



TEST REPORT

Report Number: 100246734DAL-001a

Project Number: G100246734

Testing performed on the
Oreo 9 with dipole antenna
FCC ID: ODYDOREO9

to
47 CFR Part 15. 247:2009

For
Datamatic Ltd.

Test Performed by:
Intertek Testing Services NA, Inc.
1809 10th Street, Suite 400
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Test Authorized by:
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1.0 GENERAL DESCRIPTION

Model:	Oreo 9
Type of EUT:	PCMCIA Module
Serial Number:	12005002
FCC ID:	ODYDOREO9
Industry Canada ID:	N/A
Related Submittal(s) Grants:	
Company:	Datamatic Ltd
Customer:	Robert Lamb
Address:	3600 K Avenue Plano TX, 75074
Phone:	(972) 234-5000
Fax:	N/A
e-mail:	rlamb@datamatic.com
Test Standards:	☒ 47 CFR, Part 15:2009, §15.247 ☐ RSS-210, Issue 7, 2007 ☐ RSS-Gen, Issue 2, 2007 ☐ 47 CFR, Part 15:2008, §15.107 and §15.109, Class ☐ Other
Type of radio:	☐ Stand -alone ☒ Module ☐ Hybrid
Date Sample Submitted:	12/06/10
Test Work Started:	12/07/10
Test Work Completed:	03/07/11
Test Sample Conditions:	☐ Damaged ☐ Poor (Usable) ☒ Good

1.1 Product Description; Test Facility

Product Description:	Oreo 9 PCMCIA Module
Transmitter Type:	☒ FHSS ☐ Digital Modulation ☐ WiFi ☐ Blue Tooth
Operating Frequency Range(s):	Range From 902.5 to 927 MHz
Number of Channels:	50
Modulation:	40kHz and 80kHz
Antenna(s) Info:	Antenna 1. Type: Dipole Gain: 1 dBi Connector Type: Lucent Connector
Antenna Installation:	☐ User ☐ Professional ☒ Factory
Transmitter power configuration:	☐ Internal battery ☒ External power source ☐ 120VAC ☐ 230VAC ☐ 400VAC ☒ [REDACTED] VDC ☐ Other: [REDACTED] ☐ [REDACTED] Amp. ☐ 50Hz ☐ 60Hz
Special Test Arrangement:	As a portable device that is plugged into a laptop and tested in this configuration.
Test Facility Accreditation:	A2LA (Certificate No. 1427.01)
Test Methodology:	Measurements performed according to the procedures in ANSI C63.4-2003 and FCC Public Notice DA 00-705

1.2 EUT Configuration

The equipment under test was operated during the measurement under the following conditions:

- ☐ - Standby
- ☒ - Continuous transmissions with hopping function enabled
- ☒ - Continuous transmissions with hopping function disabled (modulated signal)
- ☒ - Continuous transmissions with hopping function disabled (un-modulated signal)
- ☐ - Continuous receiving
- ☐ - Test program (customer specific)
- ☐ -

Operating modes of the EUT:

No.	Description
1	Test was performed at low channel, middle channel, and upper channel
2	

Cables:

No.	Type	Length	Designation	Note
1	None			
2				

Support equipment/Services:

No.	Item	Description
1	HP Compaq Laptop	Model – NC6000, Serial # CNU509FOGK
2		

1.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

☒ Normal

Temperature:	+15 to +35 °C
Humidity:	20-75 %
Atmospheric pressure:	86-106 kPa

☐ Extreme

☐ Temperature:	-20 to +50 °C
☐ Supply voltage:	85% to +115%

1.4 Measurement uncertainty

The expanded uncertainty ($k = 2$) for radiated measurements has been determined to be:

± 4 dB at 10m and ± 5.4 dB at 3m

The expanded uncertainty ($k = 2$) for conducted measurements at antenna terminal has been determined to be:

± 1.0 dB

The expanded uncertainty ($k = 2$) for line conducted measurements has been determined to be:

± 2.6 dB

1.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured emissions reading on the EMI Receiver.

The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where: FS = Field Strength in dB(μ V/m)

RA = Receiver Amplitude in dB(μ V)

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB(m^{-1})

AG = Amplifier Gain in dB

Assume a receiver reading of 48.1 dB(μ V) is obtained. The antenna factor of 7.4 dB(m^{-1}) and cable factor of 1.6 dB is added and amplifier gain of 16.0 dB is subtracted giving field strength of 41.1 dB(μ V/m).

$$RA = 48.1 \text{ dB}(\mu V)$$

$$AF = 7.4 \text{ dB}(m^{-1})$$

$$CF = 1.6 \text{ dB}$$

$$AG = 16.0 \text{ dB}$$

$$FS = RA + AF + CF - AG$$

$$FS = 48.1 + 7.4 + 1.6 - 16.0$$

$$FS = 41.1 \text{ dB}(\mu V/m)$$

General notes:



2.0 TEST SUMMARY

Referring to the performance criteria and the operating mode during the tests specified in this report, the equipment complies with the requirements according to the following standards.

TEST SPECIFICATION	TEST PARAMETERS	RESULT
15.247(b), (c) / RSS-210 A8.4	Maximum peak output power	Pass
15.247(e) / RSS-210 A8.1	Hopping channel carrier frequencies separation	Pass
15.247(a) / RSS-210 A8.1	20dB bandwidth of the hopping channel	Pass
15.247(e) / RSS-210 A8.1	Number of hopping frequencies	Pass
15.247(e) / RSS-210 A8.1	Average time of occupancy of hopping frequency	Pass
15.247(d) / RSS-210 A8.5	Antenna conducted spurious and band edge emissions	Pass
15.247(d) / RSS-210 A8.5	Radiated spurious emissions	Pass
15.109 / ICES-003	Receiver/digital device radiated emissions	Pass



3.0 TEST CONDITIONS AND RESULTS

3.1 Maximum peak output power

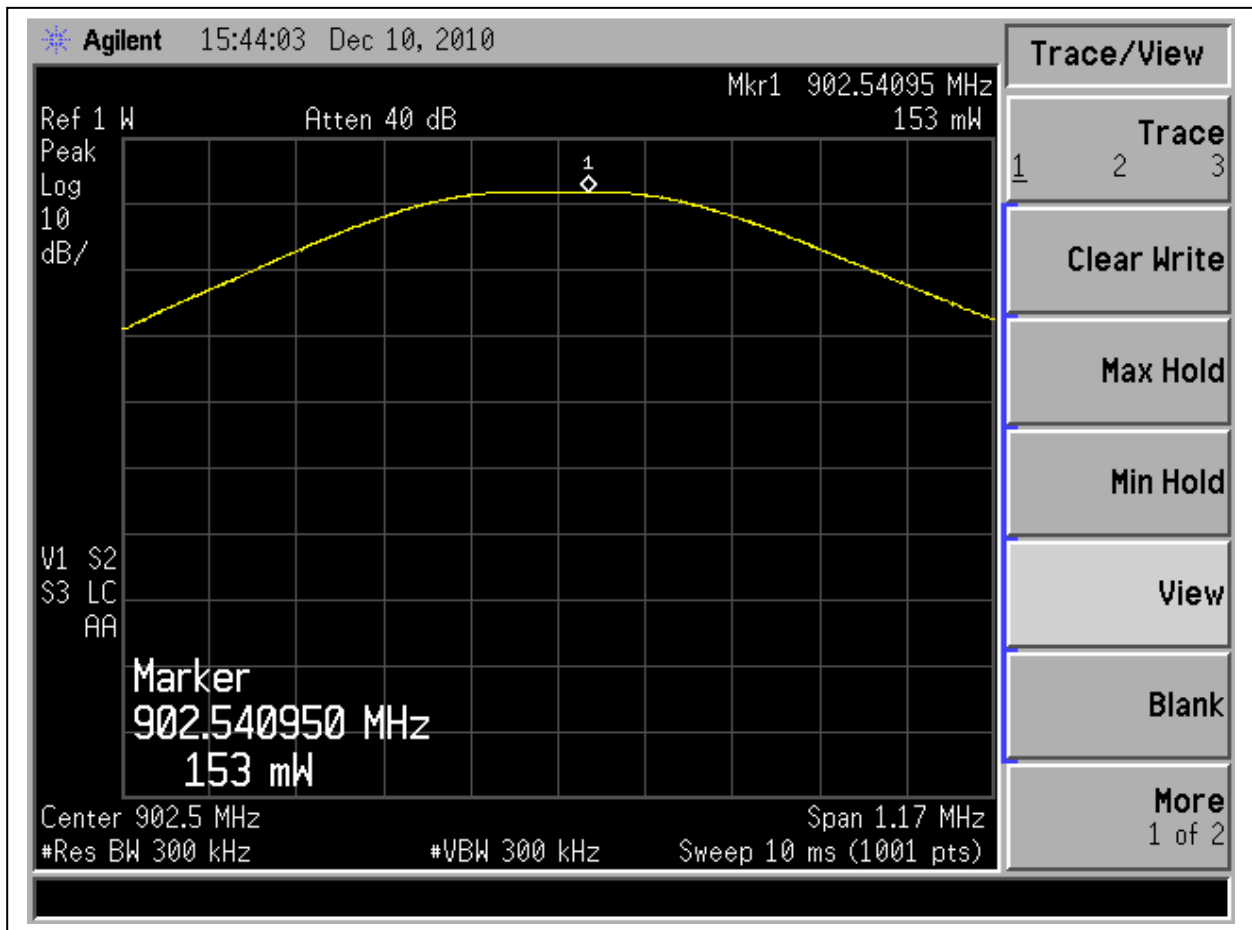
Test location: ☐ OATS ☒ Anechoic Chamber ☐ Other

Test result: **Pass**

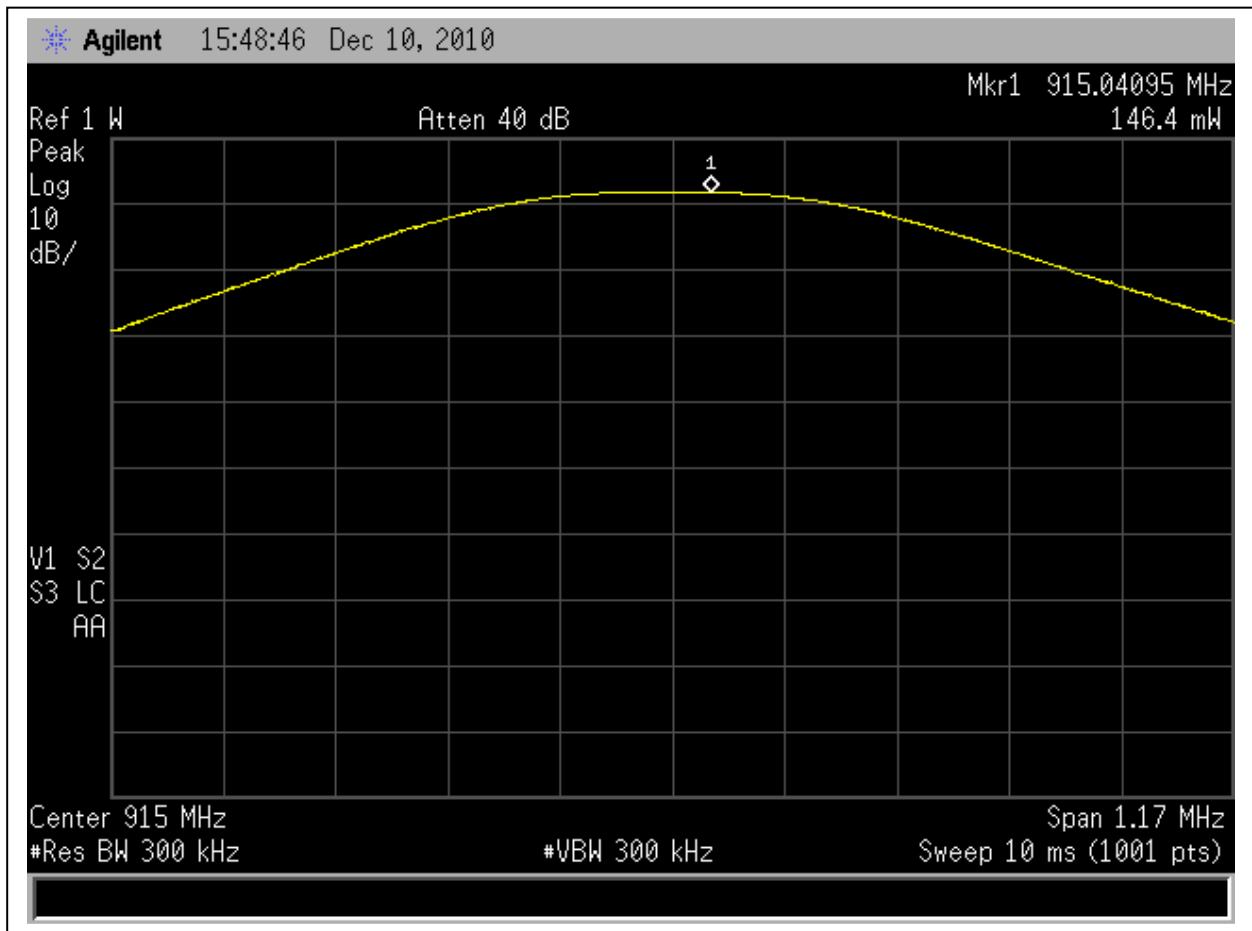
Max. Margin: .847W below the limits

Power Output:	Conducted					
Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz					
Low Frequency MHz	Measured power W	Attenuation dB	Power at Antenna W	Limit W	Limit Reduction dB	Margin W
902.5	0.153	40	0.153	1	0	-0.847
Middle Frequency MHz						
915	0.146	40	0.146	1	0	-0.854
Upper Frequency MHz						
927	0.139	40	0.139	1	0	-0.861
RBW:	☒ 300kHz ☐ 3MHz ☐ 10MHz					
VBW:	☒ 300kHz ☐ 3MHz ☐ 10MHz					
Antenna Gain:	☒ < 6dBi ☐ >6dBi and = dBi, Output power reduction = dB					

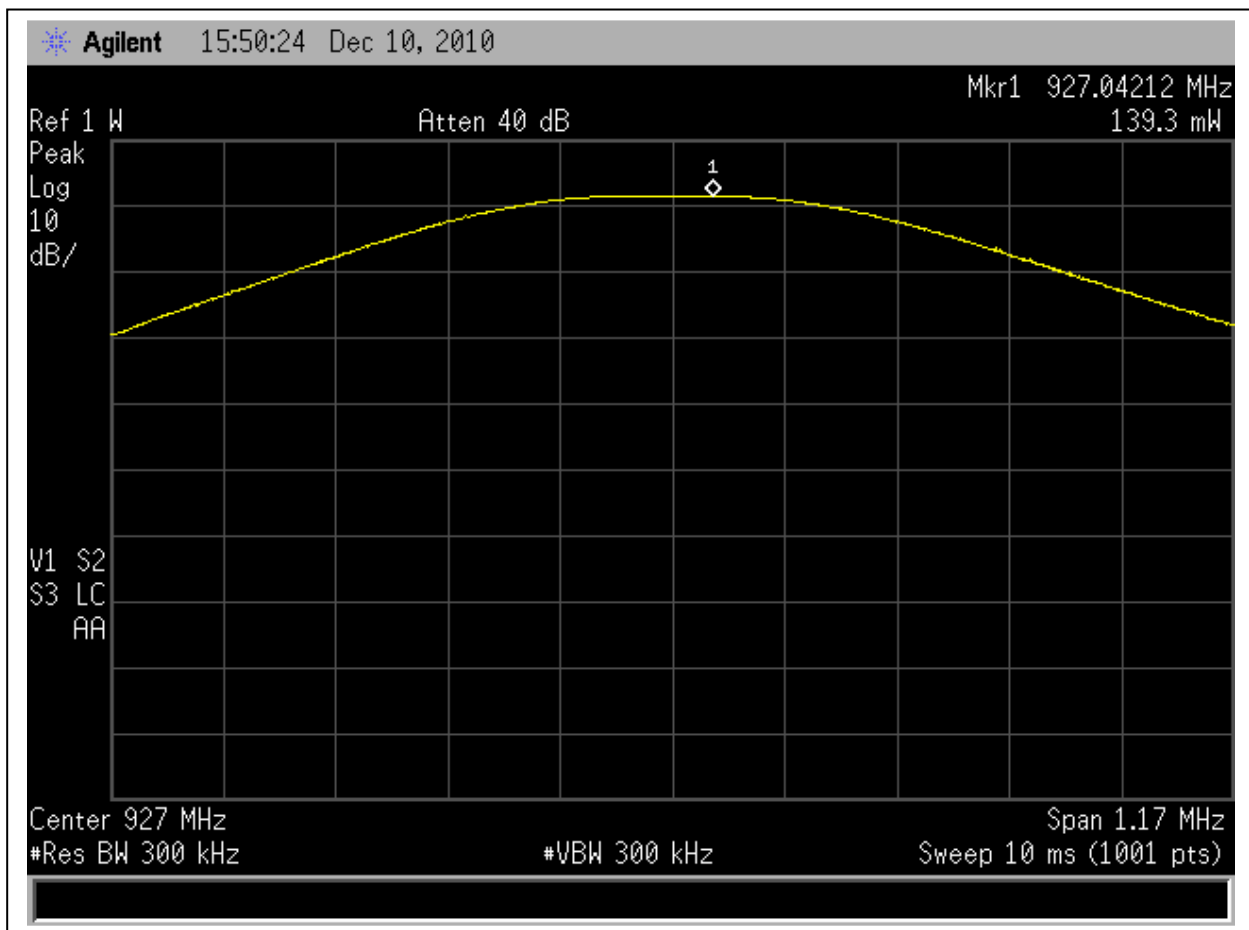
Notes:



Graph 3.1.1
Channel 1 (Low)



Graph 3.1.2
Channel 26 (Mid)



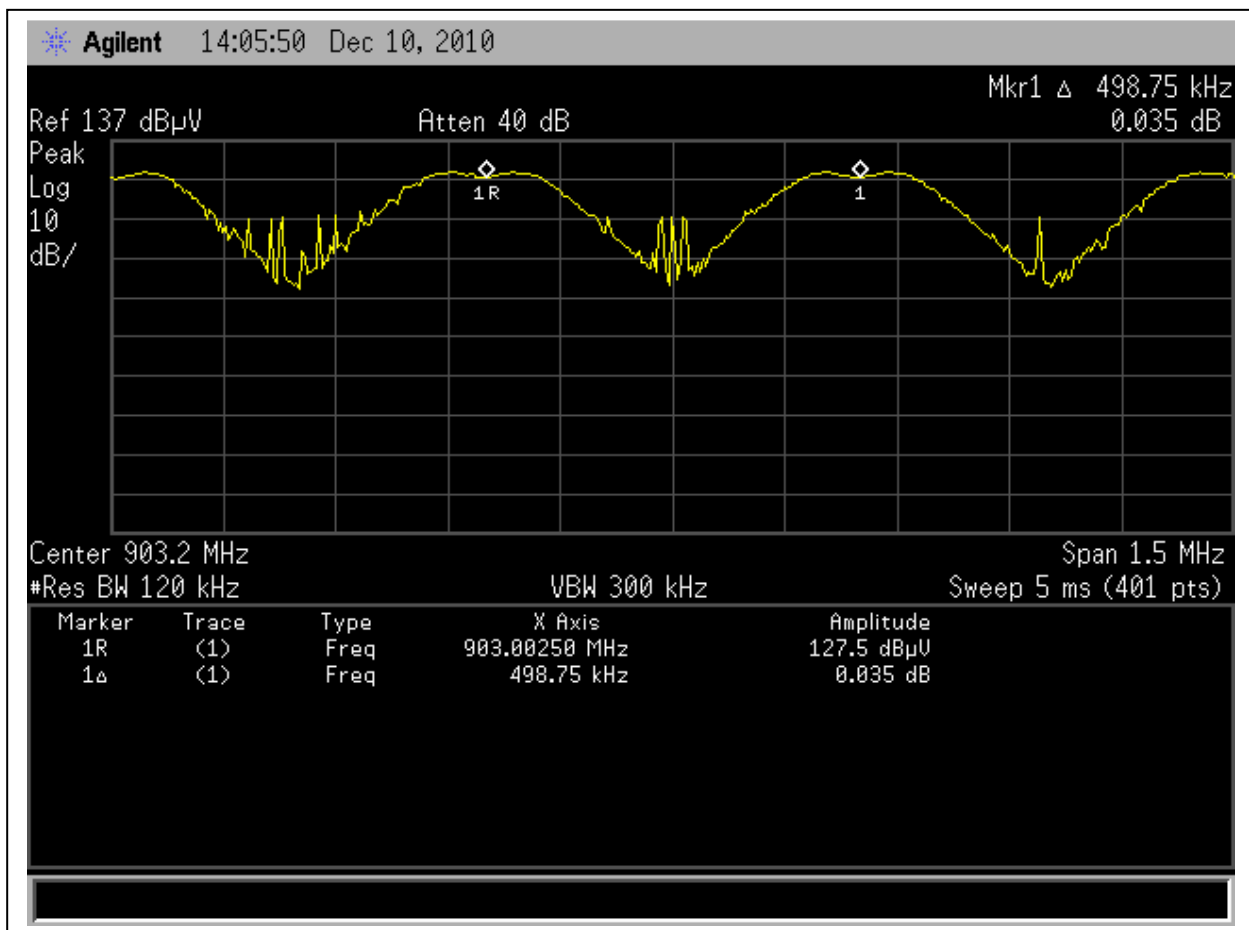
Graph 3.1.3
Channel 50 (High)



3.2 Hopping channel carrier frequencies separation

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz		
Measured Separation (kHz)	Limit (kHz)		Result
498.75	>234		Pass
Limit:	☐ 25kHz ☒ 20dB channel bandwidth ☐ 2/3 of 20dB channel bandwidth		
Span:	1500kHz		
RBW:	☐ 3kHz ☐ 10kHz ☐ 100kHz ☒ other 120kHz		
VBW:	☐ 3kHz ☐ 10kHz ☐ 100kHz ☒ other 300kHz		

Notes:



Graph 3.2.1



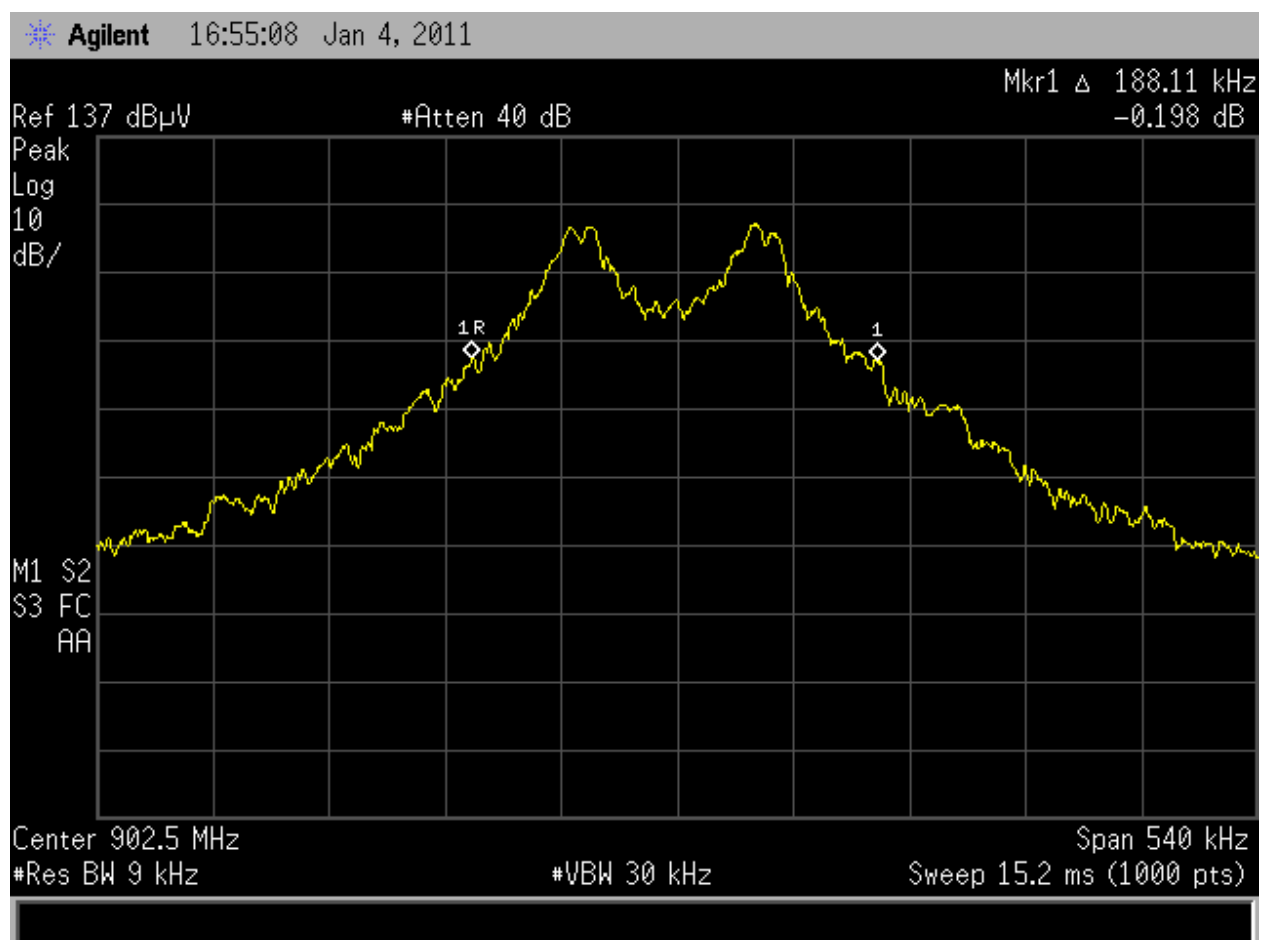
3.3 20dB bandwidth of the hopping channel

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz			
Low Frequency Channel (kHz)	Middle Frequency Channel (kHz)	Upper Frequency Channel (kHz)	Limit (kHz)	Result
188.11	181.63	185.41		Pass
Span:	540kHz			
RBW:	☐ 3kHz ☐ 10kHz ☐ 100kHz ☒ other 9kHz			
VBW:	☐ 3kHz ☐ 10kHz ☐ 100kHz ☒ other 30kHz			

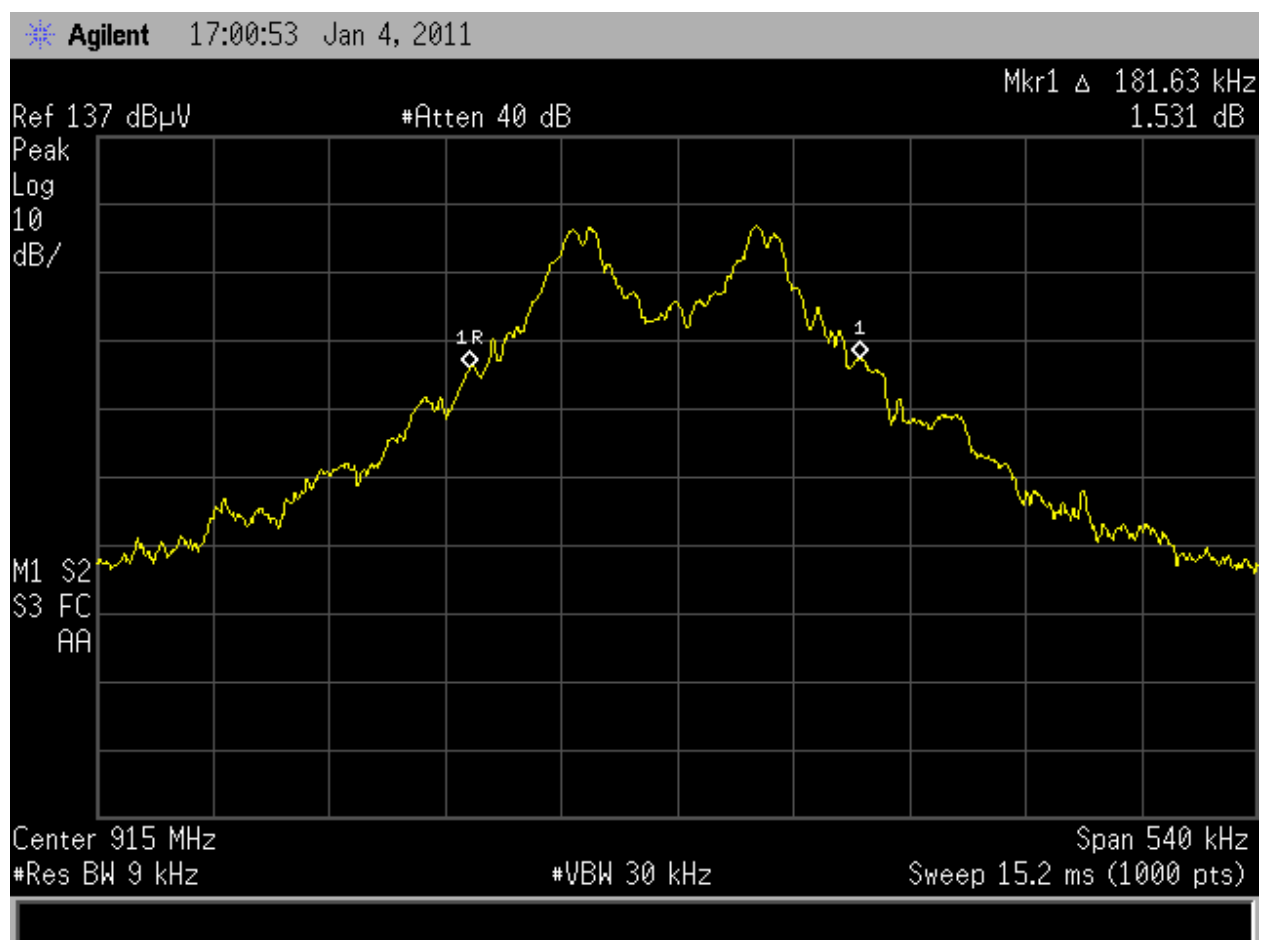
Notes: The above values were measured with the transmitter using its 40kHz modulation

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz			
Low Frequency Channel (kHz)	Middle Frequency Channel (kHz)	Upper Frequency Channel (kHz)	Limit (kHz)	Result
355.5	292.8	316.2		Pass
Span:	900kHz			
RBW:	☐ 3kHz ☐ 10kHz ☐ 100kHz ☒ other 9kHz			
VBW:	☐ 3kHz ☐ 10kHz ☐ 100kHz ☒ other 30kHz			

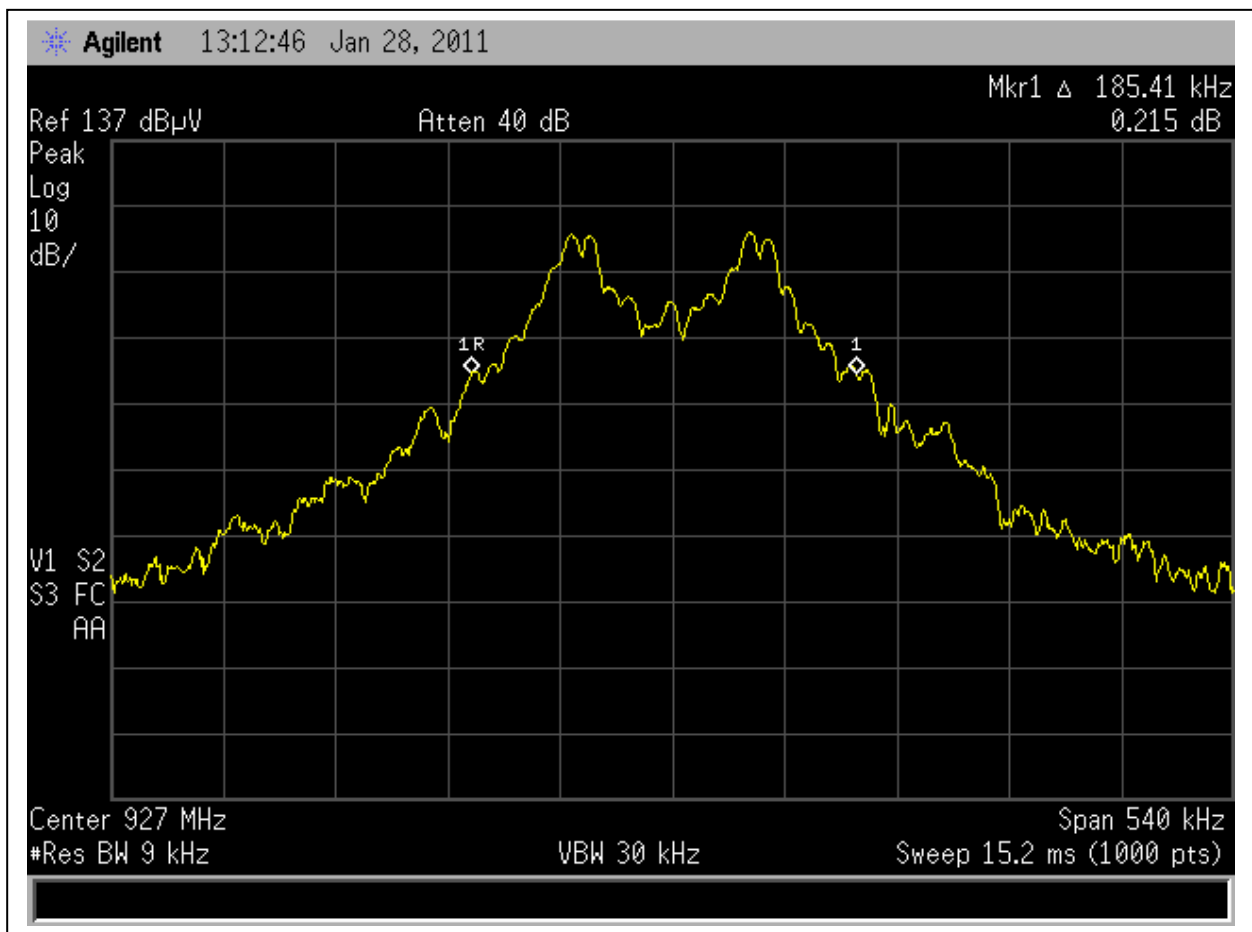
Notes: The above values were measured with the transmitter using its 80kHz modulation



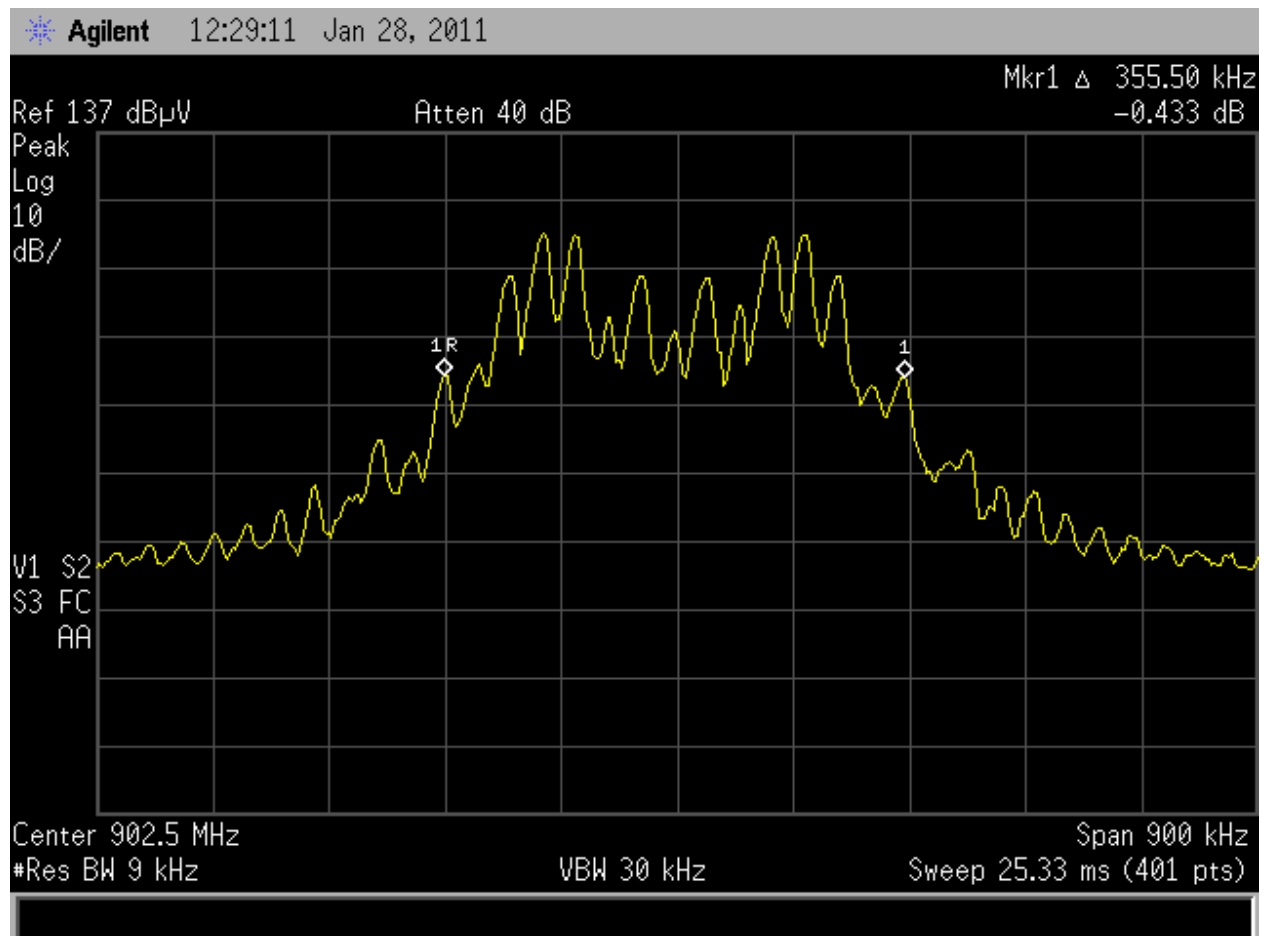
Graph 3.3.1



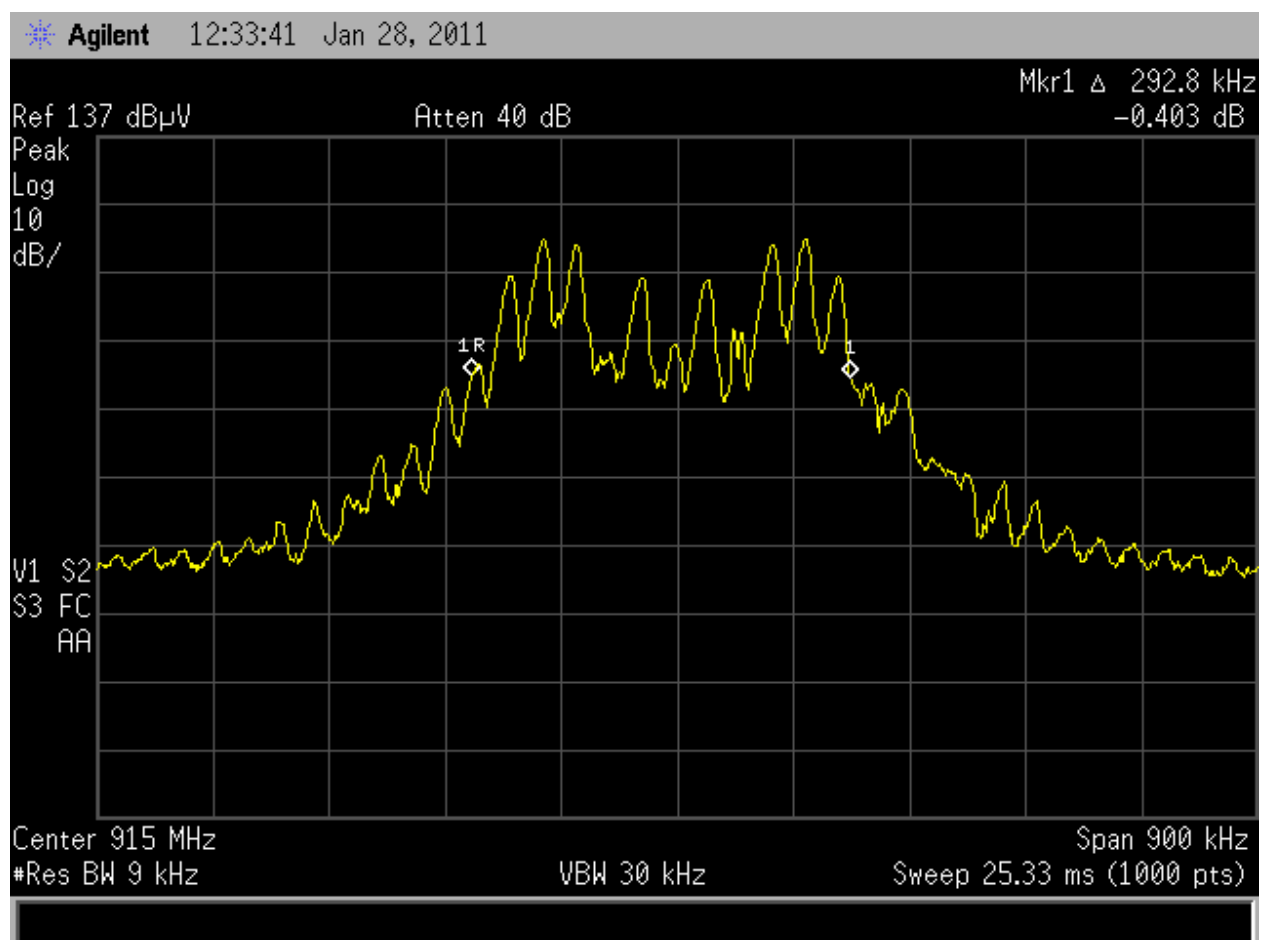
Graph 3.3.2



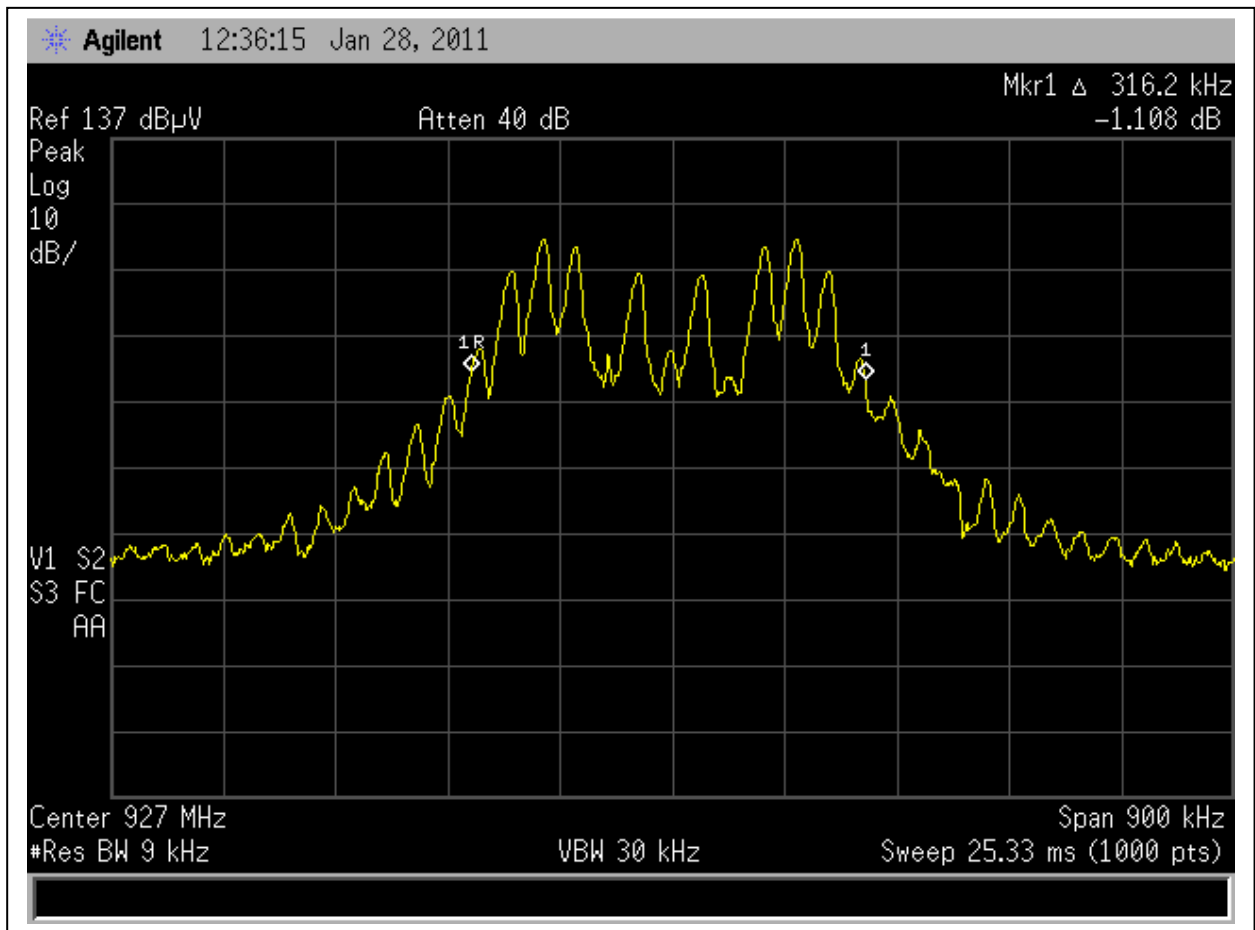
Graph 3.3.3



Graph 3.3.4



Graph 3.3.5



Graph 3.3.6



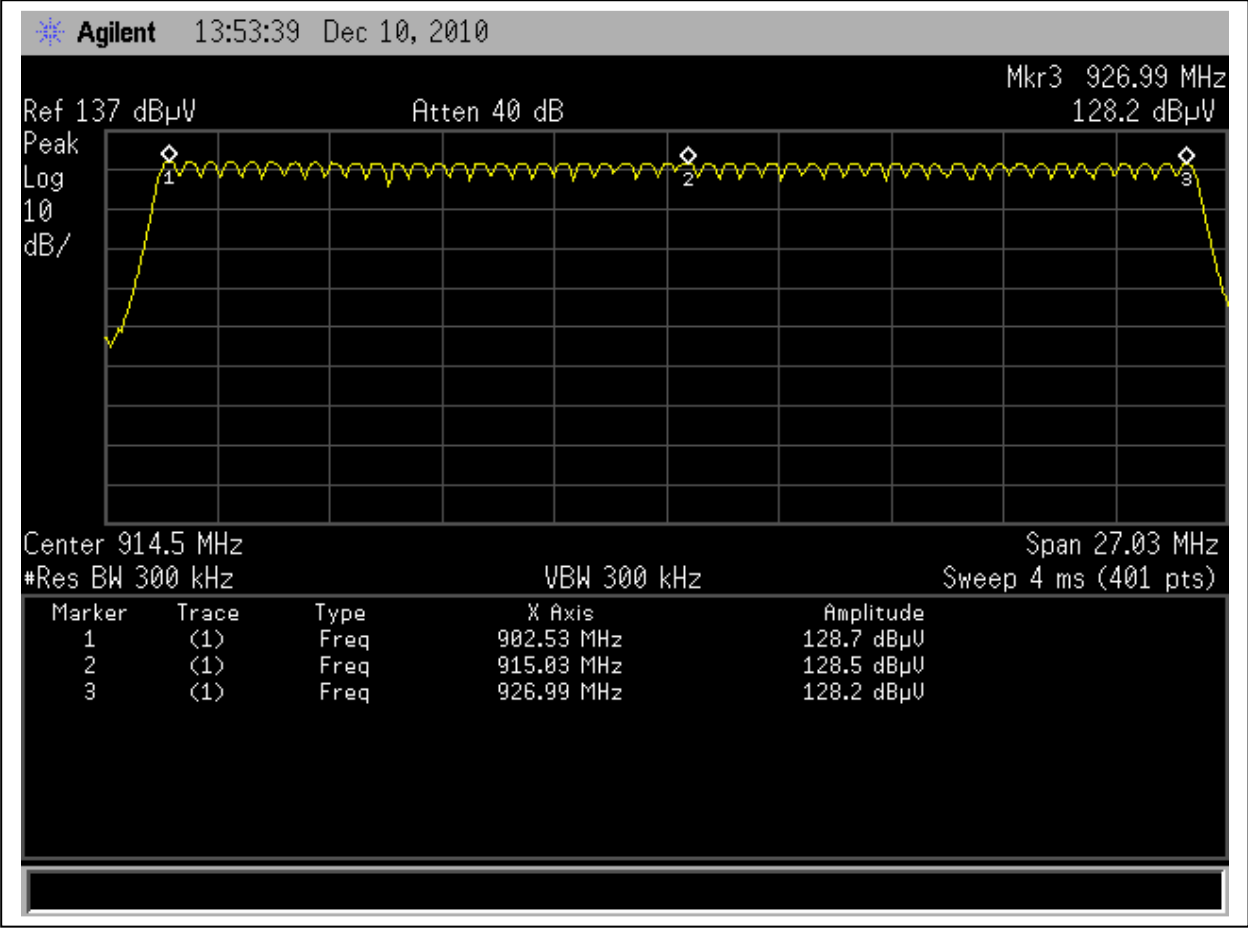
3.4 Number of hopping frequencies

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz	
Measured Number	Requirements	Result
50	At least 50	Pass
Channel 20dB Bandwidth:	☒ <250kHz ☐ ≥250kHz	

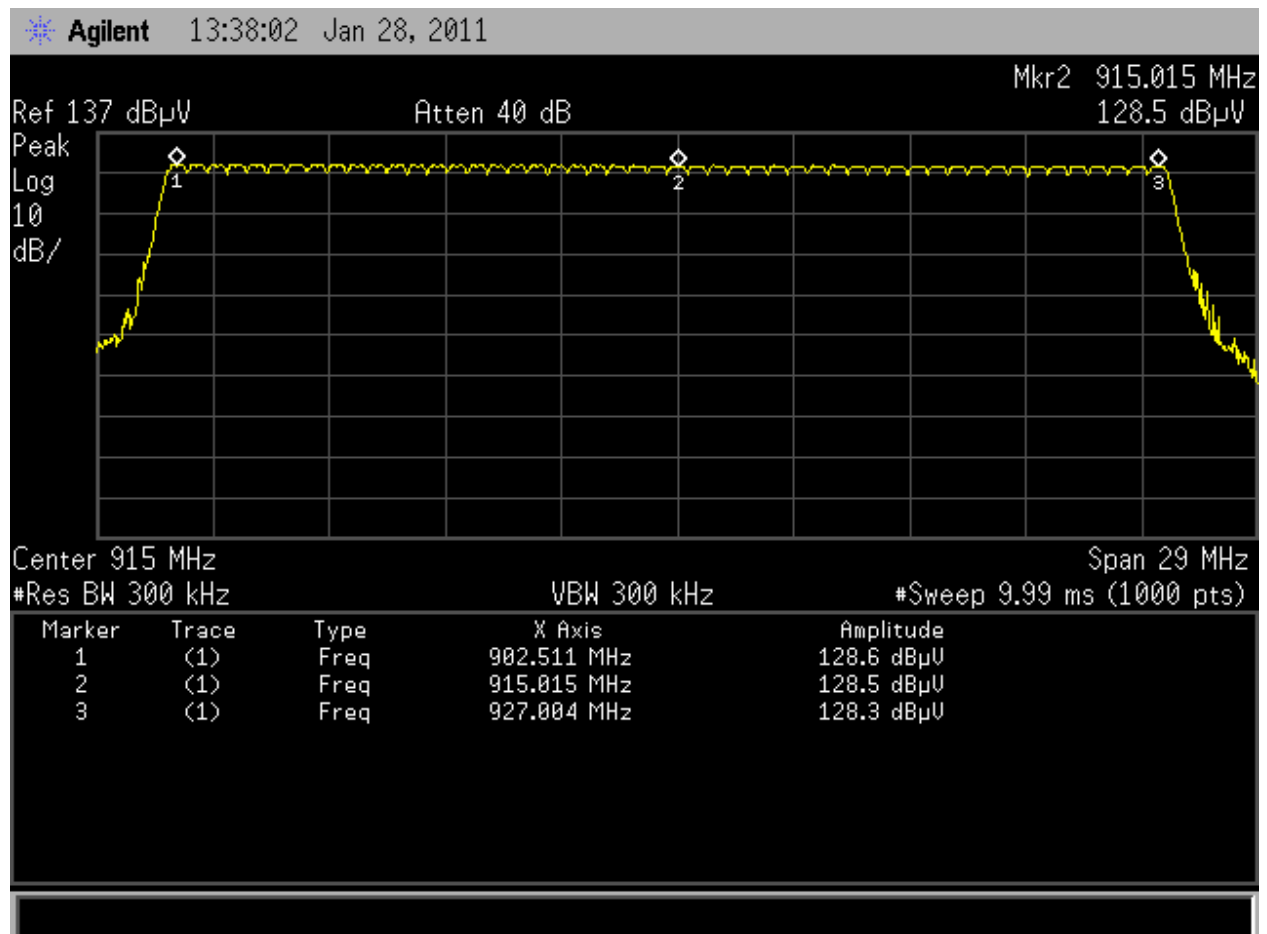
Notes: 40kHz Modulation setting, Graph 3.4.1 below

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz	
Measured Number	Requirements	Result
50	At least 25	Pass
Channel 20dB Bandwidth:	☐ <250kHz ☒ ≥250kHz	

Notes: 80kHz Modulation setting, Graph 3.4.2 below



Graph 3.4.1



Graph 3.4.2

3.5 Average time of occupancy of hopping frequency

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz		
Measured Single Duration sec	Time of Occupancy sec	Limit sec	Result
CH1 – 0.1206	0.1206	0.4	Pass
CH26 – 0.1206	0.1206	0.4	Pass
CH50 – 0.1211	0.1211	0.4	Pass
Period:	☐ 10s ☒ 20s ☐ 30s ☐ 0.4s multiplied by the channel number		
Channel 20dB Bandwidth:	☒ <250kHz ☐ ≥250kHz		

Time of occupancy calculation:

The minimum measured repetition of the channel occupancy (repetition) = 1

Single occupancy duration (single duration) = 0.1206 sec

Time of occupancy = (single duration) x (repetition) = 0.1206 x 1 = 0.1206 sec

Notes: Above measurements taken with 40kHz modulation. Graphs 3.5.1 thru 3.5.6 below.

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz		
Measured Single Duration sec	Time of Occupancy sec	Limit sec	Result
CH1 – 0.0506	0.0506	0.4	Pass
CH26 – 0.0513	0.0513	0.4	Pass
CH50 – 0.0486	0.0486	0.4	Pass
Period:	☒ 10s ☐ 20s ☐ 30s ☐ 0.4s multiplied by the channel number		
Channel 20dB Bandwidth:	☐ <250kHz ☒ ≥250kHz		

Time of occupancy calculation:

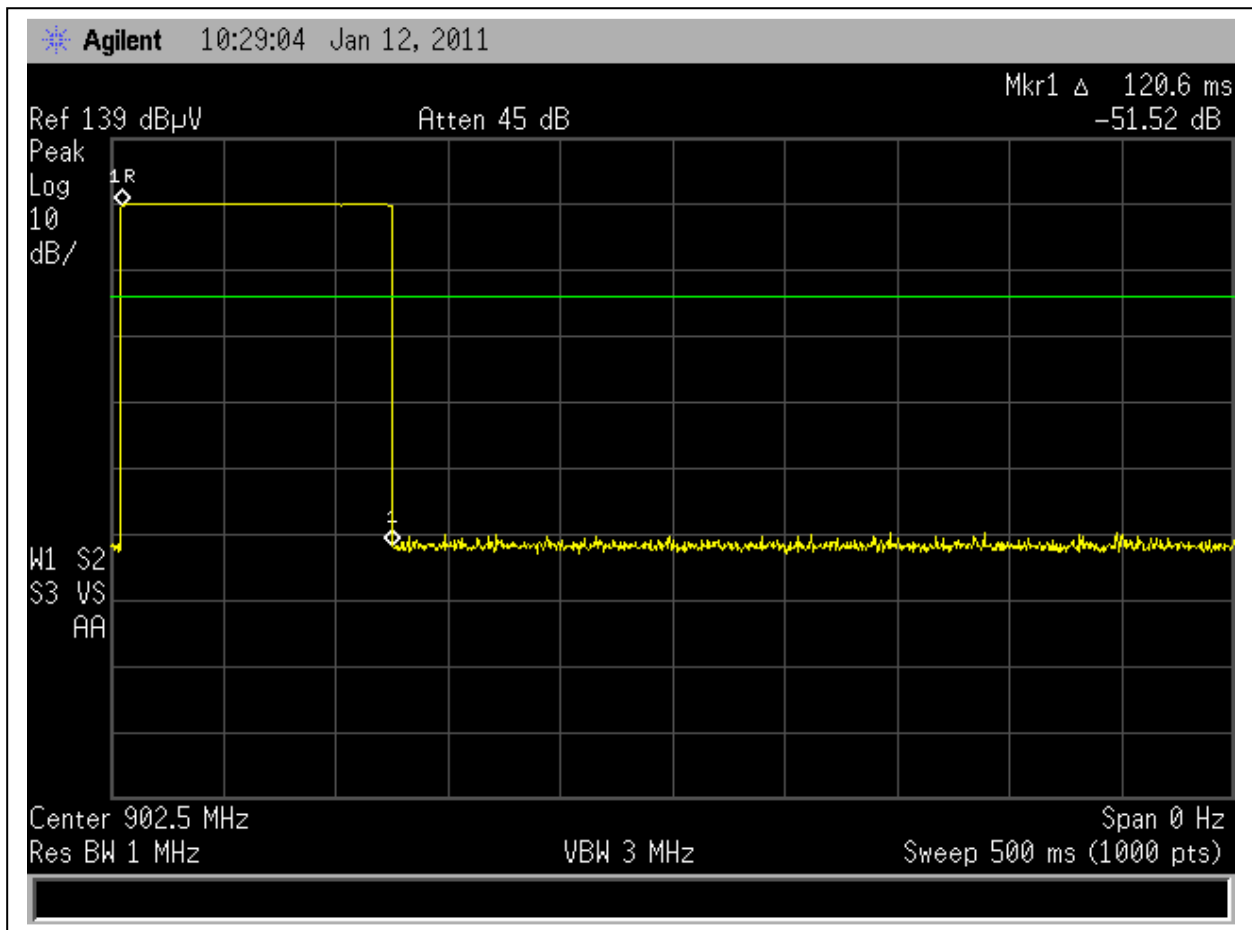
The minimum measured repetition of the channel occupancy (repetition) = 1

Single occupancy duration (single duration) = 0.1206 sec

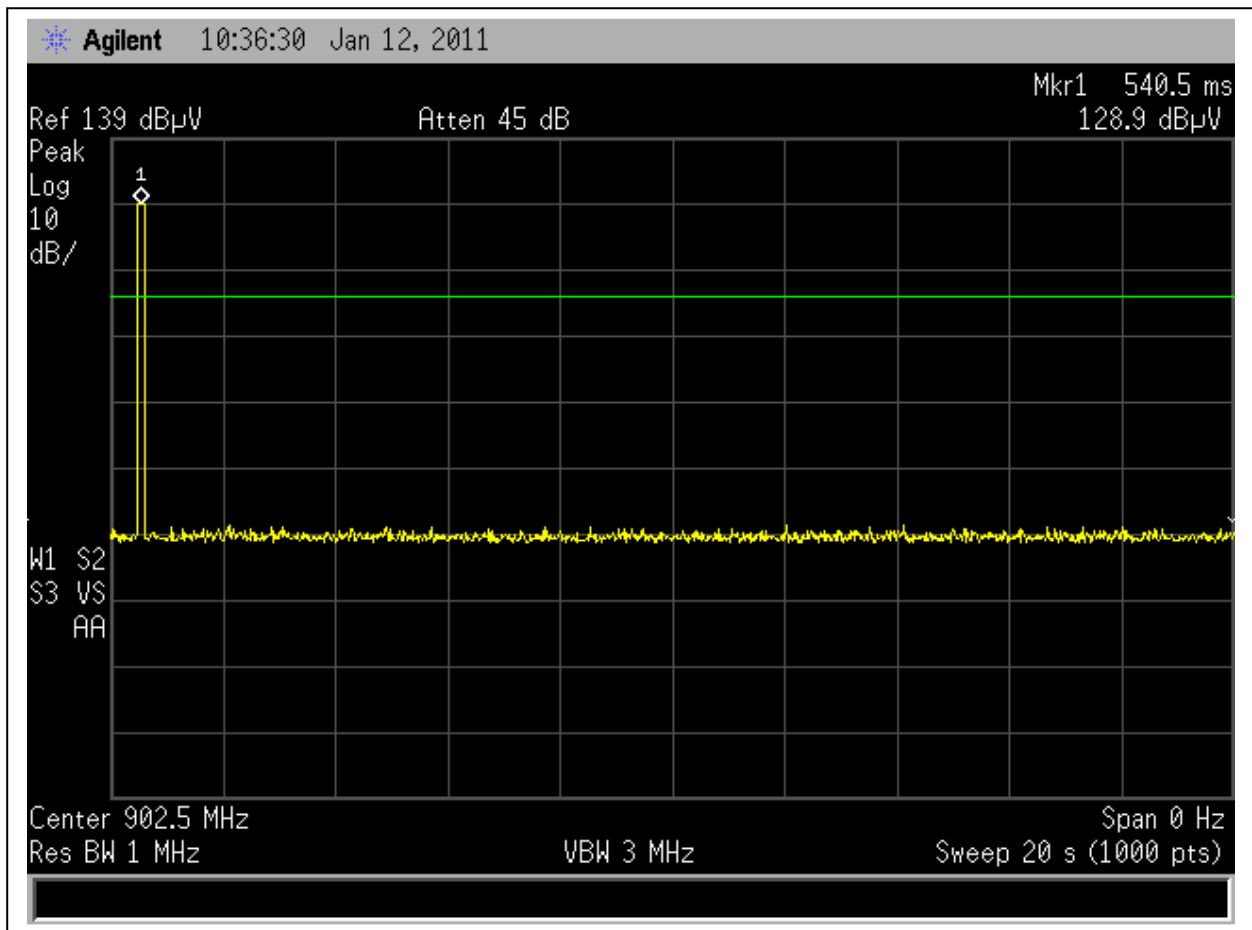
Time of occupancy = (single duration) x (repetition) = 0.1206 x 1 = 0.1206 sec



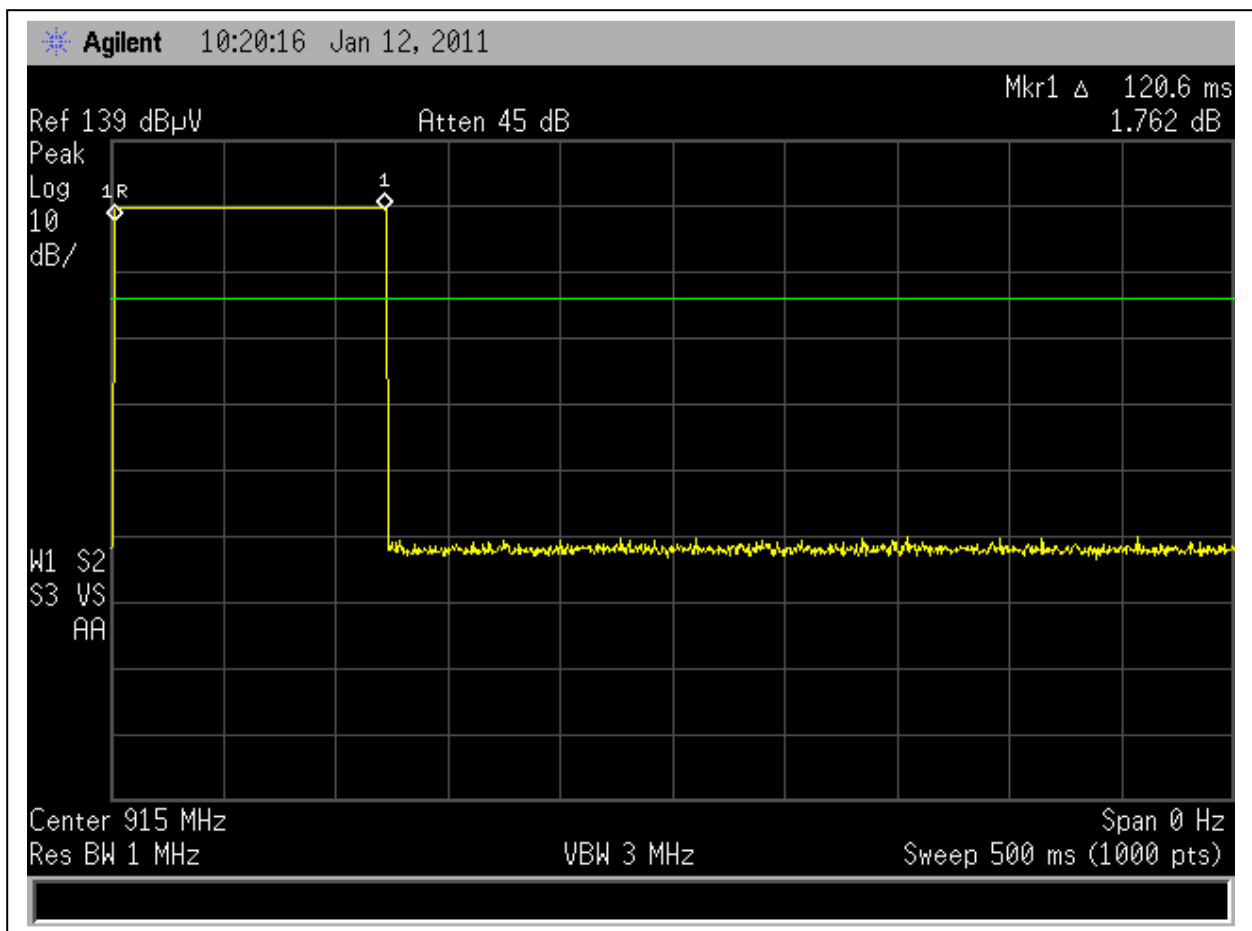
Notes: Above measurements taken with 80kHz modulation. Graphs 3.5.7 thru 3.5.12 below.



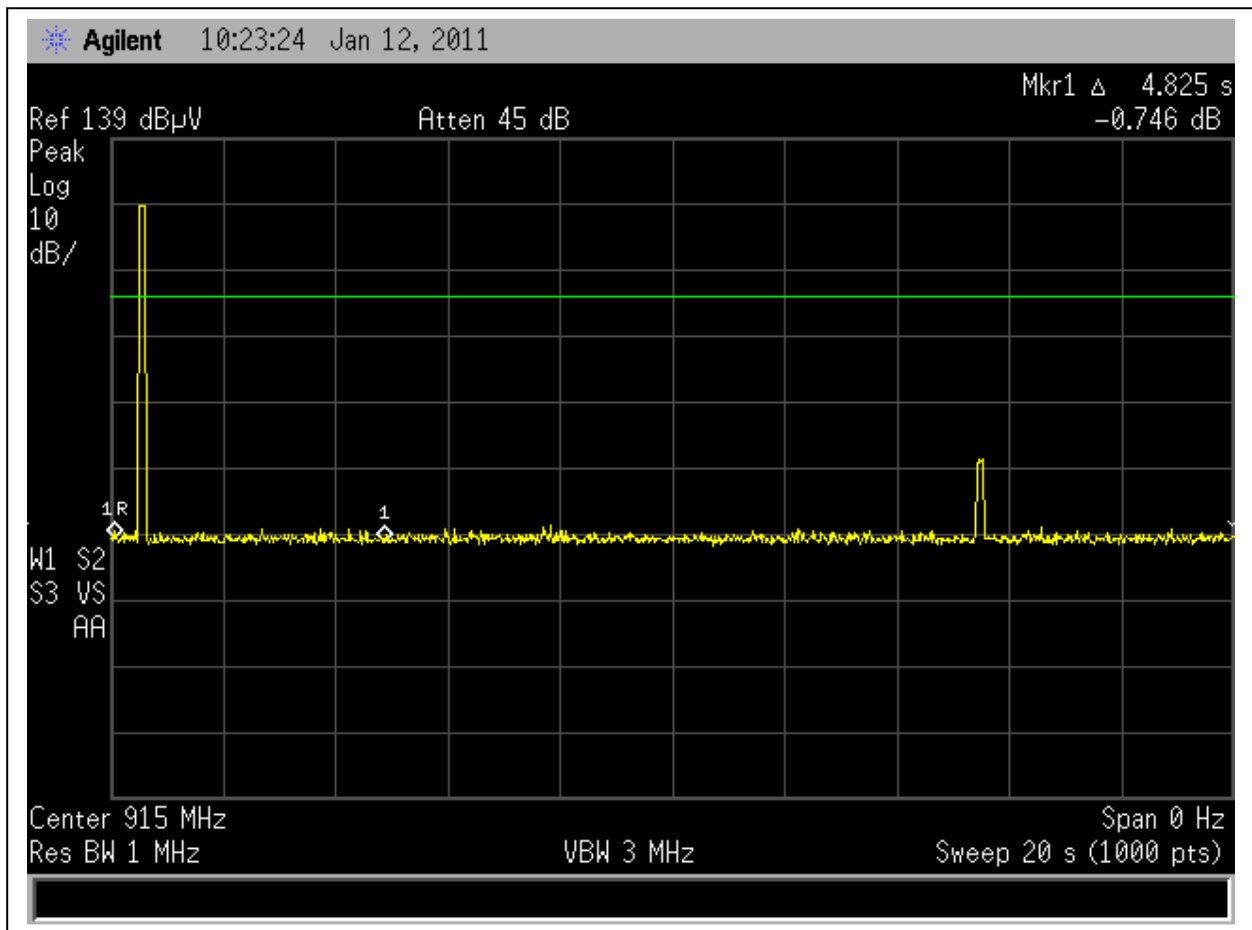
Graph 3.5.1



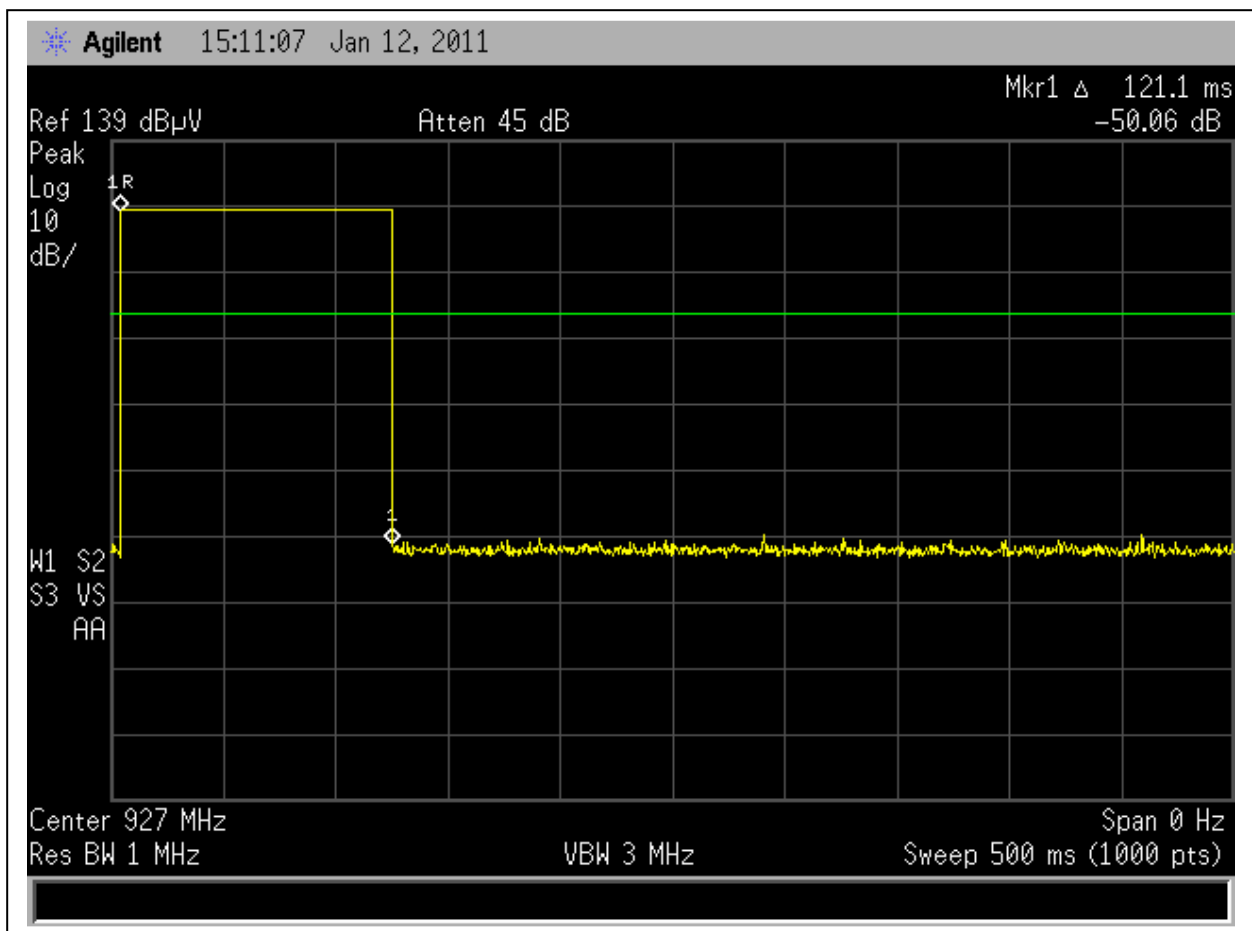
Graph 3.5.2



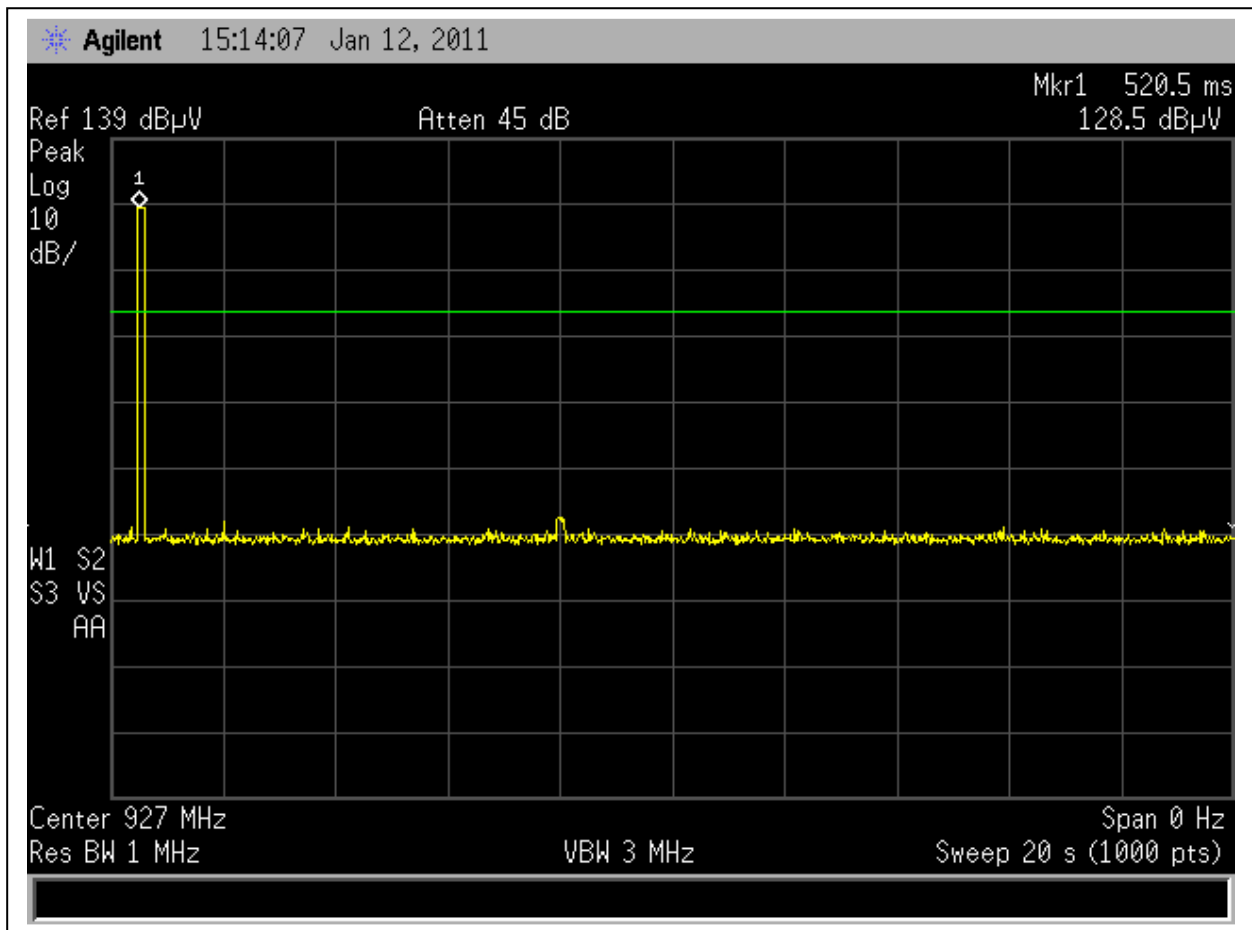
Graph 3.5.3



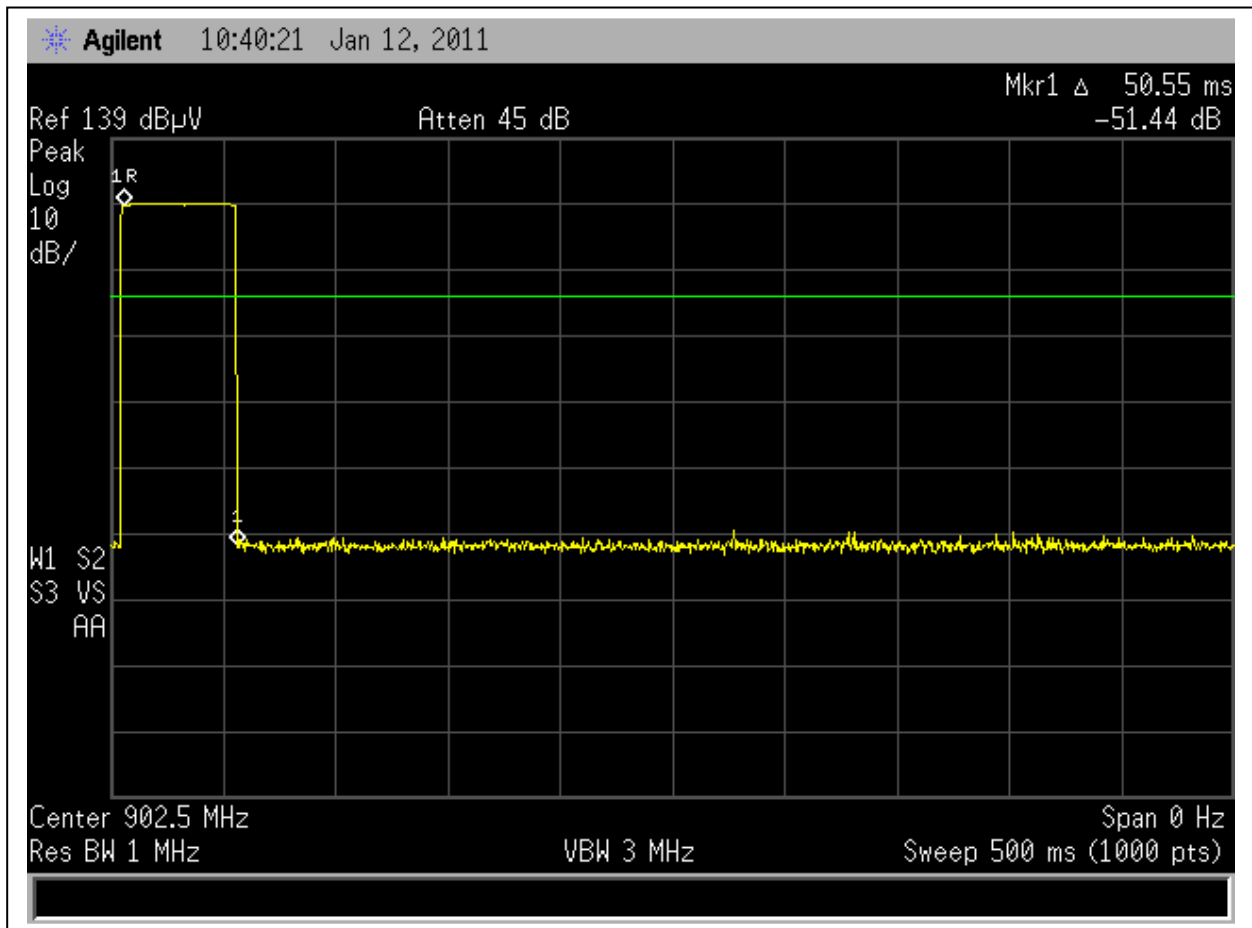
Graph 3.5.4



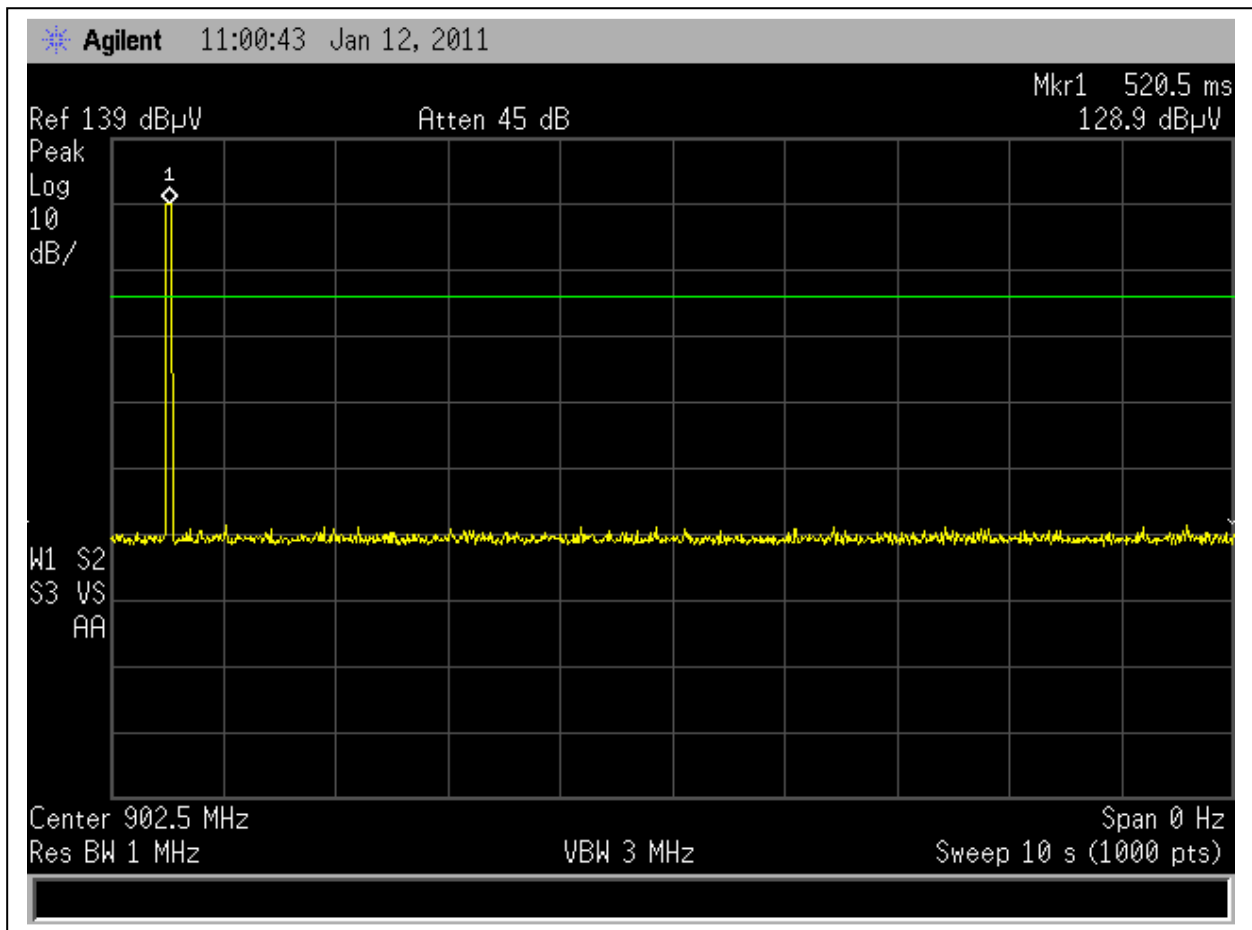
Graph 3.5.5



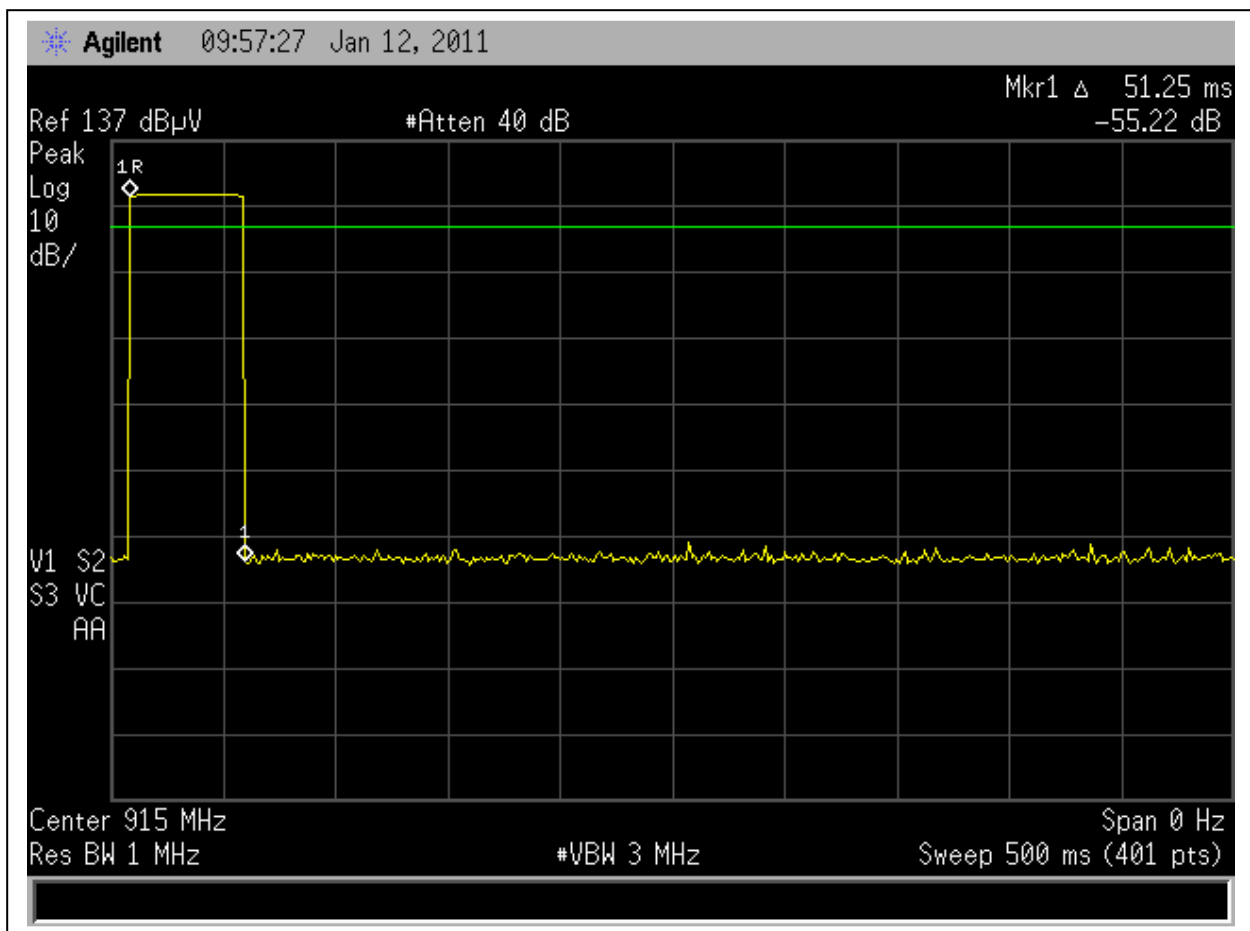
Graph 3.5.6



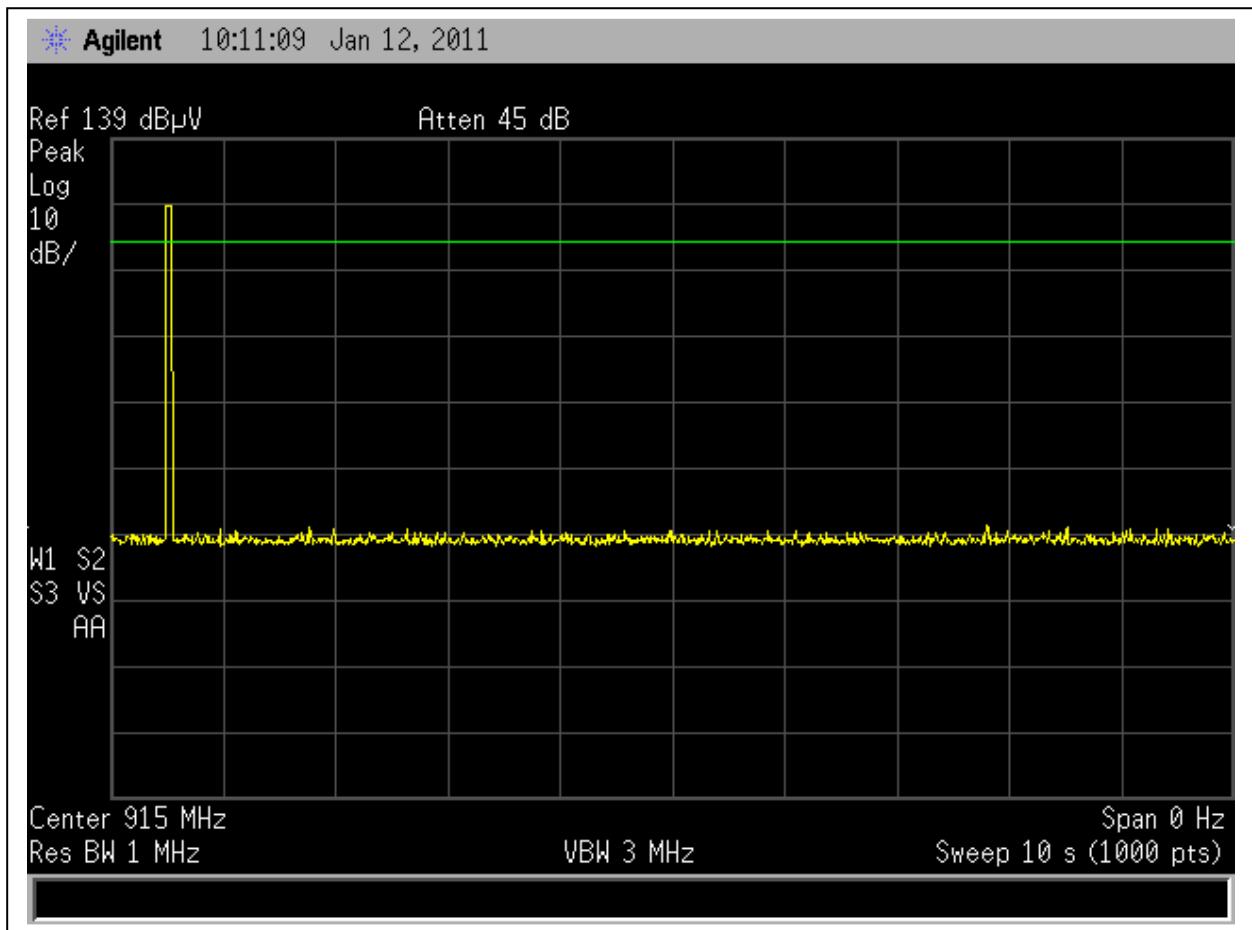
Graph 3.5.7



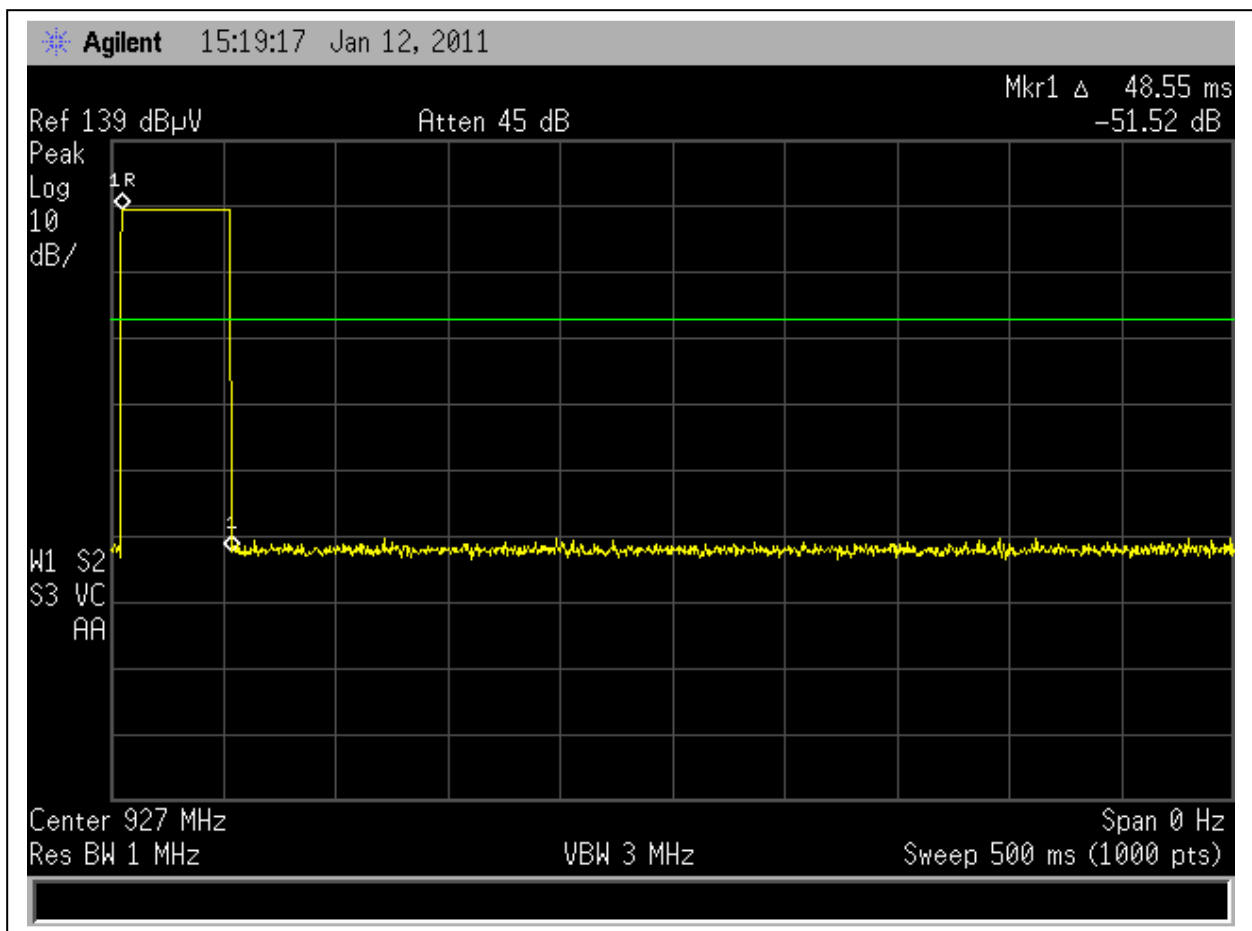
Graph 3.5.8



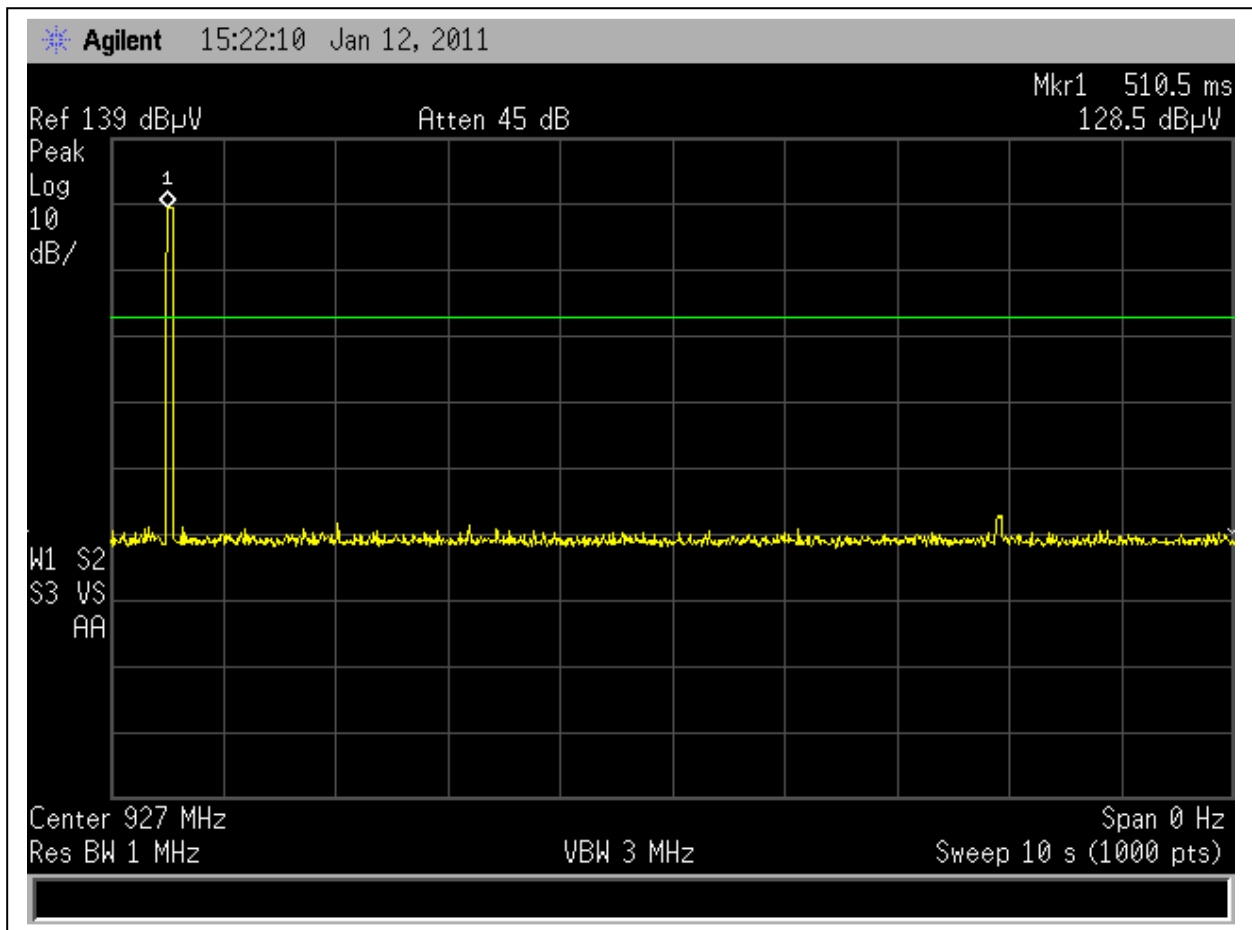
Graph 3.5.9



Graph 3.5.10



Graph 3.5.11



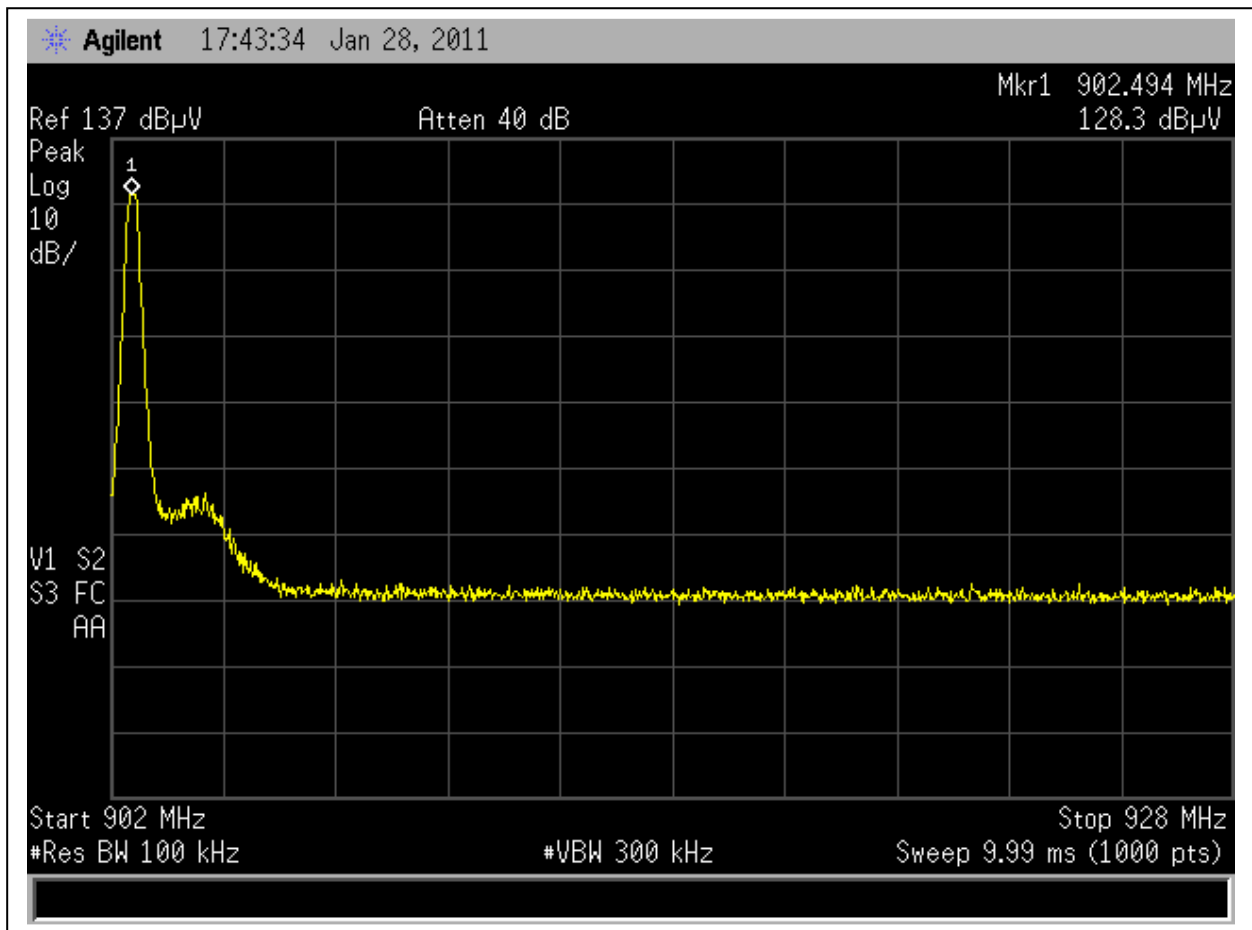
Graph 3.5.12



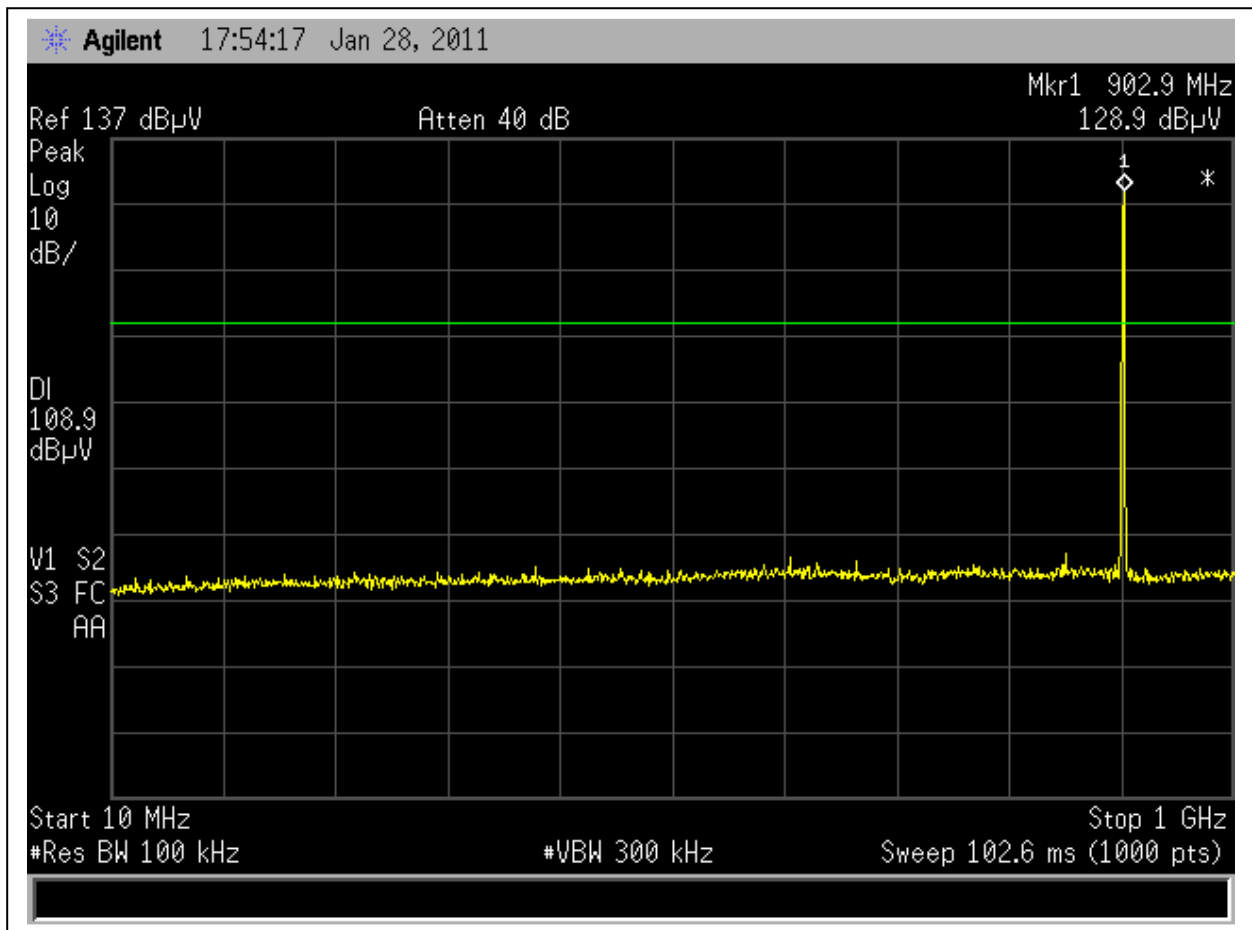
3.6 Antenna conducted spurious emissions

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz		
	Minimum Measured Attenuation dB	Minimum Allowed Attenuation dB	Margin dB
Low Frequency Channel	47.54	20	- 27.54
Middle Frequency Channel	48.48	20	- 28.48
Upper Frequency Channel	49.02	20	- 29.02
Analyzer Settings:	☒ RBW=100KHz		
Minimum Allowed Attenuation:	☒ 20dB ☐ 30dB (for digital systems with conducted power measured using RMS averaging over a time interval)		

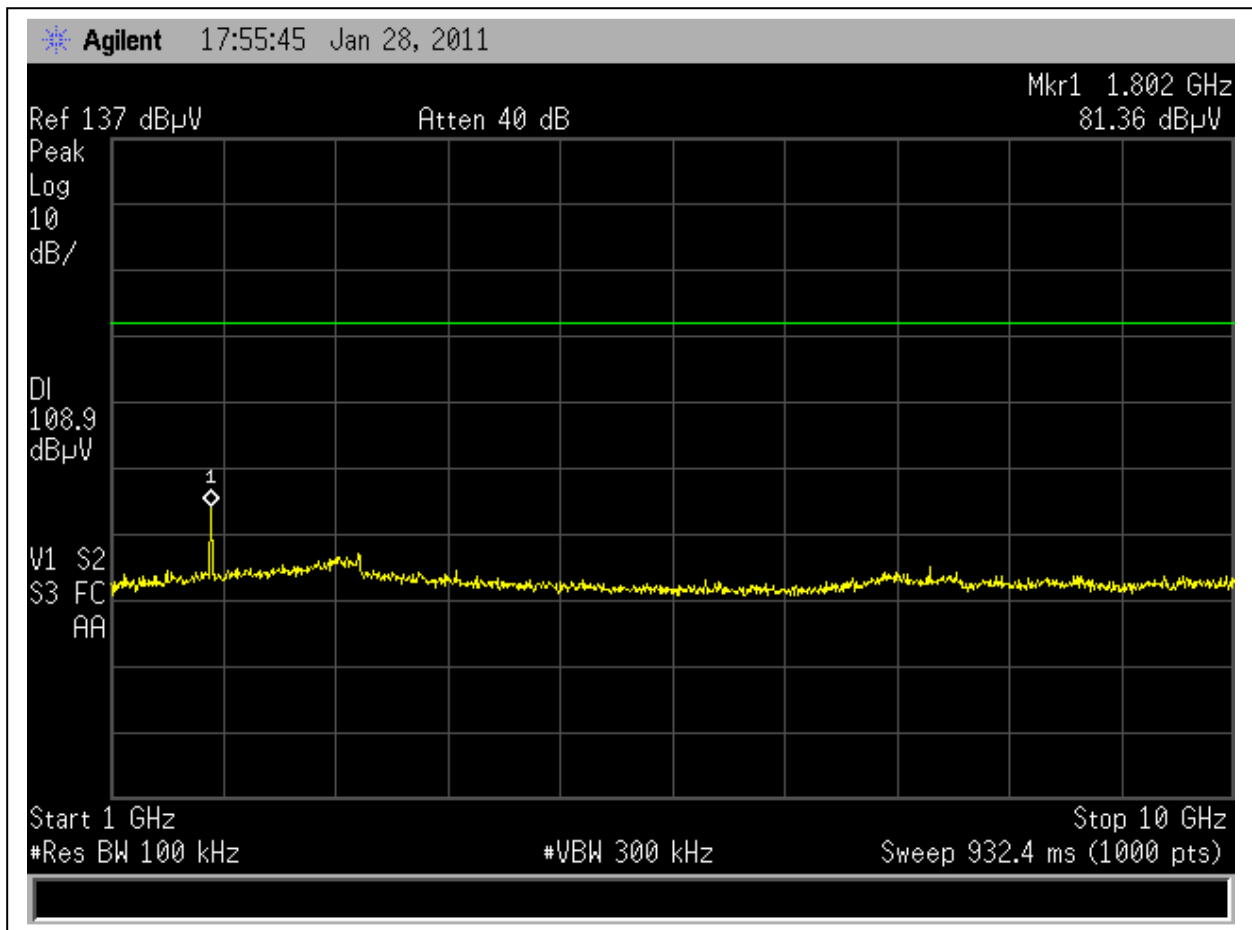
Notes: Low Channel Graphs: In Band – **3.6.1**, Out of Band – **3.6.2** and **3.6.3**
Middle Channel Graphs: In Band – **3.6.4**, Out of Band – **3.6.5** and **3.6.6**
Upper Channel Graphs: In Band – **3.6.7**, Out of Band – **3.6.8** and **3.6.9**



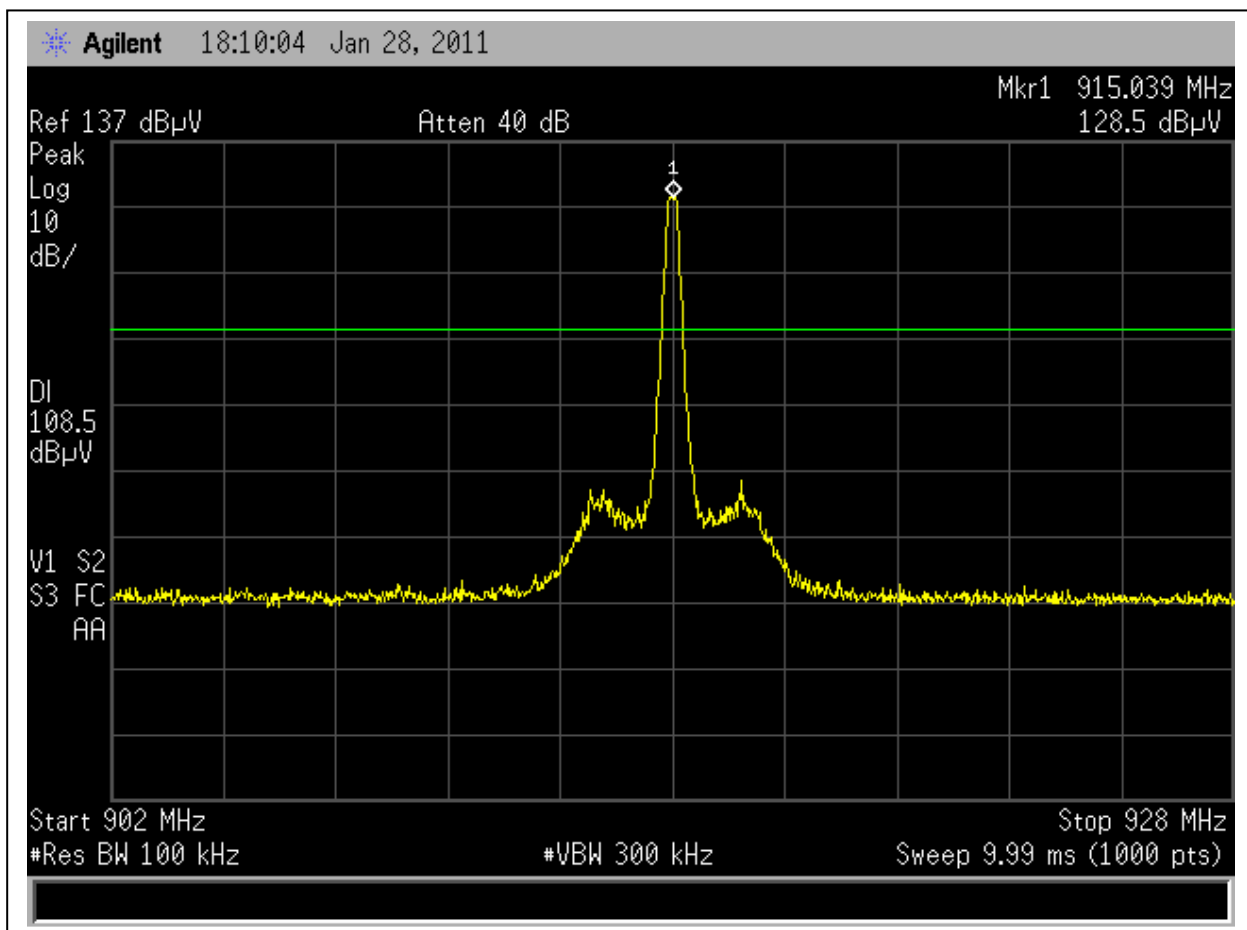
Graph 3.6.1



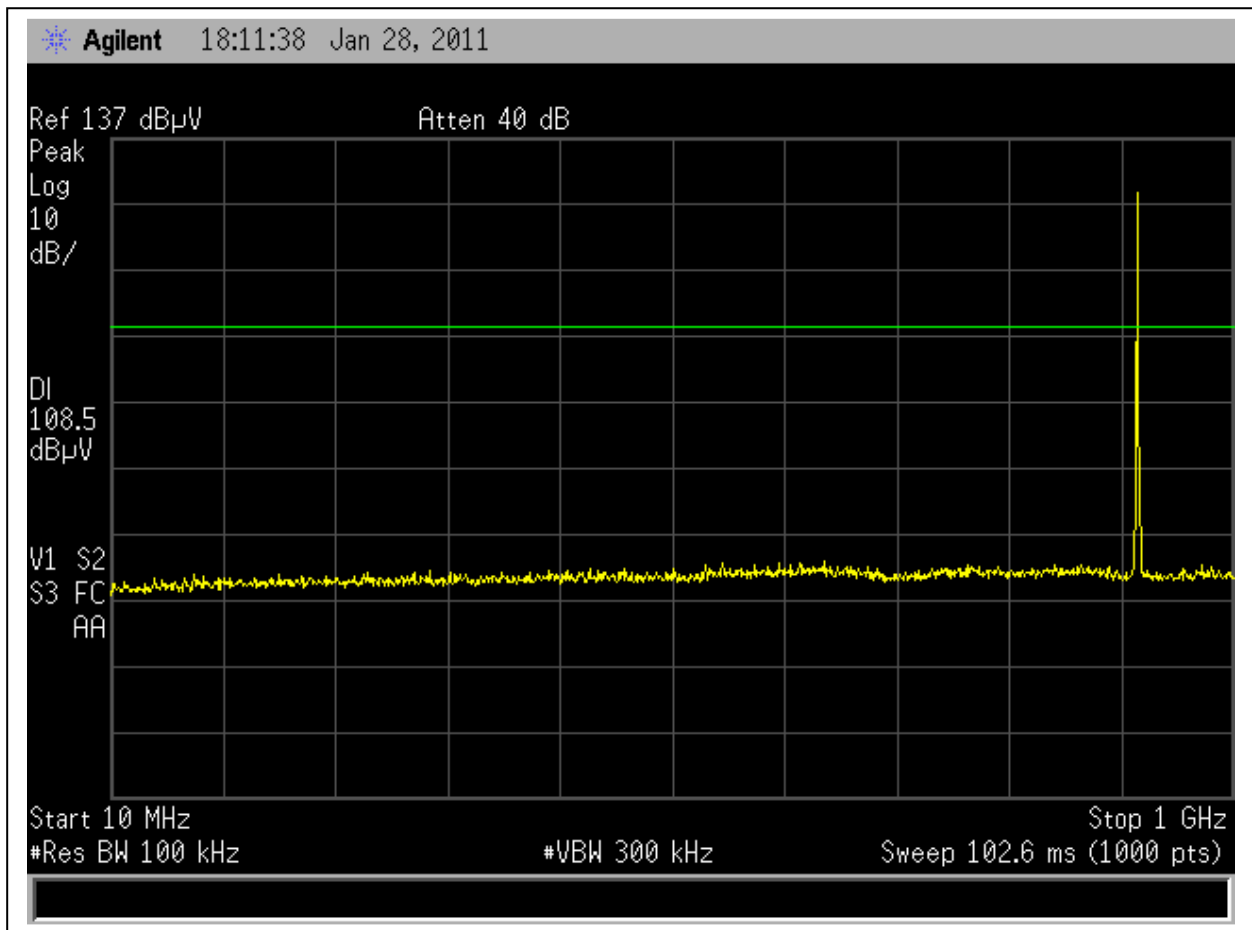
Graph 3.6.2



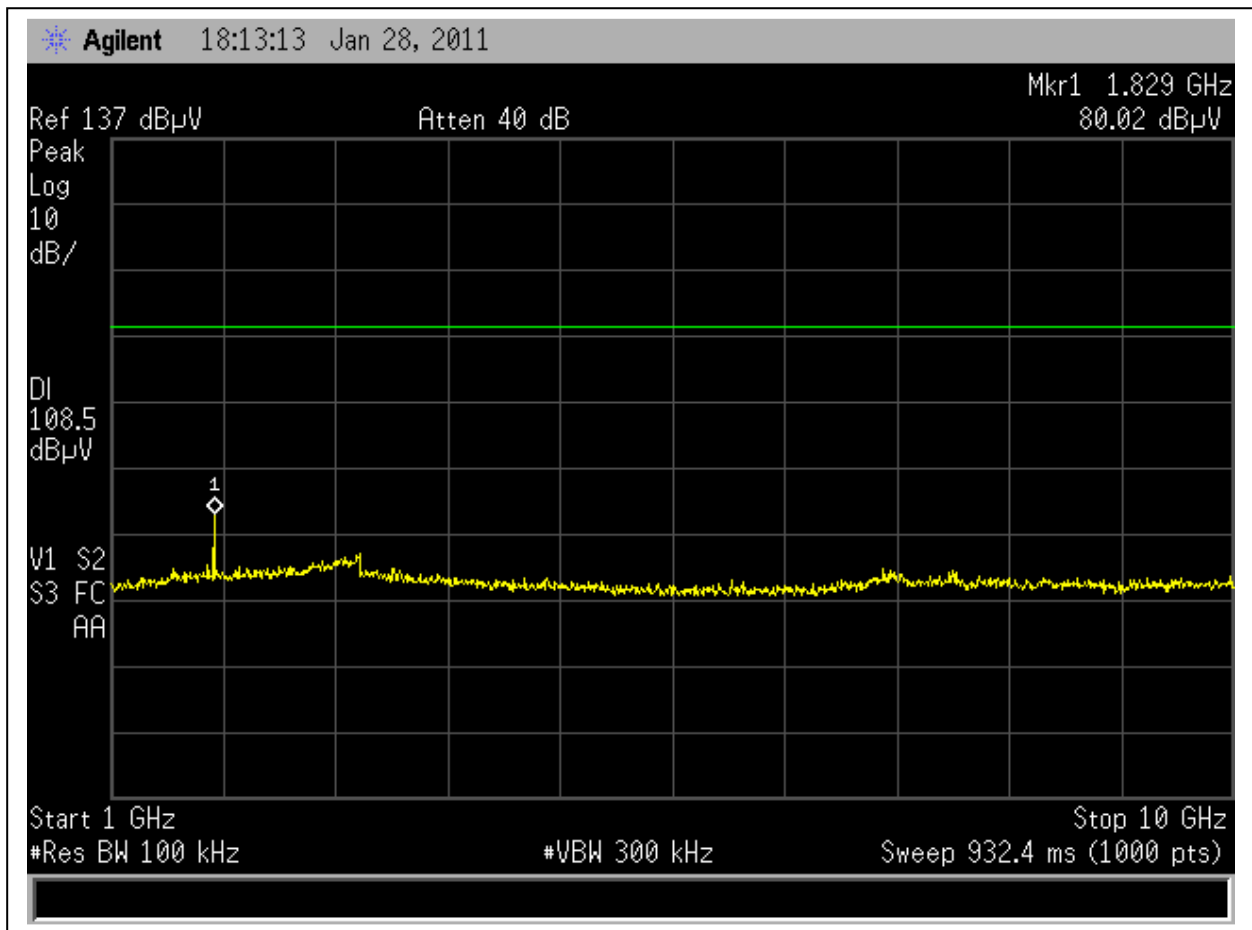
Graph 3.6.3



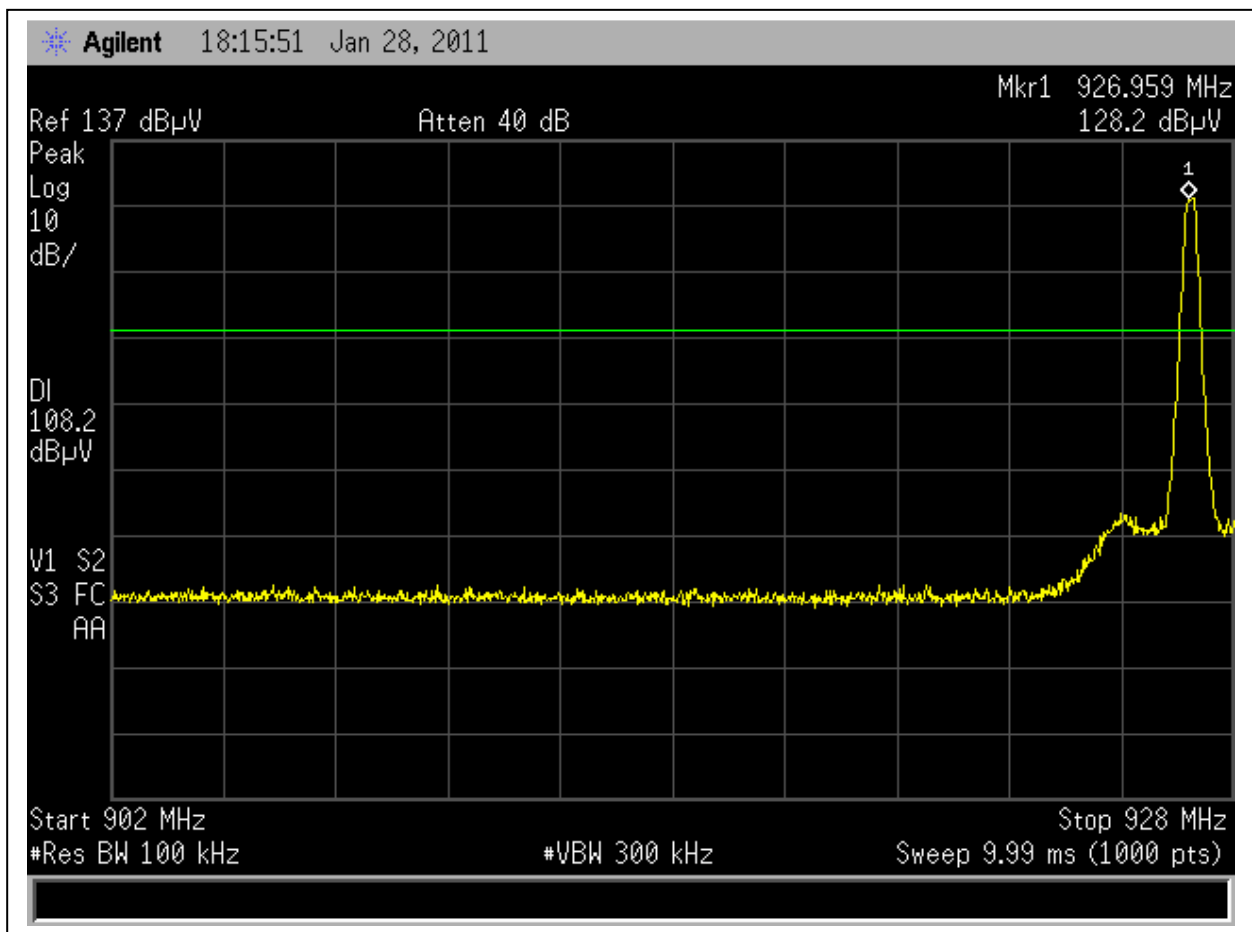
Graph 3.6.4



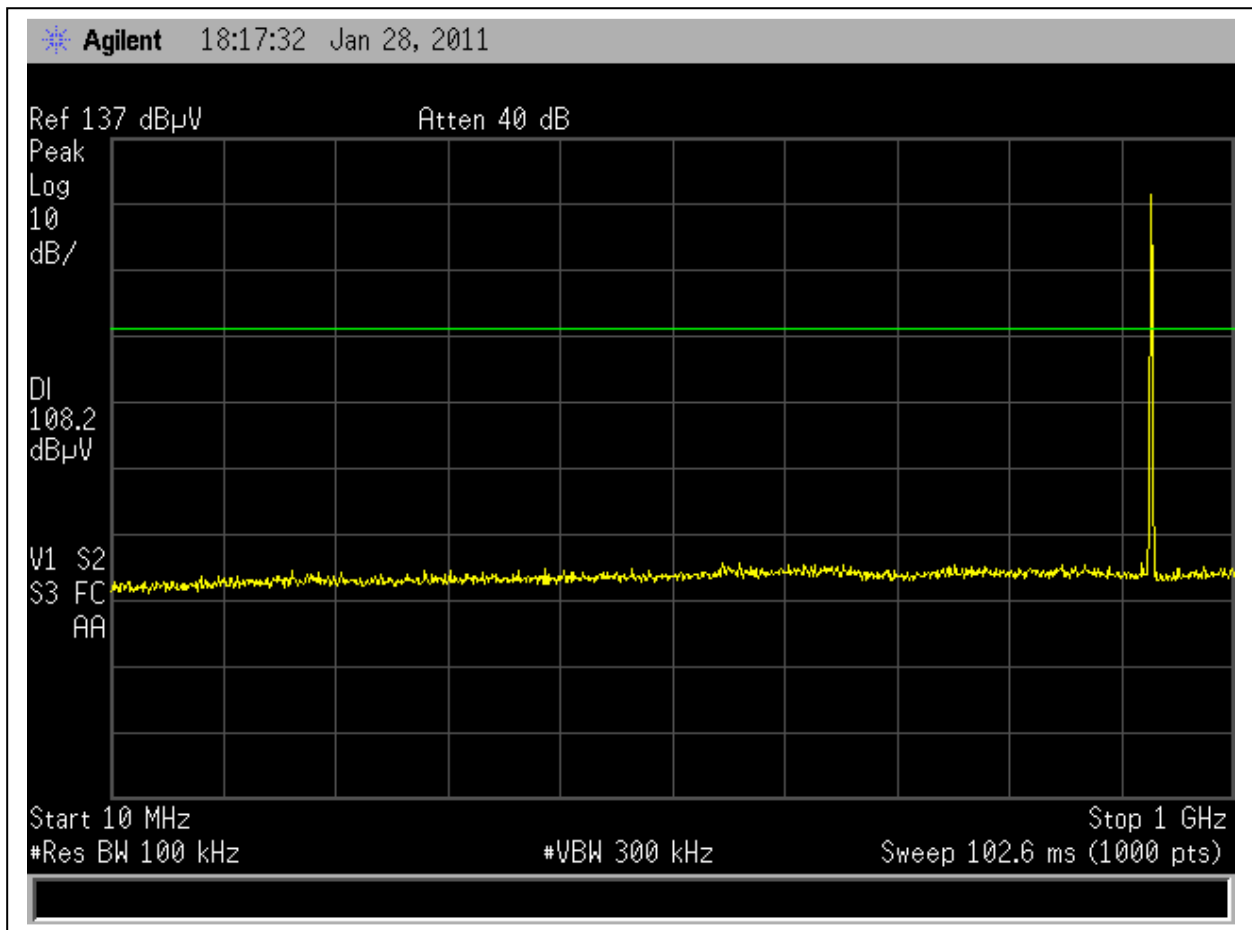
Graph 3.6.5



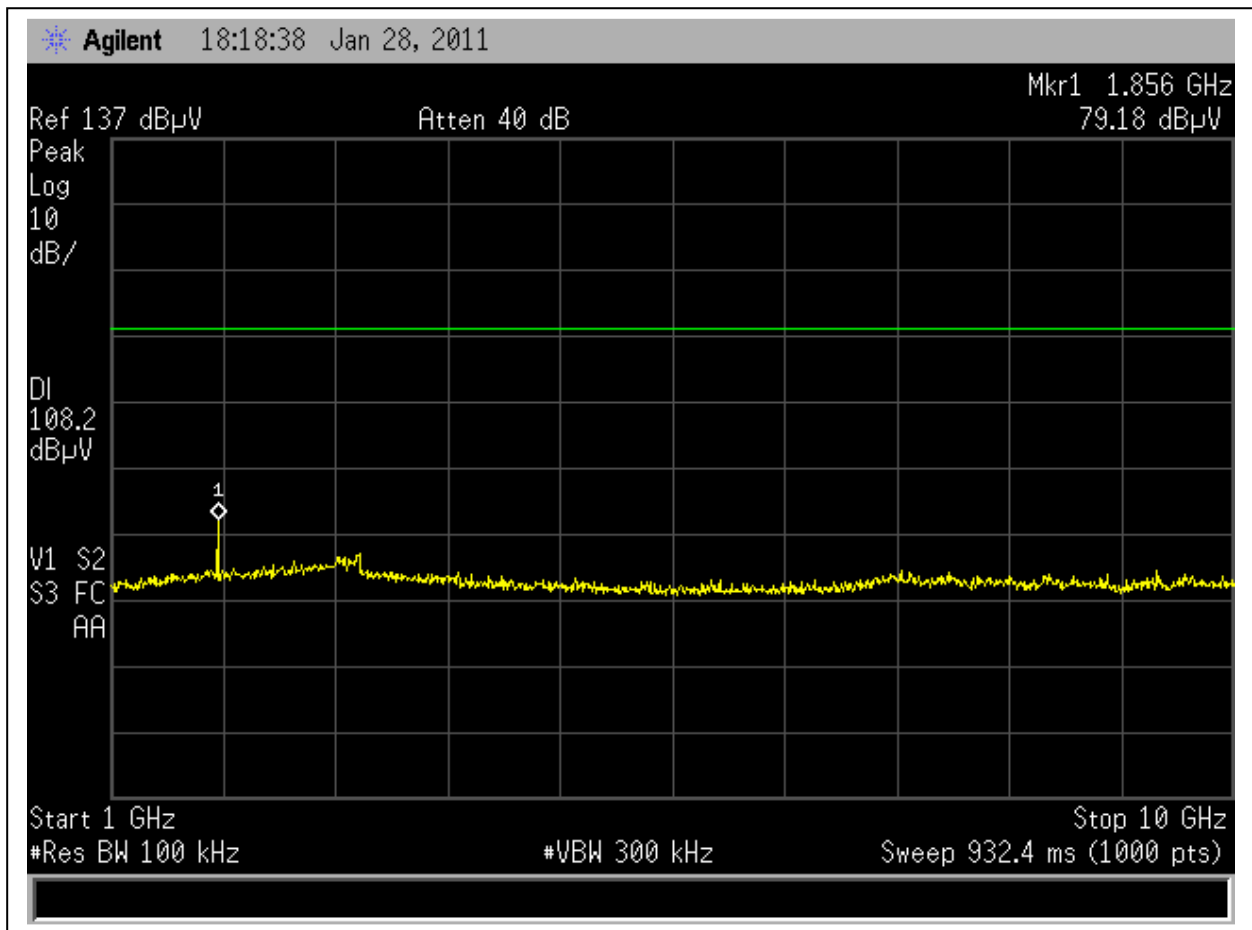
Graph 3.6.6



Graph 3.6.7



Graph 3.6.8



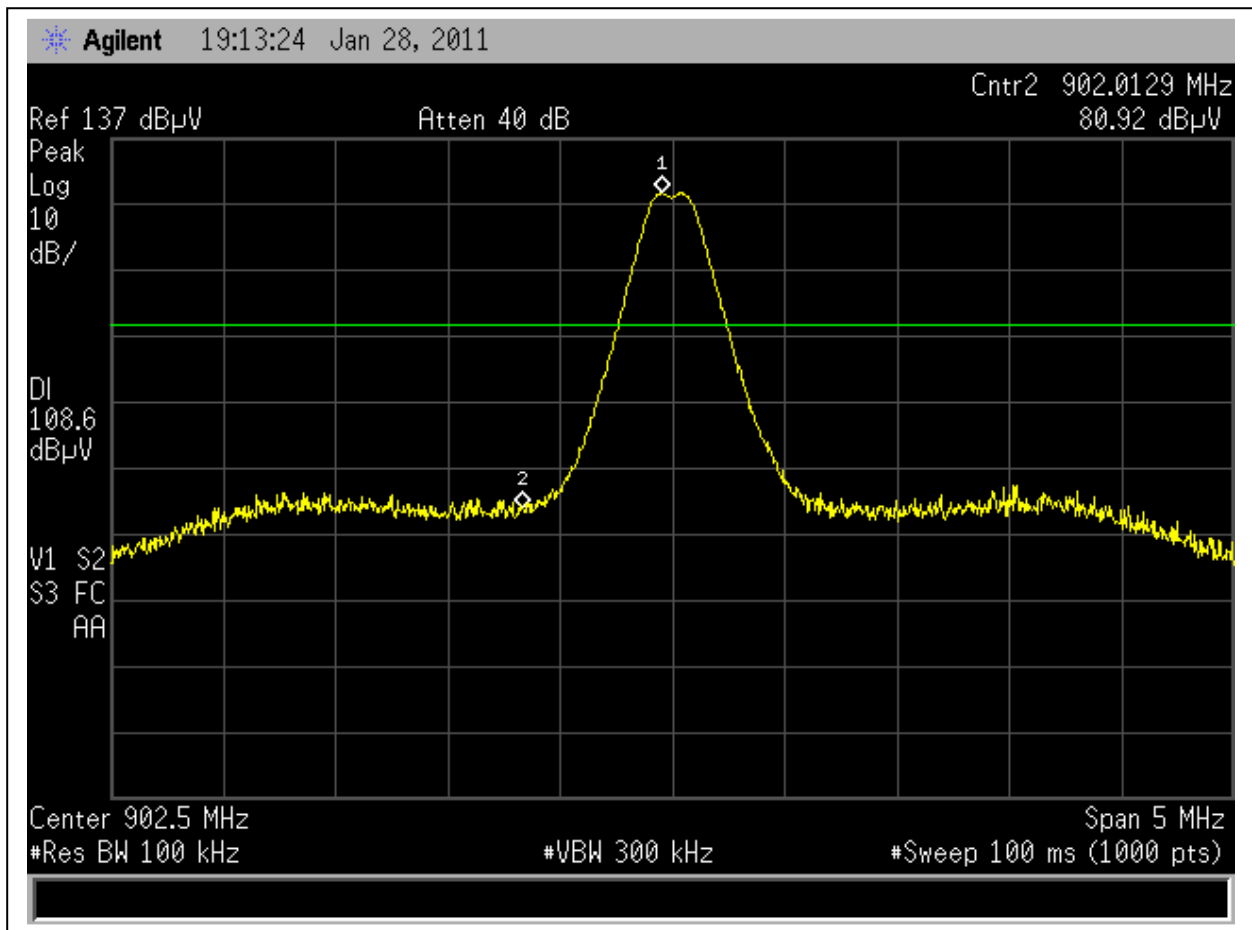
Graph 3.6.9



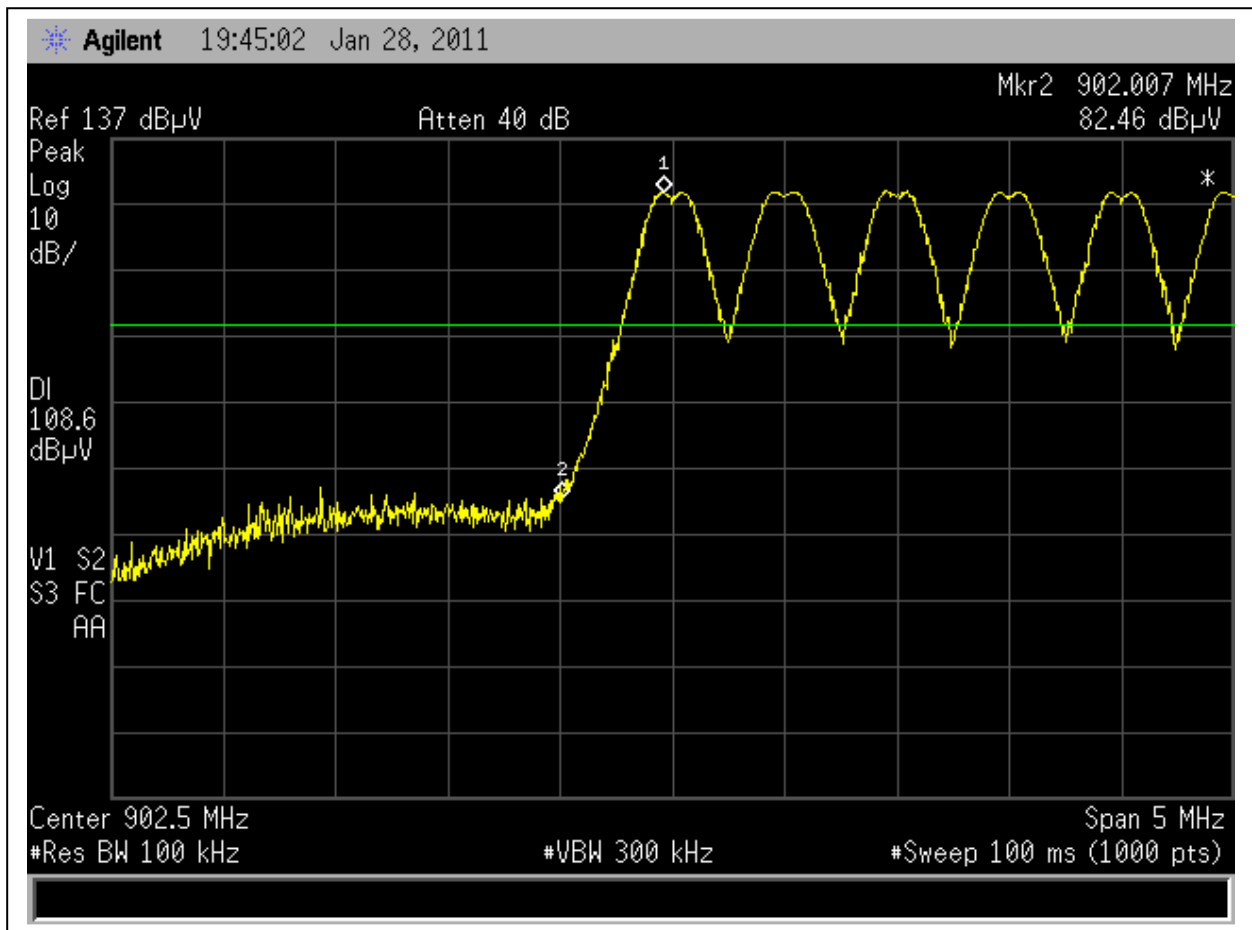
3.6.1 Antenna conducted band edge compliance

Frequency Range:	☒ 902-928MHz ☐ 2400-2483.5MHz ☐ 5725-5850MHz		
	Minimum Measured Attenuation dB	Minimum Allowed Attenuation dB	Margin dB
Low Frequency Channel	46.14	20	- 26.14
Upper Frequency Channel	47.88	20	- 27.88
Analyzer Settings:	☒ RBW=100KHz		
Minimum Allowed Attenuation:	☒ 20dB ☐ 30dB (for digital systems with conducted power measured using RMS averaging over a time interval)		

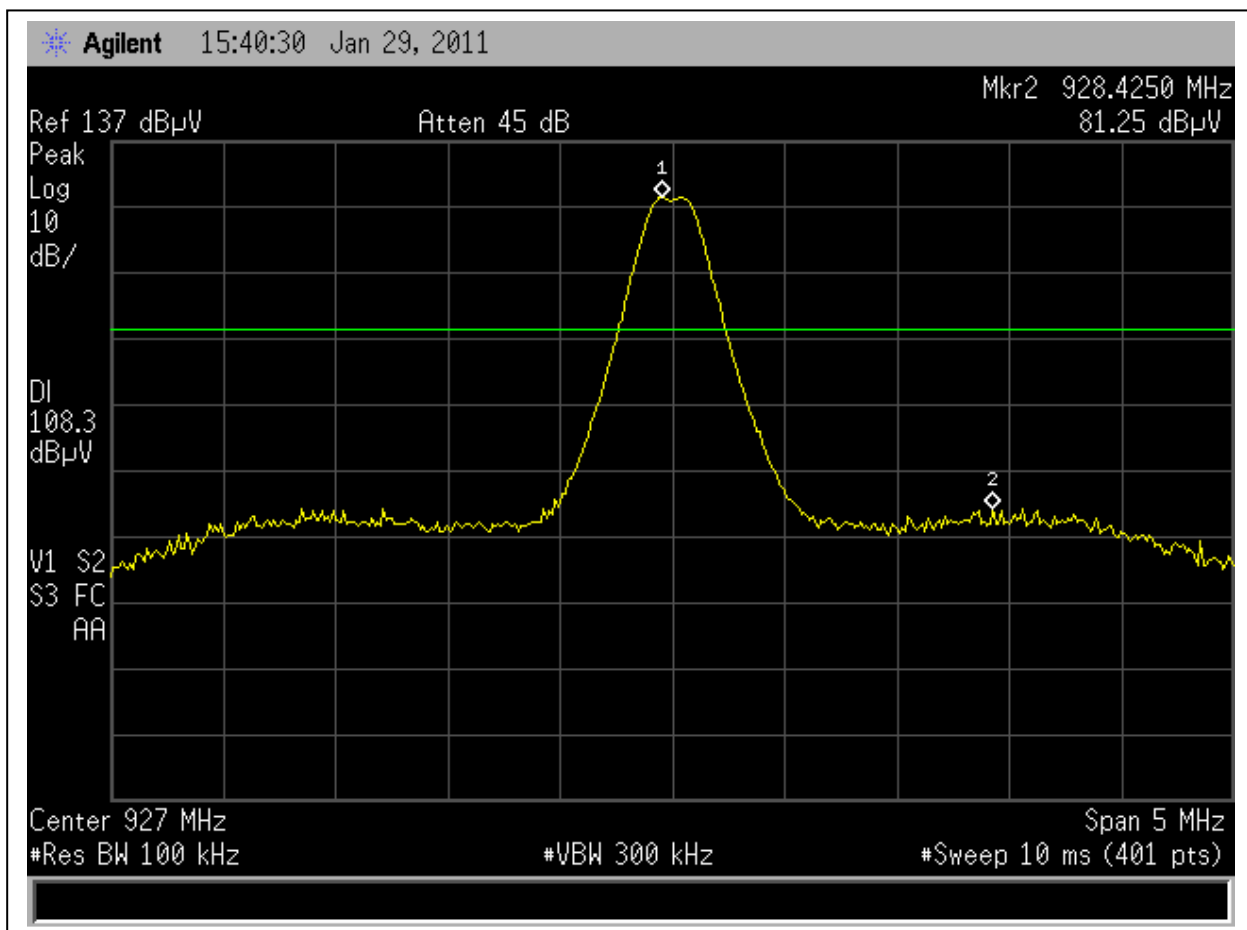
Notes:



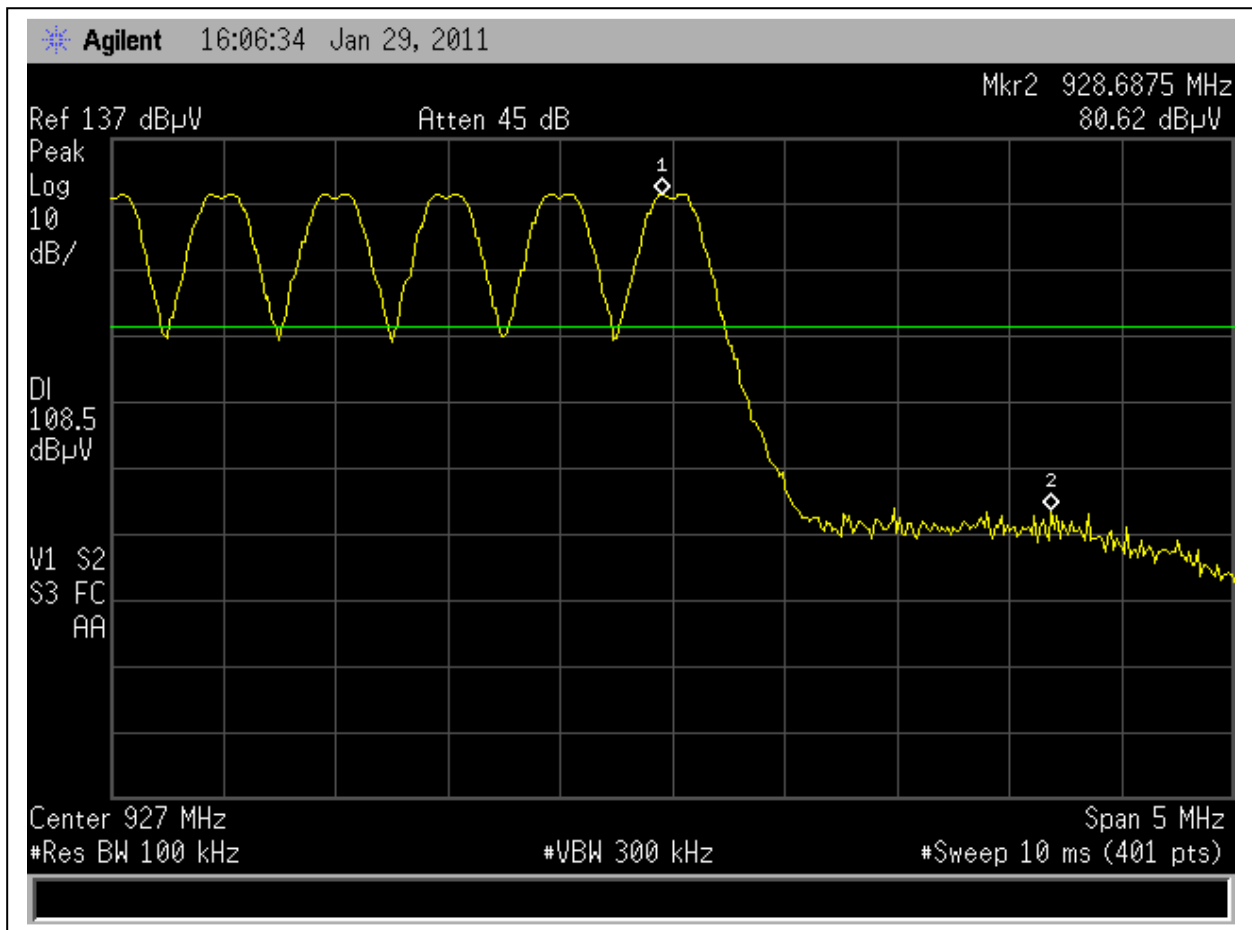
Graph 3.6.10



Graph 3.6.11



Graph 3.6.12



Graph 3.6.13

3.7 Radiated spurious emissions

Test location: ☐ OATS ☒ Anechoic Chamber ☐ Other

Test distance: ☐ 10 meters ☒ 3 meters

Test result: **Pass**

Max. Margin: 10dB below the limits

Date:	03/04/2011	Result: Pass
Standard:	FCC part 15.247(d)	
Tested by:	William Cullen	
Test Point:	Low frequency channel	
Operation mode:	See Page 5	
Note:	Channel 1 - Low	

Radiated Spurious emissions transmitting through Dipole Antenna

Table 3.7.1

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
V	1805.000	66.3	25.2	2.9	40.0	54.4	74.0	-19.6	PK/1/3MHz
H	1805.000	69.2	25.2	2.9	40.0	57.3	74.0	-16.7	PK/1/3MHz
V	2707.000	53.1	28.9	3.7	40.0	45.7	54.0	-8.3	Avg/1/3 MHz
H	2707.000	54.0	28.9	3.7	40.0	46.6	54.0	-7.4	Avg/1/3 MHz
V	3610.000	46.8	29.4	4.3	40.5	40.0	54.0	-14.0	Avg/1/3 MHz
H	3610.000	44.8	29.4	4.3	40.5	38.0	54.0	-16.0	Avg/1/3 MHz
V	4512.500	51.3	31.6	4.6	41.7	45.8	54.0	-8.2	Avg/1/3 MHz
H	4512.500	49.2	31.6	4.6	41.7	43.7	54.0	-10.3	Avg/1/3 MHz
V	5415.000	47.5	32.3	5.1	39.6	45.3	54.0	-8.7	Avg/1/3 MHz
H	5415.000	43.6	32.3	5.1	39.6	41.4	54.0	-12.6	Avg/1/3 MHz
V	6317.500	34.1	34.8	5.6	39.8	34.7	74.0	-39.3	PK/1/3MHz
H	6317.500	35.0	34.8	5.6	39.8	35.6	74.0	-38.4	PK/1/3MHz
Calculations		G=C+D+E-F		I=G-H					

Date:	03/04/2011	Result: Pass
Standard:	FCC part 15.247(d)	
Tested by:	William Cullen	
Test Point:	Low frequency channel	
Operation mode:	See Page 5	
Note:	Channel 26 - Mid	

Radiated Spurious emissions transmitting through Dipole Antenna

Table 3.7.2

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
V	1830.000	67.3	25.2	2.9	40.0	55.4	74.0	-18.6	PK/1/3MHz
H	1830.000	64.9	25.2	2.9	40.0	53.0	74.0	-21.0	PK/1/3MHz
V	2745.000	53.6	28.9	3.7	40.0	46.2	54.0	-7.8	Avg/1/3 MHz
H	2745.000	48.4	28.9	3.7	40.0	41.0	54.0	-13.0	Avg/1/3 MHz
V	3660.000	49.2	29.4	4.3	40.5	42.4	54.0	-11.6	Avg/1/3 MHz
H	3660.000	46.4	29.4	4.3	40.5	39.6	54.0	-14.4	Avg/1/3 MHz
V	4575.000	38.0	31.6	4.6	41.7	32.5	54.0	-21.5	Avg/1/3 MHz
H	4575.000	36.7	31.6	4.6	41.7	31.2	54.0	-22.8	Avg/1/3 MHz
V	5490.000	33.2	32.3	5.1	39.6	31.0	74.0	-43.0	PK/1/3MHz
H	5490.000	31.9	32.3	5.1	39.6	29.7	74.0	-44.3	PK/1/3MHz
V	6405.000	34.0	34.8	5.6	39.8	34.6	74.0	-39.4	PK/1/3MHz
H	6405.000	34.2	34.8	5.6	39.8	34.8	74.0	-39.2	PK/1/3MHz
Calculations		G=C+D+E-F		I=G-H					

Date:	03/04/2011	Result: Pass
Standard:	FCC part 15.247(d)	
Tested by:	William Cullen	
Test Point:	Low frequency channel	
Operation mode:	See Page 5	
Note:	Channel 50 - High	

Radiated Spurious emissions transmitting through Dipole Antenna

Table 3.7.3

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
V	1854.000	67.4	25.2	2.9	40.0	55.5	74.0	-18.5	PK/1/3MHz
H	1854.000	66.7	25.2	2.9	40.0	54.8	74.0	-19.2	PK/1/3MHz
V	2781.000	51.3	28.9	3.7	40.0	43.9	54.0	-10.1	Avg/1/3 MHz
H	2781.000	50.6	28.9	3.7	40.0	43.2	54.0	-10.8	Avg/1/3 MHz
V	3708.000	48.5	29.4	4.3	40.5	41.7	54.0	-12.3	Avg/1/3 MHz
H	3708.000	46.7	29.4	4.3	40.5	39.9	54.0	-14.1	Avg/1/3 MHz
V	4635.000	43.2	31.6	4.6	41.7	37.7	54.0	-16.3	Avg/1/3 MHz
H	4635.000	42.9	31.6	4.6	41.7	37.4	54.0	-16.6	Avg/1/3 MHz
V	5562.000	40.7	32.3	5.1	39.6	38.5	74.0	-35.5	PK/1/3MHz
H	5562.000	39.3	32.3	5.1	39.6	37.1	74.0	-36.9	PK/1/3MHz
V	6489.000	38.9	34.8	5.6	39.8	39.5	74.0	-34.5	PK/1/3MHz
H	6489.000	40.1	34.8	5.6	39.8	40.7	74.0	-33.3	PK/1/3MHz
Calculations		G=C+D+E-F		I=G-H					



3.10 Receiver/digital device radiated emissions

Test location: ☐ OATS ☒ Anechoic Chamber

Test distance: ☐ 10 meters ☒ 3 meters

Test result: **Pass**

Frequency range: 30MHz-1000MHz

Max. Emissions margin: 4.68dB below the limits

Notes:

The Radiated Emissions test was performed in the Anechoic chamber at 3m measurement distance (see Table 3.11.1 and Graphs 3.11.1 and 3.11.2)

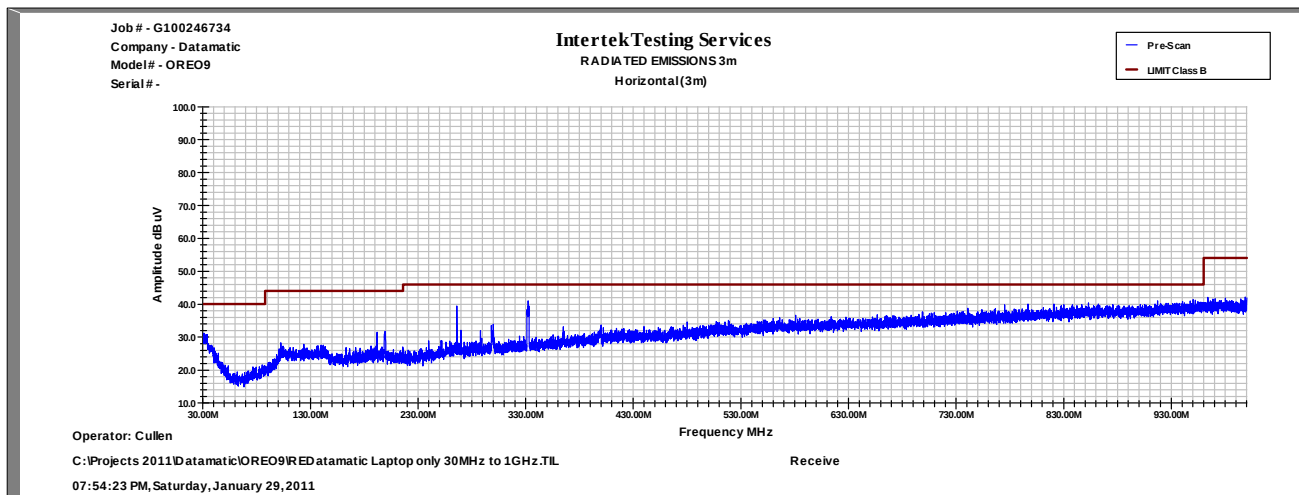
Date:	01/29/2011	Result: Pass
Standard:	FCC Part 15.109, Class B	
Tested by:	William Cullen	
Test Point:	Enclosure	
Operation mode:	Receive	
Note:		

Table 3.10.1
Horizontal

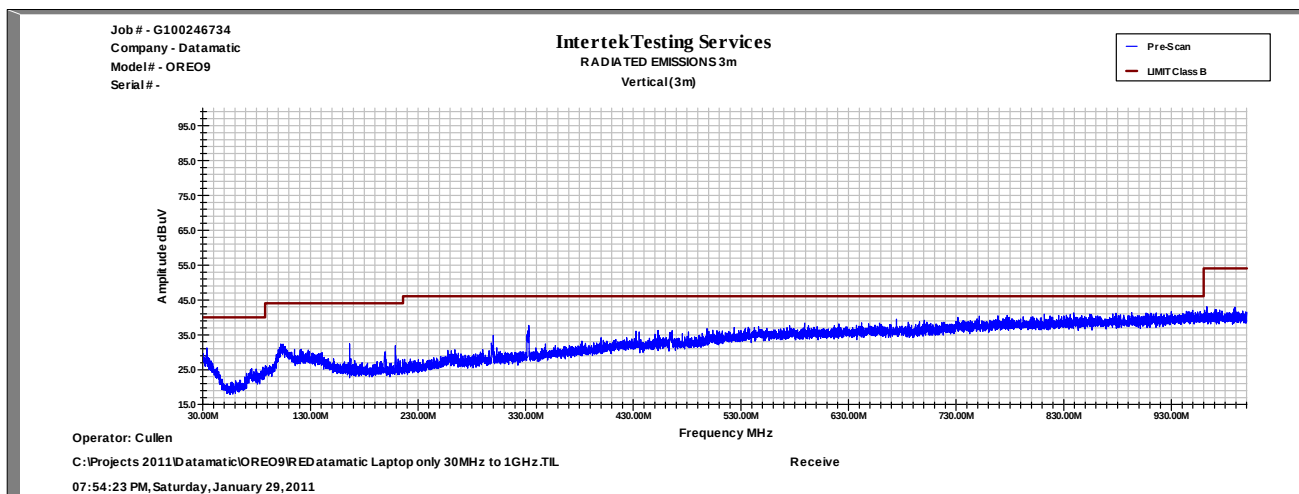
Frequency	Ant Height	Azimuth	QP	LIMIT	Margin
MHz	cm	deg.	dBuV/m	dBuV/m	dB
951.36	312.00	205.00	36.65	46.00	-9.35
333.10	298.00	174.00	41.32	46.00	-4.68
300.13	128.00	206.00	34.05	46.00	-11.95
287.97	117.00	177.00	30.31	46.00	-15.69
269.99	143.00	293.00	30.25	46.00	-15.75
266.00	300.00	140.00	27.58	46.00	-18.42
199.40	328.00	321.00	27.12	44.00	-16.88
191.99	133.00	286.00	32.40	44.00	-11.60
102.58	276.00	297.00	27.77	44.00	-16.23
31.29	278.00	60.00	27.17	40.00	-12.83

Table 3.10.1
Vertical

Frequency	Ant Ht	Azimuth	QP	LIMIT	Margin
MHz	cm	Deg	dBuV/m	dBuV/m	dB
33.94	221.00	159.00	25.90	40.00	-14.10
102.97	233.00	157.00	23.64	44.00	-20.36
301.09	116.00	183.00	24.96	46.00	-21.04
334.26	350.00	96.00	25.84	46.00	-20.16
436.67	147.00	113.00	29.13	46.00	-16.87
451.04	157.00	159.00	29.33	46.00	-16.67
463.14	324.00	163.00	29.53	46.00	-16.47
678.09	390.00	148.00	33.32	46.00	-12.68
833.13	116.00	326.00	35.51	46.00	-10.49
957.73	169.00	339.00	37.03	46.00	-8.97



Graph 3.10.1



Graph 3.10.2



3.11 Digital device conducted emissions

Not Applicable – DC powered device.

Date:	01/29/2011	Result: Pass
Standard:	FCC Part 15.109, Class B	
Tested by:	William Cullen	
Test Point:	Enclosure	
Operation mode:	N/A	
Note:		

4.0 TEST EQUIPMENT

Description	Manufacturer	Model	Serial Number	Cal Date	Cal Due
EMI Receiver	Rhode & Schwarz	ESI	100044	03/19/10	03/19/11
Bi-ConiLog Antenna	Schaffner	CBL6112B	2726	07/19/10	07/19/11
Power Source	Pacific Power	140TMX	00724/0248	07/24/10	07/24/11
RF Cable	Custom made	#1	128	07/24/10	07/24/11
RF Cable	Custom made	#4	131	07/24/10	07/24/11
Handheld Manometer	Omega	HHP-102F	19.99/29.0 PSIA	03/25/10	03/25/11
DMM	Fluke	116	99520008	12/16/10	12/16/11
Spectrum Analyzer	Agilent	E7405A	US40240235	03/17/10	03/17/11
Power Meter	HP	437B	3125U22393	01/31/11	01/31/12
Preamplifier	Miteq	AMF-4D-001180-24-10P	1020106	10/04/10	10/04/11
Sm Horn Antenna	AH Systems	SAS-571	787	04/06/10	04/06/11
Spectrum Analyzer	Agilent	E7405	US40240235	03/17/10	03/17/11



5.0 Revision History

Revision Level	Date	Report Number	Notes
0	03/16/11	100246734DAL-001	Original Issue
1	05/20/11	100246734DAL-001a	Added antenna information for dipole antenna to report.