



Electromagnetic Compatibility Test Report

Test Report No: MOT 300611 Rev.3

Issued on: June 17, 2014

Product Name

VML700: Model: F4080A

VML750: Model No: FLN0058A

Tested According to

FCC 47 CFR, Part 27

(LTE Band 13 & Band 14)

Tests Performed for

Motorola Solutions Inc.

One Motorola Plaza, Holtsville, N.Y 11742, USA

QualiTech EMC Laboratory, ECI Telecom

30 Hasivim Street,
Petah-Tikva, 49517, Israel

Tel: +972-3-926 8443

Fax: +972-3-928 7490



ELECTRICAL TESTING
CERT #1633.01

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Test Personnel



Tests Performed By: -----

Sergey Kapustin



Report Prepared By: -----

Bina Talkar



Report Reviewed By: -----

Rami Nataf
EMC Lab. Manager
QualiTech EMC Laboratory

Test Report details:

Test commencement date: 01.06.2011
Test completion date: 24.06.2011
Customer's representative: Oren Ratzon
Issued on: 14.05.2014

Revision details:

Version	Date	Details/Reasons
Rev. 1	30.06.2011	-
Rev. 2	14.05.2014	Per customer's request VML750, Model No. FLN0058A added to the test report as the LE55 module included in VML700 is used in VML750 also, while module interface including RF parameters have not been changed.
Rev.3	17.06.2014	The frequencies measurement were revised according to actual measurement,page # 33

Assessment information:

This report contains an assessment of the EUT against Electromagnetic Compatibility based upon tests carried out on the samples submitted. The results contained in this report relate only to the items tested. Manufactured products will not necessarily give identical results due to production and measurement tolerances. QualiTech, EMC Lab does not assume responsibility for any conclusion and generalization drawn from the test results with regards to other specimens or samples of type of the equipment represented by test item.

The EUT was set up and exercised using the configuration, modes of operation and arrangements defined in this report only.

Modifications:

Modifications made to the EUT

None

Modifications made to the Test Standard

None

Summary of Compliance Status

Test Spec. Clause	Test Case	Remarks
Conducted RF Power Output	47 CFR §27.50 (b)(9) & §2.1046	Comply
Occupied bandwidth	47 CFR §2.1049	Comply
Conducted Spurious Emissions for operations in the 776-788 MHz band	47 CFR §27.53 (c) (2)	Comply
Band Edge compliance for operations in the 776-788 MHz band	47 CFR §27.53 (c)(2)	Comply
Conducted Spurious Emissions between 763-775 MHz and 793-805 MHz	47 CFR §27.53 (c)(4)	Comply
Conducted Spurious Emissions for operations in the 788-793 MHz band	47 CFR §27.53 (d)(3)	Comply
Conducted Spurious Emissions between 769-775 MHz and 799-805 MHz	47 CFR §27.53 (d)(2)	Comply
Radiated Peak Power Output	47 CFR §27.50 (b)(9)	Comply
Field Strength of Spurious Radiation for operations in the 776-788 MHz band	47 CFR §27.53 (c)(2)	Comply
Field Strength of Spurious Radiation between 763-775 MHz and 793-805 MHz	47 CFR §27.53 (c)(4)	Comply
Field Strength of Spurious Radiation for operations in the 788-793 MHz band	47 CFR §27.53 (d)(3)	Comply
Field Strength of Spurious Radiation between 769-775 MHz and 799-805 MHz	47 CFR §27.53 (d)(2)	Comply
Field Strength of Spurious Radiation in the band 1559-1610 MHz	47 CFR §27.53 (f)	Comply
Frequency Stability	47 CFR §27.54 & §2.1055	Comply

Table of Contents

1.	GENERAL DESCRIPTION.....	6
2.	METHOD OF MEASUREMENTS	8
2.1.	Conducted RF Measurements:	8
2.2.	Field Strength of Spurious Radiation Measurements:	9
2.3.	Frequency stability measurements:.....	10
2.4.	Worst Case Results:	10
3.	TEST FACILITY & UNCERTAINTY OF MEASUREMENT	11
3.1.	Accreditation/ Registration reference:.....	11
3.2.	Test Facility description	11
3.3.	Uncertainty of Measurement:	12
4.	MEASUREMENTS.....	13
4.1.	Conducted RF Power Output.....	13
4.2.	Occupied bandwidth	15
4.3.	Conducted Spurious Emissions for operations in the 776-788 MHz band	24
4.4.	Band Edge compliance for operations in the 776-788 MHz band	33
4.5.	Conducted Spurious Emissions between 763-775 MHz and 793-805 MHz	42
4.6.	Conducted Spurious Emissions for operations in the 788-793 MHz band	51
4.7.	Conducted Spurious Emissions between 769-775 MHz and 799-805 MHz	73
4.8.	Radiated Peak Power Output	82
4.9.	Field Strength of Spurious Radiation for operations in the 776-788 MHz band	87
4.10.	Field Strength of Spurious Radiation between 763-775 MHz and 793-805 MHz	93
4.11.	Field Strength of Spurious Radiation for operations in the 788-793 MHz band	98
4.12.	Field Strength of Spurious Radiation between 769-775 MHz and 799-805 MHz	109
4.13.	Field Strength of Spurious Radiation in the band 1559-1610 MHz	114
4.14.	Frequency Stability	117
5.	APPENDIX	119

1. General Description

Band 13

Description: Its basic purpose is used for communication the VML700 consists of LTE BC 13, LTE BC 14 , EVDO Rev A (CDMA) , WiFi 802.11b/g/n

In case of no coverage in LTE band the device will switch automatically to CDMA/EVDO cellular band (BC0 /BC1)

Description of the EUT System/Test Item: LTE User Equipment (Modem)

Product Name: VML700

Model: F4080A

FCC ID: AZ492FT7045

IC: 109U-92FT7045

Description: Its basic purpose is used for communication the VML700 consists of LTE BC 13, LTE BC 14 , EVDO Rev A (CDMA) , WiFi 802.11b/g/n

Product Name: VML750

Model: FLN0058A

FCC ID: AZ492FT7060

IC: 109U-92FT7060

Description: Its basic purpose is used for communication the VML750 consists of LTE BC 13, LTE BC 14 , WiFi 802.11b/g/n

Maximum Peak Output Power: 25.7dBm

Nominal Output Power: 23.5dBm

Frequency Range: LTE BC 13 Tx: 777MHz-787MHz, Rx: 746MHz-756MHz

Transmit Data Rate:

Protocol	Rate [Mbps]
UE- Category 3	Up to 28Mbps (peak)

Type of Modulation:

Protocol	Modulation
LTE	QPSK
LTE	16QAM

Antenna Specification:

Type: Elevated feed Dipole

Gain: VML700: Gain (including 12ft coaxial cable): 0.1 dBi .
VML750: Gain: 5 dBi

Band 14

Description of the EUT System/Test Item: LTE User Equipment (Modem)

Product Name: VML700

Model: F4080A

FCC ID: AZ492FT7045

IC: 109U-92FT7045

Description: Its basic purpose is used for communication the VML700 consists of LTE BC 13, LTE BC 14, EVDO Rev A (CDMA) , WiFi 802.11b/g/n

In case of no coverage in LTE band the device will switch automatically to CDMA/EVDO cellular band (BC0 /BC1)

Maximum Peak Output Power: 25.7dBm

Nominal Output Power: 23.5dBm

Frequency Range: LTE BC 14 Tx: 788MHz-798MHz Rx: 758MHz-768MHz

Transmit Data Rate:

Protocol	Rate [Mbps]
UE- Category 3	Up to 10Mbps (peak)

Type of Modulation:

Protocol	Modulation
LTE	QPSK
LTE	16QAM

Antenna Specification:

Type: Elevated feed Dipole

Gain (including 12ft coaxial cable): 0.1dBi

2. Method of Measurements

2.1. Conducted RF Measurements:

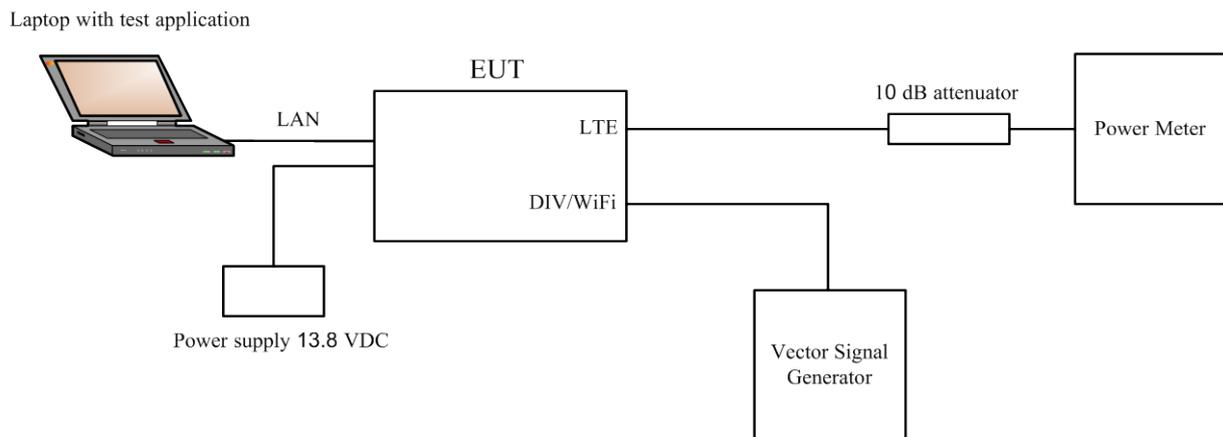
During Conducted RF Power Output verification test, the transmitter's output was connected to the power meter through an attenuator. The external attenuations were taken into account to correct the reading. Worst-case results of the various operation & modulation modes were reported (where applicable).

For Occupied Bandwidth measurement, the Spectrum Analyzer with appropriate integrated feature was employed.

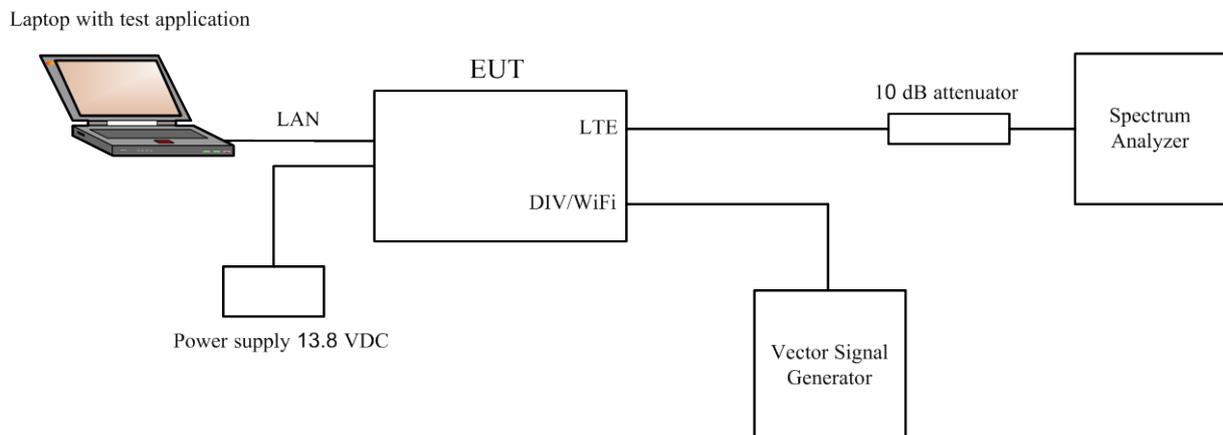
For Out of Band emissions measurement, the spectrum was investigated from 9 kHz up to at least the tenth harmonic of the highest fundamental frequency. Multiple sweeps were recorded in max hold mode using a peak detector to ensure that the worst-case emissions were caught.

Test Setups:

RF Power Output verification



Out of Band Emissions



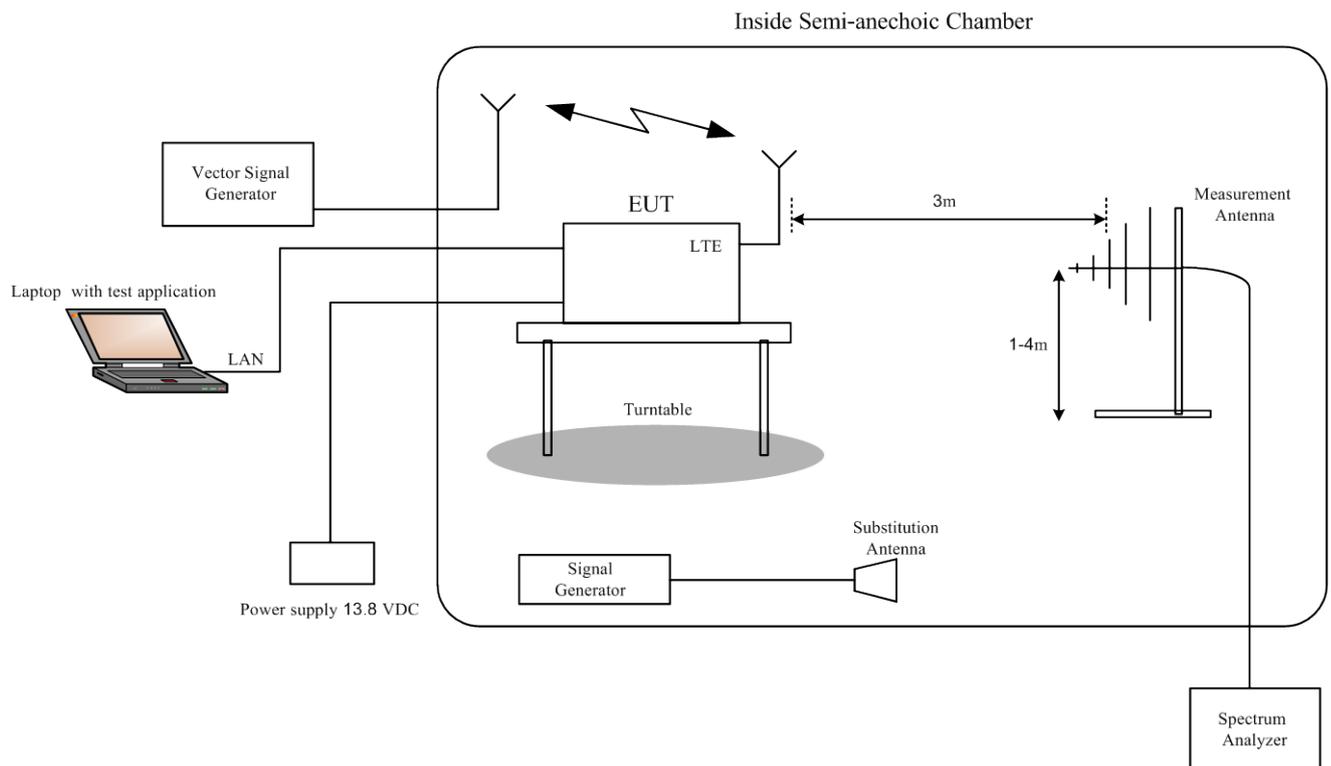
2.2. Field Strength of Spurious Radiation Measurements:

Measurements were performed in a semi-anechoic chamber at a 3-meter measurement distance in order to evaluate the radiated electromagnetic interference characteristics of the EUT. The EUT was placed on a non-metallic table, 0.8 m above the turntable, was configured, arranged and operated in a manner consistent with typical application and load conditions. The test program of exercising equipment ensured that various parts of the EUT were exercised to permit detection of all EUT disturbances.

While the turntable was being rotated around 360 degrees, the height of the antenna was varied from 1 to 4 m for the frequency range from 30 MHz up to at least the tenth harmonic of the highest fundamental frequency. Measurements were performed for vertical and horizontal polarization.

Using the Substitution Method in accordance to ANSI/TIA-603, an antenna with a known gain substituted the EUT, and an RF signal source was connected to the antenna input. The signal source level was adjusted until the previously recorded maximum reading was obtained. The power source reading was corrected for the cable loss and the antenna gain was added to obtain the calculated ERP/EIRP peak power. Measurements were made at the low, middle and high channels (where applicable).

Test Setup:

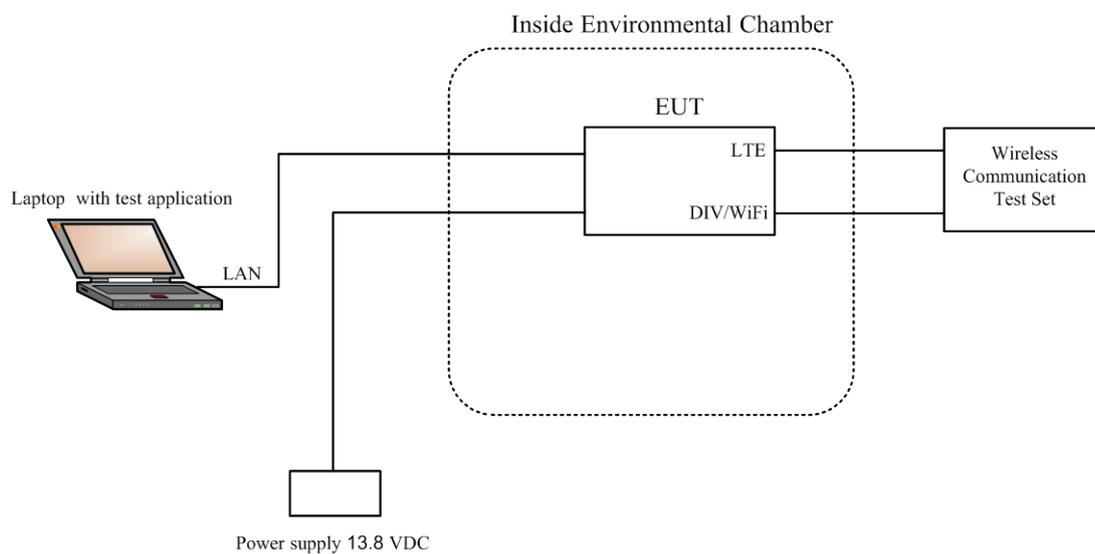


2.3. Frequency stability measurements:

The EUT was placed inside an environmental chamber and the frequency stability was measured with variations of ambient temperatures from -30°C to +60°C. Frequency measurements were made at the extremes of the specified temperature range and at intervals of 10°C through the range.

The frequency stability was measured also with variations of primary supply voltage from 85 to 115 percent of the nominal value.

Test Setup:



2.4. Worst Case Results:

Worst case result is determined for applicable modulation types and data rates. Pre-scan has been conducted to determine the worst-case.

3. Test Facility & Uncertainty of Measurement

3.1. Accreditation/ Registration reference:

- A2LA Certificate Number: 1633.01

3.2. Test Facility description

The tests were performed at the EMC Laboratory, QualiTech Division, ECI Telecom Group

Address: 30, Hasivim St., Petah Tikva, Israel.
Tel: 972-3-926-8443

3m Anechoic Chamber:

The 3m-screened chamber is used in two configurations: the semi-anechoic configuration for Radiated Emission measurements and the full-anechoic configuration for Radiated Immunity tests.

Semi Anechoic Configuration:

Measurement distance	3m
Chamber dimensions	9.5m x 6.5m x 5.2m
Antenna height	1 - 4m
Shielding Effectiveness	Magnetic field ≥ 80 dB at 15 kHz ≥ 90 dB at 100 kHz Electric field > 120 dB from 1MHz to 1GHz > 110 dB from 1GHz to 10GHz
Absorbing material	Ferrite tiles on the walls and ceiling Frankonia hybrid absorbing material in selected positions on the walls
Normalized Site Attenuation measured at 5 positions	± 3.49 dB, 30MHz to 1GHz
Transmission Loss measured at 5 positions, at 1.5m height	± 3 dB, 1GHz to 18GHz

Full-Anechoic Configuration:

Measurement distance	3m
Chamber dimensions	7m x 4m x 3m
Antenna height	1.55m at Horizontal & Vertical polarizations
Shielding Effectiveness	Magnetic field ≥ 80 dB at 15 kHz ≥ 90 dB at 100 kHz Electric field > 120 dB from 1MHz to 1GHz > 110 dB from 1GHz to 10GHz
Absorbing material	Ferrite tiles on the walls and ceiling Frankonia hybrid absorbing material in selected positions on the walls and floor
Field Uniformity to EN61000-4-3	± 3 dB 80MHz to 18GHz

3.3. Uncertainty of Measurement:

Test Name	Test Method & Range	Uncertainty	
		Combined std. Uc(y) [dB]	Expanded U [dB]
Radiated Emission	30MHz-230MHz, Horiz. polar.	1.8	3.6
	30MHz-230MHz, Ver. polar.	2.0	3.9
	230MHz-1000MHz, Horiz. polar.	1.5	3.0
	230MHz-1000MHz, Vert. polar.	1.5	3.0
Conducted Emission	9 kHz-150 kHz	1.4	2.8
	150 kHz-30MHz	1.1	2.2

4. Measurements

4.1. Conducted RF Power Output

Reference document:	47 CFR §27.50 (b)(9) & §2.1046		
Test Requirements:	Mobile stations transmitting in the 776-793 MHz band are limited to 30 watts ERP.		
Test setup:	See sec 2.1	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
Power meter Settings:	AVG		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	---	

Test Results for operations in the 776-788 MHz band:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Output Power* [dBm]	Antenna Gain** [dBd]	ERP calculated [dBm]	Limit [dBm]	Margin [dB]	Results
QPSK								
782	1	0	24.23	2.85	22.18	44.77	-22.59	Pass
	1	49	24.71	2.85	22.66	44.77	-22.11	Pass
	25	12	24.27	2.85	22.22	44.77	-22.55	Pass
	50	0	24.31	2.85	22.26	44.77	-22.51	Pass
16 QAM								
782	1	0	24.81	2.85	22.76	44.77	-22.01	Pass
	1	49	25.06	2.85	23.01	44.77	-21.76	Pass
	25	12	24.45	2.85	22.40	44.77	-22.37	Pass
	50	0	24.33	2.85	22.28	44.77	-22.49	Pass

* Corrected for external attenuations.

**As provided by the manufacture (maximum antenna gain including cable loss).

***the antenna gain is the worst case scenario out of the two antenna

Test Results for operations in the 788-793 MHz band:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Output Power* [dBm]	Antenna Gain** [dBd]	ERP calculated [dBm]	Limit [dBm]	Margin [dB]	Results
QPSK								
790.5	1	0	24.94	2.85	22.89	44.77	-21.88	Pass
	1	24	25.31	2.85	23.26	44.77	-21.51	Pass
	12	6	24.95	2.85	22.90	44.77	-21.87	Pass
	25	0	24.97	2.85	22.92	44.77	-21.85	Pass
16 QAM								
790.5	1	0	25.23	2.85	23.18	44.77	-21.59	Pass
	1	24	25.69	2.85	23.64	44.77	-21.13	Pass
	12	6	24.91	2.85	22.86	44.77	-21.91	Pass
	25	0	25.11	2.85	23.06	44.77	-21.71	Pass

* Corrected for external attenuations.

**As provided by the manufacture (maximum antenna gain including cable loss).

4.2. Occupied bandwidth

Reference document:	47 CFR §2.1049		
Test Requirements:	The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.		
Test setup:	See sec 2.1	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 30 kHz, VBW: 300 kHz for RBS 1 & RBO 0, RBS 1 & RBO 24, RBS 1 & RBO 49, RBS 12 & RBO 6 RBW: 51 kHz, VBW: 510 kHz for RBS 25 & RBO 12, RBS 25 & RBO 0 RBW: 100 kHz, VBW: 1 MHz for RBS 50 & RBO 0		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.2.1 - Plot 4.2.16	

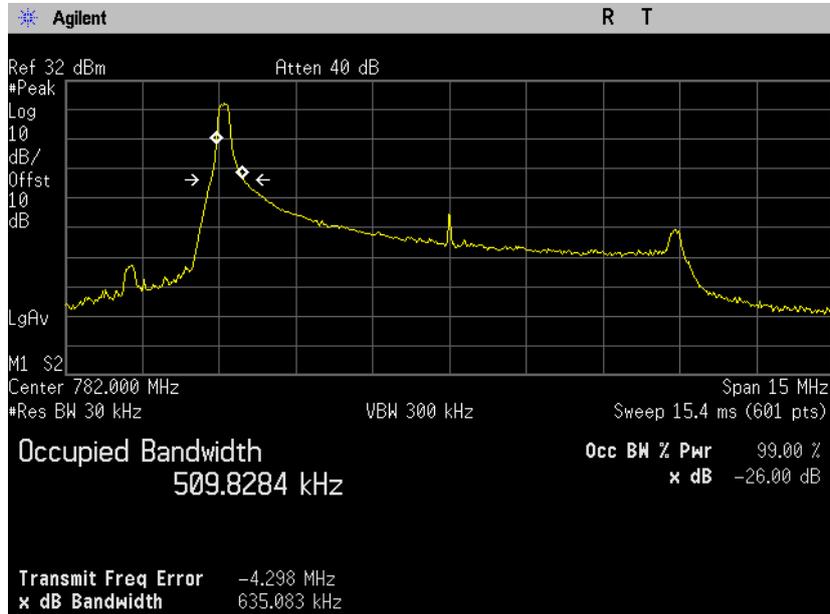
Test results for operations in the 776-788 MHz band:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Occupied BW 99% Power [MHz]	26 dB Bandwidth [MHz]	Reference Plots
QPSK					
782	1	0	0.5098284	0.635083	4.2.1
	1	49	0.4377543	0.590632	4.2.2
	25	12	4.5219	6.201	4.2.3
	50	0	8.9309	9.527	4.2.4
16 QAM					
782	1	0	0.4950192	0.657531	4.2.5
	1	49	0.5768076	0.660433	4.2.6
	25	12	4.5159	5.796	4.2.7
	50	0	8.9430	9.539	4.2.8

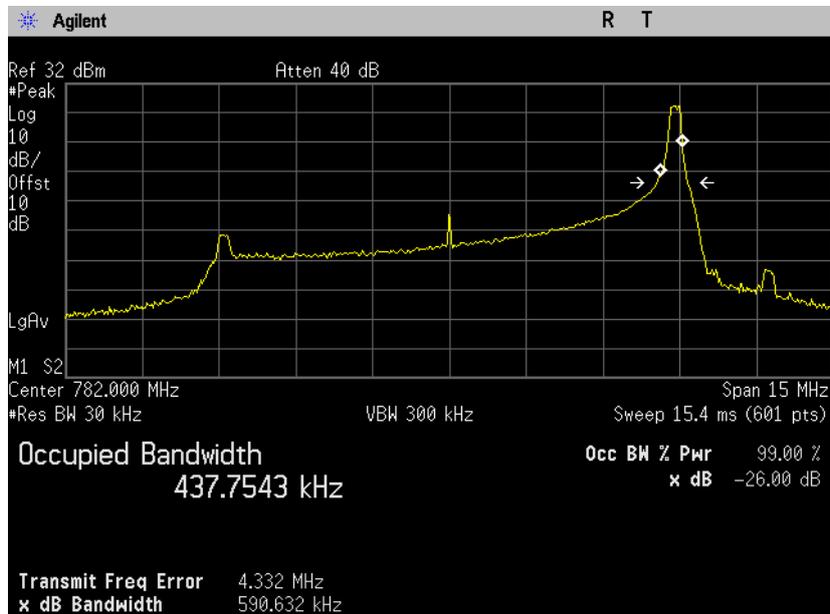
Test results for operations in the 788-793 MHz band:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Occupied BW 99% Power [MHz]	26 dB Bandwidth [MHz]	Reference Plots
QPSK					
790.5	1	0	0.4573189	0.599124	4.2.9
	1	24	0.4575546	0.586181	4.2.10
	12	6	2.1933	3.097	4.2.11
	25	0	4.4795	4.832	4.2.12
16 QAM					
790.5	1	0	0.4567247	0.589713	4.2.13
	1	24	0.4804201	0.591487	4.2.14
	12	6	2.1856	2.988	4.2.15
	25	0	4.4769	4.816	4.2.16

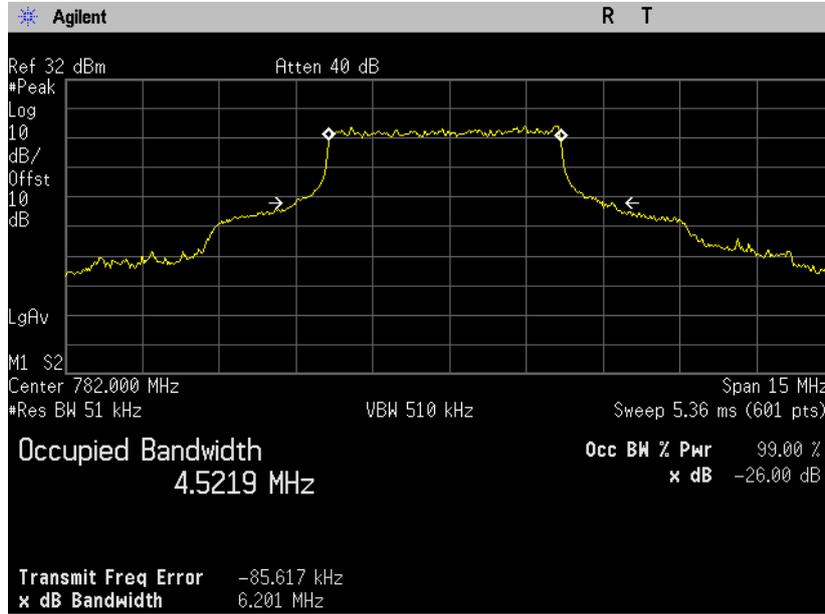
782 MHz
QPSK - RB size 1, RB Offset 0
Plot 4.2.1



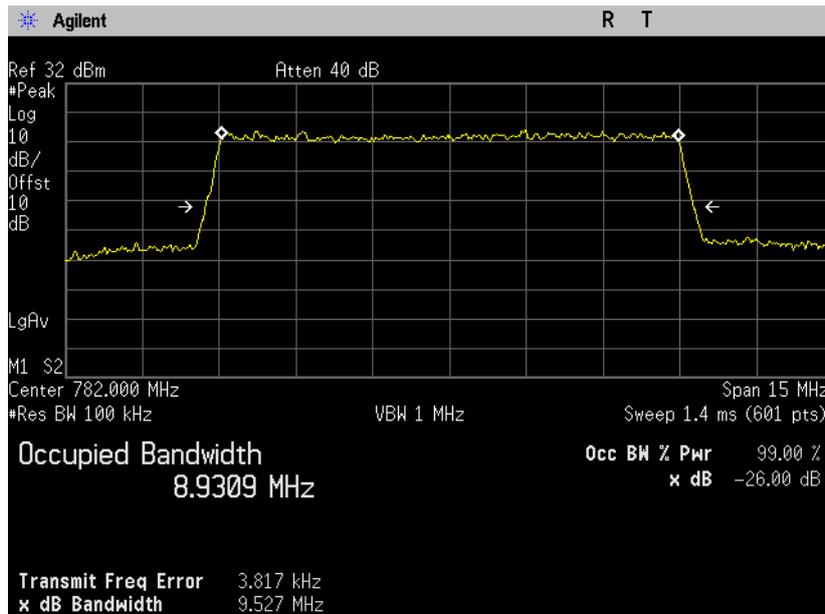
782 MHz
QPSK - RB size 1, RB Offset 49
Plot 4.2.2



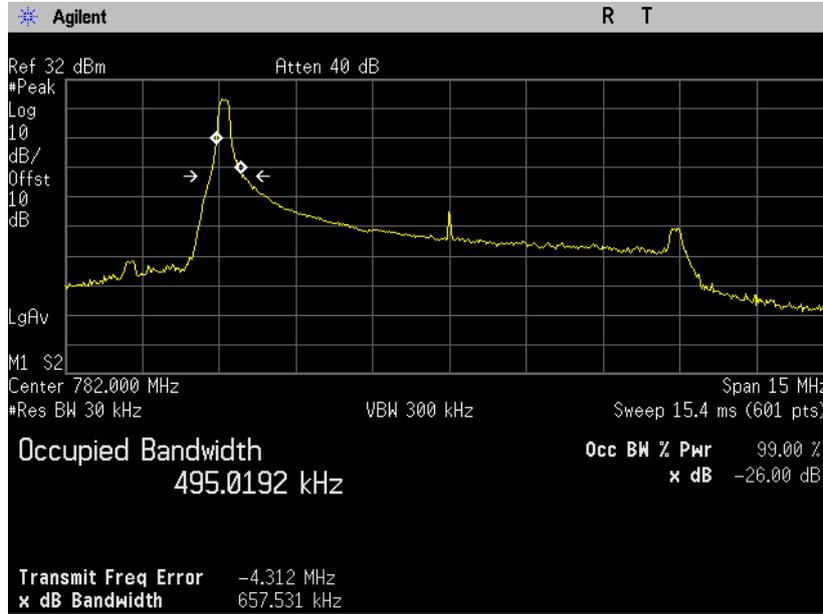
782 MHz
QPSK - RB size 25, RB Offset 12
Plot 4.2.3



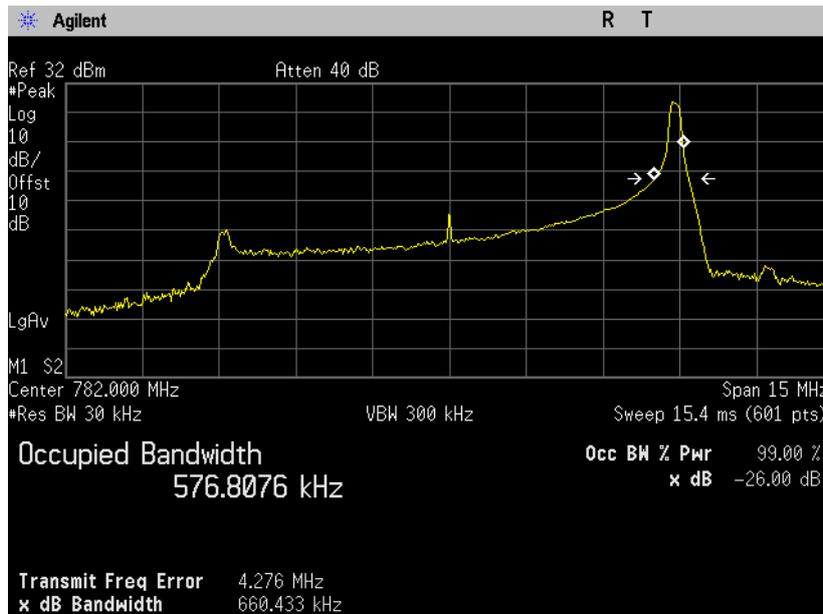
782 MHz
QPSK - RB size 50, RB Offset 0
Plot 4.2.4



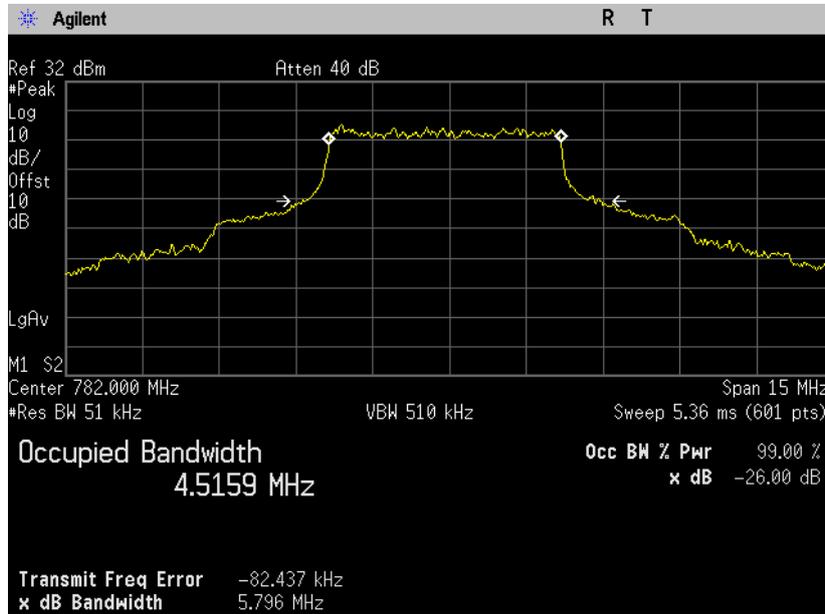
782 MHz
16 QAM - RB size 1, RB Offset 0
Plot 4.2.5



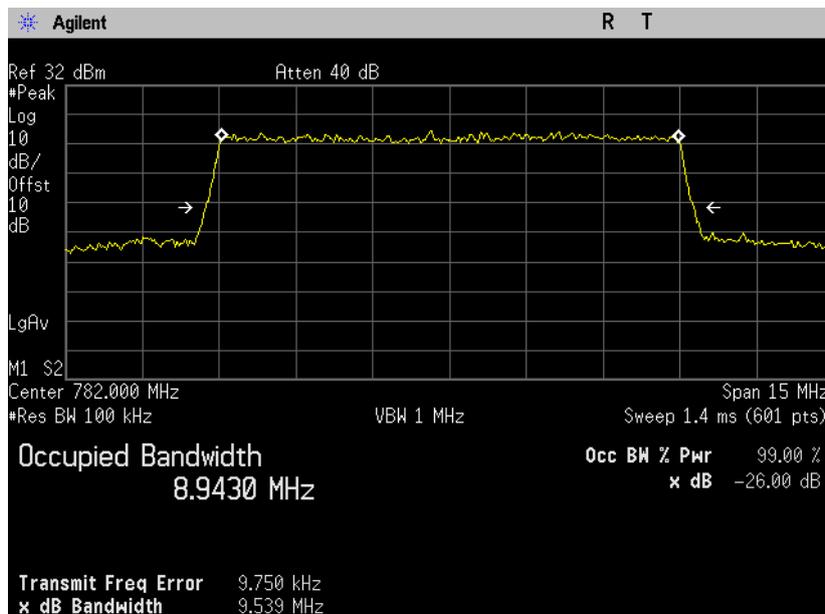
782 MHz
16 QAM - RB size 1, RB Offset 49
Plot 4.2.6



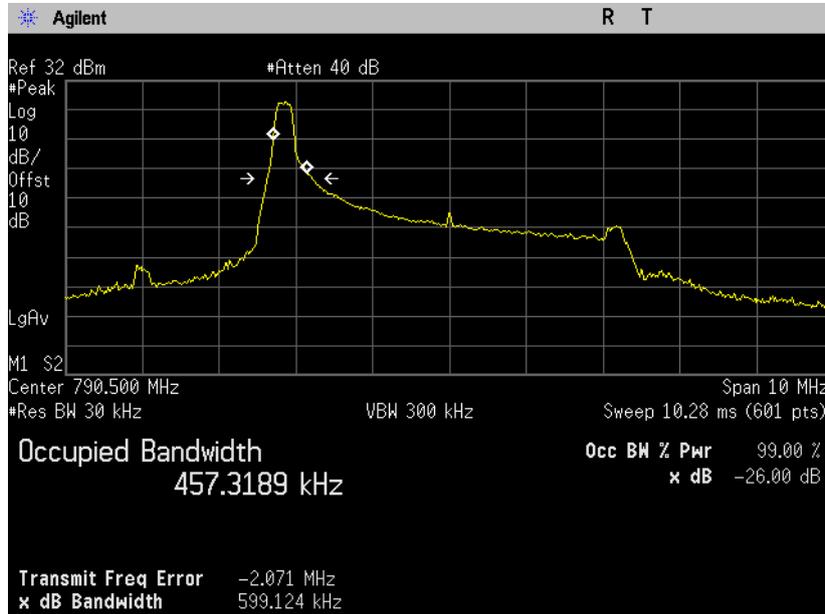
782 MHz
16 QAM - RB size 25, RB Offset 12
Plot 4.2.7



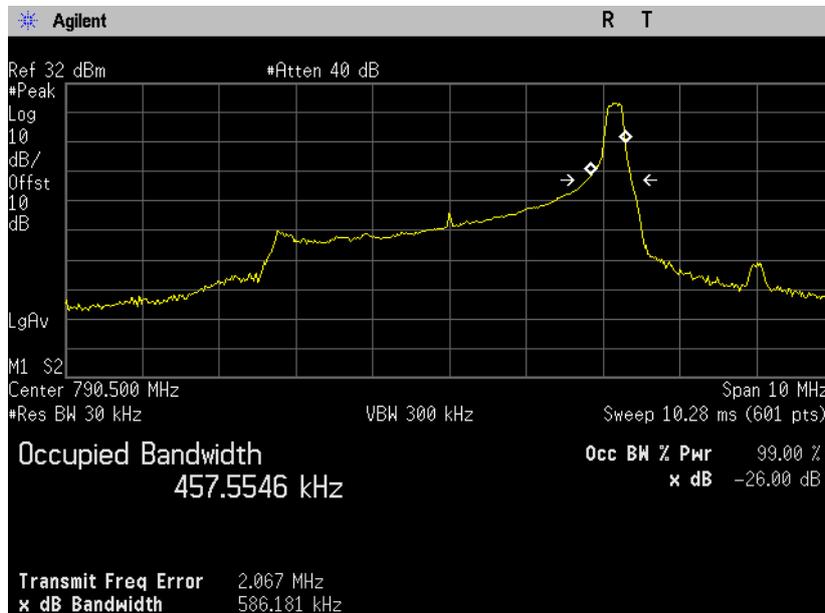
782 MHz
16 QAM - RB size 50, RB Offset 0
Plot 4.2.8



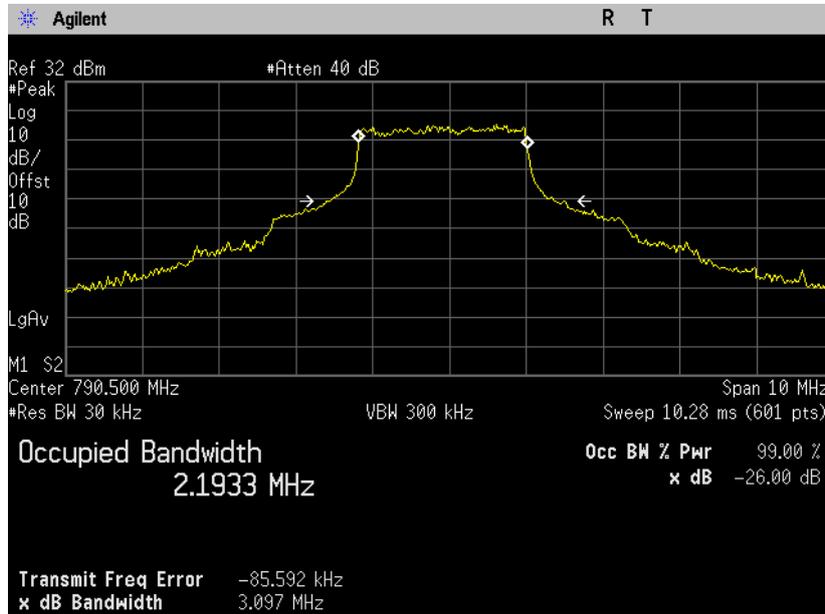
790.5 MHz
QPSK - RB size 1, RB Offset 0
Plot 4.2.9



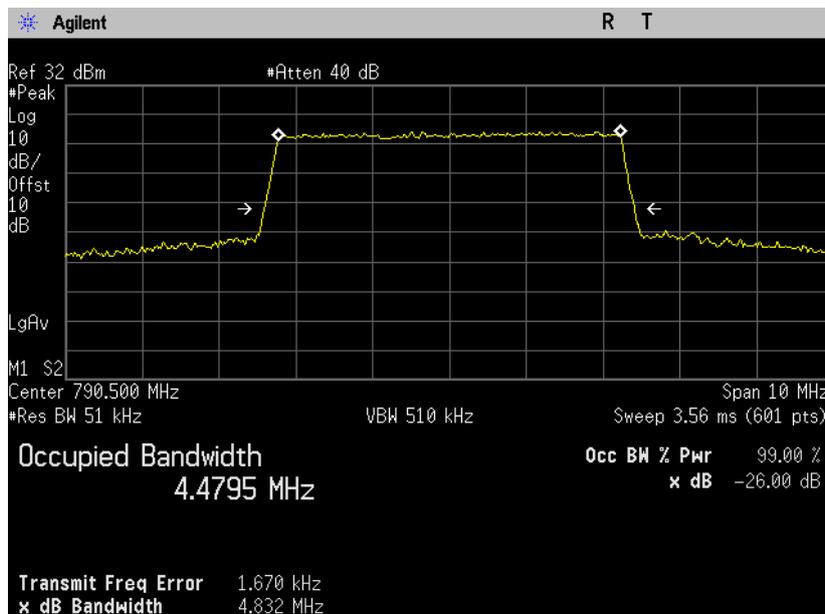
790.5 MHz
QPSK - RB size 1, RB Offset 24
Plot 4.2.10



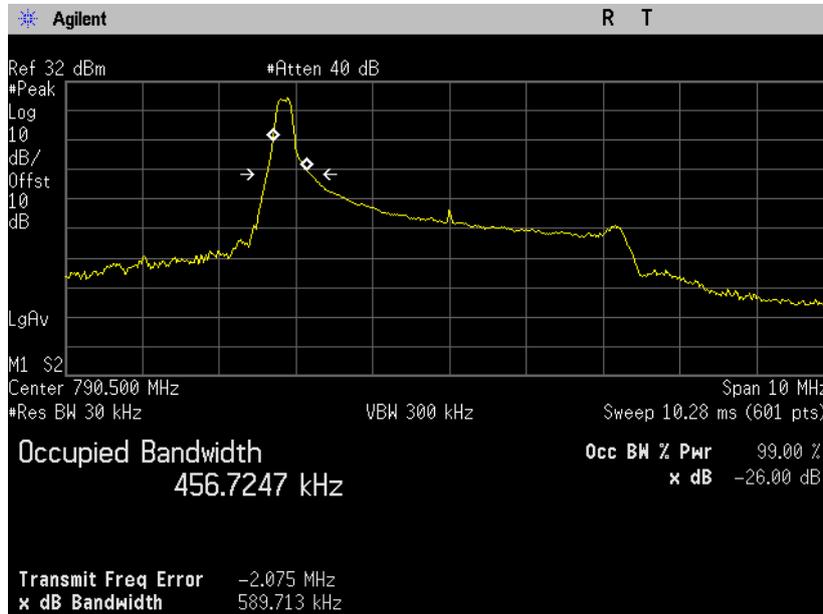
790.5 MHz
QPSK - RB size 12, RB Offset 6
Plot 4.2.11



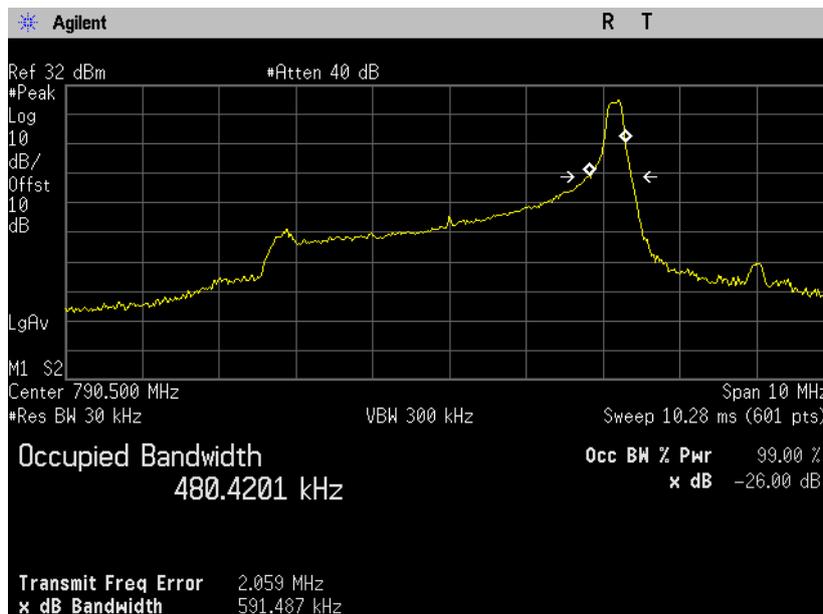
790.5 MHz
QPSK - RB size 25, RB Offset 0
Plot 4.2.12



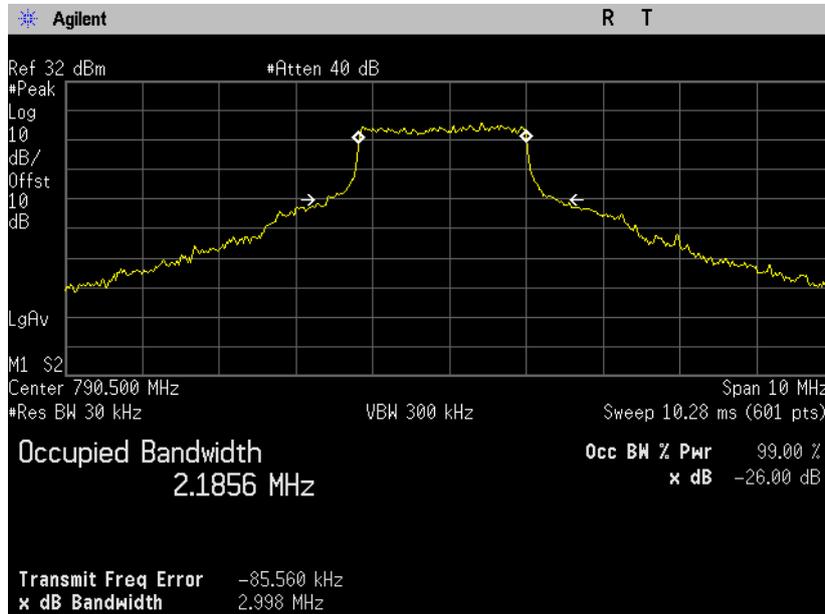
790.5 MHz
16 QAM - RB size 1, RB Offset 0
Plot 4.2.13



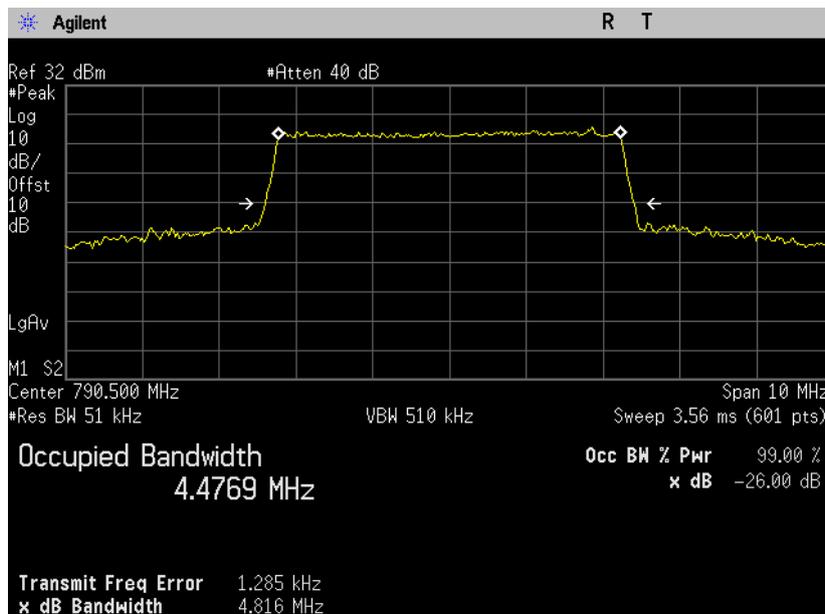
790.5 MHz
16 QAM - RB size 1, RB Offset 24
Plot 4.2.14



790.5 MHz
16 QAM - RB size 12, RB Offset 6
Plot 4.2.15



790.5 MHz
16 QAM - RB size 25, RB Offset 0
Plot 4.2.16



4.3. Conducted Spurious Emissions for operations in the 776-788 MHz band

Reference document:	47 CFR §27.53 (c) (2)		
Test Requirements:	On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 +10 log (P) dB*.		
Test setup:	See sec 2.1	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 1 MHz, VBW: 3 MHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.3.1- Plot 4.3.16	

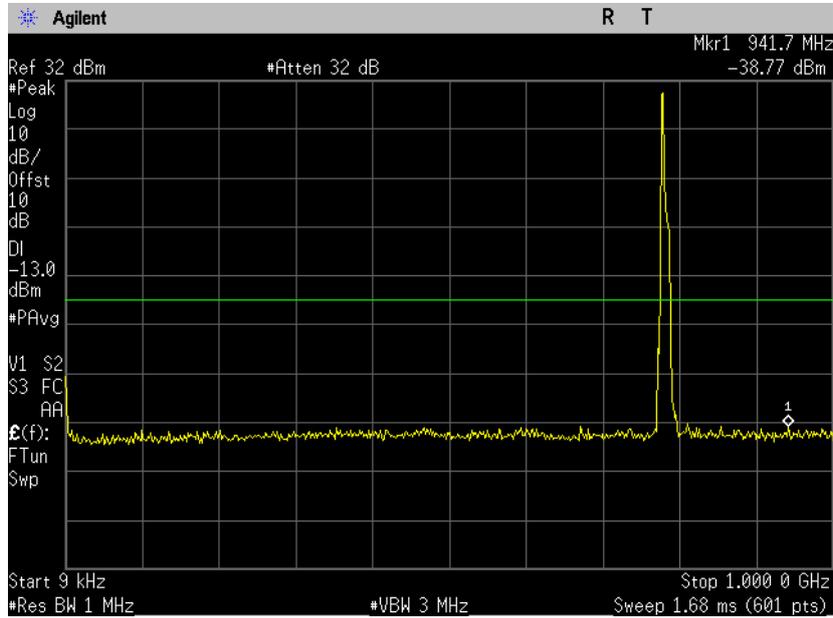
*It translates to a limit of -13dBm

Test results:

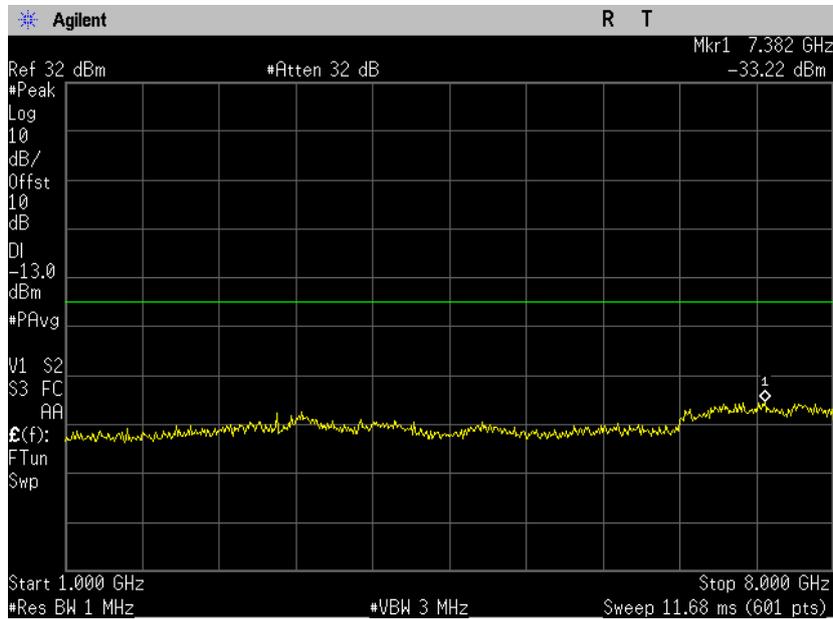
Frequency [MHz]	Resource Block Size	Resource Block Offset	Spurious Emission Frequency [MHz]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
QPSK								
782	1	0	*	*	-13	*	4.3.1-4.3.2	Pass
	1	49	*	*	-13	*	4.3.3-4.3.4	Pass
	25	12	*	*	-13	*	4.3.5-4.3.6	Pass
	50	0	*	*	-13	*	4.3.7-4.3.8	Pass
16 QAM								
782	1	0	*	*	-13	*	4.3.9-4.3.10	Pass
	1	49	*	*	-13	*	4.3.11-4.3.12	Pass
	25	12	*	*	-13	*	4.3.13-4.3.14	Pass
	50	0	*	*	-13	*	4.3.15-4.3.16	Pass

* All spurious emissions were at least 15 dB below the limit.

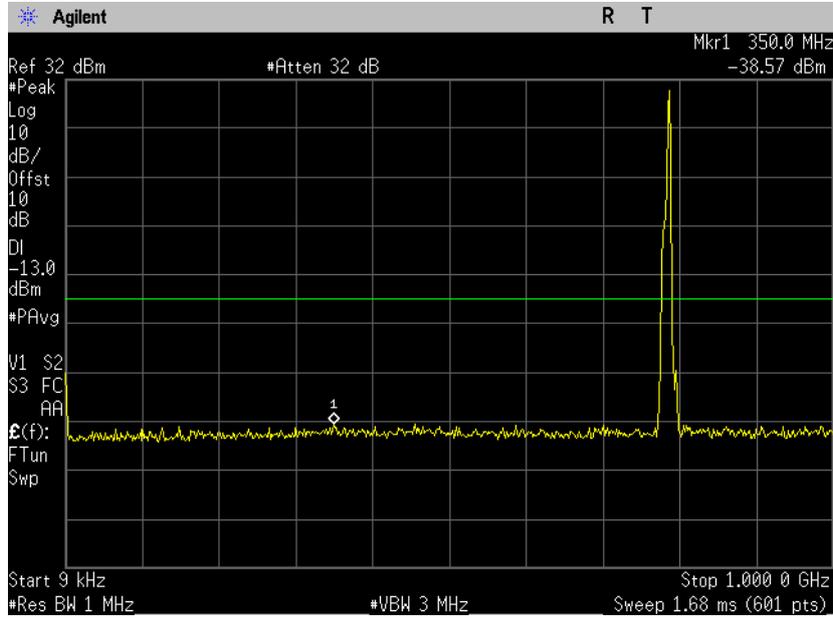
782 MHz
QPSK - RB size 1, RB Offset 0
Plot 4.3.1



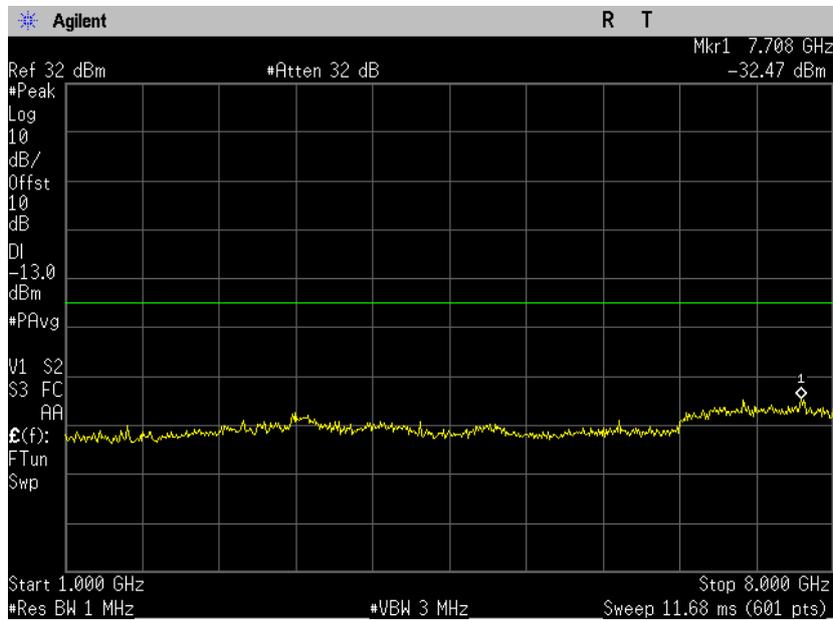
Plot 4.3.2



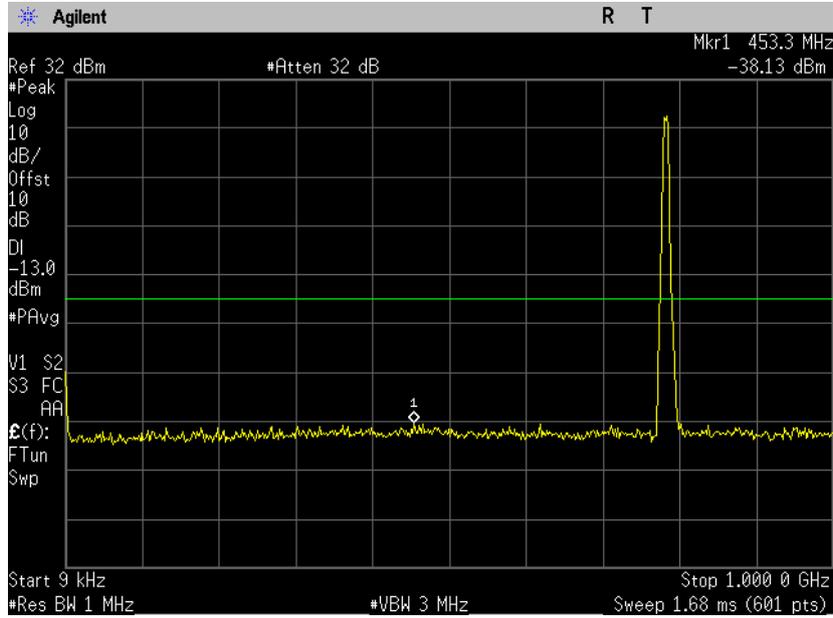
782 MHz
QPSK - RB size 1, RB Offset 49
Plot 4.3.3



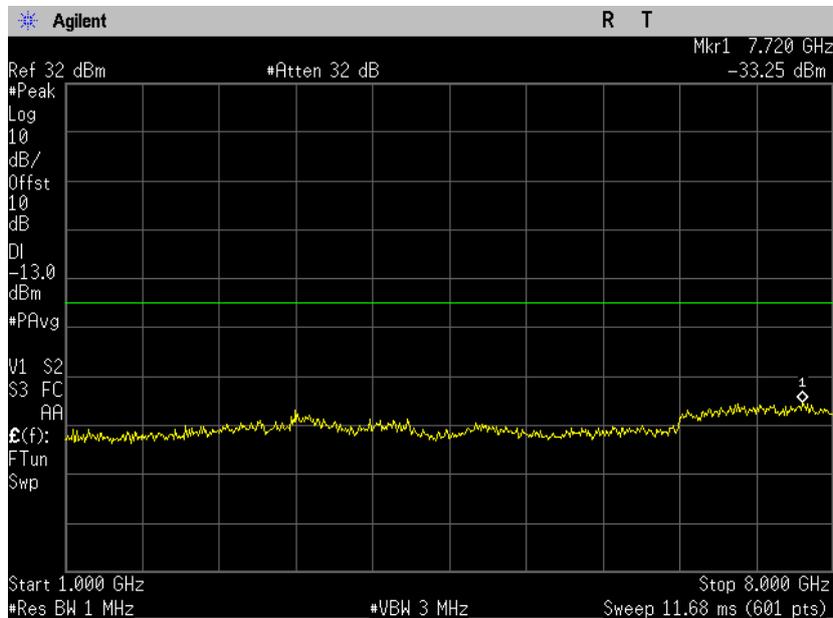
Plot 4.3.4



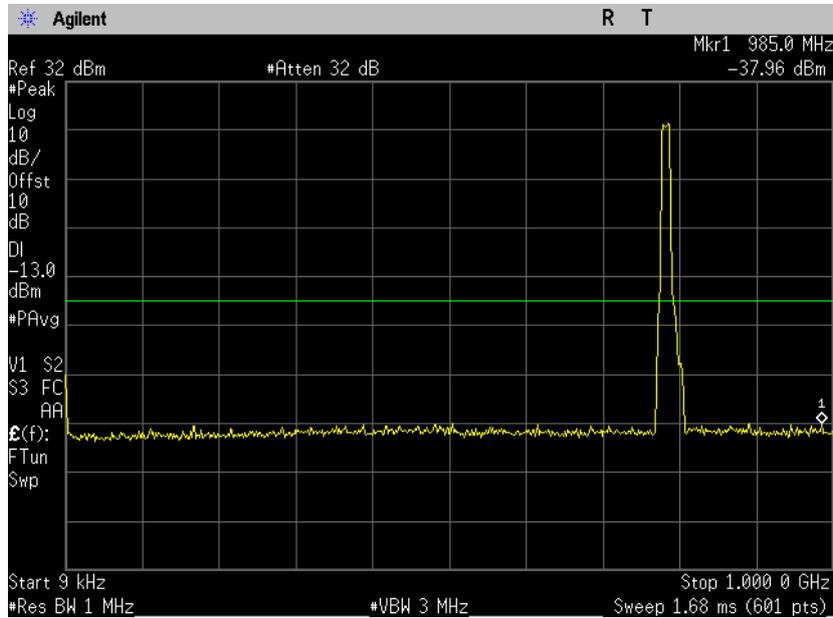
782 MHz
QPSK - RB size 25, RB Offset 12
Plot 4.3.5



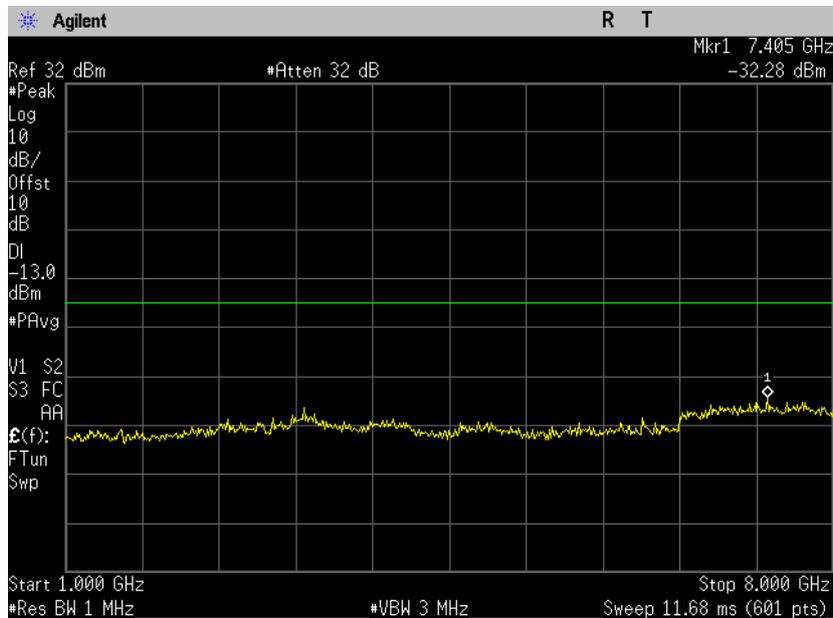
Plot 4.3.6



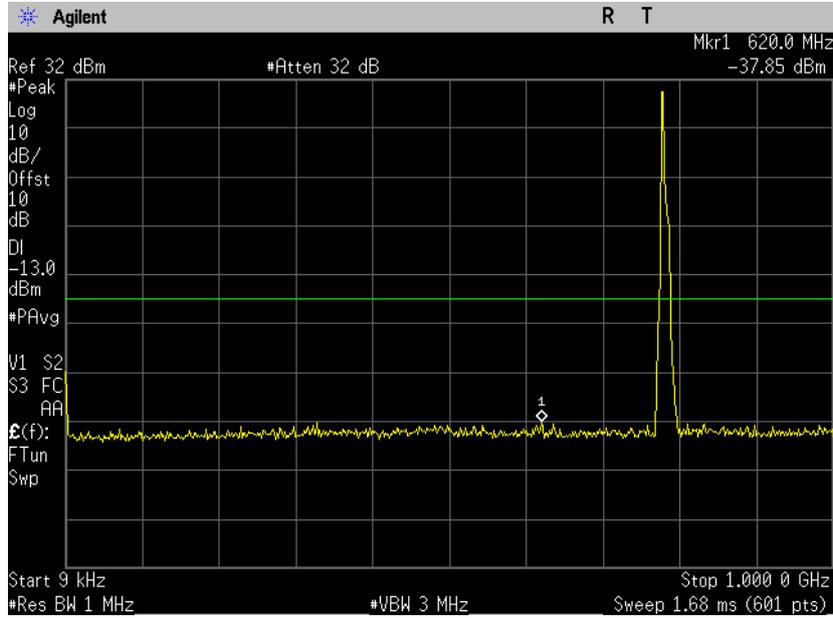
782 MHz
QPSK - RB size 50, RB Offset 0
Plot 4.3.7



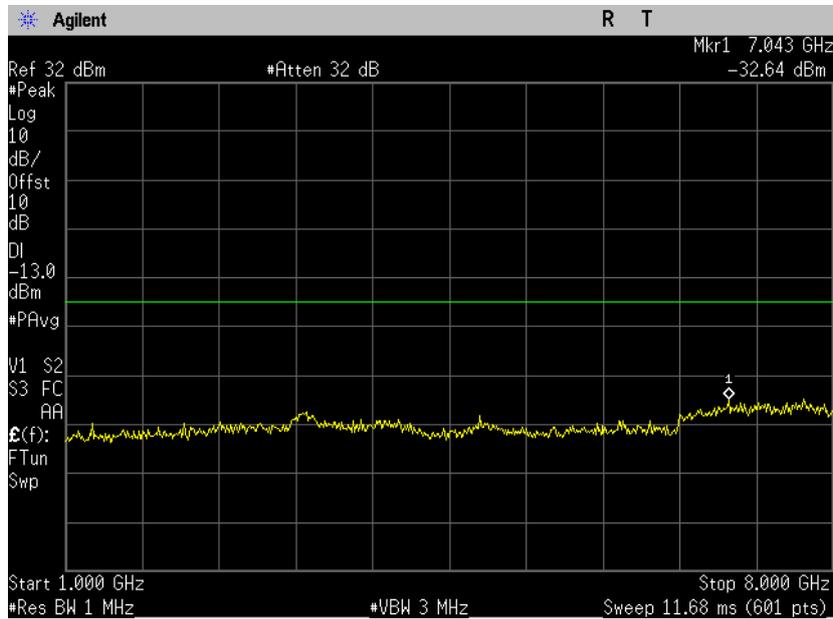
Plot 4.3.8



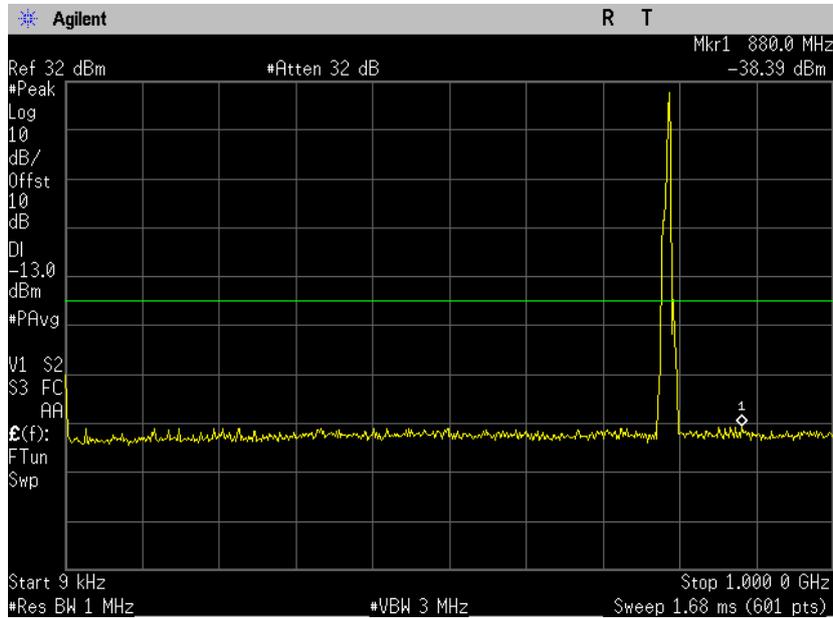
782 MHz
16 QAM - RB size 1, RB Offset 0
Plot 4.3.9



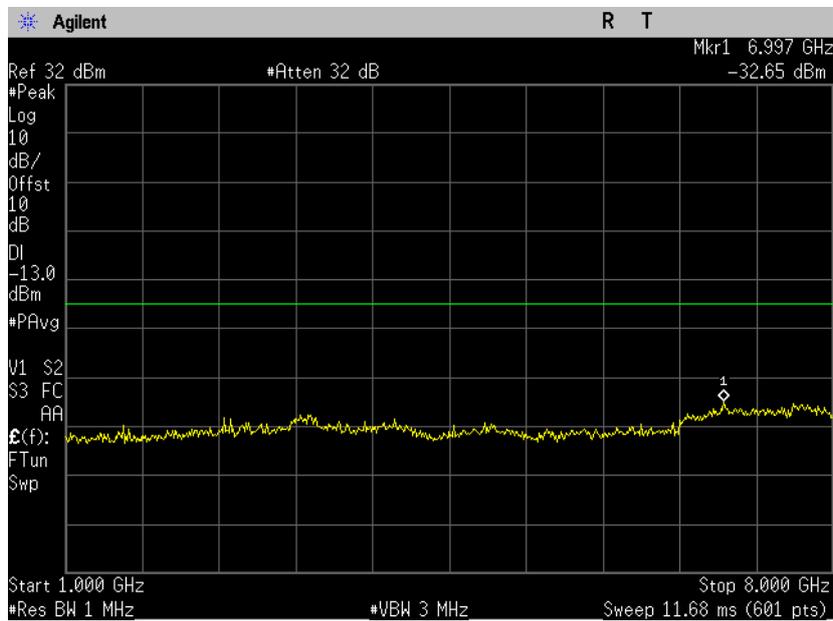
Plot 4.3.10



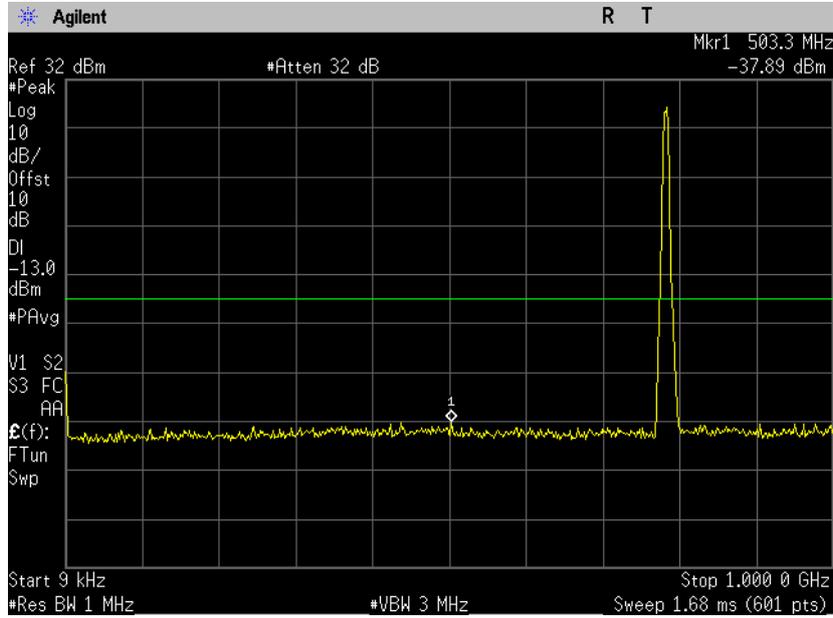
782 MHz
16 QAM - RB size 1, RB Offset 49
Plot 4.3.11



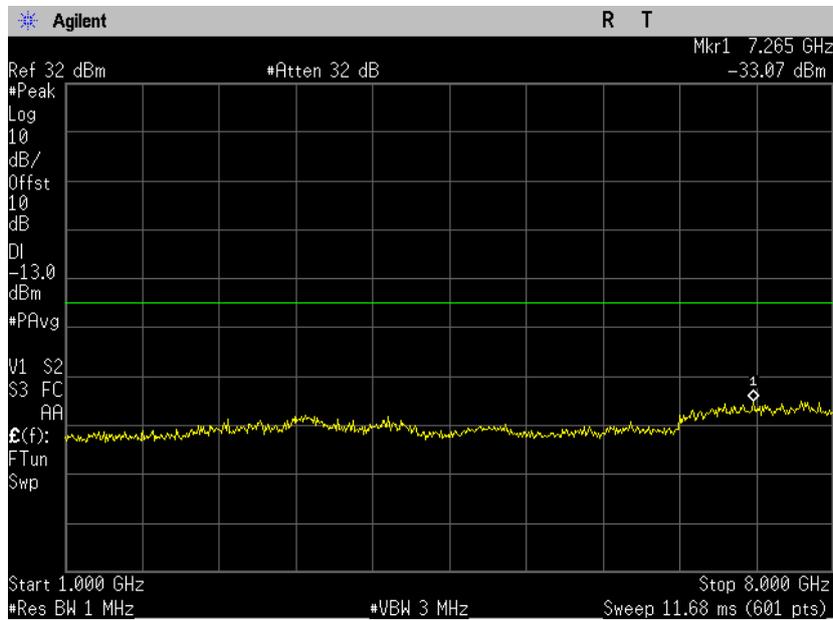
Plot 4.3.12



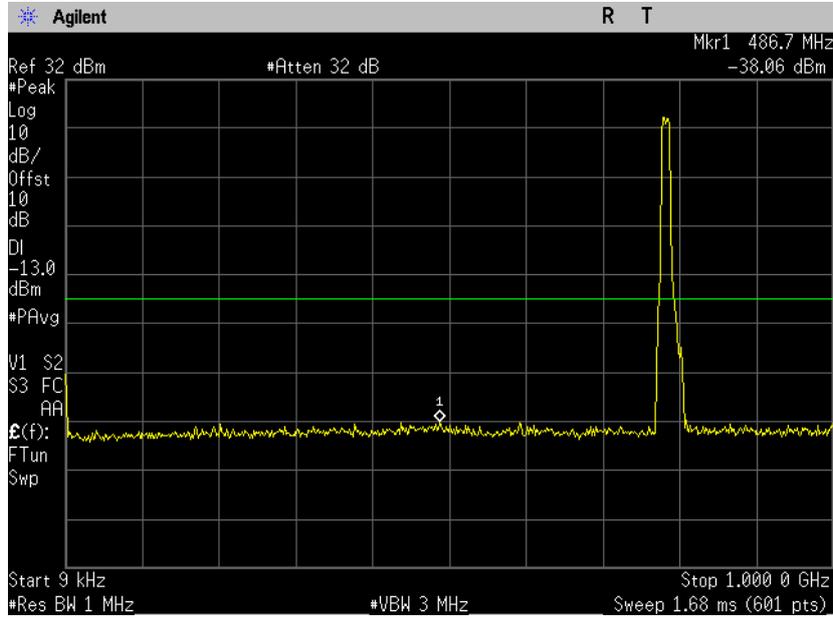
782 MHz
16 QAM - RB size 25, RB Offset 12
Plot 4.3.13



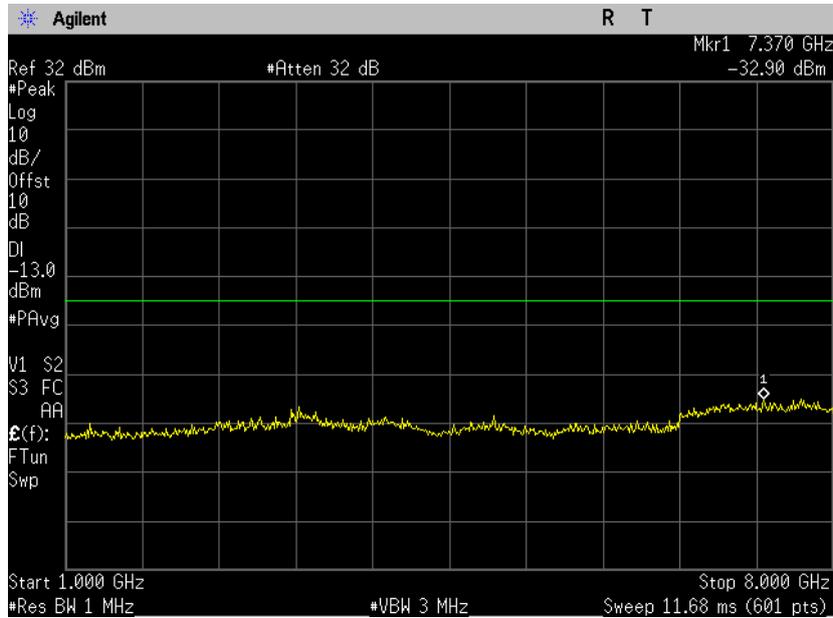
Plot 4.2.14



782 MHz
16 QAM - RB size 50, RB Offset 0
Plot 4.3.15



Plot 4.3.16



4.4. Band Edge compliance for operations in the 776-788 MHz band

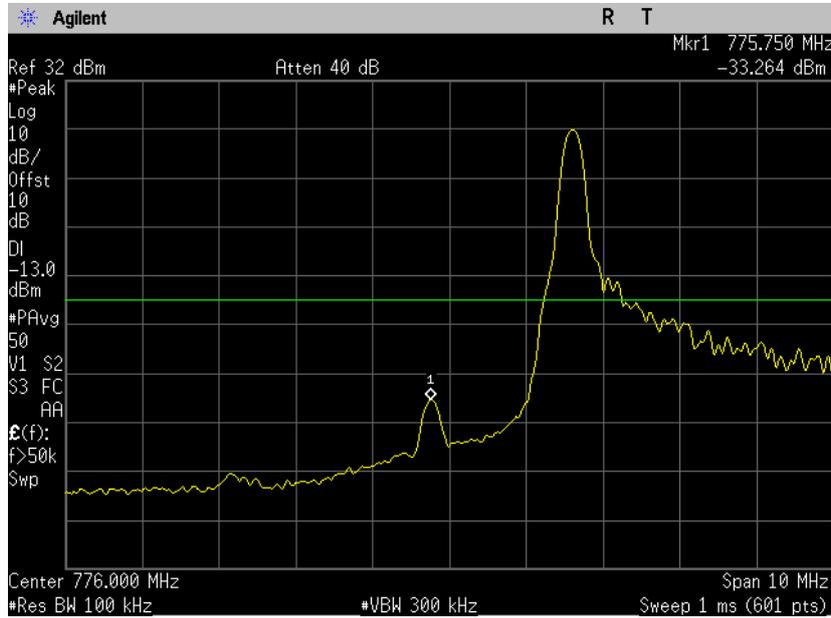
Reference document:	47 CFR §27.53 (c)(2)		
Test Requirements:	On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 +10 log (P) dB*.		
Test setup:	See sec 2.1	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 100 kHz, VBW: 300 kHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.4.1- Plot 4.4.16	

*It translates to a limit of -13dBm

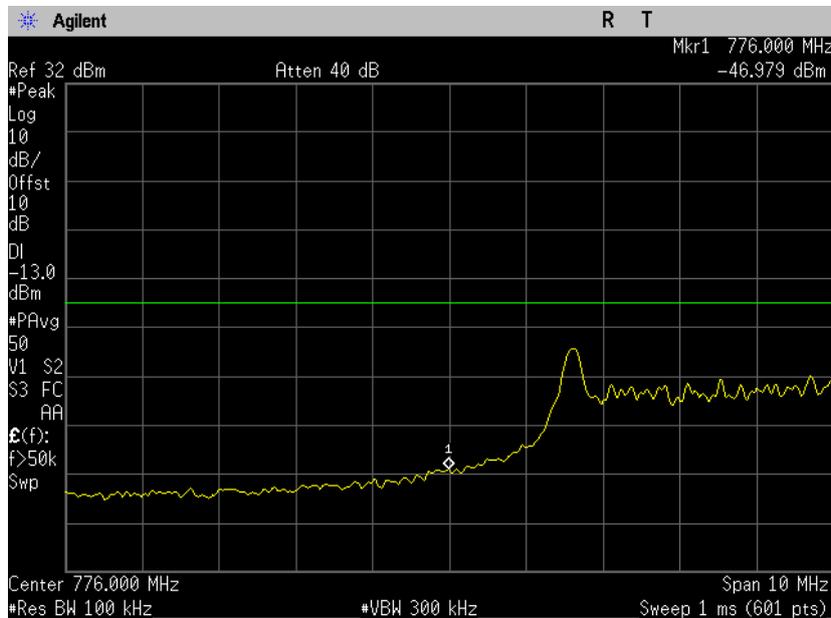
Test results:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Emission Level [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
QPSK – Lower Band Edge							
777.59	1	0	-33.264	-13	-20.264	4.4.1	Pass
786.41	1	49	-46.979	-13	-33.979	4.4.2	Pass
781.91	25	12	-36.523	-13	-23.523	4.4.3	Pass
782	50	0	-32.566	-13	-19.566	4.4.4	Pass
QPSK – Upper Band Edge							
777.59	1	0	-48.052	-13	-35.052	4.4.5	Pass
786.41	1	49	-32.947	-13	-19.947	4.4.6	Pass
781.91	25	12	-32.584	-13	-19.584	4.4.7	Pass
782	50	0	-30.050	-13	-17.050	4.4.8	Pass
16 QAM – Lower Band Edge							
777.59	1	0	-32.453	-13	-19.453	4.4.9	Pass
786.41	1	49	-48.330	-13	-35.330	4.4.10	Pass
781.91	25	12	-35.154	-13	-22.154	4.4.11	Pass
782	50	0	-31.397	-13	-18.397	4.4.12	Pass
16 QAM – Upper Band Edge							
777.59	1	0	-46.935	-13	-33.935	4.4.13	Pass
786.41	1	49	-32.519	-13	-19.519	4.4.14	Pass
781.91	25	12	-33.457	-13	-20.457	4.4.15	Pass
782	50	0	-30.004	-13	-17.004	4.4.16	Pass

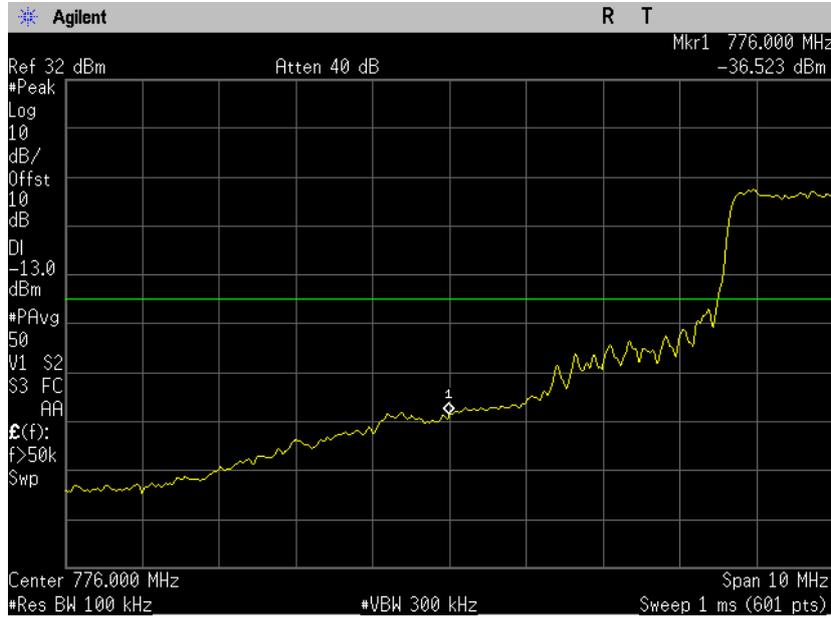
Lower Band Edge
QPSK - RB size 1, RB Offset 0
Plot 4.4.1



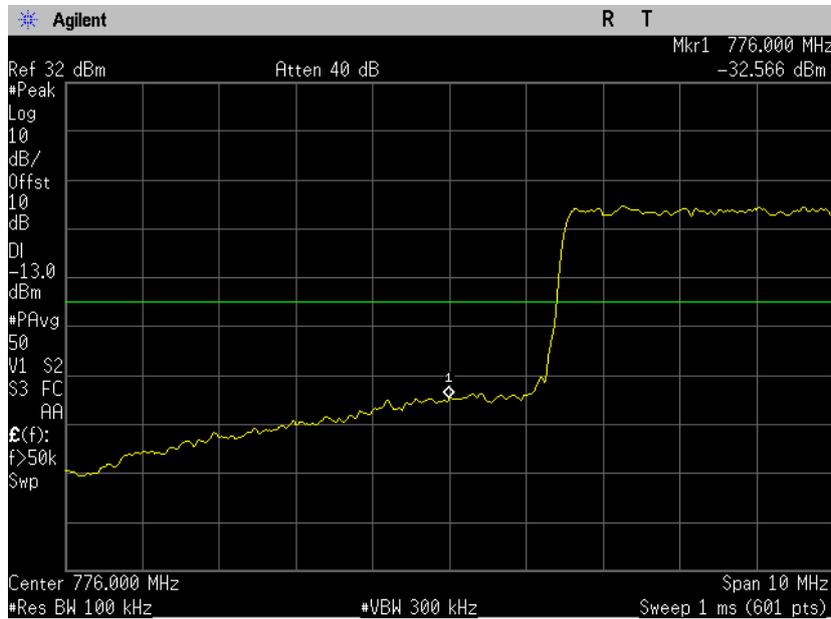
Lower Band Edge
QPSK - RB size 1, RB Offset 49
Plot 4.4.2



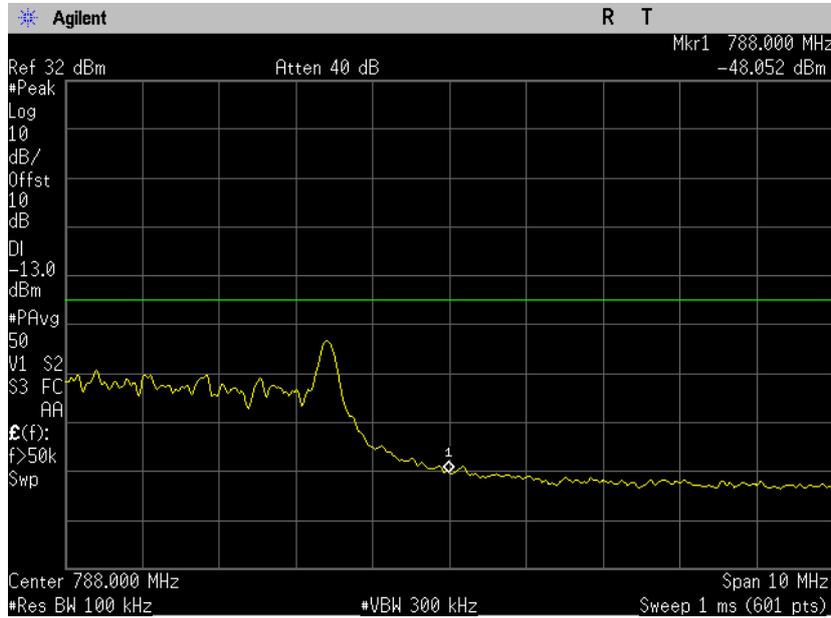
Lower Band Edge
QPSK - RB size 25, RB Offset 12
Plot 4.4.3



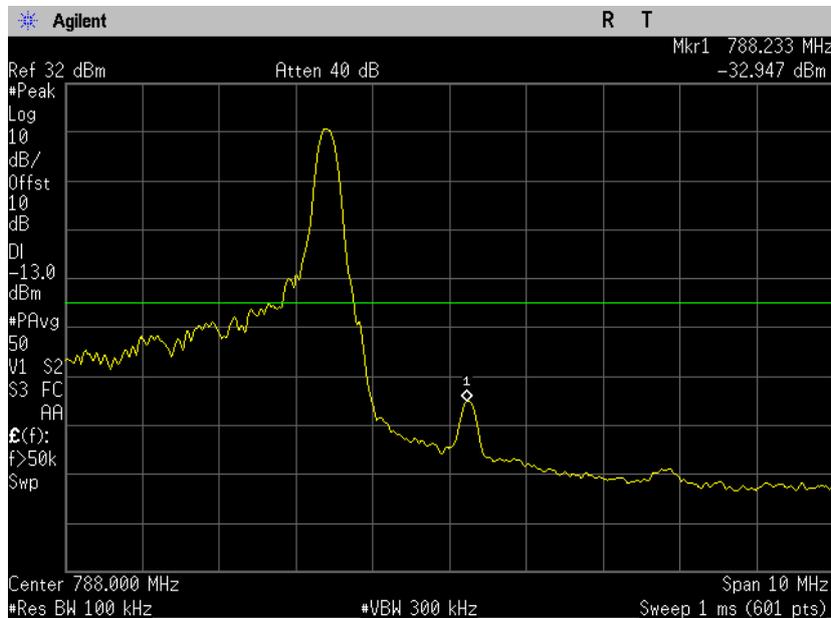
Lower Band Edge
QPSK - RB size 50, RB Offset 0
Plot 4.4.4



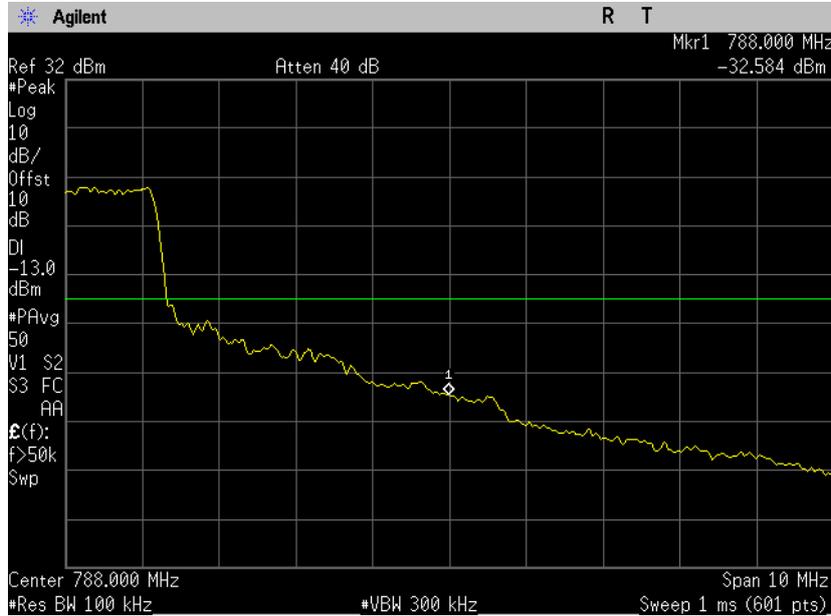
Upper Band Edge
QPSK - RB size 1, RB Offset 0
Plot 4.4.5



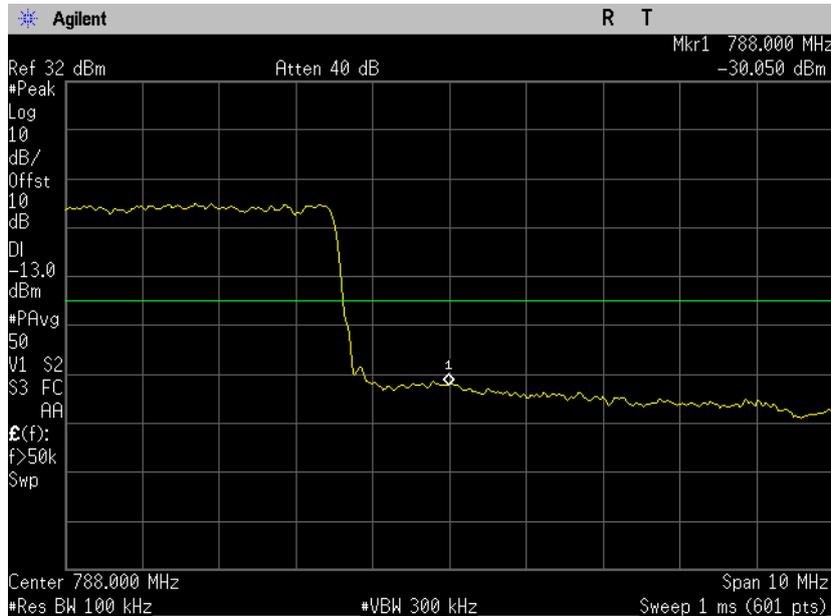
Upper Band Edge
QPSK - RB size 1, RB Offset 49
Plot 4.4.6



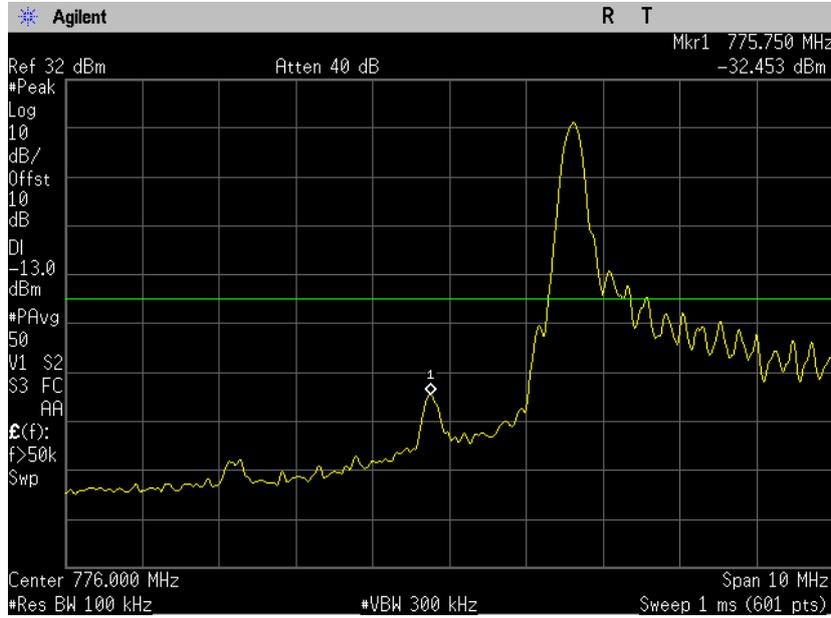
Upper Band Edge
QPSK - RB size 25, RB Offset 12
Plot 4.4.7



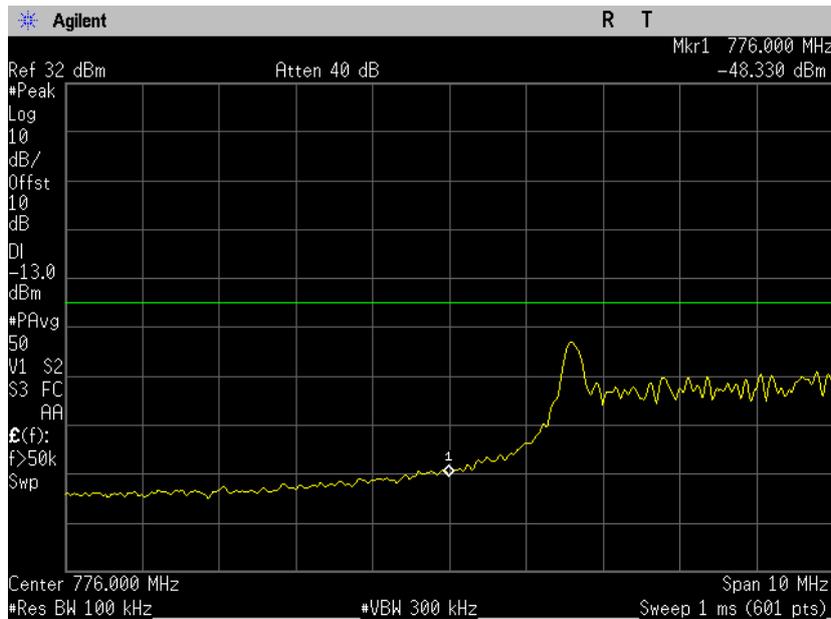
Upper Band Edge
QPSK - RB size 50, RB Offset 0
Plot 4.4.8



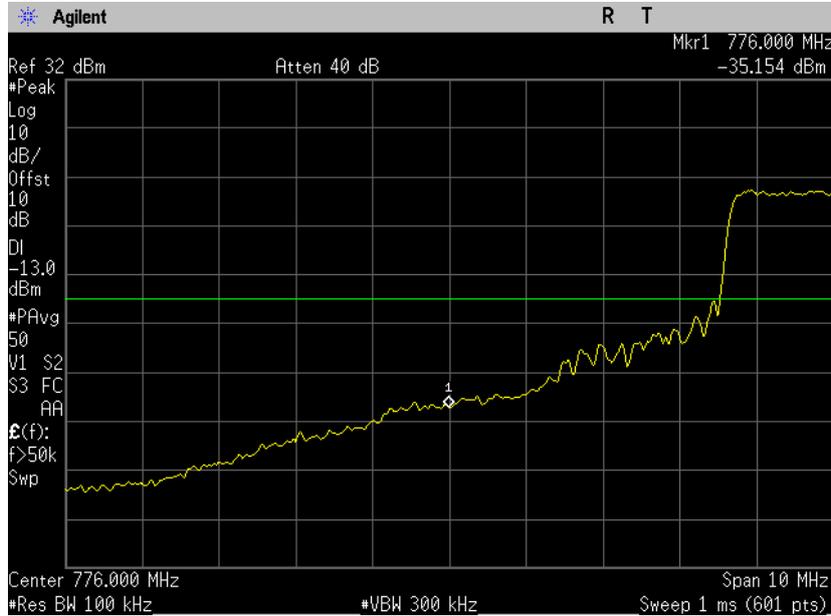
Lower Band Edge
16 QAM – RB size 1, RB Offset 0
Plot 4.4.9



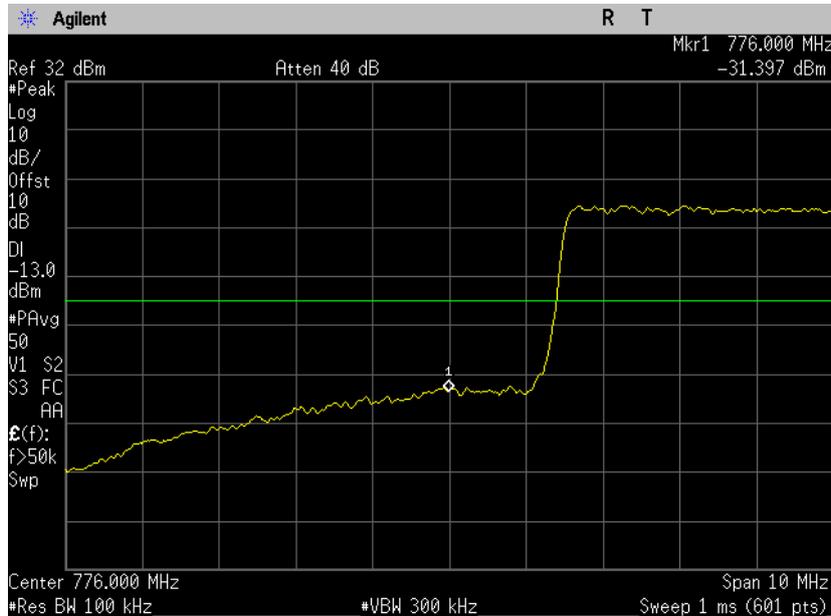
Lower Band Edge
16 QAM – RB size 1, RB Offset 49
Plot 4.4.10



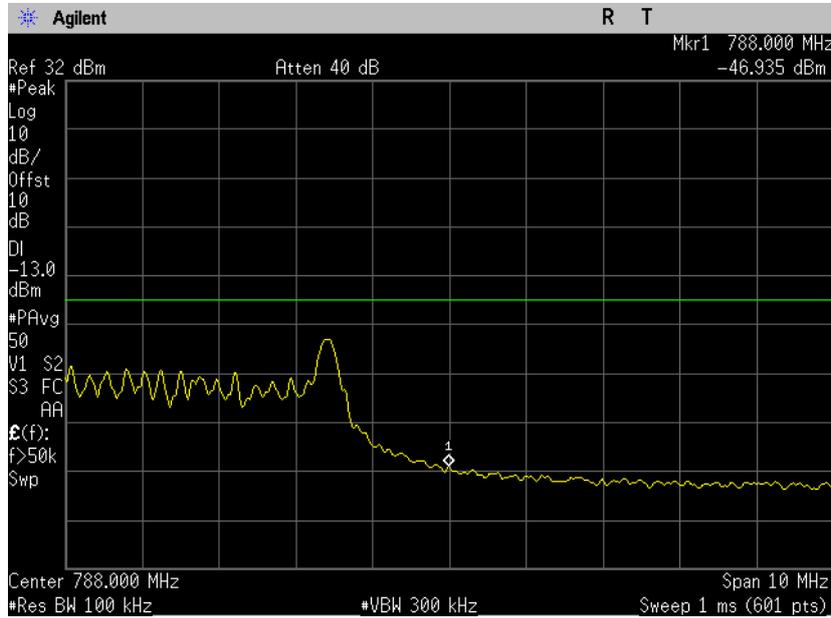
Lower Band Edge
16 QAM – RB size 25, RB Offset 12
Plot 4.4.11



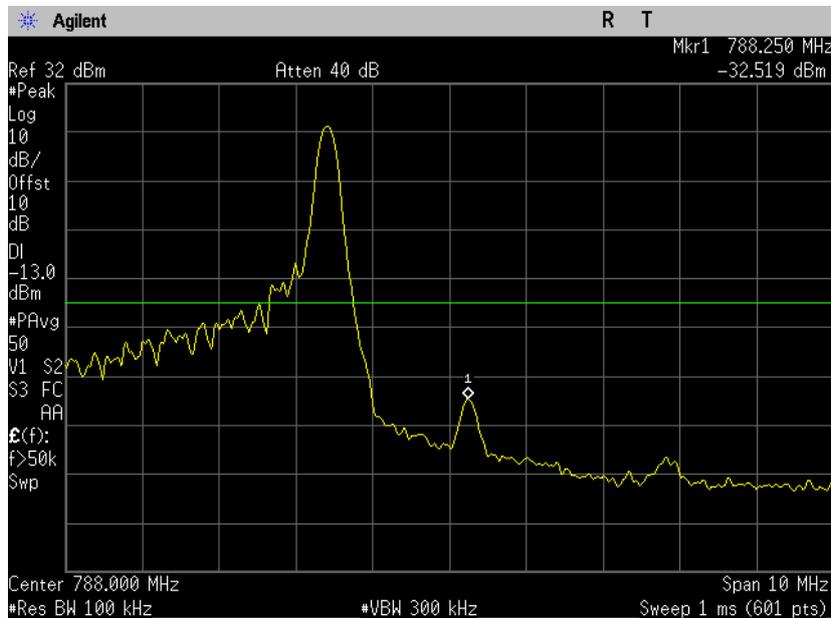
Lower Band Edge
16 QAM – RB size 50, RB Offset 0
Plot 4.4.12



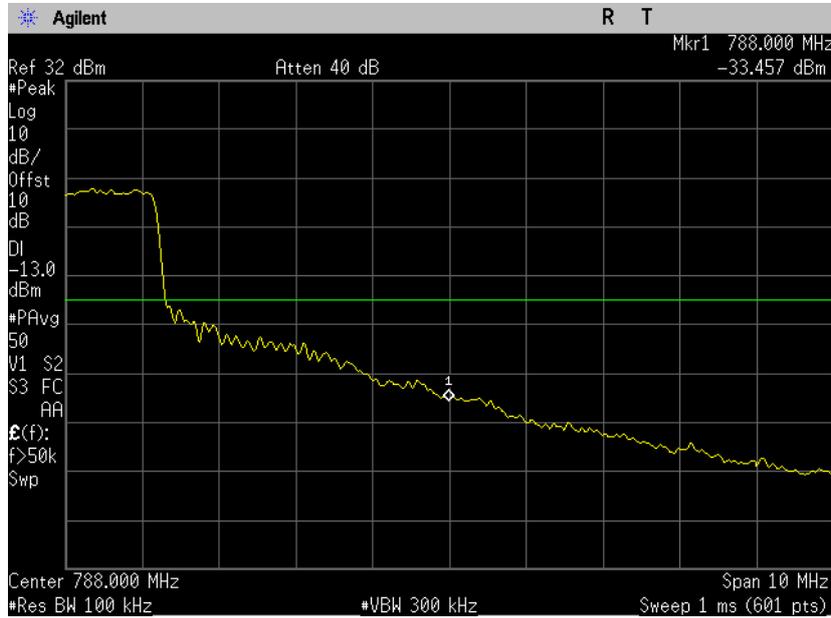
Upper Band Edge
16 QAM – RB size 1, RB Offset 0
Plot 4.4.13



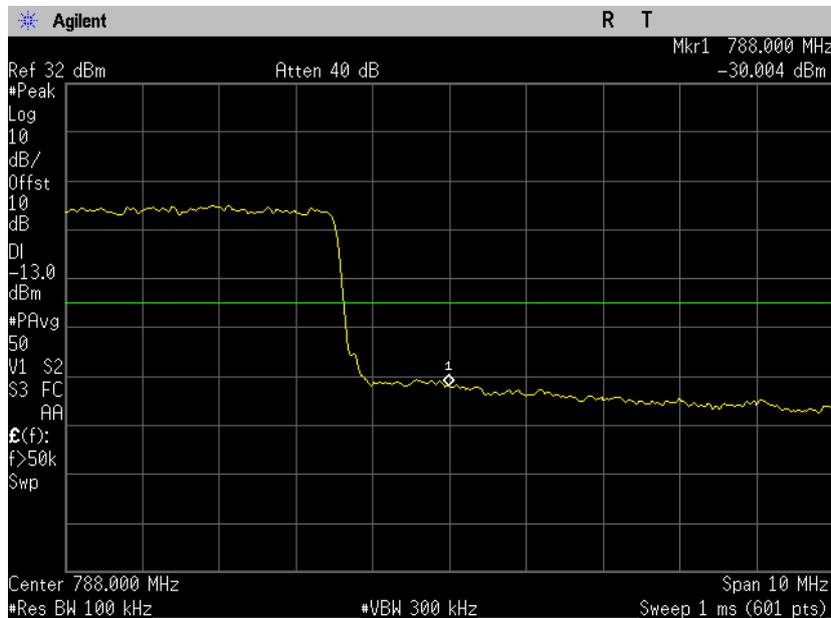
Upper Band Edge
16 QAM – RB size 1, RB Offset 49
Plot 4.4.14



Upper Band Edge
16 QAM – RB size 25, RB Offset 12
Plot 4.4.15



Upper Band Edge
16 QAM – RB size 50, RB Offset 0
Plot 4.4.16



4.5. Conducted Spurious Emissions between 763-775 MHz and 793-805 MHz

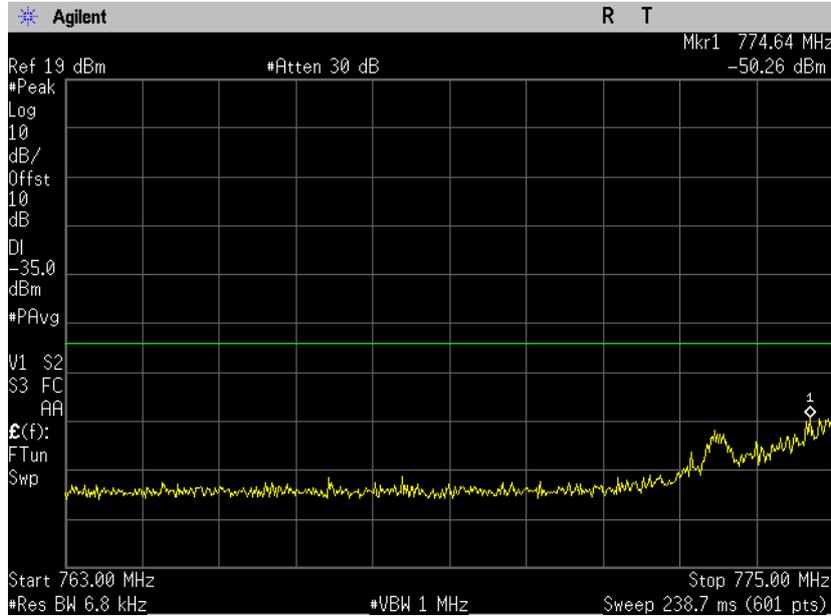
Reference document:	47 CFR §27.53 (c)(4)		
Test Requirements:	For operations in the 776-788 MHz band, the power of any emission on all frequencies between 763-775 MHz and 793-805 MHz shall be attenuated below the transmitter power (P) by a factor not less than $65 + 10 \log(P)$ dB* in a 6.25 kHz band segment, for mobile and portable stations.		
Test setup:	See sec 2.1	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 6.8 kHz, VBW:1 MHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.5.1- Plot 4.5.16	

*It translates to a limit of -35dBm

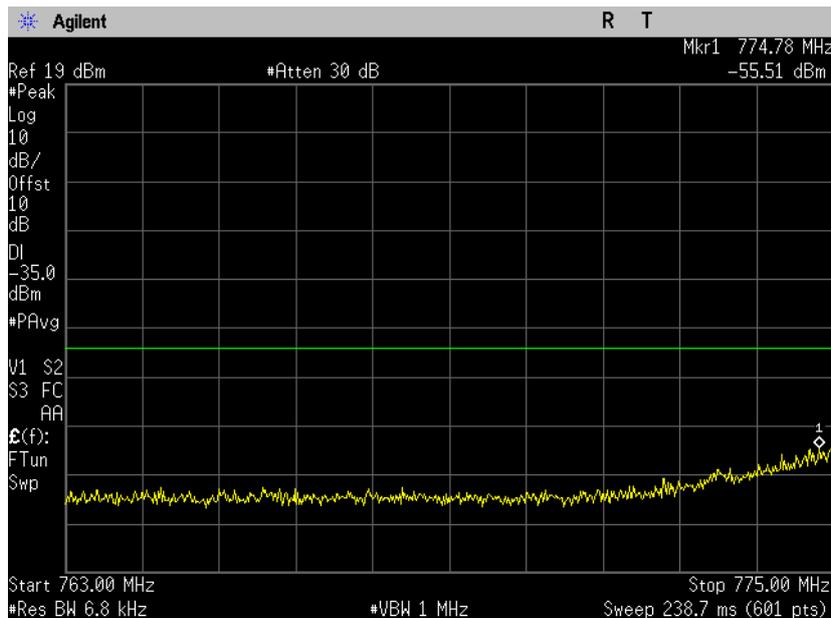
Test results for operations in the 776-788 MHz band:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Spurious Emission Frequency [MHz]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
QPSK - Spurious emissions between 763-775 MHz								
782	1	0	774.64	-50.26	-35	-15.26	4.5.1	Pass
	1	49	774.78	-55.51	-35	-20.51	4.5.2	Pass
	25	12	774.96	-43.16	-35	-8.16	4.5.3	Pass
	50	0	774.72	-37.81	-35	-2.81	4.5.4	Pass
QPSK - Spurious emissions between 793-805 MHz								
782	1	0	795.28	-56.76	-35	-21.76	4.5.5	Pass
	1	49	795.26	-54.70	-35	-19.70	4.5.6	Pass
	25	12	793.02	-52.84	-35	-17.84	4.5.7	Pass
	50	0	793.22	-37.30	-35	-2.30	4.5.8	Pass
16 QAM - Spurious emissions between 763-775 MHz								
782	1	0	773.20	-47.35	-35	-12.35	4.5.9	Pass
	1	49	774.96	-54.33	-35	-19.33	4.5.10	Pass
	25	12	774.92	-39.31	-35	-4.31	4.5.11	Pass
	50	0	774.84	-36.36	-35	-1.36	4.5.12	Pass
16 QAM - Spurious emissions between 793-805 MHz								
782	1	0	795.22	-55.42	-35	-20.42	4.5.13	Pass
	1	49	795.18	-50.94	-35	-15.94	4.5.14	Pass
	25	12	793.34	-53.07	-35	-18.07	4.5.15	Pass
	50	0	793.12	-38.06	-35	-3.06	4.5.16	Pass

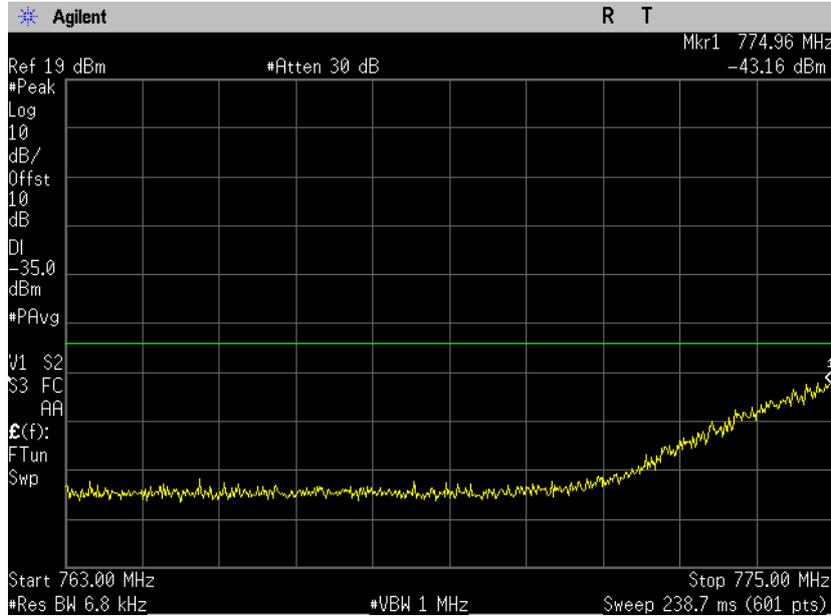
782 MHz
QPSK - RB size 1, RB Offset 0
Spurious emissions between 763-775 MHz
Plot 4.5.1



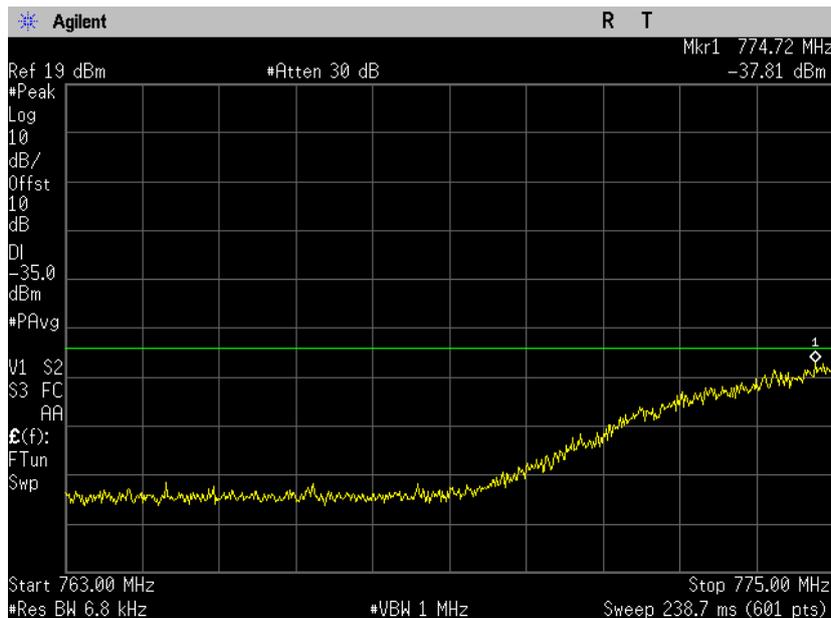
782 MHz
QPSK - RB size 1, RB Offset 49
Spurious emissions between 763-775 MHz
Plot 4.5.2



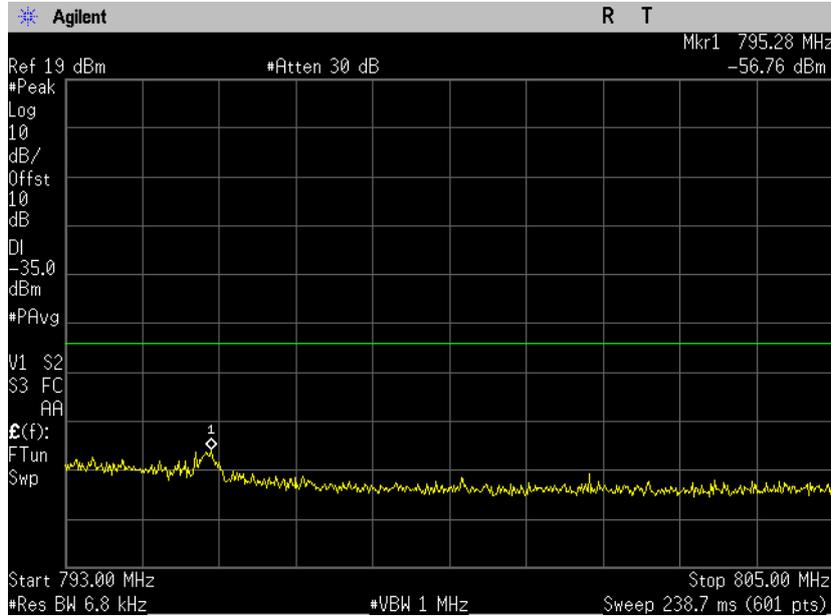
782 MHz
QPSK - RB size 25, RB Offset 12
Spurious emissions between 763-775 MHz
Plot 4.5.3



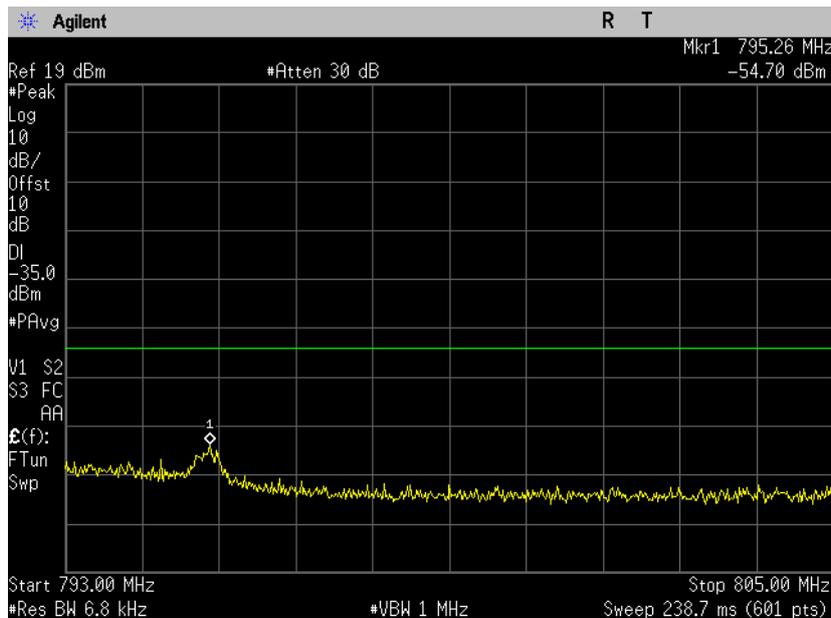
782 MHz
QPSK - RB size 50, RB Offset 0
Spurious emissions between 763-775 MHz
Plot 4.5.4



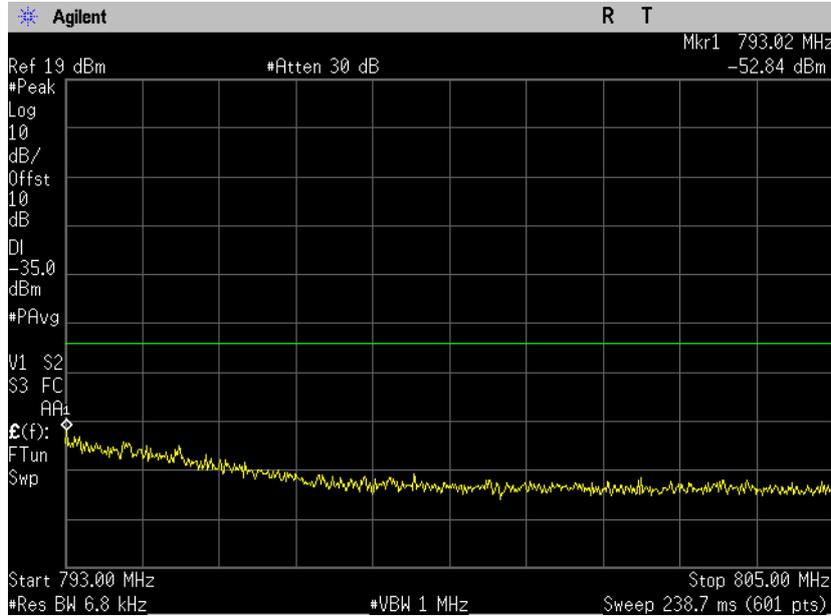
782 MHz
QPSK - RB size 1, RB Offset 0
Spurious emissions between 793-805 MHz
Plot 4.5.5



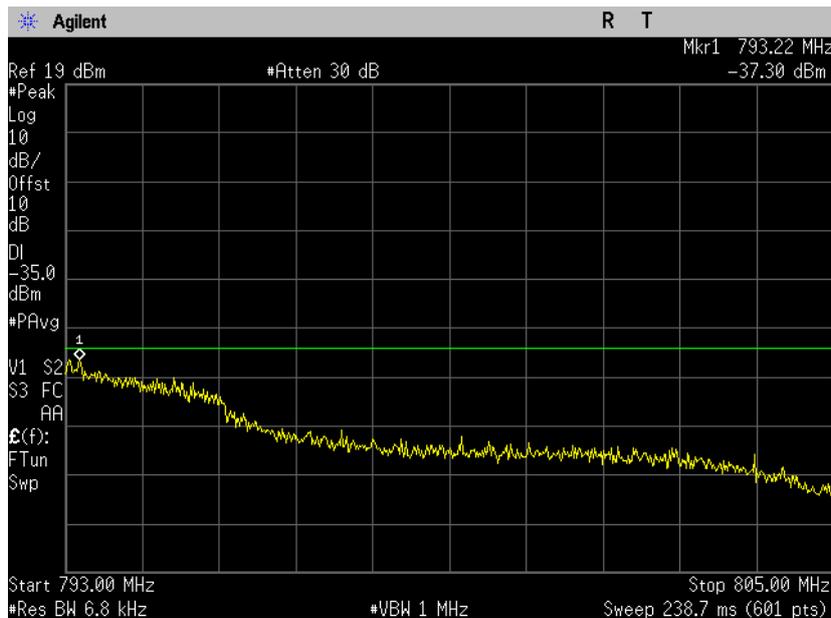
782 MHz
QPSK - RB size 1, RB Offset 49
Spurious emissions between 793-805 MHz
Plot 4.5.6



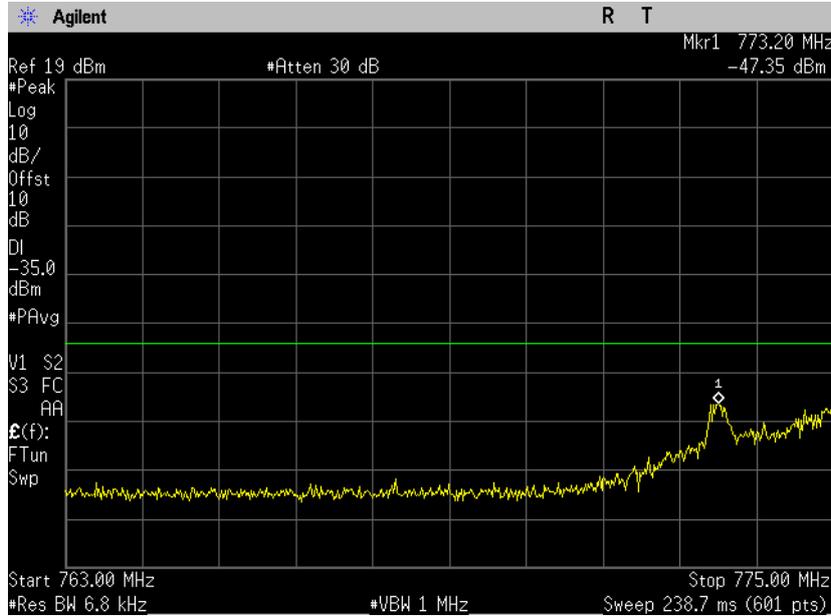
782 MHz
QPSK - RB size 25, RB Offset 12
Spurious emissions between 793-805 MHz
Plot 4.5.7



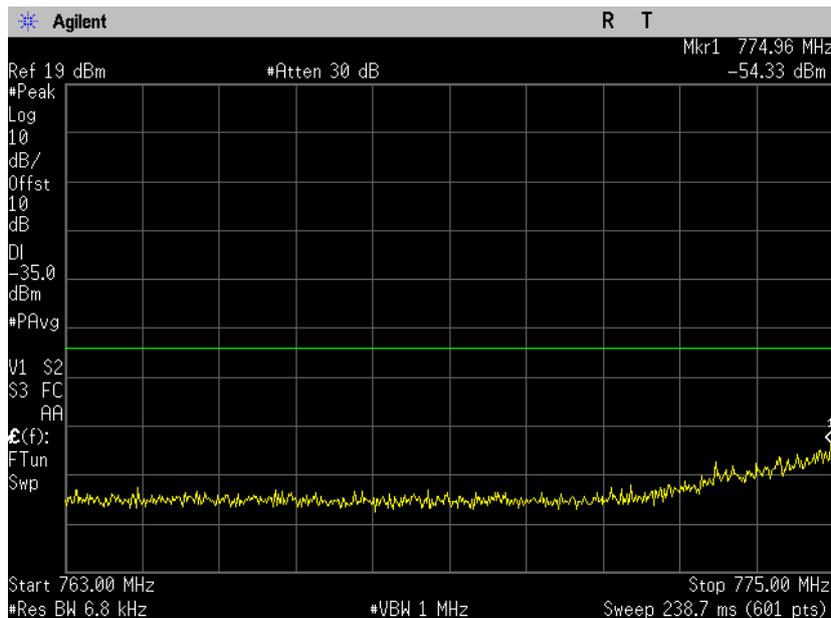
782 MHz
QPSK - RB size 50, RB Offset 0
Spurious emissions between 793-805 MHz
Plot 4.5.8



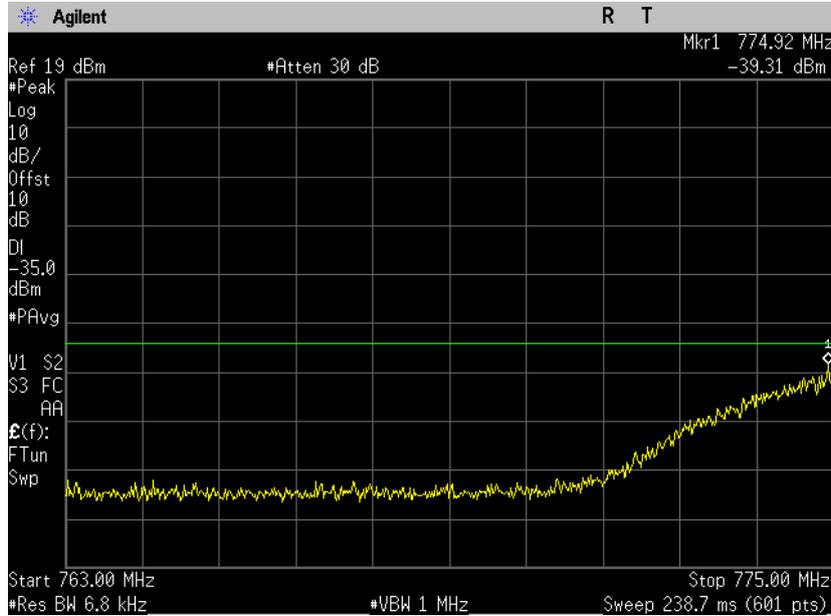
782 MHz
16 QAM - RB size 1, RB Offset 0
Spurious emissions between 763-775 MHz
Plot 4.5.9



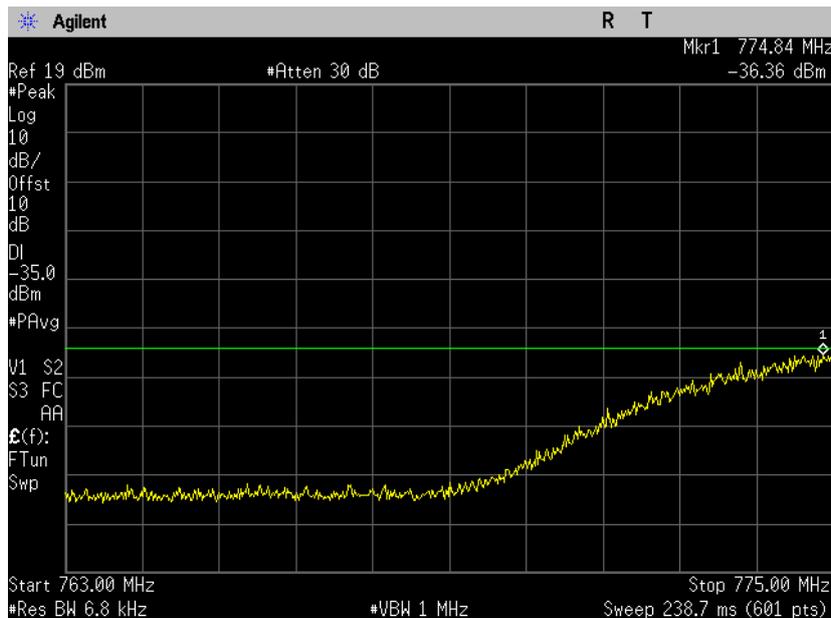
782 MHz
16 QAM - RB size 1, RB Offset 49
Spurious emissions between 763-775 MHz
Plot 4.5.10



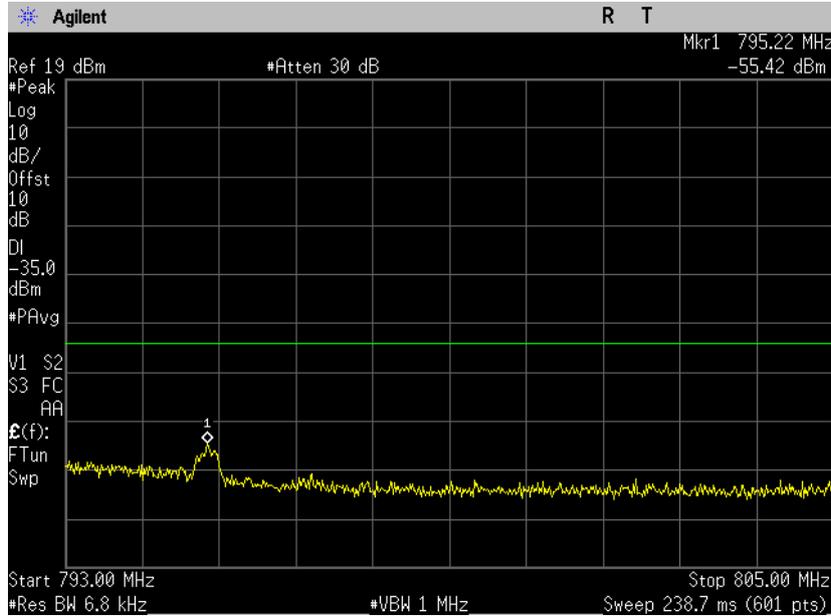
782 MHz
16 QAM - RB size 25, RB Offset 12
Spurious emissions between 763-775 MHz
Plot 4.5.11



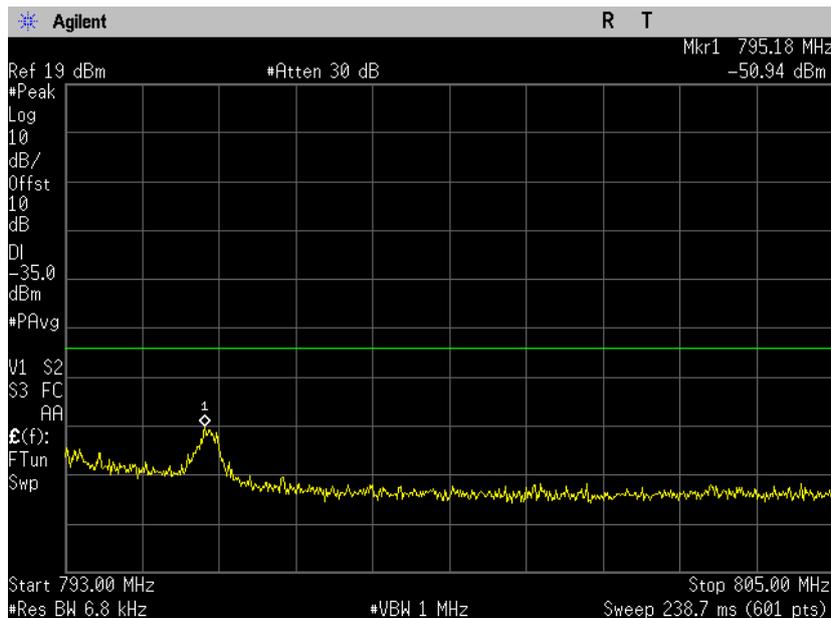
782 MHz
16 QAM - RB size 50, RB Offset 0
Spurious emissions between 763-775 MHz
Plot 4.5.12



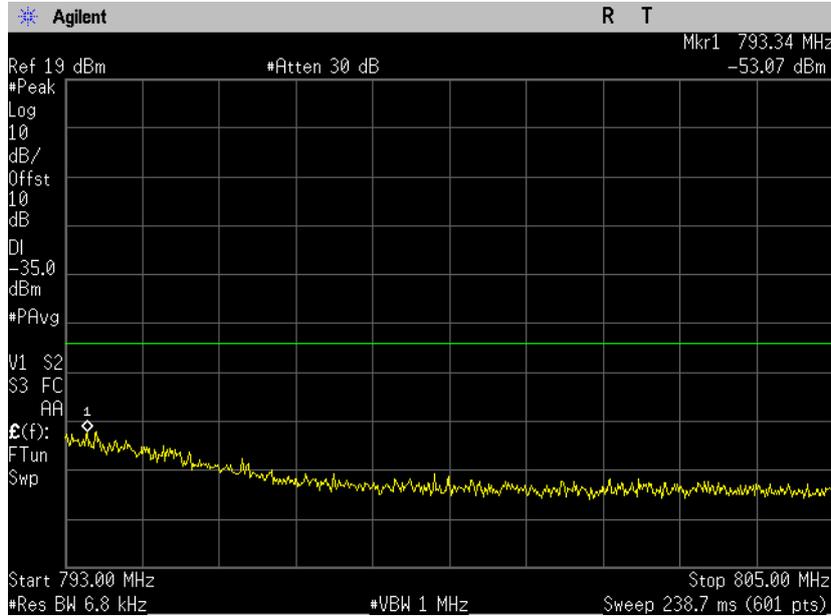
782 MHz
16 QAM - RB size 1, RB Offset 0
Spurious emissions between 793-805 MHz
Plot 4.5.13



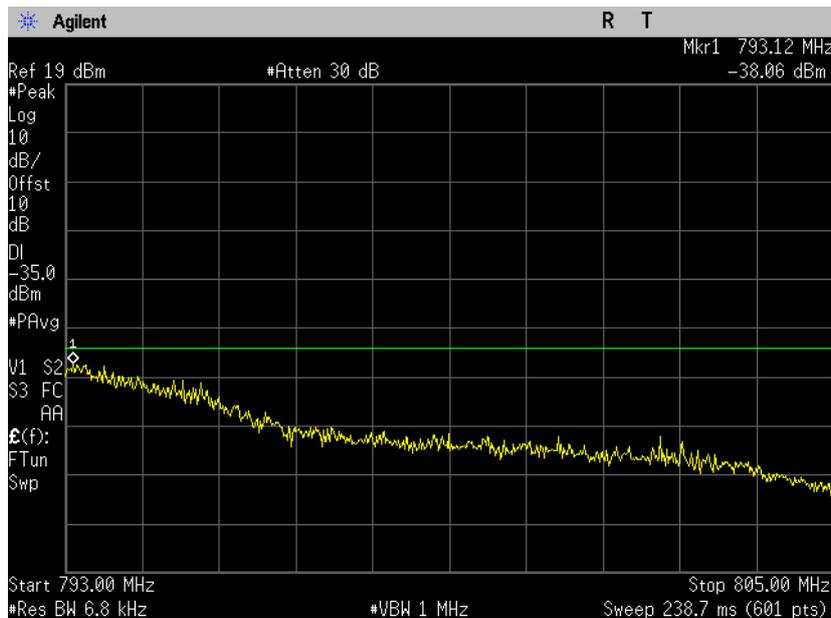
782 MHz
16 QAM - RB size 1, RB Offset 49
Spurious emissions between 793-805 MHz
Plot 4.5.14



782 MHz
16 QAM - RB size 25, RB Offset 12
Spurious emissions between 793-805 MHz
Plot 4.5.15



782 MHz
16 QAM - RB size 50, RB Offset 0
Spurious emissions between 793-805 MHz
Plot 4.5.16



4.6. Conducted Spurious Emissions for operations in the 788-793 MHz band

Reference document:	47 CFR §27.53 (d)(3)		
Test Requirements:	For operations in the 788-793 MHz band, the power of any emission on any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB*.		
Test setup:	See sec 2.1	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 1 MHz, VBW: 3 MHz for testing between 9 kHz -8 GHz RBW: 30 kHz, VBW: 91 kHz for testing between 775 -788 MHz RBW: 100 kHz, VBW: 300 kHz for testing above 805 MHz, and below 758 MHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.6.1- Plot 4.6.40	

*It translates to a limit of -13dBm

Test results for frequencies between 9 kHz – 8 GHz:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Spurious Emission Frequency [MHz]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
QPSK								
790.5	1	0	*	*	-13	*	4.6.1-4.6.2	Pass
	1	24	*	*	-13	*	4.6.3-4.6.4	Pass
	12	6	*	*	-13	*	4.6.5-4.6.6	Pass
	25	0	*	*	-13	*	4.6.7-4.6.8	Pass
16 QAM								
790.5	1	0	*	*	-13	*	4.6.9-4.6.10	Pass
	1	24	*	*	-13	*	4.6.11-4.6.12	Pass
	12	6	*	*	-13	*	4.6.13-4.6.14	Pass
	25	0	*	*	-13	*	4.6.15-4.6.16	Pass

* All spurious emissions were at least 15 dB below the limit.

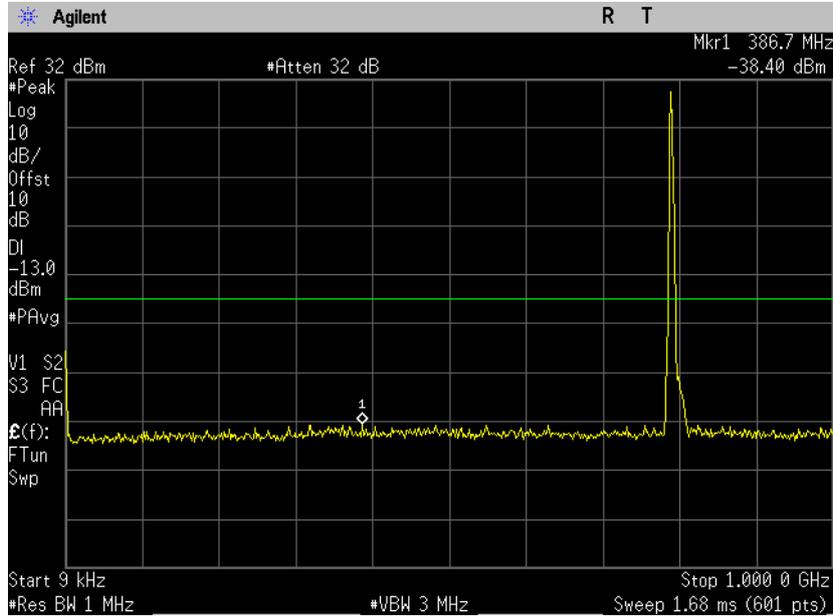
Test results for frequencies between 775-788 MHz:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Maximum Emission Level [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
QPSK - Spurious emissions between 775-788 MHz							
790.5	1	0	-19.62	-13	-6.62	4.6.17	Pass
	1	24	-33.32	-13	-20.32	4.6.18	Pass
	12	6	-23.03	-13	-10.03	4.6.19	Pass
	25	0	-21.77	-13	-8.77	4.6.20	Pass
16 QAM - Spurious emissions between 775-788 MHz							
790.5	1	0	-15.47	-13	-2.47	4.6.21	Pass
	1	24	-32.28	-13	-19.28	4.6.22	Pass
	12	6	-20.67	-13	-7.67	4.6.23	Pass
	25	0	-18.74	-13	-5.74	4.6.24	Pass

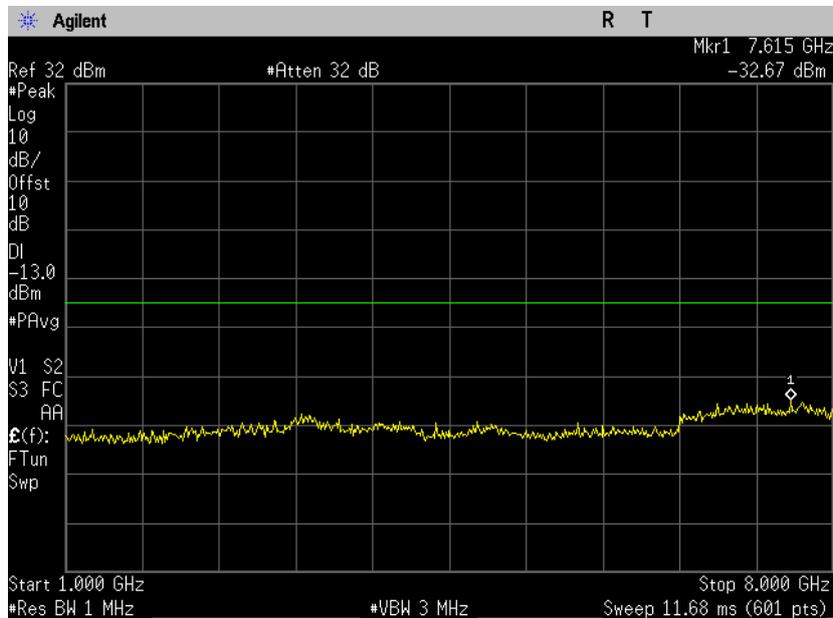
Test results for frequencies above 805 MHz and below 758 MHz:

Frequency [MHz]	Resource Block Size	Resource Block Offset	Maximum Emission Level [dBm]	Limit [dBm]	Margin [dB]	Ref Plots	Results
QPSK – Spurious emissions below 758 MHz							
790.5	1	0	-41.00	-13	-28.00	4.6.25	Pass
	1	24	-41.46	-13	-28.46	4.6.26	Pass
	12	6	-41.18	-13	-28.18	4.6.27	Pass
	25	0	-40.90	-13	-27.90	4.6.28	Pass
QPSK – Spurious emissions above 805 MHz							
790.5	1	0	-41.21	-13	-28.21	4.6.29	Pass
	1	24	-40.91	-13	-27.91	4.6.30	Pass
	12	6	-38.88	-13	-25.88	4.6.31	Pass
	25	0	-38.02	-13	-25.02	4.6.32	Pass
16 QAM – Spurious emissions below 758 MHz							
790.5	1	0	-41.48	-13	-28.48	4.6.33	Pass
	1	24	-41.21	-13	-28.21	4.6.34	Pass
	12	6	-41.51	-13	-28.51	4.6.35	Pass
	25	0	-40.14	-13	-27.14	4.6.36	Pass
16 QAM – Spurious emissions above 805 MHz							
790.5	1	0	-39.81	-13	-26.81	4.6.37	Pass
	1	24	-40.25	-13	-27.25	4.6.38	Pass
	12	6	-40.73	-13	-27.73	4.6.39	Pass
	25	0	-40.66	-13	-27.66	4.6.40	Pass

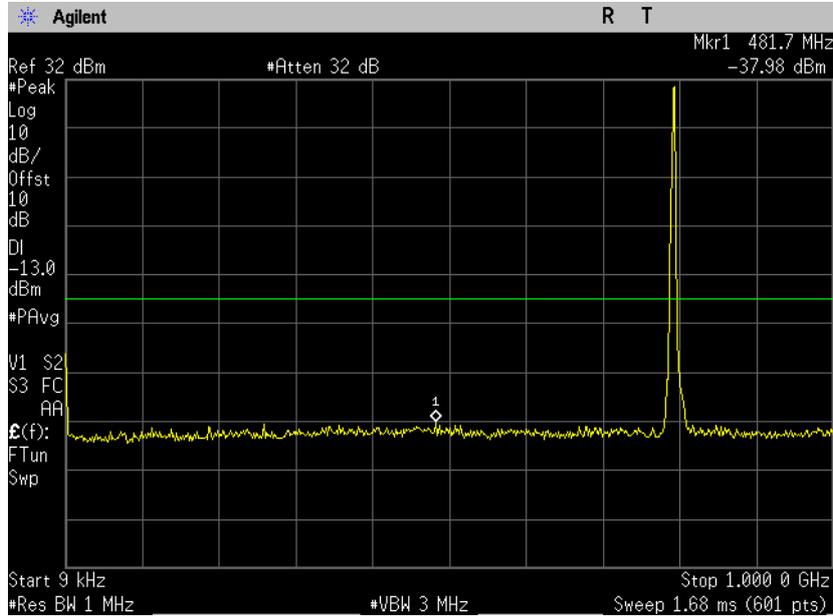
790.5 MHz
QPSK - RB size 1, RB Offset 0
Plot 4.6.1



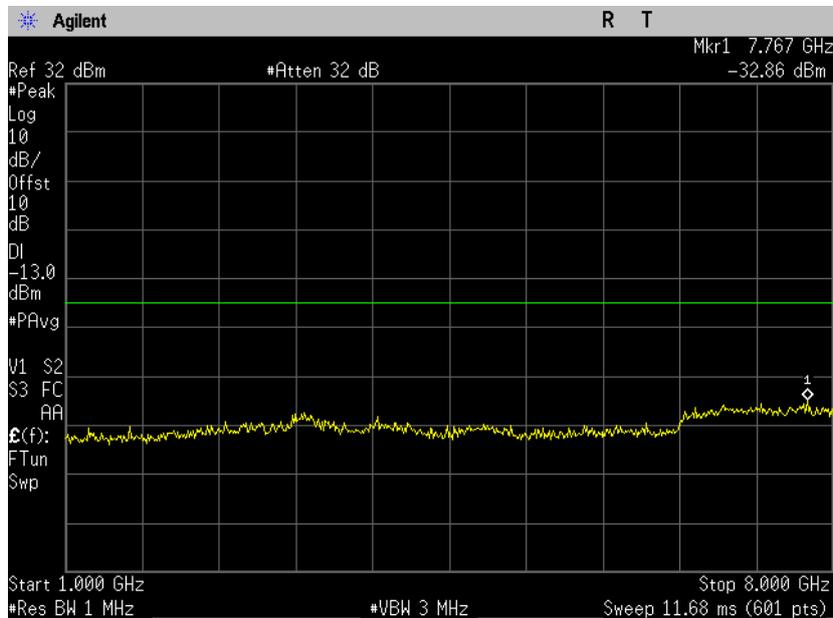
Plot 4.6.2



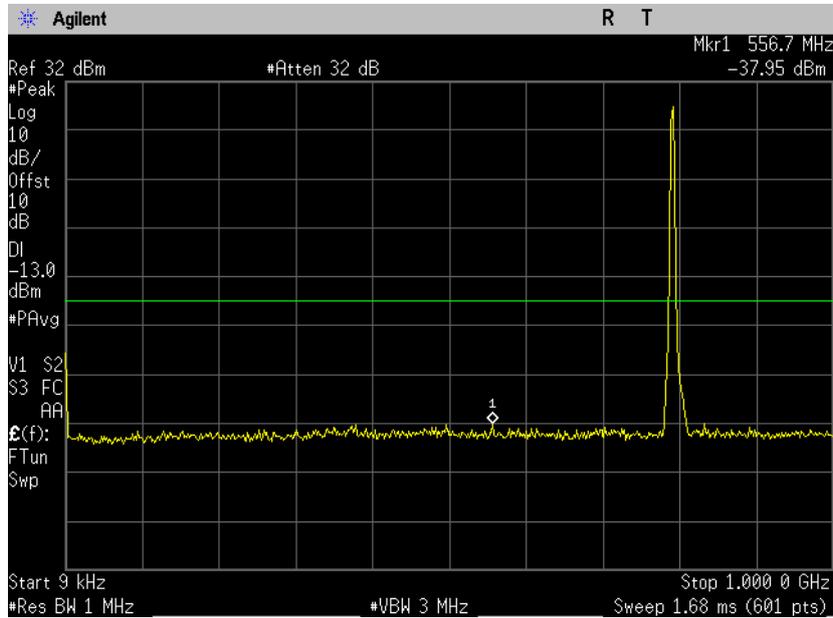
790.5 MHz
QPSK - RB size 1, RB Offset 24
Plot 4.6.3



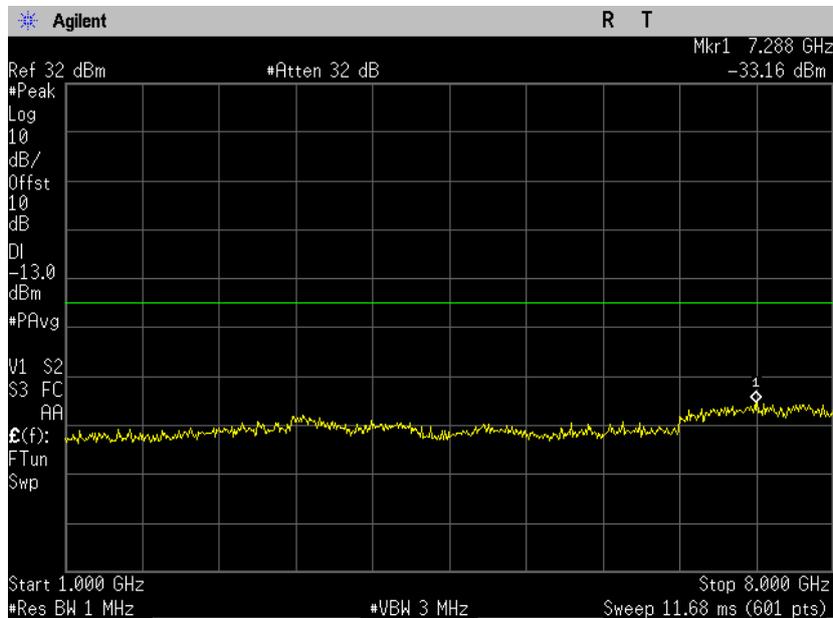
Plot 4.6.4



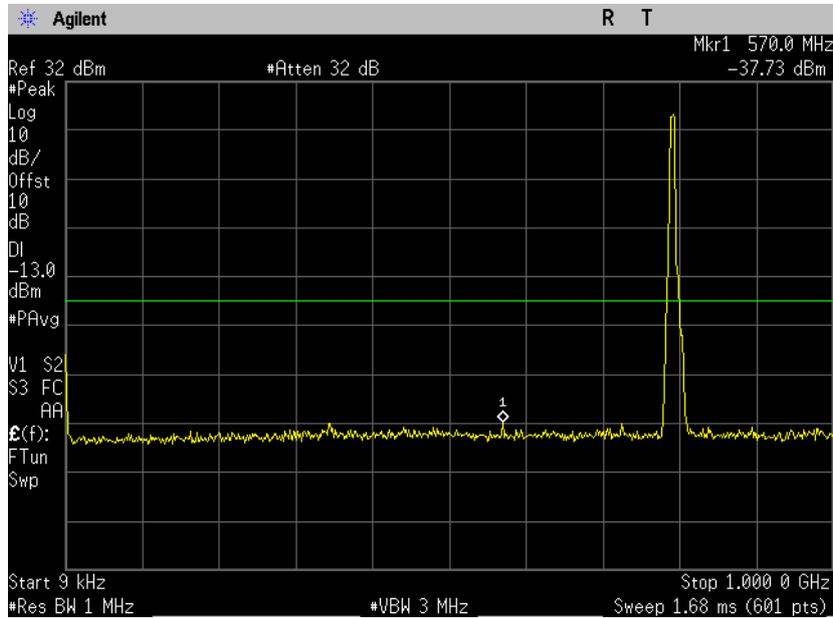
790.5 MHz
QPSK - RB size 12, RB Offset 6
Plot 4.6.5



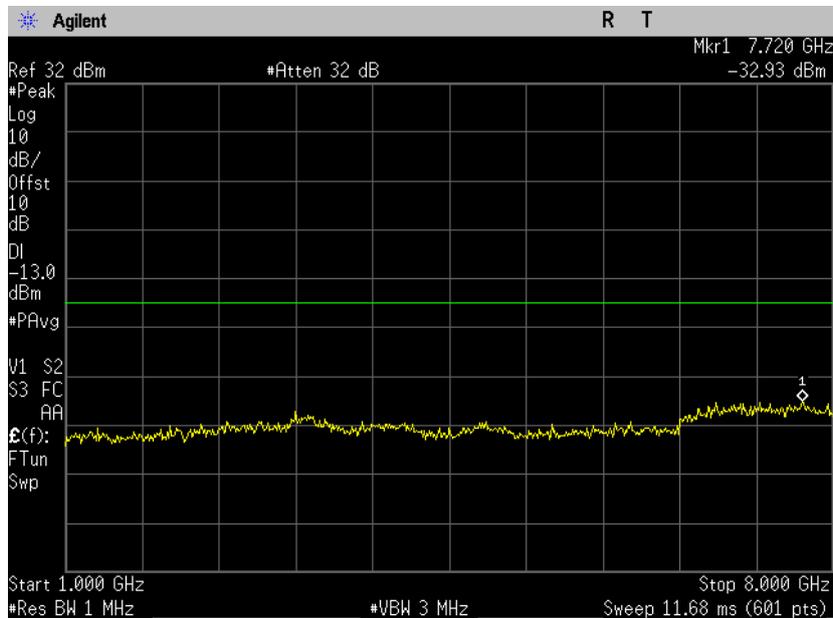
Plot 4.6.6



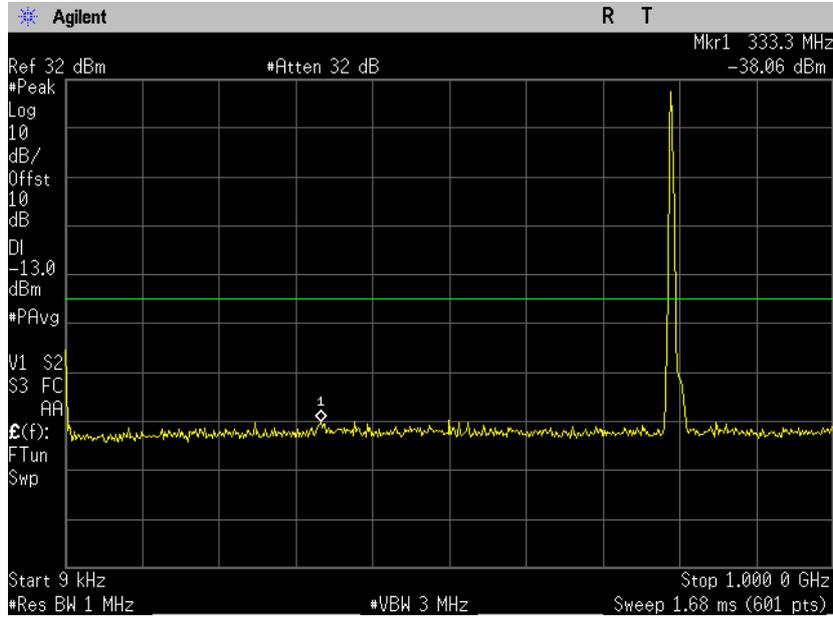
790.5 MHz
QPSK - RB size 25, RB Offset 0
Plot 4.6.7



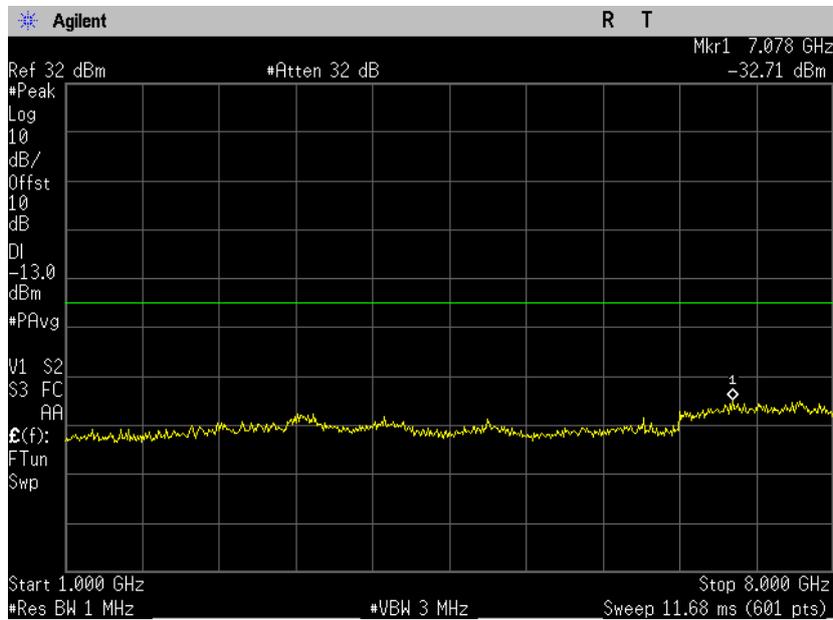
Plot 4.6.8



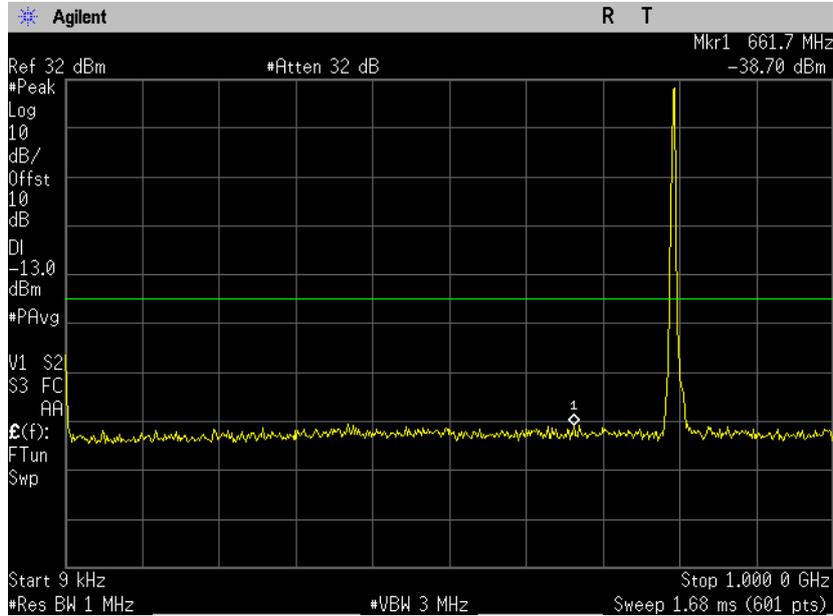
790.5 MHz
16 QAM - RB size 1, RB Offset 0
Plot 4.6.9



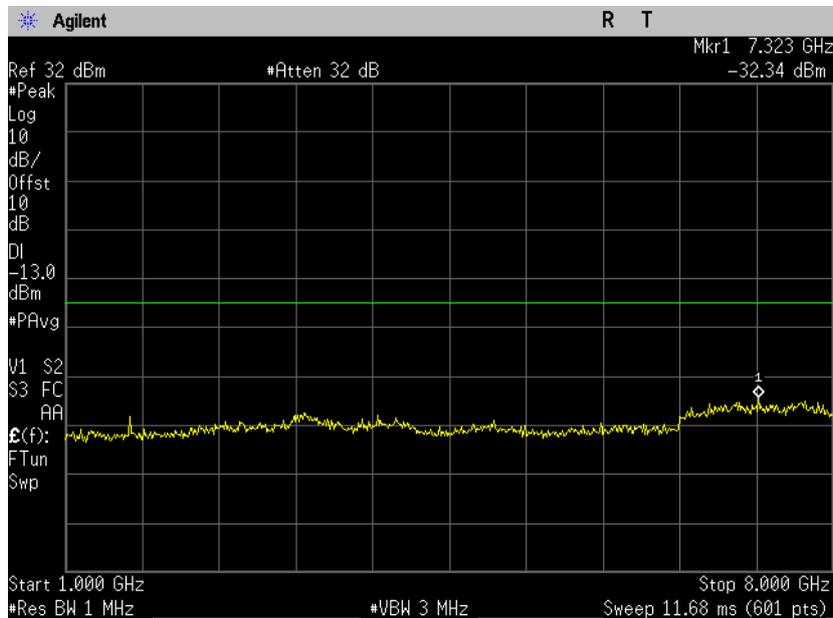
Plot 4.6.10



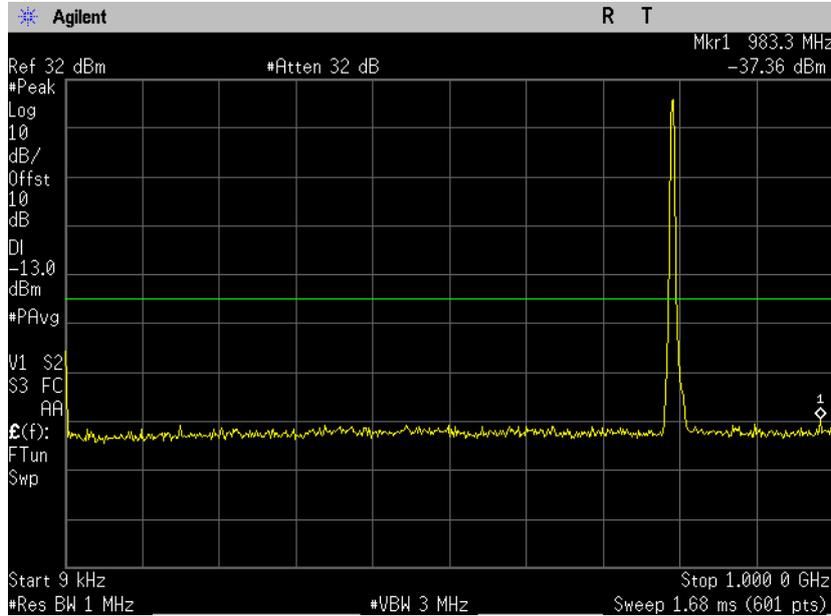
790.5 MHz
16 QAM - RB size 1, RB Offset 24
Plot 4.6.11



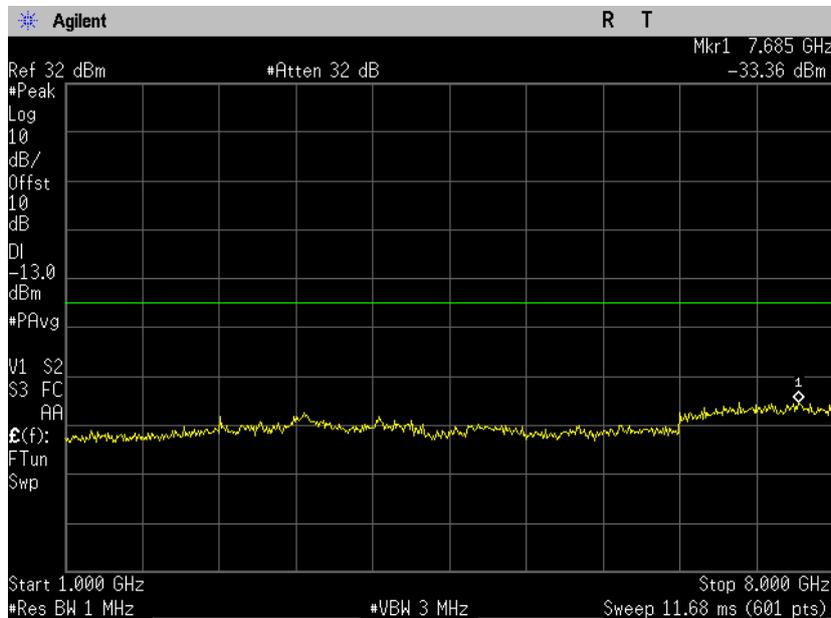
Plot 4.6.12



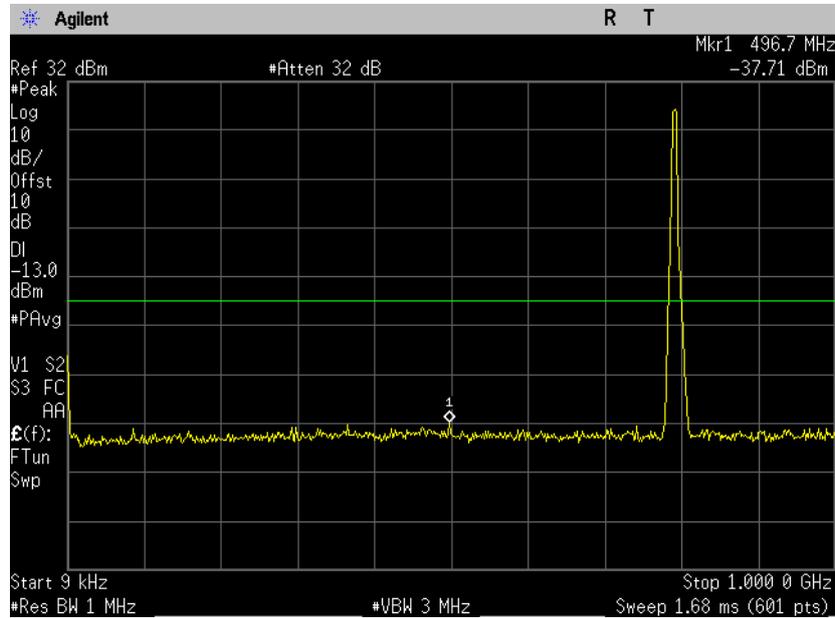
790.5 MHz
16 QAM - RB size 12, RB Offset 6
Plot 4.6.13



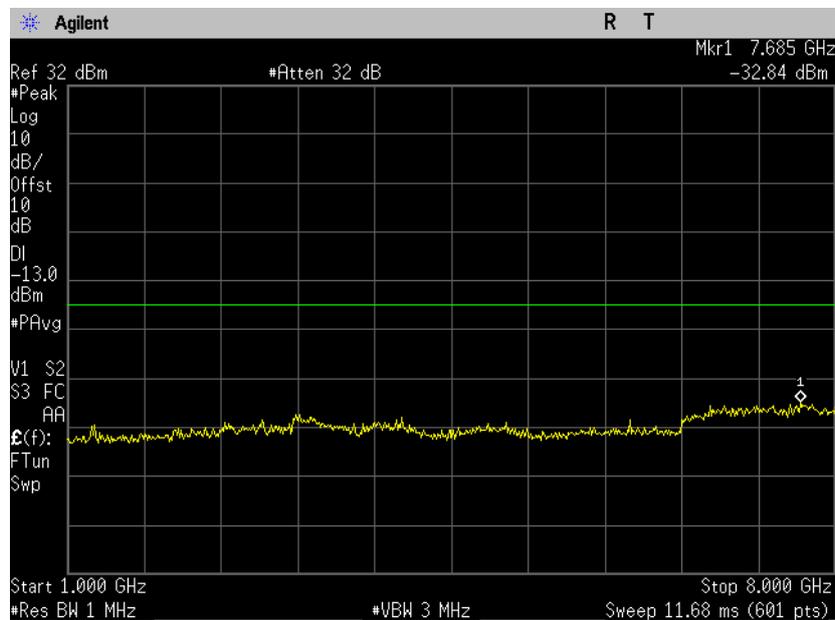
Plot 4.6.14



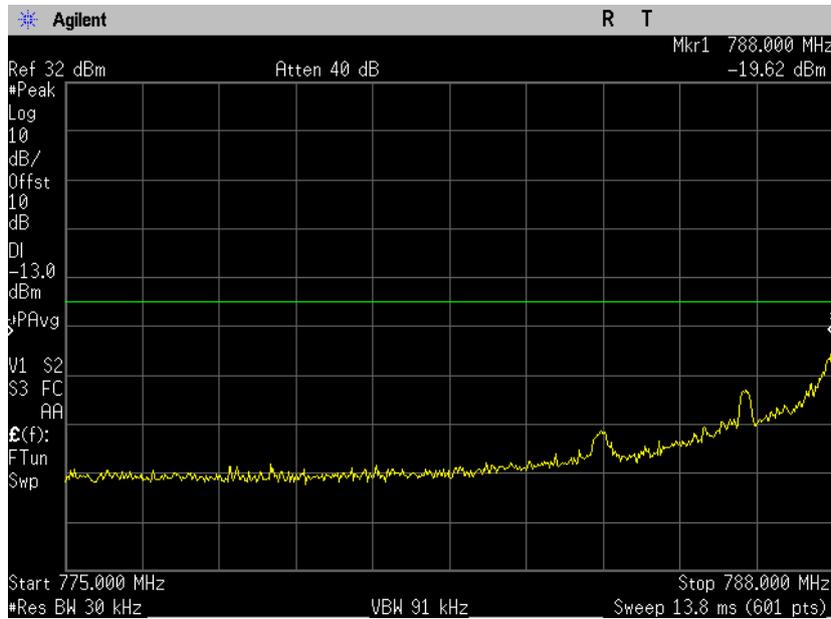
790.5 MHz
16 QAM - RB size 25, RB Offset 0
Plot 4.6.15



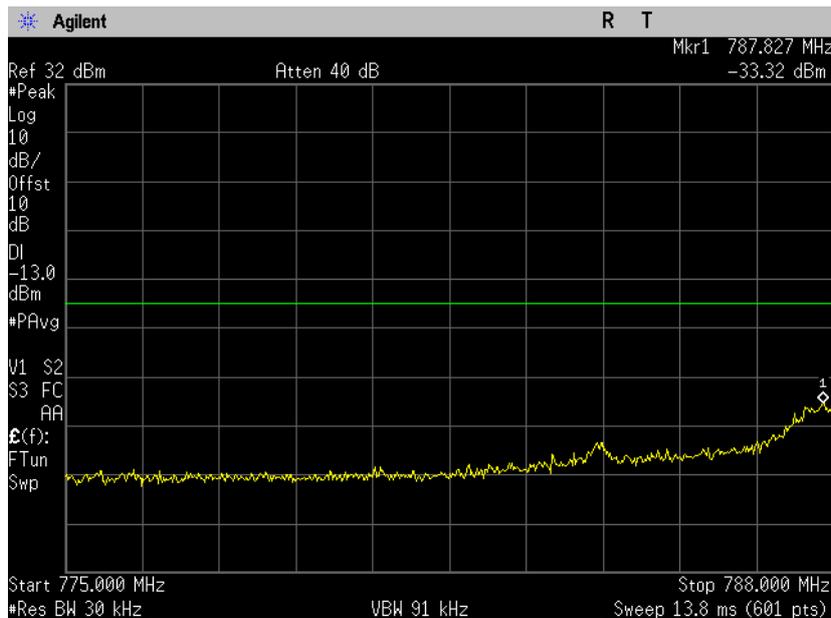
Plot 4.6.16



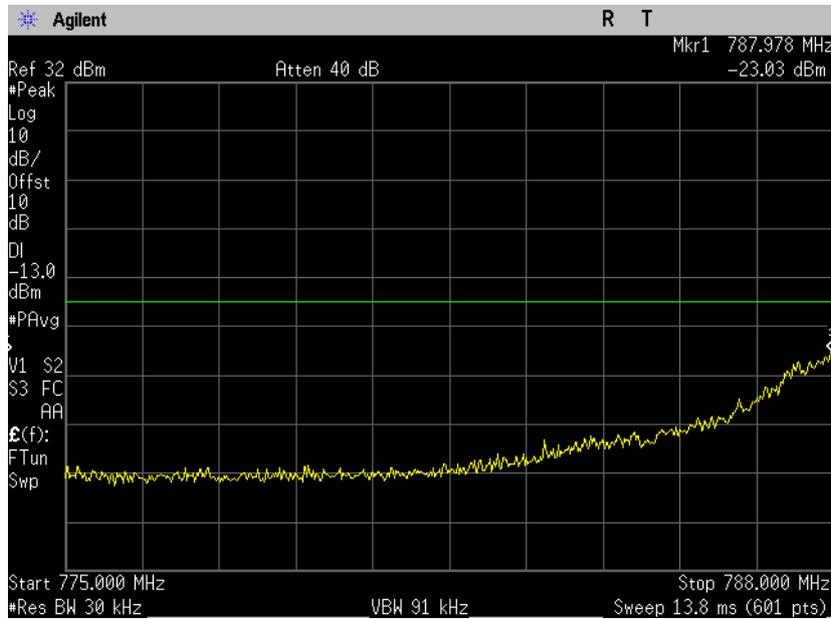
790.5 MHz
QPSK - RB size 1, RB Offset 0
Spurious emissions between 775-788 MHz
Plot 4.6.17



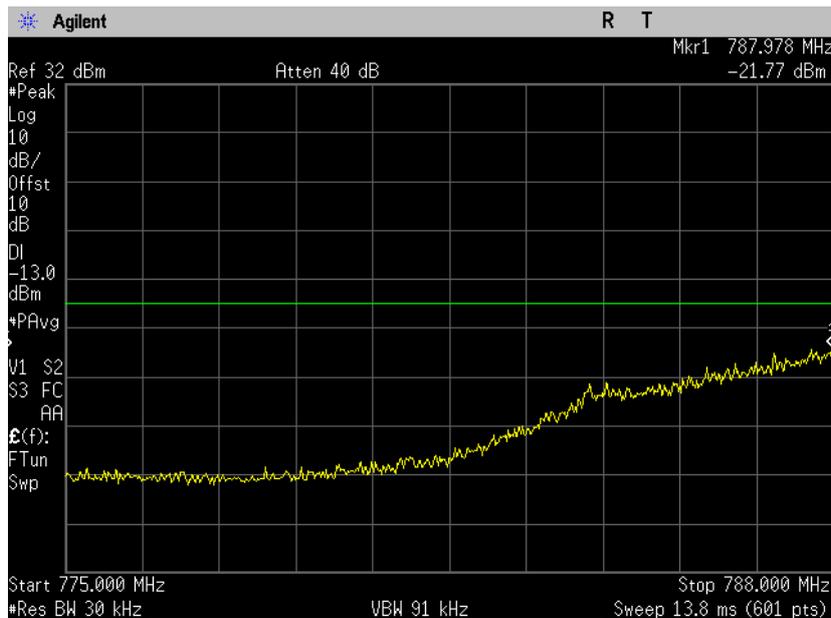
790.5 MHz
QPSK - RB size 1, RB Offset 24
Spurious emissions between 775-788 MHz
Plot 4.6.18



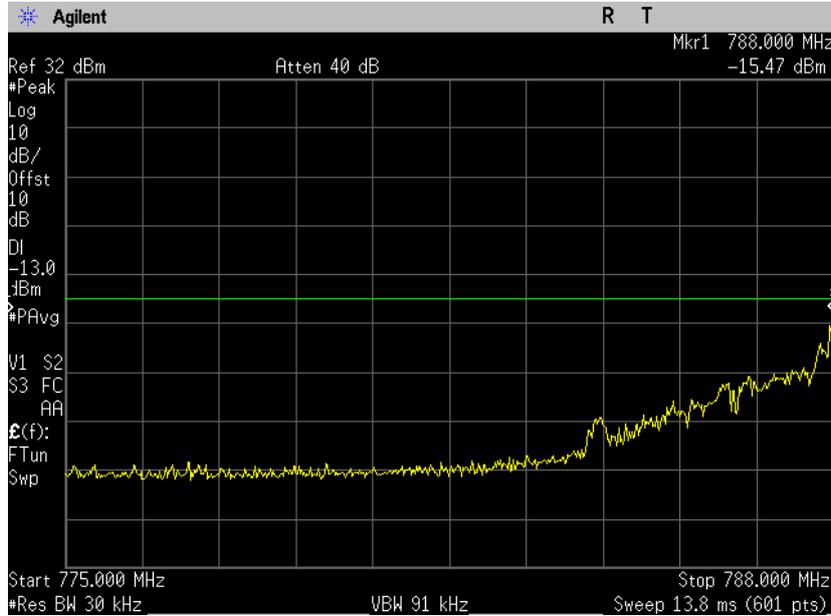
790.5 MHz
QPSK - RB size 12, RB Offset 6
Spurious emissions between 775-788 MHz
Plot 4.6.19



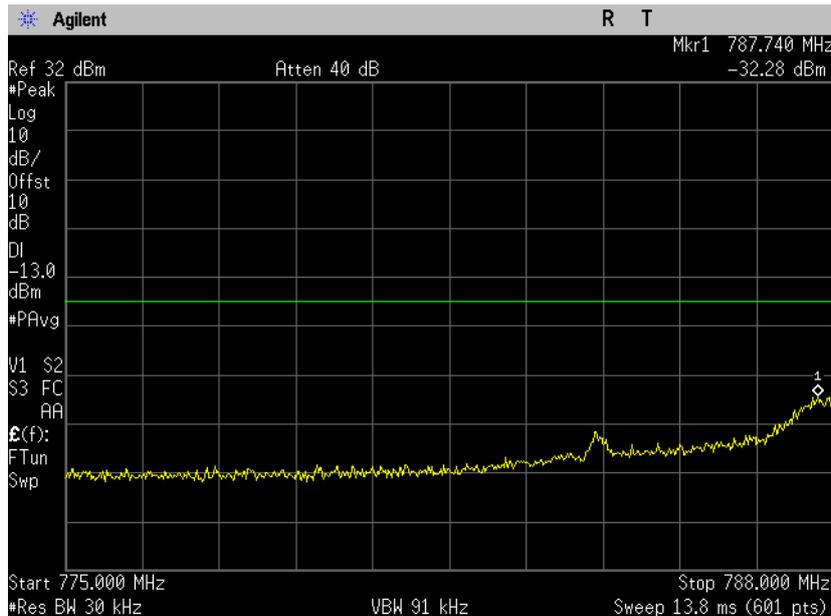
790.5 MHz
QPSK - RB size 25, RB Offset 0
Spurious emissions between 775-788 MHz
Plot 4.6.20



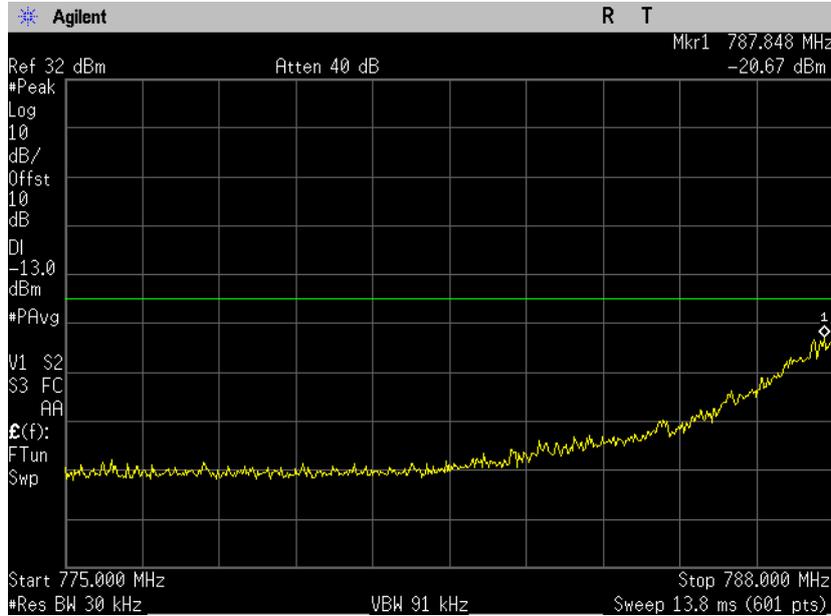
790.5 MHz
16 QAM - RB size 1, RB Offset 0
Spurious emissions between 775-788 MHz
Plot 4.6.21



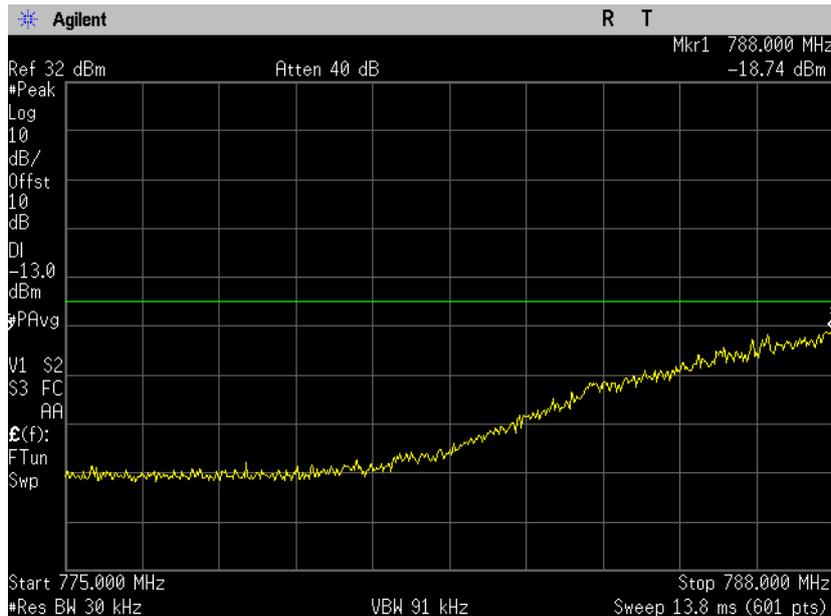
790.5 MHz
16 QAM - RB size 1, RB Offset 24
Spurious emissions between 775-788 MHz
Plot 4.6.22



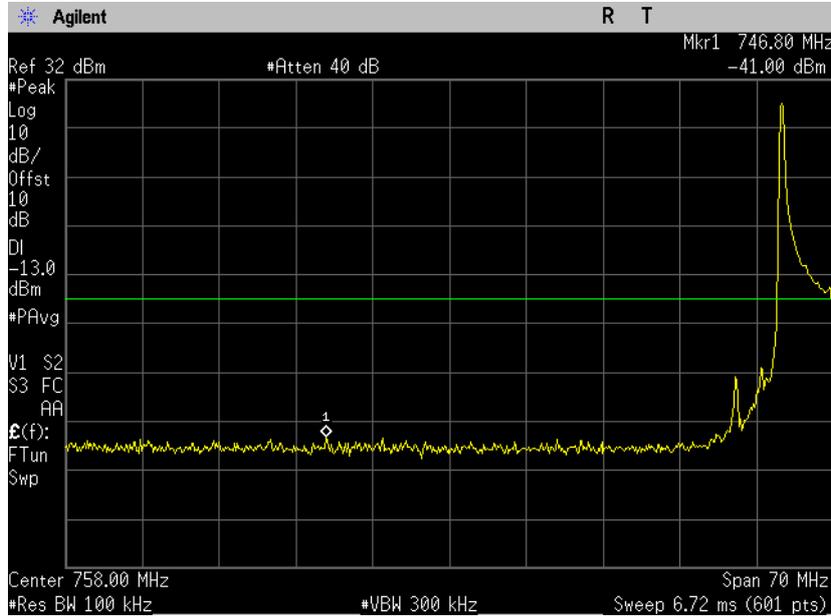
790.5 MHz
16 QAM - RB size 12, RB Offset 6
Spurious emissions between 775-788 MHz
Plot 4.6.23



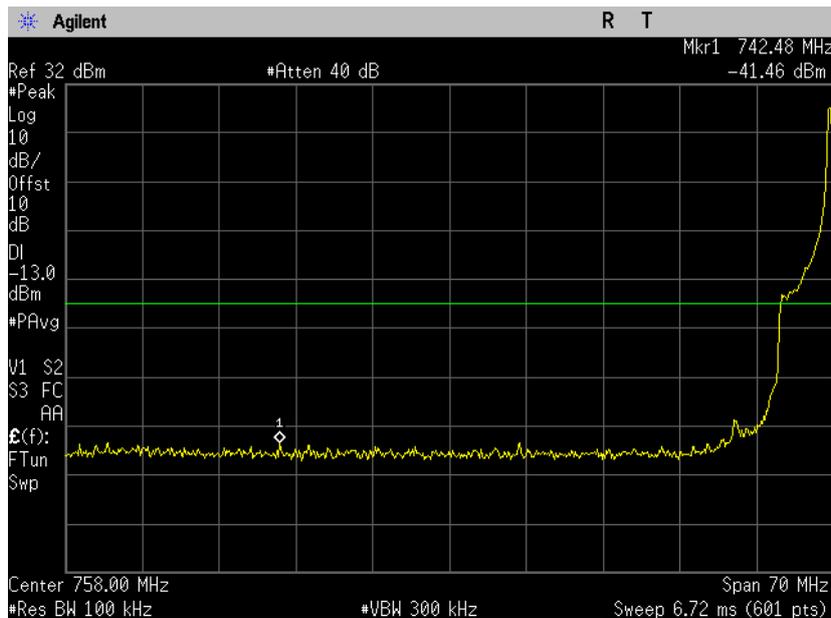
790.5 MHz
16 QAM - RB size 25, RB Offset 0
Spurious emissions between 775-788 MHz
Plot 4.6.24



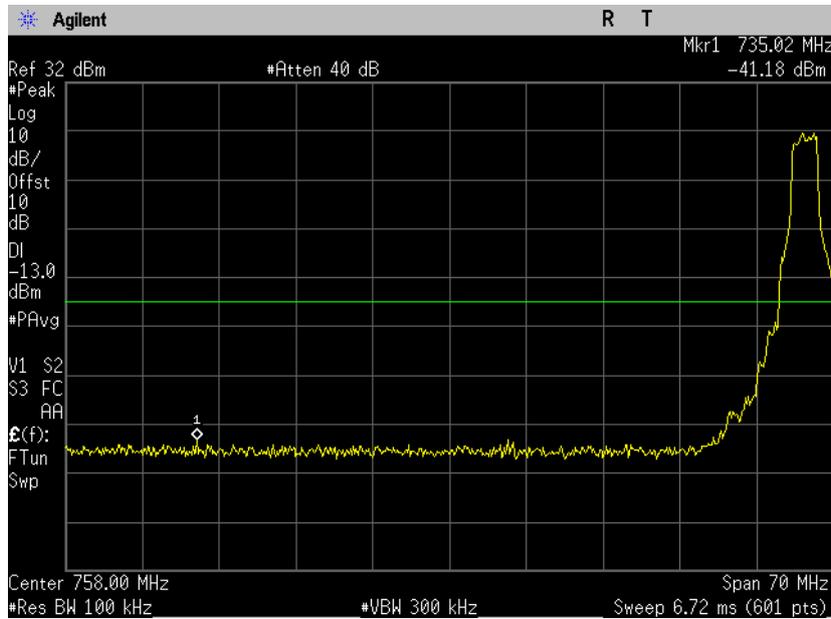
790.5 MHz
QPSK - RB size 1, RB Offset 0
Spurious emissions below 758 MHz
Plot 4.6.25



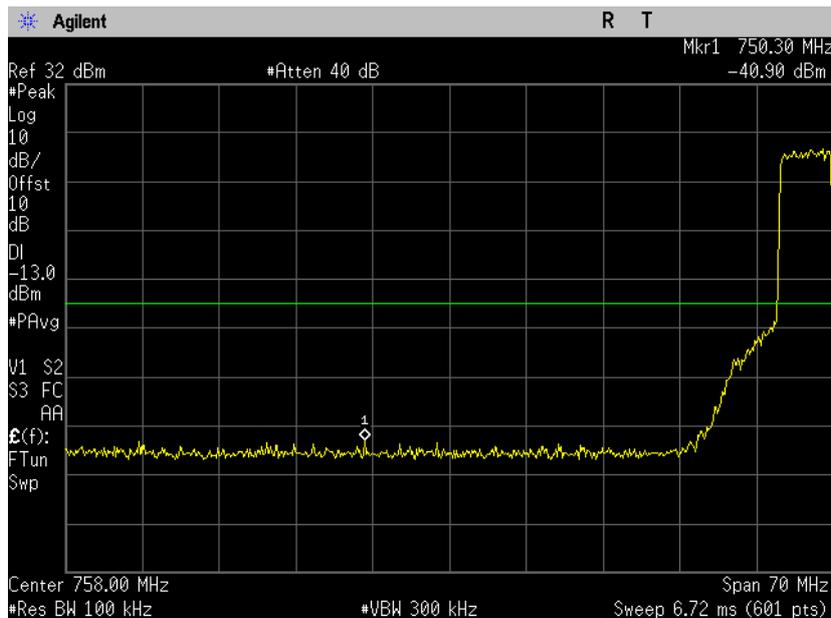
790.5 MHz
QPSK - RB size 1, RB Offset 24
Spurious emissions below 758 MHz
Plot 4.6.26



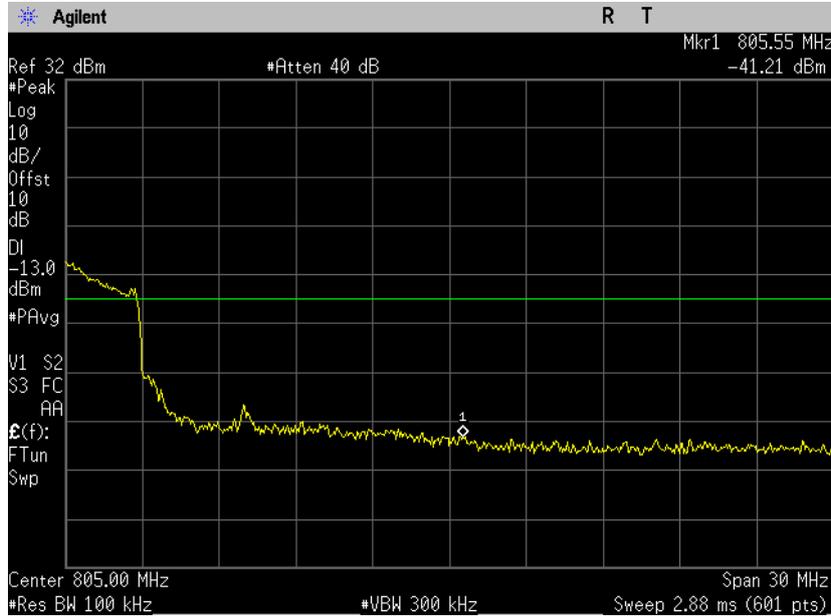
790.5 MHz
QPSK - RB size 12, RB Offset 6
Spurious emissions below 758 MHz
Plot 4.6.27



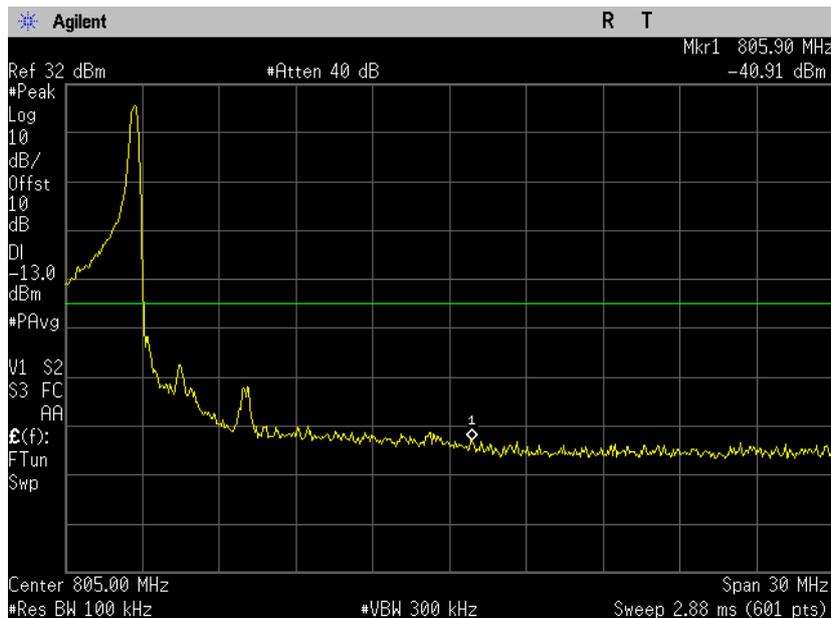
790.5 MHz
QPSK - RB size 25, RB Offset 0
Spurious emissions below 758 MHz
Plot 4.6.28



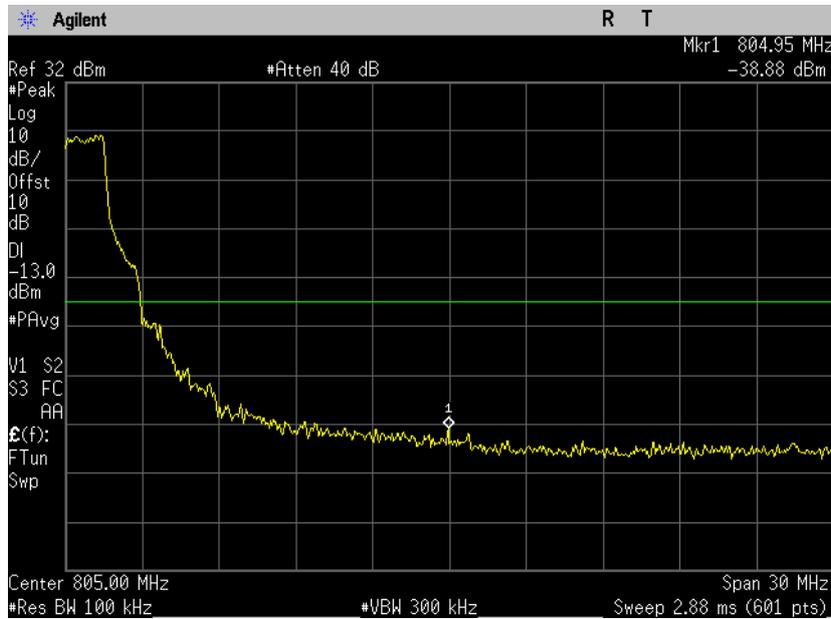
790.5 MHz
QPSK - RB size 1, RB Offset 0
Spurious emissions above 805 MHz
Plot 4.6.29



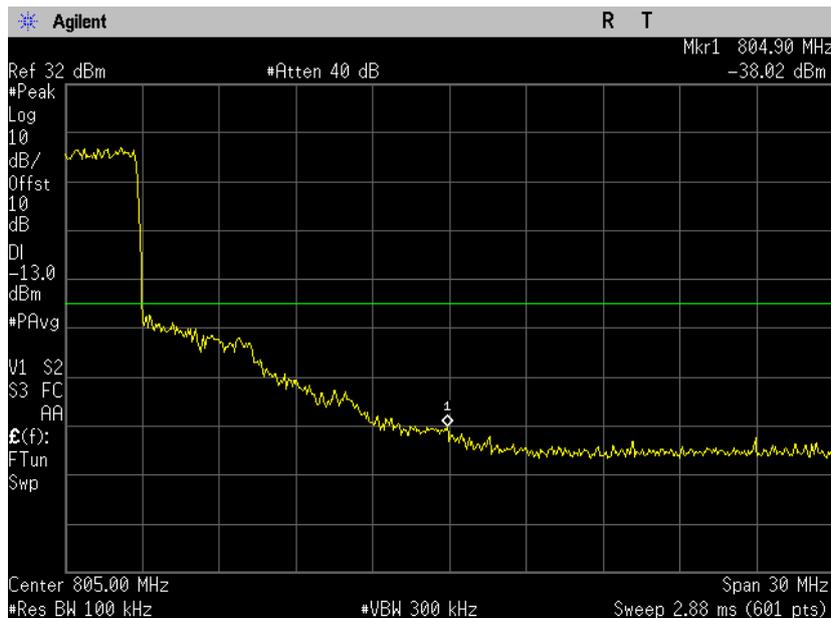
790.5 MHz
QPSK - RB size 1, RB Offset 24
Spurious emissions above 805 MHz
Plot 4.6.30



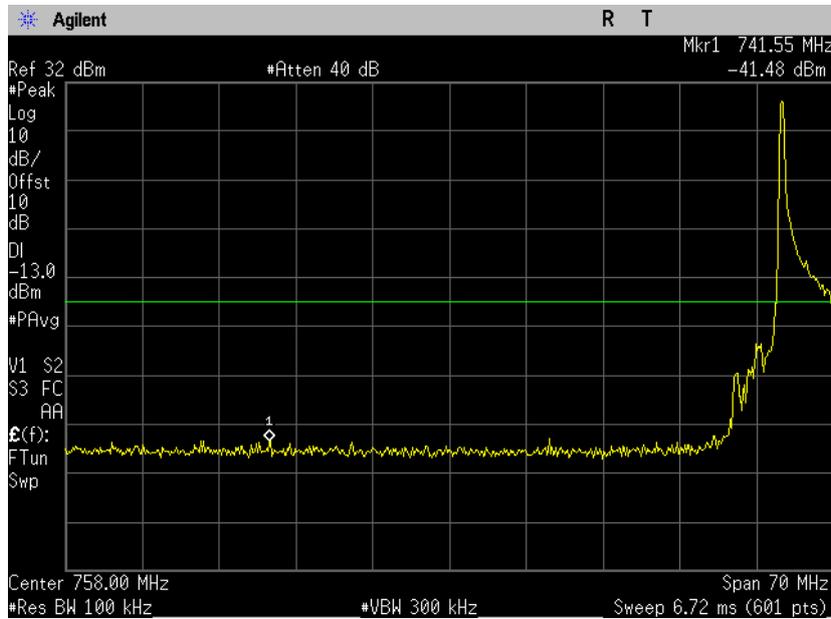
790.5 MHz
QPSK - RB size 12, RB Offset 6
Spurious emissions above 805 MHz
Plot 4.6.31



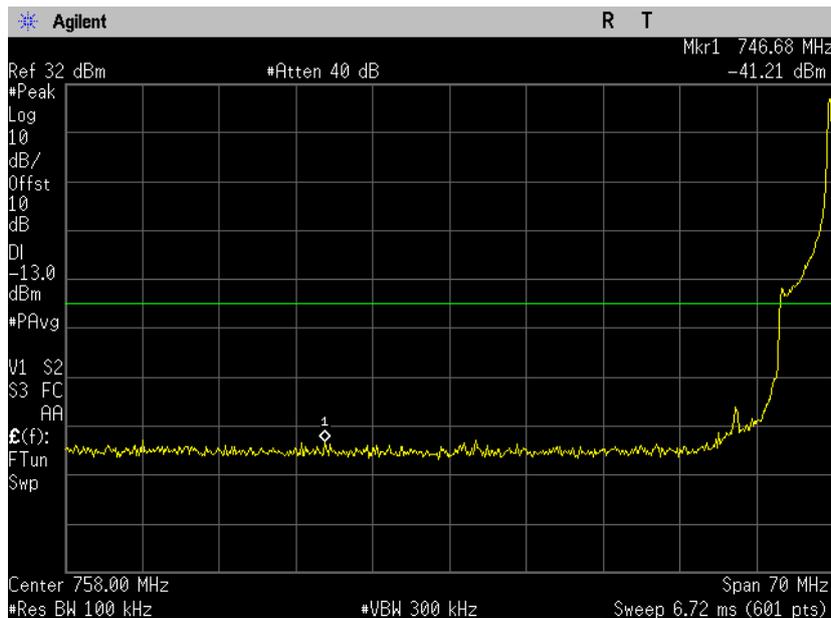
790.5 MHz
QPSK - RB size 25, RB Offset 0
Spurious emissions above 805 MHz
Plot 4.6.32



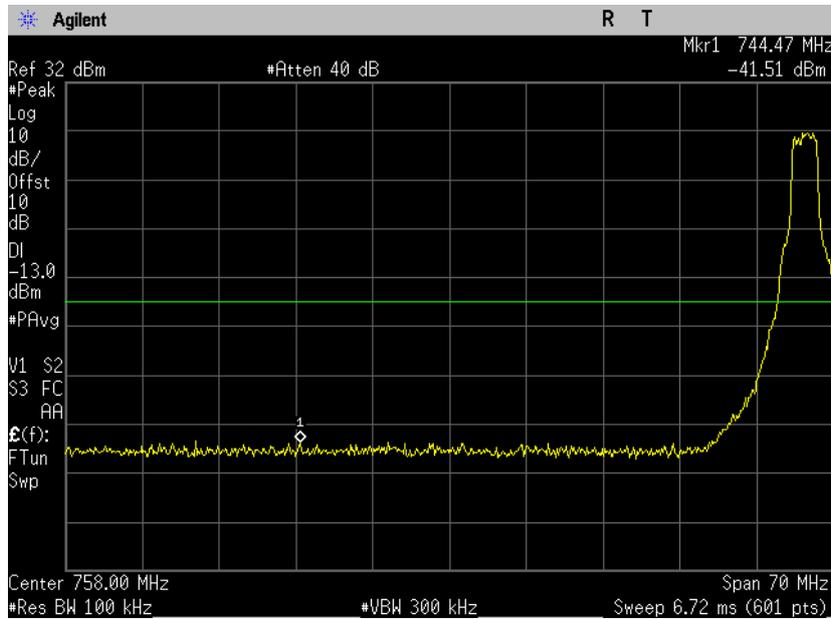
790.5 MHz
16 QAM - RB size 1, RB Offset 0
Spurious emissions below 758 MHz
Plot 4.6.33



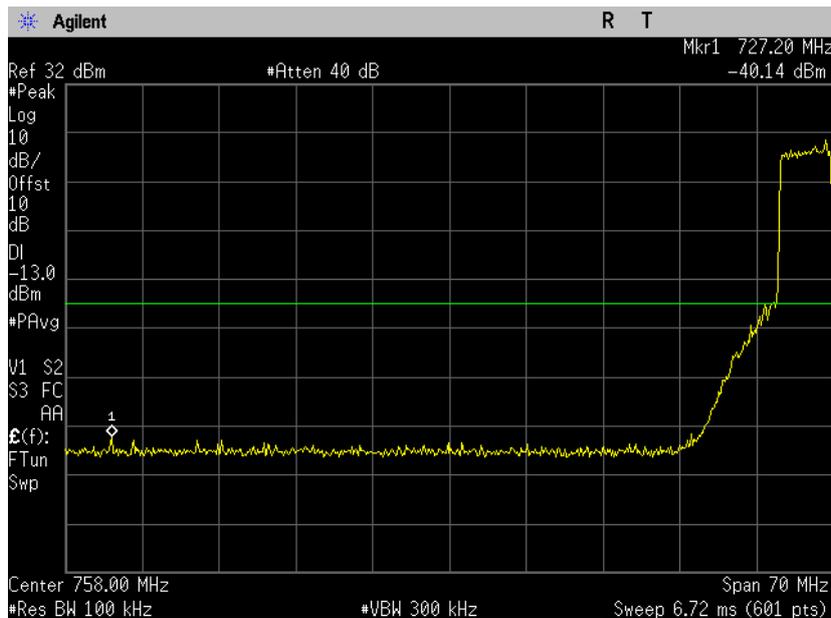
790.5 MHz
16 QAM - RB size 1, RB Offset 24
Spurious emissions below 758 MHz
Plot 4.6.34



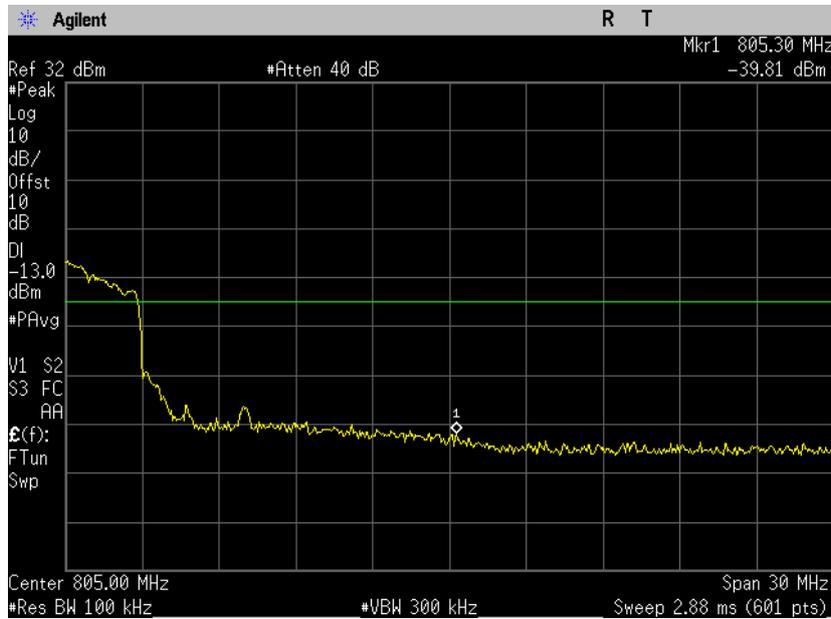
790.5 MHz
16 QAM - RB size 12, RB Offset 6
Spurious emissions below 758 MHz
Plot 4.6.35



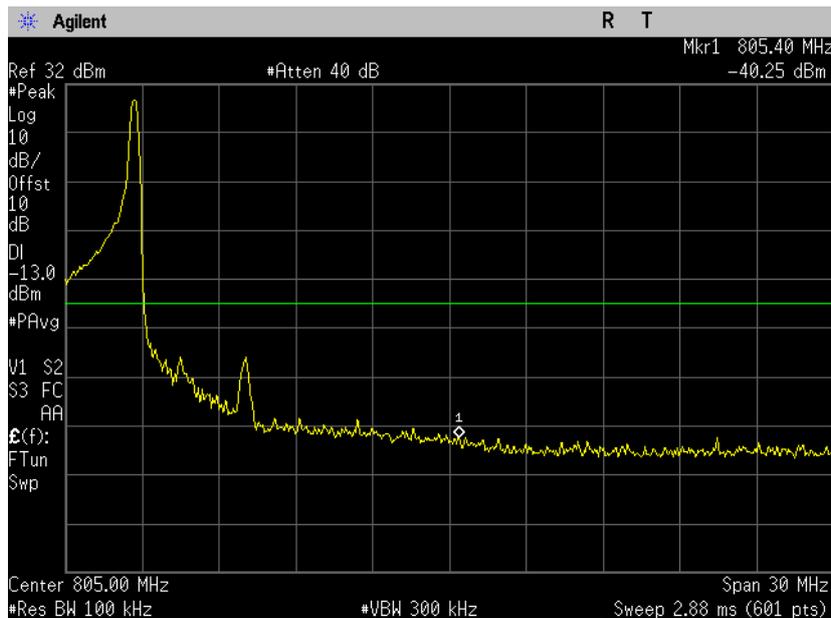
790.5 MHz
16 QAM - RB size 25, RB Offset 0
Spurious emissions below 758 MHz
Plot 4.6.36



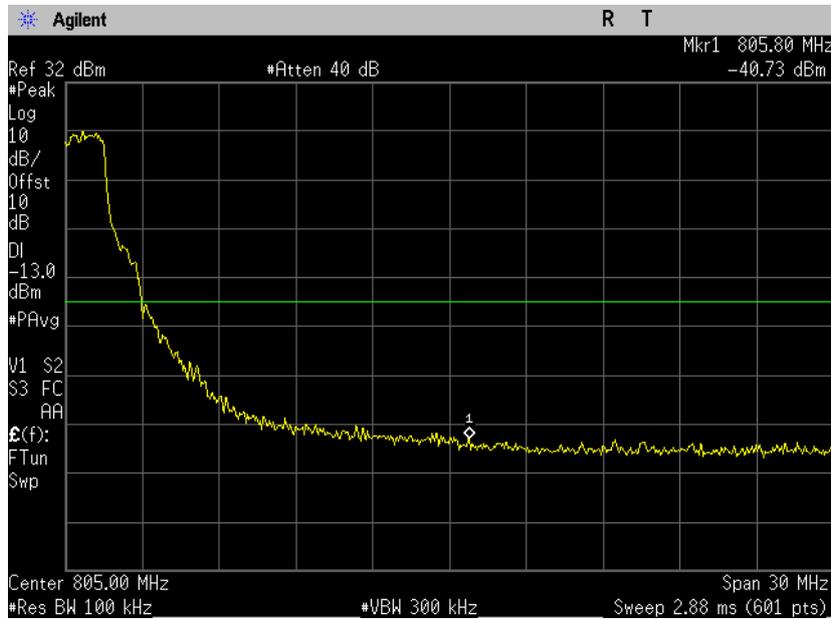
790.5 MHz
16 QAM - RB size 1, RB Offset 0
Spurious emissions above 805 MHz
Plot 4.6.37



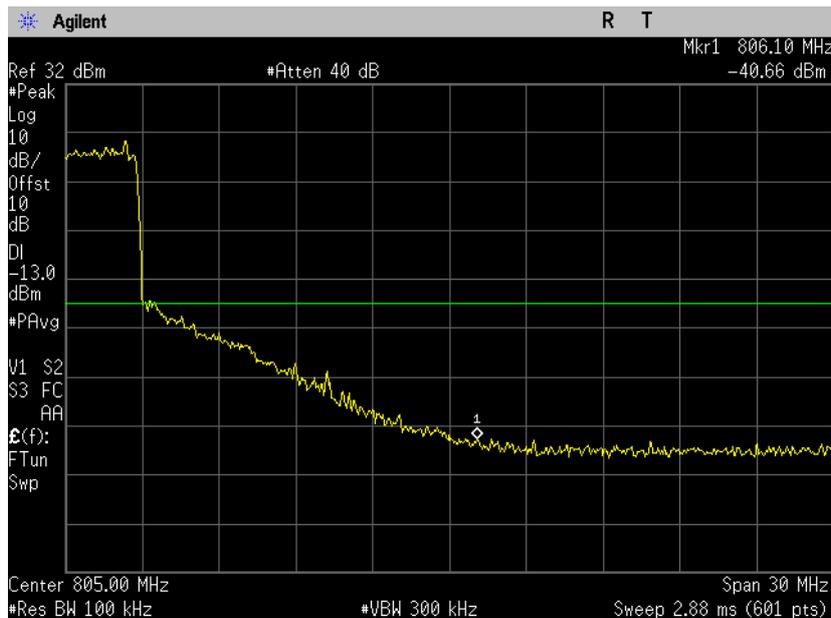
790.5 MHz
16 QAM - RB size 1, RB Offset 24
Spurious emissions above 805 MHz
Plot 4.6.38



790.5 MHz
16 QAM - RB size 12, RB Offset 6
Spurious emissions above 805 MHz
Plot 4.6.39



790.5 MHz
16 QAM - RB size 25, RB Offset 0
Spurious emissions above 805 MHz
Plot 4.6.40



4.7. Conducted Spurious Emissions between 769-775 MHz and 799-805 MHz

Reference document:	47 CFR §27.53 (d)(2)		
Test Requirements:	For operations in the 788-793 MHz band, the power of any emission on all frequencies between 769-775 MHz and 799-805 MHz shall be attenuated below the transmitter power (P) by a factor not less than $65 + 10 \log(P)$ dB* in a 6.25 kHz band segment, for mobile and portable stations.		
Test setup:	See sec 2.1	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 6.8 kHz, VBW:1 MHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.7.1- Plot 4.7.16	

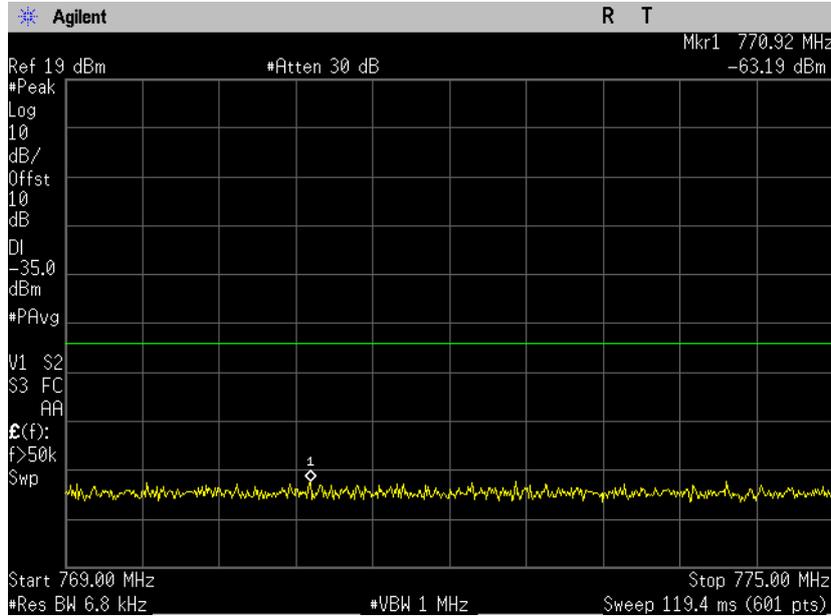
*It translates to a limit of -35dBm

Test results:

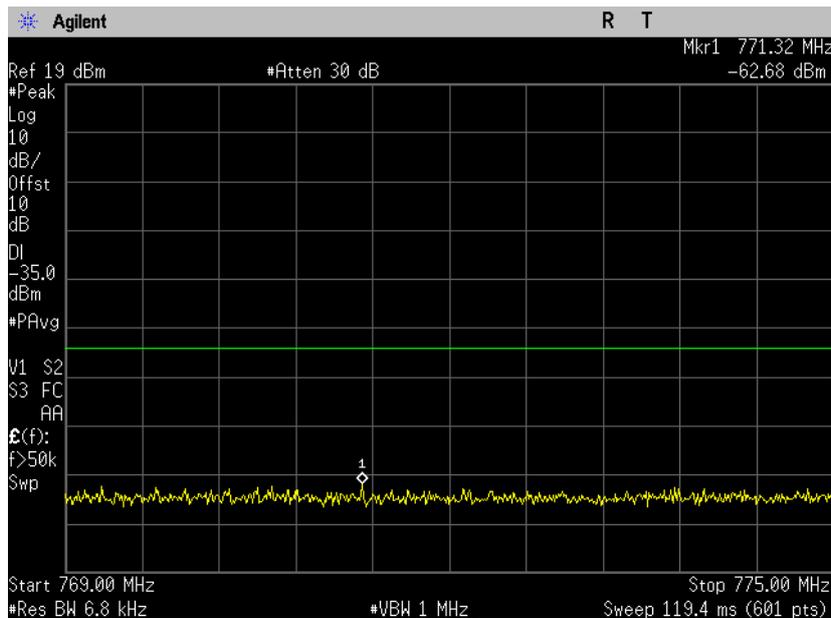
Frequency [MHz]	Resource Block Size	Resource Block Offset	Spurious Emission Frequency [MHz]	Spurious Emission Levels [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
QPSK - Spurious emissions between 769-775 MHz								
790.5	1	0	*	*	-35	*	4.7.1	Pass
	1	24	*	*	-35	*	4.7.2	Pass
	12	6	*	*	-35	*	4.7.3	Pass
	25	0	*	*	-35	*	4.7.4	Pass
QPSK - Spurious emissions between 799-805 MHz								
790.5	1	0	799.21	-51.69	-35	-16.69	4.7.5	Pass
	1	24	799.63	-51.68	-35	-16.68	4.7.6	Pass
	12	6	799.30	-51.23	-35	-16.23	4.7.7	Pass
	25	0	799.42	-41.96	-35	-6.96	4.7.8	Pass
16 QAM - Spurious emissions between 769-775 MHz								
790.5	1	0	*	*	-35	*	4.7.9	Pass
	1	24	*	*	-35	*	4.7.10	Pass
	12	6	*	*	-35	*	4.7.11	Pass
	25	0	*	*	-35	*	4.7.12	Pass
16 QAM - Spurious emissions between 799-805 MHz								
790.5	1	0	799.41	-50.03	-35	-15.03	4.7.13	Pass
	1	24	801.41	-51.24	-35	-16.24	4.7.14	Pass
	12	6	799.02	-51.61	-35	-16.61	4.7.15	Pass
	25	0	799.15	-39.72	-35	-4.72	4.7.16	Pass

* all spurious emissions were at least 20 dB below the limit.

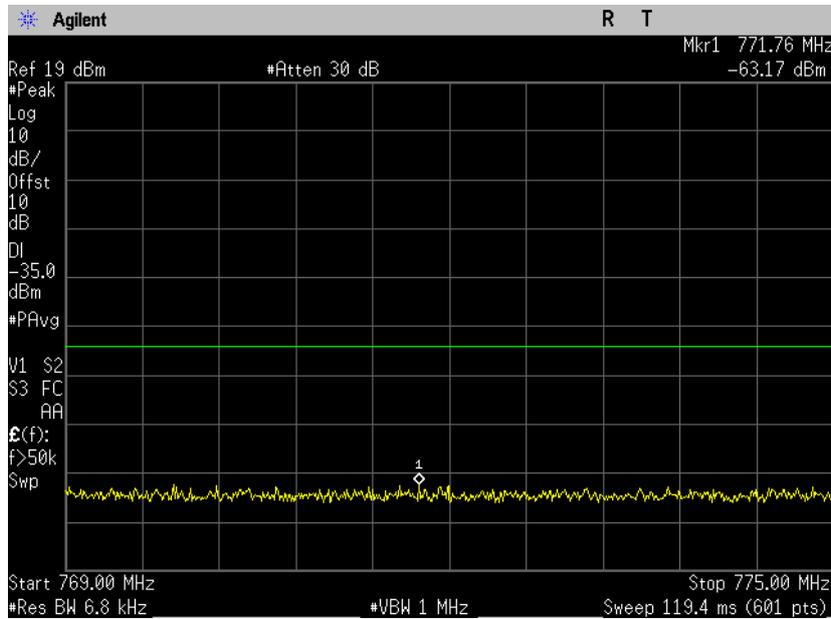
790.5 MHz
QPSK - RB size 1, RB Offset 0
Spurious emissions between 769-775 MHz
Plot 4.7.1



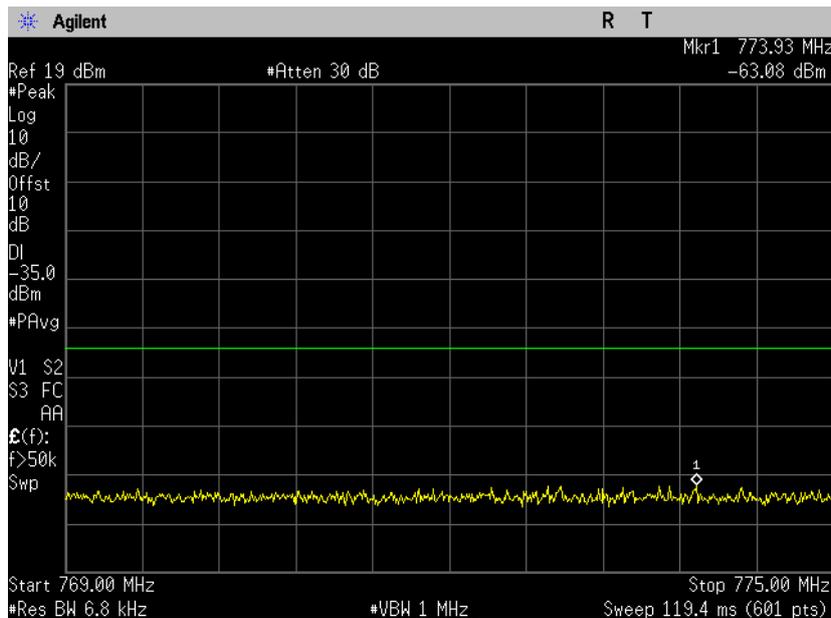
790.5 MHz
QPSK - RB size 1, RB Offset 24
Spurious emissions between 769-775 MHz
Plot 4.7.2



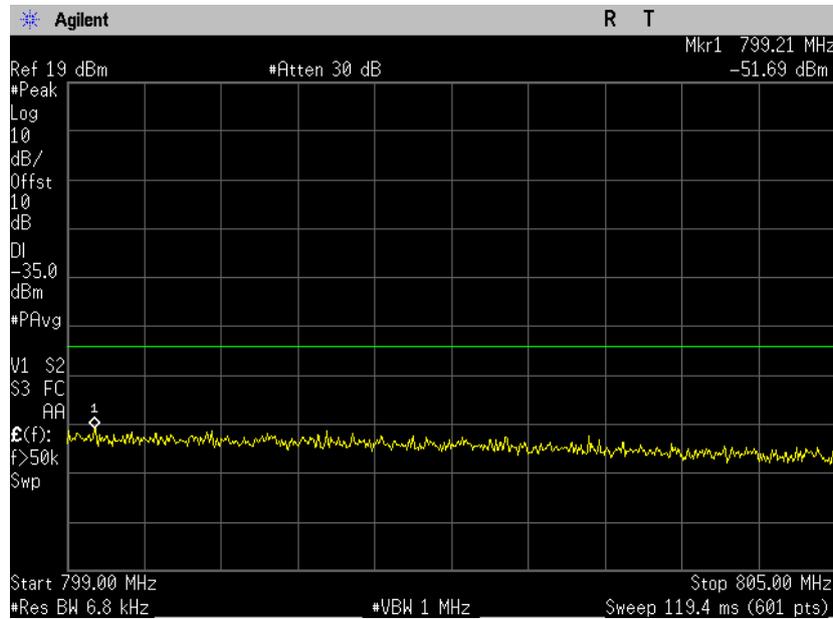
790.5 MHz
QPSK - RB size 12, RB Offset 6
Spurious emissions between 769-775 MHz
Plot 4.7.3



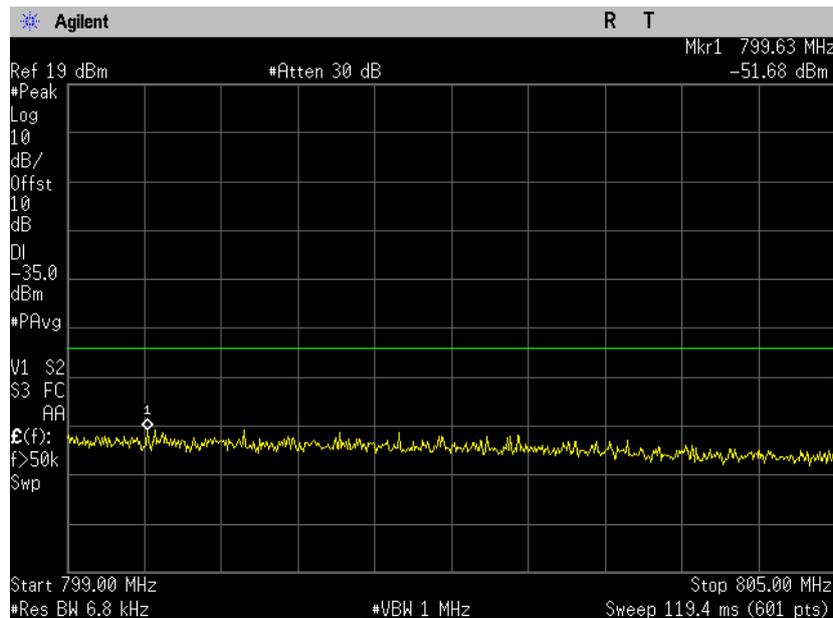
790.5 MHz
QPSK - RB size 25, RB Offset 0
Spurious emissions between 769-775 MHz
Plot 4.7.4



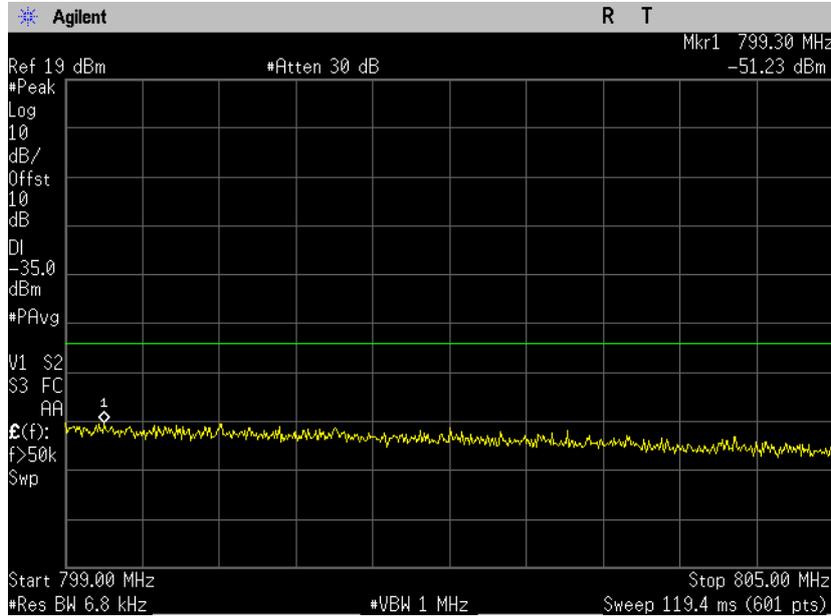
790.5 MHz
QPSK - RB size 1, RB Offset 0
Spurious emissions between 799-805 MHz
Plot 4.7.5



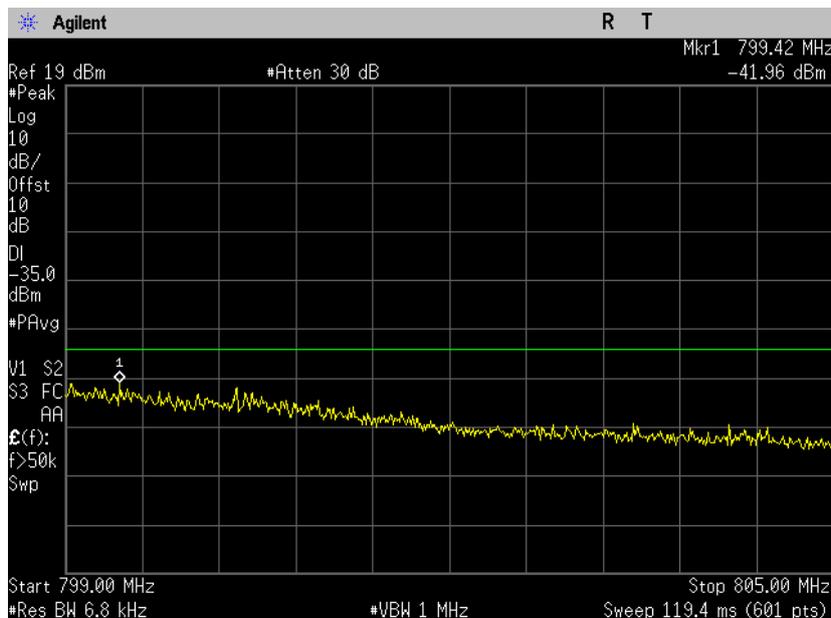
790.5 MHz
QPSK - RB size 1, RB Offset 24
Spurious emissions between 799-805 MHz
Plot 4.7.6



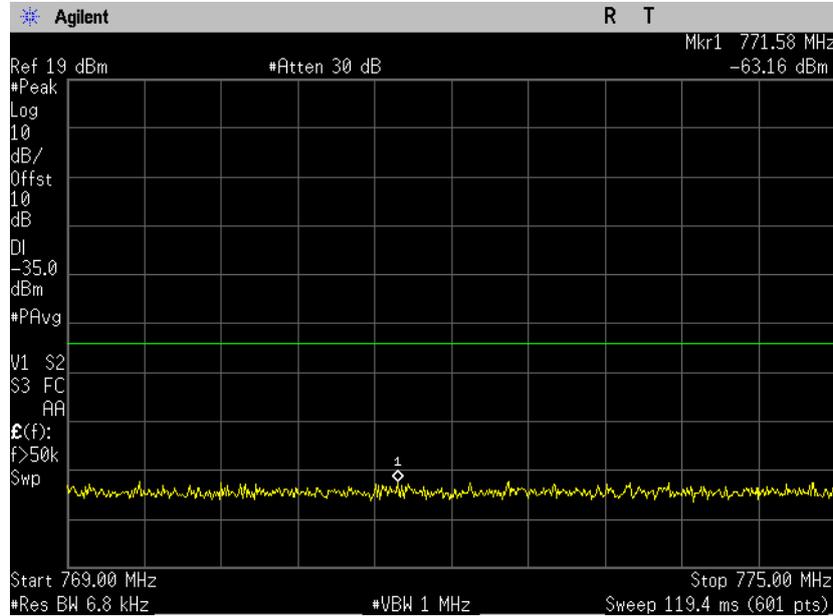
790.5 MHz
QPSK - RB size 12, RB Offset 6
Spurious emissions between 799-805 MHz
Plot 4.7.7



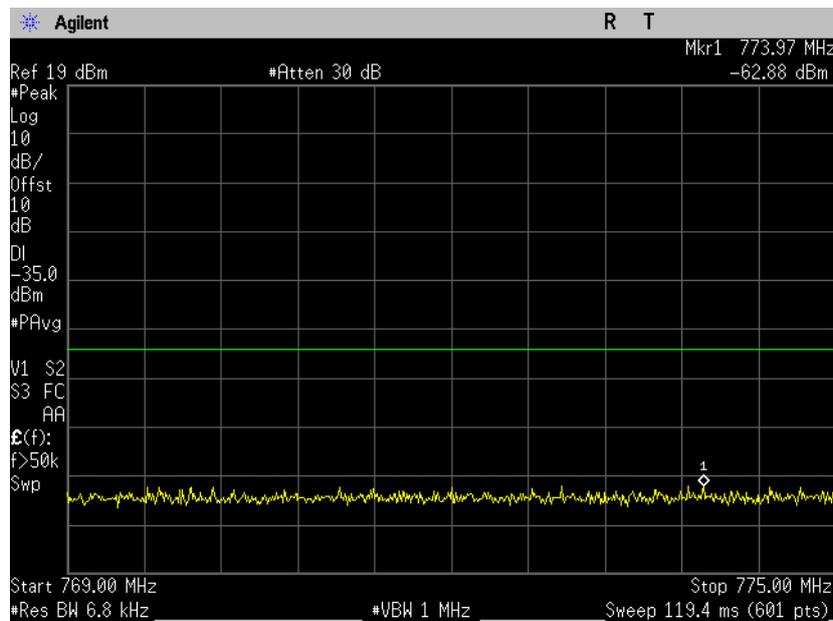
790.5 MHz
QPSK - RB size 25, RB Offset 0
Spurious emissions between 799-805 MHz
Plot 4.7.8



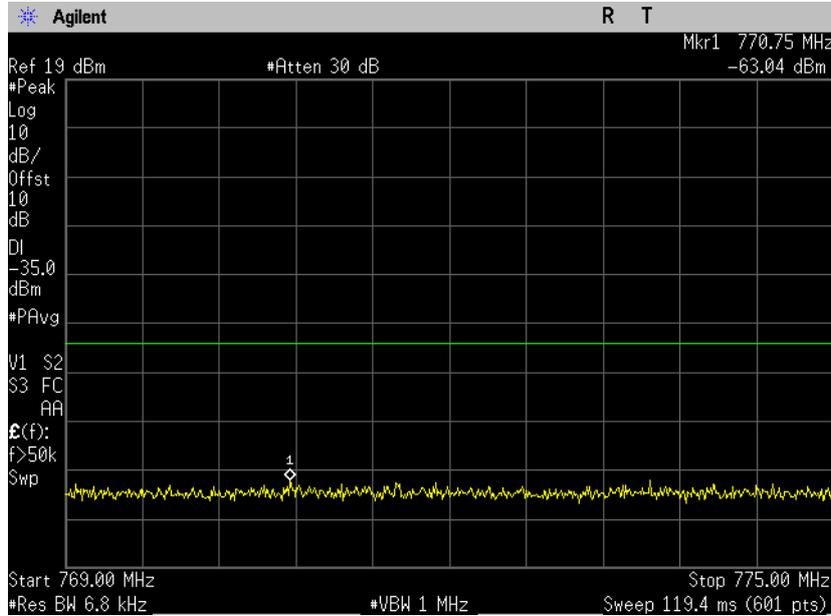
790.5 MHz
16 QAM - RB size 1, RB Offset 0
Spurious emissions between 769-775 MHz
Plot 4.7.9



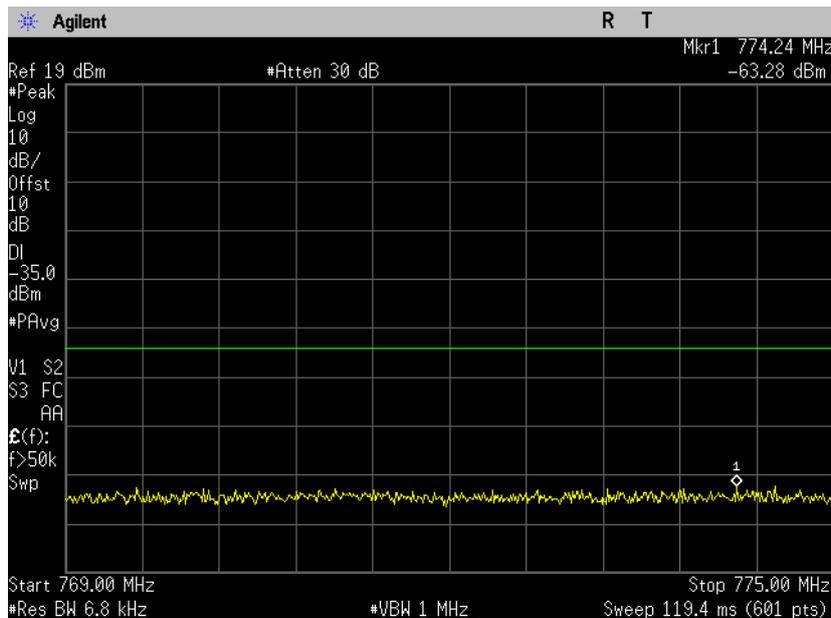
790.5 MHz
16 QAM - RB size 1, RB Offset 24
Spurious emissions between 769-775 MHz
Plot 4.7.10



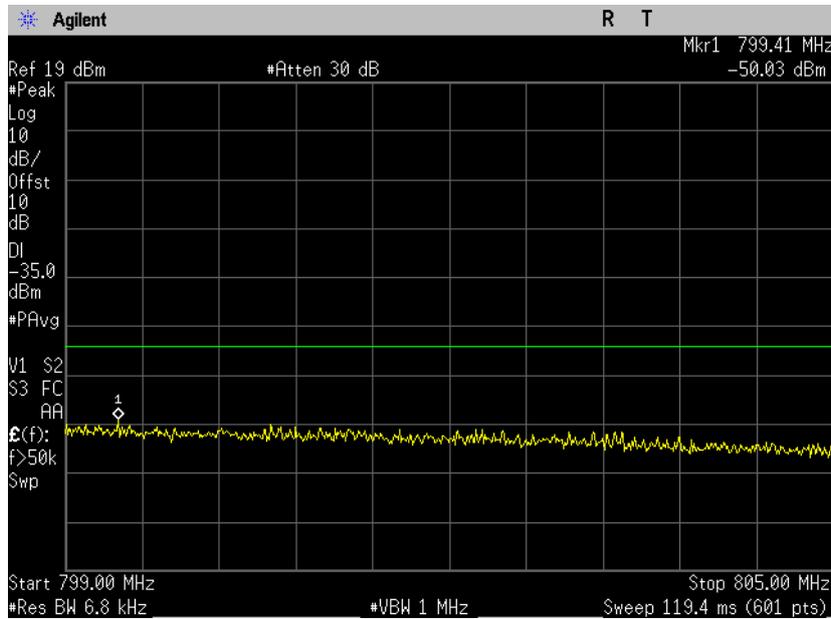
790.5 MHz
16 QAM - RB size 12, RB Offset 6
Spurious emissions between 769-775 MHz
Plot 4.7.11



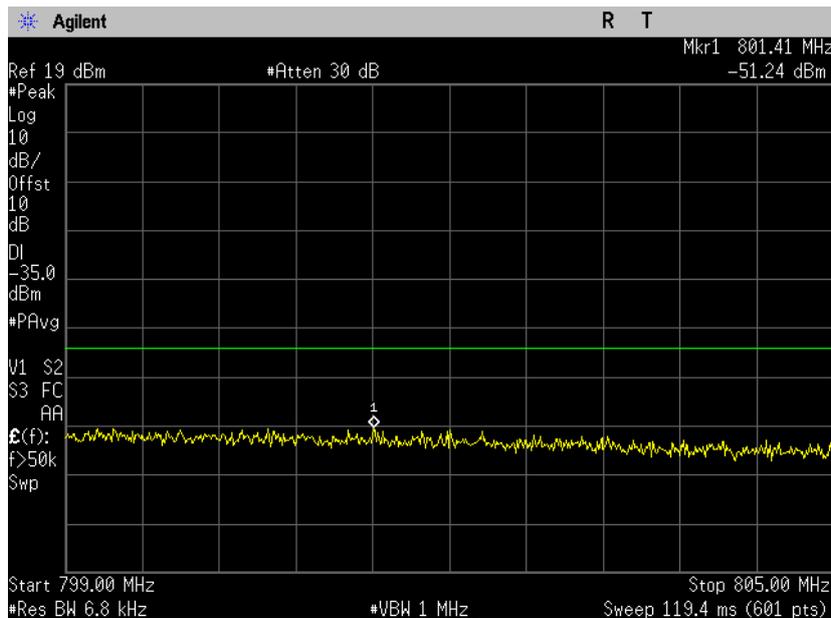
790.5 MHz
16 QAM - RB size 25, RB Offset 0
Spurious emissions between 769-775 MHz
Plot 4.7.12



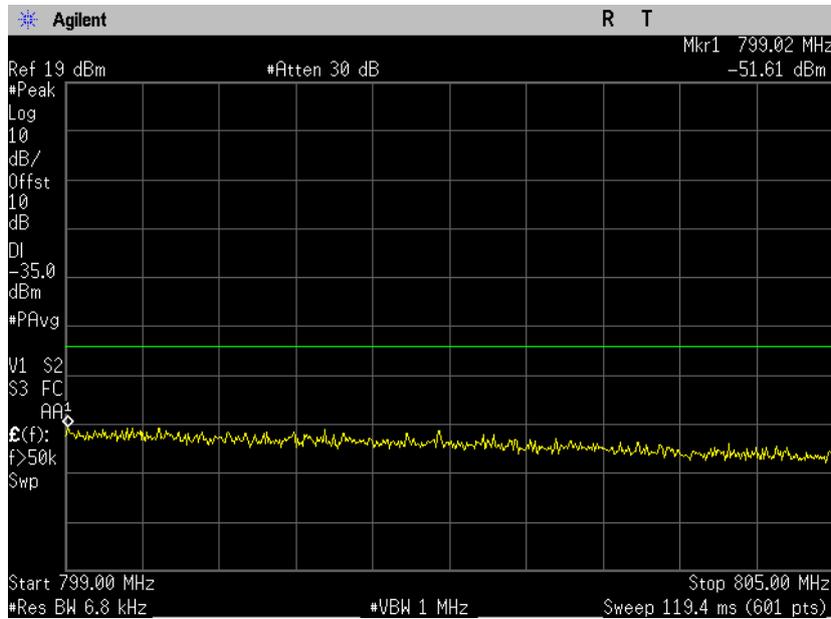
790.5 MHz
16 QAM - RB size 1, RB Offset 0
Spurious emissions between 799-805 MHz
Plot 4.7.13



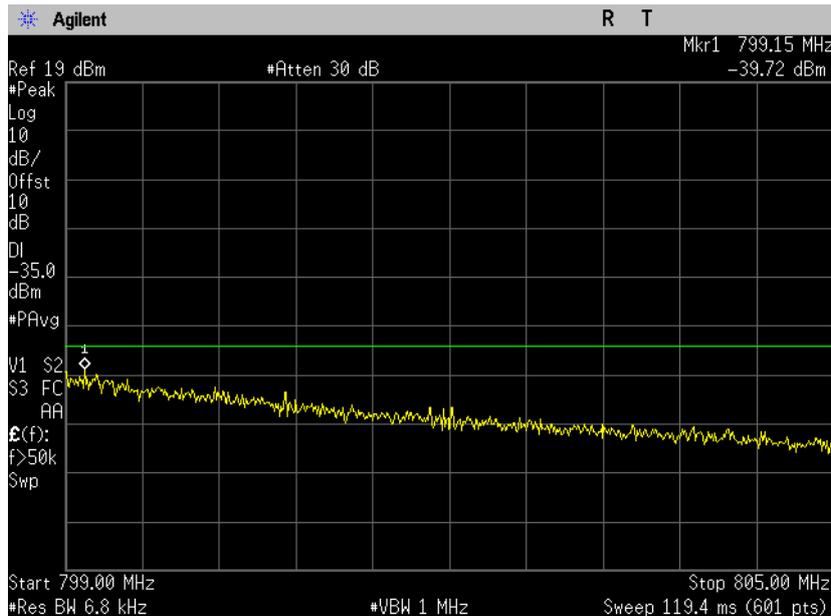
790.5 MHz
16 QAM - RB size 1, RB Offset 24
Spurious emissions between 799-805 MHz
Plot 4.7.14



790.5 MHz
16 QAM - RB size 12, RB Offset 6
Spurious emissions between 799-805 MHz
Plot 4.7.15



790.5 MHz
16 QAM - RB size 25, RB Offset 0
Spurious emissions between 799-805 MHz
Plot 4.7.16



4.8. Radiated Peak Power Output

Reference document:	47 CFR §27.50 (b)(9)		
Test Requirements:	Mobile stations transmitting in the 776-793 MHz band are limited to 30 watts ERP.		
Test setup:	See sec 2.2	Pass	
Method of testing:	Radiated		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 3 MHz, VBW: 3 MHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	---	

Test results:

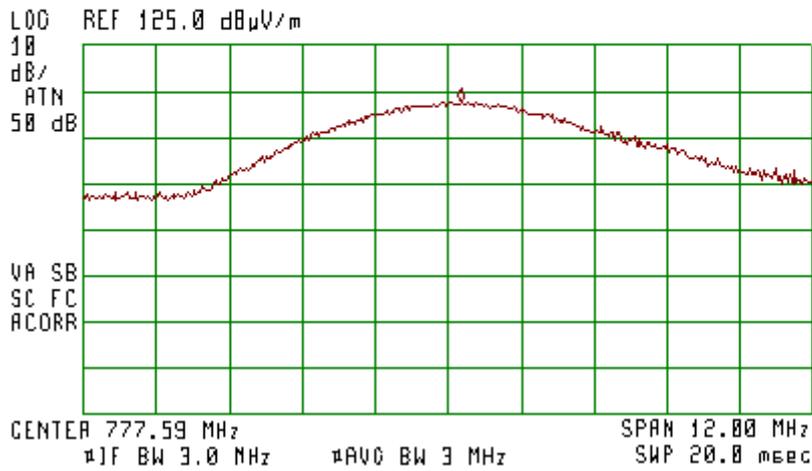
Emission Frequency [MHz]	Max Reading [dBμV/m]	Polarization [H/V]	*Signal Generator Level [dBm]	Antenna Gain [dBd]	ERP calculated [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
782 MHz - QPSK - RB size 1, RB Offset 0									
777.47	125.59	H & V	20.25	4.76	25.01	44.77	-19.76	4.8.1 – 4.8.2	Pass
782 MHz - 16 QAM - RB size 1, RB Offset 0									
777.56	125.98	H & V	20.66	4.76	25.42	44.77	-19.35	4.8.3 – 4.8.4	Pass
790.5 MHz - QPSK - RB size 1, RB Offset 0									
788.52	126.05	H & V	20.82	4.74	25.56	44.77	-19.21	4.8.5 – 4.8.6	Pass
790.5 MHz - 16 QAM - RB size 1, RB Offset 0									
788.31	126.46	H & V	21.23	4.74	25.97	44.77	-18.80	4.8.7 – 4.8.8	Pass

*Corrected for cable loss

782 MHz
QPSK - RB size 1, RB Offset 0
Horizontal Polarization
Plot 4.8.1



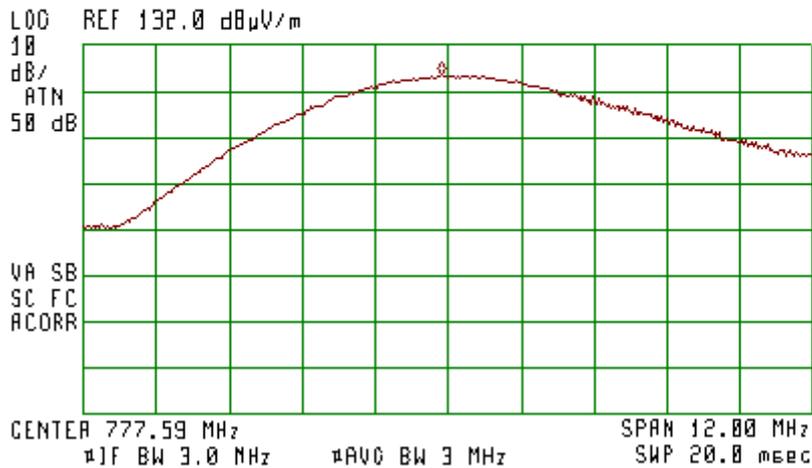
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 777.00 MHz
112.73 dB μ V/m



Vertical Polarization
Plot 4.8.2



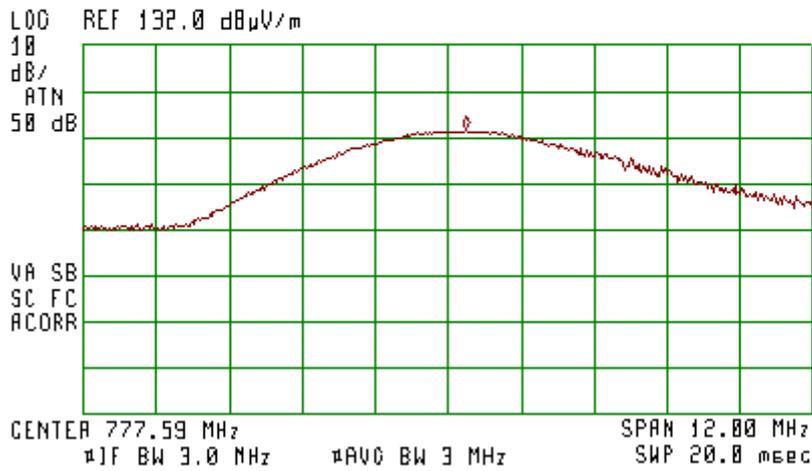
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 777.47 MHz
125.59 dB μ V/m



782 MHz
16 QAM - RB size 1, RB Offset 0
Horizontal Polarization
Plot 4.8.3



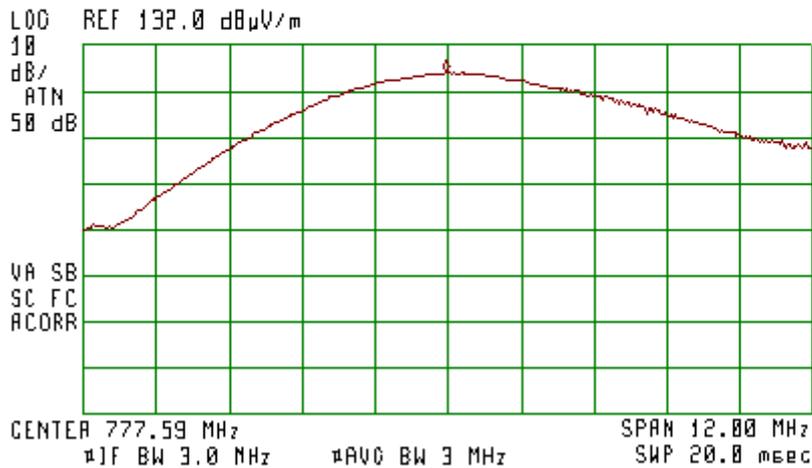
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 777.89 MHz
113.52 dB μ V/m



Vertical Polarization
Plot 4.8.4



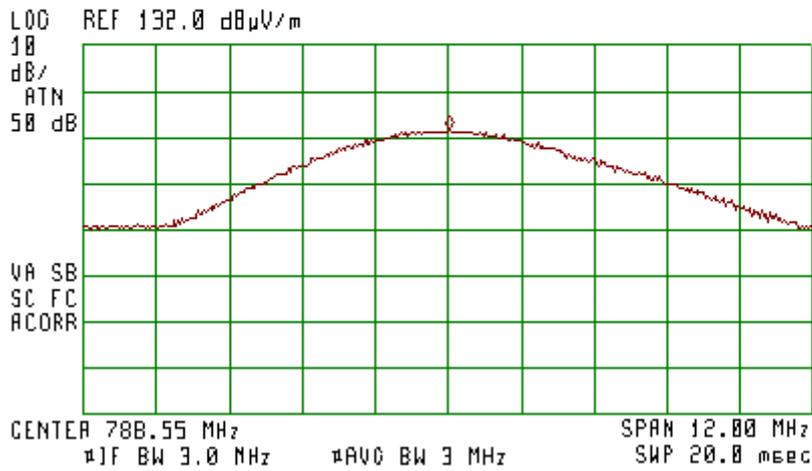
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 777.56 MHz
125.98 dB μ V/m



790.5 MHz
QPSK - RB size 1, RB Offset 0
Horizontal Polarization
Plot 4.8.5



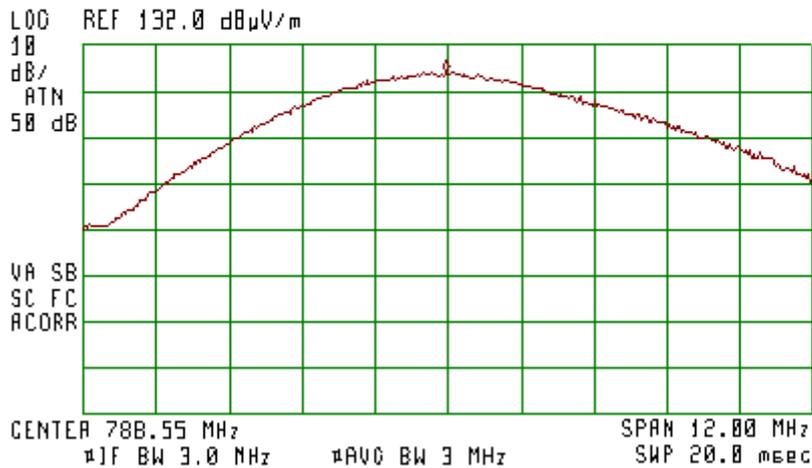
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 788.58 MHz
113.78 dB μ V/m



Vertical Polarization
Plot 4.8.6



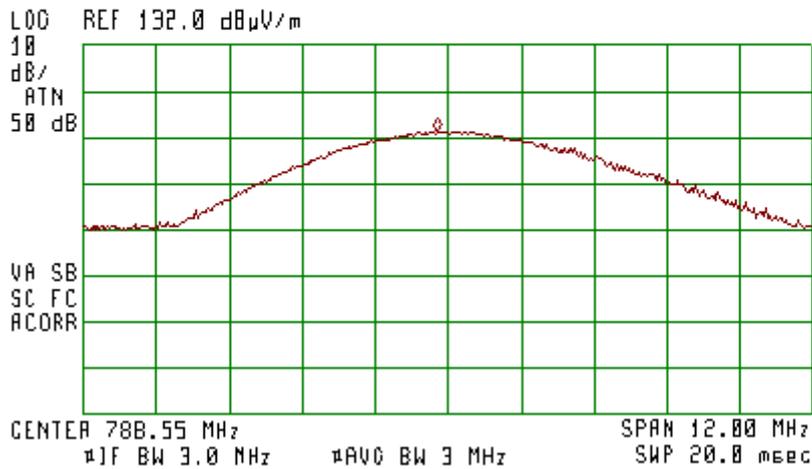
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 788.52 MHz
126.05 dB μ V/m



790.5 MHz
16 QAM - RB size 1, RB Offset 0
Horizontal Polarization
Plot 4.8.7



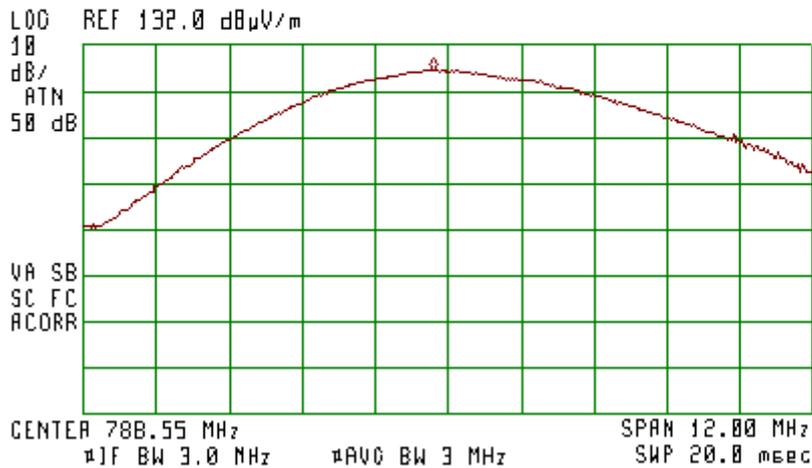
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 788.37 MHz
113.41 dB μ V/m



Vertical Polarization
Plot 4.8.8



ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 788.31 MHz
126.46 dB μ V/m



4.9. Field Strength of Spurious Radiation for operations in the 776-788 MHz band

Reference document:	47 CFR §27.53 (c)(2)		
Test Requirements:	On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB*.		
Test setup:	See sec 2.2	Pass	
Method of testing:	Radiated		
Operating conditions:	Under normal test conditions		
S.A. Settings:	f <1GHz: RBW: 120 kHz, VBW: 300 kHz f >1GHz: RBW: 1MHz, VBW: 3MHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4. 9.1- Plot 4.9.16	

*It translates to a limit of -13dBm

Test results:

Spurious Emission Frequency [MHz]	Max Reading [dBμV/m]	Polarization [H/V]	Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
782 MHz - QPSK - RB size 1, RB Offset 0									
*	*	*	*	*	*	-13	*	4.9.1 – 4.9.3	Pass
782 MHz - 16 QAM - RB size 1, RB Offset 0									
*	*	*	*	*	*	-13	*	4.9.4 – 4.9.6	Pass

* All readings were at least 15 dB below the limit.

Note: Measurements were taken using a high pass filter (where appropriate) at the spectrum analyzer input.

Test results below 1GHz:

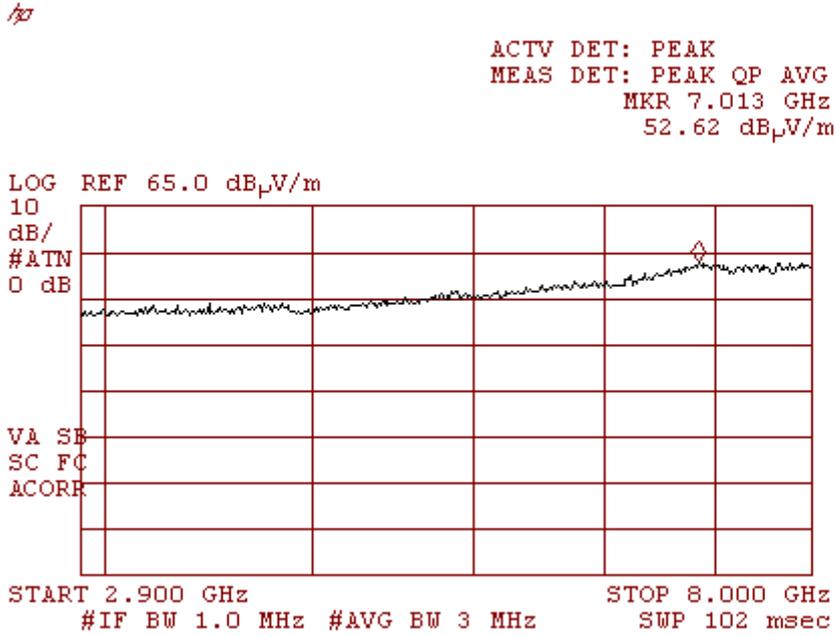
All measurements were done in horizontal and vertical polarizations; the results show the worst-case for all modulations.

Spurious Emission Frequency [MHz]	Max Reading [dBμV/m]	Polarization [H/V]	*Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Result
*	*	*	*	*	*	-13	*	4.9.7 – 4.9.8	Pass

* all readings were at least 15 dB below the limit.

Note: Measurements were taken using a band reject filter (where appropriate) at the spectrum analyzer input.

Horizontal & Vertical Polarization
Plot 4.9.3



**Horizontal & Vertical Polarization
Plot 4.9.6**

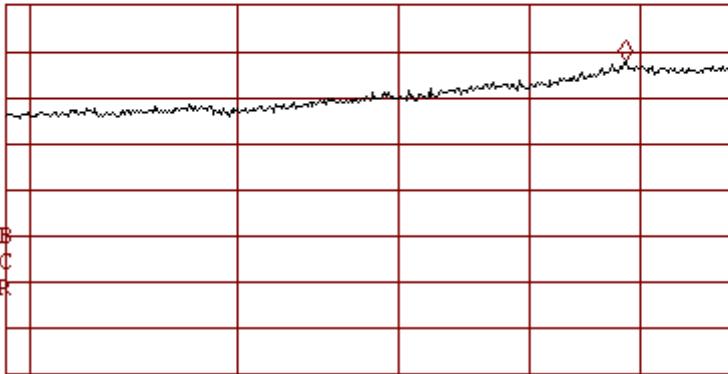
1/2

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 7.029 GHz
52.72 dB μ V/m

LOG REF 65.0 dB μ V/m

10
dB/
#ATN
0 dB

VA SE
SC FC
ACORR



START 2.900 GHz

STOP 8.000 GHz

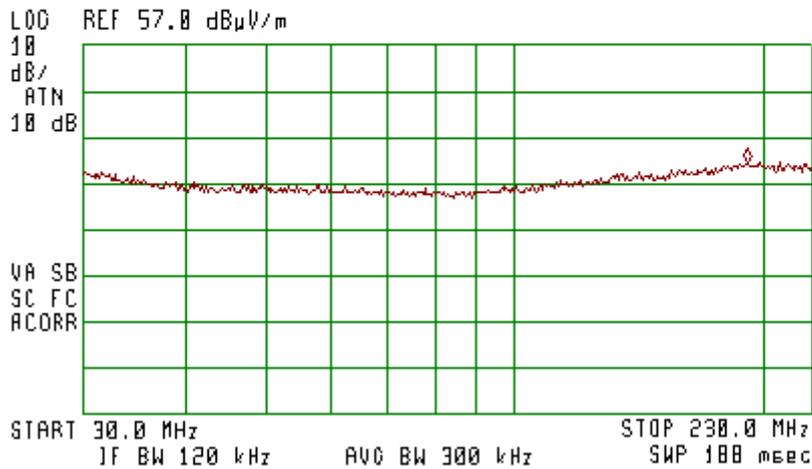
#IF BW 1.0 MHz #AVG BW 3 MHz

SWP 102 msec

Below 1 GHz
Worst case for all modulations
Horizontal & Vertical Polarization
Plot 4.9.7



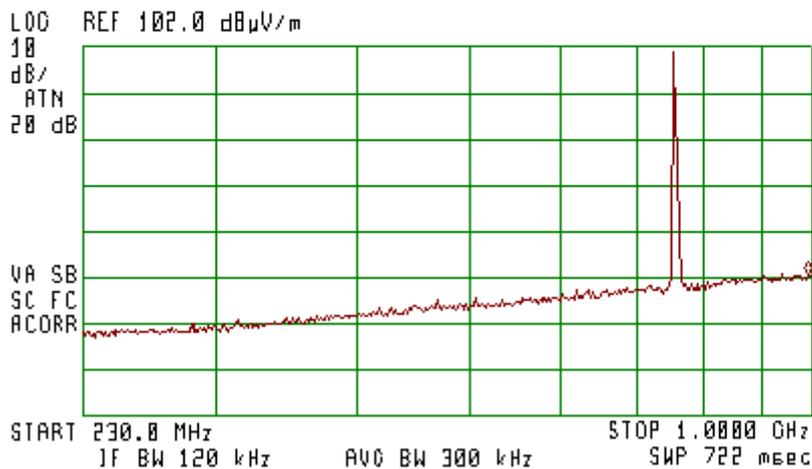
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKR 199.3 MHz
31.50 dB μ V/m



Horizontal & Vertical Polarization
Plot 4.9.8



ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKR 991.3 MHz
52.68 dB μ V/m



4.10. Field Strength of Spurious Radiation between 763-775 MHz and 793-805 MHz

Reference document:	47 CFR §27.53 (c)(4)		
Test Requirements:	For operations in the 776-788 MHz band, the power of any emission on all frequencies between 763-775 MHz and 793-805 MHz shall be attenuated below the transmitter power (P) by a factor not less than $65 + 10 \log (P)$ dB* in a 6.25 kHz band segment, for mobile and portable stations.		
Test setup:	See sec 2.2	Pass	
Method of testing:	Radiated		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 10 kHz, VBW:100 kHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.10.1- Plot 4.10.16	

*It translates to a limit of -35dBm

Test results:

Spurious Emission Frequency [MHz]	Max Reading [dBμV/m]	Polarization [H/V]	*Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit** [dBm]	Margin [dB]	Reference Plots	Results
782 MHz - QPSK - RB size 50, RB Offset 0 Spurious radiation between 763-775 MHz									
774.97	59.16	H & V	-45.80	4.77	-41.03	-32.96	-8.07	4.10.1-4.10.2	Pass
782 MHz - QPSK - RB size 50, RB Offset 0 Spurious radiation between 793-805 MHz									
793.12	59.58	V	-45.60	4.73	-40.87	-32.96	-7.91	4.10.3-4.10.4	Pass
782 MHz - 16 QAM - RB size 50, RB Offset 0 Spurious radiation between 763-775 MHz									
774.88	61.57	V	-43.38	4.77	-38.61	-32.96	-5.65	4.10.5-4.10.6	Pass
782 MHz - 16 QAM - RB size 50, RB Offset 0 Spurious radiation between 793-805 MHz									
793.09	61.10	V	-44.02	4.73	-39.29	-32.96	-6.33	4.10.7-4.10.8	Pass

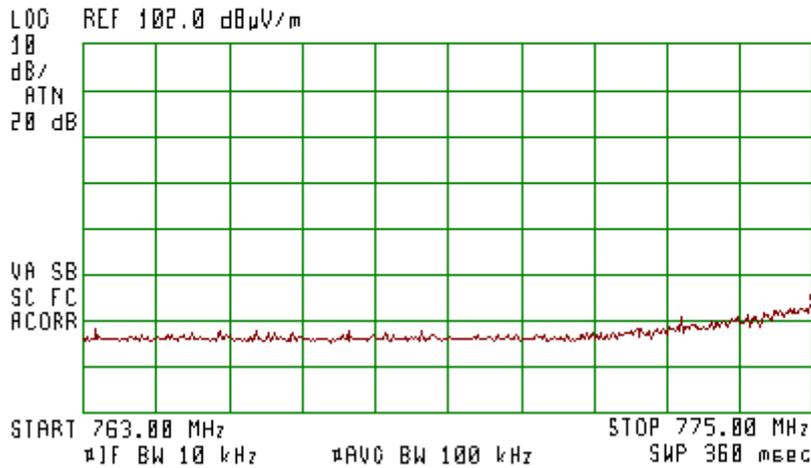
* Corrected for cable loss

** Limit is equal to -35 dBm in a 6.25 kHz band segment. Measurements were made by using 10 kHz resolution bandwidth. The correction factor of $10 \times \log(10 \text{ kHz} / 6.25 \text{ kHz}) = 2.04 \text{ dB}$ was added to the limit. Corrected Limit = $-35 + 2.04 = -32.96 \text{ dBm}$.

782 MHz
QPSK - RB size 50, RB Offset 0
Spurious radiation between 763-775 MHz
Horizontal Polarization
Plot 4.10.1



ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 775.00 MHz
45.53 dB μ V/m



Vertical Polarization
Plot 4.10.2



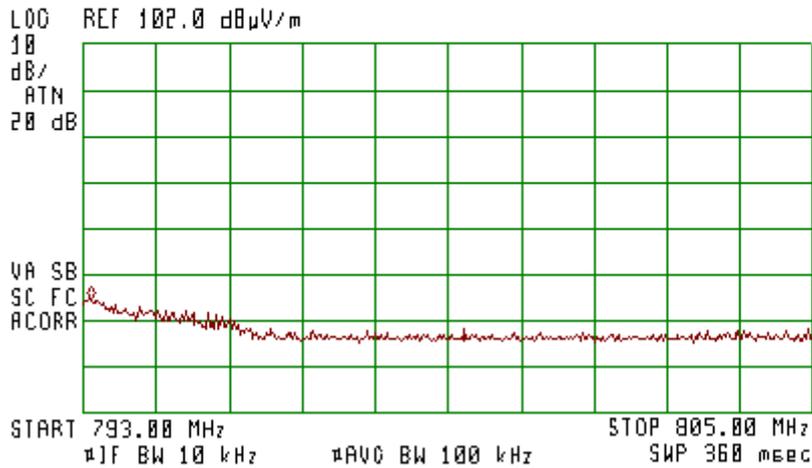
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 774.97 MHz
59.16 dB μ V/m



782 MHz
QPSK - RB size 50, RB Offset 0
Spurious radiation between 793-805 MHz
Horizontal Polarization
Plot 4.10.3



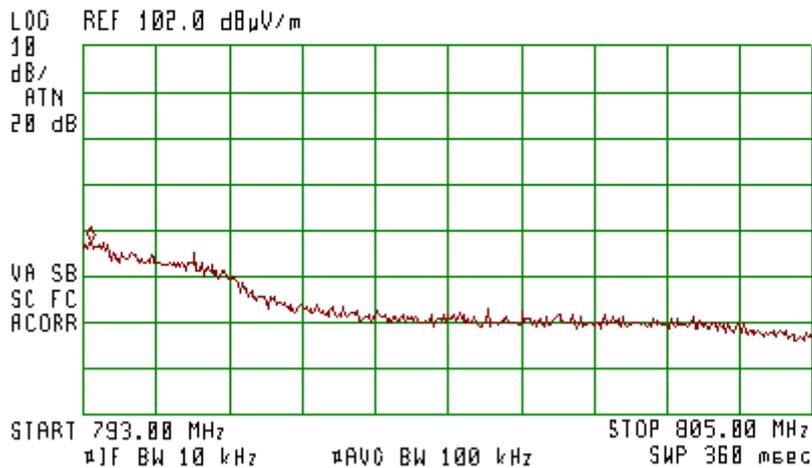
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 793.12 MHz
46.77 dB μ V/m



Vertical Polarization
Plot 4.10.4



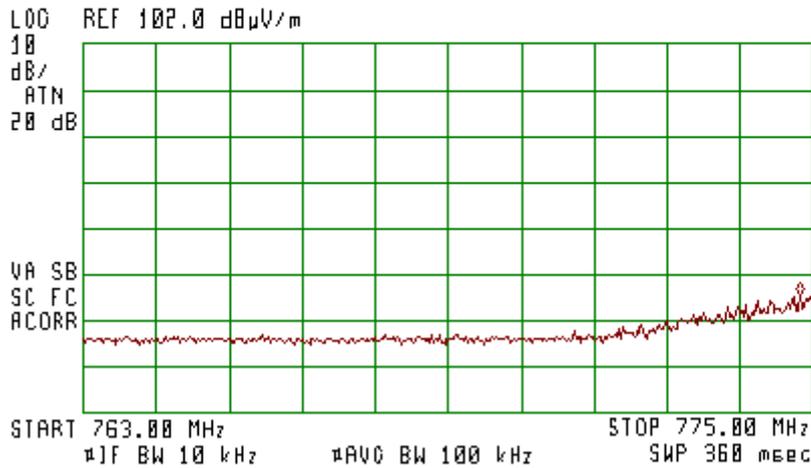
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 793.12 MHz
59.58 dB μ V/m



782 MHz
16 QAM - RB size 50, RB Offset 0
Spurious radiation between 763-775 MHz
Horizontal Polarization
Plot 4.10.5



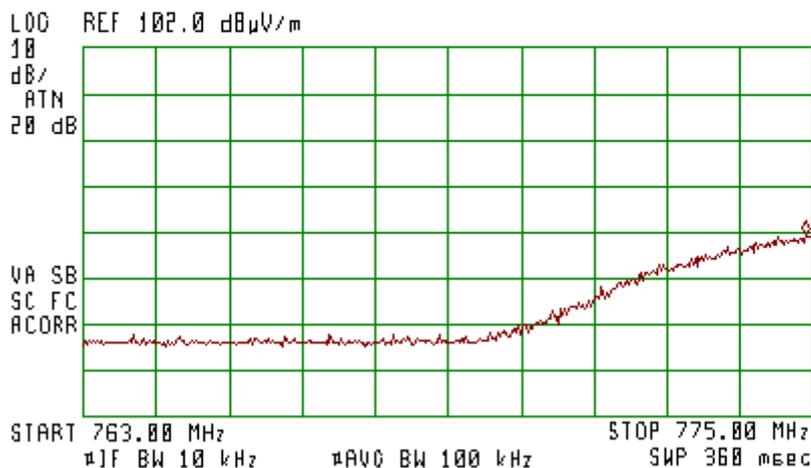
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 774.79 MHz
47.24 dB μ V/m



Vertical Polarization
Plot 4.10.6



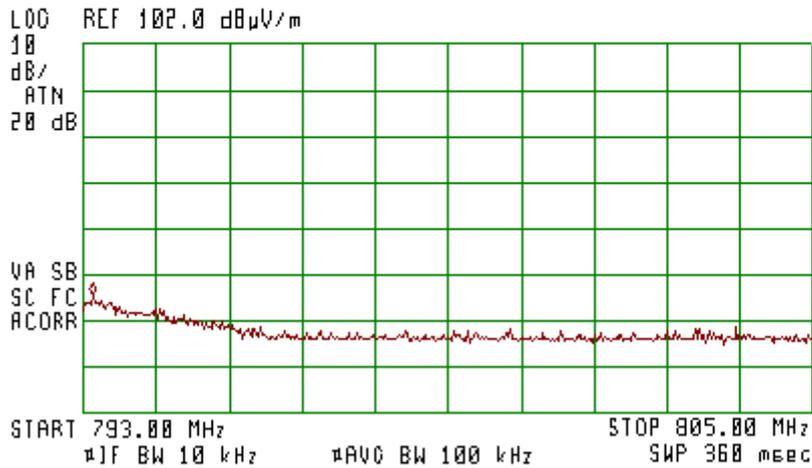
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 774.88 MHz
61.57 dB μ V/m



782 MHz
16 QAM - RB size 50, RB Offset 0
Spurious radiation between 793-805 MHz
Horizontal Polarization
Plot 4.10.7



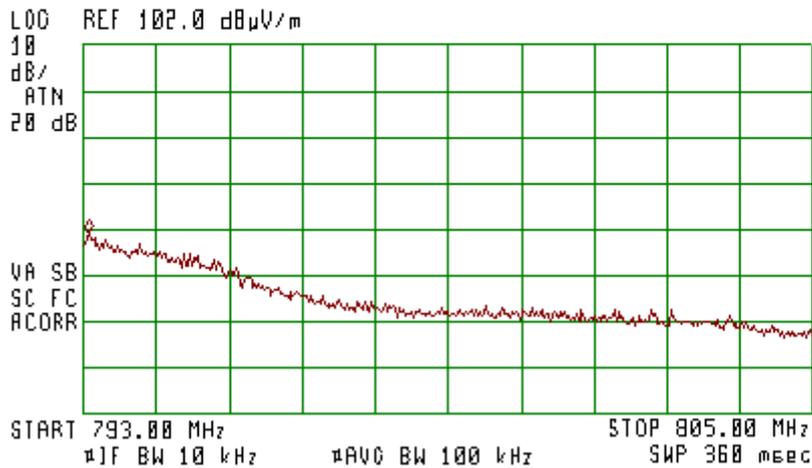
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 793.15 MHz
47.27 dB μ V/m



Vertical Polarization
Plot 4.10.8



ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKA 793.09 MHz
61.10 dB μ V/m



4.11. Field Strength of Spurious Radiation for operations in the 788-793 MHz band

Reference document:	47 CFR §27.53 (d)(3)		
Test Requirements:	For operations in the 788-793 MHz band, the power of any emission on any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB*.		
Test setup:	See sec 2.2	Pass	
Method of testing:	Radiated		
Operating conditions:	Under normal test conditions		
S.A. Settings:	f <1GHz: RBW: 120kHz, VBW: 300 kHz f >1GHz: RBW: 1MHz, VBW: 3MHz RBW: 30 kHz, VBW: 300 kHz for testing between 775 -788 MHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.11.1- Plot 4.11.16	

*It translates to a limit of -13dBm

Test results for frequencies between 30 MHz – 8 GHz:

Spurious Emission Frequency [MHz]	Max Reading [dBμV/m]	Polarization [H/V]	Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
790.5 MHz - QPSK - RB size 1, RB Offset 0									
*	*	*	*	*	*	-13	*	4.11.1-4.11.3	Pass
790.5 MHz - 16 QAM - RB size 1, RB Offset 0									
*	*	*	*	*	*	-13	*	4.11.4-4.11.6	Pass

* All readings were at least 15 dB below the limit.

Note: Measurements were taken using a high pass filter (where appropriate) at the spectrum analyzer input.

Test results below 1GHz:

All measurements were done in horizontal and vertical polarizations; the results show the worst-case for all modulations.

Spurious Emission Frequency [MHz]	Max Reading [dBμV/m]	Polarization [H/V]	*Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Result
*	*	*	*	*	*	-13	*	4.11.7-4.11.8	Pass

* All readings were at least 15 dB below the limit.

Note: Measurements were taken using a band reject filter (where appropriate) at the spectrum analyzer input.

Test results for frequencies between 775-788 MHz:

Spurious Emission Frequency [MHz]	Max Reading [dB μ V/m]	Polarization [H/V]	*Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit [dBm]	Margin [dB]	Reference Plots	Results
790.5 MHz - QPSK - RB size 25, RB Offset 0 Spurious radiation between 775-788 MHz									
787.90	73.52	H & V	-31.52	4.74	-26.78	-13	-13.78	4.11.9-4.11.10	Pass
790.5 MHz - 16 QAM - RB size 25, RB Offset 0 Spurious radiation between 775-788 MHz									
787.90	76.17	H & V	-28.87	4.74	-24.13	-13	-11.13	4.11.11-4.11.12	Pass

* Corrected for cable loss

Test results for frequencies above 805 MHz and below 758 MHz:

Spurious Emission Frequency [MHz]	Max Reading [dB μ V/m]	Polarization [H/V]	*Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit** [dBm]	Margin [dB]	Reference Plots	Results
790.5 MHz - QPSK - RB size 25, RB Offset 0 Spurious radiation below 758 MHz									
**	**	**	**	**	**	-13	**	4.11.13	Pass
790.5 MHz - QPSK - RB size 25, RB Offset 0 Spurious radiation above 805 MHz									
805.00	51.87	H & V	-54.00	4.71	-49.29	-13	-36.29	4.11.14	Pass
790.5 MHz - 16 QAM - RB size 25, RB Offset 0 Spurious radiation below 758 MHz									
**	**	**	**	**	**	-13	**	4.11.15	Pass
790.5 MHz - 16 QAM - RB size 25, RB Offset 0 Spurious radiation above 805 MHz									
805.00	54.58	H & V	-51.29	4.71	-46.58	-13	-33.58	4.11.16	Pass

* Corrected for cable loss.

** All readings were at least 20 dB below the limit.

Horizontal & Vertical Polarization
4.11.3

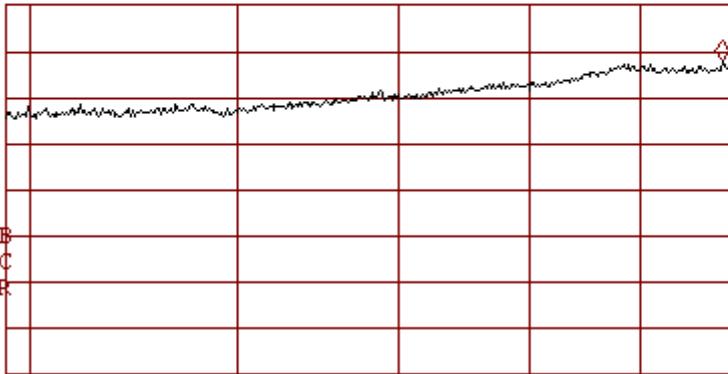
1/2

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 7.873 GHz
52.72 dB μ V/m

LOG REF 65.0 dB μ V/m

10
dB/
#ATN
0 dB

VA SE
SC FC
ACORR



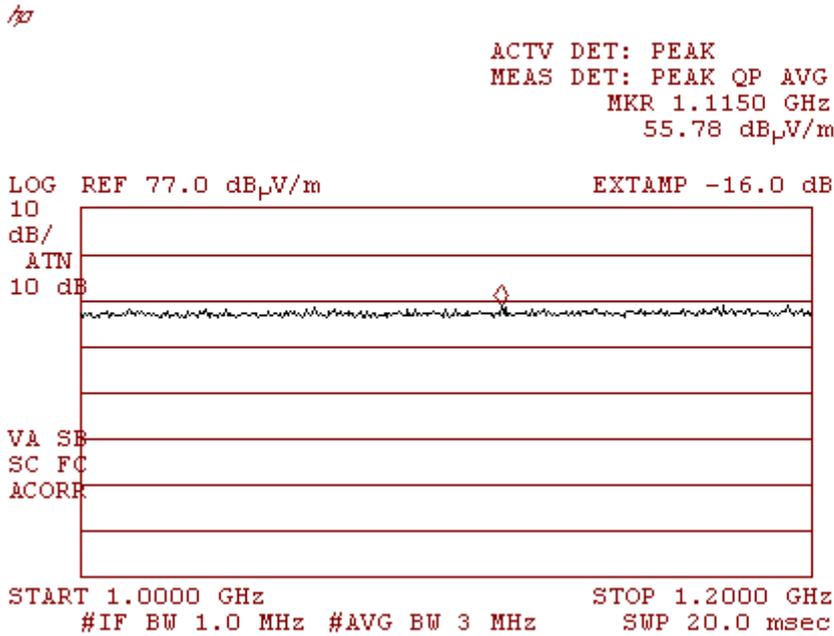
START 2.900 GHz

STOP 8.000 GHz

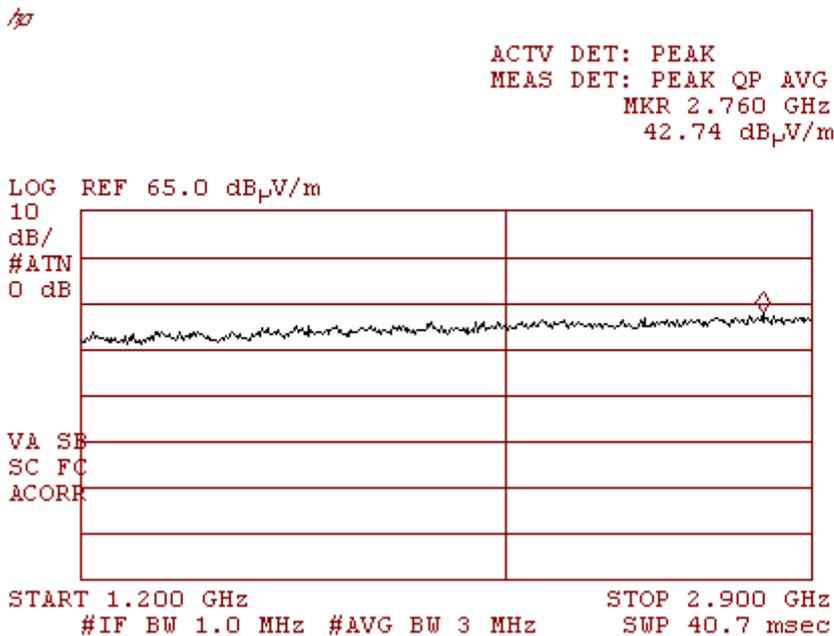
#IF BW 1.0 MHz #AVG BW 3 MHz

SWP 102 msec

790.5 MHz
16 QAM – RB size 1, RB Offset 0
Horizontal & Vertical Polarization
4.11.4



Horizontal & Vertical Polarization
4.11.5



Horizontal & Vertical Polarization
4.11.6

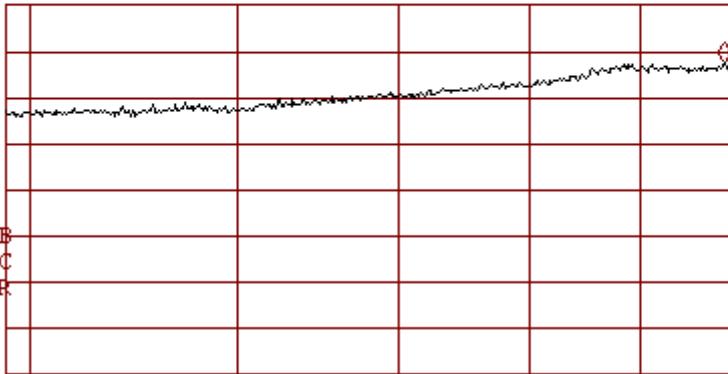
1/2

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 7.889 GHz
52.33 dB_μV/m

LOG REF 65.0 dB_μV/m

10
dB/
#ATN
0 dB

VA SE
SC FC
ACORR

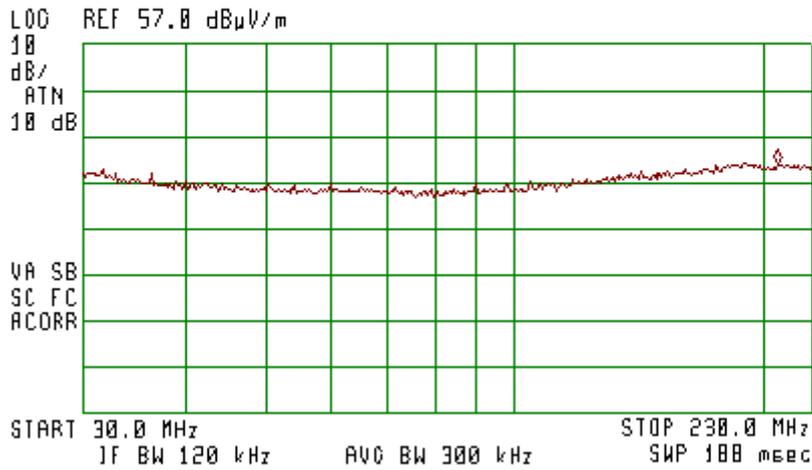


START 2.900 GHz STOP 8.000 GHz
#IF BW 1.0 MHz #AVG BW 3 MHz SWP 102 msec

Below 1 GHz
Worst case for all modulations
Horizontal & Vertical Polarization
4.11.7



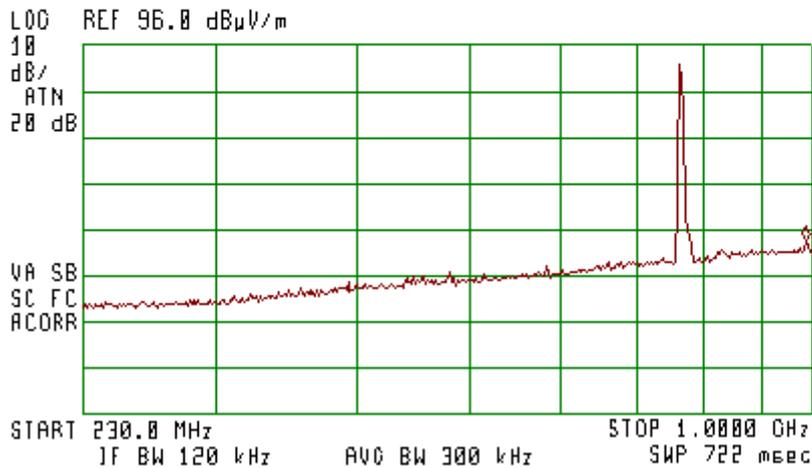
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKR 213.8 MHz
31.32 dB μ V/m



Horizontal & Vertical Polarization
4.11.8



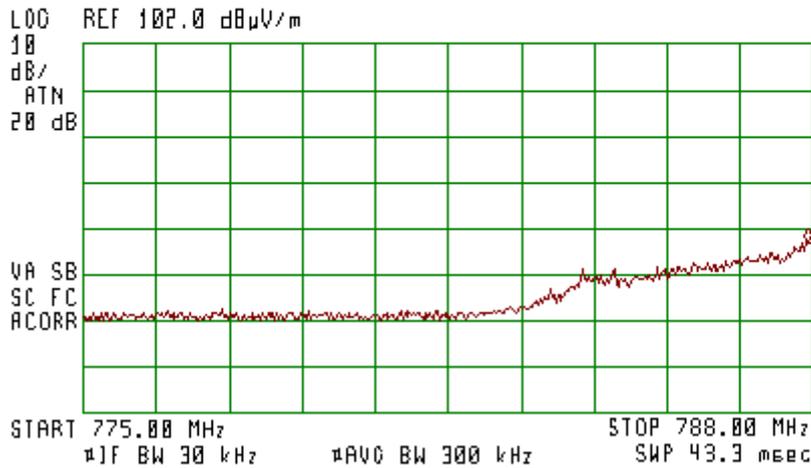
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKR 988.4 MHz
53.79 dB μ V/m



790.5 MHz
QPSK – RB size 25, RB Offset 0
Spurious radiation between 775-788 MHz
Horizontal Polarization
4.11.9



ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 787.90 MHz
59.12 dB μ V/m



Vertical Polarization
4.11.10



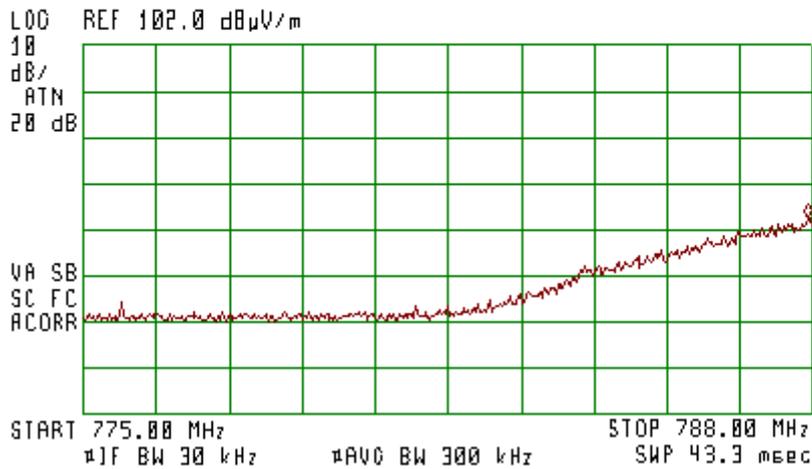
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 787.90 MHz
73.52 dB μ V/m



790.5 MHz
16 QAM – RB size 25, RB Offset 0
Spurious radiation between 775-788 MHz
Horizontal Polarization
4.11.11



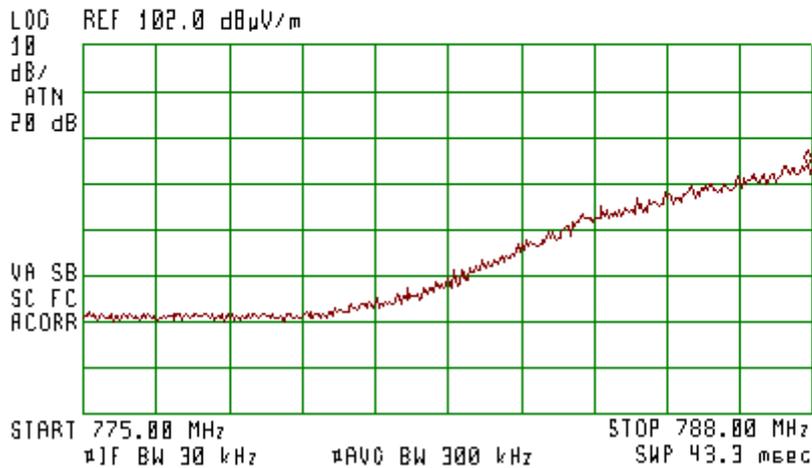
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 787.90 MHz
64.54 dB μ V/m



Vertical Polarization
4.11.12



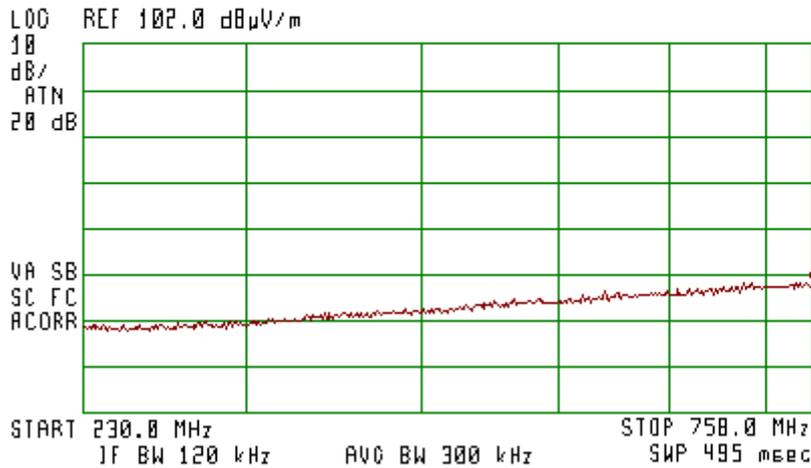
ACTV DET: PEAK
MERS DET: PEAK OP AVG
MKA 787.90 MHz
76.17 dB μ V/m



790.5 MHz
QPSK – RB size 25, RB Offset 0
Spurious radiation below 758 MHz
Horizontal & Vertical Polarization
4.11.13



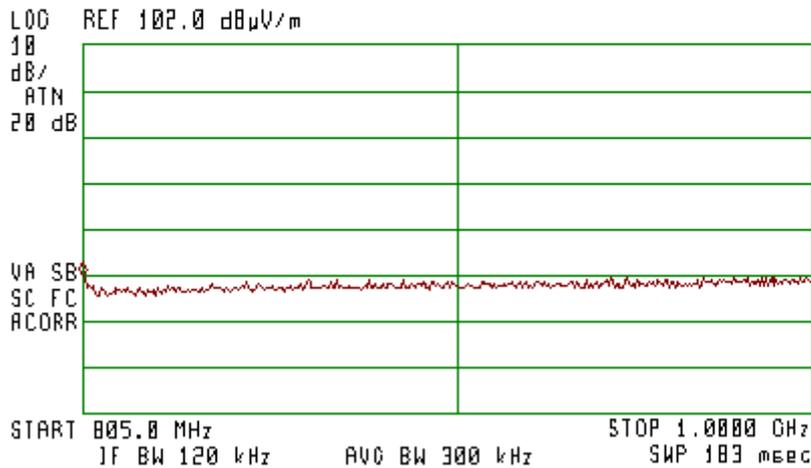
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
Mkr 758.0 MHz
58.40 dB μ V/m



Spurious radiation above 805 MHz
Horizontal & Vertical Polarization
4.11.14



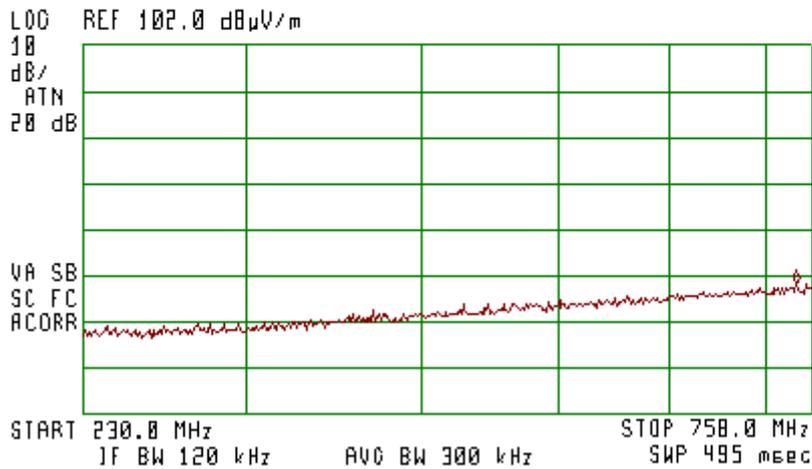
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
Mkr 805.0 MHz
51.87 dB μ V/m



790.5 MHz
16 QAM – RB size 25, RB Offset 0
Spurious radiation below 758 MHz
Horizontal & Vertical Polarization
4.11.15



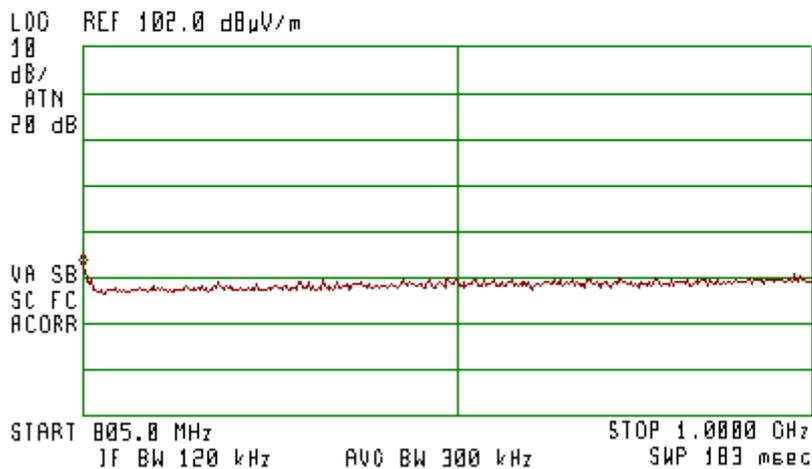
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 742.6 MHz
58.13 dB μ V/m



Spurious radiation above 805 MHz
Horizontal & Vertical Polarization
4.11.16



ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 805.0 MHz
54.58 dB μ V/m



4.12. Field Strength of Spurious Radiation between 769-775 MHz and 799-805 MHz

Reference document:	47 CFR §27.53 (d)(2)		
Test Requirements:	For operations in the 788-793 MHz band, the power of any emission on all frequencies between 769-775 MHz and 799-805 MHz shall be attenuated below the transmitter power (P) by a factor not less than $65 + 10 \log(P)$ dB* in a 6.25 kHz band segment, for mobile and portable stations.		
Test setup:	See sec 2.2	Pass	
Method of testing:	Radiated		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 10 kHz, VBW:100 kHz		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 4.12.1- Plot 4.12.16	

*It translates to a limit of -35dBm

Test results:

Spurious Emission Frequency [MHz]	Max Reading [dBμV/m]	Polarization [H/V]	**Signal Generator Level [dBm]	Antenna Gain [dBd]	Emission power calculated [dBm]	Limit*** [dBm]	Margin [dB]	Reference Plots	Results
790.5 MHz – QPSK – RB size 25, RB Offset 0 Spurious radiation between 769-775 MHz									
*	*	H & V	*	*	*	-32.96	*	4.12.1-4.12-2	Pass
790.5 MHz – QPSK – RB size 25, RB Offset 0 Spurious radiation between 799-805 MHz									
799.15	55.33	H & V	-49.92	4.71	-45.21	-32.96	-12.25	4.12.3-4.12-4	Pass
790.5 MHz – 16 QAM – RB size 25, RB Offset 0 Spurious radiation between 769-775 MHz									
*	*	H & V	*	*	*	-32.96	*	4.12.5-4.12-6	Pass
790.5 MHz – 16 QAM – RB size 25, RB Offset 0 Spurious radiation between 799-805 MHz									
799.09	57.57	H & V	-47.68	4.71	-42.97	-32.96	-10.01	4.12.7-4.12-8	Pass

* All readings were at least 15 dB below the limit.

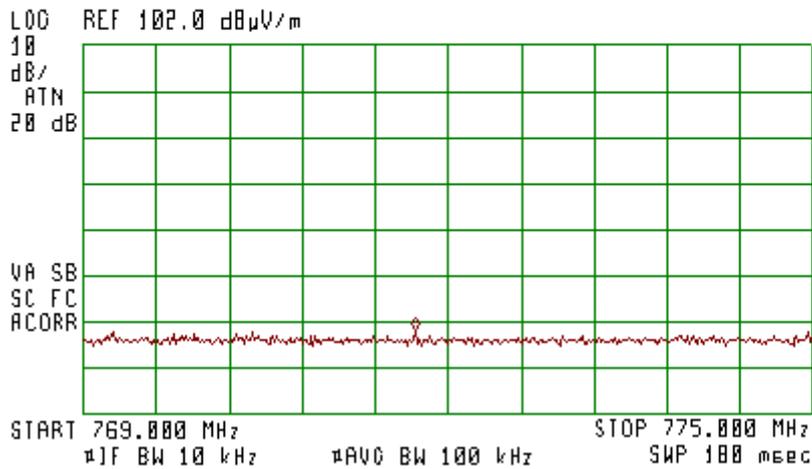
** Corrected for cable loss

*** Limit is equal to -35 dBm in a 6.25 kHz band segment. Measurements were made by using 10 kHz resolution bandwidth. The correction factor of $10 \times \log(10 \text{ kHz} / 6.25 \text{ kHz}) = 2.04$ dB was added to the limit. Corrected Limit = $-35 + 2.04 = -32.96$ dBm.

790.5 MHz
QPSK - RB size 25, RB Offset 0
Spurious emissions between 769-775 MHz
Horizontal Polarization
Plot 4.12.1



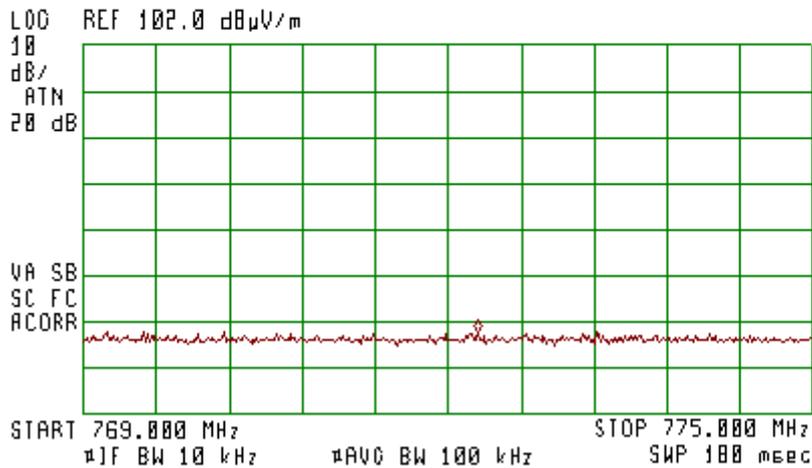
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 771.730 MHz
39.84 dB μ V/m



Vertical Polarization
Plot 4.12.2



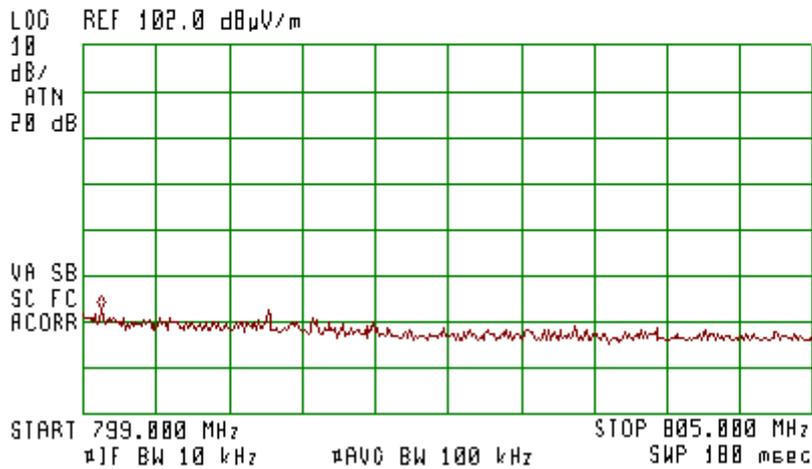
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 772.240 MHz
39.79 dB μ V/m



790.5 MHz
QPSK - RB size 25, RB Offset 0
Spurious emissions between 799-805 MHz
Horizontal Polarization
Plot 4.12.3



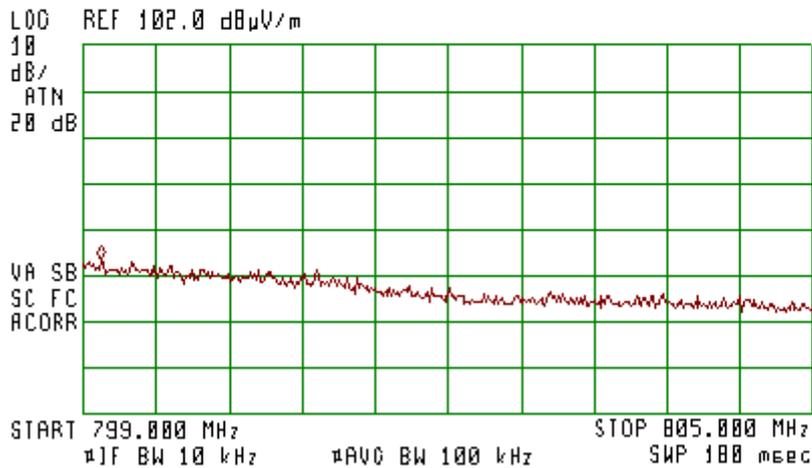
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 799.150 MHz
45.09 dB μ V/m



Vertical Polarization
Plot 4.12.4



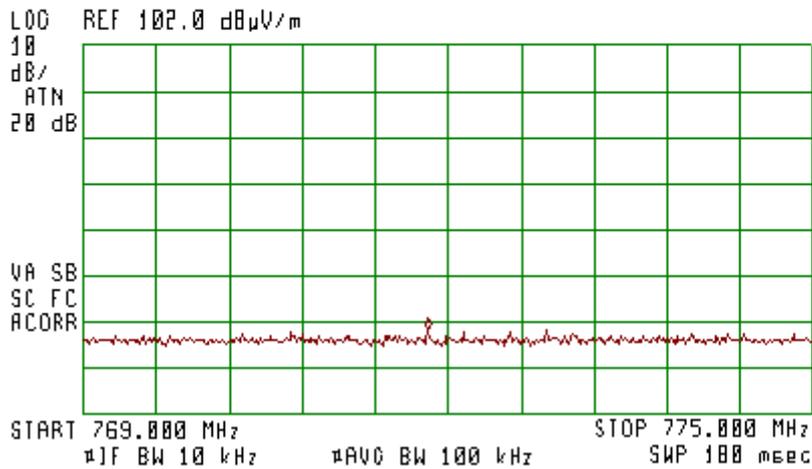
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 799.150 MHz
55.33 dB μ V/m



790.5 MHz
16 QAM - RB size 25, RB Offset 0
Spurious emissions between 769-775 MHz
Horizontal Polarization
Plot 4.12.5



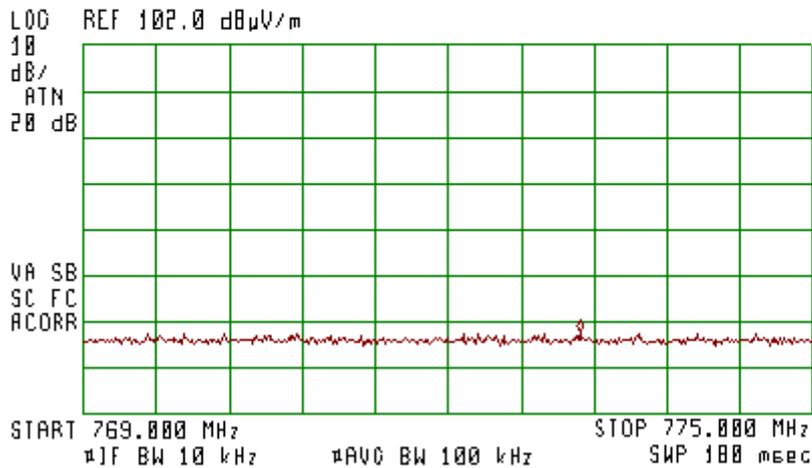
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 771.835 MHz
48.12 dB μ V/m



Vertical Polarization
Plot 4.12.6



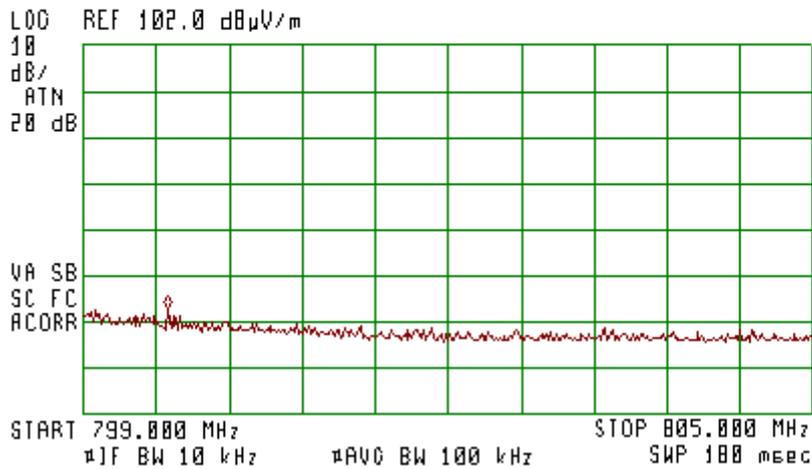
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 773.000 MHz
39.78 dB μ V/m



790.5 MHz
16 QAM - RB size 25, RB Offset 0
Spurious emissions between 799-805 MHz
Horizontal Polarization
Plot 4.12.7



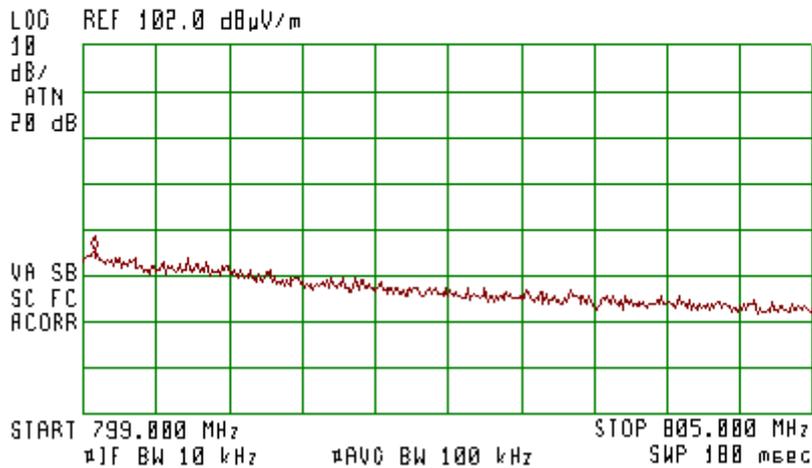
ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 799.690 MHz
44.93 dB μ V/m



Vertical Polarization
Plot 4.12.8



ACTV DET: PEAK
MEAS DET: PEAK OP AVG
MKR 799.090 MHz
57.57 dB μ V/m



4.13. Field Strength of Spurious Radiation in the band 1559-1610 MHz

Reference document:	47 CFR §27.53 (f)		
Test Requirements:	For operations in the 775-793 MHz band, 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.		
Test setup:	See Sec. 2.2	Pass	
Method of testing:	Radiated		
Operating conditions:	Under normal test conditions		
S.A. Settings:	RBW: 1 MHz, VBW: 3 MHz		
Environment conditions:	Ambient Temperature: 22.1 °C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	Plots 4.13.1 – 4.13.4	

*It translates to a limit of -40 dBm

**It translates to a limit of -50 dBm

Test results:

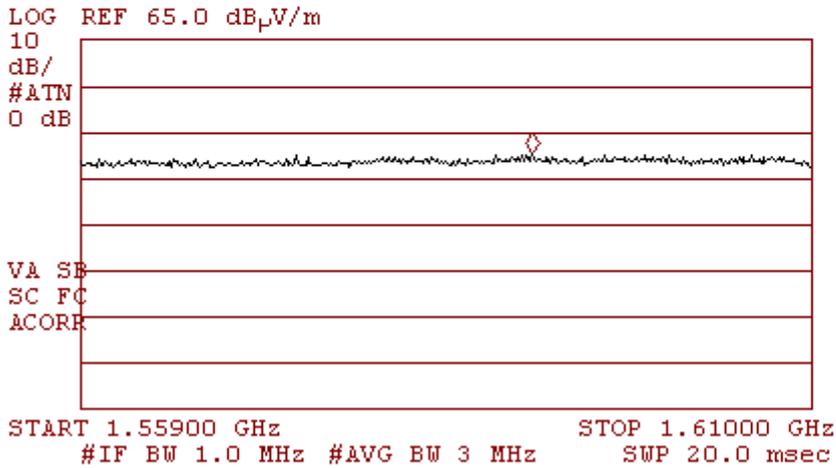
Spurious Emission Frequency [MHz]	Emission, narrowband or broadband	Max Reading [dBμV/m]	Polarization [H/V]	Signal Generator Level [dBm]	Antenna Gain [dBi]	Limit [dBm]	EIRP calculated [dBm]	Margin [dB]	Results
782 MHz - QPSK - RB size 1, RB Offset 0									
*	BB	*	*	*	*	-40	*	*	Pass
*	NB	*	*	*	*	-50	*	*	Pass
782 MHz - 16 QAM - RB size 1, RB Offset 0									
*	BB	*	*	*	*	-40	*	*	Pass
*	NB	*	*	*	*	-50	*	*	Pass
790.5 MHz - QPSK - RB size 1, RB Offset 0									
*	BB	*	*	*	*	-40	*	*	Pass
*	NB	*	*	*	*	-50	*	*	Pass
790.5 MHz - 16 QAM - RB size 1, RB Offset 0									
*	BB	*	*	*	*	-40	*	*	Pass
*	NB	*	*	*	*	-50	*	*	Pass

*All readings were at least 10dB below the limit.

782 MHz
QPSK - RB size 1, RB Offset 0
Horizontal & Vertical Polarization
Plot 4.13.1

/32

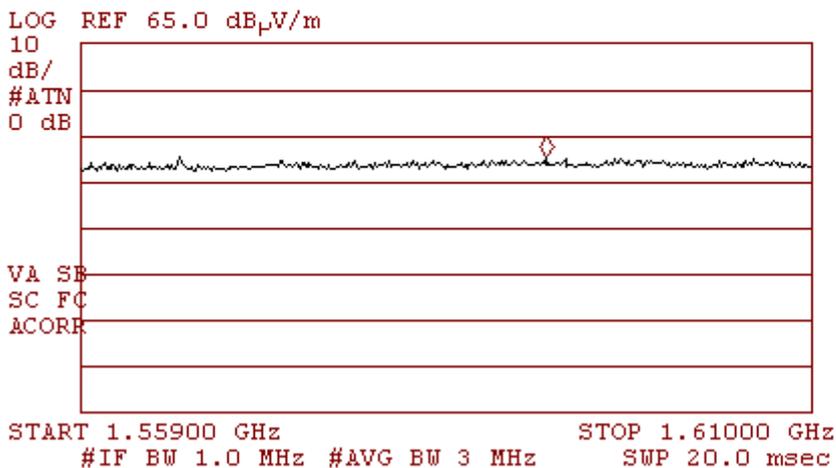
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.59049 GHz
40.27 dB_μV/m



782 MHz
16 QAM - RB size 1, RB Offset 0
Horizontal & Vertical Polarization
Plot 4.13.2

/32

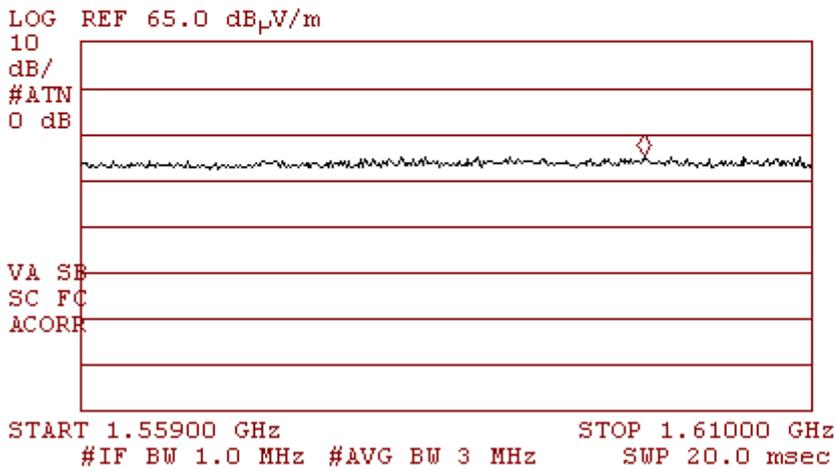
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.59151 GHz
40.27 dB_μV/m



790.5 MHz
QPSK - RB size 1, RB Offset 0
Horizontal & Vertical Polarization
Plot 4.13.3

/30

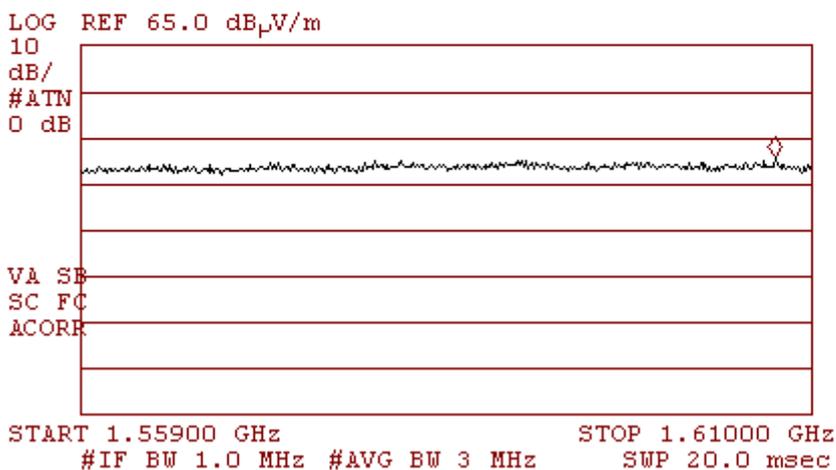
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.59827 GHz
40.23 dB_μV/m



790.5 MHz
16 QAM - RB size 1, RB Offset 0
Horizontal & Vertical Polarization
Plot 4.13.4

/30

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.60745 GHz
40.63 dB_μV/m



4.14. Frequency Stability

Reference document:	47 CFR §27.54 & §2.1055		
Test Requirements:	The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.		
Test setup:	See Sec. 2.3	Pass	
Method of testing:	Conducted		
Operating conditions:	Under normal test conditions		
Environment conditions:	Ambient Temperature: 22.1°C	Relative Humidity: 45.4 %	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	-	

Test results:

Frequency error vs. Voltage

Voltage [Vdc]	Frequency Error* [Hz]	Frequency Error [%]	Frequency Error [ppm]	Limit** [ppm]	Test Result
782 MHz -16 QAM - RB size 50, RB Offset 0					
11.7	13.97	0.00000179	0.01786445	1573	Pass
13.8	9.57	0.00000122	0.012237852	1573	Pass
15.9	12.73	0.00000163	0.016278772	1573	Pass
790.5 MHz -16 QAM - RB size 25, RB Offset 0					
11.7	25.64	0.00000324	0.032435168	106	Pass
13.8	19.73	0.00000250	0.024958887	106	Pass
15.9	22.36	0.00000283	0.028285895	106	Pass

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

** (1) The distance from the -26 dB point of the channel operating in the 776-788 MHz band to the band edge is about 1.23MHz. Therefore it translates to a limit of 1573 ppm.

(2) The distance from the -26 dB point of the channel operating in the 788-793 MHz band to the band edge is about 84 kHz. Therefore it translates to a limit of 106 ppm.

Frequency error vs. Temperature

Temperature [°C]	Frequency Error* [Hz]	Frequency Error [%]	Frequency Error [ppm]	Limit** [ppm]	Test Result
782 MHz -16 QAM - RB size 50, RB Offset 0					
-30	11.23	0.00000144	0.014360614	1573	Pass
-20	14.79	0.00000189	0.018913043	1573	Pass
-10	14.77	0.00000189	0.018887468	1573	Pass
0	13.02	0.00000166	0.016649616	1573	Pass
10	11.77	0.00000151	0.015051151	1573	Pass
20	12.38	0.00000158	0.015831202	1573	Pass
30	14.87	0.00000190	0.019015345	1573	Pass
40	10.47	0.00000134	0.013388747	1573	Pass
50	10.69	0.00000137	0.013670077	1573	Pass
60	11.32	0.00000145	0.014475703	1573	Pass
790.5 MHz -16 QAM - RB size 25, RB Offset 0					
-30	19.11	0.00000242	0.024174573	106	Pass
-20	18.79	0.00000238	0.023769766	106	Pass
-10	19.21	0.00000243	0.024301075	106	Pass
0	18.03	0.00000228	0.022808349	106	Pass
10	20.17	0.00000255	0.025515497	106	Pass
20	15.97	0.00000202	0.020202404	106	Pass
30	14.52	0.00000184	0.018368121	106	Pass
40	17.79	0.00000225	0.022504744	106	Pass
50	18.23	0.00000231	0.023061354	106	Pass
60	18.77	0.00000237	0.023744466	106	Pass

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

** (1) The distance from the -26 dB point of the channel operating in the 776-788 MHz band to the band edge is about 1.23MHz. Therefore it translates to a limit of 1573 ppm.

(2) The distance from the -26 dB point of the channel operating in the 788-793 MHz band to the band edge is about 84 kHz. Therefore it translates to a limit of 106 ppm.

5. Appendix

Appendix A: List of Measuring Equipment used:

Equipment	Manufacturer/ Model	Serial Number	Due date
CISPR 16 EMI Receiver, 9 kHz - 6.5 GHz	HP 8546A	3710A00392	30-06-2012
Spectrum Analyzer, 9 kHz - 22 GHz	HP 8593EM	3536A00131	30-06-2012
Spectrum Analyzer, 100 Hz - 26.5 GHz	Agilent E7405A	US41160436	30-06-2012
Spectrum Analyzer, 3 Hz - 44 GHz	Agilent E4446A	MY46180602	30-06-2012
Power Meter	Agilent N1911A	MY45100784	30-06-2012
Wideband power sensor	Agilent N1921A	MY45241242	30-06-2012
Low-Noise Amplifier, 0.1 - 18 GHz	MITEQ, AMF-7D-00101800-30-10P	1544443	30-06-2012
Low-Noise Amplifier, 18 - 26.5 GHz	MITEQ, AMF-5F-18002650-30-10P	945372	16-05-2012
Biconical Antenna, 20 - 200 MHz	Schwarzbeck VHBB 9124	9124/0255	16-05-2012
Log-Periodic Antenna, 200 - 1000 MHz	Schwarzbeck VUSLP 9111	VUSLP 9111184	16-05-2012
Double Ridged Guide Antenna, 1 - 18 GHz	A.R.A., DRG-118/A	17188	30-06-2012
SHF-EHF Horn, 15 - 40 GHz	Schwarzbeck BBHA 9170	BBHA9170214	30-06-2012
Turn table	HD 100	100/693	-
Antenna Mast	HD 100	100/693	-
LISN	Fischer 50/250-25-2	9705	30-06-2012
Transient Limiter, 9 kHz ÷ 200 MHz	HP 11947A	3107A04119	30-06-2012
Notch Filter	Micro-Tronics, BRM50702-05	0001	16-05-2012
Tunable Bandreject Filter	K&L, 3TNF-800/1000-0.2-N/N	336	16-05-2012
Tunable Bandreject Filter	K&L, 5TNF-1700/2000-0.1-N/N	212	16-05-2012
Highpass Filter, 1.2 ÷ 15 GHz	WAINWRIGHT, WHK1.2/15G-10EF	SN 3	16-05-2012
Highpass Filter, 2.4 ÷ 18 GHz	WAINWRIGHT, WHK2.4/18G-10EF	SN 1	16-05-2012
Highpass Filter, 7 ÷ 18 GHz	WAINWRIGHT, WHKX7.0/18G-8SS	SN 12	16-05-2012

Appendix B: Accreditation Certificate



The American Association for Laboratory Accreditation
World Class Accreditation

Accredited Laboratory
A2LA has accredited
QUALITECH (ECI TELECOM)
Petach-Tikva, ISRAEL
for technical competence in the field of
Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 22nd day of March 2011.



Peter Almy
President & CEO
For the Accreditation Council
Certificate Number 1633.01
Valid to September 30, 2012

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

End of the Test Report