

Test of: Motorola  
PTP49600

To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Transmitter Peak Power Spectral Density (Conducted): Sections 90.205/90.1215(a)/2.1046  
(Continued)**

**5 MHz Channel - Top Channel**

Peak Power Spectral Density (dBm/MHz)				Limit	Margin
Mode	Port H	Port V	Aggregate	(dBm)	(dB)
ACQ	16.5	16.3	19.4	21.0	1.6
BPSK	16.6	16.6	19.6	21.0	1.4
QPSK	16.6	16.6	19.6	21.0	1.4
16QAM	16.6	16.6	19.6	21.0	1.4
64QAM	16.7	16.5	19.6	21.0	1.4
256QAM	16.7	16.7	19.7	21.0	1.3

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**Transmitter Peak Power Spectral Density (Conducted): Sections 90.205/90.1215(a)/2.1046 (Continued)**

**Results:**

**10 MHz Channel - Bottom Channel**

Peak Power Spectral Density (dBm/MHz)				Limit	Margin
Mode	Port H	Port V	Aggregate	(dBm)	(dB)
ACQ	14.2	14.0	17.1	21.0	3.9
BPSK	13.3	12.9	16.1	21.0	4.9
QPSK	13.2	12.9	16.1	21.0	4.9
16QAM	13.4	12.8	16.1	21.0	4.9
64QAM	13.2	12.9	16.1	21.0	4.9
256QAM	13.2	12.9	16.1	21.0	4.9

**10 MHz Channel - Centre Channel**

Peak Power Spectral Density (dBm/MHz)				Limit	Margin
Mode	Port H	Port V	Aggregate	(dBm)	(dB)
ACQ	14.5	14.1	17.3	21.0	3.7
BPSK	13.4	13.1	16.3	21.0	4.7
QPSK	13.4	13.2	16.3	21.0	4.7
16QAM	13.4	13.0	16.2	21.0	4.8
64QAM	13.4	13.0	16.2	21.0	4.8
256QAM	13.4	13.1	16.3	21.0	4.7

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**Transmitter Peak Power Spectral Density (Conducted): Sections 90.205/90.1215(a)/2.1046**  
**(Continued)**

**10 MHz Channel - Top Channel**

Peak Power Spectral Density (dBm/MHz)				Limit	Margin
Mode	Port H	Port V	Aggregate	(dBm)	(dB)
ACQ	14.4	14.0	17.2	21.0	3.8
BPSK	13.3	13.1	16.2	21.0	4.8
QPSK	13.3	13.1	16.2	21.0	4.8
16QAM	13.2	13.2	16.2	21.0	4.8
64QAM	13.3	13.2	16.3	21.0	4.7
256QAM	13.2	13.1	16.2	21.0	4.8

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**Transmitter Peak Power Spectral Density (Conducted): Sections 90.205/90.1215(a)/2.1046 (Continued)**

**Results:**

**20 MHz Channel - Bottom Channel**

Peak Power Spectral Density (dBm/MHz)				Limit	Margin
Mode	Port H	Port V	Aggregate	(dBm)	(dB)
ACQ	12.6	12.2	15.4	21.0	5.6
BPSK	11.5	11.4	14.5	21.0	6.5
QPSK	11.5	11.4	14.5	21.0	6.5
16QAM	11.6	11.5	14.6	21.0	6.4
64QAM	11.5	11.4	14.5	21.0	6.5
256QAM	11.5	11.5	14.5	21.0	6.5

**20 MHz Channel - Centre Channel**

Peak Power Spectral Density (dBm/MHz)				Limit	Margin
Mode	Port H	Port V	Aggregate	(dBm)	(dB)
ACQ	12.9	12.5	15.7	21.0	5.3
BPSK	12.0	11.5	14.8	21.0	6.2
QPSK	11.9	12.0	15.0	21.0	6.0
16QAM	12.0	11.7	14.9	21.0	6.1
64QAM	12.0	11.6	14.8	21.0	6.2
256QAM	12.0	11.6	14.8	21.0	6.2

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**Transmitter Peak Power Spectral Density (Conducted): Sections 90.205/90.1215(a)/2.1046  
(Continued)**

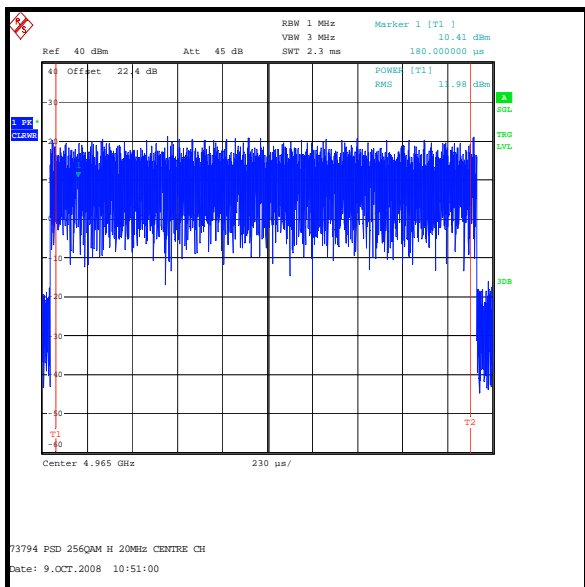
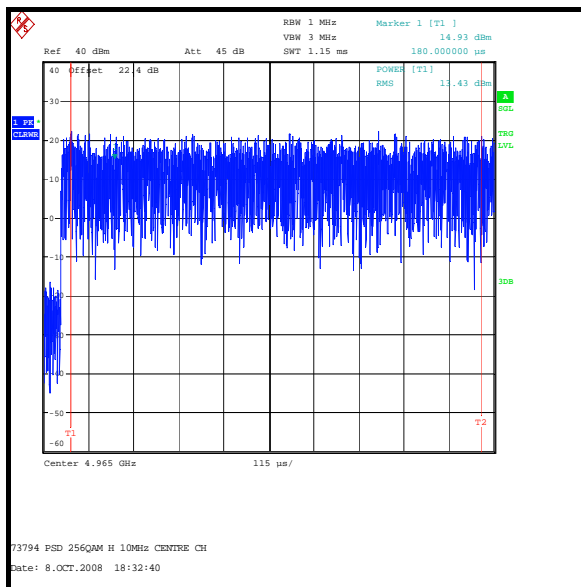
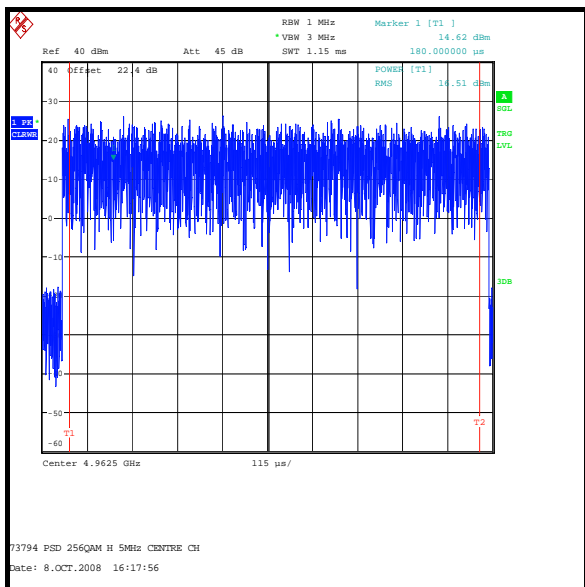
**20 MHz Channel - Top Channel**

Peak Power Spectral Density (dBm/MHz)				Limit	Margin
Mode	Port H	Port V	Aggregate	(dBm)	(dB)
ACQ	12.8	12.4	15.6	21.0	5.4
BPSK	12.1	11.8	15.0	21.0	6.0
QPSK	12.1	11.8	15.0	21.0	6.0
16QAM	12.1	11.8	15.0	21.0	6.0
64QAM	12.0	11.8	14.9	21.0	6.1
256QAM	12.0	11.9	15.0	21.0	6.0

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**Transmitter Peak Power Spectral Density (Conducted): Sections 90.205/90.1215(a)/2.1046 (Continued)**

**Sample Plots for Peak Power Spectral Density**



**Note(s):**

1. Typical plots taken during the measurement are shown above. Due to the number of measurements taken only a selected sample of the graphs is included in the report.

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### **7.2.3. Transmitter Occupied (Bandwidth Limitations): Sections 90.209/2.1049**

Ambient Temperature: 23°C

Relative Humidity: 51%

The Occupied bandwidth was determined by measuring the 20dB bandwidth of the fundamental signal using a spectrum analyser. The resolution bandwidth was set to 1% of emission bandwidth where possible or the next bandwidth up.

### **Results: Port H**

#### **5 MHz Channel - Acquisition Mode**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4942.5	100	300	4.468937
Middle	4962.5	100	300	4.789579
Top	4987.5	100	300	4.809619

#### **5 MHz Channel - BPSK Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4942.5	100	300	4.709419
Middle	4962.5	100	300	4.769539
Top	4987.5	100	300	4.729459

#### **5 MHz Channel - QPSK Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (MHz)
Bottom	4942.5	100	300	4.689378
Middle	4962.5	100	300	4.729459
Top	4987.5	100	300	4.709419

#### **5 MHz Channel - 16QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4942.5	100	300	4.709419
Middle	4962.5	100	300	4.749458
Top	4987.5	100	300	4.749499

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**Transmitter Occupied (Bandwidth Limitations): Sections 90.209/2.1049 (Continued)**

**5 MHz Channel - 64QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4942.5	100	300	4.729459
Middle	4962.5	100	300	4.769539
Top	4987.5	100	300	4.709418

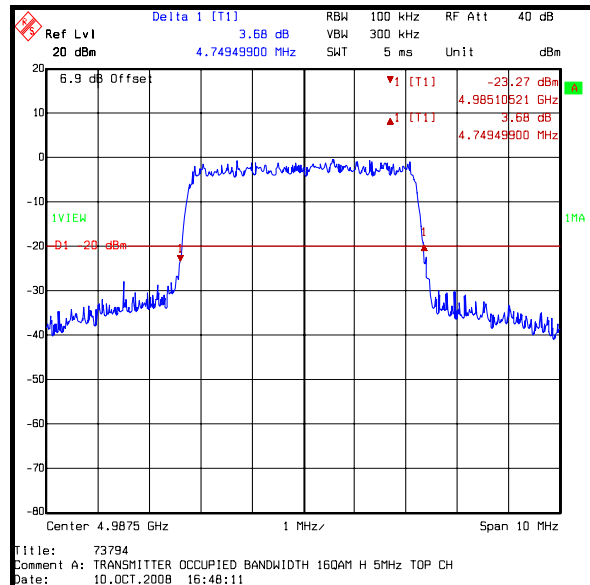
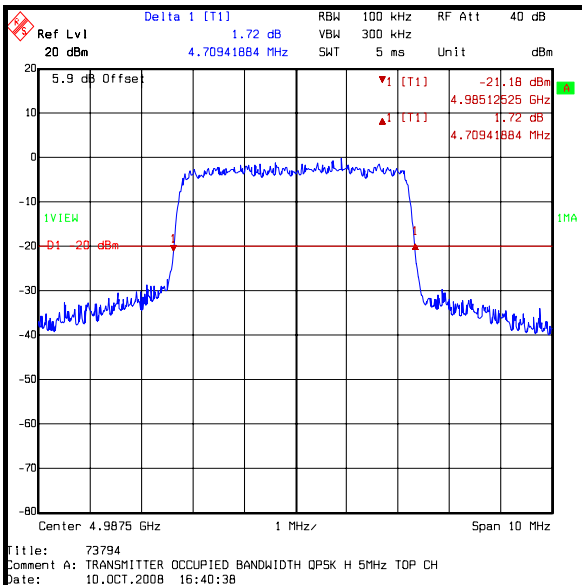
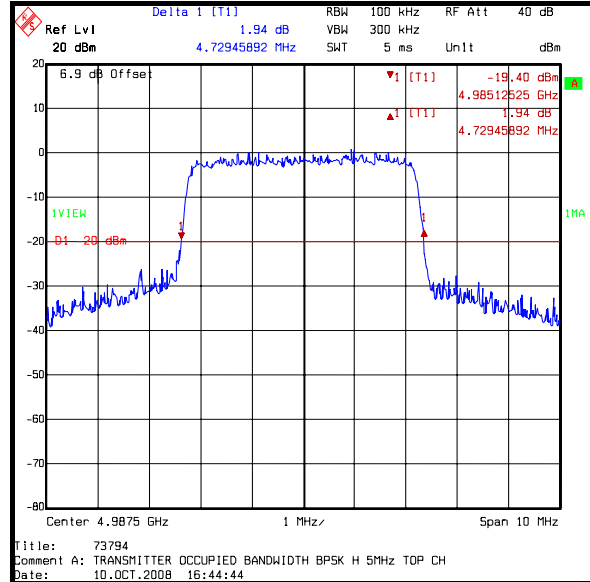
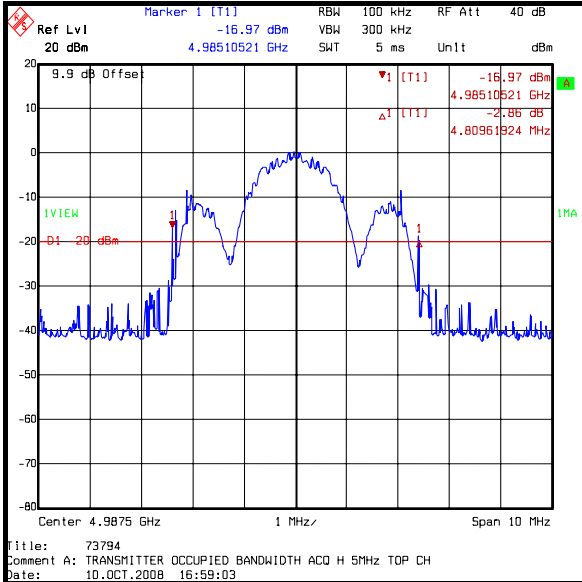
**5 MHz Channel - 256 QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4942.5	100	300	4.709418
Middle	4962.5	100	300	4.729458
Top	4987.5	100	300	4.709418



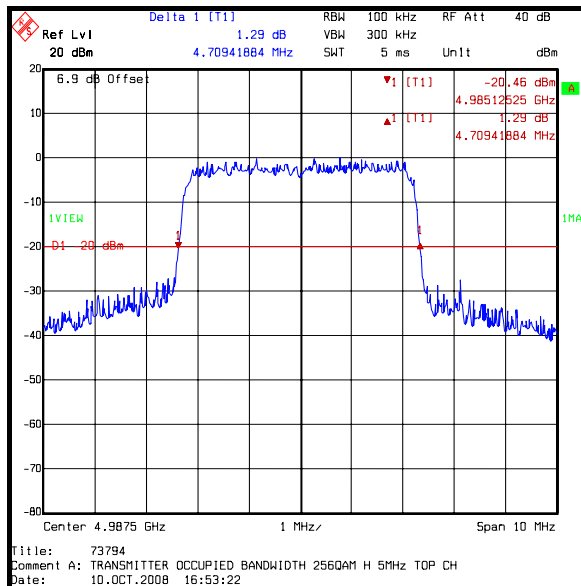
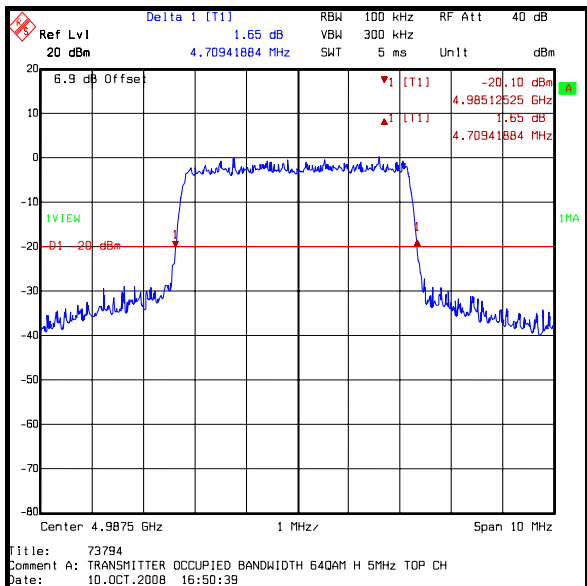
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**Transmitter Occupied (Bandwidth Limitations): Sections 90.209/2.1049 (Continued)**

**Results: Port H**

**10 MHz Channel - Acquisition Mode**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4945.0	100	300	9.318637
Middle	4965.0	100	300	9.318637
Top	4985.0	100	300	9.143206

**10 MHz Channel - BPSK Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4945.0	100	300	9.498998
Middle	4965.0	100	300	9.348697
Top	4985.0	100	300	9.383767

**10 MHz Channel - QPSK Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (MHz)
Bottom	4945.0	100	300	9.348697
Middle	4965.0	100	300	9.348697
Top	4985.0	100	300	9.323647

**10 MHz Channel - 16QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4945.0	100	300	9.438877
Middle	4965.0	100	300	9.318637
Top	4985.0	100	300	9.383767

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**Transmitter Occupied (Bandwidth Limitations): Sections 90.209/2.1049 (Continued)**

**10 MHz Channel - 64QAM Modulation**

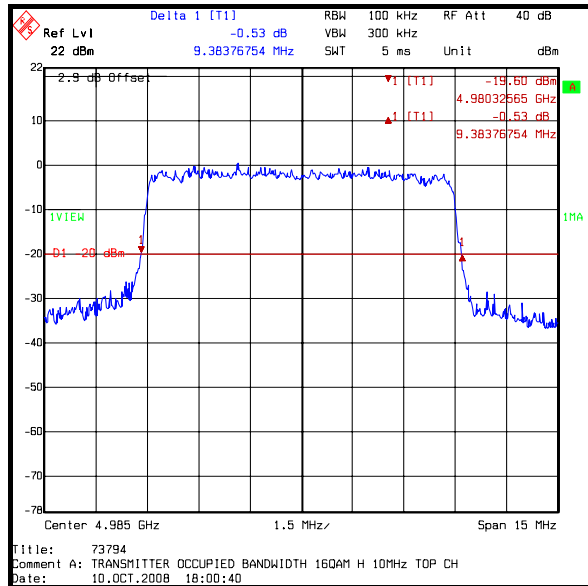
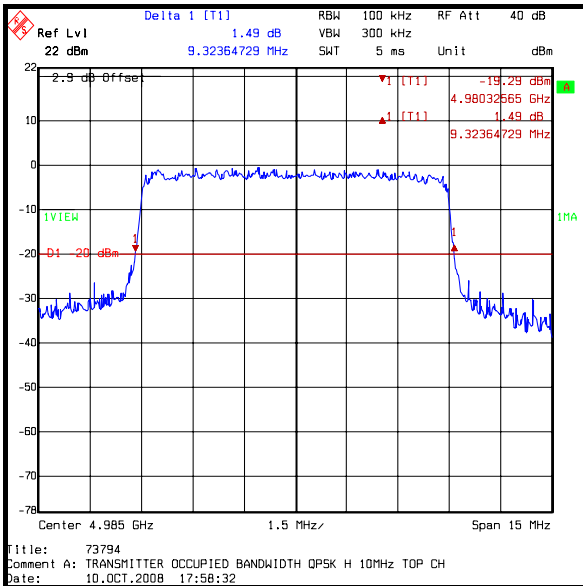
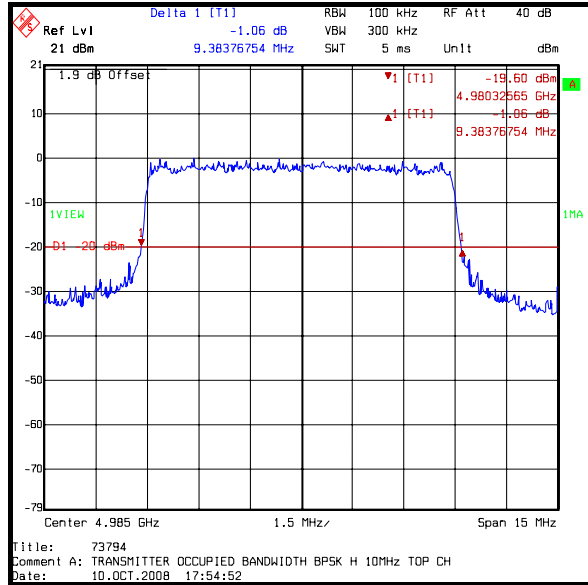
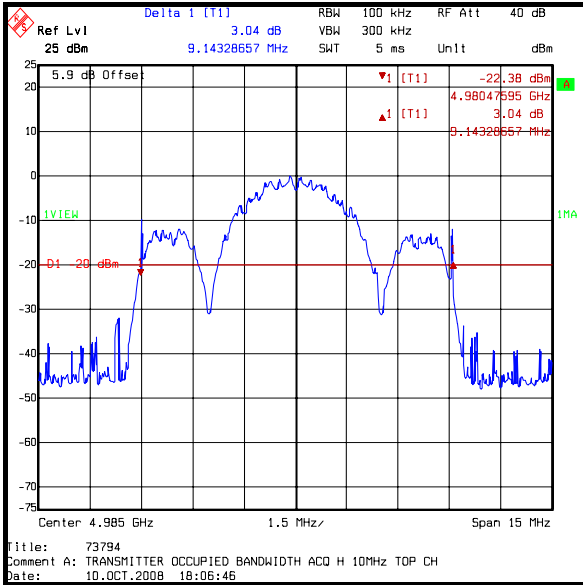
Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4945.0	100	300	9.378757
Middle	4965.0	100	300	9.318637
Top	4985.0	100	300	9.323647

**10 MHz Channel - 256 QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4945.0	100	300	9.378757
Middle	4965.0	100	300	9.318637
Top	4985.0	100	300	9.323647

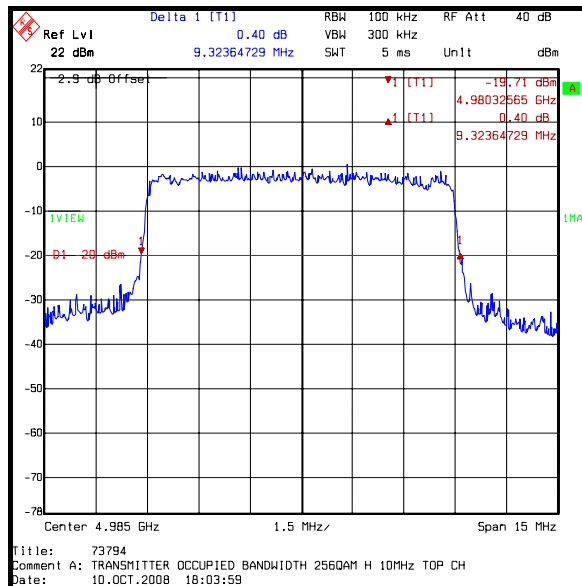
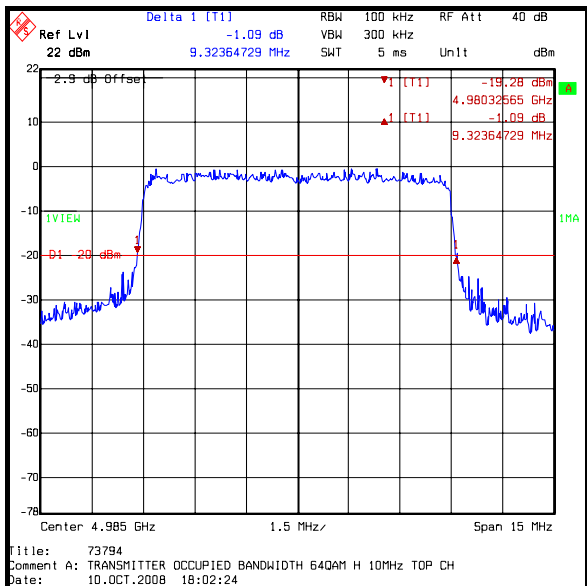
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**Transmitter Occupied (Bandwidth Limitations): Sections 90.209/2.1049 (Continued)**

**Results: Port H**

**20 MHz Channel - Acquisition Mode**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4950.0	200	1000	14.368737
Middle	4965.0	200	1000	15.120240
Top	4980.0	200	1000	14.879759

**20 MHz Channel - BPSK Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4950.0	200	1000	14.488977
Middle	4965.0	200	1000	14.338677
Top	4980.0	200	1000	14.488977

**20 MHz Channel - QPSK Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (MHz)
Bottom	4950.0	200	1000	14.609218
Middle	4965.0	200	1000	14.278557
Top	4980.0	200	1000	14.368737

**20 MHz Channel - 16QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4950.0	200	1000	14.368737
Middle	4965.0	200	1000	14.278557
Top	4980.0	200	1000	14.909819

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**Transmitter Occupied (Bandwidth Limitations): Sections 90.209/2.1049 (Continued)**

**20 MHz Channel - 64QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4950.0	200	1000	14.368737
Middle	4965.0	200	1000	14.398797
Top	4980.0	200	1000	14.368737

**20 MHz Channel - 256 QAM Modulation**

Channel	Frequency (MHz)	RBW (kHz)	VBW (kHz)	Occupied Bandwidth (kHz)
Bottom	4950.0	200	1000	14.368737
Middle	4965.0	200	1000	14.338677
Top	4980.0	200	1000	14.428857

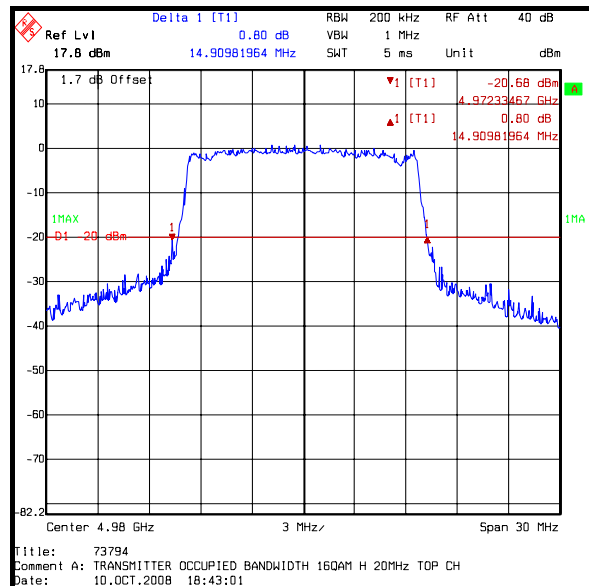
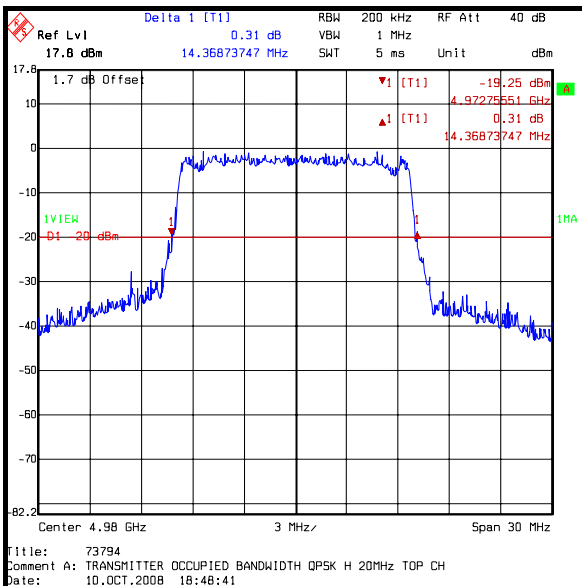
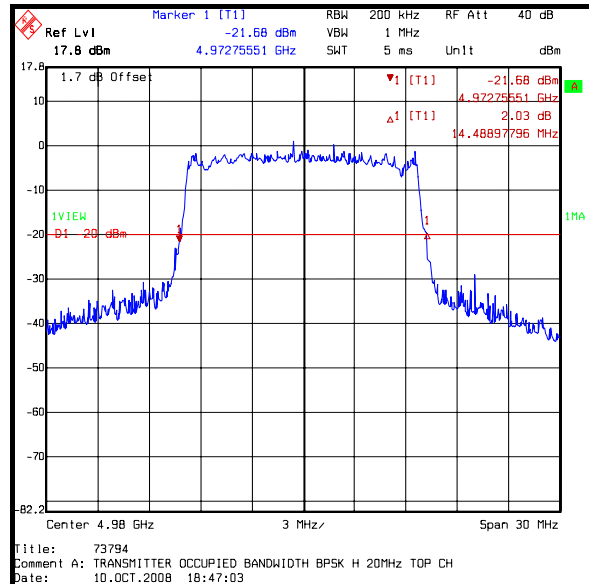
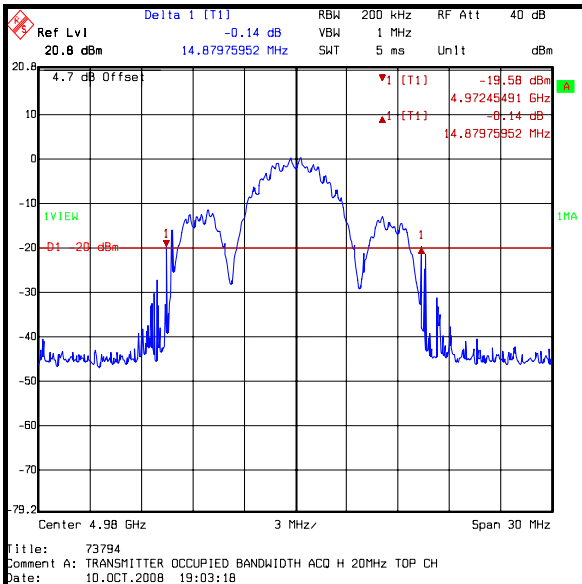
**Note(s):**

1. Complete testing was performed on one port and the results are shown above. Random testing also was performed on the other port. The second port showed comparable results to the first port but the results are not recorded in this report



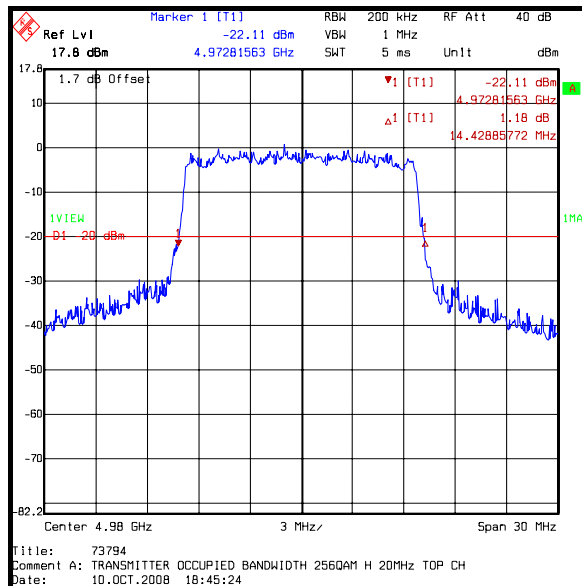
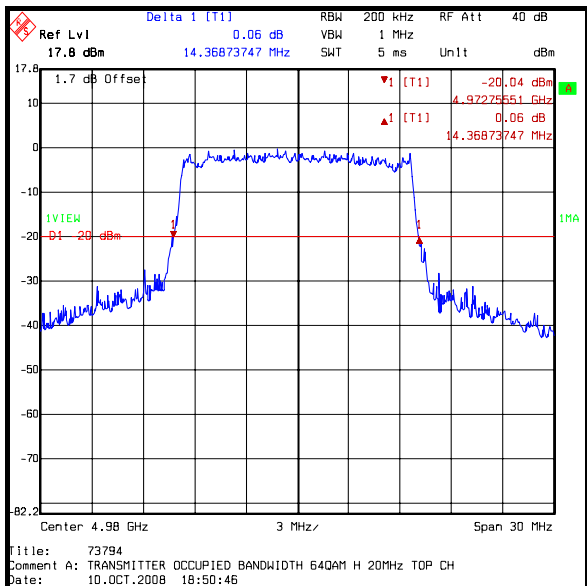
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### 7.2.4. Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051

Ambient Temperature: 19°C

Relative Humidity: 43%

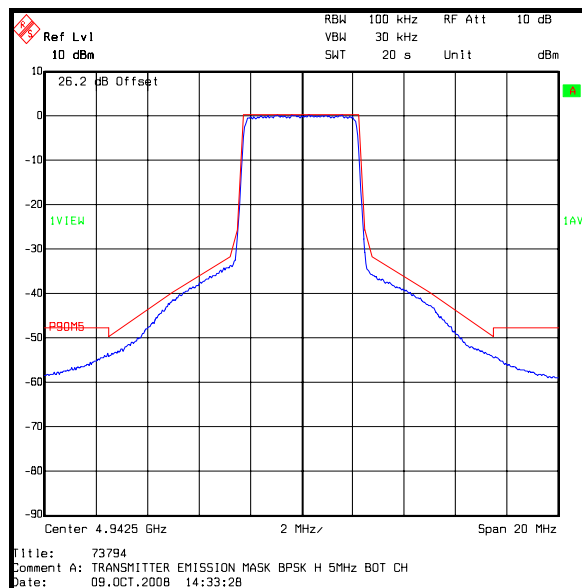
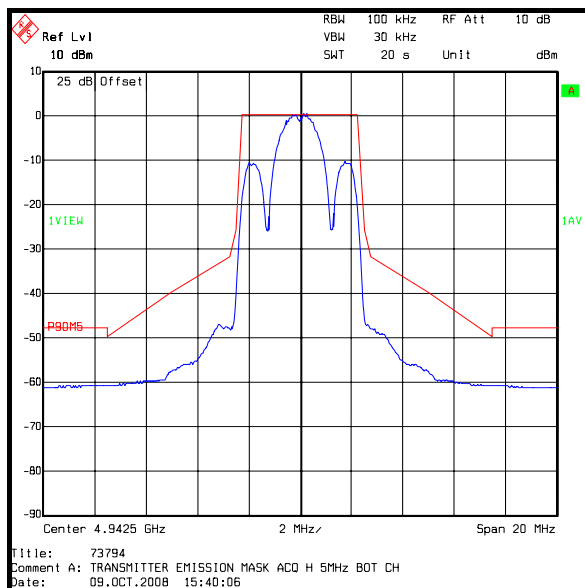
Tested in accordance with EIA/TIA-603-B Section 2.2.13. For the frequency ranges close to and including the fundamental frequency, plots of the spectral distribution (emission masks) were recorded using a spectrum analyser for the EUT transmitting on bottom, middle and top channels.

Note\* for the in-band emissions plots, please disregard the mask excursions as this is down to a limitation an analyser resolution. A higher resolution mask plot can be observed below for mask compliance purpose. The purpose of the in-band emission plot is to show that no emissions exceed the emissions limit in-band.

Complete testing was performed on the H port for the Emission Masks and the results are shown below. Sample tests on the V port confirmed that the performance of both ports was the same and so results for the V port are not included. However, the In-Band emission plots were performed for both H and V ports and are shown below

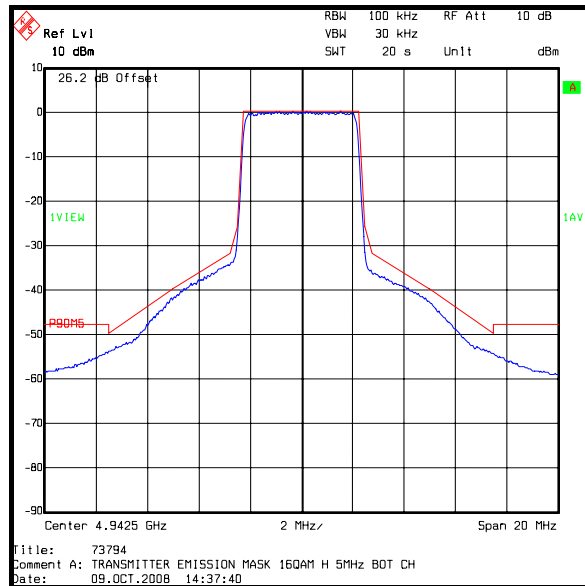
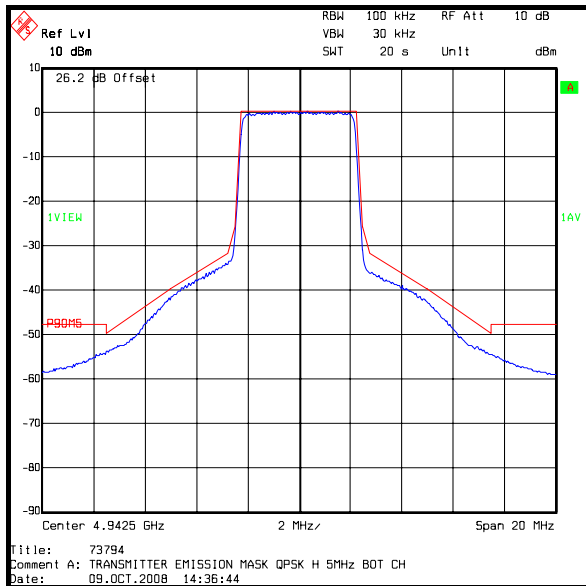
### Results:

#### 5 MHz Channel - Bottom Channel



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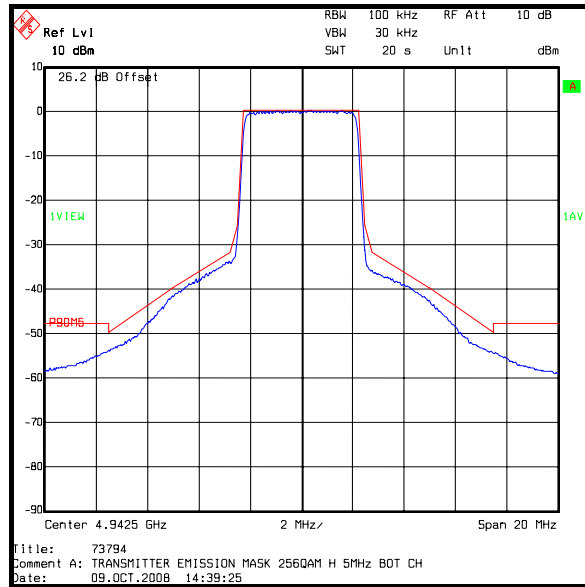
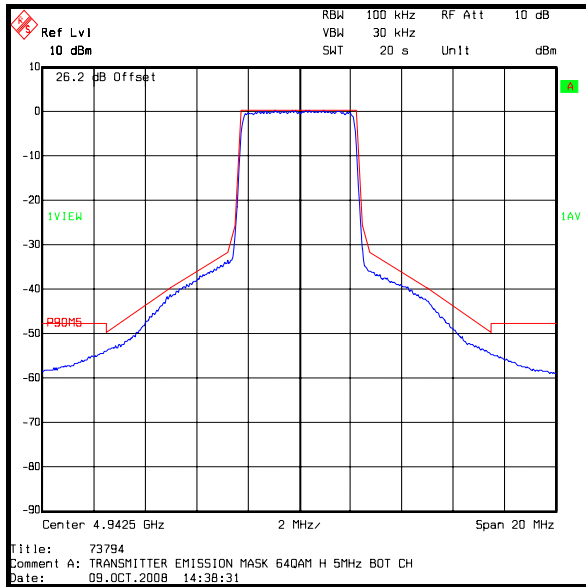
5 MHz Channel - Bottom Channel (Continued)



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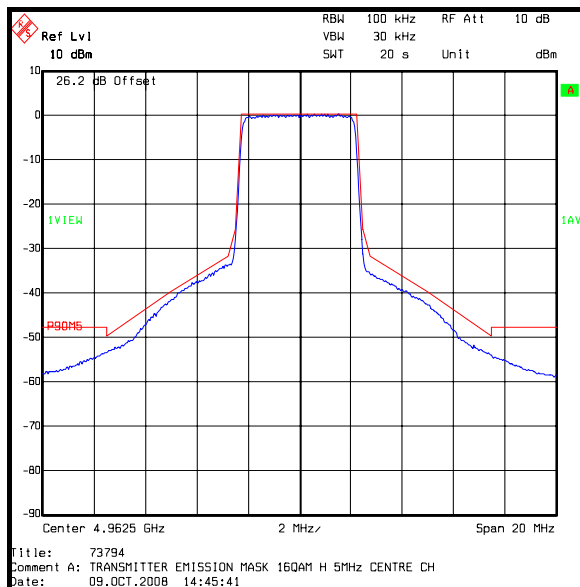
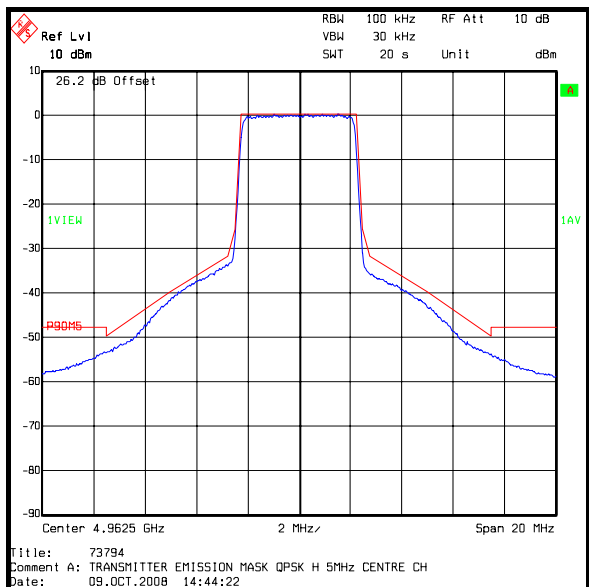
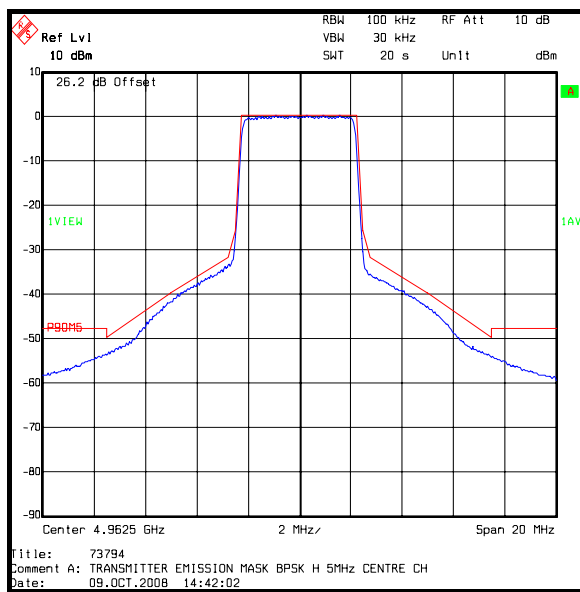
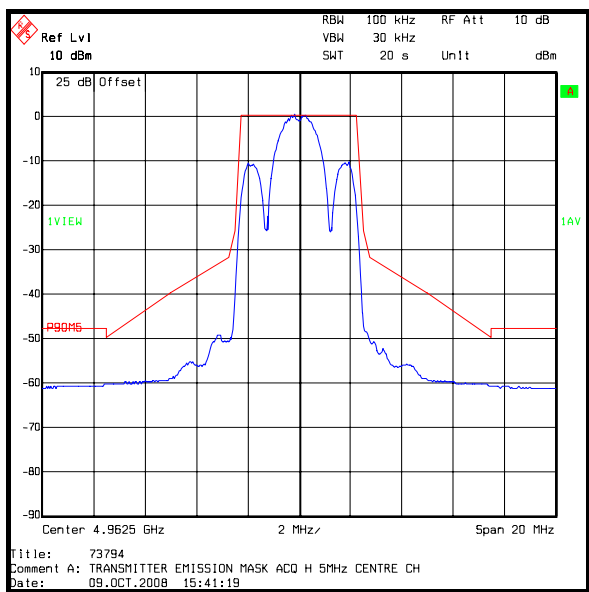
**5 MHz Channel - Bottom Channel**



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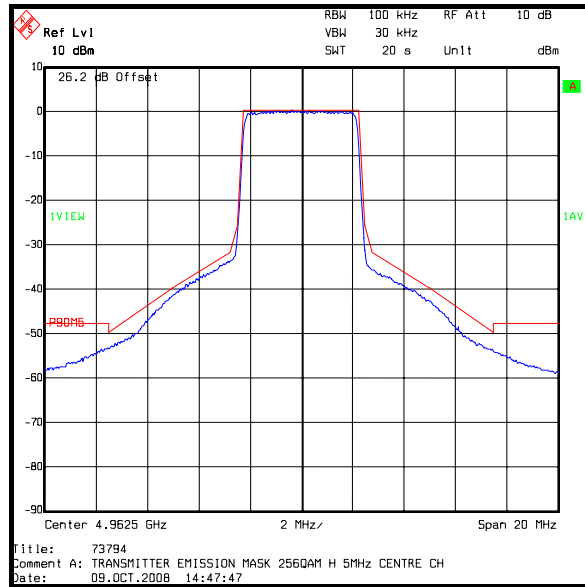
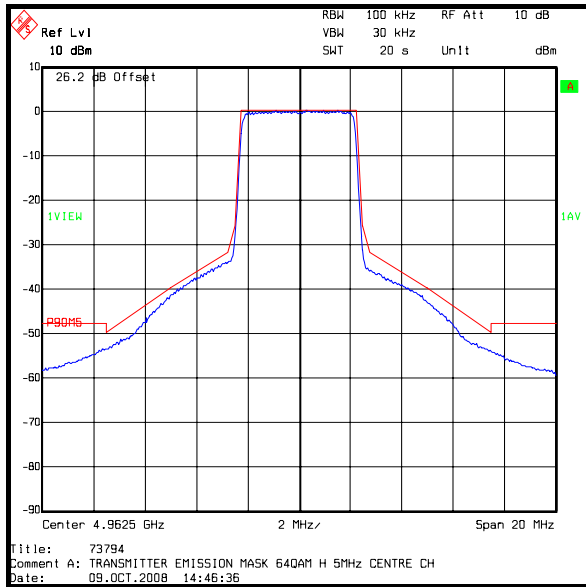
**5 MHz Channel - Centre Channel**



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and RSS-111 Issue 2 June 2007

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

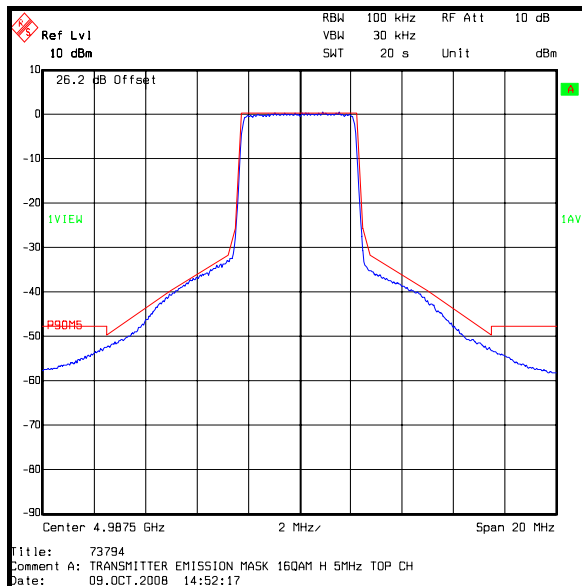
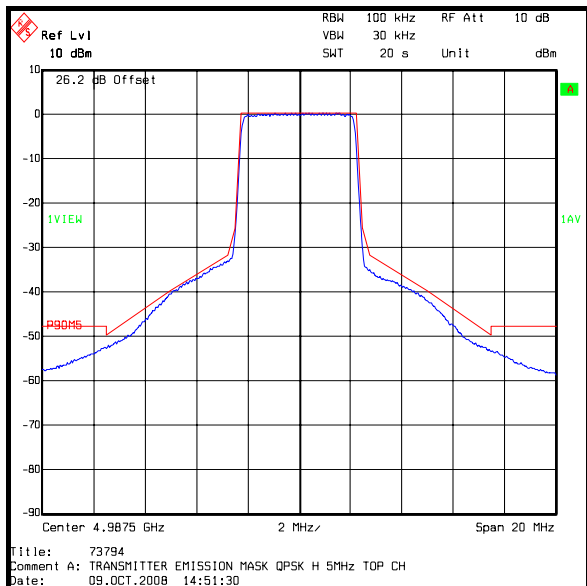
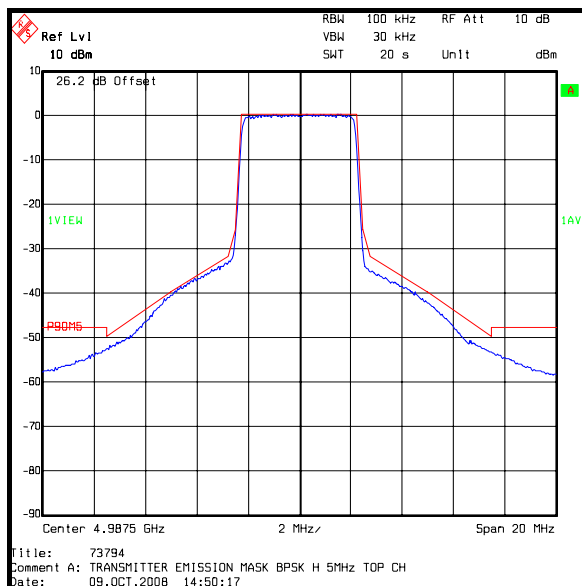
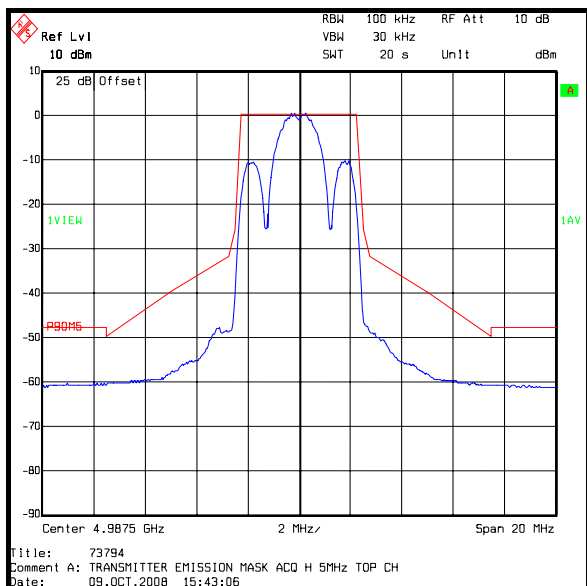
**5 MHz Channel - Centre Channel**



Test of: **Motorola**  
**PTP49600**  
To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

**5 MHz Channel - Top Channel**

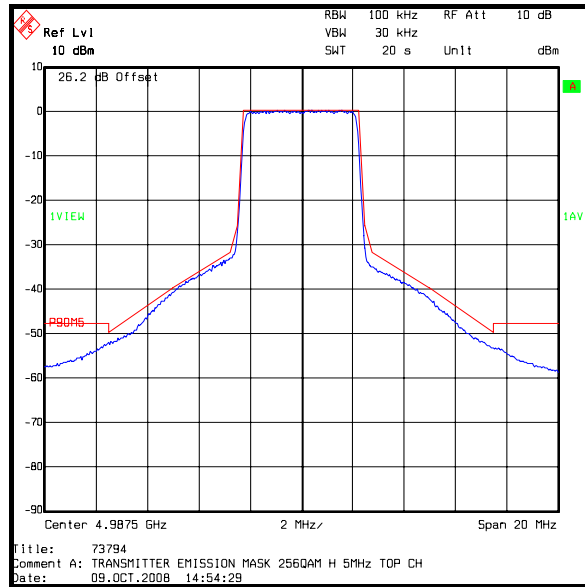
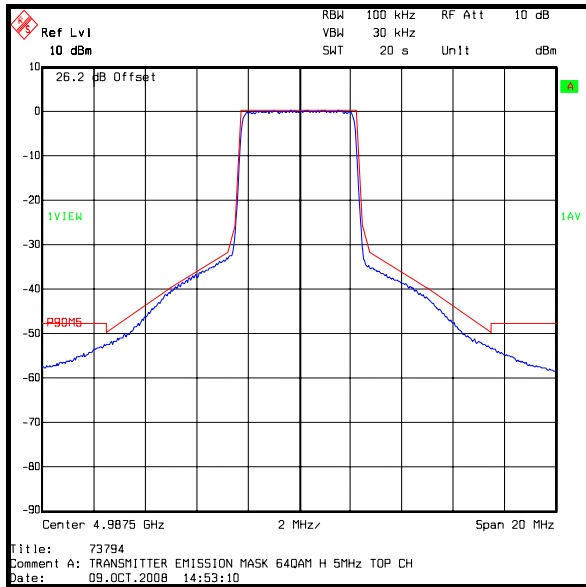




Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

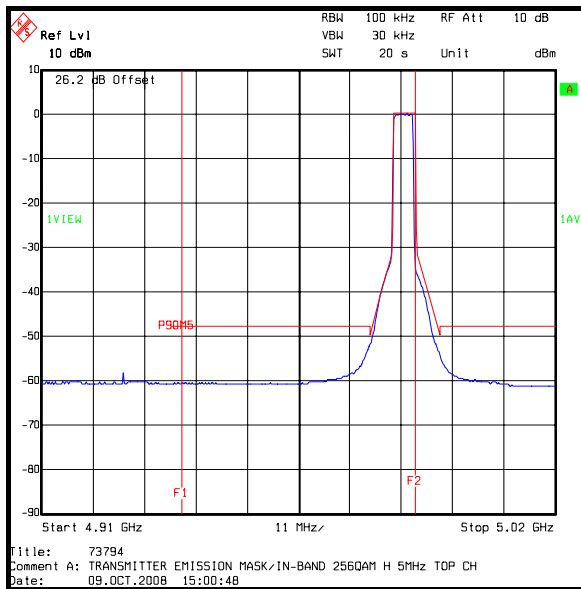
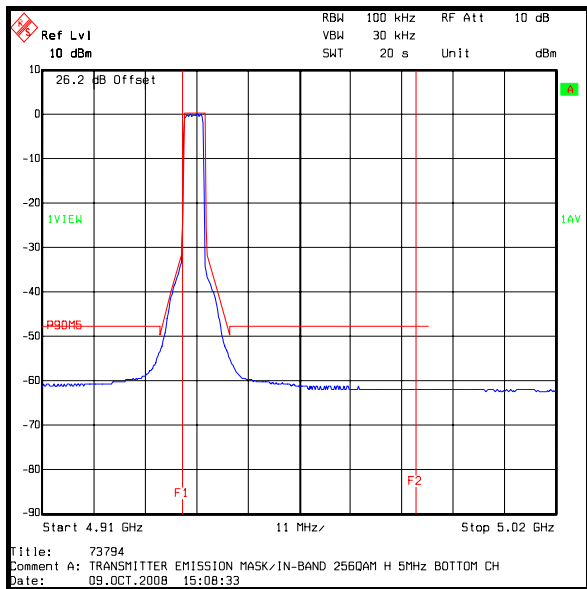
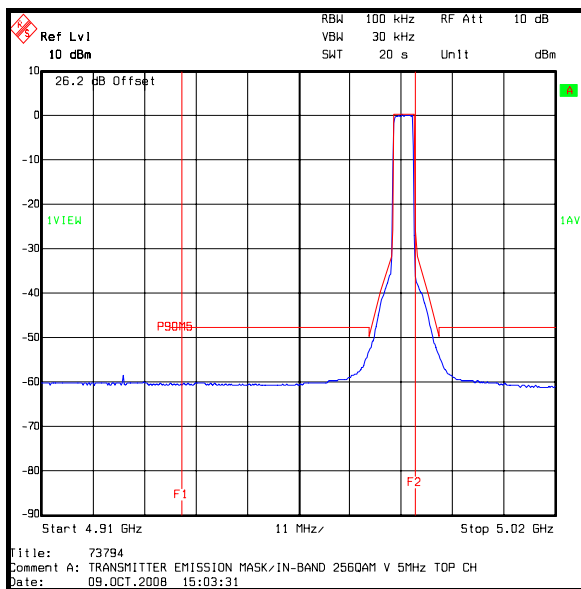
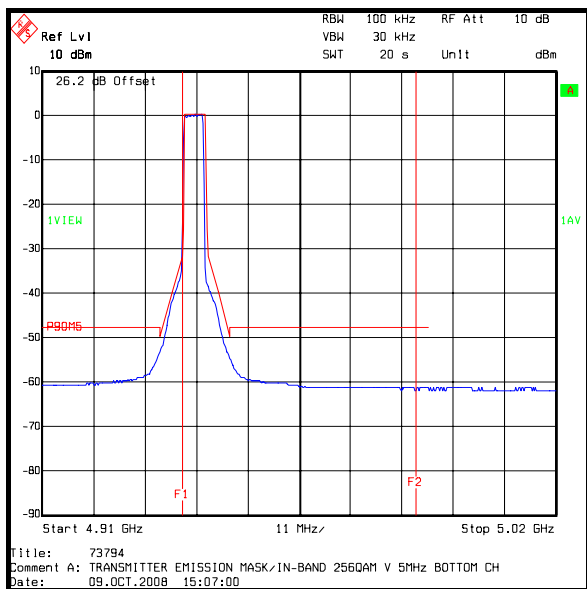
**5 MHz Channel - Top Channel**



Test of: **Motorola**  
**PTP49600**  
To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

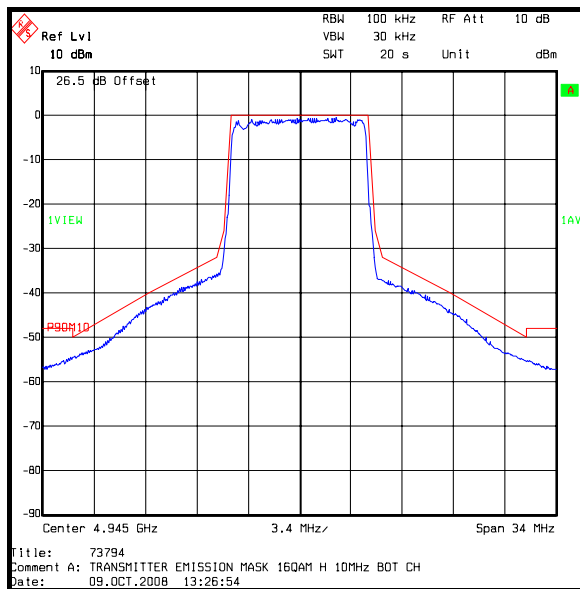
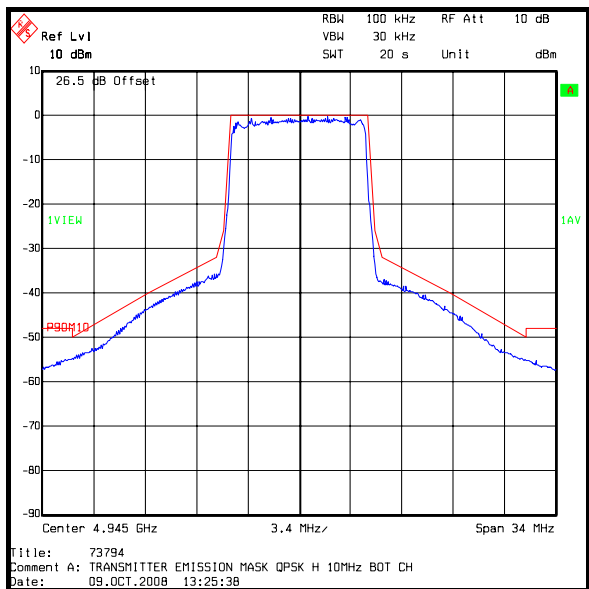
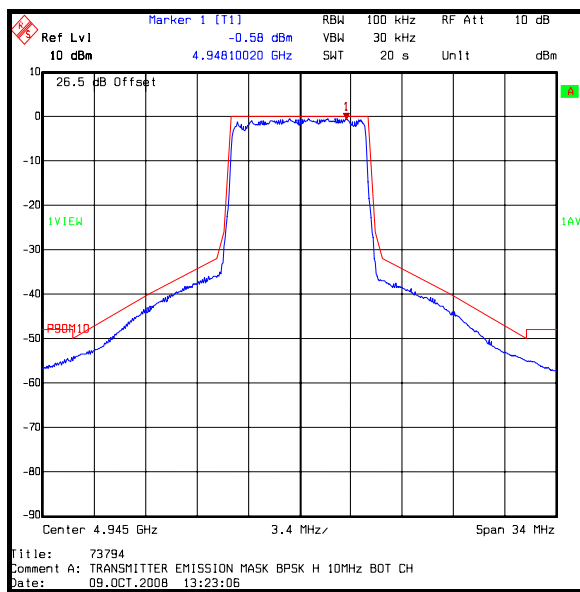
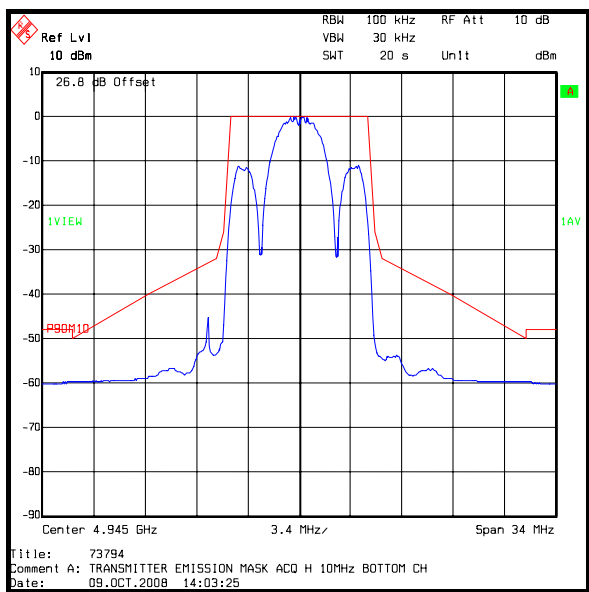
**5 MHz Channel - In-Band Emissions**



Test of: **Motorola**  
**PTP49600**  
 To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

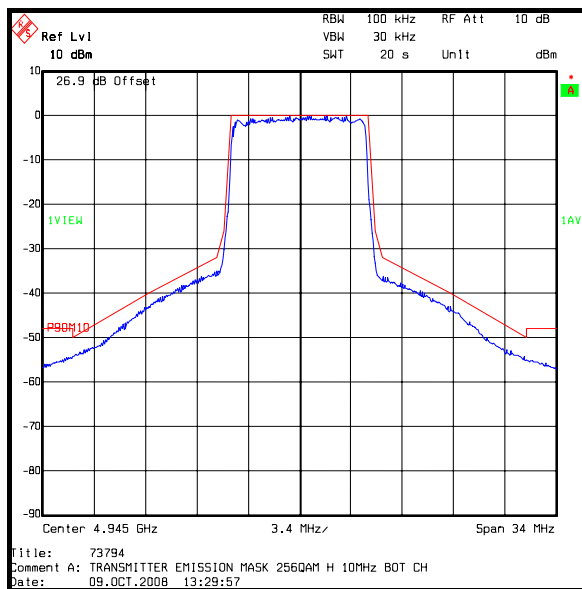
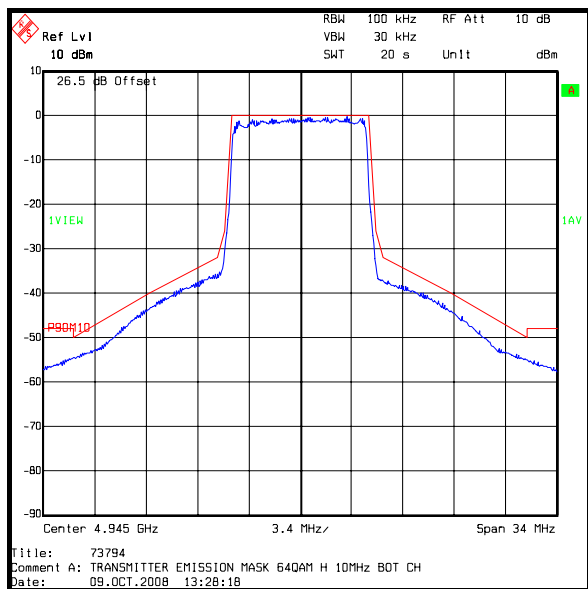
**10 MHz Channel – Bottom Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

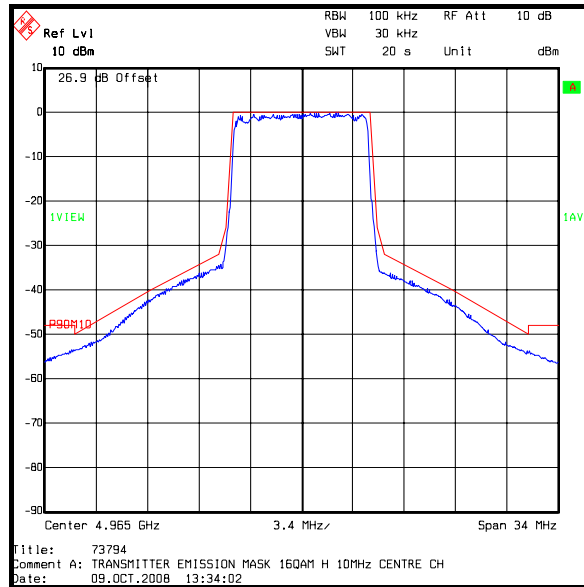
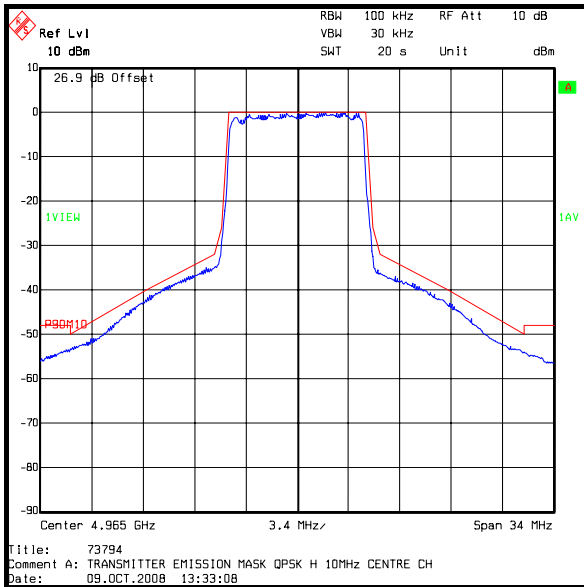
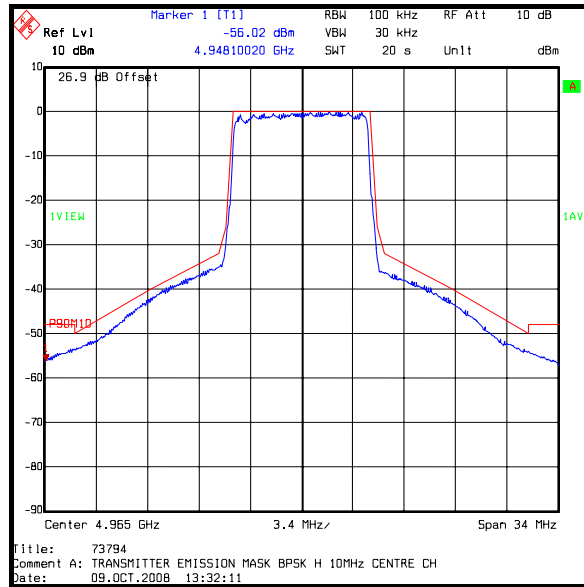
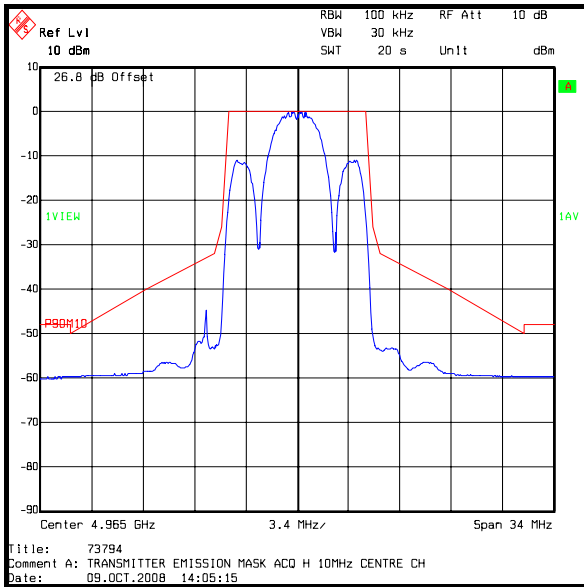
**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

**10 MHz Channel – Bottom Channel**



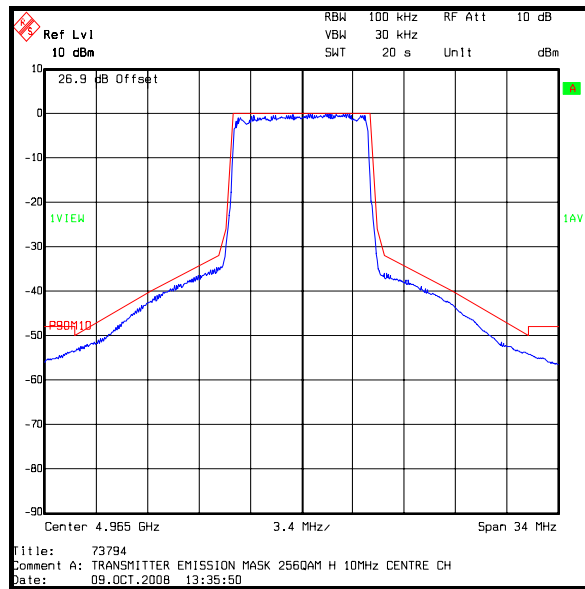
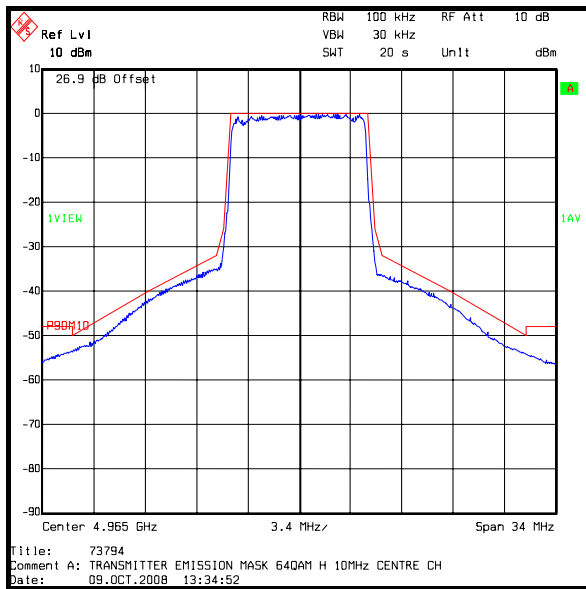
Test of: **Motorola**  
**PTP49600**  
To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**  
**10 MHz Channel – Centre Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

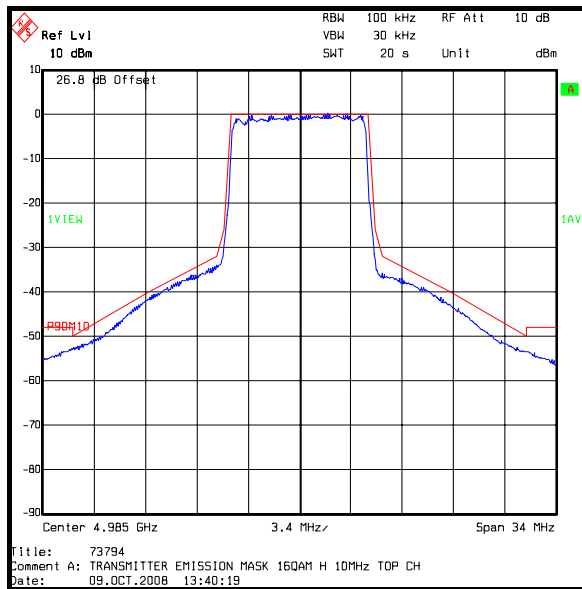
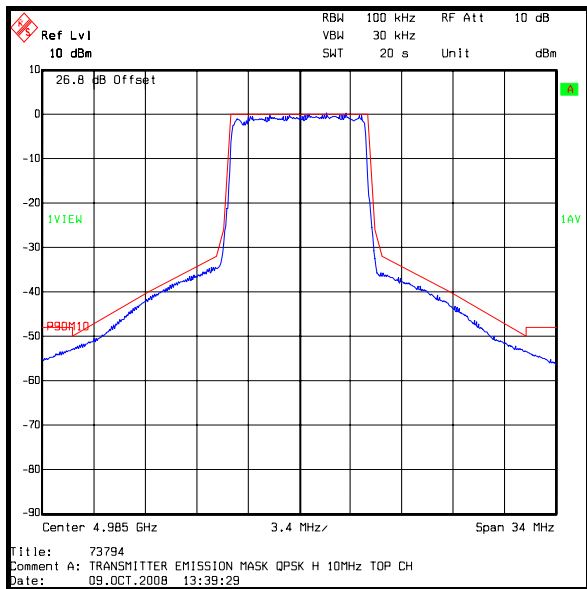
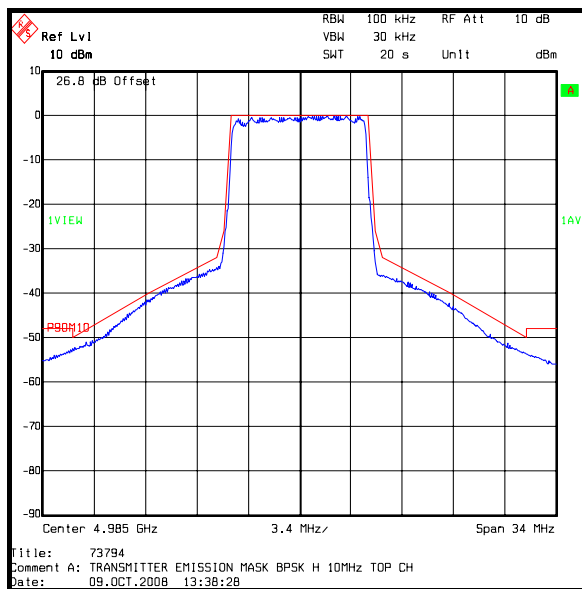
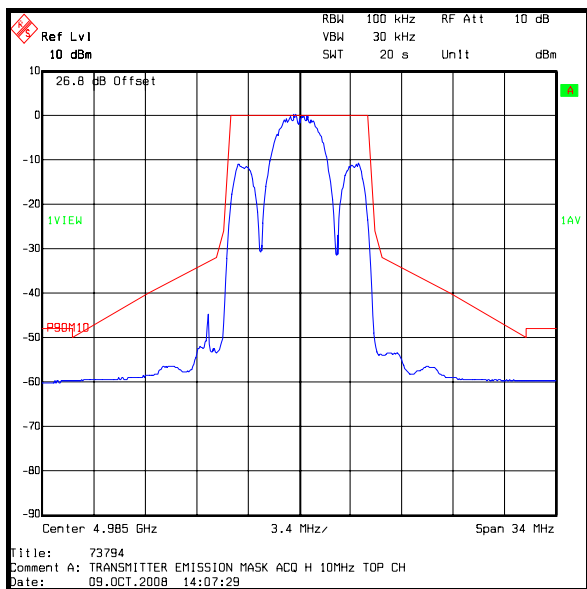
**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**  
**10 MHz Channel – Centre Channel**



Test of: **Motorola**  
**PTP49600**  
 To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

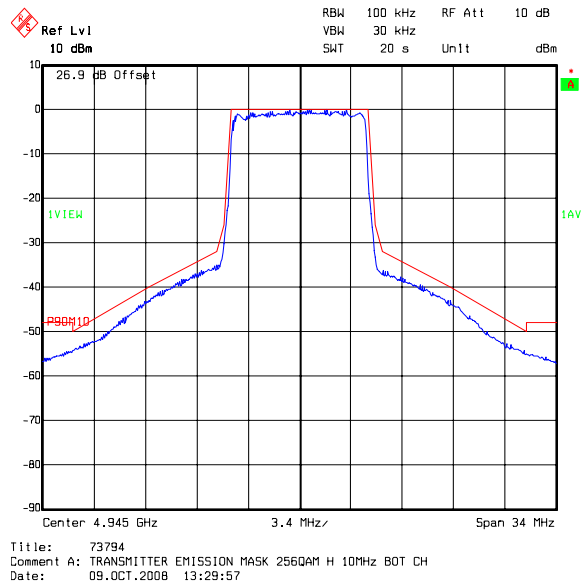
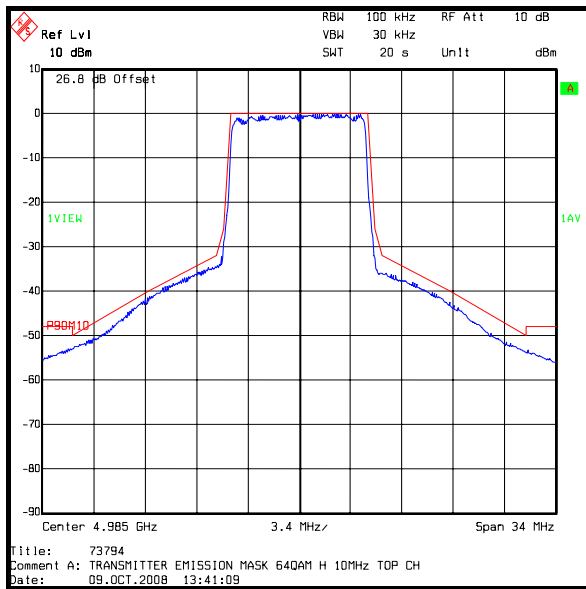
**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

**10 MHz Channel – Top Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**  
**10 MHz Channel – Top Channel**

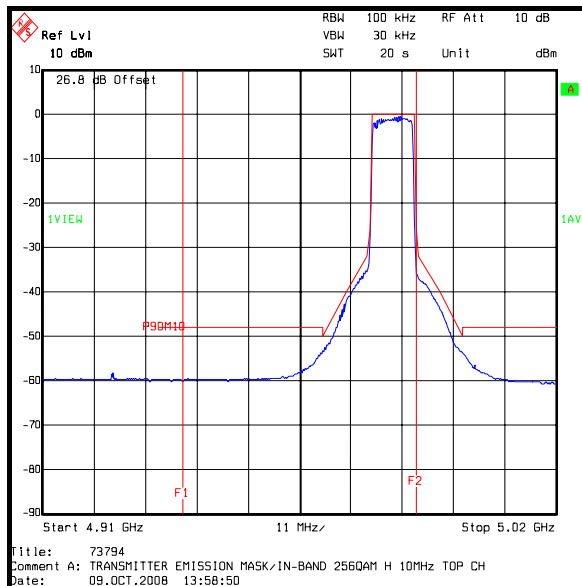
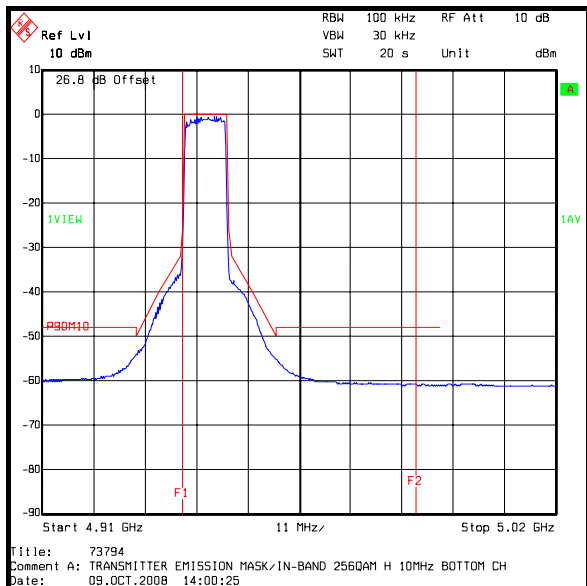
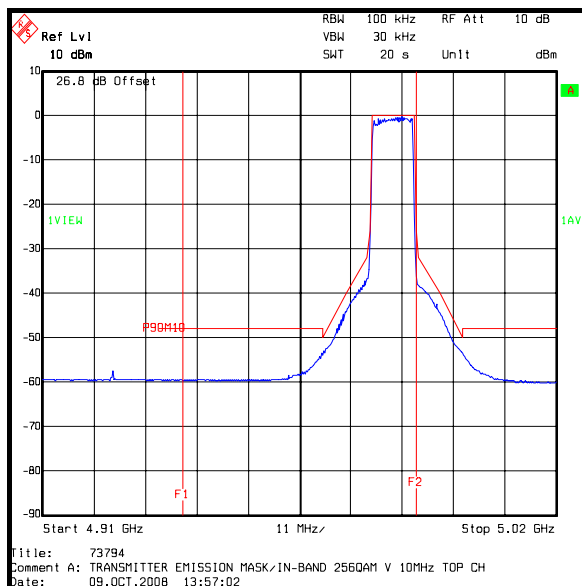
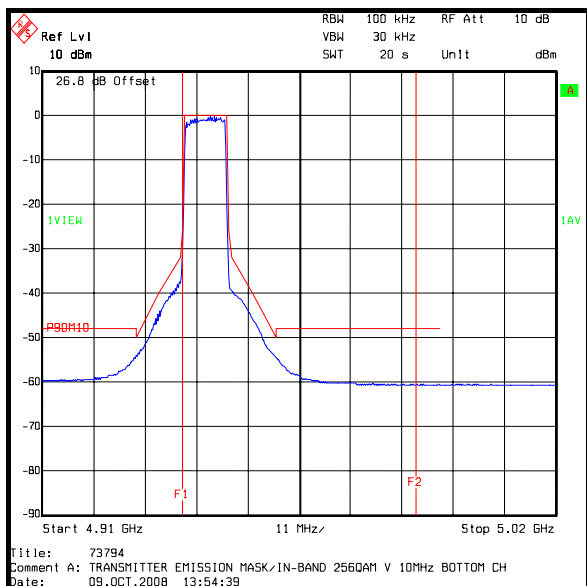




Test of: **Motorola**  
**PTP49600**  
To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

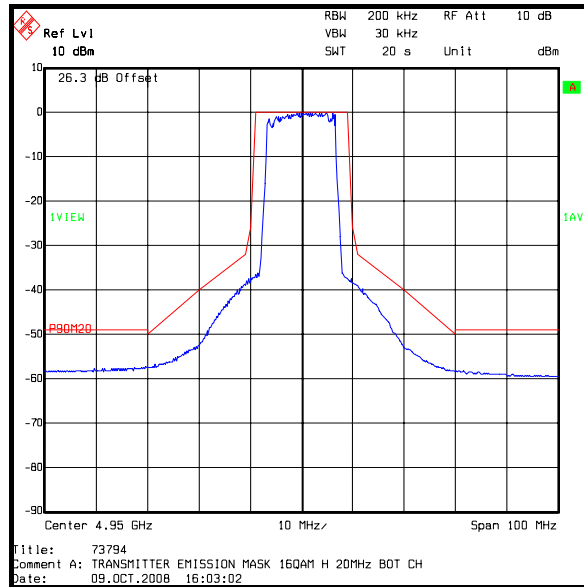
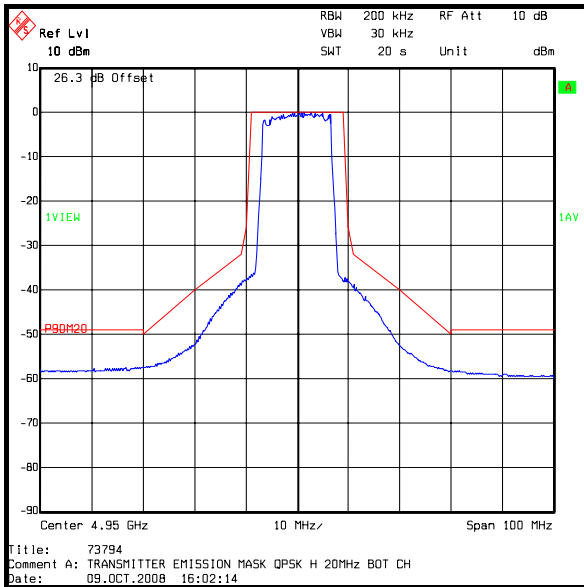
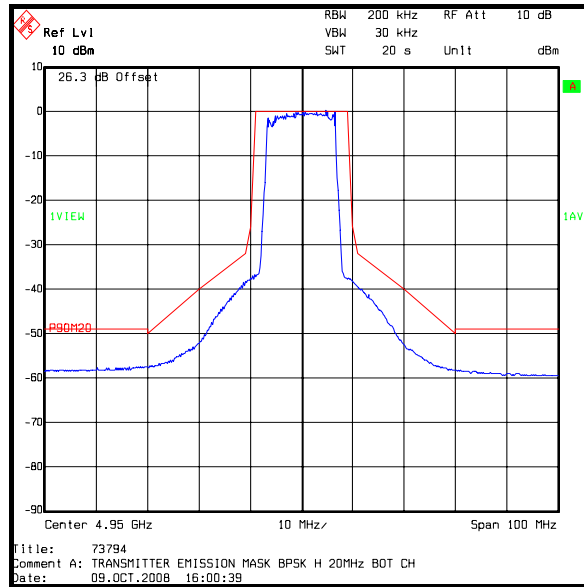
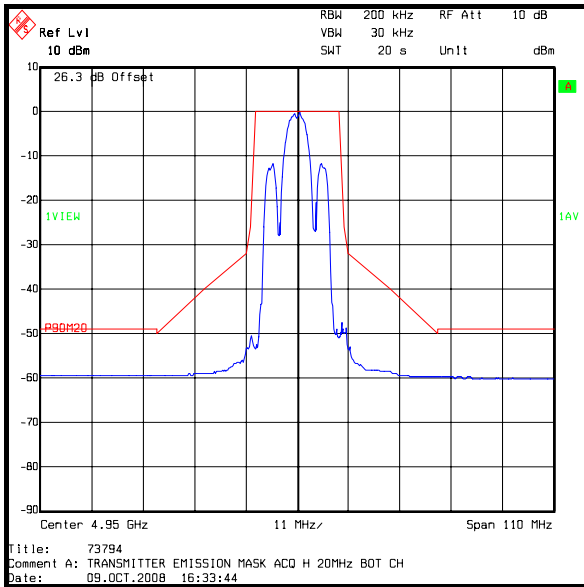
**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

**10 MHz Channel – In-Band Emissions**



Test of: **Motorola**  
**PTP49600**  
To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

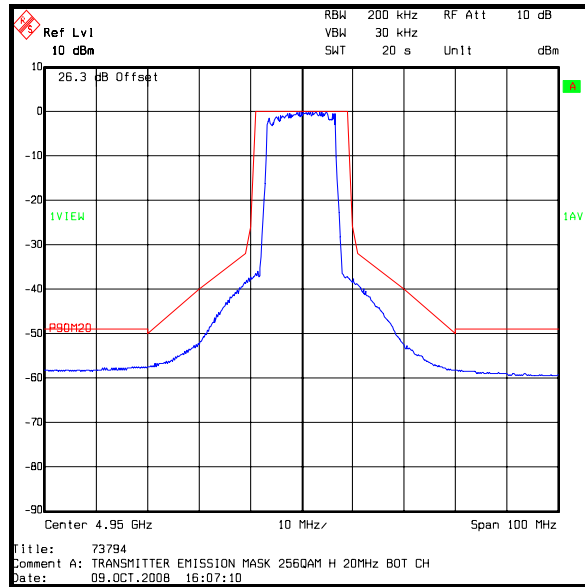
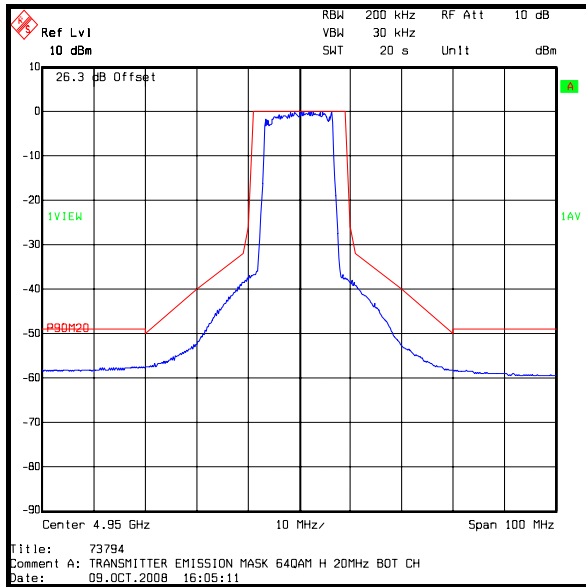
**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**  
**20 MHz Channel – Bottom Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

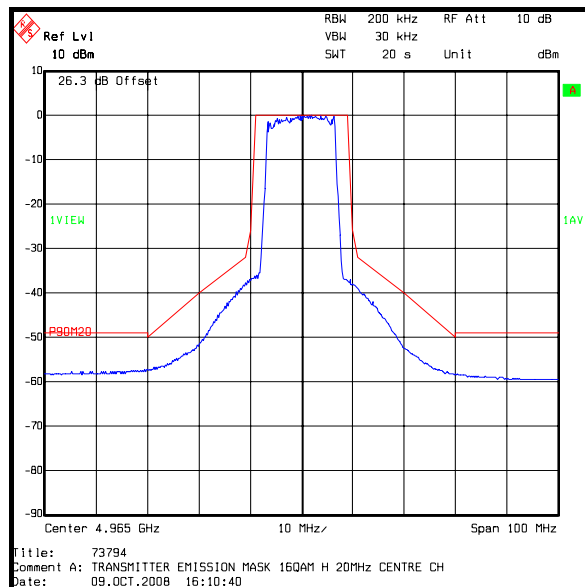
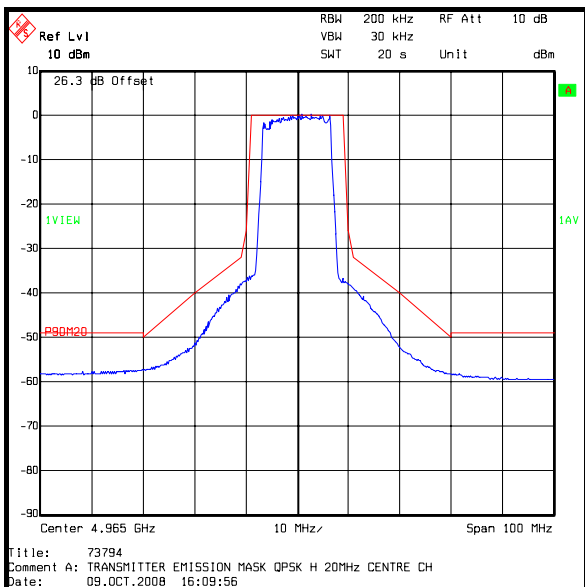
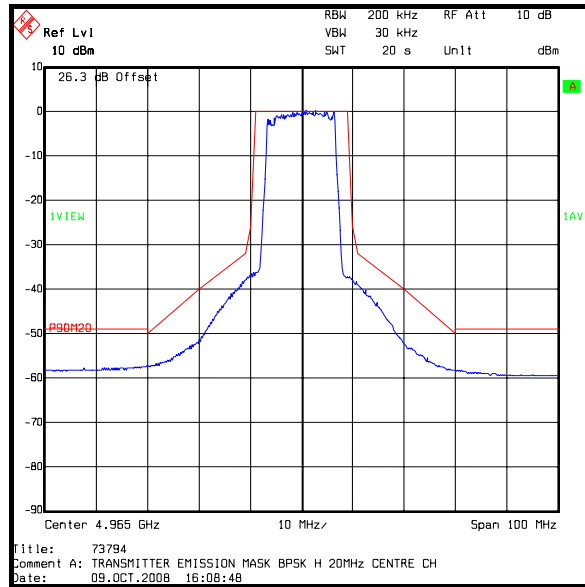
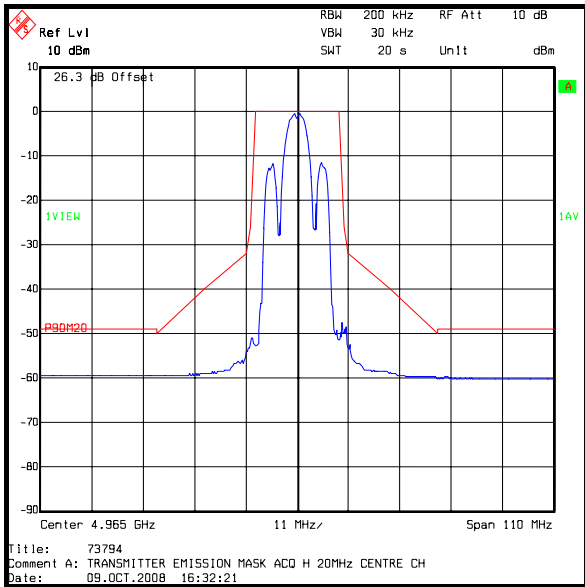
**20 MHz Channel – Bottom Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

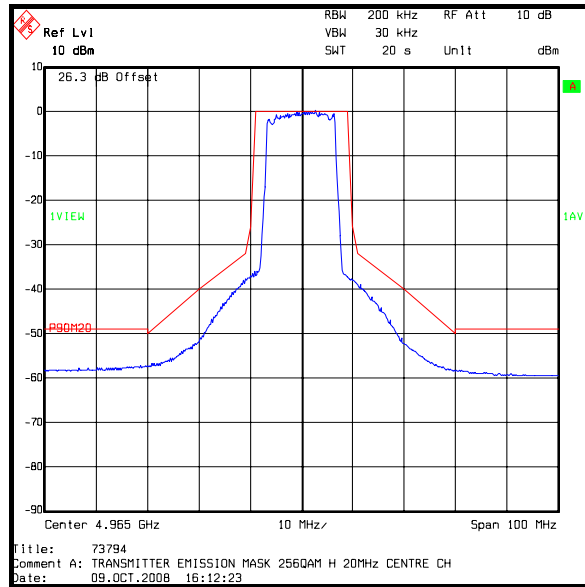
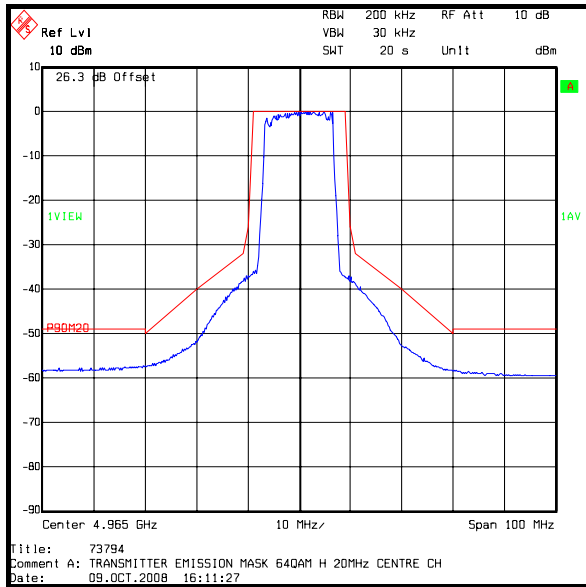
**20 MHz Channel – Centre Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

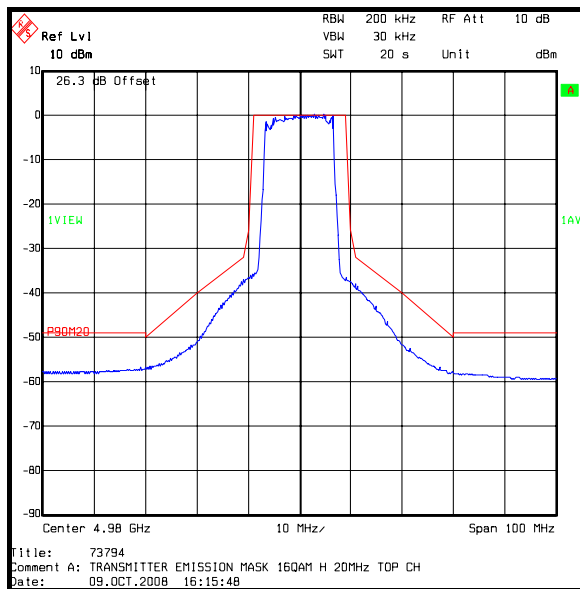
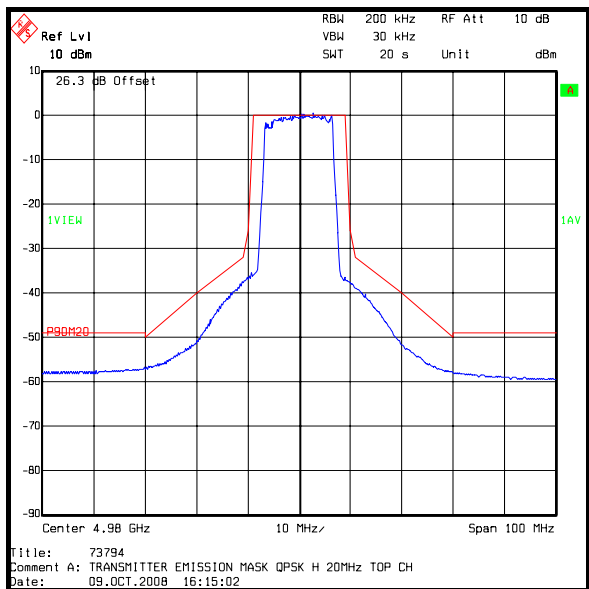
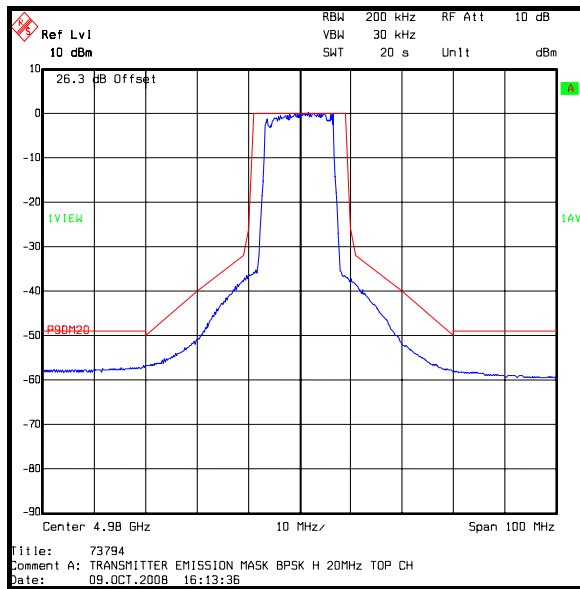
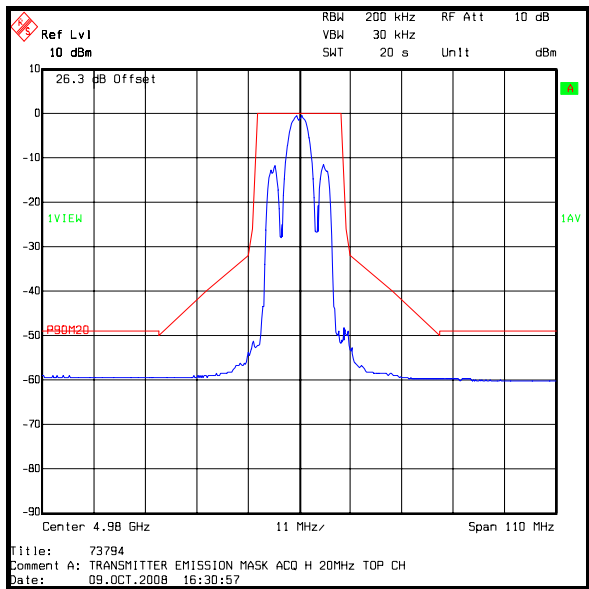
**20 MHz Channel – Centre Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

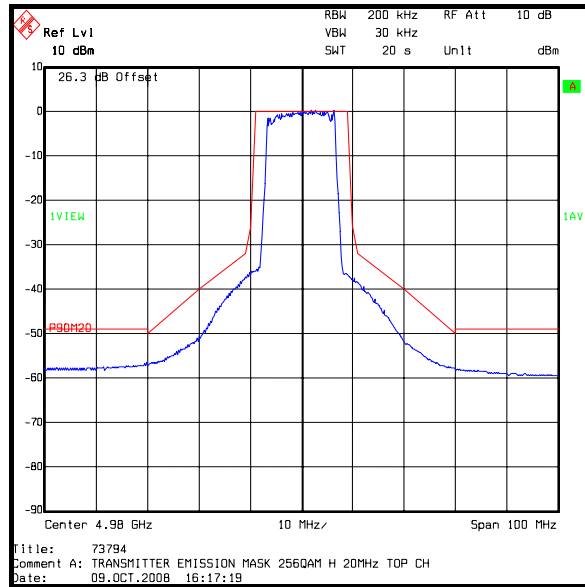
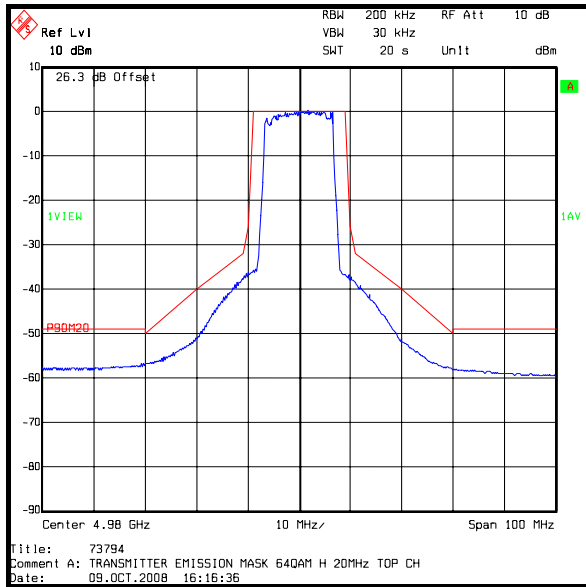
**20 MHz Channel – Top Channel**



Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

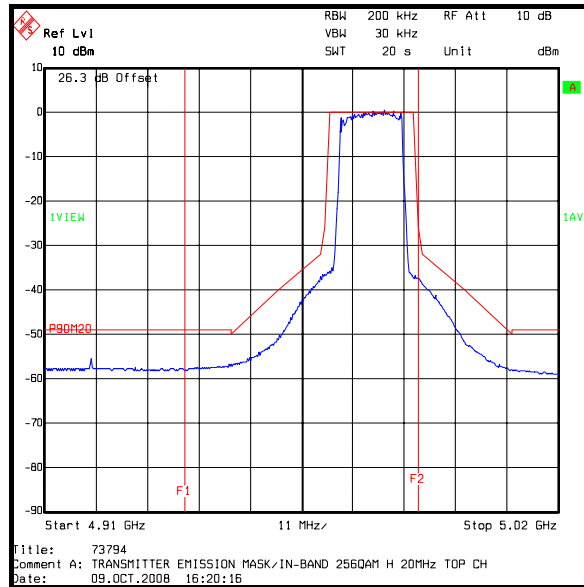
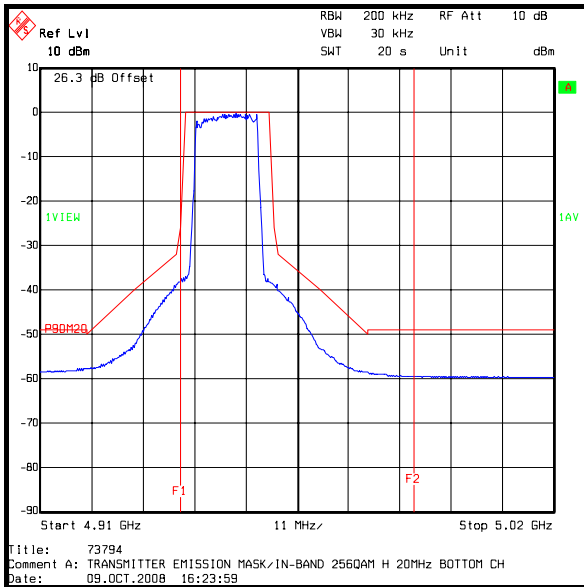
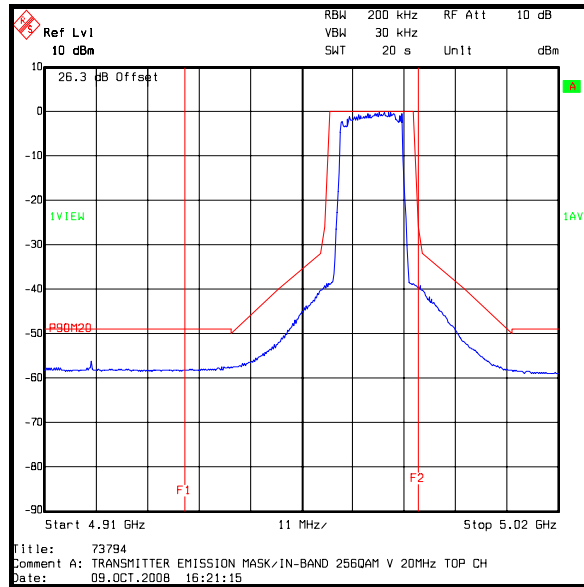
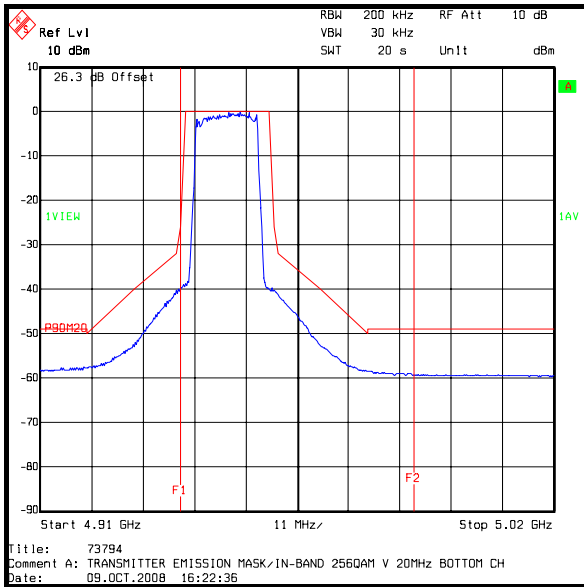
**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**

**20 MHz Channel – Top Channel**



Test of: **Motorola**  
**PTP49600**  
To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007**  
**and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions Masks: Section 90.210(m)/2.1051 (Continued)**  
**20 MHz Channel – In-Band Emissions**





Test of: Motorola  
PTP49600  
To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

### **7.2.5. Transmitter Conducted Emissions (Out of Band): Section 90.210(m)/2.1051**

Ambient Temperature: 19°C to 21°C

Relative Humidity: 43% to 51%

Test procedure as per TIA-603-B Section 2.2.13.

#### **Results: Port H**

#### **20 MHz Channel - 256 QAM**

##### **Bottom Channel**

Frequency (MHz)	Emission Level (dBm/MHz)	Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
980.336	-53.8	65.3	-36.5	28.8	Complied
4770.326	-47.0	58.5	-36.5	22.0	Complied
5130.334	-53.7	65.2	-36.5	28.7	Complied

##### **Middle Channel**

Frequency (MHz)	Emission Level (dBm/MHz)	Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
994.464	-53.2	65.2	-36.8	28.4	Complied
4770.326	-30.6	42.6	-36.8	5.8	Complied
5160.164	-54.1	66.1	-36.8	29.3	Complied

##### **Top Channel**

Frequency (MHz)	Emission Level (dBm/MHz)	Emission Level (dBc)	Limit (dBc)	Margin (dB)	Result
1007.541	-52.0	64.0	-36.8	25.4	Complied
4770.326	-47.0	59.0	-36.8	22.2	Complied
5190.801	-55.1	67.0	-36.8	30.2	Complied

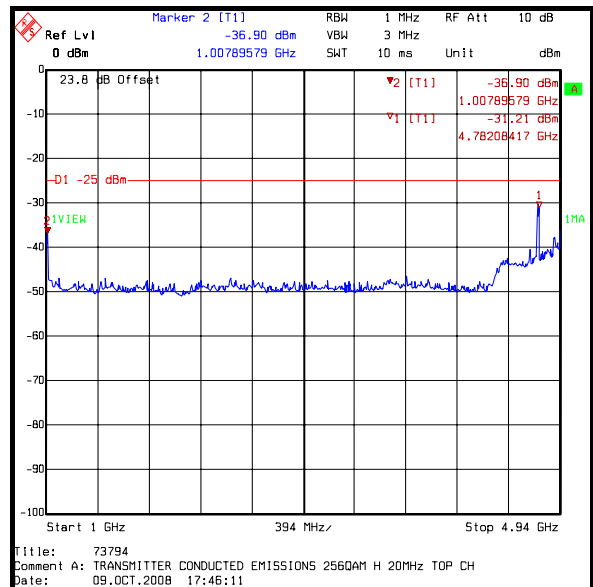
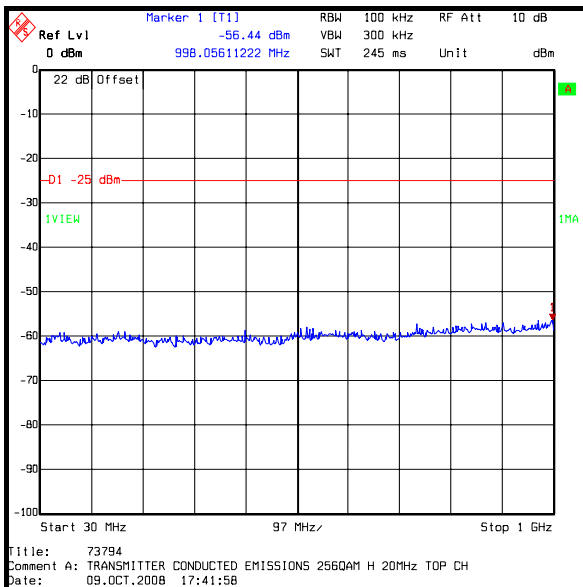
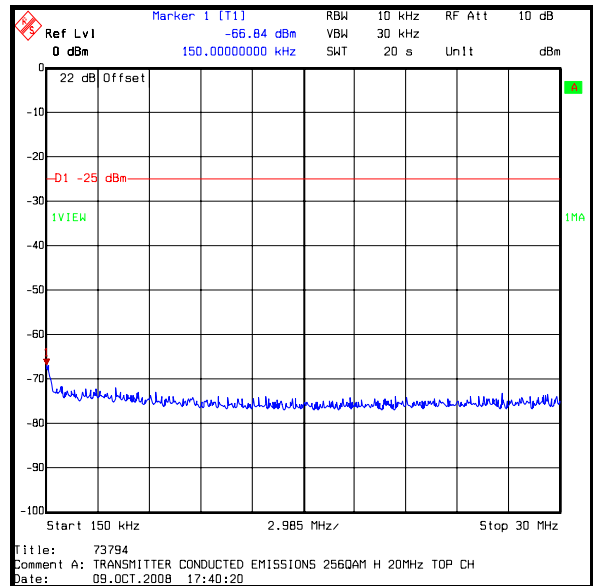
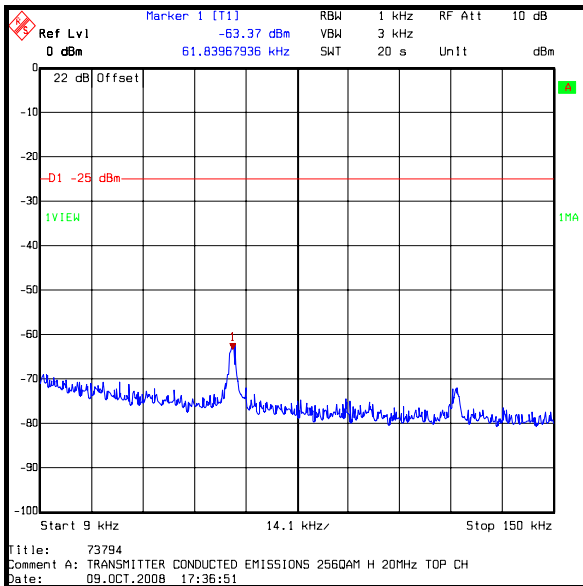
#### **Note(s):**

1. Pre-scans were performed on the top channel only.
2. All channel widths and modulation types were tested during pre-scans. Results for a 20 MHz channel and 256QAM are shown in this report as this combination was found to produce the highest emission levels and therefore was the worst case.

Test of: **Motorola  
 PTP49600**  
 To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
 and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions (Out of Band): Section 90.210(m)/2.1051 (Continued)**

**Bottom Channel**

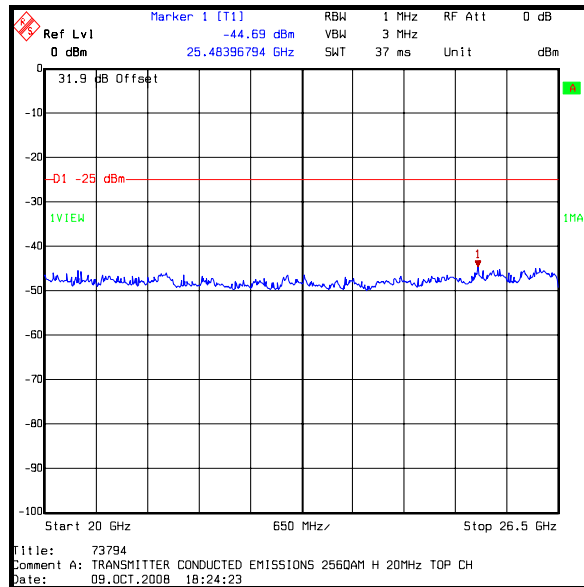
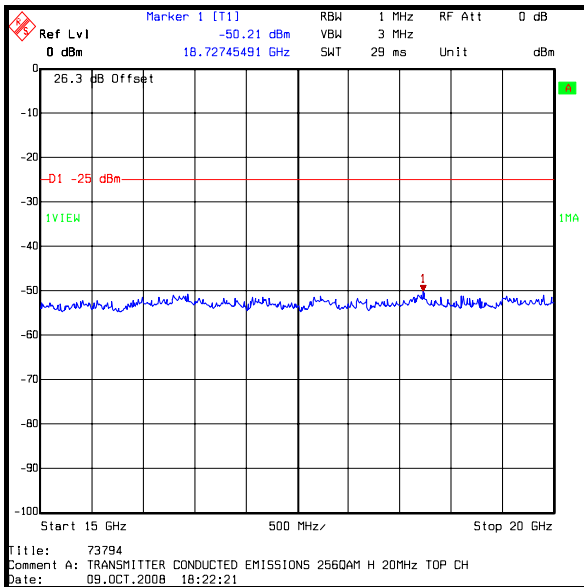
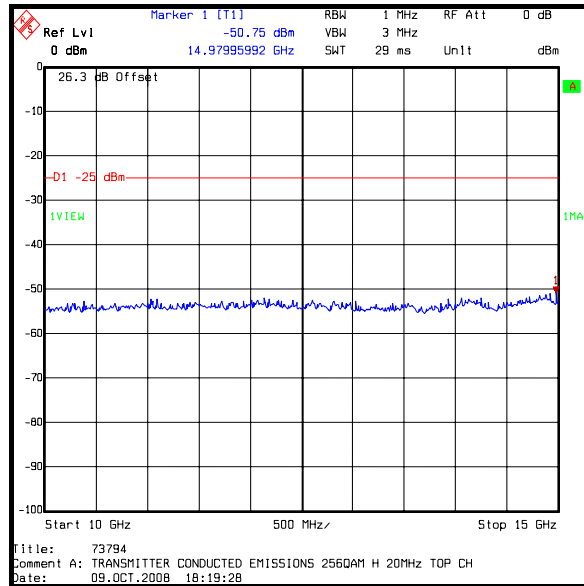
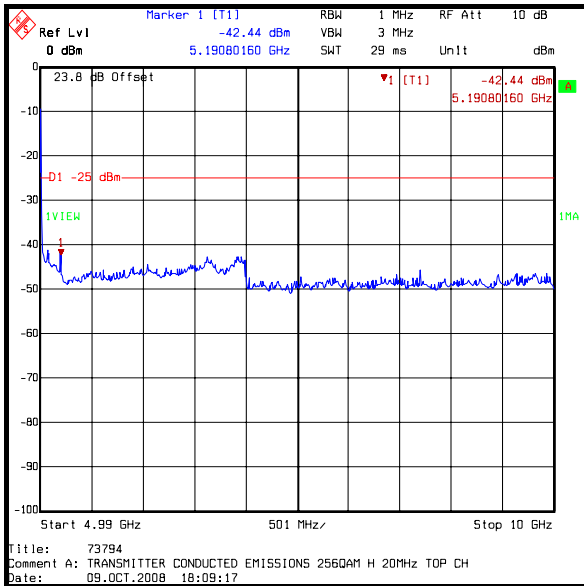


Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

Test of: **Motorola  
 PTP49600**  
 To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
 and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions (Out of Band) Section 90.210(m)/2.1051 (Continued)**

**Middle Channel**

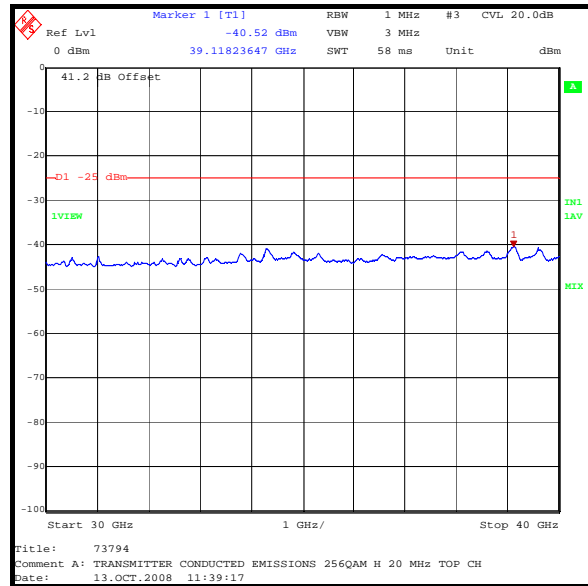
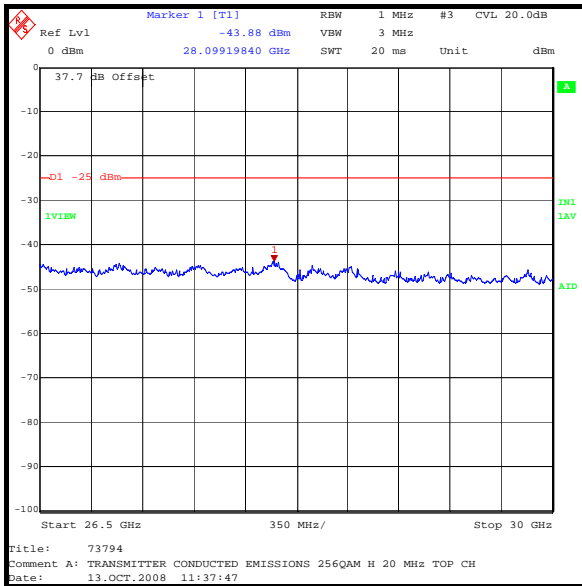


Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

Test of: **Motorola  
 PTP49600**  
 To: **FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
 and RSS-111 Issue 2 June 2007**

**Transmitter Conducted Emissions (Out of Band): Section 90.210(m)/2.1051 (Continued)**

**Top Channel**



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.



Test of: Motorola  
PTP49600

To: FCC Part 90: 2007, RSS-Gen Issue 2 June 2007  
and RSS-111 Issue 2 June 2007

**Centre Channel - 4962.5 MHz - CW Test Tone 4963.75 MHz**

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)
-40	4963.710550	39454	7.8
-30	4963.711799	38201	7.7
-20	4963.713051	36949	7.4
-10	4963.713050	36950	7.4
0	4963.718061	31939	6.4
10	4963.721819	28181	5.7
20	4963.723070	26930	5.4
30	4963.723071	26929	5.4
40	4963.719314	30686	6.2
50	4963.714304	35696	7.2

**Transmitter Frequency Stability (Temperature Variation) (Continued)**

**Top Channel - 4987.5 MHz - CW Test Tone 4988.75 MHz**

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)
-40	4988.711799	38201	7.7
-30	4988.713051	36949	7.4
-20	4988.709294	40706	8.2
-10	4988.716810	33190	6.7
0	4988.716810	33190	6.7
10	4988.720570	29430	5.9
20	4988.719314	30686	6.2
30	4988.724324	25676	5.2
40	4988.724324	25676	5.2
50	4988.716809	33191	6.7

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### 7.2.7. Transmitter Frequency Stability (Voltage Variation)

Results: Port H

#### 5 MHz Channel Bandwidth

##### Bottom Channel - 4942.5 MHz - CW test Tone 4943.75 MHz

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)
102	4943.720566	29434	6.0
120	4943.719310	30690	6.2
138	4943.718061	31939	6.5

##### Centre Channel - 4962.5 MHz - CW Test Tone 4963.75 MHz

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)
102	4963.726130	23870	4.8
120	4963.723070	26930	5.4
138	4963.724879	25121	6.5

##### Top Channel - 4987.5 MHz - CW Test Tone 4988.75 MHz

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)
102	4988.723384	26616	5.3
120	4988.719314	30686	6.2
138	4988.723384	26616	5.3

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## **8. Measurement Uncertainty**

<b>Measurement Type</b>	<b>Range</b>	<b>Confidence Level (%)</b>	<b>Calculated Uncertainty</b>
AC Conducted Spurious Emissions	0.15 MHz to 30.0 MHz	95%	+/- 3.25 dB
Conducted Carrier Output Power	9 kHz to 26 GHz	95%	+/- 1.2 dB
Carrier Output Power (ERP)	30 MHz to 1000 MHz	95%	+/- 1.78 dB
Occupied Bandwidth	N/A	95%	+/- 0.12%
Conducted Emissions Antenna Port	9 kHz to 26 GHz	95%	+/- 1.2 dB
Frequency Stability	Not applicable	95%	+/- 20 Hz

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.



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### Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A1392	Attenuator	HUBER + SUHNER AG	757456	6820.17.B	Calibrated before use	-
A174	Waveguide Transition	Flann Microwave Ltd	22094-KF20	211	Calibration not required	-
A1785	Low Noise Amplifier	Farran Technology	FLNA-28-30	FTL 6483	Calibrated before use	-
C1190	Cable	Rosenburg	FA210A1015M 3030	27141-05	Calibrated before use	-
C1192	Cable	Rosenburg	FA210A1015M 3030	27141-07	Calibrated before use	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibration not required	-
G085	Continuous Wave Generator	Hewlett Packard	83650L	3614A00104	03 Nov 2006	24
K0004	Site Reference 4428	RFI Global Services Ltd	N/A	N/A	Calibration not required	-
L0980	R&S FSUP	R&S	FSUP	10-300137015	Calibration not required	-
M1069	Diode Power Sensor	Rohde & Schwarz	NRV-Z2	838824/010	08 May 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	19 Feb 2008	12
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986/022	29 Nov 2007	12
M1269	Multimeter	Fluke	179	90250210	09 Apr 2008	12
M1390	Harmonic Mixer	Farran Technology	WHMP 28	FTL1677B	Calibrated before use	-
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	24 Apr 2008	12

**NB** In accordance with UKAS requirements, all the measurement equipment is on a calibration schedule.