FCC Radio Test Report

FCC ID: KA2AP1530A1

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

Project No.	:	1708C079
Equipment	:	DAP-1530 : AC750 Plus WiFi Range Extender DAP-1610 : AC1200 WiFi Range Extender
Test Model	:	DAP-1530
Series Model	:	DAP-1610
Applicant	:	D-LINK Corporation
Address	:	17595 Mt. Herrmann, Fountain Valley, California, United States 92708

Date of Receipt	:	Aug. 04, 2017 Jan. 04, 2018
Date of Test	:	Aug. 04, 2017 ~ Sep. 13, 2017 Jan. 04, 2018 ~ Jan. 26, 2018
Issued Date	:	Jan. 26, 2018
Tested by	:	BTL Inc.

Testing Engineer : shawn xiao
(Shawn Xiao)

Technical Manager : David Mao
(David Mao)

Authorized Signatory : Steven Lu
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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).

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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

Issued No.	Description	Issued Date
BTL-FCCP-1-1708C079	Original Report.	Sep. 14, 2017
BTL-FCCP-3-1708C079	Compared with previous report (BTL-FCCP-1-1708C079), only the heat sink of the product is updated, all test items are verified and found only the test data of BANDEDGE for N40 2452MHz is worse and thus is recorded in this report, all rest test results are kept as same.	Jan. 26, 2018

1. CERTIFICATION

Equipment	:	DAP-1530 : AC750 Plus WiFi Range Extender DAP-1610 : AC1200 WiFi Range Extender
Brand Name	:	D-LINK
Test Model	:	DAP-1530
Series Model	:	DAP-1610
Applicant	:	D-LINK Corporation
Manufacturer	:	D-LINK Corporation
Address	:	17595 Mt. Herrmann, Fountain Valley, California, United States 92708
Factory	:	Huizhou MTN WEIYE Technology Development Co.,Ltd
Address	:	No.2 Huitai Road, Huinan High-tech Industrial Park, Huiao Avenue,Huizhou City,Guangdong Province,China.
Date of Test	:	Aug. 04, 2017 ~ Sep. 13, 2017 Jan. 04, 2018 ~ Jan. 26, 2018
Test Sample	:	Engineering Sample
Standard(s)	:	FCC Part15, Subpart C:(15.247) ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-3-1708C079) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

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

Note:

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

2.1 TEST FACILITY

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

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

The reported uncertainty of measurement y ± U, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

A. Conducted Measurement:

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

B. Radiated Measurement:

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

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td colspan="2">DAP-1530 : AC750 Plus WiFi Range Extender
DAP-1610 : AC1200 WiFi Range Extender</td></tr>
<tr><td>Brand Name</td><td colspan="2">D-LINK</td></tr>
<tr><td>Test Model</td><td colspan="2">DAP-1530</td></tr>
<tr><td>Series Model</td><td colspan="2">DAP-1610</td></tr>
<tr><td>Model Difference</td><td colspan="2">Only different as below:
<table>
<tr><td>Model Name</td><td>Product name</td></tr>
<tr><td>DAP-1530</td><td>AC750 Plus WiFi Range Extender</td></tr>
<tr><td>DAP-1610</td><td>AC1200 WiFi Range Extender</td></tr>
</table></td></tr>
<tr><td rowspan="4">Product Description</td><td>Operation Frequency</td><td>2412~2462 MHz</td></tr>
<tr><td>Modulation Technology</td><td>802.11b:DSSS
802.11g:OFDM
802.11n:OFDM</td></tr>
<tr><td>Bit Rate of Transmitter</td><td>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</td></tr>
<tr><td>Output Power (Max.)</td><td>802.11b: 17.01dBm
802.11g: 25.33dBm
802.11n(20MHz): 27.88dBm
802.11n(40MHz): 28.37dBm</td></tr>
<tr><td>Power Source</td><td colspan="2">AC Mains</td></tr>
<tr><td>Power Rating</td><td colspan="2">I/P: AC 100-240V 0.3A Max O/P: DC 12V 0.6A</td></tr>
</table>

Note:

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

2. Channel List:

<table>
<tr><td colspan="8">CH01 - CH11 for 802.11b, 802.11g, 802.11n(20MHz)
CH03 - CH09 for 802.11n(40MHz)</td></tr>
<tr><td>Channel</td><td>Frequency (MHz)</td><td>Channel</td><td>Frequency (MHz)</td><td>Channel</td><td>Frequency (MHz)</td><td>Channel</td><td>Frequency (MHz)</td></tr>
<tr><td>01</td><td>2412</td><td>04</td><td>2427</td><td>07</td><td>2442</td><td>10</td><td>2457</td></tr>
<tr><td>02</td><td>2417</td><td>05</td><td>2432</td><td>08</td><td>2447</td><td>11</td><td>2462</td></tr>
<tr><td>03</td><td>2422</td><td>06</td><td>2437</td><td>09</td><td>2452</td><td></td><td></td></tr>
</table>

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	N/A	3
2	N/A	N/A	Dipole	N/A	3

Note: The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).

4.

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-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ 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 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09

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

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

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

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

Note:

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

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

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

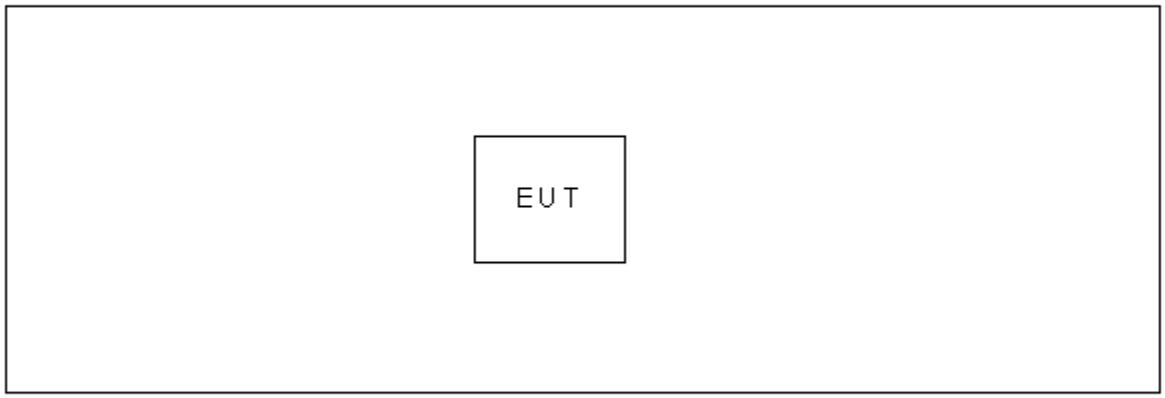
(4) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

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

Test software version	QATool_Dbg		
Frequency (MHz)	2412	2437	2462
802.11b	9	10	9
802.11g	11	11	11
802.11n (20MHz)	17	18	17
Frequency (MHz)	2422	2437	2452
802.11n (40MHz)	15	1E	19

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	-

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

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

Note:

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

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

The following table is the setting of the receiver

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

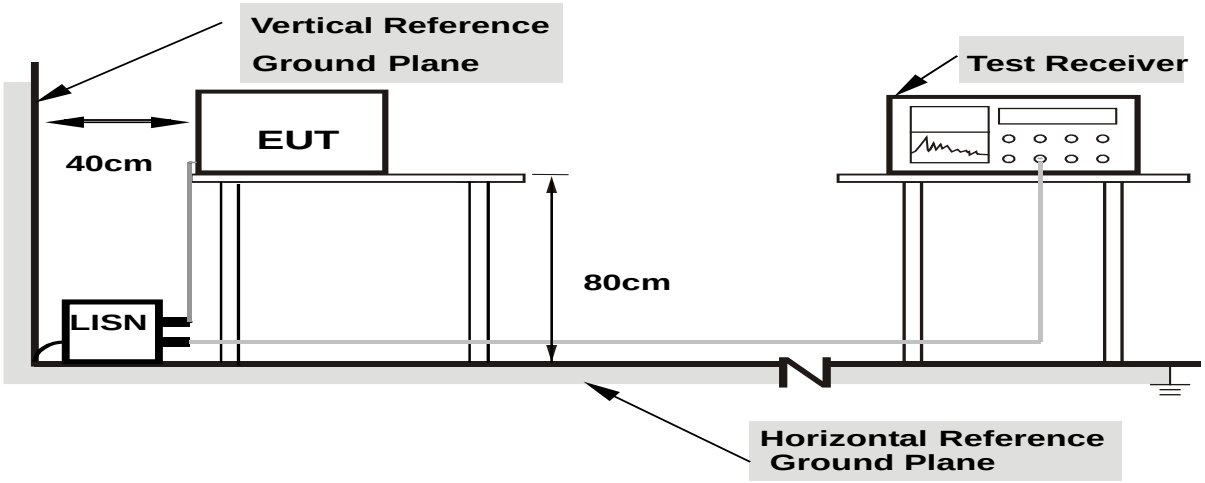
4.1.2 TEST PROCEDURE

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

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



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

4.1.5 EUT OPERATING CONDITIONS

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

4.1.6 EUT TEST CONDITIONS

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

4.1.7 TEST RESULTS

Please refer to the Appendix A.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

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

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

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

Notes:

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

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

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

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

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

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

4.2.2 TEST PROCEDURE

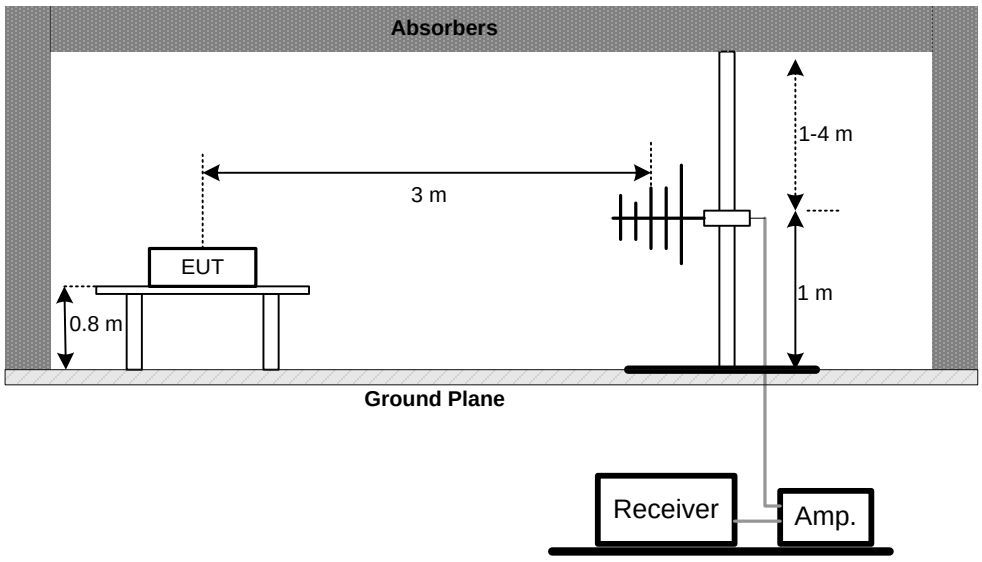
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance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

4.2.3 DEVIATION FROM TEST STANDARD

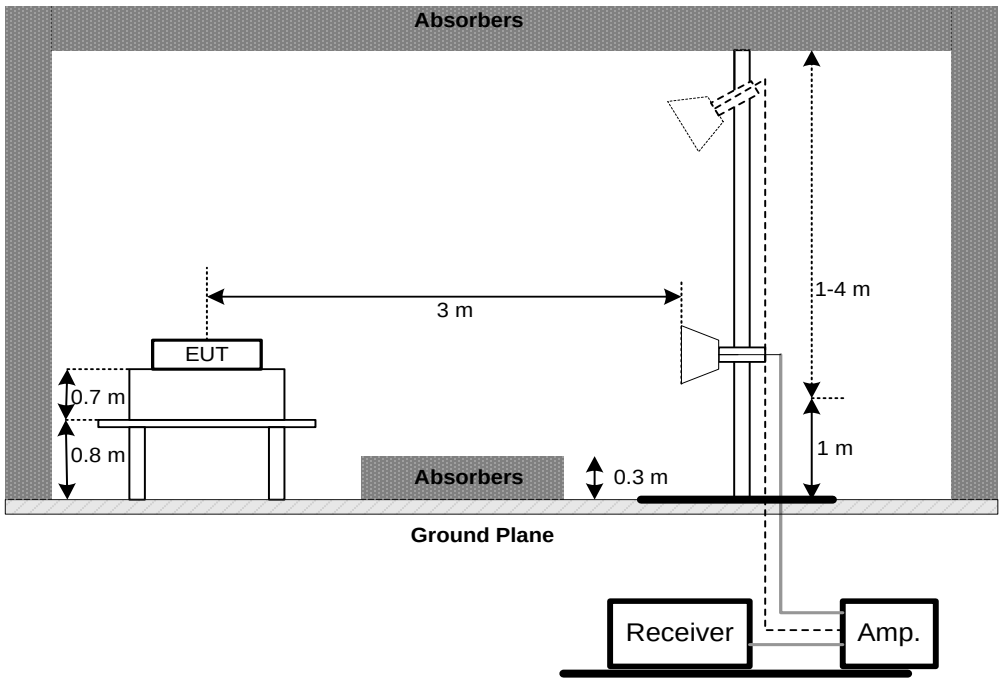
No deviation

4.2.4 TEST SETUP

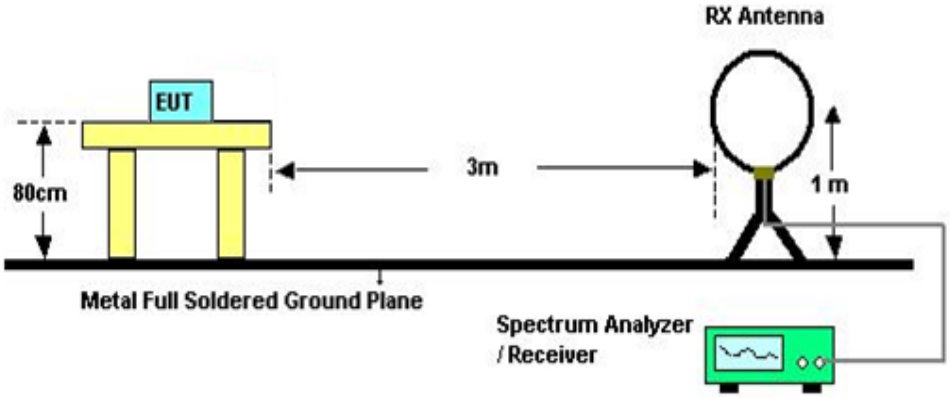
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



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



(C) For Radiated Emissions Below 30MHz



4.2.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.2.6 EUT TEST CONDITIONS

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

4.2.7 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Appendix B

Remark:

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

4.2.8 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the Appendix C.

4.2.9 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the Appendix D.

Remark:

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

5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES

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

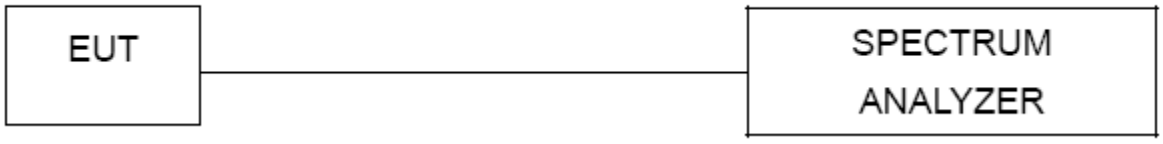
5.1.1 TEST PROCEDURE

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

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.1.5 EUT TEST CONDITIONS

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

5.1.6 TEST RESULTS

Please refer to the Appendix E.

6. MAXIMUM CONDUCTED OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

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

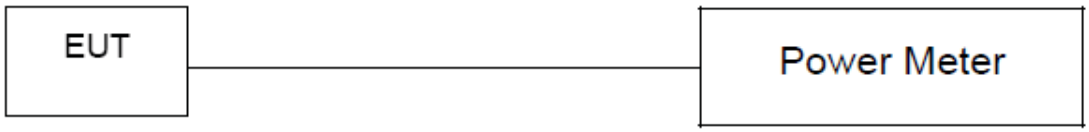
6.1.1 TEST PROCEDURE

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

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.1.5 EUT TEST CONDITIONS

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

6.1.6 TEST RESULTS

Please refer to the Appendix F.

7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 APPLIED PROCEDURES / LIMIT

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

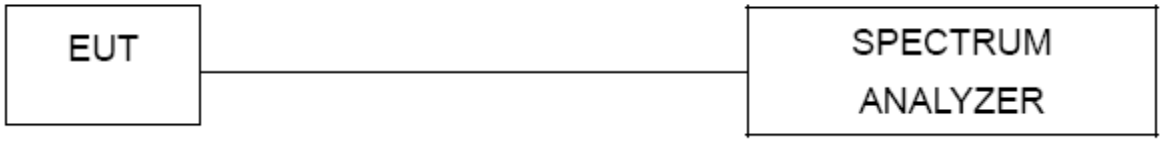
7.1.1 TEST PROCEDURE

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

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.1.5 EUT TEST CONDITIONS

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

7.1.6 TEST RESULTS

Please refer to the Appendix G.

8. POWER SPECTRAL DENSITY TEST

8.1 APPLIED PROCEDURES / LIMIT

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

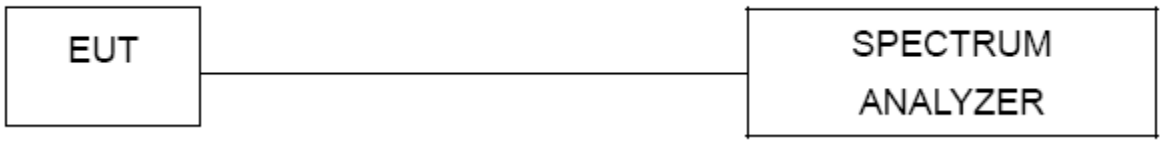
8.1.1 TEST PROCEDURE

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

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.1.5 EUT TEST CONDITIONS

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

8.1.6 TEST RESULTS

Please refer to the Appendix H.

9. MEASUREMENT INSTRUMENTS LIST

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

Radiated Emission Below 1GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 26, 2018
2	Amplifier	HP	8447D	2944A09673	Oct. 19, 2018
3	Receiver	Agilent	N9038A	MY52130039	Sep. 03, 2018
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	Jun. 26, 2018
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Sep. 05, 2018
8	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Above 1GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 26, 2018
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 08, 2018
3	Amplifier	Agilent	8449B	3008A02274	May. 16, 2018
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 26, 2018
5	Receiver	Agilent	N9038A	MY52130039	Sep. 03, 2018
6	Antenna	EM	EM-6876-1	230	Jul. 07, 2018
7	Controller	CT	SC100	N/A	N/A
8	Controller	MF	MF-7802	MF780208416	N/A
9	Cable	emci	EMC104-SM-SM-1 2000(12m)	N/A	Jun. 26, 2018
10	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

6dB Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 03, 2018

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

Antenna Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 03, 2018

Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 03, 2018

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

10. EUT TEST PHOTO

Conducted Measurement Photos

Radiated Measurement Photos

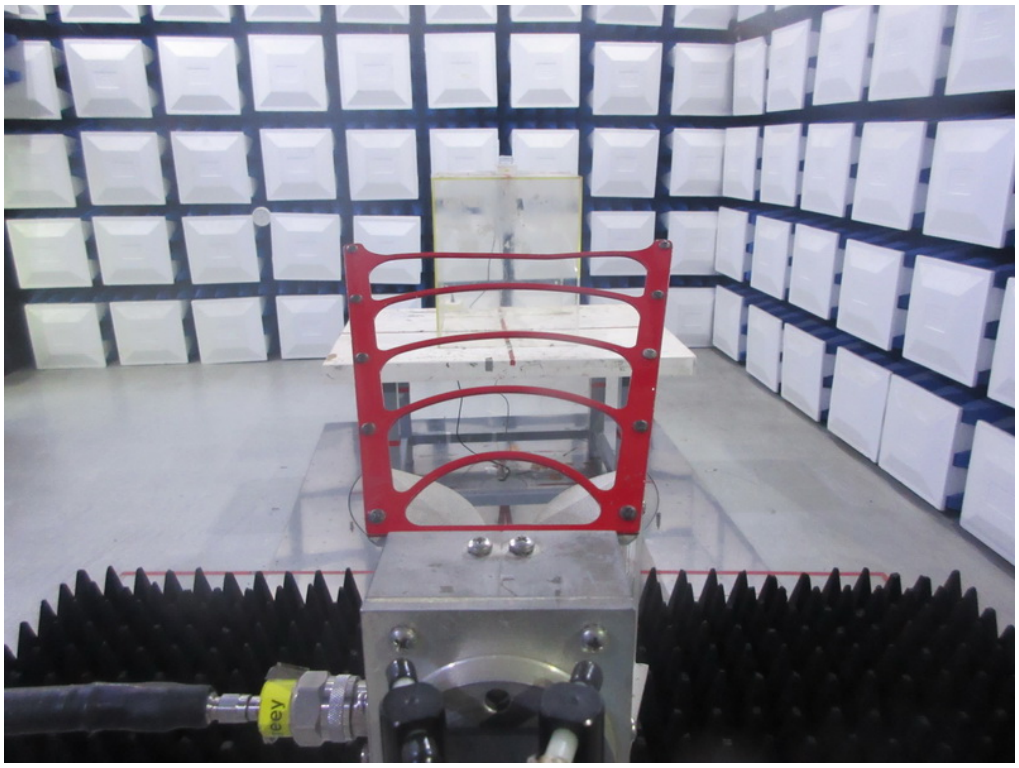
9KHz to 30MHz

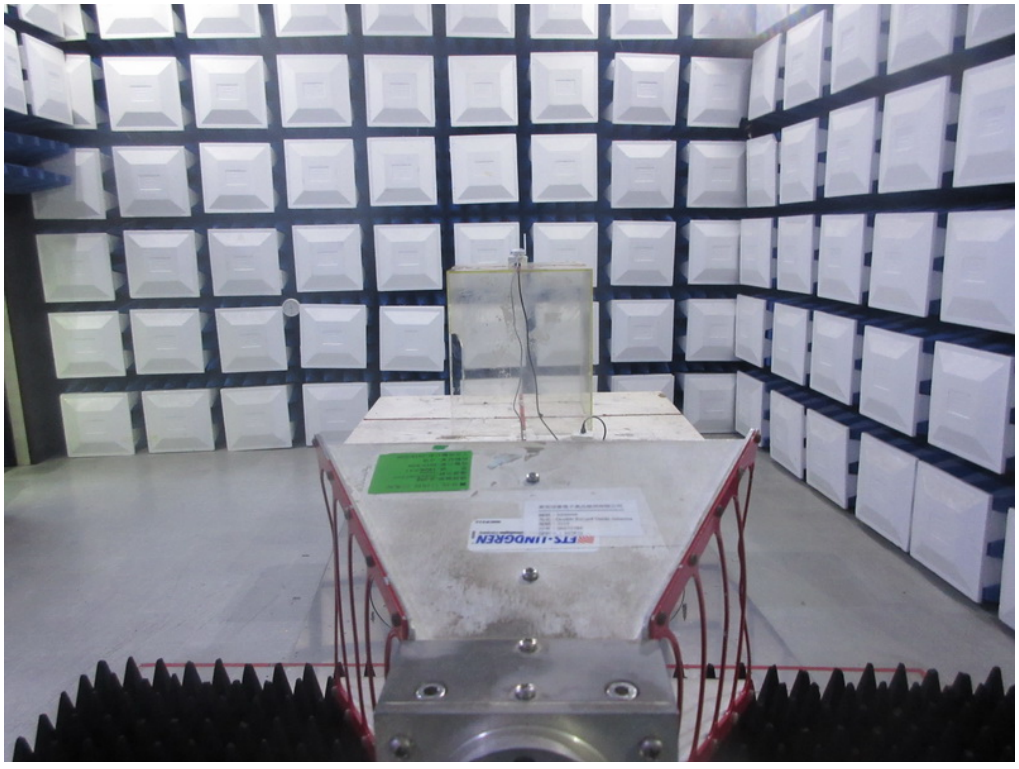
Radiated Measurement Photos

30MHz to 1000MHz

Radiated Measurement Photos

Above 1000MHz

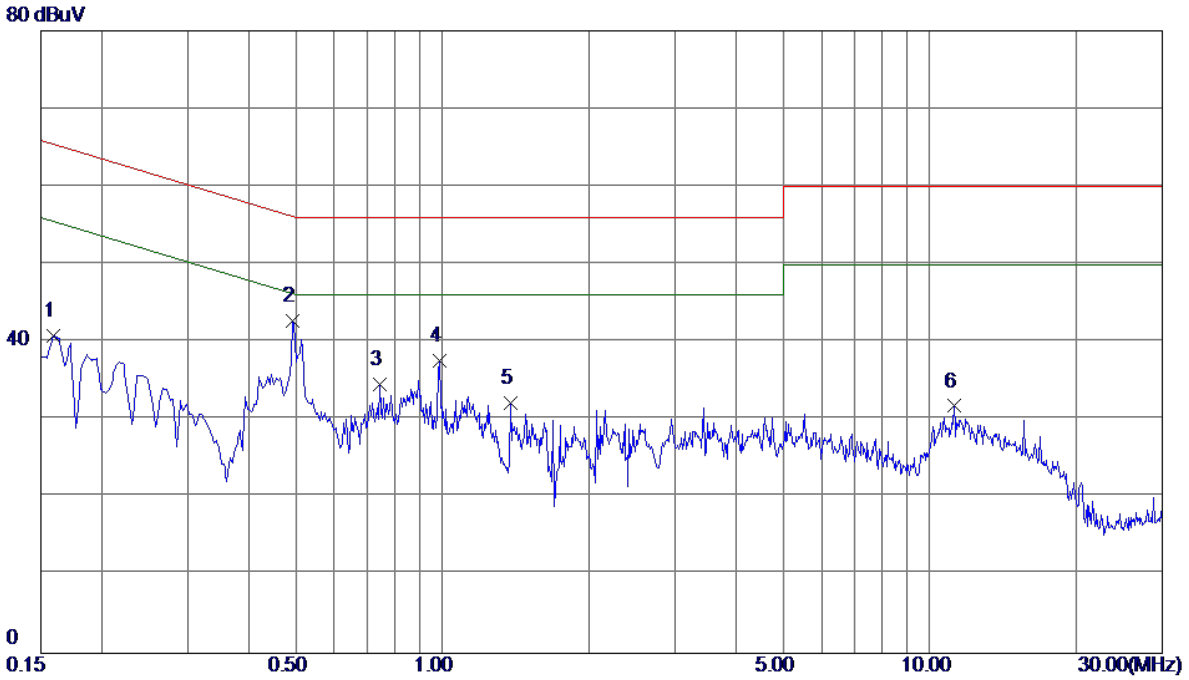




APPENDIX A - CONDUCTED EMISSION

Test Mode :	TX Mode

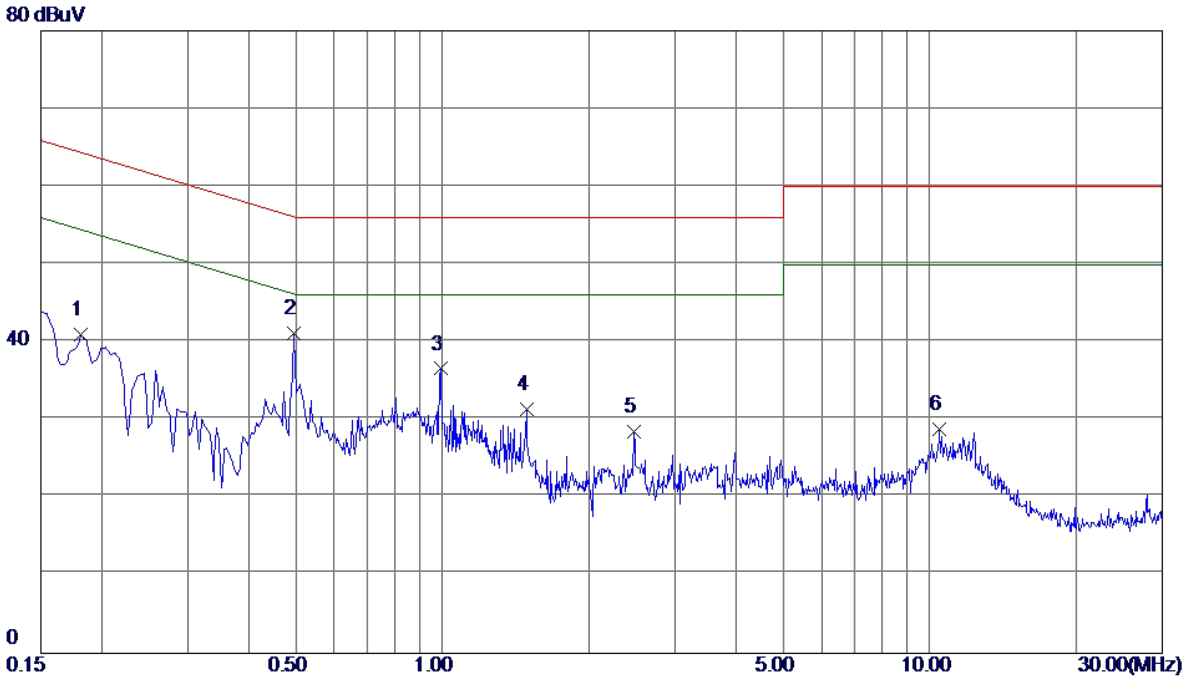
Line



No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1590	31.05	9.79	40.84	65.52	-24.68	Peak	
2 *	0.4920	32.93	9.80	42.73	56.13	-13.40	Peak	
3	0.7440	24.80	9.82	34.62	56.00	-21.38	Peak	
4	0.9870	27.79	9.84	37.63	56.00	-18.37	Peak	
5	1.3785	22.23	9.89	32.12	56.00	-23.88	Peak	
6	11.2514	21.37	10.39	31.76	60.00	-28.24	Peak	

Test Mode :	TX Mode

Neutral

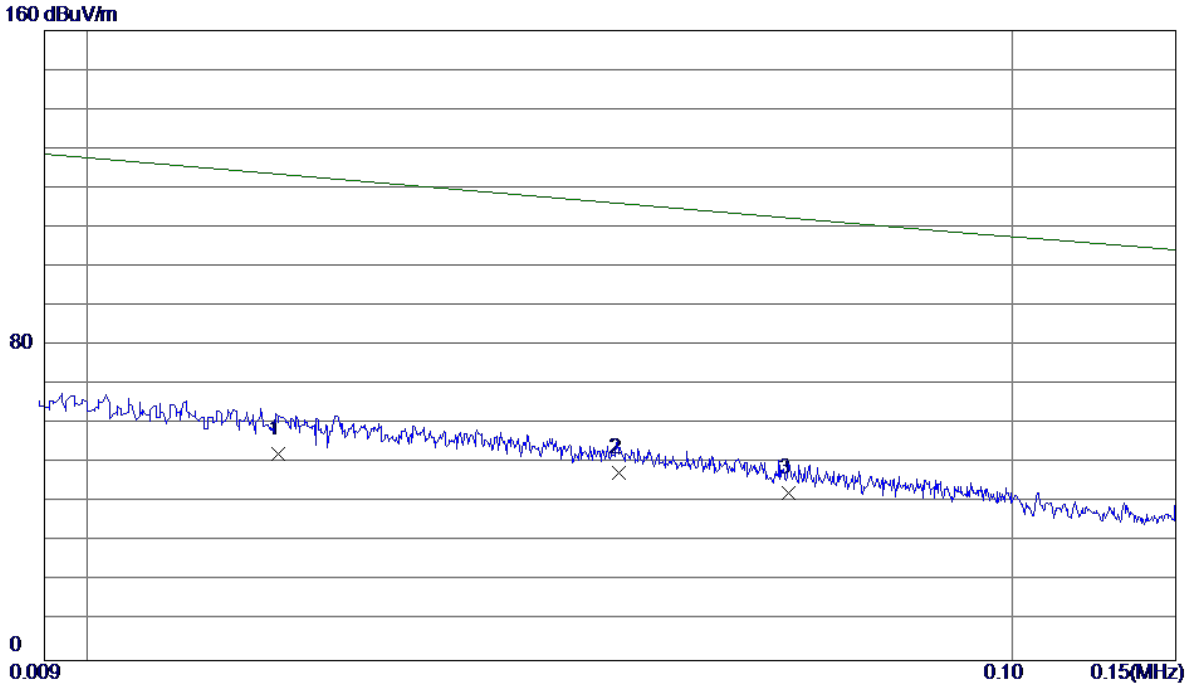


No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1815	31.26	9.68	40.94	64.42	-23.48	Peak	
2 *	0.4965	31.43	9.70	41.13	56.06	-14.93	Peak	
3	0.9915	26.81	9.75	36.56	56.00	-19.44	Peak	
4	1.4865	21.60	9.78	31.38	56.00	-24.62	Peak	
5	2.4720	18.68	9.86	28.54	56.00	-27.46	Peak	
6	10.4685	18.43	10.30	28.73	60.00	-31.27	Peak	

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

Test Mode:	TX B MODE CHANNEL 01

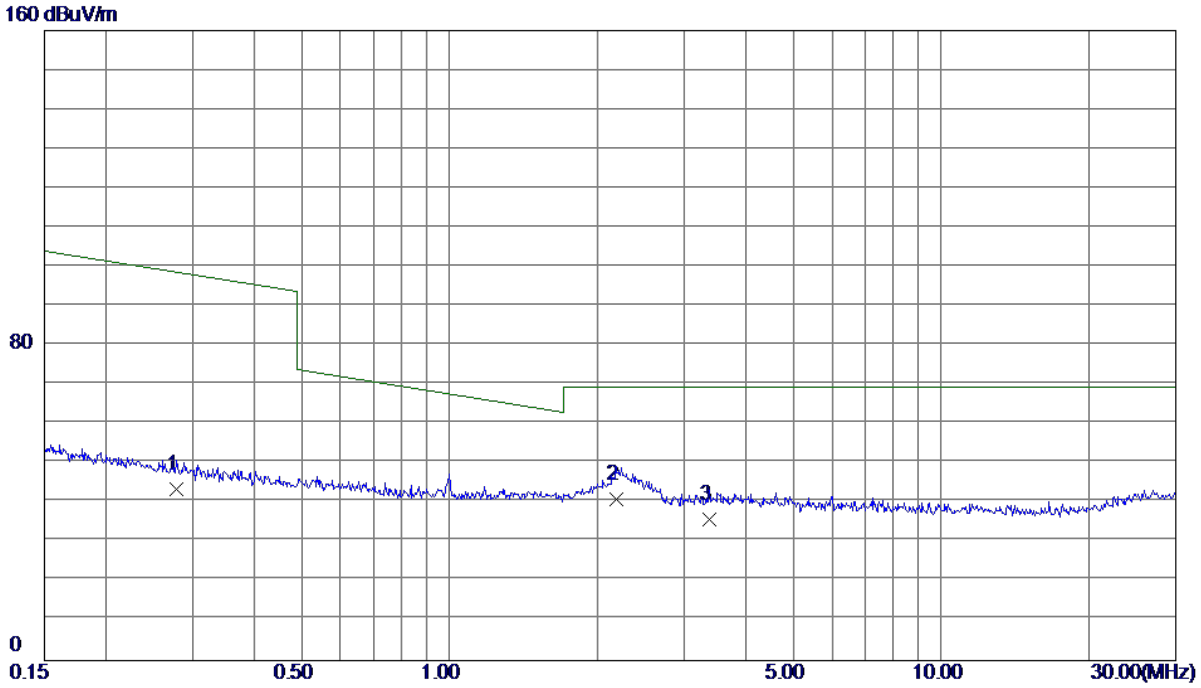
Ant 0°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0161	32.48	20.13	52.61	126.74	-74.13	AVG	
2 *	0.0375	28.73	19.10	47.83	121.46	-73.63	AVG	
3	0.0573	23.96	18.58	42.54	116.57	-74.03	AVG	

Test Mode:	TX B MODE CHANNEL 01

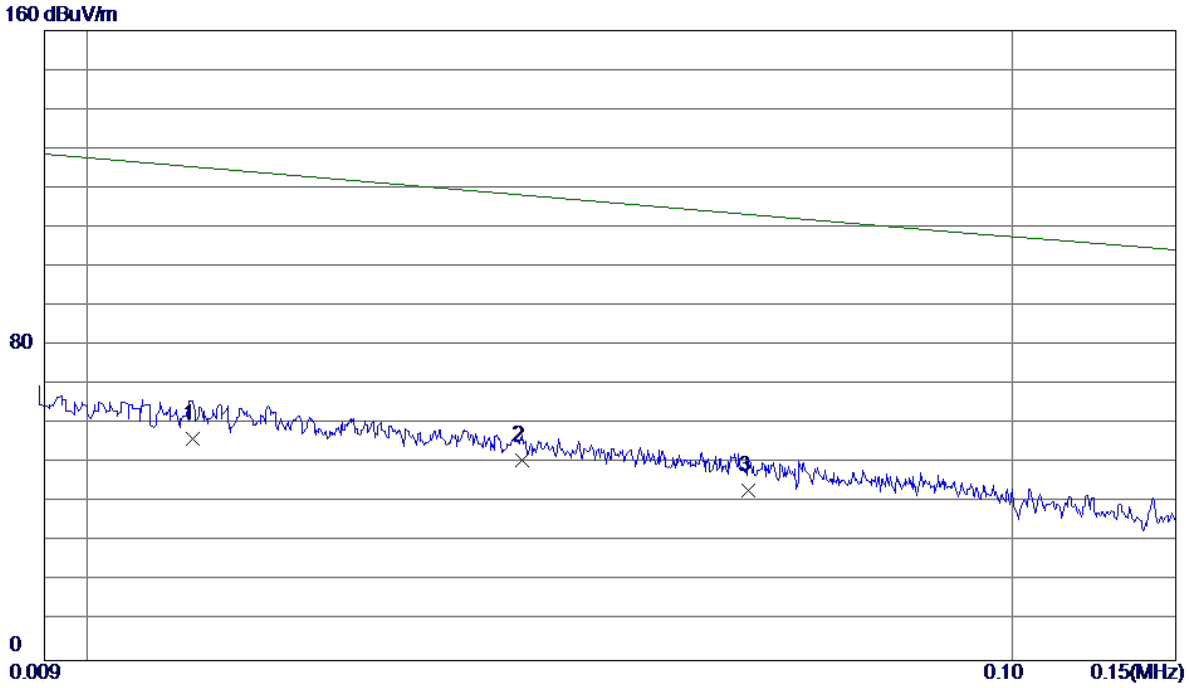
Ant 0°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.2788	26.88	16.63	43.51	101.01	-57.50	AVG	
2 *	2.1783	25.49	15.46	40.95	69.54	-28.59	QP	
3	3.3814	20.68	15.12	35.80	69.54	-33.74	QP	

Test Mode:	TX B MODE CHANNEL 01

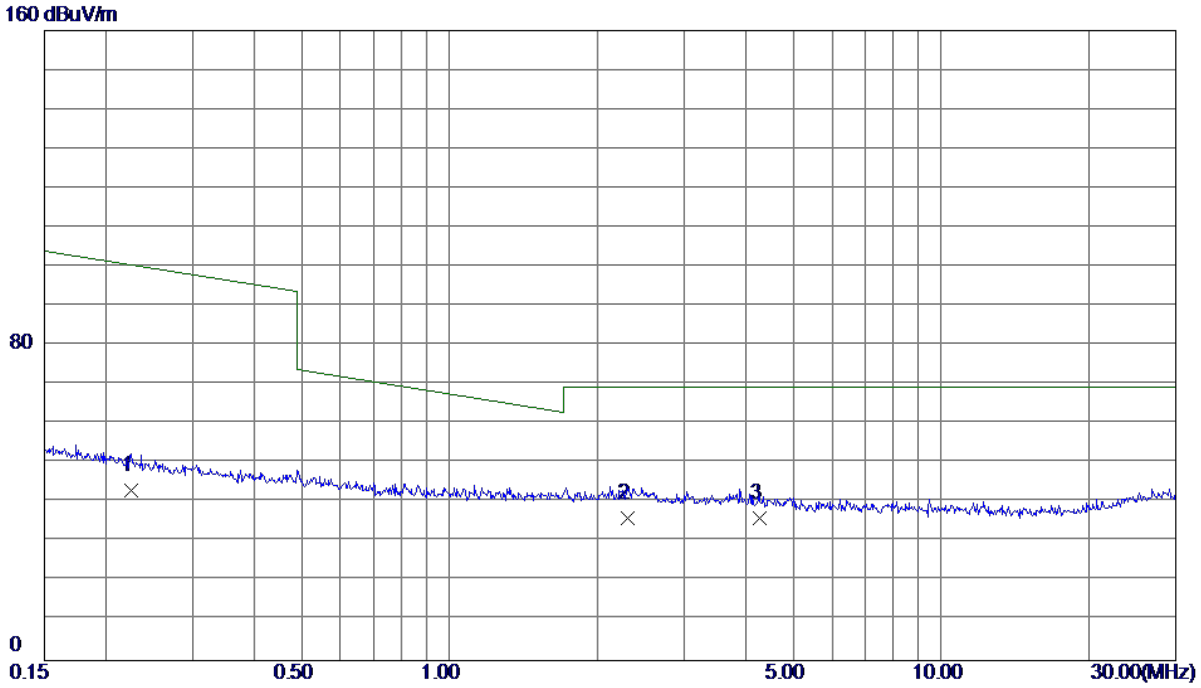
Ant 90°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	0.0130	35.68	20.53	56.21	127.51	-71.30	AVG	
2	0.0295	31.57	19.34	50.91	123.43	-72.52	AVG	
3	0.0519	24.62	18.69	43.31	117.90	-74.59	AVG	

Test Mode:	TX B MODE CHANNEL 01

Ant 90°

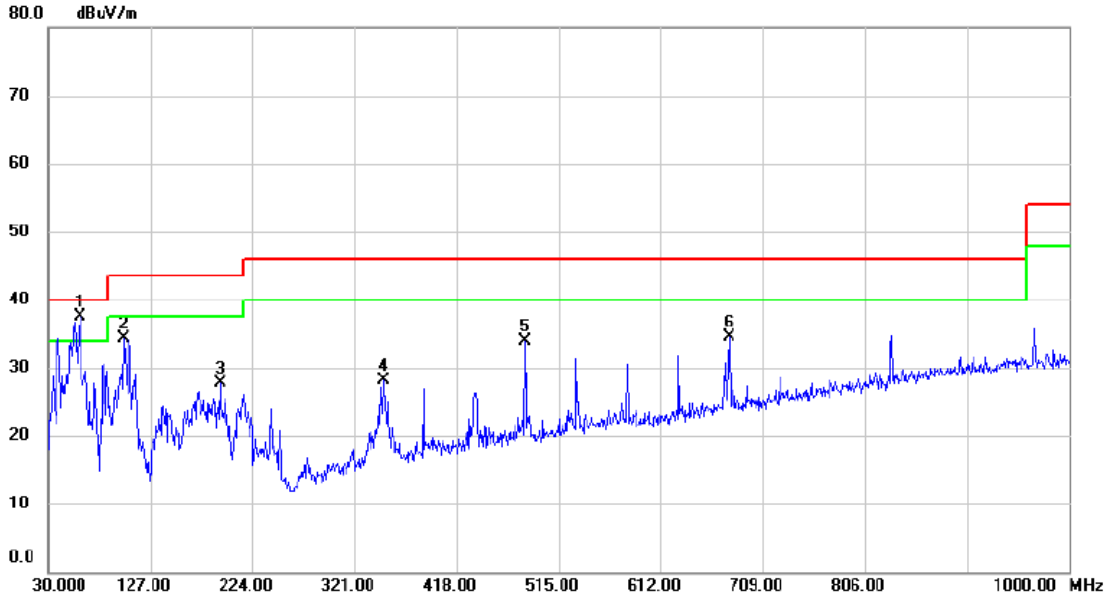


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.2256	26.47	16.73	43.20	102.83	-59.63	AVG	
2	2.3090	20.60	15.42	36.02	69.54	-33.52	QP	
3 *	4.2692	21.47	14.79	36.26	69.54	-33.28	QP	

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

Test Mode:	TX B MODE CHANNEL 01

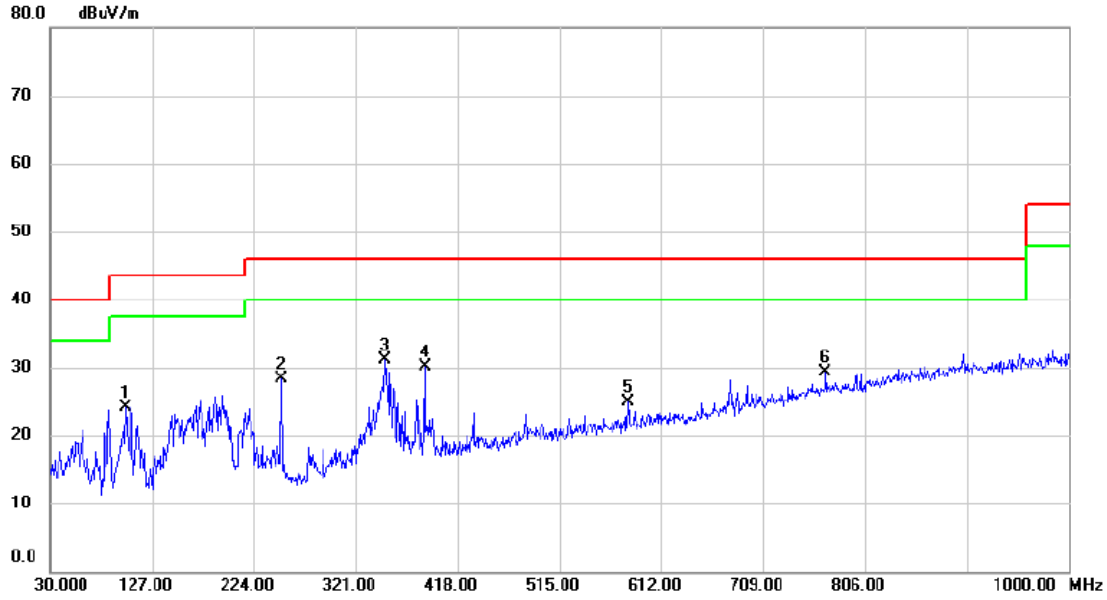
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	60.070	51.76	-14.32	37.44	40.00	-2.56	peak	
2		101.780	51.53	-17.25	34.28	43.50	-9.22	peak	
3		192.960	40.74	-13.12	27.62	43.50	-15.88	peak	
4		348.160	40.09	-11.99	28.10	46.00	-17.90	peak	
5		482.990	42.98	-9.13	33.85	46.00	-12.15	peak	
6		676.990	39.08	-4.65	34.43	46.00	-11.57	peak	

Test Mode:	TX B MODE CHANNEL 01

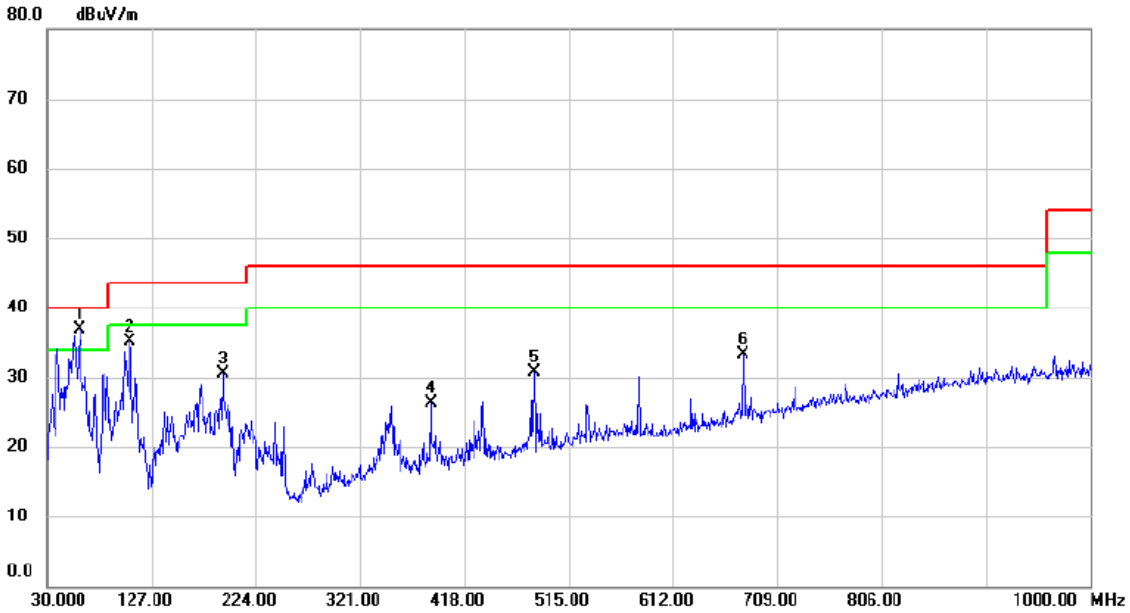
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		101.780	41.39	-17.25	24.14	43.50	-19.36	peak	
2		250.190	43.21	-14.90	28.31	46.00	-17.69	peak	
3	*	348.160	43.10	-11.99	31.11	46.00	-14.89	peak	
4		386.960	41.55	-11.51	30.04	46.00	-15.96	peak	
5		579.990	31.83	-6.93	24.90	46.00	-21.10	peak	
6		768.170	31.44	-2.05	29.39	46.00	-16.61	peak	

Test Mode:	TX B MODE CHANNEL 06

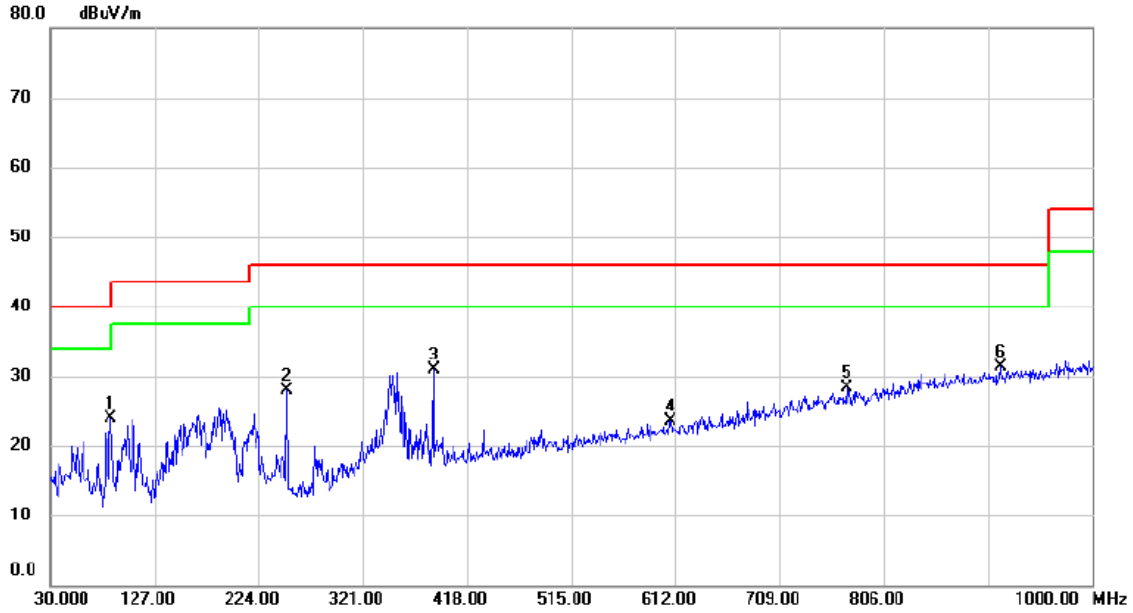
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	60.070	51.19	-14.32	36.87	40.00	-3.13	peak	
2		106.630	51.73	-16.62	35.11	43.50	-8.39	peak	
3		192.960	43.61	-13.12	30.49	43.50	-13.01	peak	
4		386.960	37.74	-11.51	26.23	46.00	-19.77	peak	
5		482.990	39.90	-9.13	30.77	46.00	-15.23	peak	
6		676.990	38.02	-4.65	33.37	46.00	-12.63	peak	

Test Mode:	TX B MODE CHANNEL 06

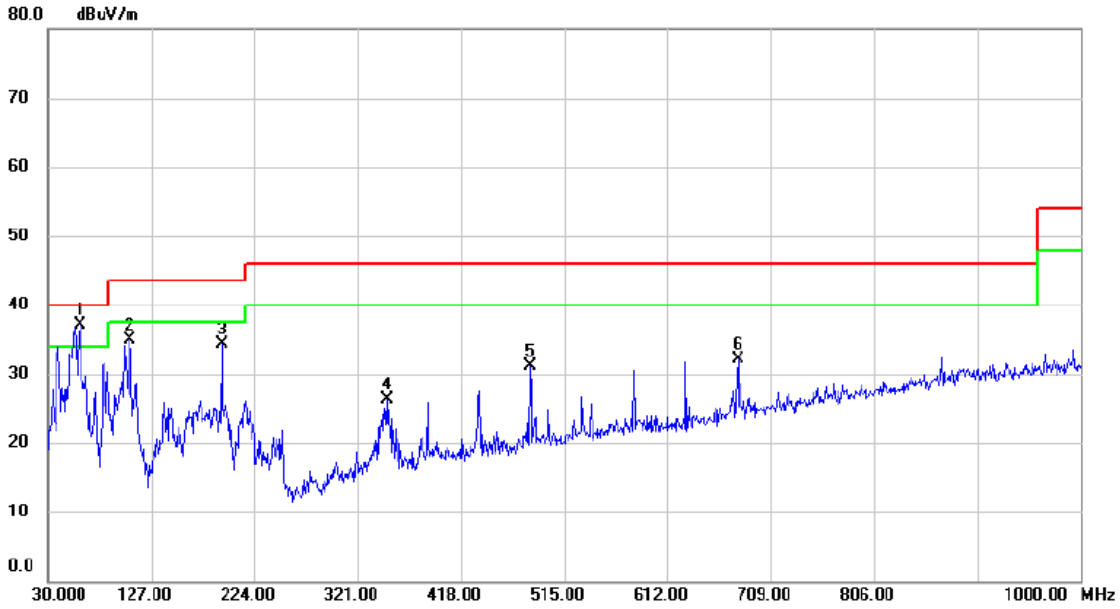
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		86.260	42.42	-18.46	23.96	40.00	-16.04	peak	
2		250.190	42.77	-14.90	27.87	46.00	-18.13	peak	
3		386.960	42.51	-11.51	31.00	46.00	-15.00	peak	
4		607.150	29.77	-6.29	23.48	46.00	-22.52	peak	
5		771.080	30.33	-1.99	28.34	46.00	-17.66	peak	
6	*	914.640	29.92	1.31	31.23	46.00	-14.77	peak	

Test Mode:	TX B MODE CHANNEL 11

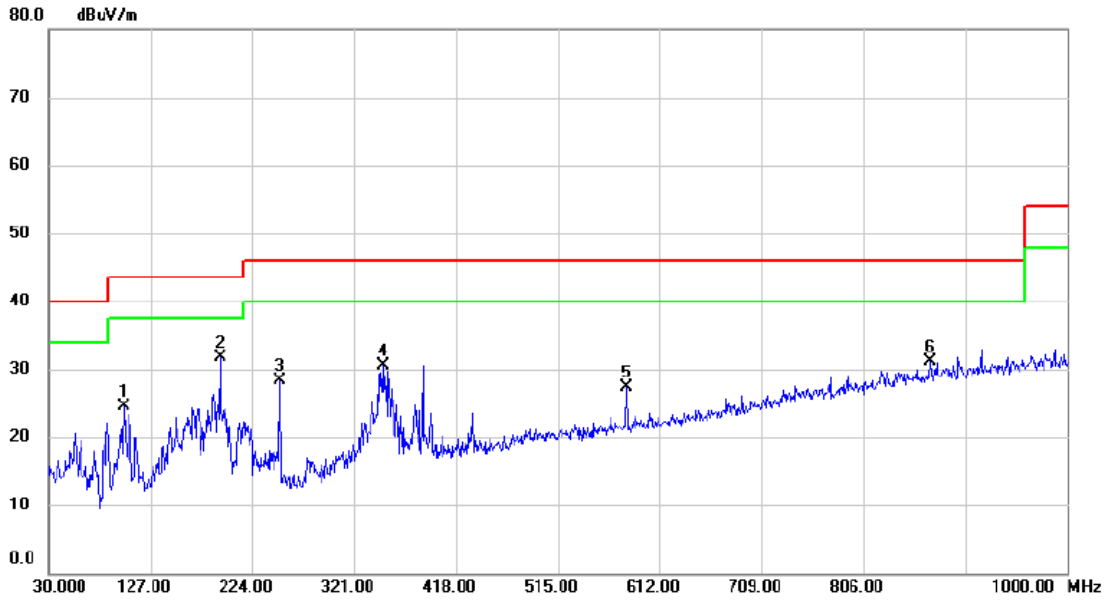
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	60.070	51.49	-14.32	37.17	40.00	-2.83	peak	
2		106.630	51.55	-16.62	34.93	43.50	-8.57	peak	
3		192.960	47.42	-13.12	34.30	43.50	-9.20	peak	
4		348.160	38.33	-11.99	26.34	46.00	-19.66	peak	
5		482.990	40.26	-9.13	31.13	46.00	-14.87	peak	
6		678.930	36.78	-4.59	32.19	46.00	-13.81	peak	

Test Mode:	TX B MODE CHANNEL 11

Horizontal

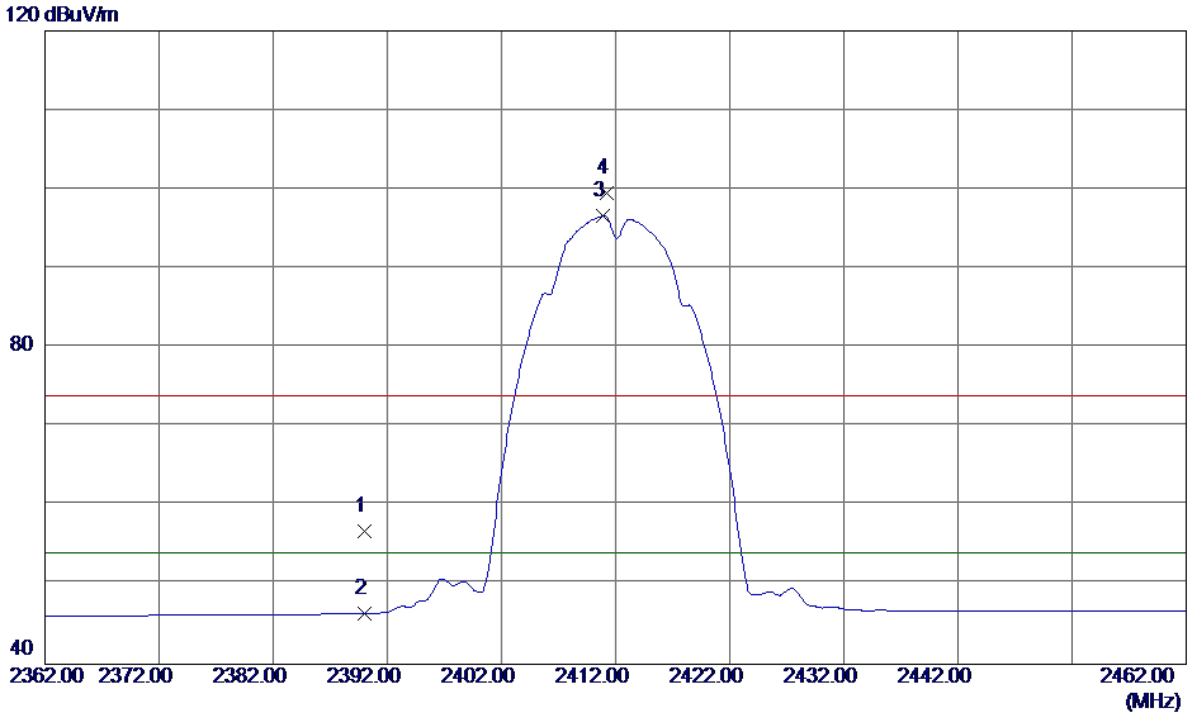


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		101.780	41.76	-17.25	24.51	43.50	-18.99	peak	
2	*	192.960	44.85	-13.12	31.73	43.50	-11.77	peak	
3		250.190	43.16	-14.90	28.26	46.00	-17.74	peak	
4		348.160	42.49	-11.99	30.50	46.00	-15.50	peak	
5		579.990	34.15	-6.93	27.22	46.00	-18.78	peak	
6		870.020	30.73	0.41	31.14	46.00	-14.86	peak	

APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ)

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

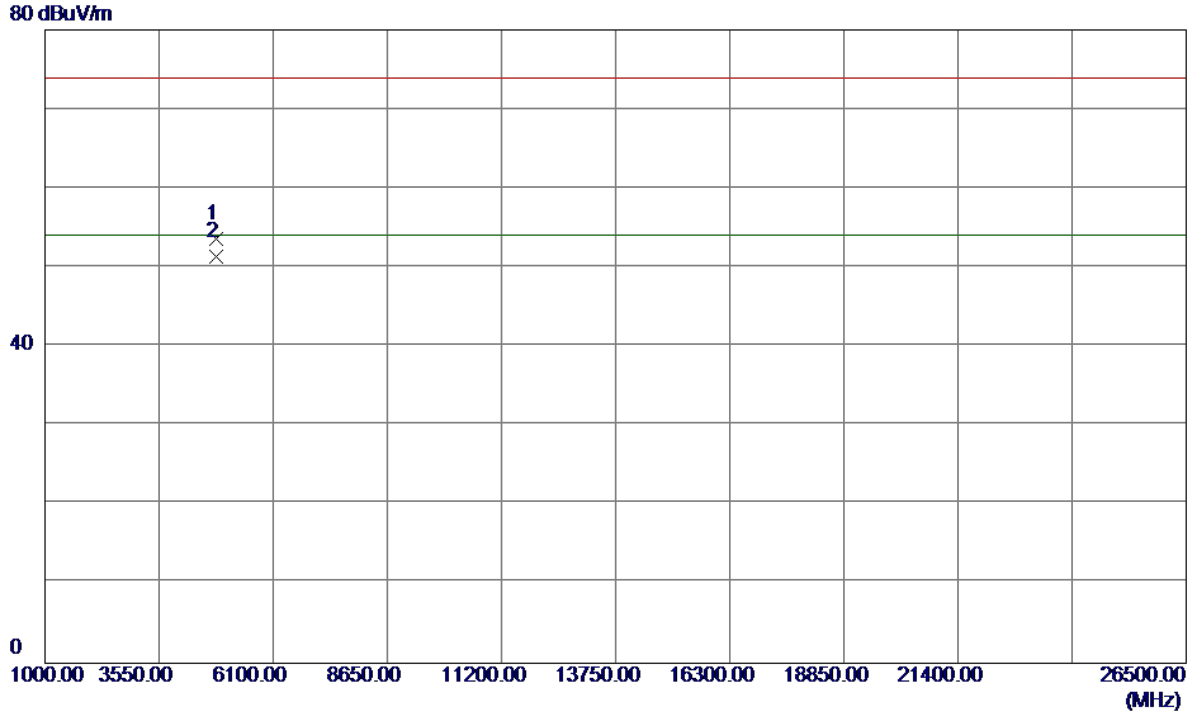
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.72	33.06	56.78	74.00	-17.22	Peak	
2	2390.0000	13.30	33.06	46.36	54.00	-7.64	AVG	
3 *	2410.9000	63.49	33.13	96.62	54.00	42.62	AVG	No Limit
4	2411.2000	66.41	33.14	99.55	74.00	25.55	Peak	No Limit

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

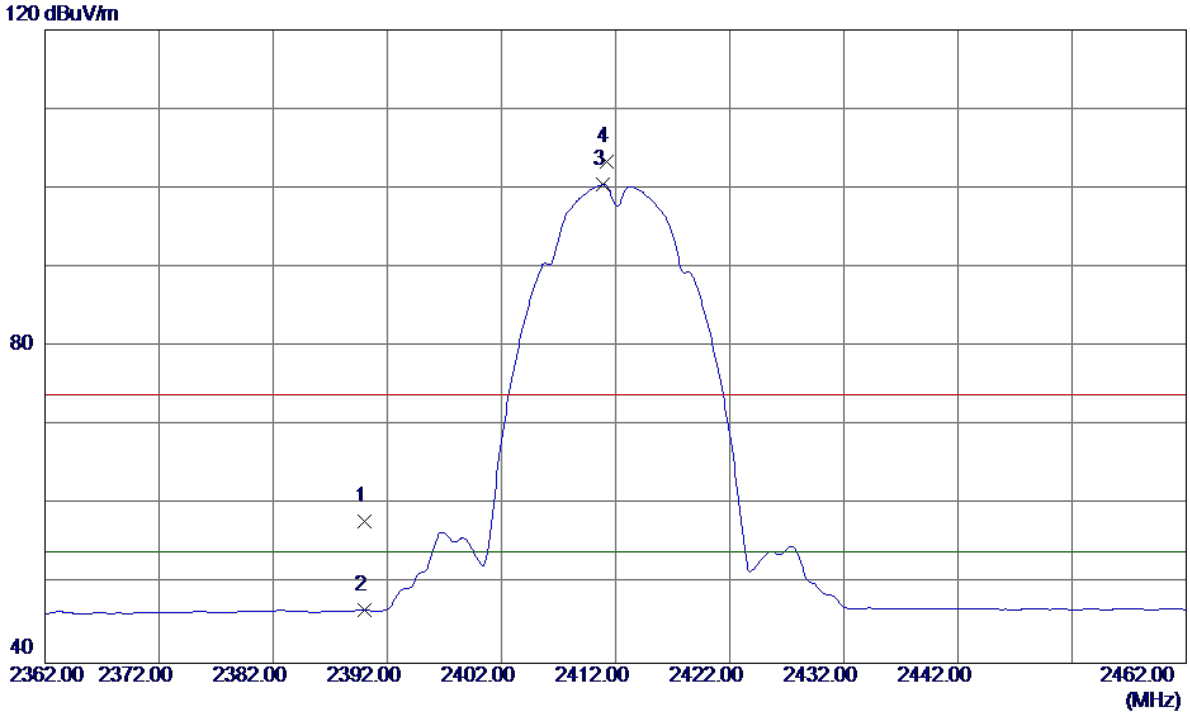
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4824.1300	47.23	6.32	53.55	74.00	-20.45	Peak	
2 *	4824.1349	45.11	6.32	51.43	54.00	-2.57	AVG	

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

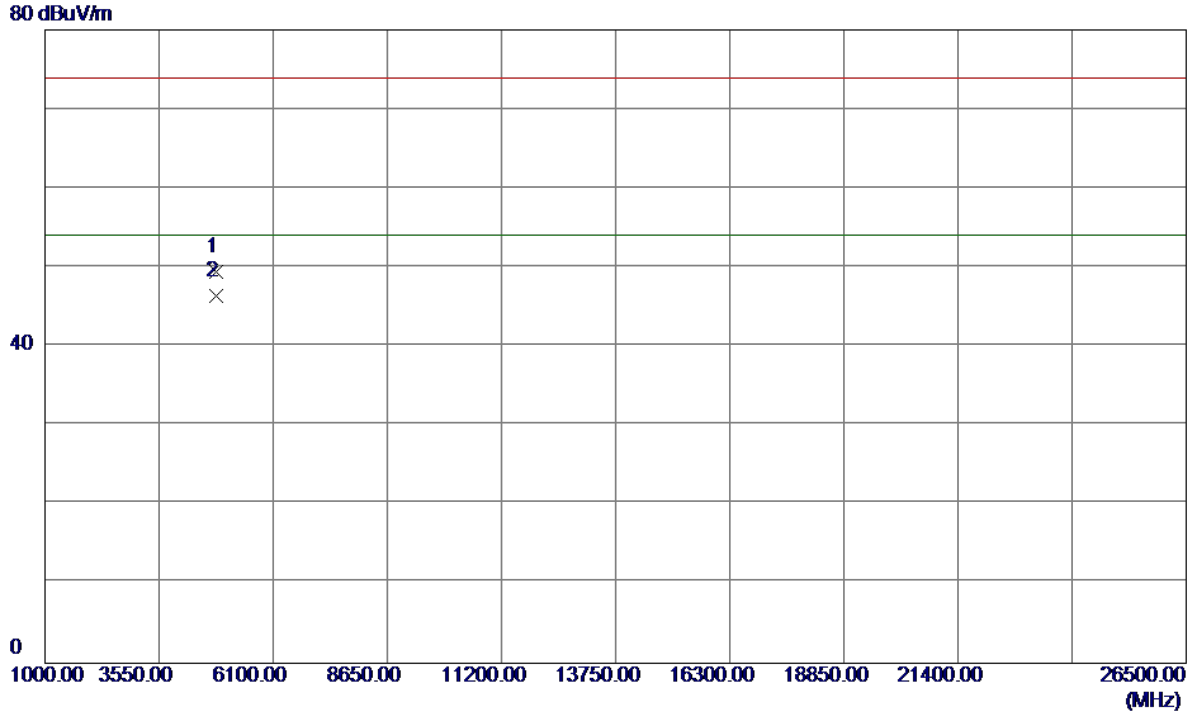
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.92	33.06	57.98	74.00	-16.02	Peak	
2	2390.0000	13.66	33.06	46.72	54.00	-7.28	AVG	
3 *	2410.9000	67.32	33.13	100.45	54.00	46.45	AVG	No Limit
4	2411.2000	70.19	33.14	103.33	74.00	29.33	Peak	No Limit

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

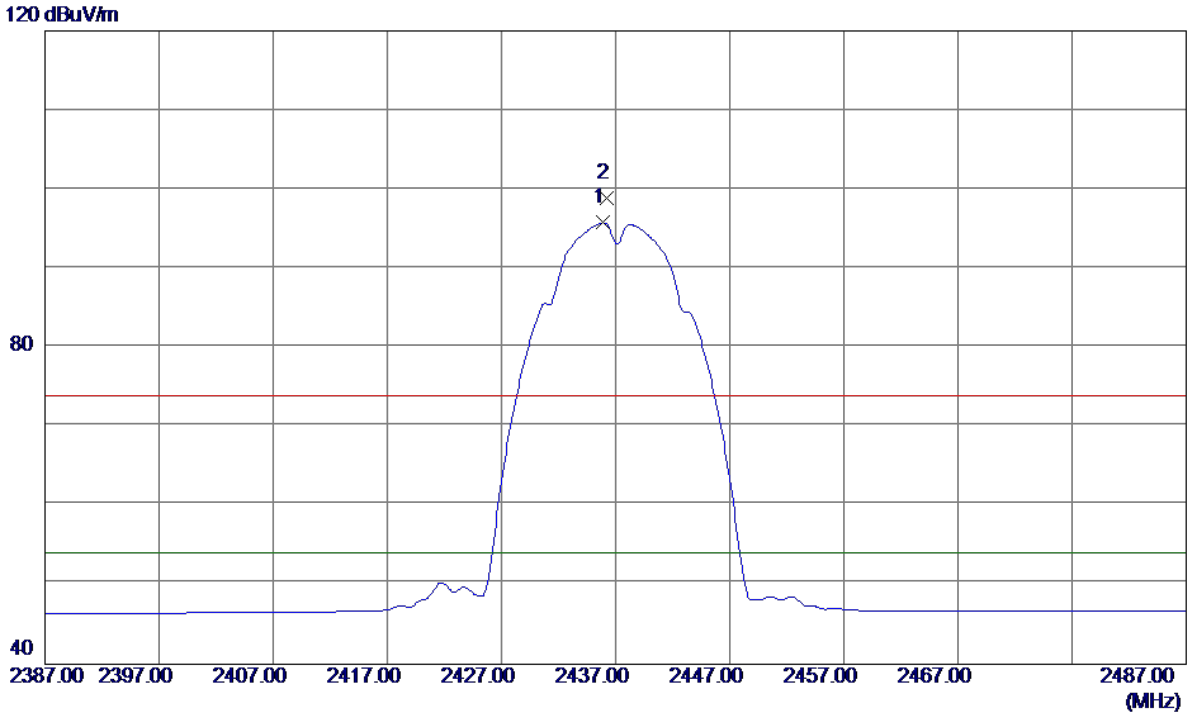
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0850	43.11	6.32	49.43	74.00	-24.57	Peak	
2	4824.1050	40.11	6.32	46.43	74.00	-27.57	Peak	

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

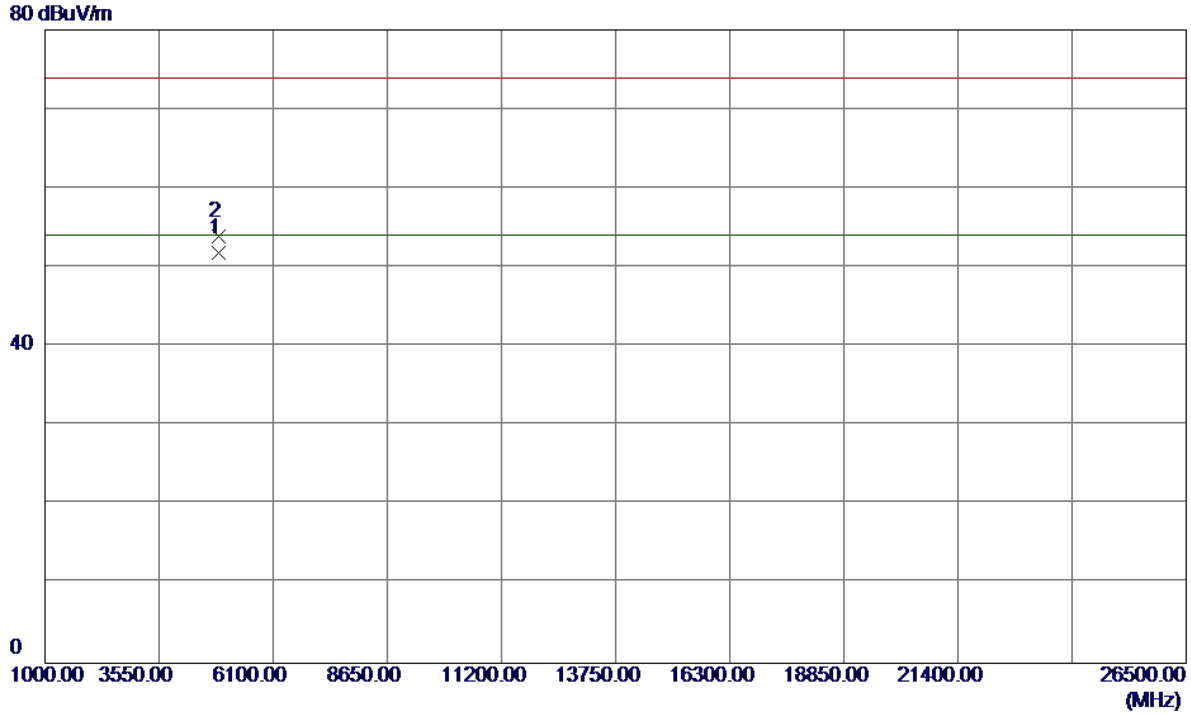
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2435.9000	62.53	33.23	95.76	54.00	41.76	AVG	No Limit
2	2436.2000	65.59	33.23	98.82	74.00	24.82	Peak	No Limit

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

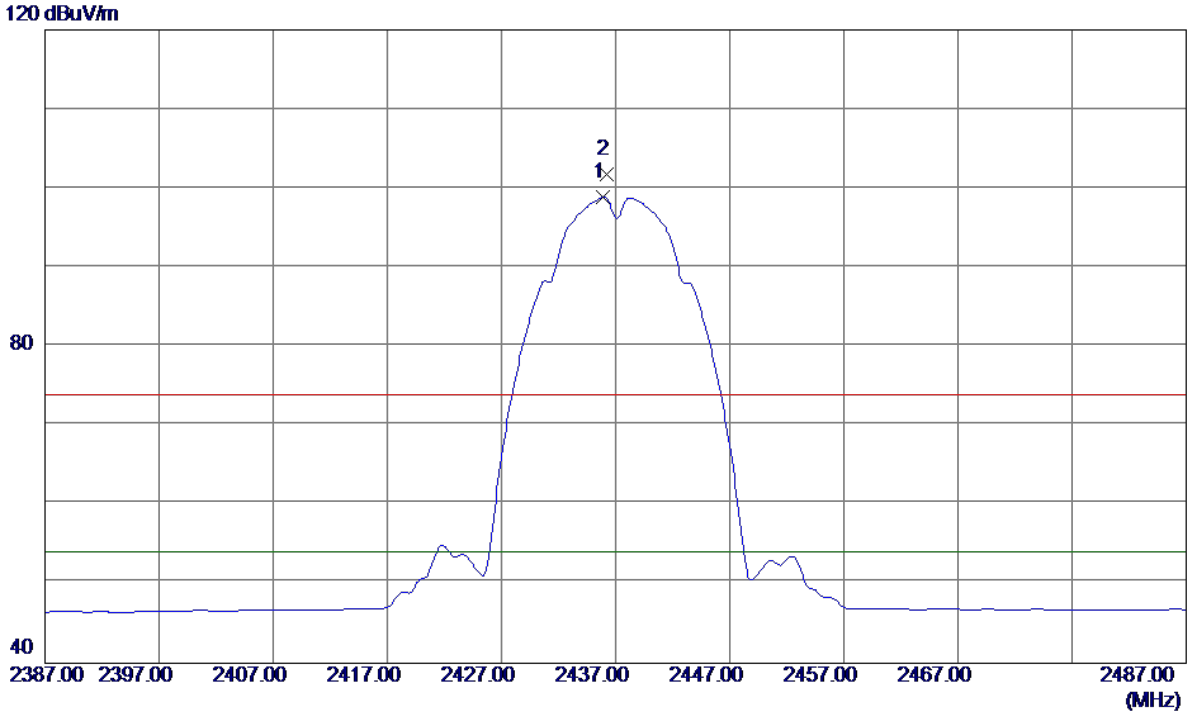
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.0900	45.47	6.44	51.91	54.00	-2.09	AVG	
2	4874.2000	47.49	6.44	53.93	74.00	-20.07	Peak	

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

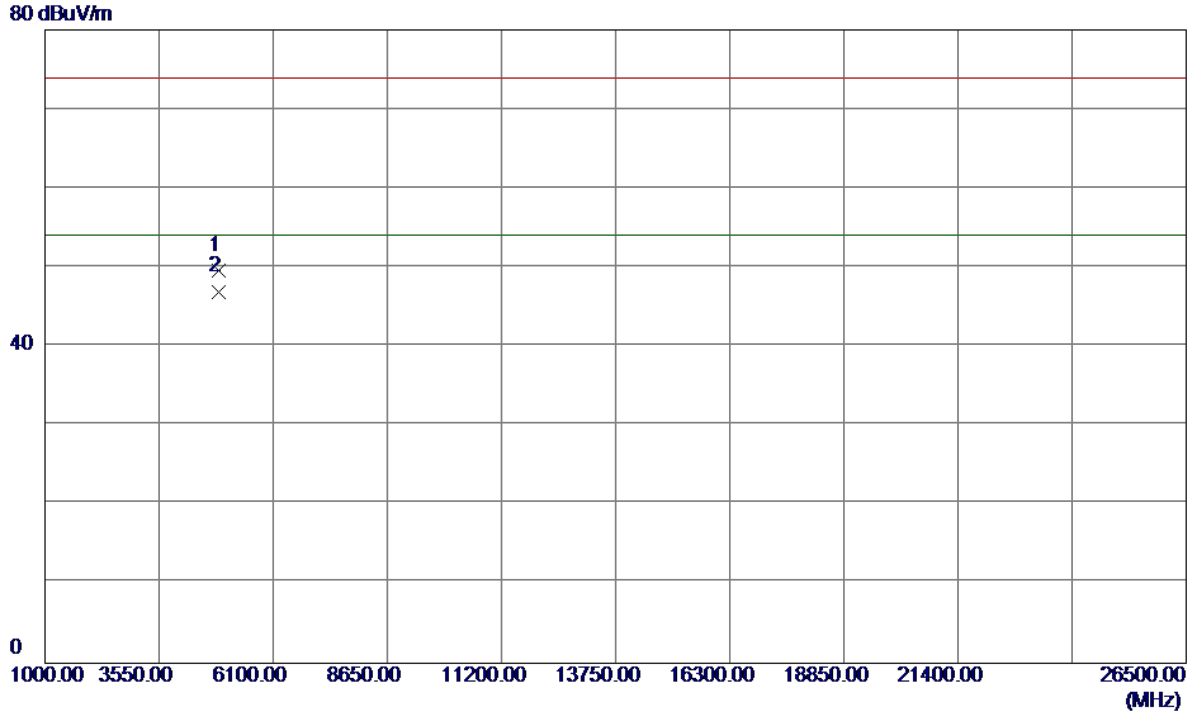
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2435.9000	65.61	33.23	98.84	54.00	44.84	AVG	No Limit
2	2436.2000	68.55	33.23	101.78	74.00	27.78	Peak	No Limit

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

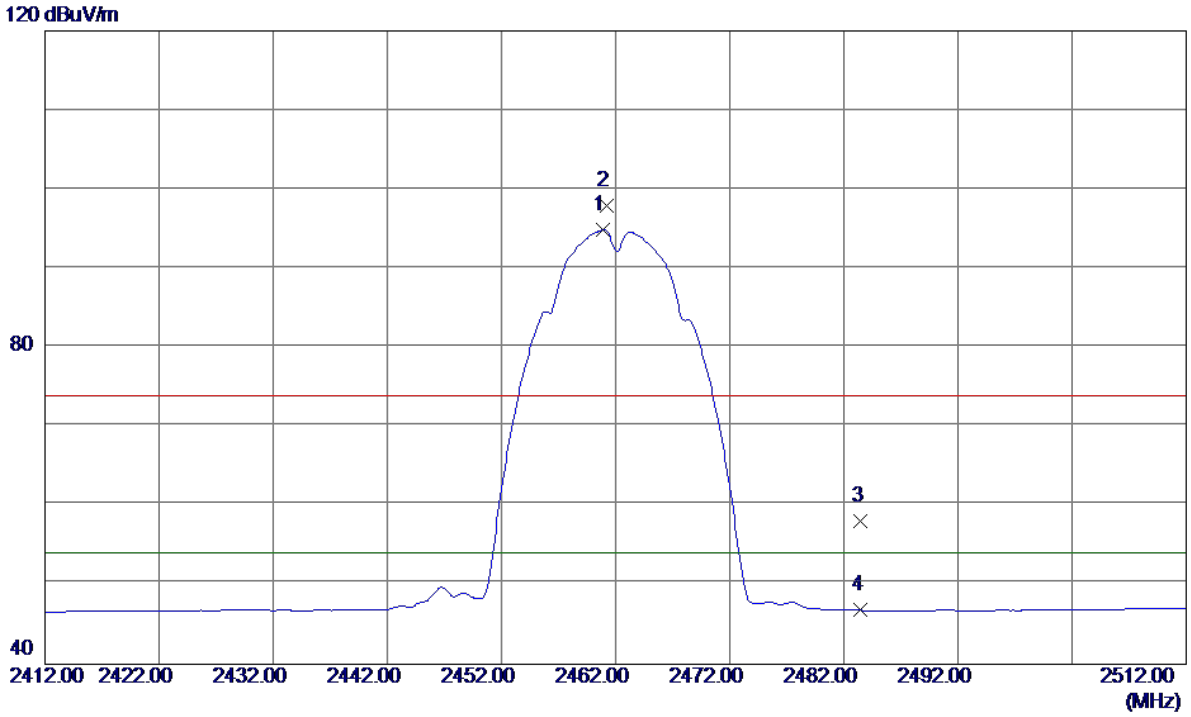
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4874.0800	43.08	6.44	49.52	74.00	-24.48	Peak	
2 *	4874.1400	40.52	6.44	46.96	54.00	-7.04	AVG	

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

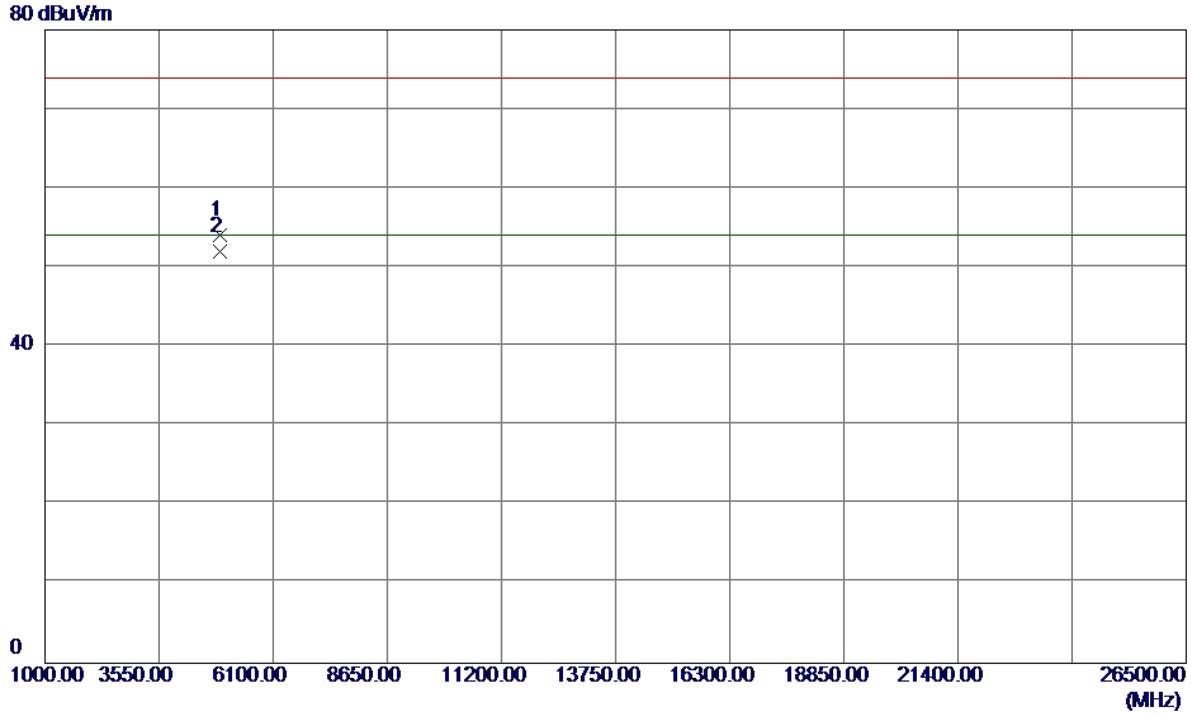
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.9000	61.55	33.32	94.87	54.00	40.87	AVG	No Limit
2	2461.2000	64.67	33.32	97.99	74.00	23.99	Peak	No Limit
3	2483.5000	24.74	33.41	58.15	74.00	-15.85	Peak	
4	2483.5000	13.40	33.41	46.81	54.00	-7.19	AVG	

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

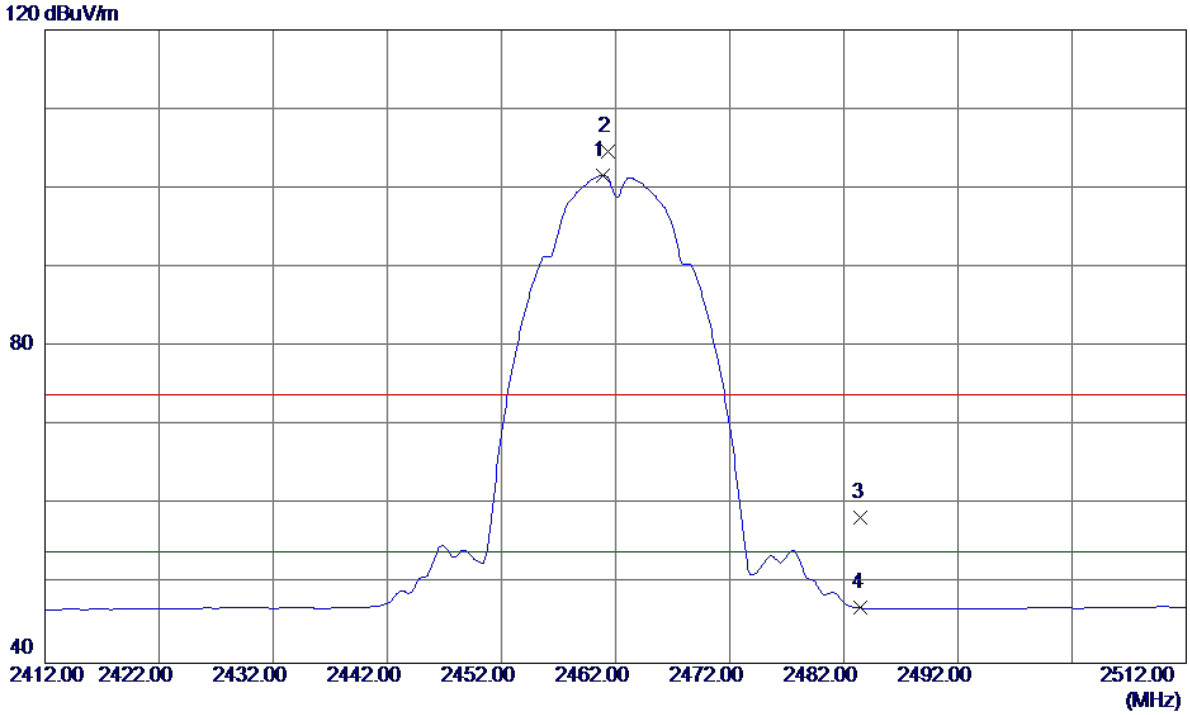
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.0900	47.45	6.57	54.02	74.00	-19.98	Peak	
2 *	4924.1200	45.37	6.57	51.94	54.00	-2.06	AVG	

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

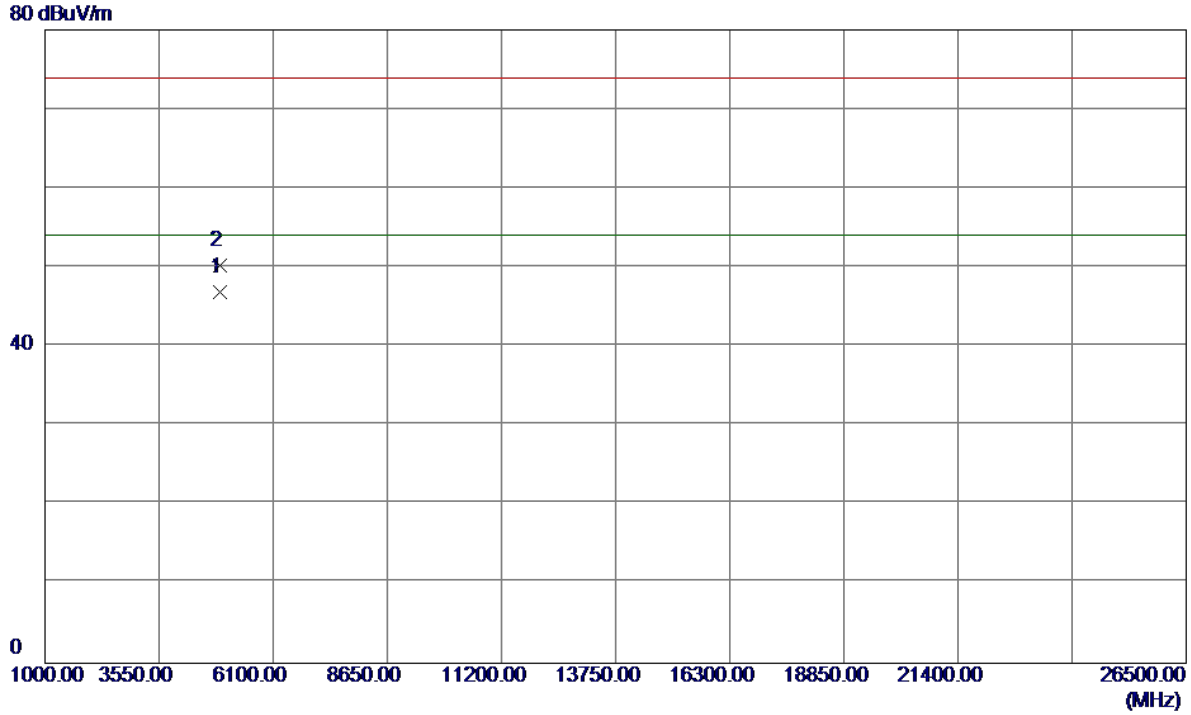
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.9000	68.34	33.32	101.66	54.00	47.66	AVG	No Limit
2	2461.3000	71.27	33.32	104.59	74.00	30.59	Peak	No Limit
3	2483.5000	24.96	33.41	58.37	74.00	-15.63	Peak	
4	2483.5000	13.56	33.41	46.97	54.00	-7.03	AVG	

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

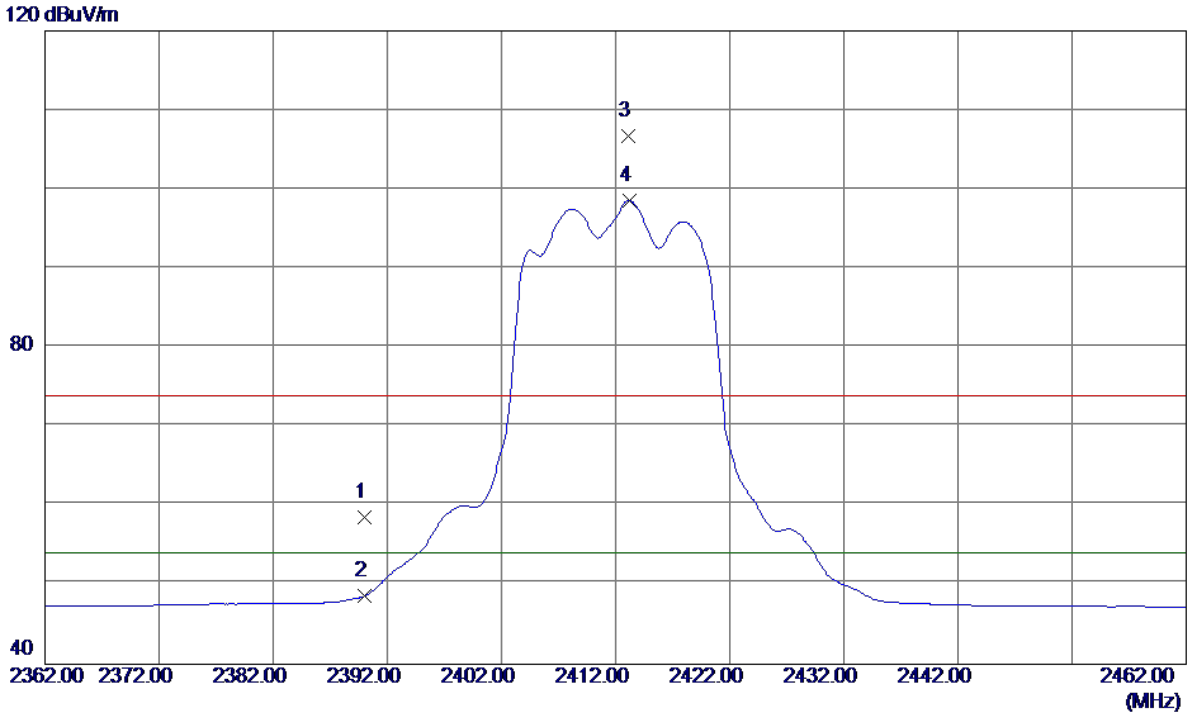
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.1100	40.37	6.57	46.94	54.00	-7.06	AVG	
2	4924.1400	43.60	6.57	50.17	74.00	-23.83	Peak	

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

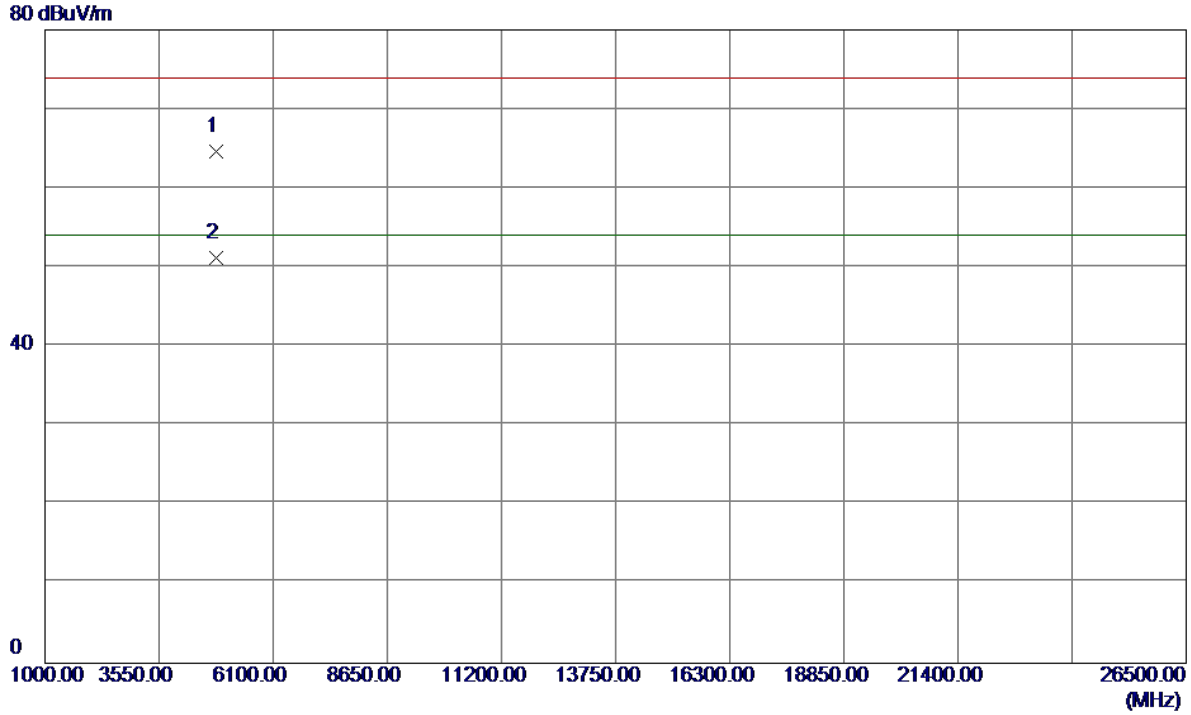
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	25.52	33.06	58.58	74.00	-15.42	Peak	
2	2390.0000	15.55	33.06	48.61	54.00	-5.39	AVG	
3	2413.1000	73.66	33.14	106.80	74.00	32.80	Peak	No Limit
4 *	2413.2000	65.42	33.14	98.56	54.00	44.56	AVG	No Limit

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

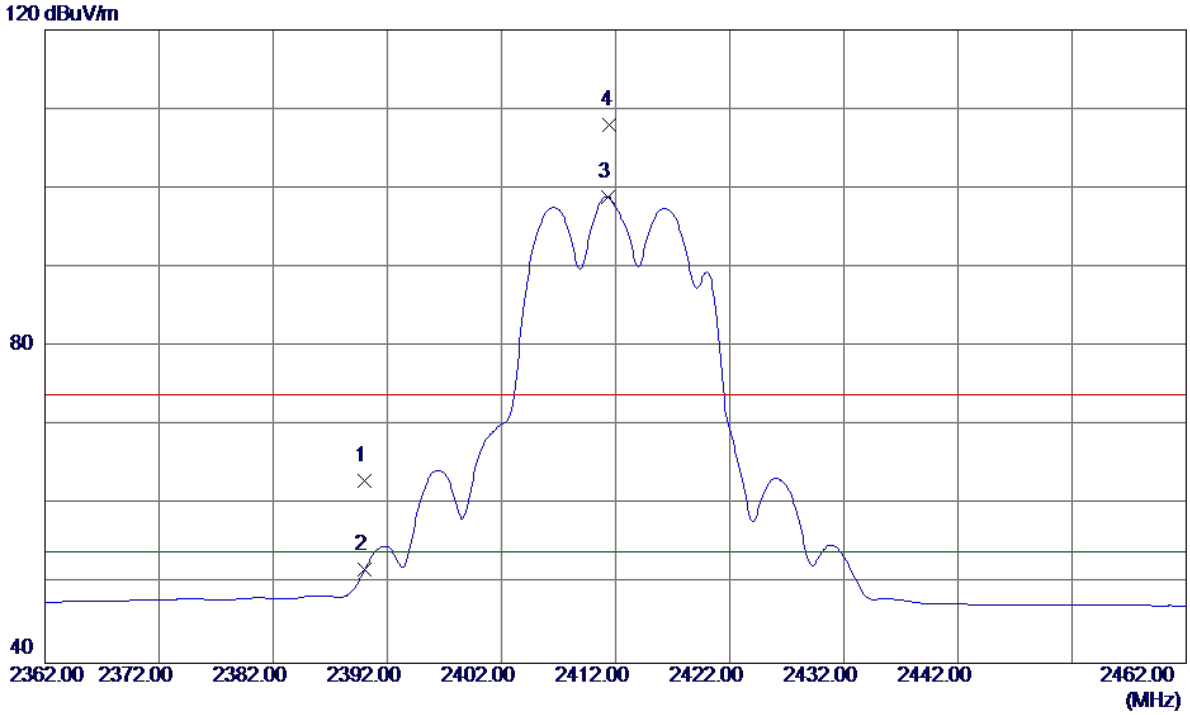
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4820.5600	58.28	6.31	64.59	74.00	-9.41	Peak	
2 *	4825.4200	44.90	6.32	51.22	54.00	-2.78	AVG	

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

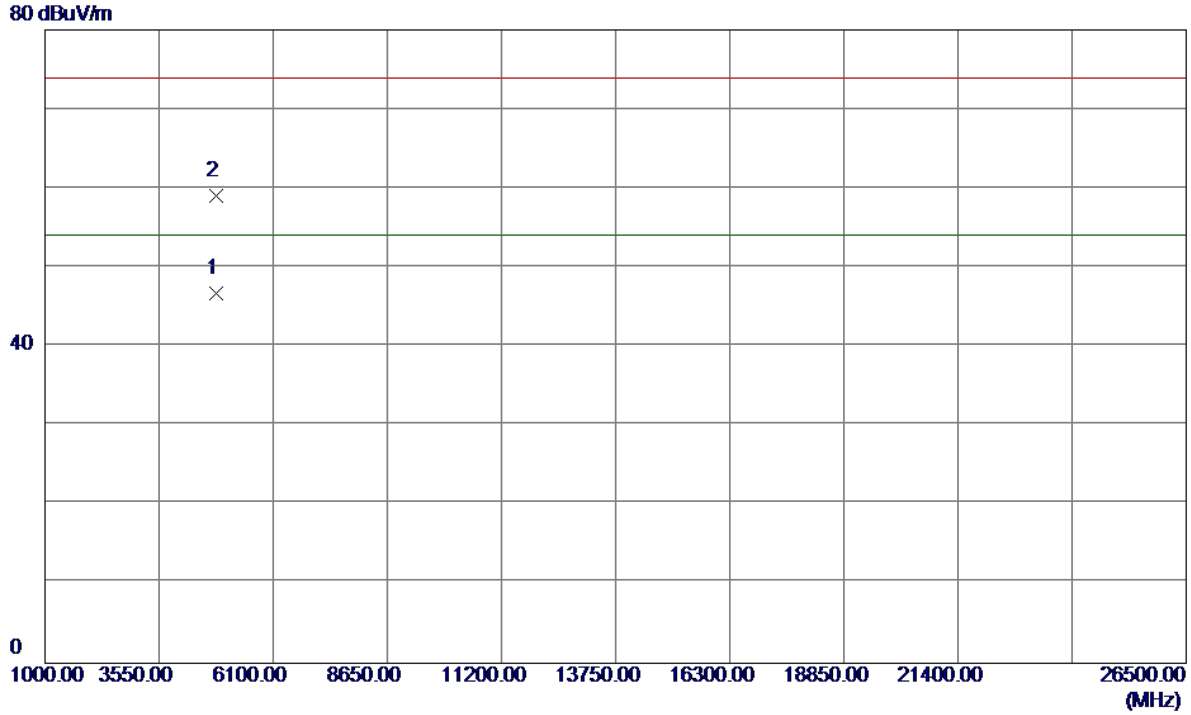
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	29.93	33.06	62.99	74.00	-11.01	Peak	
2	2390.0000	18.75	33.06	51.81	54.00	-2.19	AVG	
3 *	2411.3000	65.81	33.14	98.95	54.00	44.95	AVG	No Limit
4	2411.5000	74.93	33.14	108.07	74.00	34.07	Peak	No Limit

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

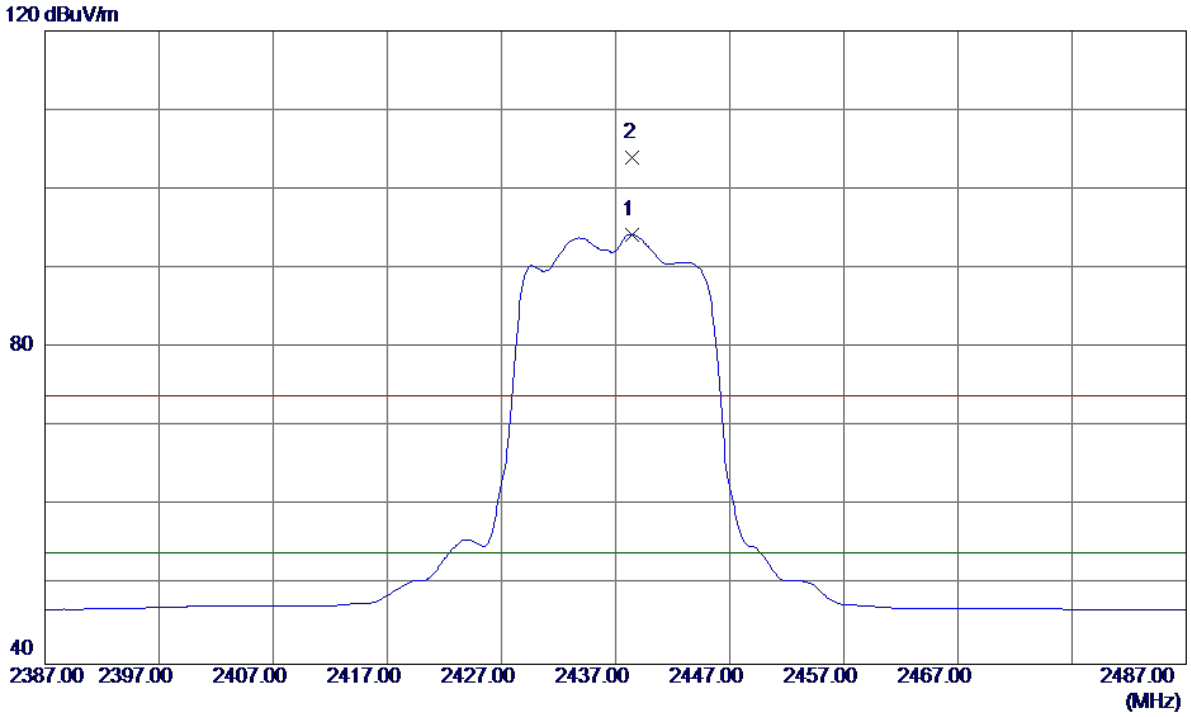
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.6500	40.47	6.32	46.79	54.00	-7.21	AVG	
2	4829.9000	52.76	6.33	59.09	74.00	-14.91	Peak	

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

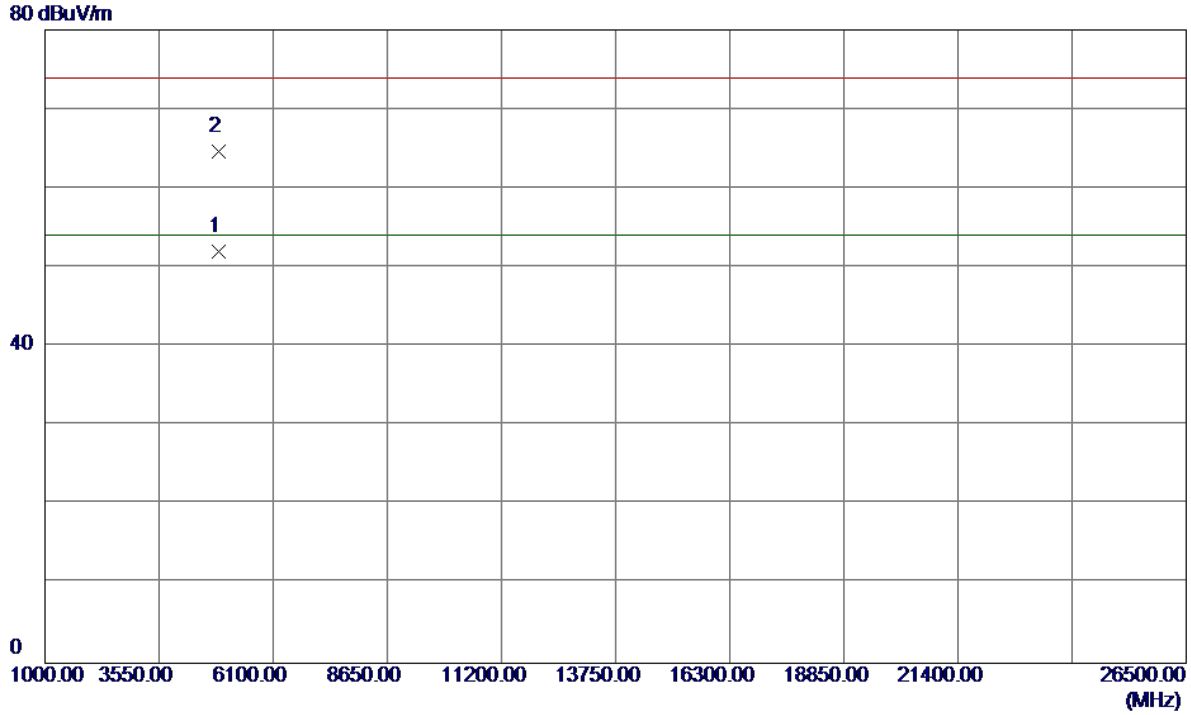
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.4000	61.04	33.24	94.28	54.00	40.28	AVG	No Limit
2	2438.5000	70.72	33.24	103.96	74.00	29.96	Peak	No Limit

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

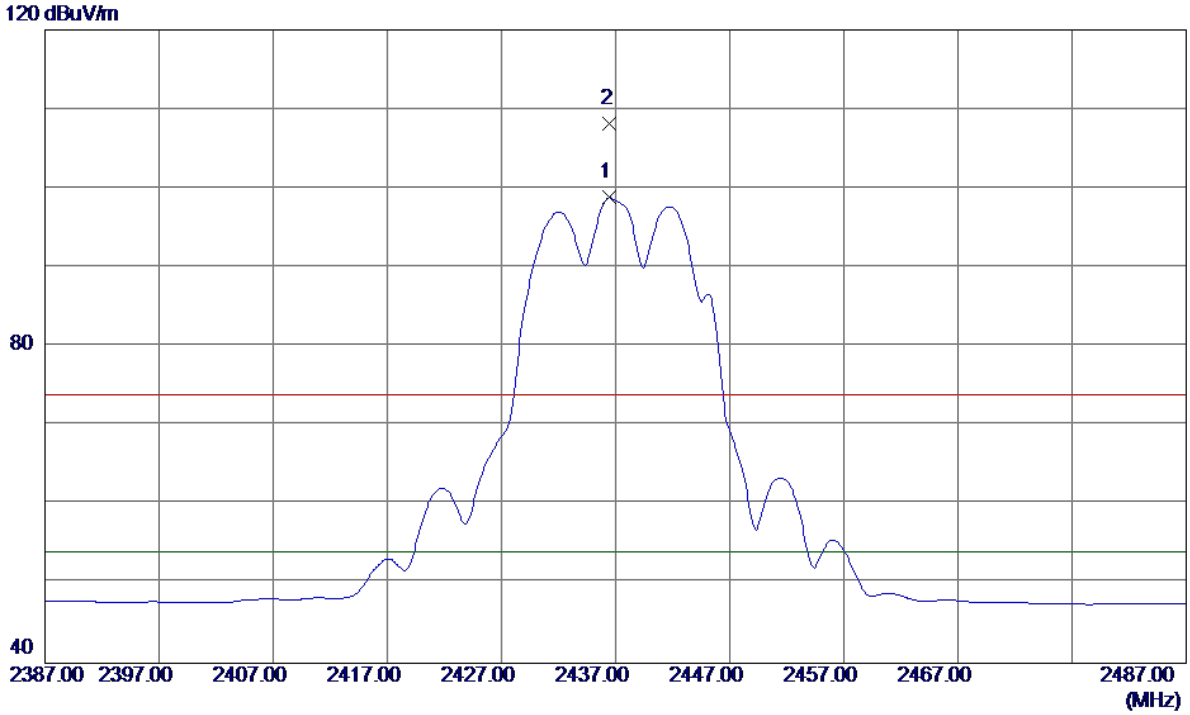
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4875.5600	45.54	6.45	51.99	54.00	-2.01	AVG	
2	4875.7799	58.26	6.45	64.71	74.00	-9.29	Peak	

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

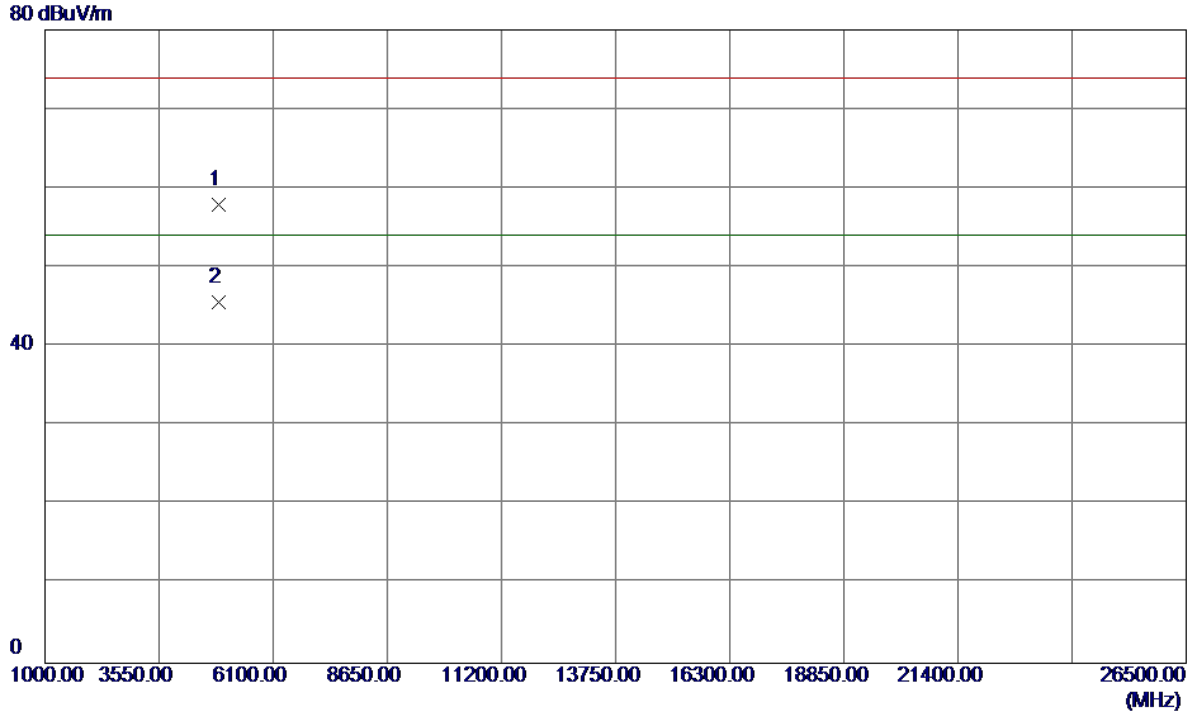
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2436.4000	65.59	33.23	98.82	54.00	44.82	AVG	No Limit
2	2436.5000	75.01	33.23	108.24	74.00	34.24	Peak	No Limit

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

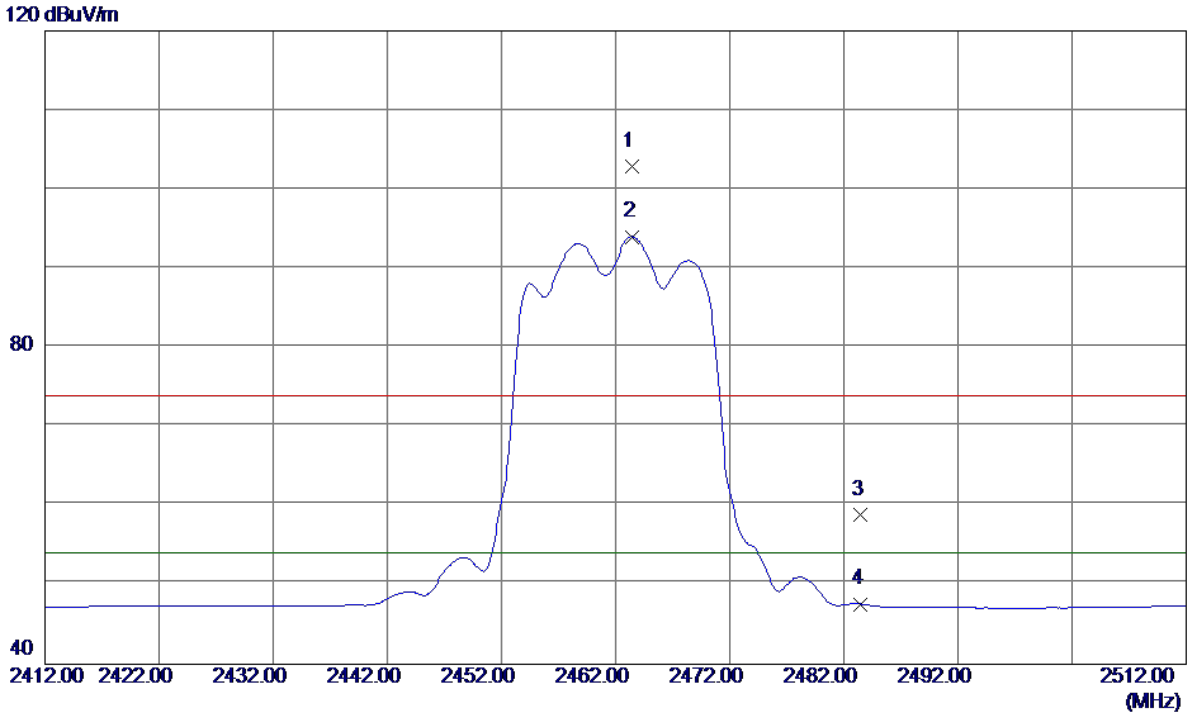
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4870.4500	51.48	6.43	57.91	74.00	-16.09	Peak	
2 *	4873.9500	39.14	6.44	45.58	54.00	-8.42	AVG	

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

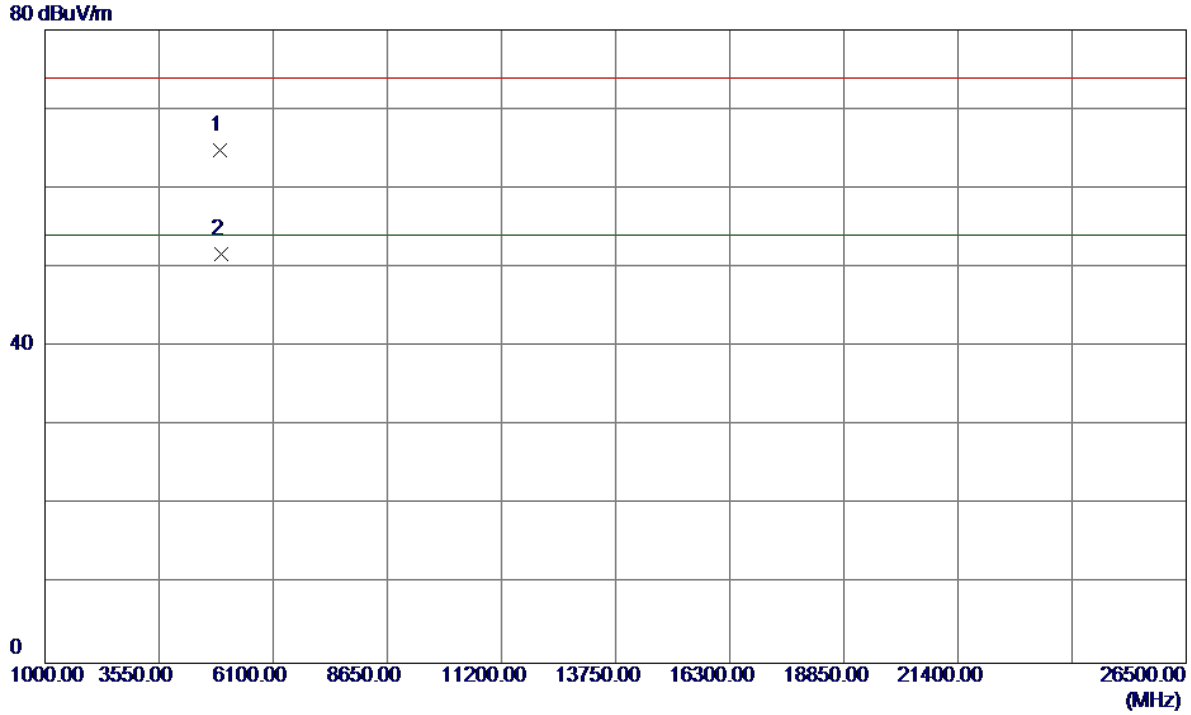
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2463.4000	69.53	33.33	102.86	74.00	28.86	Peak	No Limit
2 *	2463.5000	60.67	33.33	94.00	54.00	40.00	AVG	No Limit
3	2483.5000	25.52	33.41	58.93	74.00	-15.07	Peak	
4	2483.5000	14.19	33.41	47.60	54.00	-6.40	AVG	

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

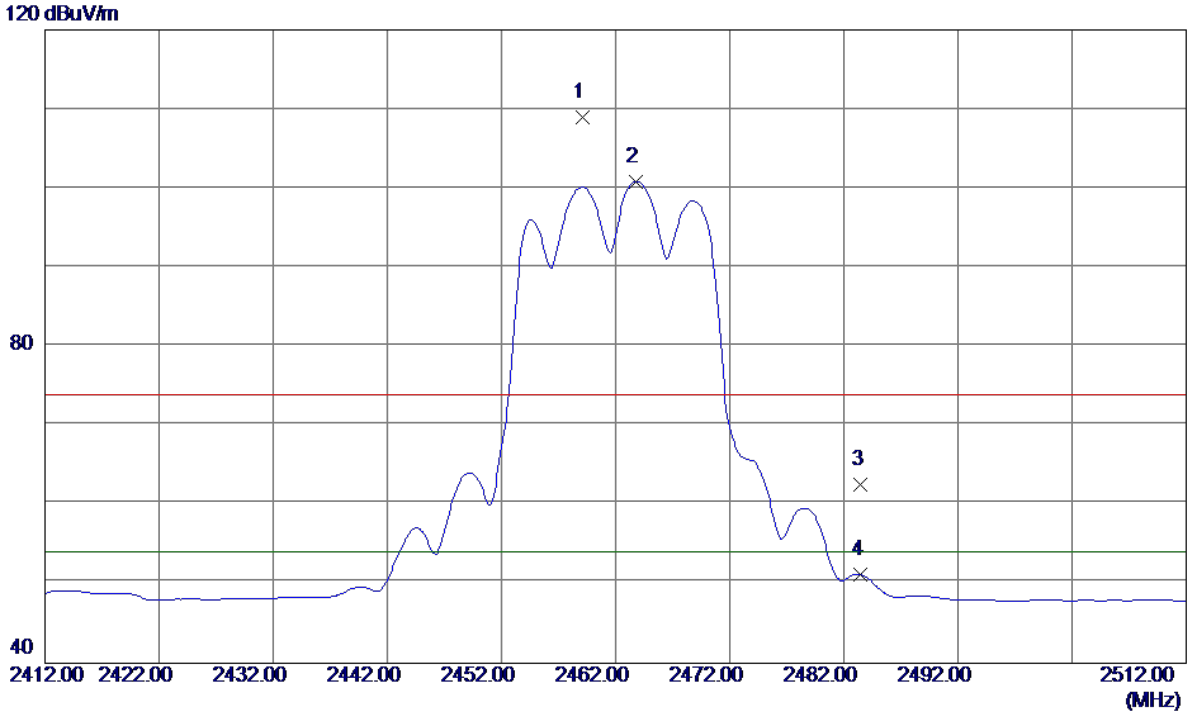
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4920.4800	58.30	6.56	64.86	74.00	-9.14	Peak	
2 *	4925.5200	45.16	6.57	51.73	54.00	-2.27	AVG	

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

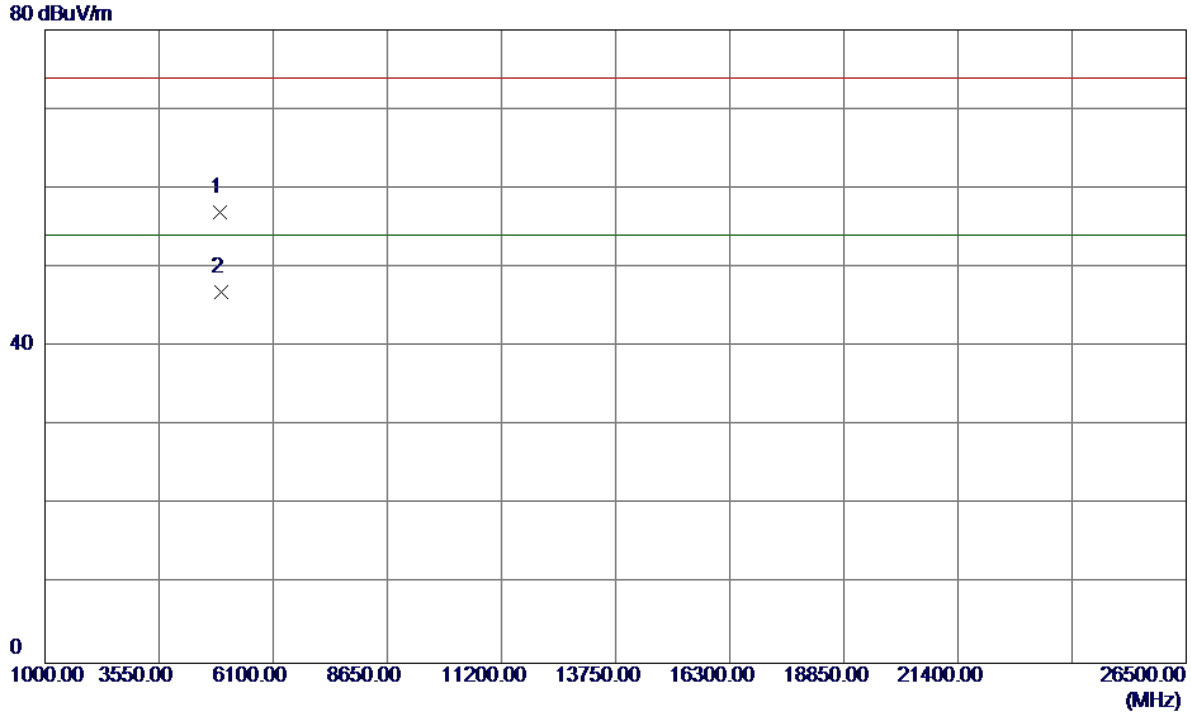
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2459.1000	75.69	33.32	109.01	74.00	35.01	Peak	No Limit
2 *	2463.8000	67.51	33.33	100.84	54.00	46.84	AVG	No Limit
3	2483.5000	29.18	33.41	62.59	74.00	-11.41	Peak	
4	2483.5000	17.79	33.41	51.20	54.00	-2.80	AVG	

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

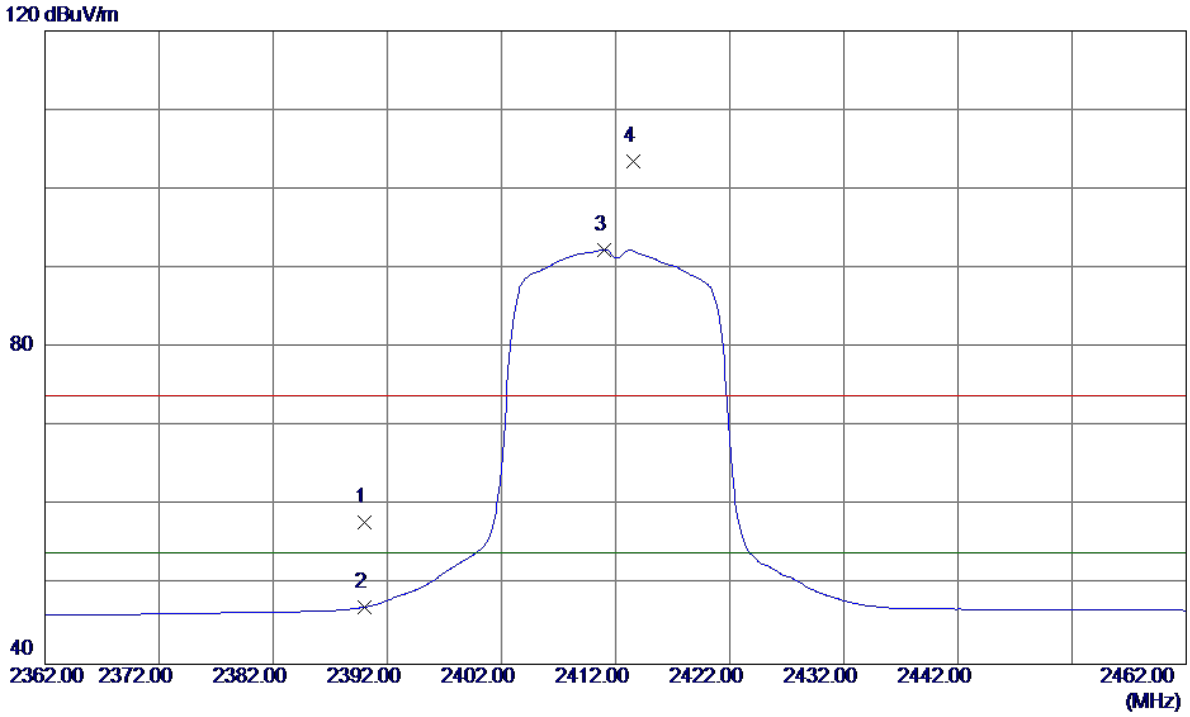
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4920.6500	50.33	6.56	56.89	74.00	-17.11	Peak	
2 *	4925.9500	40.29	6.57	46.86	54.00	-7.14	AVG	

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

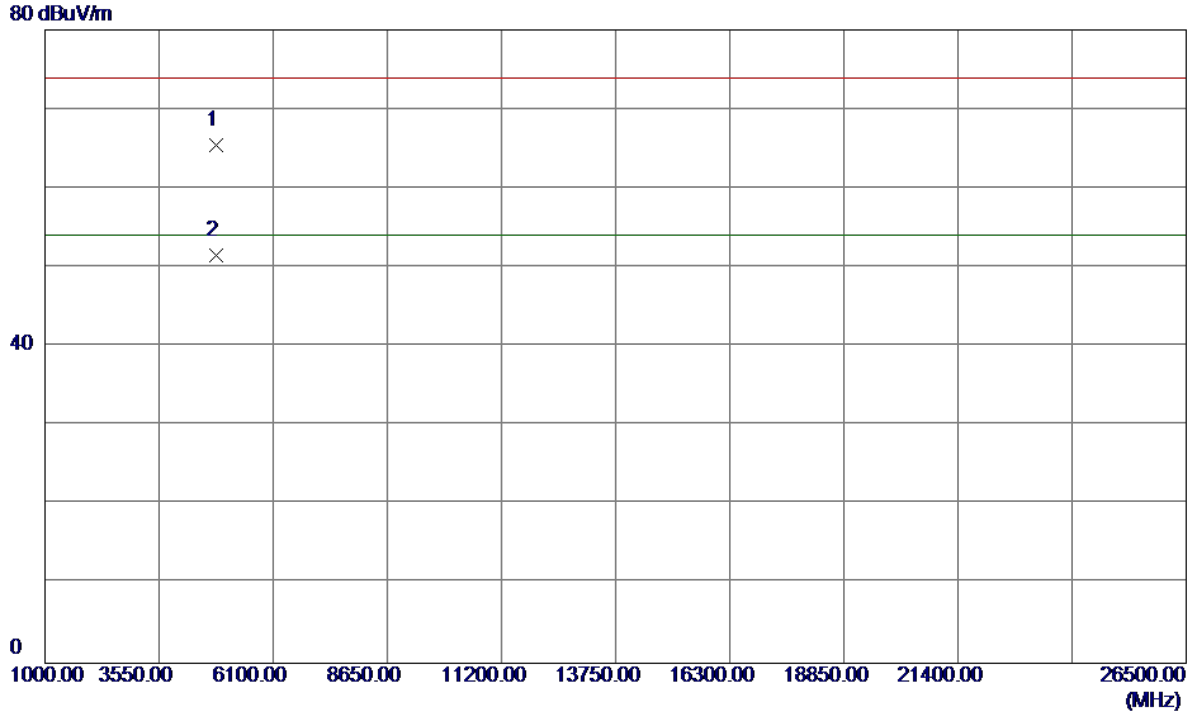
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.79	33.06	57.85	74.00	-16.15	Peak	
2	2390.0000	14.15	33.06	47.21	54.00	-6.79	AVG	
3 *	2411.0000	59.22	33.14	92.36	54.00	38.36	AVG	No Limit
4	2413.6000	70.45	33.15	103.60	74.00	29.60	Peak	No Limit

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

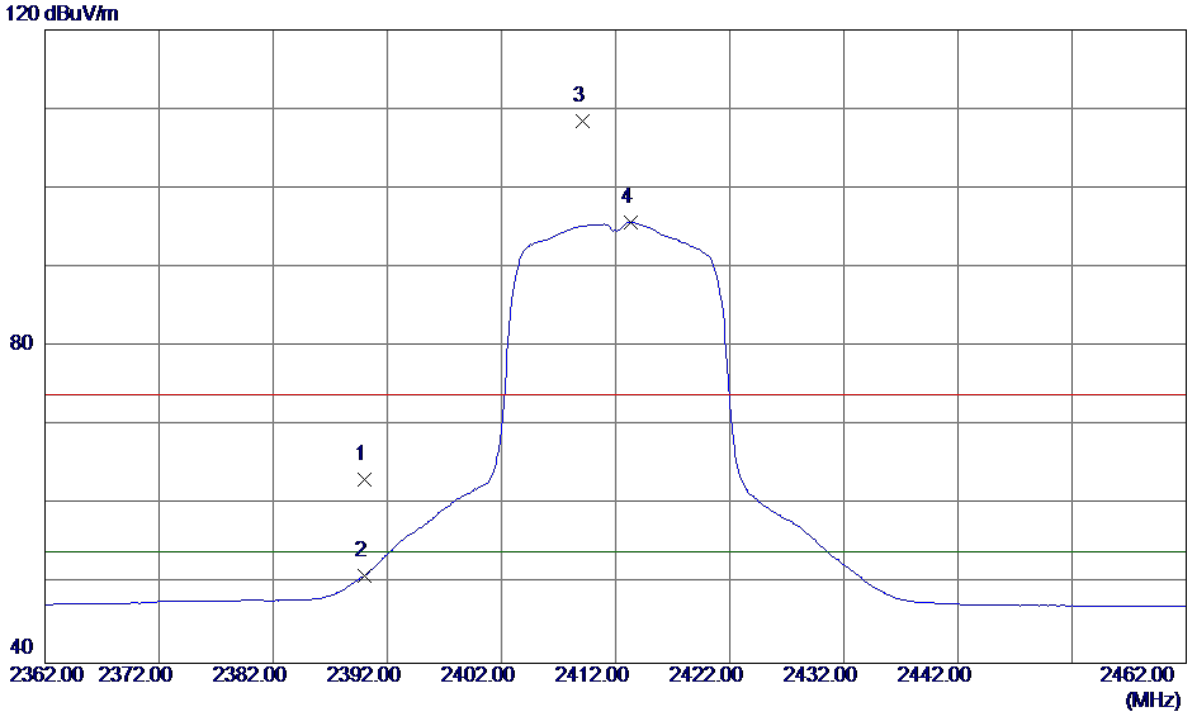
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.9800	59.11	6.32	65.43	74.00	-8.57	Peak	
2 *	4825.1800	45.18	6.32	51.50	54.00	-2.50	AVG	

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

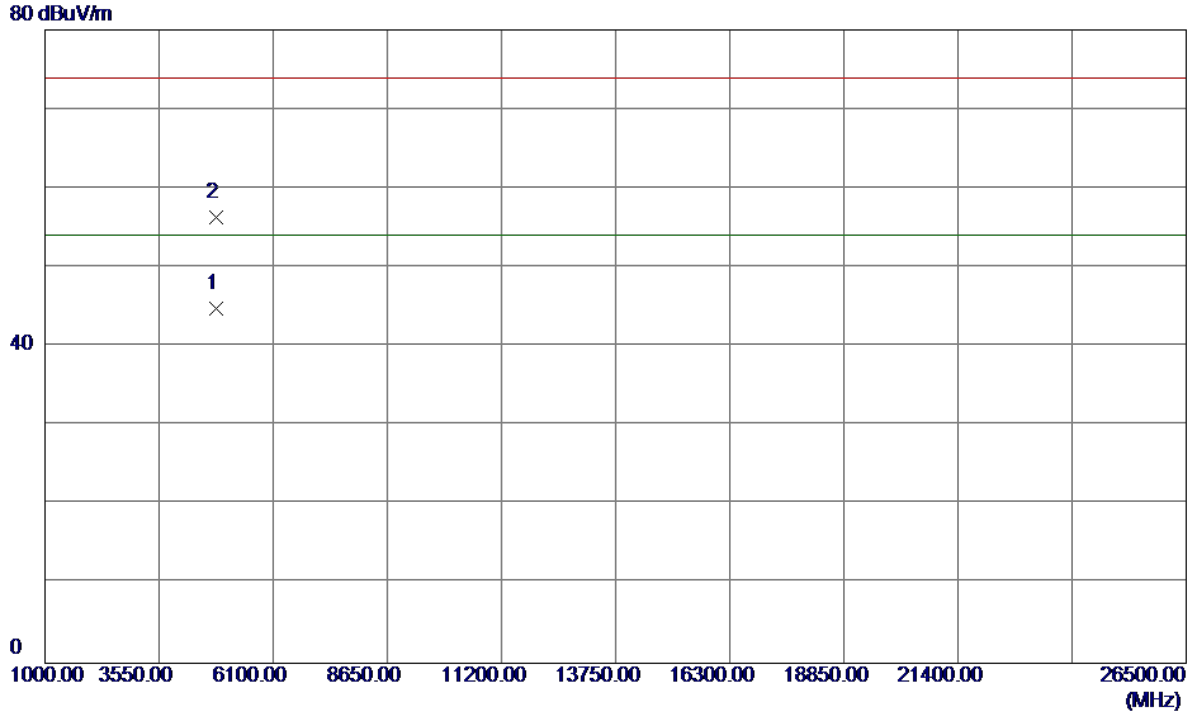
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	30.13	33.06	63.19	74.00	-10.81	Peak	
2	2390.0000	17.99	33.06	51.05	54.00	-2.95	AVG	
3	2409.1000	75.35	33.13	108.48	74.00	34.48	Peak	No Limit
4 *	2413.3000	62.59	33.14	95.73	54.00	41.73	AVG	No Limit

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

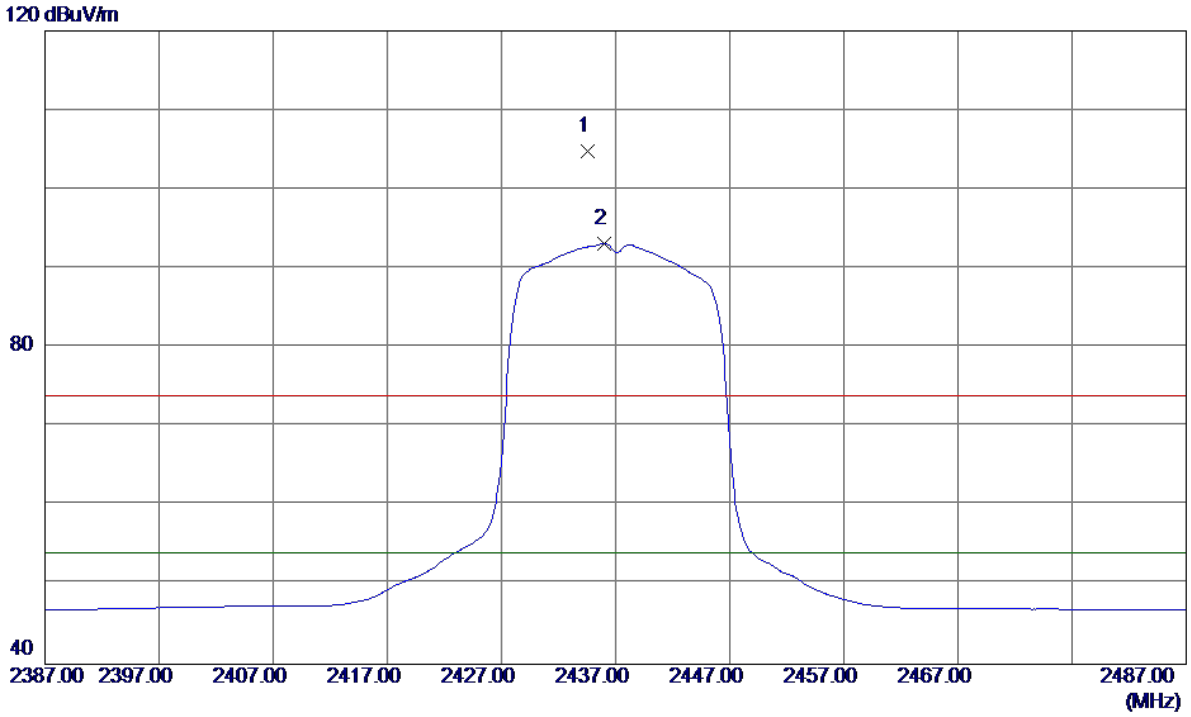
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4821.6500	38.50	6.31	44.81	54.00	-9.19	AVG	
2	4825.7500	50.02	6.32	56.34	74.00	-17.66	Peak	

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

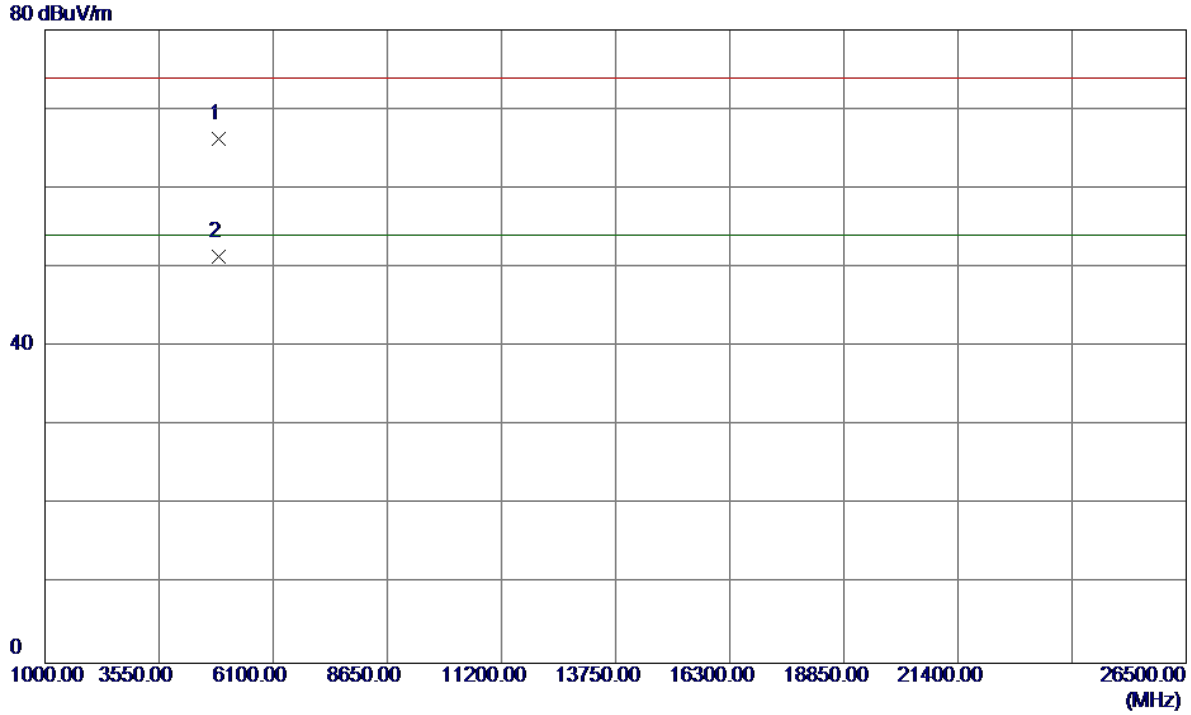
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2434.6000	71.59	33.22	104.81	74.00	30.81	Peak	No Limit
2 *	2436.0000	59.89	33.23	93.12	54.00	39.12	AVG	No Limit

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

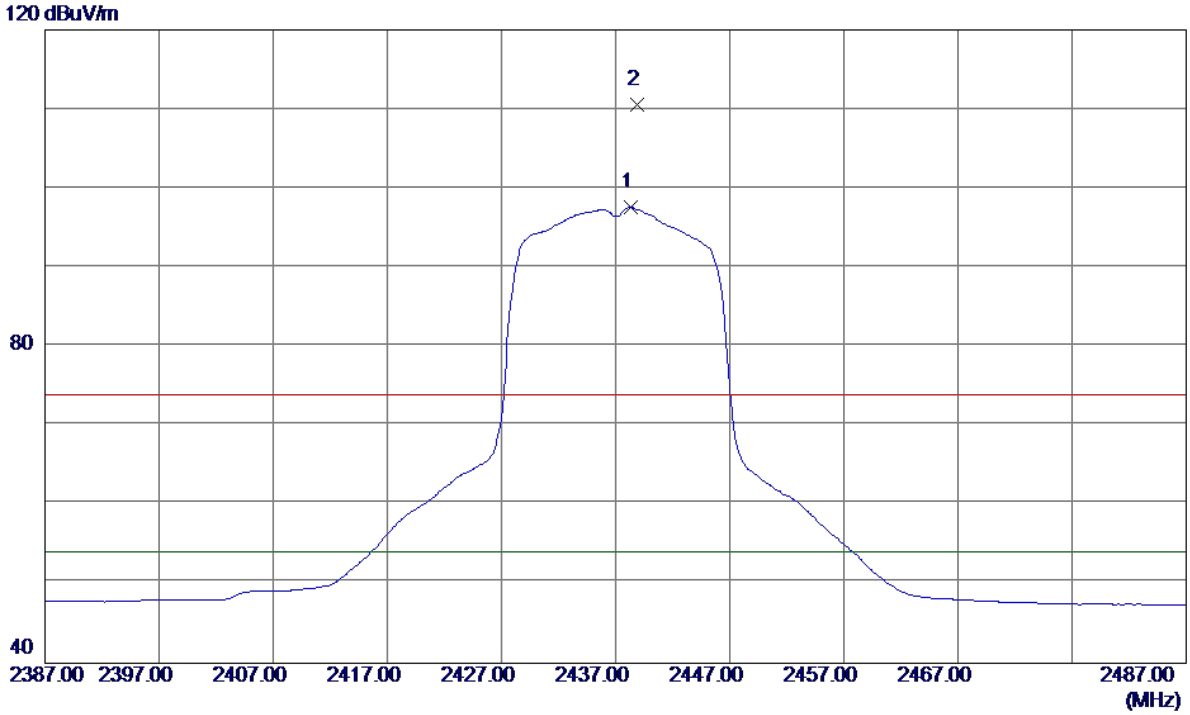
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.9200	59.76	6.44	66.20	74.00	-7.80	Peak	
2 *	4875.2799	44.95	6.45	51.40	54.00	-2.60	AVG	

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

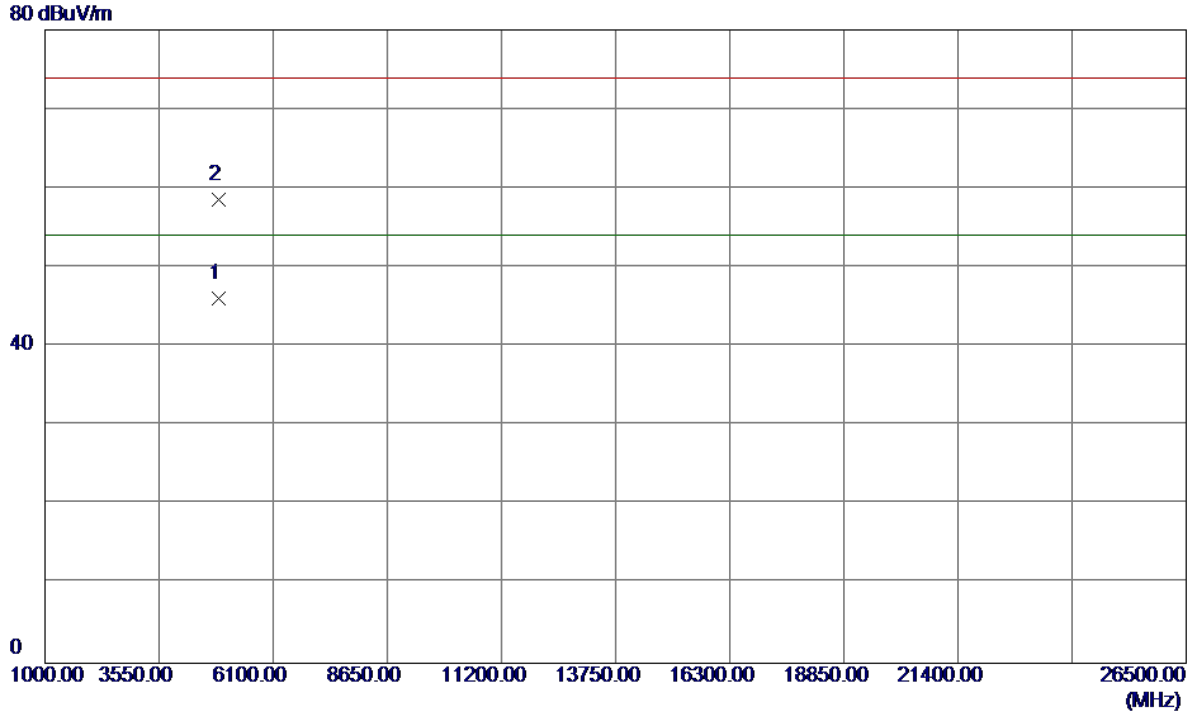
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.3000	64.34	33.24	97.58	54.00	43.58	AVG	No Limit
2	2438.9000	77.24	33.24	110.48	74.00	36.48	Peak	No Limit

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

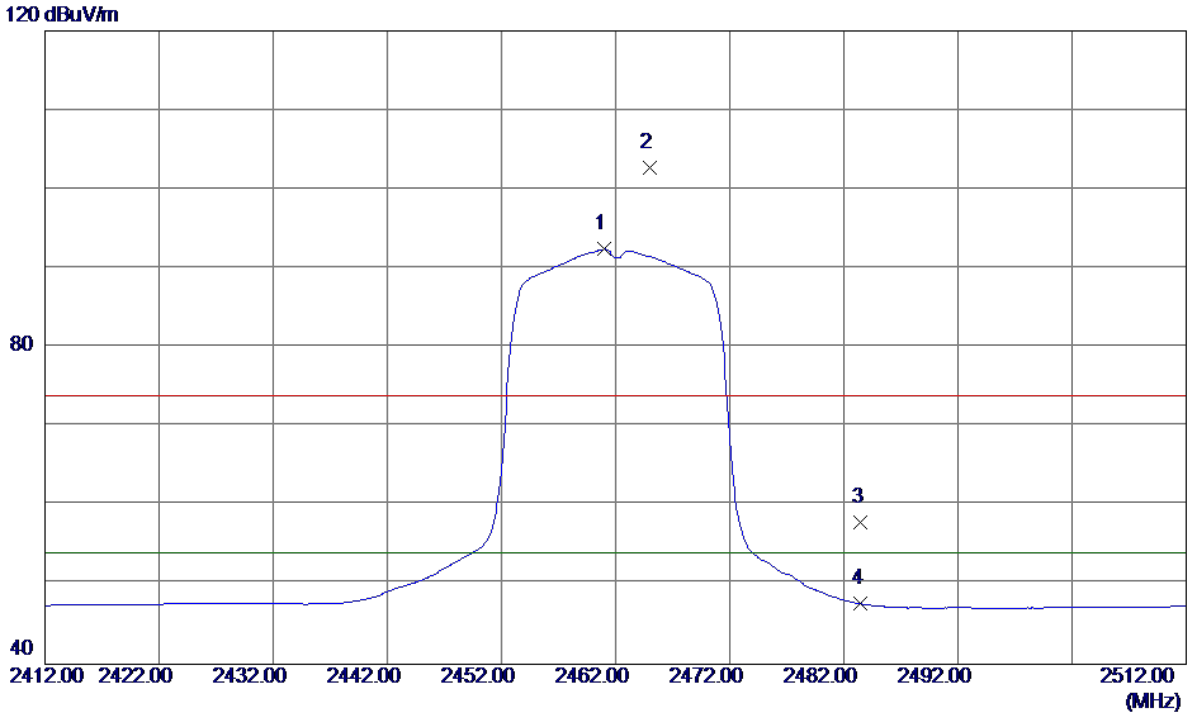
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.8500	39.66	6.44	46.10	54.00	-7.90	AVG	
2	4874.0000	52.07	6.44	58.51	74.00	-15.49	Peak	

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

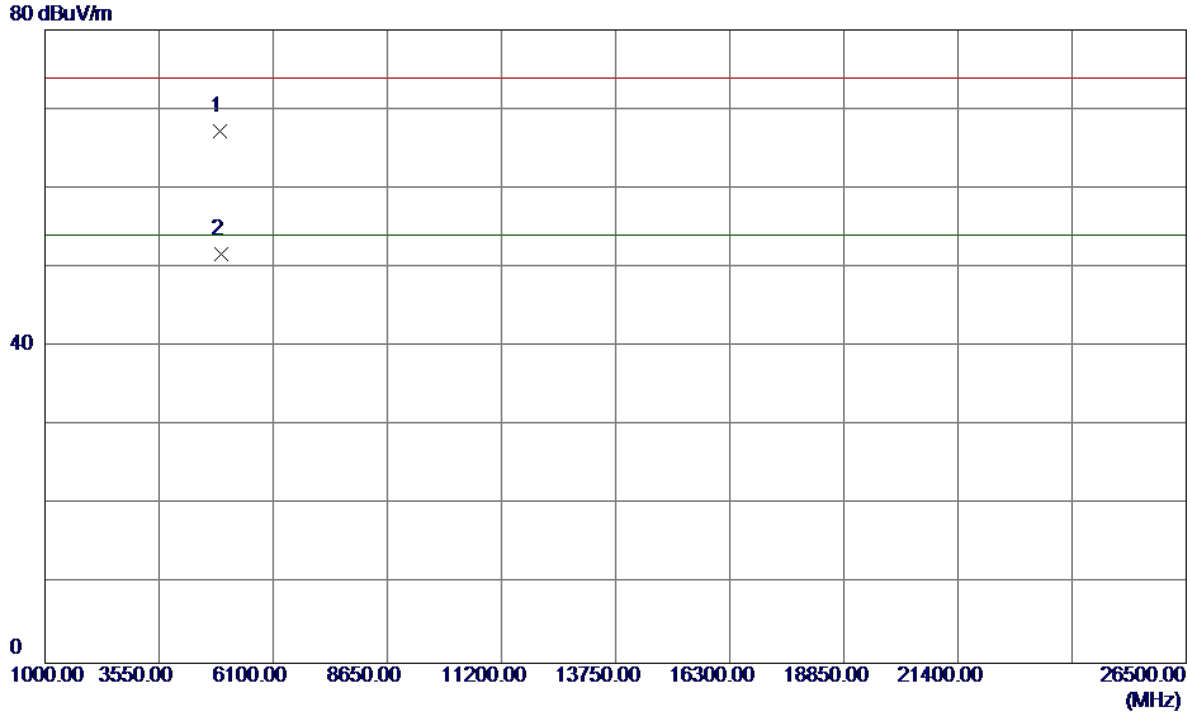
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2461.0000	59.09	33.32	92.41	54.00	38.41	AVG	No Limit
2	2465.0000	69.36	33.34	102.70	74.00	28.70	Peak	No Limit
3	2483.5000	24.49	33.41	57.90	74.00	-16.10	Peak	
4	2483.5000	14.20	33.41	47.61	54.00	-6.39	AVG	

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

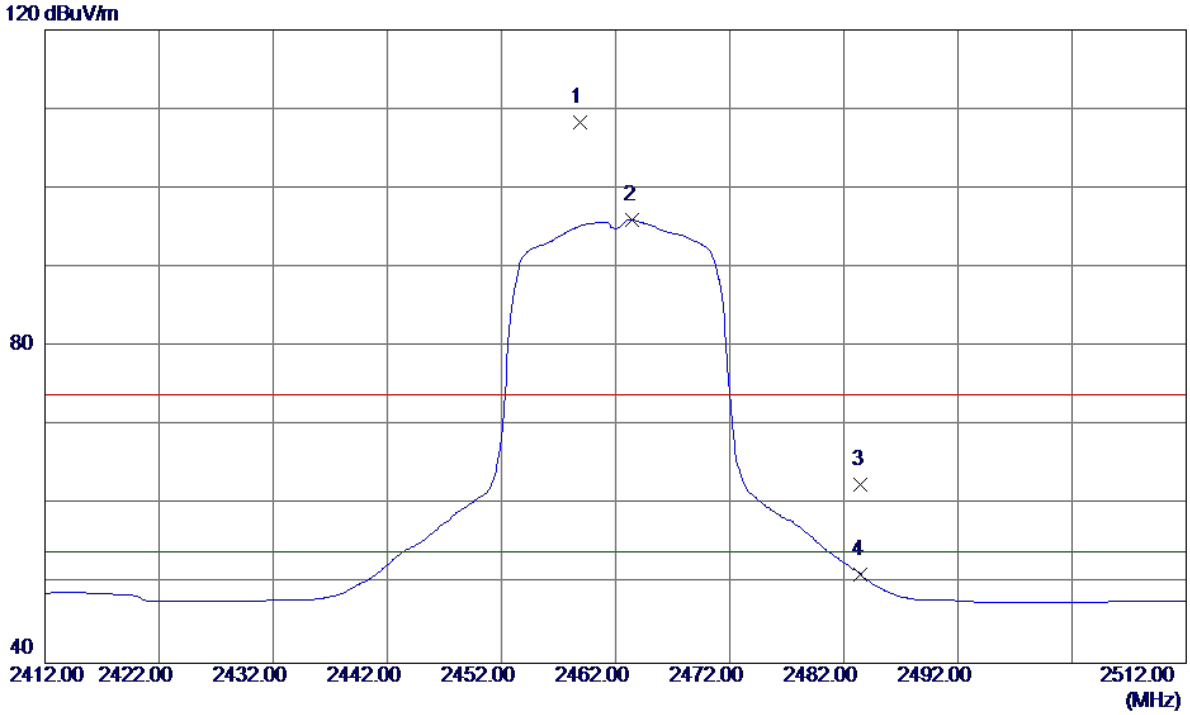
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.9200	60.55	6.57	67.12	74.00	-6.88	Peak	
2 *	4925.2400	45.06	6.57	51.63	54.00	-2.37	AVG	

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

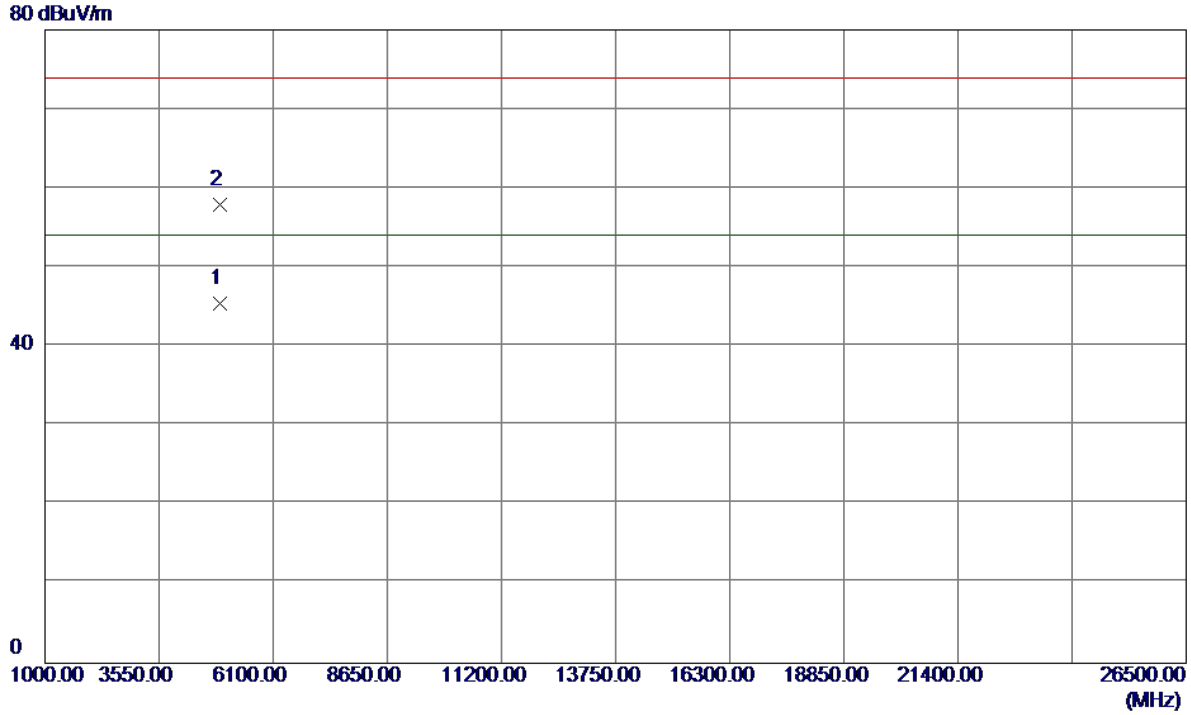
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2458.9000	74.96	33.32	108.28	74.00	34.28	Peak	No Limit
2 *	2463.5000	62.70	33.33	96.03	54.00	42.03	AVG	No Limit
3	2483.5000	29.18	33.41	62.59	74.00	-11.41	Peak	
4	2483.5000	17.80	33.41	51.21	54.00	-2.79	AVG	

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

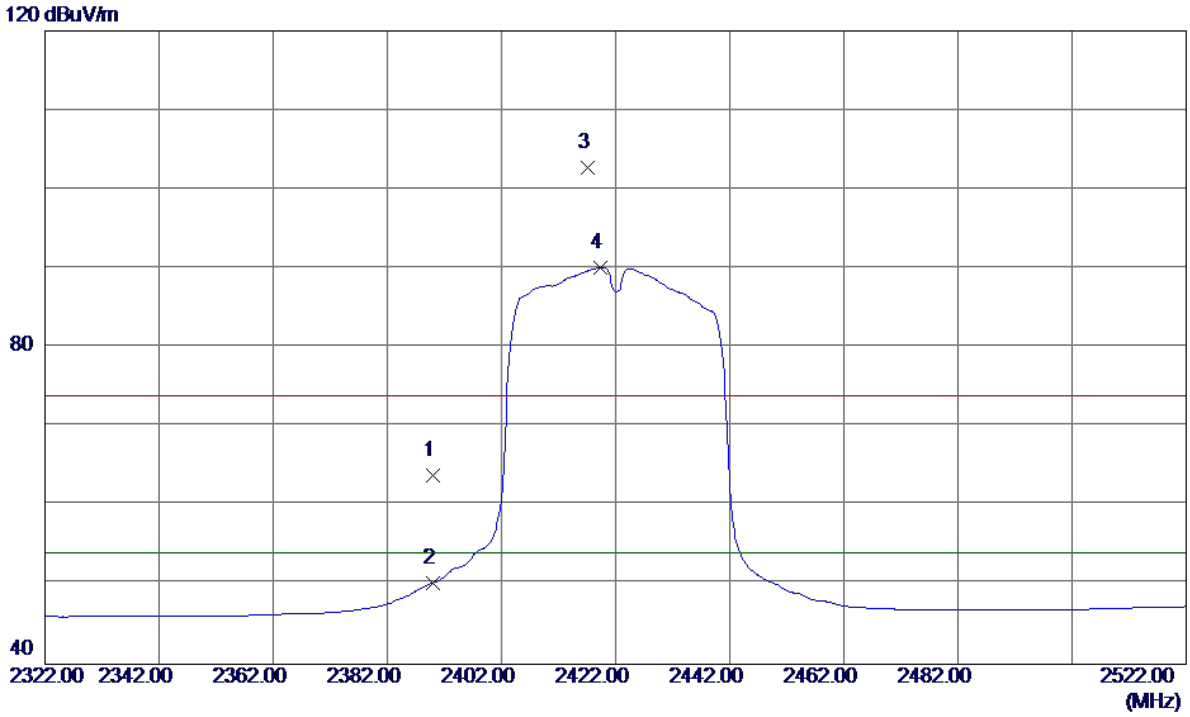
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4922.7000	38.94	6.57	45.51	54.00	-8.49	AVG	
2	4924.0500	51.40	6.57	57.97	74.00	-16.03	Peak	

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

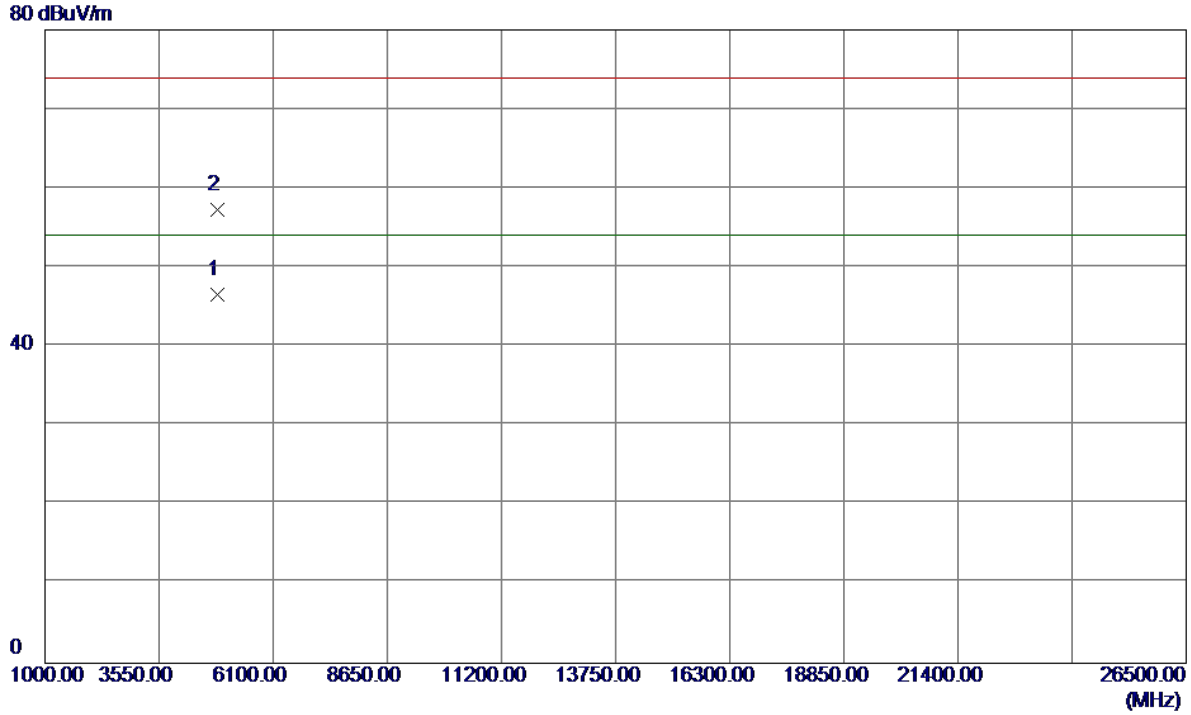
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	30.83	33.06	63.89	74.00	-10.11	Peak	
2	2390.0000	17.25	33.06	50.31	54.00	-3.69	AVG	
3	2417.2000	69.52	33.16	102.68	74.00	28.68	Peak	No Limit
4 *	2419.4000	56.97	33.17	90.14	54.00	36.14	AVG	No Limit

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

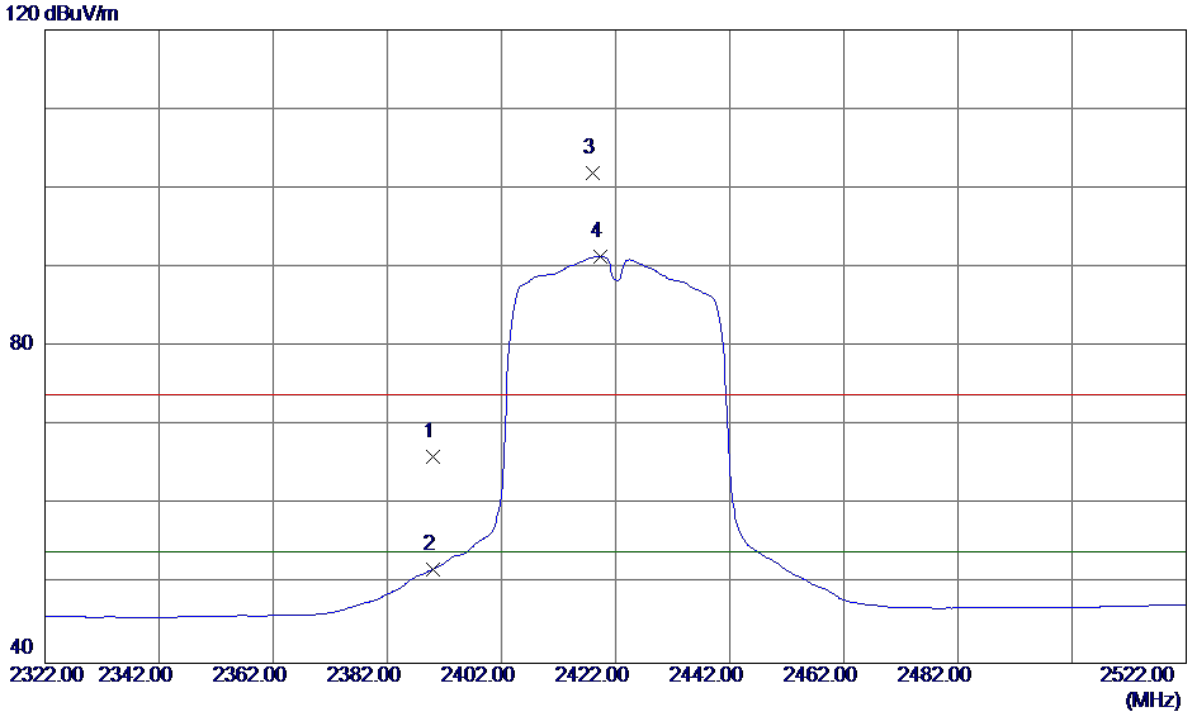
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4840.3000	40.26	6.36	46.62	54.00	-7.38	AVG	
2	4840.7000	50.91	6.36	57.27	74.00	-16.73	Peak	

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

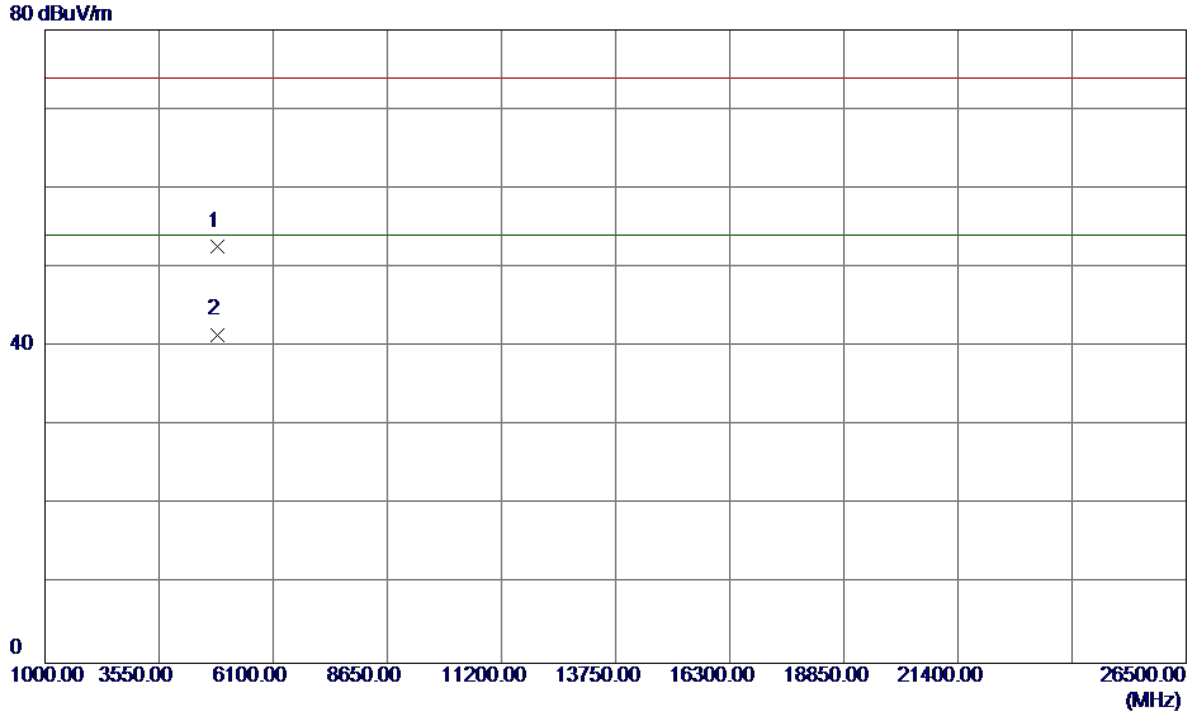
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	32.96	33.06	66.02	74.00	-7.98	Peak	
2	2390.0000	18.85	33.06	51.91	54.00	-2.09	AVG	
3	2418.0000	68.82	33.16	101.98	74.00	27.98	Peak	No Limit
4 *	2419.4000	58.23	33.17	91.40	54.00	37.40	AVG	No Limit

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

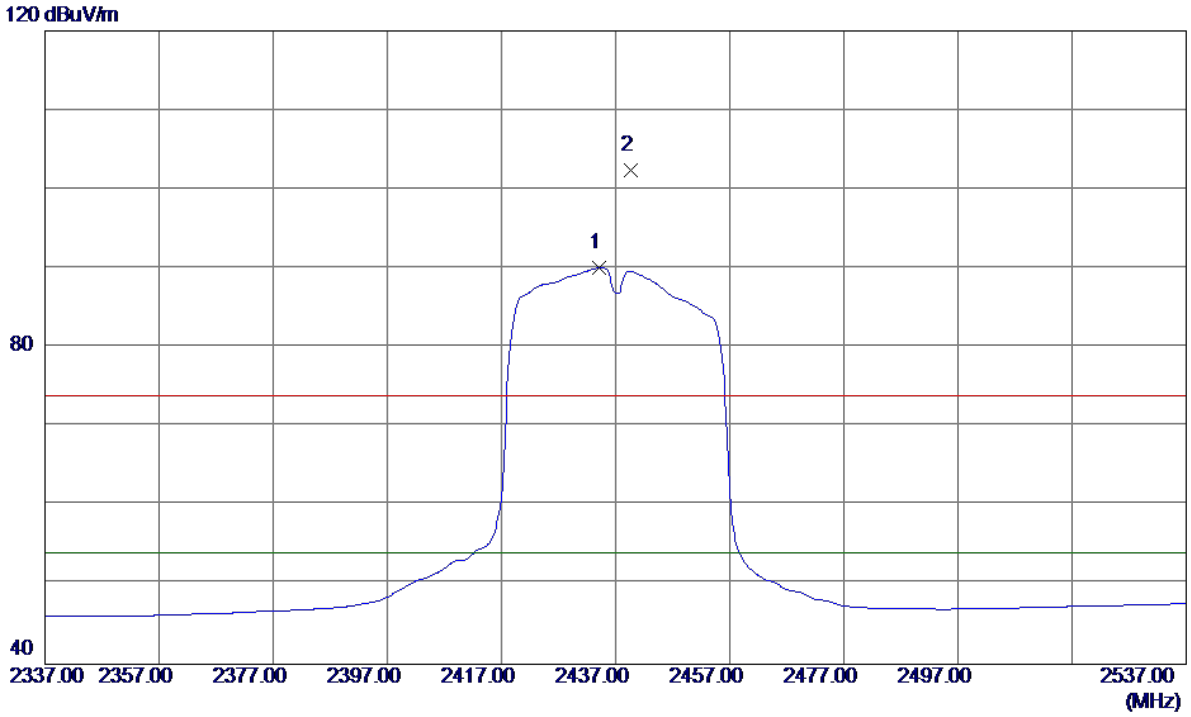
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4840.9000	46.35	6.36	52.71	74.00	-21.29	Peak	
2 *	4845.2000	35.15	6.37	41.52	54.00	-12.48	AVG	

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

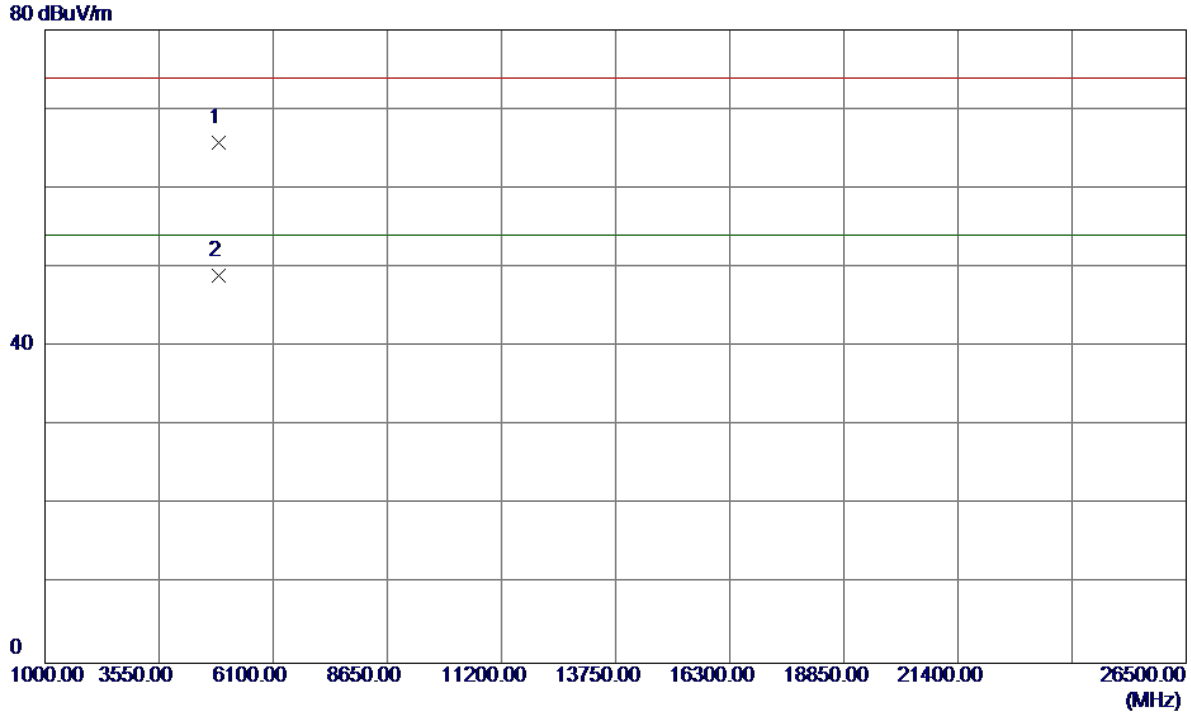
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2434.2000	56.89	33.22	90.11	54.00	36.11	AVG	No Limit
2	2439.6000	69.14	33.24	102.38	74.00	28.38	Peak	No Limit

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

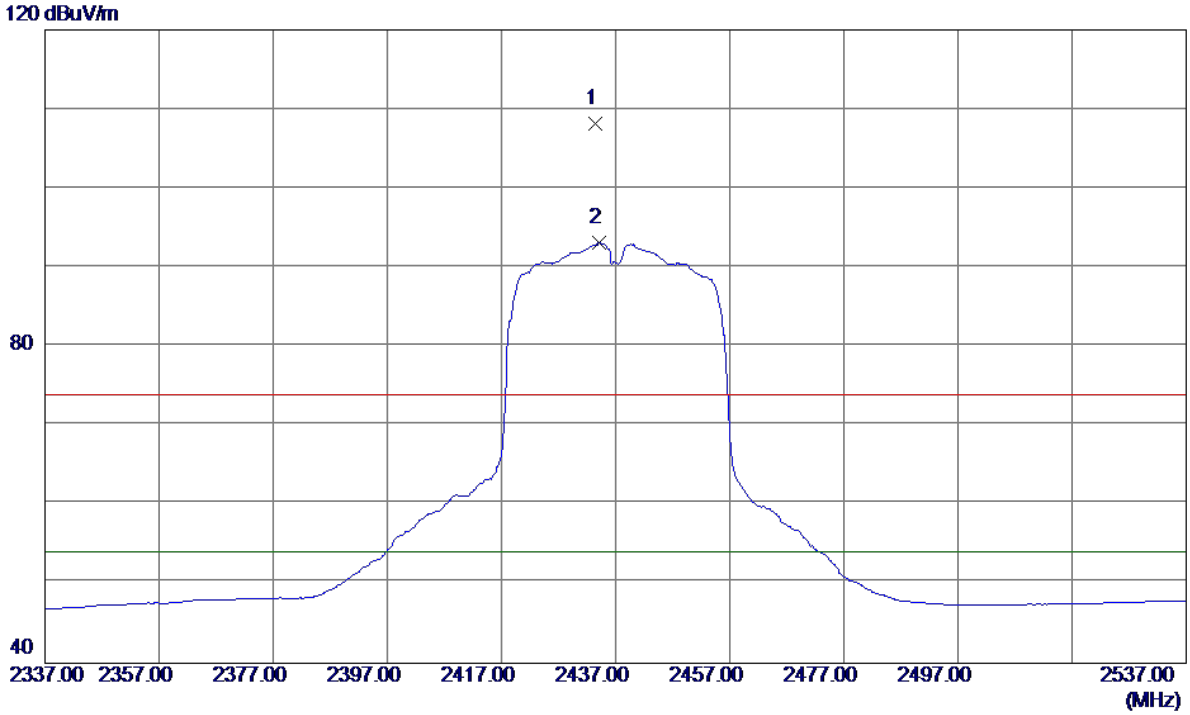
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4870.7200	59.38	6.43	65.81	74.00	-8.19	Peak	
2 *	4875.4600	42.53	6.45	48.98	54.00	-5.02	AVG	

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

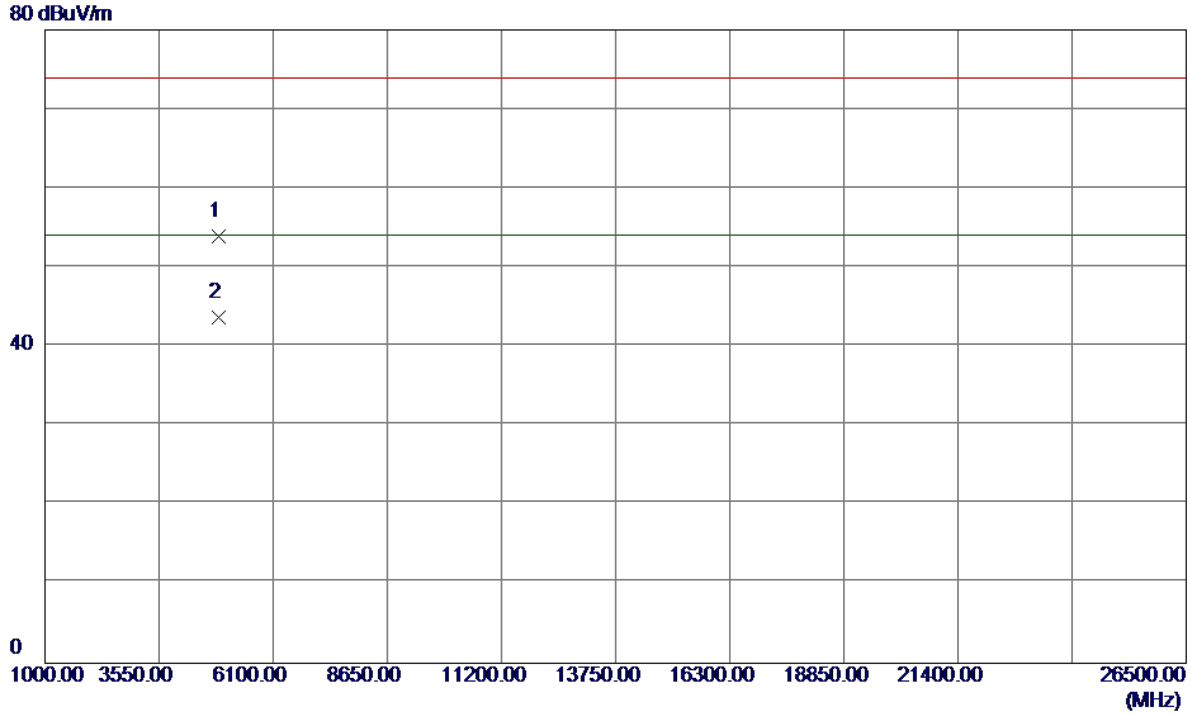
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2433.4000	75.00	33.22	108.22	74.00	34.22	Peak	No Limit
2 *	2434.2000	59.91	33.22	93.13	54.00	39.13	AVG	No Limit

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

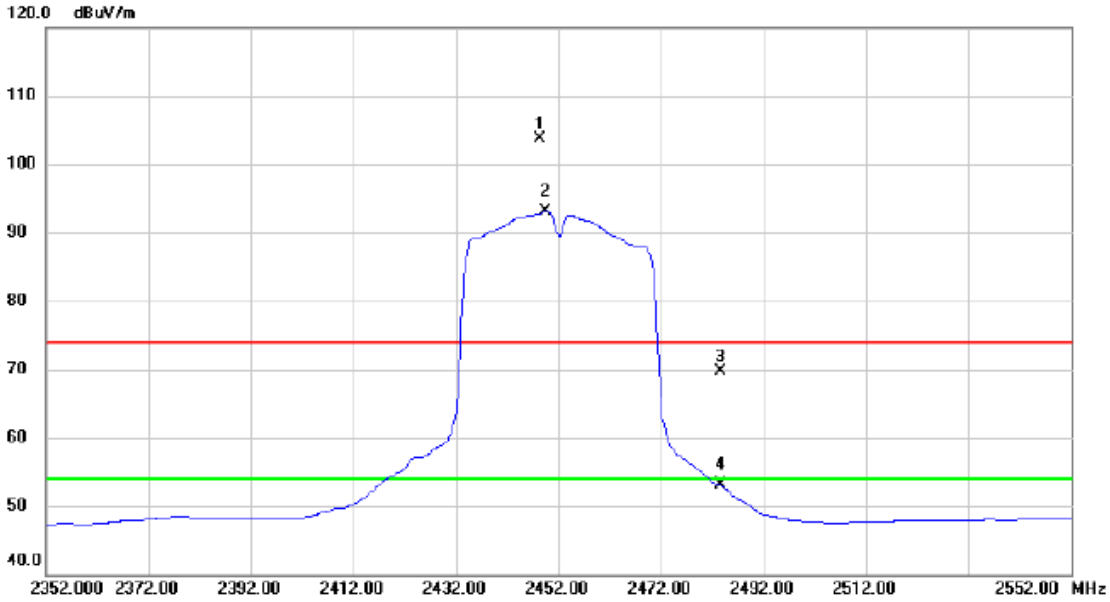
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4870.8000	47.50	6.43	53.93	74.00	-20.07	Peak	
2 *	4874.9000	37.18	6.44	43.62	54.00	-10.38	AVG	

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

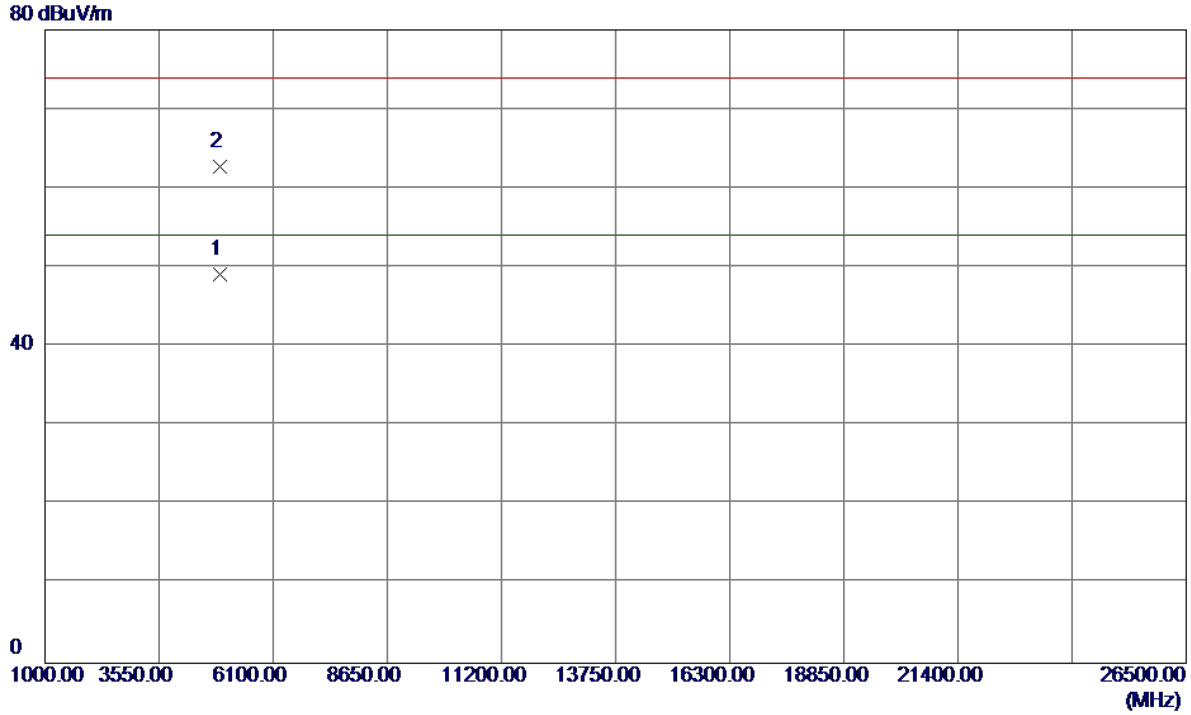
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2448.400	70.52	33.28	103.80	74.00	29.80	peak	No Limit
2	*	2449.600	59.76	33.28	93.04	54.00	39.04	AVG	No Limit
3		2483.500	36.23	33.41	69.64	74.00	-4.36	peak	
4		2483.500	19.62	33.41	53.03	54.00	-0.97	AVG	

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

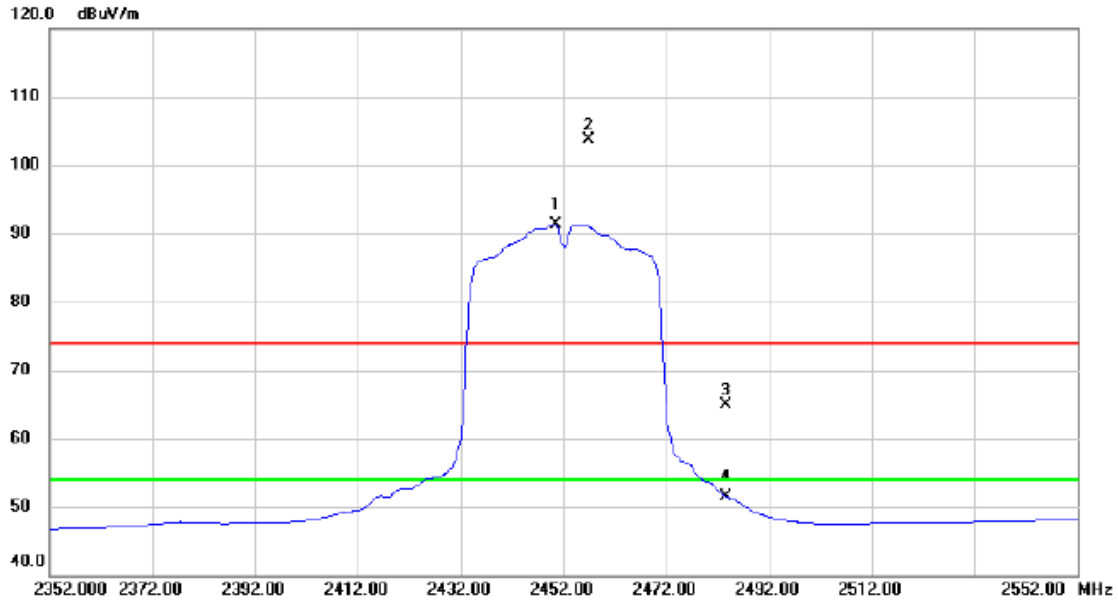
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4897.6500	42.61	6.50	49.11	54.00	-4.89	AVG	
2	4901.2000	56.27	6.51	62.78	74.00	-11.22	Peak	

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

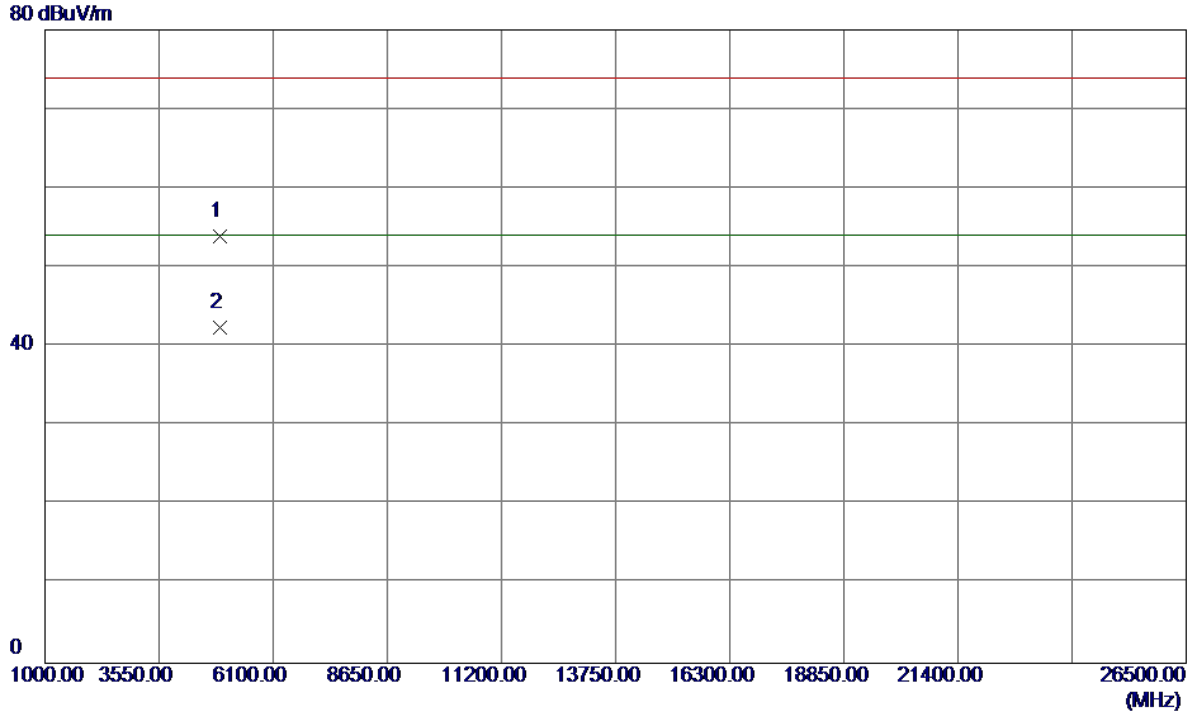
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2450.400	58.05	33.28	91.33	54.00	37.33	AVG	No Limit
2	X	2457.000	70.43	33.31	103.74	74.00	29.74	peak	No Limit
3		2483.500	31.40	33.41	64.81	74.00	-9.19	peak	
4		2483.500	18.15	33.41	51.56	54.00	-2.44	AVG	

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

Horizontal



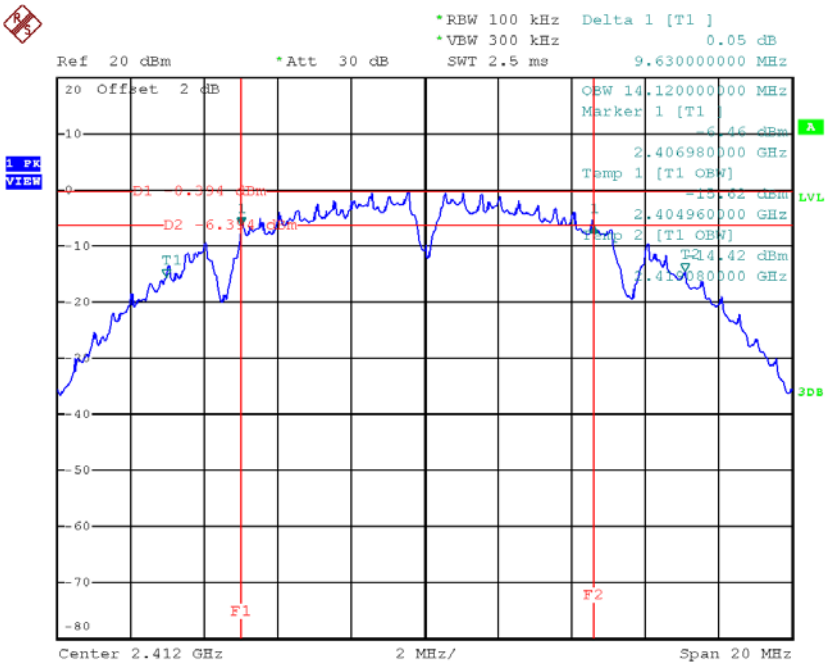
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4900.7000	47.47	6.51	53.98	74.00	-20.02	Peak	
2 *	4911.2000	35.82	6.54	42.36	54.00	-11.64	AVG	

APPENDIX E - BANDWIDTH

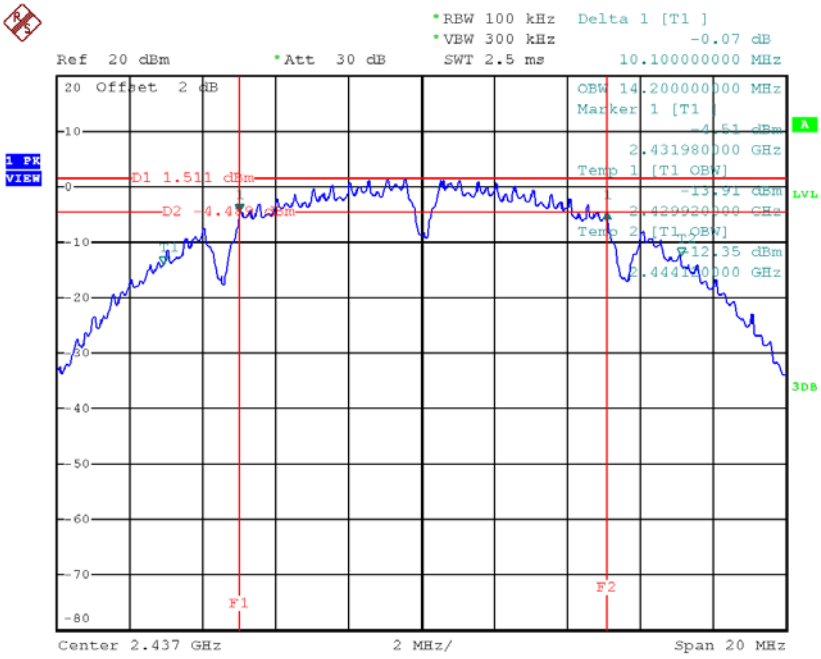
Test Mode : TX B Mode_CH01/06/11

Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	9.63	14.12	500	Complies
2437	10.10	14.20	500	Complies
2462	10.04	14.12	500	Complies

TX CH01

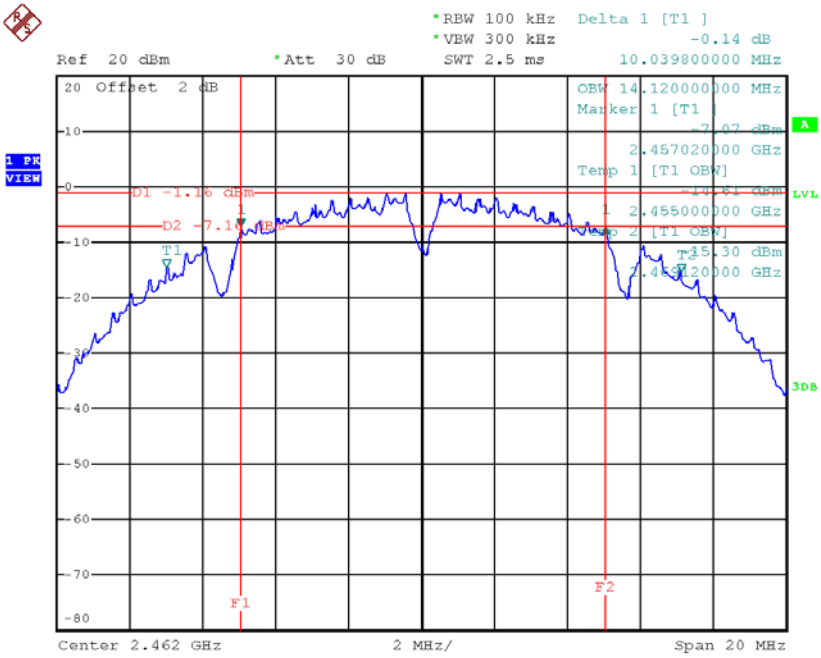


TX CH06



Date: 6.SEP.2017 11:25:48

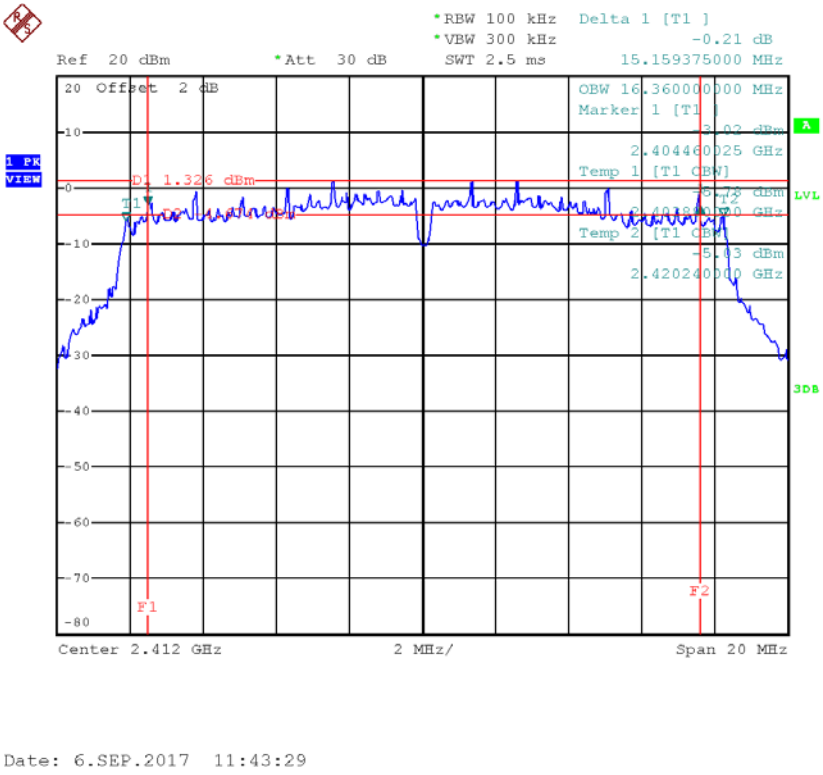
TX CH11



Date: 6.SEP.2017 11:27:33

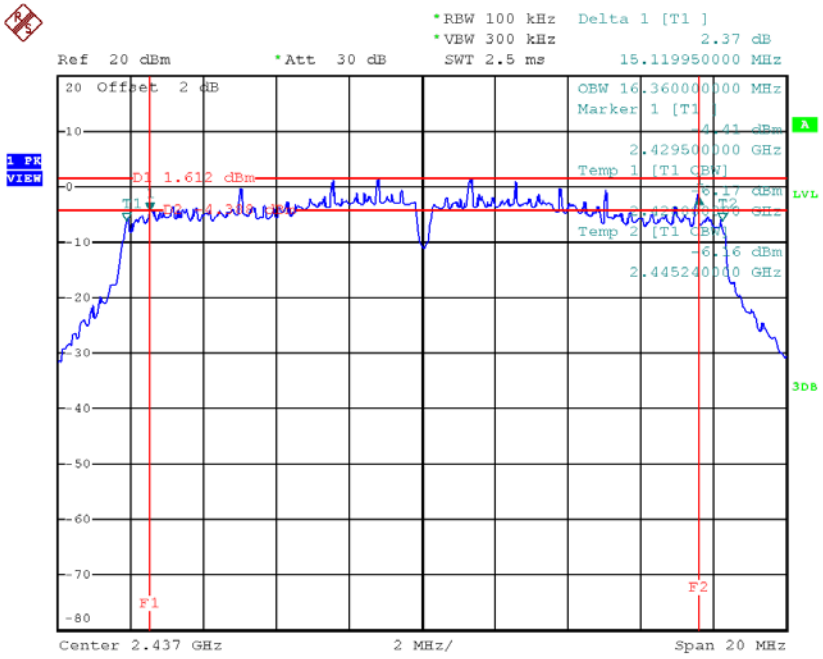
Test Mode: TX G Mode_CH01/06/11				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	15.16	16.36	500	Complies
2437	15.12	16.36	500	Complies
2462	14.75	16.32	500	Complies

TX CH01



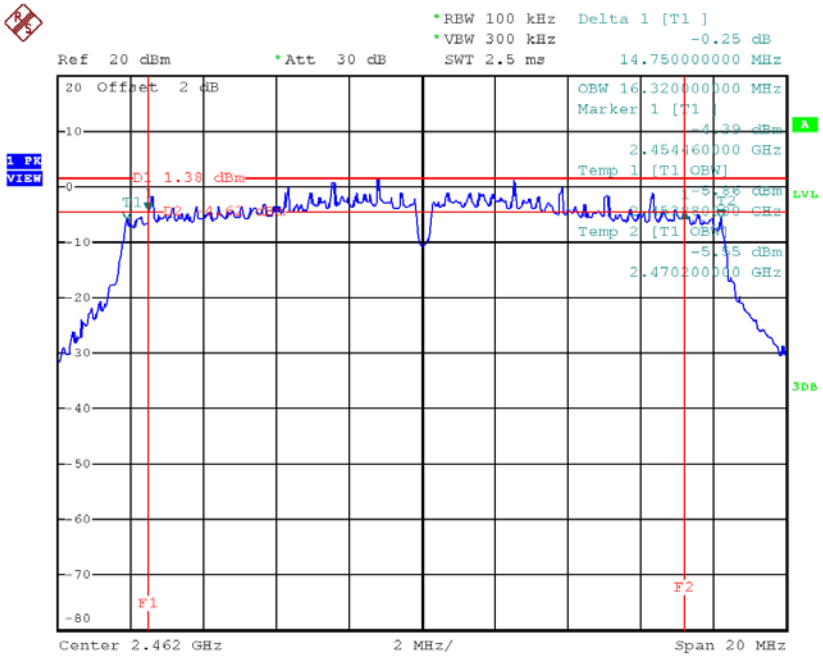
Date: 6.SEP.2017 11:43:29

TX CH06



Date: 6.SEP.2017 11:45:16

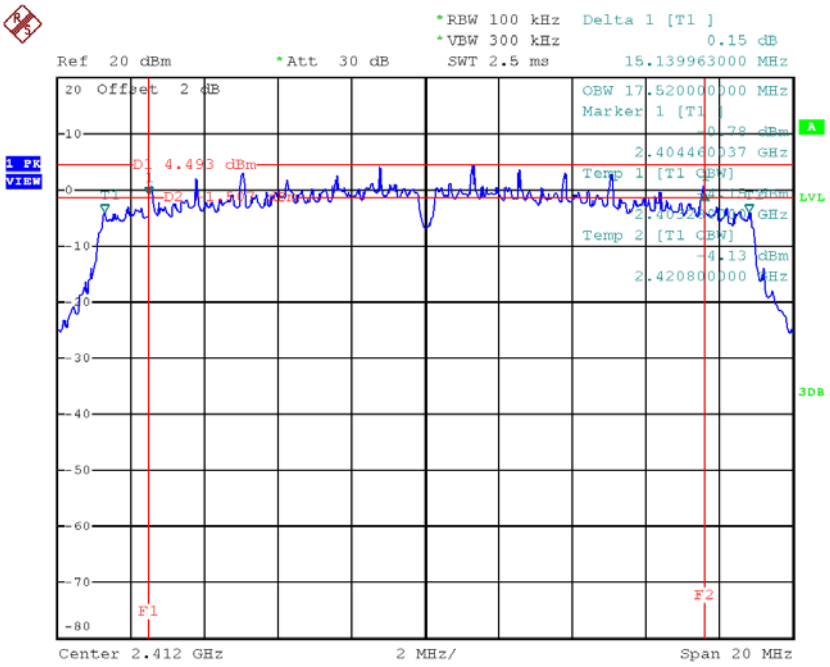
TX CH11



Date: 6.SEP.2017 11:46:38

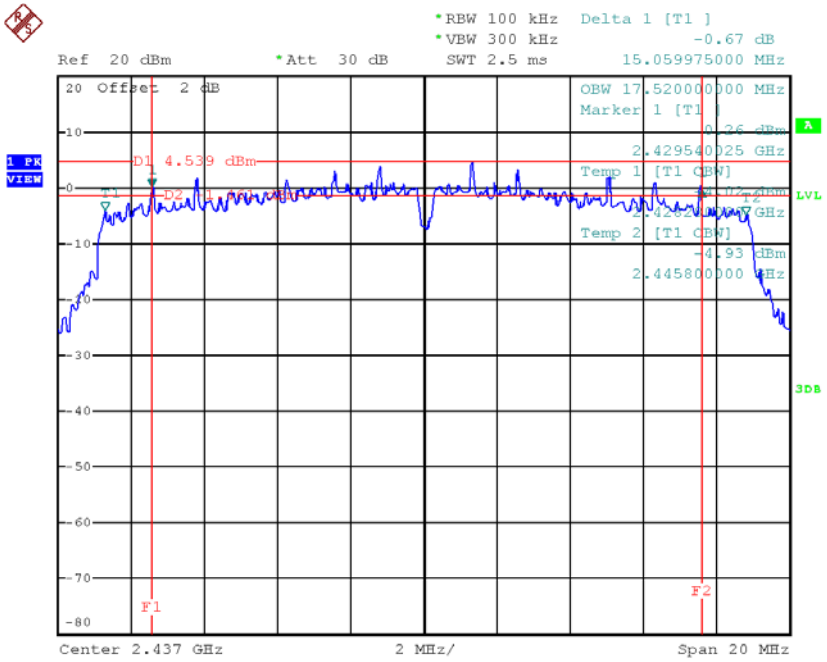
Test Mode : TX N-20MHz Mode_CH01/06/11				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	15.14	17.52	500	Complies
2437	15.06	17.52	500	Complies
2462	15.18	17.52	500	Complies

TX CH01



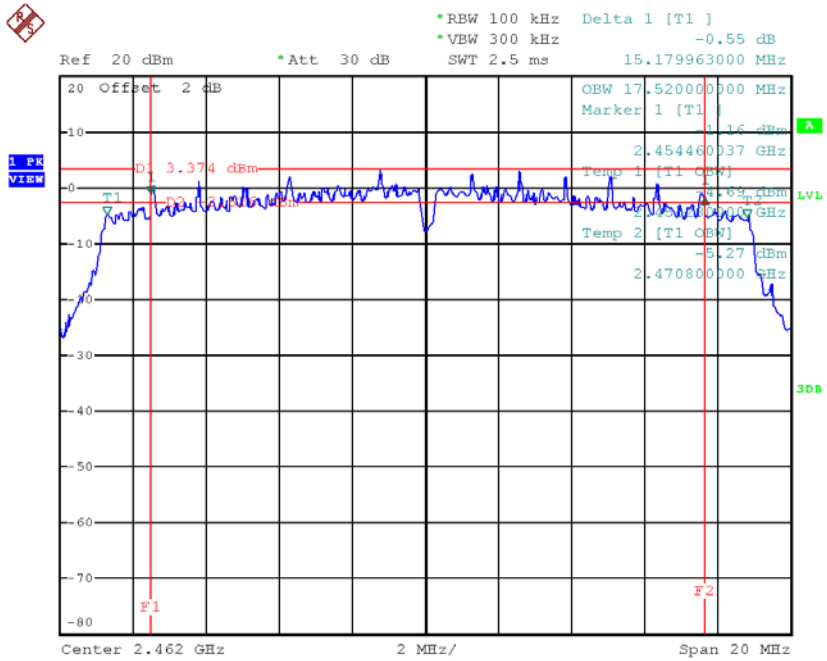
Date: 6.SEP.2017 12:04:20

TX CH06



Date: 6.SEP.2017 12:05:47

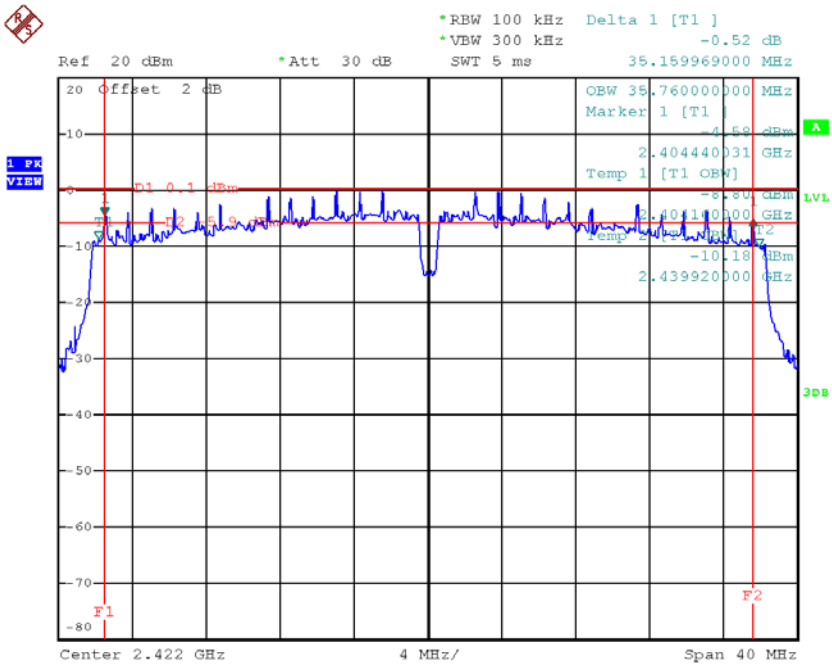
TX CH11



Date: 6.SEP.2017 12:06:54

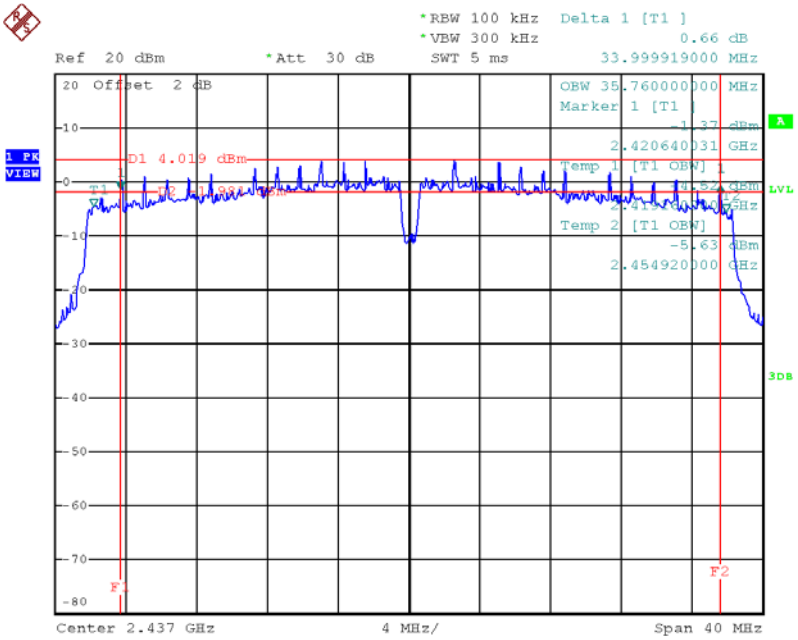
Test Mode : TX N-40MHz Mode_CH03/06/09				
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2422	35.16	35.76	500	Complies
2437	34.00	35.76	500	Complies
2452	35.12	35.76	500	Complies

TX CH03



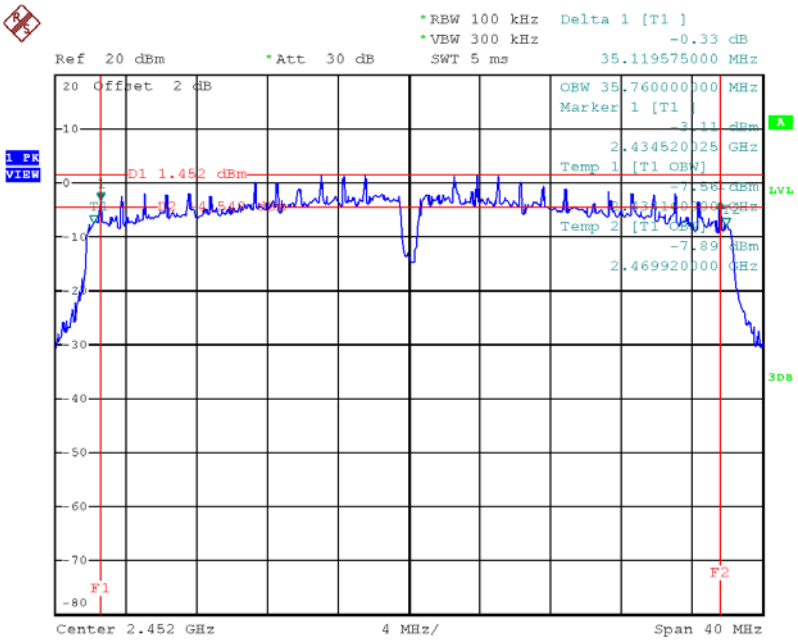
Date: 6.SEP.2017 12:14:09

TX CH06



Date: 6.SEP.2017 12:15:24

TX CH09



Date: 6.SEP.2017 12:17:29

APPENDIX F - MAXIMUM PEAK CONDUCTED OUTPUT POWER

Test Mode :TX B Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	10.12	0.01	30.00	1.00	Complies
2437	13.97	0.02	30.00	1.00	Complies
2462	10.24	0.01	30.00	1.00	Complies

Test Mode :TX B Mode_CH01/06/11_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	10.68	0.01	30.00	1.00	Complies
2437	14.02	0.03	30.00	1.00	Complies
2462	10.53	0.01	30.00	1.00	Complies

Test Mode :TX B Mode_CH01/06/11_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	13.42	0.02	30.00	1.00	Complies
2437	17.01	0.05	30.00	1.00	Complies
2462	13.40	0.02	30.00	1.00	Complies

Test Mode :TX G Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	22.32	0.17	30.00	1.00	Complies
2437	21.85	0.15	30.00	1.00	Complies
2462	21.73	0.15	30.00	1.00	Complies

Test Mode :TX G Mode_CH01/06/11_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	22.31	0.17	30.00	1.00	Complies
2437	22.12	0.16	30.00	1.00	Complies
2462	22.15	0.16	30.00	1.00	Complies

Test Mode :TX G Mode_CH01/06/11_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	25.33	0.34	30.00	1.00	Complies
2437	25.00	0.32	30.00	1.00	Complies
2462	24.96	0.31	30.00	1.00	Complies

Test Mode :TX N20 Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	25.05	0.32	30.00	1.00	Complies
2437	24.98	0.31	30.00	1.00	Complies
2462	24.74	0.30	30.00	1.00	Complies

Test Mode :TX N20 Mode_CH01/06/11_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	24.41	0.28	30.00	1.00	Complies
2437	24.75	0.30	30.00	1.00	Complies
2462	23.98	0.25	30.00	1.00	Complies

Test Mode :TX N20 Mode_CH01/06/11_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	27.75	0.60	30.00	1.00	Complies
2437	27.88	0.61	30.00	1.00	Complies
2462	27.39	0.55	30.00	1.00	Complies

Test Mode :TX N40 Mode_CH03/06/09_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	22.07	0.16	30.00	1.00	Complies
2437	25.41	0.35	30.00	1.00	Complies
2452	23.86	0.24	30.00	1.00	Complies

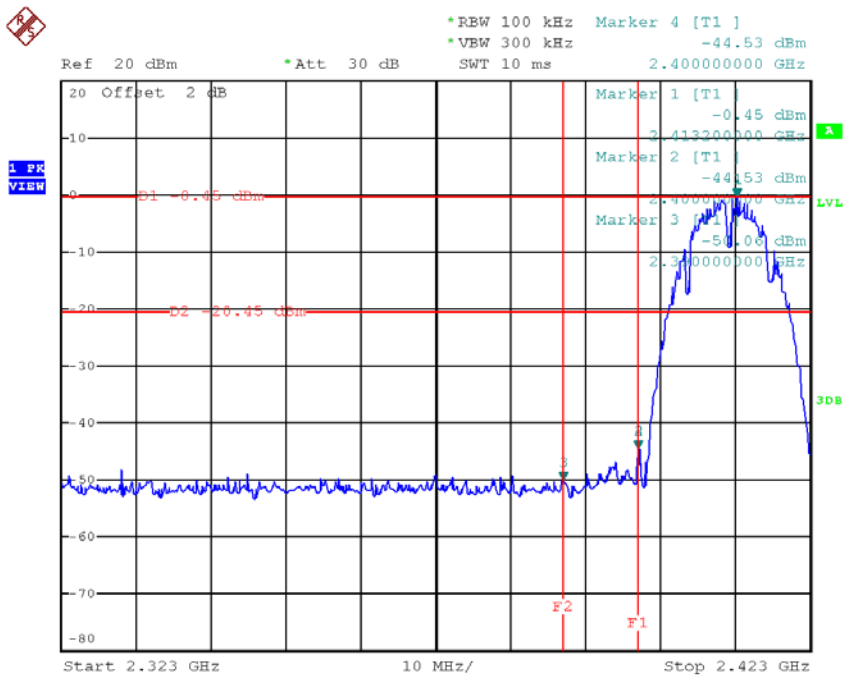
Test Mode :TX N40 Mode_CH03/06/09_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	22.32	0.17	30.00	1.00	Complies
2437	25.31	0.34	30.00	1.00	Complies
2452	24.02	0.25	30.00	1.00	Complies

Test Mode :TX N40 Mode_CH03/06/09_Total					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	25.21	0.33	30.00	1.00	Complies
2437	28.37	0.69	30.00	1.00	Complies
2452	26.95	0.50	30.00	1.00	Complies

APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION

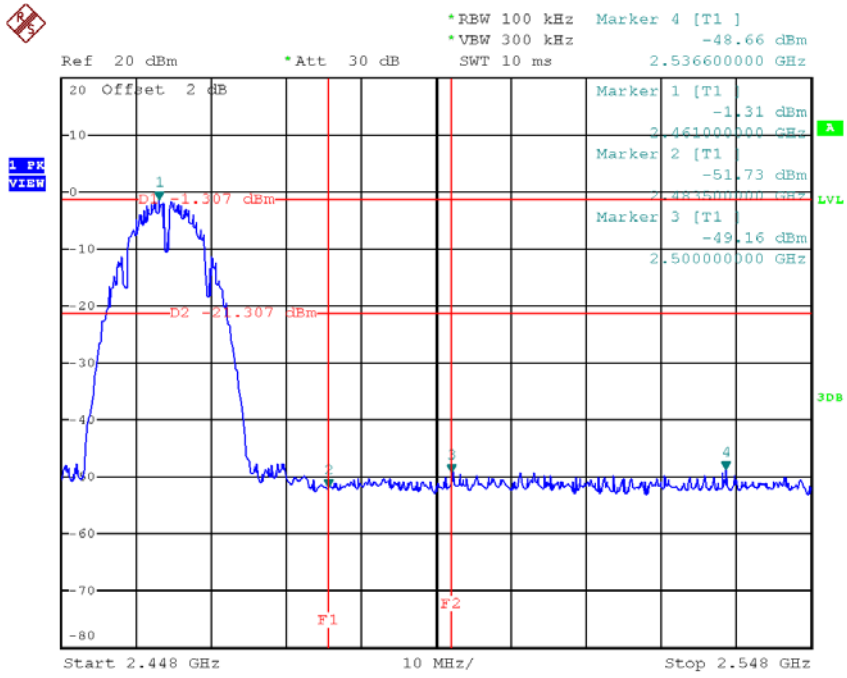
Test Mode :	TX B Mode_ANT 1

TX B mode CH01



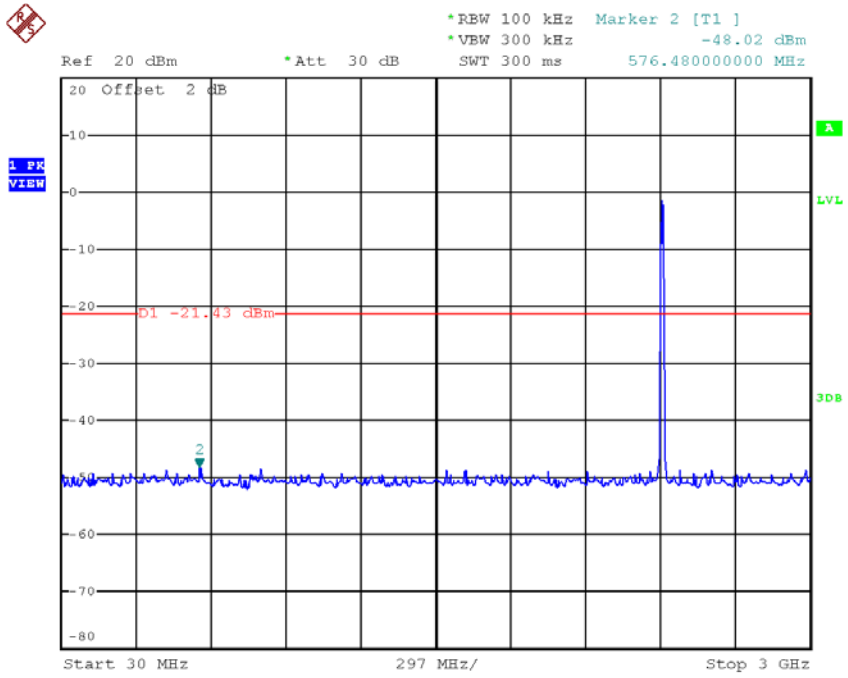
Date: 6.SEP.2017 11:24:32

TX B mode CH11

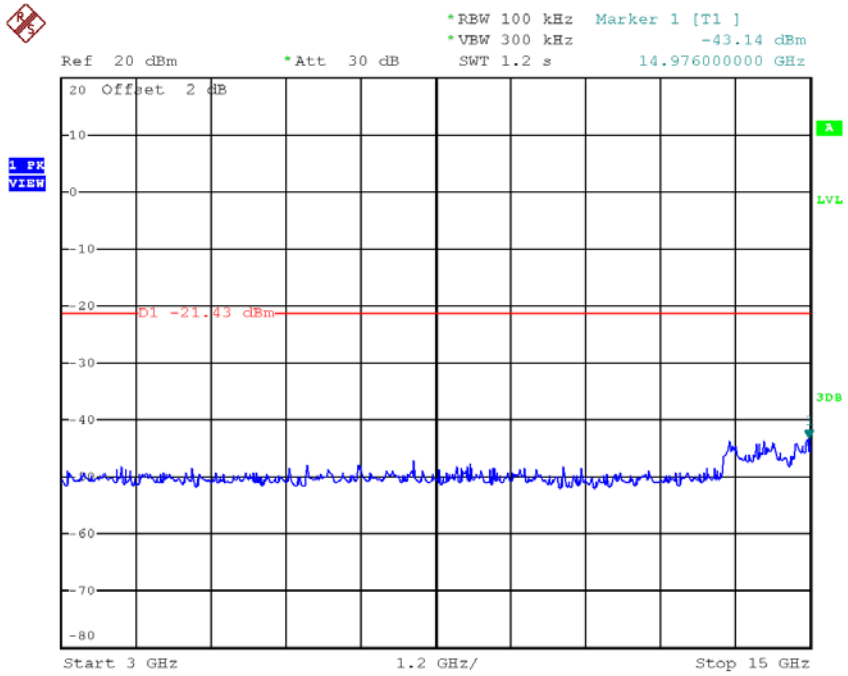


Date: 6.SEP.2017 11:28:07

TX B mode CH01 (10 Harmonic of the frequency)



Date: 6.SEP.2017 11:24:11



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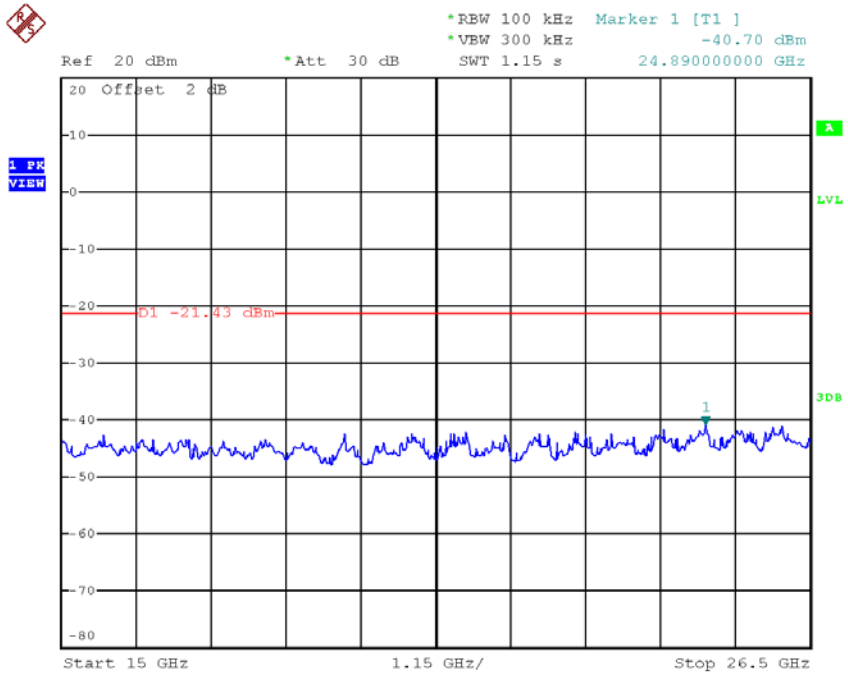
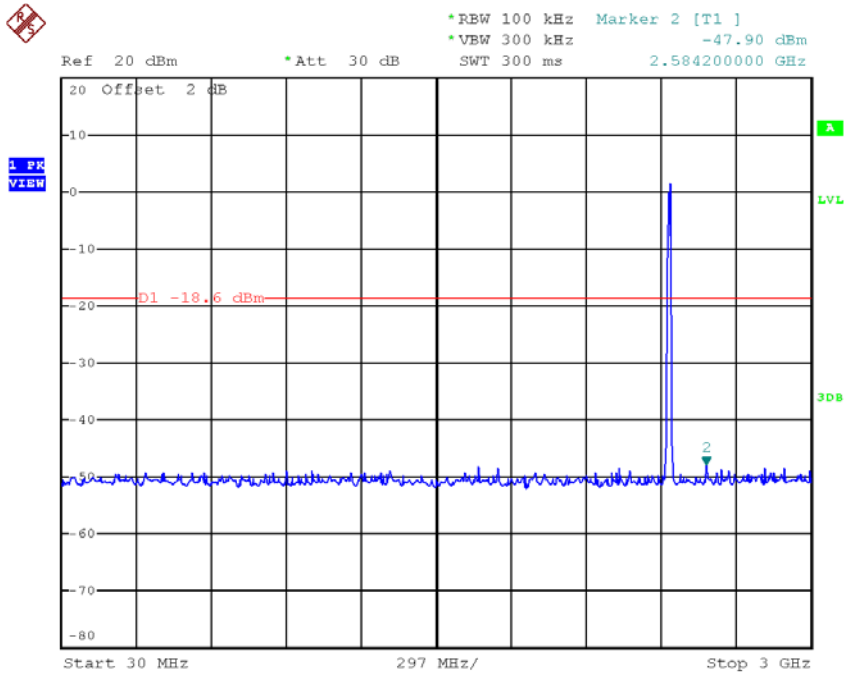
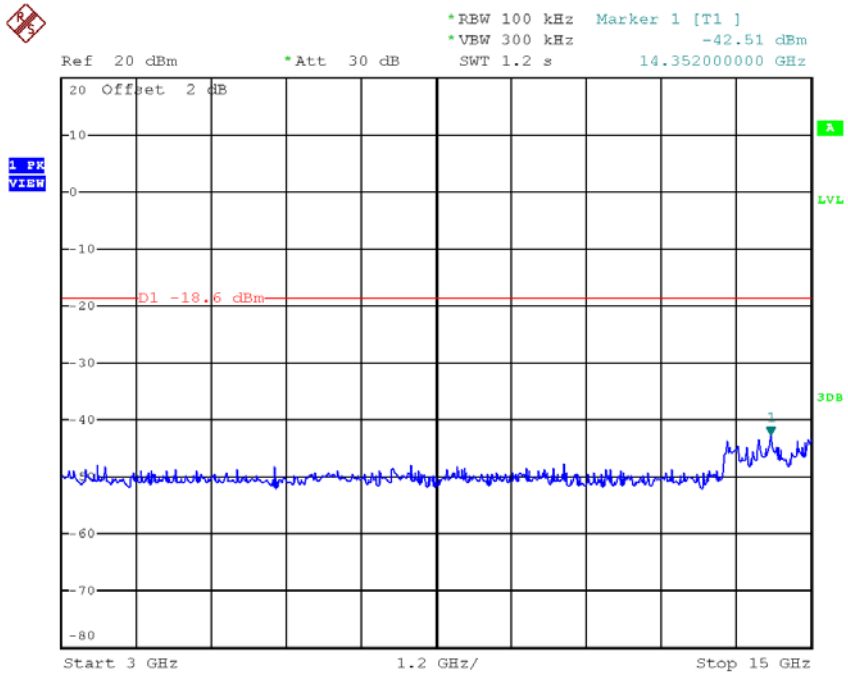


Date: 6.SEP.2017 11:24:25

TX B mode CH06 (10 Harmonic of the frequency)



Date: 6.SEP.2017 11:26:01



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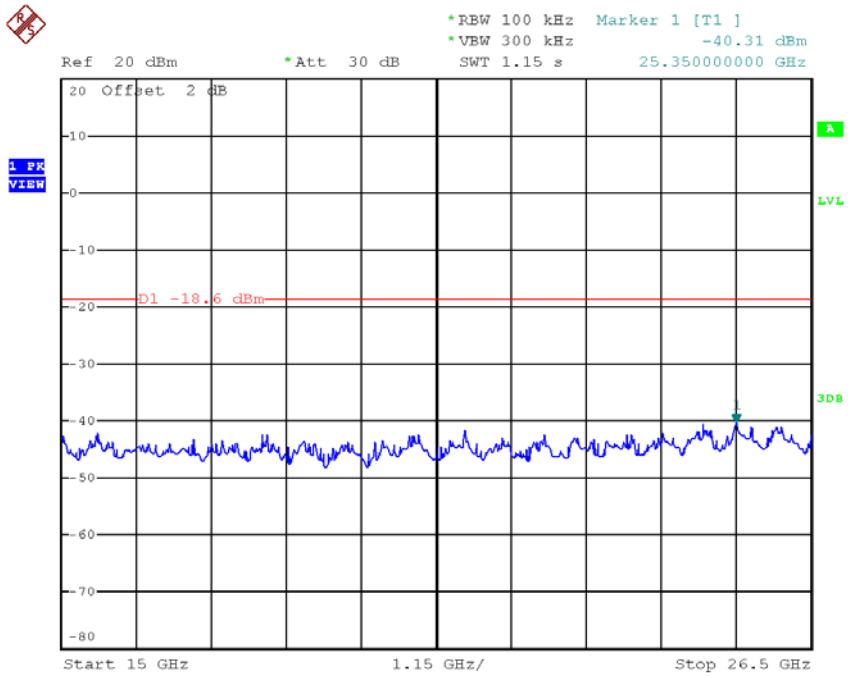
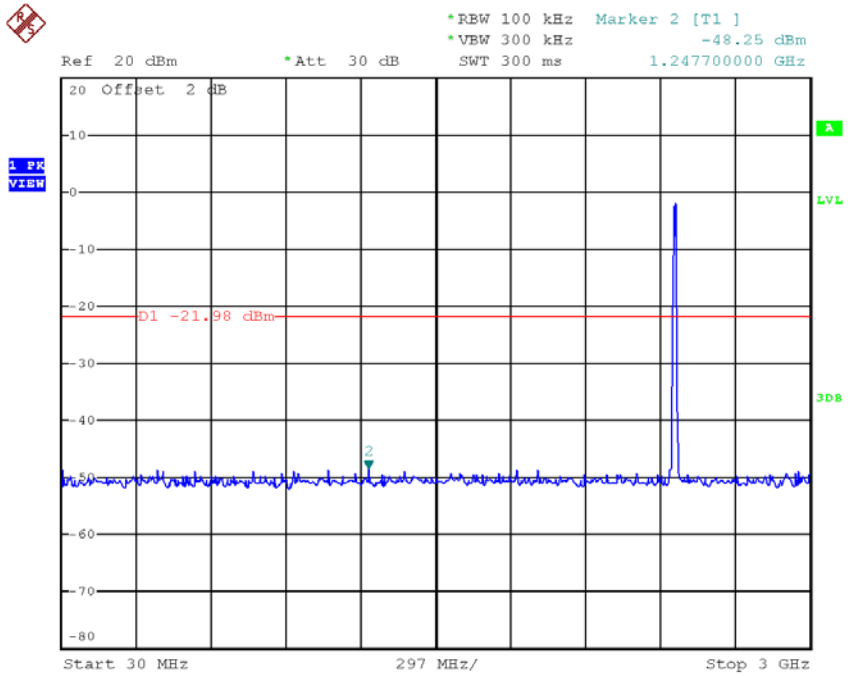
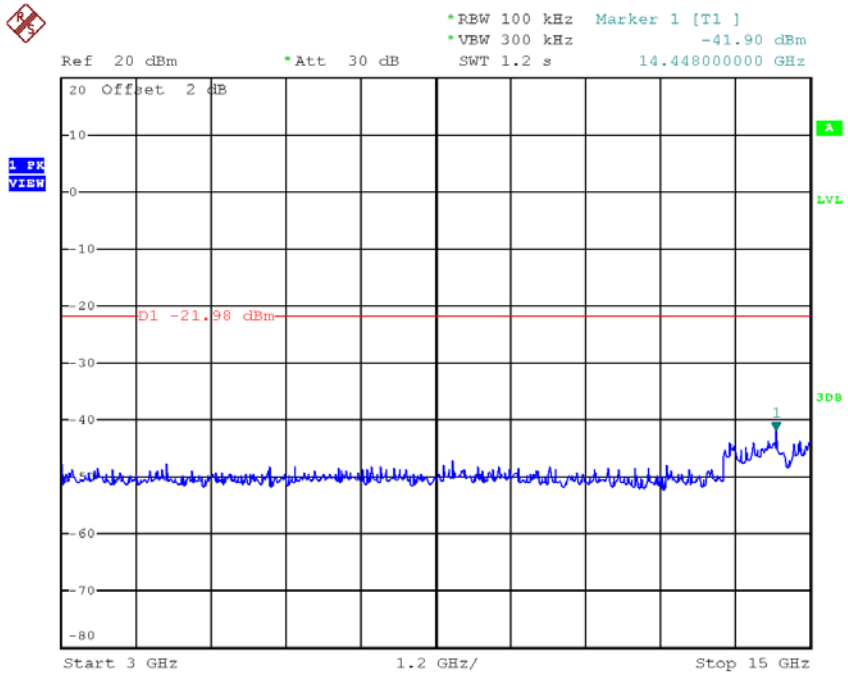


Date: 6.SEP.2017 11:26:15

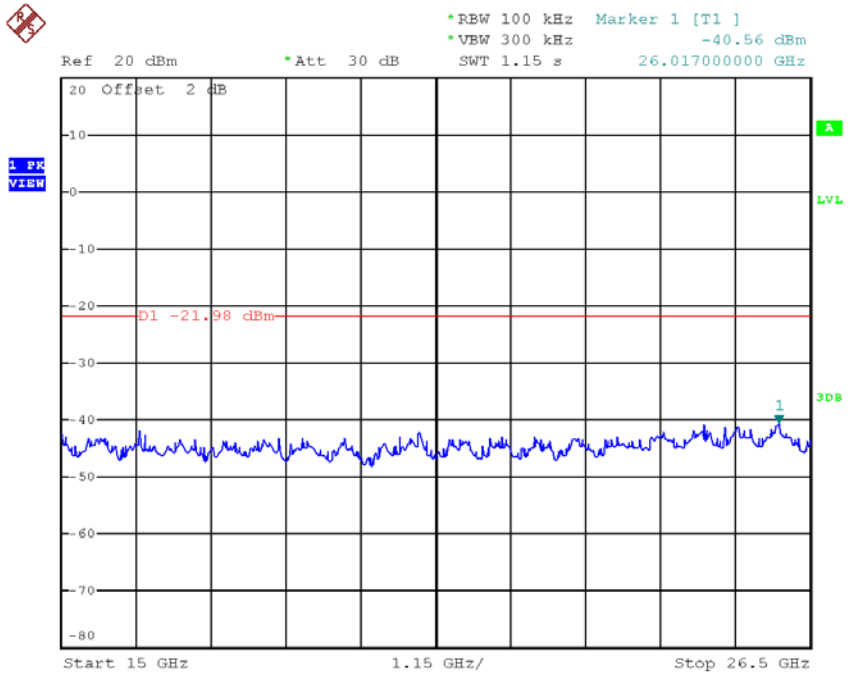
TX B mode CH11 (10 Harmonic of the frequency)



Date: 6.SEP.2017 11:27:47



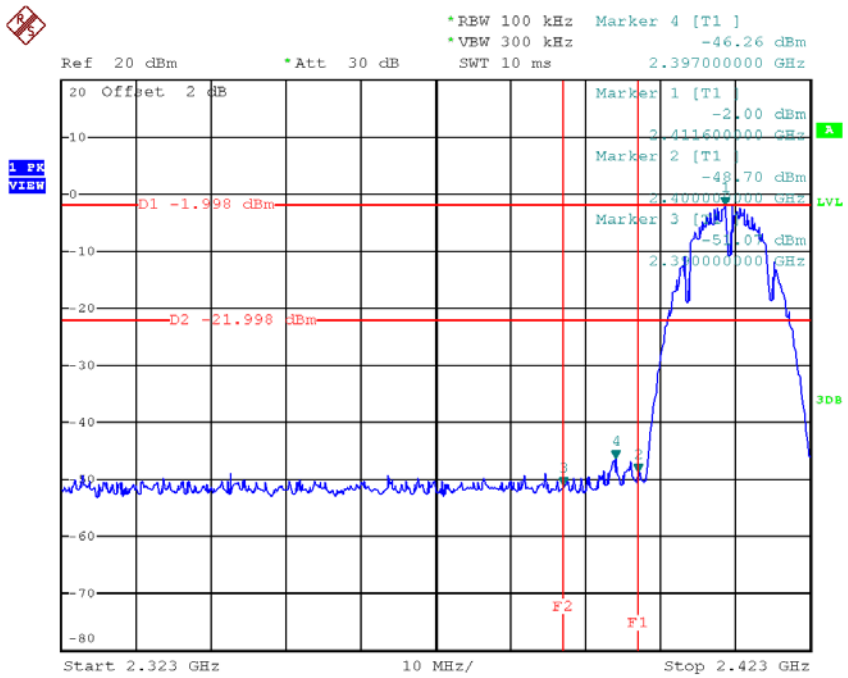
Date: 6.SEP.2017 11:27:54



Date: 6.SEP.2017 11:28:01

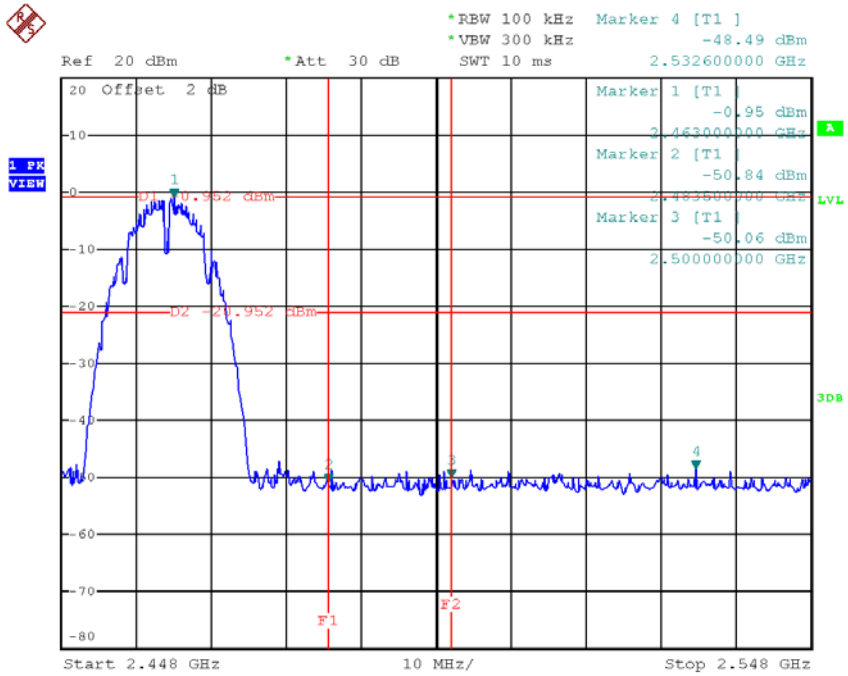
Test Mode :	TX B Mode_ANT 2

TX B mode CH01



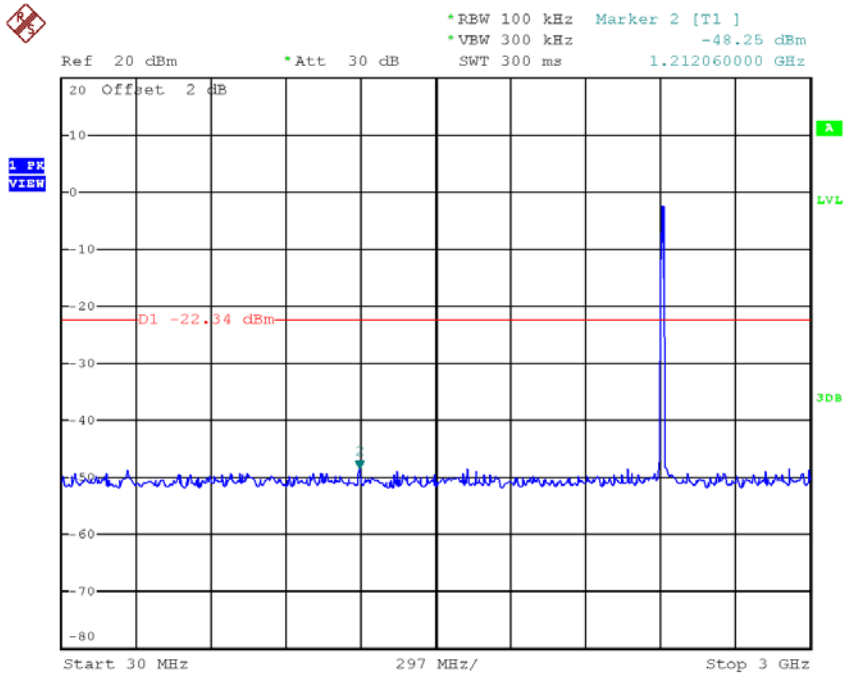
Date: 6.SEP.2017 11:29:38

TX B mode CH11

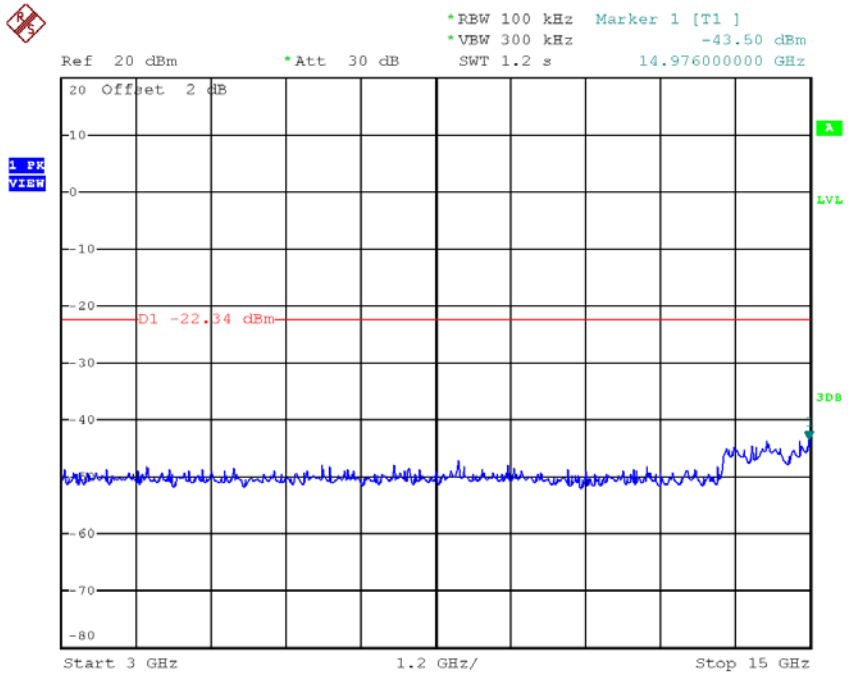


Date: 6.SEP.2017 11:32:13

TX B mode CH01 (10 Harmonic of the frequency)



Date: 6.SEP.2017 11:29:16



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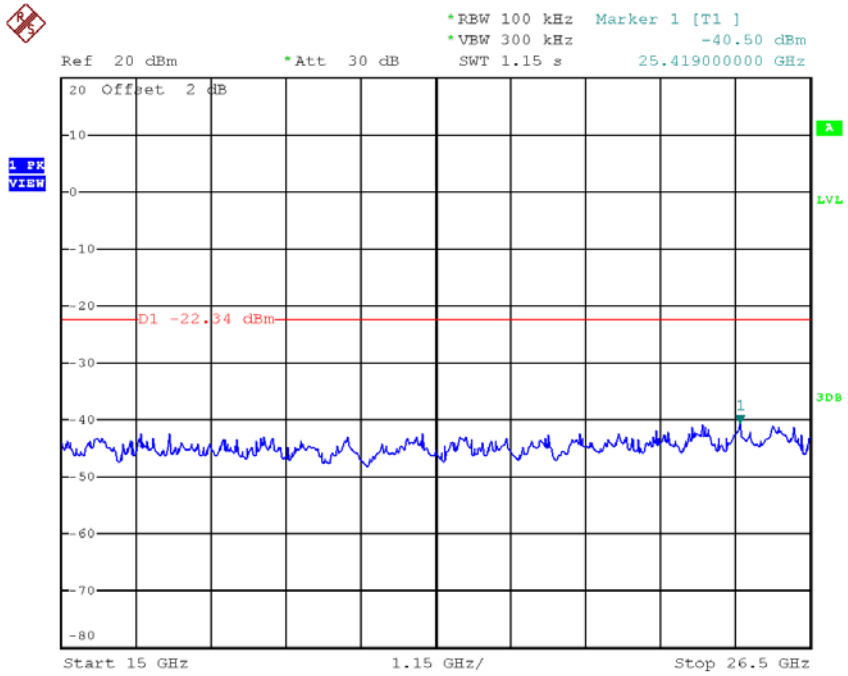
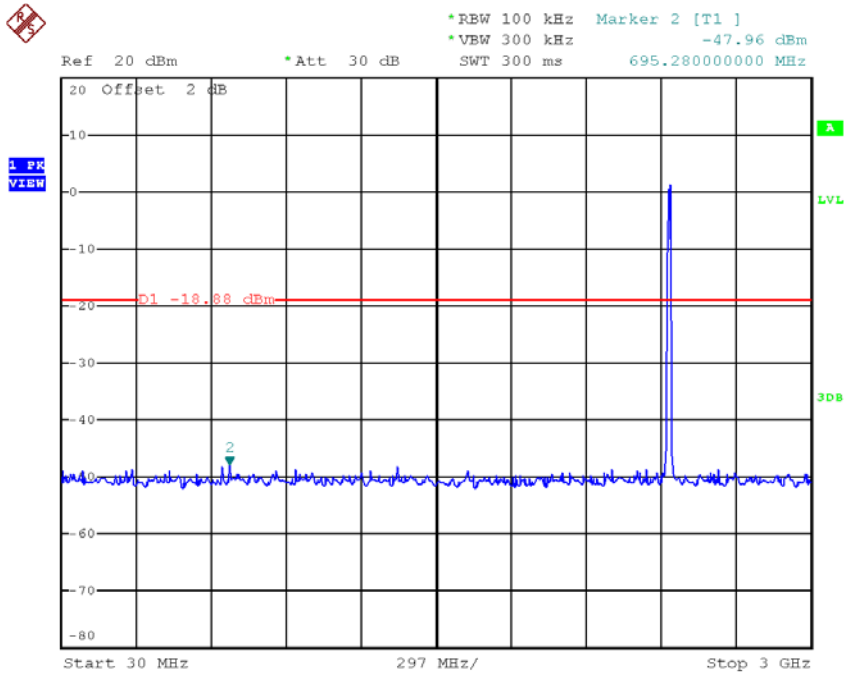


Date: 6.SEP.2017 11:29:31

TX B mode CH06 (10 Harmonic of the frequency)



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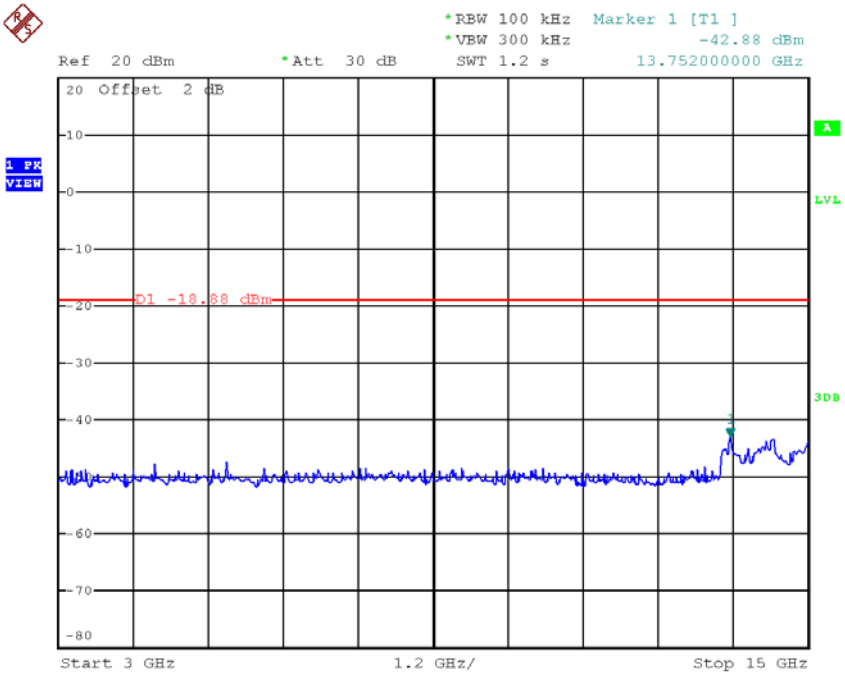

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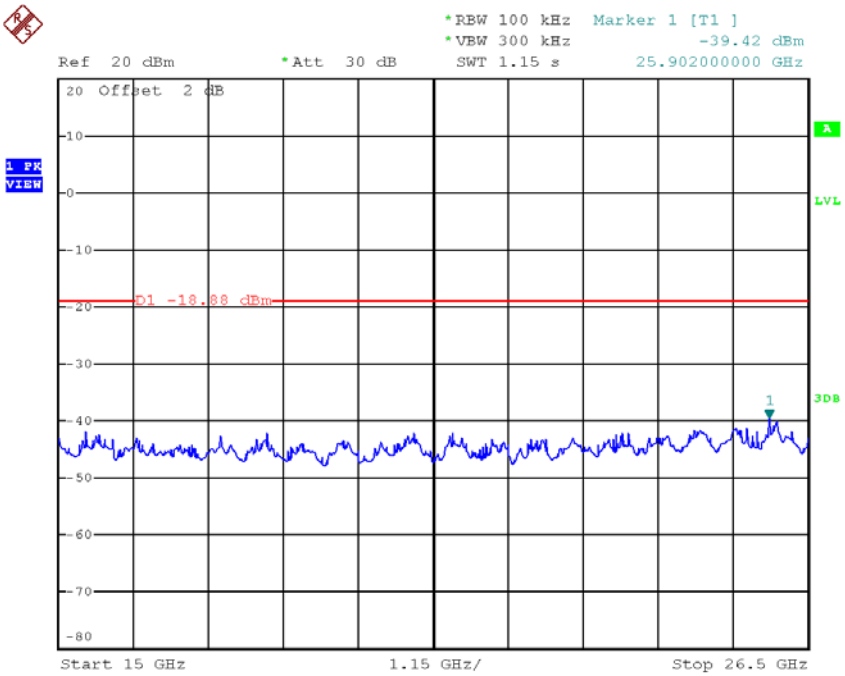

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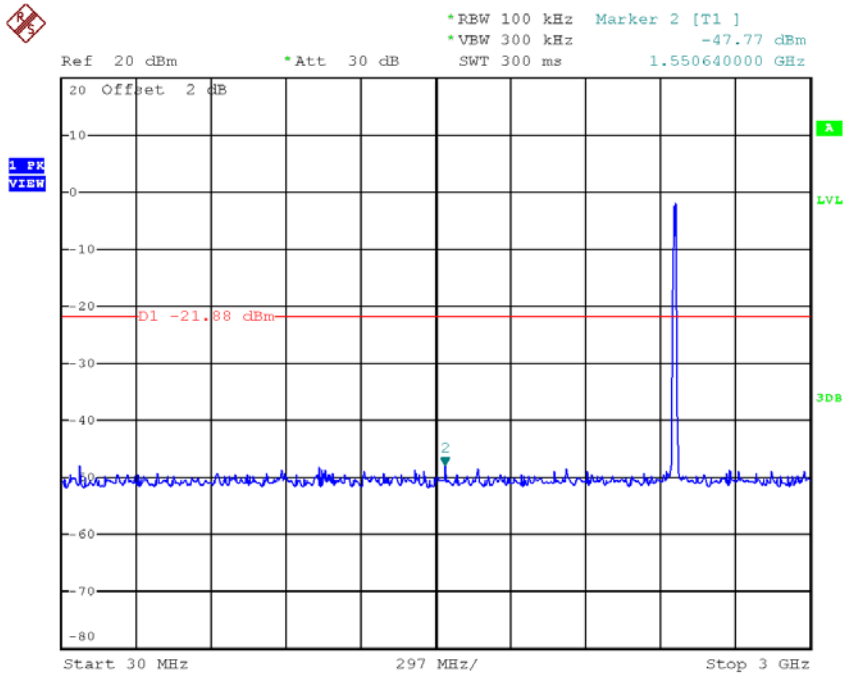
TX B mode CH11 (10 Harmonic of the frequency)



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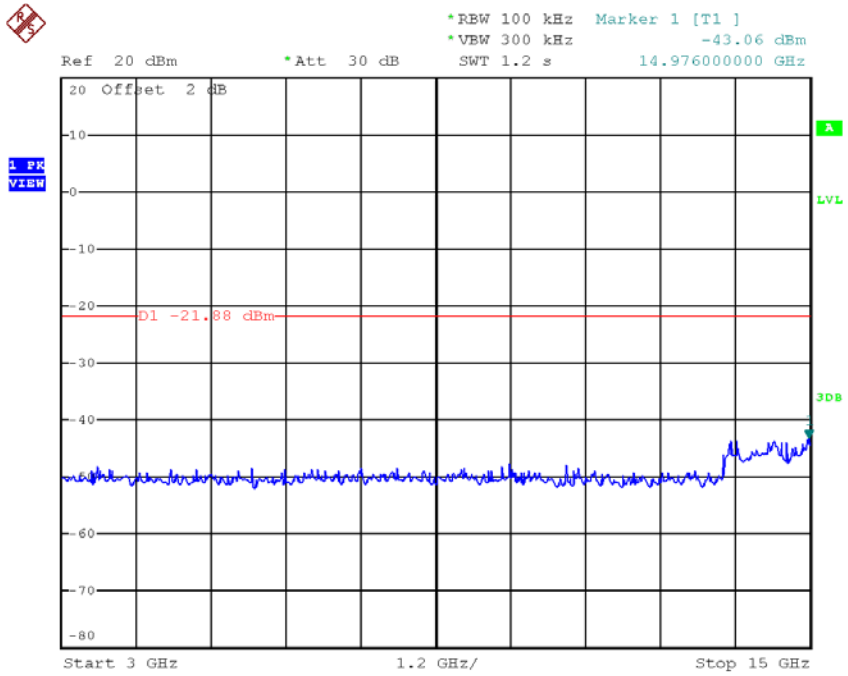

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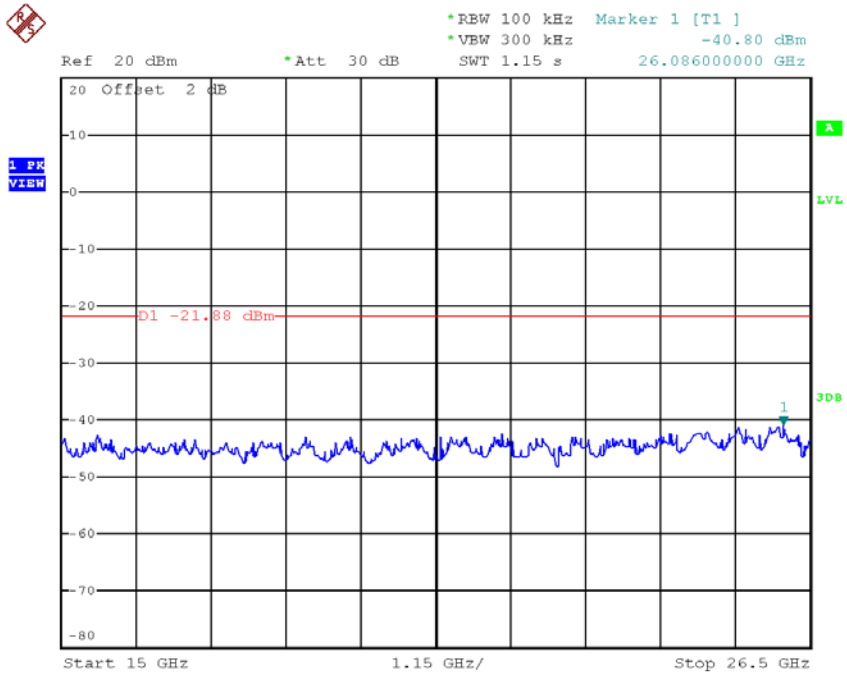

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