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CERTIFICATION TEST REPORT

Report Number: 2010 10159599 HS FCC 15.247

Project Number: 63825-1

Nex Number: 159599

Applicant: HME
14110 STOWE DR.
Poway, CA 92064

Equipment Under Test (EUT): WIRELESS HEADSET


Model: ODYSSEY IQ

FCC ID: BYMHS6K

IC: 1860A-HS6K

In Accordance With: FCC Part 15 Subpart C, 15.247
IC RSS-210 Issue 7 June 2007
IC RSS-Gen Issue 2 June 2007

Tested By: Nemko USA Inc.
11696 Sorrento Valley Road, Suite F
San Diego, CA 92121

Authorized By: 
Alan Laudani, EMC/RF Test Engineer

Date: November 5, 2010

Total Number of Pages: 55



Section1: Summary of Test Results

General

All measurements are traceable to national standards

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 15; Subpart C and IC RSS-210. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC and IC.

The assessment summary is as follows:

Apparatus Assessed:	Wireless Headset
Model:	Odyssey IQ
Specification:	FCC Part 15 Subpart C, 15.247 IC RSS-210 Issue 7 June 2007
Date Received in Laboratory:	October 28, 2010
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None





1.1 Report Release History

REVISION	DATE	COMMENTS
-	November 5, 2010	Prepared By: Ferdinand Custodio
-	November 5, 2010	Initial Release: Alan Laudani


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Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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TESTED BY: 
Ferdinand Custodio, EMC Test Engineer

Date: November 5, 2010





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Section 2: Equipment Under Test

2.1 Product Identification

The Equipment Under Test was indentified as follows:

HME Odyssey IQ Wireless Headset



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2.2 Samples Submitted for Assessment

The following sample of the apparatus has been submitted for type assessment:

Sample No.	Description	Serial No.
159599-1	WIRELESS HEADSET	F40M0032





2.3 Theory of Operation

The Odyssey IQ is a Wireless Headset. Its function is to work as transceiver in communication with a base station, a fully certified transceiver. The EUT was exercised by linking with the base station. Its microphone modulates the RF output by digital means. Conducted RF measurements were made on the test antenna service port. A temporary communication connection on the EUT was provided by the client during assessment in order to control radio parameters. The EUT is powered by a battery which is charged externally (removed from the EUT) by a charger not covered in this certification.

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2.4 Technical Specifications of the EUT

Manufacturer:	HME
Operating Frequency:	2401.920 MHz to 2481.408 MHz in the 2400-2483.5 MHz Band
Number of Operating Frequencies:	47
Rated Power:	80.0 mW
Modulation:	GFSK
Reference Designator:	1M22Q7W
Antenna Connector:	Internal/Integral (0dBi gain)
Power Source:	3.7VDC Li-ion custom removable battery





Section 3: Test Conditions

3.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.247

Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz bands.

IC RSS-210 Issue 7 June 2007

Low-power Licence-exempt Radio-communication Devices (All Frequency Bands): Category I Equipment. Annex 8 - Frequency Hopping and Digital Modulation Systems Operating in the Bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

IC RSS-Gen Issue 2 June 2007

General Requirements and Information for the Certification of Radio-communication Equipment

3.2 Deviations From Laboratory Test Procedures

No deviations from Laboratory Test Procedure

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	17-23 °C
Humidity range	:	39-48 %
Pressure range	:	96 - 105 kPa
Power supply range	:	3.3 to 4.255VDC



3.4 Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
	DC Power Supply	Hewlett Packard	E3611A	N/A	Verified by Asset #E1009	
E1009	Multimeter, Logging	Fluke Corp	287	11610042	12/18/2009	12/18/2010
114	Antenna, Bicon	EMCO	3104	2997	3/5/2010	3/5/2012
110	Antenna, LPA	EMCO	3146	1382	1/10/2009	2/10/2011
877	Antenna, DRG Horn, .7-18GHz	AH Systems	SAS-571	688	8/16/2010	8/16/2011
911	Spectrum Analyzer	Agilent	E4440A	US41421266	10/26/2010	10/26/2010
898	EMI Receiver & filter set	HP	8546A	3625A00348	6/22/2010	6/22/2011
899	Filter Section	HP	85460A	3448A00288	6/22/2010	6/22/2011
946	Peak Power Sensor	Hewlett Packard	84815A 0.05-18GHz (-40 to 20dBm)	3318A01726	9/28/2010	9/28/2011
947	Peak Power Analyzer	Hewlett Packard	8991A	3621A00906	9/28/2010	9/28/2011

Registration of the OATS are on file with the Federal Communications Commission, under Registration Number 90579, the VCCI under registration number R-3027, and are also registered with Industry Canada under Site Numbers 2040B-1 and 2040B-2.





Section 4: Observations

4.1 Modifications Performed During Assessment

No modifications were performed during assessment.

4.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

4.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

4.4 Test Deleted

No Tests were deleted from this assessment.

4.5 Additional Observations

There were no additional observations made during this assessment.





Section 5: Results Summary

This section contains the following:

FCC Part 15 Subpart C:
 IC RSS-210 Issue 7 June 2007 Annex 8
 IC RSS-Gen Issue 2 June 2007

The column headed "Required" indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

- N No: not applicable / not relevant
- Y Yes: Mandatory i.e. the apparatus shall conform to these tests.
- N/T Not Tested, mandatory but not assessed. (See section 4.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

5.1 Test Results

Part 15C	RSS	Test Description	Required	Result
15.207 (a)	RSS-Gen 7.2.2	Conducted Emission Limit	N*	
15.247(a)(1)		Carrier Frequency Separation	Y	Pass
15.247(a)(1)(iii)		Number of Hopping Frequencies	Y	Pass
15.247(a)(1)(iii)		Time of Occupancy (Dwell Time)	Y	Pass
15.215(c)	RSS-Gen 4.6.1	20 dB Bandwidth	Y	Pass
15.247(b)(1)	RSS-Gen 4.8 & 4.9	Peak Output Power	Y	Pass
15.247(d)		Band-edge Compliance of RF Conducted Emissions	Y	Pass
15.247 (d)		Spurious RF Conducted Emissions	Y	Pass
15.247 (d)		Spurious Radiated Emissions	Y	Pass
	RSS-Gen 7.2.3	Receiver Spurious Emissions	Y	Pass

*EUT only employ battery power for operation.



Appendix A: Test Results

Section 15.247(a)(1) – Carrier Frequency Separation

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. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

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Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	23°C
Date:	October 28, 2010	Humidity:	39%
Modification State:	Between Channel 44 and 45	Tester:	FSCustodio
		Laboratory:	Nemko

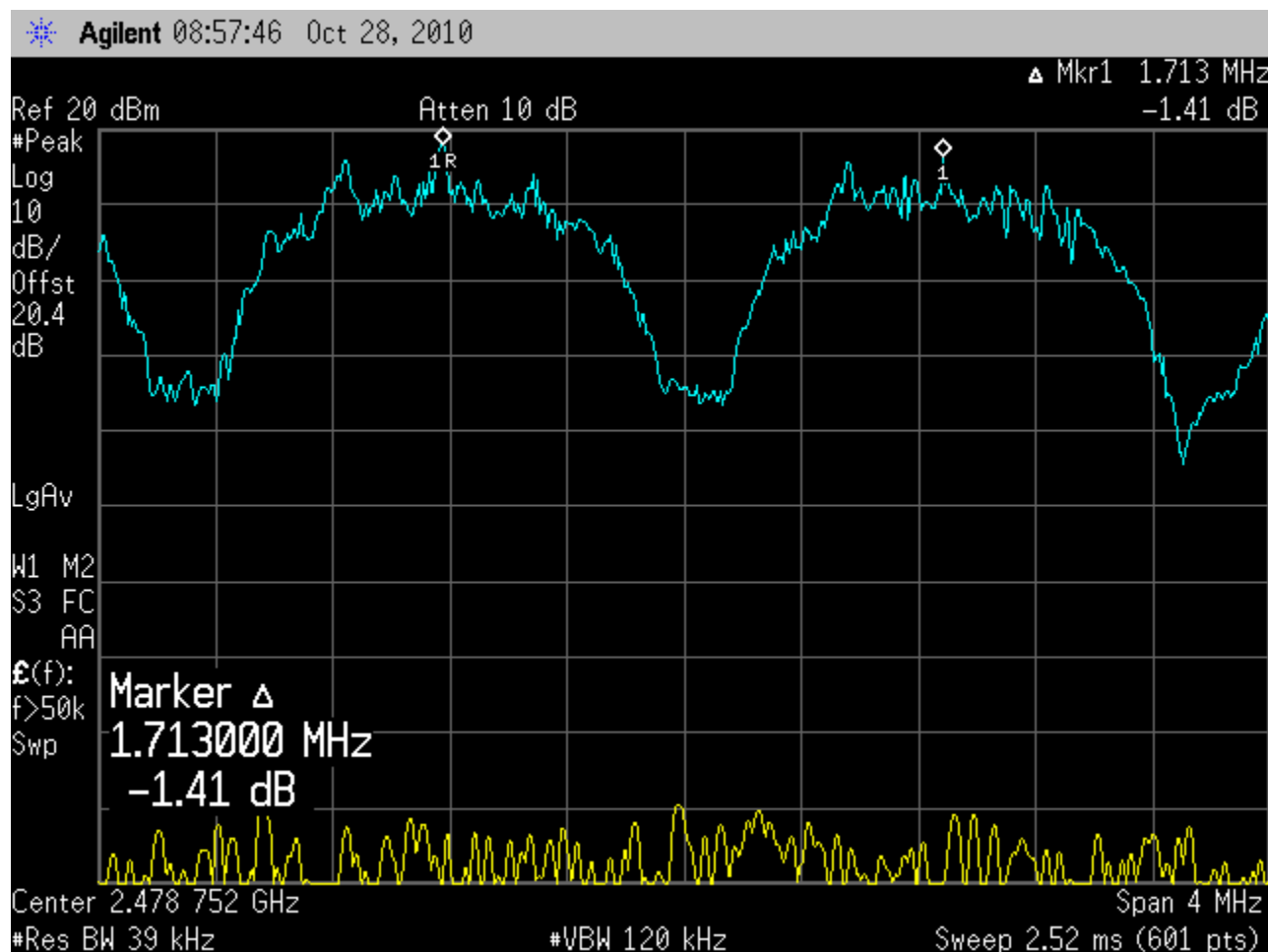
Test Results:

See attached plots.

Additional Observations:

- Hopping function enabled.
- SA offset is 20.43dB (20dB attenuator + cable)
- Span is 4 MHz
- RBW is 1% of 4 MHz (limited to 39kHz by spectrum analyzer)
- VBW is 3X RBW
- Sweep is auto
- Detector is Peak
- Trace is Max Hold
- Marker-delta function is used between the peaks of the adjacent channels.
- Observed Carrier Frequency Separation is 1.713 MHz.
- 20dB Bandwidth as per Part 15.215 (c) is 1.22 MHz.
- Observed Carrier Frequency Separation > 20dB Bandwidth = Complies





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Section 15.247(a)(1)(iii) – Number of Hopping Frequencies

(iii) Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	23°C
Date:	October 28, 2010	Humidity:	39%
Modification State:	Channel 0 to 46	Tester:	FSCustodio
		Laboratory:	Nemko

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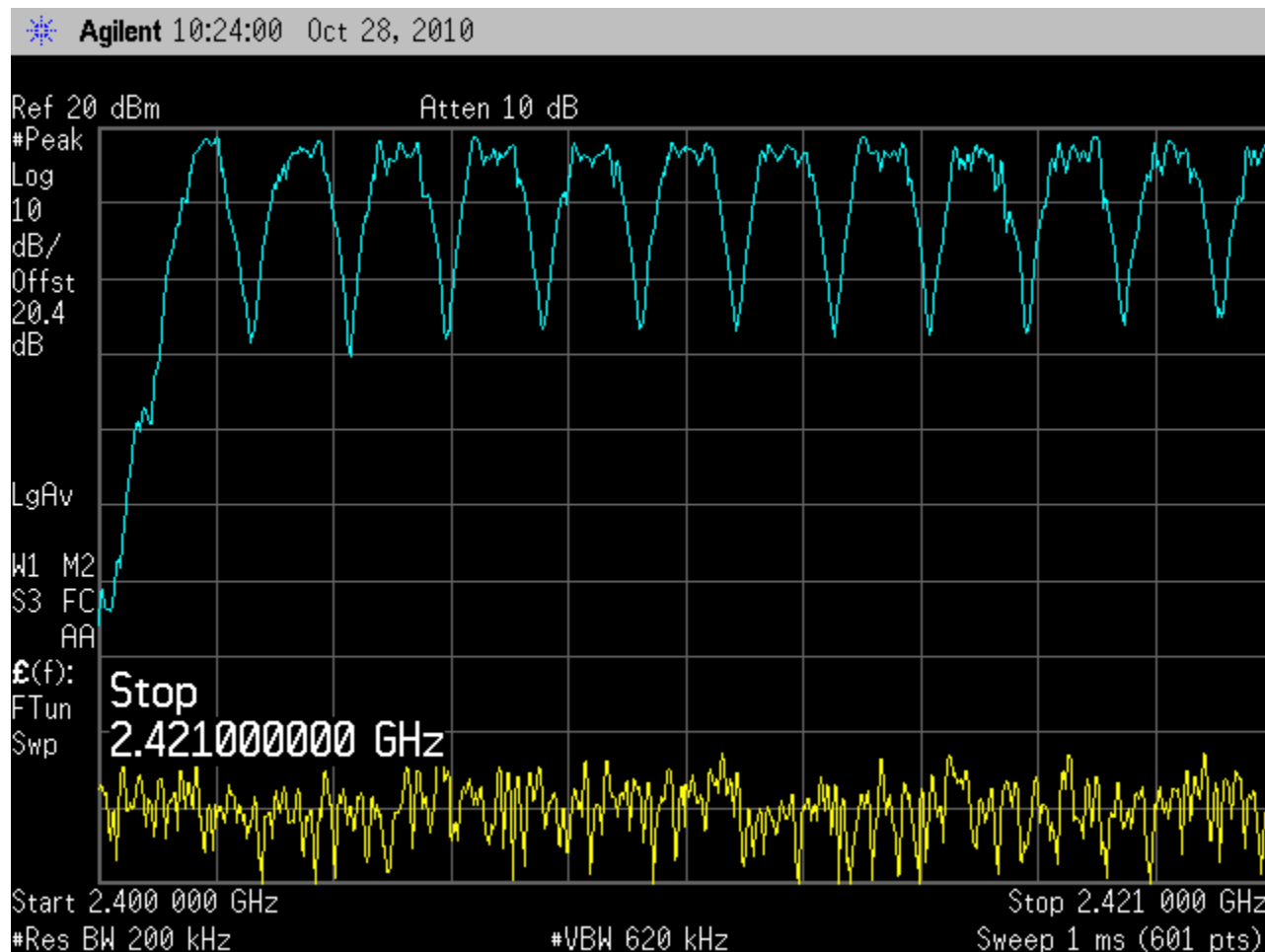
Test Results:

See attached plots.

Additional Observations:

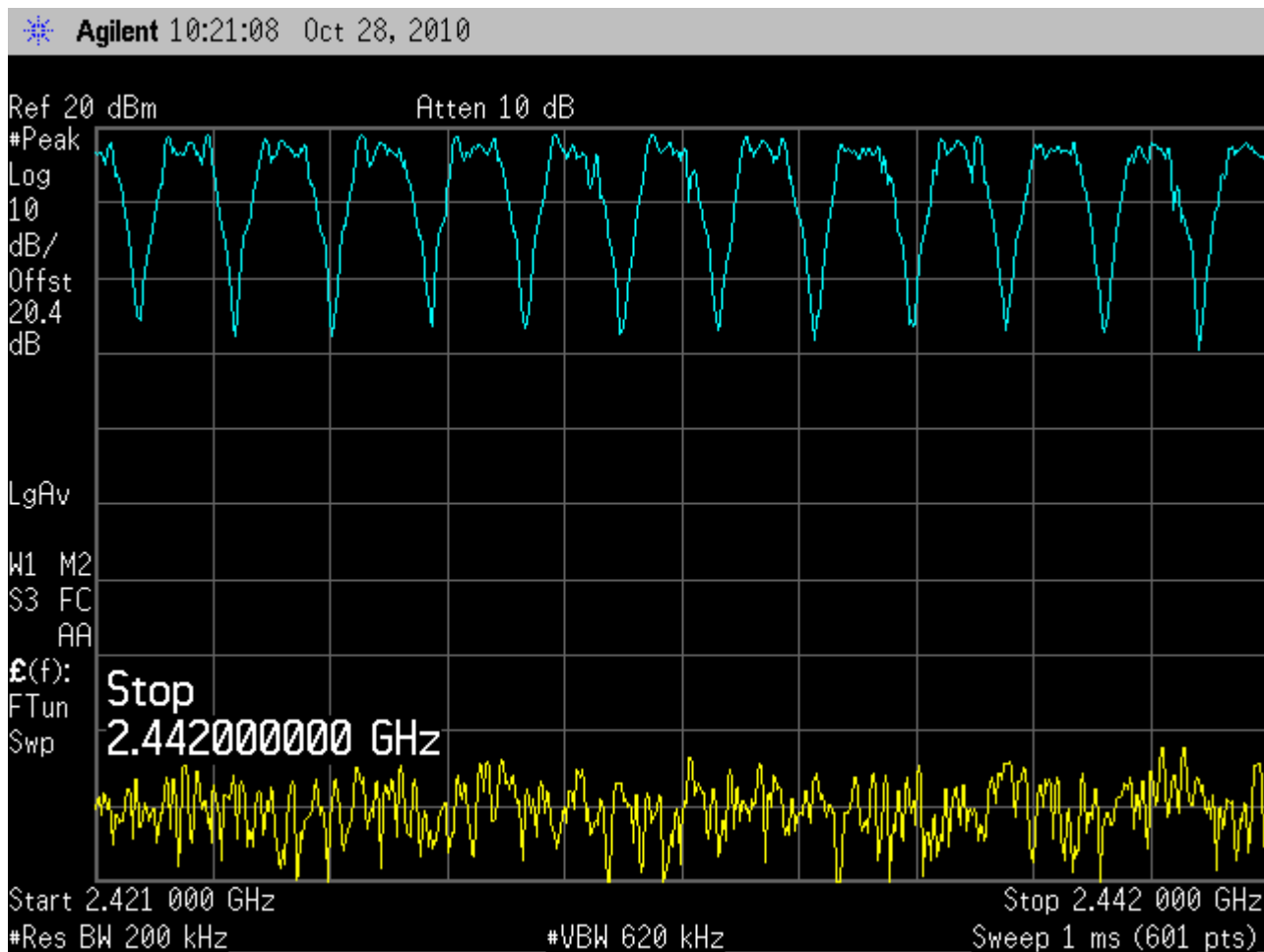
- Hopping function enabled.
- Span is frequency band of operation, divided into four plots for better resolution.
- RBW is 1% of the span (limited to 200kHz by spectrum analyzer)
- VBW is 3X RBW
- Sweep is auto
- Detector is Peak
- Trace is Max Hold
- Observed Number of Hopping Frequencies is **47**.
 - = Plot#1 + Plot#2 + Plot#3 + Plot#4
 - = 12 + 12 + 12 + 11
 - = 47 channels





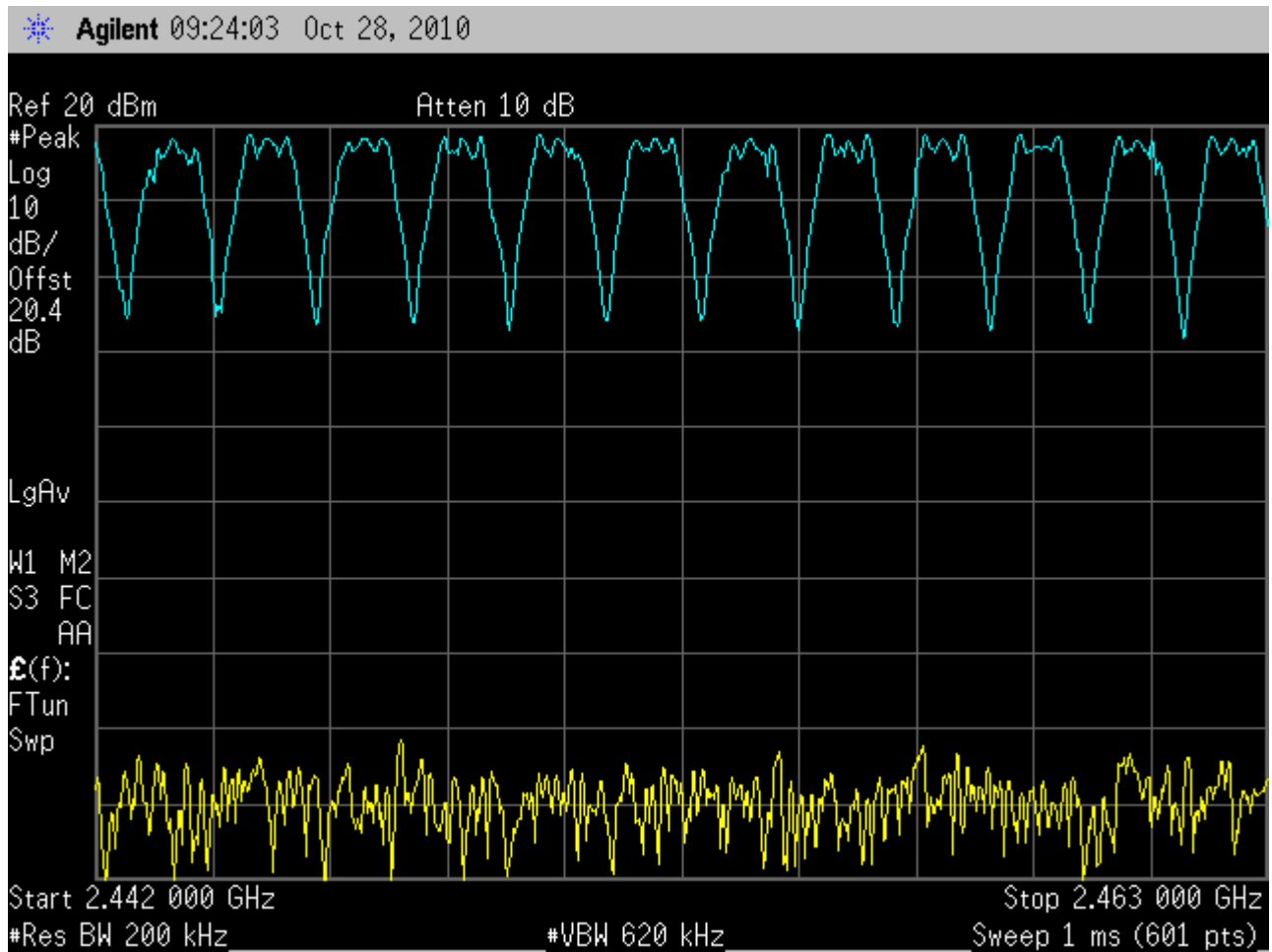
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Plot #1: Number of Hopping Frequencies is 12



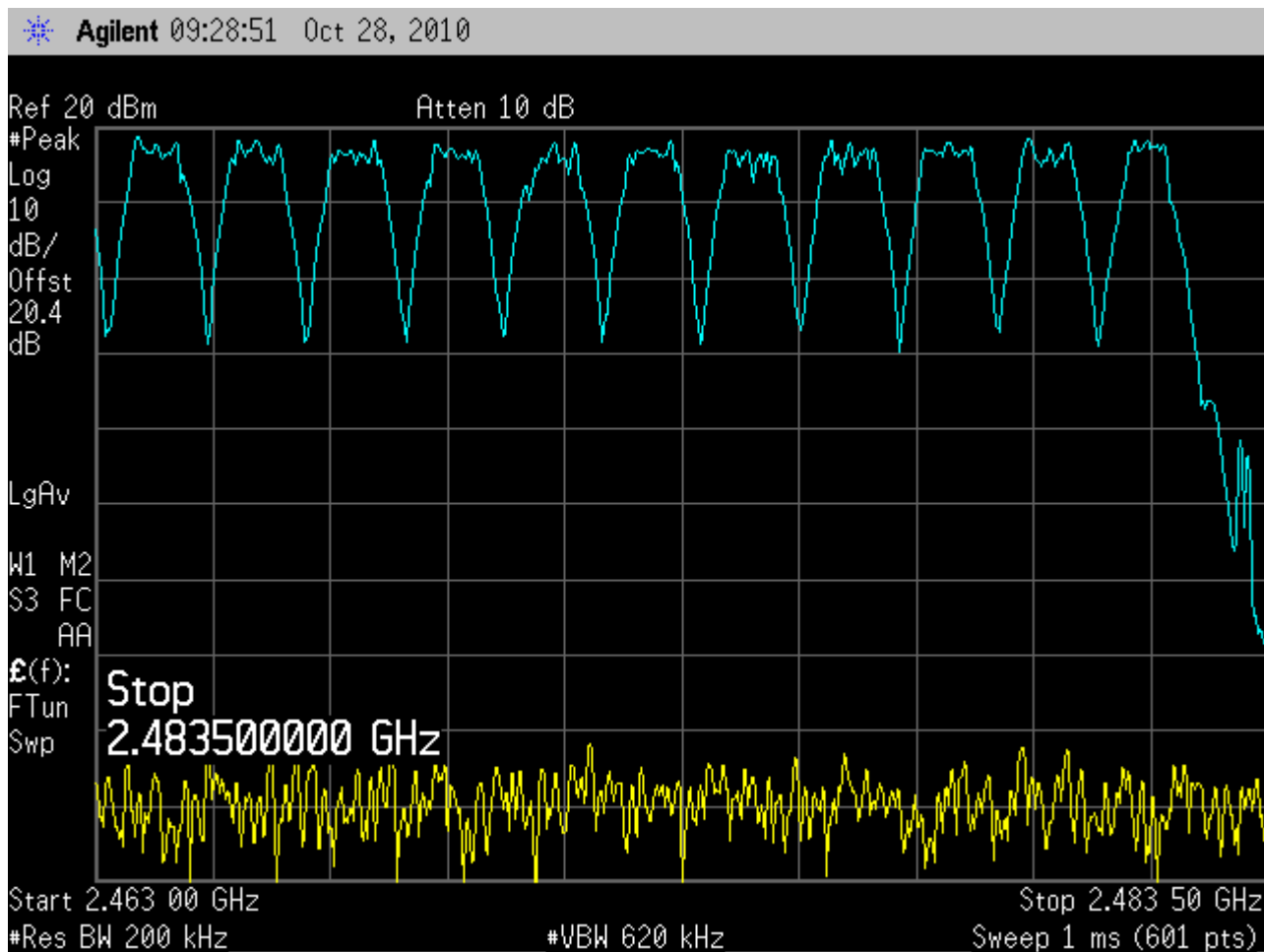
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Plot #2: Number of Hopping Frequencies is 12



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Plot #3: Number of Hopping Frequencies is 12



Plot #4: Number of Hopping Frequencies is 11



Section 15.247(a)(1)(iii) – Time of Occupancy (Dwell Time)

(iii) Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	23°C
Date:	October 28, 2010	Humidity:	39%
Modification State:	Channel 37	Tester:	FSCustodio
		Laboratory:	Nemko

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Test Results:

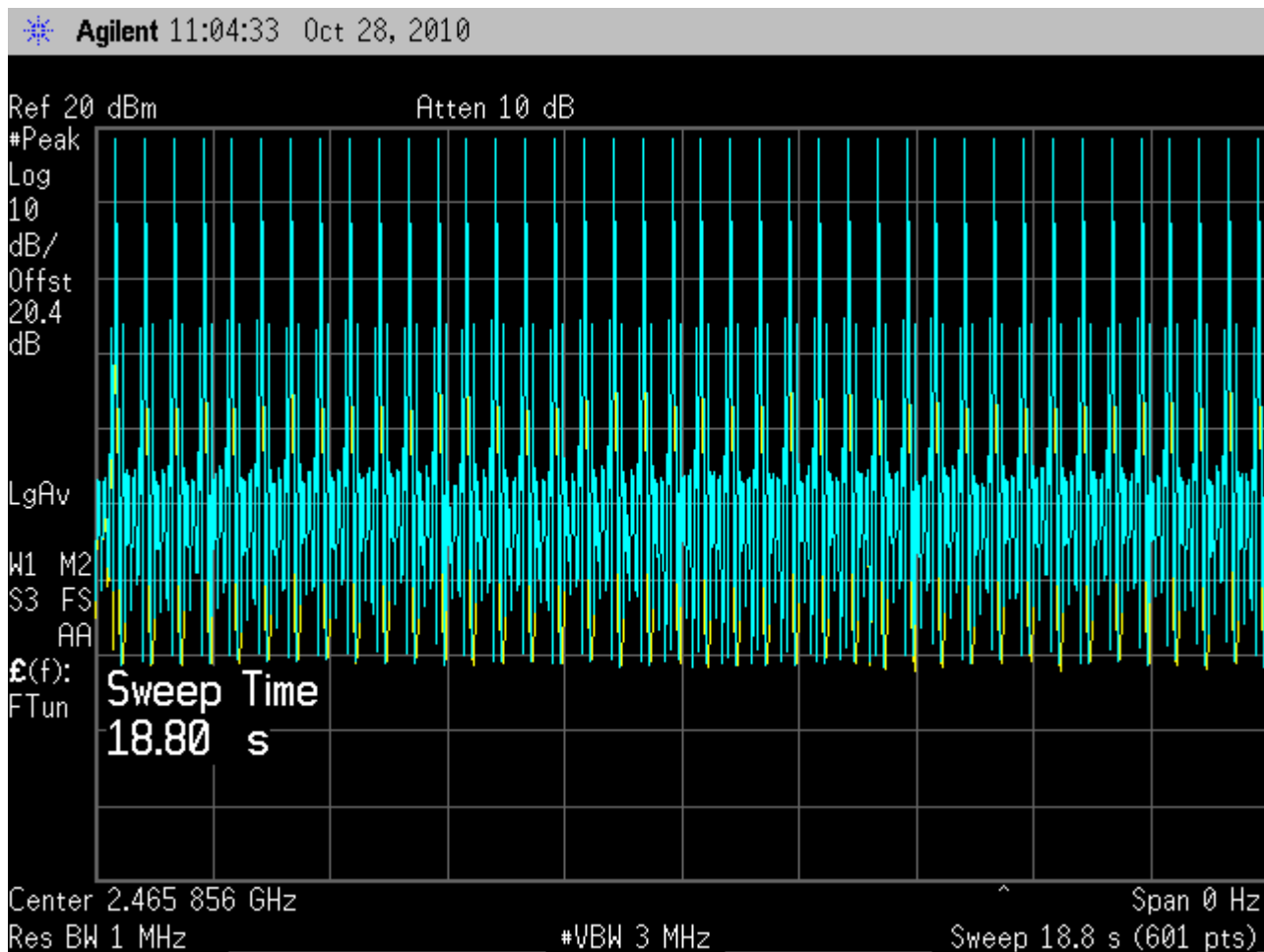
See attached plots.

Additional Observations:

- Hopping function enabled.
- Span is Zero span
- RBW is 1 MHz
- VBW is 3X RBW
- Sweep is 0.4 seconds multiplied by the number of hopping channels employed (0.4 x 47 = 18.8 seconds).
- Detector is Peak
- Trace is Max Hold
- Limit is 400 ms, time of occupancy is:
 - = No. of transmission per required sweep < 400 ms
 - = 0.38333 ms x 40
 - = **15.3 ms**

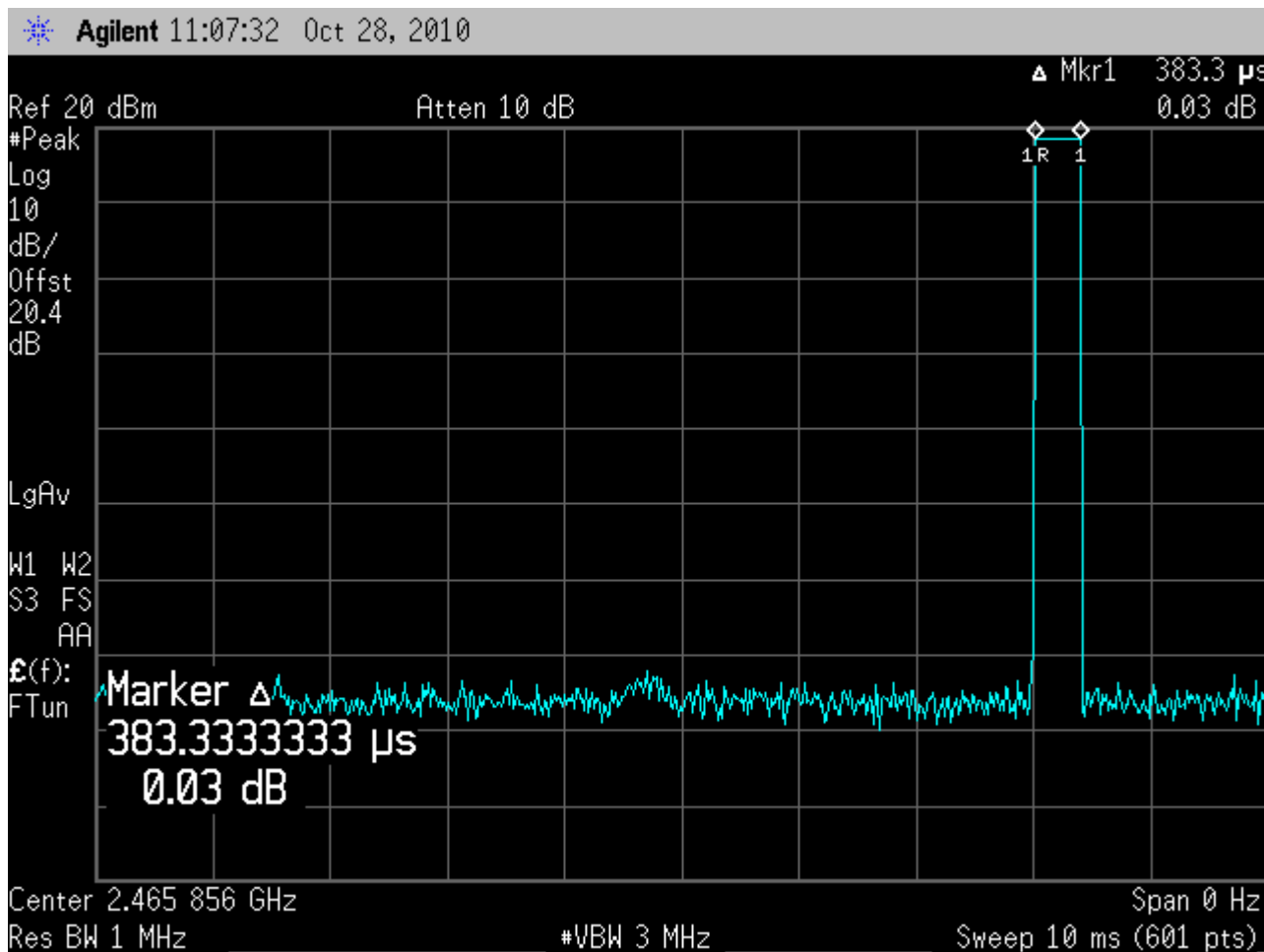
15.3 ms < 400 ms, EUT Complies





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Number of transmission per required sweep = 40



Single transmission time = 383.33 μs



Section 15.215(c) – 20 dB Bandwidth

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

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Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	21
Date:	October 28, 2010	Humidity:	37
Modification State:	Low ,Mid and High Channel	Tester:	FSCustodio
		Laboratory:	Nemko

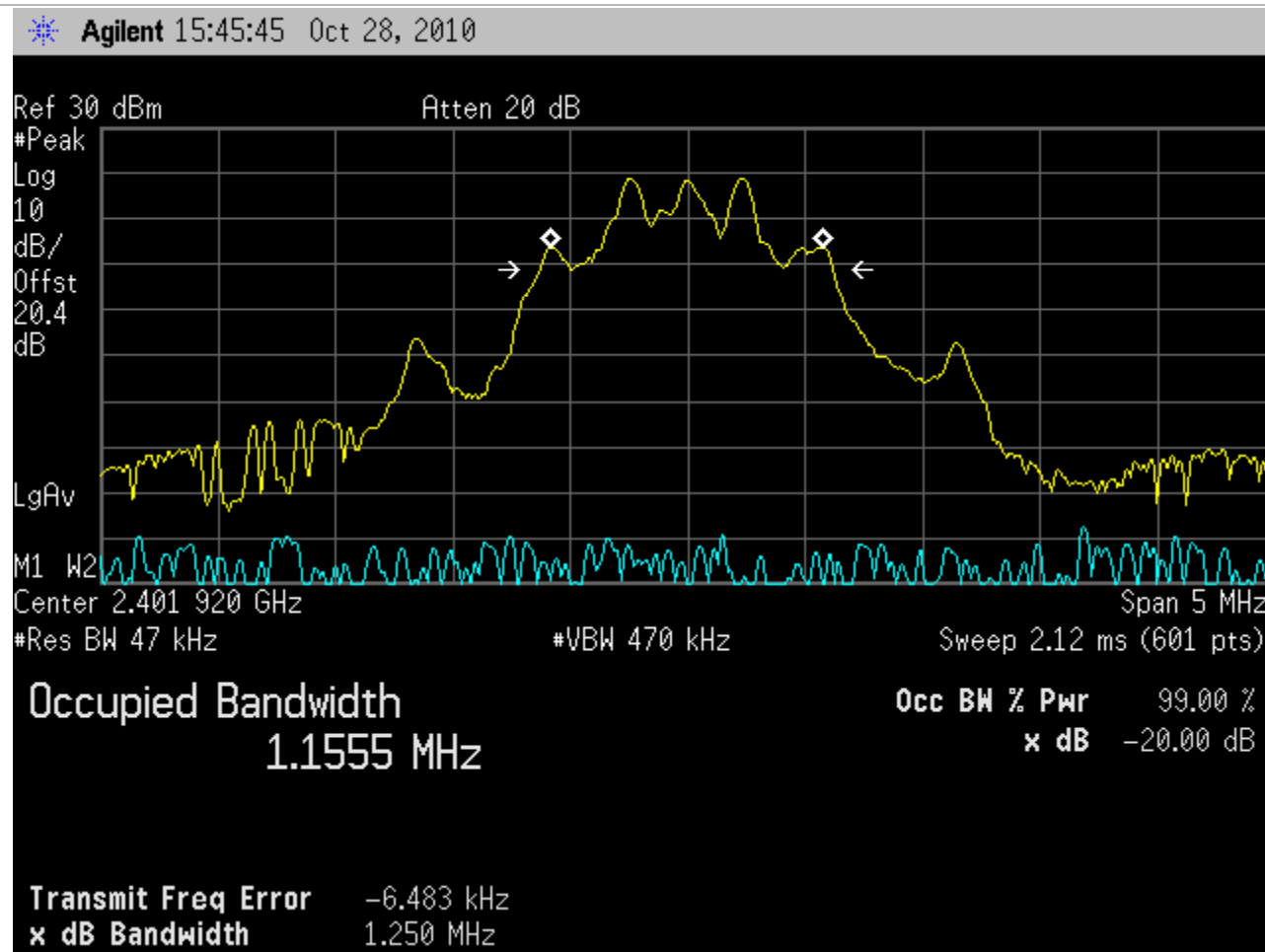
Test Results:

See attached plots.

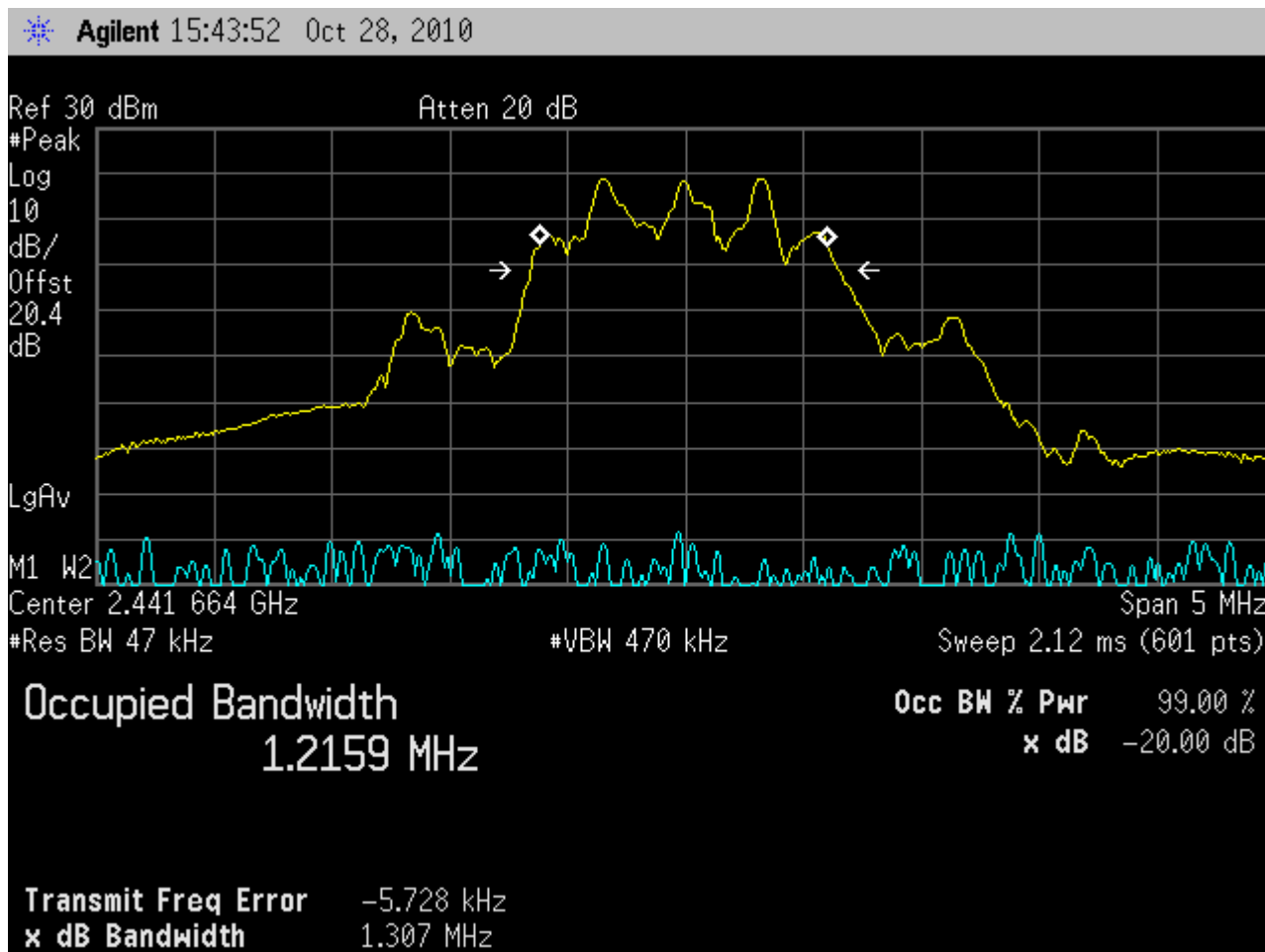
Additional Observations:

- Hopping disabled
- Span is wide enough to capture the channel transmission
- RBW is 1% of the span
- VBW is equal or greater than 3X RBW
- Sweep is auto
- Detector is Peak
- Trace is Max Hold
- The built-in occupied bandwidth measurement feature of the spectrum analyzer was used in this test.
- Observed 20 dB BW is 1.22 MHz.
- 2401.920 MHz – 0.61 MHz = 2401.31 MHz (within the frequency band)
- 2481.408 MHz + 0.61 MHz = 2482.02 MHz (within the frequency band)





(Low Channel) Observed Occupied Bandwidth is **1.1555 MHz**



(Mid Channel) Observed Occupied Bandwidth is **1.2159 MHz**





(High Channel) Observed Occupied Bandwidth is 1.1722 MHz



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Section 15.247(b)(1) – Peak Output Power

(1) For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	21
Date:	October 28, 2010	Humidity:	37
Modification State:	Low ,Mid and High Channel	Tester:	FSCustodio
		Laboratory:	Nemko

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Test Results:

Peak Power Analyzer used on this test

Additional Observations:

- This is a conducted test. A 20dB attenuator was placed between the sensor and the antenna port. Additional 0.4 dB was added for cable and connectors. Total offset used is 20.4 dB.
- Measurements were made at 3.3VDC, 3.7VDC and 4.255VDC.

Channel Range MHz	Peak Power Output dBm @ 3.3VDC	Peak Power Output 3.7VDC	Peak Power Output dBm @ 4.255VDC
2401.920	18.78	18.85	18.85
2441.664	18.97	19.03	19.03
2481.408	18.66	18.72	18.72

Peak Output Power = 19.03 dBm or **80.0 mW**





Section 15.247(d) – Band-edge Compliance of RF Conducted Emissions

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	23°C
Date:	October 28, 2010	Humidity:	39%
Modification State:	Low and High Channel	Tester:	FSCustodio
		Laboratory:	Nemko

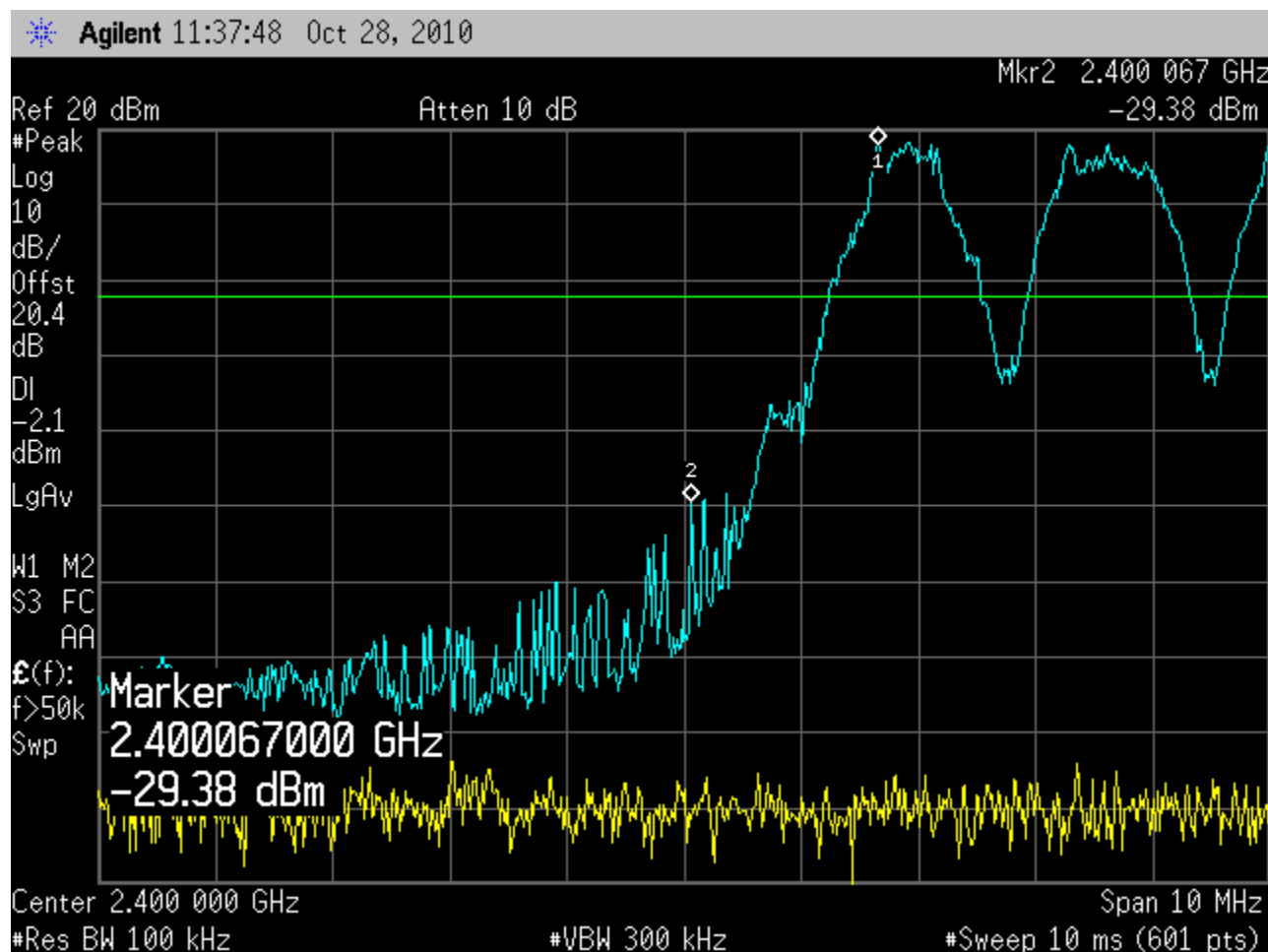
Test Results:

See attached plots.

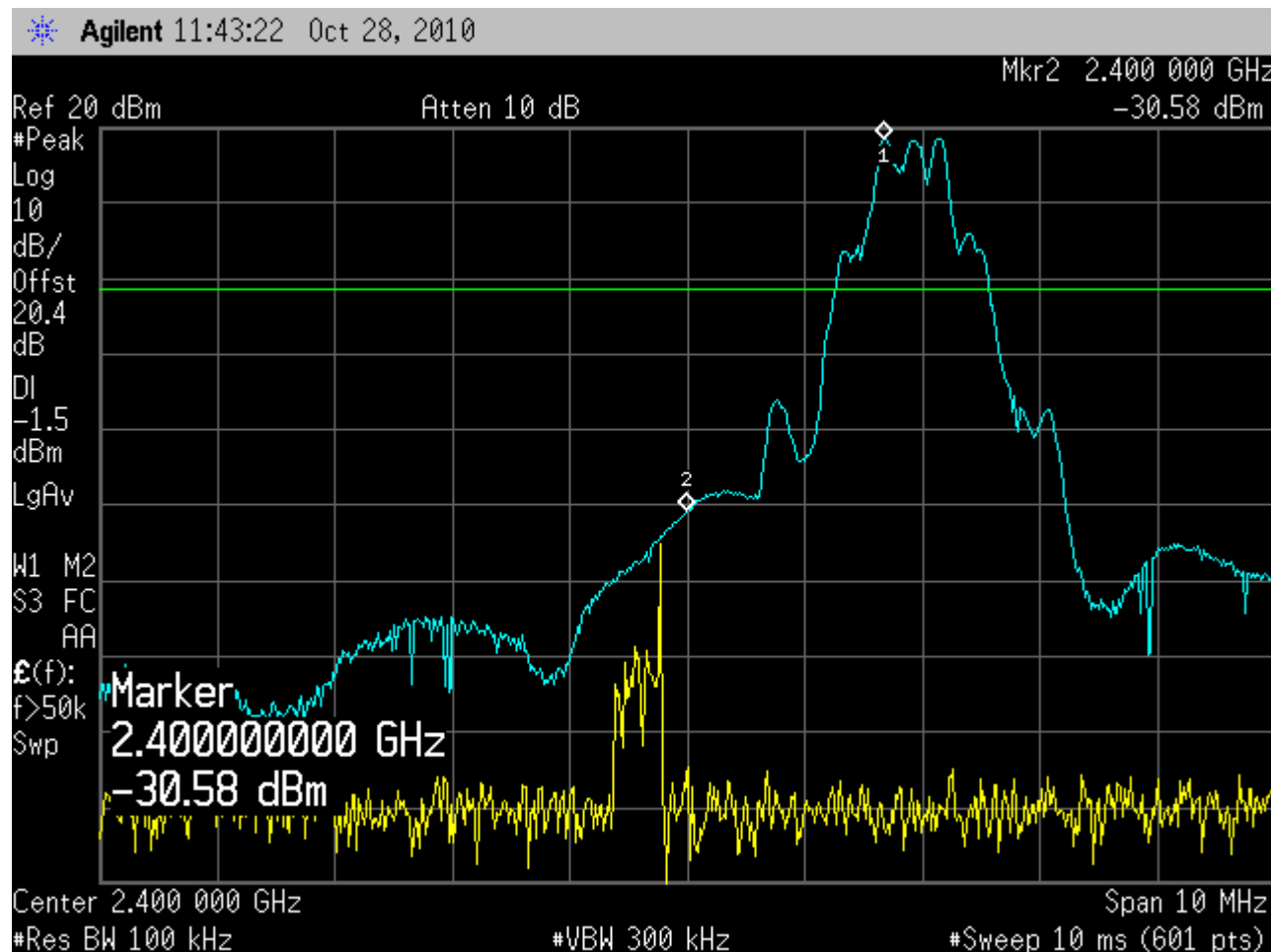
Additional Observations:

- This is a conducted test. The 20.4dB offset is from the external attenuator and cable used.
- Span is wide enough to capture the peak level of the emission operating on the channel closest to the band edges (Lower and Upper).
- RBW is 1% of the span
- VBW is 3X RBW
- Sweep is auto.
- Detector is Peak
- Trace is Max Hold
- For each investigation, the peak level reading was taken and a display line was drawn 20 dBc below this level which will be the limit for this test.
- Test repeated between Hopping and Non-Hopping mode



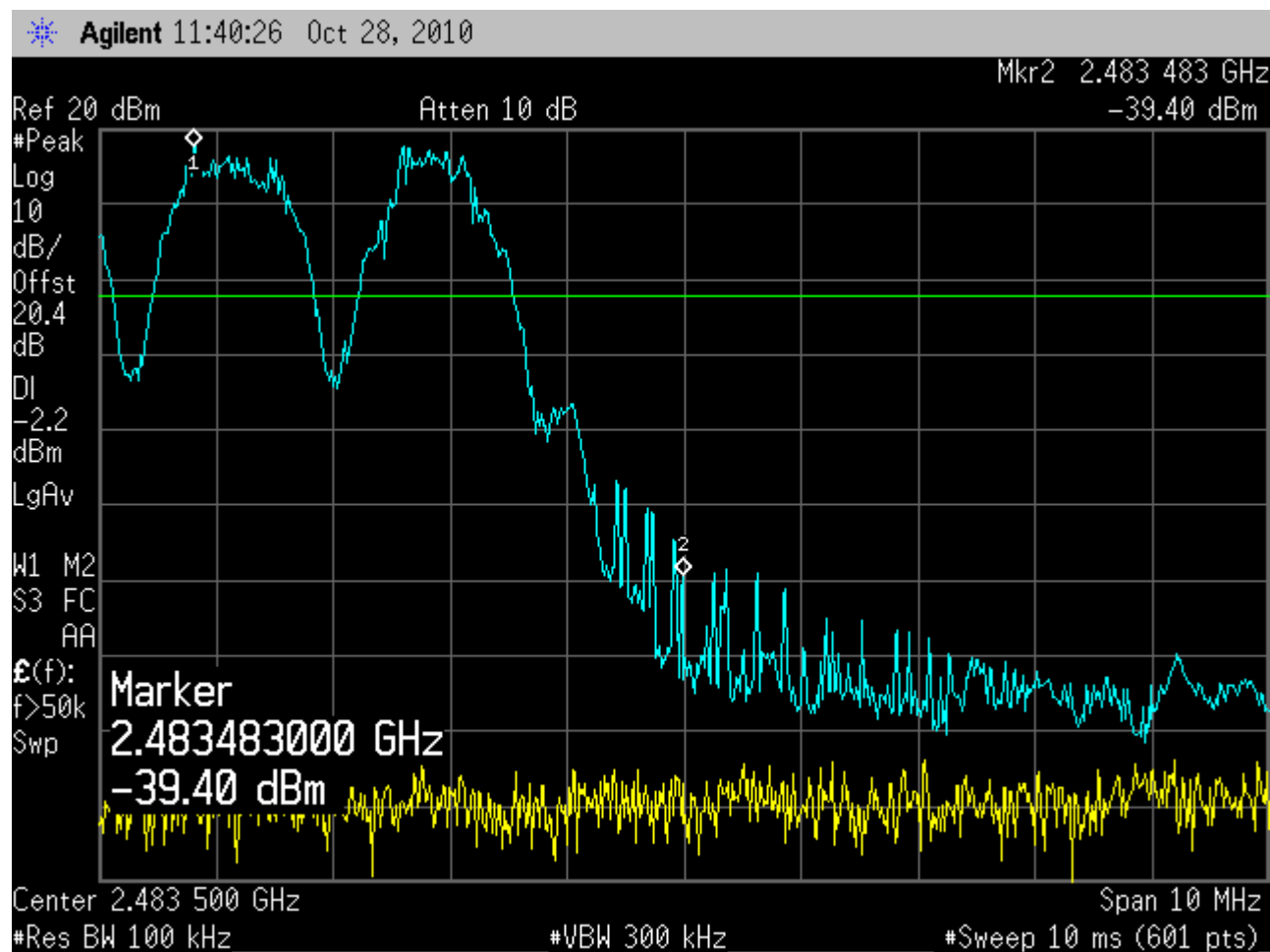


Lower Band edge (Hopping)

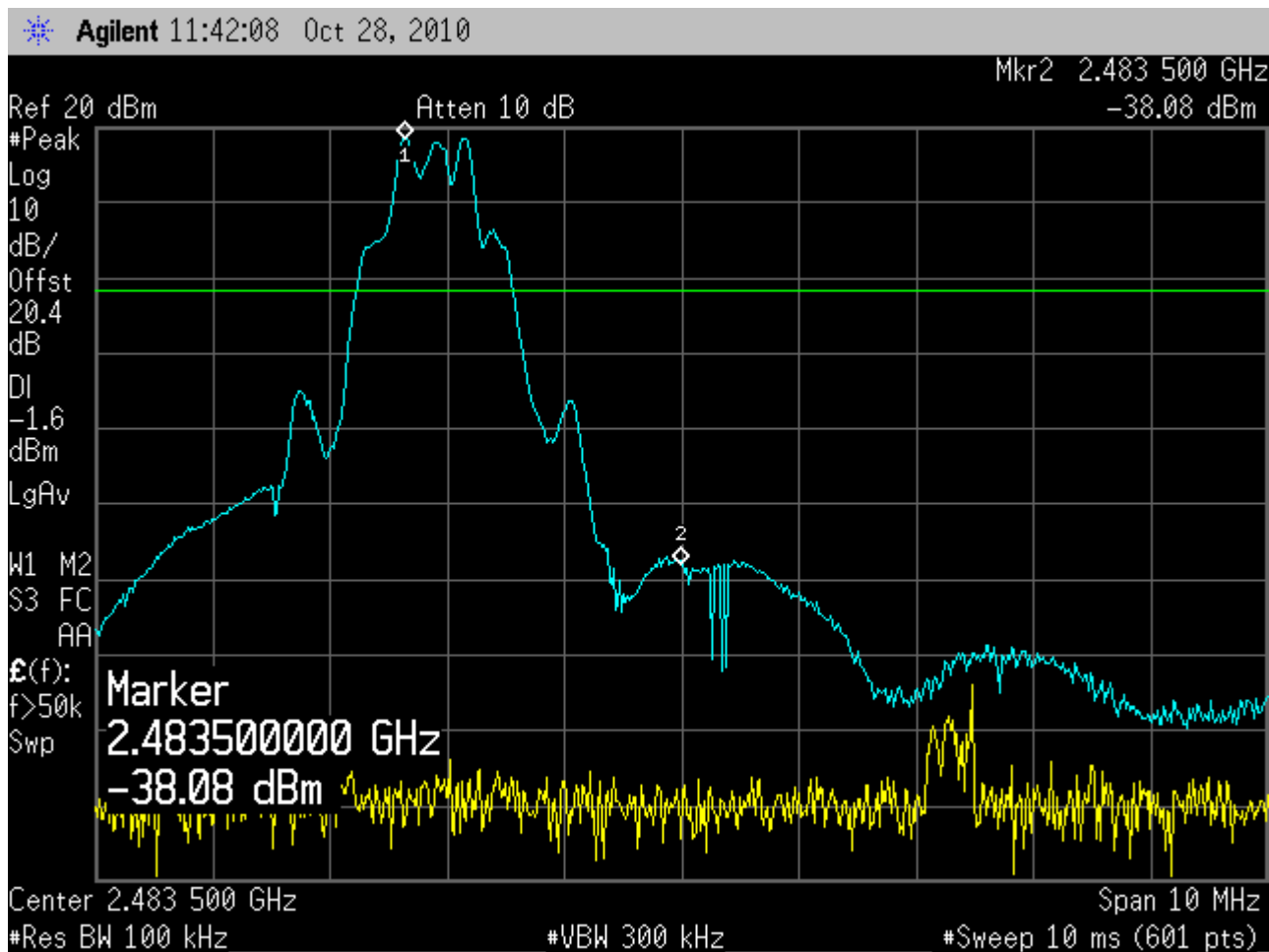


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Lower Band edge (Non-Hopping)



Upper Band edge (Hopping)



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Upper Band edge (Non-Hopping)



Section 15.247(d) – Spurious RF Conducted Emissions

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	23°C
Date:	October 28, 2010	Humidity:	39%
Modification State:	Hopping + Low, Mid and High	Tester:	FSCustodio
		Laboratory:	Nemko

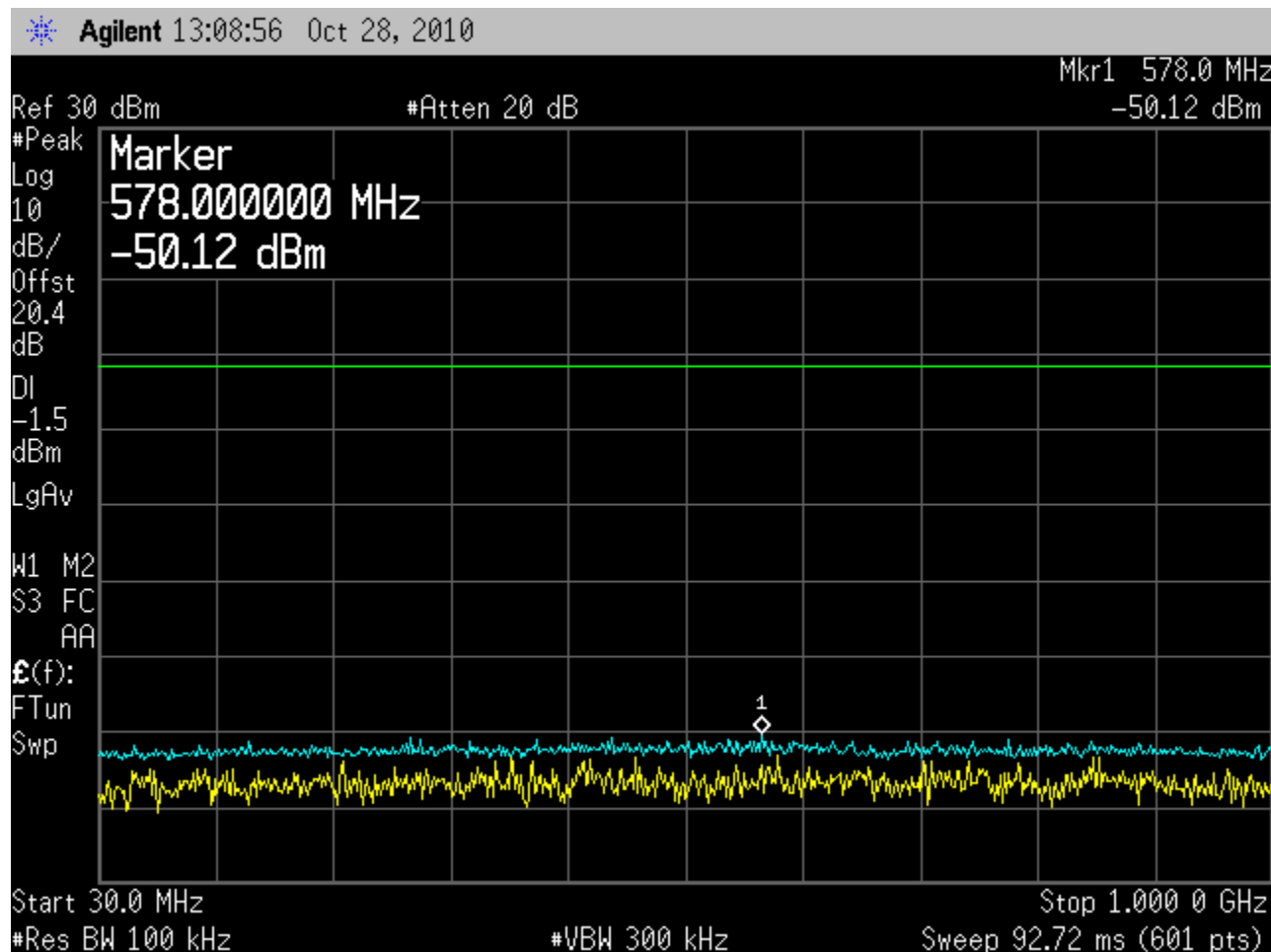
Test Results:

See attached plots.

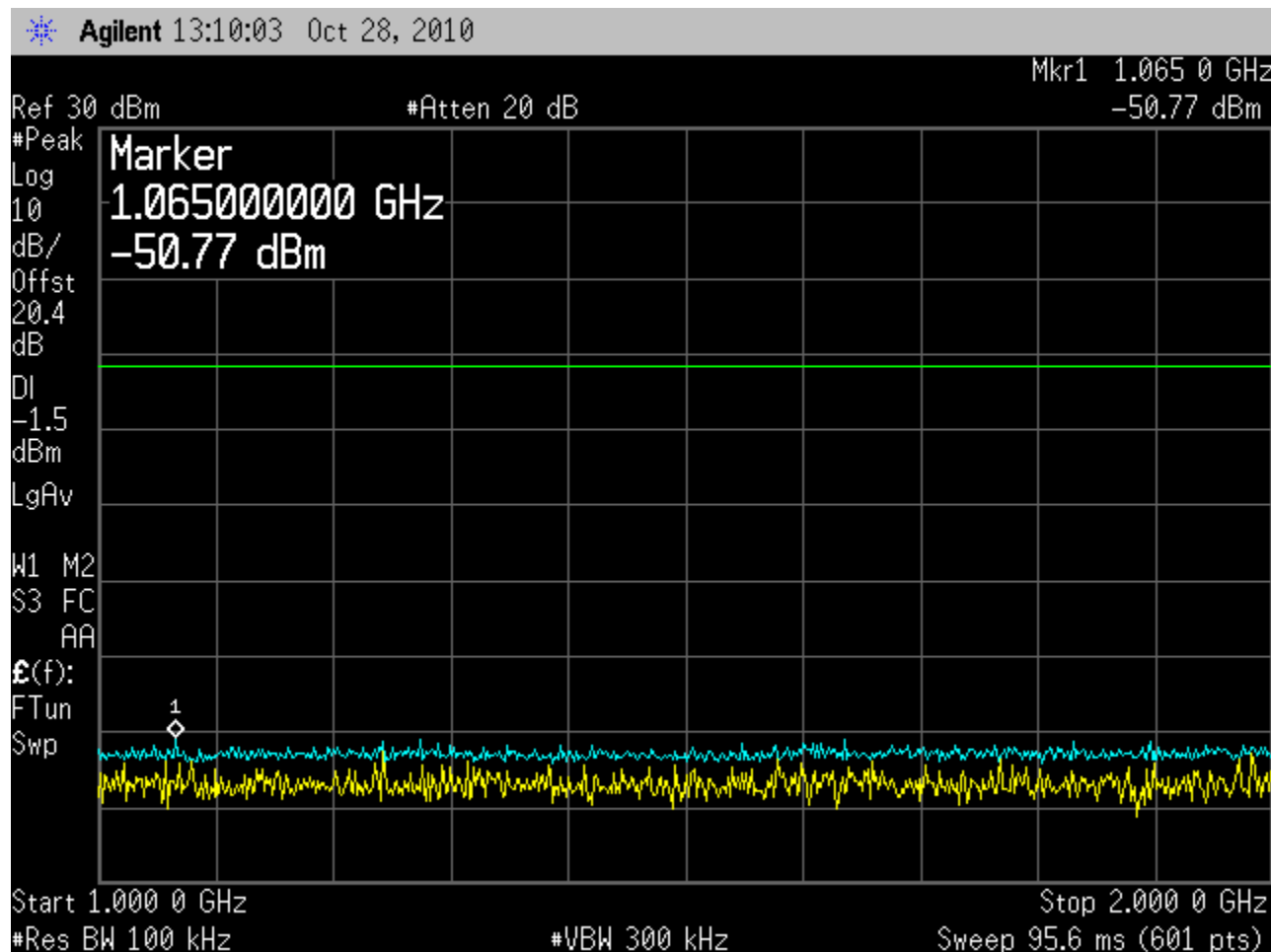
Additional Observations:

- This is a conducted test. The 20.4dB offset is from the external attenuator and cable used.
- The EUT was hopping during this investigation. Test results when hopping is disabled (transmitting at specific frequency) can be found under Appendix B.
- The peak level reading was taken at the carrier frequency then a display line was drawn 20 dBc below this level which will be the limit for this test.
- VBW is 3X RBW
- Sweep is auto.
- Detector is Peak
- Trace is Max Hold
- EUT complies.

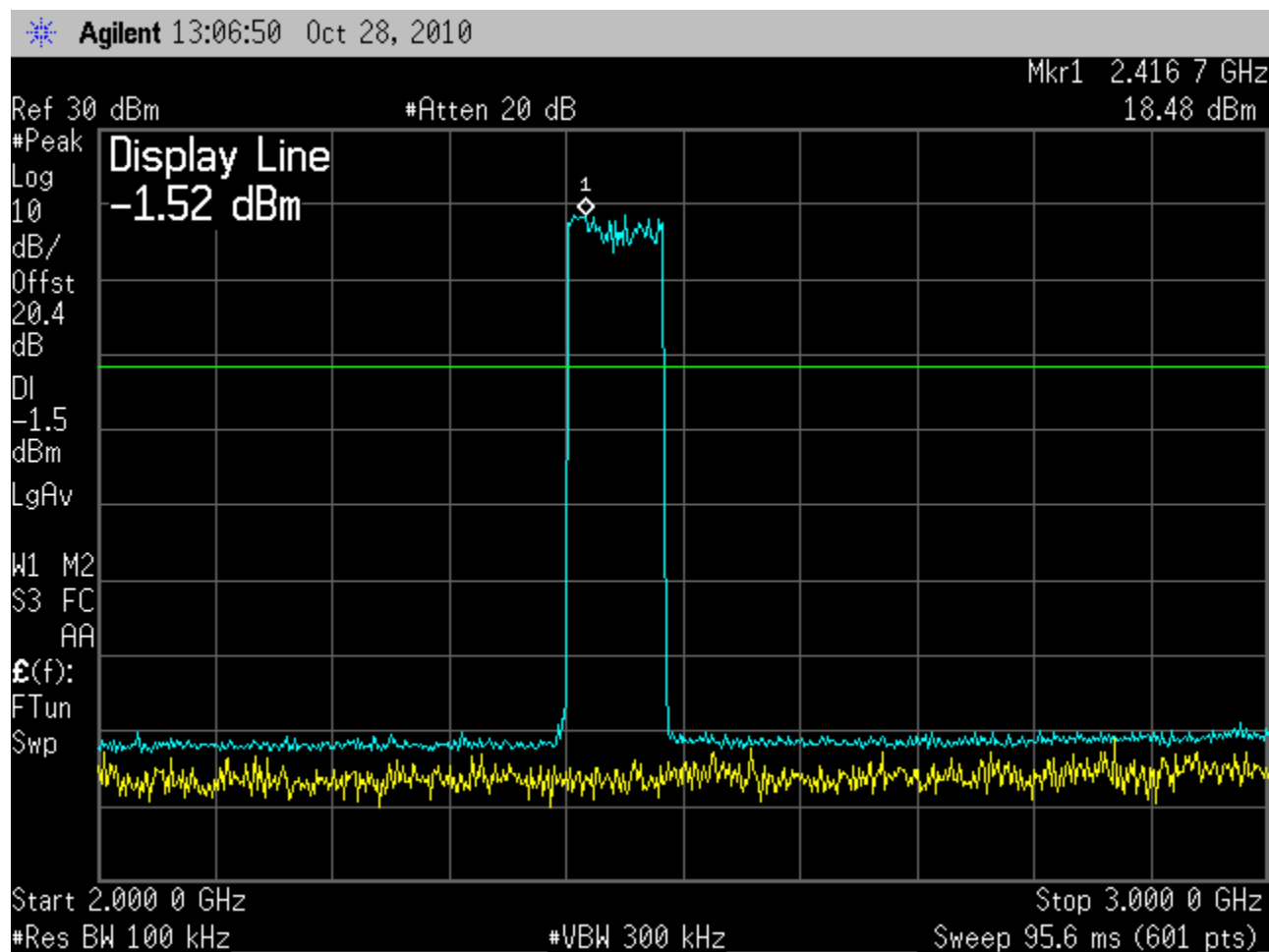




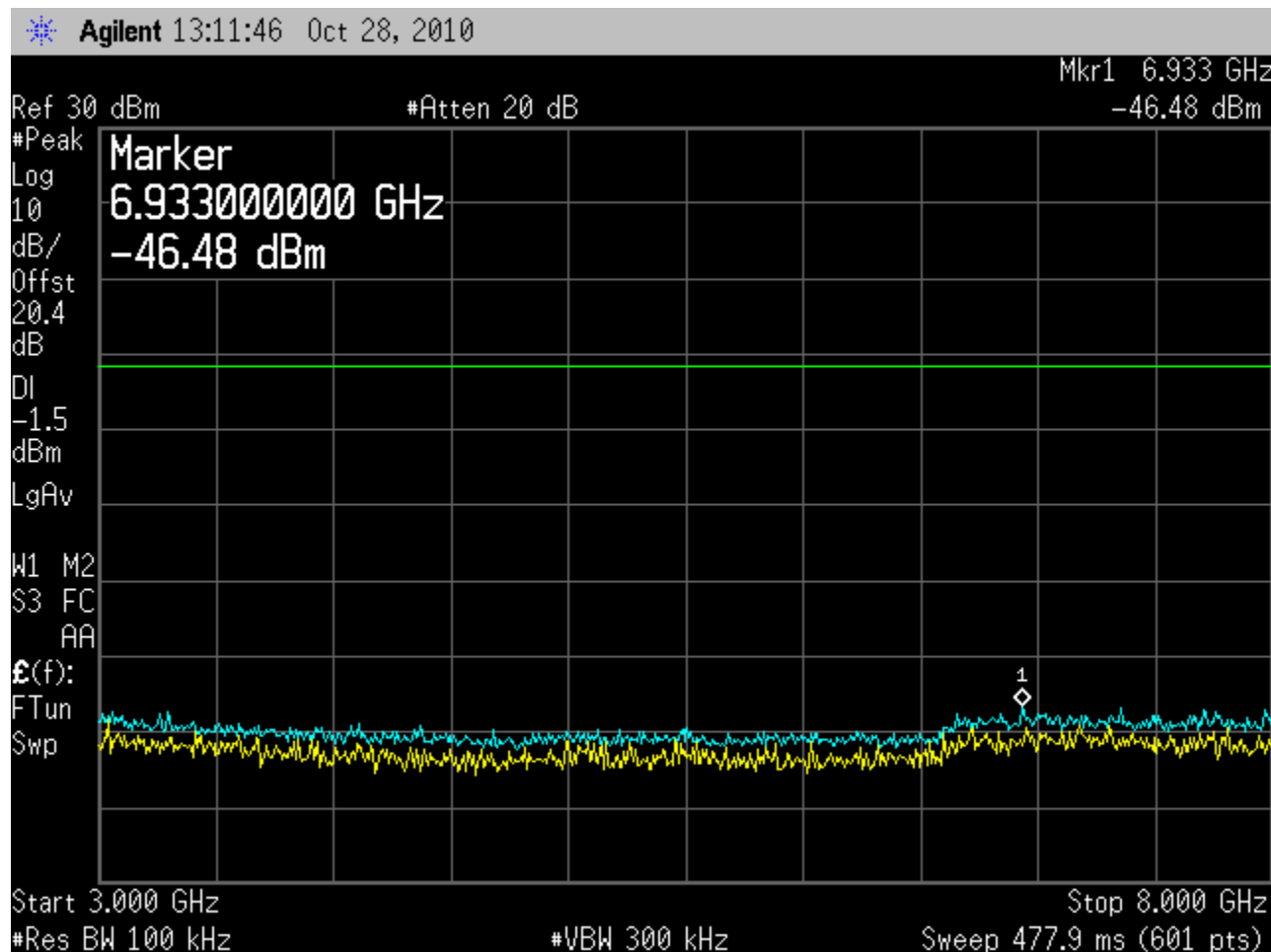
Plots from 30 MHz to 1GHz , Display Line is -1.52 dBm which is 20dB below the highest in band emission.



Plots from 1GHz to 2GHz , Display Line is -1.52 dBm which is 20dB below the highest in band emission.

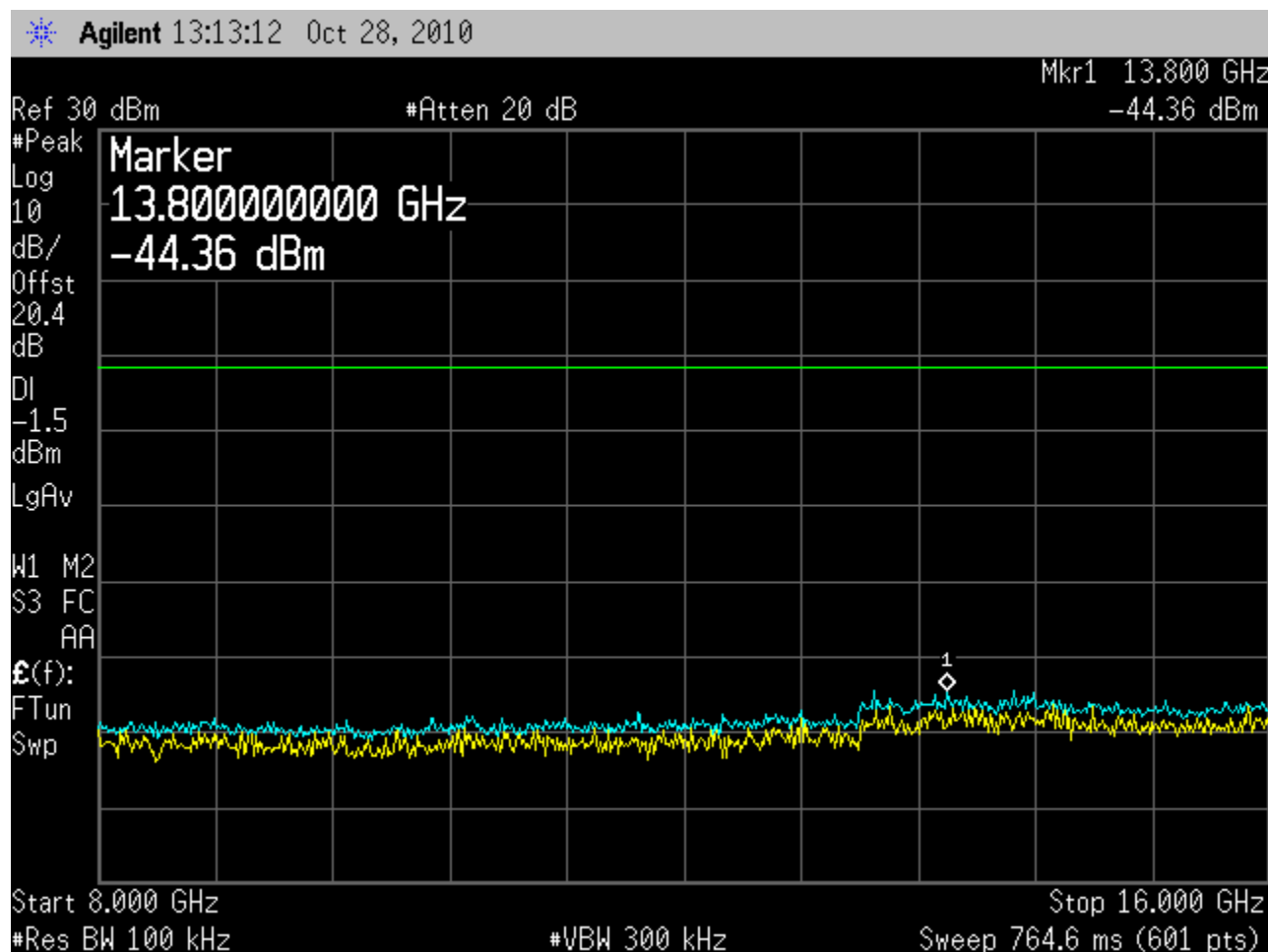


Plots from 2GHz to 3GHz , Display Line -1.52 dBm which is 20dB below the highest in band emission.



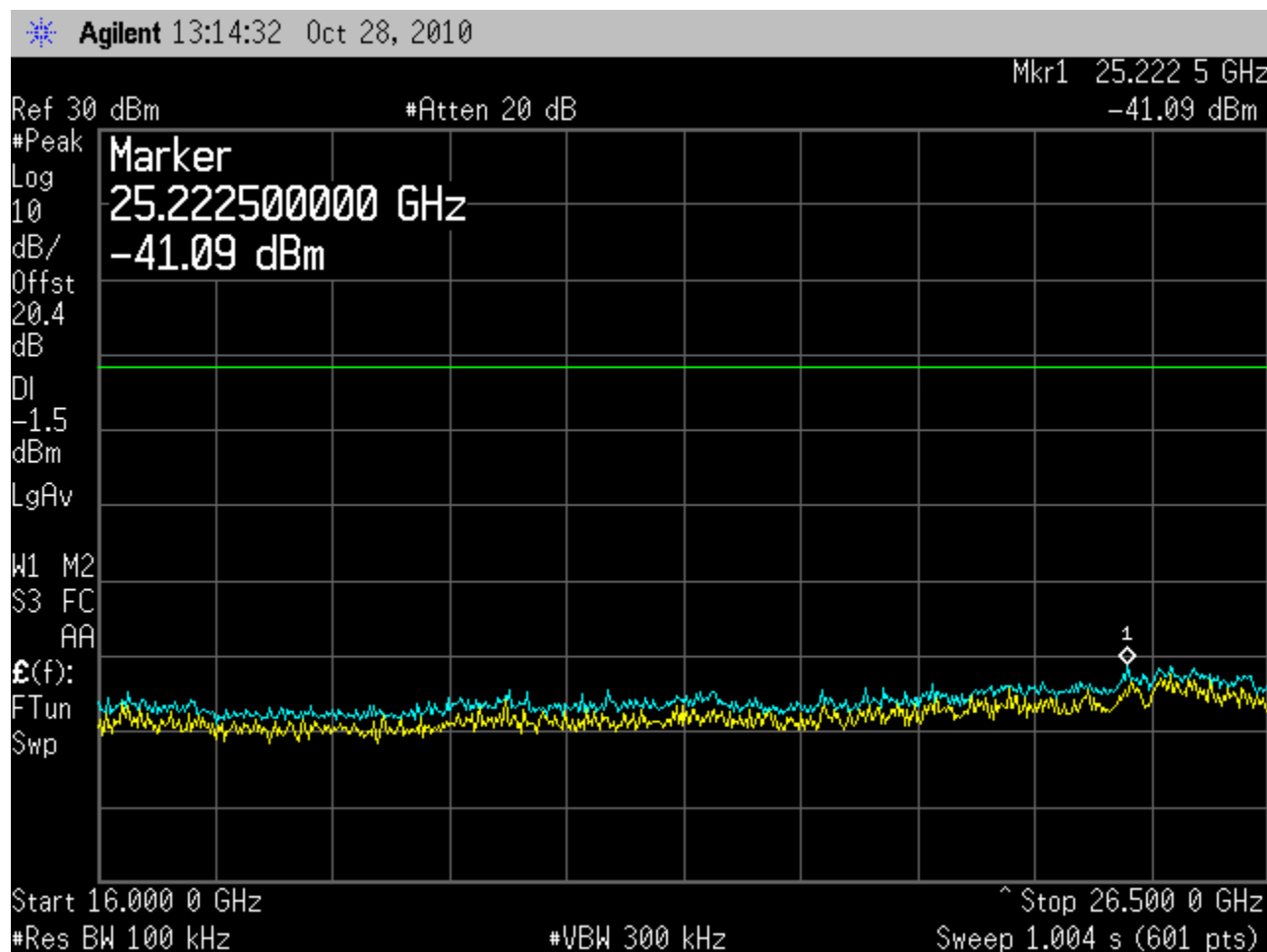
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Plots from 3GHz to 8GHz , Display Line is -1.52 dBm which is 20dB below the highest in band emission.



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Plots from 8GHz to 16GHz , Display Line is -1.52 dBm which is 20dB below the highest in band emission.



Plots from 16GHz to 26.5GHz , Display Line is -1.52 dBm which is 20dB below the highest in band emission.



Section 15.247(d) – Spurious Radiated Emissions

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	16°C
Date:	November 3, 2010	Humidity:	72%
Modification State:	As required (Hopping or Single)	Tester:	FSCustodio
		Laboratory:	SOATS

Test Results:

See attached plots.

Additional Observations:

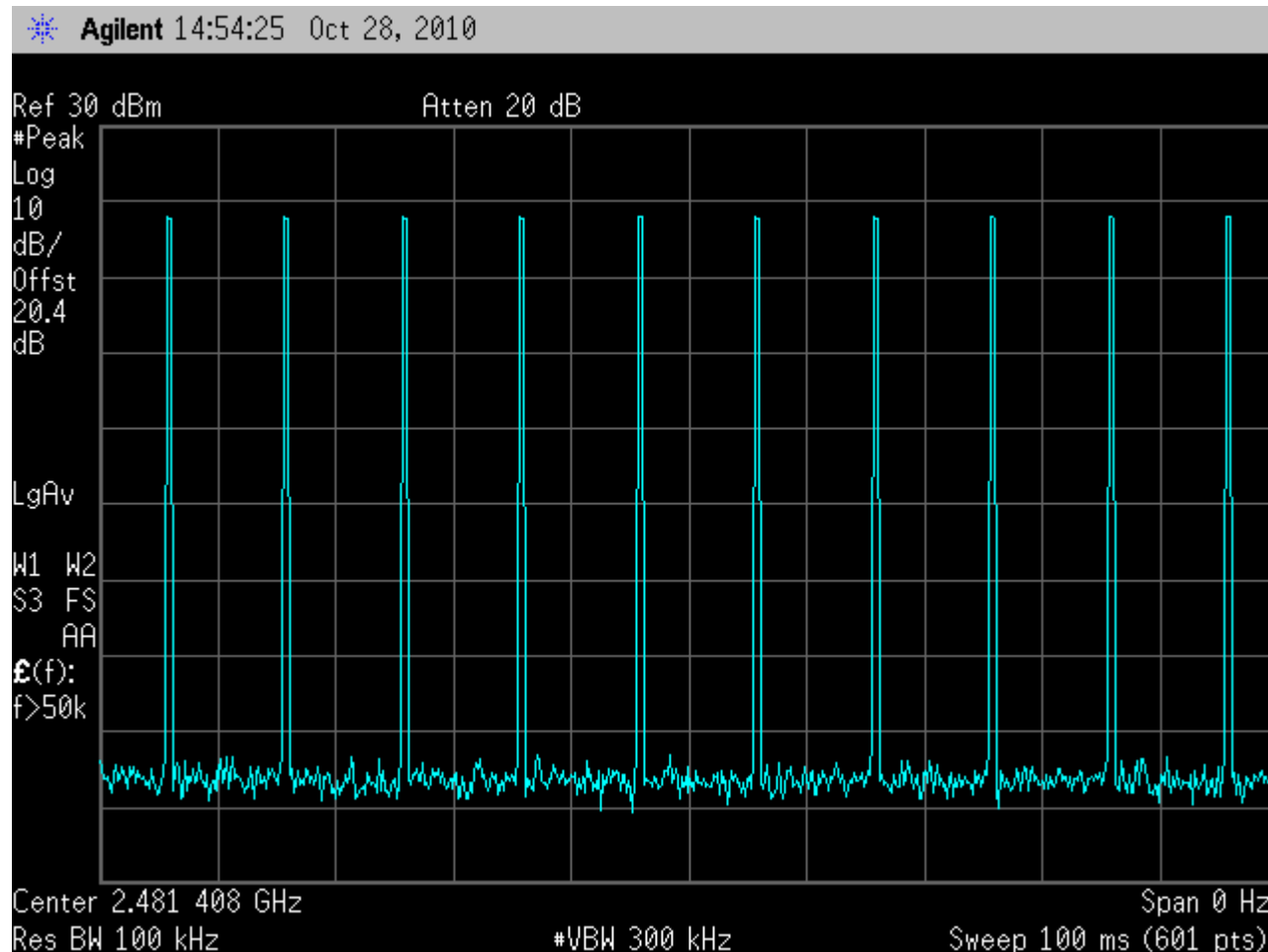
- This test was performed a using fully charged battery.
- The Spectrum was searched from 30MHz to the 10th Harmonic, 25000 MHz. There are no emissions found that do not comply to the restricted bands defined in **FCC Part 15 Subpart C, 15.205** or **Part 15.247(d)**.
- Duty Cycle Correction Factor used is -20 based from actual Duty Cycle of 4.33%.
- Only worst case band edge measurement presented (i.e. Low Channel for lower band edge and High Channel for upper band edge).
- Limit for lower band edge is base from radiated fundamental measurement of the Low Channel using 100 kHz RBW.
- No spurious detected above 1GHz..

Sample Computation (base from above 1GHz data):

$$\begin{aligned}
 \text{Correction factor @ 4803.8MHz} &= 12.196 \\
 &= \text{Antenna factor} + \text{Cable loss} - \text{Preamp gain} \\
 &= 33.196 + 10.8 - 31.8 \\
 \text{Corrected reading} &= \text{Max. reading} + \text{Correction factor} \\
 &= 47.8 + 12.196 \\
 &= 59.9 \text{ dB}\mu\text{V/m}
 \end{aligned}$$



Duty Cycle Factor Computation:

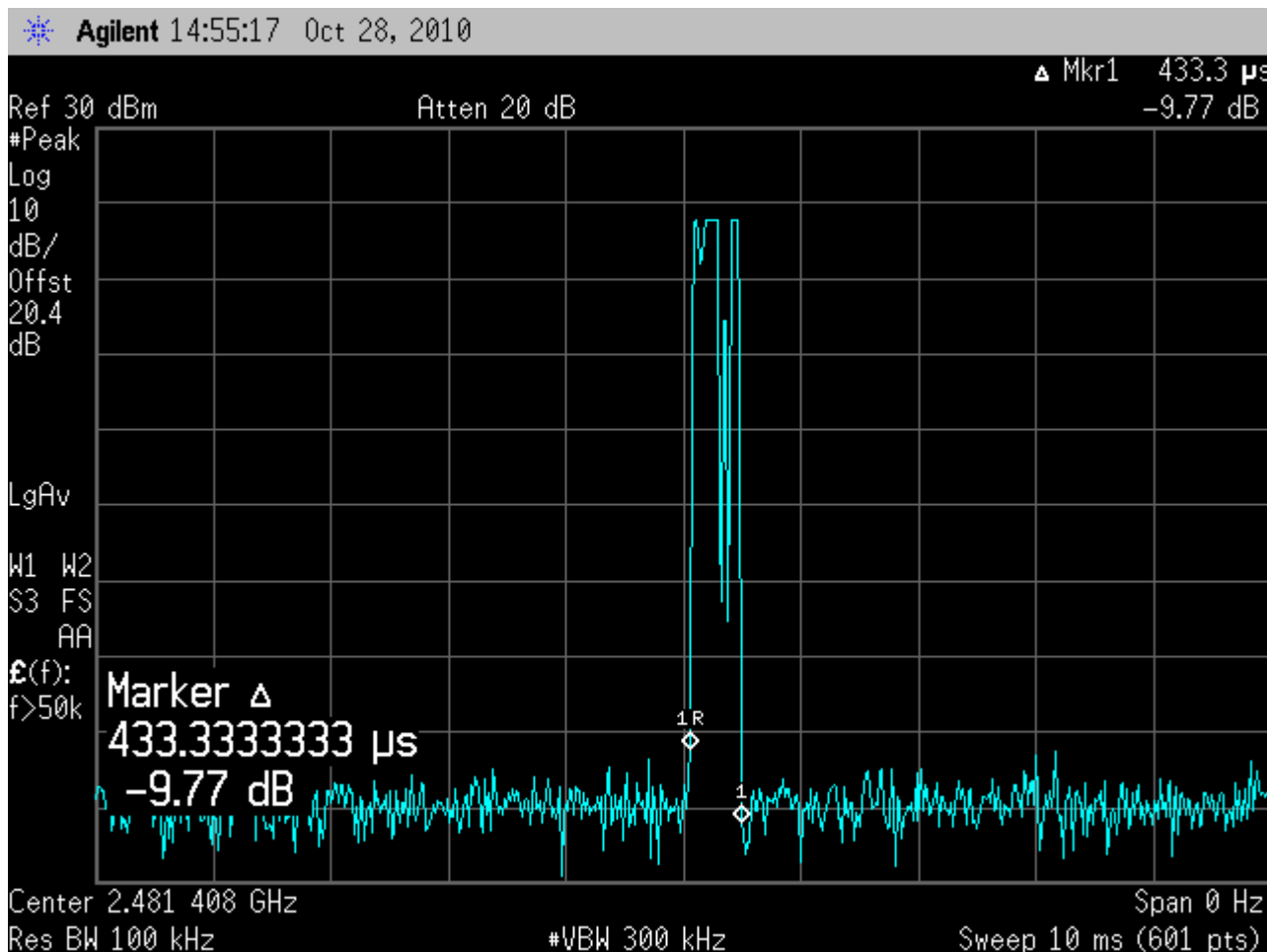


10 transmissions per 100 ms



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433.33 μs per transmission


Duty Cycle = (0.48333 ms) x 10
 = 4.33 ms/100 ms
 = **4.33%**

DCCF = 20 log (0.04833)
 = **-27.26; limited to -20**

FCC ID: BYMHS6K
IC: 1860A-HS6K

Report Number: 2010 10159599 HS FCC 15.247
Specification: FCC Part 15 Subpart C, 15.247

Below 1GHz measurements:

		San Diego Headquarters: 11696 Sorrento Valley Rd. San Diego, CA 92121 Tel: (858) 755-5525 Fax: (858) 452-1810	
Radiated Emissions Data			
Job # :	<u>63825-1</u>	Date :	<u>11/3/2010</u>
NEX #:	<u>159599</u>	Time :	<u>8:00AM</u>
		Staff :	<u>FSC</u>
Client Name :	<u>HME</u>		EUT Voltage :
EUT Name :	<u>Wireless Headset</u>		<u>Battery</u>
EUT Model # :	<u>Odyssey IQ</u>		EUT Frequency :
EUT Serial # :	<u>F40M0032</u>		<u> </u>
EUT Config. :	<u>Hopping</u>		Phase:
			<u> </u>
			NOATS
			<u> </u>
			SOATS
			<u> </u>
			Distance < 1000 MHz:
			<u> </u>
			Distance > 1000 MHz:
			<u> </u>
Specification :	<u>CFR47 Part 15, Subpart B, Class B</u>		
Loop Ant. #:	<u>NA</u>		
Bicon Ant.#:	<u>114_3m</u>	Temp. (°C) :	<u>17</u>
Log Ant.#:	<u>110_3m</u>	Humidity (%) :	<u>48</u>
DRG Ant. #	<u>877</u>	Spec Analyzer #:	<u>898/899</u>
Cable LF#:	<u>SOATS</u>	Analyzer Display #:	<u>N/A</u>
Cable HF#:	<u>SOATS</u>	Quasi-Peak Detector #:	<u>898/899</u>
Preamp LF#:	<u>NA</u>	Preselector #:	<u>N/A</u>
Preamp HF#:	<u>NA</u>	DCCF:	<u>N/A</u>

Peak	RBW: 1 MHz
Video Bandwidth 3 MHz	
Quasi-Peak	RBW: 120 kHz
Video Bandwidth -	
Average	RBW: 1 MHz
Video Bandwidth 10 Hz	

Meas. Freq. (MHz)	Meter Reading Vertical	Meter Reading Horizontal	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
200.2	6.1	6.3	Q		1.0	6.3	19.9	43.5	-23.6	Pass	
210.1	6.4	6.7	Q		1.0	6.7	20.0	43.5	-23.5	Pass	
214.3	6.6	6.6	Q		1.0	6.6	19.9	43.5	-23.6	Pass	
217.8	14.8	19.5	Q	BR	2.5	19.5	32.8	46.0	-13.2	Pass	
224.7	6.3	6.2	Q		1.0	6.3	19.3	46.0	-26.7	Pass	
228.7	6.5	6.5	Q		1.0	6.5	19.5	46.0	-26.5	Pass	
238.5	6.9	13.4	Q	BR	2.2	13.4	26.6	46.0	-19.4	Pass	
544.6	6.3	6.4	Q		1.0	6.4	28.6	46.0	-17.5	Pass	
572.3	6.2	6.7	Q		1.0	6.7	29.2	46.0	-16.8	Pass	
584.5	7.5	7.6	Q		1.0	7.6	29.9	46.0	-16.1	Pass	
604.3	11.2	11.3	Q		1.0	11.3	34.4	46.0	-11.6	Pass	

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Nemko USA, Inc.

11696 Sorrento Valley Road, Suite F, San Diego, CA 92121
Phone (858) 755-5525 Fax (858) 452-1810

FCC ID: BYMHS6K
IC: 1860A-HS6K

Report Number: 2010 10159599 HS FCC 15.247
Specification: FCC Part 15 Subpart C, 15.247

Above 1GHz measurements:

FCC ID: BYMHS6K
IC: 1860A-HS6K

Report Number: 2010 10159599 HS FCC 15.247
Specification: FCC Part 15 Subpart C, 15.247



San Diego Headquarters:
11696 Sorrento Valley Rd.
San Diego, CA 92121
Tel: (858) 755-5525
Fax: (858) 452-1810

Radiated Emissions Data

Job # : 63825-1 Date : 11/3/2010 Page 1 of 1
 NEX #: 159599 Time : 1:00PM
 Staff : FSC

Client Name : HME EUT Voltage : Battery
 EUT Name : Wireless Headset EUT Frequency :
 EUT Model # : Odyssey IQ Phase:
 EUT Serial # : F40M0032 NOATS
 EUT Config. : Low, Mid and High Channels SOATS X
 Distance < 1000 MHz:
 Distance > 1000 MHz: 3 m

Specification : CFR47 Part 15, Subpart B, Class B

Loop Ant. # : NA
 Bicon Ant.#: NA Temp. (°C) : 33
 Log Ant.#: NA Humidity (%) : 13
 DRG Ant. # : 877 Spec Analyzer #: 835
 Cable LF#: NA Analyzer Display #: N/A
 Cable HF#: 40ft_blue Quasi-Peak Detector #: 835
 Preamp LF#: NA Preselector #: N/A
 Preamp HF#: 317 DCCF: 20

Peak	RBW: 1 MHz
	Video Bandwidth 3 MHz
Average = Peak- DCCF	

Meas. Freq. (MHz)	Meter Reading Vertical	Meter Reading Horizontal	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
2441.7	78.4	82.5	P	BR	1.0	82.52	119.4				@100kHz RBW
2400.0	34.0	31.8	P		1.0	34.02	70.9	99.4	-28.5	Pass	@100kHz RBW
2400.0	14.0	11.8	A		1.0	14.02	50.9	79.4	-28.5	Pass	@100kHz RBW
2483.5	54.1	58.8	P		1.0	58.8	62.4	74.0	-11.6	Pass	
2483.5	34.1	38.8	A		1.0	38.8	42.4	54.0	-11.6	Pass	
4803.8	47.8	47.0	P		1.0	47.8	59.9	74.0	-14.0	Pass	Noise Floor
4803.8	27.8	27.0	A		1.0	27.8	39.9	54.0	-14.0	Pass	Noise Floor
7205.8	45.4	45.7	P		1.0	45.7	65.2	74.0	-8.8	Pass	Noise Floor
7205.8	25.4	25.7	A		1.0	25.7	45.2	54.0	-8.8	Pass	Noise Floor
4883.3	46.6	46.4	P		1.0	46.6	58.7	74.0	-15.2	Pass	Noise Floor
4883.3	26.6	26.4	A		1.0	26.6	38.7	54.0	-15.2	Pass	Noise Floor
7325.0	45.0	45.2	P		1.0	45.2	64.9	74.0	-9.1	Pass	Noise Floor
7325.0	25.0	25.2	A		1.0	25.2	44.9	54.0	-9.1	Pass	Noise Floor
4962.8	47.1	47.3	P		1.0	47.3	59.6	74.0	-14.4	Pass	Noise Floor
4962.8	27.1	27.3	A		1.0	27.3	39.6	54.0	-14.4	Pass	Noise Floor
7444.2	45.3	45.2	P		1.0	45.3	64.7	74.0	-9.3	Pass	Noise Floor
7444.2	25.3	25.2	A		1.0	25.3	44.7	54.0	-9.3	Pass	Noise Floor

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7.2.3 (RSS-Gen) – Receiver Spurious Emission Limits

All spurious emissions shall comply with the limits of Table 1 (see Section 6).

Spurious Frequency (MHz)	Field Strength (microvolt/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960	500

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Test Conditions:

Sample Number:	Odyssey IQ	Temperature:	17°C
Date:	November 3, 2010	Humidity:	48%
Modification State:	Receive Mode	Tester:	FSCustodio
		Laboratory:	SOATS

Test Results:

See attached plot.

Additional Observations:

- This test was performed a using fully charged battery.
- The Spectrum was searched from 30MHz to 8GHz.
- No spurious detected above 1GHz..



FCC ID: BYMHS6K
IC: 1860A-HS6K

Report Number: 2010 10159599 HS FCC 15.247
Specification: FCC Part 15 Subpart C, 15.247



NEMKO USA, Inc.

San Diego Headquarters:

11696 Sorrento Valley Rd.
San Diego, CA 92121
Tel: (858) 755-5525
Fax: (858) 452-1810

Radiated Emissions Data

Job # : 63825-1 Date : 11/3/2010 Page 1 of 1
 NEX # : 159599 Time : 9:45AM
 Staff : FSC

Client Name : HME EUT Voltage : Battery
 EUT Name : Wireless Headset EUT Frequency :
 EUT Model # : Odyssey IQ Phase :
 EUT Serial # : F40M0032 NOATS
 EUT Config. : Receive Mode SOATS X
 Distance < 1000 MHz: 3 m
 Distance > 1000 MHz: 3 m

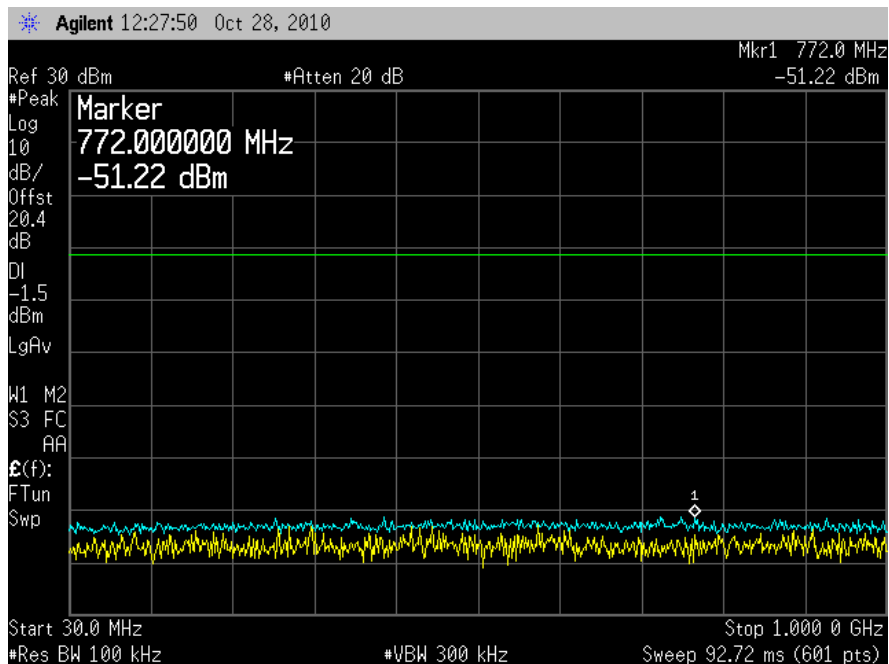
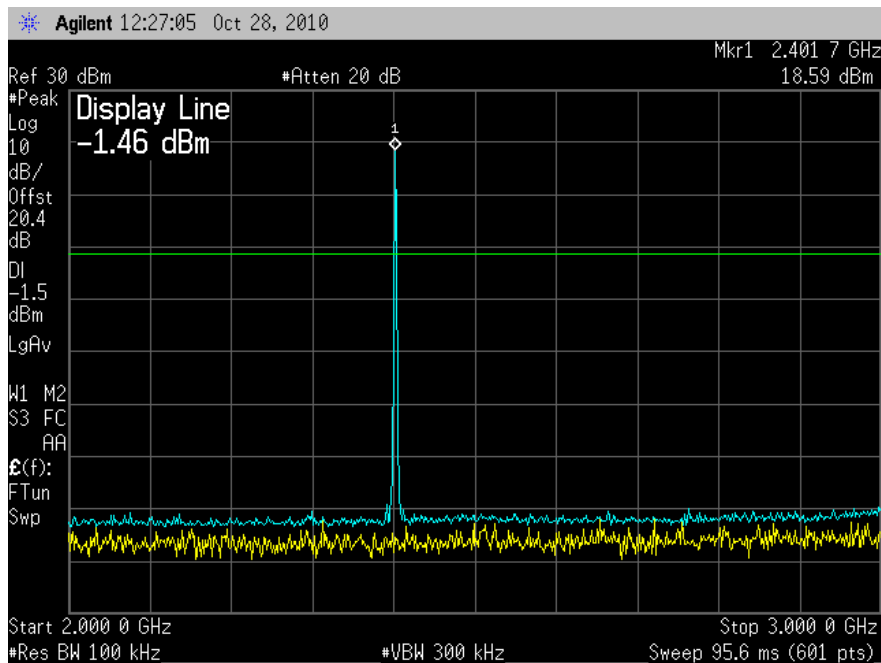
Specification : CFR47 Part 15, Subpart B, Class B
 Loop Ant. # : NA
 Bicon Ant.# : 114_3m Temp. (°C) : 17
 Log Ant.# : 110_3m Humidity (%) : 48
 DRG Ant. # : 877 Spec Analyzer # : 898/899
 Cable LF# : SOATS Analyzer Display # : N/A
 Cable HF# : SOATS Quasi-Peak Detector # : 898/899
 Preamp LF# : NA Preselector # : N/A
 Preamp HF# : NA DCCF : N/A

Peak	RBW: 1 MHz
Video Bandwidth	3 MHz
Quasi-Peak	RBW: 120 kHz
Video Bandwidth	-
Average	RBW: 1 MHz
Video Bandwidth	10 Hz

Meas. Freq. (MHz)	Meter Reading Vertical	Meter Reading Horizontal	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBµV)	Corrected Reading (dBµV/m)	Spec. limit (dBµV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
200.2	6.1	6.3	Q		1.0	6.3	19.9	43.5	-23.6	Pass	Ambient Noise
210.1	6.4	6.7	Q		1.0	6.7	20.0	43.5	-23.5	Pass	Ambient Noise
214.3	6.6	6.6	Q		1.0	6.6	19.9	43.5	-23.6	Pass	Ambient Noise
217.8	14.7	18.6	Q	BR	2.5	18.6	31.9	46.0	-14.1	Pass	
224.7	6.3	6.2	Q		1.0	6.3	19.3	46.0	-26.7	Pass	Ambient Noise
228.7	6.5	6.5	Q		1.0	6.5	19.5	46.0	-26.5	Pass	Ambient Noise
238.5	6.7	12.8	Q	BR	2.2	12.8	26.0	46.0	-20.0	Pass	
544.6	6.3	6.4	Q		1.0	6.4	28.6	46.0	-17.5	Pass	Ambient Noise
572.3	6.2	6.7	Q		1.0	6.7	29.2	46.0	-16.8	Pass	Ambient Noise
584.5	7.5	7.6	Q		1.0	7.6	29.9	46.0	-16.1	Pass	Ambient Noise
604.3	11.2	11.3	Q		1.0	11.3	34.4	46.0	-11.6	Pass	Ambient Noise

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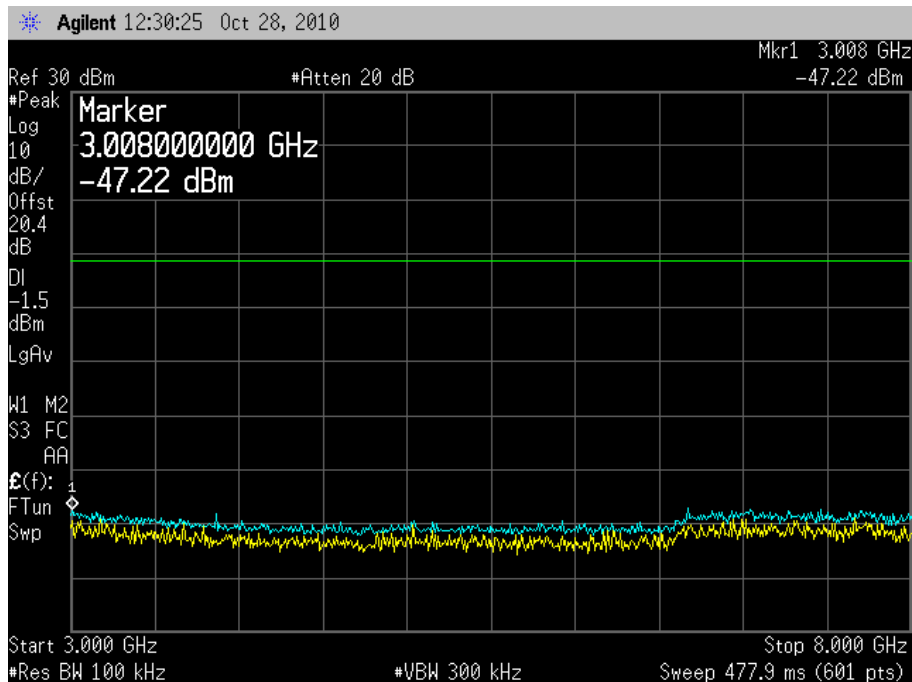
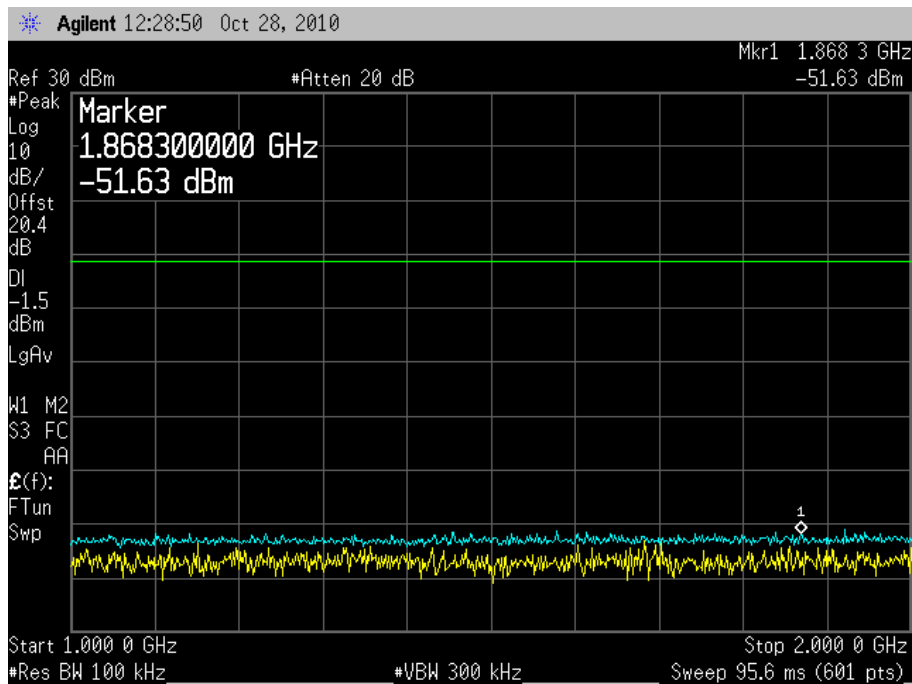
Appendix B: Section 15.247(d) – Spurious RF Conducted Emissions Test Results (Low, Mid and High Channels)



LOW Channel

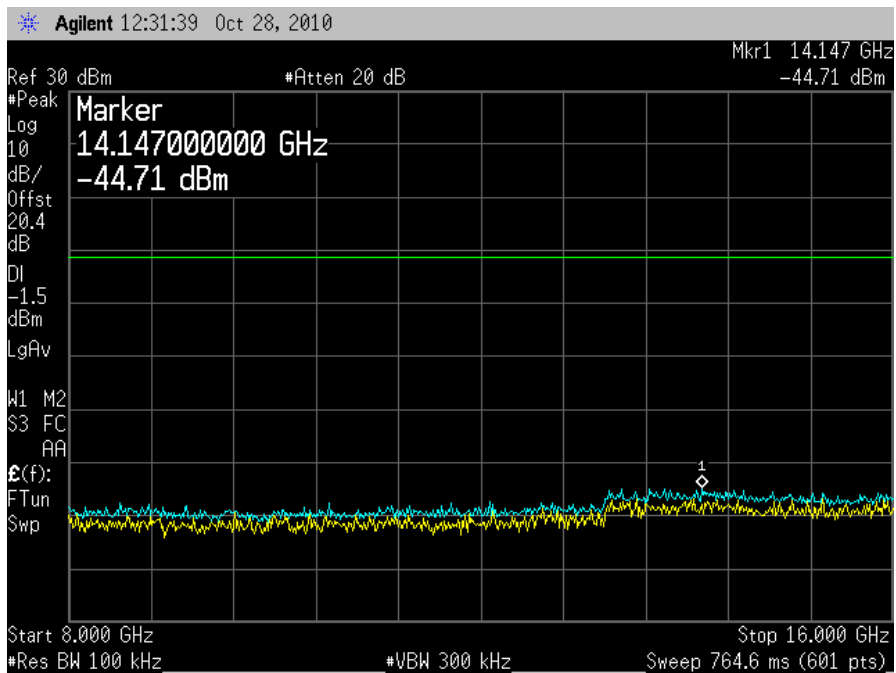


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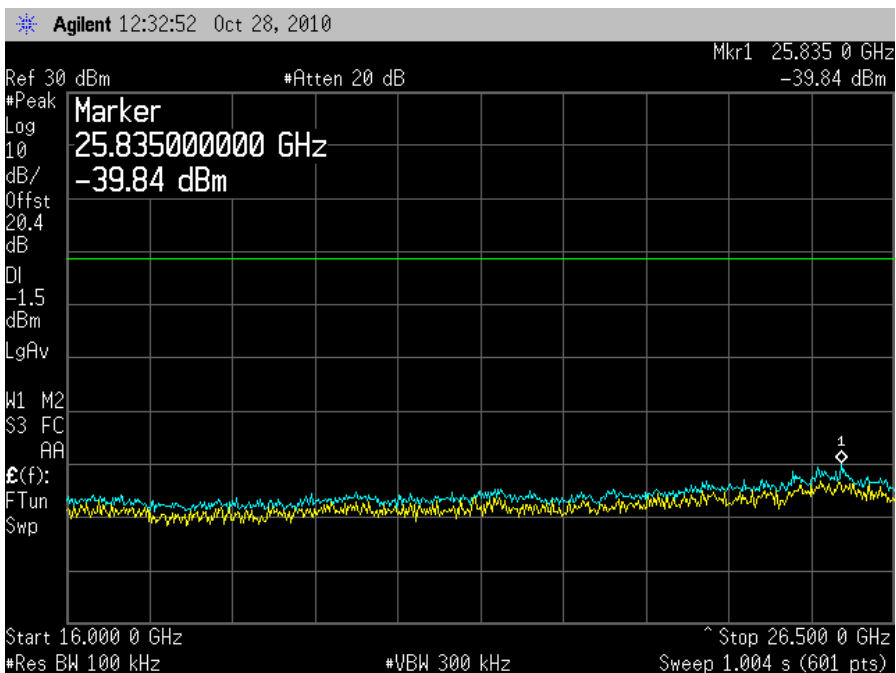


LOW Channel





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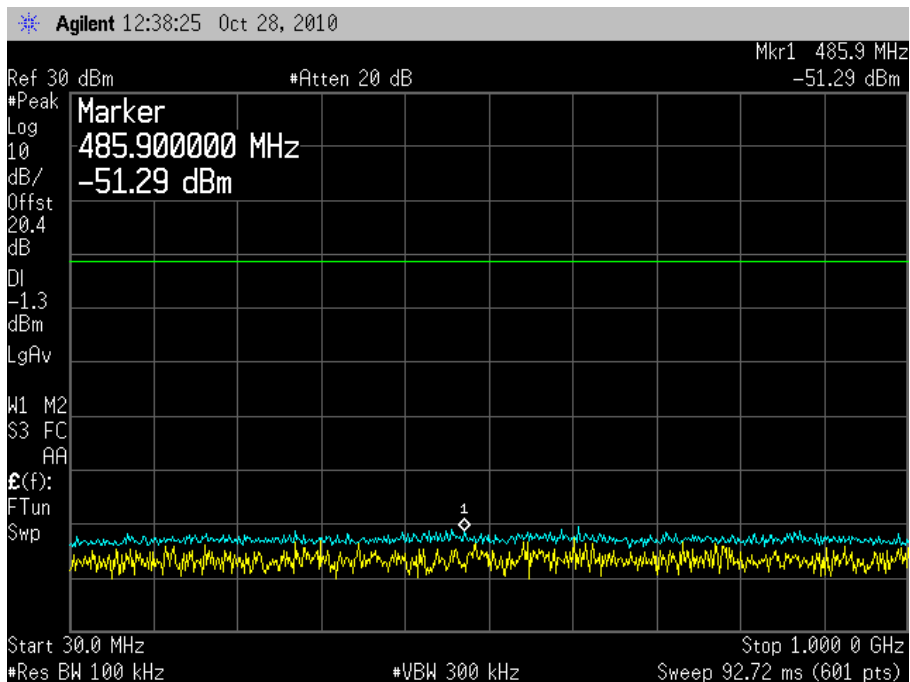
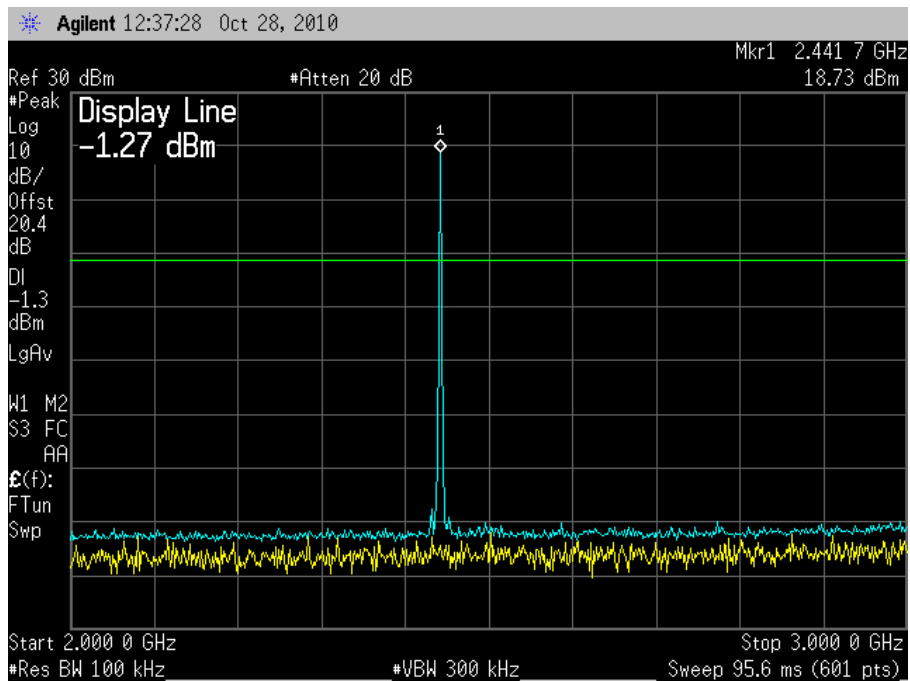


LOW Channel





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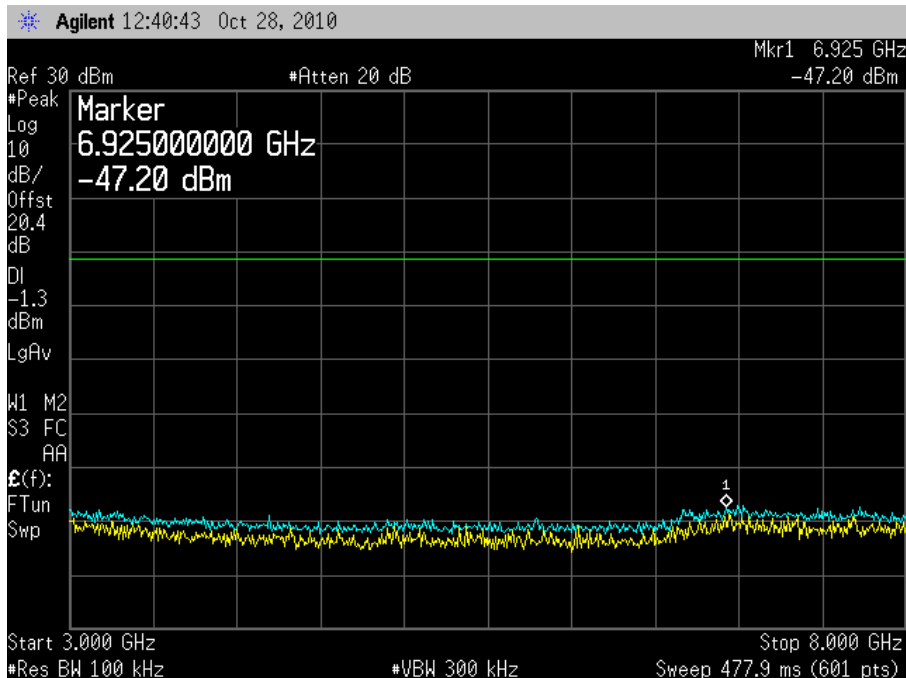
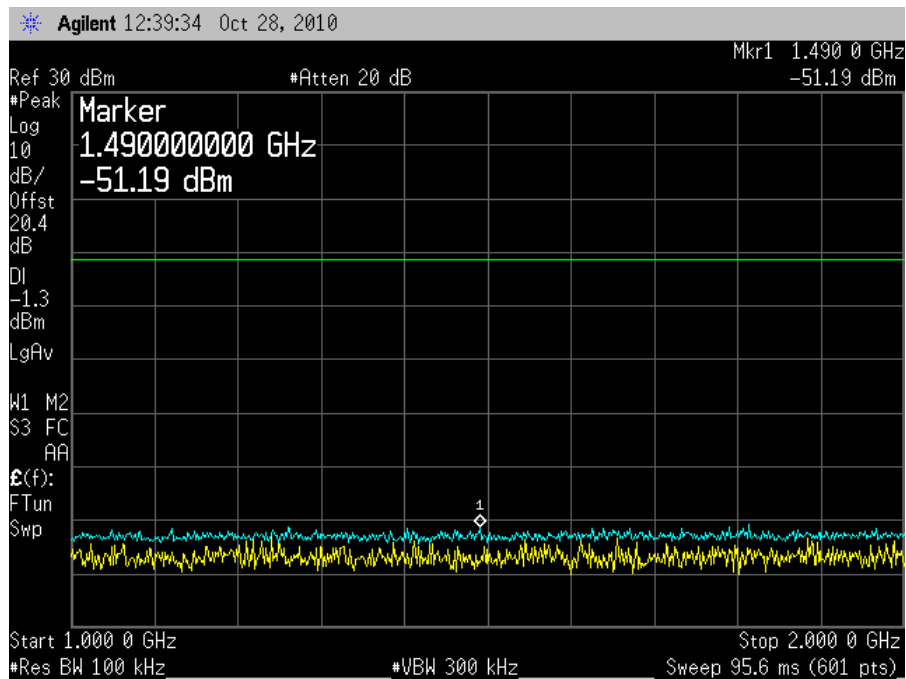


MID Channel





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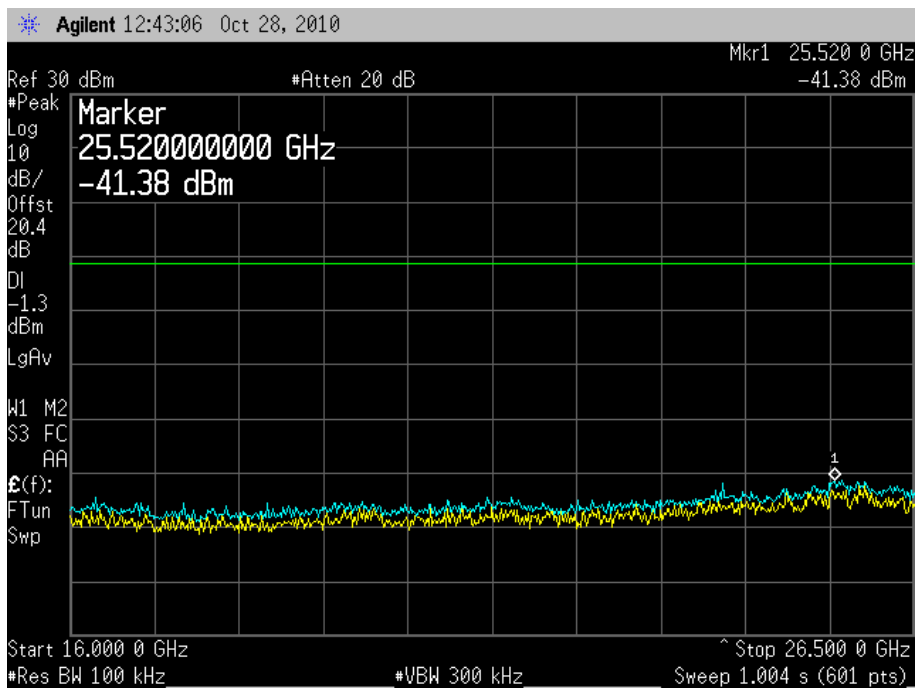
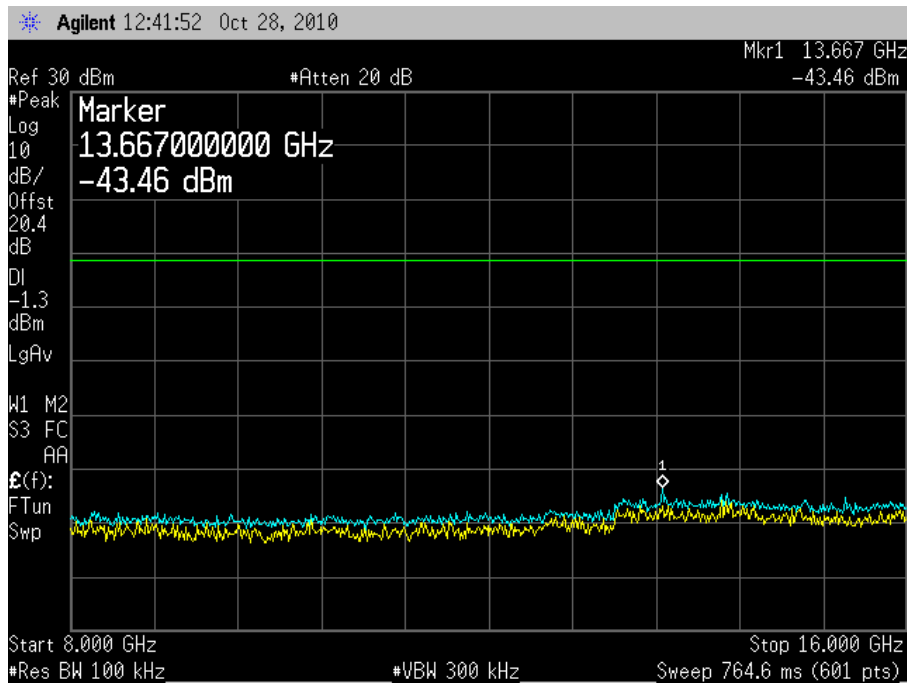


MID Channel



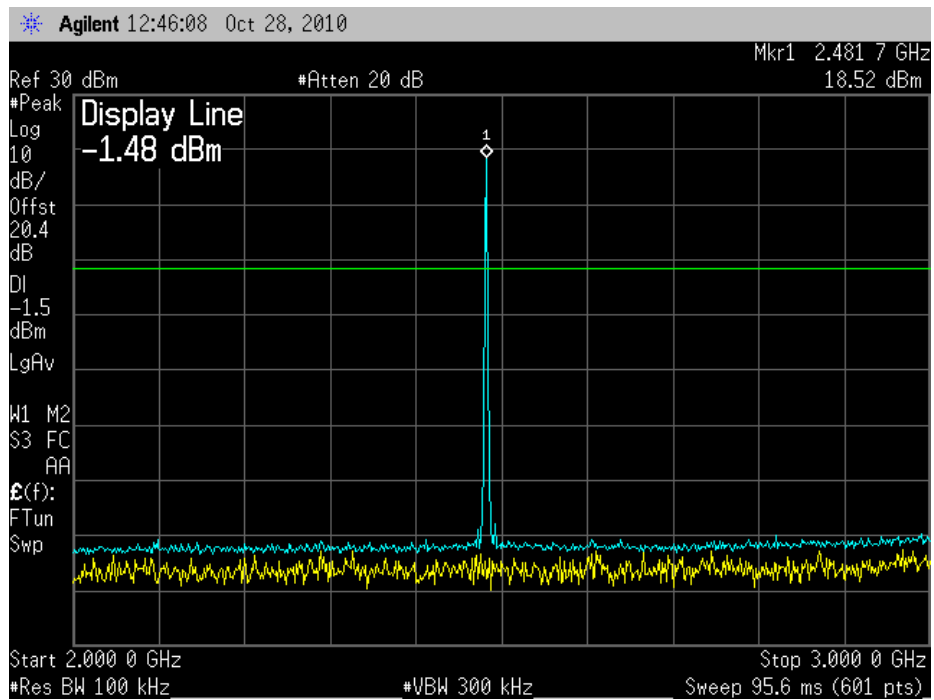


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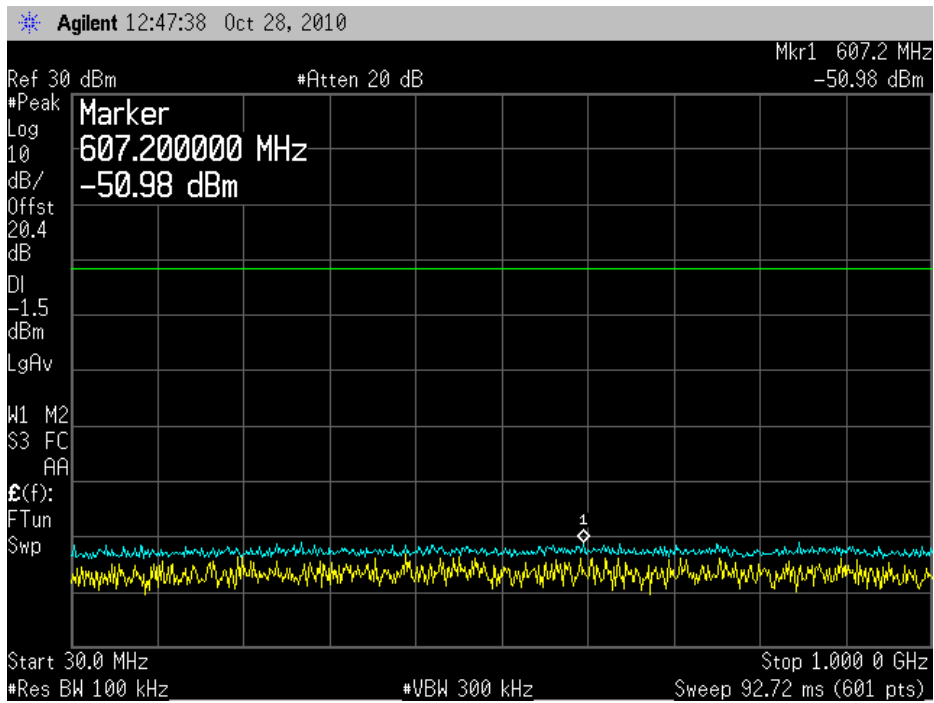


MID Channel





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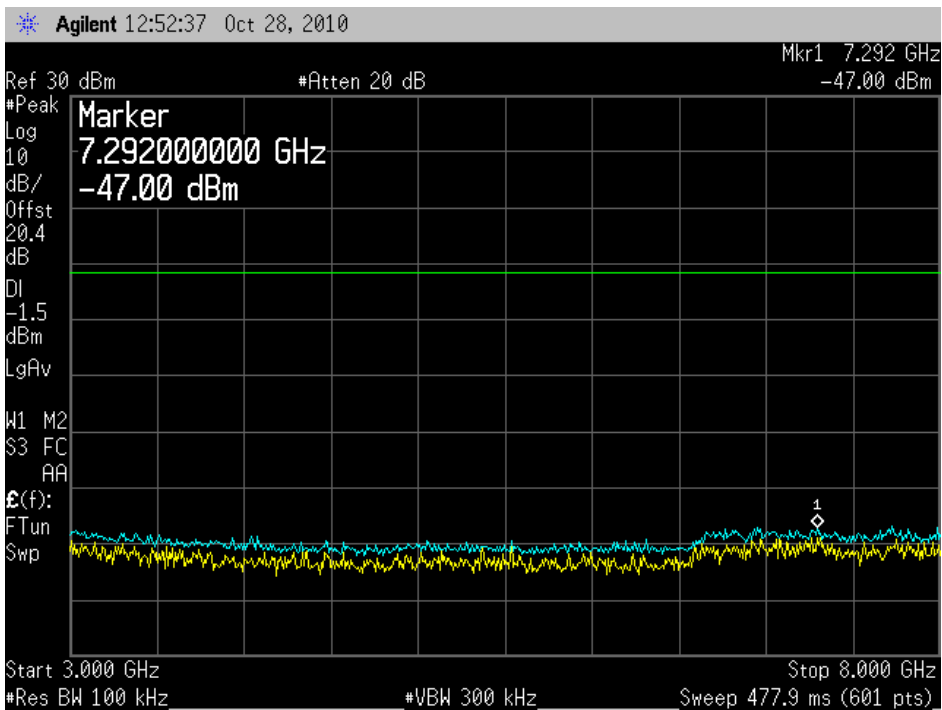
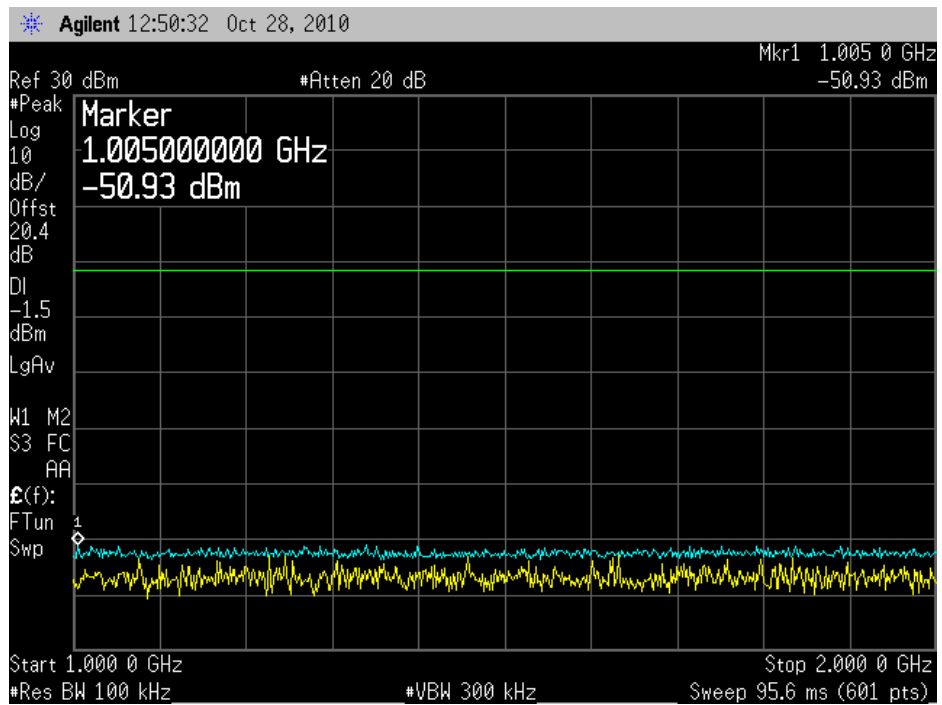


HIGH Channel





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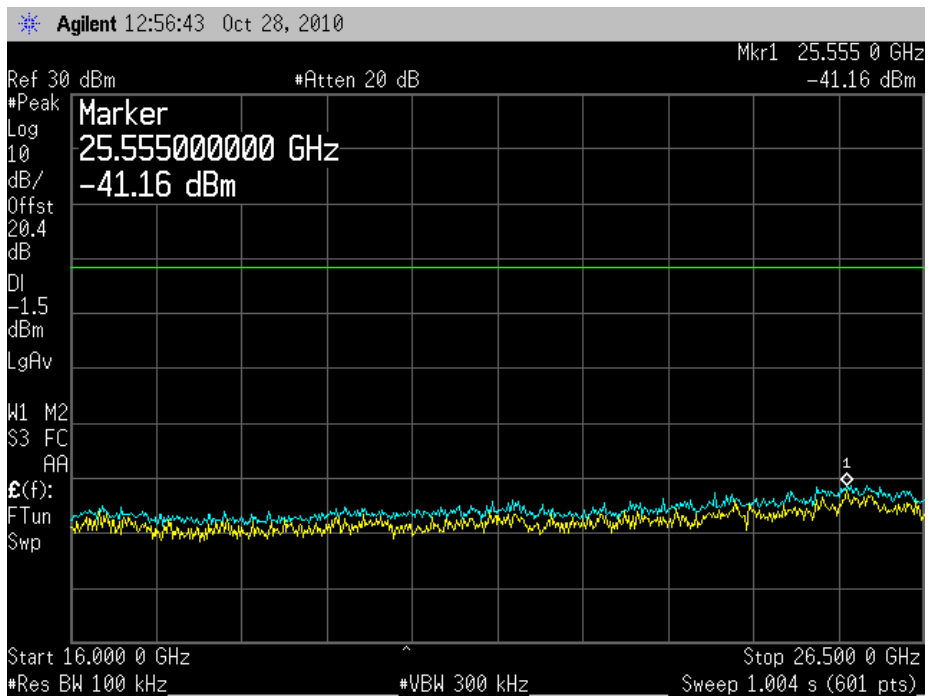
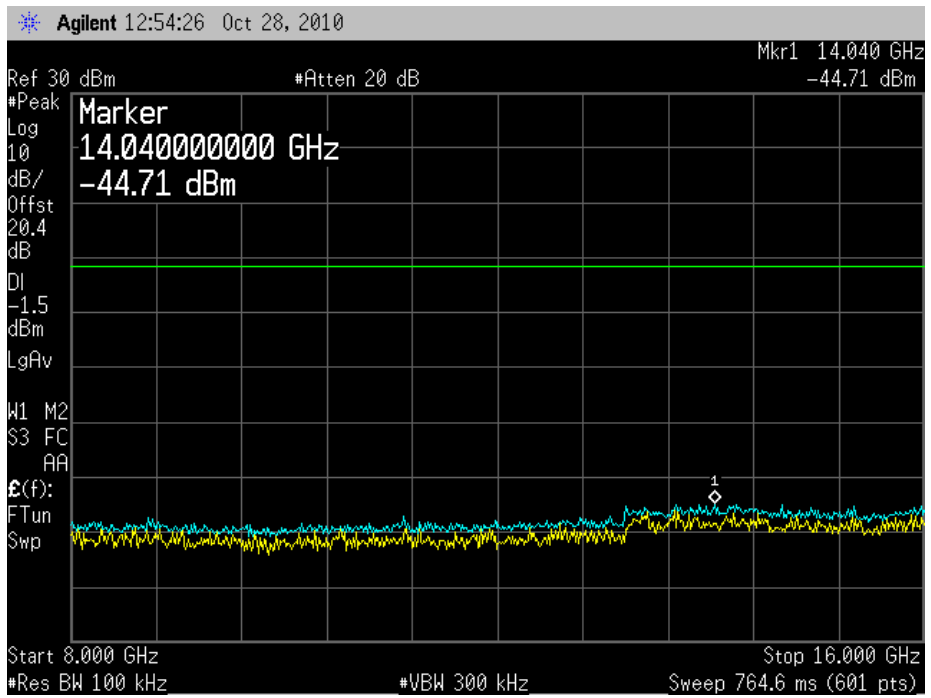


HIGH Channel





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HIGH Channel



Appendix C: Block Diagram of Test Setups

Test Site For Radiated Emissions

