

FCC Radio Test Report

FCC ID: 2AC23-WT21M2610

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

Project No. : 1808C159A
Equipment : WIFI+BT Module
Test Model : WT21M2610
Series Model : N/A
Applicant : Hui Zhou Gaoshengda Technology Co.,LTD
Address : NO.75 Zhongkai Development Area, Huizhou,
Guangdong

Date of Receipt : Aug. 16, 2018
Date of Test : Aug. 17, 2018 ~ Nov. 09, 2018
Issued Date : Dec. 05, 2018
Tested by : BTL Inc.

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Certificate #5123.02

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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

Report Version	Description	Issued Date
R00	Original Issue.	Nov. 30, 2018
R01	1. Update the description of the power source. 2. Update Conduction Test Photo.	Dec. 05, 2018

1. CERTIFICATION

Equipment : WIFI+BT Module
Brand Name : GSD
Test Model : WT21M2610
Series Model : N/A
Applicant : Hui Zhou Gaoshengda Technology Co.,LTD
Manufacturer : Hui Zhou Gaoshengda Technology Co.,LTD
Address : NO.75 Zhongkai Development Area, Huizhou, Guangdong
Factory : Hui Zhou Gaoshengda Technology Co.,LTD
Address : NO.75 Zhongkai Development Area, Huizhou, Guangdong
Date of Test : Aug. 17, 2018 ~ Nov. 09, 2018
Test Sample : Engineering Sample No.: D180806941
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-3-1808C159A) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO-17025 quality assessment standard and technical standard(s).

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

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): FCC Part15 (15.247) , Subpart C			
Standard(s) Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247(d)	Antenna conducted Spurious Emission	PASS	
15.247(a)(2)	6 dB Bandwidth	PASS	
15.247(b)(3)	Maximum 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	WIFI+BT Module	
Brand Name	GSD	
Test Model	WT21M2610	
Series Model	N/A	
Model Difference(s)	N/A	
Software Version	UIv1.92_DLLv3.92_20171201	
Hardware Version	v1.0	
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
	Output Power (Max.)	802.11b: 13.53 dBm 802.11g: 19.61 dBm 802.11n(20 MHz): 22.97 dBm 802.11n(40 MHz): 24.14 dBm
Power Source	#1 DC voltage supplied from AC/DC adapter(support unit).	
Power Rating	#1 I/P: 100-240V, 50/60Hz,0.3A Max O/P: 5.0V $\overline{=}$ 500mA #2 DC 5V	

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- 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.	Mfr.	P/N	Antenna Type	Connector	Gain (dBi)
1	SHENZHEN ZHONGTIAN XUN Communication Technology Co.,Ltd.	1.01.00451	PIFA	N/A	2.0
2	SHENZHEN ZHONGTIAN XUN Communication Technology Co.,Ltd.	1.01.00452	PIFA	N/A	2.0

Note:

This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$ dBi, that is
 Directional gain = $10\log[(10^{2/20} + 10^{2/20})^2 / 2]$ dBi = 5.01.

4.

The worst case for 1TX/2TX as follow:

Operating Mode TX Mode	TX	2TX
802.11b	V (ANT 1)	-
802.11g	V (ANT 1)	-
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 generated from EUT, the test system was pre-scanned based on the consideration of following EUT operation mode or test configuration mode which possibly 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

When 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 01/06/11
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

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 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:

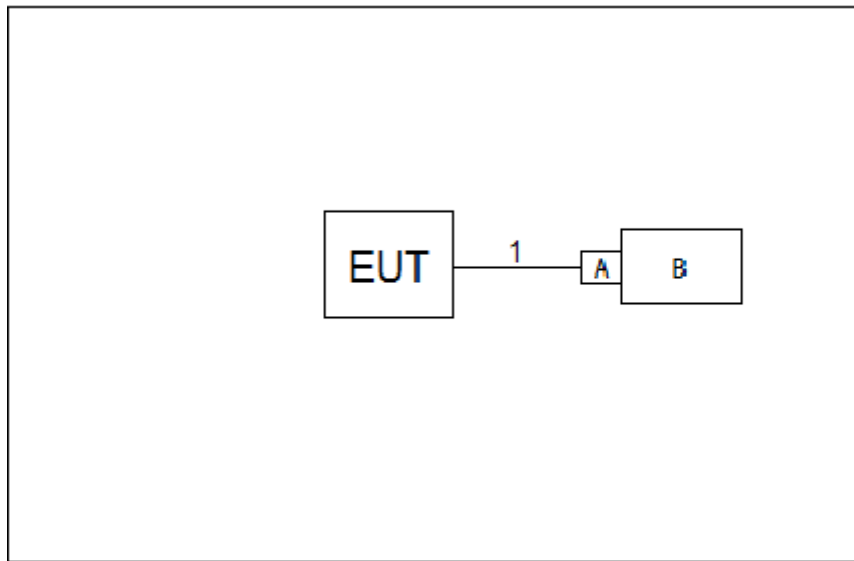
- (1) The measurements are performed at the high, middle, low available channels.
- (2) 802.11b mode: DBPSK (1 Mbps)
 802.11g mode: OFDM (6 Mbps)
 802.11n HT20 mode : BPSK (13.5 Mbps)
 802.11n HT40 mode : BPSK (27 Mbps)
 For radiated emission tests, the highest output powers were set for final test.
- (3) For radiated 30 MHz to 1000 MHz test, the 802.11b is found to be the worst case and recorded.
- (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	QA TOOL		
Frequency (MHz)	2412	2437	2462
802.11b	1	1	1
802.11g	8	9	8
802.11n (20 MHz)	B	D	9
Frequency (MHz)	2422	2437	2452
802.11n (40 MHz)	13	13	13

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	Test Fixture	N/A	N/A	N/A	N/A
B	Notebook	Lenovo	G410	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	0.5m	Data 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 (dB μ V)	
	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

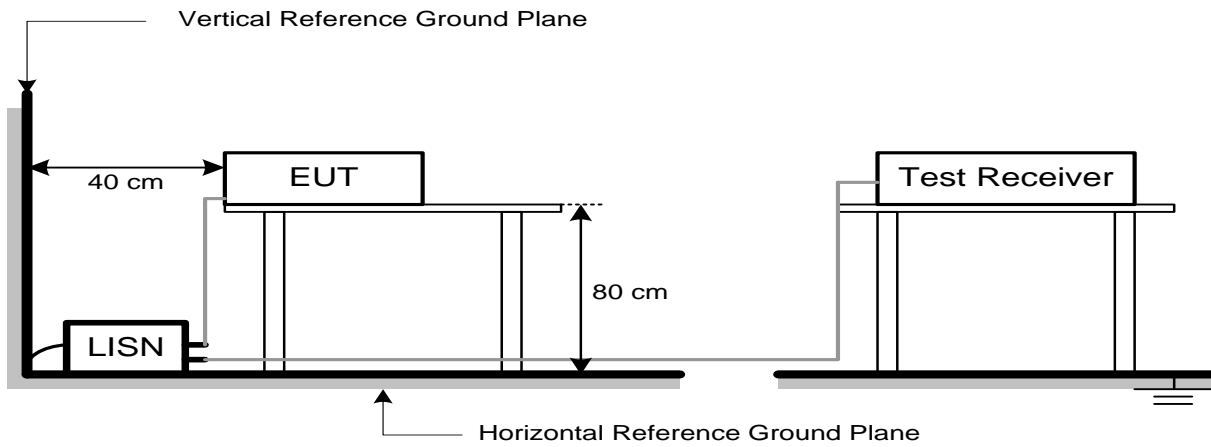
4.1.2 TEST PROCEDURE

- 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



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: 53% Test Voltage: AC 120V/60Hz

4.1.7 TEST RESULTS

Please refer to the Appendix A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a “*” marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150 kHz to 30 MHz.

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

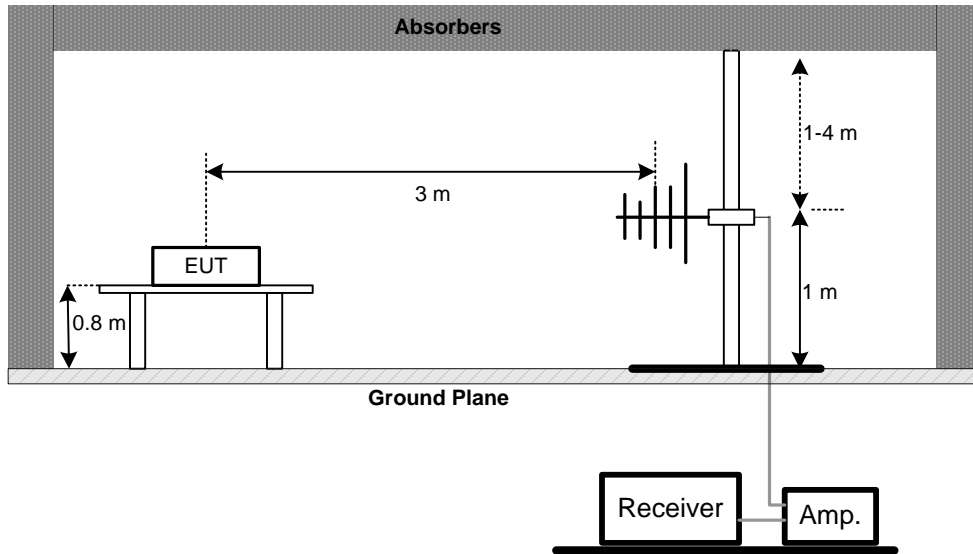
- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- The measuring distance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

4.2.3 DEVIATION FROM TEST STANDARD

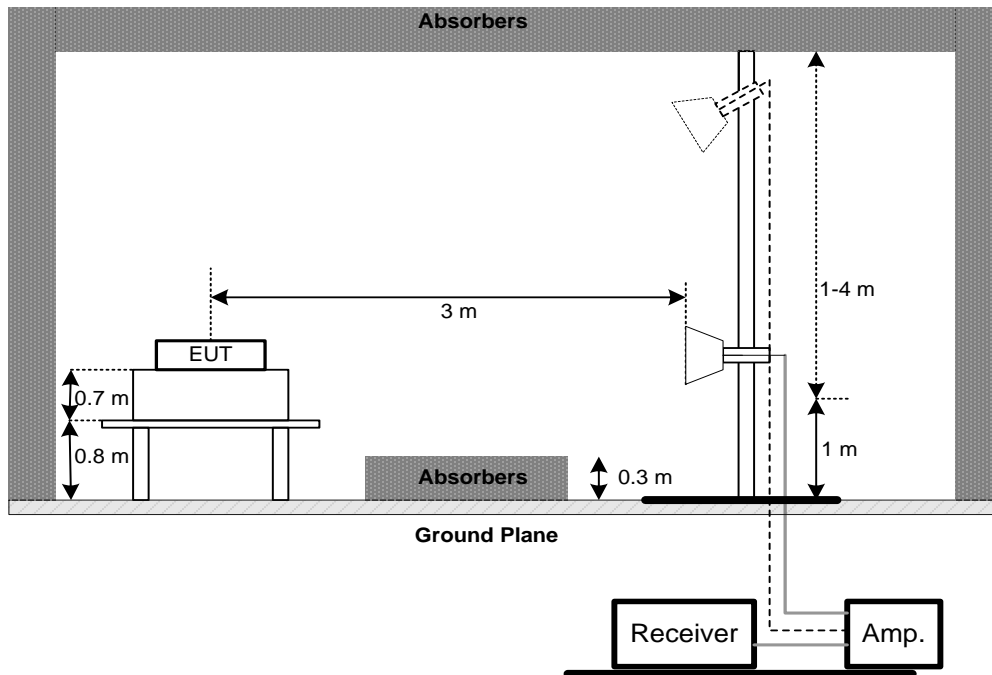
No deviation

4.2.4 TEST SETUP

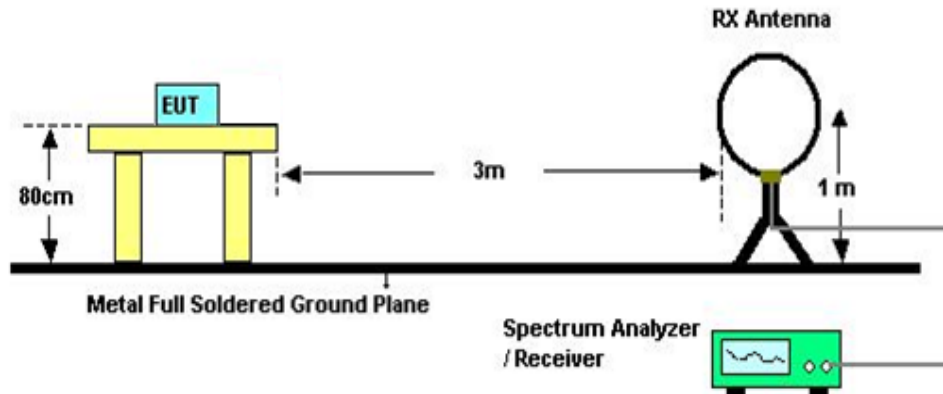
(A) Radiated Emission Test Set-Up Frequency 30 MHz-1000 MHz



(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: 60% Test Voltage: DC 5V

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 = $40 \log (\text{specific distance} / \text{test distance})$ (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. Spectrum Setting: RBW= 100 kHz, VBW=300 kHz, 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: 26°C Relative Humidity: 58% Test Voltage: DC 5V

5.1.6 TEST RESULTS

Please refer to the Appendix E.

6. MAXIMUM 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 30 dBm	2400-2483.5	PASS

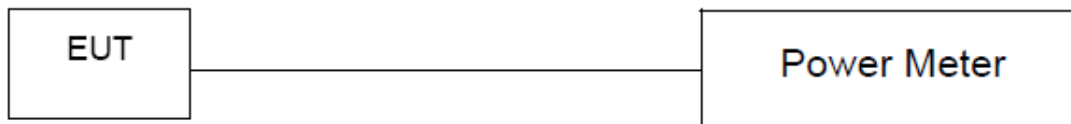
6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. The maximum peak output power was performed in accordance with method 8.3.1.3 of FCC KDB 558074 D01 15.247 Meas Guidance v05 and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.1.5 EUT TEST CONDITIONS

Temperature: 26°C Relative Humidity: 58% Test Voltage: DC 5V

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: 26°C Relative Humidity: 58% Test Voltage: DC 5V

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. 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: 26°C Relative Humidity: 58% Test Voltage: DC 5V

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-9 kHz 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
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

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

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

6 dB Bandwidth

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

Maximum 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.

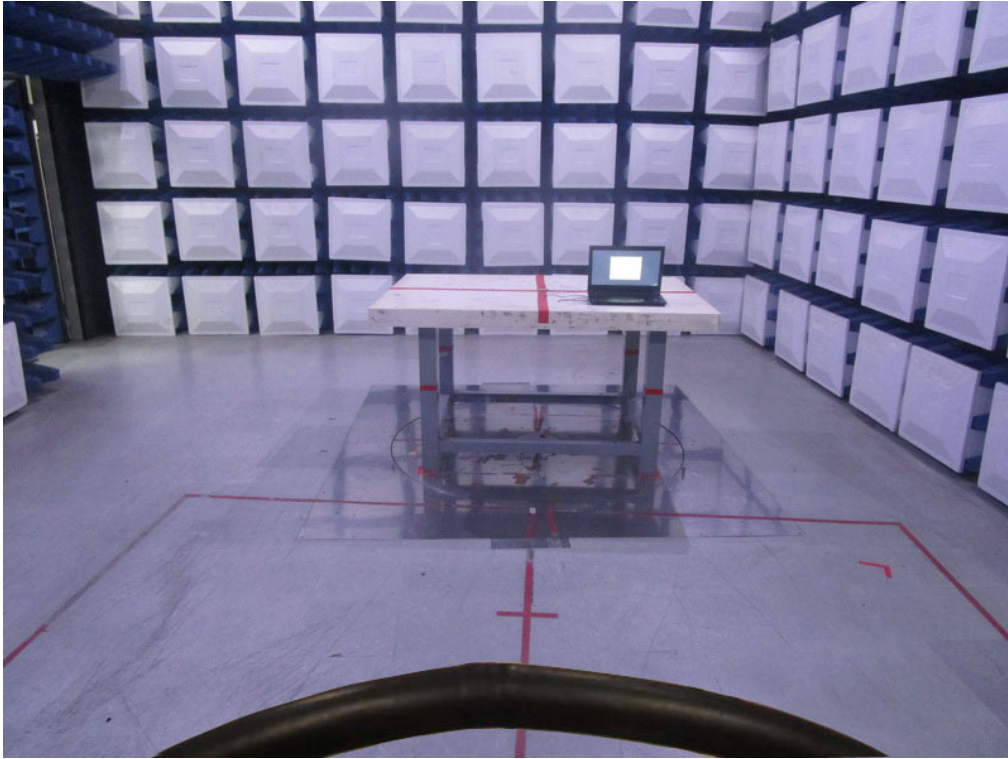
10. EUT TEST PHOTO

Conducted Measurement Photos



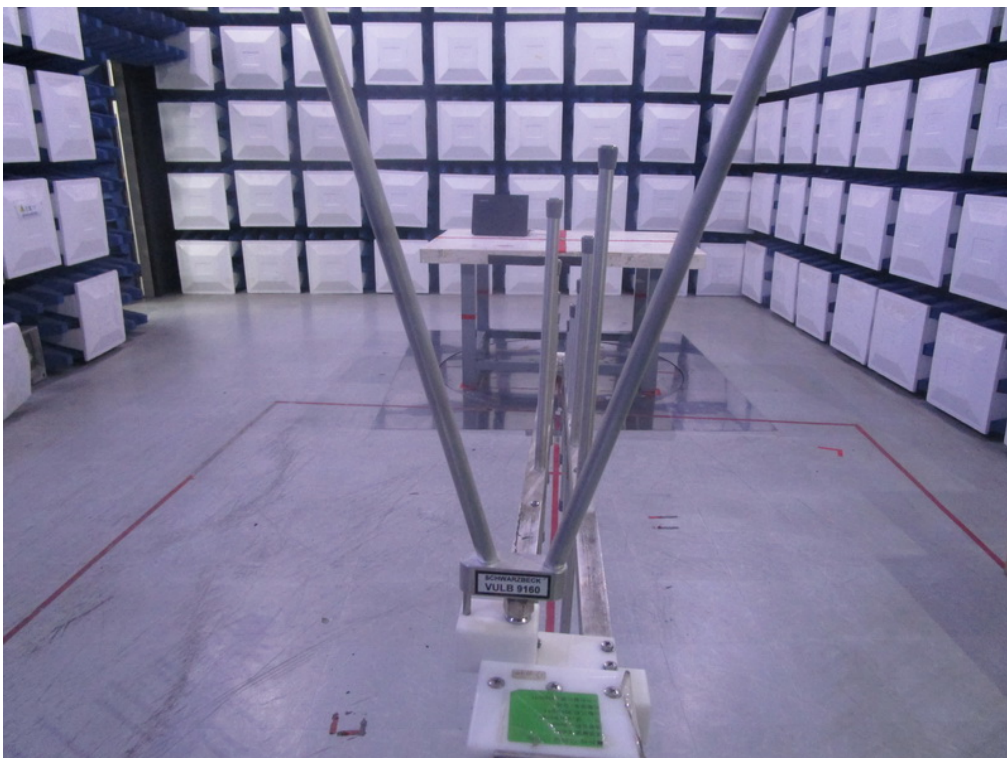
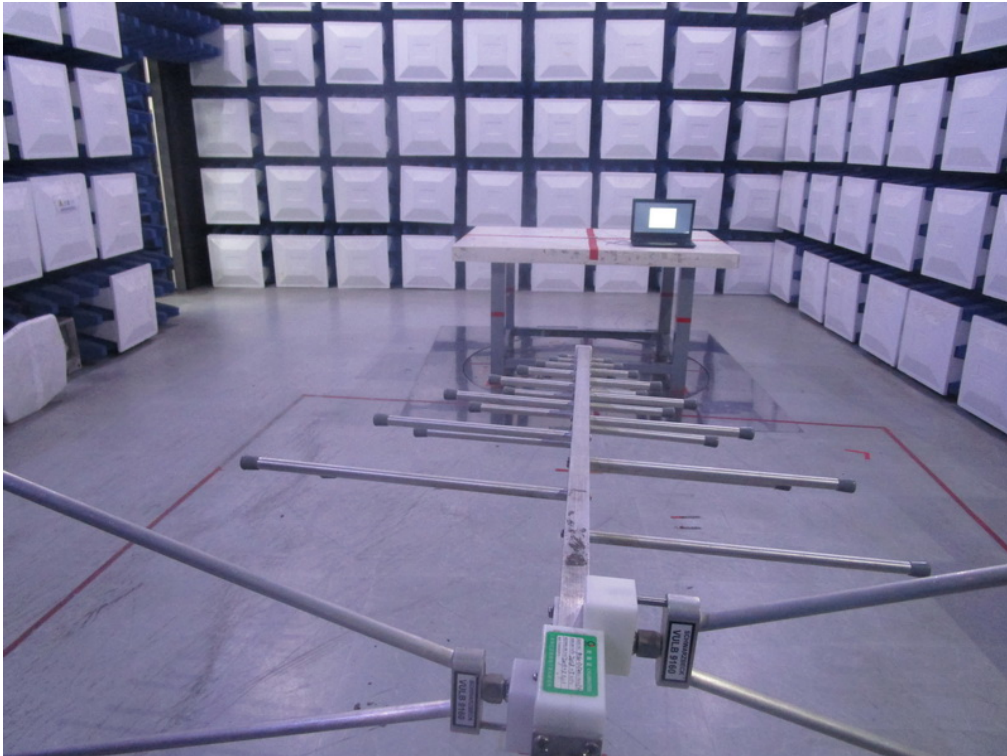
Radiated Measurement Photos

9 kHz to 30 MHz



Radiated Measurement Photos

30 MHz to 1000 MHz



Radiated Measurement Photos

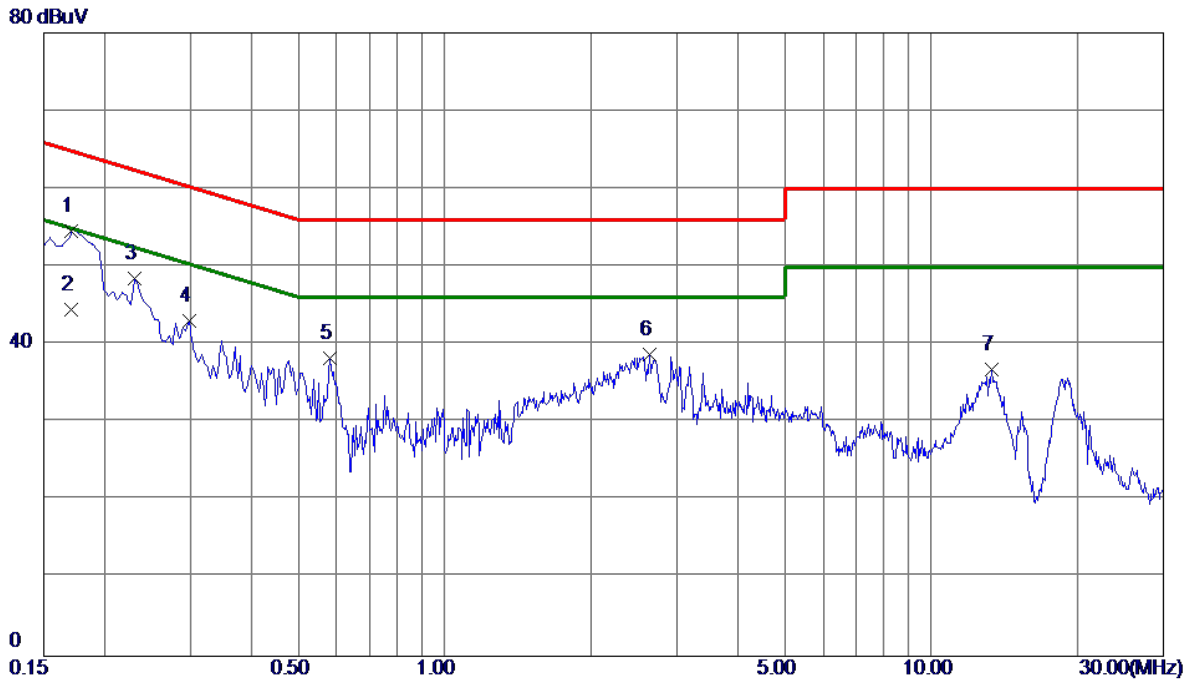
Above 1000 MHz



APPENDIX A - CONDUCTED EMISSION

Test Mode: TX Mode

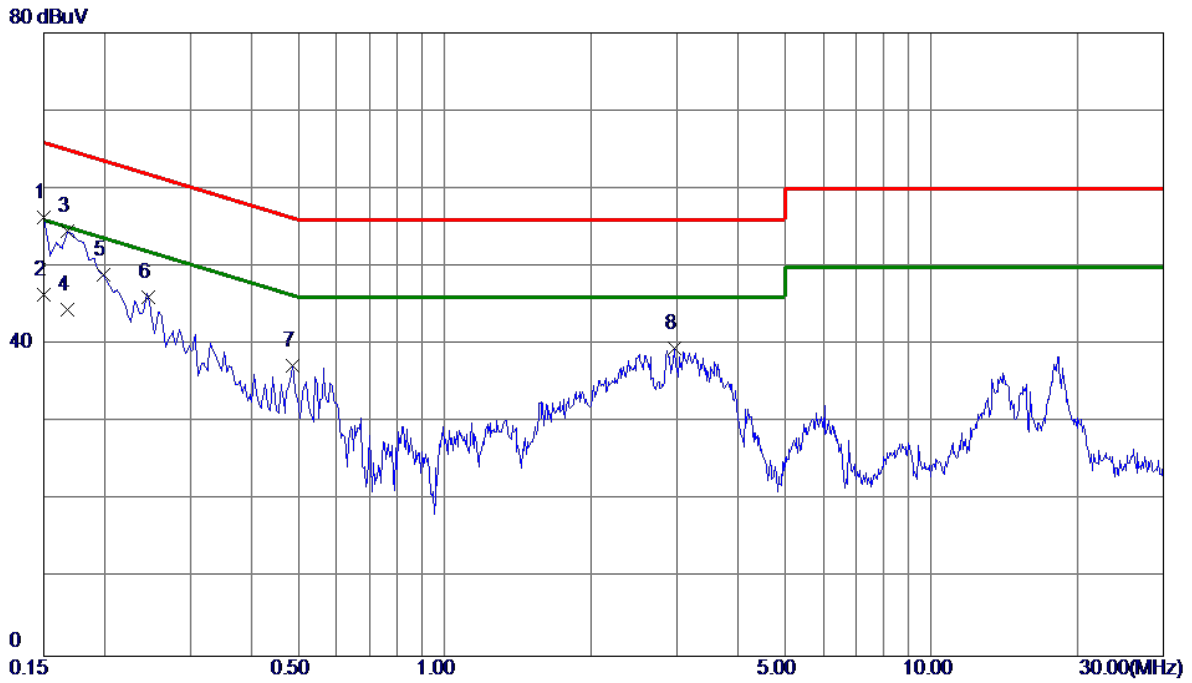
Line



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	0.1712	44.67	9.82	54.49	64.90	-10.41	Peak	
2	0.1712	34.60	9.82	44.42	54.90	-10.48	AVG	
3	0.2310	38.64	9.82	48.46	62.41	-13.95	Peak	
4	0.2985	33.28	9.82	43.10	60.28	-17.18	Peak	
5	0.5820	28.42	9.82	38.24	56.00	-17.76	Peak	
6	2.6385	28.63	10.03	38.66	56.00	-17.34	Peak	
7	13.3125	26.07	10.66	36.73	60.00	-23.27	Peak	

Test Mode: TX Mode

Neutral

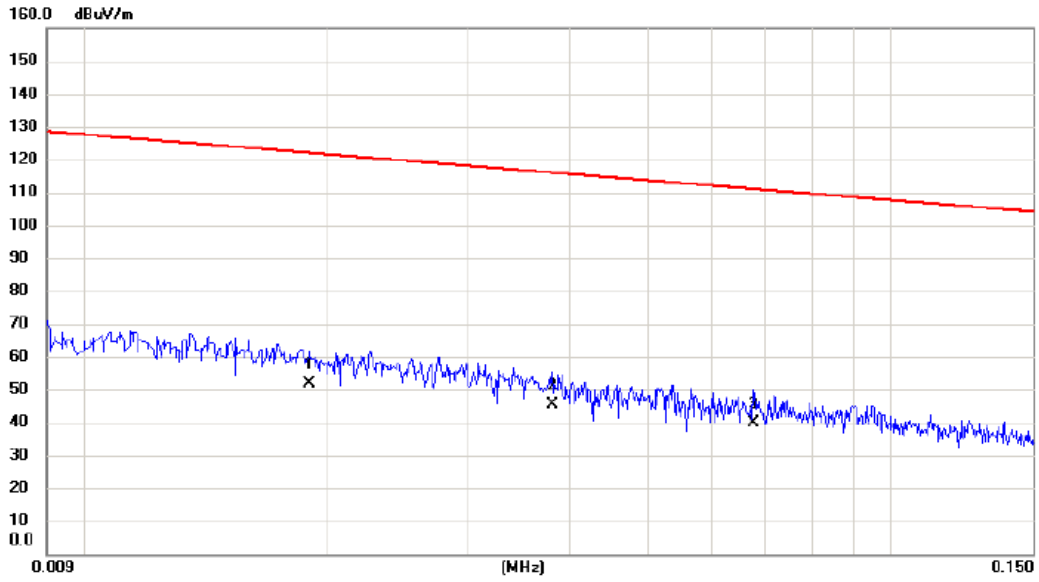


No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1500	46.46	9.91	56.37	66.00	-9.63	Peak	
2 *	0.1500	36.50	9.91	46.41	56.00	-9.59	AVG	
3	0.1680	44.61	9.91	54.52	65.06	-10.54	Peak	
4	0.1680	34.60	9.91	44.51	55.06	-10.55	AVG	
5	0.1995	39.06	9.91	48.97	63.63	-14.66	Peak	
6	0.2455	36.21	9.92	46.13	61.91	-15.78	Peak	
7	0.4875	27.37	9.94	37.31	56.21	-18.90	Peak	
8	2.9625	29.33	10.24	39.57	56.00	-16.43	Peak	

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

Test Mode: TX Mode

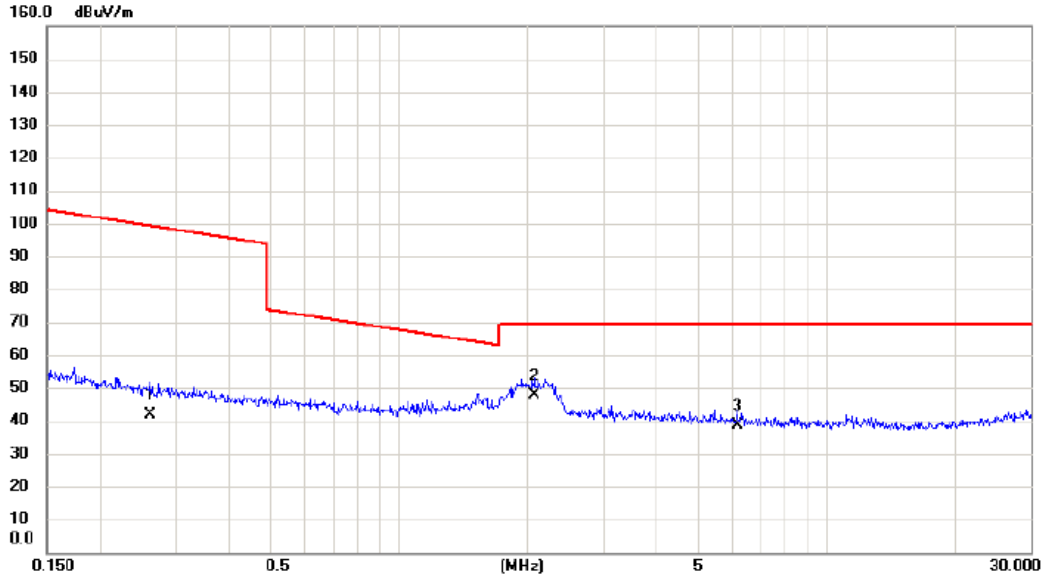
Ant 0°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.0190	31.60	20.16	51.76	122.03	-70.27	AVG	
2		0.0381	25.60	19.73	45.33	115.99	-70.66	AVG	
3		0.0677	20.70	19.18	39.88	110.99	-71.11	AVG	

Test Mode: TX Mode

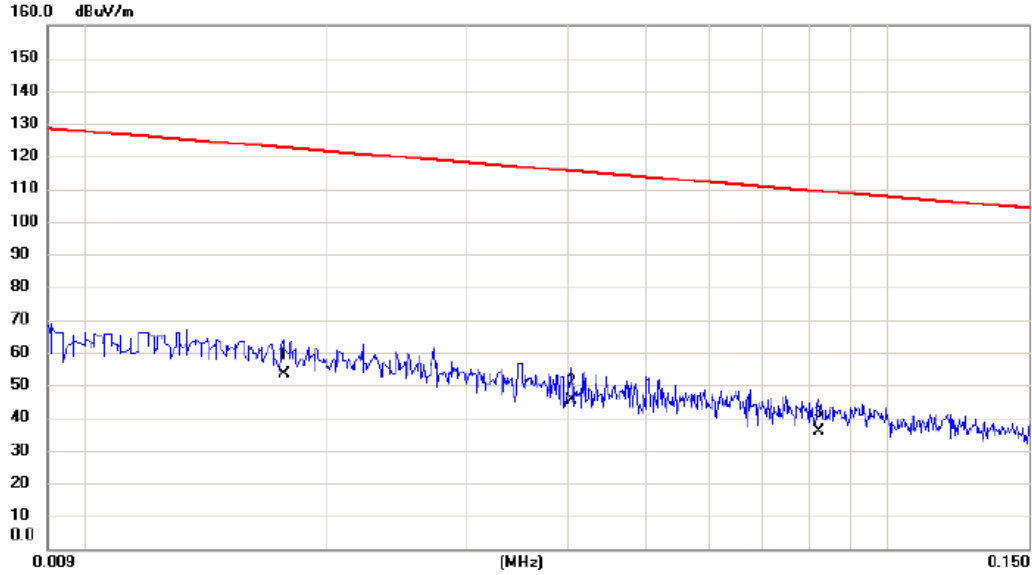
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.2603	24.70	17.06	41.76	99.30	-57.54	AVG	
2	*	2.0660	30.70	17.08	47.78	69.54	-21.76	QP	
3		6.1860	23.50	14.97	38.47	69.54	-31.07	QP	

Test Mode: TX Mode

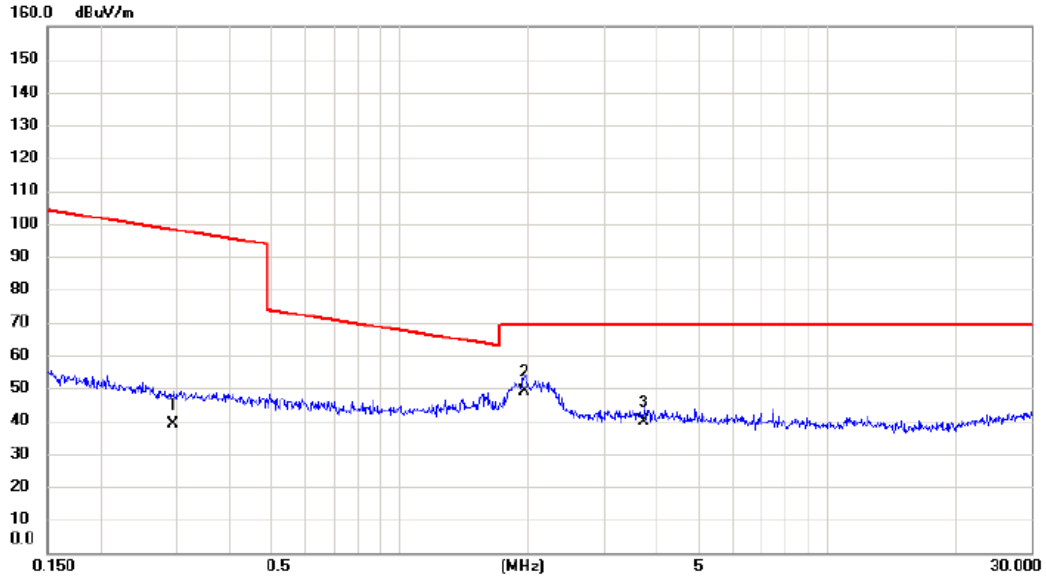
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	0.0177	33.20	20.34	53.54	122.65	-69.11	AVG	
2		0.0404	25.70	19.69	45.39	115.48	-70.09	AVG	
3		0.0820	17.10	18.87	35.97	109.33	-73.36	AVG	

Test Mode: TX Mode

Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.2955	22.16	17.04	39.20	98.19	-58.99	AVG	
2	*	1.9490	31.80	17.08	48.88	69.54	-20.66	QP	
3		3.7198	23.80	15.96	39.76	69.54	-29.78	QP	

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

Test Mode: TX B Mode Channel 01

Vertical

80 dBuV/m

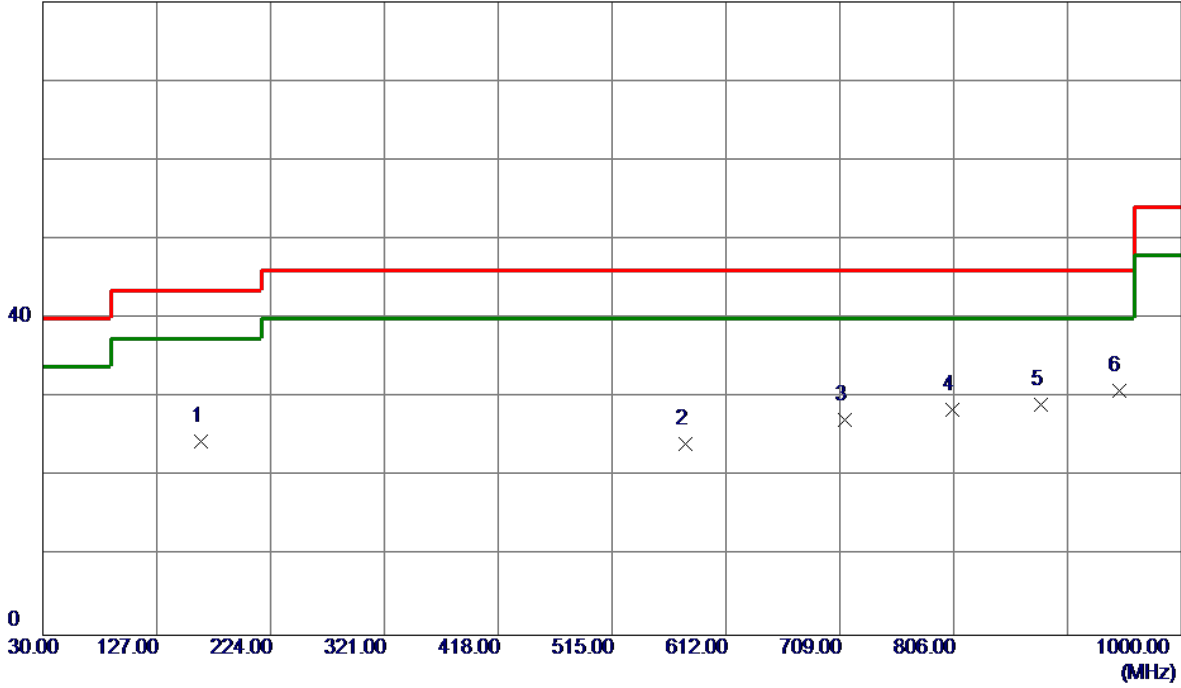


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	46.4900	39.54	-14.77	24.77	40.00	-15.23	Peak	
2	60.0700	40.28	-15.69	24.59	40.00	-15.41	Peak	
3	164.8300	33.58	-10.89	22.69	43.50	-20.81	Peak	
4	801.1500	30.48	-1.06	29.42	46.00	-16.58	Peak	
5	832.1900	32.03	-1.54	30.49	46.00	-15.51	Peak	
6	979.6300	29.48	0.70	30.18	54.00	-23.82	Peak	

Test Mode: TX B Mode Channel 01

Horizontal

80 dBuV/m

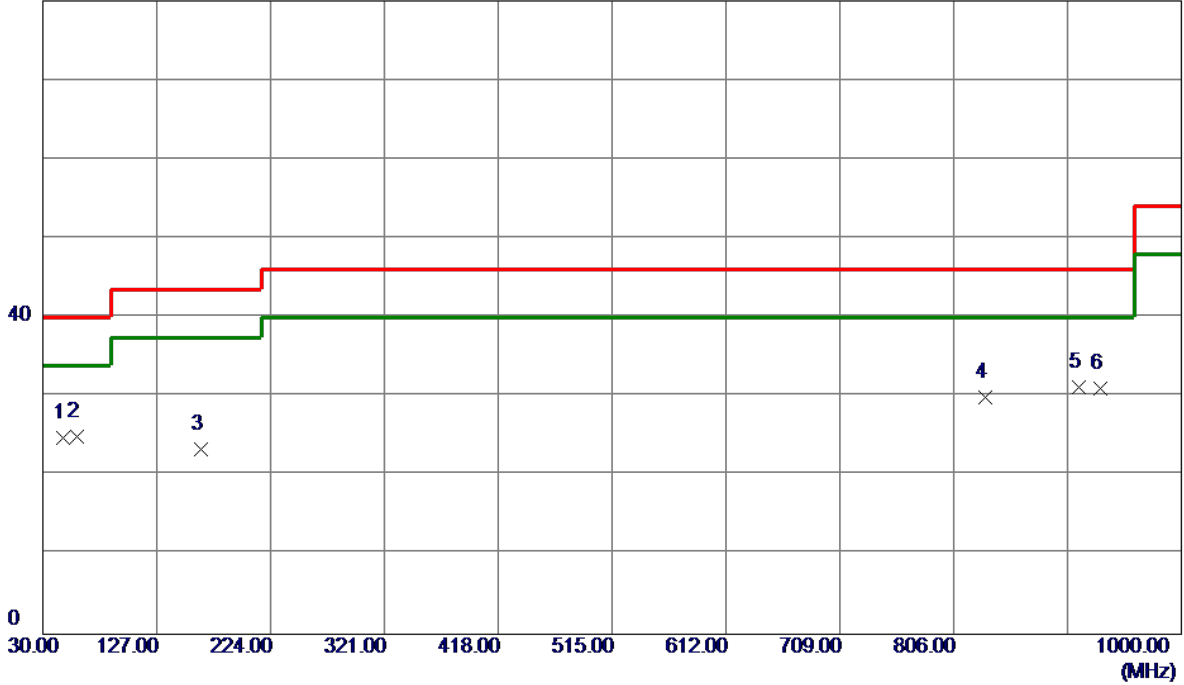


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	164.8300	35.33	-10.89	24.44	43.50	-19.06	Peak	
2	577.0800	30.09	-5.92	24.17	46.00	-21.83	Peak	
3	712.8800	30.21	-3.08	27.13	46.00	-18.87	Peak	
4	805.0300	29.55	-1.12	28.43	46.00	-17.57	Peak	
5	880.6900	30.19	-1.07	29.12	46.00	-16.88	Peak	
6 *	946.6500	29.56	1.28	30.84	46.00	-15.16	Peak	

Test Mode: TX B Mode Channel 06

Vertical

80 dBuV/m

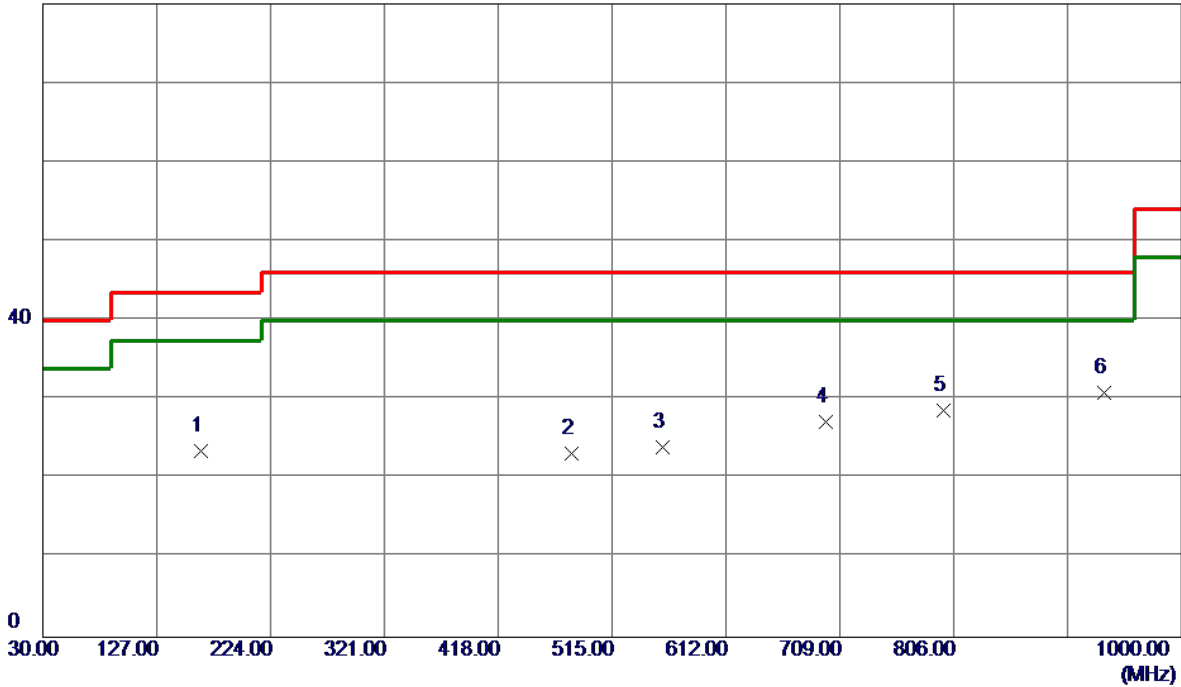


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	47.4600	39.54	-14.81	24.73	40.00	-15.27	Peak	
2	59.1000	40.53	-15.56	24.97	40.00	-15.03	Peak	
3	164.8300	34.19	-10.89	23.30	43.50	-20.20	Peak	
4	833.1599	31.45	-1.56	29.89	46.00	-16.11	Peak	
5 *	912.7000	31.29	-0.09	31.20	46.00	-14.80	Peak	
6	931.1300	30.41	0.65	31.06	46.00	-14.94	Peak	

Test Mode: TX B Mode Channel 06

Horizontal

80 dBuV/m

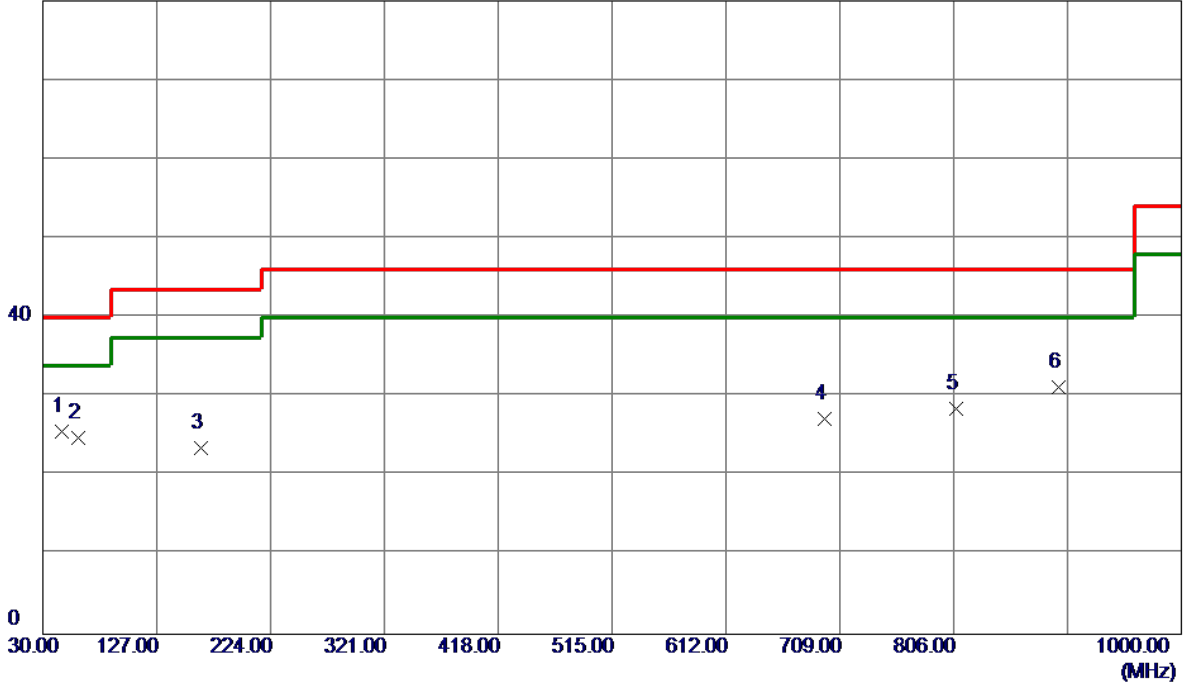


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	164.8300	34.48	-10.89	23.59	43.50	-19.91	Peak	
2	480.0800	31.28	-8.08	23.20	46.00	-22.80	Peak	
3	557.6800	29.59	-5.59	24.00	46.00	-22.00	Peak	
4	697.3600	30.13	-2.87	27.26	46.00	-18.74	Peak	
5	797.2700	29.85	-1.20	28.65	46.00	-17.35	Peak	
6 *	934.0400	30.07	0.77	30.84	46.00	-15.16	Peak	

Test Mode: TX B Mode Channel 11

Vertical

80 dBuV/m

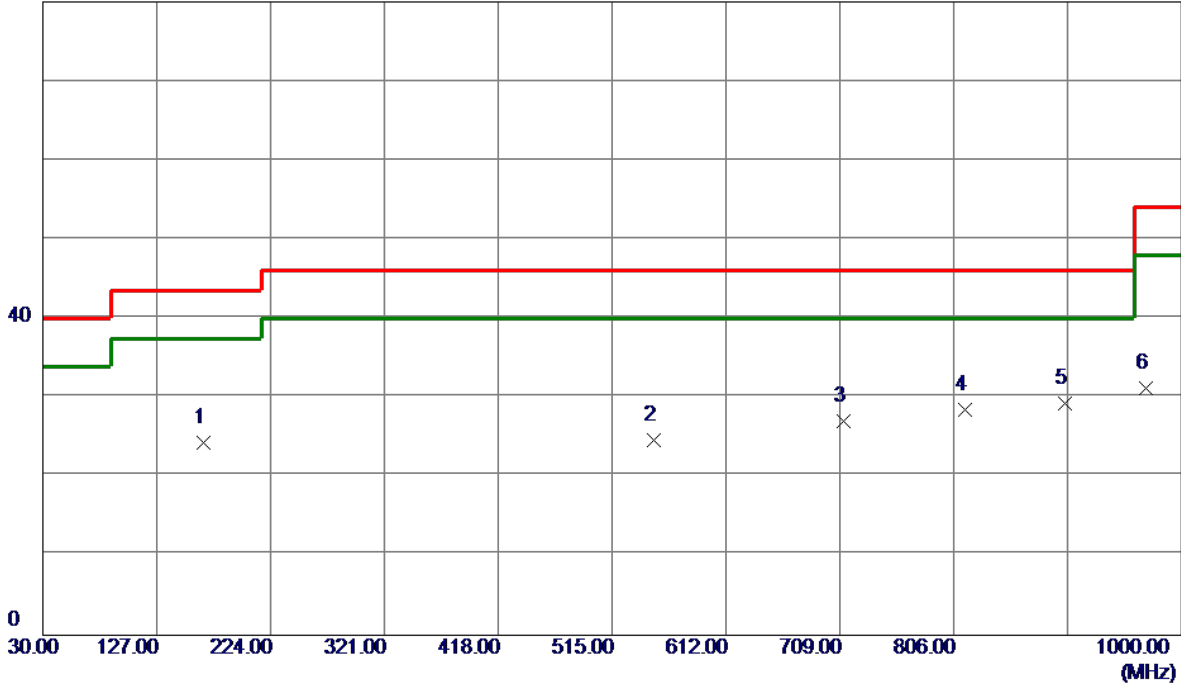


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	46.4900	40.31	-14.77	25.54	40.00	-14.46	Peak	
2	60.0700	40.43	-15.69	24.74	40.00	-15.26	Peak	
3	164.8300	34.43	-10.89	23.54	43.50	-19.96	Peak	
4	696.3900	30.08	-2.92	27.16	46.00	-18.84	Peak	
5	807.9400	29.70	-1.16	28.54	46.00	-17.46	Peak	
6	895.2400	31.85	-0.72	31.13	46.00	-14.87	Peak	

Test Mode: TX B Mode Channel 11

Horizontal

80 dBuV/m



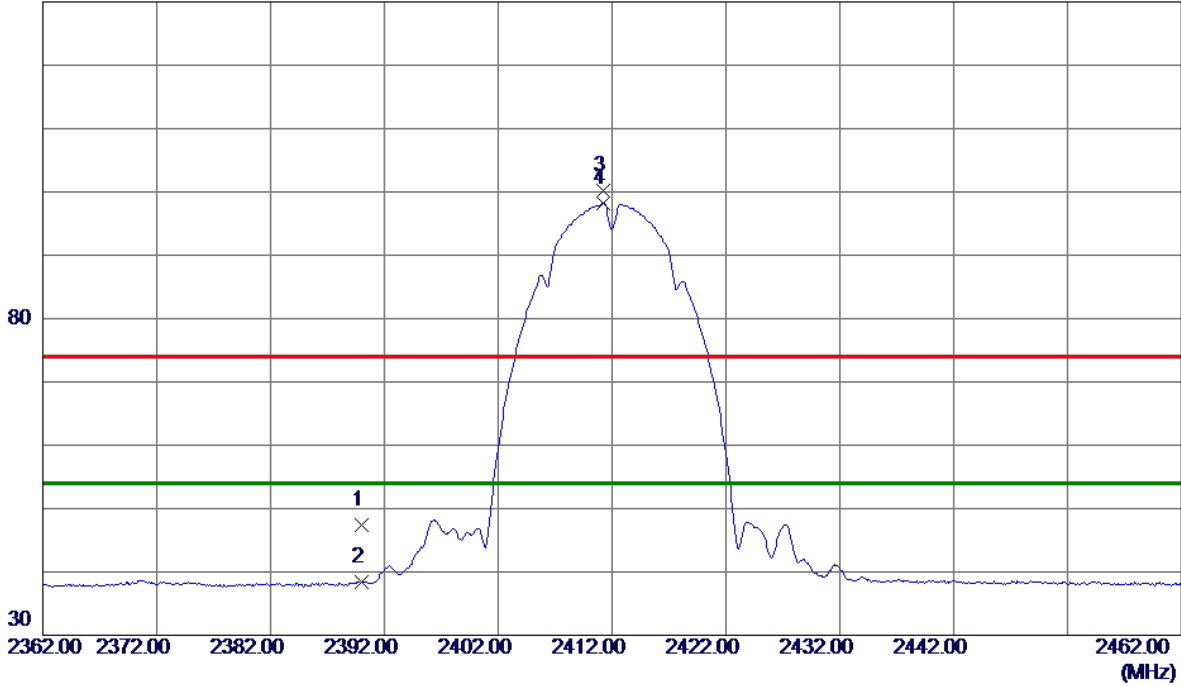
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	166.7700	35.31	-11.01	24.30	43.50	-19.20	Peak	
2	550.8900	30.06	-5.48	24.58	46.00	-21.42	Peak	
3	711.9099	30.12	-3.05	27.07	46.00	-18.93	Peak	
4	815.7000	29.77	-1.29	28.48	46.00	-17.52	Peak	
5 *	901.0600	29.79	-0.56	29.23	46.00	-16.77	Peak	
6	969.9300	30.33	0.94	31.27	54.00	-22.73	Peak	

APPENDIX D - RADIATED EMISSION (ABOVE 1000 MHZ)

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical

130 dBuV/m

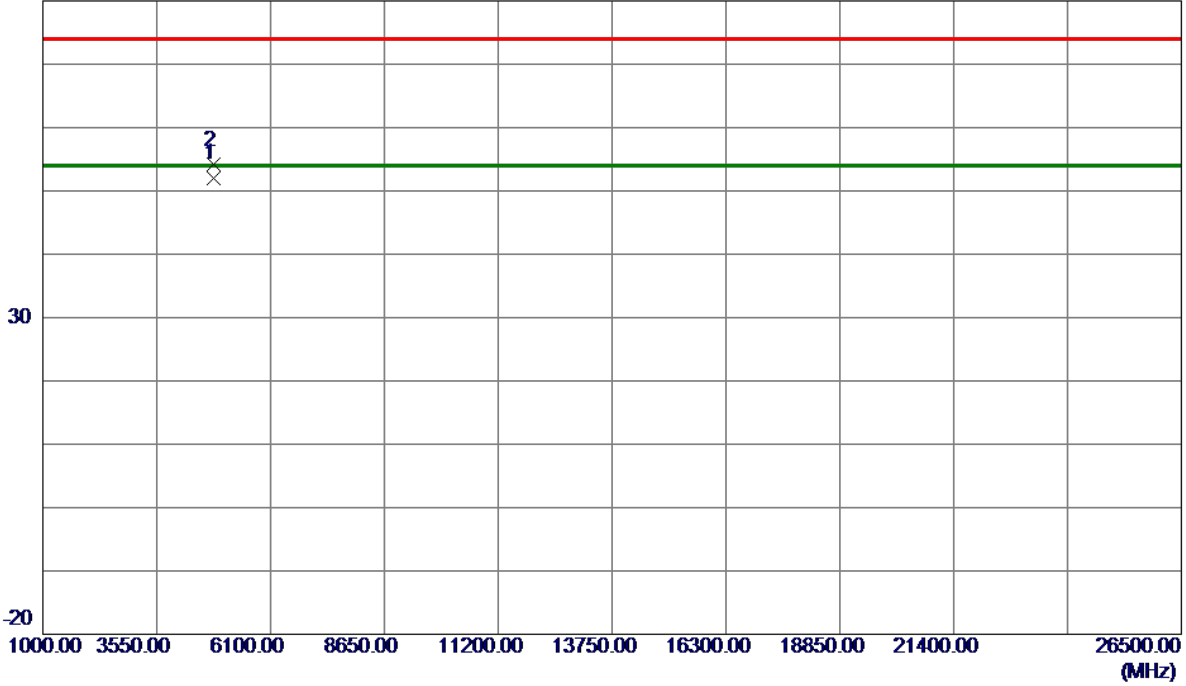


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	39.97	7.39	47.36	74.00	-26.64	Peak	
2	2390.0000	31.04	7.39	38.43	54.00	-15.57	AVG	
3	2411.2000	92.74	7.37	100.11	74.00	26.11	Peak	No Limit
4 *	2411.2000	90.81	7.37	98.18	54.00	44.18	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical

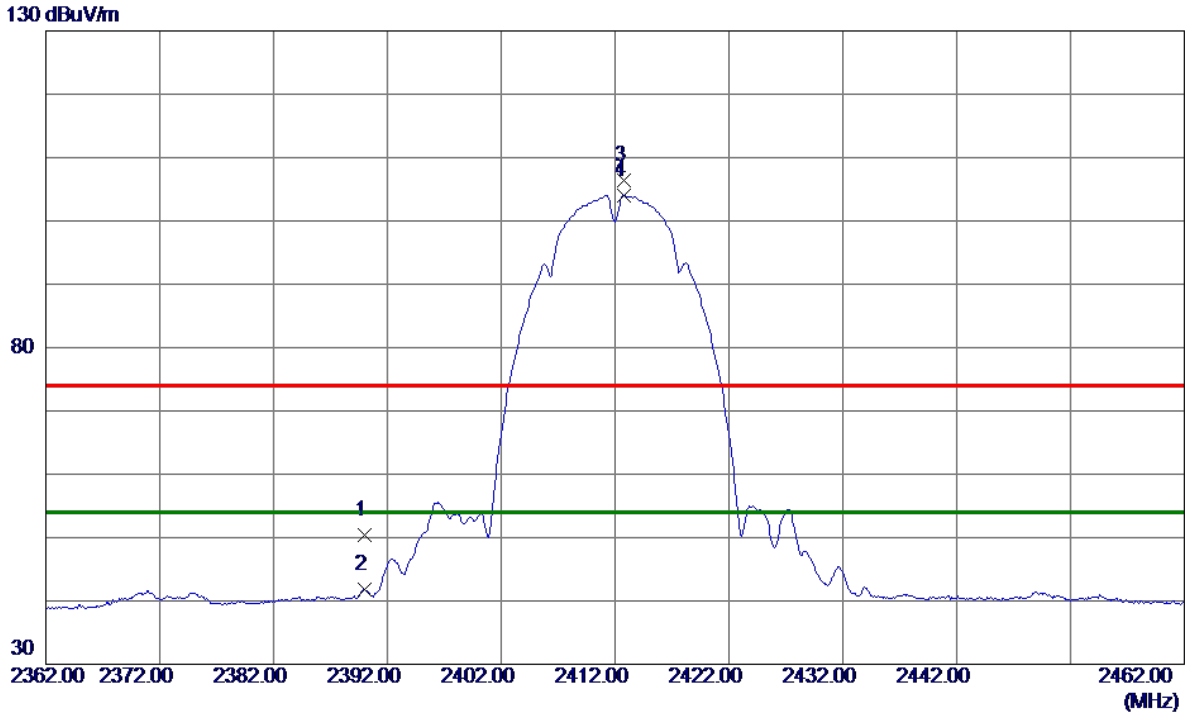
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4823.9140	48.46	3.49	51.95	54.00	-2.05	AVG	
2	4823.9340	50.61	3.49	54.10	74.00	-19.90	Peak	

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Horizontal

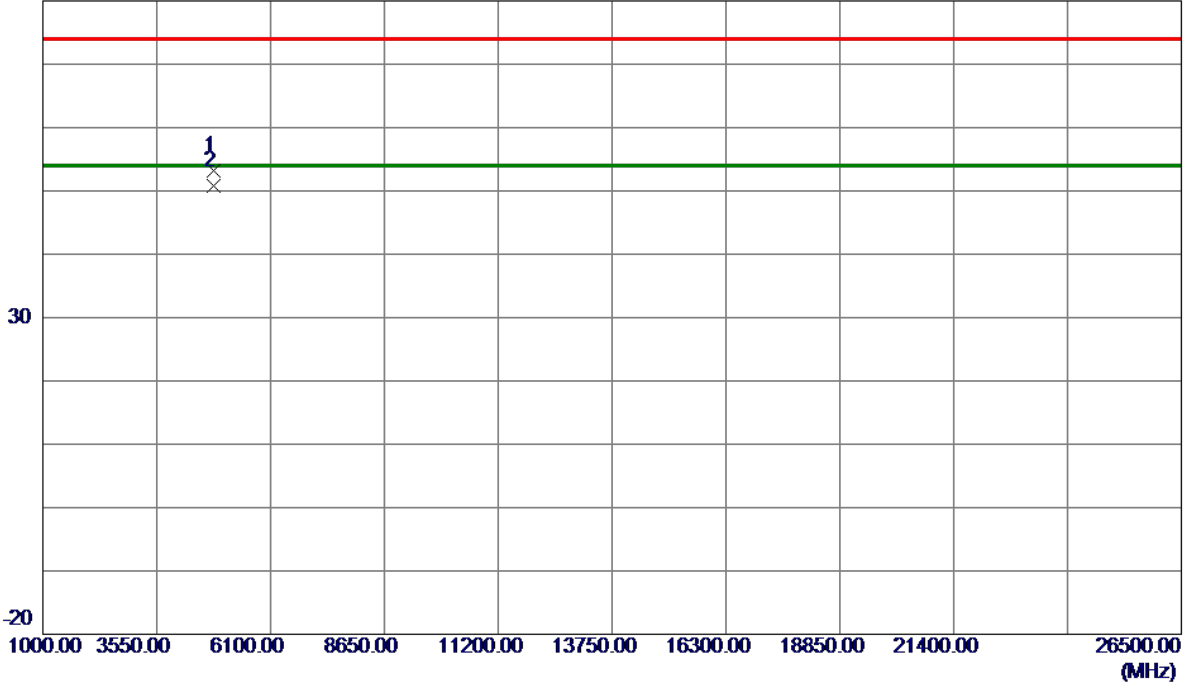


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	43.05	7.39	50.44	74.00	-23.56	Peak	
2	2390.0000	34.45	7.39	41.84	54.00	-12.16	AVG	
3	2412.8000	98.98	7.37	106.35	74.00	32.35	Peak	No Limit
4 *	2412.8000	96.67	7.37	104.04	54.00	50.04	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Horizontal

80 dBuV/m

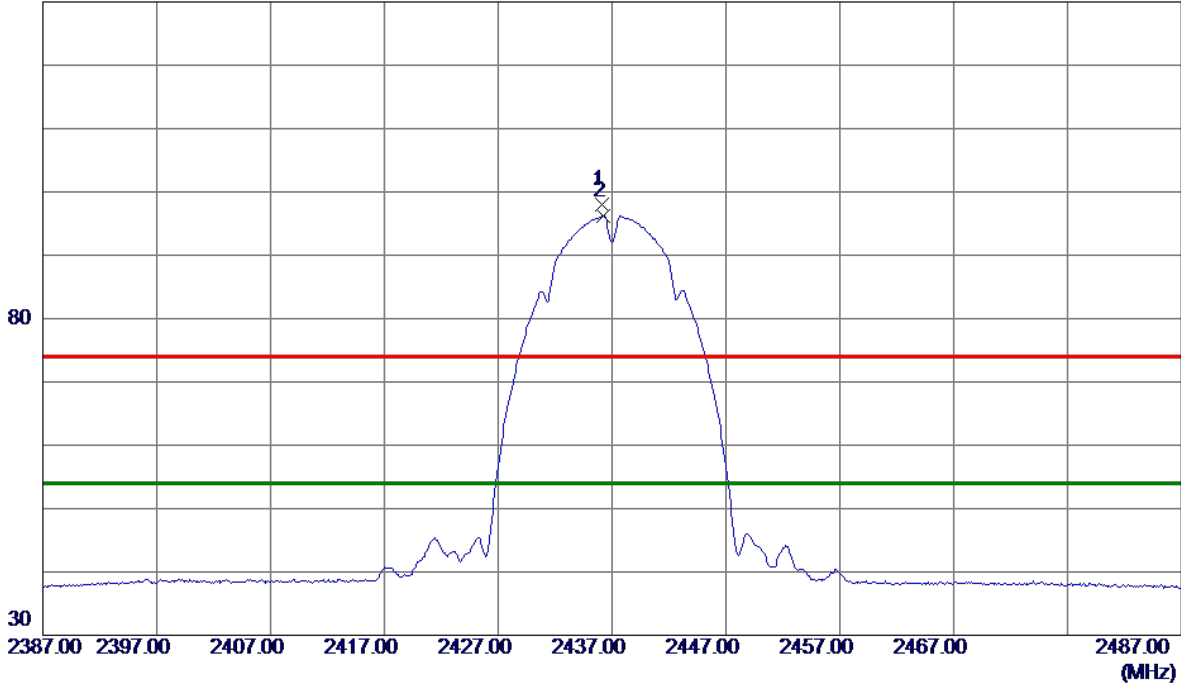


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4823.8780	49.62	3.49	53.11	74.00	-20.89	Peak	
2 *	4823.9300	47.32	3.49	50.81	54.00	-3.19	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Vertical

130 dBuV/m

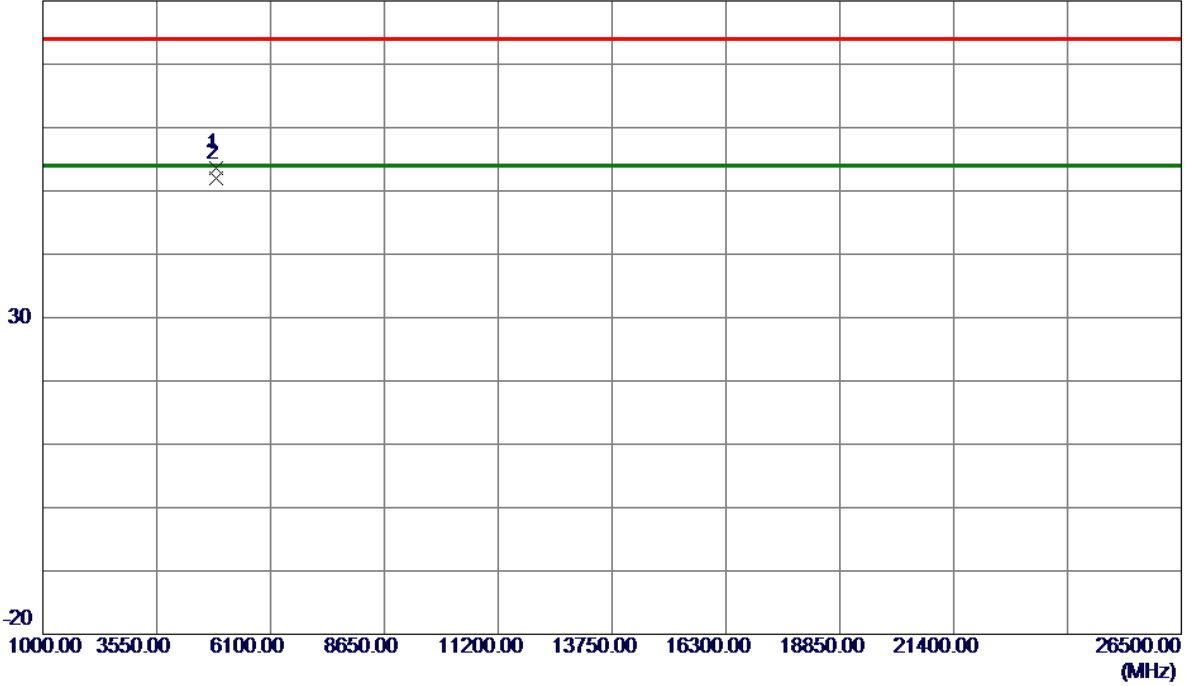


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2436.1000	90.68	7.35	98.03	74.00	24.03	Peak	No Limit
2 *	2436.2000	88.85	7.35	96.20	54.00	42.20	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Vertical

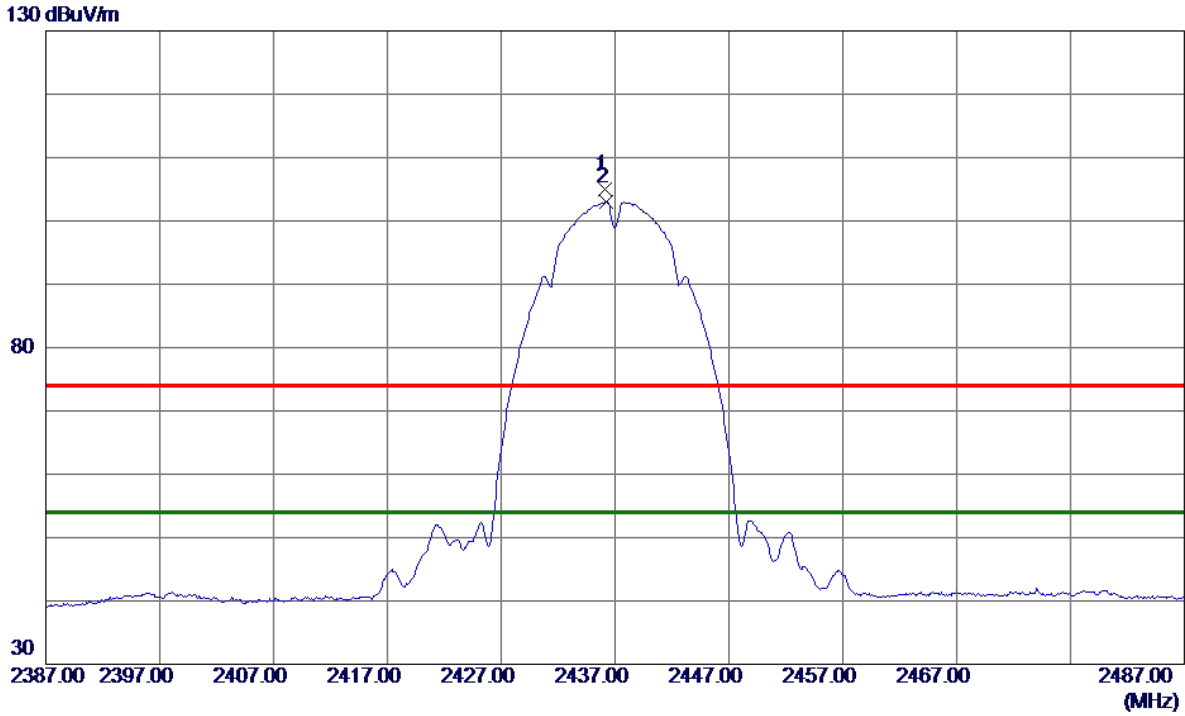
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4873.8640	49.98	3.61	53.59	74.00	-20.41	Peak	
2 *	4873.9400	48.34	3.61	51.95	54.00	-2.05	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Horizontal

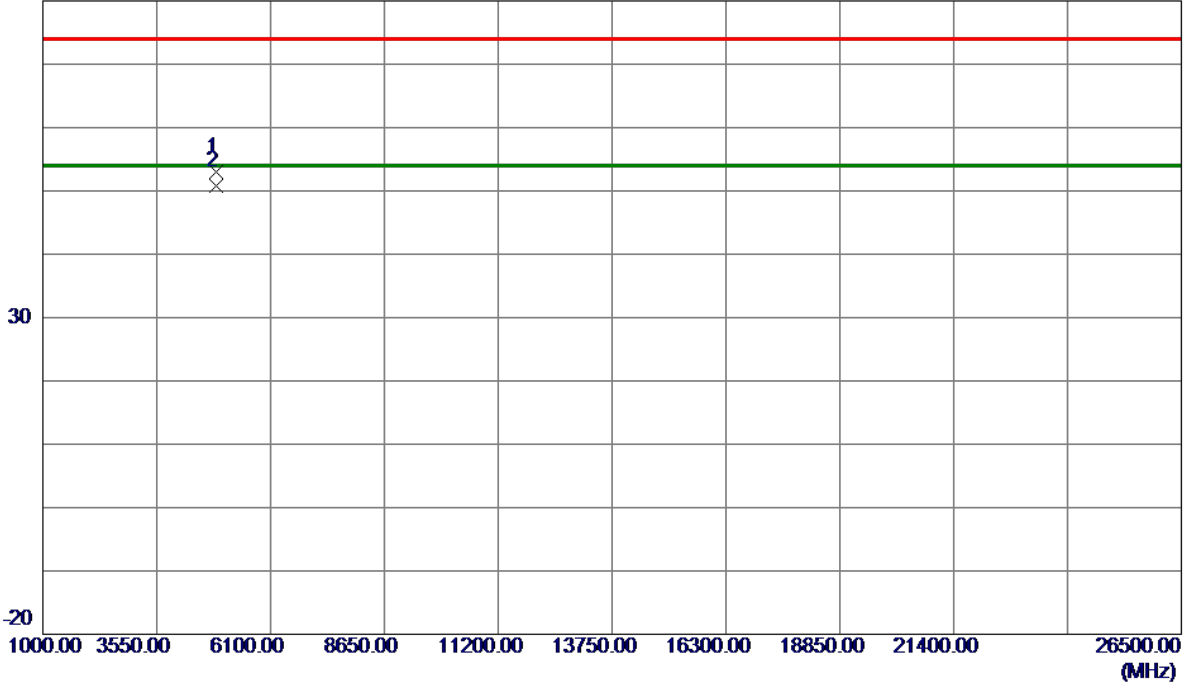


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2436.1000	97.66	7.35	105.01	74.00	31.01	Peak	No Limit
2 *	2436.2000	95.66	7.35	103.01	54.00	49.01	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Horizontal

80 dBuV/m

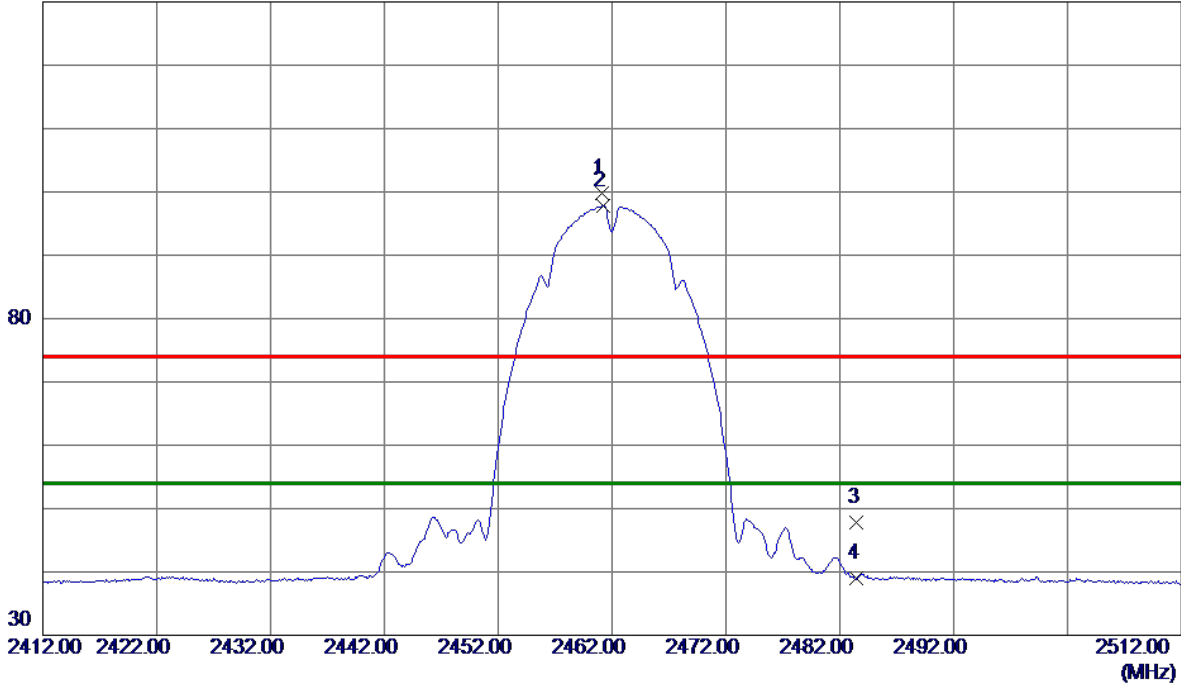


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4873.9260	49.40	3.61	53.01	74.00	-20.99	Peak	
2 *	4873.9520	47.21	3.61	50.82	54.00	-3.18	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical

130 dBuV/m

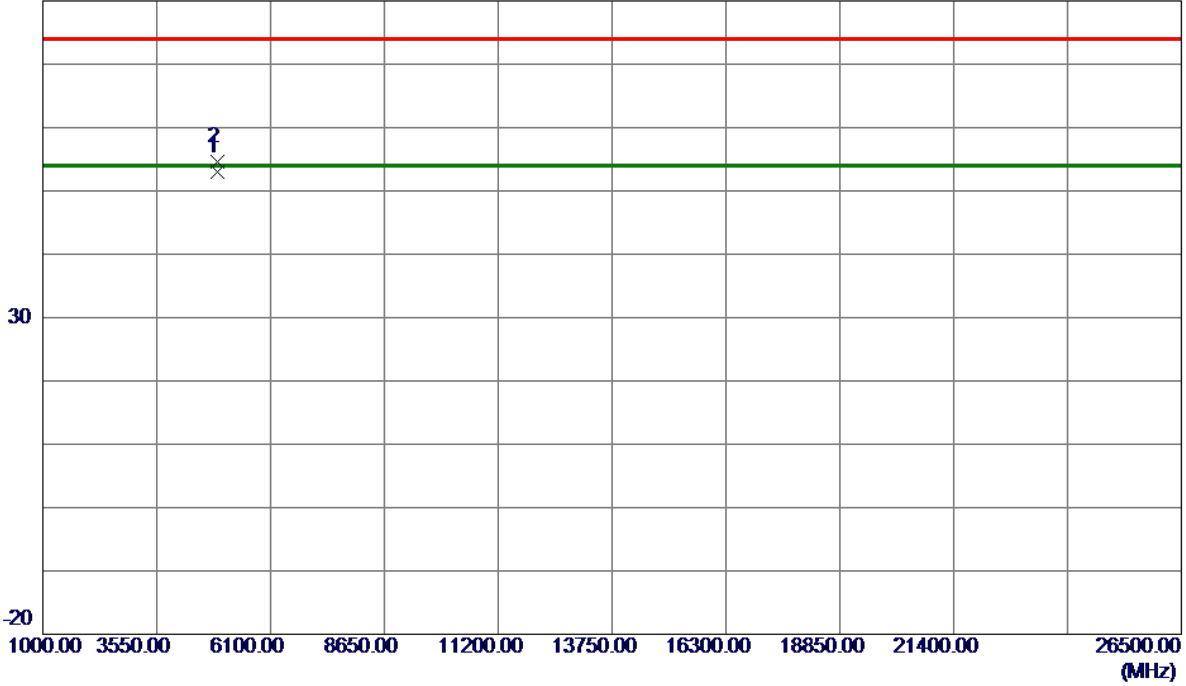


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2461.1000	92.41	7.33	99.74	74.00	25.74	Peak	No Limit
2 *	2461.2000	90.47	7.33	97.80	54.00	43.80	AVG	No Limit
3	2483.5000	40.47	7.32	47.79	74.00	-26.21	Peak	
4	2483.5000	31.66	7.32	38.98	54.00	-15.02	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical

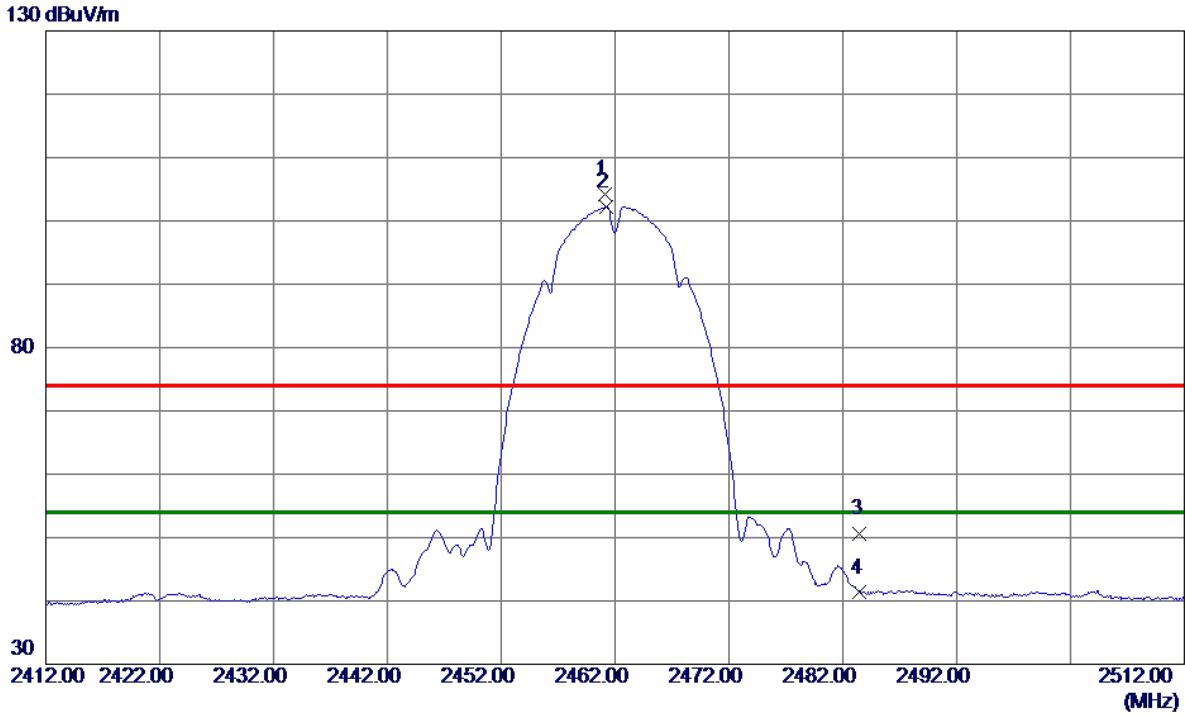
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4923.9300	49.24	3.73	52.97	54.00	-1.03	AVG	
2	4924.0400	50.79	3.73	54.52	74.00	-19.48	Peak	

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal

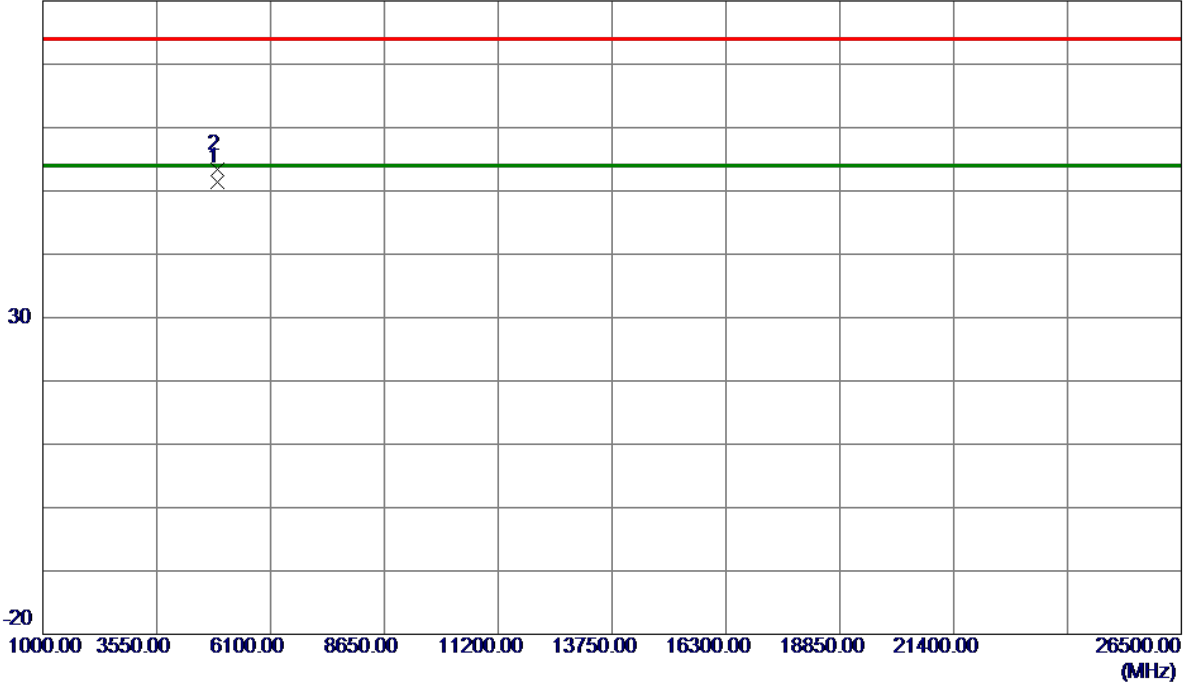


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2461.1000	96.79	7.33	104.12	74.00	30.12	Peak	No Limit
2 *	2461.2000	94.89	7.33	102.22	54.00	48.22	AVG	No Limit
3	2483.5000	43.25	7.32	50.57	74.00	-23.43	Peak	
4	2483.5000	33.98	7.32	41.30	54.00	-12.70	AVG	

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal

80 dBuV/m

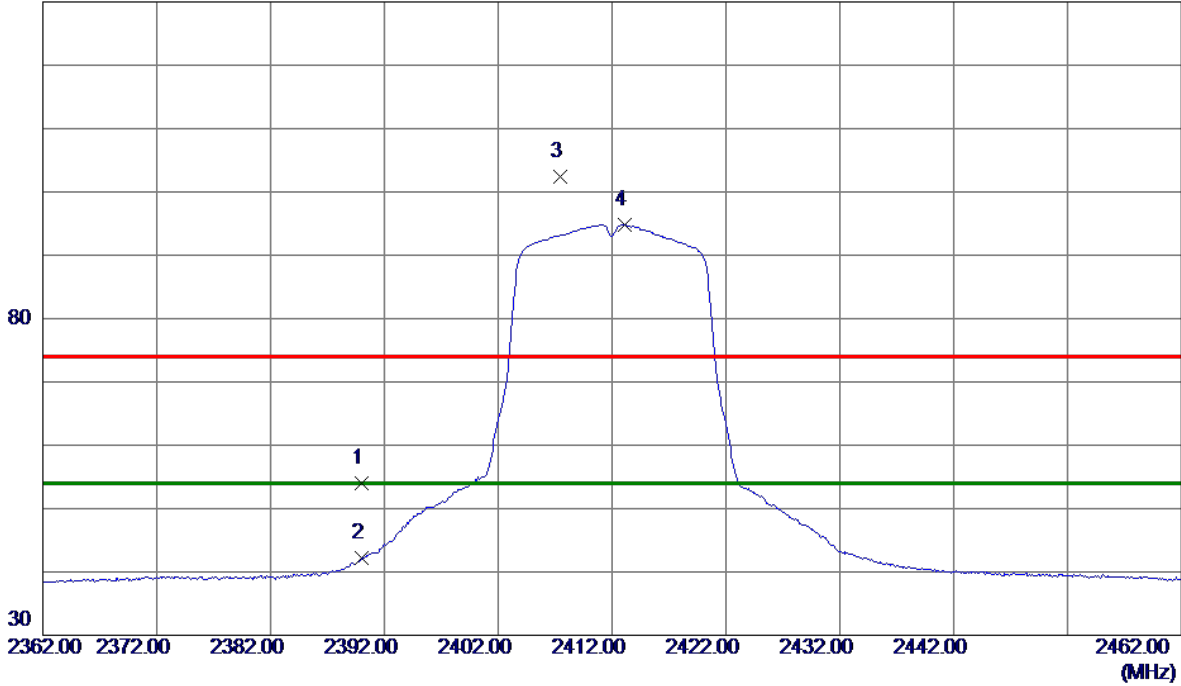


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4923.9420	47.65	3.73	51.38	54.00	-2.62	AVG	
2	4924.0700	49.65	3.73	53.38	74.00	-20.62	Peak	

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Vertical

130 dBuV/m

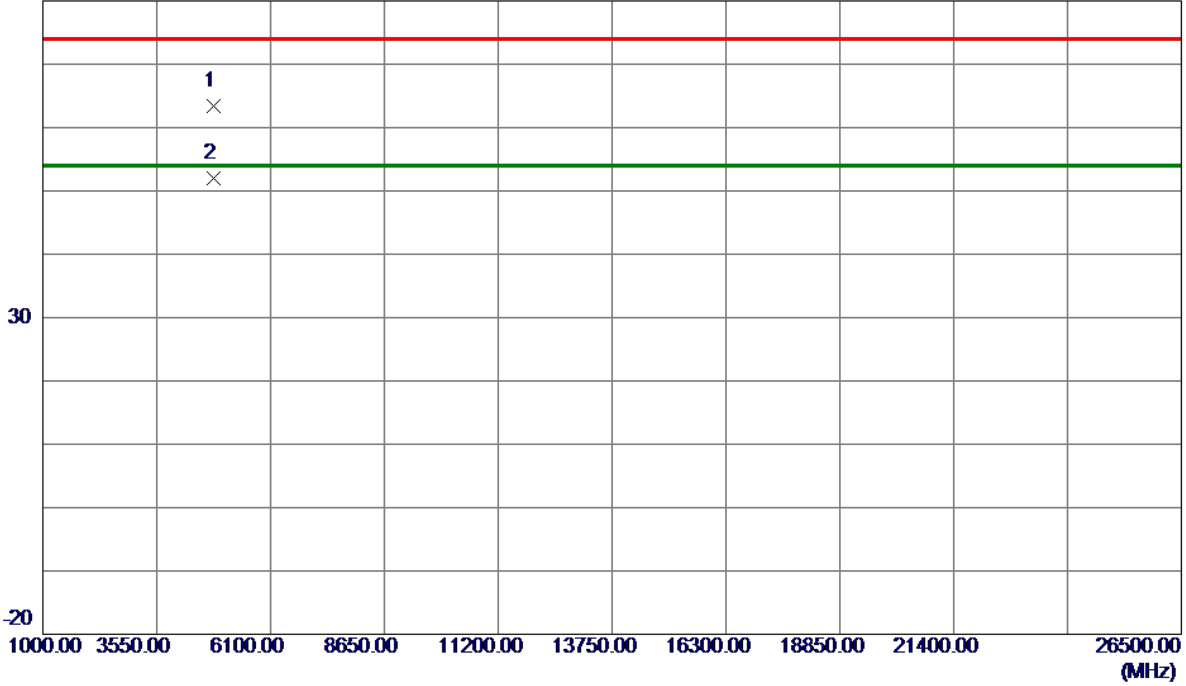


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	46.58	7.39	53.97	74.00	-20.03	Peak	
2	2390.0000	34.84	7.39	42.23	54.00	-11.77	AVG	
3	2407.4000	95.01	7.37	102.38	74.00	28.38	Peak	No Limit
4 *	2413.1000	87.43	7.37	94.80	54.00	40.80	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Vertical

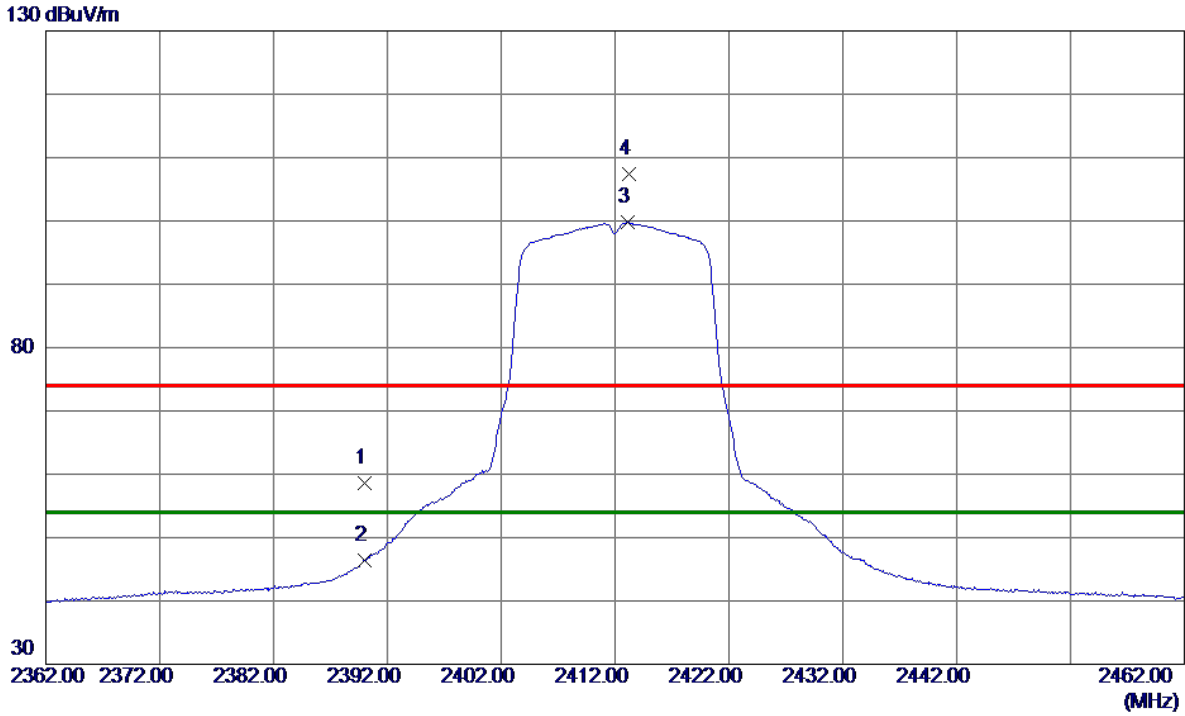
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4825.7799	59.89	3.50	63.39	74.00	-10.61	Peak	
2 *	4825.9000	48.50	3.50	52.00	54.00	-2.00	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Horizontal

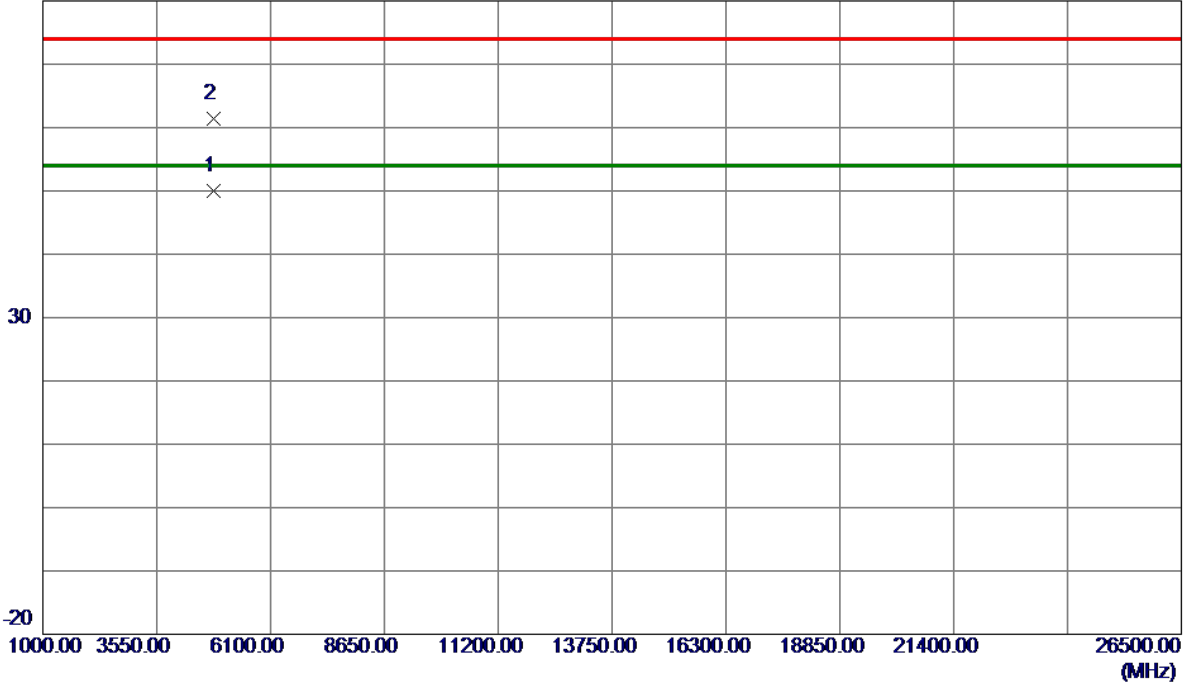


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	51.20	7.39	58.59	74.00	-15.41	Peak	
2	2390.0000	38.94	7.39	46.33	54.00	-7.67	AVG	
3 *	2413.1000	92.38	7.37	99.75	54.00	45.75	AVG	No Limit
4	2413.2000	100.01	7.37	107.38	74.00	33.38	Peak	No Limit

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Horizontal

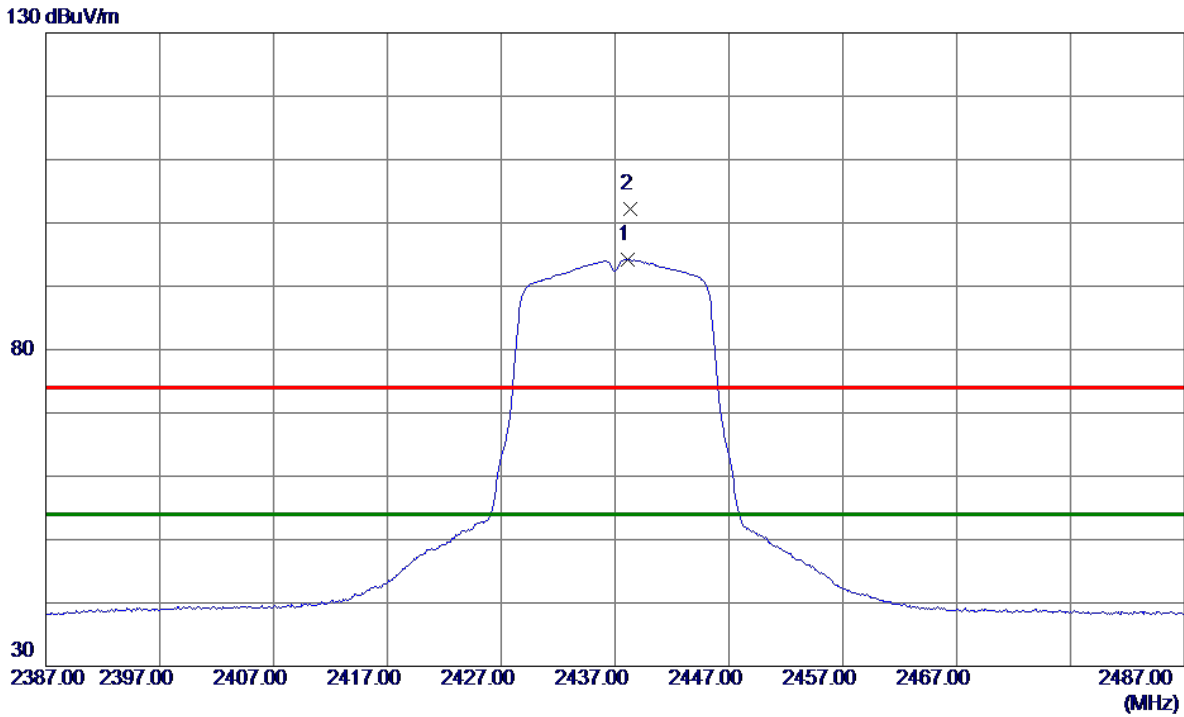
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4825.3200	46.49	3.50	49.99	54.00	-4.01	AVG	
2	4829.7799	57.88	3.51	61.39	74.00	-12.61	Peak	

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Vertical

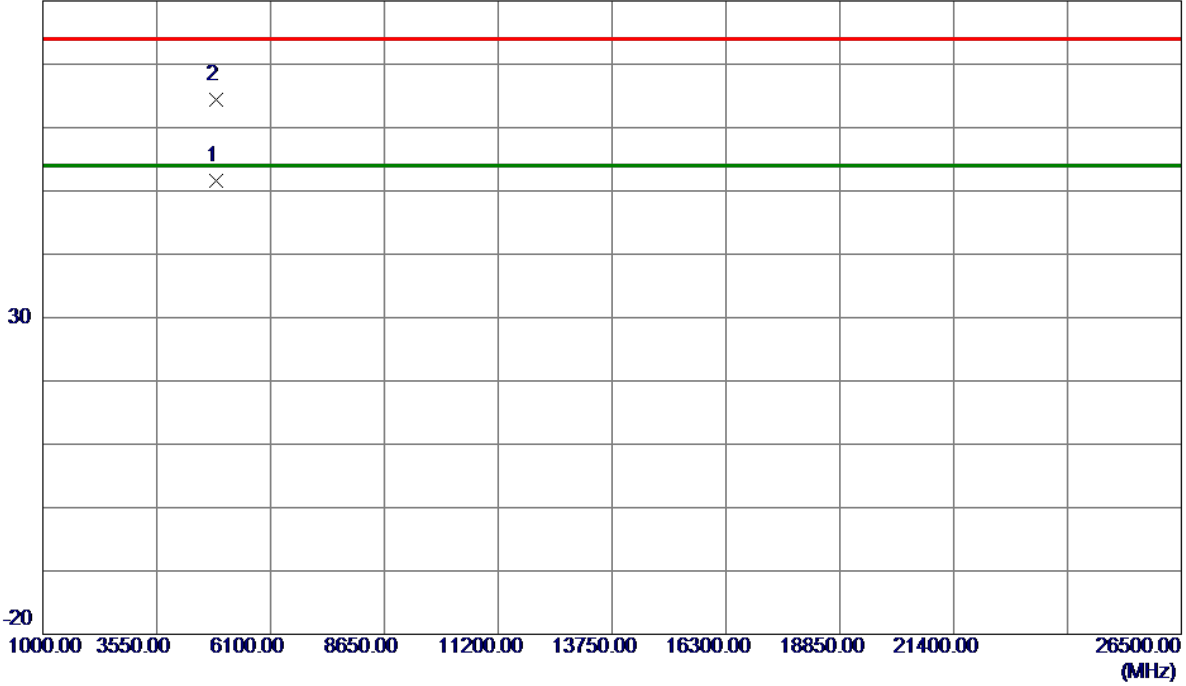


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2438.1000	86.92	7.35	94.27	54.00	40.27	AVG	No Limit
2	2438.3000	94.91	7.35	102.26	74.00	28.26	Peak	No Limit

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Vertical

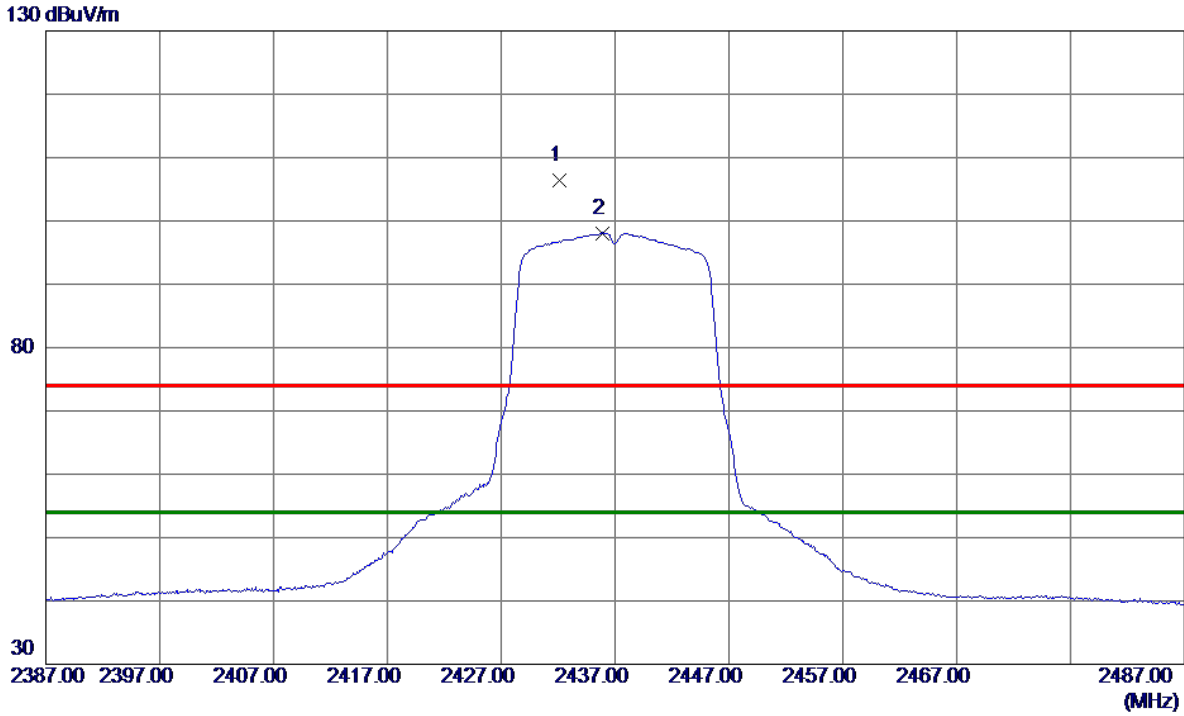
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4877.3600	47.93	3.62	51.55	54.00	-2.45	AVG	
2	4879.7000	60.69	3.63	64.32	74.00	-9.68	Peak	

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Horizontal

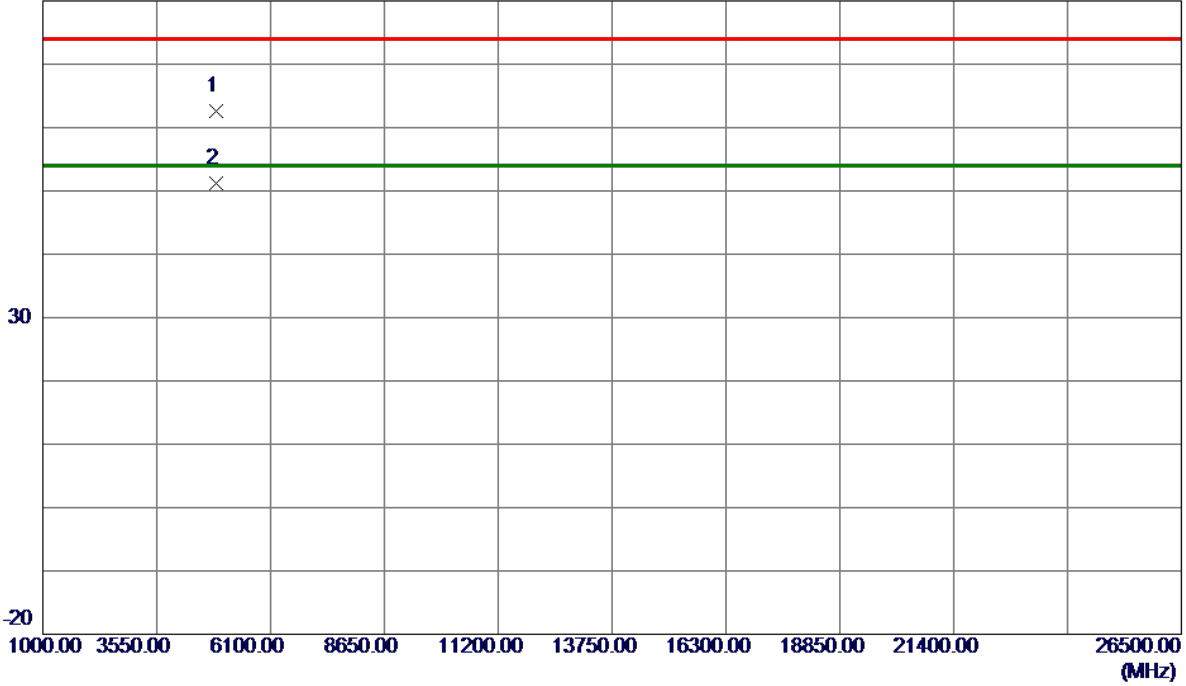


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2432.1000	99.01	7.36	106.37	74.00	32.37	Peak	No Limit
2 *	2435.9000	90.75	7.35	98.10	54.00	44.10	AVG	No Limit

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Horizontal

80 dBuV/m

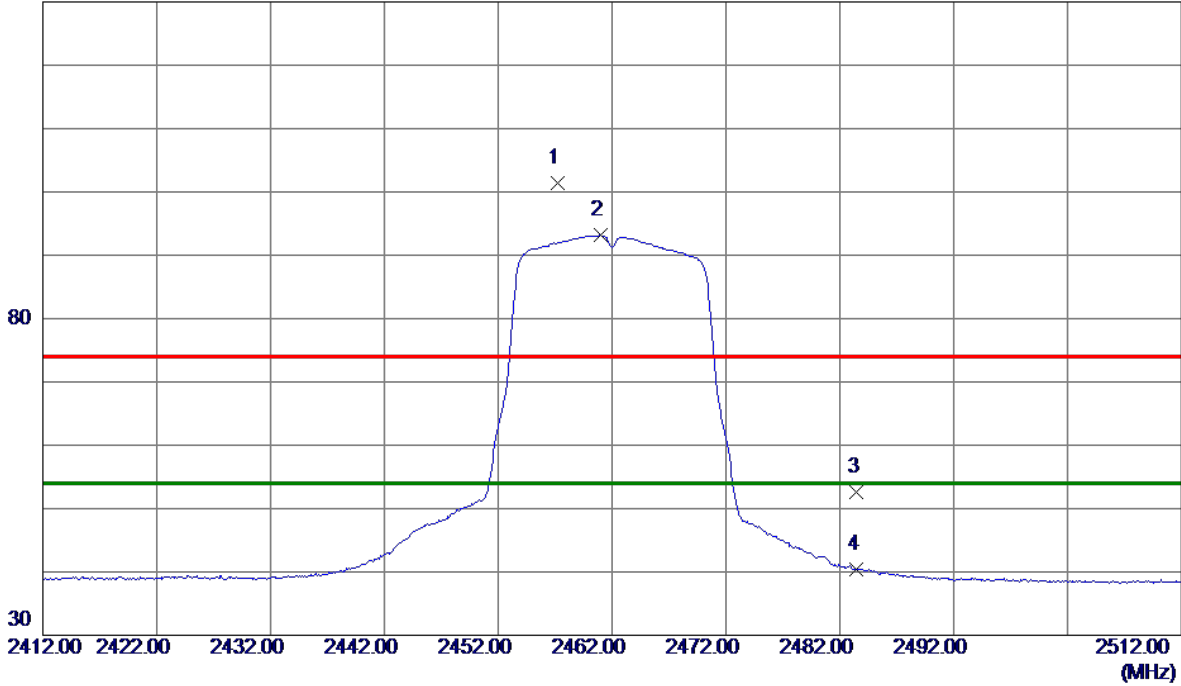


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4870.4000	59.08	3.60	62.68	74.00	-11.32	Peak	
2 *	4875.8400	47.67	3.62	51.29	54.00	-2.71	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical

130 dBuV/m

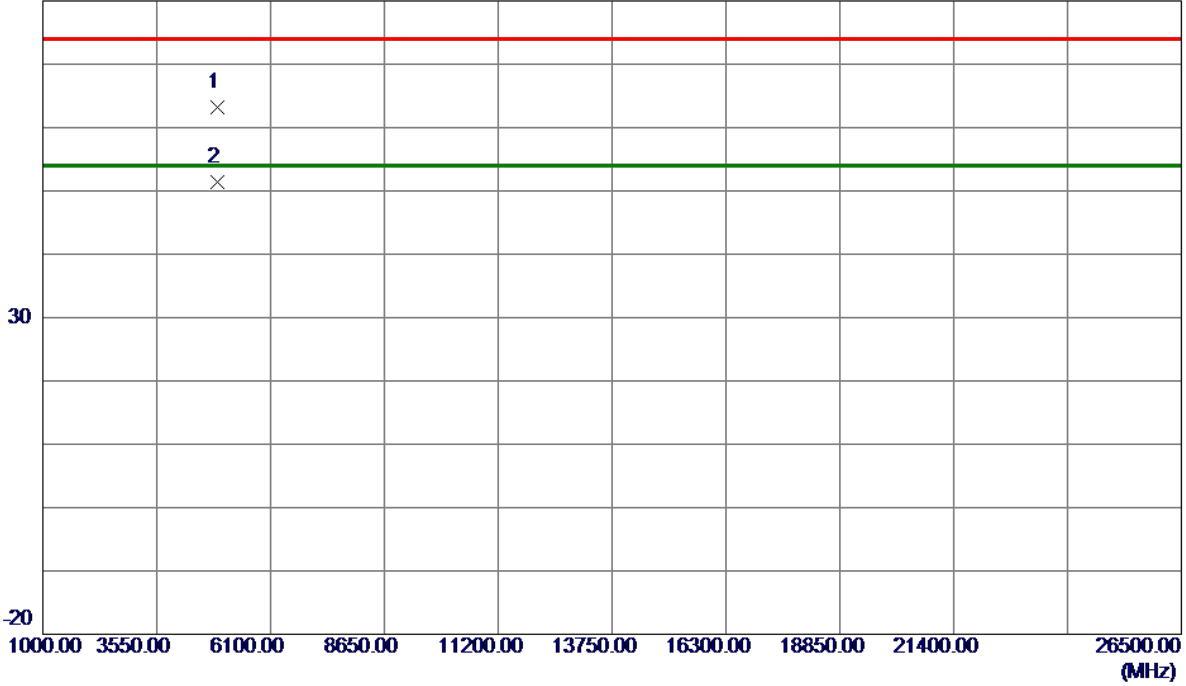


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2457.2000	94.12	7.34	101.46	74.00	27.46	Peak	No Limit
2 *	2461.0000	85.79	7.33	93.12	54.00	39.12	AVG	No Limit
3	2483.5000	45.21	7.32	52.53	74.00	-21.47	Peak	
4	2483.5000	33.06	7.32	40.38	54.00	-13.62	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical

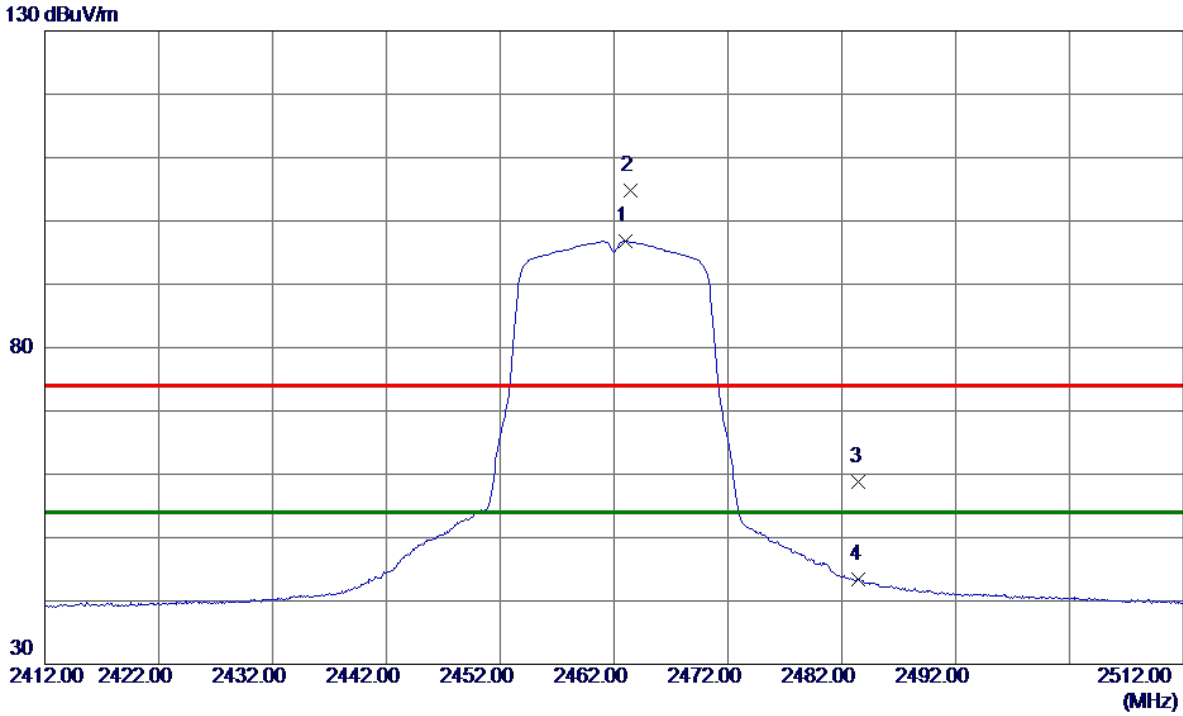
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4920.3800	59.55	3.72	63.27	74.00	-10.73	Peak	
2 *	4923.9800	47.76	3.73	51.49	54.00	-2.51	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal

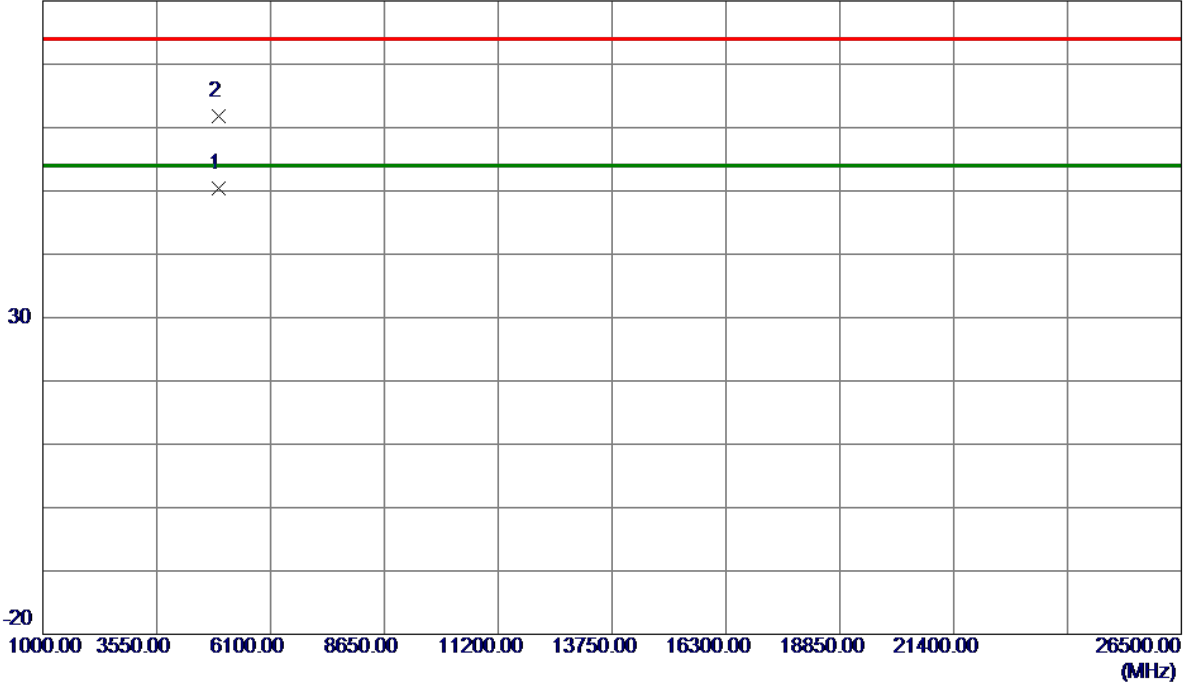


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2463.0000	89.48	7.33	96.81	54.00	42.81	AVG	No Limit
2	2463.4000	97.56	7.33	104.89	74.00	30.89	Peak	No Limit
3	2483.5000	51.52	7.32	58.84	74.00	-15.16	Peak	
4	2483.5000	36.06	7.32	43.38	54.00	-10.62	AVG	

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal

80 dBuV/m

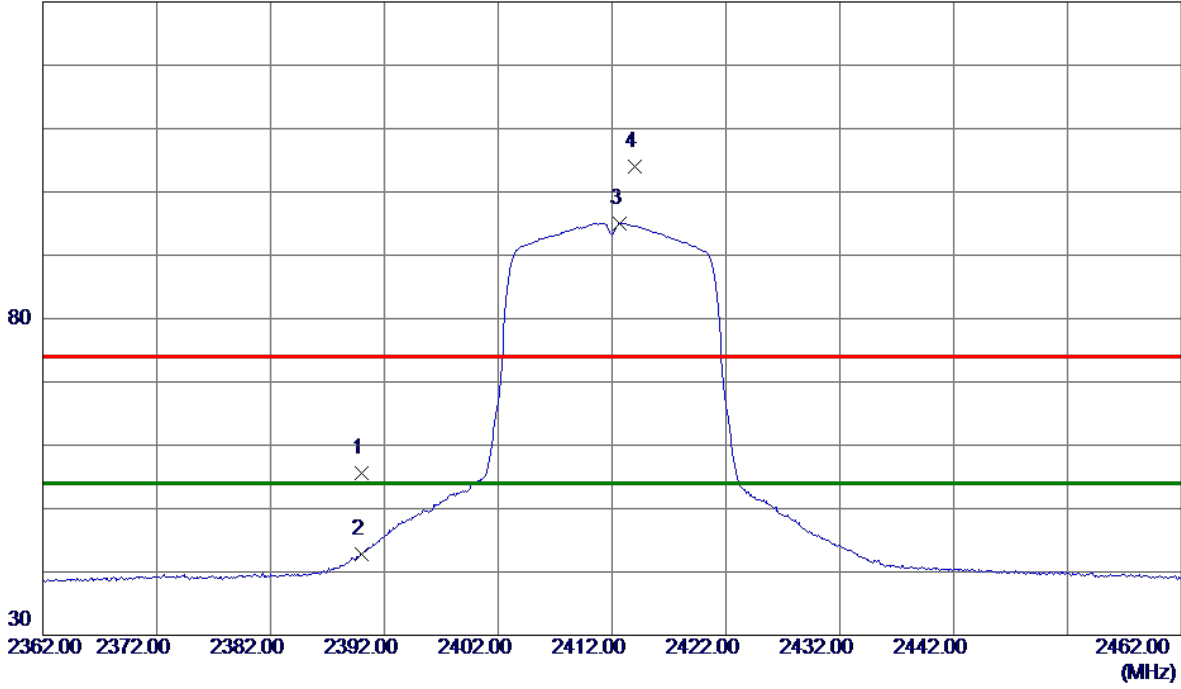


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4925.1800	46.58	3.73	50.31	54.00	-3.69	AVG	
2	4929.8000	57.98	3.74	61.72	74.00	-12.28	Peak	

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

Vertical

130 dBuV/m

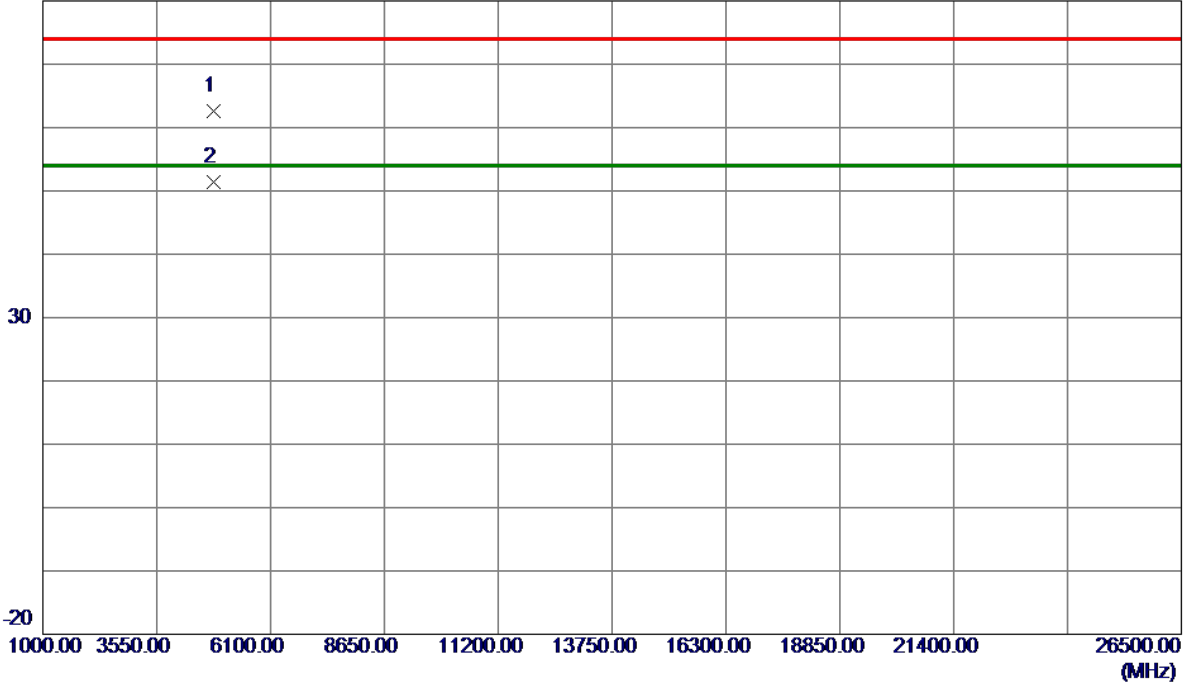


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	48.12	7.39	55.51	74.00	-18.49	Peak	
2	2390.0000	35.43	7.39	42.82	54.00	-11.18	AVG	
3 *	2412.7000	87.72	7.37	95.09	54.00	41.09	AVG	No Limit
4	2414.0000	96.55	7.37	103.92	74.00	29.92	Peak	No Limit

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

Vertical

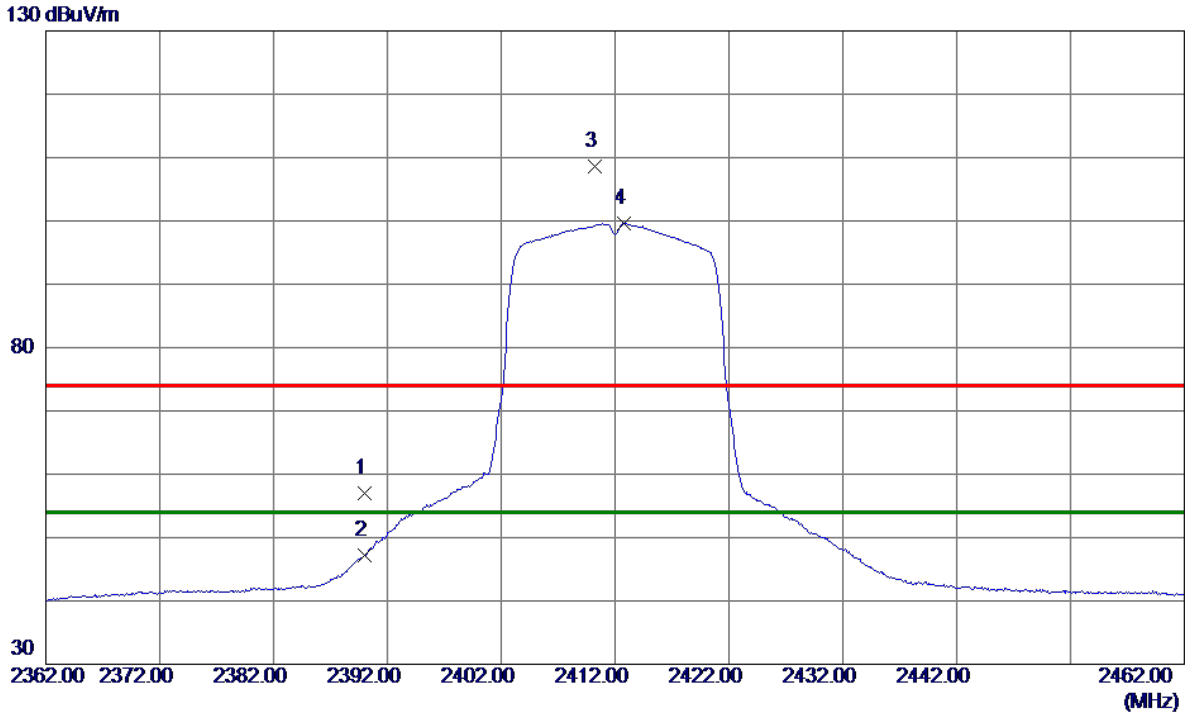
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4820.8400	59.15	3.49	62.64	74.00	-11.36	Peak	
2 *	4824.4600	47.87	3.50	51.37	54.00	-2.63	AVG	

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

Horizontal

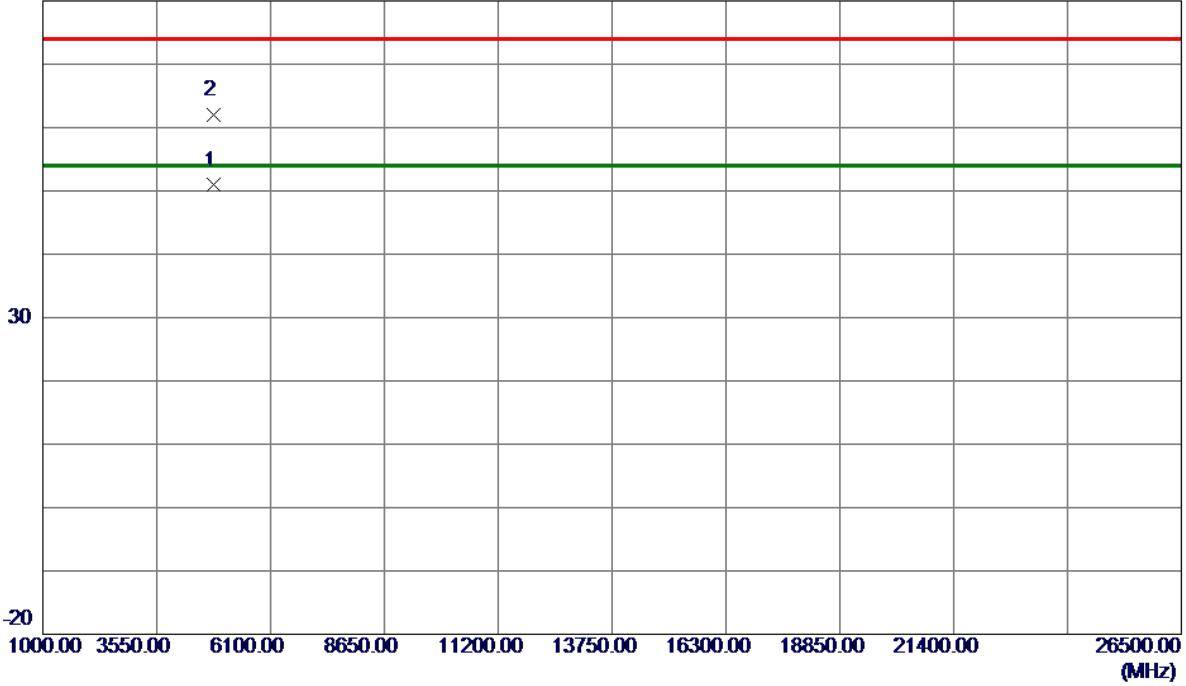


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	49.63	7.39	57.02	74.00	-16.98	Peak	
2	2390.0000	39.79	7.39	47.18	54.00	-6.82	AVG	
3	2410.2000	101.20	7.37	108.57	74.00	34.57	Peak	No Limit
4 *	2412.8000	92.21	7.37	99.58	54.00	45.58	AVG	No Limit

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

Horizontal

80 dBuV/m

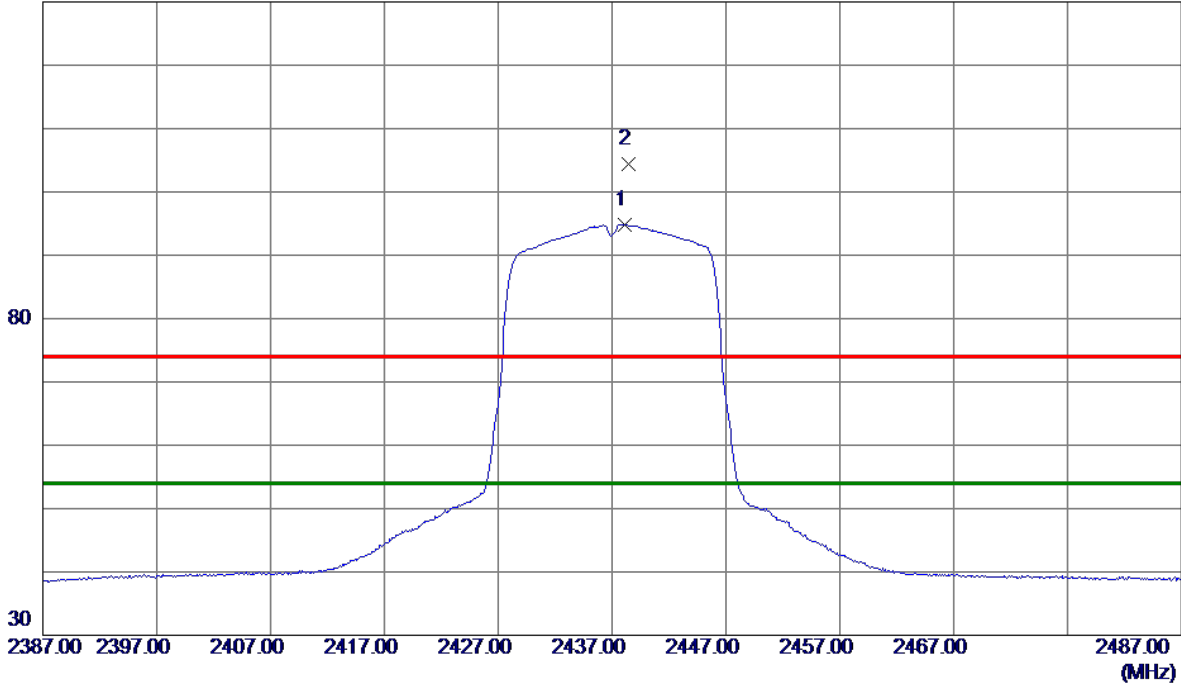


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4824.2599	47.40	3.50	50.90	54.00	-3.10	AVG	
2	4827.2000	58.44	3.50	61.94	74.00	-12.06	Peak	

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

Vertical

130 dBuV/m

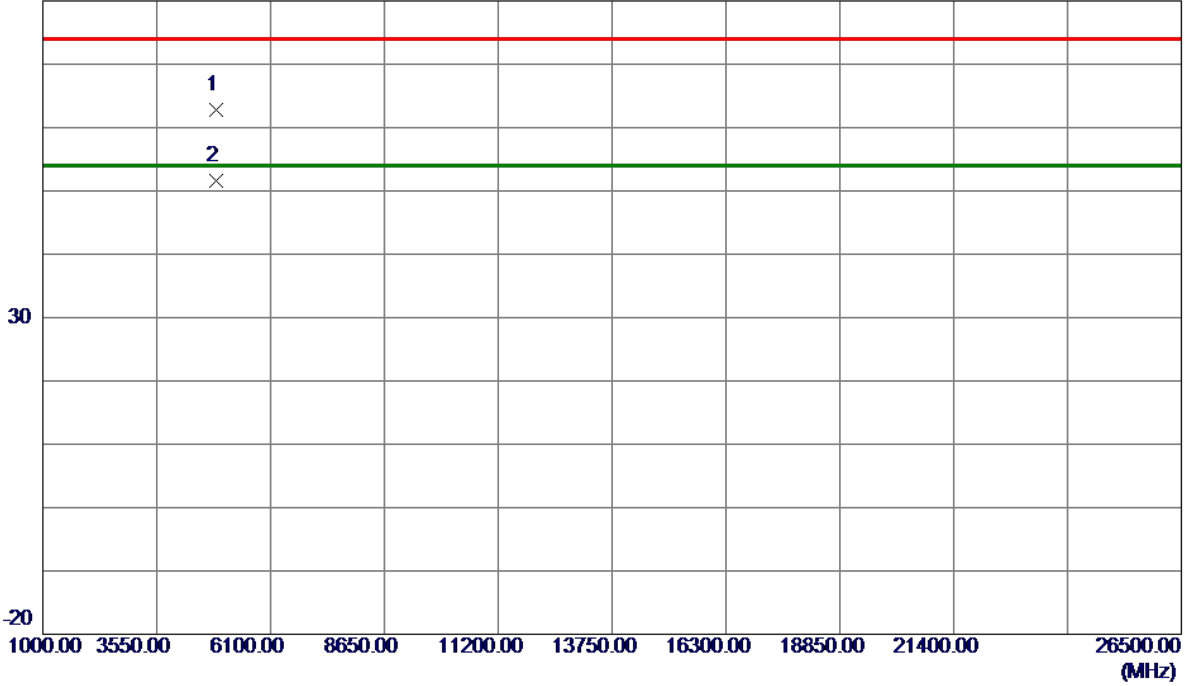


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2438.1000	87.44	7.35	94.79	54.00	40.79	AVG	No Limit
2	2438.4000	97.00	7.35	104.35	74.00	30.35	Peak	No Limit

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

Vertical

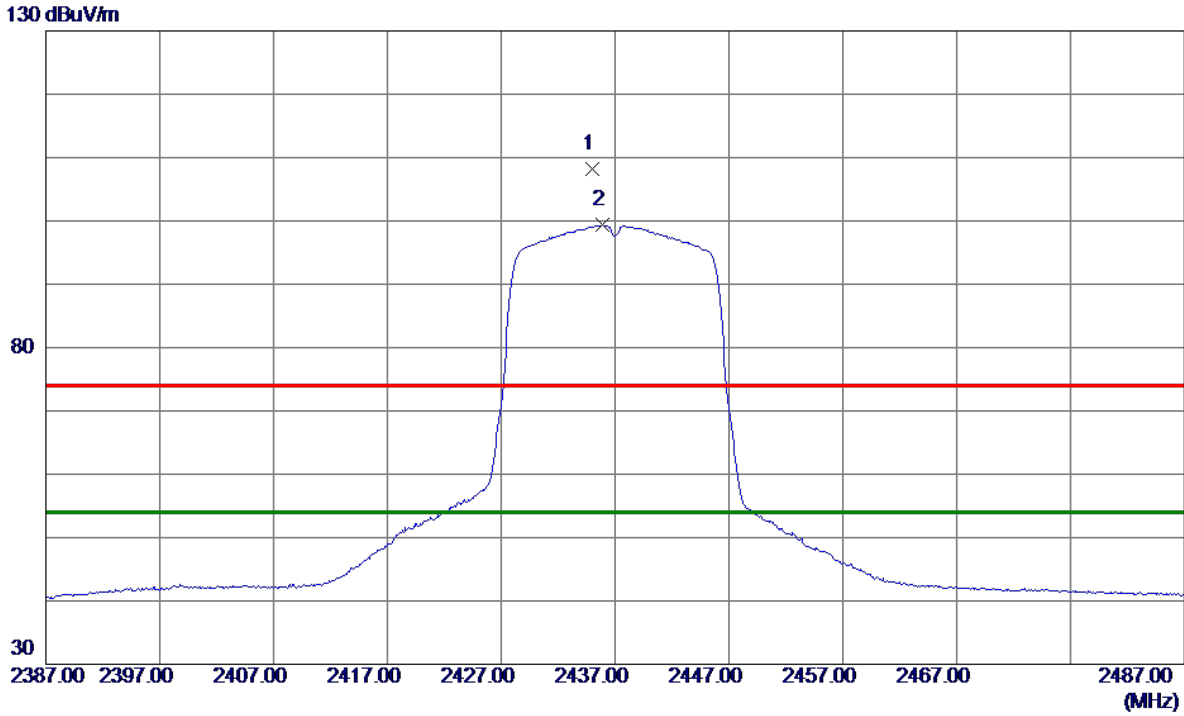
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4868.6200	59.24	3.60	62.84	74.00	-11.16	Peak	
2 *	4874.3000	47.92	3.61	51.53	54.00	-2.47	AVG	

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

Horizontal

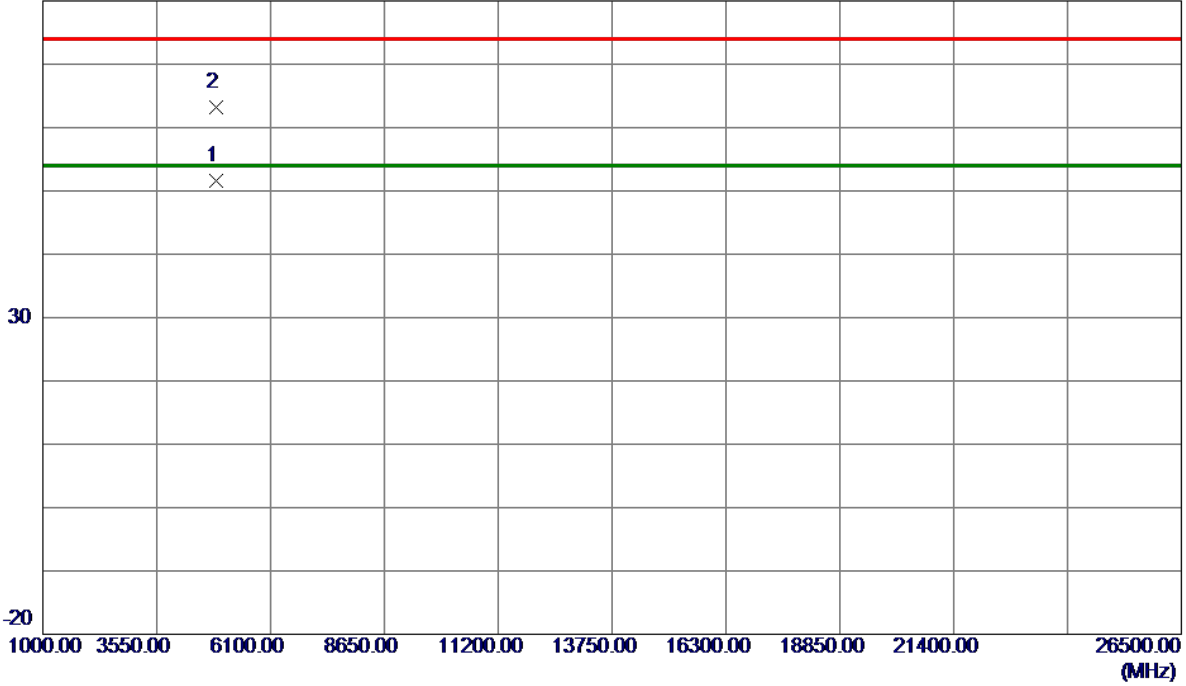


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2435.0000	100.89	7.35	108.24	74.00	34.24	Peak	No Limit
2 *	2435.9000	91.96	7.35	99.31	54.00	45.31	AVG	No Limit

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

Horizontal

80 dBuV/m

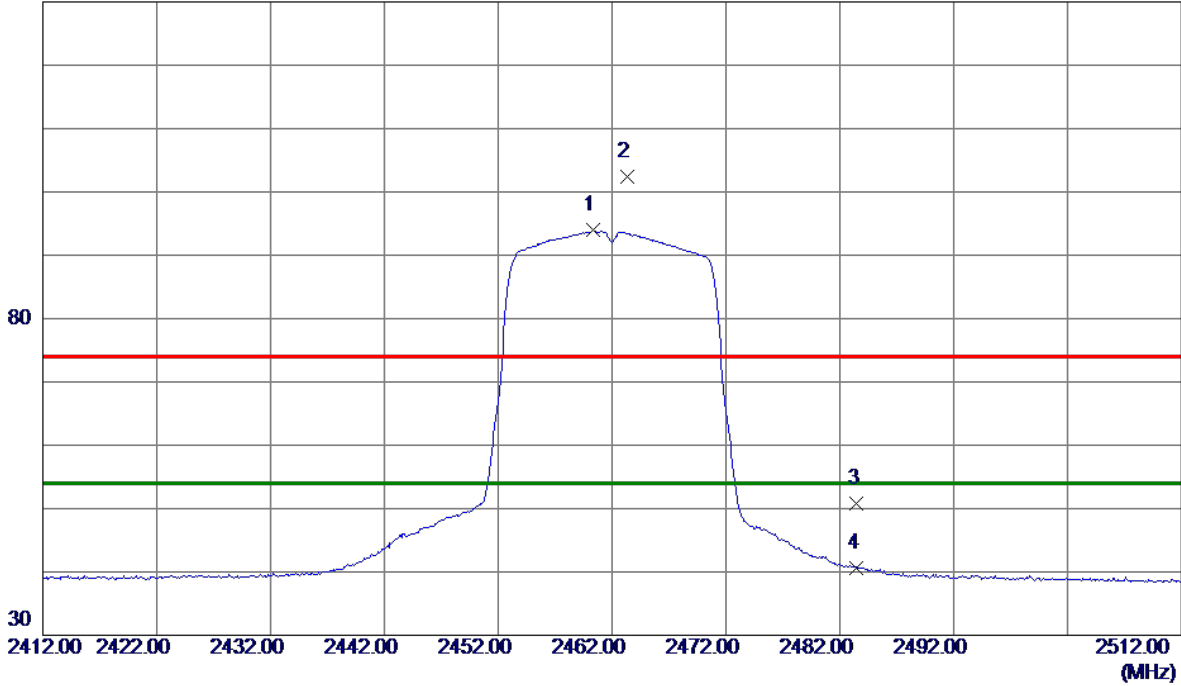


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4873.6600	48.01	3.61	51.62	54.00	-2.38	AVG	
2	4875.0600	59.49	3.62	63.11	74.00	-10.89	Peak	

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

Vertical

130 dBuV/m

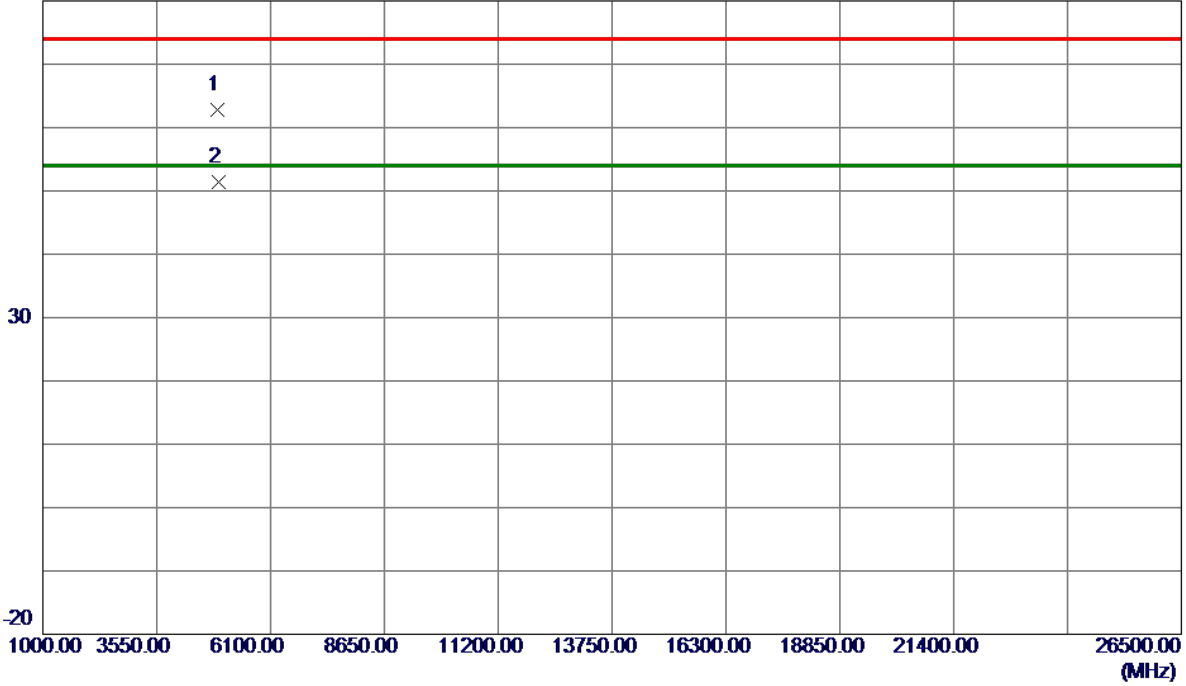


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2460.3000	86.57	7.33	93.90	54.00	39.90	AVG	No Limit
2	2463.3000	95.12	7.33	102.45	74.00	28.45	Peak	No Limit
3	2483.5000	43.41	7.32	50.73	74.00	-23.27	Peak	
4	2483.5000	33.33	7.32	40.65	54.00	-13.35	AVG	

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

Vertical

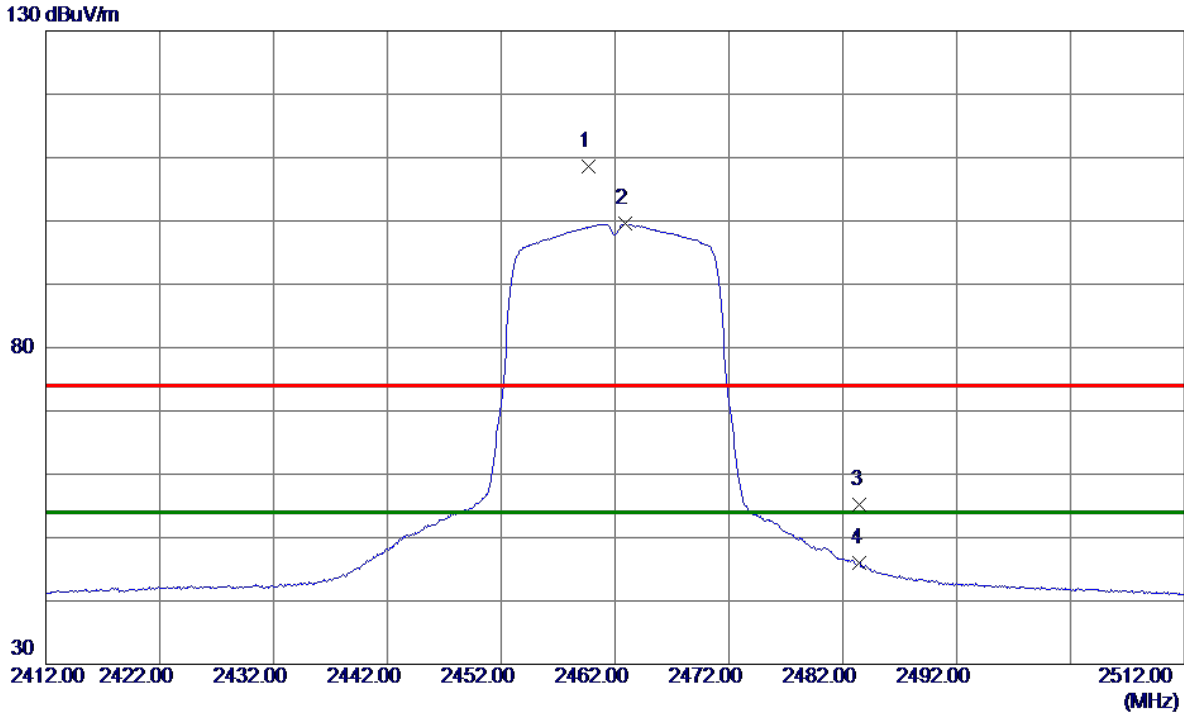
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4921.1600	59.17	3.72	62.89	74.00	-11.11	Peak	
2 *	4924.2200	47.64	3.73	51.37	54.00	-2.63	AVG	

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

Horizontal

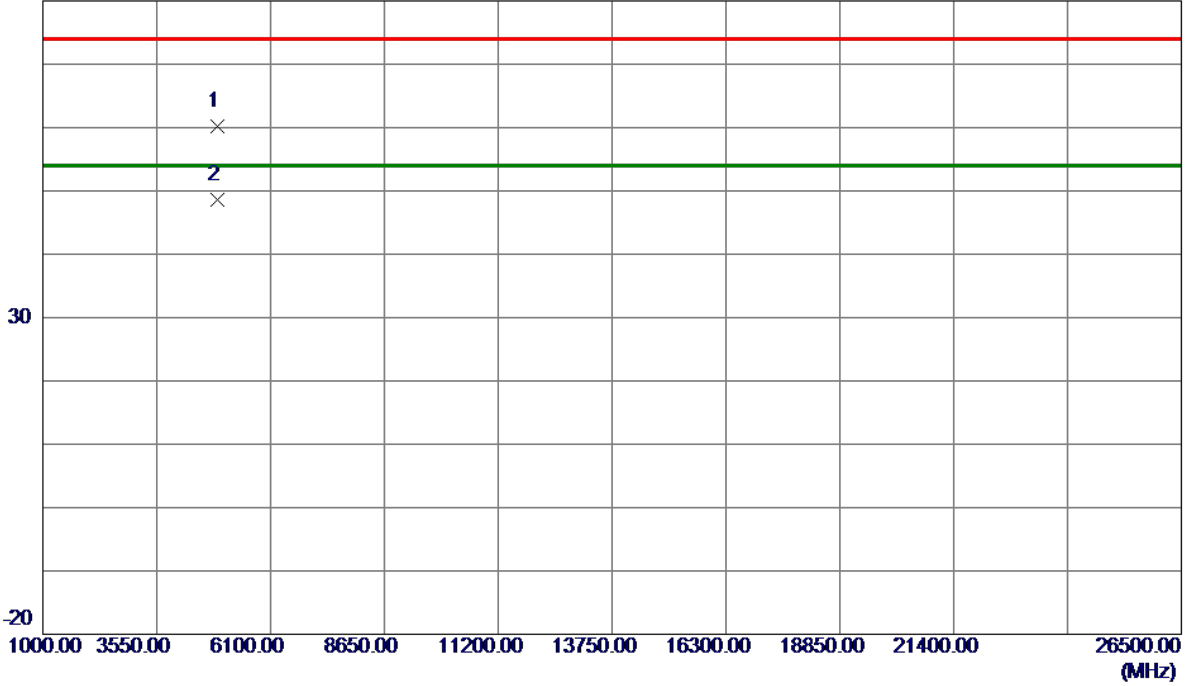


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2459.7000	101.32	7.34	108.66	74.00	34.66	Peak	No Limit
2 *	2462.9000	92.22	7.33	99.55	54.00	45.55	AVG	No Limit
3	2483.5000	47.93	7.32	55.25	74.00	-18.75	Peak	
4	2483.5000	38.68	7.32	46.00	54.00	-8.00	AVG	

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

Horizontal

80 dBuV/m

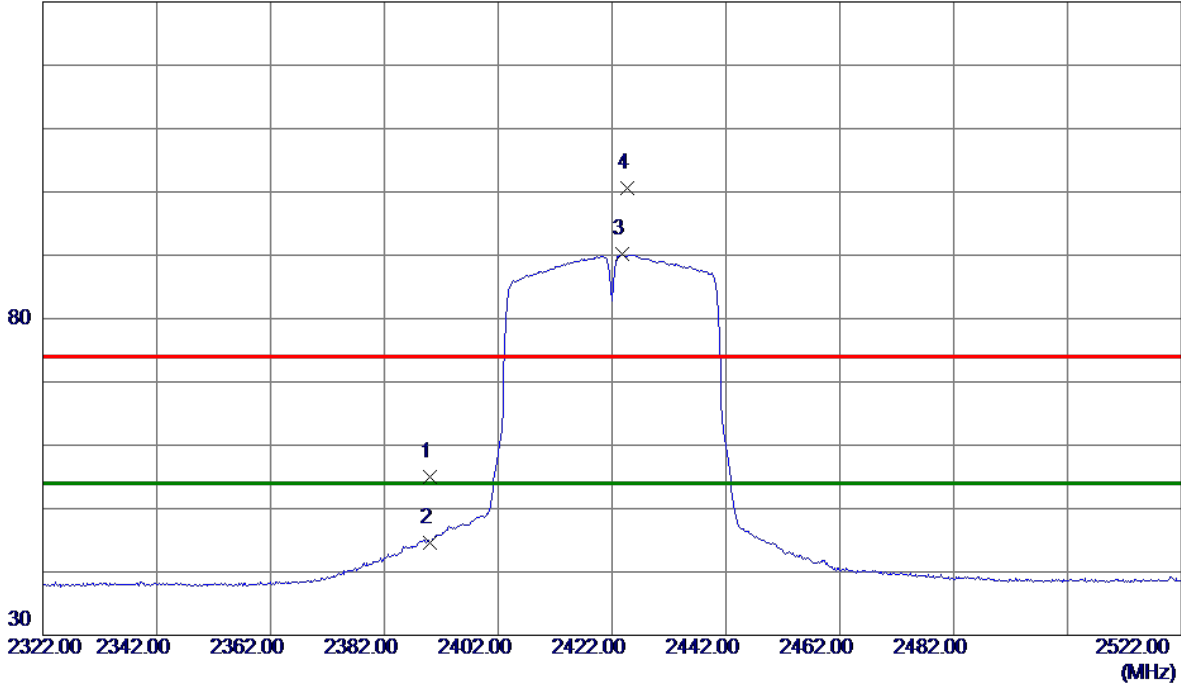


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4920.8400	56.45	3.72	60.17	74.00	-13.83	Peak	
2 *	4921.5400	44.91	3.72	48.63	54.00	-5.37	AVG	

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

Vertical

130 dBuV/m

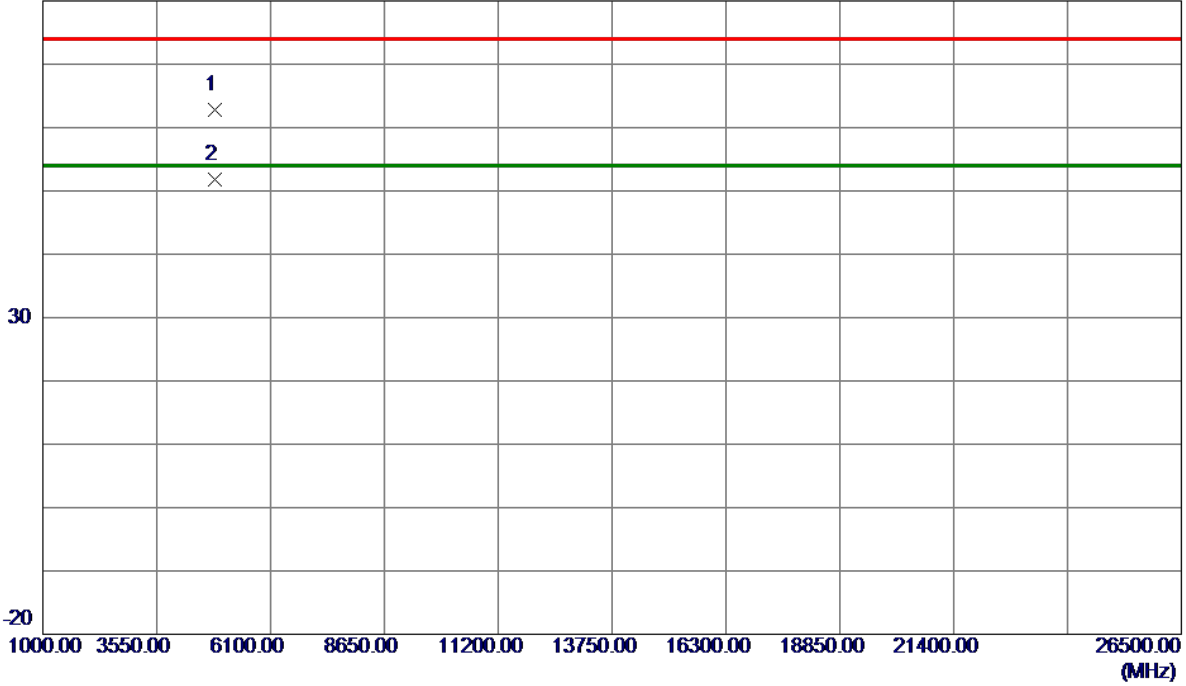


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	47.52	7.39	54.91	74.00	-19.09	Peak	
2	2390.0000	37.26	7.39	44.65	54.00	-9.35	AVG	
3 *	2423.8000	82.79	7.36	90.15	54.00	36.15	AVG	No Limit
4	2424.6000	93.26	7.36	100.62	74.00	26.62	Peak	No Limit

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

Vertical

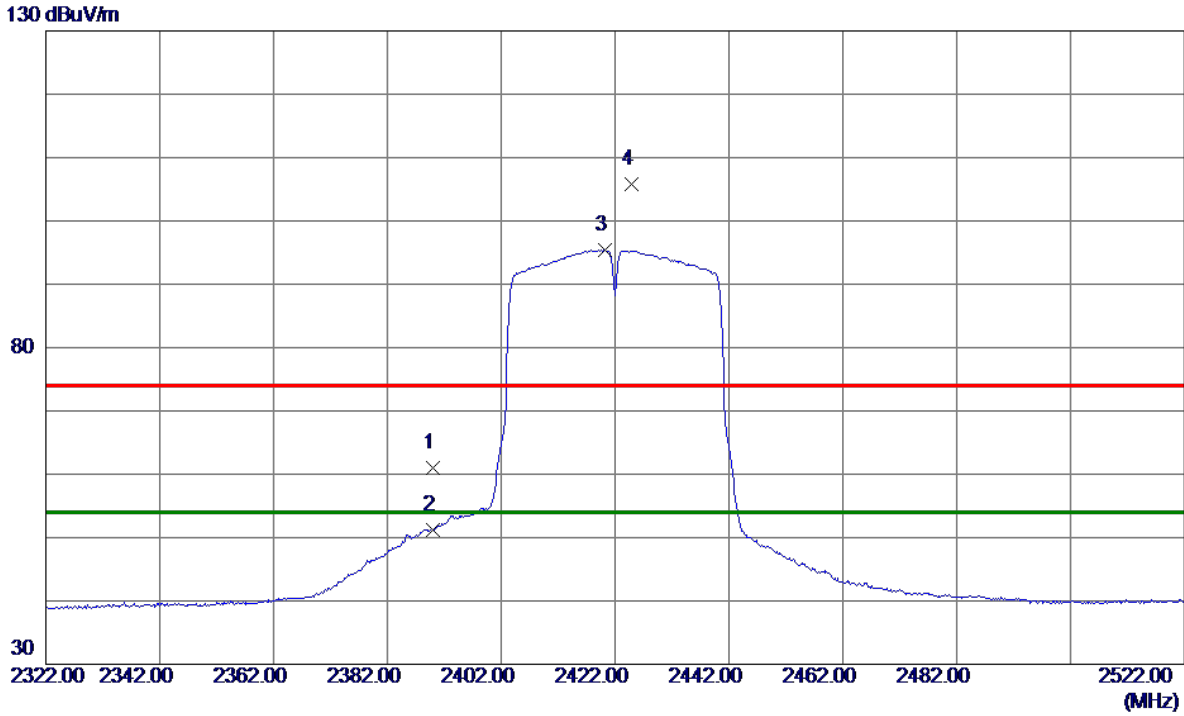
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4849.6500	59.15	3.56	62.71	74.00	-11.29	Peak	
2 *	4849.9000	48.25	3.56	51.81	54.00	-2.19	AVG	

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

Horizontal

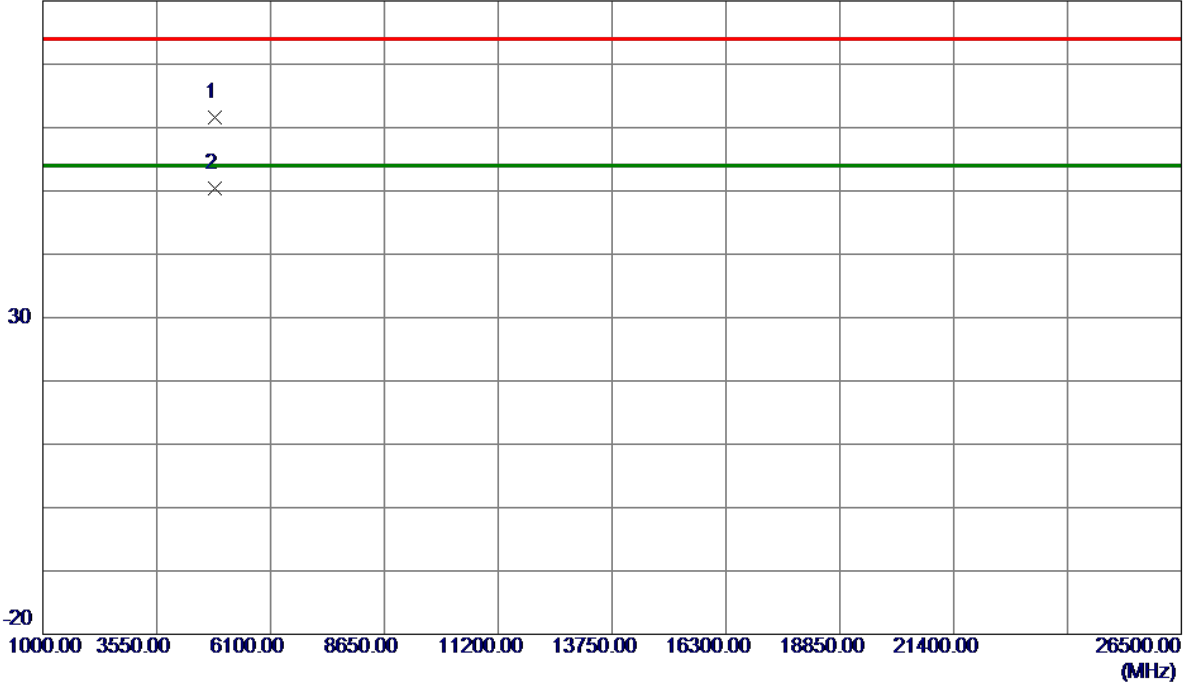


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	53.65	7.39	61.04	74.00	-12.96	Peak	
2	2390.0000	43.82	7.39	51.21	54.00	-2.79	AVG	
3 *	2420.2000	88.02	7.36	95.38	54.00	41.38	AVG	No Limit
4	2424.8000	98.44	7.36	105.80	74.00	31.80	Peak	No Limit

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

Horizontal

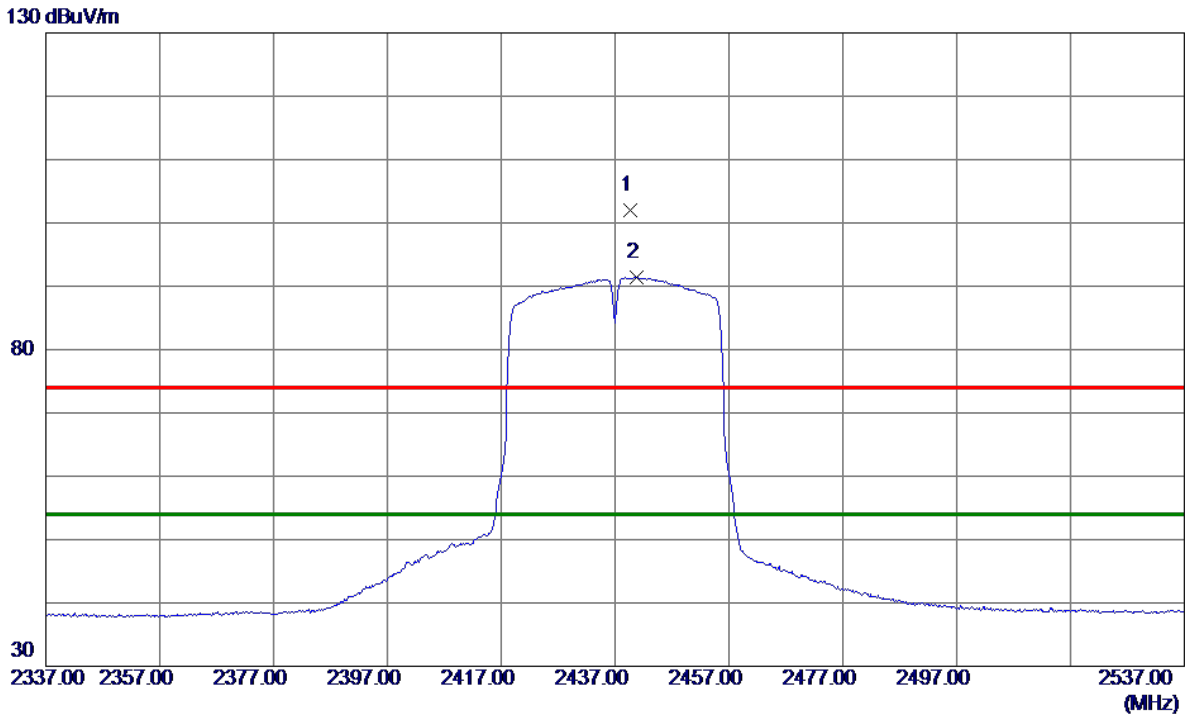
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4841.6000	58.00	3.54	61.54	74.00	-12.46	Peak	
2 *	4843.9500	46.93	3.54	50.47	54.00	-3.53	AVG	

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

Vertical

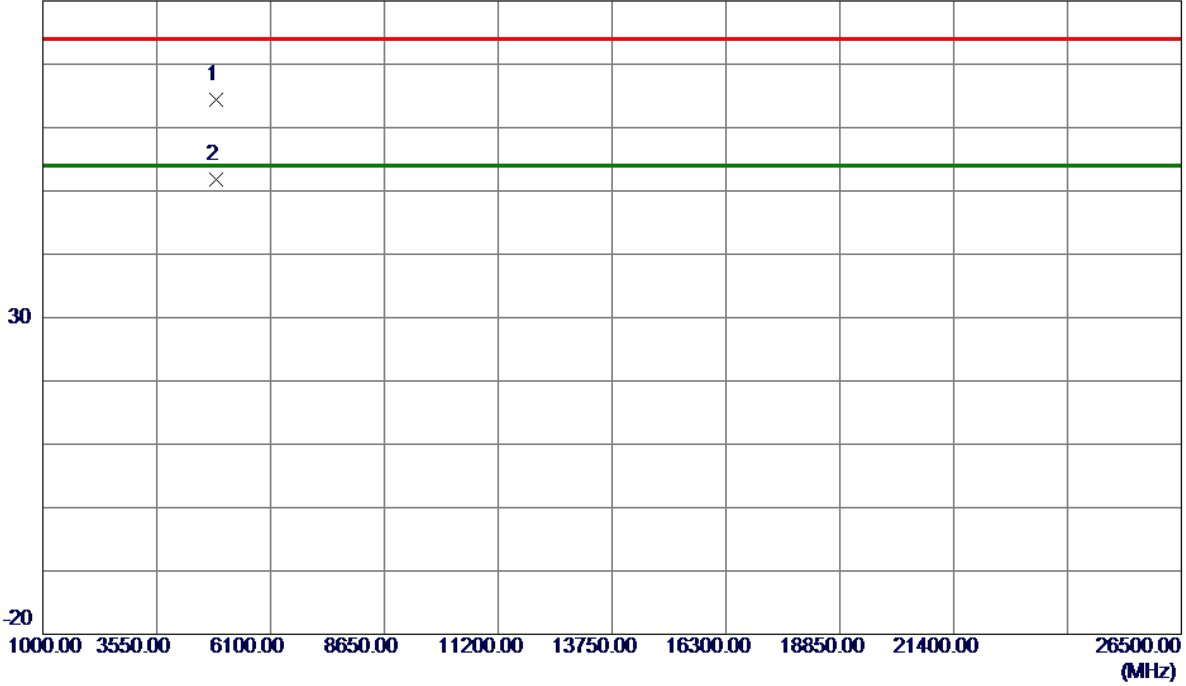


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2439.6000	94.57	7.35	101.92	74.00	27.92	Peak	No Limit
2 *	2440.8000	84.14	7.35	91.49	54.00	37.49	AVG	No Limit

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

Vertical

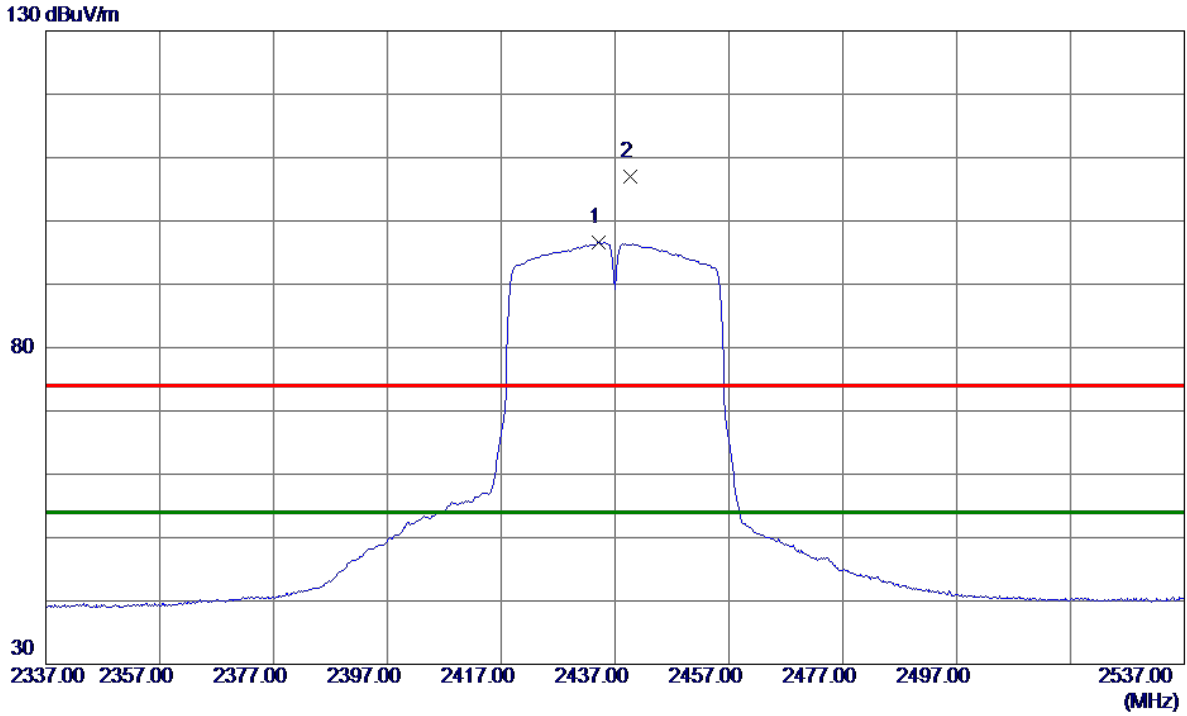
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4871.5500	60.86	3.61	64.47	74.00	-9.53	Peak	
2 *	4873.7500	48.24	3.61	51.85	54.00	-2.15	AVG	

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

Horizontal

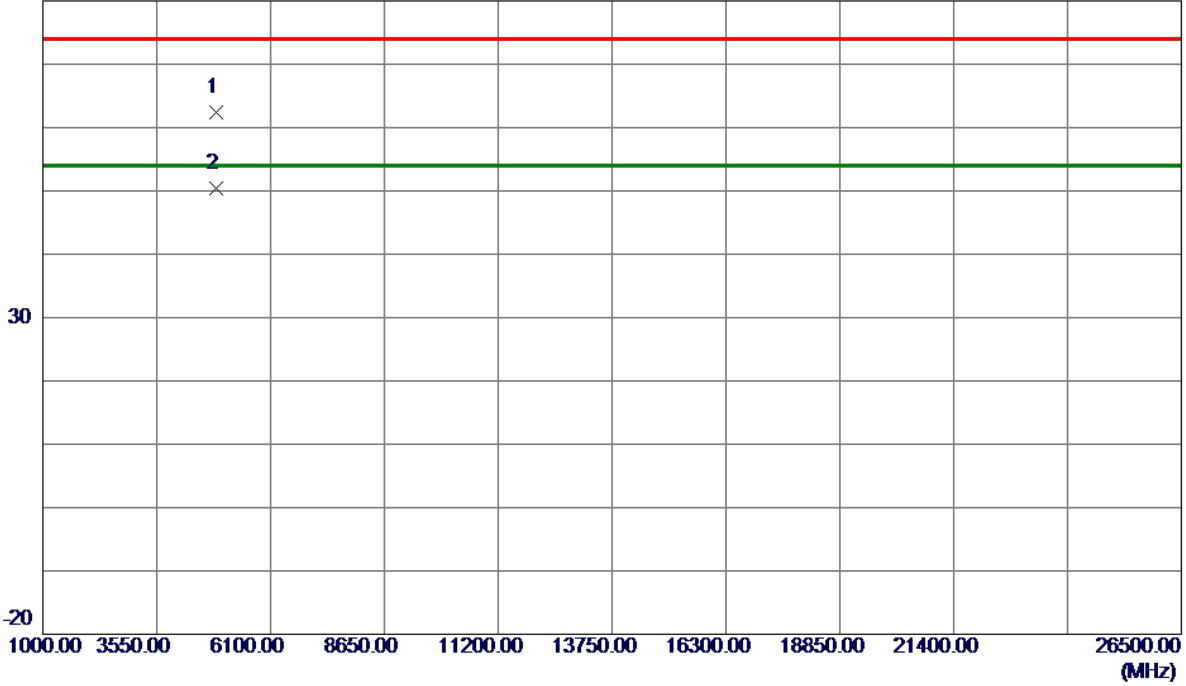


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2434.2000	89.21	7.35	96.56	54.00	42.56	AVG	No Limit
2	2439.6000	99.60	7.35	106.95	74.00	32.95	Peak	No Limit

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

Horizontal

80 dBuV/m

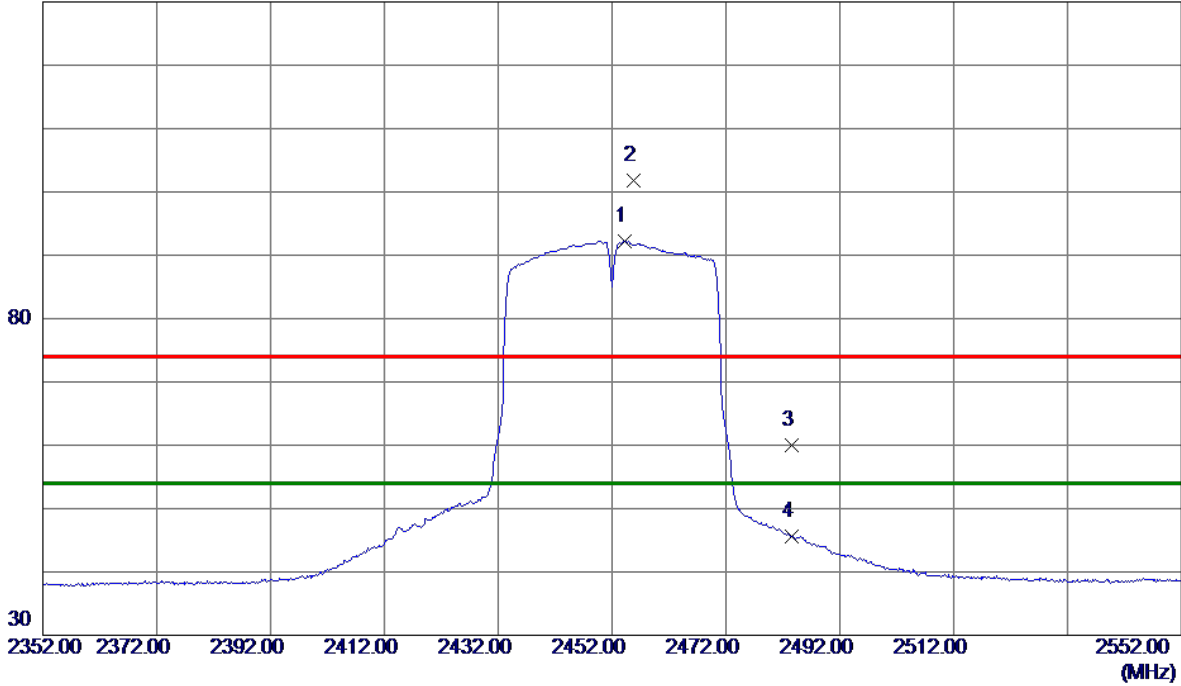


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4871.6500	58.80	3.61	62.41	74.00	-11.59	Peak	
2 *	4875.8000	46.70	3.62	50.32	54.00	-3.68	AVG	

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

Vertical

130 dBuV/m

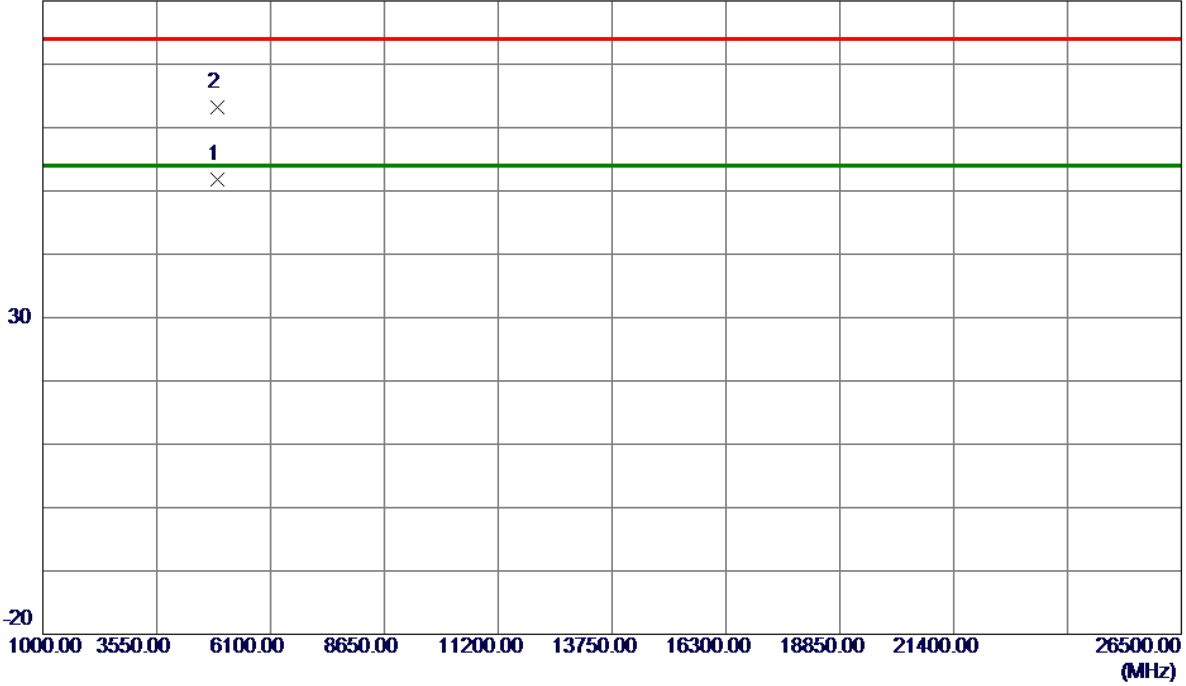


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2454.2000	84.91	7.34	92.25	54.00	38.25	AVG	No Limit
2	2455.8000	94.44	7.34	101.78	74.00	27.78	Peak	No Limit
3	2483.5000	52.74	7.32	60.06	74.00	-13.94	Peak	
4	2483.5000	38.23	7.32	45.55	54.00	-8.45	AVG	

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

Vertical

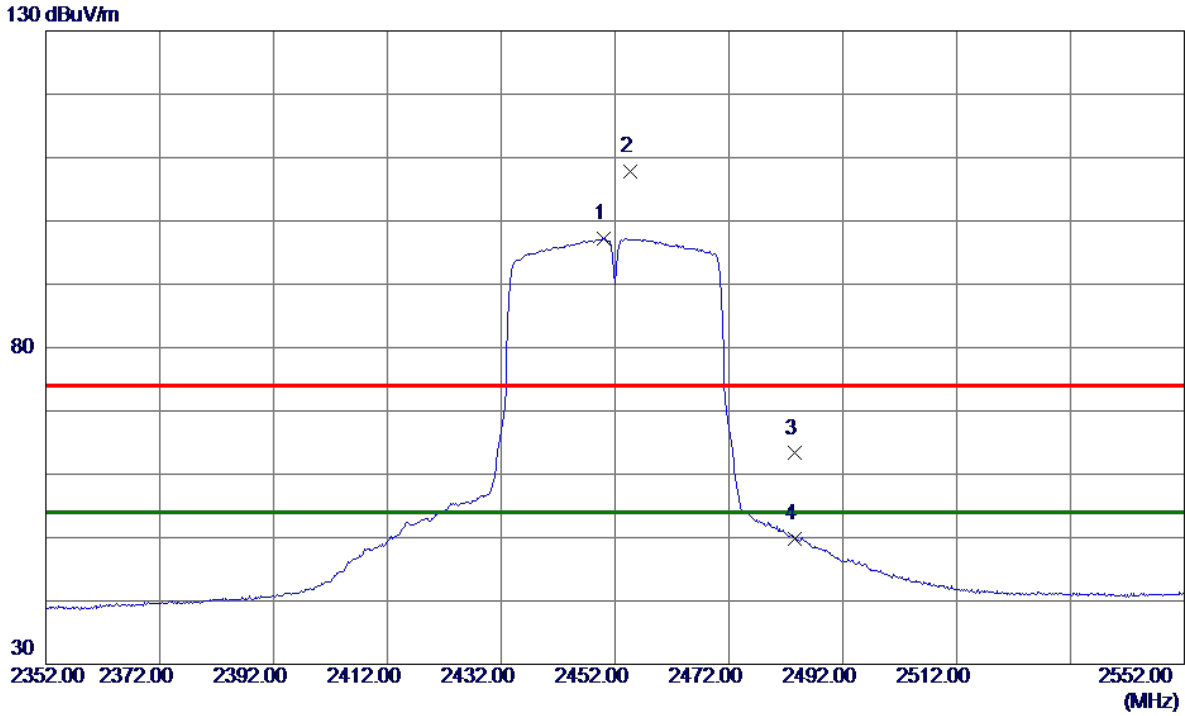
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4910.0500	48.01	3.70	51.71	54.00	-2.29	AVG	
2	4920.2000	59.45	3.72	63.17	74.00	-10.83	Peak	

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

Horizontal

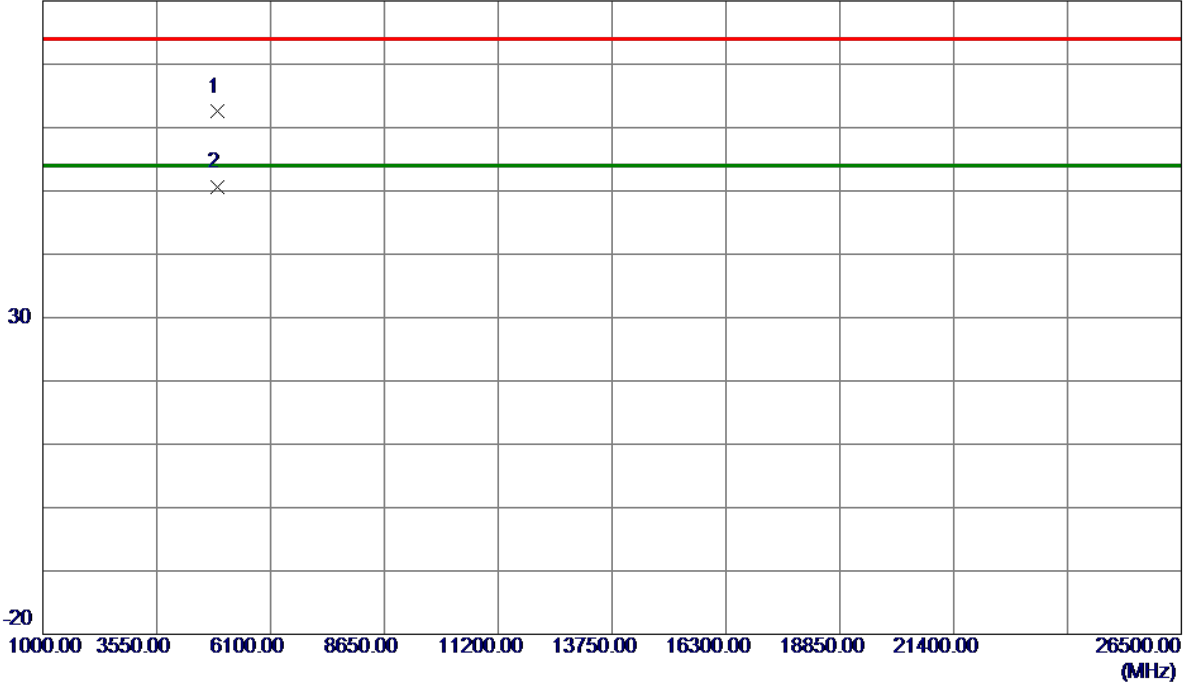


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	2450.0000	89.91	7.34	97.25	54.00	43.25	AVG	No Limit
2	2454.6000	100.41	7.34	107.75	74.00	33.75	Peak	No Limit
3	2483.5000	55.98	7.32	63.30	74.00	-10.70	Peak	
4	2483.5000	42.51	7.32	49.83	54.00	-4.17	AVG	

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

Horizontal

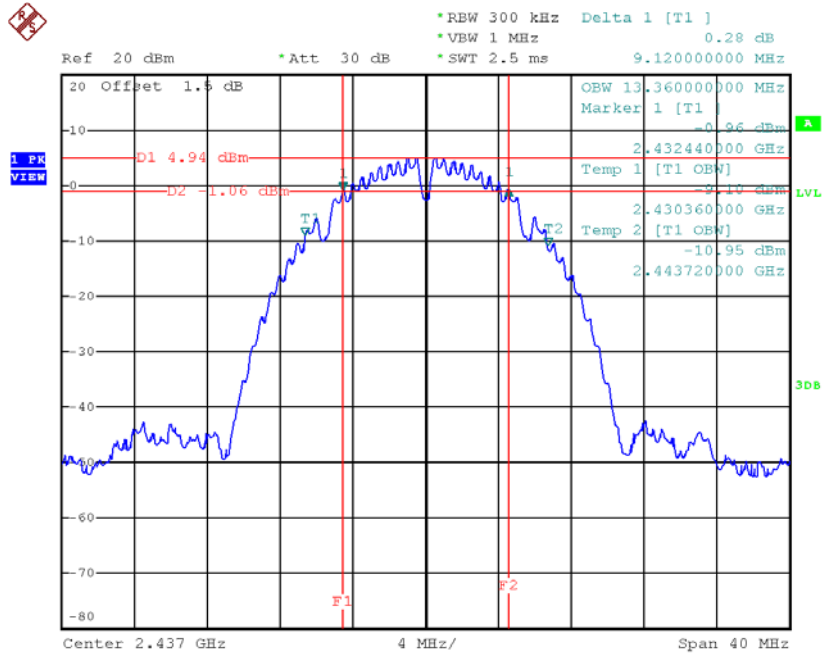
80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4901.6000	58.82	3.68	62.50	74.00	-11.50	Peak	
2 *	4909.7500	46.94	3.70	50.64	54.00	-3.36	AVG	

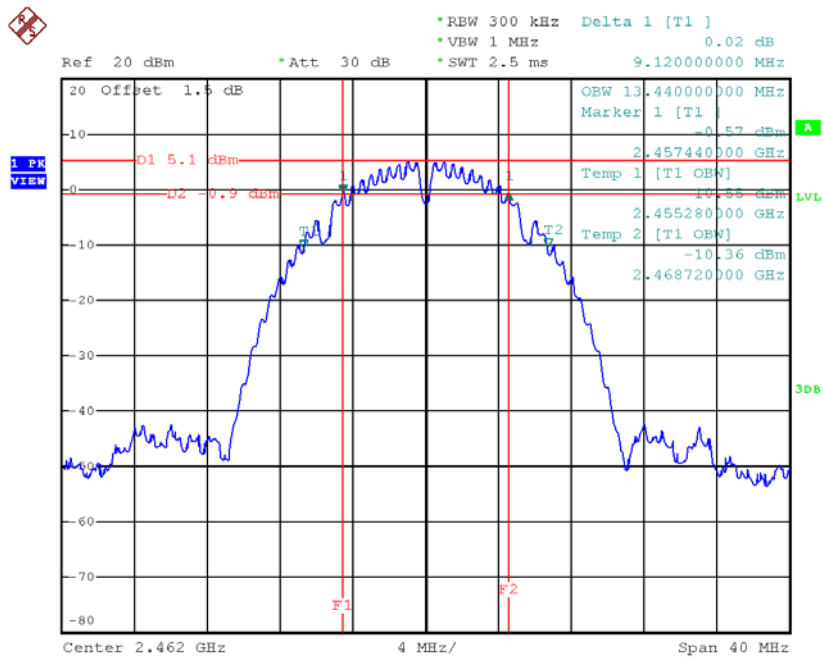
APPENDIX E - BANDWIDTH

TX CH06



Date: 27.AUG.2018 17:16:53

TX CH11

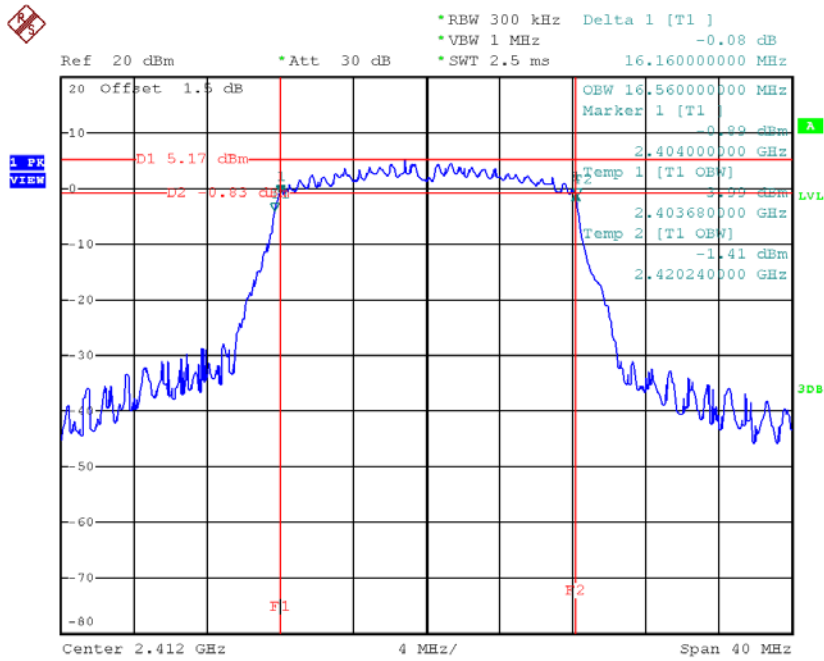


Date: 27.AUG.2018 17:18:58

Test Mode: TX G Mode_CH01/06/11

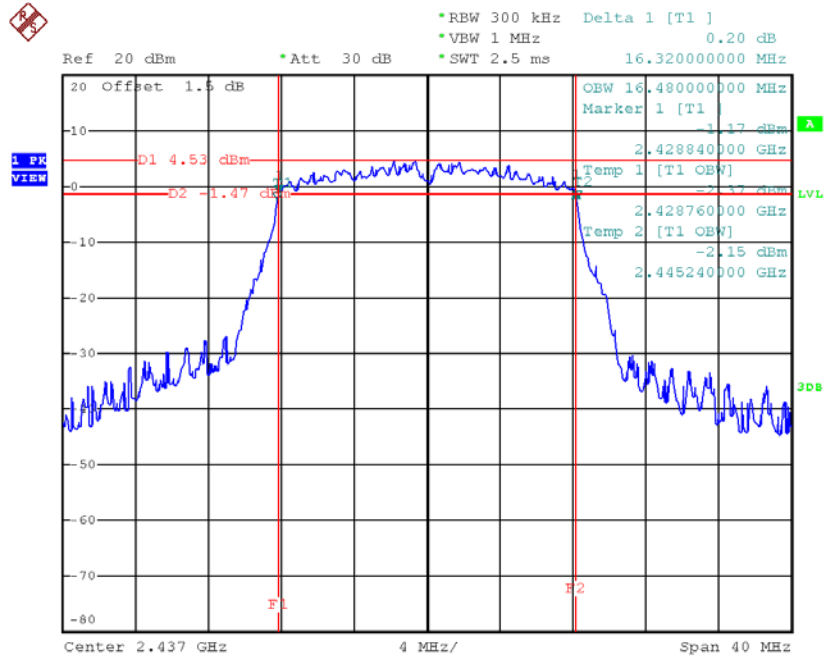
Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	16.16	16.56	500	Complies
2437	16.32	16.48	500	Complies
2462	16.24	16.48	500	Complies

TX CH01



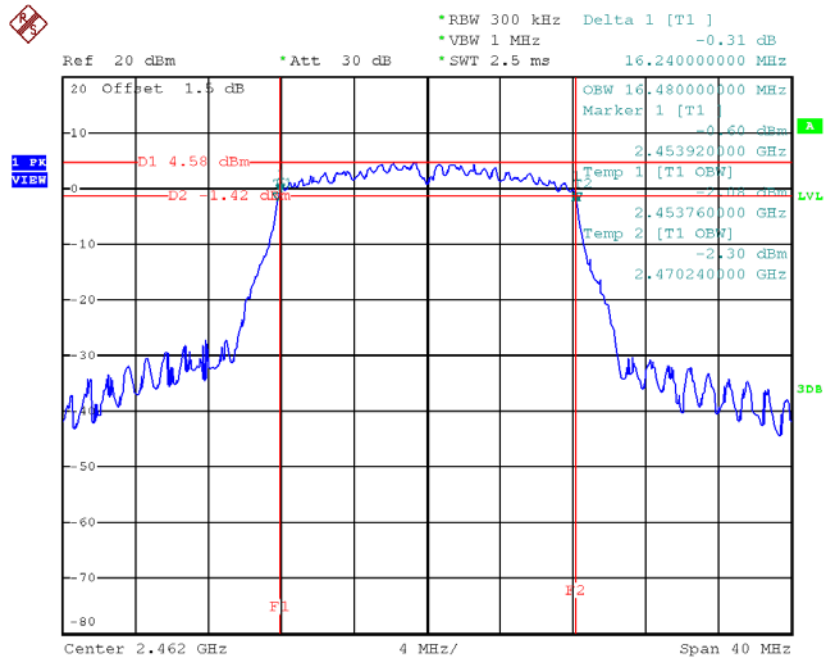
Date: 27.AUG.2018 17:26:25

TX CH06



Date: 27.AUG.2018 17:24:24

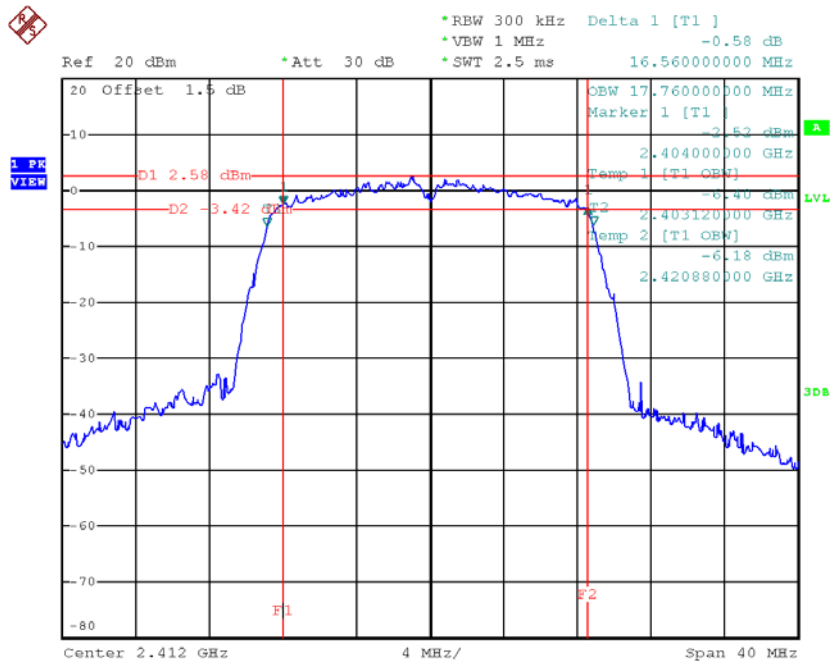
TX CH11



Date: 27.AUG.2018 17:21:37

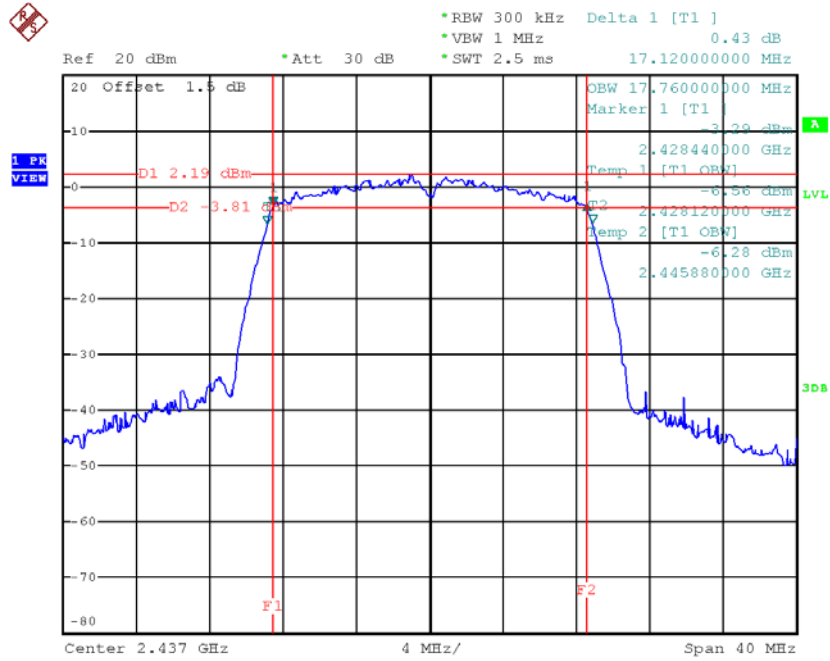
Test Mode: TX N-20MHz Mode_CH01/06/11

Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	16.56	17.76	500	Complies
2437	17.12	17.76	500	Complies
2462	16.88	17.76	500	Complies

TX CH01


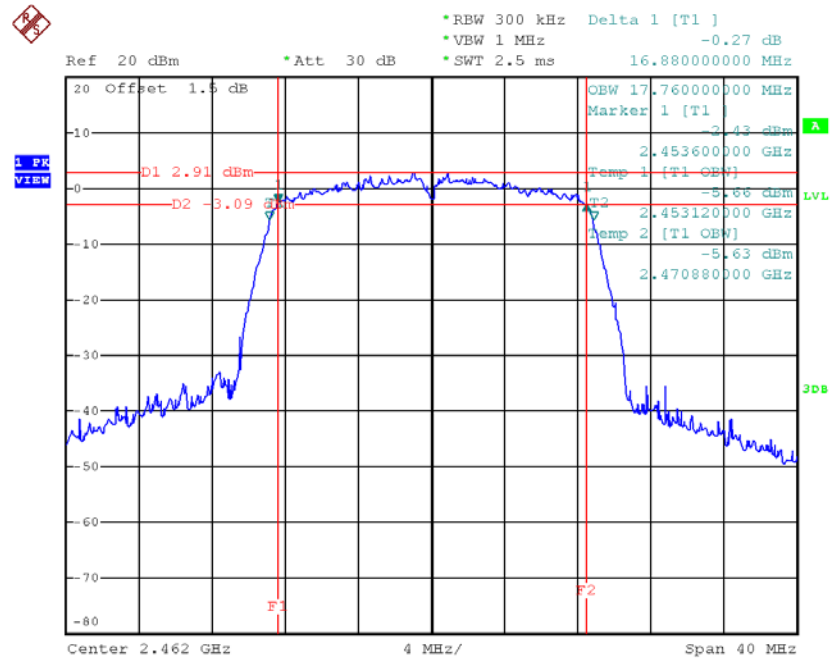
Date: 27.AUG.2018 17:30:59

TX CH06



Date: 27.AUG.2018 17:32:38

TX CH11

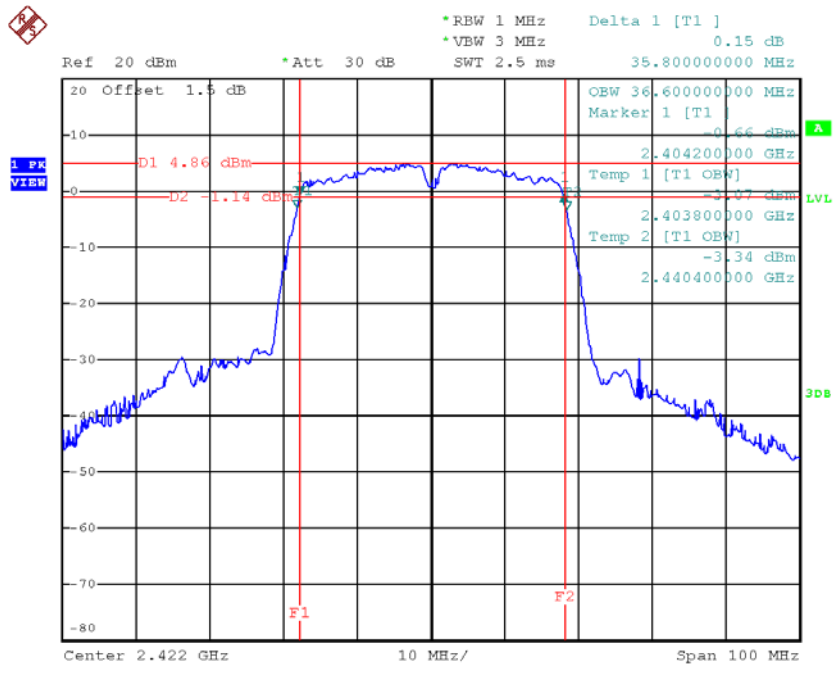


Date: 27.AUG.2018 17:38:08

Test Mode: TX N-40MHz Mode_CH03/06/09

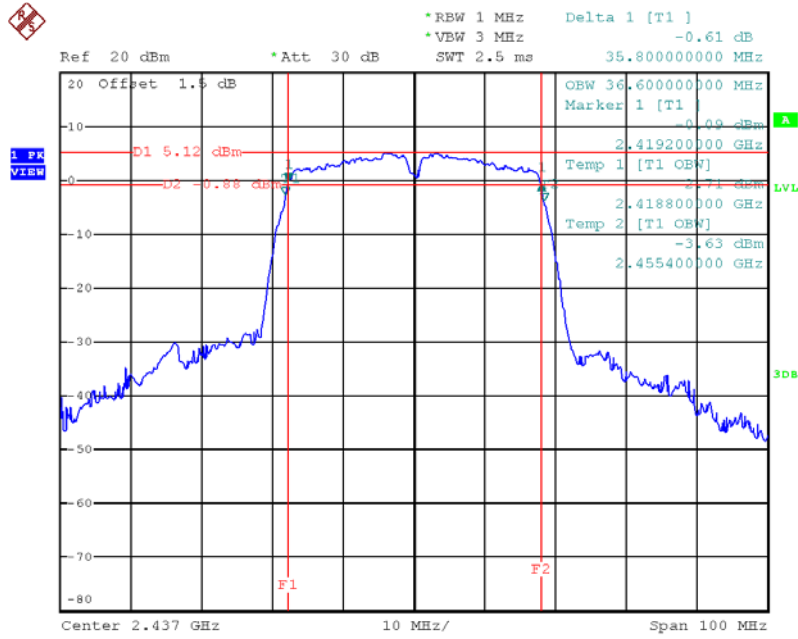
Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2422	35.80	36.60	500	Complies
2437	35.80	36.60	500	Complies
2452	35.60	36.60	500	Complies

TX CH03



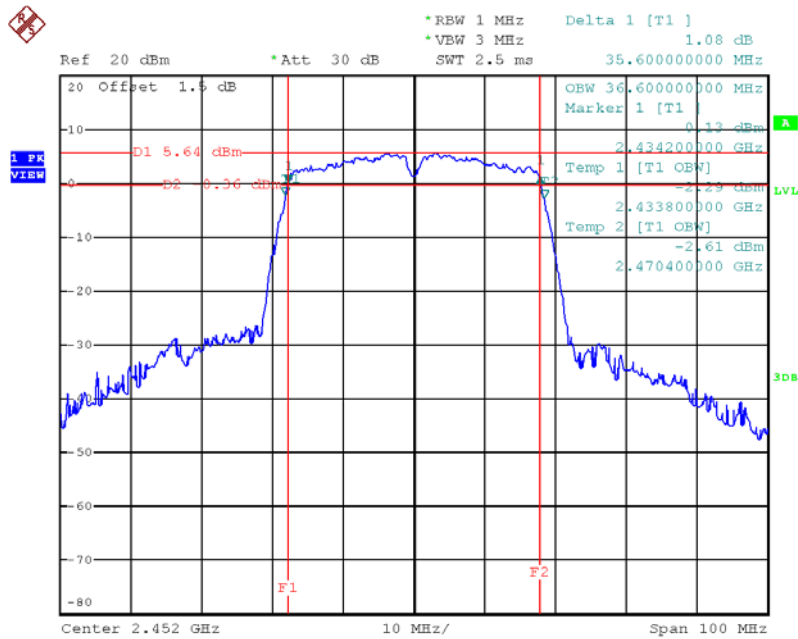
Date: 27.AUG.2018 17:59:57

TX CH06



Date: 27.AUG.2018 17:55:41

TX CH09



Date: 27.AUG.2018 18:26:49

APPENDIX F - MAXIMUM OUTPUT POWER

Test Mode: TX B Mode_CH01/06/11					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	12.57	0.02	30.00	1.00	Complies
2437	13.16	0.02	30.00	1.00	Complies
2462	13.53	0.02	30.00	1.00	Complies

Test Mode: TX G Mode_CH01/06/11					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	19.45	0.09	30.00	1.00	Complies
2437	19.61	0.09	30.00	1.00	Complies
2462	19.27	0.08	30.00	1.00	Complies

Test Mode: TX N20 Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	18.59	0.07	30.00	1.00	Complies
2437	19.16	0.08	30.00	1.00	Complies
2462	18.56	0.07	30.00	1.00	Complies

Test Mode: TX N20 Mode_CH01/06/11_ANT 2					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	20.18	0.10	30.00	1.00	Complies
2437	20.64	0.12	30.00	1.00	Complies
2462	19.89	0.10	30.00	1.00	Complies

Test Mode: TX N20 Mode_CH01/06/11_Total					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	22.47	0.18	30.00	1.00	Complies
2437	22.97	0.20	30.00	1.00	Complies
2462	22.29	0.17	30.00	1.00	Complies

Test Mode: TX N40 Mode_CH03/06/09_ANT 1					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	20.07	0.10	30.00	1.00	Complies
2437	20.41	0.11	30.00	1.00	Complies
2452	20.45	0.11	30.00	1.00	Complies

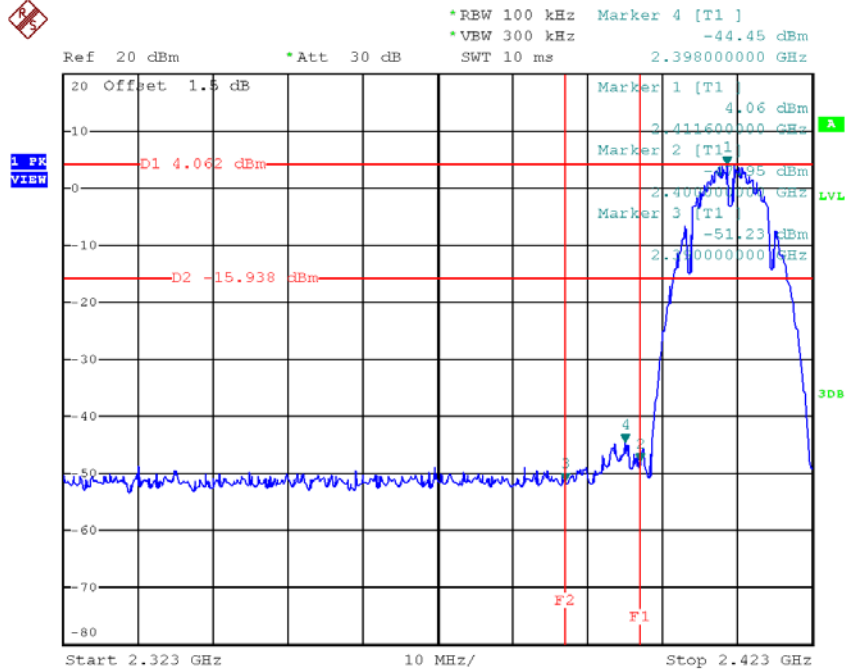
Test Mode: TX N40 Mode_CH03/06/09_ANT 2					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	21.81	0.15	30.00	1.00	Complies
2437	21.74	0.15	30.00	1.00	Complies
2452	21.39	0.14	30.00	1.00	Complies

Test Mode: TX N40 Mode_CH03/06/09_Total					
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	24.04	0.25	30.00	1.00	Complies
2437	24.14	0.26	30.00	1.00	Complies
2452	23.96	0.25	30.00	1.00	Complies

APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION

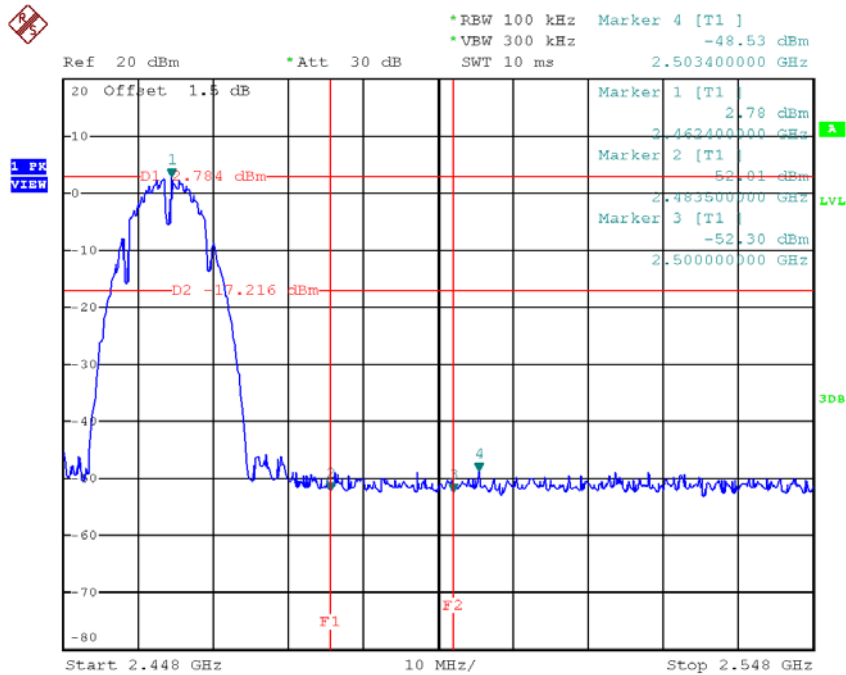
Test Mode: TX B Mode

TX B mode CH01



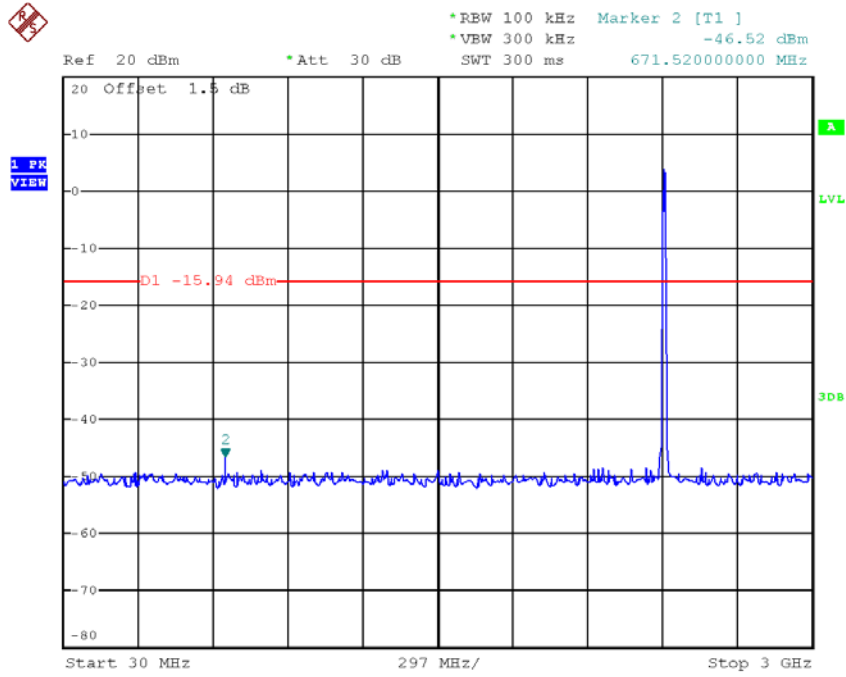
Date: 27.AUG.2018 16:19:06

TX B mode CH11

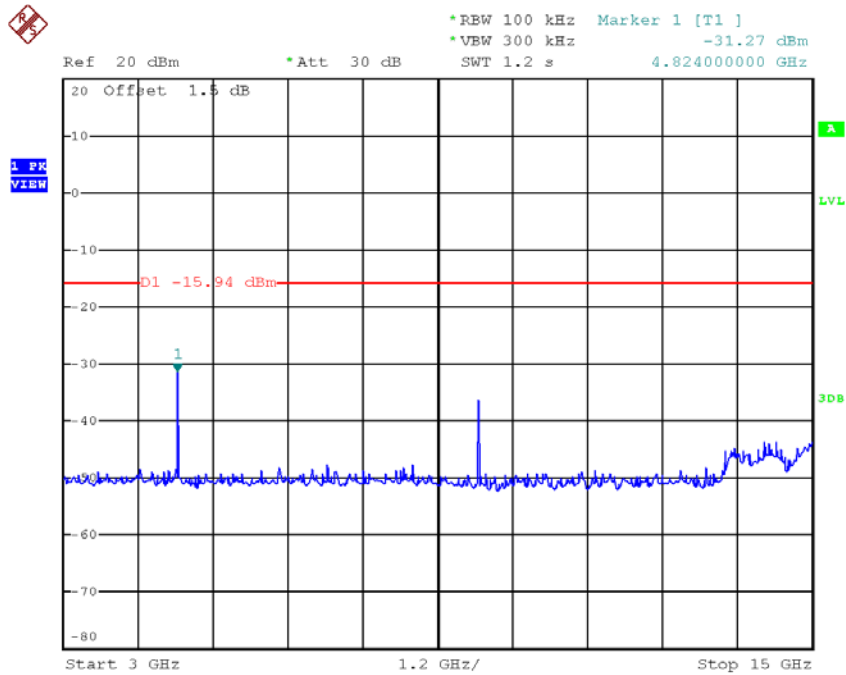


Date: 27.AUG.2018 16:24:52

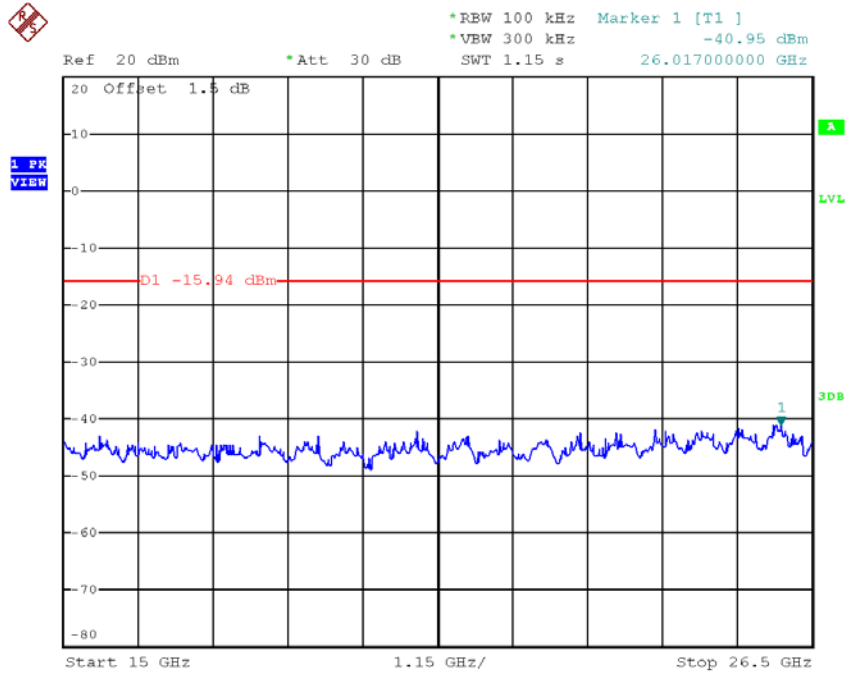
TX B mode CH01 (10 Harmonic of the frequency)



Date: 27.AUG.2018 16:19:19

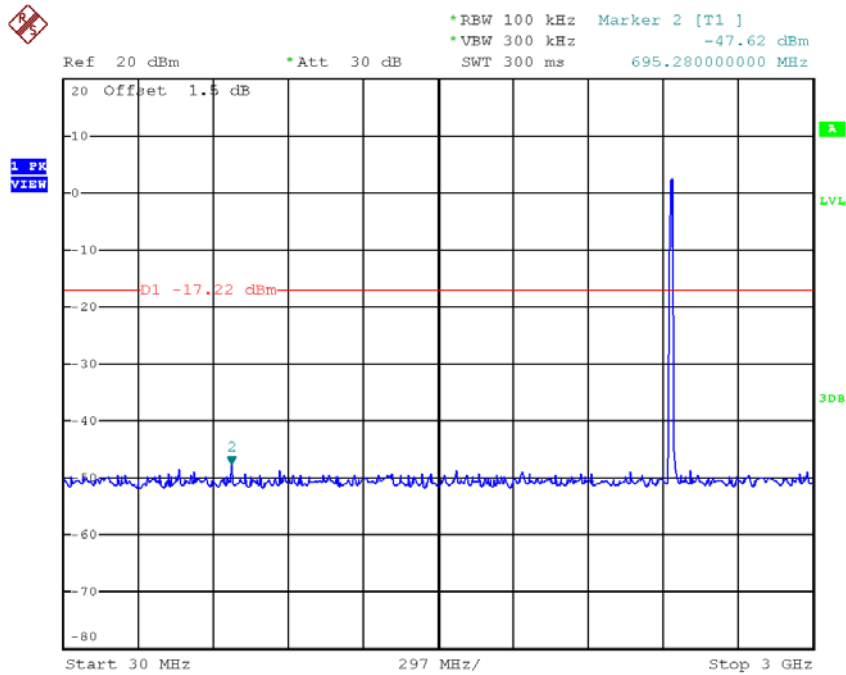


Date: 27.AUG.2018 16:19:27

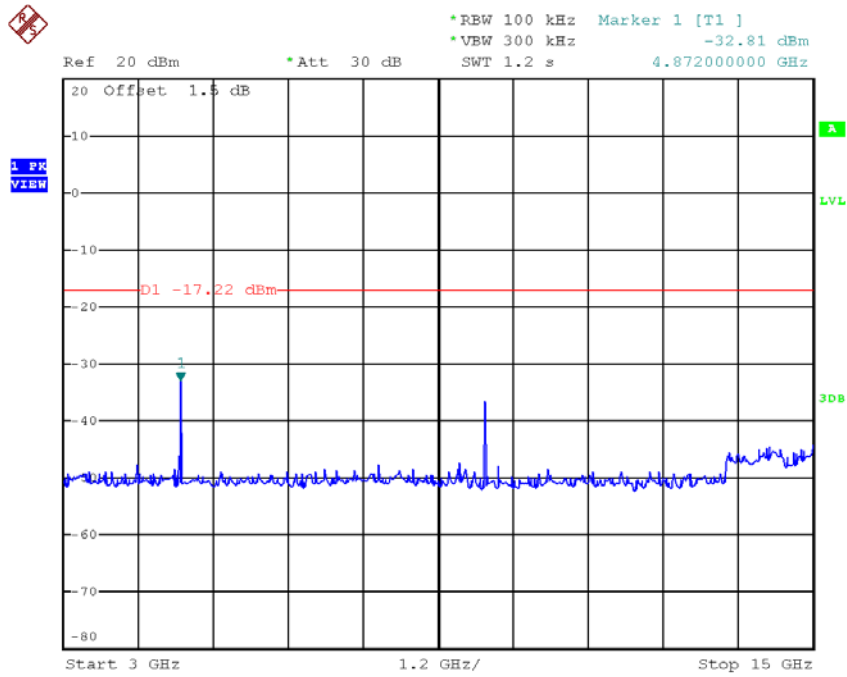


Date: 27.AUG.2018 16:19:34

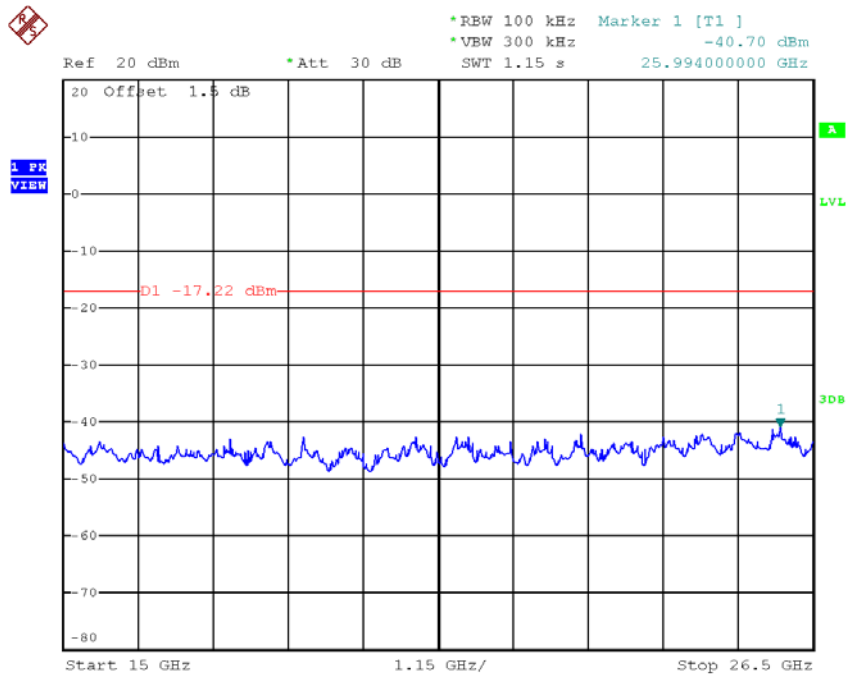
TX B mode CH06 (10 Harmonic of the frequency)



Date: 27.AUG.2018 16:22:47

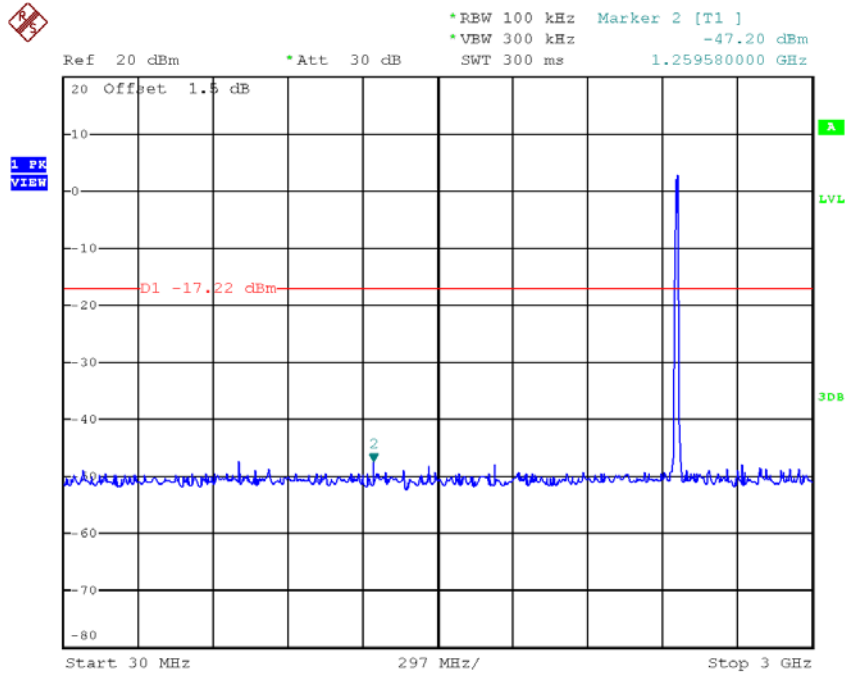


Date: 27.AUG.2018 16:22:54

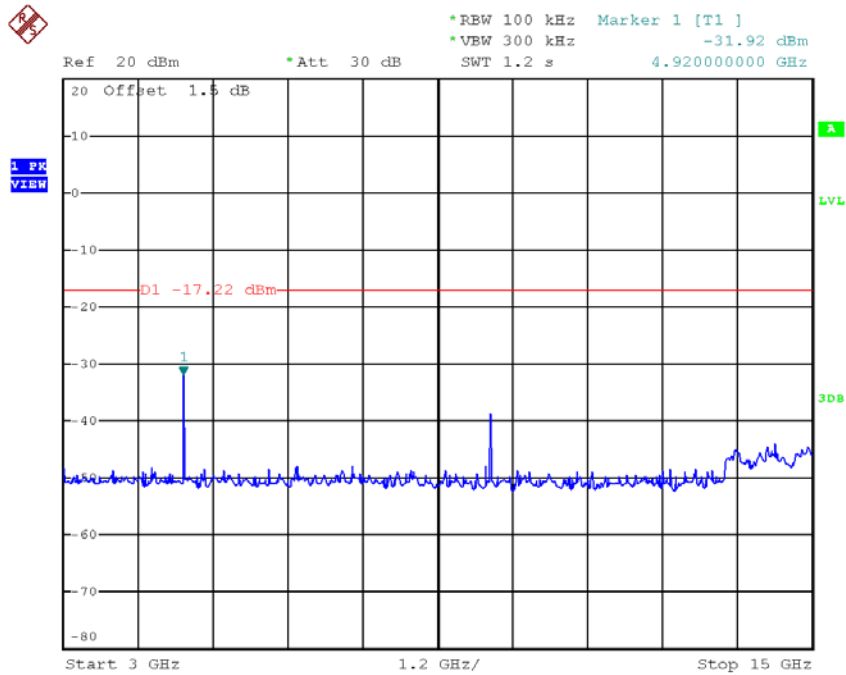


Date: 27.AUG.2018 16:23:02

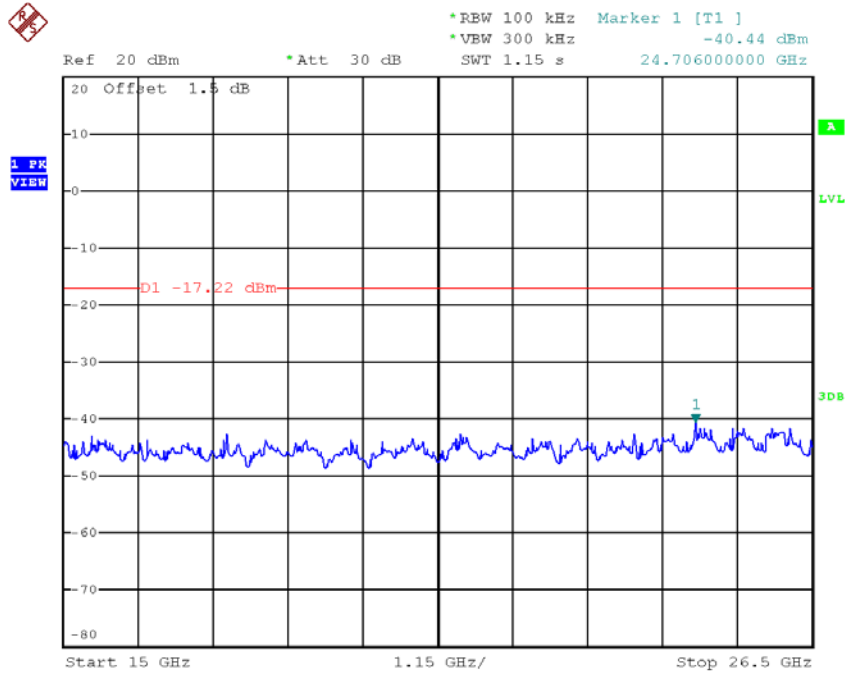
TX B mode CH11 (10 Harmonic of the frequency)



Date: 27.AUG.2018 16:25:05



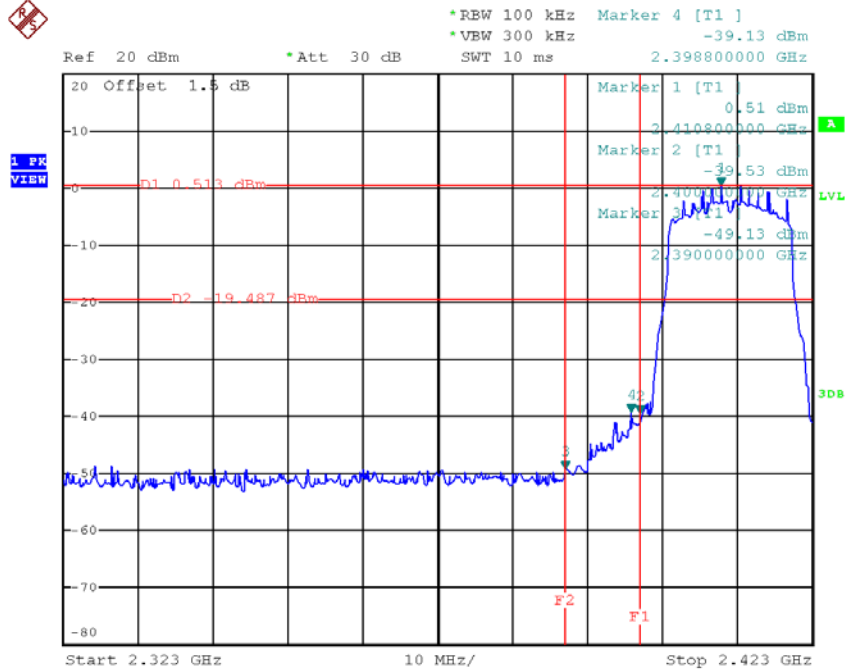
Date: 27.AUG.2018 16:25:12



Date: 27.AUG.2018 16:25:19

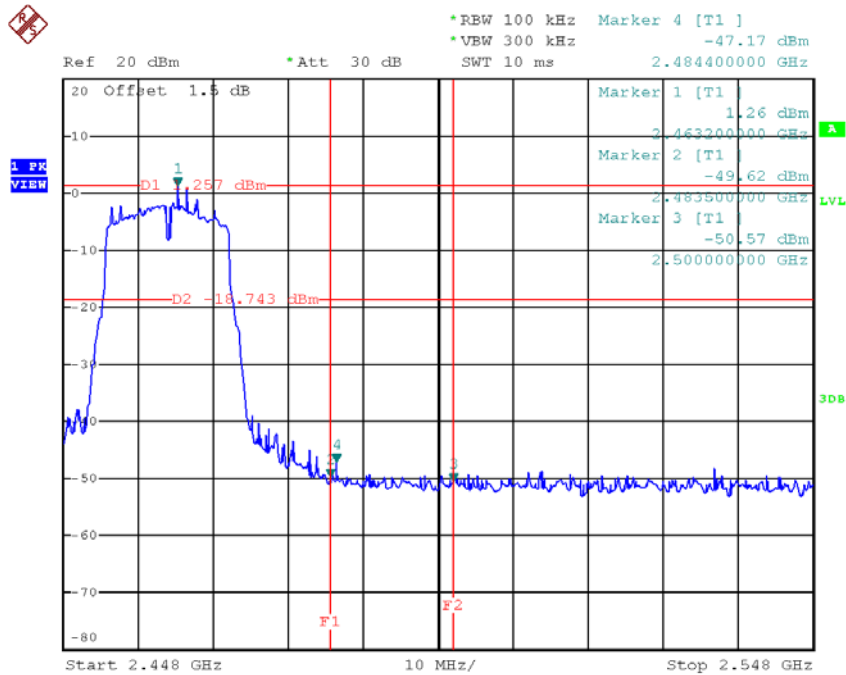
Test Mode: TX G Mode

TX G mode CH01



Date: 27.AUG.2018 16:26:48

TX G mode CH11



Date: 27.AUG.2018 16:30:06