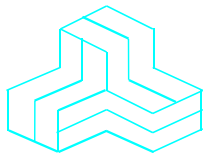


# ENGINEERING TEST REPORT



**2400 MHz OEM Wireless Module**  
**Model: n2420B**  
**FCC ID: NS911P31**

*Applicant:*

**Microhard Systems Inc.**  
150 Country Hills Landing N.W.  
Calgary, Alberta  
Canada T3K 5P3

***In Accordance With***

**Federal Communications Commission (FCC)**  
**Part 15, Subpart C, Section 15.247 Frequency Hopping Spread Spectrum (FHSS)**

**UltraTech's File No.: 16MCRS092\_FCC15C247**

This Test report is Issued under the Authority of  
Tri M. Luu  
Vice President of Engineering  
UltraTech Group of Labs

Date: July 21, 2017

Report Prepared by: Dan Huynh

Tested by: Hung Trinh

Issued Date: July 21, 2017

Test Dates: July 7 - 12, 2016

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*
- *This test report shall not be reproduced, except in full, without a written approval from UltraTech*

## UltraTech

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1309



46390-2049



NVLAP LAB  
CODE 200093-0



AT-1945



SL2-IN-E-  
1119R



CA2049



TL363\_B



TPTDP  
DA1300

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## EXHIBIT 1. INTRODUCTION

### 1.1. SCOPE

<b>Reference:</b>	FCC Part 15, Subpart C, Section 15.247
<b>Title:</b>	Code of Federal Regulations (CFR), Title 47 – Telecommunication, Part 15
<b>Purpose of Test:</b>	Equipment Certification for Part 15C Spread Spectrum Transmitter, Class II Permissive Change to Add Additional 2.5 dBi Dipole Antennas.
<b>Test Procedures:</b>	<ul style="list-style-type: none"> <li>▪ ANSI C63.4</li> <li>▪ ANSI C63.10</li> <li>▪ FCC Public Notice DA 00-705</li> </ul>
<b>Environmental Classification:</b>	[ x ] Commercial, industrial or business environment [ x ] Residential environment

### 1.2. RELATED SUBMITTAL(S)/GRANT(S)

None.

### 1.3. NORMATIVE REFERENCES

Publication	Year	Title
47 CFR Parts 0-19	2016	Code of Federal Regulations (CFR), Title 47 – Telecommunication
ANSI C63.4	2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40 GHz
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
CISPR 22 & EN 55022	2008-09, Edition 6.0 2006	Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement
CISPR 16-1-1 +A1 +A2	2006 2006 2007	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus
CISPR 16-1-2 +A1 +A2	2003 2004 2006	Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-2: Conducted disturbances
FCC Public Notice DA 00-705	2000	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems
FCC ET Docket No. 99-231	2002	Amendment to FCC Part 15 of the Commission's Rules Regarding to Spread Spectrum Devices

## EXHIBIT 2. PERFORMANCE ASSESSMENT

### 2.1. CLIENT INFORMATION

APPLICANT	
<b>Name:</b>	Microhard Systems Inc.
<b>Address:</b>	150 Country Hills Landing N.W. Calgary, Alberta Canada T3K 5P3
<b>Contact Person:</b>	Mr. Hany Shenouda Phone #: 403 248-0028 Fax #: 403 248 2762 Email Address: shenouda@microhardcorp.com

MANUFACTURER	
<b>Name:</b>	Microhard Systems Inc.
<b>Address:</b>	150 Country Hills Landing N.W. Calgary, Alberta Canada T3K 5P3
<b>Contact Person:</b>	Mr. Hany Shenouda Phone #: 403 248-0028 Fax #: 403 248-2762 Email Address: shenouda@microhardcorp.com

### 2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

<b>Brand Name:</b>	Microhard Systems Inc.
<b>Product Name:</b>	2400 MHz OEM Wireless Module
<b>Model Name or Number:</b>	n2420B
<b>Serial Number:</b>	Test Sample
<b>Type of Equipment:</b>	Spread Spectrum Transmitter
<b>Input Power Supply Type:</b>	External Regulated DC Sources
<b>Primary User Functions of EUT:</b>	Spread Spectrum OEM Transceiver

**2.3. EUT’S TECHNICAL SPECIFICATIONS**

<b>Transmitter</b>	
<b>Equipment Type:</b>	<ul style="list-style-type: none"> <li>▪ Mobile</li> <li>▪ Base Station (fixed use)</li> </ul>
<b>Intended Operating Environment:</b>	<ul style="list-style-type: none"> <li>▪ Commercial, industrial or business environment</li> <li>▪ Residential environment</li> </ul>
<b>Power Supply Requirement:</b>	3.3V or (7 to 30VDC HV option)
<b>RF Output Power Rating:</b>	0.1 to 1 W
<b>Operating Frequency Range:</b>	2401.6 – 2477.6 MHz
<b>RF Output Impedance:</b>	50 Ω
<b>Duty Cycle:</b>	Continuous
<b>Modulation Type:</b>	FHSS
<b>Antenna Connector Type:</b>	MMCX connected to antennas via RPSMA & RPTNC pigtails.

**2.4. ASSOCIATED ANTENNA DESCRIPTIONS**

<b>Manufacturer</b>	<b>Type</b>	<b>Model/Part Number</b>	<b>Gain</b>
Shenzhen Norminson Technology CO., LTD.	Dipole	NW001	2.5 dBi
Laird Technologies	Dipole	WCP2400-MMCX4	2.5 dBi

**2.5. LIST OF EUT’S PORTS**

<b>Port Number</b>	<b>EUT’s Port Description</b>	<b>Number of Identical Ports</b>	<b>Connector Type</b>	<b>Cable Type (Shielded/Non-shielded)</b>
1	RF IN/OUT Port	1	MMCX to connect external antenna using Pigtails	Shielded coaxial cable with unique coupling connectors
2	DC Supply & I/O Port	1	Pin Header	No cable, direct connection

**2.6. ANCILLARY EQUIPMENT**

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

<b>Ancillary Equipment # 1</b>	
Description:	Test Jig
Brand name:	Microhard Systems Inc.
Model Name or Number:	N/A
Connected to EUT’s Port:	I/O Port

<b>Ancillary Equipment # 2</b>	
Description:	AC/DC Adaptor
Brand name:	BI
Model Name or Number:	BI30-120200-AdU
Connected to EUT's Port:	Test jig of the EUT

**EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS**

**3.1. CLIMATE TEST CONDITIONS**

The climate conditions of the test environment are as follows:

Temperature:	20°C to 24°C
Humidity:	30% to 65%
Pressure:	98 to 110 kPa
Power Input Source:	3.3 VDC

**3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TESTS**

<b>Operating Modes:</b>	<ul style="list-style-type: none"> <li>▪ Each of lowest, middle and highest channel frequencies transmits continuously for emissions measurements.</li> <li>▪ The EUT operates in normal Frequency Hopping mode for occupancy duration, and frequency separation.</li> </ul>
<b>Special Test Software &amp; Hardware:</b>	Test software provided by the Applicant is installed to allow the EUT to operate in hopping mode or at each channel frequency continuously. For example, the transmitter will be operated at each of lowest, middle and highest frequencies individually continuously during testing.
<b>Transmitter Test Antenna:</b>	The EUT is tested with the antenna fitted in a manner typical of normal intended use as non-integral antenna equipment as described with the test results.

<b>Transmitter Test Signals</b>	
<b>Frequency Band(s):</b>	2401.6 – 2477.6 MHz
<b>Frequency(ies) Tested:</b> (Near lowest, near middle & near highest frequencies in the frequency range of operation.)	2401.6, 2439.6 and 2477.6 MHz
<b>RF Power Output:</b> (measured maximum output power at antenna terminals)	1 W (conducted)
<b>Normal Test Modulation:</b>	See test data
<b>Modulating Signal Source:</b>	Internal

## EXHIBIT 4. SUMMARY OF TEST RESULTS

### 4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Power Line Conducted Emissions were performed in UltraTech's shielded room, 24'(L) by 16'(W) by 8'(H).
- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with FCC office (FCC File No.: 91038) and Industry Canada office (Industry Canada File No.: 2049A-3). Expiry Date: 2017-04-02.

### 4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

FCC Section(s)	Test Requirements	Compliance (Yes/No)
15.203	Antenna requirements	Yes
15.207(a)	AC Power Line Conducted Emissions	N/A
15.247(a)	Provisions for Frequency Hopping Systems	N/A
15.247(b)(2)	Peak Conducted Output Power	Yes
15.247(d), 15.209 & 15.205	Transmitter Spurious Radiated Emissions	Yes
15.247(i), 1.1307, 1.1310, 2.1091	RF Exposure	N/A

### 4.3. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None.



**EXHIBIT 5. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS**

**5.1. PEAK CONDUCTED OUTPUT POWER [§ 15.247(b)(2)]**

**5.1.1. Limits**

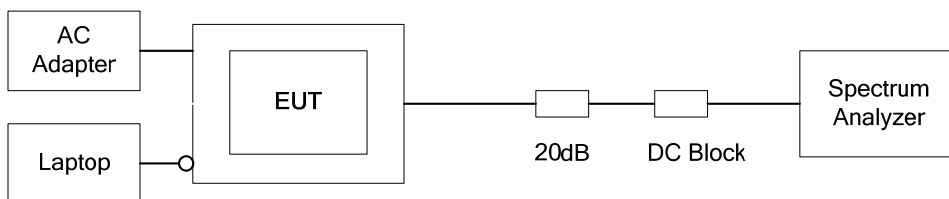
**§15.247(b)(1):** For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

**§15.247(b)(4):** The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**5.1.2. Method of Measurements**

FCC Public Notice DA 00-705 and ANSI C63.10.

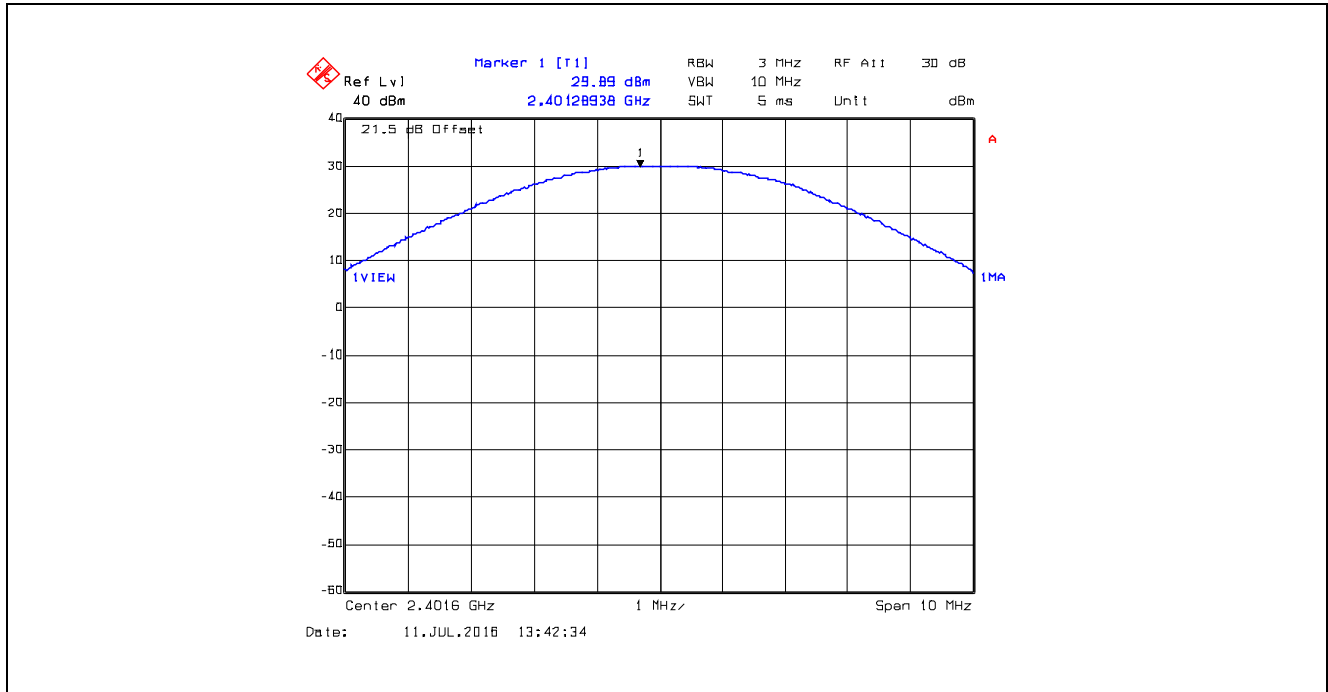
**5.1.3. Test Arrangement**



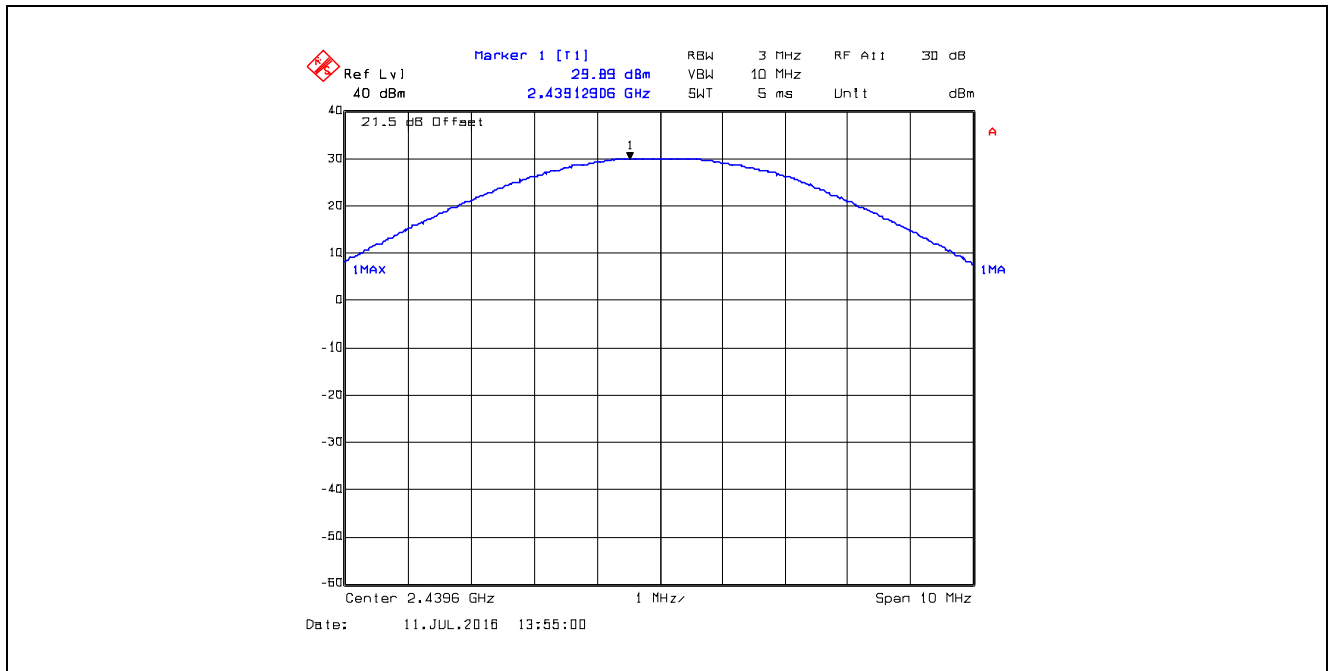
**5.1.4. Test Data**

Test Configuration: EUT with 2.5 dBi Dipole Antenna Power Setting: High (Raw power 50) Data Rate: High					
Frequency (MHz)	Peak Output Power at Antenna Terminal (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Peak Conducted Output Power Limit (dBm)	EIRP Limit (dBm)
2401.6	29.89	2.5	32.39	30	36
2439.6	29.89	2.5	32.39	30	36
2477.6	29.89	2.5	32.39	30	36

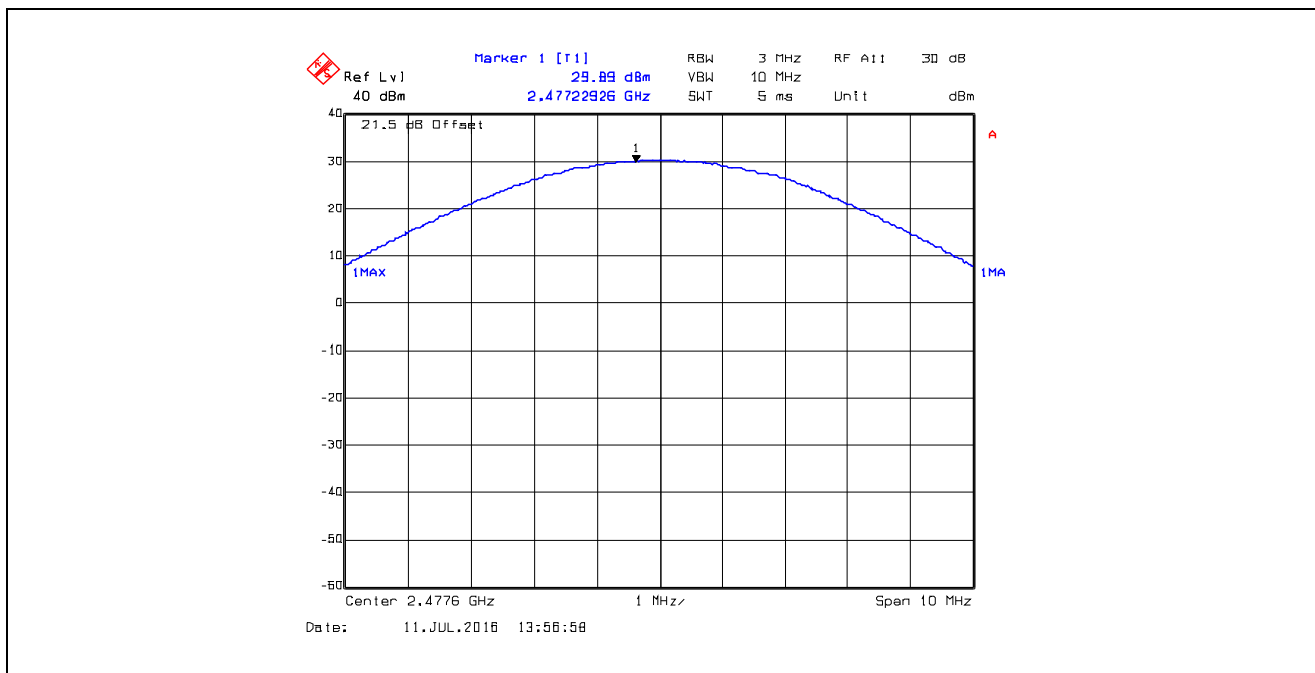
**Plot 5.1.4.1. Peak Conducted Output Power**  
2401.6 MHz, High Data Rate, Power Scheme Raw, Raw Power 50



**Plot 5.1.4.2. Peak Conducted Output Power**  
2439.6 MHz, High Data Rate, Power Scheme Raw, Raw Power 50



**Plot 5.1.4.3. Peak Conducted Output Power**  
2477.6 MHz, High Data Rate, Power Scheme Raw, Raw Power 50



**5.2. TRANSMITTER SPURIOUS RADIATED EMISSIONS AT 3 METERS [§§ 15.247(d), 15.209 & 15.205]**

**5.2.1. Limit**

§ 15.247 (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)).

**Section 15.205(a) - Restricted Bands of Operation**

MHz	MHz	MHz	GHz
0.090–0.110 .....	16.42–16.423	399.9–410	4.5–5.15
<sup>1</sup> 0.495–0.505 .....	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905 .....	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128 .....	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775 .....	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775 .....	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218 .....	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825 .....	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225 .....	123–138	2200–2300	14.47–14.5
8.291–8.294 .....	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366 .....	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675 .....	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475 .....	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293 .....	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025 .....	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725 .....	322–335.4	3600–4400	( <sup>2</sup> )
13.36–13.41.			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.

<sup>2</sup> Above 38.6

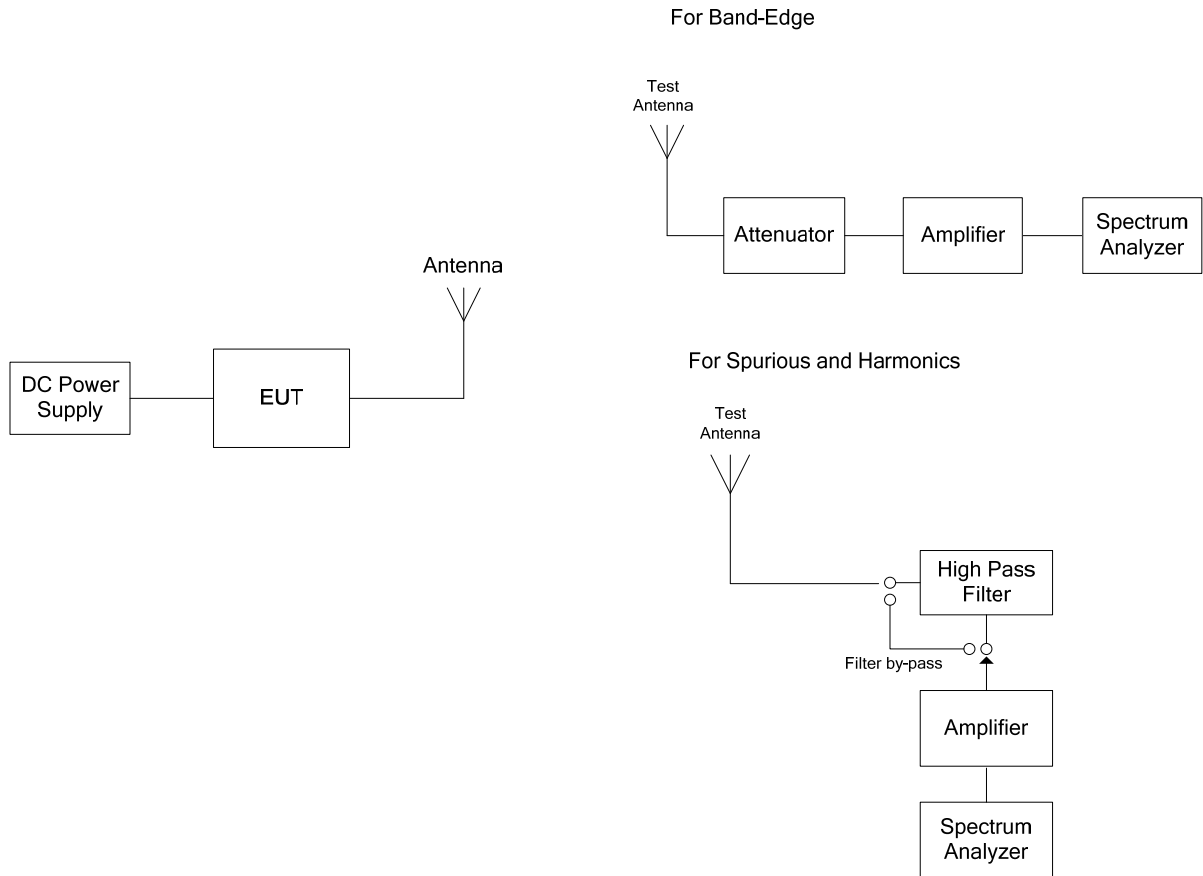
**Section 15.209(a) - Field Strength Limits within Restricted Frequency Bands**

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2,400 / F (kHz)	300
0.490 - 1.705	24,000 / F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

### 5.2.2. Method of Measurements

FCC Public Notice DA 00-705, ANSI C63.10 and ANSI 63.4 procedures.

### 5.2.3. Test Arrangement



**5.2.4. Test Data**

**Remark(s):**

- All spurious emissions that are in excess of 20 dB below the specified limit shall be recorded.
- EUT shall be tested in three orthogonal positions.
- Test conducted high power setting and high data rate for worst-case test configuration.

**5.2.4.1. EUT with 2.5 dBi Dipole Antenna**

**5.2.4.1.1. Spurious Radiated Emissions**

Fundamental Frequency:		2401.6 MHz					
Measured Conducted Power:		29.89 dBm					
Frequency Test Range:		30 MHz - 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2401.6	130.66	--	V	--	--	--	--
2401.6	126.38	--	H	--	--	--	--
4803.2	54.34	49.39	V	54.0	110.7	-4.6	Pass*
4803.2	54.36	49.75	H	54.0	110.7	-4.3	Pass*
12008.0	54.67	41.97	V	54.0	110.7	-12.0	Pass*
12008.0	55.04	42.46	H	54.0	110.7	-11.5	Pass*
All other spurious emissions and harmonics are more than 20 dB below the applicable limit.							

\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

Fundamental Frequency:		2439.6 MHz					
Measured Conducted Power:		29.89 dBm					
Frequency Test Range:		30 MHz - 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2439.6	130.21	--	V	--	--	--	--
2439.6	127.55	--	H	--	--	--	--
4879.2	53.28	47.65	V	54.0	110.2	-6.4	Pass*
4879.2	52.27	43.93	H	54.0	110.2	-10.1	Pass*
7318.8	54.86	45.08	V	54.0	110.2	-8.9	Pass*
7318.8	54.90	45.59	H	54.0	110.2	-8.4	Pass*
12198.0	55.01	41.90	V	54.0	110.2	-12.1	Pass*
12198.0	55.87	42.11	H	54.0	110.2	-11.9	Pass*
All other spurious emissions and harmonics are more than 20 dB below the applicable limit.							

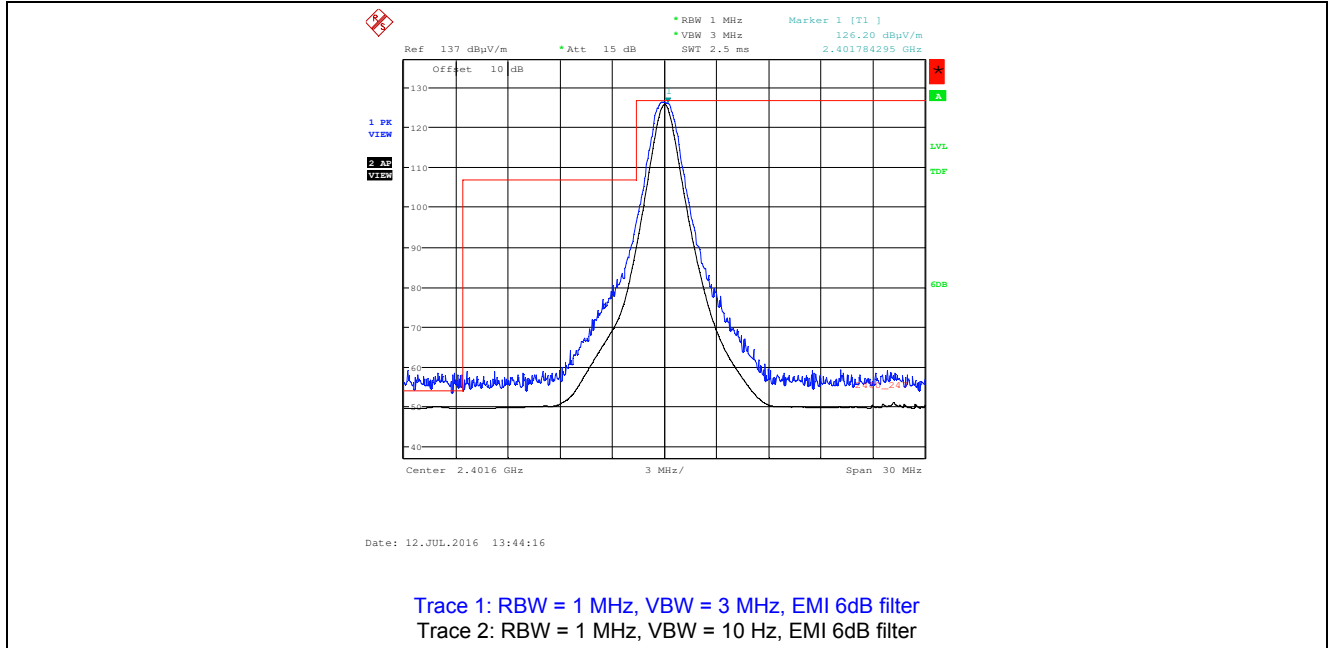
\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

Fundamental Frequency:		2477.6 MHz					
Measured Conducted Power:		29.89 dBm					
Frequency Test Range:		30 MHz – 25 GHz					
Frequency (MHz)	RF Peak Level (dBµV/m)	RF Avg Level (dBµV/m)	Antenna Plane (H/V)	Limit 15.209 (dBµV/m)	Limit 15.247 (dBµV/m)	Margin (dB)	Pass/Fail
2477.6	129.72	--	V	--	--	--	--
2477.6	127.86	--	H	--	--	--	--
4955.2	52.98	46.28	V	54.0	109.7	-7.7	Pass*
7432.8	55.02	46.13	V	54.0	109.7	-7.9	Pass*
12388.0	55.36	42.47	V	54.0	109.7	-11.5	Pass*
4955.2	51.22	42.81	H	54.0	109.7	-11.2	Pass*
7432.8	56.26	48.68	H	54.0	109.7	-5.3	Pass*
12388.0	55.84	42.77	H	54.0	109.7	-11.2	Pass*
All other spurious emissions and harmonics are more than 20 dB below the applicable limit.							

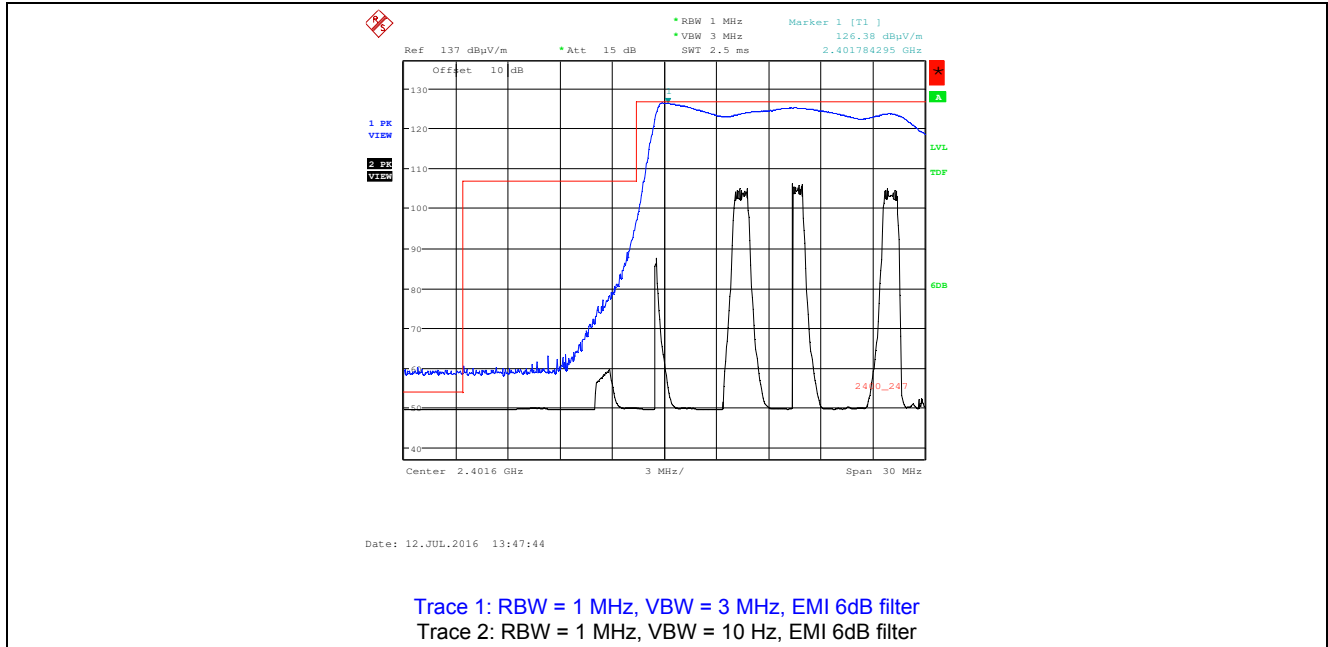
\*Field strength of emissions appearing within restricted frequency bands shall not exceed the limits in § 15.209.

5.2.4.1.2. Band –Edge RF Radiated Emissions

Plot 5.2.4.1.2.1. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization  
Single Frequency Mode, Low End of Frequency Band

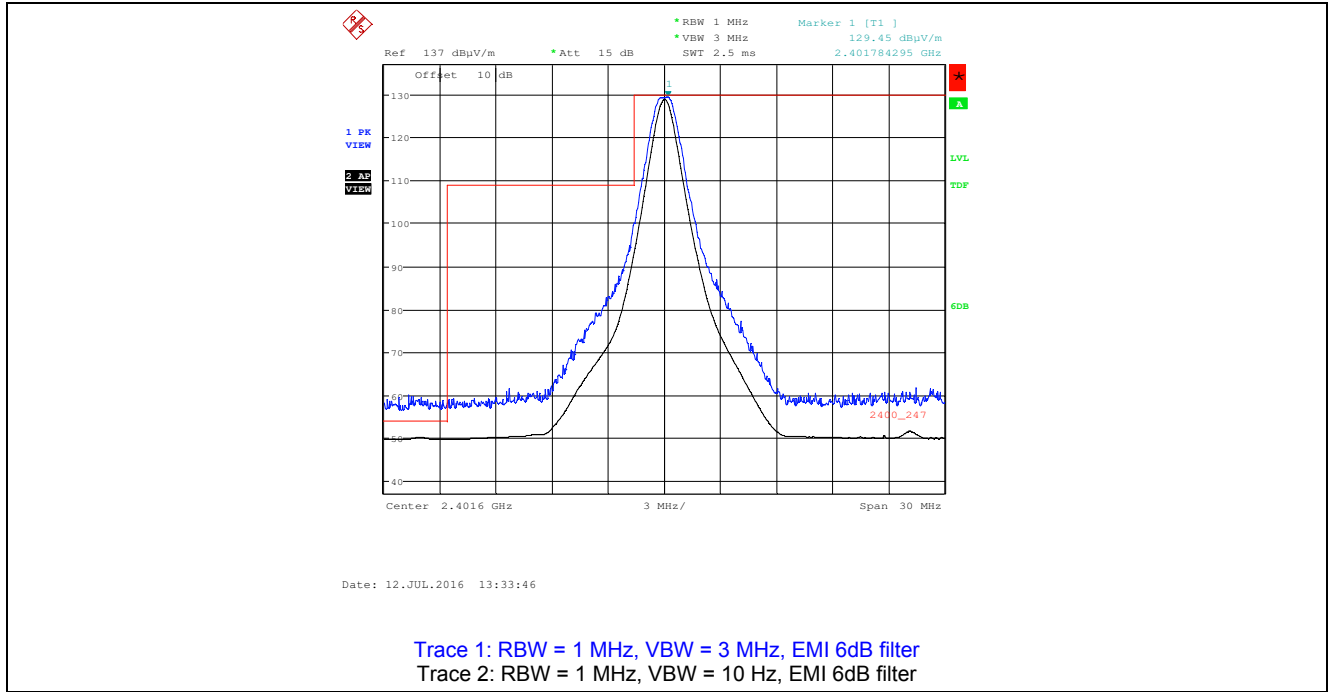


Plot 5.2.4.1.2.2. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization  
Pseudorandom Channel Hopping Mode, Low End of Frequency Band

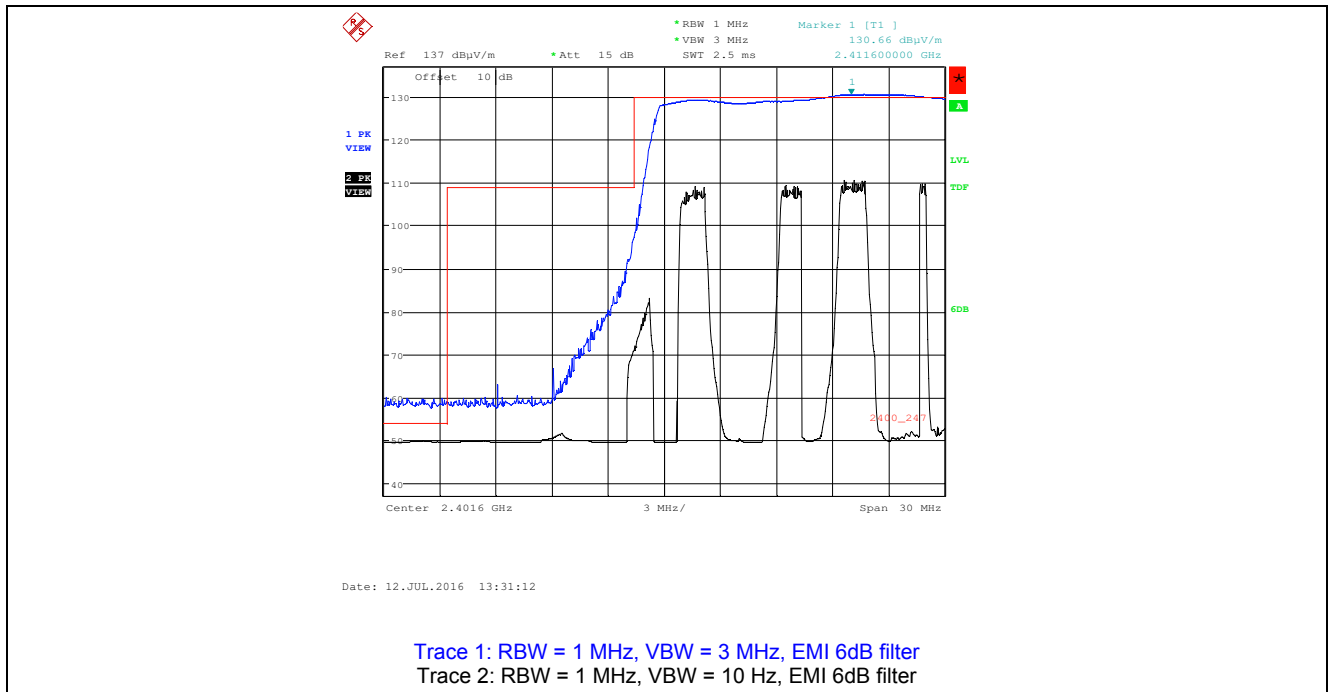




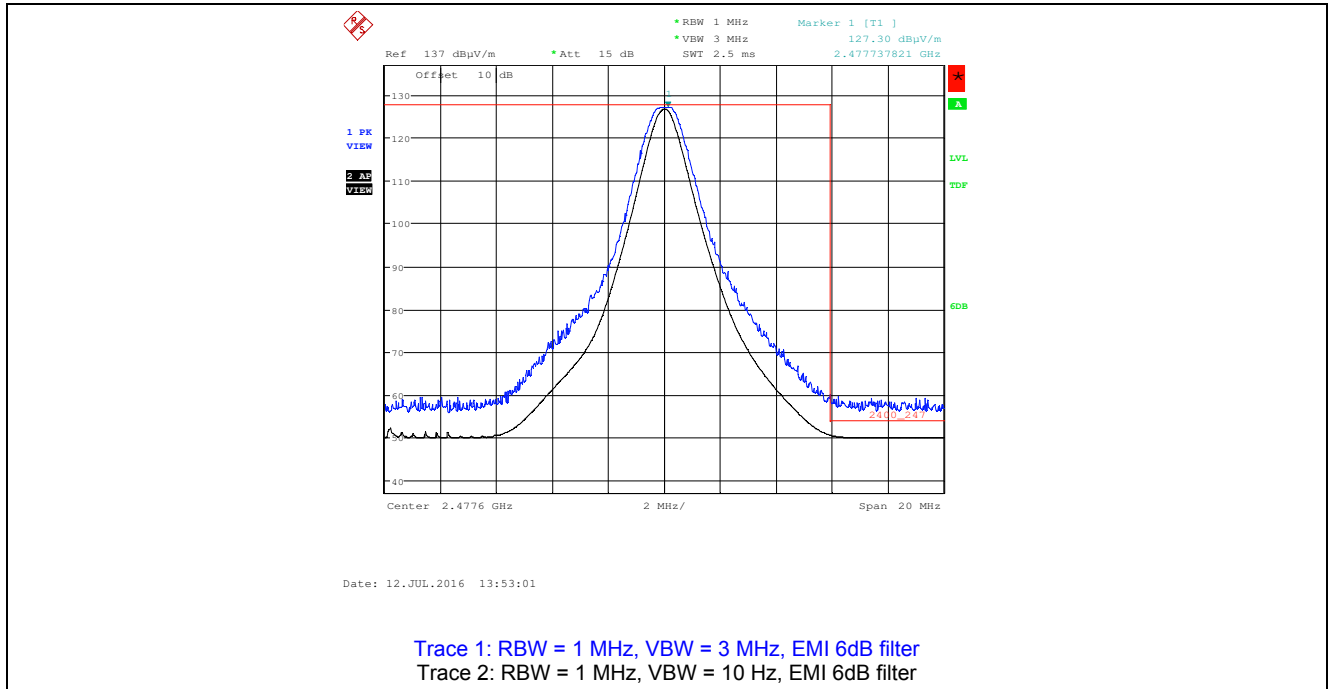
Plot 5.2.4.1.2.3. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization  
Single Frequency Mode, Low End of Frequency Band



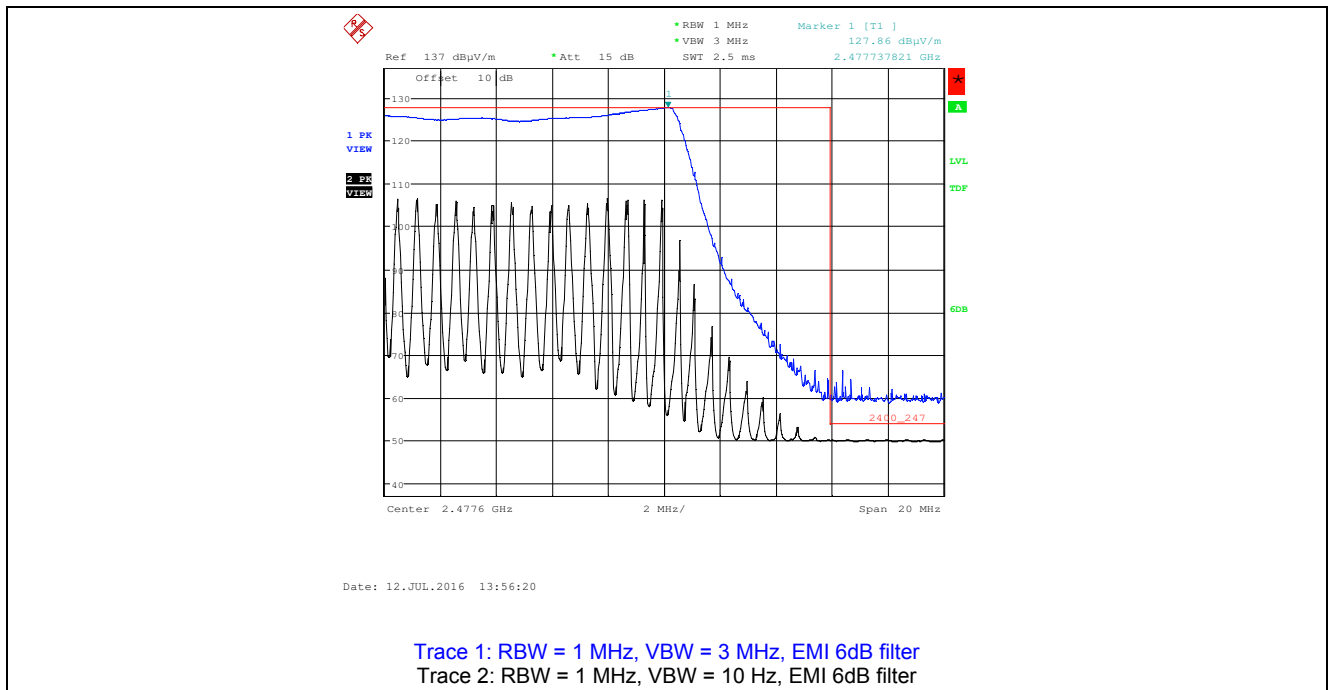
Plot 5.2.4.1.2.4. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization  
Pseudorandom Channel Hopping Mode, Low End of Frequency Band



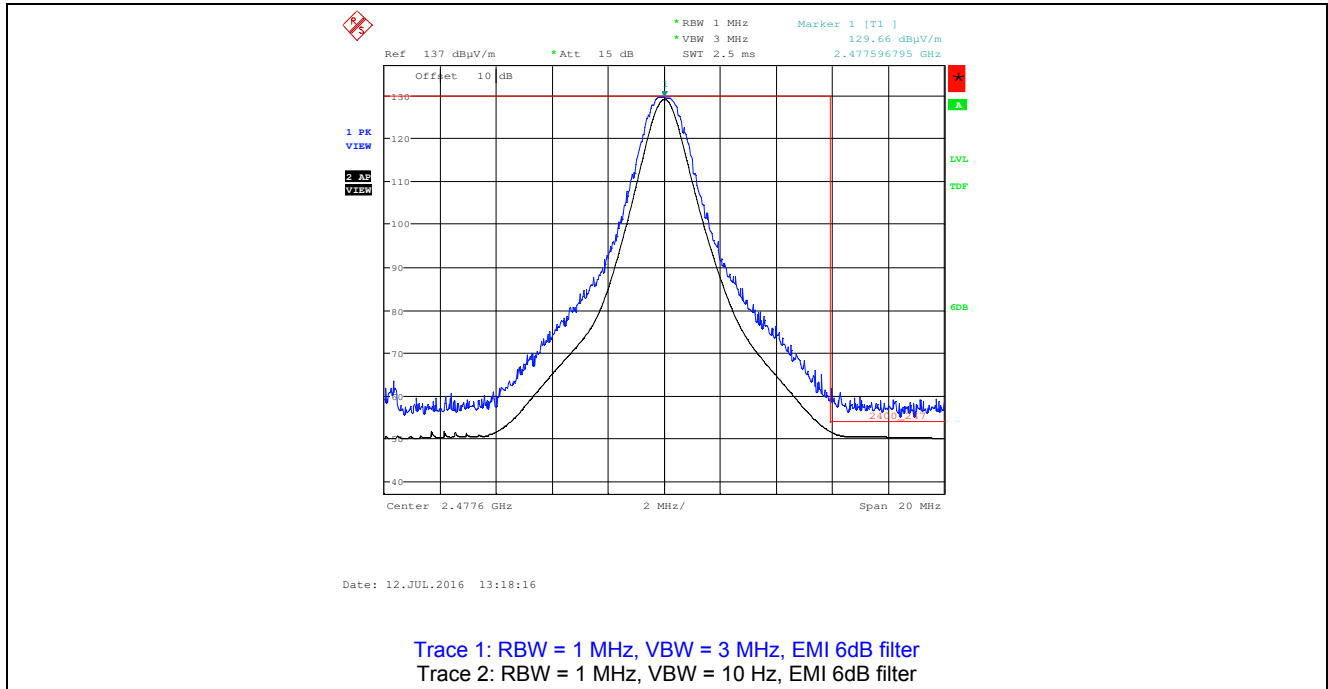
**Plot 5.2.4.1.2.5. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization  
 Single Frequency Mode, High End of Frequency Band**



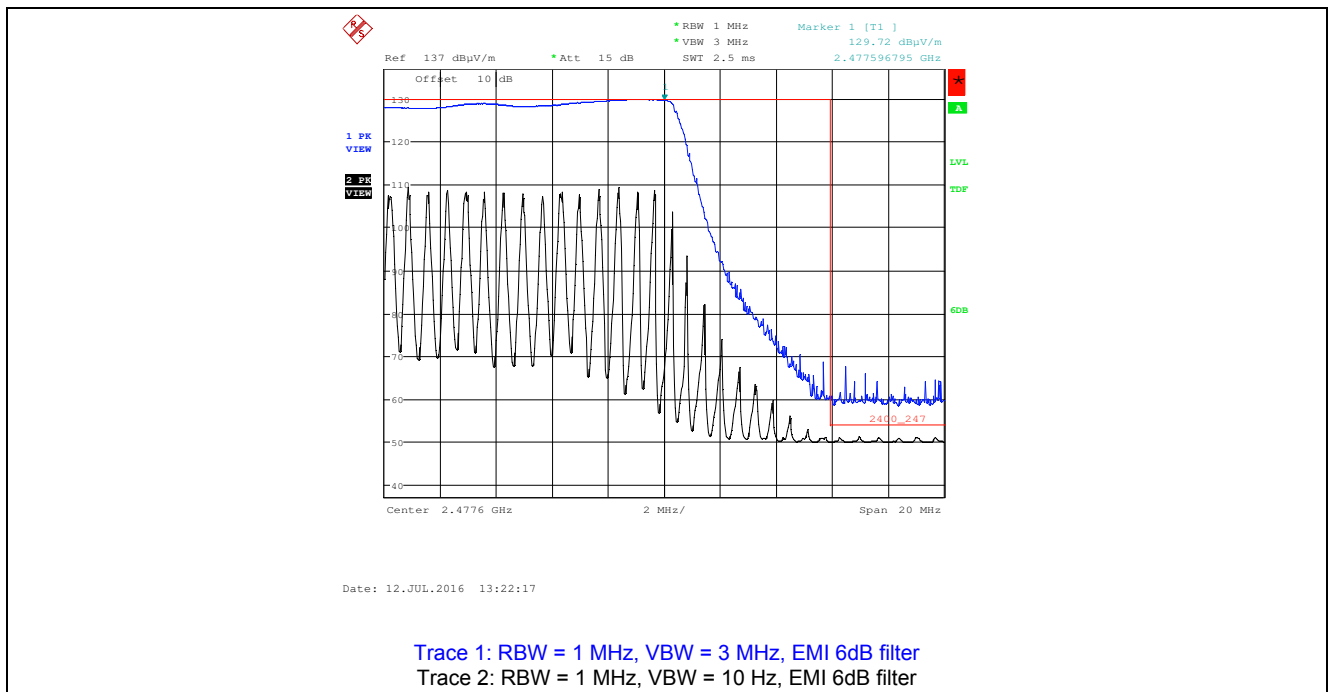
**Plot 5.2.4.1.2.6. Band-Edge RF Radiated Emissions at 3 m, Horizontal Polarization  
 Pseudorandom Channel Hopping Mode, High End of Frequency Band**



**Plot 5.2.4.1.2.7. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization  
 Single Frequency Mode, High of Frequency Band**



**Plot 5.2.4.1.2.8. Band-Edge RF Radiated Emissions at 3 m, Vertical Polarization  
 Pseudorandom Channel Hopping Mode, High End of Frequency Band**



**EXHIBIT 6. TEST EQUIPMENT LIST**

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSEK30	100077	20 Hz - 40 GHz	21 Nov 2016
DC Block	Hewlett Packard	11742A	12460	0.045 – 26.5 GHz	Cal on use
Attenuator	Pasternack	7024-20	6	DC–26.5 GHz	Cal on use
EMI Receiver	Rohde & Schwarz	ESU40	100037	20 Hz–40 GHz	08 May 2017
RF Amplifier	Com-Power	PAM-0118A	551052	0.5 – 18 GHz	13 Jul 2016
RF Amplifier	Hewlett Packard	84498	3008A00769	1 – 26.5 GHz	05 May 2017
Biconilog	EMCO	3142	9601-1005	26-1000 MHz	12 May 2017
Horn Antenna	EMCO	3155	6570	1 – 18 GHz	11 Sep 2016
Horn Antenna	EMCO	3160-09	118385	18 – 26.5 GHz	04 Aug 2016
High Pass Filter	K & L	11SH10-4000/T12000	4	Cut off 2400 MHz	Cal on use
Band Reject Filter	Micro-Tronics	BRM50701	105	Cut off 2.4-2.483 GHz	Cal on use
Spectrum Analyzer	Rohde & Schwarz	FSU26	100398	20 Hz – 26.5 GHz	14 Sep 2017
Attenuator	Pasternack	PE7024-10	4	DC – 26.5 GHz	Cal on use

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*All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)*

**EXHIBIT 7. MEASUREMENT UNCERTAINTY**

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2003 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement.

**7.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY**

	Line Conducted Emission Measurement Uncertainty (9 kHz – 30 MHz):	Measured	Limit
<b>u<sub>c</sub></b>	<b>Combined standard uncertainty:</b> $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 1.44	± 1.8
<b>U</b>	<b>Expanded uncertainty U:</b> $U = 2u_c(y)$	± 2.89	± 3.6

**7.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY**

	Radiated Emission Measurement Uncertainty @ 3m, Horizontal (30-1000 MHz):	Measured (dB)	Limit (dB)
<b>u<sub>c</sub></b>	<b>Combined standard uncertainty:</b> $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 2.39	± 2.6
<b>U</b>	<b>Expanded uncertainty U:</b> $U = 2u_c(y)$	± 4.79	± 5.2

	Radiated Emission Measurement Uncertainty @ 3m, Vertical (30-1000 MHz):	Measured (dB)	Limit (dB)
<b>u<sub>c</sub></b>	<b>Combined standard uncertainty:</b> $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 2.39	± 2.6
<b>U</b>	<b>Expanded uncertainty U:</b> $U = 2u_c(y)$	± 4.78	± 5.2

	Radiated Emission Measurement Uncertainty @ 3 m, Horizontal & Vertical (1 – 18 GHz):	Measured (dB)	Limit (dB)
<b>u<sub>c</sub></b>	<b>Combined standard uncertainty:</b> $u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)}$	± 1.87	Under consideration
<b>U</b>	<b>Expanded uncertainty U:</b> $U = 2u_c(y)$	± 3.75	Under consideration