FCC Radio Test Report

FCC ID: TE7EN020F5

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

Project No.	:	1808C002
Equipment	:	300Mbps Wireless N Router
Test Model	:	EN020-F5
Series Model	:	TL-WR850N, TL-WR840N
Applicant	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park,Nanshan Shenzhen, 518057 China

Date of Receipt	:	Aug. 01, 2018
Date of Test	:	Aug. 02, 2018 ~ Aug. 22, 2018
Issued Date	:	Oct. 11, 2018
Tested by	:	BTL Inc.

Testing Engineer : Welly Zhou

(Welly Zhou)

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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.

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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.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements in all the possible configurations as representative of its intended use.

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.

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REPORT ISSUED HISTORY

Issued No.	Versioin	Description	Issued Date
BTL-FCCP-1-1808C002	Rev.01	Original Issue.	Aug. 29, 2018
BTL-FCCP-1-1808C002	Rev.02	Changed the FCC ID.	Oct. 11, 2018

1. CERTIFICATION

Equipment	:	300Mbps Wireless N Router
Brand Name	:	tp-link
Test Model	:	EN020-F5
Series Model	:	TL-WR850N, TL-WR840N
Applicant	:	TP-Link Technologies Co., Ltd.
Manufacturer	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park,Nanshan Shenzhen, 518057 China
Factory	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park,Nanshan Shenzhen, 518057 China
Date of Test	:	Aug. 02, 2018 ~ Aug. 22, 2018
Test Sample	:	Engineering Sample No.: D180806466
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-1-1808C002) 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)	6 dB Bandwidth	PASS	
15.247(b)(3)	Maximum Average 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 ~ 30 MHz	2.32

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9 KHz~30 MHz	V	3.79
		9 KHz~30 MHz	H	3.57
		30 MHz~200 MHz	V	3.82
		30 MH ~ 200 MHz	H	3.78
		200 MHz~1,000 MHz	V	4.10
		200 MHz~1,000 MHz	H	4.06
		1 GHz~18 GHz	V	3.12
		1 GHz~18 GHz	H	3.68
		18 GHz~40 GHz	V	4.15
		18 GHz~40 GHz	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	300Mbps Wireless N Router	
Brand Name	tp-link	
Test Model	EN020-F5	
Series Model	TL-WR850N, TL-WR840N	
Model Difference(s)	Only differ in model name.	
Product Description	Operation Frequency	2412 MHz ~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
	Average Output Power (Max.)	802.11b: 21.79 dBm 802.11g: 23.01 dBm 802.11n(20 MHz): 20.36 dBm 802.11n(40 MHz): 19.61 dBm
Power Source	DC voltage supplied from AC/DC adapter. Brand/ Model: AMIGO/ AMS195-0900600FU	
Power Rating	I/P: 100-240V~ 50/60Hz 0.3A O/P: 9V⎓ 0.6A	

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(20 MHz) CH03 - CH09 for 802.11n(40 MHz)							
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	4
2	N/A	N/A	Dipole	N/A	4

Note:

The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R), all transmit signals are completely correlated, then,

Direction gain = G_{ANT}+10log(N)dBi=4+10log(2), that is Directional gain=7.01.

So, the out power limit is 30-7.01+6=28.99,

the power density limit is 8-7.01+6=6.99.

4. The worst case for 2TX as follow:

Operating Mode / TX Mode	2TX
802.11b	V (ANT 1+ANT 2)
802.11g	V (ANT 1+ANT 2)
802.11n(20MHz)	V (ANT 1+ANT 2)
802.11n(40MHz)	V (ANT 1+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-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09
Mode 5	TX Mode

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	TX Mode

For Radiated Test	
Final Test Mode:	Description
Mode 1	TX B Mode Channel 01/02/06/10/11
Mode 2	TX G Mode Channel 01/02/06/10/11
Mode 3	TX N-20 MHz Mode Channel 01/02/06/10/11
Mode 4	TX N-40 MHz Mode Channel 03/04/06/08/09

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-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09

6 dB 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-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09

Maximum Average 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-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz 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-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09

Note:

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

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

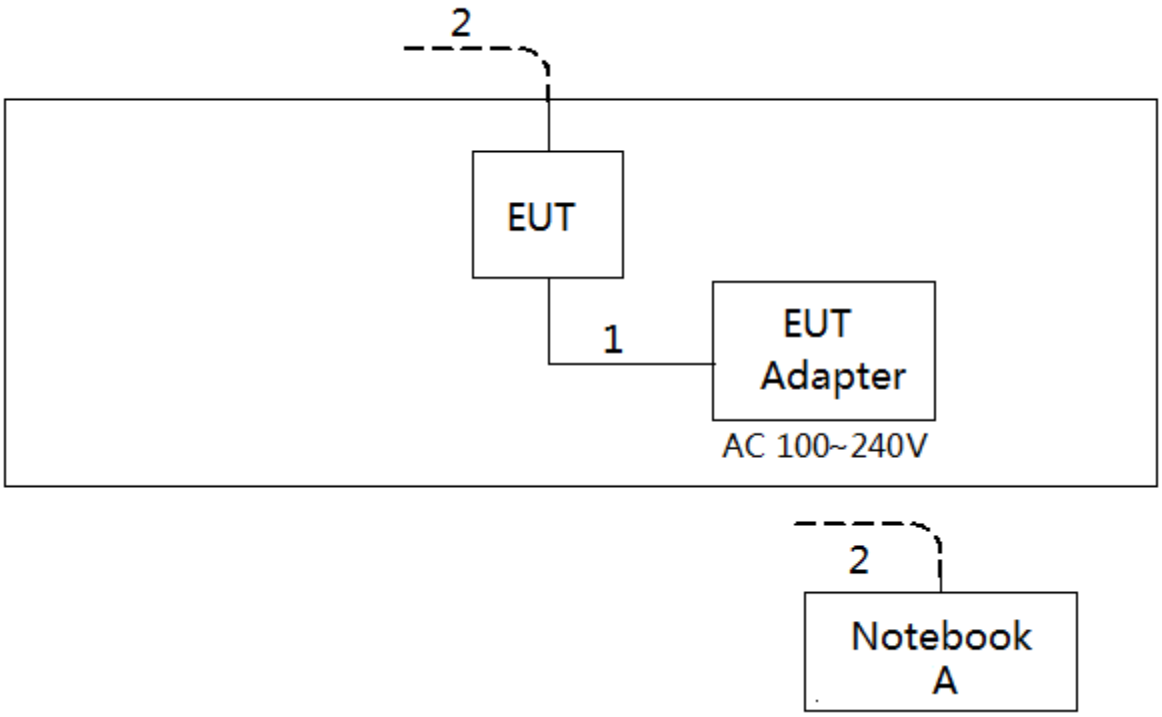
(3) For radiated 30 MHz to 1000 MHz test, the 802.11b is found to be the worst case and recorded.

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	N/A		
Frequency (MHz)	2412	2437	2462
802.11b	33	34	33
802.11g	27	37	29
802.11n (20 MHz)	31	31	31
Frequency (MHz)	2422	2437	2452
802.11n (40 MHz)	30	30	30

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	G410	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.2m	DC Cable
2	NO	NO	10m	RJ45 Cable

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

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

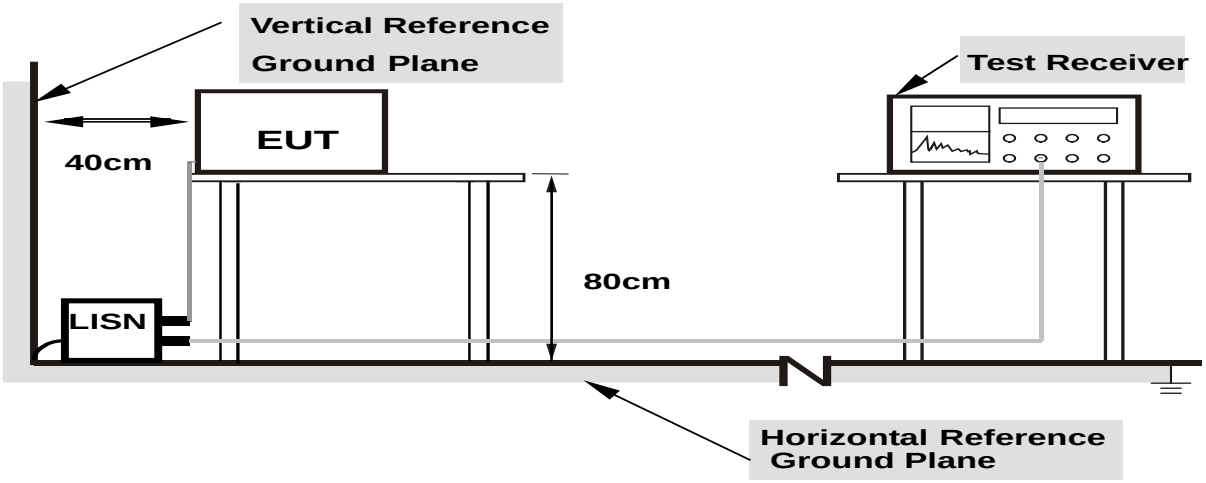
4.1.2 TEST PROCEDURE

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 (9 kHz-1000 MHz)

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 1000 MHz)

Frequency (MHz)	(dBuV/m) (at 3 meters)	
	Peak	Average
Above 1000	74	54

Note:

(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)	1 MHz / 3 MHz for Peak, 1 MHz / 1/T for Average

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

4.2.2 TEST PROCEDURE

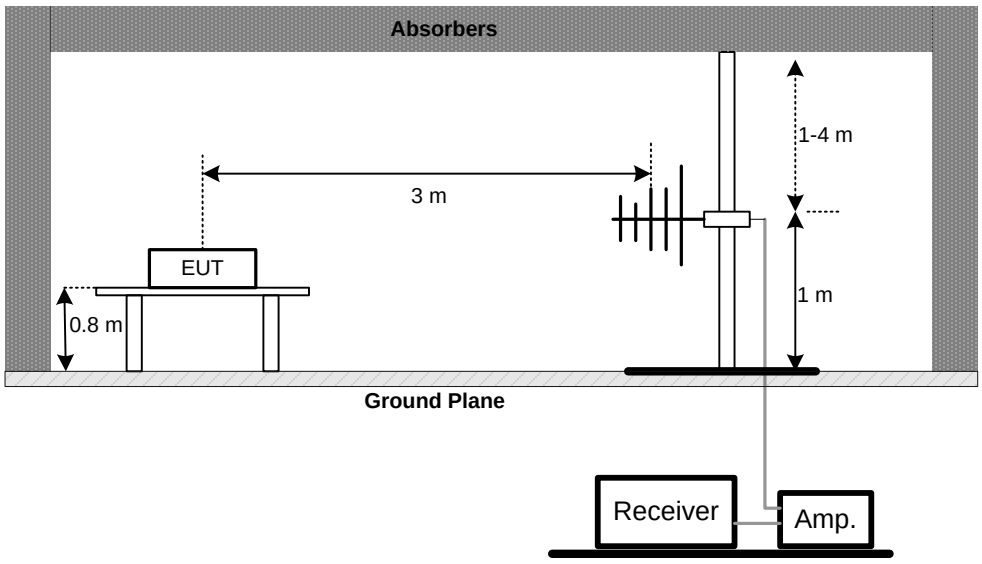
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance 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 1 GHz)
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 1 GHz.
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 1 GHz)
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 1 GHz)
i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

4.2.3 DEVIATION FROM TEST STANDARD

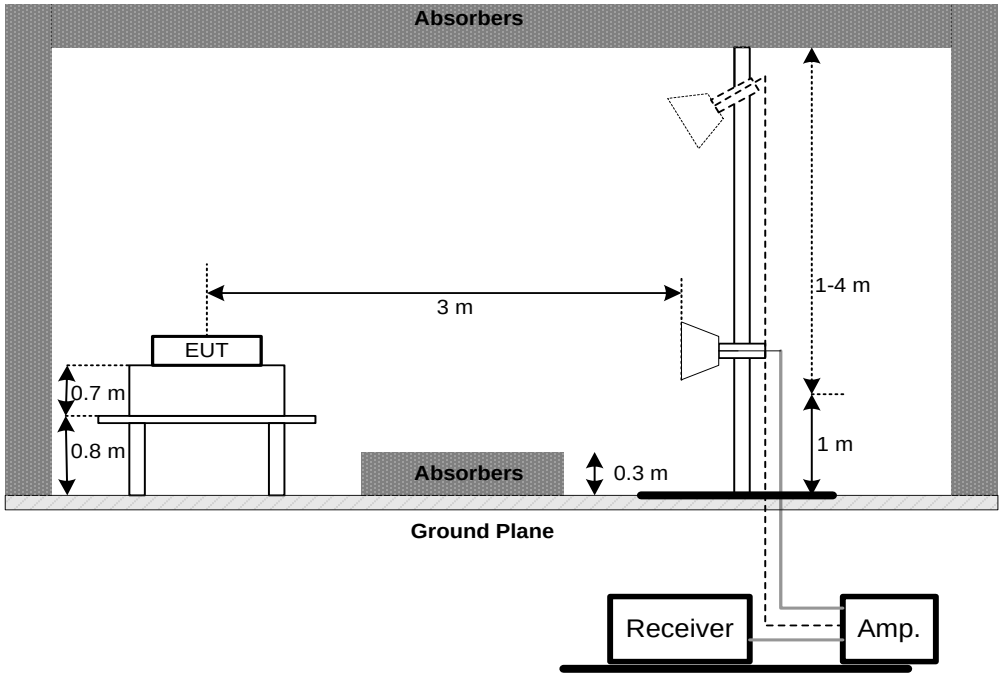
No deviation

4.2.4 TEST SETUP

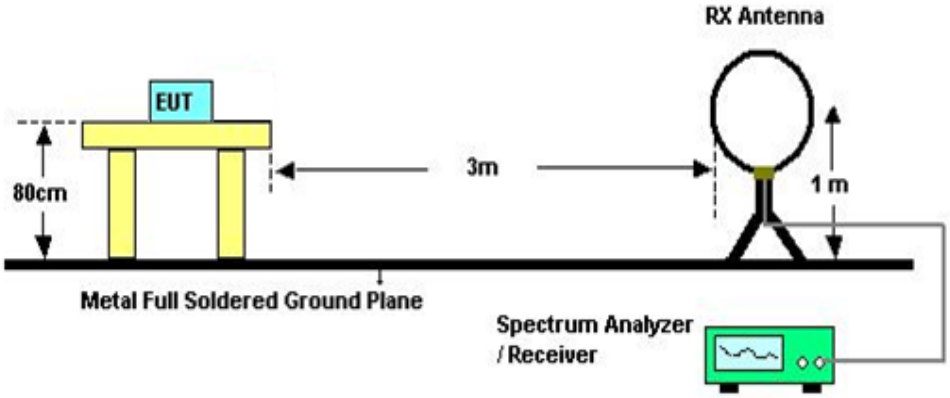
(A) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz



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



(C) For Radiated Emissions 9 kHz-30 MHz



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 (9 kHz TO 30 MHz)

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 (30 MHz TO 1000 MHz)

Please refer to the Appendix C.

4.2.9 TEST RESULTS (ABOVE 1000 MHz)

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

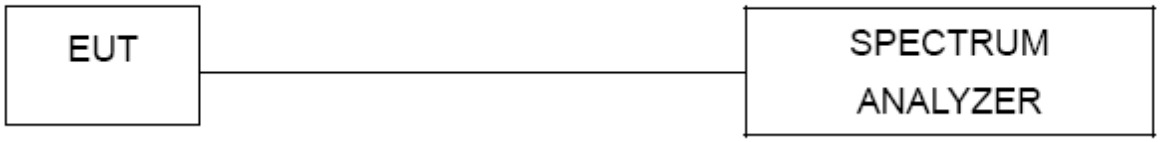
5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. The bandwidth was performed in accordance with method 8.1 of FCC KDB 558074 D01 v04 DTS Meas Guidance.
c. Spectrum Setting: For 20M,RBW=300 kHz, VBW=1MHz,For 40M, RBW=1MHz,VBW=3MHz, 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 AVERAGE 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 Average Output Power	1 Watt or 30 dBm	2400-2483.5	PASS

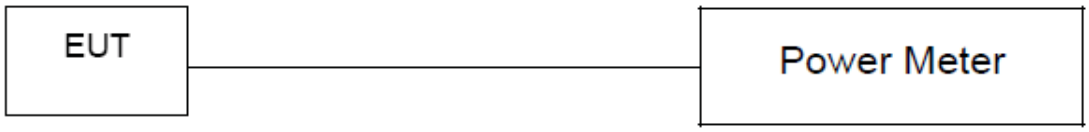
6.1.1 TEST PROCEDURE

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
b. The maximum AVG output power was performed in accordance with method 9.2.3.1 of FCC KDB 558074 D01 v04 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 intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

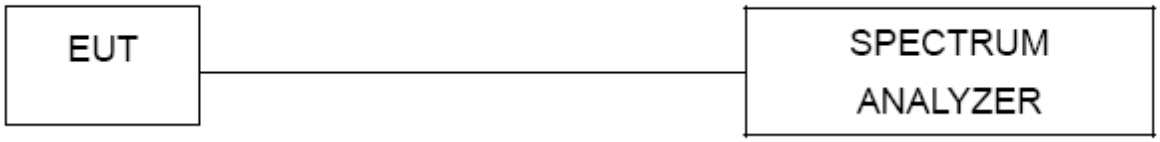
7.1.1 TEST PROCEDURE

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= 100 kHz, VBW=300 kHz, 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 3 kHz)	2400-2483.5	PASS

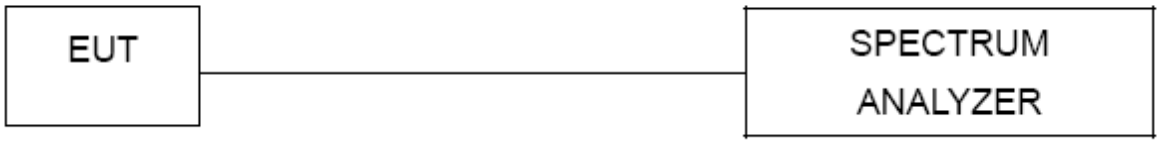
8.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. The power spectral density was performed in accordance with method 10.2 of FCC KDB 558074 D01 v04 DTS Meas Guidance.
b. Spectrum Setting: RBW=3 kHz, VBW=10 kHz, 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 Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 11, 2019
2	LISN	EMCO	3816/2	52765	Mar. 11, 2019
3	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 11, 2019
4	TWO-LINE V-NETWORK	R&S	ENV216	101447	Mar. 11, 2019
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 23, 2019

Radiated Emission Measurement-9kHz TO 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Loop Antenna	EM	EM-6876-1	230	Feb. 07, 2019
2	Cable	N/A	RG 213/U	C-102	Jun. 01, 2019
3	EMI Test Receiver	R&S	ESCI	100382	Mar. 11, 2019

Radiated Emission Measurement-30 MHz TO 1000 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 11, 2019
2	Amplifier	HP	8447D	2944A09673	Aug. 11, 2019
3	Receiver	Agilent	N9038A	MY52130039	Aug. 11, 2019
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 25, 2019
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	Feb. 07, 2019

Radiated Emission Measurement - Above 1GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 11, 2019
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2019
3	Amplifier	Agilent	8449B	3008A02274	Mar. 11, 2019
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 11, 2019
5	Receiver	Agilent	N9038A	MY52130039	Aug. 11, 2019
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	mitron	B10-01-01-12M	18072744	Jul. 30, 2019
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

Maximum Average output power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	ANRITSU	ML2495A	1128009	Mar. 11, 2019
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Mar. 11, 2019

Antenna Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

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

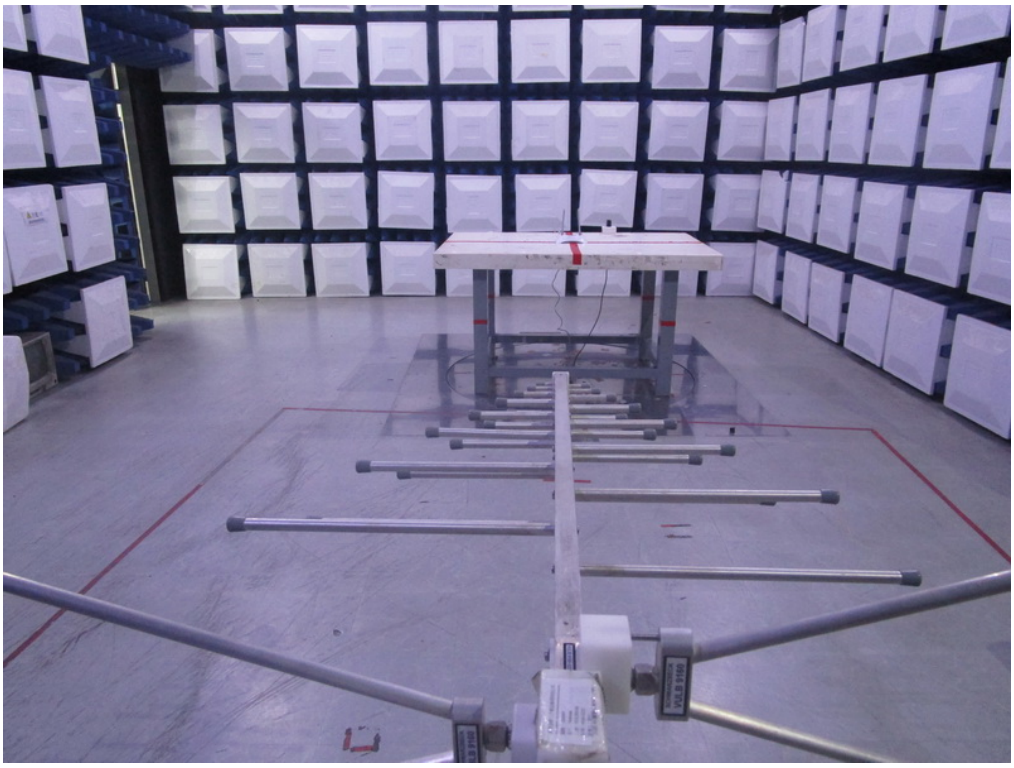
Conducted Measurement Photos

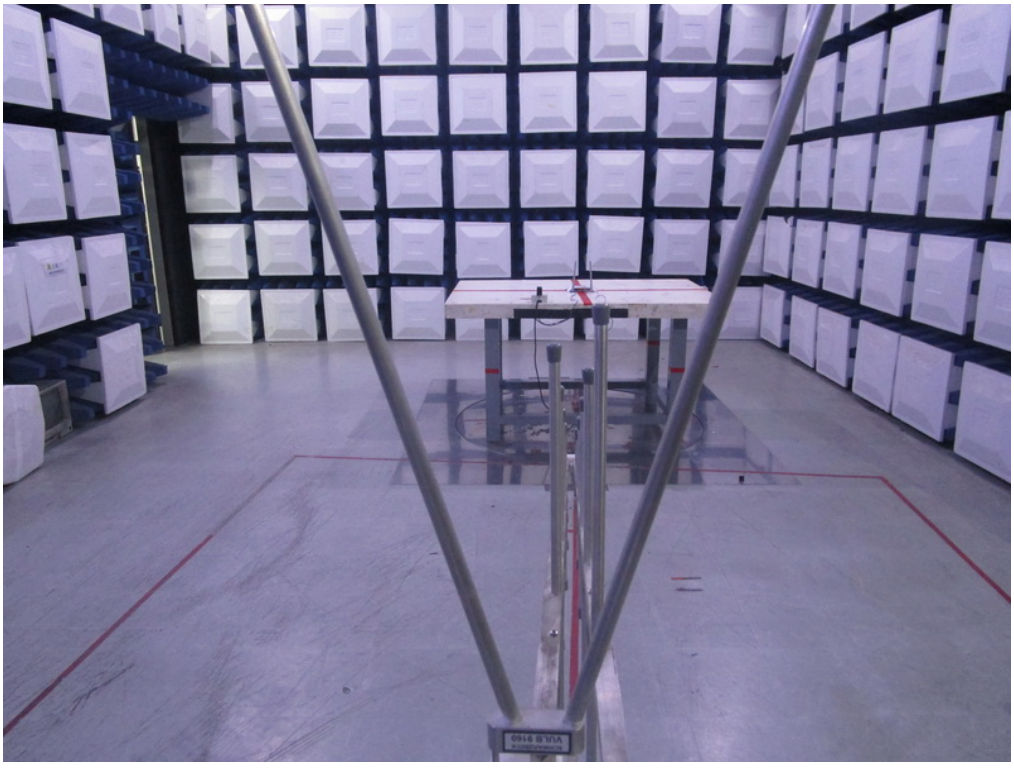
Radiated Measurement Photos

9 kHz to 30 MHz

Radiated Measurement Photos

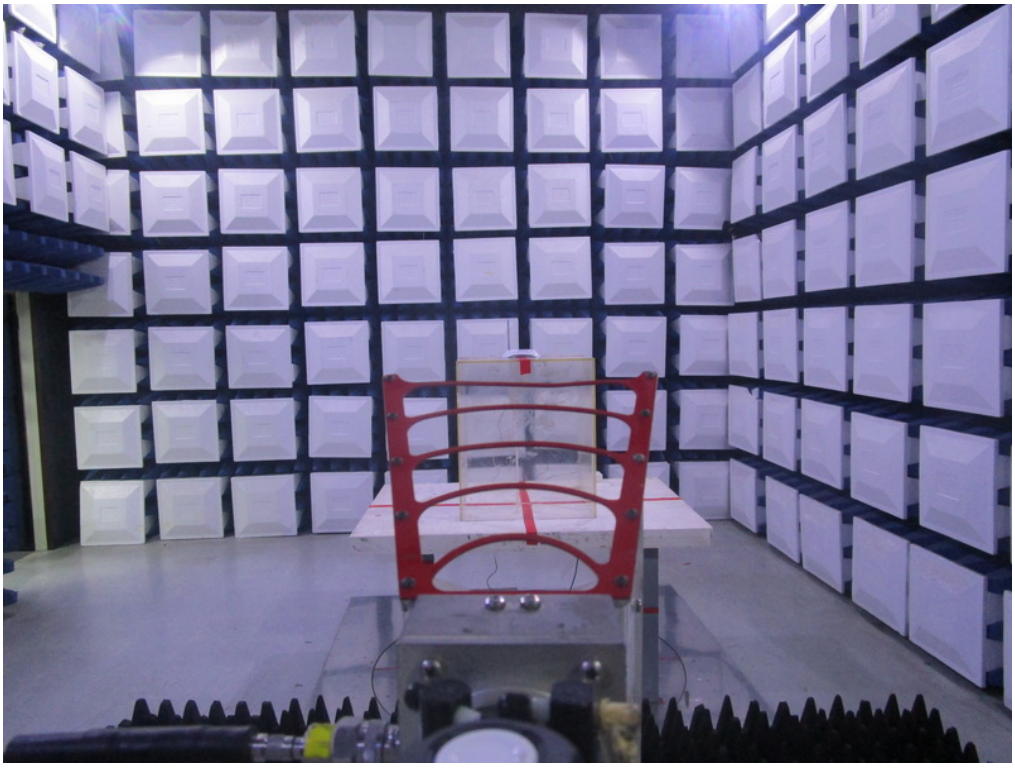
30 MHz to 1000 MHz

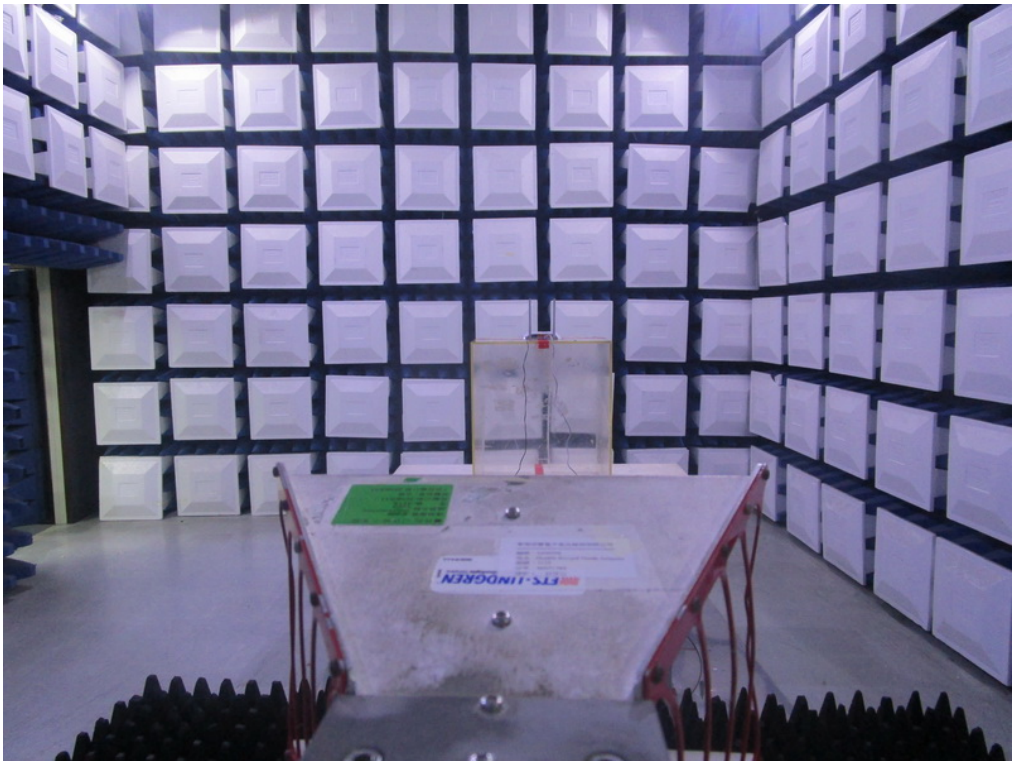




Radiated Measurement Photos

Above 1000 MHz

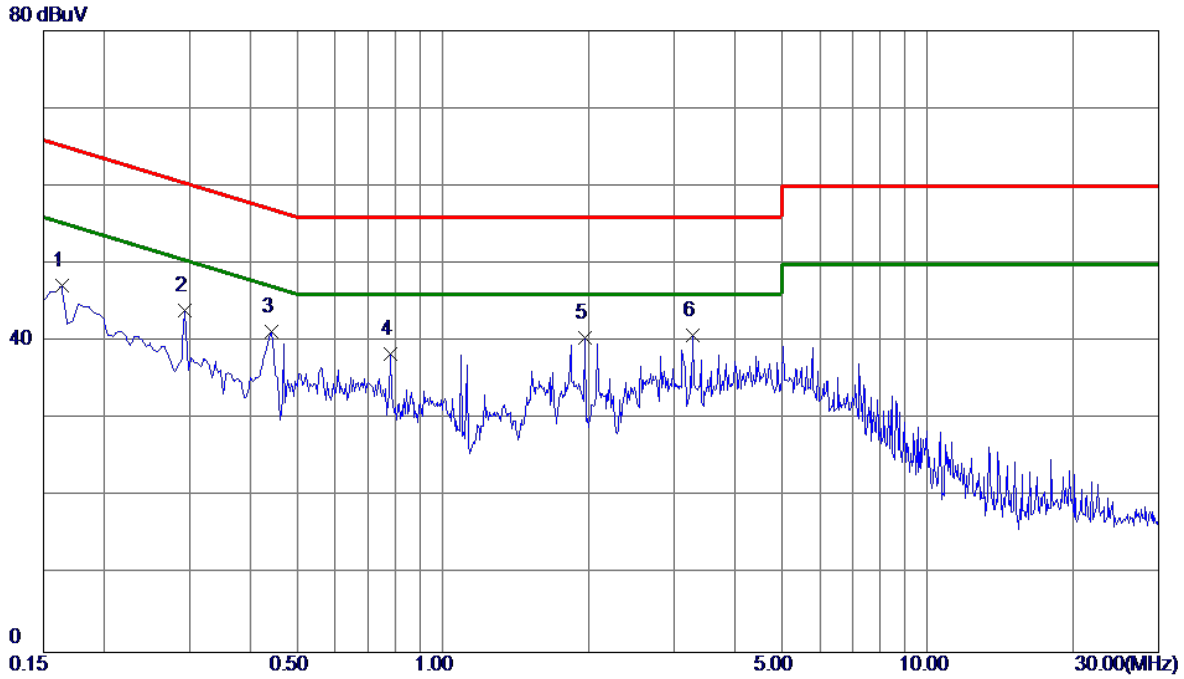




APPENDIX A - CONDUCTED EMISSION

Test Mode:	TX Mode

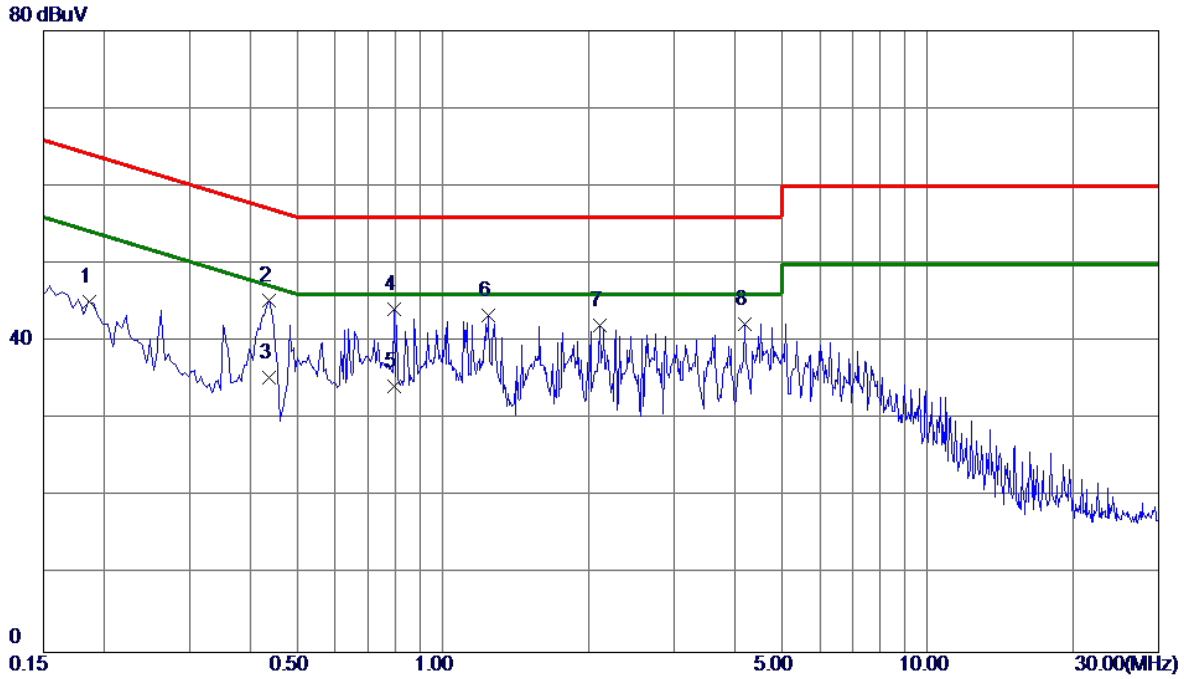
Line



No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1635	37.40	9.82	47.22	65.28	-18.06	Peak	
2	0.2940	34.14	9.82	43.96	60.41	-16.45	Peak	
3	0.4425	31.50	9.80	41.30	57.01	-15.71	Peak	
4	0.7799	28.43	9.90	38.33	56.00	-17.67	Peak	
5	1.9680	30.52	10.00	40.52	56.00	-15.48	Peak	
6 *	3.2820	30.72	10.07	40.79	56.00	-15.21	Peak	

Test Mode:	TX Mode

Neutral

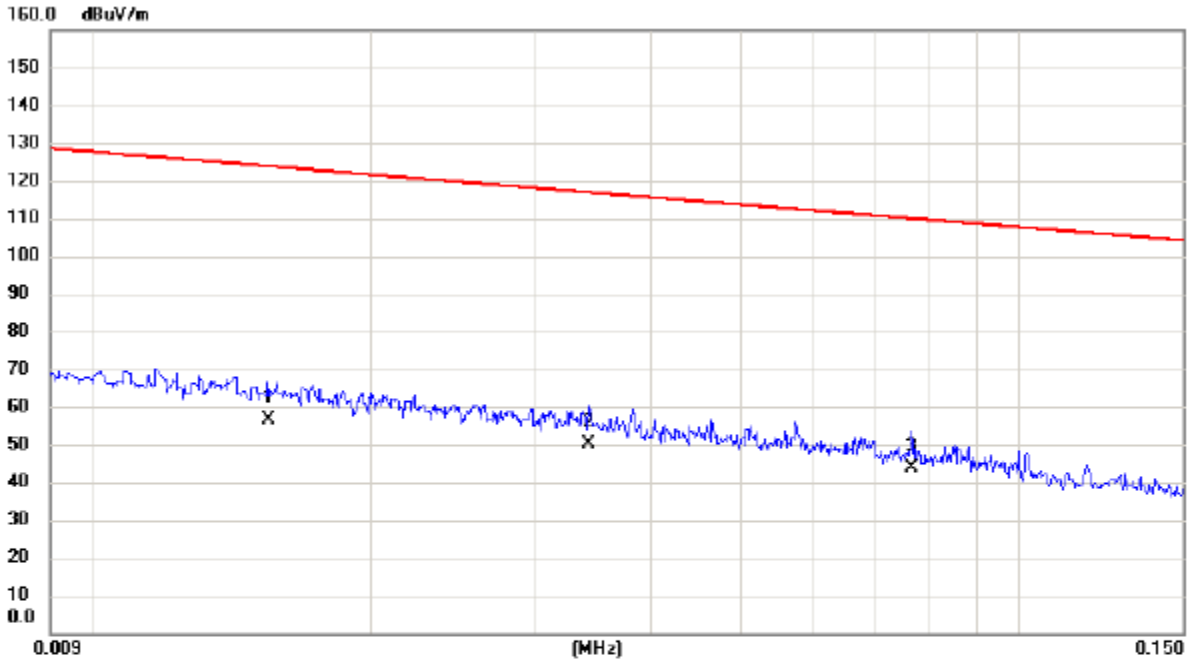


No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1860	35.20	9.91	45.11	64.21	-19.10	Peak	
2	0.4380	35.33	9.95	45.28	57.10	-11.82	Peak	
3 *	0.4380	25.39	9.95	35.34	47.10	-11.76	AVG	
4	0.7935	34.12	10.09	44.21	56.00	-11.79	Peak	
5	0.7935	24.10	10.09	34.19	46.00	-11.81	AVG	
6	1.2435	33.18	10.14	43.32	56.00	-12.68	Peak	
7	2.1075	31.82	10.19	42.01	56.00	-13.99	Peak	
8	4.1910	31.97	10.33	42.30	56.00	-13.70	Peak	

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

Test Mode:	TX Mode

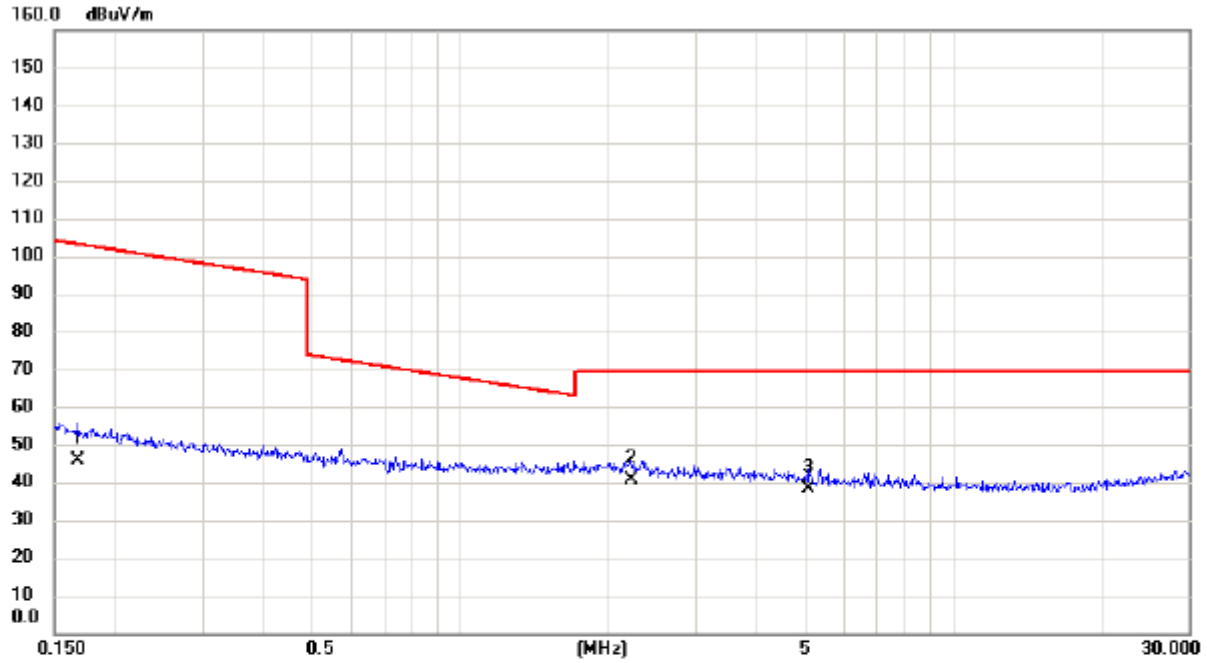
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0155	35.90	20.65	56.55	123.80	-67.25	AVG	
2		0.0343	30.40	19.78	50.18	116.90	-66.72	AVG	
3	*	0.0766	24.70	18.99	43.69	109.92	-66.23	AVG	

Test Mode:	TX Mode

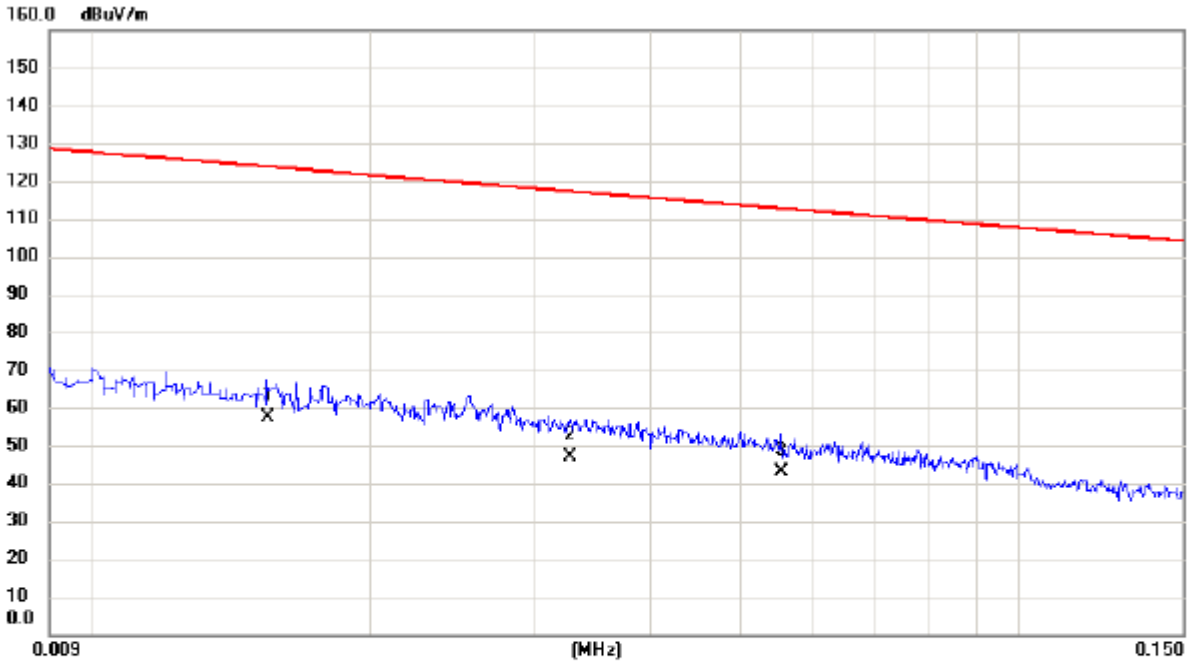
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.1677	28.40	17.21	45.61	103.12	-57.51	AVG	
2	*	2.2132	23.70	16.98	40.68	69.54	-28.86	QP	
3		5.0848	23.20	15.15	38.35	69.54	-31.19	QP	

Test Mode:	TX Mode

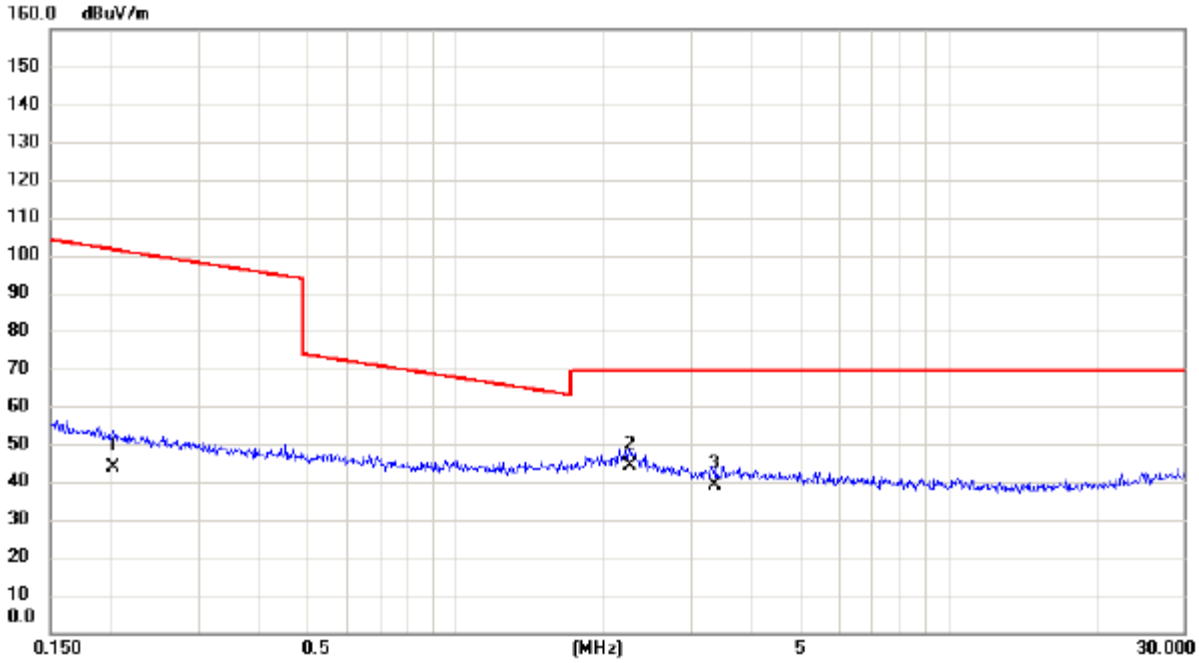
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0155	36.70	20.65	57.35	123.80	-66.45	AVG	
2		0.0328	27.20	19.81	47.01	117.29	-70.28	AVG	
3		0.0554	23.40	19.42	42.82	112.73	-69.91	AVG	

Test Mode:	TX Mode

Ant 90°

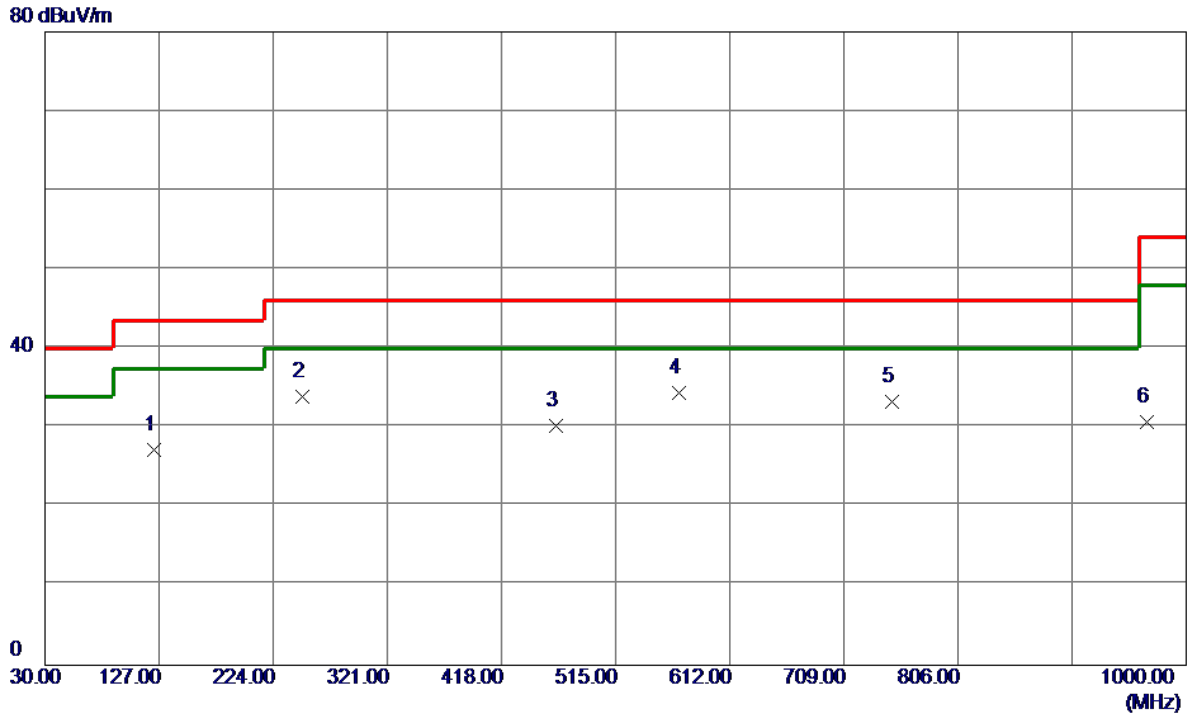


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.2007	26.50	17.15	43.65	101.56	-57.91	AVG	
2	*	2.2486	27.10	16.96	44.06	69.54	-25.48	QP	
3		3.3458	22.70	16.26	38.96	69.54	-30.58	QP	

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

Test Mode:	TX B Mode Channel 01

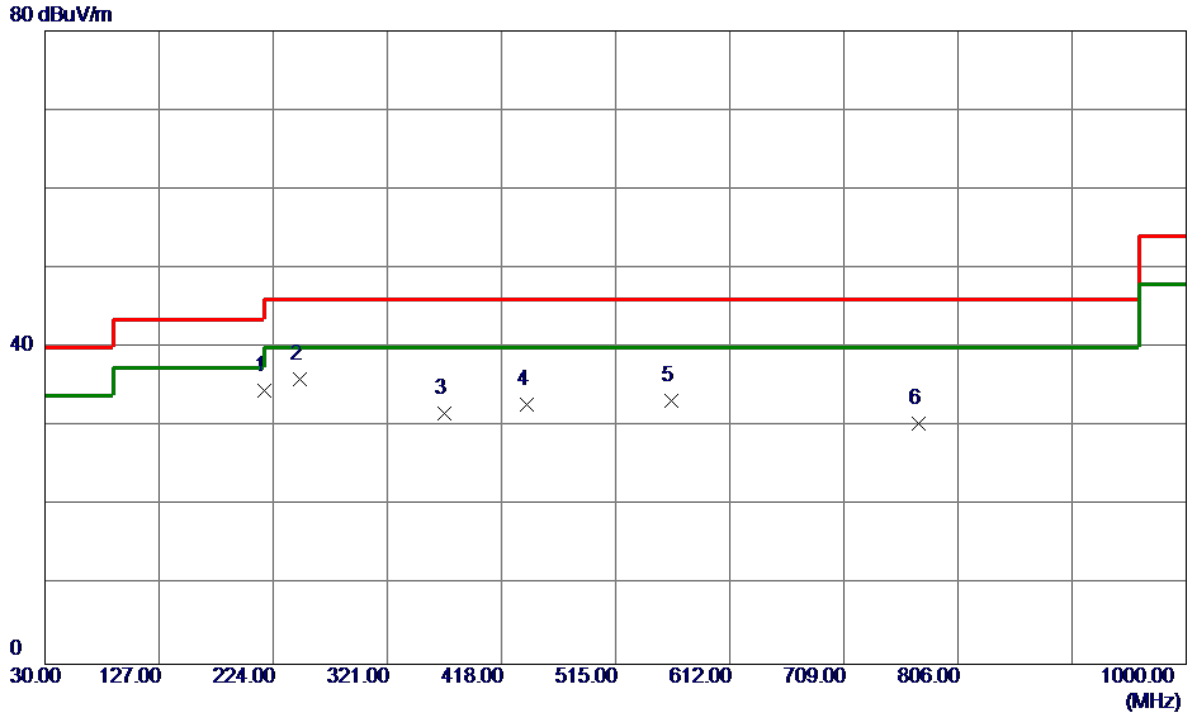
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	123.1200	41.52	-14.28	27.24	43.50	-16.26	Peak	
2	249.2200	48.29	-14.32	33.97	46.00	-12.03	Peak	
3	464.5600	38.04	-7.73	30.31	46.00	-15.69	Peak	
4 *	569.3200	40.24	-5.79	34.45	46.00	-11.55	Peak	
5	749.7400	37.38	-4.04	33.34	46.00	-12.66	Peak	
6	967.0200	29.76	1.00	30.76	54.00	-23.24	Peak	

Test Mode:	TX B Mode Channel 01

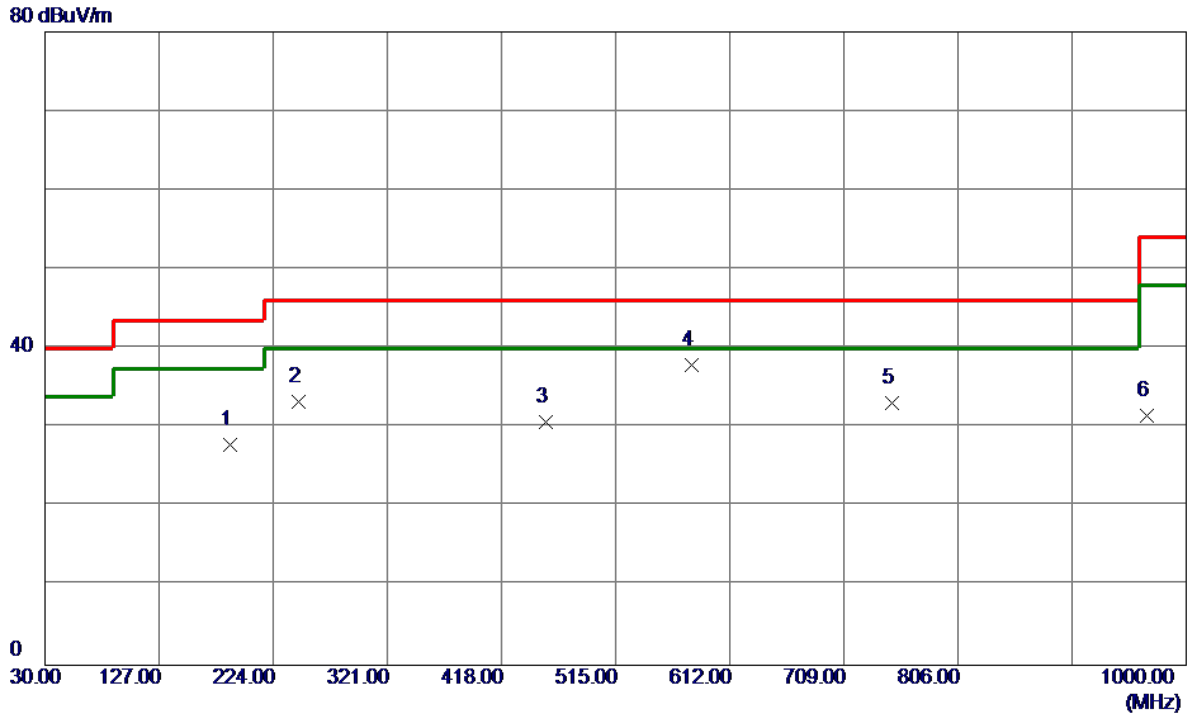
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	216.2400	49.49	-14.99	34.50	46.00	-11.50	Peak	
2 *	246.3100	50.37	-14.43	35.94	46.00	-10.06	Peak	
3	369.5000	42.09	-10.42	31.67	46.00	-14.33	Peak	
4	439.3400	40.65	-7.83	32.82	46.00	-13.18	Peak	
5	562.5300	38.90	-5.67	33.23	46.00	-12.77	Peak	
6	773.0200	33.09	-2.66	30.43	46.00	-15.57	Peak	

Test Mode:	TX B Mode Channel 06

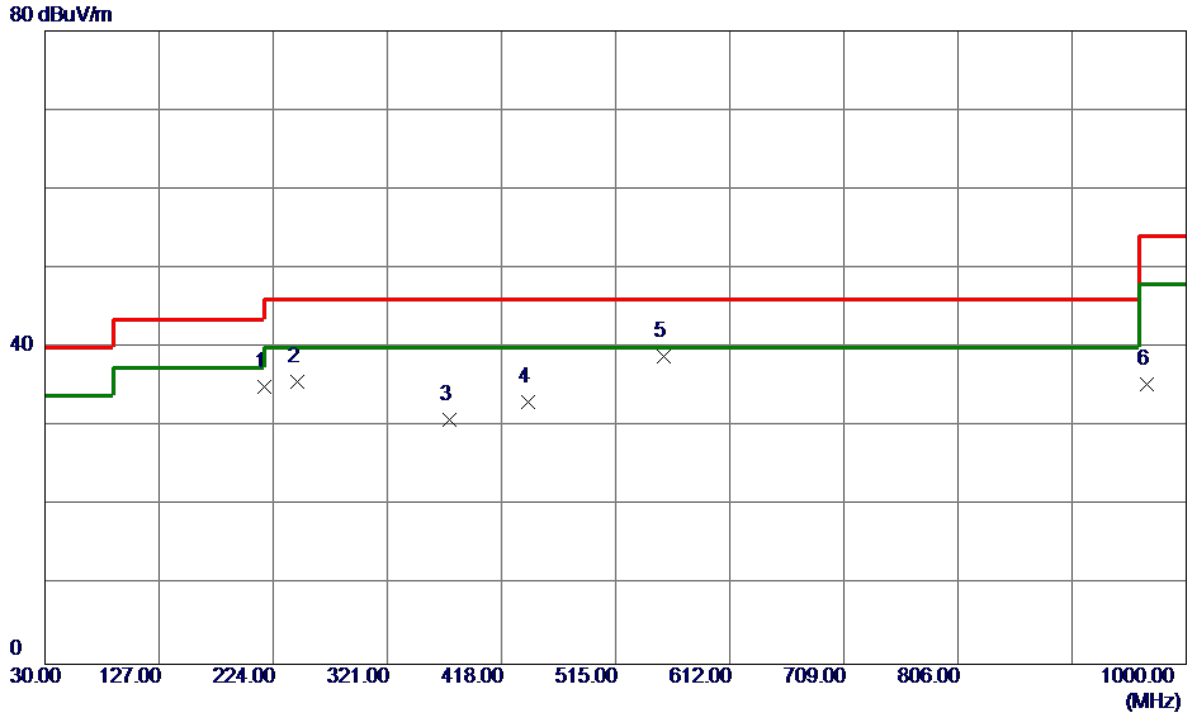
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	187.1400	41.74	-13.88	27.86	43.50	-15.64	Peak	
2	245.3400	47.80	-14.47	33.33	46.00	-12.67	Peak	
3	455.8300	38.21	-7.54	30.67	46.00	-15.33	Peak	
4 *	579.9900	43.89	-5.97	37.92	46.00	-8.08	Peak	
5	749.7400	37.14	-4.04	33.10	46.00	-12.90	Peak	
6	967.0200	30.59	1.00	31.59	54.00	-22.41	Peak	

Test Mode:	TX B Mode Channel 06

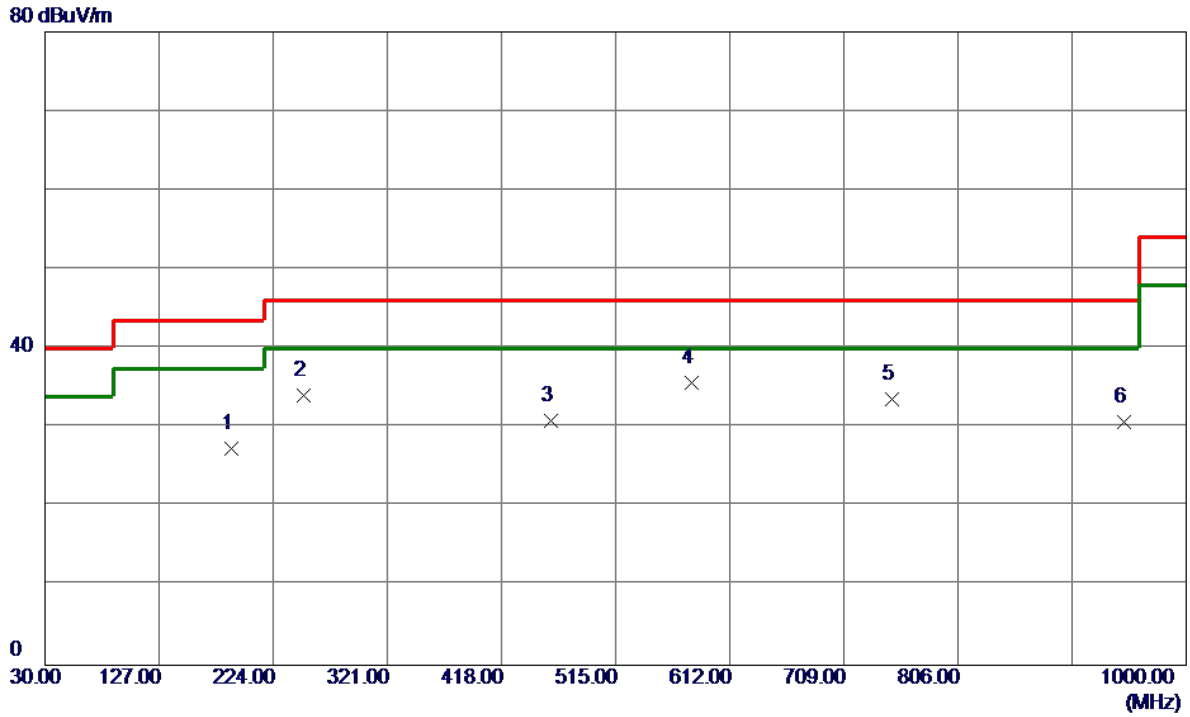
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	216.2400	50.03	-14.99	35.04	46.00	-10.96	Peak	
2	244.3700	50.22	-14.51	35.71	46.00	-10.29	Peak	
3	373.3800	41.12	-10.28	30.84	46.00	-15.16	Peak	
4	440.3100	40.91	-7.79	33.12	46.00	-12.88	Peak	
5 *	555.7400	44.40	-5.56	38.84	46.00	-7.16	Peak	
6	967.0200	34.35	1.00	35.35	54.00	-18.65	Peak	

Test Mode:	TX B Mode Channel 11

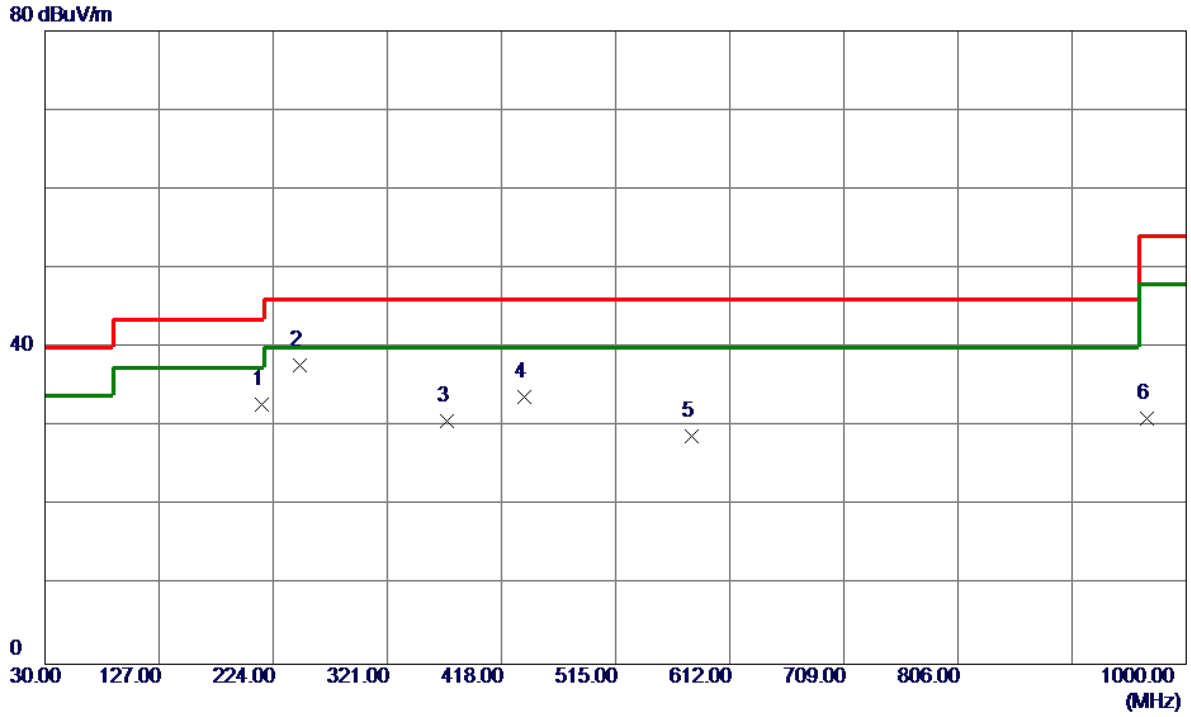
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	188.1100	41.41	-14.02	27.39	43.50	-16.11	Peak	
2	250.1900	48.40	-14.28	34.12	46.00	-11.88	Peak	
3	459.7100	38.46	-7.62	30.84	46.00	-15.16	Peak	
4 *	579.9900	41.58	-5.97	35.61	46.00	-10.39	Peak	
5	749.7400	37.71	-4.04	33.67	46.00	-12.33	Peak	
6	947.6200	29.47	1.31	30.78	46.00	-15.22	Peak	

Test Mode:	TX B Mode Channel 11

Horizontal

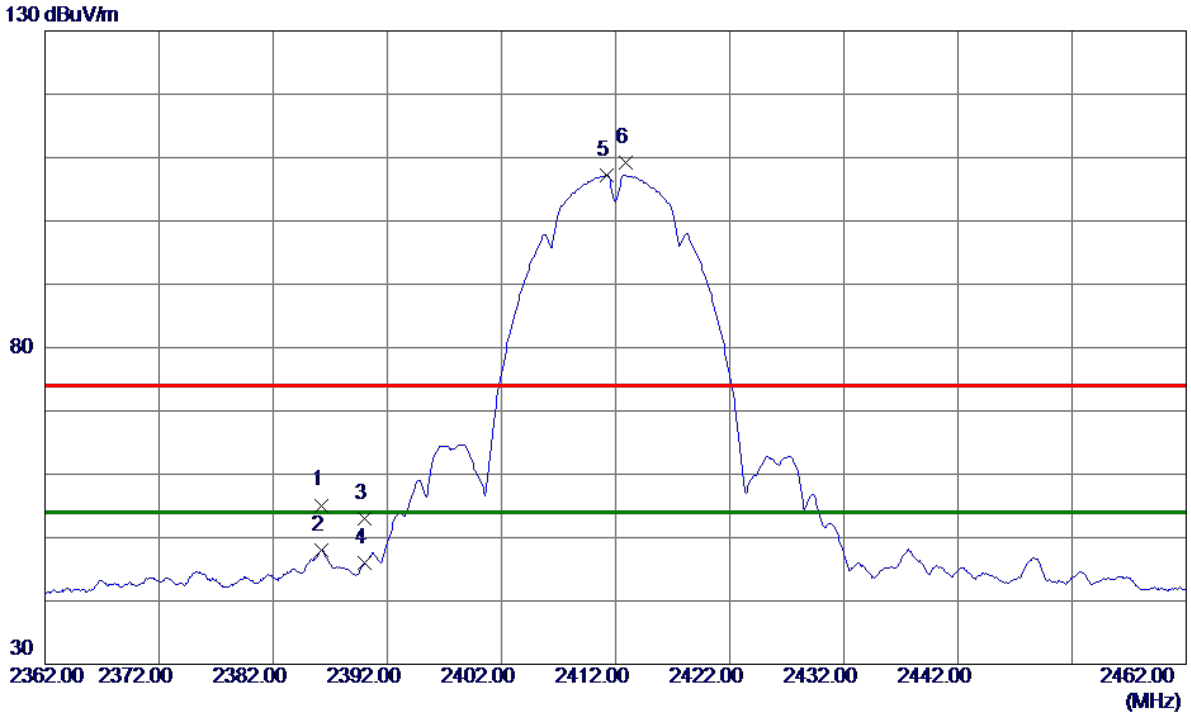


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	214.3000	47.81	-15.06	32.75	43.50	-10.75	Peak	
2 *	246.3100	52.16	-14.43	37.73	46.00	-8.27	Peak	
3	371.4400	41.02	-10.35	30.67	46.00	-15.33	Peak	
4	437.4000	41.63	-7.90	33.73	46.00	-12.27	Peak	
5	579.9900	34.82	-5.97	28.85	46.00	-17.15	Peak	
6	967.0200	30.11	1.00	31.11	54.00	-22.89	Peak	

APPENDIX D - RADIATED EMISSION (ABOVE 1000 MHZ)

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2386.2000	43.80	11.30	55.10	74.00	-18.90	Peak	
2	2386.2000	36.75	11.30	48.05	54.00	-5.95	AVG	
3	2390.0000	41.62	11.30	52.92	74.00	-21.08	Peak	
4	2390.0000	34.61	11.30	45.91	54.00	-8.09	AVG	
5 *	2411.2000	95.90	11.30	107.20	54.00	53.20	AVG	No Limit
6	2412.9000	97.92	11.30	109.22	74.00	35.22	Peak	No Limit

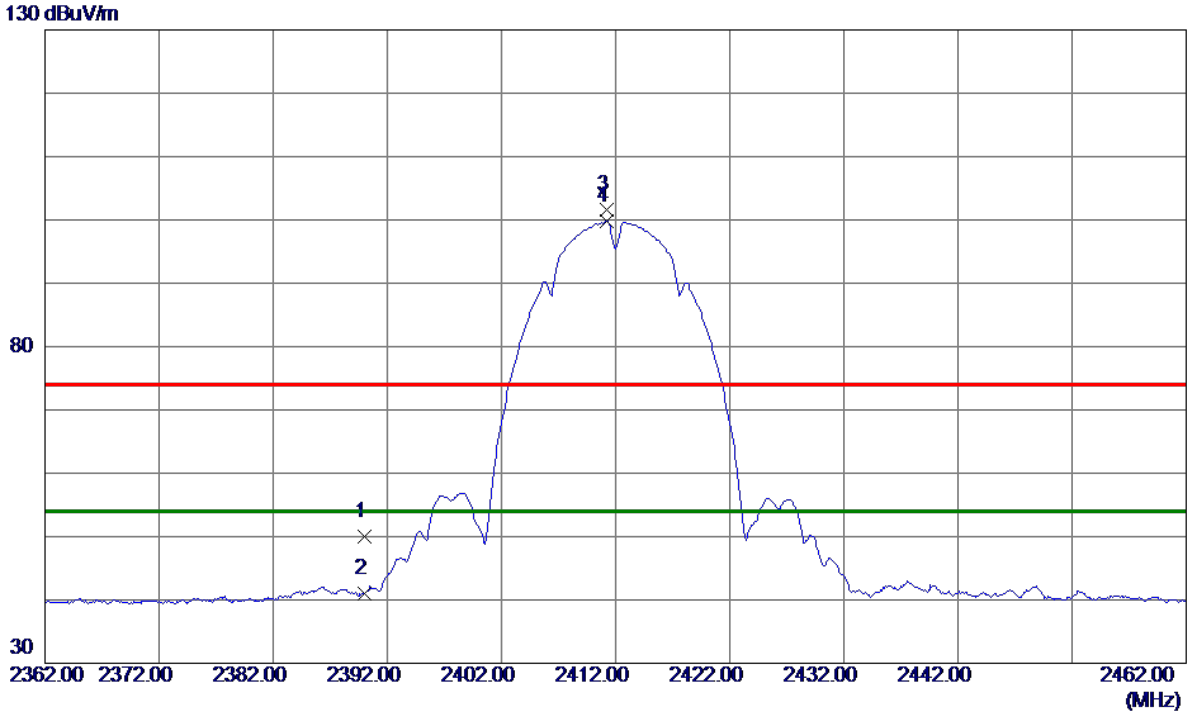
Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.9850	40.69	9.91	50.60	74.00	-23.40	Peak	
2 *	4823.9850	38.87	9.91	48.78	54.00	-5.22	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

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	38.76	11.30	50.06	74.00	-23.94	Peak	
2	2390.0000	29.75	11.30	41.05	54.00	-12.95	AVG	
3	2411.2000	90.26	11.30	101.56	74.00	27.56	Peak	No Limit
4 *	2411.2000	88.45	11.30	99.75	54.00	45.75	AVG	No Limit

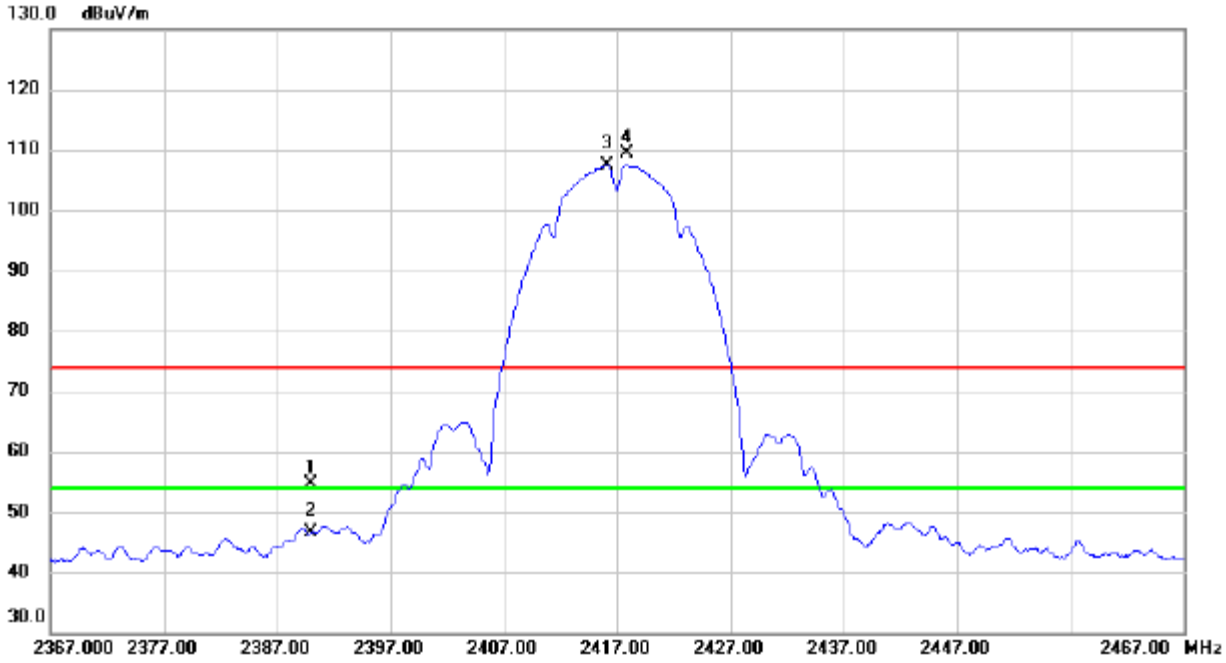
Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.8830	36.98	9.91	46.89	74.00	-27.11	Peak	
2 *	4824.0120	32.05	9.91	41.96	54.00	-12.04	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

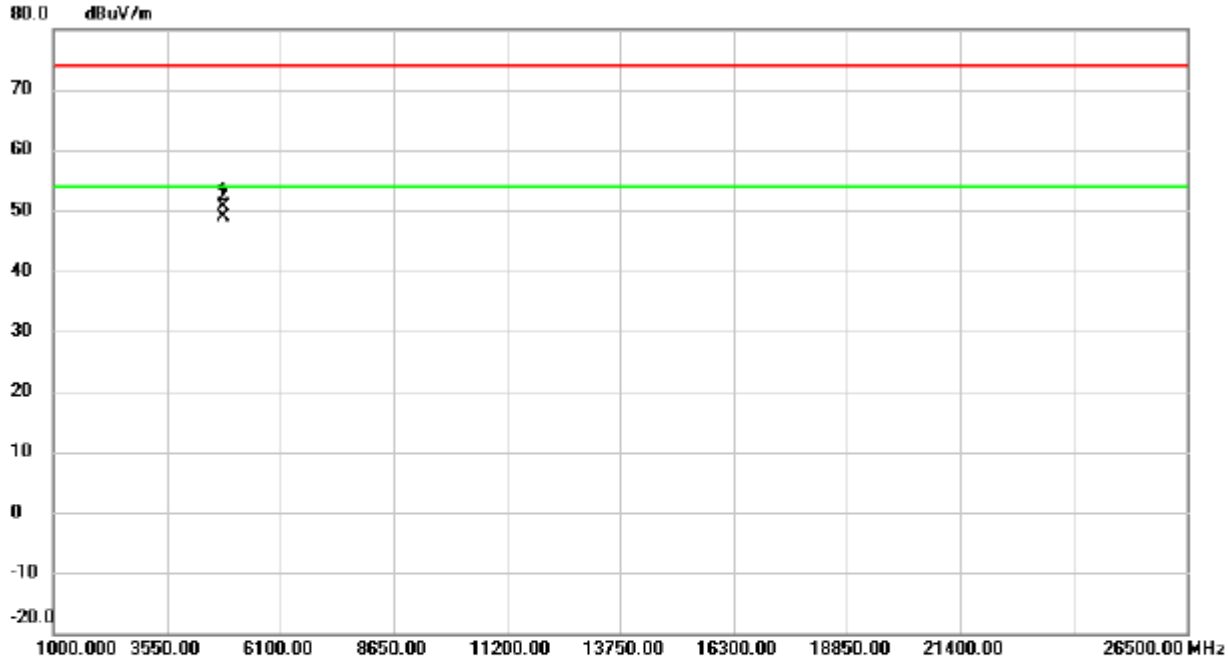
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	43.35	11.29	54.64	74.00	-19.36	peak	
2		2390.000	35.31	11.29	46.60	54.00	-7.40	AVG	
3	*	2416.200	96.15	11.31	107.46	54.00	53.46	AVG	No Limit
4	X	2417.900	98.17	11.30	109.47	74.00	35.47	peak	No Limit

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

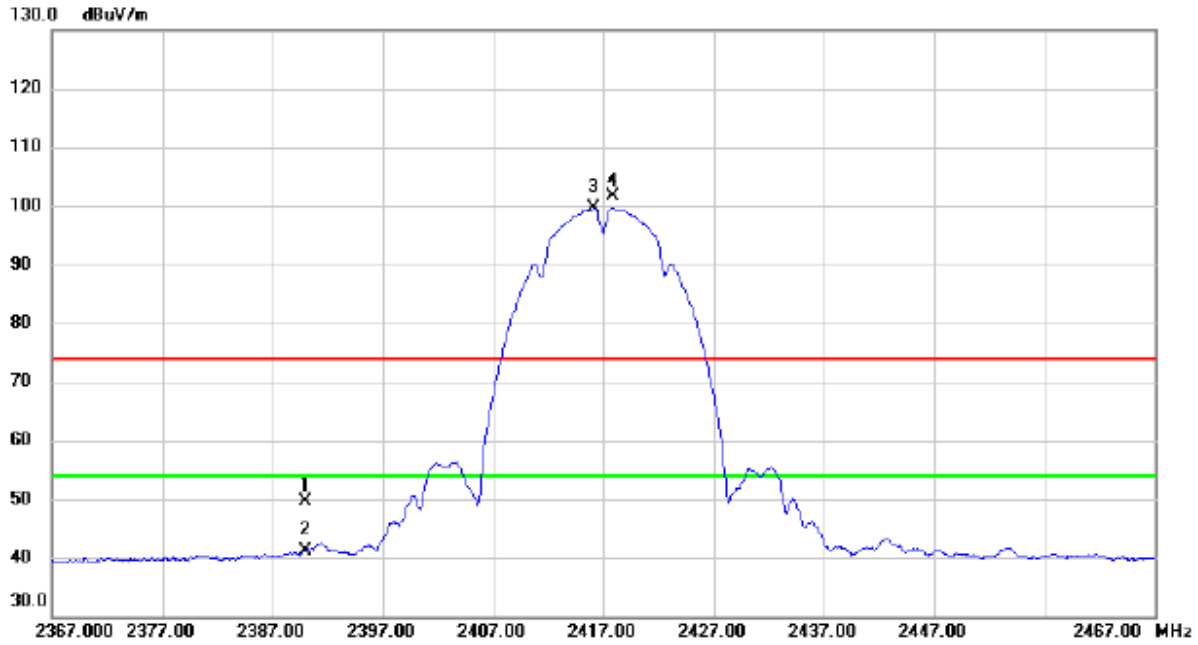
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4833.860	40.79	9.94	50.73	74.00	-23.27	peak	
2	*	4833.920	39.01	9.94	48.95	54.00	-5.05	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

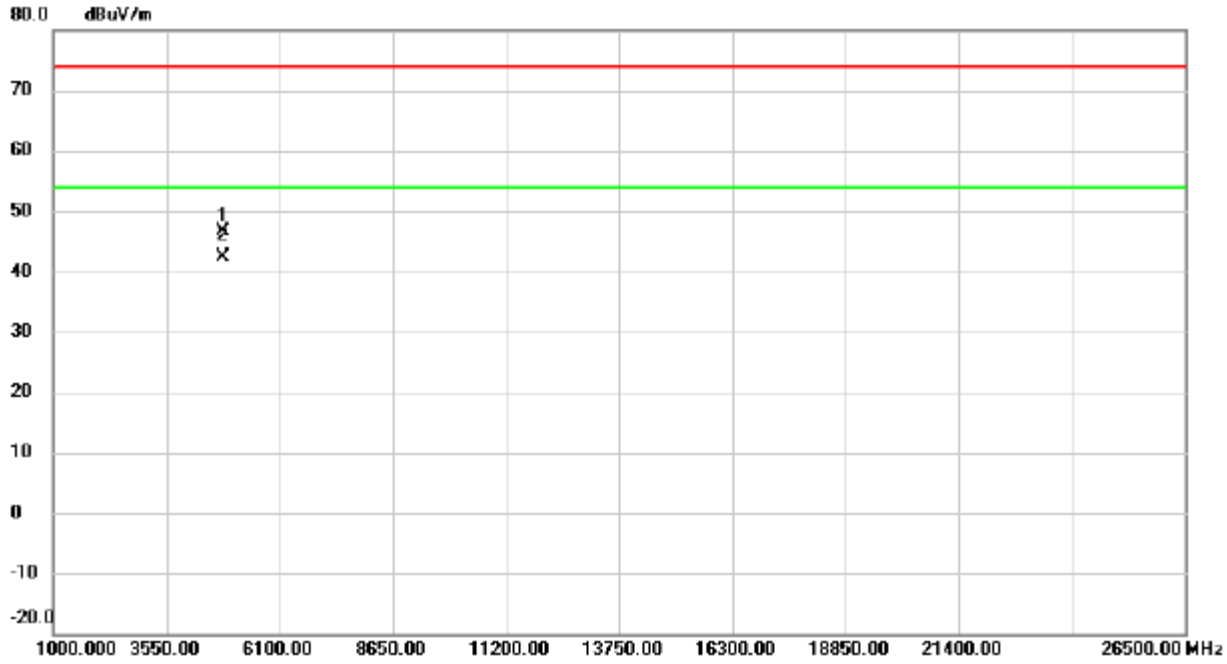
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	38.32	11.29	49.61	74.00	-24.39	peak	
2		2390.000	29.80	11.29	41.09	54.00	-12.91	AVG	
3	*	2416.200	88.28	11.31	99.59	54.00	45.59	AVG	No Limit
4	X	2417.900	90.45	11.30	101.75	74.00	27.75	peak	No Limit

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

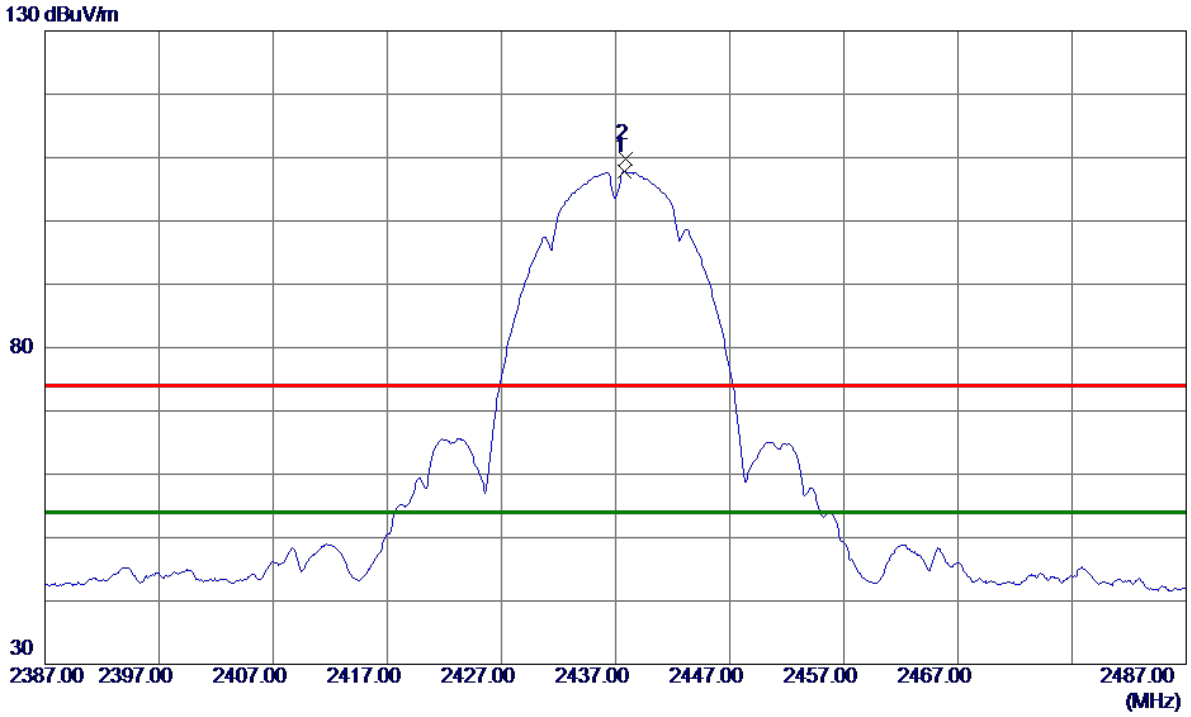
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4833.812	36.58	9.94	46.52	74.00	-27.48	peak	
2	*	4833.985	32.56	9.94	42.50	54.00	-11.50	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2437.8000	96.47	11.31	107.78	54.00	53.78	AVG	No Limit
2	2437.9000	98.48	11.31	109.79	74.00	35.79	Peak	No Limit

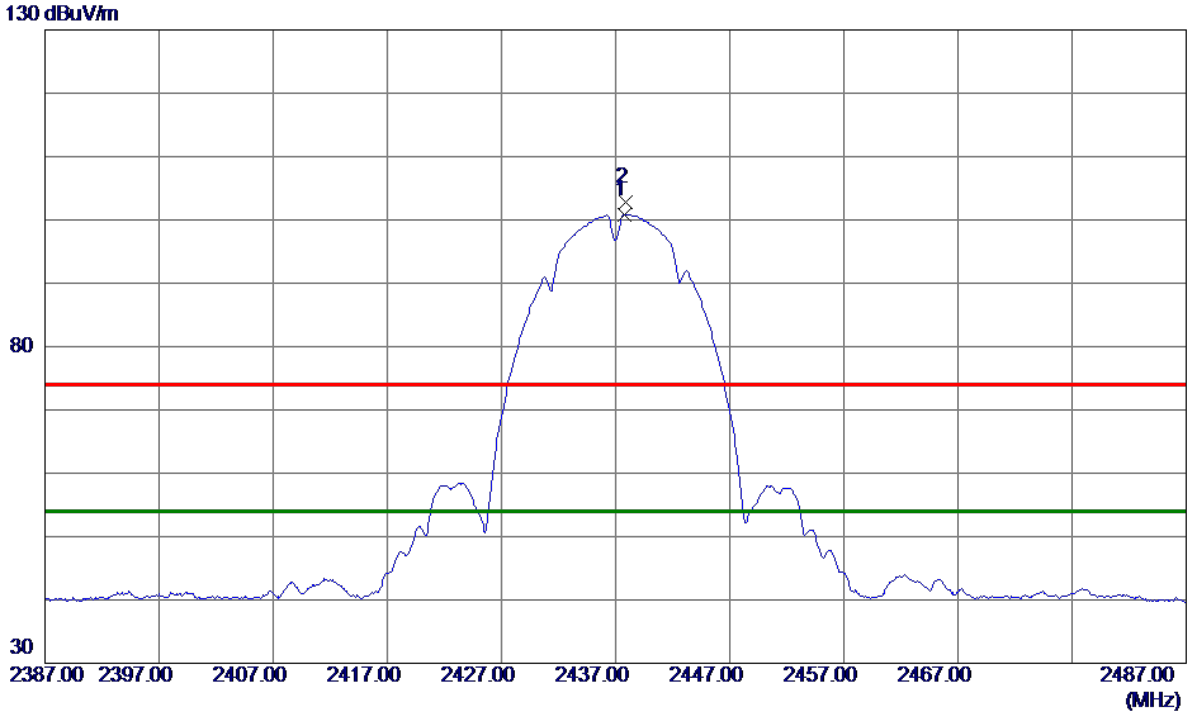
Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9150	38.89	10.05	48.94	54.00	-5.06	AVG	
2	4873.9450	41.06	10.05	51.11	74.00	-22.89	Peak	

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2437.8000	89.56	11.31	100.87	54.00	46.87	AVG	No Limit
2	2437.9000	91.57	11.31	102.88	74.00	28.88	Peak	No Limit

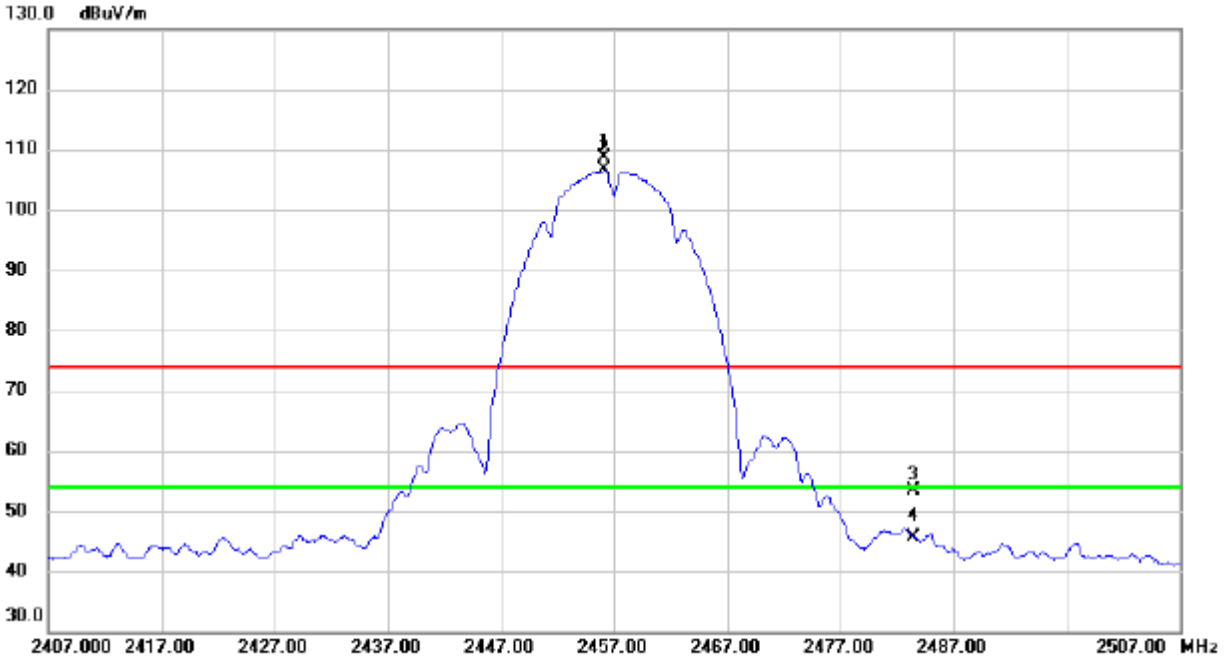
Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.8960	37.04	10.05	47.09	74.00	-26.91	Peak	
2 *	4873.8990	32.50	10.05	42.55	54.00	-11.45	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

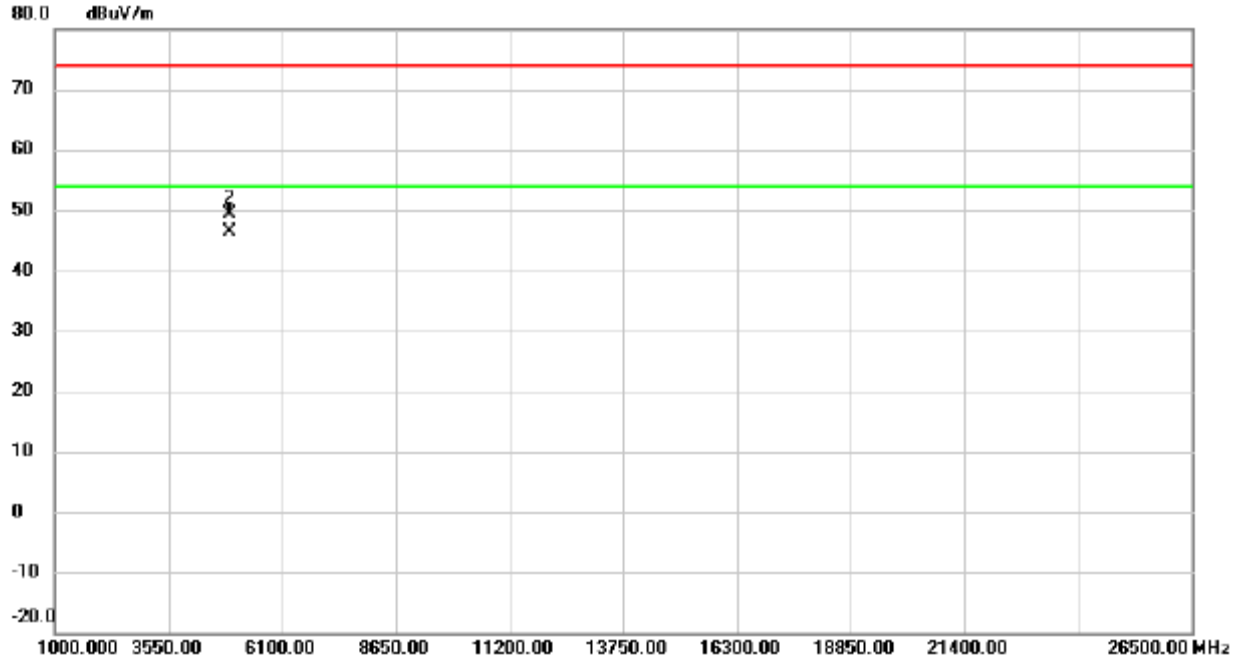
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2456.100	97.30	11.31	108.61	74.00	34.61	peak	No Limit
2	*	2456.200	95.30	11.31	106.61	54.00	52.61	AVG	No Limit
3		2483.500	41.99	11.32	53.31	74.00	-20.69	peak	
4		2483.500	34.29	11.32	45.61	54.00	-8.39	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

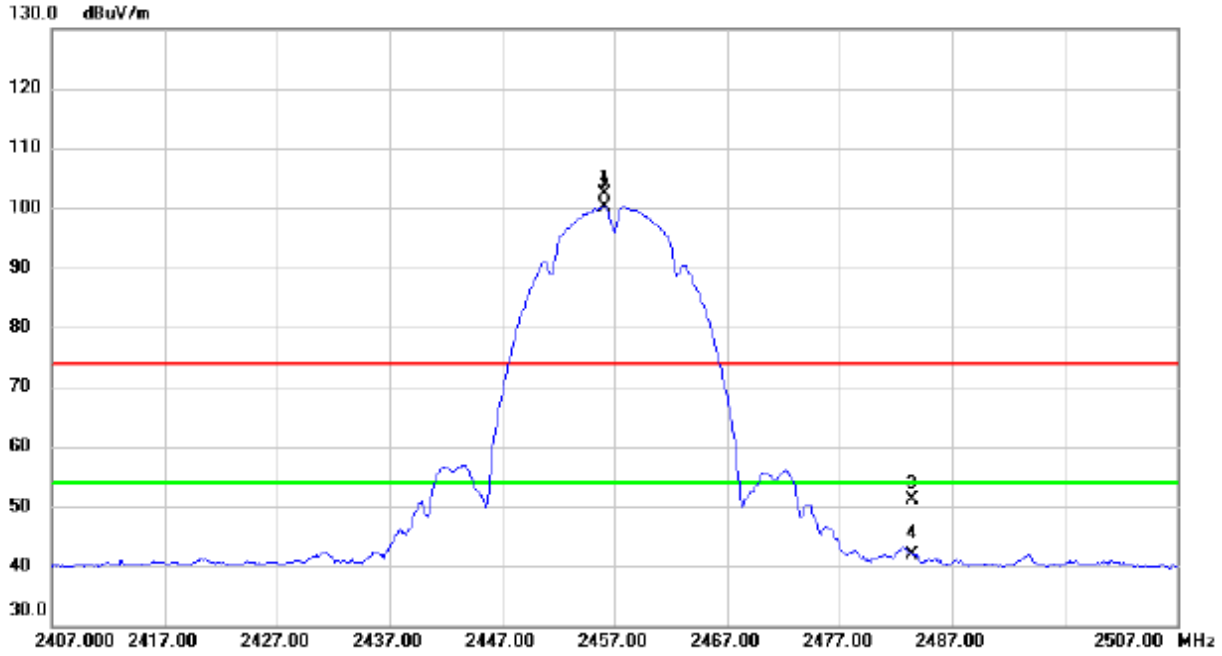
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4913.950	36.21	10.16	46.37	54.00	-7.63	AVG	
2		4913.995	39.13	10.16	49.29	74.00	-24.71	peak	

Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2456.100	91.02	11.31	102.33	74.00	28.33	peak	No Limit
2	*	2456.200	88.88	11.31	100.19	54.00	46.19	AVG	No Limit
3		2483.500	39.79	11.32	51.11	74.00	-22.89	peak	
4		2483.500	30.59	11.32	41.91	54.00	-12.09	AVG	

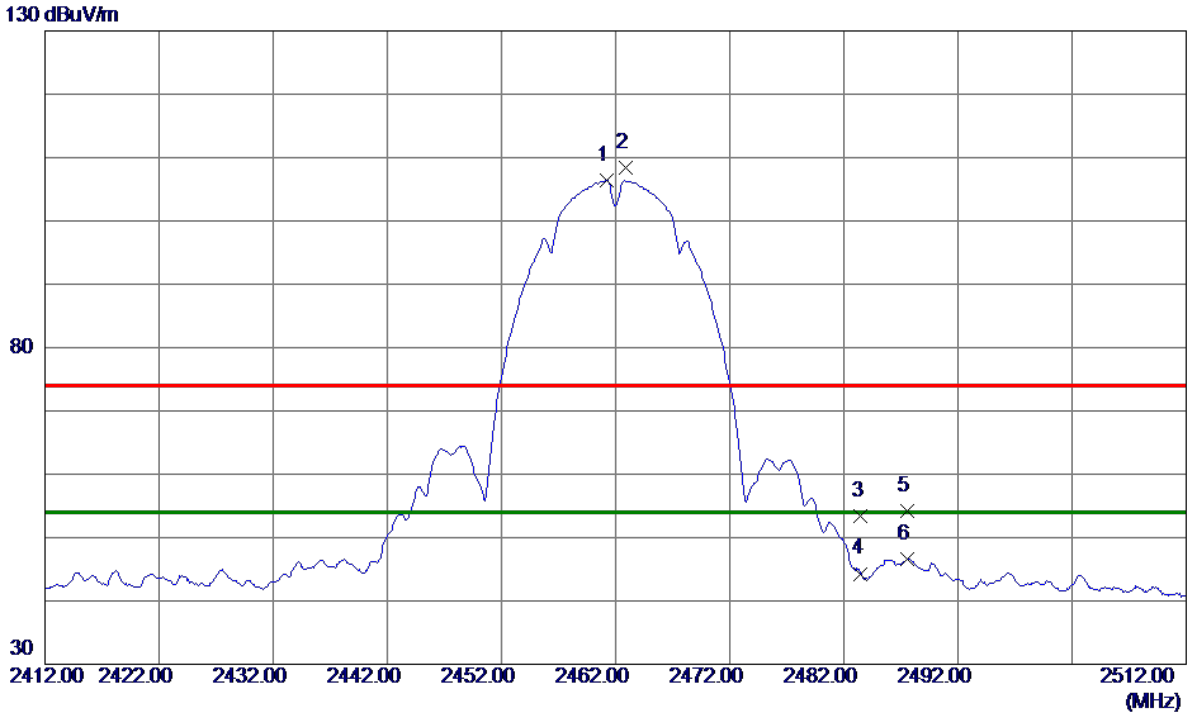
Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4913.896	31.23	10.16	41.39	54.00	-12.61	AVG	
2		4914.018	34.25	10.16	44.41	74.00	-29.59	peak	

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2461.2000	95.05	11.32	106.37	54.00	52.37	AVG	No Limit
2	2462.9000	96.99	11.32	108.31	74.00	34.31	Peak	No Limit
3	2483.5000	42.01	11.32	53.33	74.00	-20.67	Peak	
4	2483.5000	32.98	11.32	44.30	54.00	-9.70	AVG	
5	2487.6000	42.80	11.32	54.12	74.00	-19.88	Peak	
6	2487.6000	35.36	11.32	46.68	54.00	-7.32	AVG	

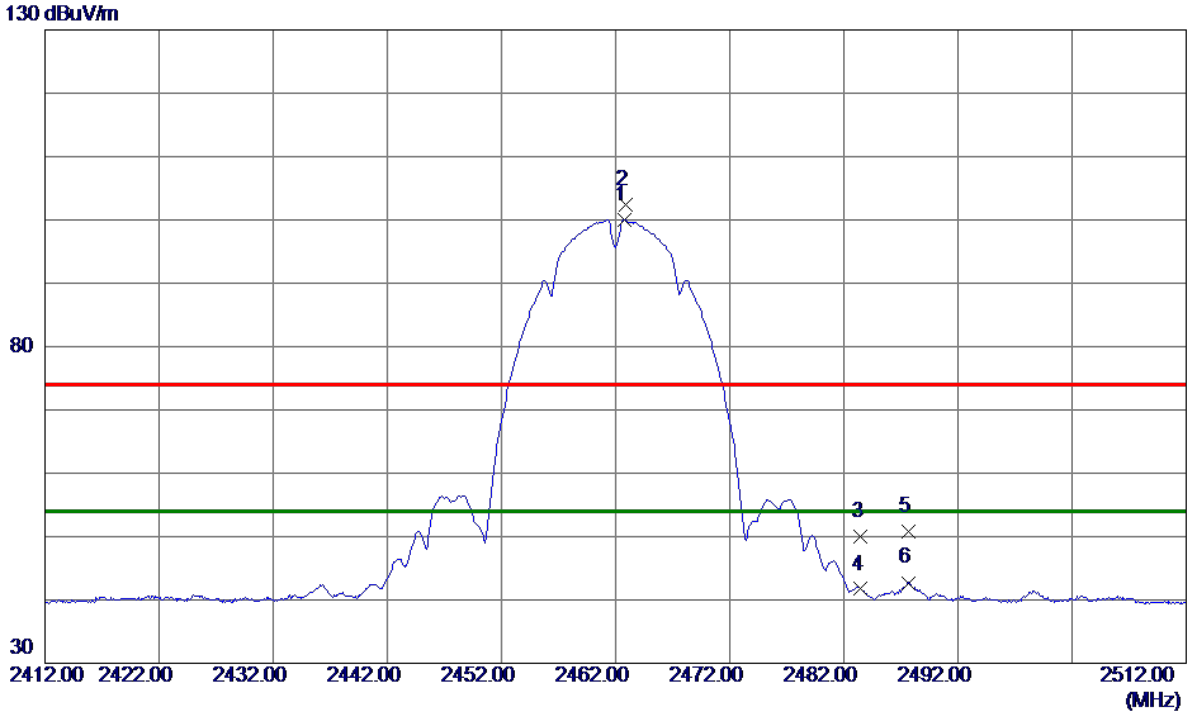
Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.8900	39.00	10.18	49.18	74.00	-24.82	Peak	
2 *	4923.9500	36.01	10.18	46.19	54.00	-7.81	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2462.8000	88.68	11.32	100.00	54.00	46.00	AVG	No Limit
2	2462.9000	91.02	11.32	102.34	74.00	28.34	Peak	No Limit
3	2483.5000	38.75	11.32	50.07	74.00	-23.93	Peak	
4	2483.5000	30.38	11.32	41.70	54.00	-12.30	AVG	
5	2487.7000	39.46	11.32	50.78	74.00	-23.22	Peak	
6	2487.7000	31.38	11.32	42.70	54.00	-11.30	AVG	

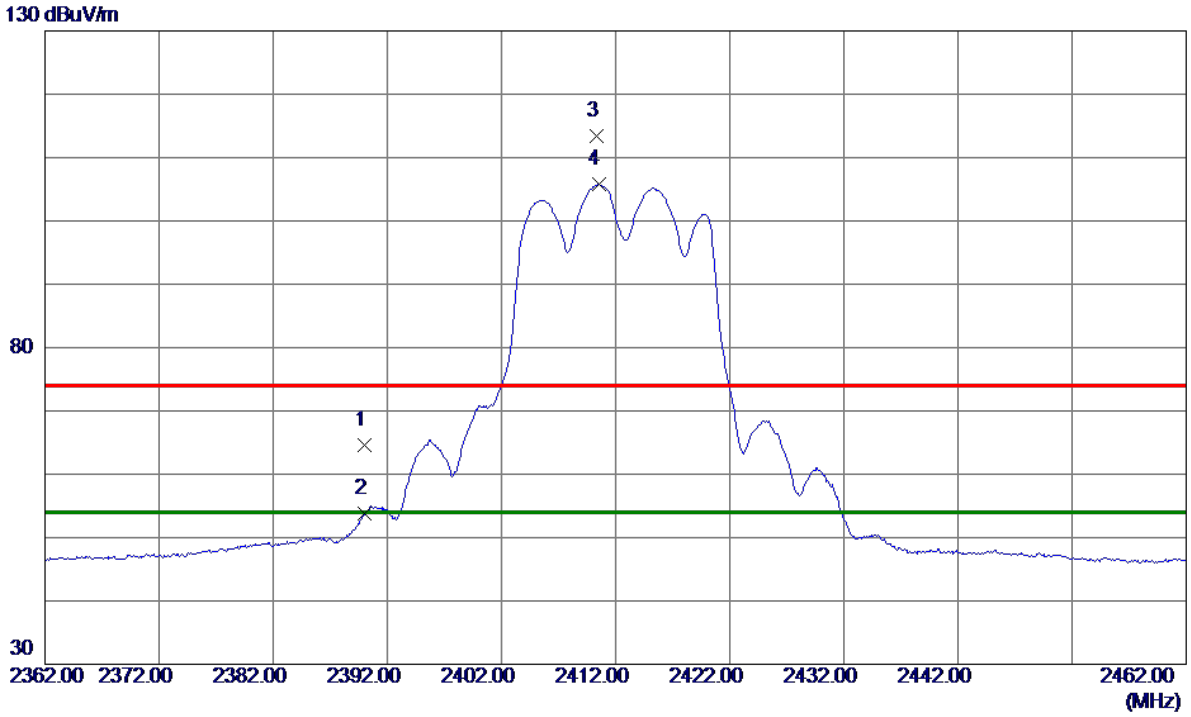
Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.9790	34.25	10.18	44.43	74.00	-29.57	Peak	
2 *	4923.9840	29.71	10.18	39.89	54.00	-14.11	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

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	53.37	11.30	64.67	74.00	-9.33	Peak	
2	2390.0000	42.50	11.30	53.80	54.00	-0.20	AVG	
3	2410.3000	102.14	11.30	113.44	74.00	39.44	Peak	No Limit
4 *	2410.5000	94.46	11.30	105.76	54.00	51.76	AVG	No Limit

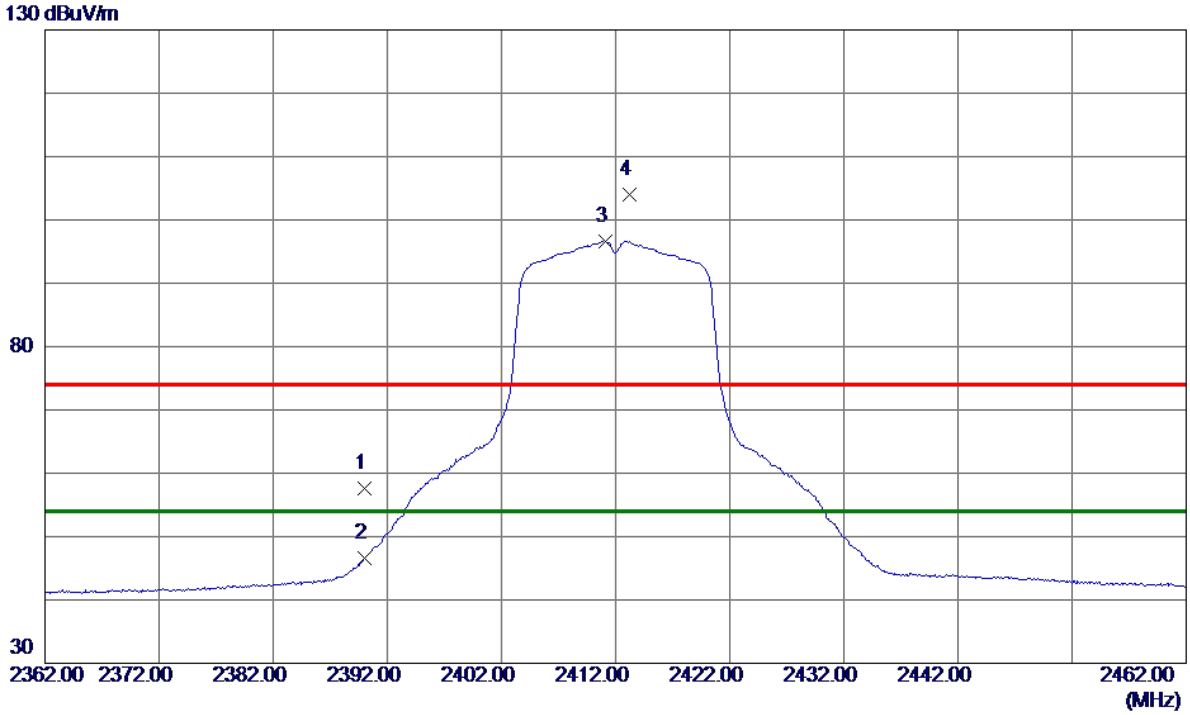
Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4825.4000	25.87	9.92	35.79	54.00	-18.21	AVG	
2	4825.5000	36.34	9.92	46.26	74.00	-27.74	Peak	

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

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	46.30	11.30	57.60	74.00	-16.40	Peak	
2	2390.0000	35.25	11.30	46.55	54.00	-7.45	AVG	
3 *	2411.1000	85.23	11.30	96.53	54.00	42.53	AVG	No Limit
4	2413.2000	92.73	11.30	104.03	74.00	30.03	Peak	No Limit

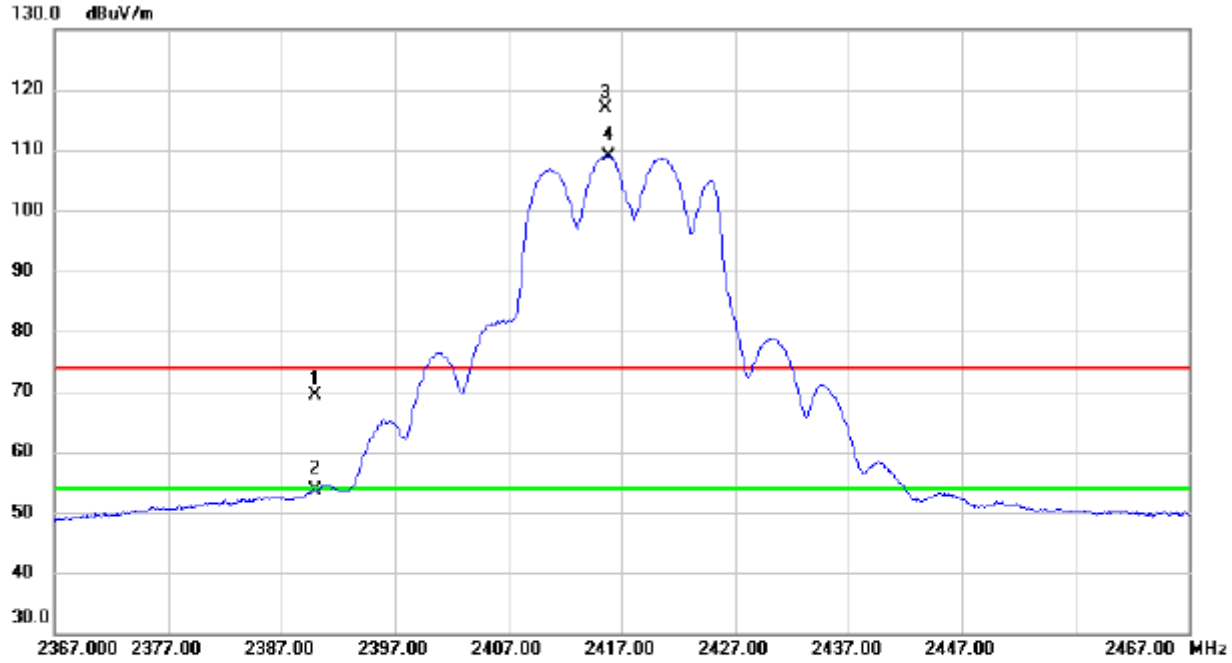
Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.6120	37.33	9.91	47.24	74.00	-26.76	Peak	
2 *	4823.9240	25.80	9.91	35.71	54.00	-18.29	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

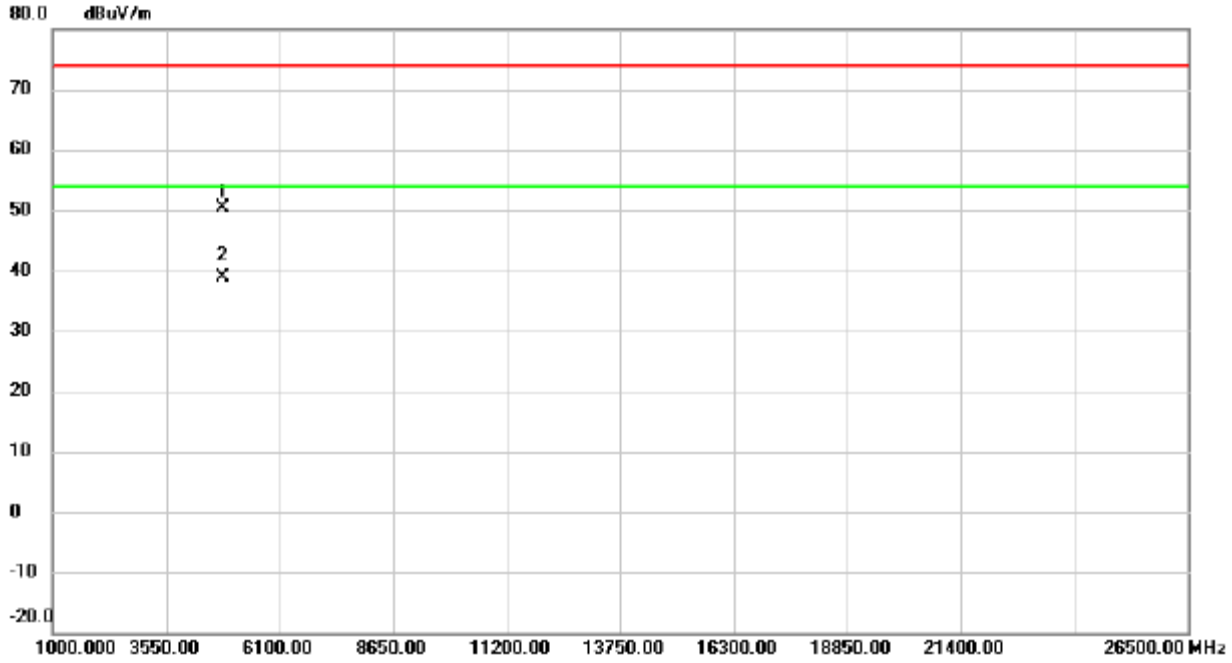
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	58.10	11.29	69.39	74.00	-4.61	peak	
2		2390.000	42.43	11.29	53.72	54.00	-0.28	AVG	
3	X	2415.600	105.55	11.31	116.86	74.00	42.86	peak	No Limit
4	*	2415.800	97.66	11.31	108.97	54.00	54.97	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

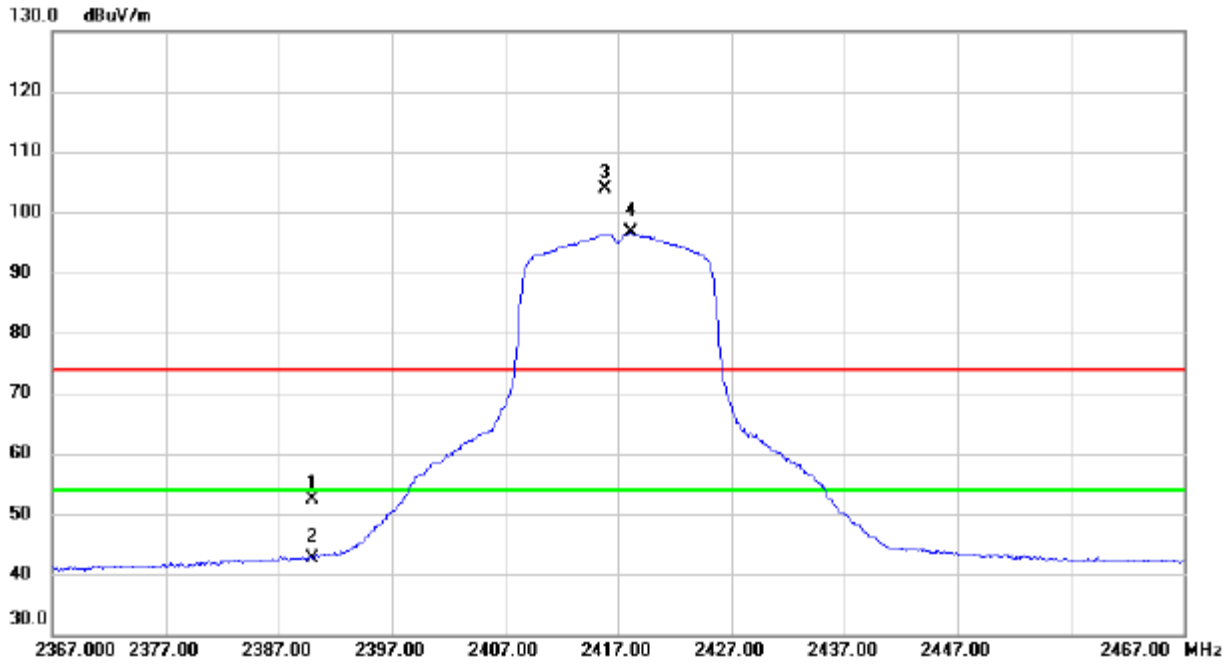
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4830.450	40.34	9.92	50.26	74.00	-23.74	peak	
2	*	4835.100	29.01	9.94	38.95	54.00	-15.05	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

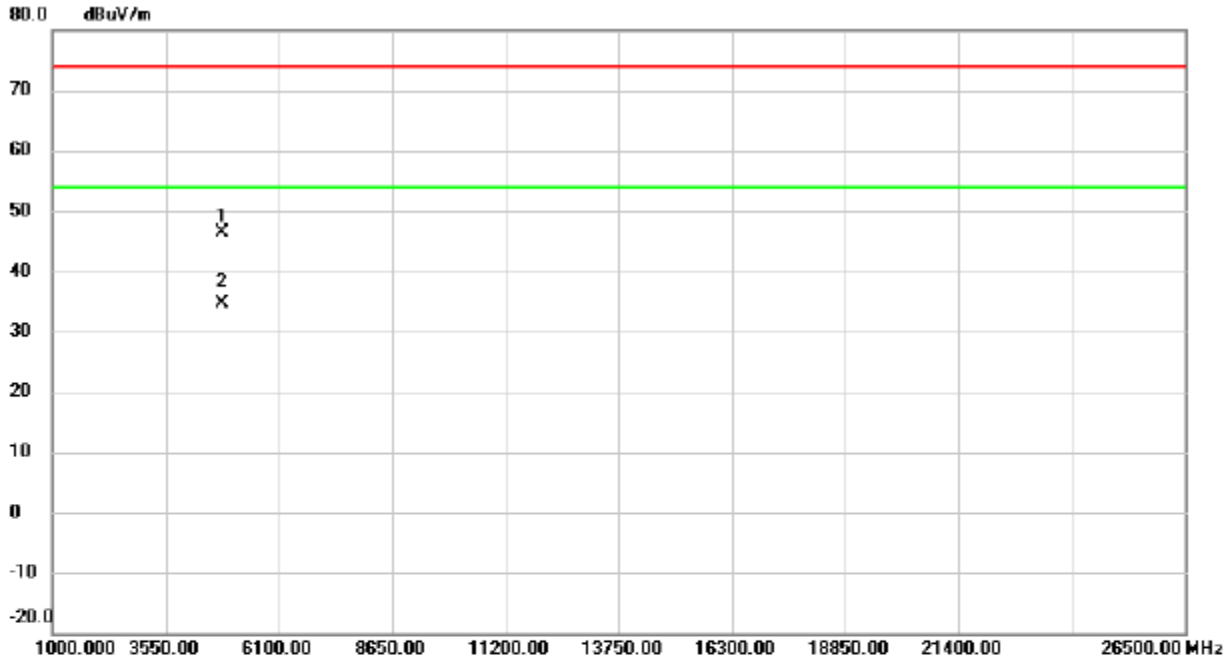
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	41.21	11.29	52.50	74.00	-21.50	peak	
2		2390.000	31.44	11.29	42.73	54.00	-11.27	AVG	
3	X	2415.800	92.67	11.31	103.98	74.00	29.98	peak	No Limit
4	*	2418.200	85.35	11.30	96.65	54.00	42.65	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

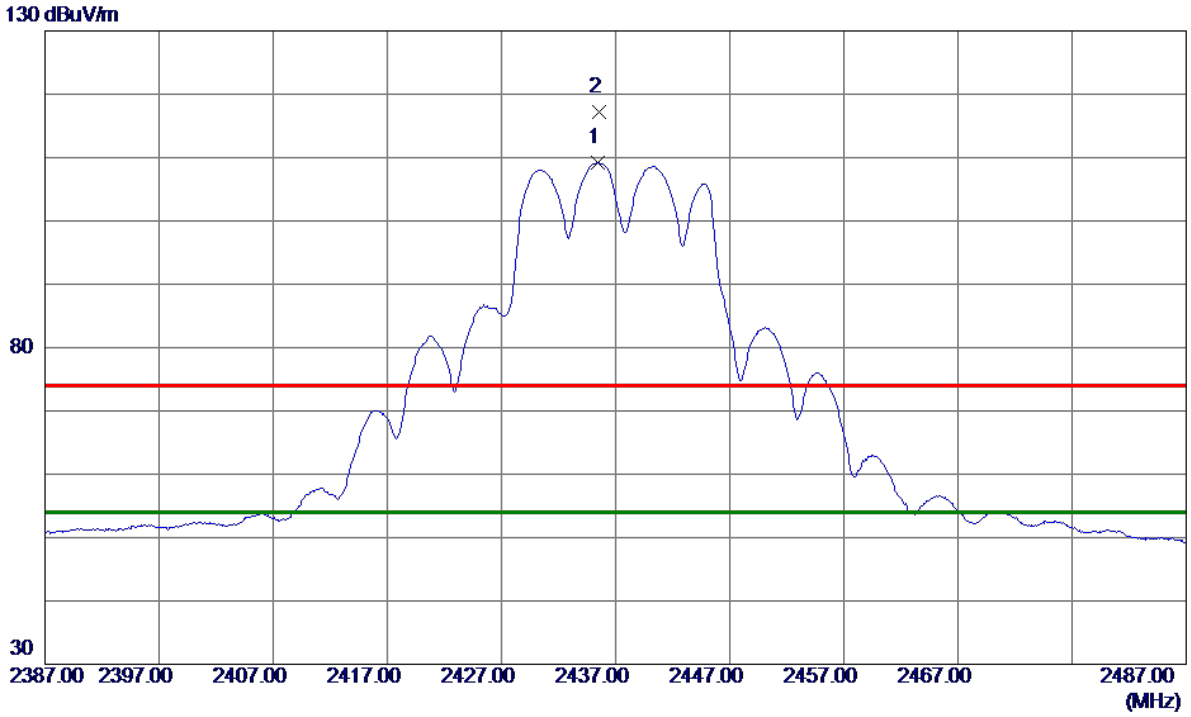
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4833.533	36.53	9.94	46.47	74.00	-27.53	peak	
2	*	4833.864	24.72	9.94	34.66	54.00	-19.34	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2435.4000	97.87	11.31	109.18	54.00	55.18	AVG	No Limit
2	2435.6000	105.97	11.31	117.28	74.00	43.28	Peak	No Limit

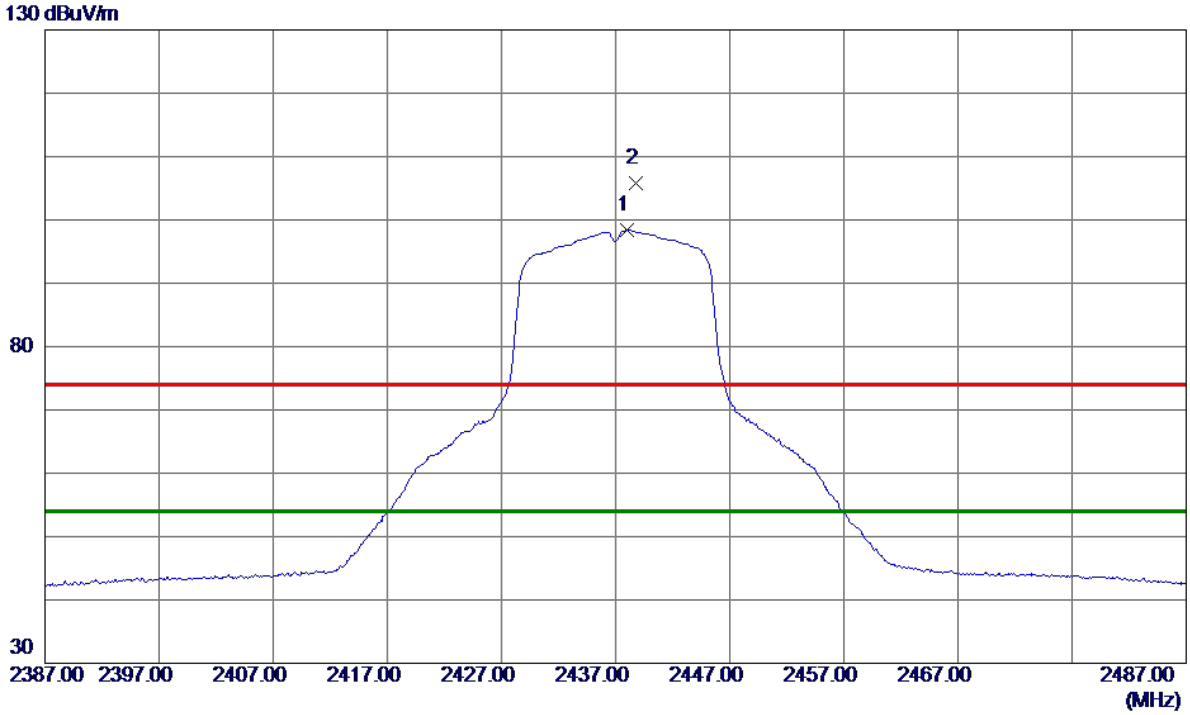
Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

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	39.86	10.04	49.90	74.00	-24.10	Peak	
2 *	4875.2000	29.26	10.05	39.31	54.00	-14.69	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.0000	87.15	11.31	98.46	54.00	44.46	AVG	No Limit
2	2438.8000	94.51	11.31	105.82	74.00	31.82	Peak	No Limit

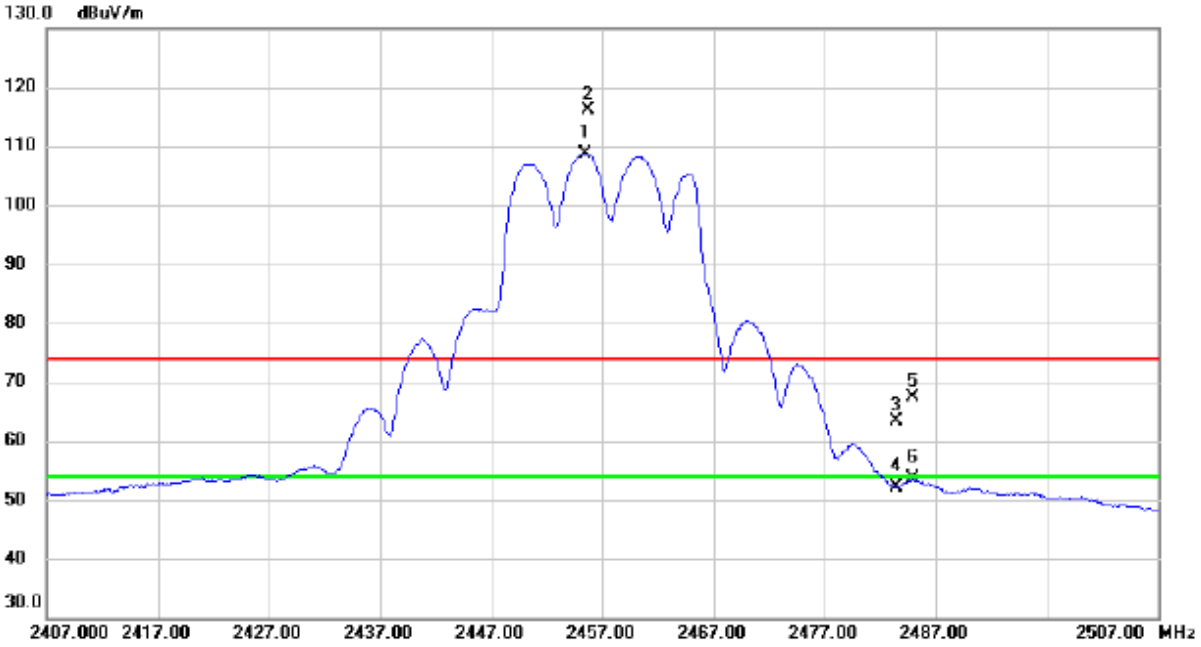
Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.8530	26.35	10.05	36.40	54.00	-17.60	AVG	
2	4874.0050	37.66	10.05	47.71	74.00	-26.29	Peak	

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

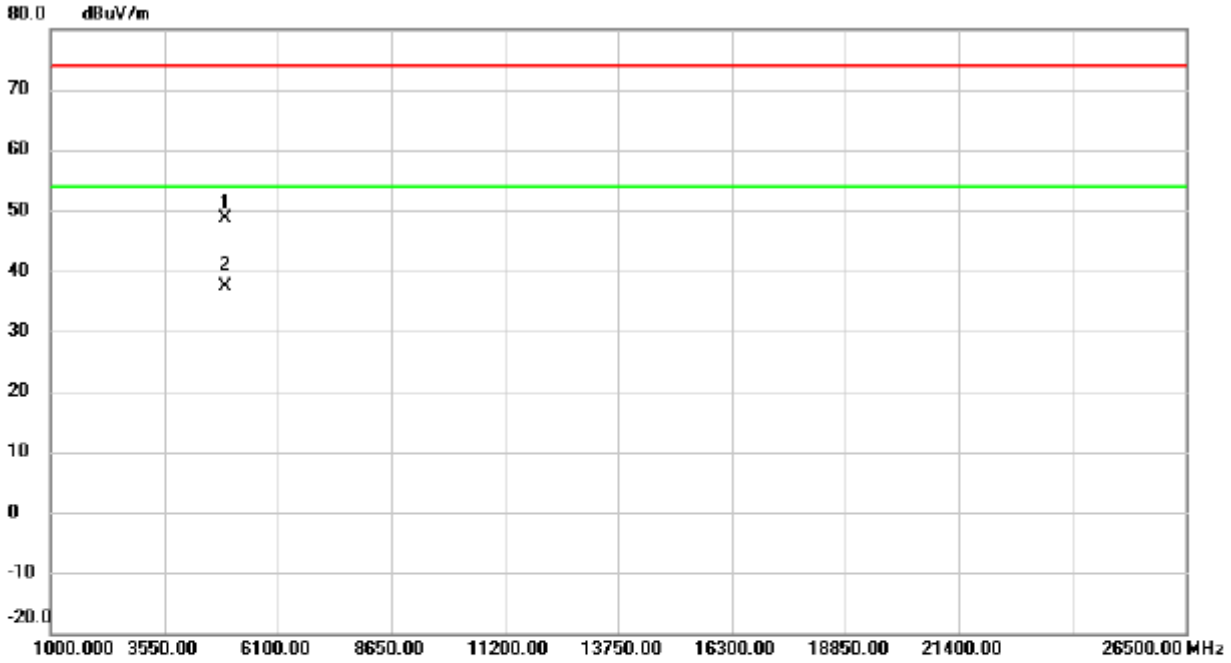
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2455.400	97.31	11.31	108.62	54.00	54.62	AVG	No Limit
2	X	2455.700	104.86	11.31	116.17	74.00	42.17	peak	No Limit
3		2483.500	52.10	11.32	63.42	74.00	-10.58	peak	
4		2483.500	40.93	11.32	52.25	54.00	-1.75	AVG	
5		2484.900	56.04	11.32	67.36	74.00	-6.64	peak	
6		2484.900	42.20	11.32	53.52	54.00	-0.48	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

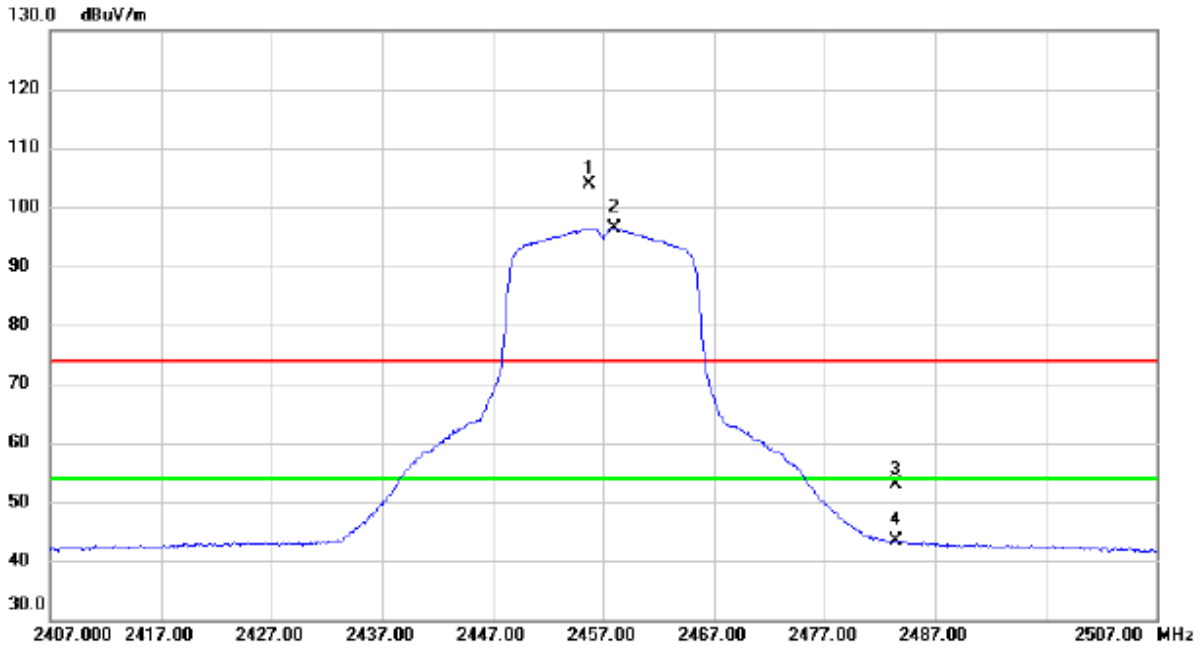
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4910.100	38.48	10.15	48.63	74.00	-25.37	peak	
2	*	4915.100	27.25	10.16	37.41	54.00	-16.59	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

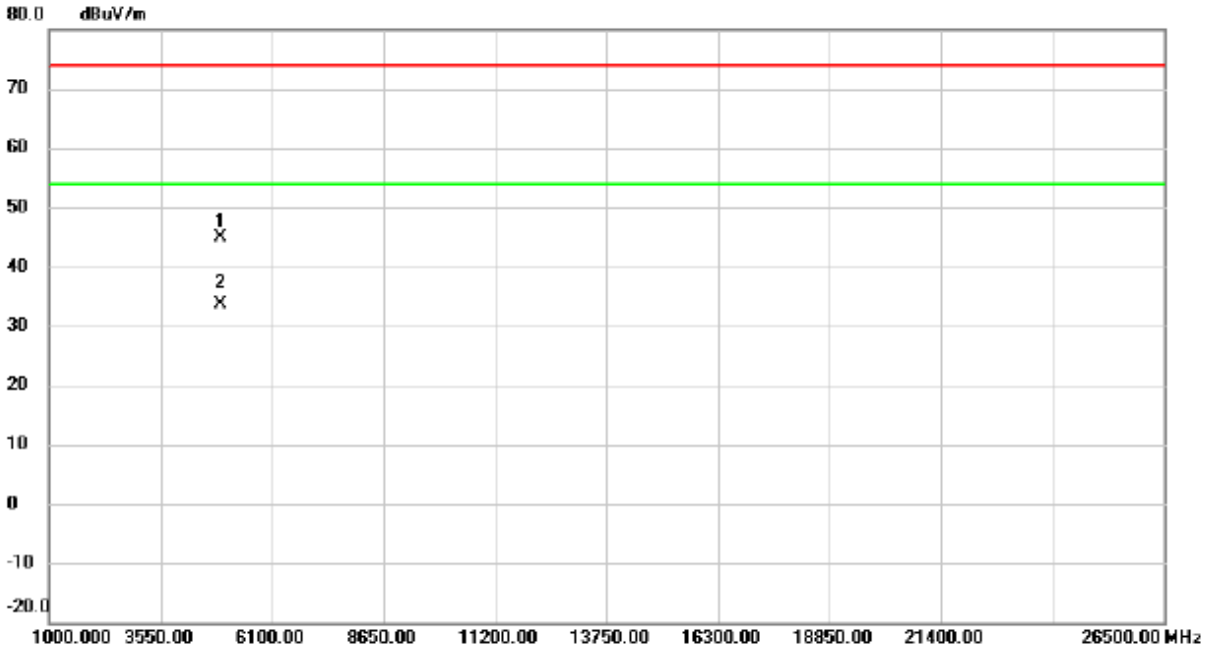
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2455.700	92.64	11.31	103.95	74.00	29.95	peak	No Limit
2	*	2458.000	85.17	11.32	96.49	54.00	42.49	AVG	No Limit
3		2483.500	41.50	11.32	52.82	74.00	-21.18	peak	
4		2483.500	32.04	11.32	43.36	54.00	-10.64	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

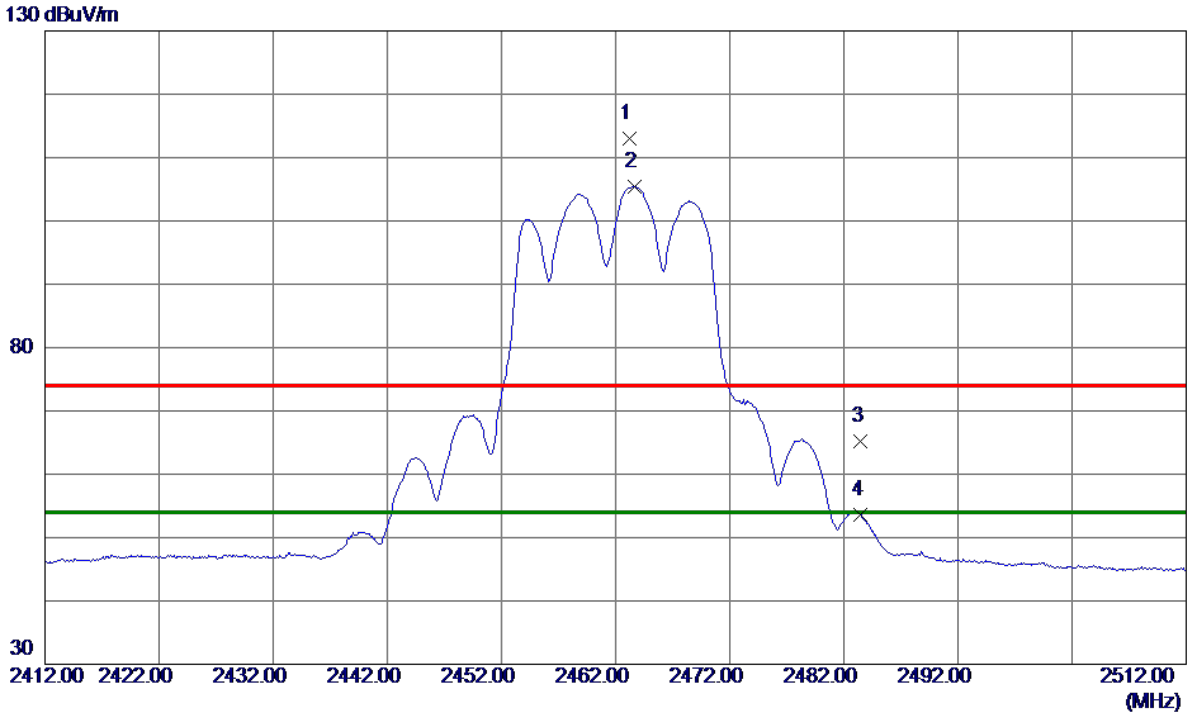
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4913.760	34.76	10.15	44.91	74.00	-29.09	peak	
2	*	4914.085	23.53	10.16	33.69	54.00	-20.31	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2463.2000	101.74	11.32	113.06	74.00	39.06	Peak	No Limit
2 *	2463.7000	94.10	11.32	105.42	54.00	51.42	AVG	No Limit
3	2483.5000	53.94	11.32	65.26	74.00	-8.74	Peak	
4	2483.5000	42.29	11.32	53.61	54.00	-0.39	AVG	

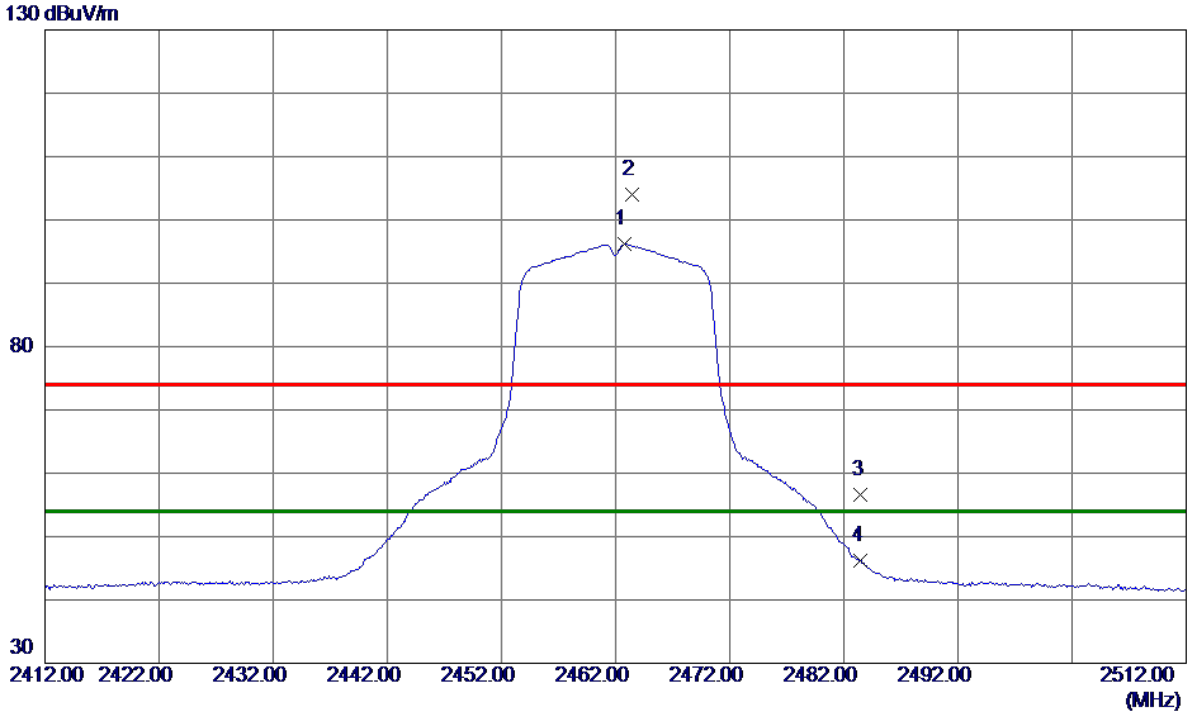
Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.9000	35.29	10.19	45.48	74.00	-28.52	Peak	
2 *	4924.9500	24.08	10.19	34.27	54.00	-19.73	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2462.8000	84.85	11.32	96.17	54.00	42.17	AVG	No Limit
2	2463.4000	92.72	11.32	104.04	74.00	30.04	Peak	No Limit
3	2483.5000	45.19	11.32	56.51	74.00	-17.49	Peak	
4	2483.5000	34.87	11.32	46.19	54.00	-7.81	AVG	

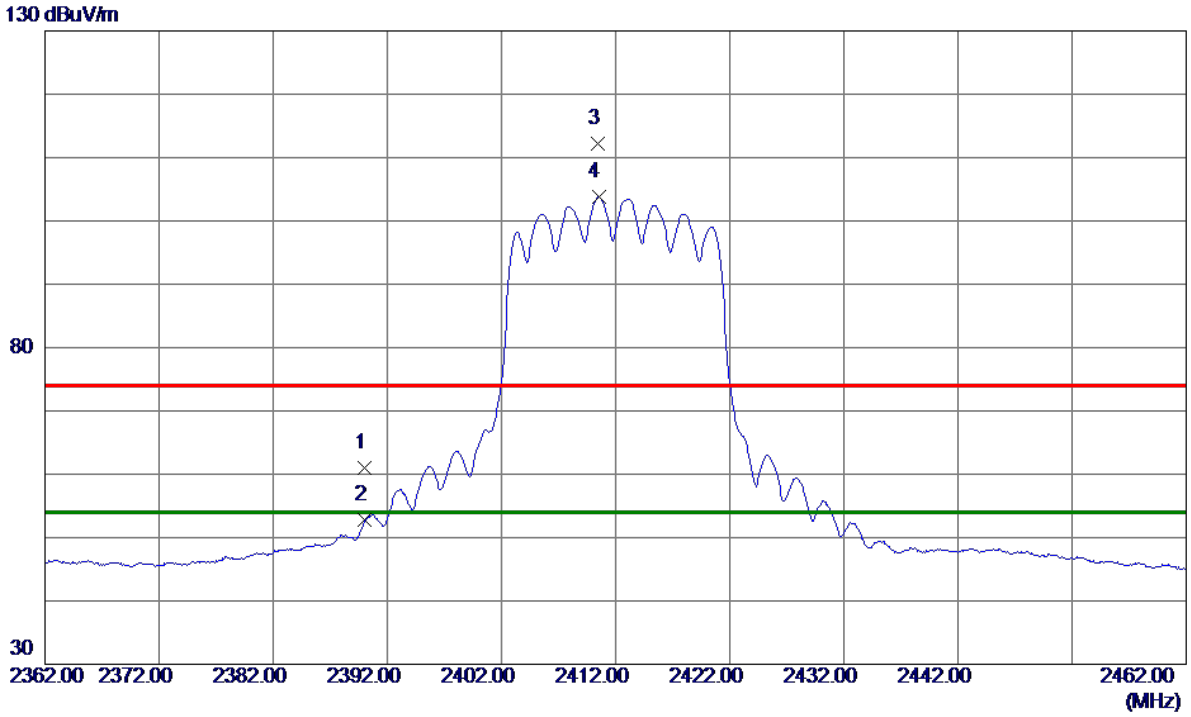
Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.6930	21.63	10.18	31.81	54.00	-22.19	AVG	
2	4924.1050	33.76	10.19	43.95	74.00	-30.05	Peak	

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

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	49.69	11.30	60.99	74.00	-13.01	Peak	
2	2390.0000	41.44	11.30	52.74	54.00	-1.26	AVG	
3	2410.4000	100.96	11.30	112.26	74.00	38.26	Peak	No Limit
4 *	2410.5000	92.44	11.30	103.74	54.00	49.74	AVG	No Limit

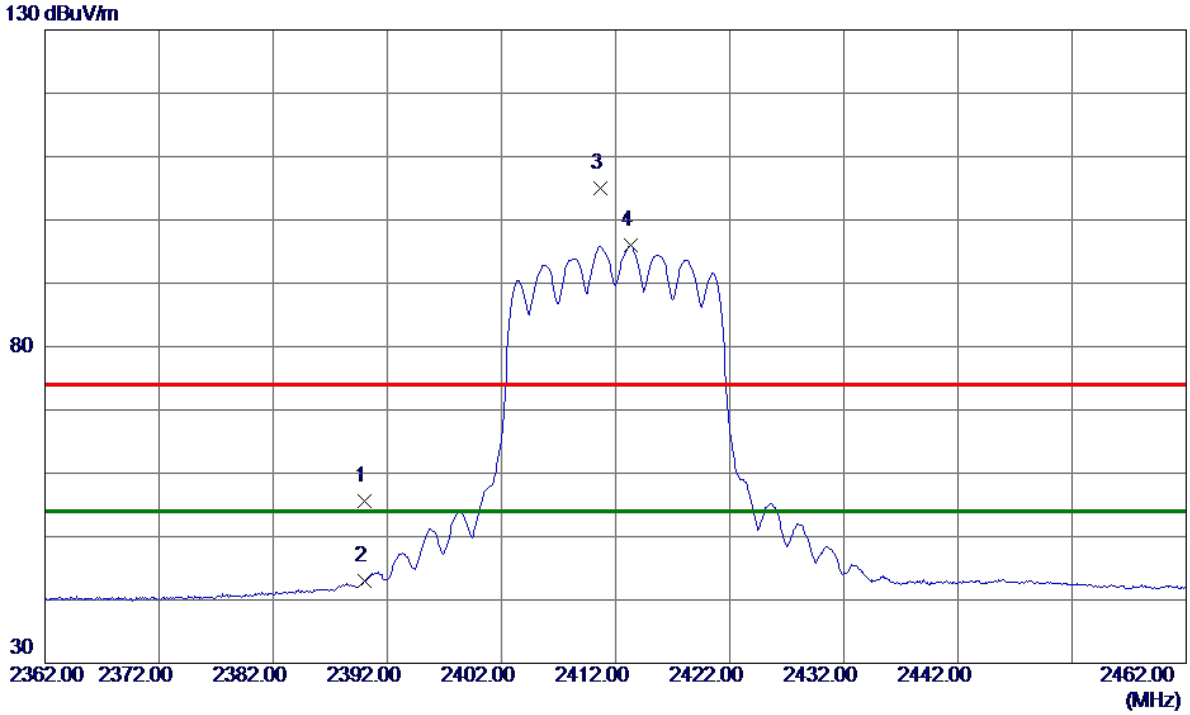
Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2412 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4821.9200	37.73	9.91	47.64	74.00	-26.36	Peak	
2 *	4822.3250	25.21	9.91	35.12	54.00	-18.88	AVG	

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

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	44.30	11.30	55.60	74.00	-18.40	Peak	
2	2390.0000	31.67	11.30	42.97	54.00	-11.03	AVG	
3	2410.7000	93.80	11.30	105.10	74.00	31.10	Peak	No Limit
4 *	2413.3000	84.62	11.30	95.92	54.00	41.92	AVG	No Limit

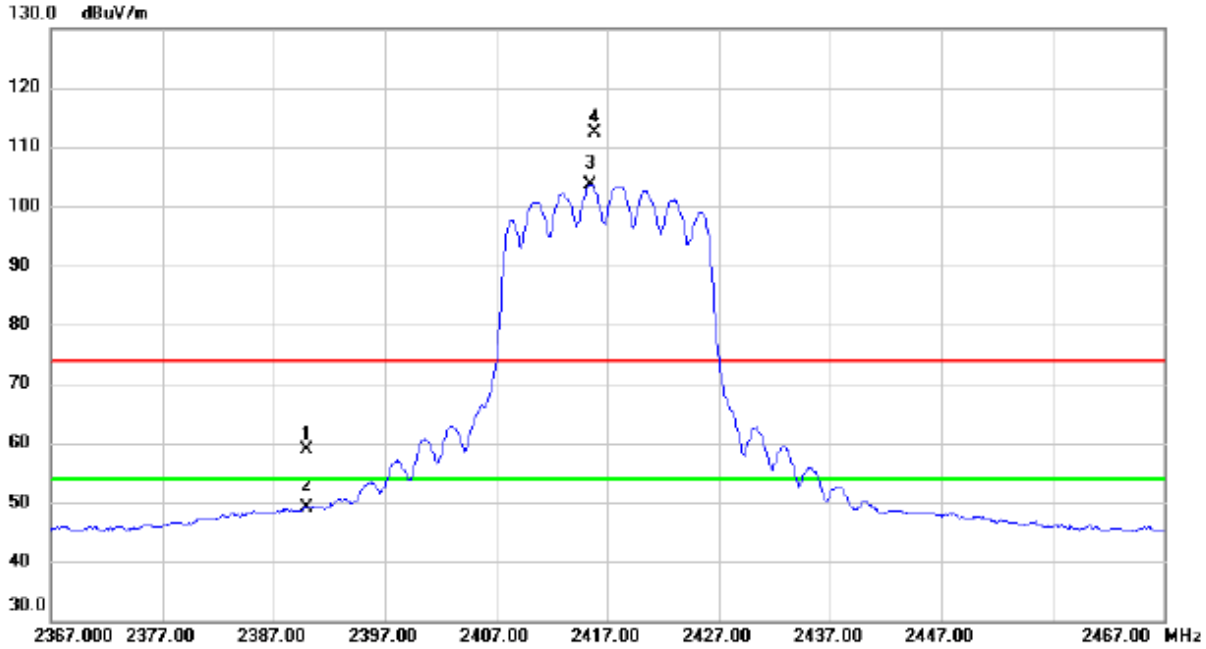
Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2412 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4822.5750	34.25	9.91	44.16	74.00	-29.84	Peak	
2 *	4824.9750	21.60	9.92	31.52	54.00	-22.48	AVG	

Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2417 MHz

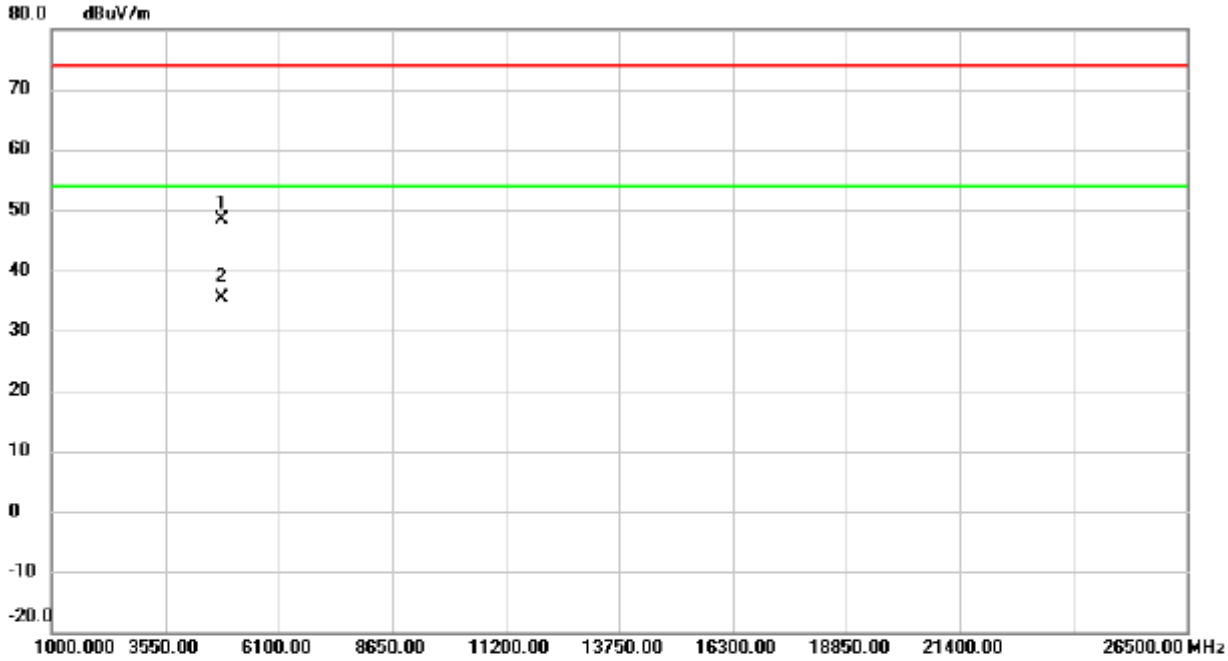
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	47.48	11.29	58.77	74.00	-15.23	peak	
2		2390.000	37.86	11.29	49.15	54.00	-4.85	AVG	
3	*	2415.500	92.41	11.31	103.72	54.00	49.72	AVG	No Limit
4	X	2415.800	100.98	11.31	112.29	74.00	38.29	peak	No Limit

Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2417 MHz

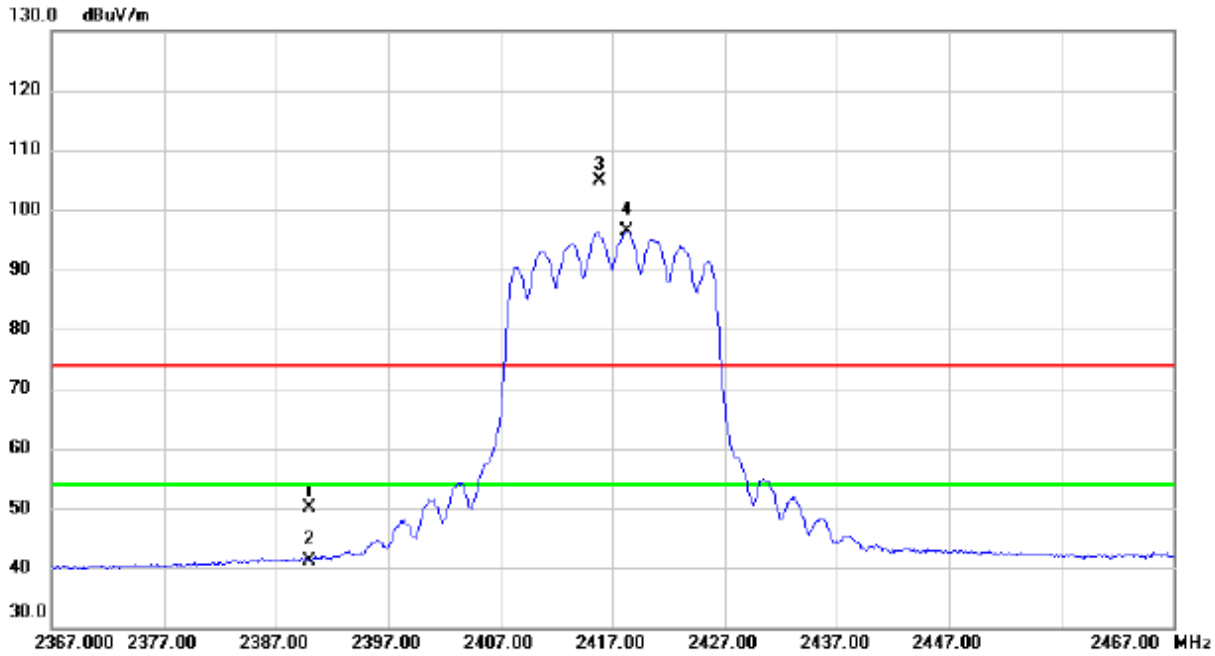
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4834.500	38.39	9.94	48.33	74.00	-25.67	peak	
2	*	4834.515	25.56	9.94	35.50	54.00	-18.50	AVG	

Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2417 MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	38.74	11.29	50.03	74.00	-23.97	peak	
2		2390.000	29.92	11.29	41.21	54.00	-12.79	AVG	
3	X	2415.800	93.68	11.31	104.99	74.00	30.99	peak	No Limit
4	*	2418.300	85.13	11.30	96.43	54.00	42.43	AVG	No Limit

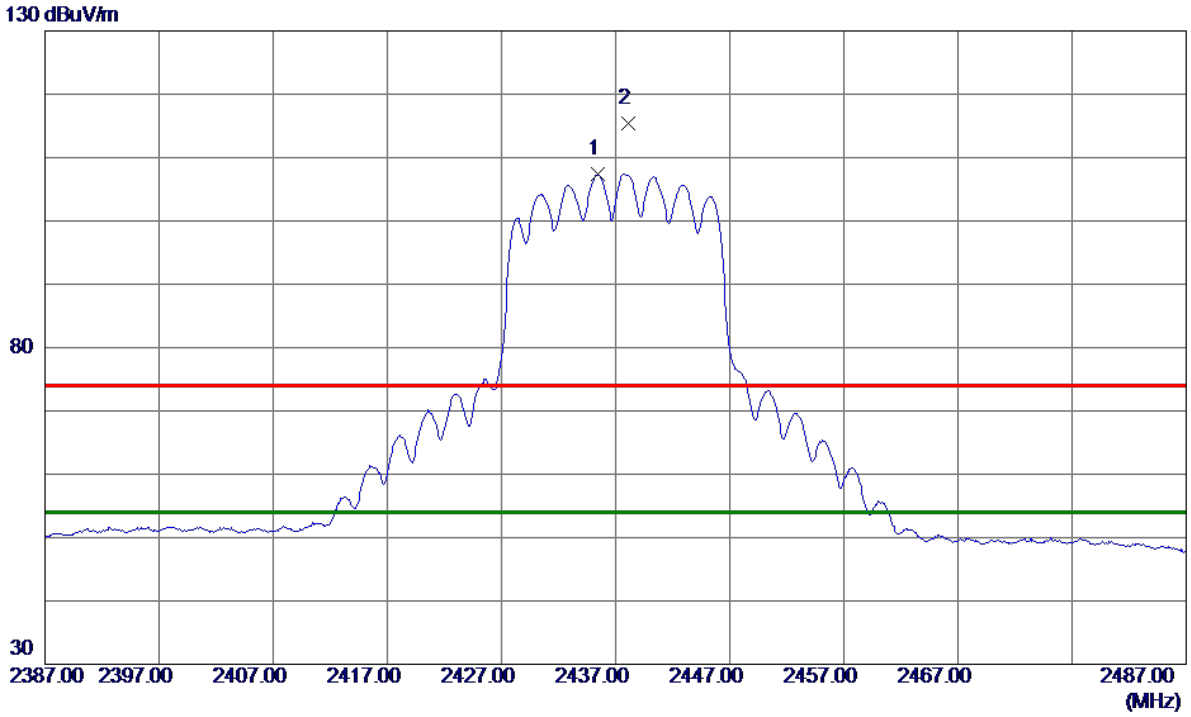
Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2417 MHz

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4832.030	22.14	9.94	32.08	54.00	-21.92	AVG	
2		4835.185	33.08	9.94	43.02	74.00	-30.98	peak	

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

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2435.4000	96.04	11.31	107.35	54.00	53.35	AVG	No Limit
2	2438.1000	104.15	11.31	115.46	74.00	41.46	Peak	No Limit

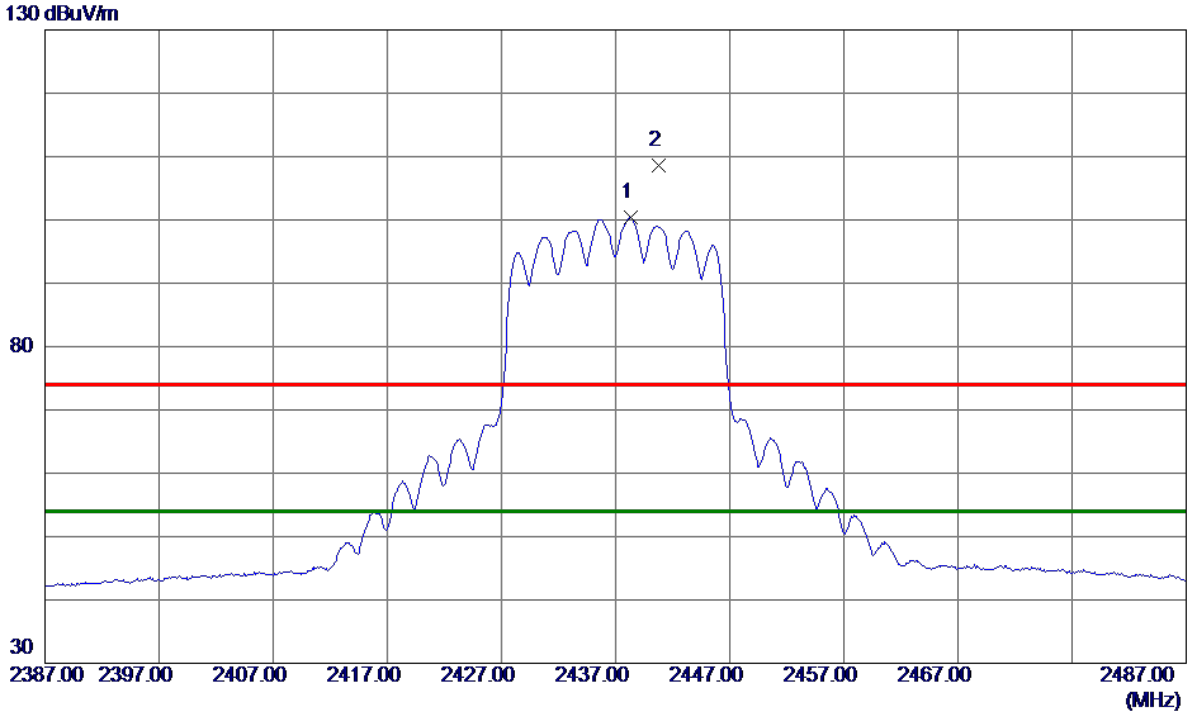
Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2437 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4872.2550	29.55	10.05	39.60	54.00	-14.40	AVG	
2	4874.6600	40.82	10.05	50.87	74.00	-23.13	Peak	

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

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.3000	89.08	11.31	100.39	54.00	46.39	AVG	No Limit
2	2440.8000	97.27	11.31	108.58	74.00	34.58	Peak	No Limit

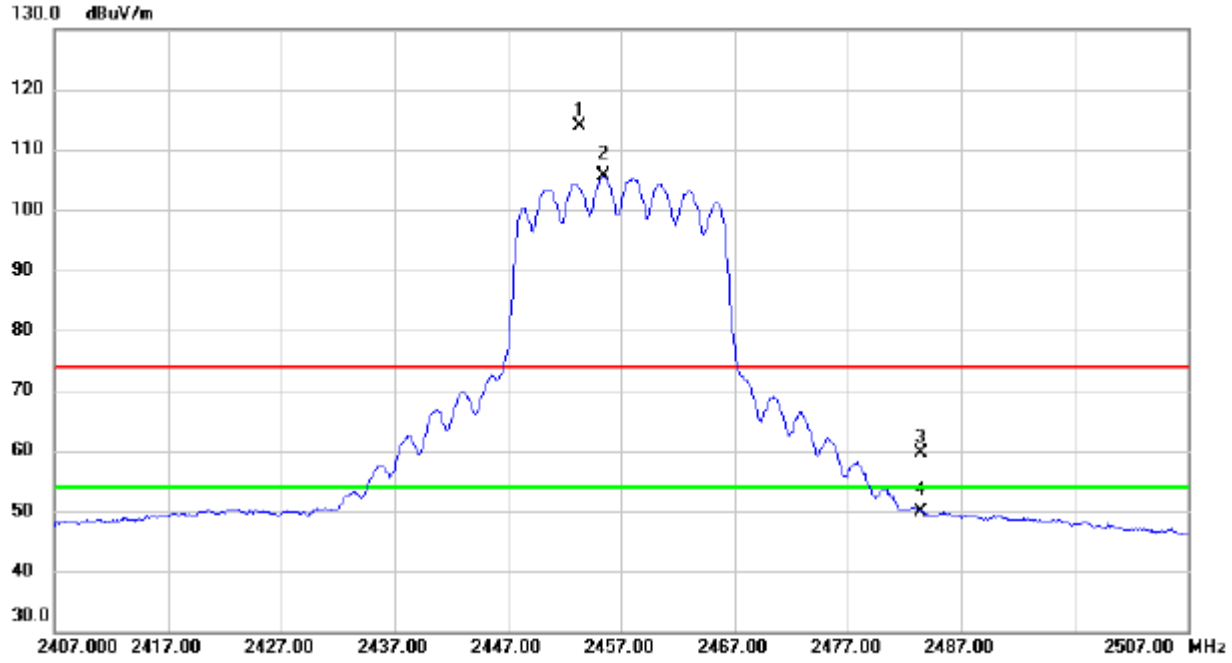
Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2437 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4874.6000	36.00	10.05	46.05	74.00	-27.95	Peak	
2 *	4875.0200	23.46	10.05	33.51	54.00	-20.49	AVG	

Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2457 MHz

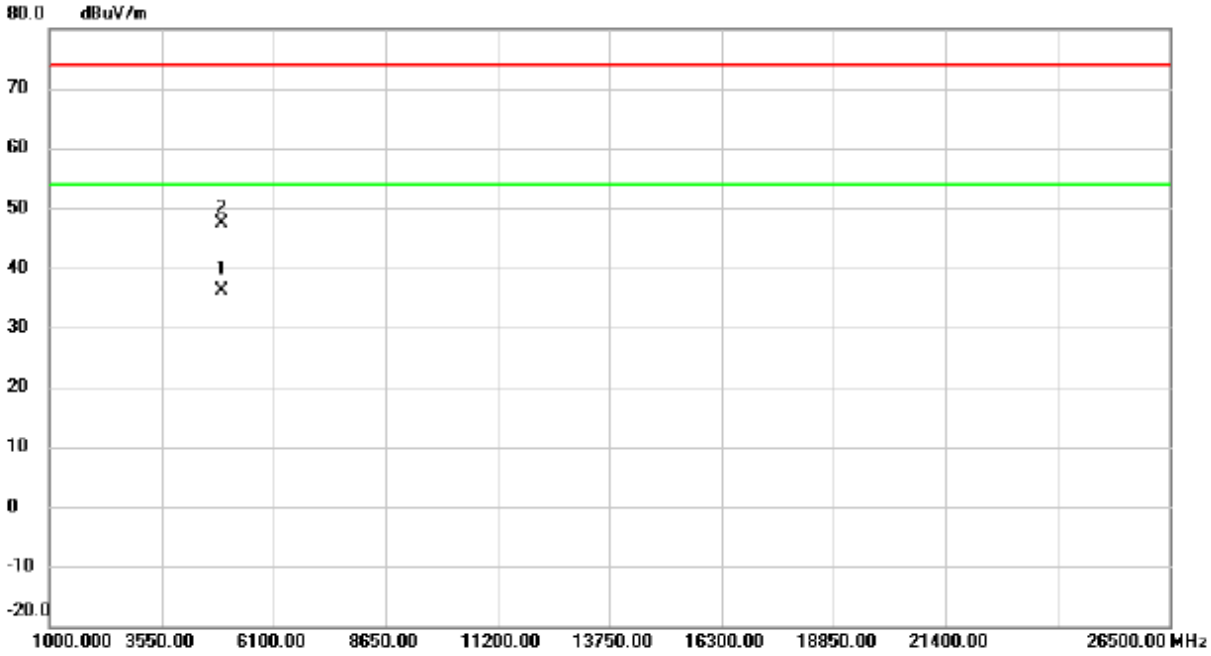
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2453.300	102.56	11.32	113.88	74.00	39.88	peak	No Limit
2	*	2455.400	94.25	11.31	105.56	54.00	51.56	AVG	No Limit
3		2483.500	48.27	11.32	59.59	74.00	-14.41	peak	
4		2483.500	38.60	11.32	49.92	54.00	-4.08	AVG	

Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2457 MHz

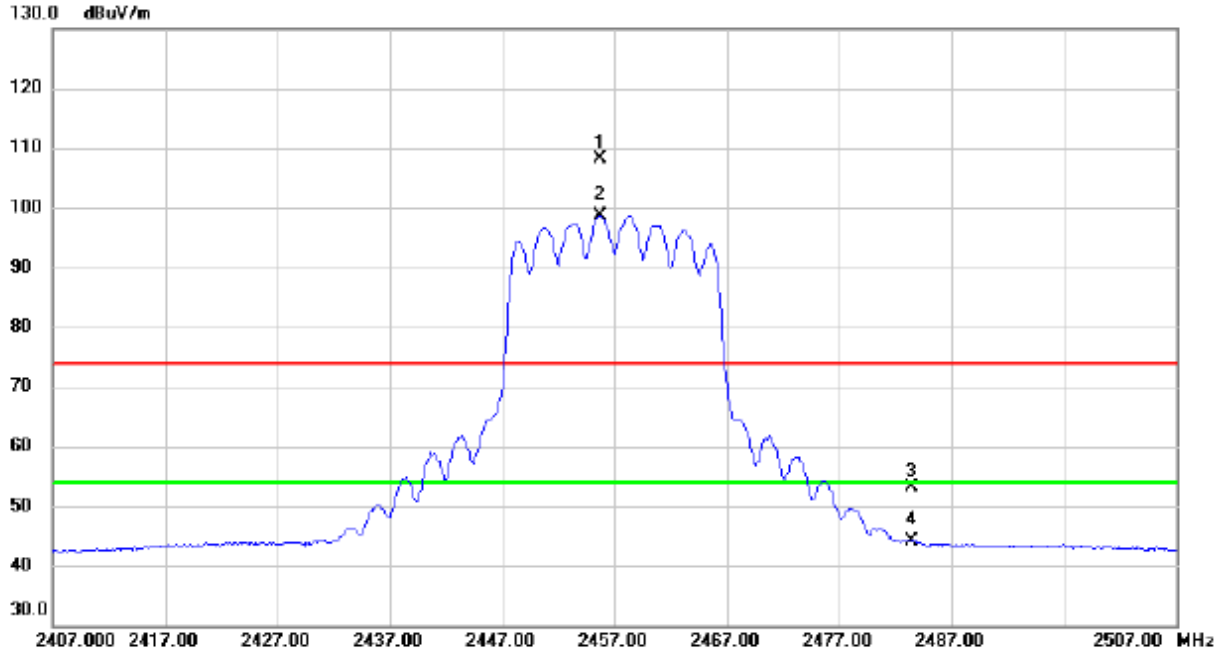
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4911.980	25.93	10.15	36.08	54.00	-17.92	AVG	
2		4915.215	37.21	10.16	47.37	74.00	-26.63	peak	

Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2457 MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2455.700	96.82	11.31	108.13	74.00	34.13	peak	No Limit
2	*	2455.700	87.32	11.31	98.63	54.00	44.63	AVG	No Limit
3		2483.500	41.70	11.32	53.02	74.00	-20.98	peak	
4		2483.500	32.91	11.32	44.23	54.00	-9.77	AVG	

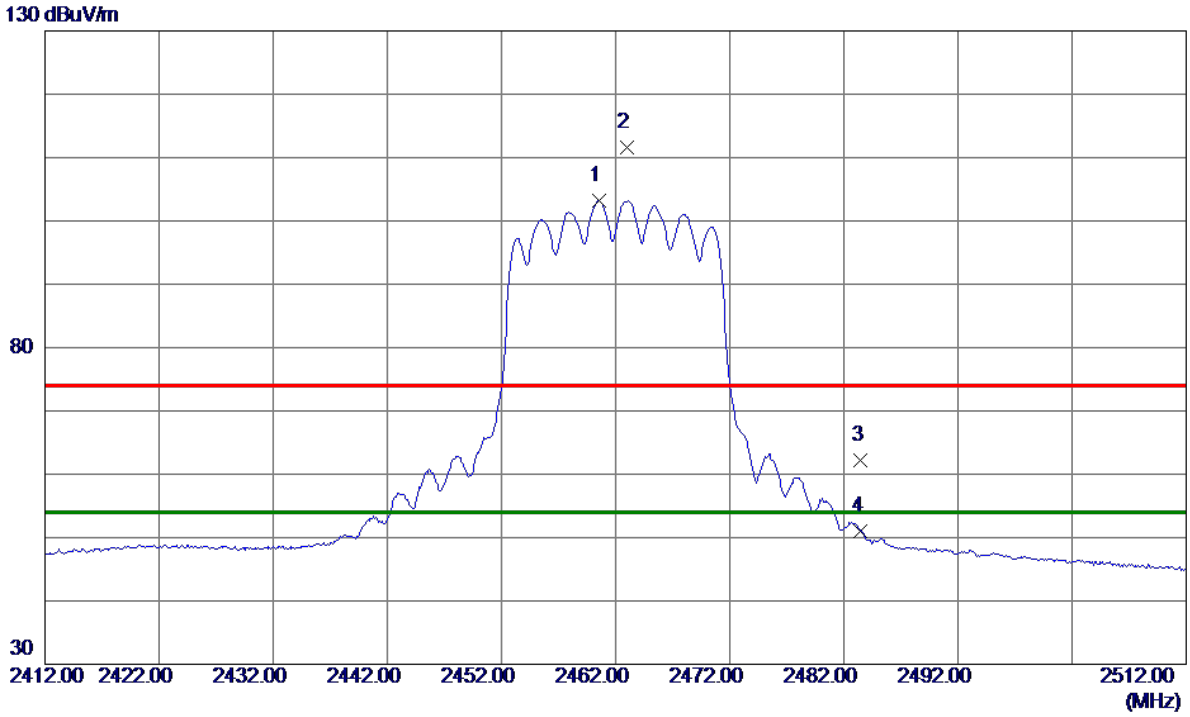
Orthogonal Axis	X
Test Mode:	TX N-20 Mode 2457 MHz

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4912.890	21.23	10.15	31.38	54.00	-22.62	AVG	
2		4915.785	32.50	10.16	42.66	74.00	-31.34	peak	

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

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.6000	91.88	11.32	103.20	54.00	49.20	AVG	No Limit
2	2463.0000	100.22	11.32	111.54	74.00	37.54	Peak	No Limit
3	2483.5000	50.92	11.32	62.24	74.00	-11.76	Peak	
4	2483.5000	39.74	11.32	51.06	54.00	-2.94	AVG	

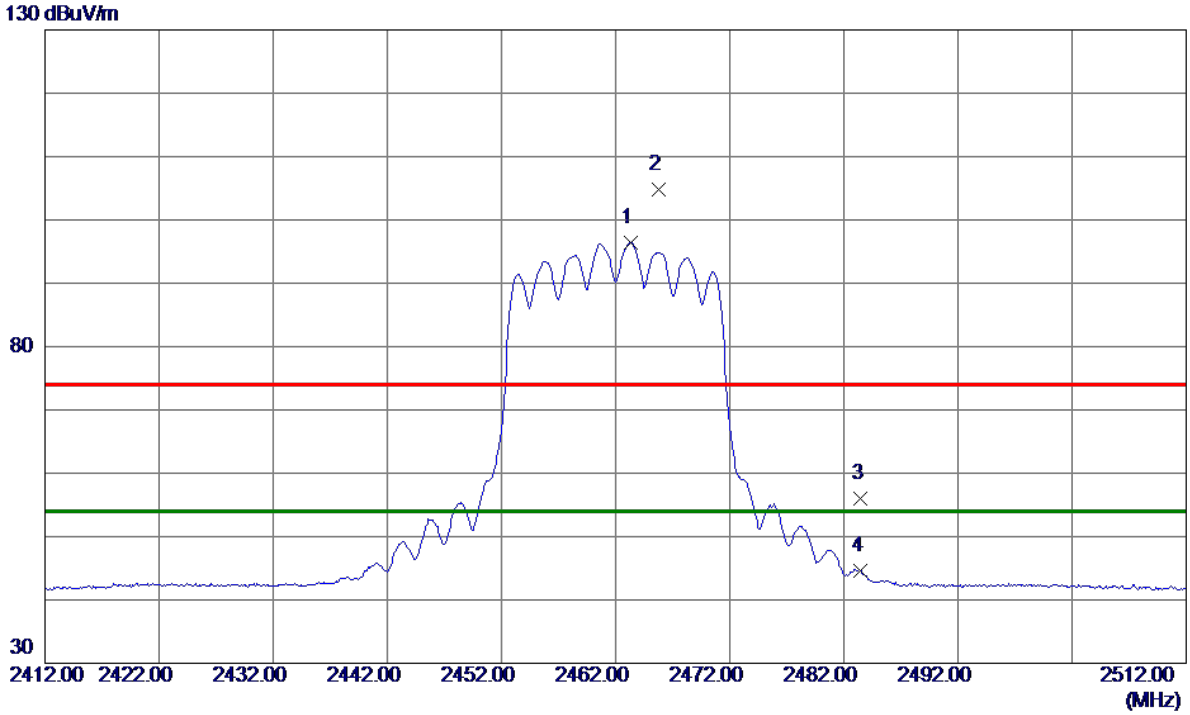
Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2462 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4921.8950	22.84	10.18	33.02	54.00	-20.98	AVG	
2	4924.7900	35.26	10.19	45.45	74.00	-28.55	Peak	

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

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	85.16	11.32	96.48	54.00	42.48	AVG	No Limit
2	2465.8000	93.52	11.32	104.84	74.00	30.84	Peak	No Limit
3	2483.5000	44.76	11.32	56.08	74.00	-17.92	Peak	
4	2483.5000	33.20	11.32	44.52	54.00	-9.48	AVG	

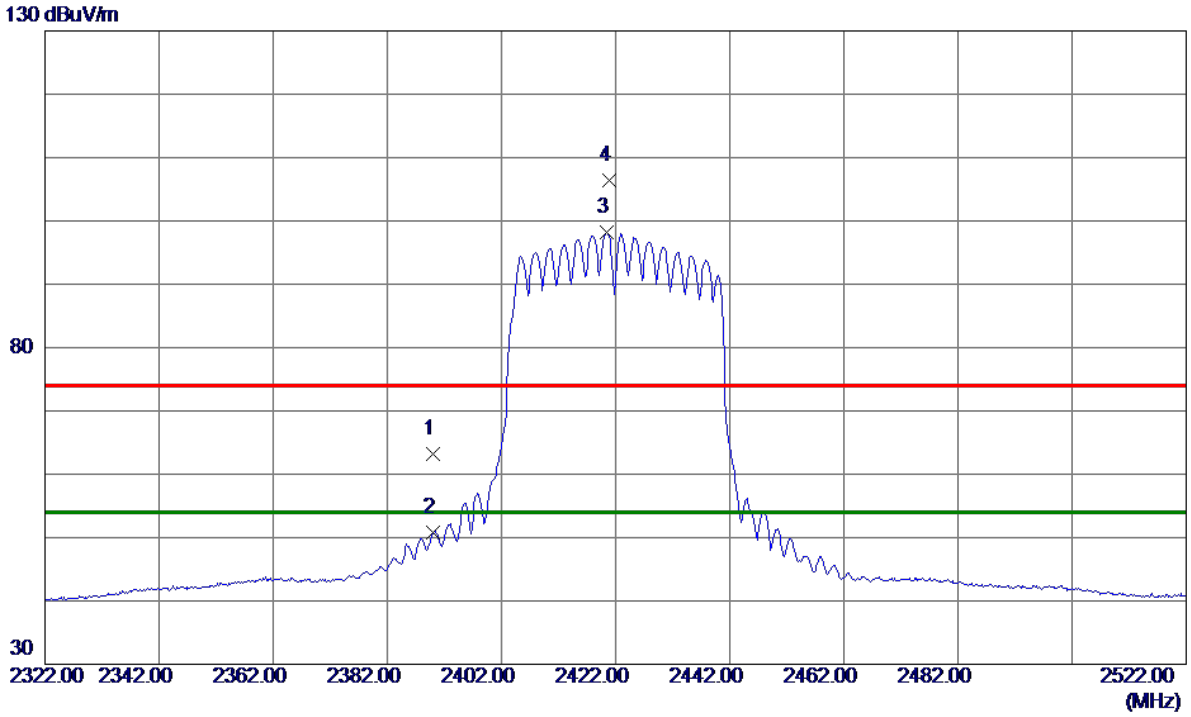
Orthogonal Axis	X
Test Mode:	TX N-20M Mode 2462 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4922.2850	32.90	10.18	43.08	74.00	-30.92	Peak	
2 *	4924.1850	20.97	10.19	31.16	54.00	-22.84	AVG	

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	51.85	11.30	63.15	74.00	-10.85	Peak	
2	2390.0000	39.58	11.30	50.88	54.00	-3.12	AVG	
3 *	2420.4000	86.85	11.31	98.16	54.00	44.16	AVG	No Limit
4	2420.8000	95.15	11.31	106.46	74.00	32.46	Peak	No Limit

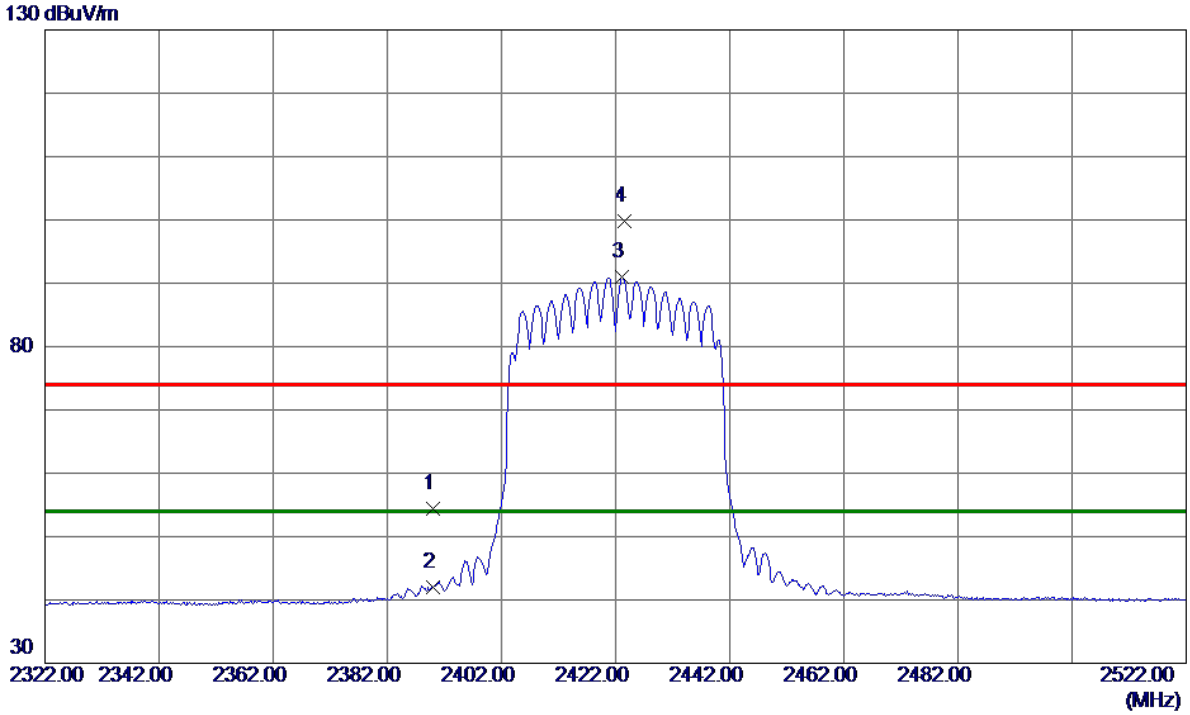
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2422MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4840.4600	32.59	9.96	42.55	74.00	-31.45	Peak	
2 *	4844.5200	21.72	9.97	31.69	54.00	-22.31	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	43.09	11.30	54.39	74.00	-19.61	Peak	
2	2390.0000	30.75	11.30	42.05	54.00	-11.95	AVG	
3 *	2423.2000	79.59	11.31	90.90	54.00	36.90	AVG	No Limit
4	2423.6000	88.50	11.31	99.81	74.00	25.81	Peak	No Limit

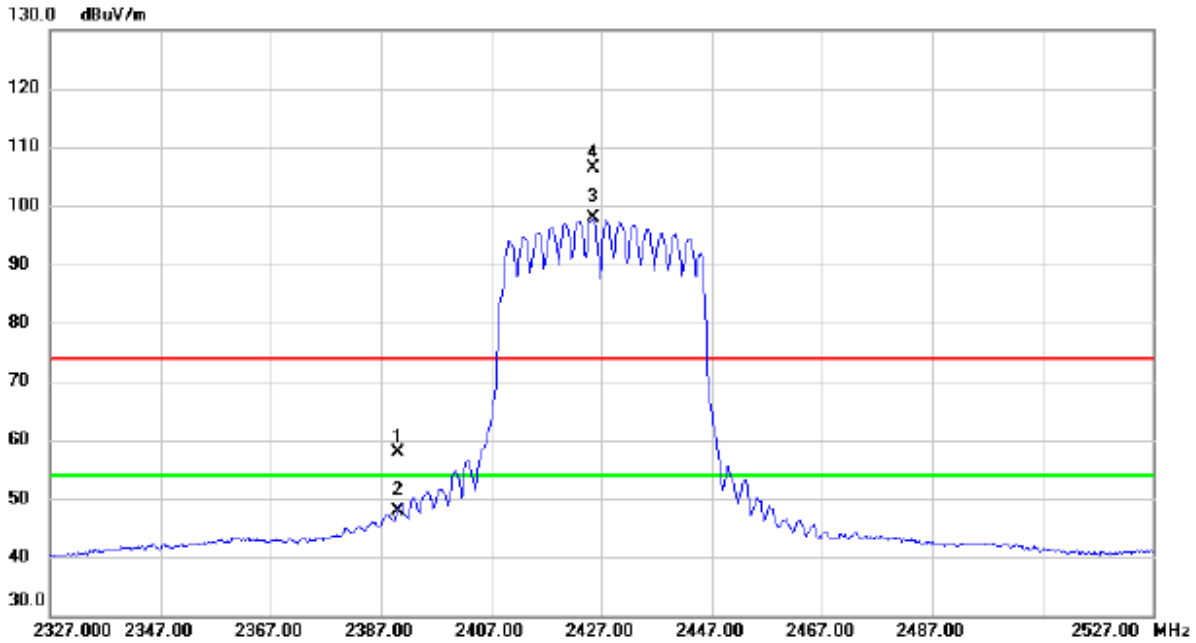
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2422MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4842.8300	32.00	9.97	41.97	74.00	-32.03	Peak	
2 *	4844.4000	20.84	9.97	30.81	54.00	-23.19	AVG	

Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2427MHz

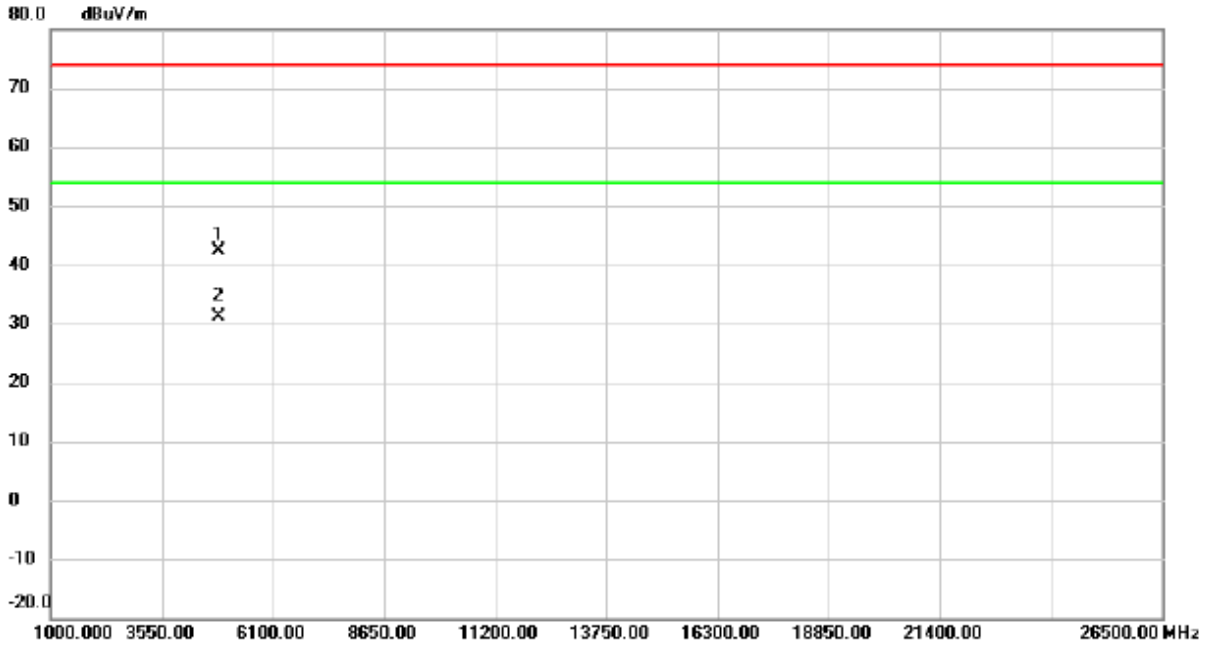
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	46.55	11.29	57.84	74.00	-16.16	peak	
2		2390.000	36.47	11.29	47.76	54.00	-6.24	AVG	
3	*	2425.400	86.59	11.31	97.90	54.00	43.90	AVG	No Limit
4	X	2425.600	94.96	11.31	106.27	74.00	32.27	peak	No Limit

Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2427MHz

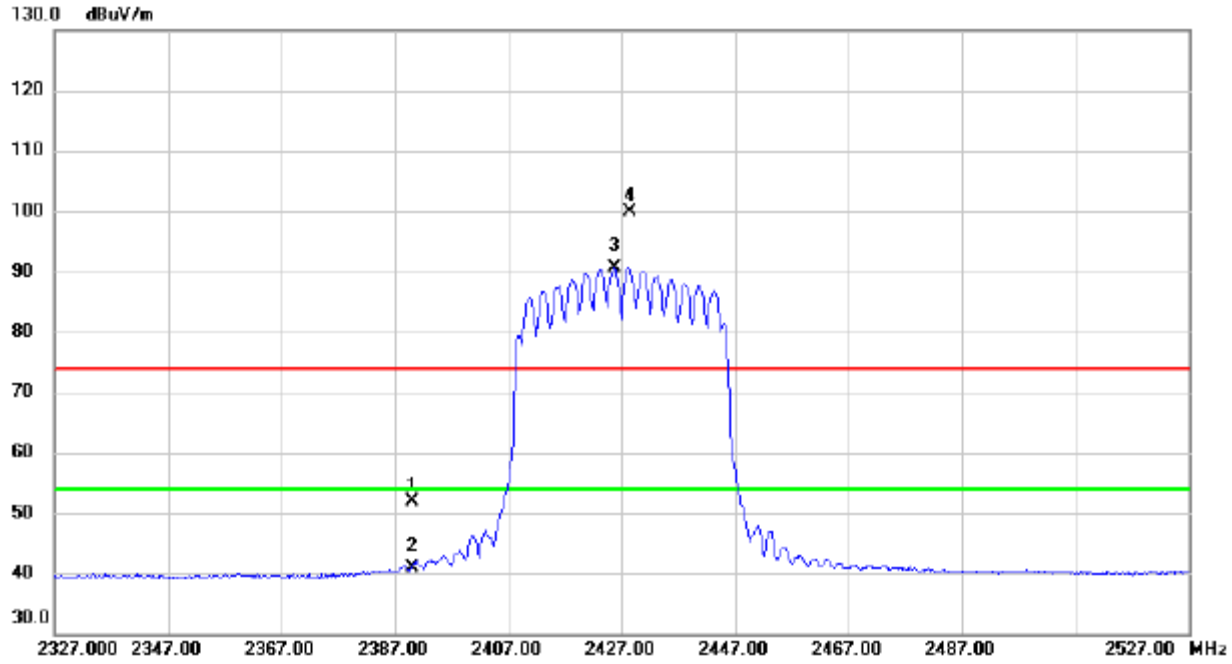
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4852.190	32.42	9.99	42.41	74.00	-31.59	peak	
2	*	4854.650	21.05	10.00	31.05	54.00	-22.95	AVG	

Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2427MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	40.47	11.29	51.76	74.00	-22.24	peak	
2		2390.000	29.61	11.29	40.90	54.00	-13.10	AVG	
3	*	2425.800	79.41	11.31	90.72	54.00	36.72	AVG	No Limit
4	X	2428.400	88.49	11.31	99.80	74.00	25.80	peak	No Limit

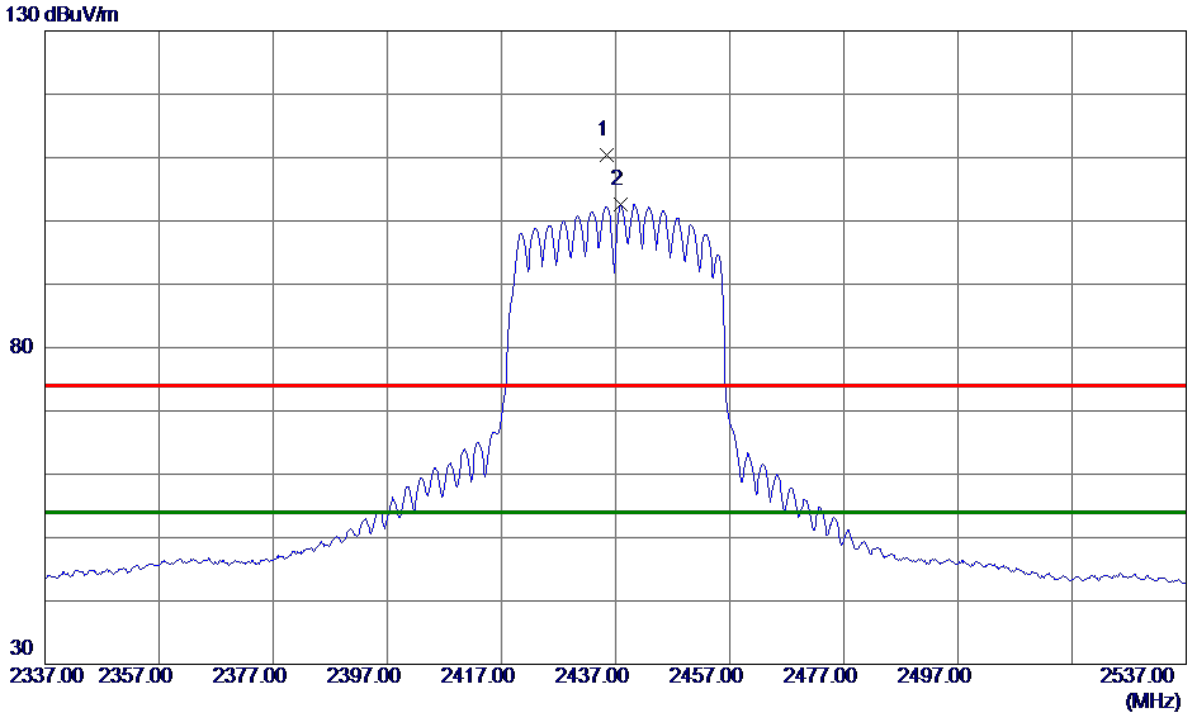
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2427MHz

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4849.960	20.21	9.98	30.19	54.00	-23.81	AVG	
2		4854.310	31.33	10.00	41.33	74.00	-32.67	peak	

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

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2435.4000	99.12	11.31	110.43	74.00	36.43	Peak	No Limit
2 *	2437.8000	91.22	11.31	102.53	54.00	48.53	AVG	No Limit

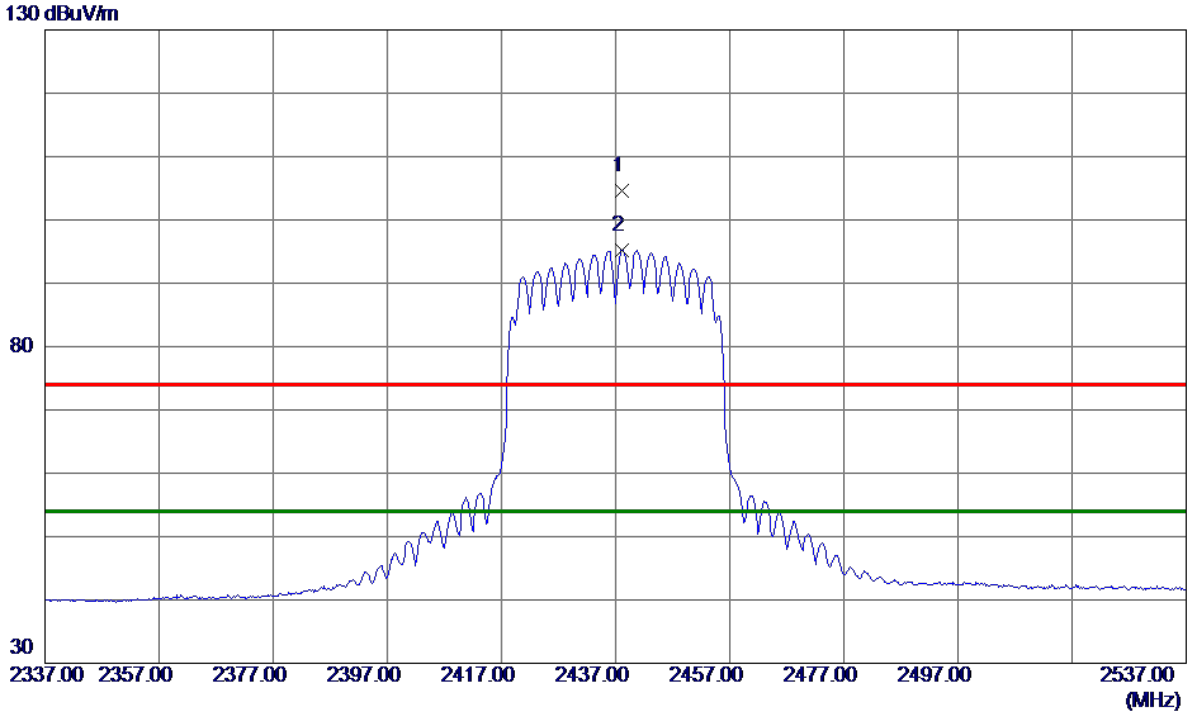
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2437 MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.6000	23.64	10.05	33.69	54.00	-20.31	AVG	
2	4875.0800	34.75	10.05	44.80	74.00	-29.20	Peak	

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

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	93.25	11.31	104.56	74.00	30.56	Peak	No Limit
2 *	2438.2000	83.98	11.31	95.29	54.00	41.29	AVG	No Limit

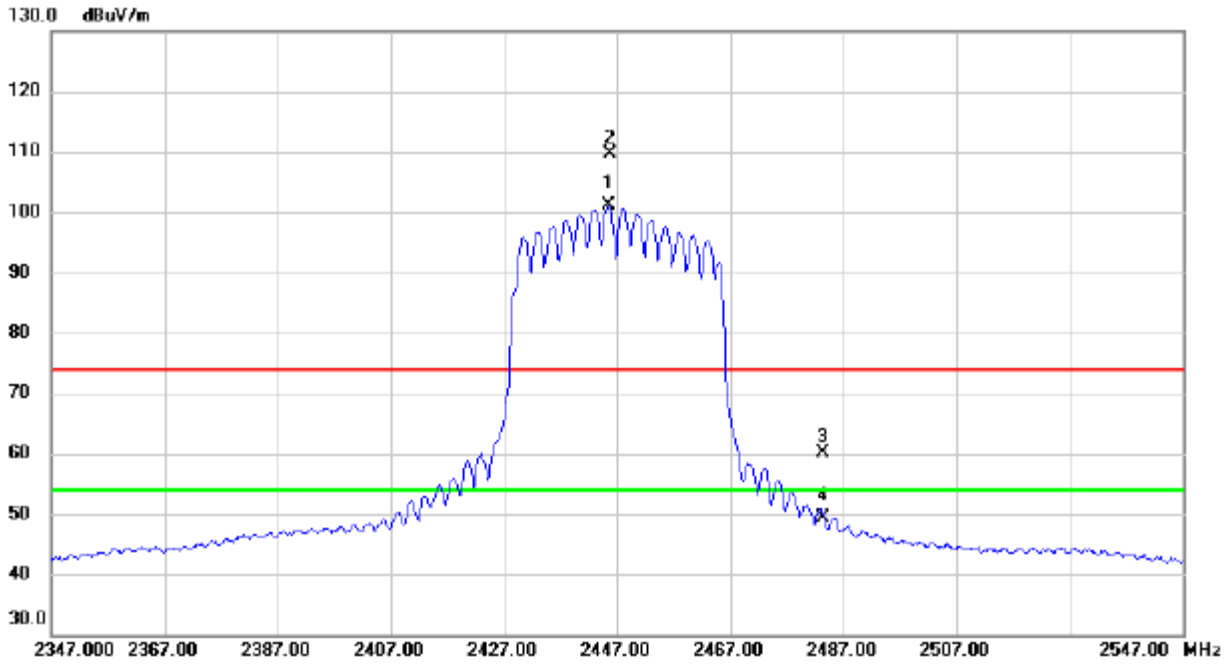
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2437 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4874.7599	31.68	10.05	41.73	74.00	-32.27	Peak	
2 *	4874.7599	20.85	10.05	30.90	54.00	-23.10	AVG	

Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2447MHz

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2445.400	89.72	11.31	101.03	54.00	47.03	AVG	No Limit
2	X	2445.800	98.33	11.31	109.64	74.00	35.64	peak	No Limit
3		2483.500	48.81	11.32	60.13	74.00	-13.87	peak	
4		2483.500	38.06	11.32	49.38	54.00	-4.62	AVG	

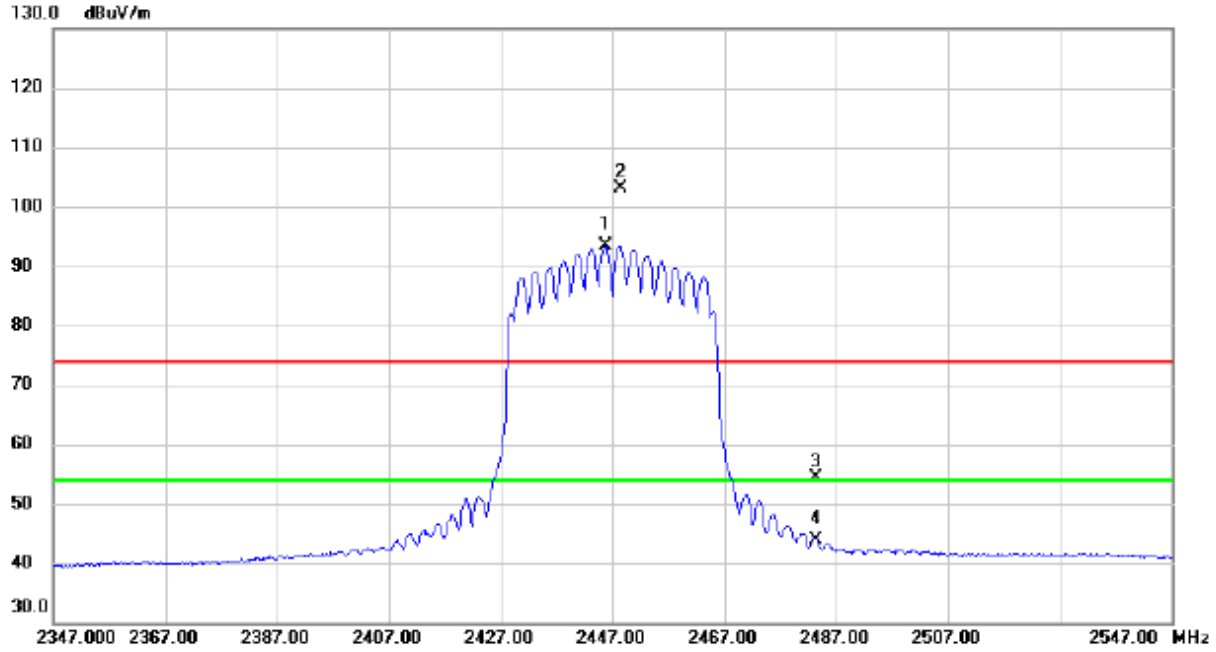
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2447MHz

Vertical

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4889.920	33.28	10.09	43.37	74.00	-30.63	peak	
2	*	4894.790	22.35	10.11	32.46	54.00	-21.54	AVG	

Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2447MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2445.800	82.12	11.31	93.43	54.00	39.43	AVG	No Limit
2	X	2448.400	91.92	11.31	103.23	74.00	29.23	peak	No Limit
3		2483.500	43.13	11.32	54.45	74.00	-19.55	peak	
4		2483.500	32.51	11.32	43.83	54.00	-10.17	AVG	

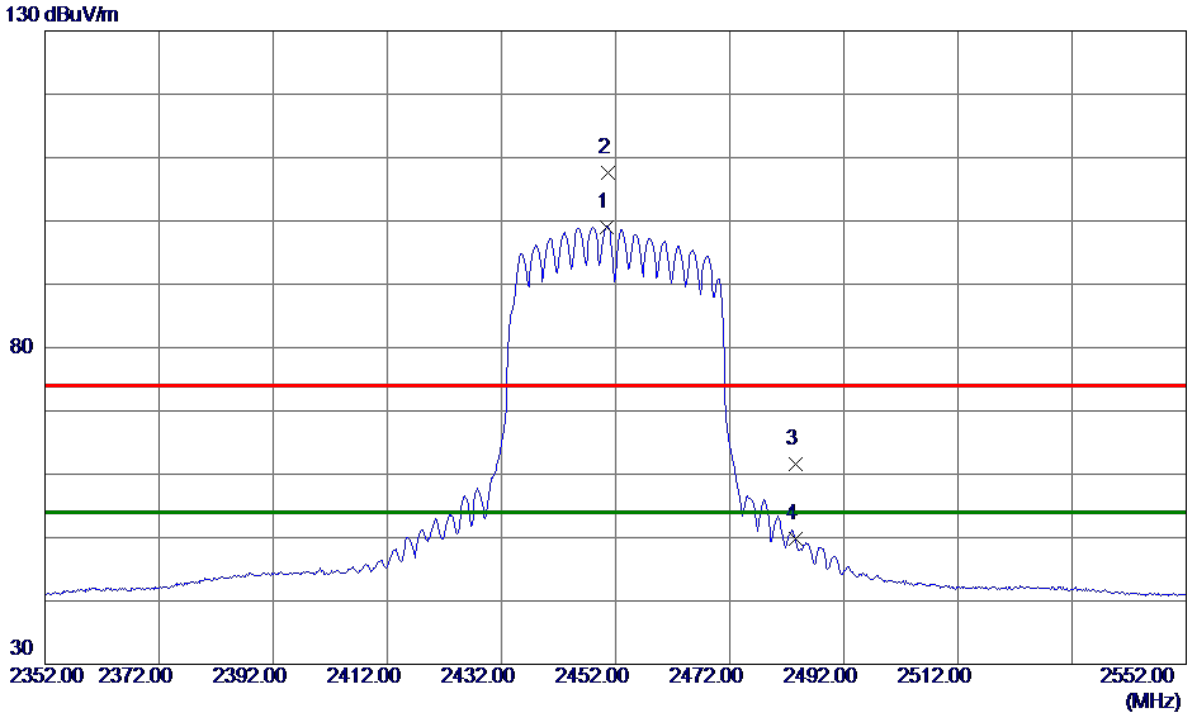
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2447MHz

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4894.370	20.75	10.11	30.86	54.00	-23.14	AVG	
2		4894.570	31.59	10.11	41.70	74.00	-32.30	peak	

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 *	2450.4000	87.79	11.31	99.10	54.00	45.10	AVG	No Limit
2	2450.6000	96.35	11.31	107.66	74.00	33.66	Peak	No Limit
3	2483.5000	50.28	11.32	61.60	74.00	-12.40	Peak	
4	2483.5000	38.39	11.32	49.71	54.00	-4.29	AVG	

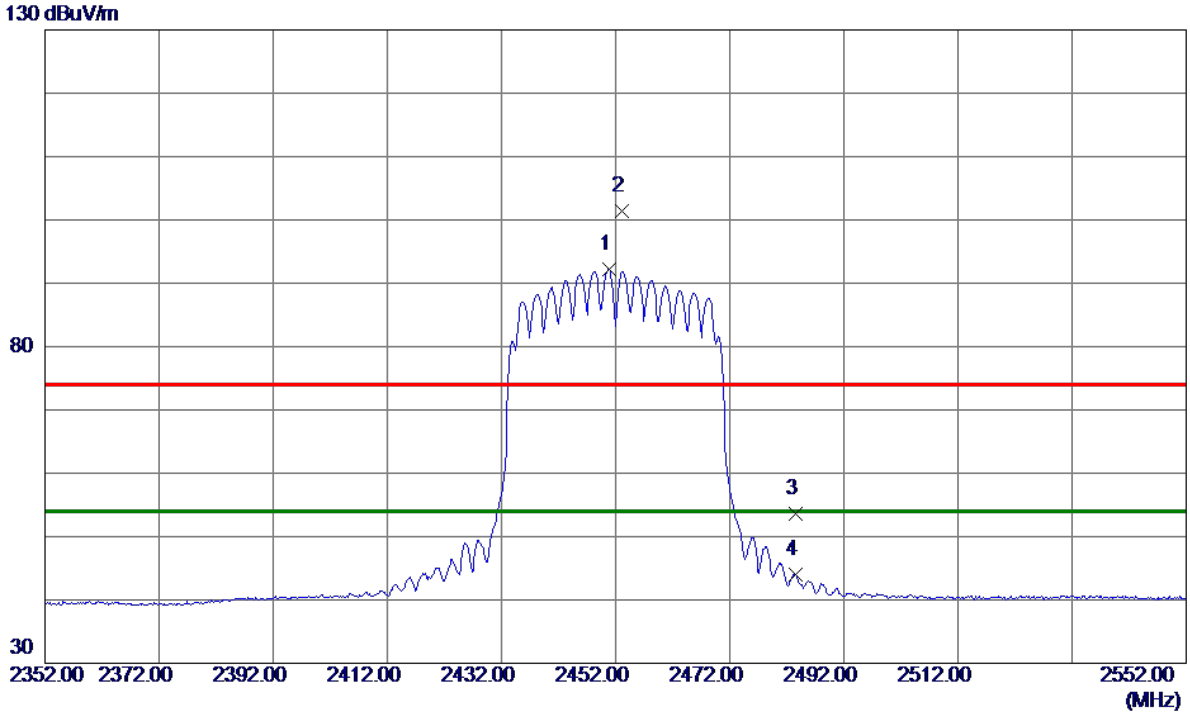
Orthogonal Axis	X
Test Mode:	TX N-40M Mode 2452MHz

Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4899.3700	31.31	10.12	41.43	74.00	-32.57	Peak	
2 *	4904.7599	21.24	10.13	31.37	54.00	-22.63	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 *	2450.8000	80.92	11.31	92.23	54.00	38.23	AVG	No Limit
2	2453.2000	90.05	11.31	101.36	74.00	27.36	Peak	No Limit
3	2483.5000	42.25	11.32	53.57	74.00	-20.43	Peak	
4	2483.5000	32.62	11.32	43.94	54.00	-10.06	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 *	4901.7000	20.53	10.12	30.65	54.00	-23.35	AVG	
2	4904.2000	30.32	10.13	40.45	74.00	-33.55	Peak	

TX B Mode_DUTY CYCLE

Duty cycle: TX 2412 MHz

Duty cycle = T_{ON} / T_{Total}

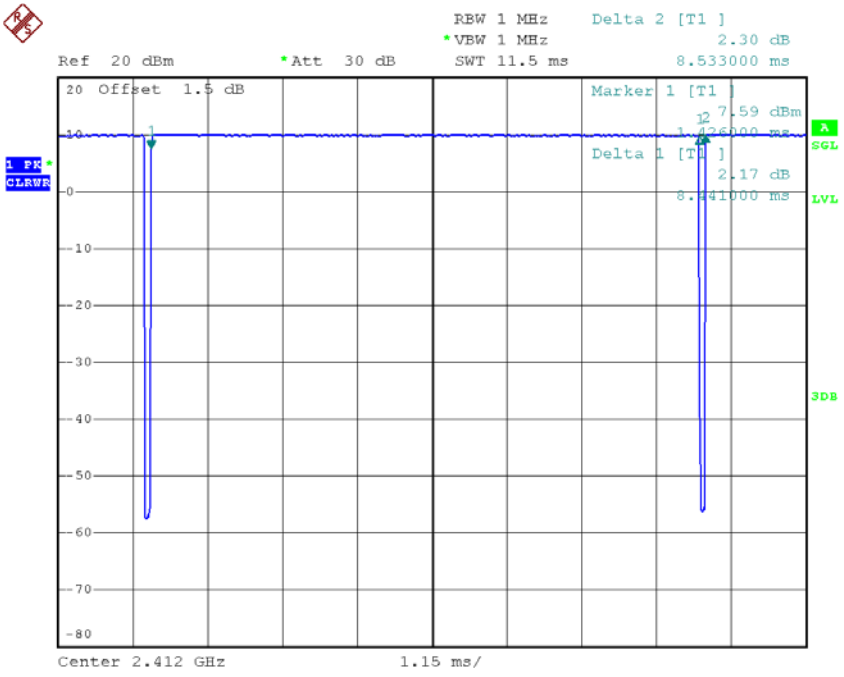
T_{ON}: 8.441 msec

T_{Total}: 8.533 msec

Duty cycle: 98.92%

Duty Factor = 10 log(1/Duty cycle)

Duty Factor = 0.00



Date: 10.AUG.2018 19:16:09

Note: The duty cycle is ≥ 98 % no need to cacluated as Duty Factor.

TX G Mode_DUTY CYCLE

Duty cycle: TX 2412 MHz

Duty cycle = T_{ON} / T_{Total}

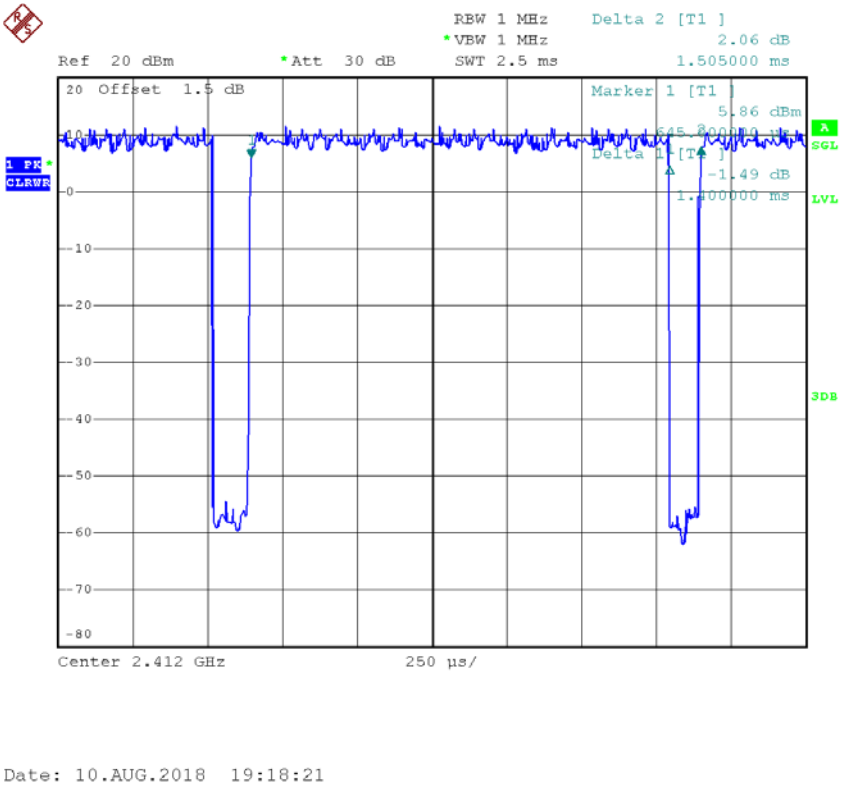
T_{ON}: 1.400msec

T_{Total}: 1.505 msec

Duty cycle: 93.02%

Duty Factor = 10 log(1/Duty cycle)

Duty Factor = 0.31



Note: The EUT was programmed to be in countinously transmitting mode and the transmit duty cycle < 98 %, so, the output power and power density should be cacluated as Output Power = Measured power + Ducy factor

TX N20 Mode_DUTY CYCLE

Duty cycle: TX 2412 MHz

Duty cycle = T_{ON} / T_{Total}

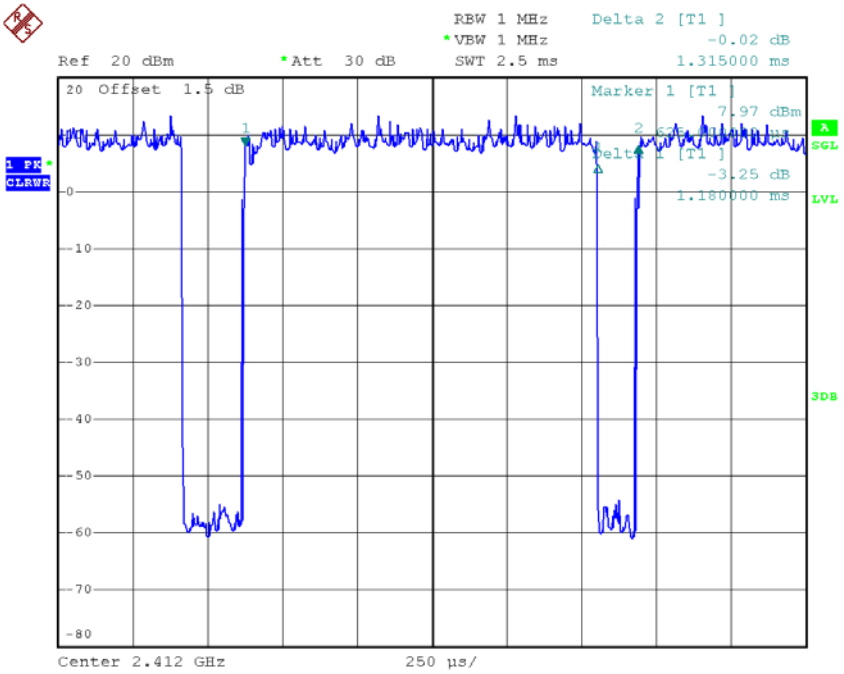
T_{ON}: 1.180 msec

T_{Total}: 1.315 msec

Duty cycle: 89.73%

Duty Factor = 10 log(1/Duty cycle)

Duty Factor = 0.47



Note: The EUT was programmed to be in countinously transmitting mode and the transmit duty cycle < 98 %, so, the output power and power density should be cacluated as Output Power = Measured power + Ducy factor

TX N40 Mode_DUTY CYCLE

Duty cycle: TX 2422MHz

Duty cycle = T_{ON} / T_{Total}

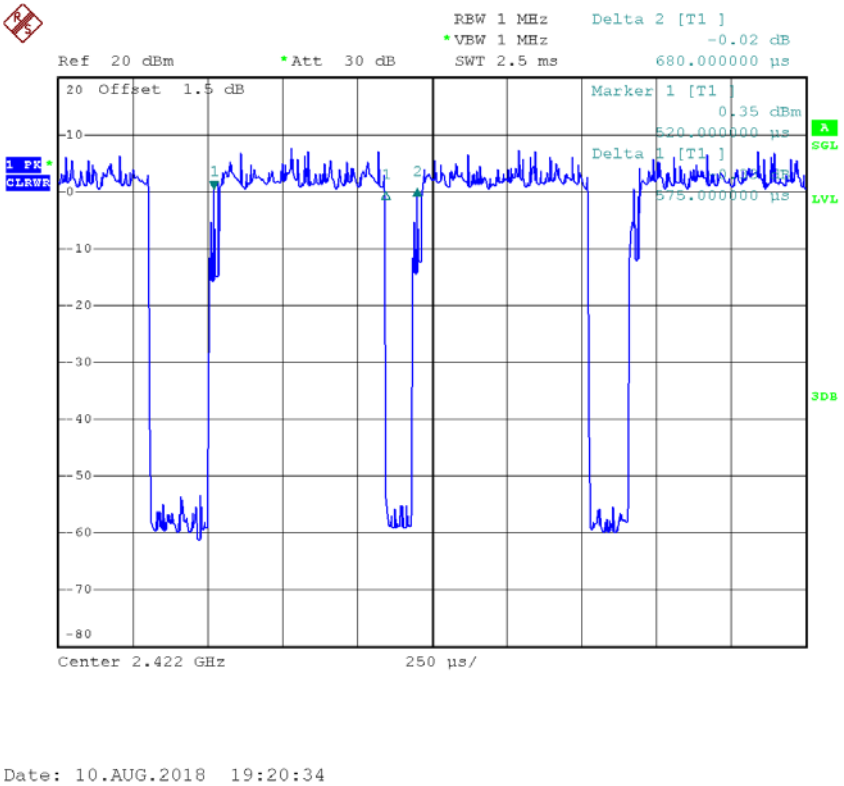
T_{ON}: 0.575 msec

T_{Total}: 0.680 msec

Duty cycle: 84.56%

Duty Factor = 10 log(1/Duty cycle)

Duty Factor = 0.73



Date: 10.AUG.2018 19:20:34

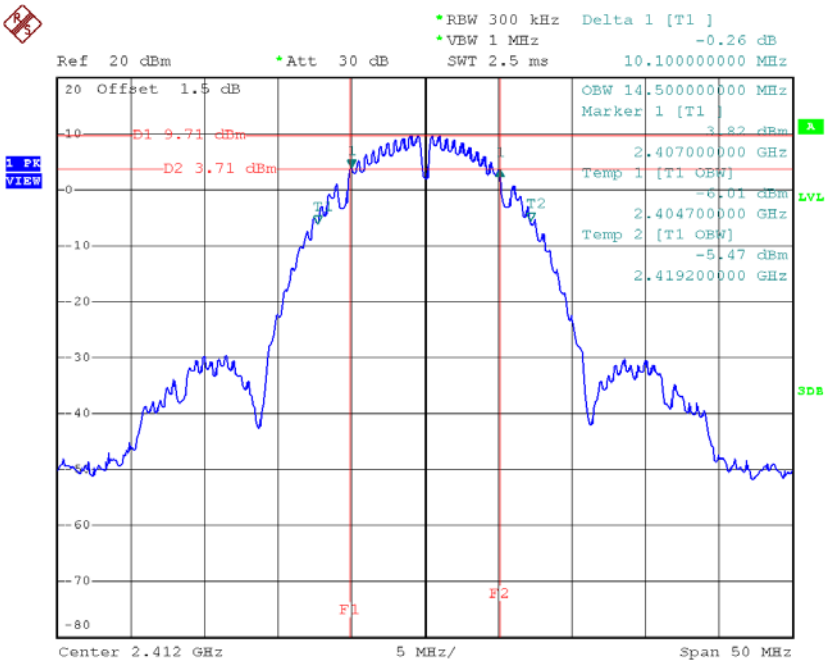
Note: The EUT was programmed to be in countinously transmitting mode and the transmit duty cycle < 98 %, so, the output power and power density should be cacluated as Output Power = Measured power + Ducy factor

APPENDIX E - BANDWIDTH

Test Mode: TX B Mode_CH01/06/11

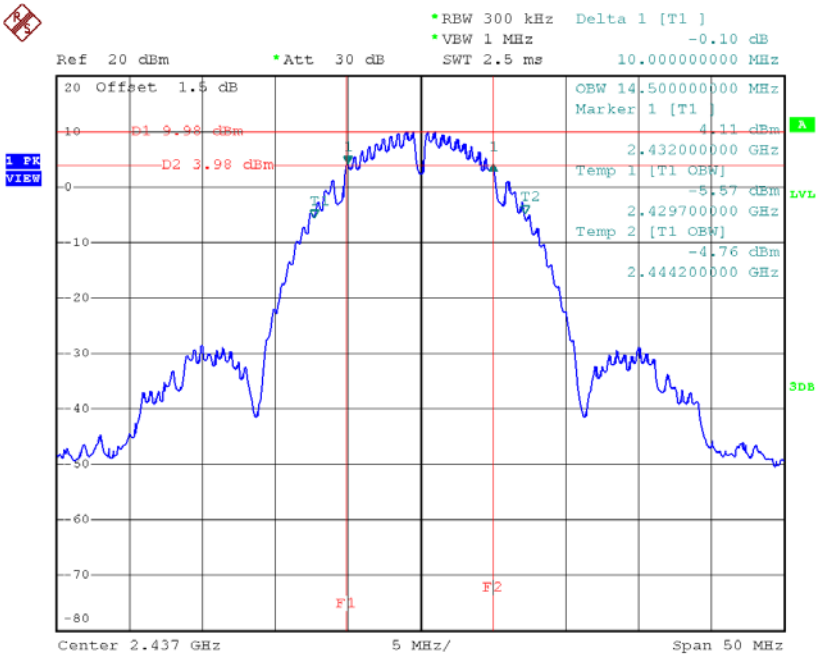
Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	10.10	14.50	500	Complies
2437	10.00	14.50	500	Complies
2462	10.00	14.40	500	Complies

TX CH01



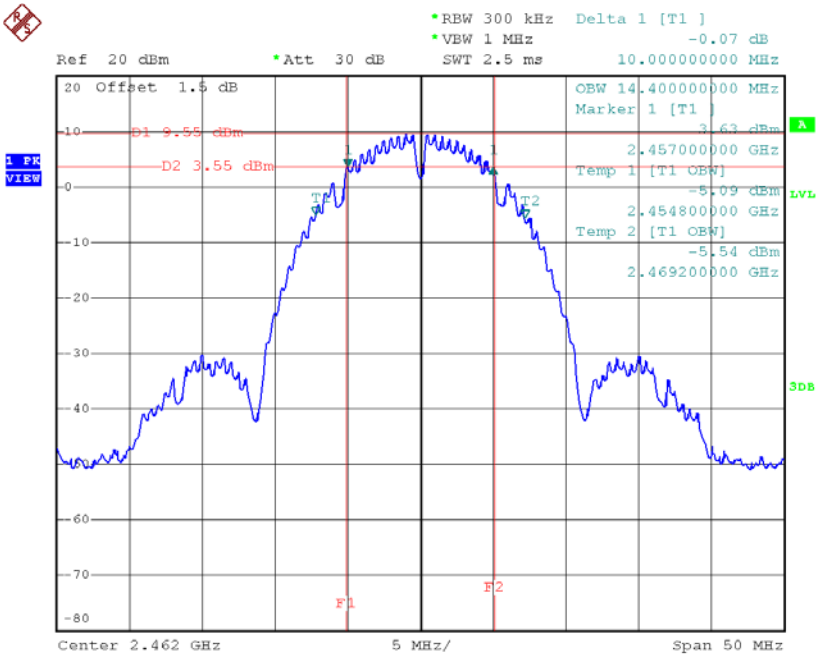
Date: 15.AUG.2018 11:20:50

TX CH06



Date: 15.AUG.2018 11:23:40

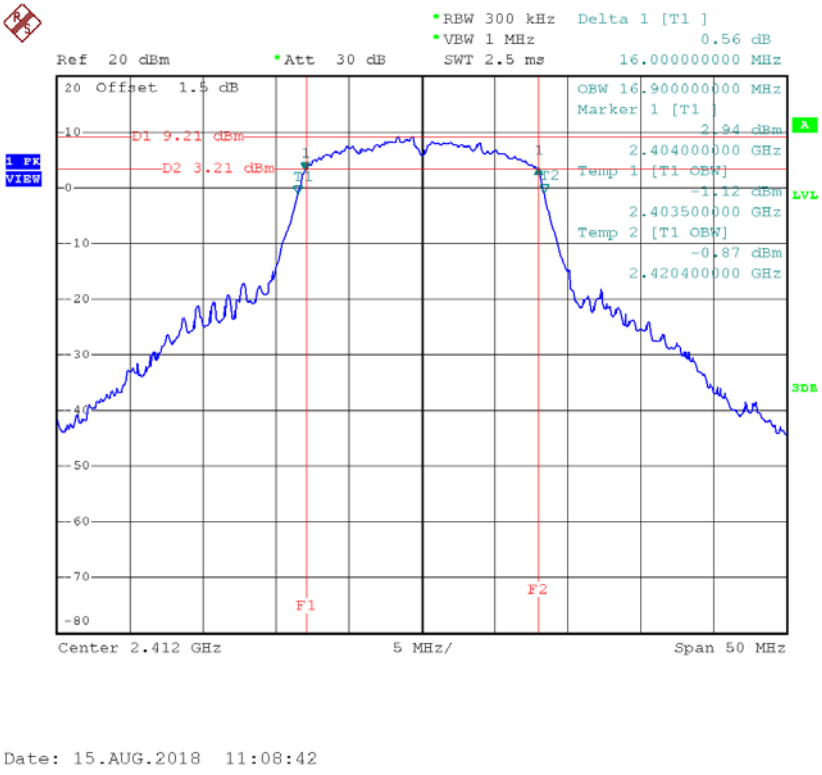
TX CH11



Date: 15.AUG.2018 11:14:42

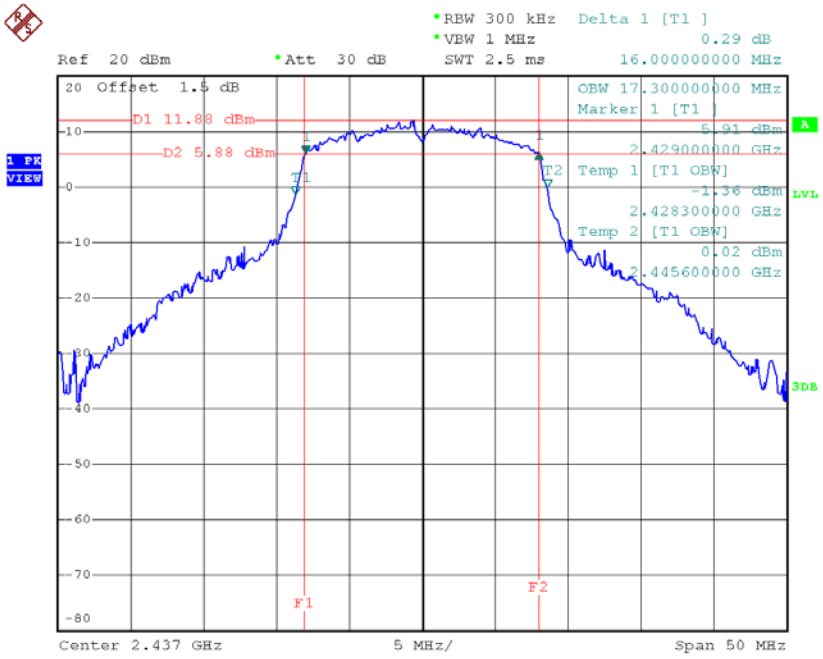
Test Mode: TX G Mode_CH01/06/11				
Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	16.00	16.90	500	Complies
2437	16.00	17.30	500	Complies
2462	15.80	16.80	500	Complies

TX CH01



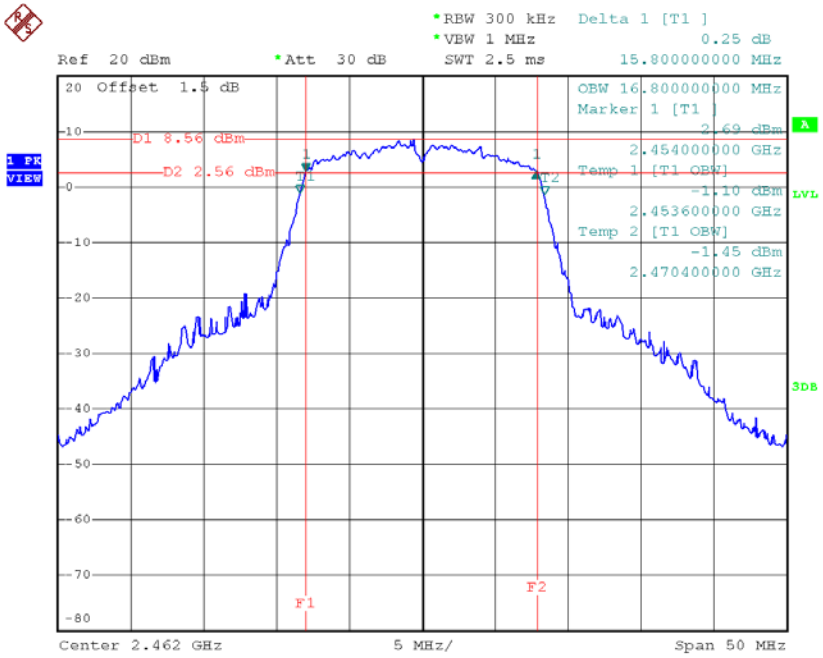
Date: 15.AUG.2018 11:08:42

TX CH06



Date: 15.AUG.2018 11:11:04

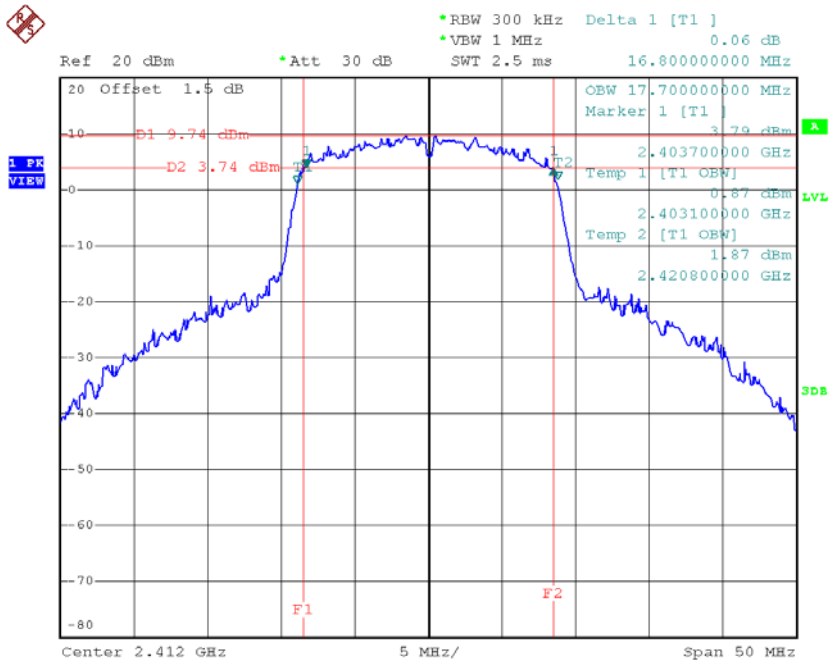
TX CH11



Date: 15.AUG.2018 11:12:38

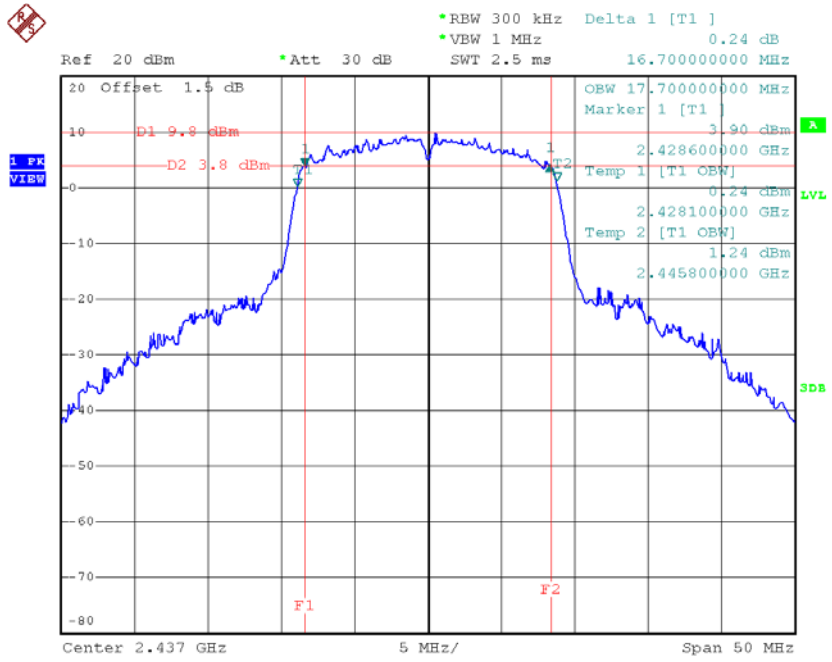
Test Mode: TX N-20MHz Mode_CH01/06/11				
Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	16.80	17.70	500	Complies
2437	16.70	17.70	500	Complies
2462	17.20	17.60	500	Complies

TX CH01



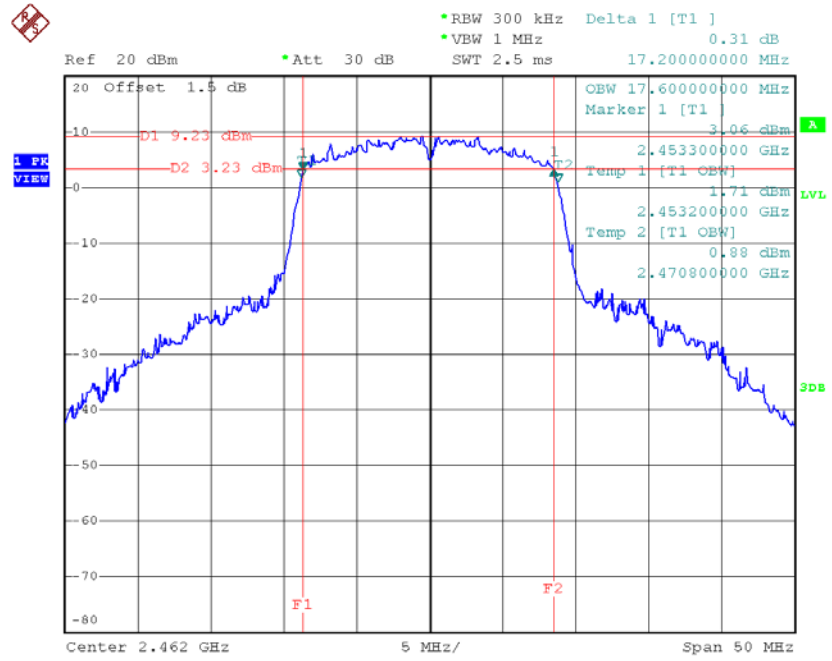
Date: 15.AUG.2018 17:25:32

TX CH06



Date: 15.AUG.2018 17:31:12

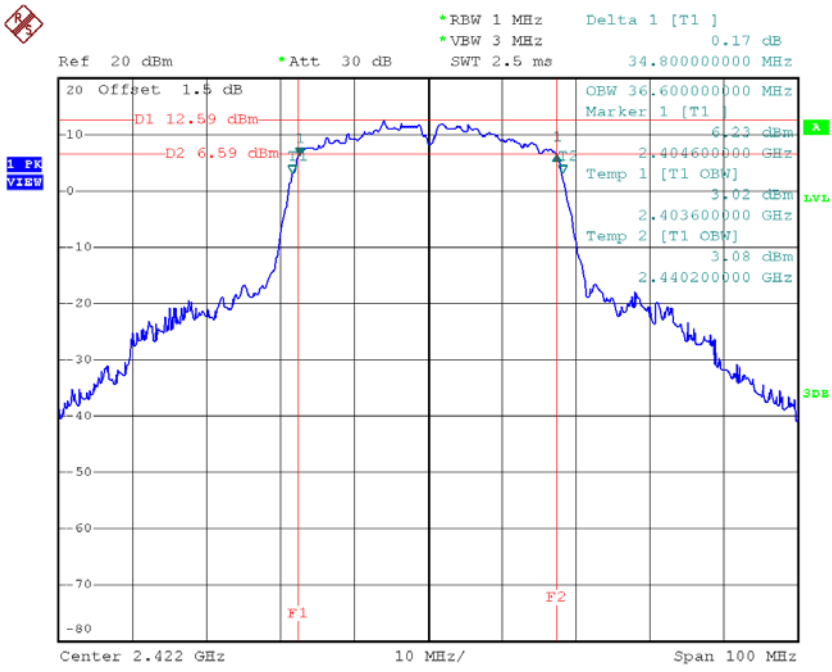
TX CH11



Date: 15.AUG.2018 17:33:10

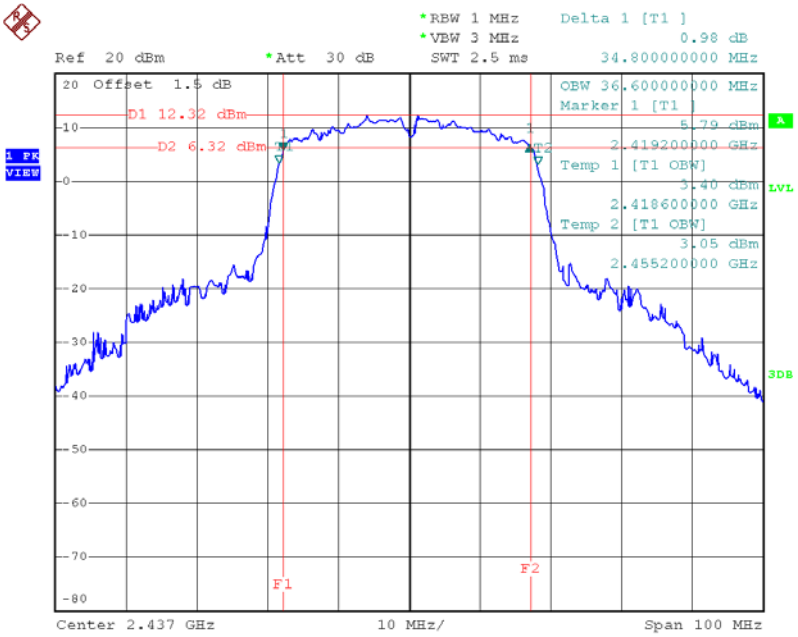
Test Mode: TX N-40MHz Mode_CH03/06/09				
Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2422	34.80	36.60	500	Complies
2437	34.80	36.60	500	Complies
2452	35.20	36.40	500	Complies

TX CH03



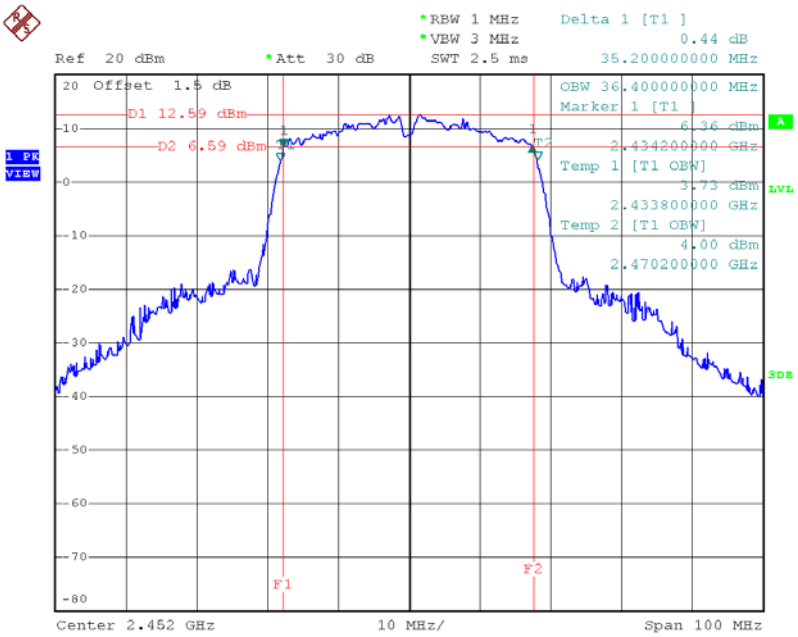
Date: 15.AUG.2018 17:07:44

TX CH06



Date: 15.AUG.2018 17:05:18

TX CH09



Date: 15.AUG.2018 17:14:32

APPENDIX F - MAXIMUM AVERAGE OUTPUT POWER

Test Mode: TX B Mode_CH01/06/11_ANT 1						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	18.25	0.00	18.25	28.99	0.79	Complies
2437	18.71	0.00	18.71	28.99	0.79	Complies
2462	18.16	0.00	18.16	28.99	0.79	Complies

Test Mode: TX B Mode_CH01/06/11_ANT 2						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	18.33	0.00	18.33	28.99	0.79	Complies
2437	18.84	0.00	18.84	28.99	0.79	Complies
2462	18.33	0.00	18.33	28.99	0.79	Complies

Test Mode: TX B Mode_CH01/06/11_Total						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	21.30	0.00	21.30	28.99	0.79	Complies
2437	21.79	0.00	21.79	28.99	0.79	Complies
2462	21.26	0.00	21.26	28.99	0.79	Complies

Test Mode: TX G Mode_CH01/06/11_ANT 1						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	14.74	0.31	15.05	28.99	0.79	Complies
2437	19.68	0.31	19.99	28.99	0.79	Complies
2462	15.85	0.31	16.16	28.99	0.79	Complies

Test Mode: TX G Mode_CH01/06/11_ANT 2						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	14.88	0.31	15.19	28.99	0.79	Complies
2437	19.69	0.31	20.00	28.99	0.79	Complies
2462	15.91	0.31	16.22	28.99	0.79	Complies

Test Mode: TX G Mode_CH01/06/11_Total						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	17.82	0.31	18.13	28.99	0.79	Complies
2437	22.70	0.31	23.01	28.99	0.79	Complies
2462	18.89	0.31	19.20	28.99	0.79	Complies

Test Mode: TX N20 Mode_CH01/06/11_ANT 1						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	16.86	0.47	17.33	28.99	0.79	Complies
2437	16.85	0.47	17.32	28.99	0.79	Complies
2462	16.73	0.47	17.20	28.99	0.79	Complies

Test Mode: TX N20 Mode_CH01/06/11_ANT 2						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	16.89	0.47	17.36	28.99	0.79	Complies
2437	16.87	0.47	17.34	28.99	0.79	Complies
2462	16.78	0.47	17.25	28.99	0.79	Complies

Test Mode: TX N20 Mode_CH01/06/11_Total						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	19.89	0.47	20.36	28.99	0.79	Complies
2437	19.87	0.47	20.34	28.99	0.79	Complies
2462	19.77	0.47	20.24	28.99	0.79	Complies

Test Mode: TX N40 Mode_CH03/06/09_ANT 1						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	15.81	0.73	16.54	28.99	0.79	Complies
2437	15.76	0.73	16.49	28.99	0.79	Complies
2462	15.76	0.73	16.49	28.99	0.79	Complies

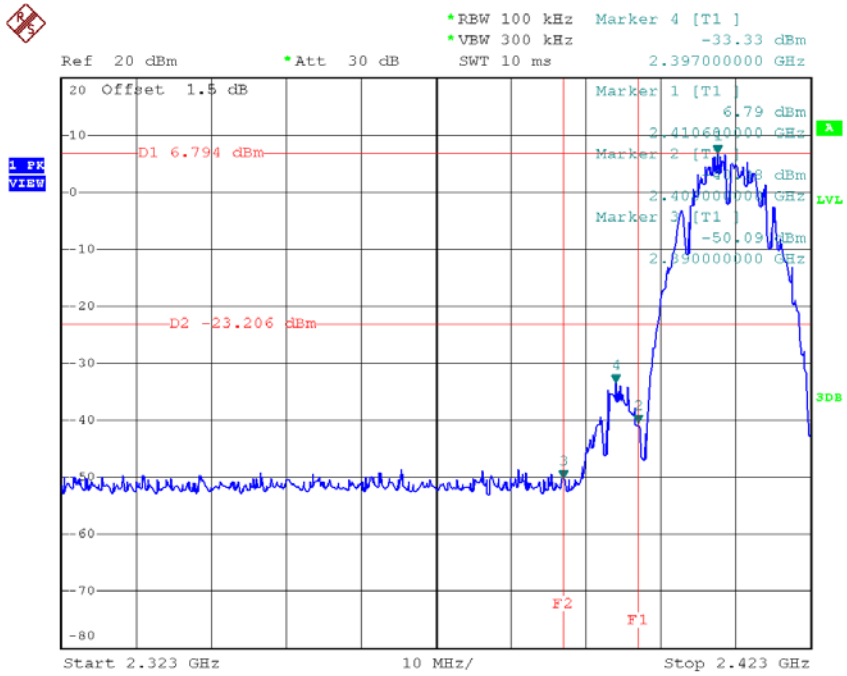
Test Mode: TX N40 Mode_CH03/06/09_ANT 2						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	15.92	0.73	16.65	28.99	0.79	Complies
2437	15.89	0.73	16.62	28.99	0.79	Complies
2462	15.95	0.73	16.68	28.99	0.79	Complies

Test Mode: TX N40 Mode_CH03/06/09_Total						
Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	18.88	0.73	19.61	28.99	0.79	Complies
2437	18.84	0.73	19.57	28.99	0.79	Complies
2462	18.87	0.73	19.60	28.99	0.79	Complies

APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION

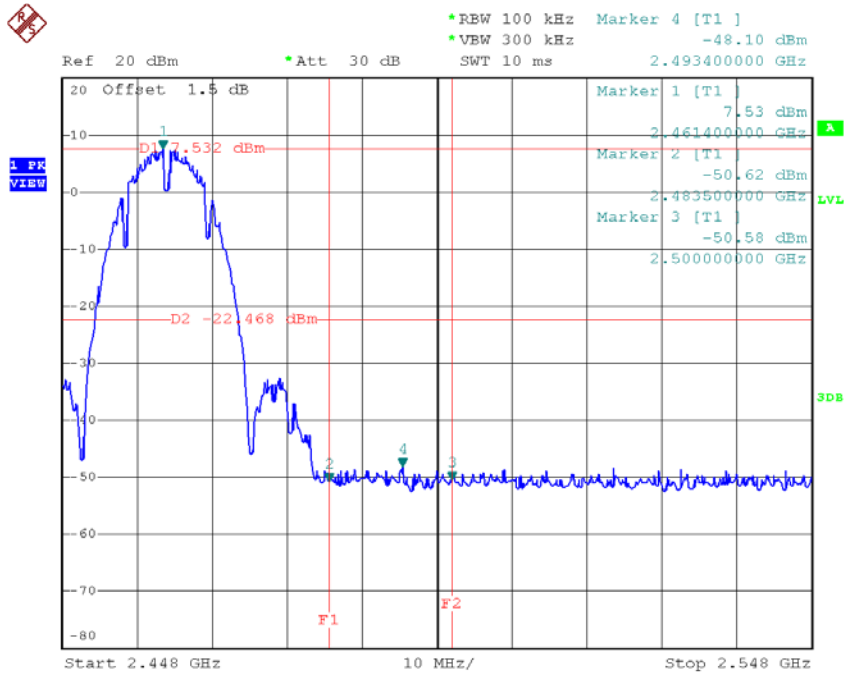
Test Mode:	TX B Mode_ANT 1

TX B mode CH01



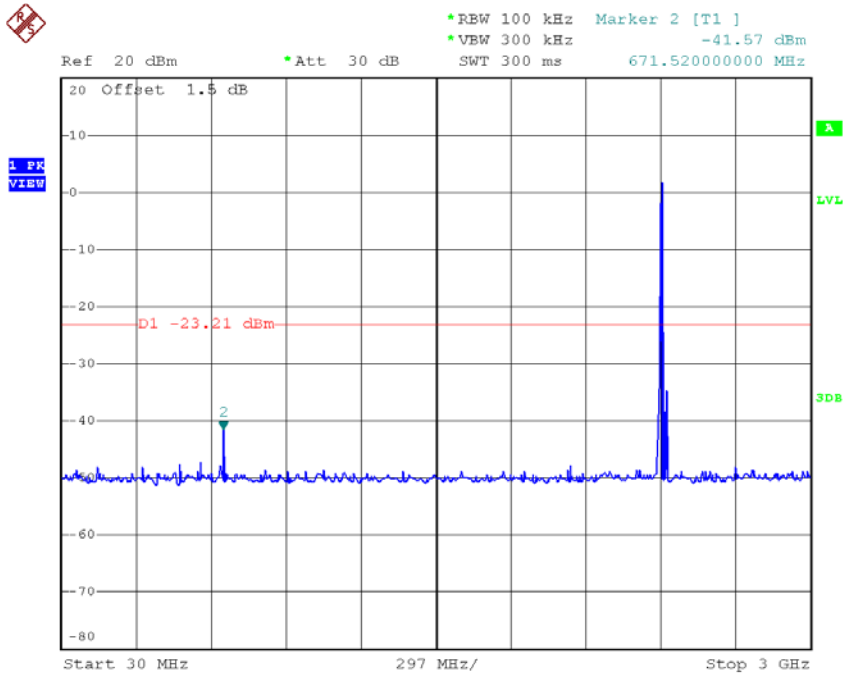
Date: 15.AUG.2018 10:25:31

TX B mode CH11

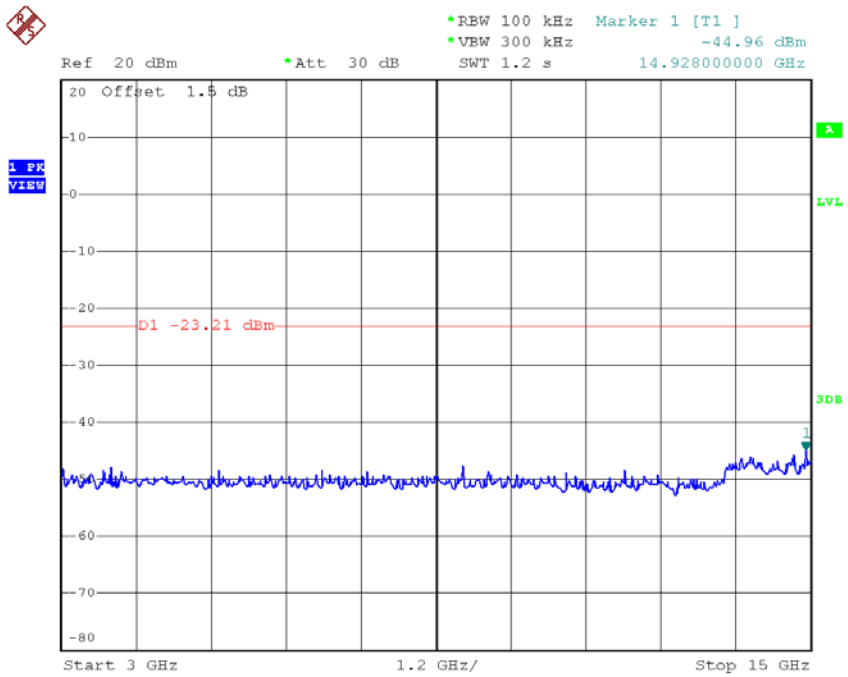


Date: 15.AUG.2018 10:38:01

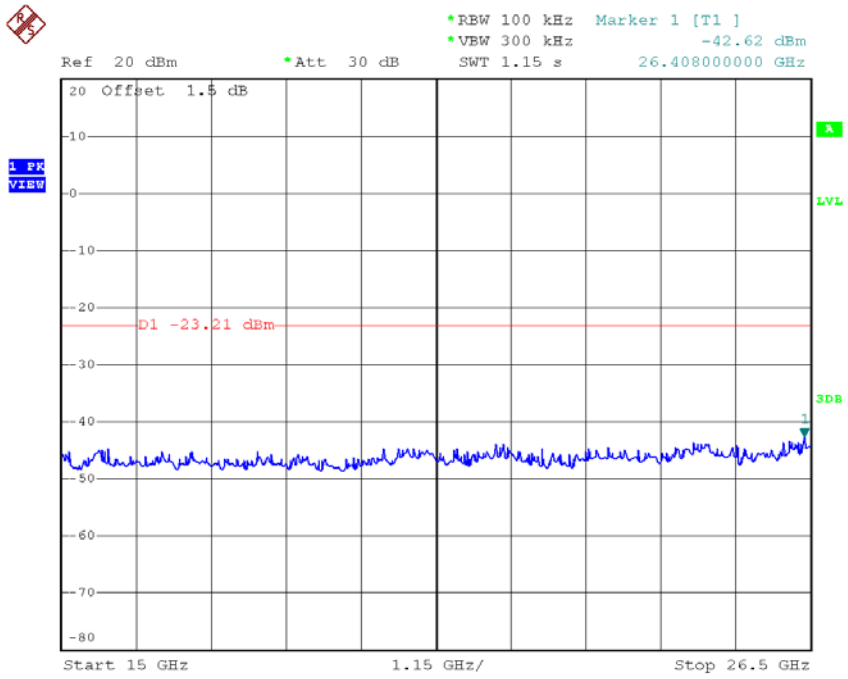
TX B mode CH01 (10 Harmonic of the frequency)



Date: 15.AUG.2018 10:26:00

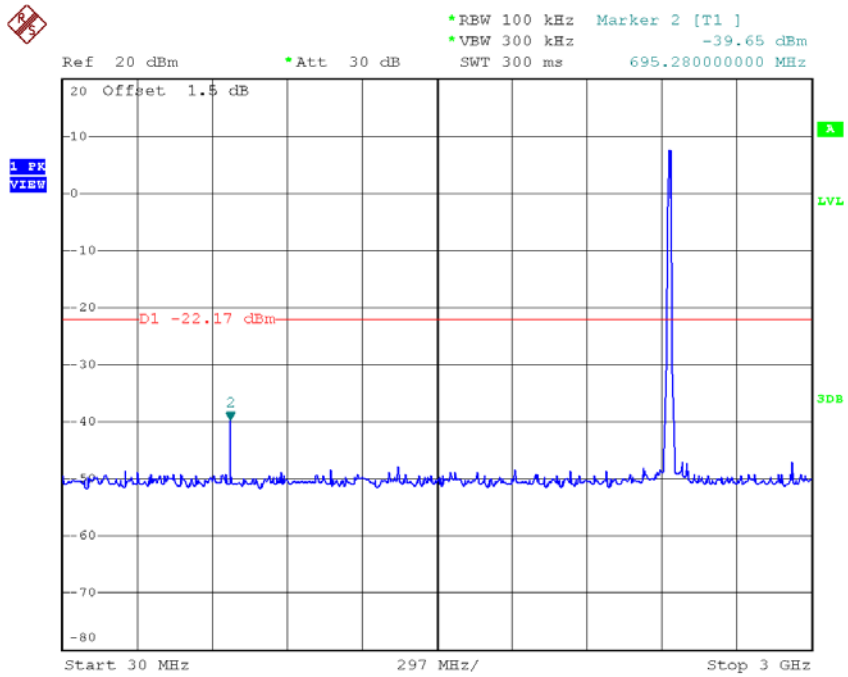


Date: 15.AUG.2018 10:26:09

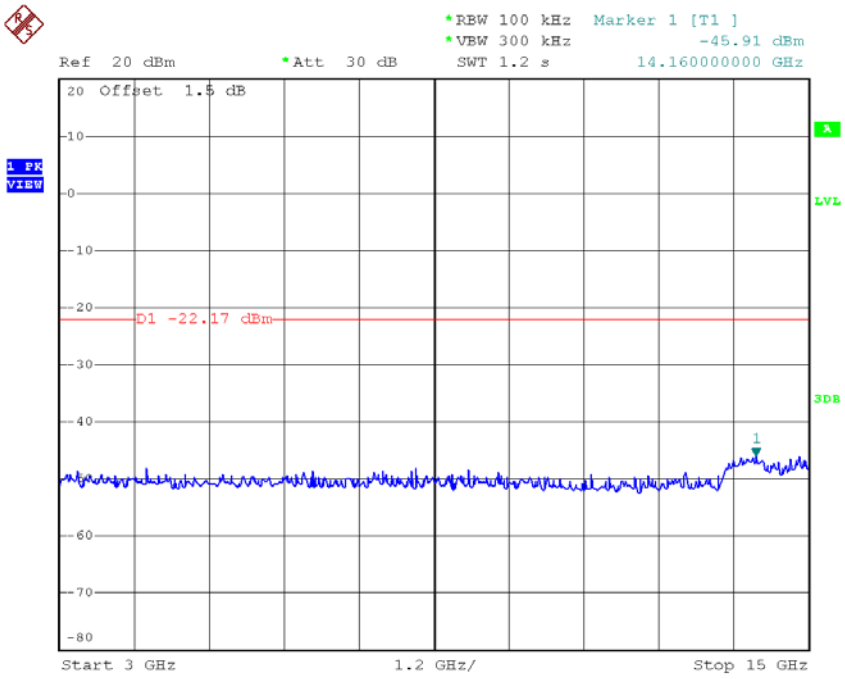


Date: 15.AUG.2018 10:26:18

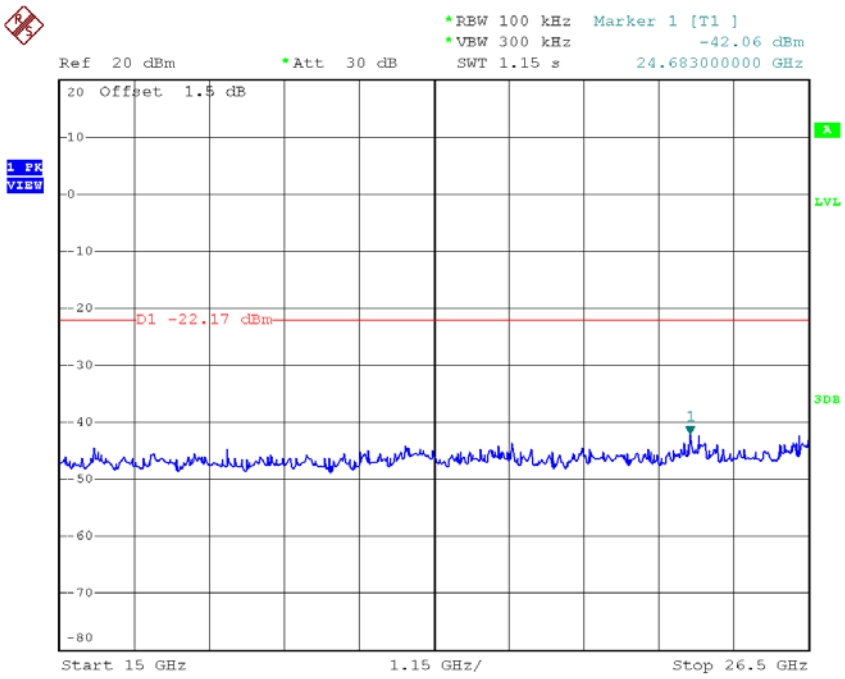
TX B mode CH06 (10 Harmonic of the frequency)



Date: 15.AUG.2018 10:36:52

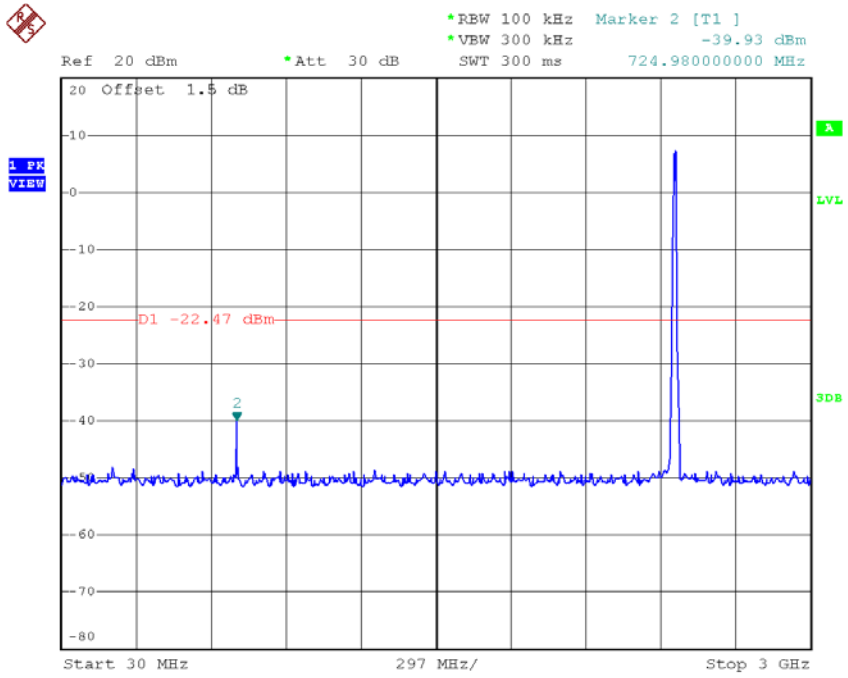


Date: 15.AUG.2018 10:37:01

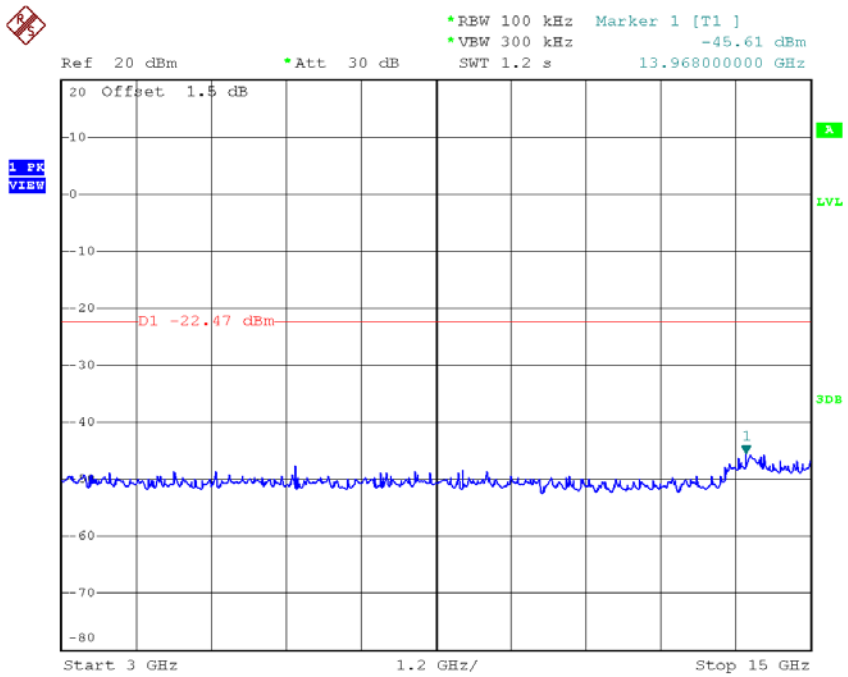


Date: 15.AUG.2018 10:37:09

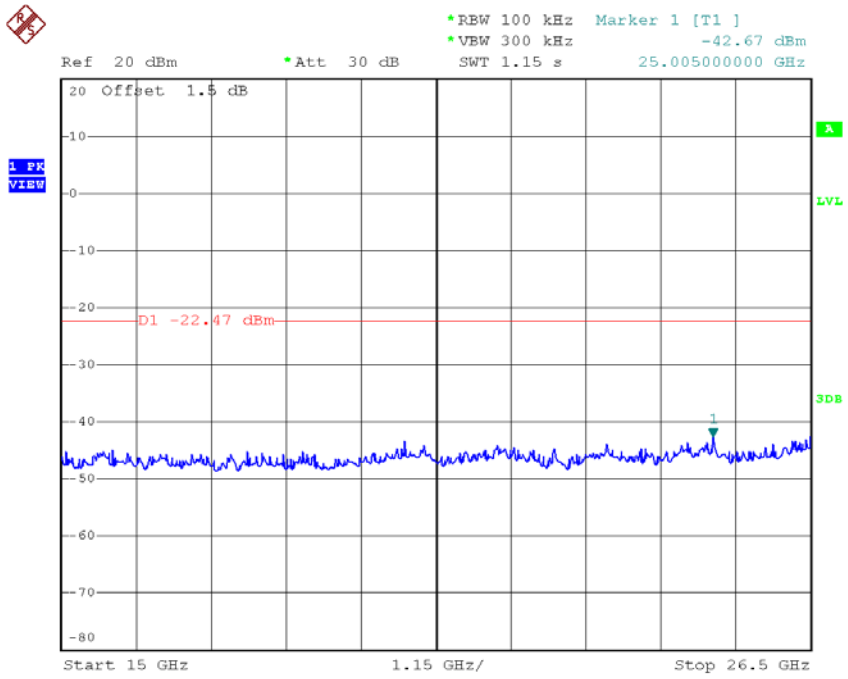
TX B mode CH11 (10 Harmonic of the frequency)



Date: 15.AUG.2018 10:38:15



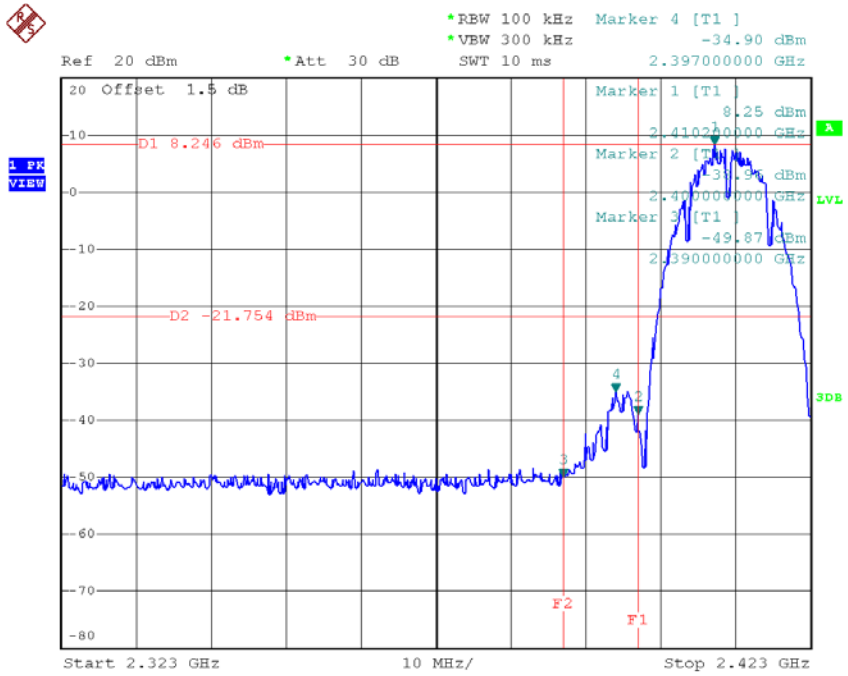
Date: 15.AUG.2018 10:38:24



Date: 15.AUG.2018 10:38:32

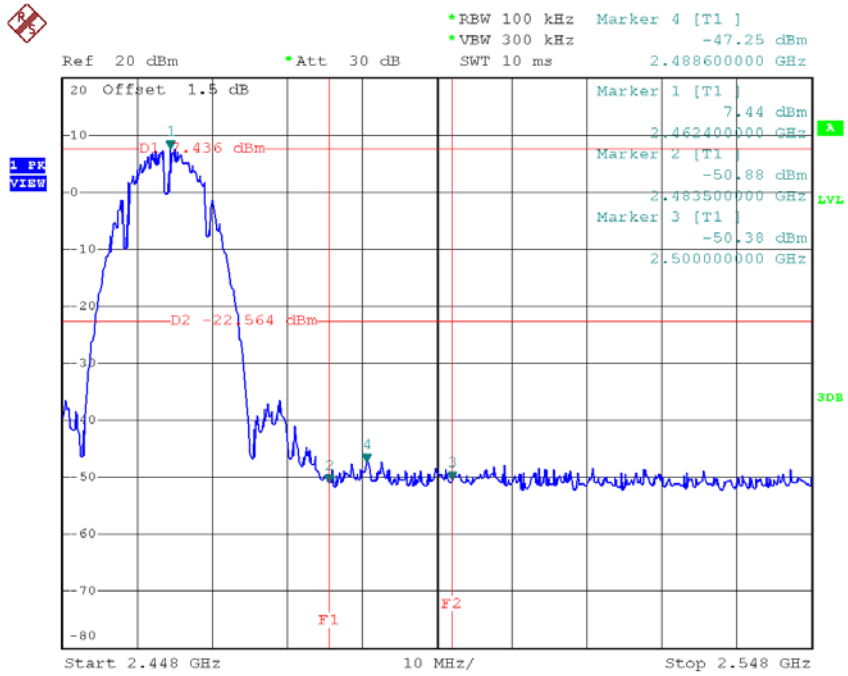
Test Mode:	TX B Mode_ANT 2

TX B mode CH01



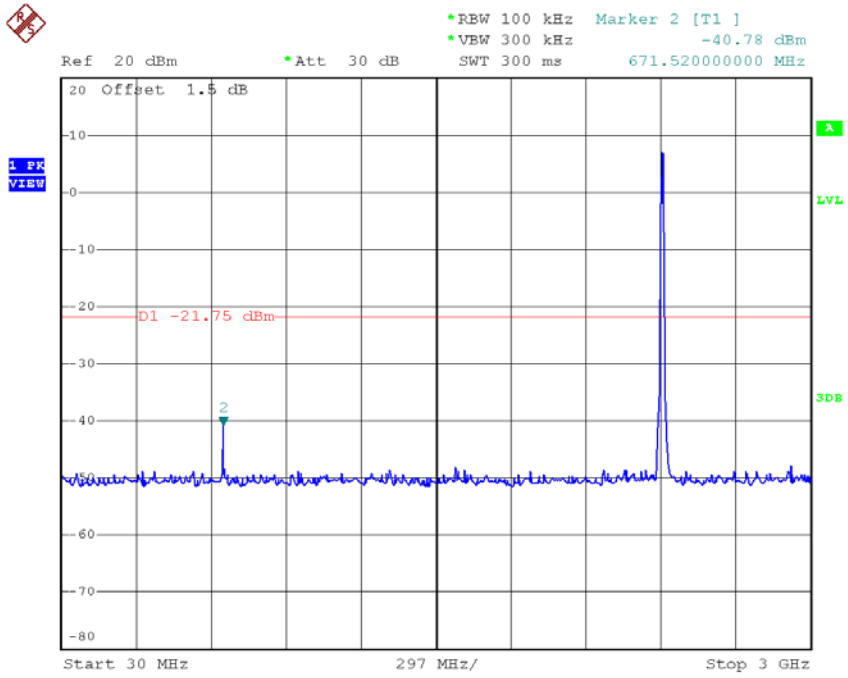
Date: 15.AUG.2018 10:47:08

TX B mode CH11

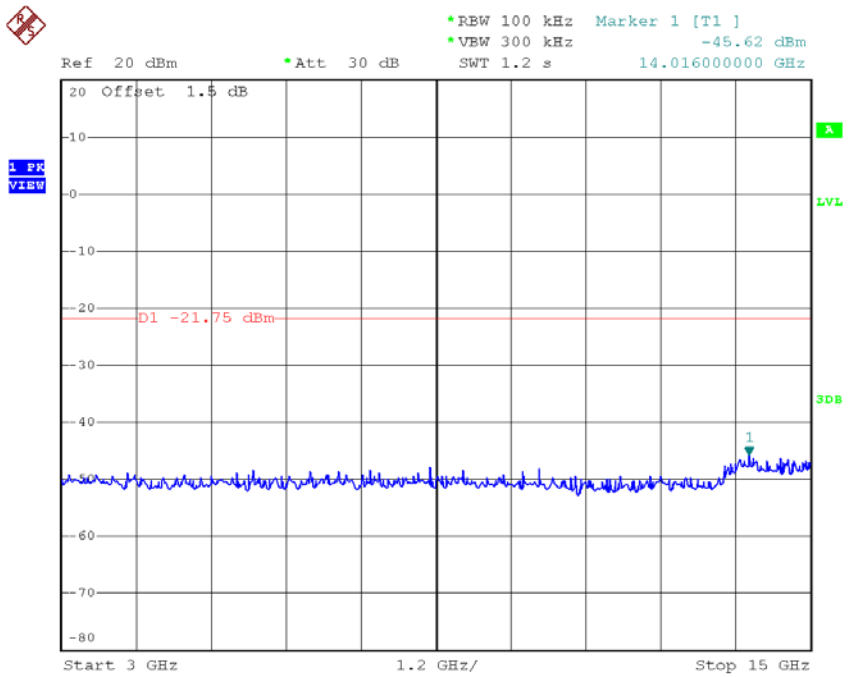


Date: 15.AUG.2018 10:50:22

TX B mode CH01 (10 Harmonic of the frequency)



Date: 15.AUG.2018 10:47:22



Date: 15.AUG.2018 10:47:31