FCC Radio Test Report

FCC ID: KA2IR1210A1

This report concerns (check one): ☒**Original Grant** ☐**Class I Change** ☐**Class II Change**

Project No.	:	1712C148
Equipment	:	AC1200 Wi-Fi Router
Test Model	:	DIR-1210
Series Model	:	DIR-822
Applicant	:	D-LINK Corporation
Address	:	17595 Mt. Herrmann, Fountain Valley, California, United States 92708

Date of Receipt	:	Dec. 19, 2017
Date of Test	:	Dec. 19, 2017 ~ Jan. 23, 2018
Issued Date	:	Mar. 30, 2018
Tested by	:	BTL Inc.

Testing Engineer : Shawn Xiao
(Shawn Xiao)

Technical Manager : David Mao
(David Mao)

Authorized Signatory : Steven Lu
(Steven Lu)

BTL INC.

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.
TEL: +86-769-8318-3000 FAX: +86-769-8319-6000

NVLAP® TESTING NVLAP LAB CODE 200788-0

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

BTL's report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **BTL-self**, extracts from the test report shall not be reproduced except in full with **BTL**'s authorized written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Table of Contents Page

Table of Contents Page

REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1712C148	Original Issue.	Mar. 30, 2018

1. CERTIFICATION

Equipment	:	AC1200 Wi-Fi Router
Brand Name	:	D-Link
Test Model	:	DIR-1210
Series Model	:	DIR-822
Applicant	:	D-LINK Corporation
Manufacturer	:	D-LINK Corporation
Address	:	17595 Mt. Herrmann, Fountain Valley, California, United States 92708
Factory	:	Huizhou MTN WEIYE Technology Development Co.,Ltd
Address	:	No.2 Huitai Road,Huinan High-tech Industrial Park,Huiao Avenue,Huizhou City,Guangdong Province,China.
Date of Test	:	Dec. 19, 2017 ~ Jan. 23, 2018
Test Sample	:	Engineering Sample
Standard(s)	:	FCC Part15, Subpart C:(15.247) / ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1712C148) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP according to the ISO-17025 quality assessment standard and technical standard(s).

Test results included in this report is only for WLAN 2.4GHz part.

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): FCC Part15 (15.247) , Subpart C			
Standard(s) Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247(d)	Antenna conducted Spurious Emission	PASS	
15.247(a)(2)	6dB Bandwidth	PASS	
15.247(b)(3)	Peak Output Power	PASS	
15.247(e)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	
15.247(d)/ 15.205/ 15.209	Transmitter Radiated Emissions	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this test report.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.
BTL's test firm number for FCC: 854385
BTL's designation number for FCC: CN5020

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty figures shall be calculated according the methods described in the ETSI TR 100 028 and shall correspond to an expansion factor (coverage factor) k=1.96 or k=2(which provide confidence levels of respectively 90% and 95.45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y).

The BTL measurement uncertainty as below table:

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150 KHz ~ 30MHz	2.32

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9KHz~30MHz	V	3.79
		9KHz~30MHz	H	3.57
		30MHz ~ 200MHz	V	3.82
		30MHz ~ 200MHz	H	3.78
		200MHz ~ 1,000MHz	V	4.10
		200MHz ~ 1,000MHz	H	4.06
		1GHz~18GHz	V	3.12
		1GHz~18GHz	H	3.68
		18GHz~40GHz	V	4.15
		18GHz~40GHz	H	4.14

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	AC1200 Wi-Fi Router	
Brand Name	D-Link	
Test Model	DIR-1210	
Series Model	DIR-822	
Model Difference	Only differ in model name due to marketing purpose.	
Product Description	Operation Frequency	2412~2462 MHz
	Modulation Technology	802.11b:DSSS 802.11g:OFDM 802.11n:OFDM
	Bit Rate of Transmitter	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n up to 300 Mbps
	Output Power (Max.)	802.11b: 24.37dBm 802.11g: 21.47dBm 802.11n(20MHz): 21.59dBm 802.11n(40MHz): 22.05dBm
Power Source	DC Voltage supplied from AC/DC adapter. Model: S012BEU1200100	
Power Rating	I/P: 100-240V~ 50/60Hz 500mA O/P: 12V⎓1000mA	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Channel List:

CH01 - CH11 for 802.11b, 802.11g, 802.11n(20MHz) CH03 - CH09 for 802.11n(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	N/A	5
2	N/A	N/A	Dipole	N/A	5

Note:

Antenna Gain=5 dBi. This EUT supports MIMO 2X2, Directional gain=Gant, that is Direction Gain=G_{Ant}+10log(N_{Ant}/Nss) NSS=2, Direction Gain=5+10log(2/2)=5

4.

Operating Mode / TX Mode	2TX
802.11b	V (ANT1+ ANT 2)
802.11g	V (ANT1+ANT 2)
802.11n(20MHz)	V (ANT1+ ANT 2)
802.11n(40MHz)	V (ANT1+ ANT 2)

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09
Mode 5	Normal Link

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Conducted Test	
Final Test Mode	Description
Mode 5	Normal Link

For Radiated Test	
Final Test Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09

For Band Edge Test	
Final Test Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09

6dB Spectrum Bandwidth	
Final Test Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09

Maximum Conducted Output Power	
Final Test Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09

Power Spectral Density	
Final Test Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09

Note:

(1) The measurements are performed at the high, middle, low available channels.

(2) 802.11b mode: DBPSK (1Mbps)
802.11g mode: OFDM (6Mbps)
802.11n HT20 mode : BPSK (13Mbps)
802.11n HT40 mode : BPSK (27Mbps)
For radiated emission tests, the highest output powers were set for final test.

(3) For radiated below 1G test, the 802.11b is found to be the worst case and recorded.

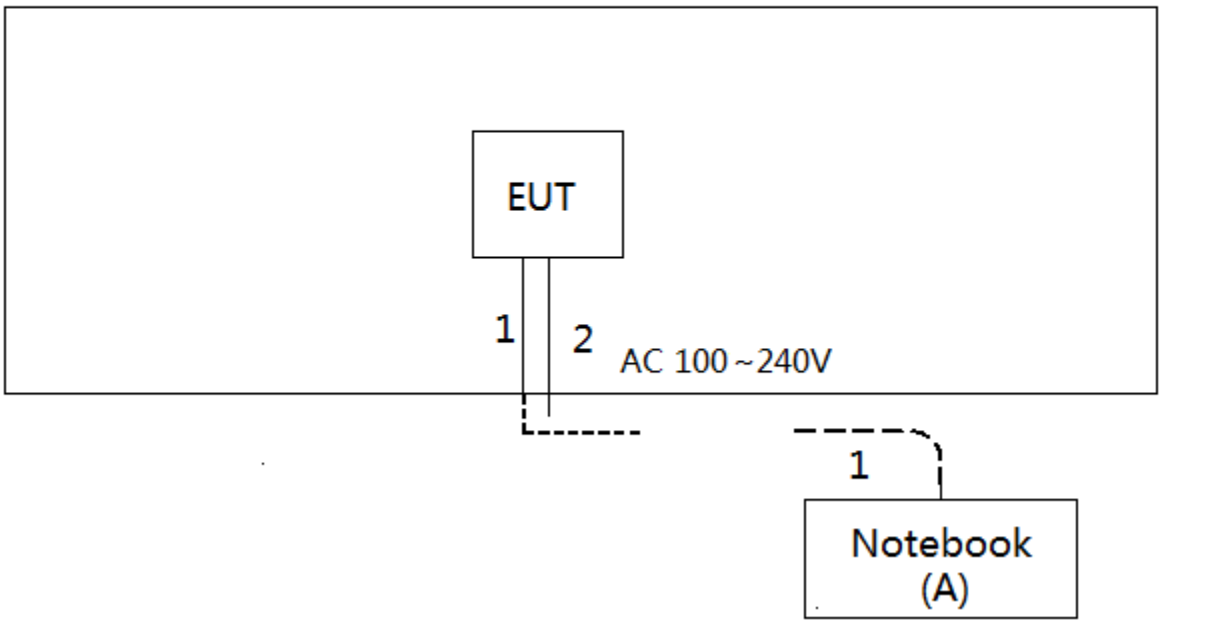
(4) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN

Test software version	MP-Tool		
Frequency (MHz)	2412	2437	2462
802.11b	40	50	59
802.11g	45	51	52
802.11n (20MHz)	45	52	53
Frequency (MHz)	2422	2437	2452
802.11n (40MHz)	41	54	50

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	Notebook	Lenovo	E46L	DOC	EB22953770

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	10m	RJ45 Cable
2	NO	NO	1.5m	Power Cable

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 150KHz-30MHz)

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 -0.50	66 to 56*	56 to 46*
0.50 -5.0	56	46
5.0 -30.0	60	50

Note:

(1) The limit of " * " decreases with the logarithm of the frequency

(2) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

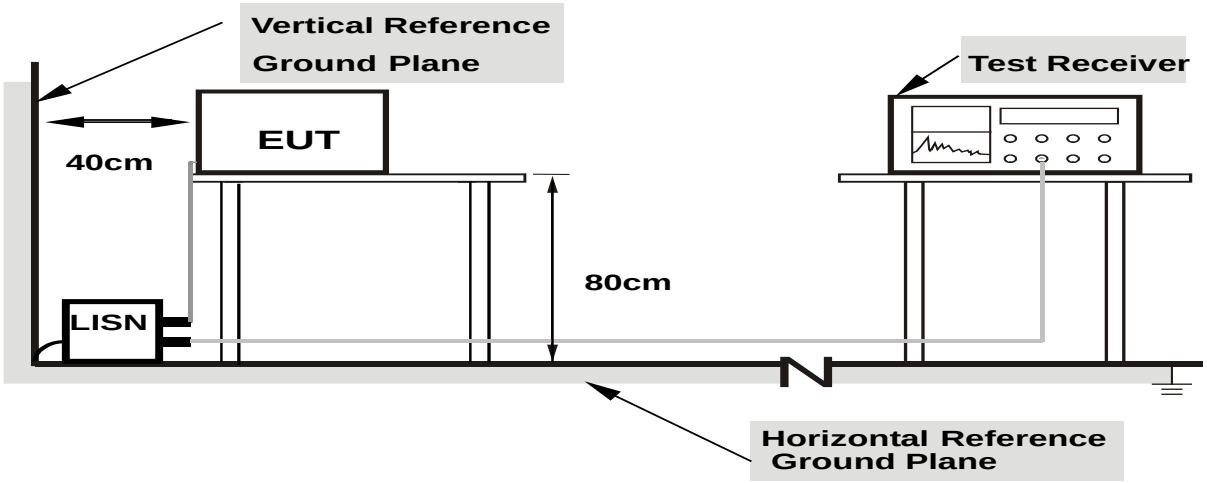
4.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.5 EUT OPERATING CONDITIONS

The EUT was placed on the test table and programmed in normal function.

4.1.6 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: AC 120V/60Hz

4.1.7 TEST RESULTS

Please refer to the Appendix A.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9KHz-1000MHz)

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
960~1000	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

Frequency (MHz)	(dBuV/m) (at 3 meters)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector
Start ~ Stop Frequency	90KHz~110KHz for QP detector
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector
Start ~ Stop Frequency	490KHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

4.2.2 TEST PROCEDURE

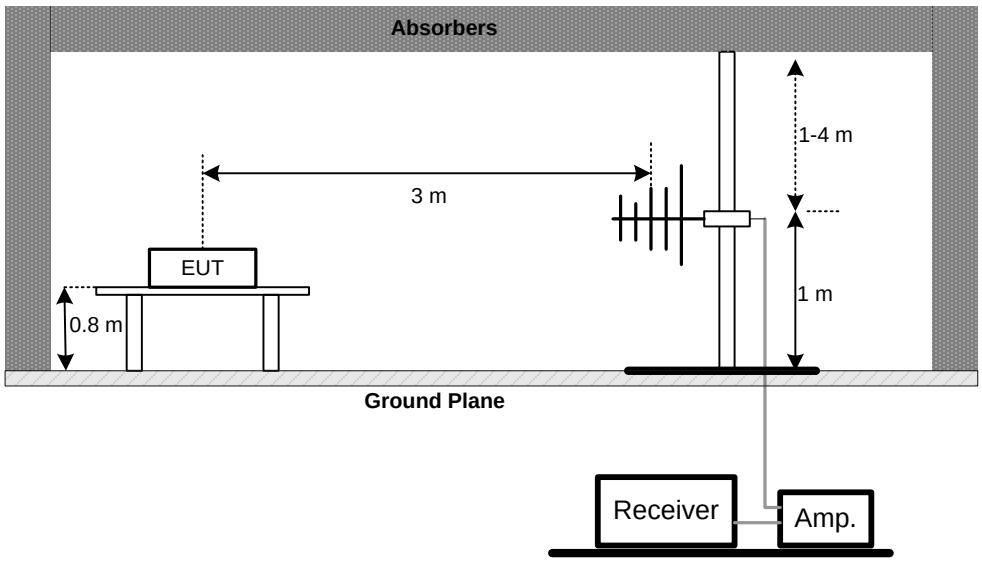
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1GHz)
i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4.2.3 DEVIATION FROM TEST STANDARD

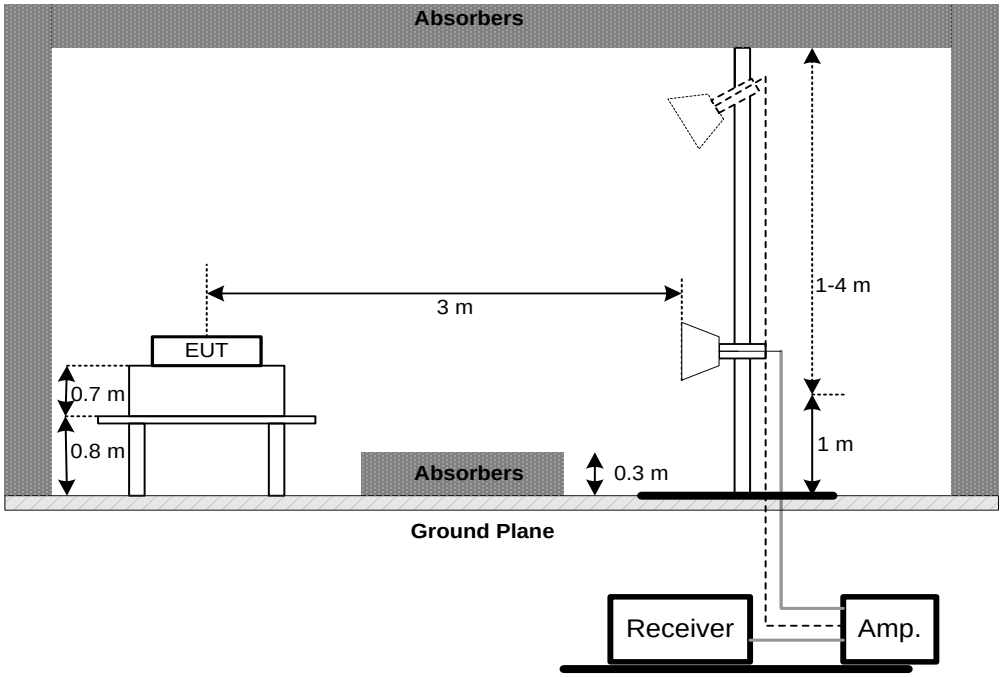
No deviation

4.2.4 TEST SETUP

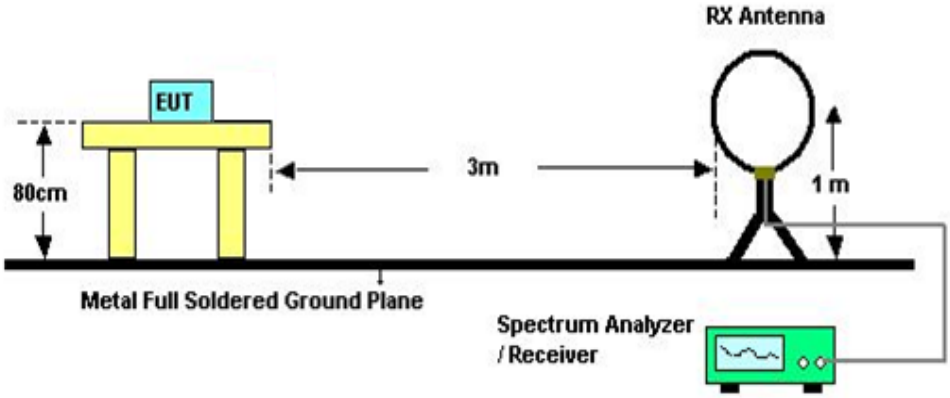
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For Radiated Emissions Below 30MHz



4.2.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.2.6 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: AC 120V/60Hz

4.2.7 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Appendix B

Remark:

(1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
(2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(3) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.2.8 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the Appendix C.

4.2.9 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the Appendix D.

Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	2400-2483.5	PASS

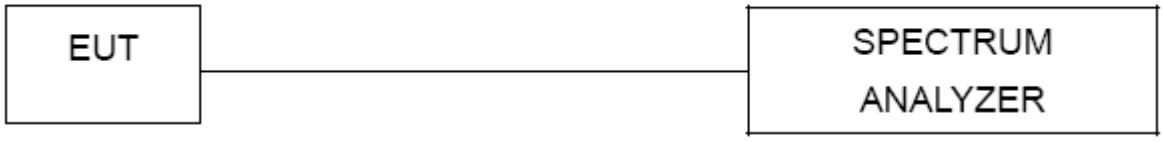
5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: AC 120V/60Hz

5.1.6 TEST RESULTS

Please refer to the Appendix E.

6. MAXIMUM PEAK CONDUCTED OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 Watt or 30dBm	2400-2483.5	PASS

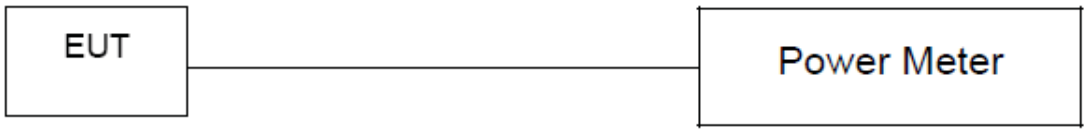
6.1.1 TEST PROCEDURE

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
b. The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance and FCC KDB 662911 D01 Multiple Transmitter Output.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: AC 120V/60Hz

6.1.6 TEST RESULTS

Please refer to the Appendix F.

7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

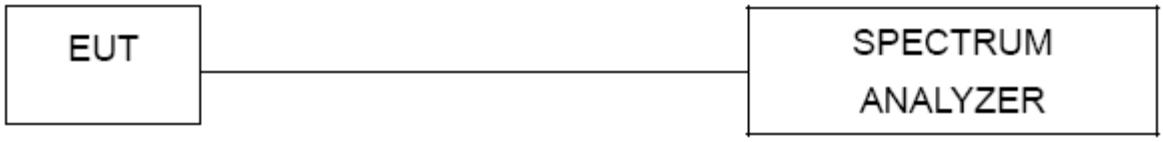
7.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = Auto.
c. Offset=antenna gain+cable loss

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: AC 120V/60Hz

7.1.6 TEST RESULTS

Please refer to the Appendix G.

8. POWER SPECTRAL DENSITY TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

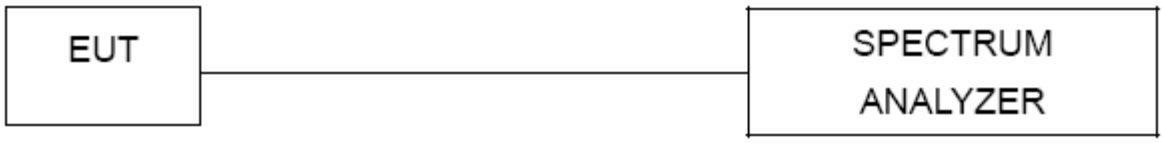
8.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting: RBW=3KHz, VBW=10KHz, Sweep time = Auto.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: AC 120V/60Hz

8.1.6 TEST RESULTS

Please refer to the Appendix H.

9. MEASUREMENT INSTRUMENTS LIST

Conducted Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 26, 2018
2	LISN	EMCO	3816/2	52765	Mar. 26, 2018
3	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 26, 2018
4	TWO-LINE V-NETWORK	R&S	ENV216	101447	Mar. 26, 2018
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Oct. 19, 2018

Radiated Emission Below 1GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 26, 2018
2	Amplifier	HP	8447D	2944A09673	Oct. 19, 2018
3	Receiver	Agilent	N9038A	MY52130039	Aug. 20, 2018
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	Jun. 26, 2018
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
8	Antenna	EM	EM-6876-1	230	Mar. 06, 2018

Radiated Emission Above 1GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 26, 2018
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 08, 2018
3	Amplifier	Agilent	8449B	3008A02274	May. 16, 2018
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 26, 2018
5	Receiver	Agilent	N9038A	MY52130039	Aug. 20, 2018
6	Antenna	EM	EM-6876-1	230	Mar. 06, 2018
7	Controller	CT	SC100	N/A	N/A
8	Controller	MF	MF-7802	MF780208416	N/A
9	Cable	emci	EMC104-SM-SM-1 2000(12m)	N/A	Jun. 26, 2018
10	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

6dB Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 20, 2018

Peak Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	ANRITSU	ML2495A	1128009	Mar. 26, 2018
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Mar. 26, 2018

Antenna Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 20, 2018

Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 20, 2018

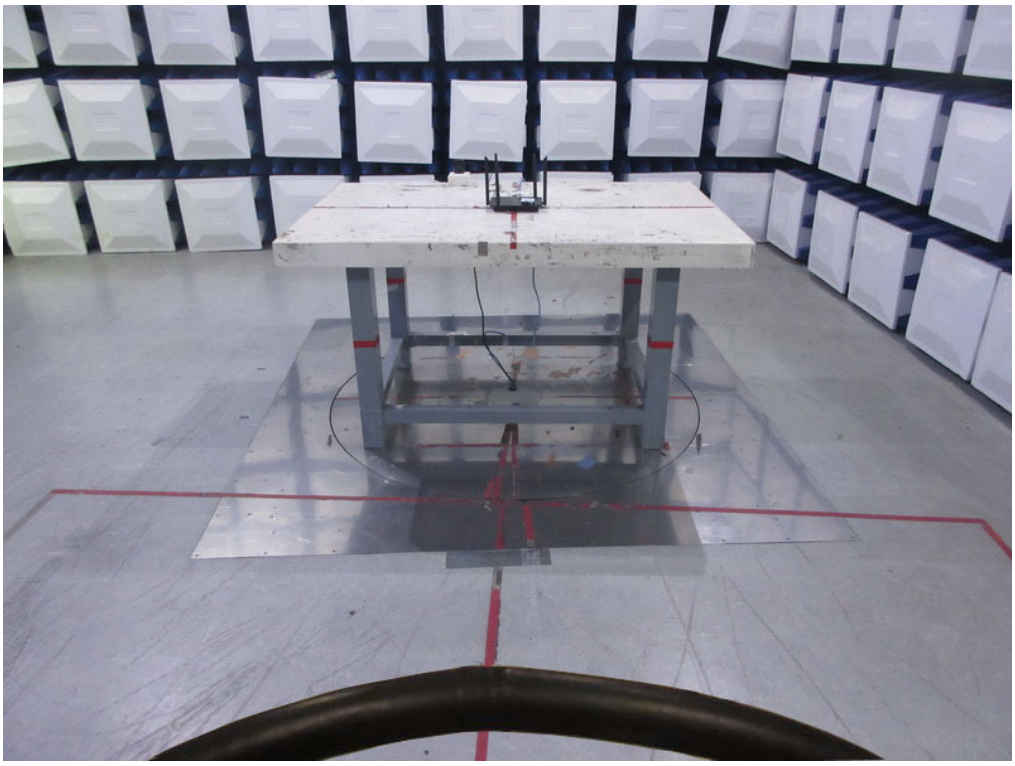
Remark: ”N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

10. EUT TEST PHOTO

Conducted Measurement Photos

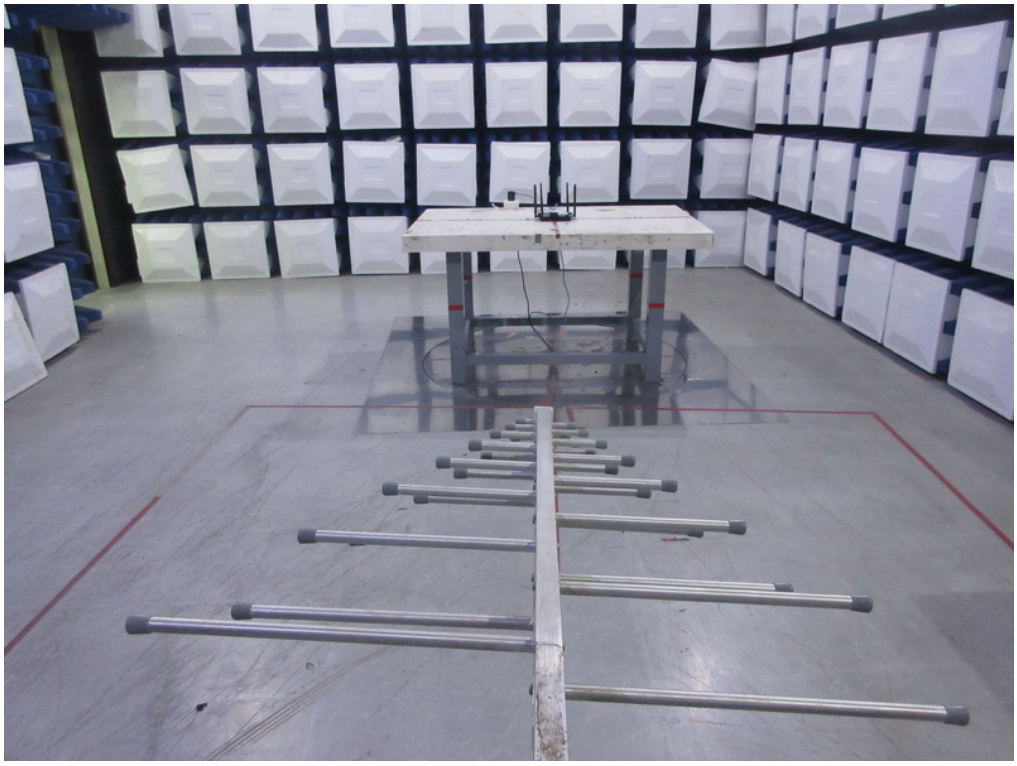
Radiated Measurement Photos

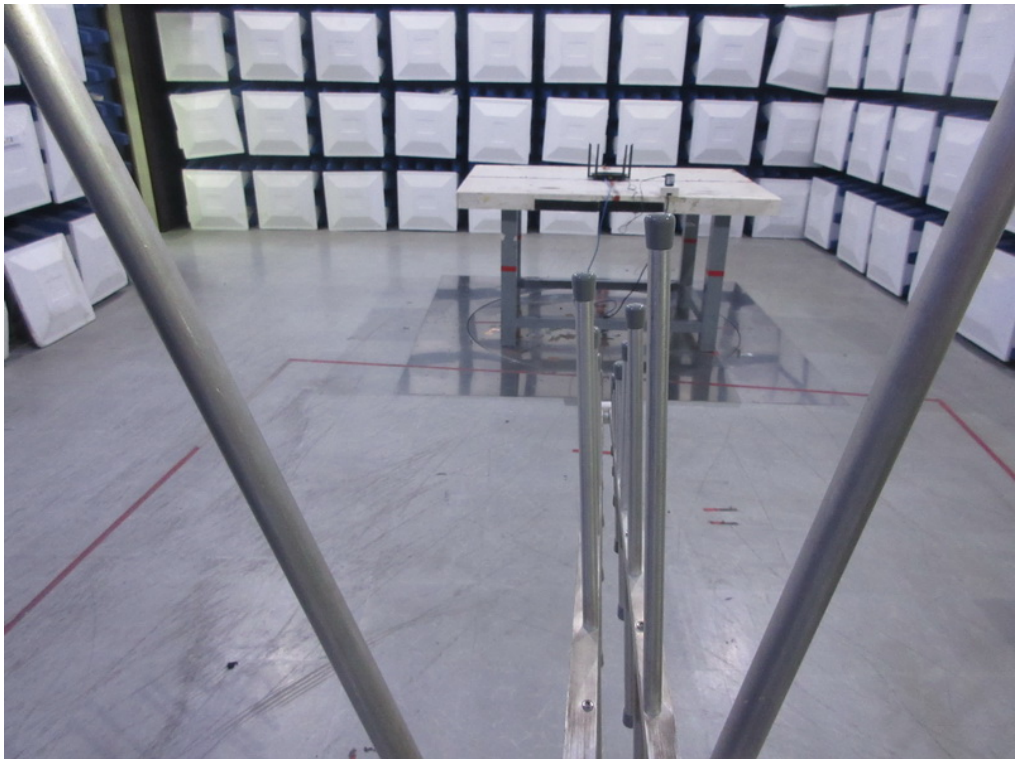
9KHz to 30MHz



Radiated Measurement Photos

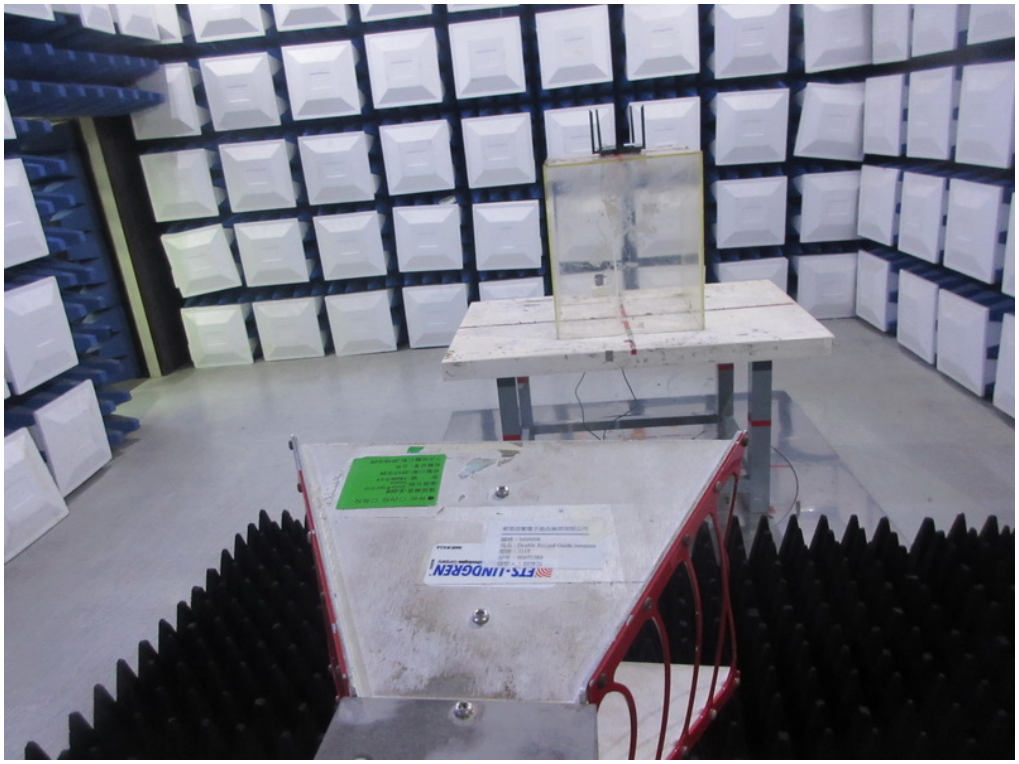
30MHz to 1000MHz

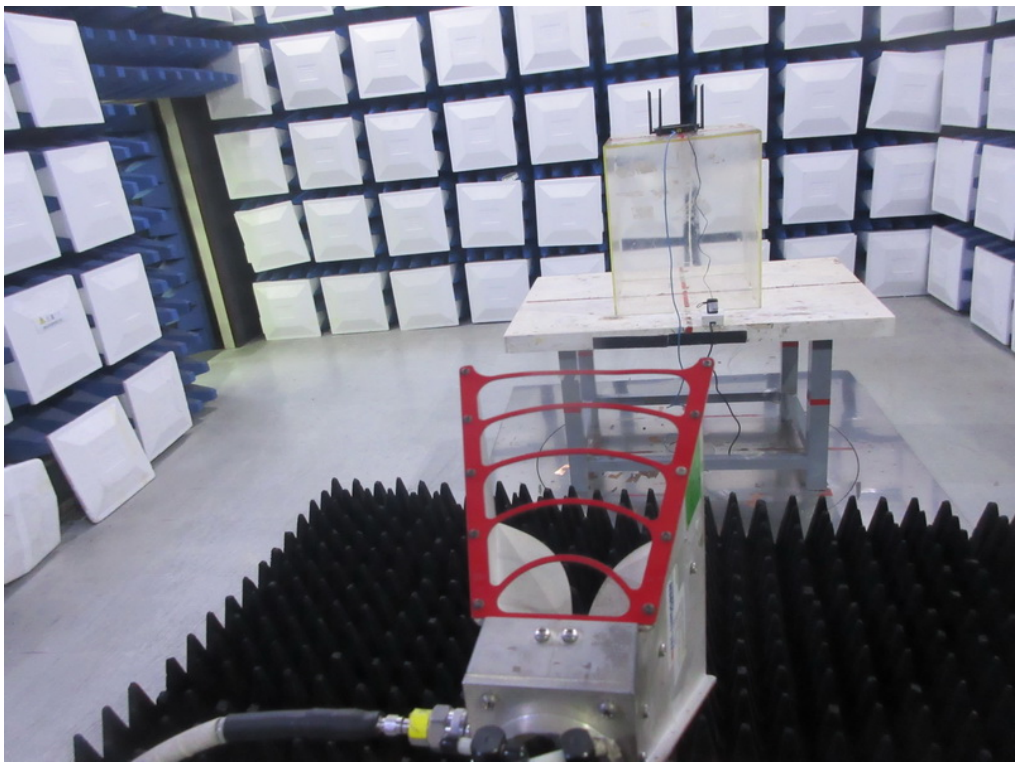




Radiated Measurement Photos

Above 1000MHz

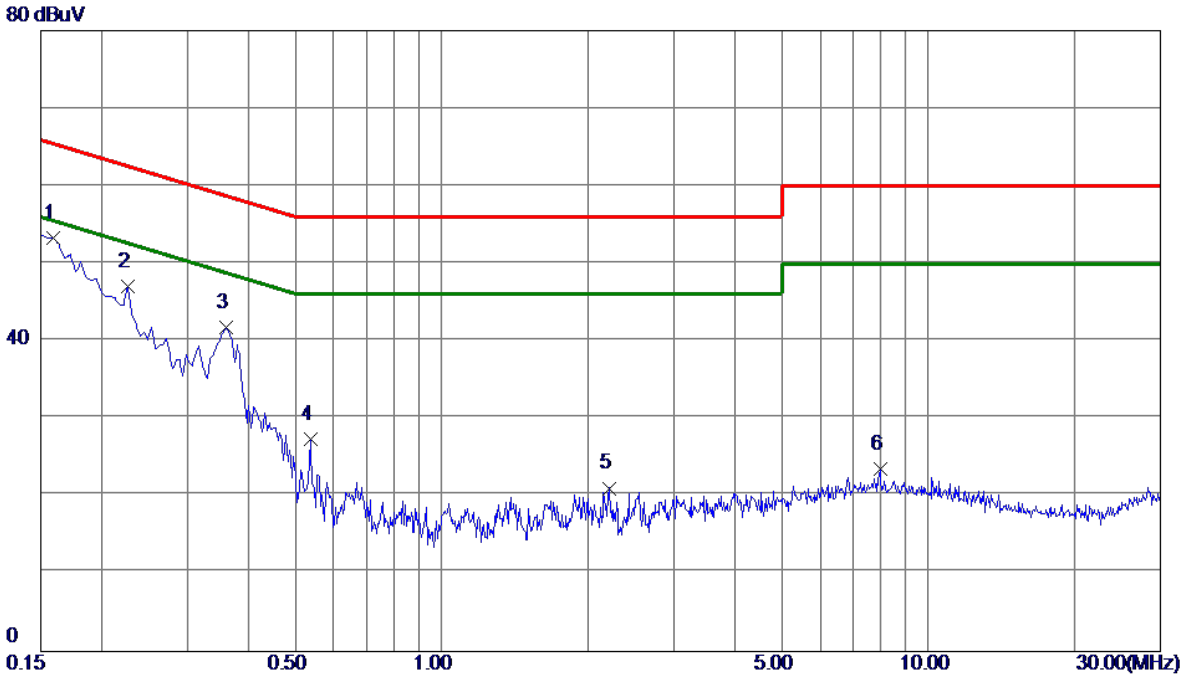




APPENDIX A - CONDUCTED EMISSION

Test Mode :	Normal Link

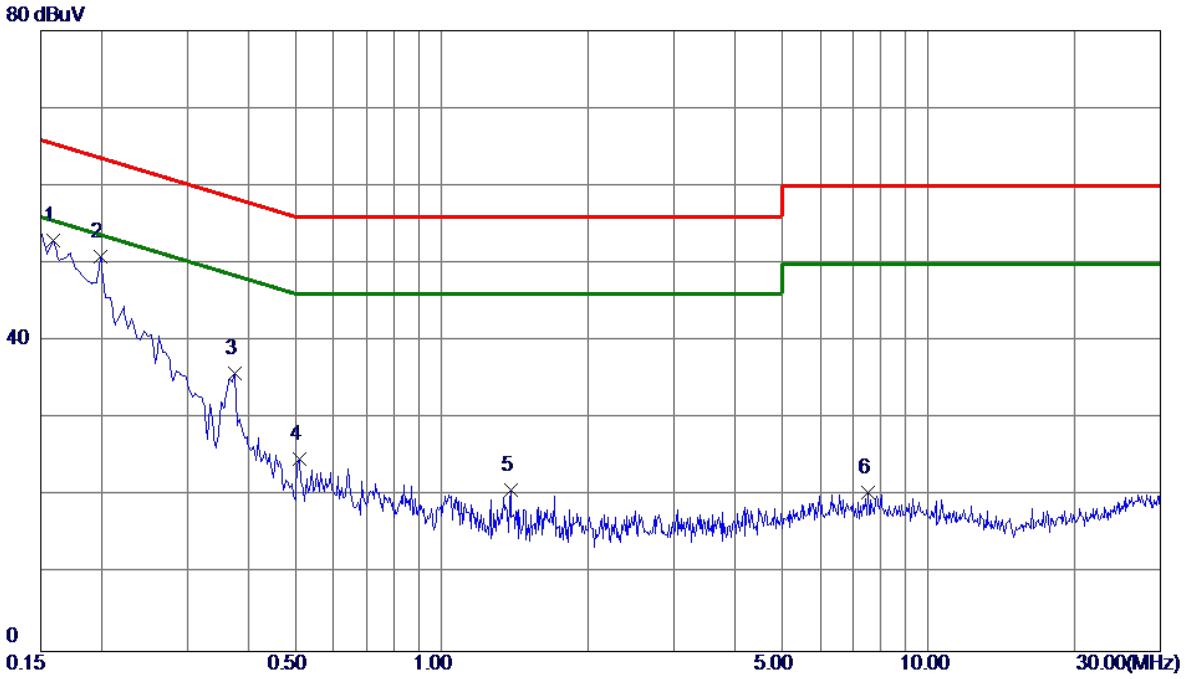
Line



No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1590	43.53	9.79	53.32	65.52	-12.20	Peak	
2	0.2265	37.26	9.76	47.02	62.58	-15.56	Peak	
3	0.3615	31.92	9.79	41.71	58.69	-16.98	Peak	
4	0.5370	17.52	9.80	27.32	56.00	-28.68	Peak	
5	2.2065	11.10	9.94	21.04	56.00	-34.96	Peak	
6	7.9620	13.30	10.23	23.53	60.00	-36.47	Peak	

Test Mode :	Normal Link

Neutral

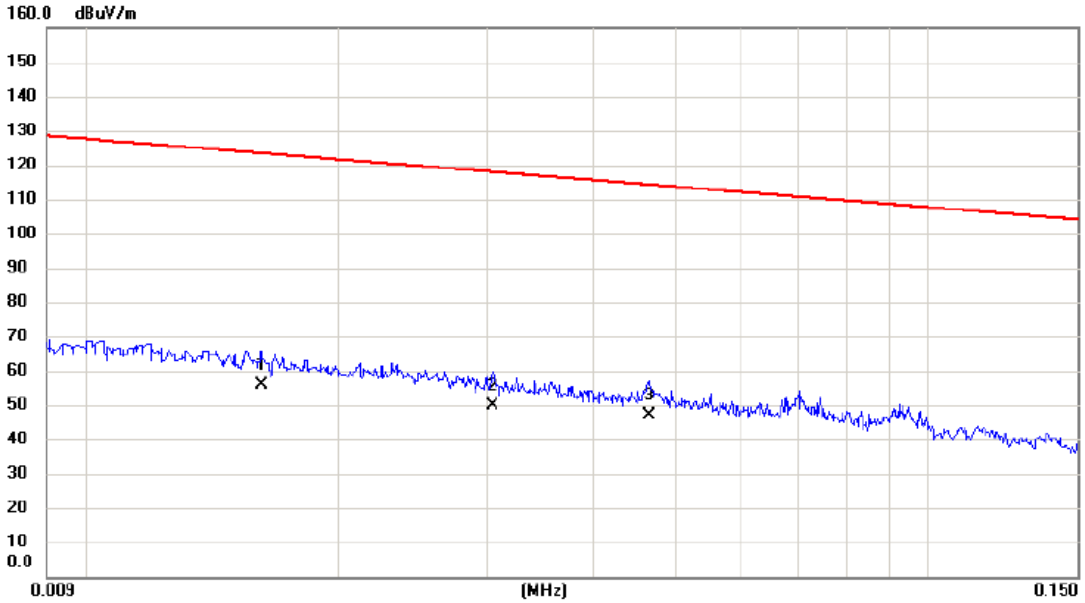


No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1590	43.34	9.68	53.02	65.52	-12.50	Peak	
2	0.1995	41.16	9.69	50.85	63.63	-12.78	Peak	
3	0.3750	26.08	9.69	35.77	58.39	-22.62	Peak	
4	0.5100	15.10	9.70	24.80	56.00	-31.20	Peak	
5	1.3875	11.01	9.77	20.78	56.00	-35.22	Peak	
6	7.5075	10.39	10.13	20.52	60.00	-39.48	Peak	

APPENDIX B - RADIATED EMISSION (9KHZ TO 30MHZ)

Test Mode:	TX MODE

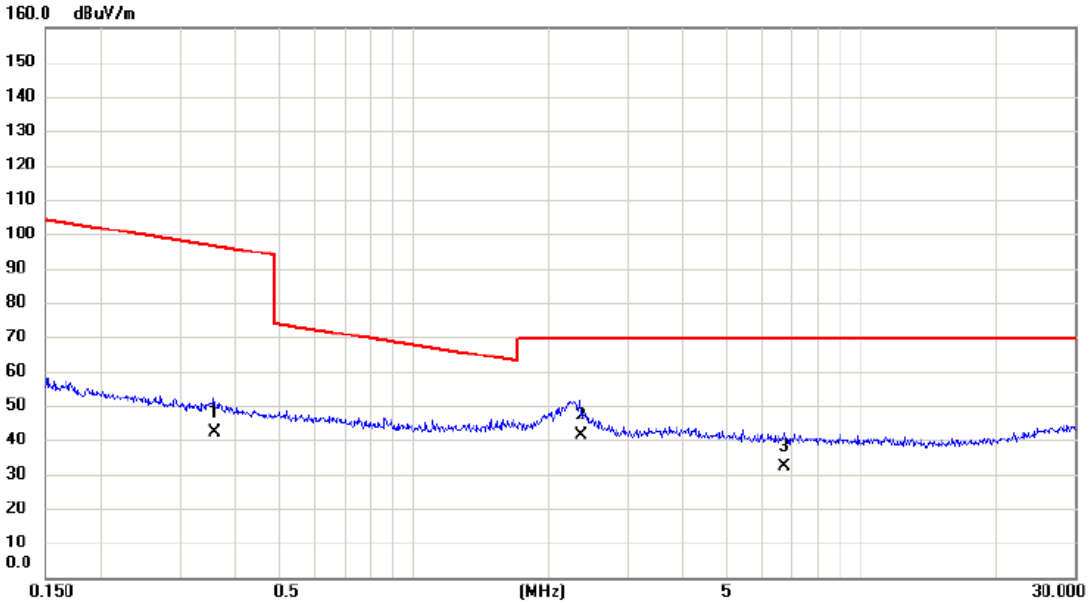
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0162	35.72	20.11	55.83	123.41	-67.58	AVG	
2		0.0304	30.53	19.31	49.84	117.95	-68.11	AVG	
3	*	0.0466	28.35	18.82	47.17	114.24	-67.07	AVG	

Test Mode:	TX MODE

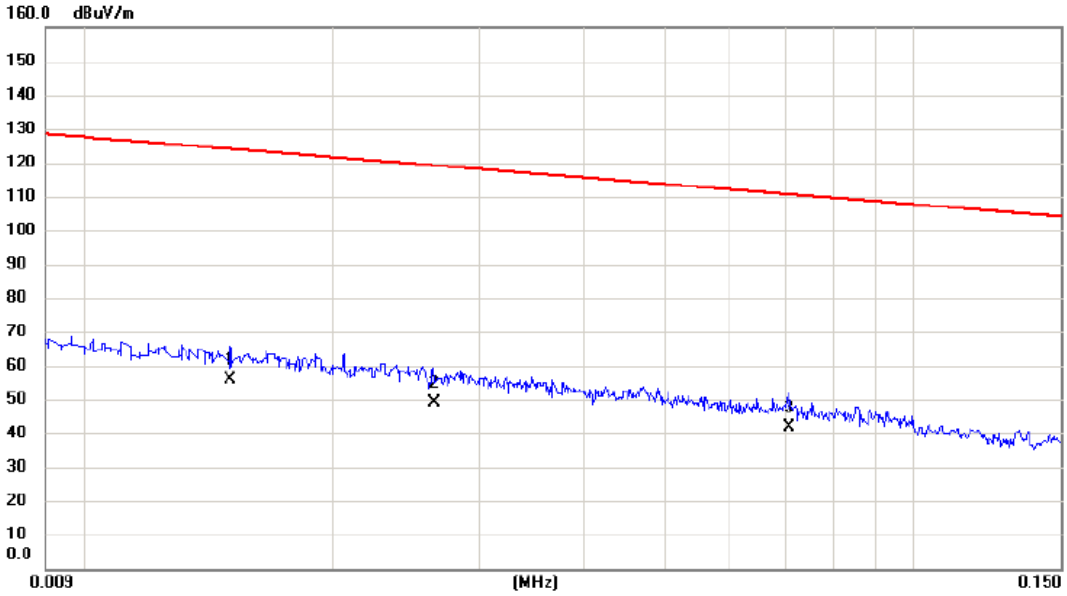
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.3577	25.55	16.57	42.12	96.53	-54.41	AVG	
2	*	2.3585	25.88	15.41	41.29	69.54	-28.25	QP	
3		6.7333	17.85	14.16	32.01	69.54	-37.53	QP	

Test Mode:	TX MODE

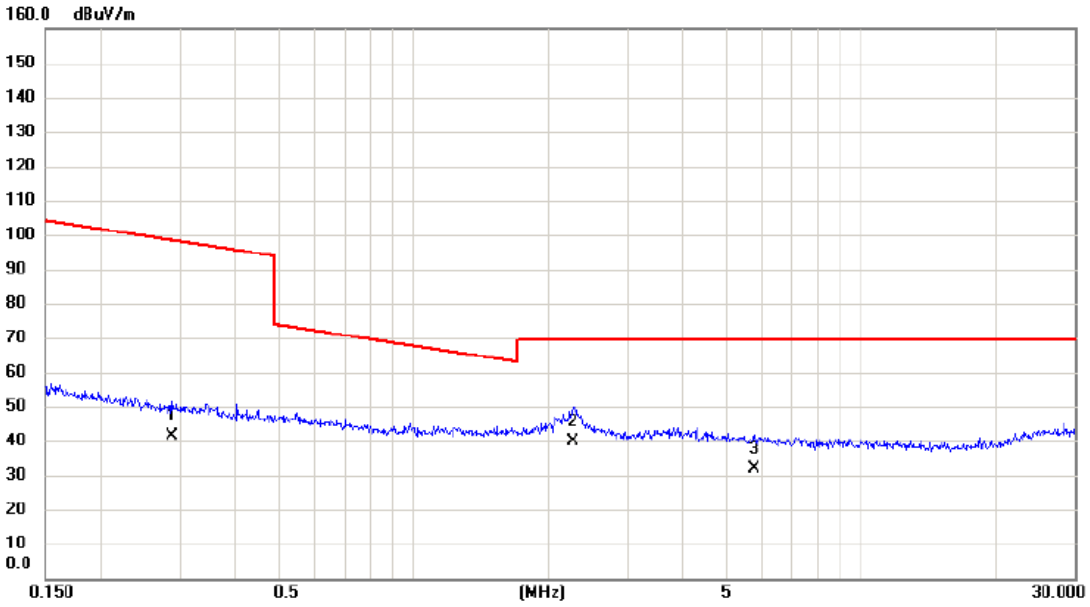
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0150	35.57	20.27	55.84	124.08	-68.24	AVG	
2		0.0265	29.77	19.43	49.20	119.14	-69.94	AVG	
3		0.0706	23.38	18.32	41.70	110.63	-68.93	AVG	

Test Mode:	TX MODE

Ant 90°

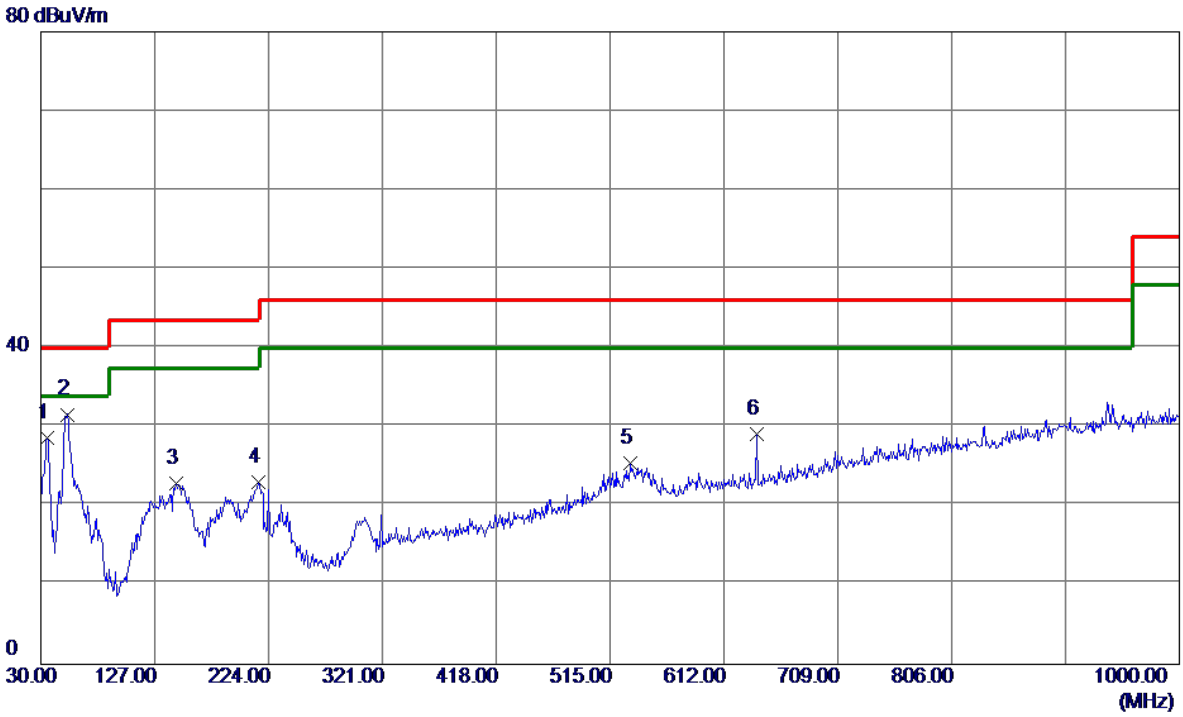


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.2893	24.87	16.63	41.50	98.38	-56.88	AVG	
2	*	2.2726	24.41	15.44	39.85	69.54	-29.69	QP	
3		5.7743	17.44	14.27	31.71	69.54	-37.83	QP	

APPENDIX C - RADIATED EMISSION (30MHZ TO 1000MHZ)

Test Mode:	TX B MODE CHANNEL 01

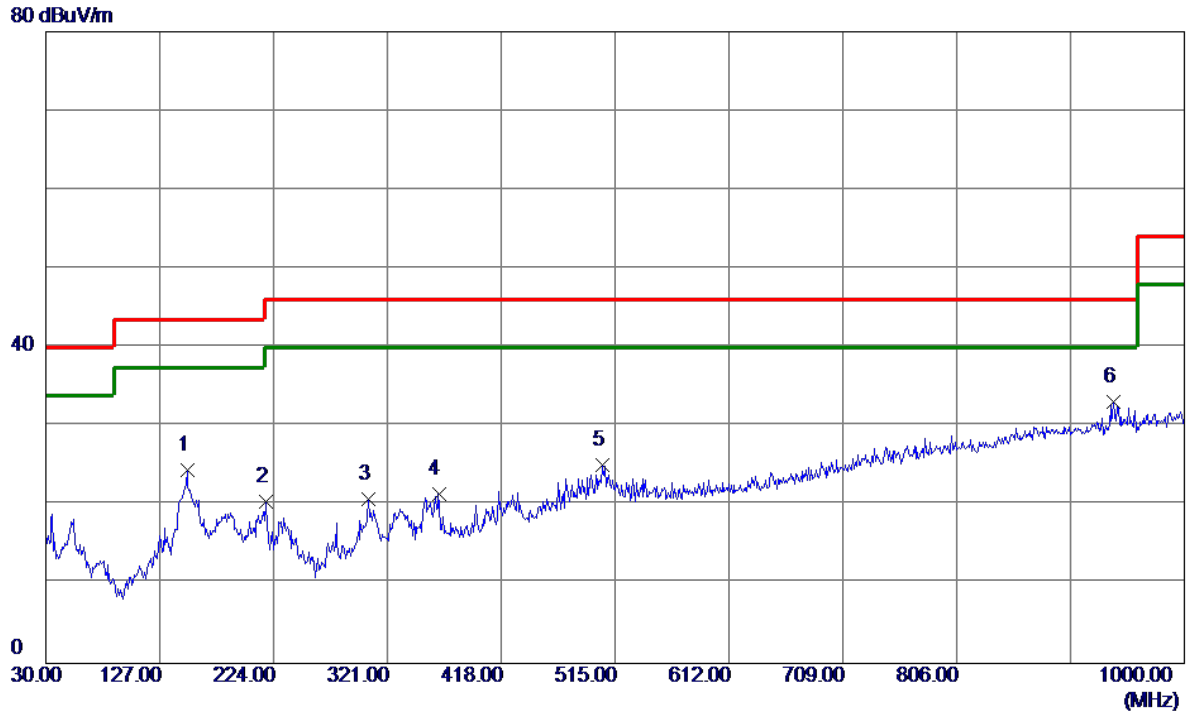
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	35.8200	43.11	-14.51	28.60	40.00	-11.40	Peak	
2 *	52.3100	45.39	-13.79	31.60	40.00	-8.40	Peak	
3	145.4299	36.73	-13.84	22.89	43.50	-20.61	Peak	
4	215.2700	36.94	-13.94	23.00	43.50	-20.50	Peak	
5	532.4600	33.52	-8.07	25.45	46.00	-20.55	Peak	
6	640.1300	34.74	-5.66	29.08	46.00	-16.92	Peak	

Test Mode:	TX B MODE CHANNEL 01

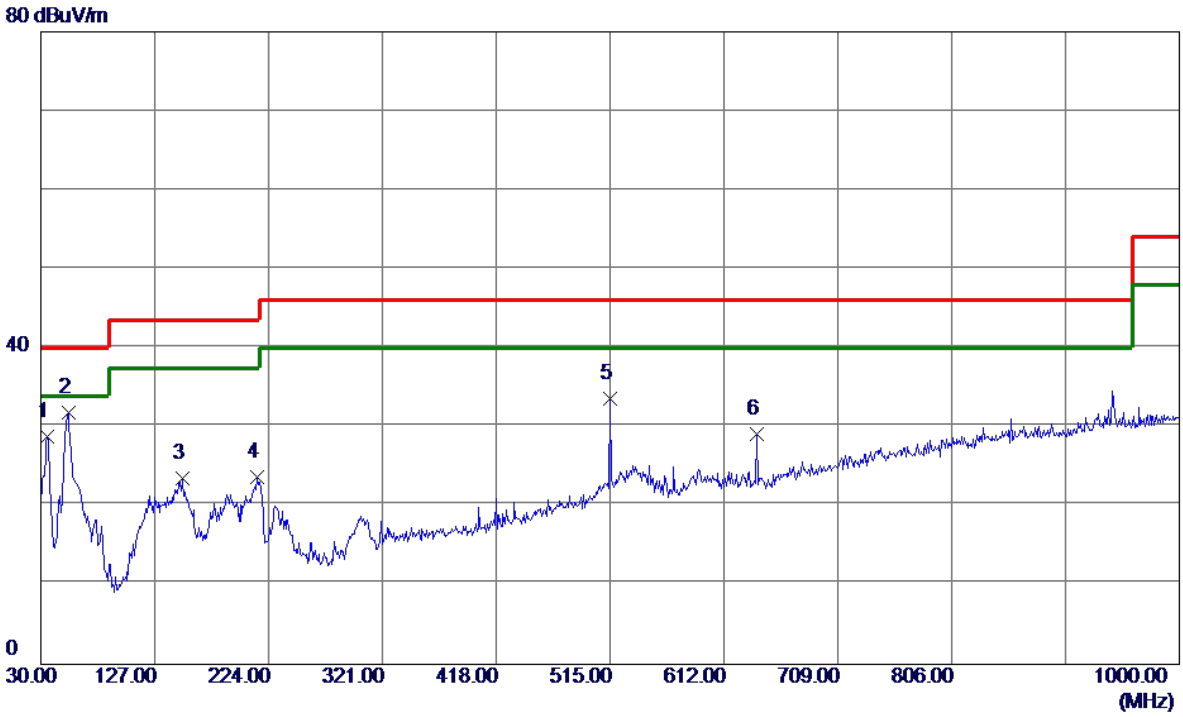
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	150.2800	38.01	-13.51	24.50	43.50	-19.00	Peak	
2	217.2100	34.44	-13.92	20.52	46.00	-25.48	Peak	
3	304.5100	33.52	-12.75	20.77	46.00	-25.23	Peak	
4	364.6500	33.24	-11.78	21.46	46.00	-24.54	Peak	
5	504.3300	33.78	-8.63	25.15	46.00	-20.85	Peak	
6 *	939.8600	31.39	1.80	33.19	46.00	-12.81	Peak	

Test Mode:	TX B MODE CHANNEL 06

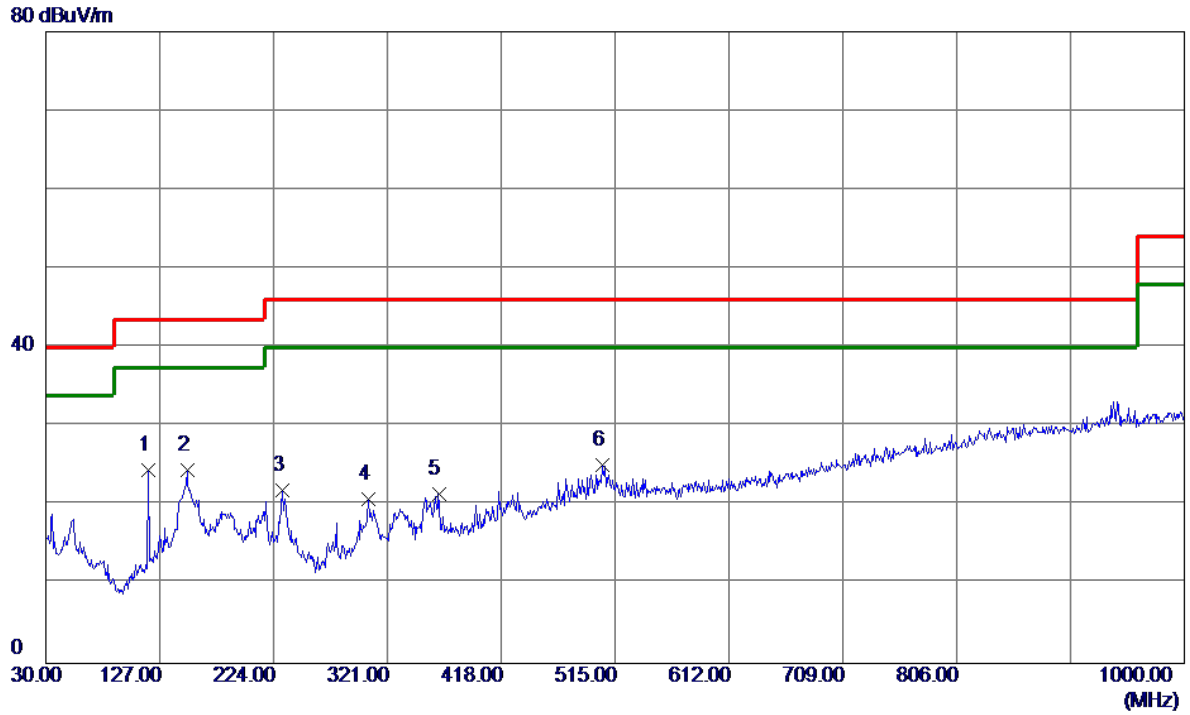
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	35.8200	43.26	-14.51	28.75	40.00	-11.25	Peak	
2 *	53.2800	45.66	-13.88	31.78	40.00	-8.22	Peak	
3	150.2800	36.97	-13.51	23.46	43.50	-20.04	Peak	
4	214.3000	37.63	-13.95	23.68	43.50	-19.82	Peak	
5	515.0000	41.98	-8.42	33.56	46.00	-12.44	Peak	
6	640.1300	34.80	-5.66	29.14	46.00	-16.86	Peak	

Test Mode:	TX B MODE CHANNEL 06

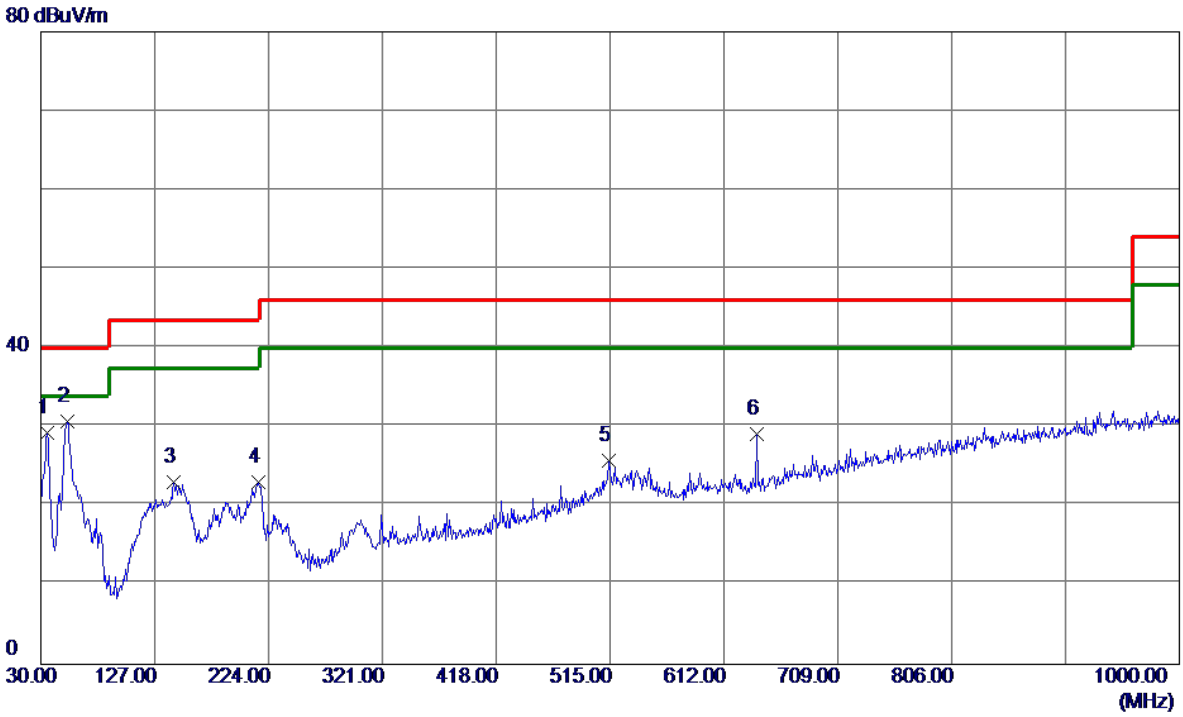
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	117.3000	40.03	-15.61	24.42	43.50	-19.08	Peak	
2 *	150.2800	38.01	-13.51	24.50	43.50	-19.00	Peak	
3	231.7600	36.03	-14.17	21.86	46.00	-24.14	Peak	
4	304.5100	33.52	-12.75	20.77	46.00	-25.23	Peak	
5	364.6500	33.24	-11.78	21.46	46.00	-24.54	Peak	
6	504.3300	33.78	-8.63	25.15	46.00	-20.85	Peak	

Test Mode:	TX B MODE CHANNEL 11

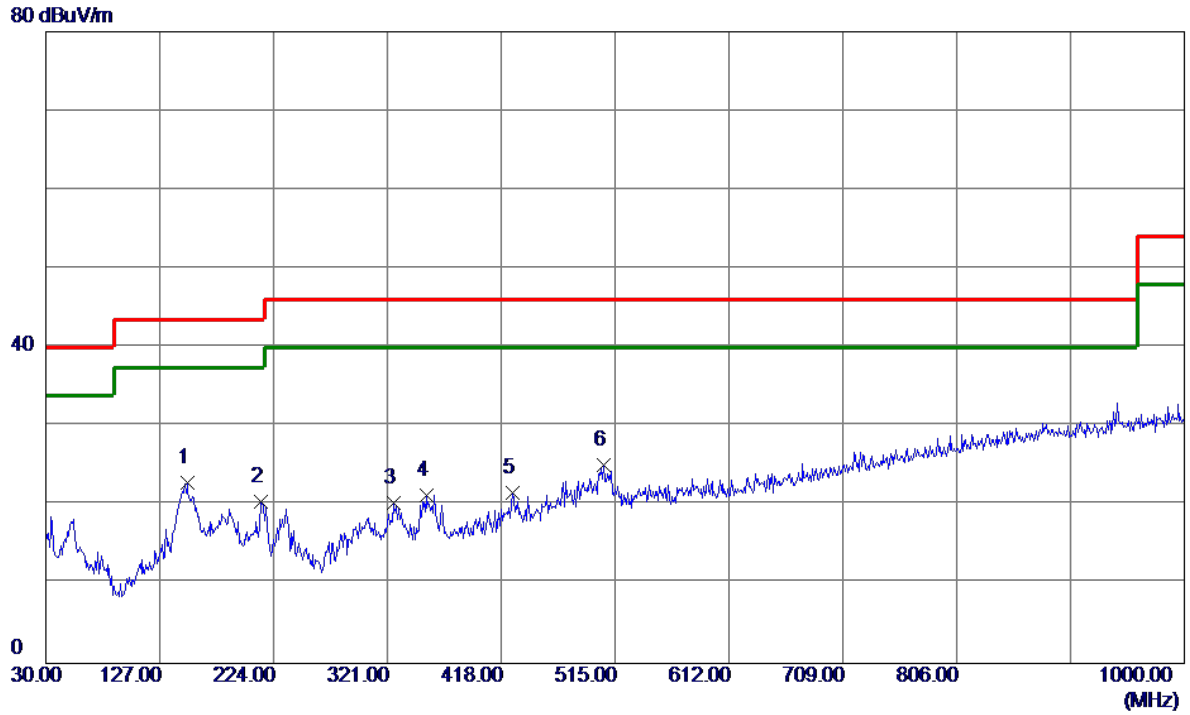
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	35.8200	43.73	-14.51	29.22	40.00	-10.78	Peak	
2 *	52.3100	44.58	-13.79	30.79	40.00	-9.21	Peak	
3	143.4900	36.95	-13.97	22.98	43.50	-20.52	Peak	
4	215.2700	36.99	-13.94	23.05	43.50	-20.45	Peak	
5	514.0300	34.25	-8.44	25.81	46.00	-20.19	Peak	
6	640.1300	34.82	-5.66	29.16	46.00	-16.84	Peak	

Test Mode:	TX B MODE CHANNEL 11

Horizontal

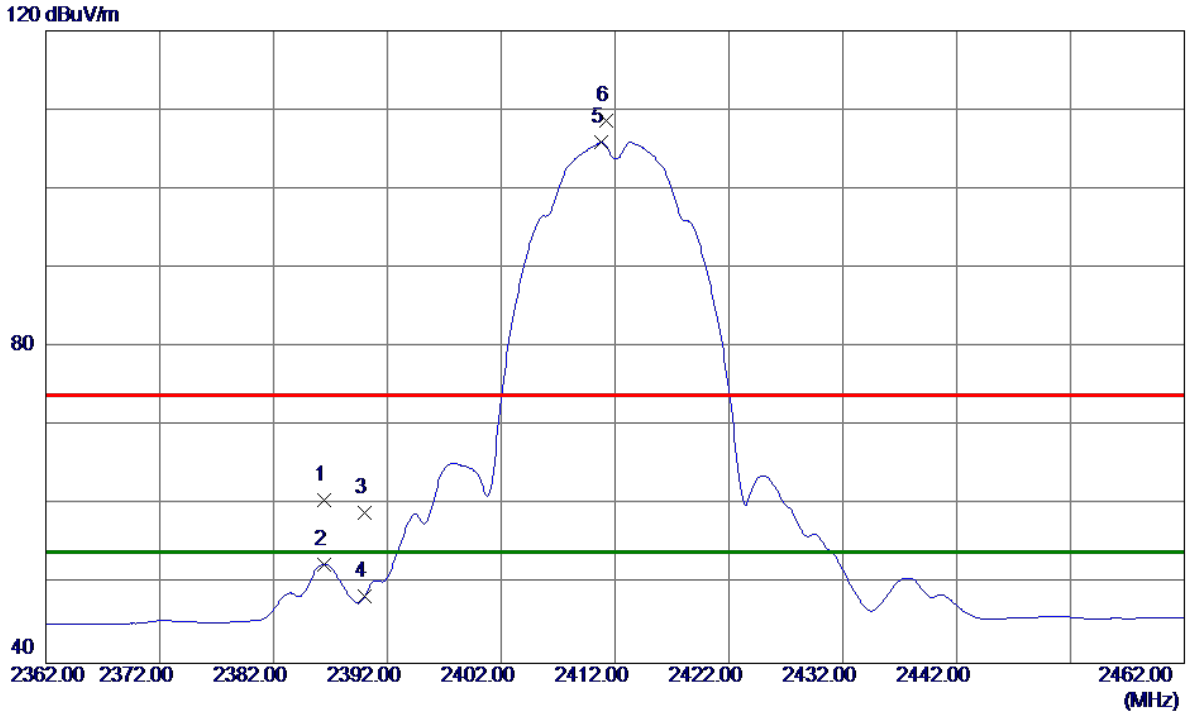


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	150.2800	36.43	-13.51	22.92	43.50	-20.58	Peak	
2	213.3300	34.37	-13.95	20.42	43.50	-23.08	Peak	
3	325.8500	32.69	-12.38	20.31	46.00	-25.69	Peak	
4	353.9800	33.22	-11.91	21.31	46.00	-24.69	Peak	
5	427.7000	32.18	-10.57	21.61	46.00	-24.39	Peak	
6	505.3000	33.66	-8.61	25.05	46.00	-20.95	Peak	

APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ)

Orthogonal Axis :	X
Test Mode :	TX B MODE 2412MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2386.4000	27.74	32.97	60.71	74.00	-13.29	Peak	
2	2386.4000	19.58	32.97	52.55	54.00	-1.45	AVG	
3	2390.0000	25.99	32.99	58.98	74.00	-15.02	Peak	
4	2390.0000	15.50	32.99	48.49	54.00	-5.51	AVG	
5 *	2410.8000	72.81	33.09	105.90	54.00	51.90	AVG	No Limit
6	2411.2000	75.57	33.09	108.66	74.00	34.66	Peak	No Limit

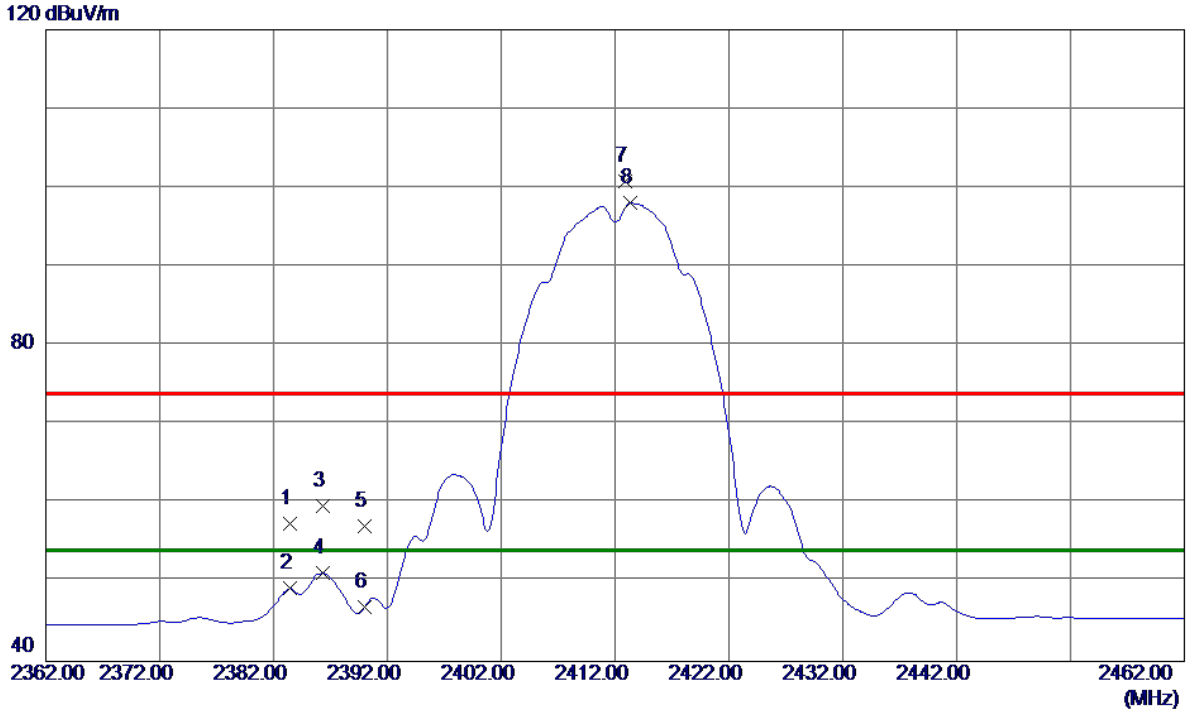
Orthogonal Axis :	X
Test Mode :	TX B MODE 2412MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.9900	46.80	5.64	52.44	54.00	-1.56	AVG	
2	4824.1100	48.01	5.64	53.65	74.00	-20.35	Peak	

Orthogonal Axis :	X
Test Mode :	TX B MODE 2412MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2383.4000	24.51	32.95	57.46	74.00	-16.54	Peak	
2	2383.4000	16.27	32.95	49.22	54.00	-4.78	AVG	
3	2386.3000	26.70	32.97	59.67	74.00	-14.33	Peak	
4	2386.3000	18.18	32.97	51.15	54.00	-2.85	AVG	
5	2390.0000	24.12	32.99	57.11	74.00	-16.89	Peak	
6	2390.0000	13.92	32.99	46.91	54.00	-7.09	AVG	
7	2412.9000	67.64	33.10	100.74	74.00	26.74	Peak	No Limit
8 *	2413.3000	65.01	33.10	98.11	54.00	44.11	AVG	No Limit

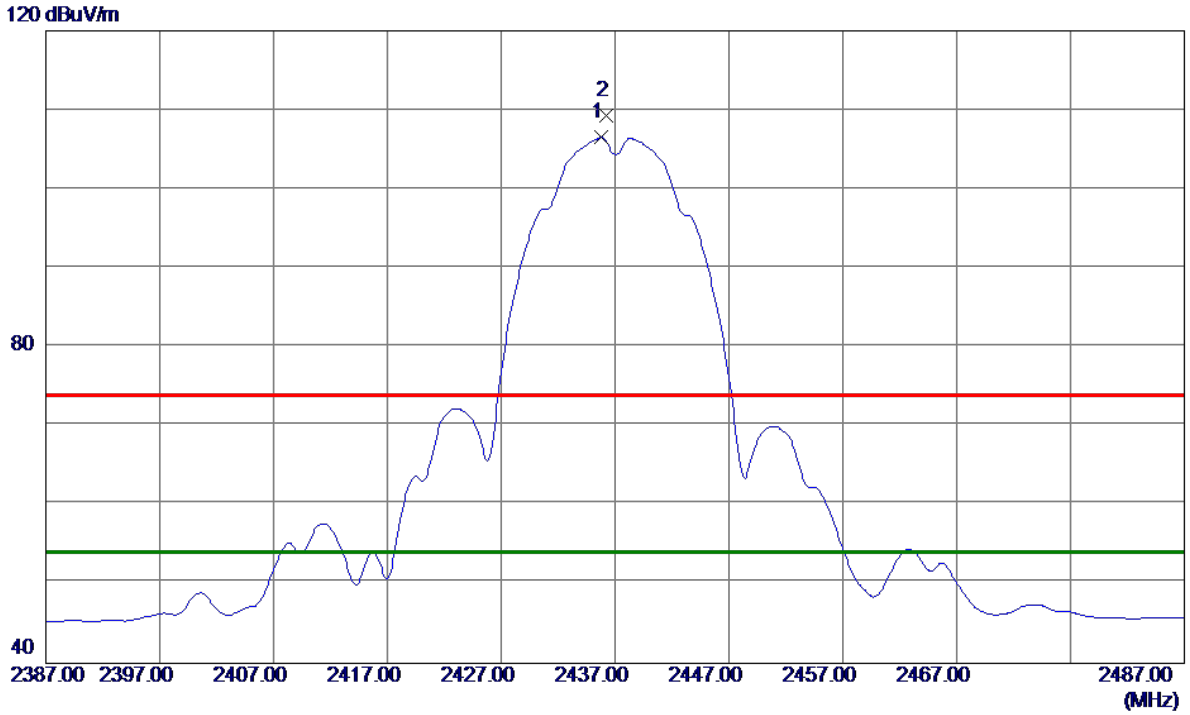
Orthogonal Axis :	X
Test Mode :	TX B MODE 2412MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.8700	41.16	5.64	46.80	74.00	-27.20	Peak	
2 *	4824.0000	38.07	5.64	43.71	54.00	-10.29	AVG	

Orthogonal Axis :	X
Test Mode :	TX B MODE 2437MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2435.8000	73.30	33.22	106.52	54.00	52.52	AVG	No Limit
2	2436.2000	76.10	33.22	109.32	74.00	35.32	Peak	No Limit

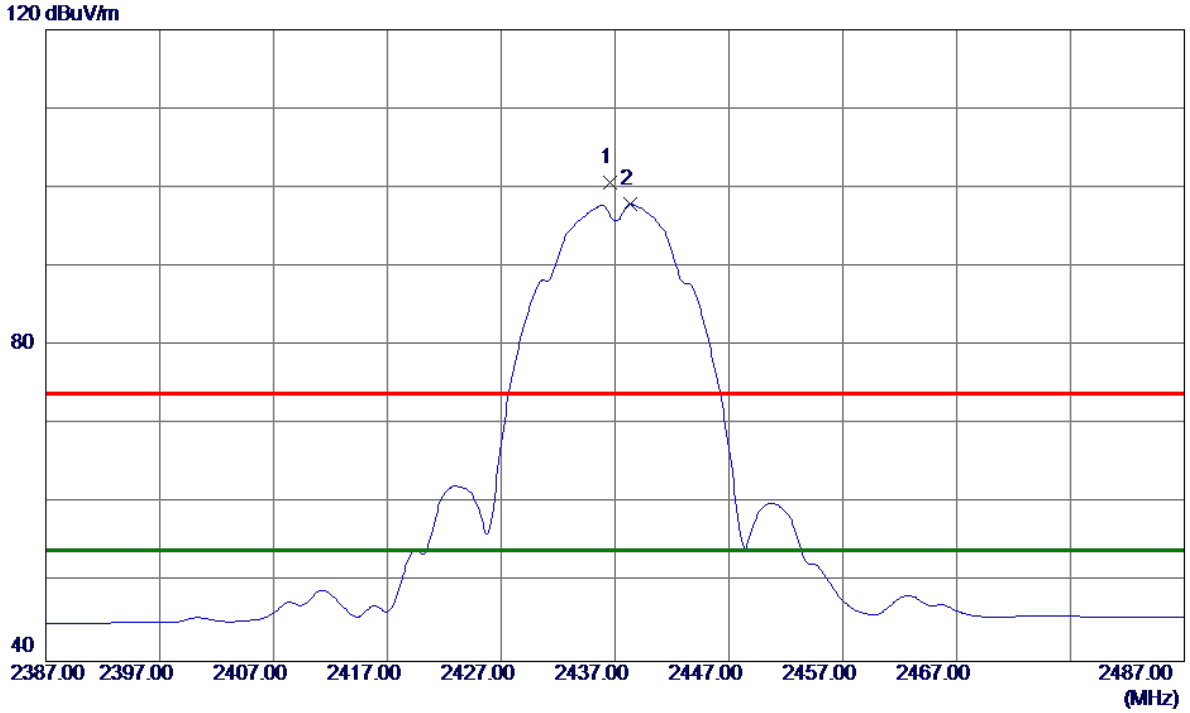
Orthogonal Axis :	X
Test Mode :	TX B MODE 2437MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.9600	48.84	5.81	54.65	74.00	-19.35	Peak	
2 *	4874.0200	47.12	5.81	52.93	54.00	-1.07	AVG	

Orthogonal Axis :	X
Test Mode :	TX B MODE 2437MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2436.6000	67.46	33.22	100.68	74.00	26.68	Peak	No Limit
2 *	2438.3000	64.72	33.23	97.95	54.00	43.95	AVG	No Limit

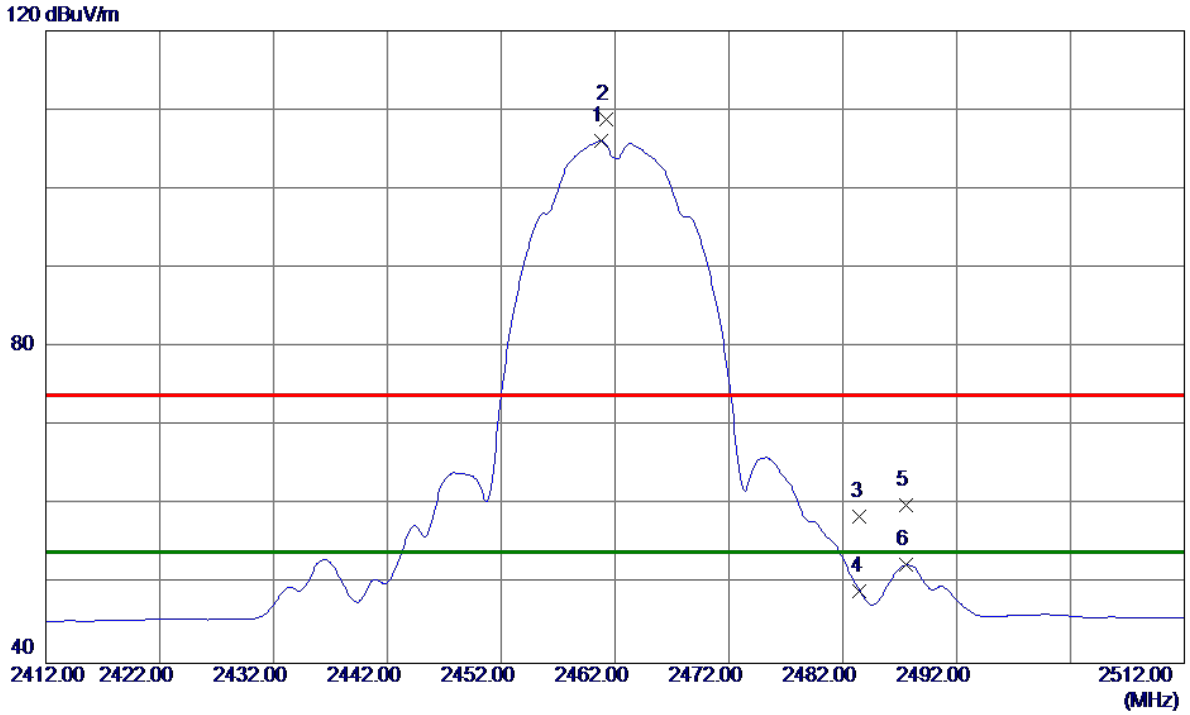
Orthogonal Axis :	X
Test Mode :	TX B MODE 2437MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.9500	46.06	5.81	51.87	74.00	-22.13	Peak	
2 *	4874.0099	43.82	5.81	49.63	54.00	-4.37	AVG	

Orthogonal Axis :	X
Test Mode :	TX B MODE 2462MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.8000	72.77	33.34	106.11	54.00	52.11	AVG	No Limit
2	2461.2000	75.53	33.35	108.88	74.00	34.88	Peak	No Limit
3	2483.5000	25.10	33.46	58.56	74.00	-15.44	Peak	
4	2483.5000	15.73	33.46	49.19	54.00	-4.81	AVG	
5	2487.6000	26.55	33.48	60.03	74.00	-13.97	Peak	
6	2487.6000	18.94	33.48	52.42	54.00	-1.58	AVG	

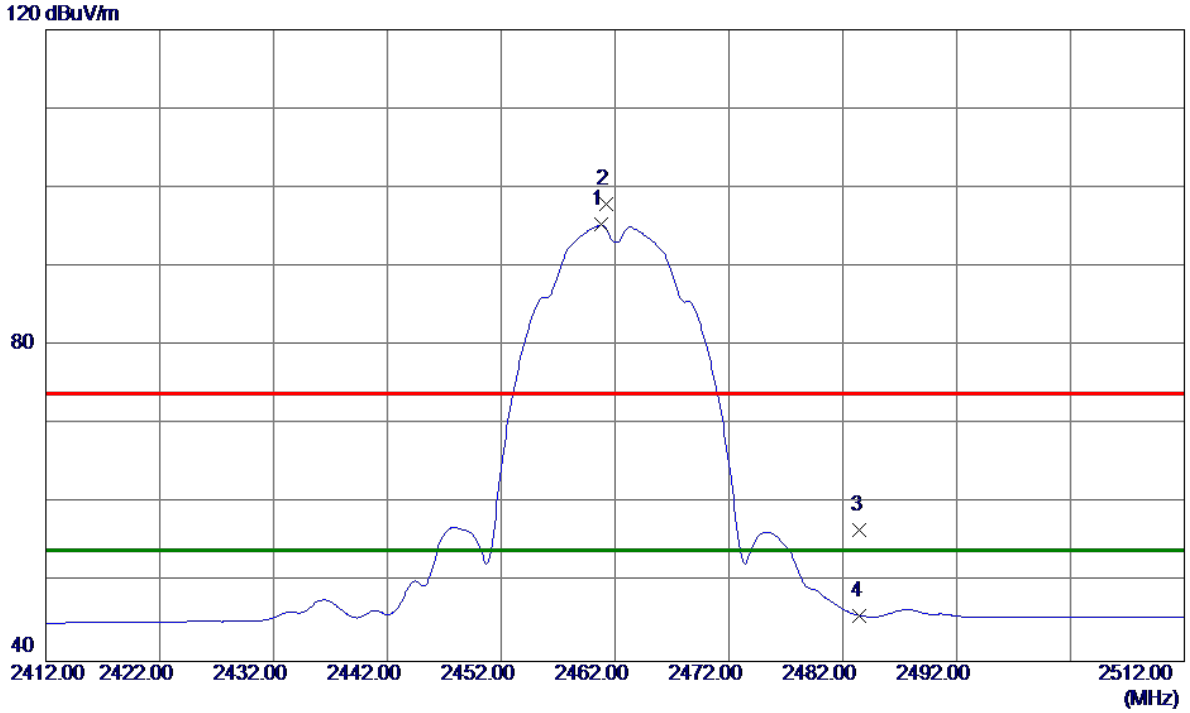
Orthogonal Axis :	X
Test Mode :	TX B MODE 2462MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.0099	46.59	5.98	52.57	54.00	-1.43	AVG	
2	4924.0200	48.10	5.98	54.08	74.00	-19.92	Peak	

Orthogonal Axis :	X
Test Mode :	TX B MODE 2462MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.8000	61.95	33.34	95.29	54.00	41.29	AVG	No Limit
2	2461.2000	64.64	33.35	97.99	74.00	23.99	Peak	No Limit
3	2483.5000	23.11	33.46	56.57	74.00	-17.43	Peak	
4	2483.5000	12.35	33.46	45.81	54.00	-8.19	AVG	

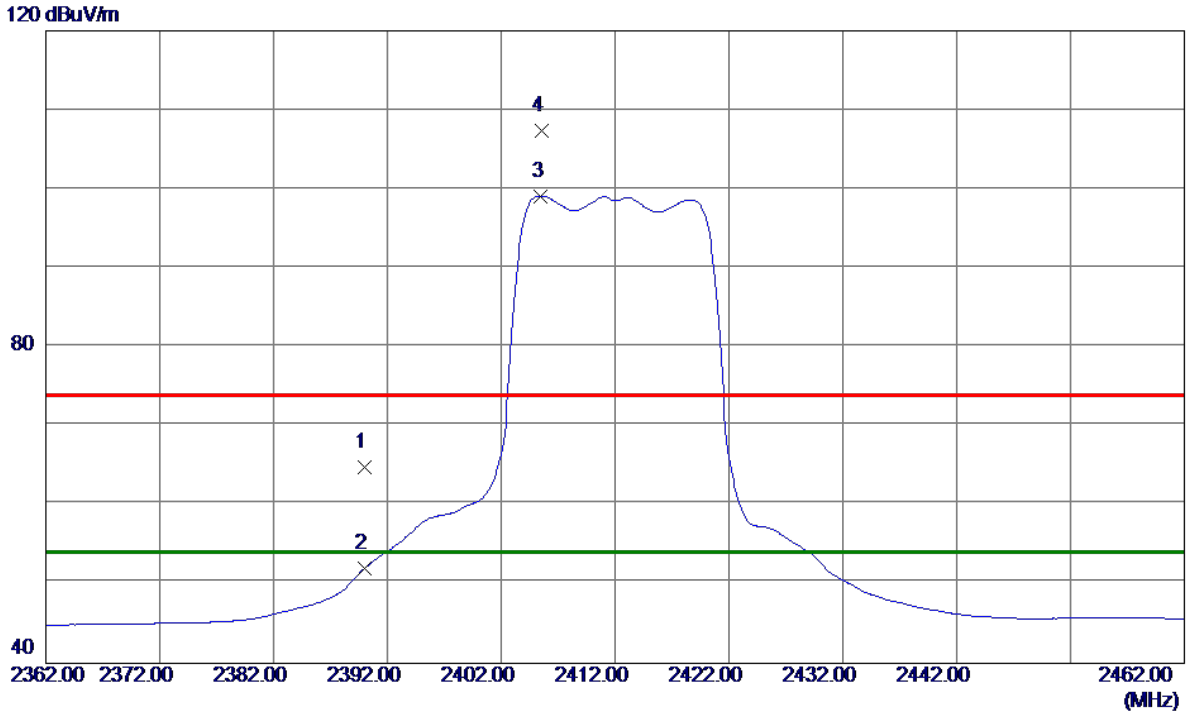
Orthogonal Axis :	X
Test Mode :	TX B MODE 2462MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.0099	44.10	5.98	50.08	54.00	-3.92	AVG	
2	4924.0600	45.95	5.98	51.93	74.00	-22.07	Peak	

Orthogonal Axis :	X
Test Mode :	TX G MODE 2412MHz

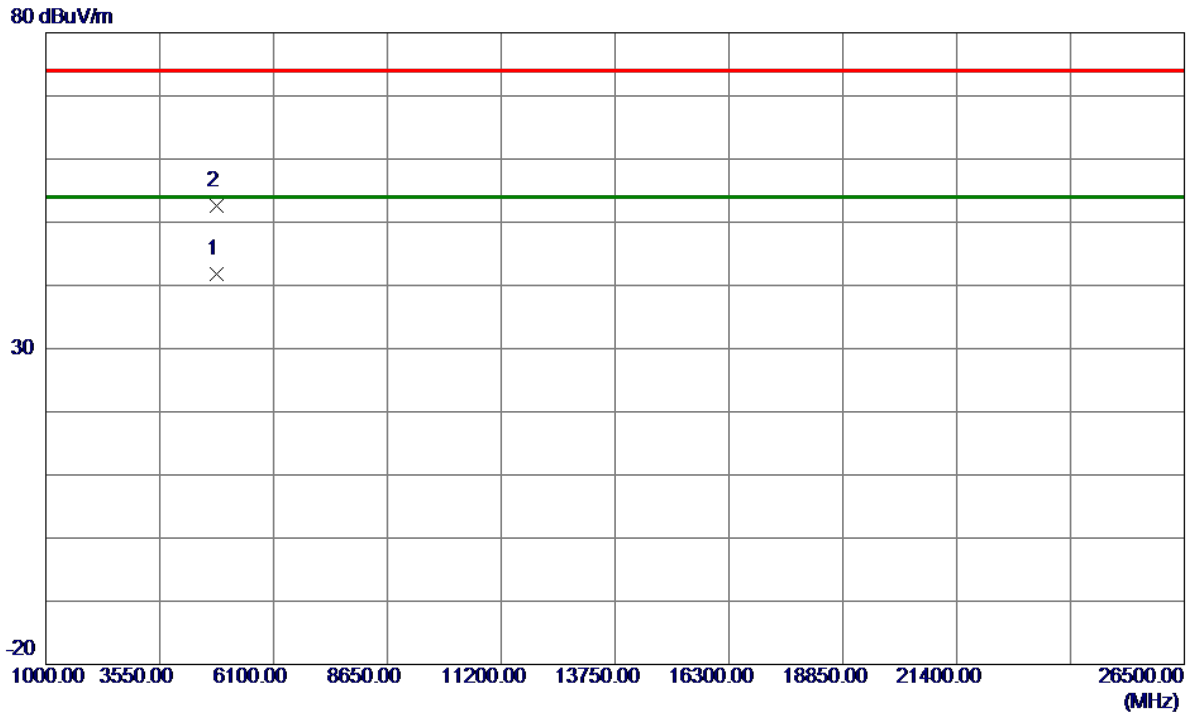
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	31.78	32.99	64.77	74.00	-9.23	Peak	
2	2390.0000	19.04	32.99	52.03	54.00	-1.97	AVG	
3 *	2405.5000	66.04	33.07	99.11	54.00	45.11	AVG	No Limit
4	2405.6000	74.34	33.07	107.41	74.00	33.41	Peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX G MODE 2412MHz

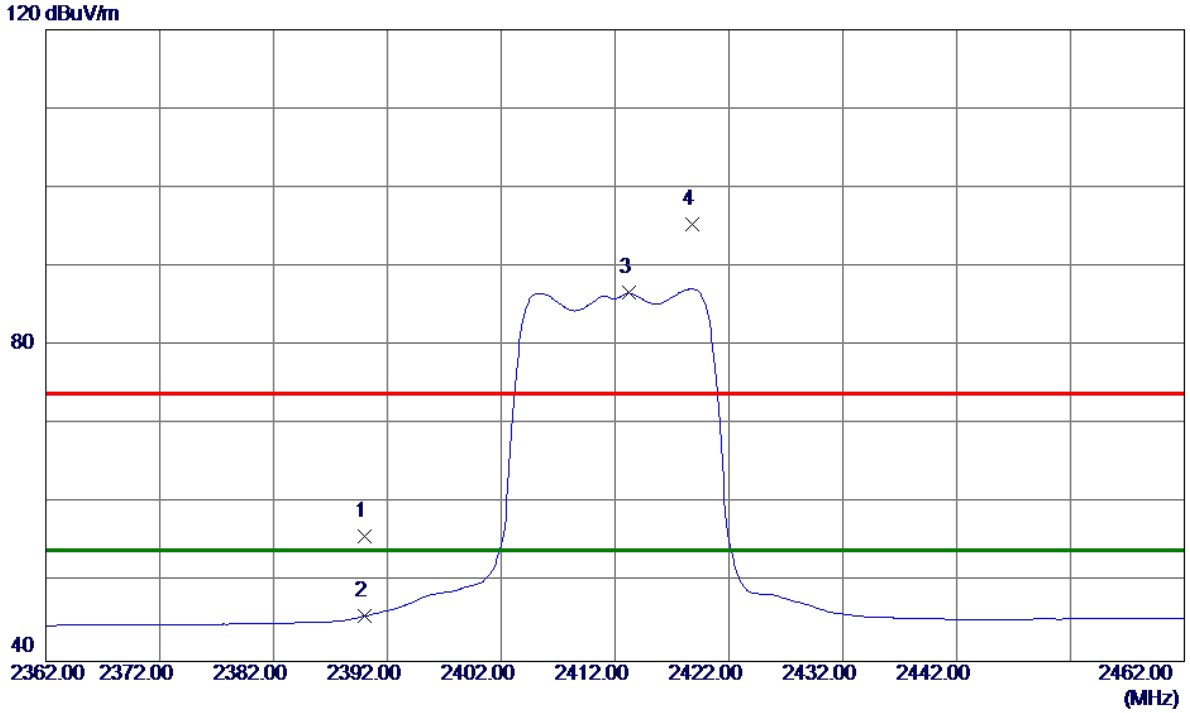
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.1500	36.12	5.64	41.76	54.00	-12.24	AVG	
2	4824.6000	47.03	5.64	52.67	74.00	-21.33	Peak	

Orthogonal Axis :	X
Test Mode :	TX G MODE 2412MHz

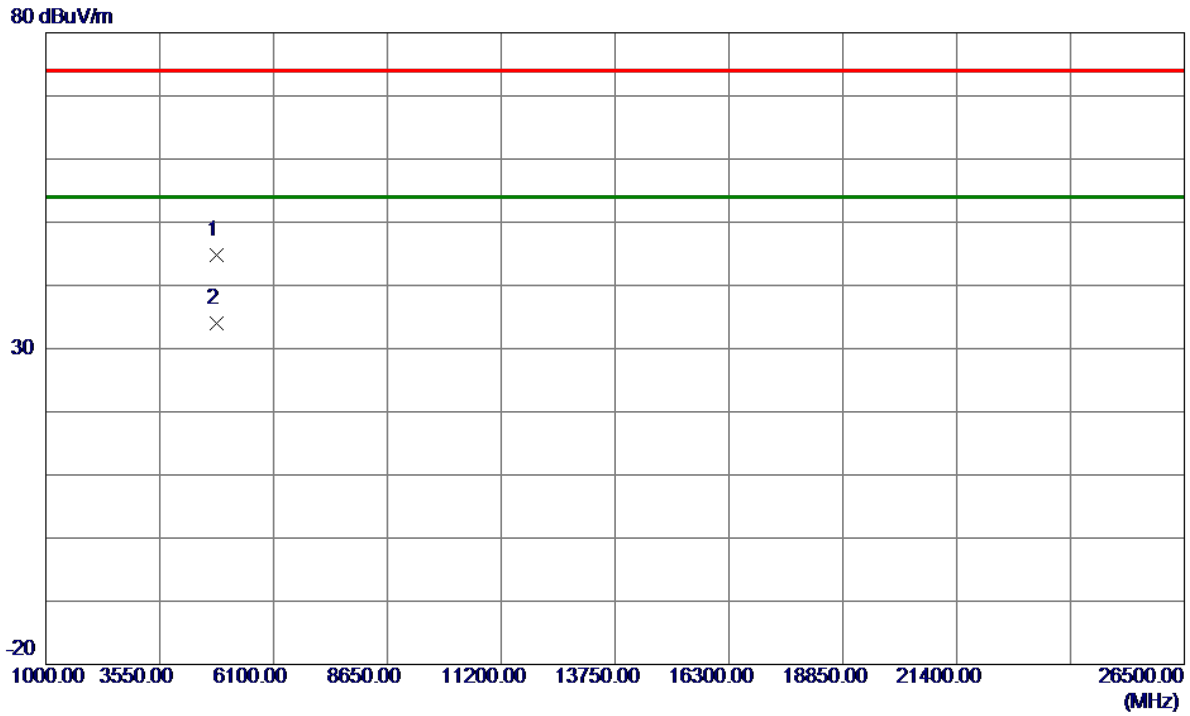
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	22.78	32.99	55.77	74.00	-18.23	Peak	
2	2390.0000	12.76	32.99	45.75	54.00	-8.25	AVG	
3 *	2413.2000	53.55	33.10	86.65	54.00	32.65	AVG	No Limit
4	2418.8000	62.30	33.13	95.43	74.00	21.43	Peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX G MODE 2412MHz

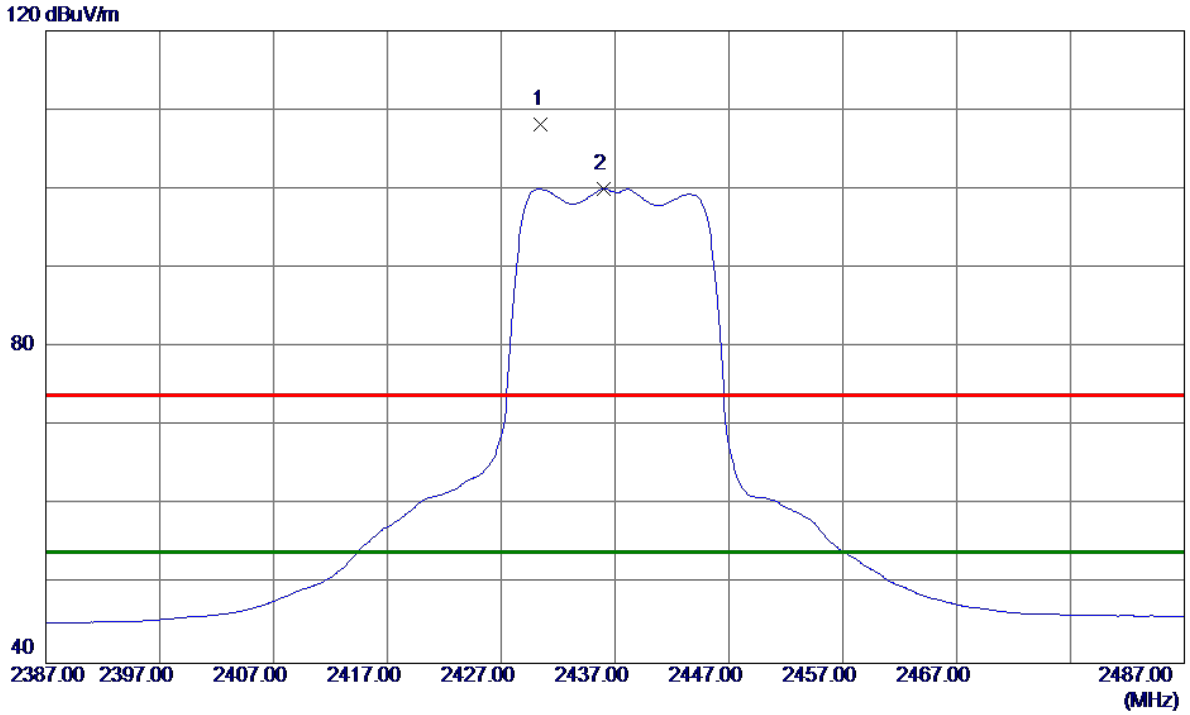
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4824.0500	39.17	5.64	44.81	74.00	-29.19	Peak	
2 *	4824.2000	28.29	5.64	33.93	54.00	-20.07	AVG	

Orthogonal Axis :	X
Test Mode :	TX G MODE 2437MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2430.5000	74.96	33.19	108.15	74.00	34.15	Peak	No Limit
2 *	2436.0000	66.84	33.22	100.06	54.00	46.06	AVG	No Limit

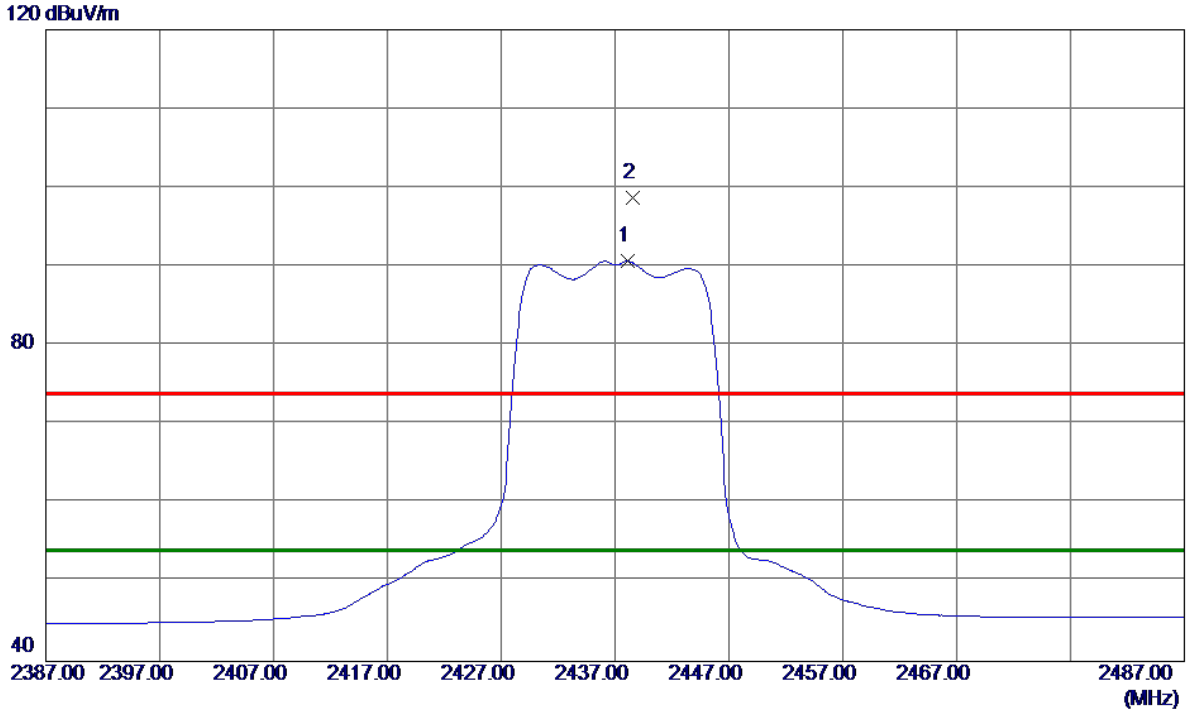
Orthogonal Axis :	X
Test Mode :	TX G MODE 2437MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.1500	34.46	5.81	40.27	54.00	-13.73	AVG	
2	4875.2500	45.54	5.81	51.35	74.00	-22.65	Peak	

Orthogonal Axis :	X
Test Mode :	TX G MODE 2437MHz

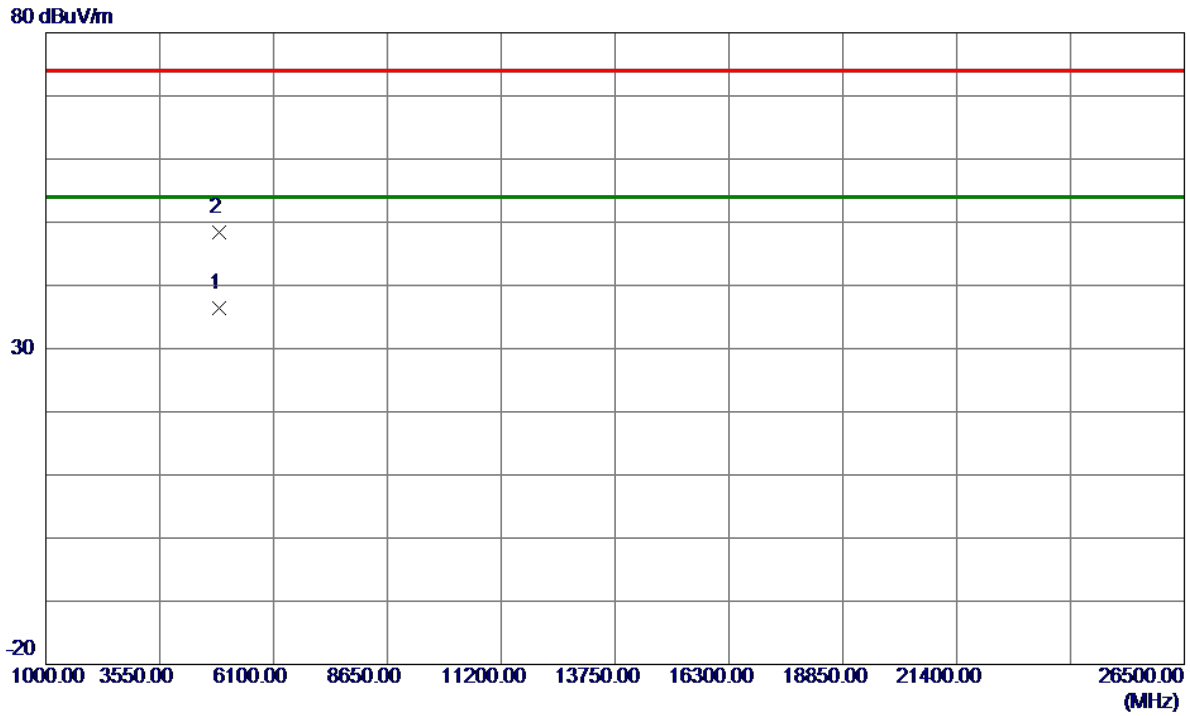
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.1000	57.46	33.23	90.69	54.00	36.69	AVG	No Limit
2	2438.6000	65.46	33.23	98.69	74.00	24.69	Peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX G MODE 2437MHz

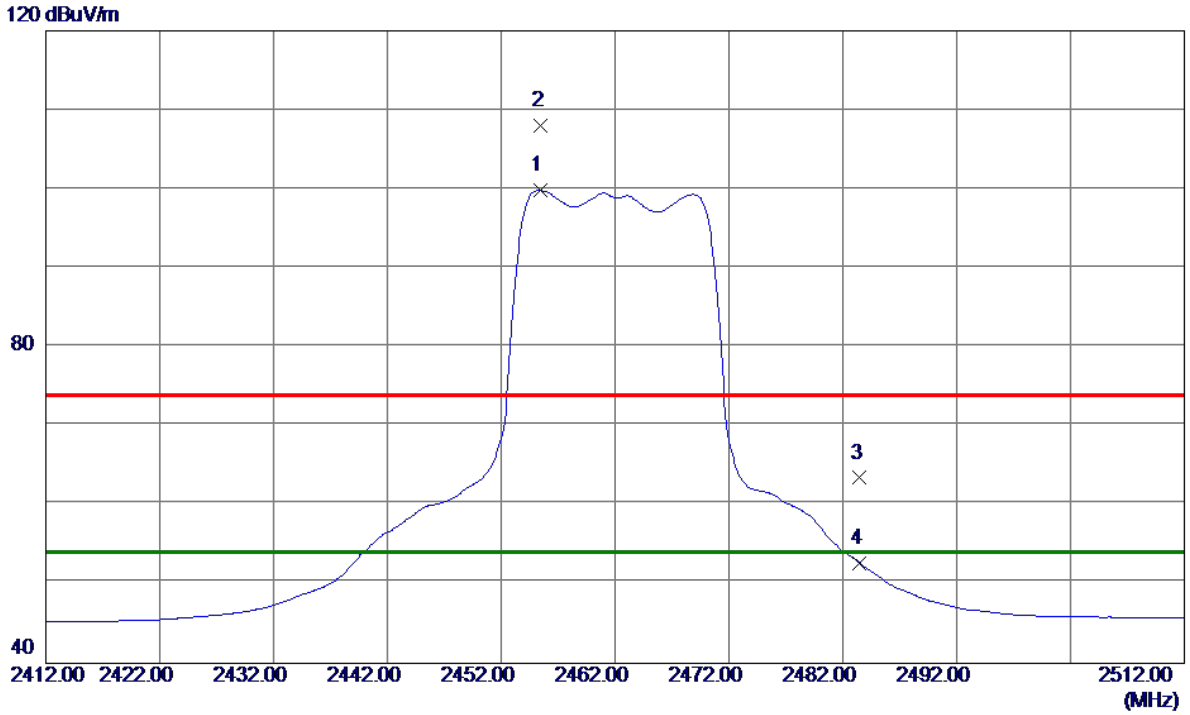
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.2000	30.50	5.81	36.31	54.00	-17.69	AVG	
2	4874.9500	42.54	5.81	48.35	74.00	-25.65	Peak	

Orthogonal Axis :	X
Test Mode :	TX G MODE 2462MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2455.4000	66.49	33.32	99.81	54.00	45.81	AVG	No Limit
2	2455.5000	74.62	33.32	107.94	74.00	33.94	Peak	No Limit
3	2483.5000	29.98	33.46	63.44	74.00	-10.56	Peak	
4	2483.5000	19.24	33.46	52.70	54.00	-1.30	AVG	

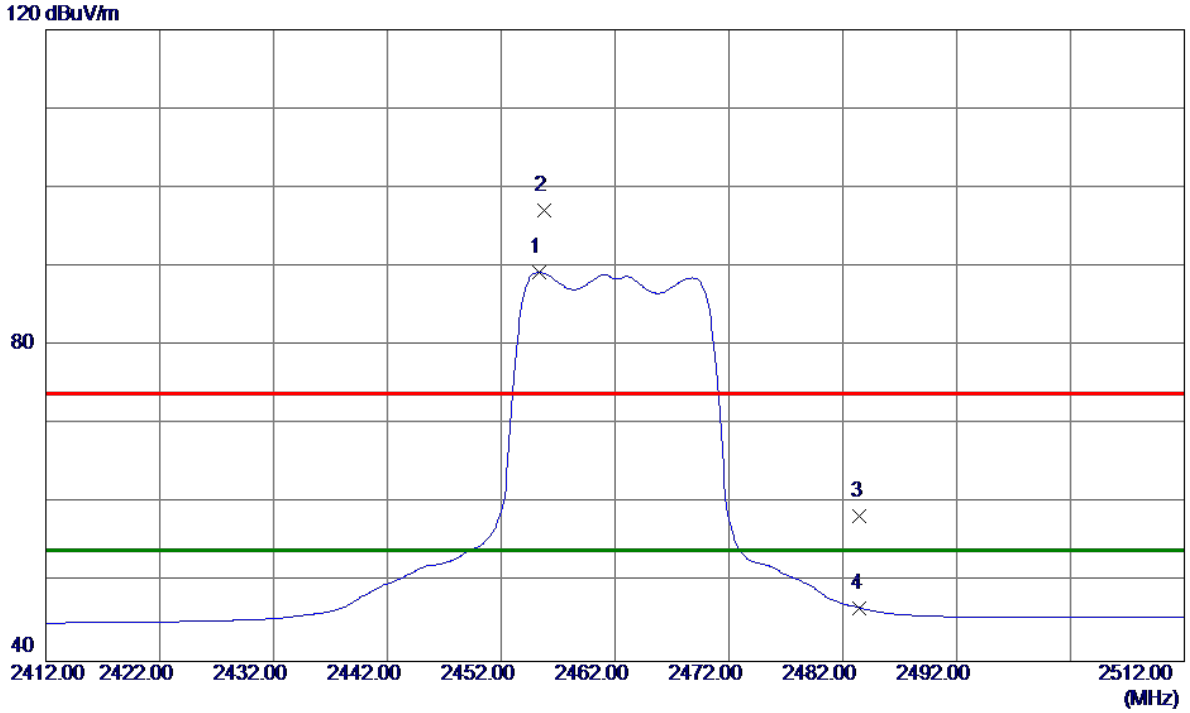
Orthogonal Axis :	X
Test Mode :	TX G MODE 2462MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4917.7000	29.93	5.95	35.88	54.00	-18.12	AVG	
2	4924.6000	43.15	5.98	49.13	74.00	-24.87	Peak	

Orthogonal Axis :	X
Test Mode :	TX G MODE 2462MHz

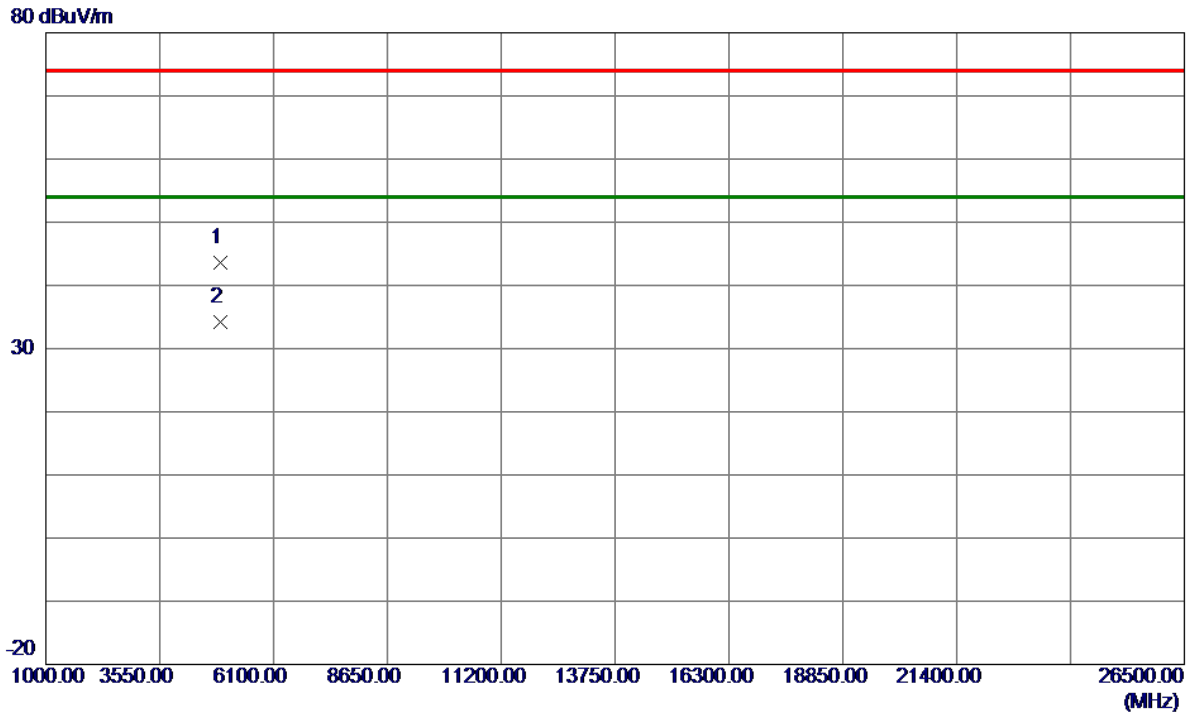
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2455.3000	55.94	33.32	89.26	54.00	35.26	AVG	No Limit
2	2455.8000	63.87	33.32	97.19	74.00	23.19	Peak	No Limit
3	2483.5000	24.96	33.46	58.42	74.00	-15.58	Peak	
4	2483.5000	13.31	33.46	46.77	54.00	-7.23	AVG	

Orthogonal Axis :	X
Test Mode :	TX G MODE 2462MHz

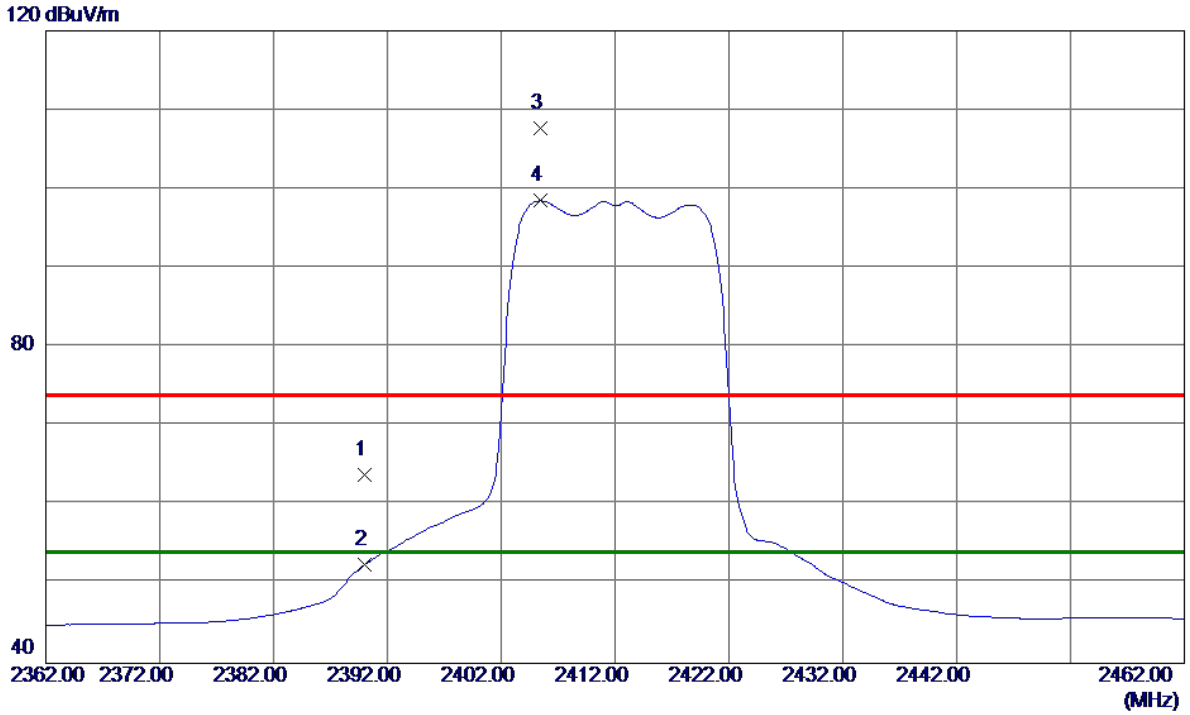
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4915.7500	37.59	5.95	43.54	74.00	-30.46	Peak	
2 *	4924.1500	28.14	5.98	34.12	54.00	-19.88	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2412MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	30.80	32.99	63.79	74.00	-10.21	Peak	
2	2390.0000	19.49	32.99	52.48	54.00	-1.52	AVG	
3	2405.4000	74.54	33.07	107.61	74.00	33.61	Peak	No Limit
4 *	2405.4000	65.42	33.07	98.49	54.00	44.49	AVG	No Limit

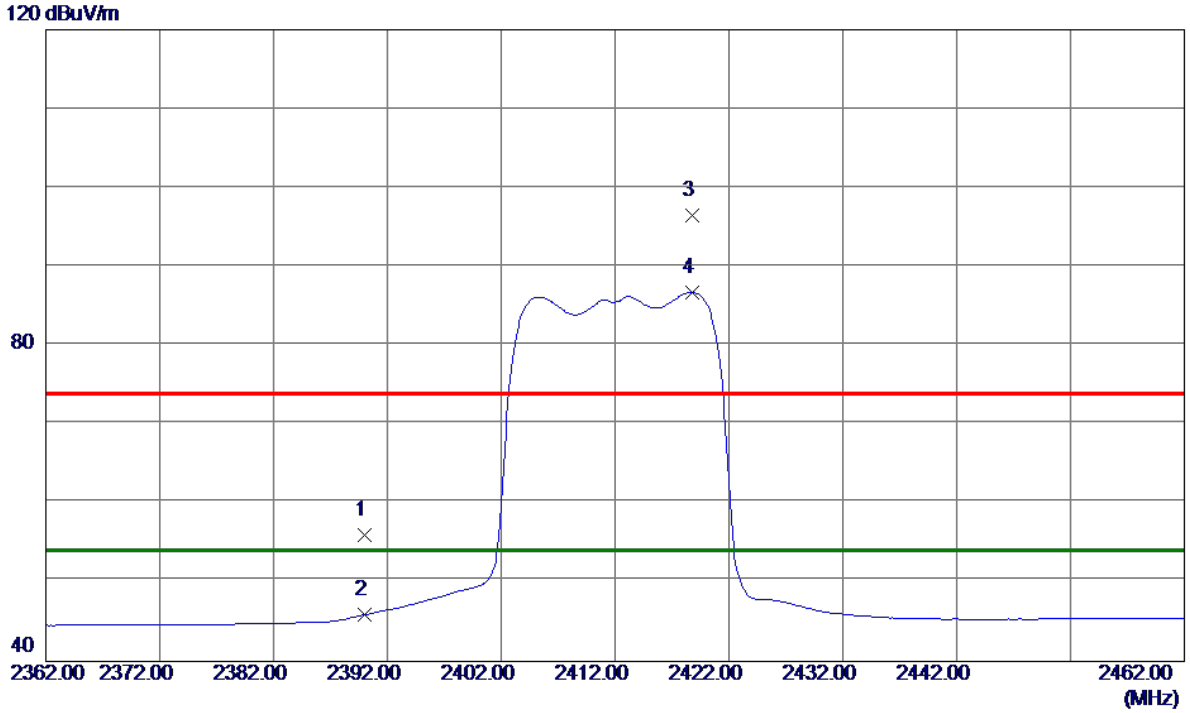
Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2412MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.0000	44.69	5.64	50.33	74.00	-23.67	Peak	
2 *	4823.4000	35.12	5.64	40.76	54.00	-13.24	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2412MHz

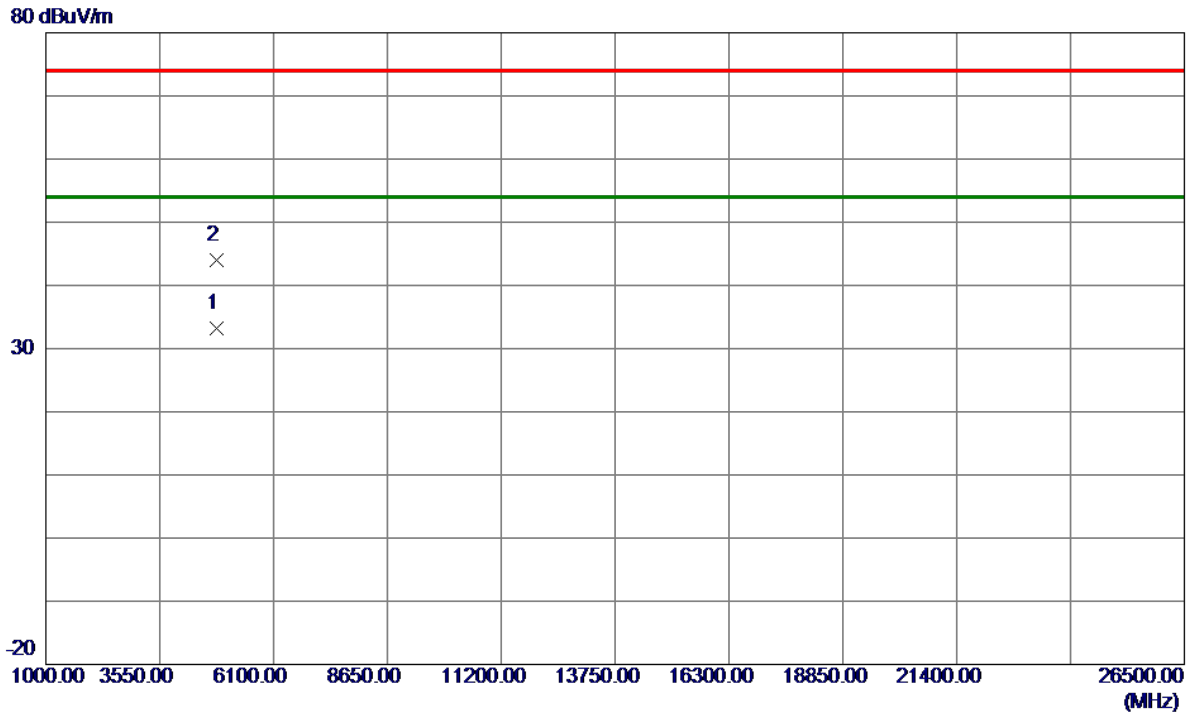
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.03	32.99	56.02	74.00	-17.98	Peak	
2	2390.0000	12.92	32.99	45.91	54.00	-8.09	AVG	
3	2418.8000	63.41	33.13	96.54	74.00	22.54	Peak	No Limit
4 *	2418.8000	53.60	33.13	86.73	54.00	32.73	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2412MHz

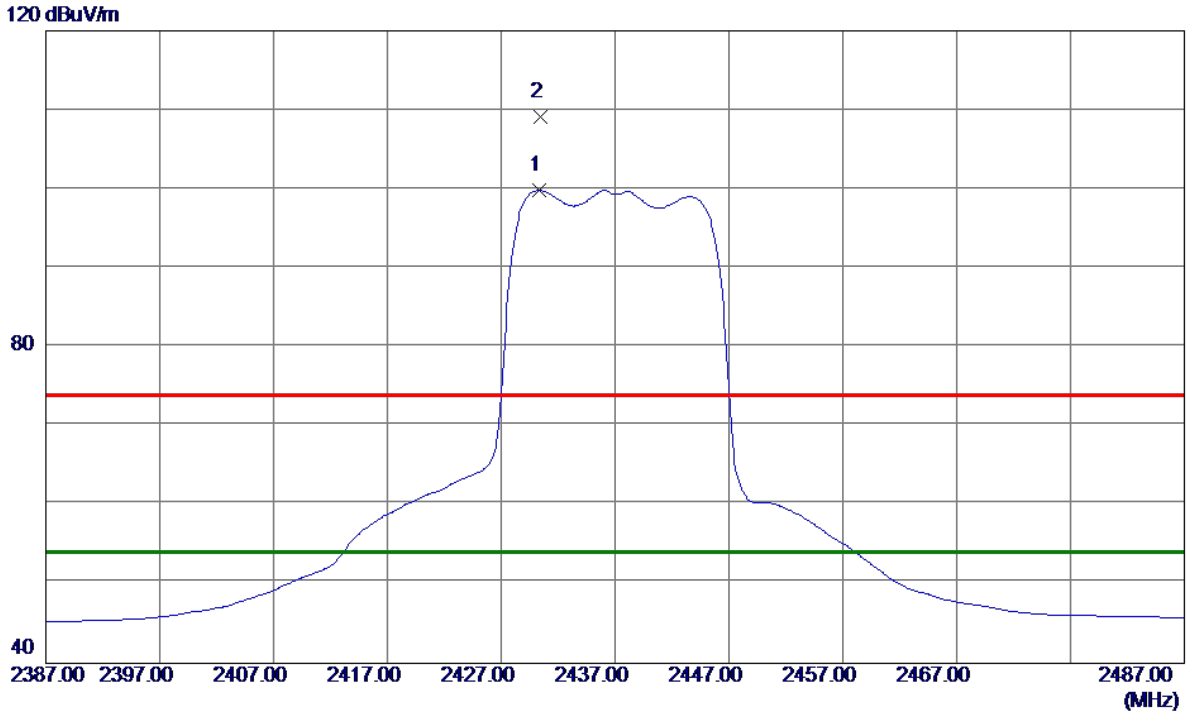
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.3500	27.56	5.64	33.20	54.00	-20.80	AVG	
2	4830.3500	38.25	5.66	43.91	74.00	-30.09	Peak	

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2437MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2430.3000	66.62	33.19	99.81	54.00	45.81	AVG	No Limit
2	2430.4000	75.85	33.19	109.04	74.00	35.04	Peak	No Limit

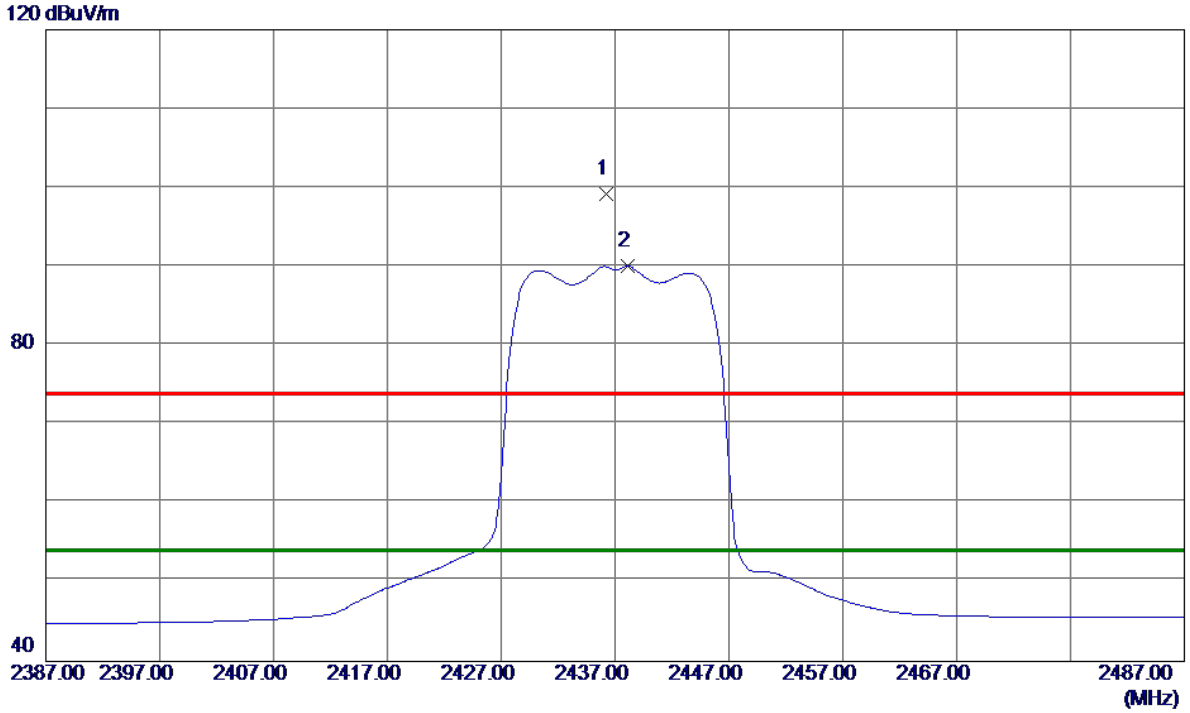
Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2437MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.3500	45.04	5.81	50.85	74.00	-23.15	Peak	
2 *	4873.3500	33.69	5.81	39.50	54.00	-14.50	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2437MHz

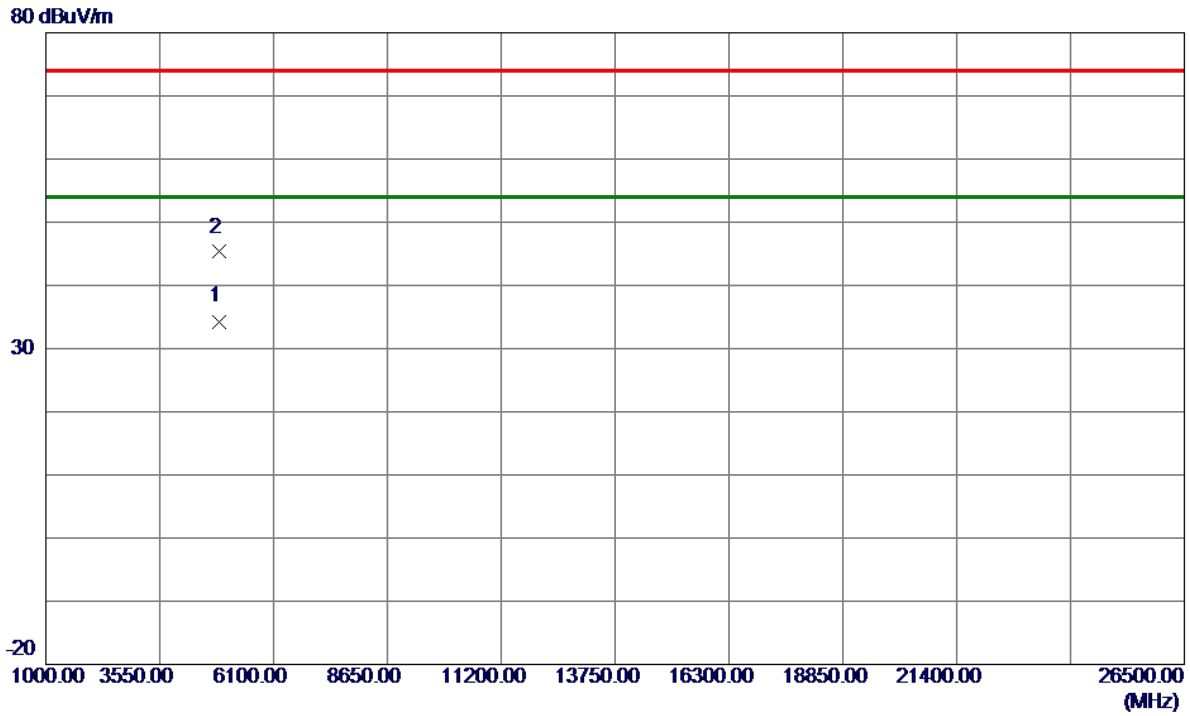
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2436.2000	66.03	33.22	99.25	74.00	25.25	Peak	No Limit
2 *	2438.1000	56.85	33.23	90.08	54.00	36.08	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2437MHz

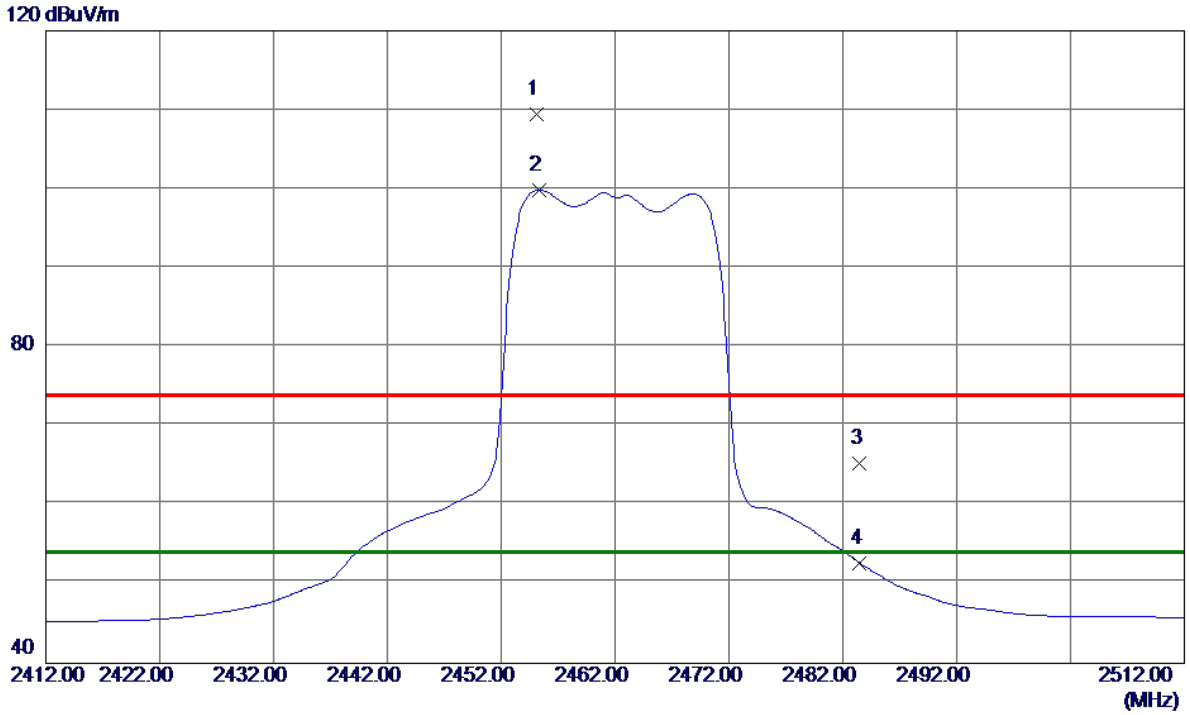
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.3500	28.49	5.81	34.30	54.00	-19.70	AVG	
2	4873.4000	39.49	5.81	45.30	74.00	-28.70	Peak	

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2462MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2455.1000	76.11	33.31	109.42	74.00	35.42	Peak	No Limit
2 *	2455.3000	66.52	33.32	99.84	54.00	45.84	AVG	No Limit
3	2483.5000	31.80	33.46	65.26	74.00	-8.74	Peak	
4	2483.5000	19.19	33.46	52.65	54.00	-1.35	AVG	

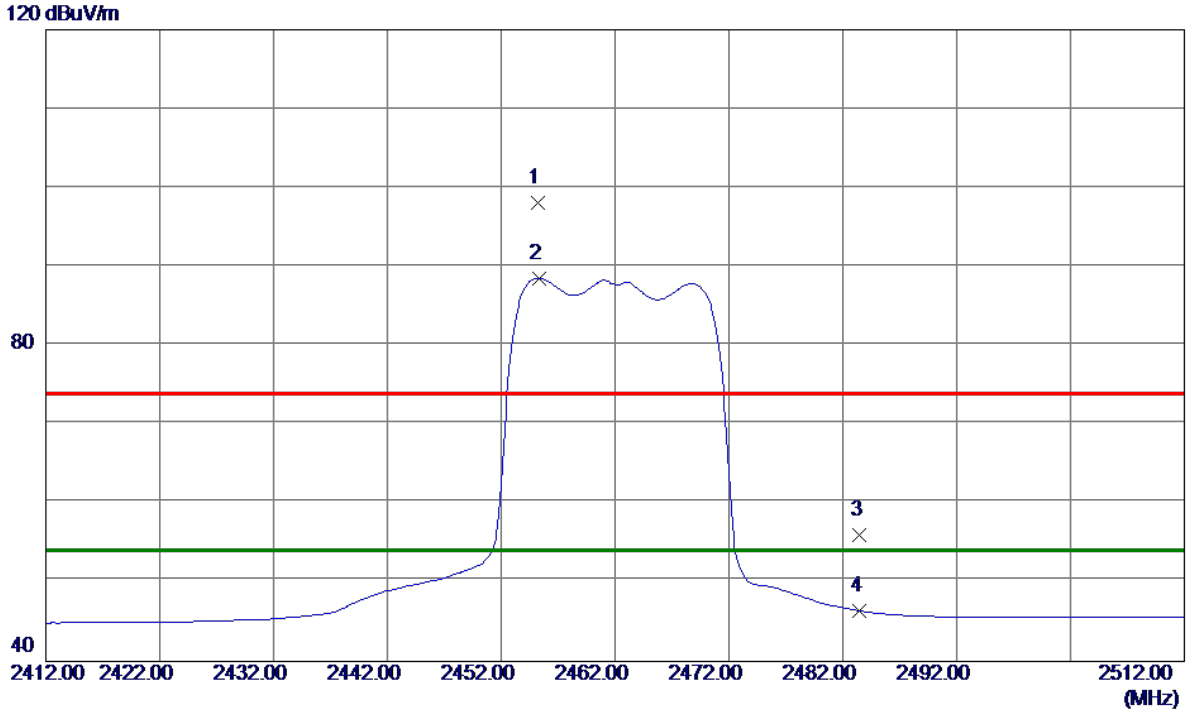
Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2462MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4917.8500	41.11	5.95	47.06	74.00	-26.94	Peak	
2 *	4923.3500	29.67	5.97	35.64	54.00	-18.36	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2462MHz

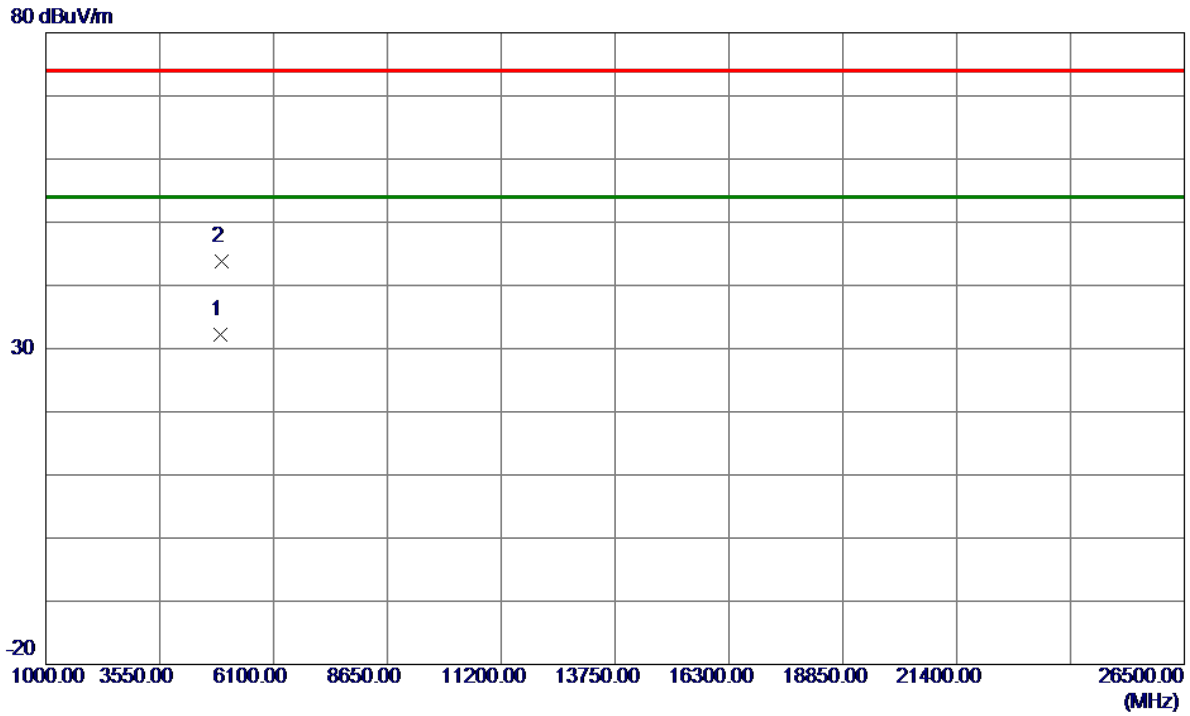
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2455.2000	64.77	33.32	98.09	74.00	24.09	Peak	No Limit
2 *	2455.3000	55.20	33.32	88.52	54.00	34.52	AVG	No Limit
3	2483.5000	22.60	33.46	56.06	74.00	-17.94	Peak	
4	2483.5000	12.93	33.46	46.39	54.00	-7.61	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-20M MODE 2462MHz

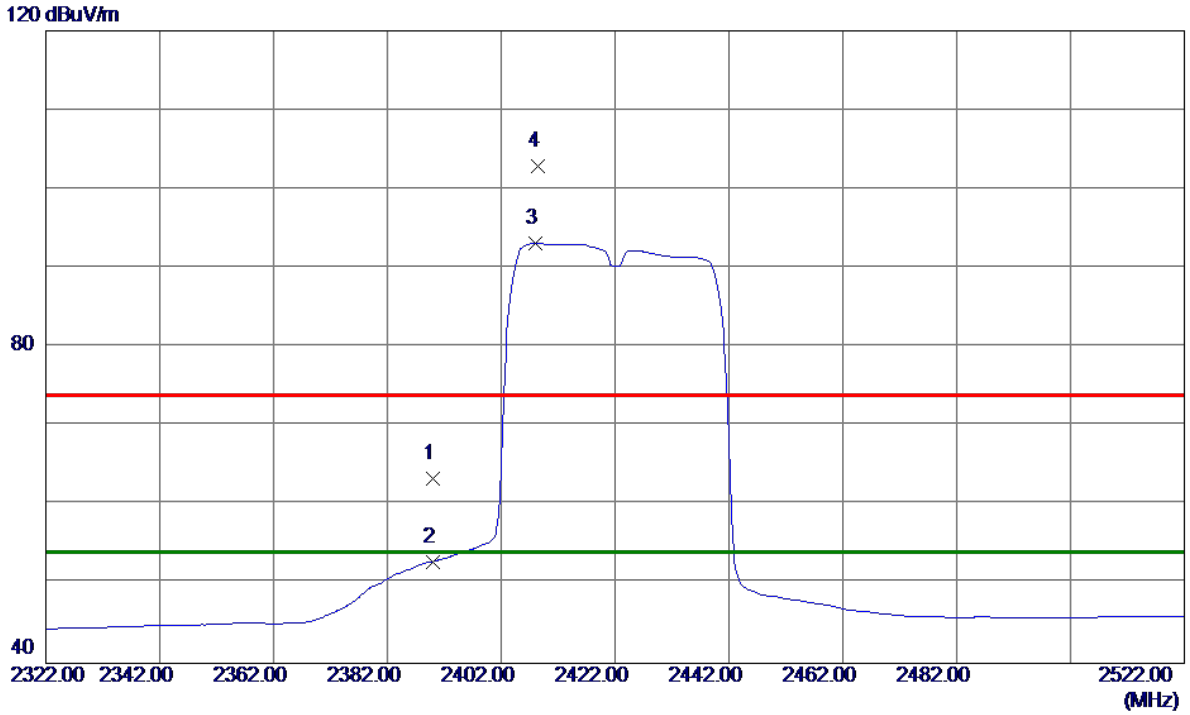
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.4500	26.25	5.97	32.22	54.00	-21.78	AVG	
2	4929.0000	37.75	5.99	43.74	74.00	-30.26	Peak	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2422MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	30.36	32.99	63.35	74.00	-10.65	Peak	
2	2390.0000	19.88	32.99	52.87	54.00	-1.13	AVG	
3 *	2408.0000	60.05	33.08	93.13	54.00	39.13	AVG	No Limit
4	2408.4000	69.84	33.08	102.92	74.00	28.92	Peak	No Limit

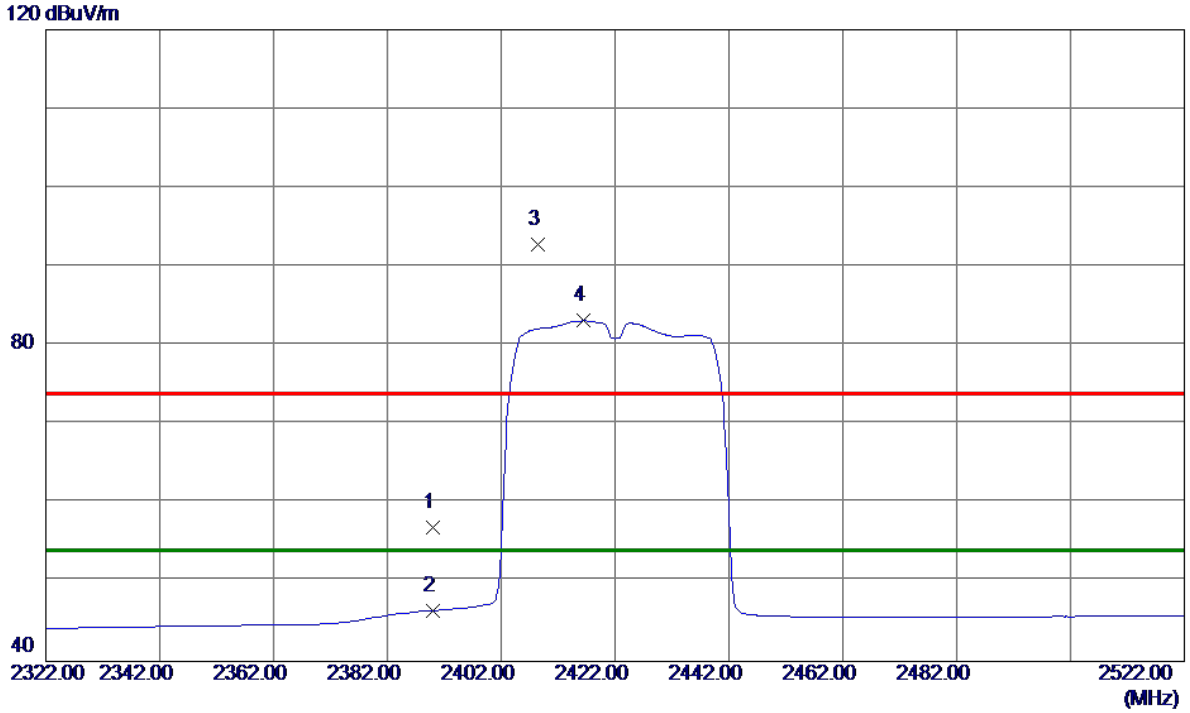
Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2422MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4863.9200	46.47	5.77	52.24	74.00	-21.76	Peak	
2 *	4864.0099	44.78	5.77	50.55	54.00	-3.45	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2422MHz

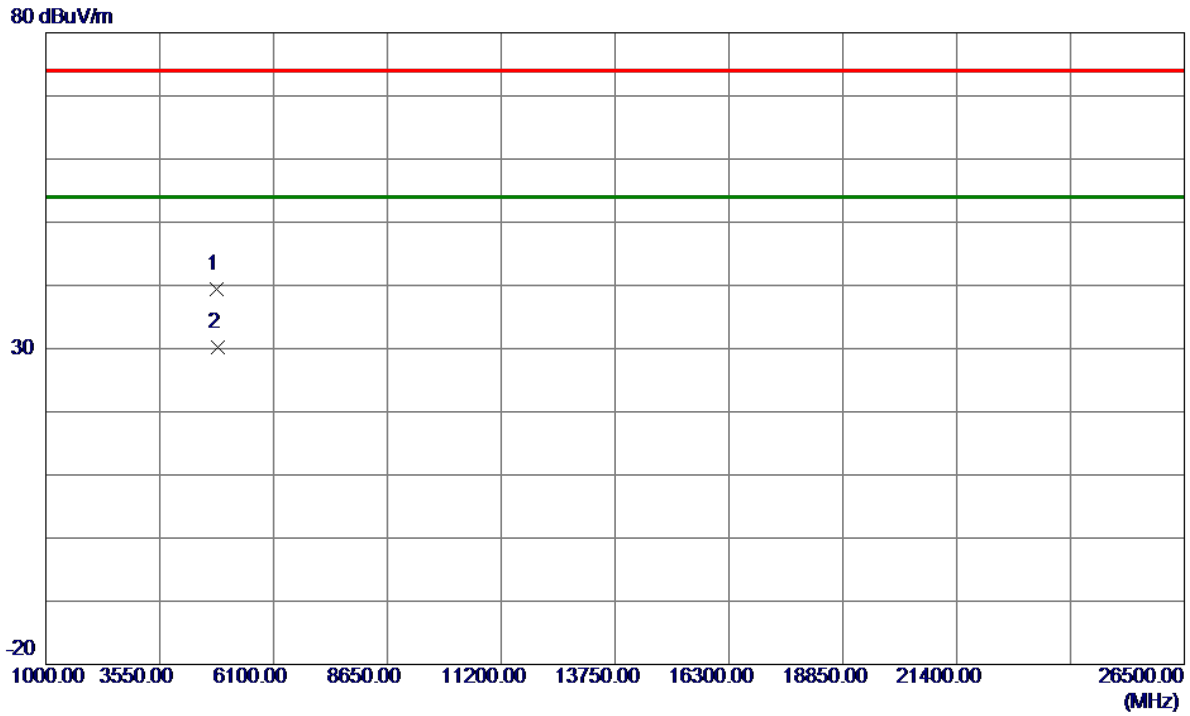
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.97	32.99	56.96	74.00	-17.04	Peak	
2	2390.0000	13.45	32.99	46.44	54.00	-7.56	AVG	
3	2408.4000	59.65	33.08	92.73	74.00	18.73	Peak	No Limit
4 *	2416.4000	50.02	33.12	83.14	54.00	29.14	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2422MHz

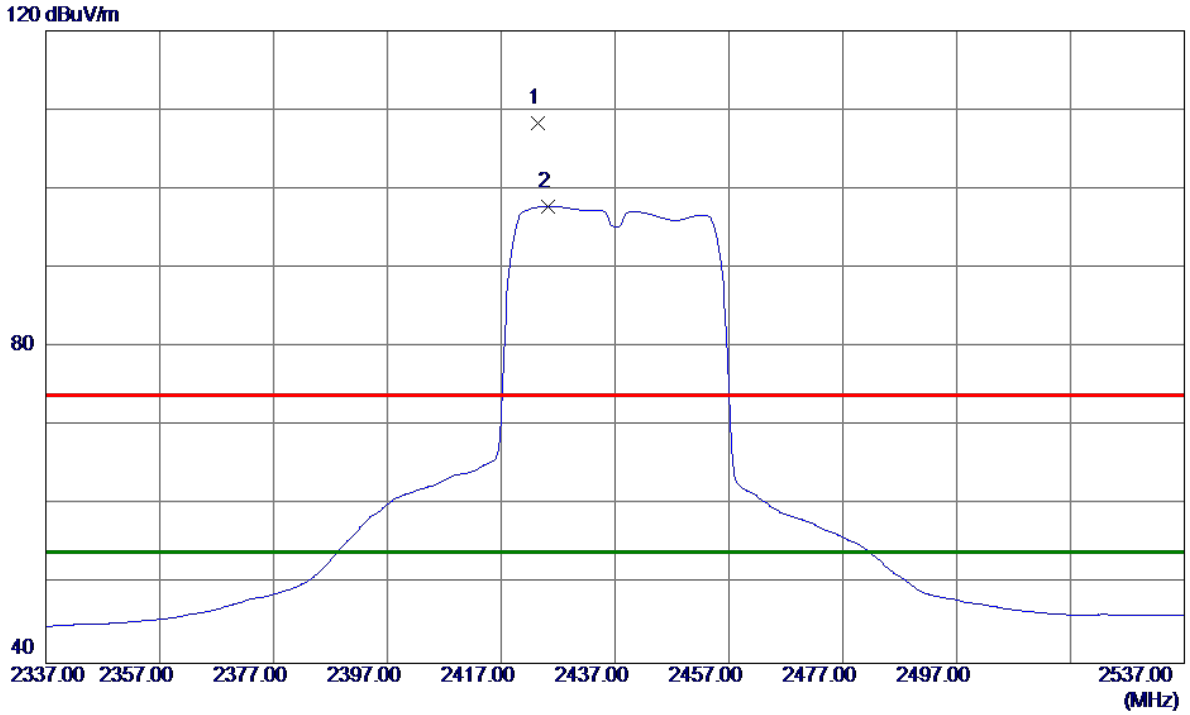
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.4000	33.70	5.64	39.34	74.00	-34.66	Peak	
2 *	4840.3000	24.45	5.69	30.14	54.00	-23.86	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2437MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2423.4000	75.16	33.16	108.32	74.00	34.32	Peak	No Limit
2 *	2425.2000	64.66	33.16	97.82	54.00	43.82	AVG	No Limit

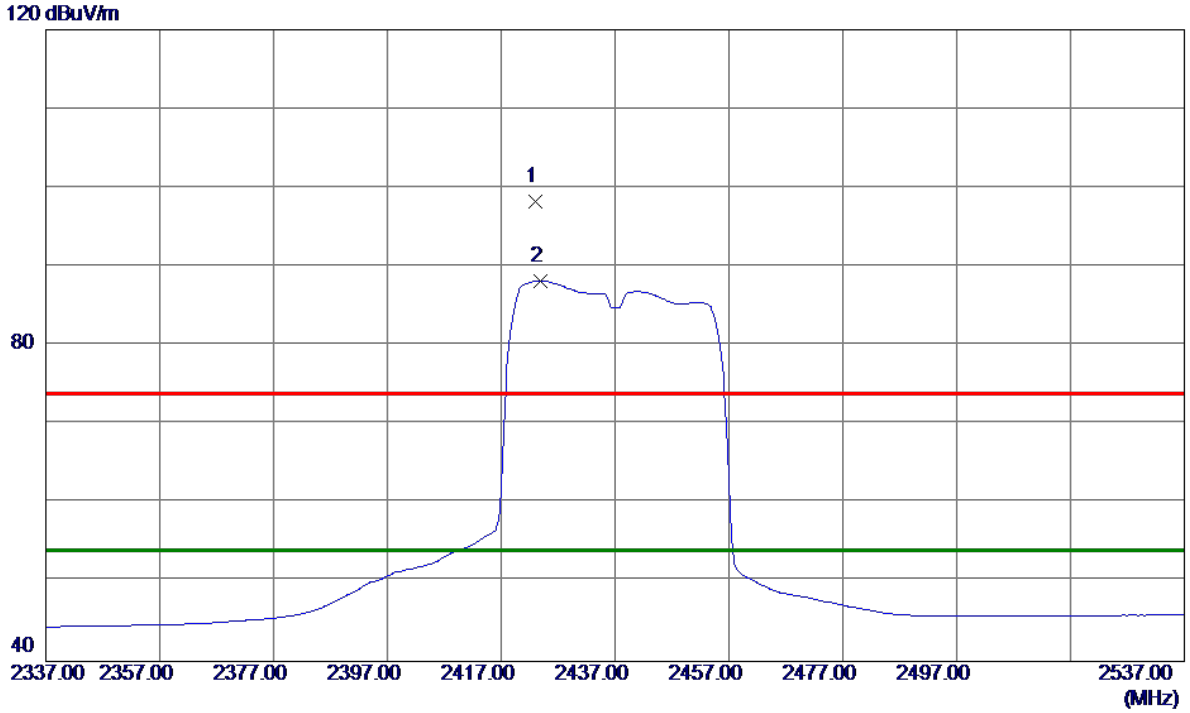
Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2437MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4870.2000	31.51	5.79	37.30	54.00	-16.70	AVG	
2	4873.8000	42.48	5.81	48.29	74.00	-25.71	Peak	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2437MHz

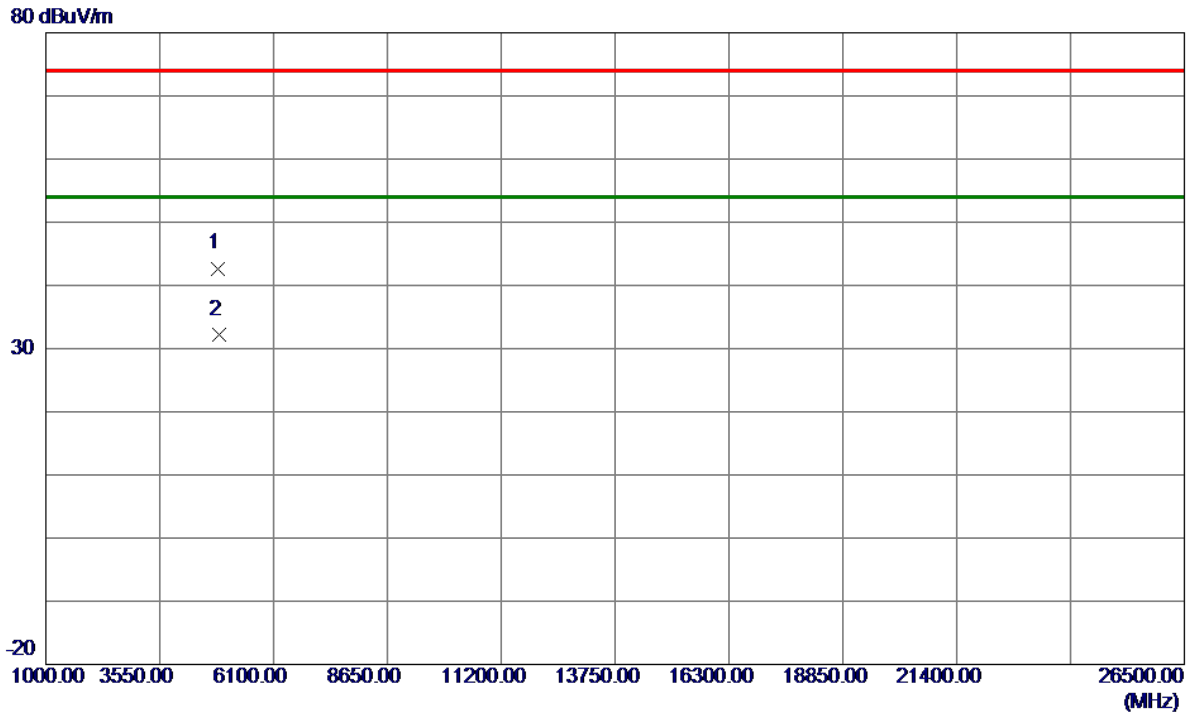
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2423.0000	65.05	33.15	98.20	74.00	24.20	Peak	No Limit
2 *	2423.8000	55.04	33.16	88.20	54.00	34.20	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2437MHz

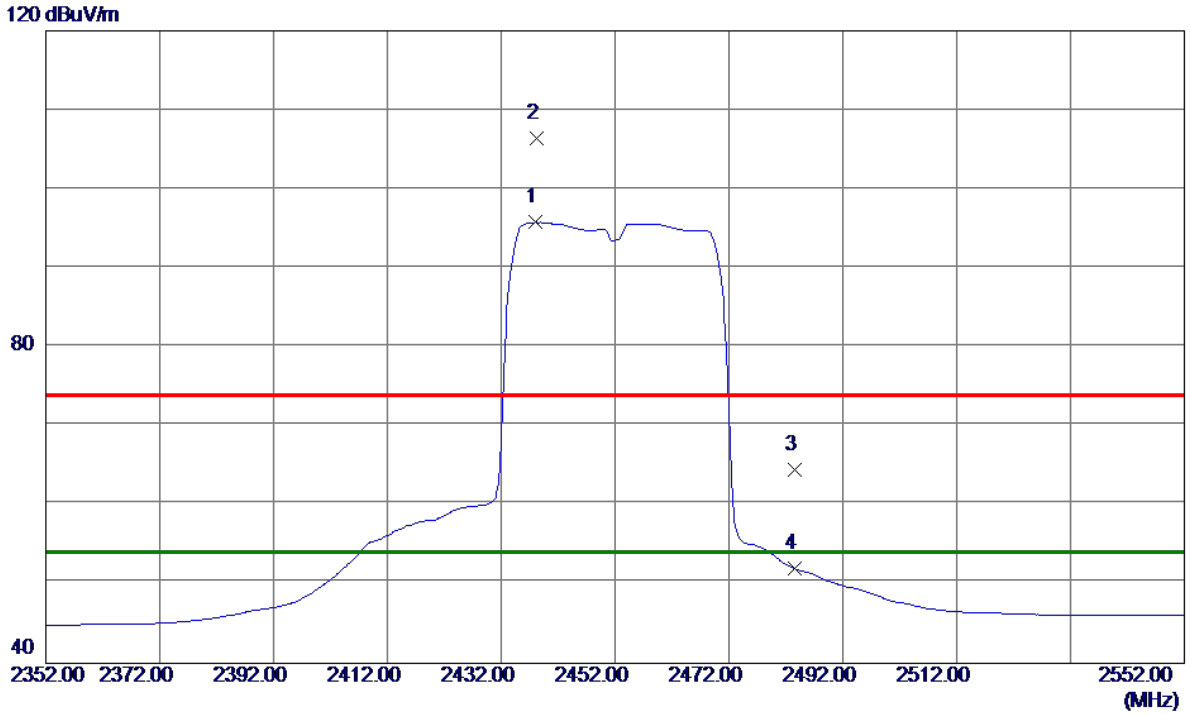
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4852.5000	36.96	5.74	42.70	74.00	-31.30	Peak	
2 *	4874.0000	26.44	5.81	32.25	54.00	-21.75	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2452MHz

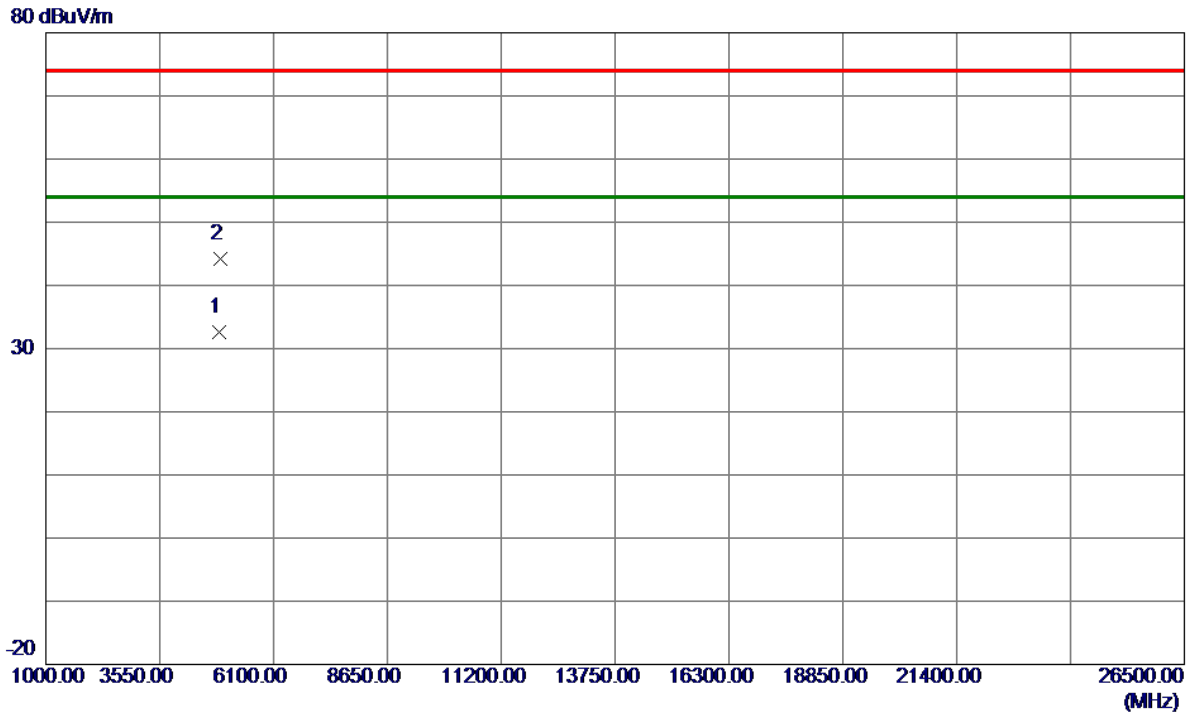
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.0000	62.53	33.23	95.76	54.00	41.76	AVG	No Limit
2	2438.2000	73.10	33.23	106.33	74.00	32.33	Peak	No Limit
3	2483.5000	31.03	33.46	64.49	74.00	-9.51	Peak	
4	2483.5000	18.53	33.46	51.99	54.00	-2.01	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2452MHz

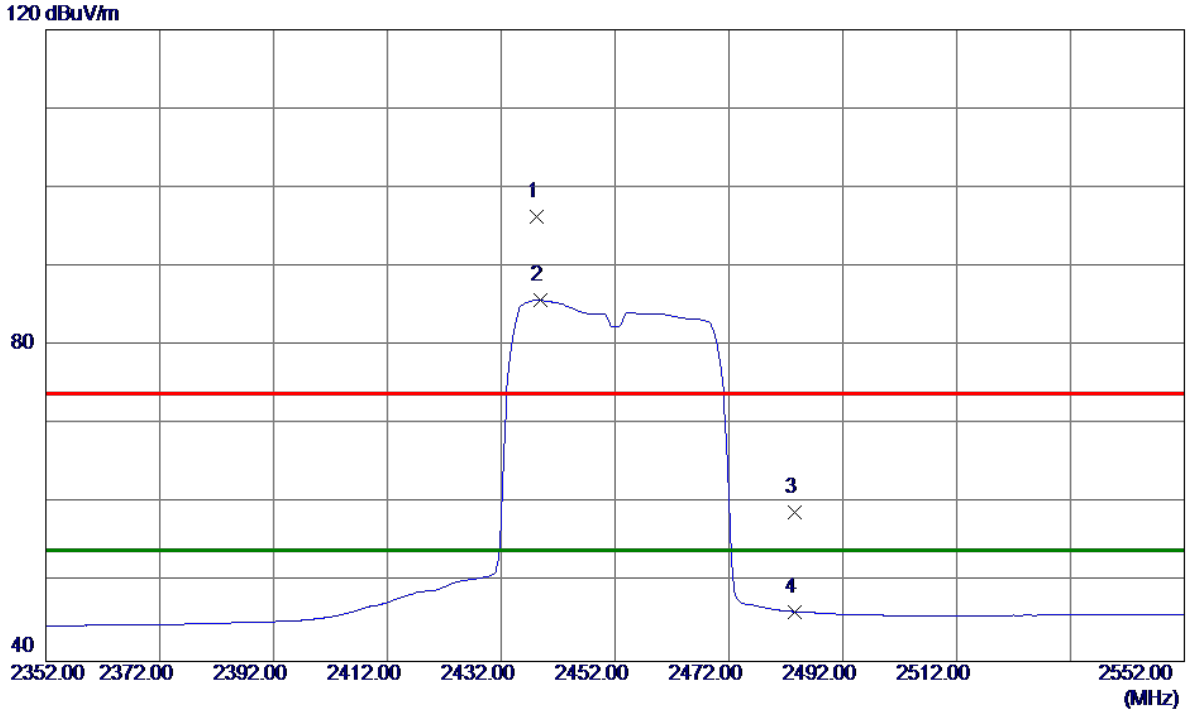
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4888.5000	26.77	5.86	32.63	54.00	-21.37	AVG	
2	4899.4000	38.28	5.89	44.17	74.00	-29.83	Peak	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2452MHz

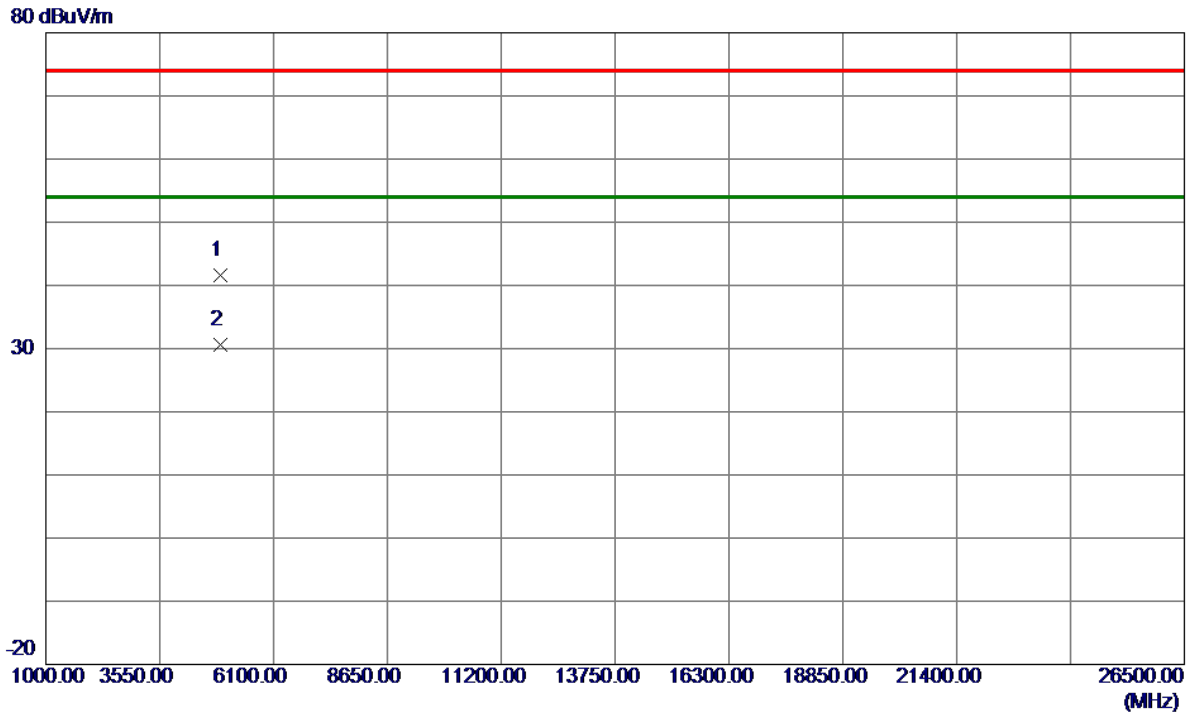
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2438.2000	63.02	33.23	96.25	74.00	22.25	Peak	No Limit
2 *	2438.8000	52.52	33.23	85.75	54.00	31.75	AVG	No Limit
3	2483.5000	25.47	33.46	58.93	74.00	-15.07	Peak	
4	2483.5000	12.82	33.46	46.28	54.00	-7.72	AVG	

Orthogonal Axis :	X
Test Mode :	TX N-40M MODE 2452MHz

Horizontal



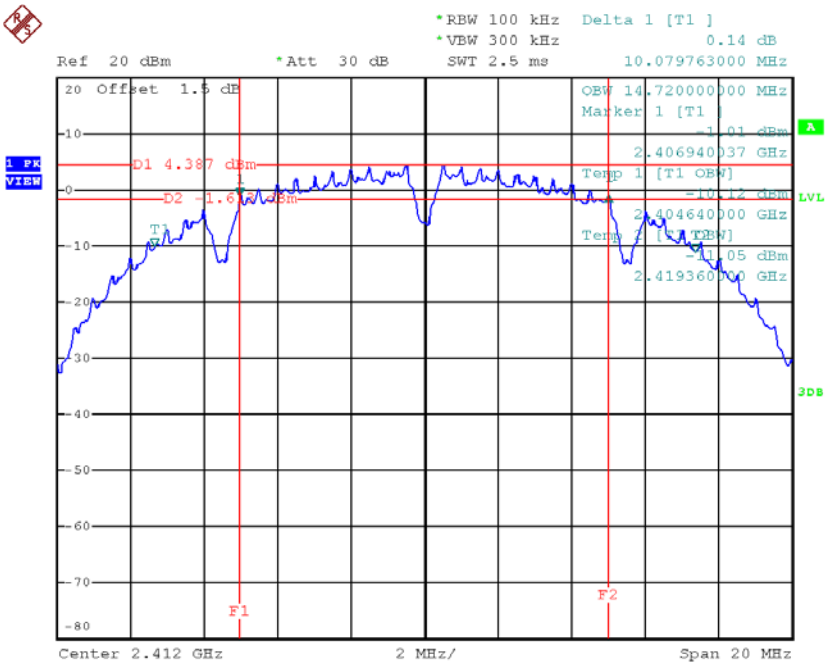
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4907.6000	35.66	5.92	41.58	74.00	-32.42	Peak	
2 *	4908.6000	24.77	5.92	30.69	54.00	-23.31	AVG	

APPENDIX E - BANDWIDTH

Test Mode : TX B Mode_CH01/06/11

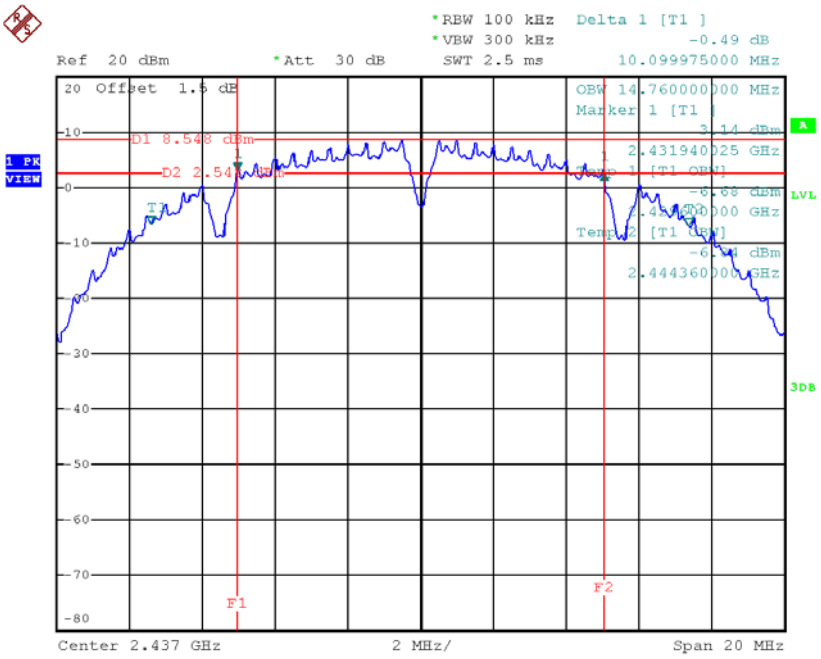
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	10.08	14.72	500	Complies
2437	10.10	14.76	500	Complies
2462	10.10	14.96	500	Complies

TX CH01



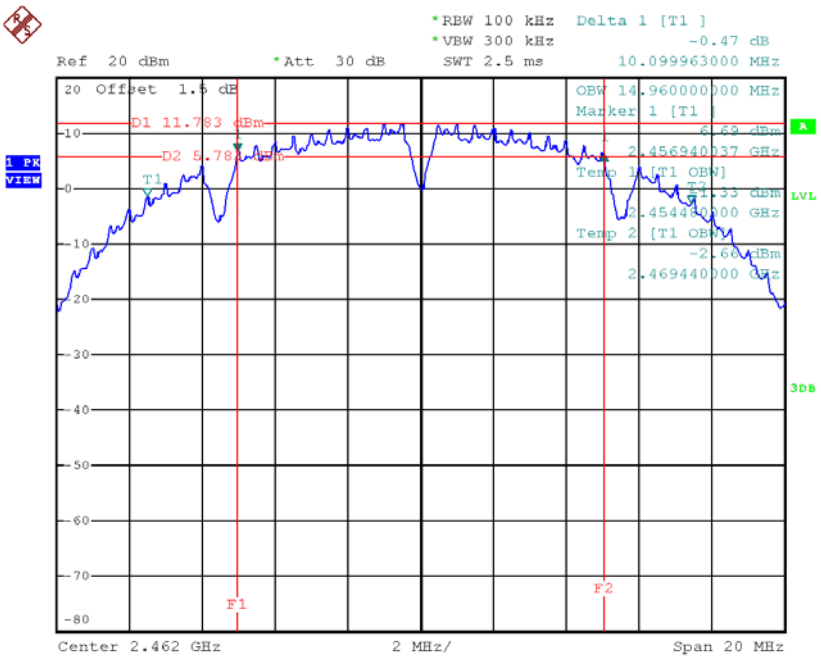
Date: 19.JAN.2018 09:43:17

TX CH06



Date: 19.JAN.2018 09:45:25

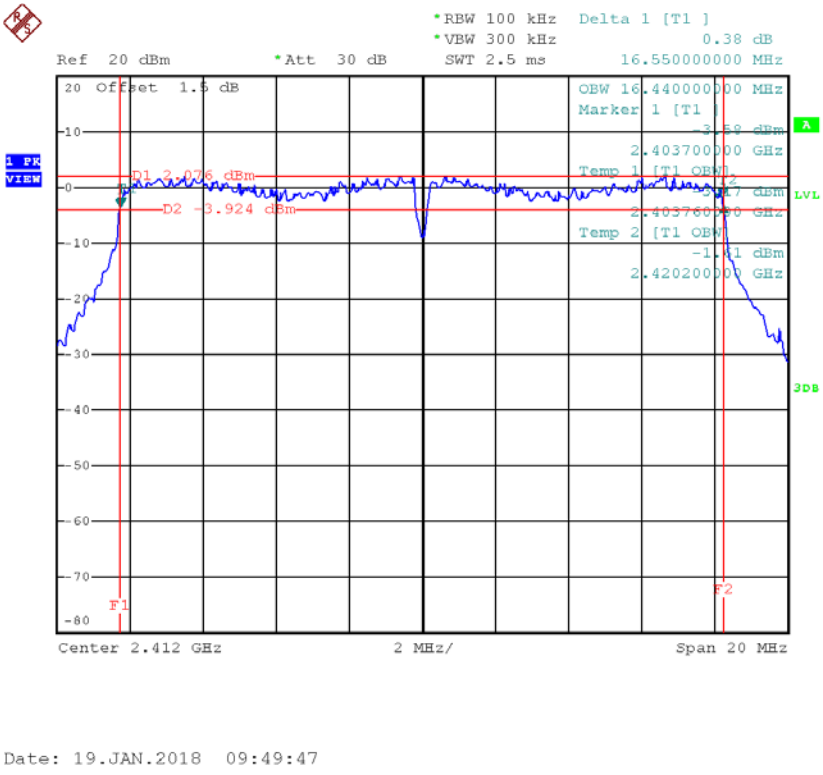
TX CH11



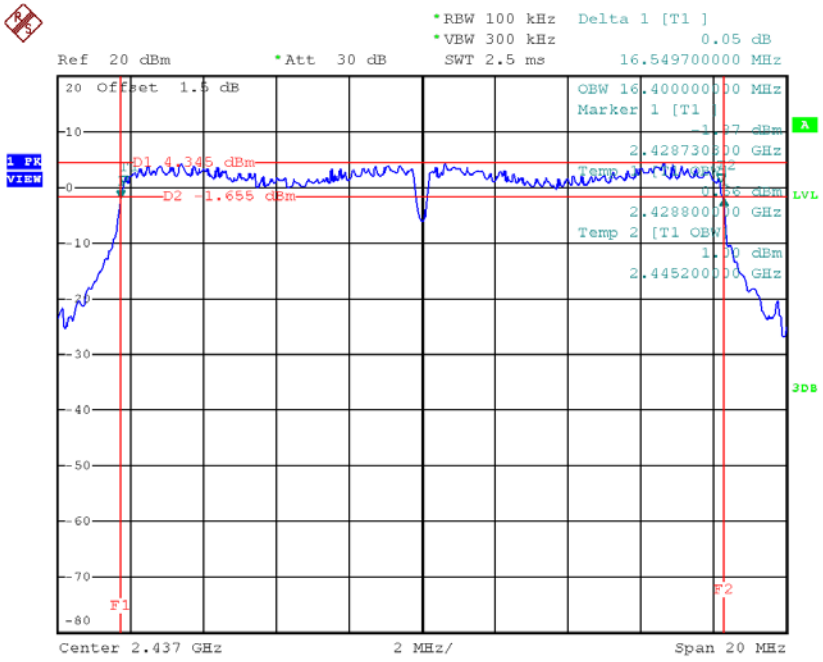
Date: 19.JAN.2018 09:47:26

Test Mode: TX G Mode_CH01/06/11				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	16.55	16.44	500	Complies
2437	16.55	16.4	500	Complies
2462	16.56	16.4	500	Complies

TX CH01

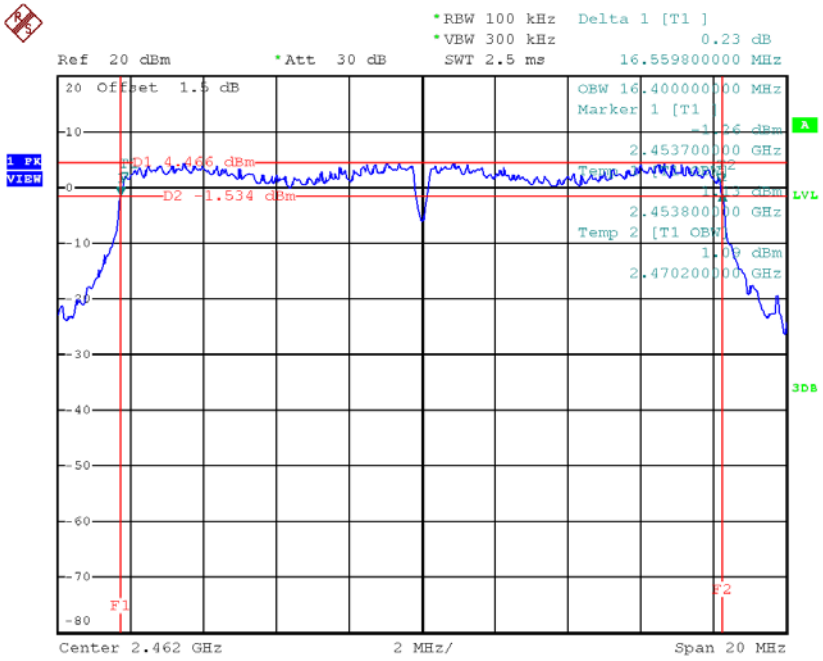


TX CH06



Date: 19.JAN.2018 09:51:22

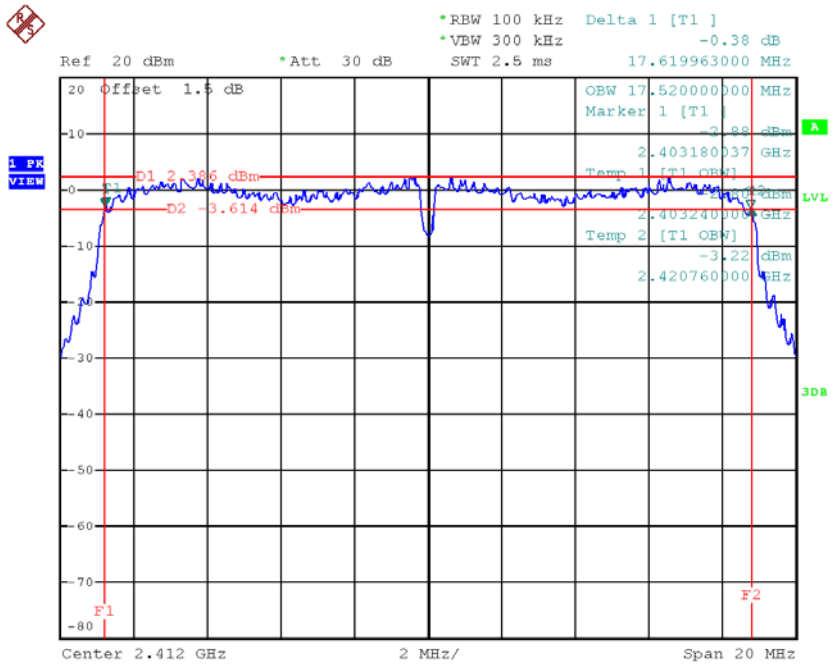
TX CH11



Date: 19.JAN.2018 09:53:36

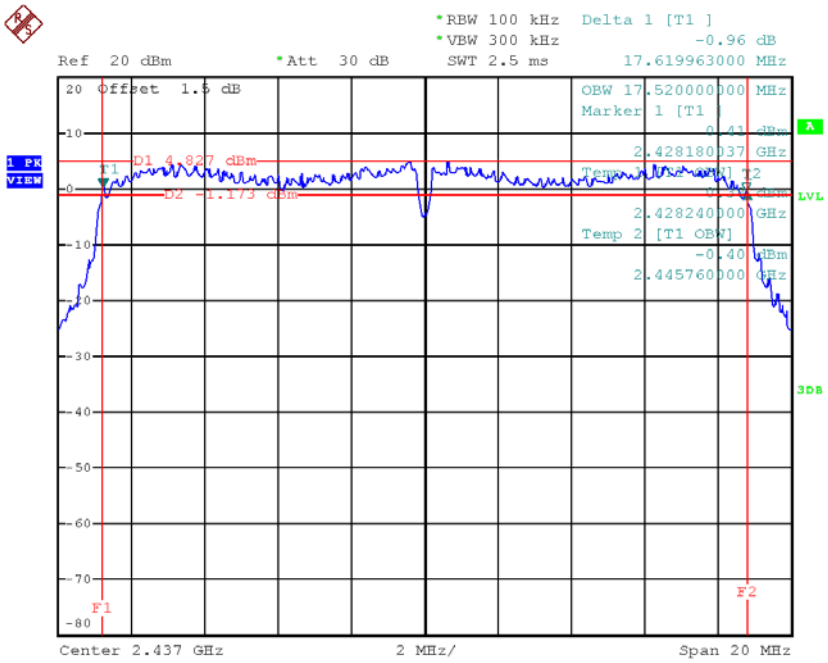
Test Mode : TX N-20MHz Mode_CH01/06/11				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	17.62	17.52	500	Complies
2437	17.62	17.52	500	Complies
2462	17.62	17.52	500	Complies

TX CH01



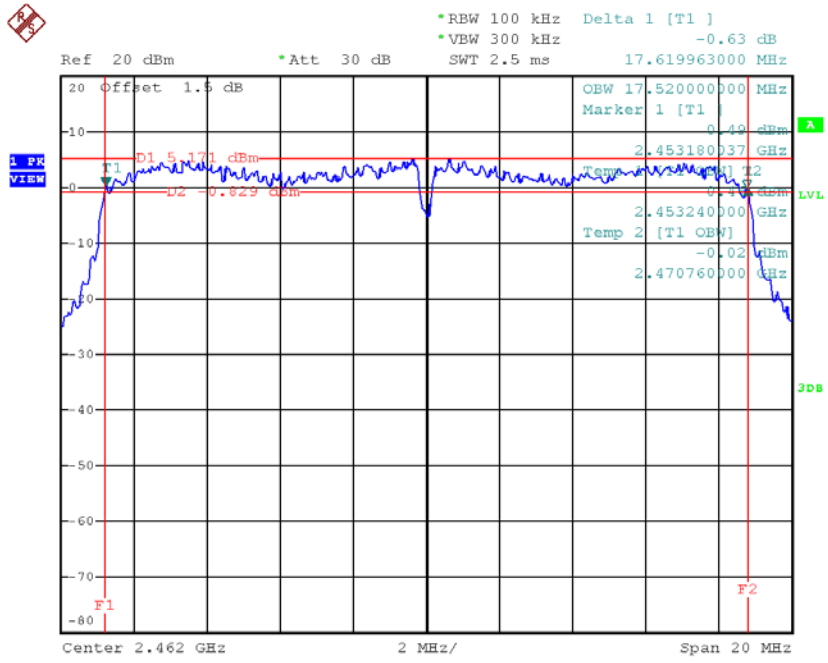
Date: 19.JAN.2018 09:55:31

TX CH06



Date: 19.JAN.2018 09:57:15

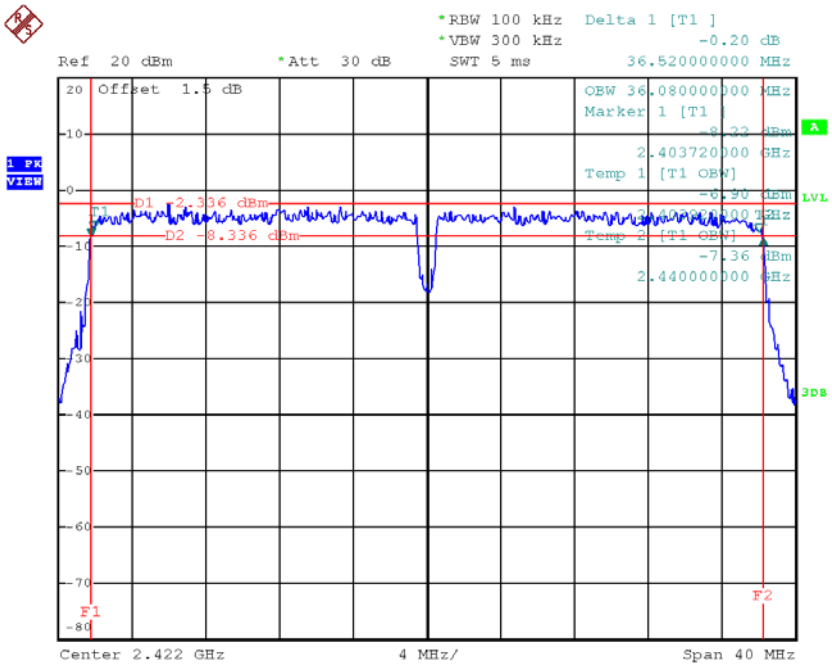
TX CH11



Date: 19.JAN.2018 09:58:43

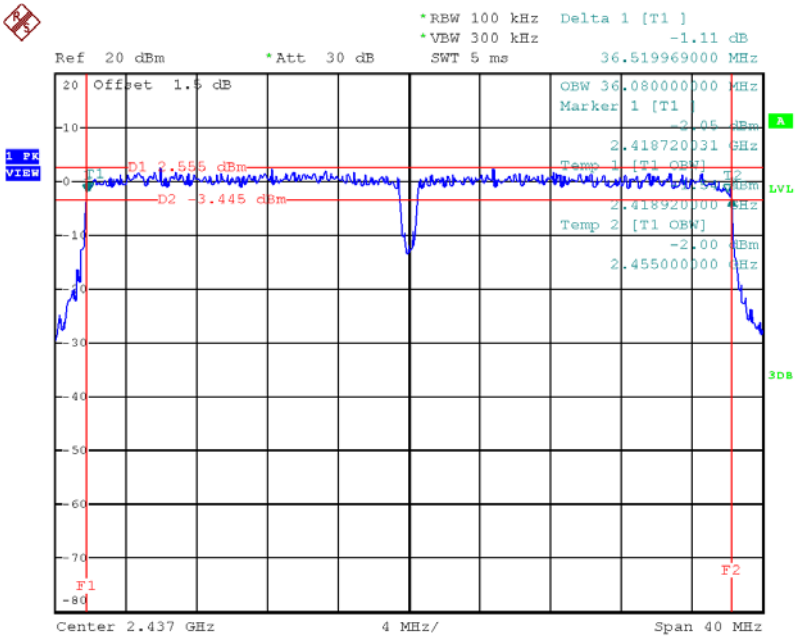
Test Mode : TX N-40MHz Mode_CH03/06/09				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2422	36.52	36.08	500	Complies
2437	36.52	36.08	500	Complies
2452	36.56	36.16	500	Complies

TX CH03



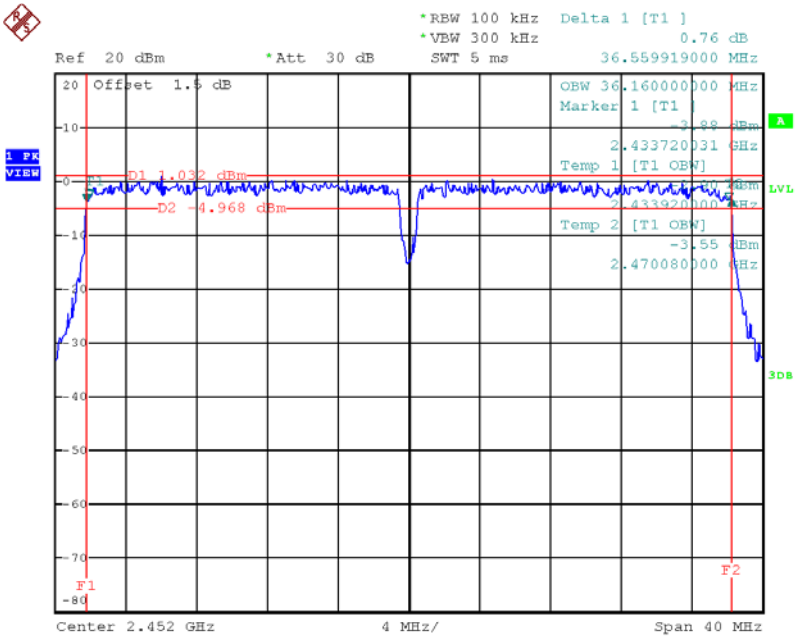
Date: 19.JAN.2018 10:00:53

TX CH06



Date: 19.JAN.2018 10:02:12

TX CH09



Date: 19.JAN.2018 10:03:57

APPENDIX F - MAXIMUM PEAK CONDUCTED OUTPUT POWER

Test Mode :TX B Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	14.92	0.03	30.00	1.00	Complies
2437	18.59	0.07	30.00	1.00	Complies
2462	21.67	0.15	30.00	1.00	Complies

Test Mode :TX B Mode_CH01/06/11_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	14.18	0.03	30.00	1.00	Complies
2437	18.36	0.07	30.00	1.00	Complies
2462	21.03	0.13	30.00	1.00	Complies

Test Mode :TX B Mode_CH01/06/11_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	17.58	0.06	30.00	1.00	Complies
2437	21.49	0.14	30.00	1.00	Complies
2462	24.37	0.27	30.00	1.00	Complies

Test Mode :TX G Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	15.79	0.04	30.00	1.00	Complies
2437	17.95	0.06	30.00	1.00	Complies
2462	17.69	0.06	30.00	1.00	Complies

Test Mode :TX G Mode_CH01/06/11_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	15.72	0.04	30.00	1.00	Complies
2437	18.91	0.08	30.00	1.00	Complies
2462	17.88	0.06	30.00	1.00	Complies

Test Mode :TX G Mode_CH01/06/11_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	18.77	0.08	30.00	1.00	Complies
2437	21.47	0.14	30.00	1.00	Complies
2462	20.80	0.12	30.00	1.00	Complies

Test Mode :TX N20 Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	15.74	0.04	30.00	1.00	Complies
2437	18.12	0.06	30.00	1.00	Complies
2462	18.45	0.07	30.00	1.00	Complies

Test Mode :TX N20 Mode_CH01/06/11_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	15.45	0.04	30.00	1.00	Complies
2437	18.33	0.07	30.00	1.00	Complies
2462	18.70	0.07	30.00	1.00	Complies

Test Mode :TX N20 Mode_CH01/06/11_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	18.61	0.07	30.00	1.00	Complies
2437	21.24	0.13	30.00	1.00	Complies
2462	21.59	0.14	30.00	1.00	Complies

Test Mode :TX N40 Mode_CH03/06/09_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	13.83	0.02	30.00	1.00	Complies
2437	18.96	0.08	30.00	1.00	Complies
2452	17.44	0.06	30.00	1.00	Complies

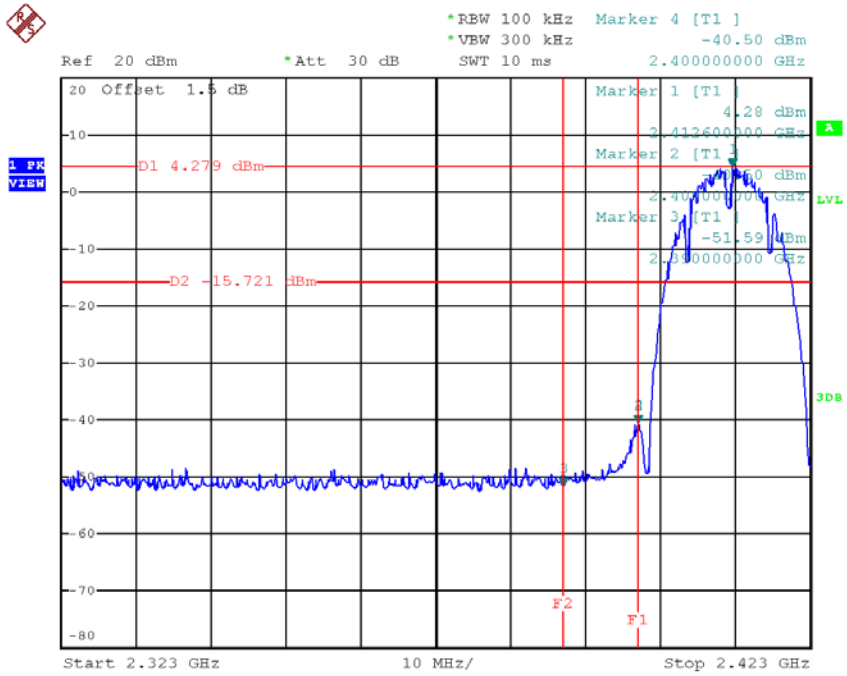
Test Mode :TX N40 Mode_CH03/06/09_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	13.71	0.02	30.00	1.00	Complies
2437	19.12	0.08	30.00	1.00	Complies
2452	17.15	0.05	30.00	1.00	Complies

Test Mode :TX N40 Mode_CH03/06/09_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	16.78	0.05	30.00	1.00	Complies
2437	22.05	0.16	30.00	1.00	Complies
2452	20.31	0.11	30.00	1.00	Complies

APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION

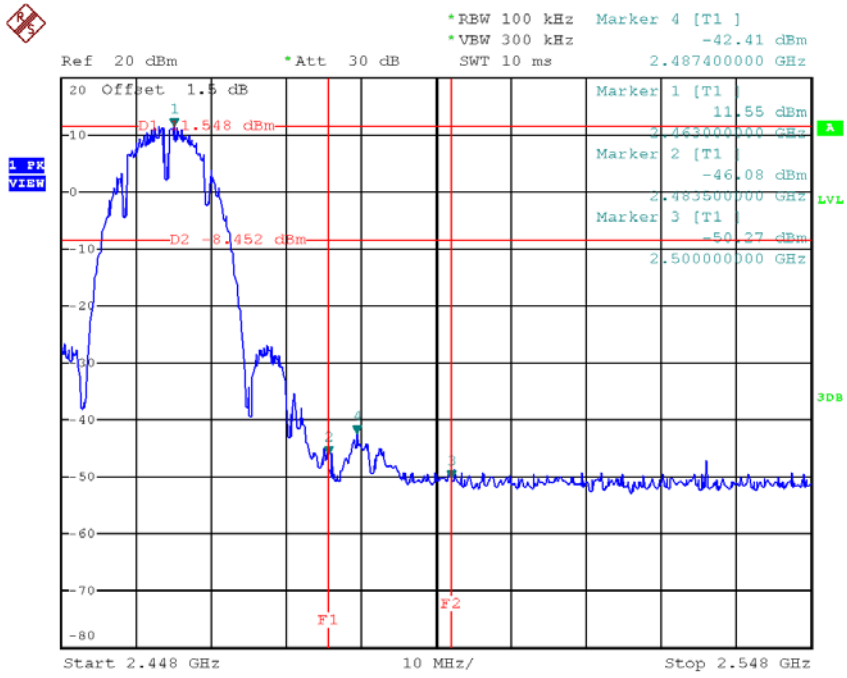
Test Mode :	TX B Mode_ANT 1

TX B mode CH01



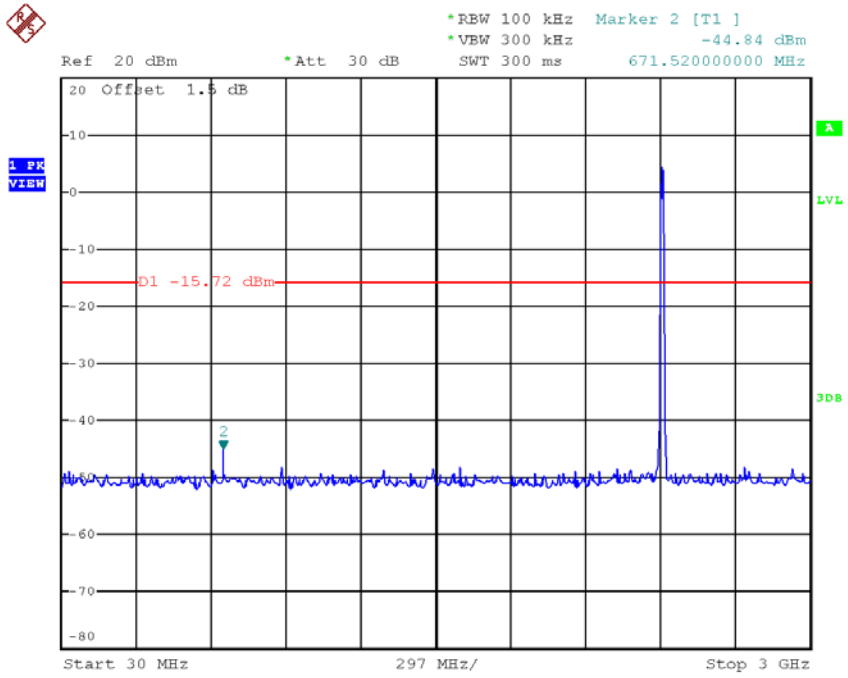
Date: 19.JAN.2018 09:43:24

TX B mode CH11

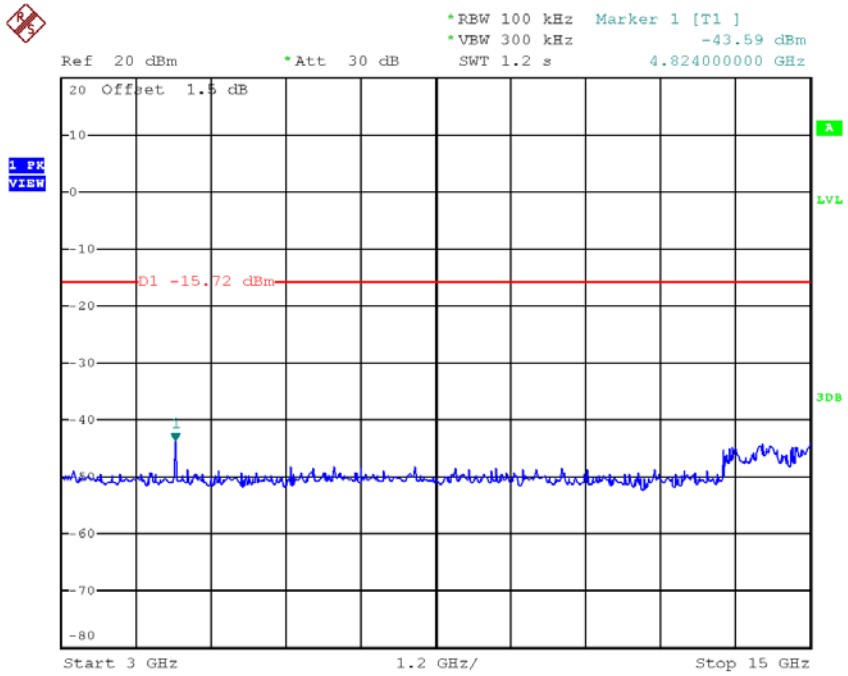


Date: 19.JAN.2018 09:47:33

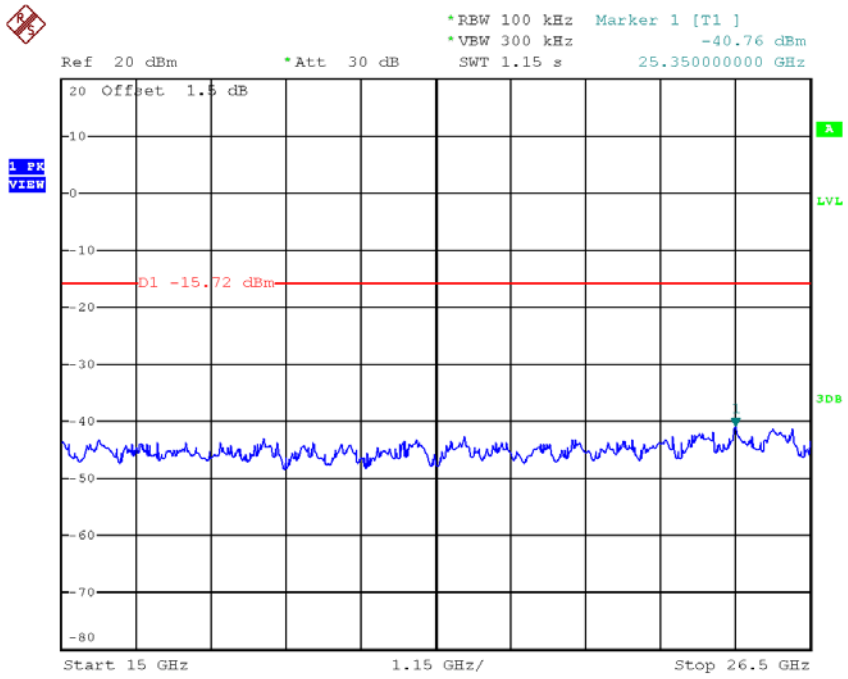
TX B mode CH01 (10 Harmonic of the frequency)



Date: 19.JAN.2018 09:43:37

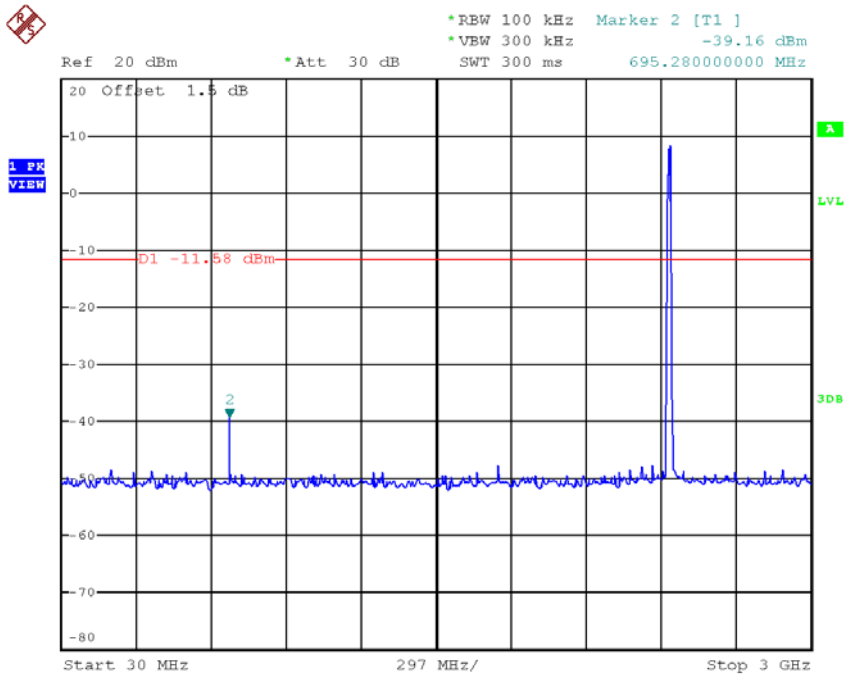


Date: 19.JAN.2018 09:43:44

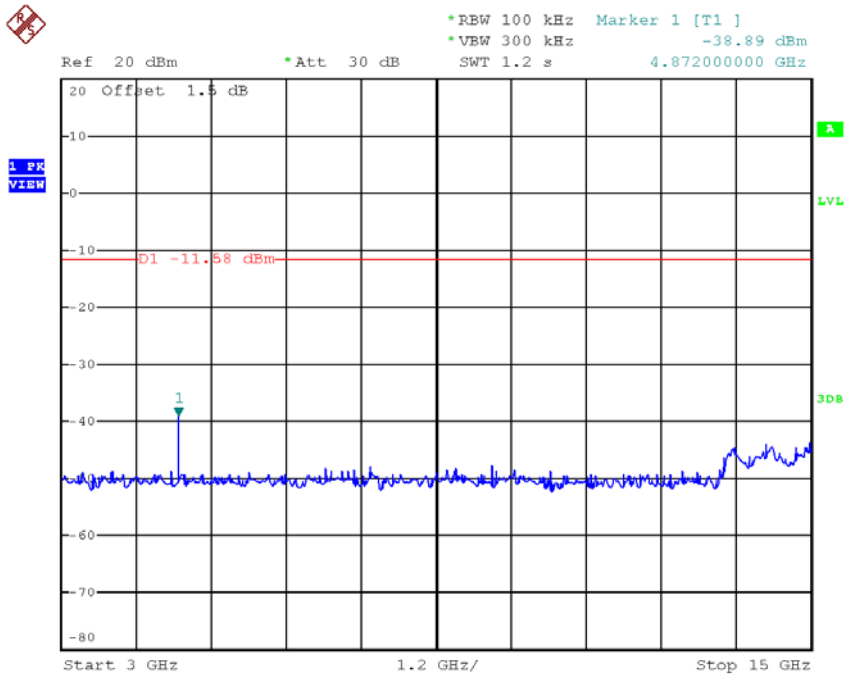


Date: 19.JAN.2018 09:43:51

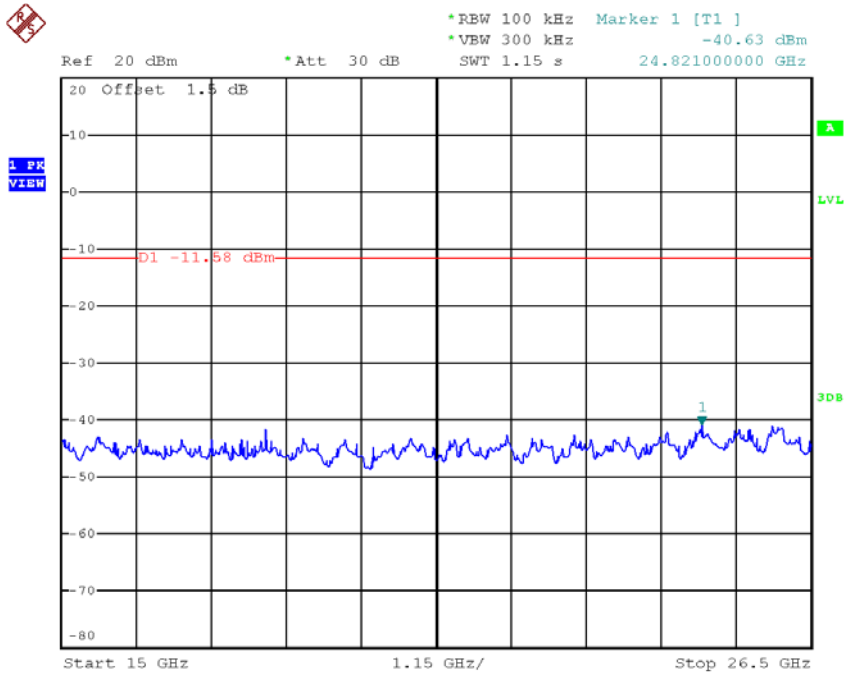
TX B mode CH06 (10 Harmonic of the frequency)



Date: 19.JAN.2018 09:45:46

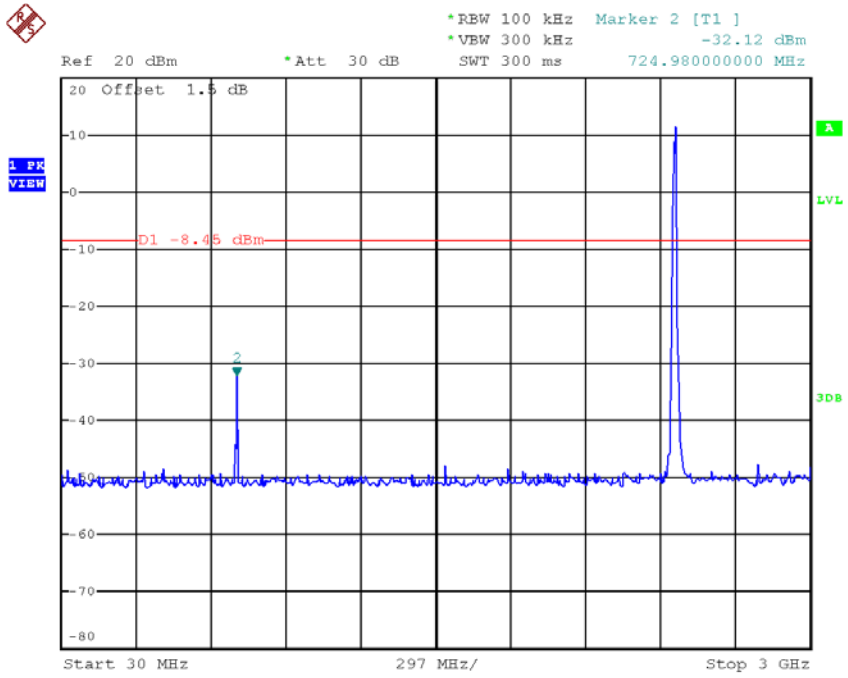


Date: 19.JAN.2018 09:45:53

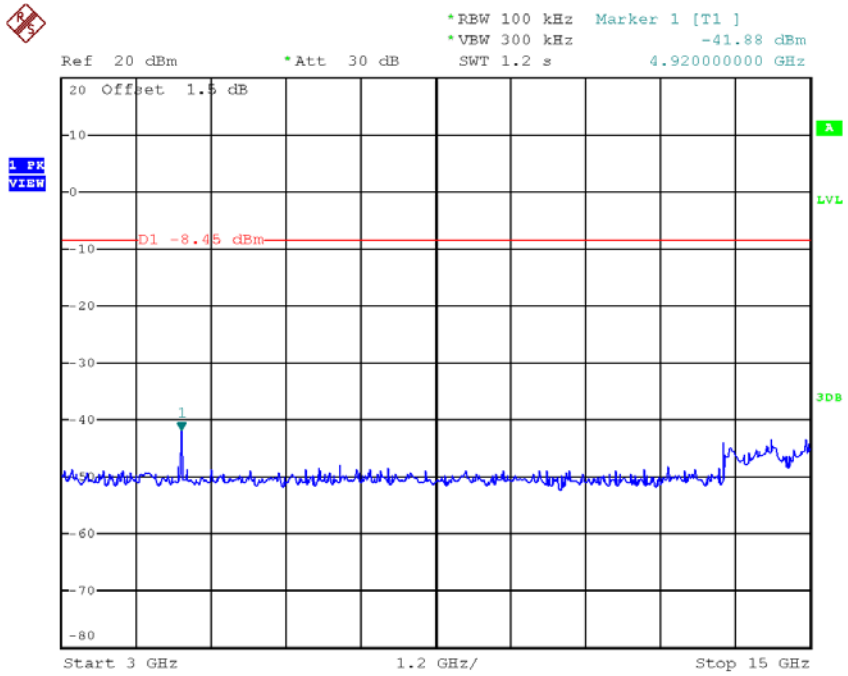


Date: 19.JAN.2018 09:46:00

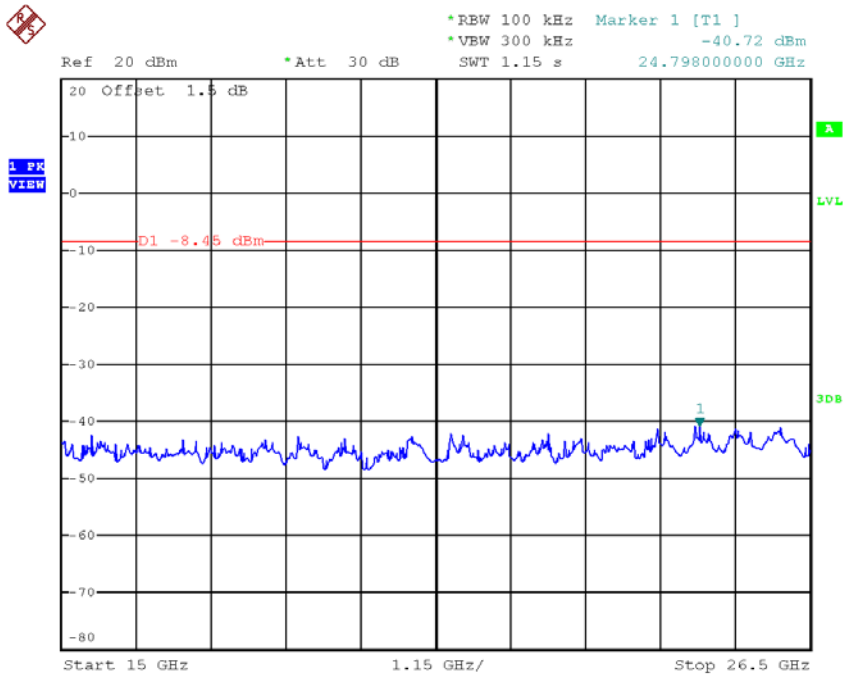
TX B mode CH11 (10 Harmonic of the frequency)



Date: 19.JAN.2018 09:47:45



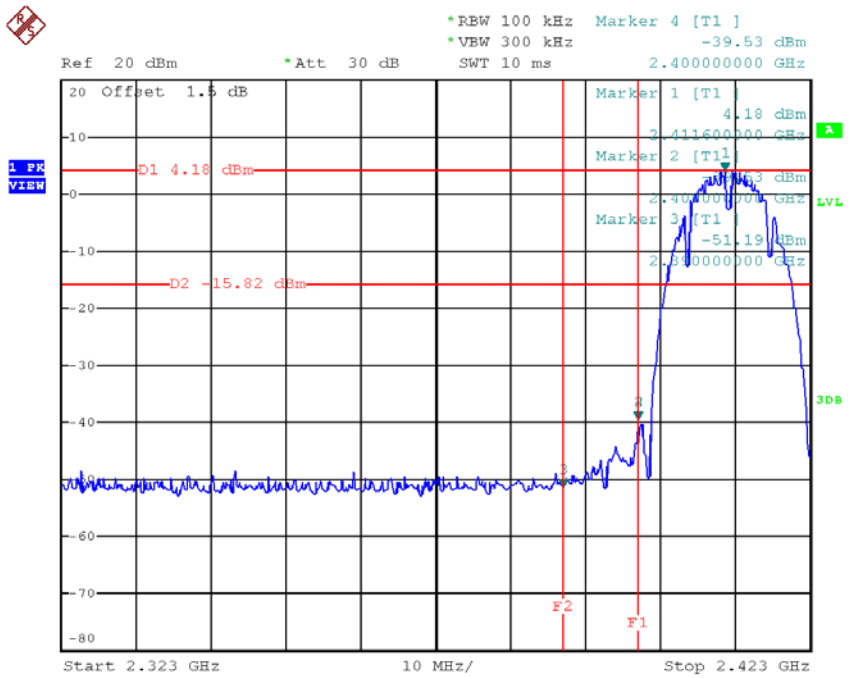
Date: 19.JAN.2018 09:47:53



Date: 19.JAN.2018 09:48:00

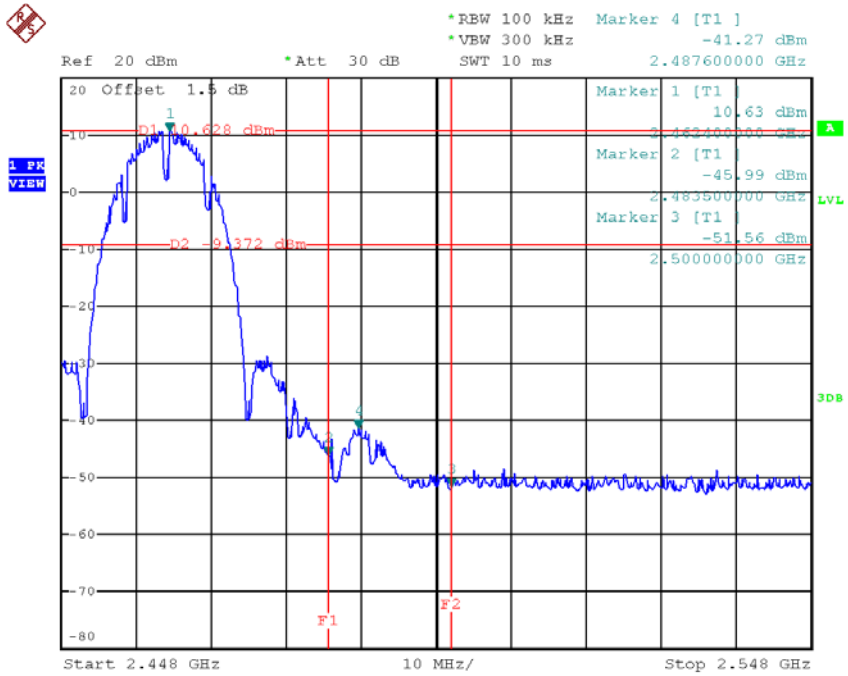
Test Mode :	TX B Mode_ANT 2

TX B mode CH01



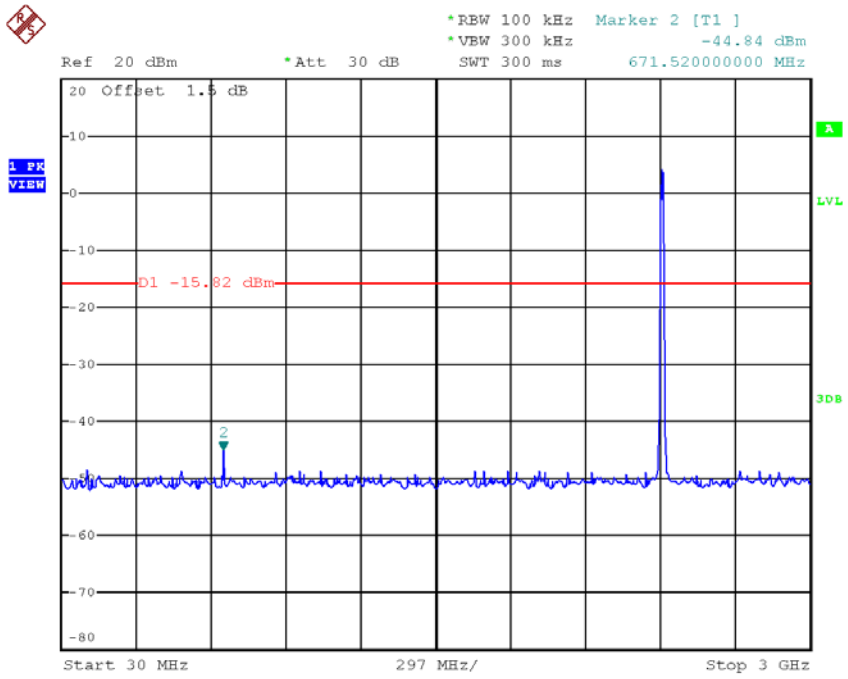
Date: 19.JAN.2018 14:29:48

TX B mode CH11

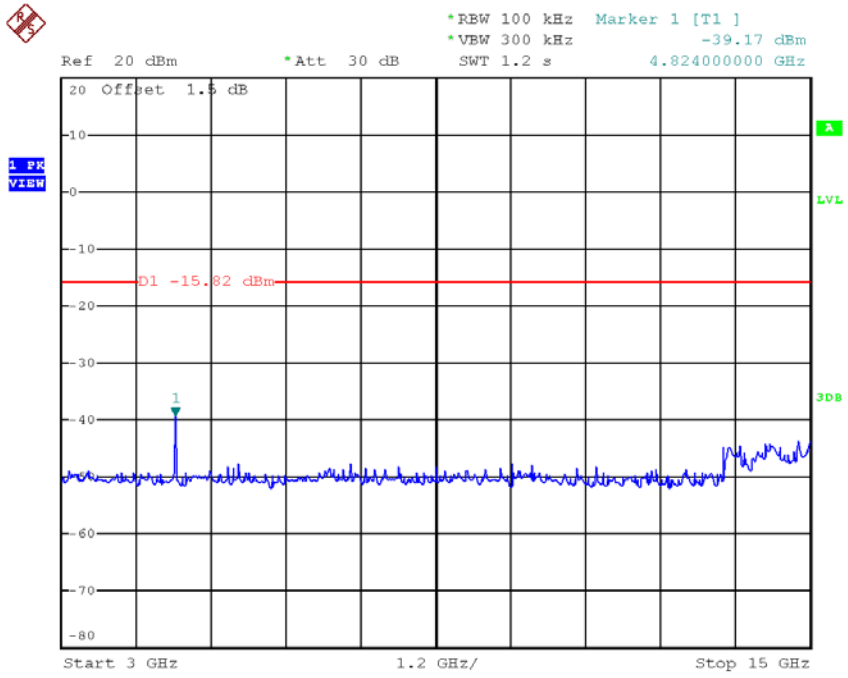


Date: 19.JAN.2018 14:32:54

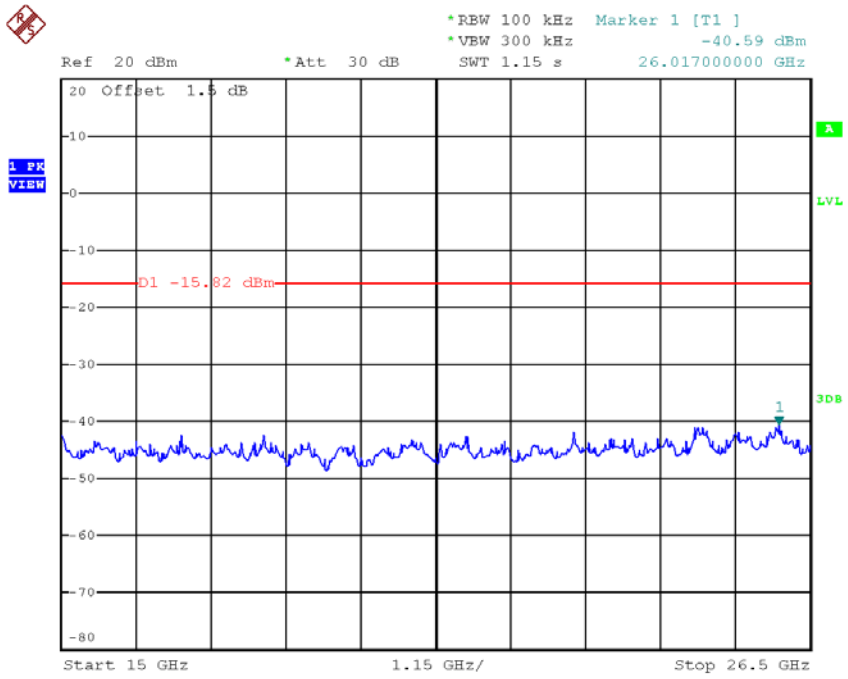
TX B mode CH01 (10 Harmonic of the frequency)



Date: 19.JAN.2018 14:30:01

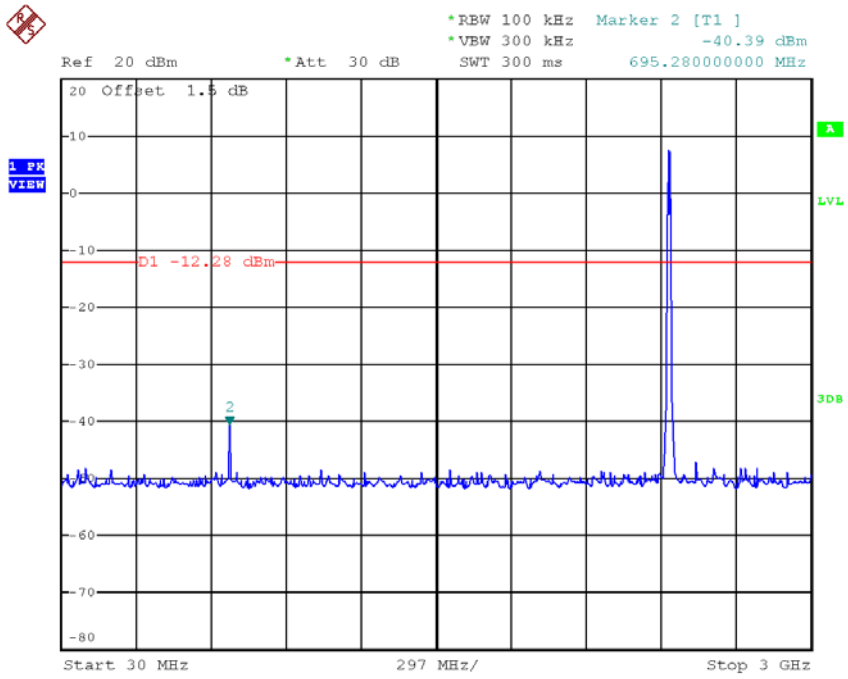


Date: 19.JAN.2018 14:30:08

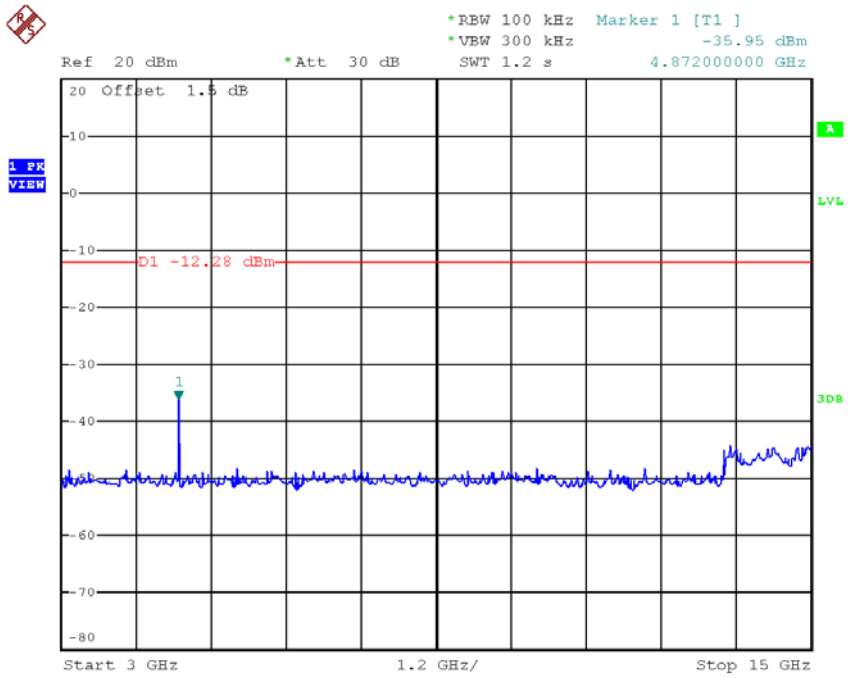


Date: 19.JAN.2018 14:30:15

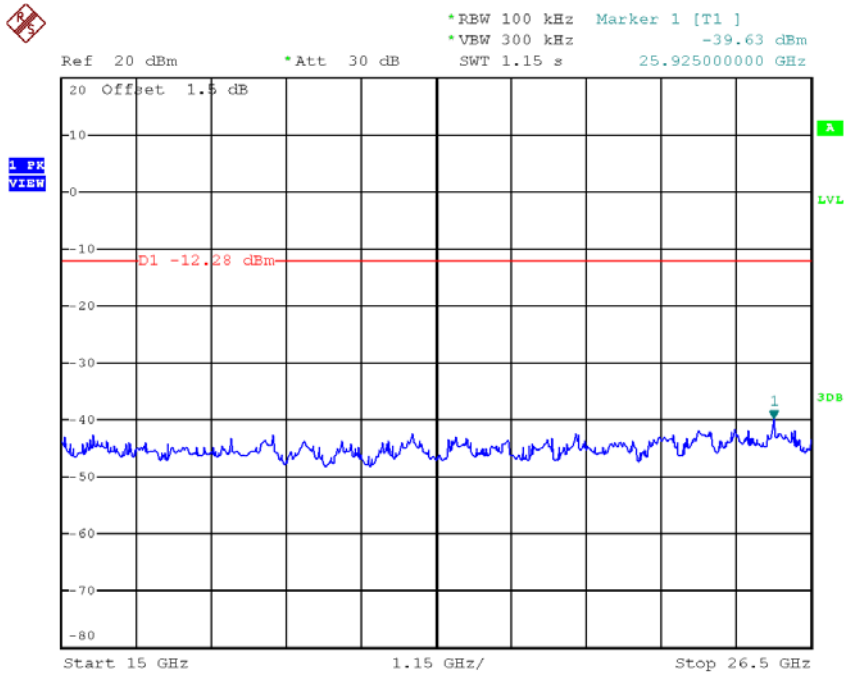
TX B mode CH06 (10 Harmonic of the frequency)



Date: 19.JAN.2018 14:31:37

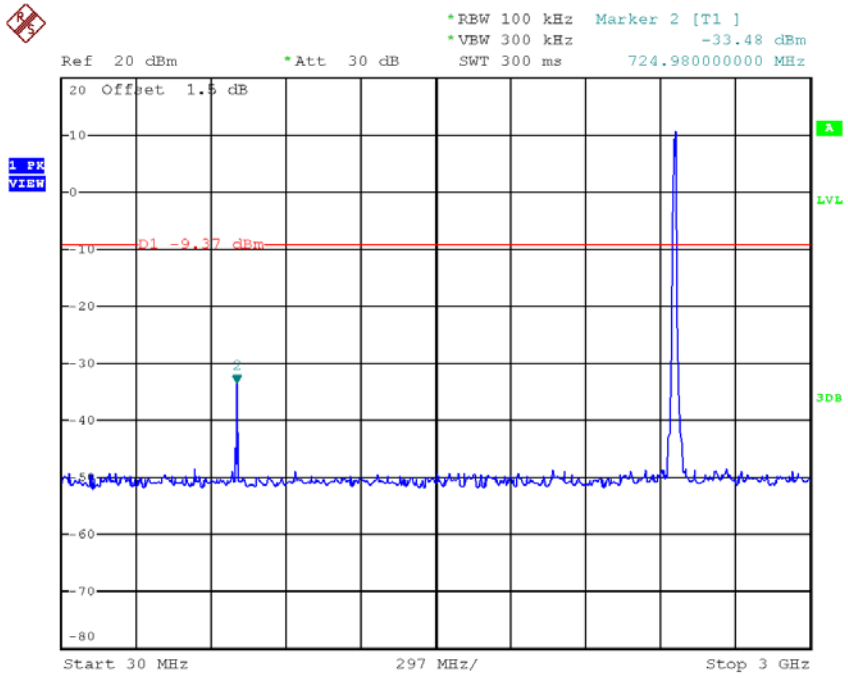


Date: 19.JAN.2018 14:31:44

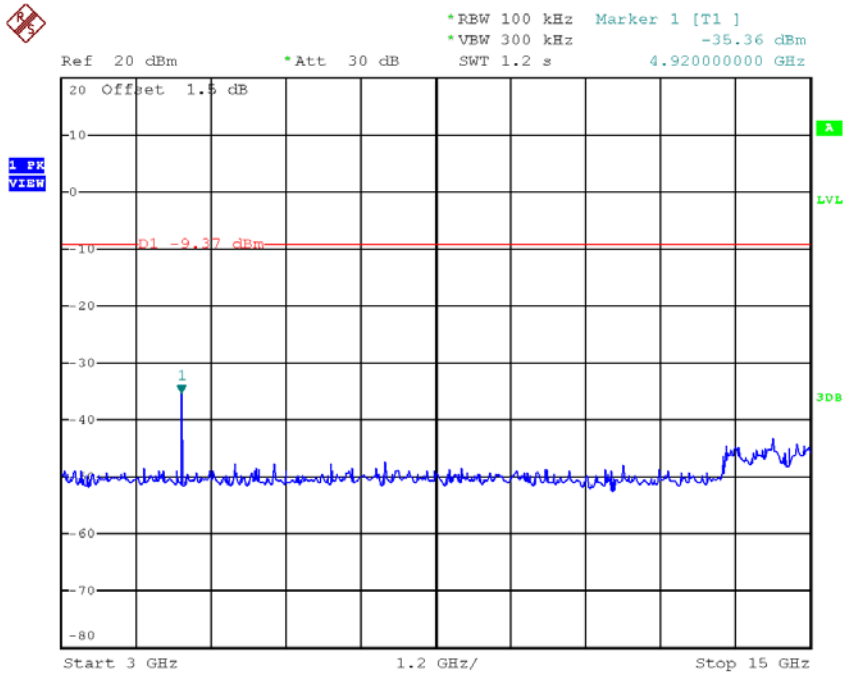


Date: 19.JAN.2018 14:31:51

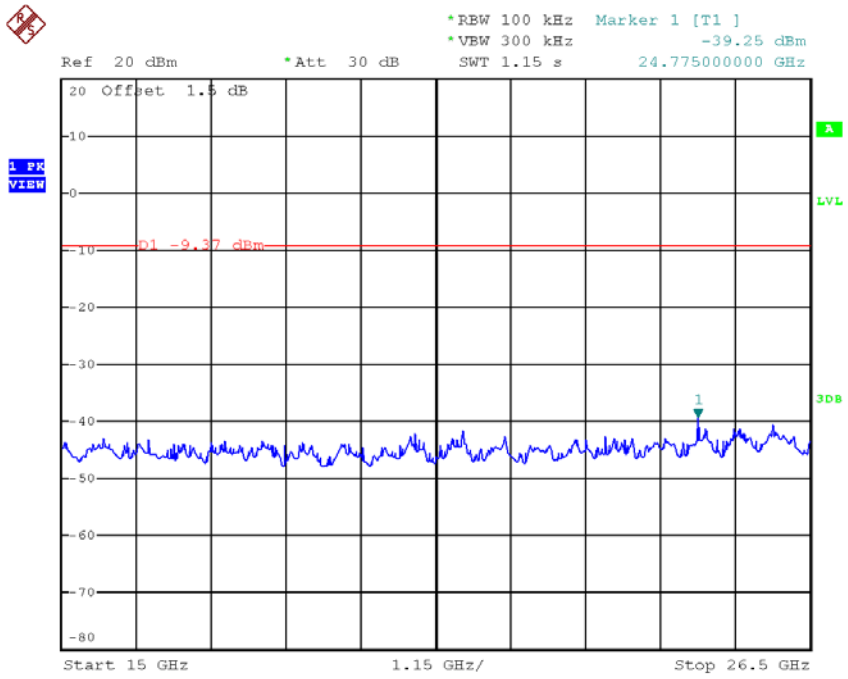
TX B mode CH11 (10 Harmonic of the frequency)



Date: 19.JAN.2018 14:33:07



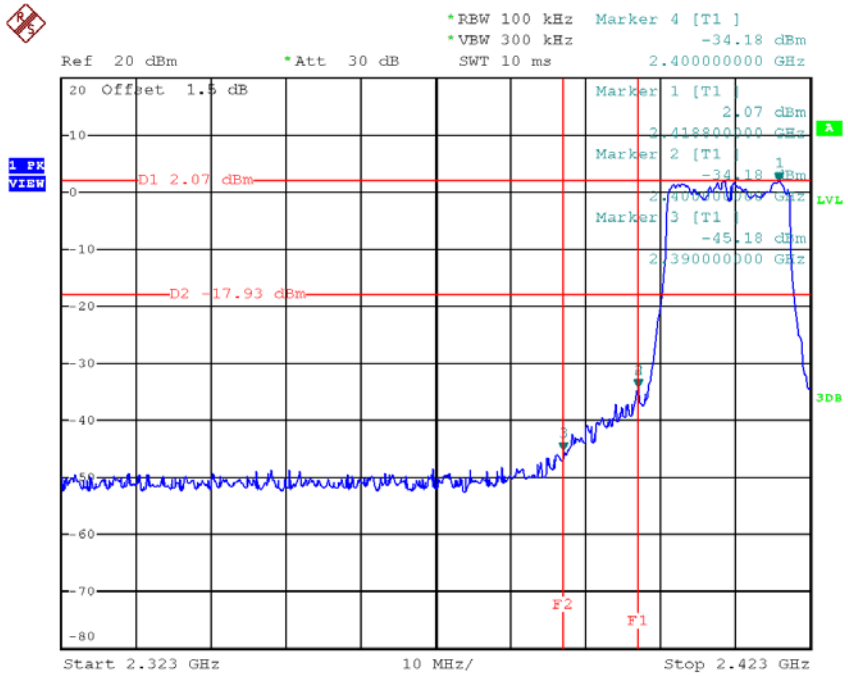
Date: 19.JAN.2018 14:33:14



Date: 19.JAN.2018 14:33:21

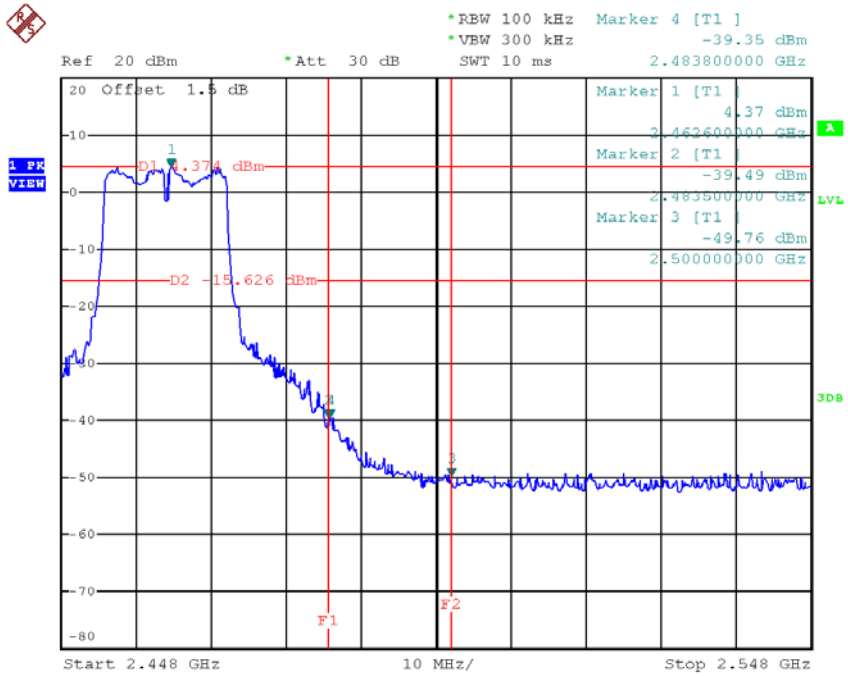
Test Mode :	TX G Mode_ANT 1

TX G mode CH01



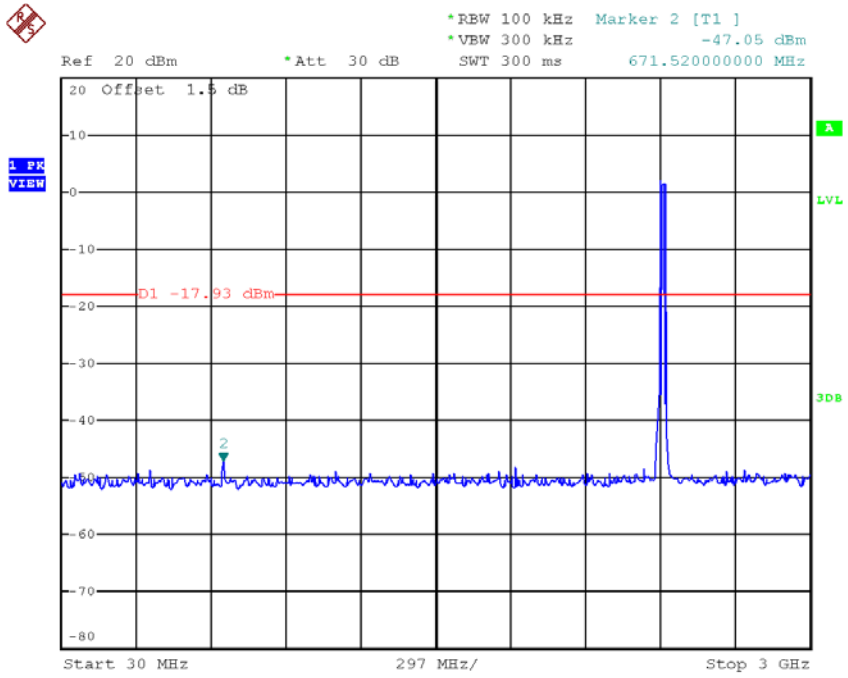
Date: 19.JAN.2018 09:49:54

TX G mode CH11

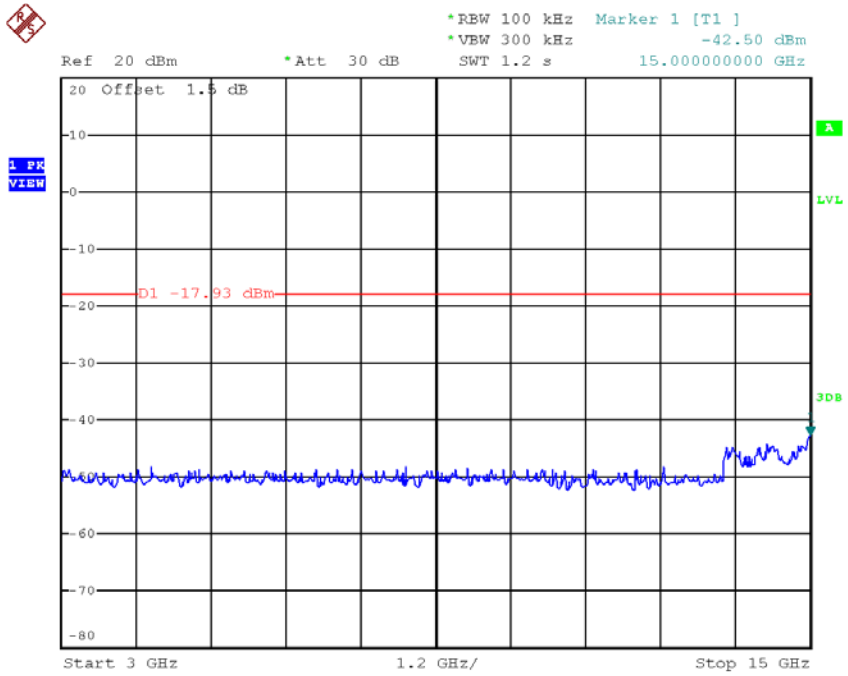


Date: 19.JAN.2018 09:53:43

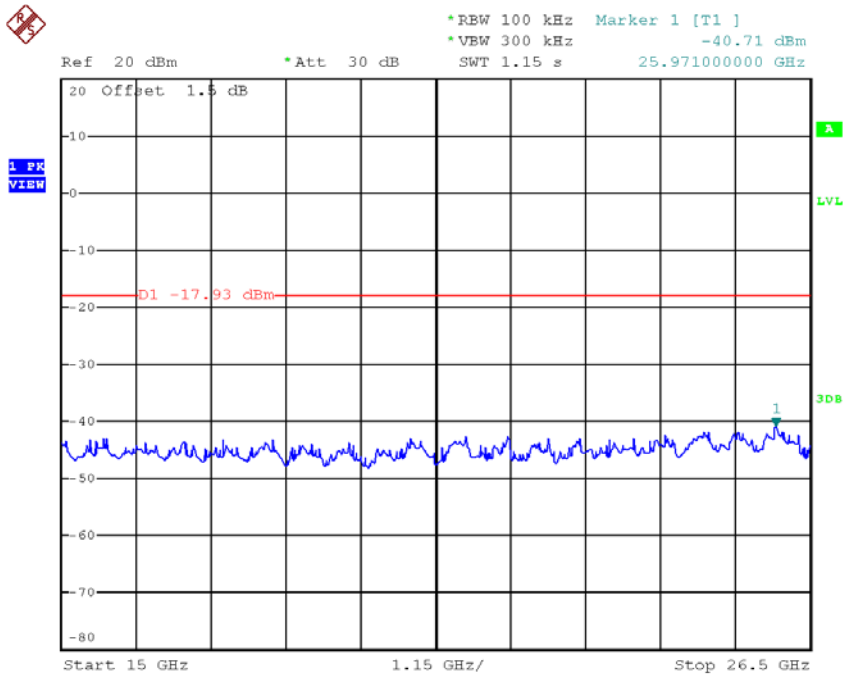
TX G mode CH01 (10 Harmonic of the frequency)



Date: 19.JAN.2018 09:50:07

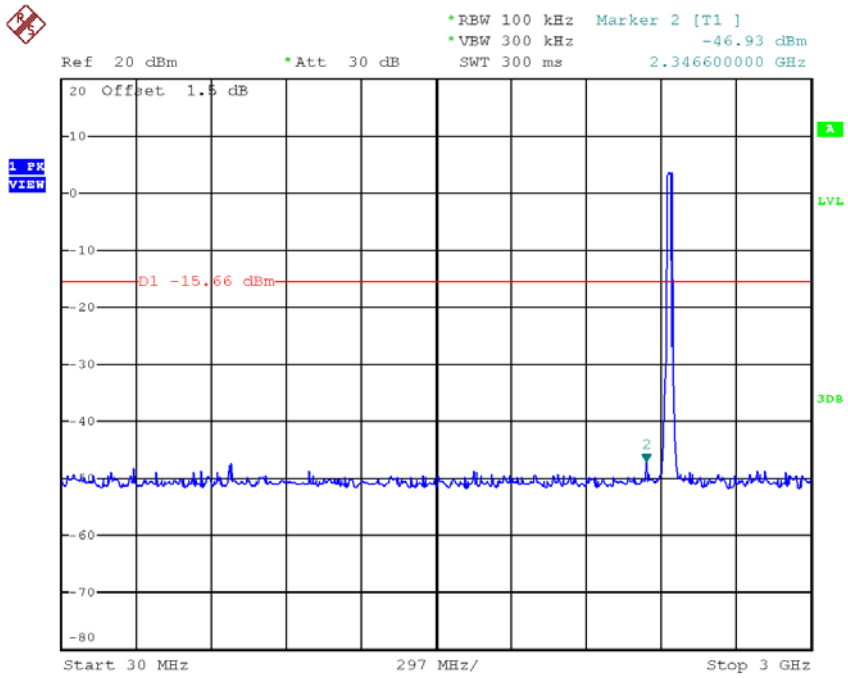


Date: 19.JAN.2018 09:50:14

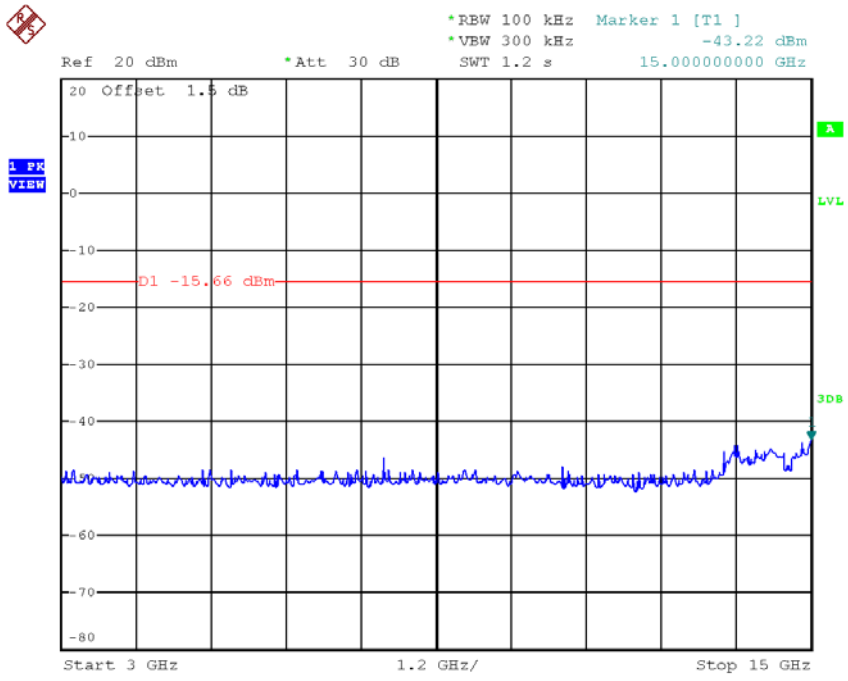


Date: 19.JAN.2018 09:50:21

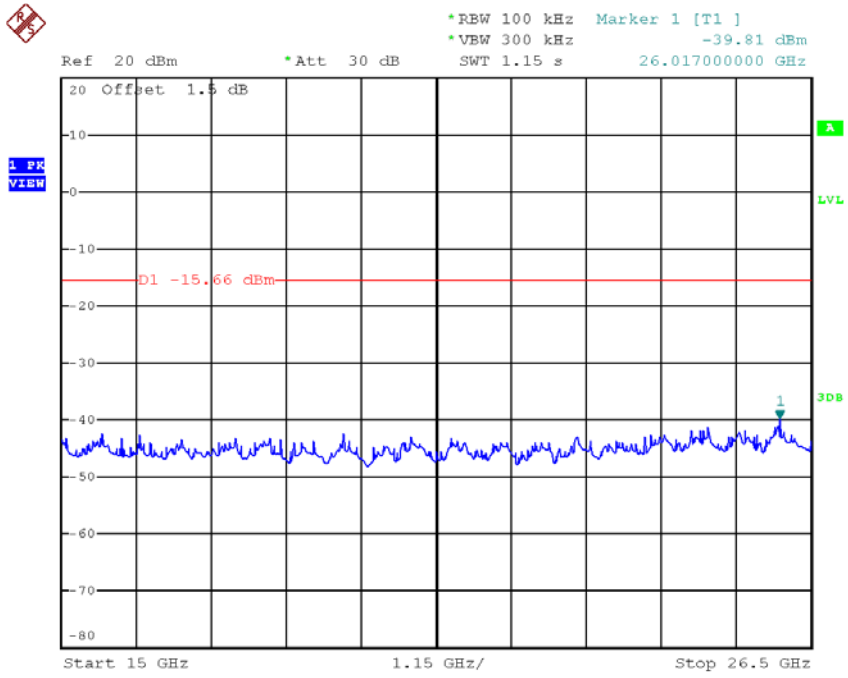
TX G mode CH06 (10 Harmonic of the frequency)



Date: 19.JAN.2018 09:51:41

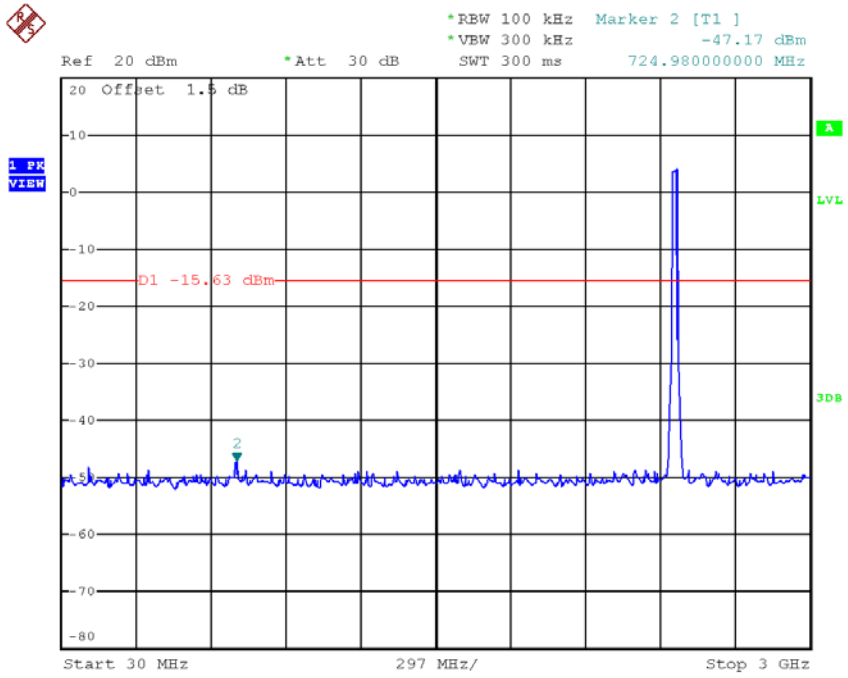


Date: 19.JAN.2018 09:51:48

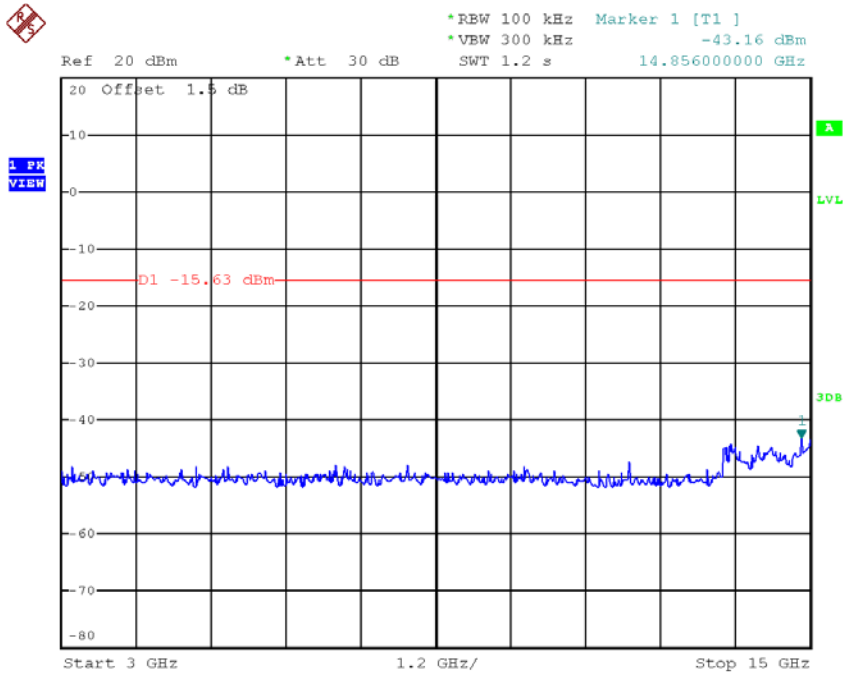


Date: 19.JAN.2018 09:51:55

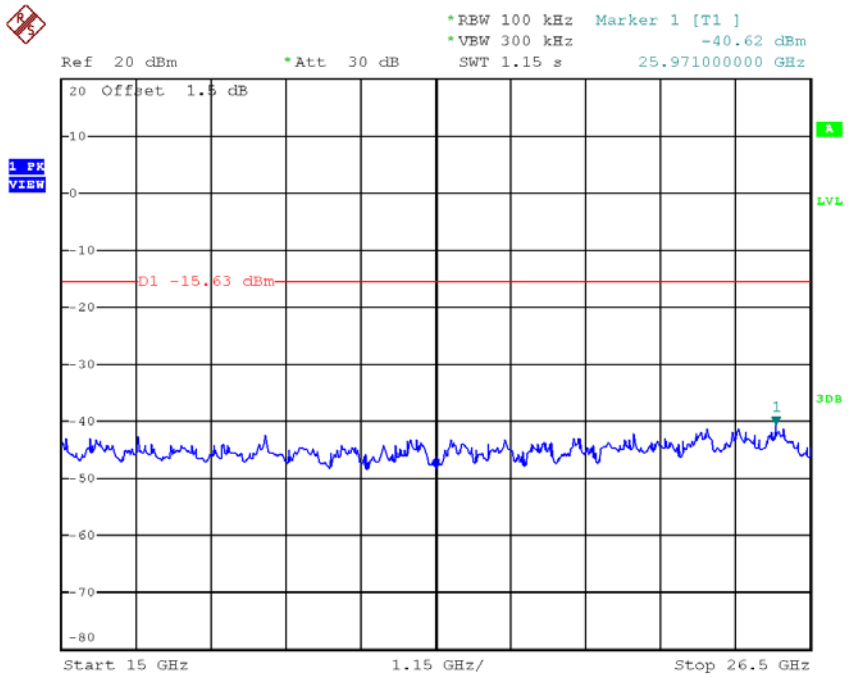
TX G mode CH11 (10 Harmonic of the frequency)



Date: 19.JAN.2018 09:53:56



Date: 19.JAN.2018 09:54:03



Date: 19.JAN.2018 09:54:10