FCC Radio Test Report

FCC ID: XU8TEW723BRM

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

Project No.	:	1509C151A
Equipment	:	N300 WiFi ADSL 2+ Modem Router
Model Name	:	TEW-723BRM
Applicant	:	TRENDnet, Inc.
Address	:	20675 Manhattan Place, Torrance, CA 90501

Date of Receipt	:	Oct. 20, 2016
Date of Test	:	Oct. 20, 2016 ~ Nov. 29, 2016
Issued Date	:	Nov. 30, 2016
Tested by	:	BTL Inc.

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Declaration

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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-1-1509C151A	Original Issue.	Nov. 30, 2016

1. CERTIFICATION

Equipment	:	N300 WiFi ADSL 2+ Modem Router
Brand Name	:	TRENDnet®
Model Name	:	TEW-723BRM
Applicant	:	TRENDnet, Inc.
Manufacturer	:	TRENDnet, Inc.
Address	:	20675 Manhattan Place, Torrance, CA 90501
Factory	:	(1) Shenzhen Gongjin Electronics Co.,Ltd (2) Taicang T&W Electronics Co.,Ltd
Address	:	(1) No 2&3 Buildings,Mingwei Factory Area,Songgang Road West,Songgang Sub-District,Shenzhen,Guangdong,China (2) Jiangnan Road 89, Lud Town, Taicang, Suzhou,Jiangsu, 215412,P.R.China
Date of Test	:	Oct. 20, 2016 ~ Nov. 29, 2016
Test Sample	:	Engineering Sample
Standard(s)	:	FCC Part15, Subpart C:(15.247) / ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1509C151A) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF 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	
15.209/15.205	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: 319330

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

Equipment	N300 WiFi ADSL 2+ Modem Router	
Brand Name	TRENDnet®	
Model Name	TEW-723BRM	
Model Difference	N/A	
Product Description	Operation Frequency	2412~2462 MHz
	Modulation Technology	802.11b:DSSS 802.11g:OFDM 802.11n:OFDM
	Bit Rate of Transmitter	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n up to 300 Mbps
	Output Power (Max.)	802.11b: 18.42dBm 802.11g: 15.38dBm 802.11n(20MHz): 16.93dBm 802.11n(40MHz): 16.86dBm
Power Source	DC voltage supplied from AC Adapter. Manufacturer/ Model: Shenzhen Gongjin Electronics Co.,Ltd /S12B22-120A100-C4	
Power Rating	I/P: 100-240~ 50/60Hz max 0.5A O/P: DC 12V 1A	

Note:

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

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

3. Table for Filed Antenna

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
1	RF link	RF21C00645A	Dipole	N/A	5.00	TX/RX
2	RF link	RF21C00958A	Dipole	N/A	5.00	TX/RX

Note:
(1) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).
(2) ANT 1 is the worst case for 1TX.

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

Operating Mode / TX Mode	1TX	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 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.

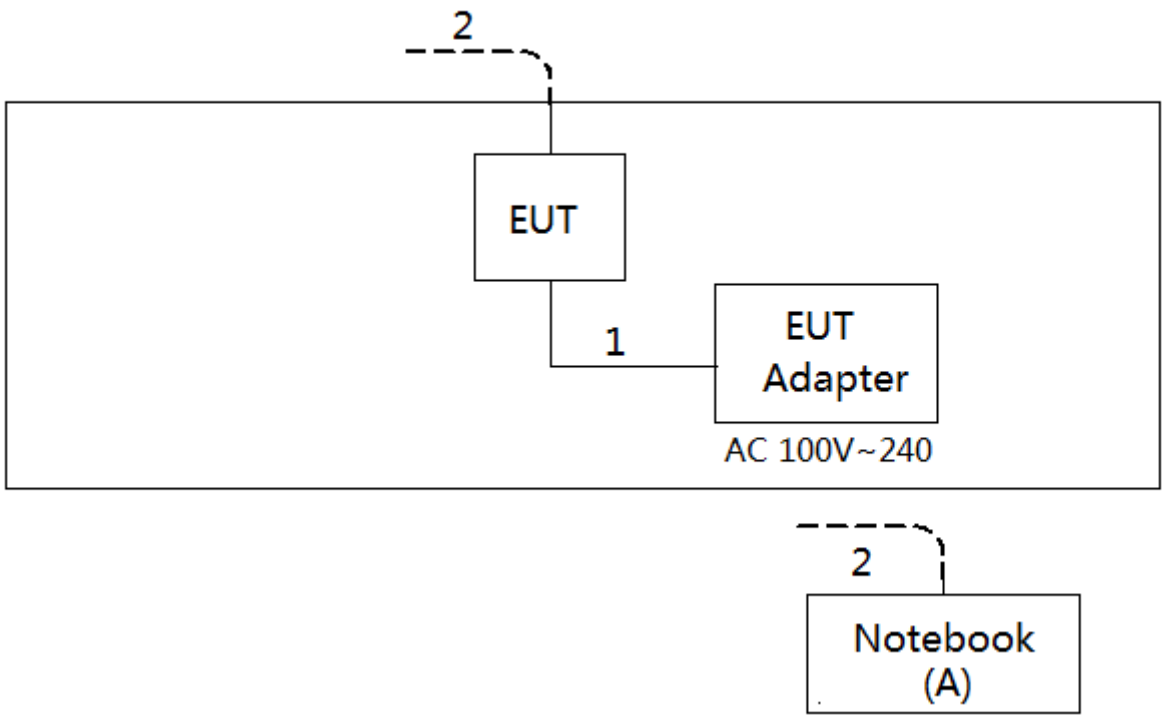
(4) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

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	N/A		
Frequency (MHz)	2412	2437	2462
802.11b	40	40	41
802.11g	44	44	44
802.11n (20MHz)	43	43	43
Frequency	2422	2437	2452
802.11n (40MHz)	42	46	42

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	Notebook	Lenovo	INSPIRON 1420-	DOC	JX193A01SDC2

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.5M	AC Cable
2	NO	NO	10M	RJ45 Cable

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 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

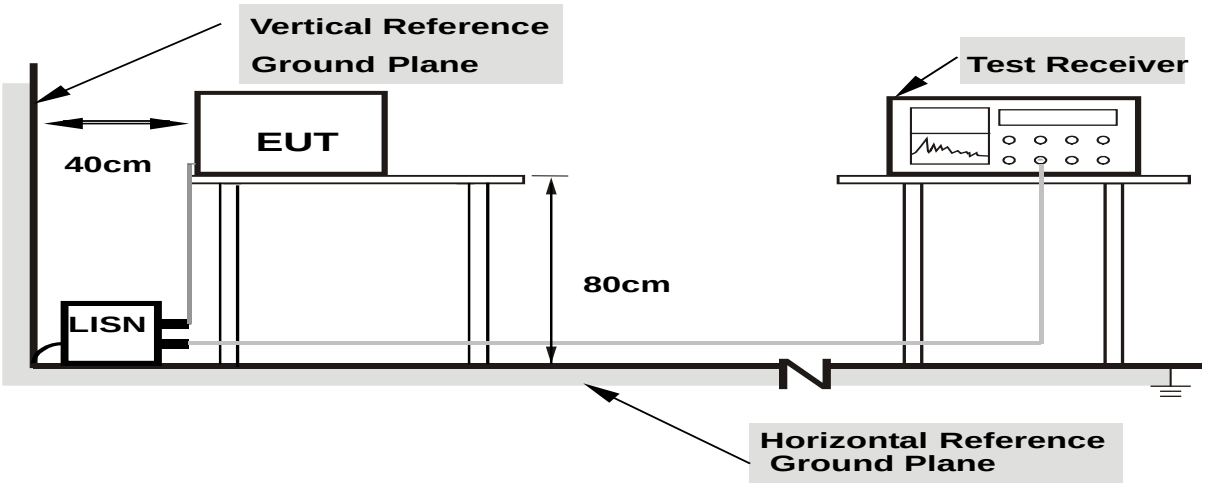
4.1.2 TEST PROCEDURE

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 equipments 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 Attachment 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

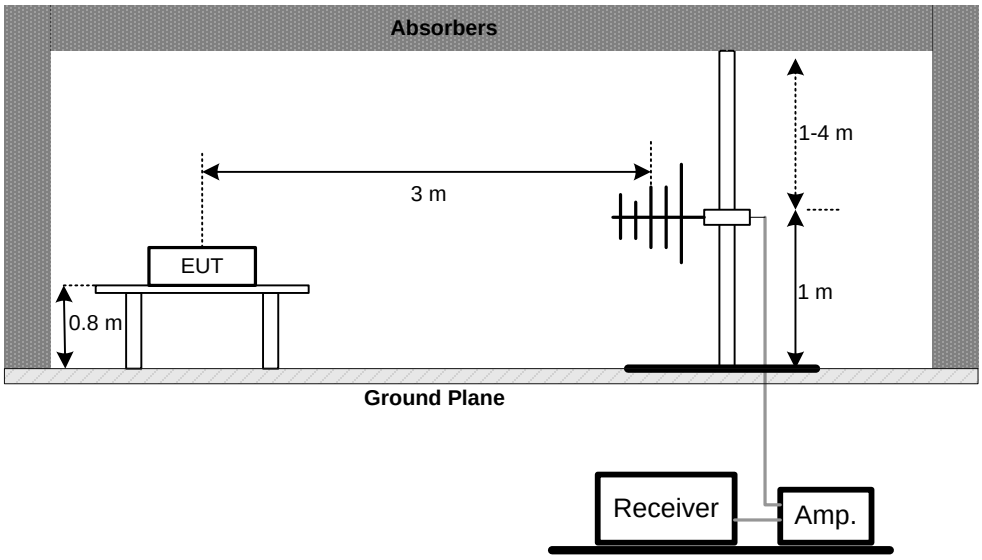
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance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

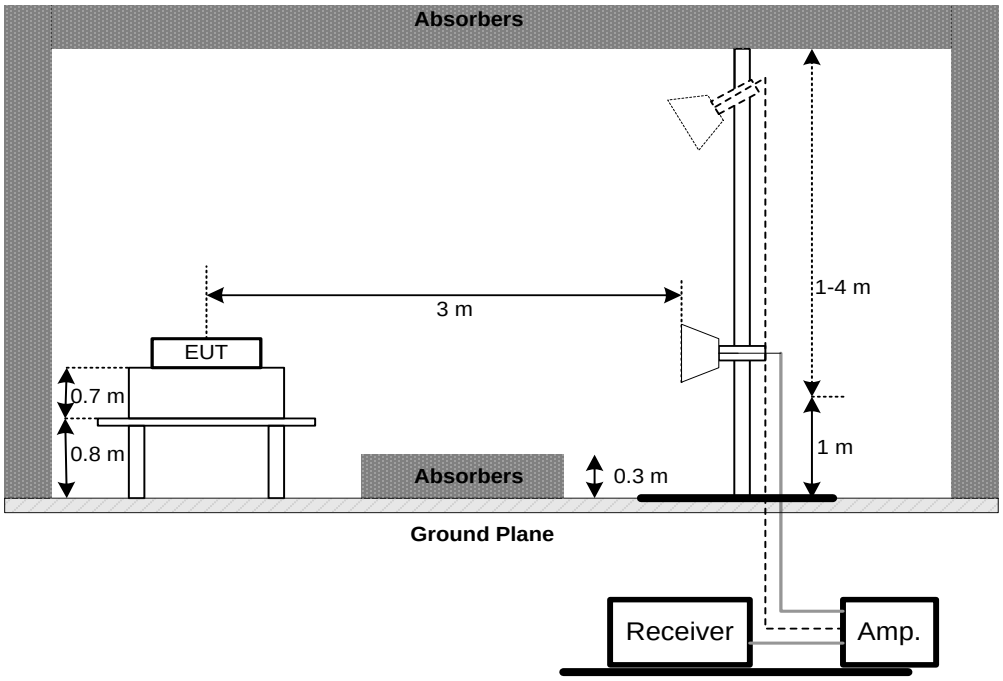
No deviation

4.2.4 TEST SETUP

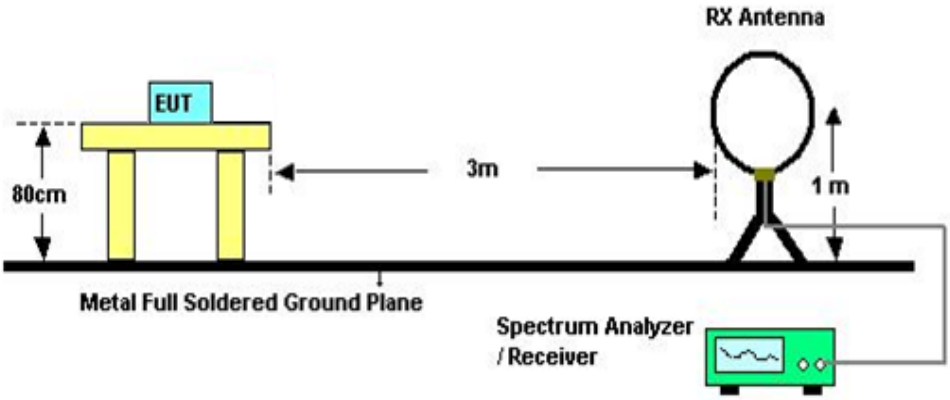
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(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 Attachment 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 1000 MHZ)

Please refer to the Attachment C.

4.2.9 TEST RESULTS (ABOVE 1000 MHZ)

Please refer to the Attachment 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

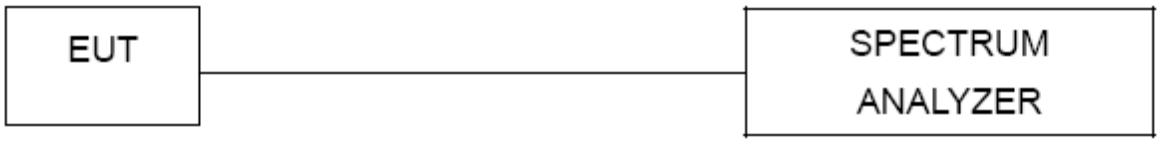
5.1.1 TEST PROCEDURE

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 Attachment E.

6. MAXIMUM PEAK CONDUCTED OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

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

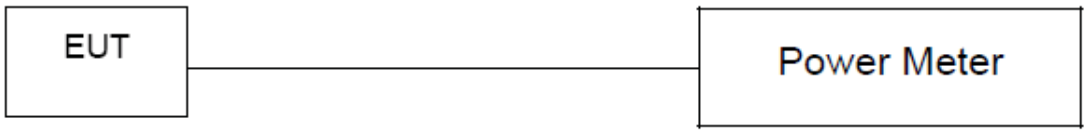
6.1.1 TEST PROCEDURE

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

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.1.5 EUT TEST CONDITIONS

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

6.1.6 TEST RESULTS

Please refer to the Attachment 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.

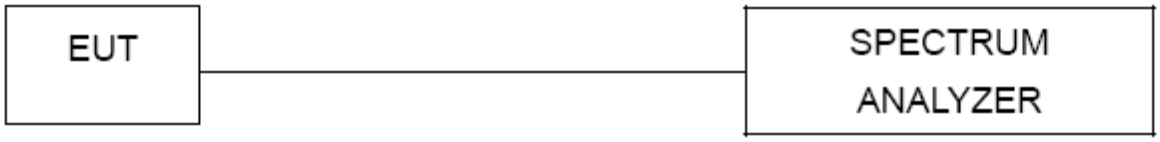
7.1.1 TEST PROCEDURE

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 Attachment 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

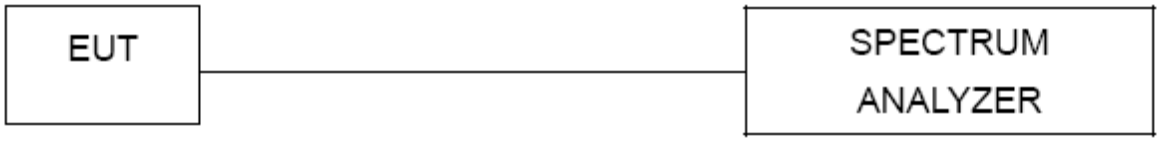
8.1.1 TEST PROCEDURE

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 Attachment H.

9. MEASUREMENT INSTRUMENTS LIST

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	0052765	Mar. 27, 2017
2	LISN	R&S	ENV216	101447	Mar. 27, 2017
3	Test Cable	emci	RG223(9KHz -30MHz)	C_17	Mar. 10, 2017
4	EMI Test Receiver	R&S	ESCI	100382	Mar. 27, 2017
5	50Ω Terminator	SHX	TF2-3G-A	08122901	Mar. 27, 2017
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1 -01	N/A	N/A

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Receiver	Keysight	N9038A	MY54450004	Sep. 04, 2017
2	MXE EMI Receiver	Agilent	N9038A	MY53220133	Jun. 23, 2017
3	Pre-Amplifier	Mini-Circuits	EMC 9135	980284	Mar. 27, 2017
4	Pre-Amplifier	Mini-Circuits	EMC 9135	980283	Mar. 27, 2017
5	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	586	Feb. 04, 2017
6	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	587	Jan. 26, 2017
7	Cable	emci	LMR-400(5m+11 m+15m)	N/A	Dec. 31, 2016
8	Cable	emci	LMR-400(5m+8 m+15m)	N/A	Dec. 31, 2016
9	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
10	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
11	Controller	MF	MF-7802	MF780208159	N/A
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Apr. 23, 2017
13	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 27, 2017
14	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Sep. 06, 2017

6dB Bandwidth Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017

Peak Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	ANRITSU	ML2495A	1128009	Apr. 26, 2017
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Apr. 26, 2017

Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017

Power Spectral Density Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017

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

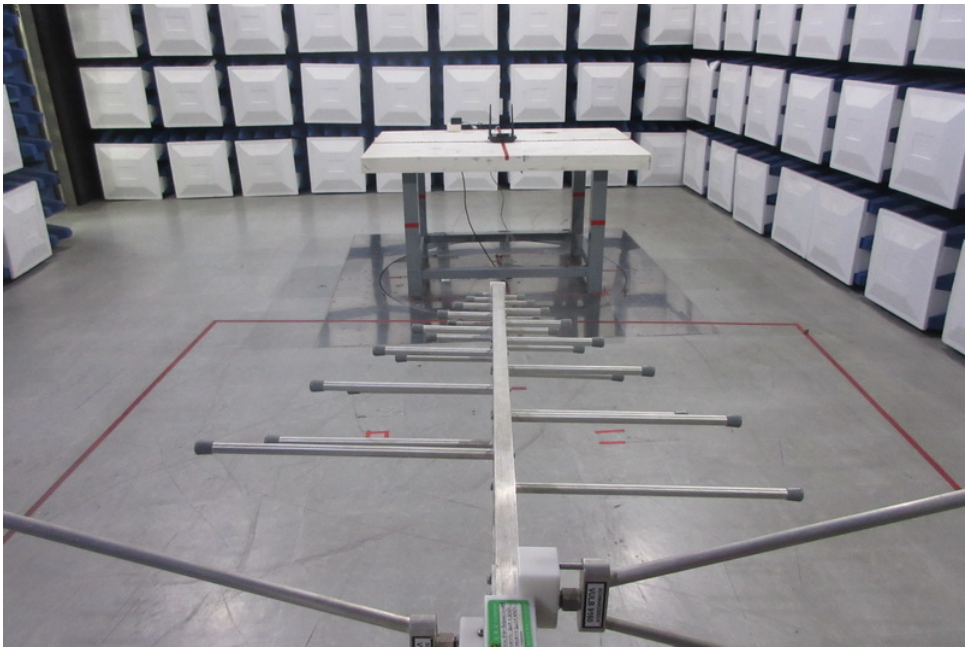
Conducted Measurement Photos

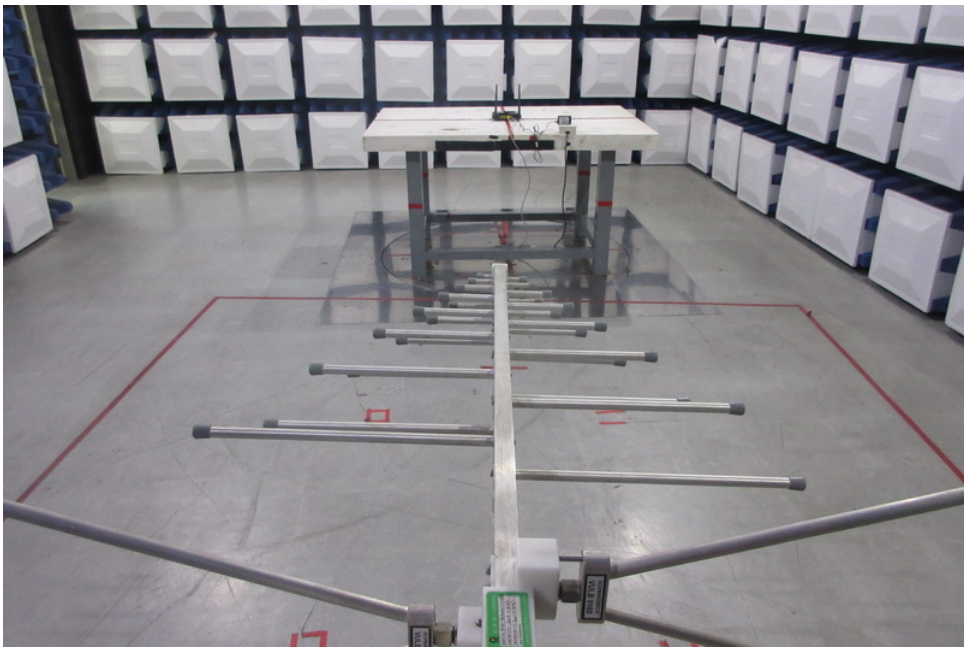
Radiated Measurement Photos

9KHz to 30MHz

Radiated Measurement Photos

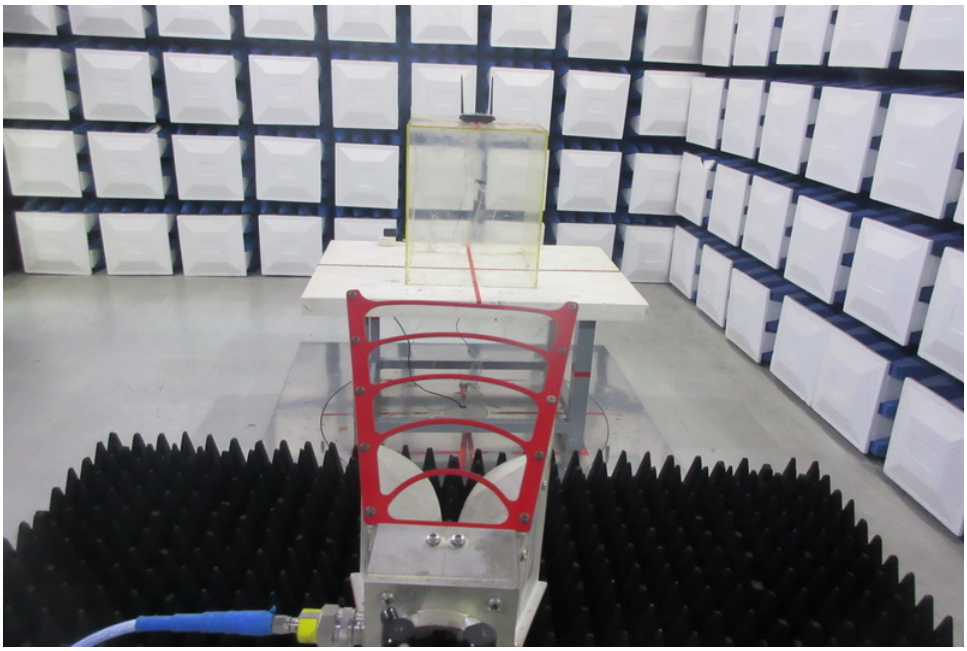
30MHz to 1000MHz

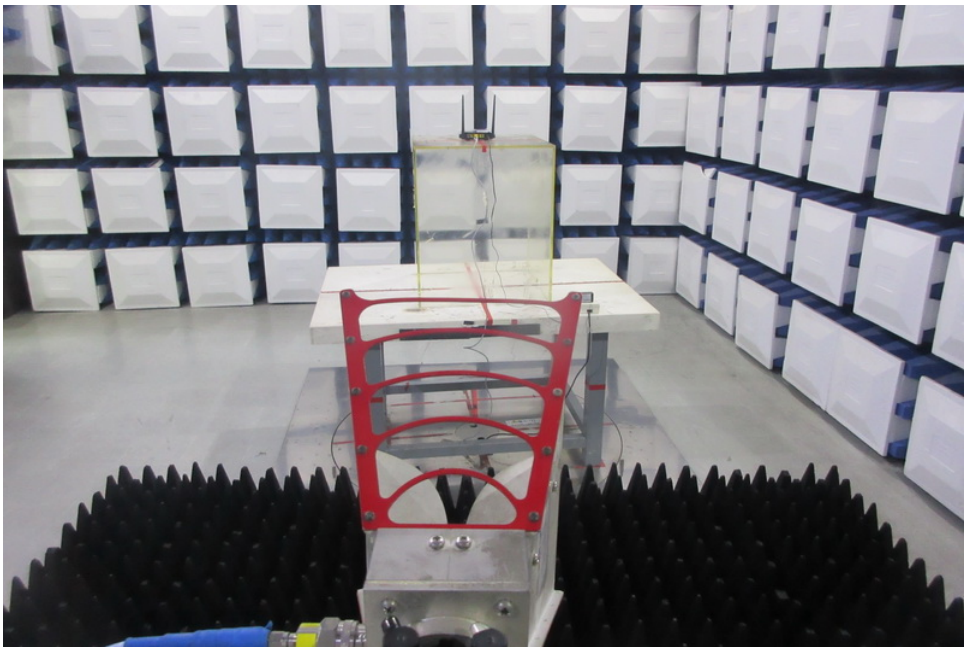




Radiated Measurement Photos

Above 1000MHz

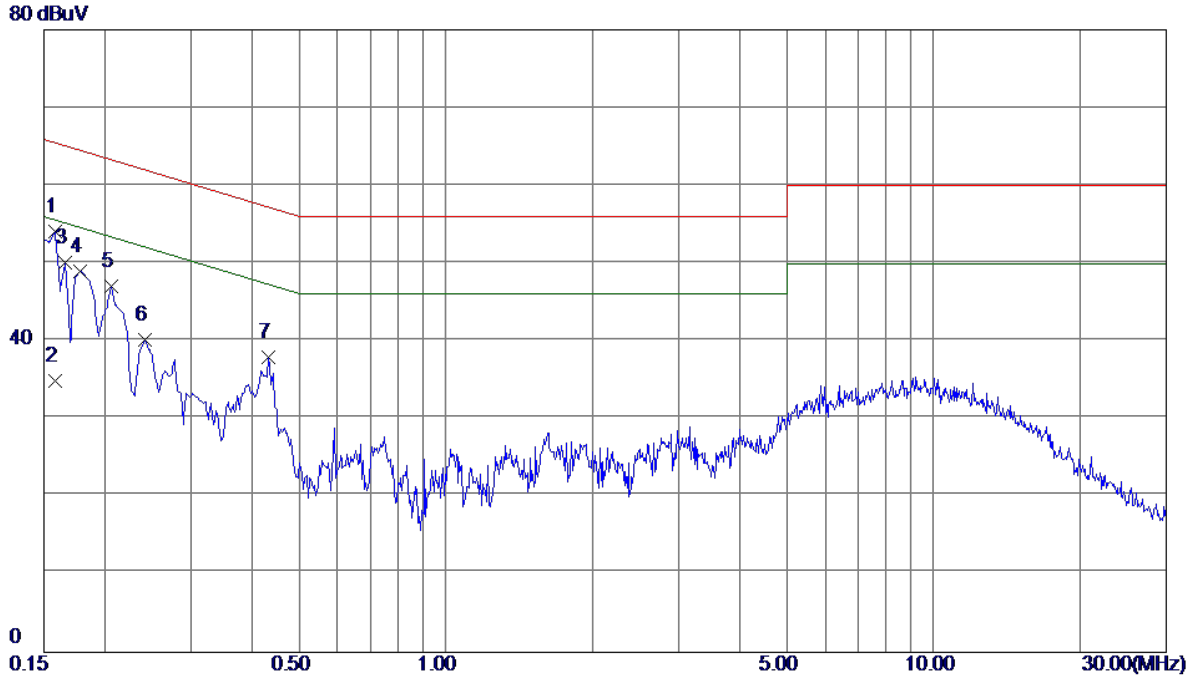




ATTACHMENT A - CONDUCTED EMISSION

Test Mode :	TX MODE

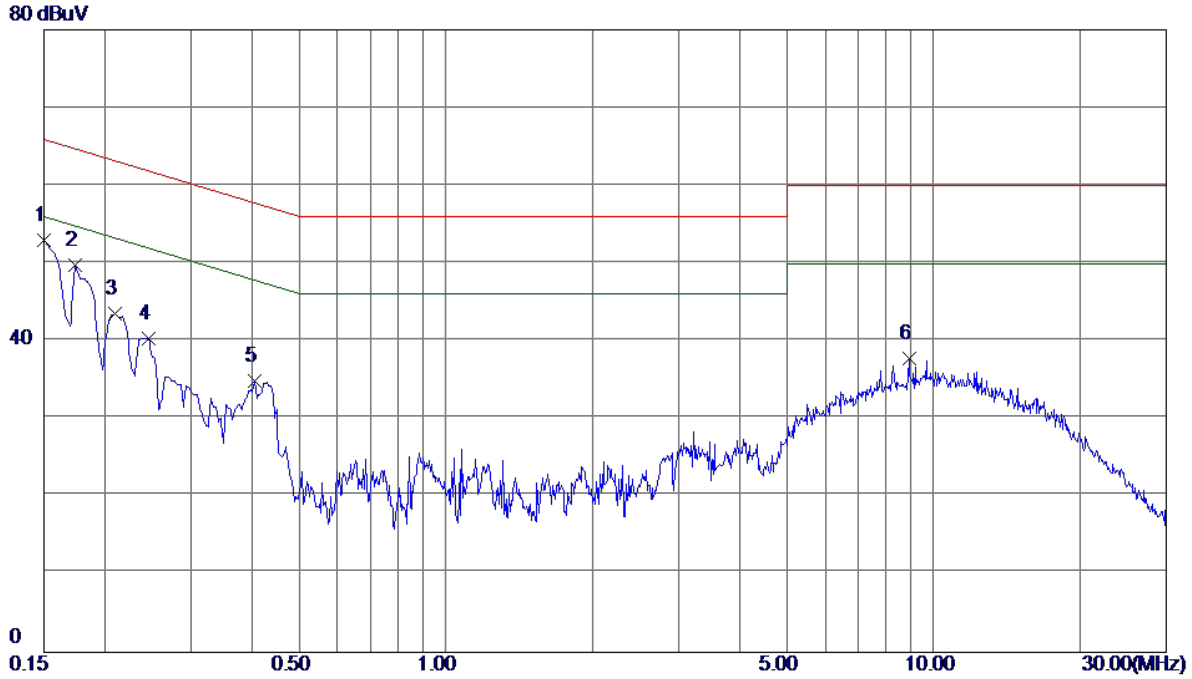
Line



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1580	44.56	9.52	54.08	65.57	-11.49	Peak	
2	0.1580	25.30	9.52	34.82	55.57	-20.75	AVG	
3	0.1660	40.53	9.52	50.05	65.16	-15.11	Peak	
4	0.1780	39.45	9.53	48.98	64.58	-15.60	Peak	
5	0.2060	37.51	9.53	47.04	63.37	-16.33	Peak	
6	0.2420	30.63	9.53	40.16	62.03	-21.87	Peak	
7	0.4340	28.36	9.57	37.93	57.18	-19.25	Peak	

Test Mode :	TX MODE

Neutral

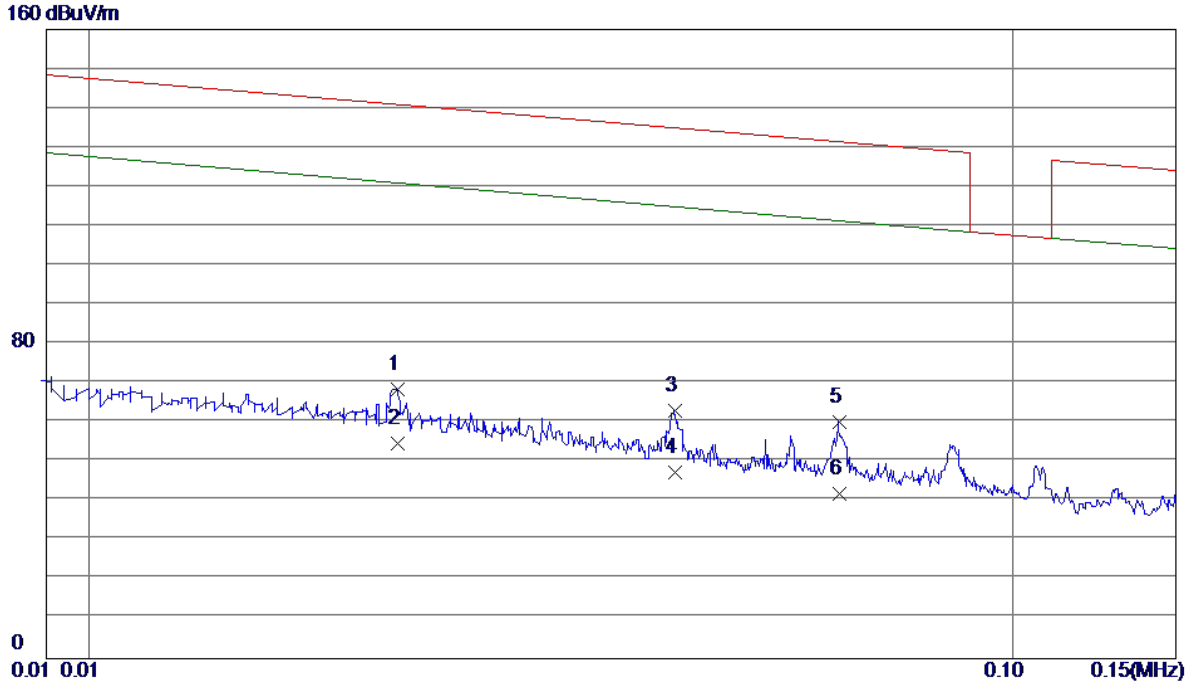


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0. 1500	43. 45	9. 52	52. 97	66. 00	-13. 03	Peak	
2	0. 1740	40. 28	9. 44	49. 72	64. 77	-15. 05	Peak	
3	0. 2100	33. 98	9. 53	43. 51	63. 21	-19. 70	Peak	
4	0. 2460	30. 81	9. 53	40. 34	61. 89	-21. 55	Peak	
5	0. 4060	25. 47	9. 44	34. 91	57. 73	-22. 82	Peak	
6	8. 9020	27. 55	10. 18	37. 73	60. 00	-22. 27	Peak	

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

Test Mode:	TX B MODE CHANNEL 01

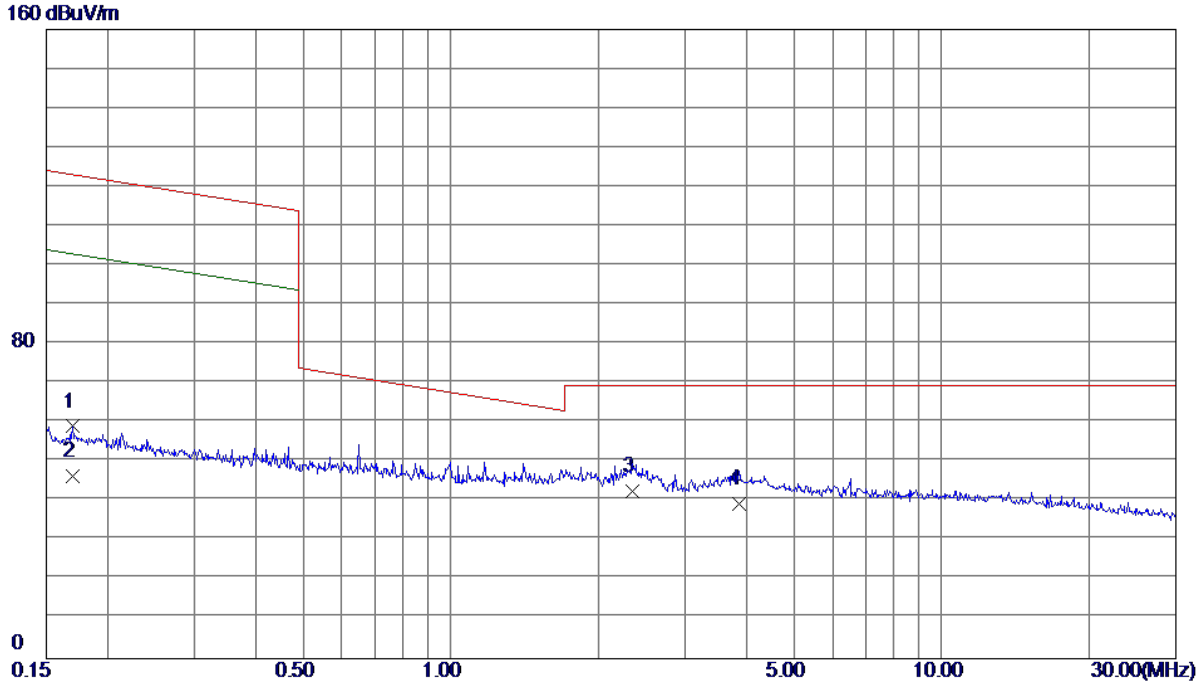
Ant 0°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0216	45.06	23.32	68.38	145.38	-77.00	Peak	
2 *	0.0216	31.30	23.32	54.62	125.38	-70.76	AVG	
3	0.0431	42.30	20.67	62.97	140.08	-77.11	Peak	
4	0.0431	26.80	20.67	47.47	120.08	-72.61	AVG	
5	0.0650	40.38	19.65	60.03	134.67	-74.64	Peak	
6	0.0650	22.30	19.65	41.95	114.67	-72.72	AVG	

Test Mode:	TX B MODE CHANNEL 01

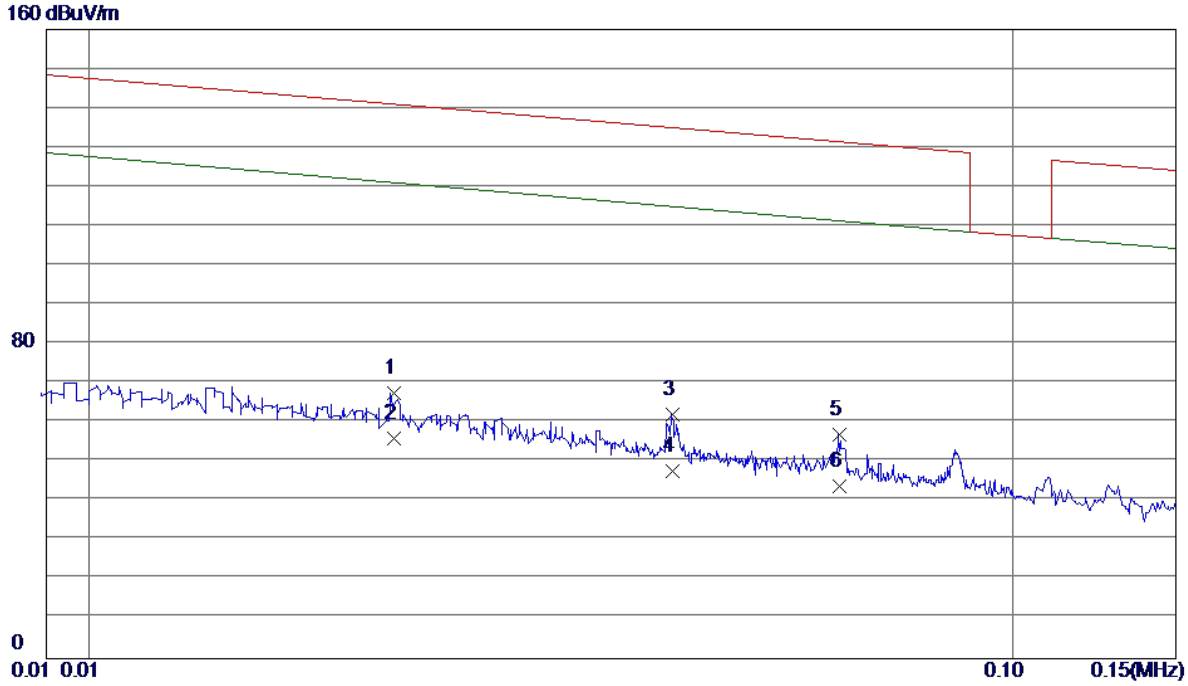
Ant 0°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0. 1694	40. 32	18. 72	59. 04	124. 75	-65. 71	Peak	
2	0. 1694	27. 70	18. 72	46. 42	104. 75	-58. 33	AVG	
3 *	2. 3460	25. 10	17. 46	42. 56	69. 54	-26. 98	QP	
4	3. 8603	20. 80	18. 46	39. 26	69. 54	-30. 28	QP	

Test Mode:	TX B MODE CHANNEL 01

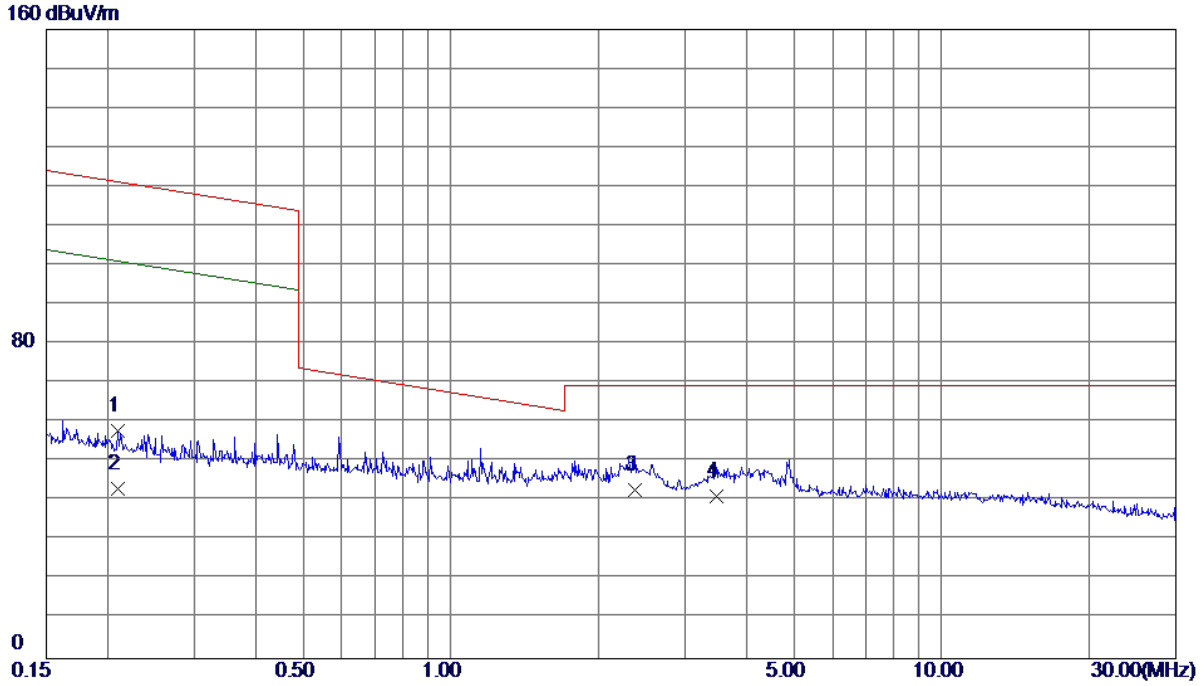
Ant 90°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0214	44.07	23.35	67.42	145.43	-78.01	Peak	
2 *	0.0214	32.60	23.35	55.95	125.43	-69.48	AVG	
3	0.0428	41.31	20.71	62.02	140.15	-78.13	Peak	
4	0.0428	27.10	20.71	47.81	120.15	-72.34	AVG	
5	0.0650	37.34	19.65	56.99	134.67	-77.68	Peak	
6	0.0650	24.10	19.65	43.75	114.67	-70.92	AVG	

Test Mode:	TX B MODE CHANNEL 01

Ant 90°

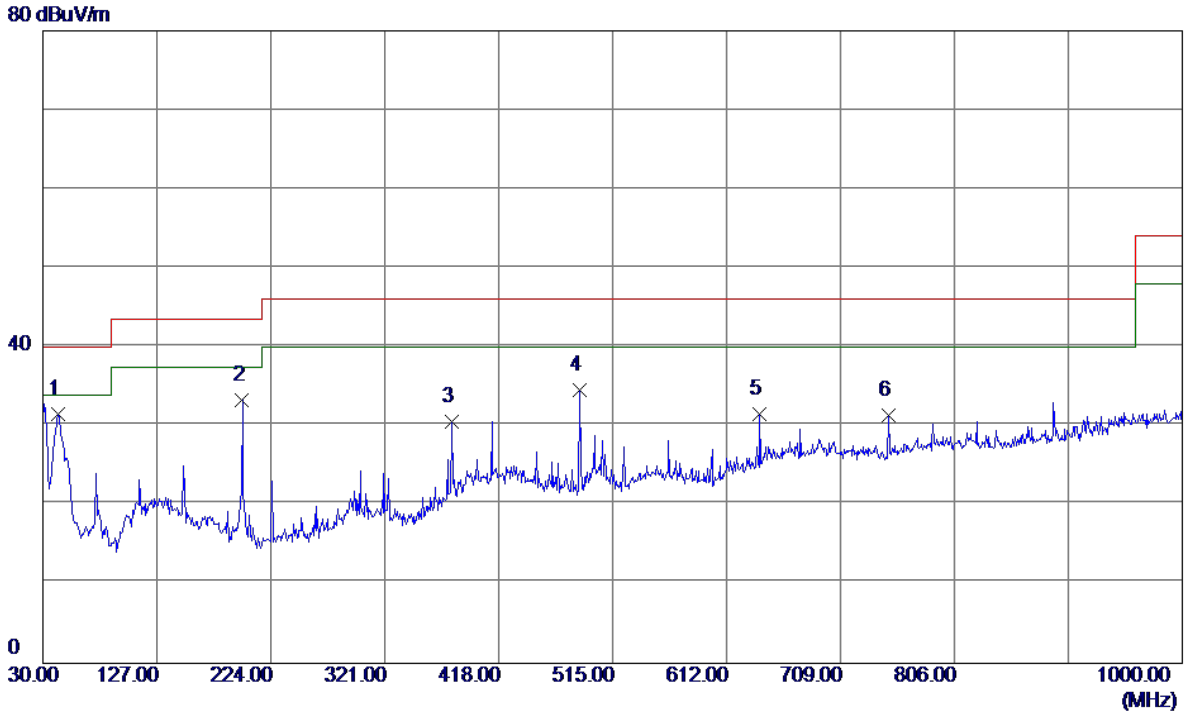


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0. 2094	39. 08	18. 69	57. 77	123. 38	-65. 61	Peak	
2	0. 2094	24. 60	18. 69	43. 29	103. 38	-60. 09	AVG	
3 *	2. 3710	25. 30	17. 43	42. 73	69. 54	-26. 81	QP	
4	3. 4722	23. 50	17. 63	41. 13	69. 54	-28. 41	QP	

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

Test Mode:	TX B MODE CHANNEL 01

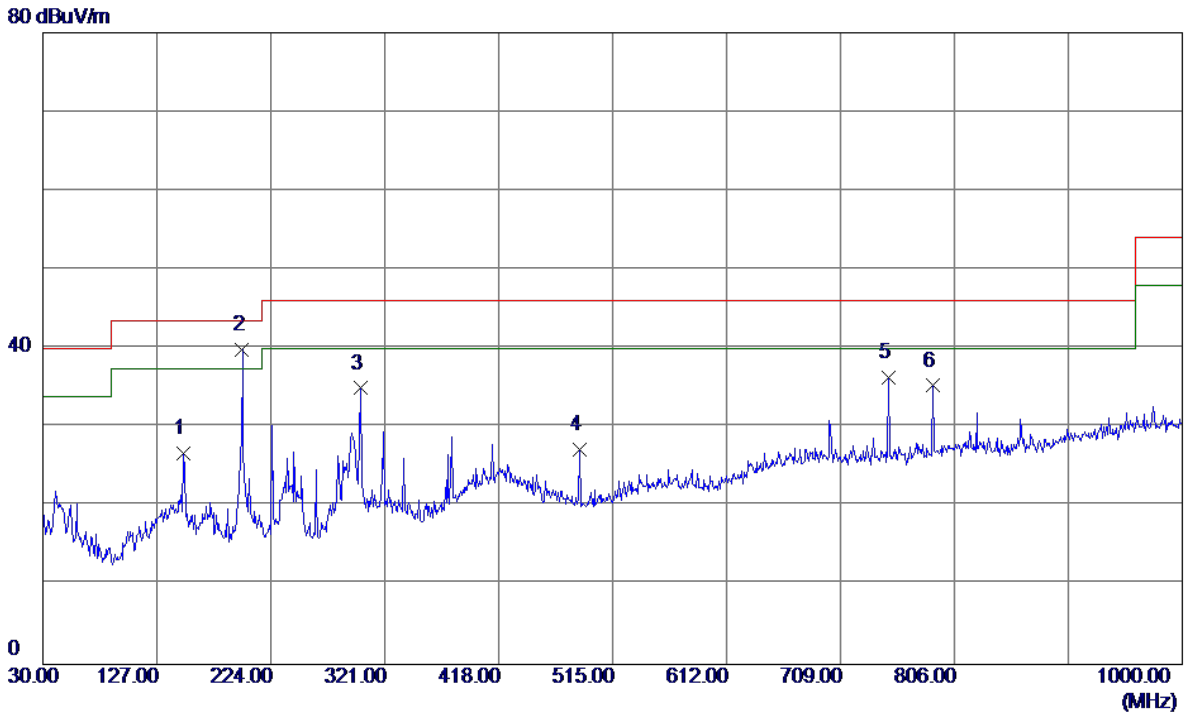
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	42.6100	43.49	-11.97	31.52	40.00	-8.48	Peak	
2	199.7500	46.98	-13.63	33.35	43.50	-10.15	Peak	
3	378.2300	39.38	-8.75	30.63	46.00	-15.37	Peak	
4	487.3550	42.01	-7.50	34.51	46.00	-11.49	Peak	
5	640.1300	33.77	-2.31	31.46	46.00	-14.54	Peak	
6	750.2250	32.22	-0.86	31.36	46.00	-14.64	Peak	

Test Mode:	TX B MODE CHANNEL 01

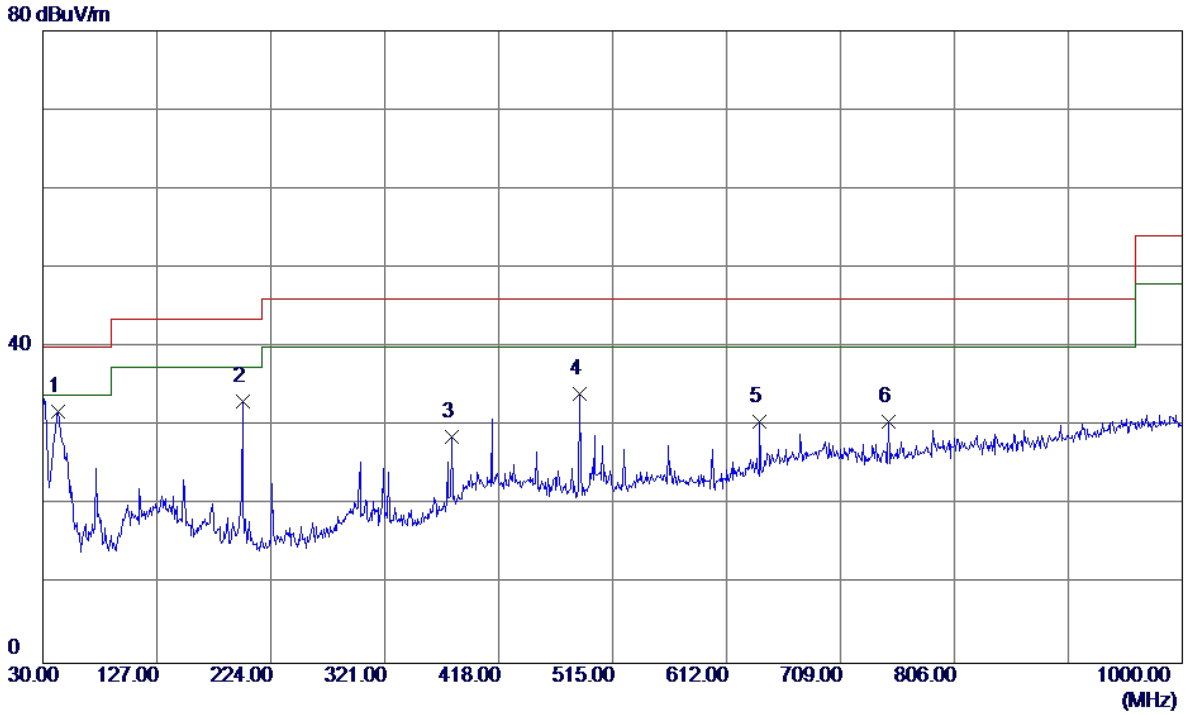
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	149.7950	38.56	-11.91	26.65	43.50	-16.85	Peak	
2 *	199.7500	53.40	-13.63	39.77	43.50	-3.73	Peak	
3	300.1450	44.90	-9.94	34.96	46.00	-11.04	Peak	
4	487.3550	34.75	-7.50	27.25	46.00	-18.75	Peak	
5	750.2250	37.25	-0.86	36.39	46.00	-9.61	Peak	
6	787.5700	35.04	0.24	35.28	46.00	-10.72	Peak	

Test Mode:	TX B MODE CHANNEL 06

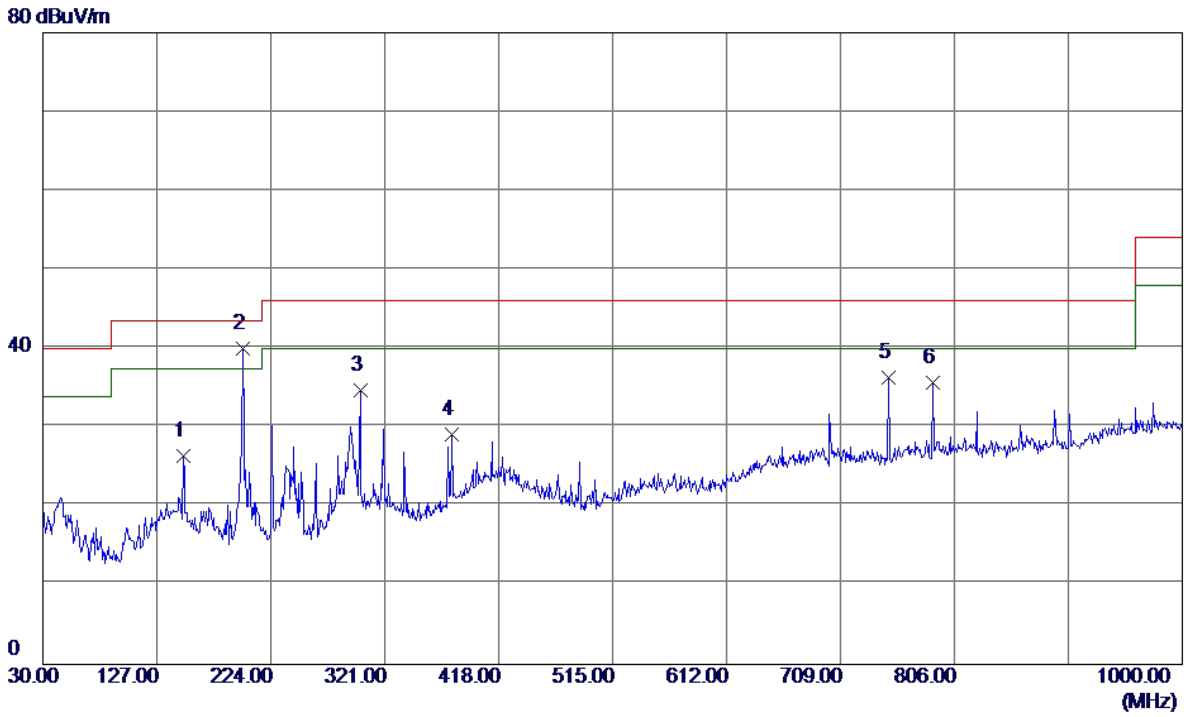
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	42.6100	43.81	-11.97	31.84	40.00	-8.16	Peak	
2	200.2350	46.75	-13.65	33.10	43.50	-10.40	Peak	
3	378.2300	37.38	-8.75	28.63	46.00	-17.37	Peak	
4	487.3550	41.63	-7.50	34.13	46.00	-11.87	Peak	
5	640.1300	32.94	-2.31	30.63	46.00	-15.37	Peak	
6	749.7400	31.37	-0.87	30.50	46.00	-15.50	Peak	

Test Mode:	TX B MODE CHANNEL 06

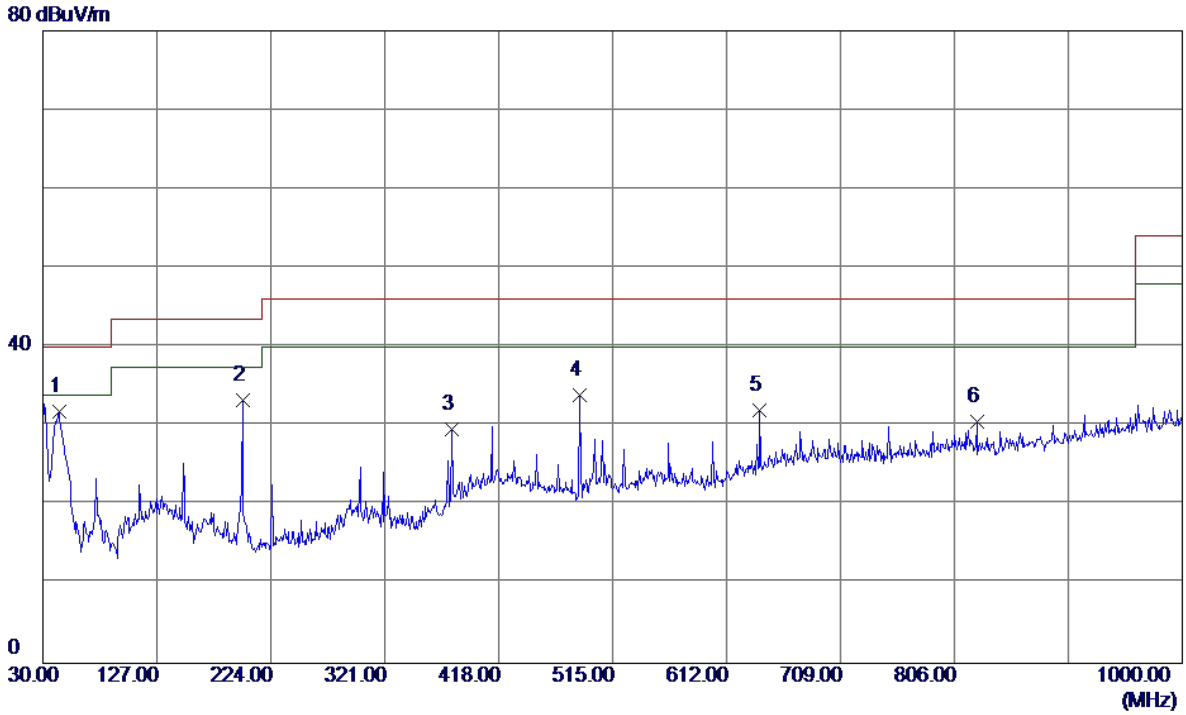
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	149.7950	38.36	-11.91	26.45	43.50	-17.05	Peak	
2 *	200.2350	53.61	-13.65	39.96	43.50	-3.54	Peak	
3	300.1450	44.67	-9.94	34.73	46.00	-11.27	Peak	
4	378.2300	37.92	-8.75	29.17	46.00	-16.83	Peak	
5	750.2250	37.12	-0.86	36.26	46.00	-9.74	Peak	
6	787.5700	35.38	0.24	35.62	46.00	-10.38	Peak	

Test Mode:	TX B MODE CHANNEL 11

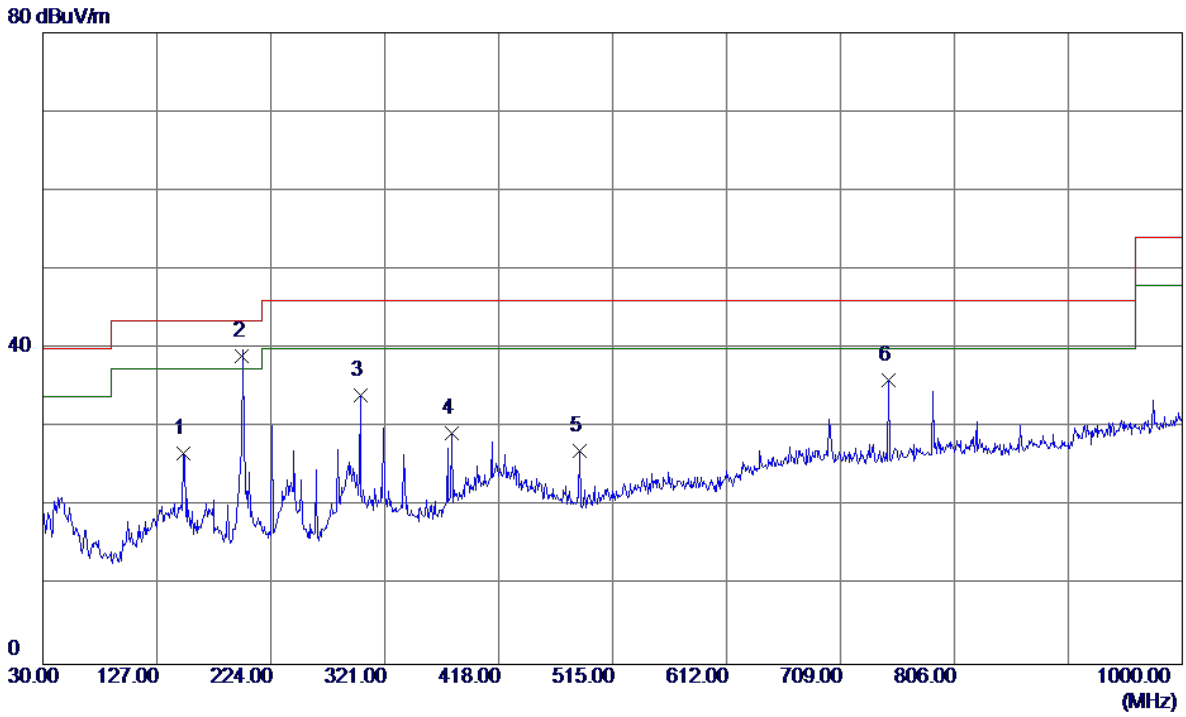
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	43.5800	43.60	-11.77	31.83	40.00	-8.17	Peak	
2	200.2350	46.93	-13.65	33.28	43.50	-10.22	Peak	
3	378.2300	38.36	-8.75	29.61	46.00	-16.39	Peak	
4	487.3550	41.45	-7.50	33.95	46.00	-12.05	Peak	
5	640.1300	34.34	-2.31	32.03	46.00	-13.97	Peak	
6	824.9150	30.00	0.60	30.60	46.00	-15.40	Peak	

Test Mode:	TX B MODE CHANNEL 11

Horizontal

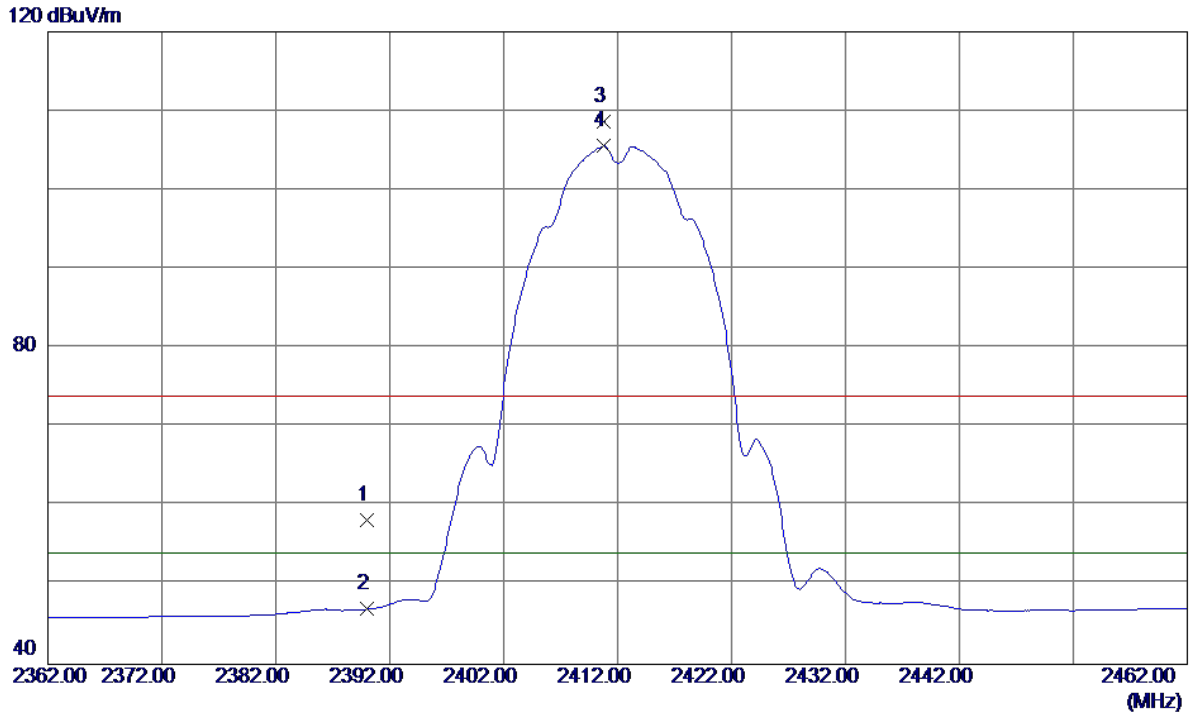


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	149.7950	38.59	-11.91	26.68	43.50	-16.82	Peak	
2 *	199.7500	52.73	-13.63	39.10	43.50	-4.40	Peak	
3	300.1450	44.02	-9.94	34.08	46.00	-11.92	Peak	
4	377.7450	38.10	-8.79	29.31	46.00	-16.69	Peak	
5	487.3550	34.54	-7.50	27.04	46.00	-18.96	Peak	
6	749.7400	36.85	-0.87	35.98	46.00	-10.02	Peak	

ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

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

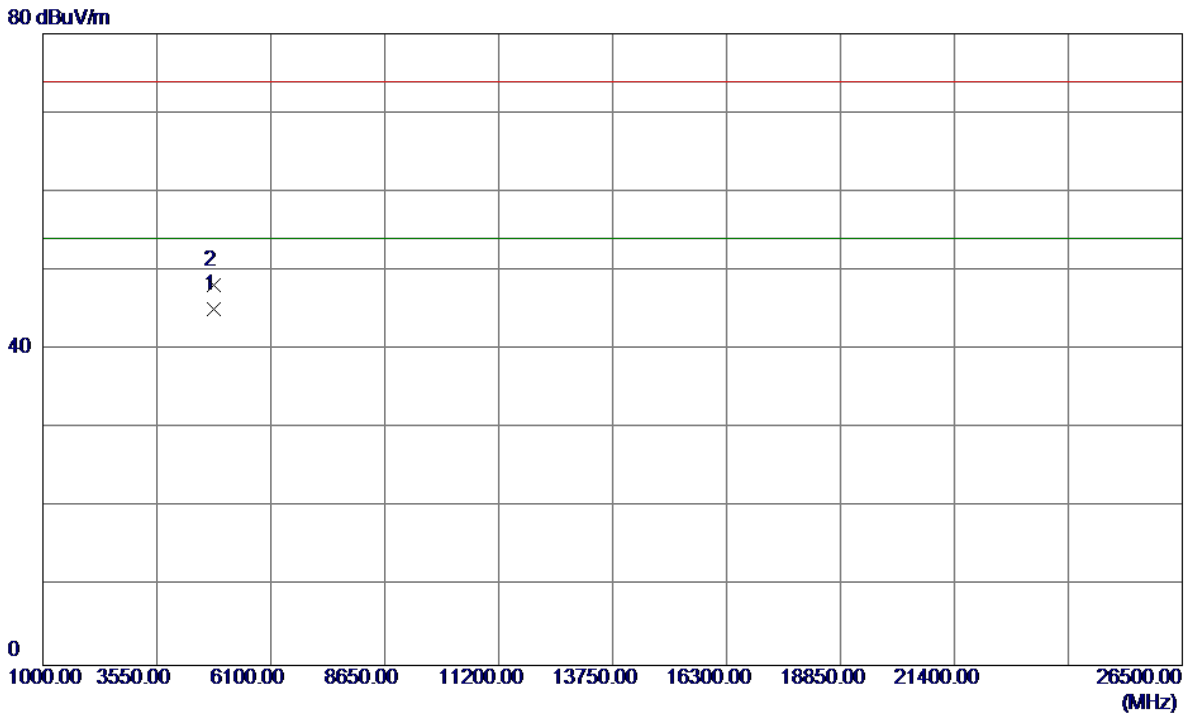
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.34	33.88	58.22	74.00	-15.78	Peak	
2	2390.0000	13.10	33.88	46.98	54.00	-7.02	AVG	
3	2410.8000	74.56	34.00	108.56	74.00	34.56	Peak	No Limit
4 *	2410.8000	71.57	34.00	105.57	54.00	51.57	AVG	No Limit

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

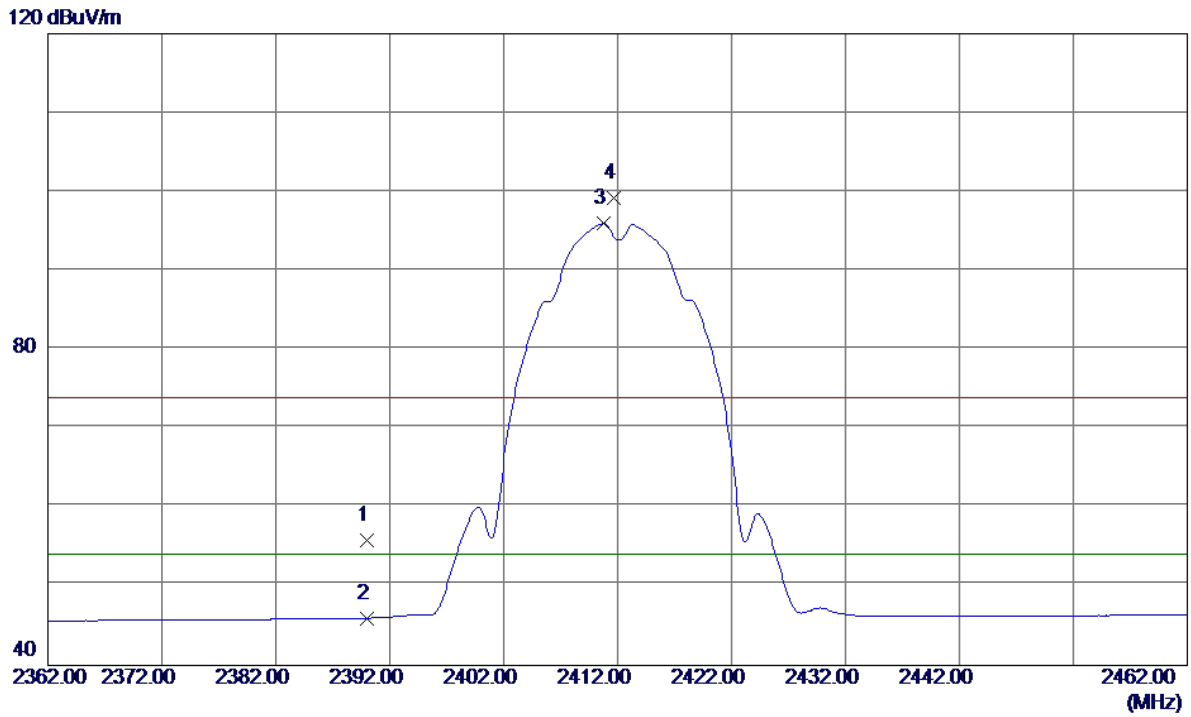
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.1269	39.62	5.46	45.08	54.00	-8.92	AVG	
2	4825.0670	42.68	5.46	48.14	74.00	-25.86	Peak	

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

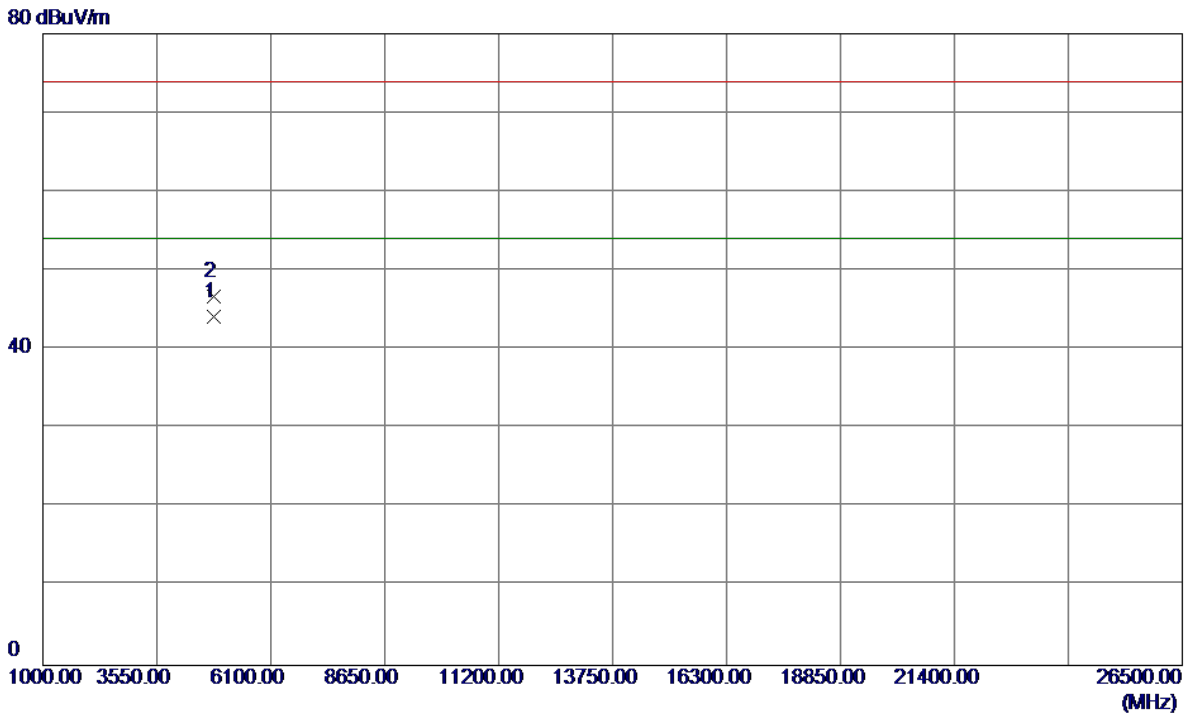
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	22.03	33.88	55.91	74.00	-18.09	Peak	
2	2390.0000	12.09	33.88	45.97	54.00	-8.03	AVG	
3 *	2410.8000	62.03	34.00	96.03	54.00	42.03	AVG	No Limit
4	2411.7000	65.21	34.00	99.21	74.00	25.21	Peak	No Limit

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

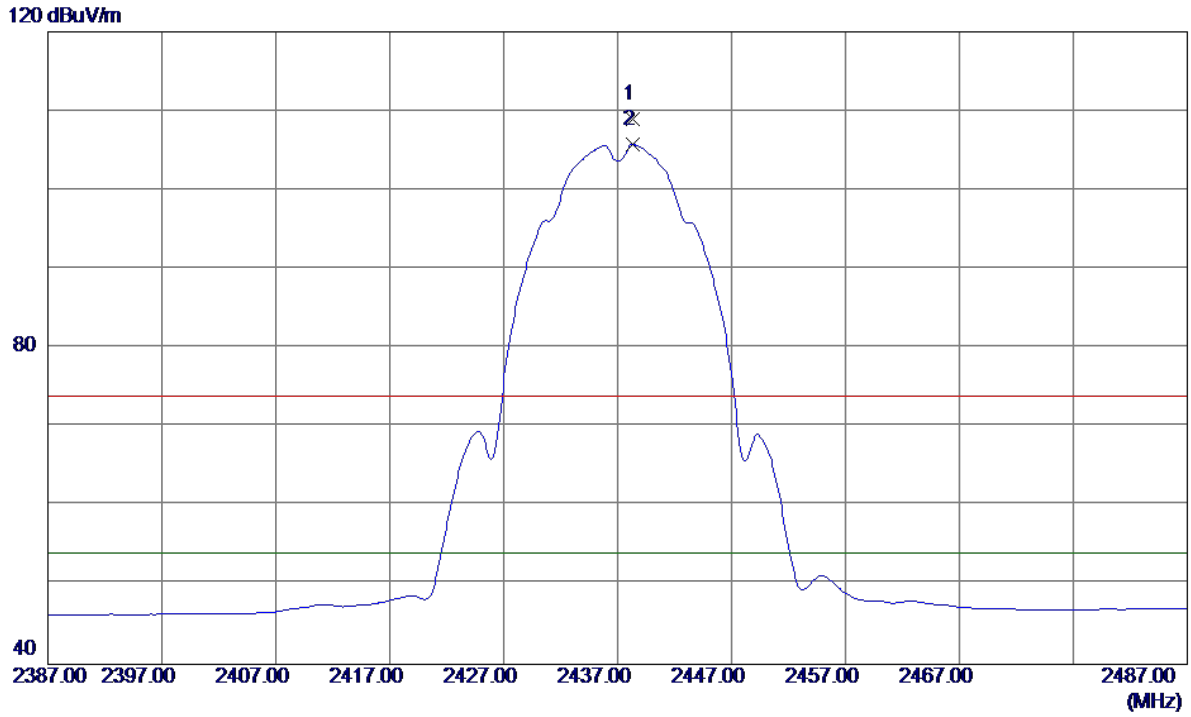
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0200	38.77	5.45	44.22	54.00	-9.78	AVG	
2	4825.1220	41.32	5.46	46.78	74.00	-27.22	Peak	

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

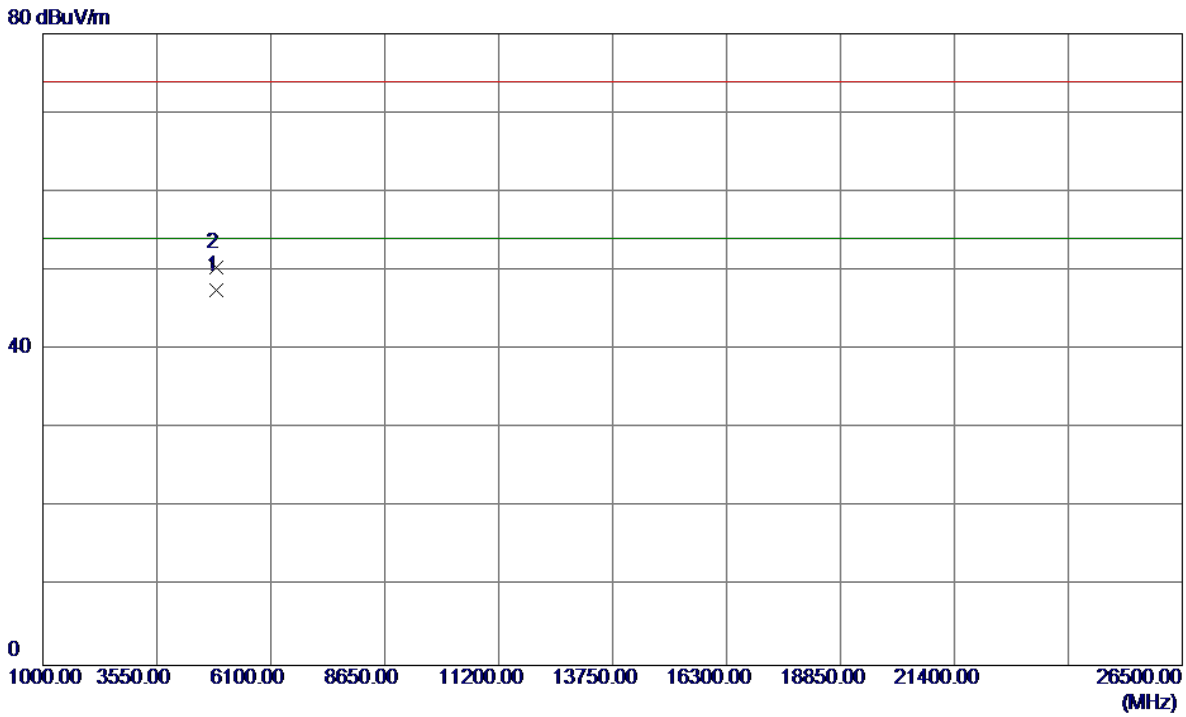
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2438.3000	74.82	34.15	108.97	74.00	34.97	Peak	No Limit
2 *	2438.3000	71.68	34.15	105.83	54.00	51.83	AVG	No Limit

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

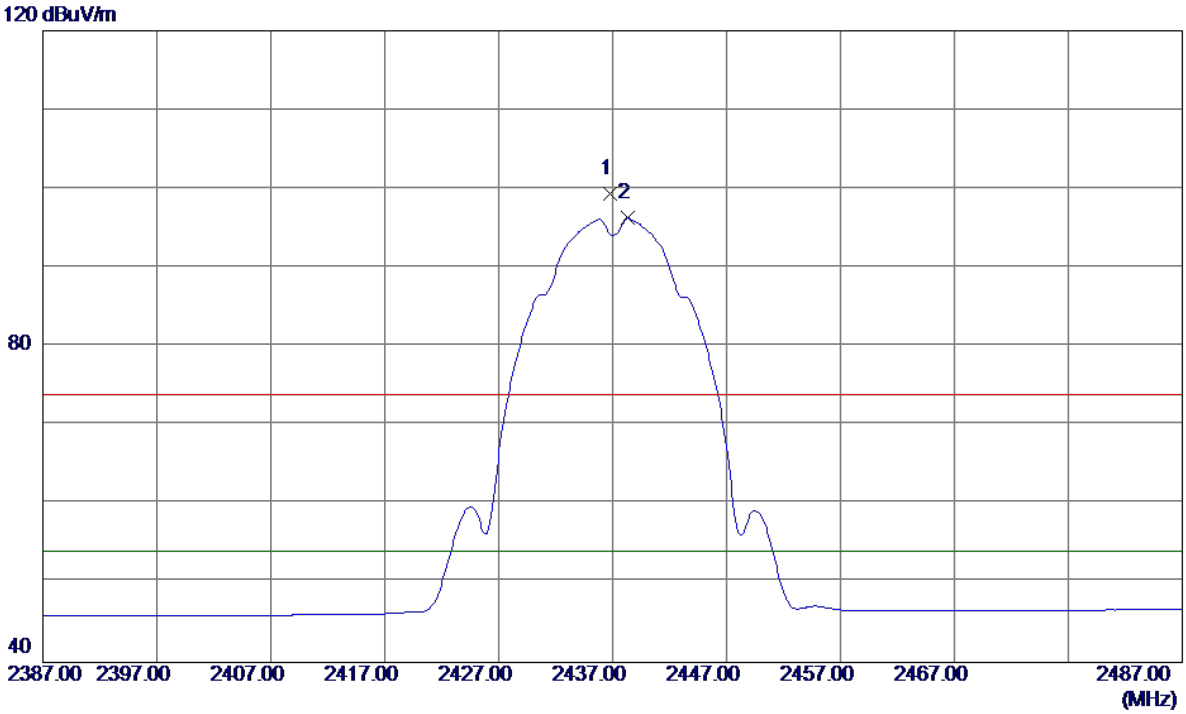
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.0950	41.79	5.70	47.49	54.00	-6.51	AVG	
2	4875.8200	44.68	5.71	50.39	74.00	-23.61	Peak	

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

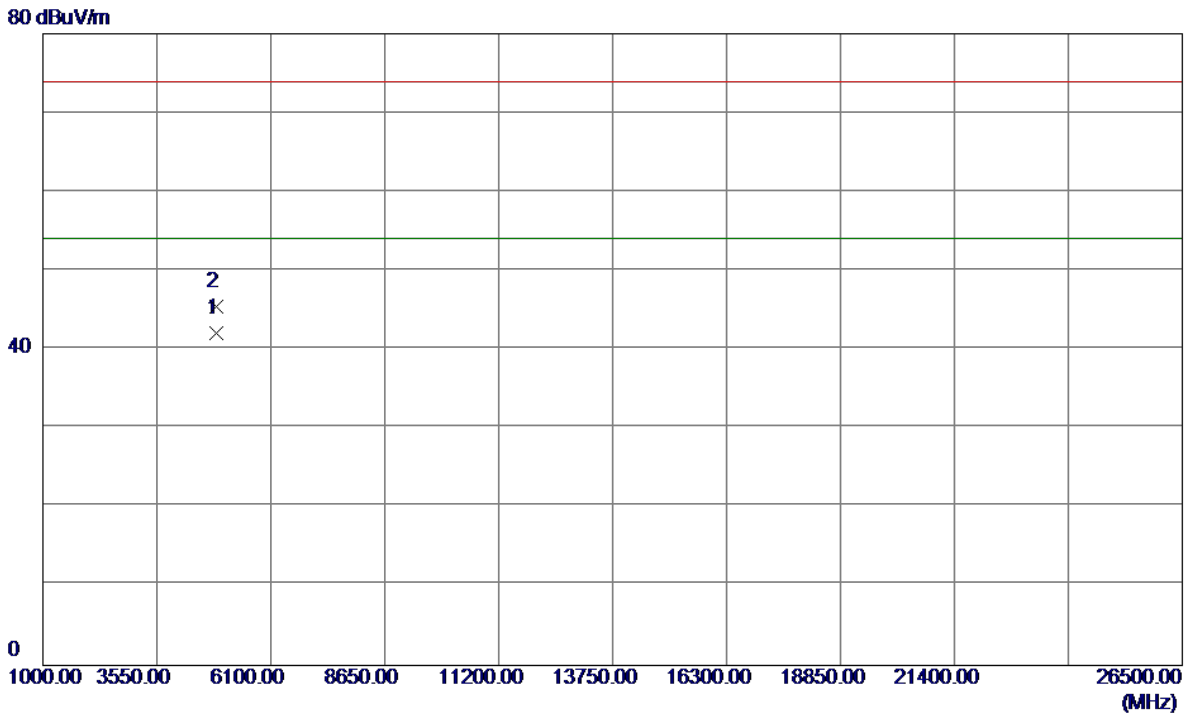
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2436.7500	65.20	34.15	99.35	74.00	25.35	Peak	No Limit
2 *	2438.3000	62.12	34.15	96.27	54.00	42.27	AVG	No Limit

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

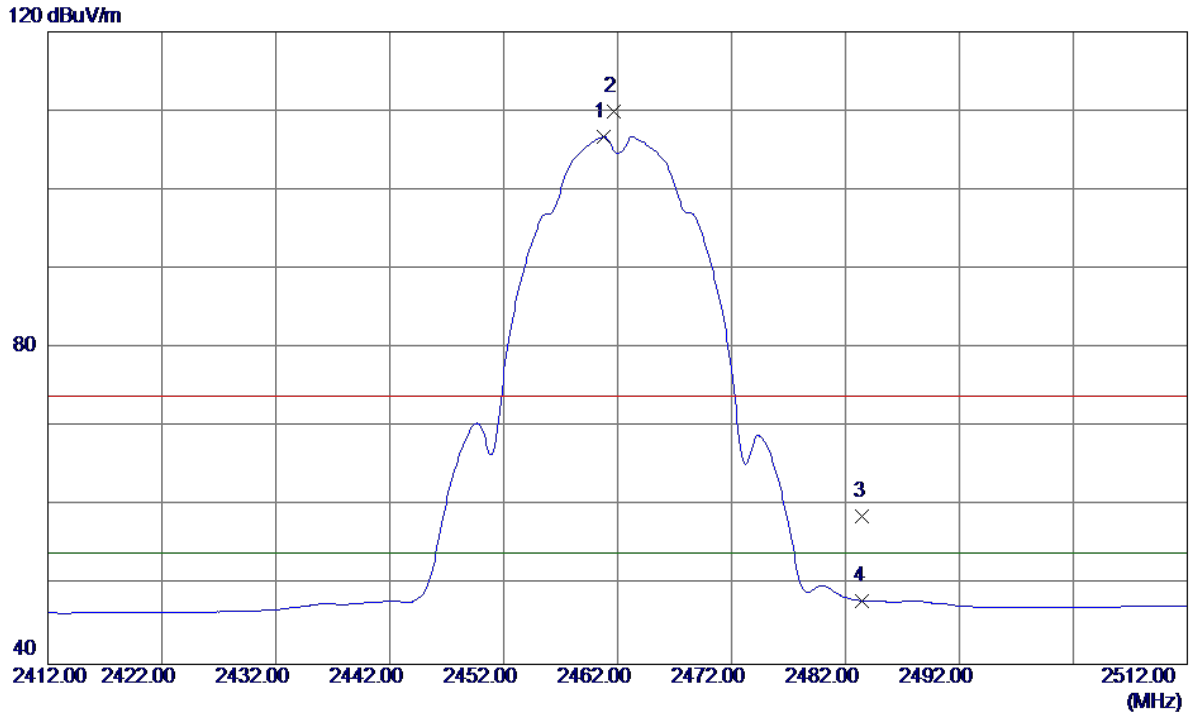
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.1269	36.45	5.70	42.15	54.00	-11.85	AVG	
2	4875.0580	39.78	5.70	45.48	74.00	-28.52	Peak	

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

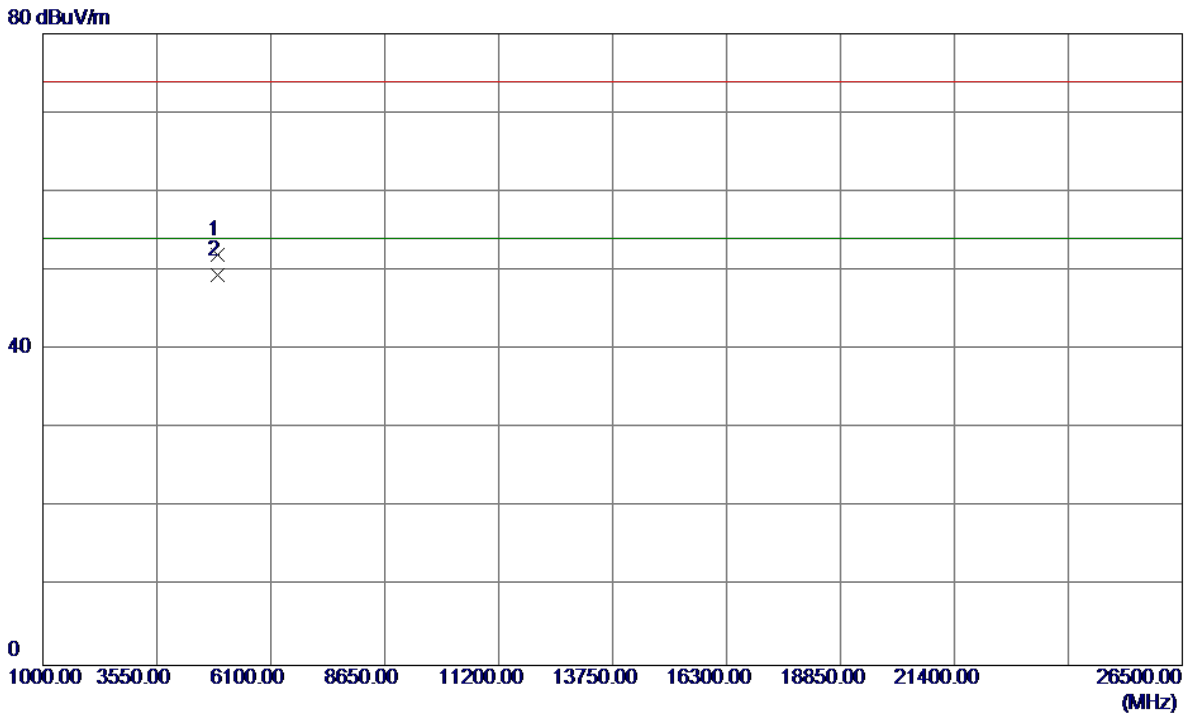
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.8000	72.50	34.28	106.78	54.00	52.78	AVG	No Limit
2	2461.7000	75.56	34.29	109.85	74.00	35.85	Peak	No Limit
3	2483.5000	24.37	34.41	58.78	74.00	-15.22	Peak	
4	2483.5000	13.58	34.41	47.99	54.00	-6.01	AVG	

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

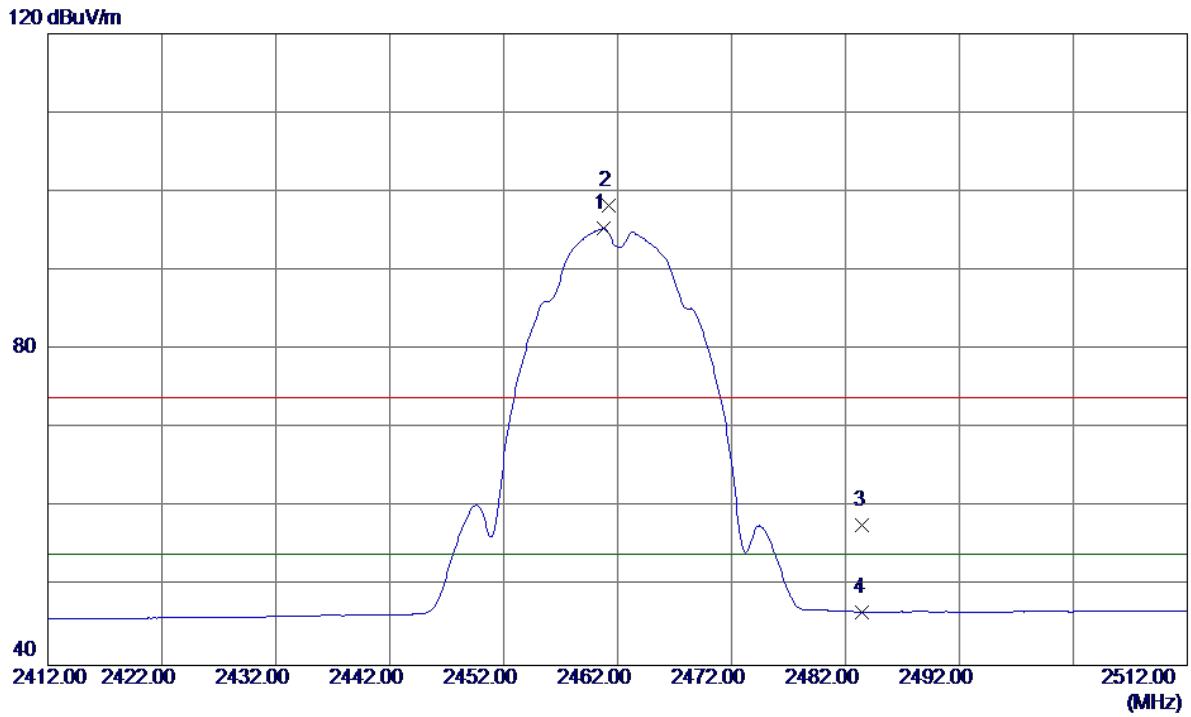
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.0650	46.05	5.94	51.99	74.00	-22.01	Peak	
2 *	4924.0950	43.44	5.94	49.38	54.00	-4.62	AVG	

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

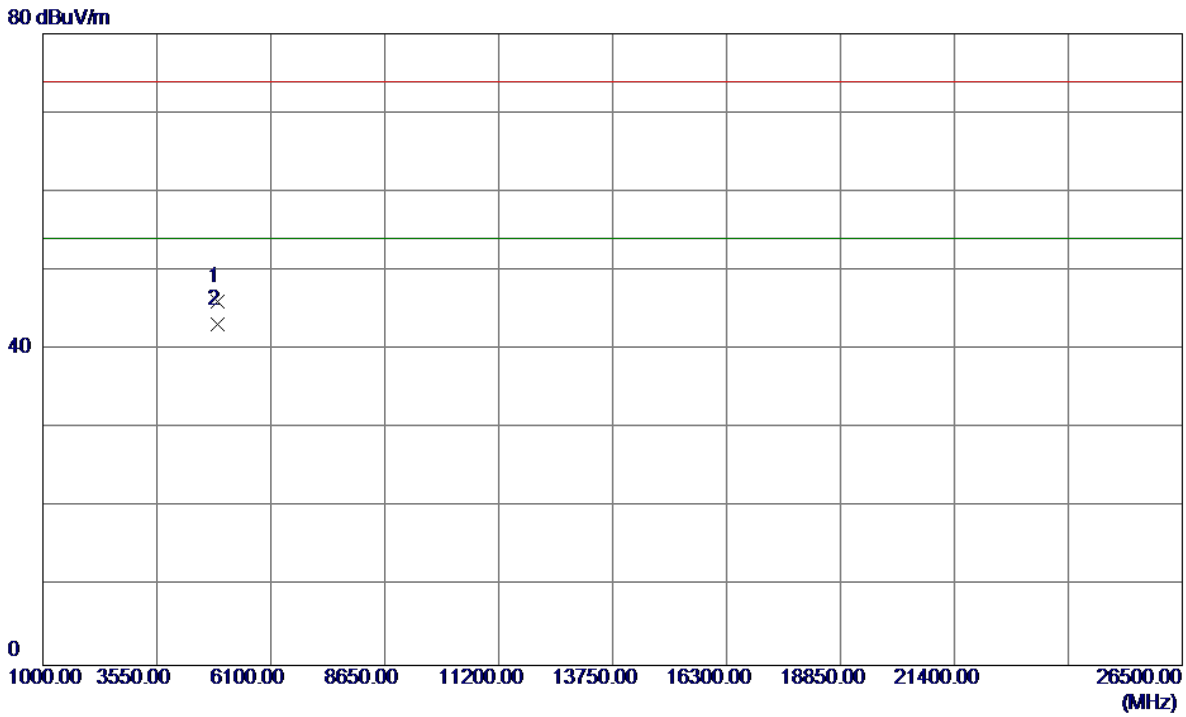
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.8000	61.05	34.28	95.33	54.00	41.33	AVG	No Limit
2	2461.2000	63.92	34.29	98.21	74.00	24.21	Peak	No Limit
3	2483.5000	23.30	34.41	57.71	74.00	-16.29	Peak	
4	2483.5000	12.37	34.41	46.78	54.00	-7.22	AVG	

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

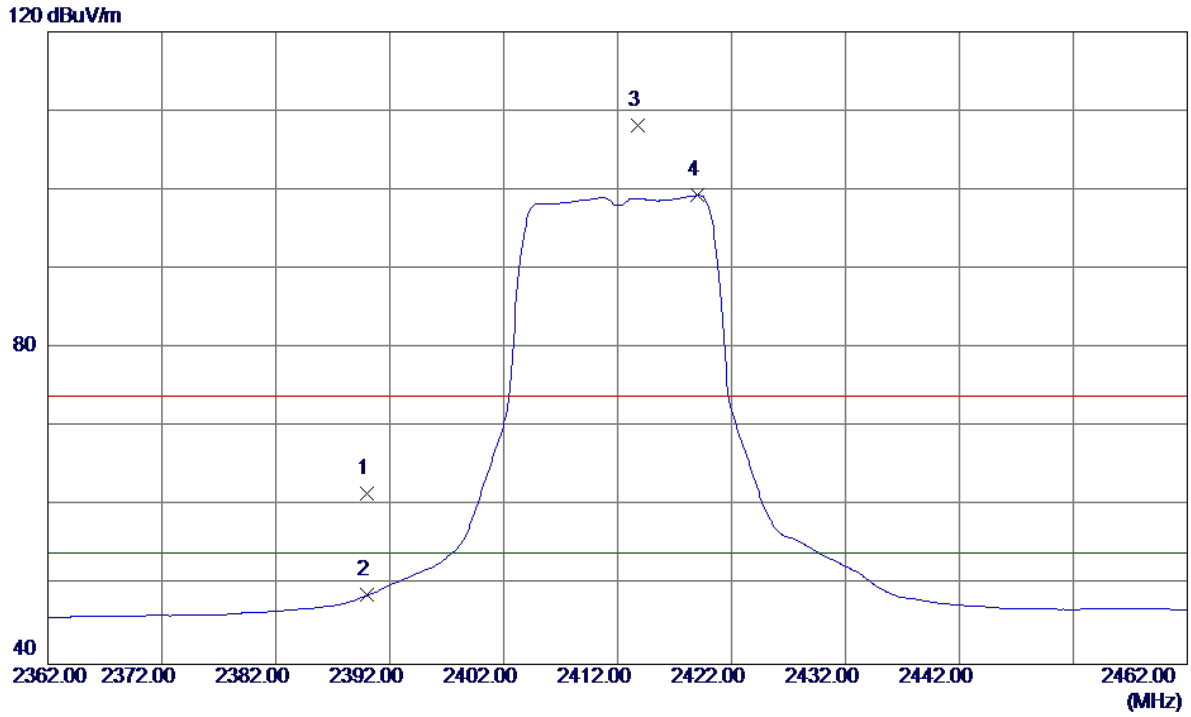
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.0400	40.11	5.94	46.05	74.00	-27.95	Peak	
2 *	4924.1000	37.32	5.94	43.26	54.00	-10.74	AVG	

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

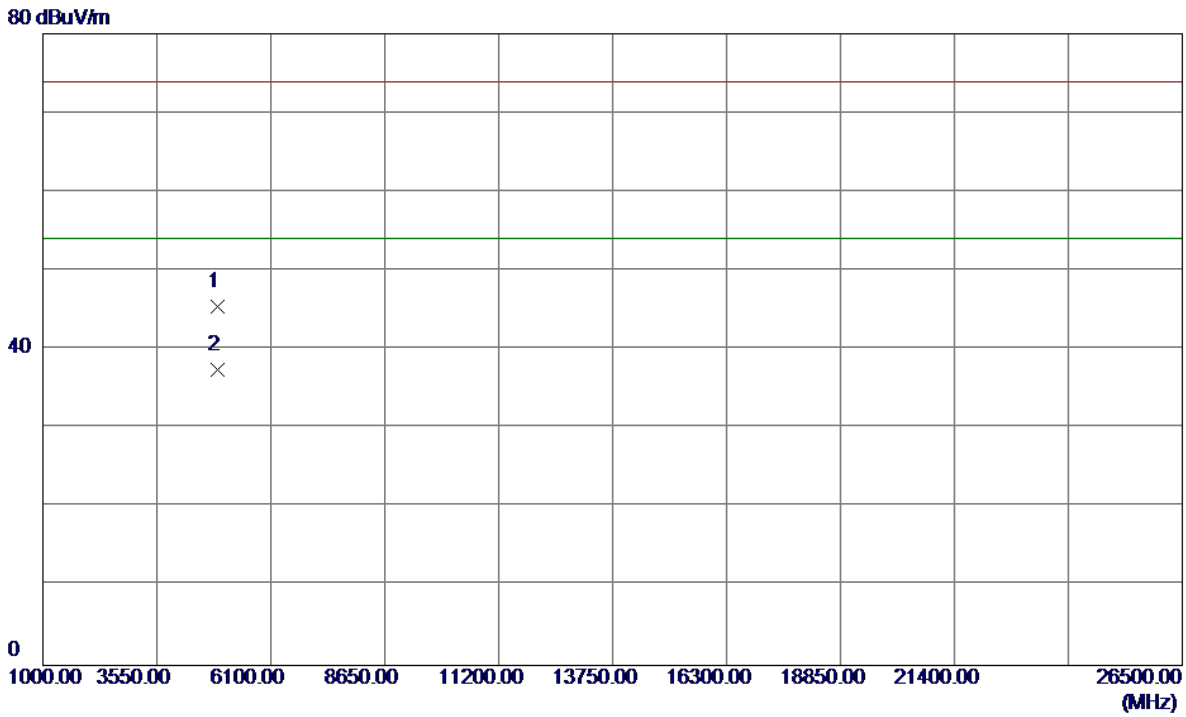
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	27.75	33.88	61.63	74.00	-12.37	Peak	
2	2390.0000	14.85	33.88	48.73	54.00	-5.27	AVG	
3	2413.8000	74.21	34.01	108.22	74.00	34.22	Peak	No Limit
4 *	2418.9500	65.26	34.04	99.30	54.00	45.30	AVG	No Limit

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

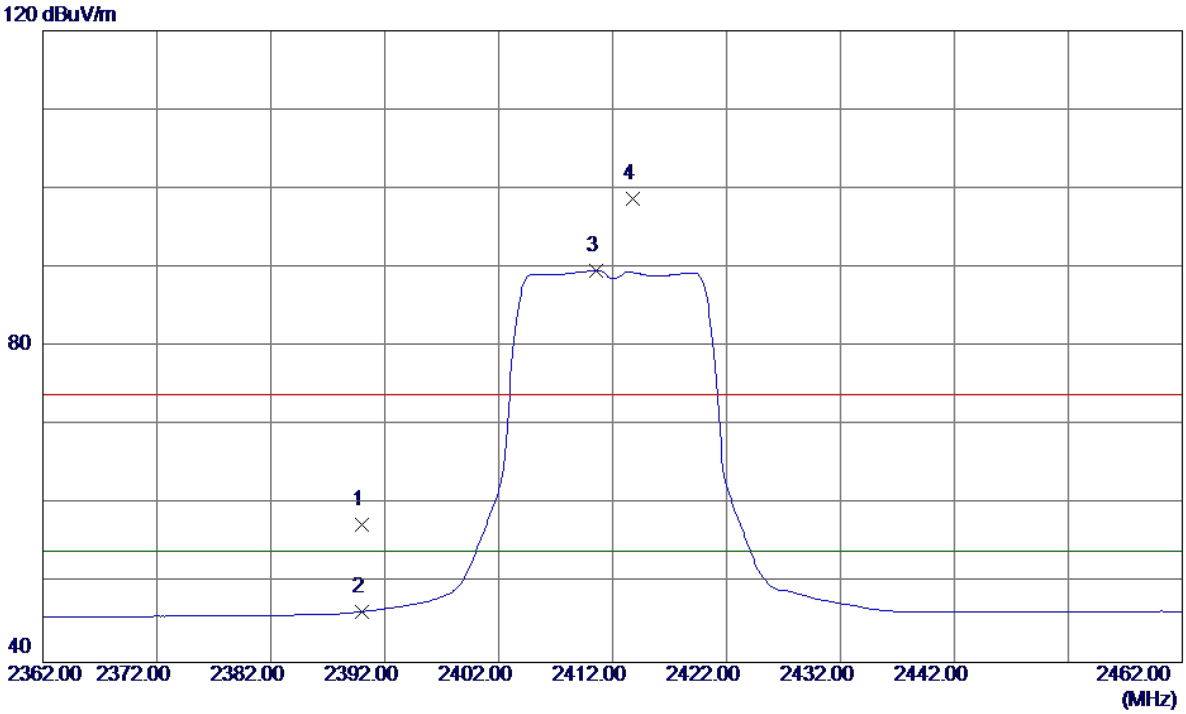
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.0650	39.45	5.94	45.39	74.00	-28.61	Peak	
2 *	4924.0950	31.44	5.94	37.38	54.00	-16.62	AVG	

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

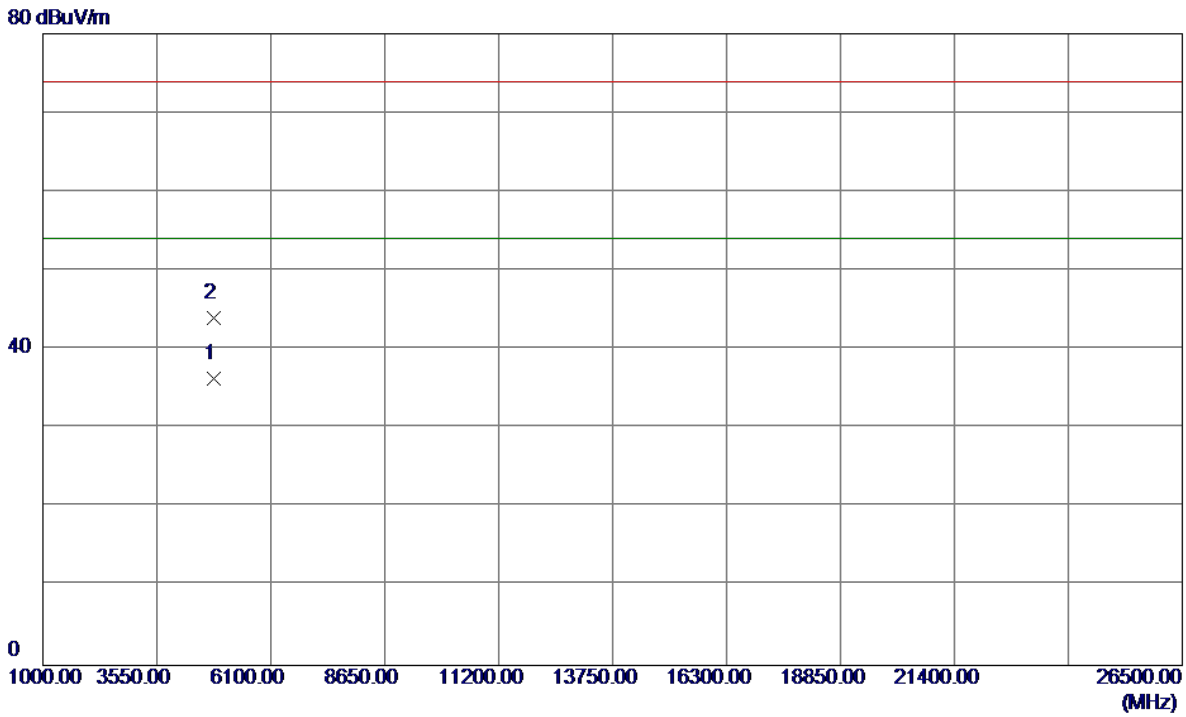
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.56	33.88	57.44	74.00	-16.56	Peak	
2	2390.0000	12.55	33.88	46.43	54.00	-7.57	AVG	
3 *	2410.6000	55.68	33.99	89.67	54.00	35.67	AVG	No Limit
4	2413.7500	64.69	34.01	98.70	74.00	24.70	Peak	No Limit

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

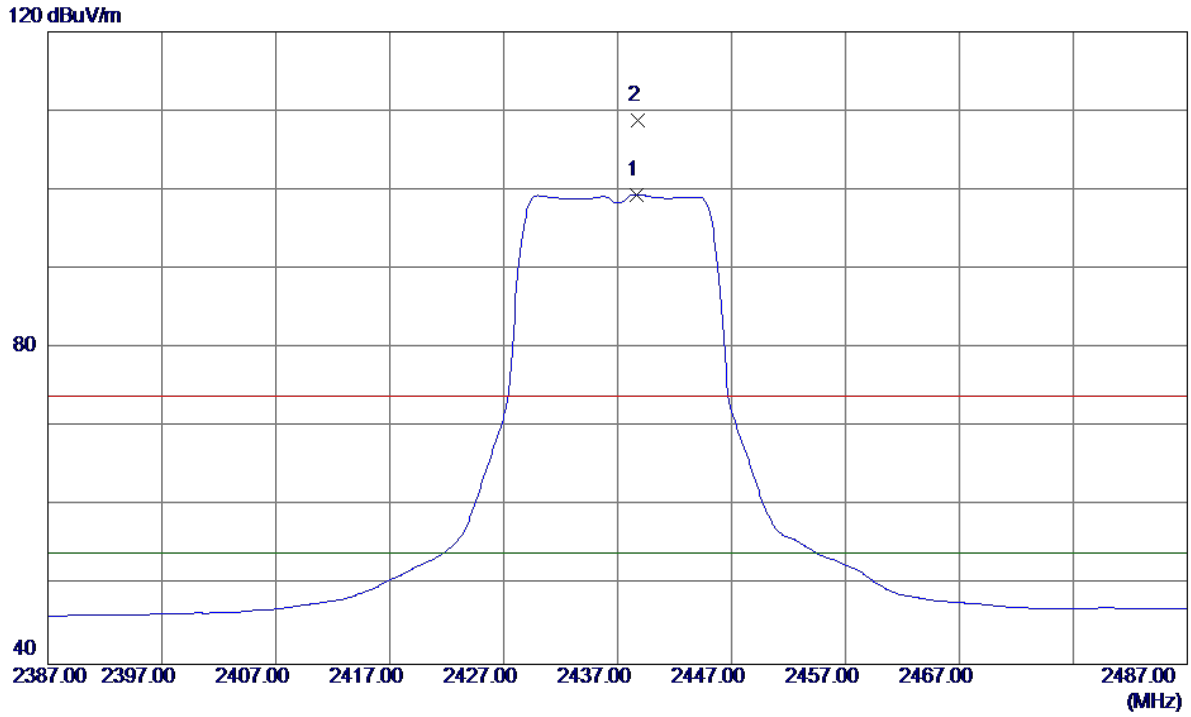
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4821.2420	30.82	5.44	36.26	54.00	-17.74	AVG	
2	4821.7450	38.61	5.44	44.05	74.00	-29.95	Peak	

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

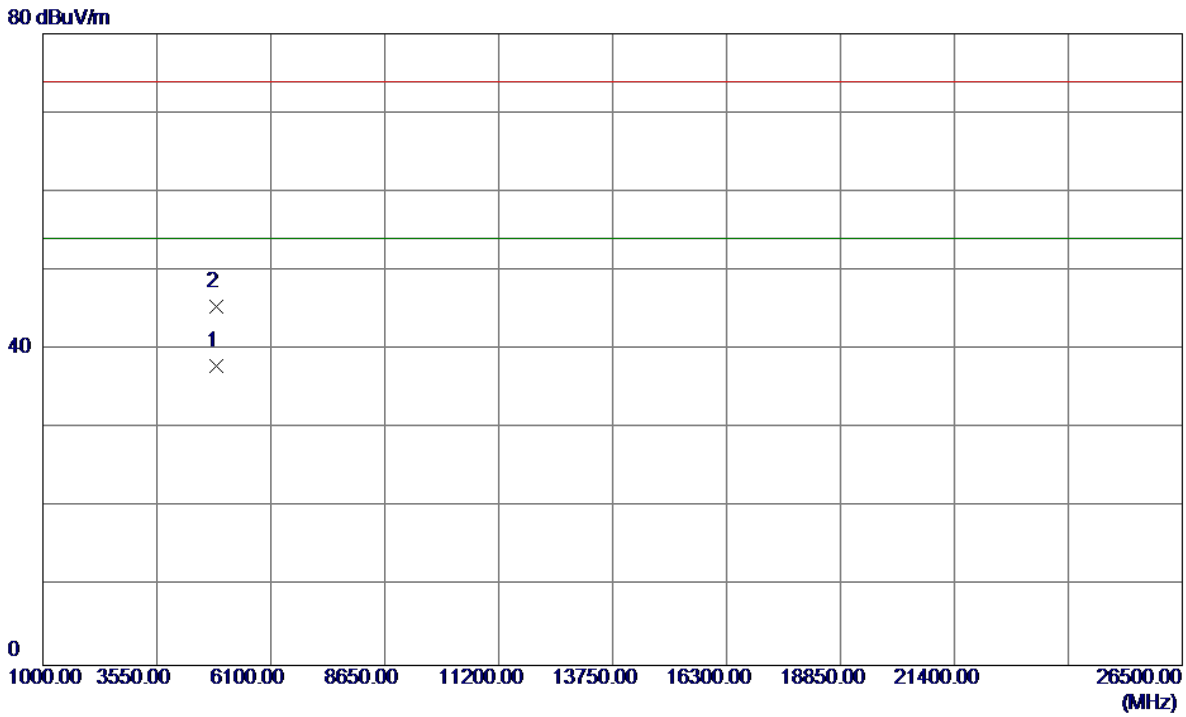
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.6500	65.25	34.16	99.41	54.00	45.41	AVG	No Limit
2	2438.8000	74.61	34.16	108.77	74.00	34.77	Peak	No Limit

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

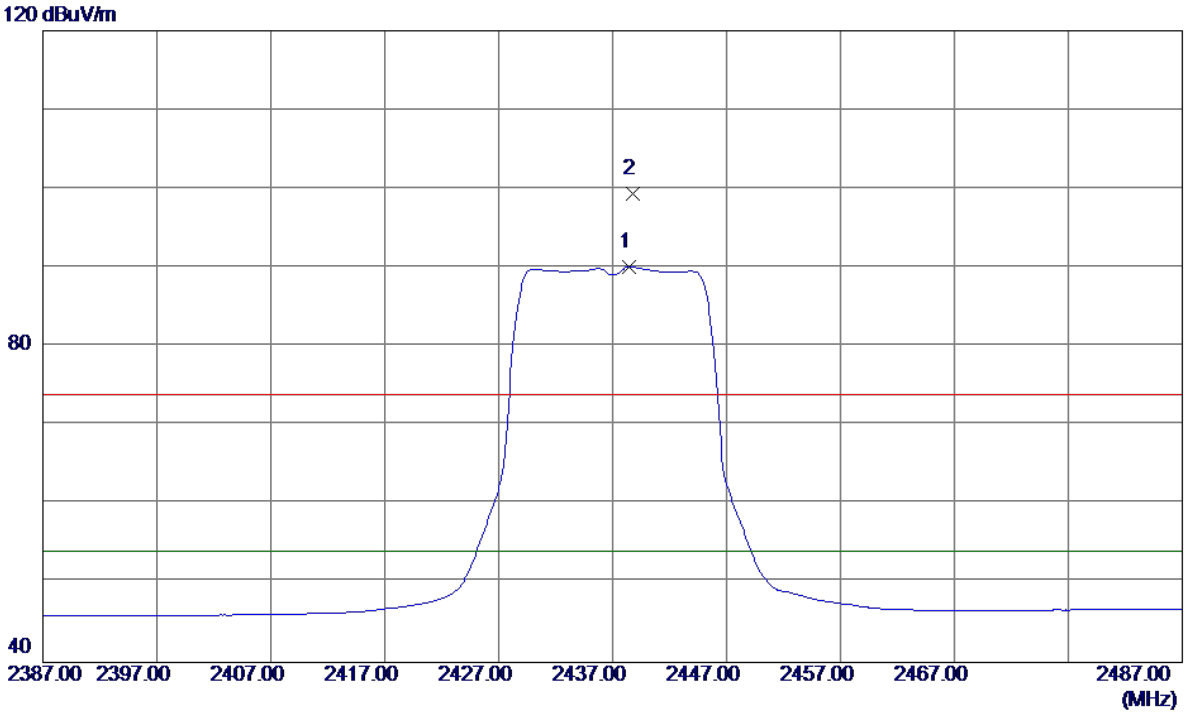
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.4140	32.28	5.70	37.98	54.00	-16.02	AVG	
2	4875.1240	39.79	5.70	45.49	74.00	-28.51	Peak	

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

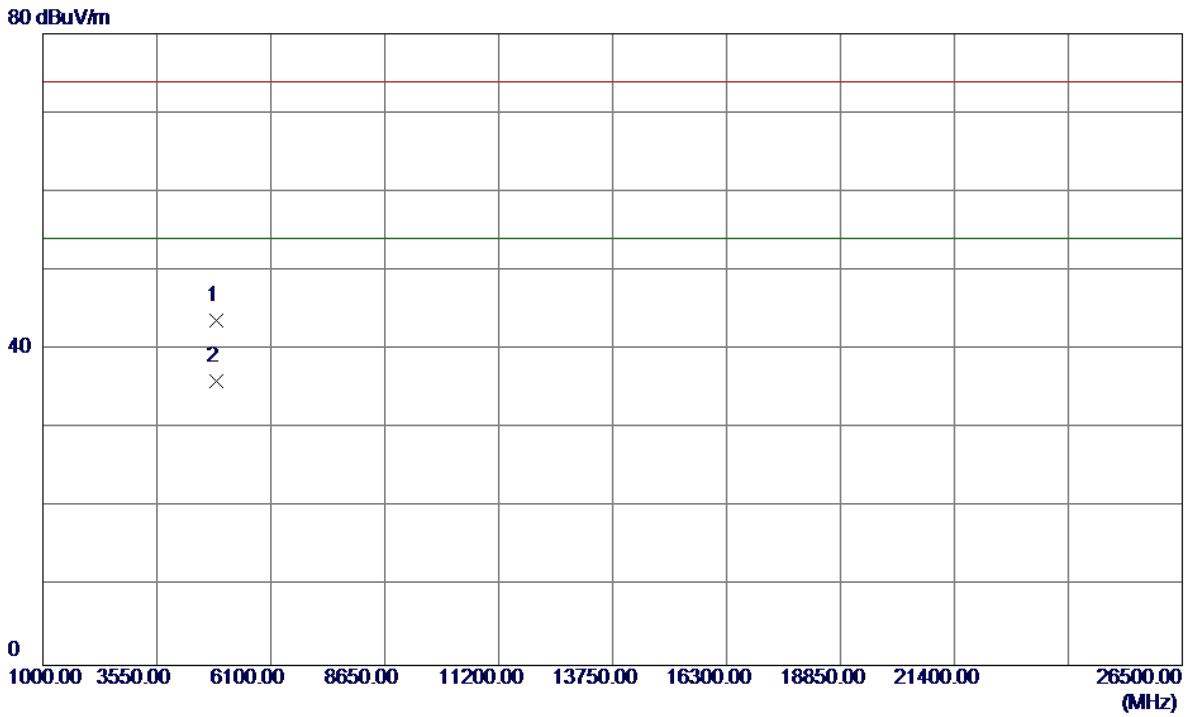
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438.4000	55.90	34.16	90.06	54.00	36.06	AVG	No Limit
2	2438.7500	65.17	34.16	99.33	74.00	25.33	Peak	No Limit

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

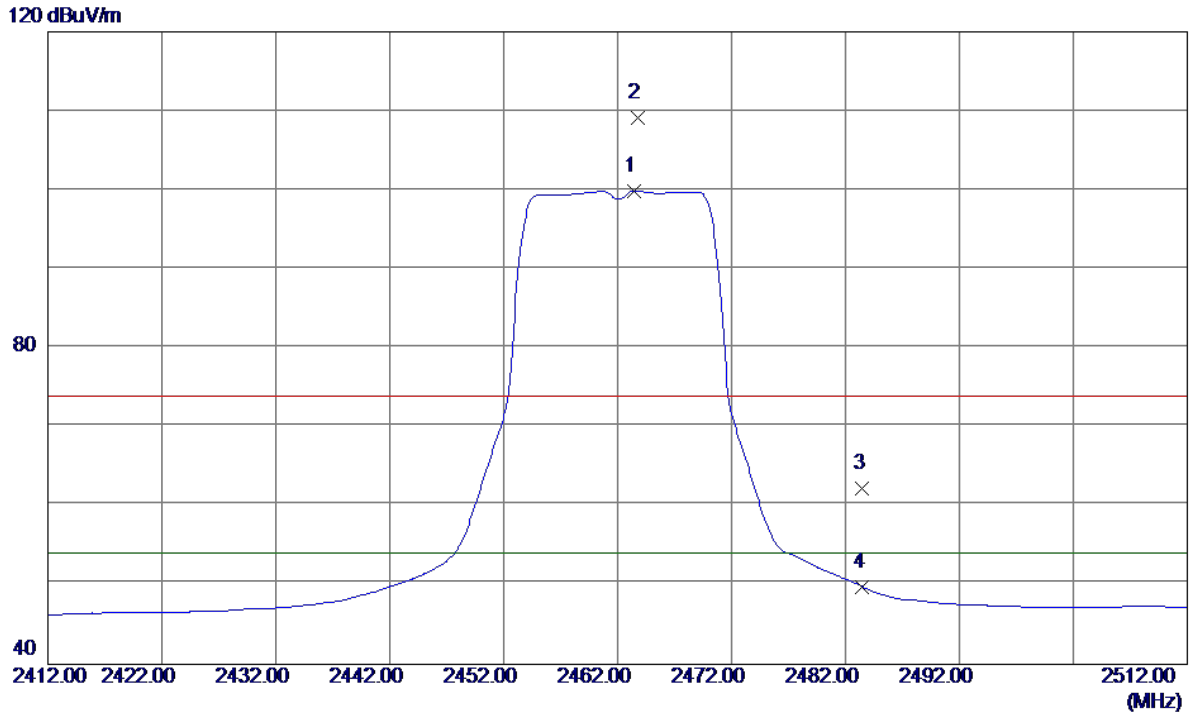
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.5139	38.02	5.70	43.72	54.00	-10.28	AVG	
2	4874.7450	30.25	5.70	35.95	74.00	-38.05	Peak	

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

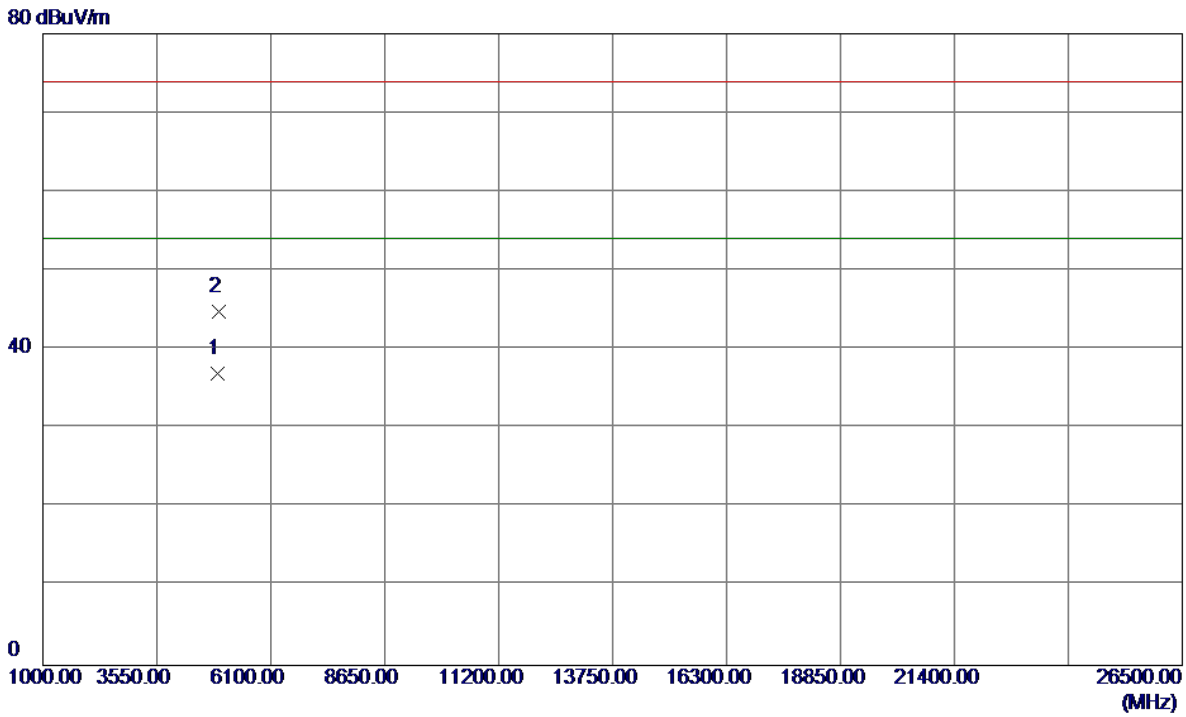
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2463.4000	65.54	34.30	99.84	54.00	45.84	AVG	No Limit
2	2463.8000	74.88	34.30	109.18	74.00	35.18	Peak	No Limit
3	2483.5000	27.82	34.41	62.23	74.00	-11.77	Peak	
4	2483.5000	15.42	34.41	49.83	54.00	-4.17	AVG	

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

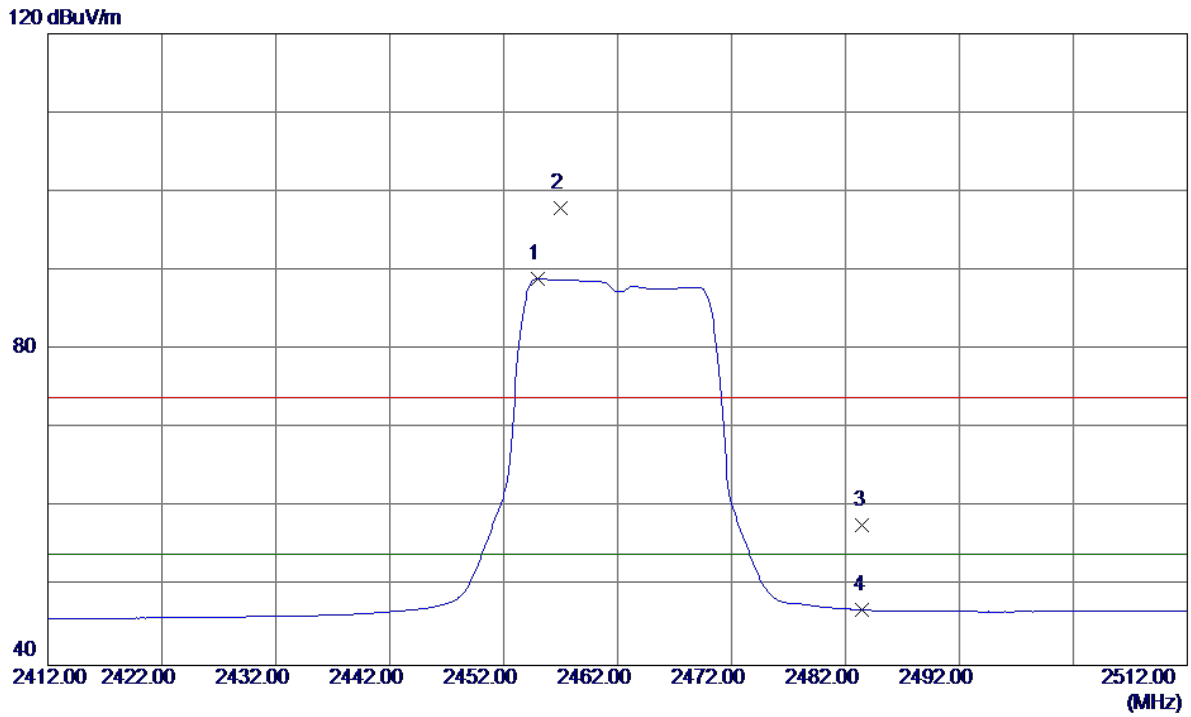
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.9610	31.01	5.94	36.95	54.00	-17.05	AVG	
2	4925.4210	38.87	5.95	44.82	74.00	-29.18	Peak	

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

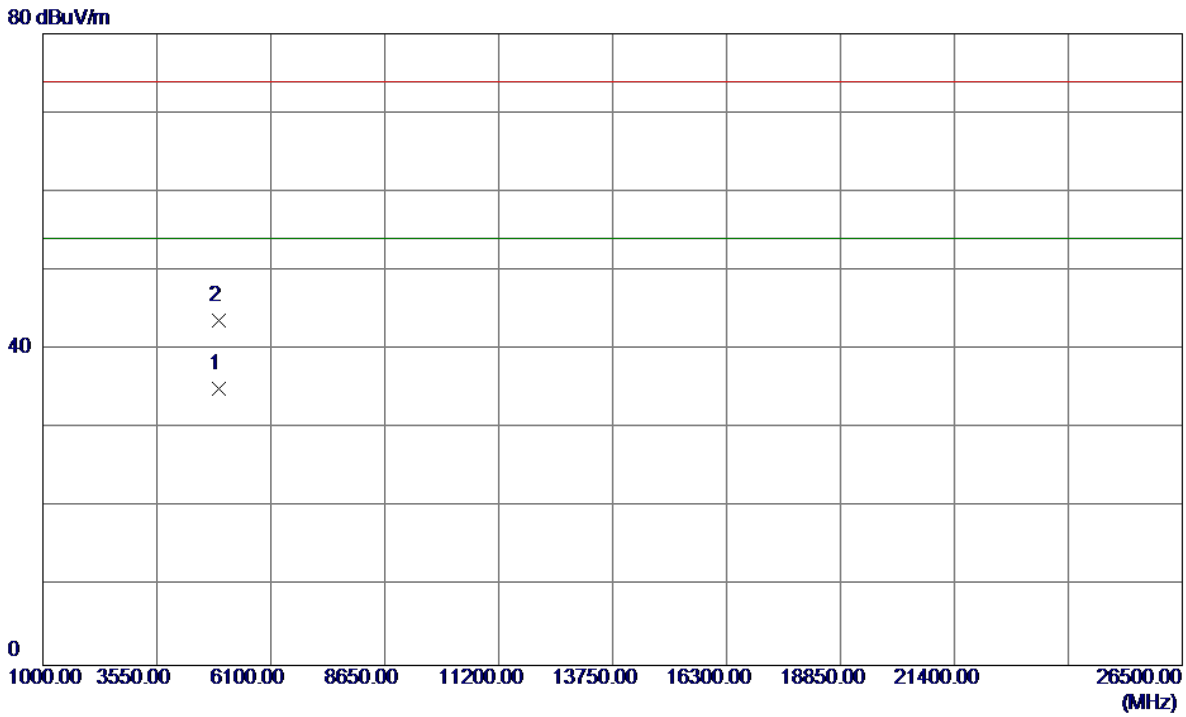
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2455.0500	54.73	34.25	88.98	54.00	34.98	AVG	No Limit
2	2456.9500	63.63	34.26	97.89	74.00	23.89	Peak	No Limit
3	2483.5000	23.38	34.41	57.79	74.00	-16.21	Peak	
4	2483.5000	12.61	34.41	47.02	54.00	-6.98	AVG	

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

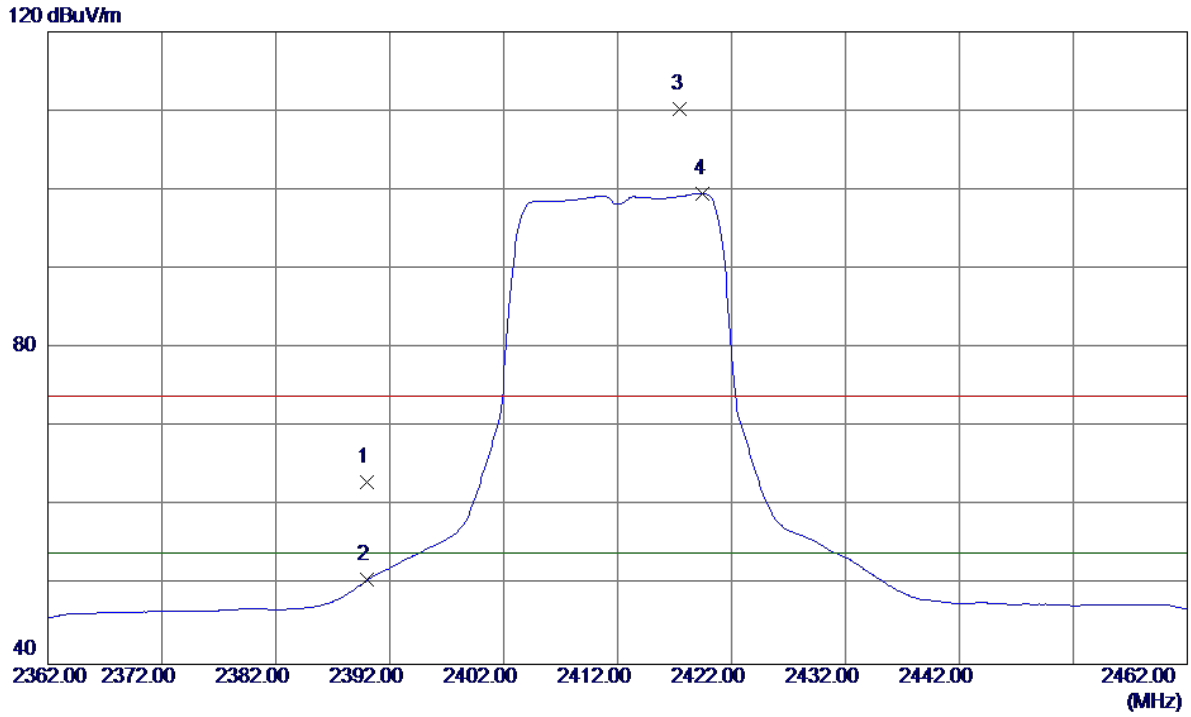
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.4740	29.12	5.94	35.06	54.00	-18.94	AVG	
2	4925.5410	37.73	5.95	43.68	74.00	-30.32	Peak	

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

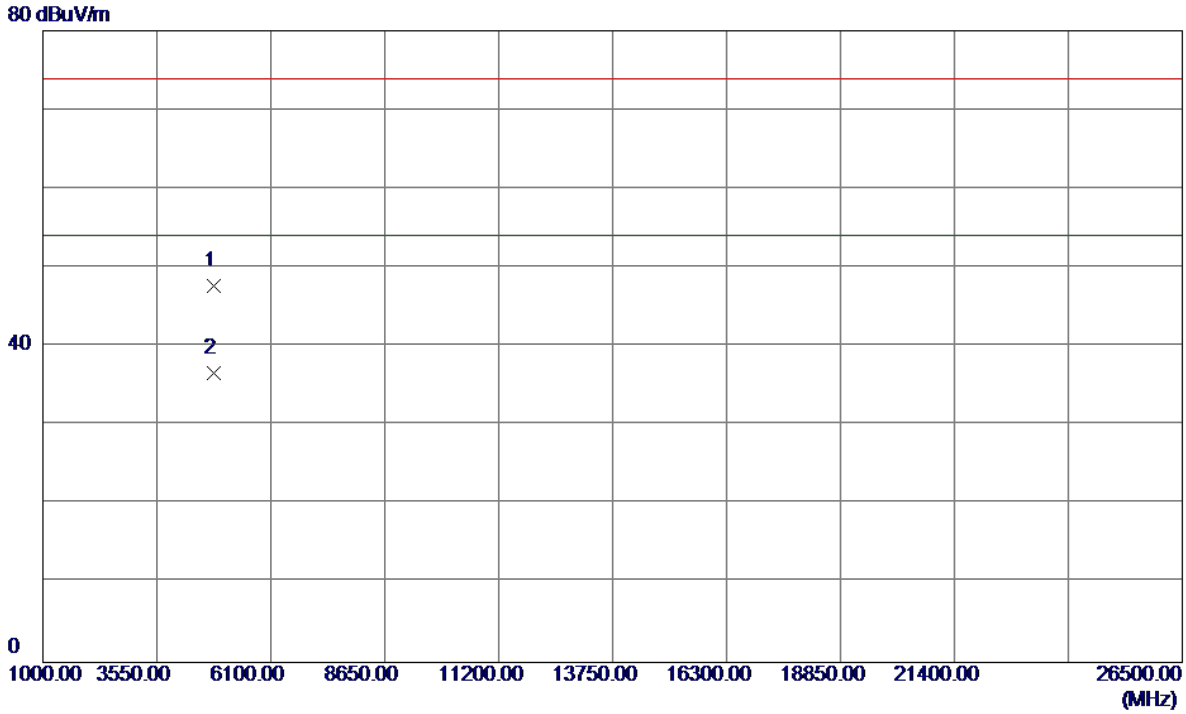
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	29.23	33.88	63.11	74.00	-10.89	Peak	
2	2390.0000	16.78	33.88	50.66	54.00	-3.34	AVG	
3	2417.5000	76.15	34.03	110.18	74.00	36.18	Peak	No Limit
4 *	2419.5000	65.52	34.05	99.57	54.00	45.57	AVG	No Limit

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

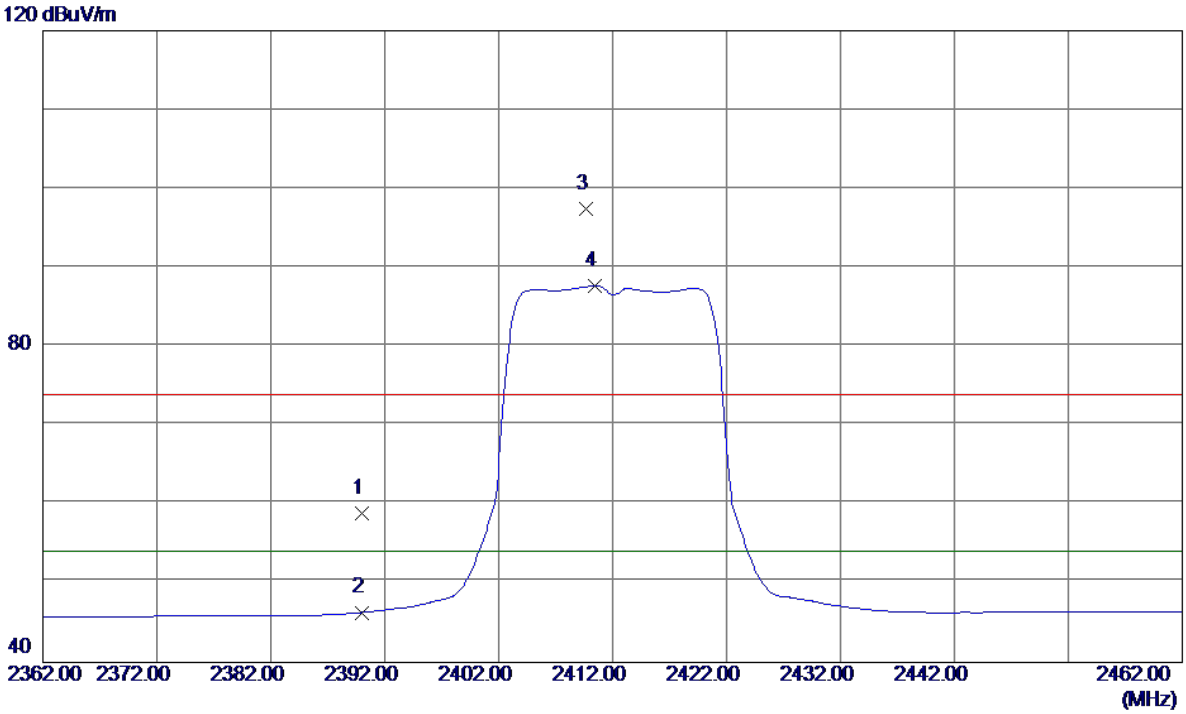
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4825.1760	42.15	5.46	47.61	74.00	-26.39	Peak	
2 *	4824.2530	31.24	5.46	36.70	54.00	-17.30	AVG	

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

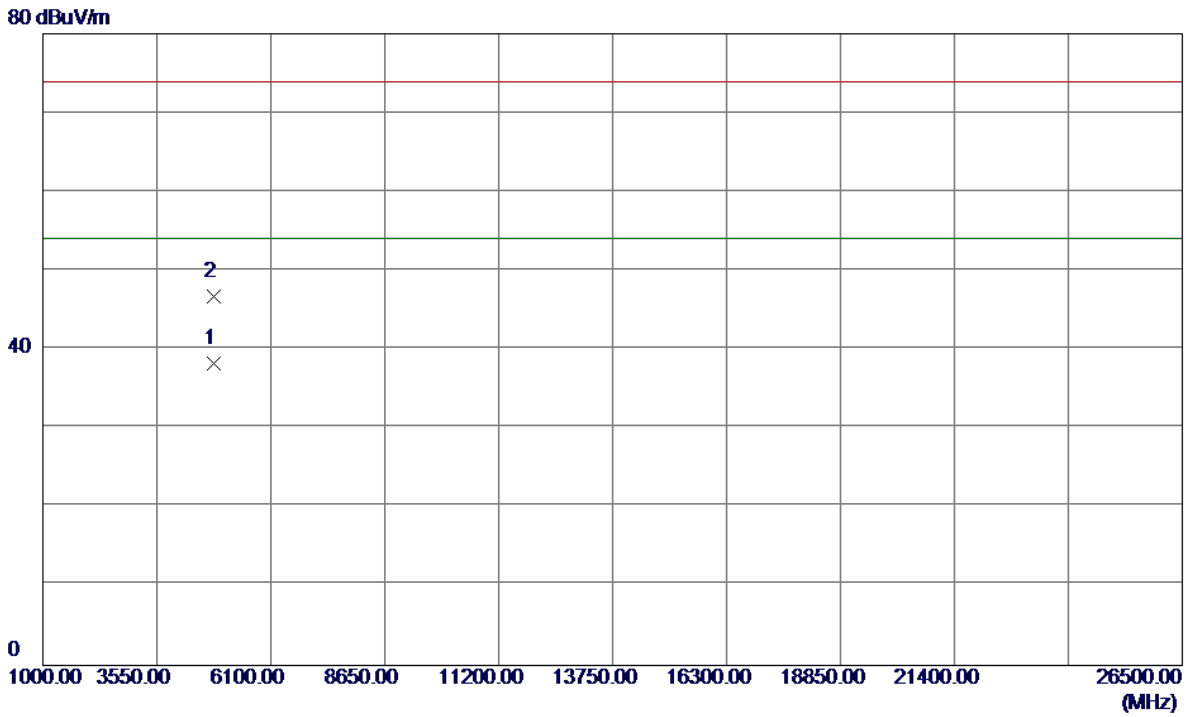
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	25.04	33.88	58.92	74.00	-15.08	Peak	
2	2390.0000	12.44	33.88	46.32	54.00	-7.68	AVG	
3	2409.7000	63.45	33.99	97.44	74.00	23.44	Peak	No Limit
4 *	2410.4500	53.69	33.99	87.68	54.00	33.68	AVG	No Limit

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

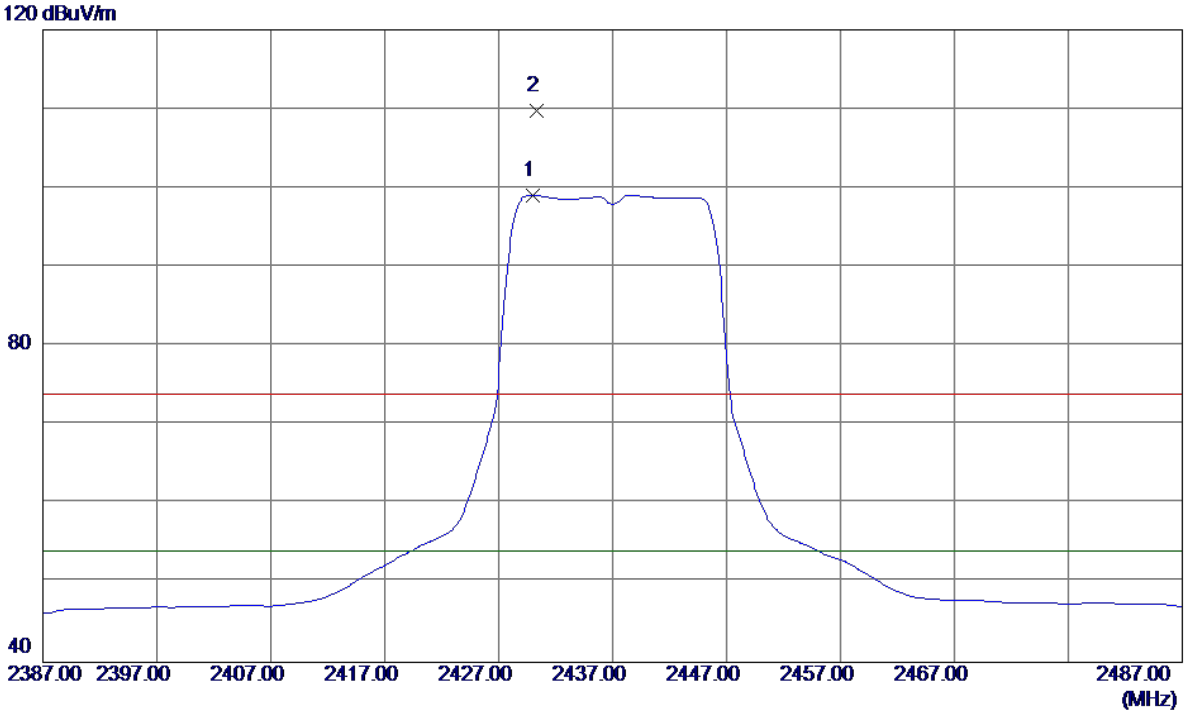
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.1280	32.78	5.46	38.24	54.00	-15.76	AVG	
2	4825.0870	41.23	5.46	46.69	74.00	-27.31	Peak	

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

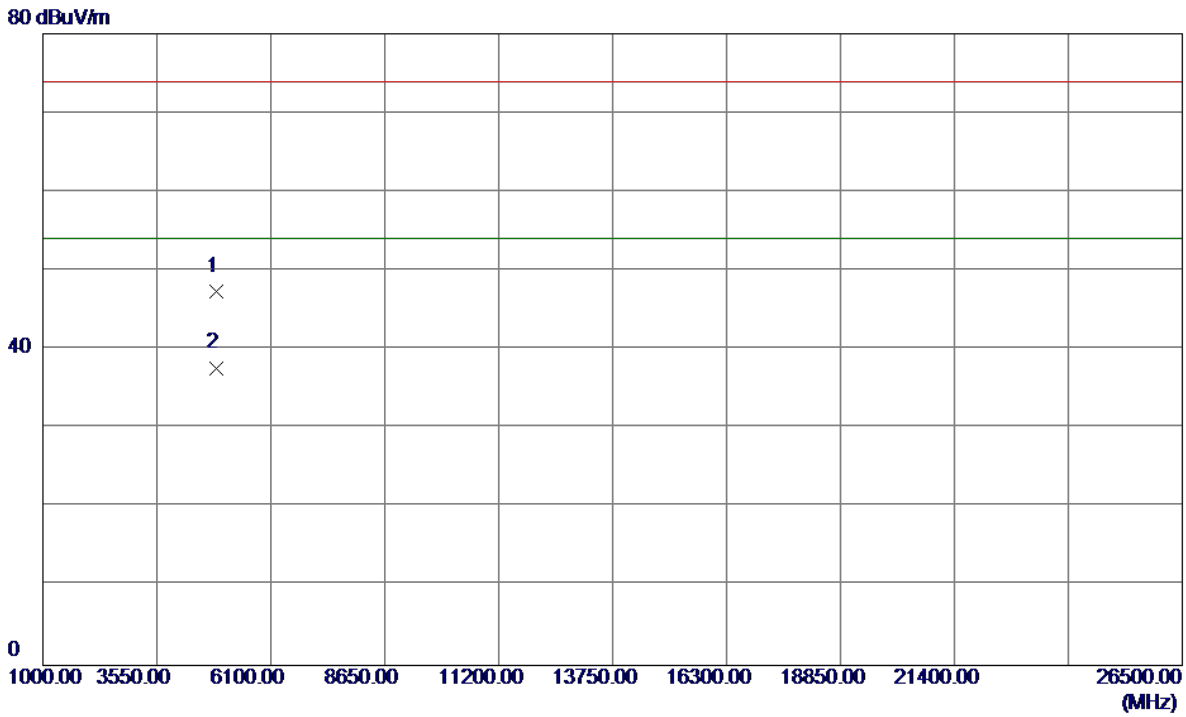
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2429.9500	64.99	34.11	99.10	54.00	45.10	AVG	No Limit
2	2430.3000	75.70	34.11	109.81	74.00	35.81	Peak	No Limit

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

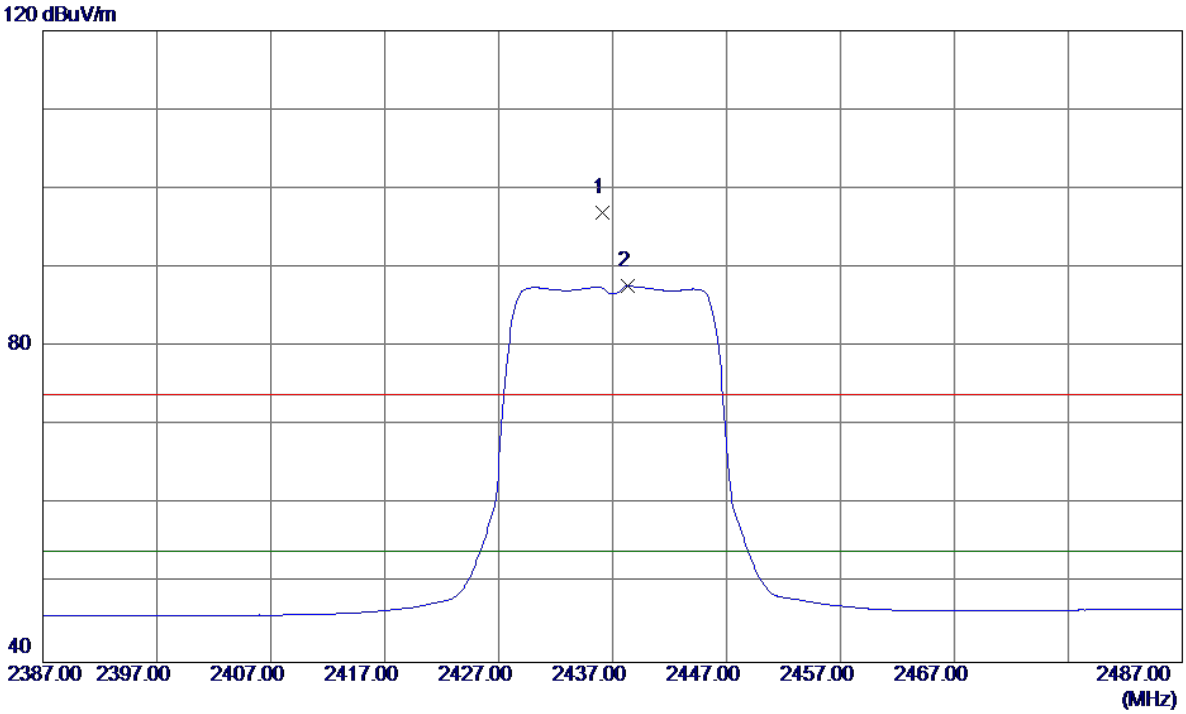
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4876.0620	41.71	5.71	47.42	74.00	-26.58	Peak	
2 *	4875.0640	31.98	5.70	37.68	54.00	-16.32	AVG	

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

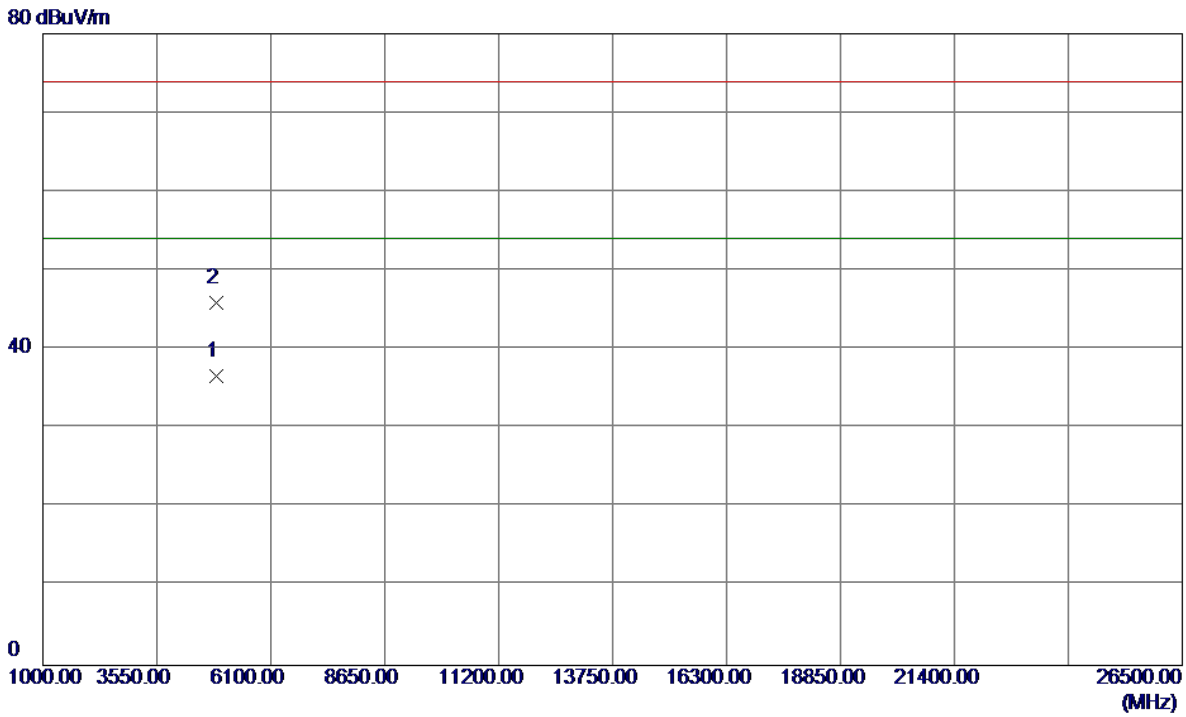
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2436.1500	62.78	34.14	96.92	74.00	22.92	Peak	No Limit
2 *	2438.3000	53.51	34.15	87.66	54.00	33.66	AVG	No Limit

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

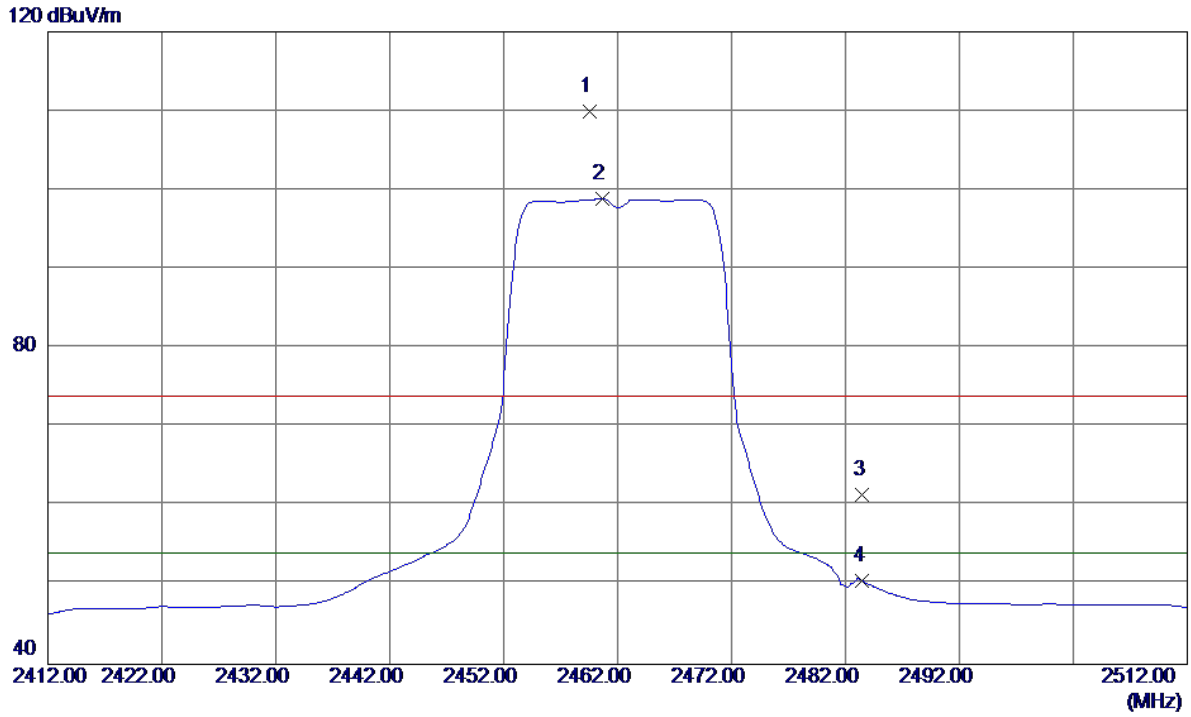
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.2590	30.90	5.70	36.60	54.00	-17.40	AVG	
2	4876.0710	40.15	5.71	45.86	74.00	-28.14	Peak	

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

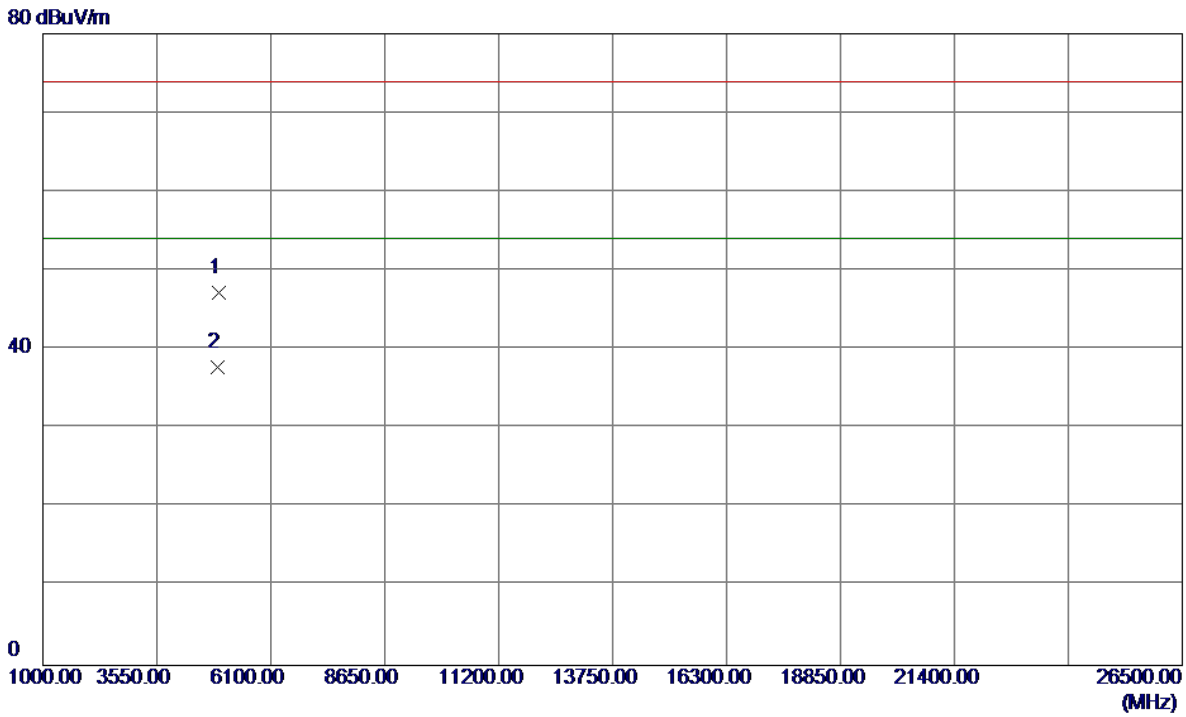
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2459.6000	75.61	34.28	109.89	74.00	35.89	Peak	No Limit
2 *	2460.7000	64.58	34.28	98.86	54.00	44.86	AVG	No Limit
3	2483.5000	27.05	34.41	61.46	74.00	-12.54	Peak	
4	2483.5000	16.08	34.41	50.49	54.00	-3.51	AVG	

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

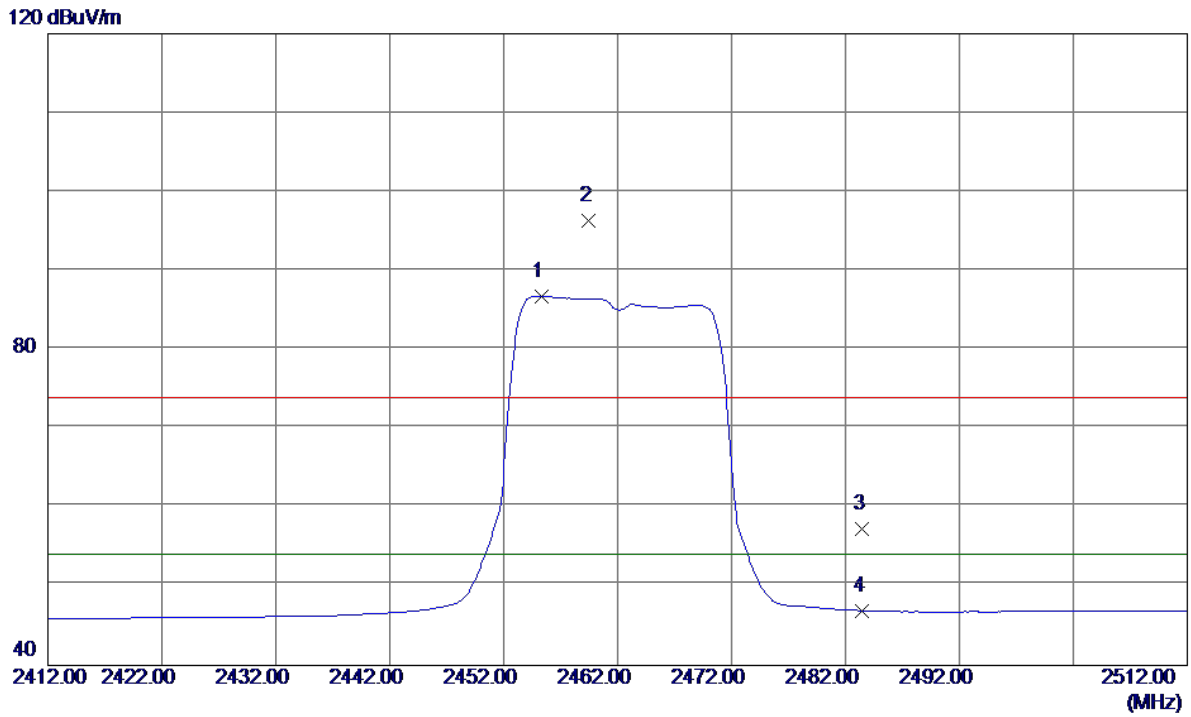
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4925.0910	41.20	5.95	47.15	74.00	-26.85	Peak	
2 *	4924.1520	31.85	5.94	37.79	54.00	-16.21	AVG	

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

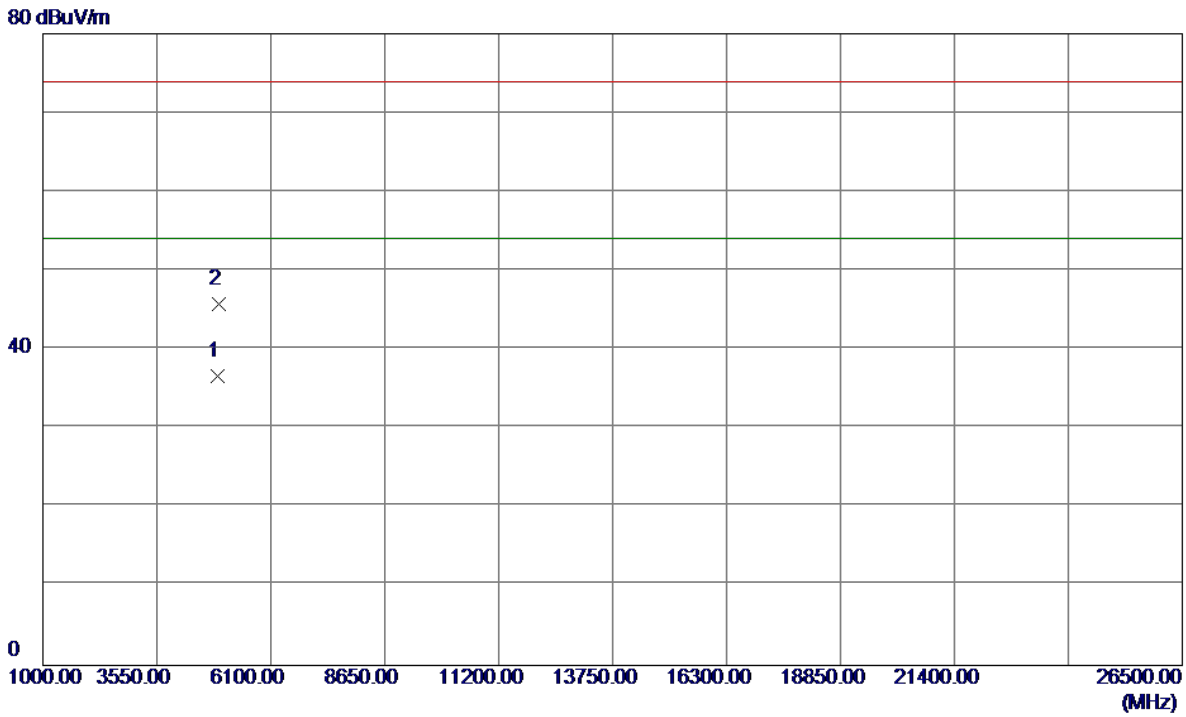
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2455.3000	52.52	34.25	86.77	54.00	32.77	AVG	No Limit
2	2459.5000	62.02	34.28	96.30	74.00	22.30	Peak	No Limit
3	2483.5000	22.93	34.41	57.34	74.00	-16.66	Peak	
4	2483.5000	12.53	34.41	46.94	54.00	-7.06	AVG	

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

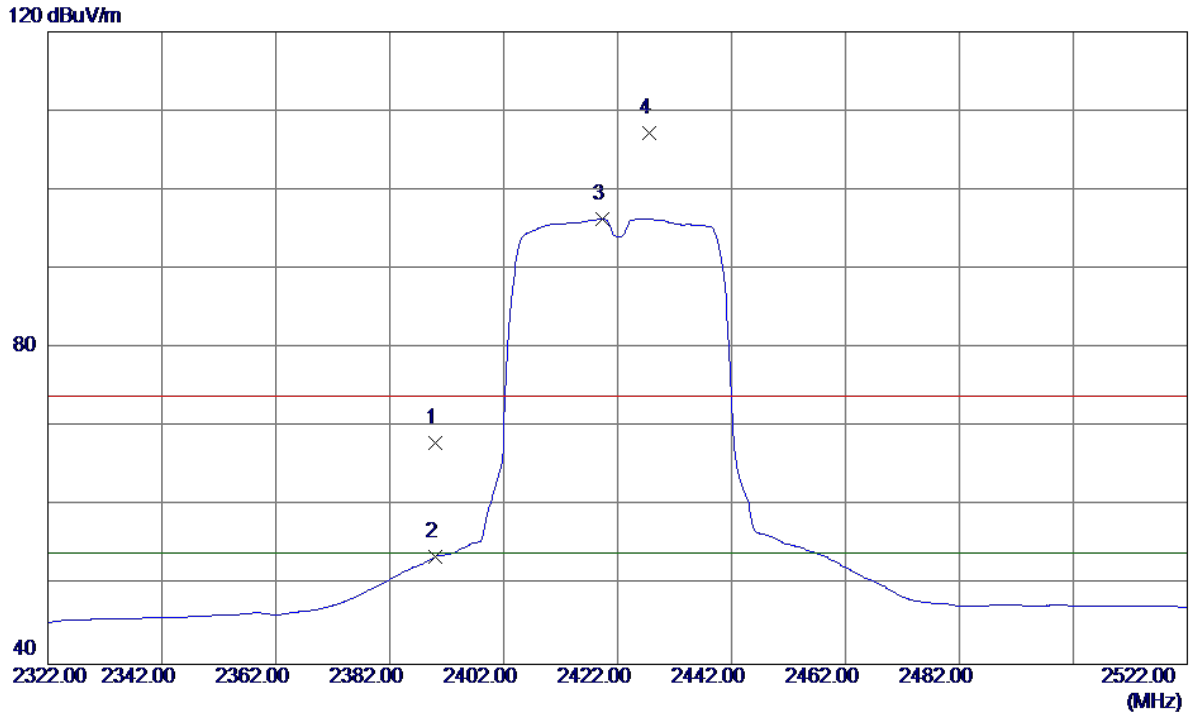
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.0680	30.67	5.94	36.61	54.00	-17.39	AVG	
2	4925.1760	39.84	5.95	45.79	74.00	-28.21	Peak	

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

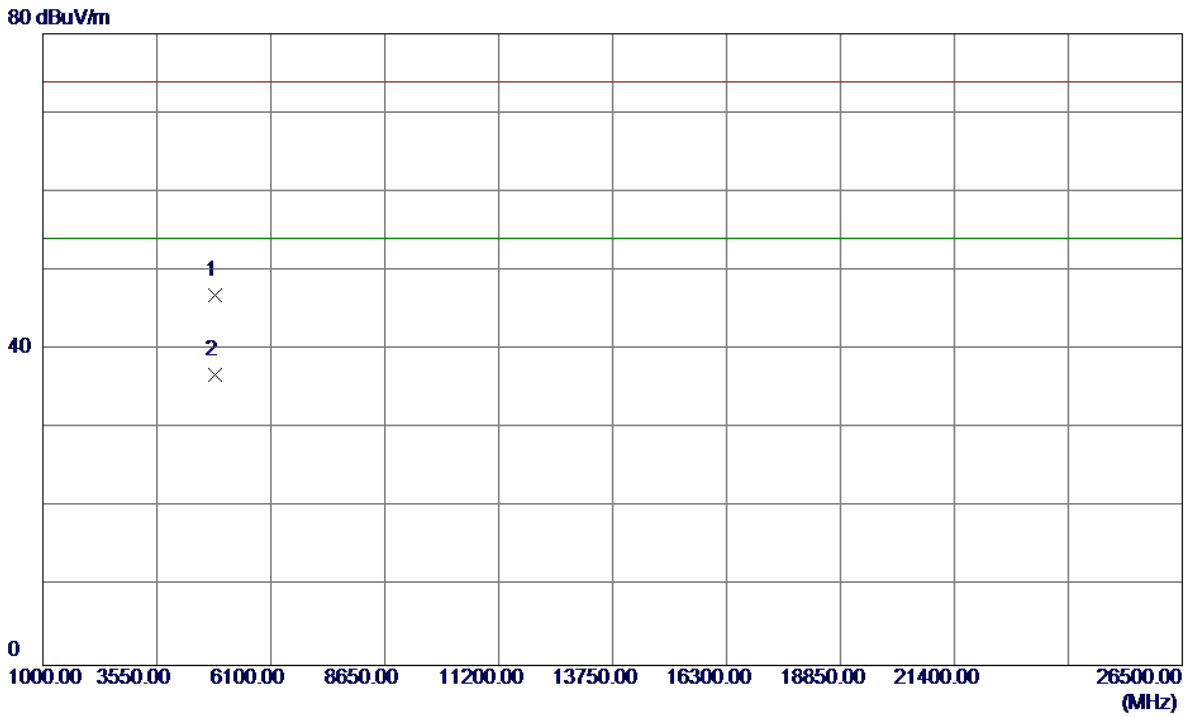
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	34.06	33.88	67.94	74.00	-6.06	Peak	
2	2390.0000	19.78	33.88	53.66	54.00	-0.34	AVG	
3 *	2419.3000	62.26	34.05	96.31	54.00	42.31	AVG	No Limit
4	2427.6000	73.17	34.09	107.26	74.00	33.26	Peak	No Limit

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

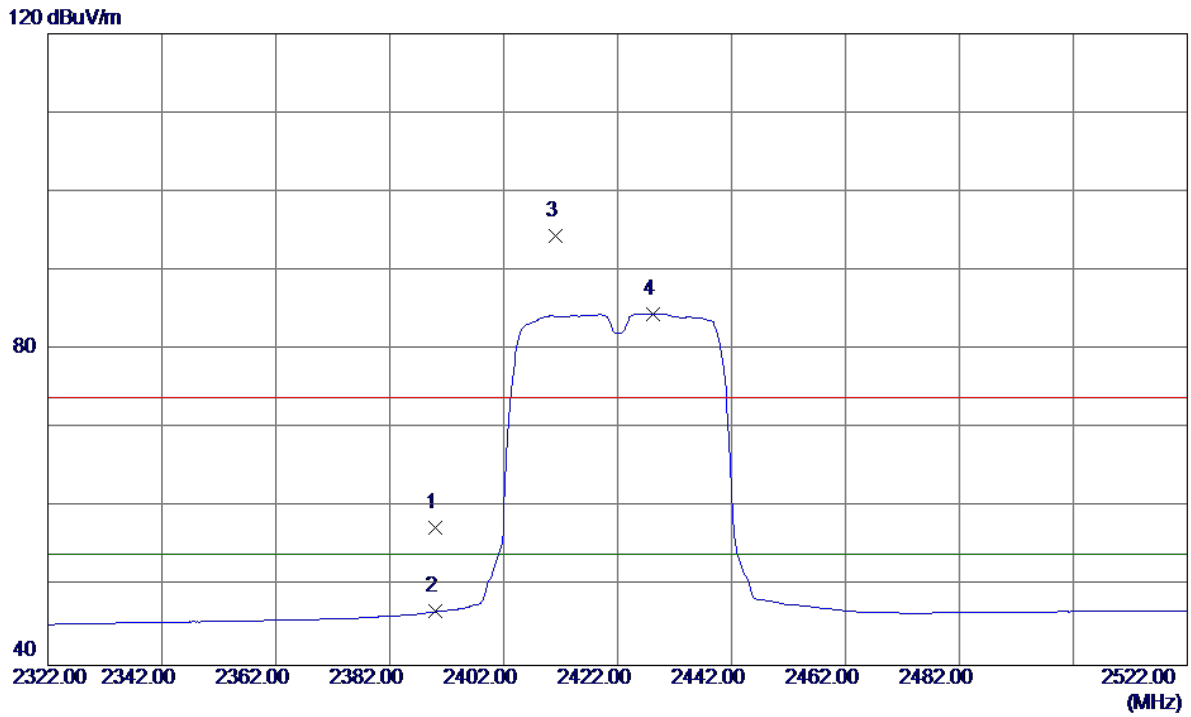
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4846.2540	41.28	5.56	46.84	74.00	-27.16	Peak	
2 *	4845.1480	31.25	5.56	36.81	54.00	-17.19	AVG	

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

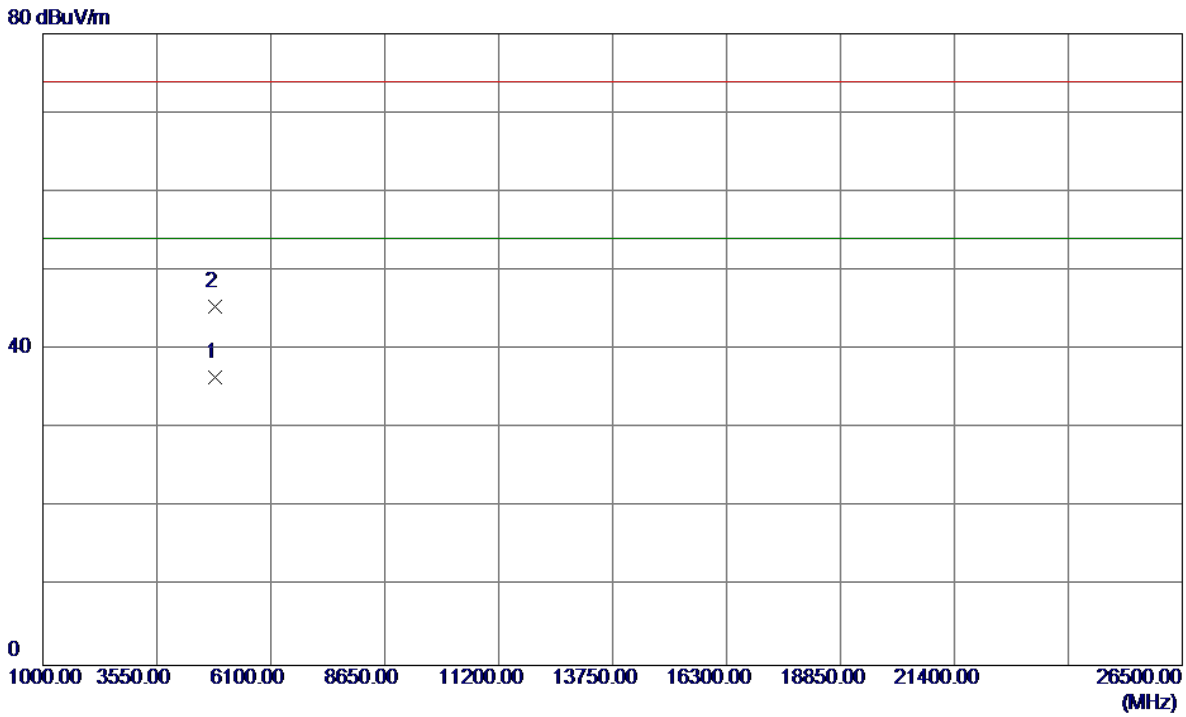
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.54	33.88	57.42	74.00	-16.58	Peak	
2	2390.0000	12.94	33.88	46.82	54.00	-7.18	AVG	
3	2411.2000	60.47	34.00	94.47	74.00	20.47	Peak	No Limit
4 *	2428.2000	50.43	34.10	84.53	54.00	30.53	AVG	No Limit

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

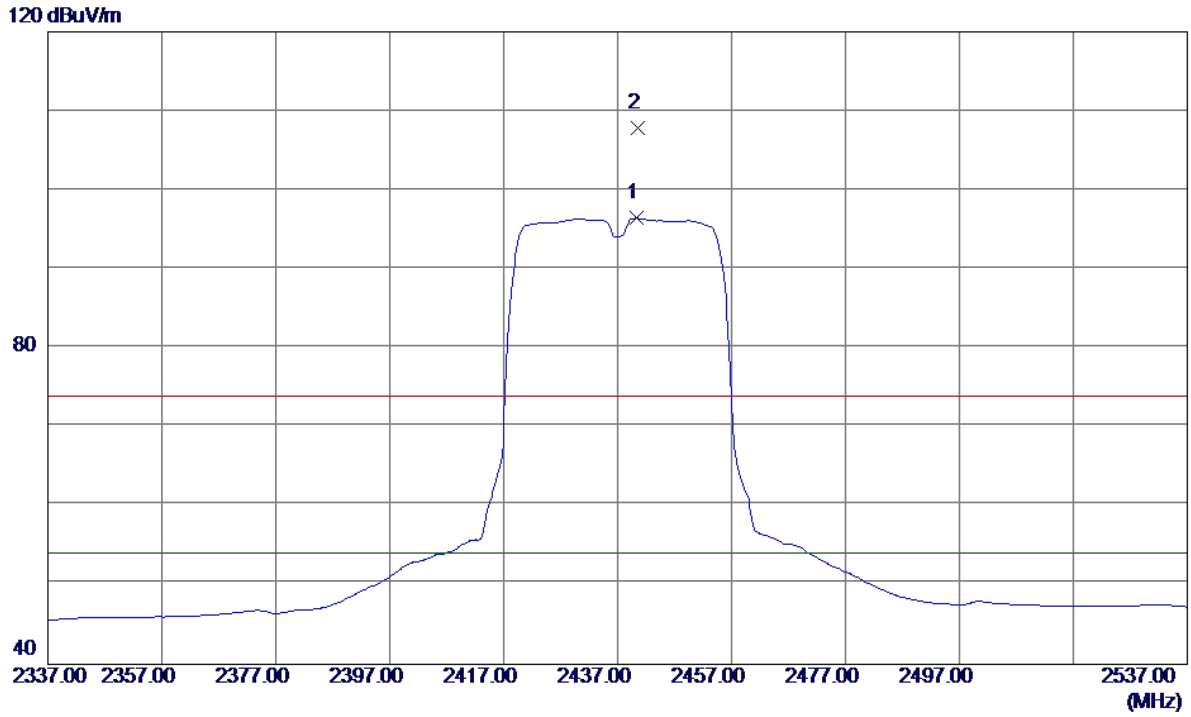
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4845.2670	30.87	5.56	36.43	54.00	-17.57	AVG	
2	4846.2740	39.84	5.56	45.40	74.00	-28.60	Peak	

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

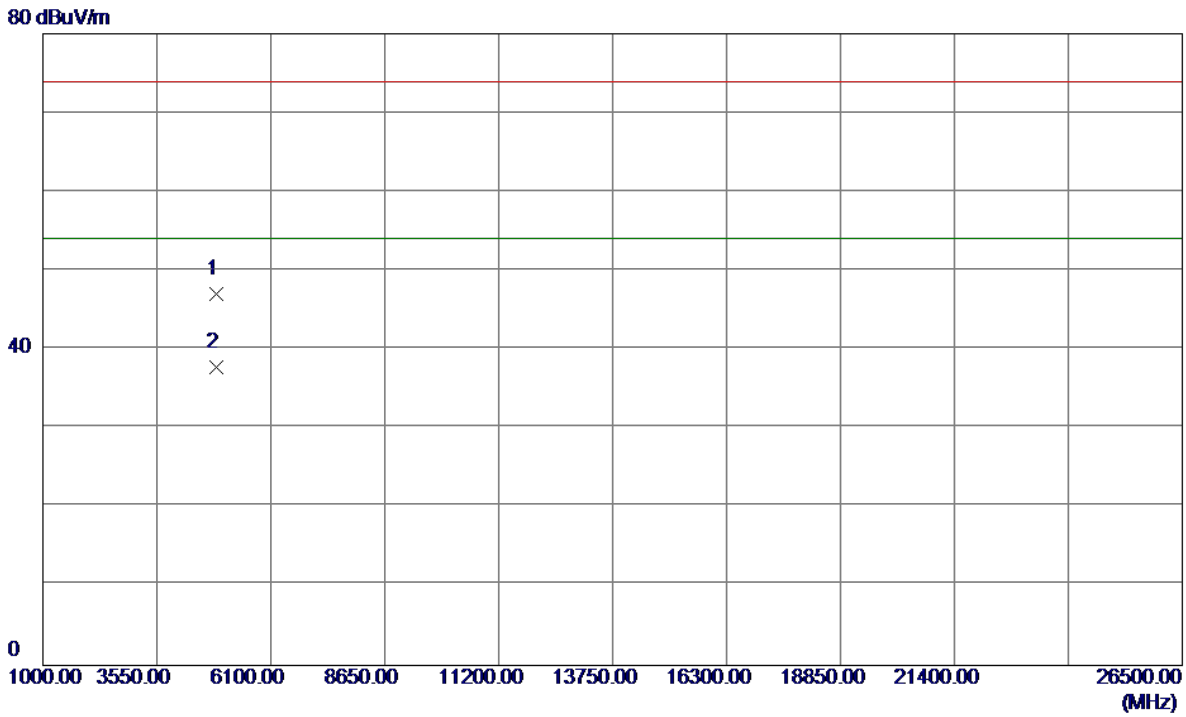
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2440.4000	62.24	34.17	96.41	54.00	42.41	AVG	No Limit
2	2440.5000	73.64	34.17	107.81	74.00	33.81	Peak	No Limit

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

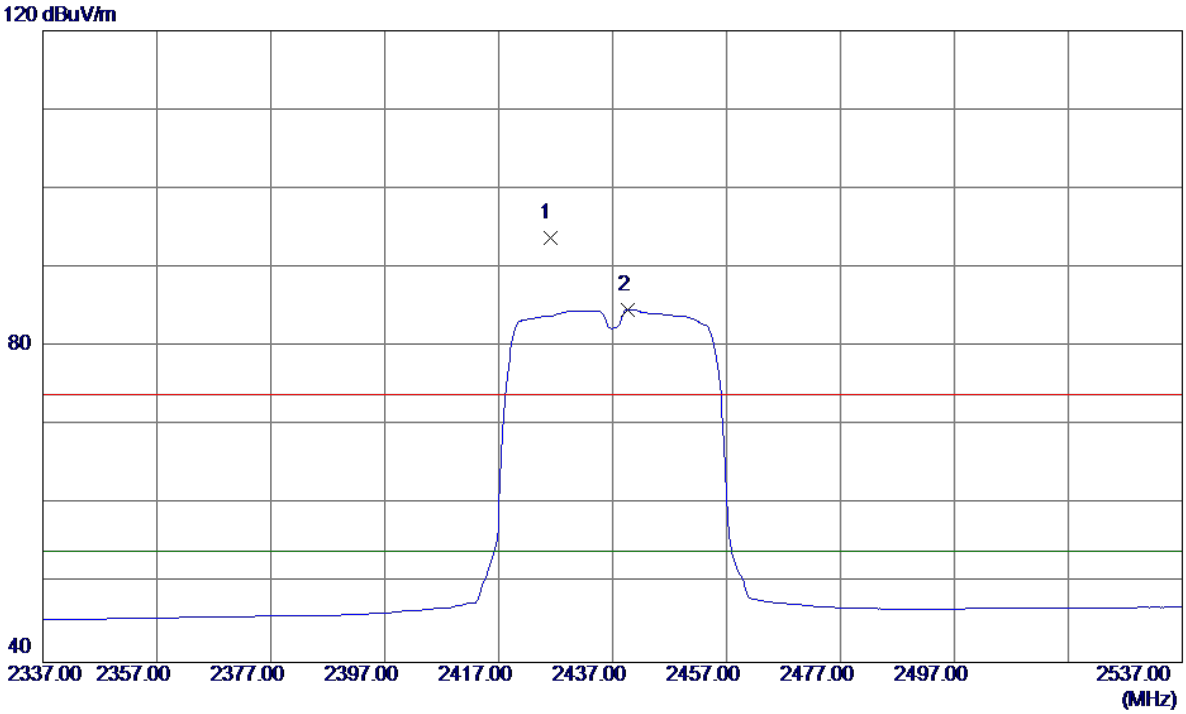
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4875.4570	41.32	5.70	47.02	74.00	-26.98	Peak	
2 *	4876.3490	32.09	5.71	37.80	54.00	-16.20	AVG	

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

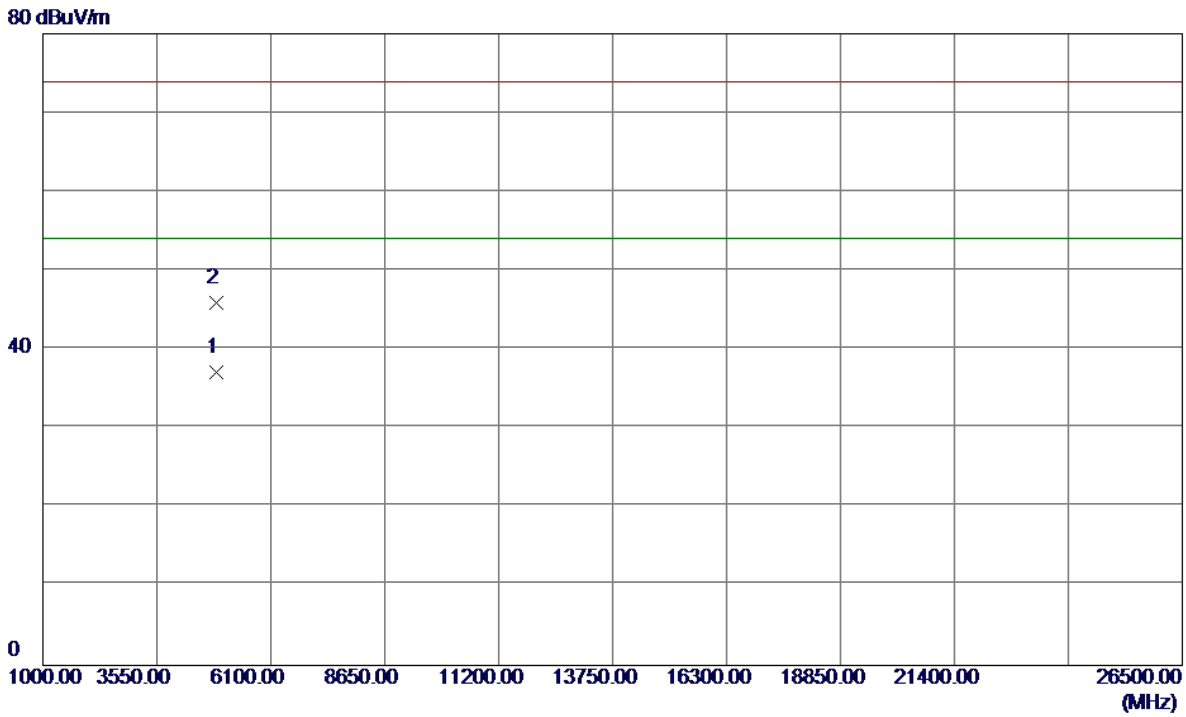
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2426.0000	59.68	34.08	93.76	74.00	19.76	Peak	No Limit
2 *	2439.7000	50.52	34.16	84.68	54.00	30.68	AVG	No Limit

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

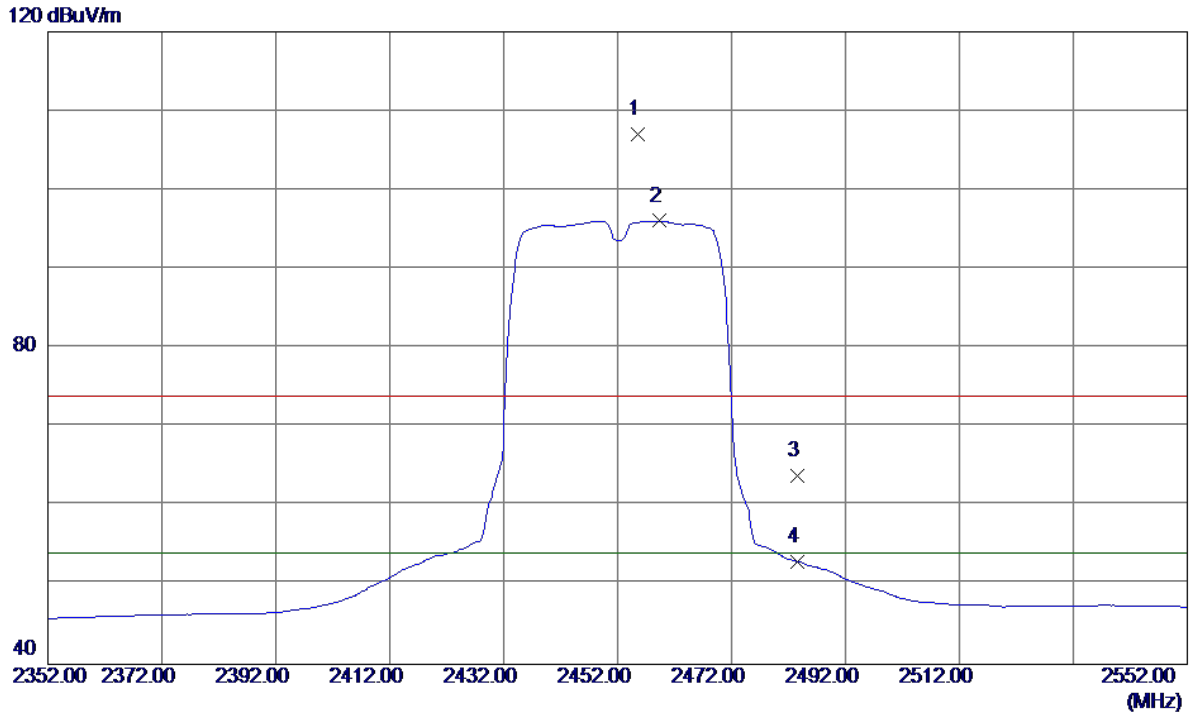
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4875.2570	31.47	5.70	37.17	54.00	-16.83	AVG	
2	4876.3290	40.26	5.71	45.97	74.00	-28.03	Peak	

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

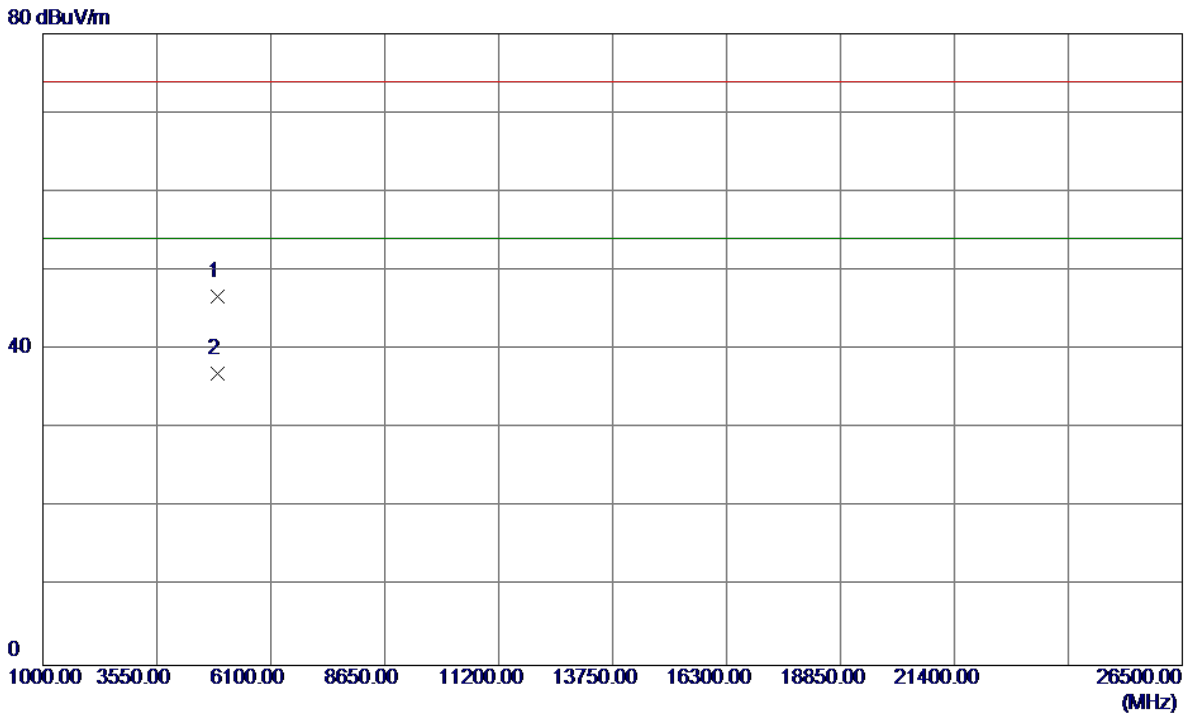
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2455.6000	72.81	34.25	107.06	74.00	33.06	Peak	No Limit
2 *	2459.4000	61.80	34.28	96.08	54.00	42.08	AVG	No Limit
3	2483.5000	29.40	34.41	63.81	74.00	-10.19	Peak	
4	2483.5000	18.57	34.41	52.98	54.00	-1.02	AVG	

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

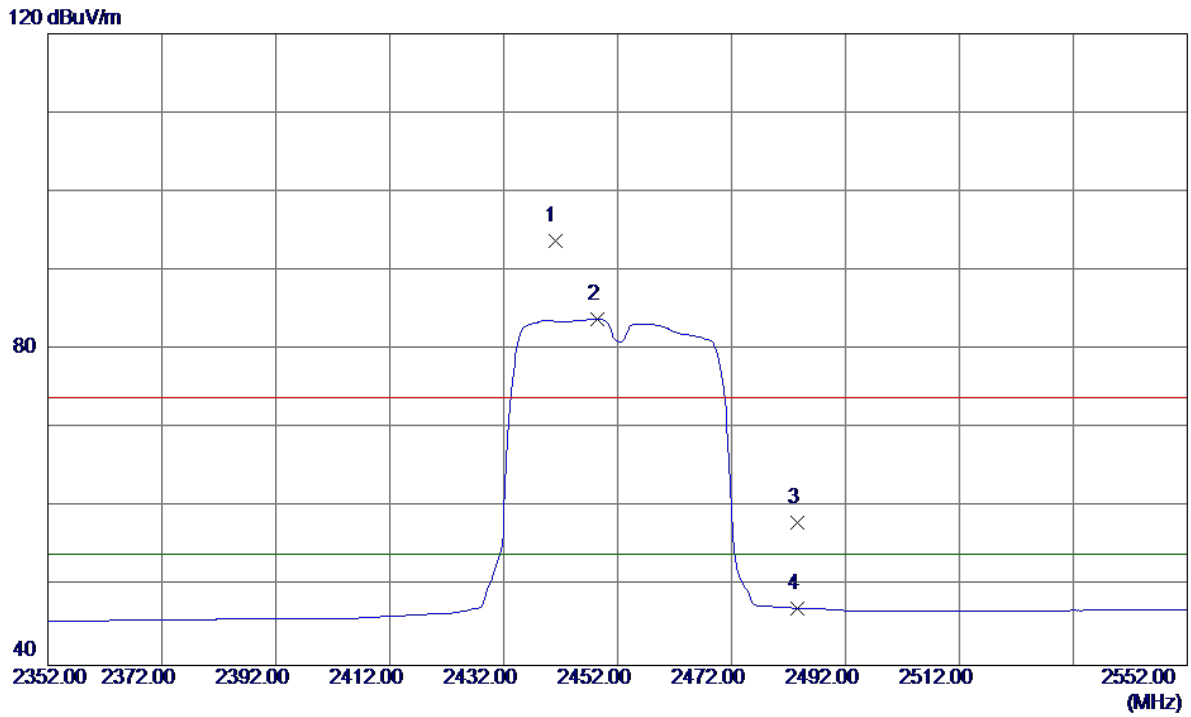
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4904.8490	40.87	5.85	46.72	74.00	-27.28	Peak	
2 *	4905.2470	31.05	5.85	36.90	54.00	-17.10	AVG	

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

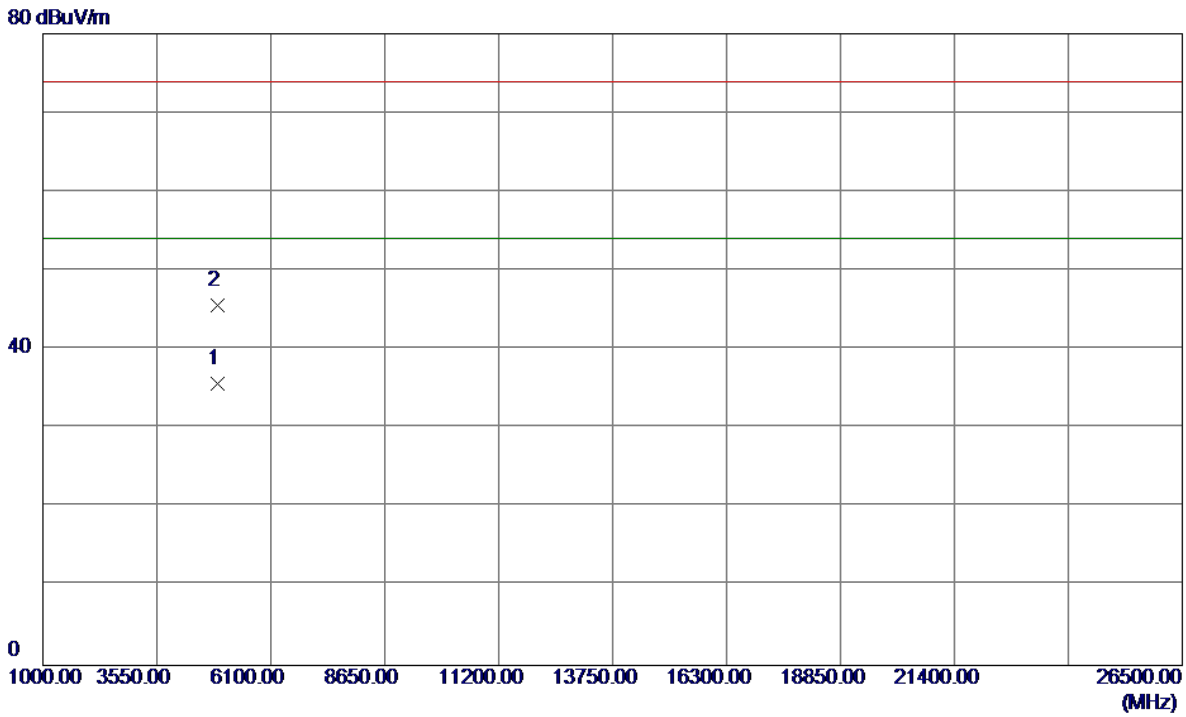
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2441.0000	59.53	34.17	93.70	74.00	19.70	Peak	No Limit
2 *	2448.4000	49.64	34.21	83.85	54.00	29.85	AVG	No Limit
3	2483.5000	23.64	34.41	58.05	74.00	-15.95	Peak	
4	2483.5000	12.84	34.41	47.25	54.00	-6.75	AVG	

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

Horizontal



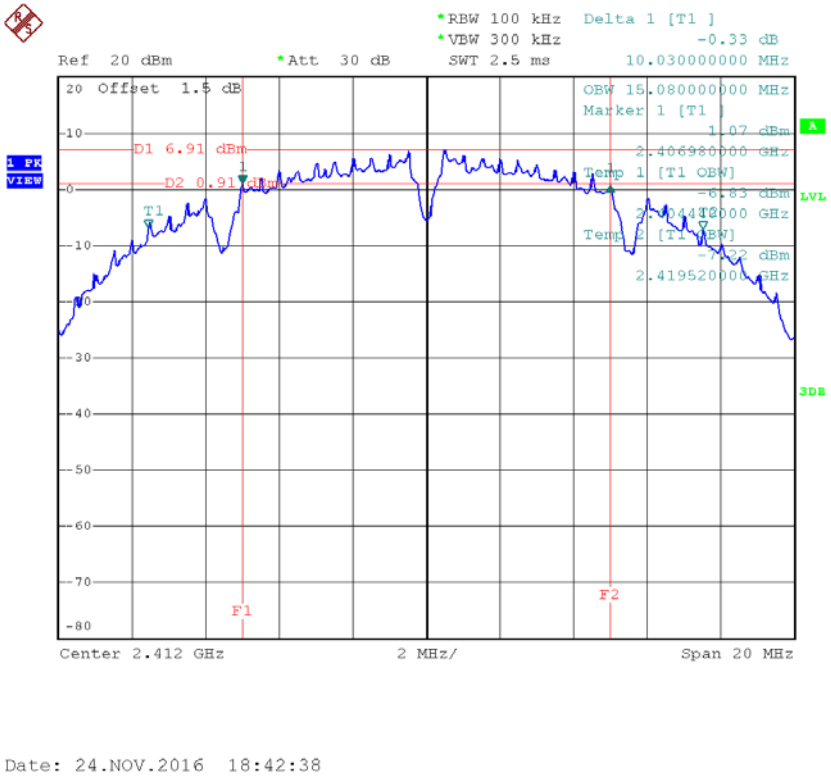
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4905.3889	29.87	5.85	35.72	54.00	-18.28	AVG	
2	4906.7610	39.76	5.86	45.62	74.00	-28.38	Peak	

ATTACHMENT E - BANDWIDTH

Test Mode : TX B Mode_CH01/06/11

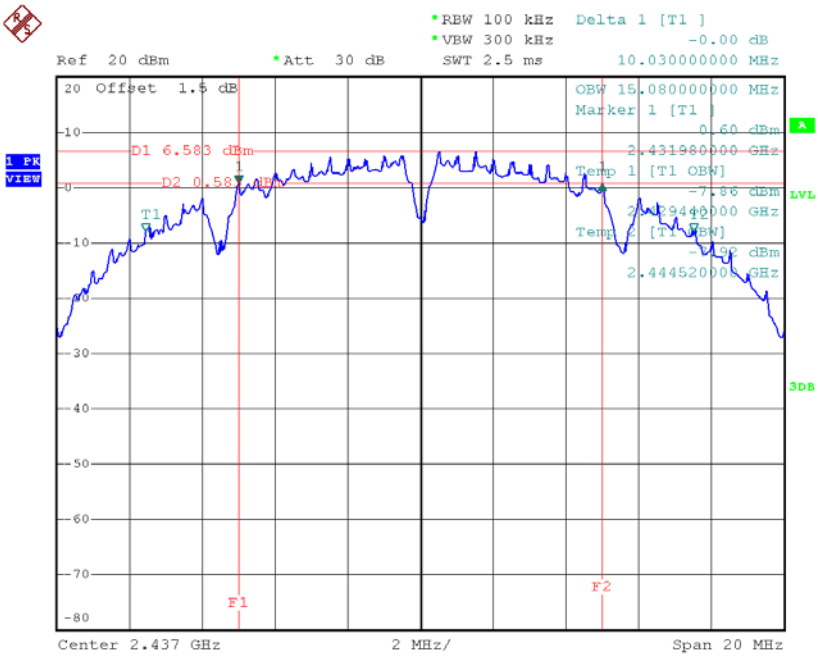
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	10.03	15.08	500	Complies
2437	10.03	15.08	500	Complies
2462	10.11	15.04	500	Complies

TX CH01



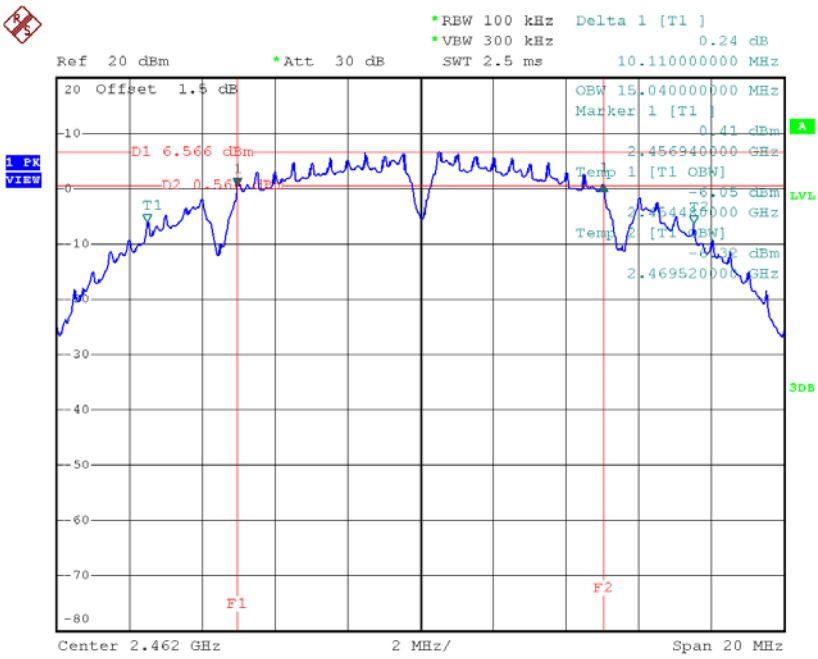
Date: 24.NOV.2016 18:42:38

TX CH06



Date: 24.NOV.2016 18:45:57

TX CH11

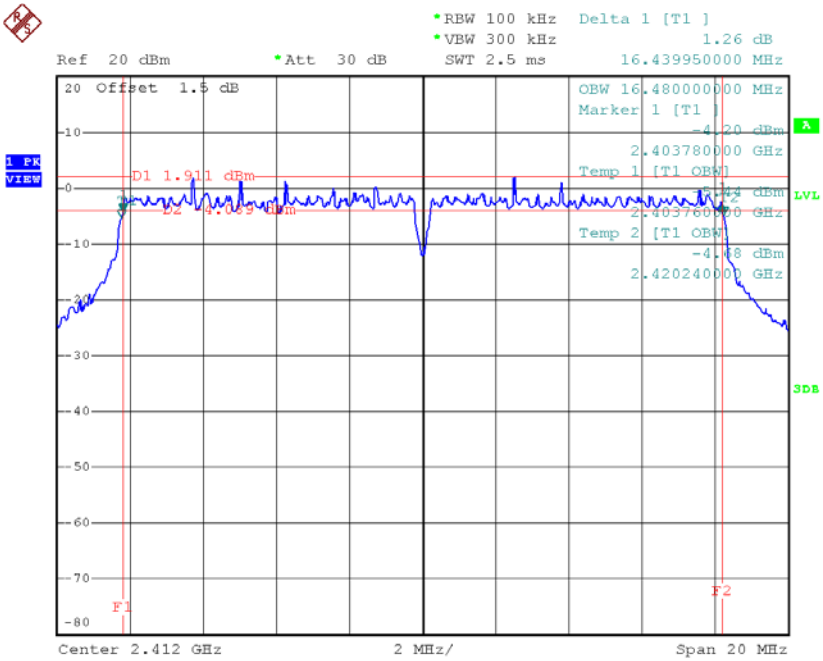


Date: 24.NOV.2016 18:49:25

Test Mode: TX G Mode_CH01/06/11

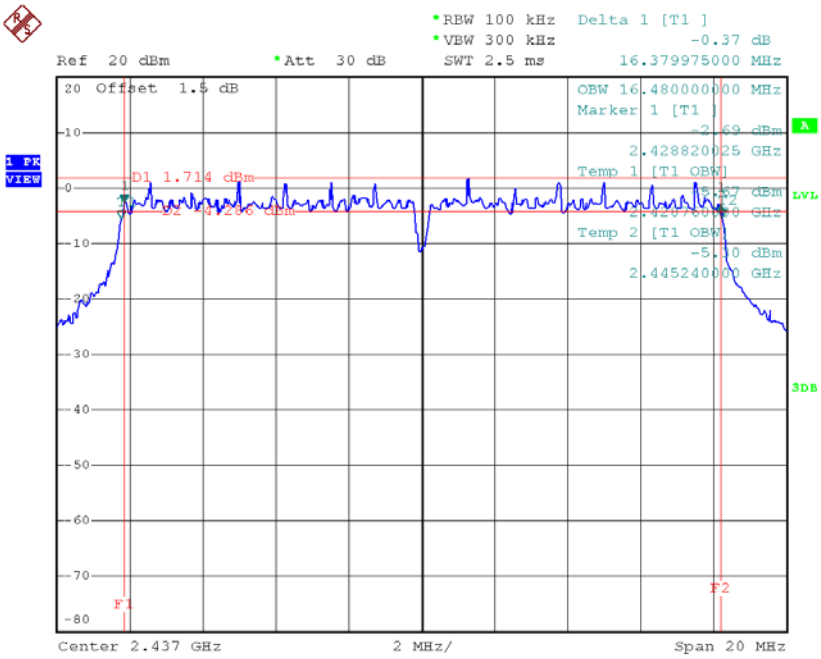
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	16.44	16.48	500	Complies
2437	16.38	16.48	500	Complies
2462	16.44	16.48	500	Complies

TX CH01



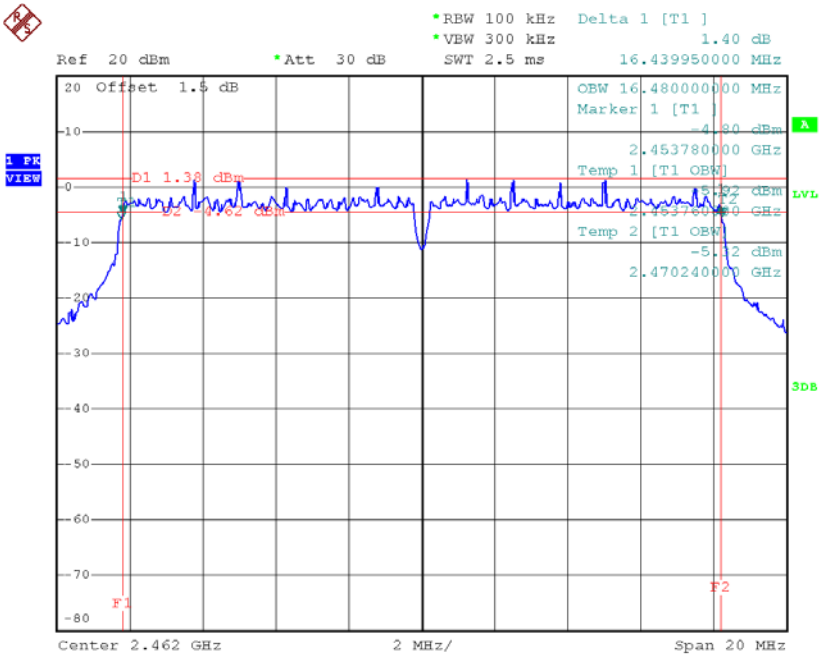
Date: 24.NOV.2016 18:52:38

TX CH06



Date: 24.NOV.2016 18:56:00

TX CH11

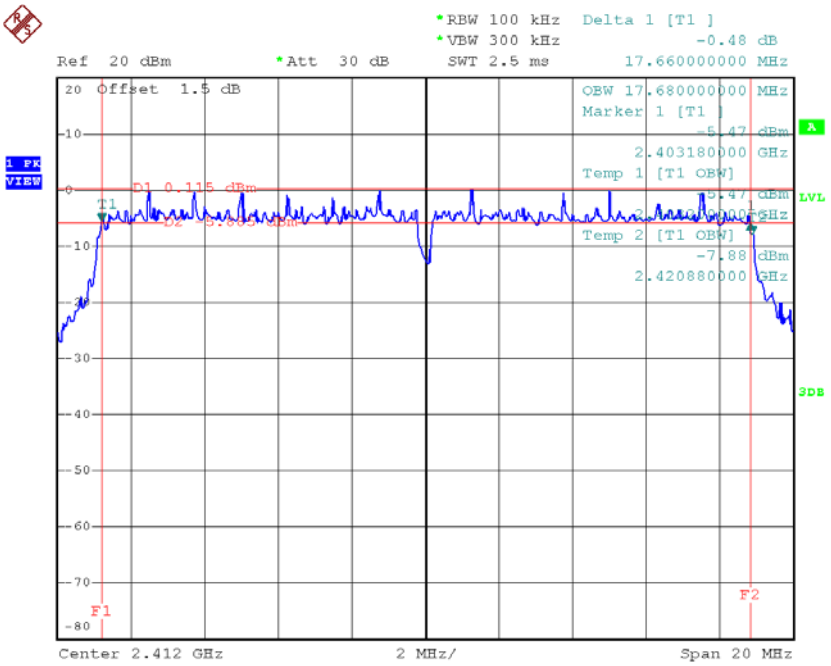


Date: 24.NOV.2016 18:58:44

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

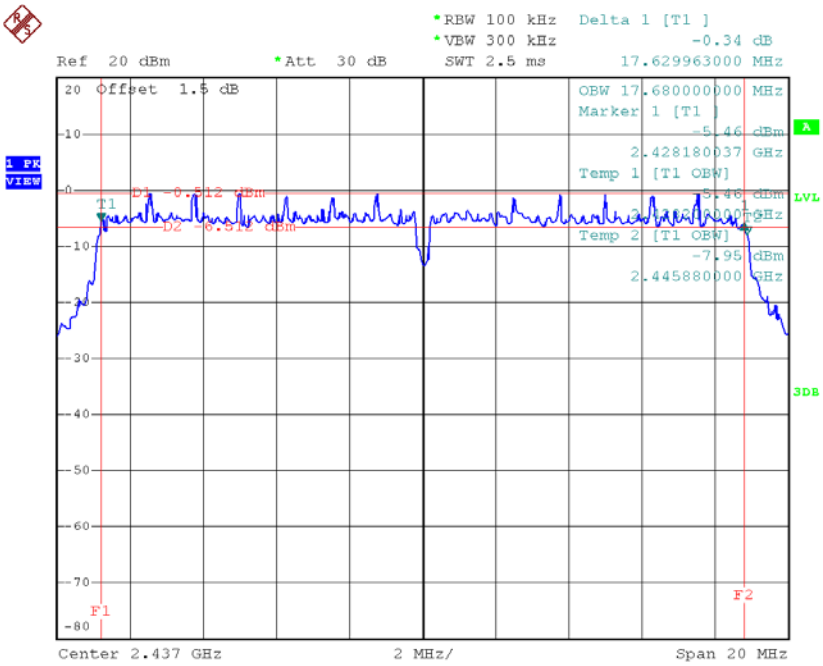
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	17.66	17.68	500	Complies
2437	17.63	17.68	500	Complies
2462	17.63	17.64	500	Complies

TX CH01



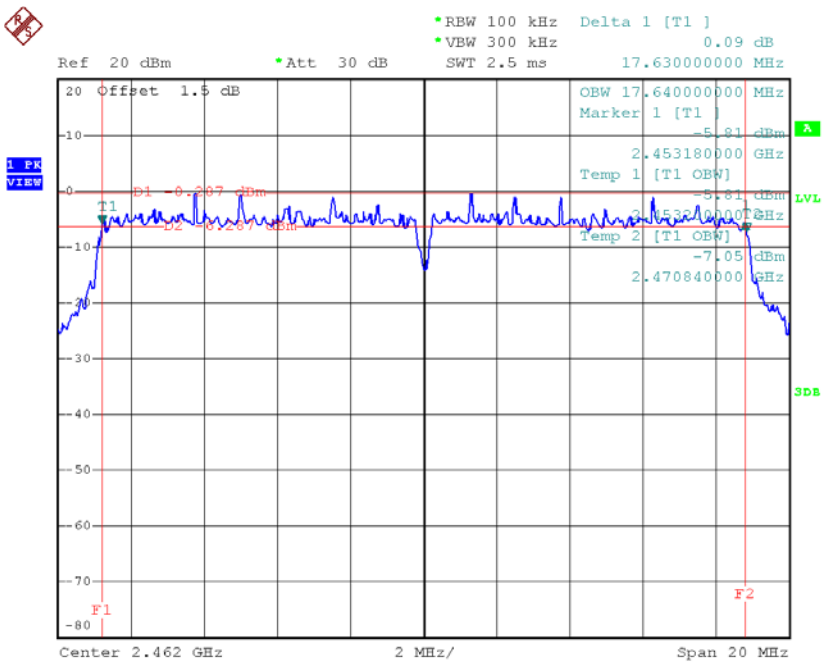
Date: 24.NOV.2016 19:04:25

TX CH06



Date: 24.NOV.2016 19:06:59

TX CH11

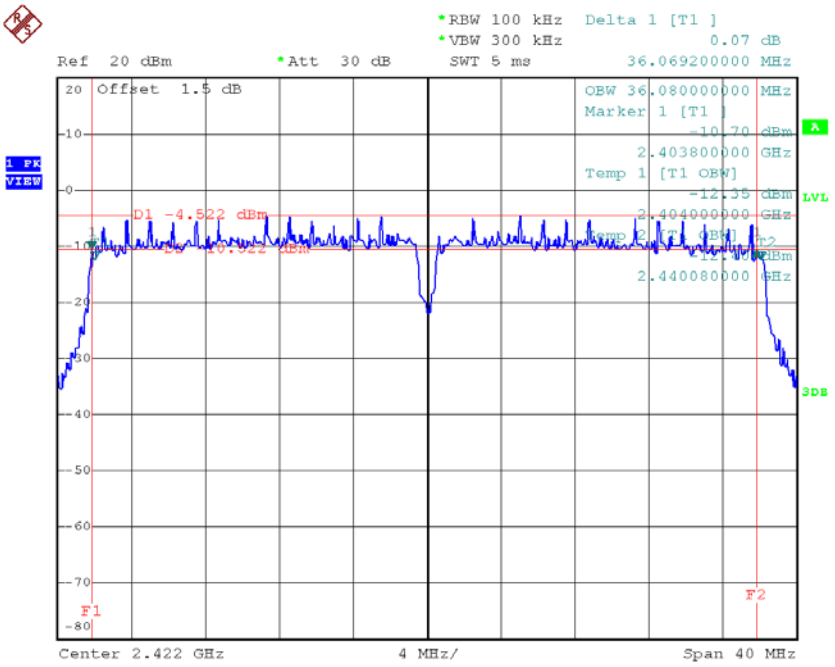


Date: 24.NOV.2016 19:08:55

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

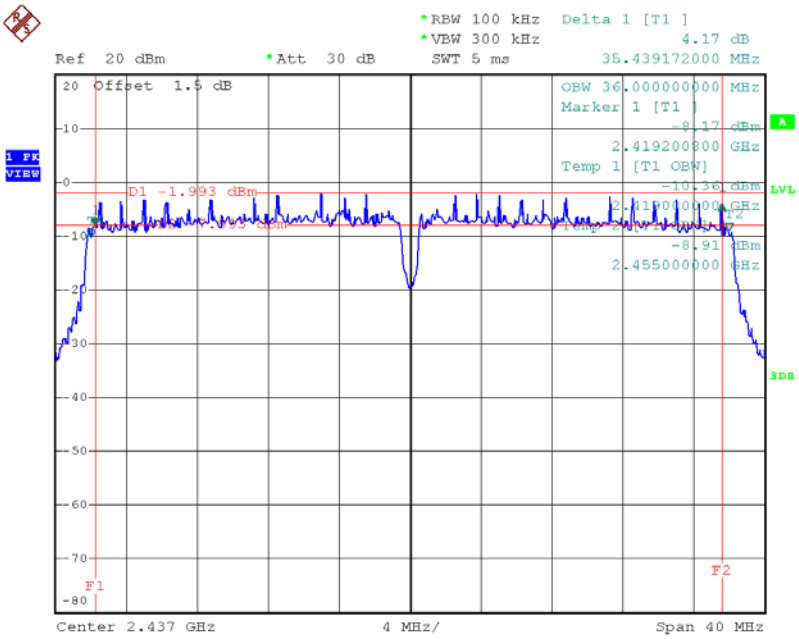
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2422	36.07	36.08	500	Complies
2437	35.44	36	500	Complies
2452	35.92	36.08	500	Complies

TX CH03



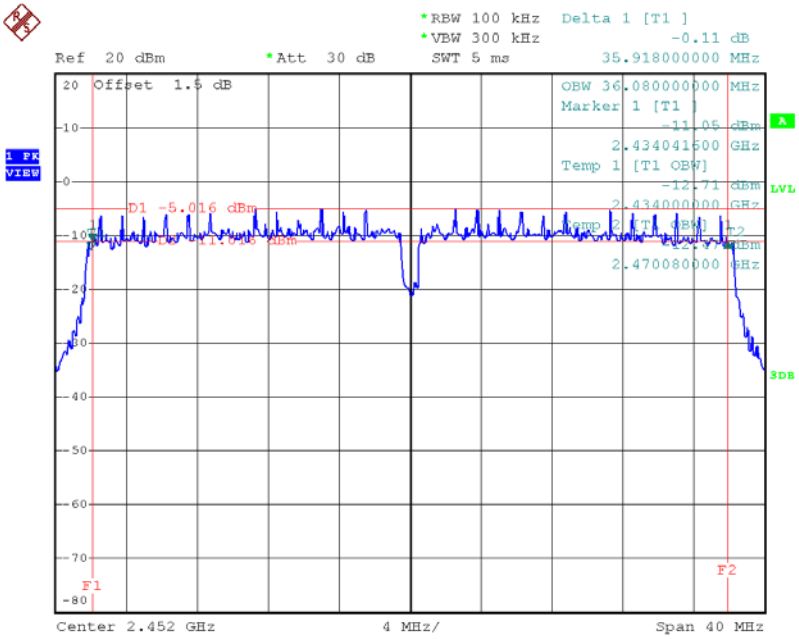
Date: 24.NOV.2016 19:18:11

TX CH06



Date: 24.NOV.2016 19:20:47

TX CH09



Date: 24.NOV.2016 19:24:57

ATTACHMENT 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	18.12	0.06	30.00	1.00	Complies
2437	18.03	0.06	30.00	1.00	Complies
2462	18.42	0.07	30.00	1.00	Complies

Test Mode :TX G Mode_CH01/06/11_ANT 1					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2412	15.38	0.03	30.00	1.00	Complies
2437	15.27	0.03	30.00	1.00	Complies
2462	15.19	0.03	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	13.77	0.02	30.00	1.00	Complies
2437	13.74	0.02	30.00	1.00	Complies
2462	13.86	0.02	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	13.42	0.02	30.00	1.00	Complies
2437	13.99	0.03	30.00	1.00	Complies
2462	13.97	0.02	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	16.61	0.05	30.00	1.00	Complies
2437	16.88	0.05	30.00	1.00	Complies
2462	16.93	0.05	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	11.45	0.01	30.00	1.00	Complies
2437	13.83	0.02	30.00	1.00	Complies
2452	10.68	0.01	30.00	1.00	Complies

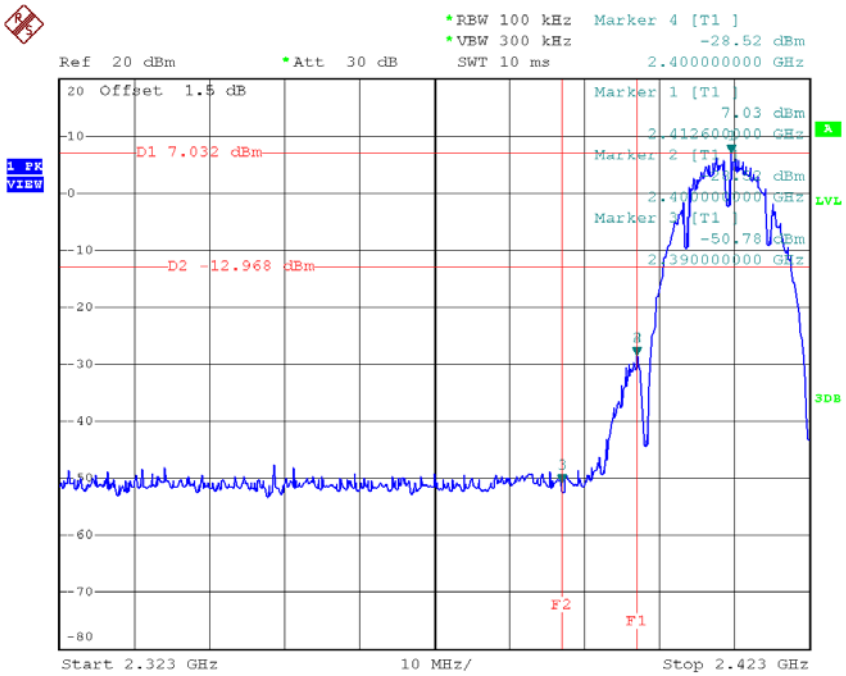
Test Mode :TX N40 Mode_CH03/06/09_ANT 2					
Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
2422	11.27	0.01	30.00	1.00	Complies
2437	13.87	0.02	30.00	1.00	Complies
2452	11.42	0.01	30.00	1.00	Complies

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	14.37	0.03	30.00	1.00	Complies
2437	16.86	0.05	30.00	1.00	Complies
2452	14.08	0.03	30.00	1.00	Complies

ATTACHMENT G - ANTENNA CONDUCTED SPURIOUS EMISSION

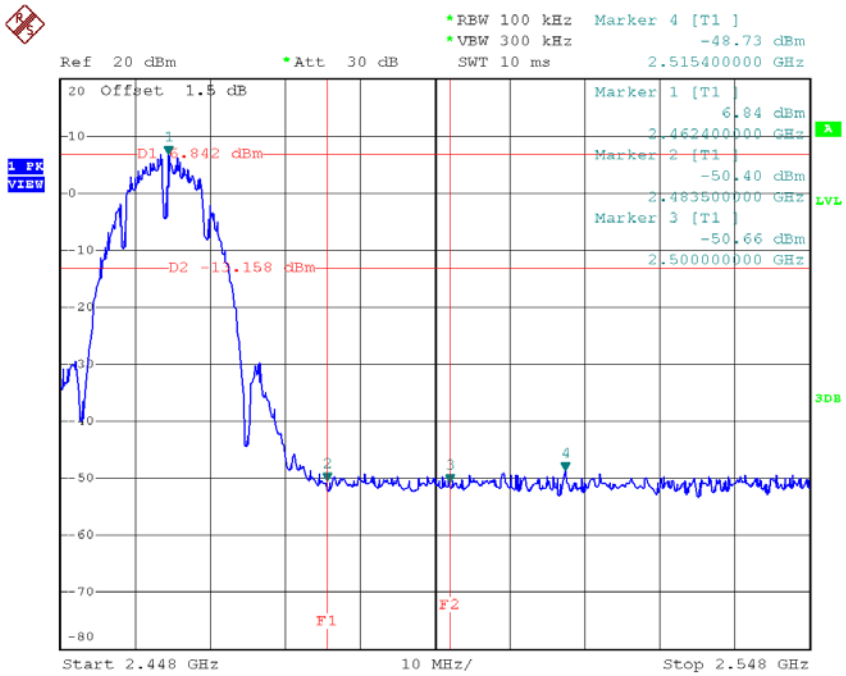
Test Mode :	TX B Mode

TX B mode CH01



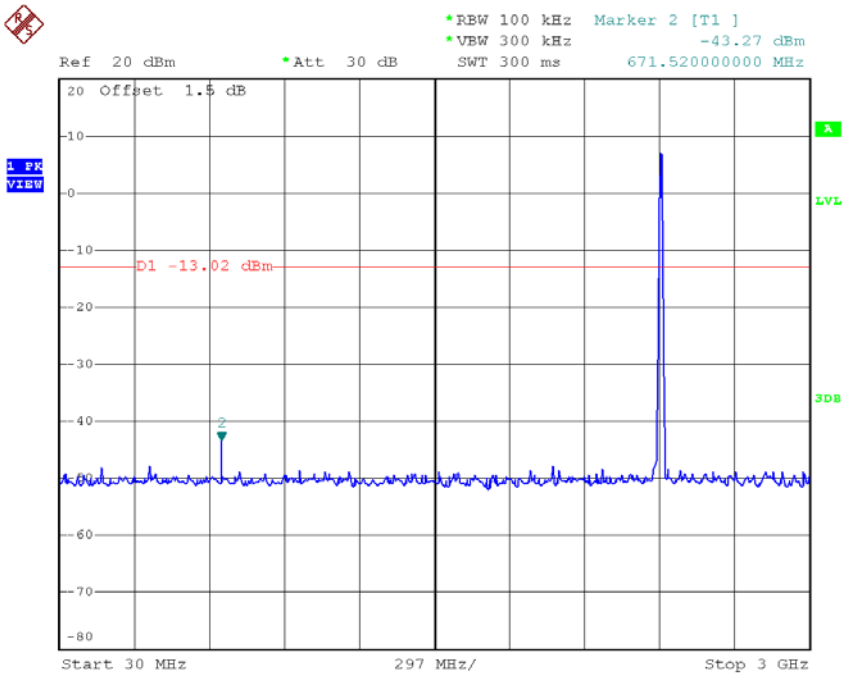
Date: 24.NOV.2016 18:43:16

TX B mode CH11

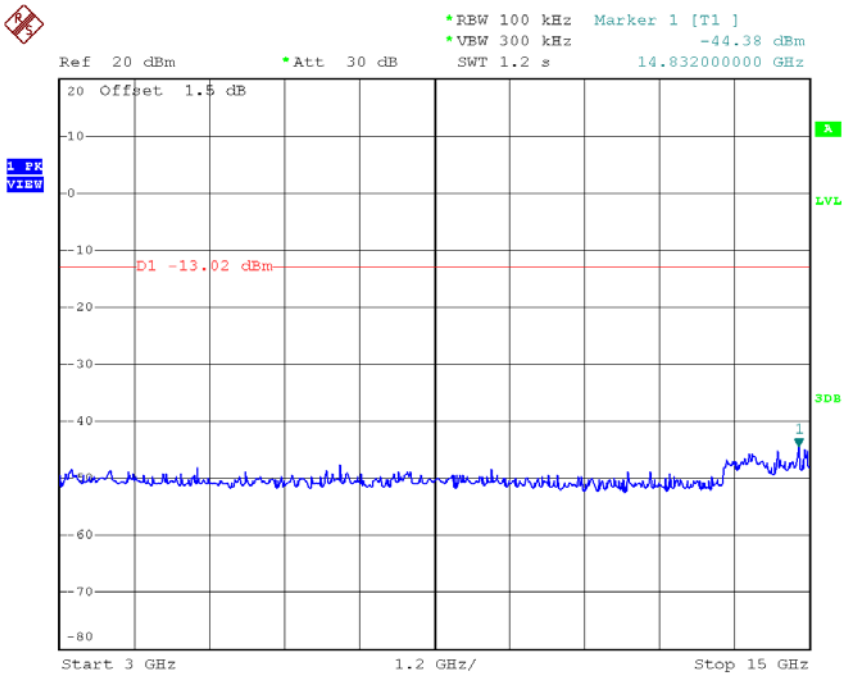


Date: 24.NOV.2016 18:50:04

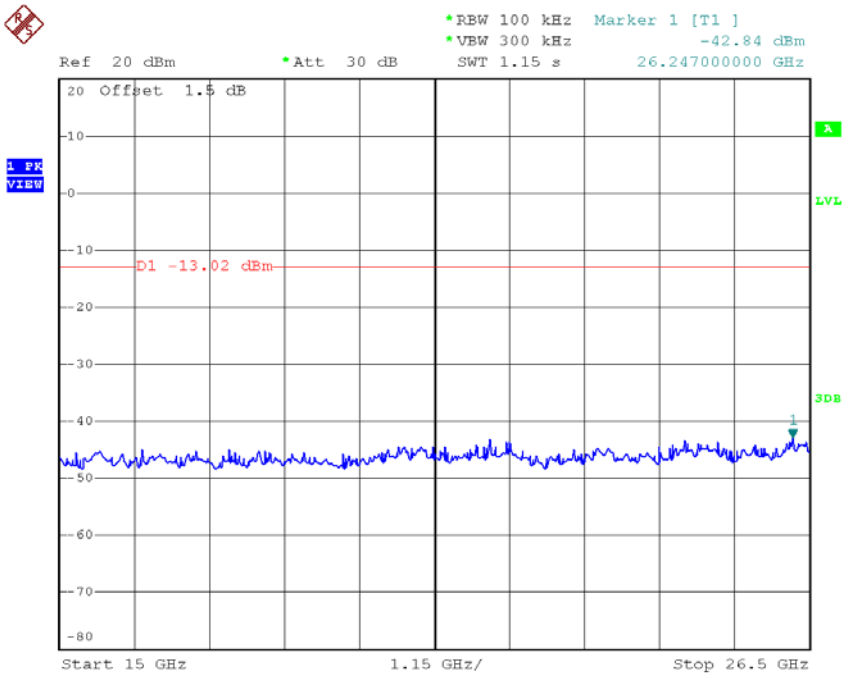
TX B mode CH01 (10 Harmonic of the frequency)



Date: 24.NOV.2016 18:42:52

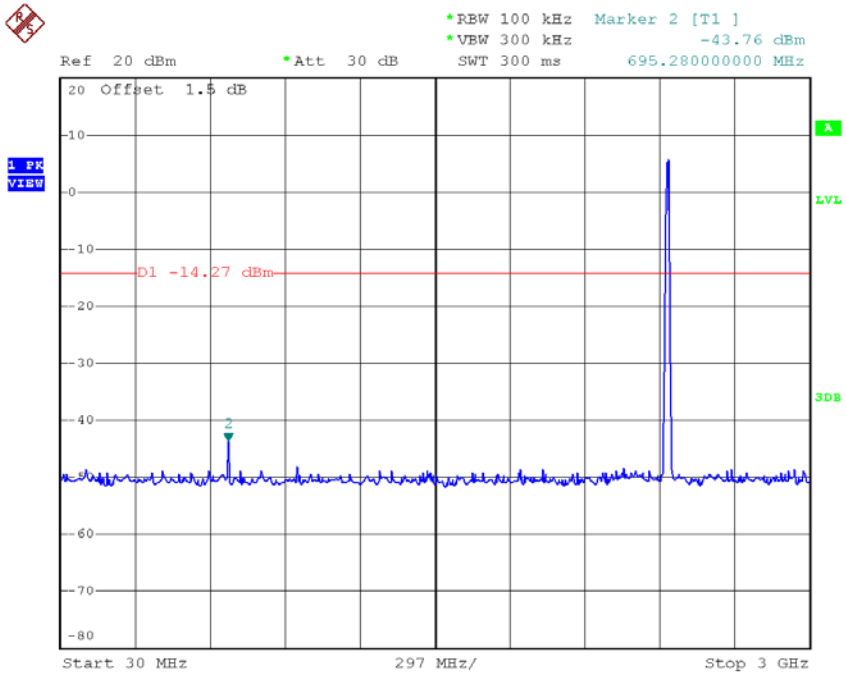


Date: 24.NOV.2016 18:43:00

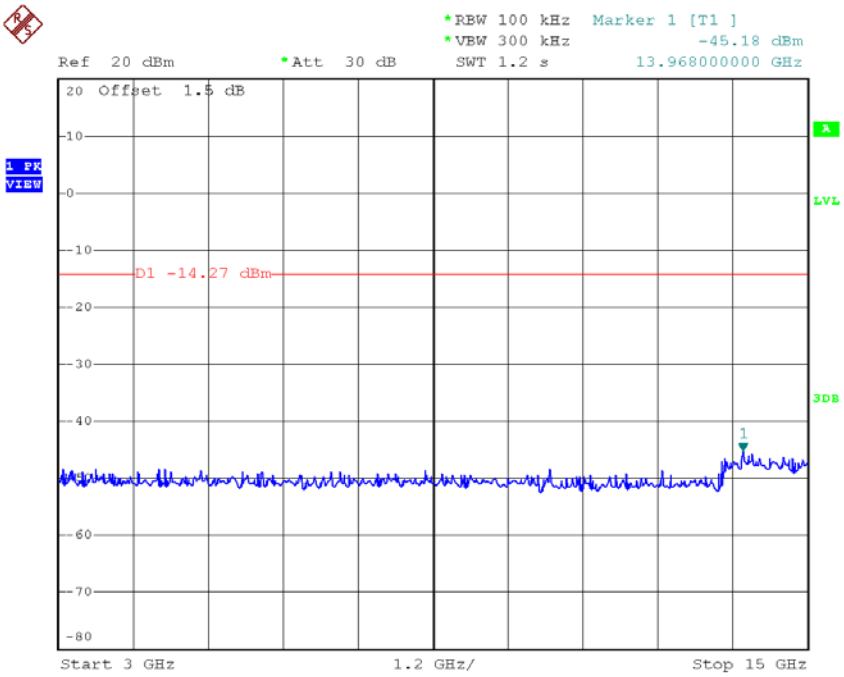


Date: 24.NOV.2016 18:43:09

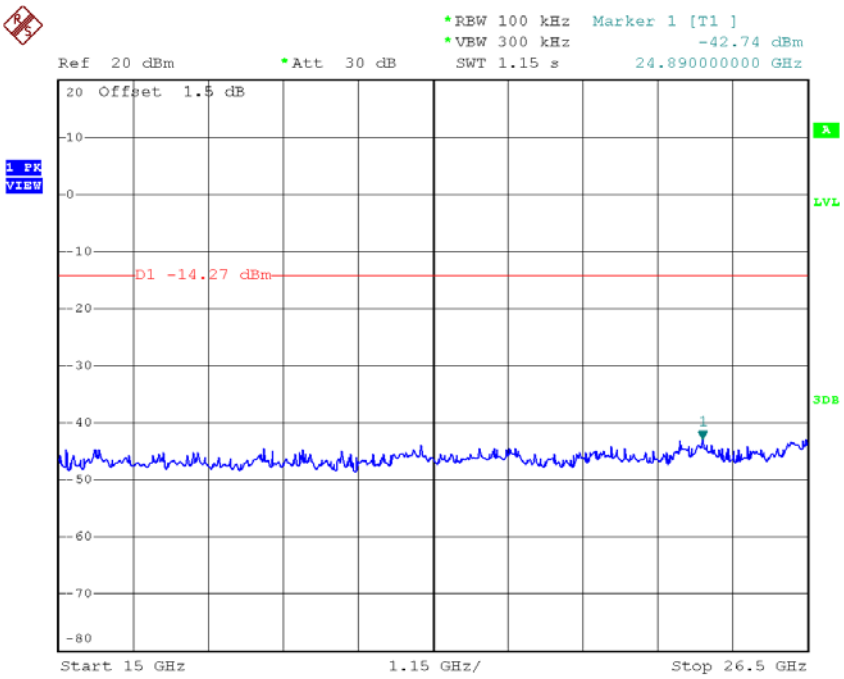
TX B mode CH06 (10 Harmonic of the frequency)



Date: 24.NOV.2016 18:46:11



Date: 24.NOV.2016 18:46:19



Date: 24.NOV.2016 18:46:28