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839.01
Electrical

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TEST REPORT

ACCORDING TO: FCC 47CFR part 27

FOR:

Wavion Networks Ltd.

Base station

Model:WBS-700-L

FCC ID:UGM-WBS700L-1

Table of contents

1 Applicant information

Client name:	Wavion Networks Ltd.
Address:	5 Hamada street, P.O.B. 580, Yokneam 20692, Israel
Telephone:	+972 4909 7329
Fax:	+972 4909 7322
E-mail:	ben@WavionNetworks.com
Contact name:	Mr. Ben Zickel

2 Equipment under test attributes

Product name:	Base station operating in 698-746 MHz
Trademark:	WAVION WIRELESS NETWORKS
Model(s):	WBS-700-L
Serial number:	1031R00037722
Hardware version:	00AH
Software release:	IV 4.2.DEVPT.177
Receipt date	7/28/2010

3 Manufacturer information

Manufacturer name:	Wavion Networks Ltd.
Address:	5 Hamada street, P.O.B. 580, Yokneam 20692, Israel
Telephone:	+972 4909 7329
Fax:	+972 4909 7322
E-Mail:	ben@WavionNetworks.com
Contact name:	Mr. Ben Zickel

4 Test details

Project ID:	21071
Location:	Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel
Test started:	7/28/2010
Test completed:	8/24/2010
Test specification(s):	FCC 47CFR part 27

5 Tests summary

Test	Status
Transmitter characteristics	
Section 27.50(c)(3), Peak output power at RF antenna connector	Pass
Section 2.1091, 27.52, RF safety	NA, fixed equipment
Section 27.53(g), Spurious emissions at RF antenna connector	Pass
Section 27.53(g), Band edge emissions at RF antenna connector	Pass
Section 27.53(g), Radiated spurious emissions	Pass
Section 27.54, Frequency stability	Pass
Section 2.1049, Occupied bandwidth	Pass

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mr. L. Markel, test engineer	August 8, 2010	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	August 25, 2010	
Approved by:	Mr. M. Nikishin, EMC and Radio group leader	August 26, 2010	

6 EUT description

6.1 General information

The WBS-700-L is a new category of Wi-Fi Wireless Base Station designed from the ground up for metro-Wi-Fi deployments. It is based on six antennas and radios and custom-built ASICs, utilizes Wavion's powerful multi-antenna signal processing technologies, and provides significant performance gains to off-the-shelf 802.11 standards-based Wi-Fi clients. The WBS-700-L Wi-Fi Wireless Base Station uses six omni-directional antennas and beam-forming technology in order to provide significant performance gains to off-theshelf 802.11 standards-based Wi-Fi clients.

6.2 EUT modules and sub-assemblies

Description	Model or P/N	Hardware rev.	Serial number
Digital board	NA	PCA00043-AC-04	1025R00033350
RF#1	NA	PCA00048-AD-01	1027R00033581
RF#2	NA	PCA00048-AD-01	1027R00033580
RF#3	NA	PCA00048-AD-01	1027R00033569
RF#4	NA	PCA00048-AD-01	1027R00033567
RF#5	NA	PCA00048-AD-01	1027R00033591
RF#6	NA	PCA00048-AD-01	1027R00033566
PoE supply	0334B5555	NA	A30829035325

6.3 Ports and lines

Port type	Port description	Connected from	Connected to	Qty.	Cable type	Cable length, m
Power + signal	DC power + Ethernet	PoE	EUT	1	Shielded	3*
RF	Antenna	EUT	Antenna/Termination	6	Coax	0.4
Signal	LAN	PoE	Laptop	1	Unshielded	7
Signal	RS-232	EUT	Not connected, for maintanance only			

* - Maybe longer than 10 m

6.4 Support and test equipment

Description	Manufacturer	Model number	Serial number
Laptop	IBM	T23	78-KWCHH-09/02
Combiner 8:1*	Mini-Circuits	ZN8PD1-53-S+	469500925
Termination box	NA	NA	NA

* - Used for the spurious emissions tests

6.5 Operating frequencies

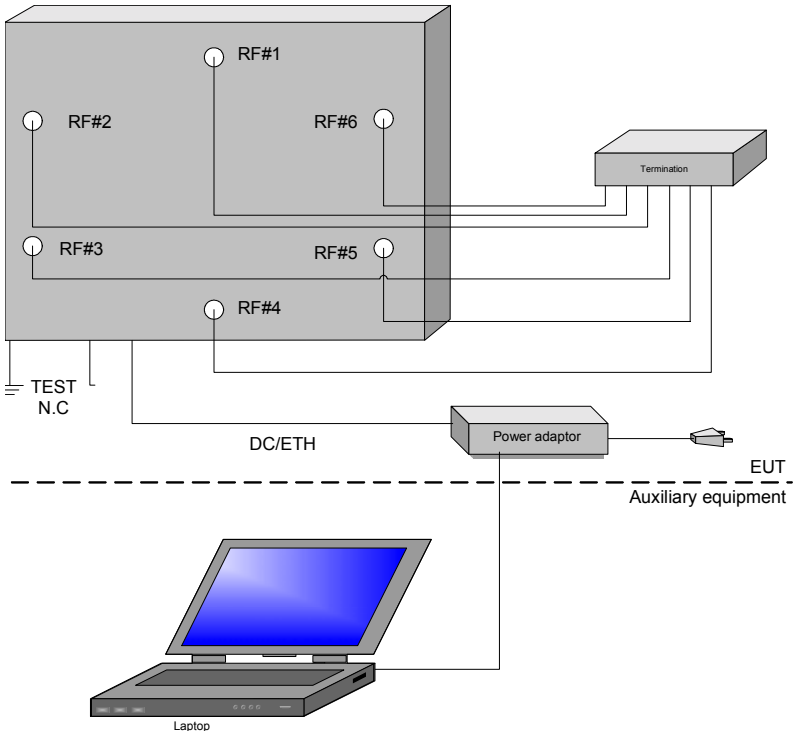
Source	Frequency, MHz
Clock	40
Tx	701.0 – 743.0
LO first mixer	2483 – 2492
LO second mixer	1687 – 1792

6.6 Changes made in the EUT

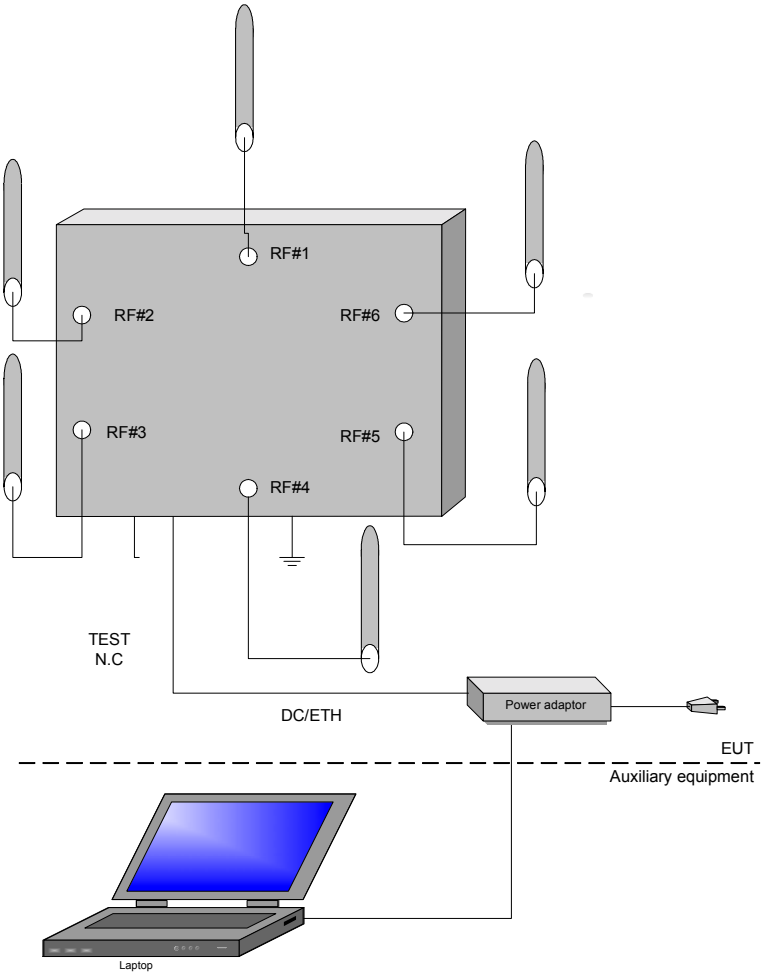
No changes were implemented in the EUT.

6.7 Test configuration

6.7.1 For Tx spurious measurements



6.7.2 For Rx spurious measurements



6.8 Transmitter characteristics

Type of equipment	
X	Stand-alone (Equipment with or without its own control provisions)
	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)
	Plug-in card (Equipment intended for a variety of host systems)

Intended use		**Condition of use**
X	fixed	Always at a distance more than 2 m from all people
	mobile	Always at a distance more than 20 cm from all people
	portable	May operate at a distance closer than 20 cm to human body

Assigned frequency range	698.0 – 746.0 MHz			
Operating frequency range	701.0 – 743.0 MHz			
RF channel spacing	3 MHz			
Maximum peak output power	At transmitter 50 Ω RF output connector			22.94 dBm at single RF port 30.55 dBm combined RF ports
Is transmitter output power variable?	No			
	Yes	X	stepped variable with stepsize 0.5 dB	7 – 22 dBm

Antenna connection				
unique coupling	X	standard connector	integral	with temporary RF connector without temporary RF connector

Antenna/s technical characteristics			
Type	Manufacturer	Model number	Gain
Omni-directional	MTI	MT-221024/NV	6dBi

Transmitter 99% power bandwidth	**Standard**	**Type of modulation**	**Transmitter aggregate data rate/s, MBps**
3 - 4 MHz	802.11b	DBPSK	0.25
	802.11b	DQPSK	0.5
	802.11b	CCK	1.375
	802.11b	CCK	2.75
	802.11g	BPSK	1.5
	802.11g	BPSK	2.25
	802.11g	QPSK	3
	802.11g	QPSK	4.5
	802.11g	16QAM	6
	802.11g	16QAM	9
	802.11g	64QAM	12
	802.11g	64QAM	13.5
6 - 8 MHz	802.11b	DBPSK	0.5,
	802.11b	DQPSK	1
	802.11b	CCK	2.75
	802.11b	CCK	5.5
	802.11g	BPSK	3
	802.11g	BPSK	4.5
	802.11g	QPSK	6
	802.11g	QPSK	9
	802.11g	16QAM	12
	802.11g	16QAM	18
	802.11g	64QAM	24
	802.11g	64QAM	27

6.8 Transmitter characteristics (continued)

Transmitter 99% power bandwidth	Standard	Type of modulation	Transmitter aggregate data rate/s, MBps
12-16 MHz	802.11b	DBPSK	1
	802.11b	DQPSK	2
	802.11b	CCK	5.5
	802.11g	CCK	11
	802.11g	BPSK	6
	802.11g	BPSK	9
	802.11g	QPSK	12
	802.11g	QPSK	18
	802.11g	16QAM	24
	802.11g	16QAM	36
	802.11g	64QAM	48
	802.11g	64QAM	54

Modulation type	OFDM for 802.11g and DSSS for 802.11b				
Maximum transmitter duty cycle in normal use	90%				
Maximum transmitter duty cycle for test purposes	100%				
Transmitter power source					
		Nominal rated voltage		Battery type	
X	DC (PoE)	**Nominal rated voltage**	55 VDC		
	AC mains	**Nominal rated voltage**		Frequency	NA
Common power source for transmitter and receiver	yes				

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

7 Transmitter tests according to 47CFR part 27

7.1 Peak output power test

7.1.1 General

This test was performed to measure the peak output power at RF antenna connector. Specification test limits are given in Table 7.1.1.

Table 7.1.1 Peak output power limits

Assigned frequency range, MHz	Maximum peak output power, ERP	
	W	dBm
698.0 – 746.0	1000 / 1 MHz	60 / 1 MHz

7.1.2 Test procedure

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.
7.1.2.2 The EUT was adjusted to produce maximum available to the end user RF output power.
7.1.2.3 The peak output power was measured with power meter as provided in Table 7.1.2 - Table 7.1.4 and the associated plots.
7.1.2.4 The power meter was replaced with the spectrum analyzer as shown in Figure 7.1.2 and the power spectral density was measured as provided in Table 7.1.5 and the associated plots.

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

Figure 7.1.1 Peak output power test setup

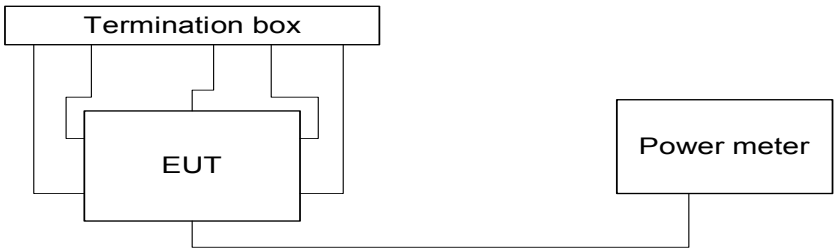
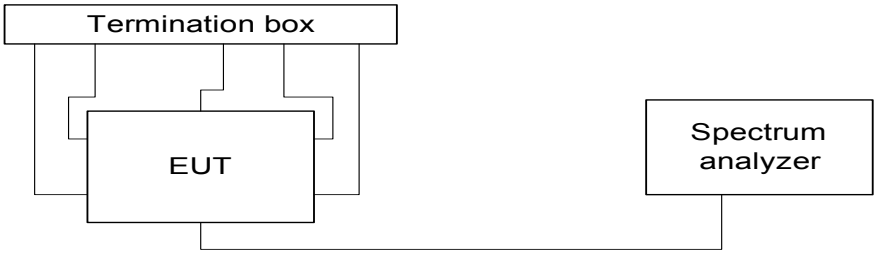


Figure 7.1.2 Peak output power density test setup



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Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

Table 7.1.2 Total output power test results

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
DETECTOR USED: RMS (Power Meter)
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
CHANNEL BANDWIDTH CONFIGURATION: 5 MHz
ANTENNA GAIN: 11.63 dBd = Antenna gain (6 dBi) –2.15 dB+ 10*log(6) (=7.8 dB, number of Tx chains driven with coherent signal)

MODULATION / BIT RATE: DBPSK / 0.25 Mbps (single-carrier)

Channel BW, MHz	Channel, MHz	Power Meter reading, dBm						P_{meas} (A), dBm	Antenna gain, dBd	ERP total, dBm	Limit, dBm	Margin, dB	Verdict
		RF#1	RF#2	RF#3	RF#4	RF#5	RF#6						
3.723	701.00	22.20	22.23	22.25	22.39	22.35	22.46	30.10	11.63	41.73	65.71	-23.98	Pass
3.766	719.00	21.92	22.02	22.08	21.82	22.29	21.93	29.79	11.63	41.43	65.76	-24.33	Pass
3.796	743.00	22.16	22.52	21.92	22.05	22.00	21.69	29.85	11.63	41.48	65.79	-24.32	Pass

MODULATION / BIT RATE: BPSK / 1.5 Mbps (multi-carrier)

Channel BW, MHz	Channel, MHz	Power Meter reading, dBm						P_{meas} (A), dBm	Antenna gain, dBd	ERP total, dBm	Limit, dBm	Margin, dB	Verdict
		RF#1	RF#2	RF#3	RF#4	RF#5	RF#6						
6.347	701.00	22.78	22.63	22.72	22.76	22.81	22.91	30.55	11.63	42.18	68.03	-25.84	Pass
6.286	719.00	22.45	22.49	22.64	22.19	22.73	22.46	30.28	11.63	41.91	67.98	-26.07	Pass
6.552	743.00	22.74	22.94	22.53	22.51	22.54	22.33	30.38	11.63	42.02	68.16	-26.15	Pass

NOTE: The limit for output power was calculated as follows:
Limit (dBm) = ERP limit (dBm/MHz) + 10*log (Channel Bandwidth, MHz)

Table 7.1.3 Total output power test results

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
DETECTOR USED: RMS (Power Meter)
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
CHANNEL BANDWIDTH CONFIGURATION: 10 MHz
ANTENNA GAIN: 11.63 dBd = Antenna gain (6 dBi) –2.15 dB+ 10*log(6) (=7.8 dB, number of Tx chains driven with coherent signal)

MODULATION / BIT RATE: DBPSK / 0.5 Mbps (single-carrier)

Channel BW, MHz	Channel, MHz	Power Meter reading, dBm						P_{meas} (A), dBm	Antenna gain, dBd	ERP total, dBm	Limit, dBm	Margin, dB	Verdict
		RF#1	RF#2	RF#3	RF#4	RF#5	RF#6						
7.384	704.00	22.29	22.00	22.20	22.13	22.34	22.41	30.01	11.63	41.64	68.68	-27.04	Pass
7.383	722.00	22.19	22.28	22.10	21.68	22.23	22.00	29.87	11.63	41.50	68.68	-27.18	Pass
7.457	740.00	22.19	22.41	21.97	22.02	22.04	21.84	29.86	11.63	41.50	68.73	-27.23	Pass

MODULATION / BIT RATE: BPSK / 3 Mbps (multi-carrier)

Channel BW, MHz	Channel, MHz	Power Meter reading, dBm						P_{meas} (A), dBm	Antenna gain, dBd	ERP total, dBm	Limit, dBm	Margin, dB	Verdict
		RF#1	RF#2	RF#3	RF#4	RF#5	RF#6						
11.983	704.00	22.70	22.49	22.54	22.49	22.66	22.79	30.39	11.63	42.02	70.79	-28.76	Pass
11.081	722.00	22.66	22.77	22.52	22.07	22.64	22.47	30.31	11.63	41.94	70.45	-28.51	Pass
10.600	740.00	22.62	22.83	22.42	22.49	22.48	22.31	30.31	11.63	41.94	70.25	-28.31	Pass

NOTE: The limit for output power was calculated as follows:
Limit (dBm) = ERP limit (dBm/MHz) + 10*log (Channel Bandwidth, MHz)

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

Table 7.1.4 Total output power test results

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
DETECTOR USED: RMS (Power Meter)
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
CHANNEL BANDWIDTH CONFIGURATION: 20 MHz
ANTENNA GAIN: 11.63 dBd = Antenna gain (6 dBi) –2.15 dB+ 10*log(6) (=7.8 dB, number of Tx chains driven with coherent signal)

MODULATION / BIT RATE: DBPSK / 1 Mbps (single-carrier)

Channel BW, MHz	Channel, MHz	Power Meter reading, dBm						P_{meas} (A), dBm	Antenna gain, dBd	ERP total, dBm	Limit, dBm	Margin, dB	Verdict
		RF#1	RF#2	RF#3	RF#4	RF#5	RF#6						
14.648	710.00	22.13	22.18	21.96	21.93	22.22	22.26	29.90	11.63	41.53	71.66	-30.13	Pass
14.664	722.00	22.28	22.46	22.14	21.80	22.05	22.45	29.98	11.63	41.62	71.66	-30.05	Pass
14.664	734.00	22.08	22.52	22.17	21.76	21.86	22.19	29.89	11.63	41.52	71.66	-30.15	Pass

MODULATION / BIT RATE: BPSK / 6 Mbps (multi-carrier)

Channel BW, MHz	Channel, MHz	Power Meter reading, dBm						P_{meas} (A), dBm	Antenna gain, dBd	ERP total, dBm	Limit, dBm	Margin, dB	Verdict
		RF#1	RF#2	RF#3	RF#4	RF#5	RF#6						
23.453	710.00	22.52	22.52	22.35	22.32	22.53	22.58	30.25	11.63	41.88	73.70	-31.82	Pass
22.759	722.00	22.71	22.80	22.57	22.23	22.41	22.77	30.37	11.63	42.00	73.57	-31.57	Pass
23.024	734.00	22.56	22.84	22.62	22.18	22.24	22.52	30.28	11.63	41.91	73.62	-31.71	Pass

NOTE: The limit for output power was calculated as follows:
Limit (dBm) = ERP limit (dBm/MHz) + 10*log (Channel Bandwidth, MHz)

Table 7.1.5 Total output power density test results (worst case results)

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
DETECTOR USED: RMS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
CHANNEL BANDWIDTH CONFIGURATION: 5 MHz
ANTENNA GAIN: 11.63 dBd = Antenna gain (6 dBi) –2.15 dB+ 10*log(6) (=7.8 dB, number of Tx chains driven with coherent signal)

MODULATION / BIT RATE: DBPSK / 2.75 Mbps (single-carrier)

Bit Rate, Mbps	Channel, MHz	SA reading, dBm / MHz						P_{meas}, dBm / MHz	Antenna gain, dBd	ERP total, dBm / MHz	Limit, dBm / MHz	Margin, dB	Verdict
		RF#1	RF#2	RF#3	RF#4	RF#5	RF#6						
2.75	701.00	18.06	18.15	18.04	17.82	17.47	18.05	25.72	11.63	37.35	60.00	-22.65	Pass
2.75	719.00	17.96	17.84	18.19	17.80	17.75	17.61	25.64	11.63	37.27	60.00	-22.73	Pass
2.75	743.00	18.52	18.59	18.36	18.72	18.31	18.36	26.26	11.63	37.89	60.00	-22.11	Pass

Rationale: The middle channel was tested for all bandwidth configurations under minimum and maximum data rates for each single and multi-carrier format.

Note: The worst case power density was found for 5 MHz bandwidth configuration for CCK 2.75 Mbps single-carrier modulation and was tested for low, mid and high channels.

Reference numbers of test equipment used

HL 3001	HL 3002	HL 2953	HL 3818	HL 3762	HL 3781		

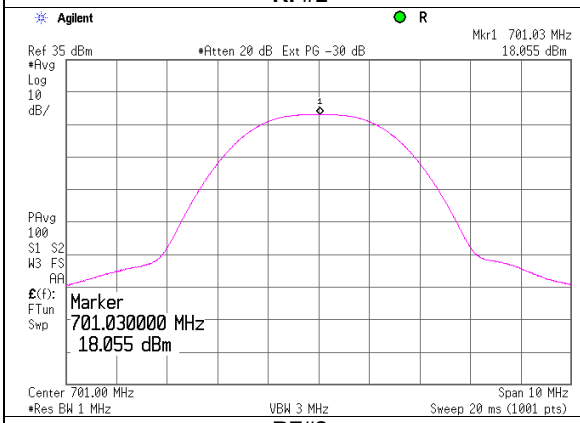
Full description is given in Appendix A.

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

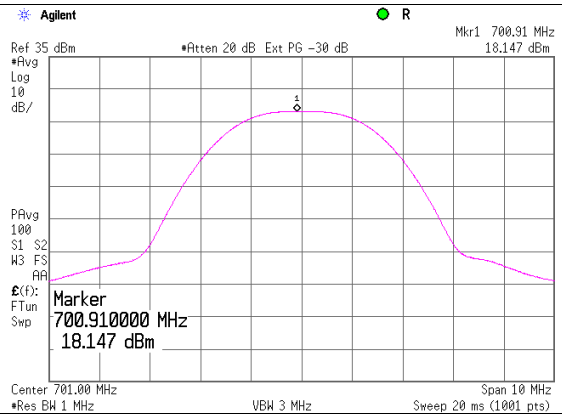
Plot 7.1.1 Peak output power density test results at low frequency

BIT RATE:	2.75 Mbps
CHANNEL BANDWIDTH:	5 MHz

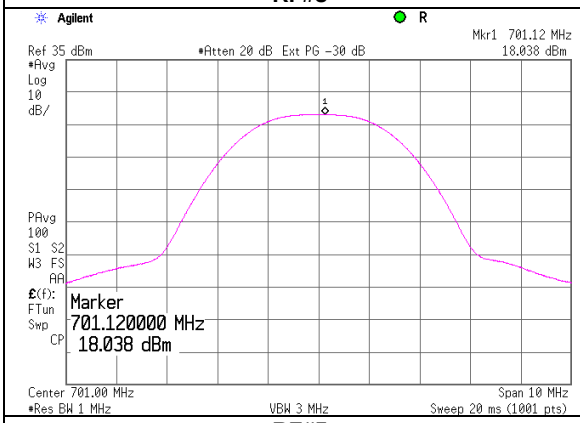
RF#1



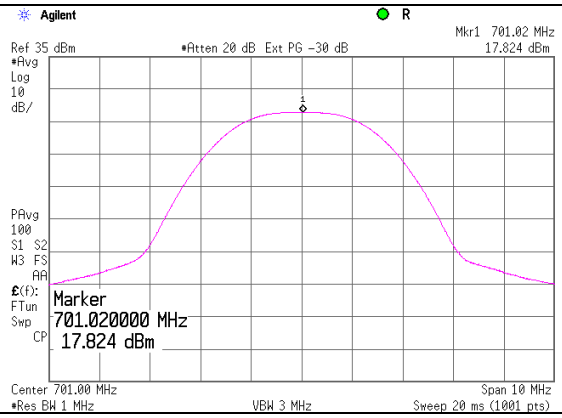
RF#2



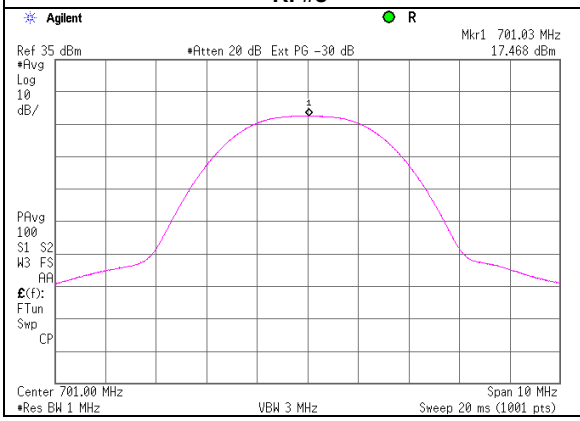
RF#3



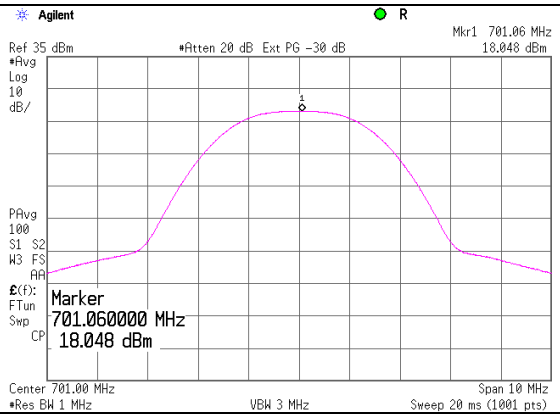
RF#4



RF#5



RF#6



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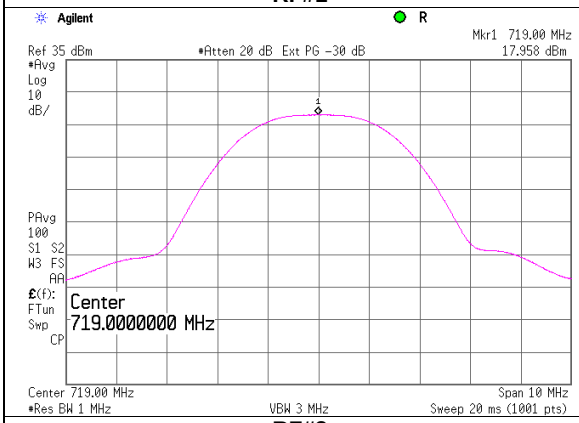
Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

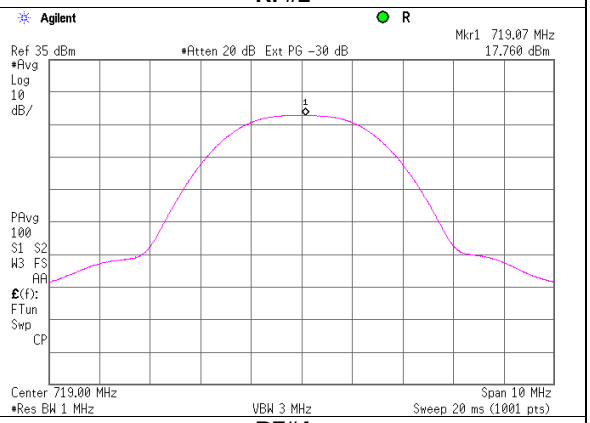
Plot 7.1.2 Peak output power density test results at mid frequency

BIT RATE:	0.25 Mbps
CHANNEL BANDWIDTH:	5 MHz

RF#1



RF#2



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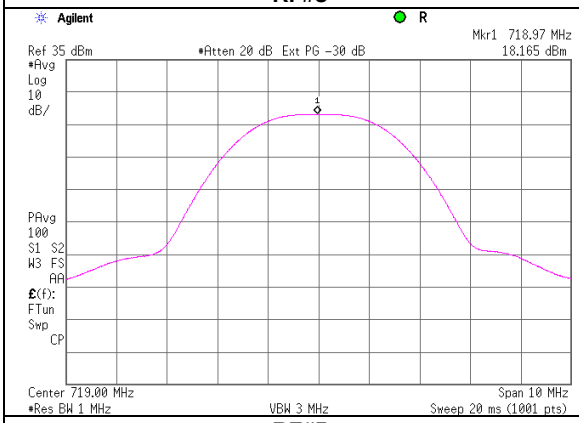
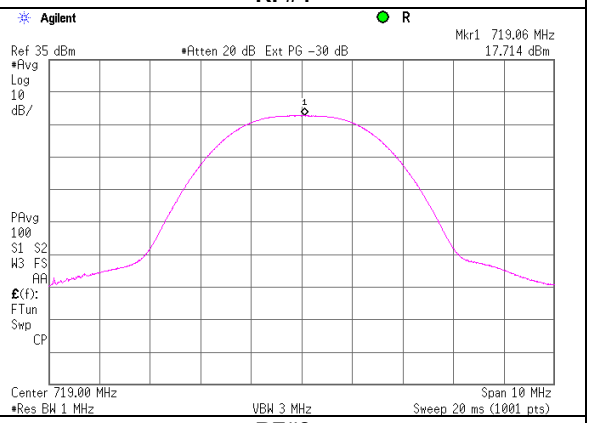
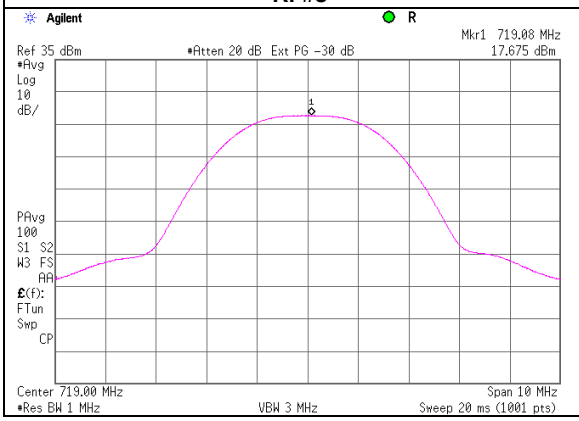


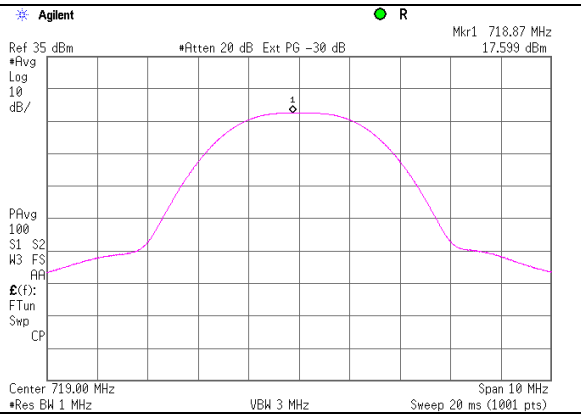
RF#4



RF#5



RF#6



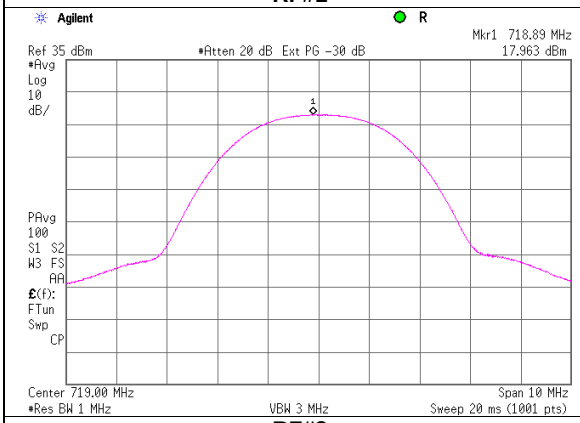
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

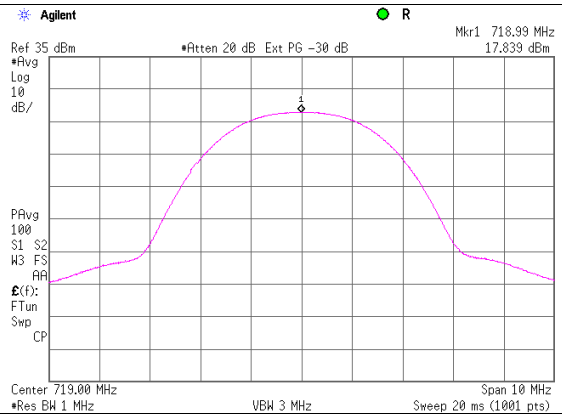
Plot 7.1.3 Peak output power density test results at mid frequency

BIT RATE:	2.75 Mbps
CHANNEL BANDWIDTH:	5 MHz

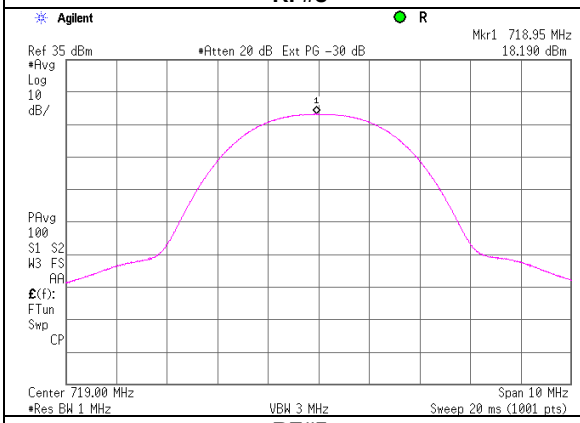
RF#1



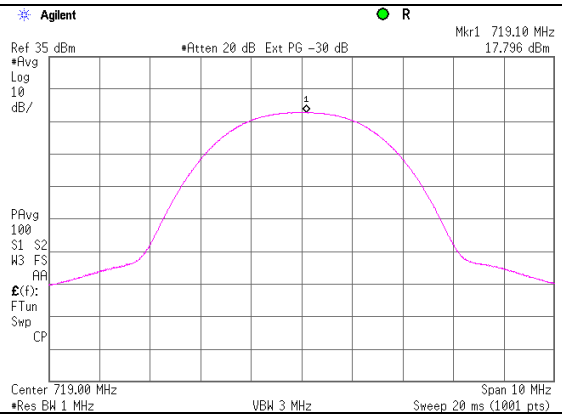
RF#2



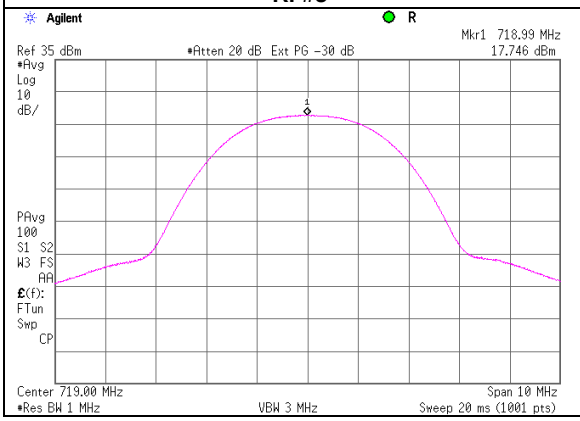
RF#3



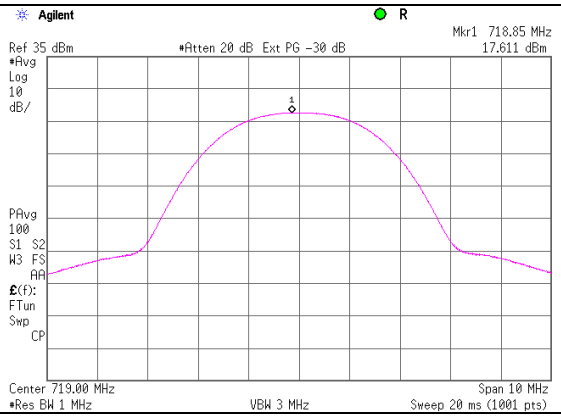
RF#4



RF#5



RF#6



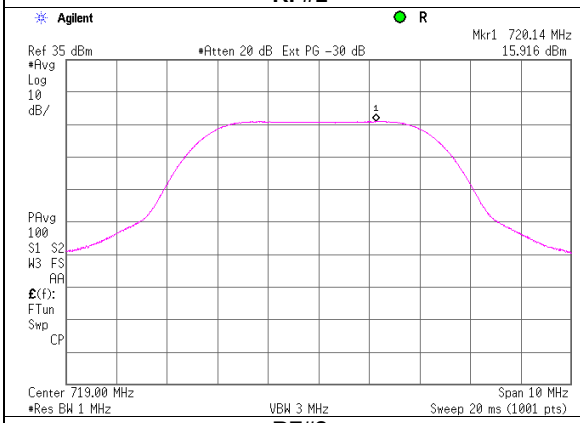
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

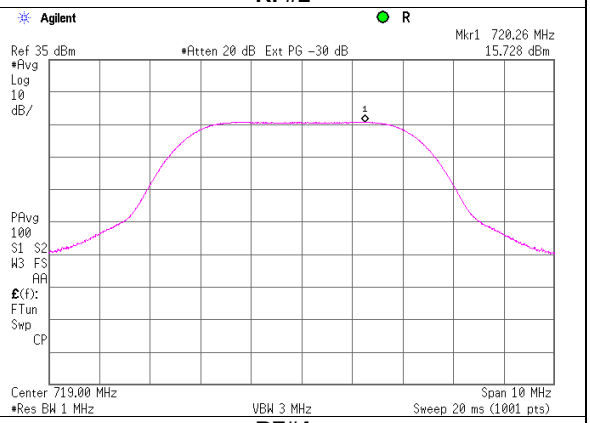
Plot 7.1.4 Peak output power density test results at mid frequency

BIT RATE:	1.5 Mbps
CHANNEL BANDWIDTH:	5 MHz

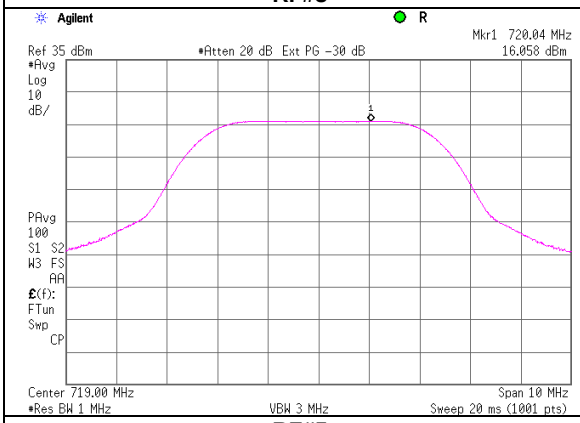
RF#1



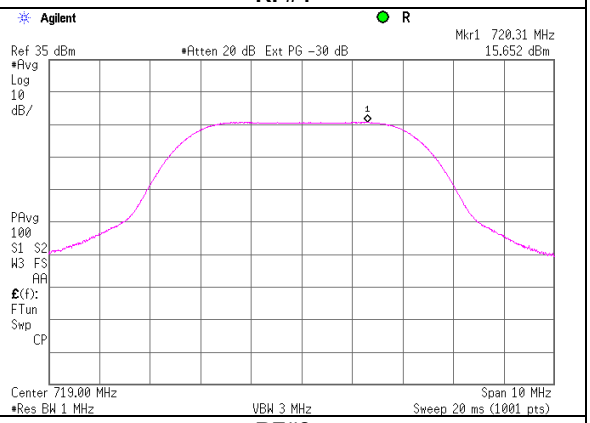
RF#2



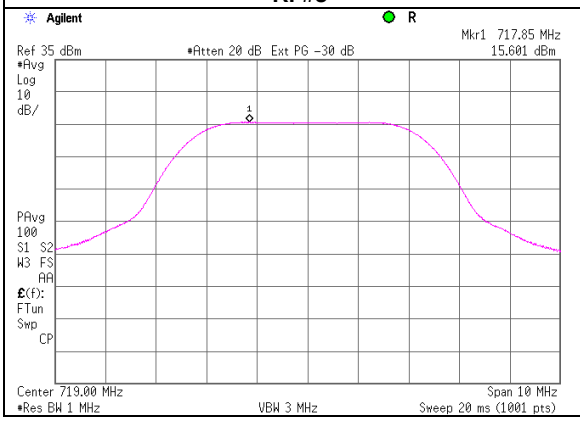
RF#3



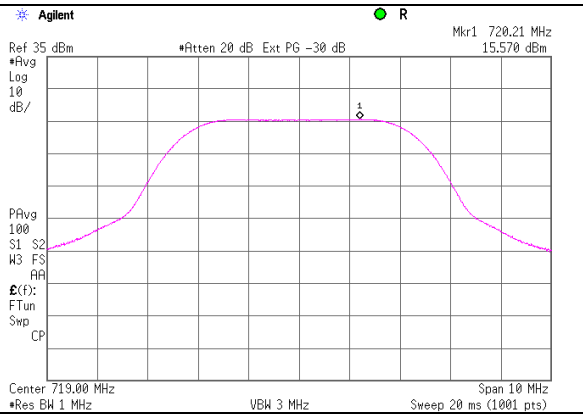
RF#4



RF#5



RF#6



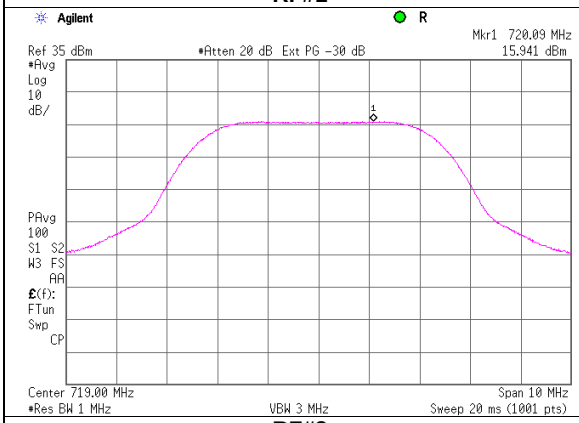
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

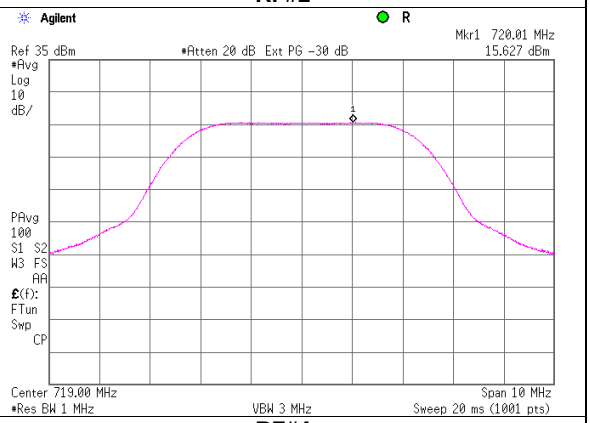
Plot 7.1.5 Peak output power density test results at mid frequency

BIT RATE:	13.5 Mbps
CHANNEL BANDWIDTH:	5 MHz

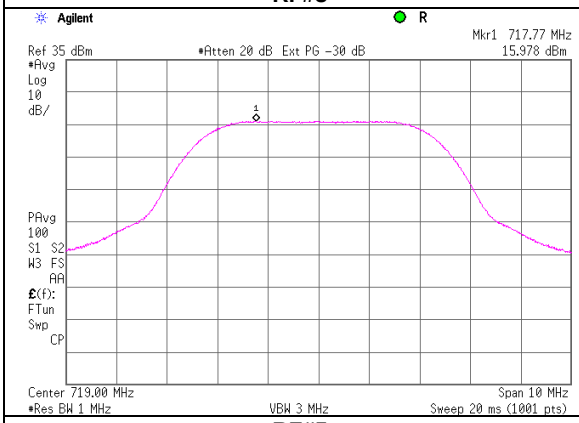
RF#1



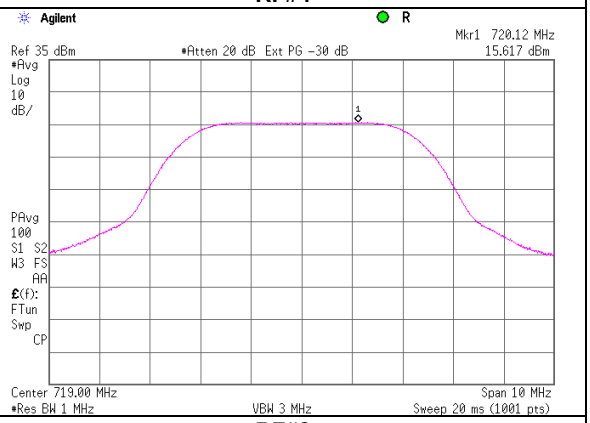
RF#2



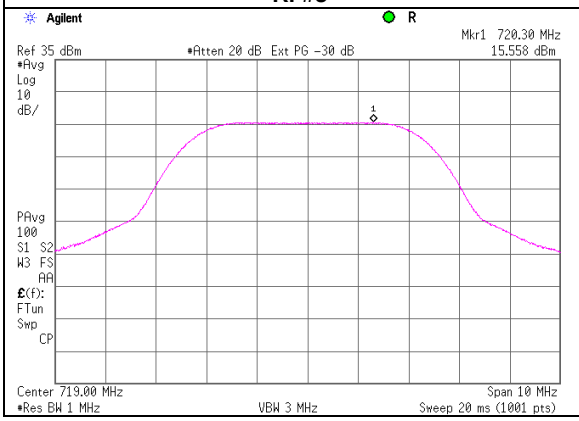
RF#3



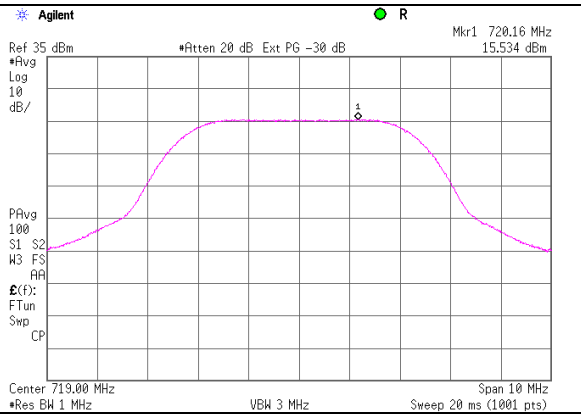
RF#4



RF#5



RF#6



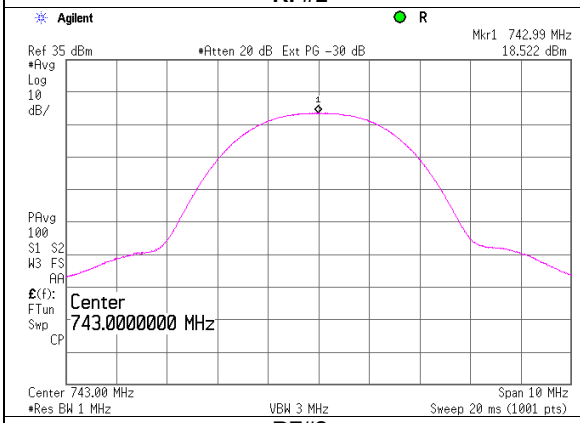
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

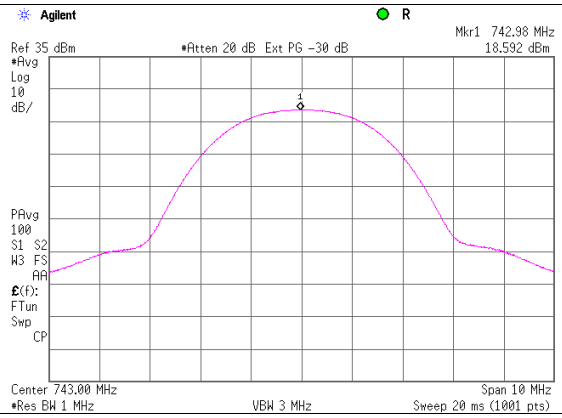
Plot 7.1.6 Peak output power density test results at high frequency

BIT RATE:	2.75 Mbps
CHANNEL BANDWIDTH:	5 MHz

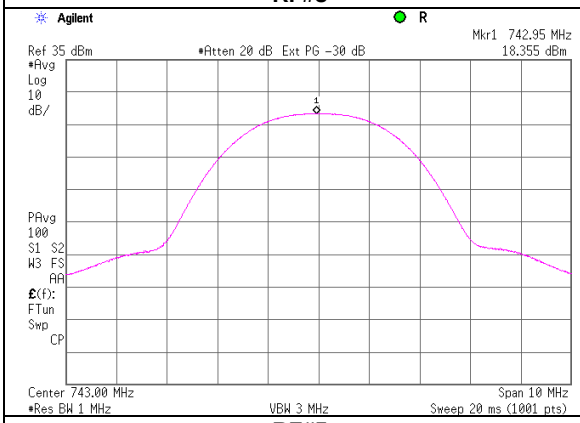
RF#1



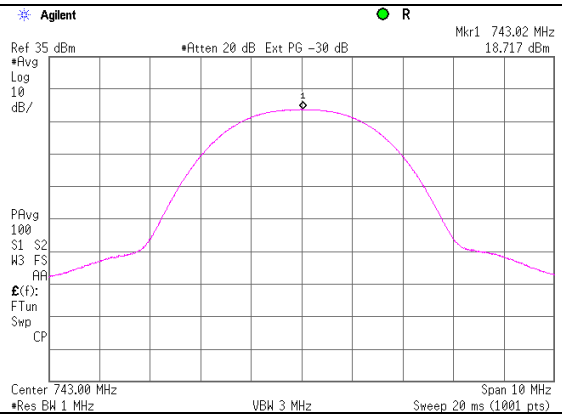
RF#2



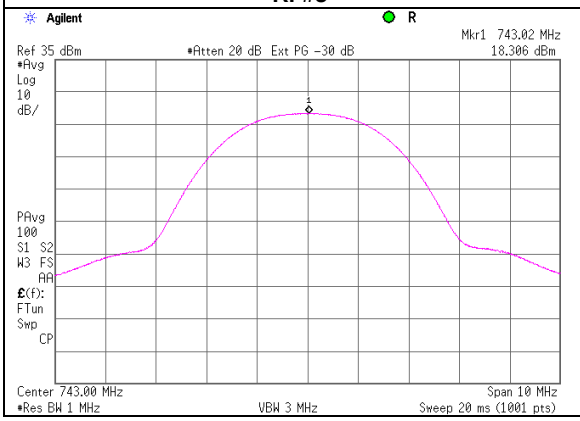
RF#3



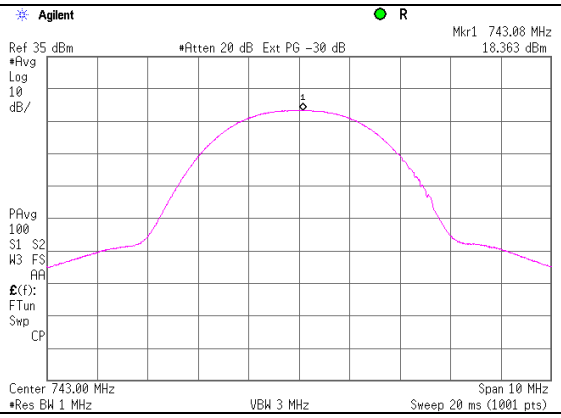
RF#4



RF#5



RF#6



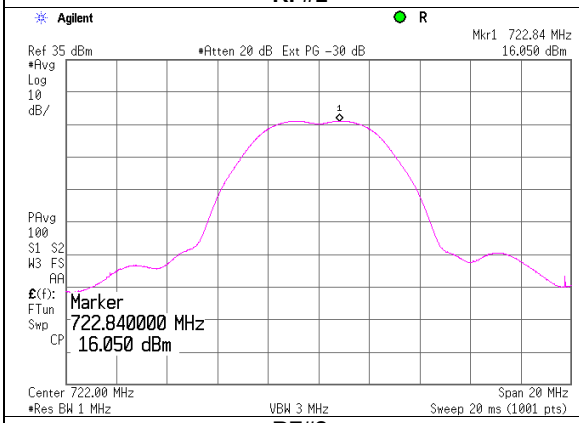
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

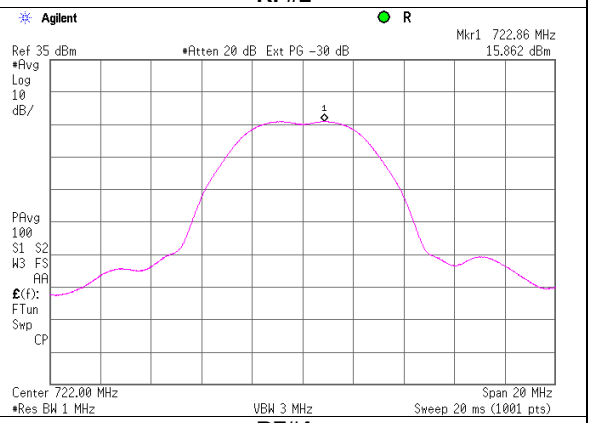
Plot 7.1.7 Peak output power density test results at mid frequency

BIT RATE:	0.5 Mbps
CHANNEL BANDWIDTH:	10 MHz

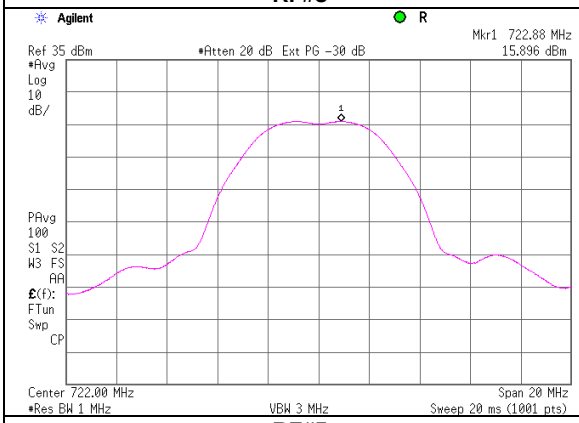
RF#1



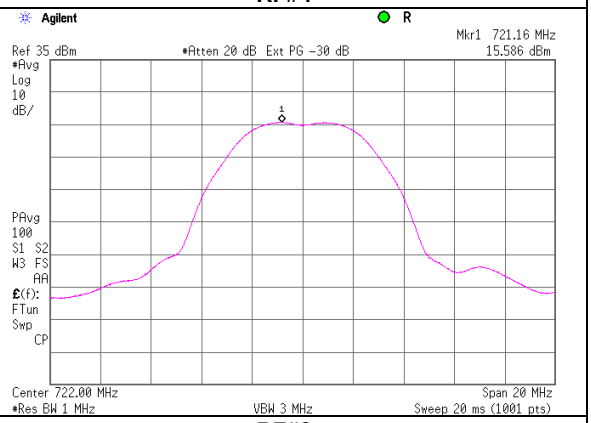
RF#2



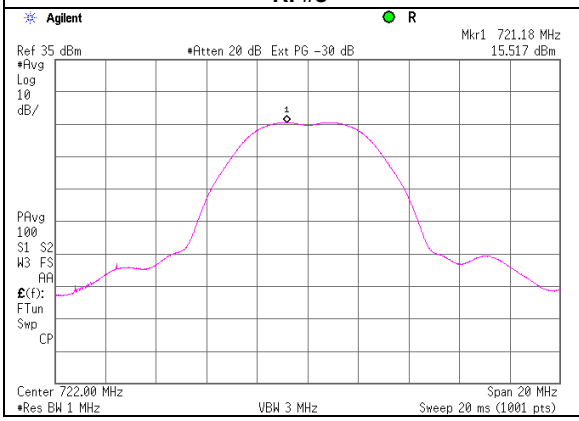
RF#3



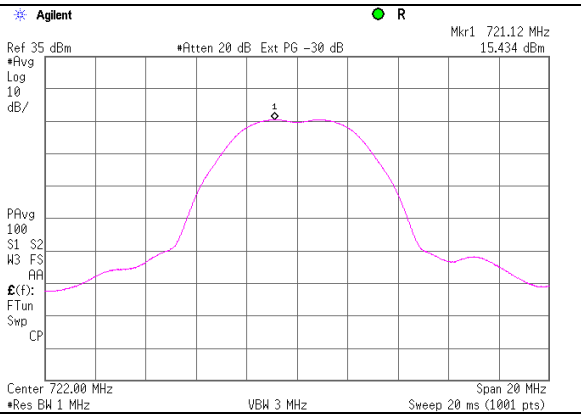
RF#4



RF#5



RF#6



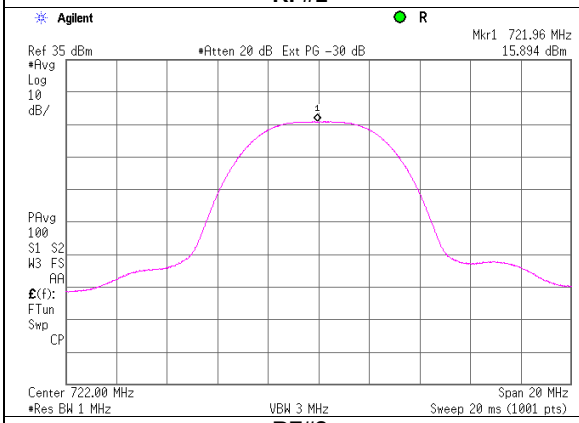
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

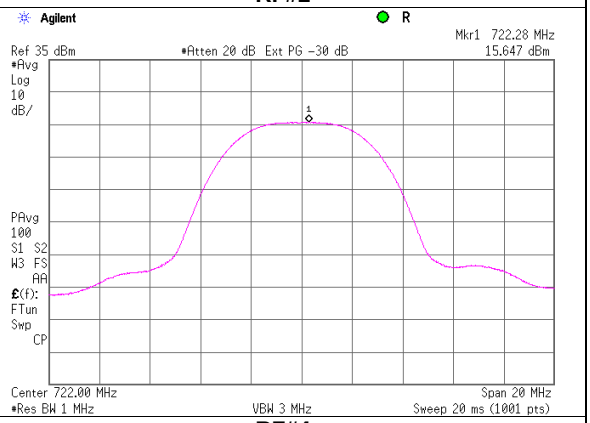
Plot 7.1.8 Peak output power density test results at mid frequency

BIT RATE:	5.5 Mbps
CHANNEL BANDWIDTH:	10 MHz

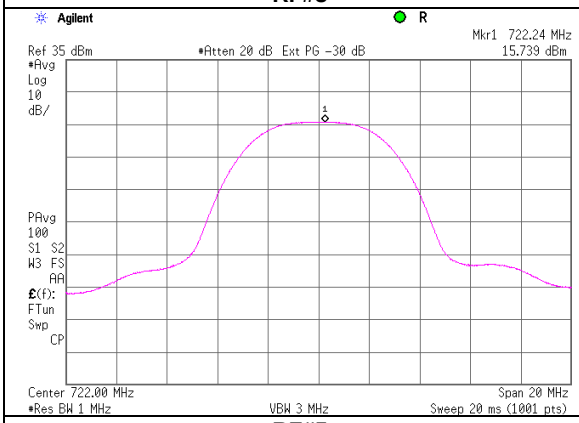
RF#1



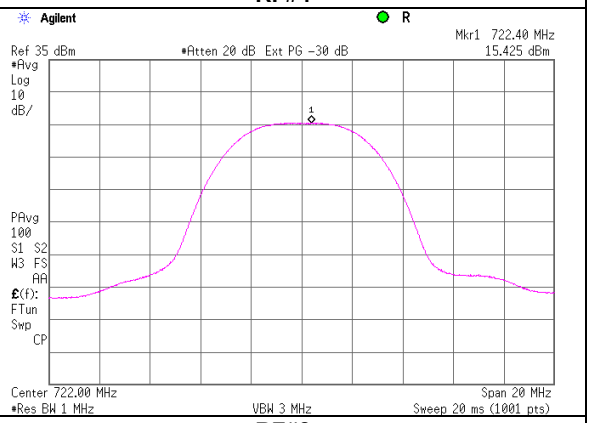
RF#2



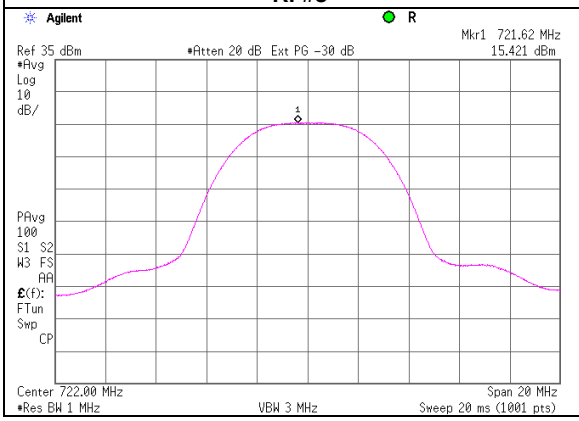
RF#3



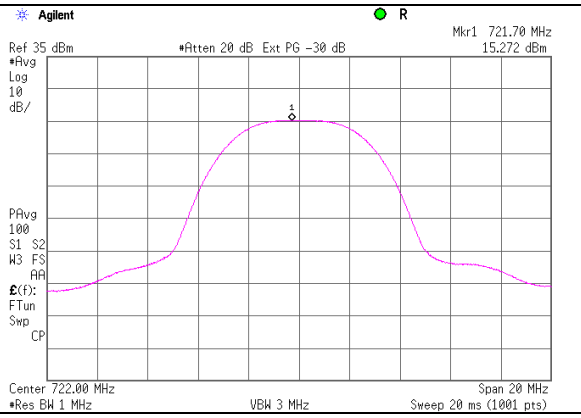
RF#4



RF#5



RF#6



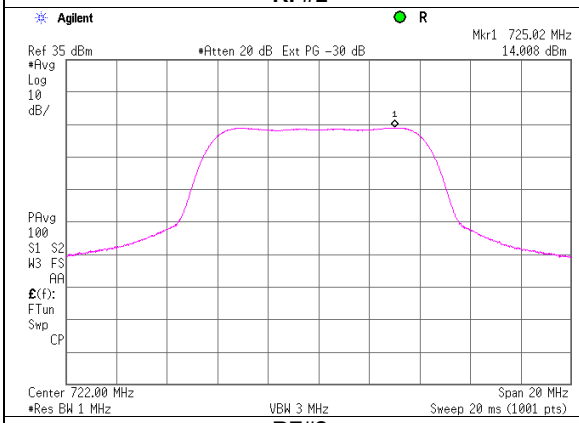
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

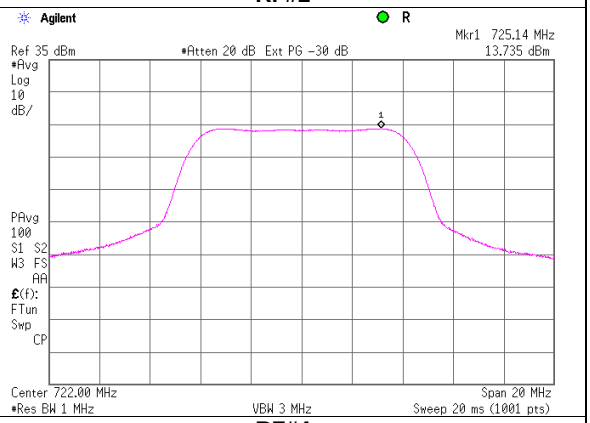
Plot 7.1.9 Peak output power density test results at mid frequency

BIT RATE:	3 Mbps
CHANNEL BANDWIDTH:	10 MHz

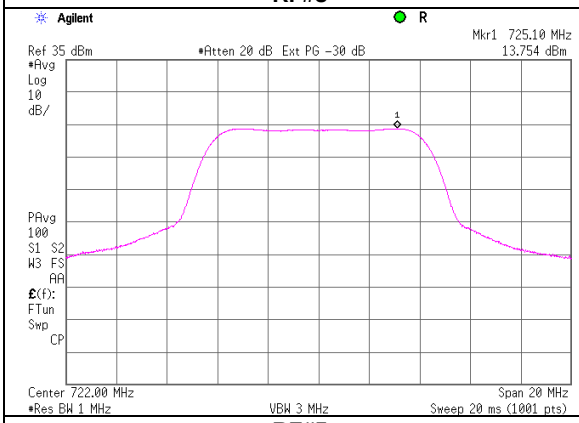
RF#1



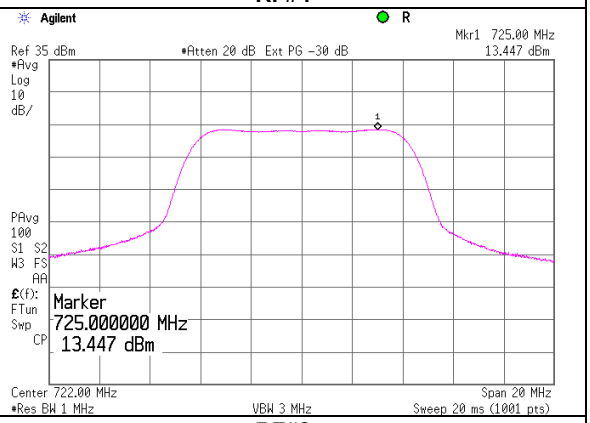
RF#2



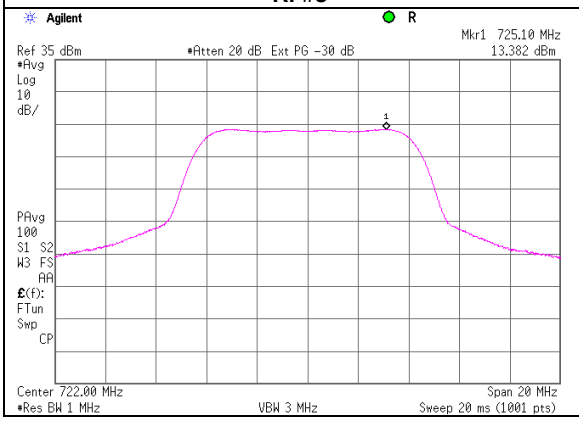
RF#3



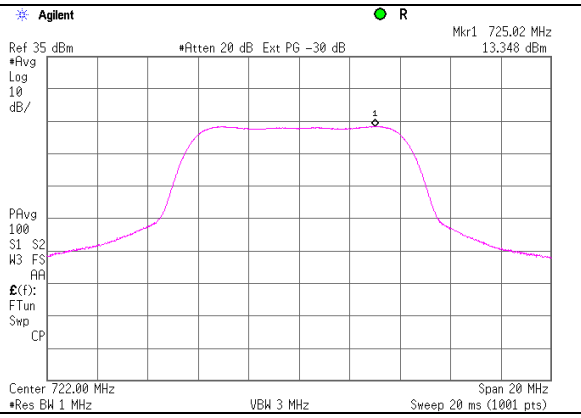
RF#4



RF#5



RF#6



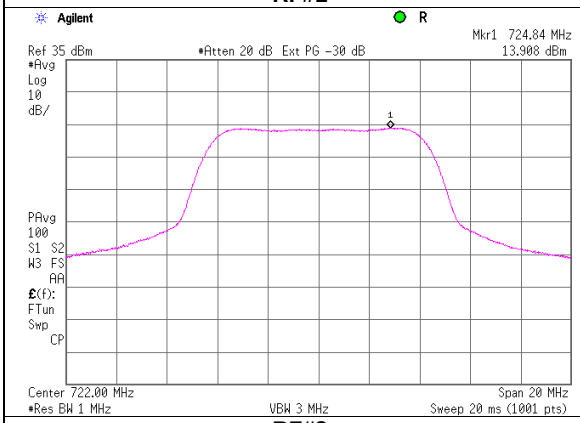
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

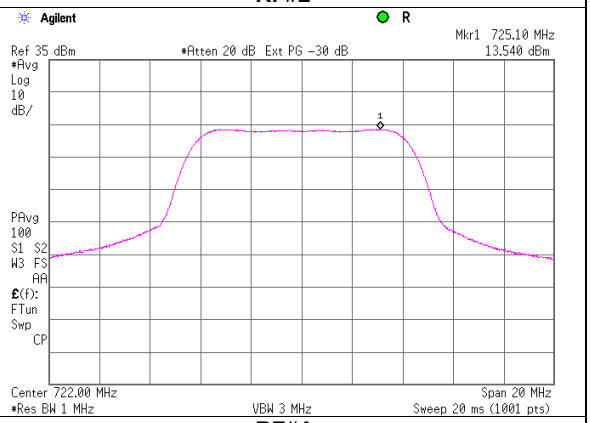
Plot 7.1.10 Peak output power density test results at mid frequency

BIT RATE:	27 Mbps
CHANNEL BANDWIDTH:	10 MHz

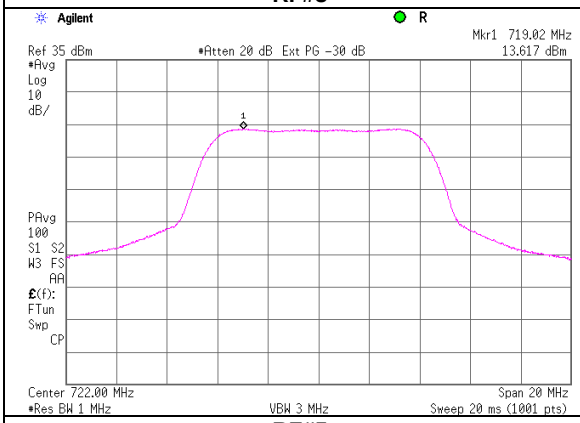
RF#1



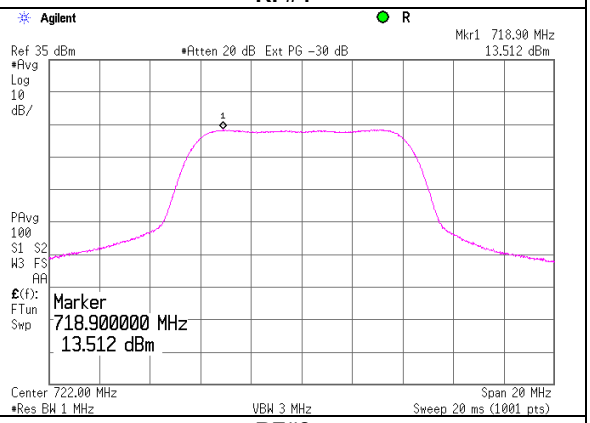
RF#2



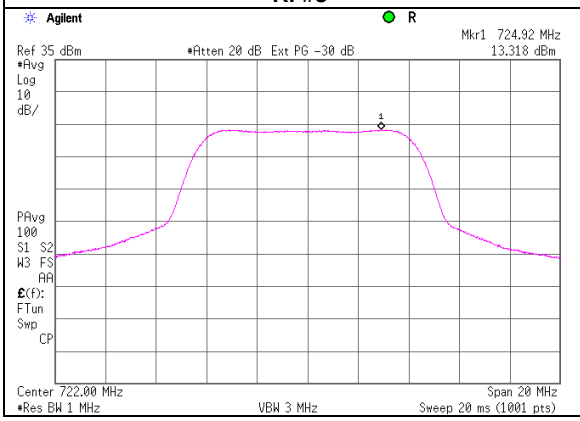
RF#3



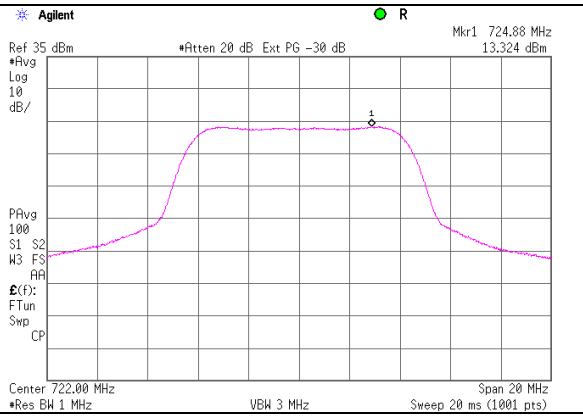
RF#4



RF#5



RF#6



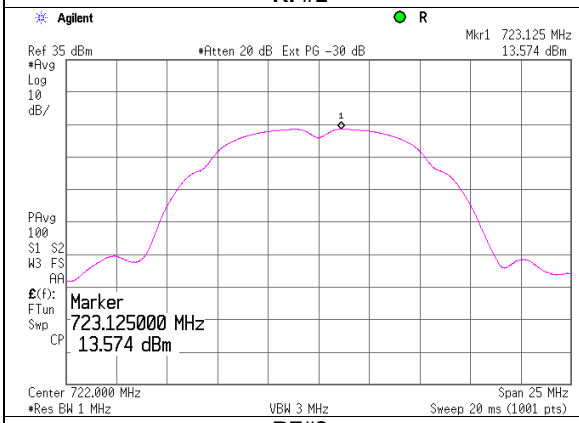
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

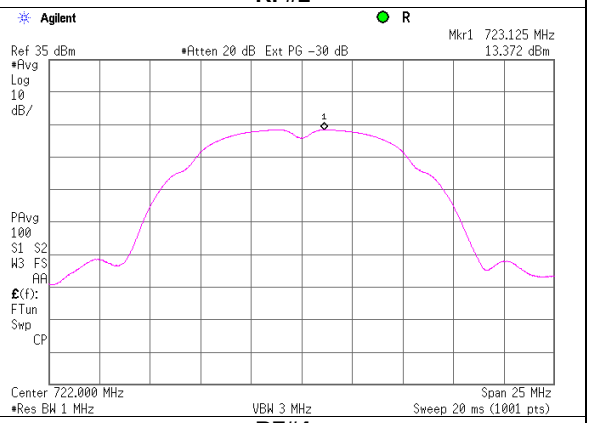
Plot 7.1.11 Peak output power density test results at mid frequency

BIT RATE:	1 Mbps
CHANNEL BANDWIDTH:	20 MHz

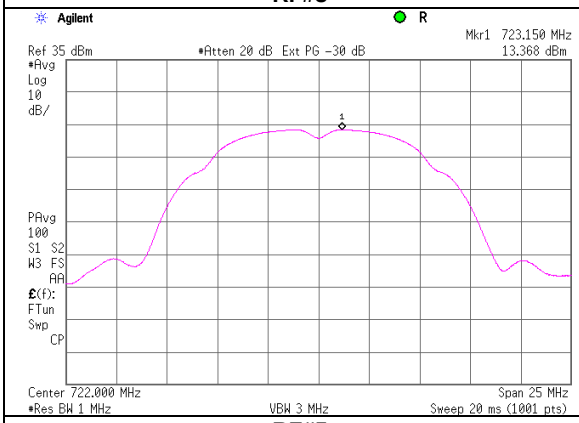
RF#1



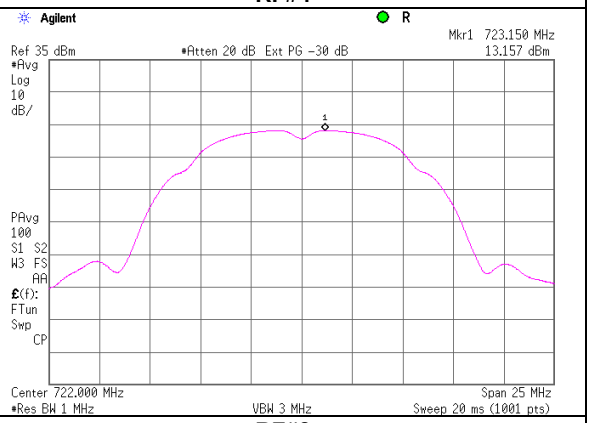
RF#2



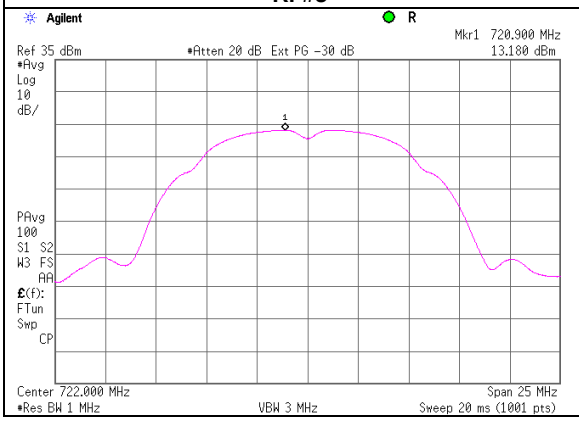
RF#3



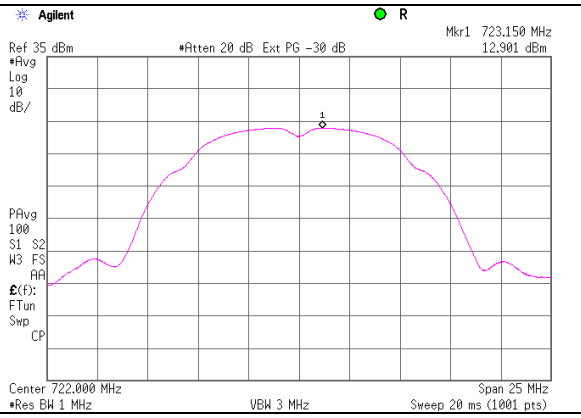
RF#4



RF#5



RF#6



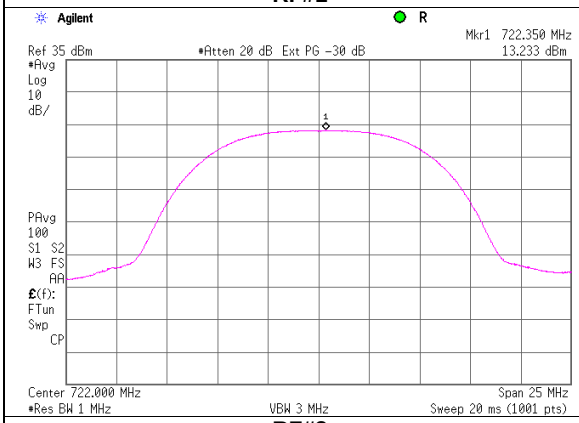
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

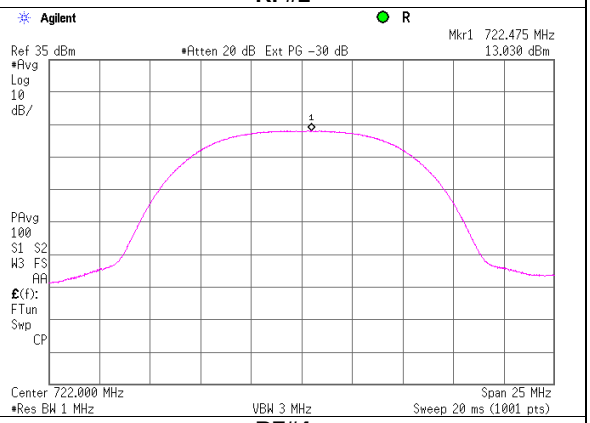
Plot 7.1.12 Peak output power density test results at mid frequency

BIT RATE:	11 Mbps
CHANNEL BANDWIDTH:	20 MHz

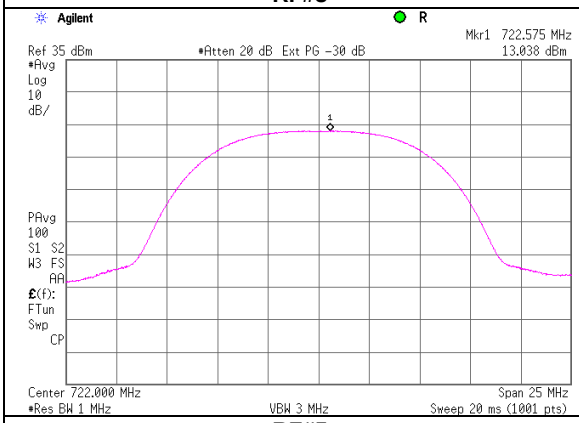
RF#1



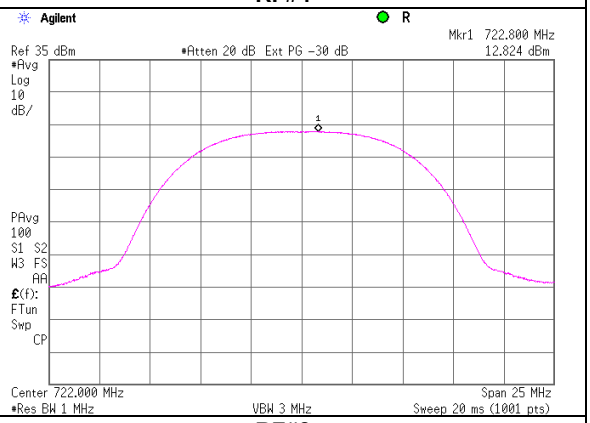
RF#2



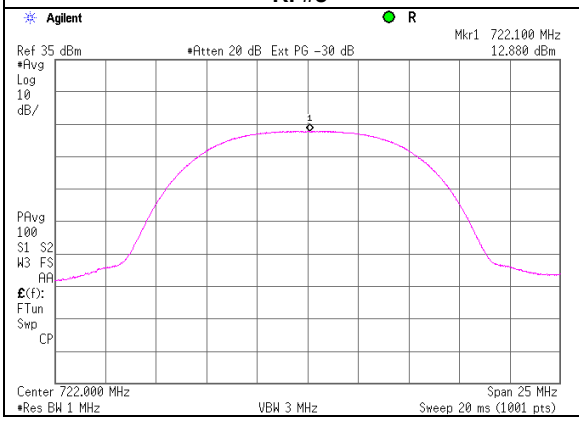
RF#3



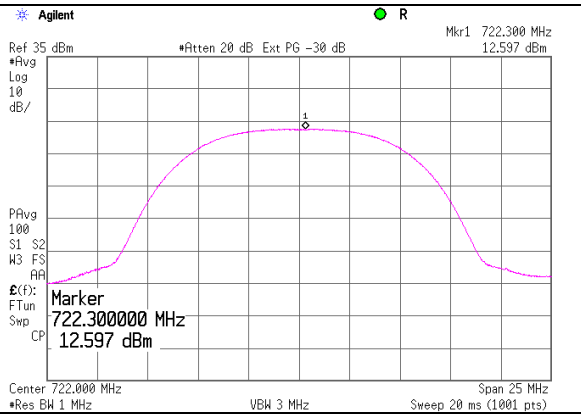
RF#4



RF#5



RF#6



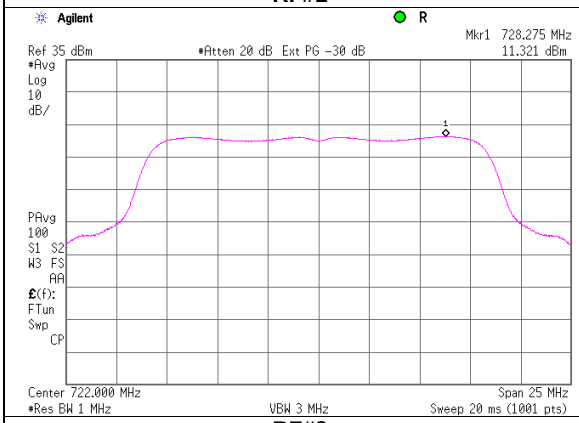
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

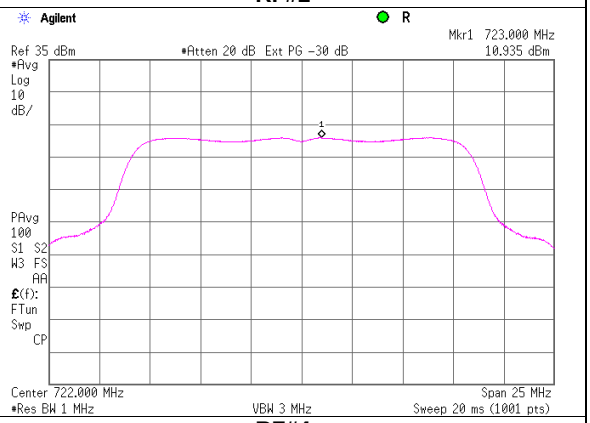
Plot 7.1.13 Peak output power density test results at mid frequency

BIT RATE:	6 Mbps
CHANNEL BANDWIDTH:	20 MHz

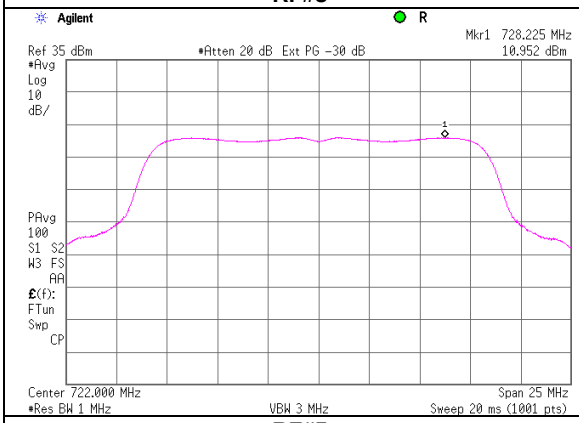
RF#1



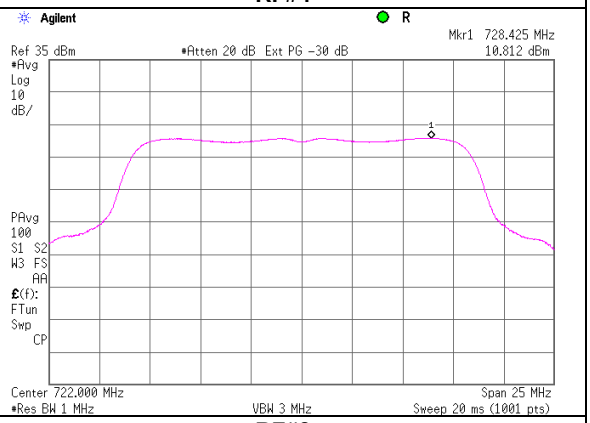
RF#2



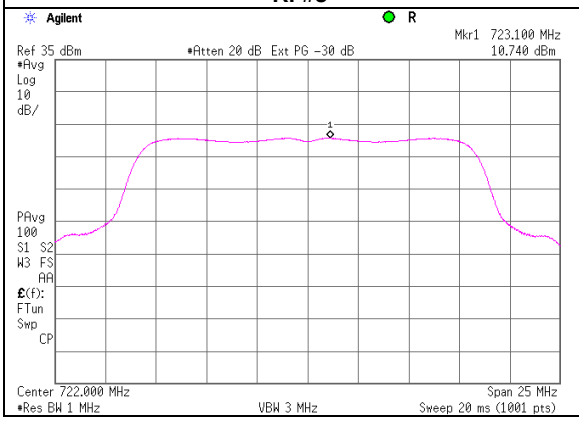
RF#3



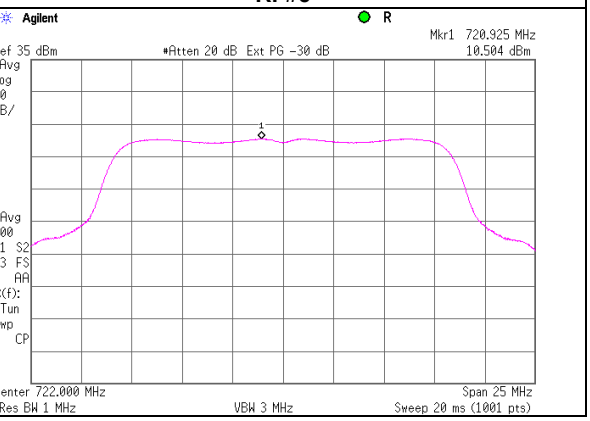
RF#4



RF#5



RF#6



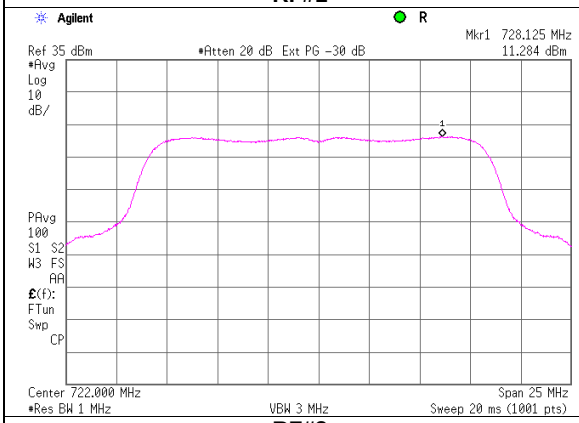
HERMON LABORATORIES

Test specification:	Section 27.50(c)(3), Peak output power at RF antenna connector		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 24.3 ºC	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

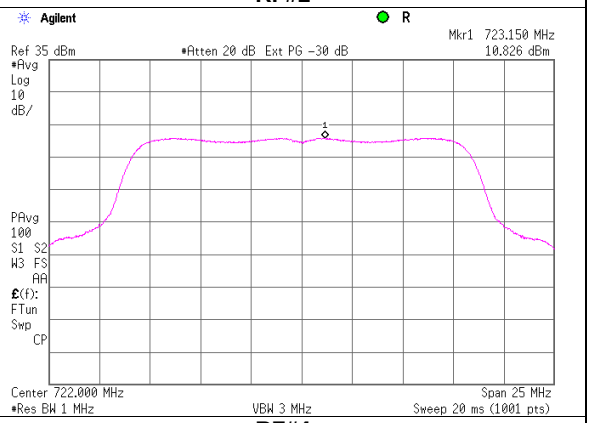
Plot 7.1.14 Peak output power density test results at mid frequency

BIT RATE:	54 Mbps
CHANNEL BANDWIDTH:	20 MHz

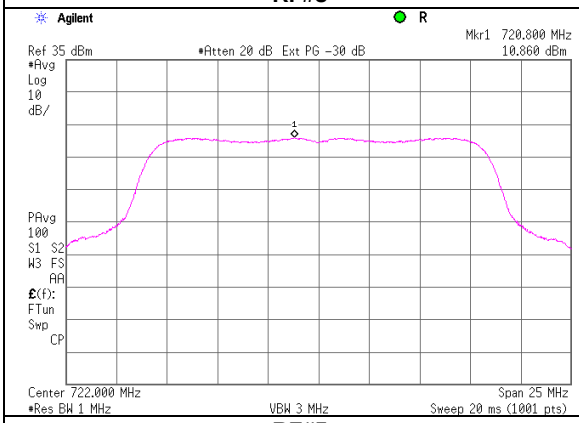
RF#1



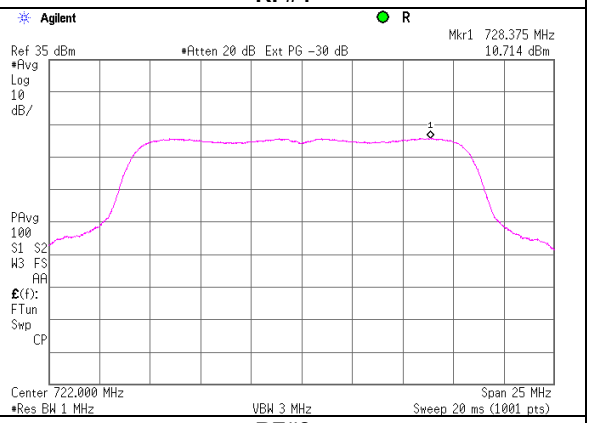
RF#2



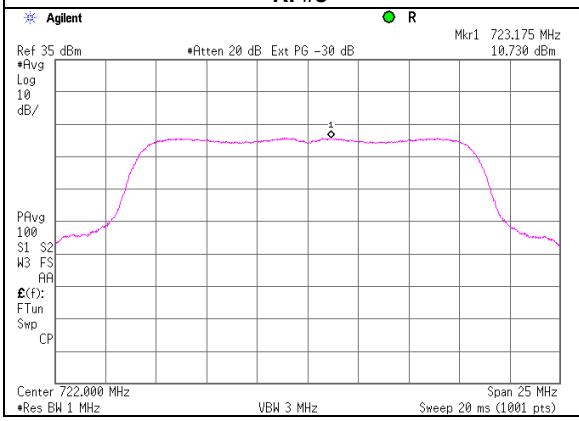
RF#3



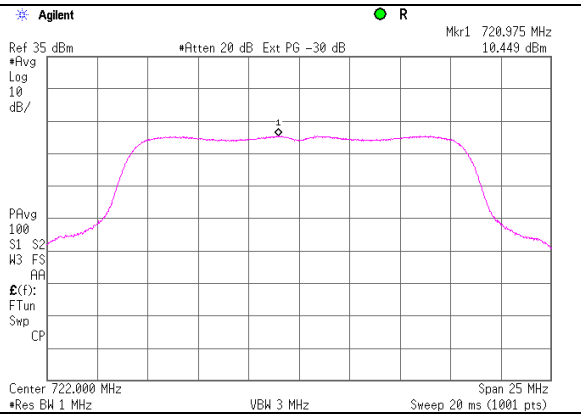
RF#4



RF#5



RF#6



Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

7.2 Occupied bandwidth test

7.2.1 General

This test was performed to measure transmitter occupied bandwidth. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Occupied bandwidth limits

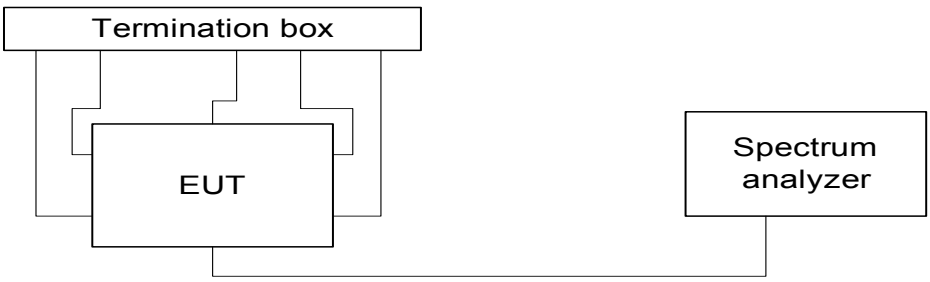
Assigned frequency, MHz	Modulation envelope reference points*, dBc	Maximum allowed bandwidth, kHz
698.0 – 746.0	26	NA

* - Modulation envelope reference points are provided in terms of attenuation below total carrier power.

7.2.2 Test procedure

7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.
7.2.2.2 The EUT was set to transmit the unmodulated carrier and the reference peak power level was measured.
7.2.2.3 The EUT was set to transmit the normally modulated carrier.
7.2.2.4 The transmitter occupied bandwidth was measured with spectrum analyzer as a frequency delta between the reference points on modulation envelope and provided in Table 7.2.2 and the associated plots.

Figure 7.2.1 Occupied bandwidth test setup



Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

Table 7.2.2 Occupied bandwidth test results 5 MHz channel bandwidth

DETECTOR USED: Peak hold
RESOLUTION BANDWIDTH: 0.5 – 2 % of OBW
VIDEO BANDWIDTH: 10 times RBW
MODULATION ENVELOPE REFERENCE POINTS: 26 dBc and 99% power
MODULATION: DSSS (DBPSK – CCK) / OFDM (BPSK – 64QAM)
MODULATING SIGNAL: PRBS

Channel Bandwidth, MHz	Bit rate, Mbps	Carrier frequency, MHz	Occupied bandwidth 99%, MHz	Occupied bandwidth 26 dBc, MHz
5	0.25	701.0	3.0164	3.723
5	0.25	722.0	3.0280	3.766
5	0.25	743.0	3.0374	3.796
5	2.75	701.0	3.0079	3.799
5	2.75	722.0	3.0656	3.873
5	2.75	743.0	3.0098	3.893
5	1.5	701.0	4.1606	6.347
5	1.5	722.0	4.1697	6.286
5	1.5	743.0	4.2565	6.552
5	13.5	701.0	4.1296	5.512
5	13.5	722.0	4.1399	5.963
5	13.5	743.0	4.1974	6.016
10	0.5	704.0	6.0242	7.384
10	0.5	722.0	6.0254	7.383
10	0.5	740.0	6.0322	7.457
10	5.5	704.0	6.0797	7.694
10	5.5	722.0	6.0924	7.644
10	5.5	740.0	6.0800	7.712
10	3	704.0	8.3183	11.983
10	3	722.0	8.2954	11.081
10	3	740.0	8.2977	10.600
10	27	704.0	8.2494	10.212
10	27	722.0	8.2480	10.149
10	27	740.0	8.2555	10.069
20	1	710.0	12.0323	14.648
20	1	722.0	12.0303	14.664
20	1	734.0	12.0256	14.664
20	11	710.0	12.1214	15.223
20	11	722.0	12.1128	15.201
20	11	734.0	12.1242	15.244
20	6	710.0	16.4983	23.453
20	6	722.0	16.5269	22.759
20	6	734.0	16.5310	23.204
20	54	710.0	16.4224	20.731
20	54	722.0	16.4356	20.553
20	54	734.0	16.4202	20.391

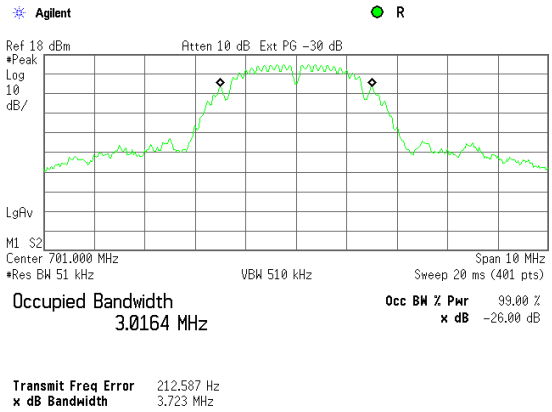
Reference numbers of test equipment used

HL 3818	HL 2953	HL 3762	HL 3787				

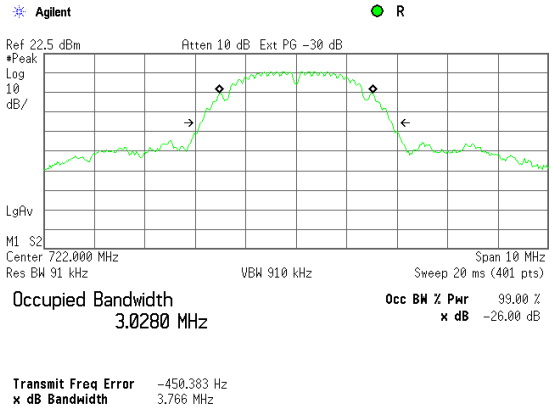
Full description is given in Appendix A.

Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

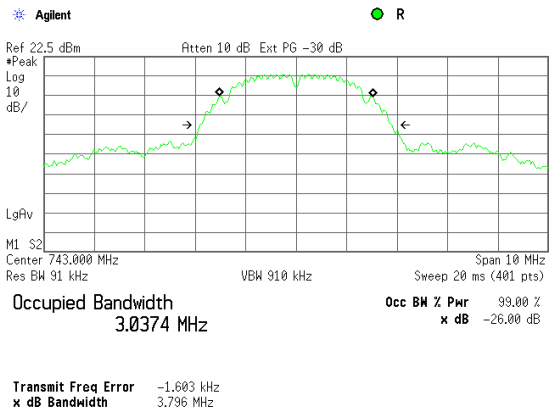
Plot 7.2.1 Occupied bandwidth test result at low frequency, 0.25 Mbps 5 MHz BW



Plot 7.2.2 Occupied bandwidth test result at mid frequency, 0.25 Mbps 5 MHz BW

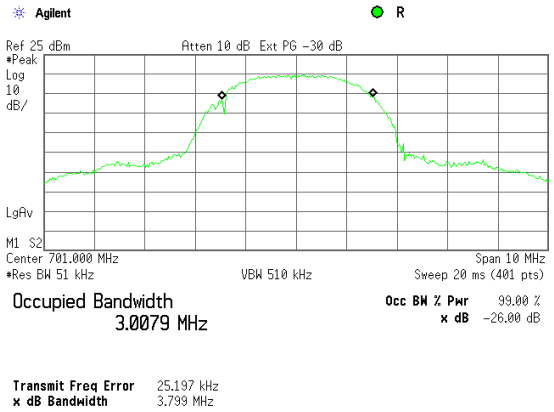


Plot 7.2.3 Occupied bandwidth test result at high frequency 0.25 Mbps 5 MHz BW

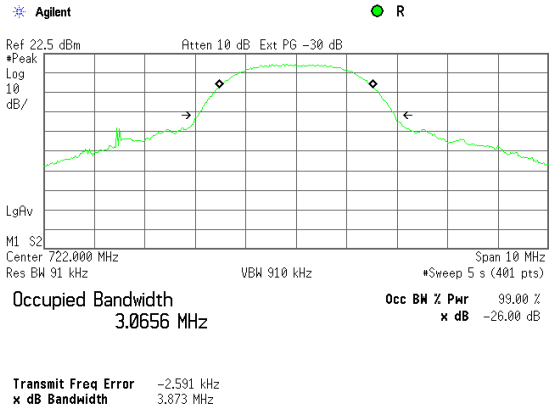


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

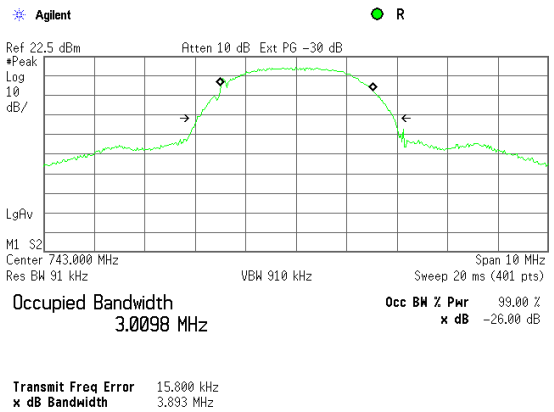
Plot 7.2.4 Occupied bandwidth test result at low frequency, 2.75 Mbps 5 MHz BW



Plot 7.2.5 Occupied bandwidth test result at mid frequency, 2.75 Mbps 5 MHz BW

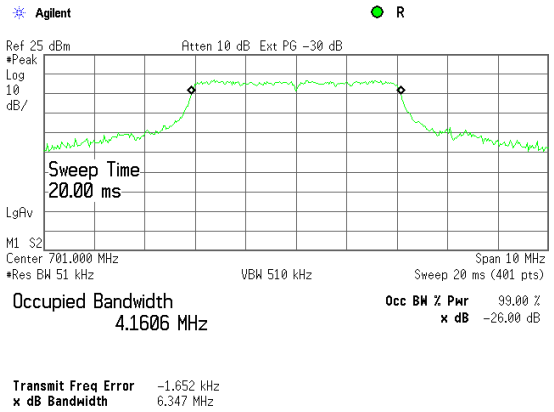


Plot 7.2.6 Occupied bandwidth test result at high frequency, 2.75 Mbps 5 MHz BW

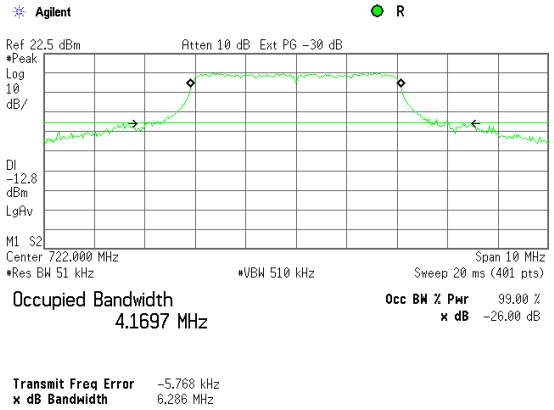


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

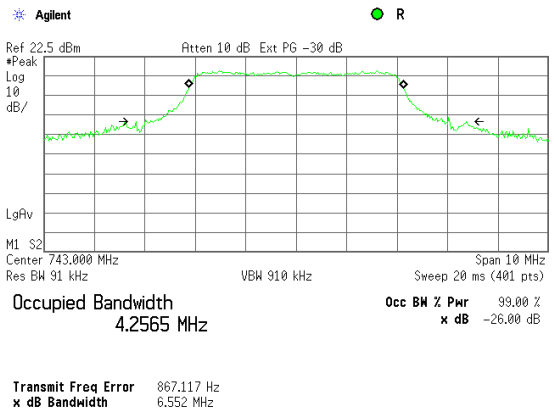
Plot 7.2.7 Occupied bandwidth test result at low frequency, 1.5 Mbps 5 MHz BW



Plot 7.2.8 Occupied bandwidth test result at mid frequency1.5 Mbps 5 MHz BW

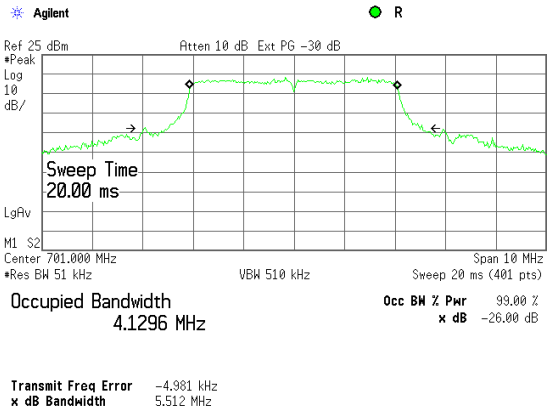


Plot 7.2.9 Occupied bandwidth test result at high frequency1.5 Mbps 5 MHz BW

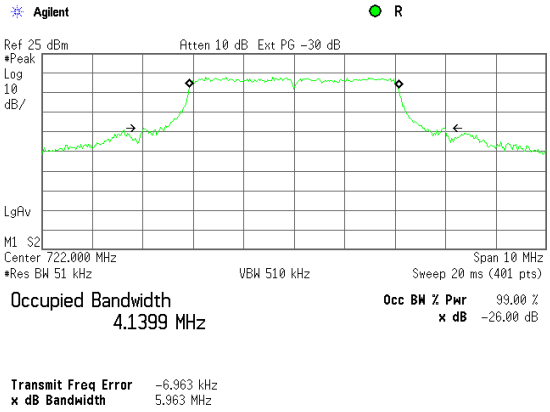


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

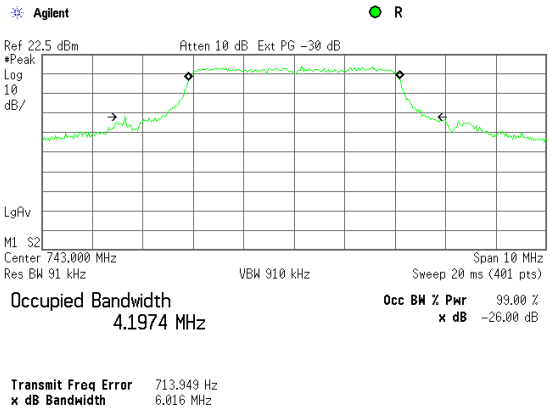
Plot 7.2.10 Occupied bandwidth test result at low frequency, 13.5 Mbps 5 MHz BW



Plot 7.2.11 Occupied bandwidth test result at mid frequency, 13.5 Mbps 5 MHz BW

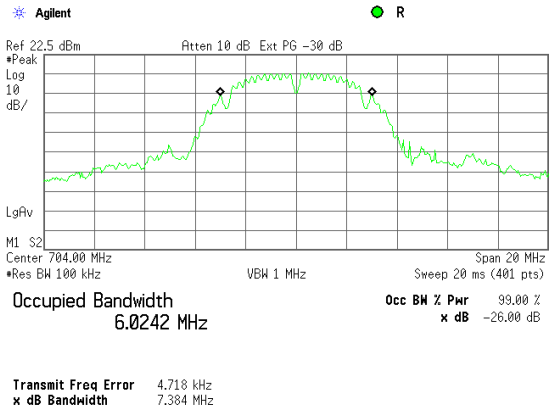


Plot 7.2.12 Occupied bandwidth test result at high frequency, 13.5 Mbps 5 MHz BW

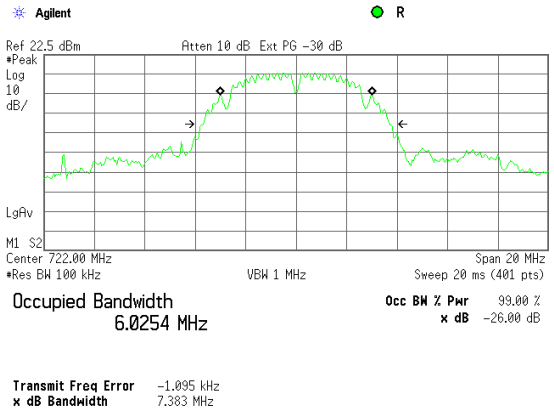


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

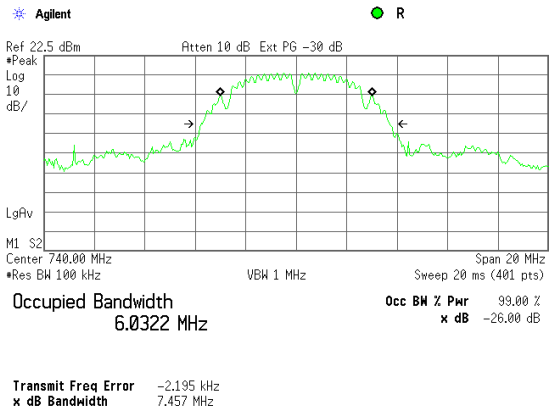
Plot 7.2.13 Occupied bandwidth test result at low frequency, 0.5 Mbps 10 MHz BW



Plot 7.2.14 Occupied bandwidth test result at mid frequency, 0.5 Mbps 10 MHz BW

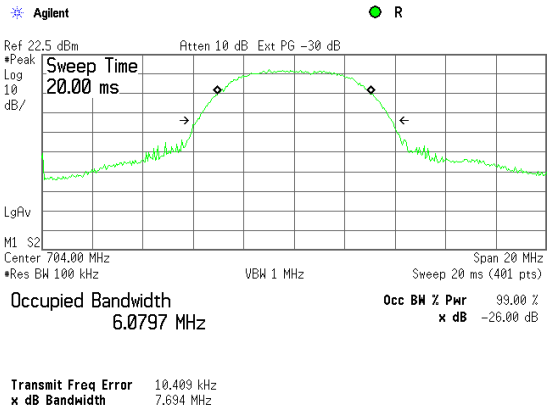


Plot 7.2.15 Occupied bandwidth test result at high frequency, 0.5 Mbps 10 MHz BW

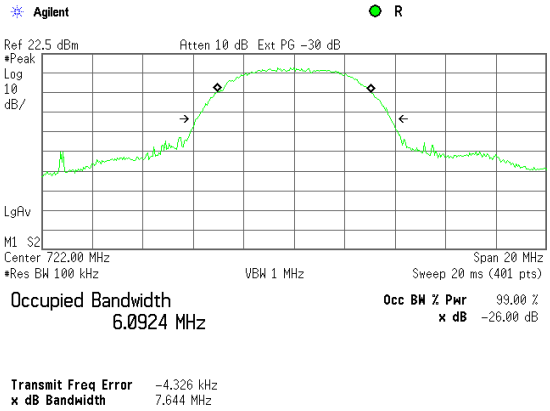


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

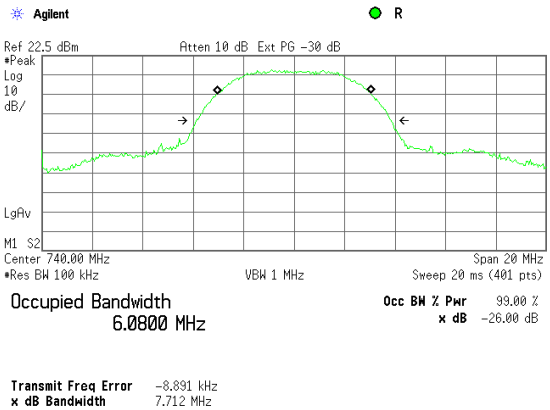
Plot 7.2.16 Occupied bandwidth test result at low frequency, 5.5 Mbps 10 MHz BW



Plot 7.2.17 Occupied bandwidth test result at mid frequency, 5.5 Mbps 10 MHz BW

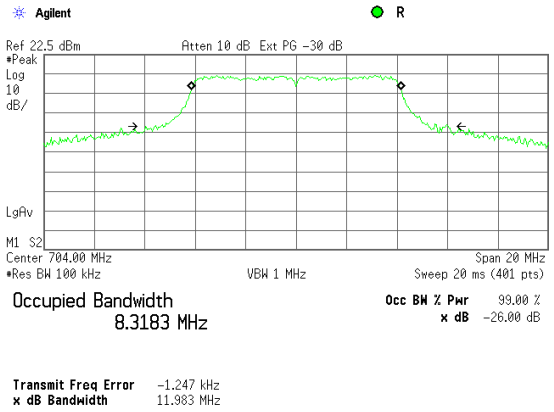


Plot 7.2.18 Occupied bandwidth test result at high frequency, 5.5 Mbps 10 MHz BW

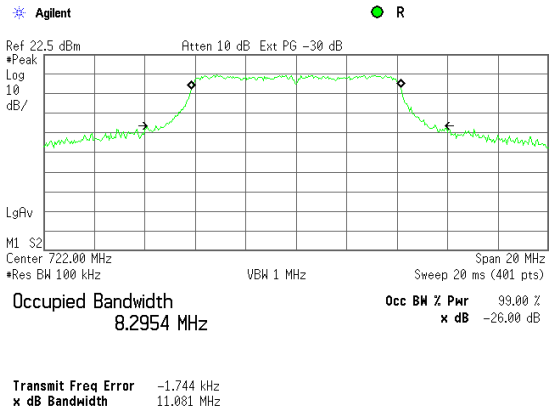


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

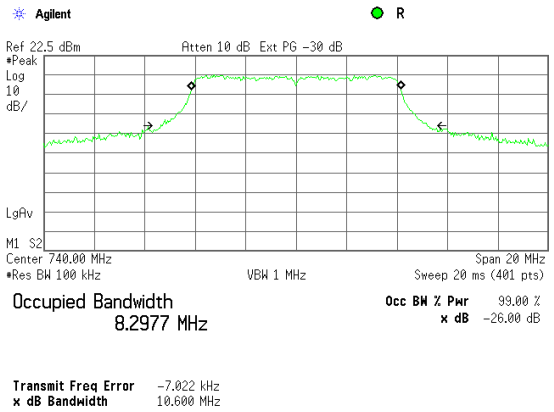
Plot 7.2.19 Occupied bandwidth test result at low frequency, 3 Mbps 10 MHz BW



Plot 7.2.20 Occupied bandwidth test result at mid frequency,3 Mbps 10 MHz BW

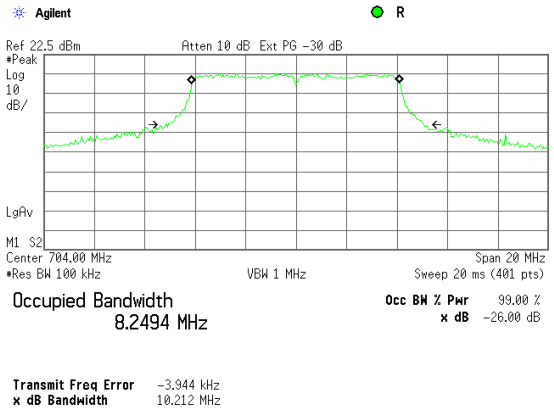


Plot 7.2.21 Occupied bandwidth test result at high frequency, 3 Mbps 10 MHz BW

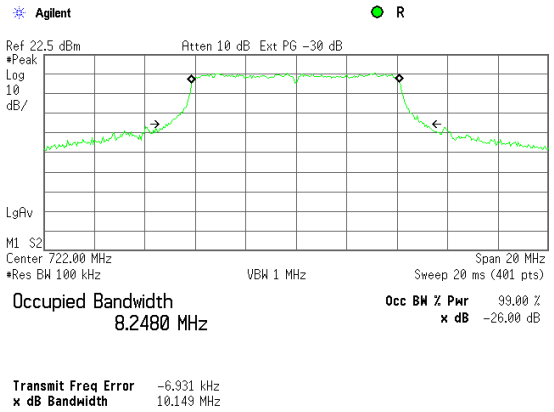


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

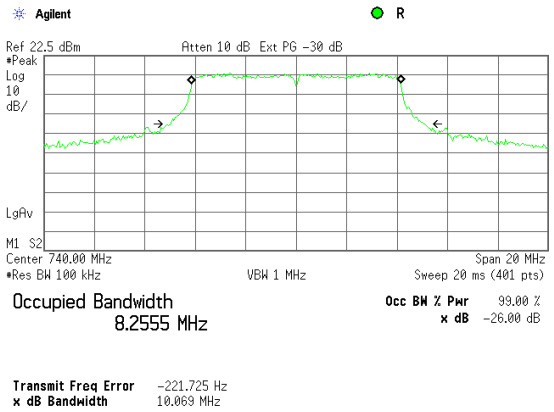
Plot 7.2.22 Occupied bandwidth test result at low frequency, 27 Mbps 10 MHz BW



Plot 7.2.23 Occupied bandwidth test result at mid frequency, 27 Mbps 10 MHz BW

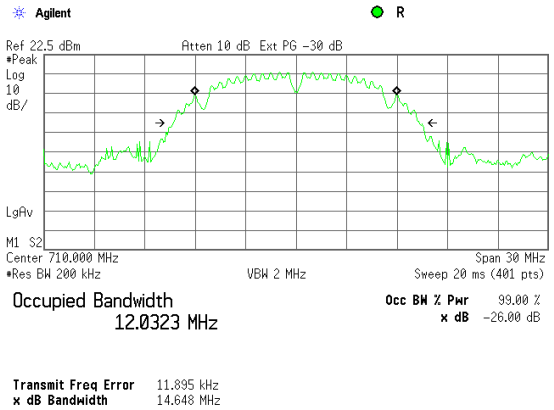


Plot 7.2.24 Occupied bandwidth test result at high frequency, 27 Mbps 10 MHz BW

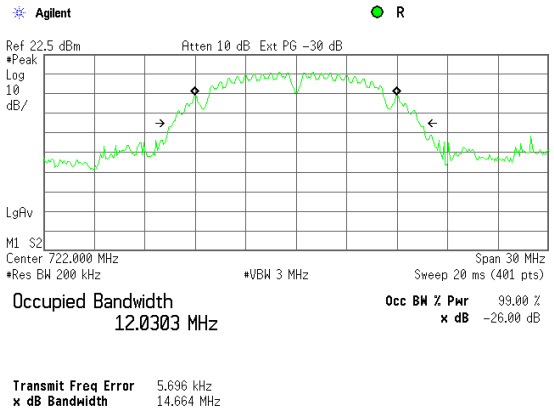


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

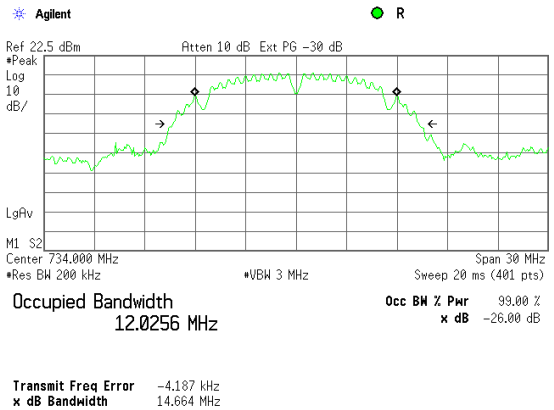
Plot 7.2.25 Occupied bandwidth test result at low frequency, 1 Mbps 20 MHz BW



Plot 7.2.26 Occupied bandwidth test result at mid frequency, 1 Mbps 20 MHz BW

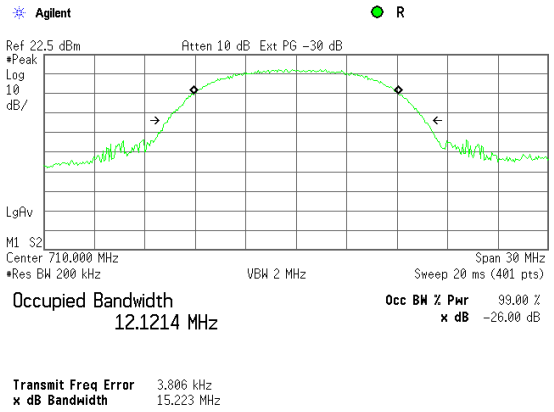


Plot 7.2.27 Occupied bandwidth test result at high frequency, 1 Mbps 20 MHz BW

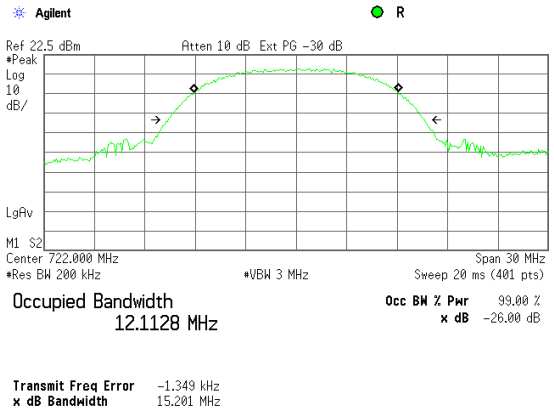


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

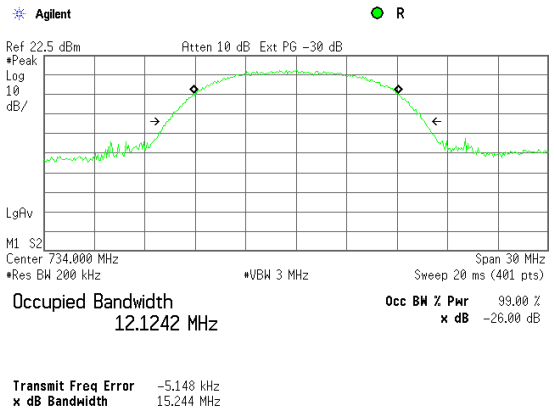
Plot 7.2.28 Occupied bandwidth test result at low frequency, 11 Mbps 20 MHz BW



Plot 7.2.29 Occupied bandwidth test result at mid frequency, 11 Mbps 20 MHz BW

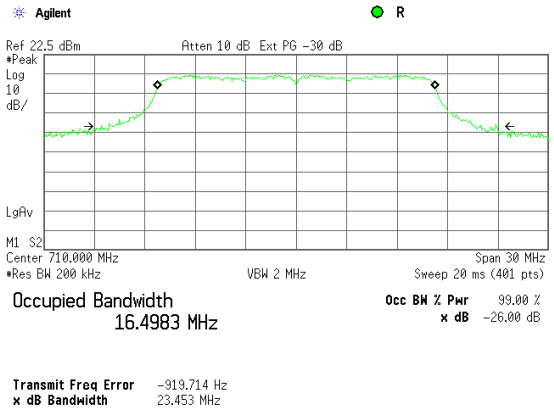


Plot 7.2.30 Occupied bandwidth test result at high frequency, 11 Mbps 20 MHz BW

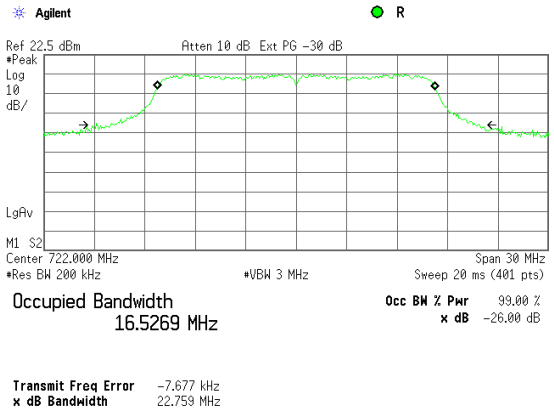


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

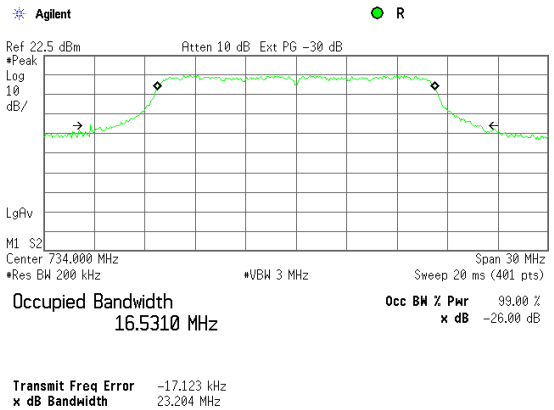
Plot 7.2.31 Occupied bandwidth test result at low frequency, 6 Mbps 20 MHz BW



Plot 7.2.32 Occupied bandwidth test result at mid frequency, 6 Mbps 20 MHz BW

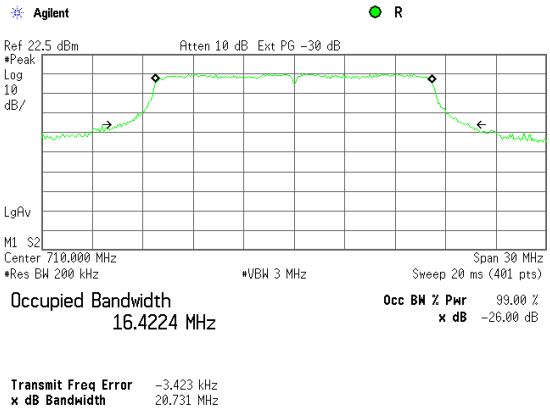


Plot 7.2.33 Occupied bandwidth test result at high frequency, 6 Mbps 20 MHz BW

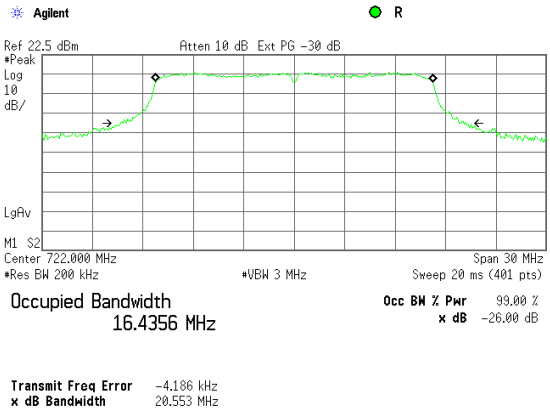


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	7/28/2010		
Temperature: 25.1 ºC	Air Pressure: 1007 hPa	Relative Humidity: 42 %	Power Supply: 55 VDC
Remarks:			

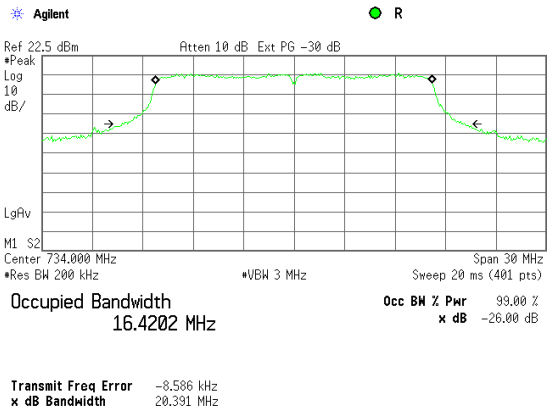
Plot 7.2.34 Occupied bandwidth test result at low frequency, 54 Mbps 20 MHz BW



Plot 7.2.35 Occupied bandwidth test result at mid frequency, 54 Mbps 20 MHz BW



Plot 7.2.36 Occupied bandwidth test result at high frequency, 54 Mbps 20 MHz BW



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

7.3 Band edge emissions at RF antenna connector test

7.3.1 General

This test was performed to measure band edge emissions at RF antenna connector. Specification test limits are given in Table 7.3.1, Table 7.3.2, Table 7.3.3.

Table 7.3.1 Spurious emission limits for 5 MHz CBW

Frequency Channel vs Channel Block	Investigated frequency range, MHz	Attenuation below carrier, dBc	Spurious emissions, dBm	Measurement technique
701.0 MHz (698.0 – 704.0)	697.9 – 698.0& 704.0 – 704.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
719.0 MHz (716.0 – 722.0)	715.9 – 716.0& 722.0 – 722.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
743.0 MHz (740.0 – 746.0)	739.9 – 740.0& 746.0 – 746.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
All	±28 MHz from the block edges	43+10logP*	-13	RBW = 100 KHz, VBW = 300 kHz Average detector + Power average 100 sweeps

* - P is transmitter output power in Watts.

Table 7.3.2 Spurious emission limits for 10 MHz CBW

Frequency Channel vs Channel Block	Investigated frequency range, MHz	Attenuation below carrier, dBc	Spurious emissions, dBm	Measurement technique
704.0 MHz (698.0 – 710.0)	697.9 – 698.0& 710.0 – 710.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
722.0 MHz (716.0 – 728.0)	715.9 – 716.0& 728.0 – 728.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
740.0 MHz (734.0 – 746.0)	733.9 – 734.0& 746.0 – 746.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
All	±28 MHz from the block edges	43+10logP*	-13	RBW = 100 KHz, VBW = 300 kHz Average detector + Power average 100 sweeps

* - P is transmitter output power in Watts.

Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

Table 7.3.3 Spurious emission limits for 20 MHz CBW

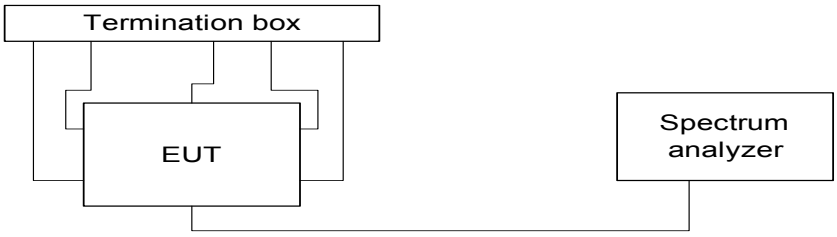
Frequency Channel vs Channel Block	Investigated frequency range, MHz	Attenuation below carrier, dBc	Spurious emissions, dBm	Measurement technique
710.0 MHz (698.0 – 722.0)	697.9 – 698.0& 722.0 – 722.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
722.0 MHz (710.0 – 734.0)	709.9 – 710.0& 734.0 – 734.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
734.0 MHz (722.0 – 746.0)	721.9 – 722.0& 746.0 – 746.1	43+10logP*	-13	RBW=30kHz; VBW=100 kHz; Average detector + Power average 100 sweeps
All	±28 MHz from the block edges	43+10logP*	-13	RBW = 100 KHz, VBW = 300 kHz Average detector + Power average 100 sweeps

* - P is transmitter output power in Watts.

7.3.2 Test procedure

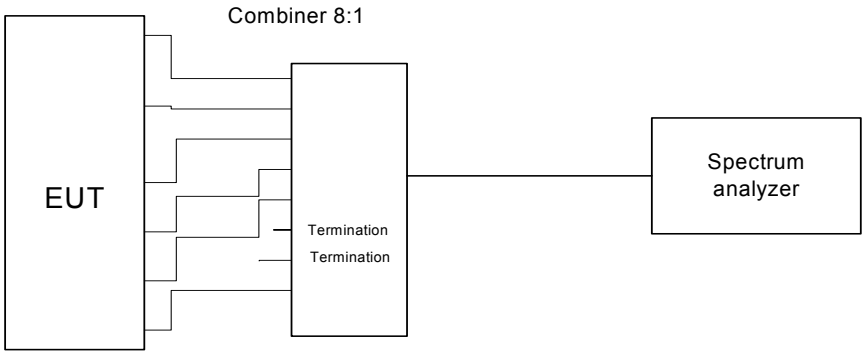
7.3.2.1 The EUT was set up as shown in Figure 7.3.1 or Figure 7.3.2, energized and its proper operation was checked.
7.3.2.2 The EUT was adjusted to produce maximum available for end user RF output power.
7.3.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 7.3.4 and the associated plots.

Figure 7.3.1 Spurious emission test setup single output



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

Figure 7.3.2 Spurious emission test setup combined outputs



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

Table 7.3.4 Band edges emission test results (worst case results)

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
INVESTIGATED FREQUENCY RANGE: See Table 7.3.1, Table 7.3.2 and Table 7.3.3
DETECTOR USED: Average
VIDEO BANDWIDTH: ≥ Resolution bandwidth
MODULATING SIGNAL: PRBS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum (Combined RF Outputs)
CHANNEL BANDWIDTH: 5 MHz

Investigated frequency range, MHz	SA reading, dBm	Required RBW, kHz	Used RBW, kHz	Correction factor*, dB	Spurious emission**, dBm	Limit, dBm	Margin, dB***	Verdict
QPSK 1.5 Mbps 701.0 MHz channel								
697.621	-13.09	100	100	0.0	-13.09	-13.00	-0.09	Pass
697.997	-18.09	30	30	0.0	-18.09	-13.00	-5.09	Pass
704.001	-17.71	30	30	0.0	-17.71	-13.00	-4.71	Pass
64QAM 13.5 Mbps 701.0 MHz channel								
704.379	-13.24	100	100	0.0	-13.24	-13.00	-0.24	Pass
QPSK 1.5 Mbps 719.0 MHz channel								
715.997	-17.56	30	30	0.0	-17.56	-13.00	-4.56	Pass
722.000	-17.99	30	30	0.0	-17.99	-13.00	-4.99	Pass
722.379	-13.80	100	100	0.0	-13.80	-13.00	-0.80	Pass
64QAM 13.5 Mbps 719.0 MHz channel								
715.649	-13.97	100	100	0.0	-13.97	-13.00	-0.97	Pass
QPSK 1.5 Mbps 743.0 MHz channel								
739.677	-13.89	100	100	0.0	-13.89	-13.00	-0.89	Pass
64QAM 13.5 Mbps 743.0 MHz channel								
739.998	-17.49	30	30	0.0	-17.49	-13.00	-4.49	Pass
746.000	-17.38	30	30	0.0	-17.38	-13.00	-4.38	Pass
746.407	-13.63	100	100	0.0	-13.63	-13.00	-0.63	Pass

** - Spurious emission, dBm = SA reading, dBm + Correction factor, dB.
*- Margin = Spurious emission – specification limit.

Rationale: The low channel was tested under each bandwidth configurations with minimum and maximum data rates for both single and multi-carrier modulation format to find the worst case.

NOTE1: The worst case results were found for multi-carrier OFDM signal at 1.5 and 13.5 Mbps modulation 5 MHz channel bandwidth configuration
NOTE2: For the combined outputs test results see Plot 7.3.1 - Plot 7.3.96. For the single output test results see Plot 7.3.97 - Plot 7.3.120

Reference numbers of test equipment used

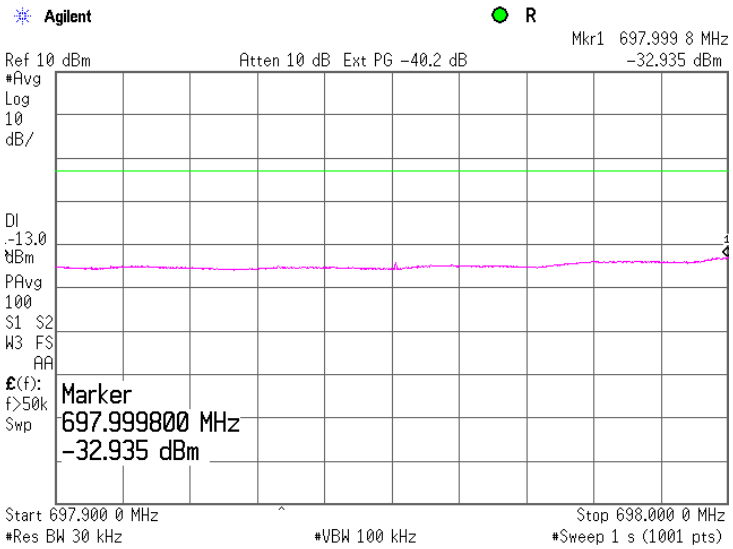
HL 2953	HL 3762	HL 3781	HL 3818				

Full description is given in Appendix A.

Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

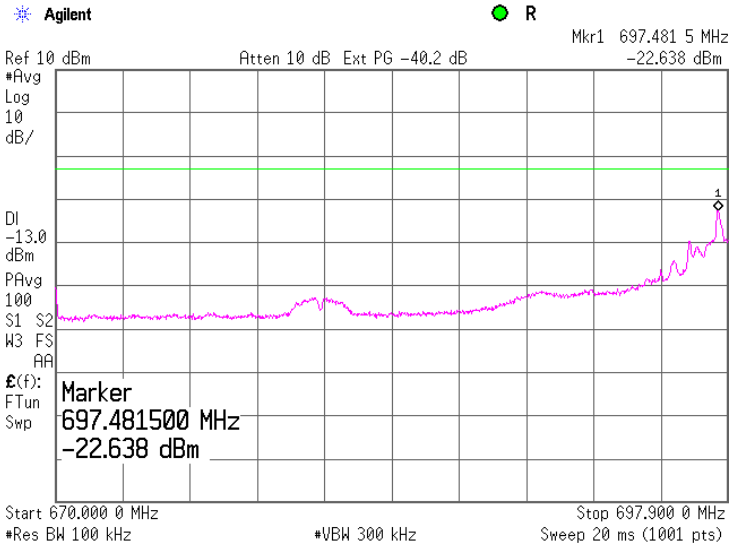
Plot 7.3.1 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: DSSS 0.25 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.2 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

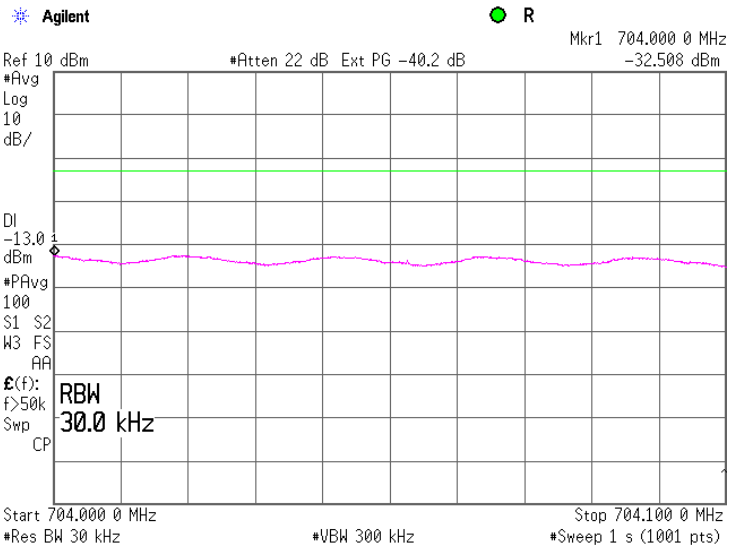
Frequency: 701.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: DSSS 0.25 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

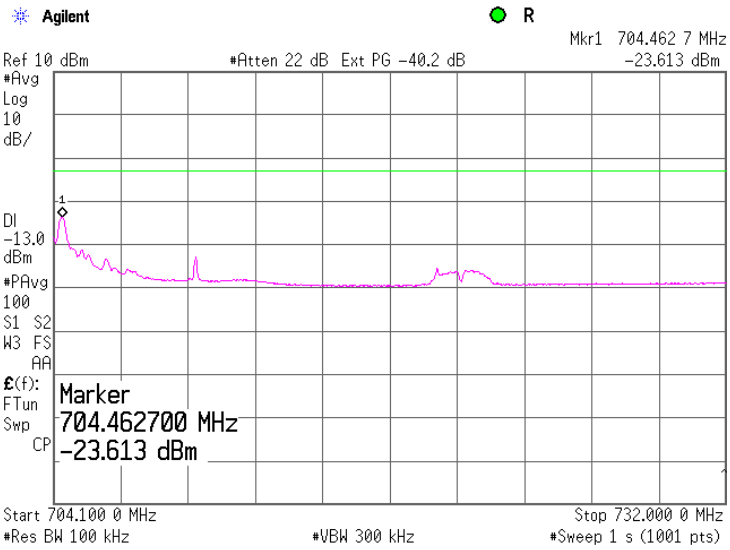
Plot 7.3.3 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 704.0 – 704.1 MHz
Modulation: DSSS 0.25 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.4 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

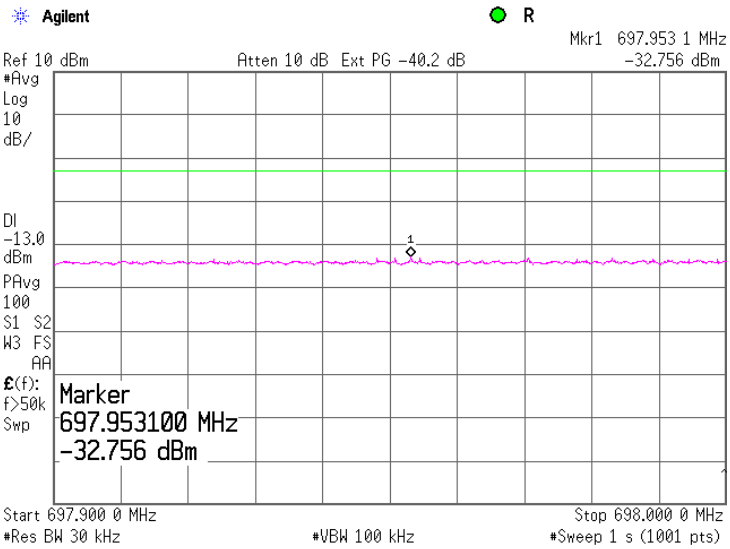
Frequency: 701.0 MHz
Band edge: 704.1 – 732.0 MHz
Modulation: DSSS 0.25 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

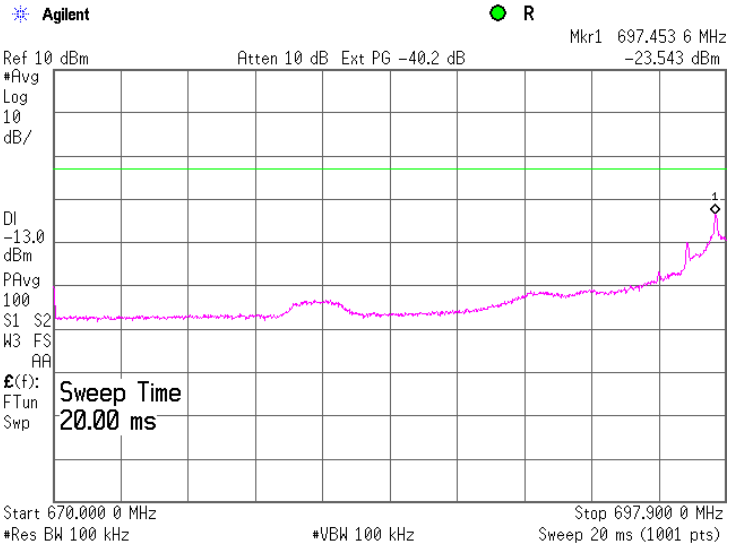
Plot 7.3.5 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: DSSS 2.75 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.6 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

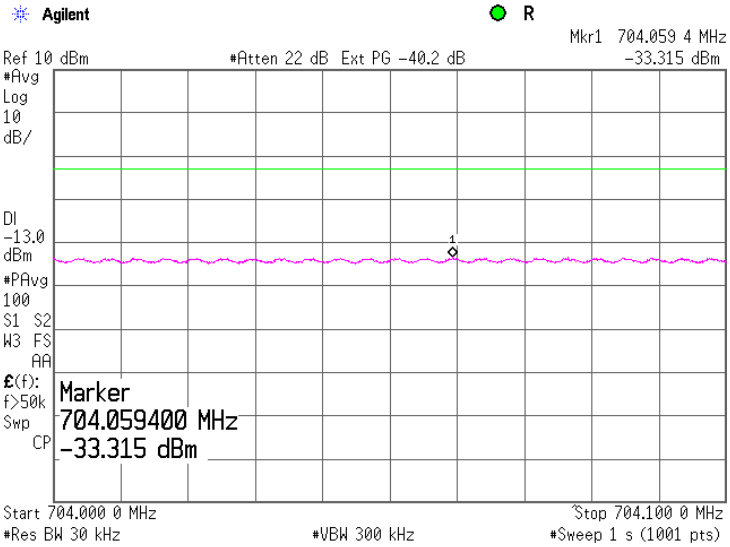
Frequency: 701.0 MHz
Band edge: 670.0 - 697.9 MHz
Modulation: DSSS 2.75 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

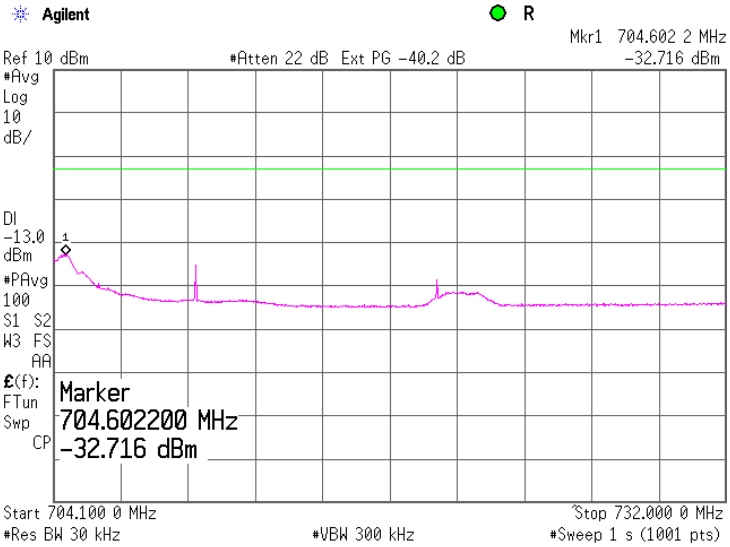
Plot 7.3.7 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 704.0 – 704.1 MHz
Modulation: DSSS 2.75 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.8 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

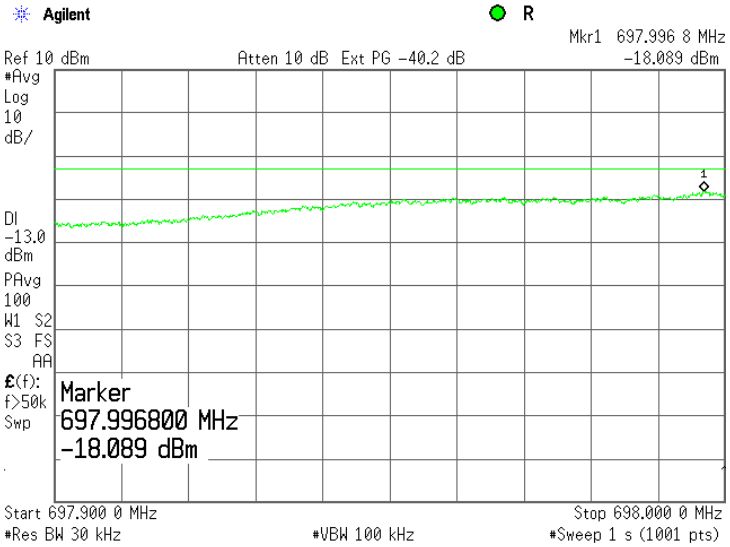
Frequency: 701.0 MHz
Band edge: 704.0 – 732.0 MHz
Modulation: DSSS 2.75 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

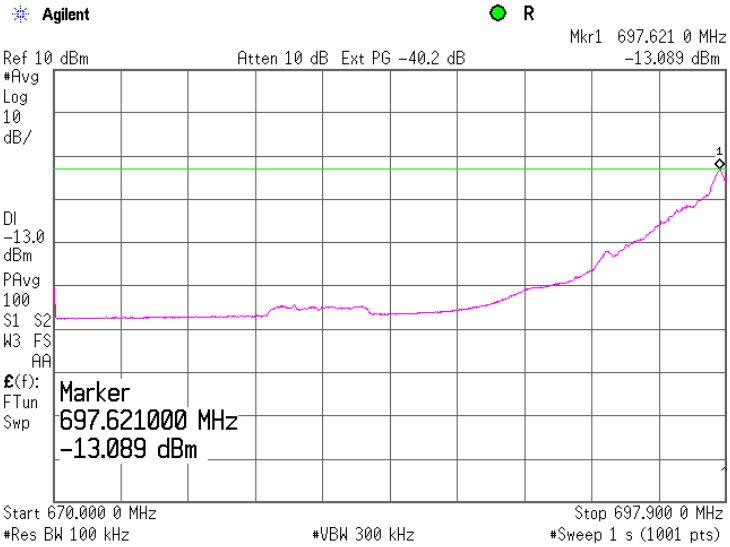
Plot 7.3.9 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.10 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

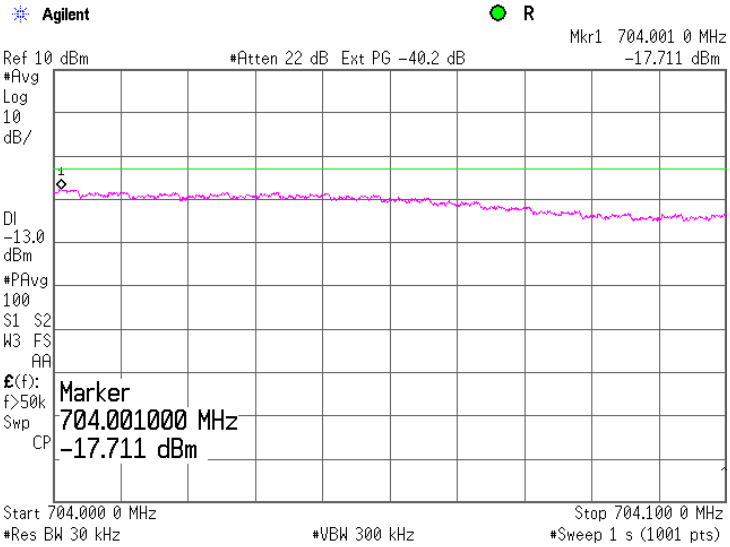
Frequency: 701.0 MHz
Band edge: 670.0 - 697.9 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

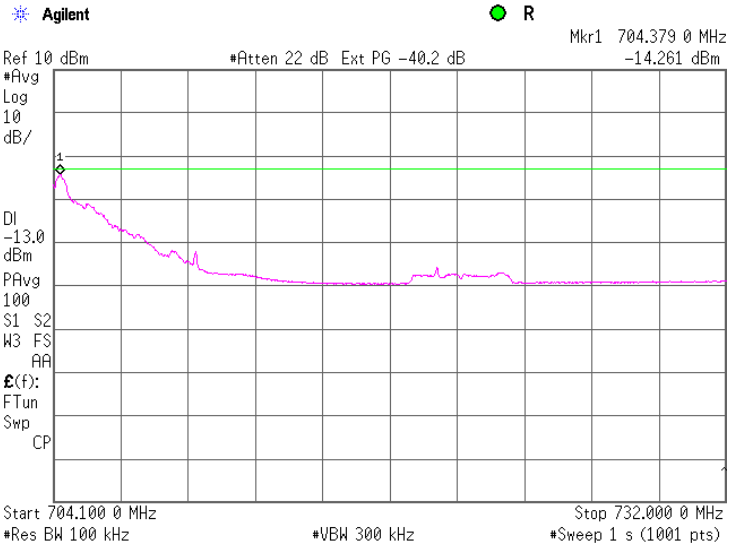
Plot 7.3.11 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 704.0 – 704.1 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.12 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

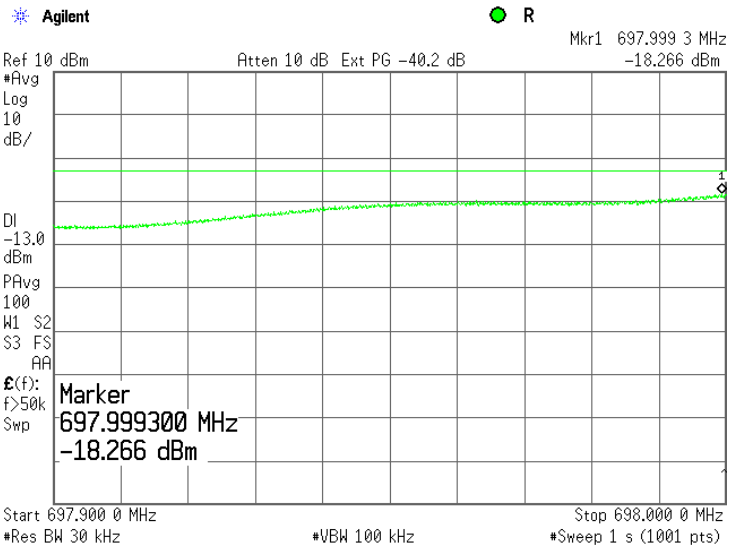
Frequency: 701.0 MHz
Band edge: 704.1 – 732.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

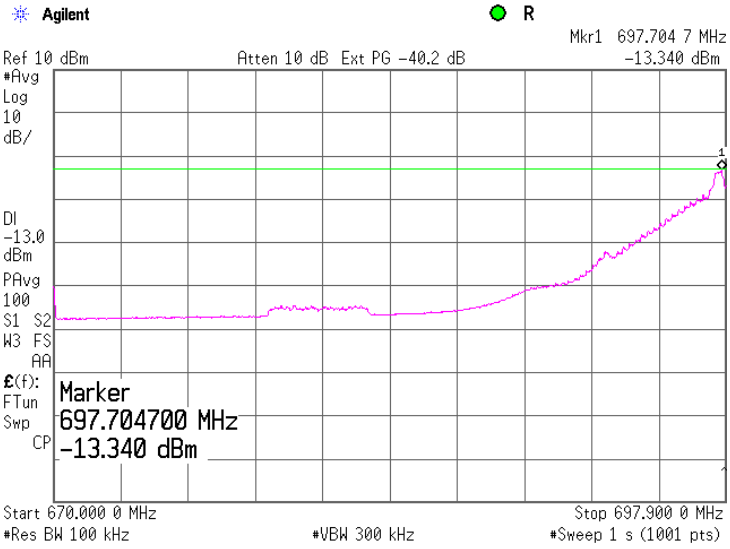
Plot 7.3.13 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.14 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

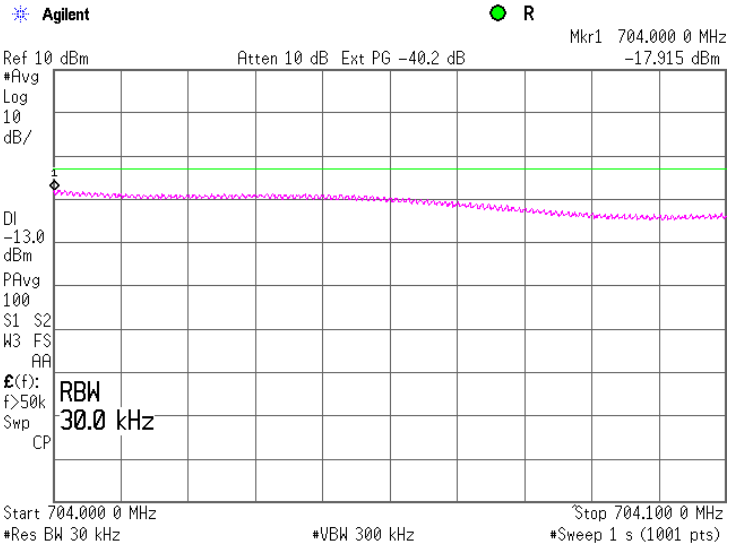
Frequency: 701.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

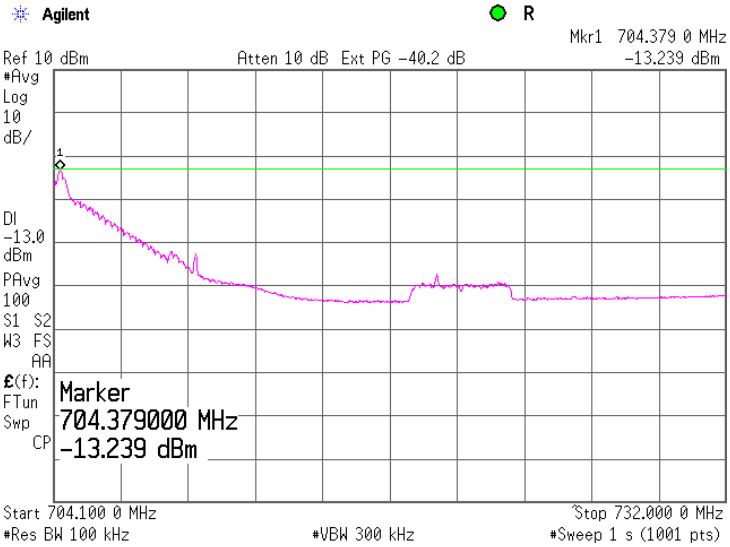
Plot 7.3.15 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 701.0 MHz
Band edge: 704.0 – 704.1 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.16 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

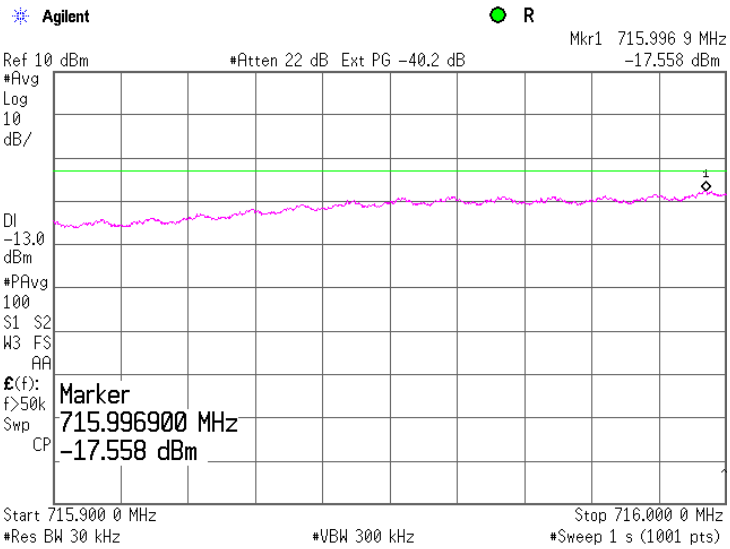
Frequency: 701.0 MHz
Band edge: 704.1 – 732.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

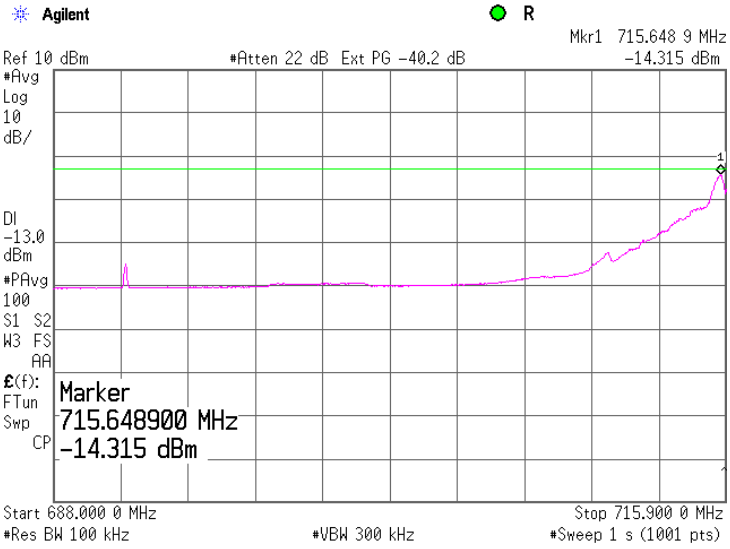
Plot 7.3.17 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 719.0 MHz
Band edge: 715.9 – 716.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.18 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

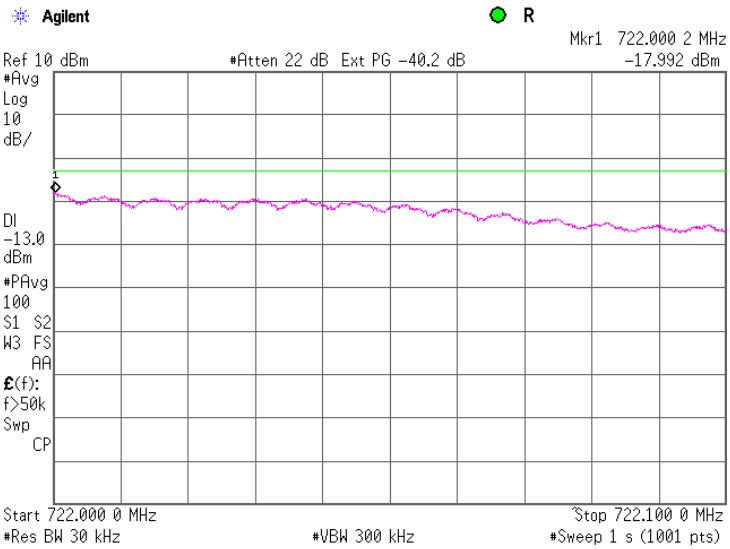
Frequency: 719.0 MHz
Band edge: 688.0 – 715.9 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

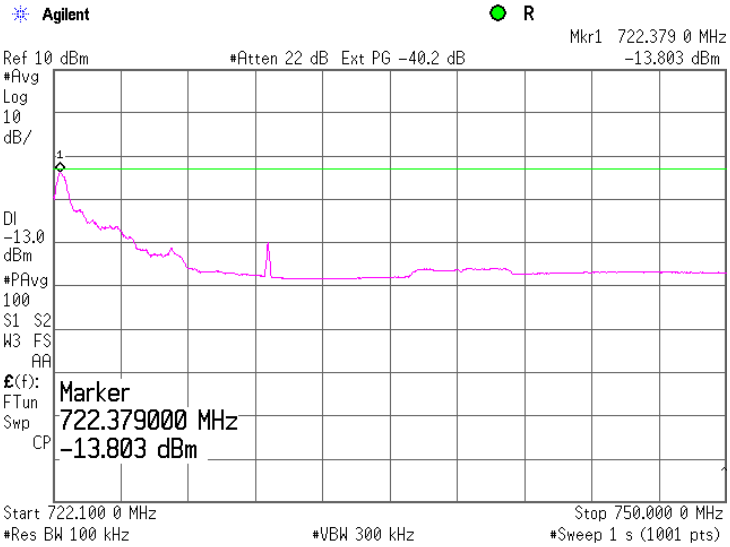
Plot 7.3.19 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 719.0 MHz
Band edge: 722.0 – 722.1 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.20 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

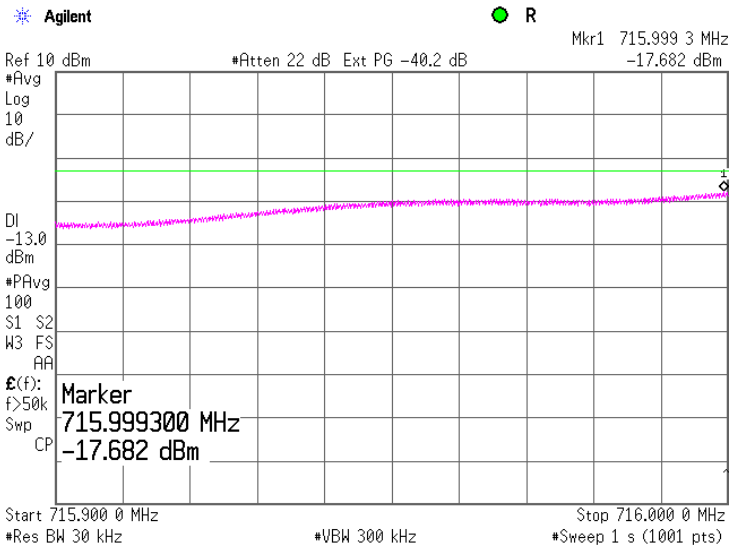
Frequency: 719.0 MHz
Band edge: 722.1 – 750.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

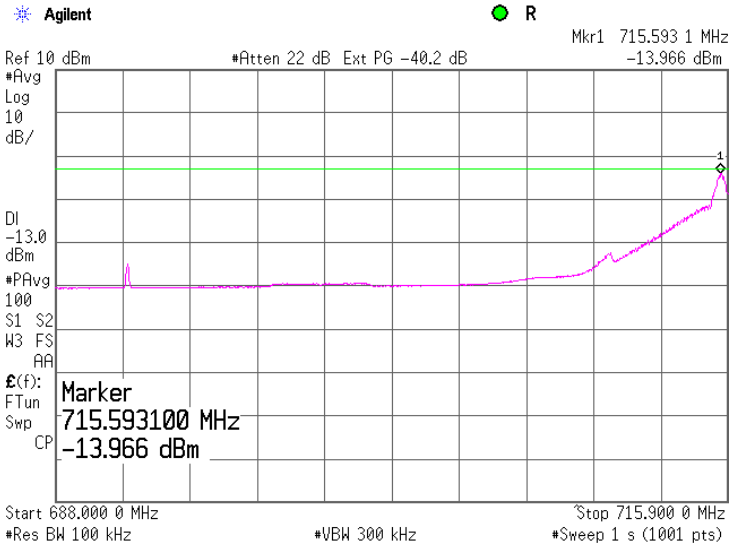
Plot 7.3.21 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 719.0 MHz
Band edge: 715.9 – 716.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.22 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

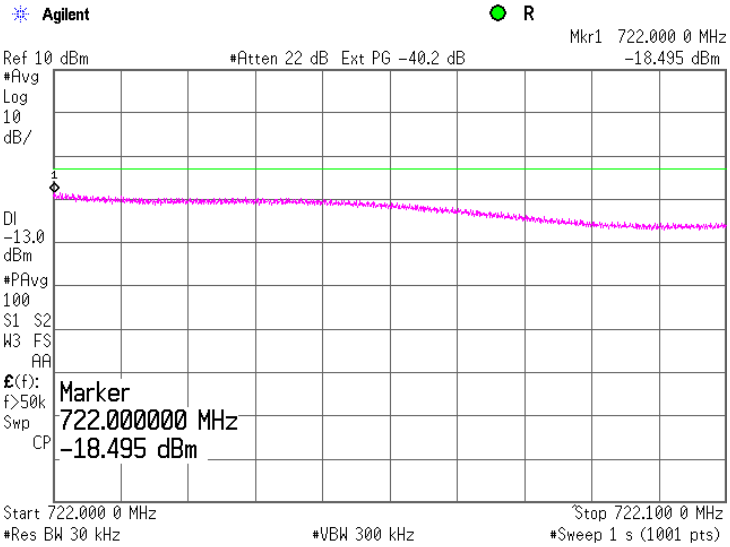
Frequency: 719.0 MHz
Band edge: 688.0 – 715.9 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

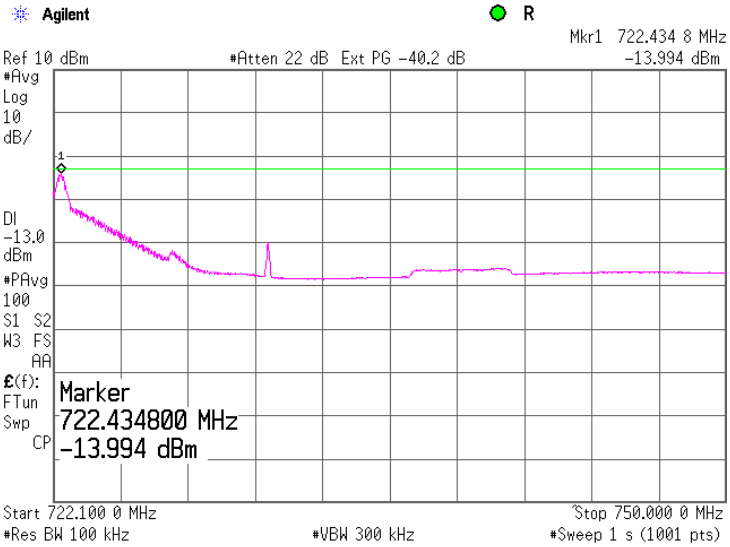
Plot 7.3.23 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 719.0 MHz
Band edge: 722.0 – 722.1 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.24 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

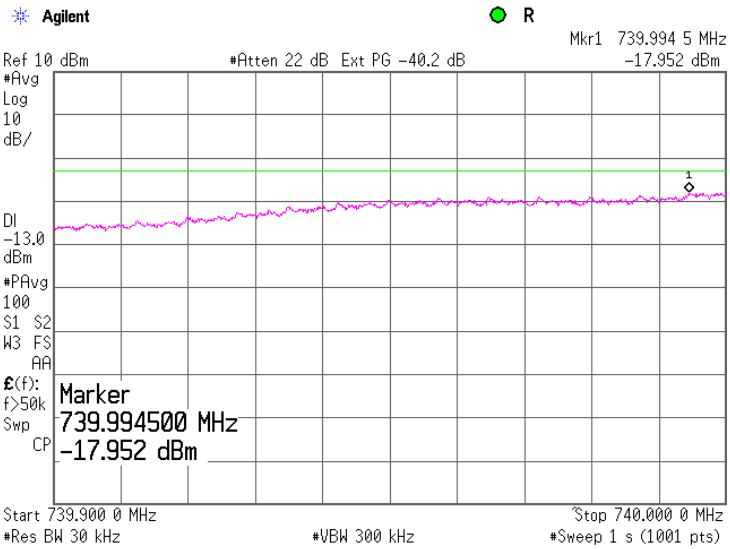
Frequency: 719.0 MHz
Band edge: 722.1 – 750.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

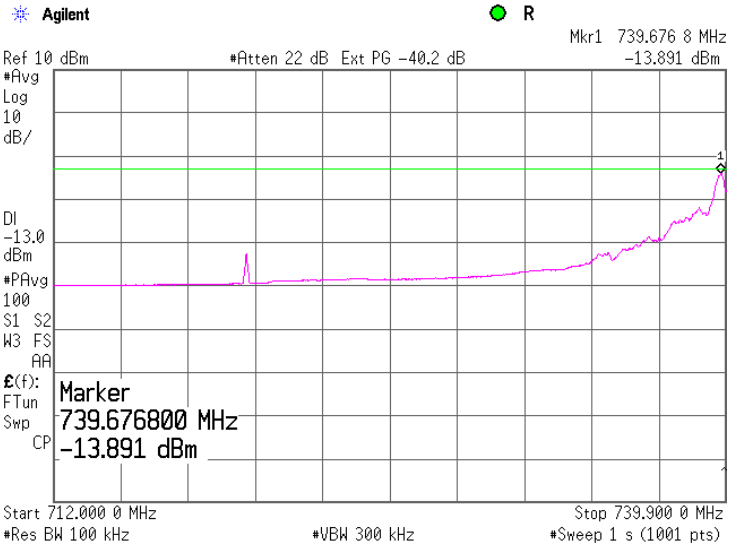
Plot 7.3.25 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 743.0 MHz
Band edge: 739.9 – 740.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.26 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

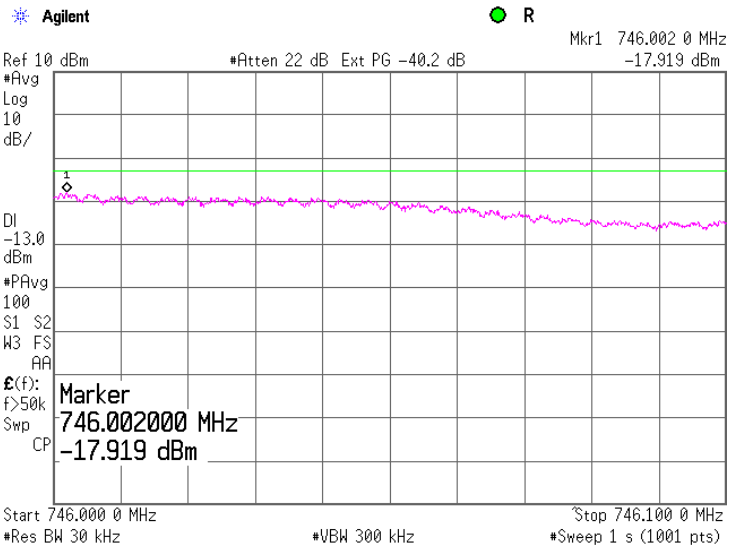
Frequency: 743.0 MHz
Band edge: 712.0 – 739.9 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

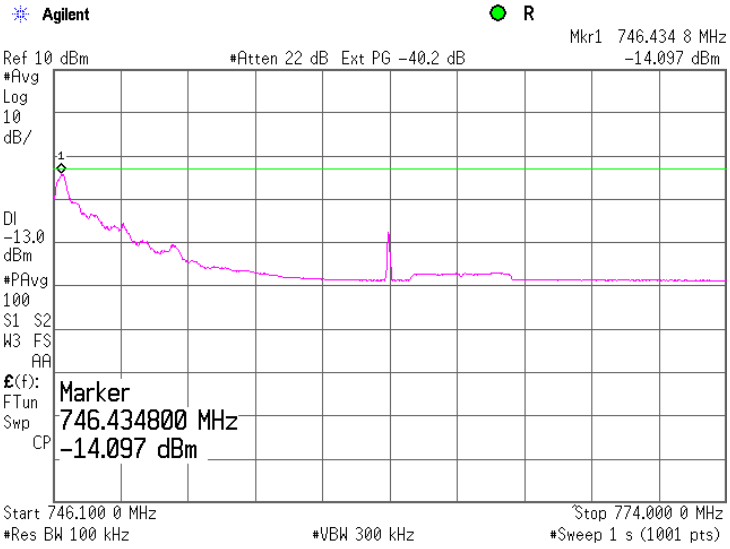
Plot 7.3.27 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 743.0 MHz
Band edge: 746.0 – 746.1 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.28 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

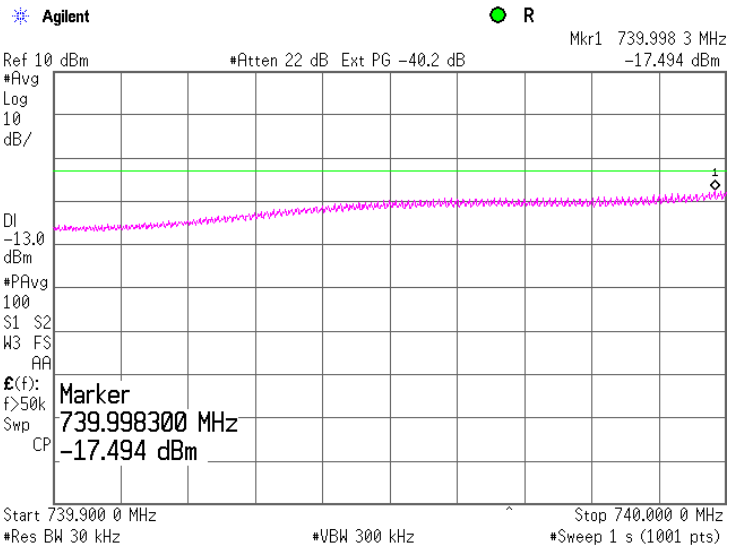
Frequency: 743.0 MHz
Band edge: 746.1 – 774.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

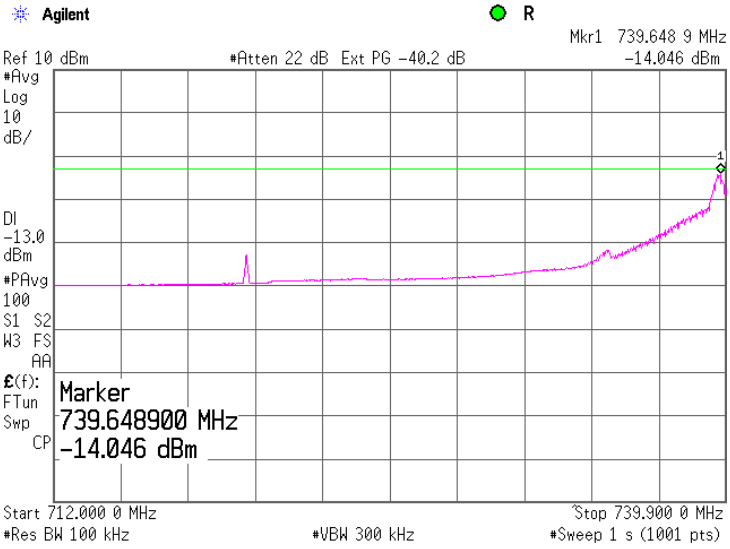
Plot 7.3.29 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 743.0 MHz
Band edge: 739.9 – 740.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.30 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

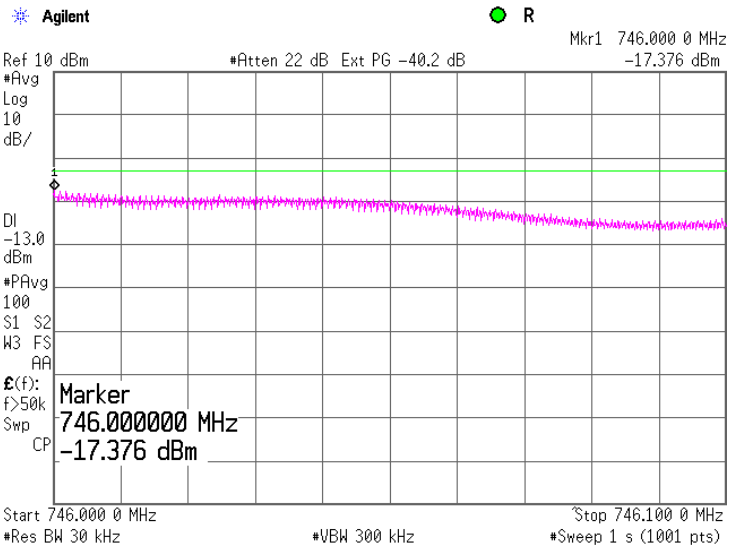
Frequency: 743.0 MHz
Band edge: 712.0 – 739.9 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

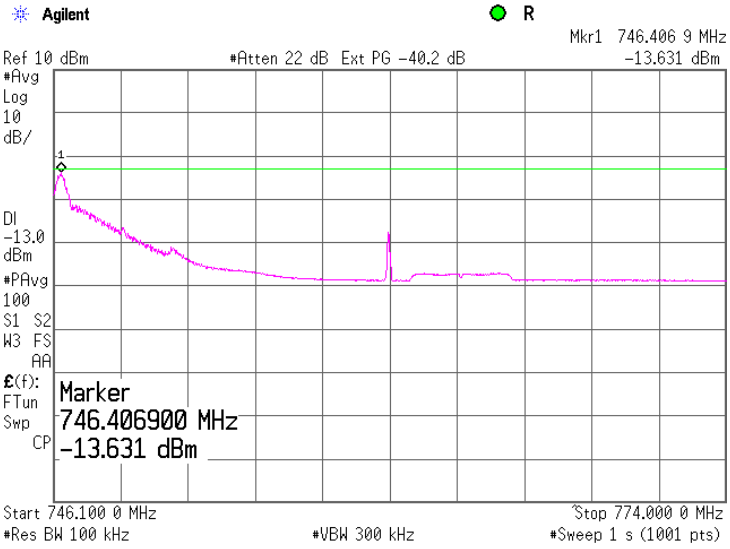
Plot 7.3.31 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 743.0 MHz
Band edge: 746.0 – 746.1 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.32 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

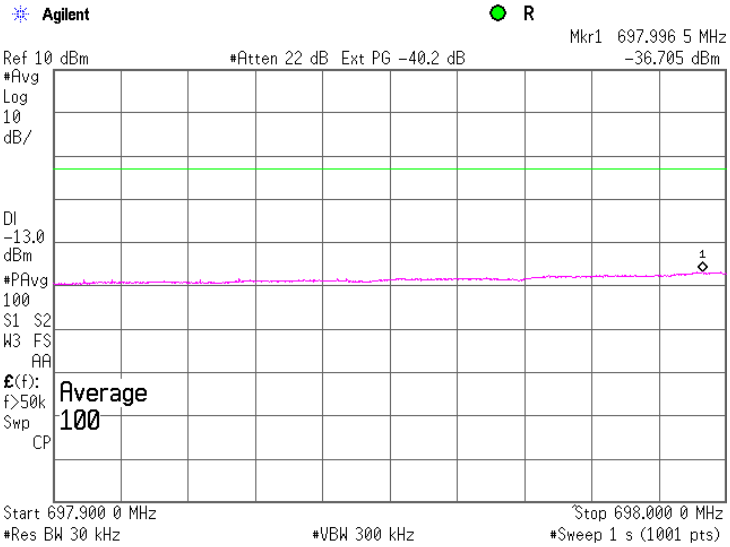
Frequency: 743.0 MHz
Band edge: 746.1 – 774.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

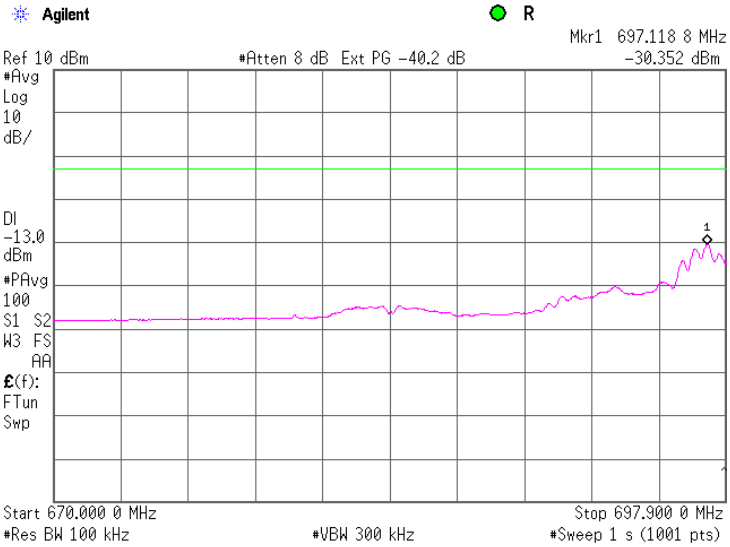
Plot 7.3.33 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: DSSS 0.5 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.34 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

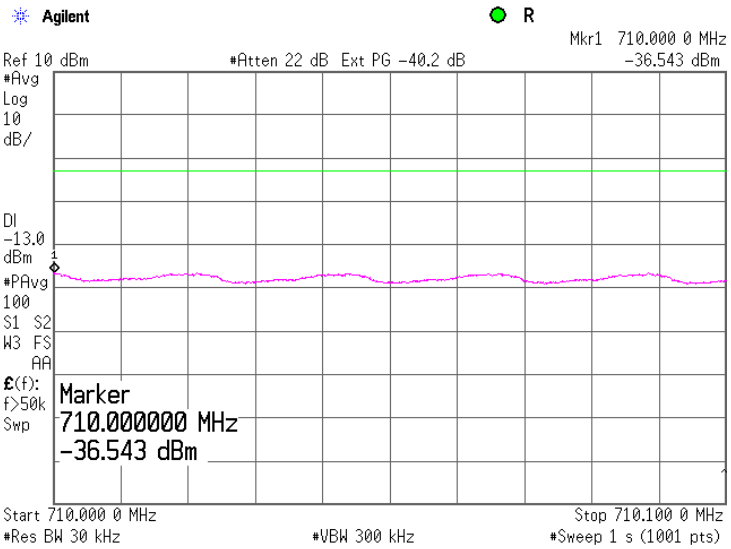
Frequency: 704.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: DSSS 0.5 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

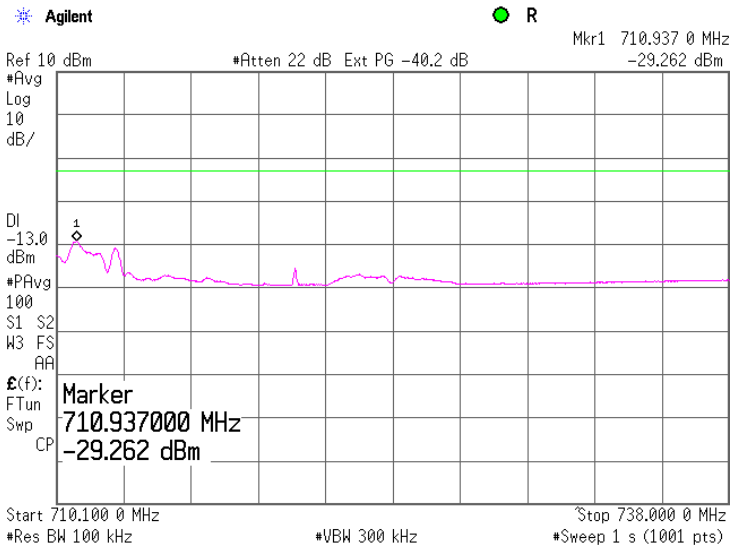
Plot 7.3.35 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 710.0 – 710.1 MHz
Modulation: DSSS 0.5 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.36 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

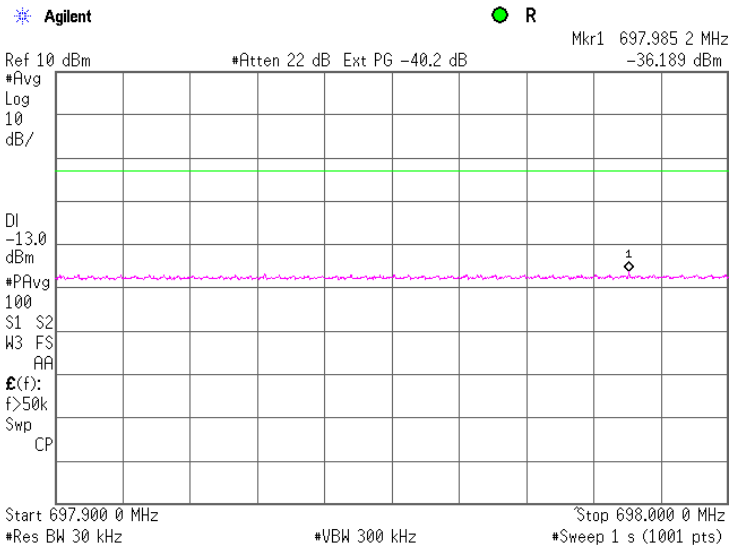
Frequency: 704.0 MHz
Band edge: 710.1 – 738.0 MHz
Modulation: DSSS 0.5 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

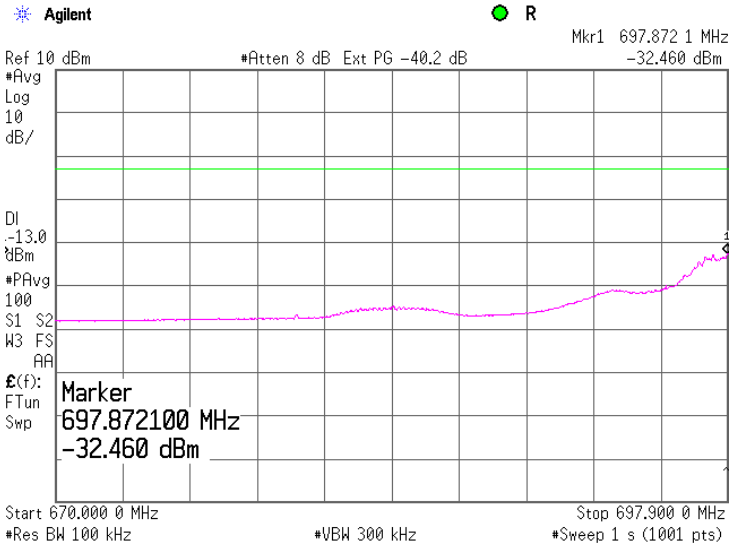
Plot 7.3.37 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: DSSS 5.5 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.38 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

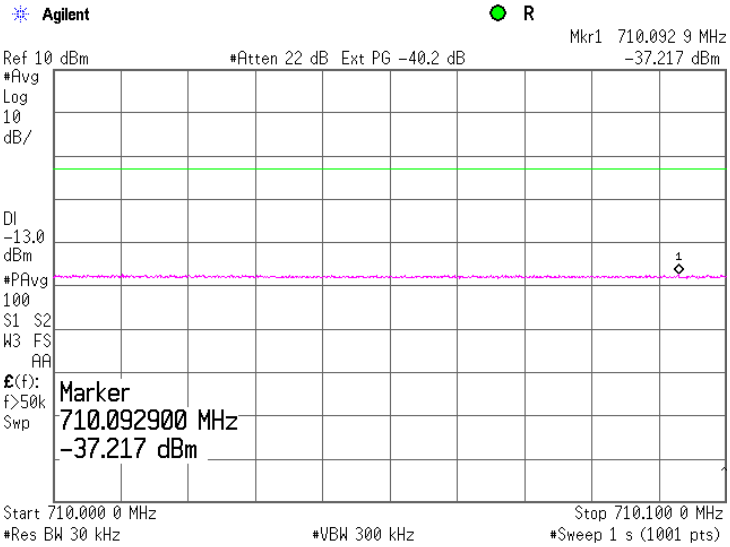
Frequency: 704.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: DSSS 5.5 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

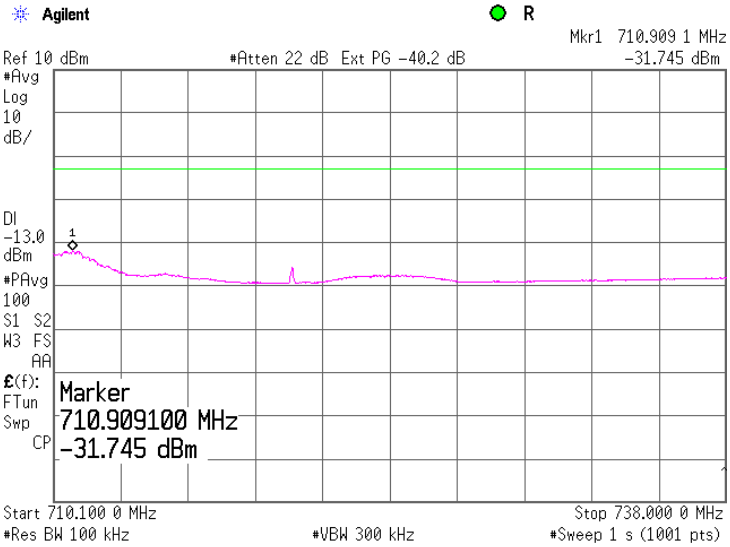
Plot 7.3.39 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 710.0 – 710.1 MHz
Modulation: DSSS 5.5 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.40 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

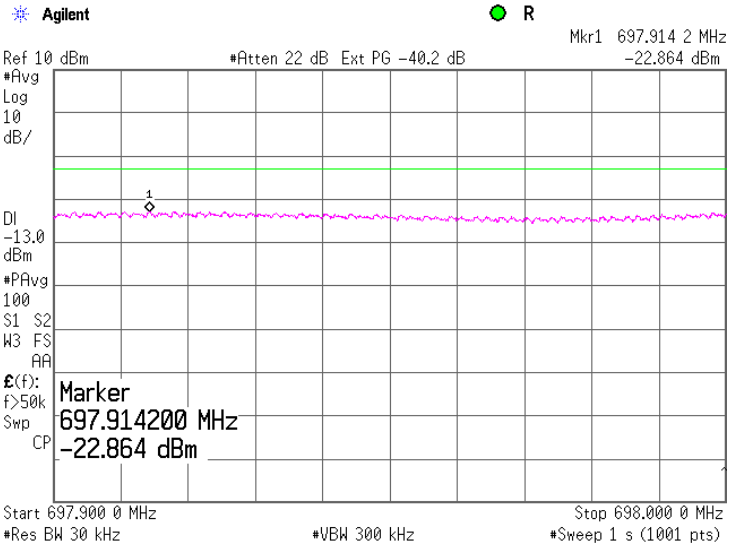
Frequency: 704.0 MHz
Band edge: 710.1 – 738.0 MHz
Modulation: DSSS 5.5 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

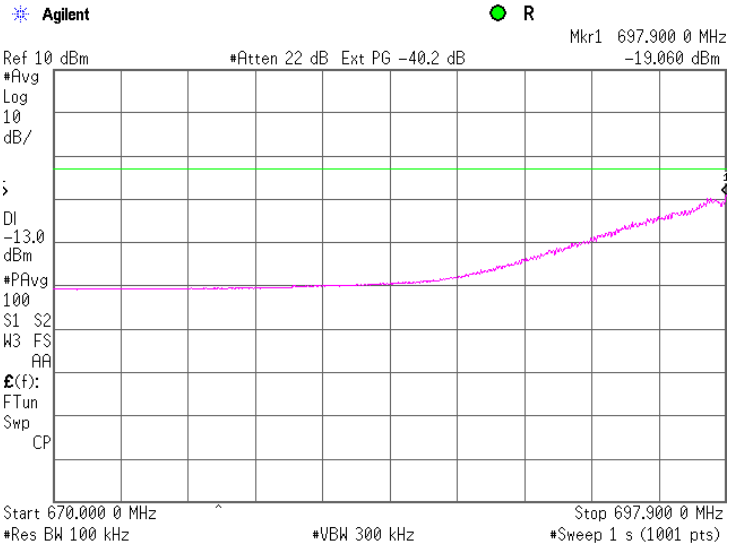
Plot 7.3.41 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.42 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

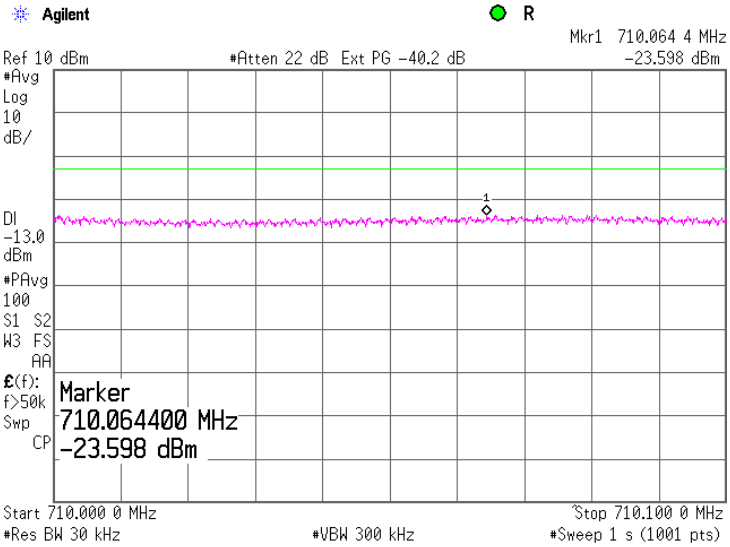
Frequency: 704.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

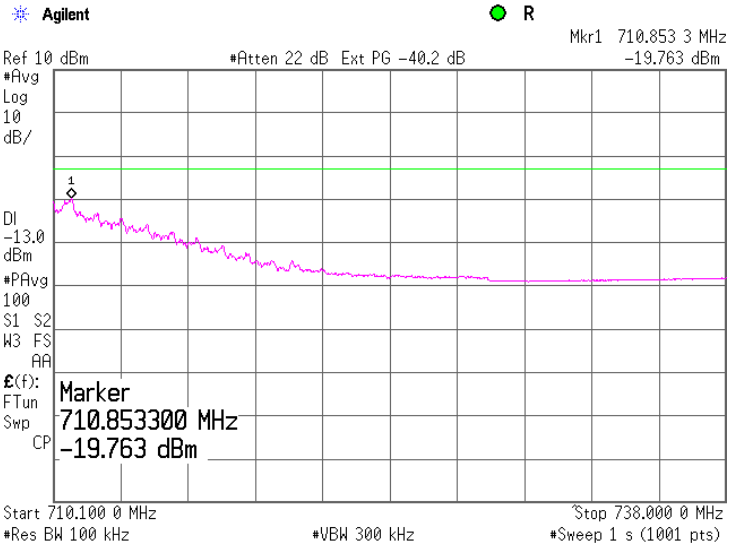
Plot 7.3.43 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 710.0 – 710.1 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.44 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

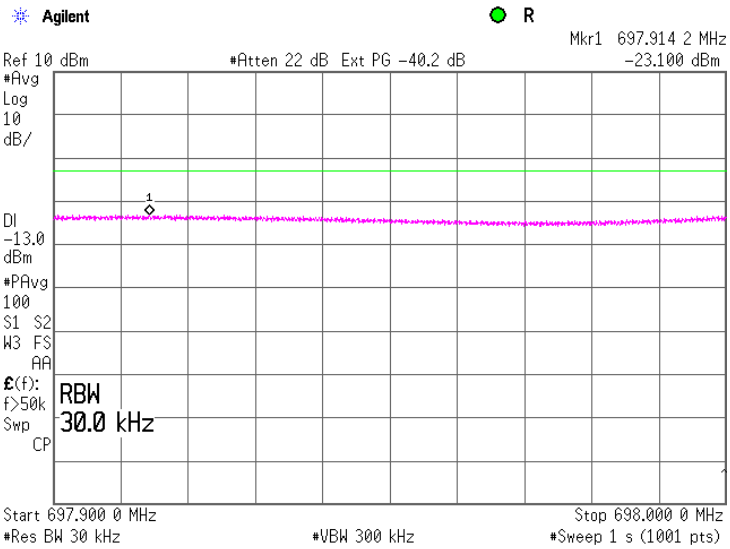
Frequency: 704.0 MHz
Band edge: 710.1 – 738.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

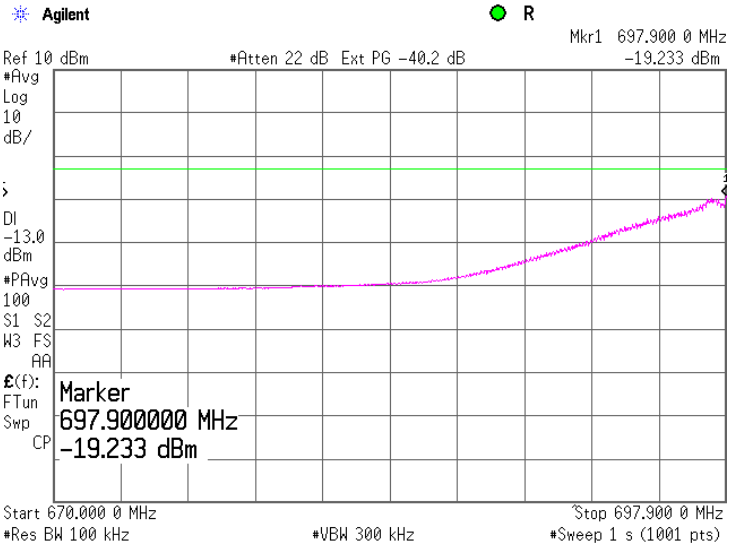
Plot 7.3.45 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.46 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

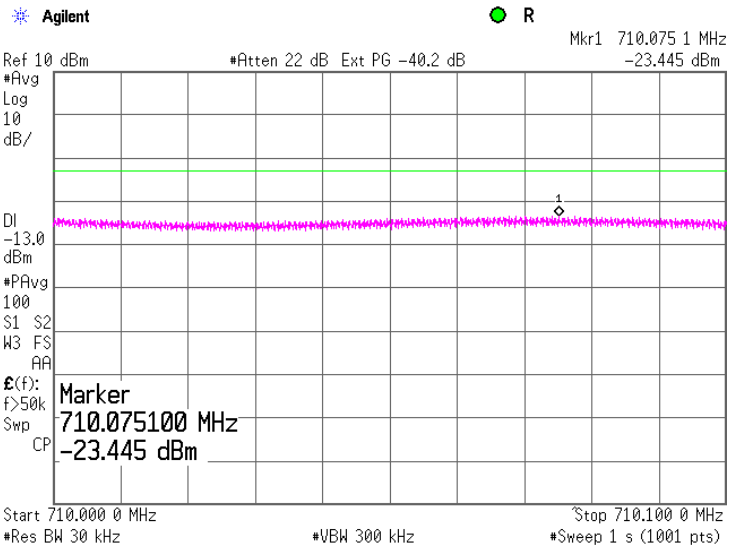
Frequency: 704.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

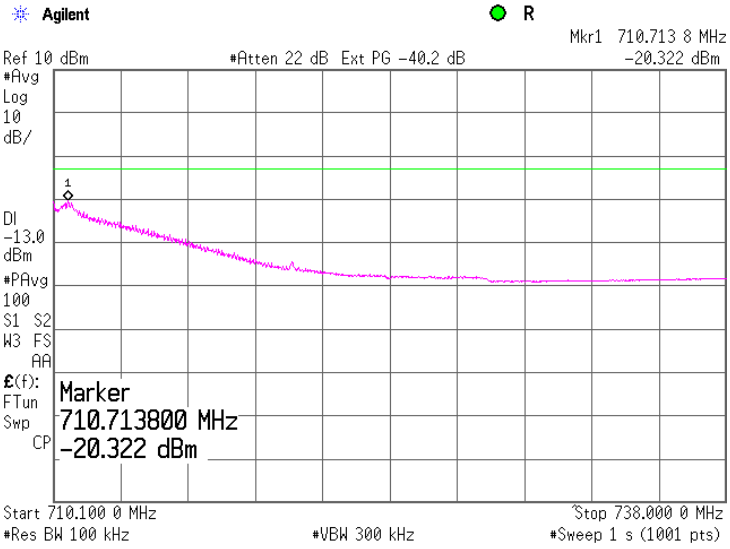
Plot 7.3.47 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 704.0 MHz
Band edge: 710.0 – 710.1 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.48 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

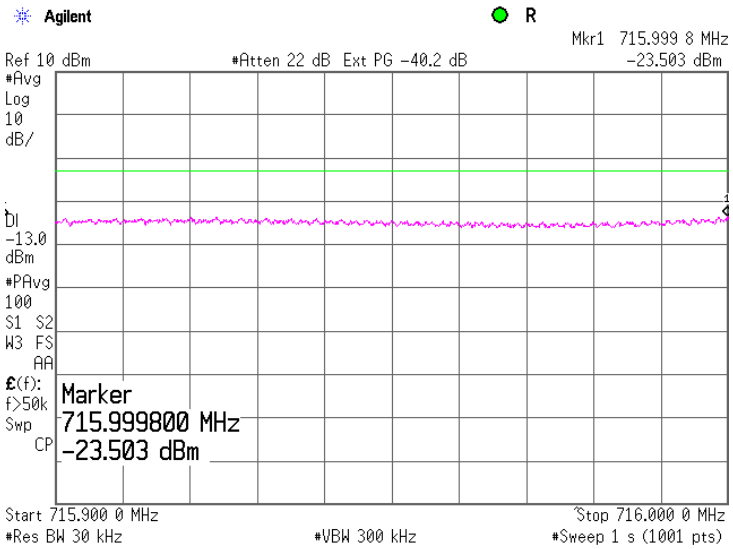
Frequency: 704.0 MHz
Band edge: 710.1 – 738.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

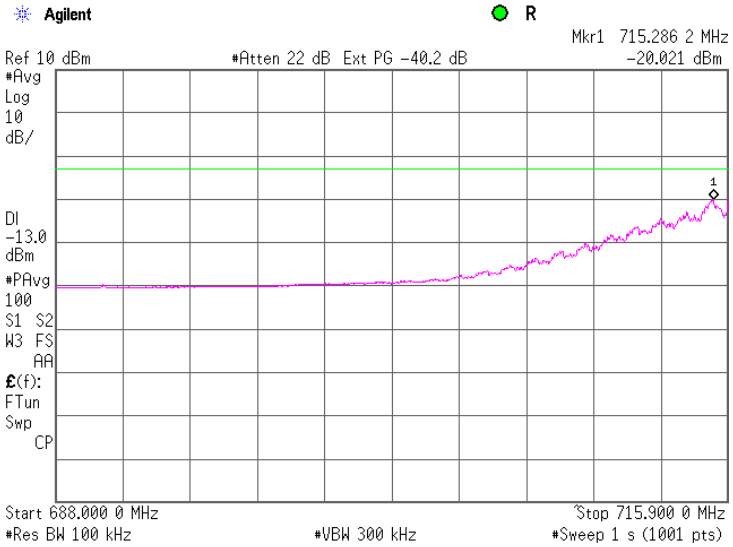
Plot 7.3.49 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 715.9 – 716.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.50 Spurious emissions at RF antenna connector, low band edge measurement, combined outputs

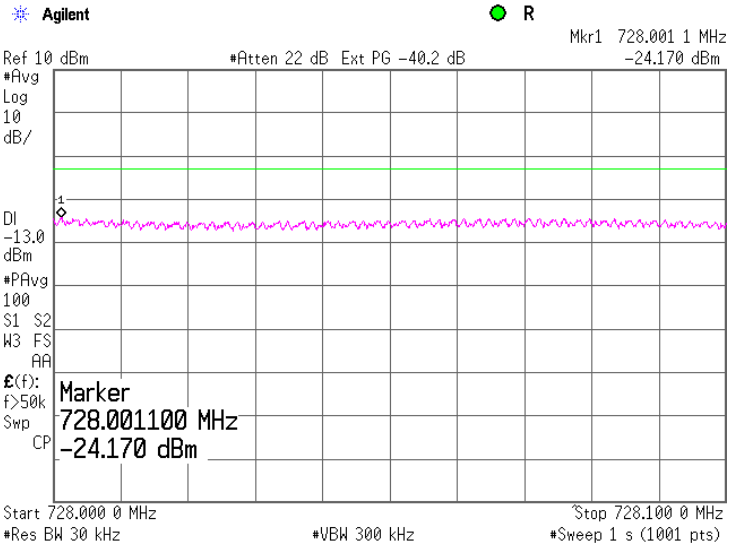
Frequency: 722.0 MHz
Band edge: 688.0 – 715.9 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

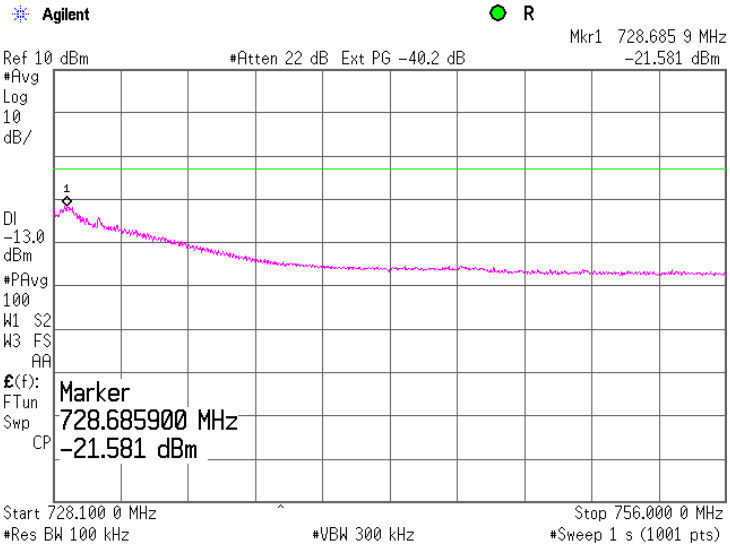
Plot 7.3.51 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 728.0 – 728.1 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.52 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

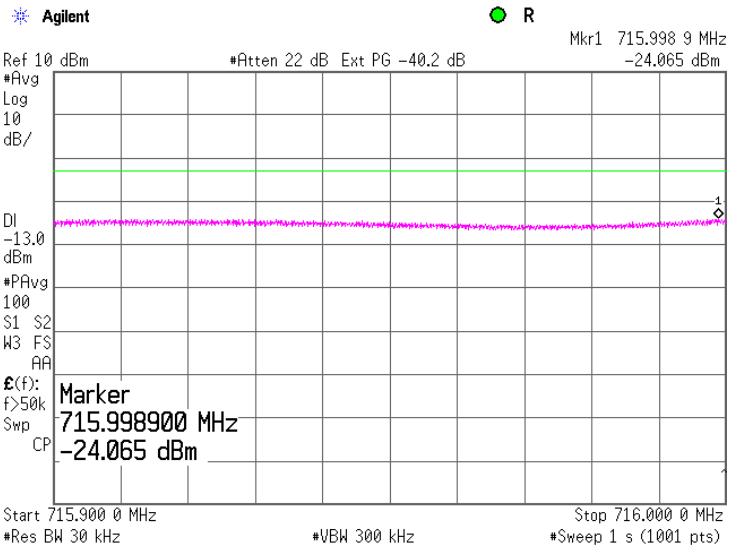
Frequency: 722.0 MHz
Band edge: 728.1 – 756.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

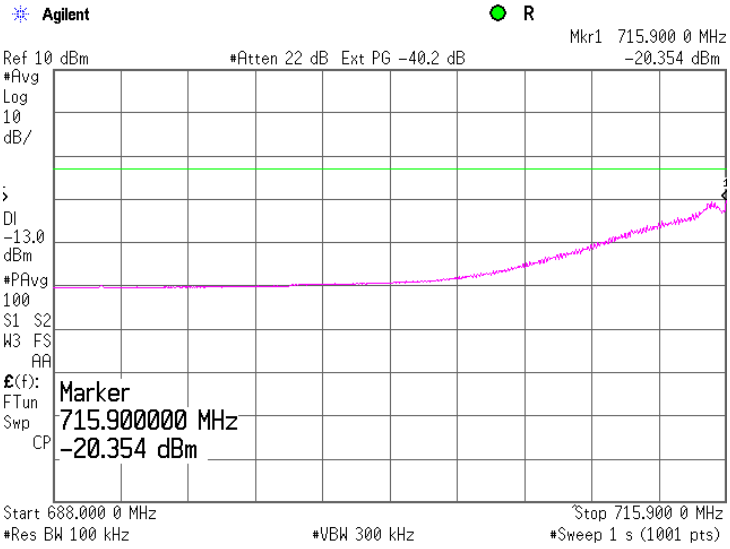
Plot 7.3.53 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 715.9 – 716.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.54 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

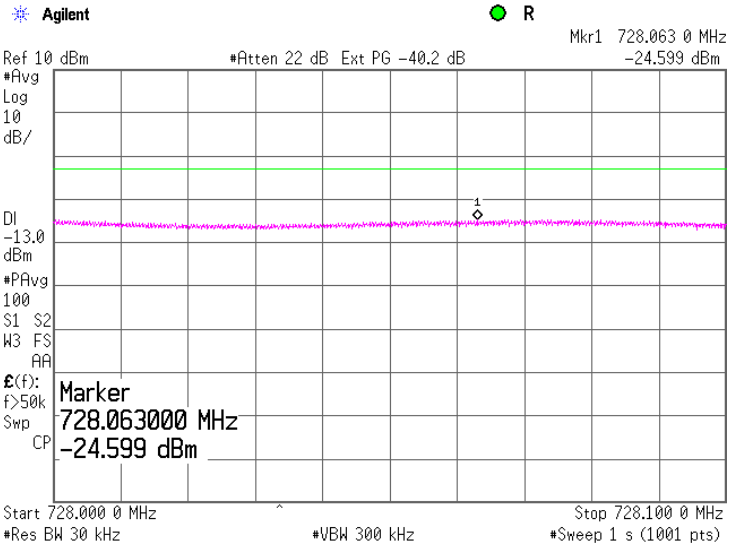
Frequency: 722.0 MHz
Band edge: 688.0 – 715.9 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

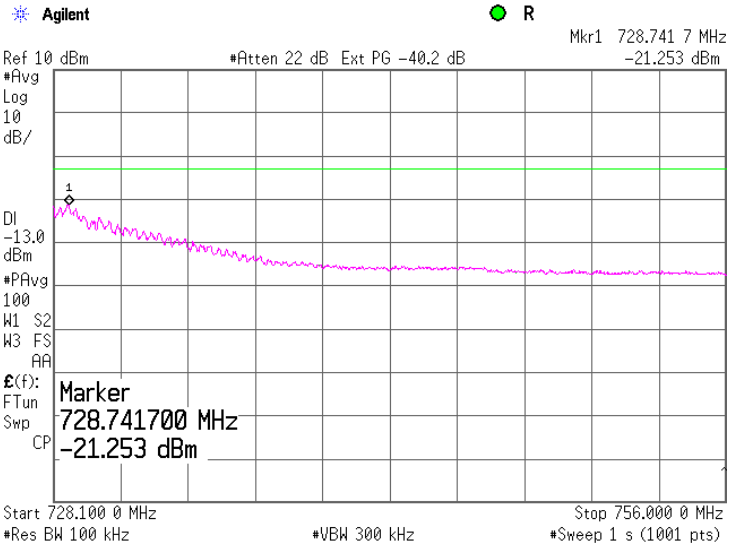
Plot 7.3.55 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 728.0 – 728.1 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.56 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

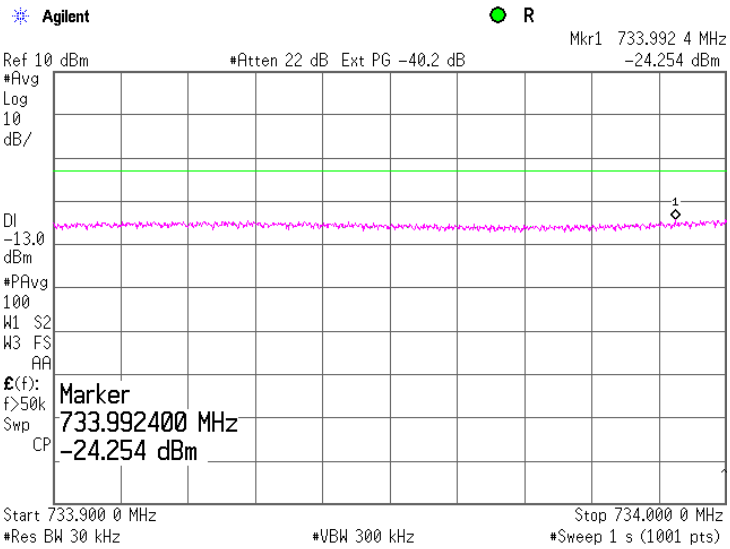
Frequency: 722.0 MHz
Band edge: 728.1 – 756.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

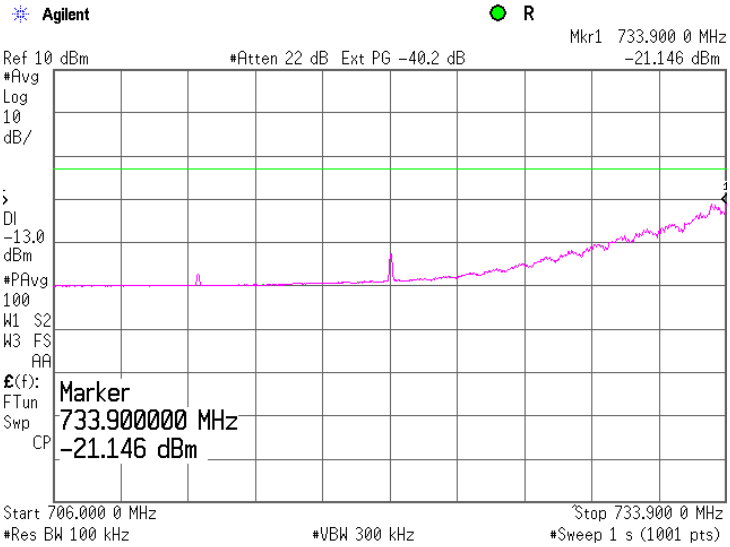
Plot 7.3.57 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 740.0 MHz
Band edge: 733.9 – 734.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.58 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

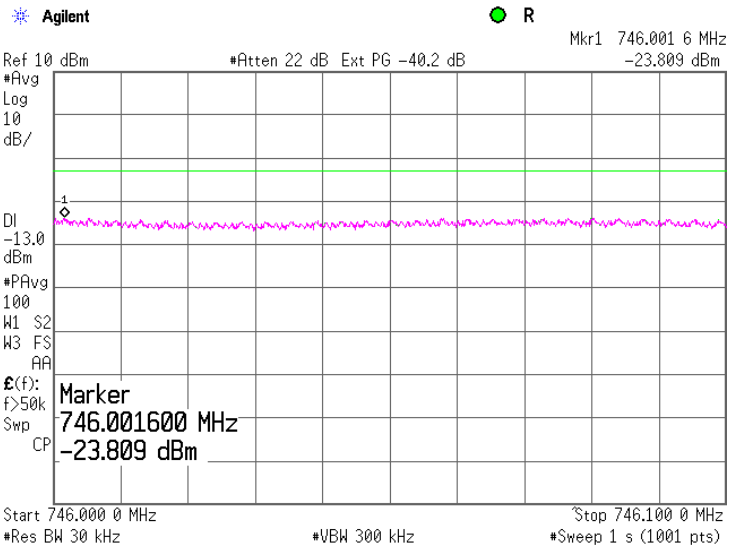
Frequency: 740.0 MHz
Band edge: 706.0 – 733.9 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

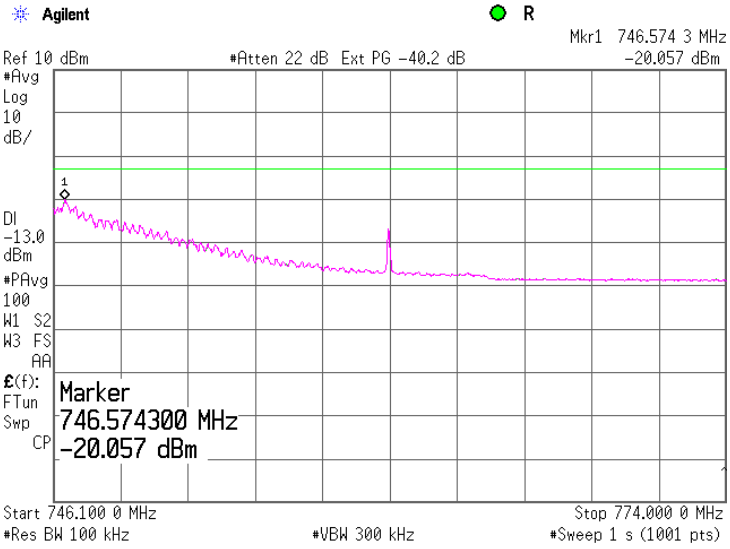
Plot 7.3.59 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 740.0 MHz
Band edge: 746.0 – 746.1 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.60 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

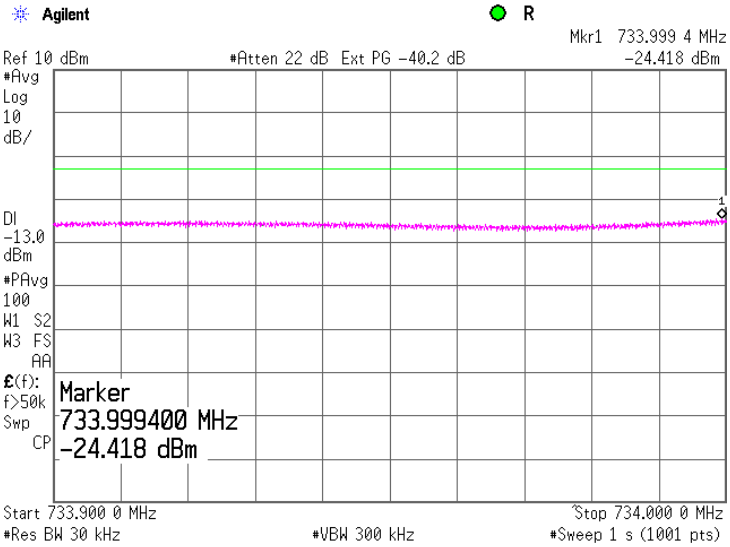
Frequency: 740.0 MHz
Band edge: 746.1 – 774.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

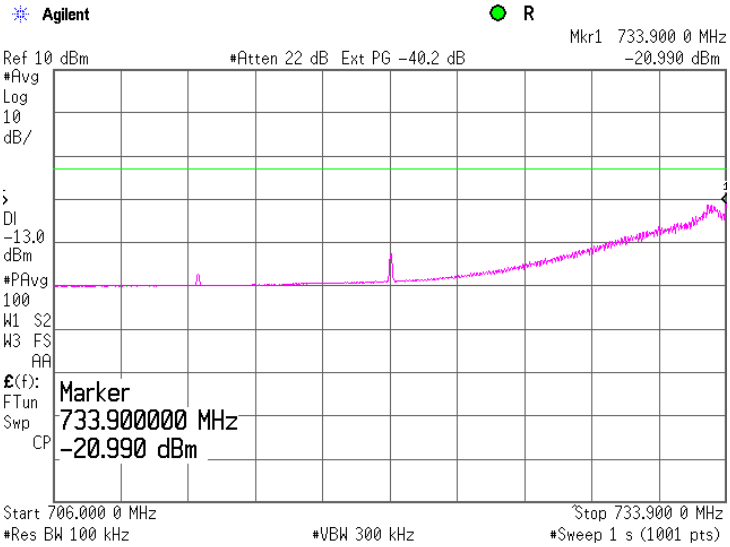
Plot 7.3.61 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 740.0 MHz
Band edge: 733.9 – 734.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.62 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

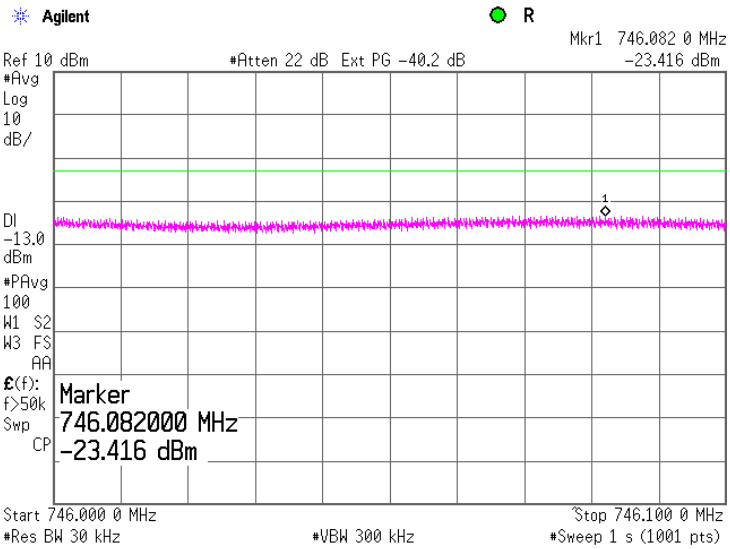
Frequency: 740.0 MHz
Band edge: 706.0 – 733.9 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

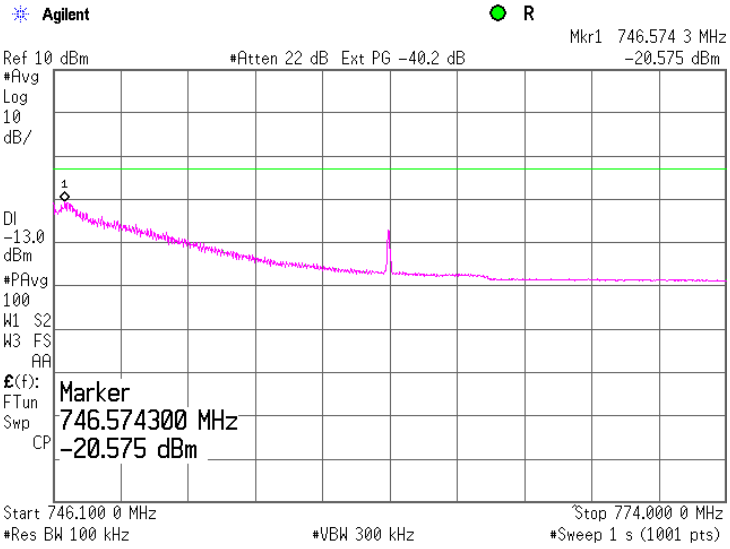
Plot 7.3.63 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 740.0 MHz
Band edge: 746.0 – 746.1 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.64 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

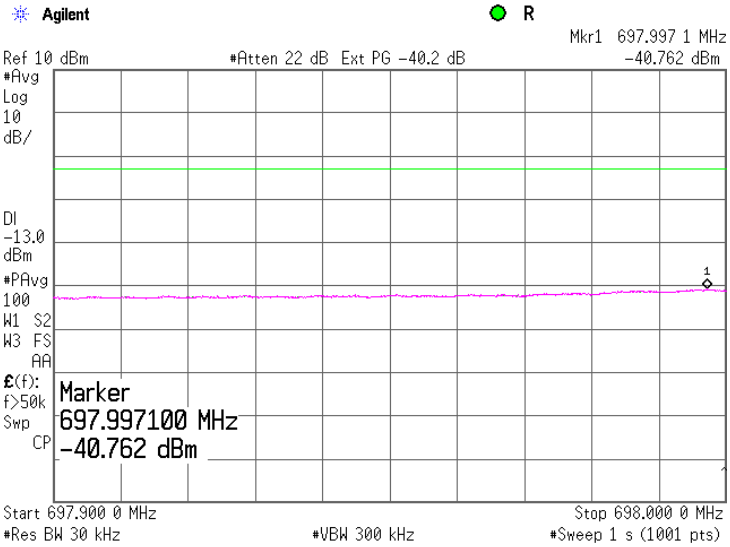
Frequency: 740.0 MHz
Band edge: 746.1 – 774.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

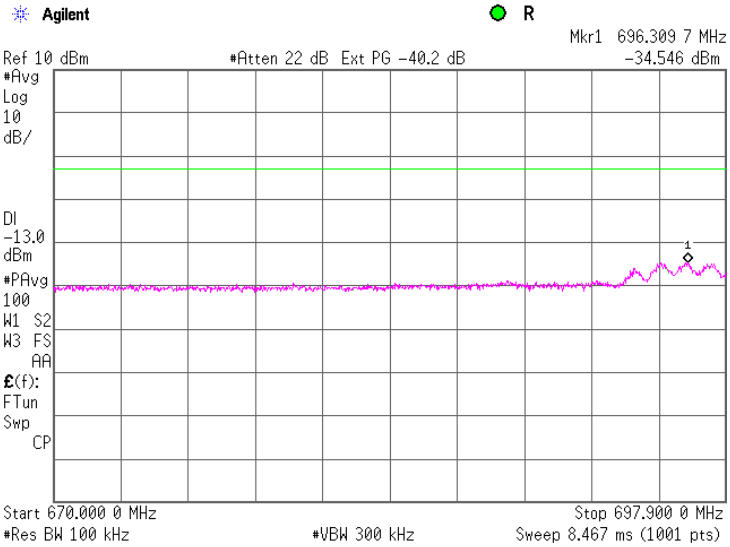
Plot 7.3.65 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: DSSS 1 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.66 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

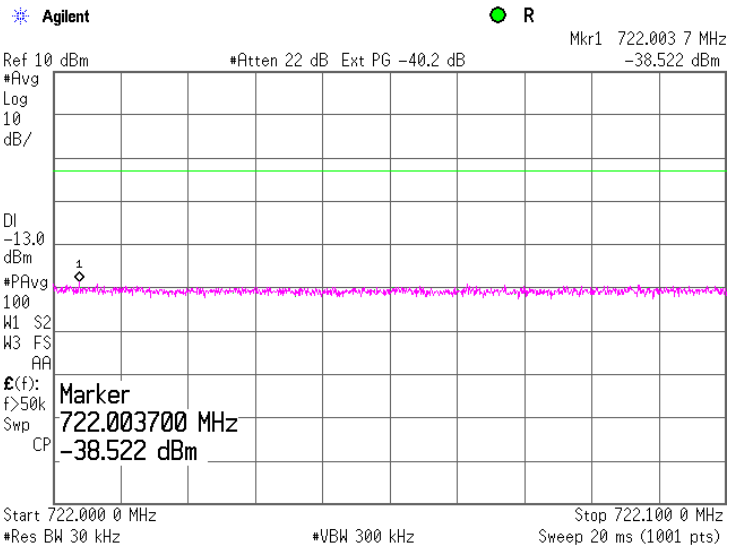
Frequency: 710.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: DSSS 1 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

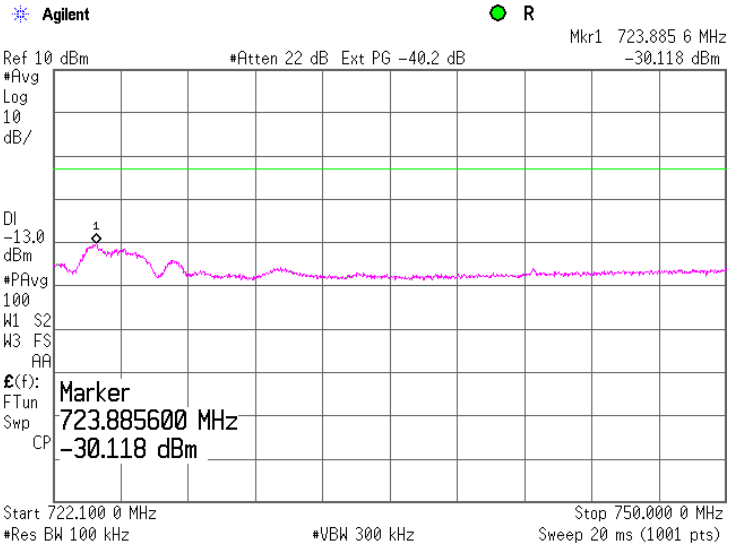
Plot 7.3.67 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 722.0 – 722.1 MHz
Modulation: DSSS 1 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.68 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

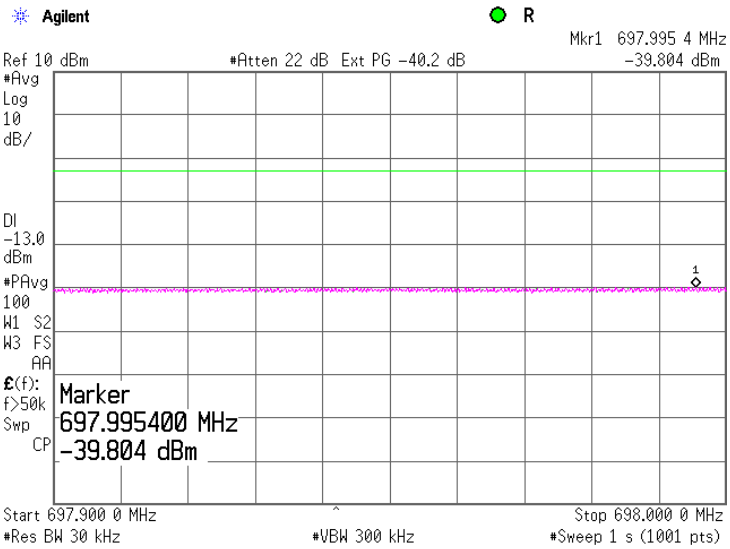
Frequency: 710.0 MHz
Band edge: 722.1 – 750.0 MHz
Modulation: DSSS 1 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

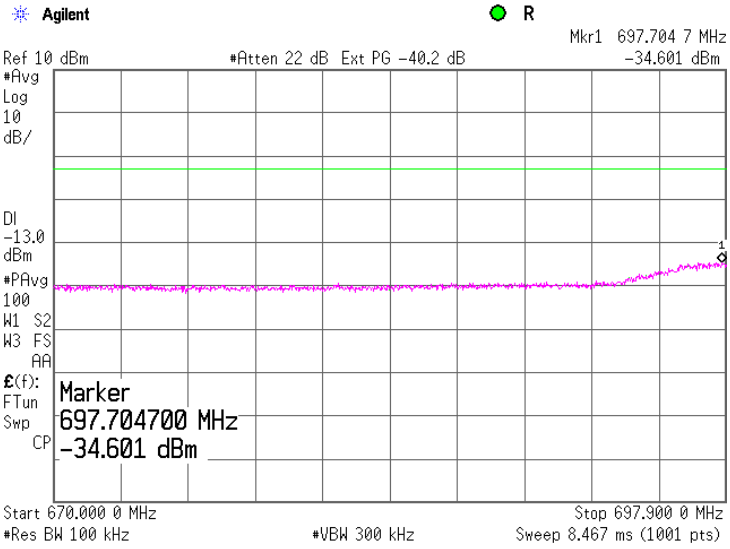
Plot 7.3.69 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: DSSS 11 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.70 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

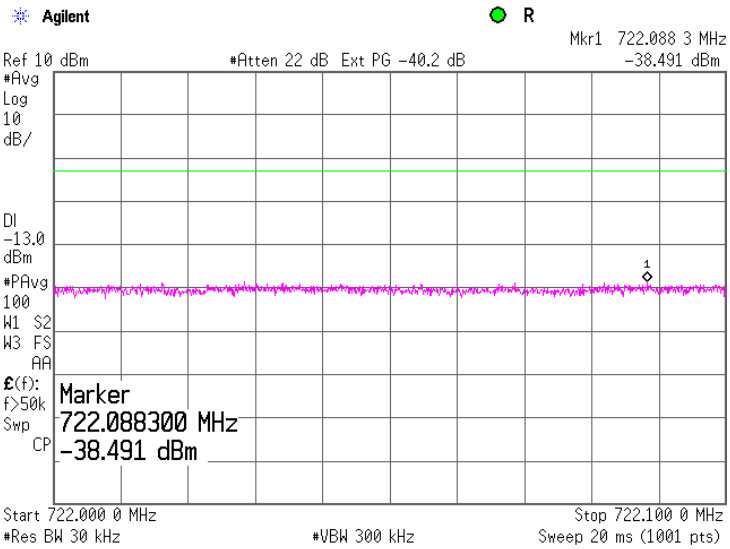
Frequency: 710.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: DSSS 11 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

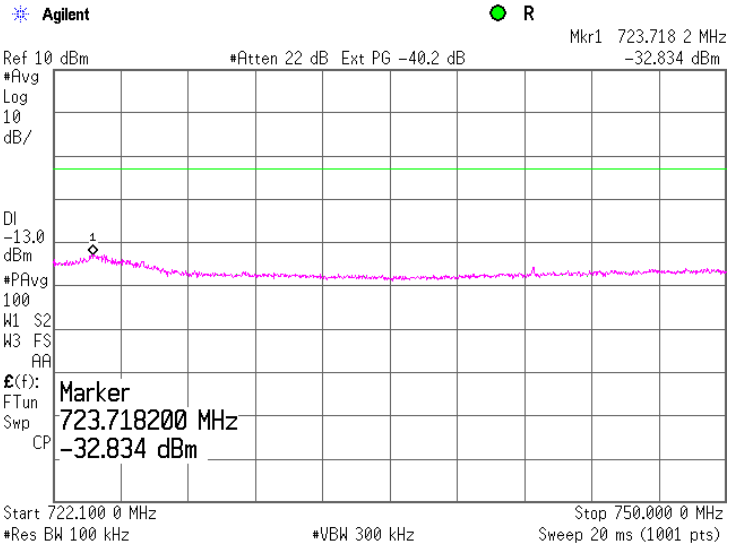
Plot 7.3.71 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 722.0 – 722.1 MHz
Modulation: DSSS 11 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.72 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

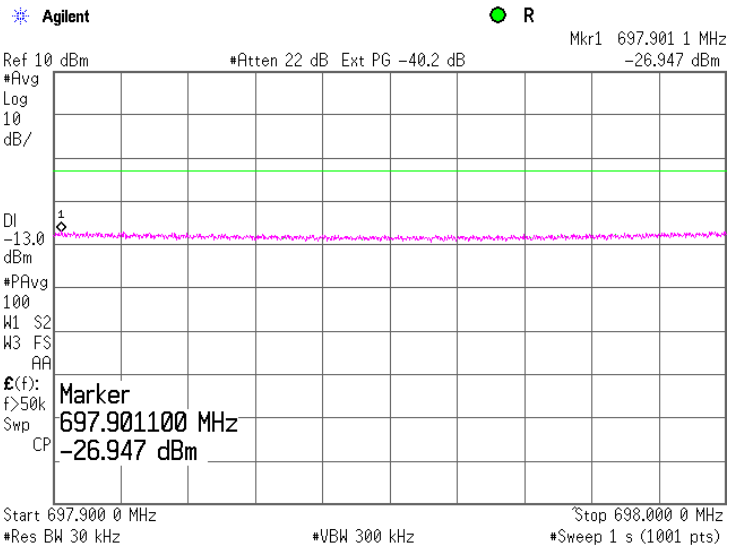
Frequency: 710.0 MHz
Band edge: 722.1 – 750.0 MHz
Modulation: DSSS 11 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

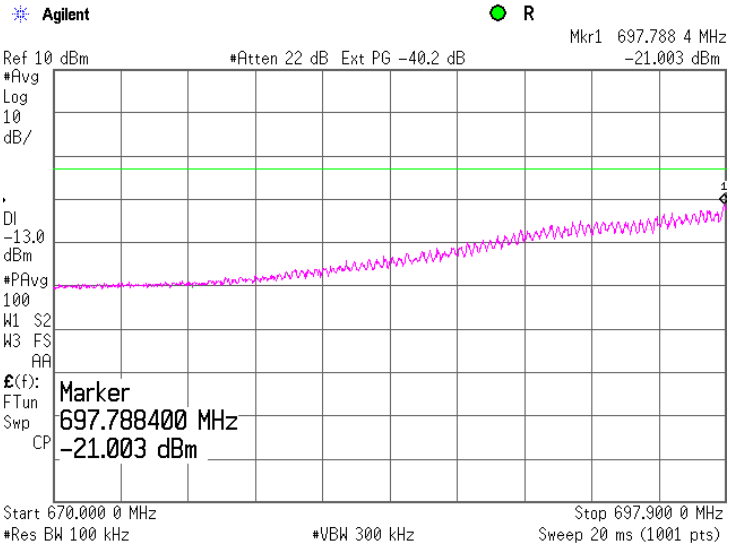
Plot 7.3.73 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.74 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

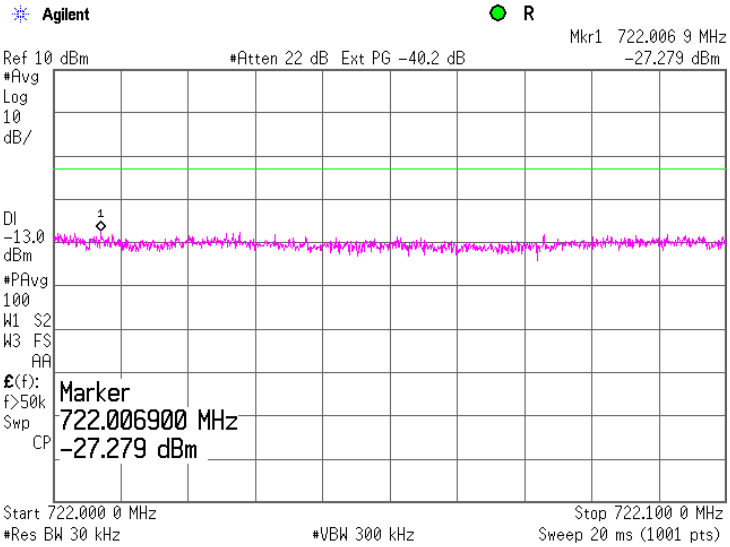
Frequency: 710.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

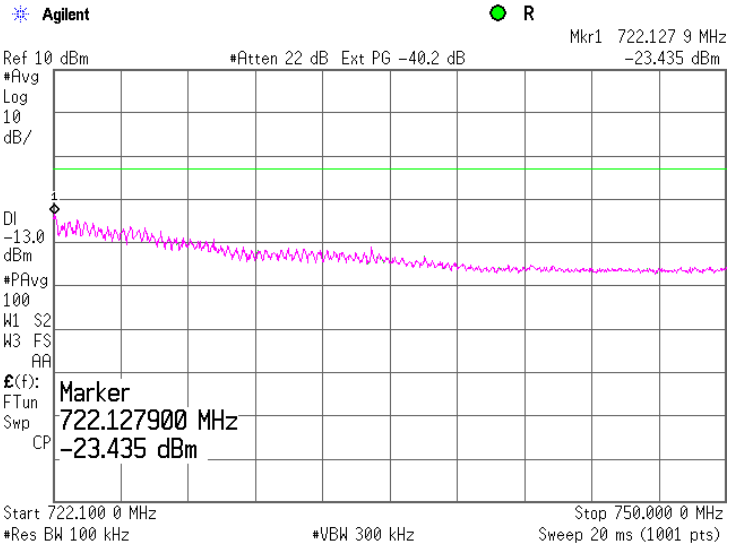
Plot 7.3.75 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 722.0 – 722.1 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.76 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

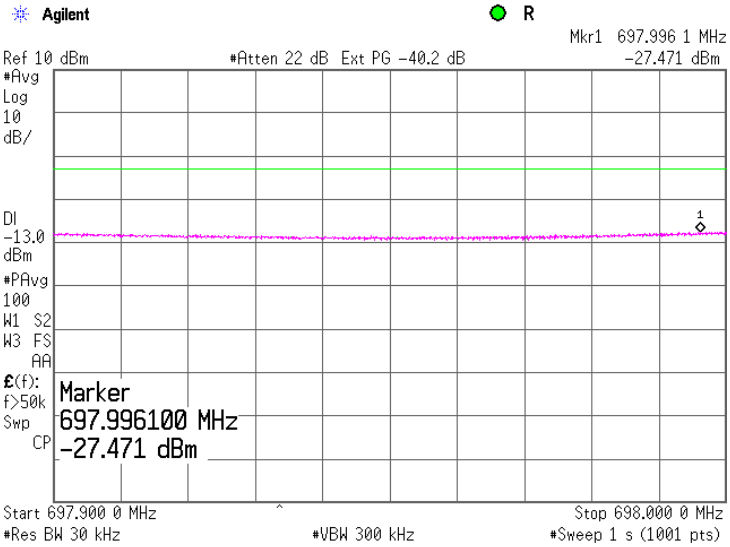
Frequency: 710.0 MHz
Band edge: 722.1 – 750.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

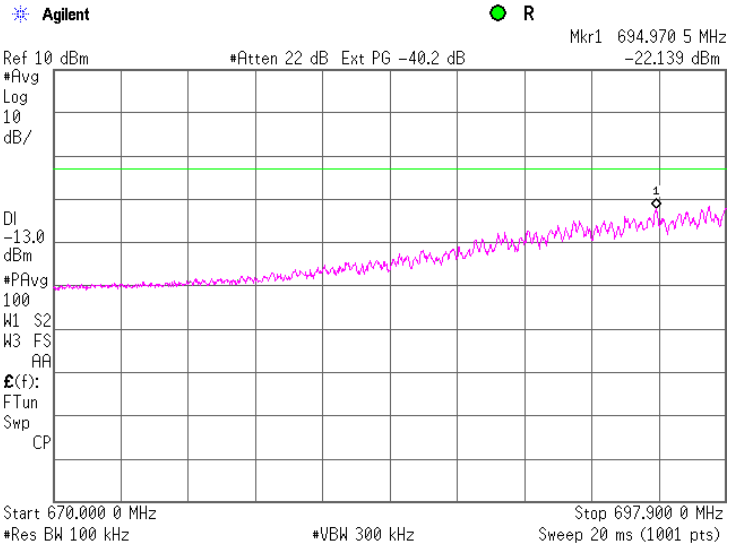
Plot 7.3.77 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 697.9 – 698.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.78 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

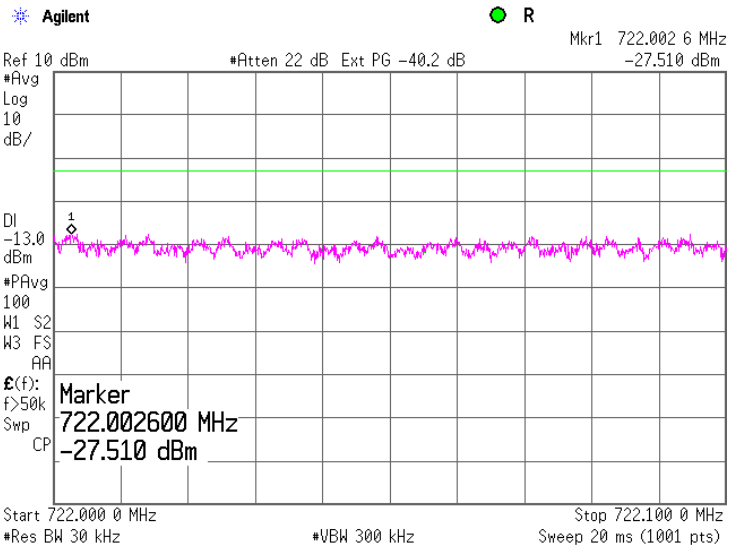
Frequency: 710.0 MHz
Band edge: 670.0 – 697.9 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

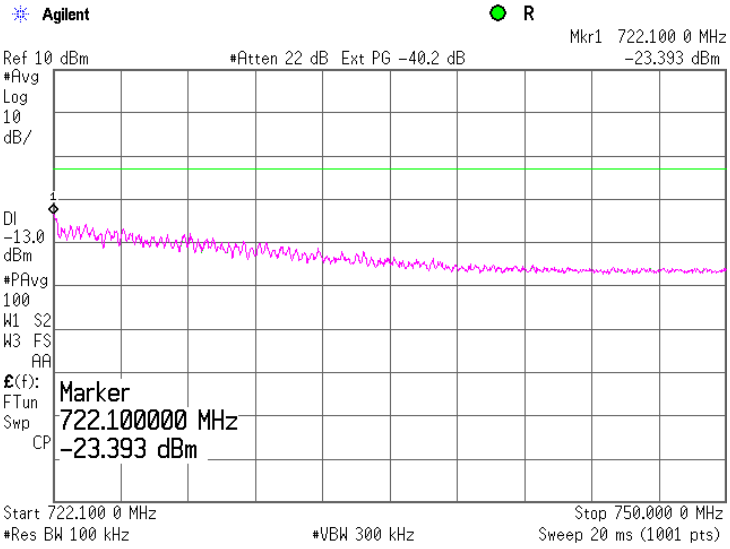
Plot 7.3.79 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 710.0 MHz
Band edge: 722.0 – 722.1 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.80 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

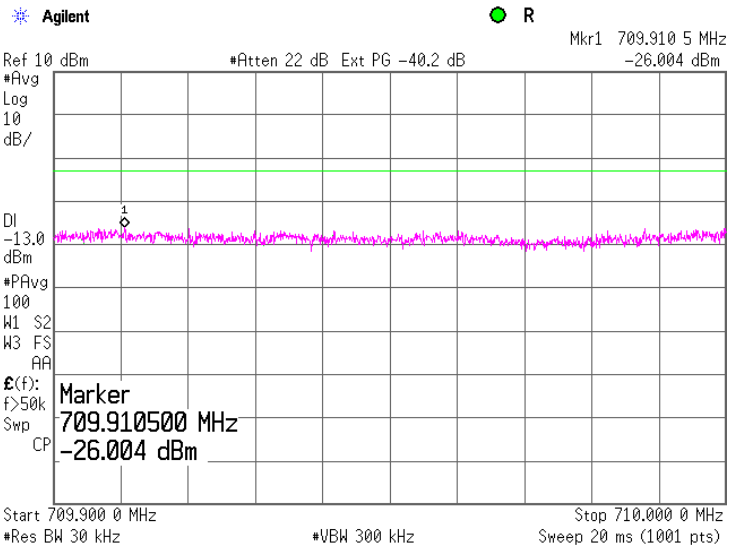
Frequency: 710.0 MHz
Band edge: 722.1 – 750.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

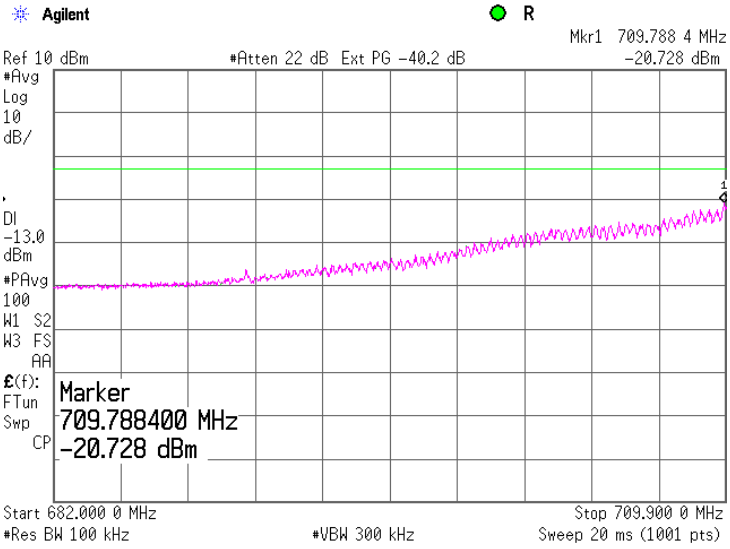
Plot 7.3.81 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 709.9 – 710.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.82 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

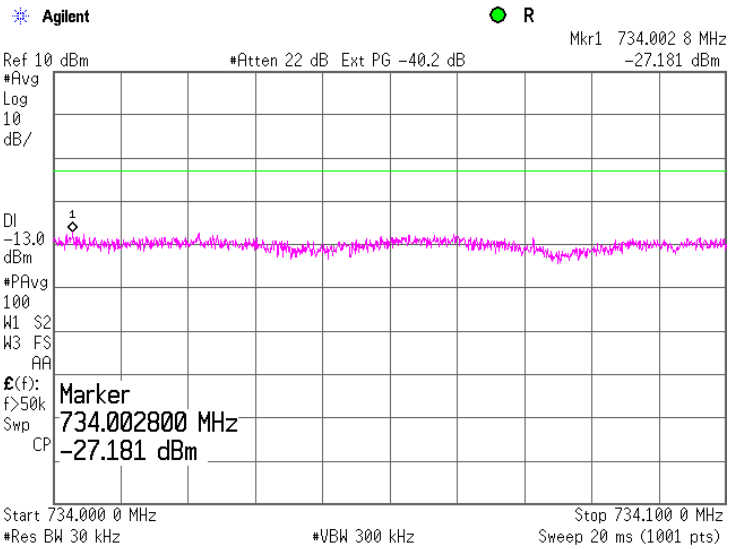
Frequency: 722.0 MHz
Band edge: 682.0 – 709.9 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

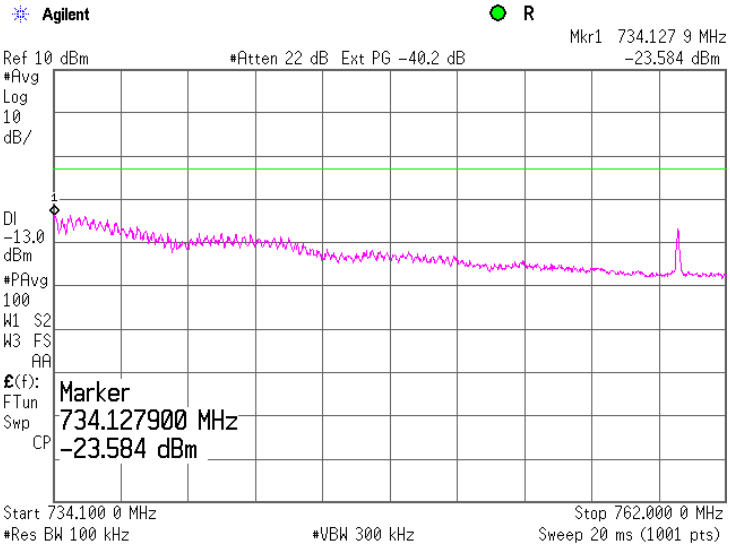
Plot 7.3.83 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 734.0 – 734.1 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.84 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

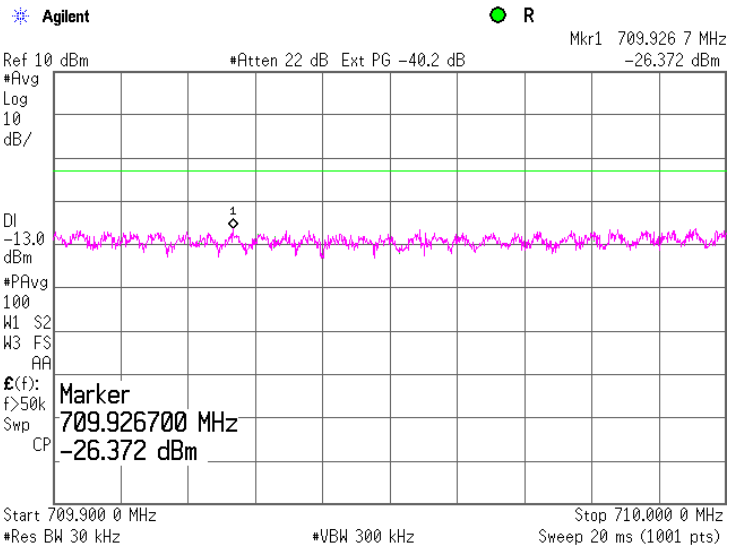
Frequency: 722.0 MHz
Band edge: 734.1 – 762.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

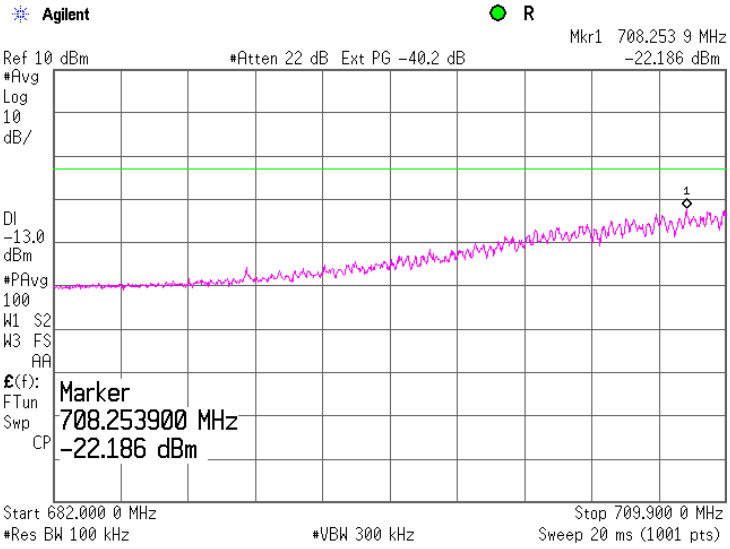
Plot 7.3.85 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 709.9 – 710.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.86 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

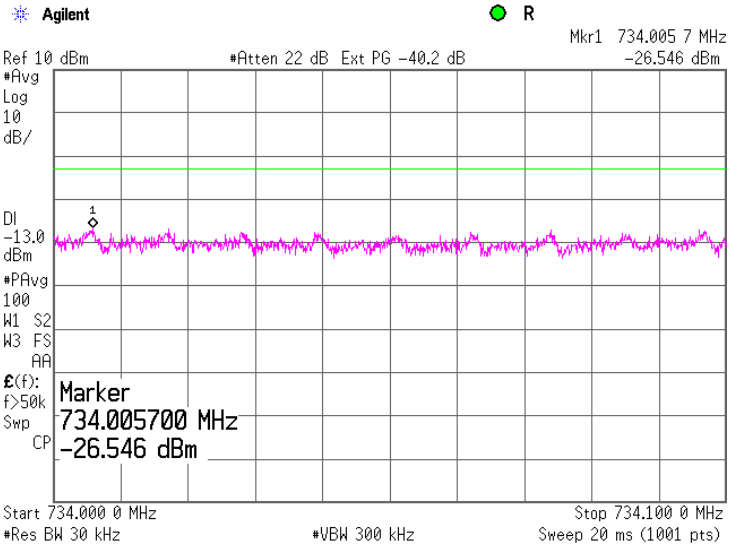
Frequency: 722.0 MHz
Band edge: 682.0 – 709.9 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

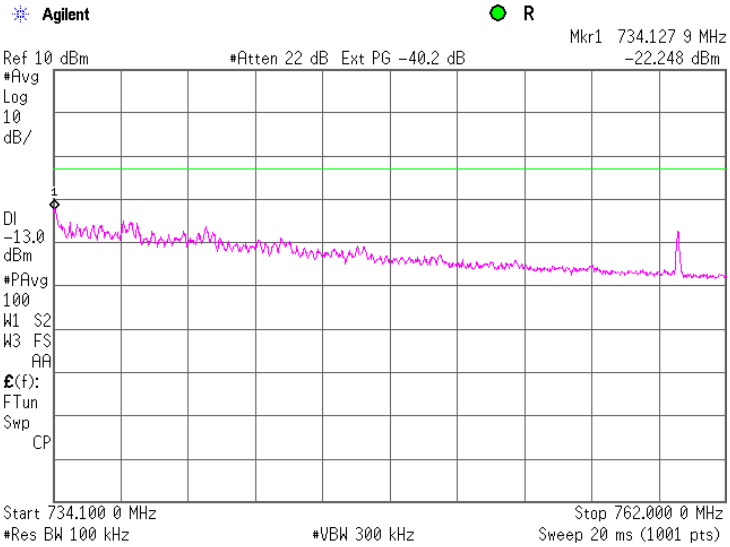
Plot 7.3.87 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 722.0 MHz
Band edge: 734.0 – 734.1 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.88 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

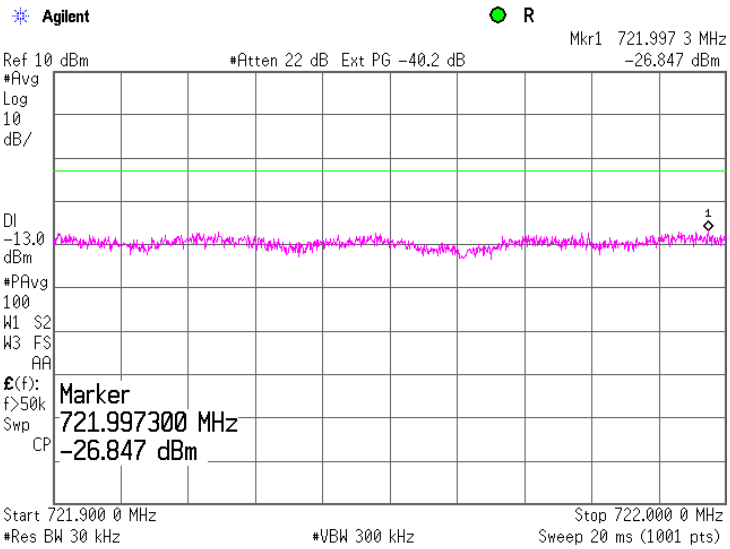
Frequency: 722.0 MHz
Band edge: 734.0 – 762.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

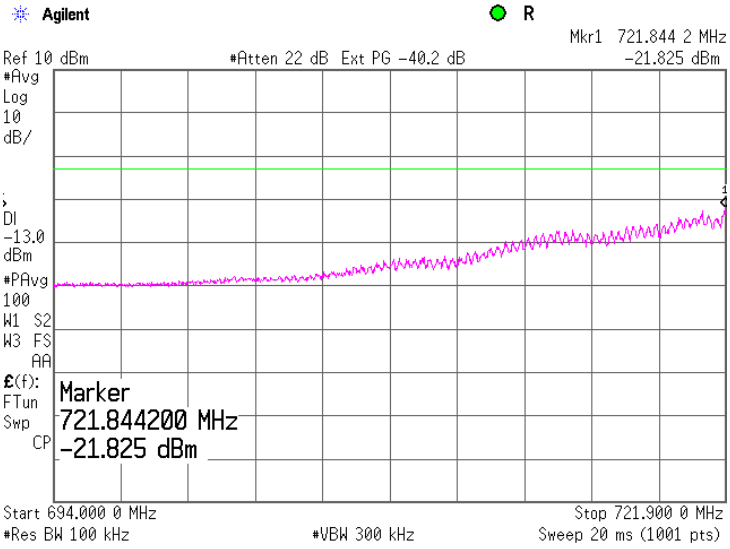
Plot 7.3.89 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 734.0 MHz
Band edge: 721.9 – 722.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.90 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

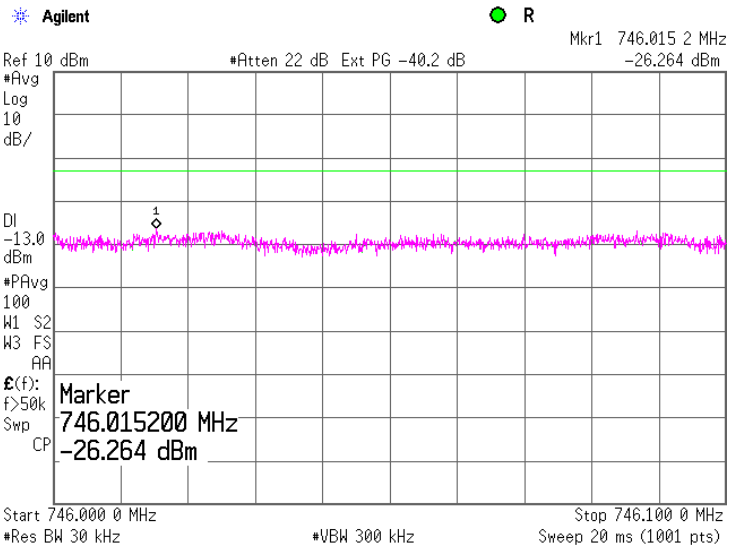
Frequency: 734.0 MHz
Band edge: 694.0 – 721.9 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

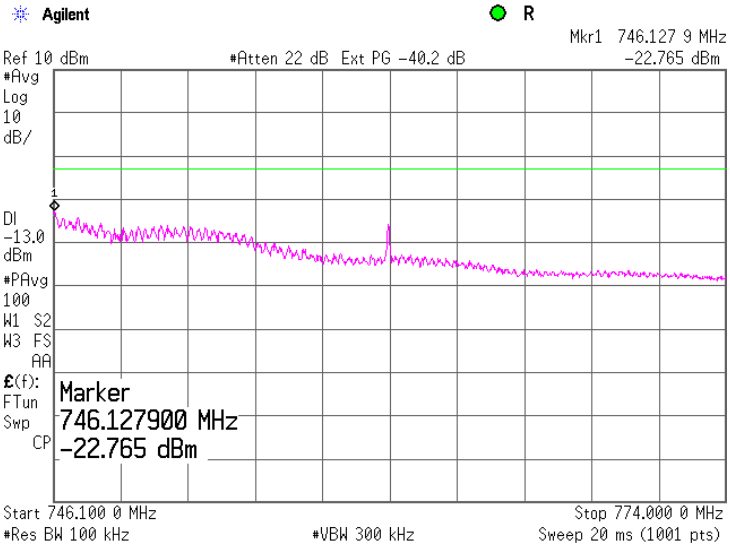
Plot 7.3.91 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 734.0 MHz
Band edge: 746.0 – 746.1 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.92 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

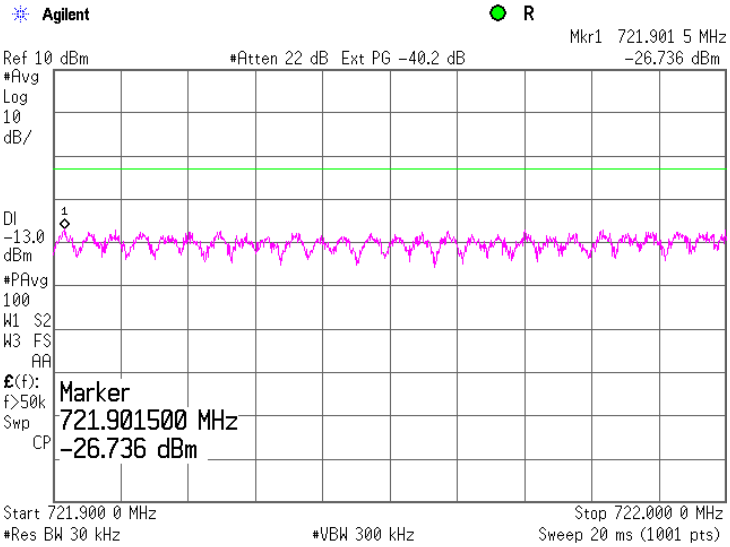
Frequency: 734.0 MHz
Band edge: 746.1 – 774.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

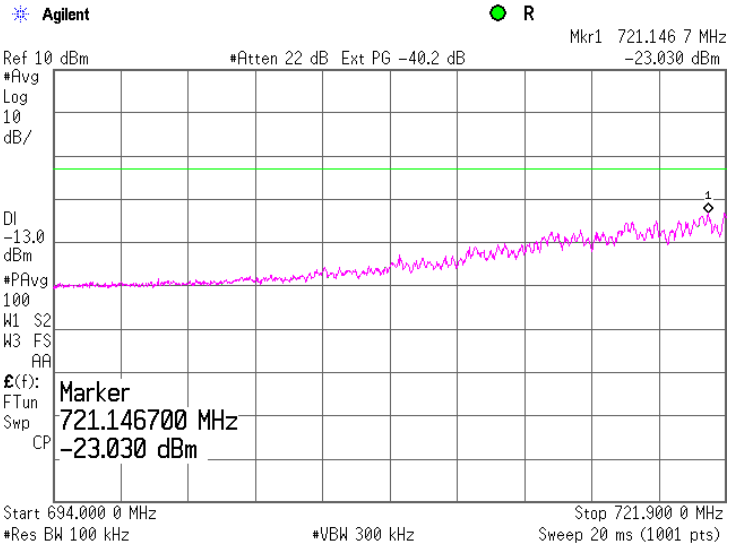
Plot 7.3.93 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

Frequency: 734.0 MHz
Band edge: 721.9 – 722.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.94 Spurious emissions at RF antenna connector, low band edge measurements, combined outputs

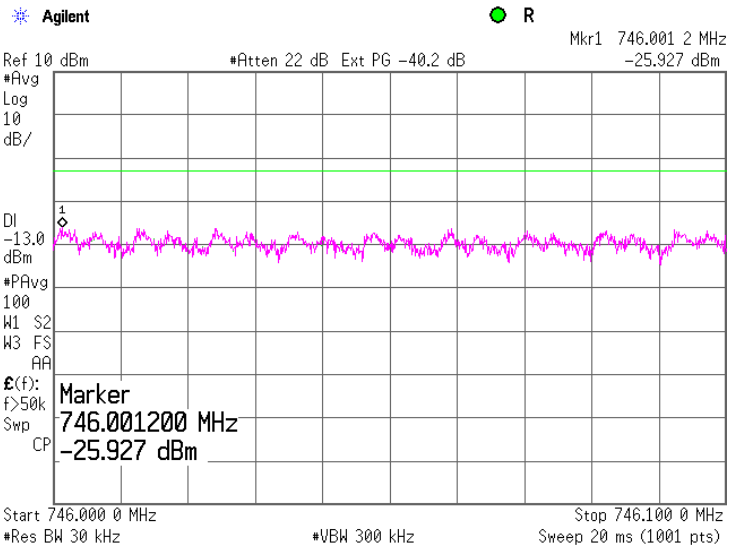
Frequency: 734.0 MHz
Band edge: 694.0 – 721.9 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

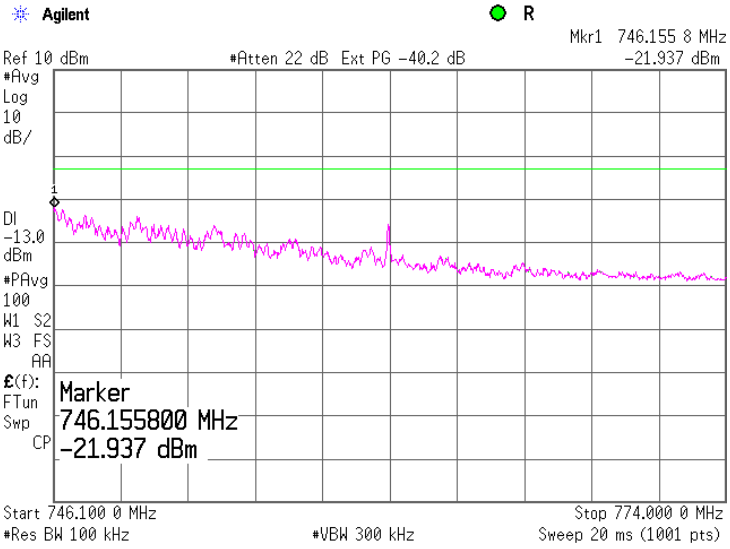
Plot 7.3.95 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

Frequency: 734.0 MHz
Band edge: 746.0 – 746.1 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.96 Spurious emissions at RF antenna connector, high band edge measurements, combined outputs

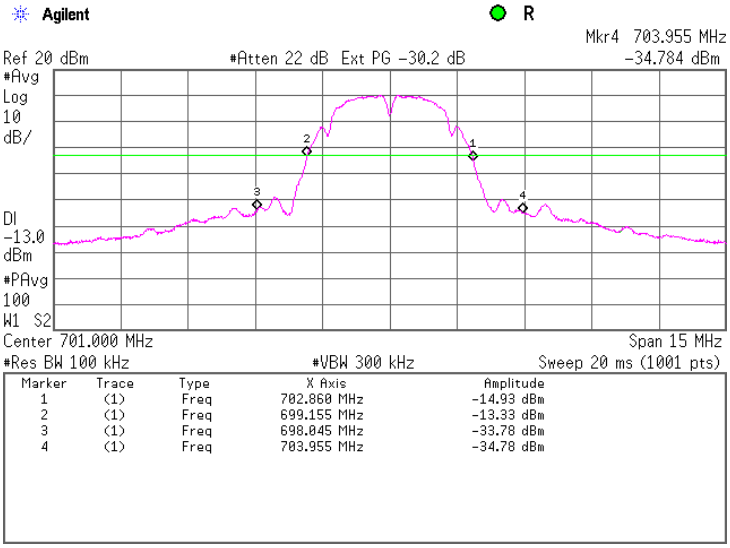
Frequency: 734.0 MHz
Band edge: 746.1 – 774.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

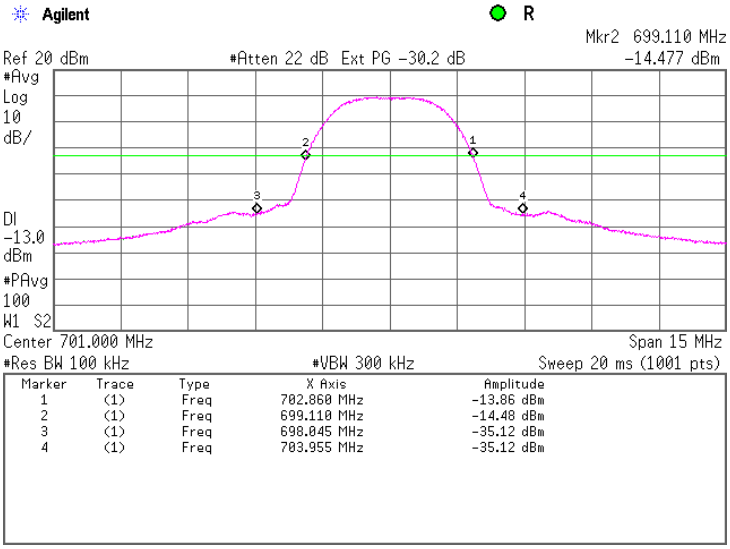
Plot 7.3.97 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 701.0 MHz
Modulation: DSSS 0.25 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.98 Spurious emissions at RF antenna connector, band edge measurements, single output

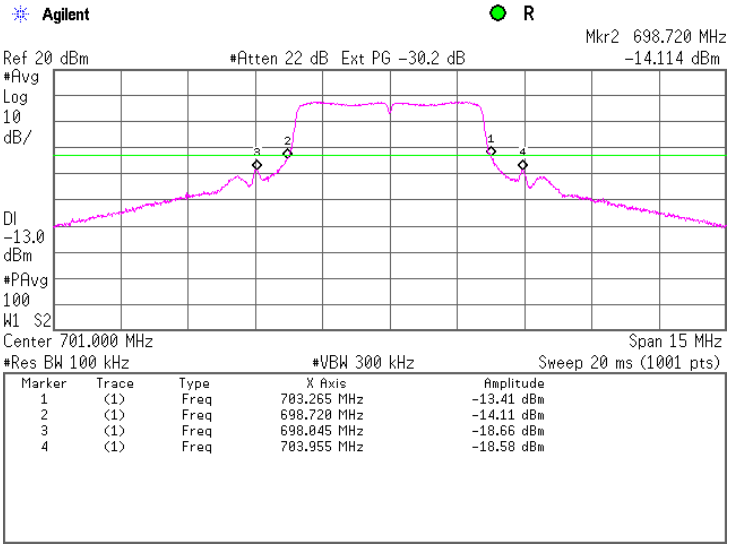
Frequency: 701.0 MHz
Modulation: DSSS 2.75 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

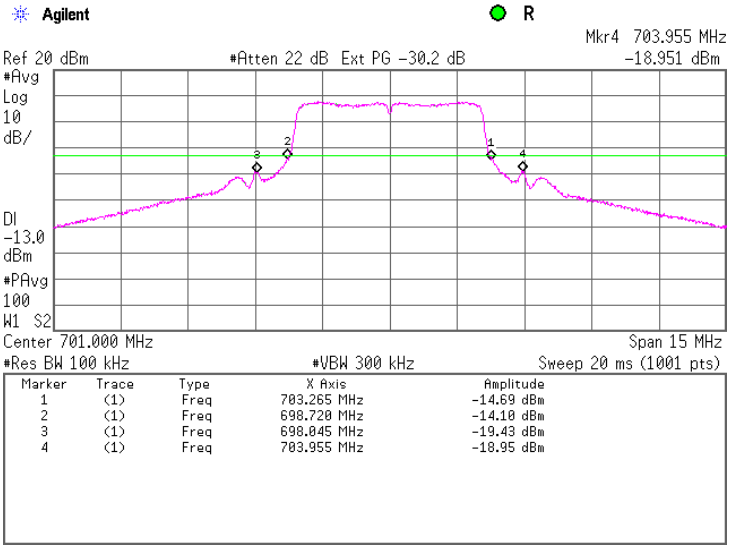
Plot 7.3.99 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 701.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.100 Spurious emissions at RF antenna connector, band edge measurements, single output

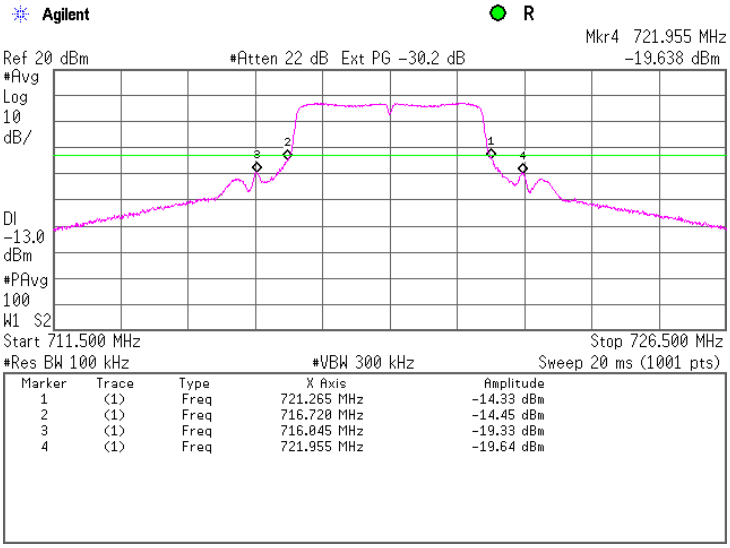
Frequency: 701.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

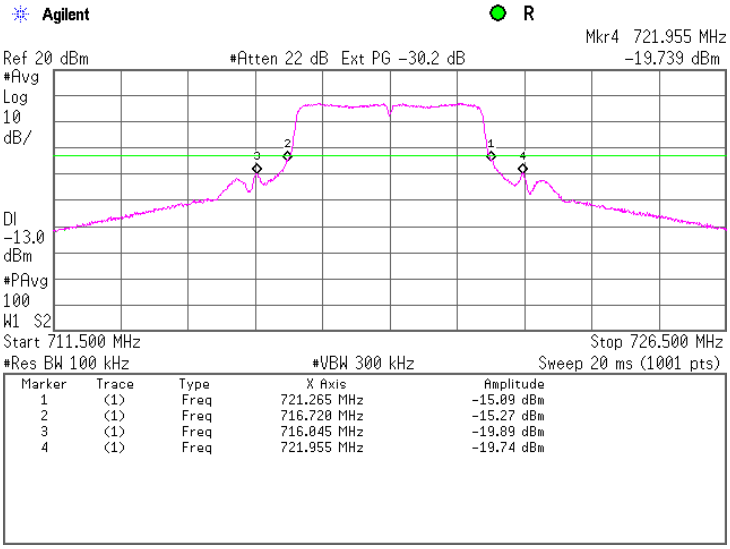
Plot 7.3.101 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 719.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.102 Spurious emissions at RF antenna connector, band edge measurements, single output

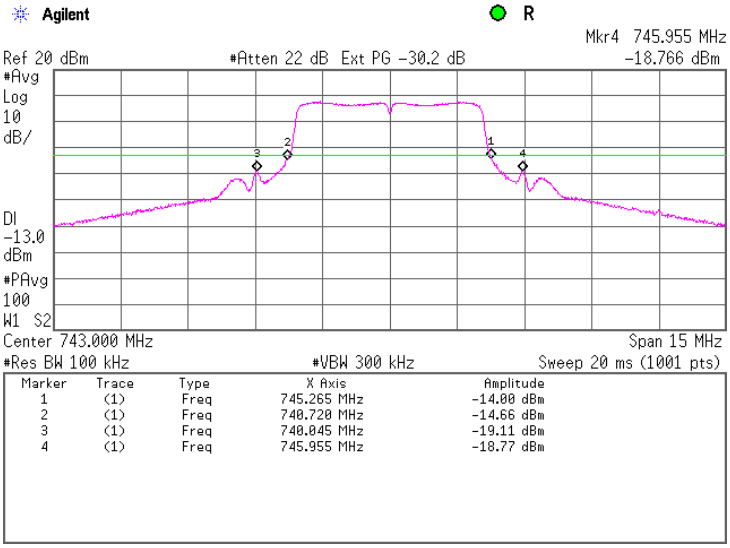
Frequency: 719.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

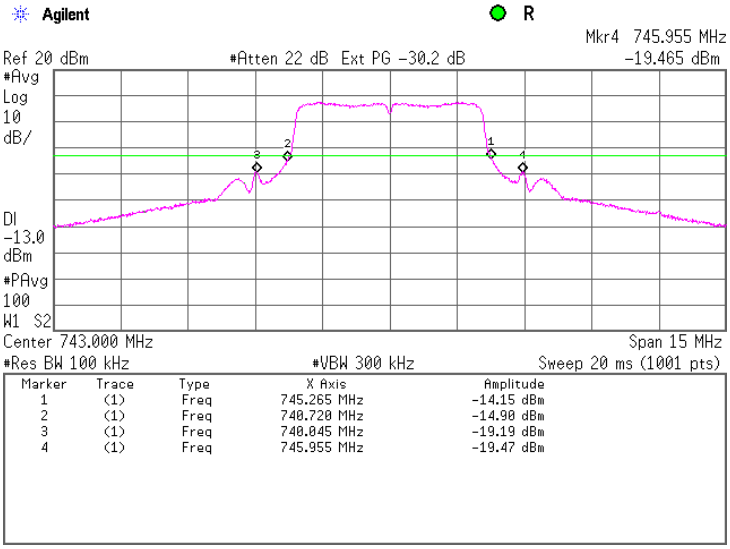
Plot 7.3.103 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 743.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Bandwidth: 5 MHz



Plot 7.3.104 Spurious emissions at RF antenna connector, band edge measurements, single output

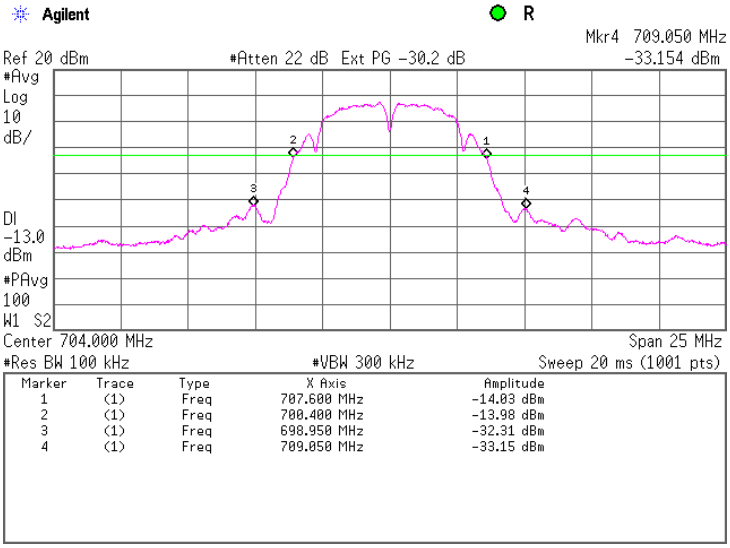
Frequency: 743.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Bandwidth: 5 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

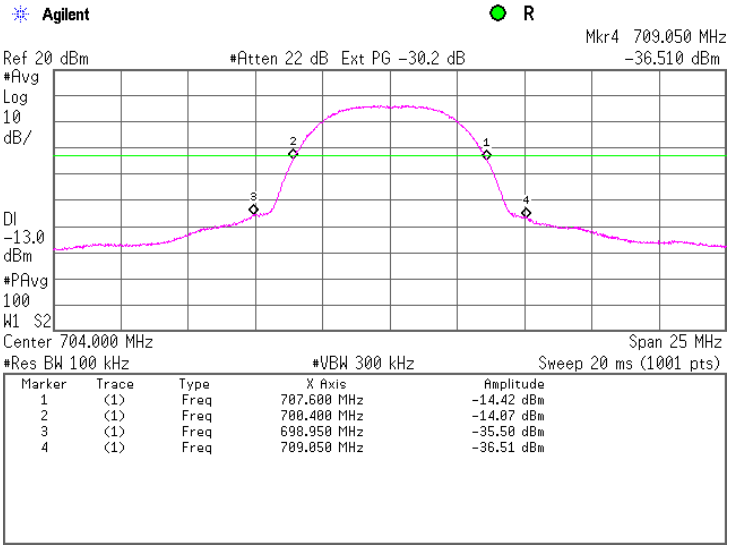
Plot 7.3.105 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 704.0 MHz
Modulation: DSSS 0.5 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.106 Spurious emissions at RF antenna connector, band edge measurements, single output

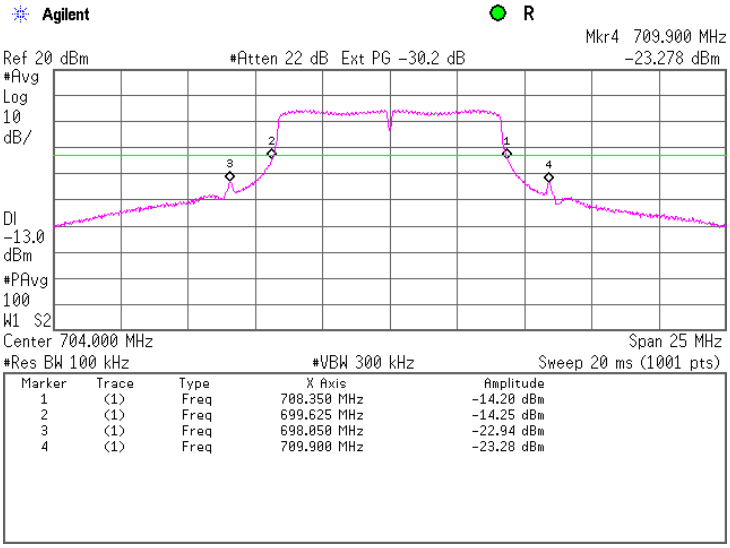
Frequency: 704.0 MHz
Modulation: DSSS 5.5 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

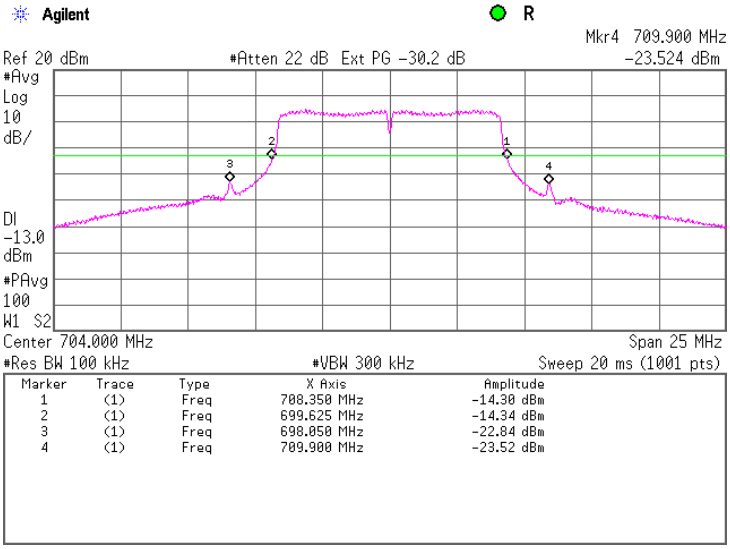
Plot 7.3.107 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 704.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.108 Spurious emissions at RF antenna connector, band edge measurements, single output

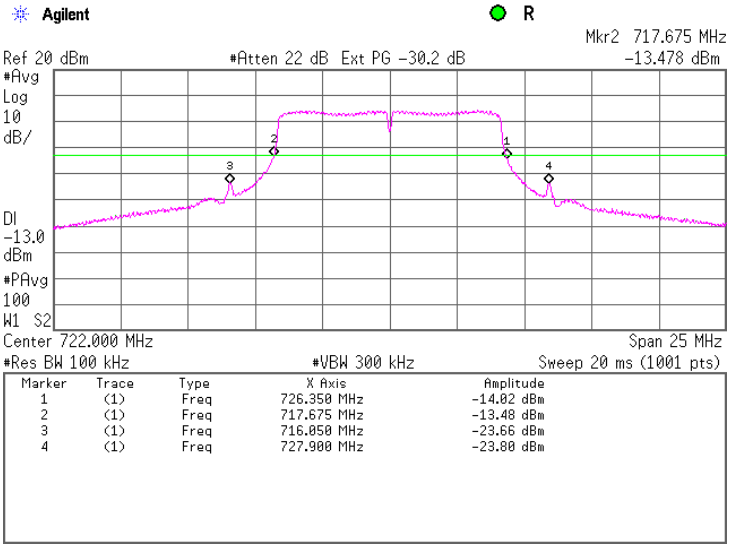
Frequency: 704.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

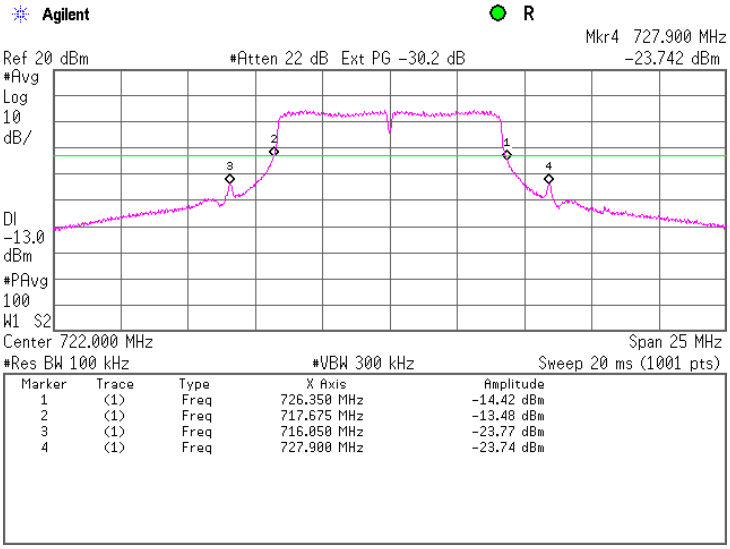
Plot 7.3.109 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 722.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.110 Spurious emissions at RF antenna connector, band edge measurements, single output

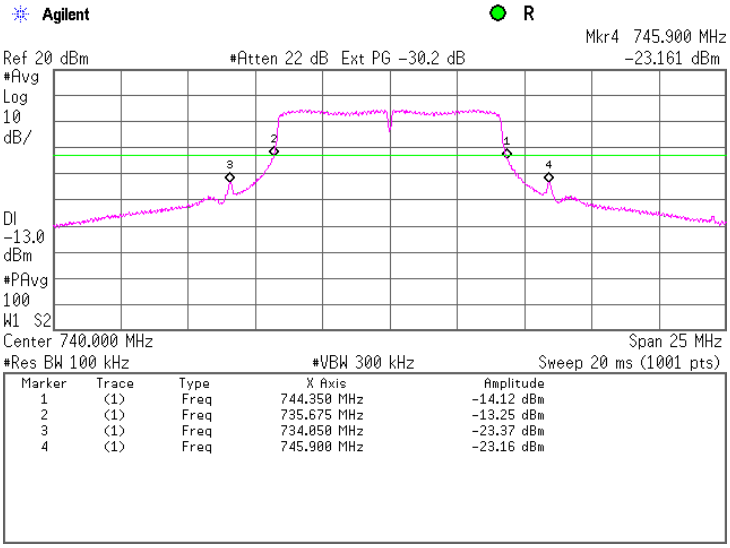
Frequency: 722.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

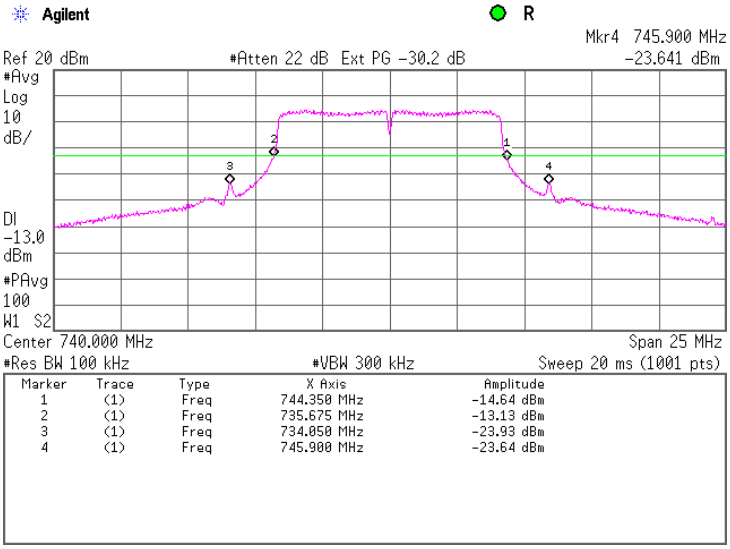
Plot 7.3.111 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 740.0 MHz
Modulation: OFDM 3 Mbps
Channel Bandwidth: 10 MHz



Plot 7.3.112 Spurious emissions at RF antenna connector, band edge measurements, single output

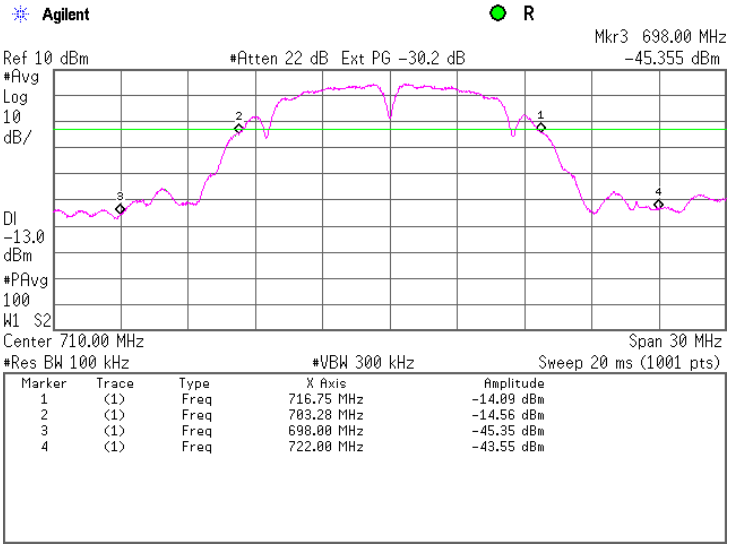
Frequency: 740.0 MHz
Modulation: OFDM 27 Mbps
Channel Bandwidth: 10 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

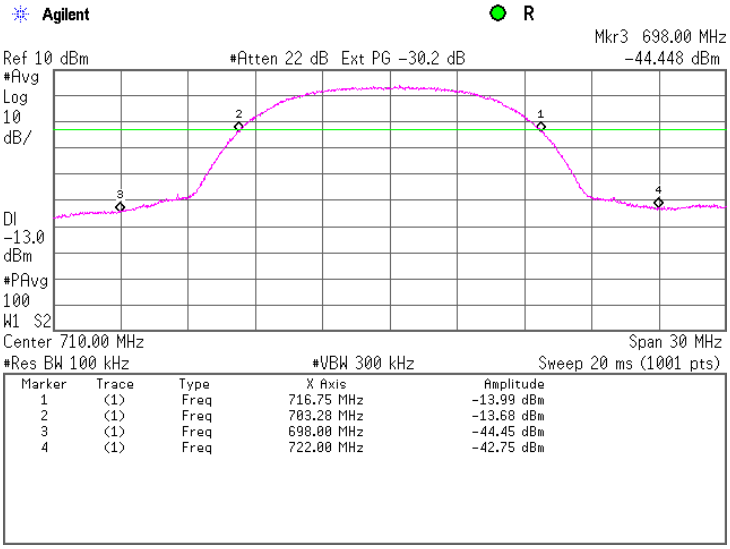
Plot 7.3.113 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 710.0 MHz
Modulation: DSSS 1 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.114 Spurious emissions at RF antenna connector, band edge measurements, single output

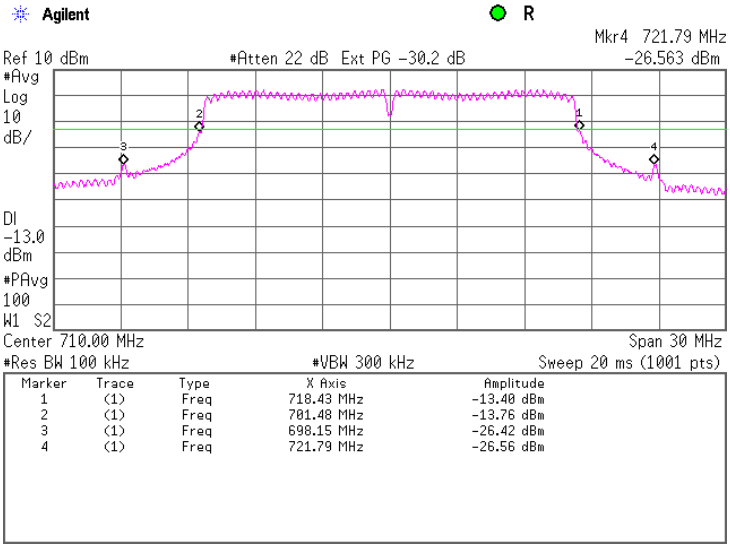
Frequency: 710.0 MHz
Modulation: DSSS 11 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

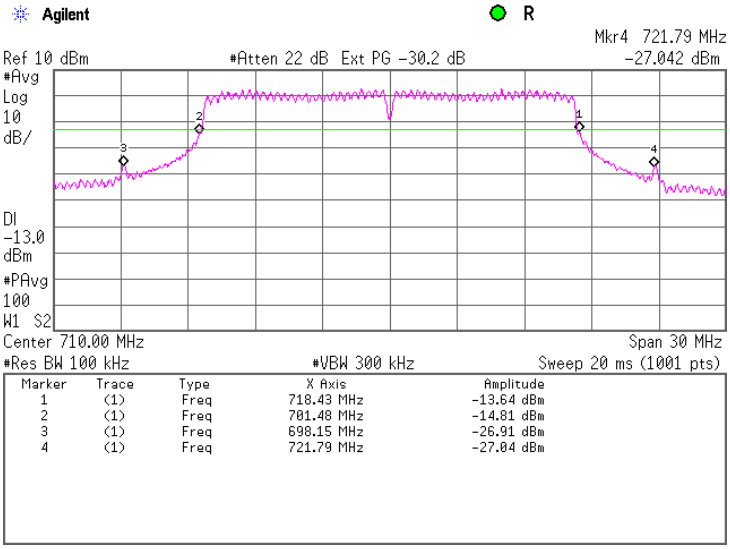
Plot 7.3.115 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 710.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.116 Spurious emissions at RF antenna connector, band edge measurements, single output

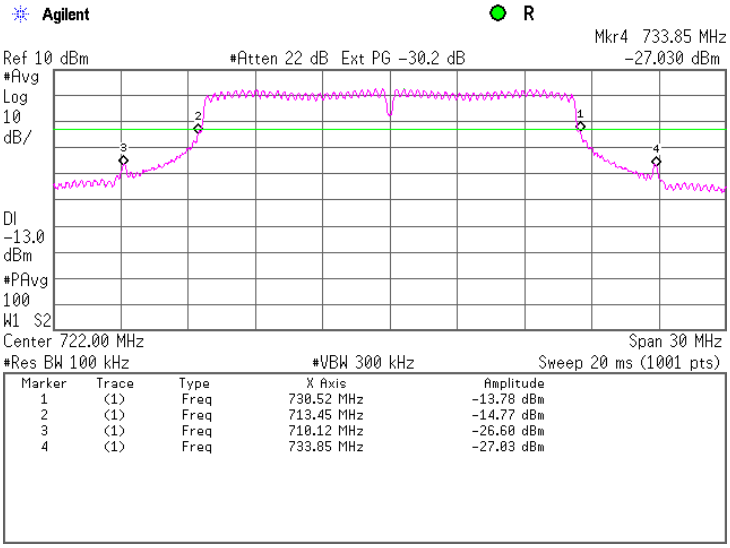
Frequency: 710.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

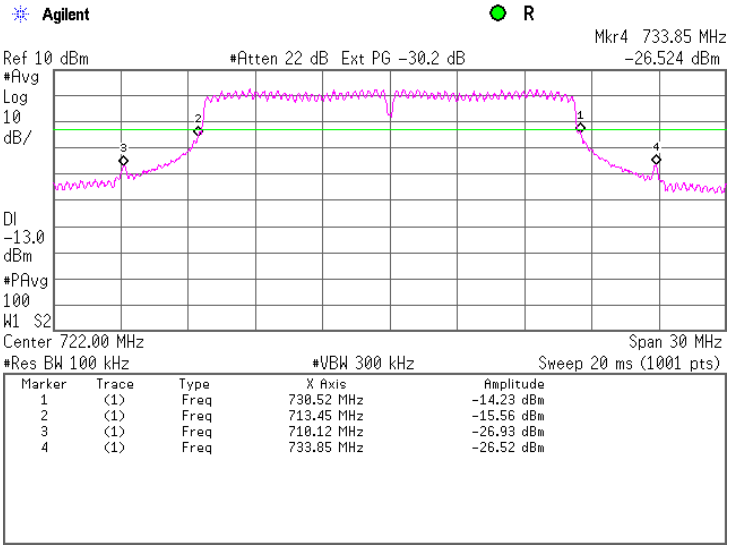
Plot 7.3.117 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 722.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.118 Spurious emissions at RF antenna connector band edge measurements, single output

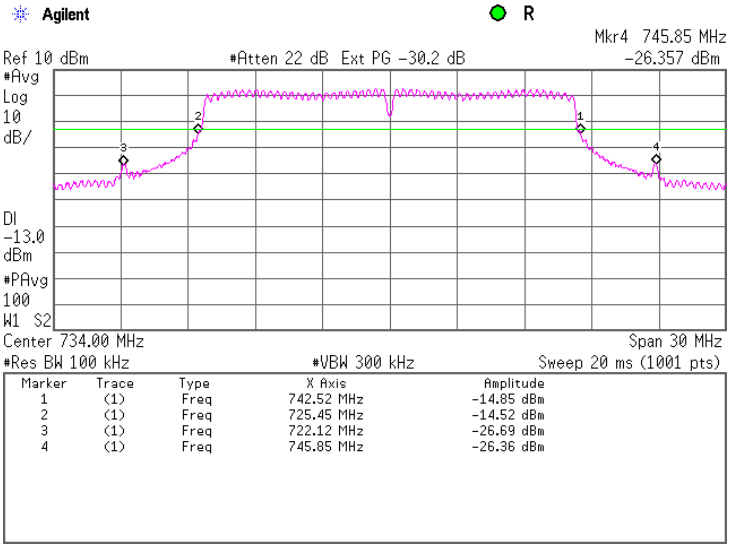
Frequency: 722.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Band edge emissions		
Test procedure:	47 CFR, Sections 2.1047 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	7/29/2010		
Temperature: 24.3 ºC	Air Pressure: 1004 hPa	Relative Humidity: 41 %	Power Supply: 55 VDC
Remarks:			

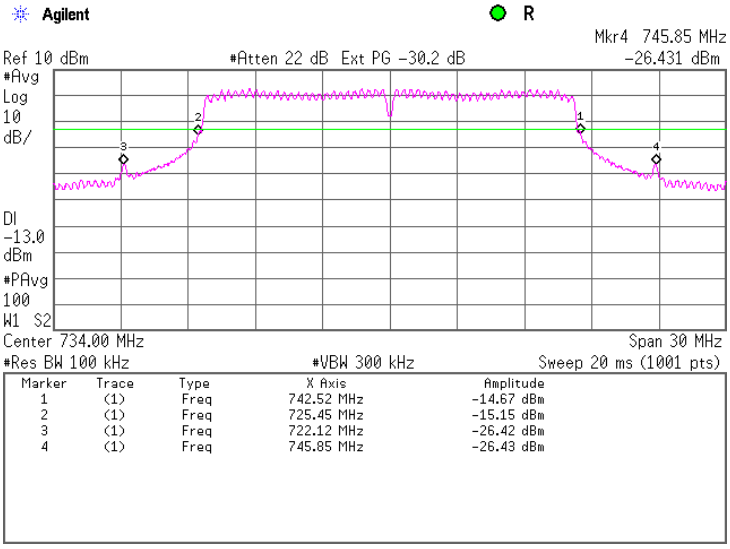
Plot 7.3.119 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 734.0 MHz
Modulation: OFDM 6 Mbps
Channel Bandwidth: 20 MHz



Plot 7.3.120 Spurious emissions at RF antenna connector, band edge measurements, single output

Frequency: 734.0 MHz
Modulation: OFDM 54 Mbps
Channel Bandwidth: 20 MHz



Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

7.4 Radiated spurious emission measurements

7.4.1 General

This test was performed to measure radiated spurious emissions from the EUT. Specification test limits are given in Table 7.4.1.

Table 7.4.1 Radiated spurious emission test limits

Frequency, MHz	Attenuation below carrier dBc	ERP of spurious, dBm	Equivalent field strength limit @ 3m, dB(μV/m)***
0.009 – 10th harmonic*	43+10logP**	-13	84.4

* - Excluding the in band emission within ± 250 % of the authorized bandwidth from the carrier
** - P is transmitter output power in Watts
*** - Equivalent field strength limit was calculated from maximum allowed ERP of spurious as follows: E=sqrt(30×P×1.64)/r, where P is ERP in Watts, 1.64 is numeric gain of ideal dipole and r is antenna to EUT distance in meters

7.4.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

7.4.2.1 The EUT was set up as shown in Figure 7.4.1, energized and the performance check was conducted.
7.4.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna was rotated around its vertical axis.
7.4.2.3 The worst test results (the lowest margins) were recorded in Table 7.4.2 and shown in the associated plots.

7.4.3 Test procedure for spurious emission field strength measurements above 30 MHz

7.4.3.1 The EUT was set up as shown in Figure 7.4.2, energized and the performance check was conducted.
7.4.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal, polarizations.
7.4.3.3 The worst test results (the lowest margins) were recorded in Table 7.4.2 and shown in the associated plots.

7.4.4 Test procedure for substitution ERP measurements of spurious

7.4.4.1 The test equipment was set up as shown in Figure 7.4.3 and energized.
7.4.4.2 RF signal generator was set to the frequency of investigated spurious emission and the RF output level was preliminary adjusted to produce the same field strength as it was measured from the EUT.
7.4.4.3 The test antenna height was swept from 1 to 4 m to find maximum emission from substitution antenna and RF signal generator output was fine adjusted to produce the same field strength as it was measured from the EUT.
7.4.4.4 The above procedure was performed in both, horizontal and vertical, polarizations of the test and substitution antennas.
7.4.4.5 The ERP of spurious emissions was calculated as a sum of signal generator output power in dBm and antenna gain in dBd reduced by cable loss in dB.
7.4.4.6 The above procedure was repeated at the rest of investigated frequencies.
7.4.4.7 The worst test results (the lowest margins) were recorded in Table 7.4.3 and shown in the associated plots.

Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

Figure 7.4.1 Setup for spurious emission field strength measurements in 9 kHz to 30 MHz band

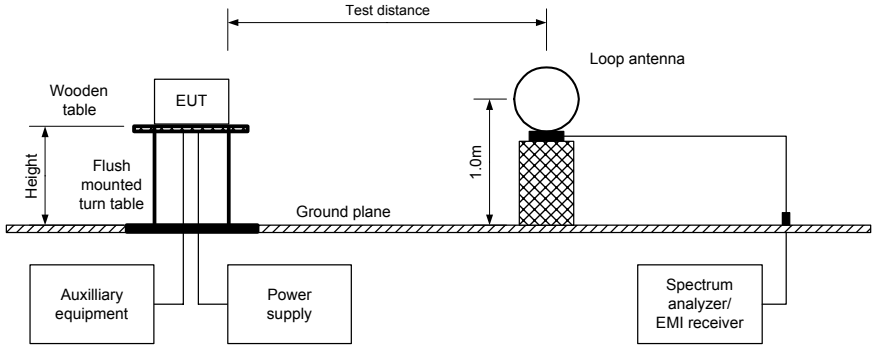
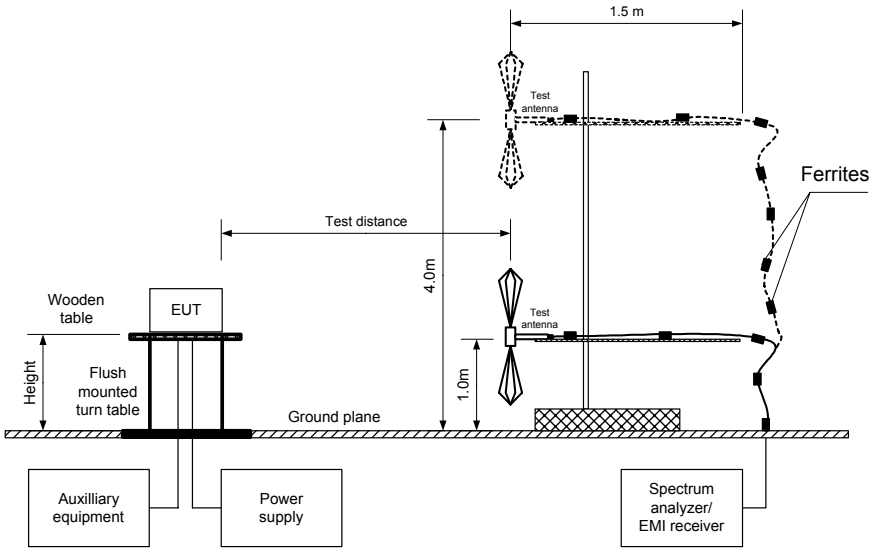
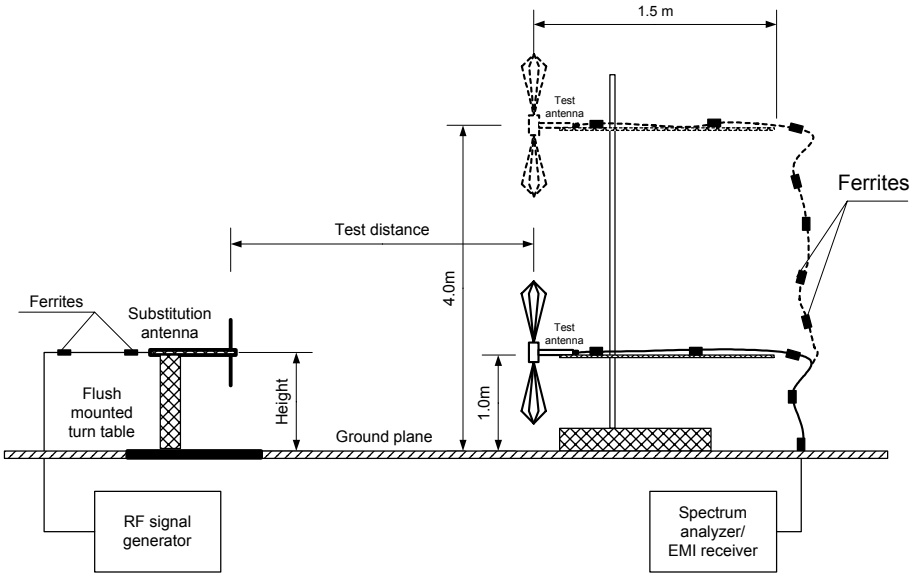


Figure 7.4.2 Setup for spurious emission field strength measurements above 30 MHz



Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

Figure 7.4.3 Setup for substitution ERP measurements of spurious



Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

Table 7.4.2 Spurious emission field strength test results

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
TEST DISTANCE: 3 m
TEST SITE: Semi anechoic chamber
EUT HEIGHT: 0.8 m
INVESTIGATED FREQUENCY RANGE: 0.009 – 8000 MHz
DETECTOR USED: Peak
VIDEO BANDWIDTH: > Resolution bandwidth
TEST ANTENNA TYPE: Active loop (9 kHz – 30 MHz)
Biconilog (30 MHz – 1000 MHz)
Double ridged guide (above 1000 MHz)
MODULATION: CCK
MODULATING SIGNAL: PRBS
BIT RATE: 2.75 Mbps (worst case power density)
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
CHANNEL BANDWIDTH: 5 MHz

Frequency, MHz	Field strength, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	RBW, kHz	Antenna polarization	Antenna height, m	Turn-table position**, degrees
Low carrier frequency 701.0 MHz							
1402.03	61.43	84.38	-22.95	1000	V	2.10	310
Mid carrier frequency 719.0 MHz							
1438.00	59.43	84.38	-24.95	1000	V	2.20	340
High carrier frequency 743.0 MHz							
1485.95	58.12	84.38	-26.26	1000	V	2.00	350

*- Margin = Field strength of spurious – calculated field strength limit.
**- EUT front panel refers to 0 degrees position of turntable.

Table 7.4.3 Substitution ERP of spurious test results

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
TEST SITE: Semi anechoic chamber
TEST DISTANCE: 3 m
SUBSTITUTION ANTENNA HEIGHT: 0.8 m
DETECTOR USED: Peak
VIDEO BANDWIDTH: > Resolution bandwidth
SUBSTITUTION ANTENNA TYPE: Tunable dipole (30 MHz – 1000 MHz)
Double ridged guide (above 1000 MHz)

Frequency MHz	Field strength dB(μV/m	RBW, kHz	Antenna polarizatio	RF generato output, dBm	Ant gain dBd	Cable oss, dB	ERP, dBm	Attenuation below carrier dBc	Limit, dBc	Margin dB*	Verdict
Low carrier frequency											
1402.03	61.43	1000	V	-44.02	5.69	0.30	-38.6	-13.00	-25.6	-44.02	Pass
Mid carrier frequency											
1438.00	59.43	1000	V	-46.02	5.92	0.30	-40.4	-13.00	-27.4	-46.02	Pass
High carrier frequency											
1485.95	58.12	1000	V	-47.33	6.20	0.30	-41.4	-13.00	-28.4	-47.33	Pass

*- Margin = Spurious emission – specification limit.

Reference numbers of test equipment used

HL 0446	HL 0521	HL 0604	HL 2432	HL 2870	HL 3042	HL 3121	HL 3234
HL 3334	HL 3340	HL 3390	HL 3818	HL 3884			

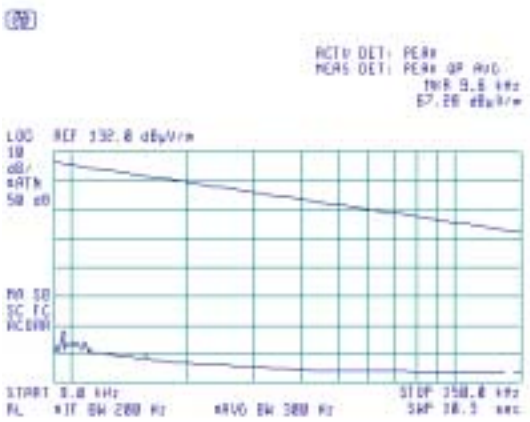
Full description is given in Appendix A.

Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

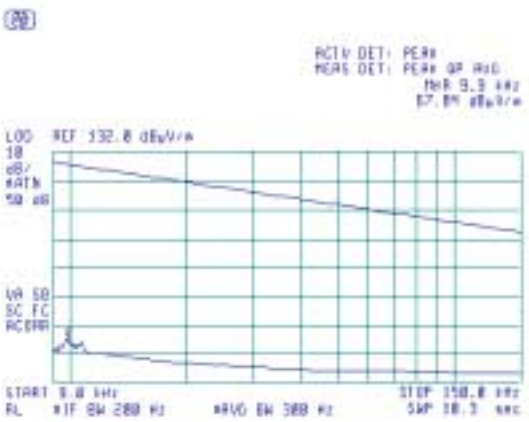
Plot 7.4.1 Radiated emission measurements in 9 - 150 kHz range

TEST SITE: Semi anechoic chamber
ANTENNA POLARIZATION: Vertical
TEST DISTANCE: 3 m

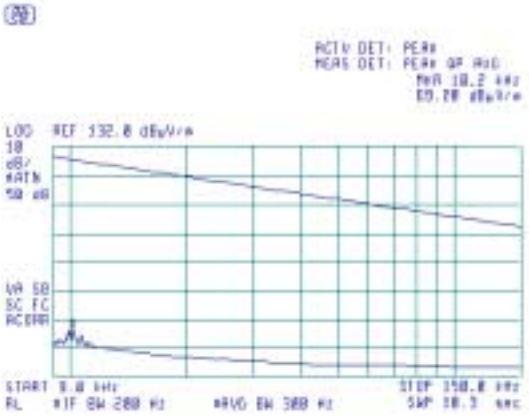
CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High

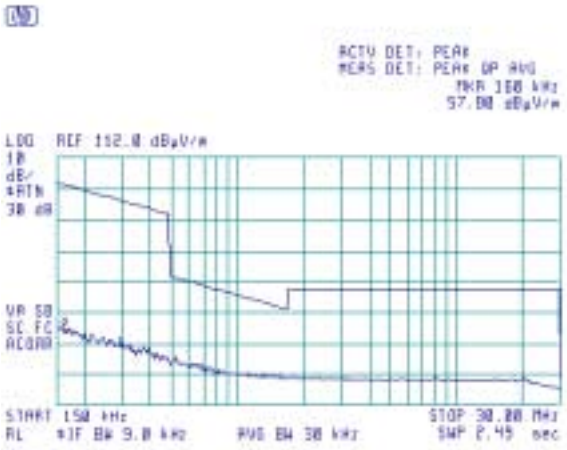


Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

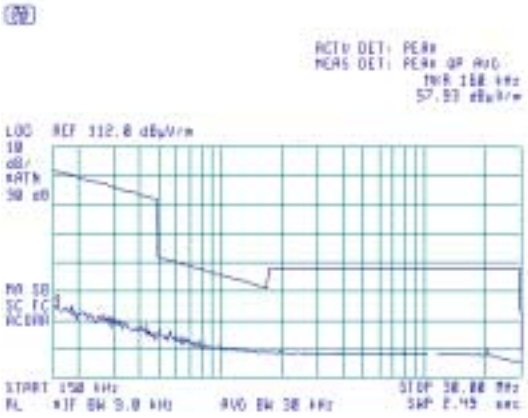
Plot 7.4.2 Radiated emission measurements in 0.15 - 30 MHz range

TEST SITE: Semi anechoic chamber
ANTENNA POLARIZATION: Vertical
TEST DISTANCE: 3 m

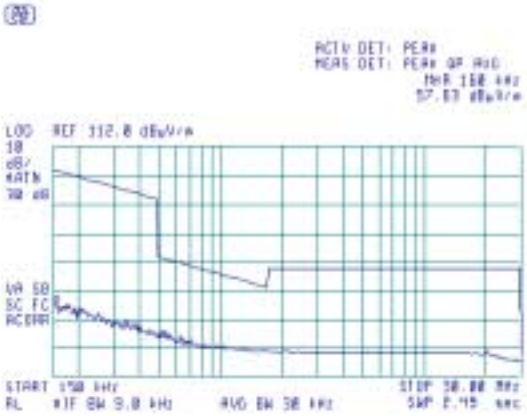
CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

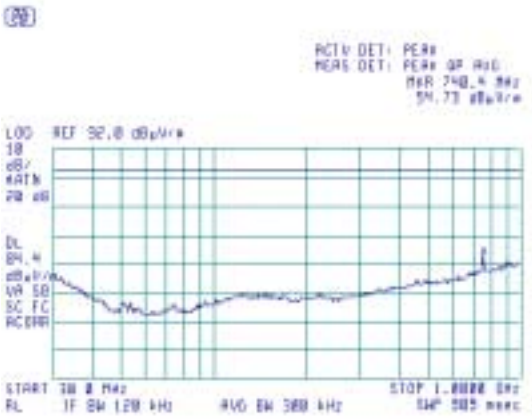
Plot 7.4.3 Radiated emission measurements in 30 - 1000 MHz range

TEST SITE: Semi anechoic chamber
ANTENNA POLARIZATION: Vertical
TEST DISTANCE: 3 m

CARRIER FREQUENCY: Low

CARRIER FREQUENCY: Mid

CARRIER FREQUENCY: High

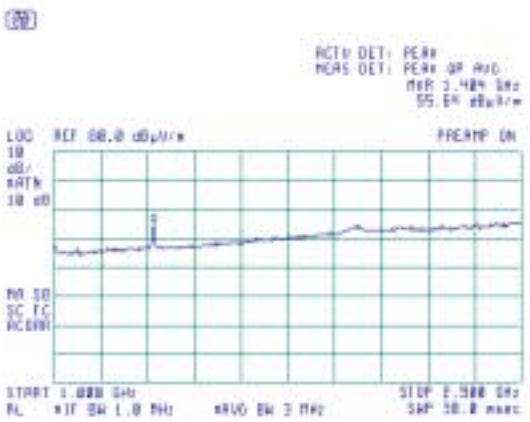


Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

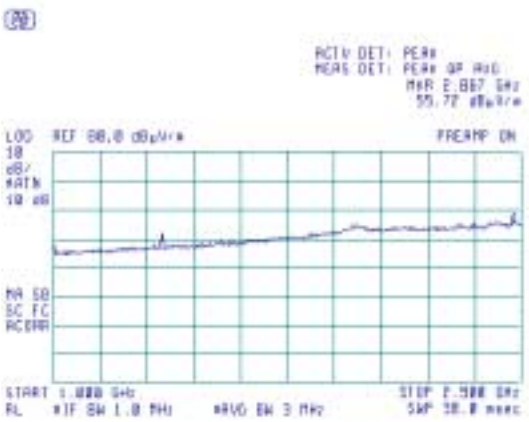
Plot 7.4.4 Radiated emission measurements in 1000 – 2900 MHz range

TEST SITE: Semi anechoic chamber
ANTENNA POLARIZATION: Vertical and Horizontal
TEST DISTANCE: 3 m

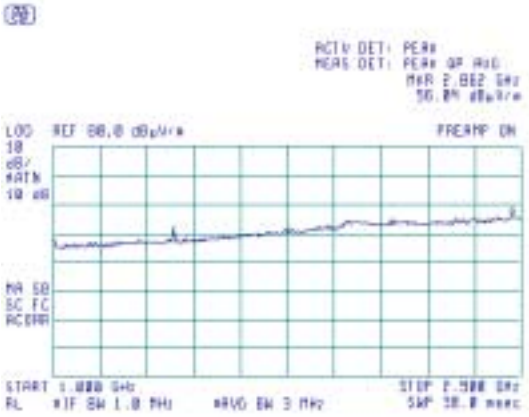
CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High

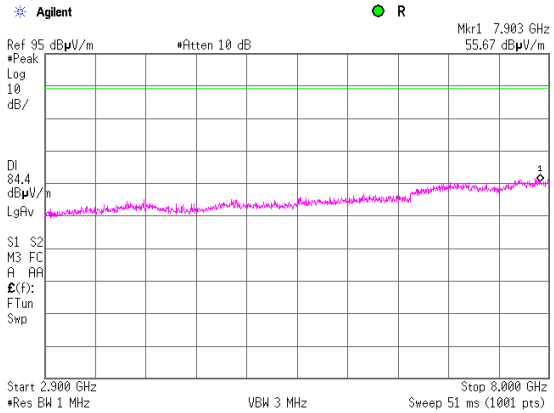


Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

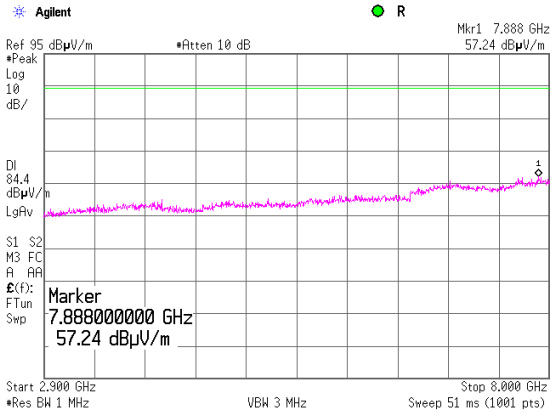
Plot 7.4.5 Radiated emission measurements in 2900 – 8000 MHz range

TEST SITE: Semi anechoic chamber
ANTENNA POLARIZATION: Vertical and Horizontal
TEST DISTANCE: 3 m

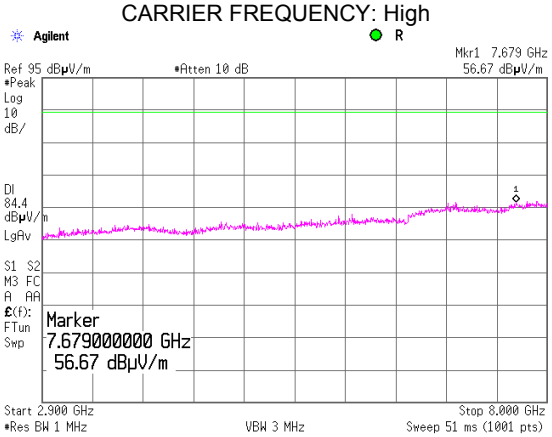
CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High

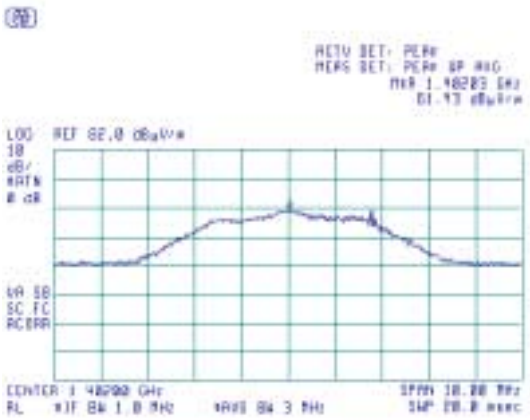


Test specification:	Section 27.53(g), Radiated spurious emissions		
Test procedure:	47 CFR, Sections 2.1053 and 27.53(g); TIA/EIA-603-C, Section 2.2.12		
Test mode:	Compliance	Verdict:	PASS
Date:	8/3/2010		
Temperature: 25.3 ºC	Air Pressure: 1003 hPa	Relative Humidity: 46 %	Power Supply: 55 VDC
Remarks:			

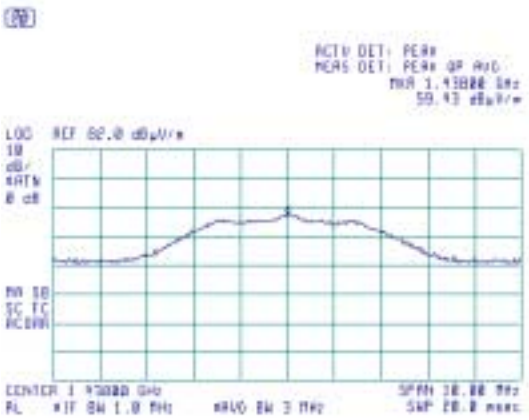
Plot 7.4.6 Radiated emission measurements at 2nd harmonic

TEST SITE: Semi anechoic chamber
ANTENNA POLARIZATION: Vertical
TEST DISTANCE: 3 m

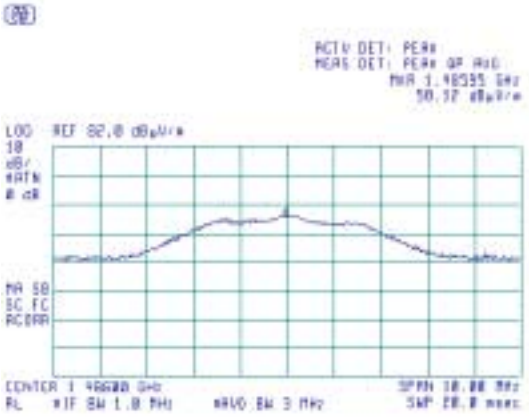
CARRIER FREQUENCY: Low



CARRIER FREQUENCY: Mid



CARRIER FREQUENCY: High



Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

7.5 Spurious emissions at RF antenna connector test

7.5.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.5.1. The test results are provided in Table 7.5.2 and associated plots.

Table 7.5.1 Spurious emission limits

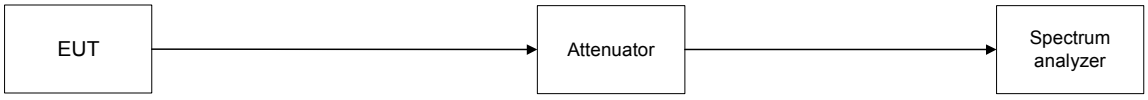
Frequency, MHz	Attenuation below carrier, dBc	ERP of spurious, dBm
0.009 – 10th harmonic*	43+10logP**	-13.0

* - spurious emission limits do not apply to the in band emission within ± 250 % of the authorized bandwidth from the carrier; investigated in course of emission mask testing
** - P is transmitter output power in Watts

7.5.2 Test procedure

7.5.2.1 The EUT was set up as shown in Figure 7.5.1, energized and its proper operation was checked.
7.5.2.2 The EUT was adjusted to produce maximum available for end user RF output power.
7.5.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 7.5.2 and the associated plots.

Figure 7.5.1 Spurious emission test setup



Test specification:	**Section 27.53(g), Conducted spurious emissions**		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	**Verdict:**	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	**Air Pressure:** 1005 hPa	**Relative Humidity:** 52 %	**Power Supply:** 55 VDC
Remarks:			

Table 7.5.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 698.0 – 746.0 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 8000 MHz
DETECTOR USED: RMS
VIDEO BANDWIDTH: ≥ Resolution bandwidth
MODULATION: CCK
MODULATING SIGNAL: PRBS
BIT RATE: DSSS 2.75 Mbps (worst case power density)
CHANNEL BANDWIDTH: 5 MHz (worst case power density)
TRANSMITTER OUTPUT POWER SETTINGS: **Maximum (Single RF output)**

Frequency, MHz	SA reading, RMS (Peak), dBm	Attenuator, dB	Cable loss, dB	RBW, kHz	Spurious emission, dBm	Limit, dBm	Margin, dB*	Verdict
Low carrier frequency								
388.02	-42.42	Included	Included	100	-42.42	-13.00	-29.42	Pass
759.99	-35.75	Included	Included	100	-35.75	-13.00	-22.75	Pass
1088.00	-37.01	Included	Included	100	-37.01	-13.00	-24.01	Pass
1088.00	-27.50	Included	Included	1000	-27.50	-13.00	-14.50	Pass
Mid carrier frequency								
65.492	-37.04	Included	Included	100	-37.04	-13.00	-24.04	Pass
332.013	-37.05	Included	Included	100	-37.05	-13.00	-24.05	Pass
785.378	-34.12	Included	Included	100	-34.12	-13.00	-21.12	Pass
760.004	-32.87	Included	Included	100	-32.87	-13.00	-19.87	Pass
1052.00	-36.59	Included	Included	100	-36.59	-13.00	-23.59	Pass
1052.00	-27.22	Included	Included	1000	-27.22	-13.00	-14.22	Pass
High carrier frequency								
262.995	-25.04	Included	Included	100	-25.04	-13.00	-12.04	Pass
759.998	-32.28	Included	Included	100	-32.28	-13.00	-19.28	Pass
799.982	-35.38	Included	Included	100	-35.38	-13.00	-22.38	Pass
1006.00	-34.82	Included	Included	100	-34.82	-13.00	-21.82	Pass
1006.00	-26.06	Included	Included	1000	-26.06	-13.00	-13.06	Pass

TRANSMITTER OUTPUT POWER SETTINGS: **Maximum (Combined RF outputs)**

Frequency, MHz	SA reading, RMS (Peak), dBm	Attenuator, dB	Cable loss, dB	RBW, kHz	Spurious emission, dBm	Limit, dBm	Margin, dB*	Verdict
Low carrier frequency								
759.99	-26.02	Included	Included	100	-26.02	-13.00	-13.02	Pass
1088.00	-29.15	Included	Included	100	-37.01	-13.00	-24.01	Pass
1088.00	-19.47	Included	Included	1000	-19.47	-13.00	-6.47	Pass
Mid carrier frequency								
760.004	-26.12	Included	Included	100	-26.12	-13.00	-13.12	Pass
1052.00	-27.65	Included	Included	100	-27.65	-13.00	-14.65	Pass
1052.00	-18.85	Included	Included	1000	-18.85	-13.00	-5.85	Pass
High carrier frequency								
759.998	-27.14	Included	Included	100	-27.14	-13.00	--14.14	Pass
799.982	-28.56	Included	Included	100	-28.56	-13.00	-15.56	Pass
1006.00	-25.87	Included	Included	100	-25.87	-13.00	-12.87	Pass
1006.00	-15.66	Included	Included	1000	-15.66	-13.00	-2.66	Pass

*****- Margin = Spurious emission – specification limit.
NOTE: Combined RF outputs were tested in 500 – 5000 MHz range. Single RF output was chosen as the worst case of power density and it was shown that all spurious emissions from single RF output do not come closer than 13 dB below the specified limit.

Reference numbers of test equipment used

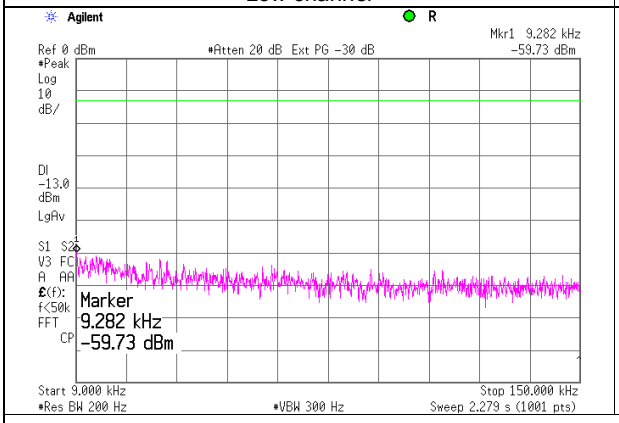
HL 2952	HL 3672	HL 3781	HL 3818	#1			

Full description is given in Appendix A.

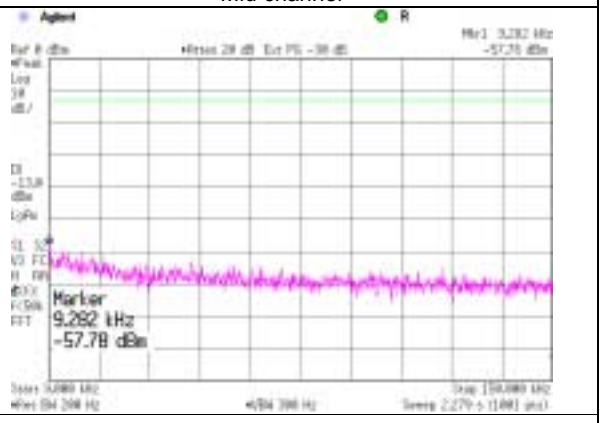
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.1 Spurious emission measurements in 9 - 150 kHz range, single RF output

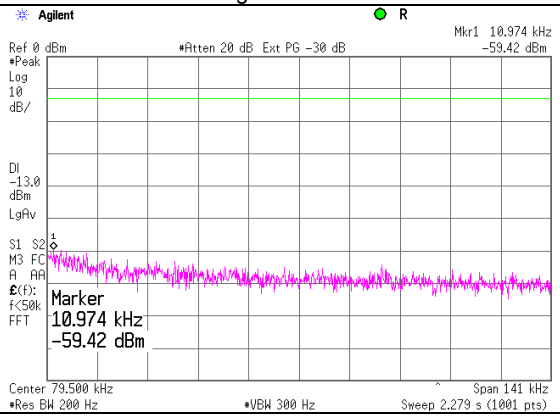
Low channel



Mid channel



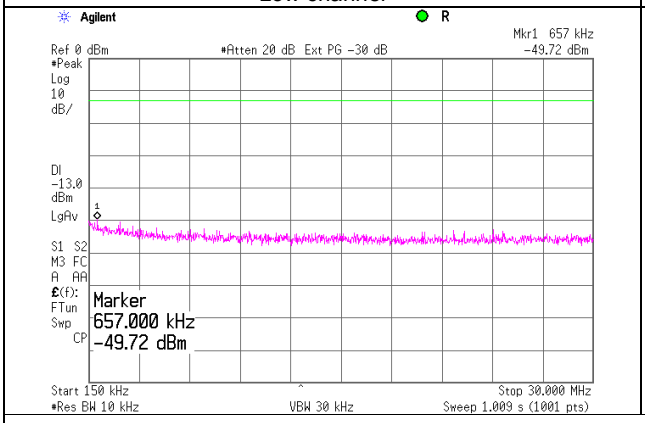
High channel



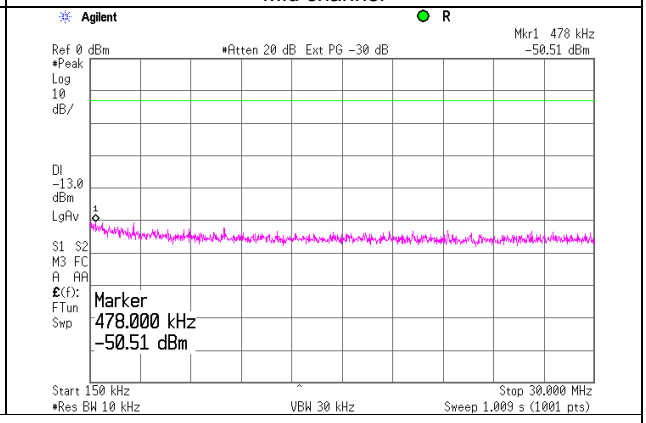
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.2 Spurious emission measurements in 0.15 - 30.0 MHz range, single RF output

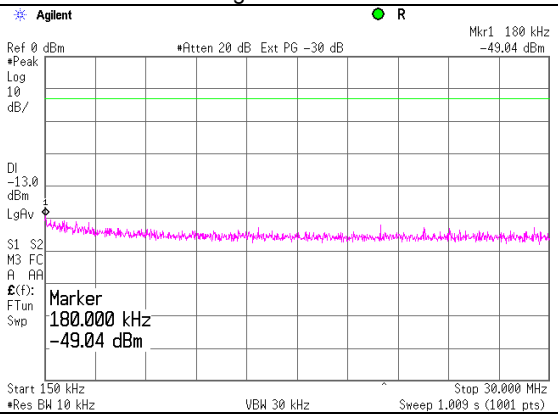
Low channel



Mid channel



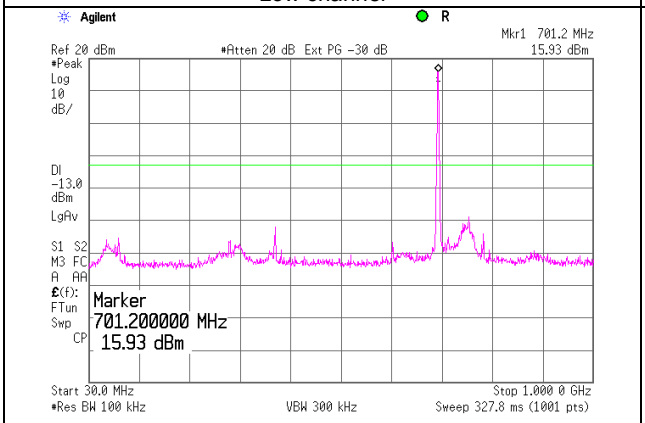
High channel



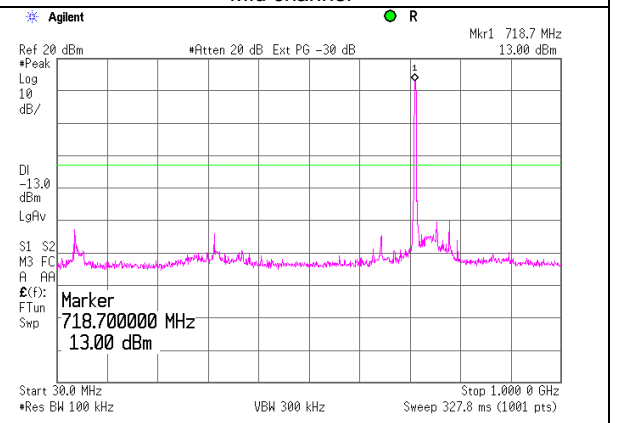
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.3 Spurious emission measurements in 30.0 - 1000 MHz range (peak), single RF output

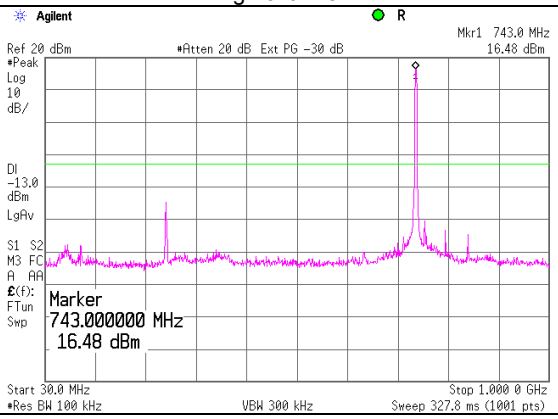
Low channel



Mid channel



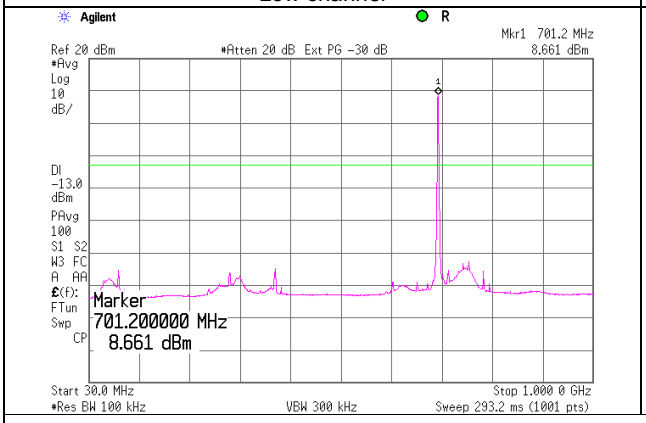
High channel



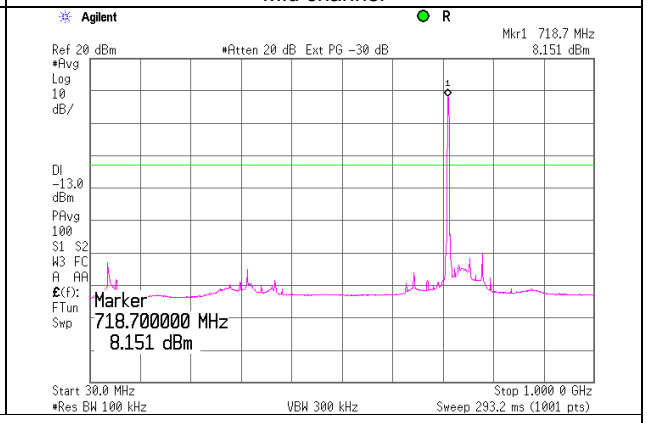
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.4 Spurious emission measurements in 30.0 - 1000 MHz range (average), single RF output

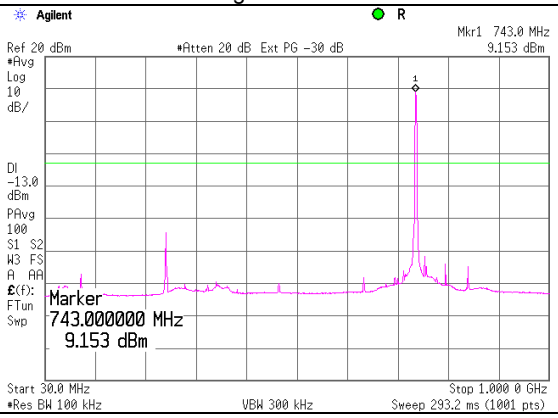
Low channel



Mid channel



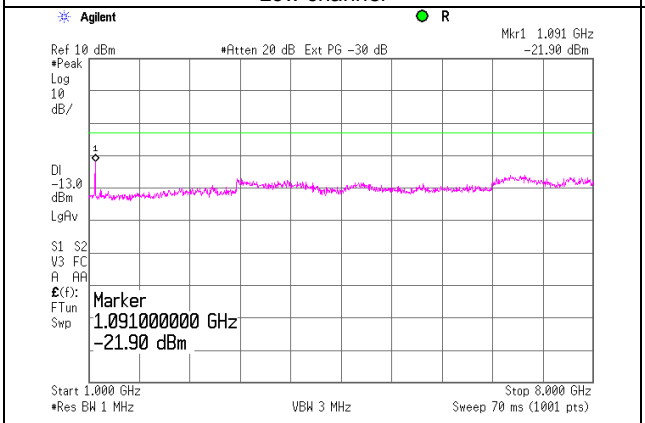
High channel



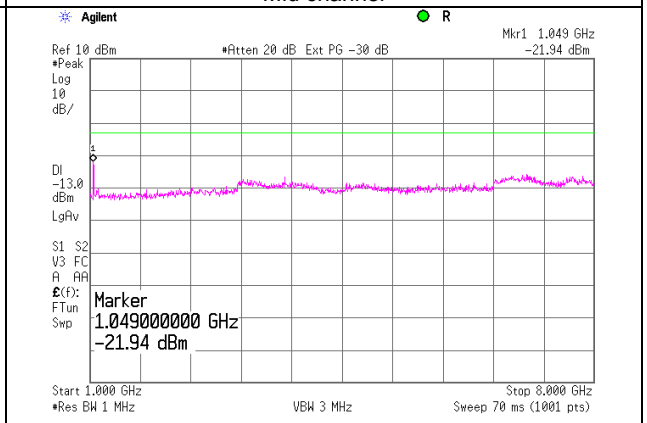
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.5 Spurious emission measurements in 1000 - 8000 MHz range, single RF output

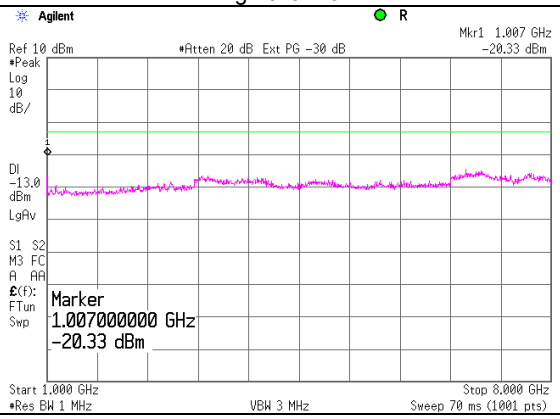
Low channel



Mid channel



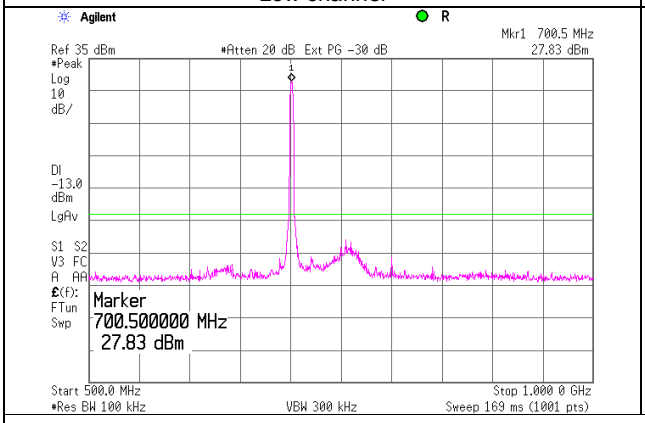
High channel



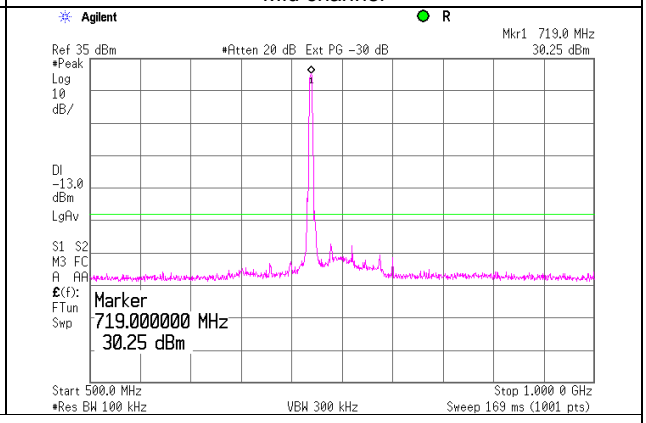
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.6 Spurious emission measurements in 30.0 - 1000 MHz range (peak), combined outputs

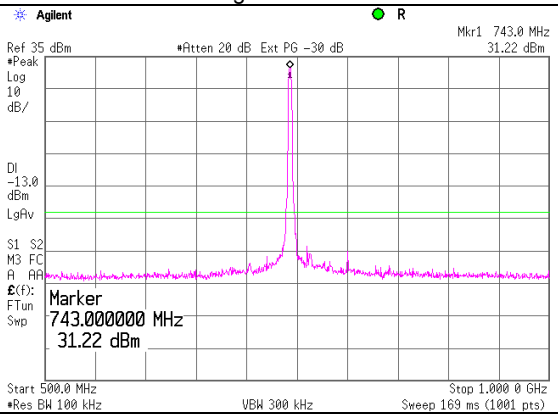
Low channel



Mid channel



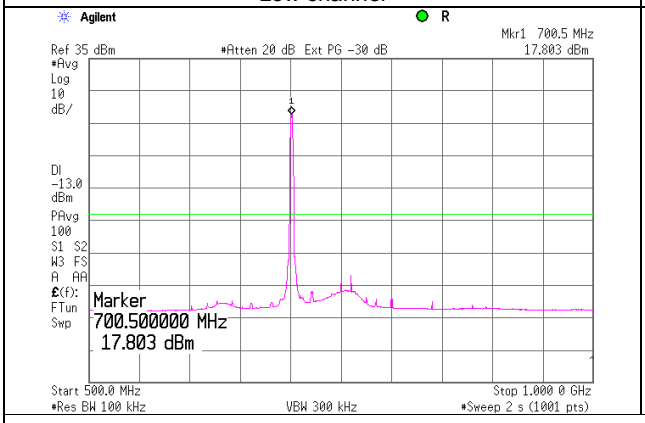
High channel



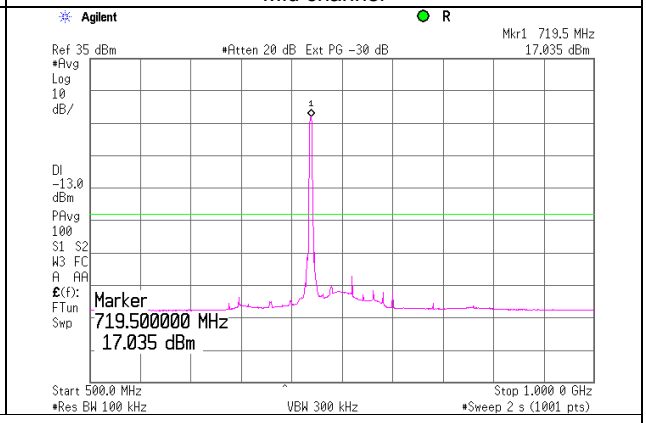
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.7 Spurious emission measurements in 30.0 - 1000 MHz range (average), combined outputs

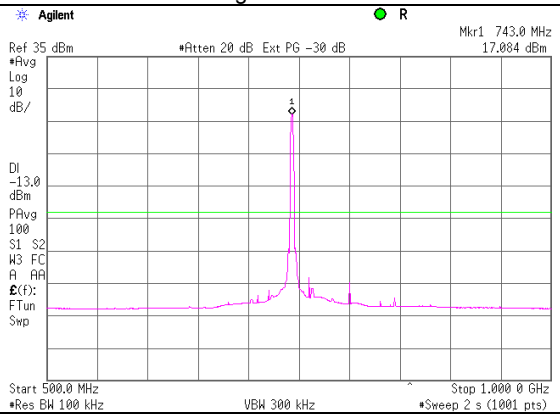
Low channel



Mid channel



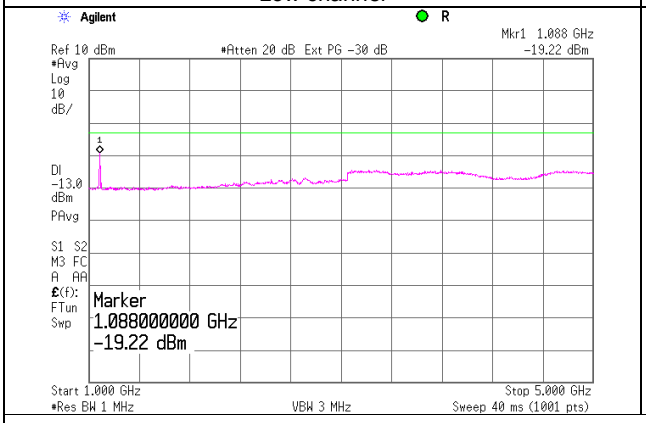
High channel



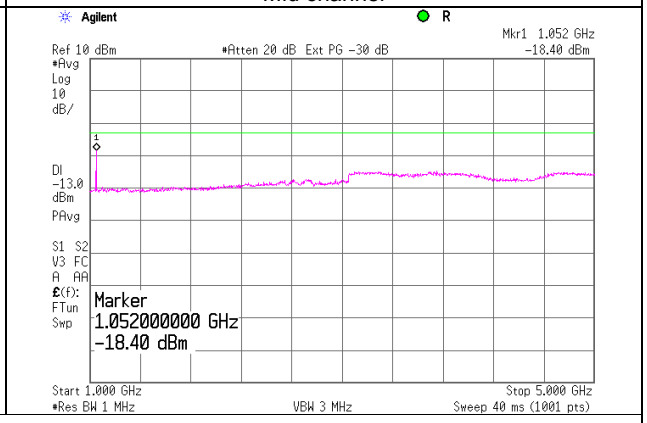
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.8 Spurious emission measurements in 1000 - 5000 MHz range, combined outputs

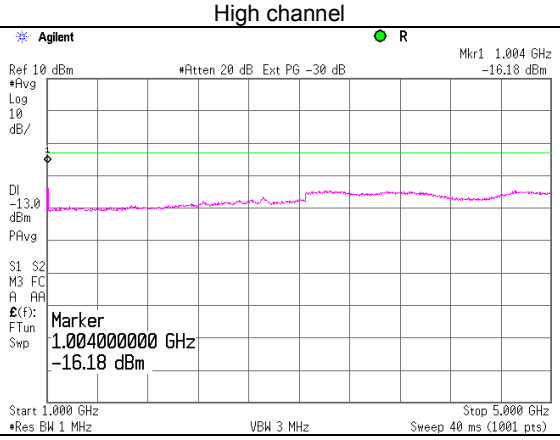
Low channel



Mid channel



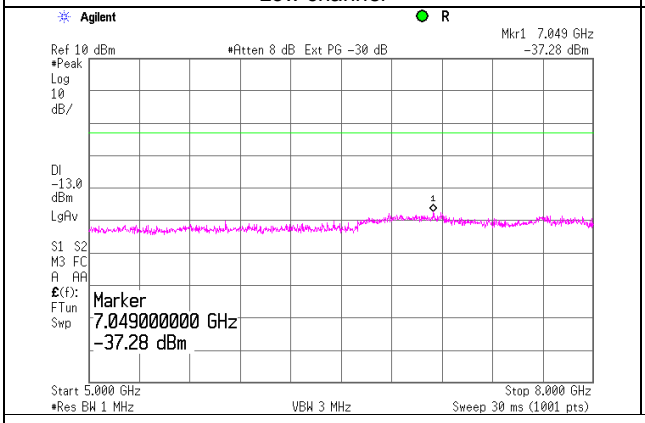
High channel



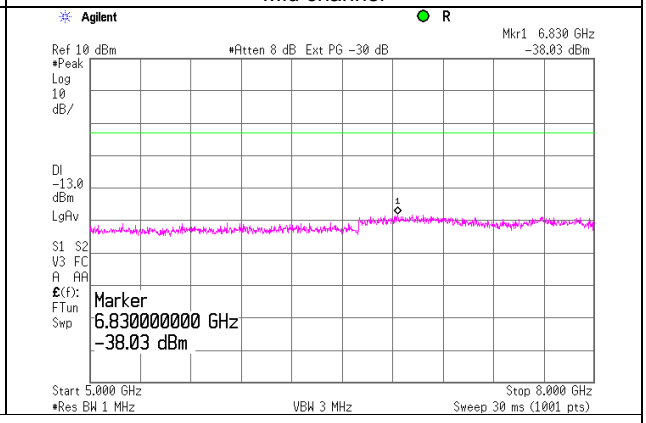
Test specification:	Section 27.53(g), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051 and 27.53(g); TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	8/8/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 52 %	Power Supply: 55 VDC
Remarks:			

Plot 7.5.9 Spurious emission measurements in 5000 - 8000 MHz range (single output)

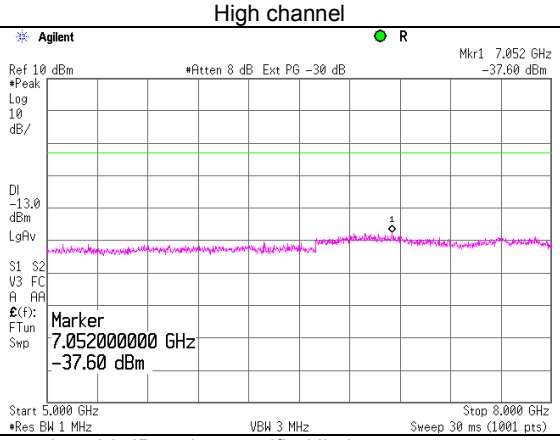
Low channel



Mid channel



High channel



NOTE: No spurious were found closer than 20 dB to the specified limit

Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

7.6 Frequency stability test

7.6.1 General

This test was performed to measure frequency stability of transmitter RF carrier. Specification test limits are given in Table 7.6.1.

Table 7.6.1 Frequency stability limits

Assigned frequency, MHz	Maximum allowed frequency displacement, Hz
698.0 – 746.0	The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation

7.6.2 Test procedure

7.6.2.1 The EUT was set up as shown in Figure 7.6.1, energized and its proper operation was checked.

7.6.2.2 The EUT power was turned off. Temperature within test chamber was set to +30˚C and a period of time sufficient to stabilize all of the oscillator circuit components was allowed.

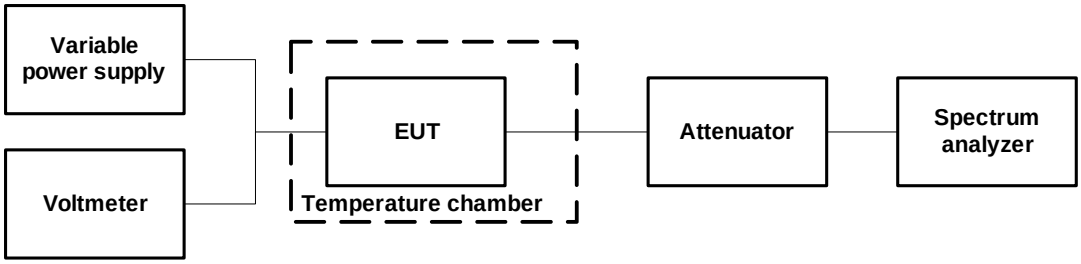
7.6.2.3 The EUT was powered on and carrier frequency was measured at start up moment and then every minute until frequency had been stabilized or 10 minutes elapsed whichever reached the last. The EUT was powered off.

7.6.2.4 The above procedure was repeated at 0˚C and at the lowest test temperature.

7.6.2.5 The EUT was powered on and carrier frequency was measured at start up moment and at the end of stabilization period at the rest of test temperatures and voltages. The EUT was powered off.

7.6.2.6 Frequency displacement was calculated and compared with the limit as provided in Table 7.6.2.

Figure 7.6.1 Frequency stability test setup



Test specification:	**Section 27.54, Frequency stability**		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	**Verdict:**	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	**Air Pressure:** 1005 hPa	**Relative Humidity:** 31 %	**Power Supply:** 120 VAC
Remarks:			

Table 7.6.2 Frequency stability test results

OPERATING FREQUENCY: 698.0 – 746.0 MHz
NOMINAL POWER VOLTAGE: 120 VAC
TEMPERATURE STABILIZATION PERIOD: 20 min
POWER DURING TEMPERATURE TRANSITION: Off
SPECTRUM ANALYZER MODE: Counter
RESOLUTION BANDWIDTH: 10 Hz
VIDEO BANDWIDTH: 30 Hz
MODULATION: Unmodulated

T, °C	Voltage, V	Frequency, MHz							Max frequency drift, Hz		Max frequency drift,ppm	
		Start up	1st min	2nd min	3rd min	4th min	5th min	10th min	Positive	Negative	Positive	Negative
701.0 MHz												
-30	nominal	701.002936	701.002938	701.002958	701.002971	701.002984	701.002994	701.003010	3890.00	0.00	5.55	0.00
-20	nominal	701.003338	NA	NA	NA	NA	NA	701.003651	4531.00	0.00	6.46	0.00
-10	nominal	701.003425	NA	NA	NA	NA	NA	701.003396	4305.00	0.00	6.14	0.00
0	nominal	701.003135	701.003084	701.003410	701.002856	701.002482	701.002478	701.002328	4290.00	0.00	6.12	0.00
10	nominal	701.000570	NA	NA	NA	NA	NA	701.000533	1450.00	0.00	2.07	0.00
20	15%	700.999050	NA	NA	NA	NA	NA	700.999026	0.00	-94.00	0.00	-0.13
20	nominal	700.999415	NA	NA	NA	NA	NA	700.999120	295.00	0.00	0.42	0.00
20	-15%	700.999073	NA	NA	NA	NA	NA	700.999002	0.00	-118.00	0.00	-0.17
30	nominal	700.999563	700.999501	700.999435	700.998897	700.998809	700.998162	700.997814	443.00	-1306.00	0.63	-1.86
40	nominal	700.998167	NA	NA	NA	NA	NA	700.997168	0.00	-1952.00	0.00	-2.78
50	nominal	700.997152	700.997164	700.997211	700.997272	700.997327	700.997484	700.997840	0.00	-1968.00	0.00	-2.81
719.0 MHz												
-30	nominal	719.002813	719.003813	719.003845	719.003854	719.002865	719.003868	719.003884	5035.00	0.00	7.00	0.00
-20	nominal	719.003534	NA	NA	NA	NA	NA	719.003556	4707.00	0.00	6.55	0.00
-10	nominal	719.003308	NA	NA	NA	NA	NA	719.003262	4459.00	0.00	6.20	0.00
0	nominal	719.002258	719.002148	719.002109	719.001995	719.001678	719.001535	719.002504	3655.30	0.00	5.08	0.00
10	nominal	719.000549	NA	NA	NA	NA	NA	719.000300	1700.00	0.00	2.36	0.00
20	15%	718.998268	NA	NA	NA	NA	NA	718.998827	0.00	-581.00	0.00	-0.81
20	nominal	718.998940	NA	NA	NA	NA	NA	718.998849	91.00	0.00	0.13	0.00
20	-15%	718.998953	NA	NA	NA	NA	NA	718/.998837	104.00	0.00	0.14	0.00
30	nominal	718.997560	718.997542	718.997535	718.997530	718.997516	718.997470	718.997432	0.00	-1417.00	0.00	-1.97
40	nominal	718.998214	NA	NA	NA	NA	NA	718.996886	0.00	-1963.00	0.00	-2.73
50	nominal	718.997167	718.997212	718.997589	718.997654	718.997698	718.997712	718.997779	0.00	-1682.00	0.00	-2.34
743.0 MHz												
-30	nominal	743.001439	743.001539	743.001687	743.001810	743.002662	743.002690	743.003216	4251.00	0.00	5.72	0.00
-20	nominal	743.003876	NA	NA	NA	NA	NA	743.003880	4915.00	0.00	6.62	0.00
-10	nominal	743.003667	NA	NA	NA	NA	NA	743.002620	4702.00	0.00	6.33	0.00
0	nominal	743.002362	743.002348	743.002312	743.002298	743.002282	743.002282	743.002247	3397.00	0.00	4.57	0.00
10	nominal	743.001945	NA	NA	NA	NA	NA	743.000720	2980.00	0.00	4.01	0.00
20	15%	743.000589	NA	NA	NA	NA	NA	742.998955	1624.00	-10.00	2.19	-0.01
20	nominal	742.999037	NA	NA	NA	NA	NA	742.998965	72.00	0.00	0.10	0.00
20	-15%	743.000045	NA	NA	NA	NA	NA	742.999141	1080.00	0.00	1.45	0.00
30	nominal	742.997590	742.997582	742.997578	742.997570	742.997554	742.997533	742.997511	0.00	-1454.00	0.00	-1.96
40	nominal	742.998163	NA	NA	NA	NA	NA	742.996979	0.00	-1986.00	0.00	-2.67
50	nominal	742.997020	742.997321	742.997587	742.997632	742.997687	742.997750	742.997870	0.00	-1945.00	0.00	-2.62

* - Reference frequency
** - Battery operating end point specified by the manufacturer.

NOTE: The frequency stability test results are sufficient to ensure that the fundamental emissions stay within the authorized channel block(s).

Reference numbers of test equipment used

HL 1424	HL 3286						

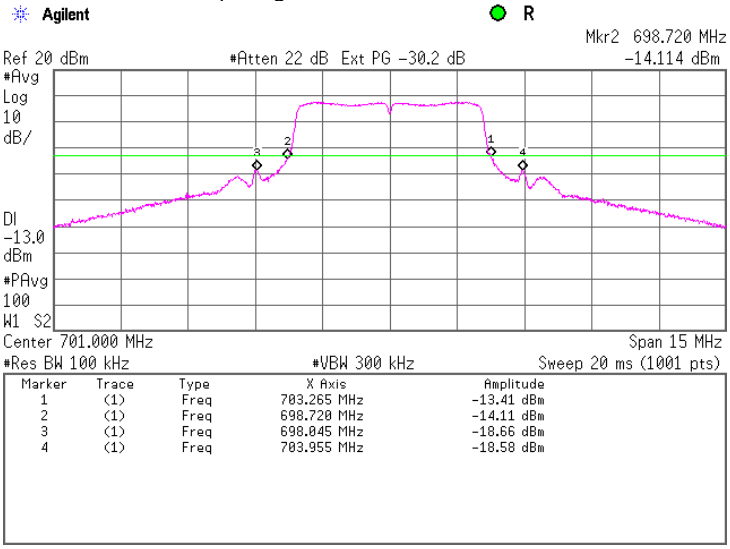
Full description is given in Appendix A.

Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

Low channel 5 MHz

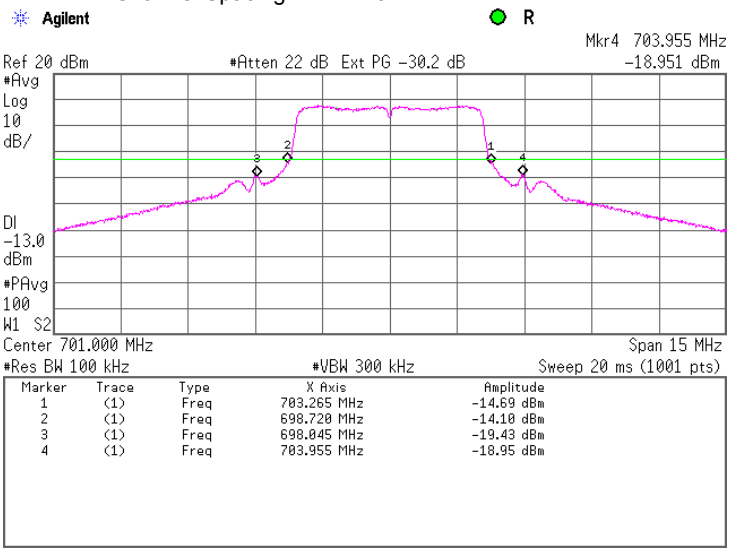
Plot 7.6.1 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 701.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Spacing: 5 MHz



Plot 7.6.2 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 701.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Spacing: 5 MHz

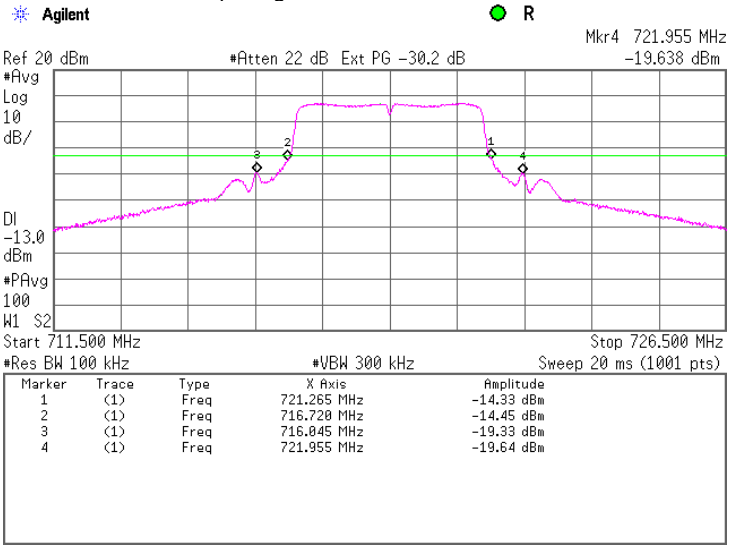


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

Mid channel 5 MHz

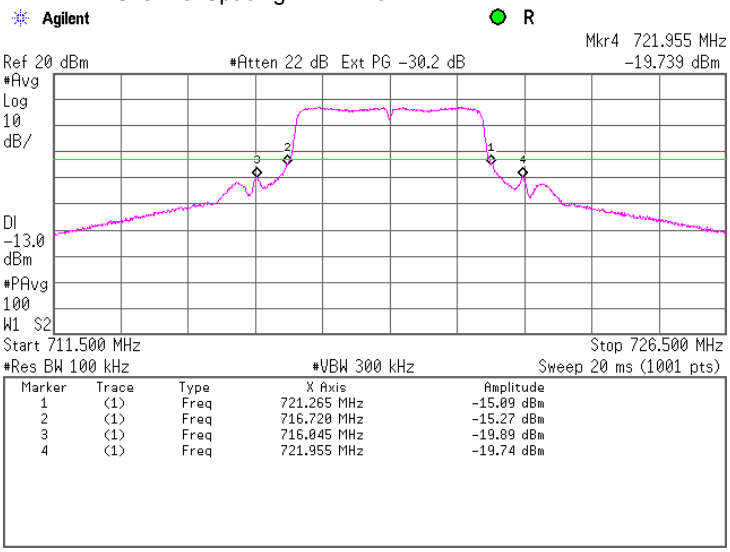
Plot 7.6.3 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 719.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Spacing: 5 MHz



Plot 7.6.4 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 719.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Spacing: 5 MHz

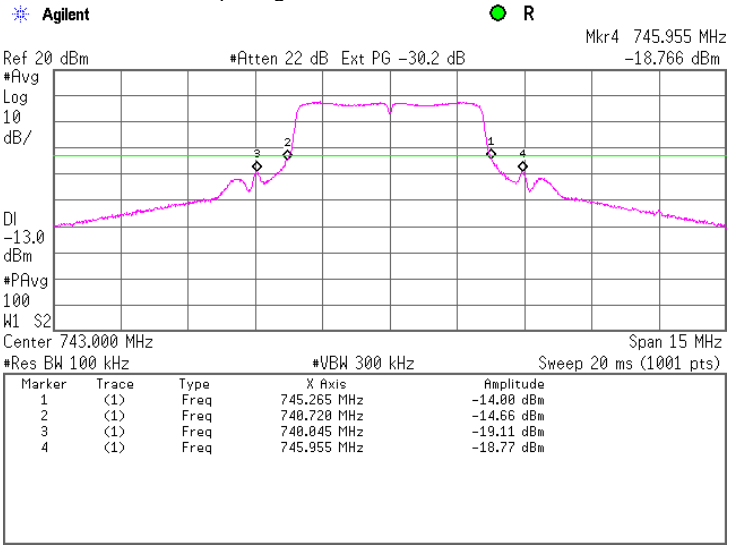


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

High channel 5 MHz

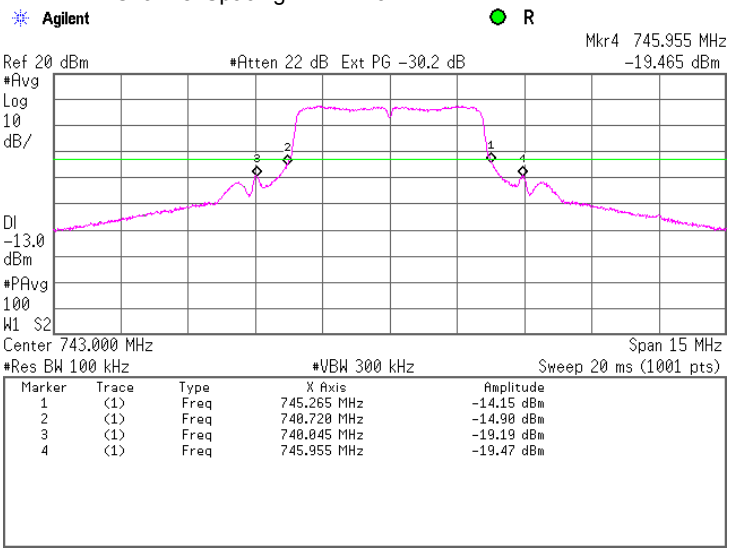
Plot 7.6.5 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 743.0 MHz
Modulation: OFDM 1.5 Mbps
Channel Spacing: 5 MHz



Plot 7.6.6 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 743.0 MHz
Modulation: OFDM 13.5 Mbps
Channel Spacing: 5 MHz

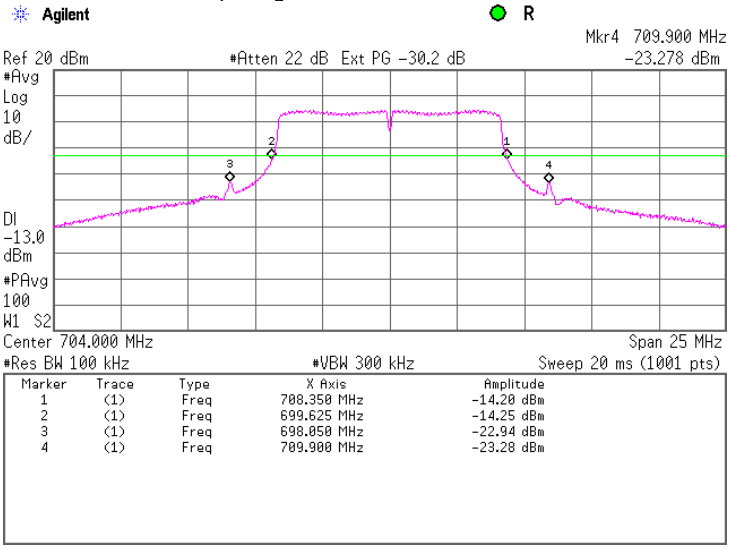


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

Low channel 10 MHz

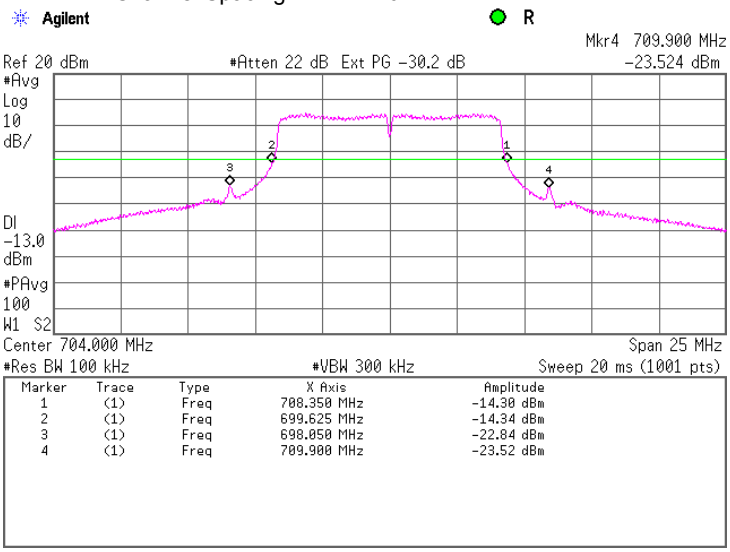
Plot 7.6.7 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 704.0 MHz
Modulation: OFDM 3 Mbps
Channel Spacing: 10 MHz



Plot 7.6.8 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 704.0 MHz
Modulation: OFDM 27 Mbps
Channel Spacing: 10 MHz

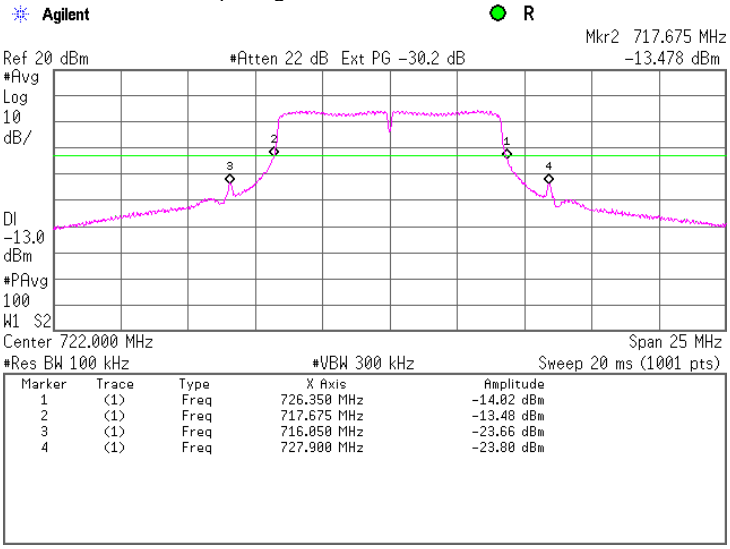


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

Mid channel 10 MHz

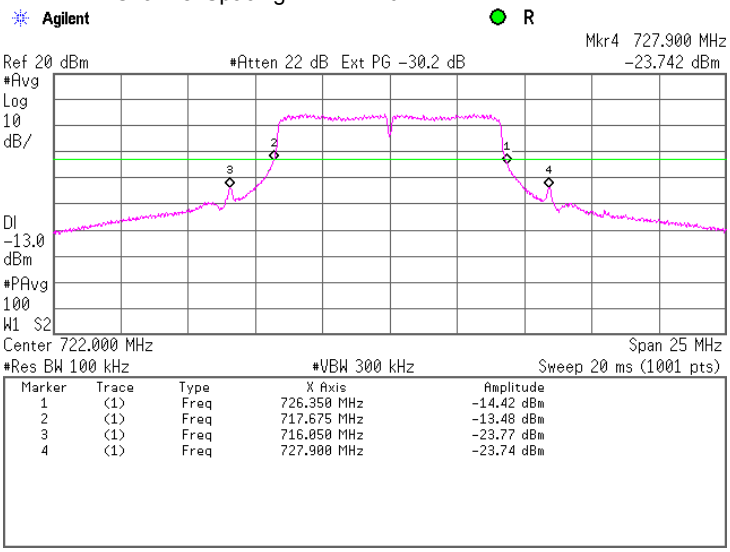
Plot 7.6.9 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 722.0 MHz
Modulation: OFDM 3 Mbps
Channel Spacing: 10 MHz



Plot 7.6.10 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 722.0 MHz
Modulation: OFDM 27 Mbps
Channel Spacing: 10 MHz

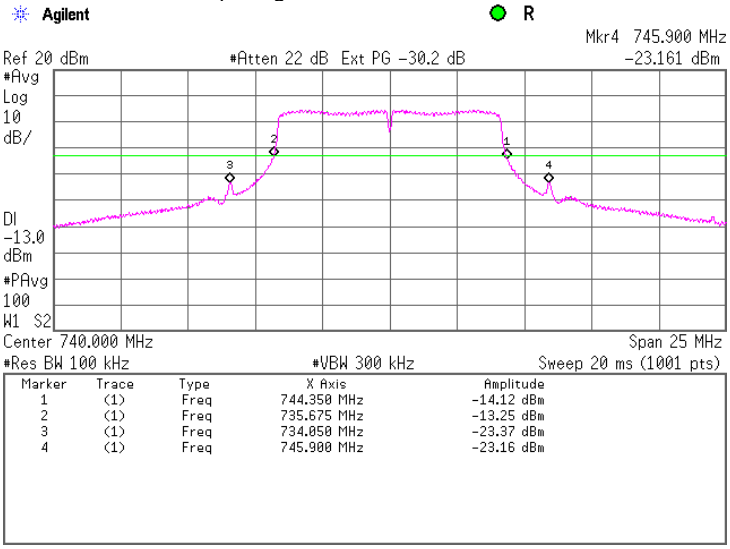


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

High channel 10 MHz

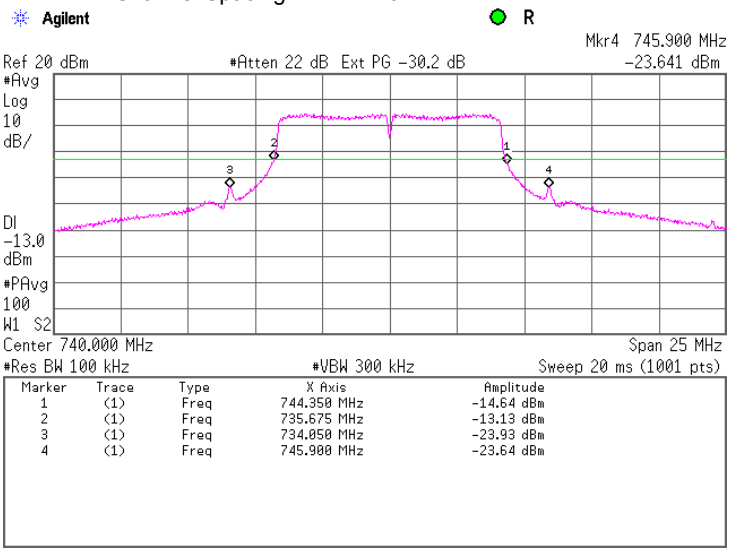
Plot 7.6.11 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 740.0 MHz
Modulation: OFDM 3 Mbps
Channel Spacing: 10 MHz



Plot 7.6.12 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 740.0 MHz
Modulation: OFDM 27 Mbps
Channel Spacing: 10 MHz

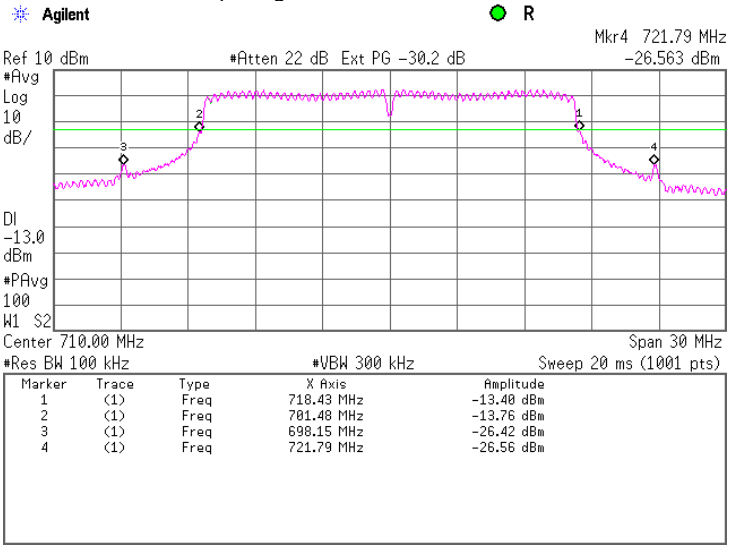


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

Low channel 20 MHz

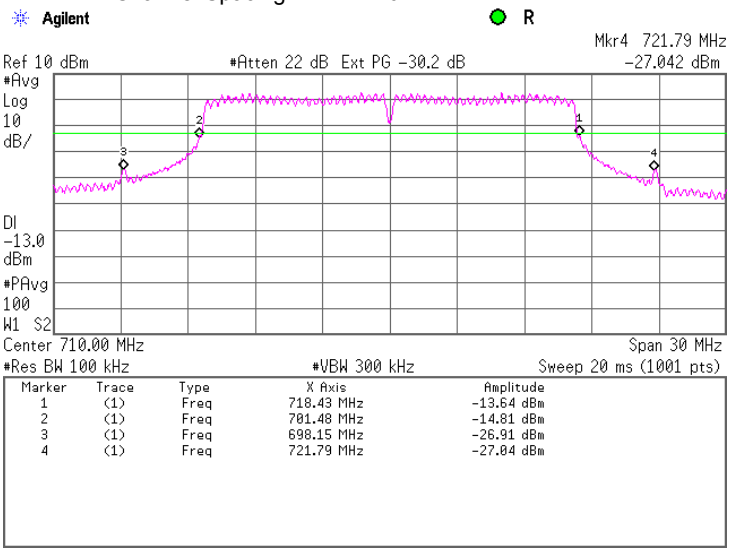
Plot 7.6.13 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 710.0 MHz
Modulation: OFDM 6 Mbps
Channel Spacing: 20 MHz



Plot 7.6.14 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 710.0 MHz
Modulation: OFDM 54 Mbps
Channel Spacing: 20 MHz

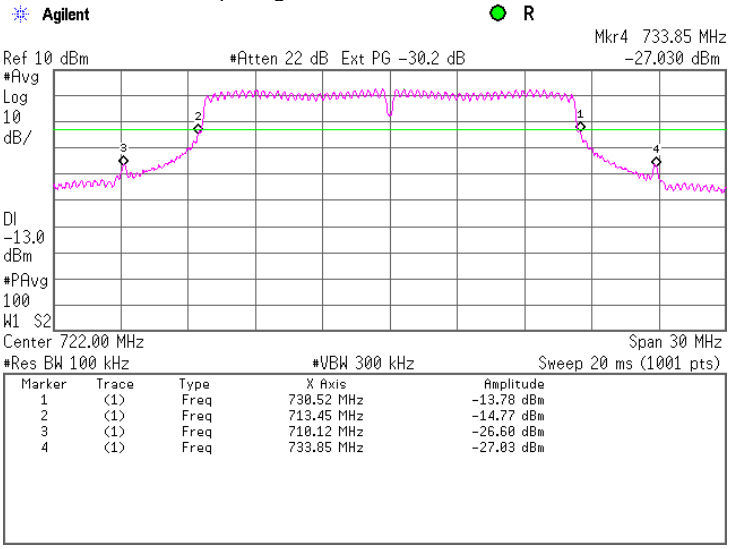


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

Mid channel 20 MHz

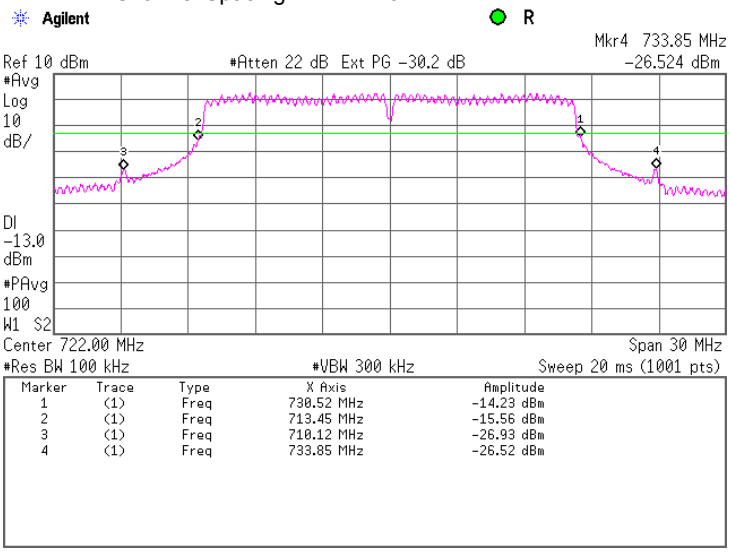
Plot 7.6.15 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 722.0 MHz
Modulation: OFDM 6 Mbps
Channel Spacing: 20 MHz



Plot 7.6.16 Spurious emissions at RF antenna connector band edge measurements

Frequency: 722.0 MHz
Modulation: OFDM 54 Mbps
Channel Spacing: 20 MHz

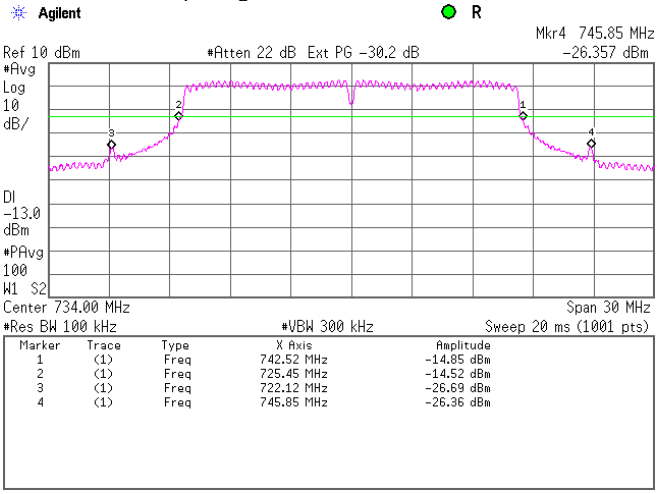


Test specification:	Section 27.54, Frequency stability		
Test procedure:	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict:	PASS
Date:	8/5/2010		
Temperature: 25.1 ºC	Air Pressure: 1005 hPa	Relative Humidity: 31 %	Power Supply: 120 VAC
Remarks:			

High channel 20 MHz

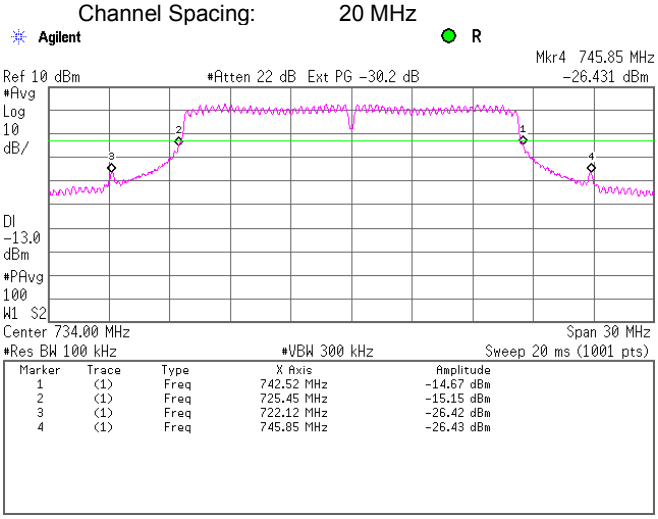
Plot 7.6.17 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 734.0 MHz
Modulation: OFDM 6 Mbps
Channel Spacing: 20 MHz



Plot 7.6.18 Spurious emissions at RF antenna connector, band edge measurements

Frequency: 734.0 MHz
Modulation: OFDM 54 Mbps
Channel Spacing: 20 MHz



8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
0446	Antenna, Loop, Active, 10 kHz - 30 MHz	EMCO	6502	2857	29-Jun-10	29-Jun-11
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard	8546A	3617A 00319, 3448A002 53	27-Aug-09	27-Aug-10
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE, 26 - 2000 MHz	EMCO	3141	9611-1011	11-Jan-10	11-Jan-11
1424	Spectrum Analyzer, 30 Hz- 40 GHz	Agilent Technologies	8564EC	3946A002 19	28-Aug-09	28-Aug-10
2432	Antenna, Double-Ridged Waveguide Horn 1-18 GHz	EMC Test Systems	3115	00027177	11-Jun-10	11-Jun-11
2870	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-9155-00	2870	04-Aug-10	04-Aug-11
2952	Cable, RF, 18 GHz, 1.2 m, SMA-SMA	Gore	10020014	NA	05-Oct-09	05-Oct-10
2953	Cable, RF, 18 GHz, 1.2 m, SMA-SMA	Gore	10020014	NA	05-Oct-09	05-Oct-10
3001	EMC Analyzer, 9 kHz to 3 GHz	Agilent Technologies	E7402A	US394401 80	31-Dec-09	31-Dec-10
3002	Surge coupler/decoupler for telecom lines	Hermon Laboratories	CDN 61000-4-5/8UBSL	3002	01-Jan-10	01-Jan-11
3042	Antenna, Horn, 1-18 GHz	Hermon Laboratories	A1-18	3042	29-Jan-10	29-Jan-11
3121	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-9155-00	3121	01-Jan-10	01-Jan-11
3234	Signal generator, 9 kHz - 3.3 GHz	Rohde & Schwarz	SML03	103387	20-Jul-10	20-Jul-11
3286	Temperature Chamber, (-40 to +170) °C	Thermotron	EL-8-CH-1-1-CO2	21-9048	09-Sep-09	09-Sep-10
3334	Filter, High Pass, 2.5 GHz	LORCH MICROWAVE	5HP7-2500-SR	Z22	05-Oct-09	05-Oct-10
3340	High Pass Filter, 50 Ohm, 1000 to 3000 MHz	Mini-Circuits	SHP-1000+	NA	05-Oct-09	05-Oct-10
3390	Microwave Cable Assembly, 26.5 GHz, 1.0 m, N type/N type	Suhner Sucoflex	104EA	3390	07-Feb-10	07-Feb-11
3672	GP I-Key USB Hardlock Dongle, license V5.0 to V8.X, for EMC32-S s/w HL3676	Rohde & Schwarz	EMC32M S	100090	01-Jan-10	01-Jan-11
3762	Precision Fixed Attenuator, 50 Ohm, 5 W, 20 dB, DC to 18 GHz	Mini-Circuits	BW-S20W5+	NA	07-Dec-09	07-Dec-10
3781	Precision Fixed Attenuator, 50 Ohm, 5 W, 10 dB, DC to 18 GHz	Mini-Circuits	BW-S10W5+	NA	07-Dec-09	07-Dec-10
3787	Precision Fixed Attenuator, 50 Ohm, 5 W, 10 dB, DC to 18 GHz	Mini-Circuits	BW-S10W5+	NA	07-Dec-09	07-Dec-10
3818	PSA Series Spectrum Analyzer, 3 Hz- 44 GHz	Agilent Technologies	E4446A	MY482502 88	25-Sep-09	25-Sep-10
3884	Preamplifier, 0.1 to 18 GHz, Gain 25 dB, N-type(f) in, N-type(m) out.	Agilent Technologies	87405C	MY470104 18	13-Jan-10	13-Jan-11

8.1 Wavion's test equipment and ancillaries used for tests

No.	Description	Manufacturer	Model No.	Serial No.	Due Calibr
#1	Combiner 8:1*	Mini-Circuits	ZN8PD1-53-S+	469500925	NA

9 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Transmitter tests	
Carrier power conducted at antenna connector	± 1.7 dB
Carrier power radiated (substitution method)	± 4.5 dB
Occupied bandwidth	±8%
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Spurious emissions radiated 30 MHz – 40 GHz (substitution method)	± 4.5 dB
Frequency error	30 – 300 MHz: ± 50.5 Hz (1.68 ppm) 300 – 1000 MHz: ± 168 Hz (0.56 ppm)
Transient frequency behaviour	187 Hz ± 13.9 %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

10 APPENDIX C Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility.
Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47), Registration Numbers 90624 for OATS and 90623 for the anechoic chamber; by Industry Canada for electromagnetic emissions (file numbers IC 2186A-1 for OATS, IC 2186A-2 for anechoic chamber, IC 2186A-3 for full-anechoic chamber for RE measurements above 1 GHz), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, G-27 for full-anechoic chamber for RE measurements above 1 GHz, C-845 for conducted emissions site, T-1606 for conducted emissions at telecommunication ports), has a status of a Telefication - Listed Testing Laboratory, Certificate No. L138/00. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01).

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11 APPENDIX D Specification references

FCC 47CFR part 27: 2009	Miscellaneous wireless communications services
FCC 47CFR part 1: 2009	Practice and procedure
FCC 47CFR part 2: 2009	Frequency allocations and radio treaty matters; general rules and regulations
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
ANSI/TIA/EIA-603-C:2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

12 APPENDIX E Test equipment correction factors

Antenna Factor
Active Loop Antenna
EMC Test Systems, model 6502, S/N 2857, HL 0446

Frequency, MHz	Magnetic Antenna Factor, dB(S/m)	Electric Antenna Factor, dB(1/m)
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.7
0.750	-41.9	9.6
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.1
4.000	-41.4	10.1
5.000	-41.5	10.0
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

Antenna factor in dB(S/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μA/m).
Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna factor
Biconilog antenna EMCO Model 3141
Ser.No.1011, HL 0604

Frequency, MHz	Antenna Factor, dB(1/m)	Frequency, MHz	Antenna Factor, dB(1/m)
26	7.8	940	24.0
28	7.8	960	24.1
30	7.8	980	24.5
40	7.2	1000	24.9
60	7.1	1020	25.0
70	8.5	1040	25.2
80	9.4	1060	25.4
90	9.8	1080	25.6
100	9.7	1100	25.7
110	9.3	1120	26.0
120	8.8	1140	26.4
130	8.7	1160	27.0
140	9.2	1180	27.0
150	9.8	1200	26.7
160	10.2	1220	26.5
170	10.4	1240	26.5
180	10.4	1260	26.5
190	10.3	1280	26.6
200	10.6	1300	27.0
220	11.6	1320	27.8
240	12.4	1340	28.3
260	12.8	1360	28.2
280	13.7	1380	27.9
300	14.7	1400	27.9
320	15.2	1420	27.9
340	15.4	1440	27.8
360	16.1	1460	27.8
380	16.4	1480	28.0
400	16.6	1500	28.5
420	16.7	1520	28.9
440	17.0	1540	29.6
460	17.7	1560	29.8
480	18.1	1580	29.6
500	18.5	1600	29.5
520	19.1	1620	29.3
540	19.5	1640	29.2
560	19.8	1660	29.4
580	20.6	1680	29.6
600	21.3	1700	29.8
620	21.5	1720	30.3
640	21.2	1740	30.8
660	21.4	1760	31.1
680	21.9	1780	31.0
700	22.2	1800	30.9
720	22.2	1820	30.7
740	22.1	1840	30.6
760	22.3	1860	30.6
780	22.6	1880	30.6
800	22.7	1900	30.6
820	22.9	1920	30.7
840	23.1	1940	30.9
860	23.4	1960	31.2
880	23.8	1980	31.6
900	24.1	2000	32.0
920	24.1		

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna factor
Double-ridged guide horn antenna
Model 3115, serial number: 00027177, HL 2432

Frequency, MHz	Antenna factor. dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.8
2500.0	28.9
3000.0	30.7
3500.0	31.8
4000.0	33.0
4500.0	32.8
5000.0	34.2
5500.0	34.9
6000.0	35.2
6500.0	35.4
7000.0	36.3
7500.0	37.3
8000.0	37.5
8500.0	38.0
9000.0	38.3
9500.0	38.3
10000.0	38.7
10500.0	38.7
11000.0	38.9
11500.0	39.5
12000.0	39.5
12500.0	39.4
13000.0	40.5
13500.0	40.8
14000.0	41.5
14500.0	41.3
15000.0	40.2
15500.0	38.7
16000.0	38.5
16500.0	39.8
17000.0	41.9
17500.0	45.8
18000.0	49.1

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Cable loss
Cable coaxial, Huber-Suhner, 18 GHz, 6.4 m, SMA - SMA, model 198-9155-00, HL 2870

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.09	5750	2.49	12000	3.71
30	0.17	6000	2.53	12250	3.81
100	0.32	6250	2.58	12500	3.84
250	0.49	6500	2.64	12750	3.88
500	0.70	6750	2.69	13000	3.92
750	0.86	7000	2.75	13250	3.96
1000	1.00	7250	2.80	13500	3.98
1250	1.11	7500	2.87	13750	4.01
1500	1.23	7750	2.93	14000	4.03
1750	1.34	8000	2.94	14250	4.09
2000	1.41	8250	3.00	14500	4.08
2250	1.51	8500	3.04	14750	4.10
2500	1.59	8750	3.08	15000	4.15
2750	1.68	9000	3.14	15250	4.22
3000	1.76	9250	3.16	15500	4.31
3250	1.83	9500	3.22	15750	4.42
3500	1.91	9750	3.26	16000	4.48
3750	1.97	10000	3.36	16250	4.54
4000	2.05	10250	3.41	16500	4.56
4250	2.11	10500	3.46	16750	4.57
4500	2.18	10750	3.50	17000	4.59
4750	2.24	11000	3.54	17250	4.66
5000	2.30	11250	3.58	17500	4.70
5250	2.36	11500	3.63	17750	4.76
5500	2.43	11750	3.66	18000	4.72

Cable loss
Cable coaxial, Gore, 18 GHz, 1.2 m, SMA-SMA, S/N 10020014
HL 2952

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.03	5750	0.97	12000	1.50
30	0.05	6000	1.01	12250	1.45
100	0.11	6250	1.03	12500	1.48
250	0.19	6500	1.06	12750	1.57
500	0.26	6750	1.08	13000	1.51
750	0.32	7000	1.10	13250	1.64
1000	0.38	7250	1.13	13500	1.60
1250	0.43	7500	1.13	13750	1.63
1500	0.47	7750	1.21	14000	1.59
1750	0.53	8000	1.20	14250	1.66
2000	0.55	8250	1.24	14500	1.60
2250	0.59	8500	1.29	14750	1.65
2500	0.63	8750	1.23	15000	1.72
2750	0.66	9000	1.27	15250	1.68
3000	0.69	9250	1.27	15500	1.73
3250	0.72	9500	1.29	15750	1.70
3500	0.75	9750	1.30	16000	1.82
3750	0.78	10000	1.38	16250	1.79
4000	0.82	10250	1.44	16500	1.81
4250	0.84	10500	1.47	16750	1.91
4500	0.86	10750	1.45	17000	1.92
4750	0.90	11000	1.50	17250	1.98
5000	0.91	11250	1.46	17500	2.05
5250	0.94	11500	1.47	17750	2.04
5500	0.96	11750	1.44	18000	2.05

Cable loss
Cable coaxial, Gore, 25.5 GHz, 1.2 m, SMA-SMA, S/N 10020014
HL 2953

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.06	8750	1.28	18000	1.84
30	0.06	9000	1.30	18250	1.91
100	0.12	9250	1.35	18500	1.94
250	0.19	9500	1.34	18750	1.92
500	0.27	9750	1.36	19000	1.95
750	0.34	10000	1.33	19250	2.00
1000	0.40	10250	1.38	19500	1.96
1250	0.45	10500	1.39	19750	2.02
1500	0.50	10750	1.39	20000	1.92
1750	0.54	11000	1.43	20250	2.04
2000	0.57	11250	1.42	20500	2.00
2250	0.60	11500	1.48	20750	2.09
2500	0.64	11750	1.49	21000	2.01
2750	0.67	12000	1.59	21250	2.07
3000	0.70	12250	1.50	21500	2.20
3250	0.74	12500	1.55	21750	2.10
3500	0.76	12750	1.55	22000	2.24
3750	0.80	13000	1.61	22250	2.25
4000	0.83	13250	1.62	22500	2.12
4250	0.85	13500	1.56	22750	2.05
4500	0.87	13750	1.61	23000	2.10
4750	0.91	14000	1.57	23250	2.03
5000	0.92	14250	1.66	23500	2.08
5250	0.96	14500	1.58	23750	2.14
5500	0.99	14750	1.69	24000	2.16
5750	0.99	15000	1.71	24250	2.25
6000	1.03	15250	1.74	24500	2.17
6250	1.05	15500	1.75	24750	2.32
6500	1.07	15750	1.72	25000	2.32
6750	1.08	16000	1.89	25250	2.32
7000	1.12	16250	1.79	25500	2.41
7250	1.13	16500	1.84	25750	2.31
7500	1.15	16750	1.82	26000	2.28
7750	1.20	17000	1.79	26250	2.32
8000	1.20	17250	1.78	26500	2.29
8250	1.23	17500	1.85		
8500	1.27	17750	1.83		

Cable loss
Microwave Cable Assembly, 18 GHz, 6.4 m, SMA – SMA, Huber-Suhner, model 198-9155-00
HL 3121

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.08	3600	2.10	7400	3.08	11200	3.85	15100	4.58
30	0.18	3700	2.14	7500	3.11	11300	3.85	15200	4.60
50	0.26	3800	2.18	7600	3.14	11400	3.86	15300	4.63
100	0.34	3900	2.19	7700	3.16	11500	3.86	15400	4.65
200	0.47	4000	2.25	7800	3.18	11600	3.87	15500	4.71
300	0.59	4100	2.25	7900	3.20	11700	3.85	15600	4.70
400	0.66	4200	2.28	8000	3.22	11800	3.96	15700	4.69
500	0.75	4300	2.35	8100	3.26	11900	3.92	15800	4.71
600	0.83	4400	2.35	8200	3.27	12000	3.92	15900	4.74
700	0.90	4500	2.38	8300	3.29	12100	3.94	16000	4.69
800	0.96	4600	2.43	8400	3.30	12200	3.94	16100	4.72
900	1.02	4700	2.43	8500	3.31	12300	3.99	16200	4.71
1000	1.07	4800	2.45	8600	3.33	12400	4.02	16300	4.74
1100	1.12	4900	2.48	8700	3.35	12500	4.10	16400	4.74
1200	1.15	5000	2.55	8800	3.36	12600	4.09	16500	4.75
1300	1.22	5100	2.54	8900	3.38	12700	4.15	16600	4.78
1400	1.28	5200	2.56	9000	3.40	12800	4.15	16700	4.86
1500	1.29	5300	2.58	9100	3.41	12900	4.08	16800	4.84
1600	1.36	5400	2.61	9200	3.45	13000	4.21	16900	4.83
1700	1.40	5500	2.64	9300	3.48	13100	4.19	17000	4.86
1800	1.45	5600	2.69	9400	3.52	13200	4.29	17100	4.83
1900	1.51	5700	2.67	9500	3.54	13300	4.24	17200	4.90
2000	1.50	5800	2.71	9600	3.59	13400	4.26	17300	4.91
2100	1.56	5900	2.73	9700	3.59	13500	4.26	17400	4.94
2200	1.59	6000	2.75	9800	3.62	13600	4.29	17500	4.93
2300	1.63	6100	2.81	9900	3.70	13700	4.35	17600	4.93
2400	1.73	6200	2.80	10000	3.70	13800	4.31	17700	5.00
2500	1.73	6300	2.82	10100	3.72	13900	4.29	17800	5.01
2600	1.78	6400	2.85	10200	3.73	14000	4.32	17900	5.00
2700	1.84	6500	2.87	10300	3.75	14100	4.33	18000	5.00
2800	1.84	6600	2.90	10400	3.76	14200	4.34		
2900	1.91	6700	2.91	10500	3.77	14300	4.36		
3000	1.91	6800	2.94	10600	3.79	14400	4.38		
3100	1.97	6900	2.96	10700	3.80	14600	4.42		
3200	1.98	7000	2.98	10800	3.81	14700	4.42		
3300	2.04	7100	3.01	10900	3.81	14800	4.55		
3400	2.04	7200	3.02	11000	3.83	14900	4.55		
3500	2.10	7300	3.04	11100	3.84	15000	4.55		

Cable loss
Cable coaxial, Microwave Cable Assembly, 104EA, 18 GHz, 1.0 m
Suhner Sucoflex, HL 3390

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.03	4800	0.55	9800	0.89	14900	1.07
30	0.04	4900	0.56	9900	0.89	15000	1.07
50	0.05	5000	0.57	10000	0.86	15100	1.08
100	0.07	5100	0.58	10100	0.86	15200	1.07
200	0.10	5200	0.58	10200	0.88	15300	1.09
300	0.12	5300	0.59	10300	0.92	15400	1.10
400	0.14	5400	0.59	10400	0.94	15500	1.10
500	0.16	5500	0.60	10500	0.96	15600	1.12
600	0.17	5600	0.61	10600	0.93	15700	1.15
700	0.18	5700	0.61	10700	0.89	15800	1.15
800	0.20	5800	0.63	10800	0.89	15900	1.17
900	0.21	5900	0.63	10900	0.88	16000	1.14
1000	0.23	6000	0.64	11000	0.92	16100	1.14
1100	0.24	6100	0.64	11100	0.91	16200	1.15
1200	0.25	6200	0.64	11200	0.89	16300	1.14
1300	0.27	6300	0.65	11300	0.88	16400	1.13
1400	0.28	6400	0.65	11400	0.88	16500	1.13
1500	0.28	6500	0.66	11500	0.90	16600	1.13
1600	0.30	6600	0.67	11600	0.94	16700	1.14
1700	0.31	6700	0.67	11700	0.96	16800	1.14
1800	0.32	6800	0.67	11800	0.92	16900	1.14
1900	0.33	6900	0.68	11900	0.92	17000	1.14
2000	0.34	7000	0.67	12000	0.91	17100	1.15
2100	0.35	7100	0.68	12100	0.92	17200	1.14
2200	0.35	7200	0.69	12200	0.95	17300	1.15
2300	0.36	7300	0.69	12300	0.98	17400	1.15
2400	0.37	7400	0.68	12400	0.96	17500	1.16
2500	0.39	7500	0.69	12500	0.99	17600	1.16
2600	0.40	7600	0.70	12600	0.96	17700	1.16
2700	0.41	7700	0.71	12700	0.93	17800	1.19
2800	0.42	7800	0.72	12800	0.94	17900	1.21
2900	0.42	7900	0.72	12900	0.98	18000	1.25
3000	0.43	8000	0.72	13000	0.99		
3100	0.44	8100	0.73	13100	0.99		
3200	0.45	8200	0.74	13200	0.99		
3300	0.46	8300	0.75	13300	0.99		
3400	0.46	8400	0.74	13400	1.00		
3500	0.47	8500	0.73	13500	1.02		
3600	0.47	8600	0.73	13600	1.05		
3700	0.47	8700	0.75	13700	1.03		
3800	0.49	8800	0.77	13800	1.02		
3900	0.49	8900	0.77	13900	1.03		
4000	0.50	9000	0.77	14000	1.03		
4100	0.51	9100	0.77	14100	1.05		
4200	0.52	9200	0.78	14200	1.05		
4300	0.52	9300	0.80	14300	1.04		
4400	0.53	9400	0.82	14400	1.03		
4500	0.53	9500	0.82	14600	1.06		
4600	0.54	9600	0.83	14700	1.07		
4700	0.56	9700	0.89	14800	1.08		

13 APPENDIX F Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
CBW	channel bandwidth
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μV)	decibel referred to one microvolt
dB(μV/m)	decibel referred to one microvolt per meter
dB(μA)	decibel referred to one microampere
DC	direct current
EBW	emission bandwidth
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μs	microsecond
NA	not applicable
NB	narrow band
OATS	open area test site
Ω	Ohm
QP	quasi-peak
PM	pulse modulation
PS	power supply
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
VA	volt-ampere

END OF DOCUMENT