FCC Radio Test Report

FCC ID: Y7NARRISKYLINK

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

Project No.	:	1711C172
Equipment	:	SkyLink wireless system
Test Model	:	SkyLink
Series Model	:	N/A
Applicant	:	Arnold & Richter Cine Technik GmbH & Co. Betriebs KG
Address	:	Pulvermuehle; 83071 Stephanskirchen, Germany

Date of Receipt	:	Nov. 21, 2017
Date of Test	:	Nov. 29, 2017 ~ Mar. 14, 2018
Issued Date	:	Mar. 30, 2018
Tested by	:	BTL Inc.

Testing Engineer : Welly Zhou
(Welly Zhou)

Technical Manager : Shawn Xiao
(Shawn Xiao)

Authorized Signatory : David Mao
(David Mao)

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

1 . CERTIFICATION 6
2 . SUMMARY OF TEST RESULTS 7
2.1 TEST FACILITY 8
2.2 MEASUREMENT UNCERTAINTY 8
3 . GENERAL INFORMATION 9
3.1 GENERAL DESCRIPTION OF EUT 9
3.2 DESCRIPTION OF TEST MODES 10
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING 12
3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 13
3.5 DESCRIPTION OF SUPPORT UNITS 13
4 . EMC EMISSION TEST 14
4.1 CONDUCTED EMISSION MEASUREMENT 14
4.1.1 POWER LINE CONDUCTED EMISSION LIMITS 14
4.1.2 TEST PROCEDURE 14
4.1.3 DEVIATION FROM TEST STANDARD 14
4.1.4 TEST SETUP 15
4.1.5 EUT OPERATING CONDITIONS 15
4.1.6 EUT TEST CONDITIONS 15
4.1.7 TEST RESULTS 15
4.2 RADIATED EMISSION MEASUREMENT 16
4.2.1 RADIATED EMISSION LIMITS 16
4.2.2 TEST PROCEDURE 17
4.2.3 DEVIATION FROM TEST STANDARD 17
4.2.4 TEST SETUP 18
4.2.5 EUT OPERATING CONDITIONS 19
4.2.6 EUT TEST CONDITIONS 19
4.2.7 TEST RESULTS (9KHZ TO 30MHZ) 19
4.2.8 TEST RESULTS (30MHZ TO 1000MHZ) 19
4.2.9 TEST RESULTS (ABOVE 1000MHZ) 19
5 . BANDWIDTH TEST 20
5.1 APPLIED PROCEDURES 20
5.1.1 TEST PROCEDURE 20
5.1.2 DEVIATION FROM STANDARD 20
5.1.3 TEST SETUP 20
5.1.4 EUT OPERATION CONDITIONS 20
5.1.5 EUT TEST CONDITIONS 20
5.1.6 TEST RESULTS 20
6 . MAXIMUM PEAK CONDUCTED OUTPUT POWER TEST 21

Table of Contents Page

6.1 APPLIED PROCEDURES / LIMIT 21
6.1.1 TEST PROCEDURE 21
6.1.2 DEVIATION FROM STANDARD 21
6.1.3 TEST SETUP 21
6.1.4 EUT OPERATION CONDITIONS 21
6.1.5 EUT TEST CONDITIONS 21
6.1.6 TEST RESULTS 21

7 . ANTENNA CONDUCTED SPURIOUS EMISSION 22

7.1 APPLIED PROCEDURES / LIMIT 22
7.1.1 TEST PROCEDURE 22
7.1.2 DEVIATION FROM STANDARD 22
7.1.3 TEST SETUP 22
7.1.4 EUT OPERATION CONDITIONS 22
7.1.5 EUT TEST CONDITIONS 22
7.1.6 TEST RESULTS 22

8 . POWER SPECTRAL DENSITY TEST 23

8.1 APPLIED PROCEDURES / LIMIT 23
8.1.1 TEST PROCEDURE 23
8.1.2 DEVIATION FROM STANDARD 23
8.1.3 TEST SETUP 23
8.1.4 EUT OPERATION CONDITIONS 23
8.1.5 EUT TEST CONDITIONS 23
8.1.6 TEST RESULTS 23

9 . MEASUREMENT INSTRUMENTS LIST 24

10 . EUT TEST PHOTO 26

APPENDIX A - CONDUCTED EMISSION 30

APPENDIX B - RADIATED EMISSION (9KHZ TO 30MHZ) 33

APPENDIX C - RADIATED EMISSION (30MHZ TO 1000MHZ) 38

APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ) 45

APPENDIX E - BANDWIDTH 82

APPENDIX F - MAXIMUM PEAK CONDUCTED OUTPUT POWER 89

APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION 91

APPENDIX H - POWER SPECTRAL DENSITY 110

REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1711C172	Original Issue.	Mar. 30, 2018

1. CERTIFICATION

Equipment	:	SkyLink wireless system
Brand Name	:	ARRI
Test Model	:	SkyLink
Series Model	:	N/A
Applicant	:	Arnold & Richter Cine Technik GmbH & Co. Betriebs KG
Manufacturer	:	Innovative Dimmers
Address	:	7508 Tyrone Ave.Van Nuys, CA 91405
Factory	:	Innovative Dimmers
Address	:	7508 Tyrone Ave.Van Nuys, CA 91405
Date of Test	:	Nov. 29, 2017 ~ Mar. 14, 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-1-1711C172) 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).

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	SkyLink wireless system	
Brand Name	ARRI	
Test Model	SkyLink	
Series Model	N/A	
Model Difference	N/A	
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 150 Mbps
	Output Power (Max.)	802.11b: 17.96dBm 802.11g: 22.19dBm 802.11n(20MHz): 22.85dBm
Power Source	DC Voltage supplied from AC/DC adapter. Model: WT1203000	
Power Rating	I/P: 100-240V~ 50/60Hz 1.6A O/P: 12V⎓3.0A	

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)							
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)	Note
1	HONGSENSE	HAS-2457TF5	Dipole	N/A	3	N/A

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	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 4	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

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

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

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

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

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 (6.5Mbps)
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.

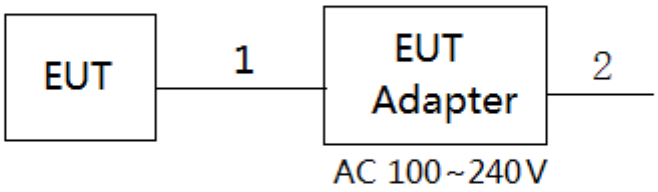
(4) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

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	RT5350QA		
Frequency (MHz)	2412	2437	2462
802.11b	13	13	13
802.11g	19	19	17
802.11n (20MHz)	17	18	16

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.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	0.8m	DC Cable
2	NO	NO	1.5m	AC 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

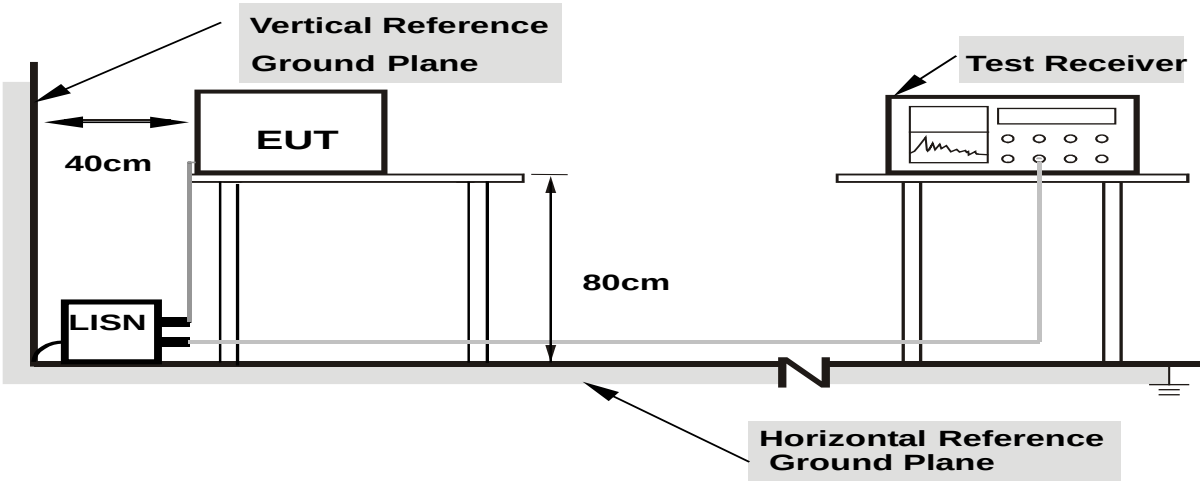
4.1.2 TEST PROCEDURE

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

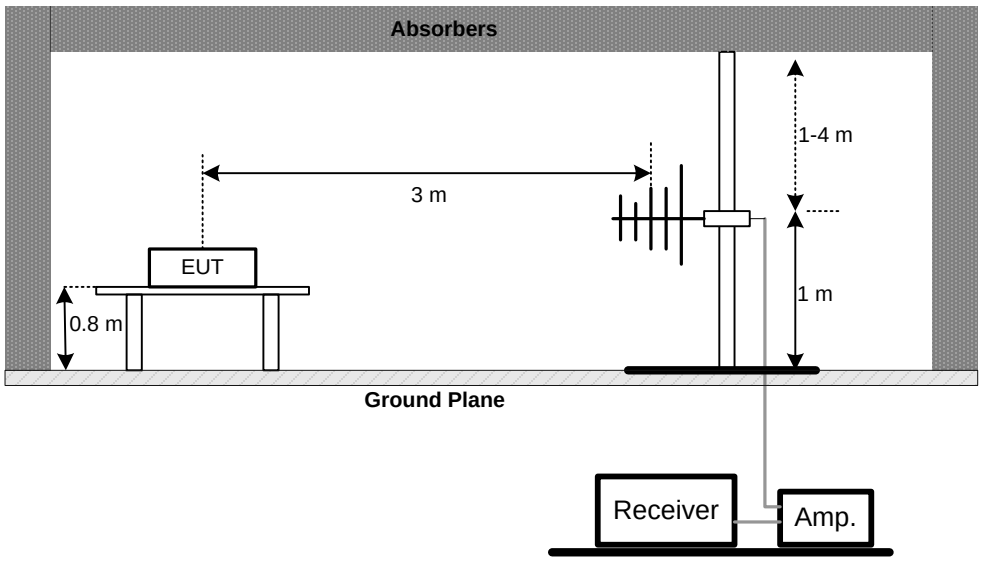
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance 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

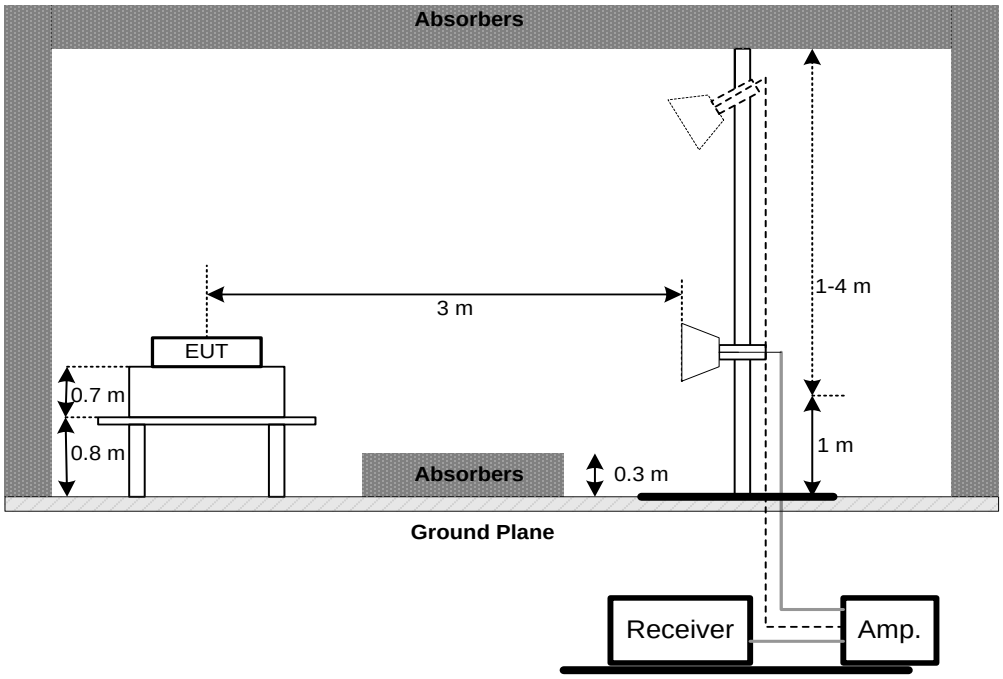
No deviation

4.2.4 TEST SETUP

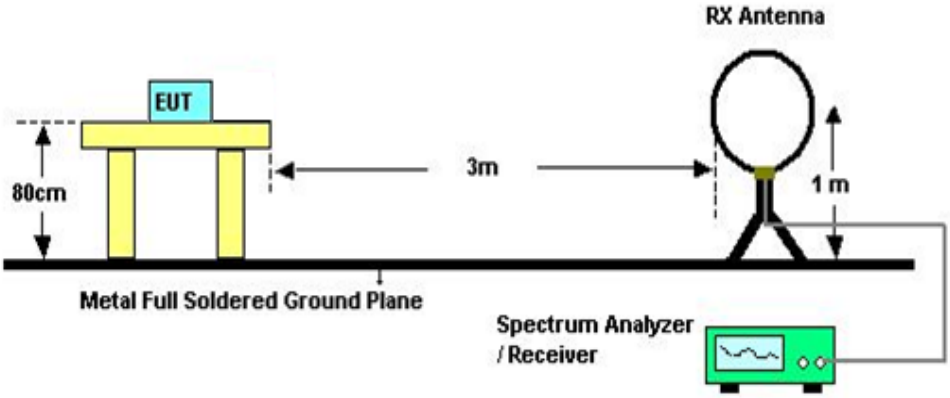
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(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

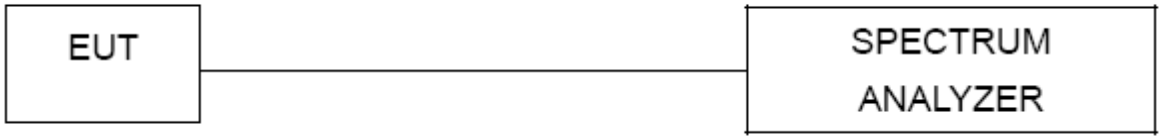
5.1.1 TEST PROCEDURE

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

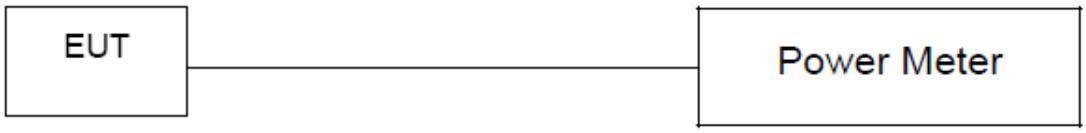
6.1.1 TEST PROCEDURE

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.

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.

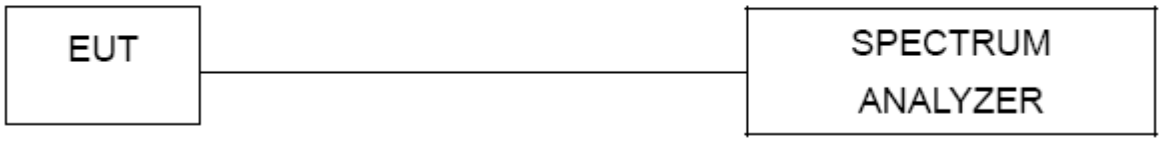
7.1.1 TEST PROCEDURE

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

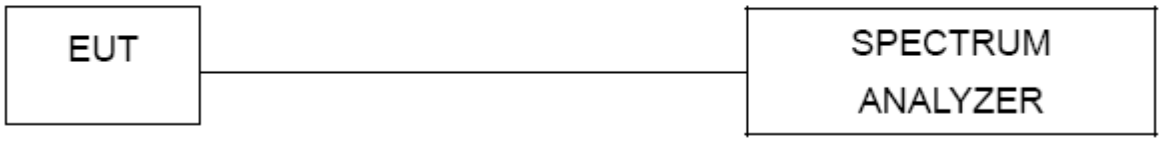
8.1.1 TEST PROCEDURE

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	Antenna	EM	EM-6876-1	230	Mar. 06, 2018
8	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

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	P-series Power meter	Agilent	N1911A	MY45100473	Aug. 20, 2018
2	Wireband Power sensor	Agilent	N1921A	MY51100041	Aug. 20, 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

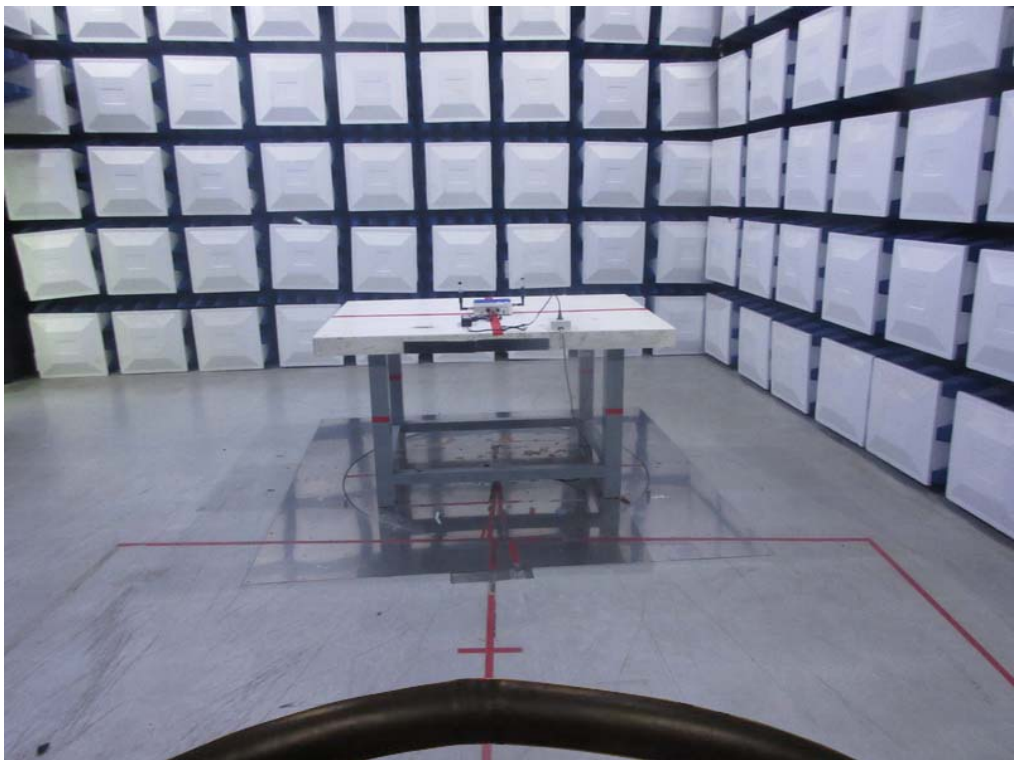




Radiated Measurement Photos

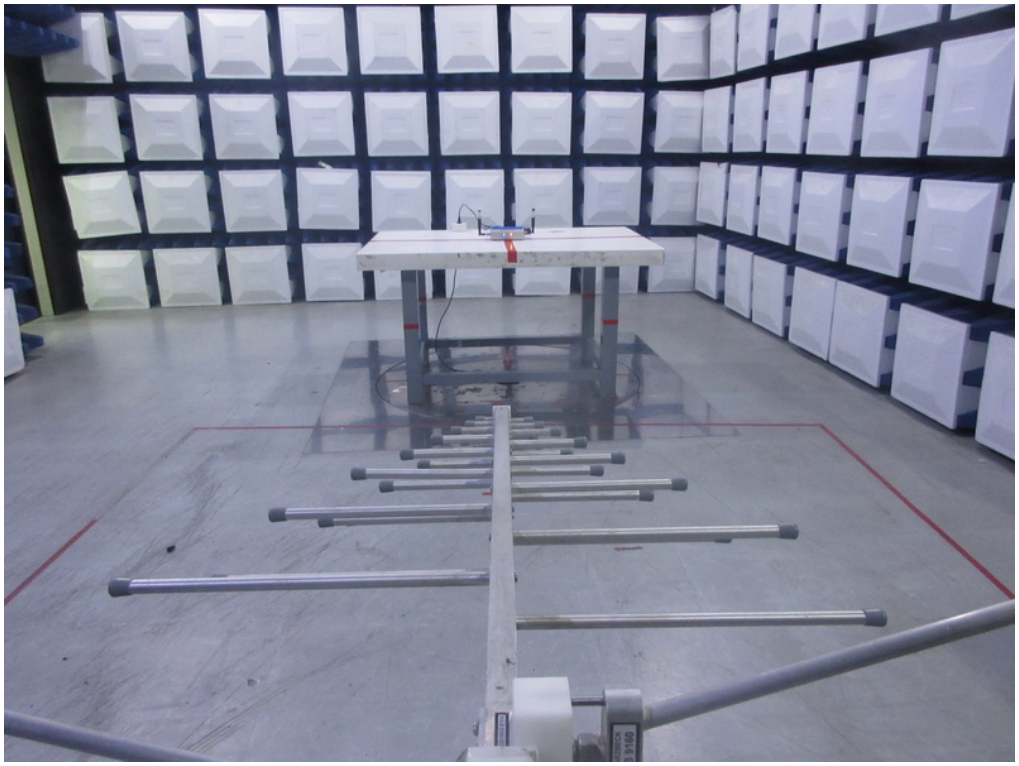
9KHz to 30MHz

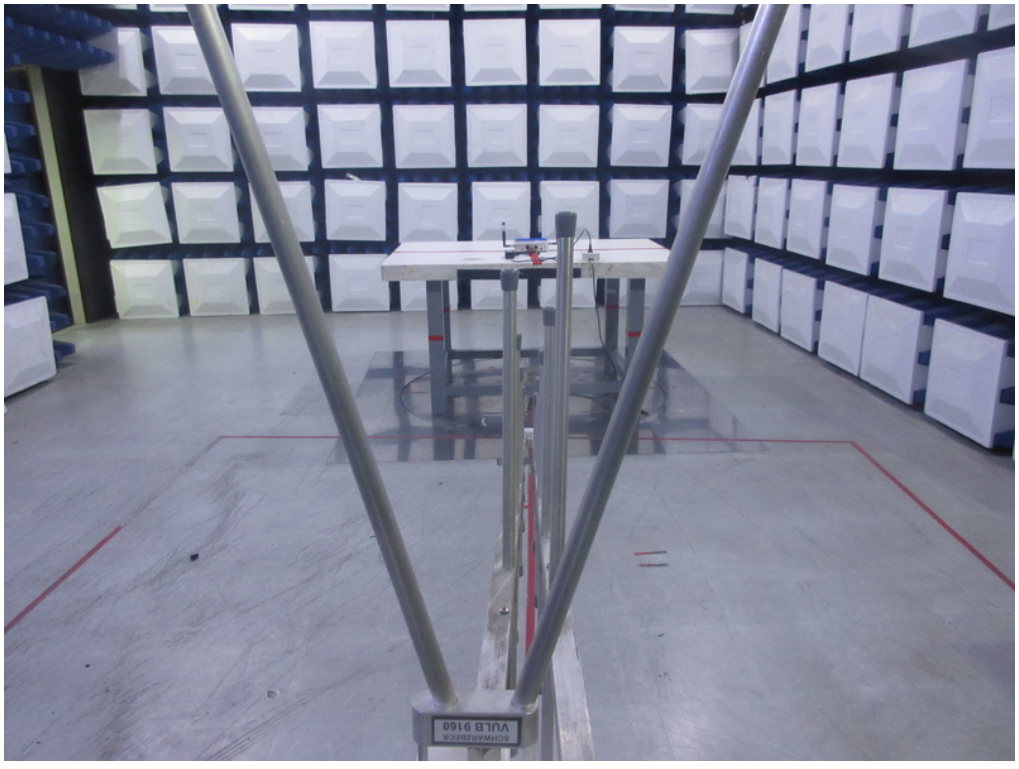




Radiated Measurement Photos

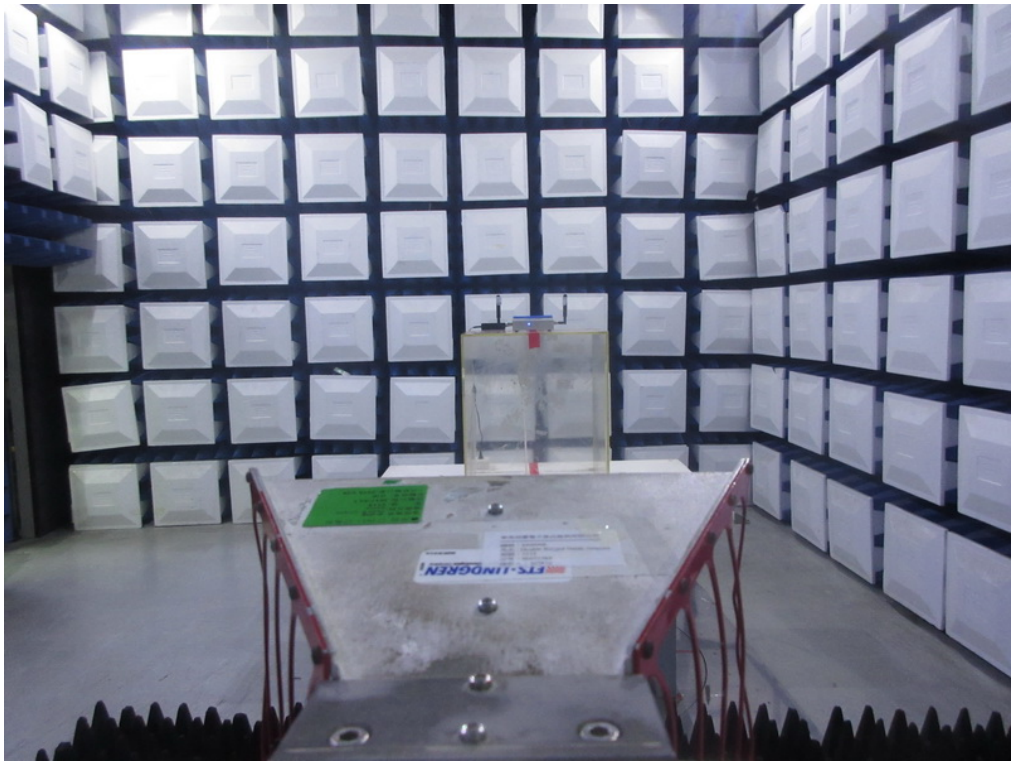
30MHz to 1000MHz

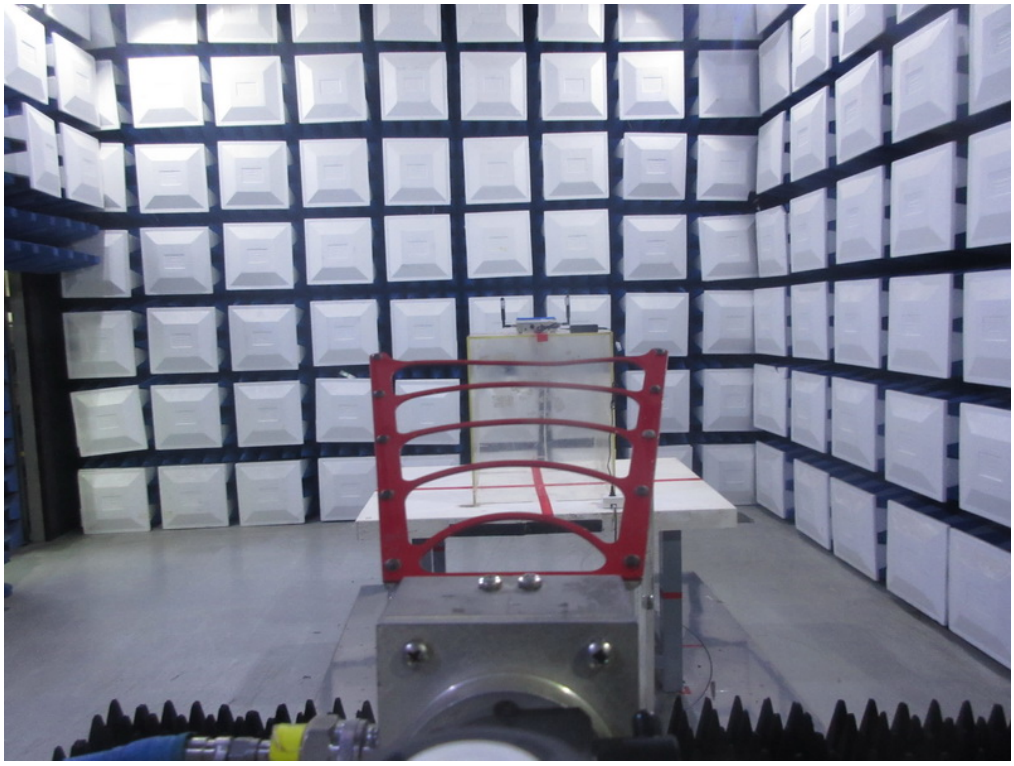




Radiated Measurement Photos

Above 1000MHz

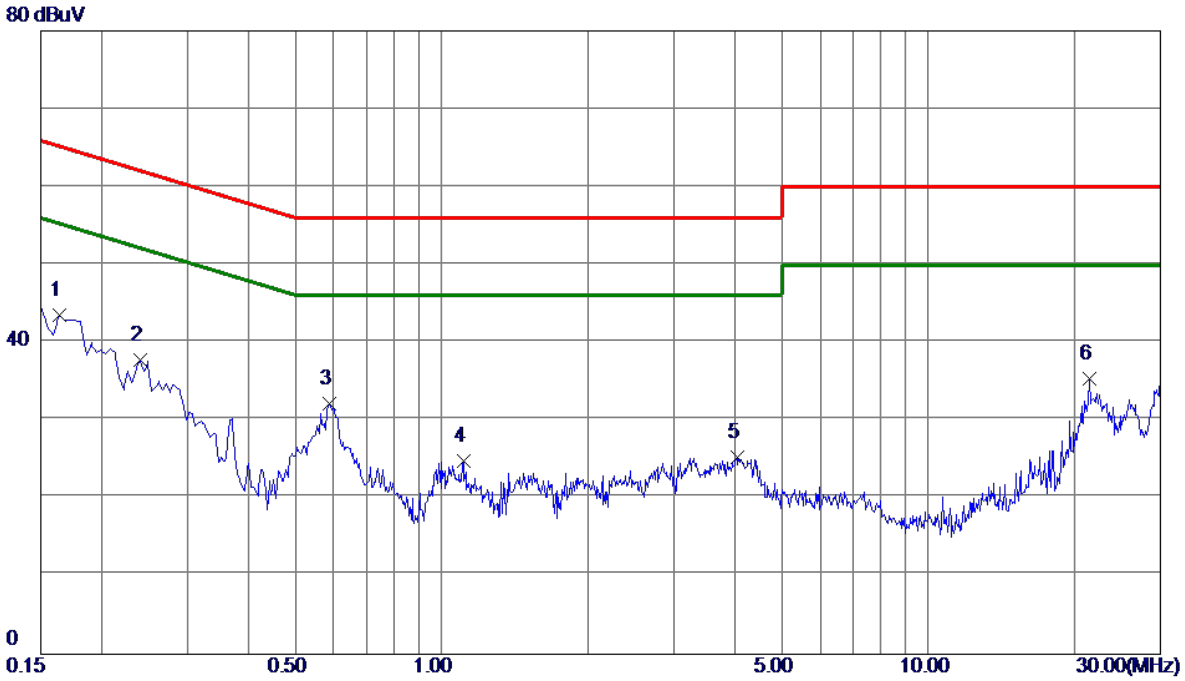




APPENDIX A - CONDUCTED EMISSION

Test Mode :	Normal Link

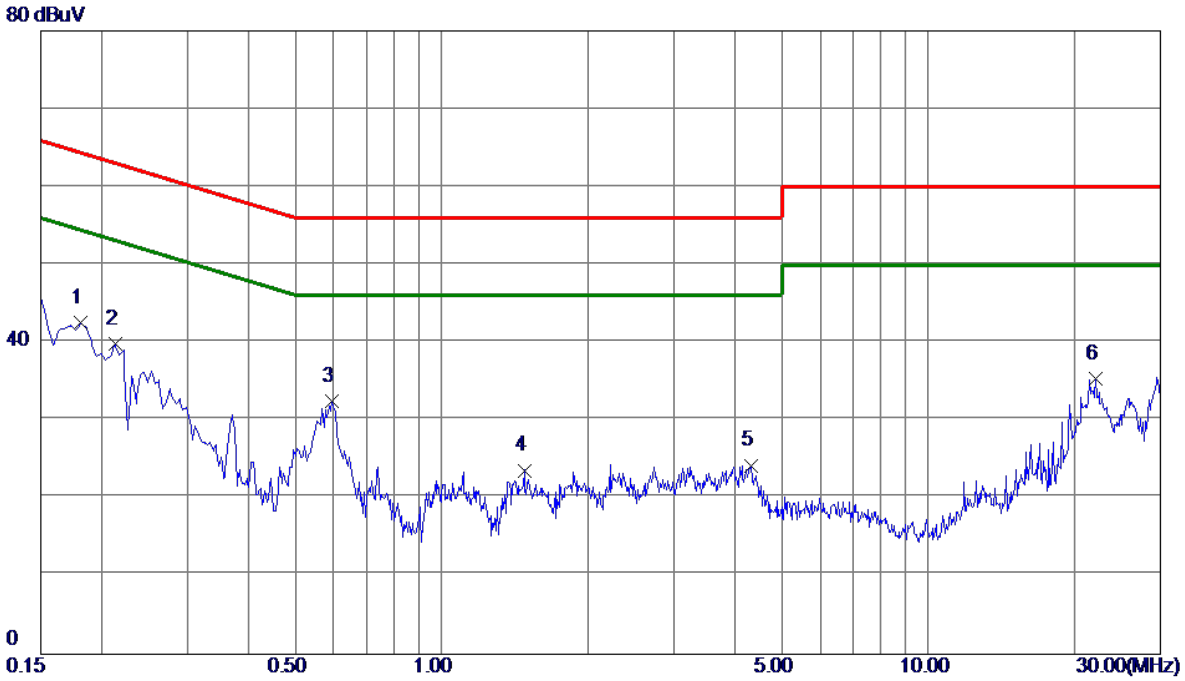
Line



No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1635	33.75	9.78	43.53	65.28	-21.75	Peak	
2	0.2400	27.98	9.76	37.74	62.10	-24.36	Peak	
3	0.5865	22.31	9.81	32.12	56.00	-23.88	Peak	
4	1.1085	14.88	9.86	24.74	56.00	-31.26	Peak	
5	4.0470	15.29	10.02	25.31	56.00	-30.69	Peak	
6	21.3855	24.62	10.69	35.31	60.00	-24.69	Peak	

Test Mode :	Normal Link

Neutral

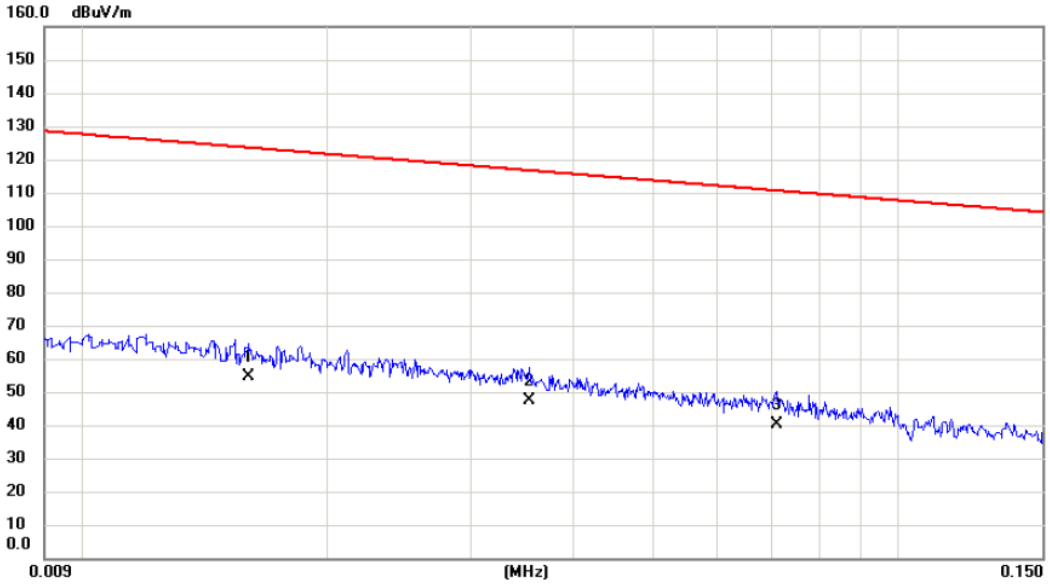


No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1815	32.84	9.68	42.52	64.42	-21.90	Peak	
2	0.2130	30.18	9.69	39.87	63.09	-23.22	Peak	
3	0.5955	22.73	9.71	32.44	56.00	-23.56	Peak	
4	1.4775	13.82	9.78	23.60	56.00	-32.40	Peak	
5	4.3350	14.27	9.97	24.24	56.00	-31.76	Peak	
6	22.1100	24.58	10.83	35.41	60.00	-24.59	Peak	

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

Test Mode:	TX MODE

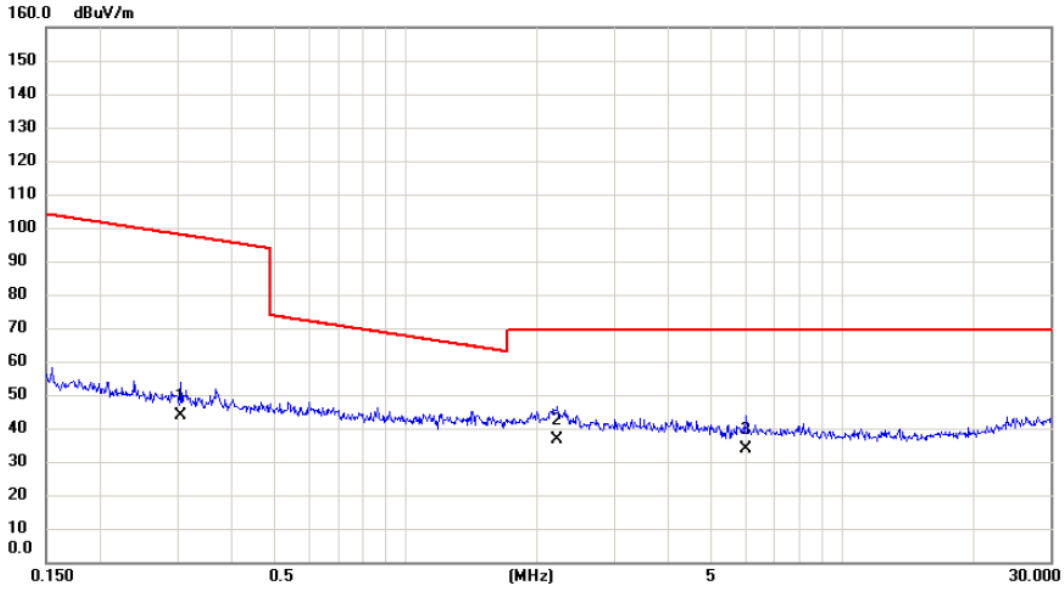
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0160	34.41	20.14	54.55	123.52	-68.97	AVG	
2		0.0353	28.20	19.16	47.36	116.65	-69.29	AVG	
3		0.0710	21.86	18.31	40.17	110.58	-70.41	AVG	

Test Mode:	TX MODE

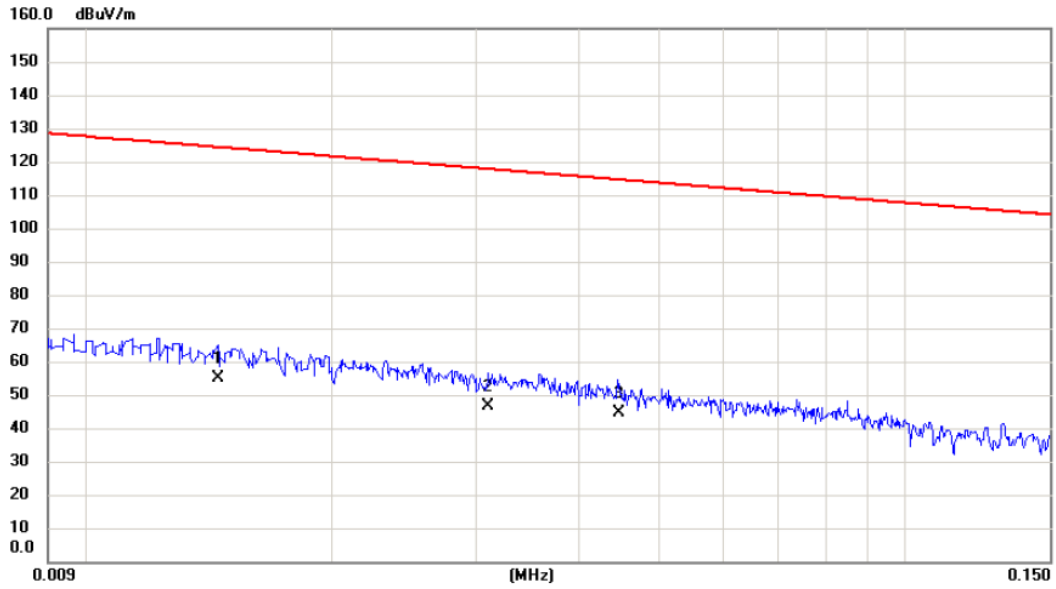
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.3051	27.24	16.62	43.86	97.92	-54.06	AVG	
2	*	2.2250	21.02	15.44	36.46	69.54	-33.08	QP	
3		6.0243	19.43	14.25	33.68	69.54	-35.86	QP	

Test Mode:	TX MODE

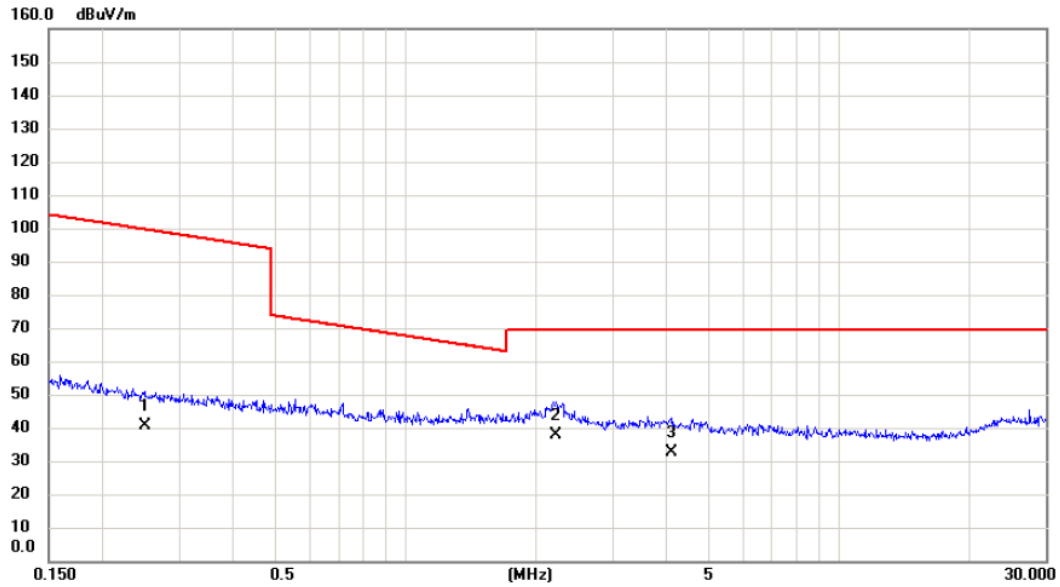
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0145	34.55	20.34	54.89	124.38	-69.49	AVG	
2		0.0310	27.26	19.29	46.55	117.78	-71.23	AVG	
3		0.0447	25.58	18.88	44.46	114.60	-70.14	AVG	

Test Mode:	TX MODE

Ant 90°

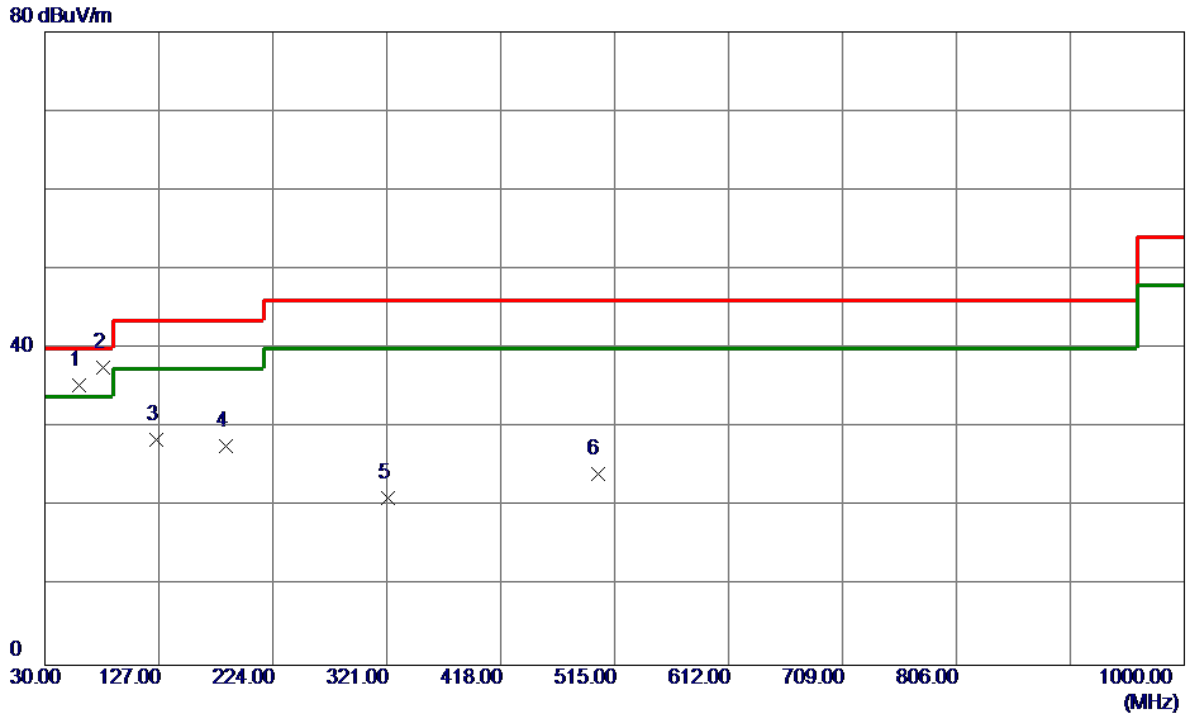


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.2508	24.14	16.66	40.80	99.62	-58.82	AVG	
2	*	2.2250	22.24	15.44	37.68	69.54	-31.86	QP	
3		4.0920	17.91	14.89	32.80	69.54	-36.74	QP	

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

Test Mode:	TX B MODE CHANNEL 01

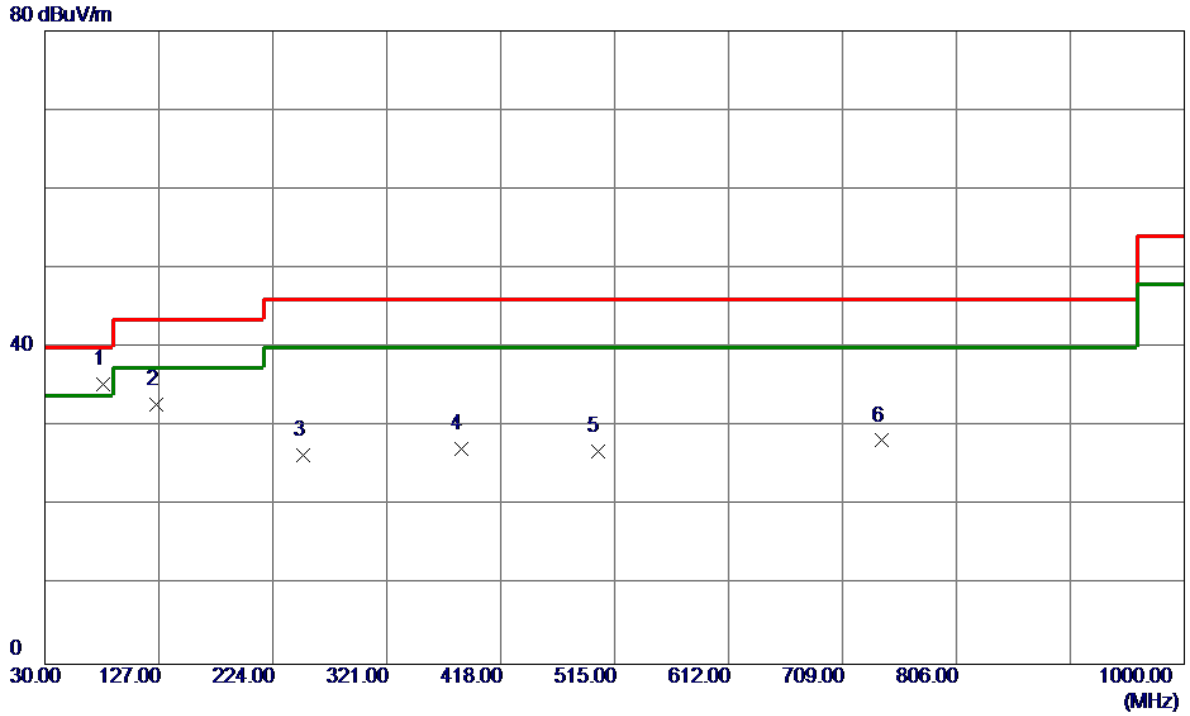
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	59.1000	49.53	-14.22	35.31	40.00	-4.69	Peak	
2 *	79.4700	55.78	-18.12	37.66	40.00	-2.34	Peak	
3	125.0600	43.56	-15.05	28.51	43.50	-14.99	Peak	
4	184.2300	40.10	-12.38	27.72	43.50	-15.78	Peak	
5	321.9700	33.62	-12.45	21.17	46.00	-24.83	Peak	
6	500.4500	32.86	-8.71	24.15	46.00	-21.85	Peak	

Test Mode:	TX B MODE CHANNEL 01

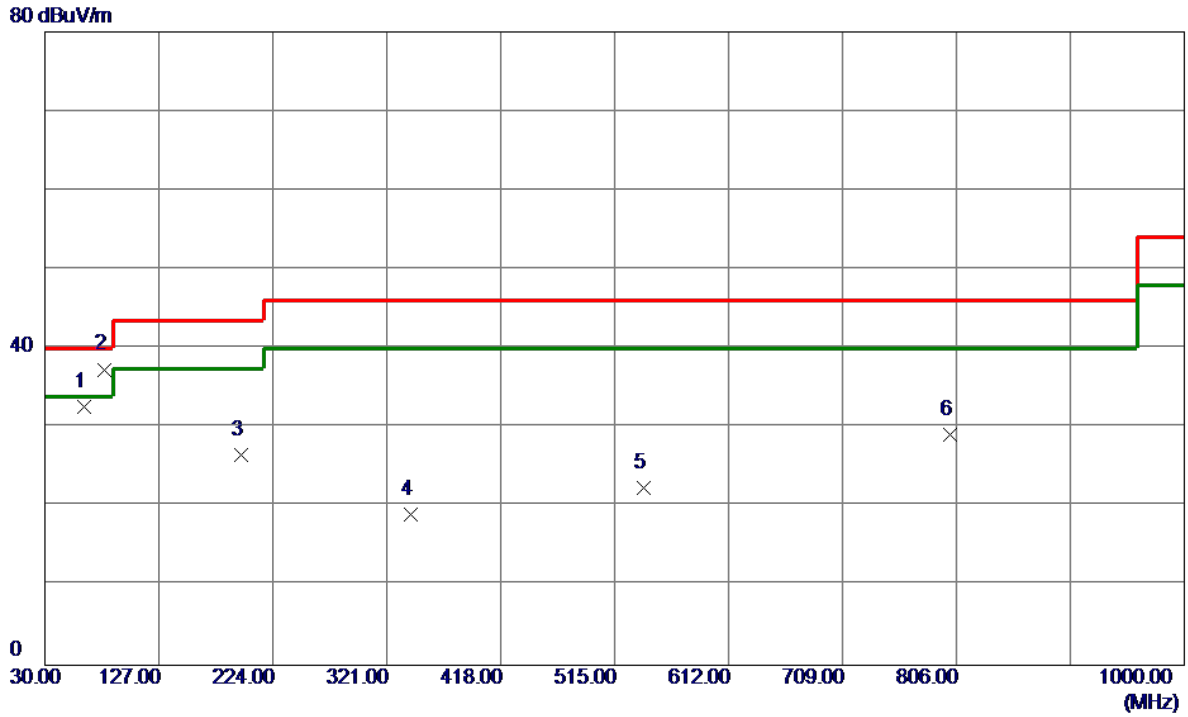
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	79.4700	53.49	-18.12	35.37	40.00	-4.63	Peak	
2	125.0600	47.84	-15.05	32.79	43.50	-10.71	Peak	
3	250.1900	41.36	-14.90	26.46	46.00	-19.54	Peak	
4	384.0500	38.78	-11.55	27.23	46.00	-18.77	Peak	
5	500.4500	35.52	-8.71	26.81	46.00	-19.19	Peak	
6	741.9800	30.92	-2.68	28.24	46.00	-17.76	Peak	

Test Mode:	TX B MODE CHANNEL 06

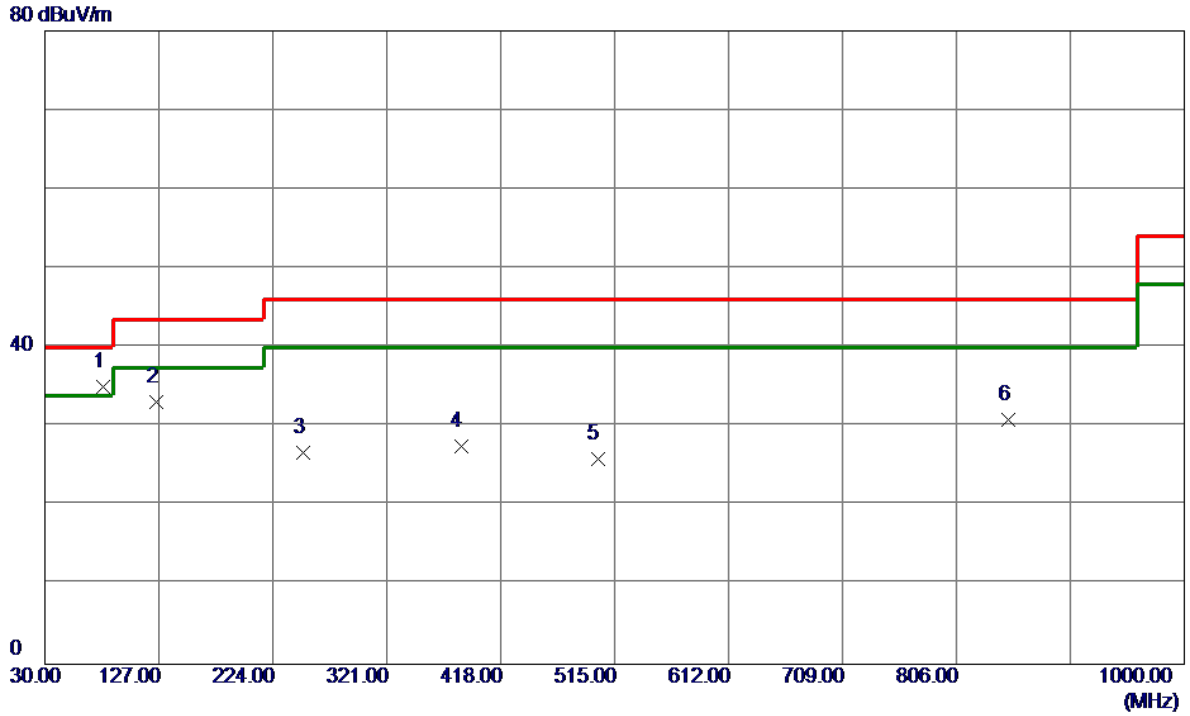
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	62.9800	47.40	-14.82	32.58	40.00	-7.42	Peak	
2 *	80.4400	55.61	-18.25	37.36	40.00	-2.64	Peak	
3	196.8400	39.98	-13.46	26.52	43.50	-16.98	Peak	
4	341.3700	31.13	-12.11	19.02	46.00	-26.98	Peak	
5	540.2199	30.24	-7.91	22.33	46.00	-23.67	Peak	
6	800.1800	30.51	-1.36	29.15	46.00	-16.85	Peak	

Test Mode:	TX B MODE CHANNEL 06

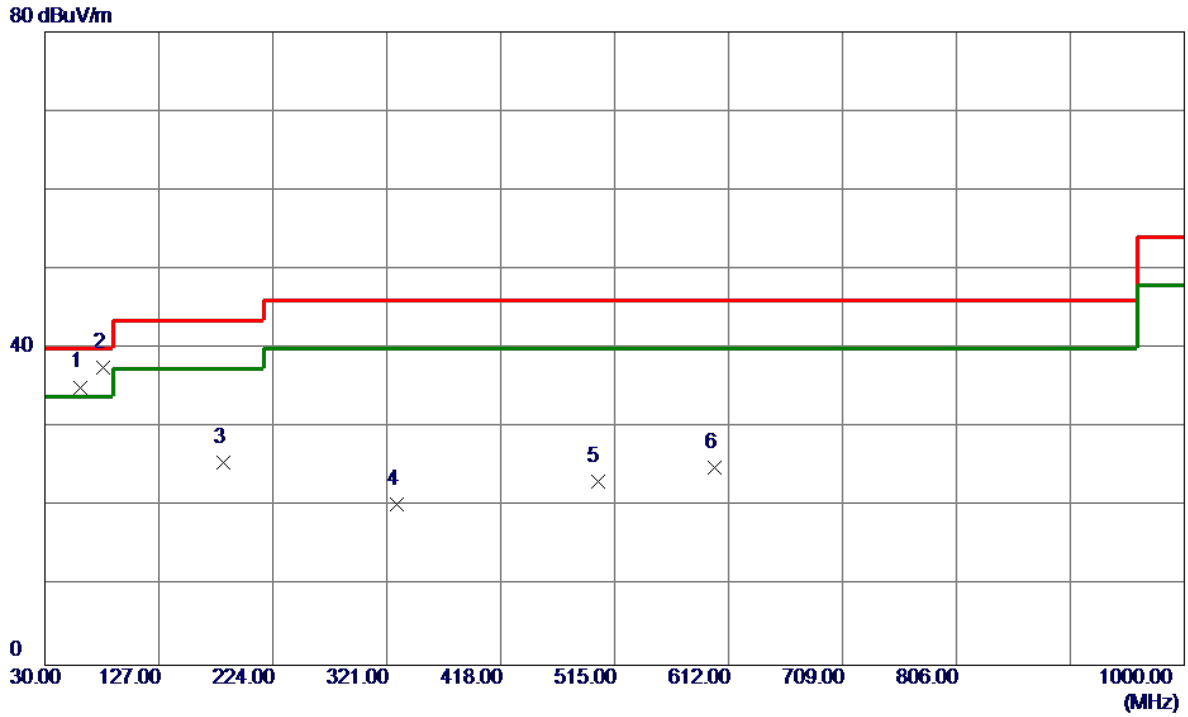
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	79.4700	53.20	-18.12	35.08	40.00	-4.92	Peak	
2	125.0600	48.10	-15.05	33.05	43.50	-10.45	Peak	
3	250.1900	41.65	-14.90	26.75	46.00	-19.25	Peak	
4	384.0500	39.00	-11.55	27.45	46.00	-18.55	Peak	
5	500.4500	34.64	-8.71	25.93	46.00	-20.07	Peak	
6	850.6200	30.81	0.01	30.82	46.00	-15.18	Peak	

Test Mode:	TX B MODE CHANNEL 11

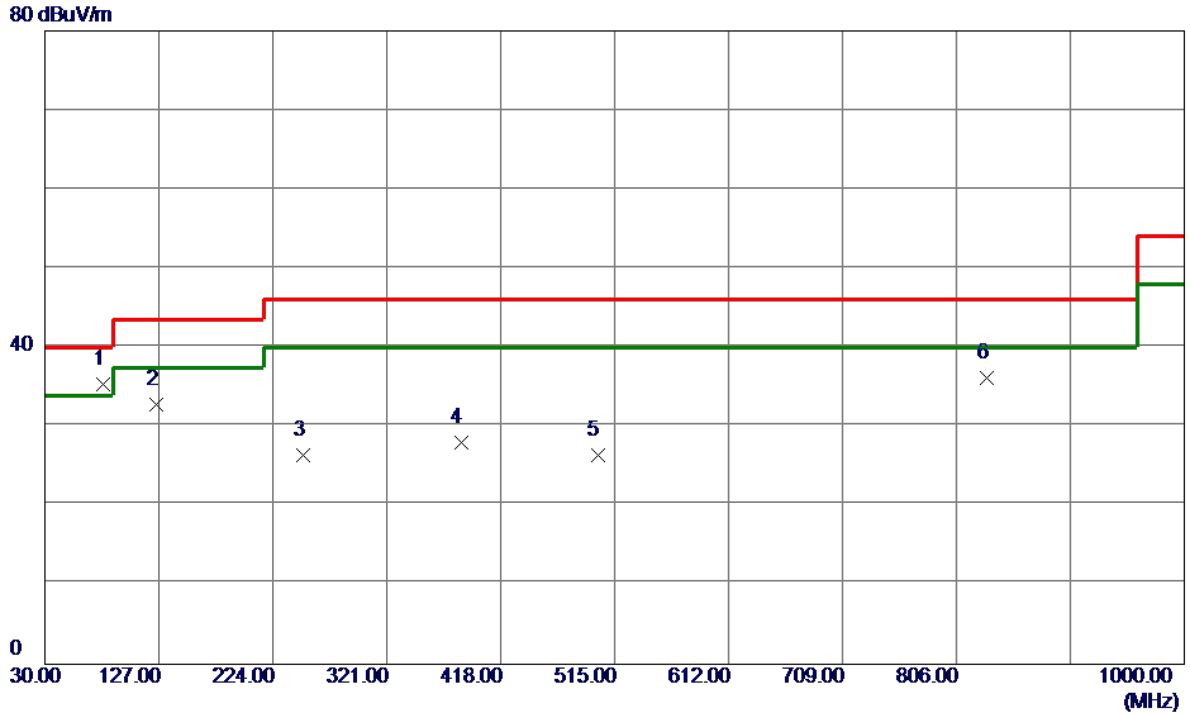
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	60.0700	49.44	-14.32	35.12	40.00	-4.88	Peak	
2 *	79.4700	55.66	-18.12	37.54	40.00	-2.46	Peak	
3	182.2899	37.76	-12.22	25.54	43.50	-17.96	Peak	
4	329.7300	32.57	-12.31	20.26	46.00	-25.74	Peak	
5	500.4500	31.91	-8.71	23.20	46.00	-22.80	Peak	
6	600.3600	31.42	-6.41	25.01	46.00	-20.99	Peak	

Test Mode:	TX B MODE CHANNEL 11

Horizontal

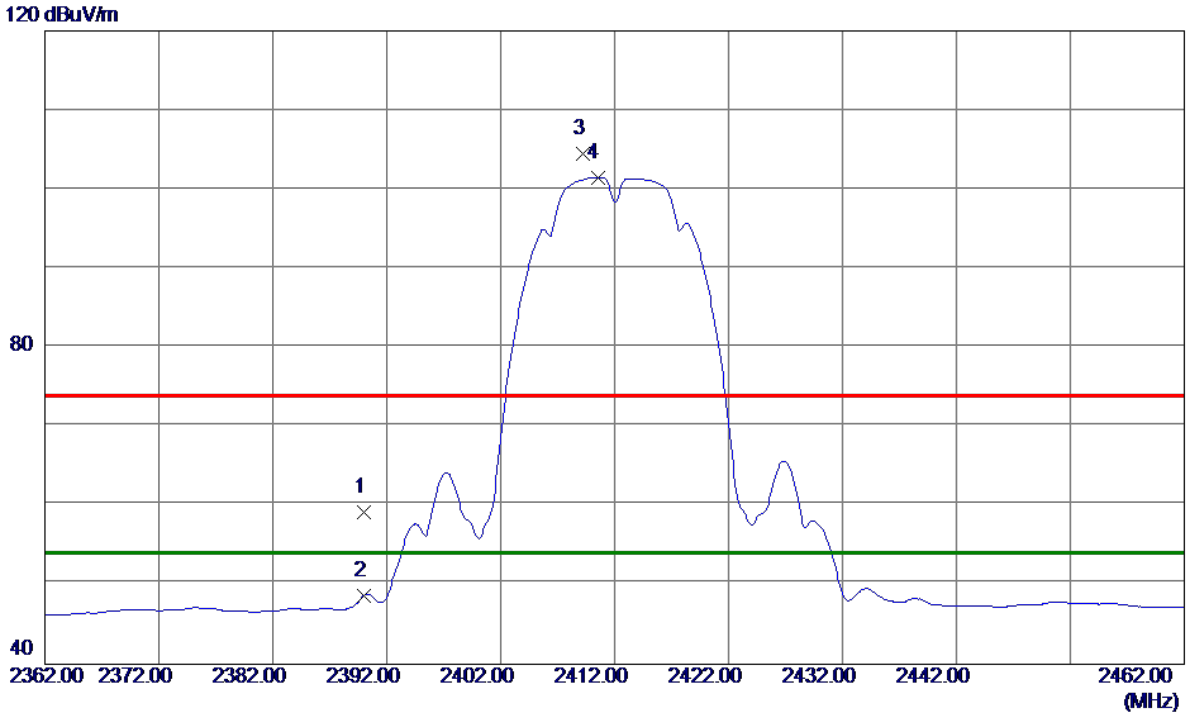


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	79.4700	53.45	-18.12	35.33	40.00	-4.67	Peak	
2	125.0600	47.88	-15.05	32.83	43.50	-10.67	Peak	
3	250.1900	41.37	-14.90	26.47	46.00	-19.53	Peak	
4	384.0500	39.60	-11.55	28.05	46.00	-17.95	Peak	
5	500.4500	35.14	-8.71	26.43	46.00	-19.57	Peak	
6	832.1900	36.57	-0.48	36.09	46.00	-9.91	Peak	

APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ)

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

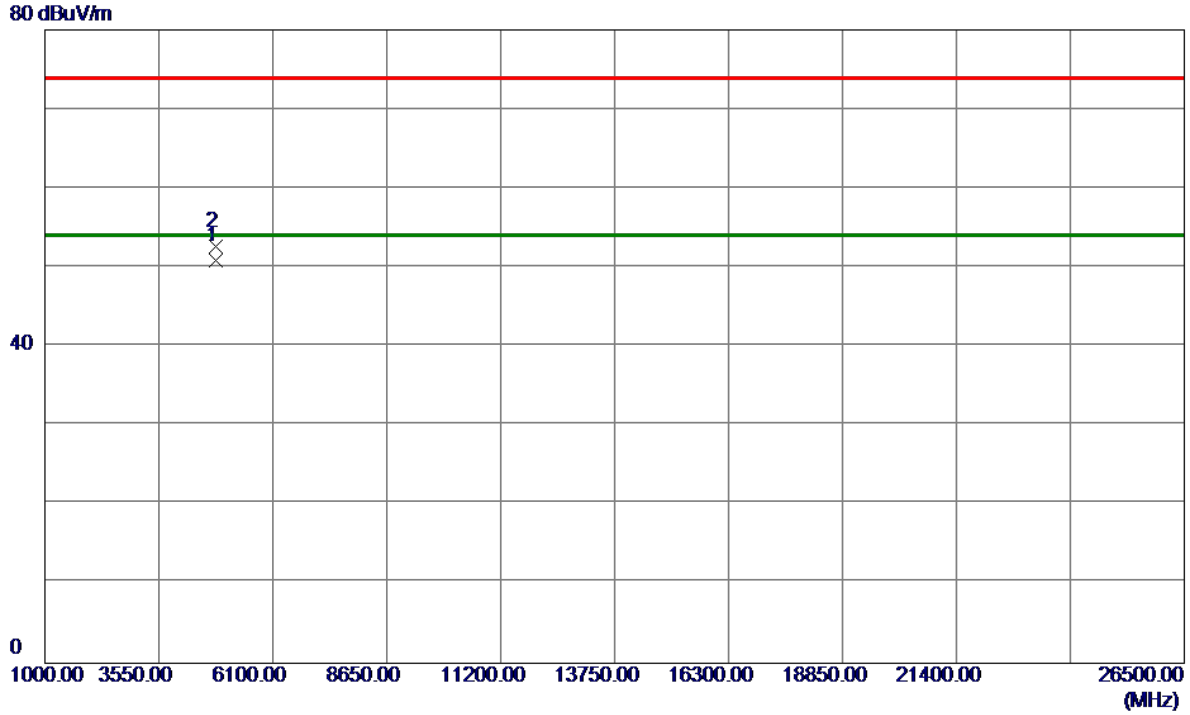
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	26.08	33.06	59.14	74.00	-14.86	Peak	
2	2390.0000	15.65	33.06	48.71	54.00	-5.29	AVG	
3	2409.2000	71.32	33.13	104.45	74.00	30.45	Peak	No Limit
4 *	2410.5000	68.34	33.13	101.47	54.00	47.47	AVG	No Limit

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

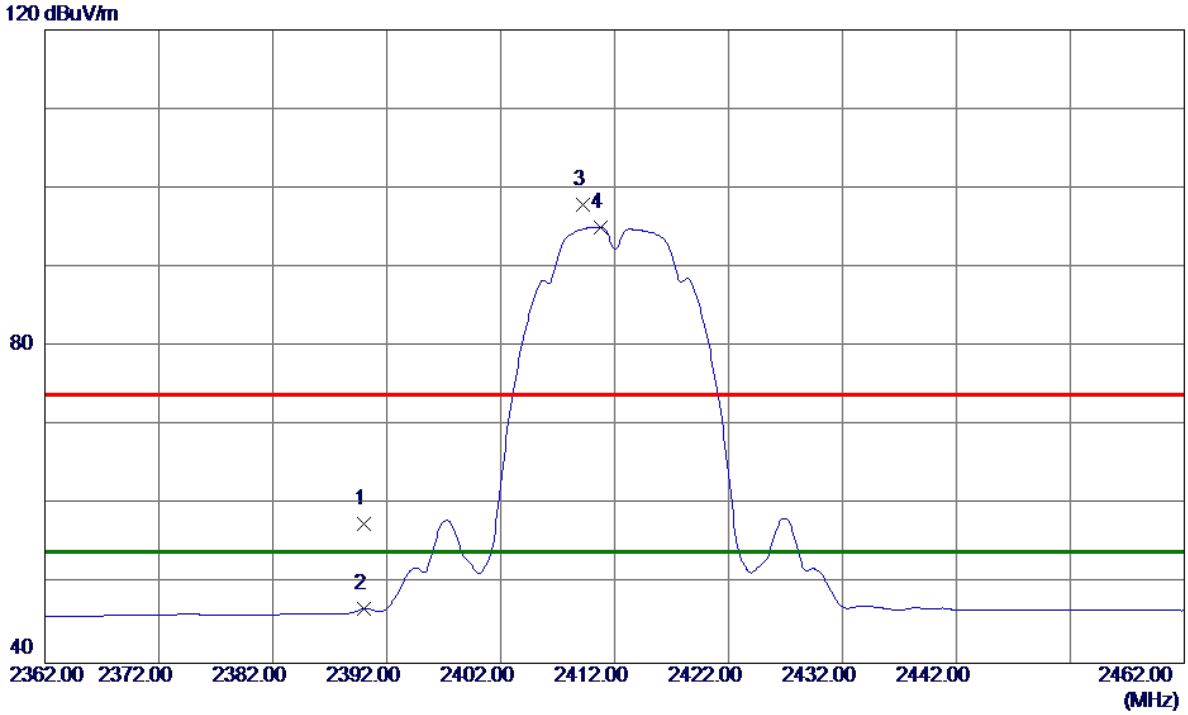
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.9650	44.16	6.66	50.82	54.00	-3.18	AVG	
2	4823.9700	46.02	6.66	52.68	74.00	-21.32	Peak	

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

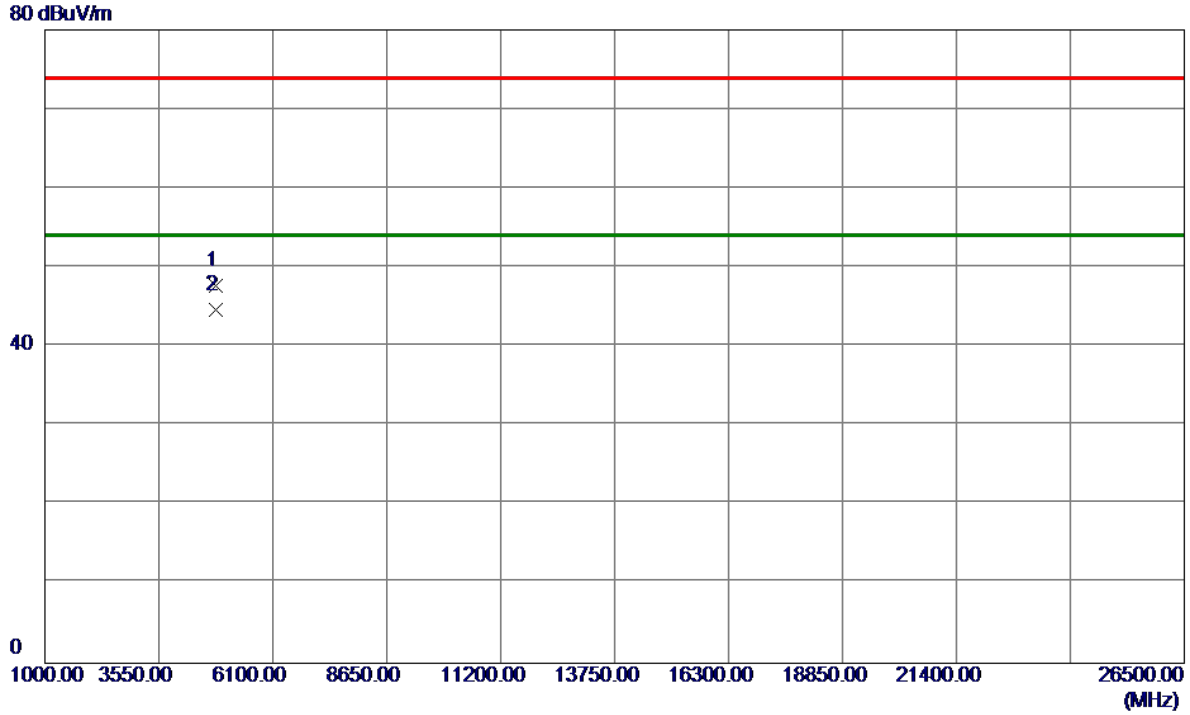
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.52	33.06	57.58	74.00	-16.42	Peak	
2	2390.0000	13.83	33.06	46.89	54.00	-7.11	AVG	
3	2409.2000	64.82	33.13	97.95	74.00	23.95	Peak	No Limit
4 *	2410.8000	61.95	33.13	95.08	54.00	41.08	AVG	No Limit

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

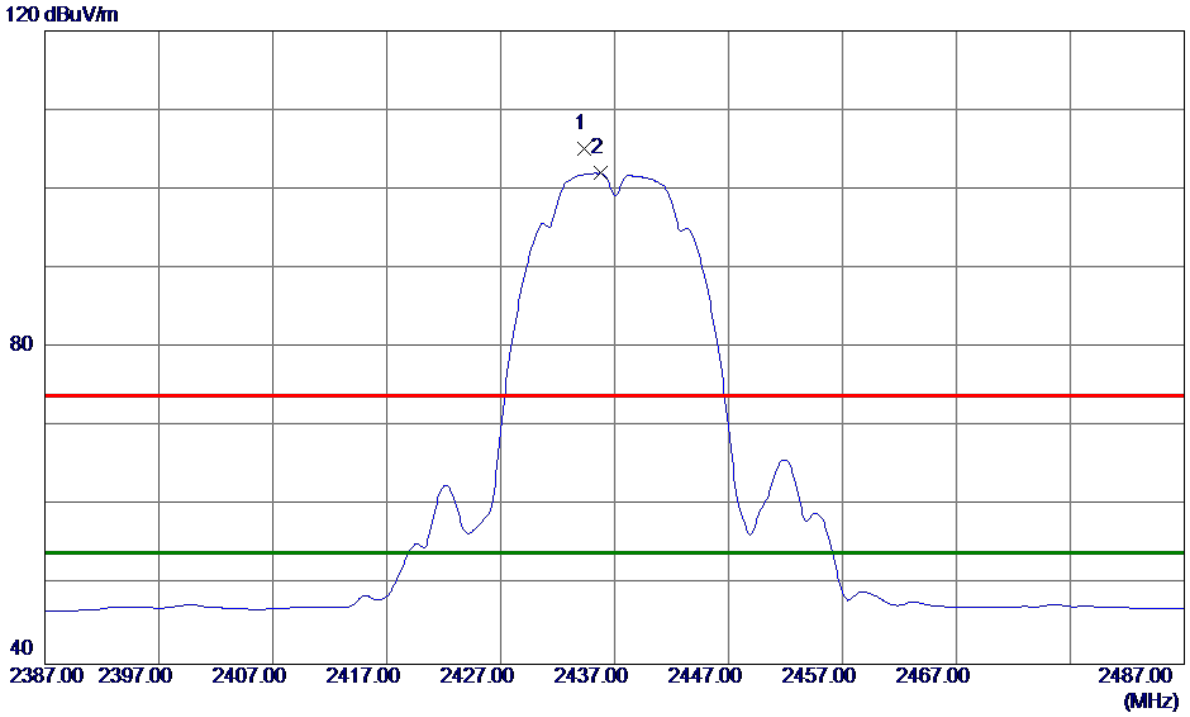
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.9550	40.96	6.66	47.62	74.00	-26.38	Peak	
2 *	4823.9900	37.95	6.66	44.61	54.00	-9.39	AVG	

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

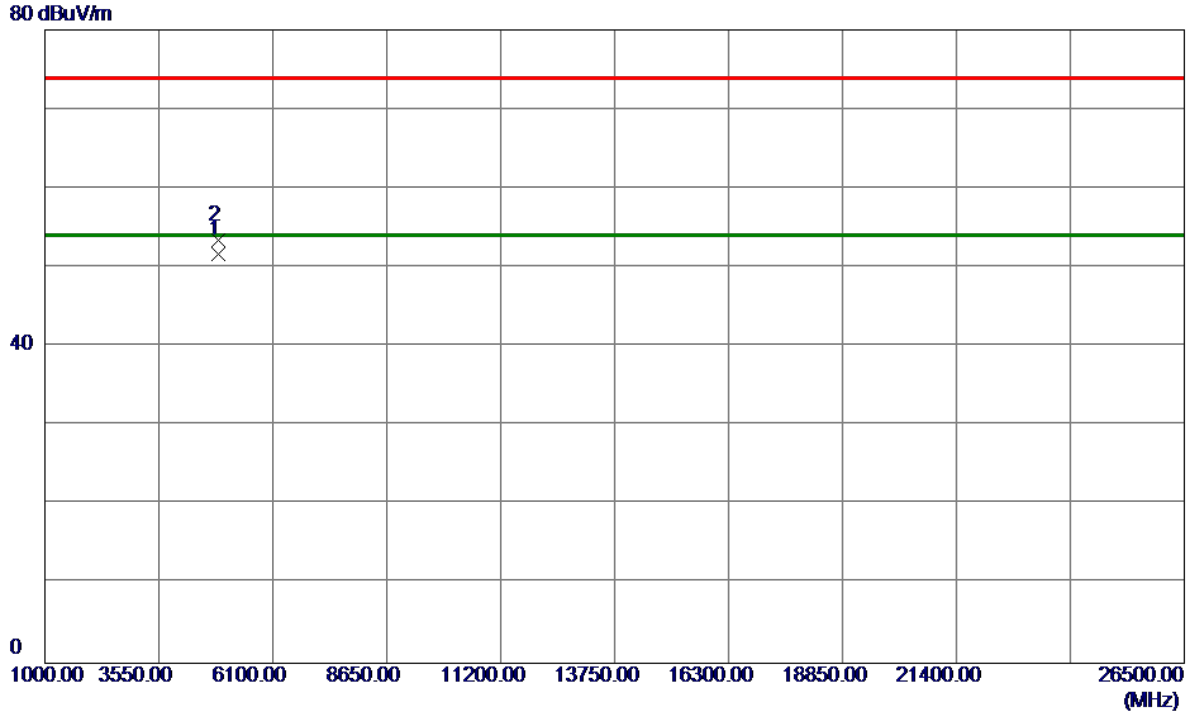
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2434.3000	71.83	33.22	105.05	74.00	31.05	Peak	No Limit
2 *	2435.8000	68.78	33.23	102.01	54.00	48.01	AVG	No Limit

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

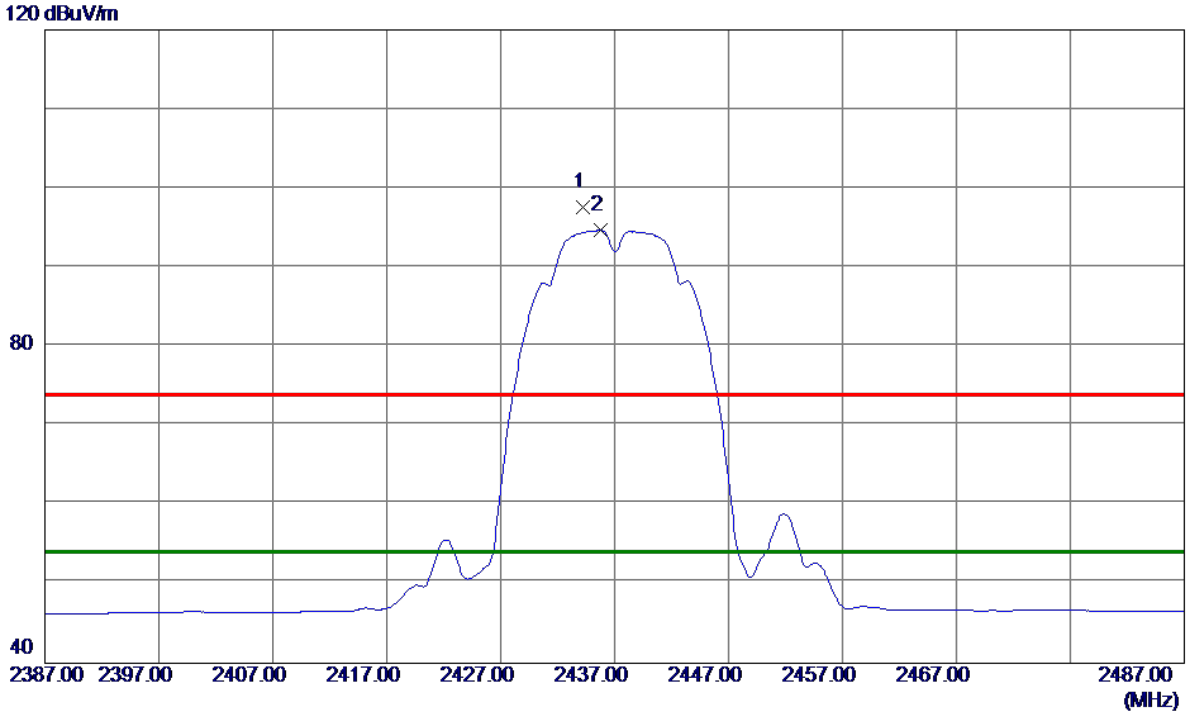
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9600	44.89	6.84	51.73	54.00	-2.27	AVG	
2	4873.9900	46.56	6.84	53.40	74.00	-20.60	Peak	

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

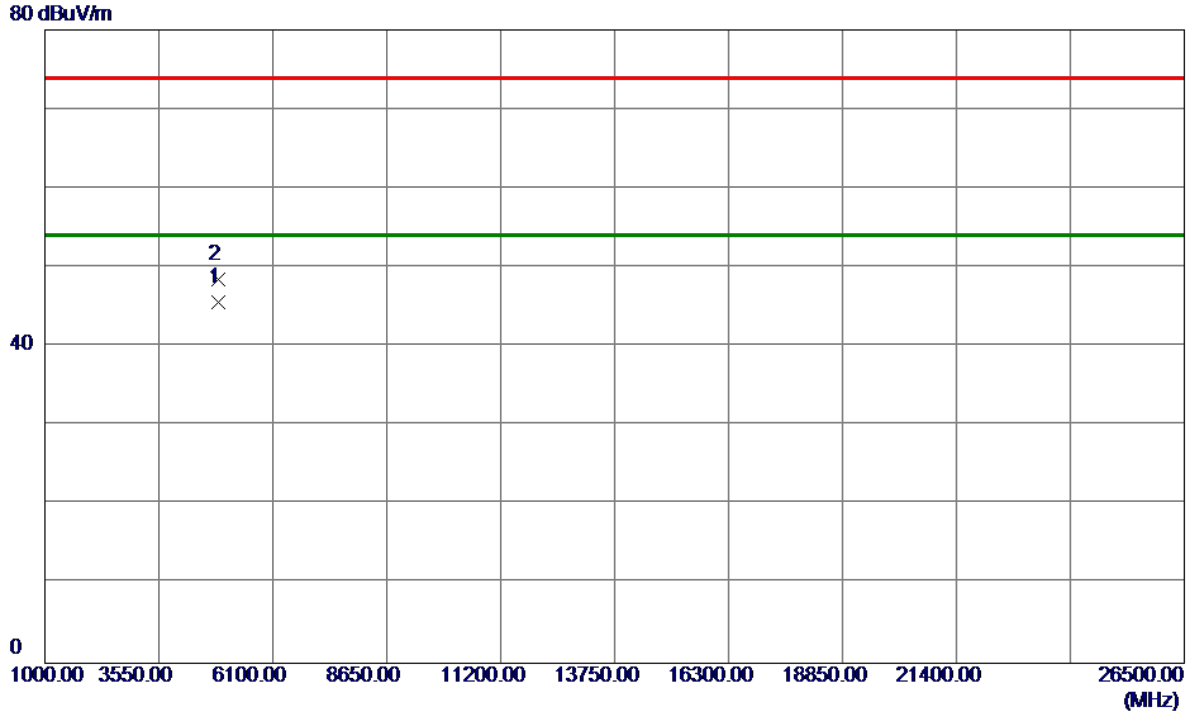
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2434.2000	64.42	33.22	97.64	74.00	23.64	Peak	No Limit
2 *	2435.8000	61.44	33.23	94.67	54.00	40.67	AVG	No Limit

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

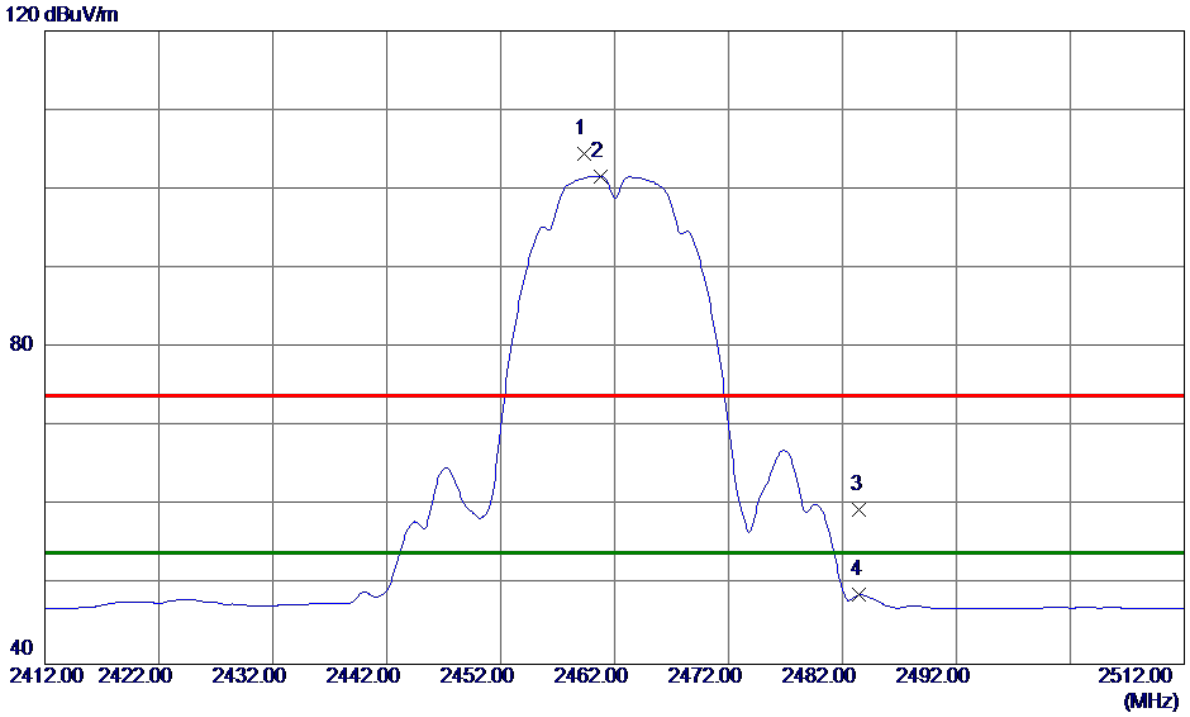
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9850	38.70	6.84	45.54	54.00	-8.46	AVG	
2	4873.9950	41.60	6.84	48.44	74.00	-25.56	Peak	

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

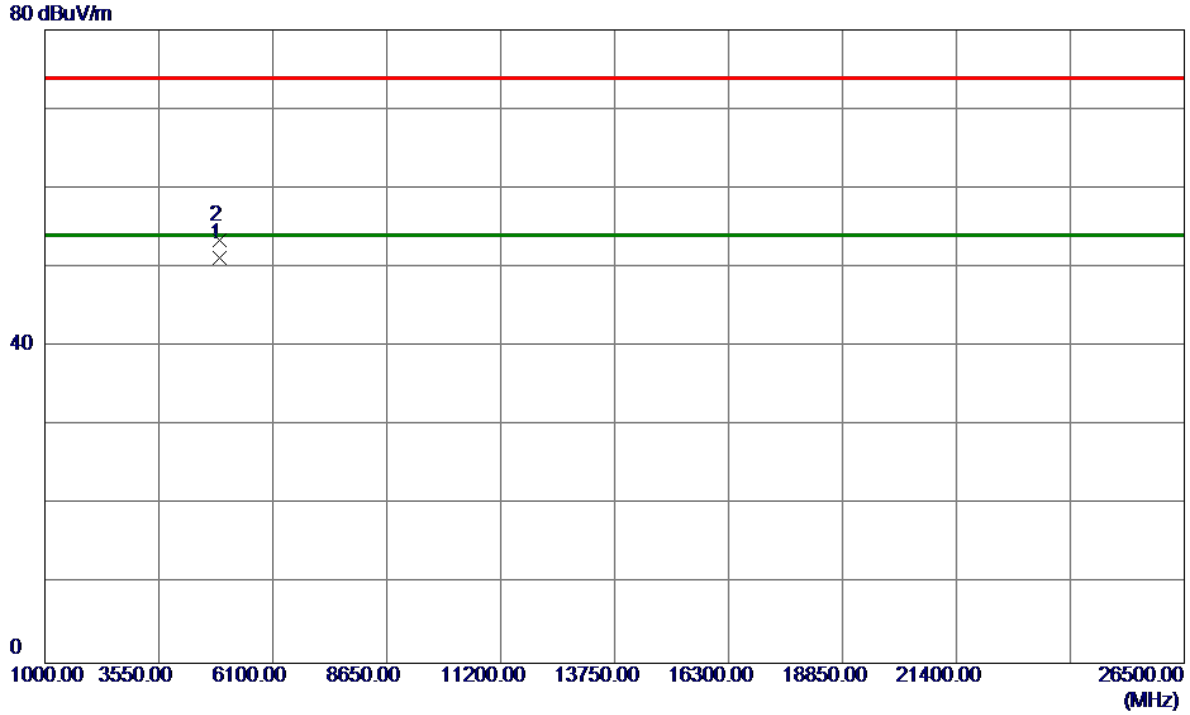
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2459.3000	71.15	33.32	104.47	74.00	30.47	Peak	No Limit
2 *	2460.8000	68.32	33.32	101.64	54.00	47.64	AVG	No Limit
3	2483.5000	26.17	33.41	59.58	74.00	-14.42	Peak	
4	2483.5000	15.36	33.41	48.77	54.00	-5.23	AVG	

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

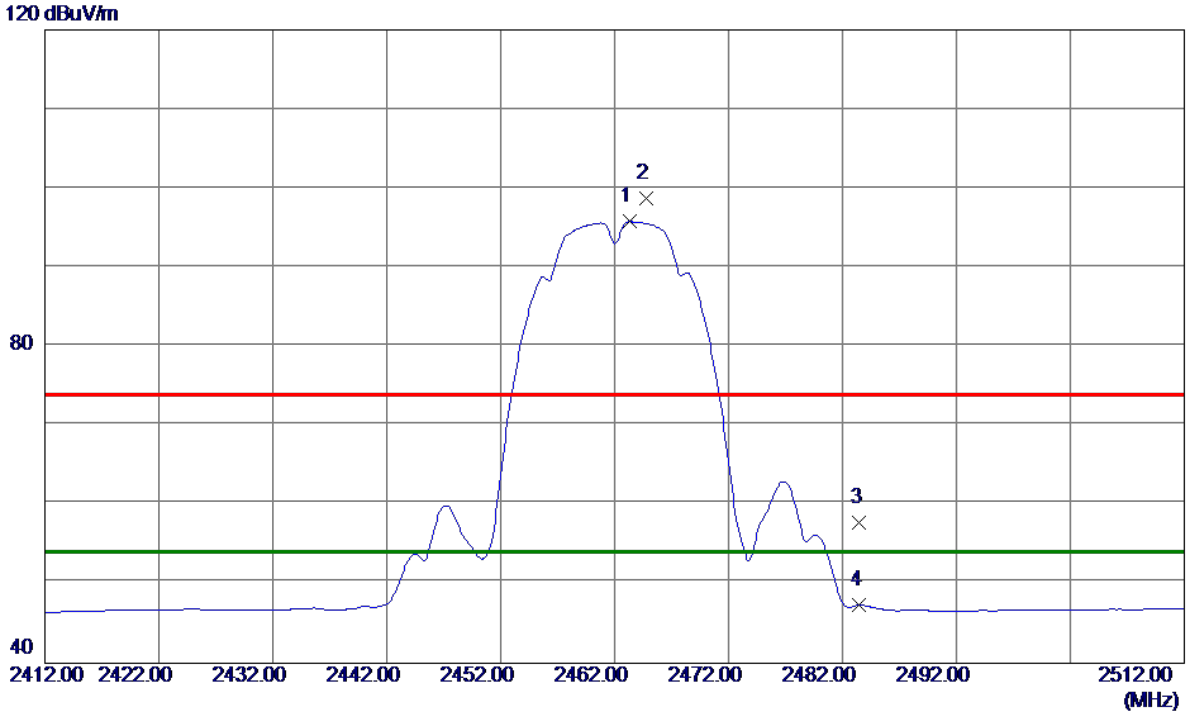
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.9700	44.21	7.02	51.23	54.00	-2.77	AVG	
2	4924.0000	46.36	7.02	53.38	74.00	-20.62	Peak	

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

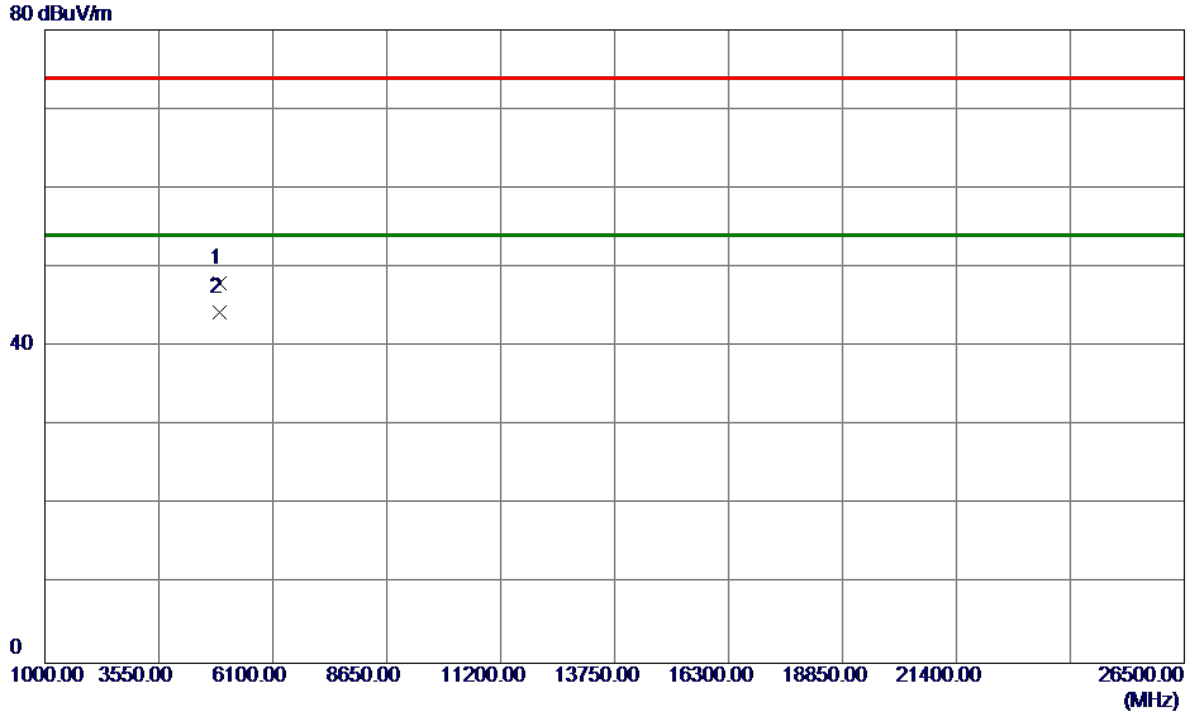
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2463.3000	62.45	33.33	95.78	54.00	41.78	AVG	No Limit
2	2464.8000	65.43	33.34	98.77	74.00	24.77	Peak	No Limit
3	2483.5000	24.35	33.41	57.76	74.00	-16.24	Peak	
4	2483.5000	13.93	33.41	47.34	54.00	-6.66	AVG	

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

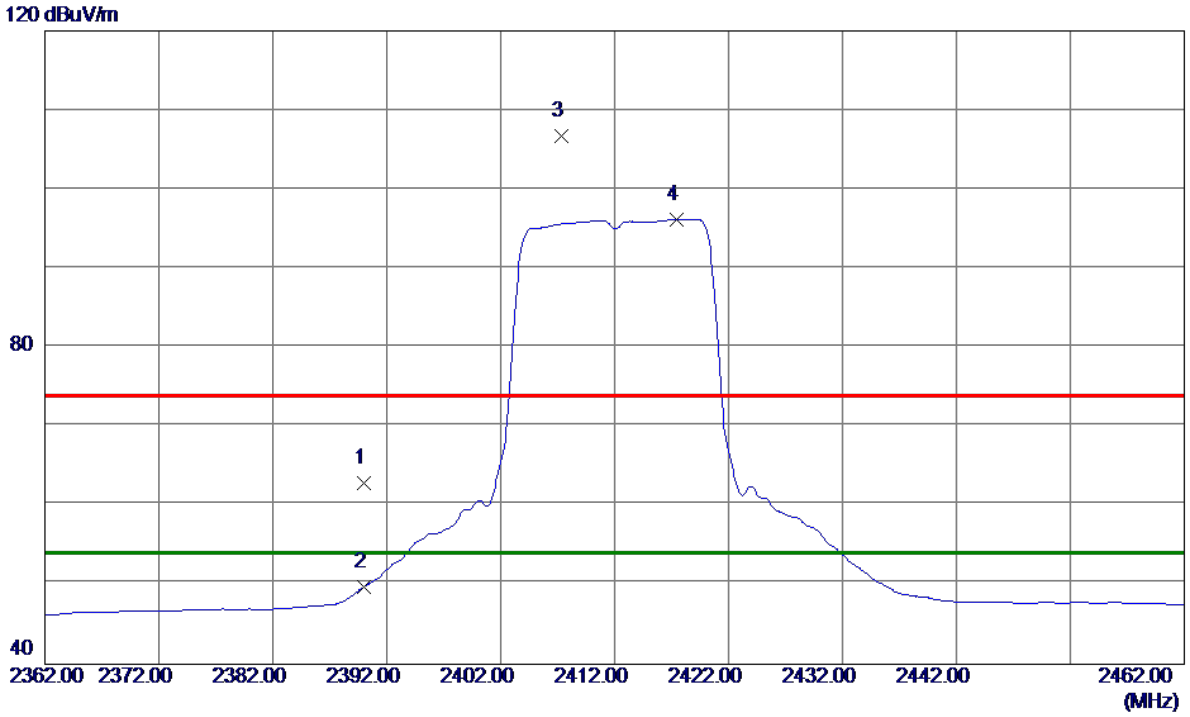
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.9500	40.92	7.02	47.94	74.00	-26.06	Peak	
2 *	4923.9900	37.28	7.02	44.30	54.00	-9.70	AVG	

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

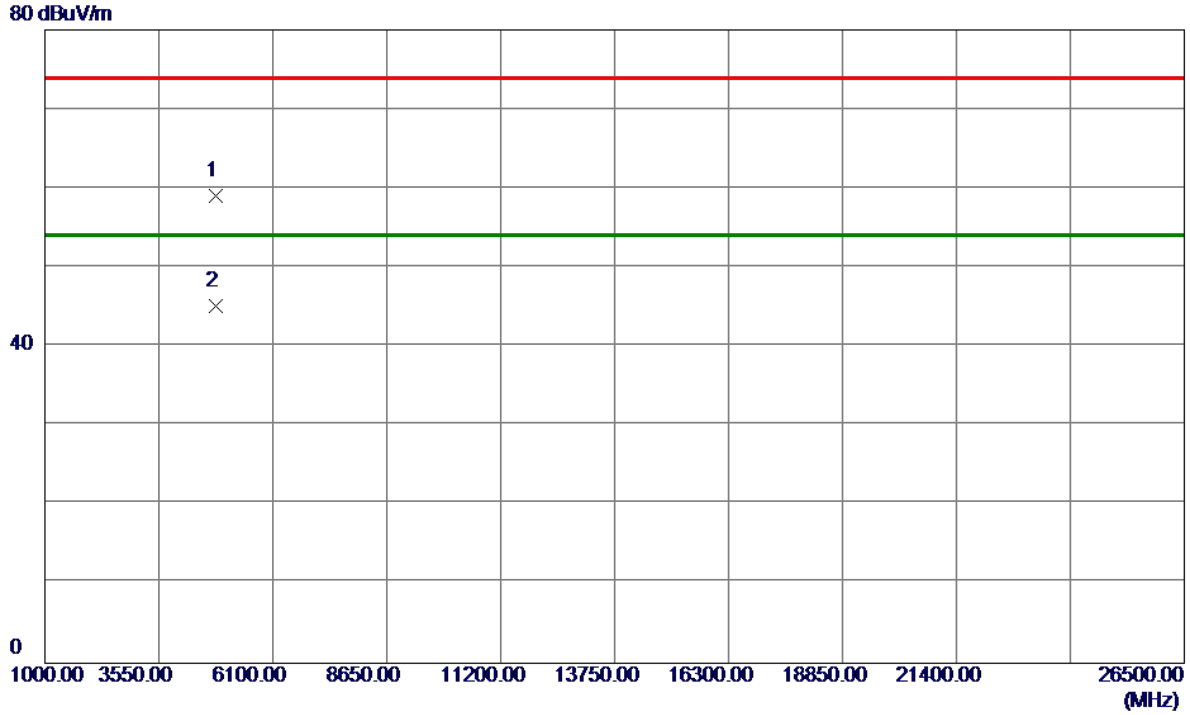
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	29.87	33.06	62.93	74.00	-11.07	Peak	
2	2390.0000	16.70	33.06	49.76	54.00	-4.24	AVG	
3	2407.3000	73.53	33.12	106.65	74.00	32.65	Peak	No Limit
4 *	2417.4000	63.00	33.16	96.16	54.00	42.16	AVG	No Limit

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

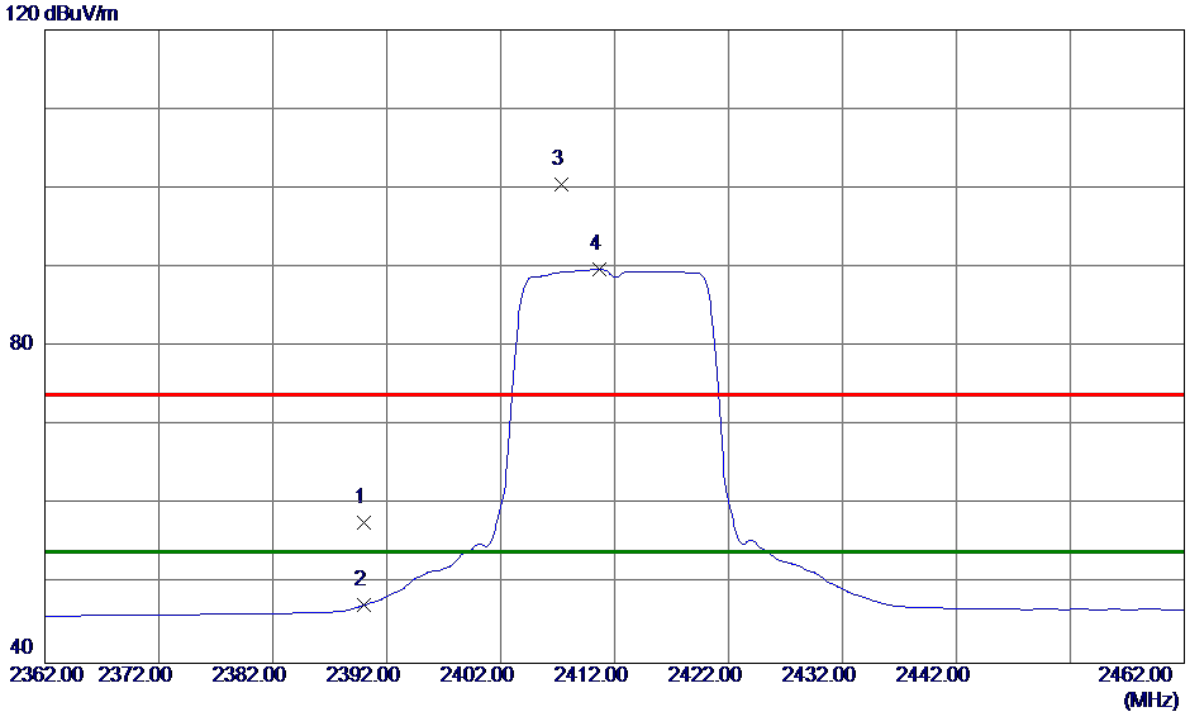
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4820.2000	52.39	6.64	59.03	74.00	-14.97	Peak	
2 *	4824.0000	38.48	6.66	45.14	54.00	-8.86	AVG	

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

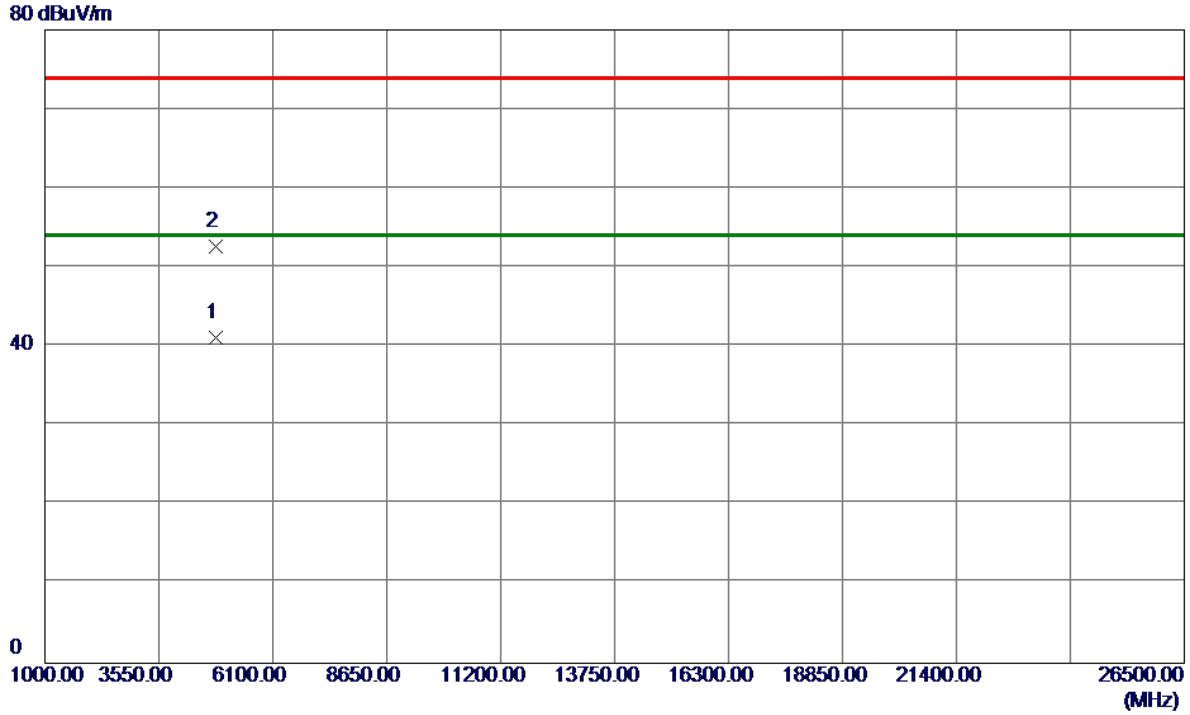
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.69	33.06	57.75	74.00	-16.25	Peak	
2	2390.0000	14.29	33.06	47.35	54.00	-6.65	AVG	
3	2407.3000	67.33	33.12	100.45	74.00	26.45	Peak	No Limit
4 *	2410.7000	56.62	33.13	89.75	54.00	35.75	AVG	No Limit

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

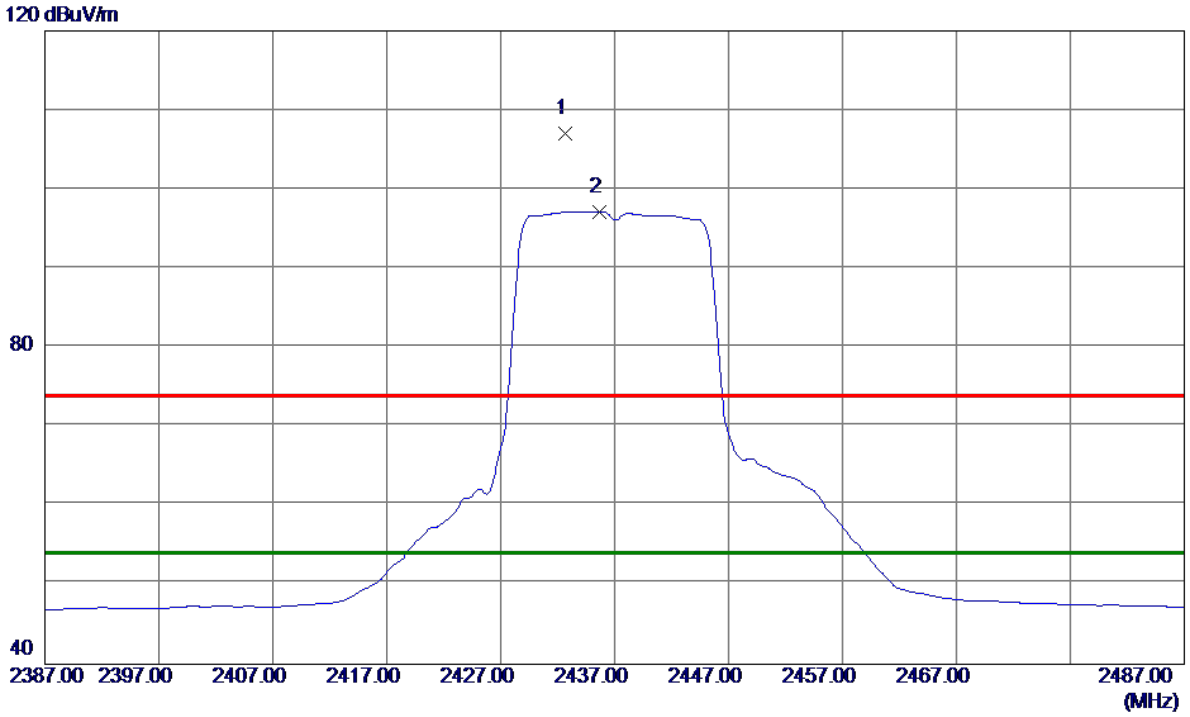
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0000	34.48	6.66	41.14	54.00	-12.86	AVG	
2	4825.9000	45.96	6.66	52.62	74.00	-21.38	Peak	

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

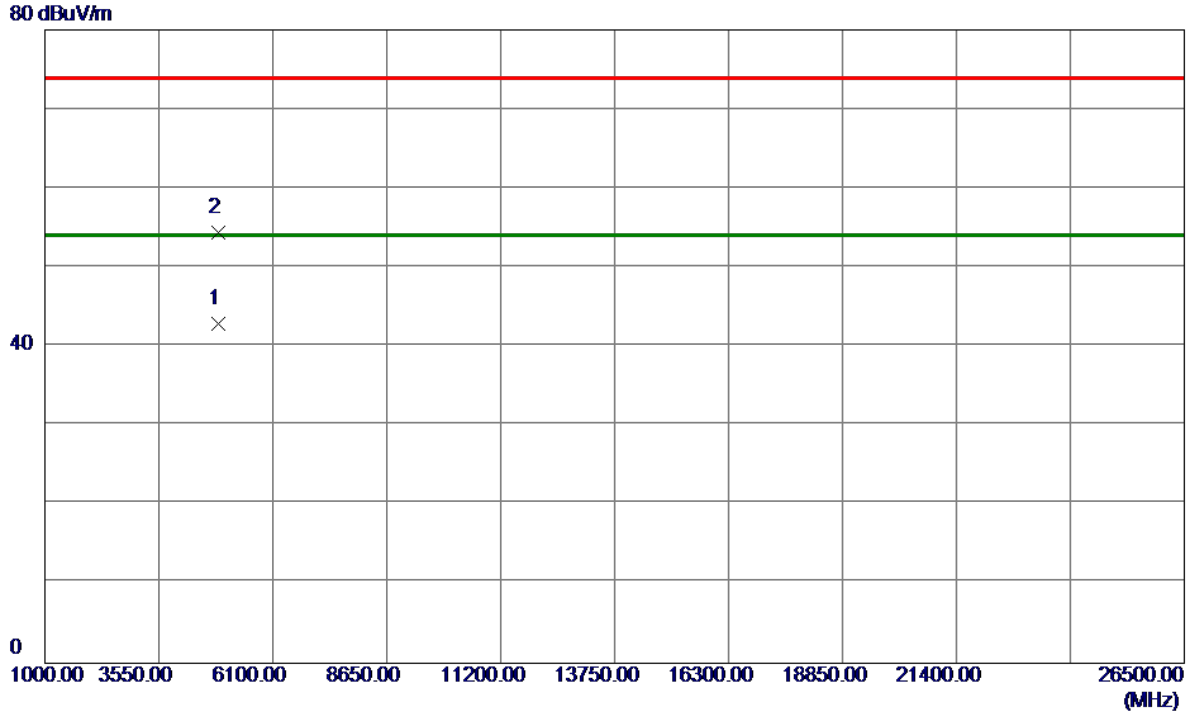
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2432.7000	73.89	33.22	107.11	74.00	33.11	Peak	No Limit
2 *	2435.7000	63.94	33.23	97.17	54.00	43.17	AVG	No Limit

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

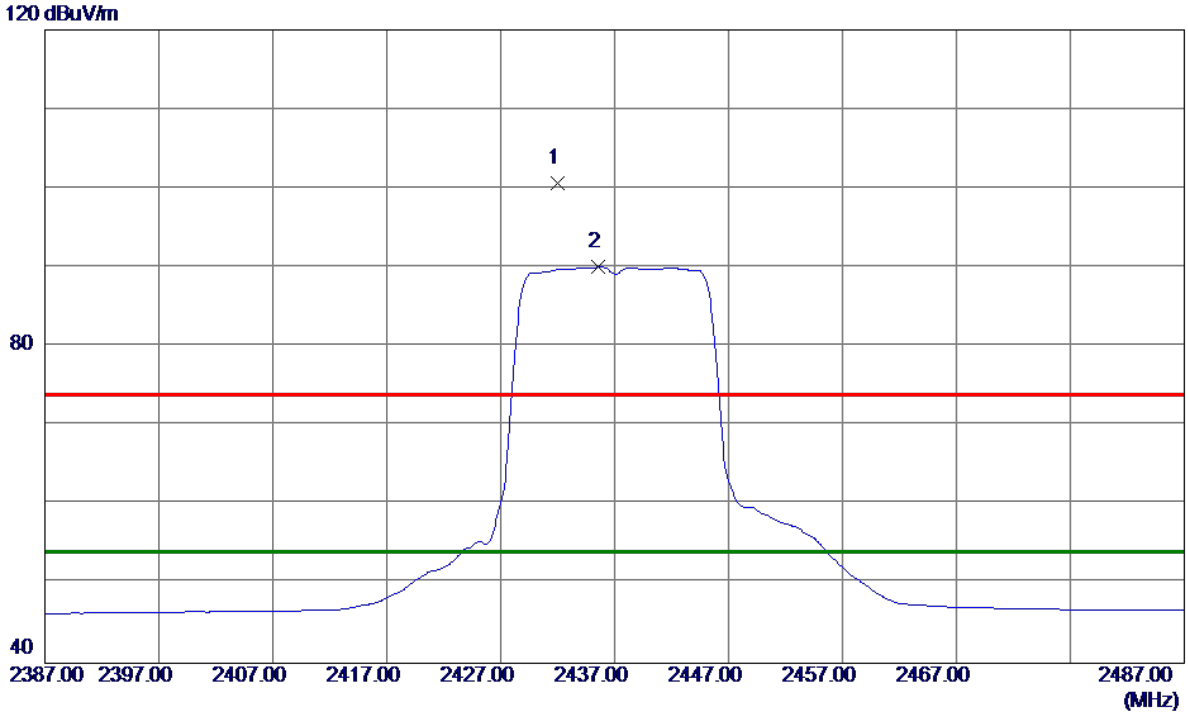
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4872.1000	36.01	6.83	42.84	54.00	-11.16	AVG	
2	4872.5500	47.52	6.83	54.35	74.00	-19.65	Peak	

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

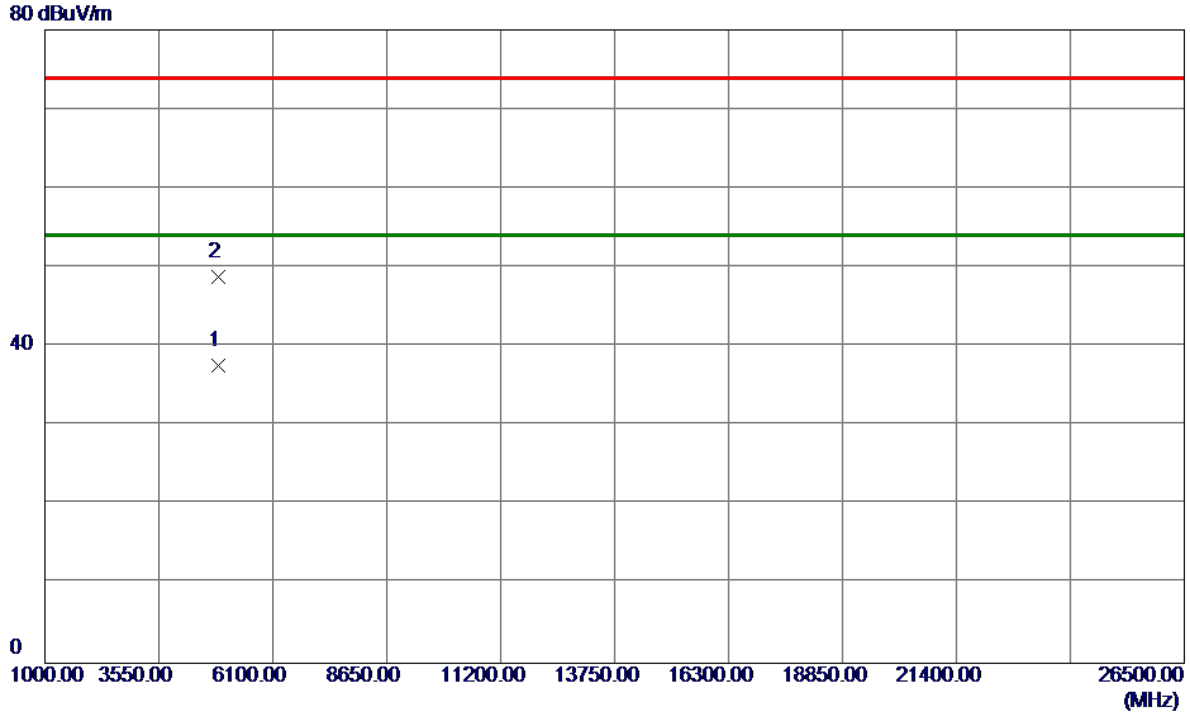
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2432.0000	67.50	33.21	100.71	74.00	26.71	Peak	No Limit
2 *	2435.6000	56.80	33.23	90.03	54.00	36.03	AVG	No Limit

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

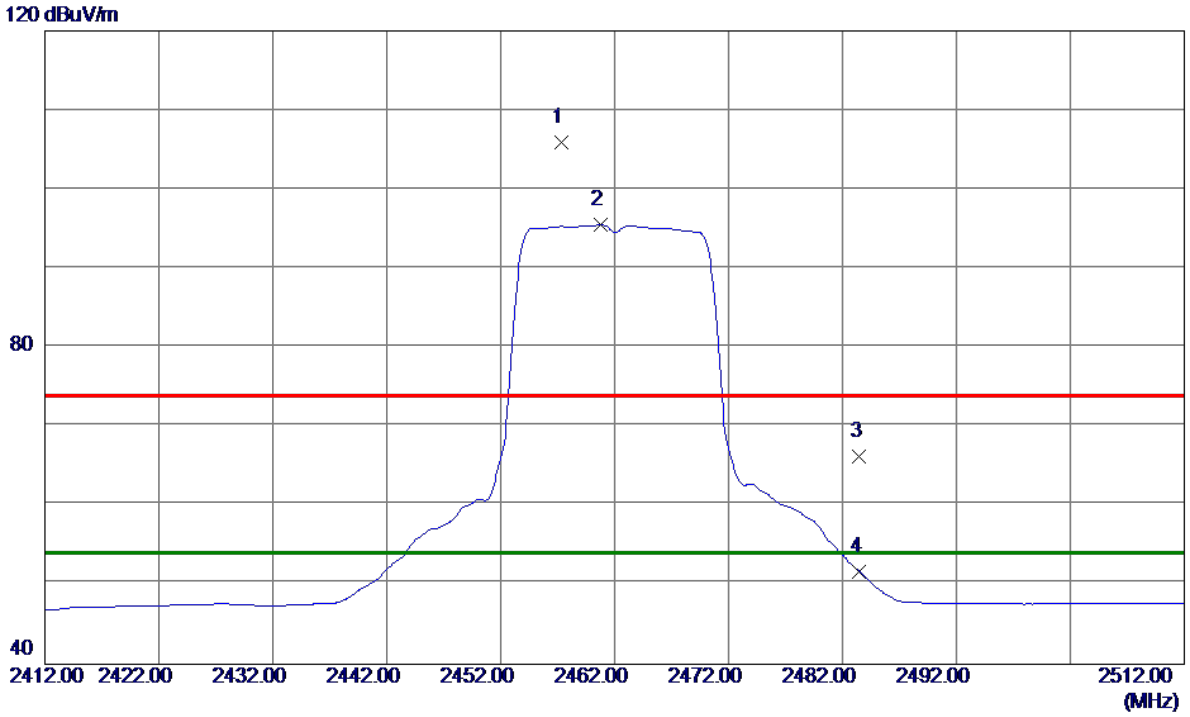
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4871.2500	30.71	6.83	37.54	54.00	-16.46	AVG	
2	4871.6500	41.96	6.83	48.79	74.00	-25.21	Peak	

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

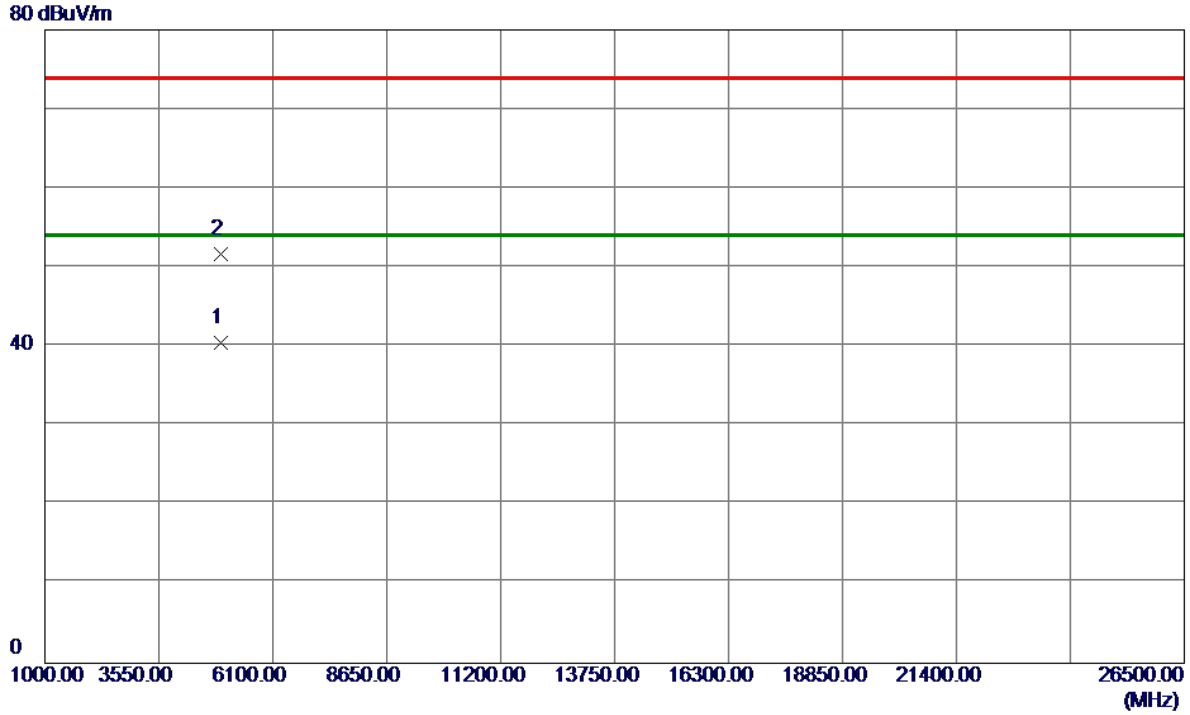
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2457.3000	72.65	33.31	105.96	74.00	31.96	Peak	No Limit
2 *	2460.8000	62.16	33.32	95.48	54.00	41.48	AVG	No Limit
3	2483.5000	32.79	33.41	66.20	74.00	-7.80	Peak	
4	2483.5000	18.29	33.41	51.70	54.00	-2.30	AVG	

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

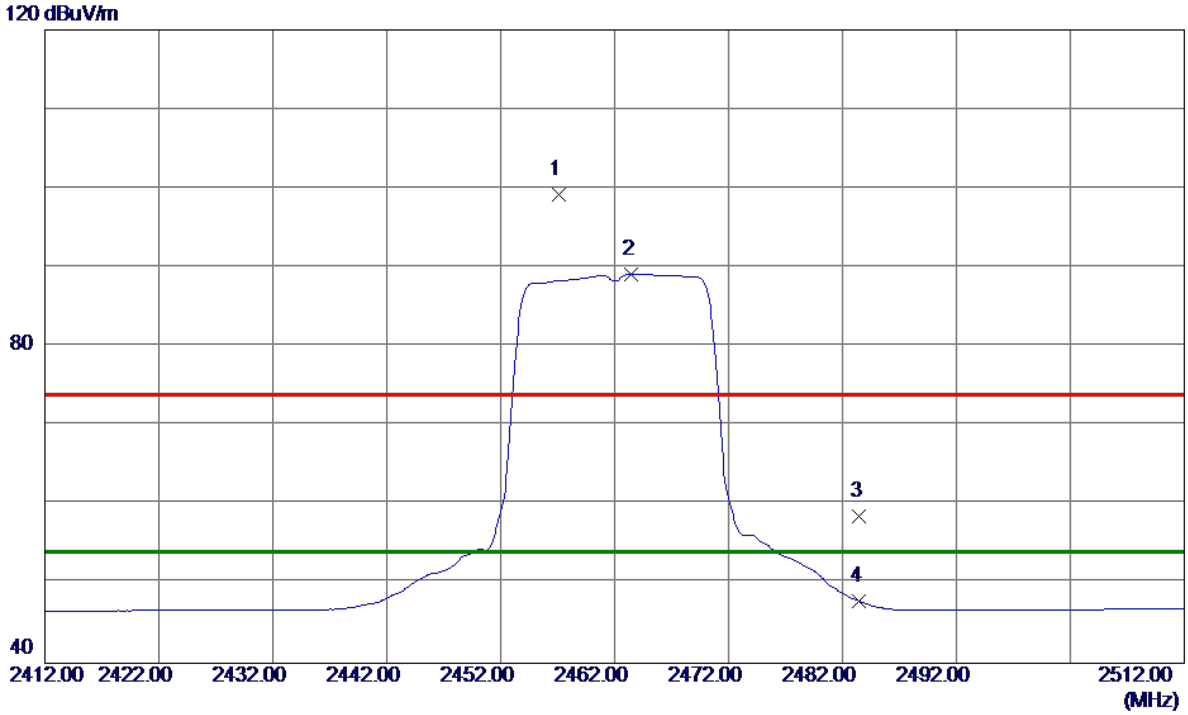
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4925.1000	33.40	7.02	40.42	54.00	-13.58	AVG	
2	4929.9000	44.58	7.04	51.62	74.00	-22.38	Peak	

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

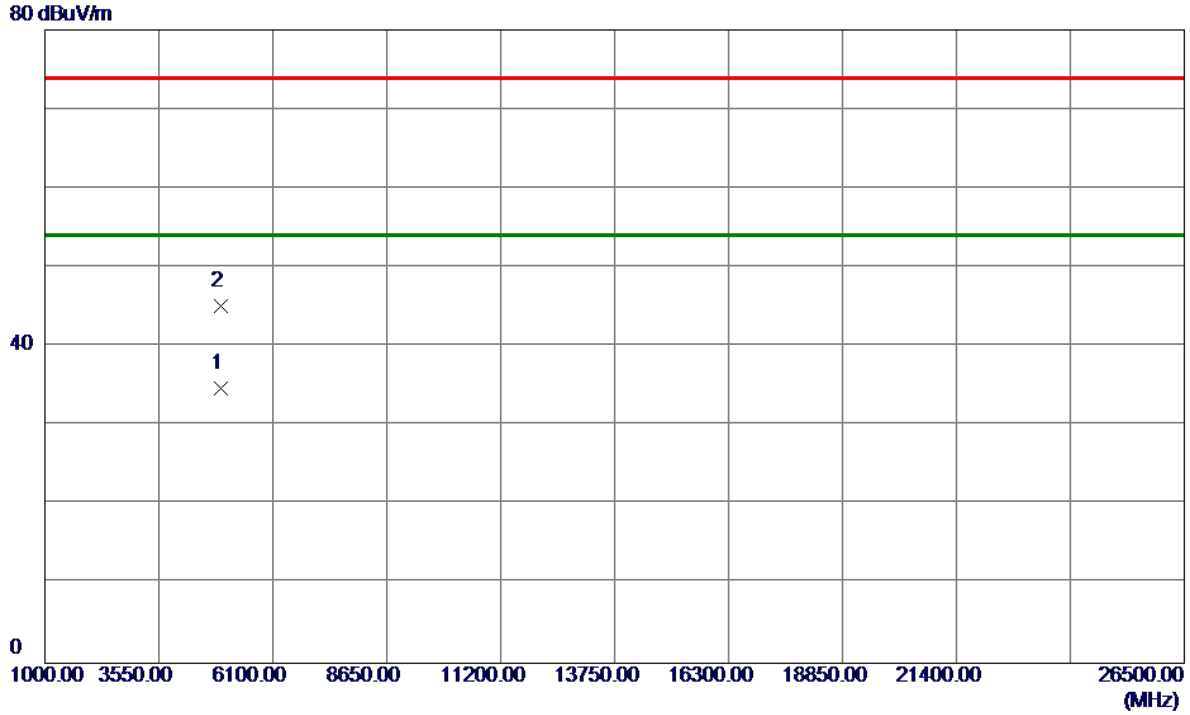
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2457.1000	65.91	33.31	99.22	74.00	25.22	Peak	No Limit
2 *	2463.5000	55.85	33.33	89.18	54.00	35.18	AVG	No Limit
3	2483.5000	25.12	33.41	58.53	74.00	-15.47	Peak	
4	2483.5000	14.43	33.41	47.84	54.00	-6.16	AVG	

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

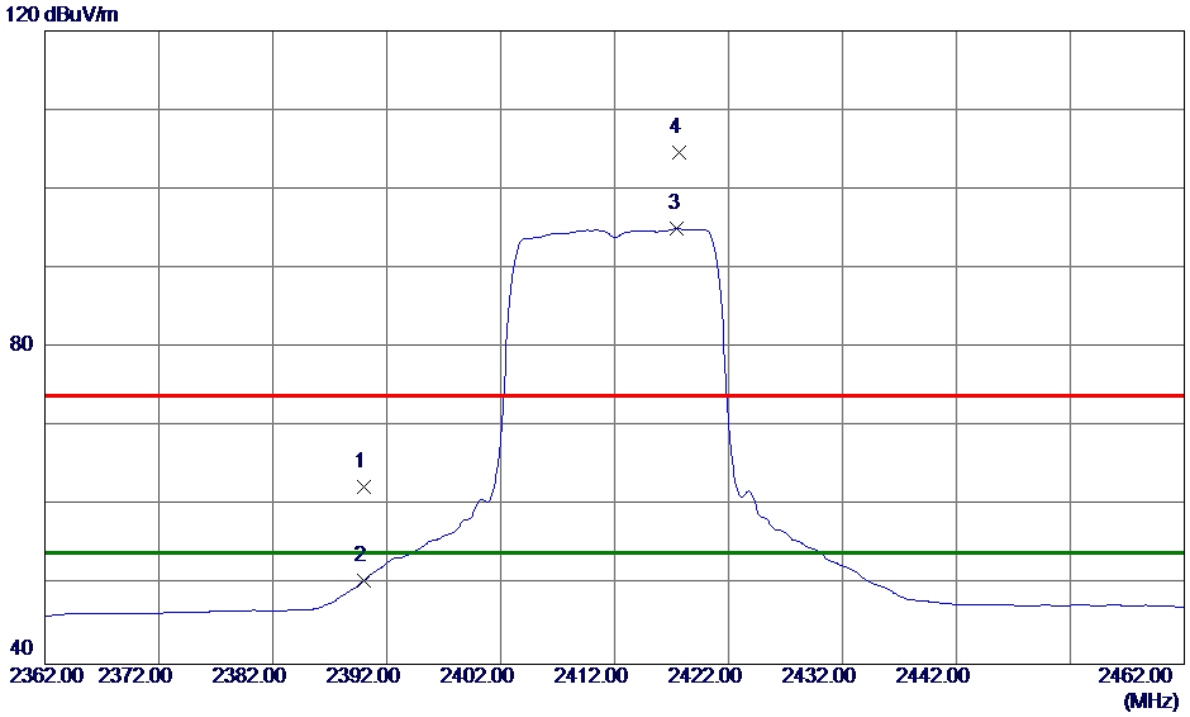
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4925.9500	27.68	7.02	34.70	54.00	-19.30	AVG	
2	4926.1500	38.05	7.02	45.07	74.00	-28.93	Peak	

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

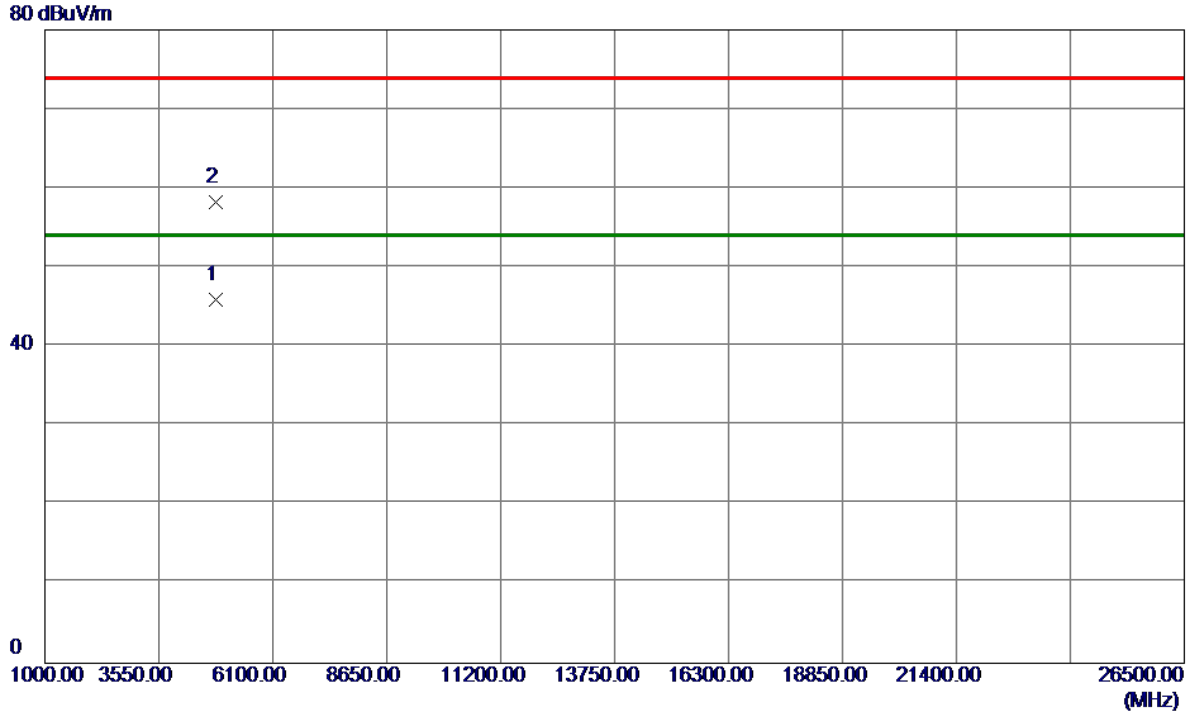
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	29.34	33.06	62.40	74.00	-11.60	Peak	
2	2390.0000	17.50	33.06	50.56	54.00	-3.44	AVG	
3 *	2417.5000	61.90	33.16	95.06	54.00	41.06	AVG	No Limit
4	2417.7000	71.43	33.16	104.59	74.00	30.59	Peak	No Limit

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

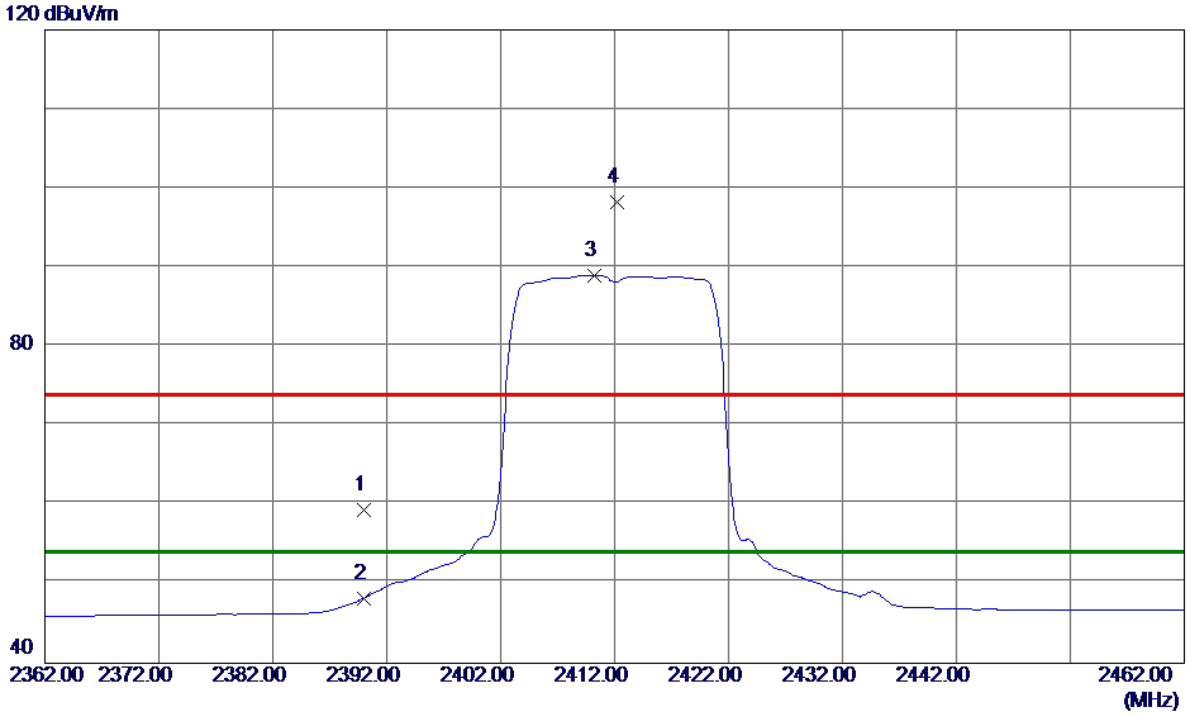
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.8500	39.18	6.66	45.84	54.00	-8.16	AVG	
2	4825.3500	51.63	6.66	58.29	74.00	-15.71	Peak	

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

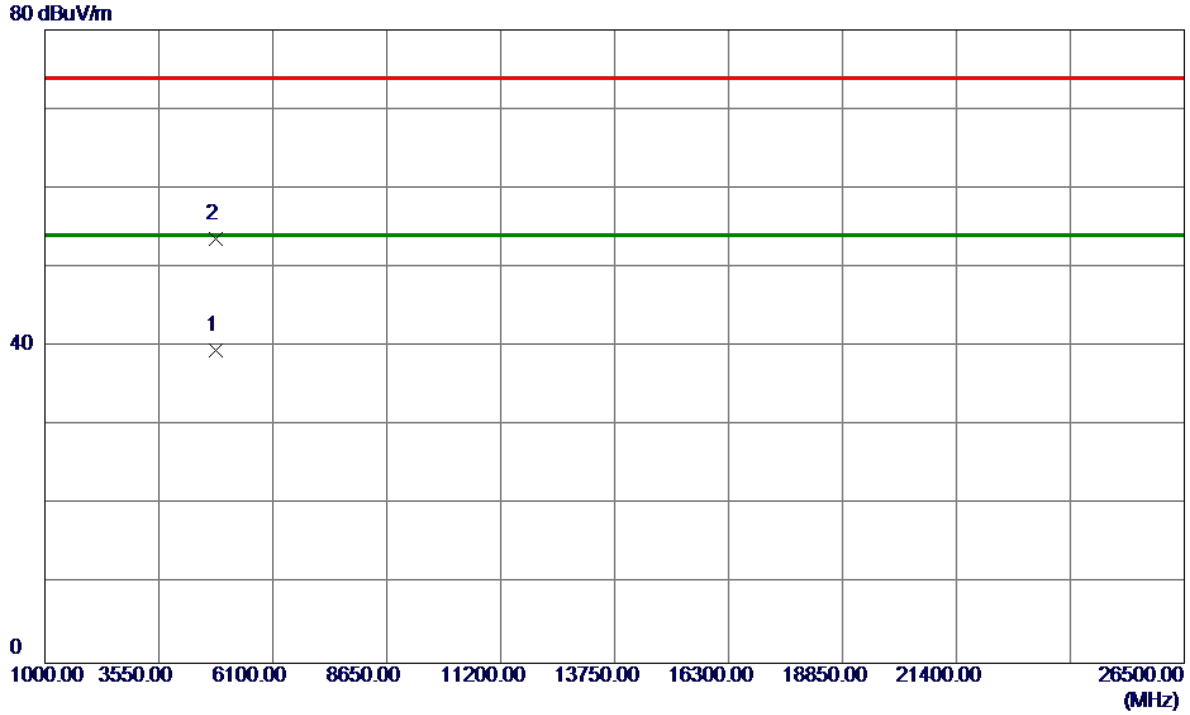
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	26.33	33.06	59.39	74.00	-14.61	Peak	
2	2390.0000	15.16	33.06	48.22	54.00	-5.78	AVG	
3 *	2410.2000	55.88	33.13	89.01	54.00	35.01	AVG	No Limit
4	2412.2000	65.12	33.14	98.26	74.00	24.26	Peak	No Limit

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

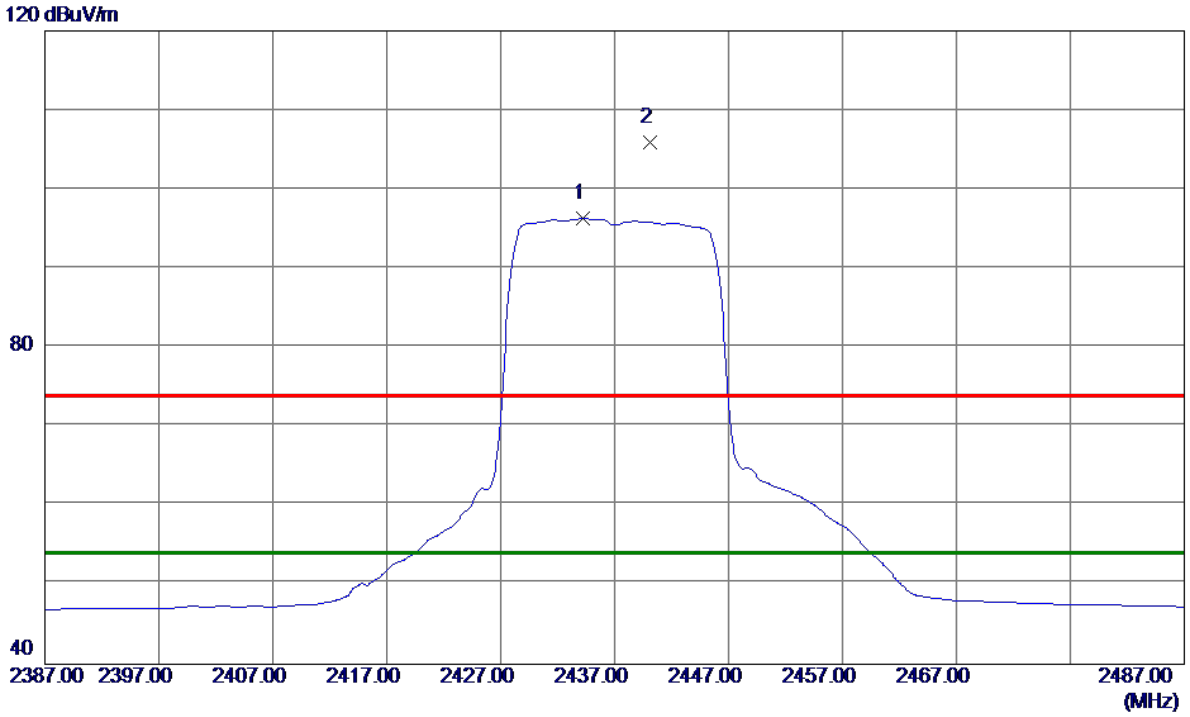
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.9000	32.83	6.66	39.49	54.00	-14.51	AVG	
2	4824.6500	47.00	6.66	53.66	74.00	-20.34	Peak	

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

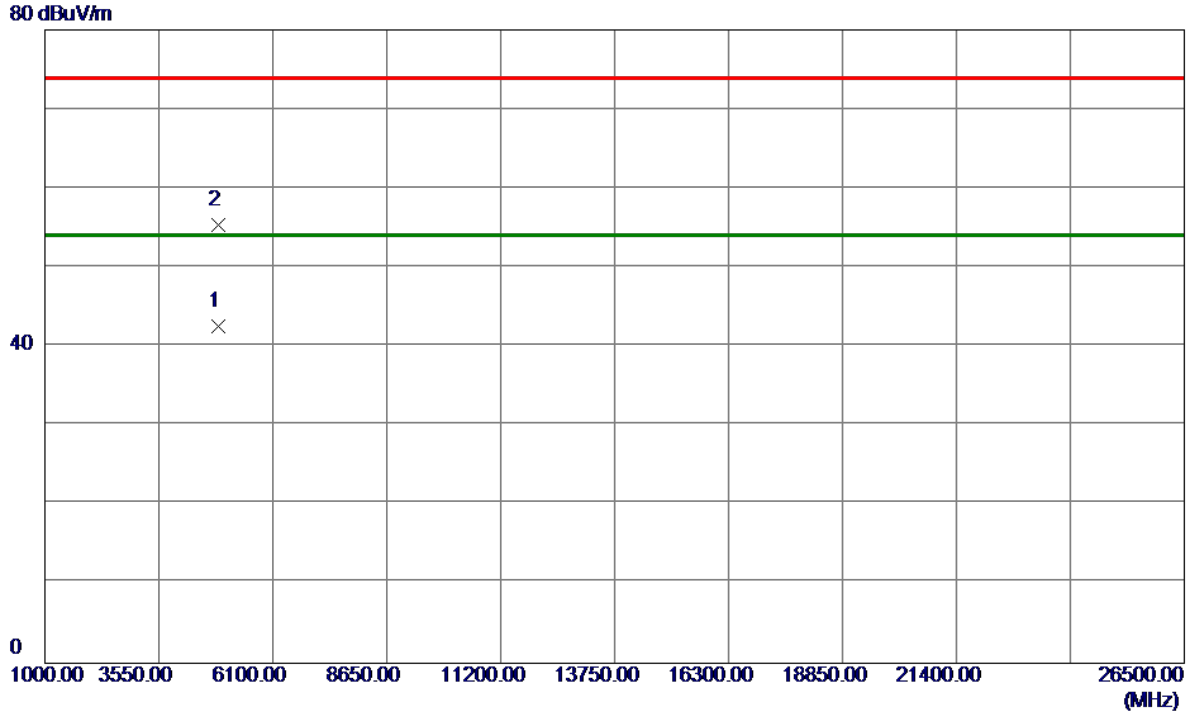
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2434.2000	63.08	33.22	96.30	54.00	42.30	AVG	No Limit
2	2440.1000	72.60	33.24	105.84	74.00	31.84	Peak	No Limit

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

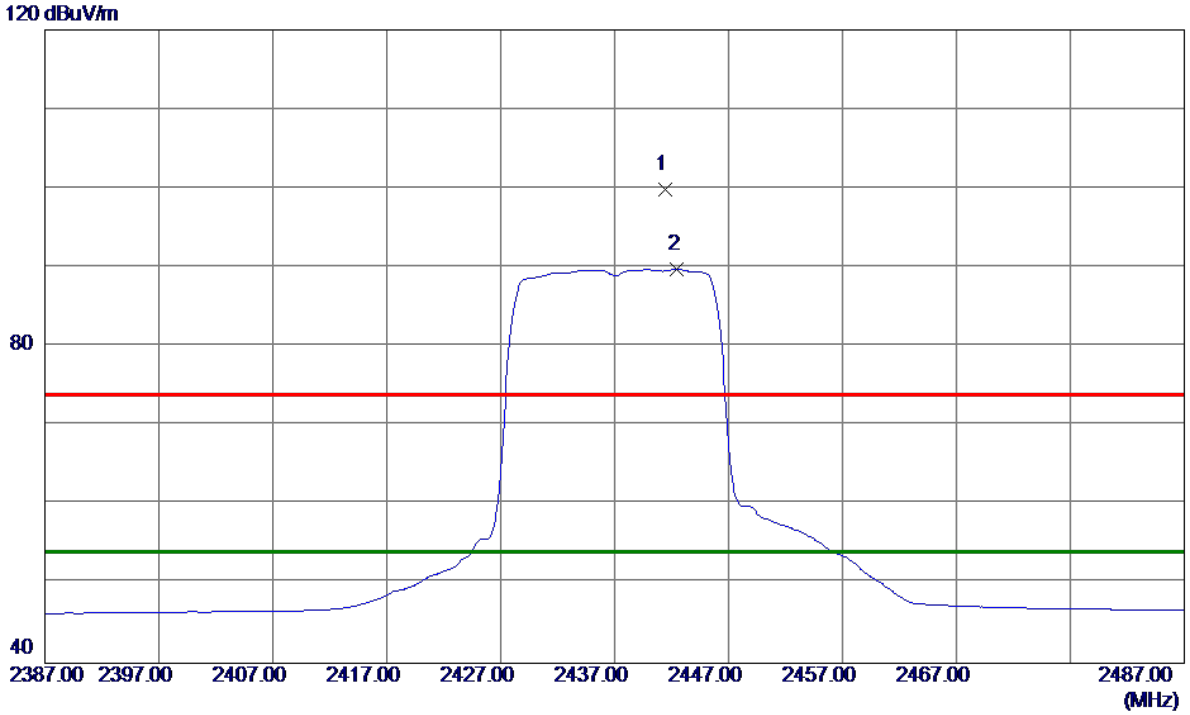
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4872.2000	35.68	6.83	42.51	54.00	-11.49	AVG	
2	4874.5500	48.55	6.84	55.39	74.00	-18.61	Peak	

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

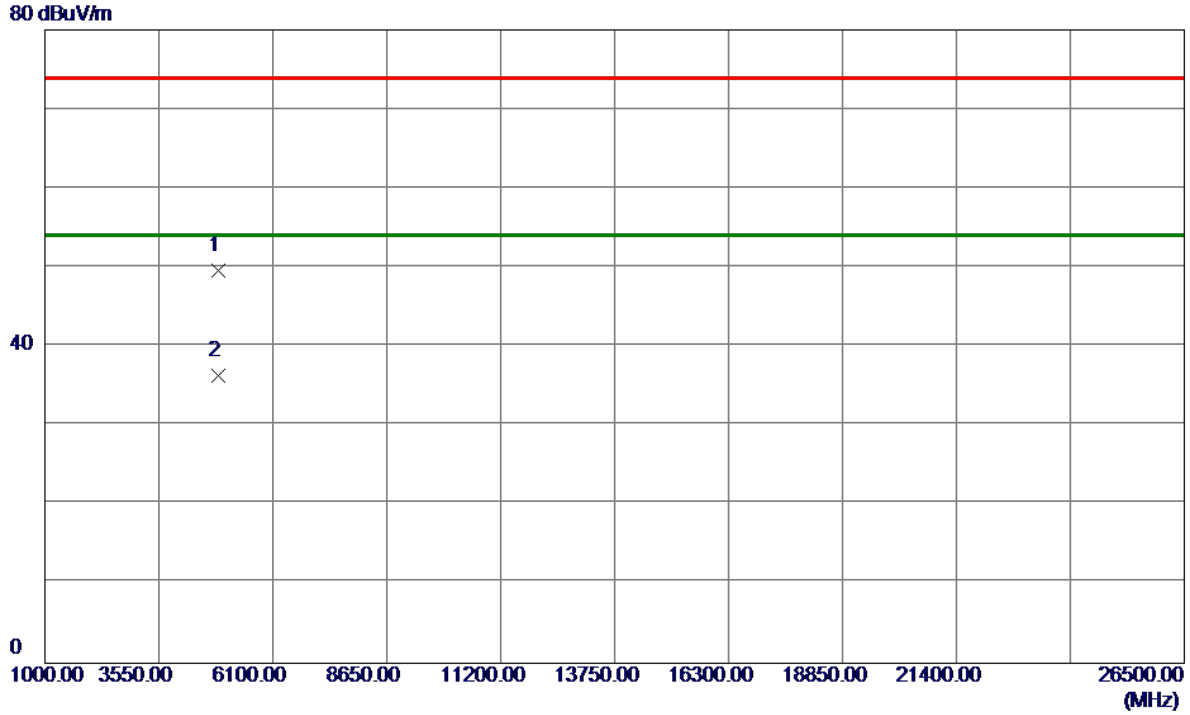
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2441.4000	66.62	33.25	99.87	74.00	25.87	Peak	No Limit
2 *	2442.5000	56.54	33.25	89.79	54.00	35.79	AVG	No Limit

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

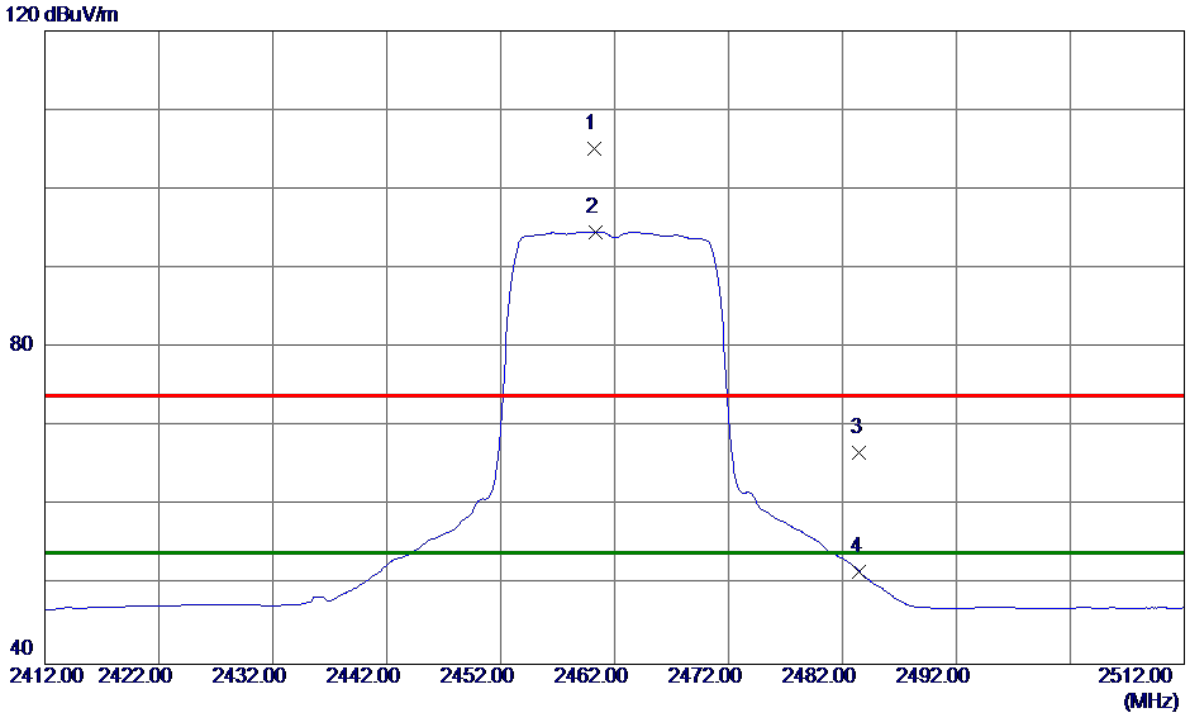
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4869.5000	42.85	6.82	49.67	74.00	-24.33	Peak	
2 *	4869.9000	29.56	6.82	36.38	54.00	-17.62	AVG	

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

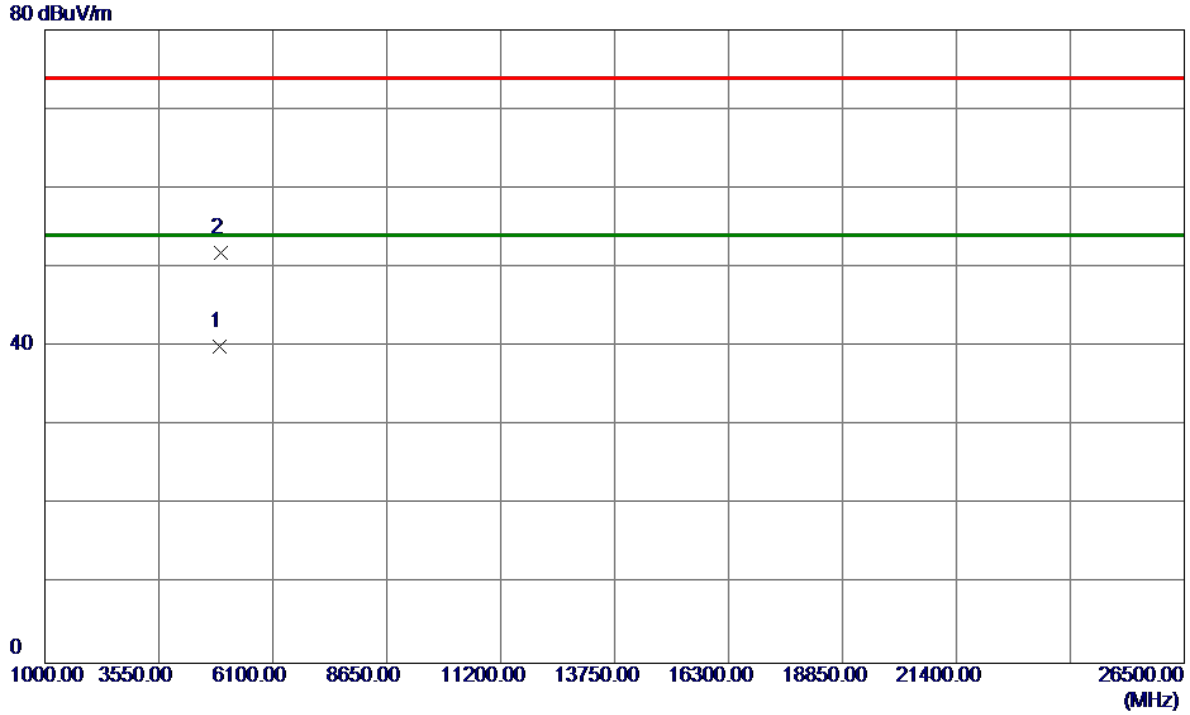
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2460.2000	71.78	33.32	105.10	74.00	31.10	Peak	No Limit
2 *	2460.3000	61.30	33.32	94.62	54.00	40.62	AVG	No Limit
3	2483.5000	33.33	33.41	66.74	74.00	-7.26	Peak	
4	2483.5000	18.32	33.41	51.73	54.00	-2.27	AVG	

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

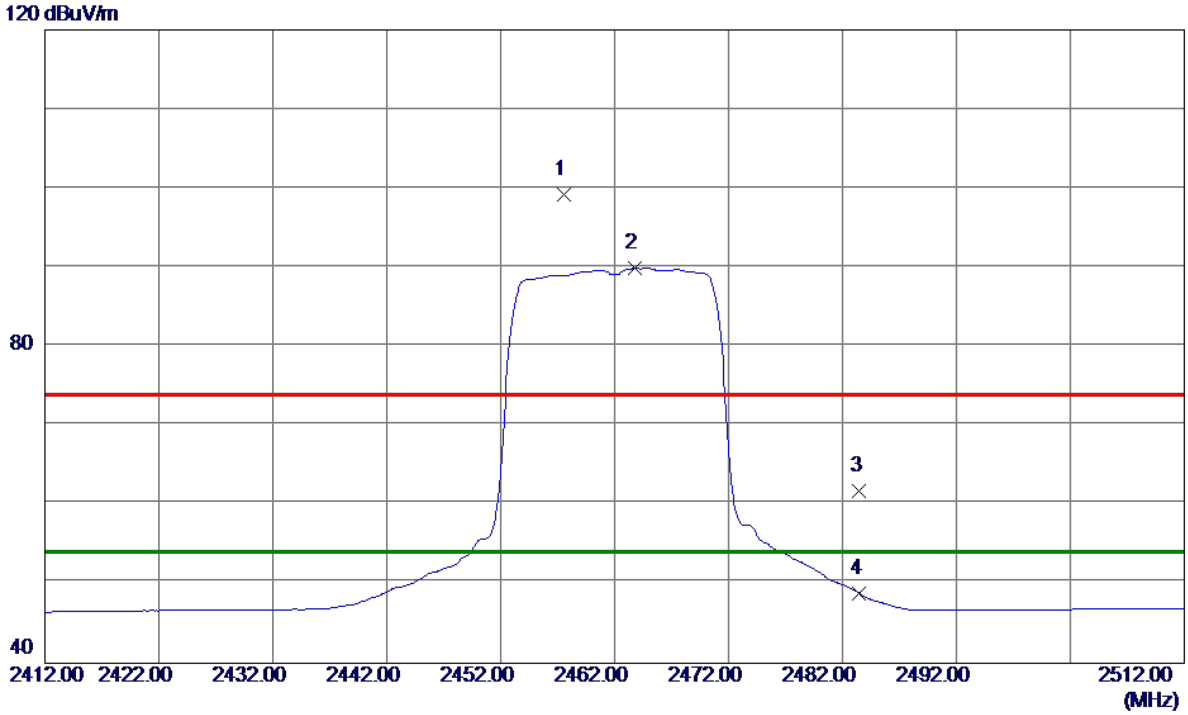
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.1000	33.04	7.02	40.06	54.00	-13.94	AVG	
2	4925.7000	44.78	7.02	51.80	74.00	-22.20	Peak	

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

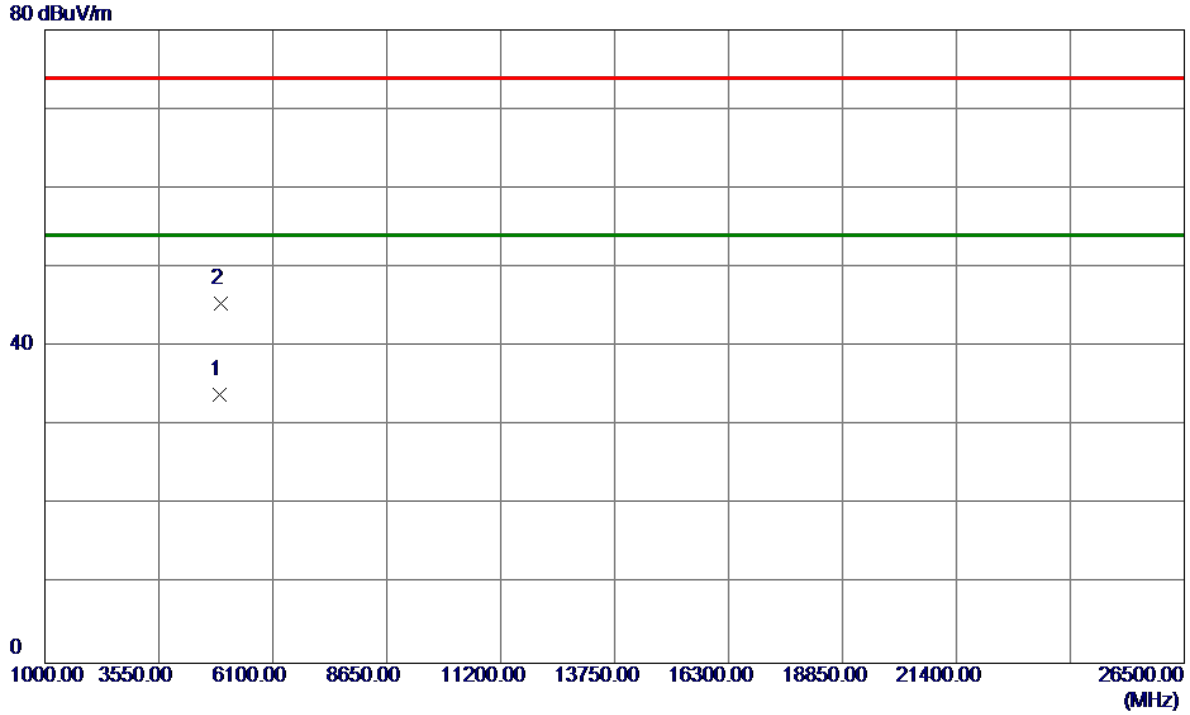
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2457.6000	65.87	33.31	99.18	74.00	25.18	Peak	No Limit
2 *	2463.8000	56.54	33.33	89.87	54.00	35.87	AVG	No Limit
3	2483.5000	28.33	33.41	61.74	74.00	-12.26	Peak	
4	2483.5000	15.40	33.41	48.81	54.00	-5.19	AVG	

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

Horizontal



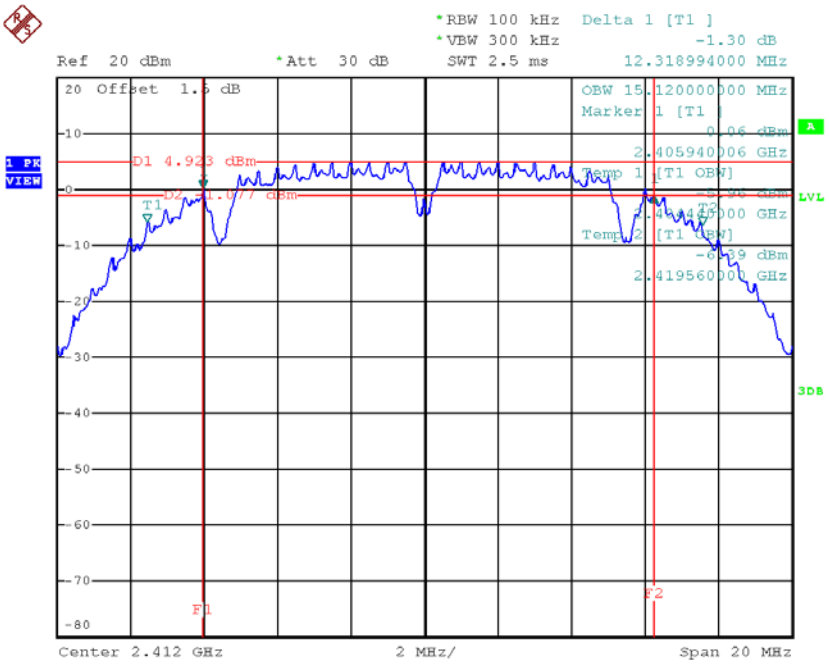
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.9500	26.96	7.02	33.98	54.00	-20.02	AVG	
2	4925.0000	38.43	7.02	45.45	74.00	-28.55	Peak	

APPENDIX E - BANDWIDTH

Test Mode : TX B Mode_CH01/06/11

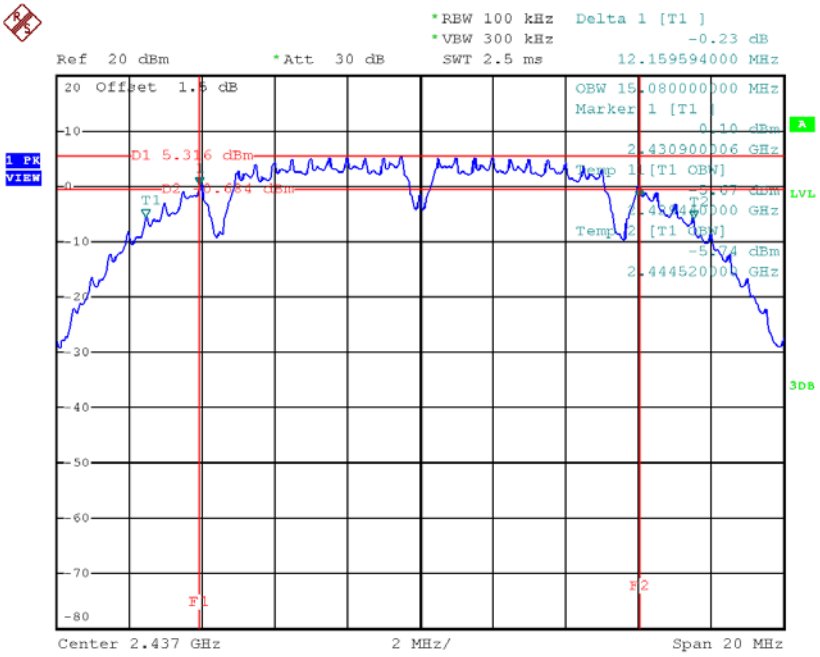
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	12.32	15.12	500	Complies
2437	12.16	15.08	500	Complies
2462	12.37	15.08	500	Complies

TX CH01



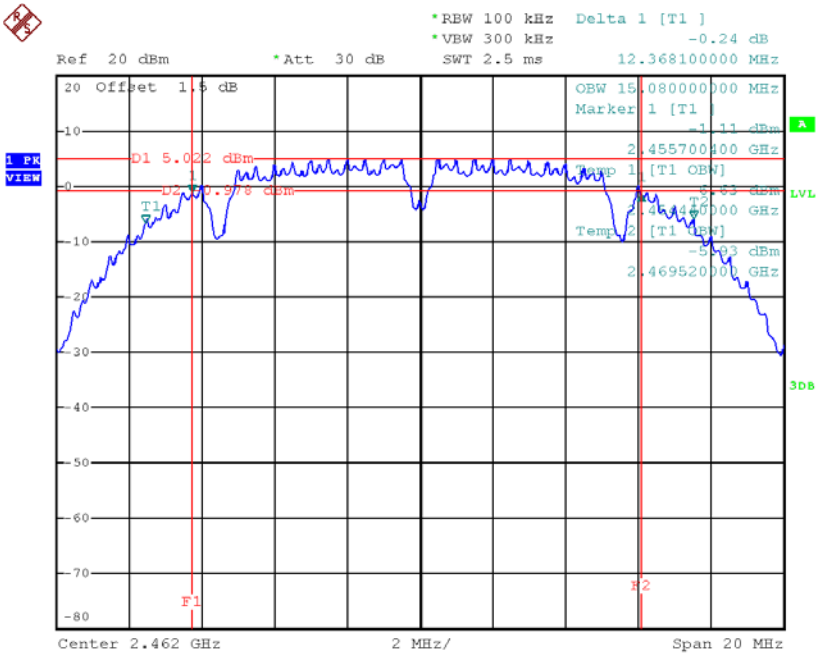
Date: 15.DEC.2017 14:01:22

TX CH06



Date: 15.DEC.2017 14:02:49

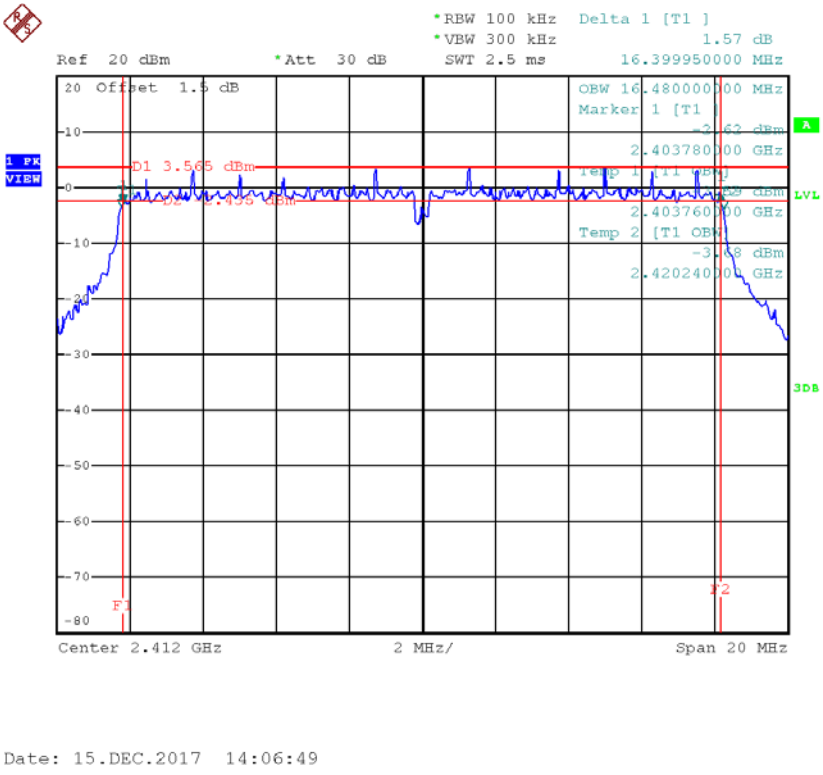
TX CH11



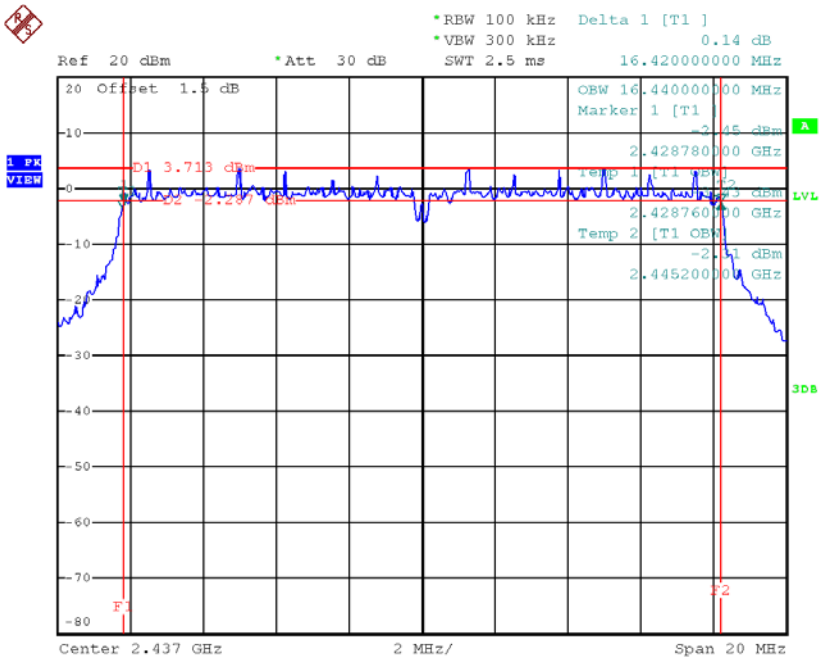
Date: 15.DEC.2017 14:04:55

Test Mode: TX G Mode_CH01/06/11				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	16.40	16.48	500	Complies
2437	16.42	16.44	500	Complies
2462	16.42	16.44	500	Complies

TX CH01

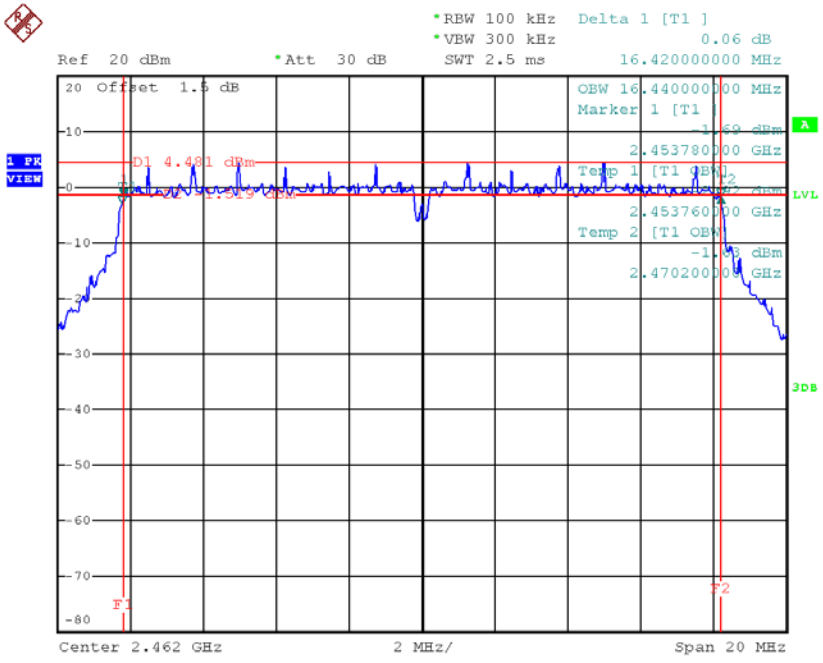


TX CH06



Date: 15.DEC.2017 14:08:15

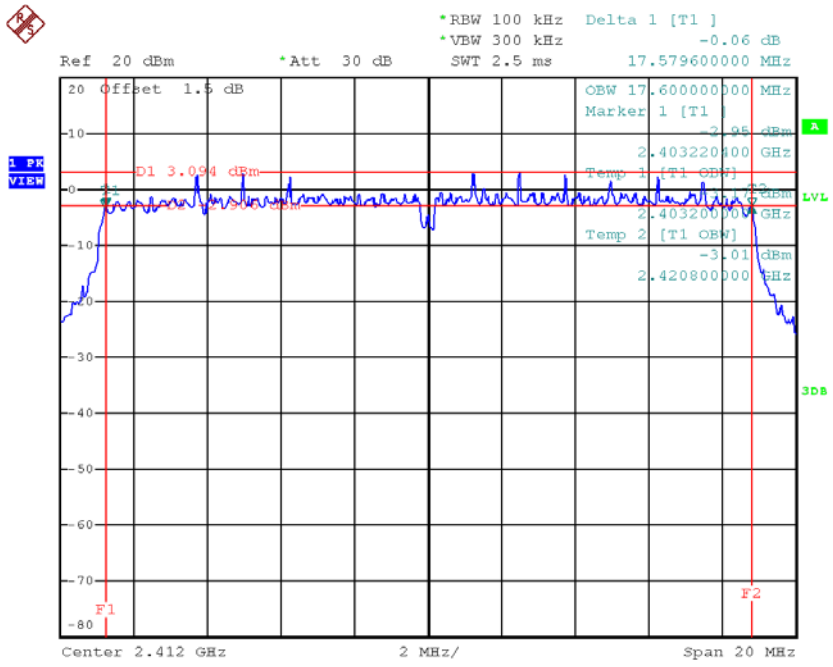
TX CH11



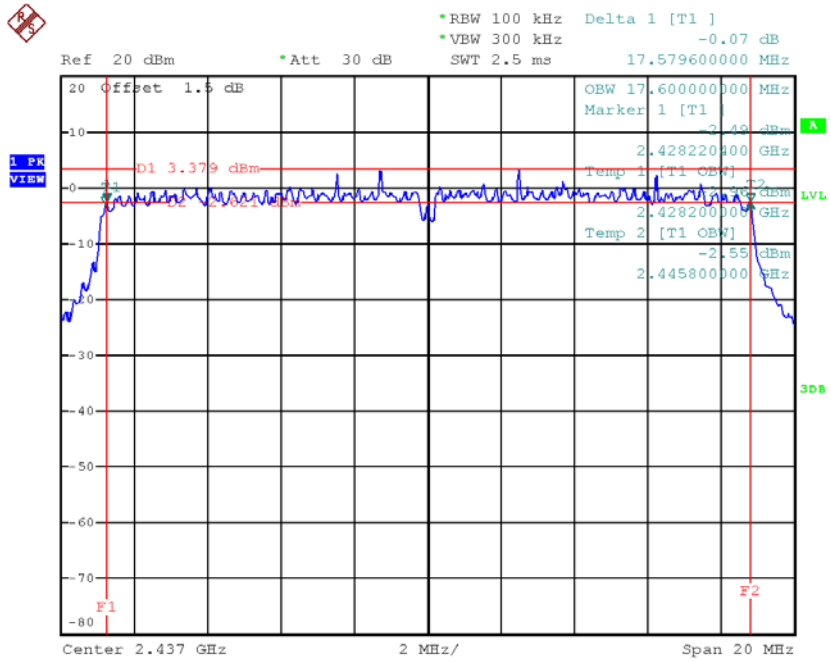
Date: 15.DEC.2017 14:10:36

Test Mode : TX N-20MHz Mode_CH01/06/11				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	17.58	17.60	500	Complies
2437	17.58	17.60	500	Complies
2462	17.60	17.64	500	Complies

TX CH01

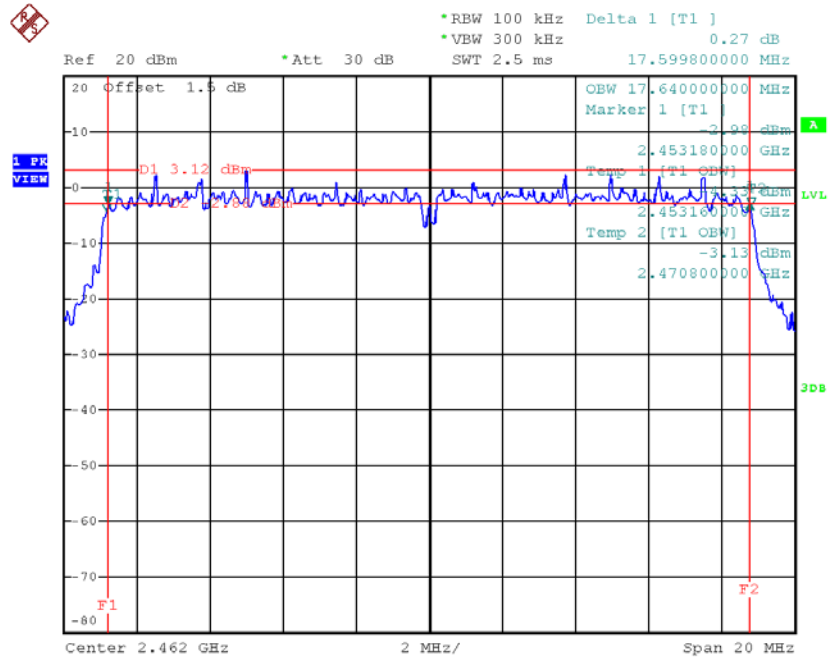


TX CH06



Date: 15.DEC.2017 14:13:40

TX CH11



Date: 15.DEC.2017 14:14:52

APPENDIX F - MAXIMUM PEAK CONDUCTED OUTPUT POWER

Test Mode :TX B Mode_CH01/06/11					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	17.96	0.06	30.00	1.00	Complies
2437	17.65	0.06	30.00	1.00	Complies
2462	17.48	0.06	30.00	1.00	Complies

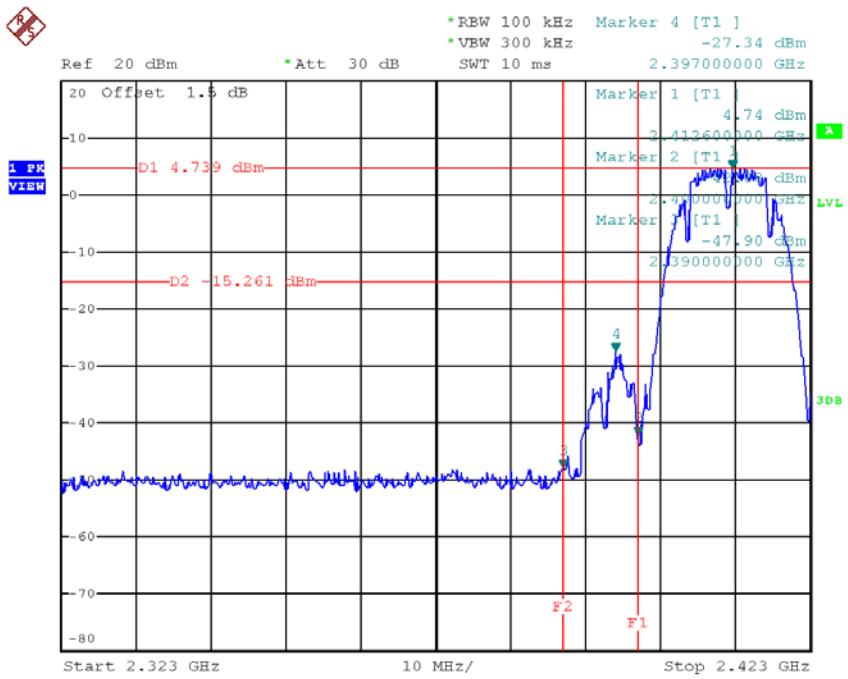
Test Mode :TX G Mode_CH01/06/11					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	22.19	0.17	30.00	1.00	Complies
2437	22.18	0.17	30.00	1.00	Complies
2462	22.07	0.16	30.00	1.00	Complies

Test Mode :TX N20 Mode_CH01/06/11					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	22.38	0.17	30.00	1.00	Complies
2437	22.85	0.19	30.00	1.00	Complies
2462	22.77	0.19	30.00	1.00	Complies

APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION

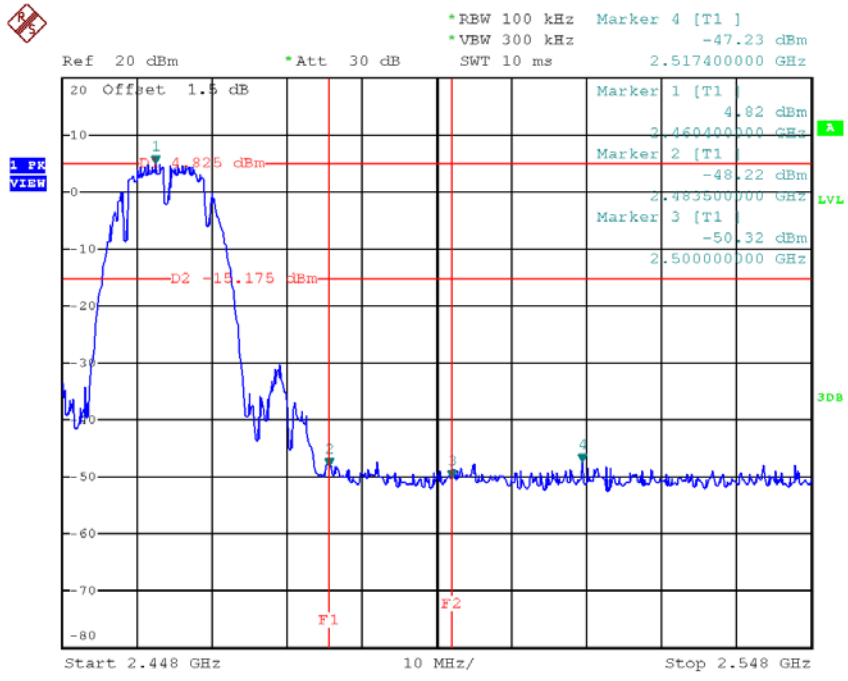
Test Mode :	TX B Mode

TX B mode CH01



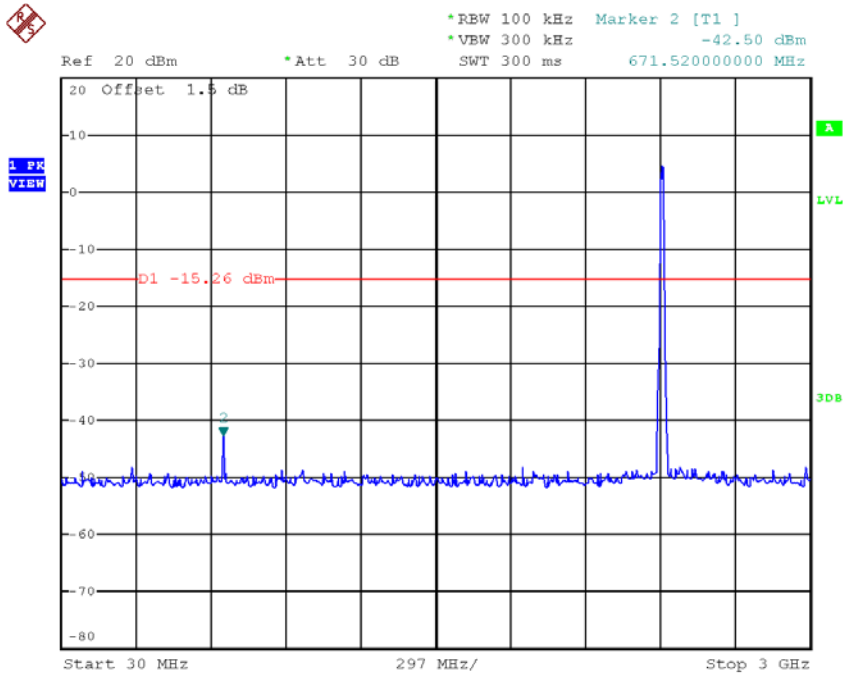
Date: 15.DEC.2017 14:01:30

TX B mode CH11

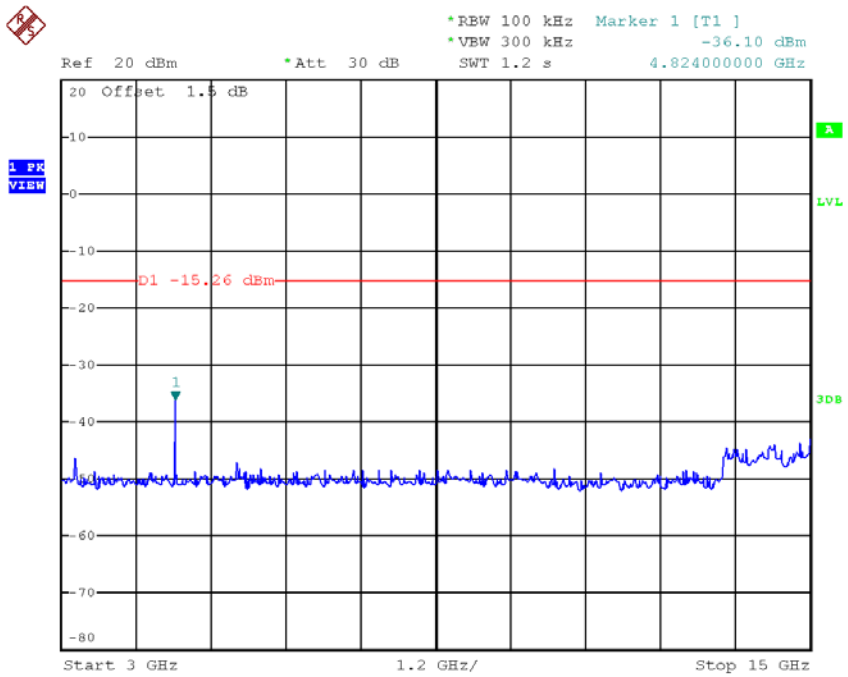


Date: 15.DEC.2017 14:05:02

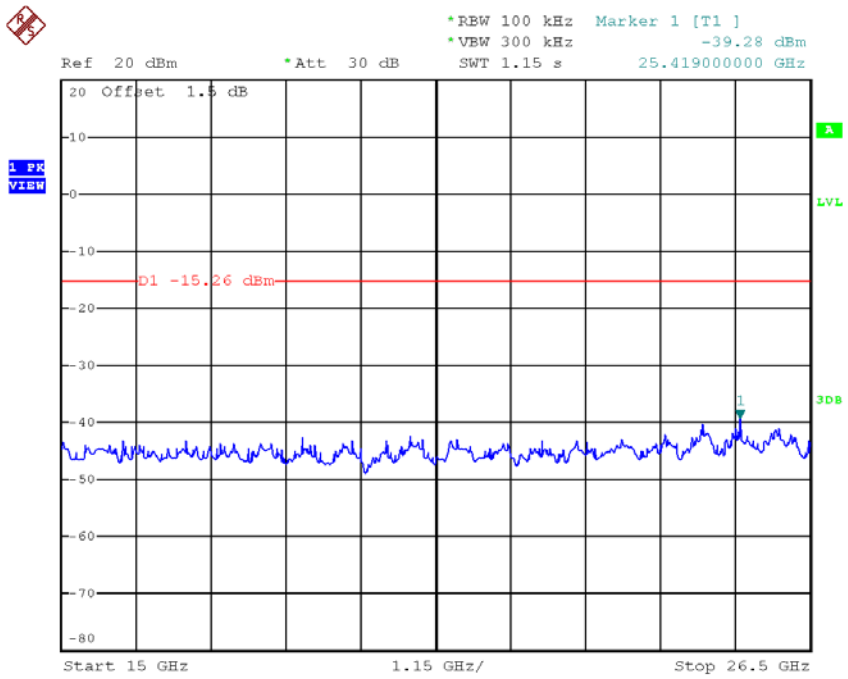
TX B mode CH01 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:01:43

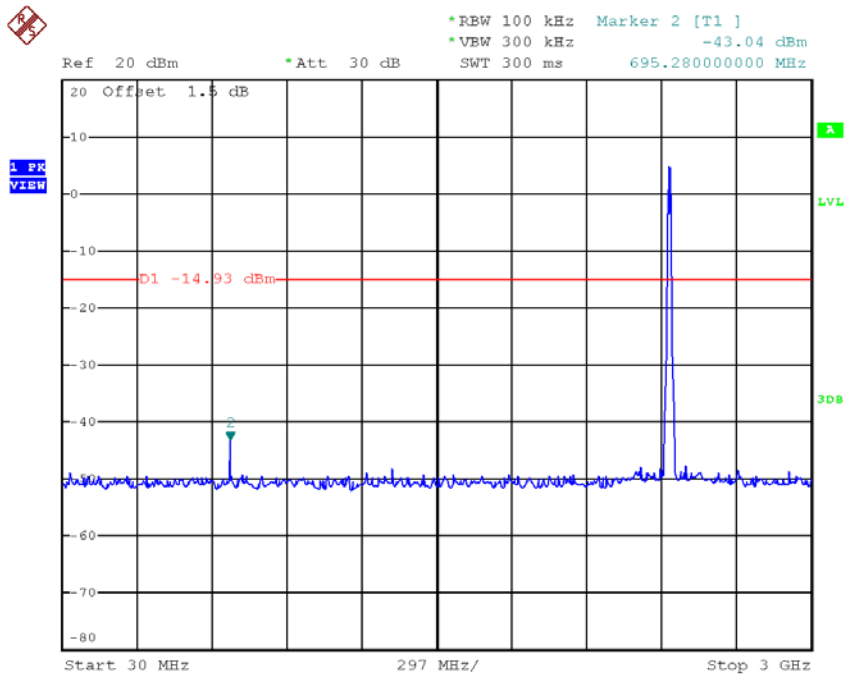


Date: 15.DEC.2017 14:01:50

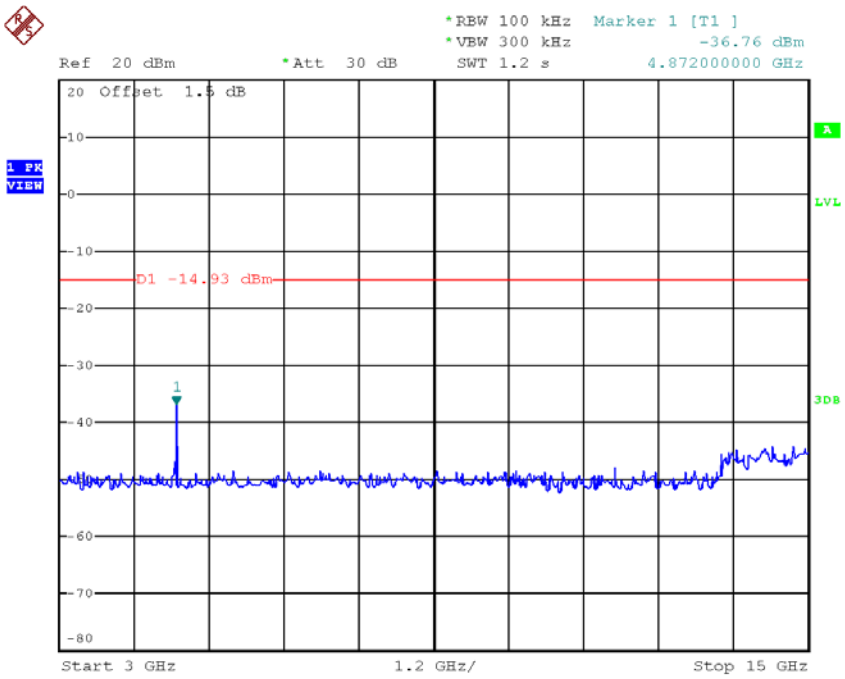


Date: 15.DEC.2017 14:01:57

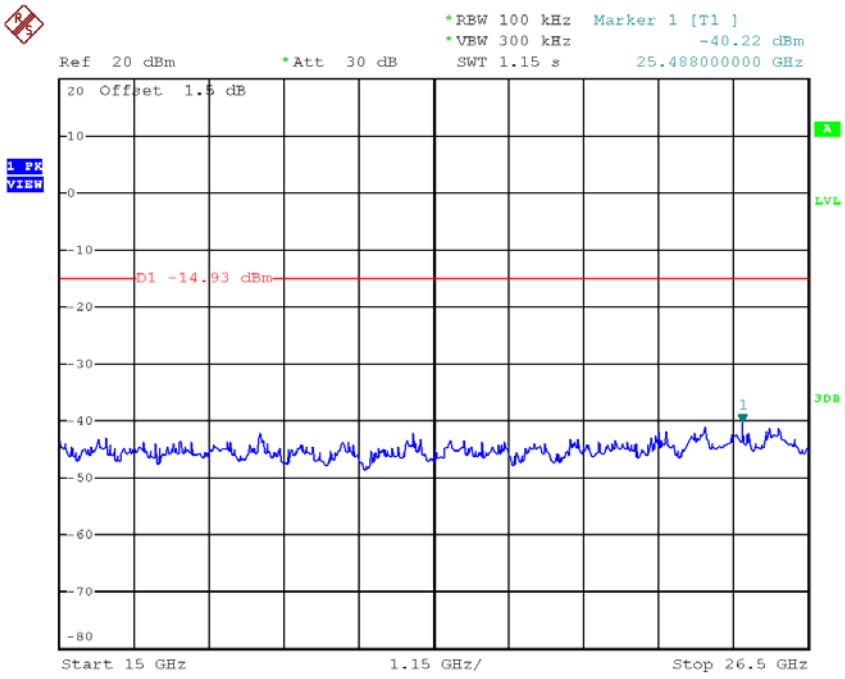
TX B mode CH06 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:03:09

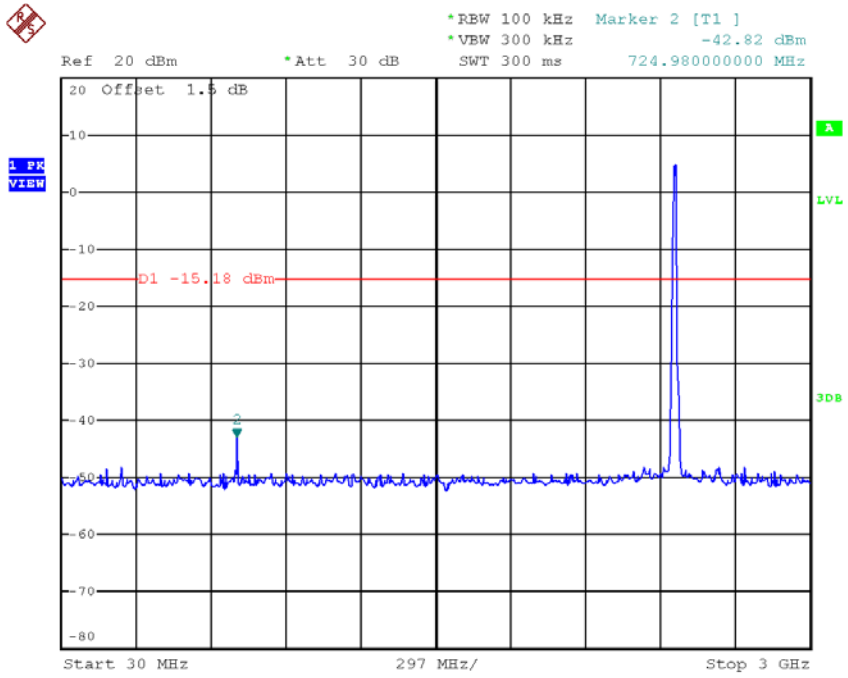


Date: 15.DEC.2017 14:03:16

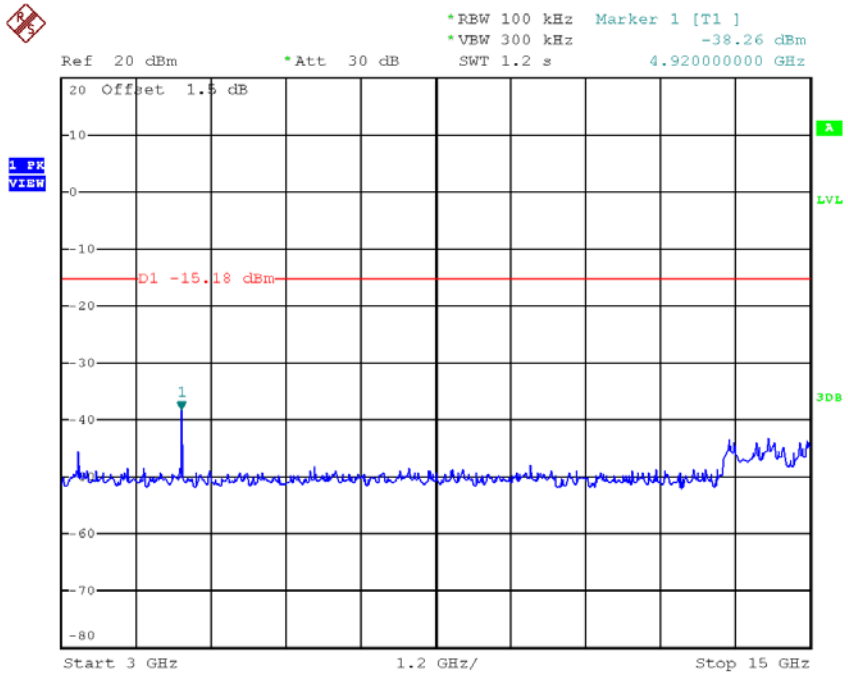


Date: 15.DEC.2017 14:03:23

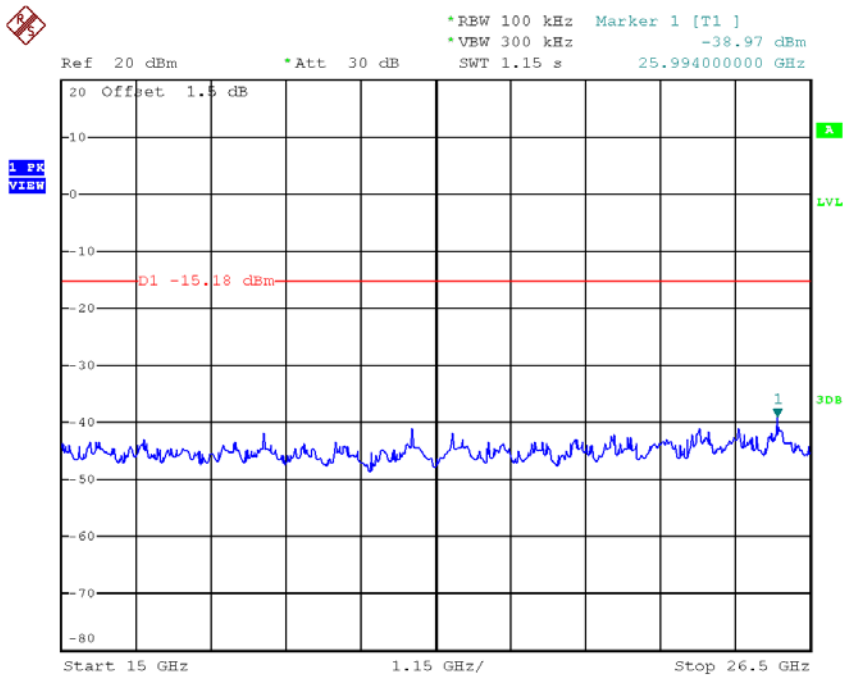
TX B mode CH11 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:05:15



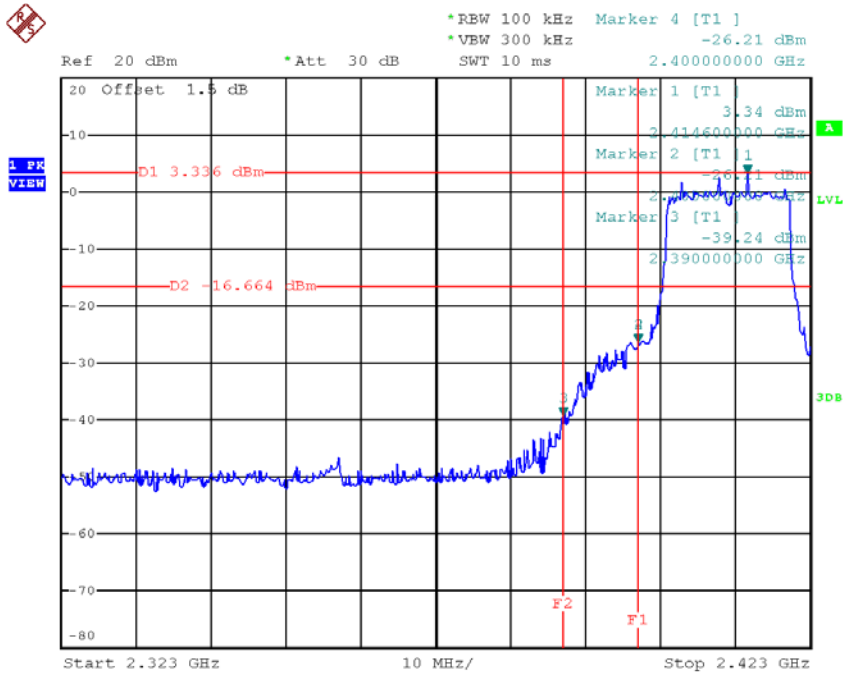
Date: 15.DEC.2017 14:05:22



Date: 15.DEC.2017 14:05:29

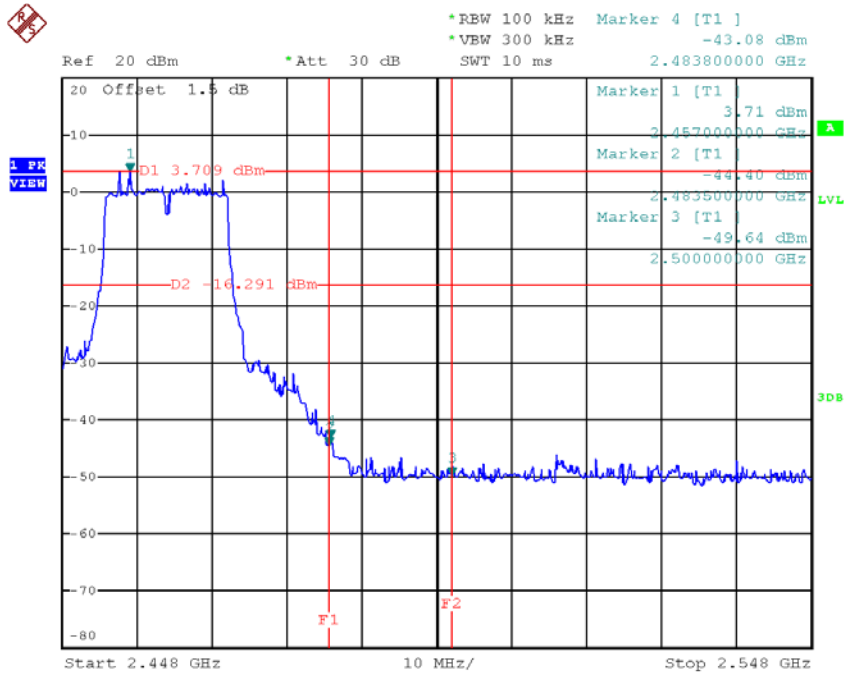
Test Mode :	TX G Mode

TX G mode CH01



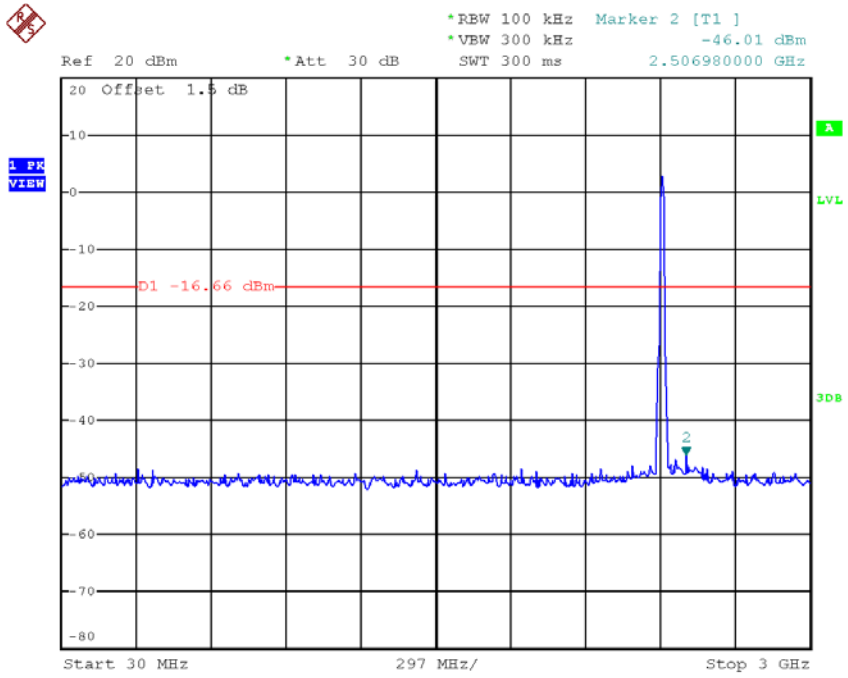
Date: 15.DEC.2017 14:06:56

TX G mode CH11

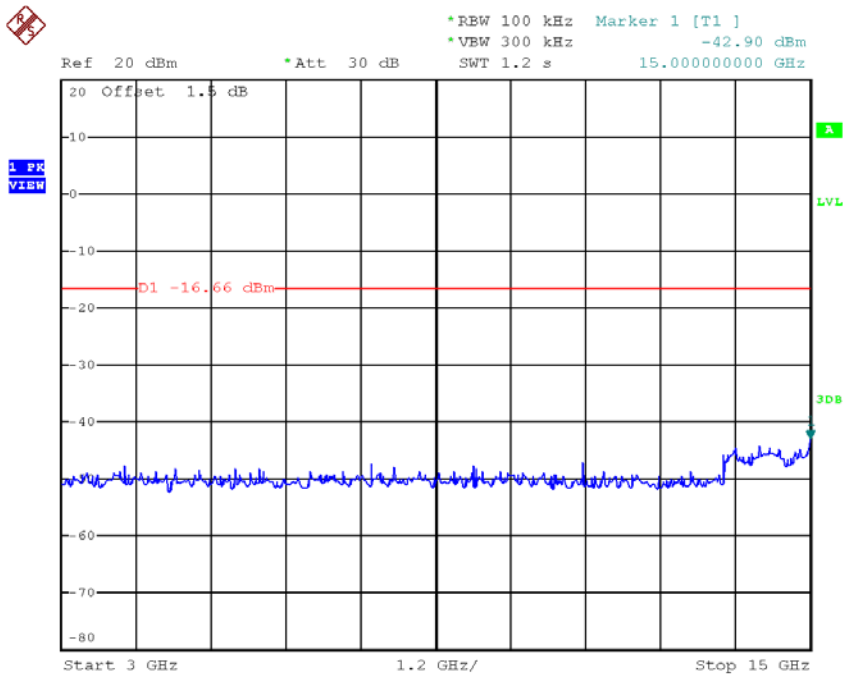


Date: 15.DEC.2017 14:10:43

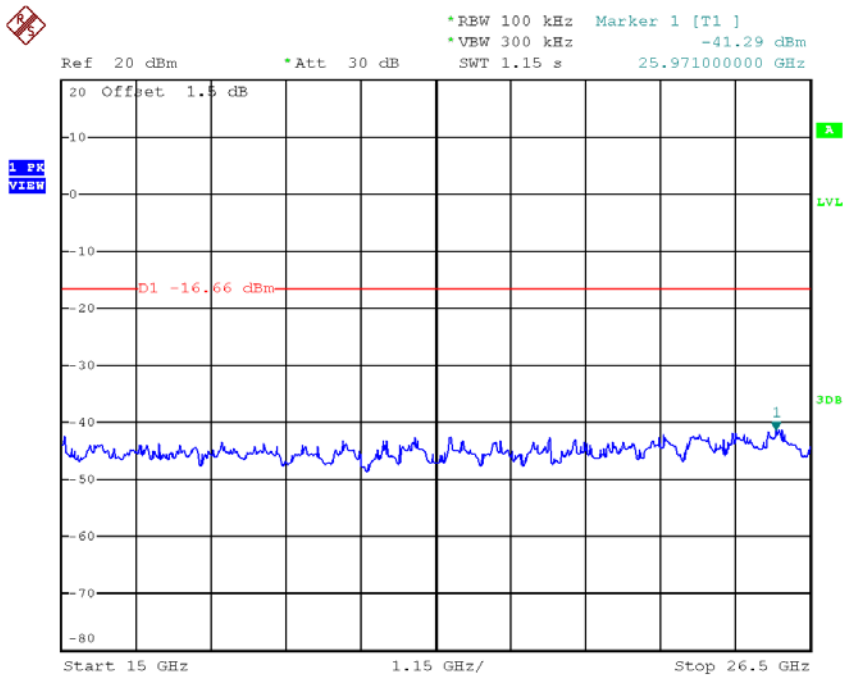
TX G mode CH01 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:07:09

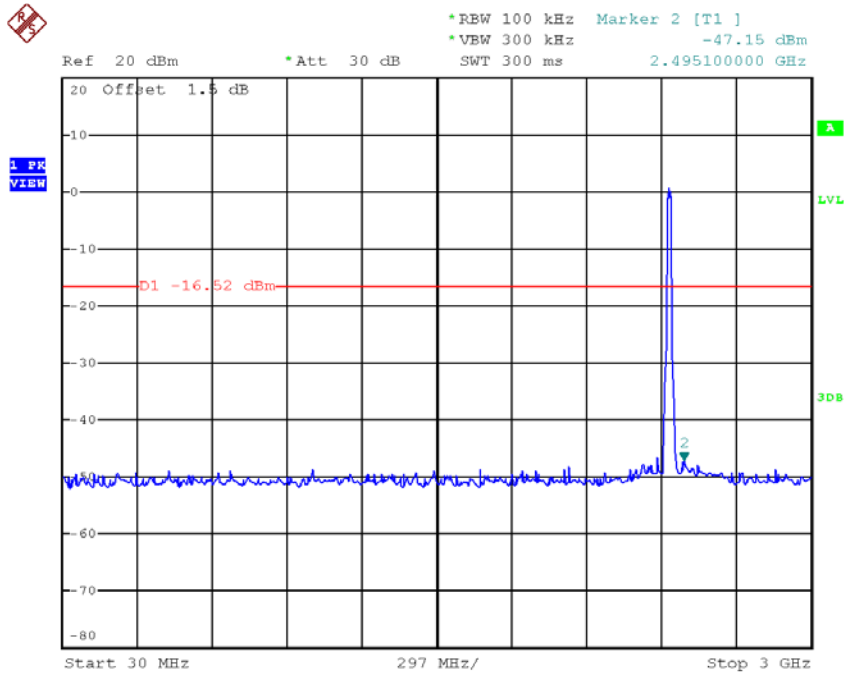


Date: 15.DEC.2017 14:07:16

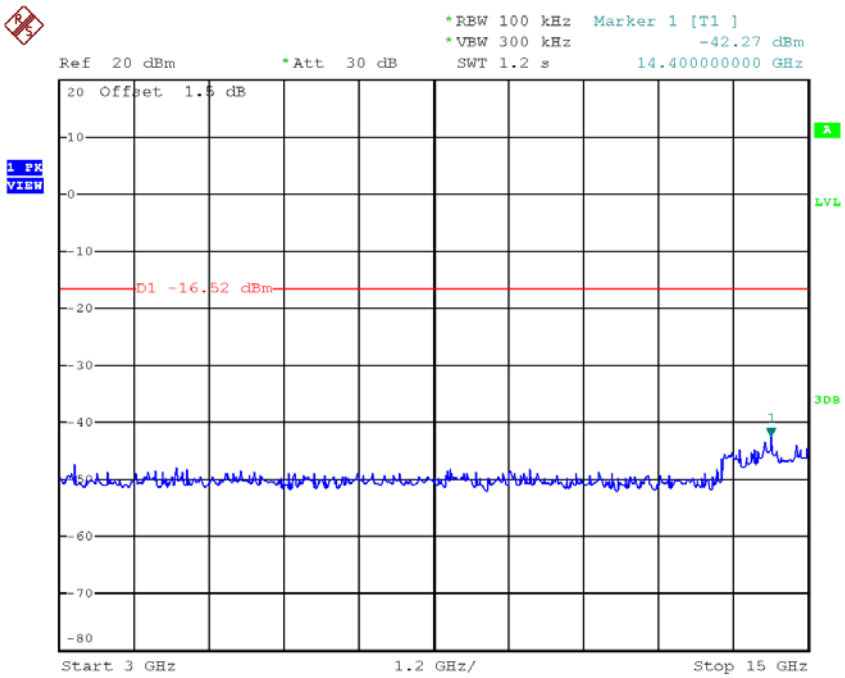


Date: 15.DEC.2017 14:07:23

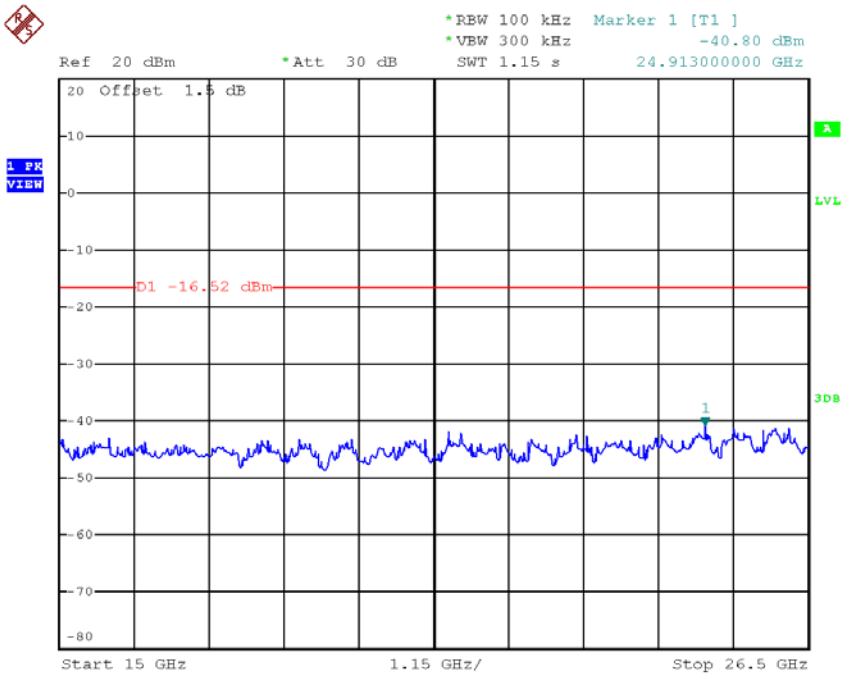
TX G mode CH06 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:08:34

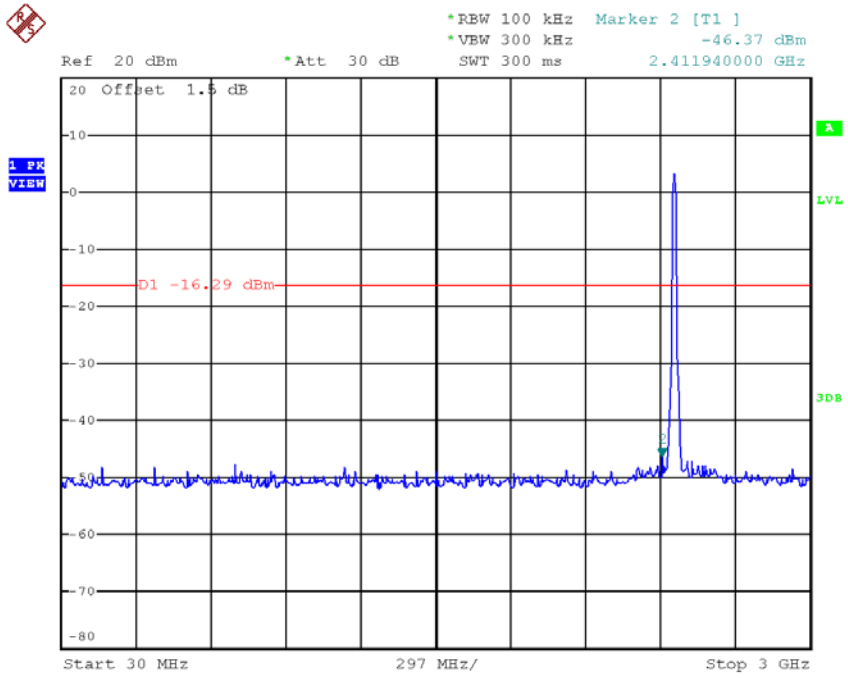


Date: 15.DEC.2017 14:08:41

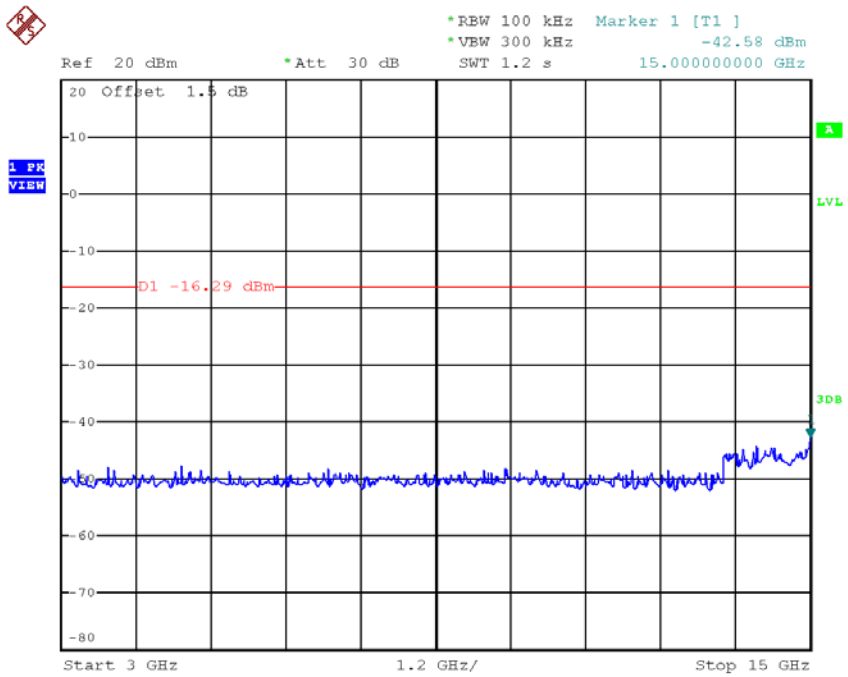


Date: 15.DEC.2017 14:08:48

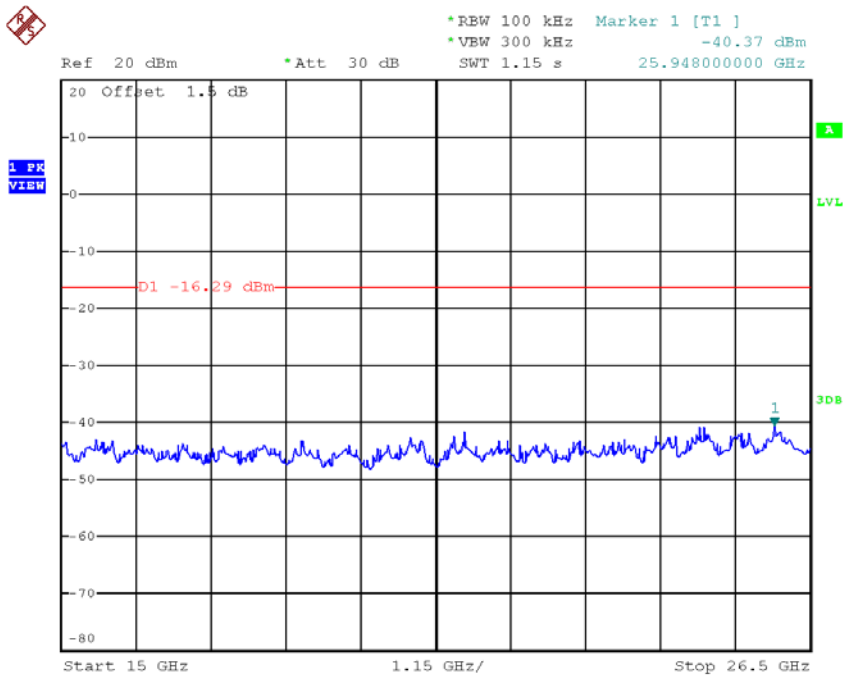
TX G mode CH11 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:10:56



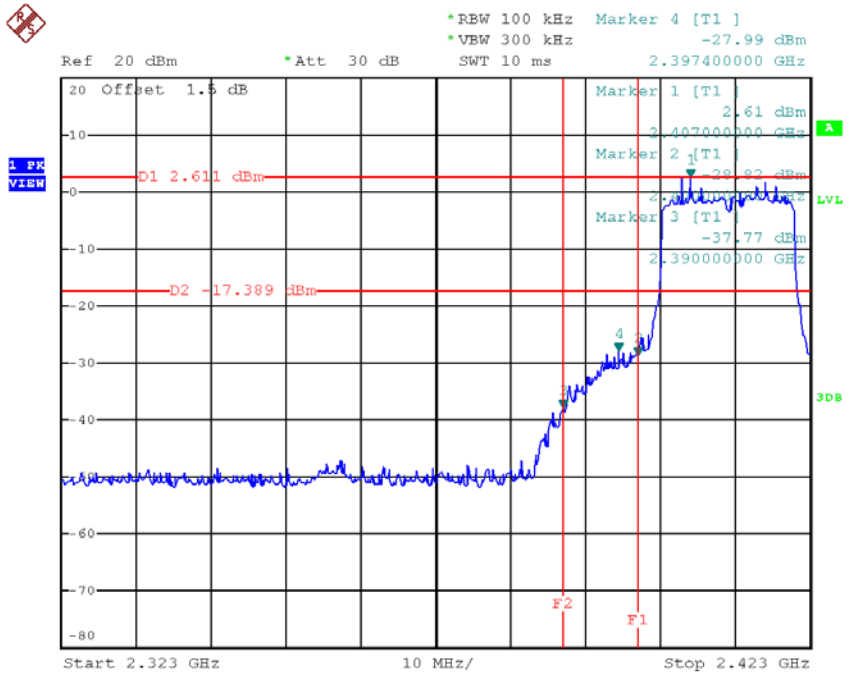
Date: 15.DEC.2017 14:11:03



Date: 15.DEC.2017 14:11:10

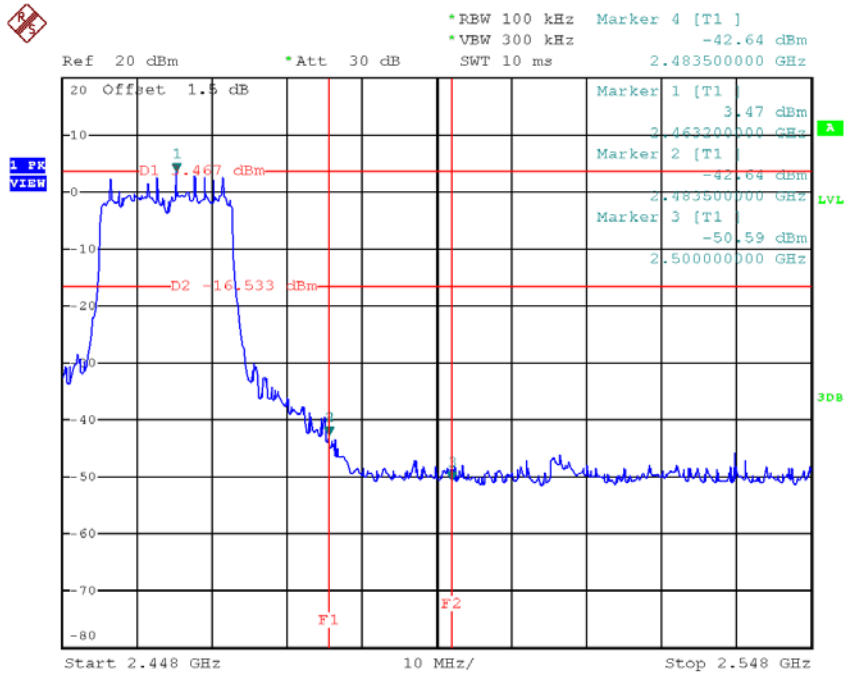
Test Mode :	TX N-20M Mode

TX HT20 mode CH01



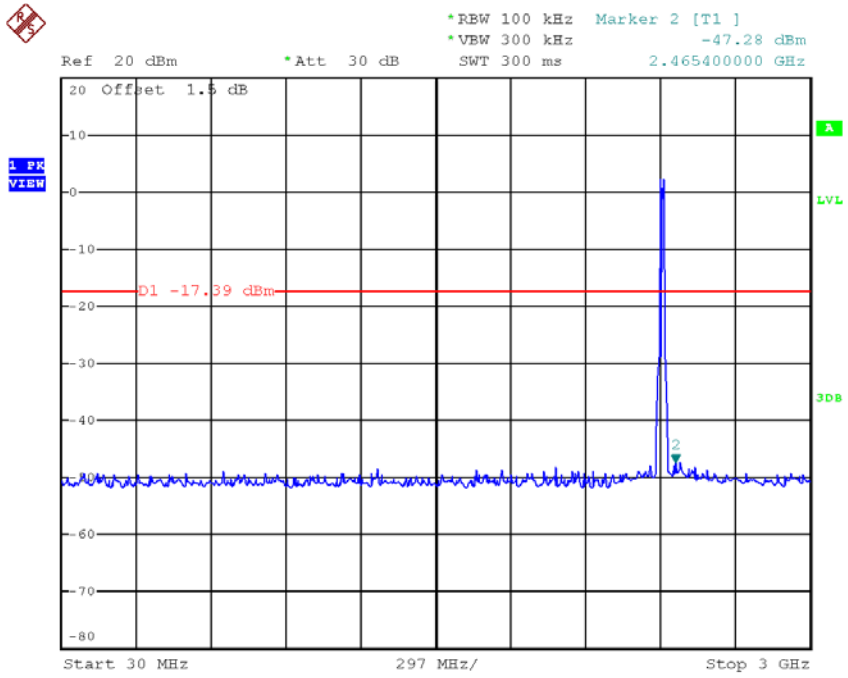
Date: 15.DEC.2017 14:12:01

TX HT20 mode CH11

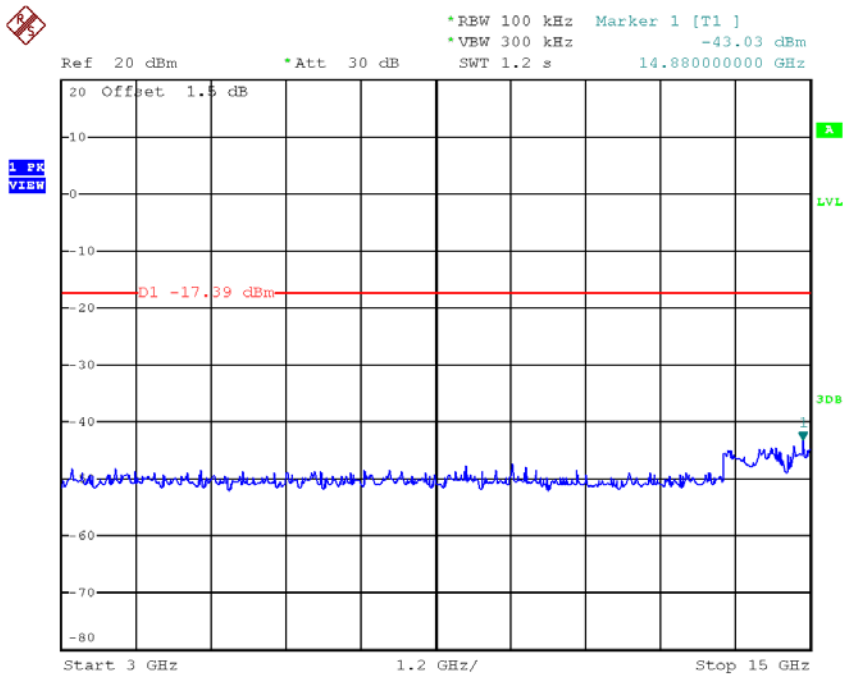


Date: 15.DEC.2017 14:14:59

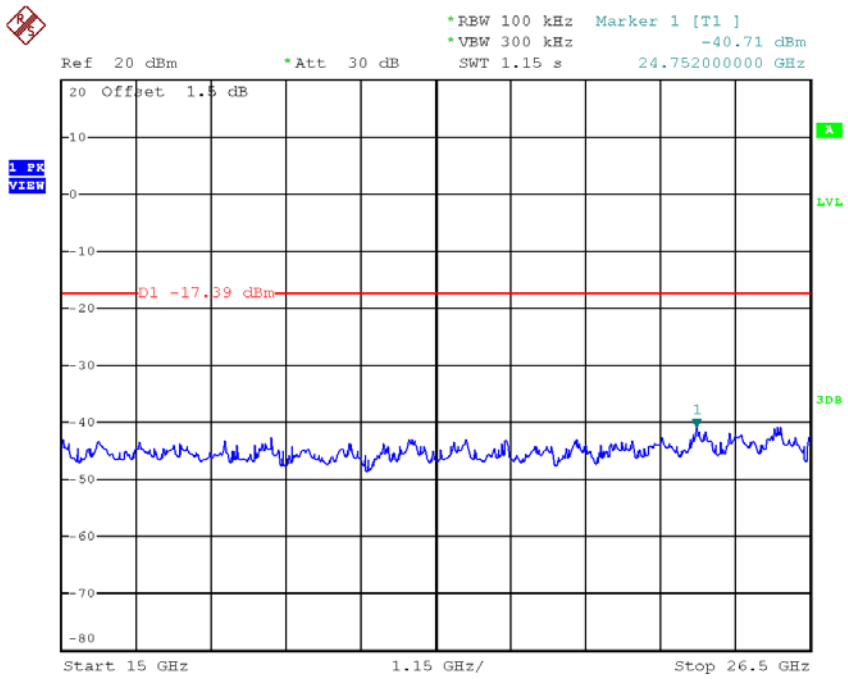
TX HT20 mode CH01 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:12:13

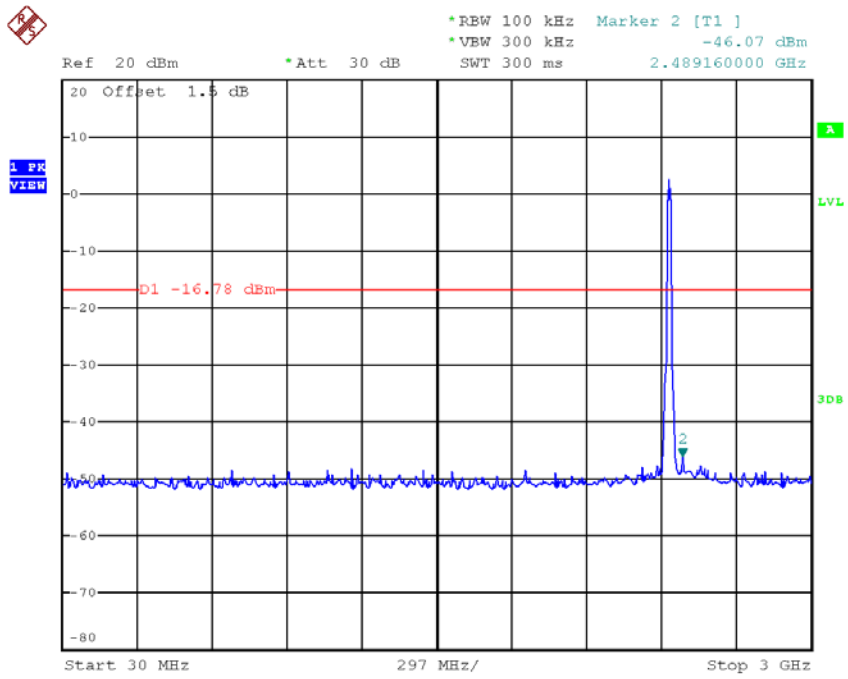


Date: 15.DEC.2017 14:12:20

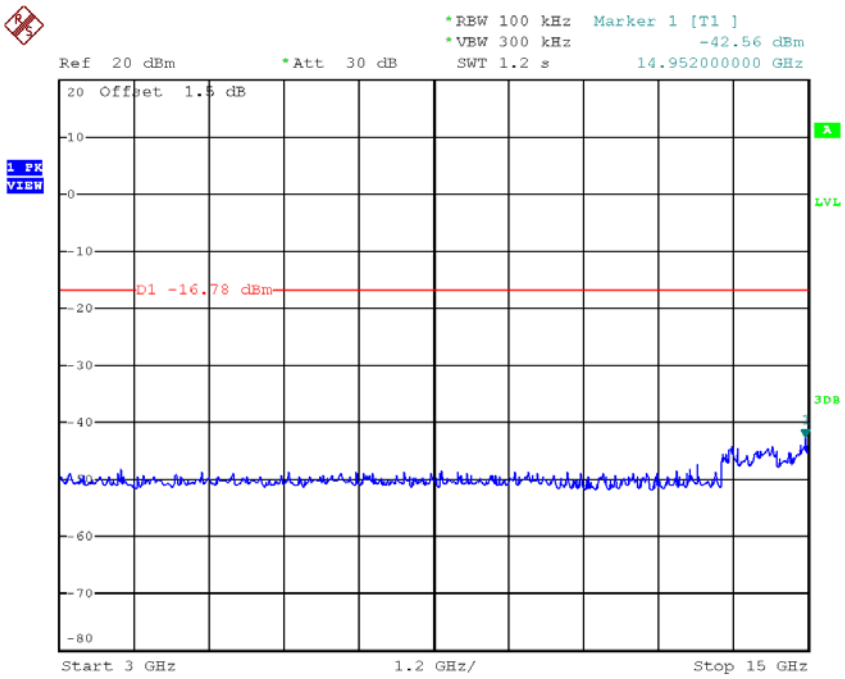


Date: 15.DEC.2017 14:12:27

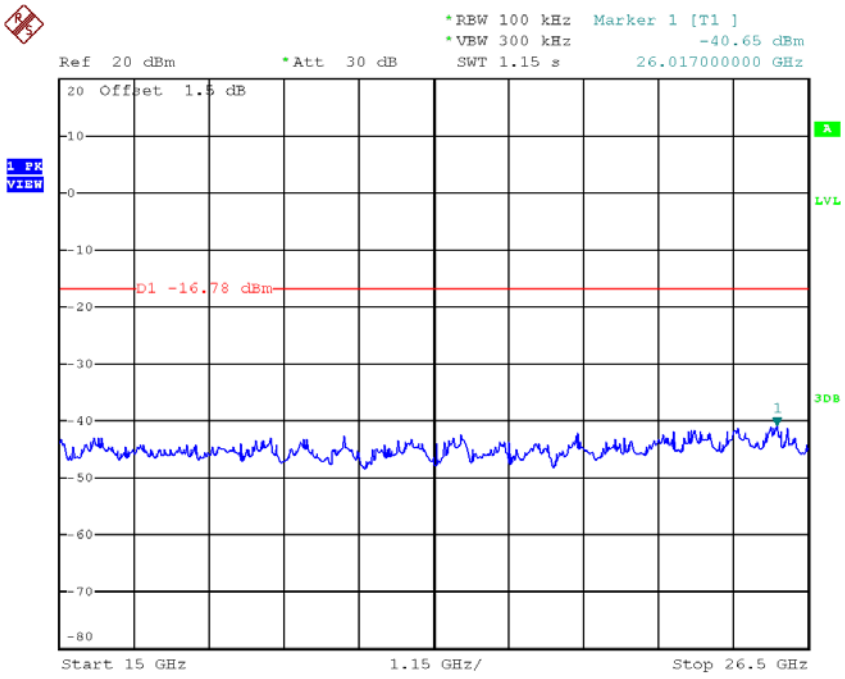
TX HT20 mode CH06 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:13:59

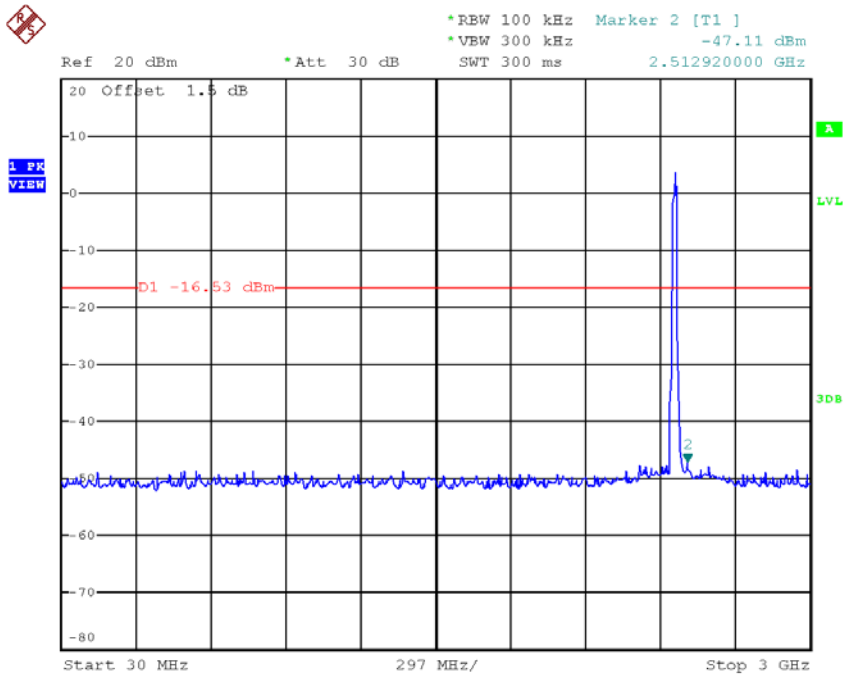


Date: 15.DEC.2017 14:14:07

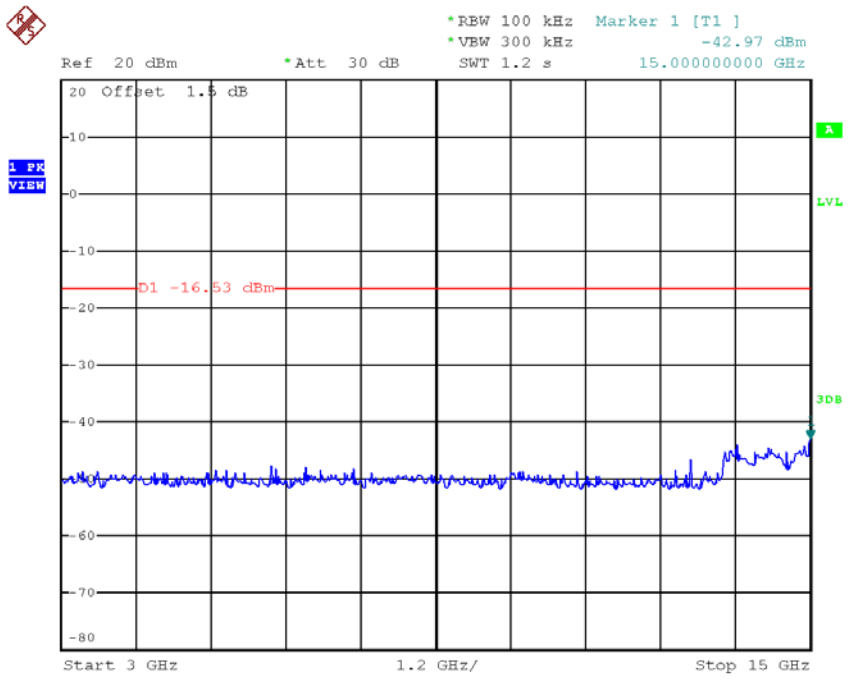


Date: 15.DEC.2017 14:14:14

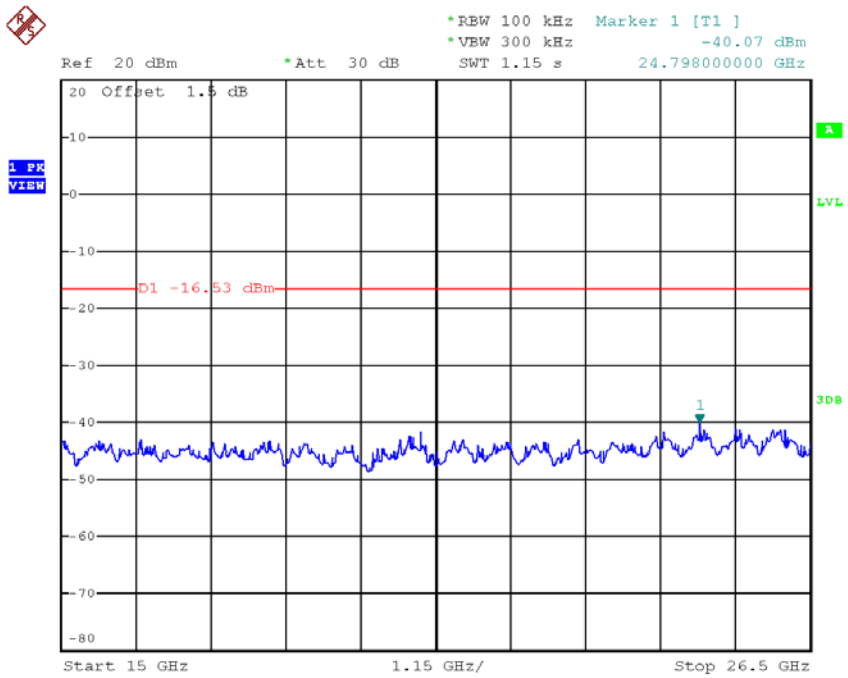
TX HT20 mode CH11 (10 Harmonic of the frequency)



Date: 15.DEC.2017 14:15:12



Date: 15.DEC.2017 14:15:19



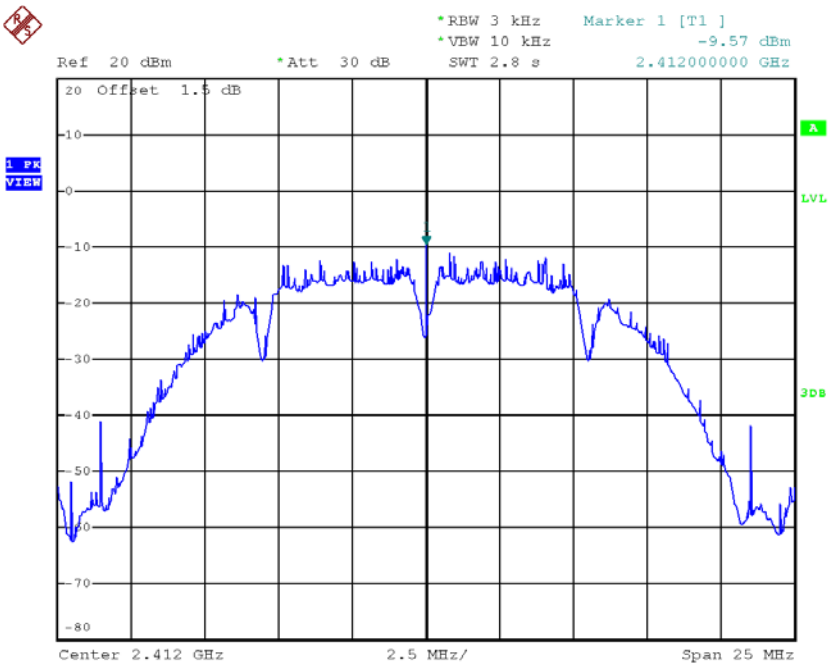
Date: 15.DEC.2017 14:15:26

APPENDIX H - POWER SPECTRAL DENSITY

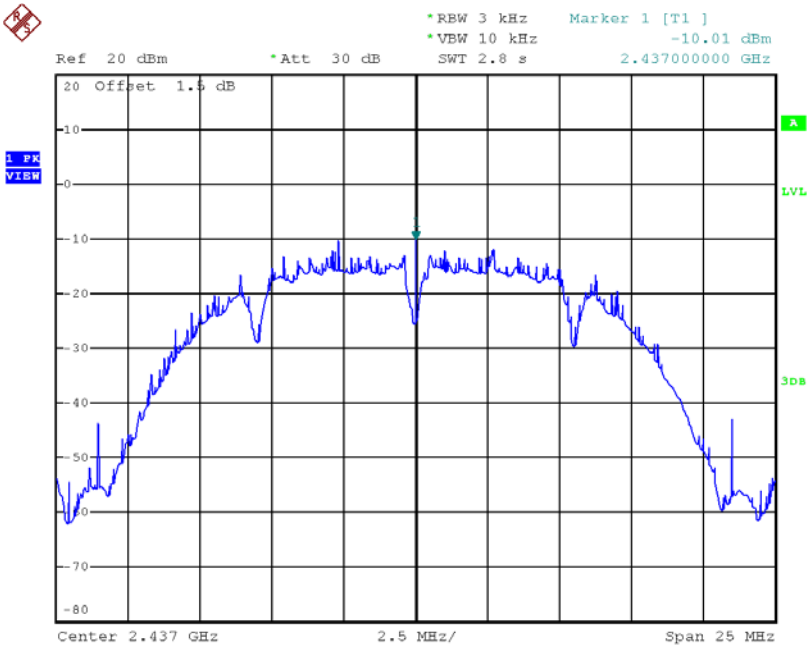
Test Mode :TX B Mode_CH01/06/11

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-9.57	0.1104	8.00	Complies
2437	-10.01	0.0998	8.00	Complies
2462	-9.65	0.1084	8.00	Complies

TX CH01

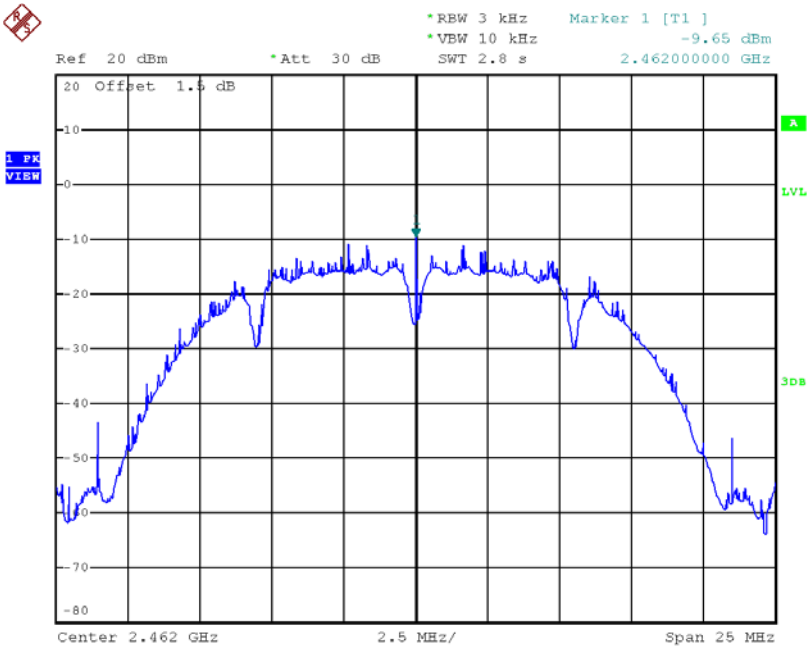


TX CH06



Date: 15.DEC.2017 14:04:20

TX CH11

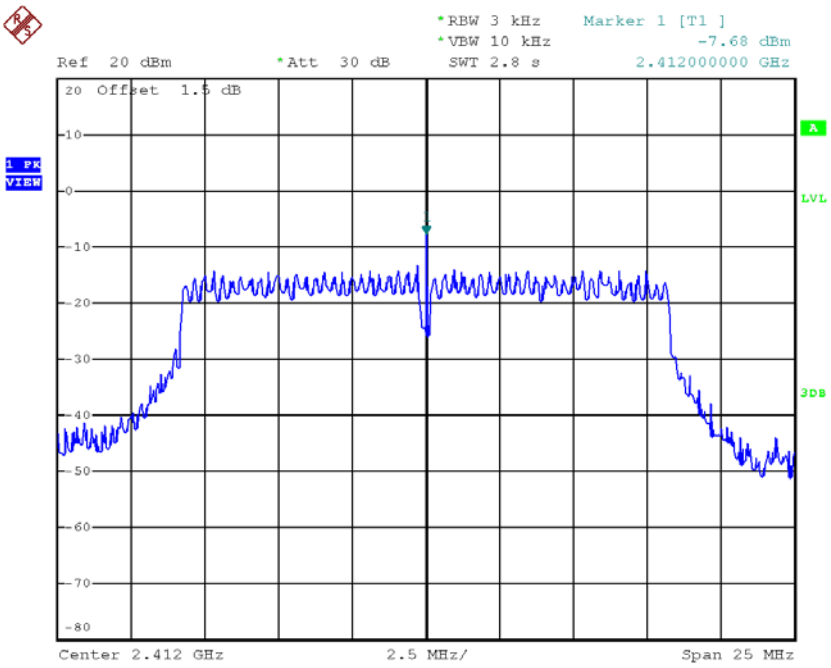


Date: 15.DEC.2017 14:06:12

Test Mode :TX G Mode_CH01/06/11

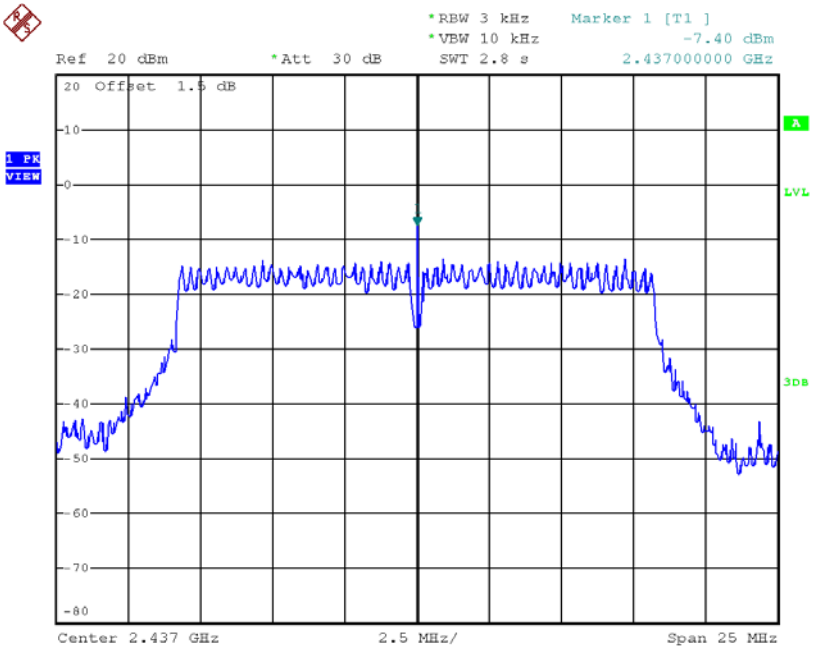
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-7.68	0.1706	8.00	Complies
2437	-7.40	0.1820	8.00	Complies
2462	-7.61	0.1734	8.00	Complies

TX CH01



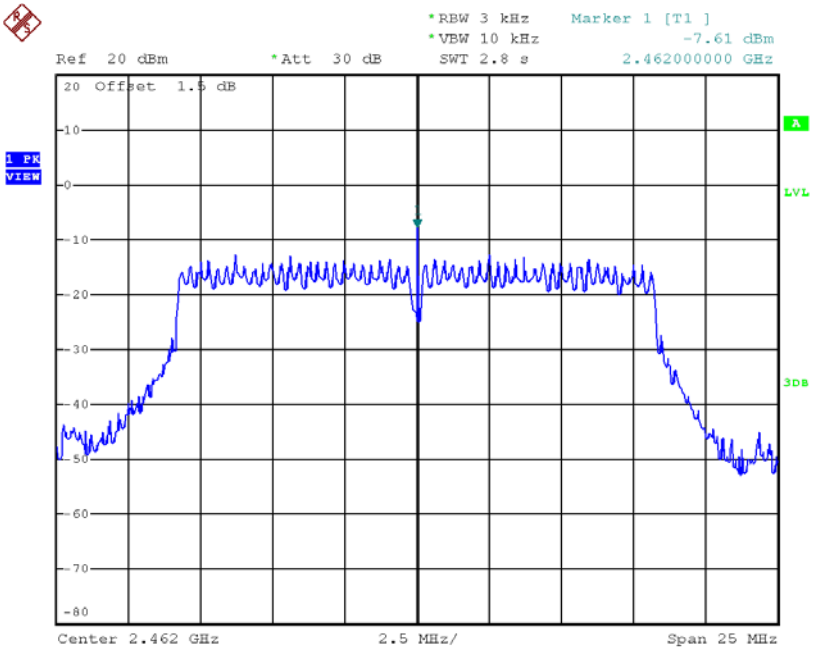
Date: 15.DEC.2017 14:07:32

TX CH06



Date: 15.DEC.2017 14:08:57

TX CH11

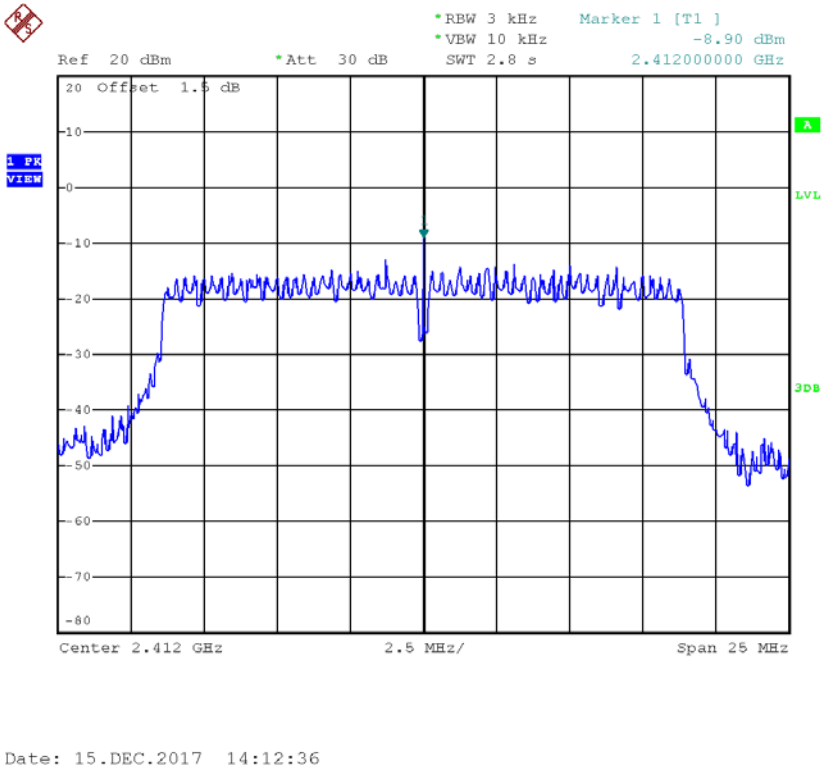


Date: 15.DEC.2017 14:11:18

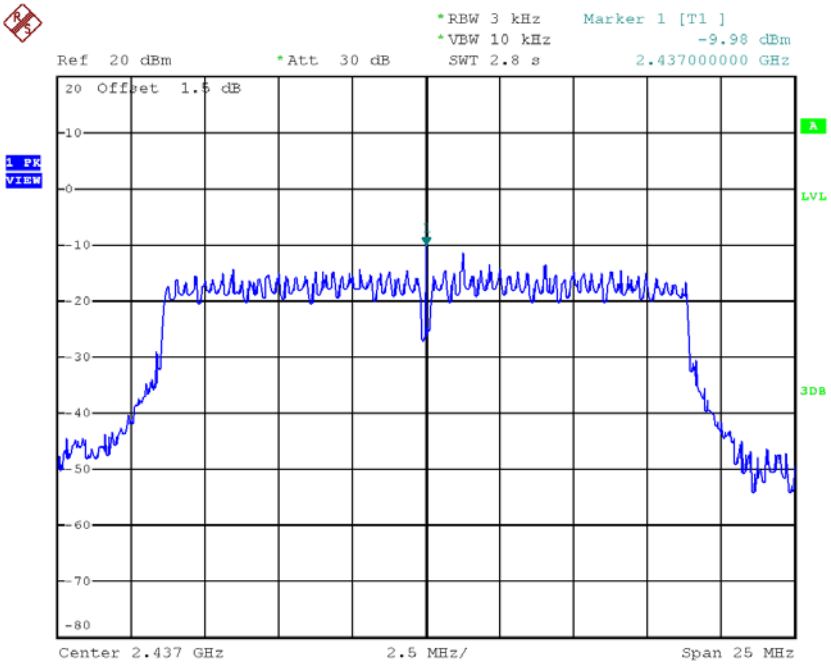
Test Mode : TX N-20M Mode_CH01/06/11

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-8.90	0.1288	8.00	Complies
2437	-9.98	0.1005	8.00	Complies
2462	-8.01	0.1581	8.00	Complies

TX CH01

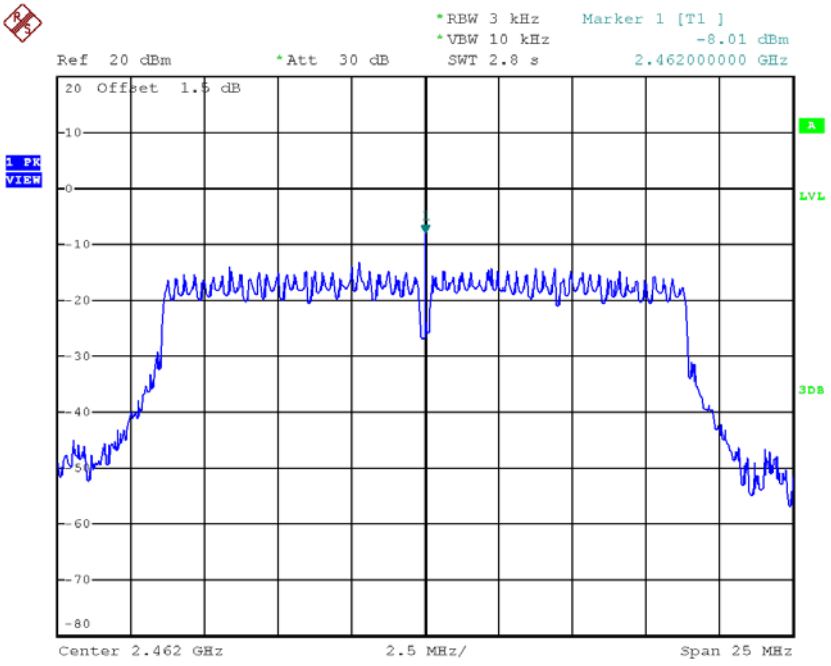


TX CH06



Date: 15.DEC.2017 14:14:22

TX CH11



Date: 15.DEC.2017 14:15:34