Electromagnetic Compatibility
Test Report

Test Report No: HMI 261107
Issued on: November 26, 2007

Product Name
UCF VM 8X9

Tested According to
FCC 47 CFR, Part 15, Subparts B & C

Tests Performed for
AURMANET Sarl
4 Impasse de la croix Blanche, Montigny les Cormeilles 95370, France
Tel: +33139970965

QualiTech EMC Laboratory, ECI Telecom
30 Hasivim Street,
Petah-Tikva, 49517, Israel
Tel: 972-3-926 8443
Fax: 972-3-928 7490

ACCREDITED
1633.01

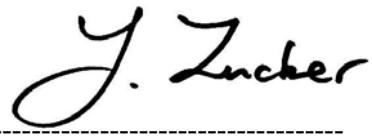
Test personnel

Tests Performed By: ----------

Rami Nataf

Report Prepared By: ----------

Bina Talkar



Report Reviewed By: ----------

Y. Zucker
QA and Lab. Manager
QualiTech EMC Laboratory

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Test Report details:

Issued on: 26.11.2007

Assessment information:

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

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

Modifications:

Modifications made to the EUT

None.

Modifications made to the Test Standard

None.

Summary of Compliance Status

Bluetooth: FCC 47 CFR, Part 15, Subparts B & C

Test Spec. Clause	Test Case	Remarks
§15.247 (a) (1) (ii)	Spectrum Bandwidth of a FHSS system/ Maximum 20dB BW	Pass
§15.247 (a) (1)	Carrier Frequency Separation	Pass
§15.247 (a) (1)(iii)	Number of Hopping Channels	Pass
§15.247 (a) (1)(iii)	Time Occupancy (Dwell Time)	Pass
§15.247 (b) (1)	Maximum Peak Output Power	Pass
§15.247 (d)	Band-Edge compliance of RF Conducted Emission	Pass
§15.205&	Radiated Emission, Restricted Bands	Pass
§15.247 (d)	Spurious Emission Conducted	Pass
§15.247 (d)	Spurious Emission Radiated	Pass
§15.109	Radiated Emission (receiver)	Pass
§15.107/207	Power Line Emissions measurements	Pass
§15.203	Antenna Connector requirement	Pass

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Test Facility & Uncertainty of Measurement

Accreditation/ Registration reference:

- *A2LA Certificate Number: 1633.01*

Test Facility description

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

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

3m Anechoic Chamber:

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

Semi Anechoic Configuration:

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

Full-Anechoic Configuration:

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

Uncertainty of Measurement:

Test Name	Test Method & Range	Uncertainty	
		Combined std. Uc(y)	Expanded U
Radiated Emission	30MHz÷230MHz, Horiz. polar. 30MHz÷230MHz, Ver. polar. 230MHz÷1000MHz, Horiz. polar. 230MHz÷1000MHz, Vert. polar.	[dB] 1.8 1.967 1.487 1.499	[dB] 3.6 3.934 2.973 2.998
Conducted Emission	9 kHz÷150 kHz 150 kHz÷30MHz	[dB] 1.378 1.095	[dB] 2.756 2.190

Table of Content

1. General Description

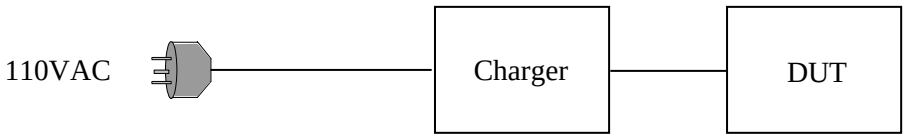
1.1. Description of the EUT system/test Item:

Product name: UCF VM 8X9

FCC ID: VXY70002

The UCF is an electronic lock with a radio transceiver able to communicate with a master transceiver (IRF). It is able to send the ambient temperature, the status of door cabinet (open or close) and the status of the locker (locked or unlocked). The case is made with ABS and the dimensions are: 110mm x 50mm x 23mm. The data transfer method to communicate is FSK.

Configurations for measurements:



2. Method of Measurements

2.1. Conducted Measurements:

The RF output of the transmitter under test was directly connected to the input of the Spectrum analyzer through a specialized antenna connector provided by the manufacturer, and an attenuator as specified. The external attenuator and cable loss were added to the reading. Worst-case results of in the various modulation modes (where applicable) were reported.

For carrier frequency separation, number of hopping frequencies, time of occupancy, 20dB BW, peak output power, band edge emissions, and spurious emissions were measured according the guidelines in DA 00-705.
For Dwell Time, using a Spectrum Analyzer with Span = 0, the "On time" was determined. The Transmitter was observed to be "On" on average, 2 times in any 10 second period.

For PSD, emission peak was zoomed within the pass band with spectrum analyzer's settings as reported (Sweep time=Span/3kHz).

2.2. Radiated Emissions Measurements in the restricted bands:

For radiated emissions, which fall in the restricted bands the spectrum from 1MHz to 25GHz was investigated following the guidelines in ANSI C63.4-2003, with the transmitter set to the lowest, middle and highest channel frequencies. Measurements were performed with peak detector and repeated averaged with VBW=10Hz.

2.3. Radiated Emission measurements:

During the testing process, the EUT was controlled via dedicated software. The EUT was operated at in receive mode.

Measurements were performed at a 3-meter measurement distance in the semi-anechoic chamber in order to evaluate the radiated electromagnetic interference characteristics of the EUT. The EUT was placed on a non-metallic table/support, 0.8m above the turntable, was configured, arranged and operated in a manner consistent with typical application and load conditions.
An appropriate antenna depending upon the frequency range, per ANSI C63.4-2003 clause 4.1.5 was used. While the turntable was being rotated, the height of the antenna was varied from 1 to 4m for the frequency range of 9kHz to 25GHz. The highest radiated emission was detected by manipulating the system cables to the worst-case position. This process was repeated for both antenna polarizations.
The amplitudes of worst-case emission were measured with the detector modes and resolution bandwidths over various frequency ranges according to the requirements of ANSI C63.4-2003 clause 4.2.

2.4. Power line Emission measurements:

The EUT was placed on a non-conductive table/support 80 cm above the reference ground plane. The EUT was configured in accordance with ANSI C63.4-2003 using a 50µH/50 ohm LISN.

Compliance with the provisions was based on the measurements of the radio frequency voltage between each line and the ground at the power terminal.

3. Report of Measurements and examinations

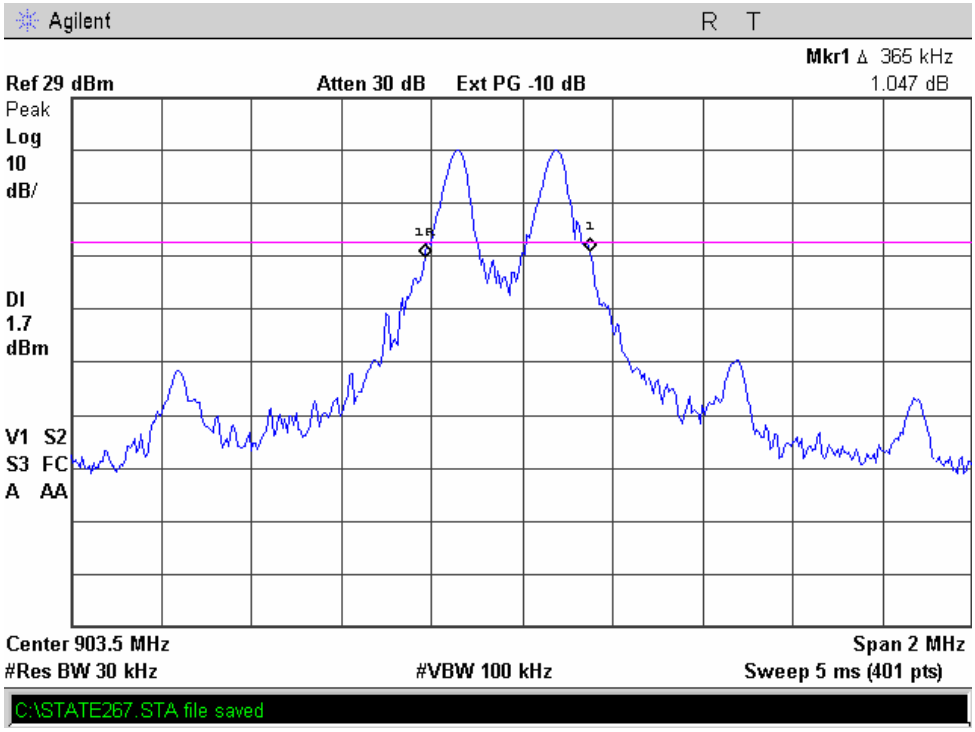
3.1. 20dB Bandwidth

Reference document:	47 CFR §15.247 (a) (1)(i) & DA 00-705		
Test Requirements:	For frequency hopping systems operating in the 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.		
Test setup:	See Sec. 2.1	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 30kHz, VBW: 100kHz, Span: 2MHz		
Hopping function:	Disabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 3.1.1 – Plot 3.1.3	

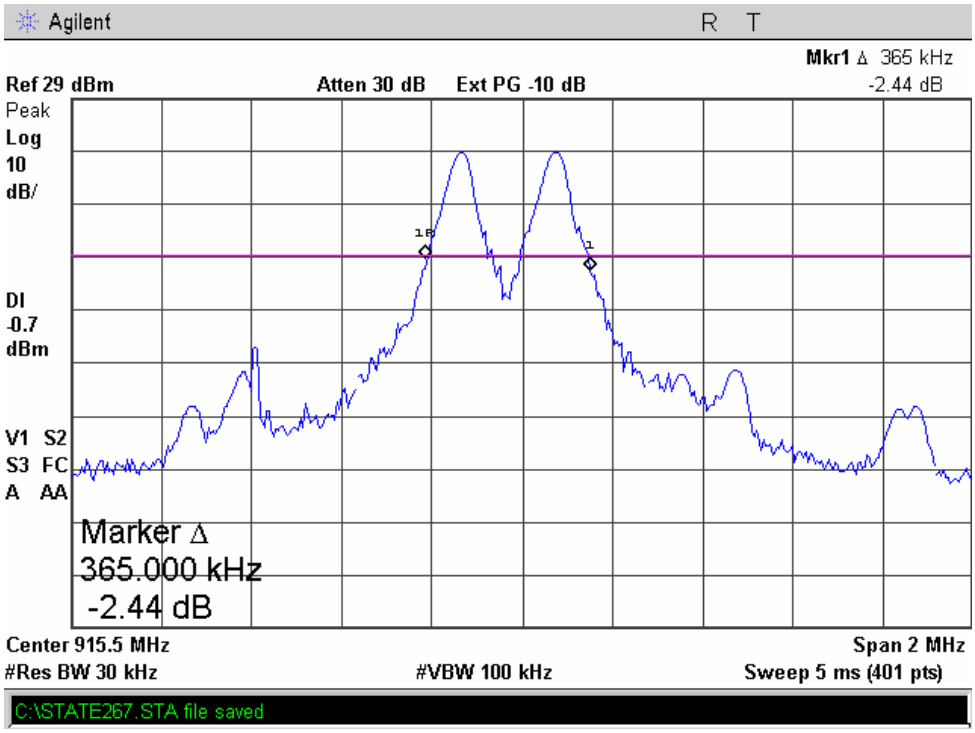
Test results:

Frequency [GHz]	20dB BW [kHz]	Reference	Result
903.5	365	Plot 3.1.1	Pass
915.5	365	Plot 3.1.2	Pass
927.5	360	Plot 3.1.3	Pass

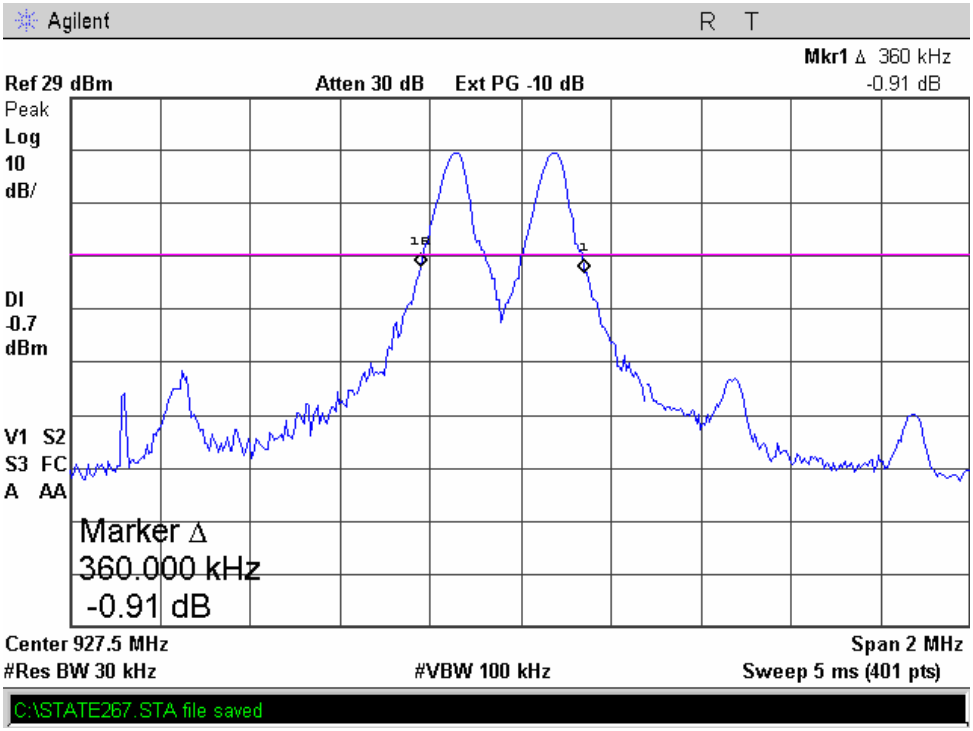
Plot 3.1.1



Plot 3.1.2



Plot 3.1.3


Agilent
R T
Mkr1 Δ 360 kHz
-0.91 dB
Ref 29 dBm
Atten 30 dB
Ext PG -10 dB
Peak
Log
10
dB/
DI
-0.7
dBm
V1 S2
S3 FC
A AA
Marker Δ
360.000 kHz
-0.91 dB
Center 927.5 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 5 ms (401 pts)
C:\STATE267.STA file saved

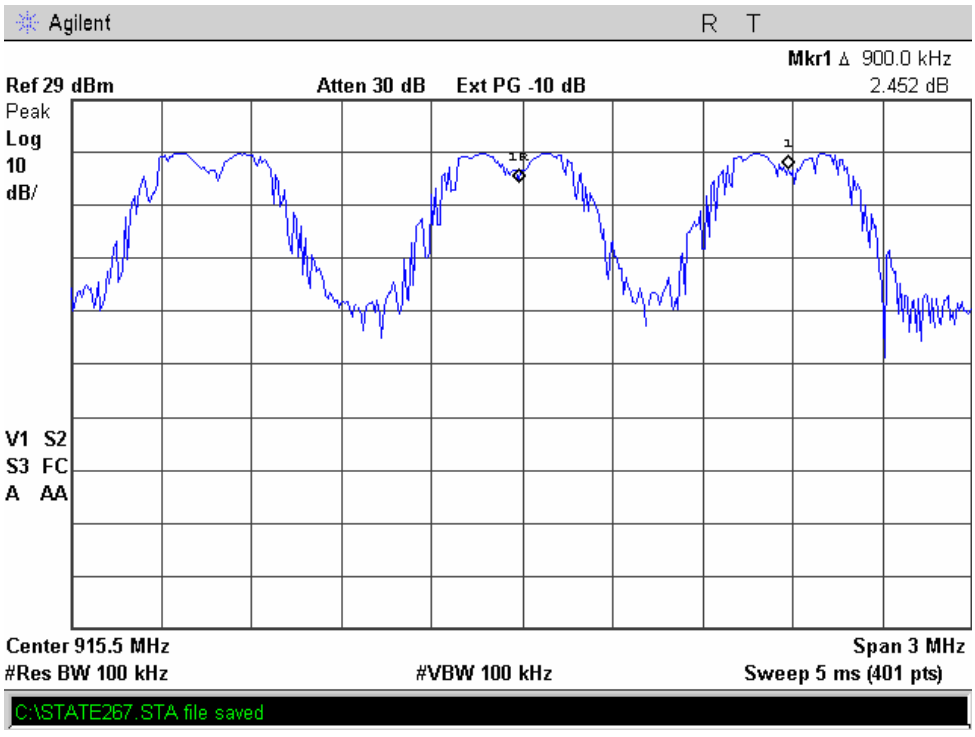
3.2. Carrier Frequency Separation

Reference document:	**47 CFR §15.247 (a) (1) & DA 00-705**		
Test Requirements:	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.		
Test setup:	See Sec. 2.1	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 100kHz, VBW: 100kHz		
Hopping function:	Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	Plot 3.1	

Test results:

20dB BW [kHz]	Carrier separation [kHz]	Result
365	900	Pass

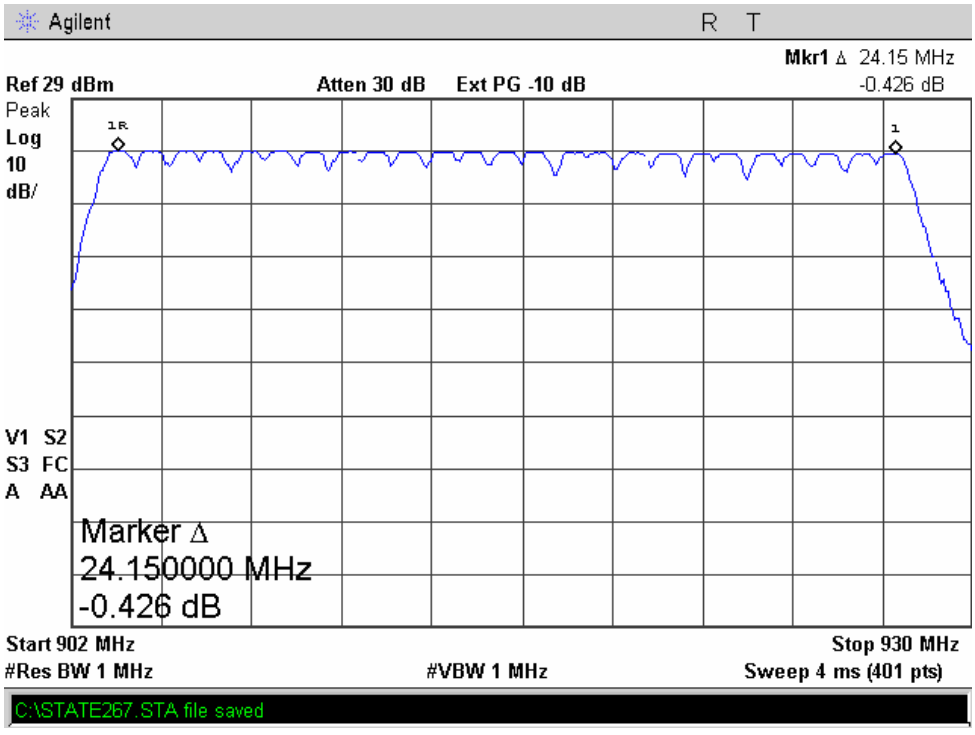
Plot 3.2



3.3. Number of Hopping Channels

Reference document:	**47 CFR §15.247 (a) (1)(iii) & DA 00-705**		
Test Requirements:	For frequency hopping systems operating in the 902-928 MHz band , if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies.		
Test setup:	See Sec. 2.1	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 1MHz, VBW: 3MHz		
Hopping function:	Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	25 hopping channels	Plot 3.3	

Plot 3.3



3.4. Average Time of Occupancy (Dwell Time)

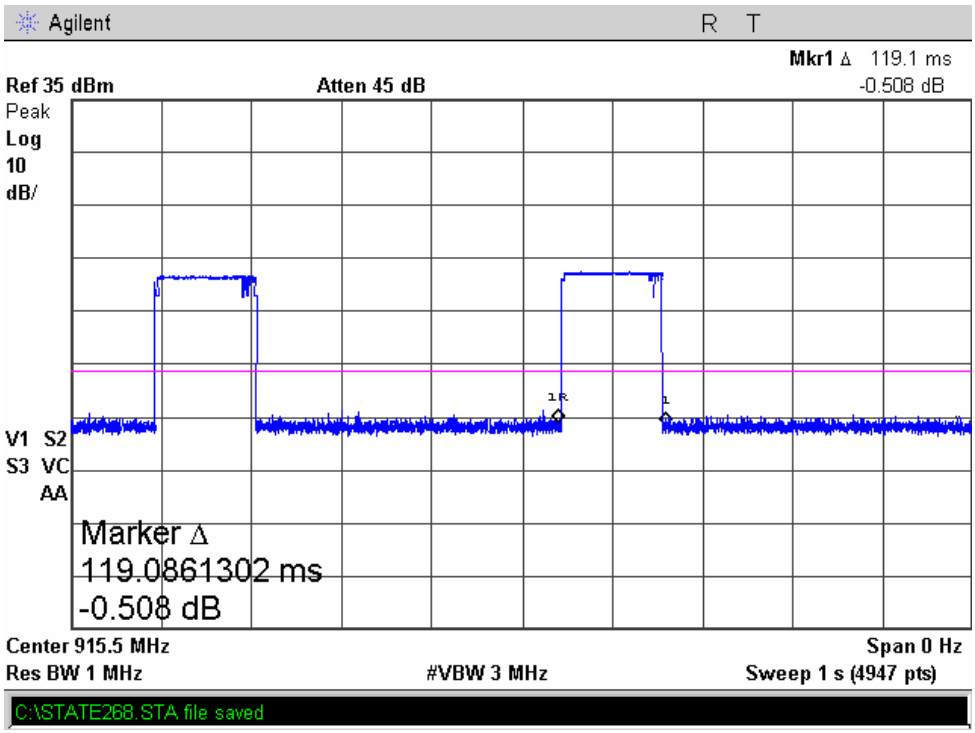
Reference document:	**47 CFR §15.247 (a) (1) (iii) & DA 00-705**		
Test Requirements:	For frequency hopping systems operating in the 902-928 MHz band , if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.		
Test setup:	See Sec. 2.1	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 1MHz, VBW: 3MHz, Span:0 centered on hopping channel		
Hopping function:	Disabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 3.4.1– Plot 3.4.2	

Test results:

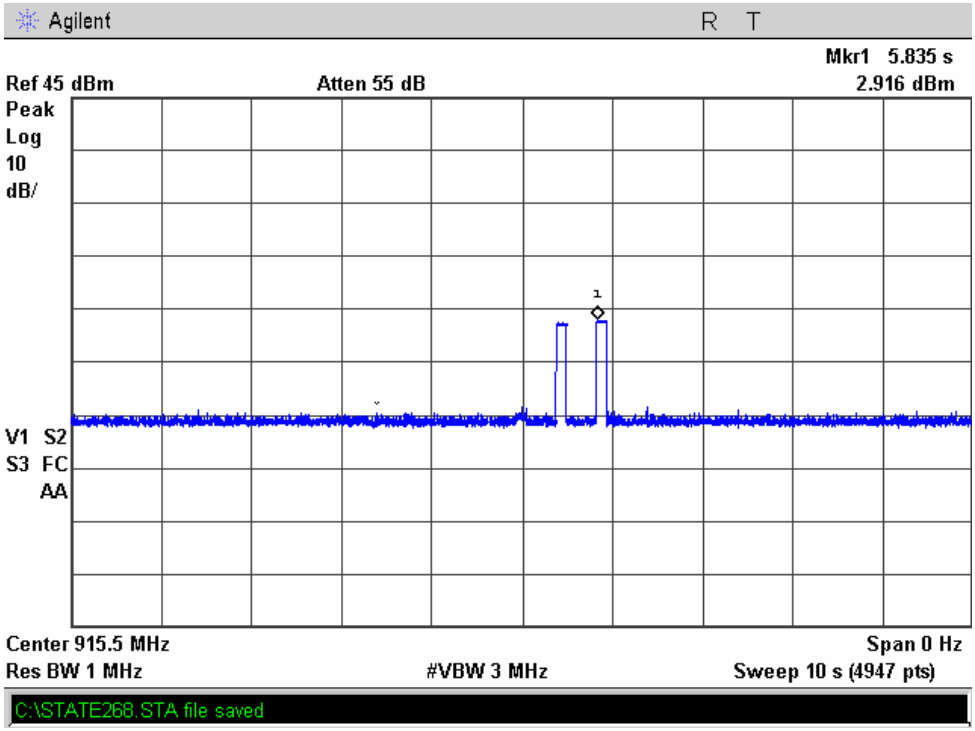
Frequency [GHz]	Time slot length [Sec]	Reference	Dwell time* [Sec]	Limit [Sec]	Result
915.5	0.119	Plot 3.4.1	0.238	0.4	Pass

*Dwell Time calculation: “On” time = 0.119 sec, Number of “On times = 2, Dwell Time = 0.119sec X 2 = 0.238 sec.

Plot 3.4.1



Plot 3.4.2



3.5. Maximum Peak Output Power

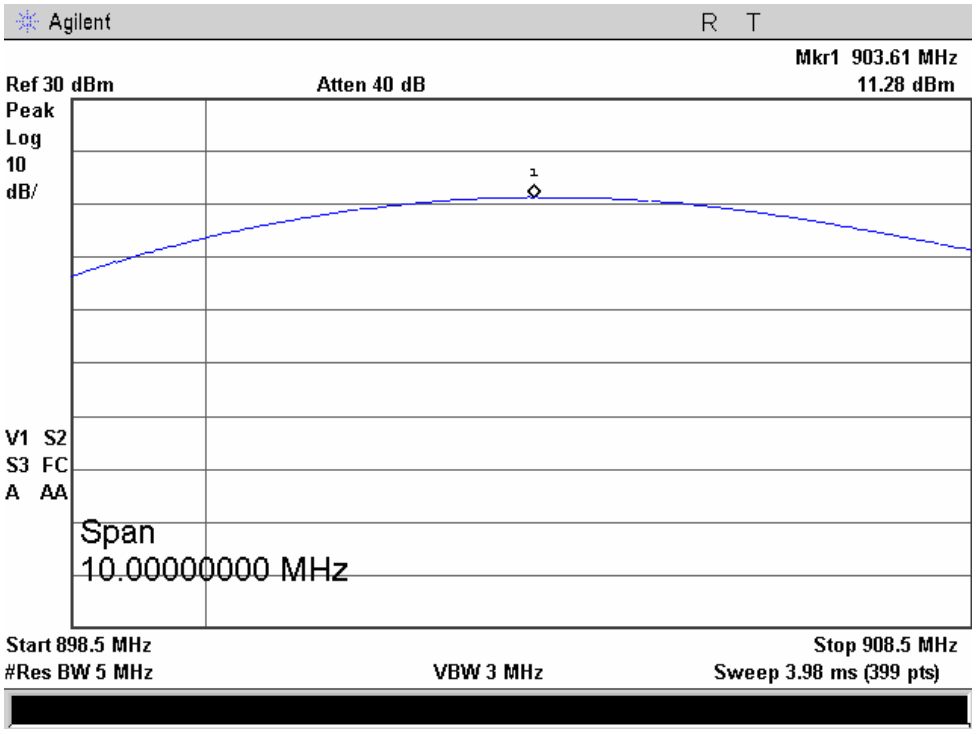
Reference document:	**47 CFR §15.247 (b) (1) & DA 00-705**		
Test Requirements:	The maximum peak conducted output power of the intentional radiator shall not exceed the following : For frequency hopping systems operating in the 902-928 MHz band: 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.		
Test setup:	See Sec. 2.1	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 3MHz, VBW: 3MHz,		
Hopping function:	Disabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 3.5.1 – Plot 3.5.3	

Test results:

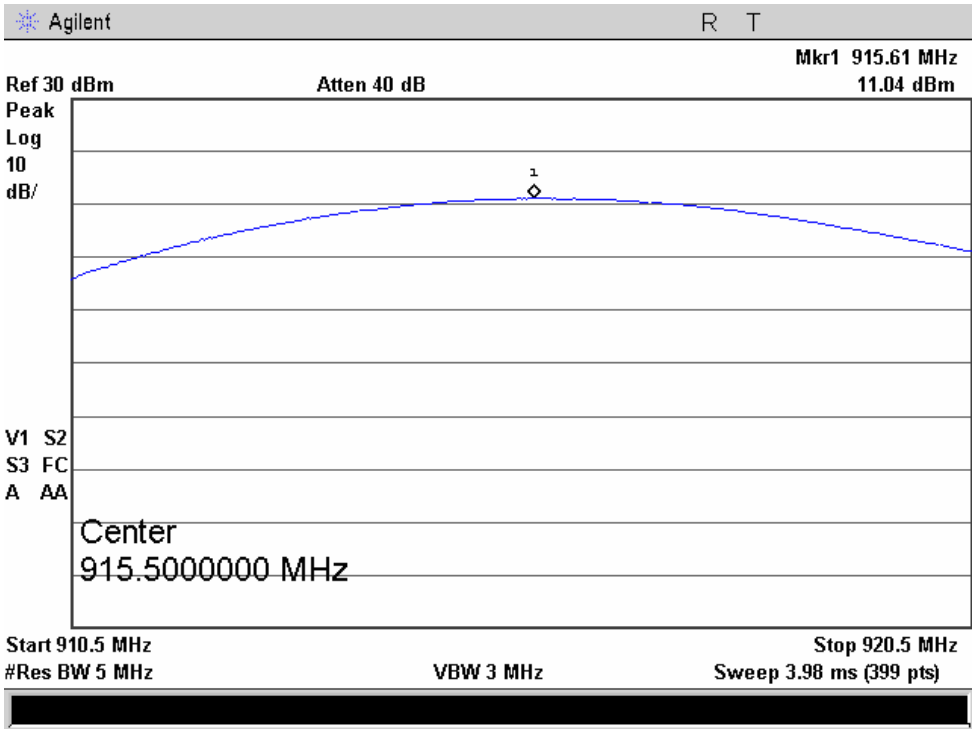
Frequency [GHz]	Max. Peak Output power* [dBm]	Max. Peak Output power* [mW]	Limit Max. Peak Output power* [mW]	Reference	Result
903.5	11.28	10.52	250	Plot 3.5.1	Pass
915.5	11.04	10.43	250	Plot 3.5.2	Pass
927.5	10.79	10.33	250	Plot 3.5.3	Pass

*Corrected for external attenuations and cable

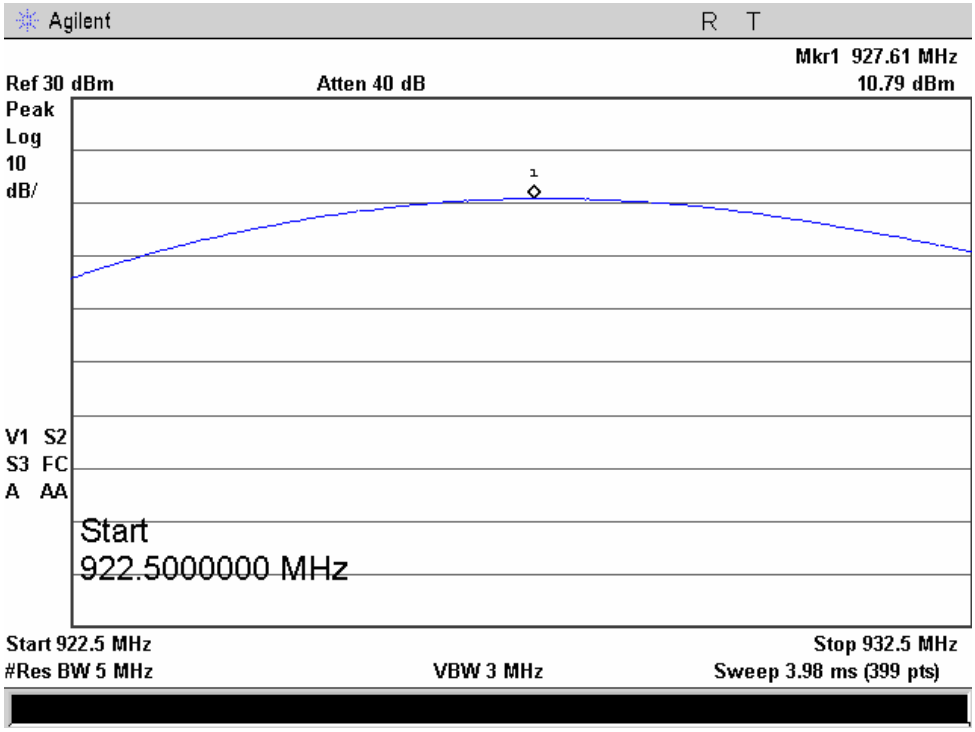
Plot 3.5.1



Plot 3.5.2



Plot 3.5.3


Agilent
R T
Mkr1 927.61 MHz
Ref 30 dBm
Atten 40 dB
10.79 dBm
Peak
Log
10
dB/
1
V1 S2
S3 FC
A AA
Start
922.5000000 MHz
Start 922.5 MHz
Stop 932.5 MHz
#Res BW 5 MHz
VBW 3 MHz
Sweep 3.98 ms (399 pts)

3.6. Band-edge compliance of RF Conducted Emission

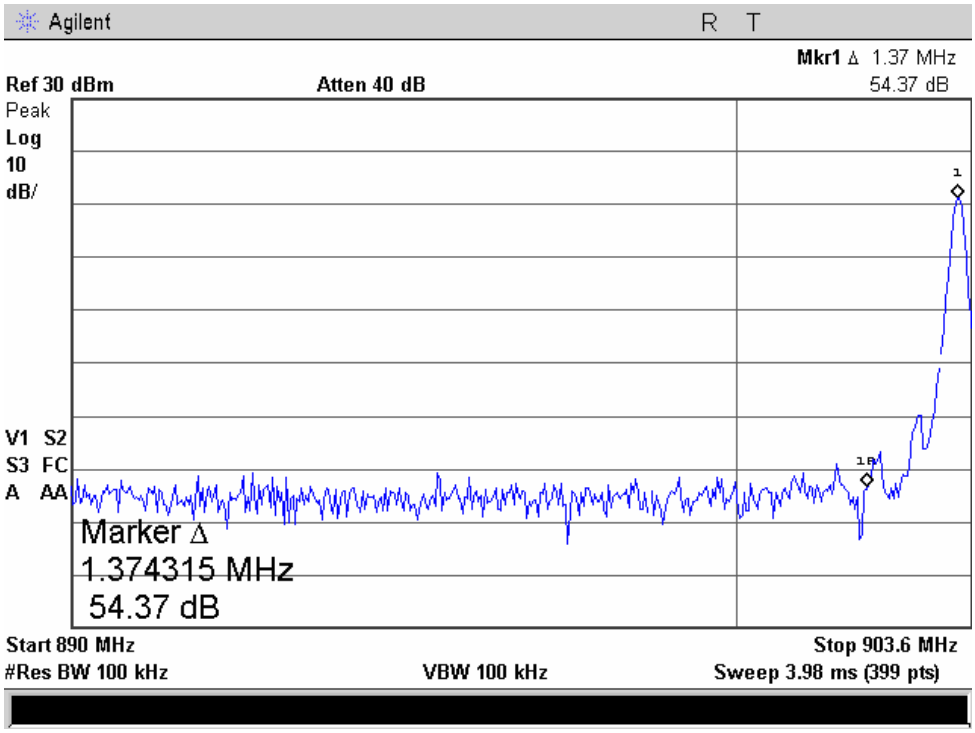
Reference document:	**47 CFR §15.247 (d) & DA 00-705**		
Test Requirements and limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be **at least 20 dB below** that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.		
Test setup:	See Sec. 2.1	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 100kHz, VBW: 100kHz		
Hopping function:	Disabled/Enabled		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 3.6.1 – Plot 3.6.4	

Test results of

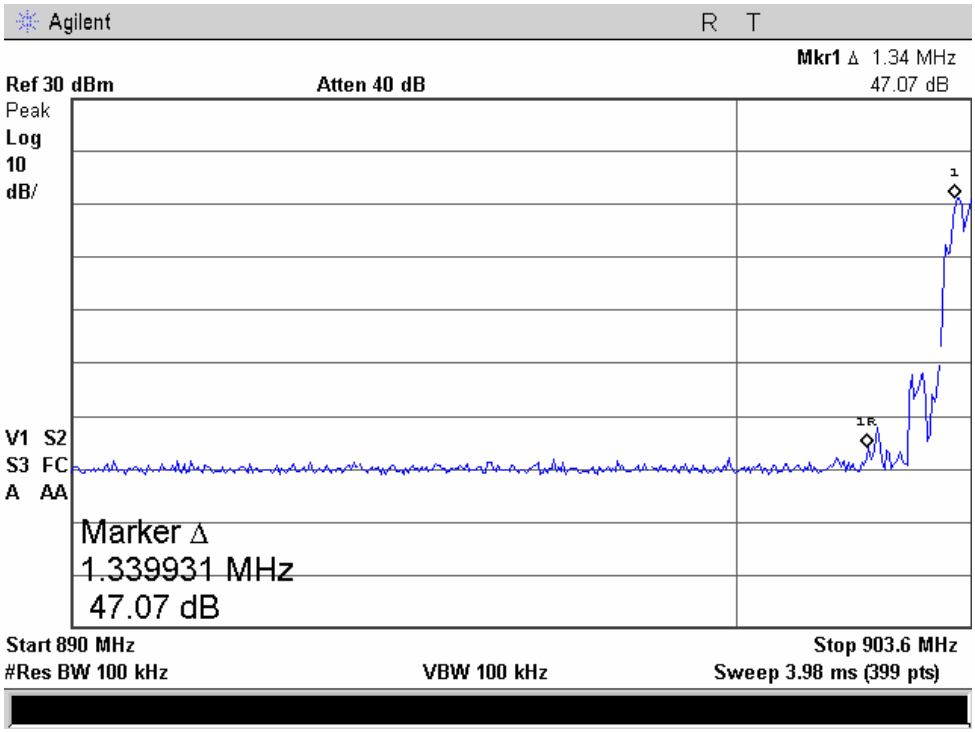
Activity	Measured emission* [dBc]	Limit [dBc]	Reference	Result
Hopping off, lowest frequency	-54.37	-20	Plot 3.6.1	Pass
Hopping on, lowest frequency	-47.07	-20	Plot 3.6.2	Pass
Hopping off, highest frequency	-41.07	-20	Plot 3.6.3	Pass
Hopping on, highest frequency	-36.06	-20	Plot 3.6.4	Pass

*Corrected for external attenuations and cable

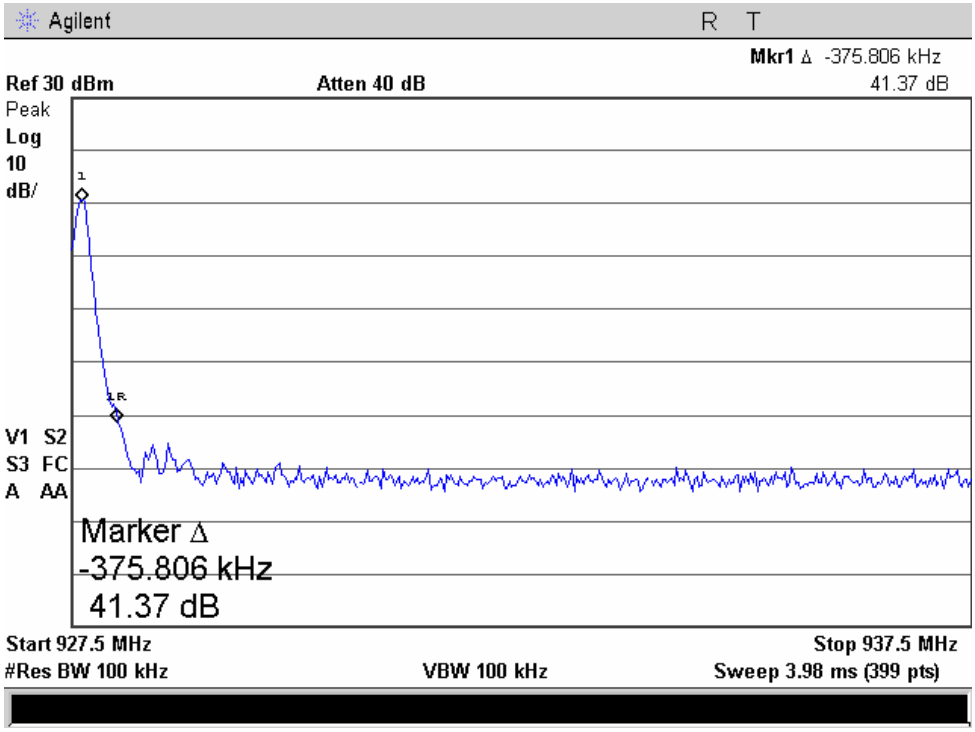
Plot 3.6.1



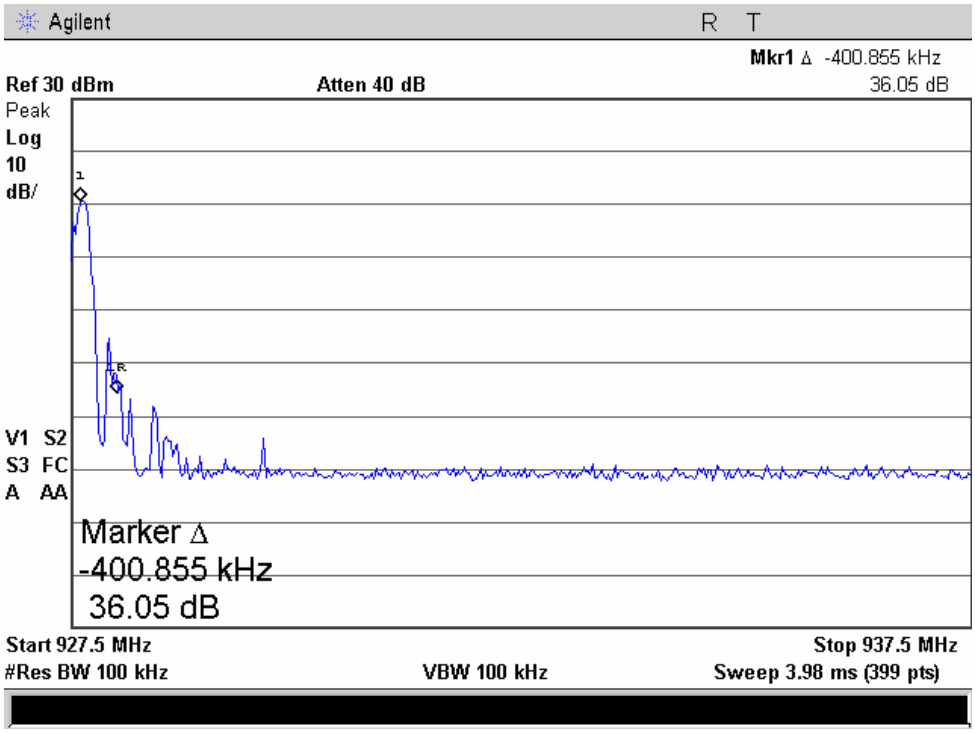
Plot 3.6.2



Plot 3.6.3



Plot 3.6.4



3.7. Radiated Spurious Emissions, Restricted Bands

Reference document:	**47 CFR §15.247 (d) & §15.209(a) & DA 00-705**		
Test Requirements:	Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c).		
Test setup:	See Sec. 2.2, 2.3	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Radiated		
S.A. Settings:	f <1GHz: RBW: 120kHz,VBW**:** 1MHz f >1GHz: RBW: 1MHz, VBW**:** 3MHz		
Hopping function:	Disabled (lowest, middle, and highest)		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 3.7.1 – Plot 3.7.11	

Test result

Lowest channel, 903.5 MHz					
Frequency [MHz]	Detector	Spurious level [dBµV/m]	Limit [dBµV/m]	Reference Plot	Result
1130	Avg	36.25	54	Plot 3.7.1	Pass
1130	Peak	38.75	74	Plot 3.7.1	Pass
1807	Avg	41.72	54	Plot 3.7.1	Pass
1807	Peak	45.22	74	Plot 3.7.1	Pass
2710.5	Avg	35.65	54	Plot 3.7.1	Pass
2710.5	Peak	37.87	74	Plot 3.7.1	Pass

Middle channel, 915.5 MHz					
Frequency [MHz]	Detector	Spurious level [dBµV/m]	Limit [dBµV/m]	Reference Plot	Result
1130	Avg	34.8	54	Plot 3.7.4	Pass
1130	Peak	36.4	74	Plot 3.7.4	Pass
1831	Avg	37.0	54	Plot 3.7.4	Pass
1831	Peak	40.5	74	Plot 3.7.4	Pass
2746.5	Avg	33.28	54	Plot 3.7.4	Pass
2746.5	Peak	35.9	74	Plot 3.7.4	Pass

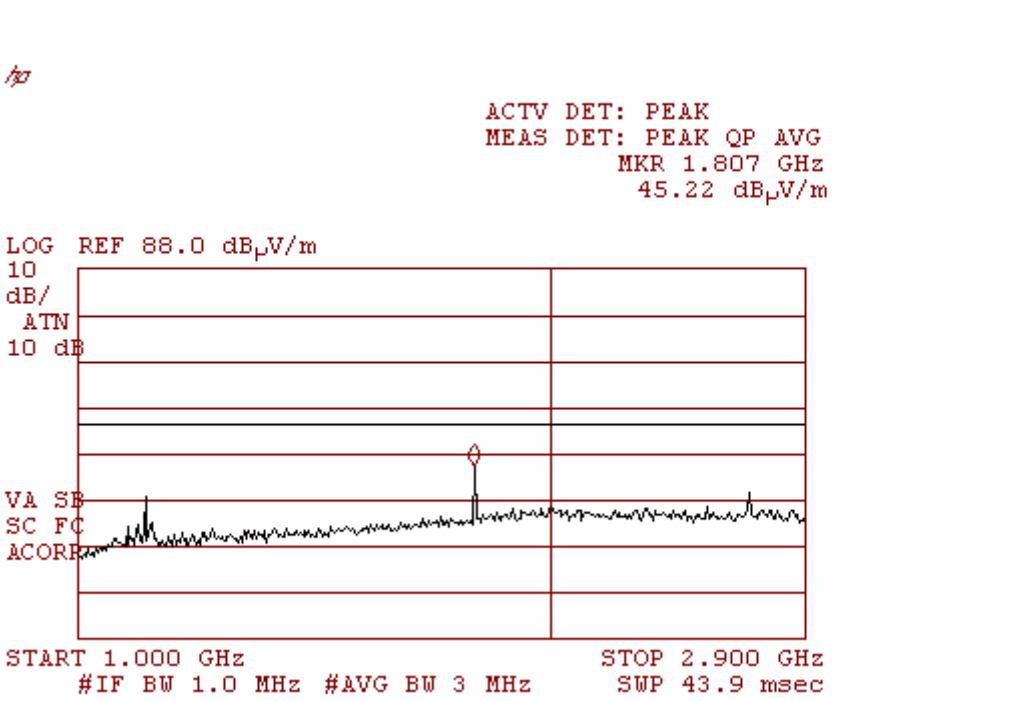
Highest channel, 927.5 MHz					
Frequency [MHz]	Detector	Spurious level [dBµV/m]	Limit [dBµV/m]	Reference Plot	Result
1130	Avg	33.7	54	Plot 3.7.7	Pass
1130	Peak	35.8	74	Plot 3.7.7	Pass
1855	Avg	38.7	54	Plot 3.7.7	Pass
1855	Peak	42.3	74	Plot 3.7.7	Pass
2782.5	Avg	36.1	54	Plot 3.7.7	Pass
2782.5	Peak	38.7	74	Plot 3.7.7	Pass

Note: Radiated Emission [dBµV/m] = measured [dBµV] + Correction-factor [dB(1/m)]
Correction Factor = Antenna factor + Cable Loss

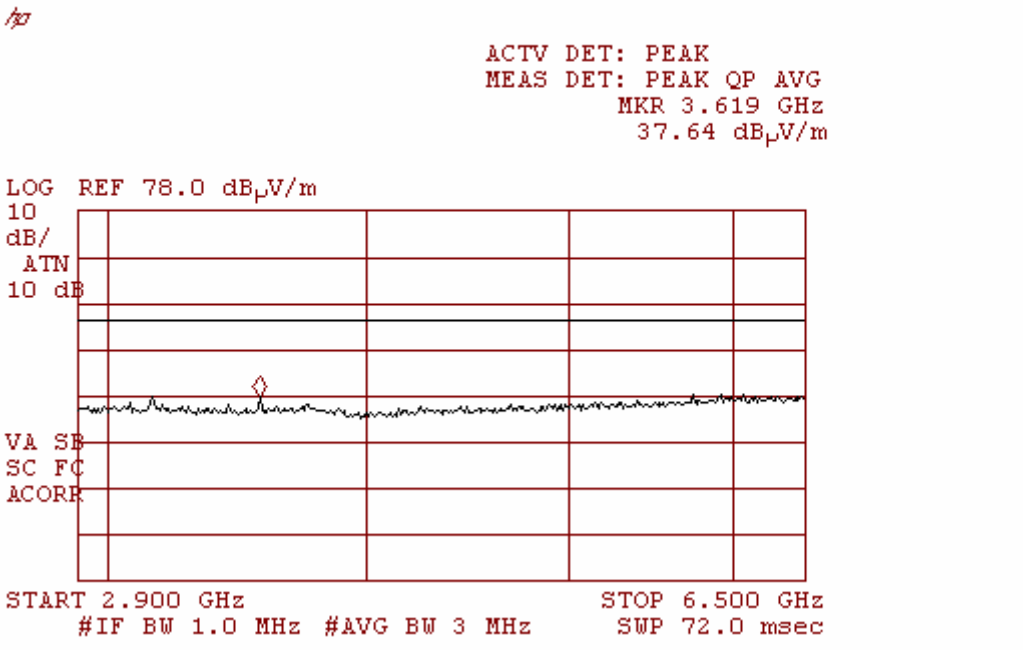
Below 1 GHz				
Frequency [MHz]	Detector	Spurious level [dBµV/m]	Limit [dBµV/m]	Result
53.46	QP	28.4	40	Pass
191.99	QP	31.4	40	Pass
225.84	QP	33	43.5	Pass
320.01	QP	41.2	46.5	Pass
400	QP	40.5	46.5	Pass
733.97	QP	44.3	46.5	Pass

Note: Radiated Emission [dBµV/m] = measured [dBµV] + Correction-factor [dB(1/m)]
Correction Factor = Antenna factor + Cable Loss

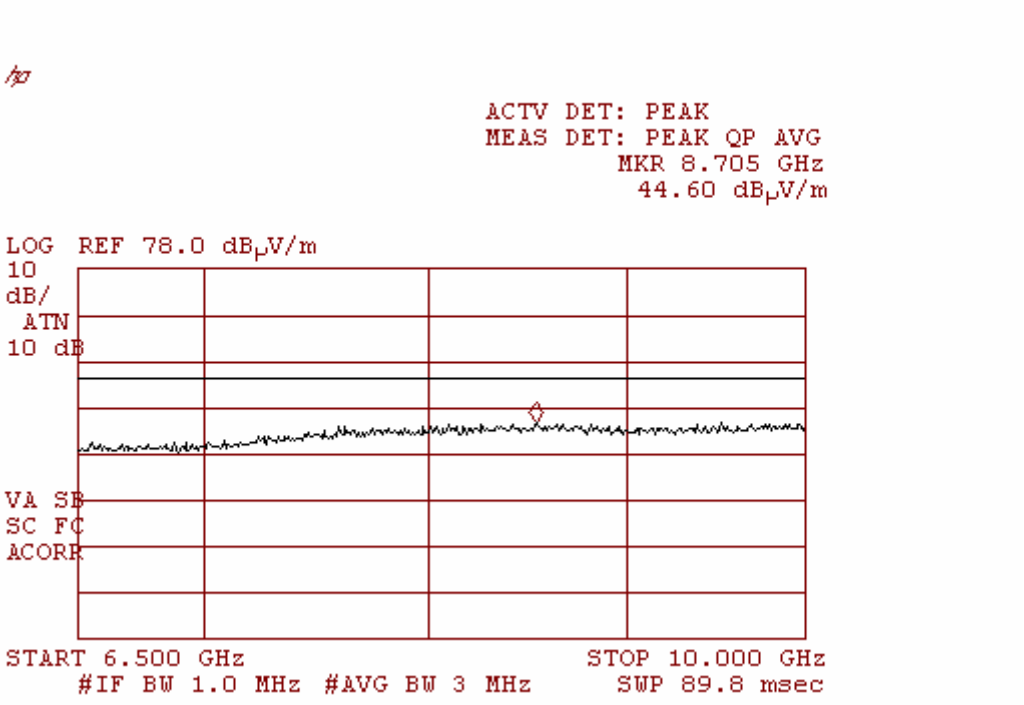
Lowest Frequency
Horizontal & Vertical Polarization
Plot 3.7.1



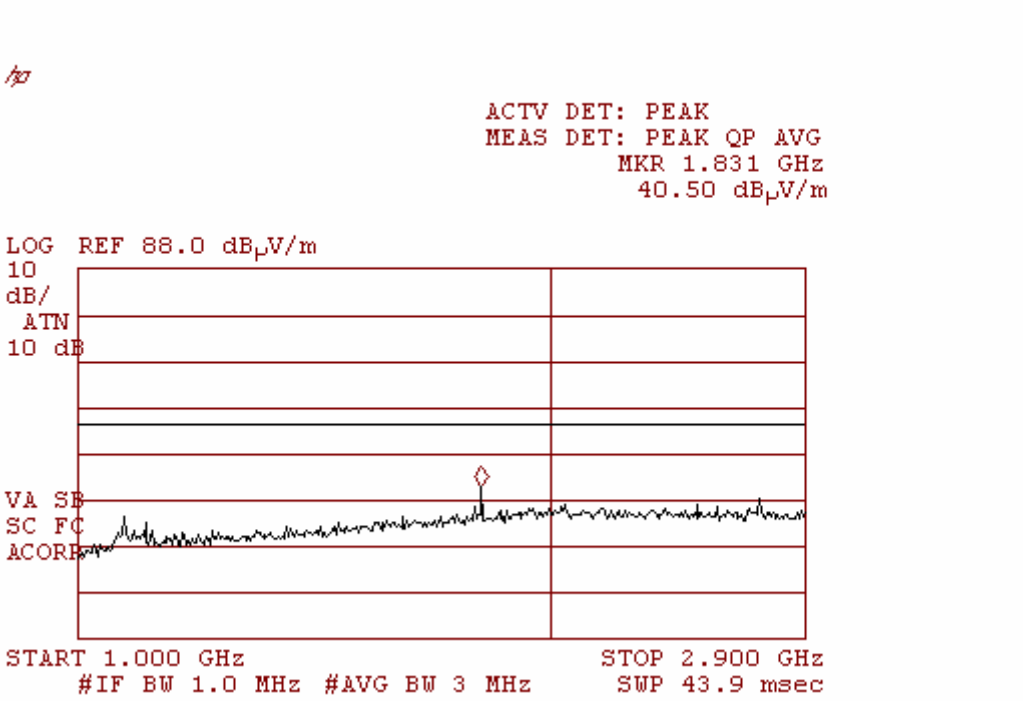
Horizontal & Vertical Polarization
Plot 3.7.2



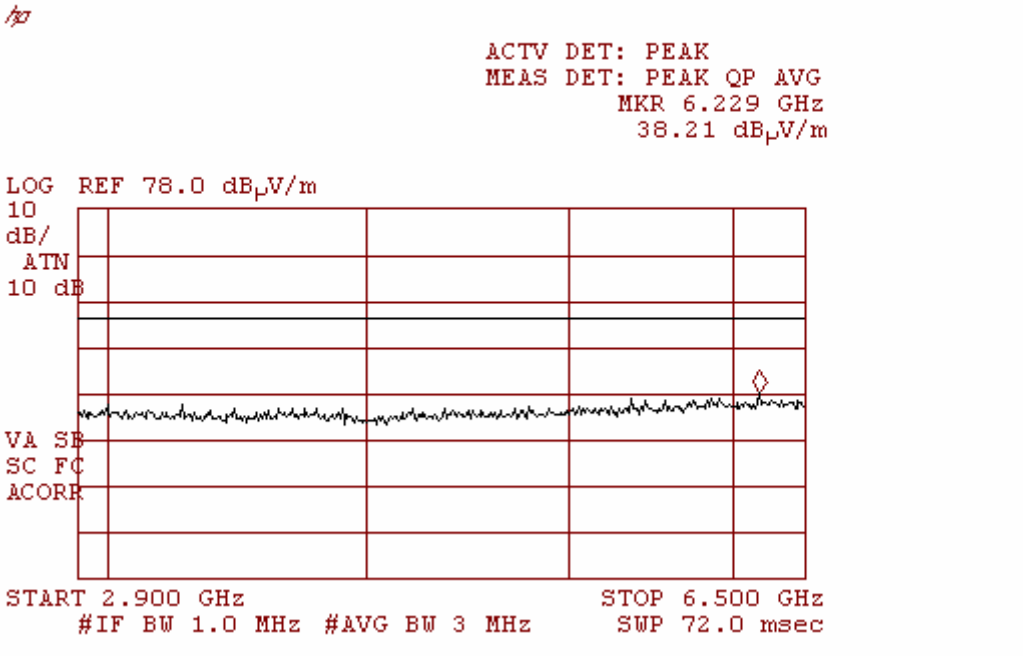
Horizontal & Vertical Polarization
Plot 3.7.3



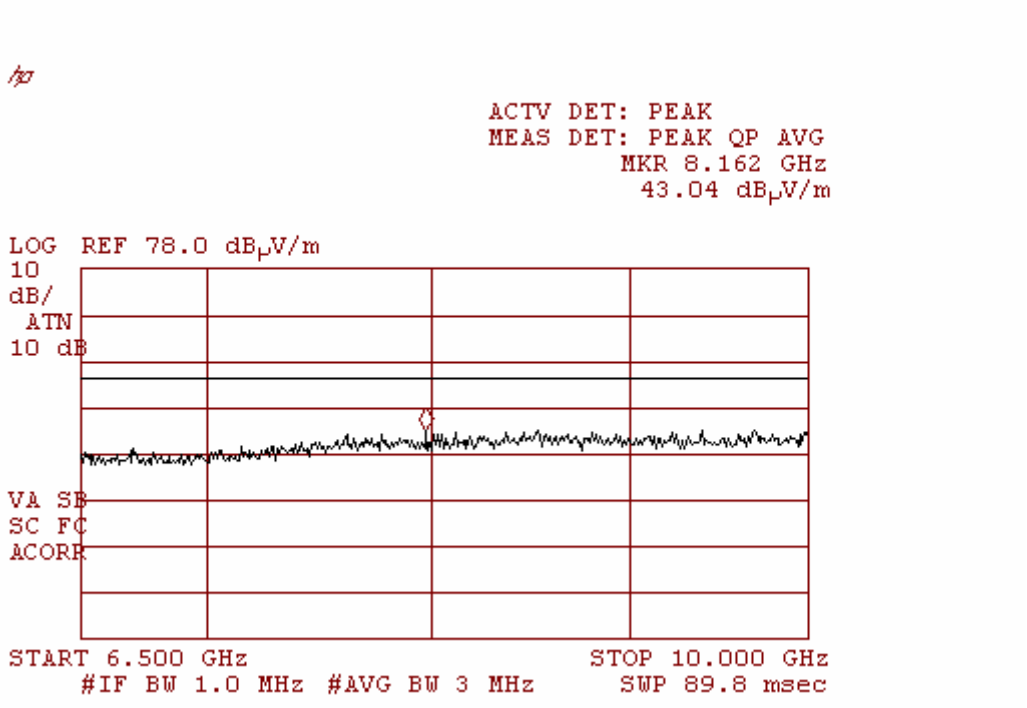
Middle Frequency
Horizontal & Vertical Polarization
Plot 3.7.4



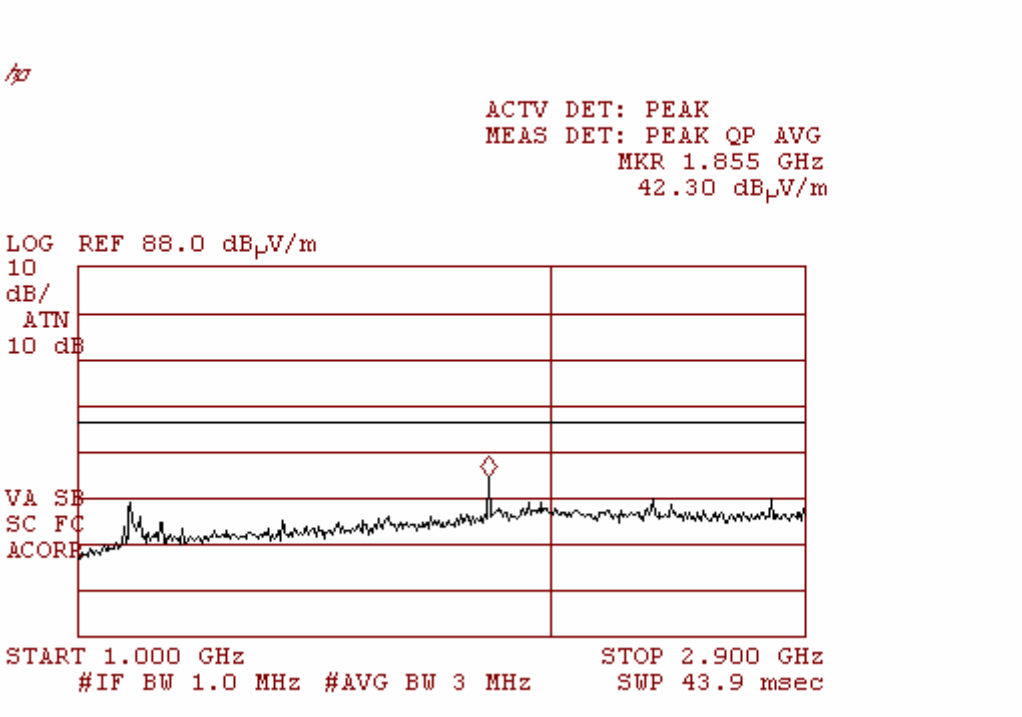
Horizontal & Vertical Polarization
Plot 3.7.5



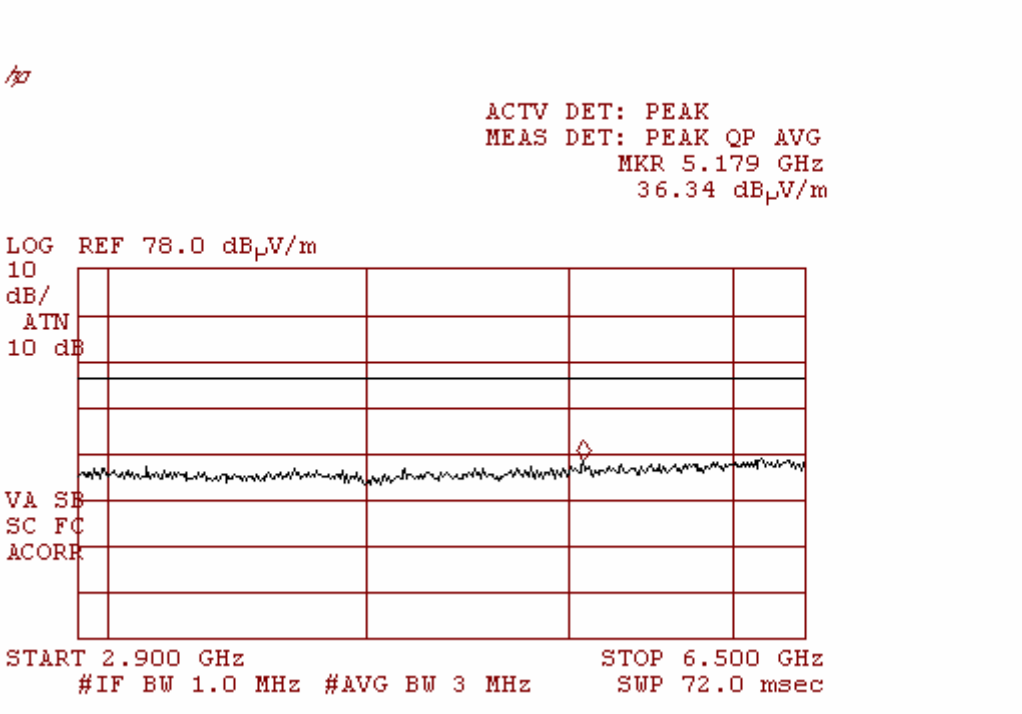
Horizontal & Vertical Polarization
Plot 3.7.6



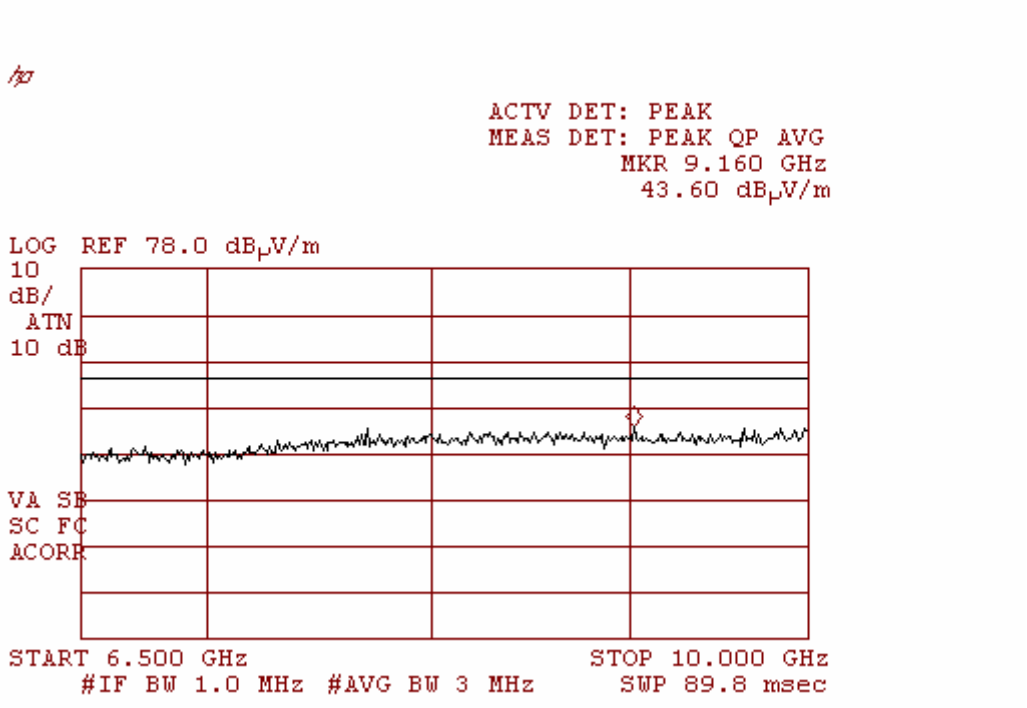
Highest Frequency
Horizontal & Vertical Polarization
Plot 3.7.7



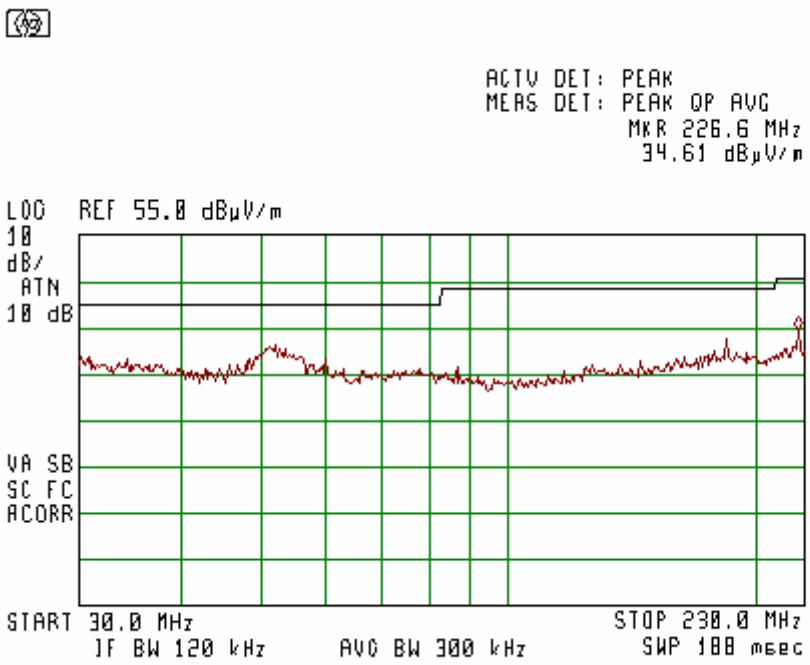
Horizontal & Vertical Polarization
Plot 3.7.8



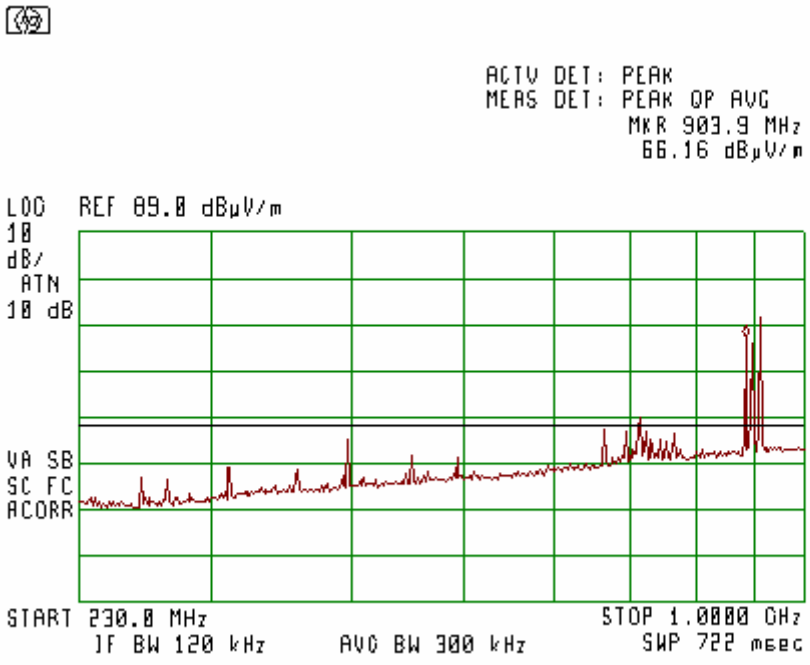
Horizontal & Vertical Polarization
Plot 3.7.9



Below 1 GHz
Worst Case of All Channels
Horizontal & Vertical Polarization
Plot 3.7.10



Plot 3.7.11



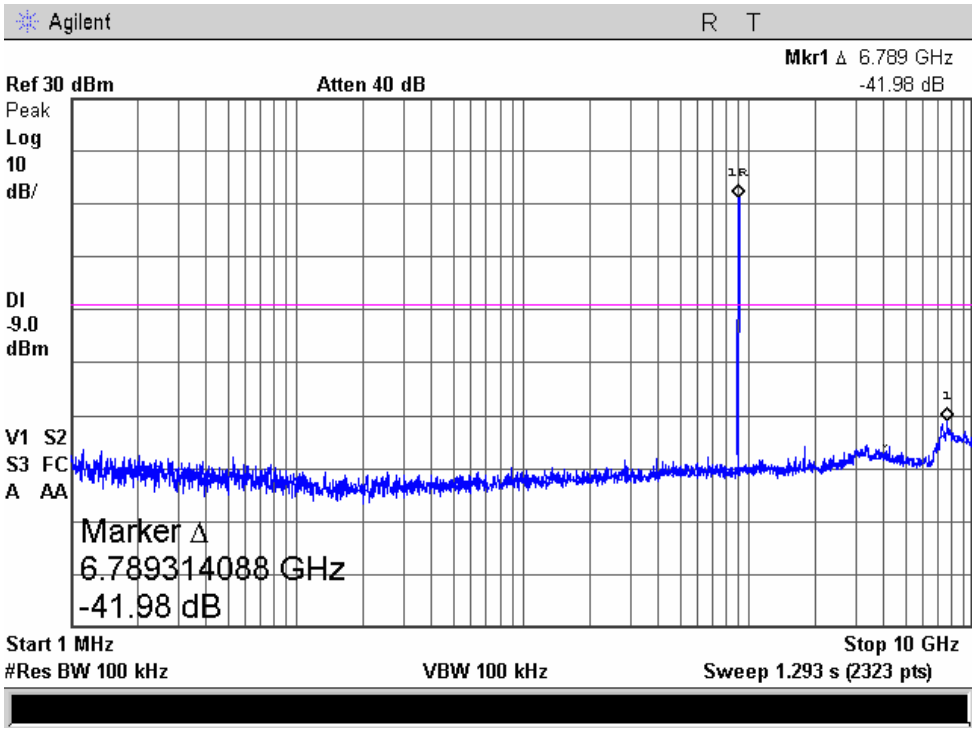
3.8. Spurious Emission- Conducted

Reference document:	**47 CFR §15.247 (d) & DA 00-705**		
Test Requirements:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be **at least 20 dB below** that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.		
Test setup:	See Sec. 2.1	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted		
S.A. Settings:	RBW: 100kHz, VBW: 100kHz,		
Hopping function:	Disabled (lowest, middle, and highest)		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 3.8.1 – Plot 3.8.3	

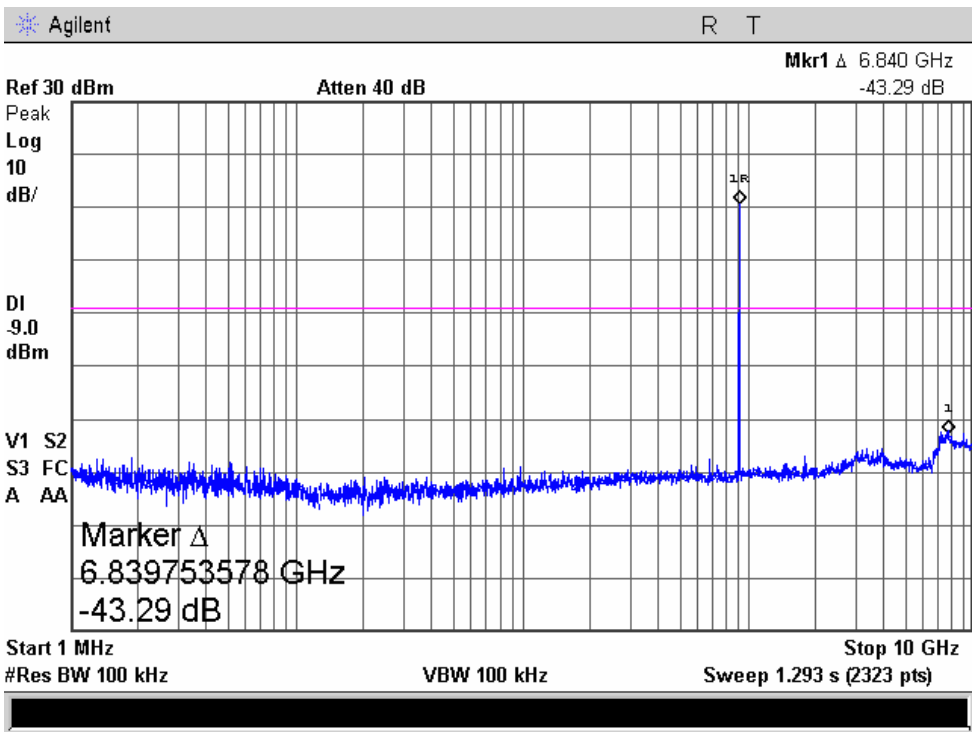
Test results:

Frequency [GHz]	Spurious Frequency [GHz]	Emissions limit	Reference	Result
903.5	All readings At least -40dBc	-20dBc	Plot 3.8.1	Pass
915.5	All readings At least -40dBc		Plot 3.8.2	Pass
927.5	All readings At least -40dBc		Plot 3.8.3	Pass

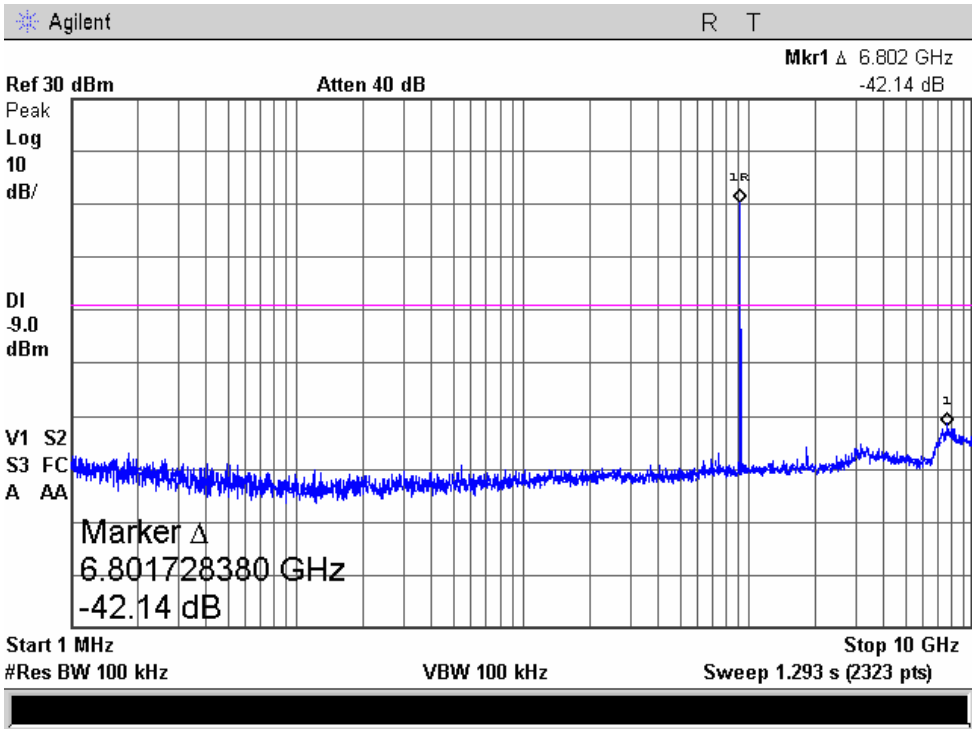
Spurious Emission- Conducted
Low frequency -Plot 3.8.1



Middle frequency
Plot 3.8.2



High frequency
Plot 3.8.3

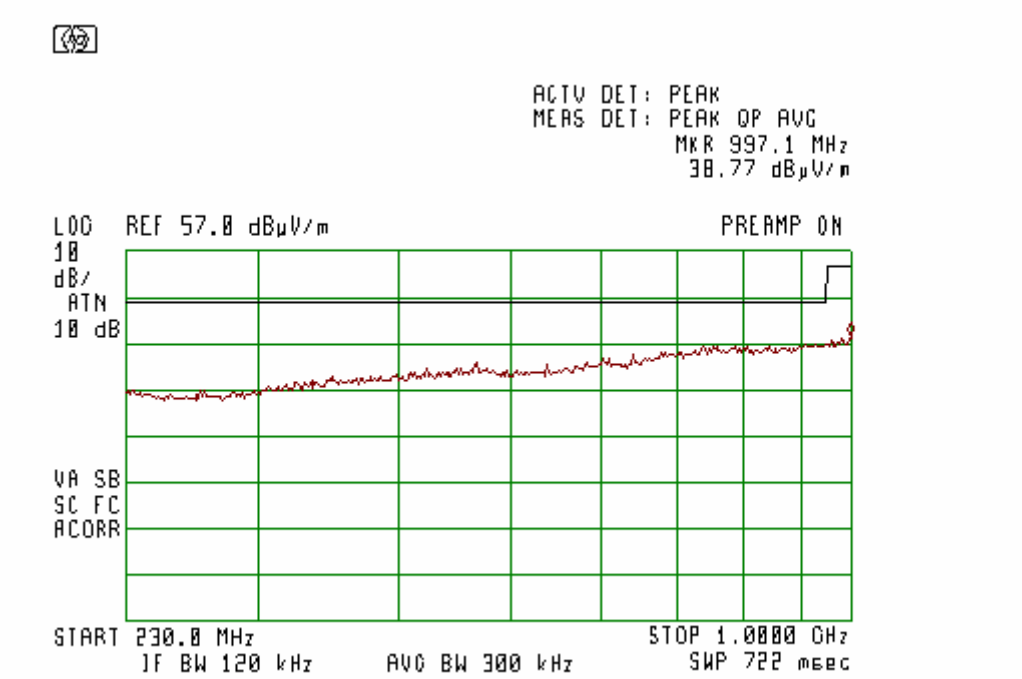


3.9. Radiated Emission- (Receive mode)

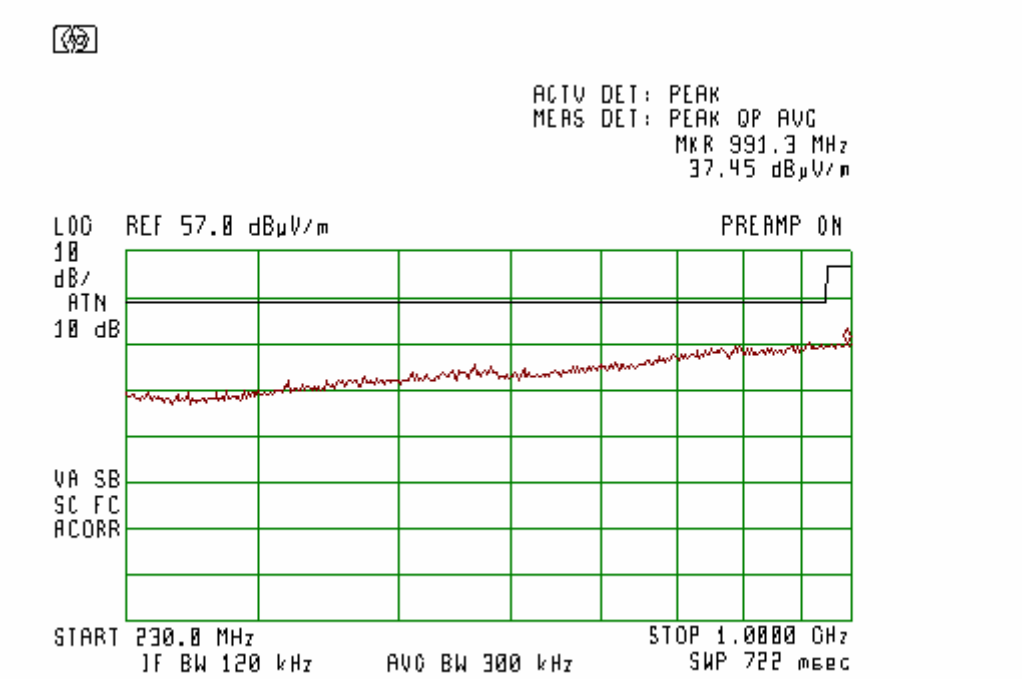
Reference document:	47 CFR §15.109		
Test Requirements:	Emission Level shall not exceed §15.109 limits		
Test setup:	See Sec. 2.3	Pass	
Operating conditions:	Under normal test conditions		
Method of testing:	Radiated		
S.A. Settings:	F <1GHz: RBW: 120kHz,VBW: 1MHz		
Mode of operation:	Receive		
Environment conditions:	Ambient Temperature: 22°c	Relative Humidity: 48%	Atmospheric Pressure: 1011.4 hPa
Test Result:	All readings were at least 10 db below the limit	See Plot 3.9.1 – Plot 3.9.4	

Note: Radiated Emission [dBµV/m] = measured [dBµV] + Correction-factor [dB(1/m)]
Correction Factor = Antenna factor + Cable Loss

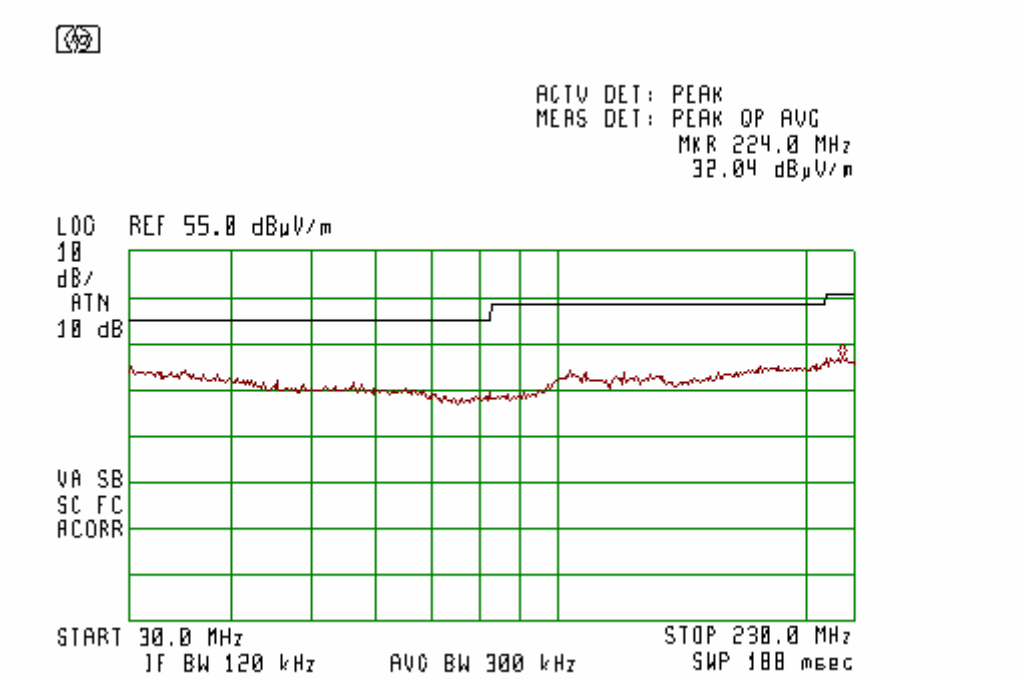
Horizontal Polarization
Plot 3.9.1



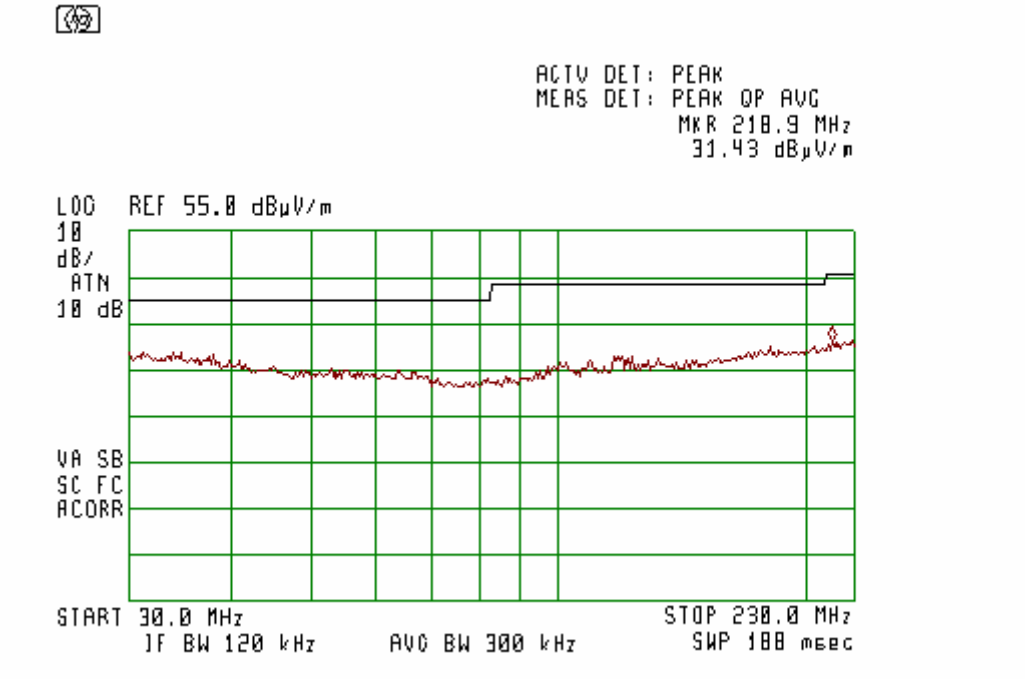
Vertical Polarization
Plot 3.9.2



Vertical Polarization
Plot 3.9.3



Horizontal Polarization
Plot 3.9.4



3.10. Power Line Emissions measurements

Reference document:	**47 CFR §15.107/207**		
Test Requirements:	Any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Sec.15.207.		
Test setup:	See Sec. 2.4	**Pass**	
Operating conditions:	Under normal test conditions		
Method of testing:	Conducted Emissions		
S.A. Settings:	f <30MHz: RBW: 9kHz, VBW:30kHz		
Radio device:	Idle		
Environment conditions:	Ambient Temperature: 21°c	Relative Humidity: 54%	Atmospheric Pressure: 1011.4 hPa
Test Result:	See below	See Plot 3.10.1 - Plot 3.10.2	

Test Results:

Measured at the charger 110VAC port.

"Phase" Lead

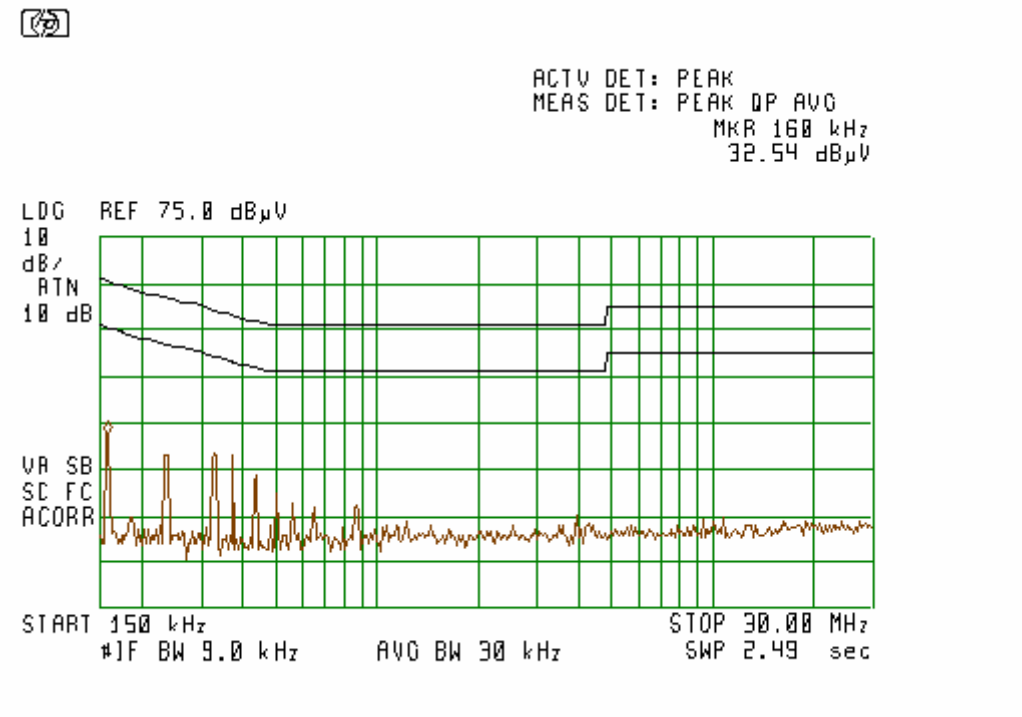
Frequency [MHz]	Measured Result [dBµV]		Class B Limits [dBµV]		Margin [dB]		Pass/Fail
	QP	AVR	QP	AVR	QP	AVR	
0.162405	25.4	-1	65.34	55.34	-39.94	-56.34	Pass
0.369996	19	-0.2	58.50	48.50	-39.50	-48.70	Pass
0.428937	18.9	-0.4	57.27	47.27	-38.37	-47.67	Pass
1.191801	7.6	1.1	56.00	46.00	-48.40	-44.90	Pass
12.134127	7.6	1.3	60.00	50.00	-52.40	-48.70	Pass
23.04	8	1.8	60.00	50.00	-52.00	-48.20	Pass

"Neutral" Lead

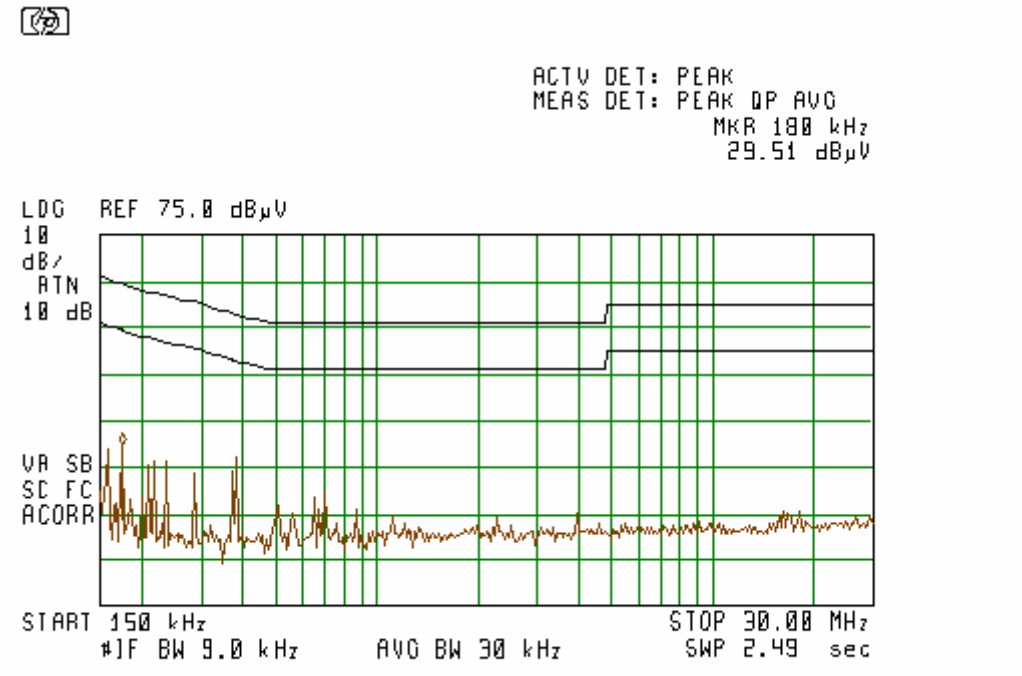
Frequency [MHz]	Measured Result [dBµV]		Class B Limits [dBµV]		Margin [dB]		Pass/Fail
	QP	AVR	QP	AVR	QP	AVR	
0.169116	25.7	2	65.00	55.00	-39.30	-53.00	Pass
0.242786	11.9	-0.1	62.00	52.00	-50.10	-52.10	Pass
0.357086	18.7	-4.4	58.80	48.80	-40.10	-53.20	Pass
0.427023	19.6	-1	57.31	47.31	-37.71	-48.31	Pass
0.564301	10.4	0.6	56.00	46.00	-45.60	-45.40	Pass
17.94	7.8	1.6	60.00	50.00	-52.20	-48.40	Pass

Measured at the charger 110VAC port

Phase Lead
Plot 3.10.1



Neutral Lead
Plot 3.10.2



3.11. Antenna Connector Requirements

Reference document:	**47 CFR §15.203**	
Test Requirements:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with provisions of this section.	
Test Result:	The UCF employs a unique Integral (on board) permanently attached antenna.	**Pass**

4. Appendix

Appendix A: List of Measuring Equipment used

Equipment	Manufacturer/ Model	Serial Number	Due date
CISPR16 EMI Receiver	HP8546A	3710A00392	30.06.2008
Spectrum Analyzer 9kHz ÷ 22 GHz	HP 8593EM	3536A00131	30.06.2008
Spectrum Analyzer 100 Hz ÷ 26.5 GHz	Agilent E7405A	US41160436	30.06.2008
LNA Amplifier 1 GHz ÷ 18 GHz	AMP – 5D-010180-30-10P-GW	618653	01.01.2008
Dual Ridged Guide Ant.1-18 GHz	EMCO 3115	9602-4677	01.01.2008
Antenna 18 GHz ÷ 26.5 GHz	Alpha Industry 861A/599	505	01.01.2008
Turn table	HD100	100/693	-
Antenna Mast	HD 100	100/693	-
Biconical 20 –200 MHz	Schwarzbeck VHBB9124	9124/0255	30.06.2008
Log-Periodic 200 – 1000 MHz	Schwarzbeck VUSLP9111	VUSLP9111184	30.06.2008
Pre-Amplifier	MiTeq, AMF-5F-18002650-30-10P	945372	01.01.2008
LISN	Fischer 50/250-25-2	-	30.06.2008
Transient Limiter	HP11947A	-	30.06.2008
Notch Filter	Micro-Tronics BRM50702-05	0001	01.01.2008
Antenna 15G-40 GHz	Schwarzbeck BBHA 9170	BBHA9170214	01.01.2008
High pass Filter	Wainwright WHK 1.2/15G-10EF	3	30.06.2008
High pass Filter	Wainwright WHK2.4/18G-10EF	1	30.06.2008
Oven	Tenneg Ten	10.158-5	30.06.2008
LISN	Fischer 50/250-25-2	-	30.06.2008
Transient Limiter	HP11947A	-	30.06.2008

Appendix B: Accreditation Certificate

ilac-MRA

THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

QUALITECH EXPERTS
Petach-Tikva ISRAEL

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 18 June 2005*).

Presented this 6th day of June 2007.

President
For the Accreditation Council
Certificate Number 1633.01
Valid to September 30, 2008

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

End of the Test Report