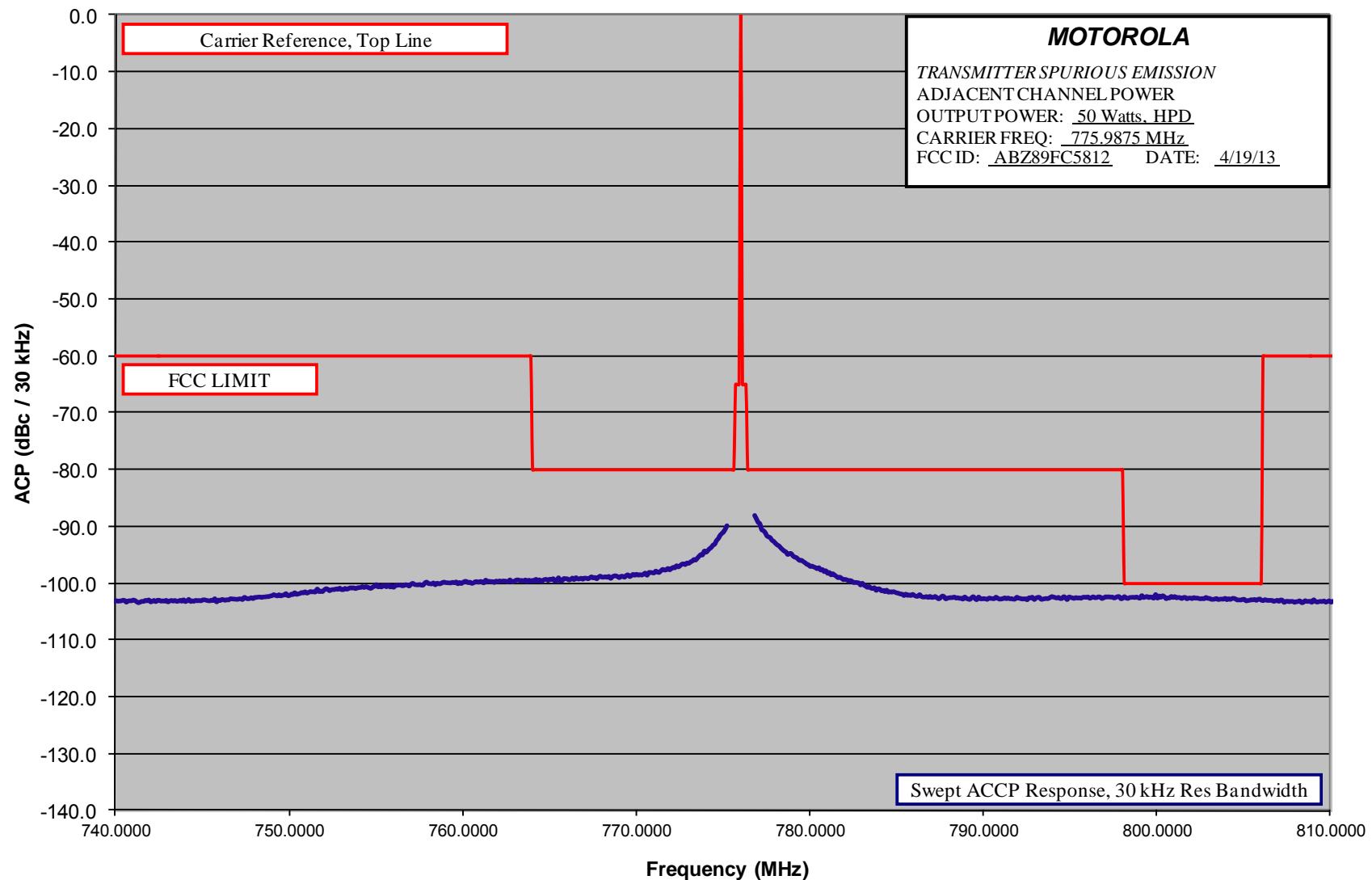


Report on Test Measurements

ACP – High Performance Data Modulation – offset > 400 kHz – Low End of Band



Report on Test Measurements
ACP – High Performance Data Modulation – offset > 400 kHz – Middle of Band

Report on Test Measurements
ACP – High Performance Data Modulation – offset > 400 kHz – High End of Band

Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum

Specification Requirement RSS-119 section 5.8.9.2, FCC § 90.543(c), and 27.53(d)(3) Emission Limits:

Out-of-band emission limit: On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P):

At least 43 + 10 log (P) dB

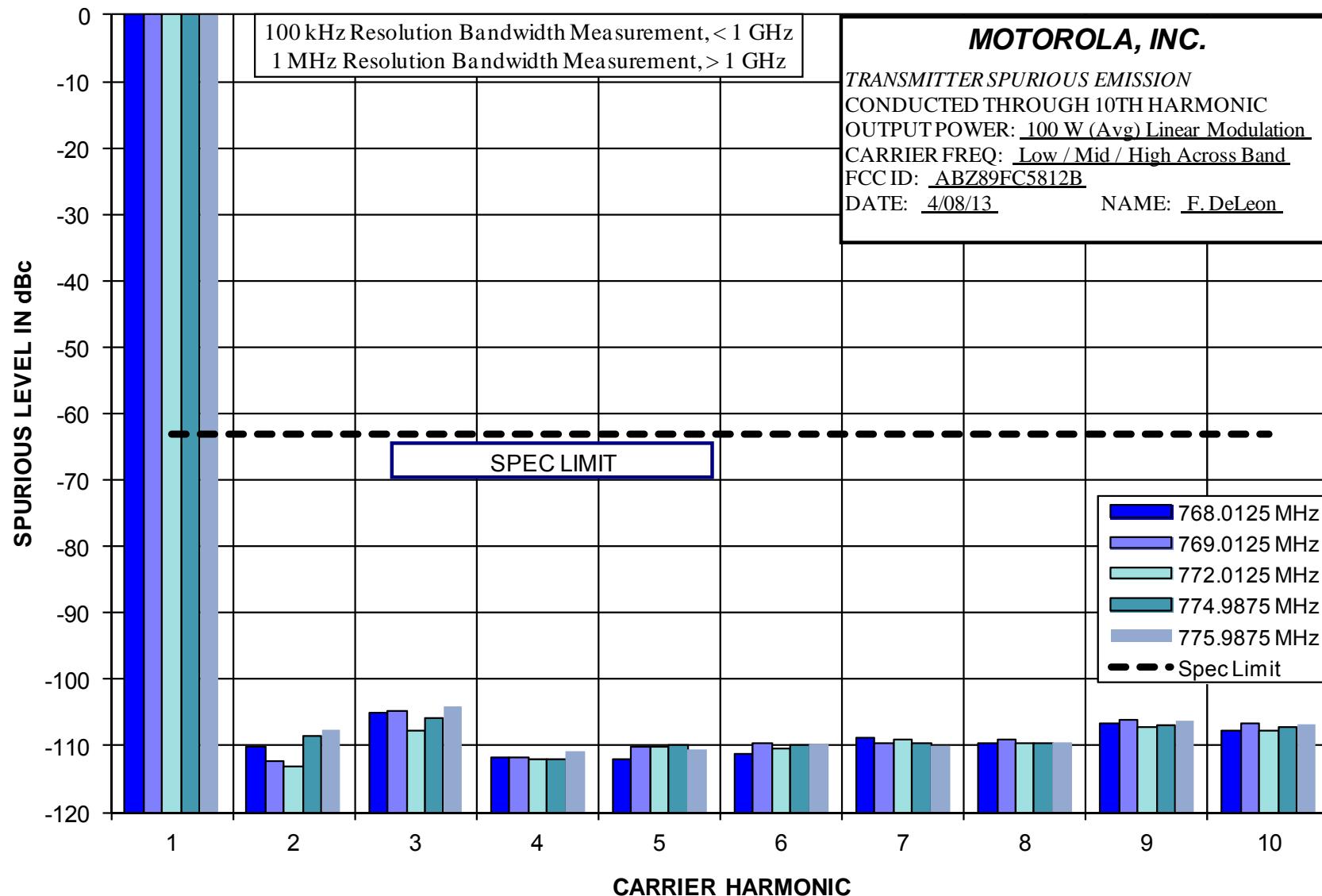
measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

Modulation: Linear Simulcast Modulation (LSM), or Compatible 4-Level Frequency Modulation (C4FM), High Performance Data (HPD), or Analog Frequency Modulation as indicated

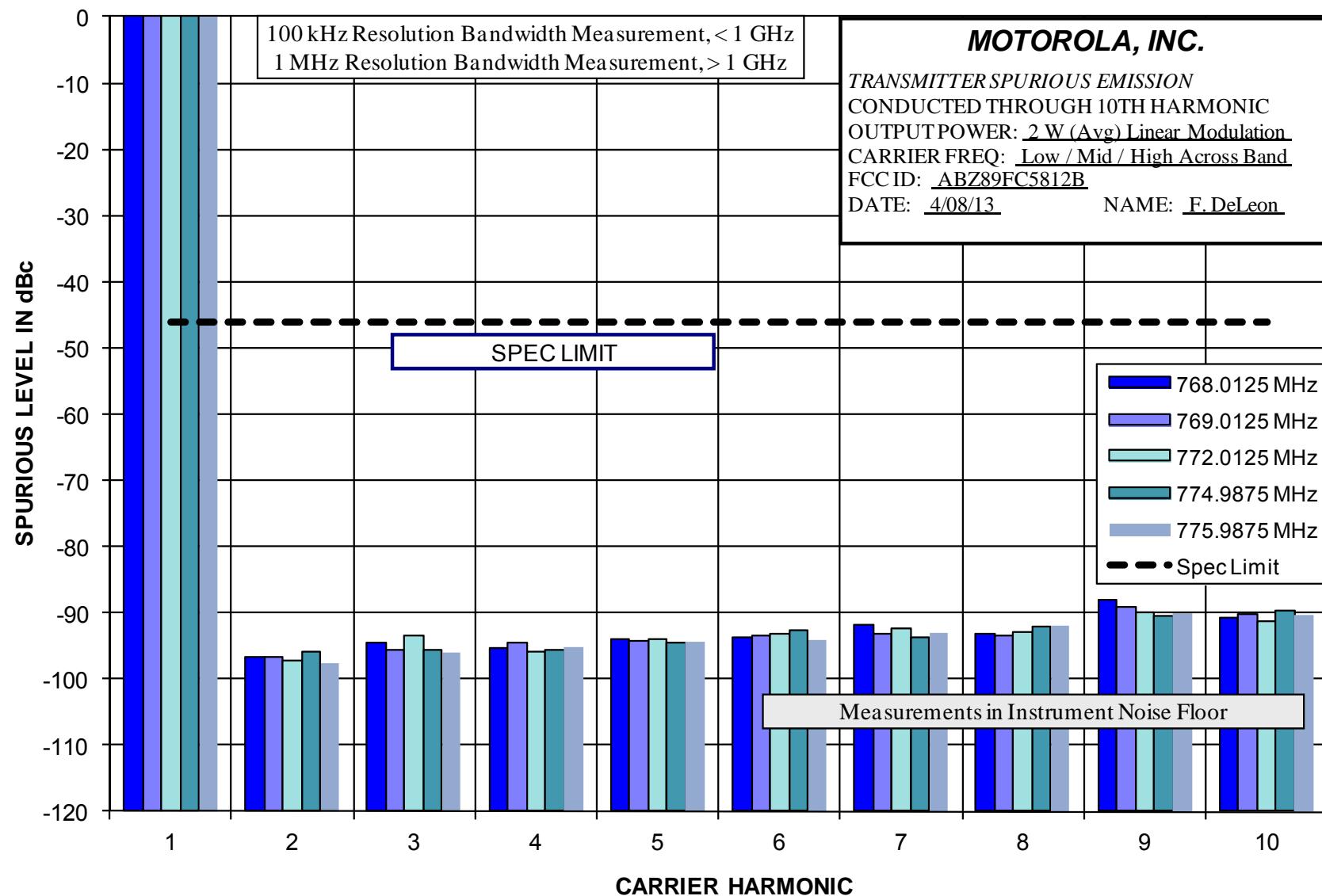
Carrier Frequencies: Carrier frequencies across the band were measured. For LSM and C4FM, carrier frequencies of 768.0125, 769.0125, 772.0125, 774.9875, and 775.9875 MHz were measured for conducted carrier harmonics. These frequencies represent the low end, center, and high end of the 768-776 MHz and 769-775 MHz operating bands, and are representative of the full operating band. For HPD, 25 kHz, carrier frequencies of 768.0125, 772.0125, and 775.9875 MHz were measured representing the low end, center, and high end of the operating bands.

EXHIBIT	DESCRIPTION
E1-3.1	Conducted Spurious Harmonic Emissions, Power Output 100 Watts (Average), LSM The specification limit is -63.0 dBc
E1-3.2	Conducted Spurious Harmonic Emissions, Power Output 2 Watts (Average), LSM The specification limit is -46.0 dBc
E1-3.3	Conducted Spurious Harmonic Emissions, Power Output 100 Watts, C4FM The specification limit is -63.0 dBc
E1-3.4	Conducted Spurious Harmonic Emissions, Power Output 2 Watts, C4FM The specification limit is -46.0 dBc
E1-3.5	Conducted Spurious Harmonic Emissions, Power Output 50 Watts (Average), HPD The specification limit is -60.0 dBc
E1-3.6	Conducted Spurious Harmonic Emissions, Power Output 2 Watts (Average), HPD The specification limit is -46.0 dBc

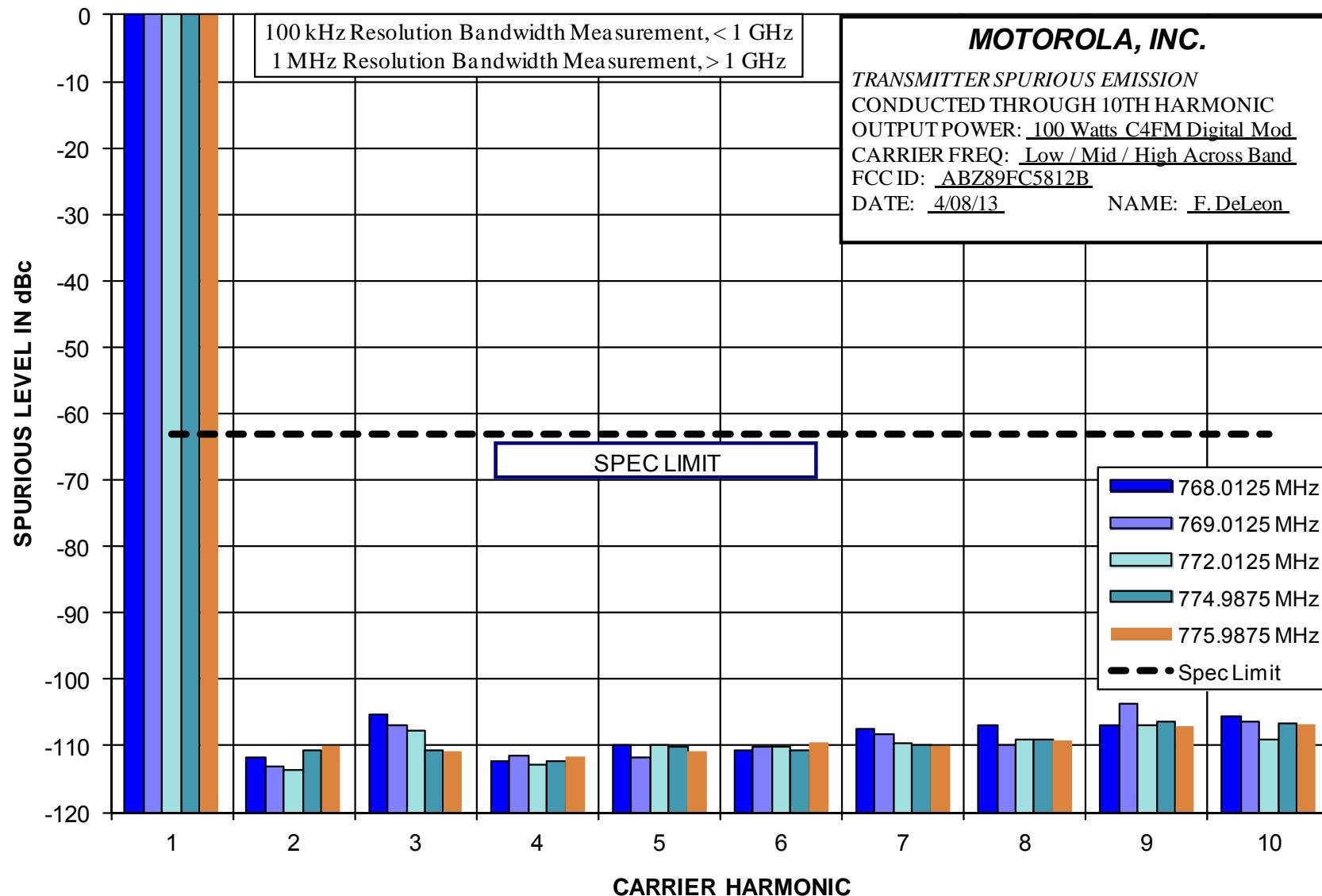
Report on Test Measurements
Conducted Spurious Harmonic Emissions — 100 Watts (Average) — Linear Simulcast Modulation (LSM)



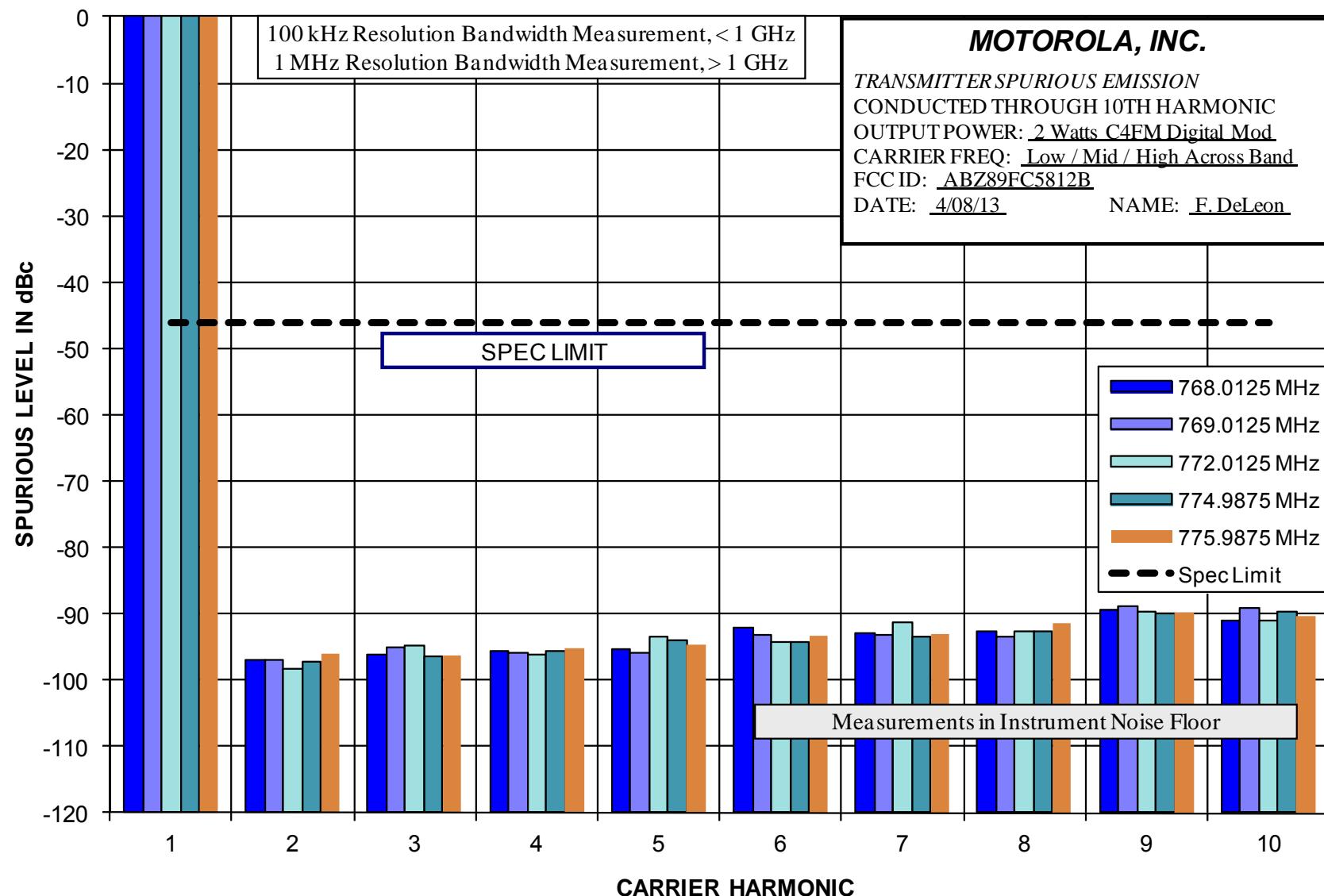
Report on Test Measurements
Conducted Spurious Harmonic Emissions — 2 Watts (Average) – Linear Simulcast Modulation (LSM)



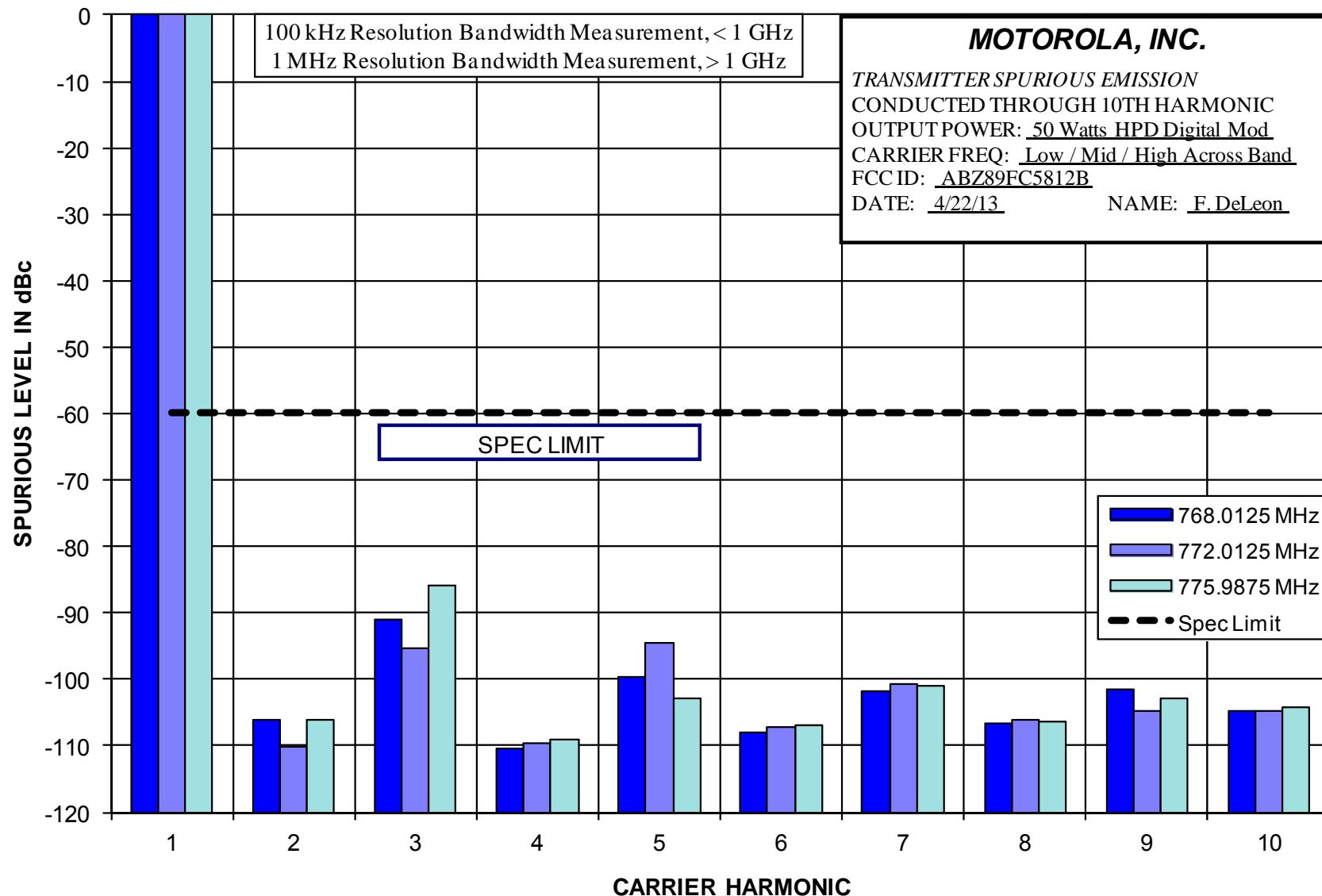
Report on Test Measurements
Conducted Spurious Harmonic Emissions — 100 Watts – Compatible Four-Level Frequency Modulation (C4FM)



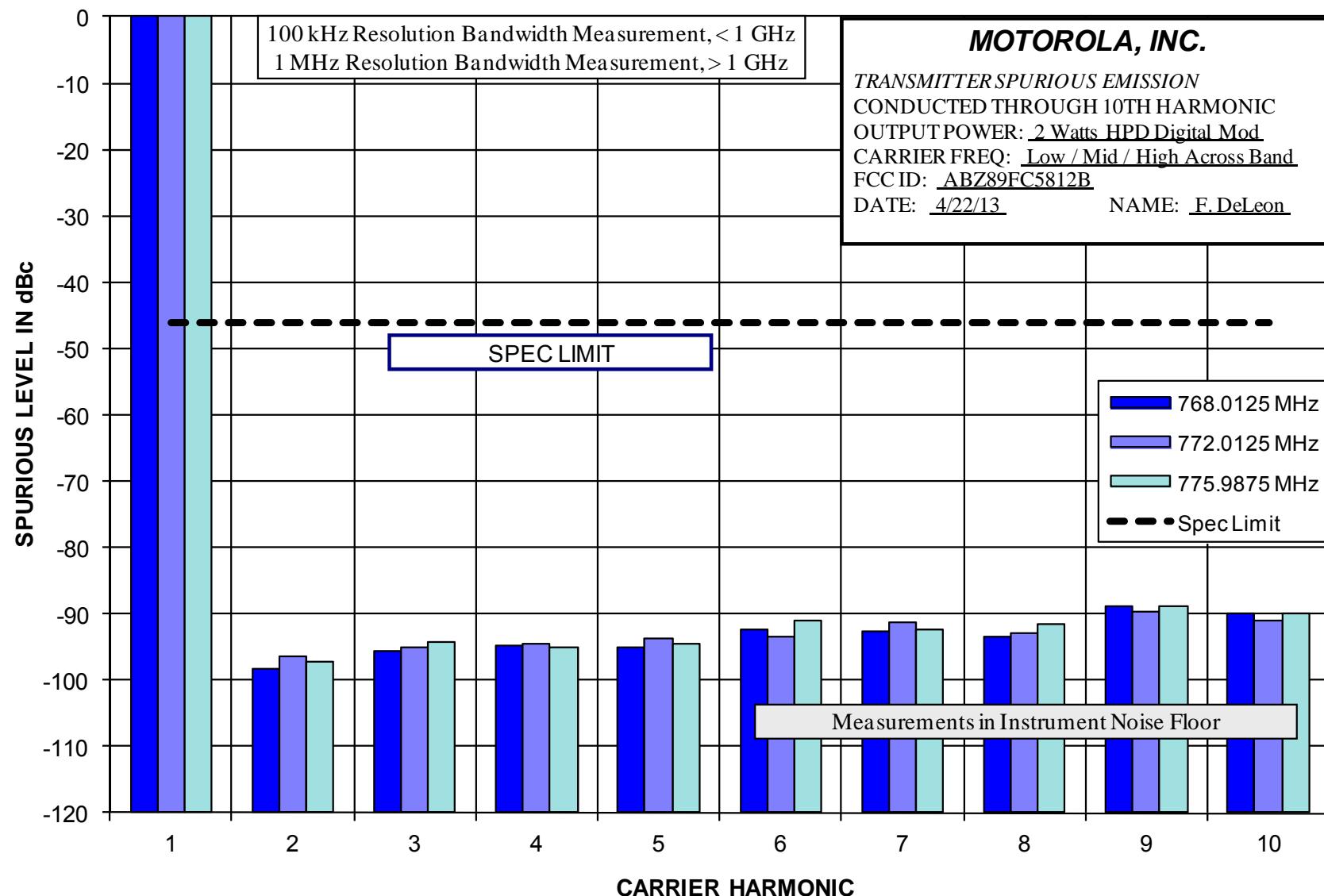
Report on Test Measurements
Conducted Spurious Harmonic Emissions — 2 Watts – Compatible Four-Level Frequency Modulation (C4FM)



Report on Test Measurements
Conducted Spurious Harmonic Emissions — 50 Watts (Average) — High Performance Data (HPD)



Report on Test Measurements
Conducted Spurious Harmonic Emissions — 2 Watts (Average) — High Performance Data (HPD)



Report on Test Measurements

*Radiated Spurious Emissions, Harmonics*Specification Requirement RSS-119 section 5.8.9.2, FCC § 90.543(c), and 27.53(d)(3) Emission Limits:

Out-of-band emission limit: On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P):

At least 43 + 10 log (P) dB

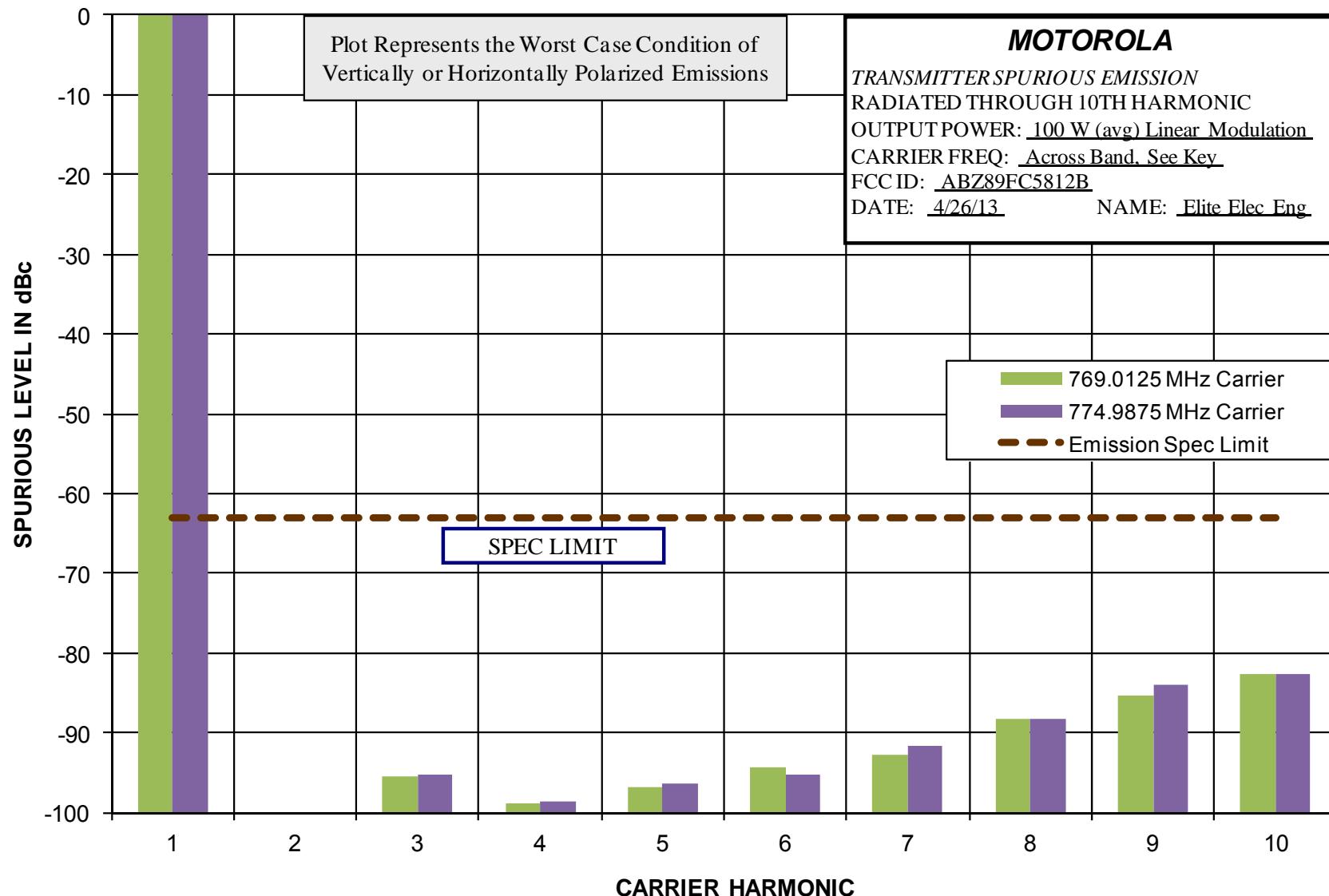
measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

Modulation: Linear Simulcast Modulation (LSM), or Compatible 4-Level Frequency Modulation (C4FM), High Performance Data (HPD), or Analog Frequency Modulation as indicated

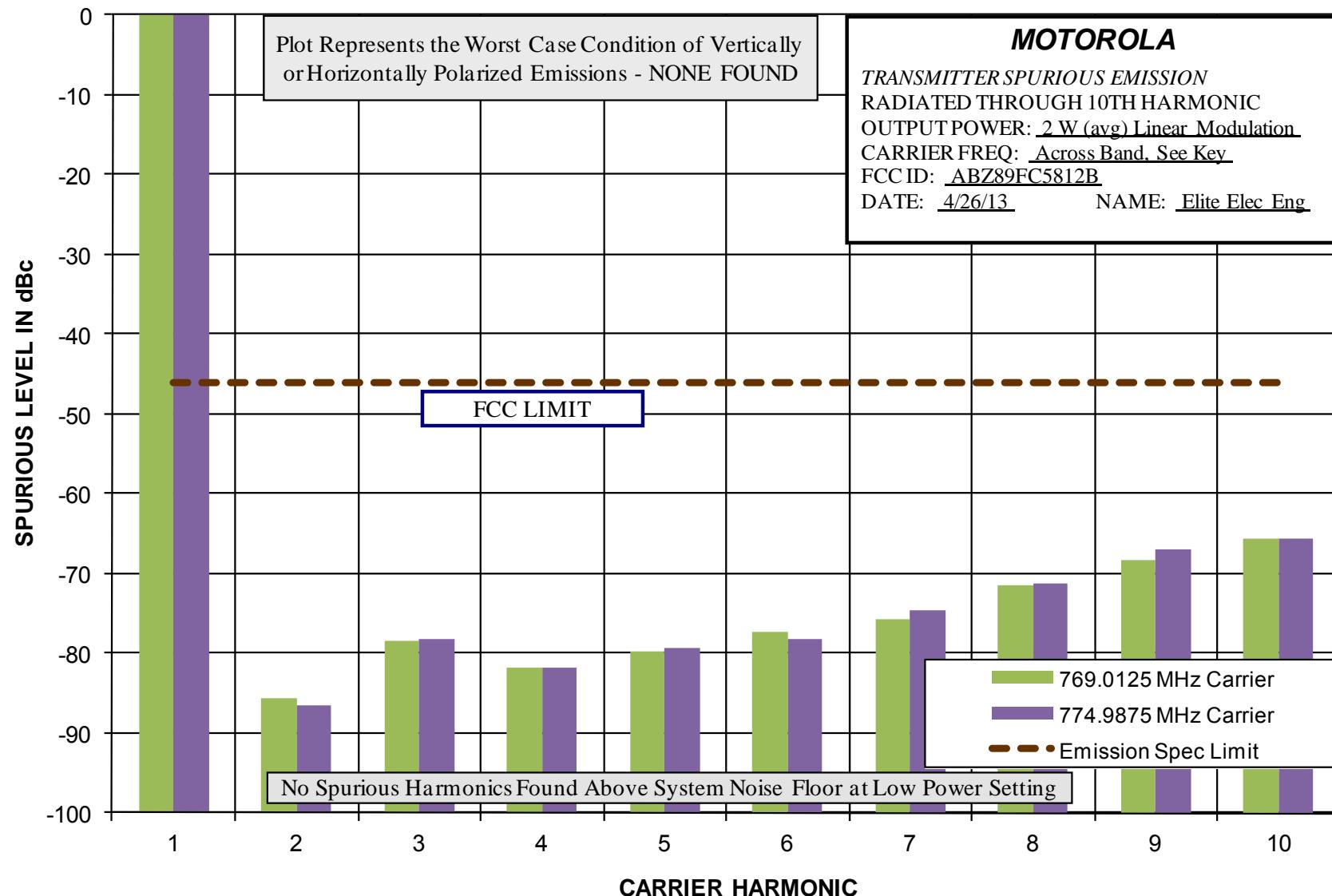
Carrier Frequencies: Carrier frequencies at the low end and high end of the band were measured. Carrier frequencies of 768.0125, and 774.9875 MHz were measured for radiated carrier harmonics. These frequencies represent the low end and high end of the 768-776 MHz and 769-775 MHz operating bands, and are representative of the full operating band.

EXHIBIT	DESCRIPTION
E1-4.1	Radiated Spurious Harmonic Emissions, Power Output 100 Watts (Average), LSM The specification limit is -63.0 dBc
E1-4.2	Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average), LSM The specification limit is -46.0 dBc
E1-4.3	Radiated Spurious Harmonic Emissions, Power Output 100 Watts, C4FM The specification limit is -63.0 dBc
E1-4.4	Radiated Spurious Harmonic Emissions, Power Output 2 Watts, C4FM The specification limit is -46.0 dBc
E1-4.5	Radiated Spurious Harmonic Emissions, Power Output 50 Watts (Average), HPD The specification limit is -60.0 dBc
E1-4.6	Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average), HPD The specification limit is -46.0 dBc

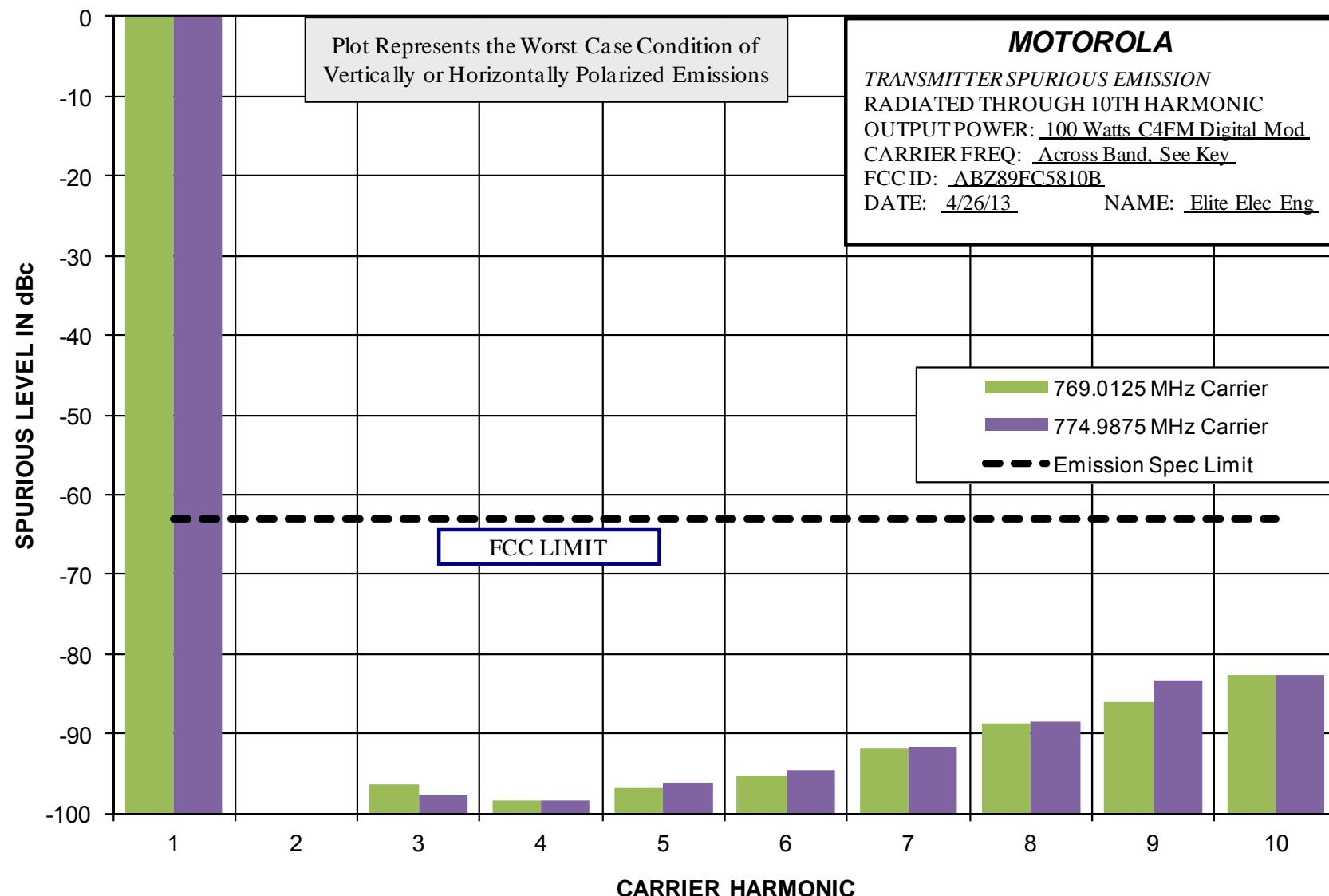
Report on Test Measurements
Radiated Spurious Harmonic Emissions — 100 Watts (Average) — Linear Simulcast Modulation (LSM)



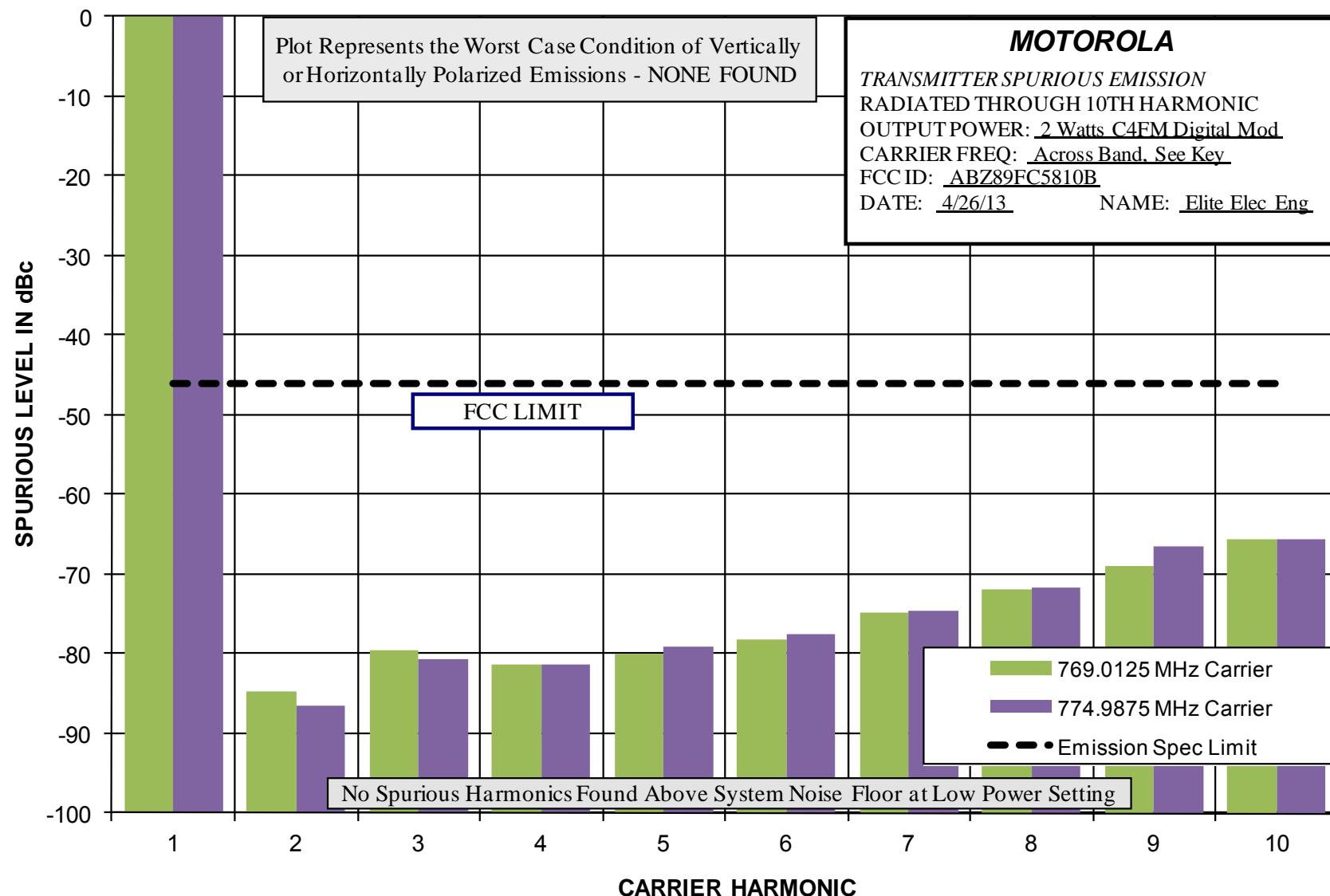
Report on Test Measurements
Radiated Spurious Harmonic Emissions – 2 Watts (Average) – Linear Simulcast Modulation (LSM)

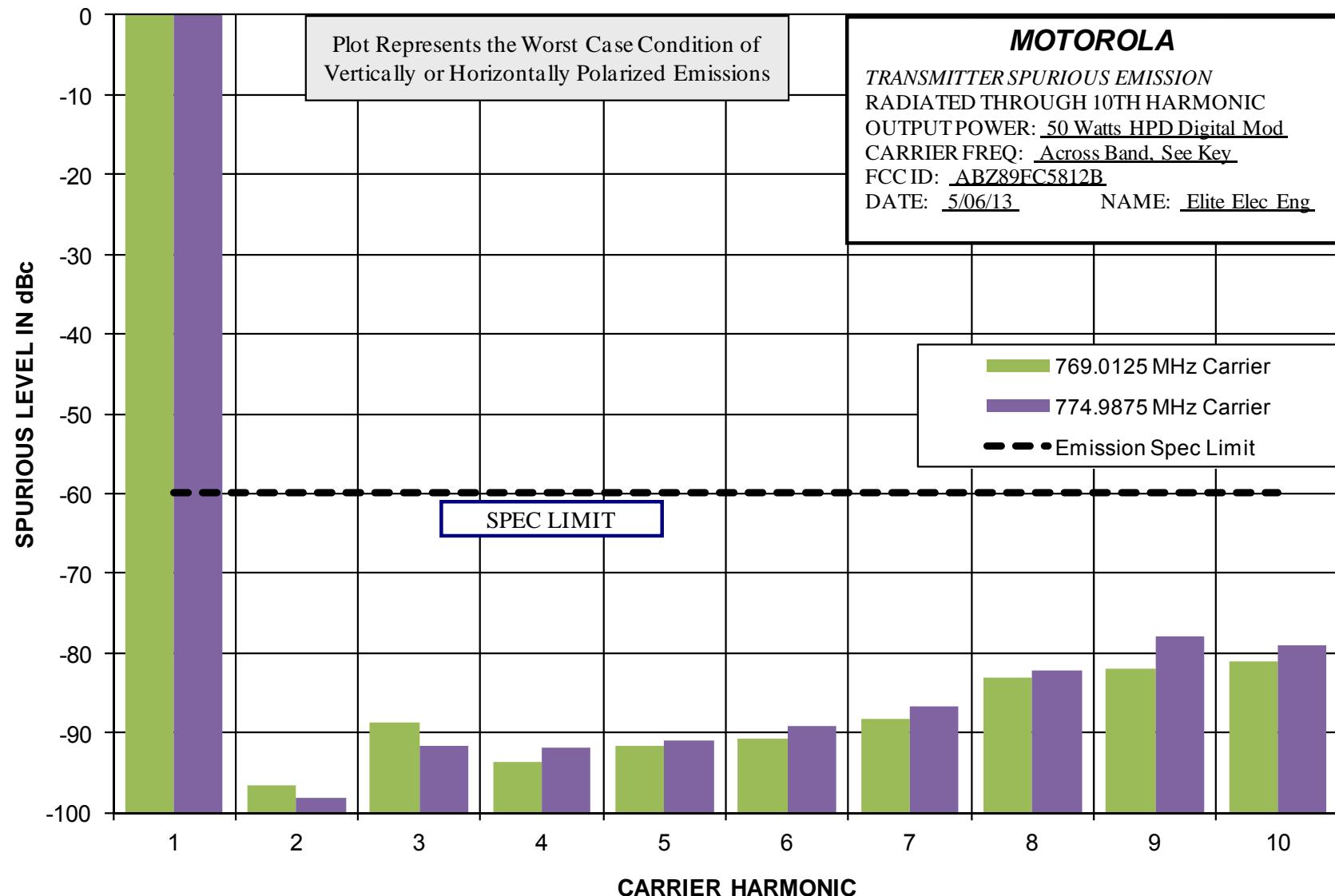


Report on Test Measurements
Radiated Spurious Harmonic Emissions — 100 Watts – Compatible Four-Level Frequency Modulation (C4FM)

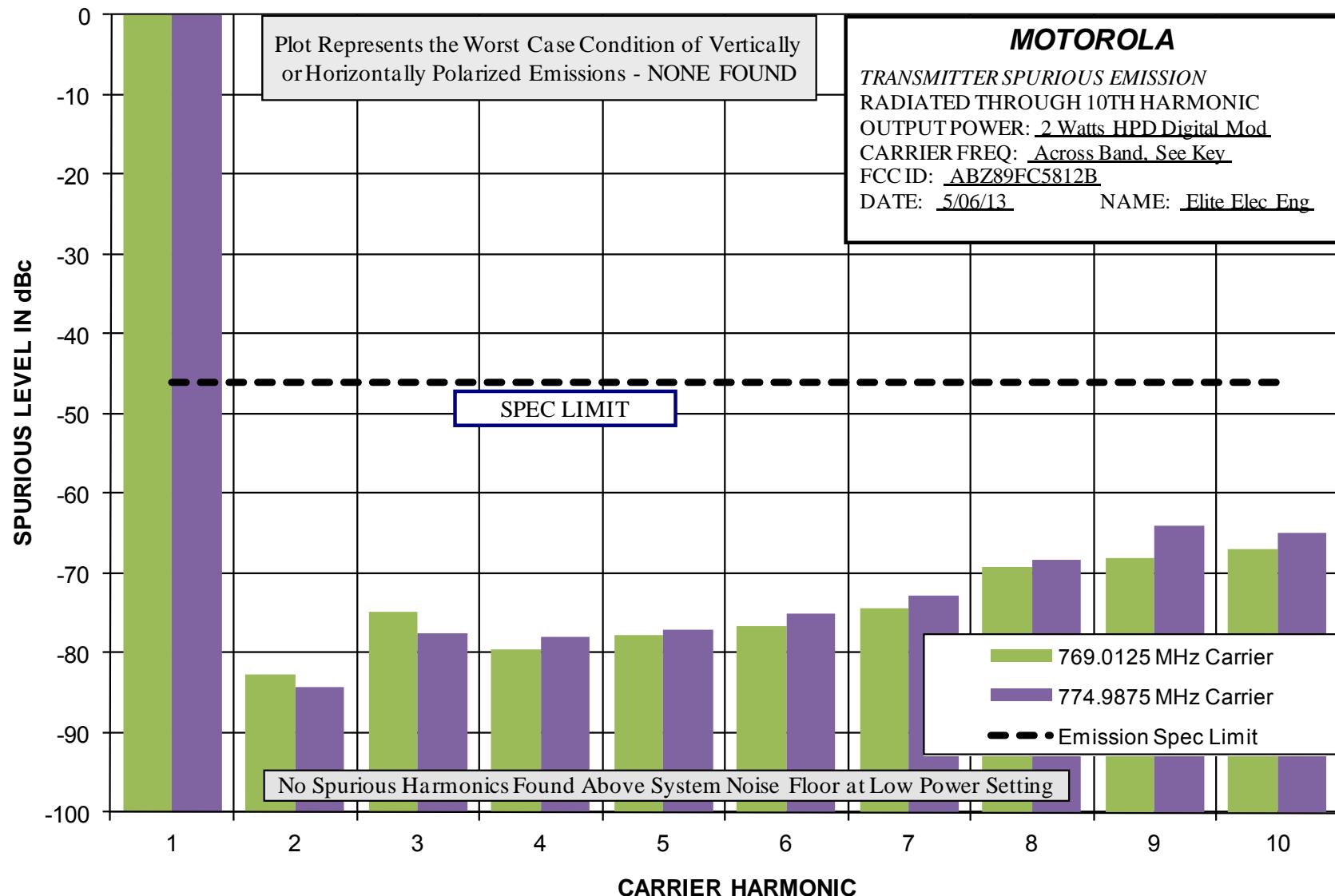


Report on Test Measurements
Radiated Spurious Harmonic Emissions — 2 Watts – Compatible Four-Level Frequency Modulation (C4FM)



Report on Test Measurements
Radiated Spurious Harmonic Emissions — 50 Watts (Average) — High Performance Data (HPD)

Report on Test Measurements
Radiated Spurious Harmonic Emissions — 50 Watts (Average) — High Performance Data (HPD)



Report on Test Measurements**Oscillator Frequency Stability**

Manufacturer data for the system site frequency standard was used in generation of the following frequency stability exhibits.

Specification Requirement: Reference IC RSS-119 Section 5.3

Fixed and Base stations operating at 764-776 MHz and 794-806 MHz must have a frequency stability of better than +/- 0.1 PPM for 6.25 kHz, 12.5 kHz, and 25 kHz channel spacing and +/- 1 PPM for 50 kHz channel spacing.

Specification Requirement: Reference FCC Part 90.539(b)

Transmitters designed to operate in 769-775 MHz and 799-805 MHz frequency bands must meet the frequency stability requirements in this section:

(b) The frequency stability of base transmitters operating in the narrowband segment must be 100 parts per billion or better.

Specification Requirement: Reference FCC Part 27.54

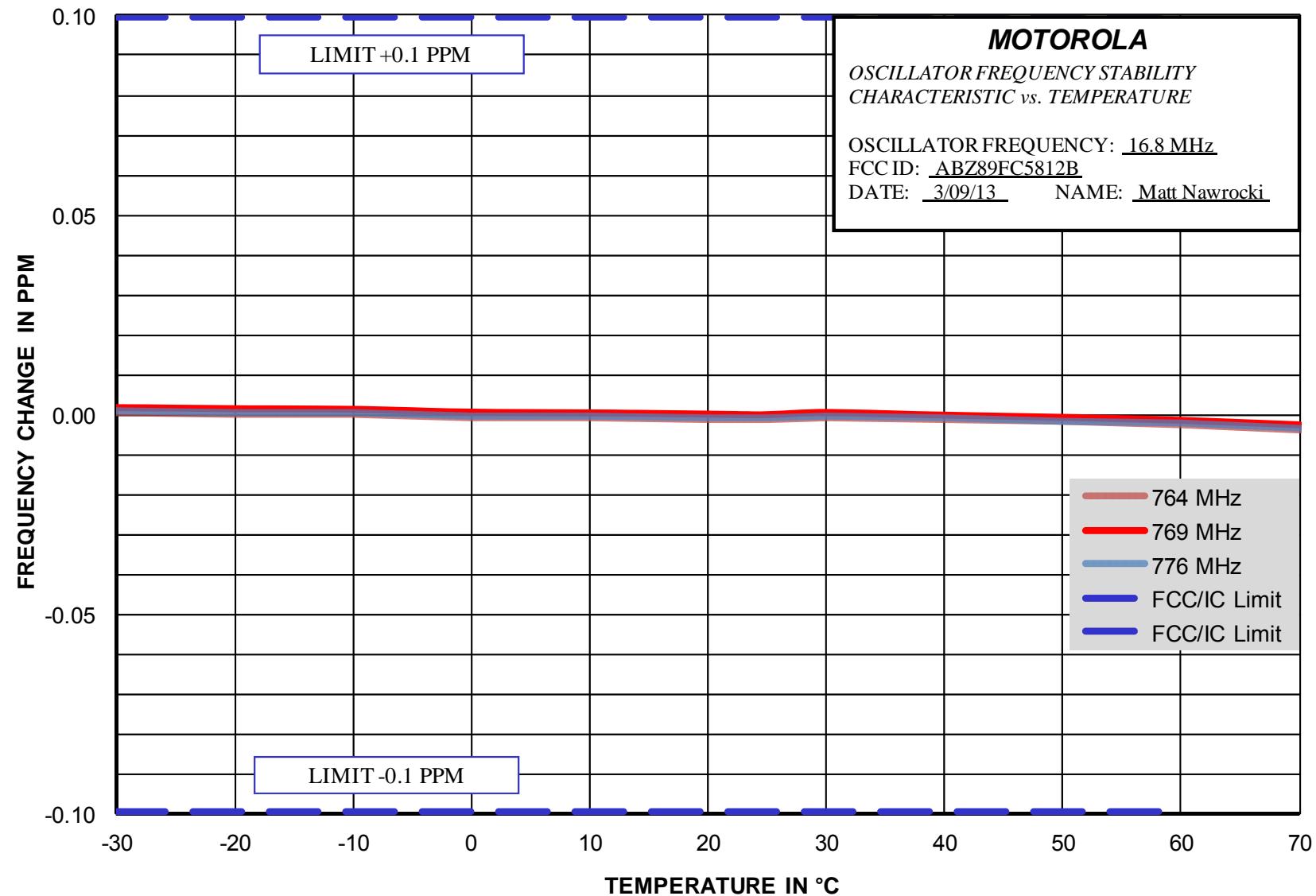
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

The specification limits for IC and FCC are identical, 0.1 part per million. This specification limit is shown on the following charts. Performance was measured at carrier frequencies at the low end, middle, and high end of the operating band.

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
E1-5.1	Frequency Stability Vs Temperature
E1-5.2	Frequency Stability Vs Voltage

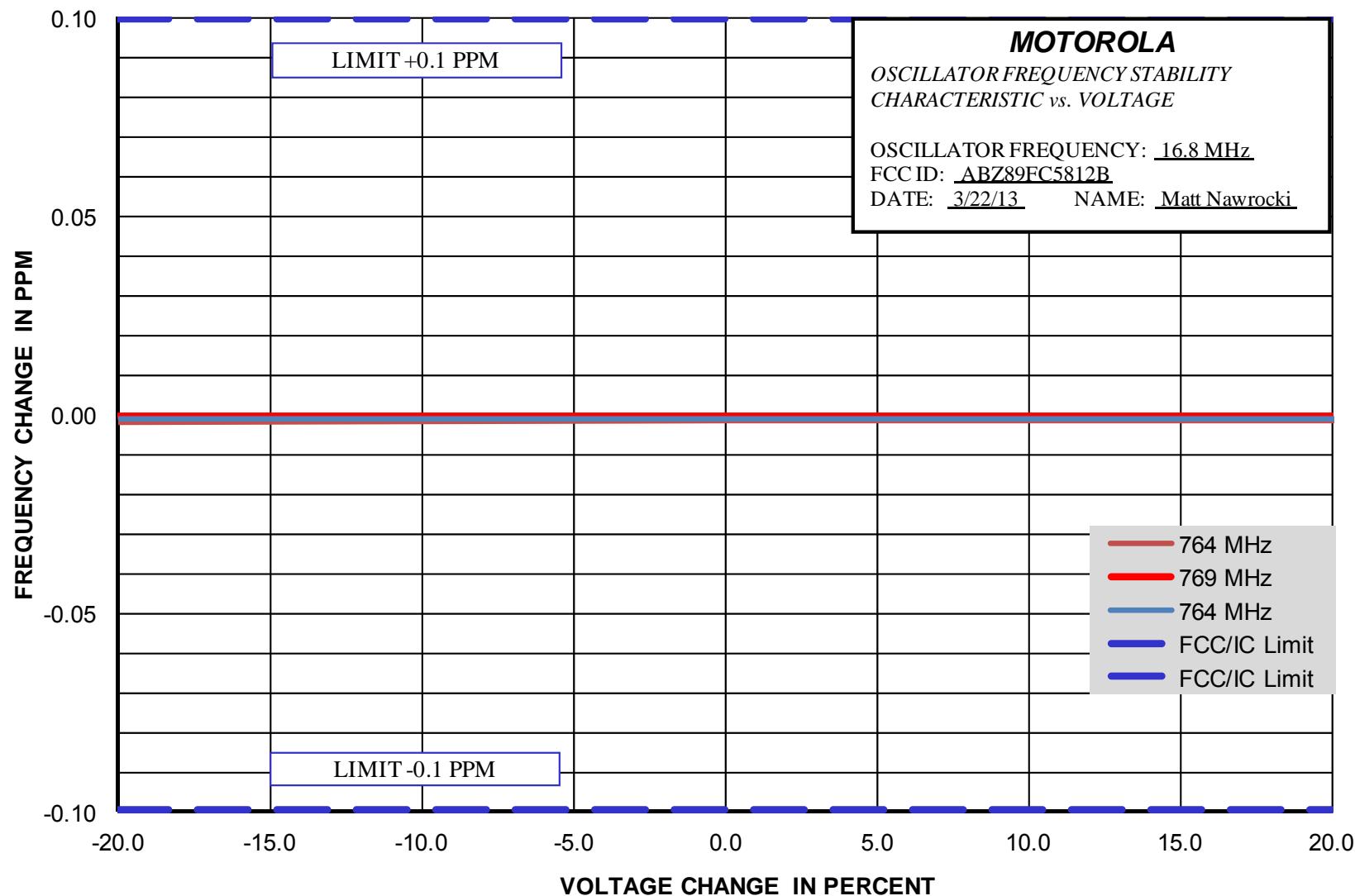
Frequency Stability Vs Temperature

Report on Test Measurements



Report on Test Measurements

Frequency Stability Vs Voltage



Report on Test Measurements

*Protection of the 1559 – 1610 MHz Band*Specification Requirement RSS-119 section 5.8.9.2 Emission Limits:

... for operations in the 764-776 MHz and 794-806 MHz, all emissions (including harmonics in the band 1559-1610 MHz), shall not exceed -70 dBW / MHz e.i.r.p. for wideband emissions, and -80 dBW / kHz e.i.r.p. for discrete emissions of less than 700 Hz bandwidth.

Specification Requirement FCC § 90.543(f) Emission Limits:

For operations in the 763-775 MHz and 793-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW / MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Specification Requirement FCC § 27.53(f) Emission Limits:

For operations in the 746-763 MHz, 775-793 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW / MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation

Modulation: Pseudorandom data, Linear Simulcast Modulation (LSM) was used

Power Level: Maximum rated power, 100 Watts (average) was used as a worst case

Carrier Frequency: Performance was measured using a transmitter carrier frequency of 776 MHz. This frequency represents the band edge of the 768-776 MHz IC transmitter band, and also the band edge of the 775-776 MHz FCC part 27 band. The second harmonic for this upper limit frequency is closest to the 1559 – 1610 MHz band. The corresponding receiver channel was set to 806 MHz.

Setup: The data was measured using the base radio to drive a representative antenna. The radiated emissions in the 1559 – 1610 MHz band were recorded.

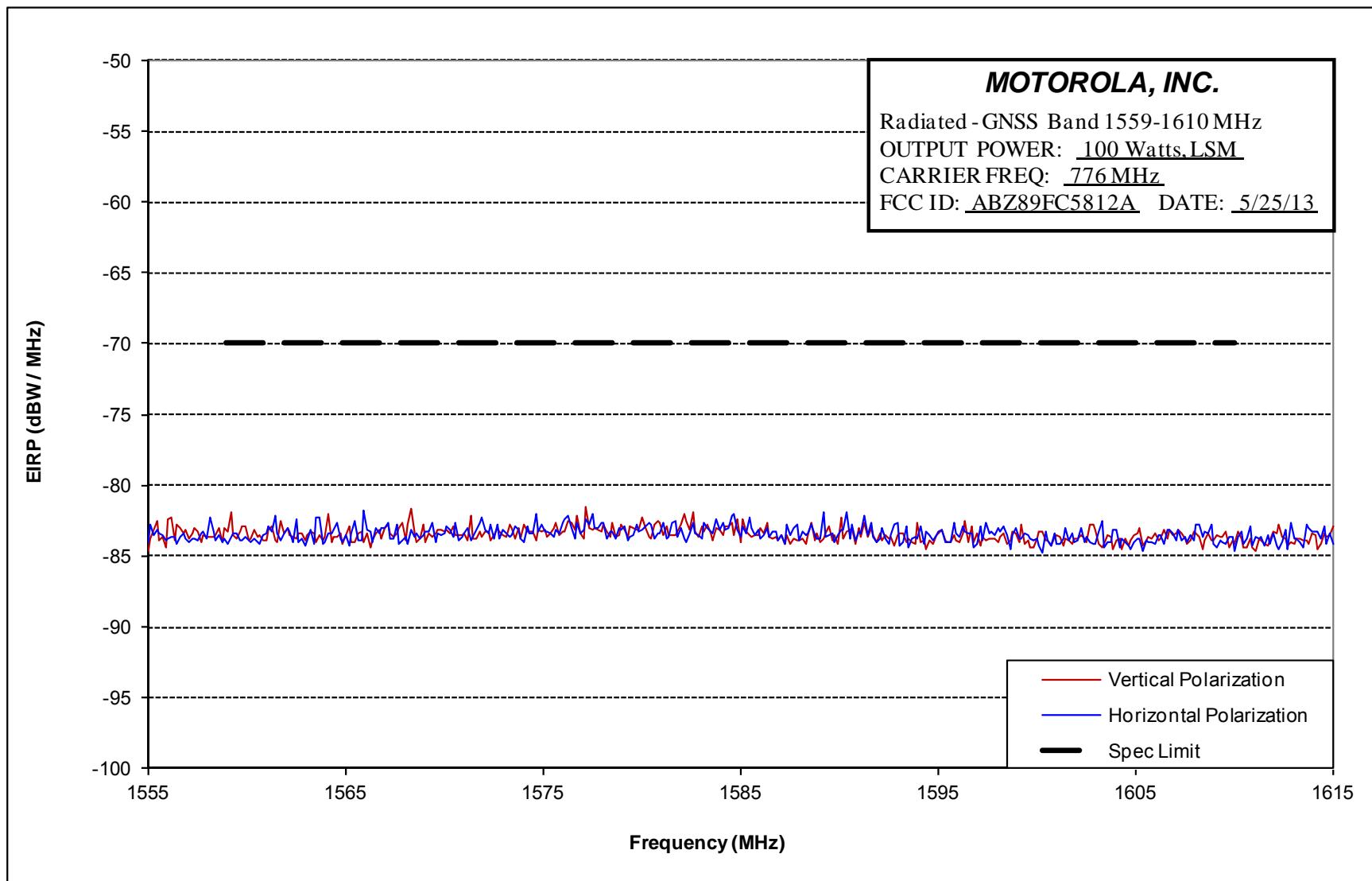
Antenna Model: Andrew Corporation, model DB806-A, 740-801 MHz, single polarized, 8.1 dBi gain antenna with zero degrees of electrical down tilt.

Results: Test results are shown on the following page. The emissions were significantly below the specification limit of -70 dBW/MHz and no narrowband emissions were observed.

EXHIBIT	DESCRIPTION
E1-6	Protection of the 1559 – 1610 MHz Band The specification limit is shown on the response plot

Protection of the 1559 – 1610 MHz Band

Report on Test Measurements



Report on Test Measurements

Test Equipment List

MODEL	MANUFACTURER	DESCRIPTION	Serial No.	Last Cal	Next Cal
438B	Hewlett Packard	RF Power Meter	3048002448	05/10/10	05/10/13
8482A	Hewlett Packard	RF Power Sensor	2349A09350	05/11/12	05/11/13
E4440A	Agilent	Spectrum Analyzer	MY461185813	10/10/12	10/10/15
83712A	Hewlett Packard	Signal Generator	3429A00455	10/10/11	10/10/14
85460A	Hewlett Packard	EMI Analyzer, Filter	3704A00467	09/10/10	09/10/13
85462A	Hewlett Packard	EMI Analyzer, RF/Display	3906A00500	09/10/10	09/10/13
8593E	Hewlett Packard	EMI Analyzer	3513A01649	05/12/10	05/12/13
U8903A	Agilent	Audio Analyzer	MY50490005	12/09/10	12/09/13
438B	Hewlett Packard	RF Power Meter	3513U05927	05/18/11	05/18/14
8482A	Hewlett Packard	RF Power Sensor	2652A16686	10/04/12	10/04/13
N9030A	Agilent	PXA Signal Analyzer	MY49430626	10/10/12	10/10/13
89601	Agilent	Software for PXA	not applicable	not applicable	not applicable
(Various)	Weinschel, Kathrein, Bird	RF Loads	Various	no calibration required	
TWNC-1405-1	Telewave	Notch Cavity	923	no calibration required	
3020A, etc.	Narda	Directional Coupler	Various	no calibration required	

APPLICANT: MOTOROLA SOLUTIONS

EQUIPMENT TYPE: ABZ89FC5812B

109AB-5812B

Report on Test Measurements

Statement of Certification

The technical data supplied with this application, having been taken under my supervision is hereby duly certified. The following is a statement of my qualifications:

College Degree: BSEE, Valparaiso University, Valparaiso, Indiana, USA
MSEE, Illinois Institute of Technology, Chicago, Illinois, USA

31 years of Design and Development experience in the field of two-way radio communication.

NAME: Ken Weiss

SIGNATURE: 

DATE: May 24, 2013

POSITION: Senior Staff Engineer

I hereby certify that the above application was prepared under my direction and that to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct:

NAME: Greg Alms

SIGNATURE: 

DATE: May 24, 2013

POSITION: Engineering Section Manager