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Report No.: SZEM170700767503  
Page: 1 of 184

# TEST REPORT

**Application No.:** SZEM1707007675CR(GZEM1707004474CR)  
**Applicant:** Harman International Industries, Inc.  
**Address of Applicant:** 8500 Balboa Boulevard Northridge California 91329 United States  
**Manufacturer:** Harman International Industries, Inc.  
**Address of Manufacturer:** 8500 Balboa Boulevard Northridge California 91329 United States  
**Factory:** Guoguang Electric Co.,Ltd.  
**Address of Factory:** No.8 Jinghu Road, Xinya Street, Huadu Reg, Guangzhou, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Voice-activated Speaker  
**Model No.:** LINK 300  
**Trade mark:** JBL  
**FCC ID:** APIJBLLINK300  
**Standards:** 47 CFR Part 15, Subpart C 15.247 (2016)  
**Date of Receipt:** 2017-07-20  
**Date of Test:** 2017-07-25 to 2017-08-16  
**Date of Issue:** 2017-08-24

<b>Test Result :</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.



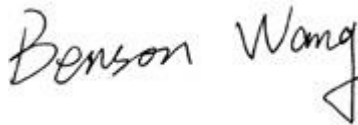
Jack Zhang  
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2017-08-24		Original

<b>Authorized for issue by:</b>				
				
		<hr/> <b>Benson Wang /Project Engineer</b>		
				
		<hr/> <b>Eric Fu /Reviewer</b>		



## 2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.4	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	Input: AC 100-240V, 50/60Hz, 1.5A Output: DC 19V, 3A From Adapter Model: NSA60ED-190300, NDT19V-3C-DC (Pretest the EUT with two adapters and found the model NSA60ED-190300 which is the worst case adapter, So only the the model NSA60ED-190300 test data is recorded in the report.)
Cable:	AC cable 170cm unshielded DC cable of the Adapter NSA60ED-190300: 100cm unshielded with one ferrite core. DC cable of the Adapter NDT19V-3C-DC: 100cm unshielded.
Type of Modulation:	IEEE for 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE for 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n (HT20 and HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)
Operating Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Number:	IEEE 802.11b/g, IEEE 802.11n(HT20): 11 Channels IEEE 802.11n(HT40): 7 Channels
Channels Step:	Channels with 5MHz step
Sample Type:	Mobile device
Antenna Type:	PIFA Antenna
Antenna Gain:	Antenna 1: 2.0dBi; Antenna 2: 2.0dBi Two antennas can not synchronous transmission.



Channel list for 802.11b/g/n(HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Channel list for 802.11n(HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
3	2422MHz	5	2432MHz	7	2442MHz	9	2452MHz
4	2427MHz	6	2437MHz	8	2447MHz		

Selected Test Channel for 802.11b/g/n(HT20)	
Channel	Frequency
The lowest channel (CH1)	2412MHz
The middle channel (CH6)	2437MHz
The highest channel (CH11)	2462MHz

Selected Test Channel for 802.11n(HT40)	
Channel	Frequency
The lowest channel (CH3)	2422MHz
The middle channel (CH6)	2437MHz
The highest channel (CH9)	2452MHz

## 4.2 Description of Support Units

The EUT has been tested as an independent unit.

## 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$7.25 \times 10^{-8}$
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	RF Radiated power	4.5dB (below 1GHz)
		4.8dB (above 1GHz)
8	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
9	Temperature test	1 °C
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	3%





#### **4.4 Test Location**

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.  
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### **4.5 Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

#### **4.6 Deviation from Standards**

None

#### **4.7 Abnormalities from Standard Conditions**

None



## 5 Equipment List

<b>Conducted Emissions at AC Power Line (150kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2017-05-10	2018-05-10
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A
LISN	Rohde & Schwarz	ENV216	SEM007-01	2016-10-09	2017-10-09
LISN	ETS-LINDGREN	3816/2	SEM007-02	2017-04-14	2018-04-13
8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN- T8-02	EMC0120	2016-09-28	2017-09-28
4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN- T4-02	EMC0121	2016-09-28	2017-09-28
2 Line ISN	Fischer Custom	FCC-TLISN- T2-02	EMC0122	2016-09-28	2017-09-28
Coaxial Cable	SGS	N/A	SEM024-01	2017-07-13	2018-07-12

<b>RF Conducted Test</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Signal Generator	Rohde & Schwarz	SML03	SEM006-02	2017-04-14	2018-04-13
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09
Coaxial Cable	SGS	N/A	SEM031-01	2017-07-13	2018-07-12

<b>RE in Chamber</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2017-05-02	2020-05-01
Measurement Software	AUDIX	e3 V8.2014- 6-27	N/A	N/A	N/A
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2017-04-14	2018-04-13
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2017-03-05	2020-03-05
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
Horn Antenna(15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-14	2017-06-16	2020-06-15
Pre-amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2016-10-09	2017-10-09
Low Noise Amplifier(100MHz-18GHz)	Black Series Diamond	BDLNA- 0118-352810	SEM005-05	2016-10-09	2017-10-09



Pre-amplifier(0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-10	2016-10-17	2017-10-17
Pre-amplifier(26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2017-04-14	2018-04-13
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2015-08-14	2018-08-14
Band filter	N/A	N/A	SEM023-01	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2017-07-13	2018-07-12

<b>RE in Chamber</b>					
<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal. Date (yyyy-mm-dd)</b>	<b>Cal. Due date (yyyy-mm-dd)</b>
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-05-10	2018-05-10
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2017-03-05	2020-03-05
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-13
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2017-07-13	2018-07-12

<b>General used equipment</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2017-04-18	2018-04-18

## 6 Radio Spectrum Technical Requirement

### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(c)

#### 6.1.2 Conclusion

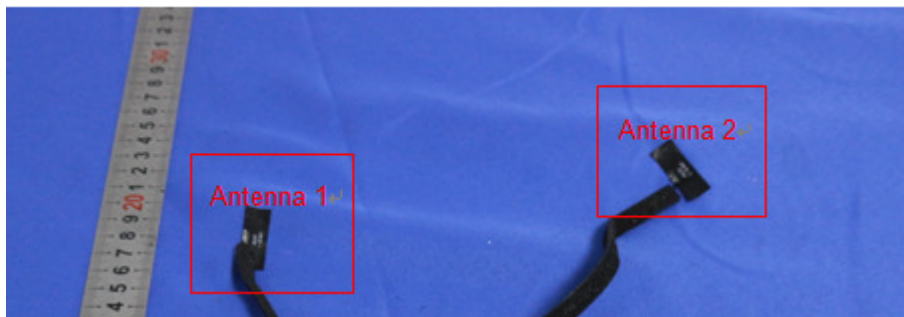
Standard Requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

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.

EUT Antenna:



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna 1 is 2.0dBi and antenna 2 is 2.0dBi.

Pretest the EUT at antenna 1 and antenna 2 and found the antenna 2 which is worst case, So, Only the antenna 2 test data is recorded in the report.



## 7 Radio Spectrum Matter Test Results

### 7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207  
Test Method: ANSI C63.10 (2013) Section 6.2  
Limit:

Frequency of emission(MHz)	Conducted limit(dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

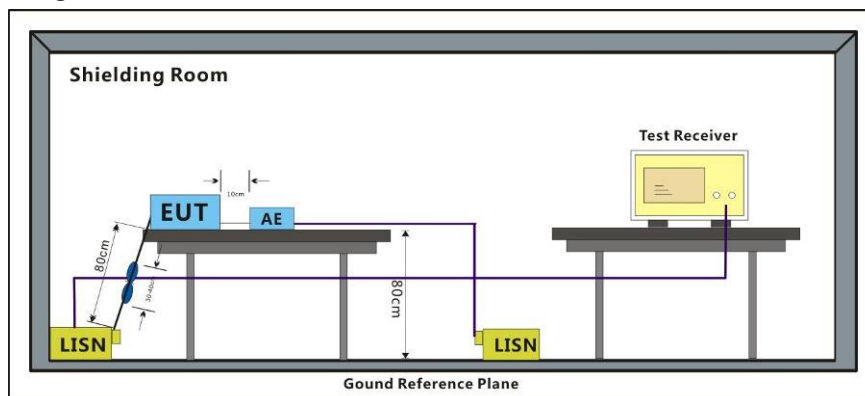
### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C      Humidity: 56 % RH      Atmospheric Pressure: 1005 mbar

Pretest these g:TX mode\_ Keep the EUT in continuously transmitting mode with all modulation modes to find the worst case: types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

### 7.1.2 Test Setup Diagram



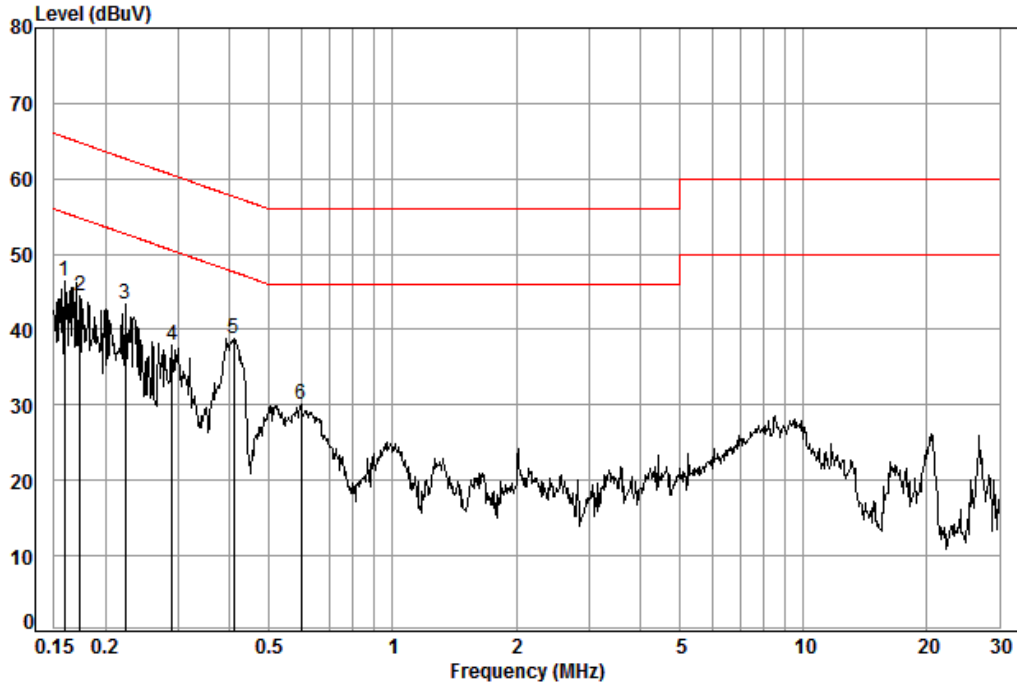
### 7.1.3 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor



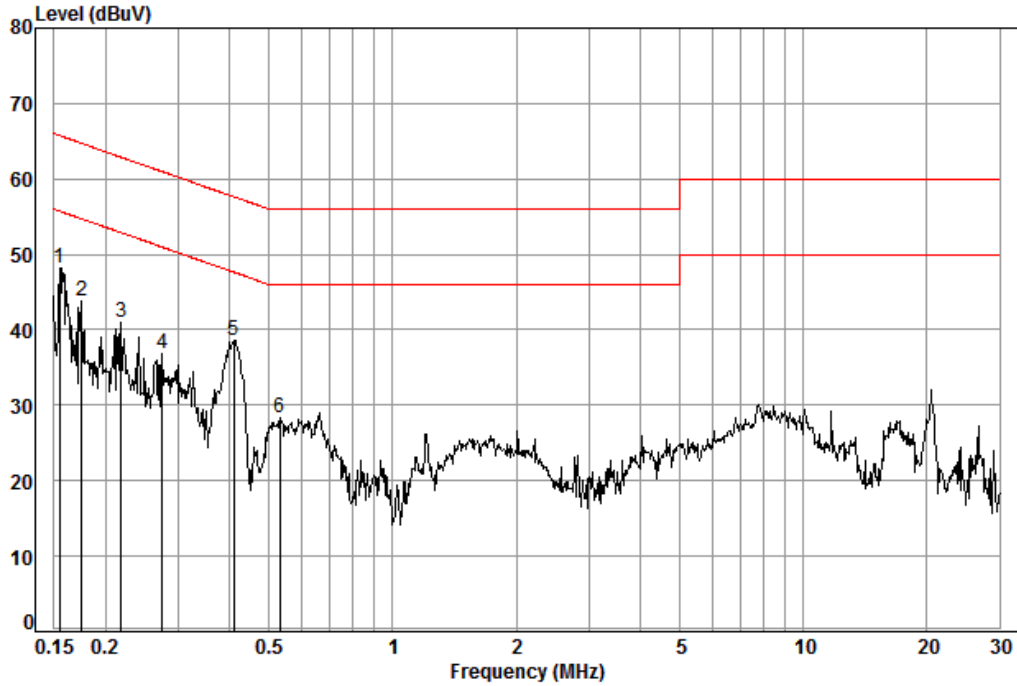
Mode:g; Line:Live Line



Site : Shielding Room  
Condition: Line  
Job No. : 07675CR  
Test mode: g

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.02	9.64	36.81	46.47	55.52	-9.05	Peak
2	0.17	0.02	9.63	34.80	44.45	54.81	-10.36	Peak
3	0.22	0.02	9.63	33.66	43.31	62.70	-19.39	QP
4	0.29	0.01	9.63	28.26	37.90	50.50	-12.60	Peak
5	0.41	0.01	9.63	29.14	38.78	47.64	-8.86	Peak
6	0.60	0.02	9.63	20.53	30.18	46.00	-15.82	Peak

Mode:g; Line:Neutral Line



Site : Shielding Room  
Condition: Neutral  
Job No. : 07675CR  
Test mode: g

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15	0.02	9.64	38.58	48.24	55.74	-7.50	Peak
2	0.17	0.02	9.63	34.08	43.73	54.72	-10.99	Peak
3	0.22	0.02	9.63	31.27	40.92	52.88	-11.96	Peak
4	0.27	0.01	9.63	27.17	36.81	50.98	-14.17	Peak
5	0.41	0.01	9.63	28.96	38.60	47.64	-9.04	Peak
6	0.53	0.01	9.63	18.73	28.37	46.00	-17.63	Peak



**7.2 Minimum 6dB Bandwidth**

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)  
Test Method: ANSI C63.10 (2013) Section 11.8.1  
Limit:  $\geq 500$  kHz

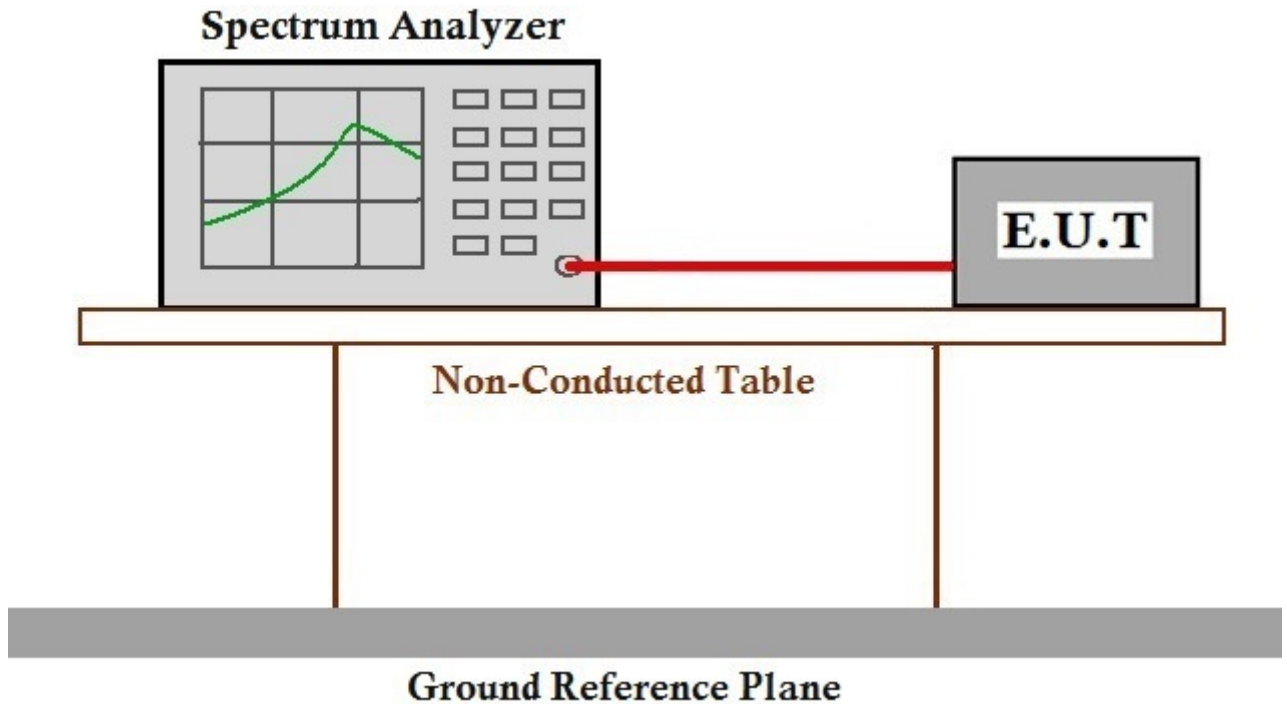
**7.2.1 E.U.T. Operation**

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1000 mbar

Test mode g:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

**7.2.2 Test Setup Diagram**



**7.2.3 Measurement Procedure and Data**

The detailed test data see: Appendix 15.247



### 7.3 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)  
Test Method: ANSI C63.10 (2013) Section 11.9.1.2  
Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for $\geq 50$ hopping channels
	0.25 for $25 \leq$ hopping channels $< 50$
	1 for digital modulation
2400-2483.5	1 for $\geq 75$ non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

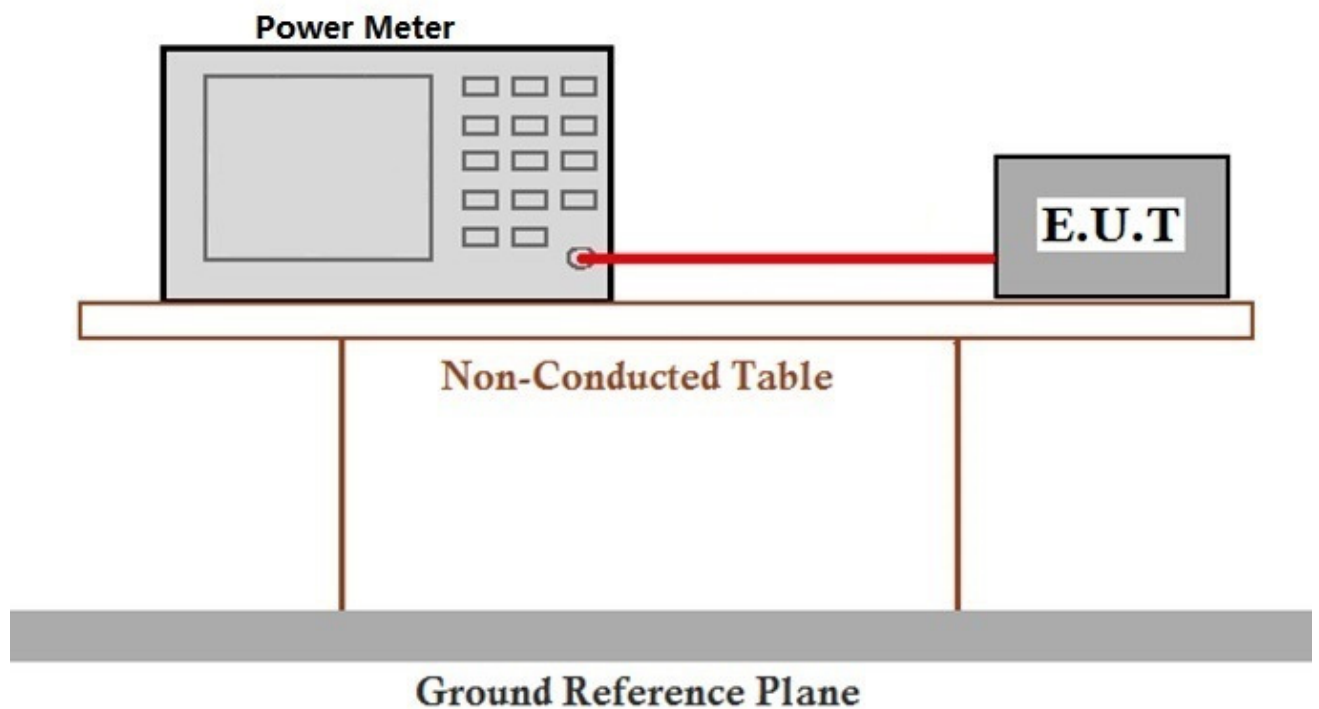
**7.3.1 E.U.T. Operation**

Operating Environment:

Temperature: 25 °C      Humidity: 55 % RH      Atmospheric Pressure: 1000 mbar

Test mode g:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

**7.3.2 Test Setup Diagram**



**7.3.3 Measurement Procedure and Data**

The detailed test data see: Appendix 15.247

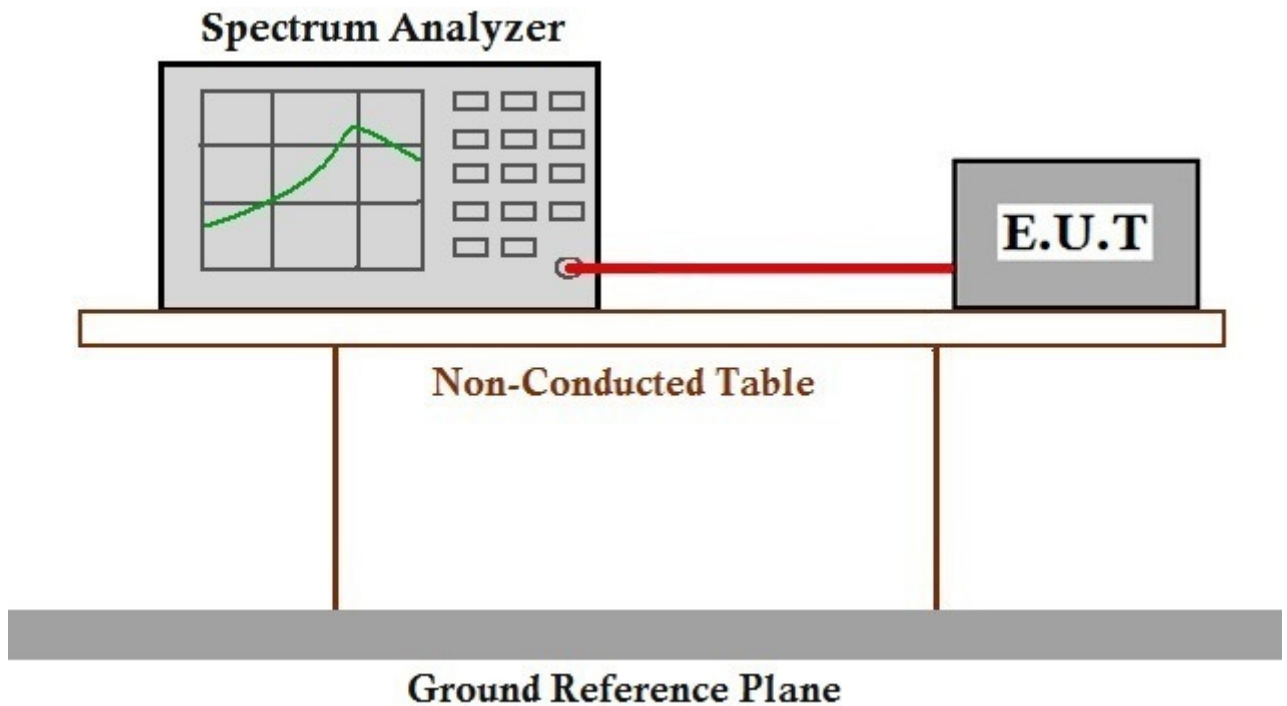
**7.4 Power Spectrum Density**

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)  
 Test Method: ANSI C63.10 (2013) Section 11.10.2  
 Limit: ≤8dBm in any 3 kHz band during any time interval of continuous transmission

**7.4.1 E.U.T. Operation**

Operating Environment:  
 Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1000 mbar  
 Test mode g:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

**7.4.2 Test Setup Diagram**



**7.4.3 Measurement Procedure and Data**

The detailed test data see: Appendix 15.247

**7.5 Conducted Band Edges Measurement**

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 11.13.3.2

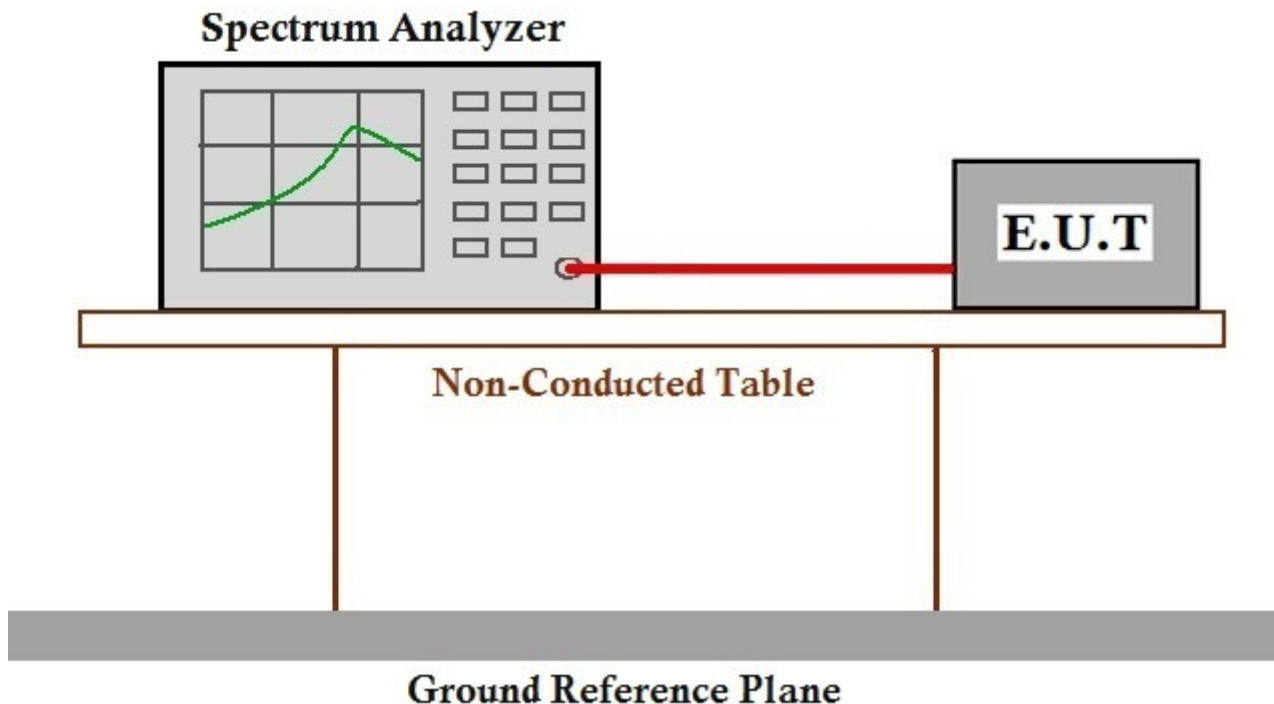
**7.5.1 E.U.T. Operation**

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1000 mbar

Test mode g:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

**7.5.2 Test Setup Diagram**



**7.5.3 Measurement Procedure and Data**

The detailed test data see: Appendix 15.247

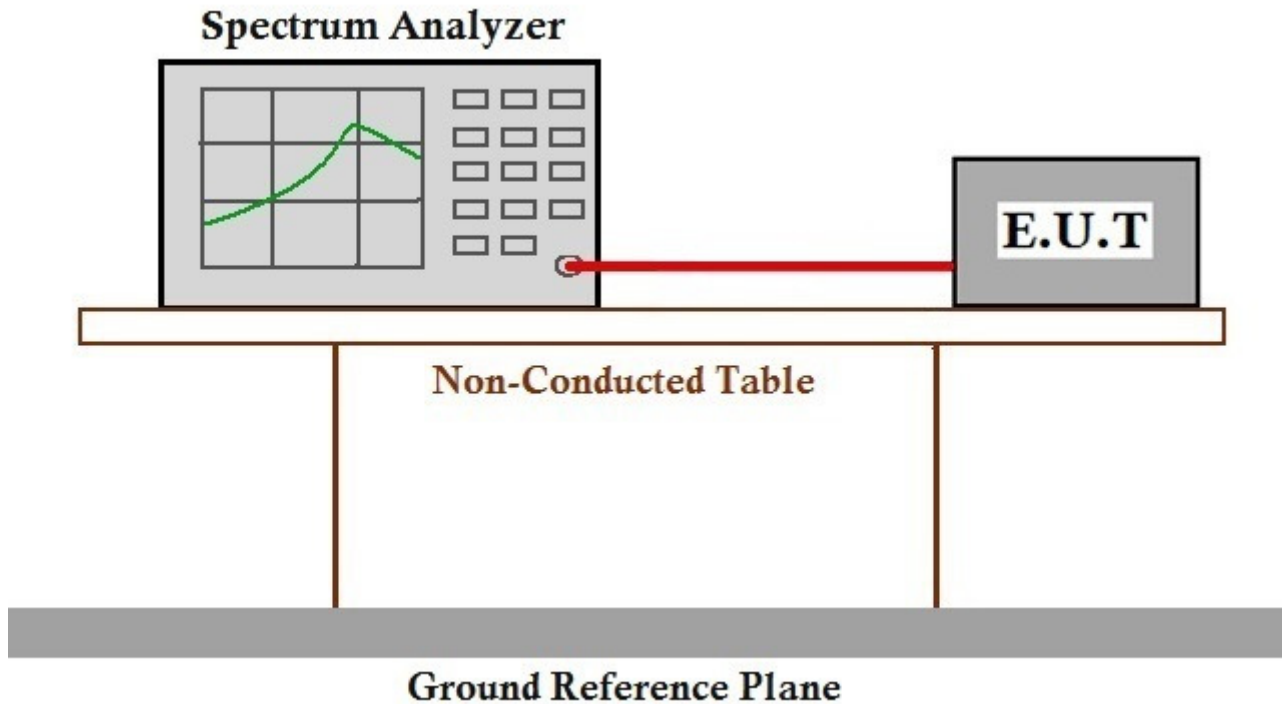
**7.6 Conducted Spurious Emissions**

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)  
 Test Method: ANSI C63.10 (2013) Section 11.11  
 Limit: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.

**7.6.1 E.U.T. Operation**

Operating Environment:  
 Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1000 mbar  
 Test mode g:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

**7.6.2 Test Setup Diagram**



**7.6.3 Measurement Procedure and Data**

The detailed test data see: Appendix 15.247

### 7.7 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)  
Test Method: ANSI C63.10 (2013) Section 6.10.5  
Measurement Distance: 3m

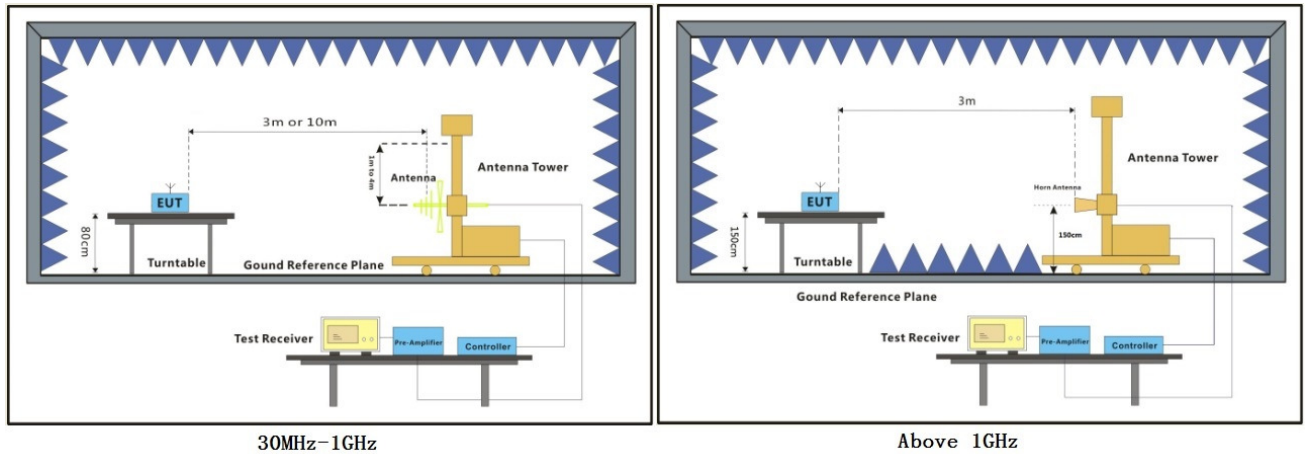
#### 7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1000 mbar

Pretest these g:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

#### 7.7.2 Test Setup Diagram





### **7.7.3 Measurement Procedure and Data**

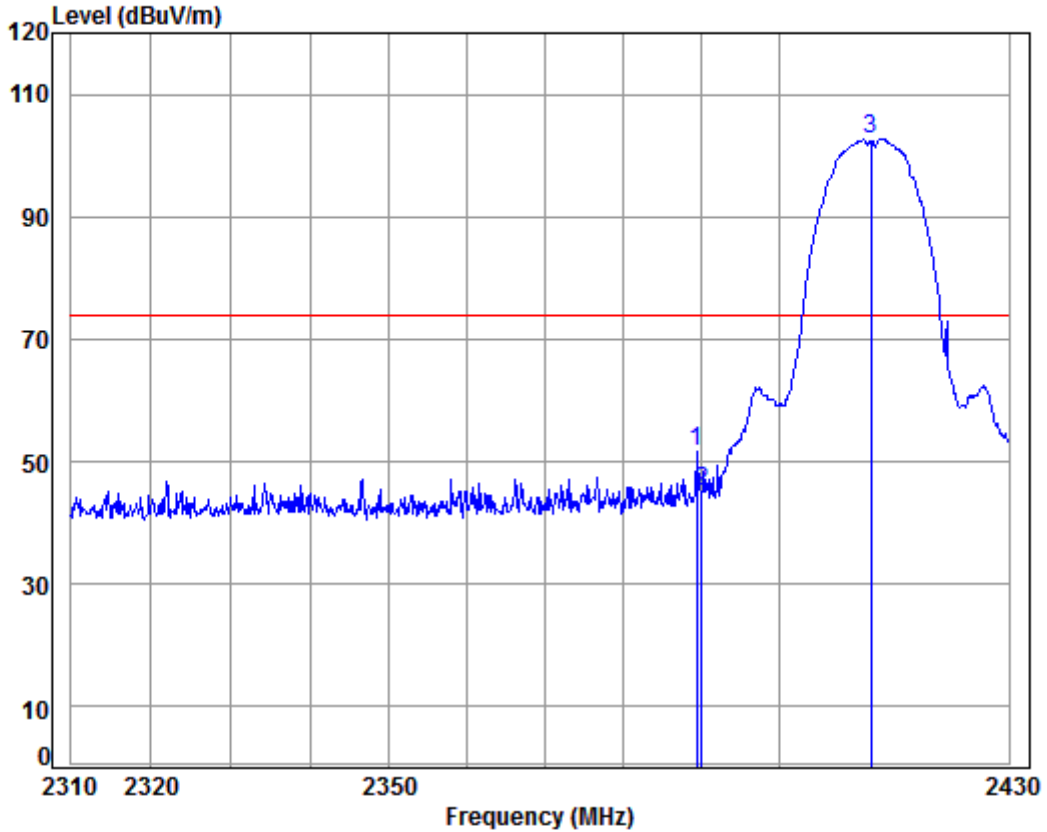
- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor





Mode:g; Polarization:Horizontal; Modulation Type:802.11b; bandwidth:20MHz; Channel:Low

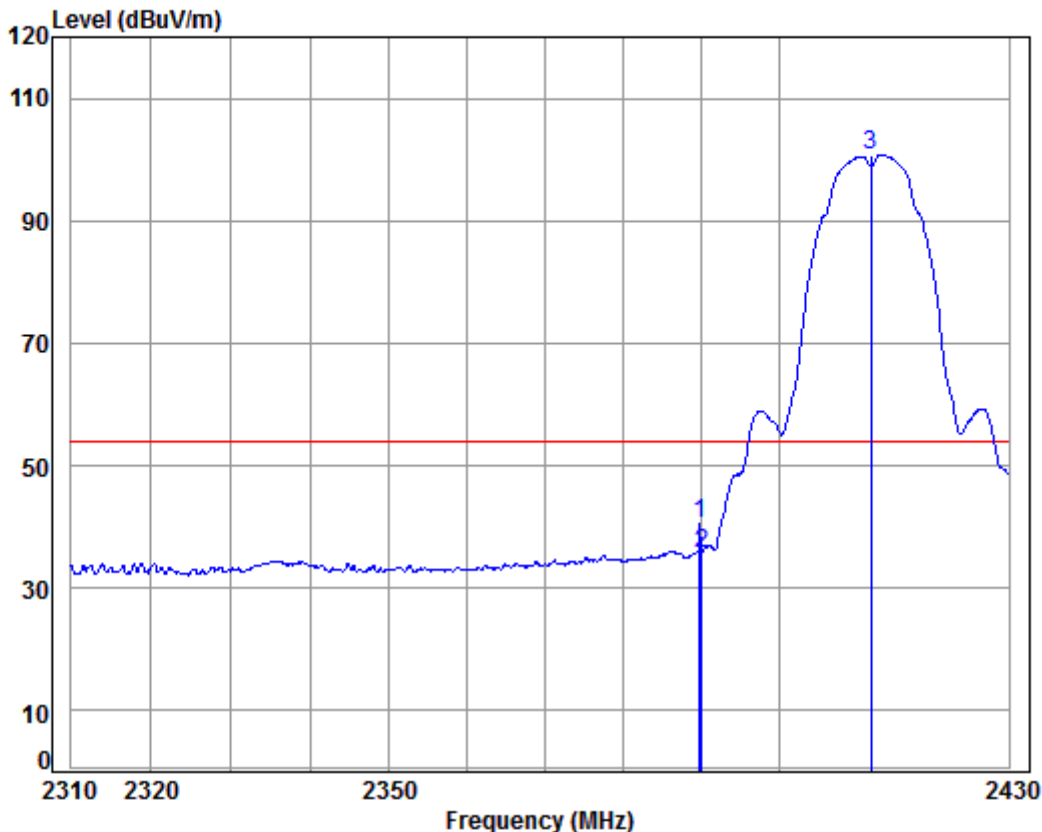


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.363	5.47	29.08	37.96	55.06	51.65	74.00	-22.35	peak
2	2390.000	5.47	29.08	37.96	48.50	45.09	74.00	-28.91	peak
3 pp	2412.000	5.50	29.14	37.95	106.09	102.78	74.00	28.78	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11b; bandwidth:20MHz; Channel:Low

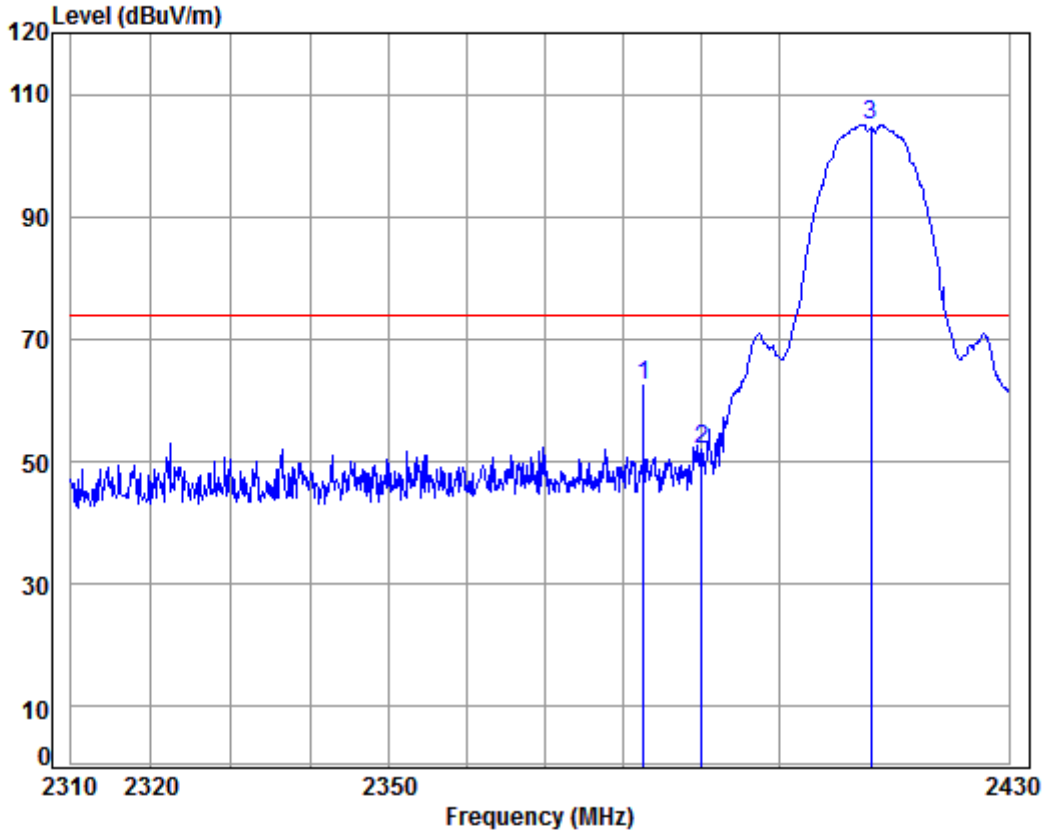


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.726	5.47	29.08	37.96	43.82	40.41	54.00	-13.59	Average
2	2390.000	5.47	29.08	37.96	39.18	35.77	54.00	-18.23	Average
3	pp 2412.000	5.50	29.14	37.95	104.03	100.72	54.00	46.72	Average



Mode:g; Polarization:Vertical; Modulation Type:802.11b; bandwidth:20MHz; Channel:Low

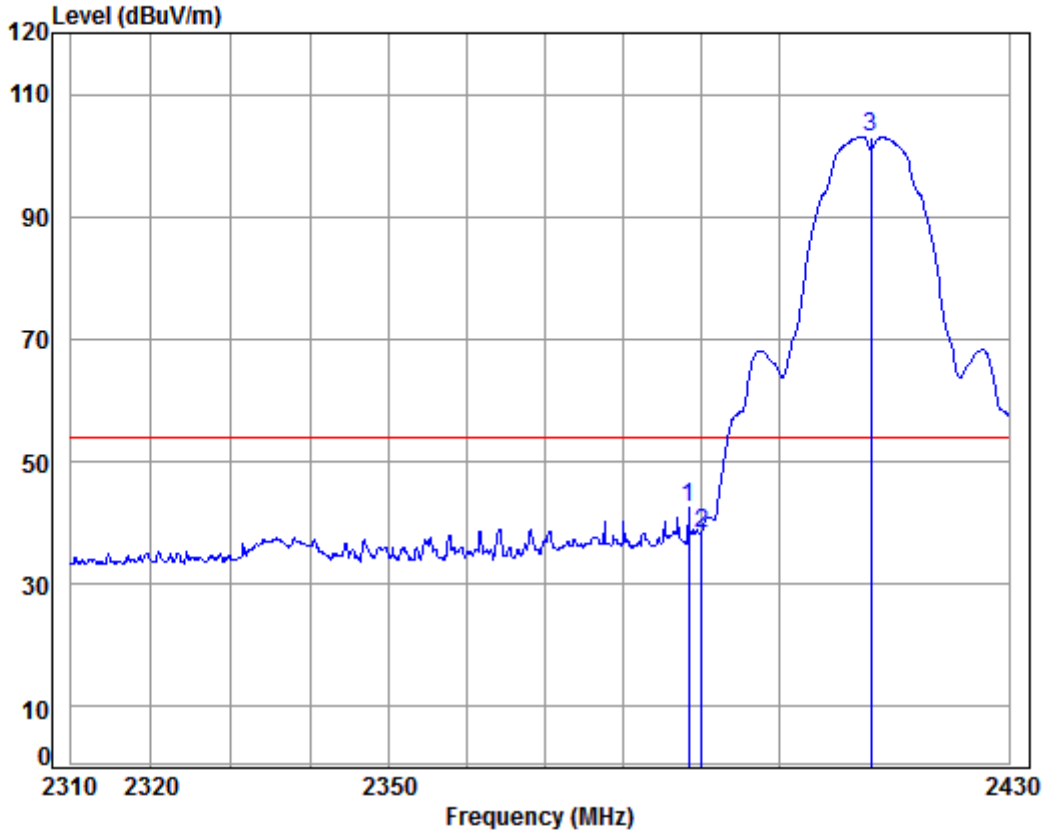


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2382.476	5.46	29.05	37.96	66.02	62.57	74.00	-11.43	Peak
2	2390.000	5.47	29.08	37.96	55.30	51.89	74.00	-22.11	Peak
3 pp	2412.000	5.50	29.14	37.95	108.26	104.95	74.00	30.95	Peak



Mode:g; Polarization:Vertical; Modulation Type:802.11b; bandwidth:20MHz; Channel:Low

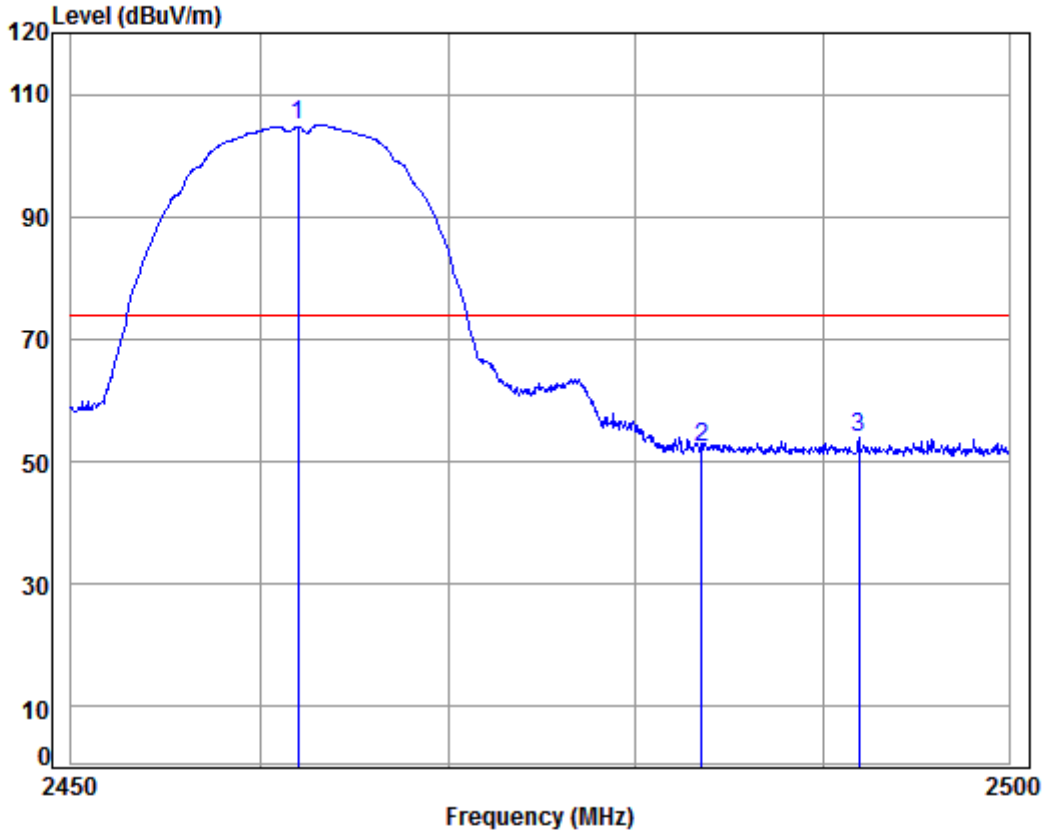


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2388.395	5.47	29.07	37.96	46.07	42.65	54.00	-11.35	Average
2	2390.000	5.47	29.08	37.96	41.79	38.38	54.00	-15.62	Average
3 pp	2412.000	5.50	29.14	37.95	106.28	102.97	54.00	48.97	Average



Mode:g; Polarization:Horizontal; Modulation Type:802.11b; bandwidth:20MHz; Channel:High

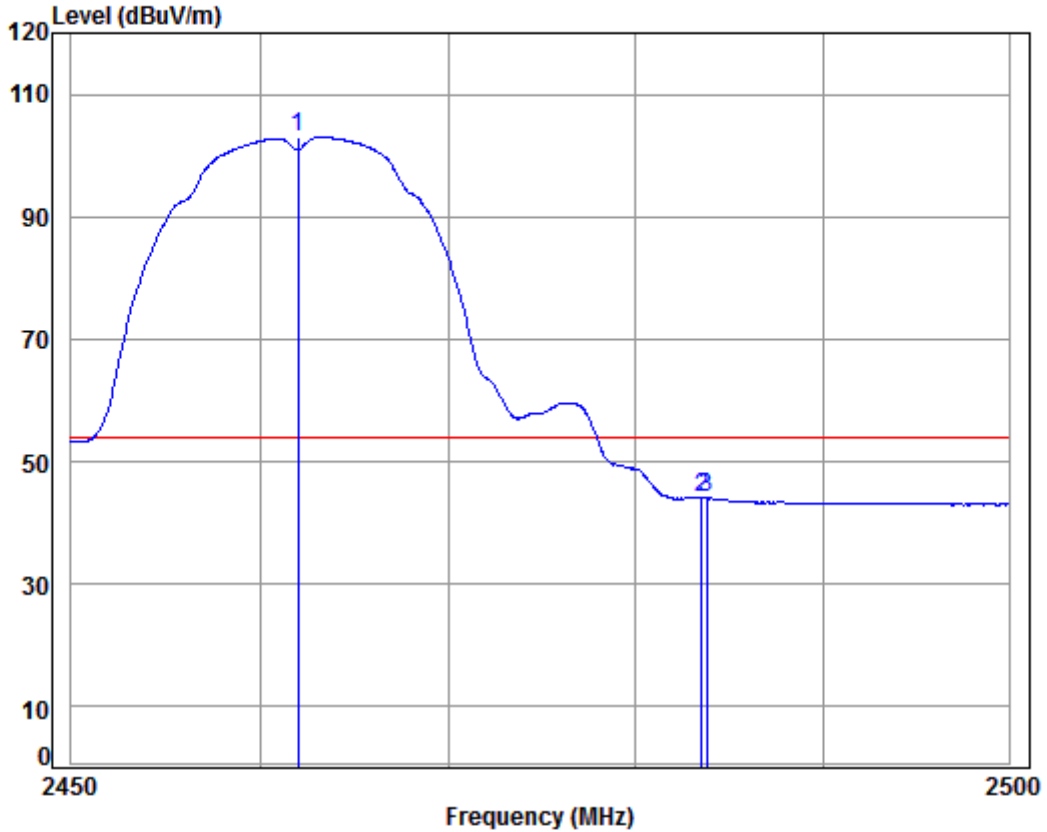


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2462 Band edge  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	108.04	104.95	74.00	30.95	peak
2	2483.500	5.60	29.35	37.95	55.40	52.40	74.00	-21.60	peak
3	2491.932	5.61	29.38	37.95	56.94	53.98	74.00	-20.02	peak



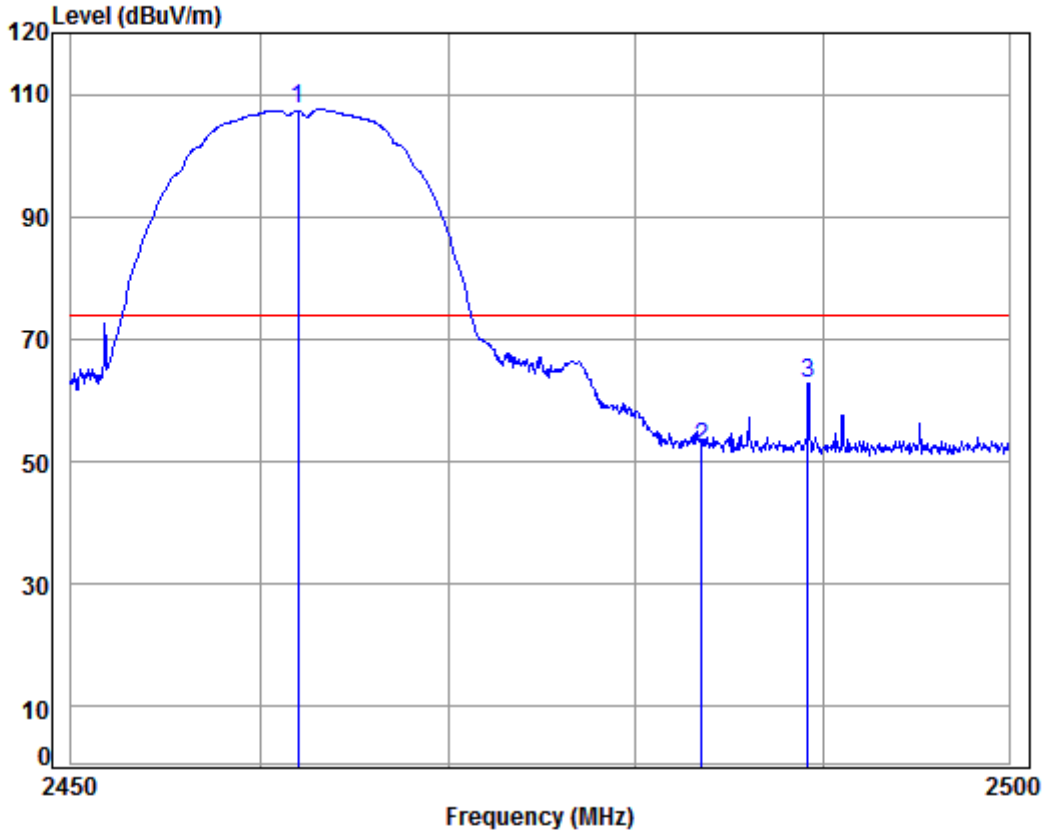
Mode:g; Polarization:Horizontal; Modulation Type:802.11b; bandwidth:20MHz; Channel:High



Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2462 Band edge  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	106.08	102.99	54.00	Average
2	2483.500	5.60	29.35	37.95	47.09	44.09	54.00	-9.91 Average
3	2483.790	5.60	29.35	37.95	47.06	44.06	54.00	-9.94 Average

Mode:g; Polarization:Vertical; Modulation Type:802.11b; bandwidth:20MHz; Channel:High

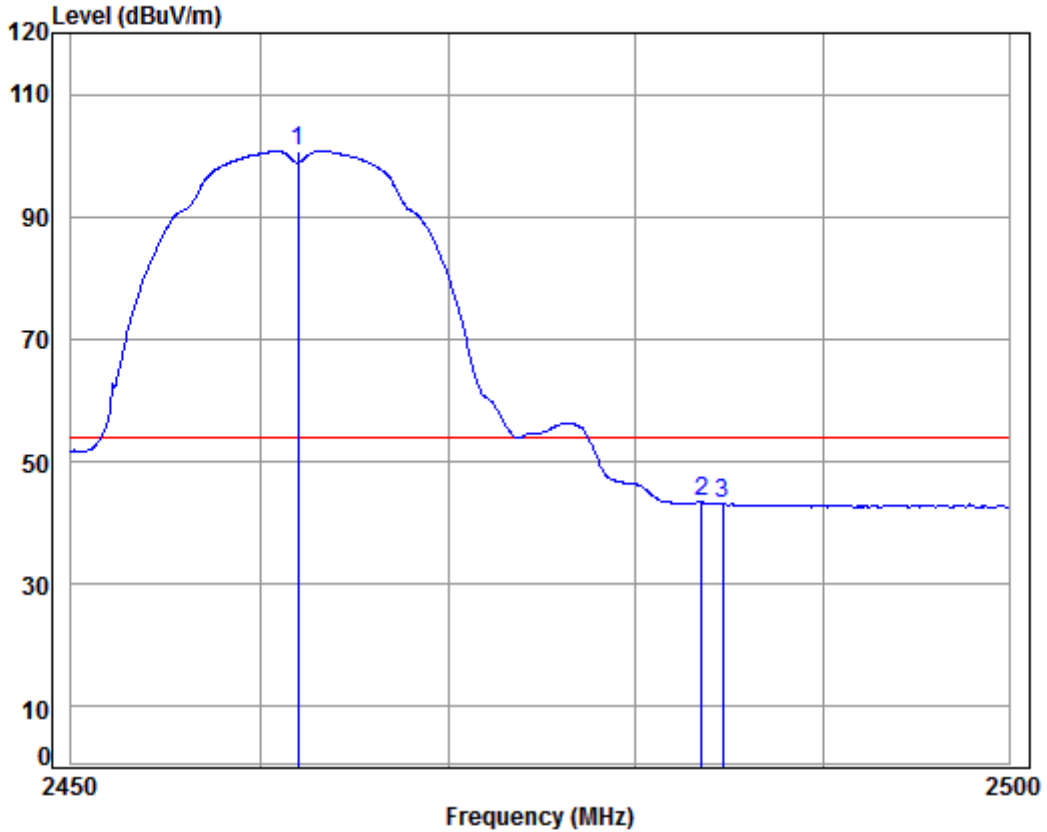


Condition: 3m VERTICAL  
 Job No : 07674CR/07675CR  
 Mode : 2462 Band edge  
 : 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2462.000	5.57	29.29	37.95	110.60	107.51	74.00	33.51 Peak
2	2483.500	5.60	29.35	37.95	55.25	52.25	74.00	-21.75 Peak
3	2489.215	5.61	29.37	37.95	65.76	62.79	74.00	-11.21 Peak



Mode:g; Polarization:Vertical; Modulation Type:802.11b; bandwidth:20MHz; Channel:High



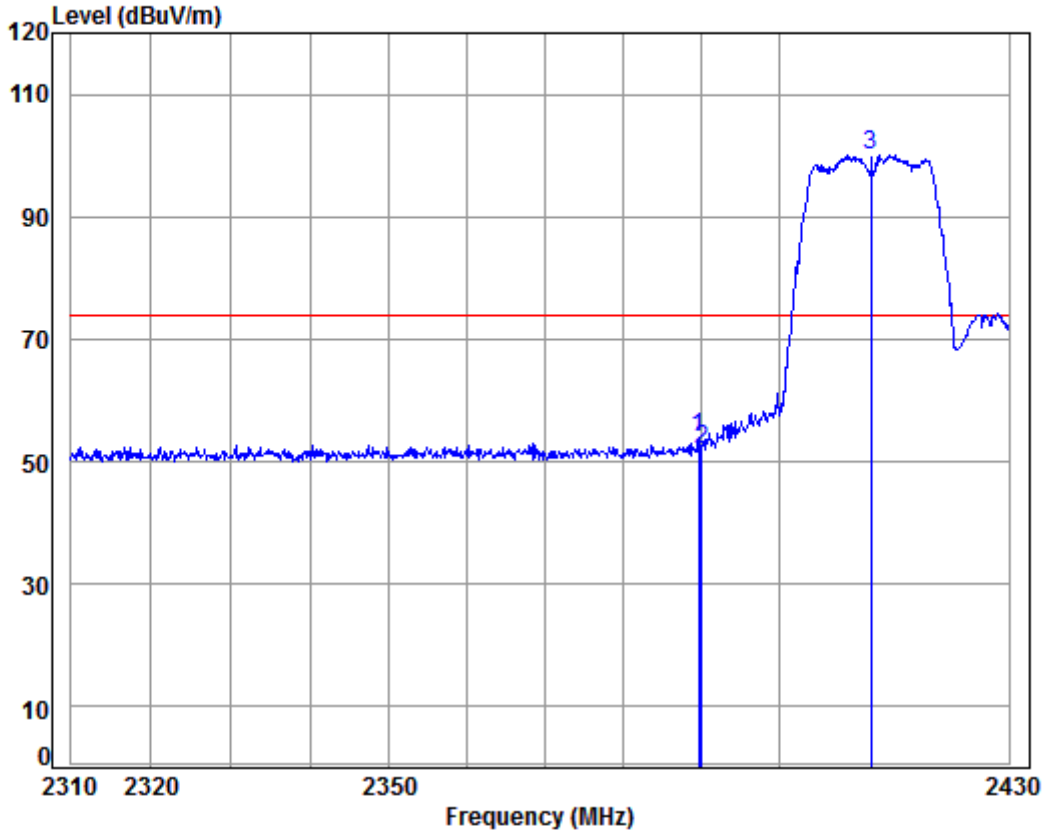
Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2462 Band edge  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	103.79	54.00	46.70	Average
2	2483.500	5.60	29.35	37.95	46.38	54.00	-10.62	Average
3	2484.643	5.60	29.36	37.95	46.21	54.00	-10.78	Average





Mode:g; Polarization:Horizontal; Modulation Type:802.11g; bandwidth:20MHz; Channel:Low

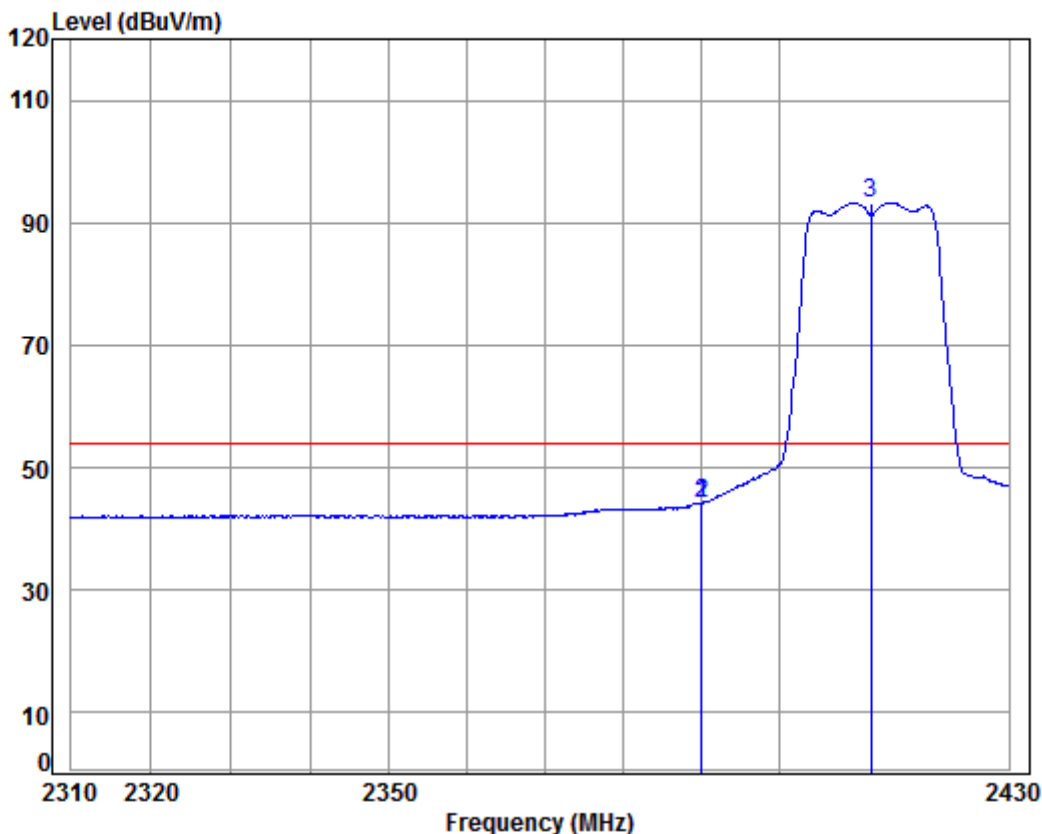


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.605	5.47	29.08	37.96	57.37	53.96	74.00	-20.04	peak
2	2390.000	5.47	29.08	37.96	55.47	52.06	74.00	-21.94	peak
3	pp 2412.000	5.50	29.14	37.95	103.39	100.08	74.00	26.08	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11g; bandwidth:20MHz; Channel:Low

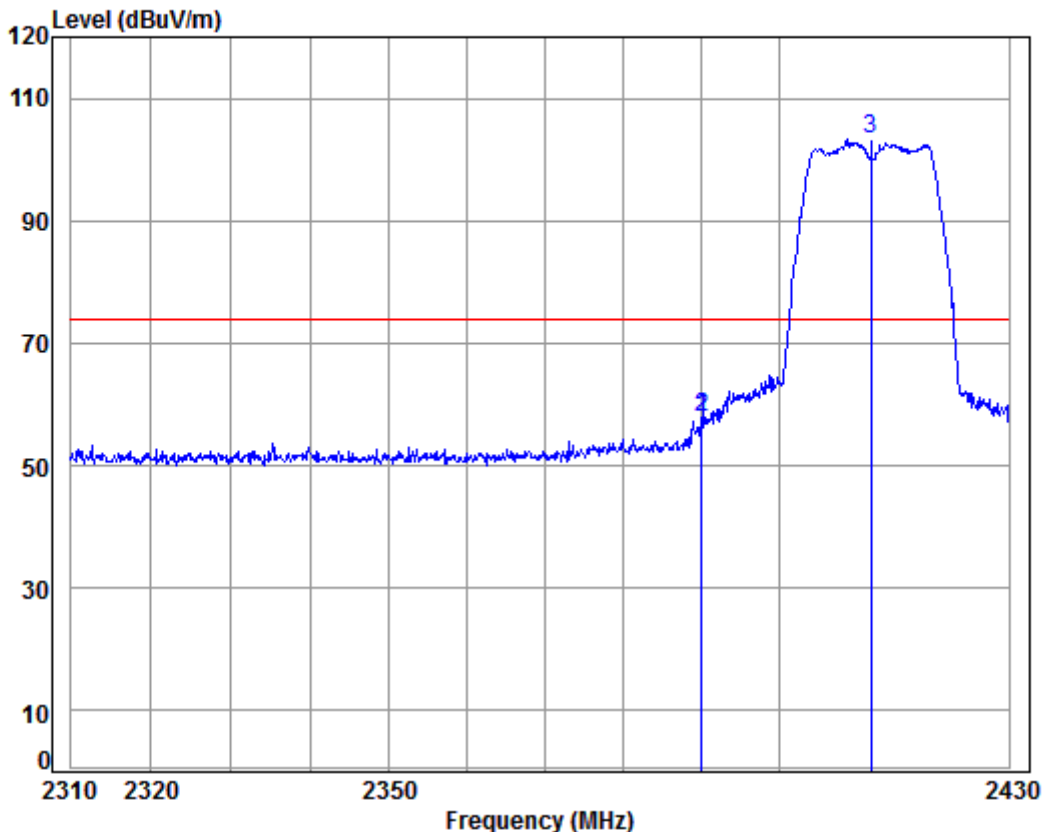


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2389.968	5.47	29.08	37.96	47.57	54.00	-9.84	Average
2	2390.000	5.47	29.08	37.96	47.57	54.00	-9.84	Average
3 pp	2412.000	5.50	29.14	37.95	96.66	54.00	39.35	Average



Mode:g; Polarization:Vertical; Modulation Type:802.11g; bandwidth:20MHz; Channel:Low

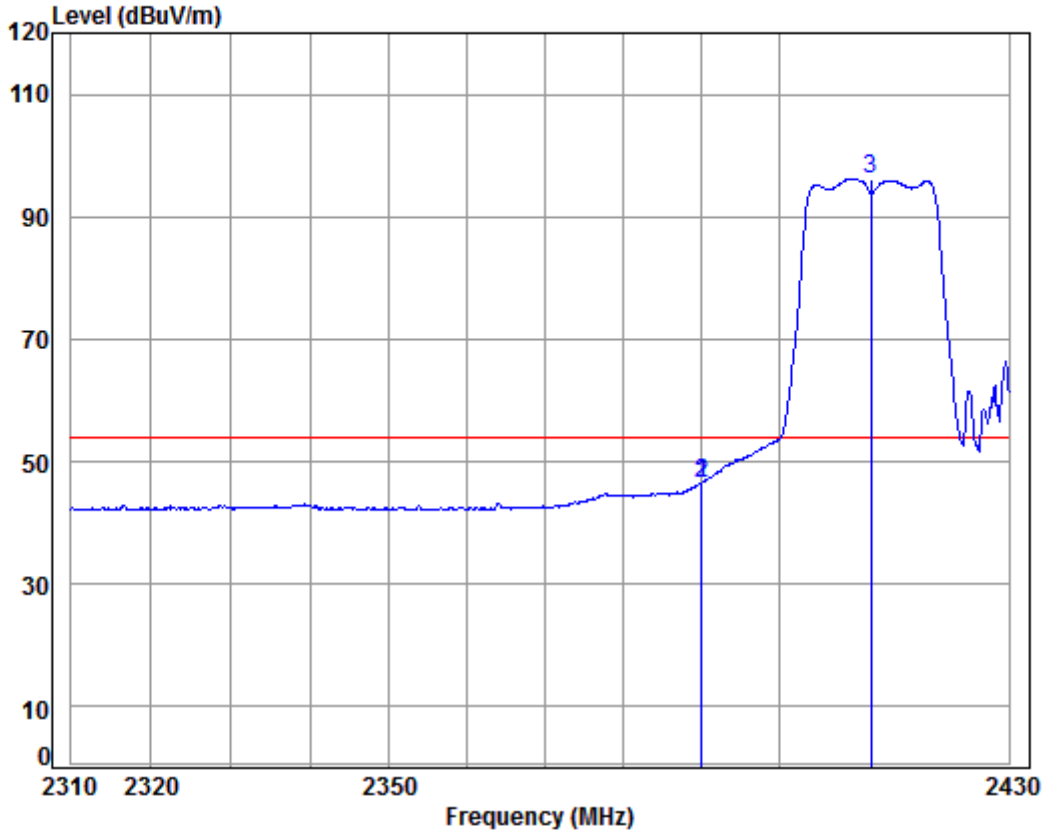


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	5.47	29.08	37.96	61.32	57.91	74.00	-16.09	Peak
2	2390.000	5.47	29.08	37.96	61.32	57.91	74.00	-16.09	Peak
3 pp	2412.000	5.50	29.14	37.95	106.56	103.25	74.00	29.25	Peak



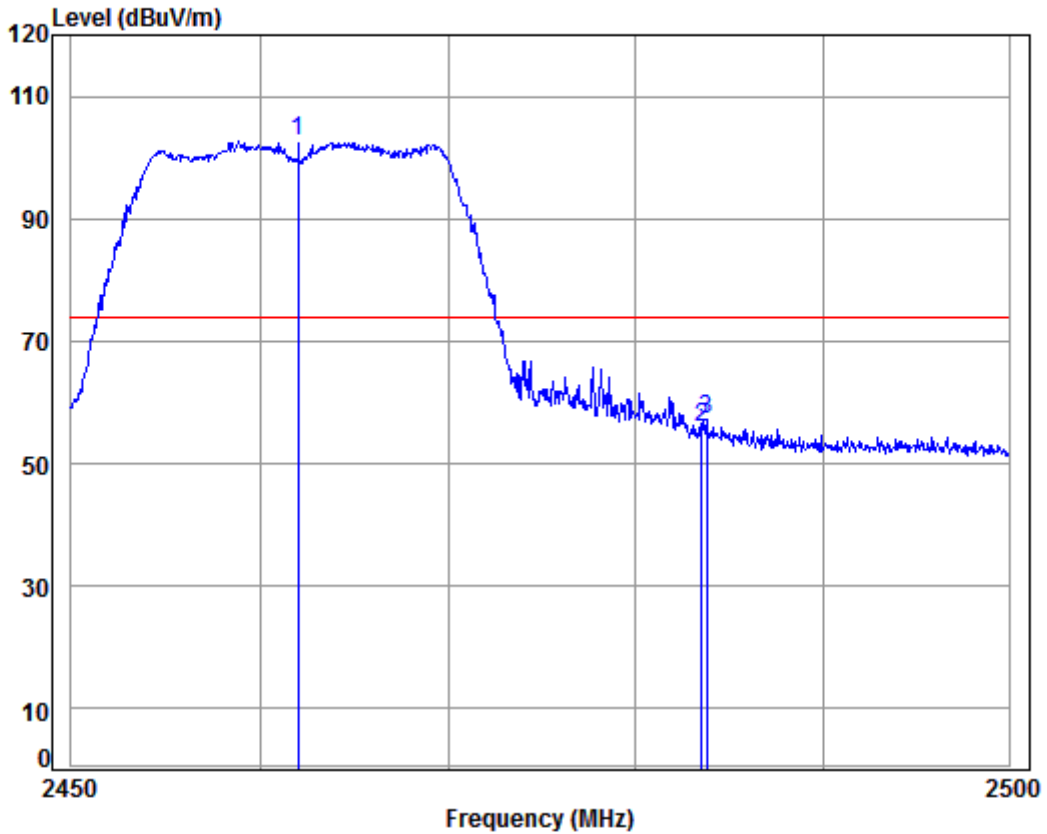
Mode:g; Polarization:Vertical; Modulation Type:802.11g; bandwidth:20MHz; Channel:Low



Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	5.47	29.08	37.96	49.95	46.54	54.00	-7.46	Average
2	2390.000	5.47	29.08	37.96	49.95	46.54	54.00	-7.46	Average
3 pp	2412.000	5.50	29.14	37.95	99.54	96.23	54.00	42.23	Average

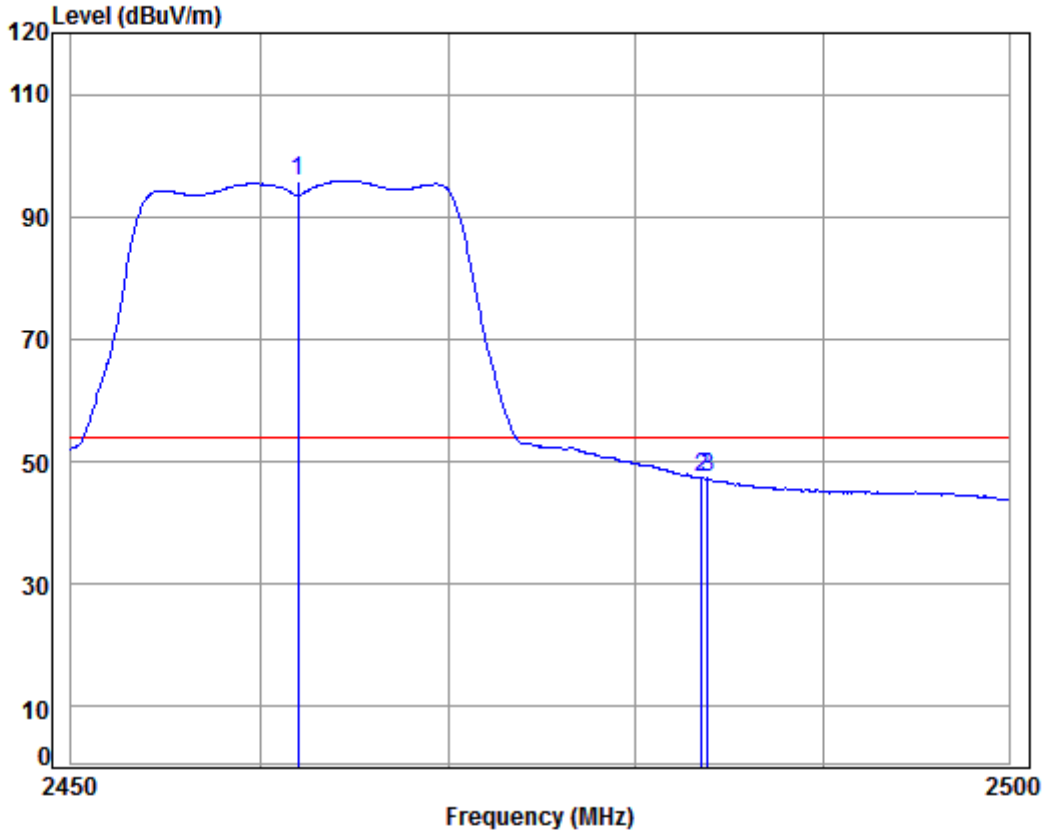
Mode:g; Polarization:Horizontal; Modulation Type:802.11g; bandwidth:20MHz; Channel:High



Condition: 3m HORIZONTAL  
 Job No : 07674CR/07675CR  
 Mode : 2462 Band edge  
 : 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	105.88	74.00	28.79	peak
2	2483.500	5.60	29.35	37.95	58.95	74.00	-18.05	peak
3	2483.790	5.60	29.35	37.95	60.35	74.00	-16.65	peak

Mode:g; Polarization:Horizontal; Modulation Type:802.11g; bandwidth:20MHz; Channel:High

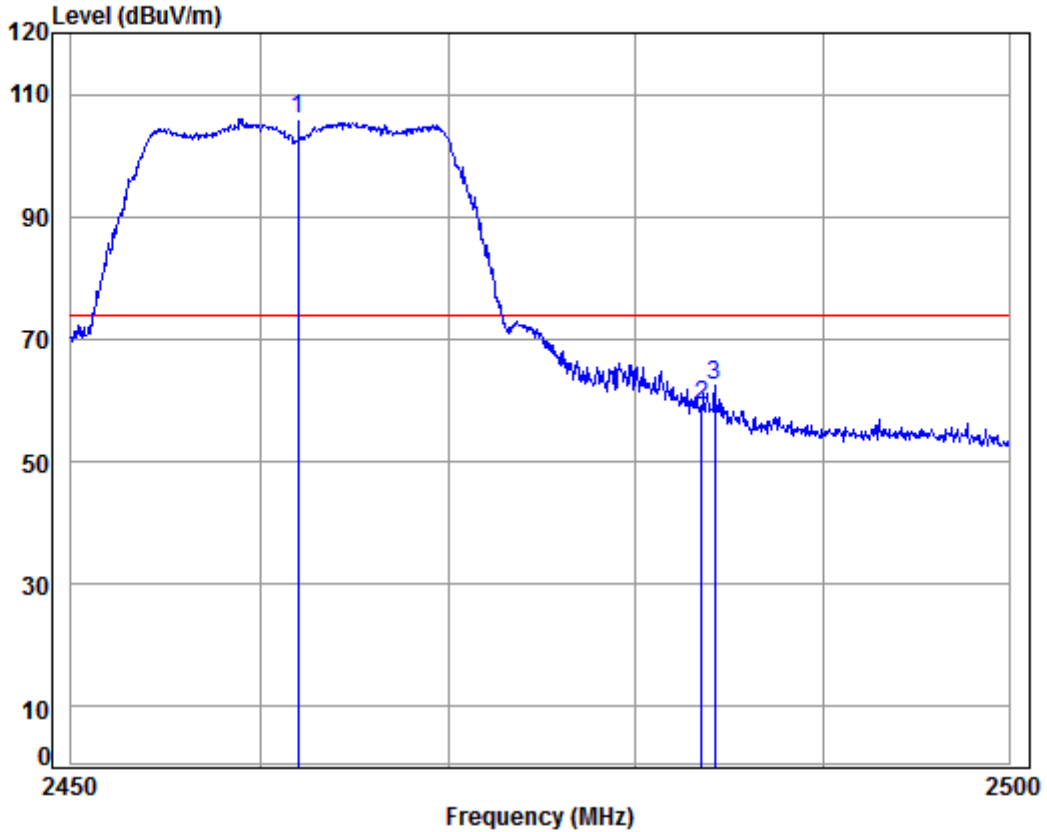


Condition: 3m HORIZONTAL  
 Job No : 07674CR/07675CR  
 Mode : 2462 Band edge  
 : 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	99.00	95.91	54.00	41.91	Average
2	2483.500	5.60	29.35	37.95	50.35	47.35	54.00	-6.65	Average
3	2483.840	5.60	29.35	37.95	50.25	47.25	54.00	-6.75	Average



Mode:g; Polarization:Vertical; Modulation Type:802.11g; bandwidth:20MHz; Channel:High

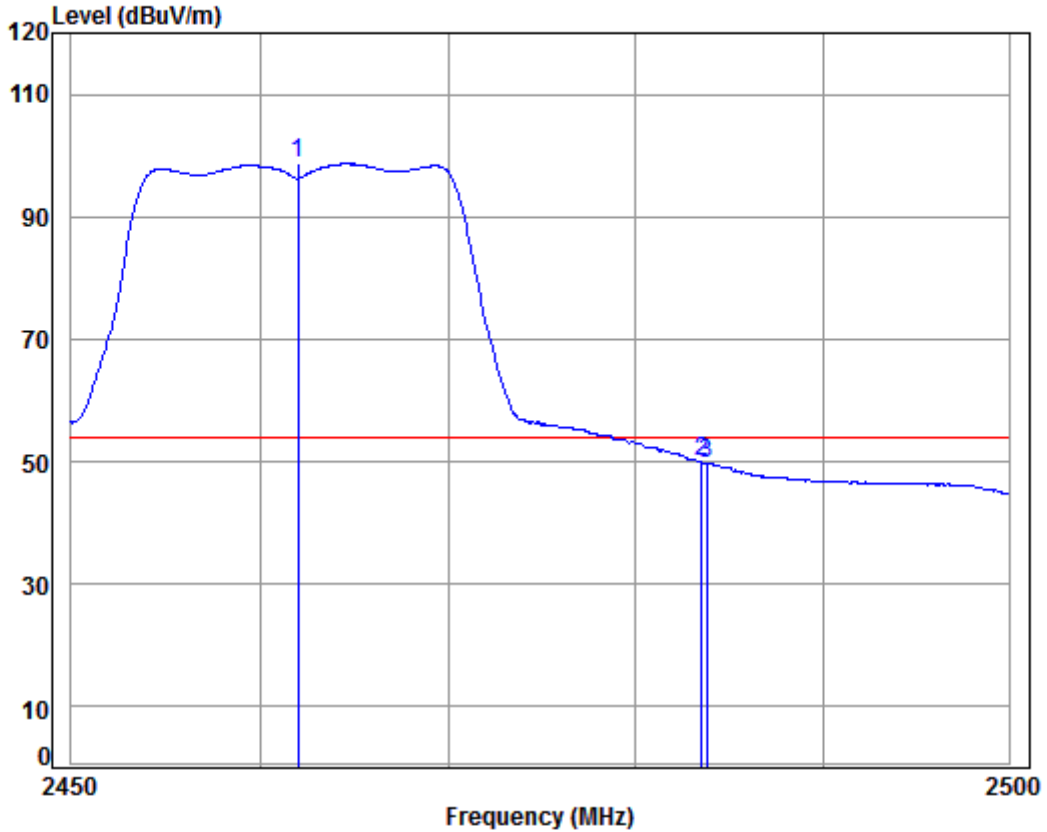


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2462 Band edge  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	109.17	74.00	32.08	Peak
2	2483.500	5.60	29.35	37.95	62.24	74.00	-14.76	Peak
3	2484.191	5.60	29.35	37.95	65.36	74.00	-11.64	Peak



Mode:g; Polarization:Vertical; Modulation Type:802.11g; bandwidth:20MHz; Channel:High



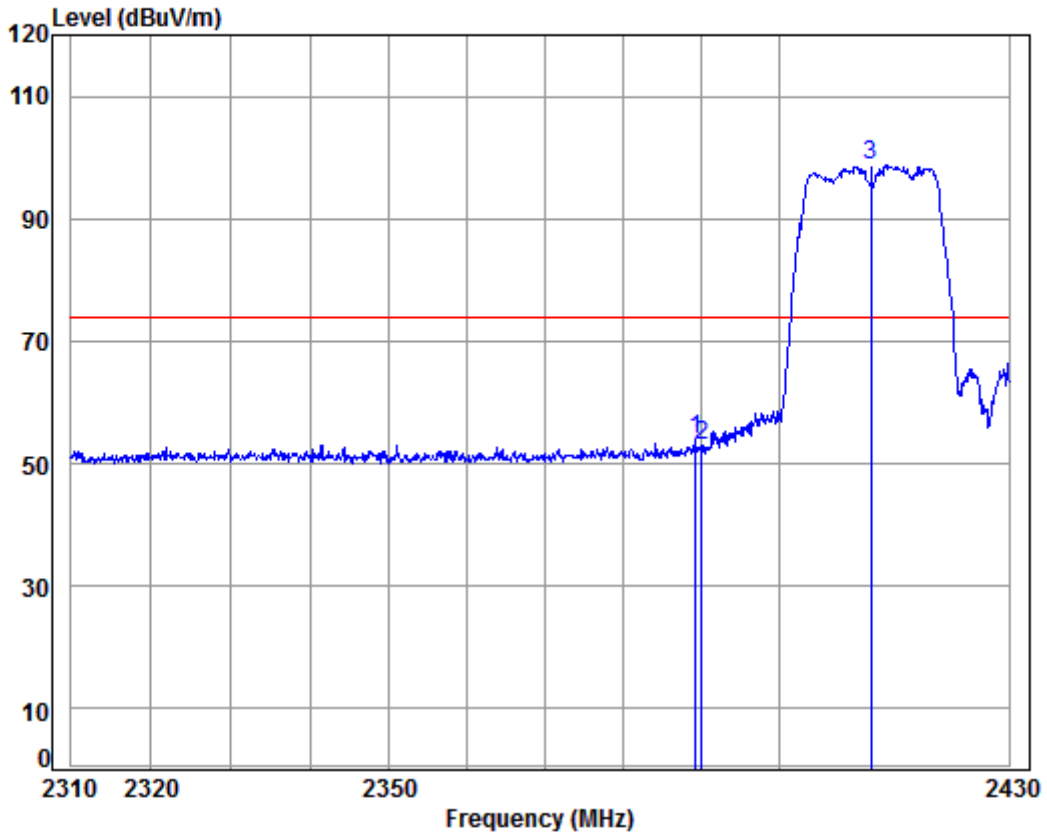
Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2462 Band edge  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	101.75	98.66	54.00	44.66 Average
2	2483.500	5.60	29.35	37.95	52.89	49.89	54.00	-4.11 Average
3	2483.790	5.60	29.35	37.95	52.75	49.75	54.00	-4.25 Average





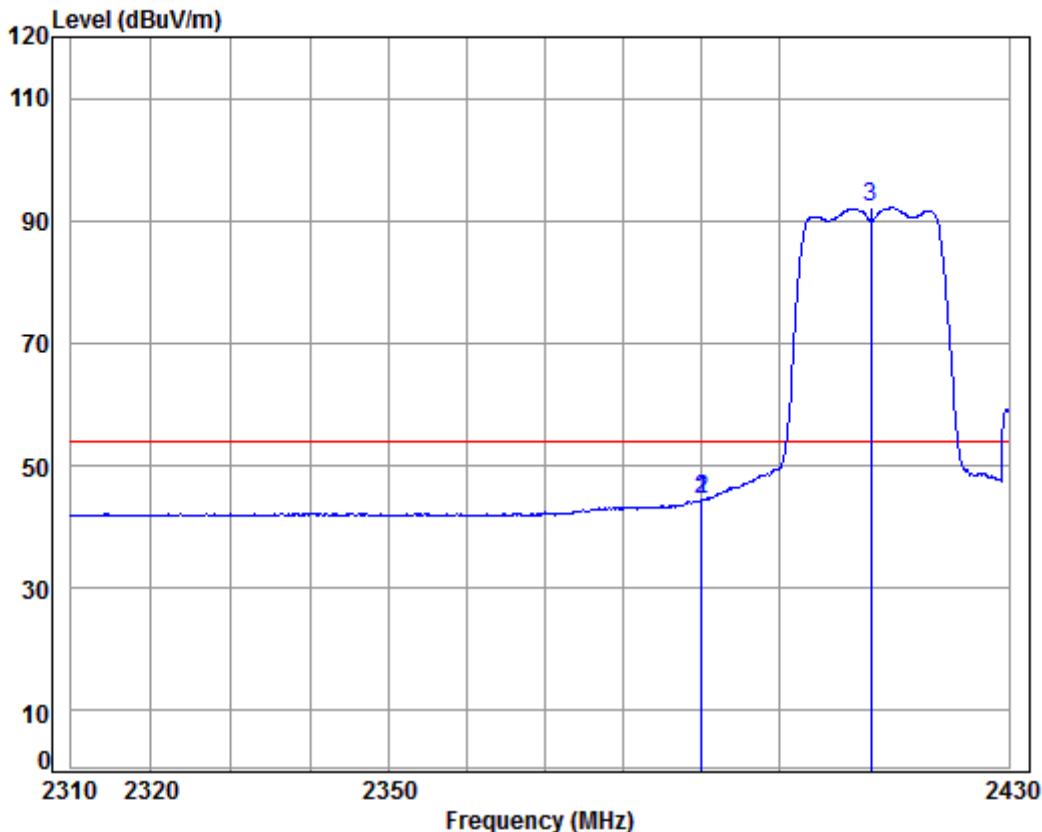
Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:20MHz; Channel:Low



Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2389.242	5.47	29.08	37.96	57.24	53.83	74.00	-20.17 peak
2	2390.000	5.47	29.08	37.96	56.37	52.96	74.00	-21.04 peak
3 pp	2412.000	5.50	29.14	37.95	102.08	98.77	74.00	24.77 peak

Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:20MHz; Channel:Low

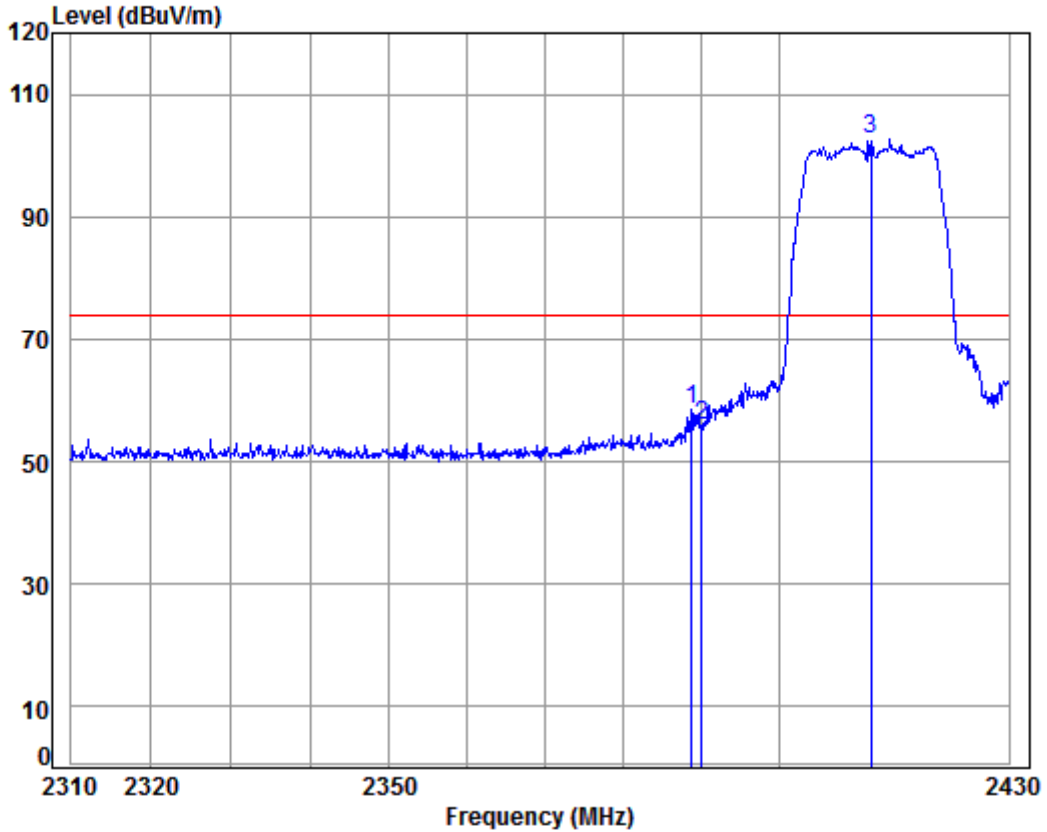


Condition: 3m HORIZONTAL  
 Job No : 07674CR/07675CR  
 Mode : 2412 Band edge  
 : 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	5.47	29.08	37.96	47.77	44.36	54.00	-9.64	Average
2	2390.000	5.47	29.08	37.96	47.77	44.36	54.00	-9.64	Average
3	pp 2412.000	5.50	29.14	37.95	95.44	92.13	54.00	38.13	Average



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:20MHz; Channel:Low

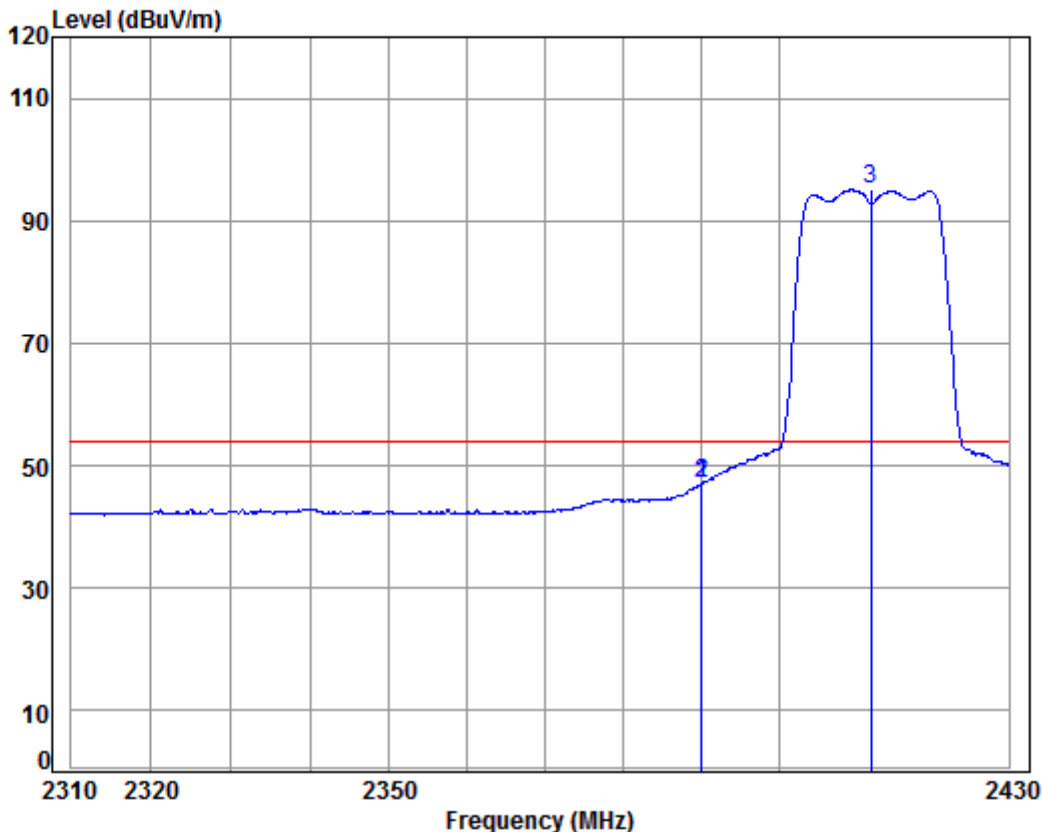


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 Band edge  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2388.758	5.47	29.07	37.96	61.85	58.43	74.00	-15.57	Peak
2	2390.000	5.47	29.08	37.96	59.38	55.97	74.00	-18.03	Peak
3 pp	2412.000	5.50	29.14	37.95	106.11	102.80	74.00	28.80	Peak



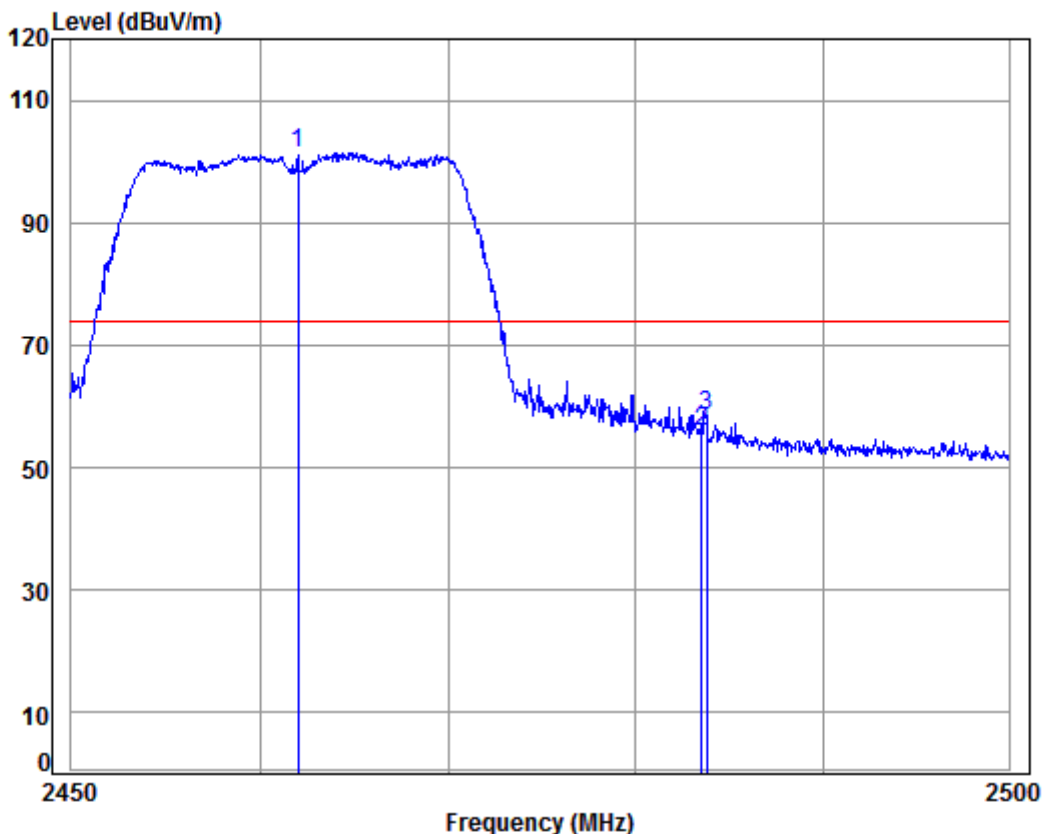
Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:20MHz; Channel:Low



Condition: 3m VERTICAL  
 Job No : 07674CR/07675CR  
 Mode : 2412 Band edge  
 : 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.968	5.47	29.08	37.96	50.37	46.96	54.00	-7.04	Average
2	2390.000	5.47	29.08	37.96	50.37	46.96	54.00	-7.04	Average
3 pp	2412.000	5.50	29.14	37.95	98.35	95.04	54.00	41.04	Average

Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:20MHz; Channel:High

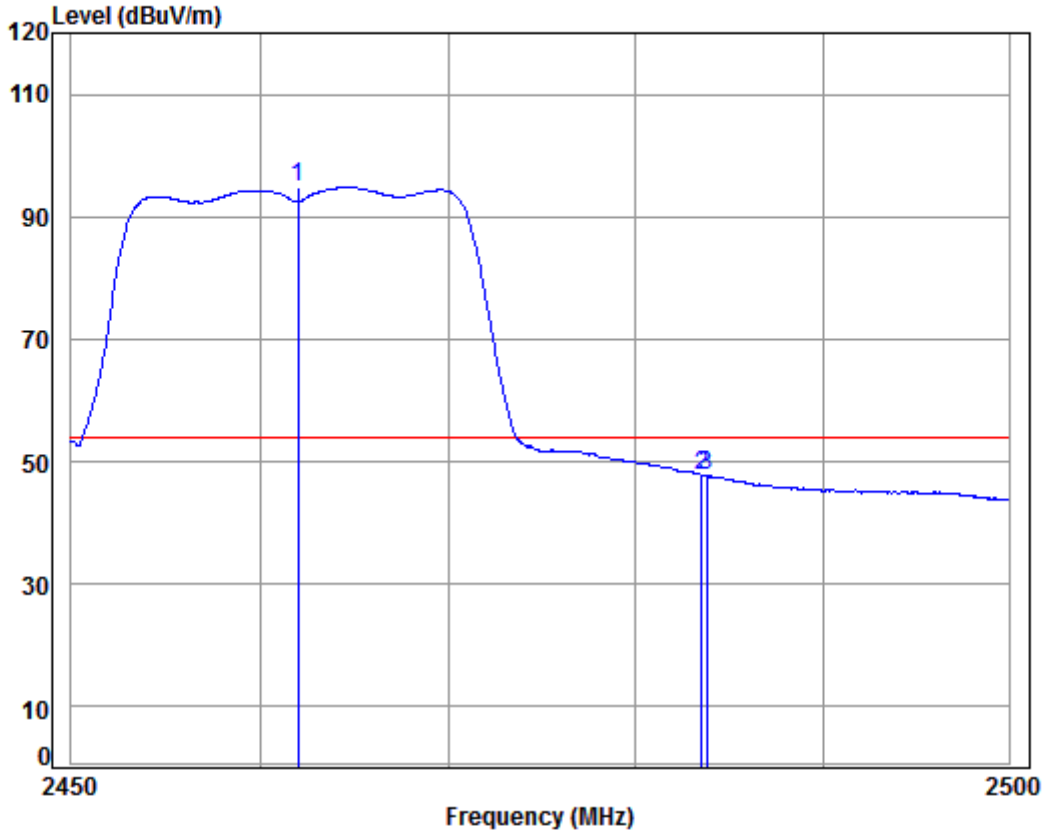


Condition: 3m HORIZONTAL  
 Job No : 07674CR/07675CR  
 Mode : 2462 Band edge  
 : 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	104.49	101.40	74.00	27.40 peak
2	2483.500	5.60	29.35	37.95	58.97	55.97	74.00	-18.03 peak
3	2483.790	5.60	29.35	37.95	61.63	58.63	74.00	-15.37 peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:20MHz; Channel:High

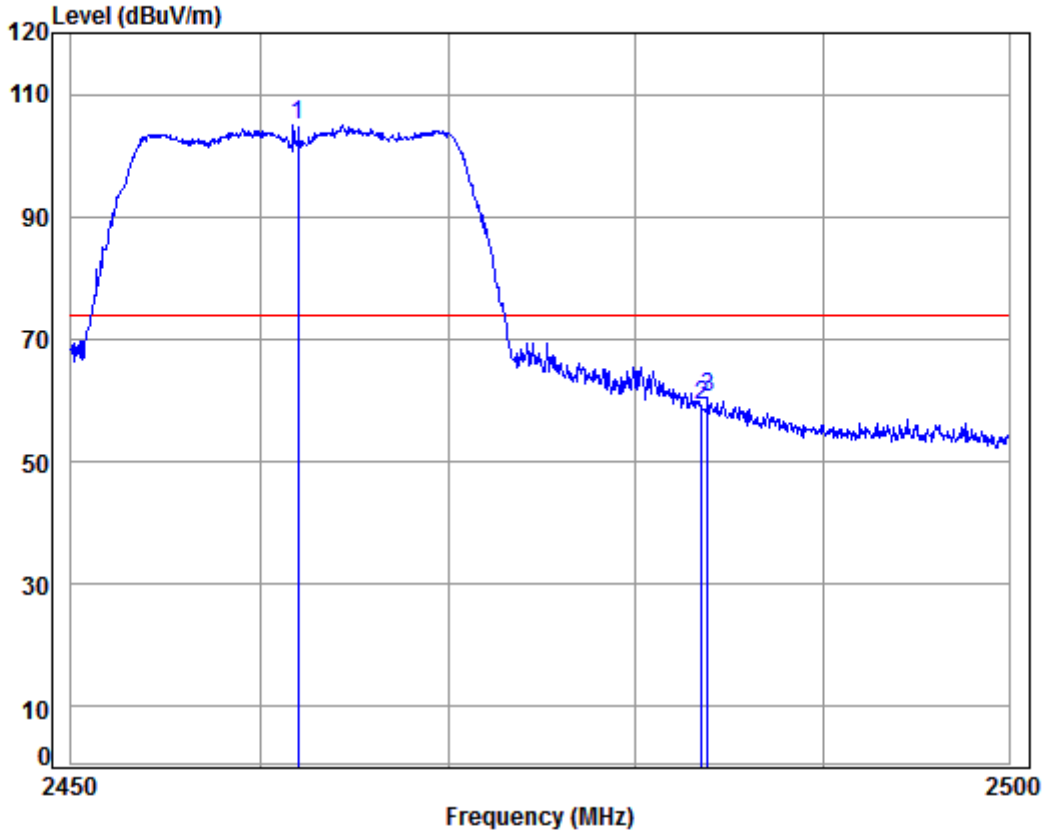


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2462 Band edge  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	97.91	54.00	40.82	Average
2	2483.500	5.60	29.35	37.95	50.90	54.00	-6.10	Average
3	2483.790	5.60	29.35	37.95	50.73	54.00	-6.27	Average



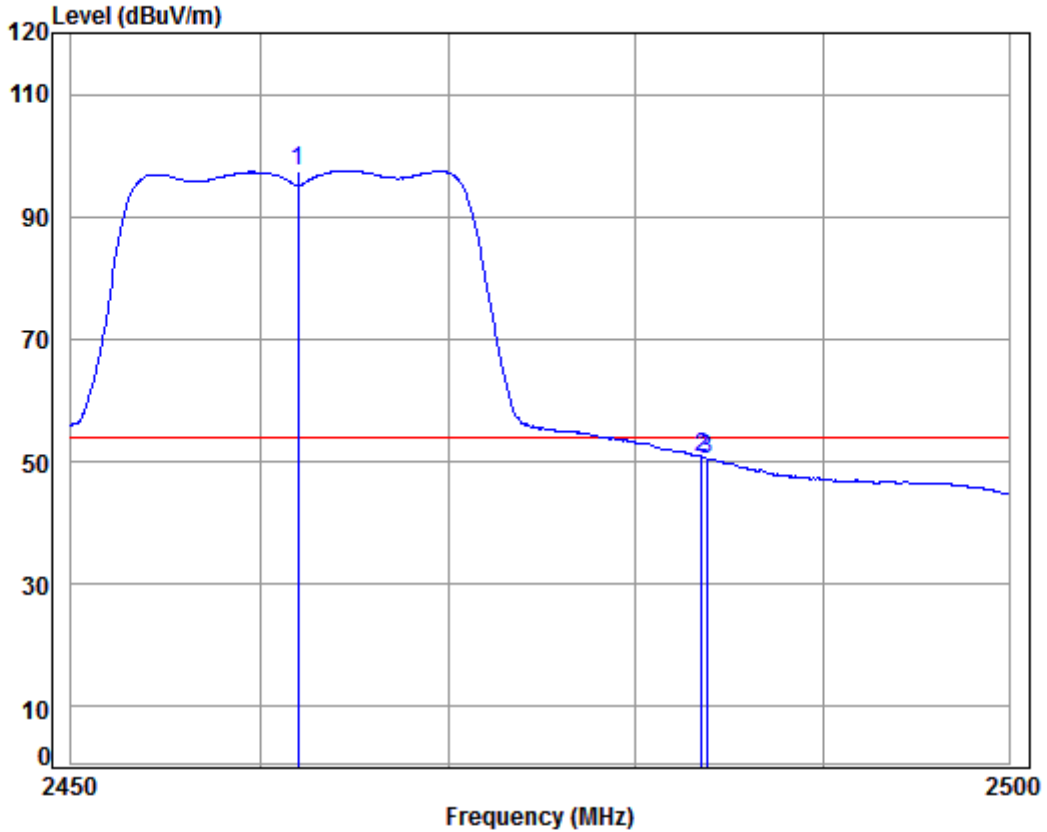
Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:20MHz; Channel:High



Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2462 Band edge  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	108.15	74.00	31.06	Peak
2	2483.500	5.60	29.35	37.95	62.08	74.00	-14.92	Peak
3	2483.840	5.60	29.35	37.95	63.33	74.00	-13.67	Peak

Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:20MHz; Channel:High



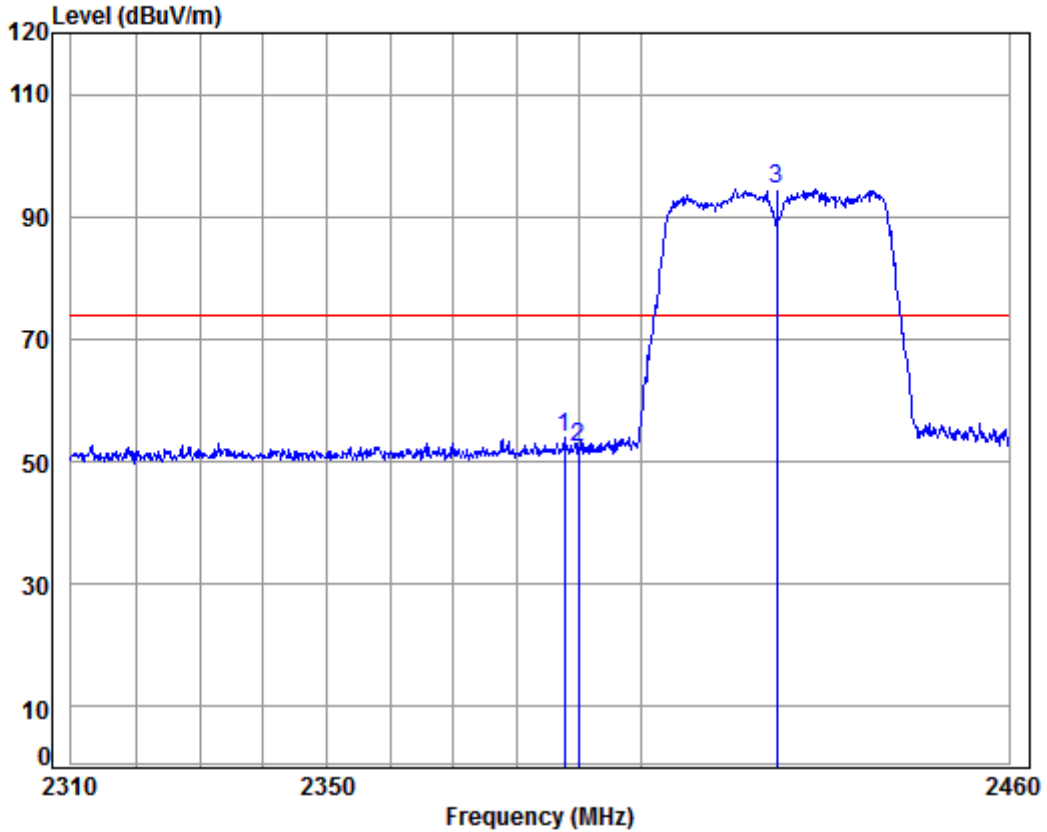
Condition: 3m VERTICAL  
 Job No : 07674CR/07675CR  
 Mode : 2462 Band edge  
 : 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	2462.000	5.57	29.29	37.95	100.68	97.59	54.00	43.59	Average
2	2483.500	5.60	29.35	37.95	53.79	50.79	54.00	-3.21	Average
3	2483.790	5.60	29.35	37.95	53.50	50.50	54.00	-3.50	Average





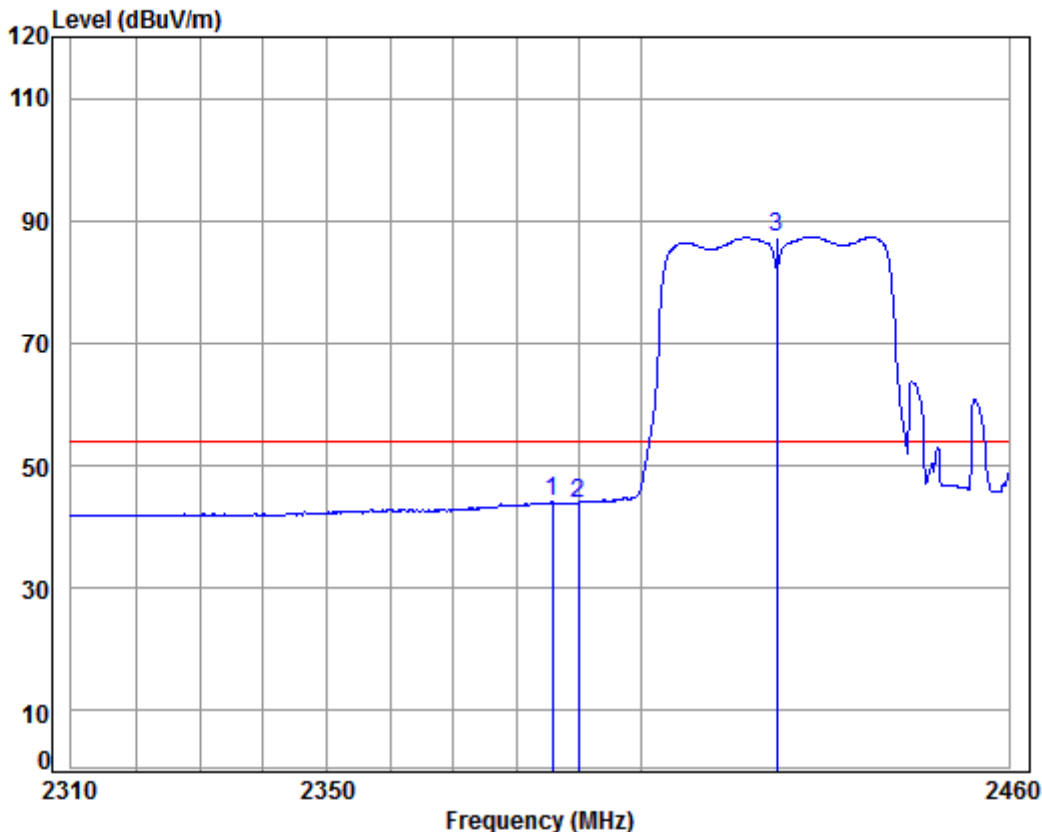
Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:40MHz; Channel:Low



Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2422 Band edge  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2387.723	5.47	29.07	37.96	57.21	53.79	74.00	-20.21 peak
2	2390.000	5.47	29.08	37.96	55.63	52.22	74.00	-21.78 peak
3 pp	2422.000	5.52	29.17	37.95	97.67	94.41	74.00	20.41 peak

Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:40MHz; Channel:Low

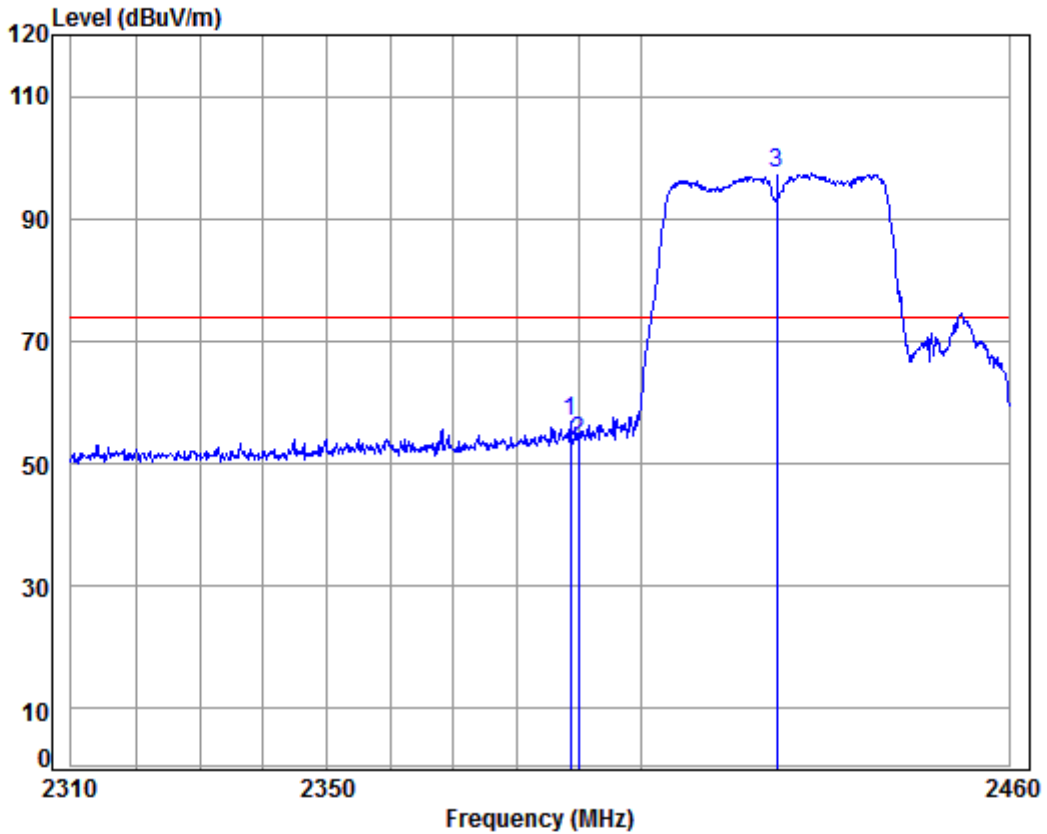


Condition: 3m HORIZONTAL  
 Job No : 07674CR/07675CR  
 Mode : 2422 Band edge  
 : 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2385.771	5.47	29.06	37.96	47.44	44.01	54.00	-9.99 Average
2	2390.000	5.47	29.08	37.96	47.32	43.91	54.00	-10.09 Average
3 pp	2422.000	5.52	29.17	37.95	90.71	87.45	54.00	33.45 Average



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:40MHz; Channel:Low

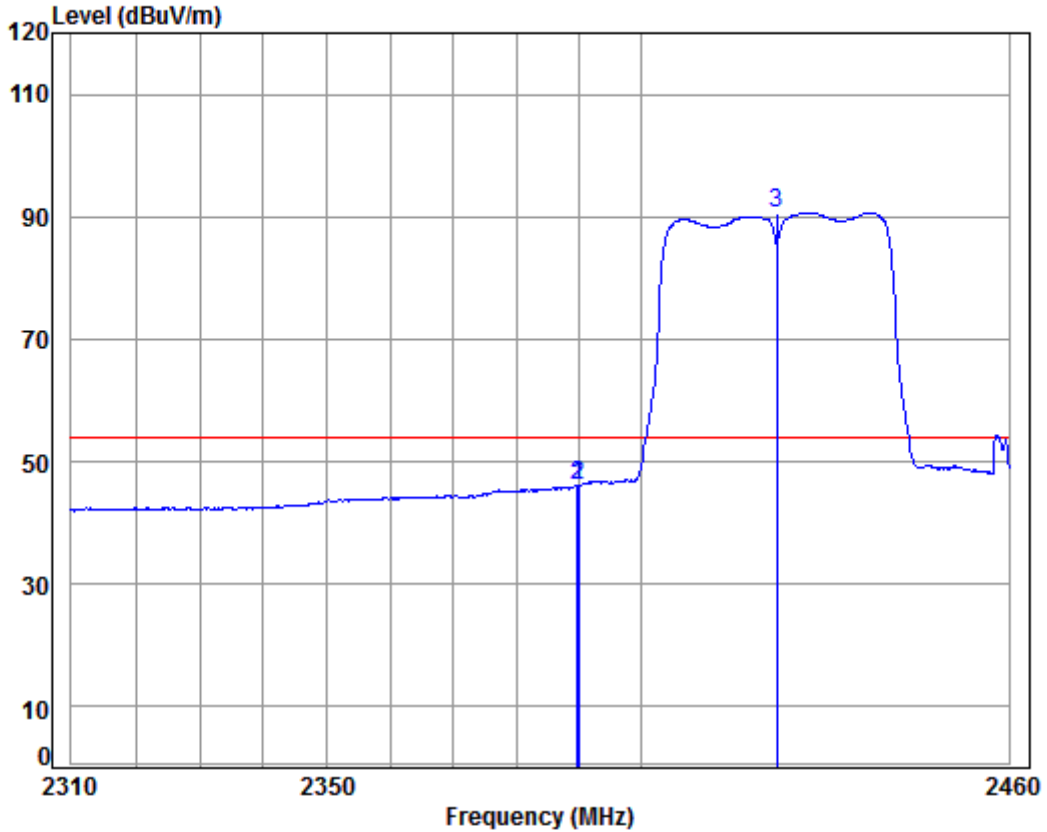


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2422 Band edge  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2388.775	5.47	29.07	37.96	60.41	56.99	74.00	-17.01 Peak
2	2390.000	5.47	29.08	37.96	57.20	53.79	74.00	-20.21 Peak
3 pp	2422.000	5.52	29.17	37.95	100.54	97.28	74.00	23.28 Peak



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:40MHz; Channel:Low

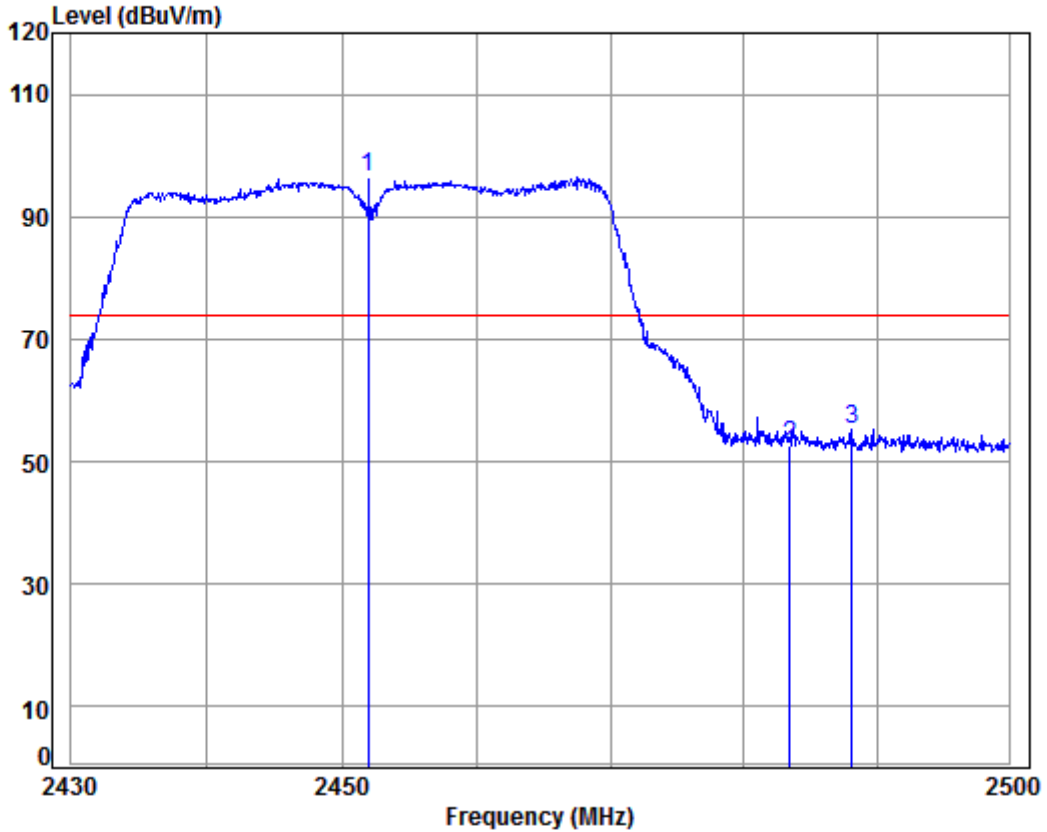


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2422 Band edge  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2389.827	5.47	29.08	37.96	49.47	46.06	54.00	-7.94 Average
2	2390.000	5.47	29.08	37.96	49.35	45.94	54.00	-8.06 Average
3 pp	2422.000	5.52	29.17	37.95	93.92	90.66	54.00	36.66 Average



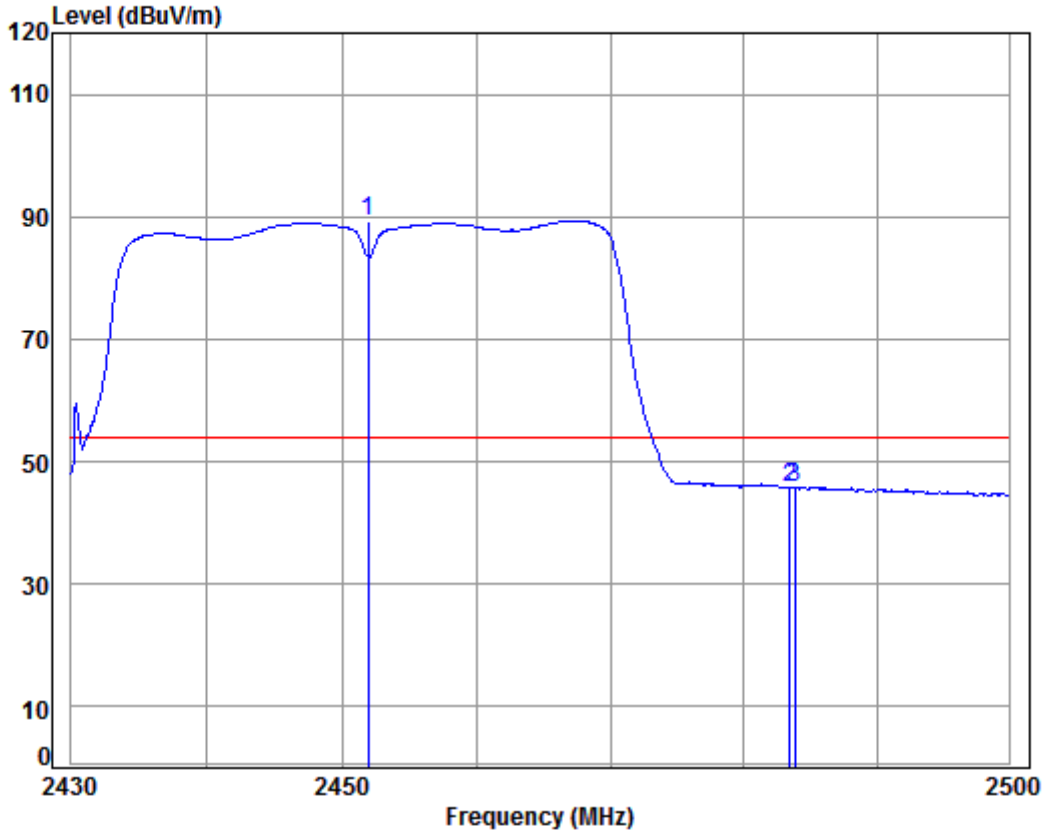
Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:40MHz; Channel:High



Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2452 Band edge  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2452.000	5.56	29.26	37.95	99.63	96.50	74.00	22.50 peak
2	2483.500	5.60	29.35	37.95	55.62	52.62	74.00	-21.38 peak
3	2488.171	5.60	29.37	37.95	58.25	55.27	74.00	-18.73 peak

Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:40MHz; Channel:High

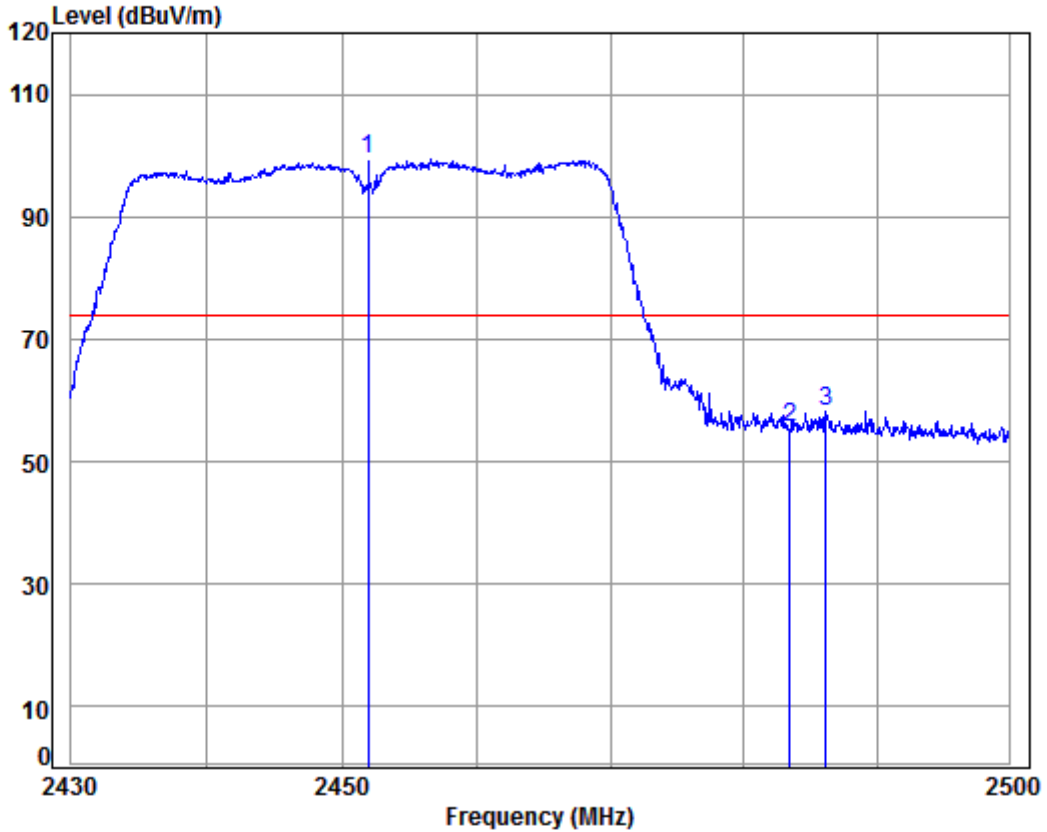


Condition: 3m HORIZONTAL  
 Job No : 07674CR/07675CR  
 Mode : 2452 Band edge  
 : 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2452.000	5.56	29.26	37.95	92.49	89.36	54.00	35.36 Average
2	2483.500	5.60	29.35	37.95	48.67	45.67	54.00	-8.33 Average
3	2483.865	5.60	29.35	37.95	48.81	45.81	54.00	-8.19 Average



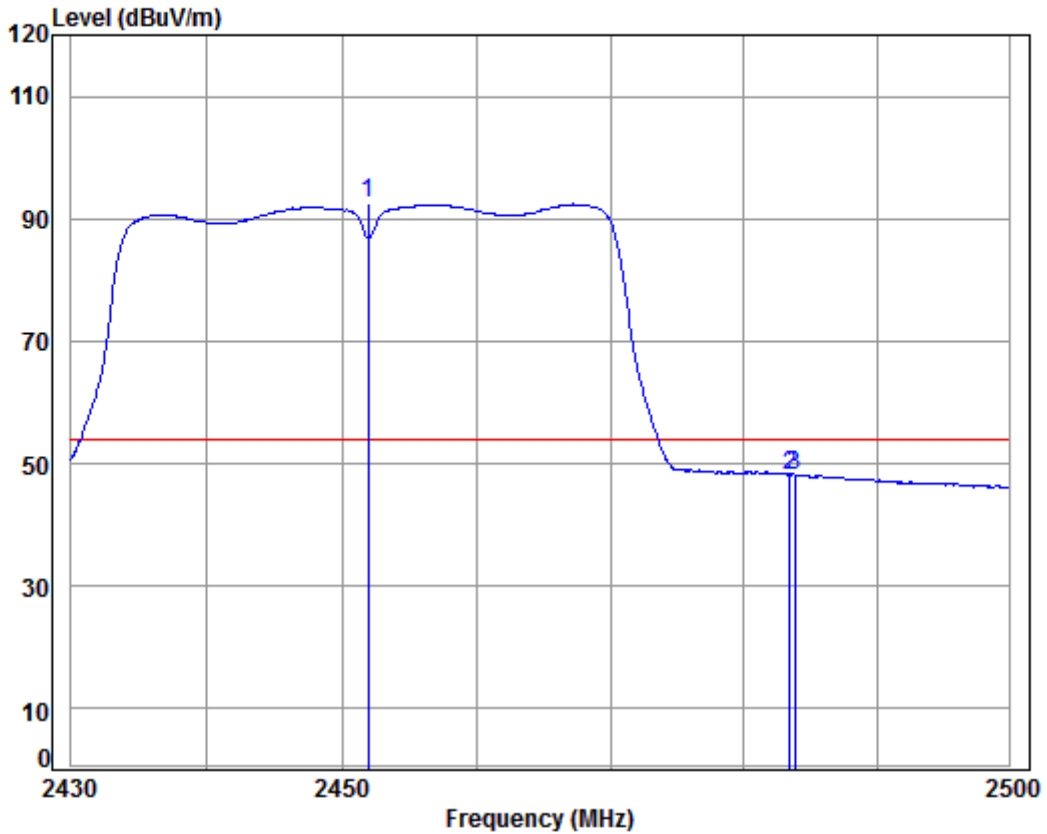
Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:40MHz; Channel:High



Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2452 Band edge  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1 pp	2452.000	5.56	29.26	37.95	102.50	99.37	74.00	25.37 Peak
2	2483.500	5.60	29.35	37.95	58.62	55.62	74.00	-18.38 Peak
3	2486.194	5.60	29.36	37.95	61.12	58.13	74.00	-15.87 Peak

Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:40MHz; Channel:High



Condition: 3m VERTICAL  
 Job No : 07674CR/07675CR  
 Mode : 2452 Band edge  
 : 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2452.000	5.56	29.26	37.95	95.51	92.38	54.00	38.38 Average
2	2483.500	5.60	29.35	37.95	51.13	48.13	54.00	-5.87 Average
3	2483.865	5.60	29.35	37.95	51.21	48.21	54.00	-5.79 Average





### 7.8 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)  
Test Method: ANSI C63.10 (2013) Section 6.10.4  
Measurement Distance: 3m  
Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

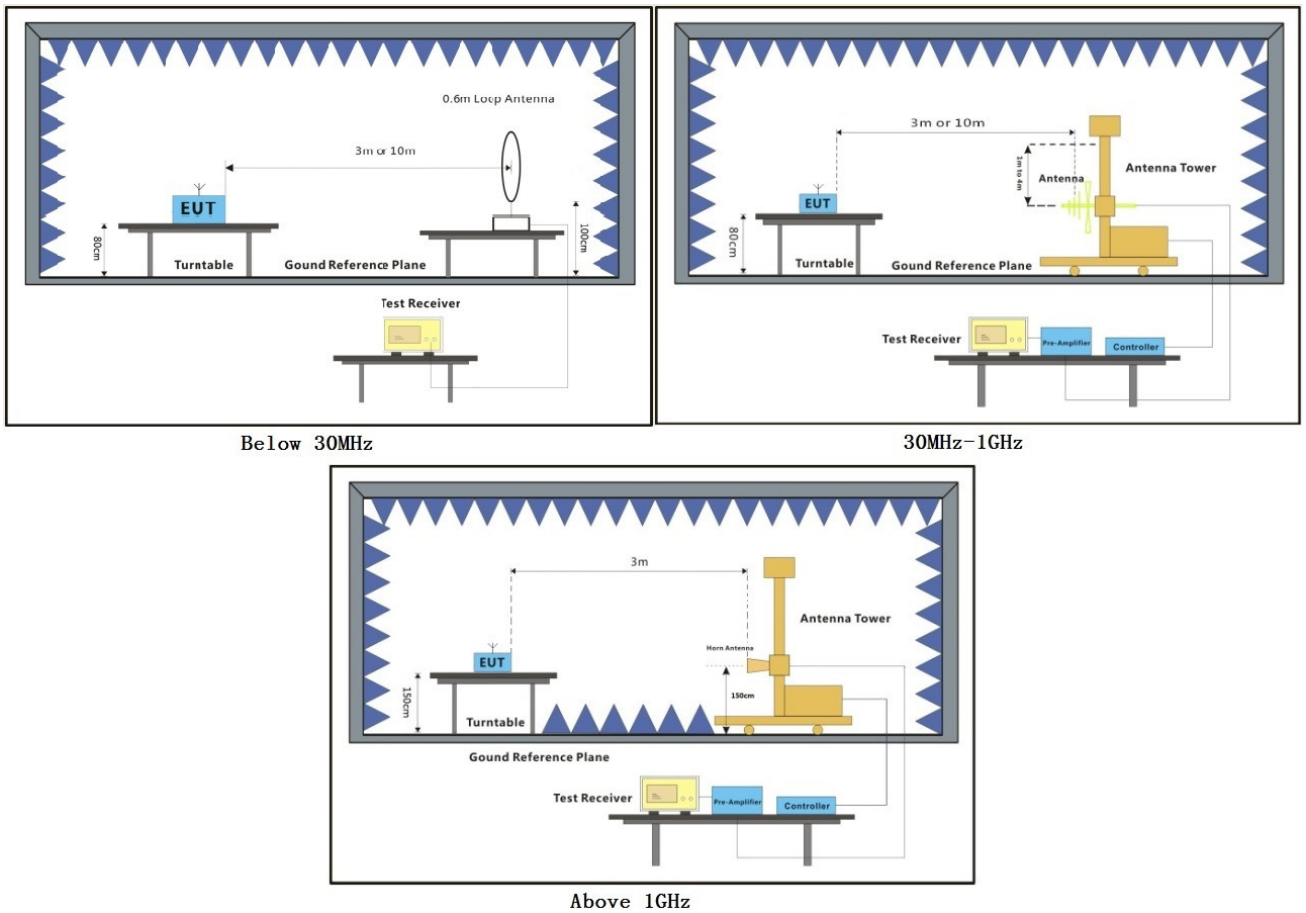
**7.8.1 E.U.T. Operation**

Operating Environment:

Temperature: 25 °C      Humidity: 55 % RH      Atmospheric Pressure: 1005 mbar

Pretest these g:TX mode\_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

**7.8.2 Test Setup Diagram**



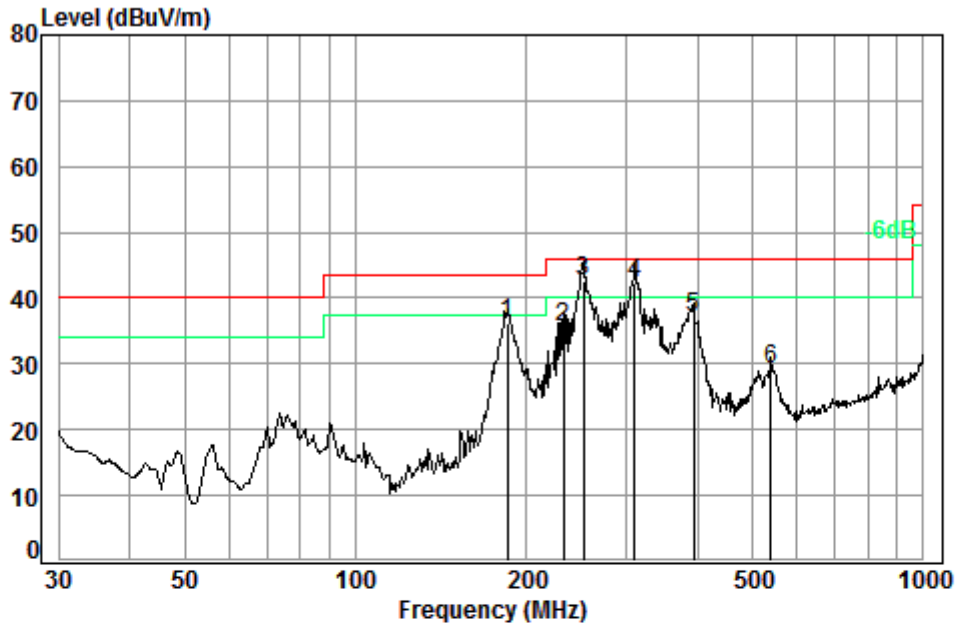


### **7.8.3 Measurement Procedure and Data**

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

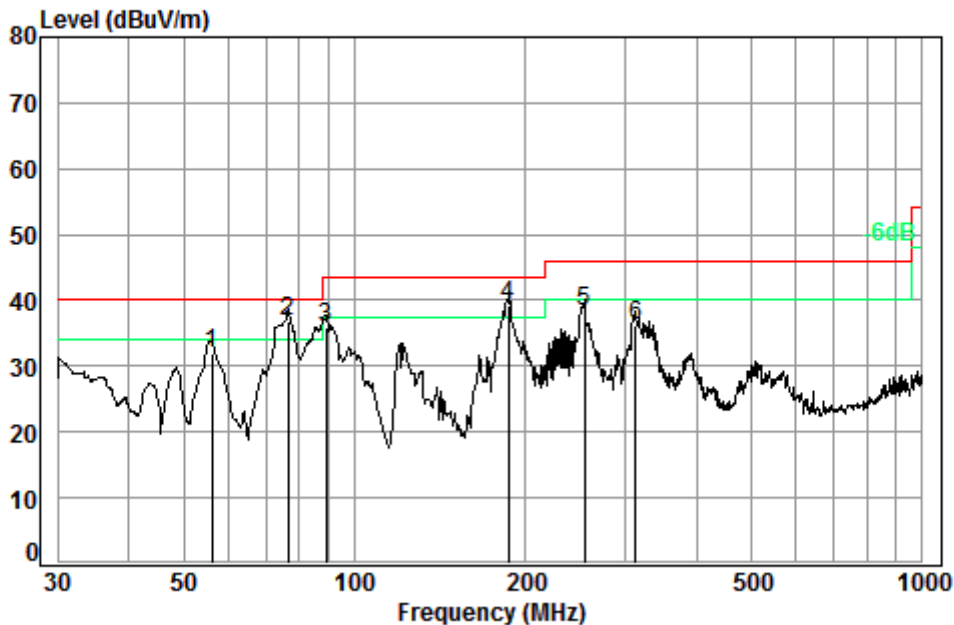
**Radiated emission below 1GHz**  
 Mode:g; Polarization:Horizontal;



Condition: 3m HORIZONTAL  
 Job No. : 07675CR  
 Test Mode: g

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	185.14	1.38	10.00	26.75	51.60	36.23	43.50	-7.27
2	232.53	1.59	11.74	26.59	48.91	35.65	46.00	-10.35
3 pp	252.06	1.68	12.34	26.53	55.13	42.62	46.00	-3.38
4	310.00	1.93	14.26	26.48	52.46	42.17	46.00	-3.83
5	393.47	2.18	16.22	27.09	45.80	37.11	46.00	-8.89
6	539.48	2.64	18.73	27.63	35.43	29.17	46.00	-16.83

Mode:g; Polarization:Vertical;



Condition: 3m VERTICAL

Job No. : 07675CR

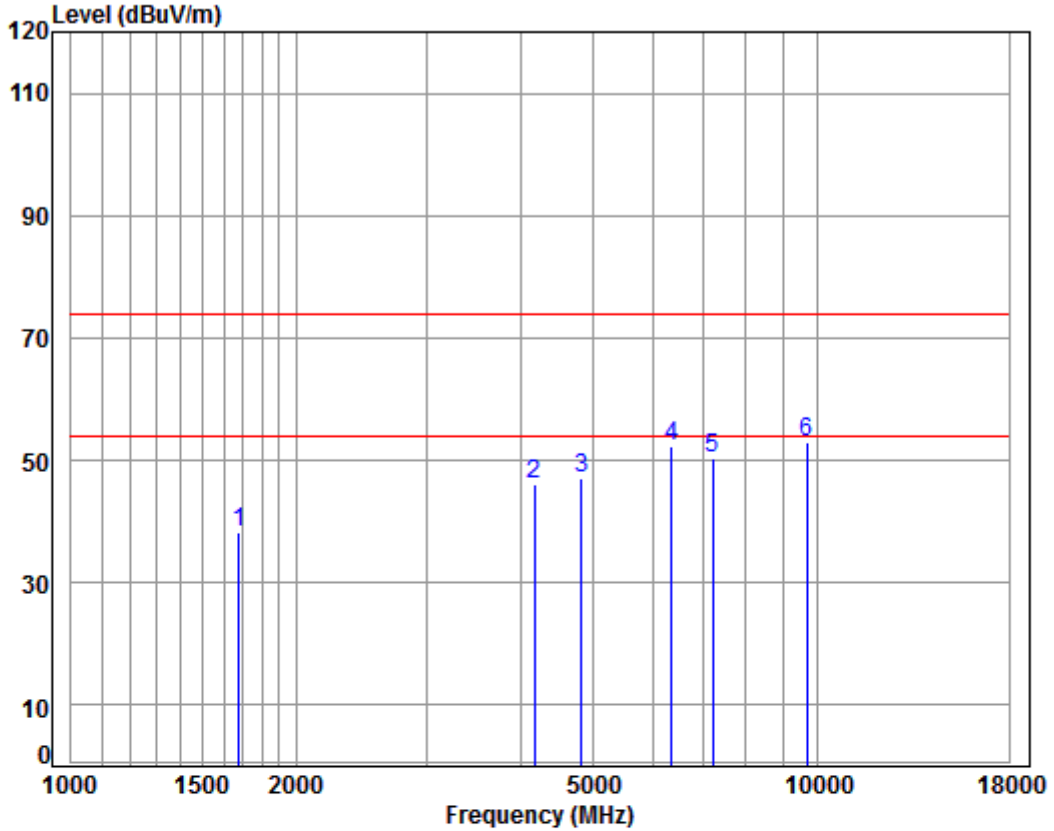
Test Mode: g

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	56.20	0.80	7.77	27.27	50.60	31.90	40.00	-8.10
2 pp	76.51	1.00	7.42	27.23	55.54	36.73	40.00	-3.27
3	89.28	1.10	8.63	27.22	53.28	35.79	43.50	-7.71
4	187.10	1.38	10.04	26.75	54.69	39.36	43.50	-4.14
5	253.84	1.69	12.38	26.53	50.70	38.24	46.00	-7.76
6	312.18	1.94	14.34	26.50	46.40	36.18	46.00	-9.82



**Transmitter emission above 1GHz**

Mode:g; Polarization:Horizontal; Modulation Type:802.11b; bandwidth:20MHz; Channel:Low

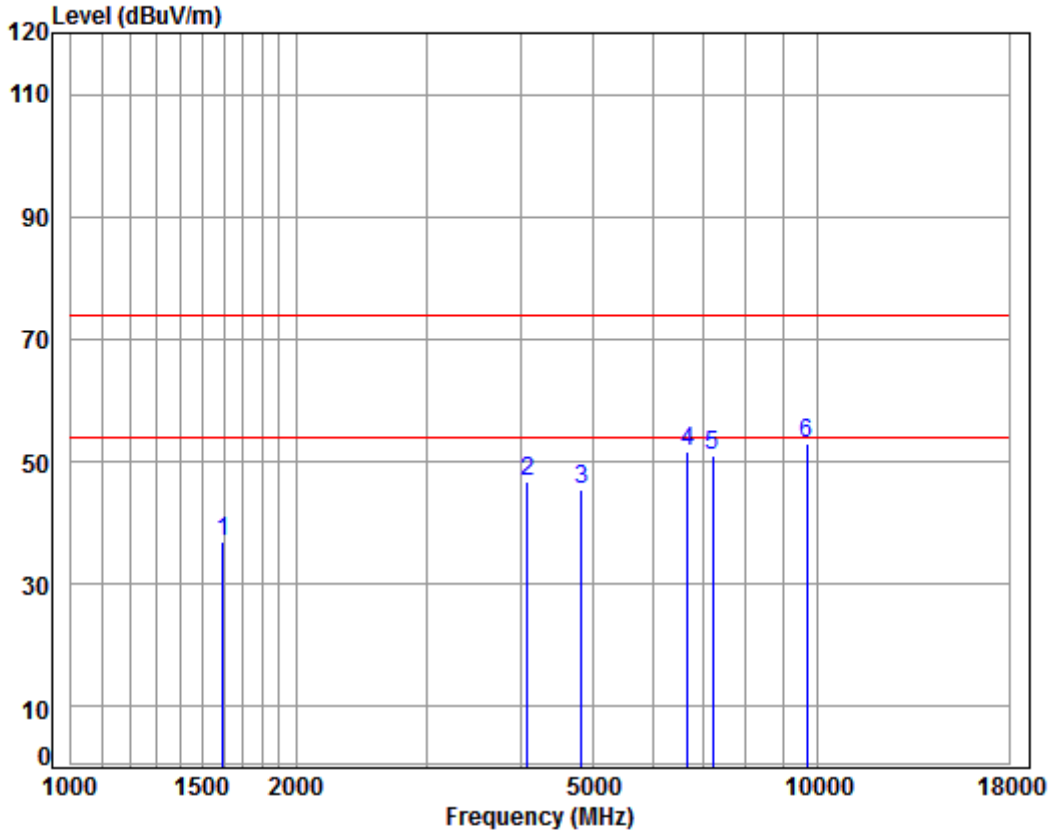


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 TX RSE  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	5.25	26.58	38.03	44.39	38.19	74.00	-35.81	peak
2	4169.698	7.18	33.60	38.09	43.31	46.00	74.00	-28.00	peak
3	4824.000	7.91	34.19	38.42	43.38	47.06	74.00	-26.94	peak
4	6358.789	11.27	34.99	37.92	43.88	52.22	74.00	-21.78	peak
5	7236.000	10.07	36.40	37.08	41.09	50.48	74.00	-23.52	peak
6 pp	9648.000	10.77	37.53	35.07	39.70	52.93	74.00	-21.07	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11b; bandwidth:20MHz; Channel:Low

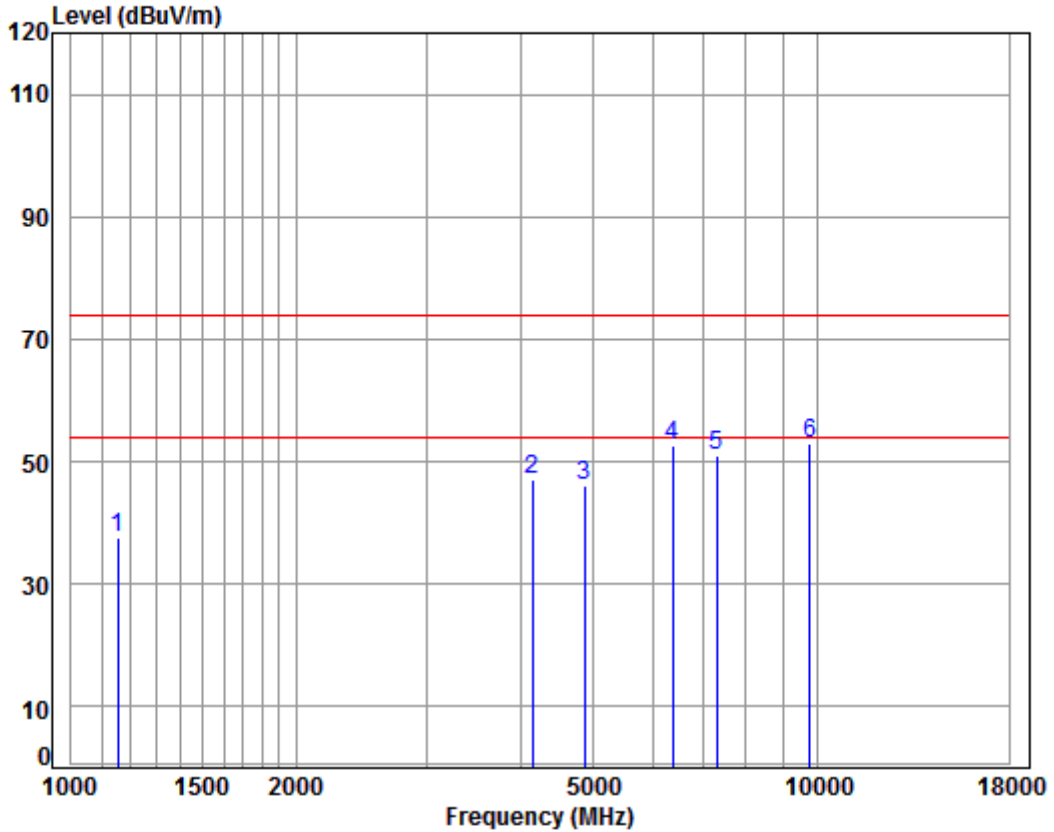


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 TX RSE  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	
1	1597.181	5.35	26.24	38.03	43.53	74.00	-36.91	peak
2	4086.182	7.08	33.60	38.05	44.19	74.00	-27.18	peak
3	4824.000	7.91	34.19	38.42	41.74	74.00	-28.58	peak
4	6679.040	11.02	35.61	37.60	42.52	74.00	-22.45	peak
5	7236.000	10.07	36.40	37.08	41.57	74.00	-23.04	peak
6 pp	9648.000	10.77	37.53	35.07	39.79	74.00	-20.98	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11b; bandwidth:20MHz; Channel:middle



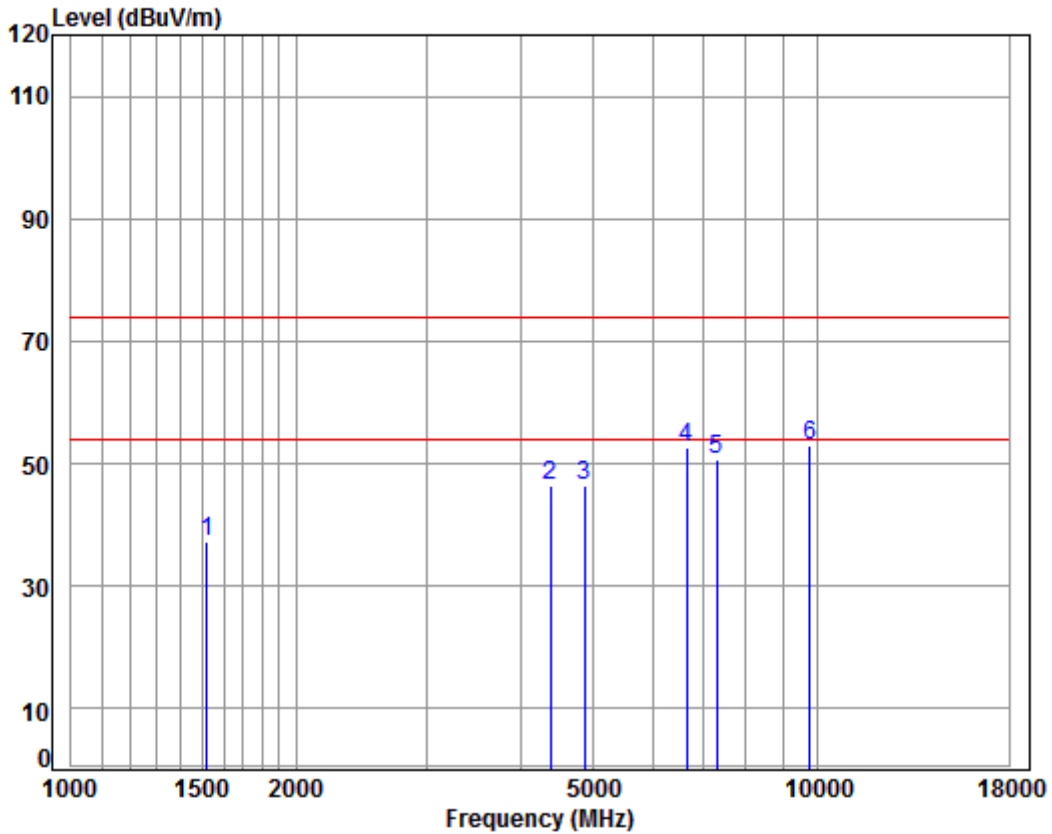
Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1155.483	4.24	24.26	38.08	47.33	37.75	74.00	-36.25	peak
2	4145.664	7.16	33.60	38.08	44.36	47.04	74.00	-26.96	peak
3	4874.000	7.96	34.28	38.44	42.25	46.05	74.00	-27.95	peak
4	6377.195	11.31	35.00	37.90	44.21	52.62	74.00	-21.38	peak
5	7311.000	10.05	36.37	37.01	41.48	50.89	74.00	-23.11	peak
6 pp	9748.000	10.82	37.55	35.02	39.63	52.98	74.00	-21.02	peak





Mode:g; Polarization:Vertical; Modulation Type:802.11b; bandwidth:20MHz; Channel:middle

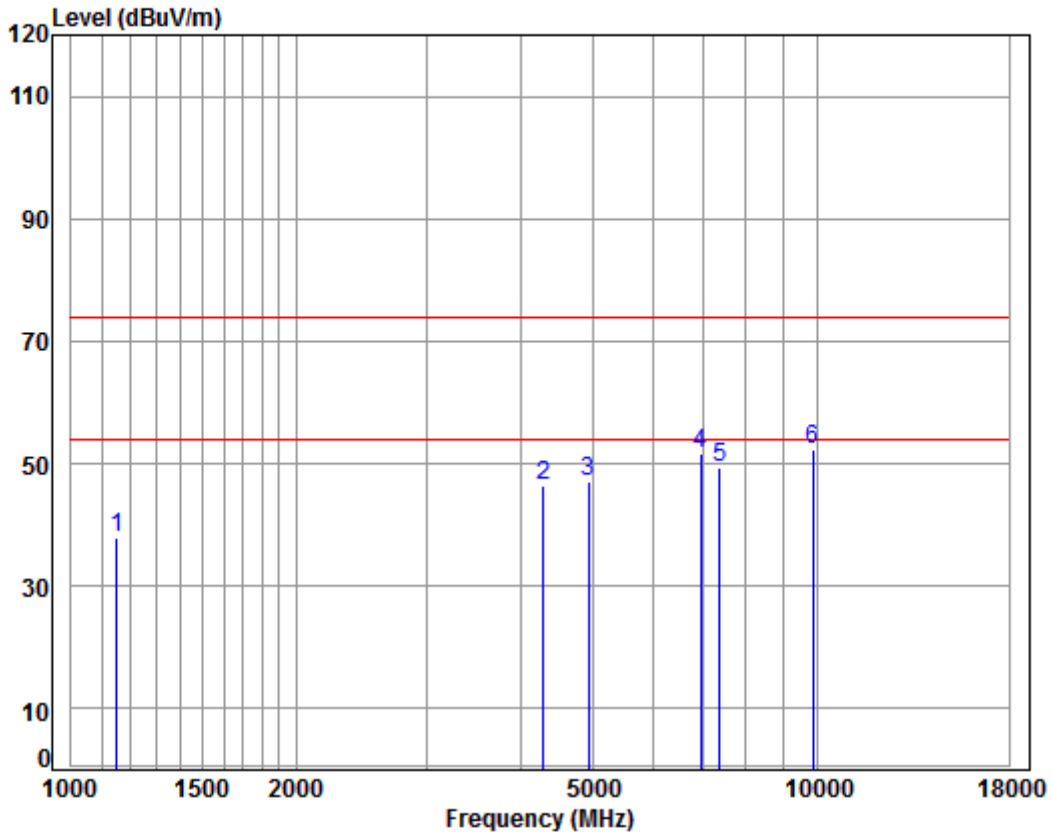


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1520.598	5.45	25.89	38.04	44.09	37.39	74.00	-36.61	peak
2	4379.699	7.43	33.60	38.20	43.44	46.27	74.00	-27.73	peak
3	4874.000	7.96	34.28	38.44	42.64	46.44	74.00	-27.56	peak
4	6659.763	11.08	35.56	37.62	43.62	52.64	74.00	-21.36	peak
5	7311.000	10.05	36.37	37.01	41.36	50.77	74.00	-23.23	peak
6	pp 9748.000	10.82	37.55	35.02	39.78	53.13	74.00	-20.87	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11b; bandwidth:20MHz; Channel:High

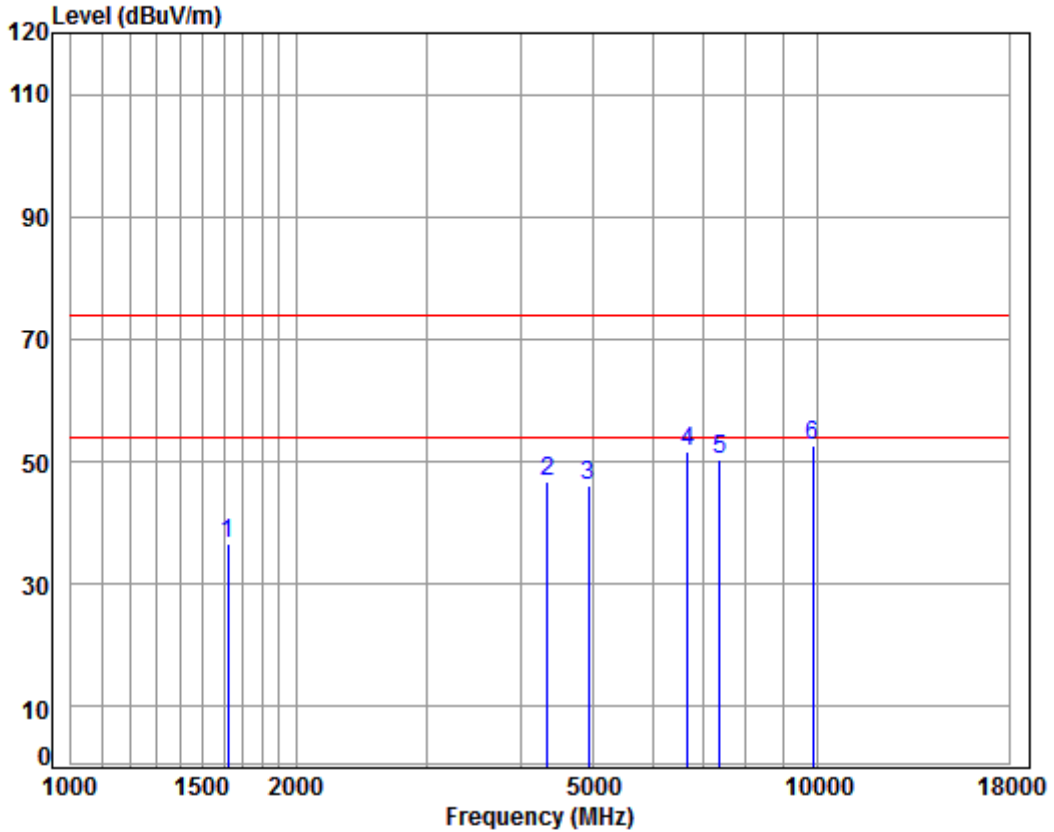


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2462 TX RSE  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1152.148	4.22	24.24	38.08	47.62	38.00	74.00	-36.00 peak
2	4291.977	7.33	33.60	38.16	43.77	46.54	74.00	-27.46 peak
3	4924.000	8.01	34.37	38.47	43.20	47.11	74.00	-26.89 peak
4	6954.852	10.25	36.38	37.34	42.35	51.64	74.00	-22.36 peak
5	7386.000	10.03	36.34	36.94	39.86	49.29	74.00	-24.71 peak
6 pp	9848.000	10.87	37.57	34.97	39.00	52.47	74.00	-21.53 peak



Mode:g; Polarization:Vertical; Modulation Type:802.11b; bandwidth:20MHz; Channel:High

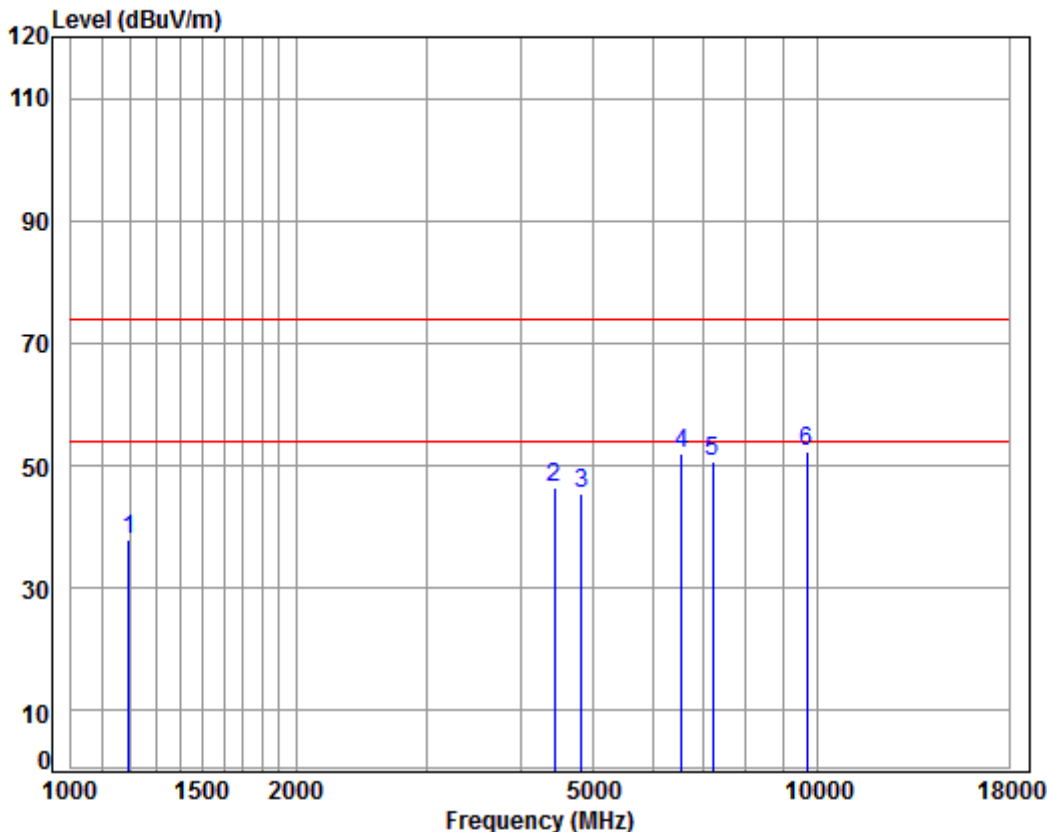


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2462 TX RSE  
: 2.4G WIFI 11B

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1620.431	5.32	26.34	38.03	43.14	36.77	74.00	-37.23	peak
2	4341.886	7.38	33.60	38.18	44.09	46.89	74.00	-27.11	peak
3	4924.000	8.01	34.37	38.47	42.18	46.09	74.00	-27.91	peak
4	6679.040	11.02	35.61	37.60	42.74	51.77	74.00	-22.23	peak
5	7386.000	10.03	36.34	36.94	40.86	50.29	74.00	-23.71	peak
6 pp	9848.000	10.87	37.57	34.97	39.16	52.63	74.00	-21.37	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11g; bandwidth:20MHz; Channel:Low

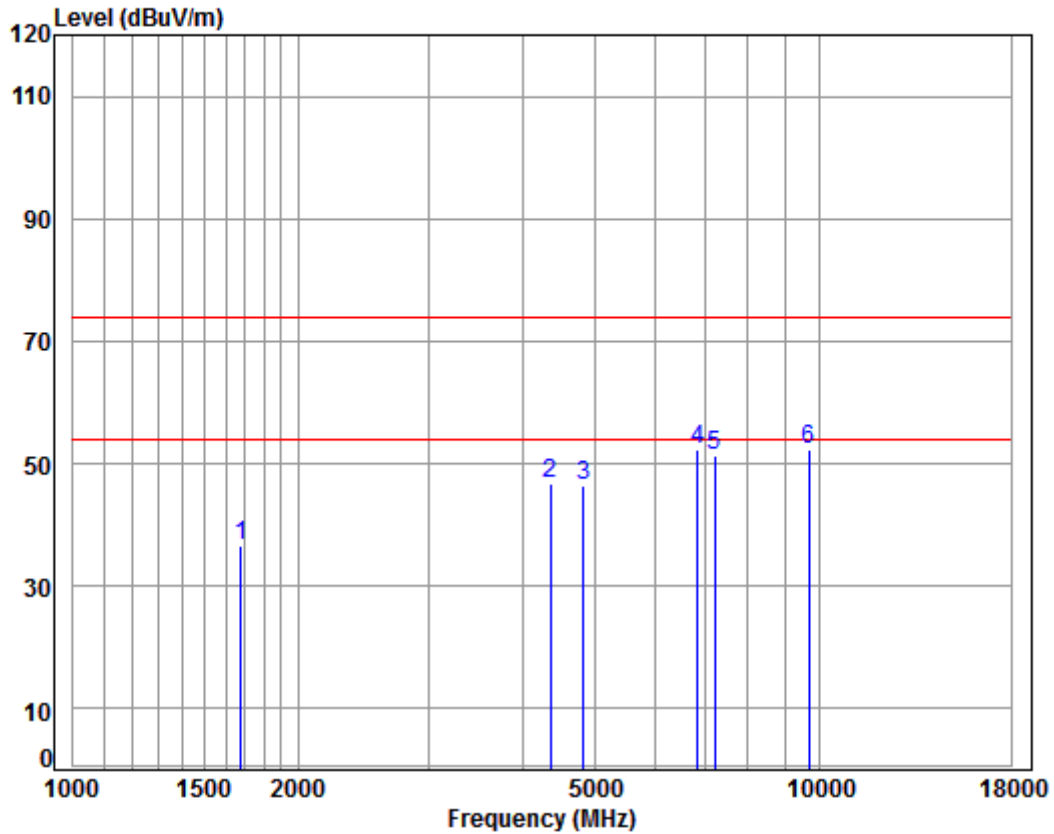


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 TX RSE  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1196.264	4.40	24.46	38.07	47.13	37.92	74.00	-36.08	peak
2	4443.453	7.50	33.60	38.24	43.58	46.44	74.00	-27.56	peak
3	4824.000	7.91	34.19	38.42	41.71	45.39	74.00	-28.61	peak
4	6564.209	11.35	35.29	37.72	43.20	52.12	74.00	-21.88	peak
5	7236.000	10.07	36.40	37.08	41.27	50.66	74.00	-23.34	peak
6 pp	9648.000	10.77	37.53	35.07	38.96	52.19	74.00	-21.81	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11g; bandwidth:20MHz; Channel:Low

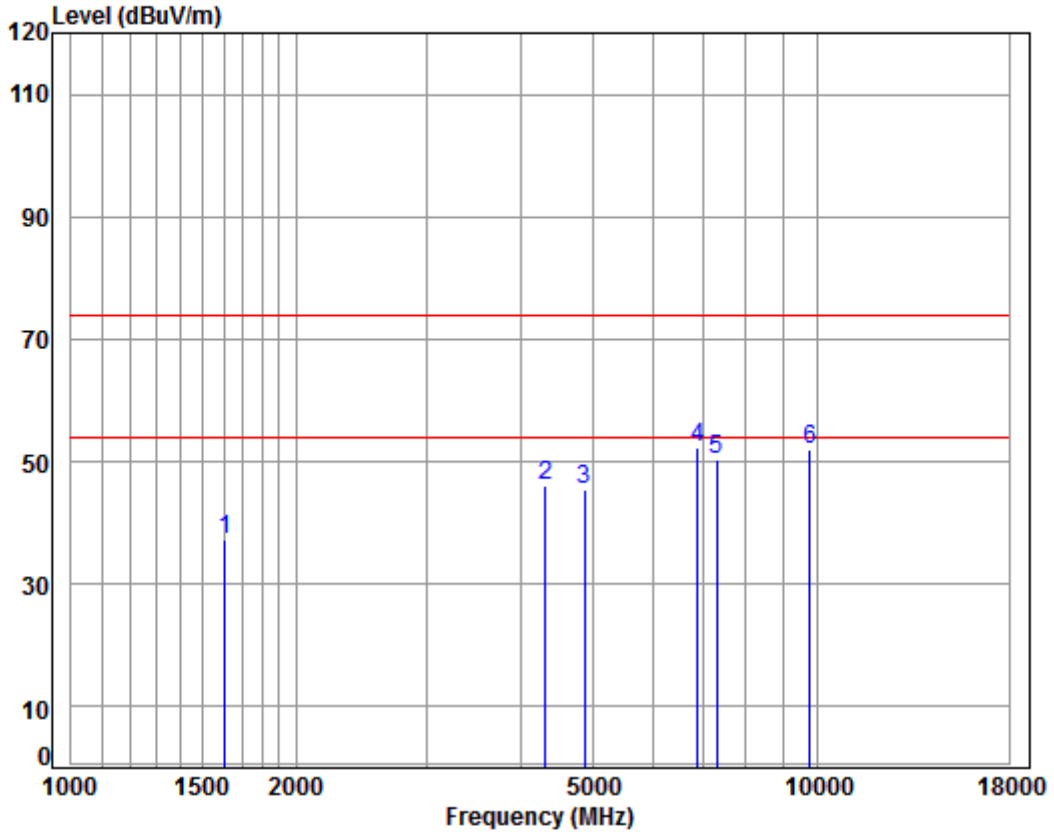


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 TX RSE  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	1677.621	5.25	26.58	38.03	42.90	36.70	74.00	-37.30 peak
2	4354.454	7.40	33.60	38.19	44.08	46.89	74.00	-27.11 peak
3	4824.000	7.91	34.19	38.42	42.74	46.42	74.00	-27.58 peak
4	6855.063	10.53	36.10	37.44	43.05	52.24	74.00	-21.76 peak
5	7236.000	10.07	36.40	37.08	41.93	51.32	74.00	-22.68 peak
6 pp	9648.000	10.77	37.53	35.07	39.10	52.33	74.00	-21.67 peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11g; bandwidth:20MHz; Channel:middle

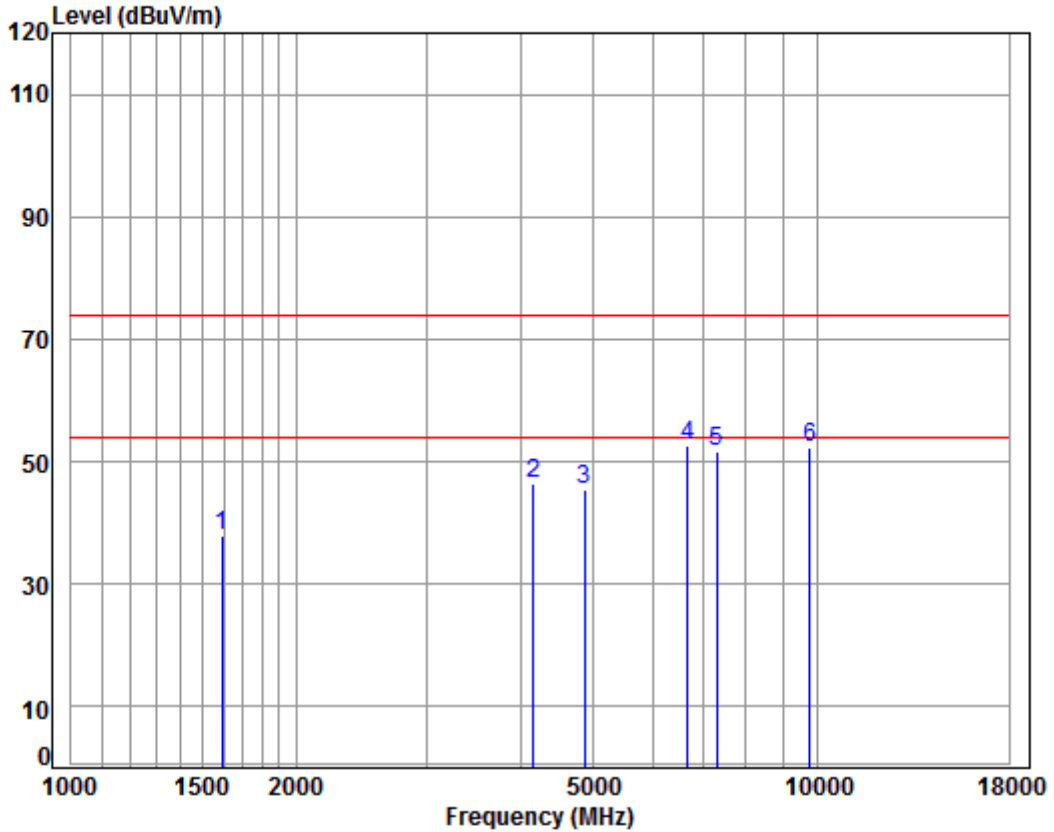


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1606.441	5.34	26.28	38.03	43.55	37.14	74.00	-36.86	peak
2	4316.859	7.36	33.60	38.17	43.40	46.19	74.00	-27.81	peak
3	4874.000	7.96	34.28	38.44	41.76	45.56	74.00	-28.44	peak
4 pp	6894.806	10.42	36.21	37.40	43.13	52.36	74.00	-21.64	peak
5	7311.000	10.05	36.37	37.01	40.93	50.34	74.00	-23.66	peak
6	9748.000	10.82	37.55	35.02	38.50	51.85	74.00	-22.15	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11g; bandwidth:20MHz; Channel:middle

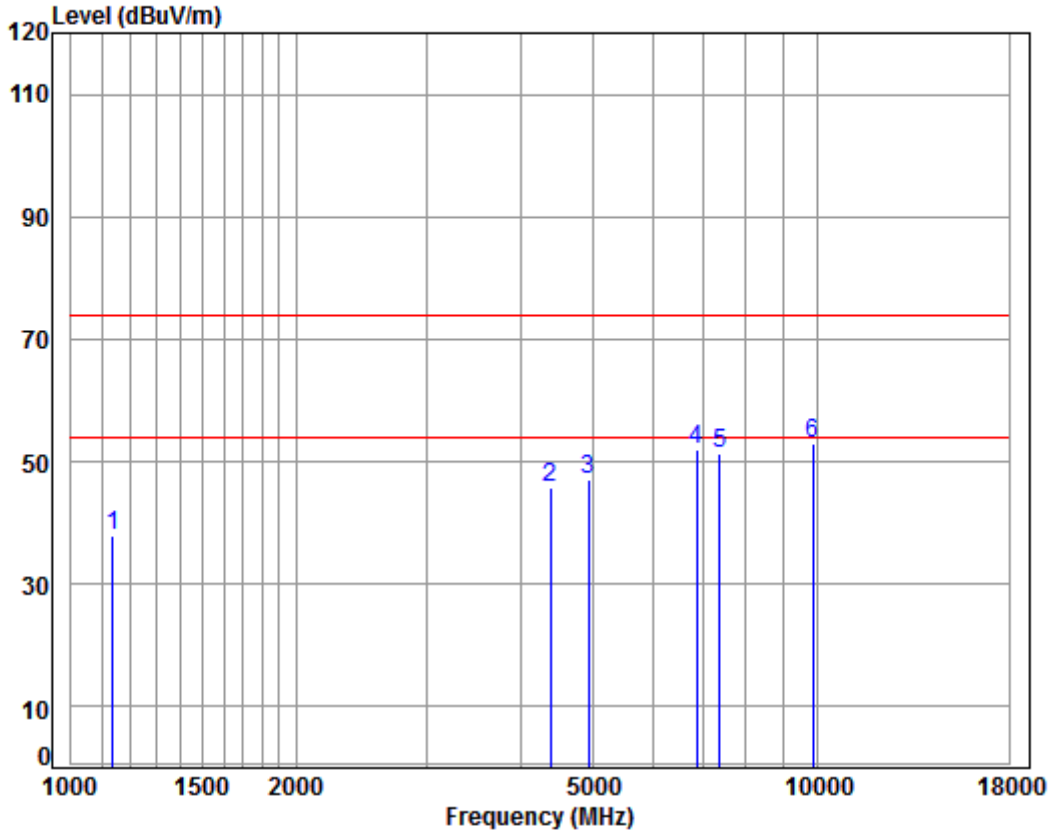


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1592.571	5.36	26.22	38.03	44.52	38.07	74.00	-35.93	peak
2	4157.664	7.17	33.60	38.09	43.72	46.40	74.00	-27.60	peak
3	4874.000	7.96	34.28	38.44	41.66	45.46	74.00	-28.54	peak
4 pp	6698.373	10.97	35.67	37.59	43.59	52.64	74.00	-21.36	peak
5	7311.000	10.05	36.37	37.01	42.22	51.63	74.00	-22.37	peak
6	9748.000	10.82	37.55	35.02	39.06	52.41	74.00	-21.59	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11g; bandwidth:20MHz; Channel:High



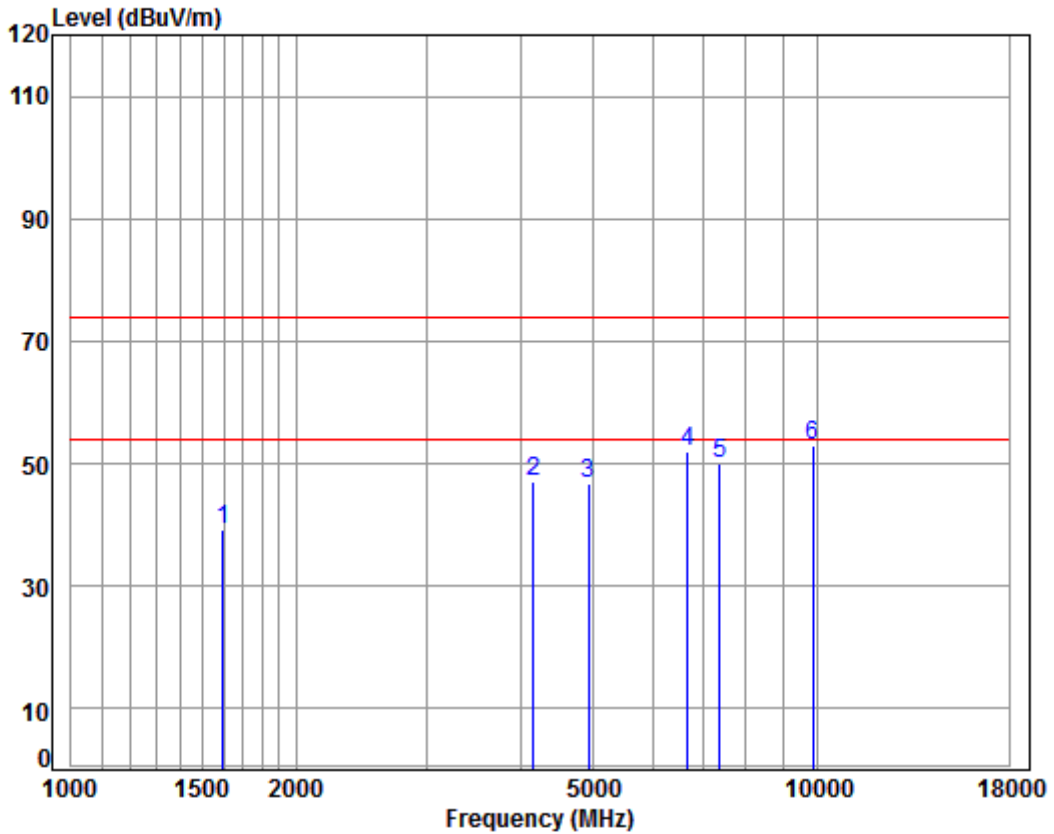
Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2462 TX RSE  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1138.904	4.17	24.17	38.08	47.61	37.87	74.00	-36.13	peak
2	4379.699	7.43	33.60	38.20	43.01	45.84	74.00	-28.16	peak
3	4924.000	8.01	34.37	38.47	43.18	47.09	74.00	-26.91	peak
4	6874.906	10.47	36.16	37.42	42.86	52.07	74.00	-21.93	peak
5	7386.000	10.03	36.34	36.94	41.98	51.41	74.00	-22.59	peak
6 pp	9848.000	10.87	37.57	34.97	39.55	53.02	74.00	-20.98	peak





Mode:g; Polarization:Vertical; Modulation Type:802.11g; bandwidth:20MHz; Channel:High

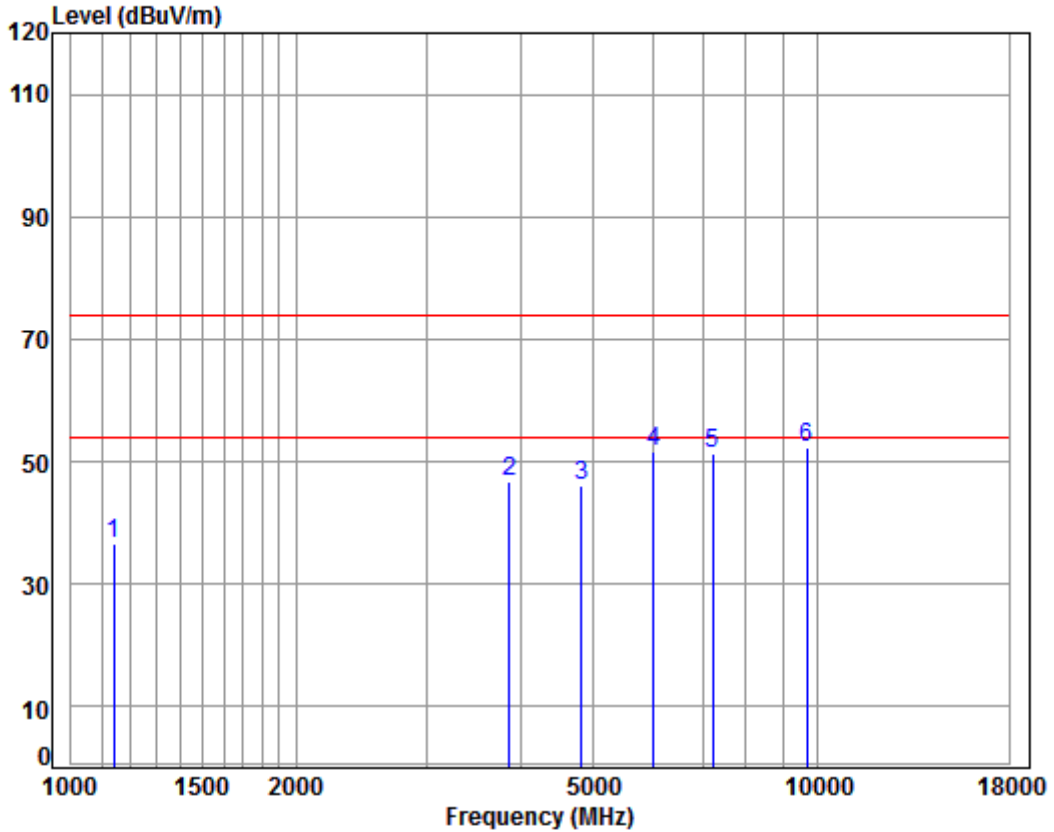


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2462 TX RSE  
: 2.4G WIFI 11G

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1597.181	5.35	26.24	38.03	45.63	39.19	74.00	-34.81	peak
2	4157.664	7.17	33.60	38.09	44.45	47.13	74.00	-26.87	peak
3	4924.000	8.01	34.37	38.47	42.78	46.69	74.00	-27.31	peak
4	6679.040	11.02	35.61	37.60	43.08	52.11	74.00	-21.89	peak
5	7386.000	10.03	36.34	36.94	40.49	49.92	74.00	-24.08	peak
6 pp	9848.000	10.87	37.57	34.97	39.54	53.01	74.00	-20.99	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:20MHz; Channel:Low

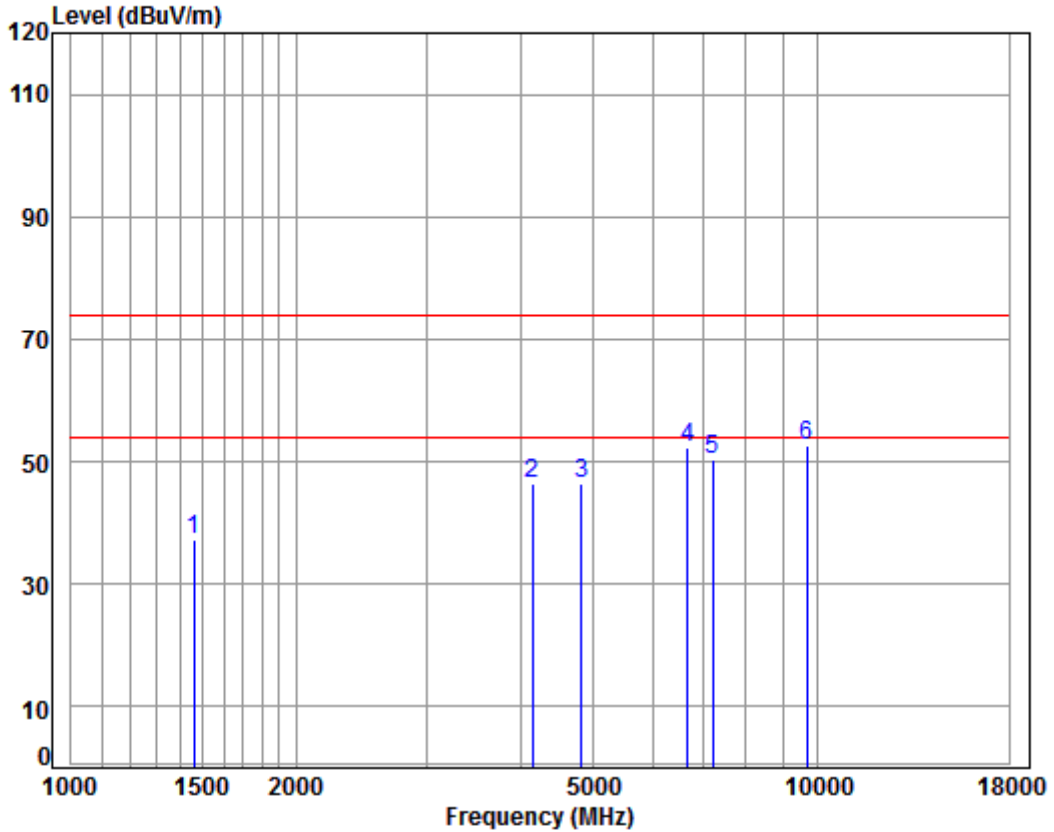


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2412 TX RSE  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1142.201	4.18	24.19	38.08	46.46	36.75	74.00	-37.25	peak
2	3856.668	6.84	33.22	37.99	44.55	46.62	74.00	-27.38	peak
3	4824.000	7.91	34.19	38.42	42.48	46.16	74.00	-27.84	peak
4	6018.999	10.61	34.72	38.28	44.67	51.72	74.00	-22.28	peak
5	7236.000	10.07	36.40	37.08	41.97	51.36	74.00	-22.64	peak
6 pp	9648.000	10.77	37.53	35.07	39.01	52.24	74.00	-21.76	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:20MHz; Channel:Low

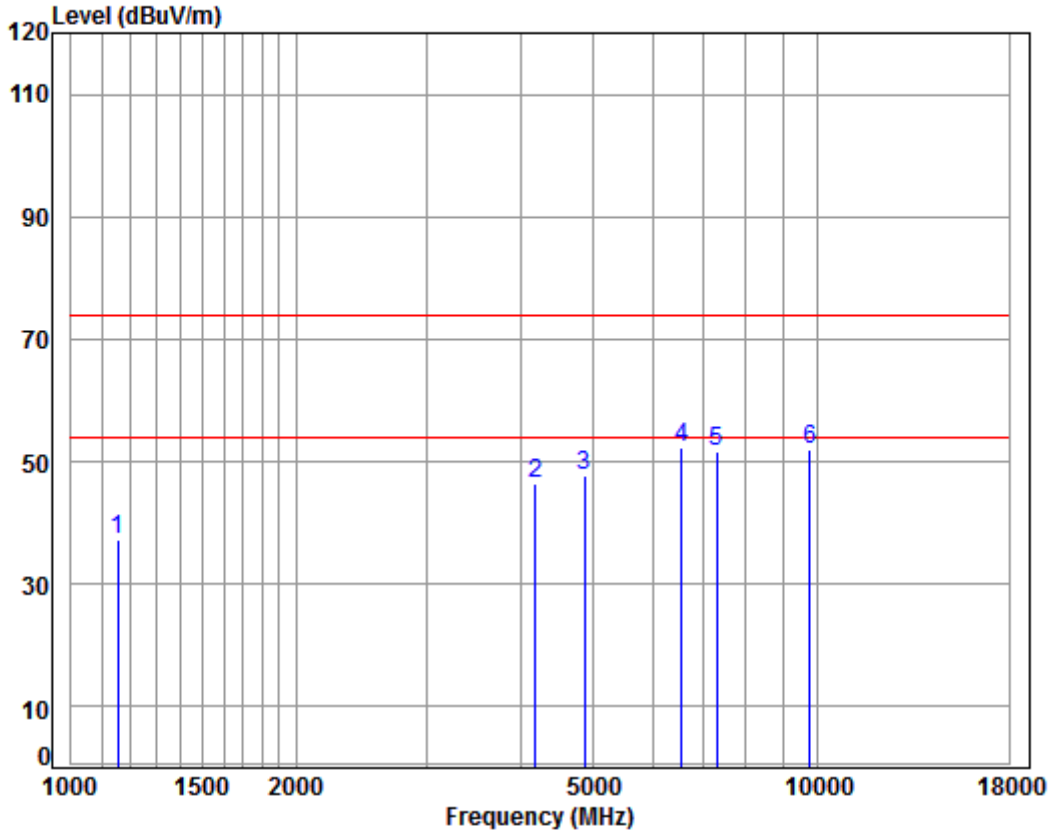


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2412 TX RSE  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1460.295	5.35	25.64	38.05	44.31	37.25	74.00	-36.75	peak
2	4145.664	7.16	33.60	38.08	43.63	46.31	74.00	-27.69	peak
3	4824.000	7.91	34.19	38.42	42.69	46.37	74.00	-27.63	peak
4	6679.040	11.02	35.61	37.60	43.30	52.33	74.00	-21.67	peak
5	7236.000	10.07	36.40	37.08	40.95	50.34	74.00	-23.66	peak
6 pp	9648.000	10.77	37.53	35.07	39.50	52.73	74.00	-21.27	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:20MHz; Channel:middle

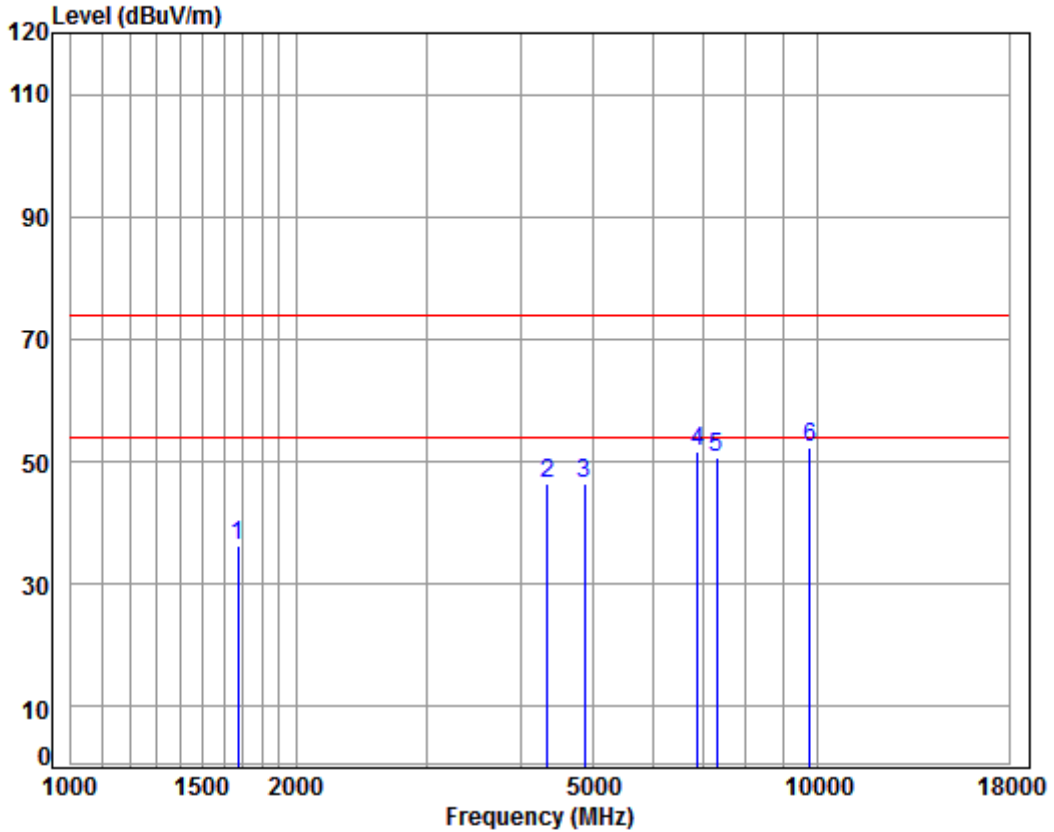


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1155.483	4.24	24.26	38.08	46.75	37.17	74.00	-36.83	peak
2	4181.768	7.20	33.60	38.10	43.60	46.30	74.00	-27.70	peak
3	4874.000	7.96	34.28	38.44	44.06	47.86	74.00	-26.14	peak
4 pp	6564.209	11.35	35.29	37.72	43.26	52.18	74.00	-21.82	peak
5	7311.000	10.05	36.37	37.01	42.11	51.52	74.00	-22.48	peak
6	9748.000	10.82	37.55	35.02	38.78	52.13	74.00	-21.87	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:20MHz; Channel:middle

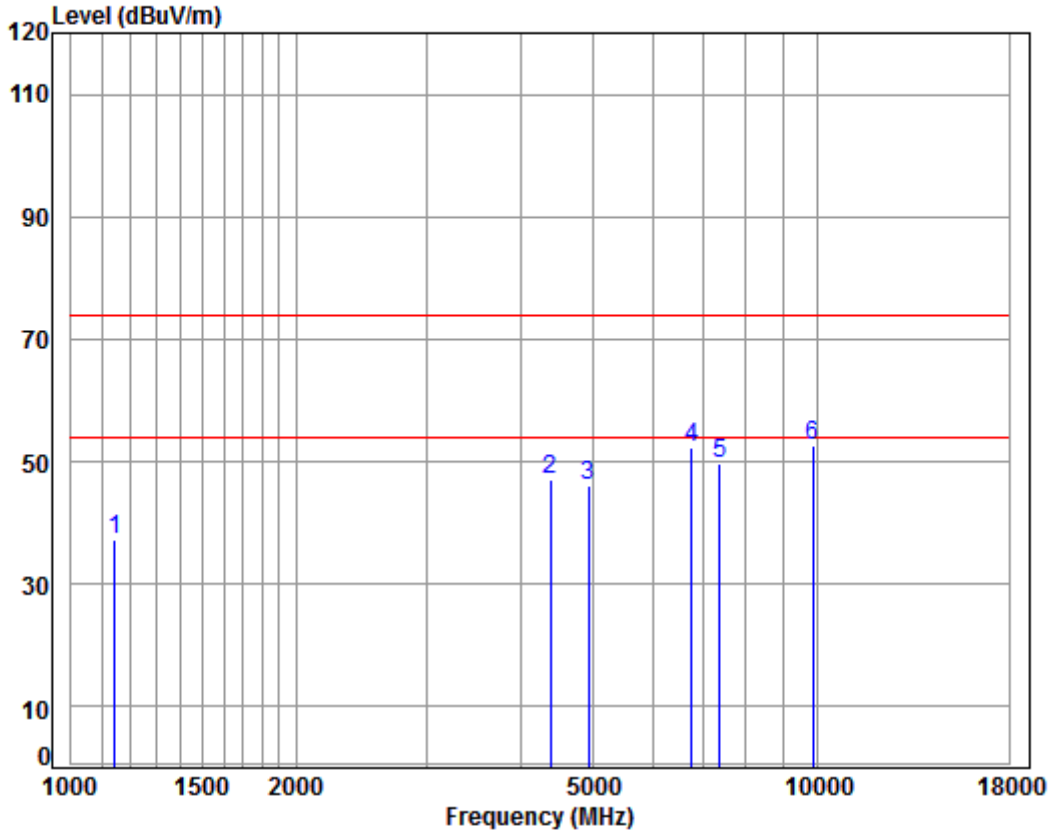


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1672.779	5.26	26.56	38.03	42.56	36.35	74.00	-37.65	peak
2	4341.886	7.38	33.60	38.18	43.76	46.56	74.00	-27.44	peak
3	4874.000	7.96	34.28	38.44	42.61	46.41	74.00	-27.59	peak
4	6894.806	10.42	36.21	37.40	42.49	51.72	74.00	-22.28	peak
5	7311.000	10.05	36.37	37.01	41.26	50.67	74.00	-23.33	peak
6 pp	9748.000	10.82	37.55	35.02	39.00	52.35	74.00	-21.65	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:20MHz; Channel:High

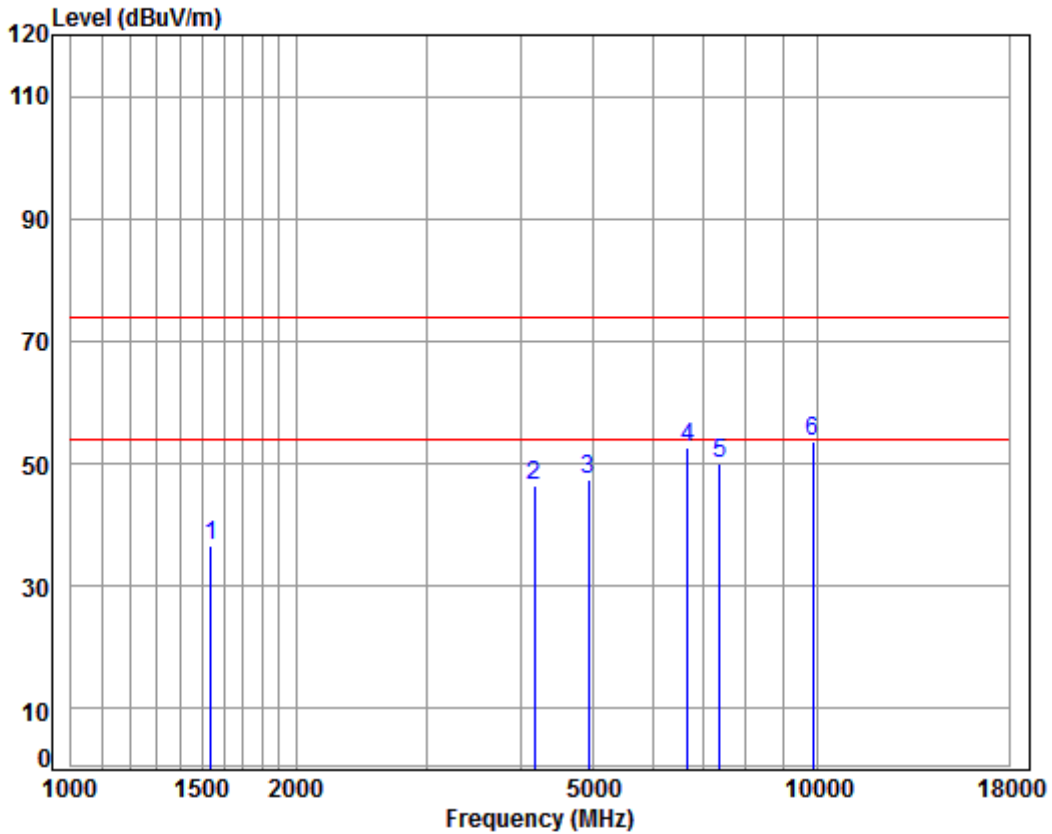


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2462 TX RSE  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1145.507	4.20	24.20	38.08	46.93	37.25	74.00	-36.75	peak
2	4379.699	7.43	33.60	38.20	44.26	47.09	74.00	-26.91	peak
3	4924.000	8.01	34.37	38.47	42.12	46.03	74.00	-27.97	peak
4	6776.265	10.75	35.89	37.51	43.02	52.15	74.00	-21.85	peak
5	7386.000	10.03	36.34	36.94	40.26	49.69	74.00	-24.31	peak
6 pp	9848.000	10.87	37.57	34.97	39.12	52.59	74.00	-21.41	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:20MHz; Channel:High

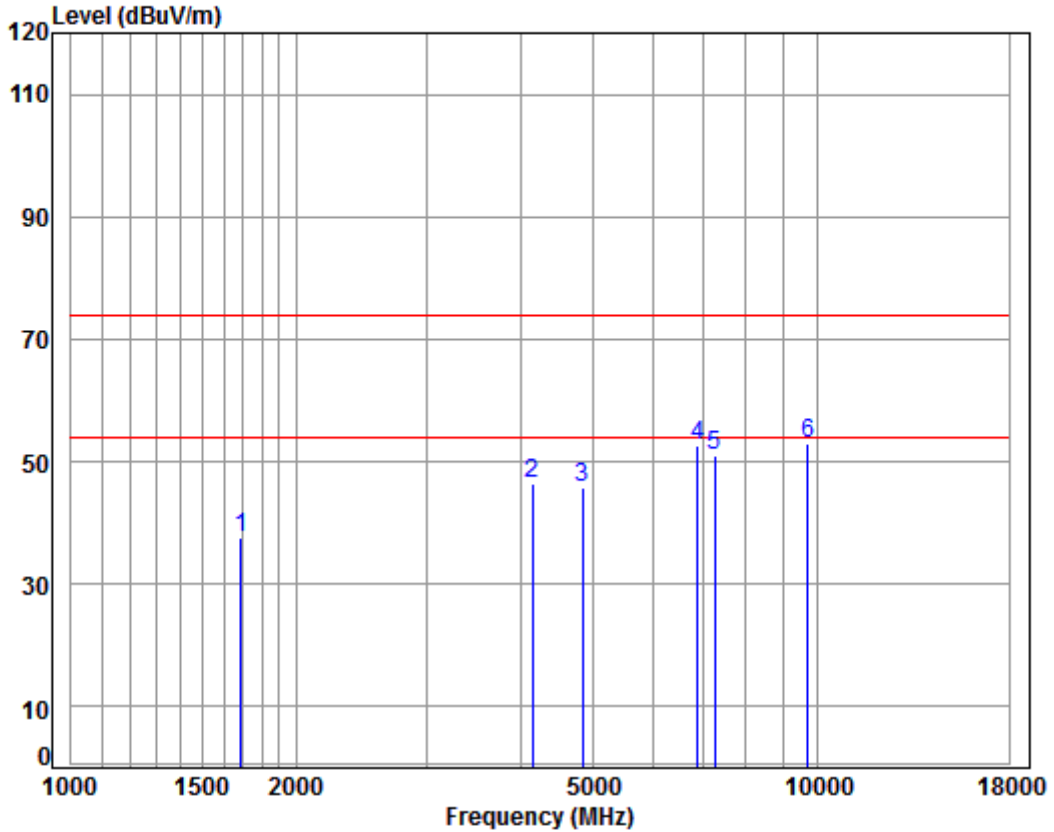


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2462 TX RSE  
: 2.4G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1538.281	5.43	25.98	38.04	43.39	36.76	74.00	-37.24	peak
2	4169.698	7.18	33.60	38.09	43.70	46.39	74.00	-27.61	peak
3	4924.000	8.01	34.37	38.47	43.53	47.44	74.00	-26.56	peak
4	6679.040	11.02	35.61	37.60	43.58	52.61	74.00	-21.39	peak
5	7386.000	10.03	36.34	36.94	40.46	49.89	74.00	-24.11	peak
6 pp	9848.000	10.87	37.57	34.97	40.08	53.55	74.00	-20.45	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:40MHz; Channel:Low



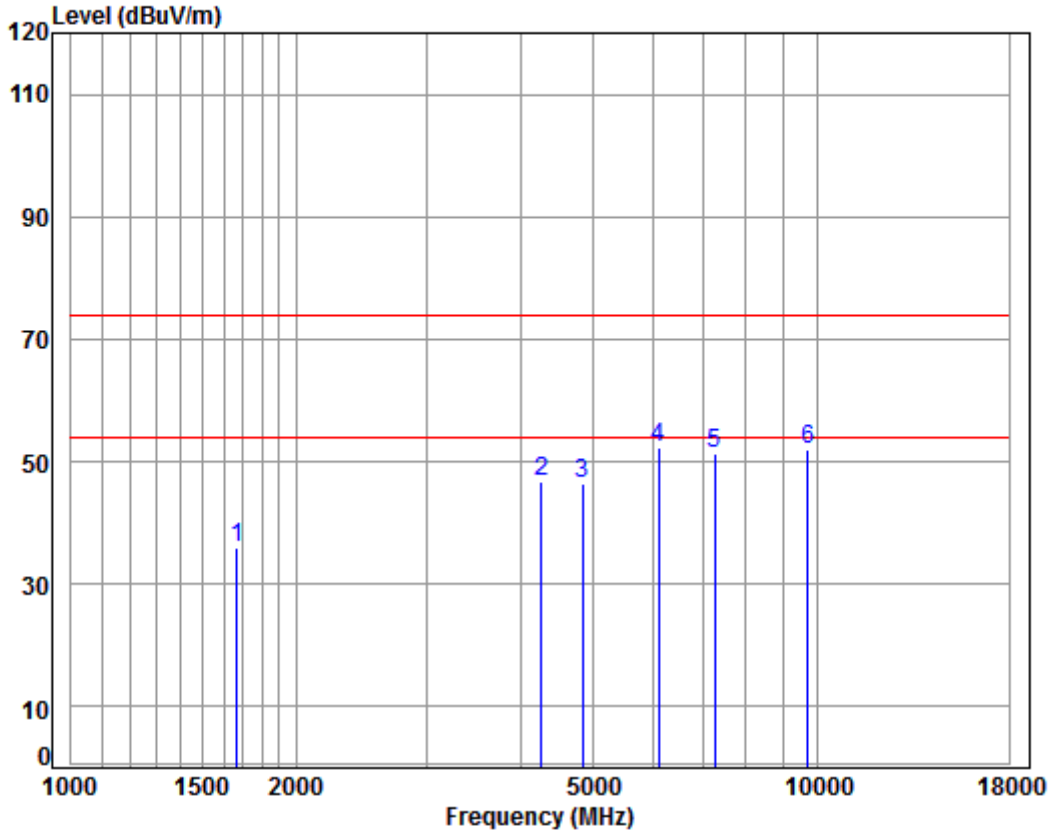
Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2422 TX RSE  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1687.347	5.24	26.62	38.02	43.63	37.47	74.00	-36.53	peak
2	4145.664	7.16	33.60	38.08	43.85	46.53	74.00	-27.47	peak
3	4844.000	7.93	34.23	38.43	42.12	45.85	74.00	-28.15	peak
4	6894.806	10.42	36.21	37.40	43.33	52.56	74.00	-21.44	peak
5	7266.000	10.06	36.39	37.05	41.45	50.85	74.00	-23.15	peak
6 pp	9688.000	10.79	37.54	35.05	39.75	53.03	74.00	-20.97	peak





Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:40MHz; Channel:Low

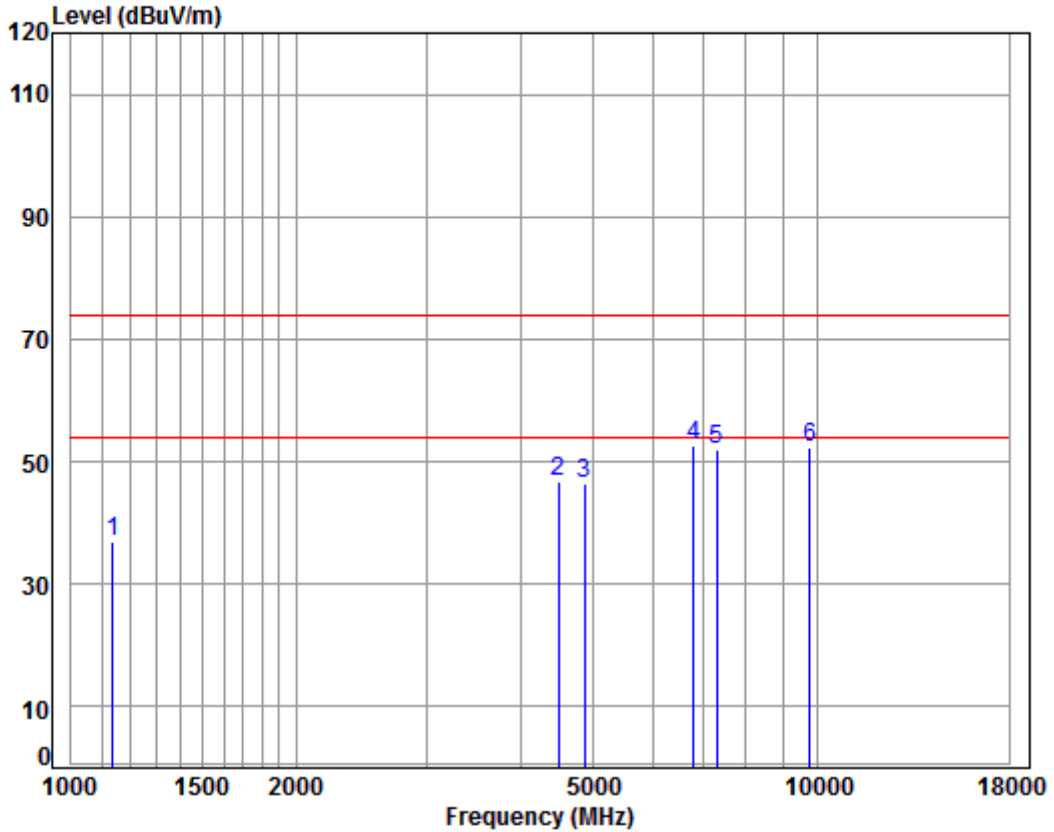


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2422 TX RSE  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1667.951	5.27	26.54	38.03	42.16	35.94	74.00	-38.06	peak
2	4267.237	7.30	33.60	38.14	43.98	46.74	74.00	-27.26	peak
3	4844.000	7.93	34.23	38.43	42.64	46.37	74.00	-27.63	peak
4 pp	6124.292	10.82	34.80	38.17	44.77	52.22	74.00	-21.78	peak
5	7266.000	10.06	36.39	37.05	41.82	51.22	74.00	-22.78	peak
6	9688.000	10.79	37.54	35.05	38.73	52.01	74.00	-21.99	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:40MHz; Channel:middle

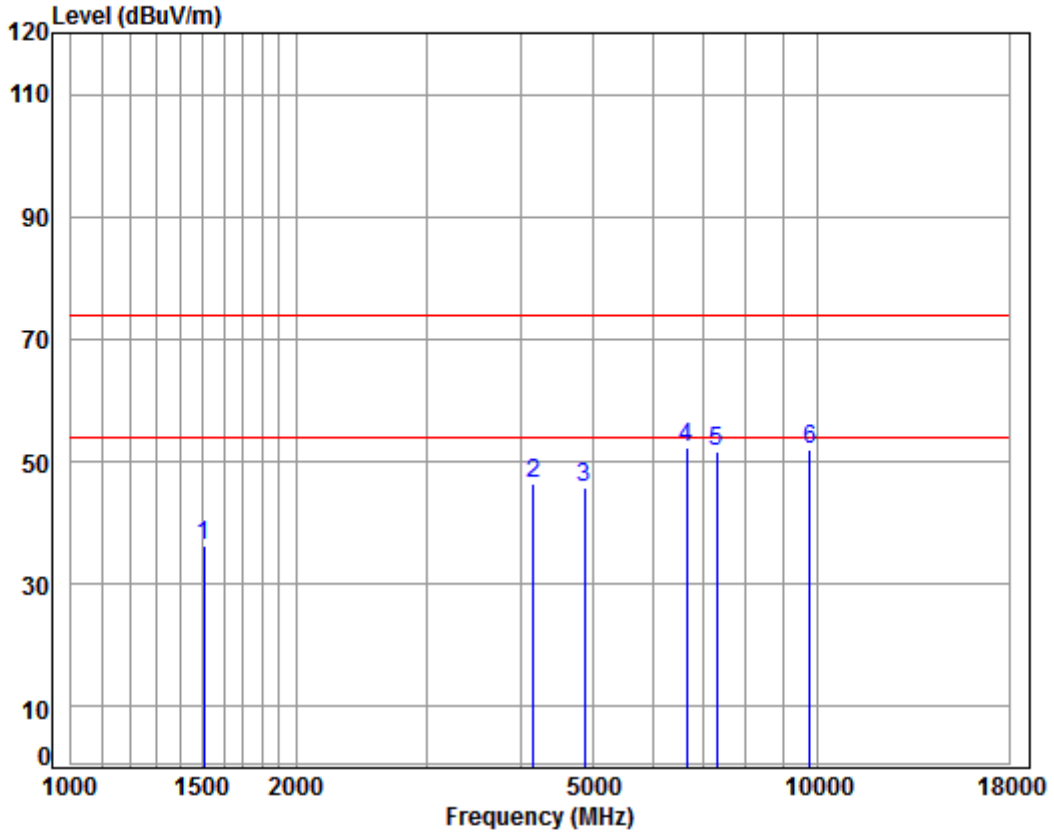


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2422 TX RSE  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1138.904	4.17	24.17	38.08	46.68	36.94	74.00	-37.06	peak
2	4495.125	7.55	33.60	38.26	44.00	46.89	74.00	-27.11	peak
3	4874.000	7.96	34.28	38.44	42.69	46.49	74.00	-27.51	peak
4 pp	6815.551	10.64	36.00	37.47	43.44	52.61	74.00	-21.39	peak
5	7311.000	10.05	36.37	37.01	42.57	51.98	74.00	-22.02	peak
6	9748.000	10.82	37.55	35.02	38.88	52.23	74.00	-21.77	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:40MHz; Channel:middle

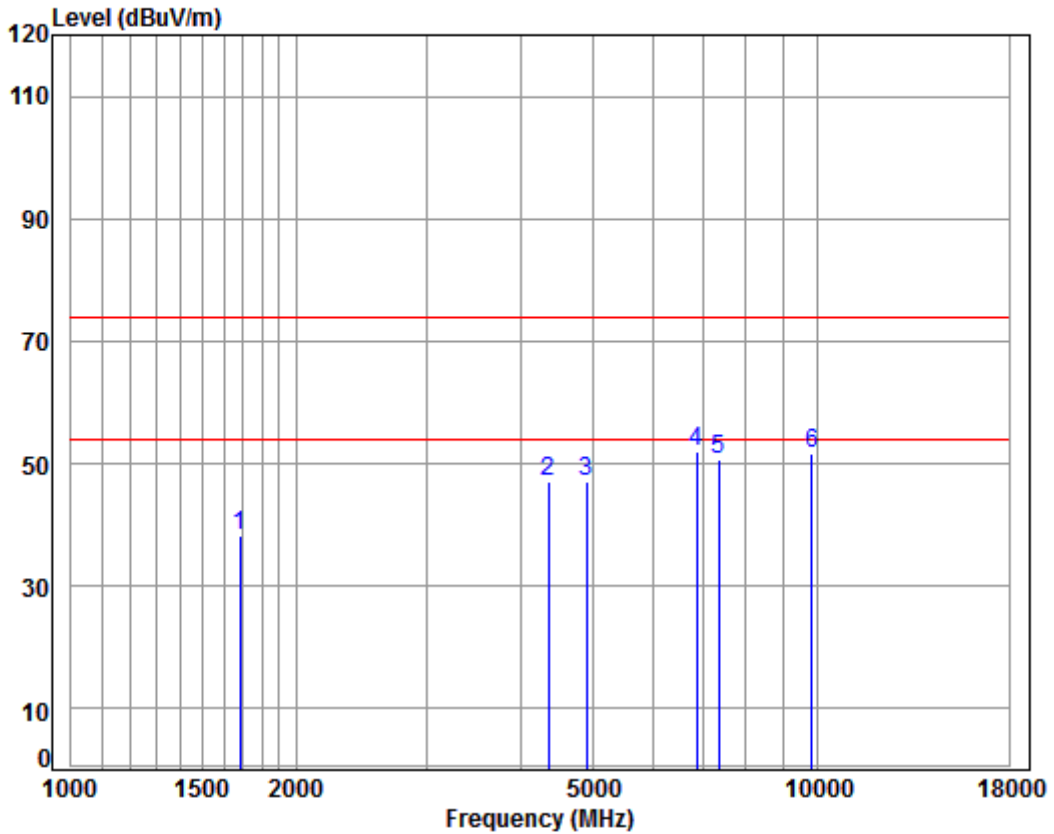


Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2422 TX RSE  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1507.470	5.47	25.83	38.04	43.06	36.32	74.00	-37.68	peak
2	4157.664	7.17	33.60	38.09	43.78	46.46	74.00	-27.54	peak
3	4874.000	7.96	34.28	38.44	42.01	45.81	74.00	-28.19	peak
4 pp	6659.763	11.08	35.56	37.62	43.35	52.37	74.00	-21.63	peak
5	7311.000	10.05	36.37	37.01	42.09	51.50	74.00	-22.50	peak
6	9748.000	10.82	37.55	35.02	38.59	51.94	74.00	-22.06	peak



Mode:g; Polarization:Horizontal; Modulation Type:802.11n; bandwidth:40MHz; Channel:High

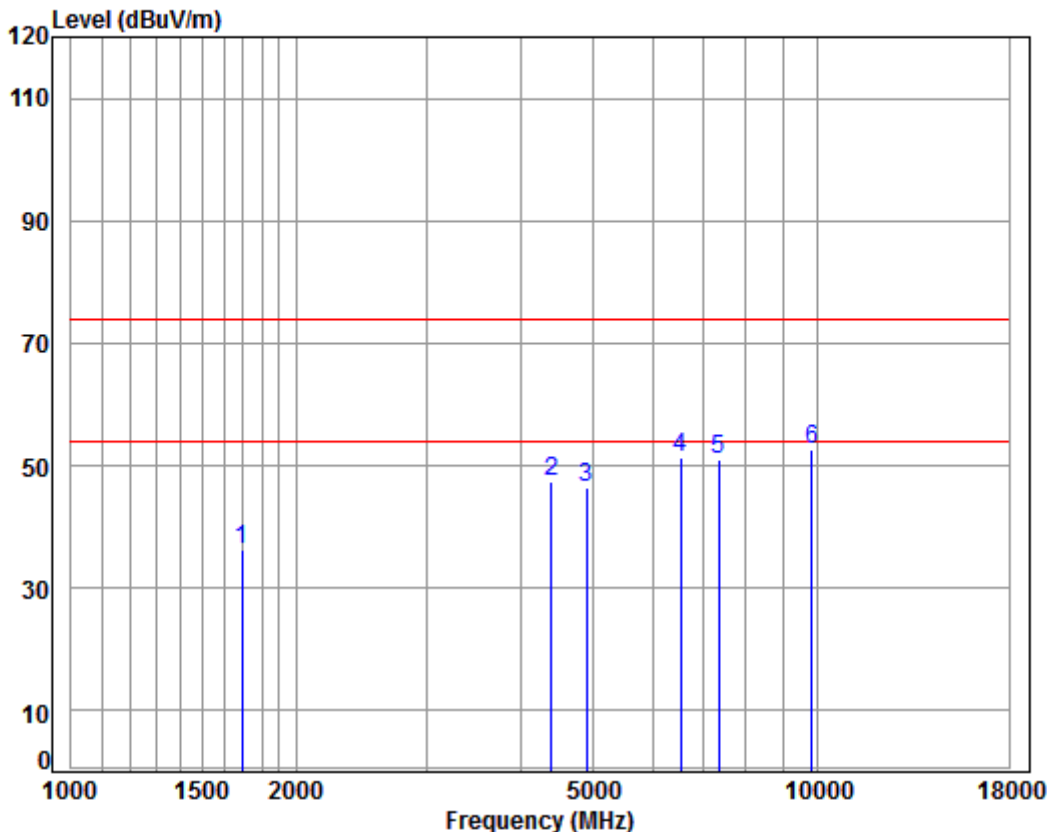


Condition: 3m HORIZONTAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1682.477	5.25	26.60	38.02	44.50	38.33	74.00	-35.67	peak
2	4354.454	7.40	33.60	38.19	44.33	47.14	74.00	-26.86	peak
3	4904.000	7.99	34.33	38.46	43.20	47.06	74.00	-26.94	peak
4 pp	6874.906	10.47	36.16	37.42	42.77	51.98	74.00	-22.02	peak
5	7356.000	10.04	36.36	36.97	41.15	50.58	74.00	-23.42	peak
6	9808.000	10.85	37.56	34.99	38.20	51.62	74.00	-22.38	peak



Mode:g; Polarization:Vertical; Modulation Type:802.11n; bandwidth:40MHz; Channel:High



Condition: 3m VERTICAL  
Job No : 07674CR/07675CR  
Mode : 2437 TX RSE  
: 2.4G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamplifier	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1692.231	5.24	26.64	38.02	42.56	36.42	74.00	-37.58	peak
2	4392.376	7.44	33.60	38.21	44.54	47.37	74.00	-26.63	peak
3	4904.000	7.99	34.33	38.46	42.61	46.47	74.00	-27.53	peak
4	6545.263	11.41	35.23	37.74	42.52	51.42	74.00	-22.58	peak
5	7356.000	10.04	36.36	36.97	41.56	50.99	74.00	-23.01	peak
6	pp 9808.000	10.85	37.56	34.99	39.38	52.80	74.00	-21.20	peak



Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

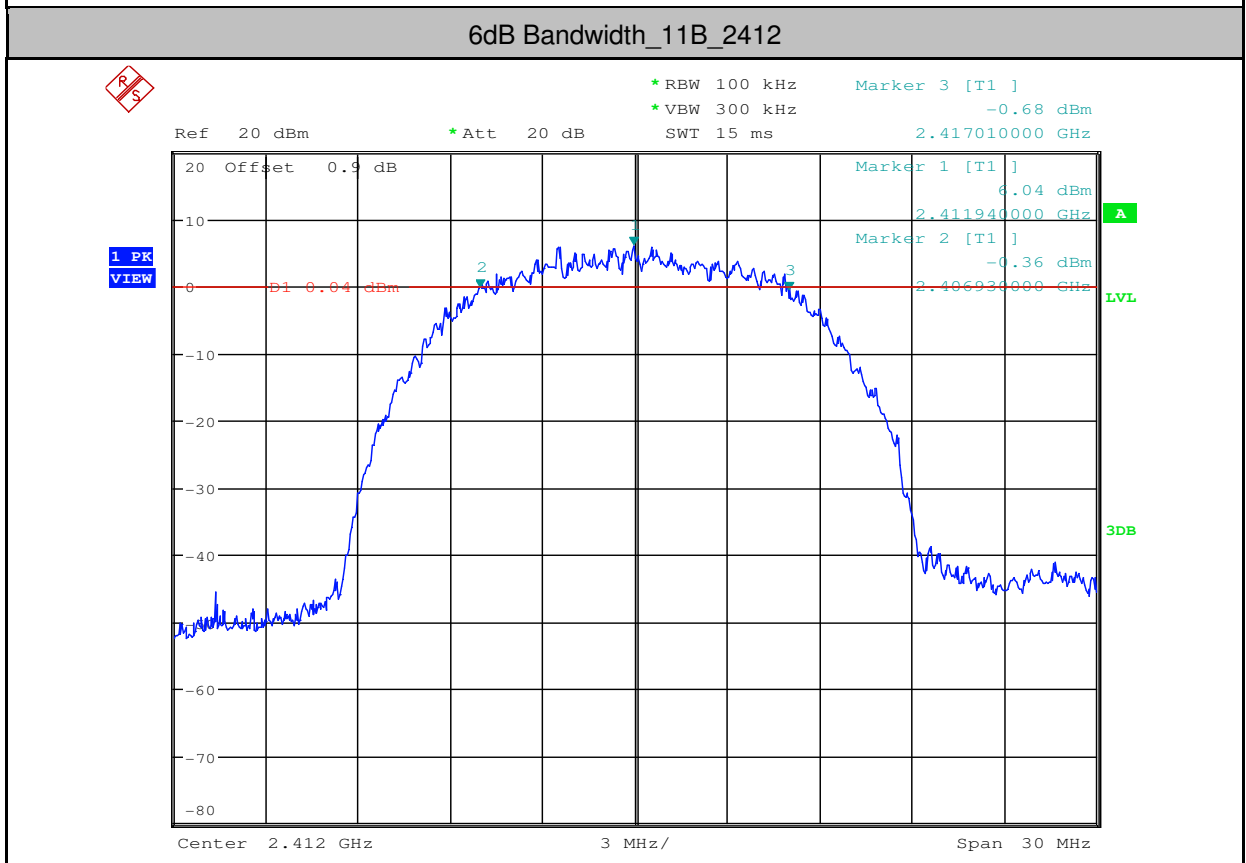
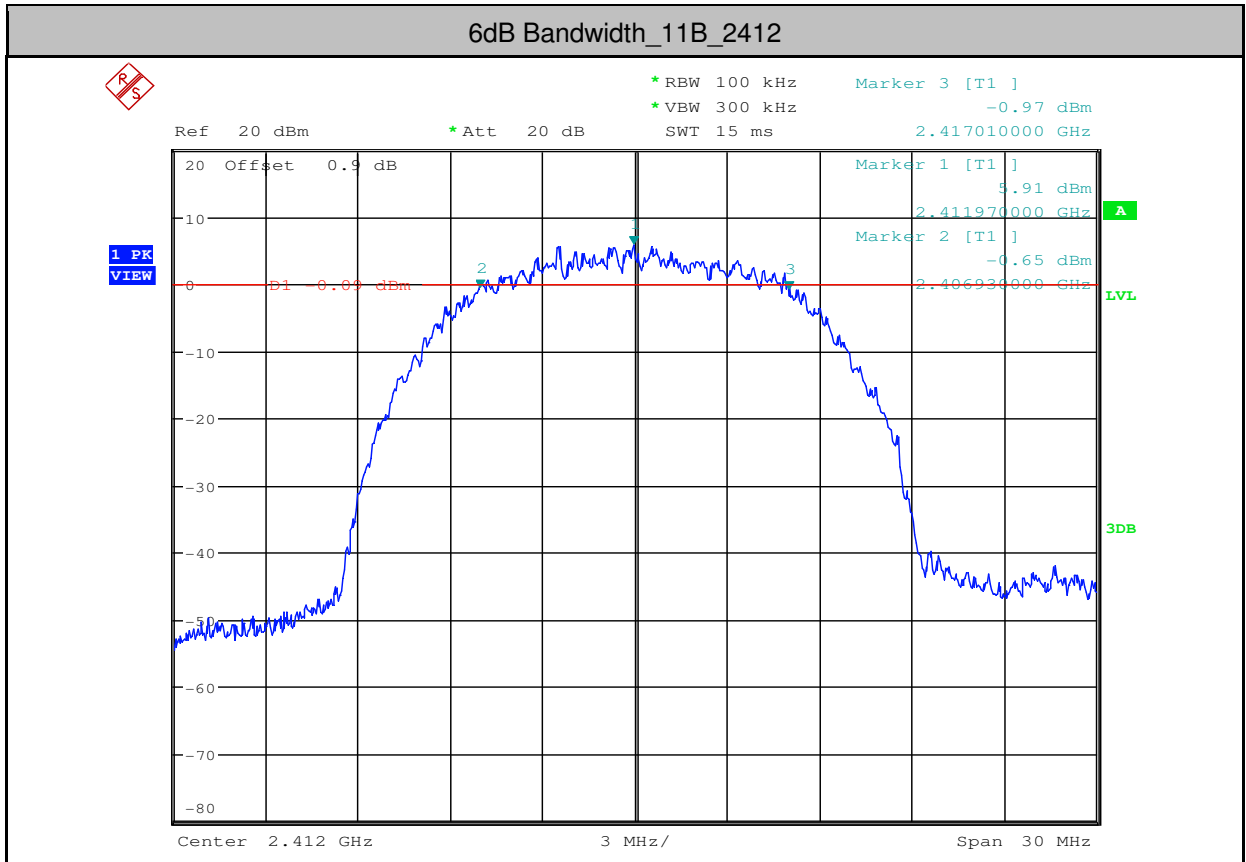


## 8 Appendix

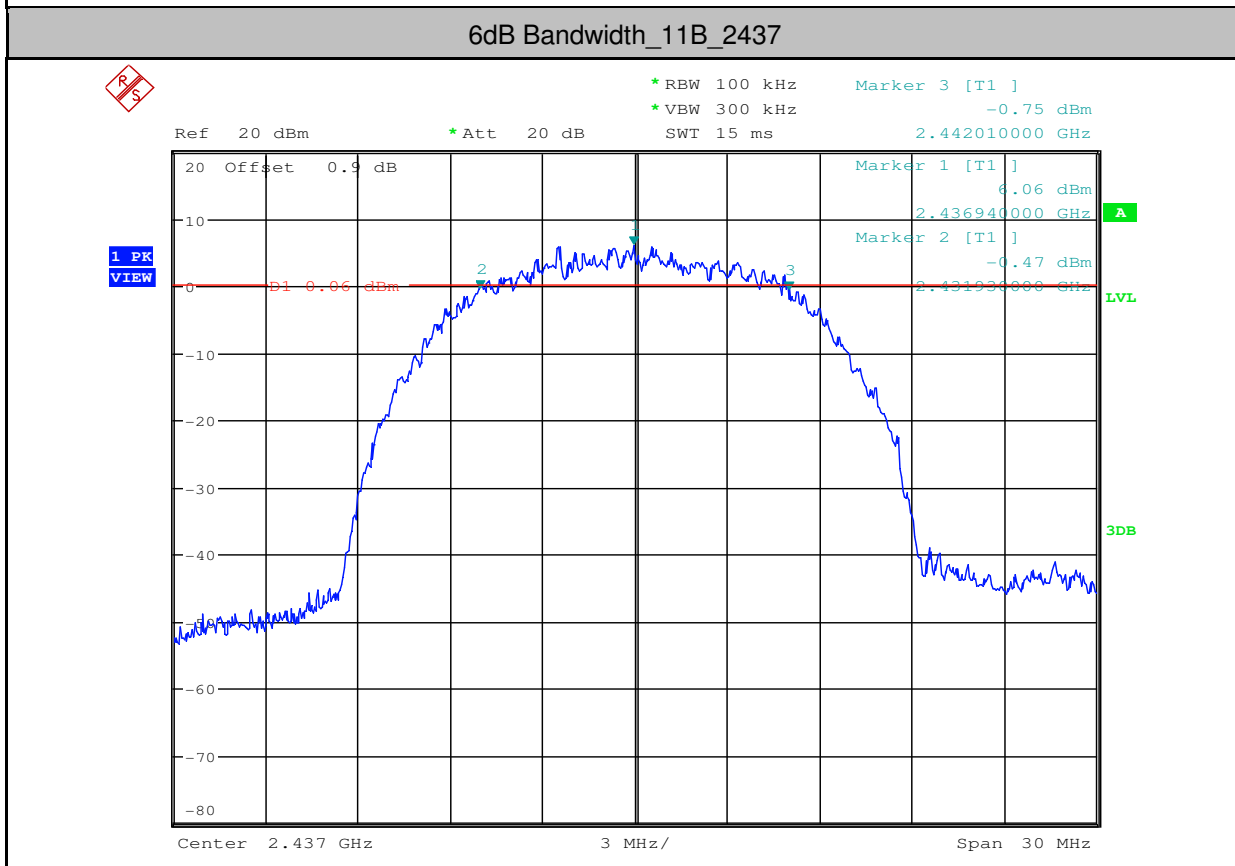
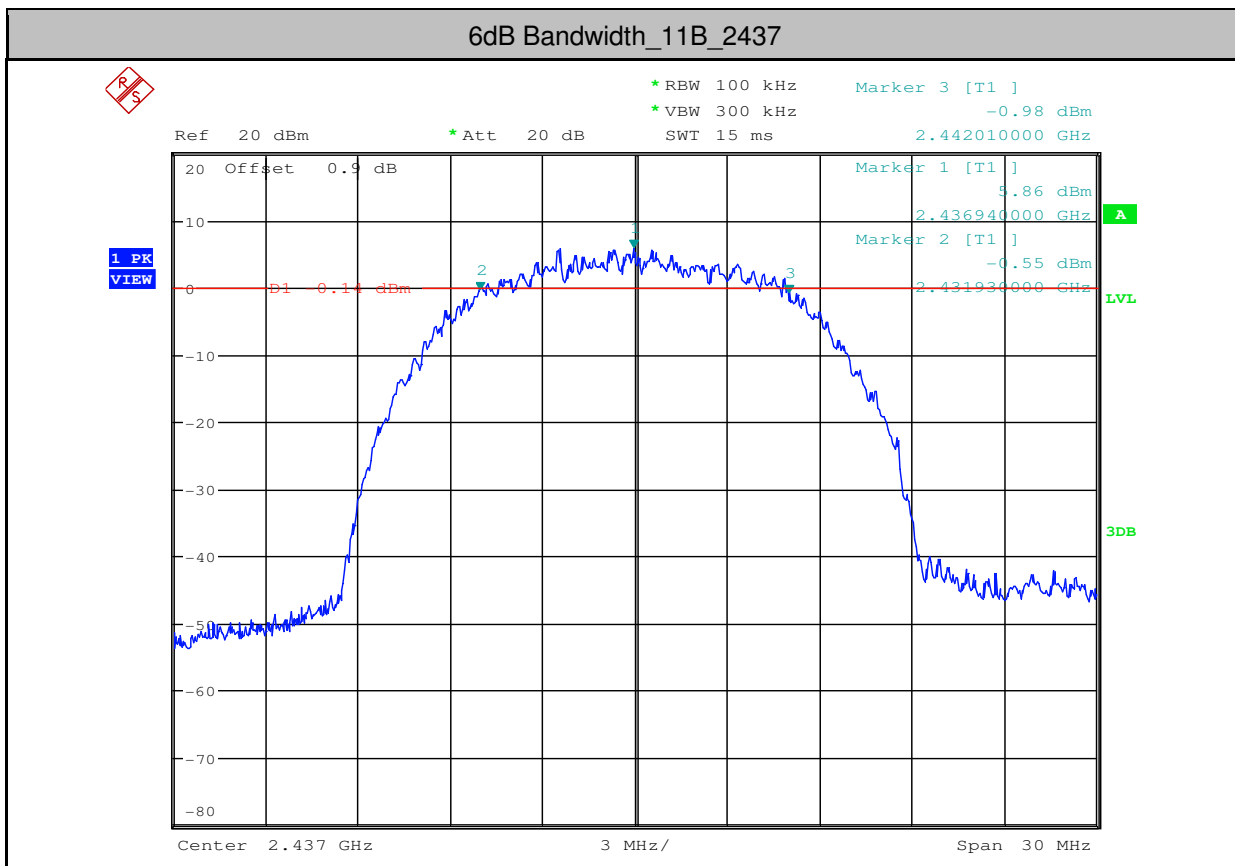
### 8.1 Appendix 15.247

#### 1.6dB Bandwidth

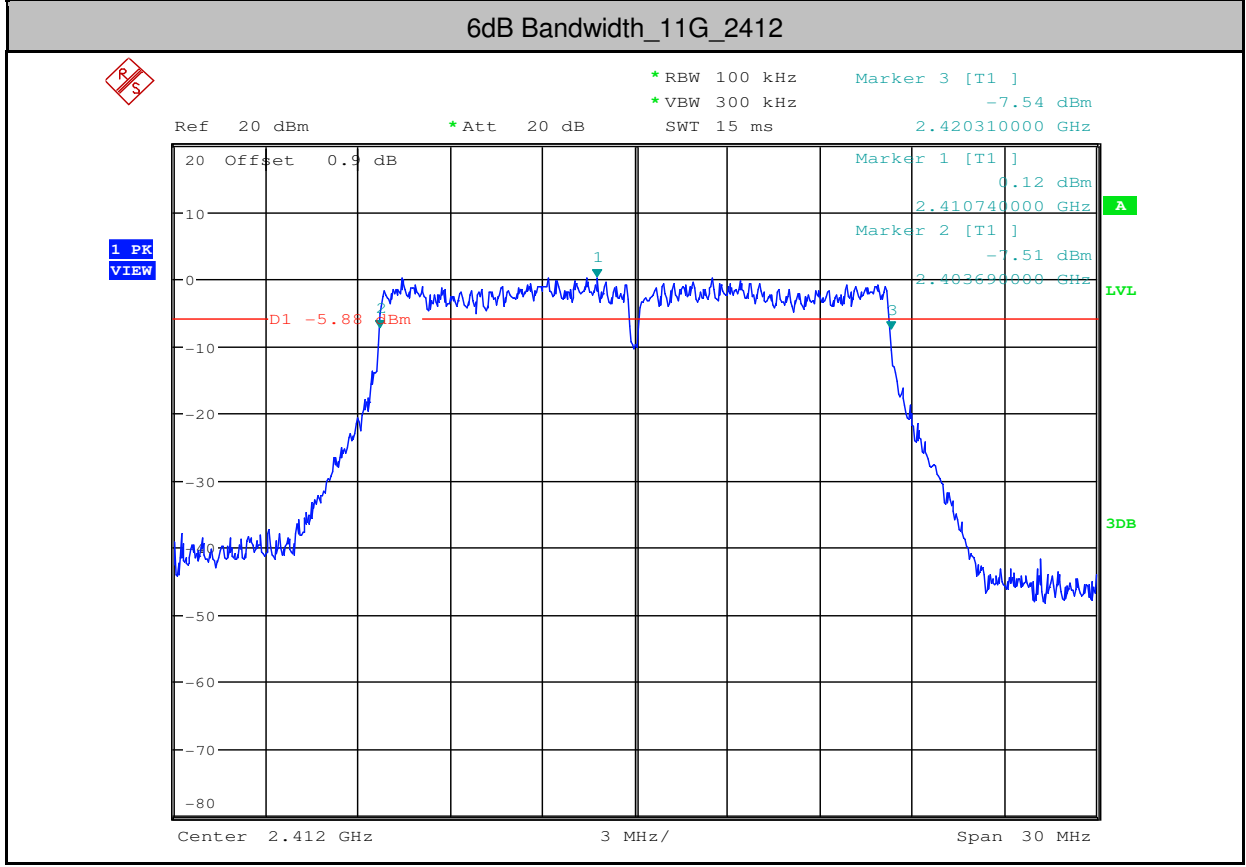
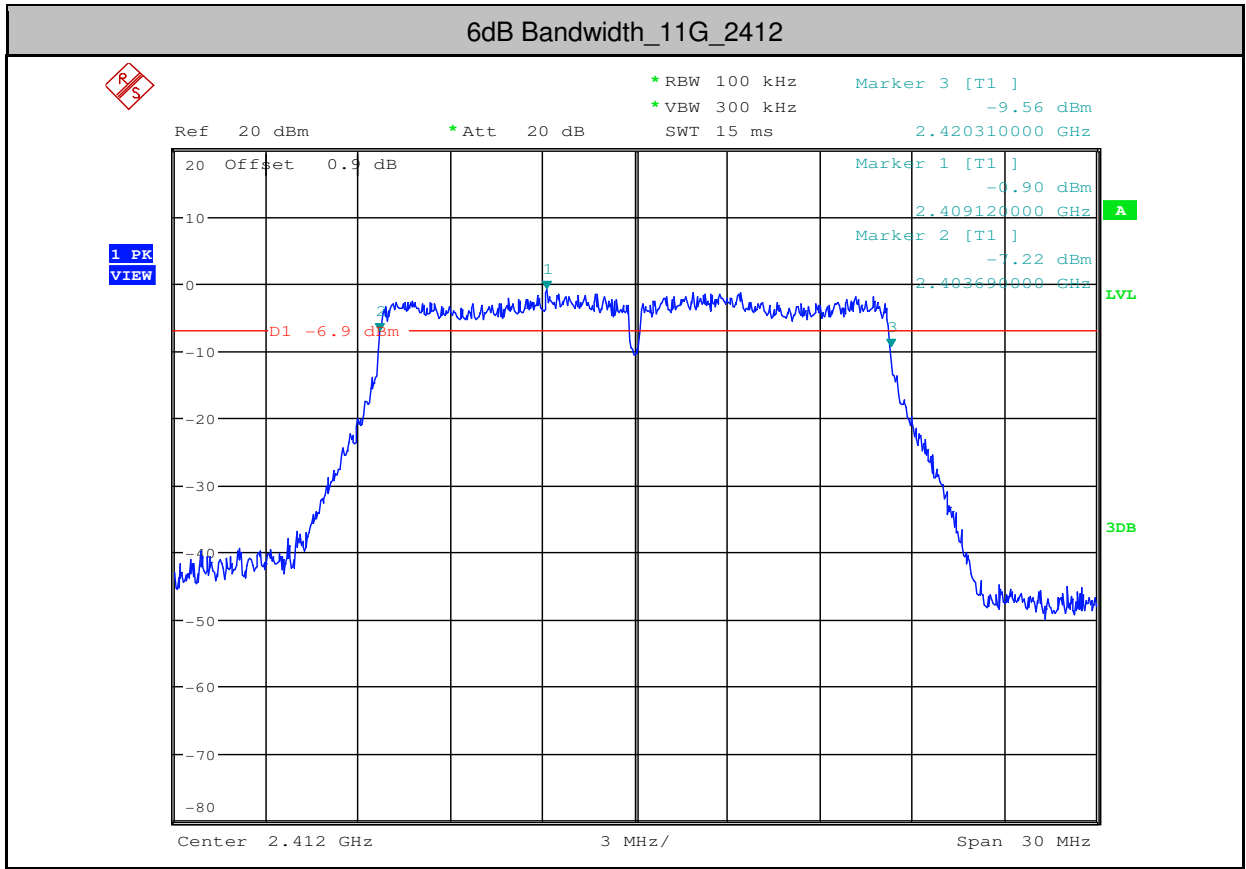
Test Mode	Test Channel	EBW[MHz]	Limit	Verdict
11B	2412	10.080	$\geq 0.5$	PASS
11B	2412	10.080	$\geq 0.5$	PASS
11B	2437	10.080	$\geq 0.5$	PASS
11B	2437	10.080	$\geq 0.5$	PASS
11B	2462	10.080	$\geq 0.5$	PASS
11B	2462	10.080	$\geq 0.5$	PASS
11G	2412	16.620	$\geq 0.5$	PASS
11G	2412	16.620	$\geq 0.5$	PASS
11G	2437	16.620	$\geq 0.5$	PASS
11G	2437	16.590	$\geq 0.5$	PASS
11G	2462	16.515	$\geq 0.5$	PASS
11G	2462	16.545	$\geq 0.5$	PASS
11N20SISO	2412	17.790	$\geq 0.5$	PASS
11N20SISO	2412	17.790	$\geq 0.5$	PASS
11N20SISO	2437	17.790	$\geq 0.5$	PASS
11N20SISO	2437	17.790	$\geq 0.5$	PASS
11N20SISO	2462	17.820	$\geq 0.5$	PASS
11N20SISO	2462	17.820	$\geq 0.5$	PASS
11N40SISO	2422	36.600	$\geq 0.5$	PASS
11N40SISO	2422	36.600	$\geq 0.5$	PASS
11N40SISO	2437	36.540	$\geq 0.5$	PASS
11N40SISO	2437	36.540	$\geq 0.5$	PASS
11N40SISO	2452	36.600	$\geq 0.5$	PASS
11N40SISO	2452	36.600	$\geq 0.5$	PASS



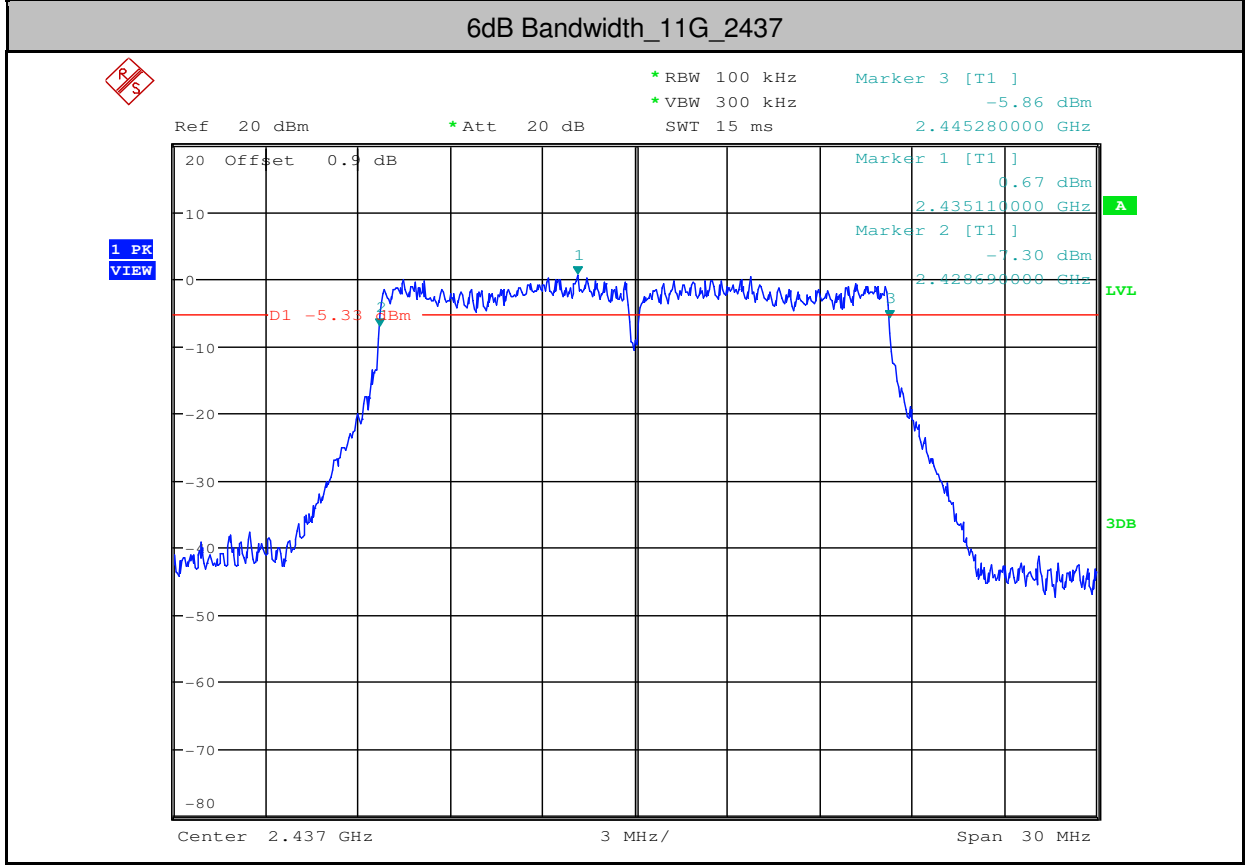
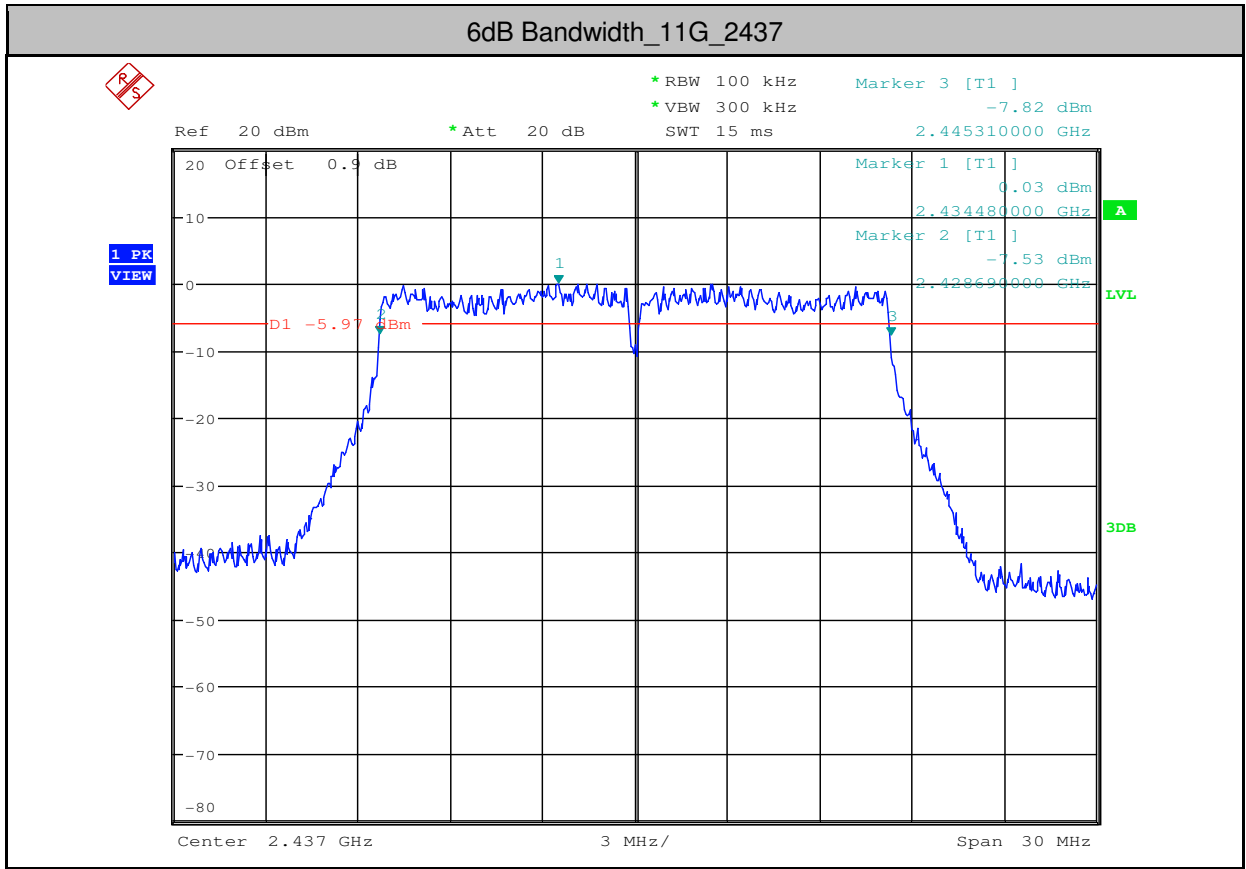




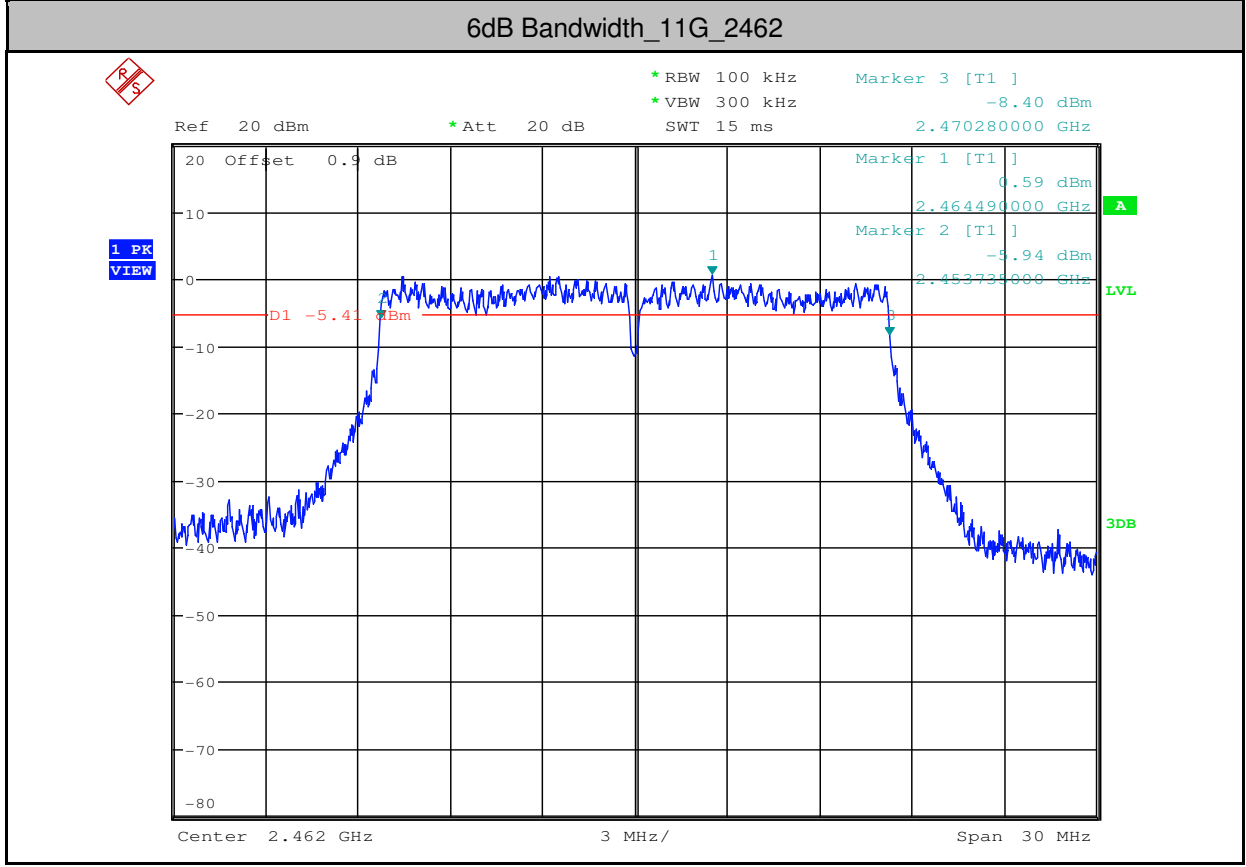
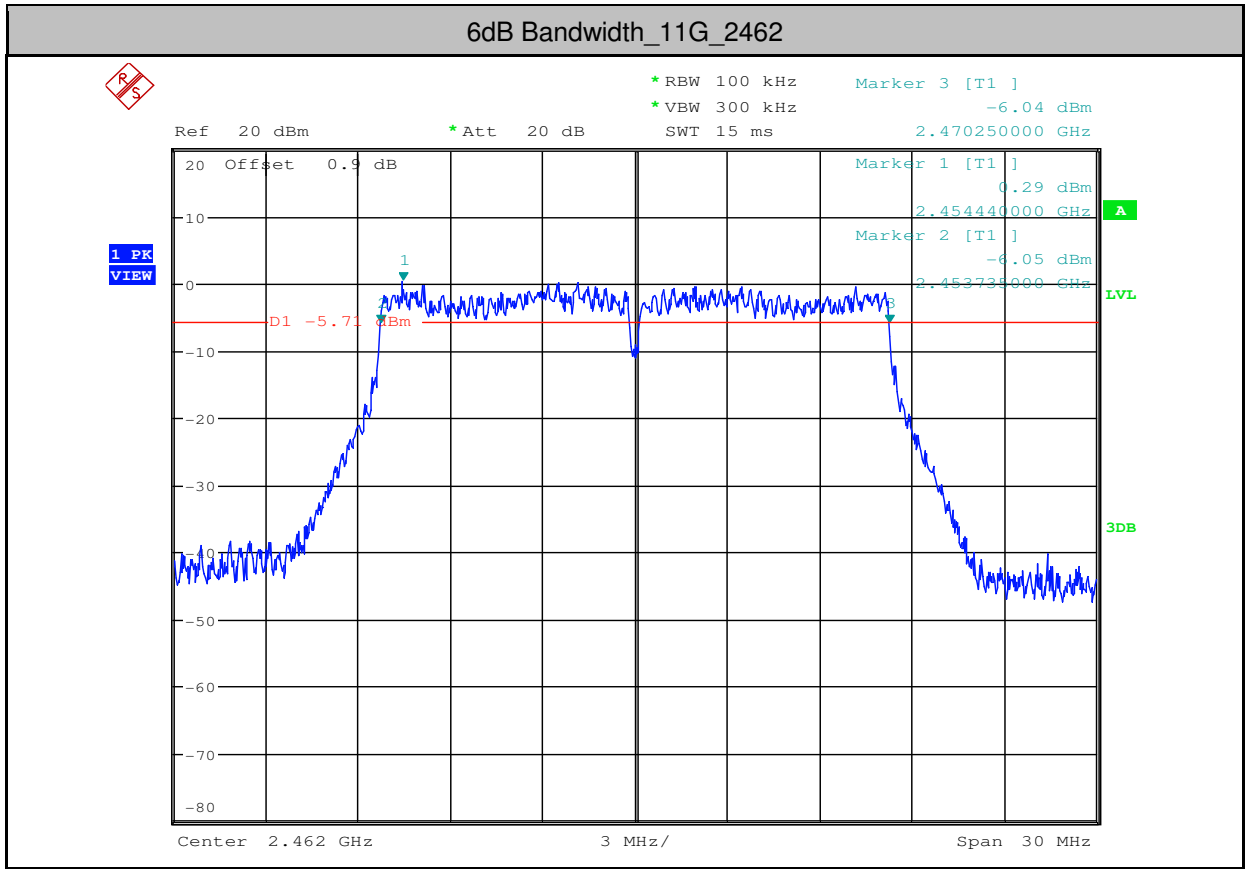




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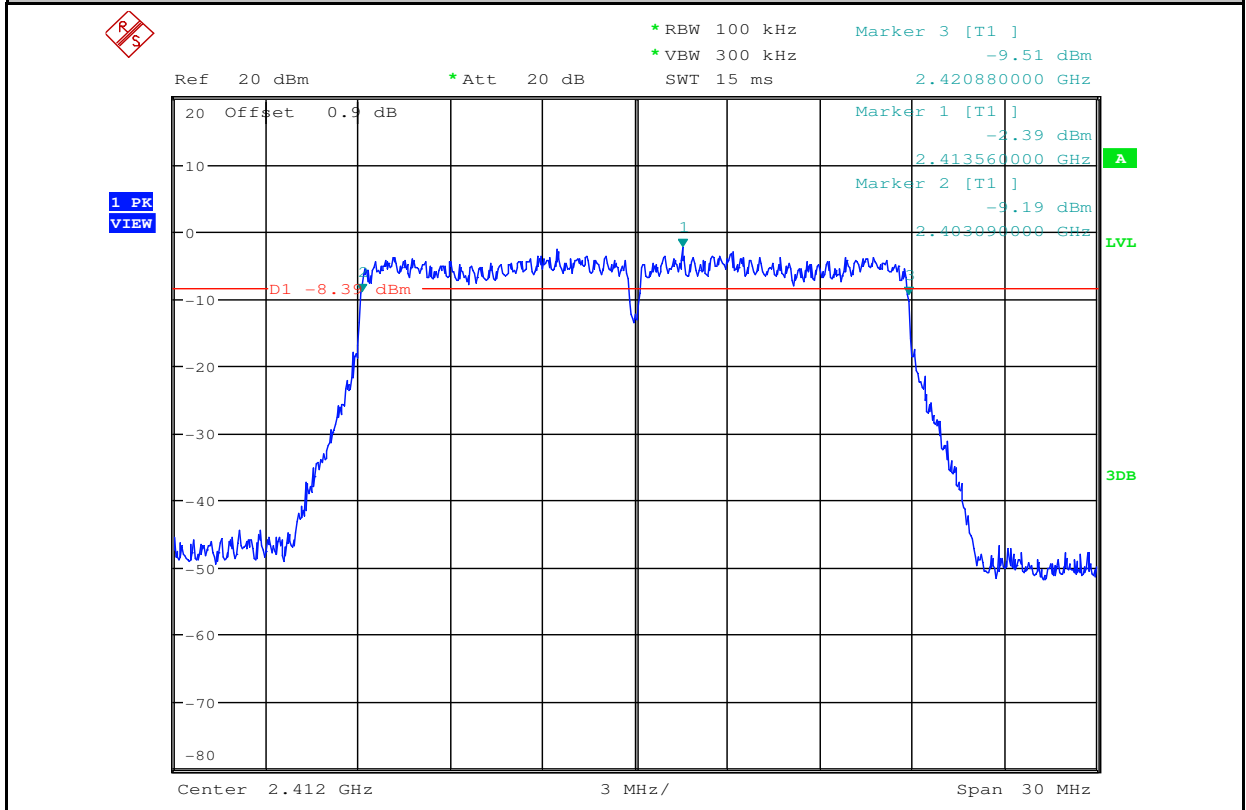


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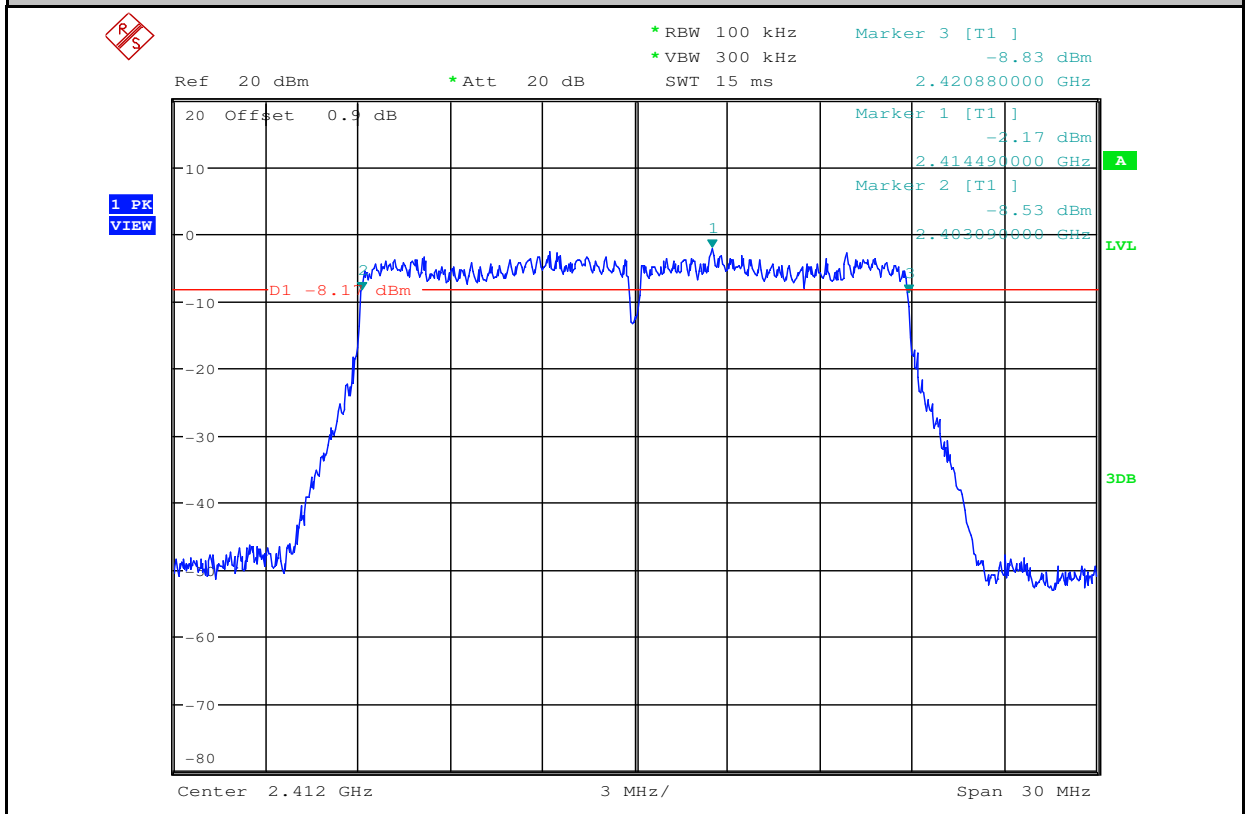


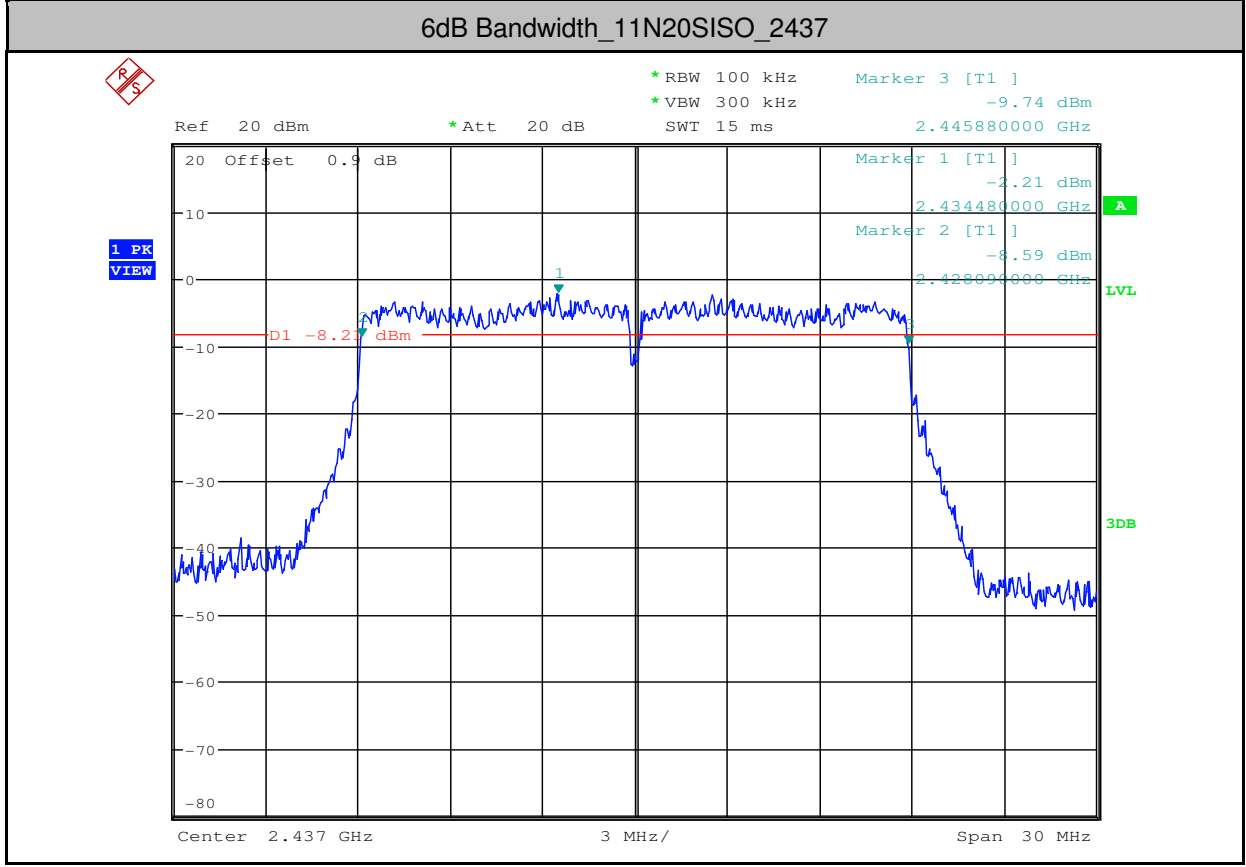
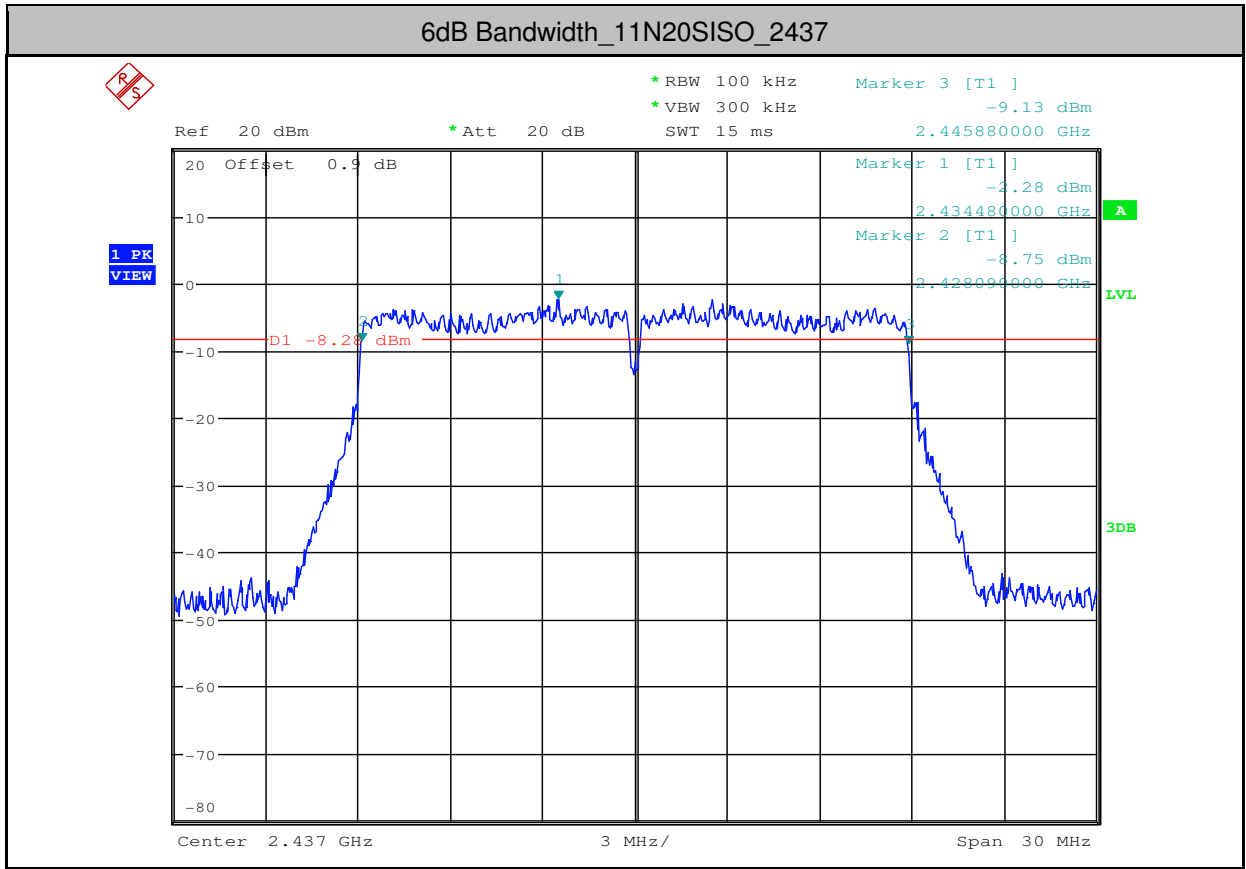
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6dB Bandwidth\_11N20SISO\_2412



6dB Bandwidth\_11N20SISO\_2412



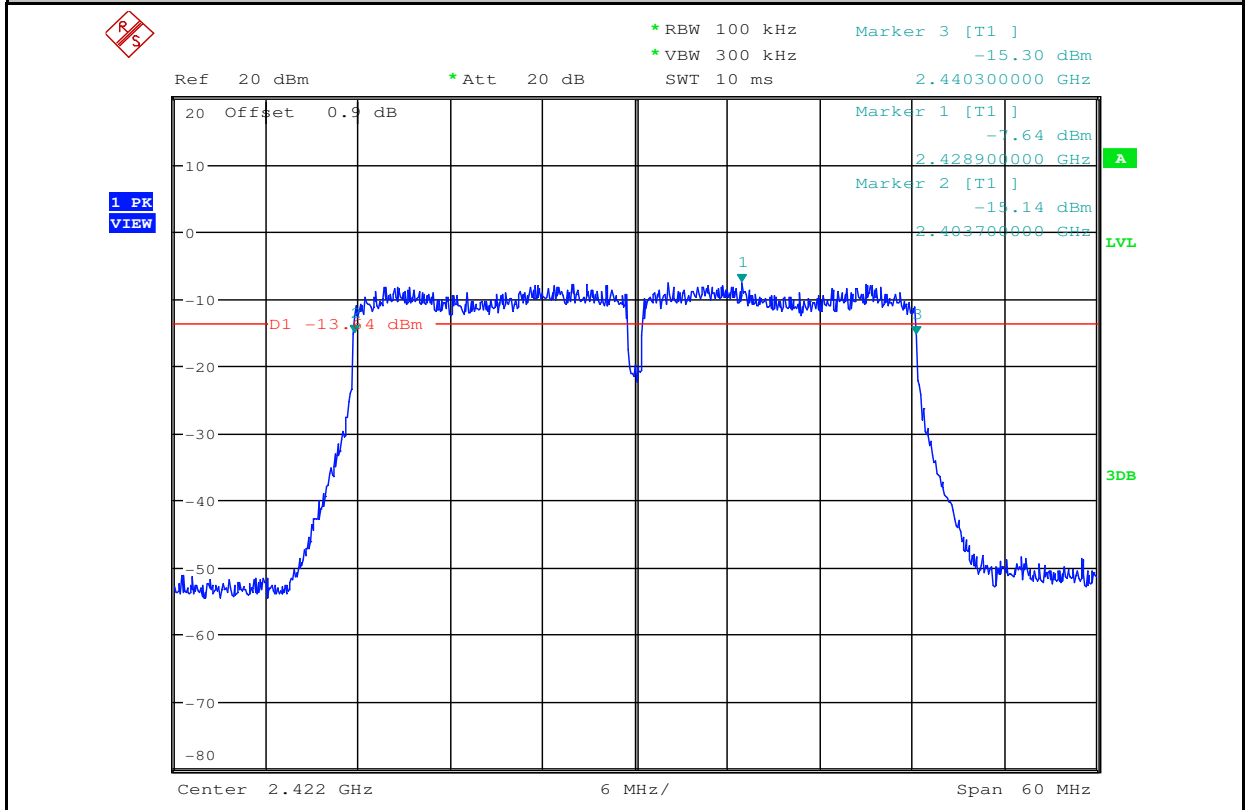


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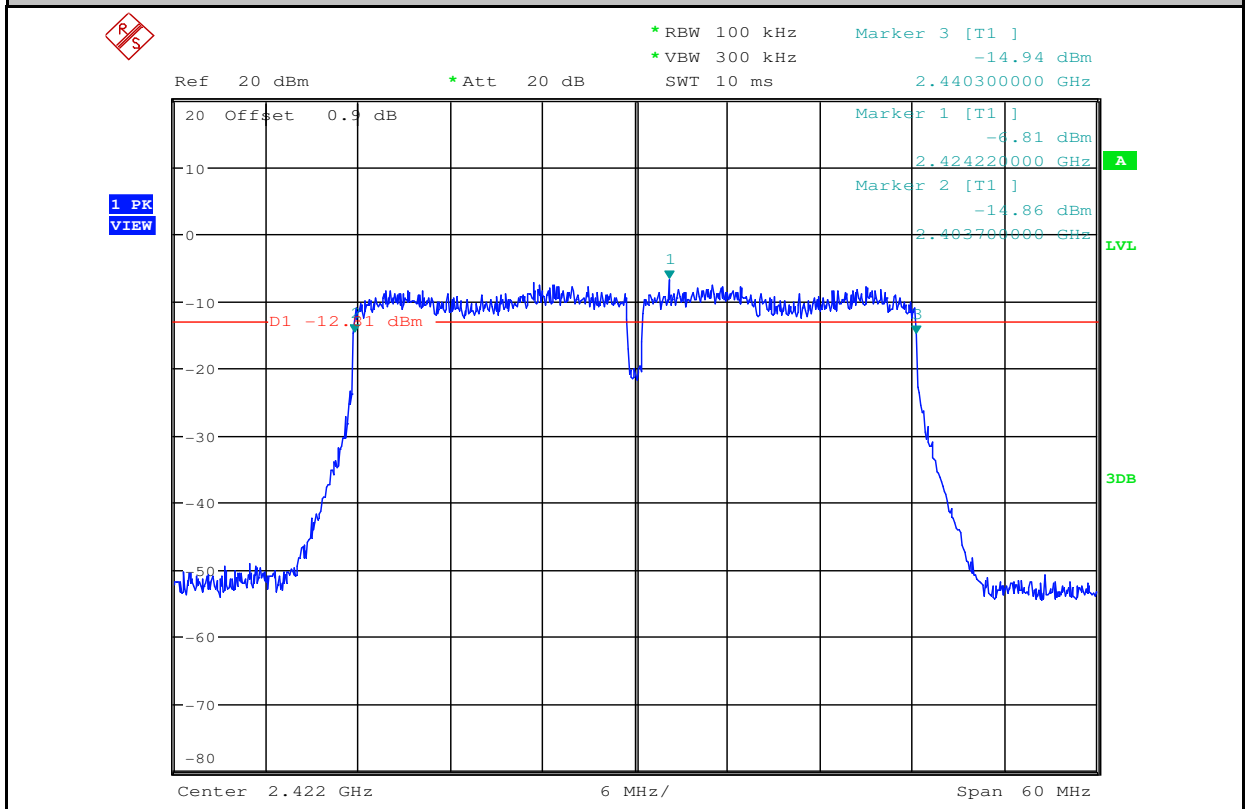




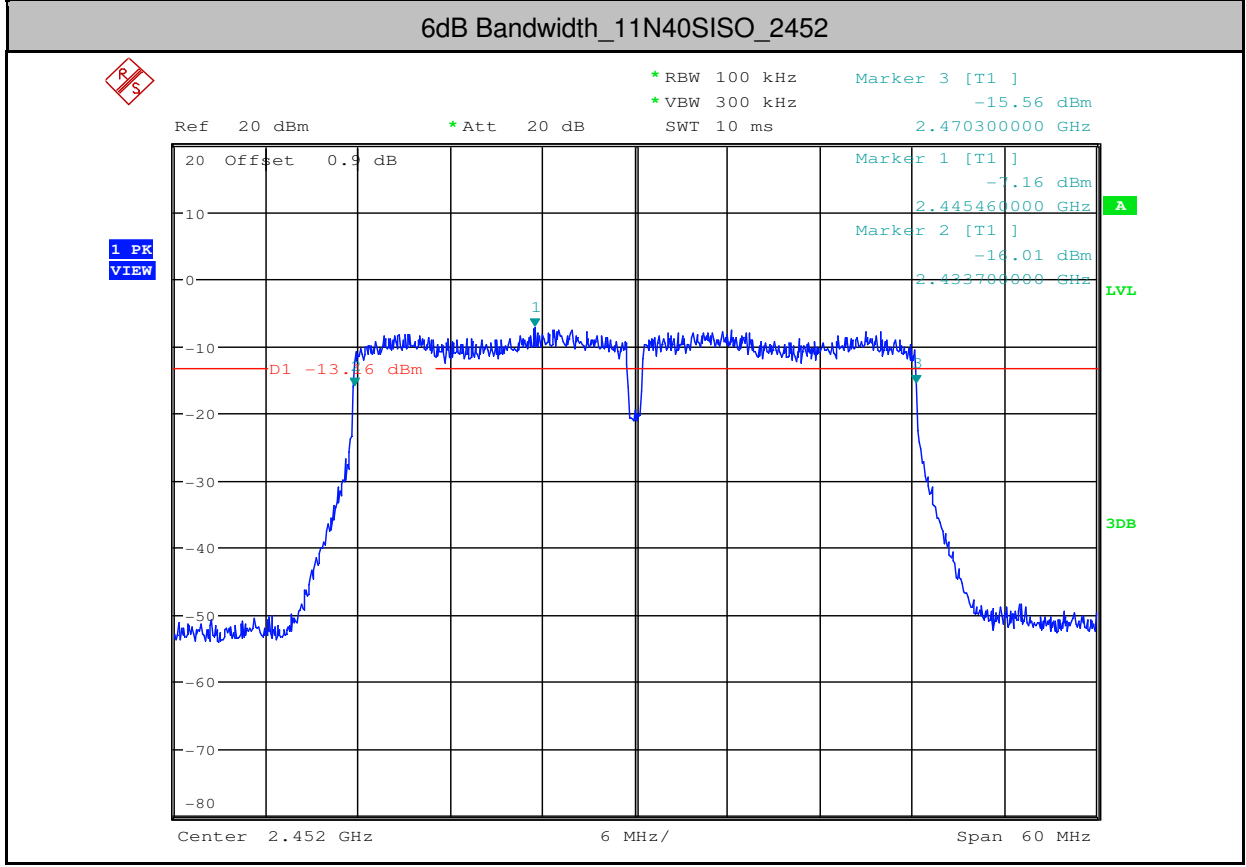
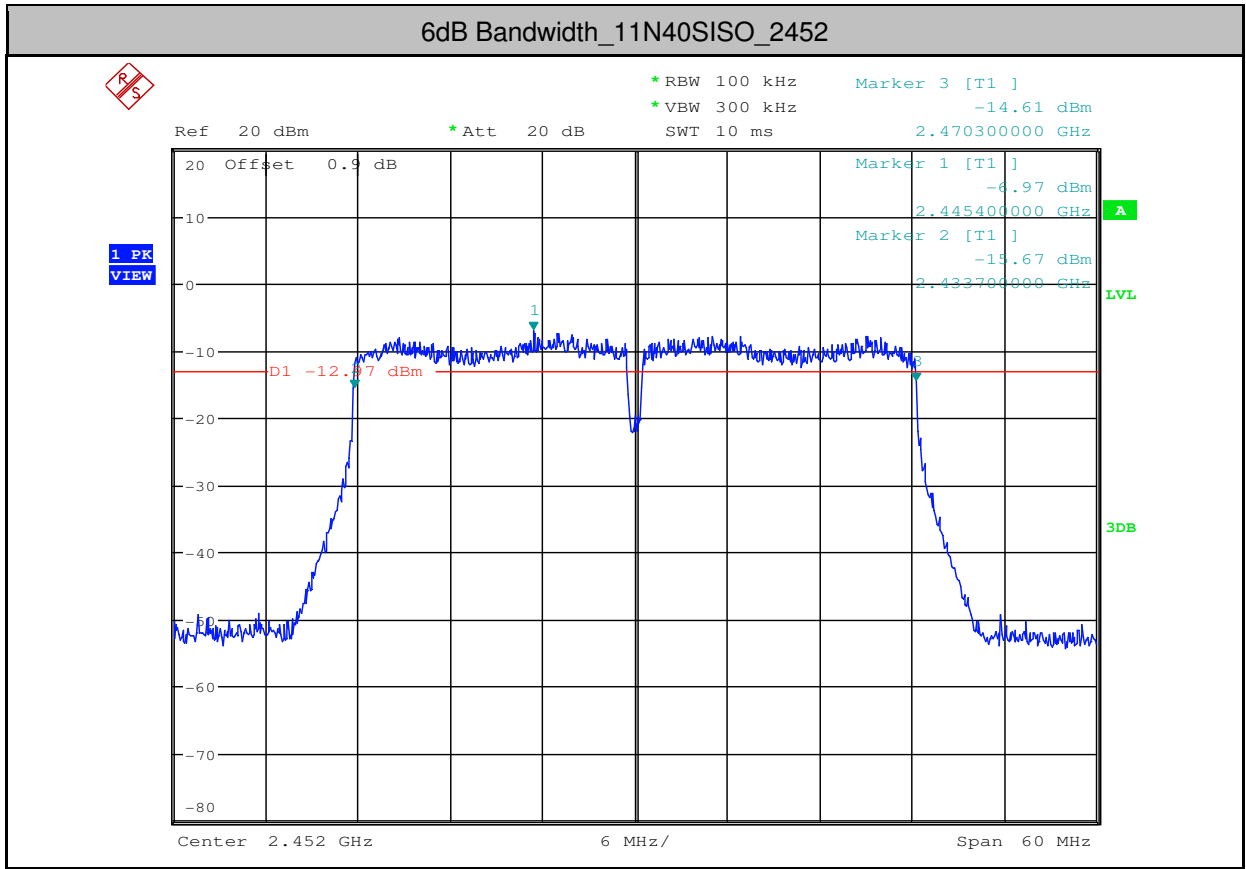
6dB Bandwidth\_11N40SISO\_2422



6dB Bandwidth\_11N40SISO\_2422







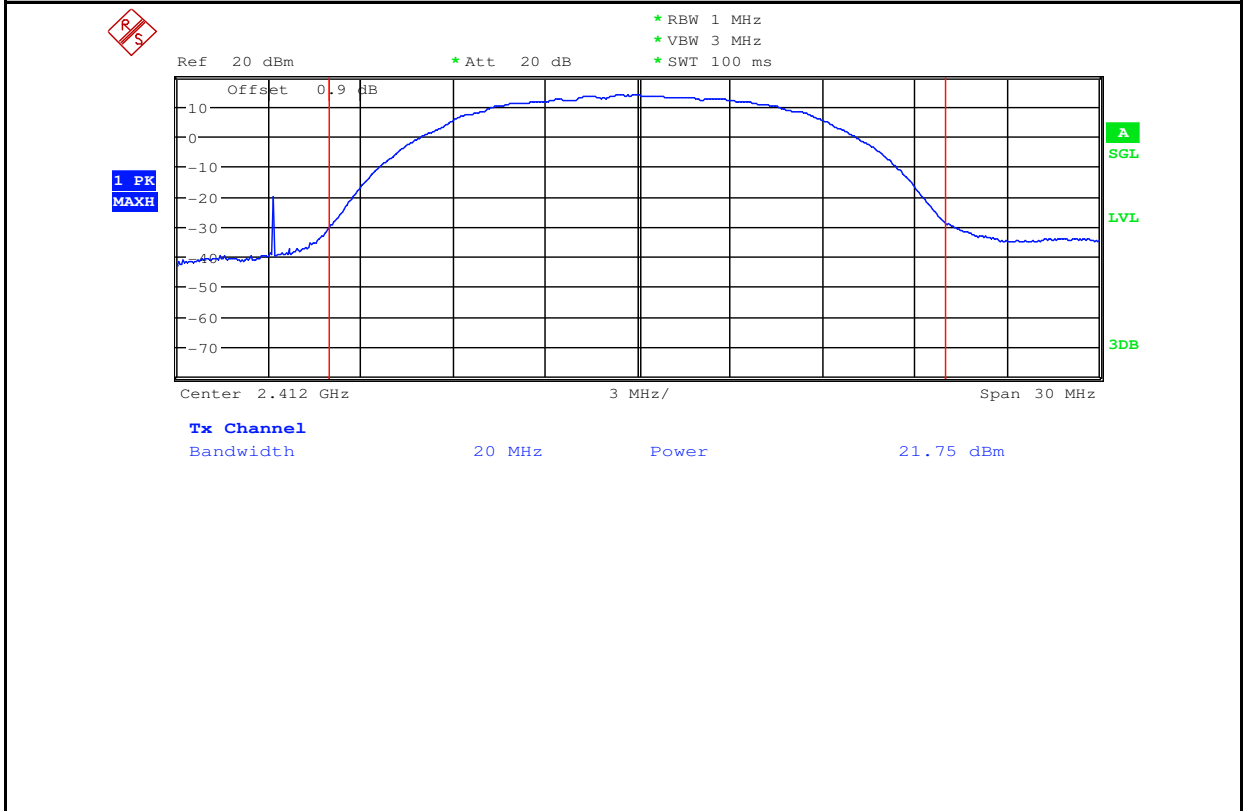
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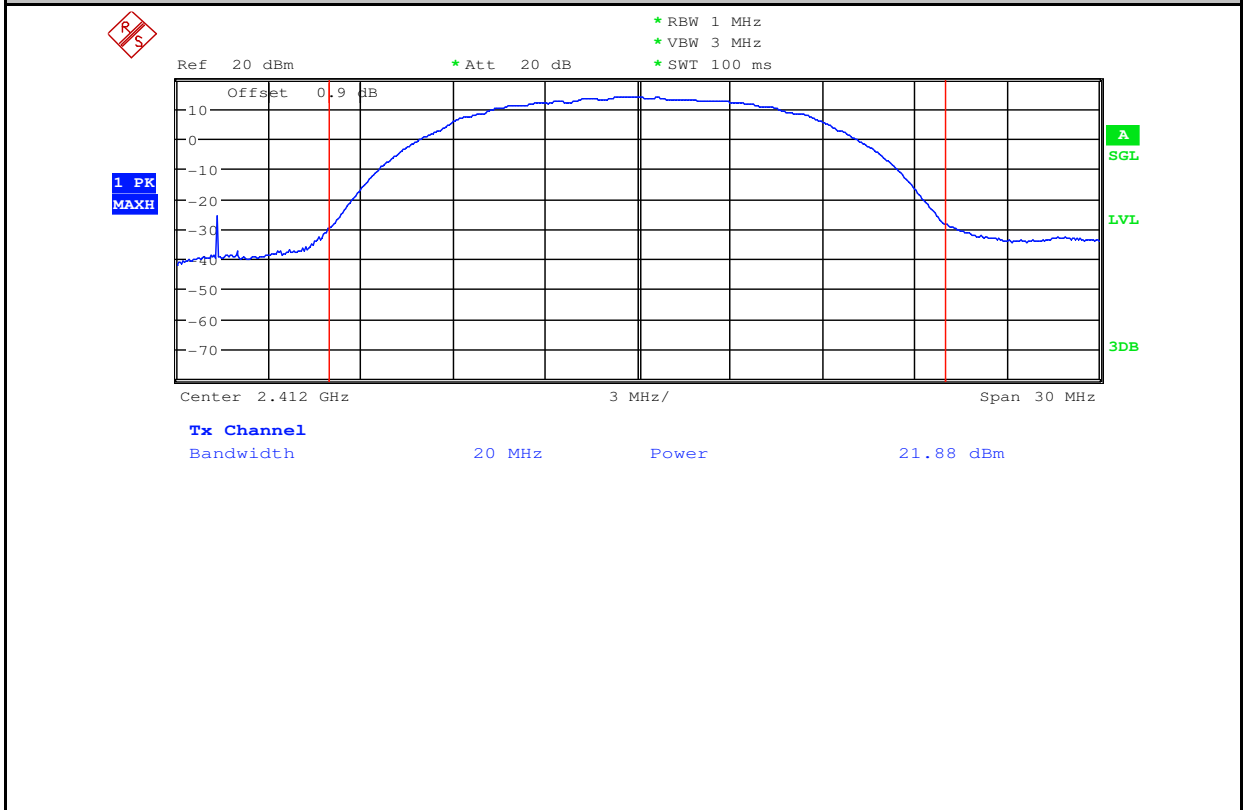
2. Maximum peak conducted output power

Test Mode	Test Channel	Power[dBm]	Limit[dBm]	Verdict
11B	2412	21.75	<30	PASS
11B	2412	21.88	<30	PASS
11B	2437	21.66	<30	PASS
11B	2437	21.86	<30	PASS
11B	2462	21.44	<30	PASS
11B	2462	21.74	<30	PASS
11G	2412	21.57	<30	PASS
11G	2412	21.78	<30	PASS
11G	2437	21.69	<30	PASS
11G	2437	21.87	<30	PASS
11G	2462	21.6	<30	PASS
11G	2462	21.85	<30	PASS
11N20SISO	2412	19.1	<30	PASS
11N20SISO	2412	19.32	<30	PASS
11N20SISO	2437	19.13	<30	PASS
11N20SISO	2437	19.35	<30	PASS
11N20SISO	2462	19.11	<30	PASS
11N20SISO	2462	19.32	<30	PASS
11N40SISO	2422	17.1	<30	PASS
11N40SISO	2422	17.12	<30	PASS
11N40SISO	2437	16.99	<30	PASS
11N40SISO	2437	17.22	<30	PASS
11N40SISO	2452	17.1	<30	PASS
11N40SISO	2452	17.18	<30	PASS

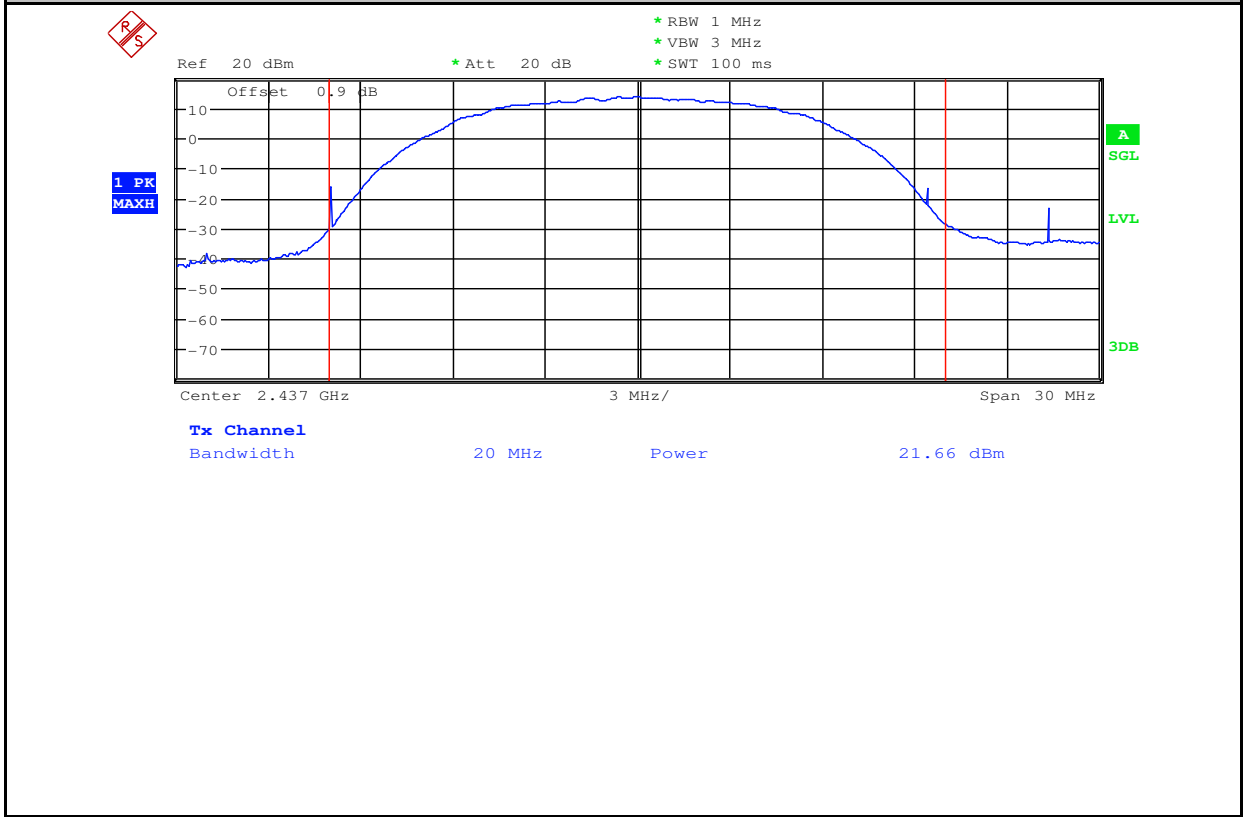
Maximum peak conducted output power\_11B\_2412



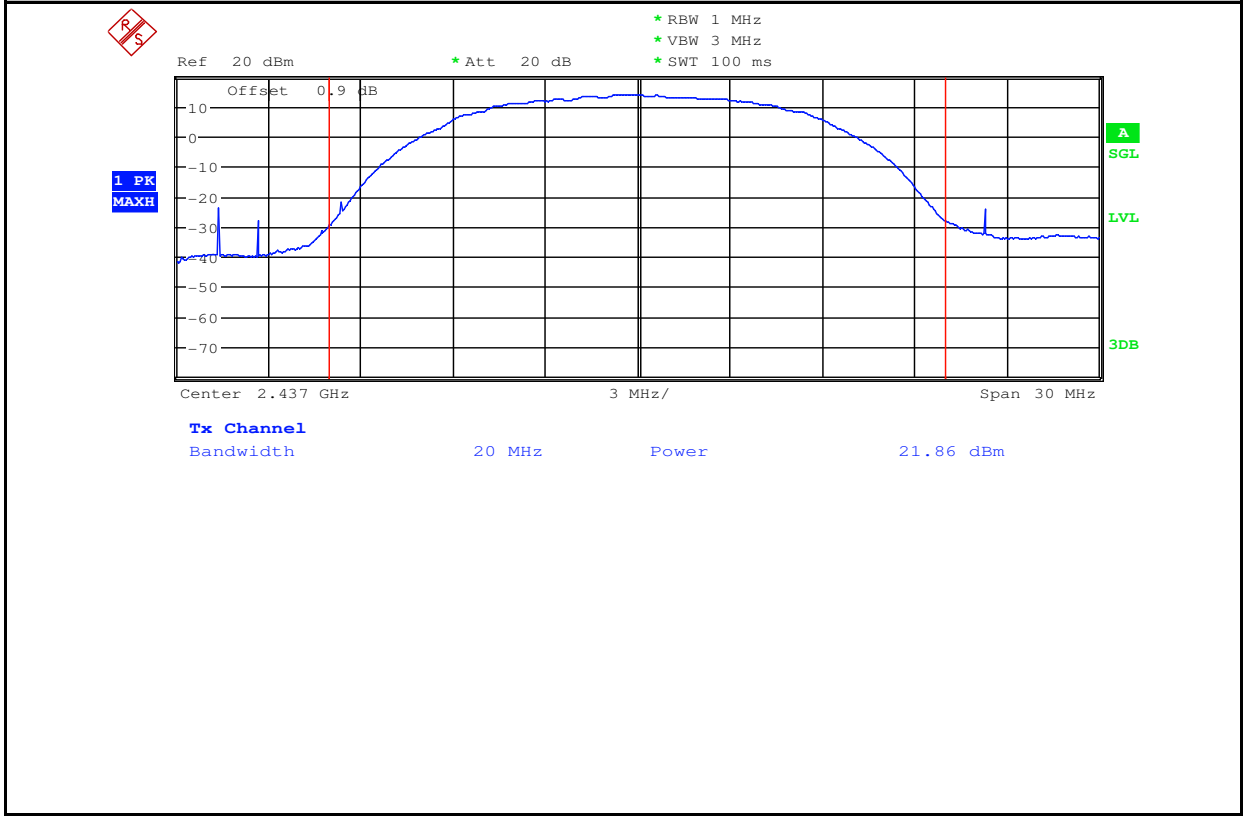
Maximum peak conducted output power\_11B\_2412



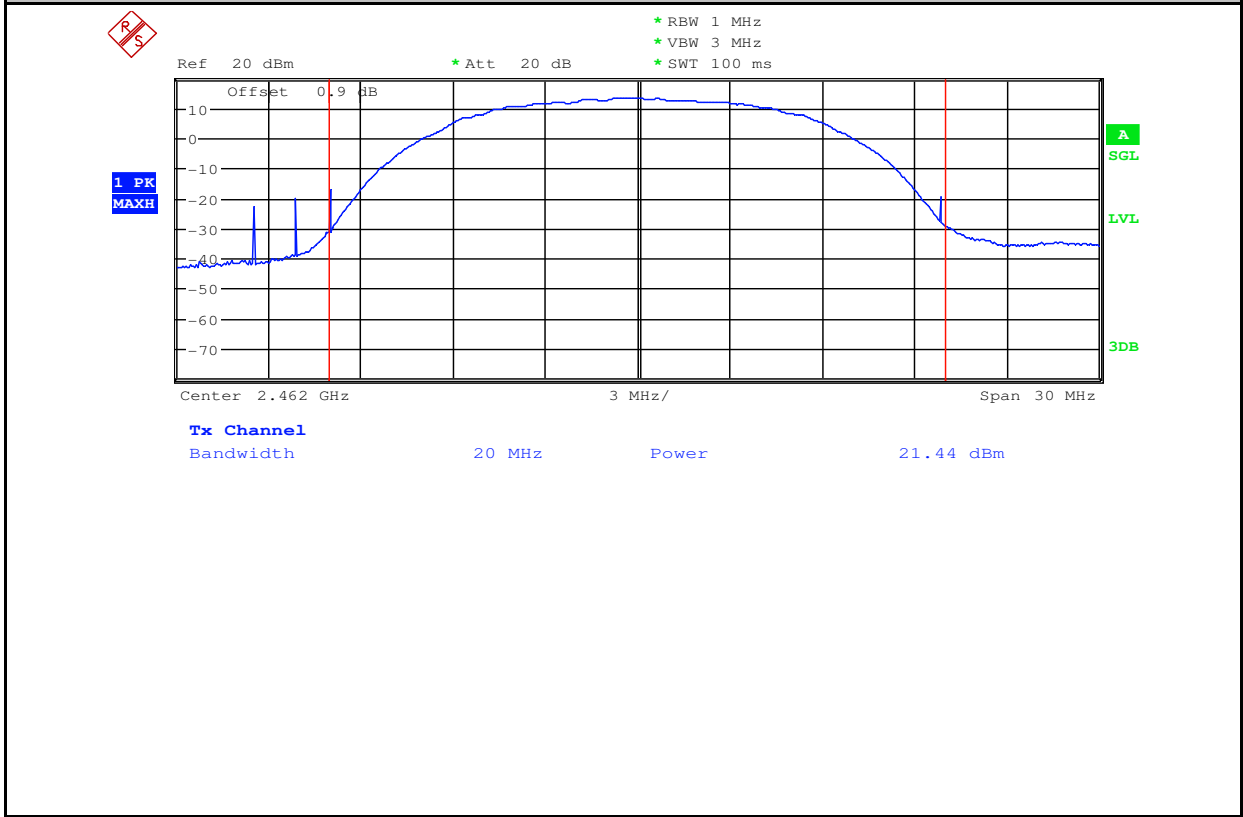
Maximum peak conducted output power\_11B\_2437



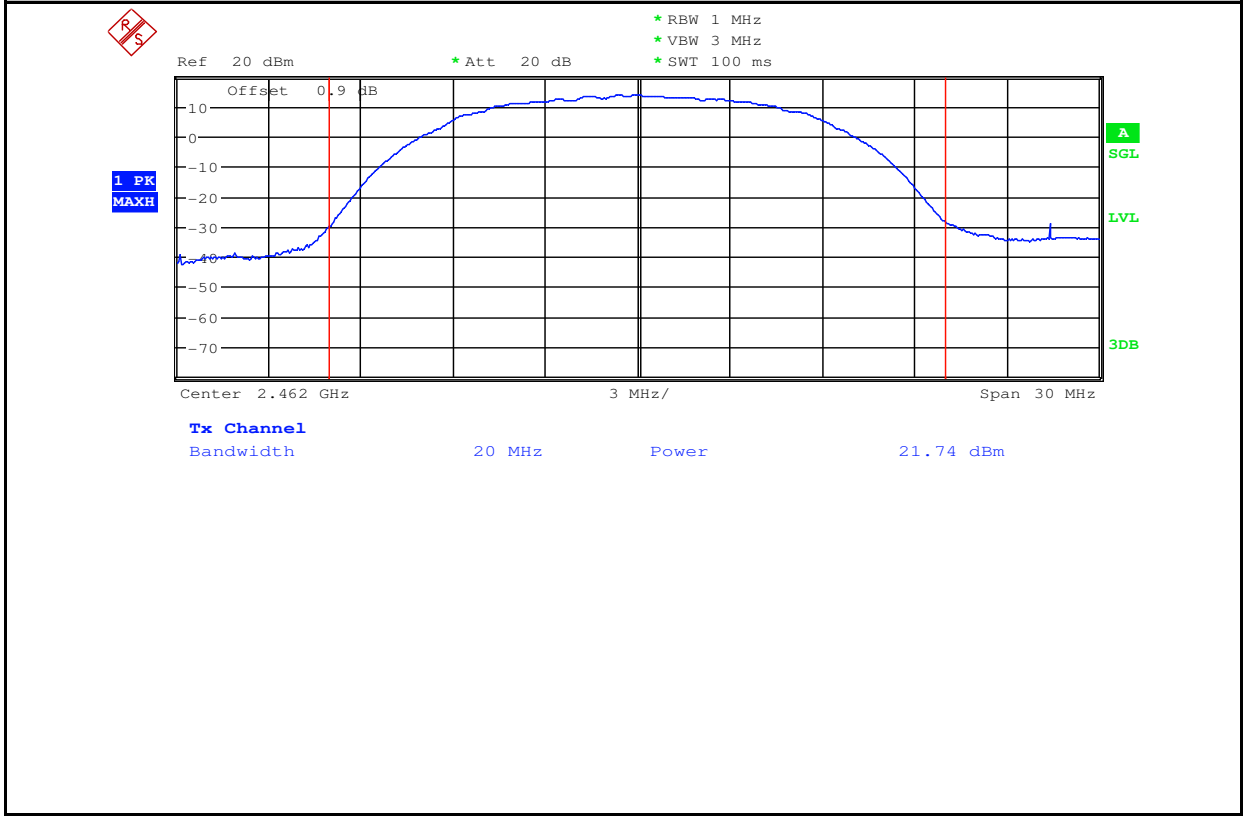
Maximum peak conducted output power\_11B\_2437



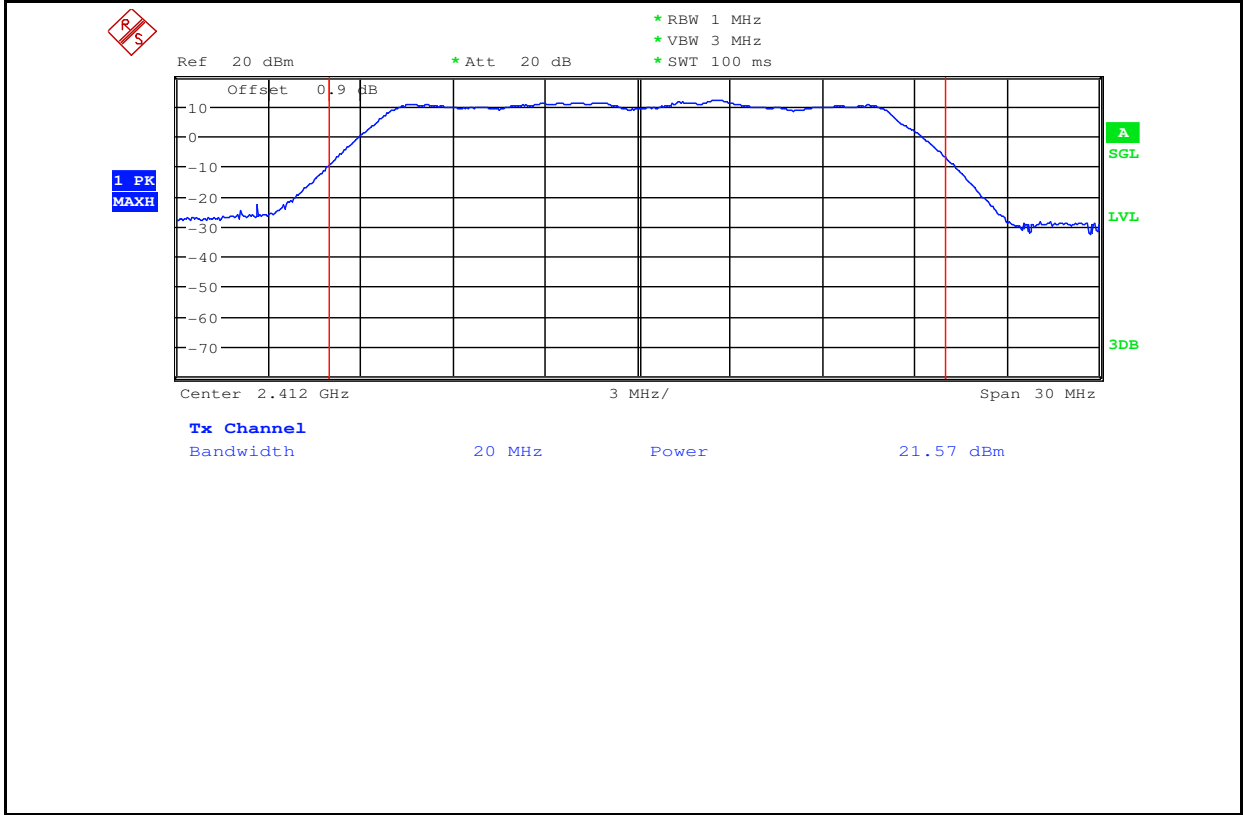
Maximum peak conducted output power\_11B\_2462



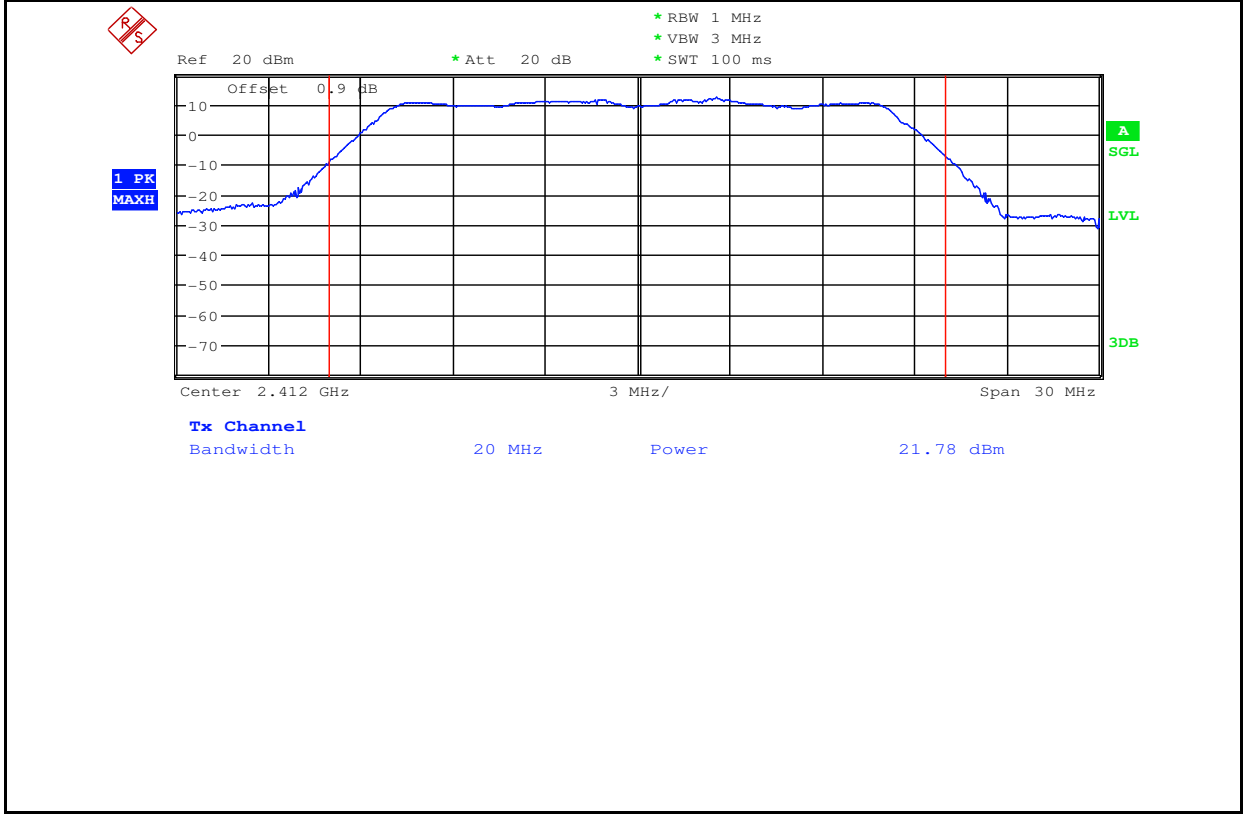
Maximum peak conducted output power\_11B\_2462



Maximum peak conducted output power\_11G\_2412



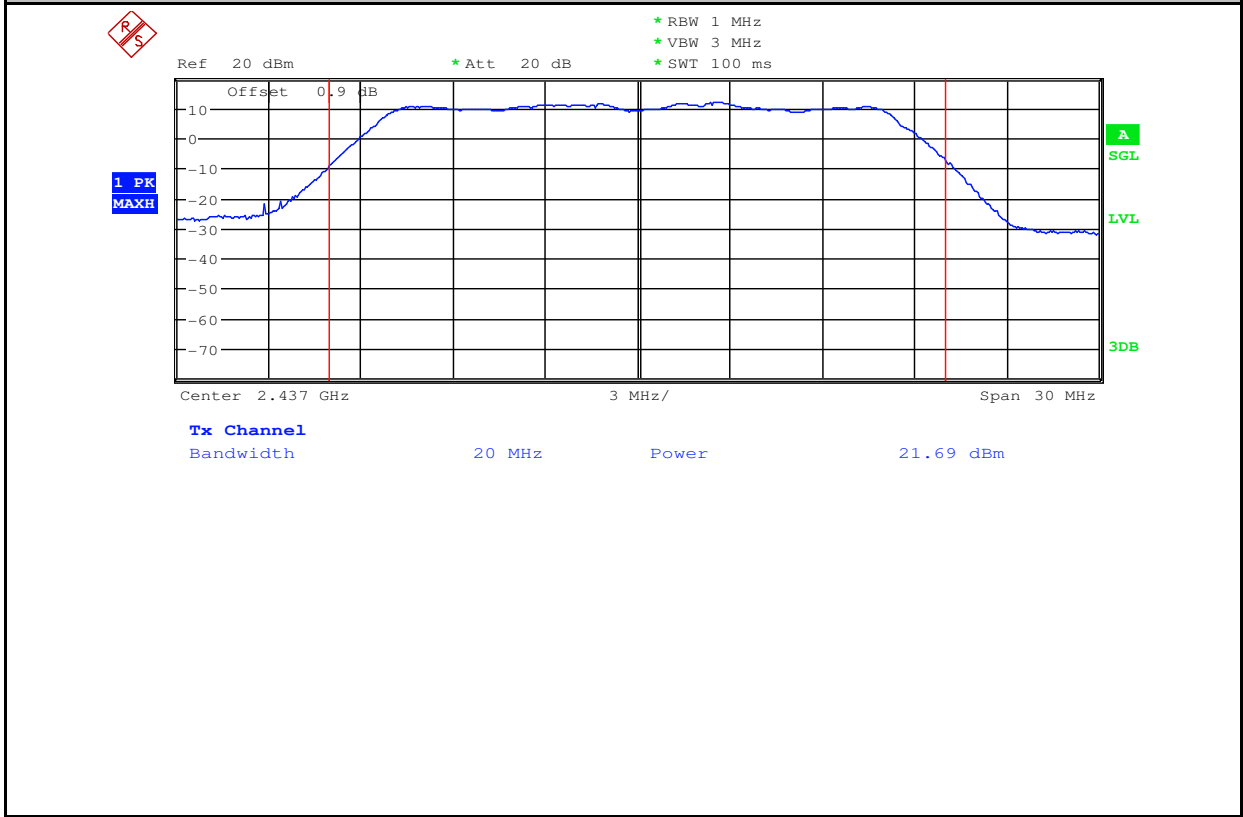
Maximum peak conducted output power\_11G\_2412



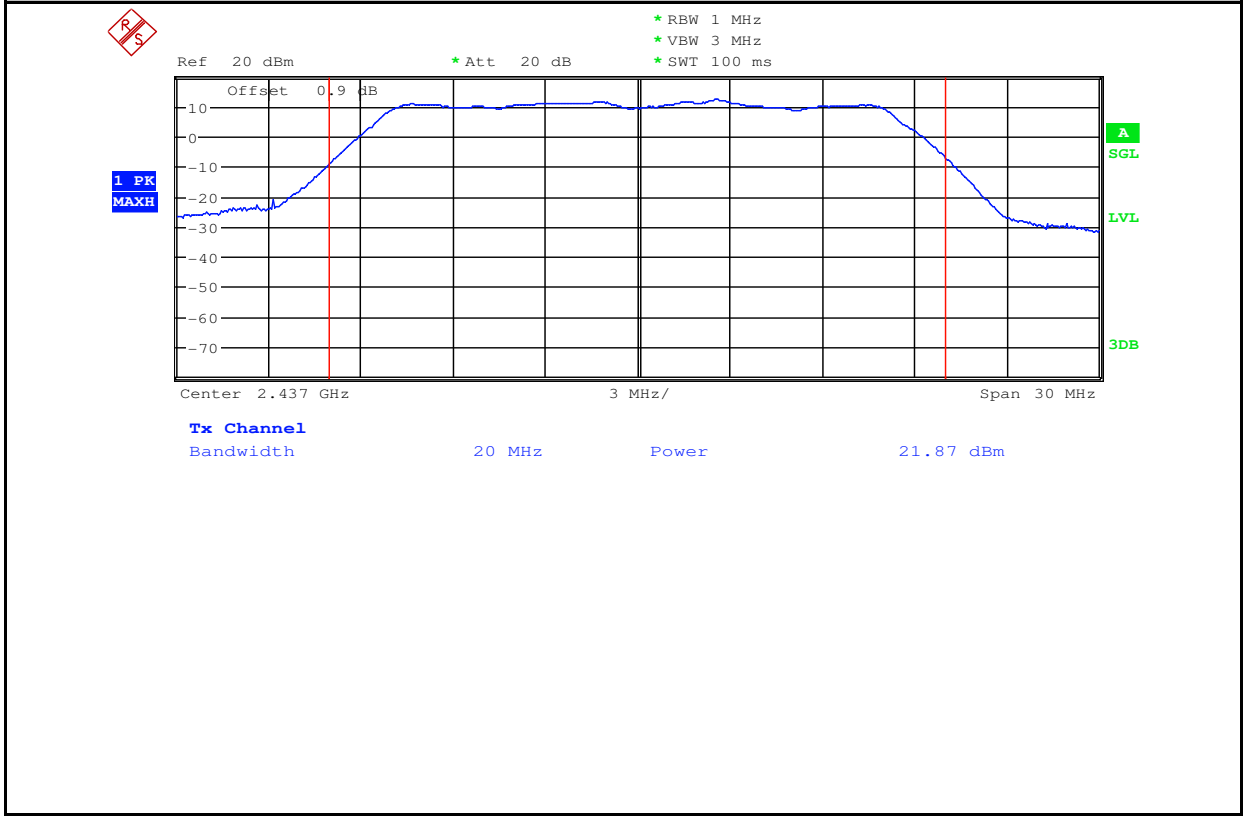
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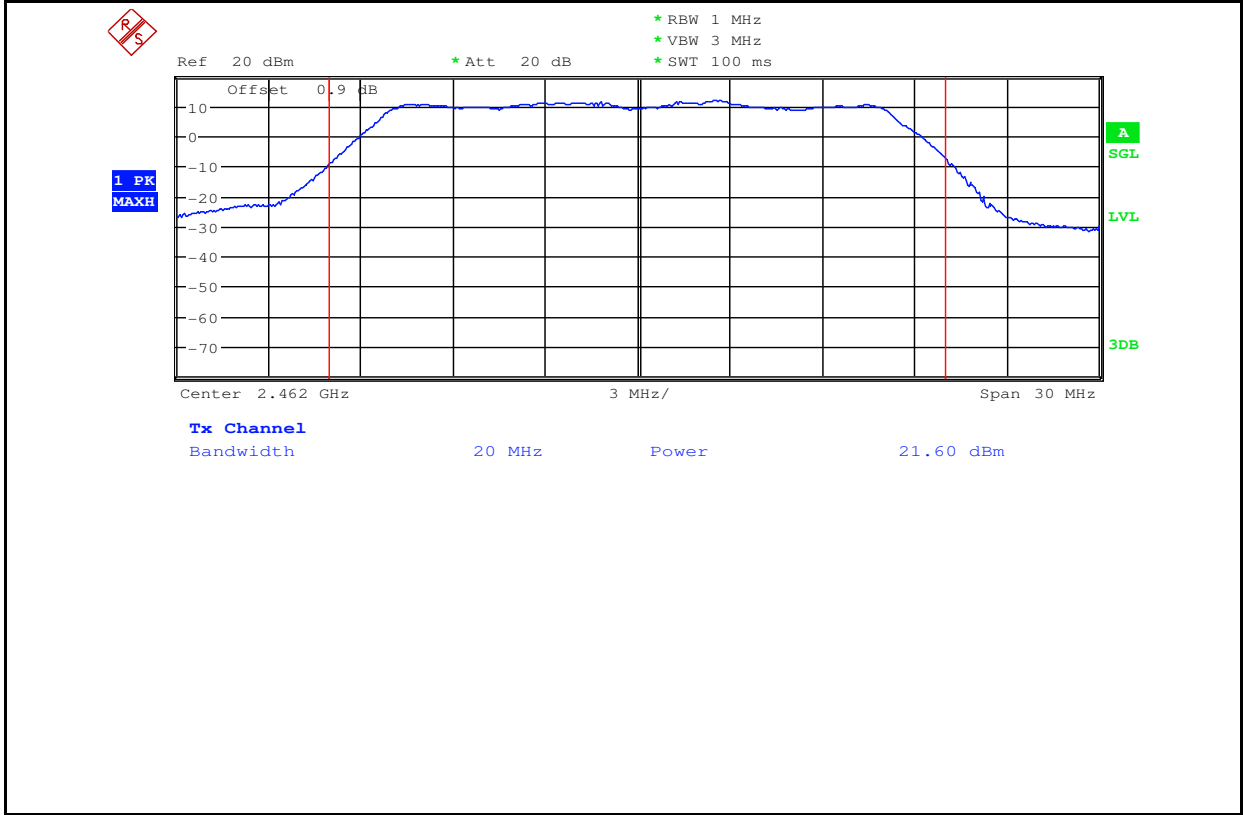
Maximum peak conducted output power\_11G\_2437



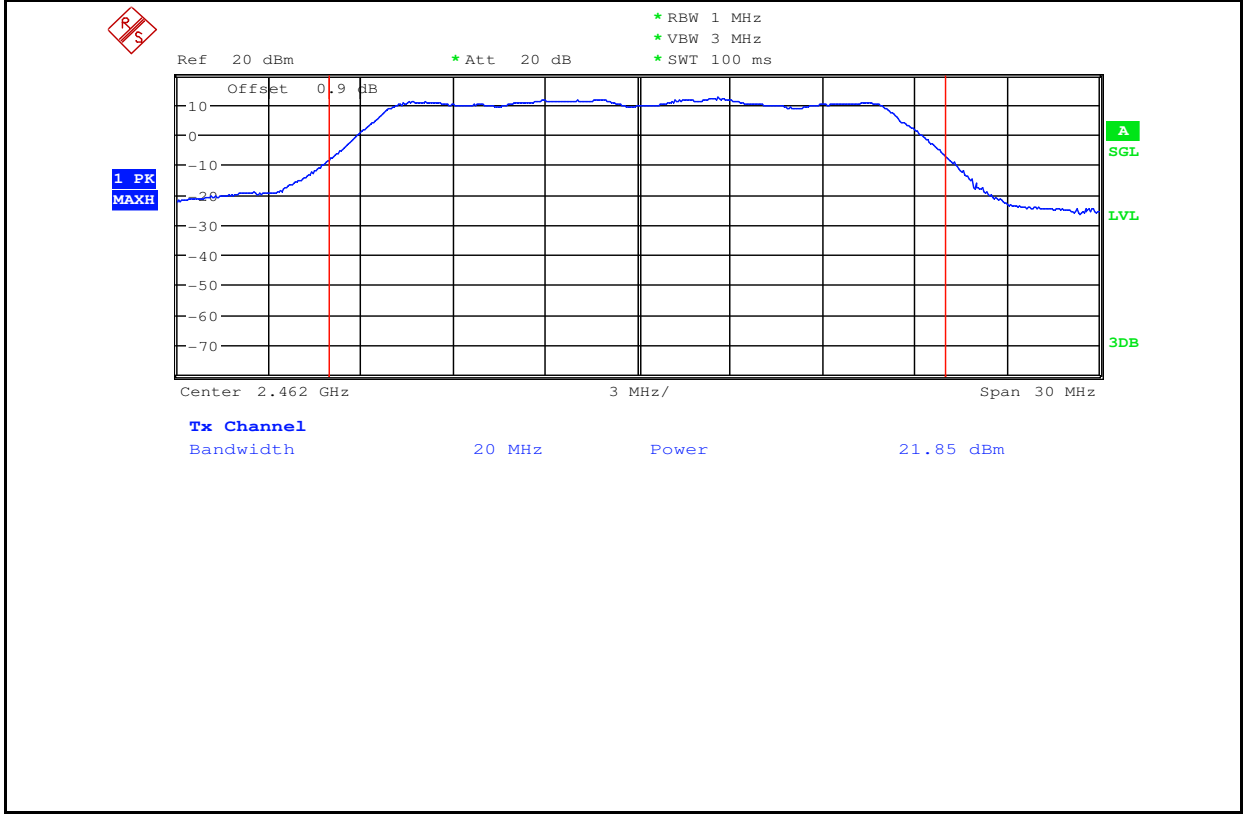
Maximum peak conducted output power\_11G\_2437



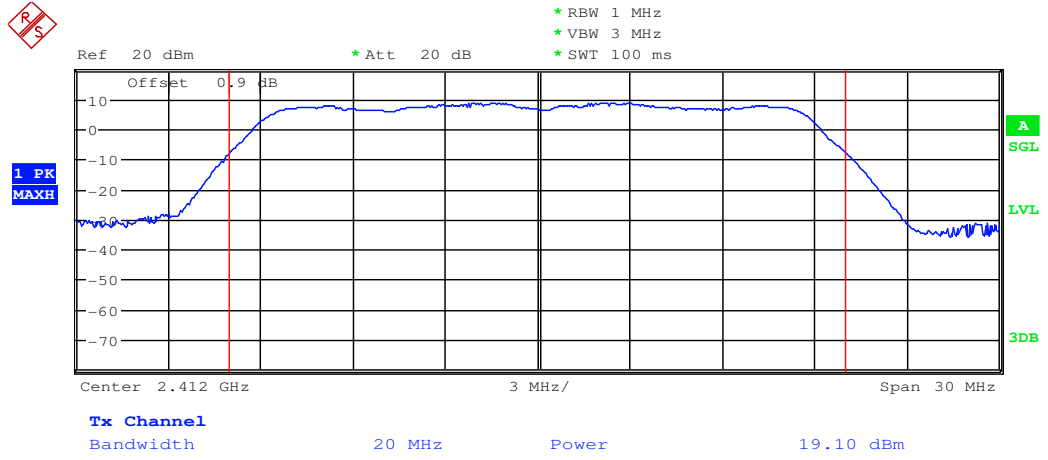
Maximum peak conducted output power\_11G\_2462



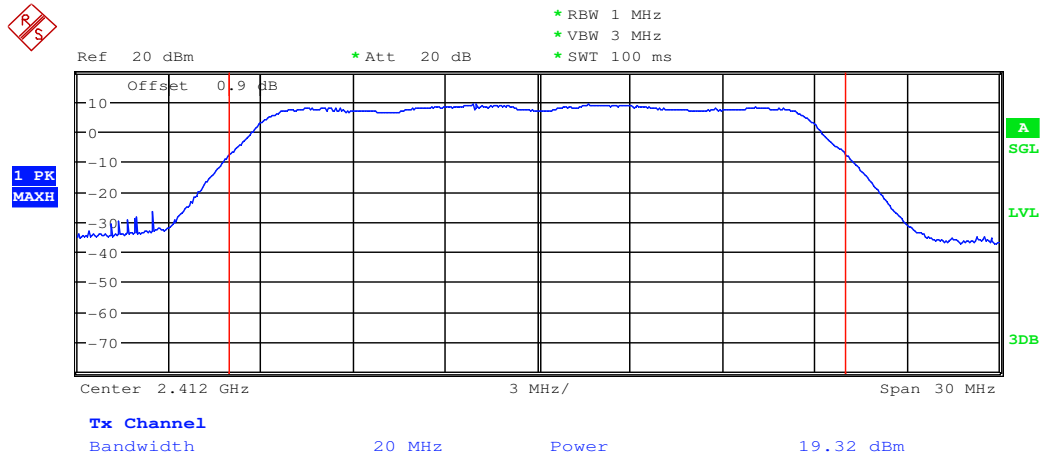
Maximum peak conducted output power\_11G\_2462



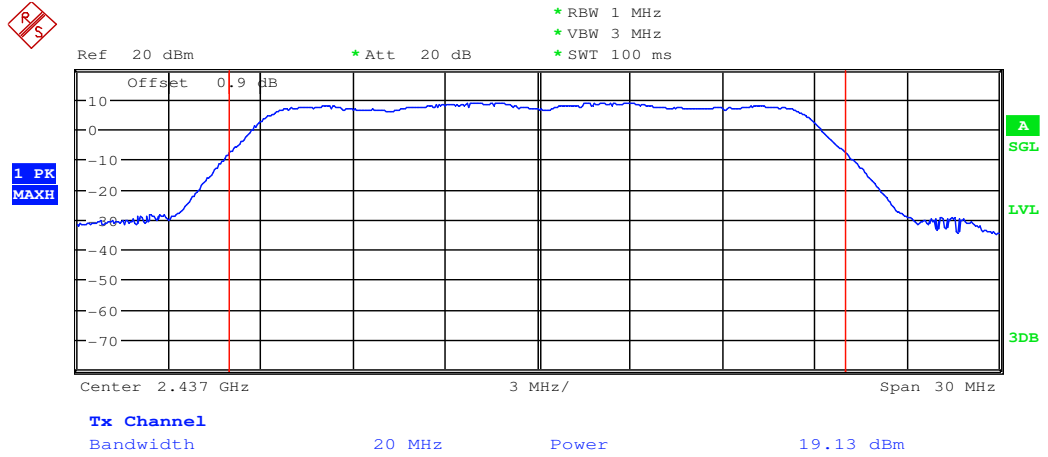
Maximum peak conducted output power\_11N20SISO\_2412



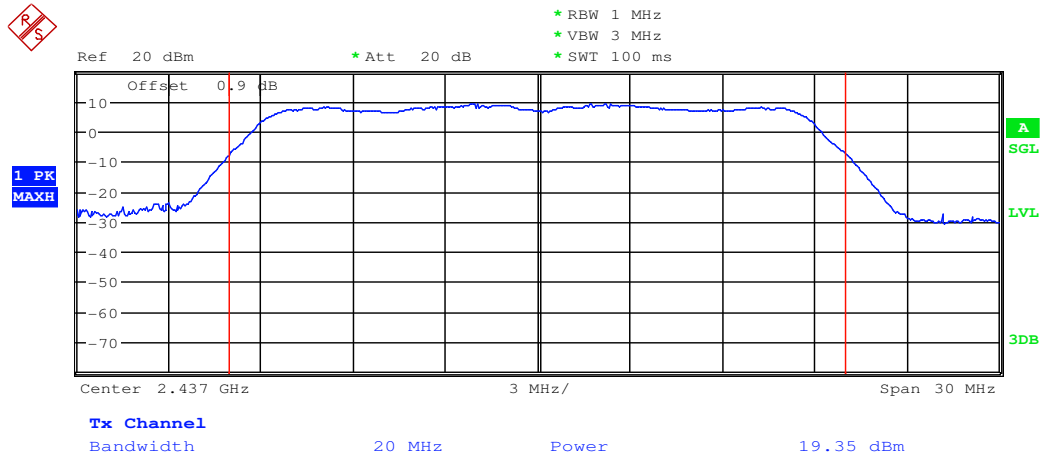
Maximum peak conducted output power\_11N20SISO\_2412



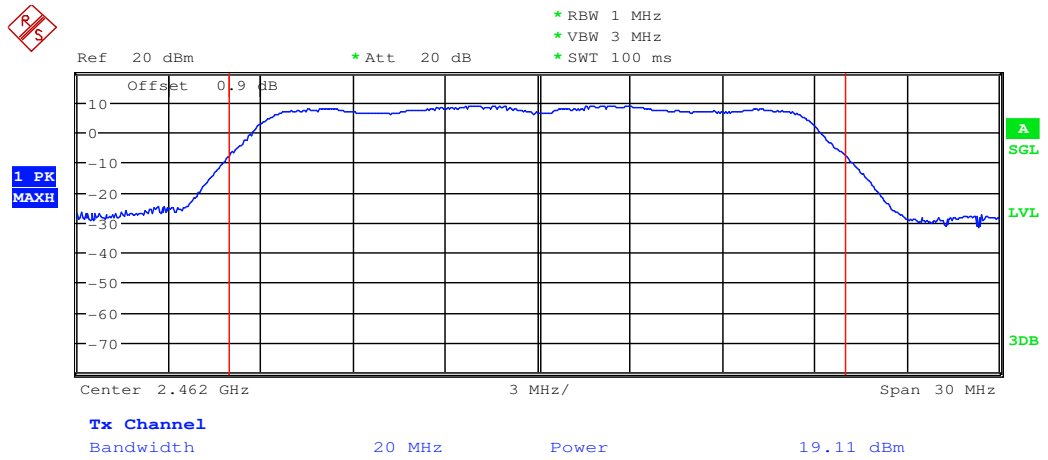
Maximum peak conducted output power\_11N20SISO\_2437



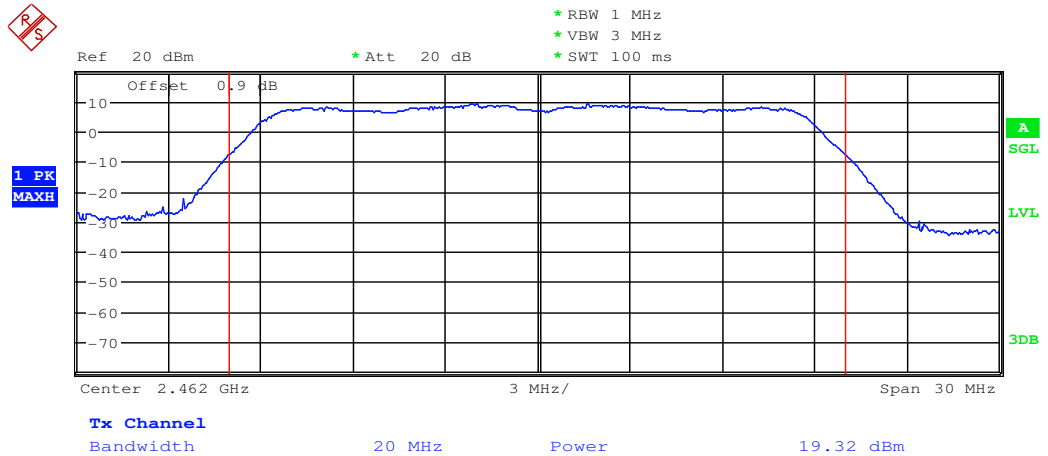
Maximum peak conducted output power\_11N20SISO\_2437



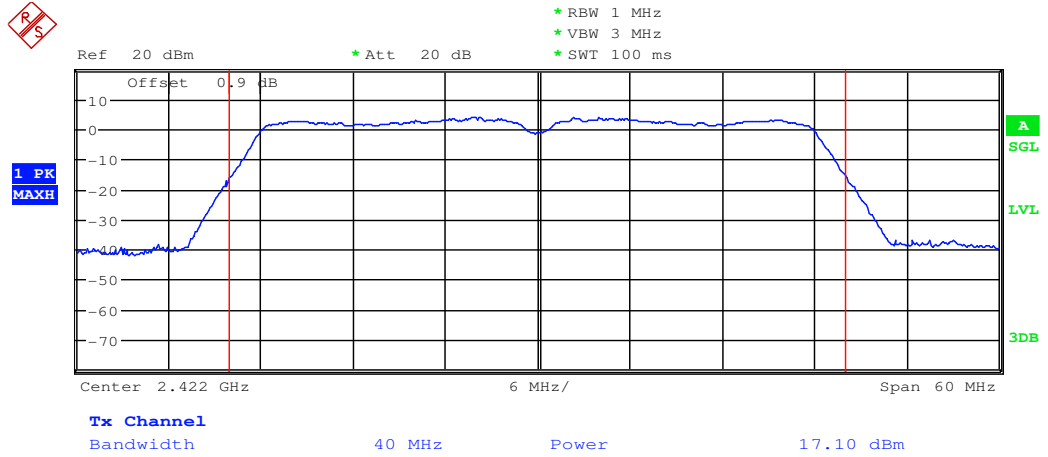
Maximum peak conducted output power\_11N20SISO\_2462



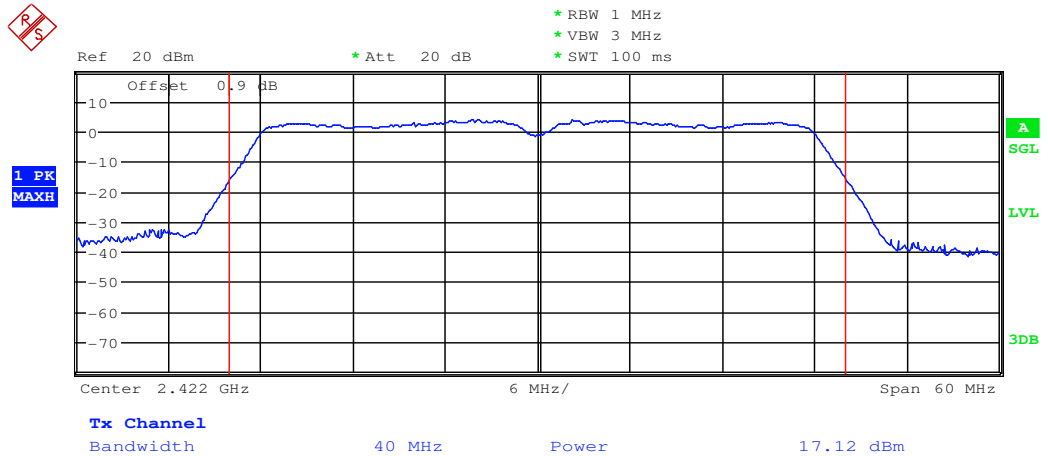
Maximum peak conducted output power\_11N20SISO\_2462



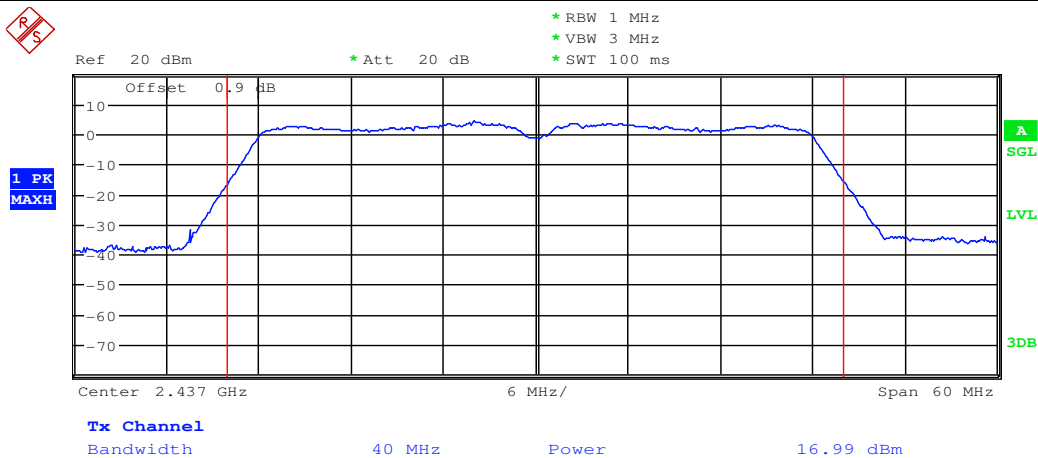
Maximum peak conducted output power\_11N40SISO\_2422



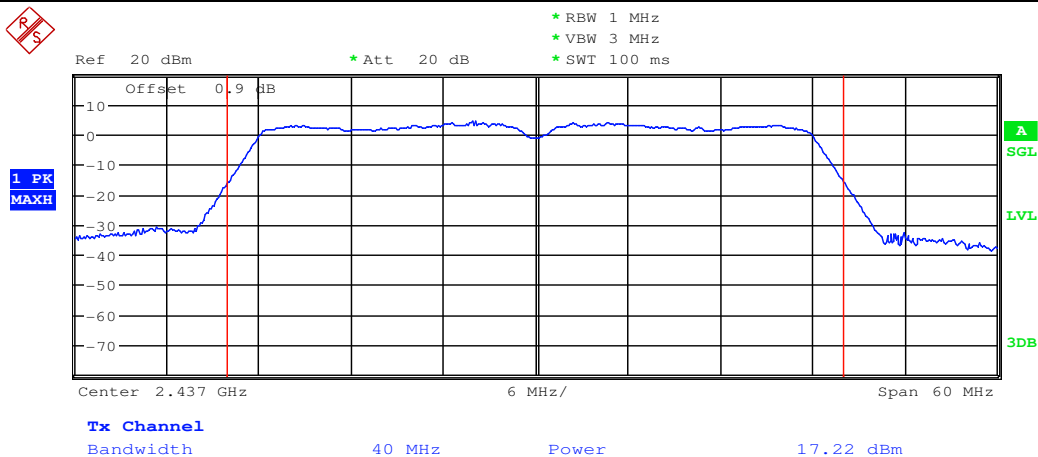
Maximum peak conducted output power\_11N40SISO\_2422



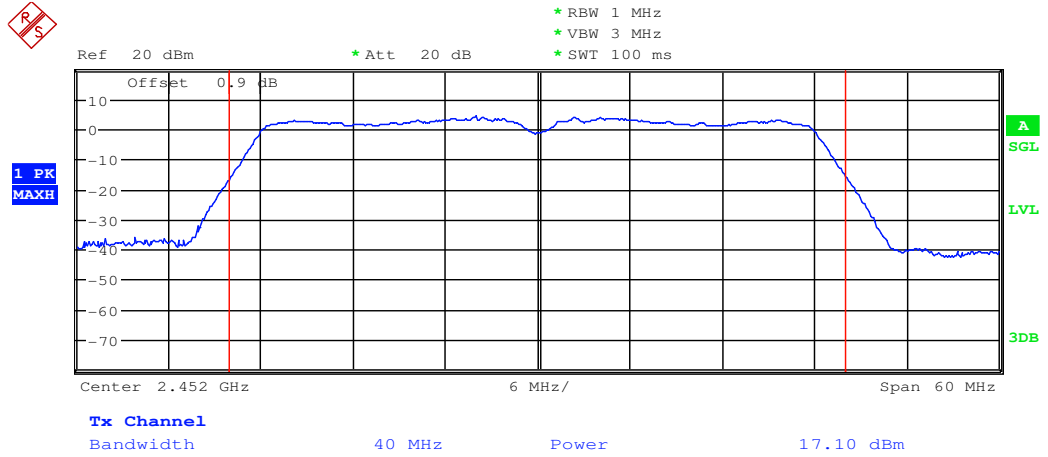
Maximum peak conducted output power\_11N40SISO\_2437



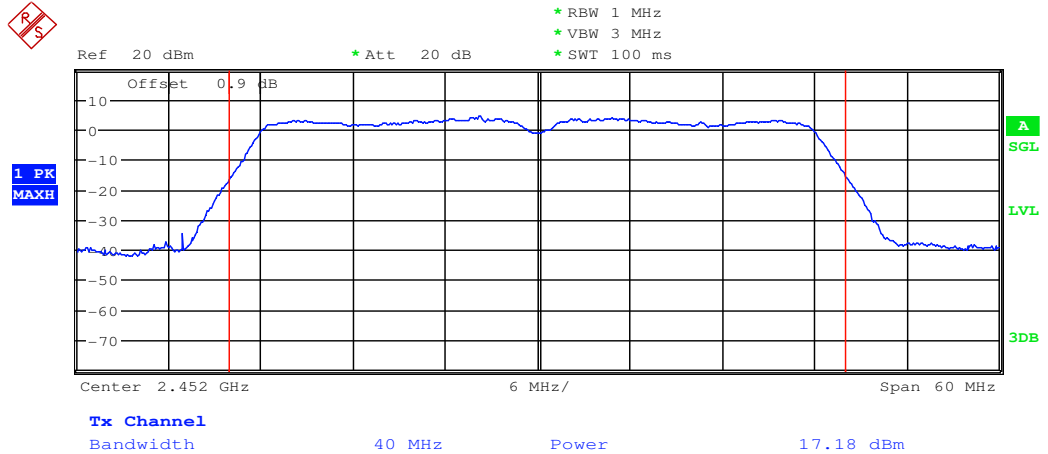
Maximum peak conducted output power\_11N40SISO\_2437



Maximum peak conducted output power\_11N40SISO\_2452



Maximum peak conducted output power\_11N40SISO\_2452

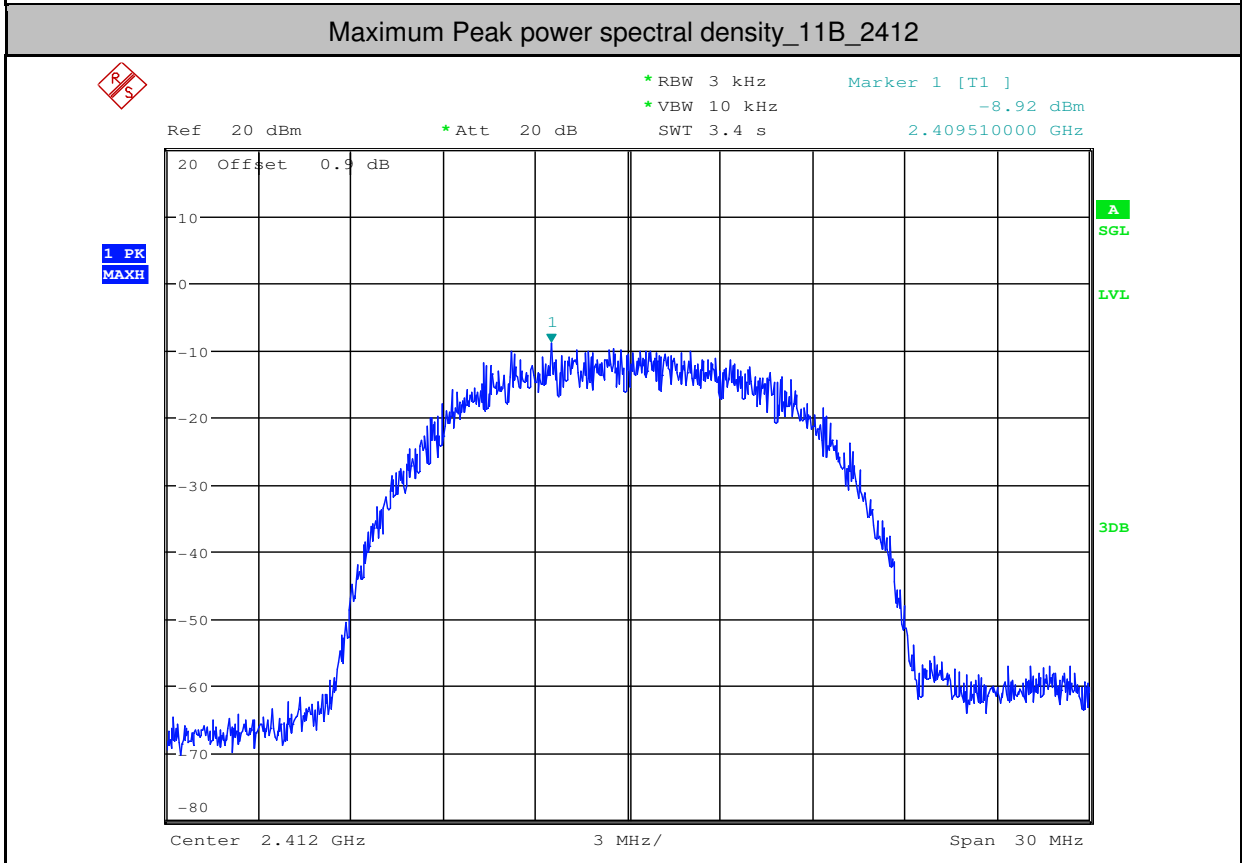
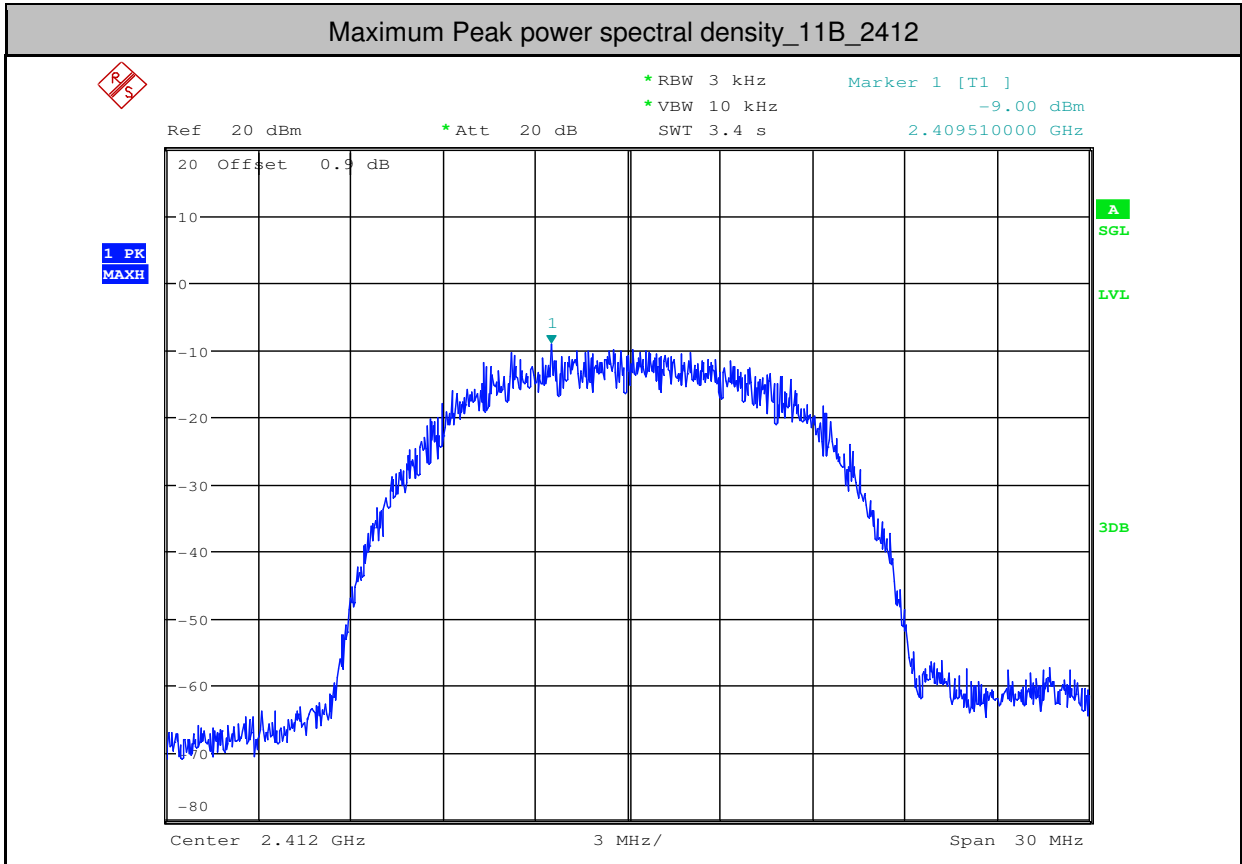






3.Maximum Peak power spectral density

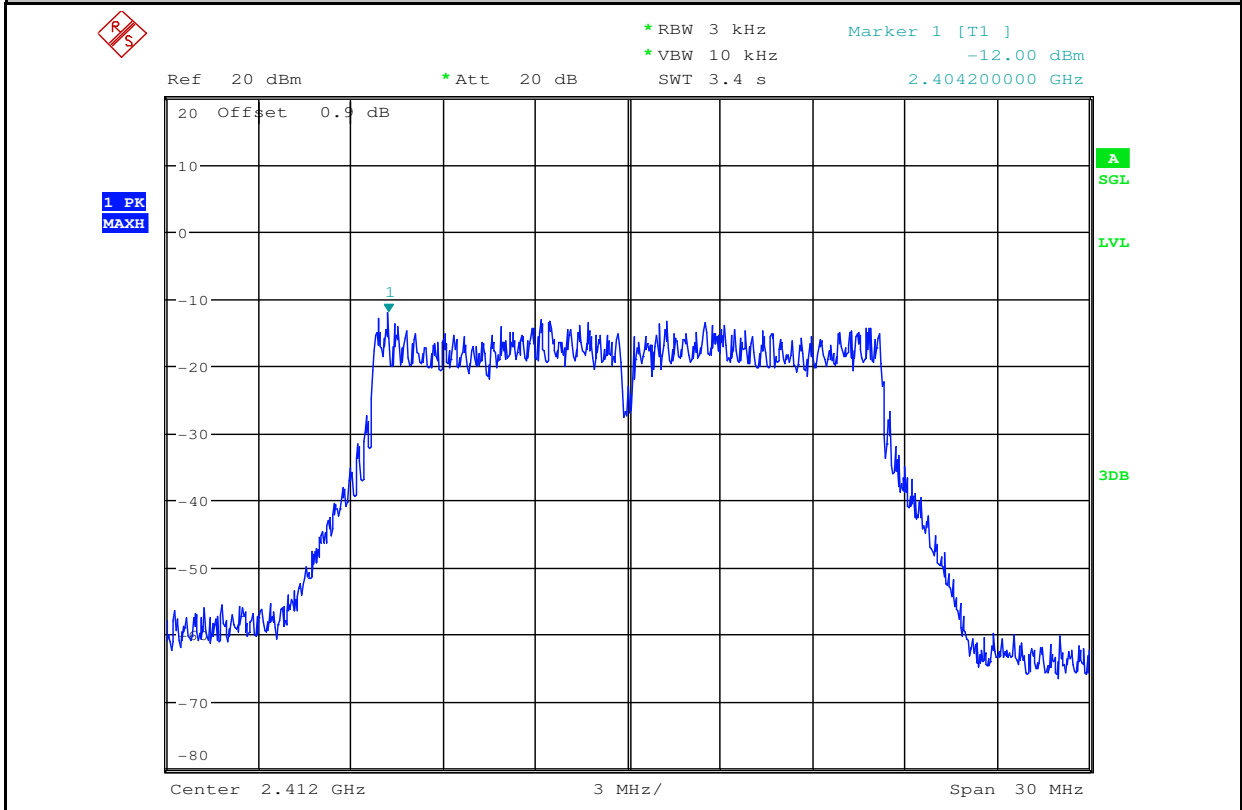
Test Mode	Test Channel	PSD[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	2412	-9	<8.00	PASS
11B	2412	-8.92	<8.00	PASS
11B	2437	-9.05	<8.00	PASS
11B	2437	-8.93	<8.00	PASS
11B	2462	-9.2	<8.00	PASS
11B	2462	-8.98	<8.00	PASS
11G	2412	-12	<8.00	PASS
11G	2412	-11.84	<8.00	PASS
11G	2437	-11.51	<8.00	PASS
11G	2437	-11.27	<8.00	PASS
11G	2462	-11.39	<8.00	PASS
11G	2462	-12.09	<8.00	PASS
11N20SISO	2412	-15.66	<8.00	PASS
11N20SISO	2412	-15.66	<8.00	PASS
11N20SISO	2437	-15.66	<8.00	PASS
11N20SISO	2437	-15.19	<8.00	PASS
11N20SISO	2462	-15.56	<8.00	PASS
11N20SISO	2462	-15.45	<8.00	PASS
11N40SISO	2422	-20.14	<8.00	PASS
11N40SISO	2422	-20.28	<8.00	PASS
11N40SISO	2437	-21.11	<8.00	PASS
11N40SISO	2437	-20.06	<8.00	PASS
11N40SISO	2452	-20.59	<8.00	PASS
11N40SISO	2452	-20.16	<8.00	PASS



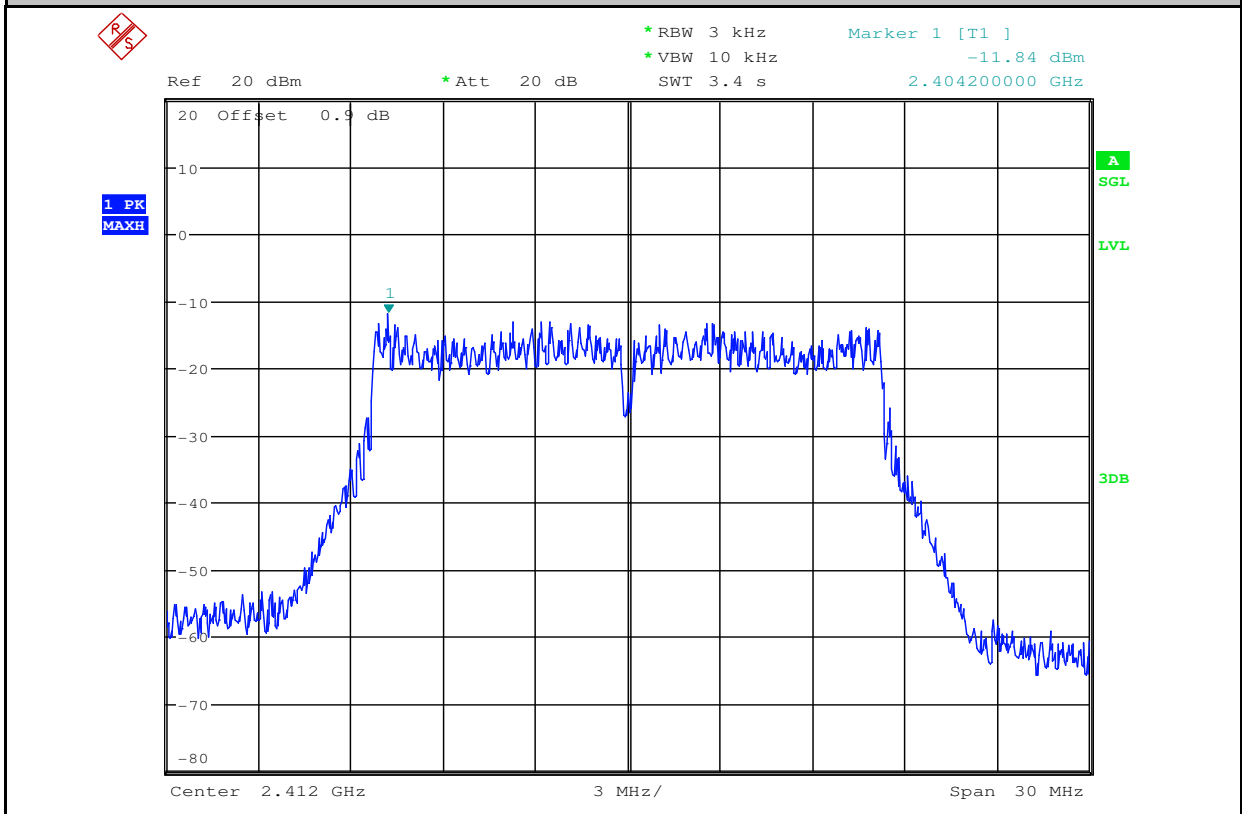




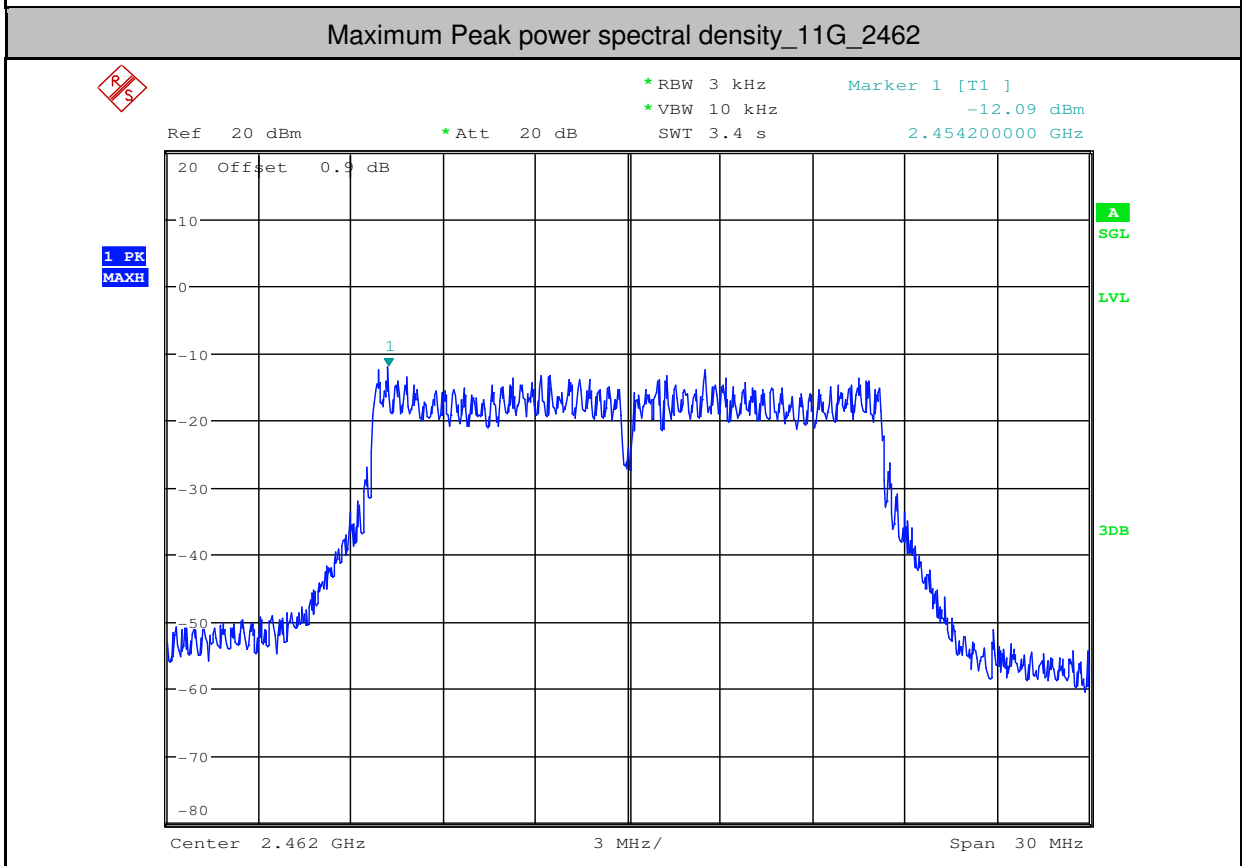
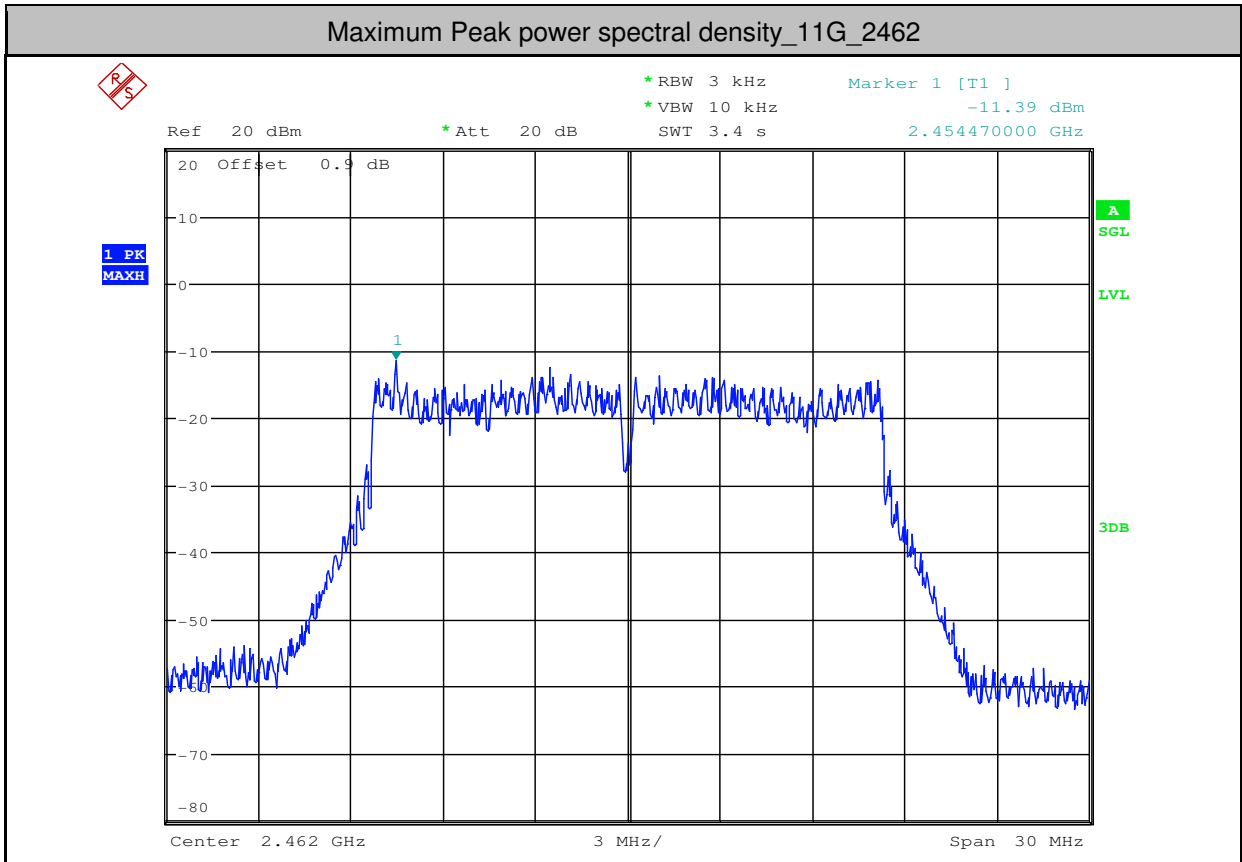
Maximum Peak power spectral density\_11G\_2412

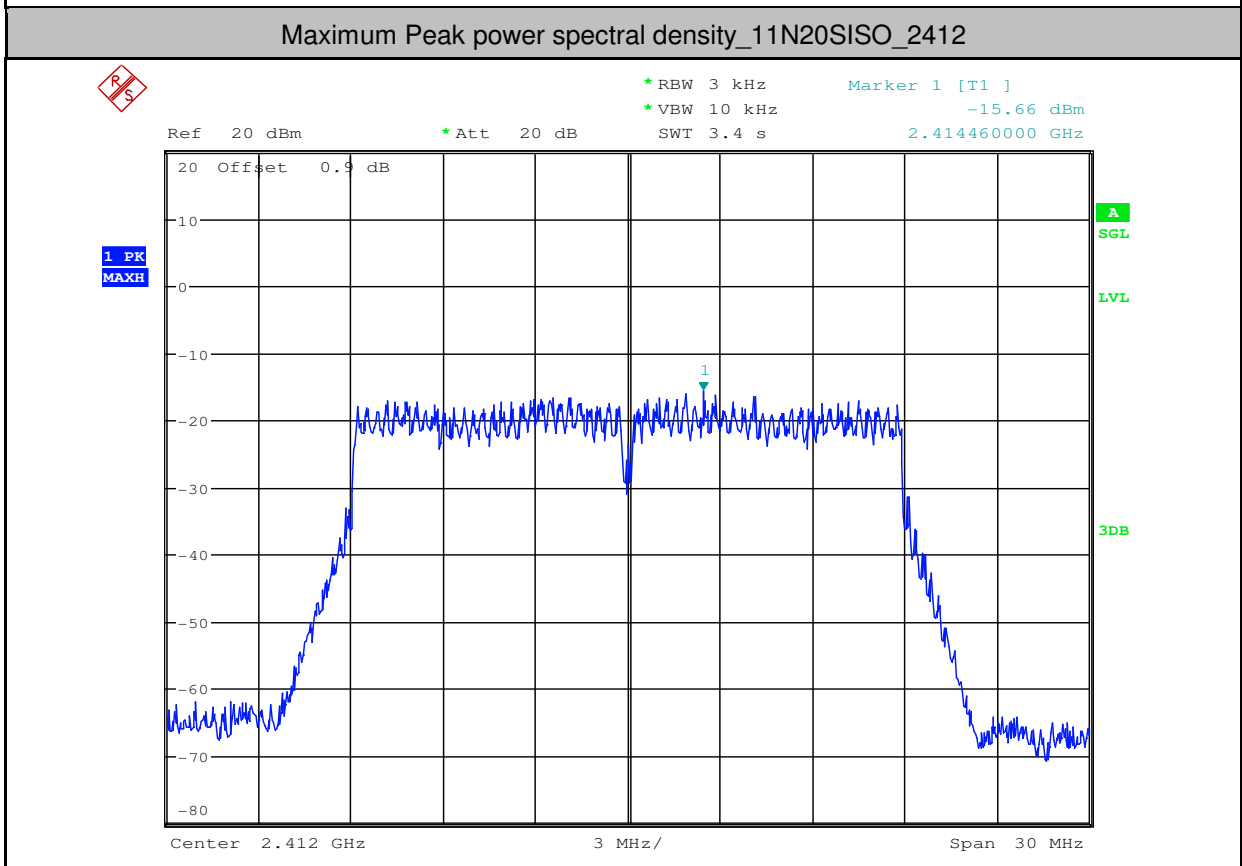
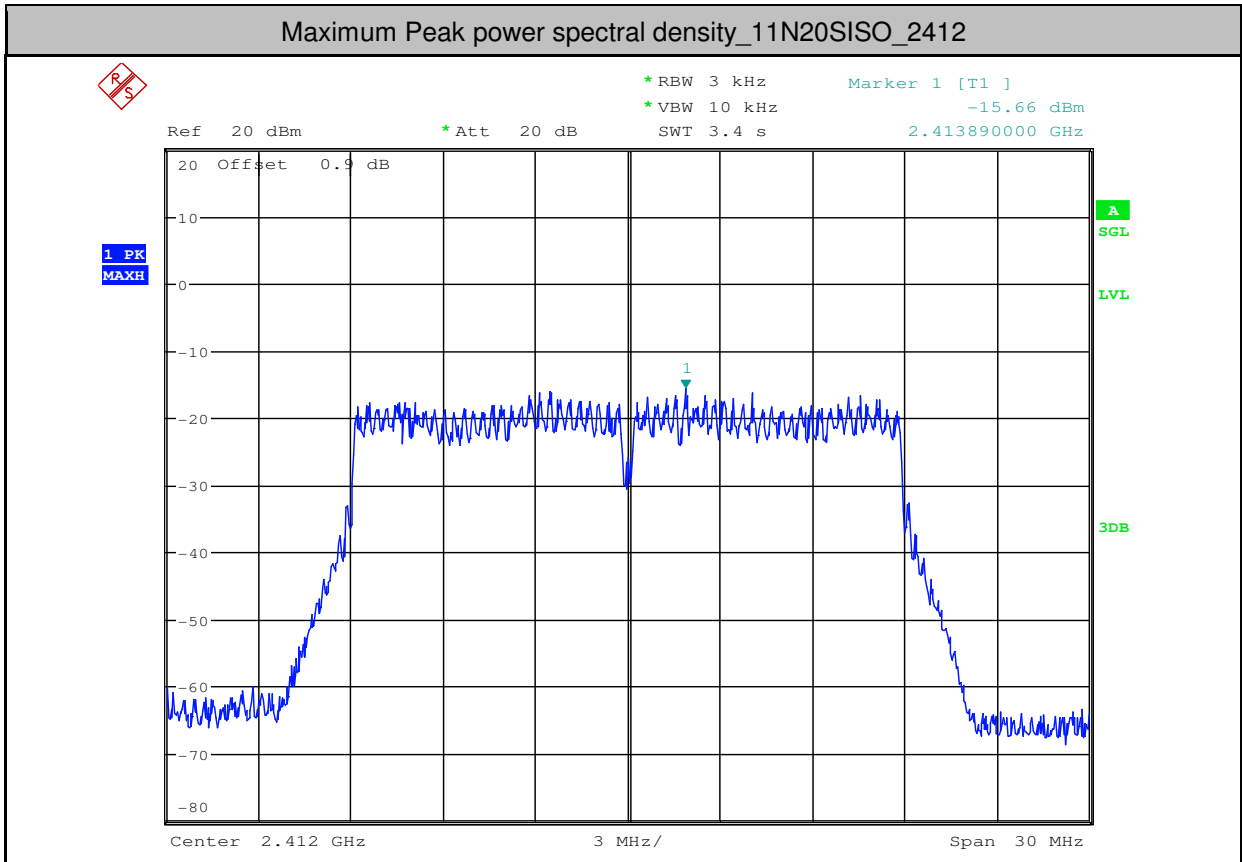


Maximum Peak power spectral density\_11G\_2412





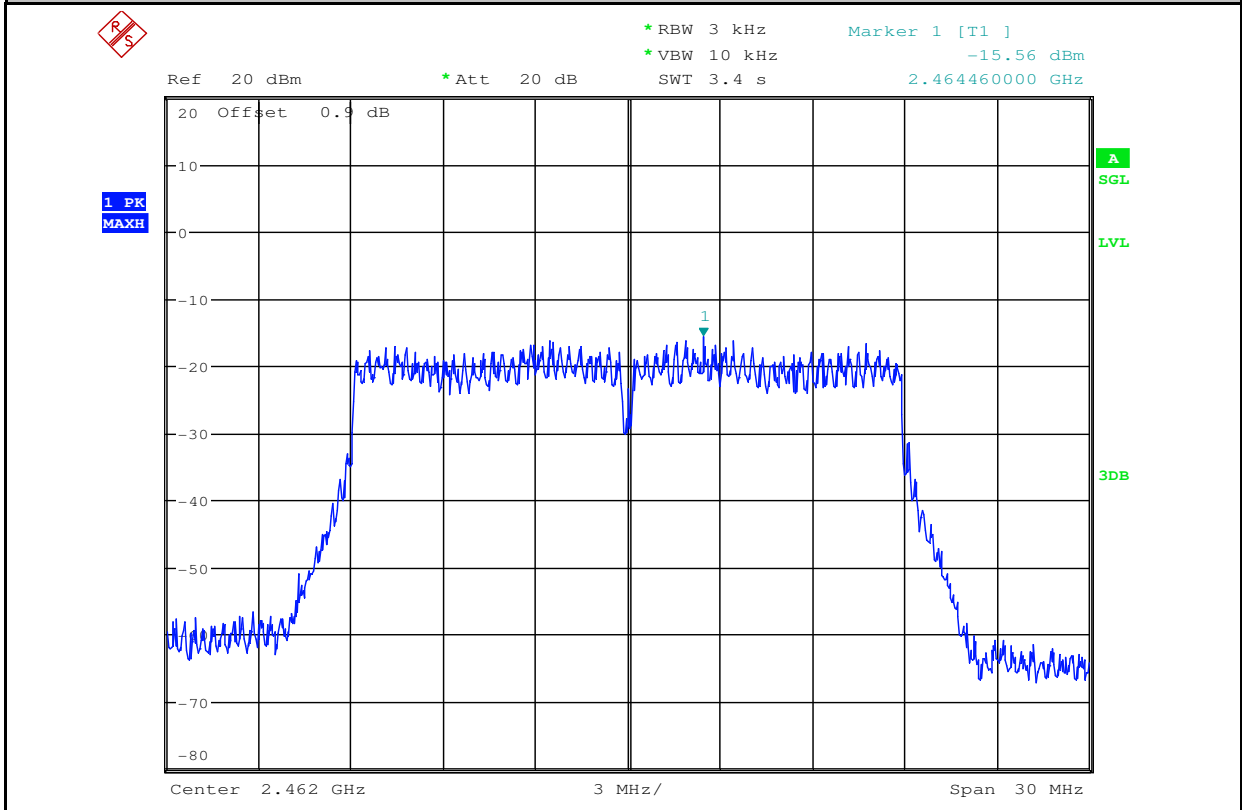




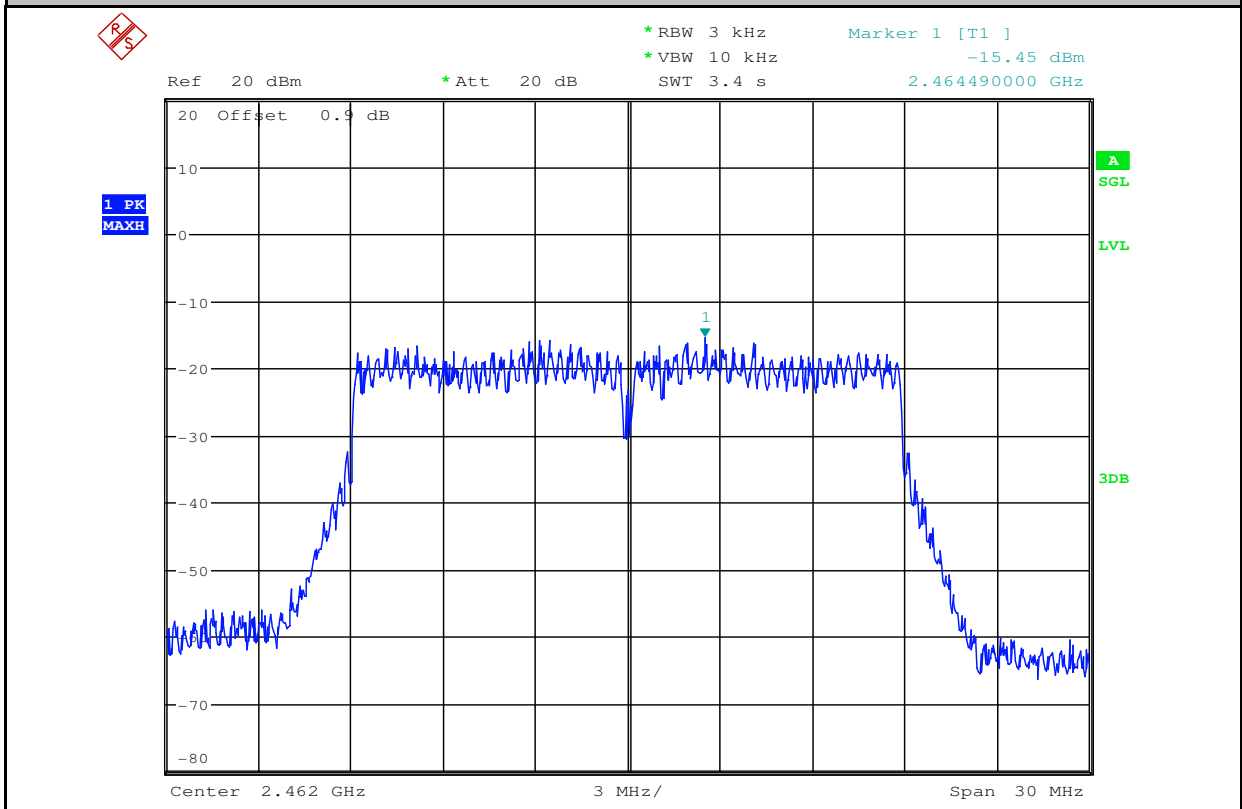


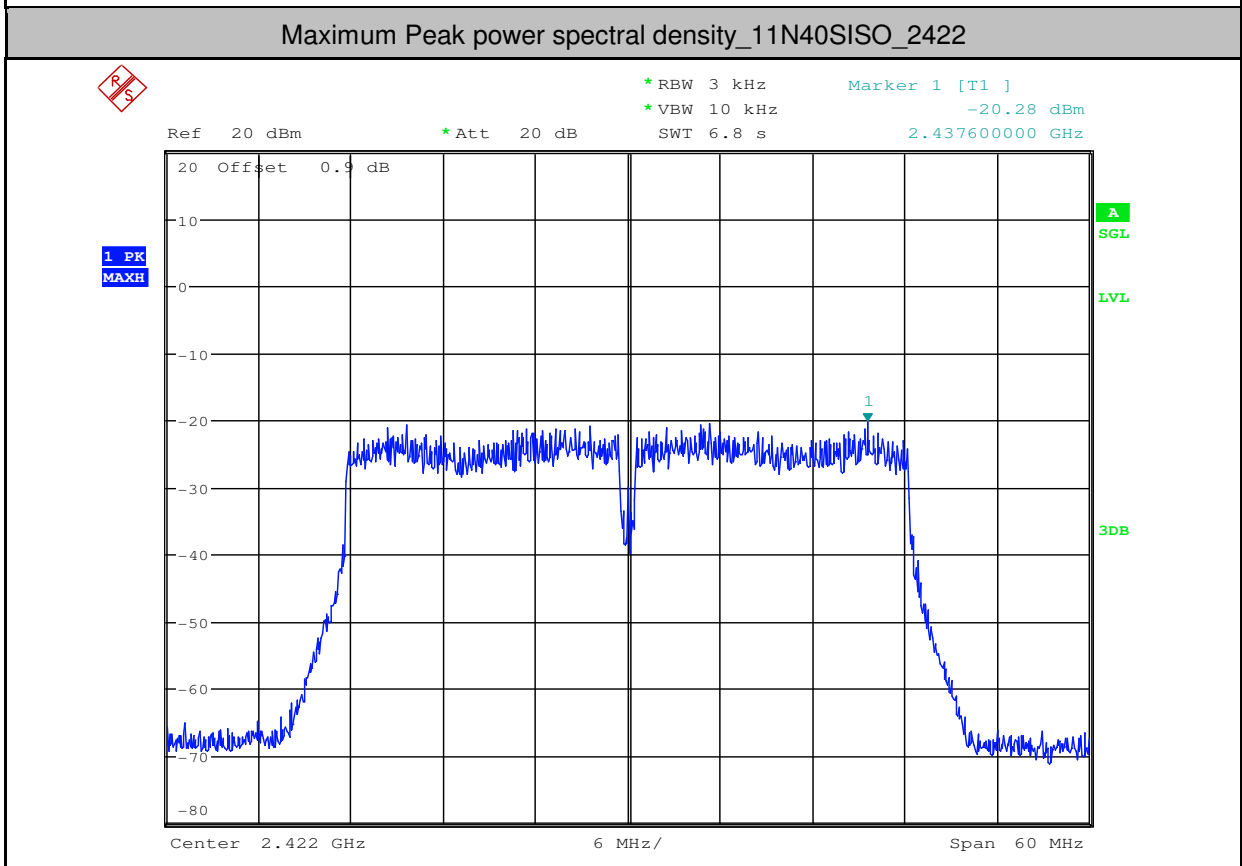
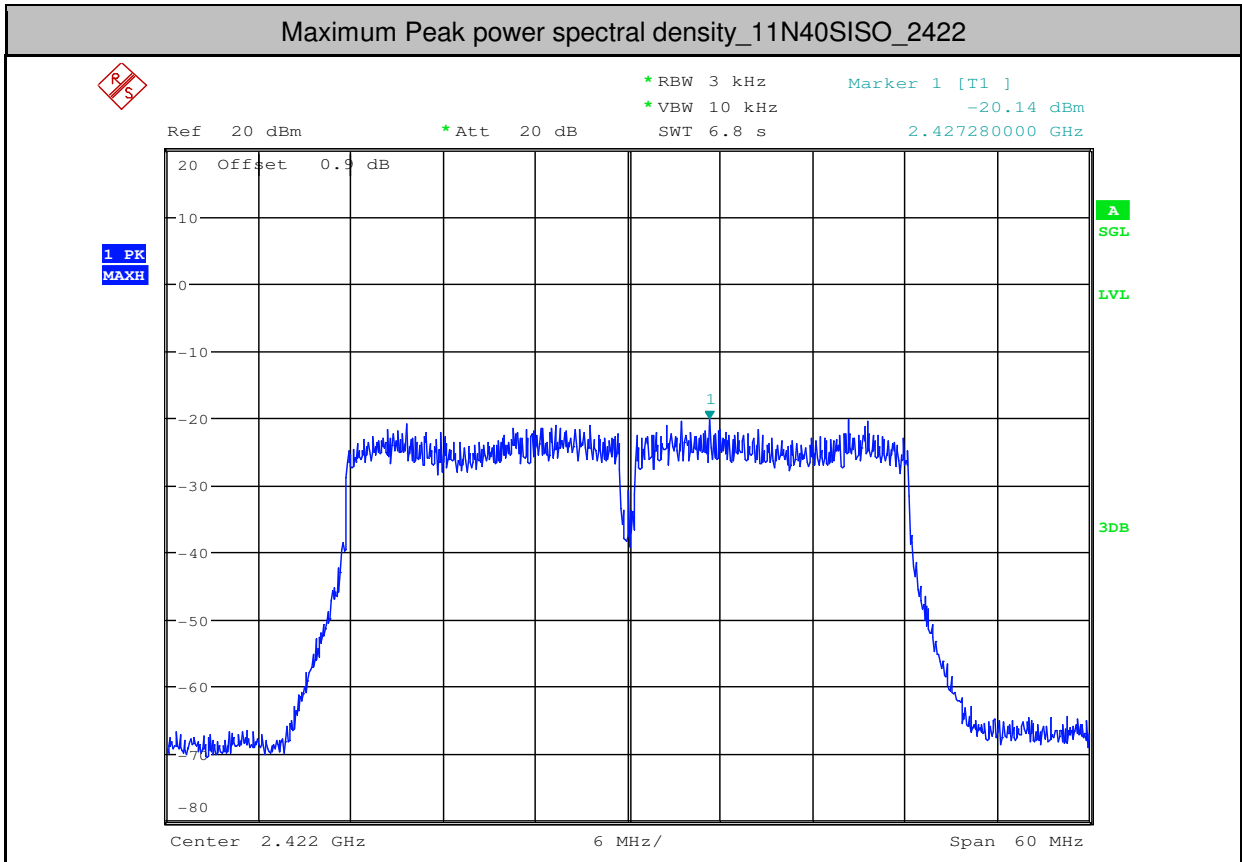


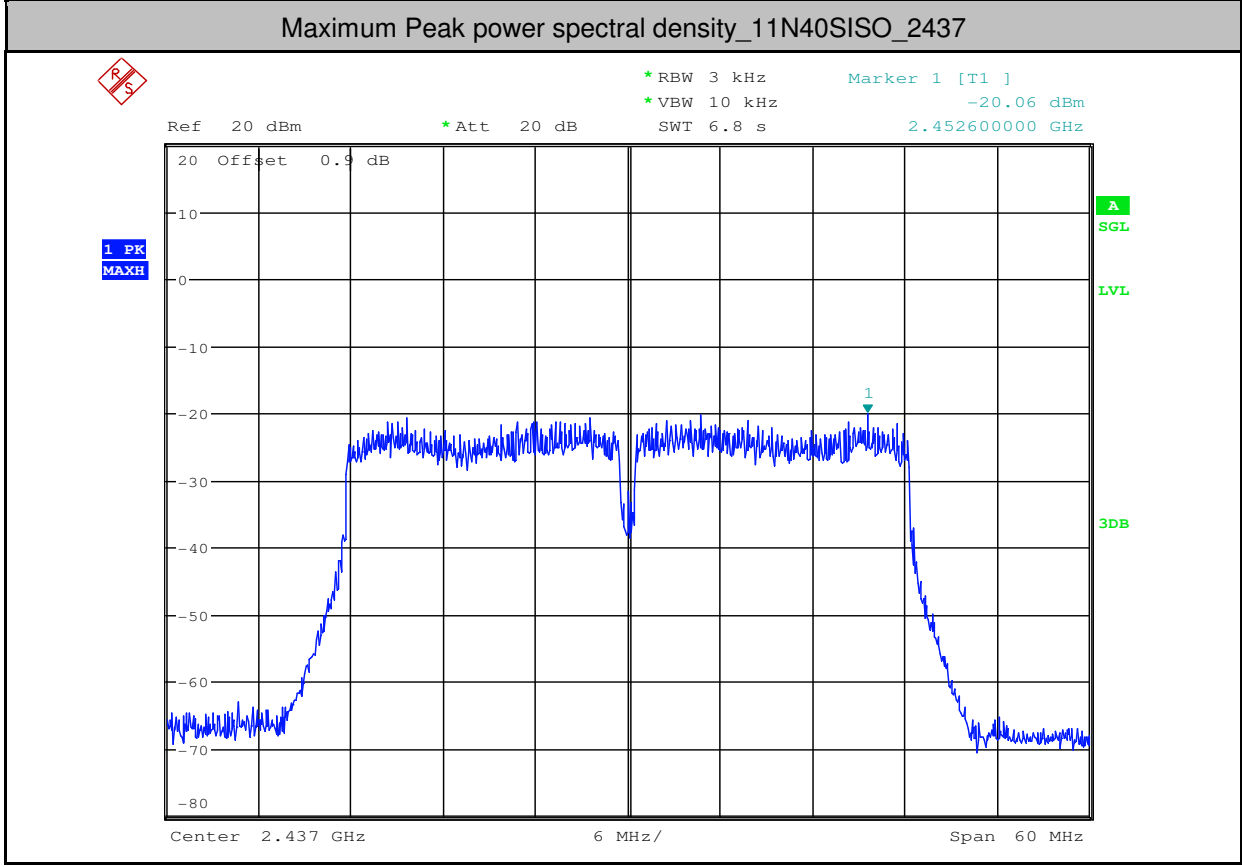
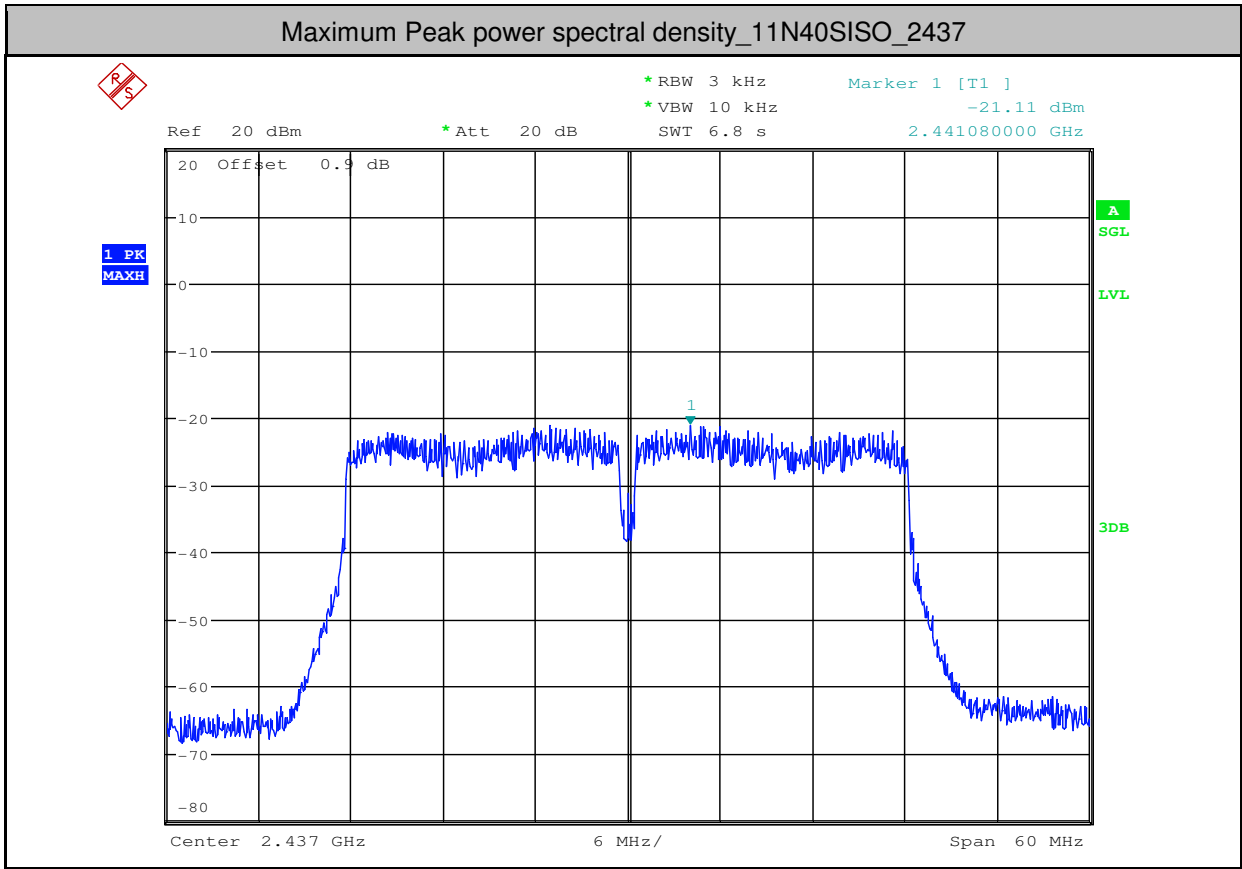
Maximum Peak power spectral density\_11N20SISO\_2462

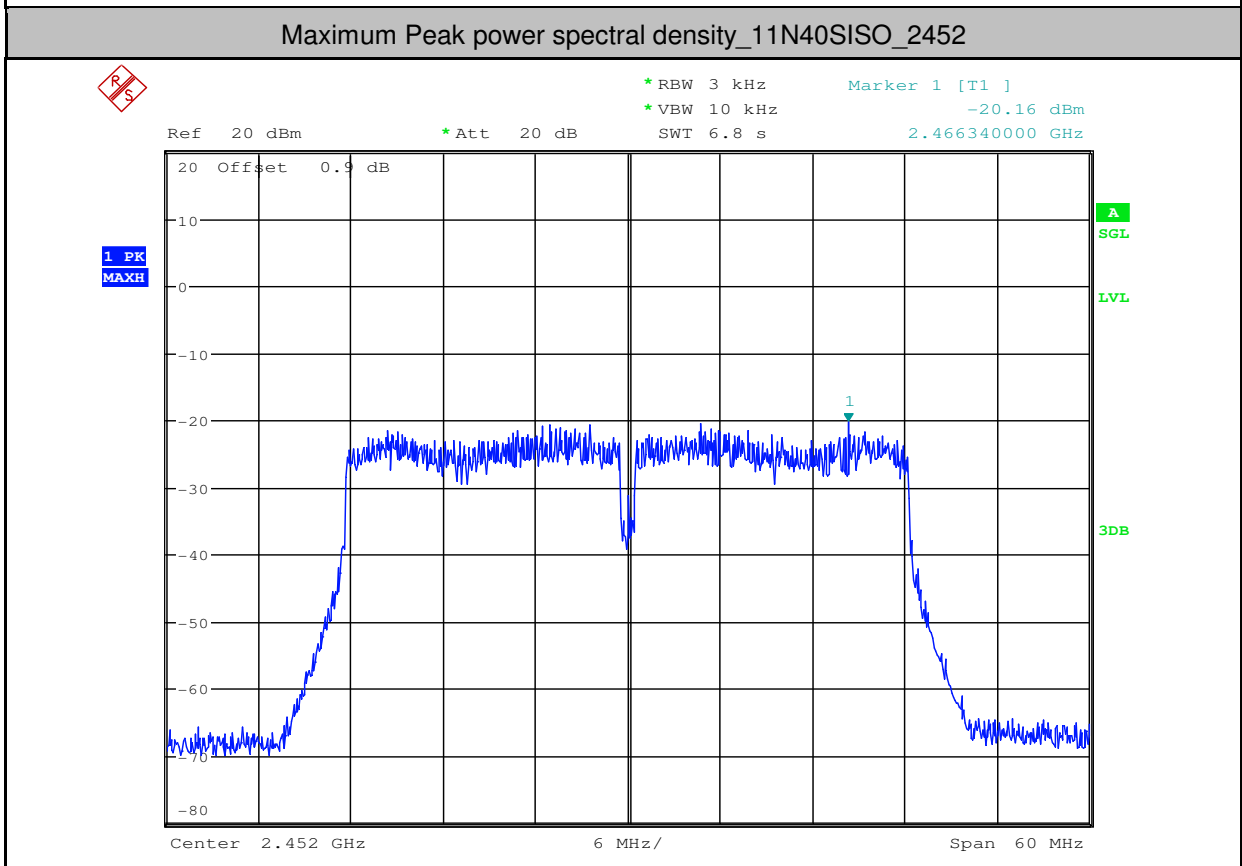
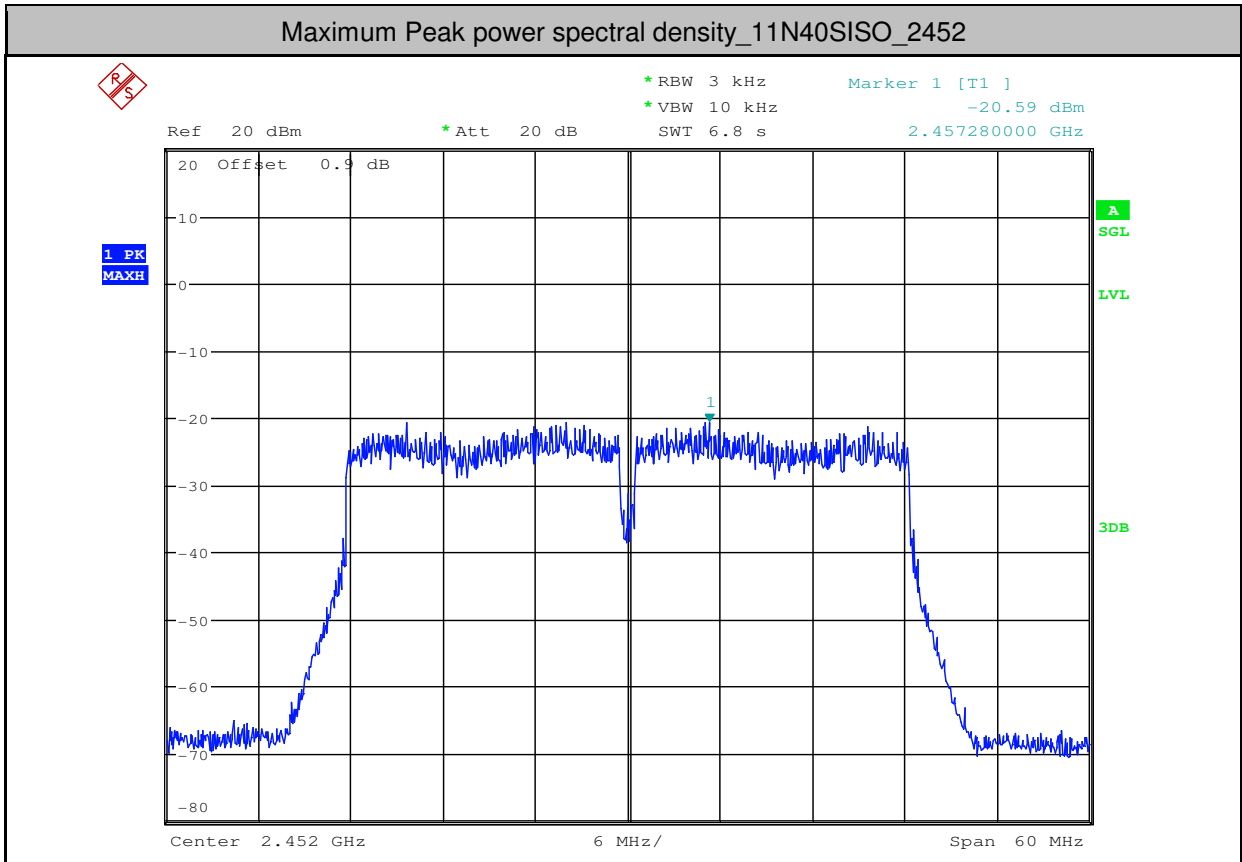


Maximum Peak power spectral density\_11N20SISO\_2462





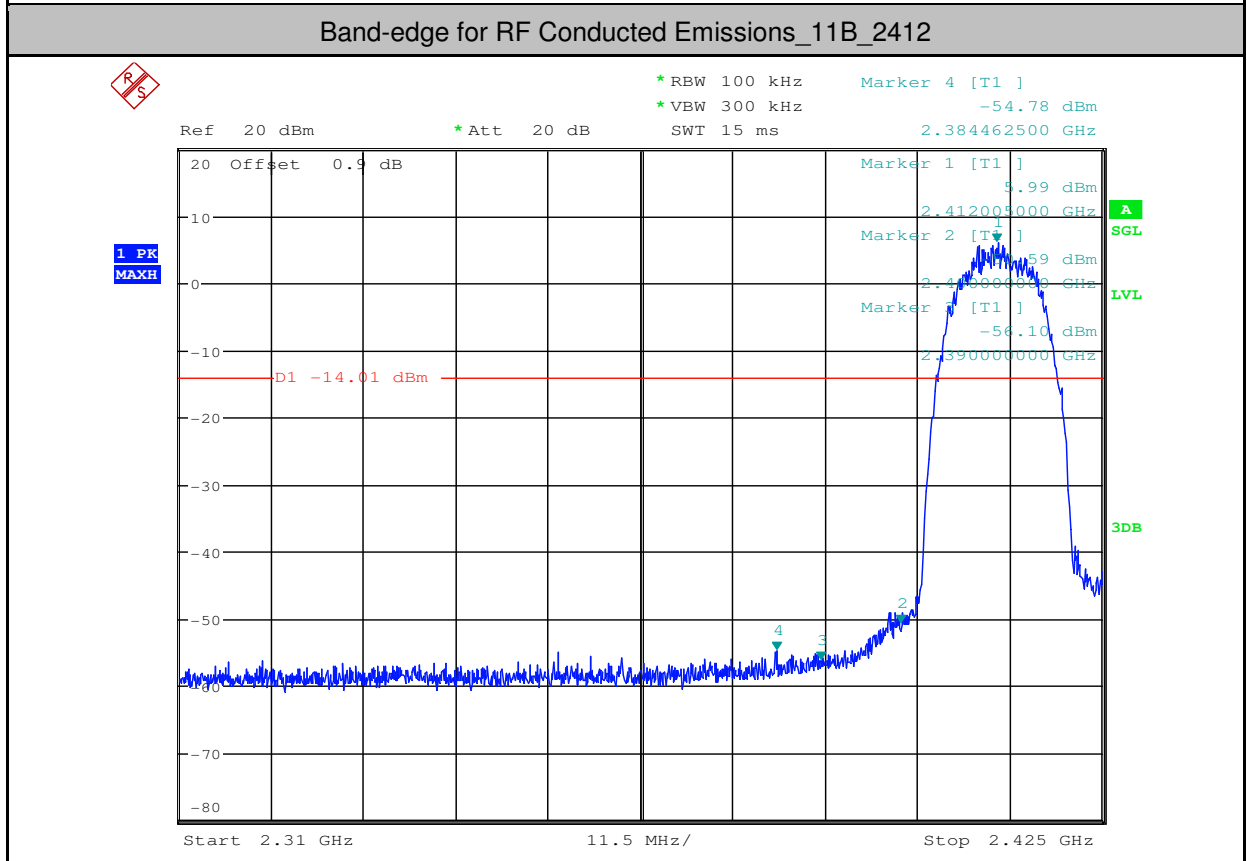
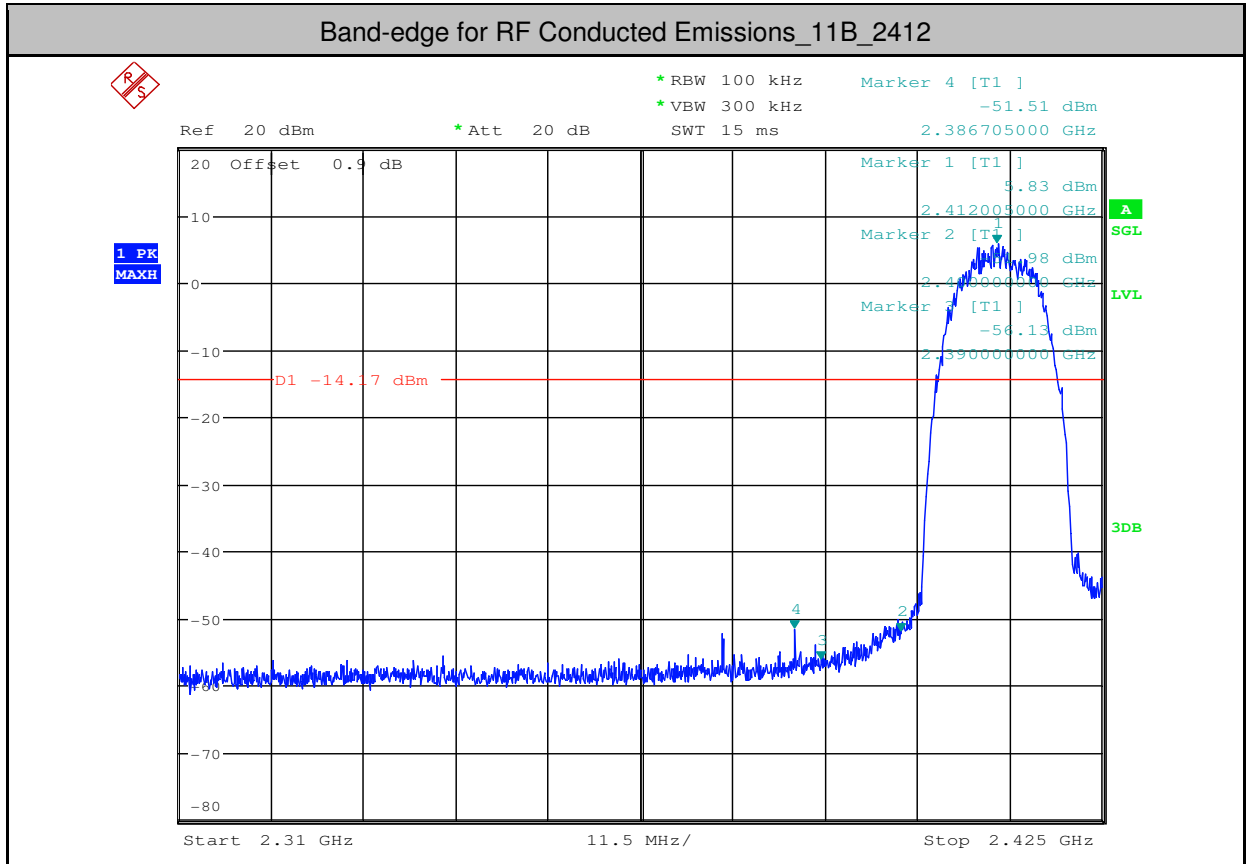


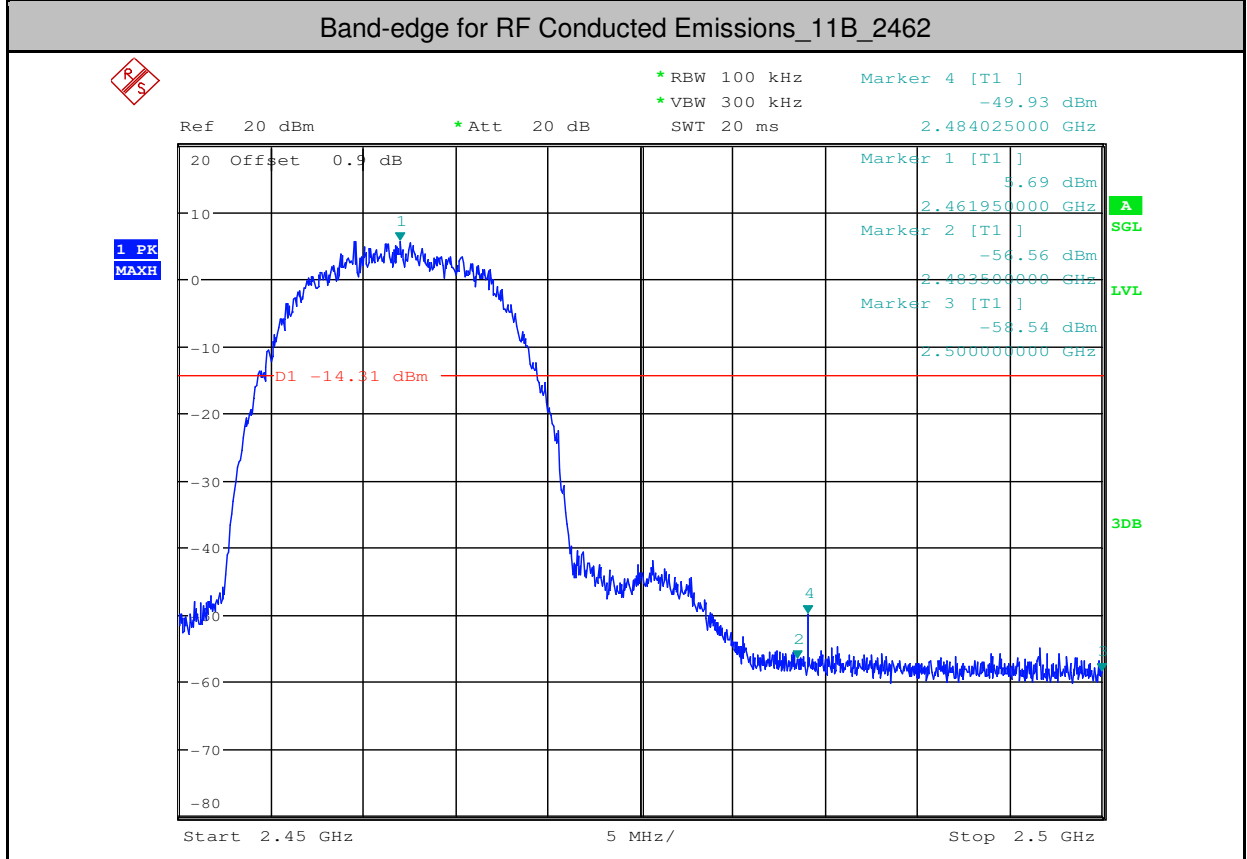
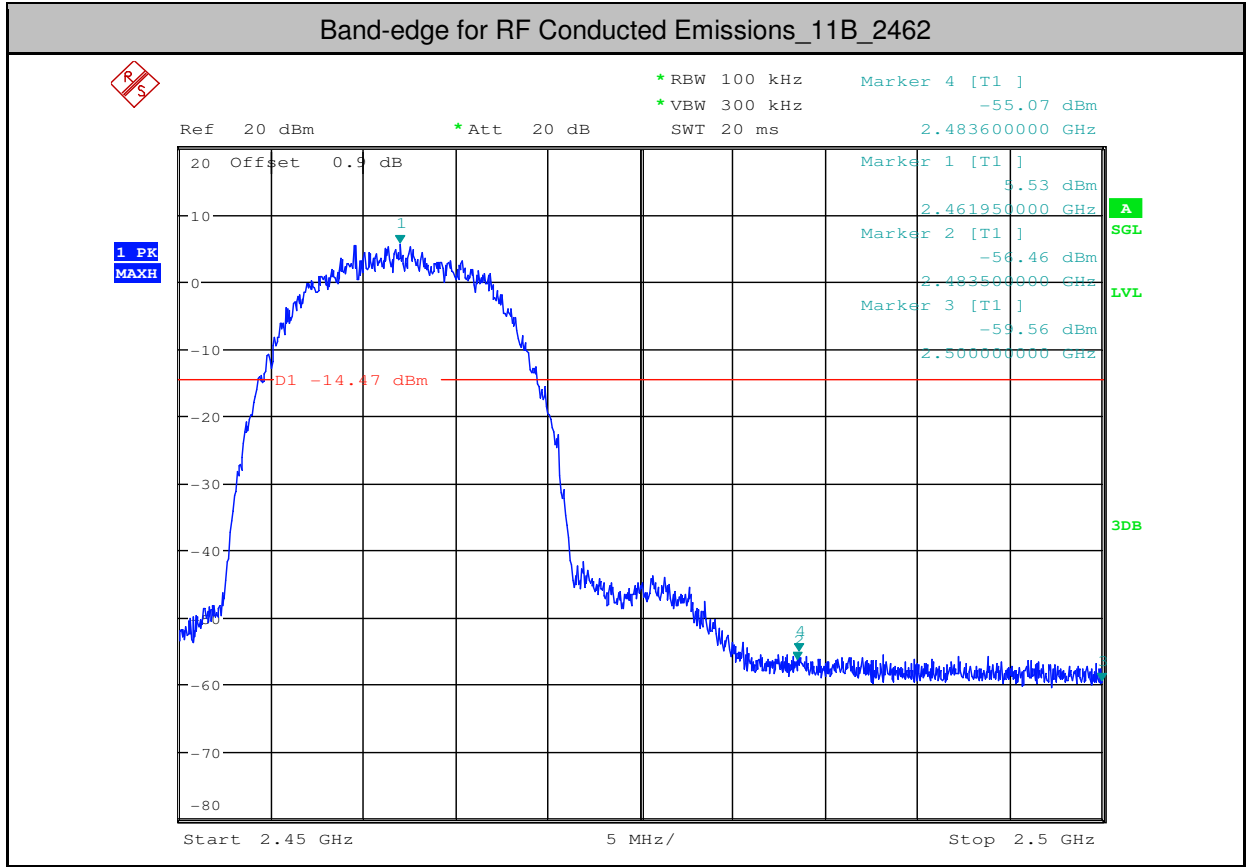




**4. Band-edge for RF Conducted Emissions**

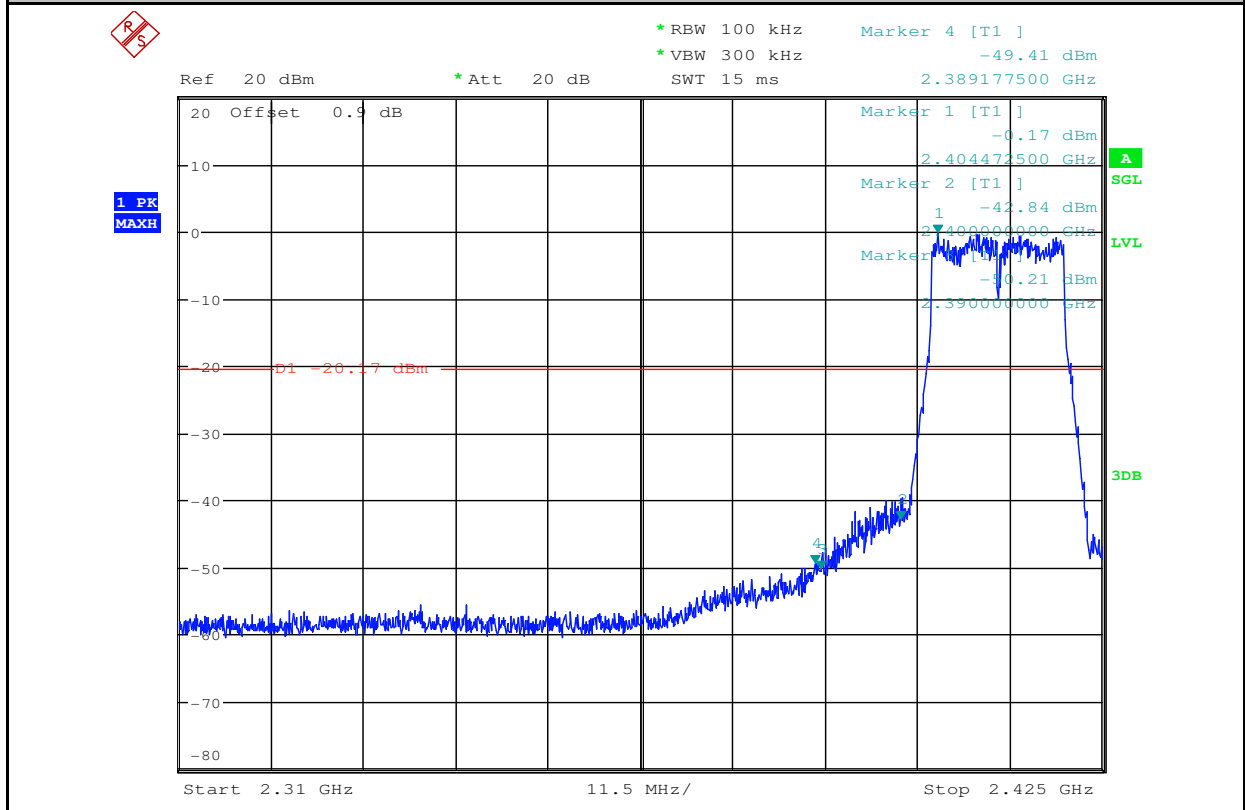
Test Mode	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B	2412	5.830	-51.511	<-14.17	PASS
11B	2412	5.990	-54.780	<-14.01	PASS
11B	2462	5.530	-55.068	<-14.47	PASS
11B	2462	5.690	-49.925	<-14.31	PASS
11G	2412	-0.170	-49.410	<-20.17	PASS
11G	2412	0.200	-48.980	<-19.8	PASS
11G	2462	0.180	-45.606	<-19.82	PASS
11G	2462	0.430	-45.606	<-19.57	PASS
11N20SISO	2412	-2.850	-51.212	<-22.85	PASS
11N20SISO	2412	-2.680	-52.211	<-22.68	PASS
11N20SISO	2462	-2.830	-51.333	<-22.83	PASS
11N20SISO	2462	-2.910	-51.178	<-22.91	PASS
11N40SISO	2422	-6.890	-52.619	<-26.89	PASS
11N40SISO	2422	-7.700	-50.036	<-27.7	PASS
11N40SISO	2452	-7.610	-51.595	<-27.61	PASS
11N40SISO	2452	-6.940	-50.154	<-26.94	PASS



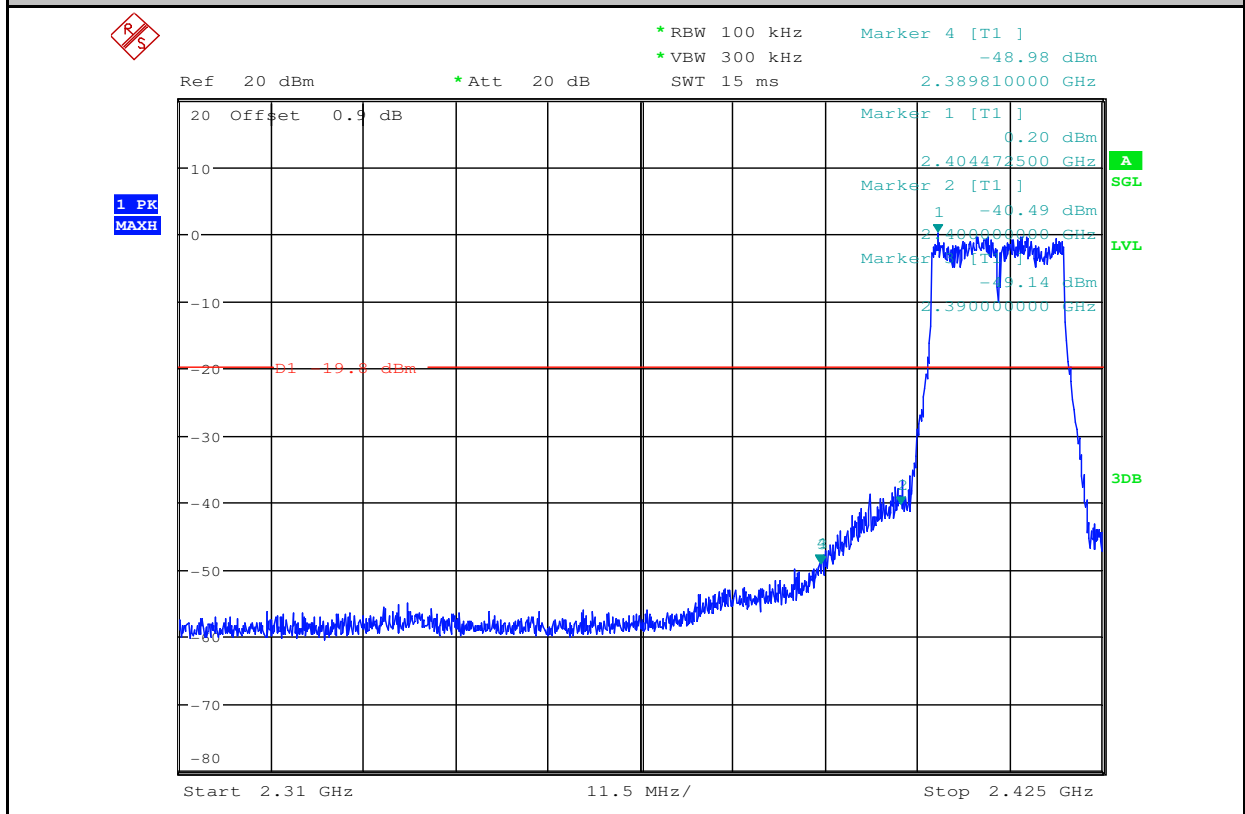




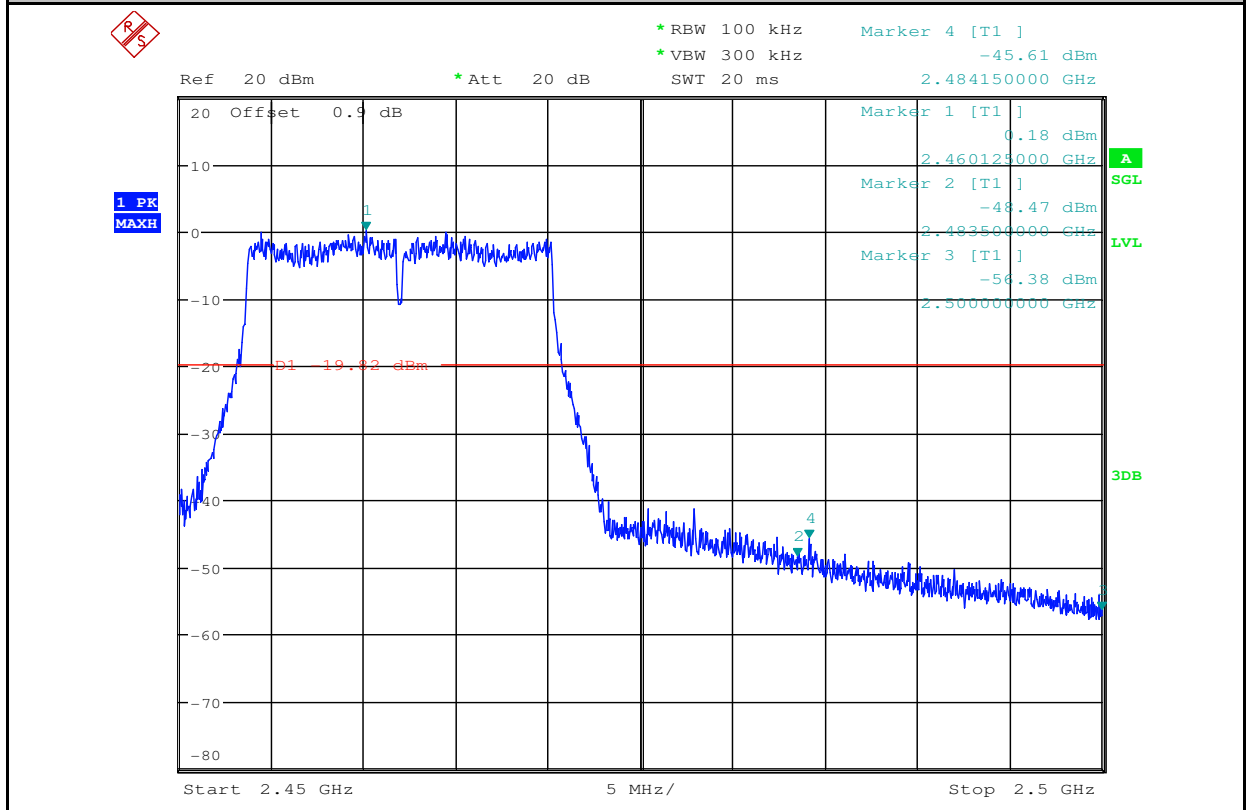
Band-edge for RF Conducted Emissions\_11G\_2412



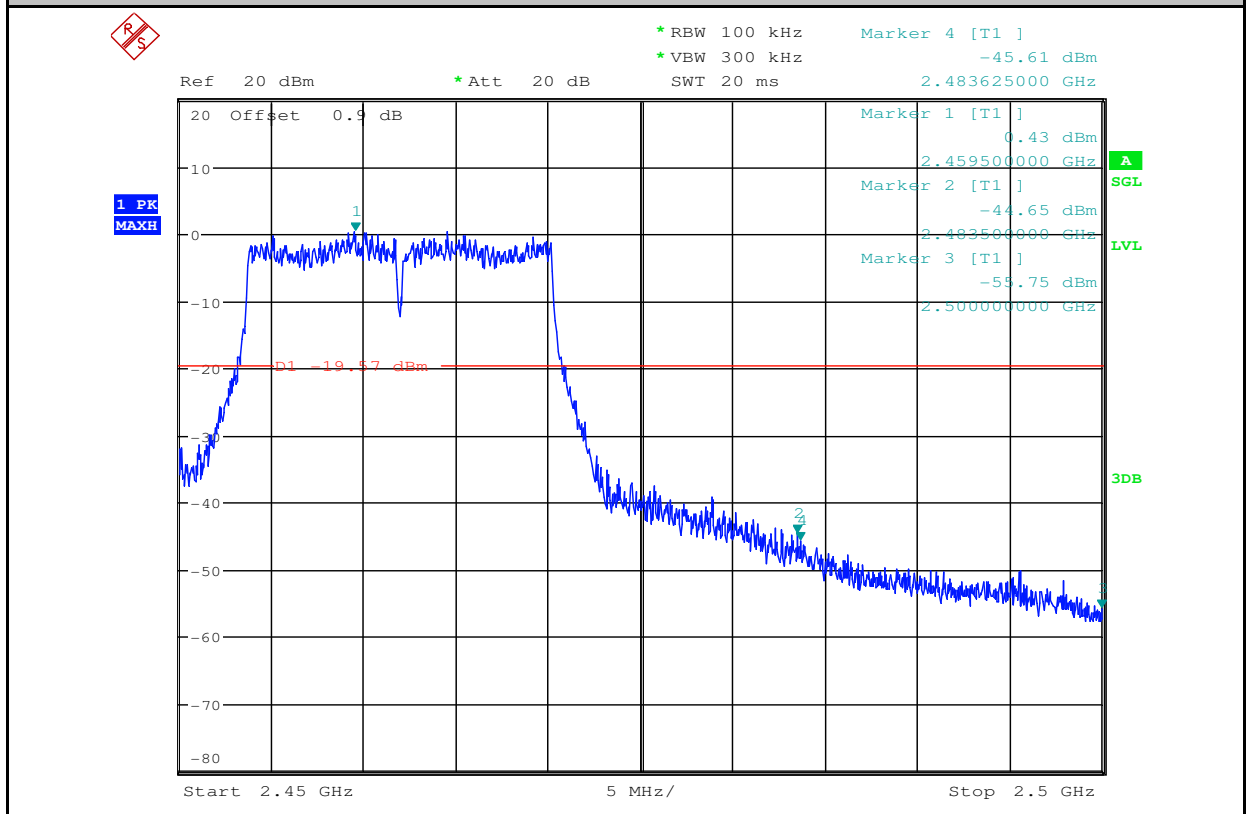
Band-edge for RF Conducted Emissions\_11G\_2412



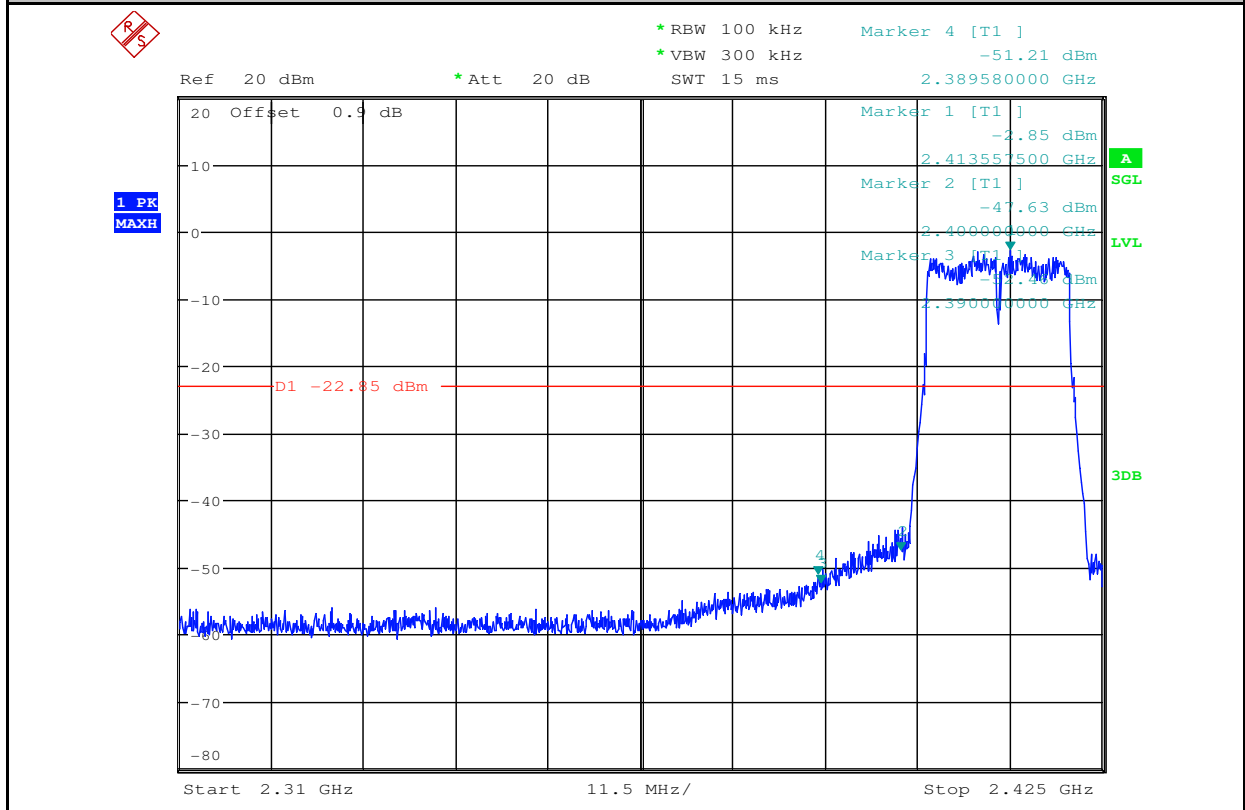
Band-edge for RF Conducted Emissions\_11G\_2462



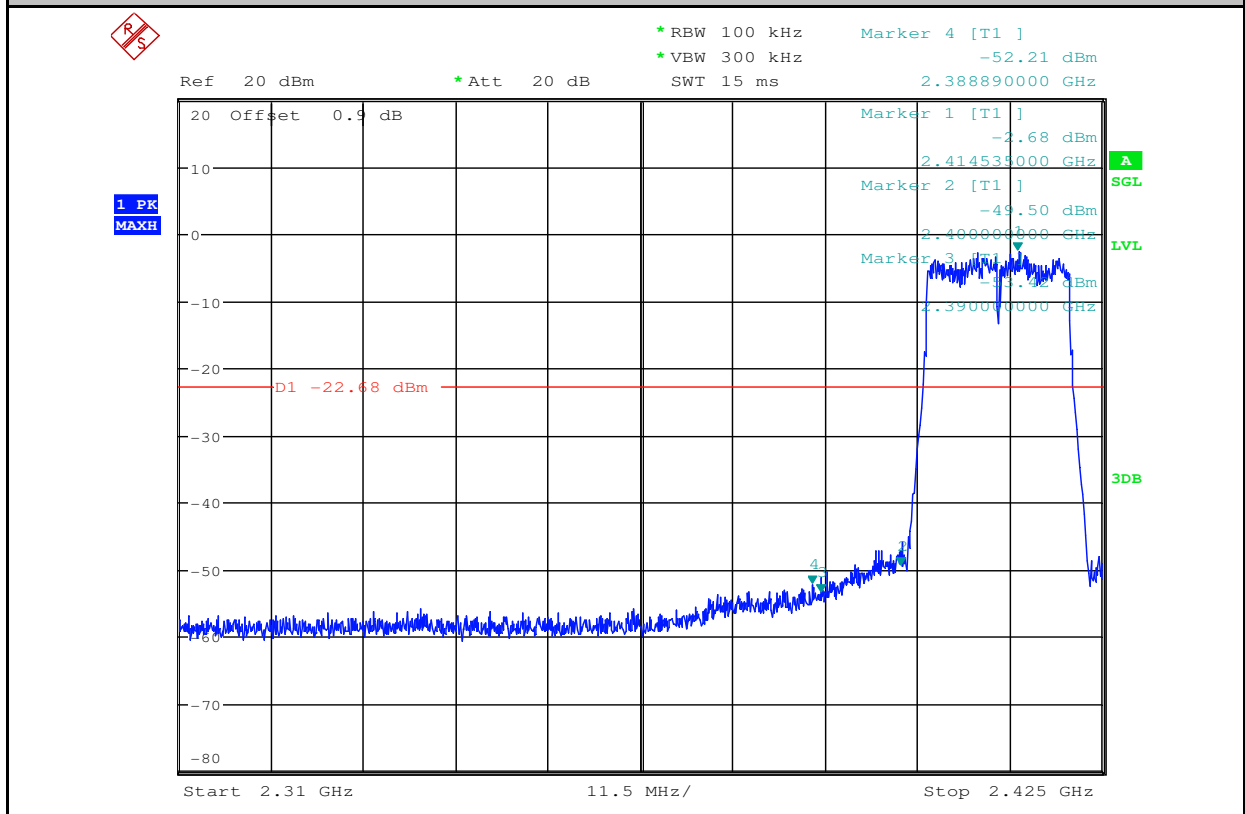
Band-edge for RF Conducted Emissions\_11G\_2462

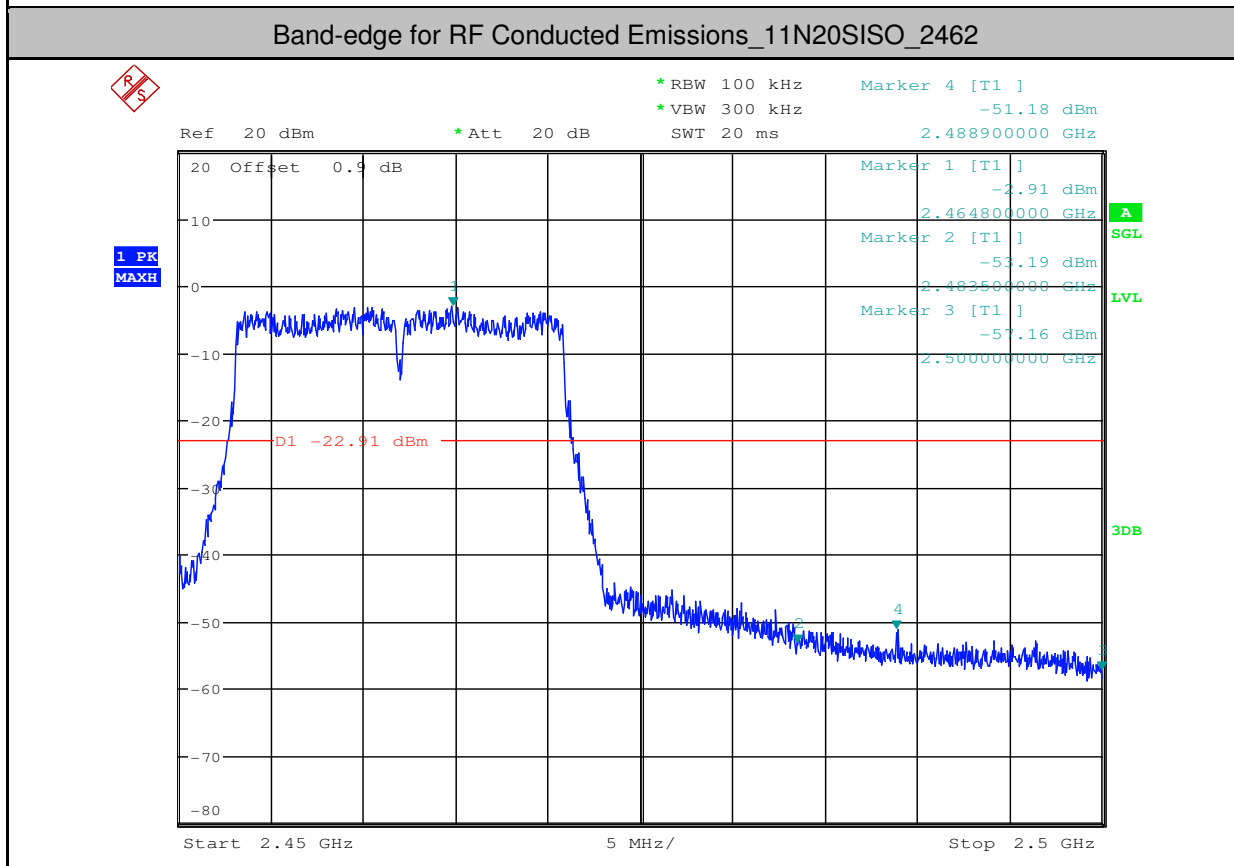
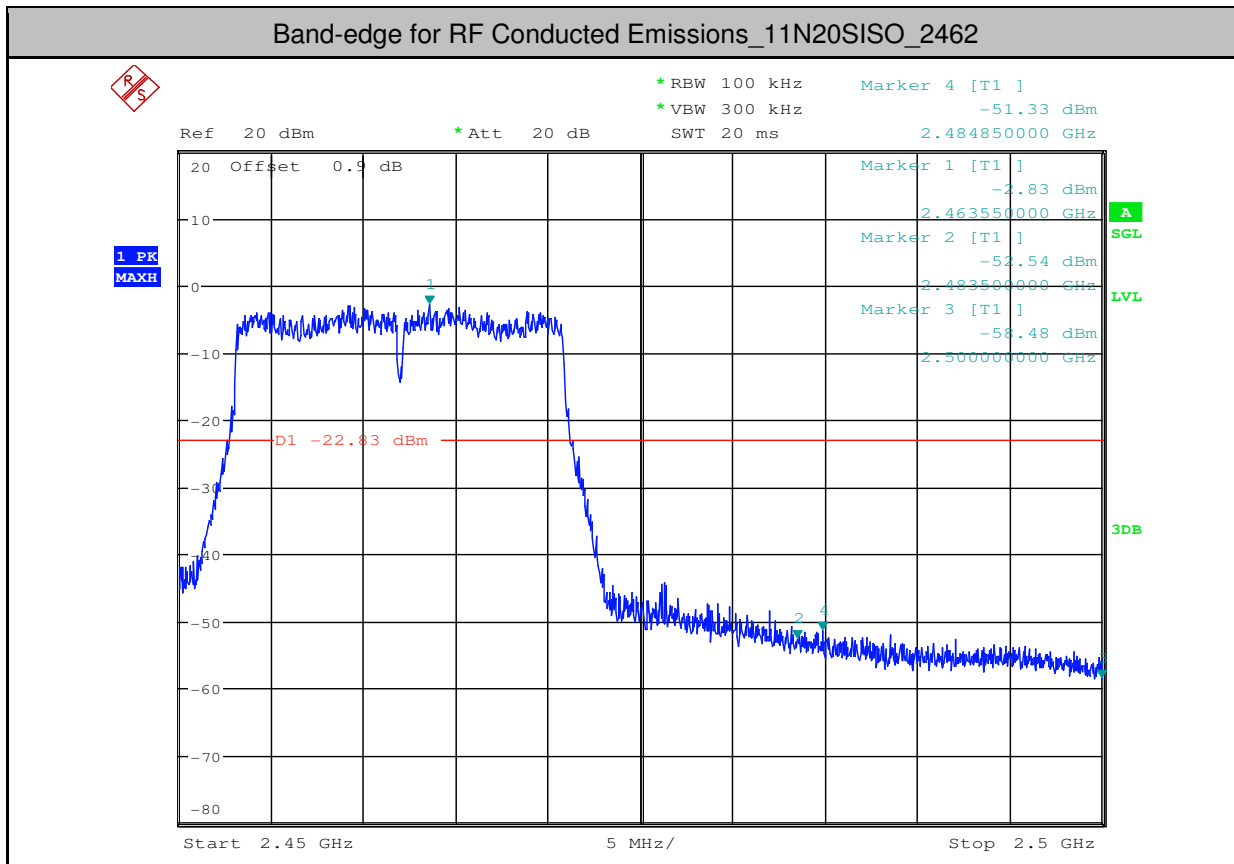


Band-edge for RF Conducted Emissions\_11N20SISO\_2412

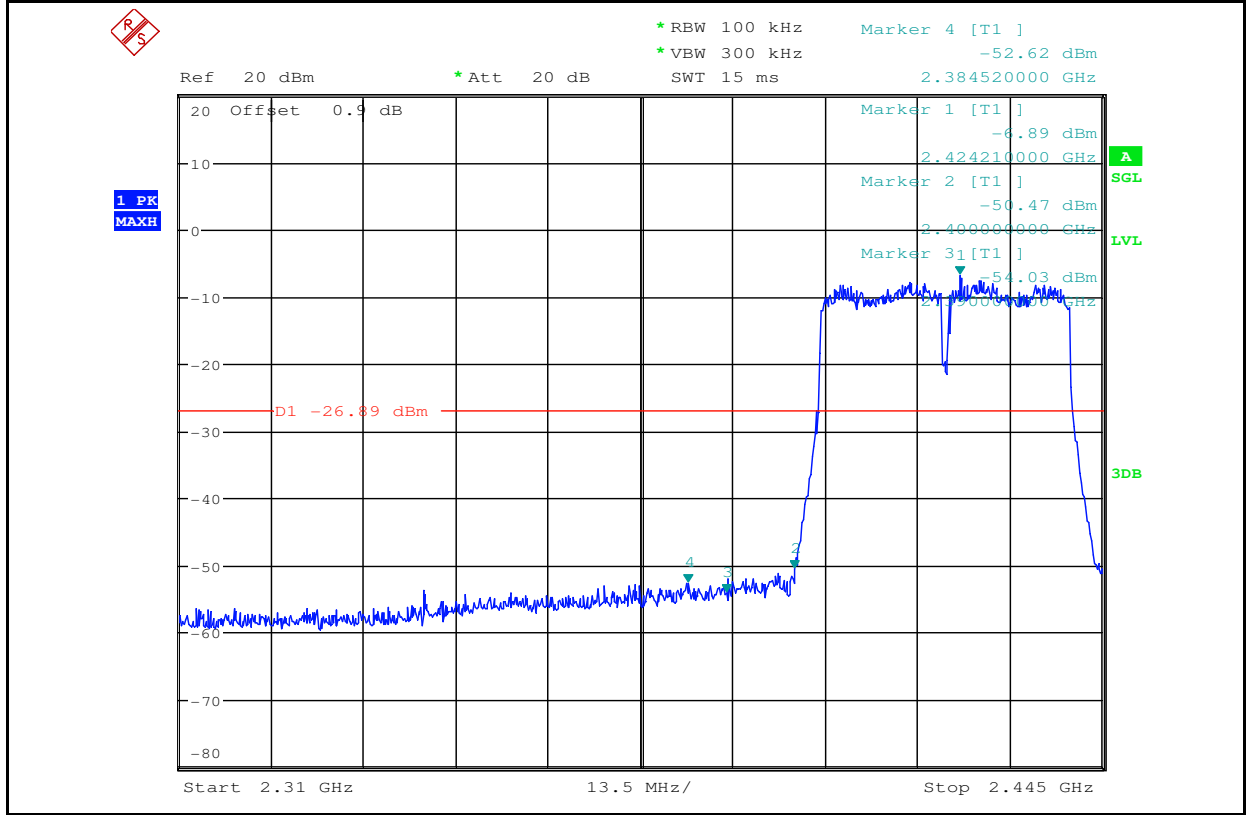


Band-edge for RF Conducted Emissions\_11N20SISO\_2412

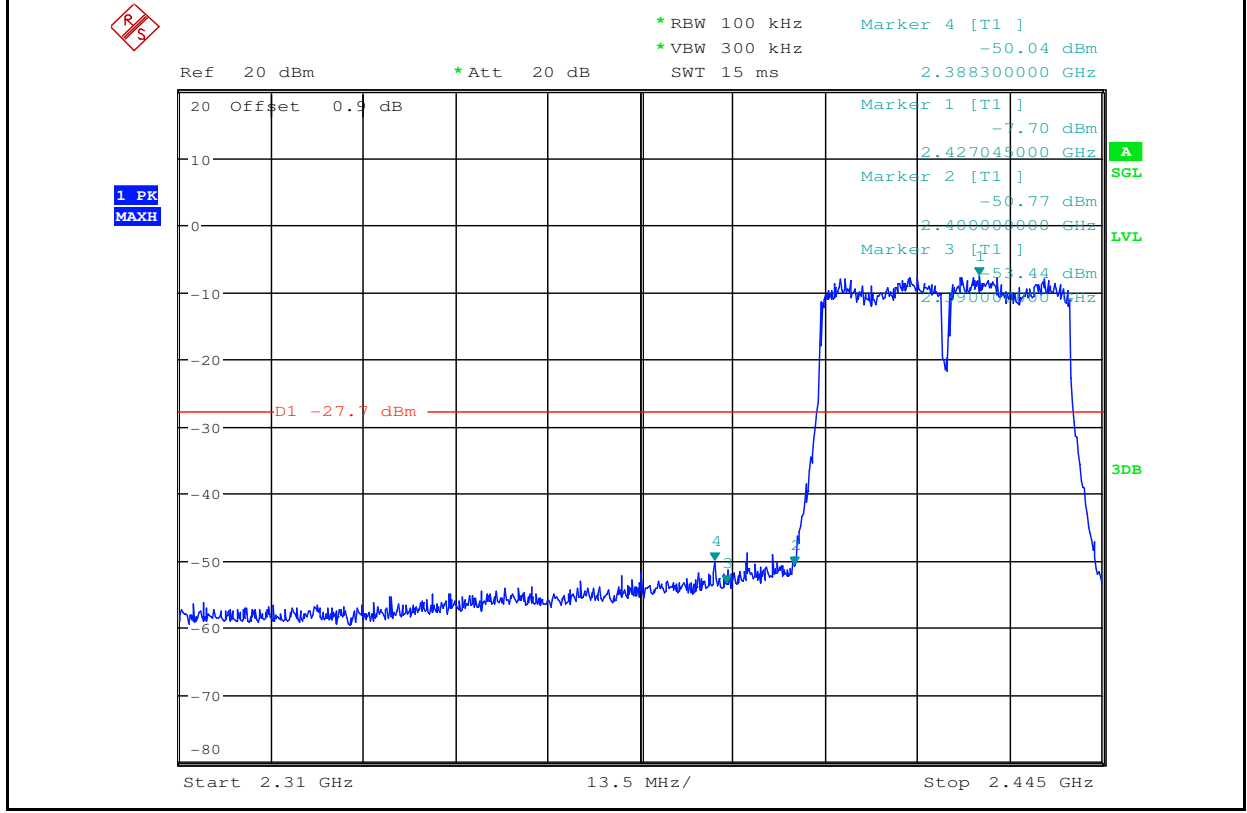




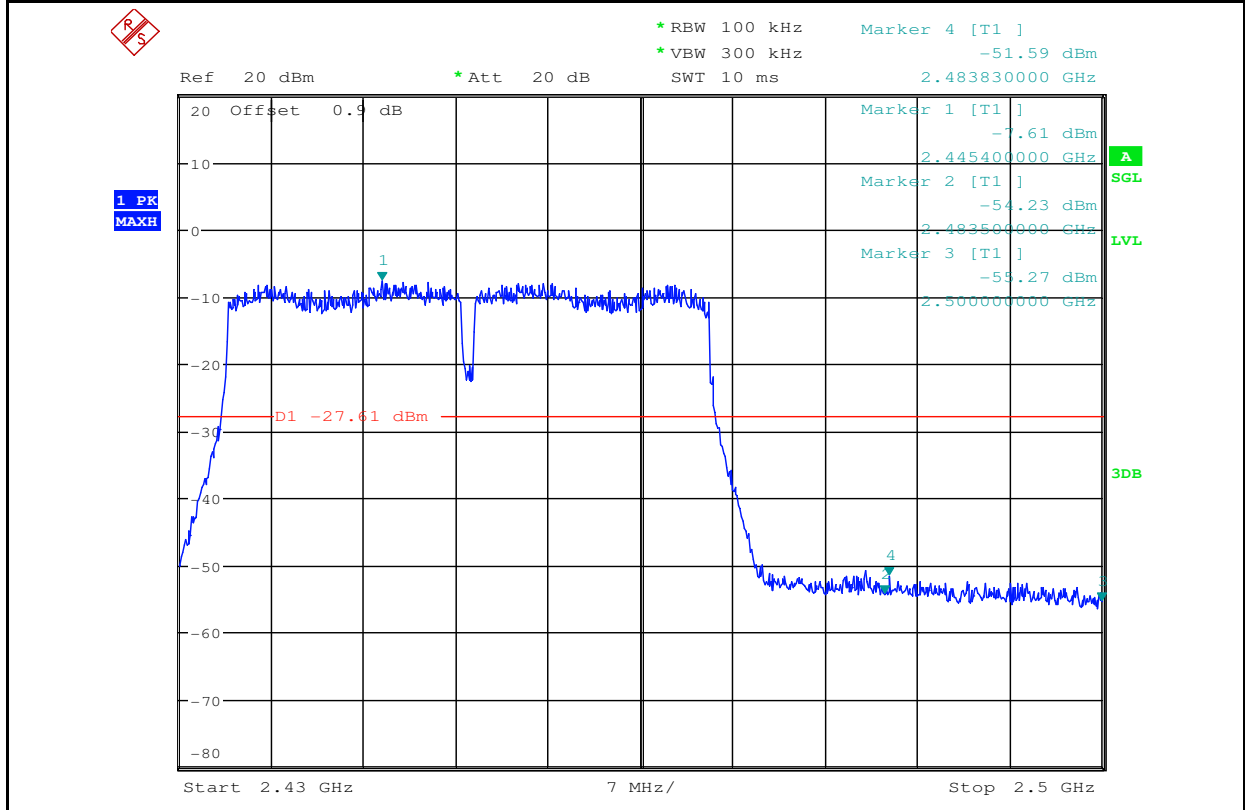
Band-edge for RF Conducted Emissions\_11N40SISO\_2422



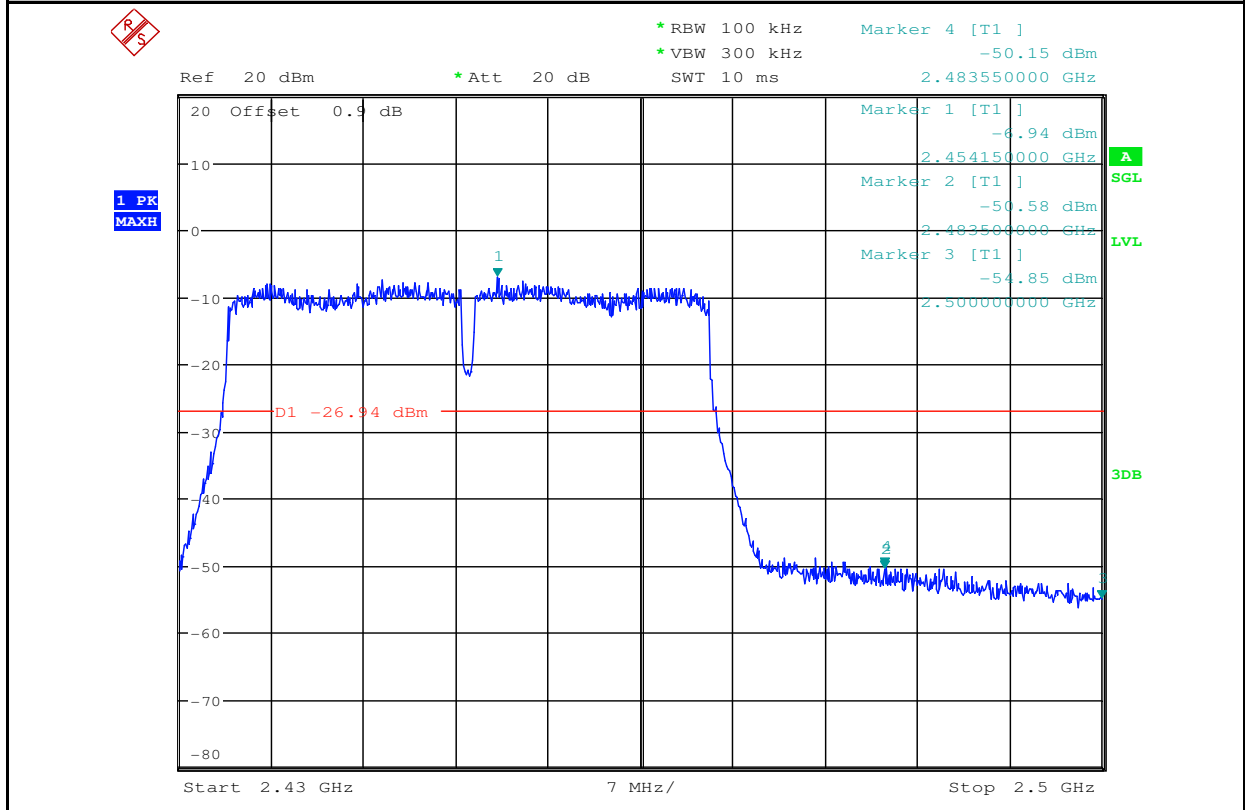
Band-edge for RF Conducted Emissions\_11N40SISO\_2422



Band-edge for RF Conducted Emissions\_11N40SISO\_2452



Band-edge for RF Conducted Emissions\_11N40SISO\_2452





**5.RF Conducted Spurious Emissions**

Test Mode	Test Channel	StartFre [MHz]	StopFre [MHz]	RBW [kHz]	VBW [kHz]	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	2412	30	10000	1000	3000	5.83	-20.980	<-14.17	PASS
11B	2412	10000	25000	1000	3000	5.83	-62.490	<-14.17	PASS
11B	2412	30	10000	1000	3000	5.78	-20.970	<-14.22	PASS
11B	2412	10000	25000	1000	3000	5.78	-62.350	<-14.22	PASS
11B	2437	30	10000	1000	3000	5.76	-22.750	<-14.24	PASS
11B	2437	10000	25000	1000	3000	5.76	-62.360	<-14.24	PASS
11B	2437	30	10000	1000	3000	5.52	-21.530	<-14.48	PASS
11B	2437	10000	25000	1000	3000	5.52	-62.160	<-14.48	PASS
11B	2462	30	10000	1000	3000	5.5	-22.800	<-14.5	PASS
11B	2462	10000	25000	1000	3000	5.5	-62.500	<-14.5	PASS
11B	2462	30	10000	1000	3000	5.84	-22.190	<-14.16	PASS
11B	2462	10000	25000	1000	3000	5.84	-61.530	<-14.16	PASS
11G	2412	30	10000	1000	3000	0.39	-24.930	<-19.61	PASS
11G	2412	10000	25000	1000	3000	0.39	-62.370	<-19.61	PASS
11G	2412	30	10000	1000	3000	0.47	-25.310	<-19.53	PASS
11G	2412	10000	25000	1000	3000	0.47	-61.700	<-19.53	PASS
11G	2437	30	10000	1000	3000	0.33	-25.850	<-19.67	PASS
11G	2437	10000	25000	1000	3000	0.33	-62.530	<-19.67	PASS
11G	2437	30	10000	1000	3000	0.62	-23.620	<-19.38	PASS
11G	2437	10000	25000	1000	3000	0.62	-62.720	<-19.38	PASS
11G	2462	30	10000	1000	3000	0.27	-26.890	<-19.73	PASS
11G	2462	10000	25000	1000	3000	0.27	-62.690	<-19.73	PASS
11G	2462	30	10000	1000	3000	0.02	-24.640	<-19.98	PASS
11G	2462	10000	25000	1000	3000	0.02	-62.690	<-19.98	PASS
11N20SISO	2412	30	10000	1000	3000	-2.84	-30.150	<-22.84	PASS
11N20SISO	2412	10000	25000	1000	3000	-2.84	-62.750	<-22.84	PASS
11N20SISO	2412	30	10000	1000	3000	-3.01	-32.030	<-23.01	PASS
11N20SISO	2412	10000	25000	1000	3000	-3.01	-62.170	<-23.01	PASS
11N20SISO	2437	30	10000	1000	3000	-2.57	-31.380	<-22.57	PASS
11N20SISO	2437	10000	25000	1000	3000	-2.57	-62.570	<-22.57	PASS
11N20SISO	2437	30	10000	1000	3000	-2.97	-31.660	<-22.97	PASS

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**Shenzhen Branch**

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11N20SISO	2437	10000	25000	1000	3000	-2.97	-62.240	<-22.97	PASS
11N20SISO	2462	30	10000	1000	3000	-2.36	-33.180	<-22.36	PASS
11N20SISO	2462	10000	25000	1000	3000	-2.36	-62.690	<-22.36	PASS
11N20SISO	2462	30	10000	1000	3000	-2.86	-31.560	<-22.86	PASS
11N20SISO	2462	10000	25000	1000	3000	-2.86	-62.330	<-22.86	PASS
11N40SISO	2422	30	10000	1000	3000	-7.69	-39.090	<-27.69	PASS
11N40SISO	2422	10000	25000	1000	3000	-7.69	-62.620	<-27.69	PASS
11N40SISO	2422	30	10000	1000	3000	-7.08	-38.910	<-27.08	PASS
11N40SISO	2422	10000	25000	1000	3000	-7.08	-62.240	<-27.08	PASS
11N40SISO	2437	30	10000	1000	3000	-7.55	-39.410	<-27.55	PASS
11N40SISO	2437	10000	25000	1000	3000	-7.55	-61.270	<-27.55	PASS
11N40SISO	2437	30	10000	1000	3000	-6.78	-39.210	<-26.78	PASS
11N40SISO	2437	10000	25000	1000	3000	-6.78	-62.410	<-26.78	PASS
11N40SISO	2452	30	10000	1000	3000	-7.04	-38.780	<-27.04	PASS
11N40SISO	2452	10000	25000	1000	3000	-7.04	-62.560	<-27.04	PASS
11N40SISO	2452	30	10000	1000	3000	-7.19	-38.740	<-27.19	PASS
11N40SISO	2452	10000	25000	1000	3000	-7.19	-62.280	<-27.19	PASS



