

FCC Radio Test Report

FCC ID: TE7HS200V4

This report concerns: Original Grant

Project No. : 1902C021
Equipment : Smart Wi-Fi Light Switch
Test Model : HS200
Series Model : N/A
Applicant : TP-Link Technologies Co., Ltd.
Address : Building 24(floors1,3,4,5) and 28(floors1-4) Central
Science and Technology Park, Shennan Rd, Nanshan,
Shenzhen, China

Date of Receipt : Feb. 15, 2019
Date of Test : Feb. 18, 2019 ~ Mar. 06, 2019
Issued Date : Apr. 10, 2019
Tested by : BTL Inc.

Testing Engineer

:

Kai Xu

(Kai Xu)

Technical Manager

:

Steven Lu

(Steven Lu)

Authorized Signatory

:

Ethan Ma

(Ethan Ma)

B T L I N C .

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan,
Guangdong, China.

TEL: +86-769-8318-3000 FAX: +86-769-8319-6000



Certificate #5123.02

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, A2LA, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

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

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

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Table of Contents	Page
REPORT ISSUED HISTORY	6
1 . GENERAL SUMMARY	7
2 . SUMMARY OF TEST RESULTS	8
2.1 TEST FACILITY	9
2.2 MEASUREMENT UNCERTAINTY	9
3 . GENERAL INFORMATION	10
3.1 GENERAL DESCRIPTION OF EUT	10
3.2 DESCRIPTION OF TEST MODES	11
3.3 PARAMETERS OF TEST SOFTWARE	12
3.4 DUTY CYCLE	13
3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	14
3.6 SUPPORT UNITS	14
4 . AC POWER LINE CONDUCTED EMISSIONS TEST	15
4.1 LIMIT	15
4.2 TEST PROCEDURE	15
4.3 DEVIATION FROM TEST STANDARD	15
4.4 TEST SETUP	16
4.5 EUT OPERATION CONDITIONS	16
4.6 EUT TEST CONDITIONS	16
4.7 TEST RESULTS	16
5 . RADIATED EMISSIONS TEST	17
5.1 LIMIT	17
5.2 TEST PROCEDURE	18
5.3 DEVIATION FROM TEST STANDARD	18
5.4 TEST SETUP	19
5.5 EUT OPERATION CONDITIONS	20
5.6 EUT TEST CONDITIONS	20
5.7 TEST RESULTS - 9 KHZ TO 30 MHZ	20
5.8 TEST RESULTS - 30 MHZ TO 1000 MHZ	20
5.9 TEST RESULTS - ABOVE 1000 MHZ	20
6 . BANDWIDTH TEST	21
6.1 LIMIT	21

Table of Contents	Page
6.2 TEST PROCEDURE	21
6.3 DEVIATION FROM STANDARD	21
6.4 TEST SETUP	21
6.5 EUT OPERATION CONDITIONS	21
6.6 EUT TEST CONDITIONS	21
6.7 TEST RESULTS	21
7 . MAXIMUM AVERAGE OUTPUT POWER TEST	22
7.1 LIMIT	22
7.2 TEST PROCEDURE	22
7.3 DEVIATION FROM STANDARD	22
7.4 TEST SETUP	22
7.5 EUT OPERATION CONDITIONS	22
7.6 EUT TEST CONDITIONS	22
7.7 TEST RESULTS	22
8 . CONDUCTED SPURIOUS EMISSIONS	23
8.1 LIMIT	23
8.2 TEST PROCEDURE	23
8.3 DEVIATION FROM STANDARD	23
8.4 TEST SETUP	23
8.5 EUT OPERATION CONDITIONS	23
8.6 EUT TEST CONDITIONS	23
8.7 TEST RESULTS	23
9 . POWER SPECTRAL DENSITY TEST	24
9.1 LIMIT	24
9.2 TEST PROCEDURE	24
9.3 DEVIATION FROM STANDARD	24
9.4 TEST SETUP	24
9.5 EUT OPERATION CONDITIONS	24
9.6 EUT TEST CONDITIONS	24
9.7 TEST RESULTS	24
10 . MEASUREMENT INSTRUMENTS LIST	25
11 . EUT TEST PHOTO	27
APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS	31

Table of Contents

Page

APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ	34
APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ	39
APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ	42
APPENDIX E - BANDWIDTH	103
APPENDIX F - MAXIMUM AVERAGE OUTPUT POWER	107
APPENDIX G - CONDUCTED SPURIOUS EMISSIONS	109
APPENDIX H - POWER SPECTRAL DENSITY	113

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Mar. 29, 2019
R01	Revised report to address ACB's comments.	Apr. 10, 2019

1. GENERAL SUMMARY

Equipment : Smart Wi-Fi Light Switch
Brand Name : tp-link
Test Model : HS200
Series Model : N/A
Applicant : TP-Link Technologies Co., Ltd.
Manufacturer : TP-Link Technologies Co., Ltd.
Address : Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Date of Test : Feb. 18, 2019 ~ Mar. 06, 2019
Test Sample : Engineering Sample No.: D190201340 for conducted, D190201339 for radiated.
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-1-1902C021) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 17025 quality assessment standard and technical standard(s).

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

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): FCC Part15 (15.247) , Subpart C				
Standard(s) Section	Test Item	Test Result	Judgment	Remark
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS	-----
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	-----
15.247(a)(2)	Bandwidth	APPENDIX E	PASS	-----
15.247(b)(3)	Maximum Average Output Power	APPENDIX F	PASS	-----
15.247(d)	Conducted Spurious Emissions	APPENDIX G	PASS	-----
15.247(e)	Power Spectral Density	APPENDIX H	PASS	-----
15.203	Antenna Requirement	-----	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 Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

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

B. Radiated emissions test:

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

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Wi-Fi Light Switch
Brand Name	tp-link
Test Model	HS200
Series Model	N/A
Model Difference(s)	N/A
Power Source	AC Mains.
Power Rating	100-120V~ 60Hz 15A
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 72.2 Mbps
Maximum Average Output Power	IEEE 802.11b: 20.91 dBm (0.1233 W) IEEE 802.11g: 20.75 dBm (0.1189 W) IEEE 802.11n (HT20): 20.72 dBm (0.1180 W)

Note:

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

2. Channel List:

CH01 - CH11 for 802.11b, 802.11g, 802.11n(20 MHz)							
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. Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-LINK®	6035500079	Internal	N/A	2.79

3.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N-20 MHz Mode Channel 01/06/11
Mode 4	TX B Mode Channel 06
Mode 5	TX B Mode Channel 01/02/06/10/11
Mode 6	TX G Mode Channel 01/02/06/10/11
Mode 7	TX N-20 MHz Mode Channel 01/02/06/10/11

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Final Test Mode:	Description
Mode 4	TX B Mode Channel 06

Radiated emissions test – Below 1G	
Final Test Mode:	Description
Mode 4	TX B Mode Channel 06

Radiated emissions test – Above 1G	
Final Test Mode:	Description
Mode 5	TX B Mode Channel 01/02/06/10/11
Mode 6	TX G Mode Channel 01/02/06/10/11
Mode 7	TX N-20 MHz Mode Channel 01/02/06/10/11

Band edge test	
Final Test Mode:	Description
Mode 5	TX B Mode Channel 01/02/06/10/11
Mode 6	TX G Mode Channel 01/02/06/10/11
Mode 7	TX N-20 MHz Mode Channel 01/02/06/10/11

Conducted test	
Final Test Mode:	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N-20 MHz Mode Channel 01/06/11

NOTE:

- (1) The measurements are performed at the high, middle, low available channels.
- (2) 802.11b mode: DBPSK (1 Mbps)
802.11g mode: OFDM (6 Mbps)
802.11n HT20 mode : BPSK (6.5 Mbps)
For radiated emission tests, the highest output powers were set for final test.
- (3) For radiated emission below 1 GHz test, the IEEE 802.11b is found to be the worst case and recorded.
- (4) For radiated emission above 1 GHz test, 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

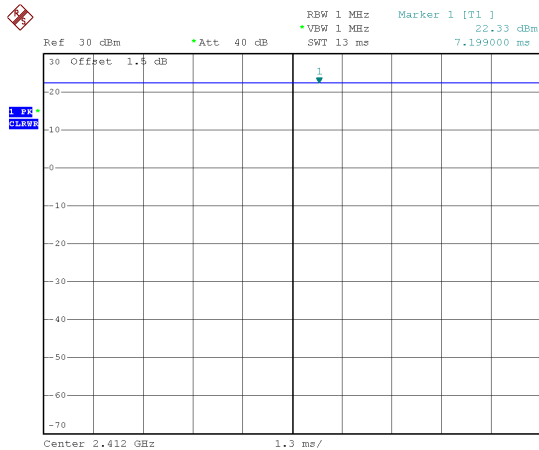
3.3 PARAMETERS OF TEST SOFTWARE

Test Software	WiFi_QA_Tool_v3.2.0		
Test Frequency (MHz)	2412	2437	2462
IEEE 802.11b	1B	1E	20
IEEE 802.11g	18	24	26
IEEE 802.11n (HT20)	1A	26	28

3.4 DUTY CYCLE

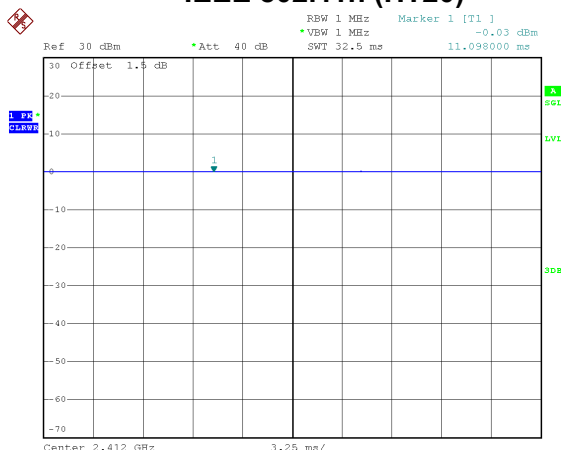
If duty cycle is $\geq 98\%$, duty factor is not required.
If duty cycle is $< 98\%$, duty factor shall be considered.

IEEE 802.11b



Date: 6.MAR.2019 17:02:07

Duty cycle = 1.000 ms / 1.000 ms = 100.00%
IEEE 802.11n (HT20)



Date: 6.MAR.2019 17:04:00

Duty cycle = 1.000 ms / 1.000 ms = 100.00%

NOTE:

For IEEE 802.11b:

Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.00$, the output power = measured power + duty factor.

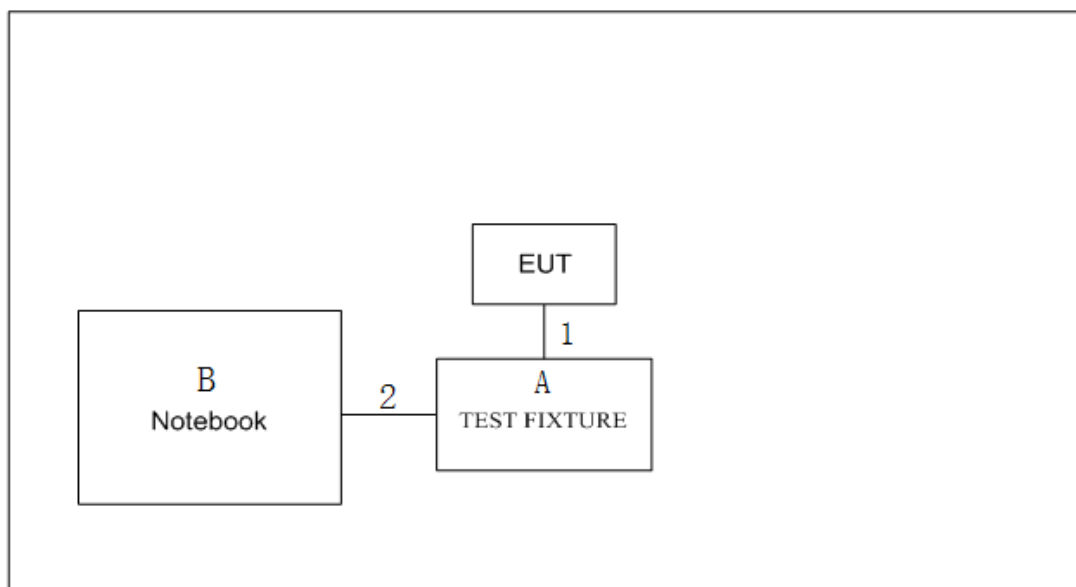
For IEEE 802.11g:

Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.00$, the output power = measured power + duty factor.

For IEEE IEEE 802.11n (HT20):

Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.00$, the output power = measured power + duty factor.

3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.6 SUPPORT UNITS

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	TEST FIXTURE	N/A	N/A	N/A
B	Notebook	Dell	Inspiron 15-7559	N/A

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	0.1m	Data Cable
2	NO	NO	04m	USB Cable

4. AC POWER LINE CONDUCTED EMISSIONS TEST

4.1 LIMIT

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

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) 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
 Sample calculations: (Refer to page 37, test result No.5.)

Reading Level		Correct Factor		Measurement Value
24.21	+	10.21	=	34.42

Measurement Value		Limit Value		Margin Level
34.42	-	46.00	=	-11.58

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

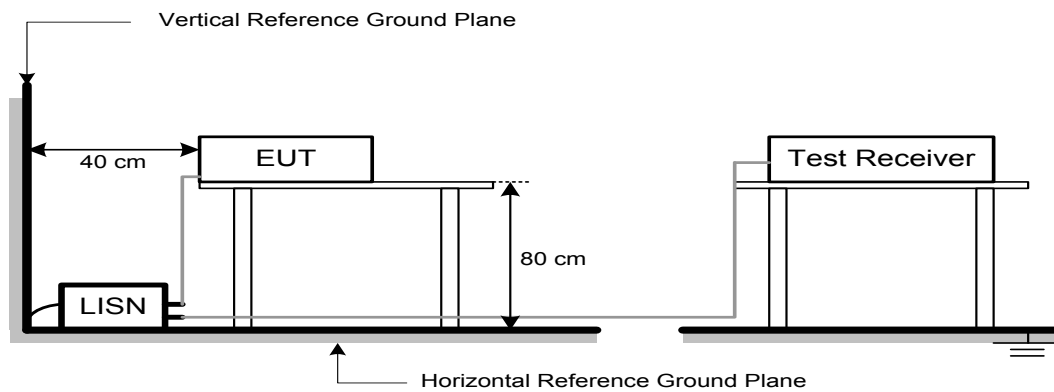
4.2 TEST PROCEDURE

- 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.

4.3 DEVIATION FROM TEST STANDARD

No deviation

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

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

4.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 43% Test Voltage: AC 120V/60Hz

4.7 TEST RESULTS

Please refer to the APPENDIX A.

5. RADIATED EMISSIONS TEST

5.1 LIMIT

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

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

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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

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

NOTE:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)

Margin Level = Measurement Value - Limit Value

Sample calculations: (Refer to page 44, test result No.3.)

Reading Level		Correct Factor		Measurement Value
44.05	+	-7.54	=	36.51

Measurement Value		Limit Value		Margin Level
36.51	-	46.00	=	-9.49

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

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

5.2 TEST PROCEDURE

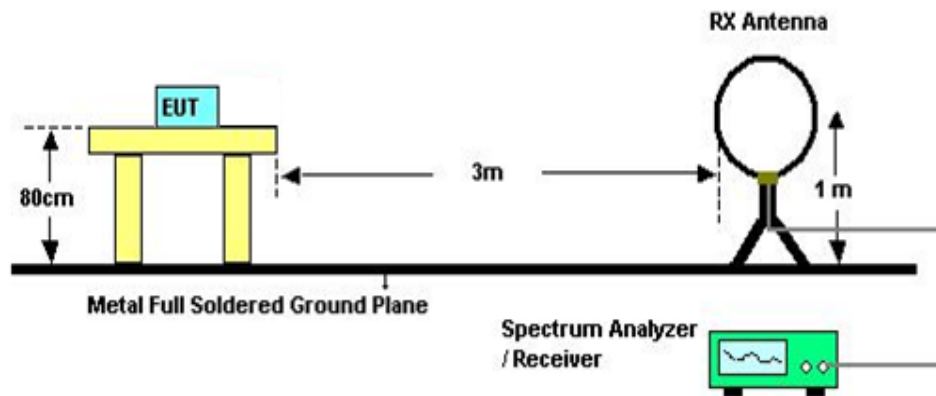
- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1 GHz)
- The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1 GHz)
- All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- For the actual test configuration, please refer to the related Item -EUT Test Photos.

5.3 DEVIATION FROM TEST STANDARD

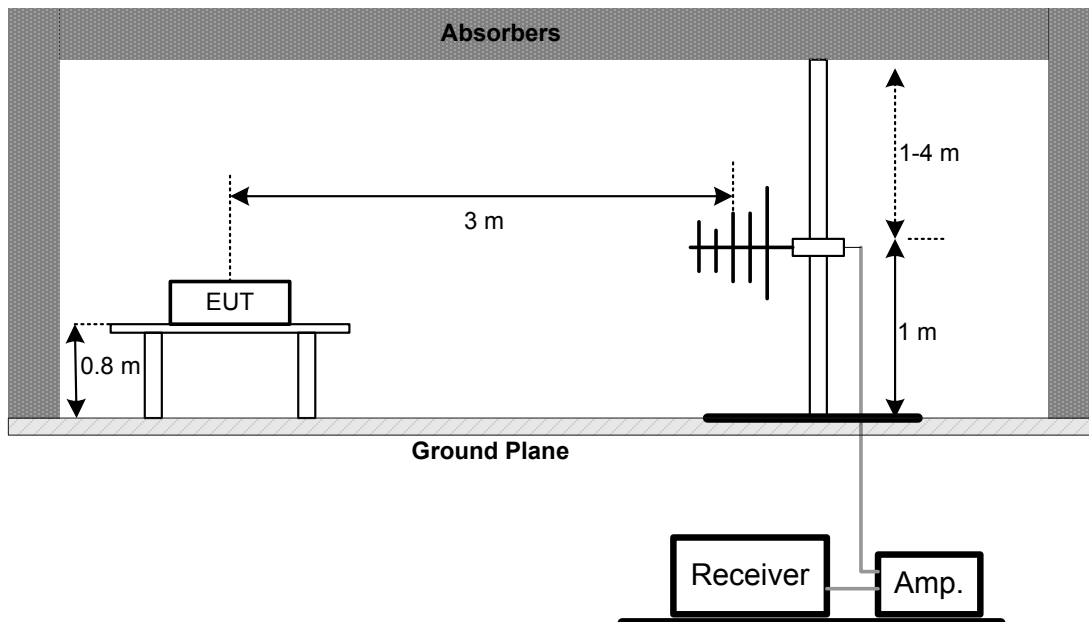
No deviation

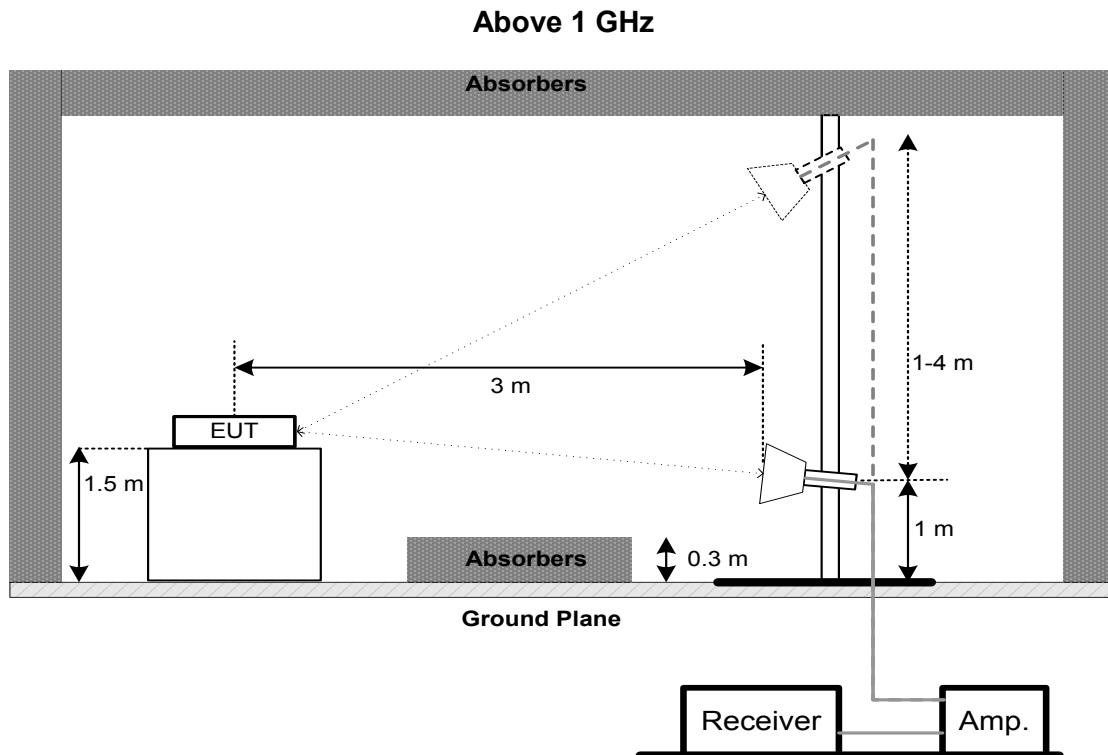
5.4 TEST SETUP

9 kHz-30 MHz



30 MHz to 1 GHz





5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 EUT TEST CONDITIONS

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

5.7 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B

Remark:

- (1) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

5.8 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

5.9 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

Remark:

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

6. BANDWIDTH TEST

6.1 LIMIT

FCC Part15 (15.247) , Subpart C		
Section	Test Item	Limit
15.247(a)(2)	6 dB Bandwidth	Minimum 500 kHz
	99% Emission Bandwidth	-

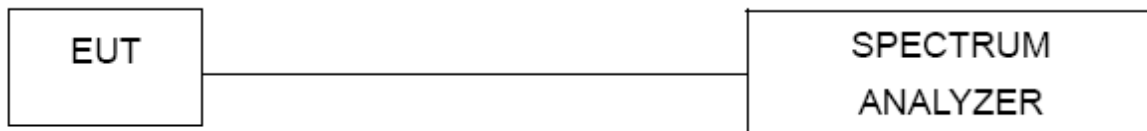
6.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW= 100 kHz, VBW=300 kHz, Sweep time = 2.5 ms.
- The bandwidth was performed in accordance with method 11.8 of ANSI C63.10-2013.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 43% Test Voltage: AC 120V/60Hz

6.7 TEST RESULTS

Please refer to the APPENDIX E.

7. MAXIMUM AVERAGE OUTPUT POWER TEST

7.1 LIMIT

FCC Part15 (15.247) , Subpart C		
Section	Test Item	Limit
15.247(b)(3)	Maximum Average Output Power	1 Watt or 30dBm

7.2 TEST PROCEDURE

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.2.3 of ANSI C63.10-2013.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 43% Test Voltage: AC 120V/60Hz

7.7 TEST RESULTS

Please refer to the APPENDIX F.

8. CONDUCTED SPURIOUS EMISSIONS

8.1 LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

8.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW= 100 kHz, VBW=300 kHz, Sweep time = Auto.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 43% Test Voltage: AC 120V/60Hz

8.7 TEST RESULTS

Please refer to the APPENDIX G.

9. POWER SPECTRAL DENSITY TEST

9.1 LIMIT

FCC Part15 (15.247) , Subpart C		
Section	Test Item	Limit
15.247(e)	Power Spectral Density	8 dBm (in any 3 kHz)

9.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW=3 kHz, VBW=10 kHz, Sweep time = Auto.
- The Power Spectral Density was performed in accordance with method 11.10.2 of ANSI C63.10-2013.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



9.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

9.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 43% Test Voltage: AC 120V/60Hz

9.7 TEST RESULTS

Please refer to the APPENDIX H.

10. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 11, 2019
2	LISN	EMCO	3816/2	52765	Mar. 11, 2019
3	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 11, 2019
4	TWO-LINE V-NETWORK	R&S	ENV216	101447	Mar. 11, 2019
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 23, 2019

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Loop Antenna	EM	EM-6876-1	230	Jan. 15, 2020
2	Cable	N/A	RG 213/U	C-102	Jun. 01, 2019
3	EMI Test Receiver	R&S	ESCI	100382	Mar. 11, 2019
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 11, 2019
2	Amplifier	HP	8447D	2944A09673	Aug. 11, 2019
3	Receiver	Agilent	N9038A	MY52130039	Aug. 11, 2019
4	Cable	emci	LMR-400(30MHz-1GHz)(8m+5m)	N/A	May 25, 2019
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

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

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

Average Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	P-series power meter	Agilent	N1911A	MY45100473	Aug. 11, 2019
2	wideband power sensor	Agilent	N1921A	MY51100041	Aug. 11, 2019

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

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

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

11. EUT TEST PHOTO

AC Power Line Conducted Emissions Test Photos



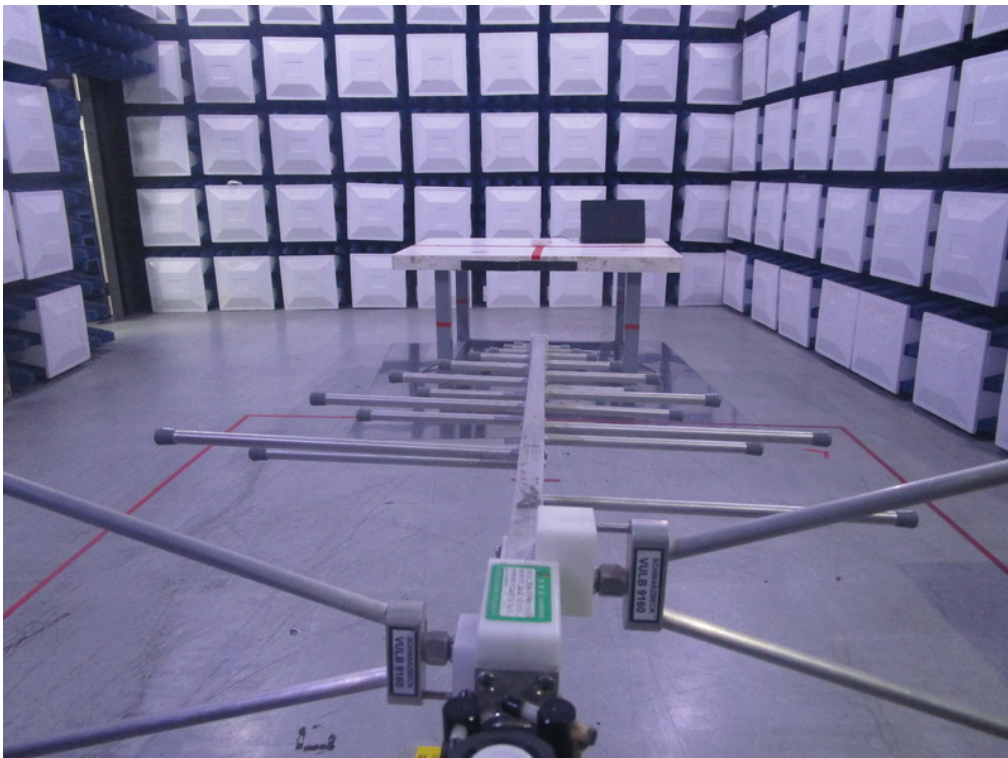
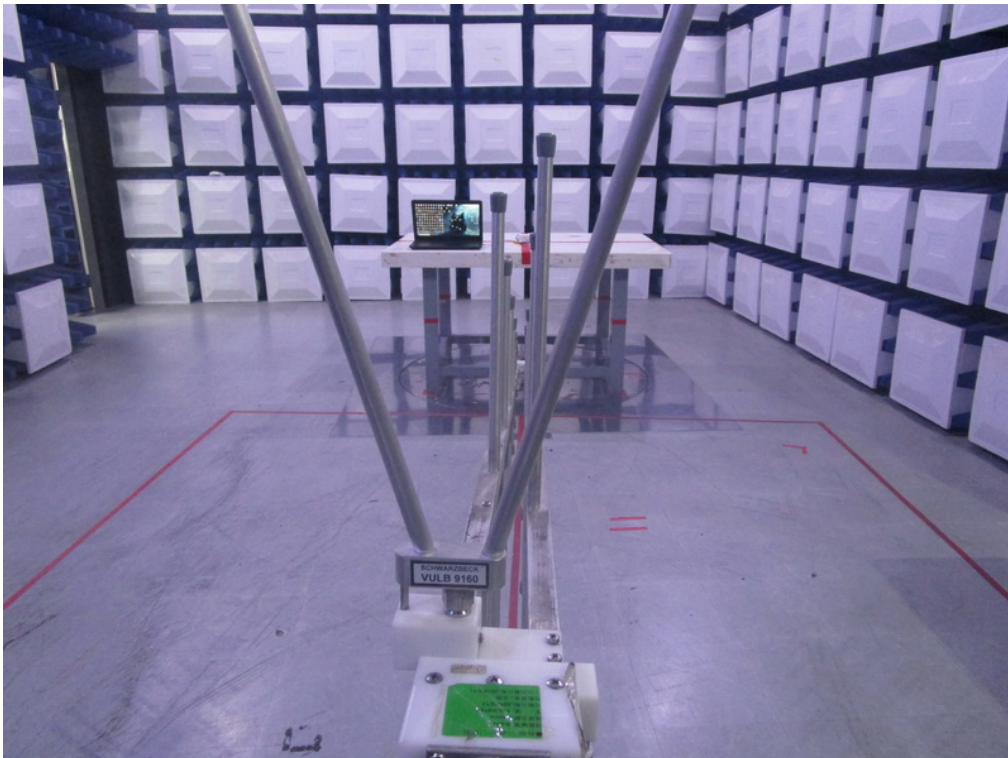
Radiated Emissions Test Photos

9 kHz to 30 MHz



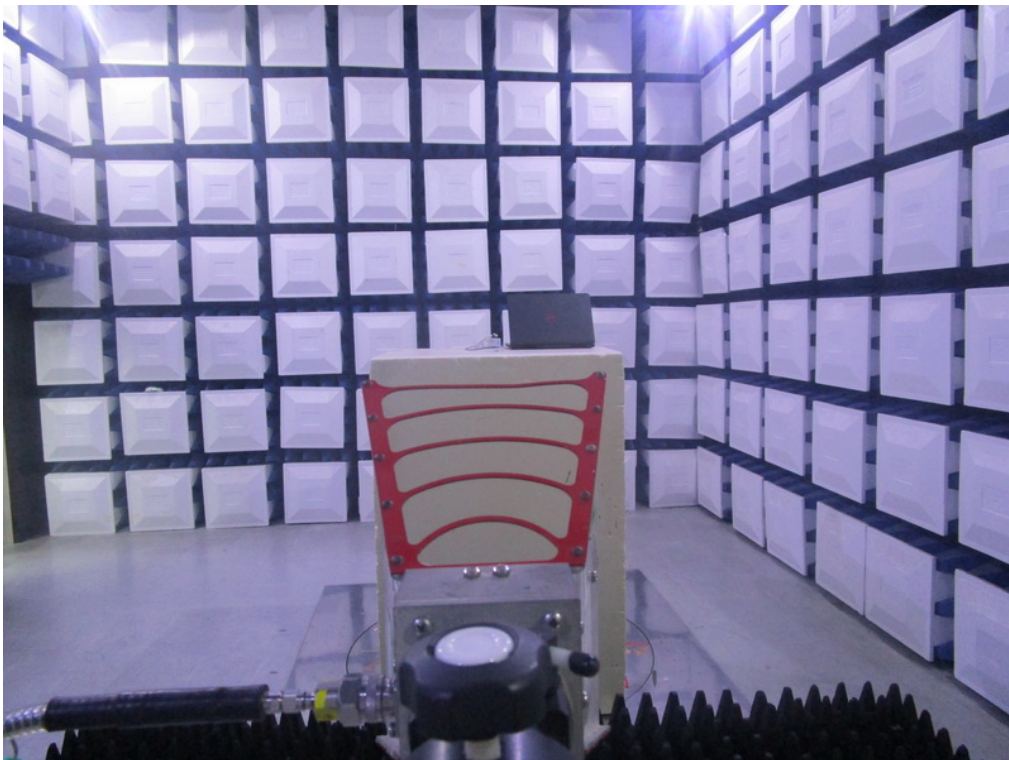
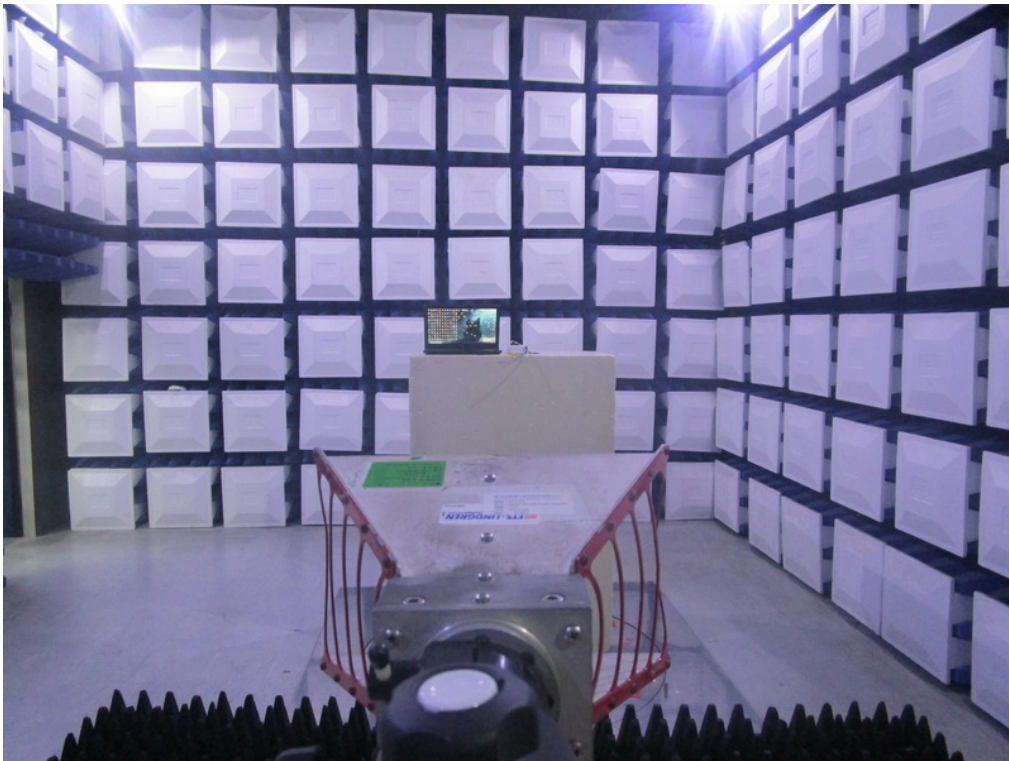
Radiated Emissions Test Photos

30 MHz to 1 GHz



Radiated Emissions Test Photos

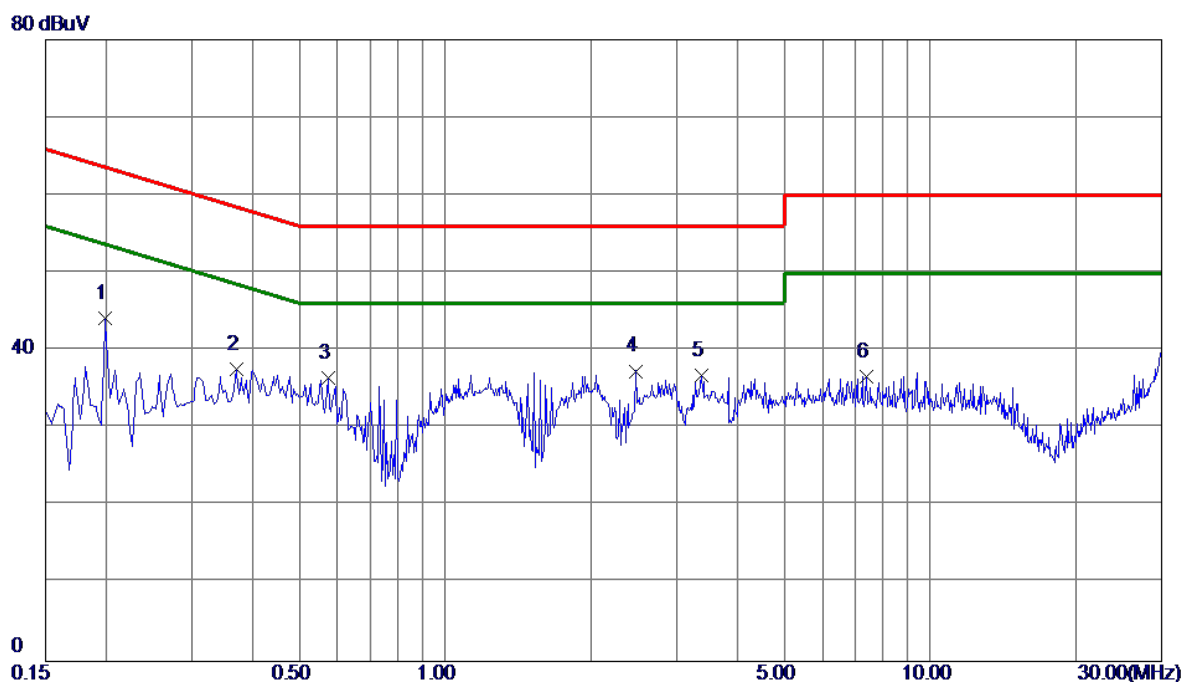
Above 1 GHz



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode: TX B MODE CHANNEL 06

Line



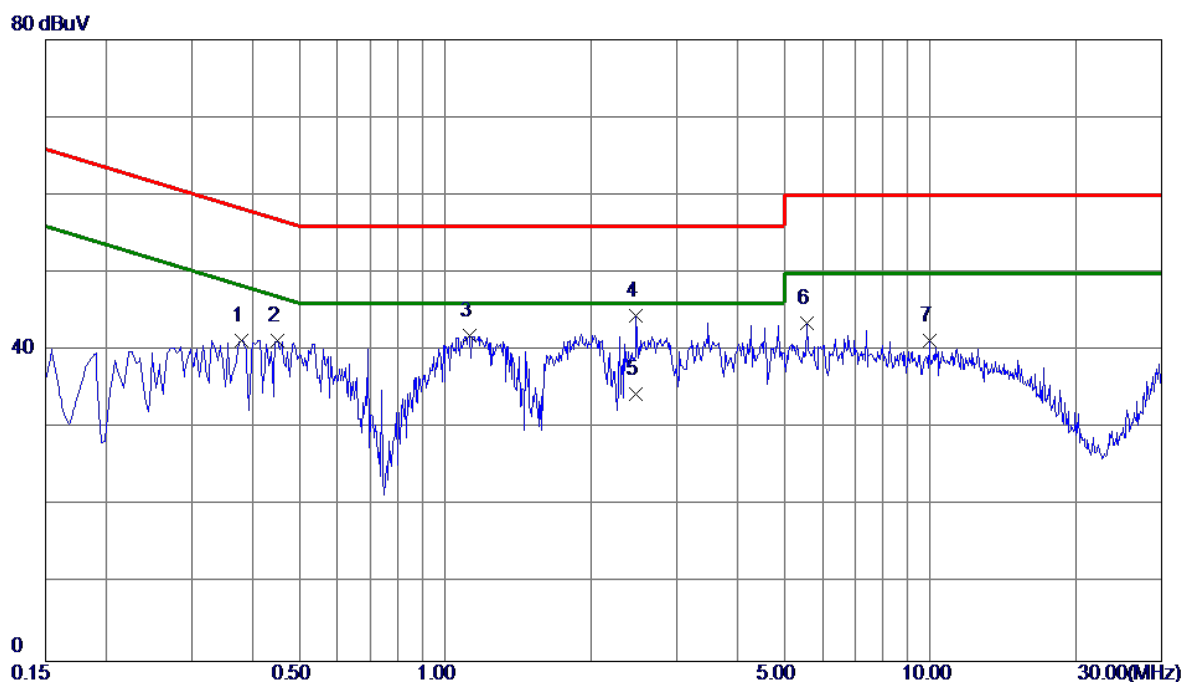
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1995	34.30	9.82	44.12	63.63	-19.51	Peak	
2	0.3704	27.79	9.81	37.60	58.49	-20.89	Peak	
3	0.5730	26.73	9.82	36.55	56.00	-19.45	Peak	
4 *	2.4675	27.34	10.02	37.36	56.00	-18.64	Peak	
5	3.3675	26.76	10.08	36.84	56.00	-19.16	Peak	
6	7.3770	26.29	10.35	36.64	60.00	-23.36	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX B MODE CHANNEL 06

Neutral



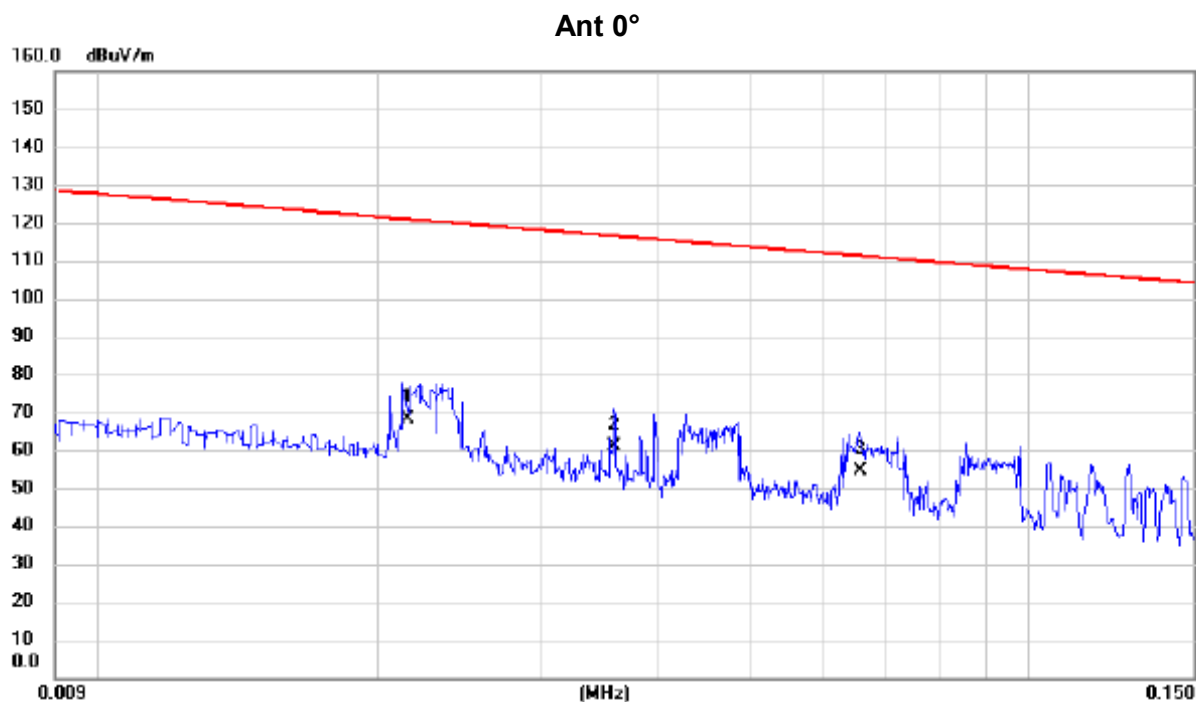
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.3795	31.33	9.95	41.28	58.29	-17.01	Peak	
2	0.4515	31.41	9.94	41.35	56.85	-15.50	Peak	
3	1.1265	31.83	10.13	41.96	56.00	-14.04	Peak	
4	2.4765	34.20	10.21	44.41	56.00	-11.59	Peak	
5 *	2.4765	24.21	10.21	34.42	46.00	-11.58	AVG	
6	5.5860	33.08	10.45	43.53	60.00	-16.47	Peak	
7	9.9555	30.53	10.74	41.27	60.00	-18.73	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode: TX B MODE CHANNEL 06

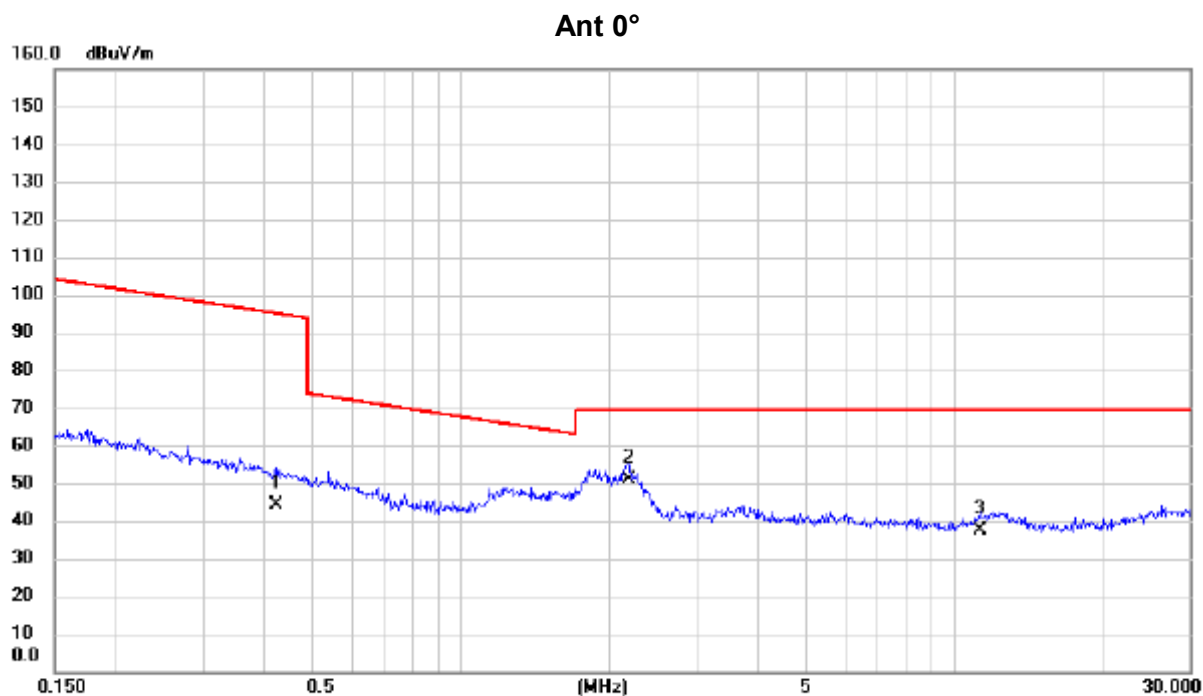


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0215	48.56	19.57	68.13	120.96	-52.83	AVG	
2		0.0358	41.76	19.15	60.91	116.53	-55.62	AVG	
3		0.0658	36.29	18.41	54.70	111.24	-56.54	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX B MODE CHANNEL 06



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.4237	27.49	16.53	44.02	95.06	-51.04	AVG	
2	*	2.1898	35.44	15.45	50.89	69.54	-18.65	QP	
3		11.2572	23.65	13.84	37.49	69.54	-32.05	QP	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX B MODE CHANNEL 06

Ant 90°



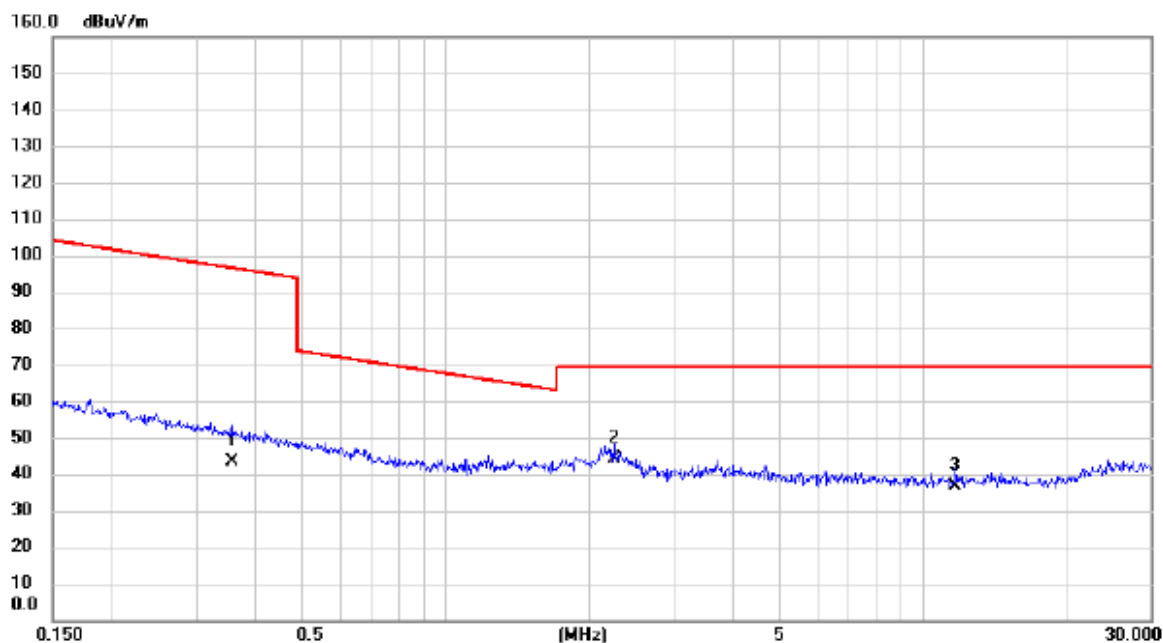
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0216	46.03	19.57	65.60	120.92	-55.32	AVG	
2		0.0361	35.42	19.14	54.56	116.45	-61.89	AVG	
3		0.0641	33.28	18.45	51.73	111.47	-59.74	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX B MODE CHANNEL 06

Ant 90°



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.3558	26.76	16.58	43.34	96.58	-53.24	AVG	
2	*	2.2486	28.88	15.44	44.32	69.54	-25.22	QP	
3		11.6826	22.77	13.87	36.64	69.54	-32.90	QP	

REMARKS:

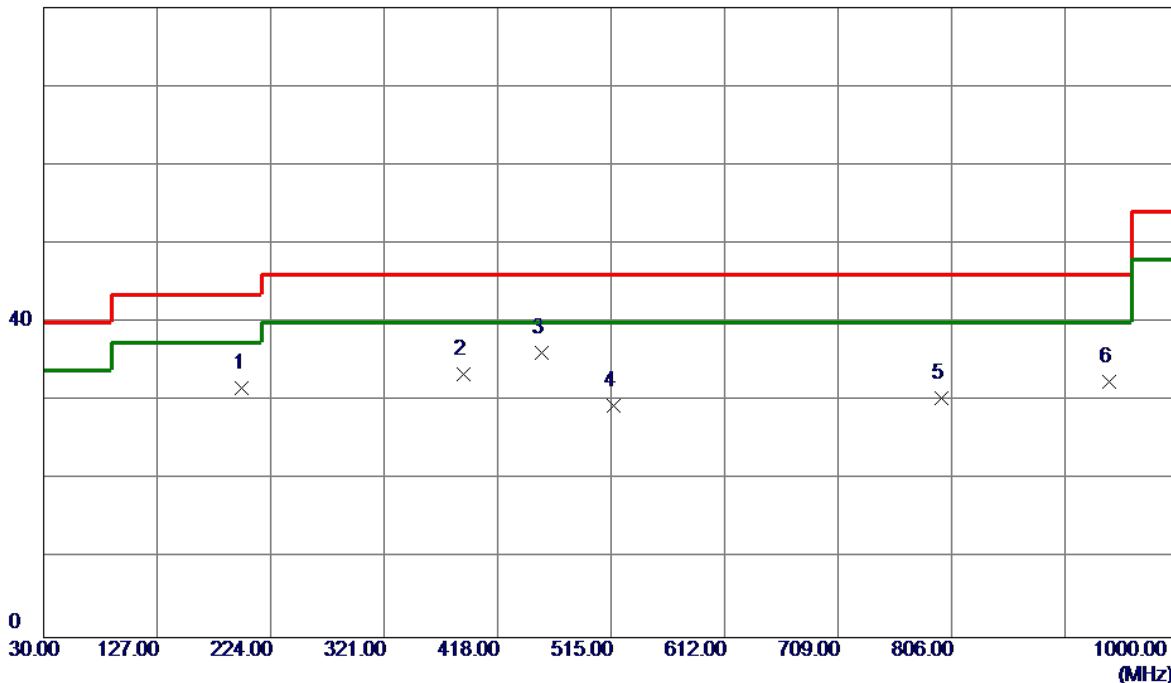
- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode: TX B MODE CHANNEL 06

Vertical

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	199.7500	46.93	-15.19	31.74	43.50	-11.76	Peak	
2	388.9000	43.16	-9.76	33.40	46.00	-12.60	Peak	
3 *	455.8300	43.67	-7.54	36.13	46.00	-9.87	Peak	
4	516.9400	37.00	-7.49	29.51	46.00	-16.49	Peak	
5	797.2700	31.58	-1.20	30.38	46.00	-15.62	Peak	
6	940.8300	31.51	1.04	32.55	46.00	-13.45	Peak	

REMARKS:

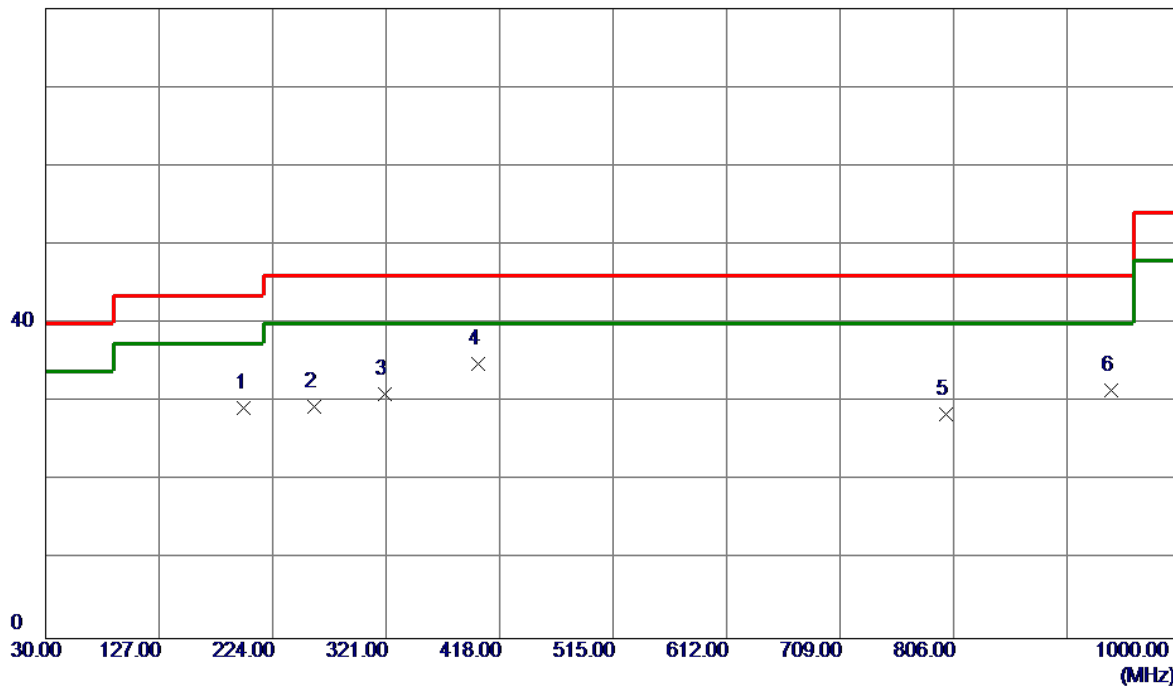
(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode: TX B MODE CHANNEL 06

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	199.7500	44.45	-15.19	29.26	43.50	-14.24	Peak	
2	259.8900	42.89	-13.51	29.38	46.00	-16.62	Peak	
3	320.0300	41.63	-10.65	30.98	46.00	-15.02	Peak	
4 *	399.5700	44.24	-9.40	34.84	46.00	-11.16	Peak	
5	799.2100	29.57	-1.09	28.48	46.00	-17.52	Peak	
6	940.8300	30.45	1.04	31.49	46.00	-14.51	Peak	

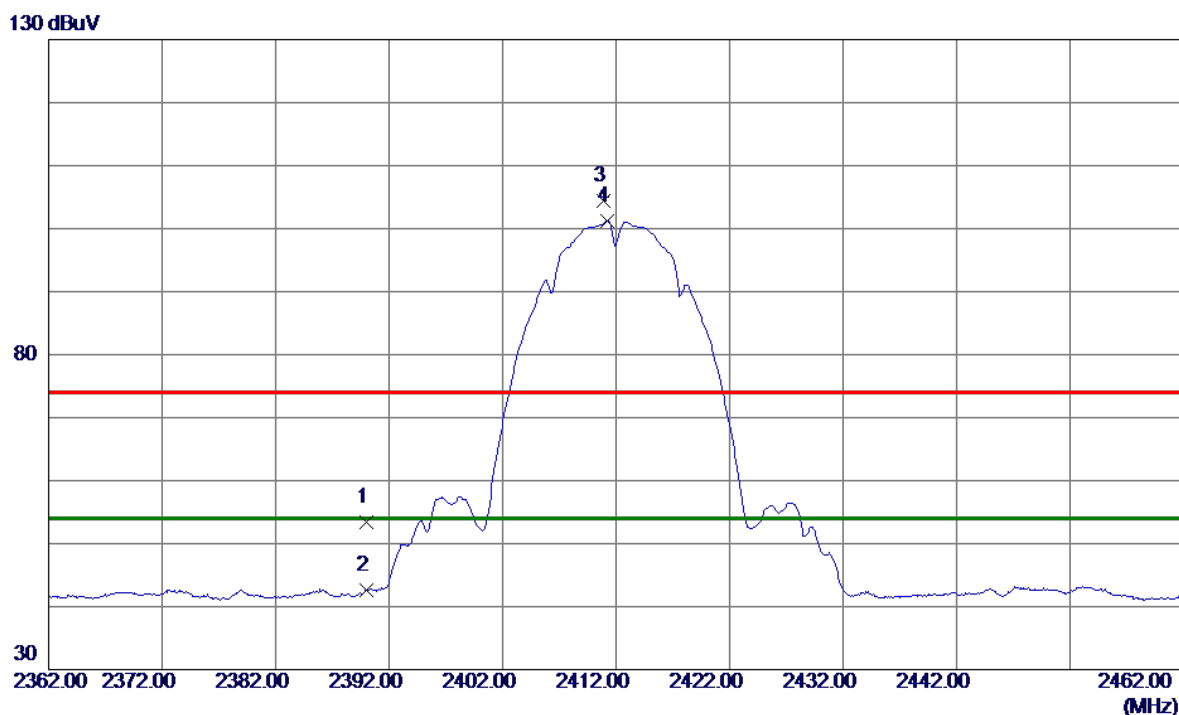
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical



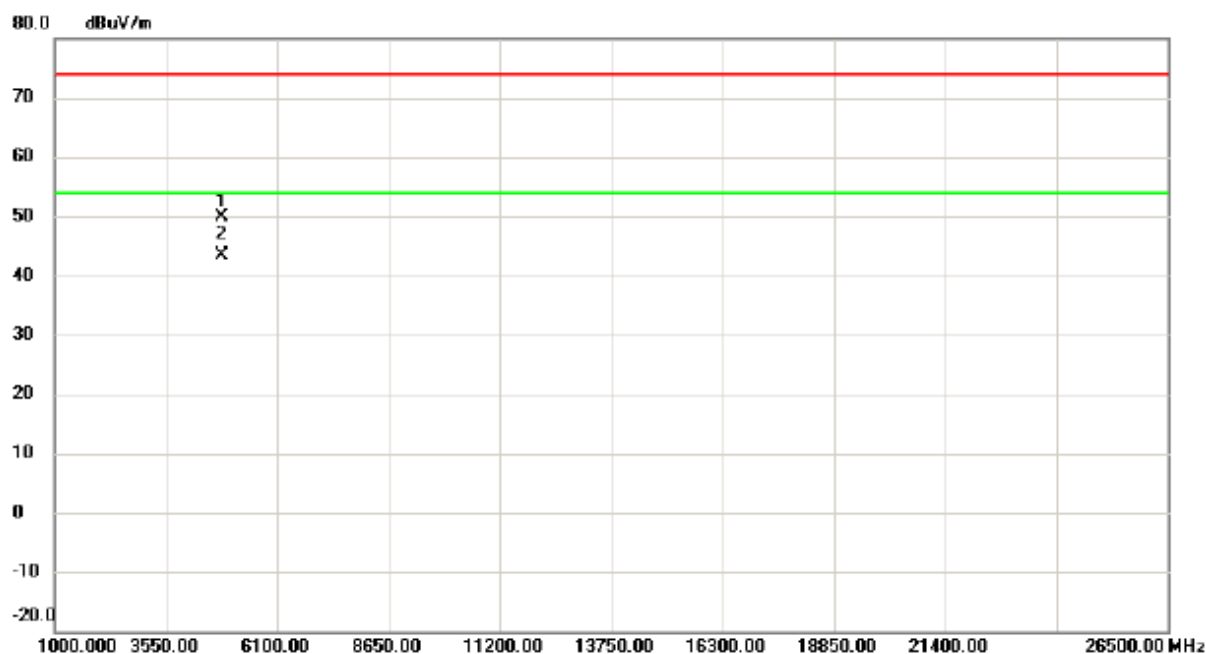
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2390.0000	44.27	9.11	53.38	74.00	-20.62	Peak	
2	2390.0000	33.55	9.11	42.66	54.00	-11.34	AVG	
3	2410.8500	95.17	9.16	104.33	74.00	30.33	Peak	No Limit
4 *	2411.2500	92.07	9.16	101.23	54.00	47.23	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Vertical



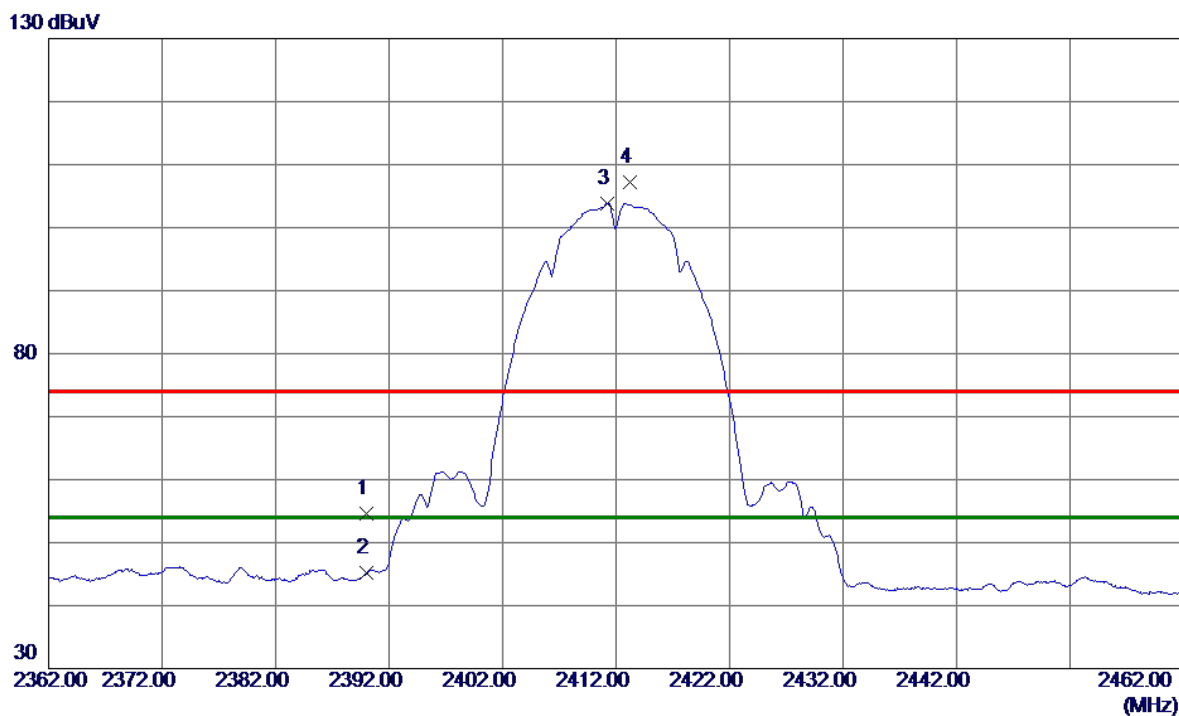
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4823.644	46.20	3.57	49.77	74.00	-24.23	peak	
2	*	4824.002	39.85	3.57	43.42	54.00	-10.58	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Horizontal



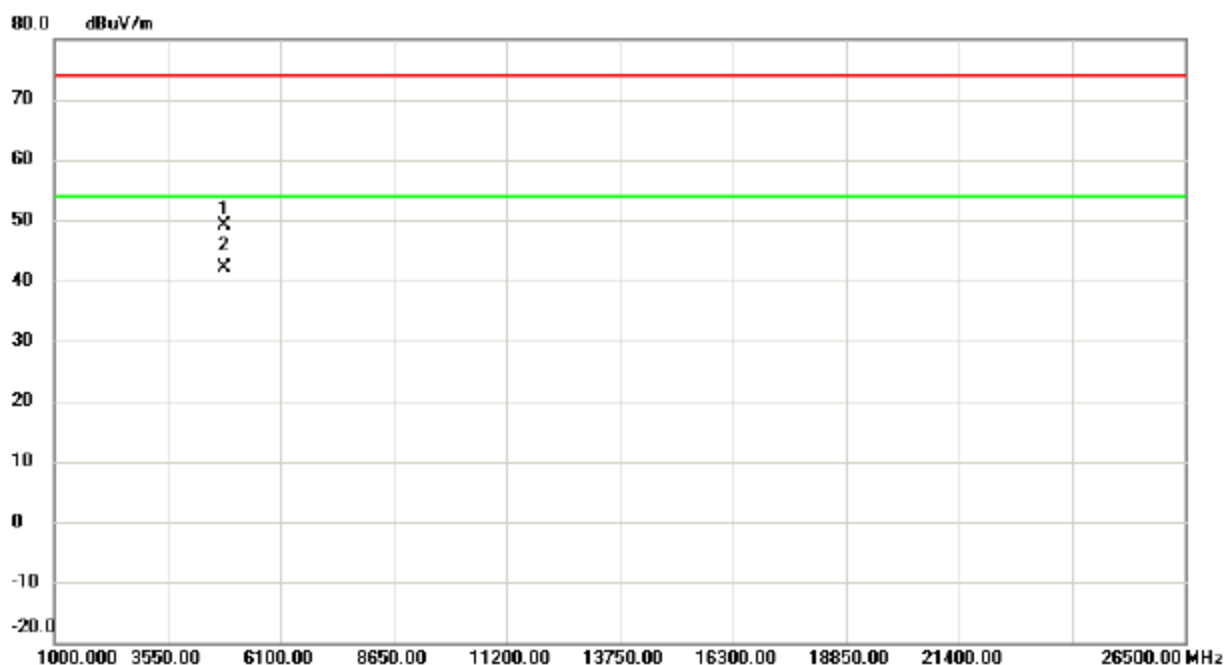
No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2390.0000	45.41	9.11	54.52	74.00	-19.48	Peak	
2	2390.0000	36.14	9.11	45.25	54.00	-8.75	AVG	
3 *	2411.2500	94.68	9.16	103.84	54.00	49.84	AVG	No Limit
4	2413.2000	97.98	9.17	107.15	74.00	33.15	Peak	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2412 MHz

Horizontal



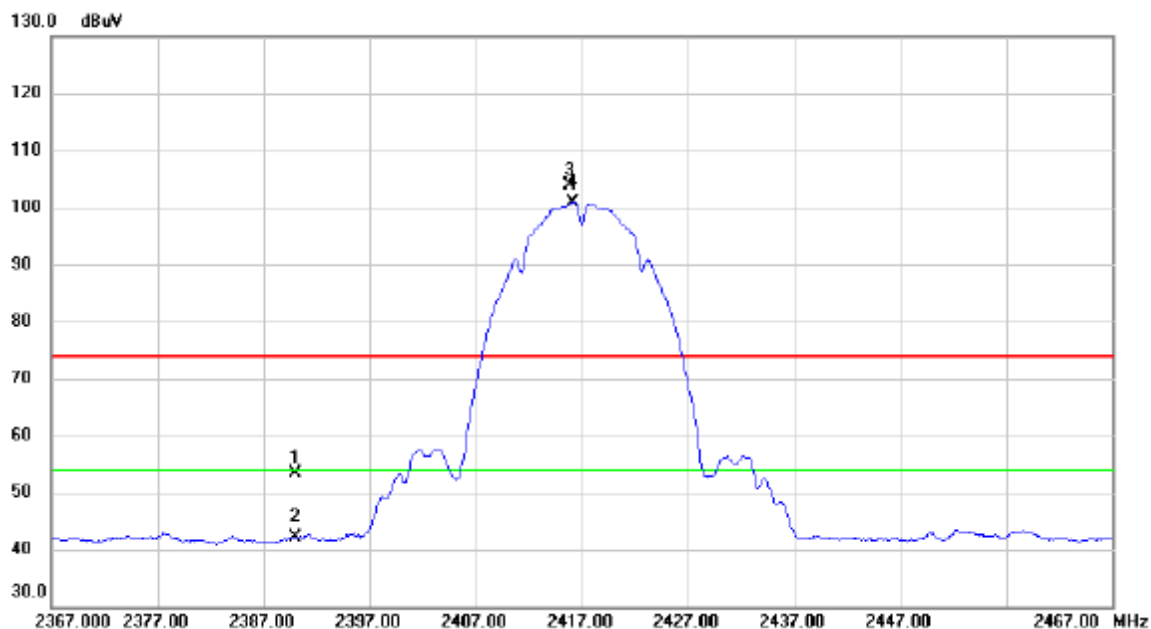
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4823.927	45.57	3.57	49.14	74.00	-24.86	peak	
2	*	4824.028	38.48	3.57	42.05	54.00	-11.95	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

Vertical



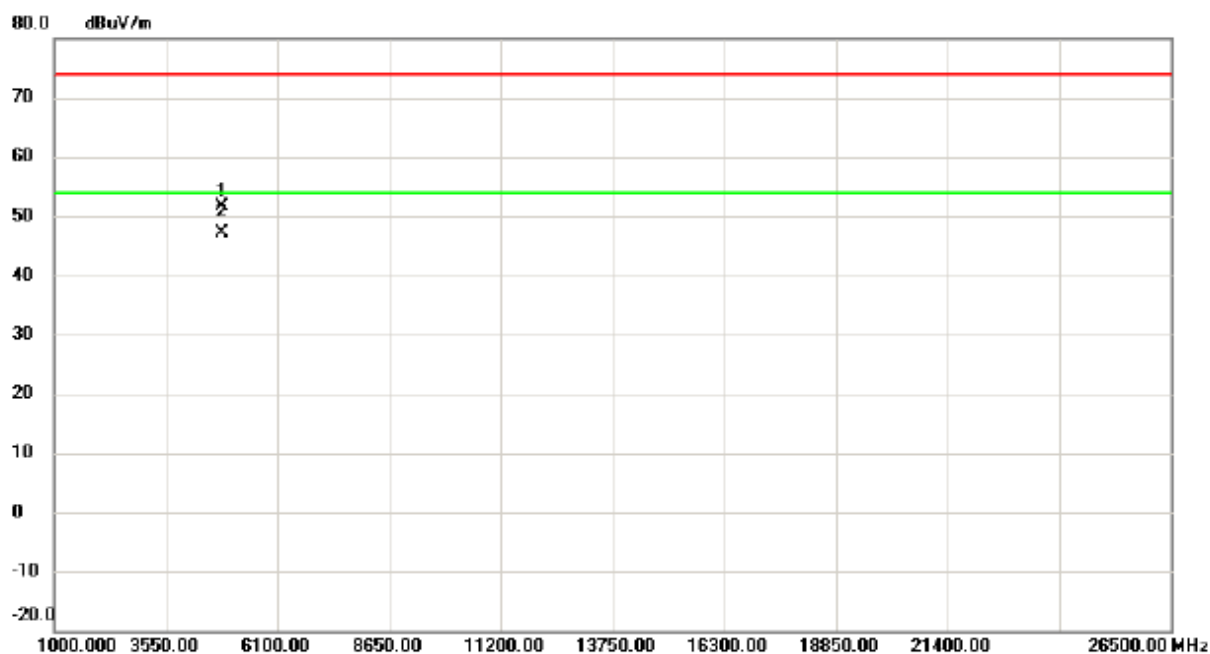
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		2390.000	44.17	9.11	53.28	74.00	-20.72	peak	
2		2390.000	33.09	9.11	42.20	54.00	-11.80	AVG	
3	X	2415.850	94.63	9.18	103.81	74.00	29.81	peak	No Limit
4	*	2416.200	91.80	9.18	100.98	54.00	46.98	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

Vertical



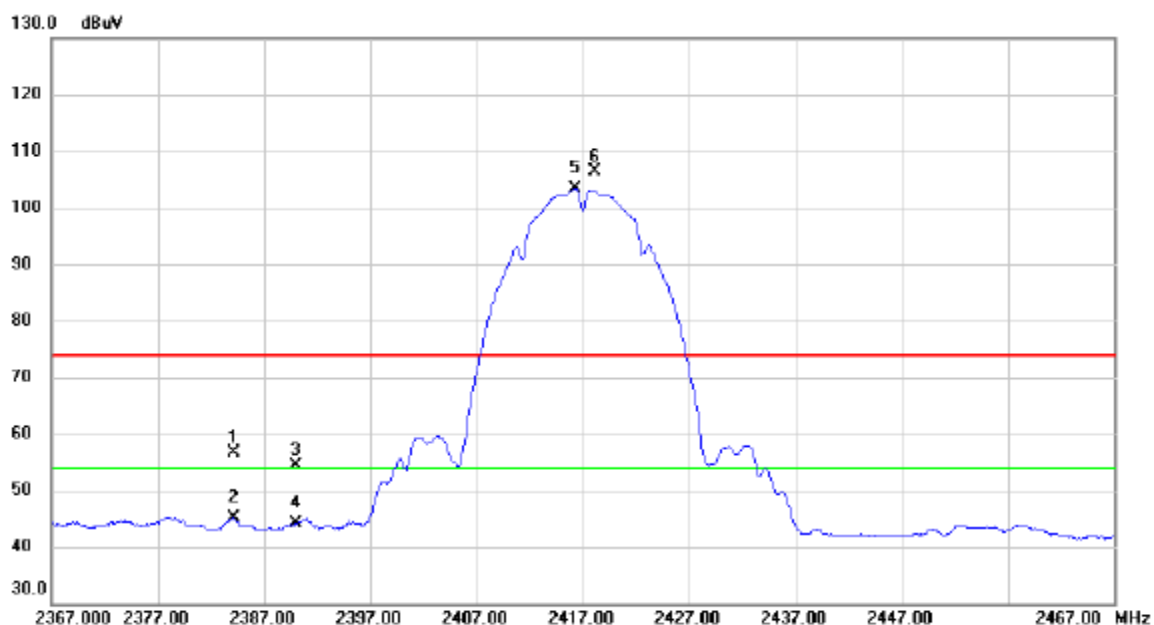
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4833.837	46.72	4.86	51.58	74.00	-22.42	peak	
2	*	4834.030	42.26	4.87	47.13	54.00	-6.87	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

Horizontal



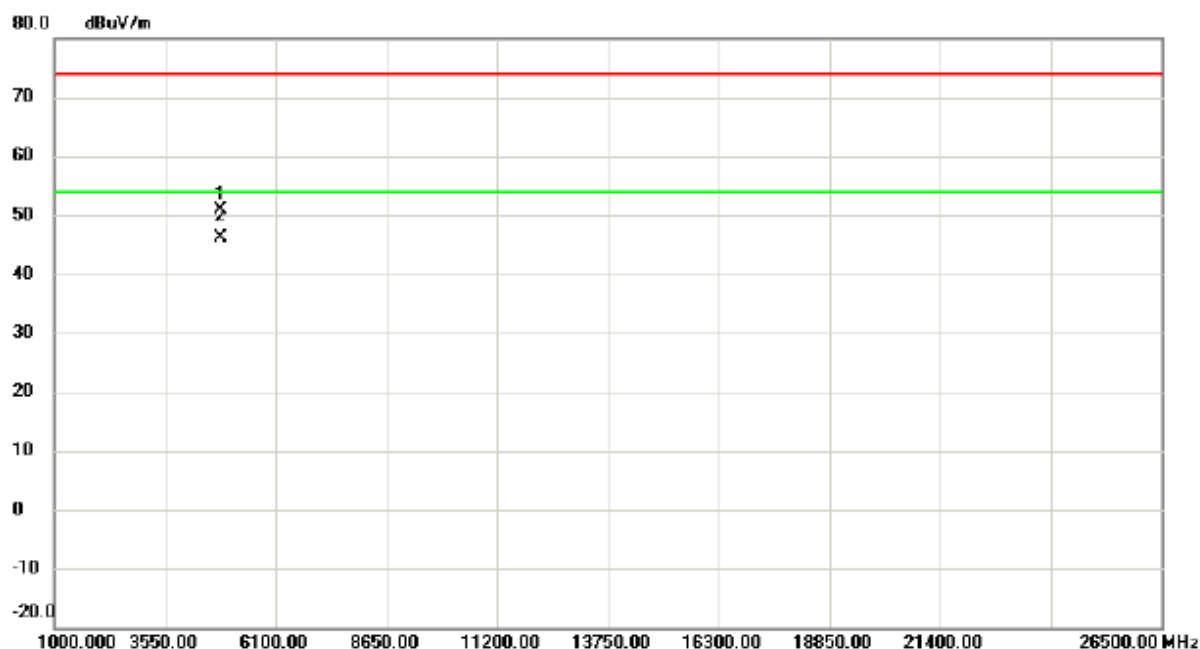
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		2384.100	47.61	9.09	56.70	74.00	-17.30	peak	
2		2384.100	36.08	9.09	45.17	54.00	-8.83	AVG	
3		2390.000	45.19	9.11	54.30	74.00	-19.70	peak	
4		2390.000	35.08	9.11	44.19	54.00	-9.81	AVG	
5 *		2416.250	94.25	9.18	103.43	54.00	49.43	AVG	No Limit
6 X		2418.150	97.28	9.18	106.46	74.00	32.46	peak	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2417 MHz

Horizontal



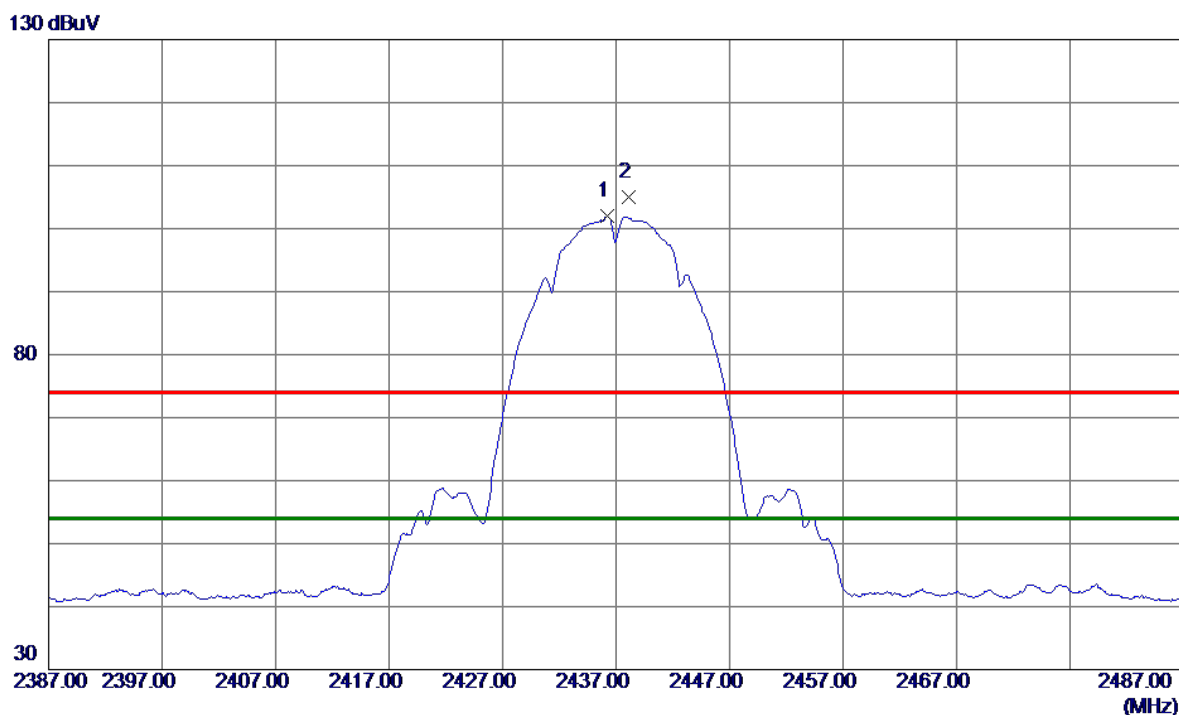
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4833.705	46.13	4.86	50.99	74.00	-23.01	peak	
2	*	4834.065	41.26	4.87	46.13	54.00	-7.87	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Vertical



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	2436.2000	92.70	9.23	101.93	54.00	47.93	AVG	No Limit
2	2438.1500	95.74	9.23	104.97	74.00	30.97	Peak	No Limit

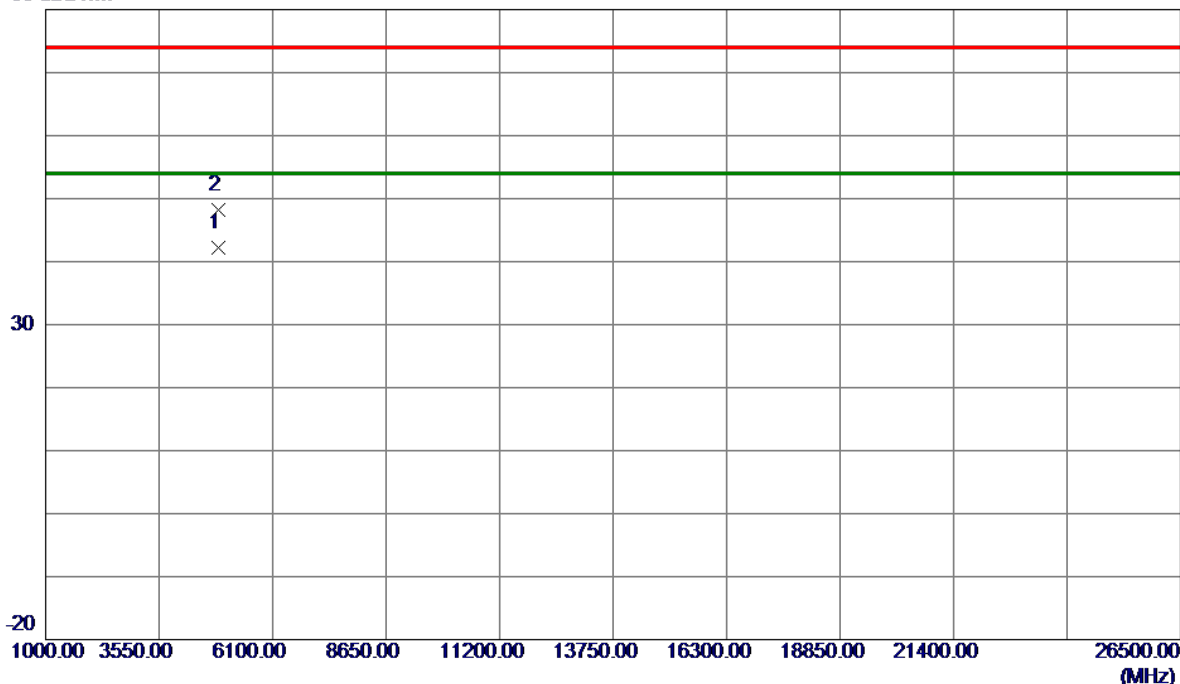
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Vertical

80 dBuV/m



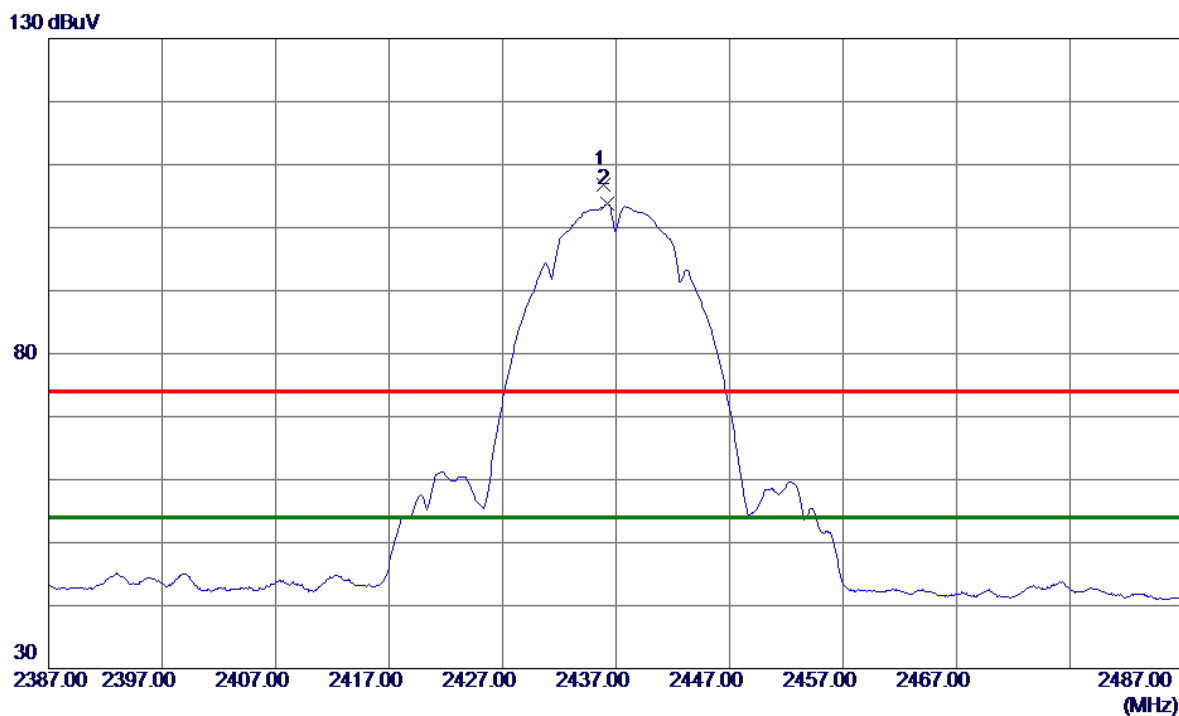
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4874.0019	37.27	5.00	42.27	54.00	-11.73	AVG	
2	4874.0379	43.14	5.00	48.14	74.00	-25.86	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2435.8500	97.56	9.23	106.79	74.00	32.79	Peak	No Limit
2 *	2436.2500	94.48	9.23	103.71	54.00	49.71	AVG	No Limit

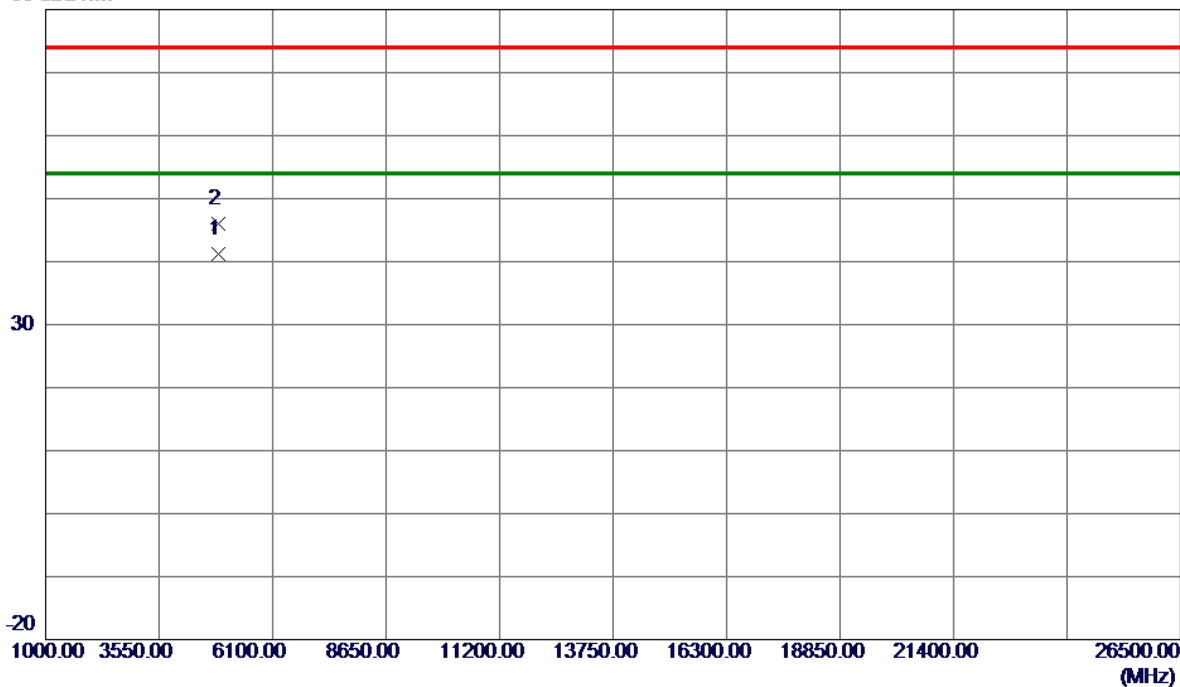
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2437 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4874.0299	36.23	5.00	41.23	54.00	-12.77	AVG	
2	4874.1370	40.97	5.00	45.97	74.00	-28.03	Peak	

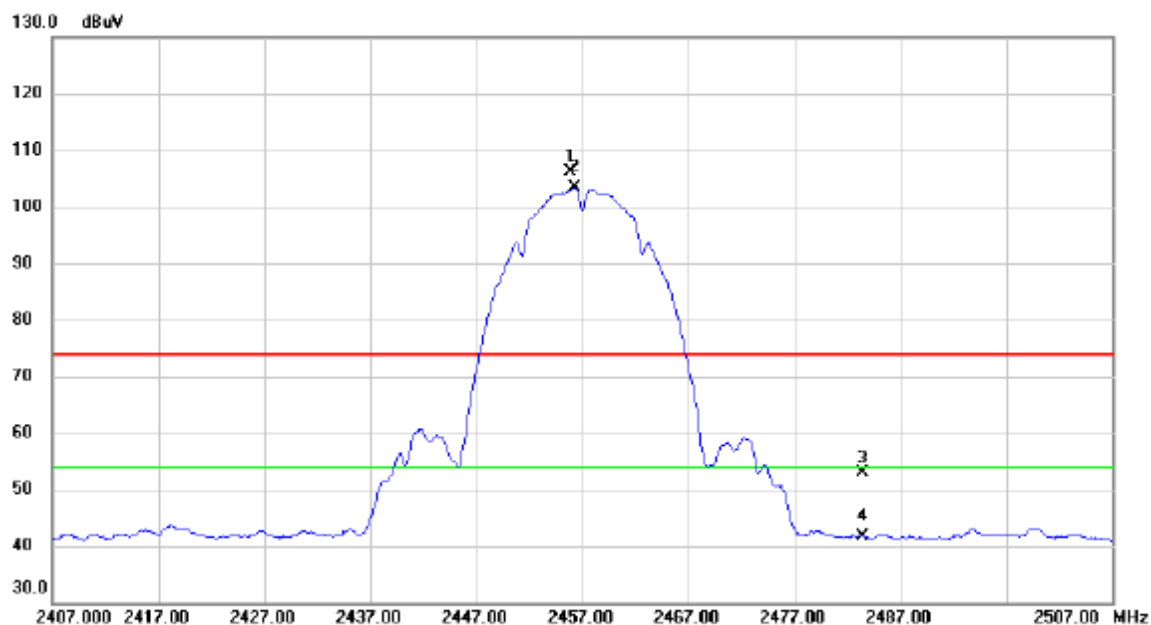
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

Vertical



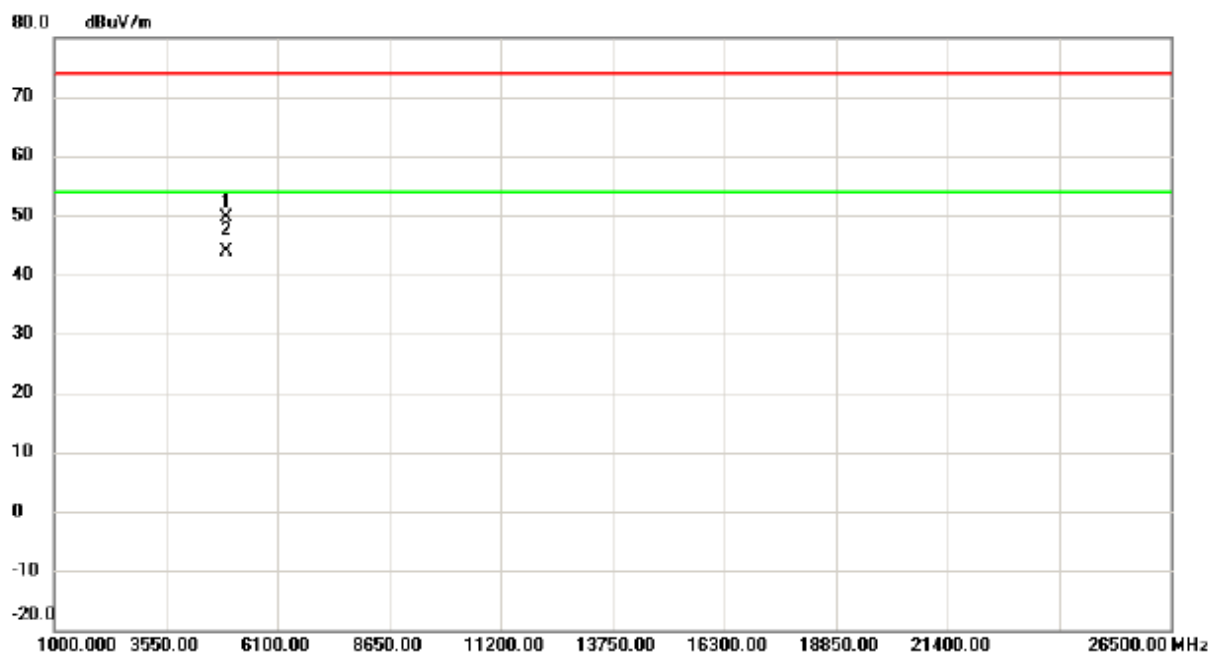
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	X	2455.850	96.89	9.28	106.17	74.00	32.17	peak	No Limit
2	*	2456.250	94.12	9.28	103.40	54.00	49.40	AVG	No Limit
3		2483.500	43.53	9.35	52.88	74.00	-21.12	peak	
4		2483.500	32.29	9.35	41.64	54.00	-12.36	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

Vertical



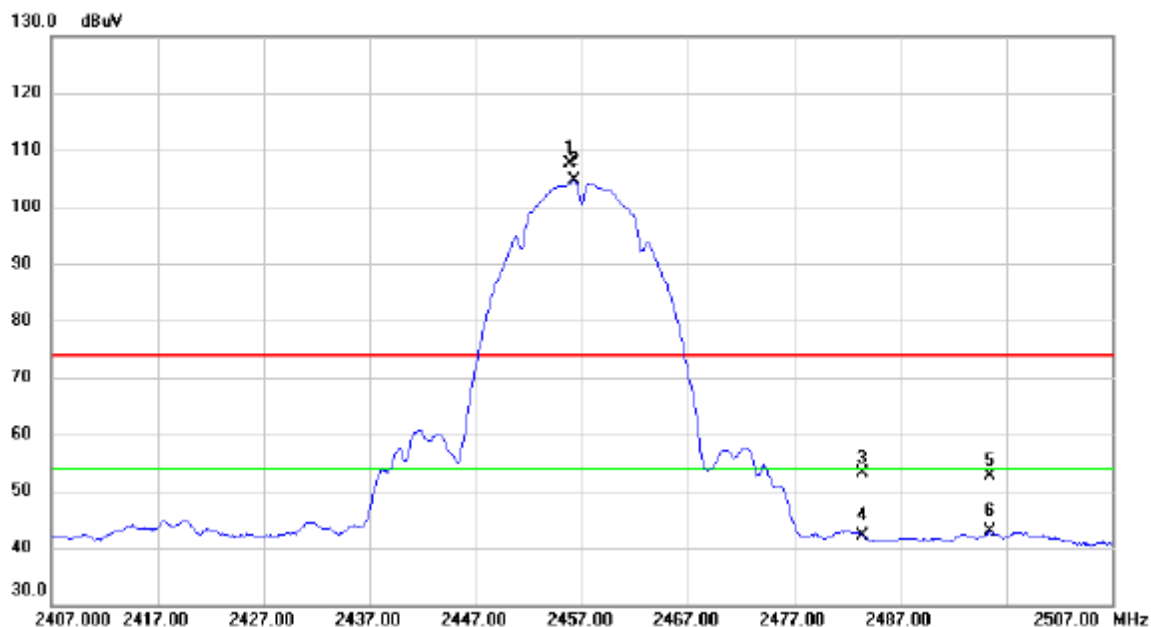
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4913.795	44.47	5.14	49.61	74.00	-24.39	peak	
2	*	4913.975	38.78	5.14	43.92	54.00	-10.08	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

Horizontal



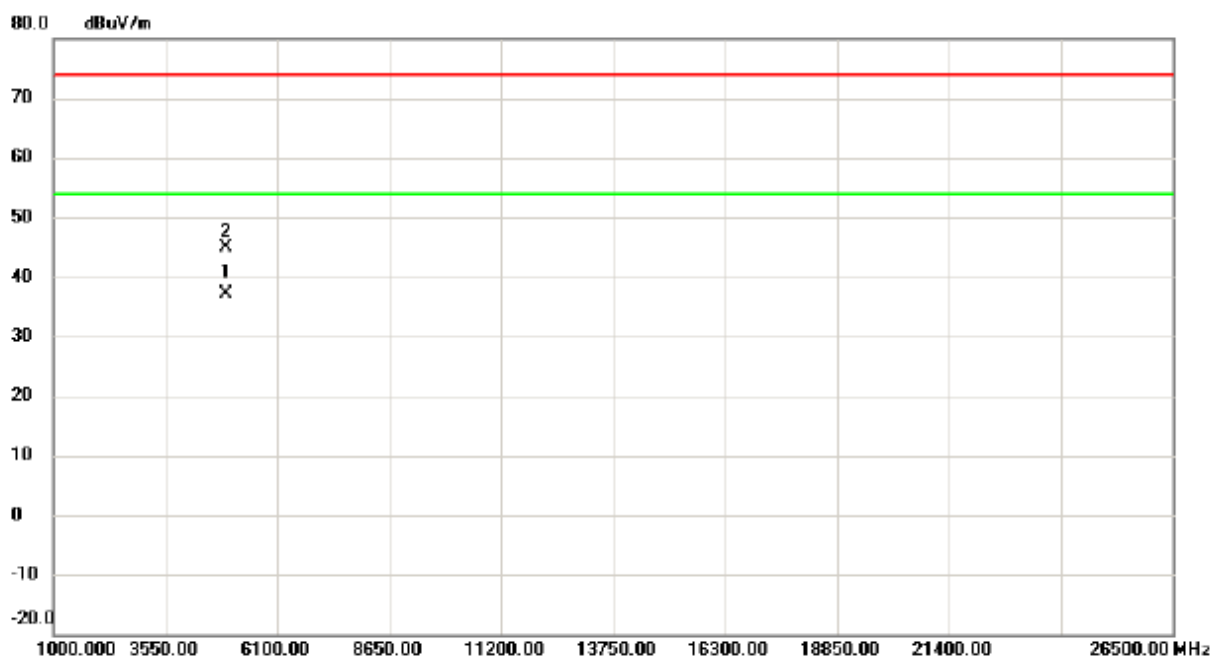
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	X	2455.850	98.25	9.28	107.53	74.00	33.53	peak	No Limit
2	*	2456.300	95.26	9.28	104.54	54.00	50.54	AVG	No Limit
3		2483.500	43.66	9.35	53.01	74.00	-20.99	peak	
4		2483.500	32.81	9.35	42.16	54.00	-11.84	AVG	
5		2495.400	43.15	9.38	52.53	74.00	-21.47	peak	
6		2495.400	33.46	9.38	42.84	54.00	-11.16	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2457 MHz

Horizontal



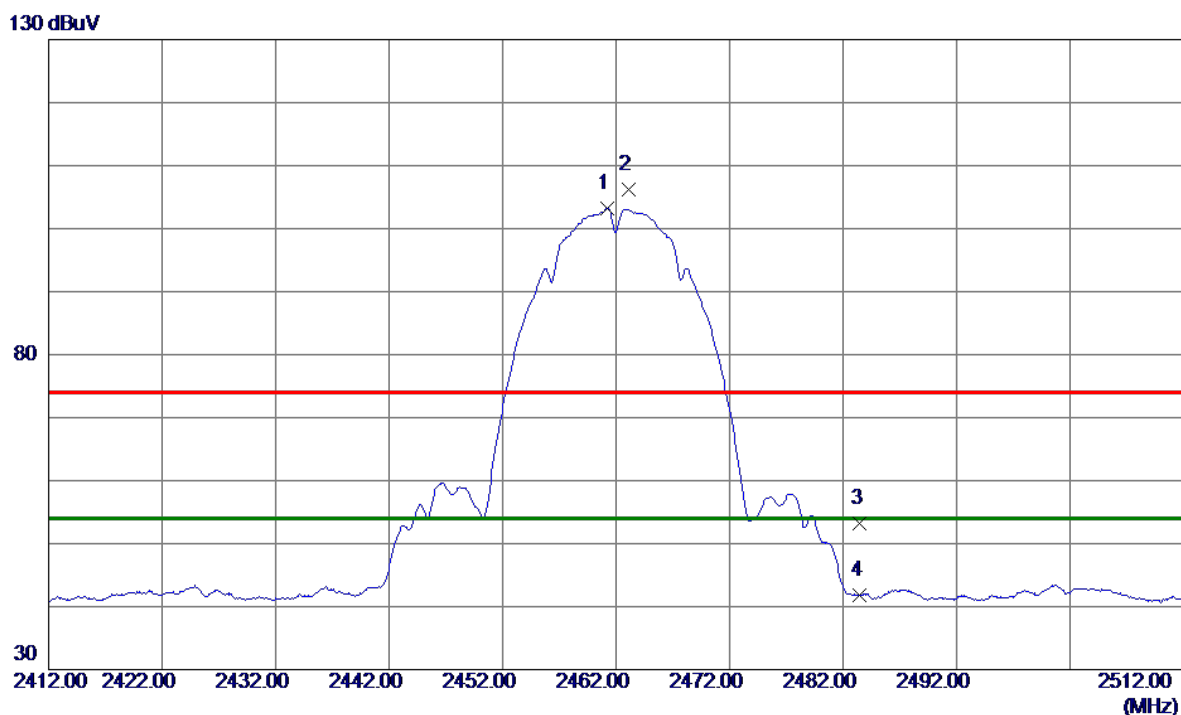
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4913.980	32.11	5.14	37.25	54.00	-16.75	AVG	
2		4914.195	39.65	5.14	44.79	74.00	-29.21	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	2461.2000	93.92	9.29	103.21	54.00	49.21	AVG	No Limit
2	2463.1500	96.89	9.30	106.19	74.00	32.19	Peak	No Limit
3	2483.5000	43.85	9.35	53.20	74.00	-20.80	Peak	
4	2483.5000	32.37	9.35	41.72	54.00	-12.28	AVG	

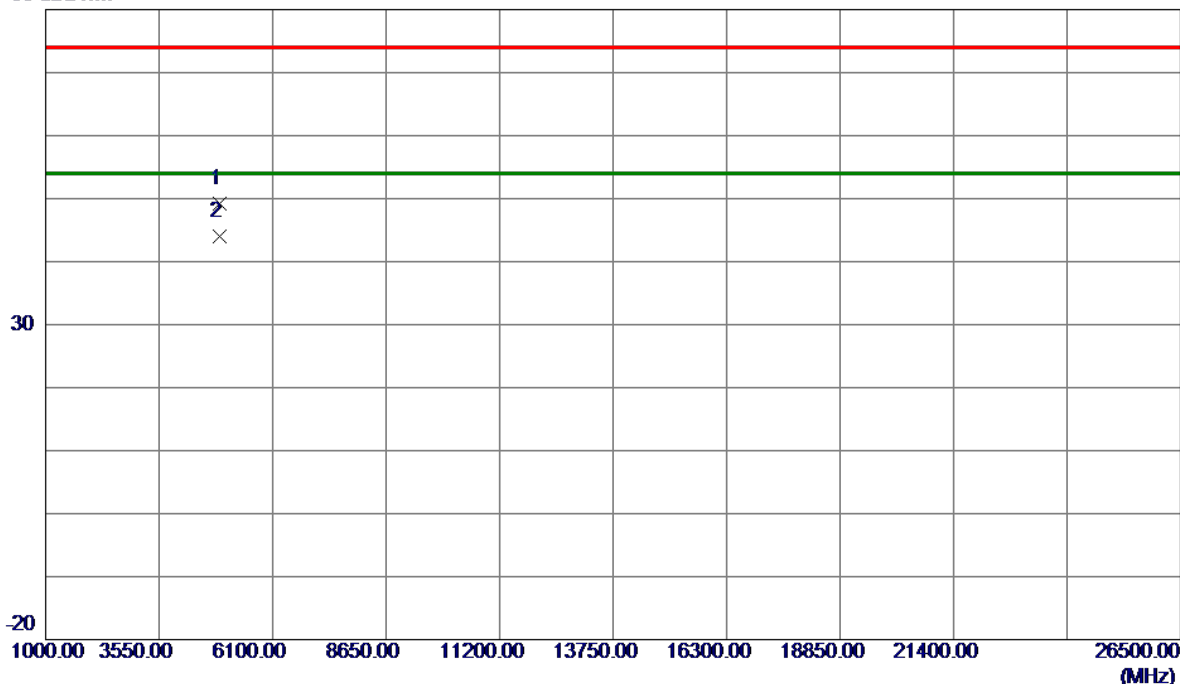
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Vertical

80 dBuV/m



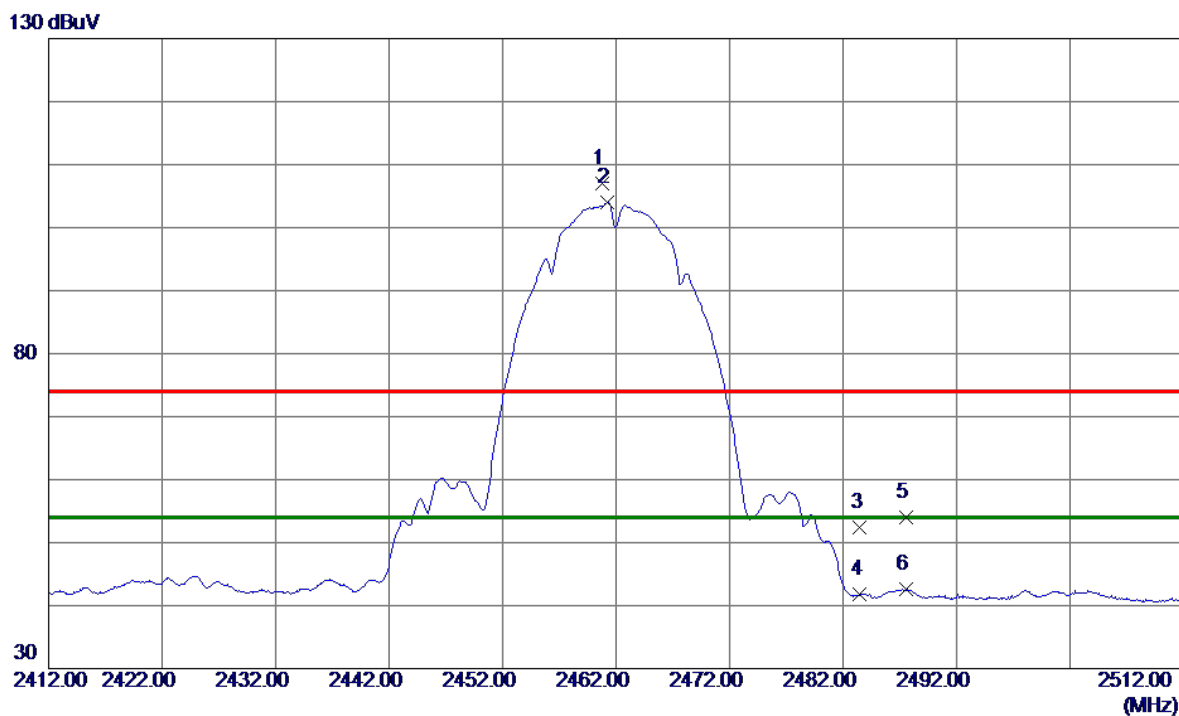
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4923.8849	44.04	5.17	49.21	74.00	-24.79	Peak	
2 *	4923.9720	38.84	5.18	44.02	54.00	-9.98	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2460.8000	97.62	9.29	106.91	74.00	32.91	Peak	No Limit
2 *	2461.2500	94.64	9.29	103.93	54.00	49.93	AVG	No Limit
3	2483.5000	43.02	9.35	52.37	74.00	-21.63	Peak	
4	2483.5000	32.50	9.35	41.85	54.00	-12.15	AVG	
5	2487.6000	44.70	9.36	54.06	74.00	-19.94	Peak	
6	2487.6000	33.24	9.36	42.60	54.00	-11.40	AVG	

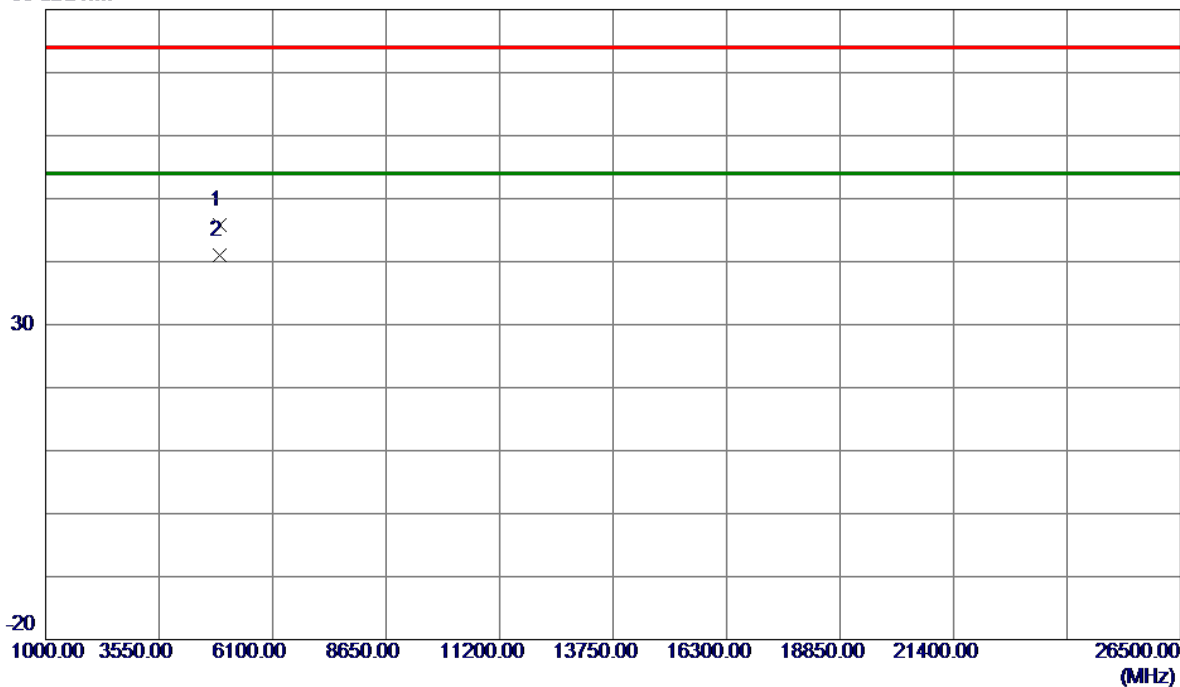
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX B Mode 2462 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4923.9350	40.65	5.18	45.83	74.00	-28.17	Peak	
2 *	4923.9800	35.79	5.18	40.97	54.00	-13.03	AVG	

REMARKS:

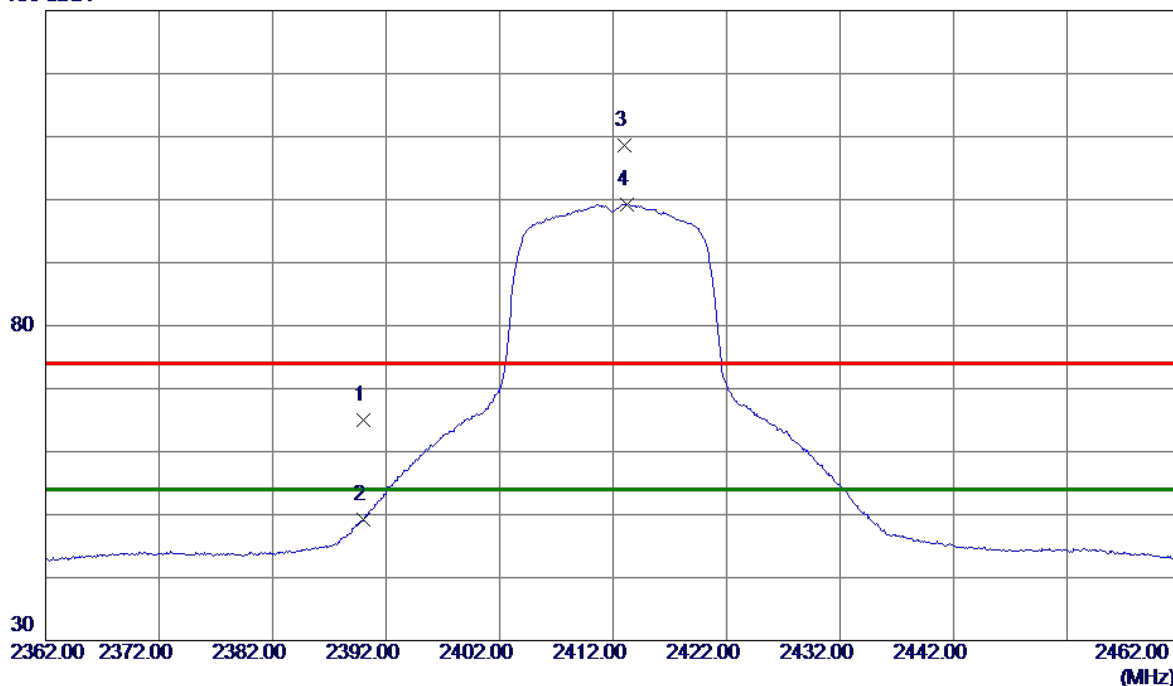
(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Vertical

130 dBuV



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2390.0000	55.98	9.11	65.09	74.00	-8.91	Peak	
2	2390.0000	40.09	9.11	49.20	54.00	-4.80	AVG	
3	2413.0000	99.47	9.17	108.64	74.00	34.64	Peak	No Limit
4 *	2413.2500	90.08	9.17	99.25	54.00	45.25	AVG	No Limit

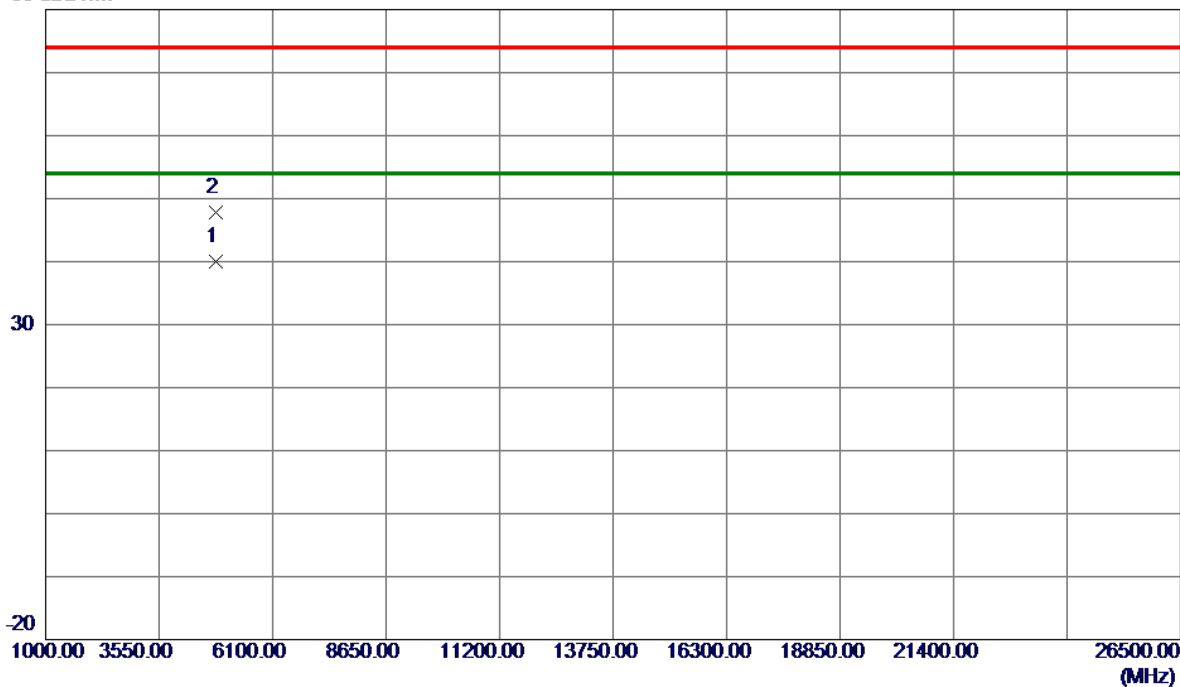
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Vertical

80 dBuV/m



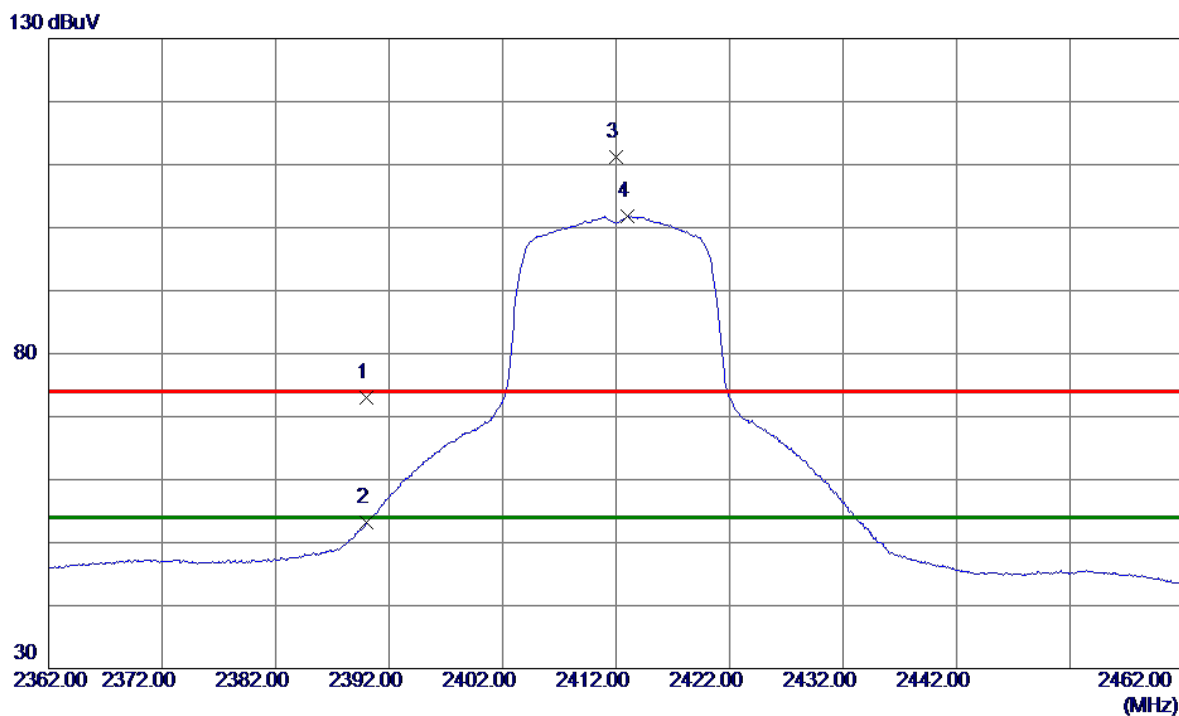
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4822.8130	35.11	4.82	39.93	54.00	-14.07	AVG	
2	4825.1530	42.90	4.83	47.73	74.00	-26.27	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2390.0000	63.98	9.11	73.09	74.00	-0.91	Peak	
2	2390.0000	44.07	9.11	53.18	54.00	-0.82	AVG	
3	2411.9500	102.06	9.16	111.22	74.00	37.22	Peak	No Limit
4 *	2413.0500	92.62	9.17	101.79	54.00	47.79	AVG	No Limit

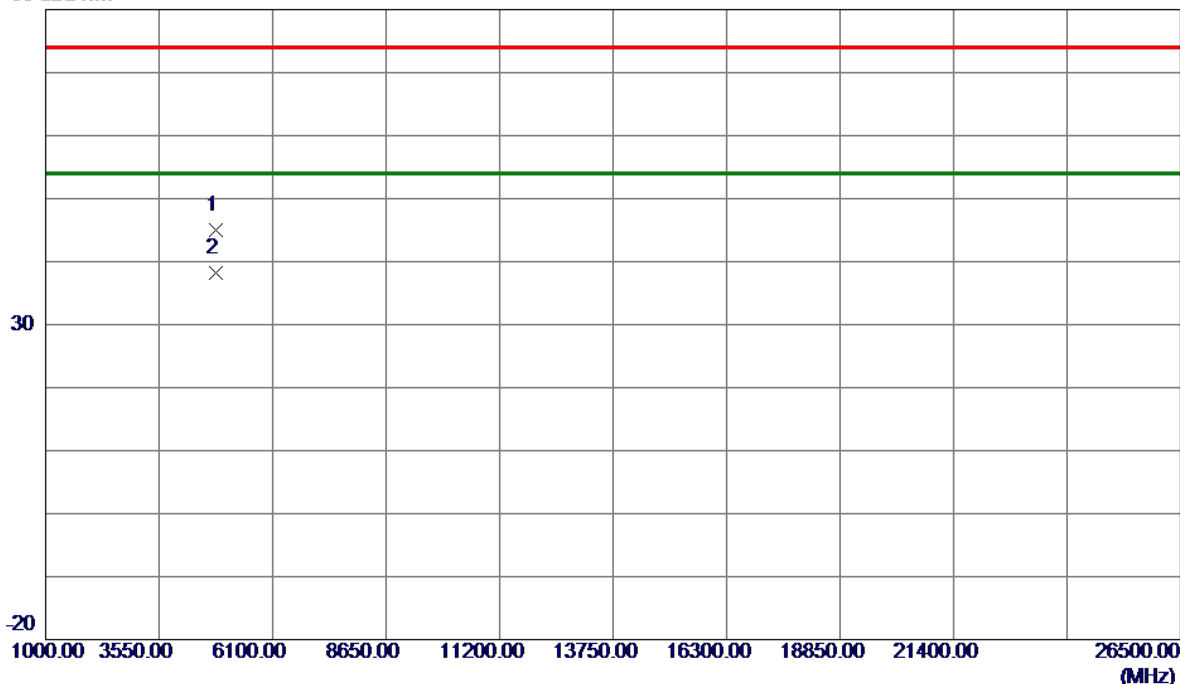
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2412 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4823.3100	40.25	4.83	45.08	74.00	-28.92	Peak	
2 *	4825.2620	33.37	4.83	38.20	54.00	-15.80	AVG	

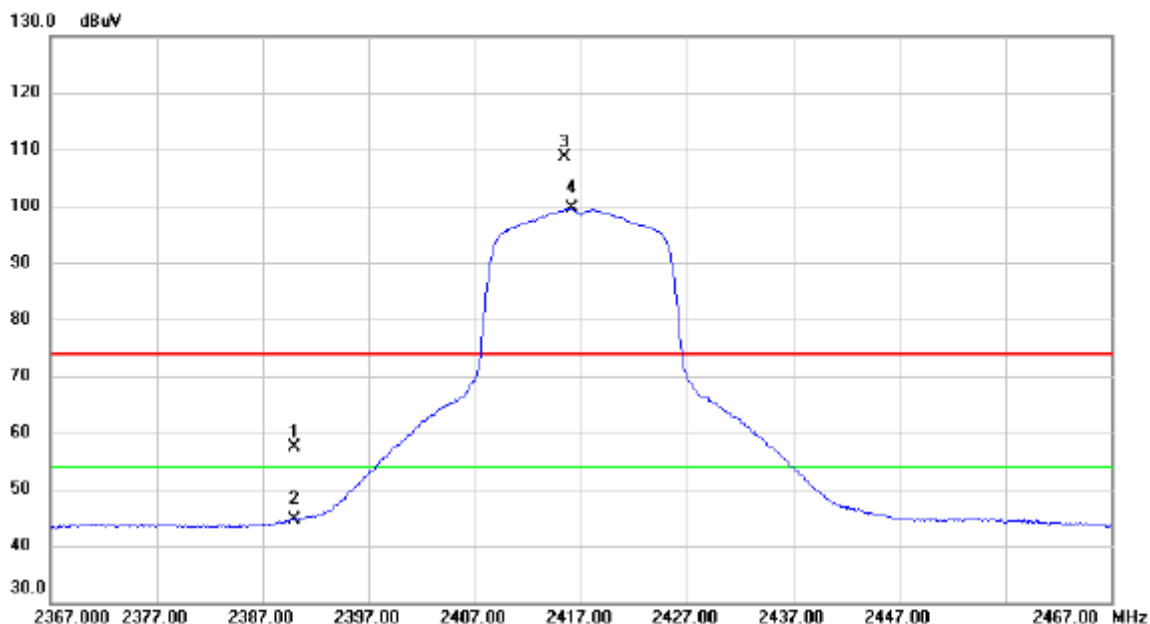
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

Vertical



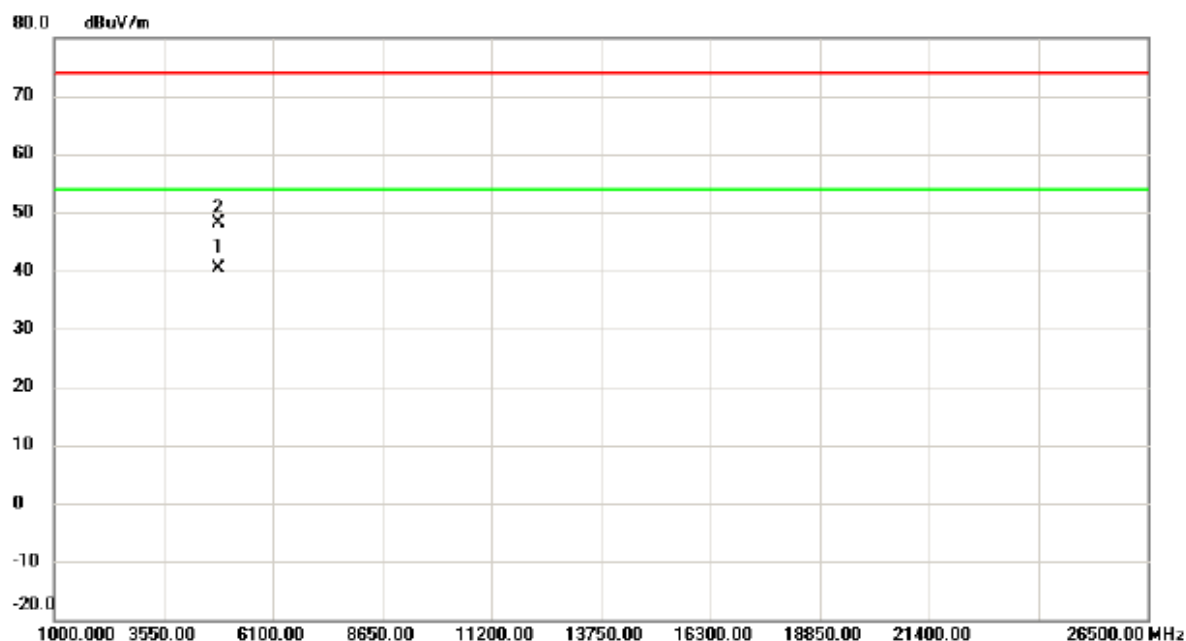
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		2390.000	48.17	9.11	57.28	74.00	-16.72	peak	
2		2390.000	35.50	9.11	44.61	54.00	-9.39	AVG	
3	X	2415.500	99.35	9.18	108.53	74.00	34.53	peak	No Limit
4	*	2416.150	90.41	9.18	99.59	54.00	45.59	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

Vertical



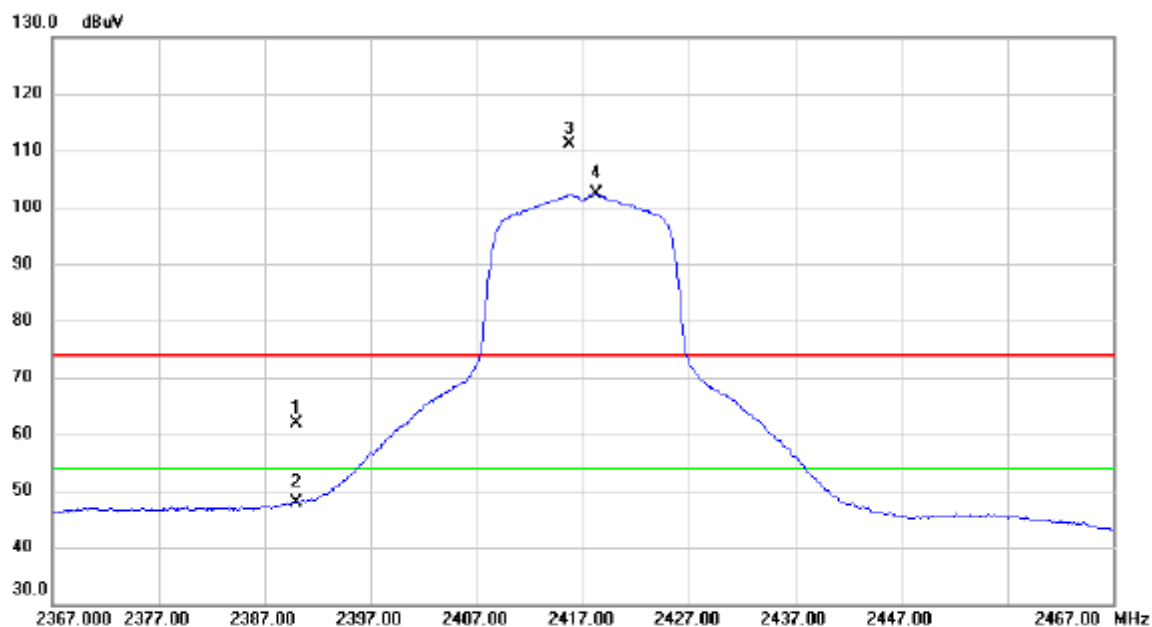
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4835.275	35.47	4.87	40.34	54.00	-13.66	AVG	
2		4835.365	43.15	4.87	48.02	74.00	-25.98	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		2390.000	52.69	9.11	61.80	74.00	-12.20	peak	
2		2390.000	38.67	9.11	47.78	54.00	-6.22	AVG	
3	X	2415.700	102.06	9.18	111.24	74.00	37.24	peak	No Limit
4	*	2418.250	93.19	9.18	102.37	54.00	48.37	AVG	No Limit

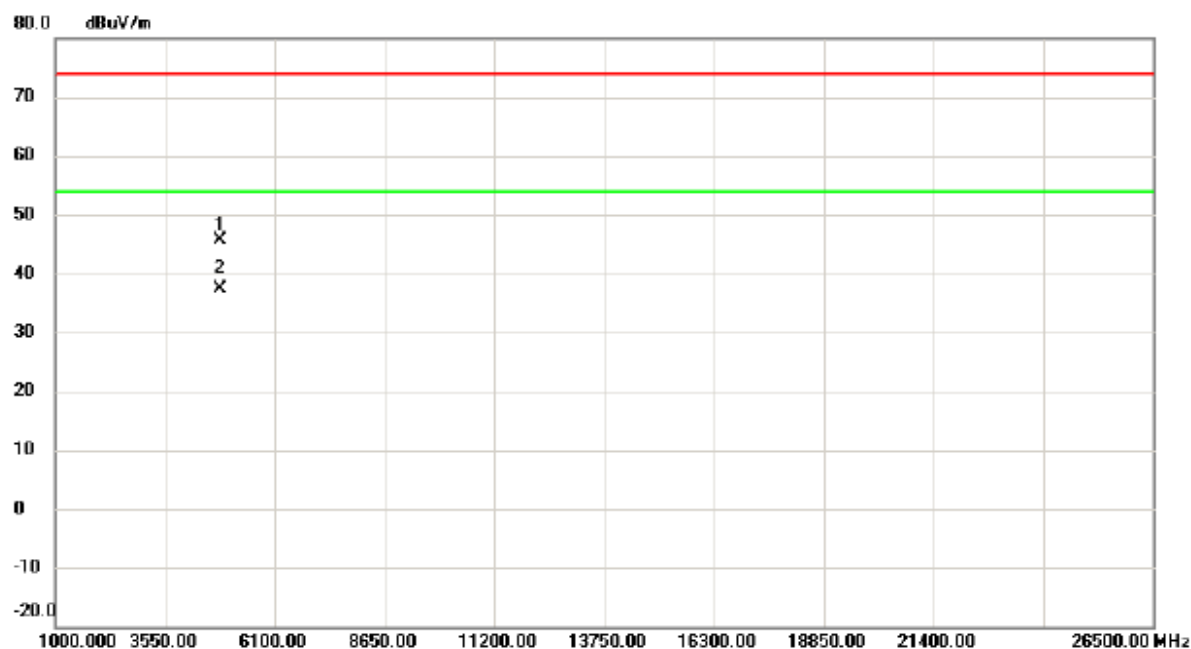
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2417 MHz

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4832.483	40.65	4.86	45.51	74.00	-28.49	peak	
2	*	4835.167	32.62	4.87	37.49	54.00	-16.51	AVG	

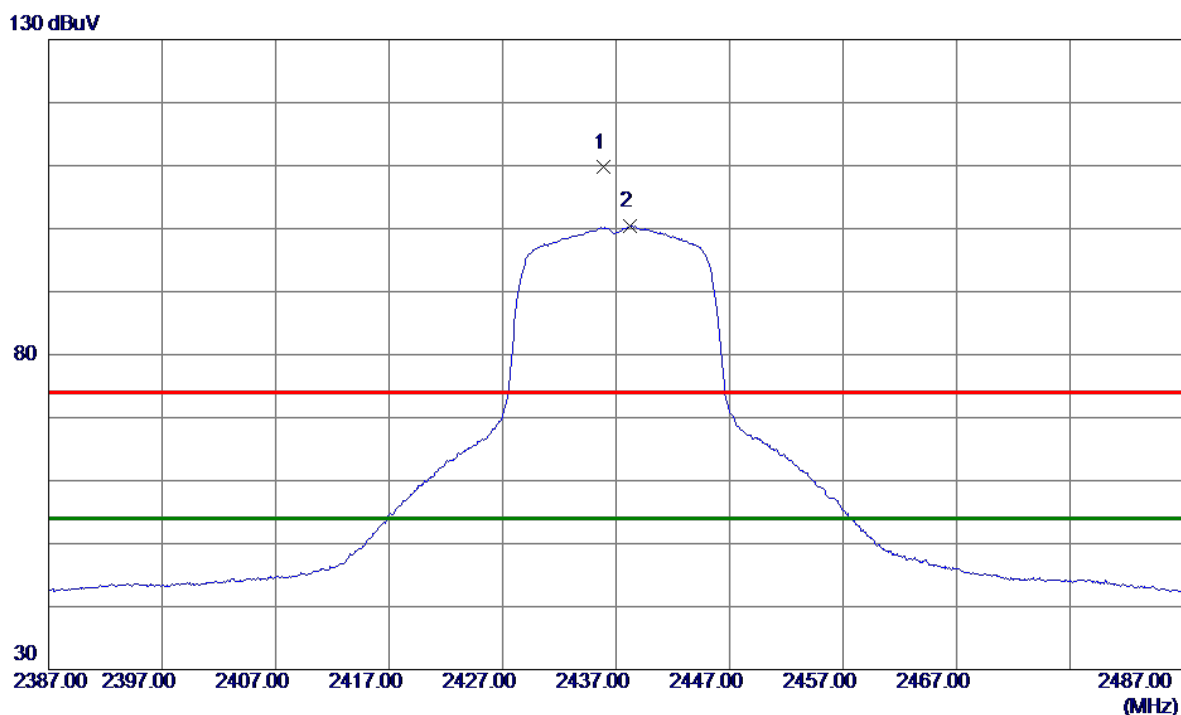
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Vertical



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2435.8500	100.47	9.23	109.70	74.00	35.70	Peak	No Limit
2 *	2438.2500	91.21	9.23	100.44	54.00	46.44	AVG	No Limit

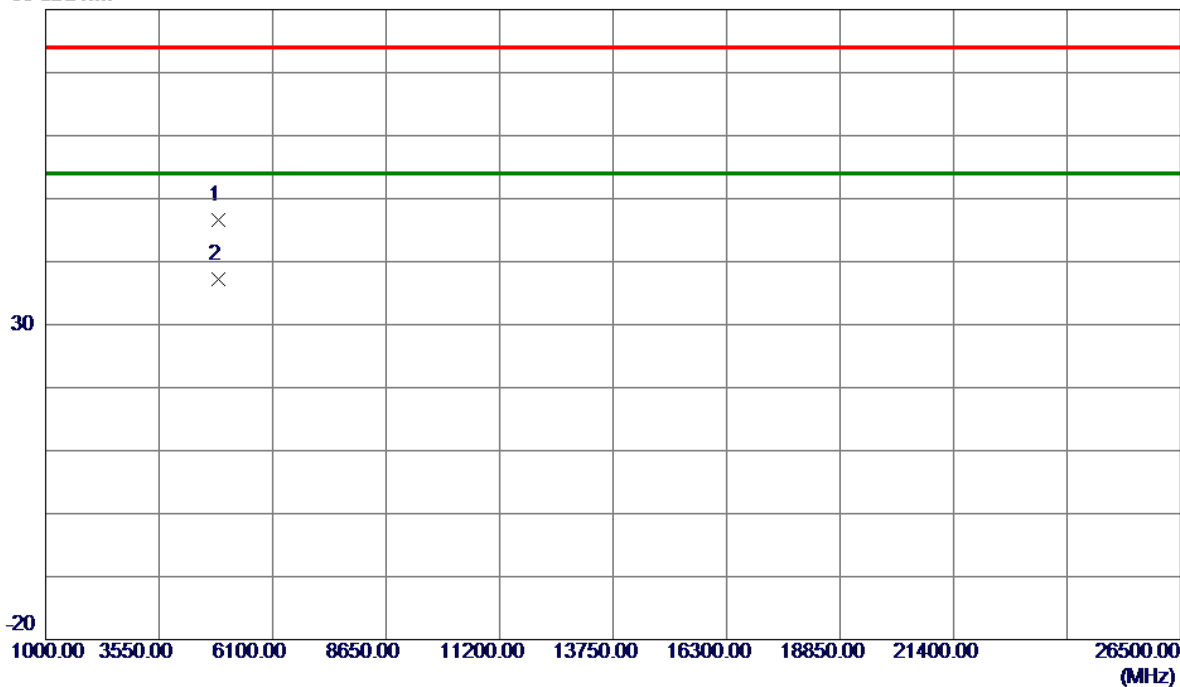
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Vertical

80 dBuV/m



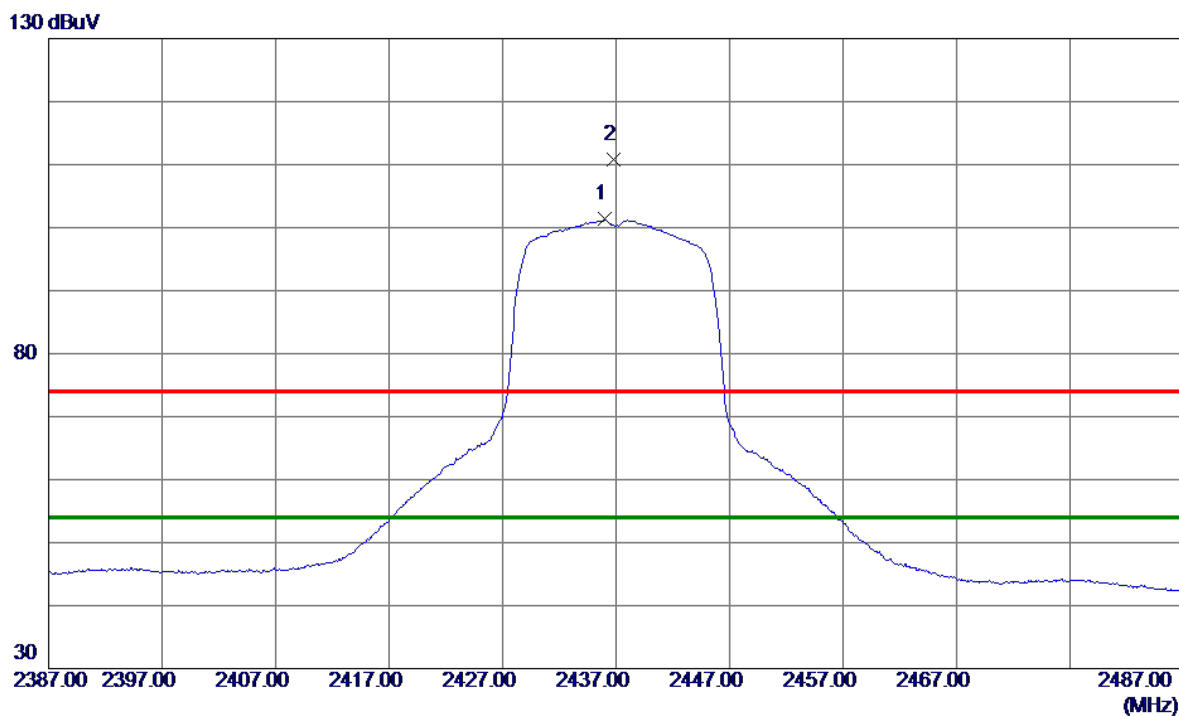
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4874.9720	41.51	5.00	46.51	74.00	-27.49	Peak	
2 *	4875.2150	32.18	5.01	37.19	54.00	-16.81	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	2435.9500	92.10	9.23	101.33	54.00	47.33	AVG	No Limit
2	2436.7500	101.64	9.23	110.87	74.00	36.87	Peak	No Limit

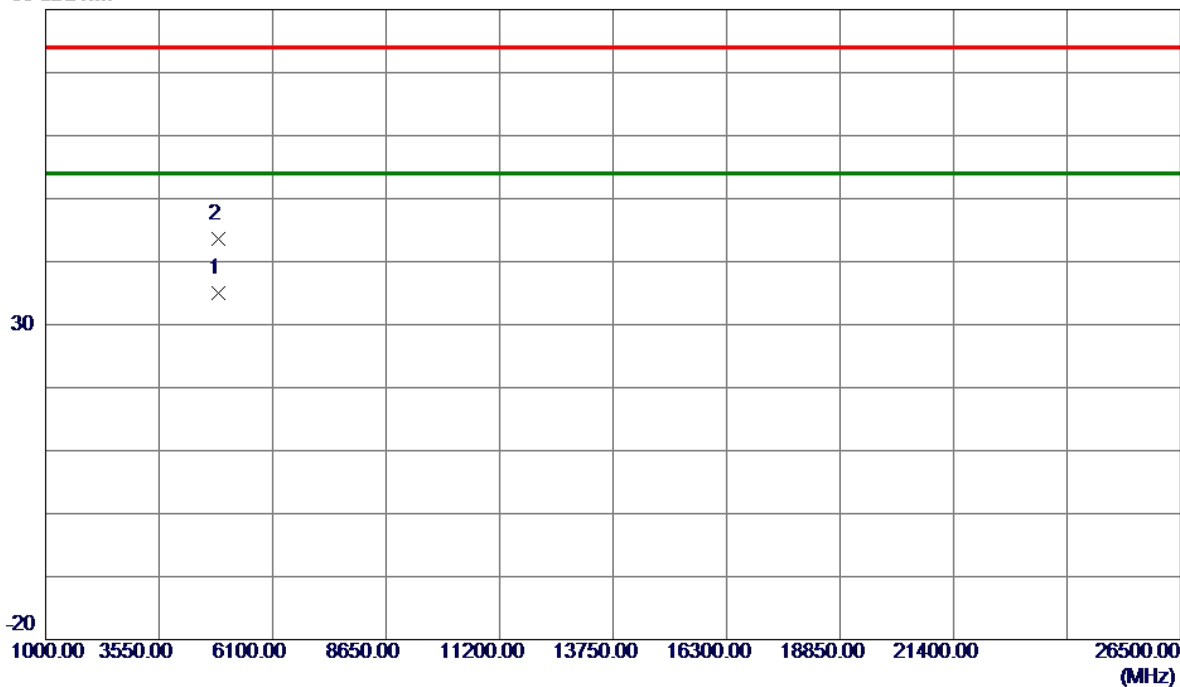
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2437 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4872.7620	30.07	5.00	35.07	54.00	-18.93	AVG	
2	4874.8180	38.56	5.00	43.56	74.00	-30.44	Peak	

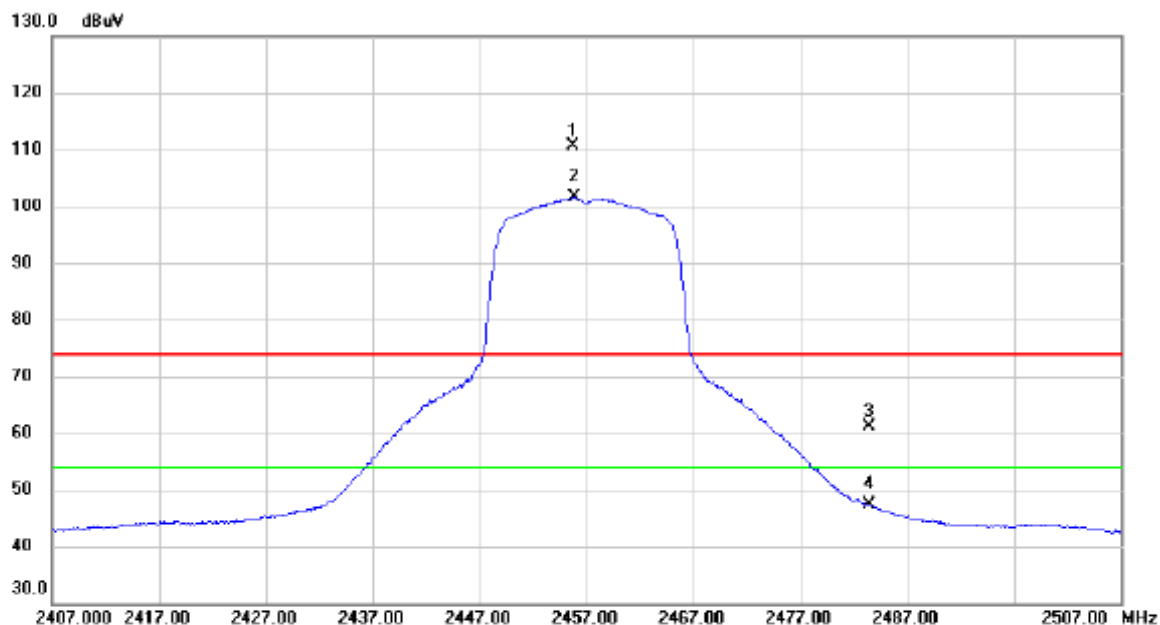
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	X	2455.700	101.44	9.28	110.72	74.00	36.72	peak	No Limit
2	*	2455.900	92.38	9.28	101.66	54.00	47.66	AVG	No Limit
3		2483.500	51.66	9.35	61.01	74.00	-12.99	peak	
4		2483.500	37.91	9.35	47.26	54.00	-6.74	AVG	

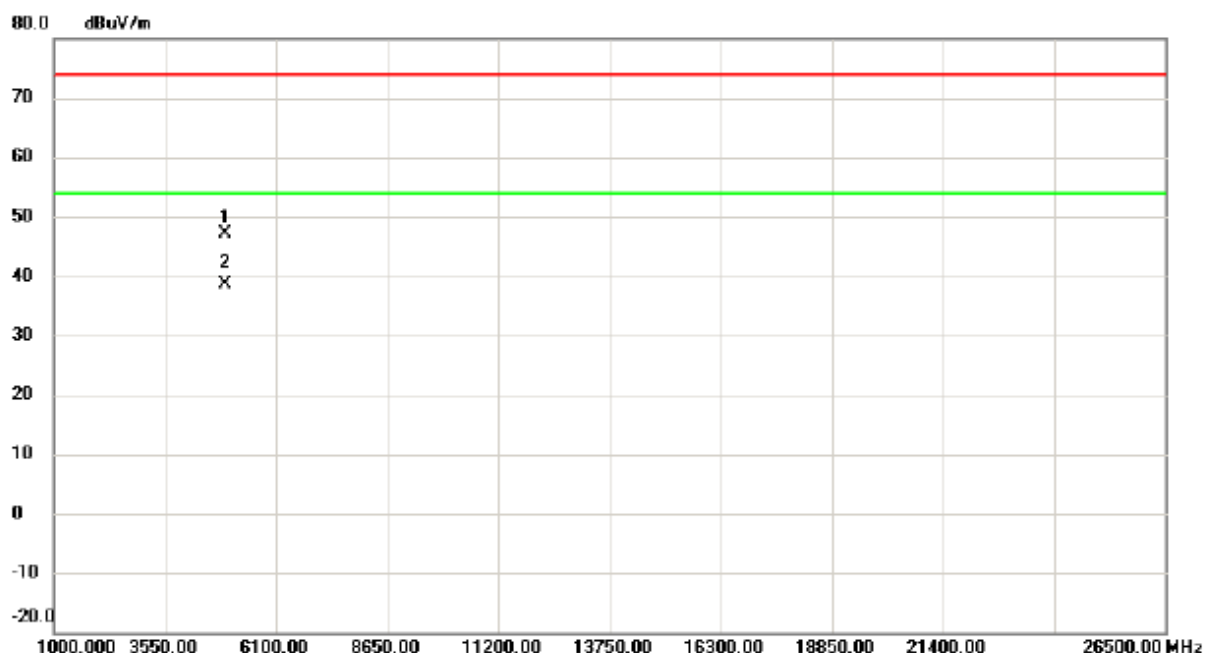
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

Vertical



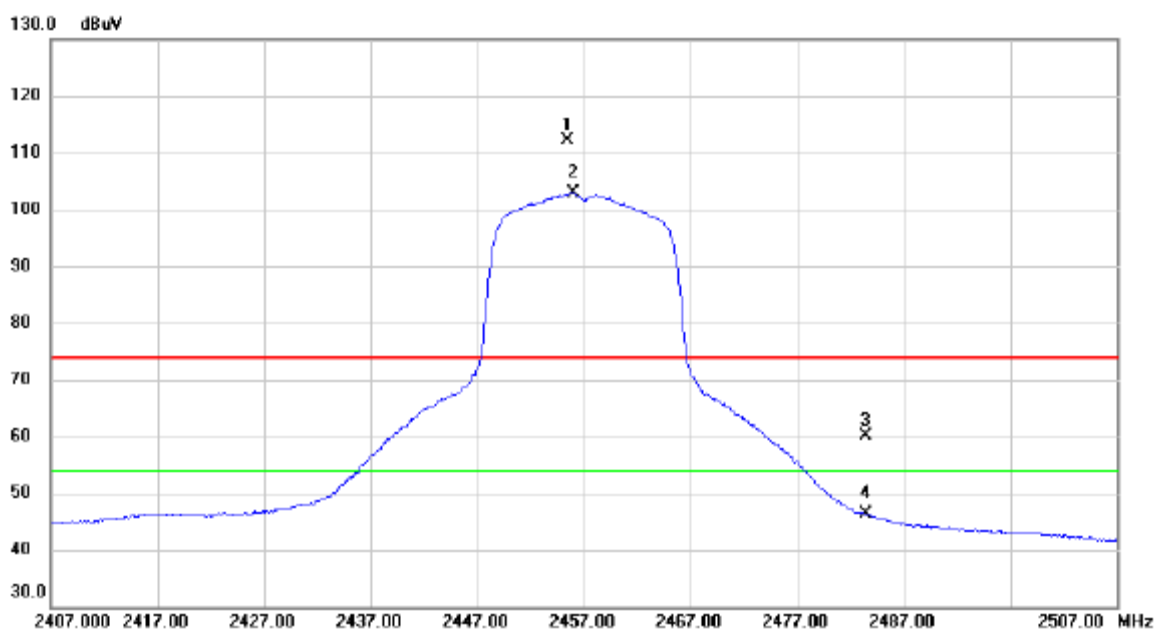
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4915.070	41.88	5.14	47.02	74.00	-26.98	peak	
2	*	4915.233	33.55	5.14	38.69	54.00	-15.31	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

Horizontal



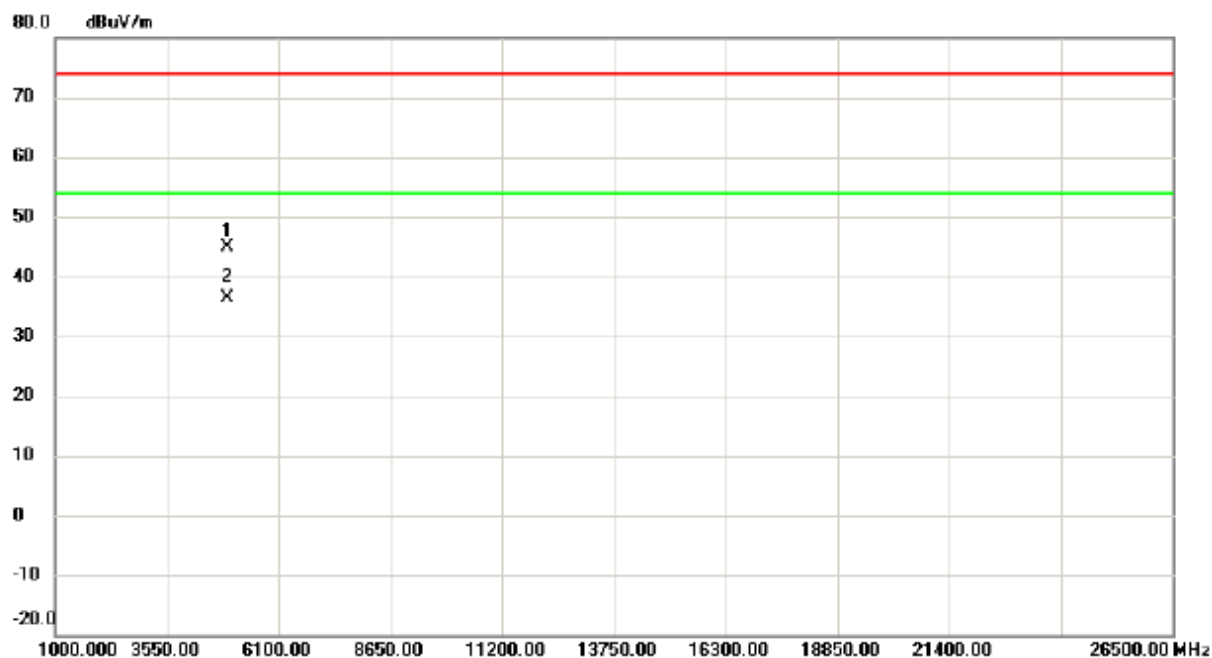
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	X	2455.500	102.80	9.28	112.08	74.00	38.08	peak	No Limit
2	*	2456.000	93.70	9.28	102.98	54.00	48.98	AVG	No Limit
3		2483.500	50.85	9.35	60.20	74.00	-13.80	peak	
4		2483.500	36.95	9.35	46.30	54.00	-7.70	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2457 MHz

Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4914.927	39.65	5.14	44.79	74.00	-29.21	peak	
2	*	4915.373	31.29	5.14	36.43	54.00	-17.57	AVG	

REMARKS:

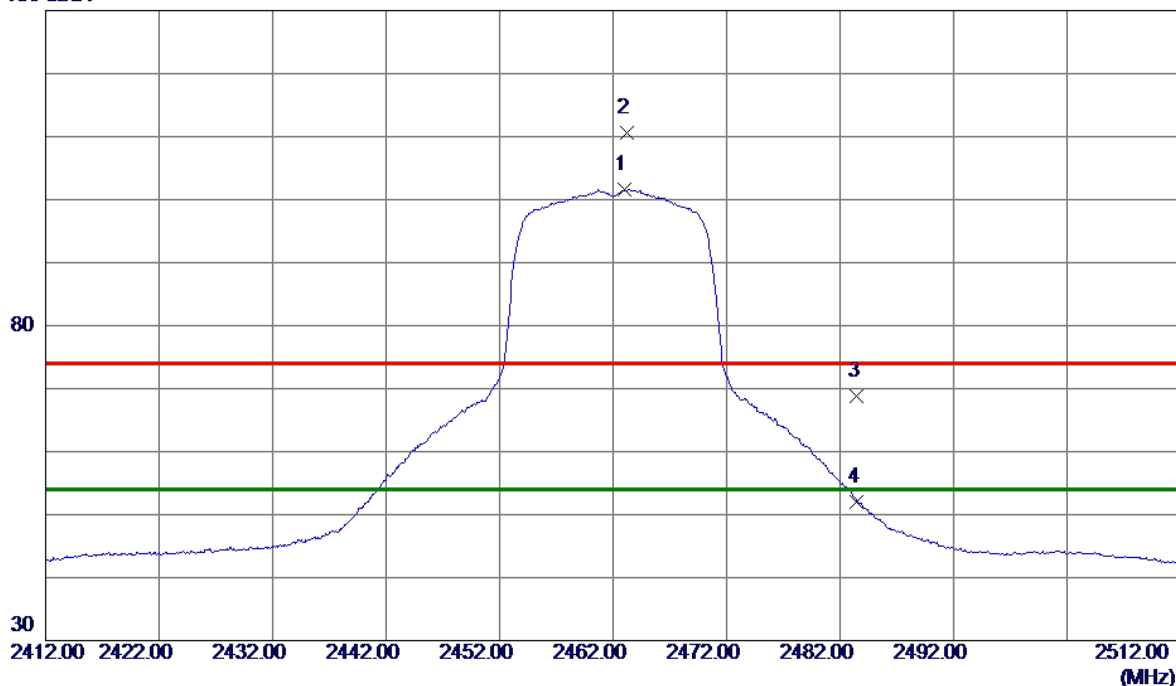
(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical

130 dBuV



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	2462.9500	92.27	9.30	101.57	54.00	47.57	AVG	No Limit
2	2463.2000	101.27	9.30	110.57	74.00	36.57	Peak	No Limit
3	2483.5000	59.39	9.35	68.74	74.00	-5.26	Peak	
4	2483.5000	42.68	9.35	52.03	54.00	-1.97	AVG	

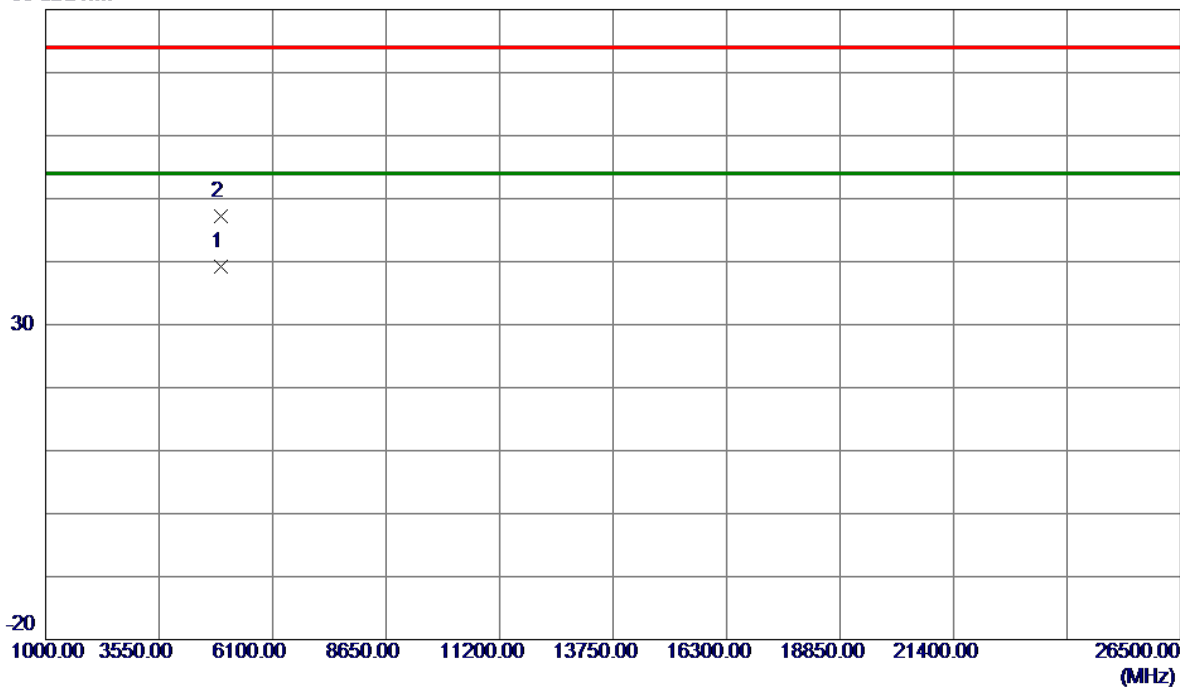
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Vertical

80 dBuV/m



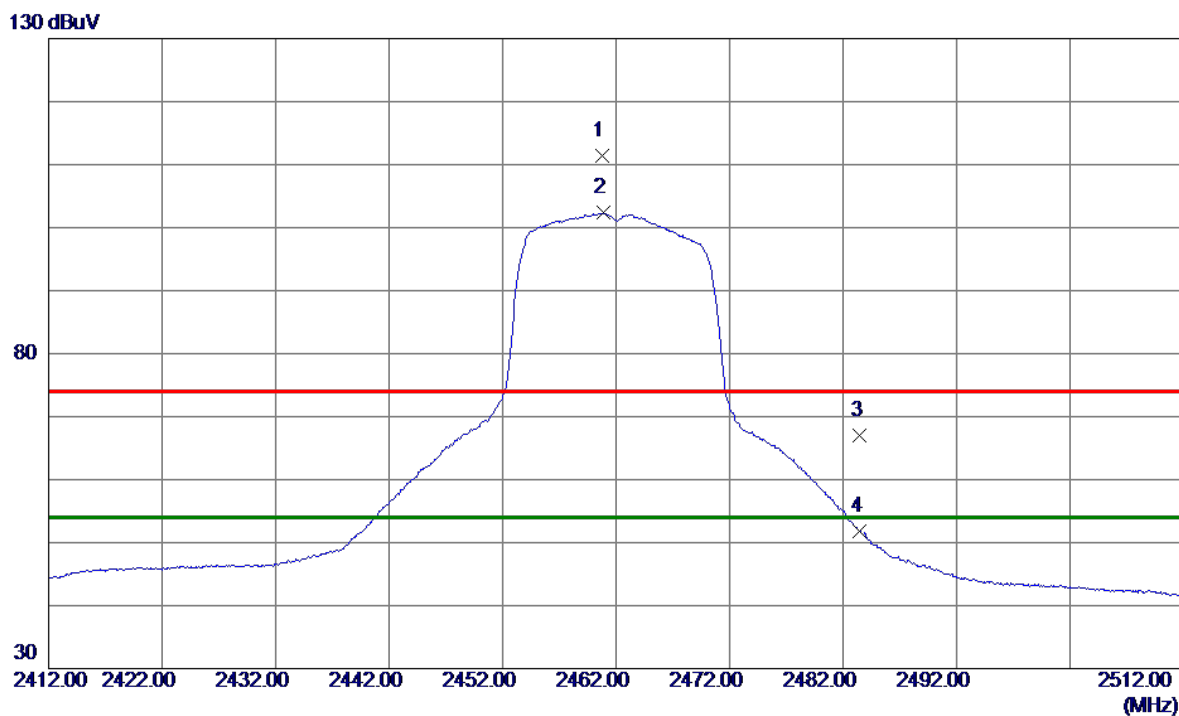
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4925.1900	34.02	5.18	39.20	54.00	-14.80	AVG	
2	4925.4129	42.07	5.18	47.25	74.00	-26.75	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2460.8000	102.02	9.29	111.31	74.00	37.31	Peak	No Limit
2 *	2460.8500	93.07	9.29	102.36	54.00	48.36	AVG	No Limit
3	2483.5000	57.59	9.35	66.94	74.00	-7.06	Peak	
4	2483.5000	42.45	9.35	51.80	54.00	-2.20	AVG	

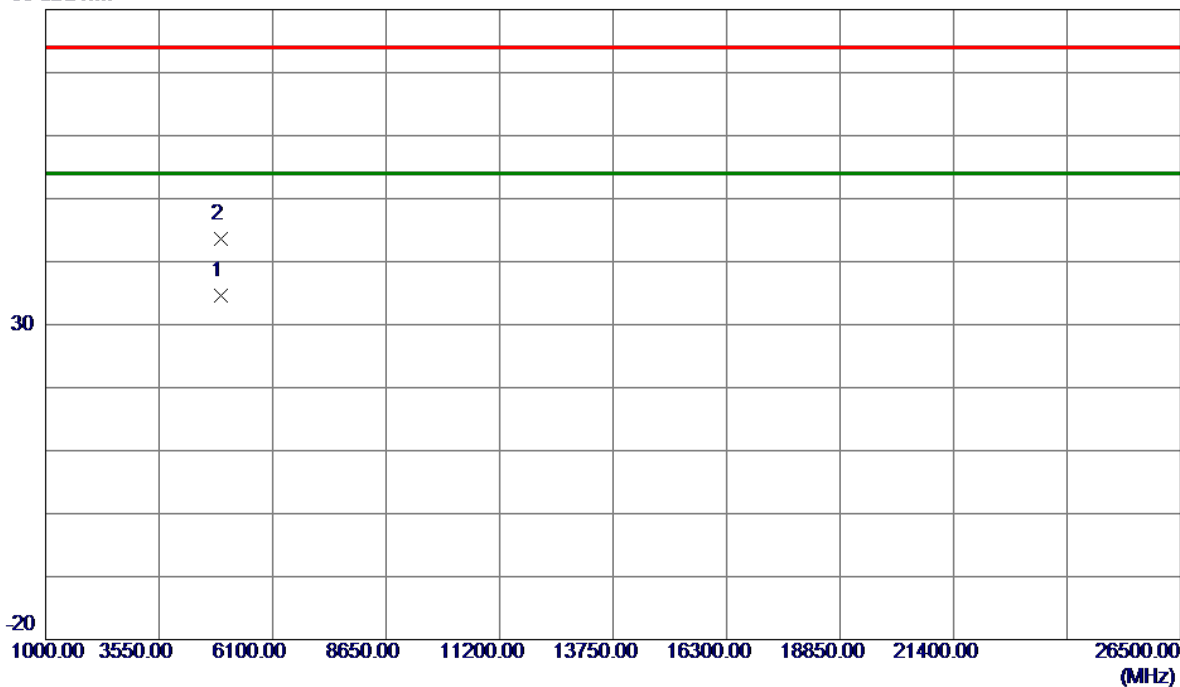
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

Orthogonal Axis	X
Test Mode:	TX G Mode 2462 MHz

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4925.2500	29.38	5.18	34.56	54.00	-19.44	AVG	
2	4925.3150	38.47	5.18	43.65	74.00	-30.35	Peak	

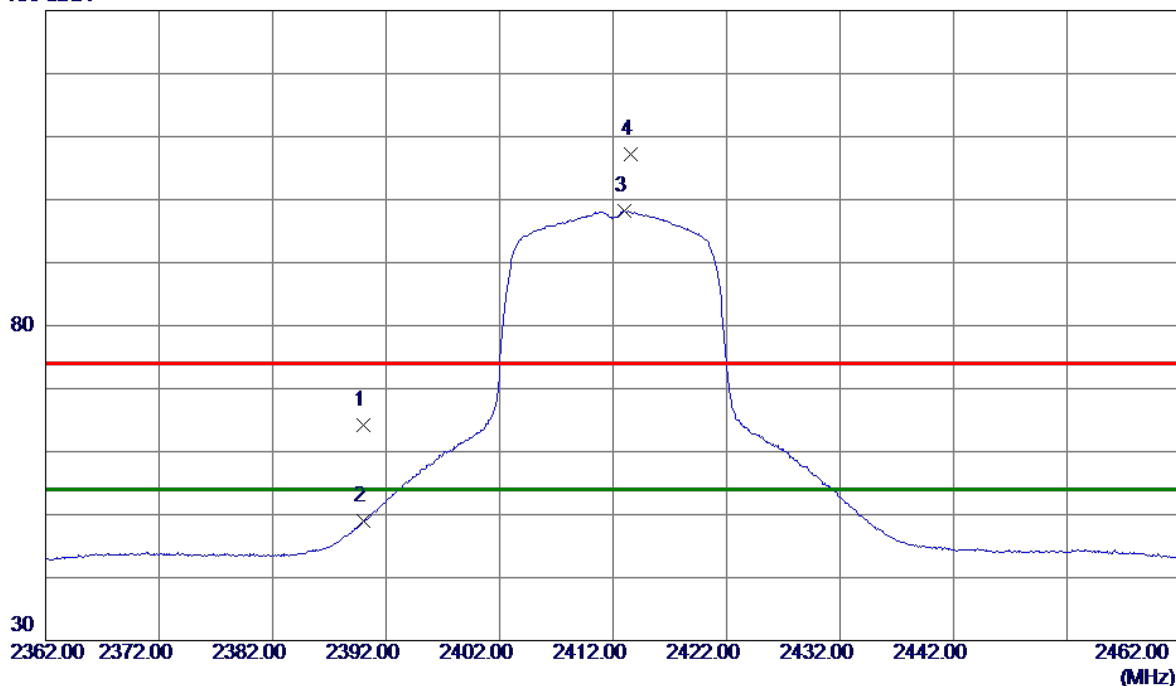
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

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

Vertical

130 dBuV



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2390.0000	55.04	9.11	64.15	74.00	-9.85	Peak	
2	2390.0000	39.82	9.11	48.93	54.00	-5.07	AVG	
3 *	2413.0500	89.05	9.17	98.22	54.00	44.22	AVG	No Limit
4	2413.5500	98.05	9.17	107.22	74.00	33.22	Peak	No Limit

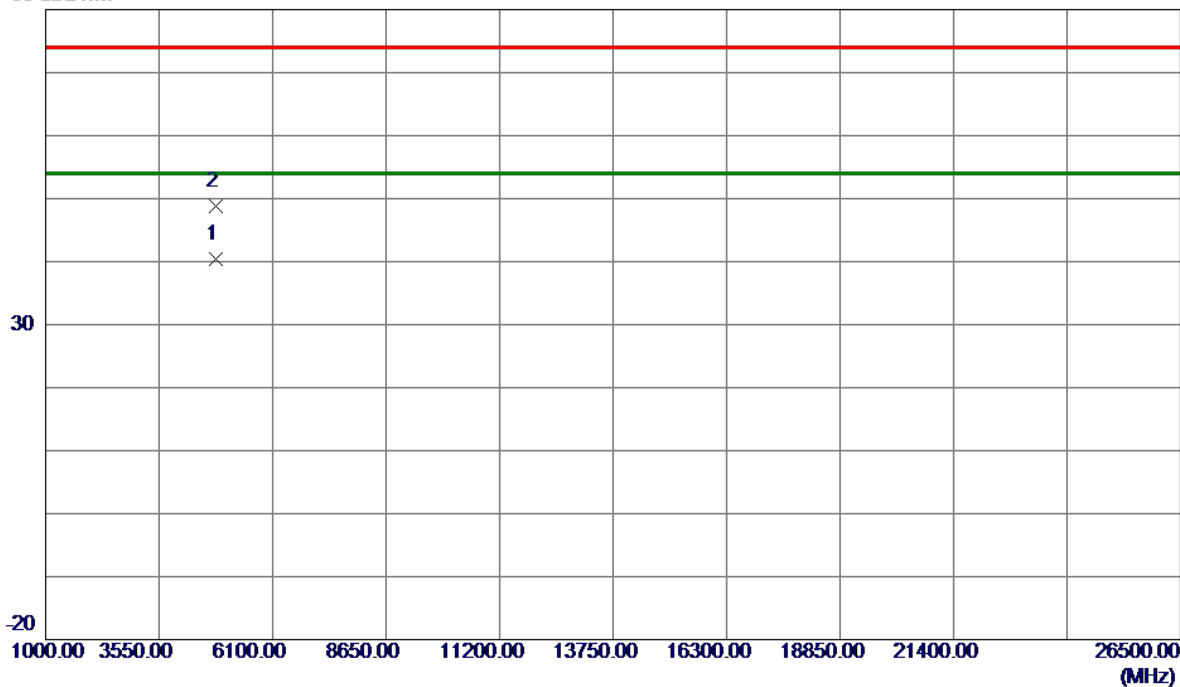
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Vertical

80 dBuV/m



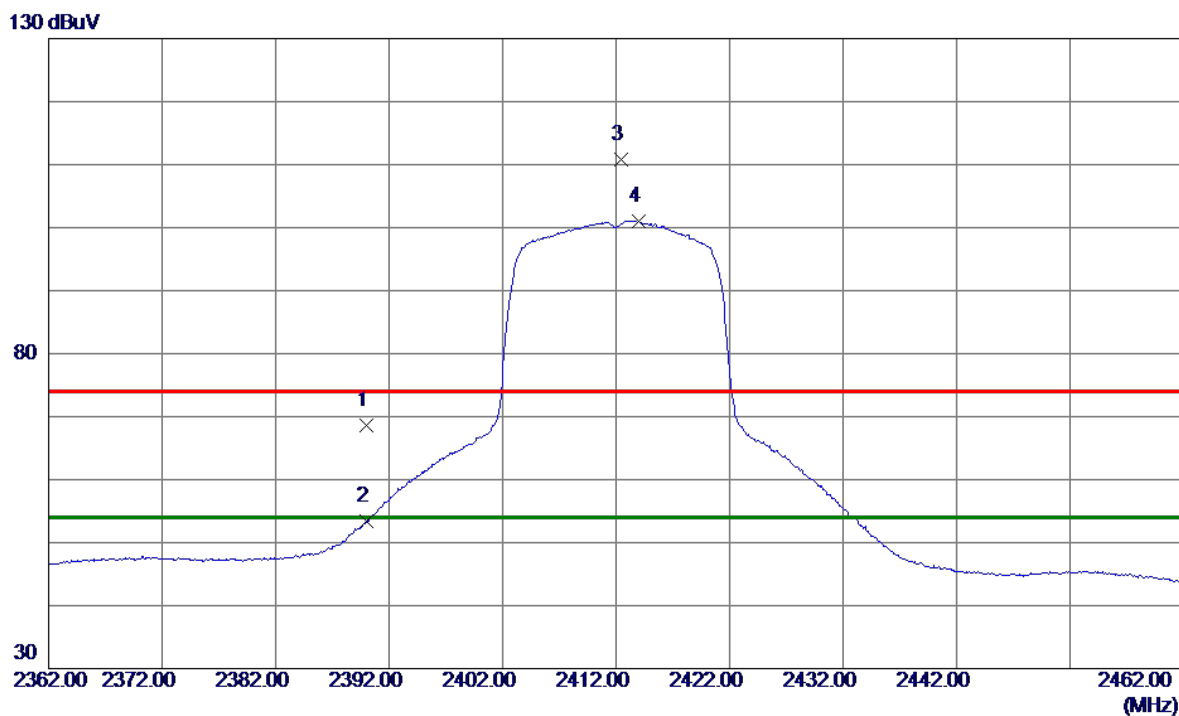
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4822.7650	35.51	4.82	40.33	54.00	-13.67	AVG	
2	4825.3630	43.98	4.83	48.81	74.00	-25.19	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2390.0000	59.45	9.11	68.56	74.00	-5.44	Peak	
2	2390.0000	44.30	9.11	53.41	54.00	-0.59	AVG	
3	2412.4500	101.66	9.17	110.83	74.00	36.83	Peak	No Limit
4 *	2414.0500	91.92	9.17	101.09	54.00	47.09	AVG	No Limit

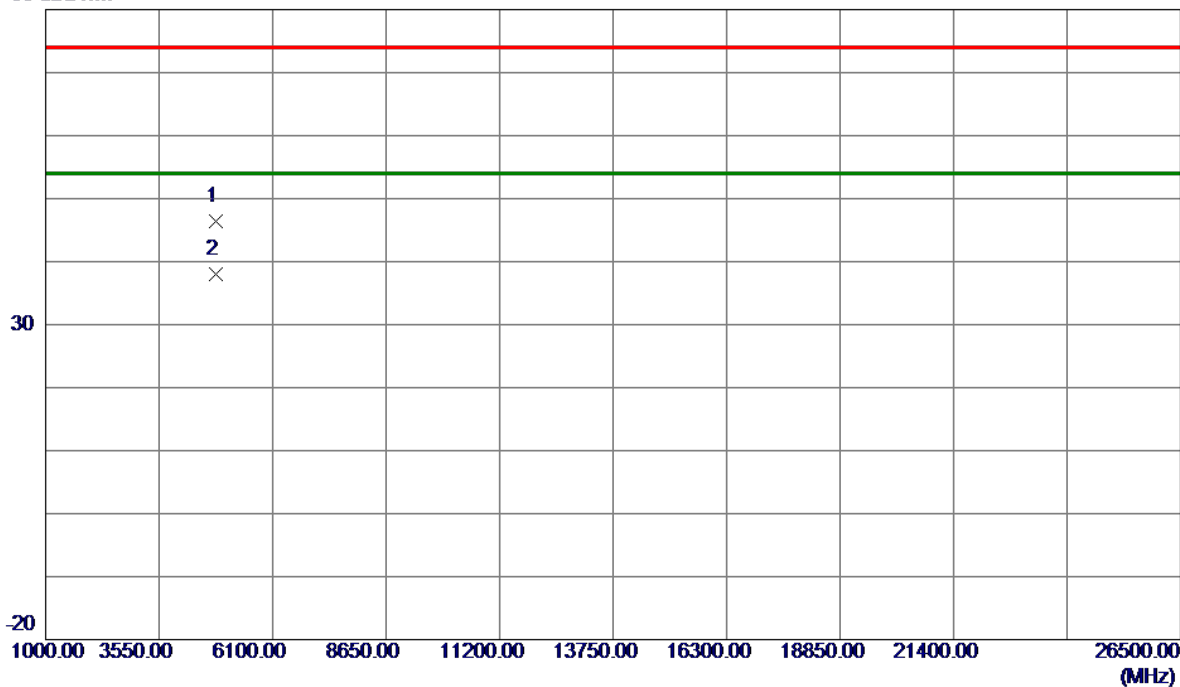
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal

80 dBuV/m



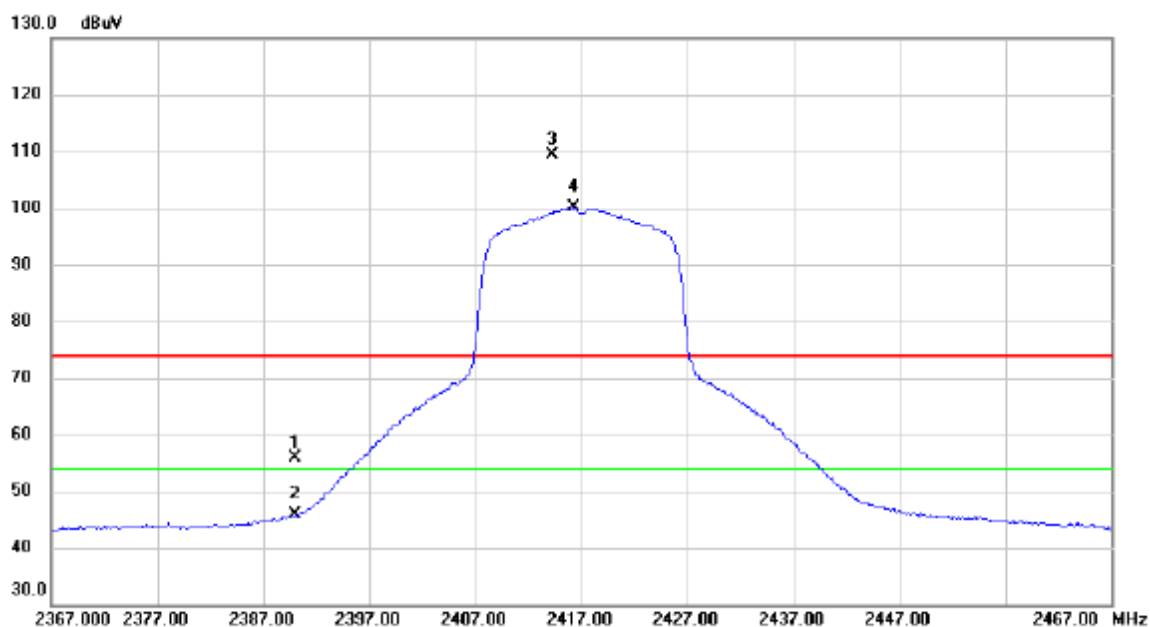
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4822.7330	41.56	4.82	46.38	74.00	-27.62	Peak	
2 *	4822.7830	33.11	4.82	37.93	54.00	-16.07	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Vertical



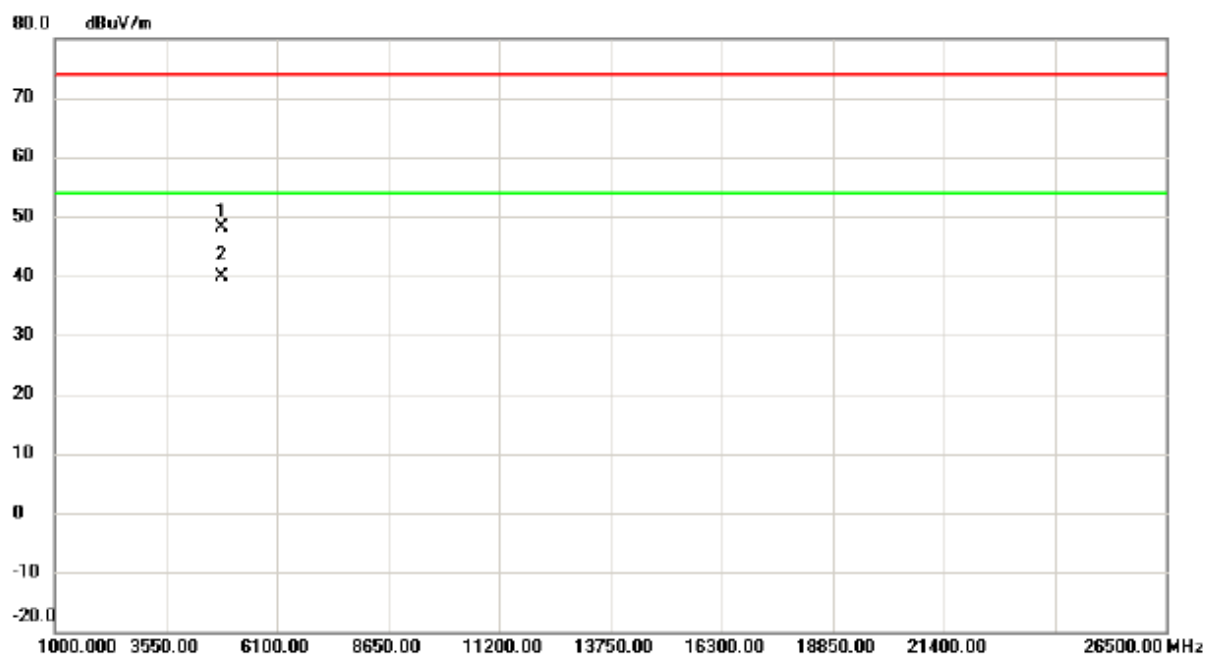
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		2390.000	46.87	9.11	55.98	74.00	-18.02	peak	
2		2390.000	36.70	9.11	45.81	54.00	-8.19	AVG	
3	X	2414.250	100.19	9.17	109.36	74.00	35.36	peak	No Limit
4	*	2416.250	90.93	9.18	100.11	54.00	46.11	AVG	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Vertical



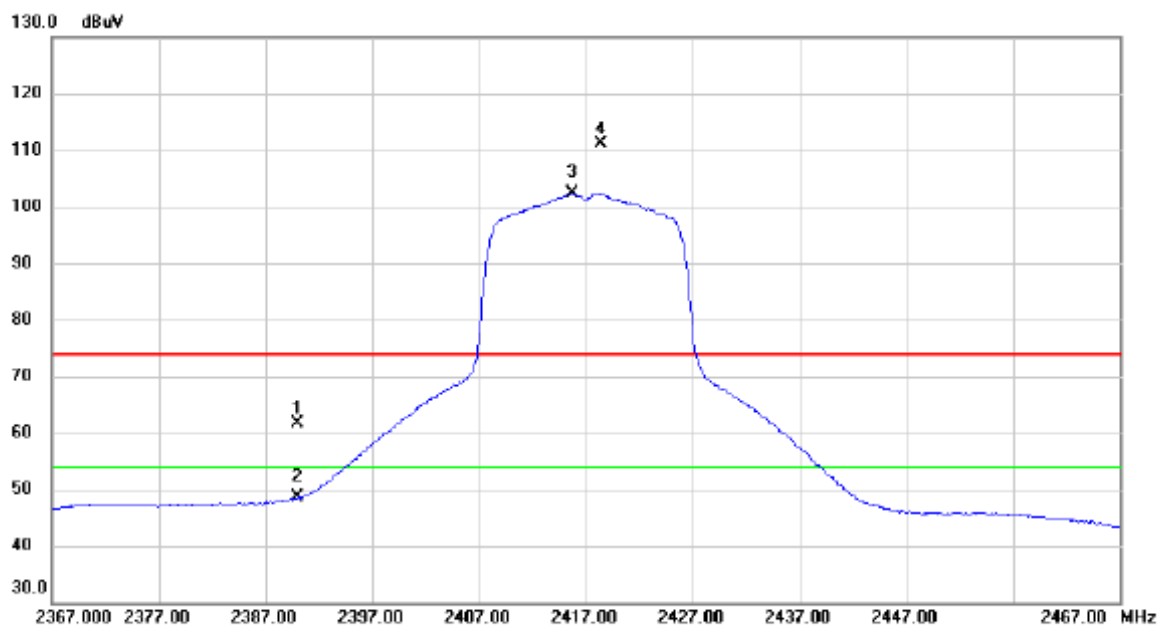
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4835.092	43.26	4.87	48.13	74.00	-25.87	peak	
2	*	4835.278	35.02	4.87	39.89	54.00	-14.11	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal



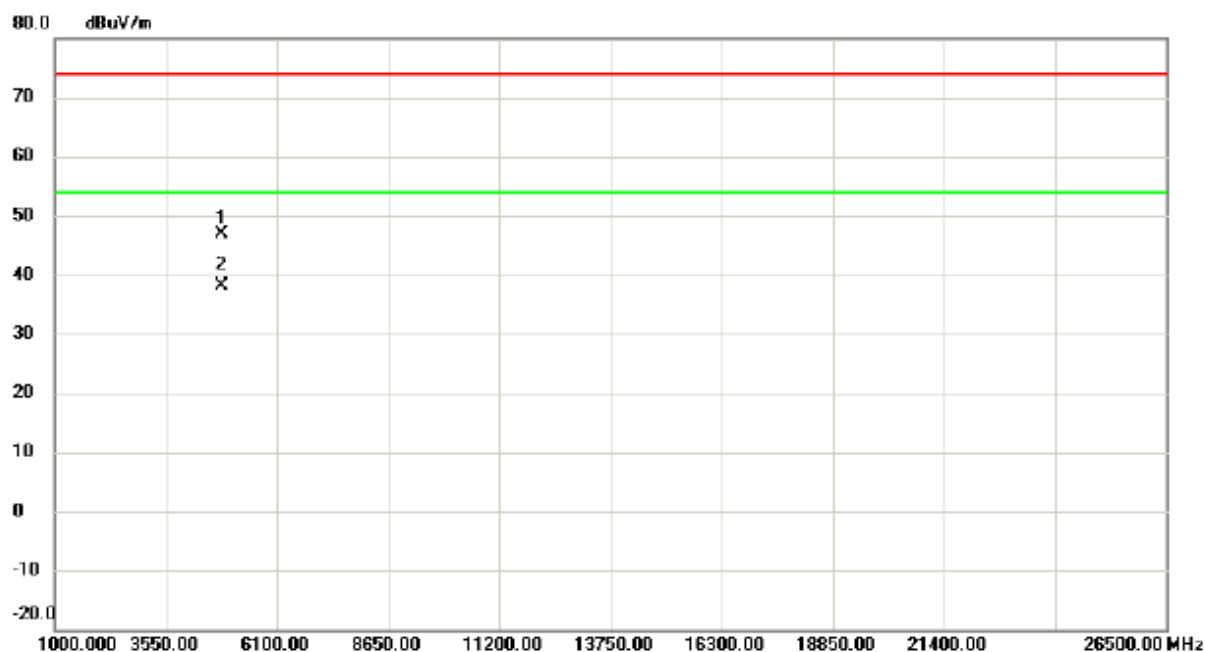
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		2390.000	52.64	9.11	61.75	74.00	-12.25	peak	
2		2390.000	39.44	9.11	48.55	54.00	-5.45	AVG	
3	*	2415.750	93.13	9.18	102.31	54.00	48.31	AVG	No Limit
4	X	2418.400	102.02	9.18	111.20	74.00	37.20	peak	No Limit

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4832.560	41.93	4.86	46.79	74.00	-27.21	peak	
2	*	4835.257	33.23	4.87	38.10	54.00	-15.90	AVG	

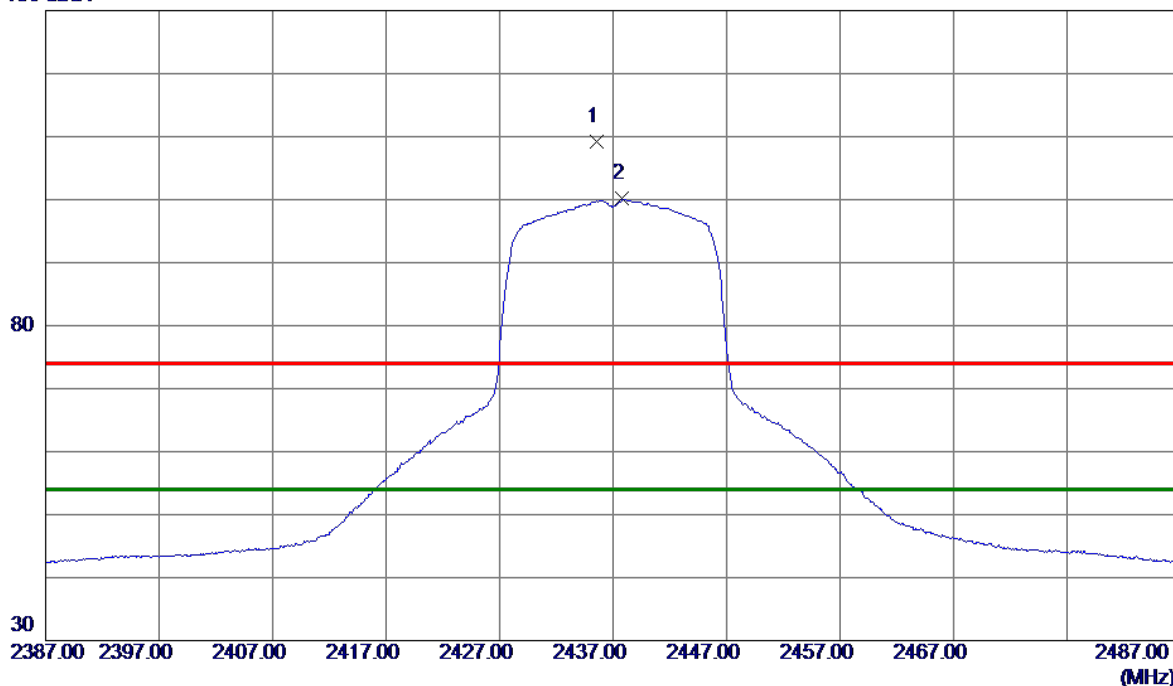
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

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

Vertical

130 dBuV



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	2435.6000	99.93	9.23	109.16	74.00	35.16	Peak	No Limit
2 *	2437.8000	90.89	9.23	100.12	54.00	46.12	AVG	No Limit

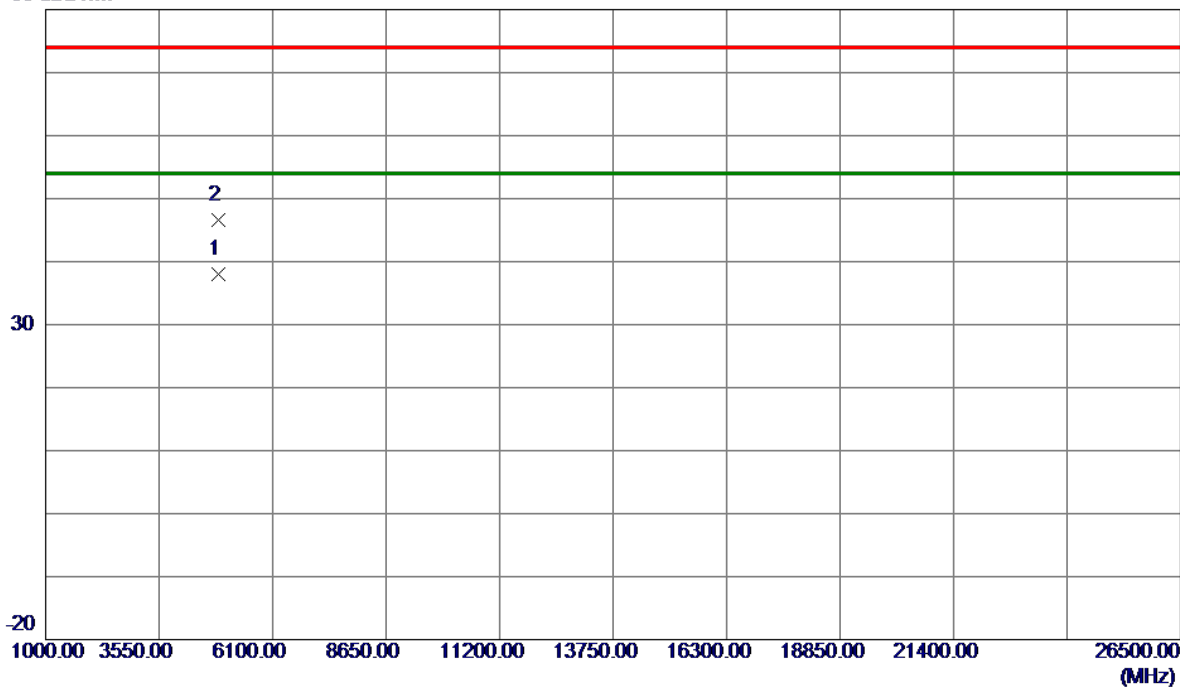
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Vertical

80 dBuV/m



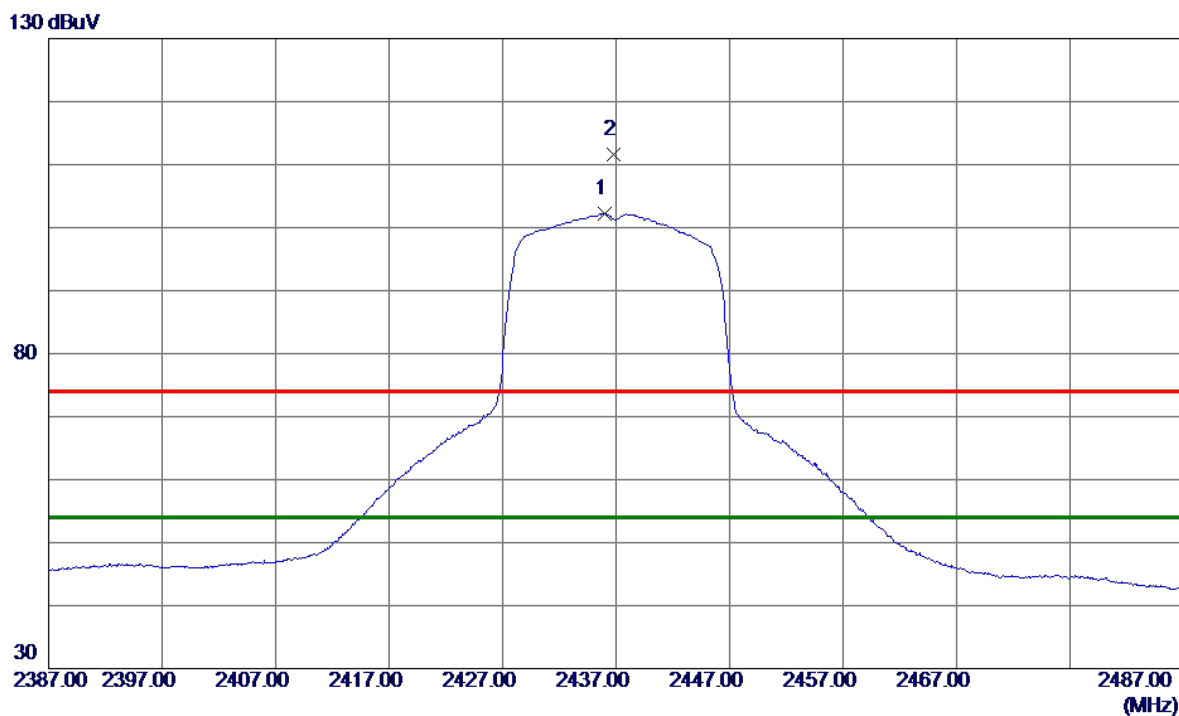
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4872.7250	33.02	5.00	38.02	54.00	-15.98	AVG	
2	4875.1980	41.51	5.01	46.52	74.00	-27.48	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	2435.9500	93.00	9.23	102.23	54.00	48.23	AVG	No Limit
2	2436.8000	102.39	9.23	111.62	74.00	37.62	Peak	No Limit

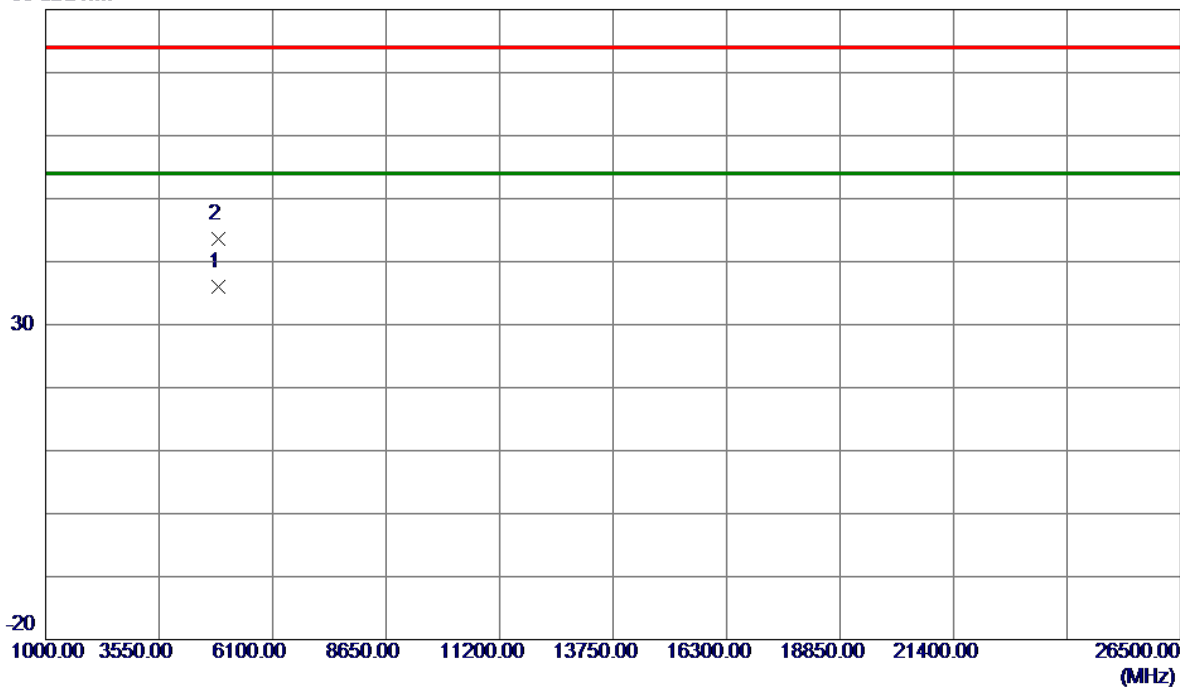
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal

80 dBuV/m



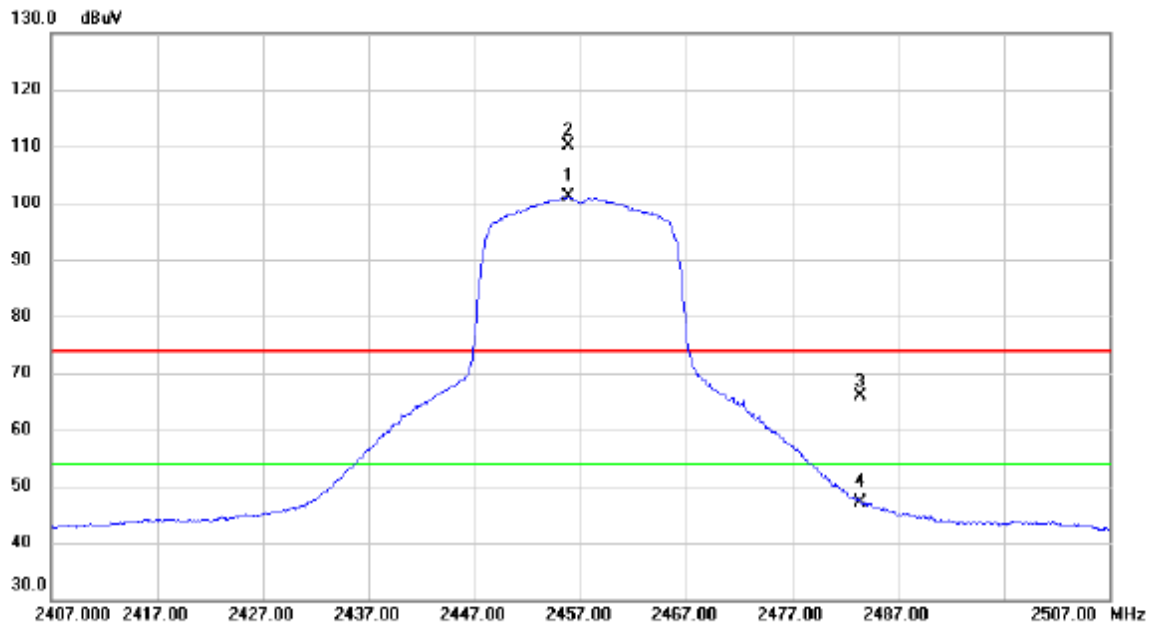
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4872.6900	30.99	5.00	35.99	54.00	-18.01	AVG	
2	4875.4980	38.64	5.01	43.65	74.00	-30.35	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

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

Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	2455.850	91.77	9.28	101.05	54.00	47.05	AVG	No Limit
2	X	2455.900	100.79	9.28	110.07	74.00	36.07	peak	No Limit
3		2483.500	56.41	9.35	65.76	74.00	-8.24	peak	
4		2483.500	37.71	9.35	47.06	54.00	-6.94	AVG	

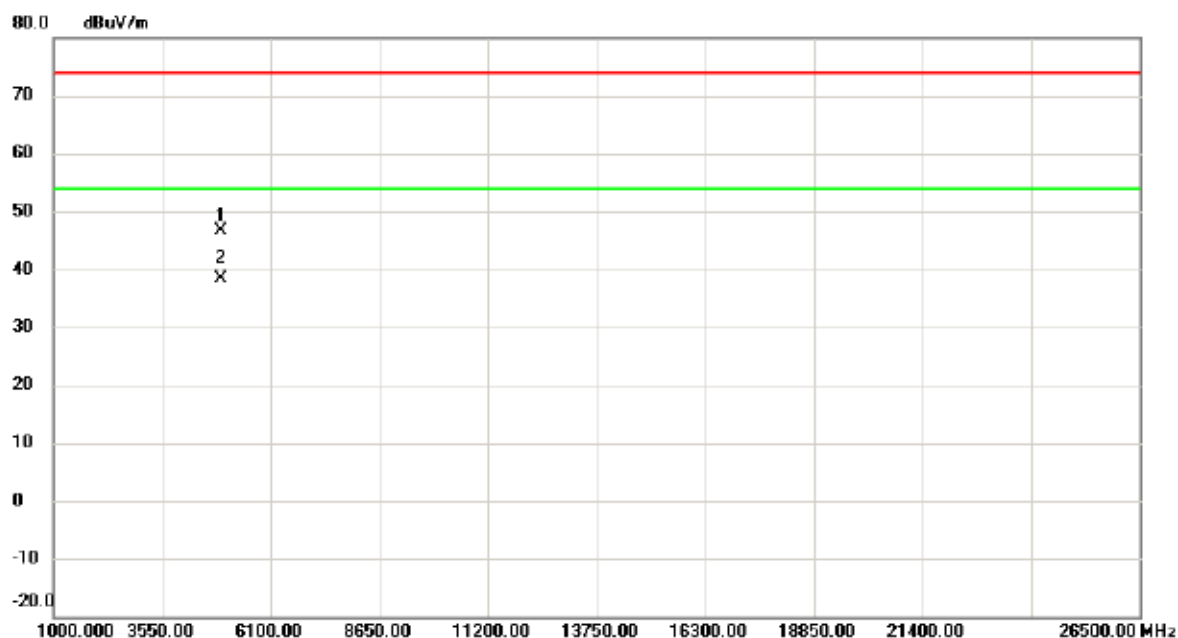
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

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

Vertical



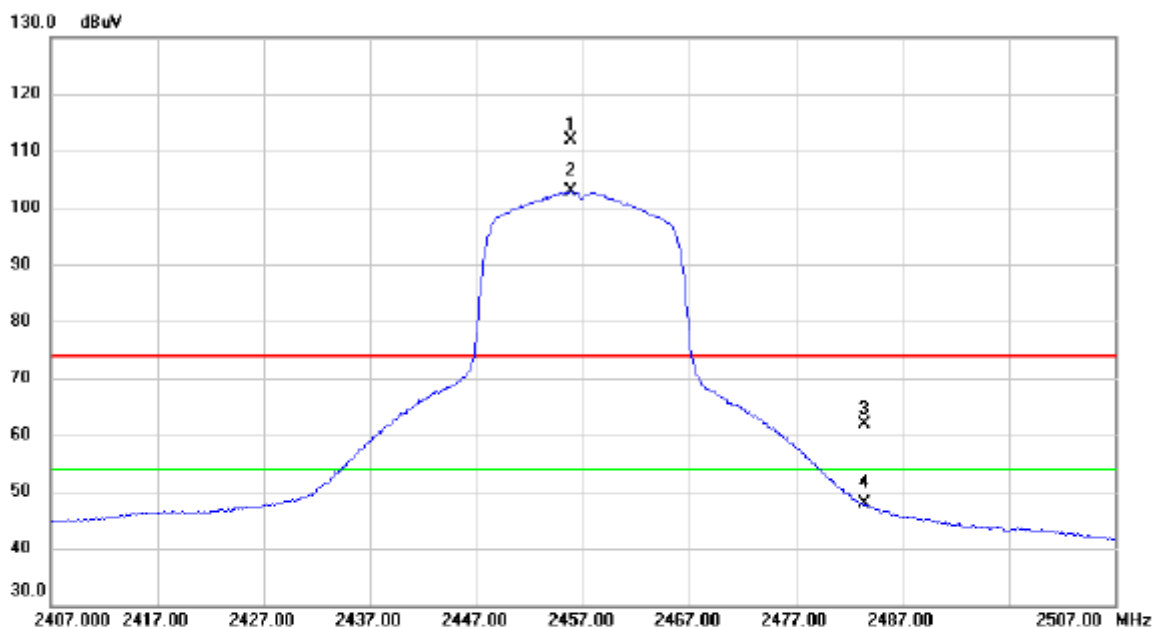
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4915.130	41.57	5.14	46.71	74.00	-27.29	peak	
2	*	4915.208	33.26	5.14	38.40	54.00	-15.60	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	X	2455.800	102.59	9.28	111.87	74.00	37.87	peak	No Limit
2	*	2455.900	93.58	9.28	102.86	54.00	48.86	AVG	No Limit
3		2483.500	52.53	9.35	61.88	74.00	-12.12	peak	
4		2483.500	38.47	9.35	47.82	54.00	-6.18	AVG	

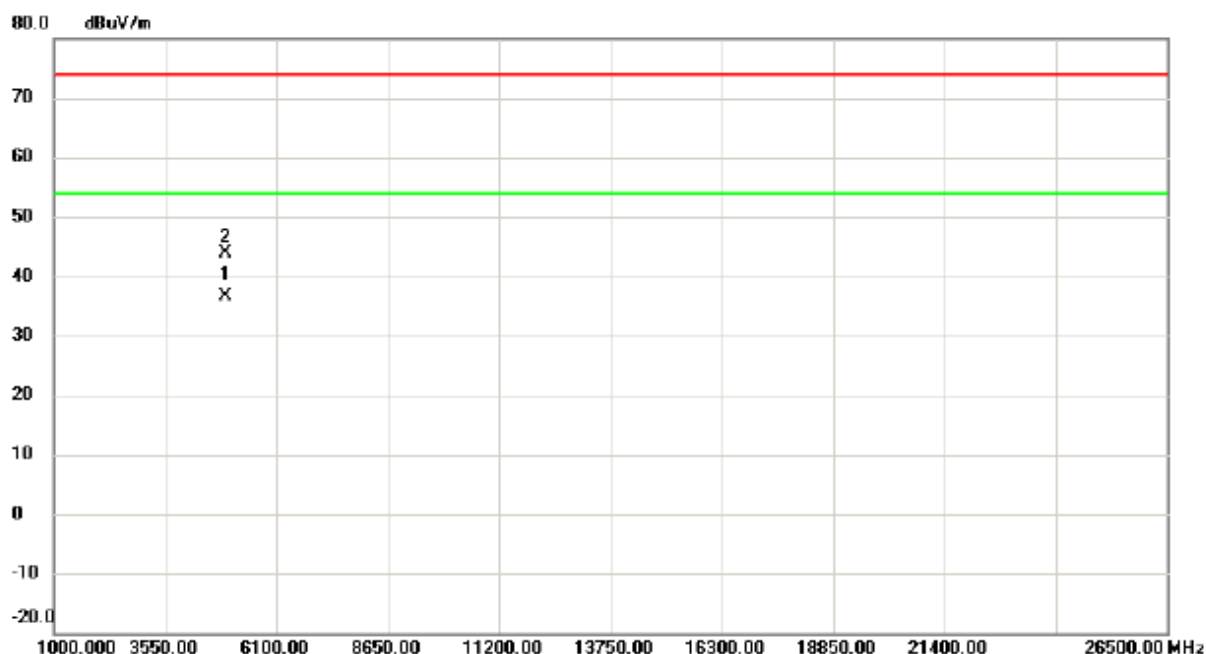
REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

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

Horizontal



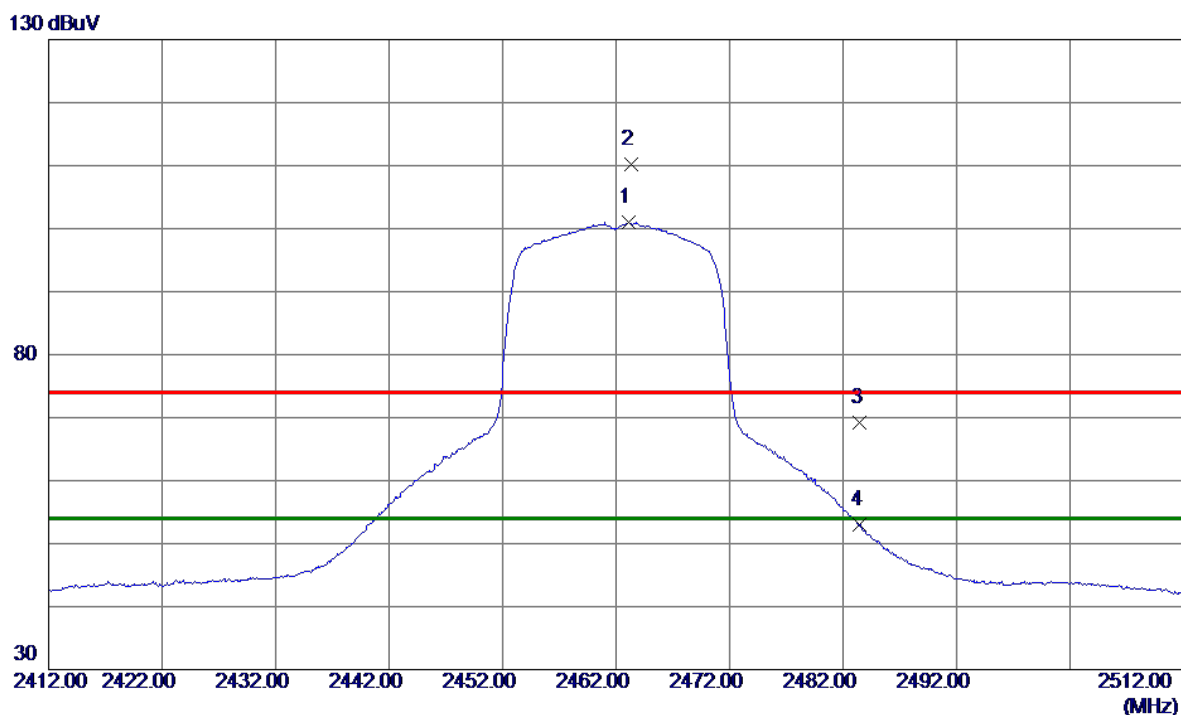
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4915.260	31.51	5.14	36.65	54.00	-17.35	AVG	
2		4915.283	38.65	5.14	43.79	74.00	-30.21	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

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

Vertical



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	2463.1500	91.64	9.30	100.94	54.00	46.94	AVG	No Limit
2	2463.3500	100.97	9.30	110.27	74.00	36.27	Peak	No Limit
3	2483.5000	59.94	9.35	69.29	74.00	-4.71	Peak	
4	2483.5000	43.56	9.35	52.91	54.00	-1.09	AVG	

REMARKS:

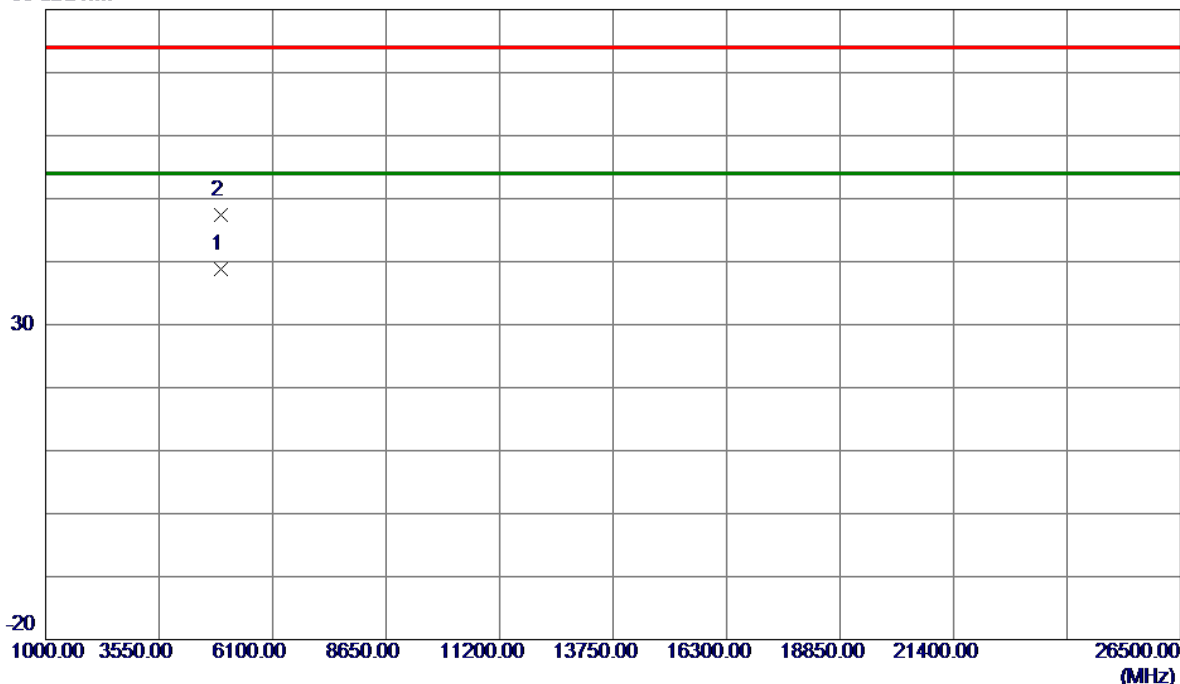
(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

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

Vertical

80 dBuV/m



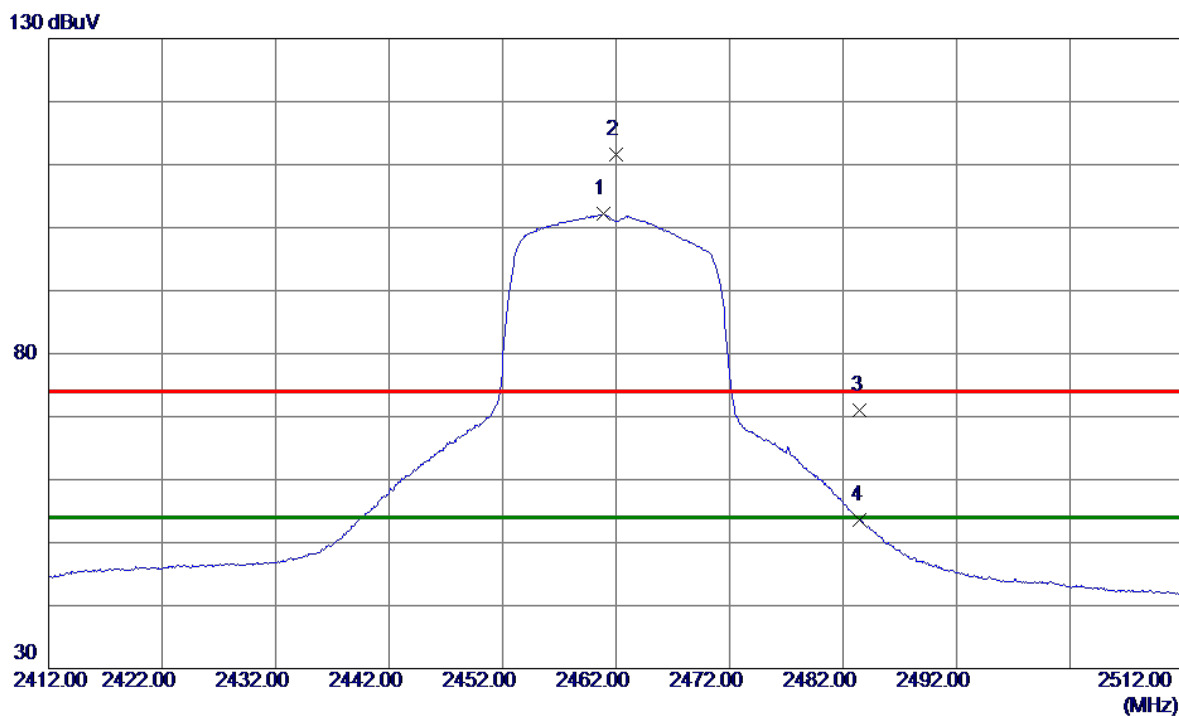
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4925.1750	33.59	5.18	38.77	54.00	-15.23	AVG	
2	4925.2200	42.19	5.18	47.37	74.00	-26.63	Peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal



No.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1 *	2460.8500	92.95	9.29	102.24	54.00	48.24	AVG	No Limit
2	2462.0500	102.35	9.29	111.64	74.00	37.64	Peak	No Limit
3	2483.5000	61.60	9.35	70.95	74.00	-3.05	Peak	
4	2483.5000	44.33	9.35	53.68	54.00	-0.32	AVG	

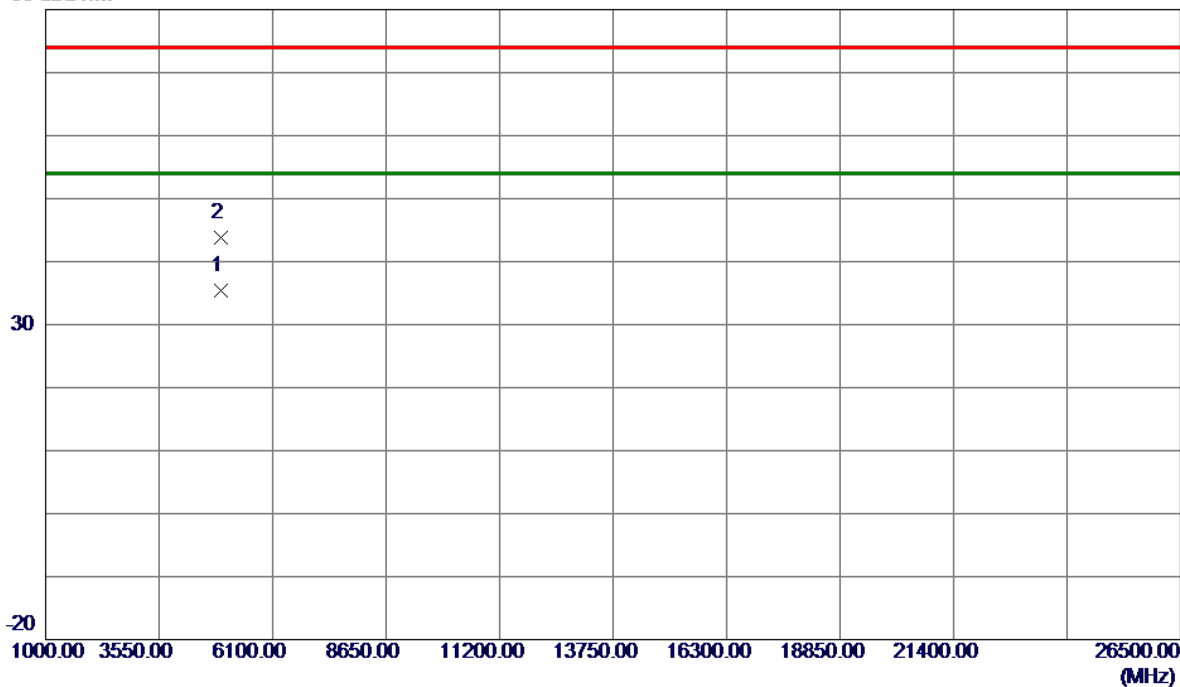
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value - Limit Value.

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

Horizontal

80 dBuV/m



No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4925.1580	30.28	5.18	35.46	54.00	-18.54	AVG	
2	4925.1750	38.65	5.18	43.83	74.00	-30.17	Peak	

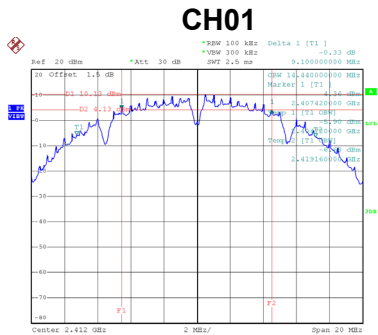
REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

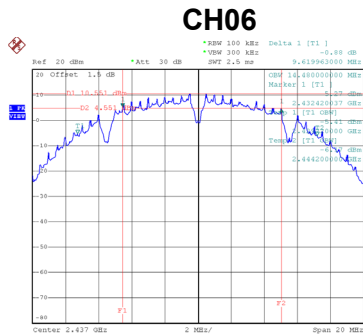
APPENDIX E - BANDWIDTH

Test Mode	TX B Mode
-----------	-----------

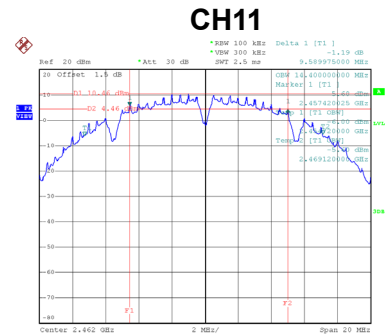
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	9.10	500	Complies
06	2437	9.62	500	Complies
11	2462	9.59	500	Complies



Date: 20.FEB.2019 20:49:53



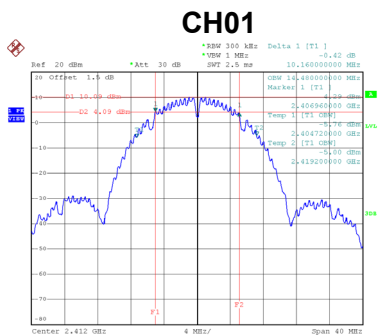
Date: 20.FEB.2019 20:57:51



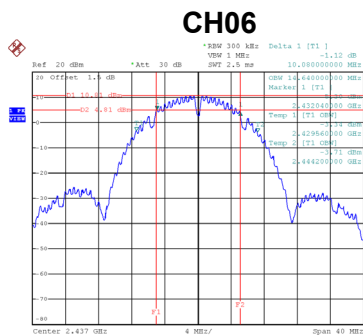
Date: 20.FEB.2019 21:00:29

Test Mode	TX B Mode
-----------	-----------

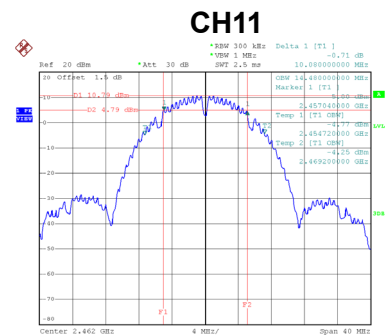
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	14.48	Complies
06	2437	14.64	Complies
11	2462	14.48	Complies



Date: 20.FEB.2019 22:28:03



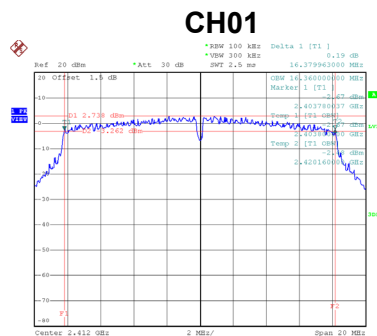
Date: 9.FEB.2019 06:41:33



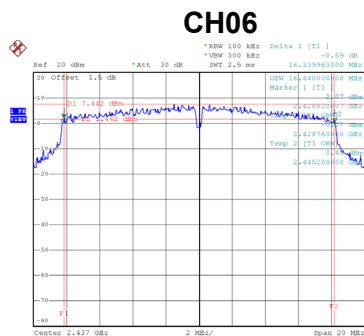
Date: 20.FEB.2019 22:31:45

Test Mode	TX G Mode
-----------	-----------

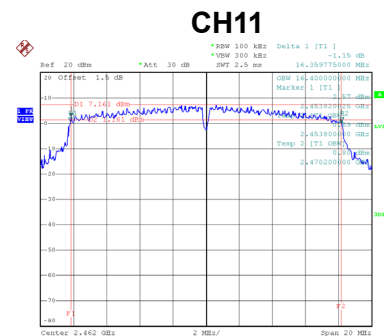
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	16.38	500	Complies
06	2437	16.34	500	Complies
11	2462	16.36	500	Complies



Date: 20.FEB.2019 22:10:04



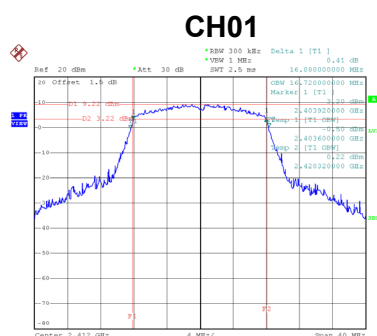
Date: 20.FEB.2019 21:07:08



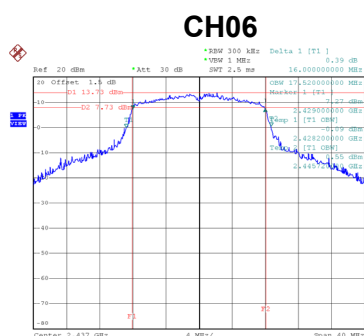
Date: 20.FEB.2019 21:09:22

Test Mode	TX G Mode
-----------	-----------

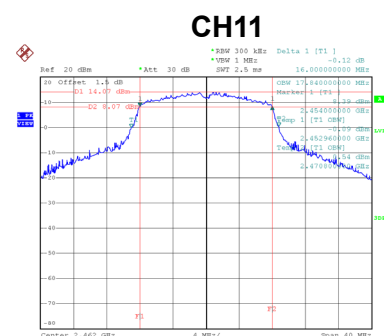
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	16.72	Complies
06	2437	17.52	Complies
11	2462	17.84	Complies



Date: 27.FEB.2019 18:59:23



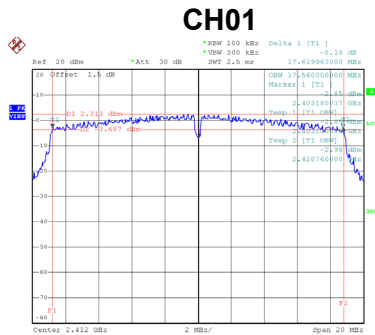
Date: 27.FEB.2019 19:06:18



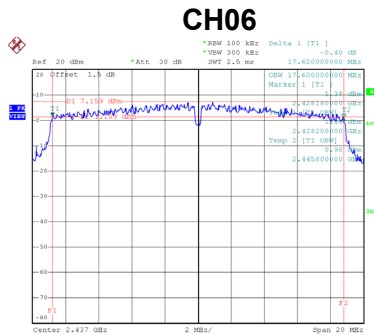
Date: 27.FEB.2019 19:04:44

Test Mode TX N (HT20) Mode

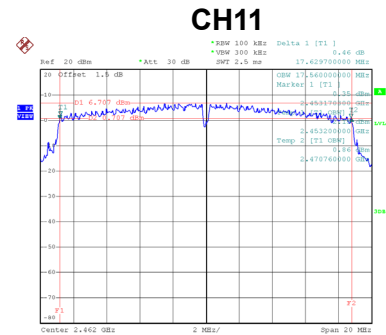
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	17.62	500	Complies
06	2437	17.62	500	Complies
11	2462	17.63	500	Complies



Date: 20.FEB.2019 22:13:54



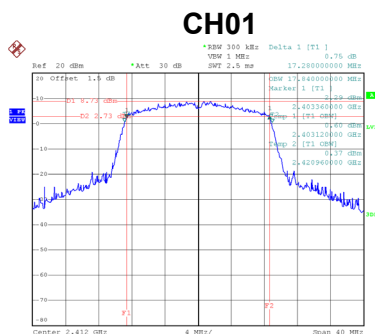
Date: 20.FEB.2019 21:14:15



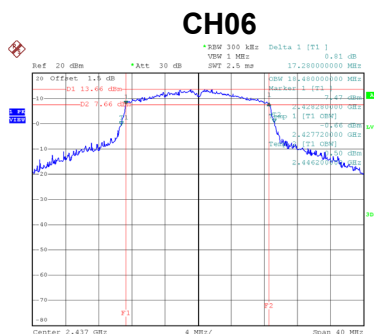
Date: 20.FEB.2019 21:16:08

Test Mode TX N (HT20) Mode

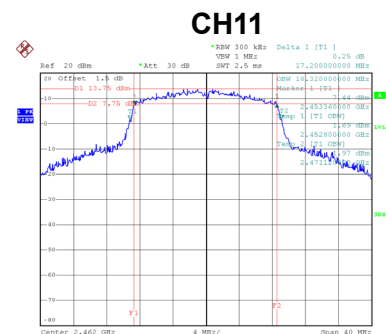
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	17.84	Complies
06	2437	18.48	Complies
11	2462	18.32	Complies



Date: 27.FEB.2019 14:13:18



Date: 27.FEB.2019 14:06:48



Date: 27.FEB.2019 14:10:36

APPENDIX F - MAXIMUM AVERAGE OUTPUT POWER

Test Mode	TX B Mode
-----------	-----------

Channel	Frequency (MHz)	Average Output Power (dBm)	Average Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	20.71	0.1178	30.00	1.0000	Complies
06	2437	20.91	0.1233	30.00	1.0000	Complies
11	2462	20.72	0.1180	30.00	1.0000	Complies

Test Mode	TX G Mode
-----------	-----------

Channel	Frequency (MHz)	Average Output Power (dBm)	Average Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	16.92	0.0492	30.00	1.0000	Complies
06	2437	20.75	0.1189	30.00	1.0000	Complies
11	2462	20.66	0.1164	30.00	1.0000	Complies

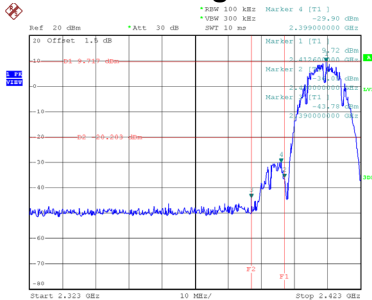
Test Mode	TX N (HT20) Mode
-----------	------------------

Channel	Frequency (MHz)	Average Output Power (dBm)	Average Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	16.04	0.0402	30.00	1.0000	Complies
06	2437	20.72	0.1180	30.00	1.0000	Complies
11	2462	20.55	0.1135	30.00	1.0000	Complies

APPENDIX G - CONDUCTED SPURIOUS EMISSIONS

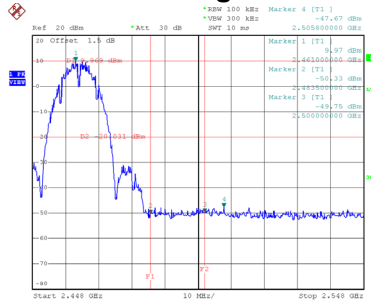
Test Mode TX B Mode

Bandedge-CH01



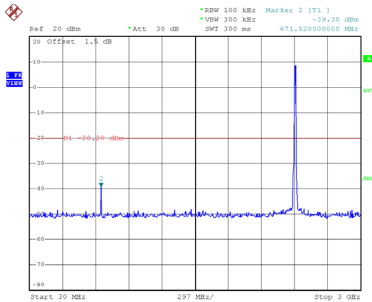
Date: 20.FEB.2019 20:50:02

Bandedge-CH11

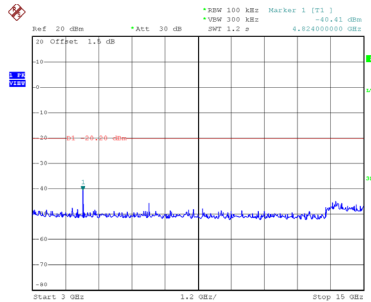


Date: 20.FEB.2019 21:00:38

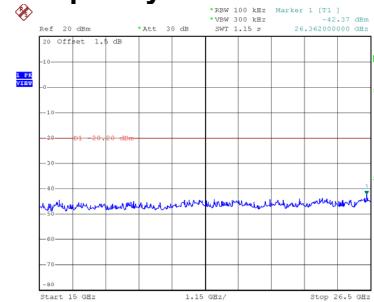
CH01 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 20:50:16

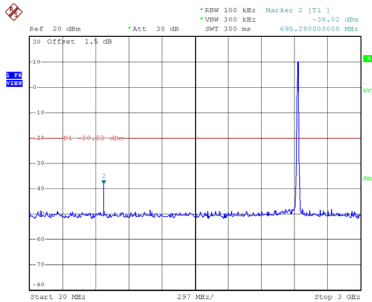


Date: 20.FEB.2019 20:50:25

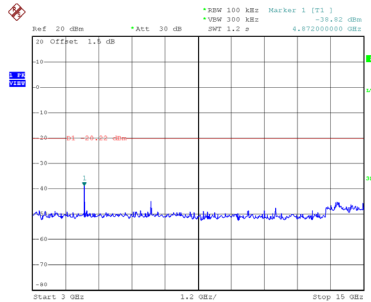


Date: 20.FEB.2019 20:50:33

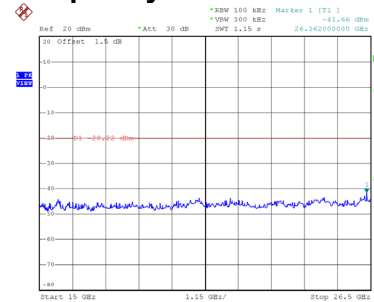
CH06 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 20:58:14

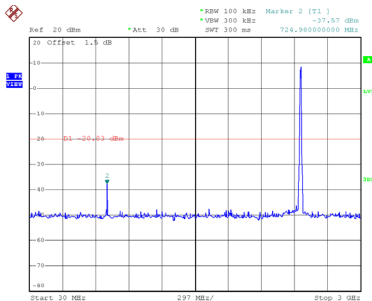


Date: 20.FEB.2019 20:58:22

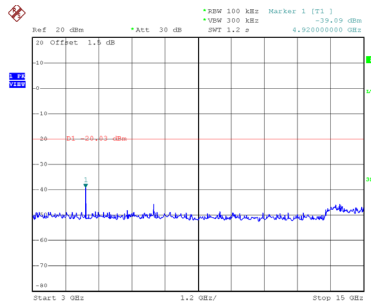


Date: 20.FEB.2019 20:58:31

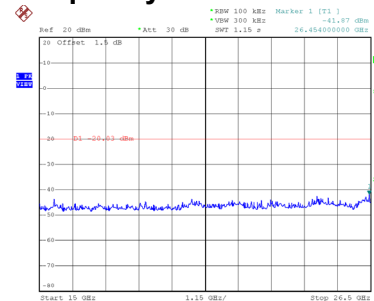
CH11 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 21:00:52



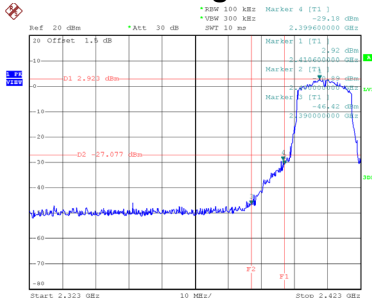
Date: 20.FEB.2019 21:01:01



Date: 20.FEB.2019 21:01:09

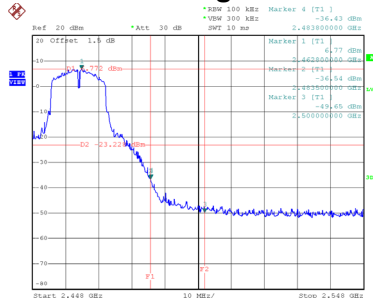
Test Mode TX G Mode

Bandedge-CH01



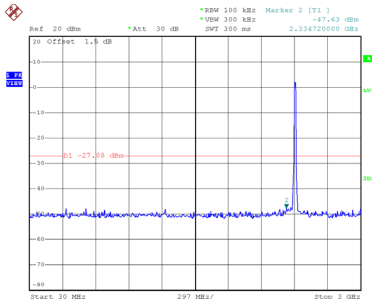
Date: 20.FEB.2019 22:09:45

Bandedge-CH11

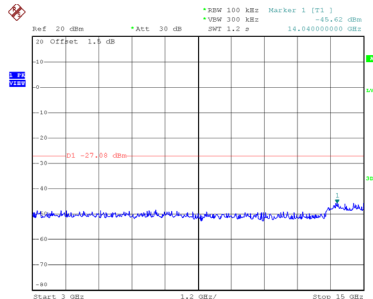


Date: 20.FEB.2019 21:09:31

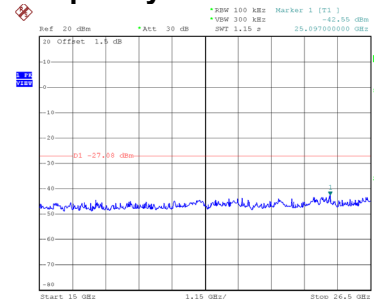
CH01 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 22:10:18

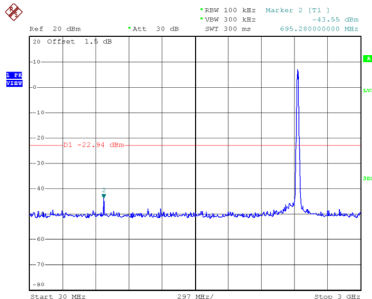


Date: 20.FEB.2019 22:10:27

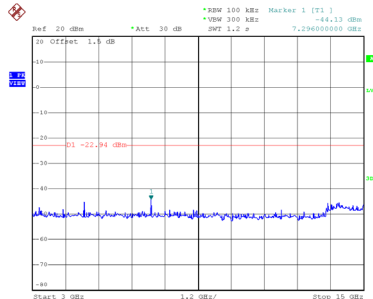


Date: 20.FEB.2019 22:10:36

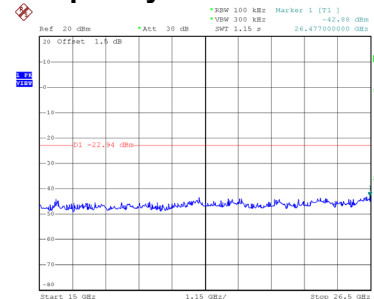
CH06 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 21:07:30

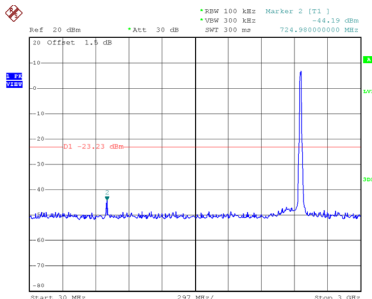


Date: 20.FEB.2019 21:07:39

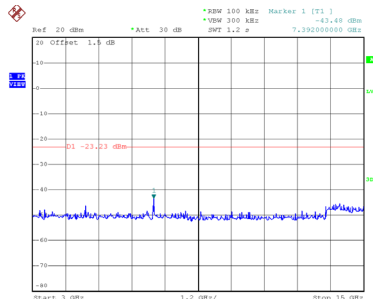


Date: 20.FEB.2019 21:07:48

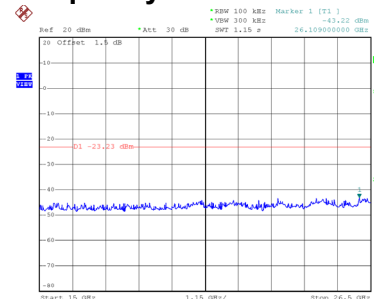
CH11 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 21:09:45



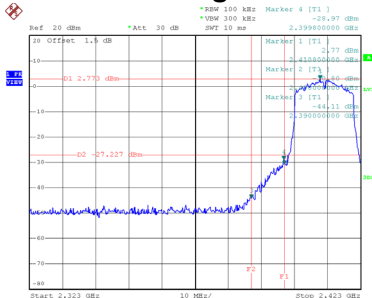
Date: 20.FEB.2019 21:09:53



Date: 20.FEB.2019 21:10:02

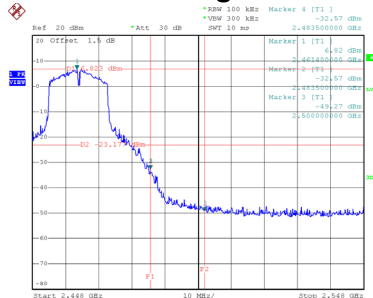
Test Mode TX N (HT20) Mode

Bandedge-CH01



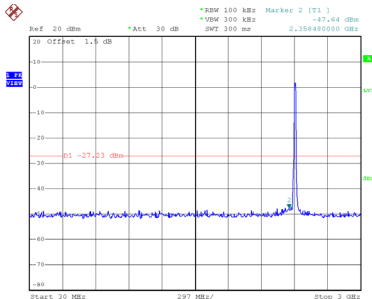
Date: 20.FEB.2019 22:13:38

Bandedge-CH11

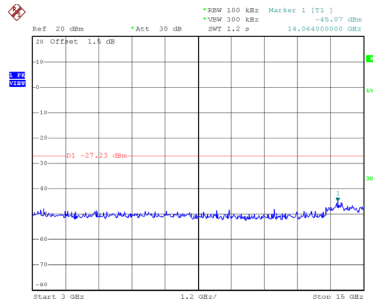


Date: 20.FEB.2019 21:16:16

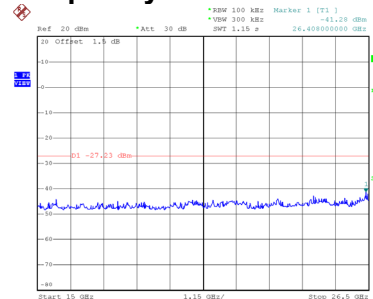
CH01 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 22:14:08

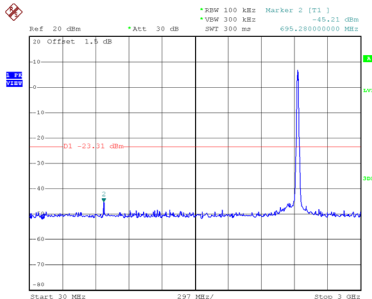


Date: 20.FEB.2019 22:14:16

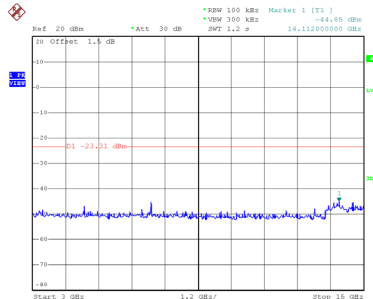


Date: 20.FEB.2019 22:14:25

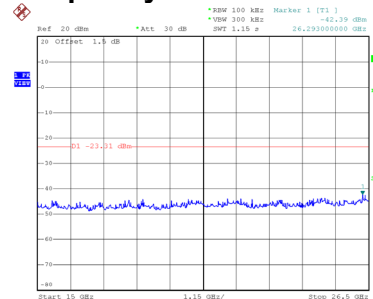
CH06 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 21:14:38

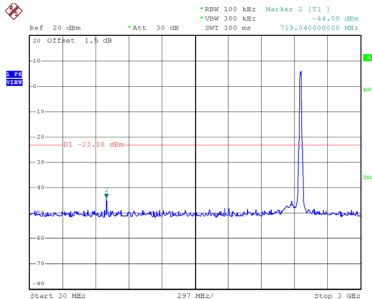


Date: 20.FEB.2019 21:14:47

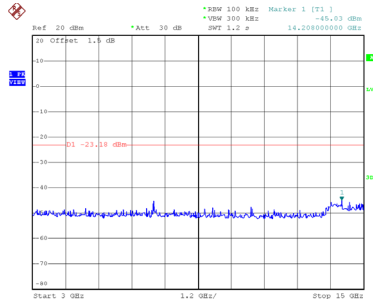


Date: 20.FEB.2019 21:14:55

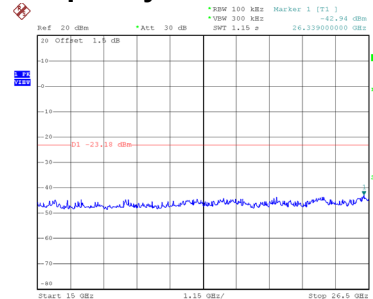
CH11 – 10th Harmonic of the fundamental frequency



Date: 20.FEB.2019 21:16:30



Date: 20.FEB.2019 21:16:39

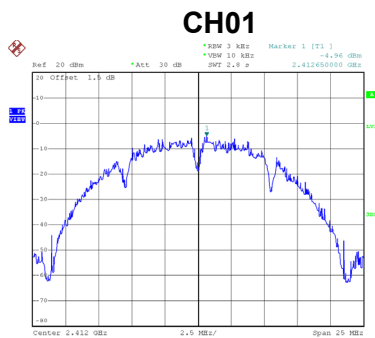


Date: 20.FEB.2019 21:16:47

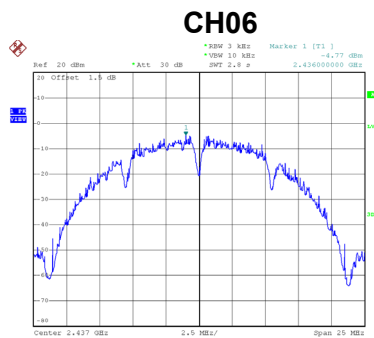
APPENDIX H - POWER SPECTRAL DENSITY

Test Mode	TX B Mode
-----------	-----------

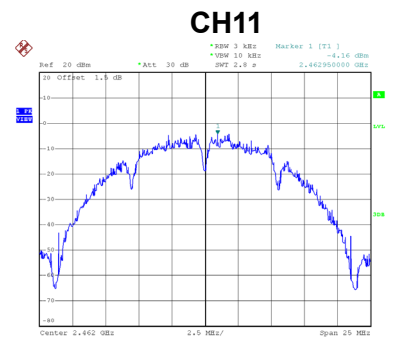
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-4.96	8	Complies
06	2437	-4.77	8	Complies
11	2462	-4.16	8	Complies



Date: 20.FEB.2019 20:52:05



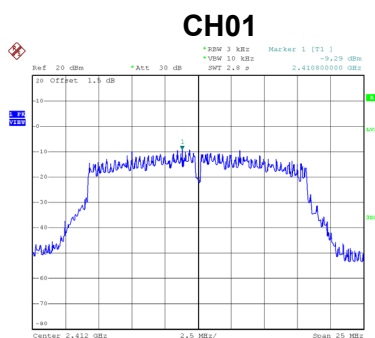
Date: 20.FEB.2019 20:58:41



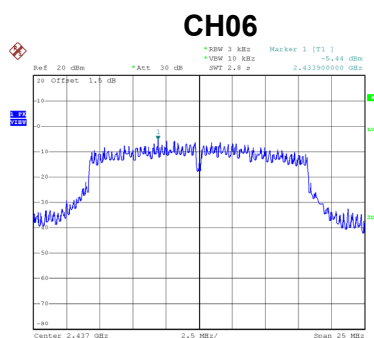
Date: 20.FEB.2019 21:01:19

Test Mode	TX G Mode
-----------	-----------

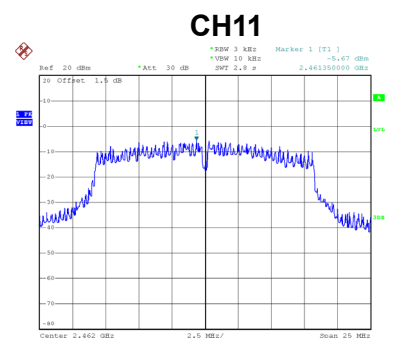
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-9.29	8	Complies
06	2437	-5.44	8	Complies
11	2462	-5.67	8	Complies



Date: 20.FEB.2019 22:10:45



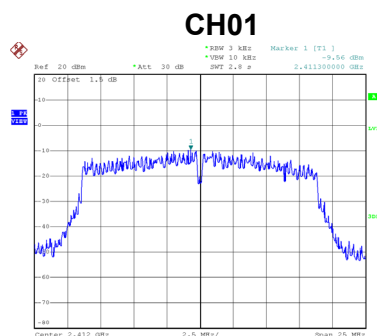
Date: 20.FEB.2019 21:08:27



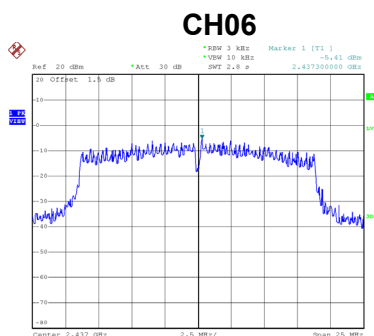
Date: 20.FEB.2019 21:10:12

Test Mode	TX N (HT20) Mode
-----------	------------------

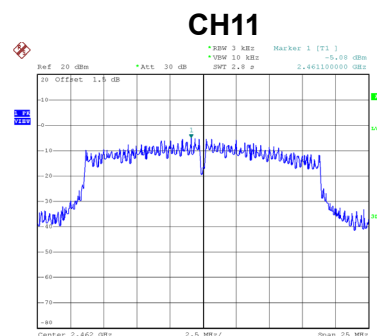
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-9.56	8	Complies
06	2437	-5.41	8	Complies
11	2462	-5.08	8	Complies



Date: 20.FEB.2019 22:14:35



Date: 20.FEB.2019 21:15:04



Date: 20.FEB.2019 21:16:57

End of Test Report