FCC Radio Test Report

FCC ID: 2ACFN-HORA301W

This report concerns: Original Grant

Project No.	:	2002H016
Equipment	:	New Generation WiFi 6 and Dual 10GbE SD-WAN Router
Brand Name	:	QNAP
Test Model	:	QHora-301W
Series Model	:	N/A
Applicant	:	QNAP System, Inc.
Address	:	2F, No.22, Zhongxing Road, Xizhi District, New Taipei City, 221,Taiwan
Manufacturer	:	QNAP System, Inc.
Address	:	2F, No.22, Zhongxing Road, Xizhi District, New Taipei City, 221,Taiwan
Factory	:	CIG Shanghai Co., Ltd., Shanghai Branch.
Address	:	F/2, 3 Building 1, No. 505 Jiangyue Road, Minhang District, Shanghai, P.R. China
Date of Receipt	:	Feb. 27, 2020
Date of Test	:	Feb. 27, 2020~Jun. 15, 2020
Issued Date	:	Jun. 24, 2020
Report Version	:	R00
Test Sample	:	Engineering Sample No.: SH2020022569 for radiated; SH2020022569-2 for conducted; SH2020022569-1 for adapter
Standard(s)	:	FCC Part15, Subpart C (15.247) ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Allen Wei

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Declaration

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

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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.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Jun. 24, 2020

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.247)				
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 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(2)

Note:

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

(2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 29, Jintang Road, Tangzhen Industry Park, Pudong New Area, Shanghai 201210,China
BTL's Test Firm Registration Number for FCC: 476765
BTL's Designation Number for FCC: CN1241

1.2 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. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
SH-CB01	CISPR	9 KHz~30 MHz	V	3.79
		9 KHz~30 MHz	H	3.57
		30 MHz~200 MHz	V	4.04
		30 MHz~200 MHz	H	3.76
		200 MHz~1,000 MHz	V	4.24
		200 MHz~1,000 MHz	H	3.84
		1 GHz~18 GHz	V	4.46
		1 GHz~18 GHz	H	4.40
		18 GHz~40 GHz	V	3.95
		18 GHz~40 GHz	H	3.95

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

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	20°C	50%	AC 120V/60Hz	Vince Zong
Radiated Emissions-30 MHz to 1GHz	20°C	45%	AC 120V/60Hz	Vince Zong
Radiated Emissions-Above 1000 MHz	20°C	45%	AC 120V/60Hz	Vince Zong
Bandwidth	19°C	48%	AC 120V/60Hz	Bill Dong
Maximum output power & e.i.r.p.	19°C	48%	AC 120V/60Hz	Bill Dong
Conducted Spurious Emissions	19°C	48%	AC 120V/60Hz	Bill Dong
Power Spectral Density	19°C	48%	AC 120V/60Hz	Bill Dong

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	New Generation WiFi 6 and Dual 10GbE SD-WAN Router
Brand Name	QNAP
Test Model	QHora-301W
Series Model	N/A
Model Difference(s)	N/A
Power Source	DC voltage supplied from AC/DC adapter. #1: DELTA ELECTRONICS, INC./DPS-40AB-11 #2: EDAC/EA10443D-120
Power Rating	#1: 100-240V ~/1.2A, 50Hz-60Hz O/P: 12V⎓3.33A Max. #1: 100-240V ~, 1.0A, 50-60Hz O/P: 12.0V⎓3.33A 40.0W
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM IEEE 802.11ac: 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 600 Mbps IEEE 802.11ac: up to 800 Mbps
Maximum Output Power Beamforming	IEEE 802.11b: 26.32 dBm (0.4285 W) IEEE 802.11g: 26.25 dBm (0.4217 W) IEEE 802.11ac (VHT20): 26.18 dBm (0.4150 W) IEEE 802.11ac (VHT40): 23.98 dBm (0.2500 W)
Maximum Output Power CDD	IEEE 802.11b: 27.89 dBm (0.6152 W) IEEE 802.11g: 28.94 dBm (0.7834 W) IEEE 802.11ac (VHT20): 26.28 dBm (0.4246 W) IEEE 802.11ac (VHT40): 24.03 (0.2529 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 IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT20), IEEE 802.11ac (VHT20) CH03 - CH09 for IEEE 802.11n (HT40), IEEE 802.11ac (VHT40)							
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	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	GALTRONICS	N/A	PCB	N/A	2.89	N/A
2	GALTRONICS	N/A	PCB	N/A	4.17	N/A
3	GALTRONICS	N/A	PCB	N/A	3.95	N/A
4	GALTRONICS	N/A	PCB	N/A	3.38	N/A

Note:

This EUT supports Beamforming and CDD, all antennas have the same gain, any transmit signals are correlated with each other, so

1) Beamforming:

Directional gain = $10\log[(10^{G1/20}+10^{G2/20+....+}10^{GN/20})^2/N_{ANT}]$dBi,

that is Directional gain=$10\log[(10^{G1/20}+10^{G2/20+....+}10^{GN/20})^2/N_{ANT}]$dBi =9.63;

So output power limit is 30-9.63+6=26.37, the power spectral density limit is 8-9.63+6=4.37.

2) CDD:

For power spectral density measurements,

Directional gain = $10\log[(10^{G1/20}+10^{G2/20+....+}10^{GN/20})^2/N_{ANT}]$dBi,

that is Directional gain=$10\log[(10^{G1/20}+10^{G2/20+....+}10^{GN/20})^2/N_{ANT}]$dBi =9.63;

So power spectral density limit is 8-9.63+6=4.37.

For power meansurements, Directional gain =$G_{ANT\ MAX.}$+Array Gain, Array Gain=0dB(N_{ANT}≤4), so the Directional gain=4.17.

4. Table for Antenna Configuration:

Operating Mode / TX Mode	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 1+2+3+4
IEEE 802.11b	✓	✓	✓	✓	✓
IEEE 802.11g	✓	✓	✓	✓	✓
IEEE 802.11n (HT20)	✓	✓	✓	✓	✓
IEEE 802.11n (HT40)	✓	✓	✓	✓	✓
IEEE 802.11ac (VHT20)	✓	✓	✓	✓	✓
IEEE 802.11ac (VHT40)	✓	✓	✓	✓	✓

2.2 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 AC (VHT 20MHz) Mode Channel 01/06/11
Mode 4	TX AC (VHT 40MHz) Mode Channel 03/06/09
Mode 5	TX G Mode Channel 06

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 5	TX G Mode Channel 06

Radiated emissions test - Below 1GHz	
Final Test Mode:	Description
Mode 5	TX G Mode Channel 06

Radiated emissions test- Above 1GHz	
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 AC (VHT 20MHz) Mode Channel 01/06/11
Mode 4	TX AC (VHT 40MHz) Mode Channel 03/06/09

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 AC (VHT 20MHz) Mode Channel 01/06/11
Mode 4	TX AC (VHT 40MHz) Mode Channel 03/06/09

NOTE:

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

(2) 802.11b mode: CCK (4 Mbps)
802.11g mode: OFDM (24 Mbps)
802.11ac (VHT20MHz) mode : BPSK (26 Mbps)
802.11ac (VHT40 MHz) mode : BPSK (54 Mbps)
For radiated emission tests, the highest output powers were set for final test.

(3) For radiated emission below 1 GHz test, the IEEE 802.11g Channel 06 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.

2.3 PARAMETERS OF TEST SOFTWARE

Beamforming

Test Software	QRCT		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	20	20	20
IEEE 802.11g	18.5	20	18
IEEE 802.11ac (VHT20)	18.5	20	18
Frequency (MHz)	2422	2437	2452
IEEE 802.11ac (VHT40)	18	18	17

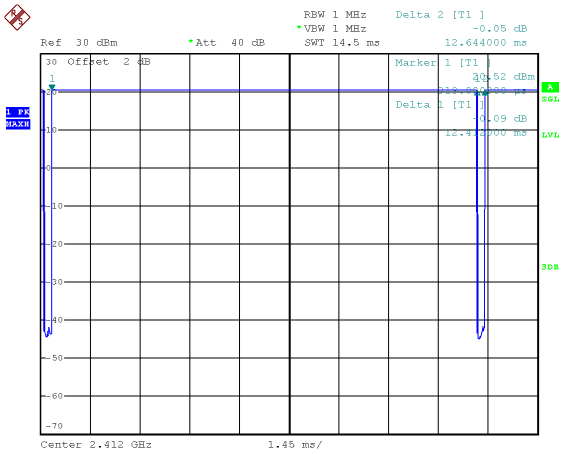
CDD

Test Software	QRCT		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	22	22	22
IEEE 802.11g	18.5	24	18
IEEE 802.11ac (VHT20)	18.5	20	18
Frequency (MHz)	2422	2437	2452
IEEE 802.11ac (VHT40)	18	18	17

2.4 DUTY CYCLE

If duty cycle is ≥ 98 %, duty factor is not required.
If duty cycle is < 98 %, duty factor shall be considered.
The output power = measured power + duty factor.

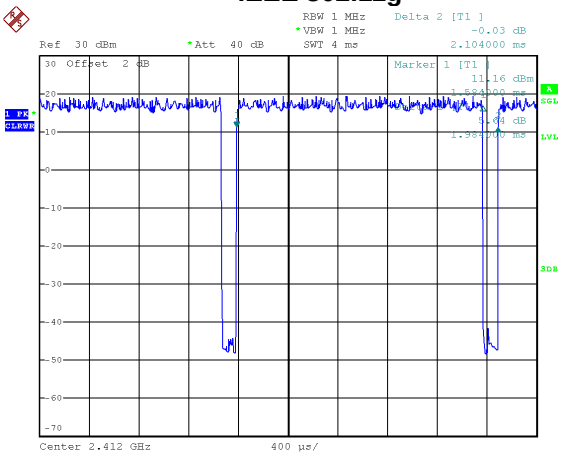
IEEE 802.11b



Date: 6.MAR.2020 16:38:13

Duty cycle = 12.412 ms / 12.644 ms = 98.17%
Duty Factor = 10 log(1/Duty cycle) = 0.00

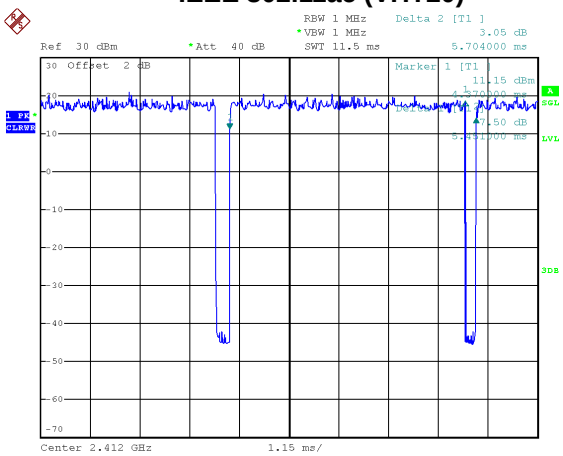
IEEE 802.11g



Date: 6.MAR.2020 16:40:47

Duty cycle = 1.984 ms / 2.104 ms = 94.30%
Duty Factor = 10 log(1/Duty cycle) = 0.26

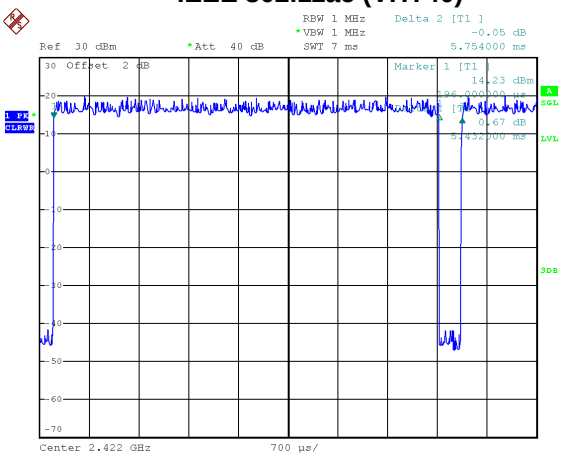
IEEE 802.11ac (VHT20)



Date: 6.MAR.2020 16:42:29

Duty cycle = 5.451 ms / 5.704 ms = 95.56%
Duty Factor = 10 log(1/Duty cycle) = 0.20,

IEEE 802.11ac (VHT40)



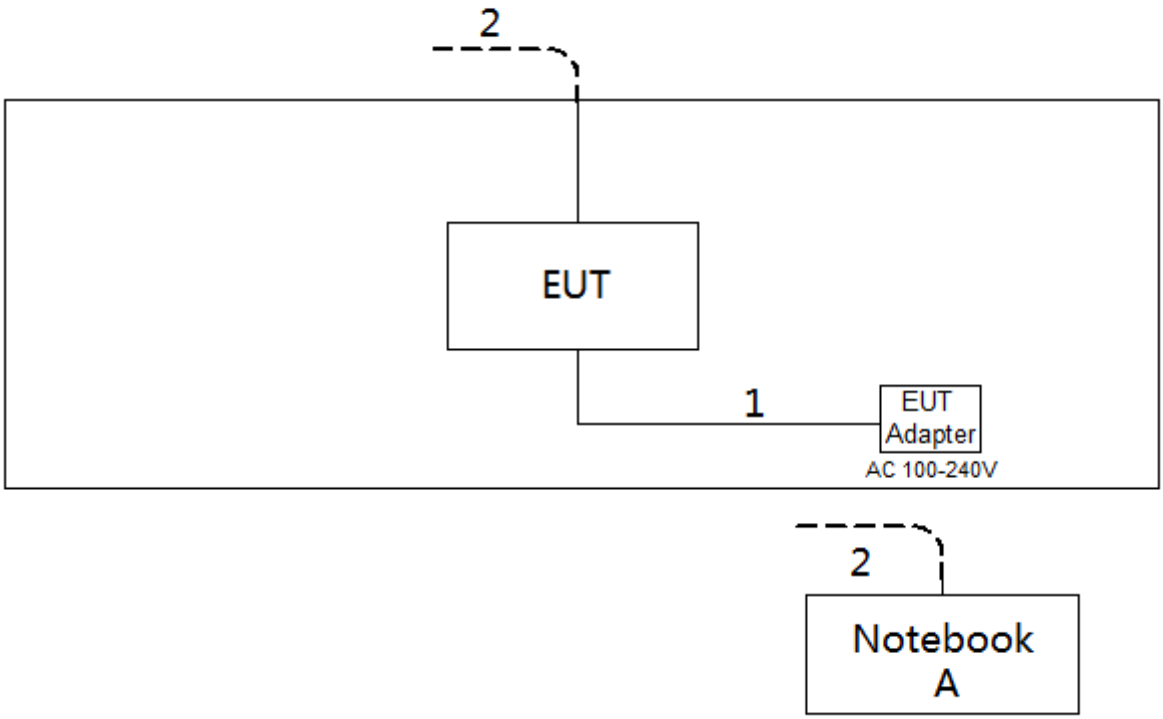
Date: 6.MAR.2020 16:43:44

Duty cycle = 5.432 ms / 5.754 ms = 94.40%
Duty Factor = 10 log(1/Duty cycle) = 0.25

NOTE:
For IEEE 802.11g and IEEE 802.11n (HT20):
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

For IEEE 802.11n (HT40):
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Notebook	Dell	Inspiron 15-7559	N/A

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

3. AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency of Emission (MHz)	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 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.

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

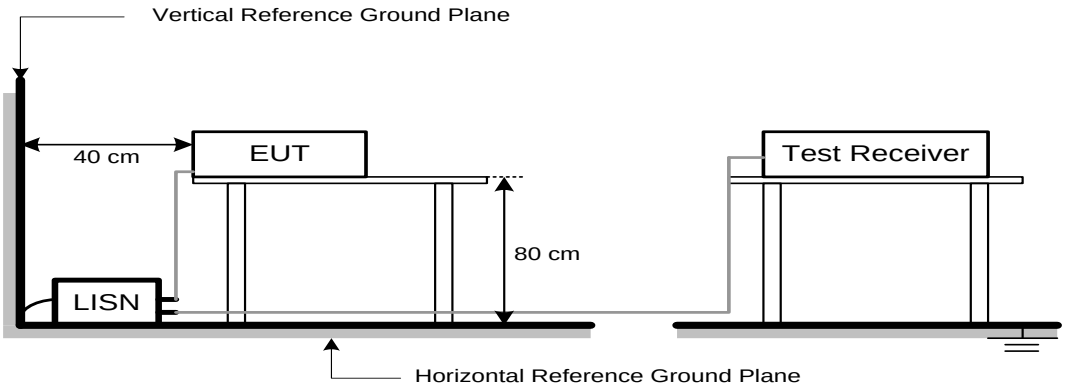
3.2 TEST PROCEDURE

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.

3.3 DEVIATION FROM TEST STANDARD

No deviation

3.4 TEST SETUP



3.5 EUT OPERATION CONDITIONS

EUT was programmed to be in continuously transmitting mode.

3.6 TEST RESULTS

Please refer to the APPENDIX A.

4. RADIATED EMISSIONS TEST

4.1 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

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

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

4.2 TEST PROCEDURE

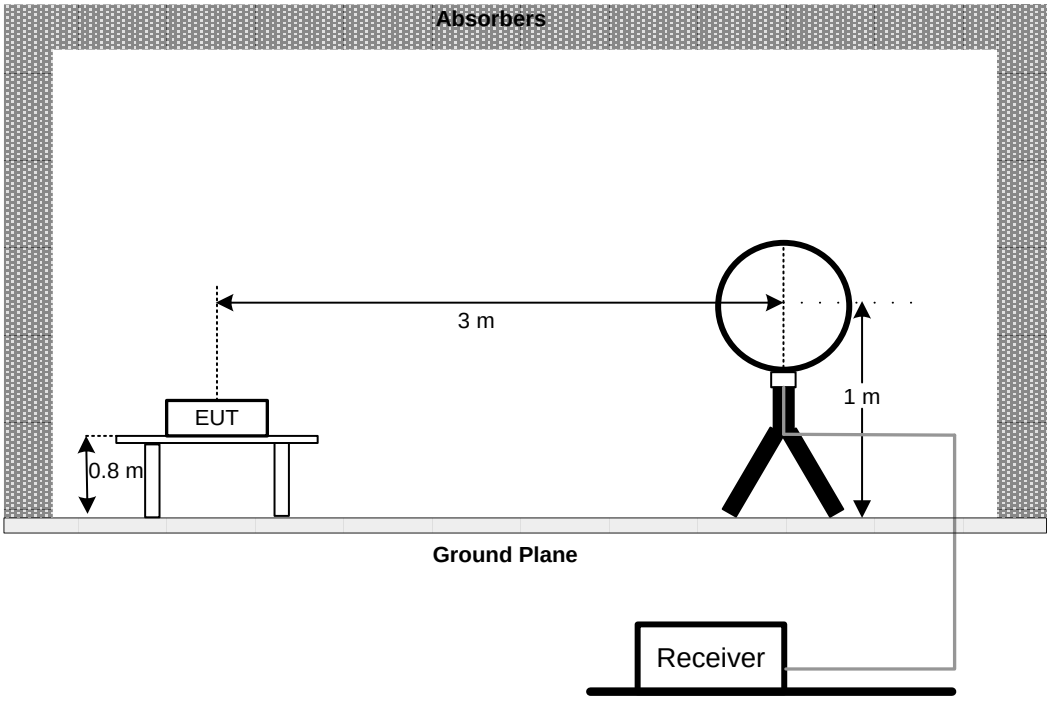
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance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

4.3 DEVIATION FROM TEST STANDARD

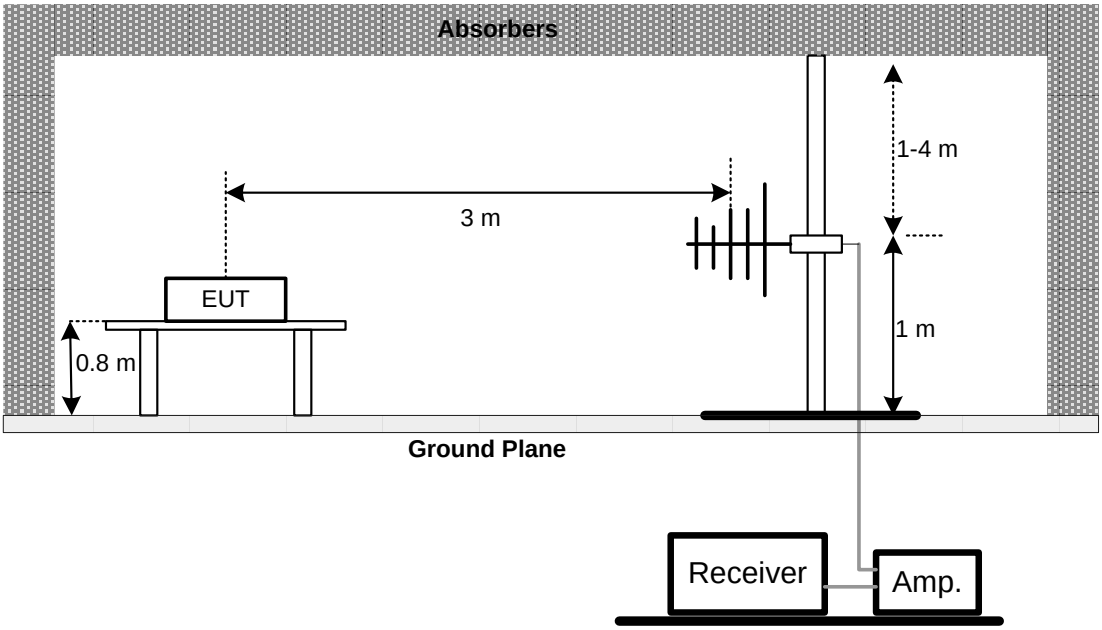
No deviation

4.4 TEST SETUP

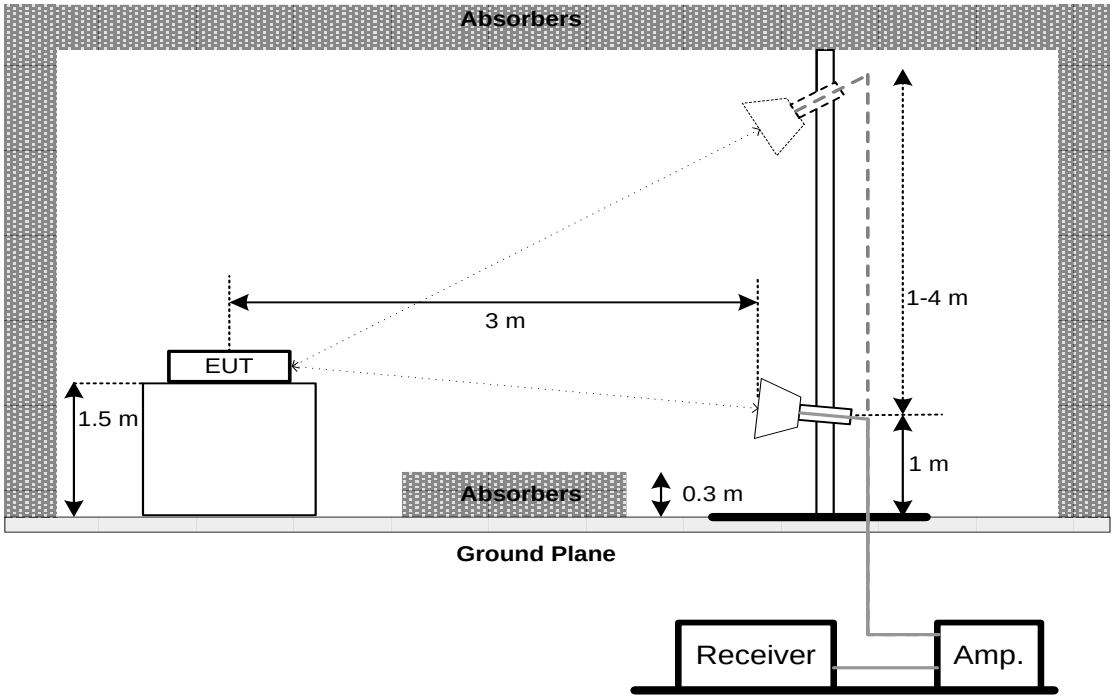
9 kHz-30 MHz



30 MHz to 1 GHz



Above 1 GHz



4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

4.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

Remark:

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

5. BANDWIDTH TEST

5.1 LIMIT

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

5.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

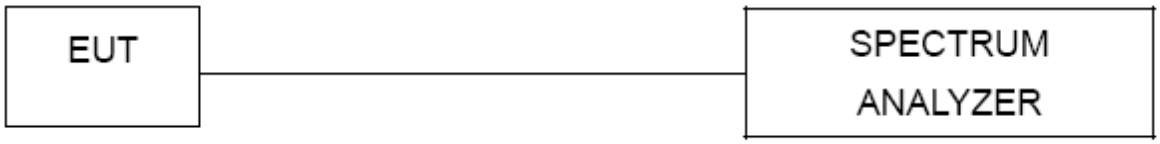
b. Spectrum Setting:
For 6 dB Bandwidth : RBW= 100 kHz, VBW=300 kHz, Sweep time = auto.
For 99% Emission Bandwidth B/G/N-20 Mode: RBW= 300 KHz, VBW=1 MHz, Sweep time = 2.5 ms.
For 99% Emission Bandwidth N-40 Mode: RBW= 1 MHz, VBW=3 MHz, Sweep time = 2.5 ms.

c. The bandwidth was performed in accordance with method 11.8.1 of ANSI C63.10-2013.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

6. MAXIMUM OUTPUT POWER TEST

6.1 LIMIT

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

6.2 TEST PROCEDURE

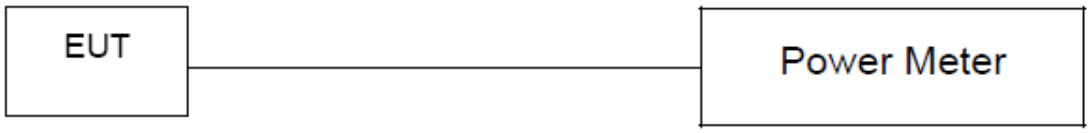
a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.

b. The maximum conducted output power was performed in accordance with method 11.9.1.3 (for peak power) or 11.9.2.3.1 (for AVG power) of ANSI C63.10-2013 and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

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 TEST RESULTS

Please refer to the APPENDIX F.

7. CONDUCTED SPURIOUS EMISSIONS

7.1 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.

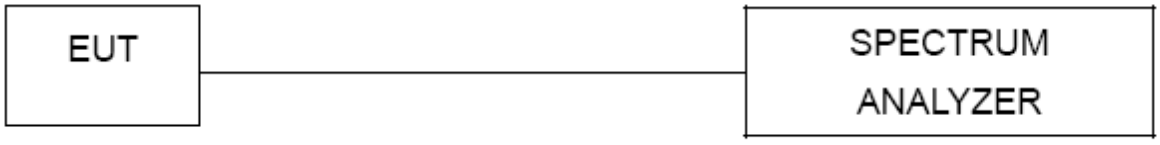
7.2 TEST PROCEDURE

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

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 TEST RESULTS

Please refer to the APPENDIX G.

8. POWER SPECTRAL DENSITY TEST

8.1 LIMIT

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

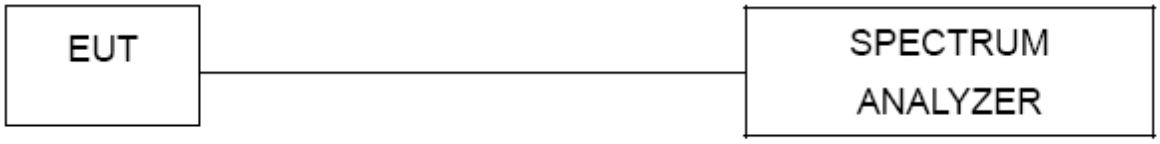
8.2 TEST PROCEDURE

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

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 TEST RESULTS

Please refer to the APPENDIX H.

9. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Line Impedance Stabilisation Network	Schwarzbeck	NNLK 8121	8121-822	Mar. 21, 2021
2	TWO-LINE V-NETWORK	R&S	ENV216	101340	Sep. 01, 2020
3	Test Cable	emci	EMCRG400-BM-NM-10000	170628	Jul. 16, 2020
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 21, 2021
5	50Ω Terminator	SHX	TF2-1G-A	17051602	Mar. 21, 2021
6	50Ω coaxial switch	Anritsu	MP59B	6201750902	Mar. 21, 2021
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Loop Antenna	EMCI	EMCI LPA600	275	Apr. 02, 2021
2	EMI Test Receiver	R&S	ESCI	100082	Mar. 21, 2021
3	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	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	719	Apr. 02, 2021
2	Pre-Amplifier	emci	EMC9135	980400	Mar. 21, 2021
3	MXE EMI Receiver	Keysight	N9038A	MY57150106	May. 06, 2021
4	Test Cable	emci	EMC104-SM-SM-7000	170330	Apr. 13, 2021
5	Test Cable	emci	EMC104-SM-SM-1000	170331	Apr. 13, 2021
6	Test Cable	emci	EMC104-SM-NM-3500	170621	Apr. 13, 2021
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 Waveguide Horn Antenna	ETS-Lindgren	9120D	00206960	Apr. 02, 2021
2	Pre-Amplifier	emci	EMC012645SE	980421	May. 11, 2021
3	EXA Spectrum Analyzer	Keysight	N9010A	MY56480545	Mar. 21, 2021
4	Test Cable	emci	EMC104-SM-SM-7000	170330	Apr. 13, 2021
5	Test Cable	emci	EMC104-SM-SM-1000	170331	Apr. 13, 2021
6	Test Cable	emci	EMC104-SM-NM-3500	170621	Apr. 13, 2021
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
8	MXE EMI Receiver	Keysight	N9038A	MY57150106	May. 06, 2021
9	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	3116C	00203919	Mar. 21, 2021
10	Pre-Amplifier	emci	EMC184045SE	980409	Mar. 21, 2021
11	EXA Spectrum Analyzer	Keysight	N9010A	MY56480579	Mar. 21, 2021
12	Test Cable	emci	EMC102-KM-KM-800	170654	Mar. 21, 2021
13	Test Cable	emci	Super Reliable-40G-SS11-7000	W0030860001	Mar. 21, 2021
14	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	100626	May. 06, 2021

Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyze	Keysight	8990B	MY51000507	Mar. 21, 2021
2	Wideband Power Sensor	Keysight	N9123A	MY58310003	Mar. 21, 2021

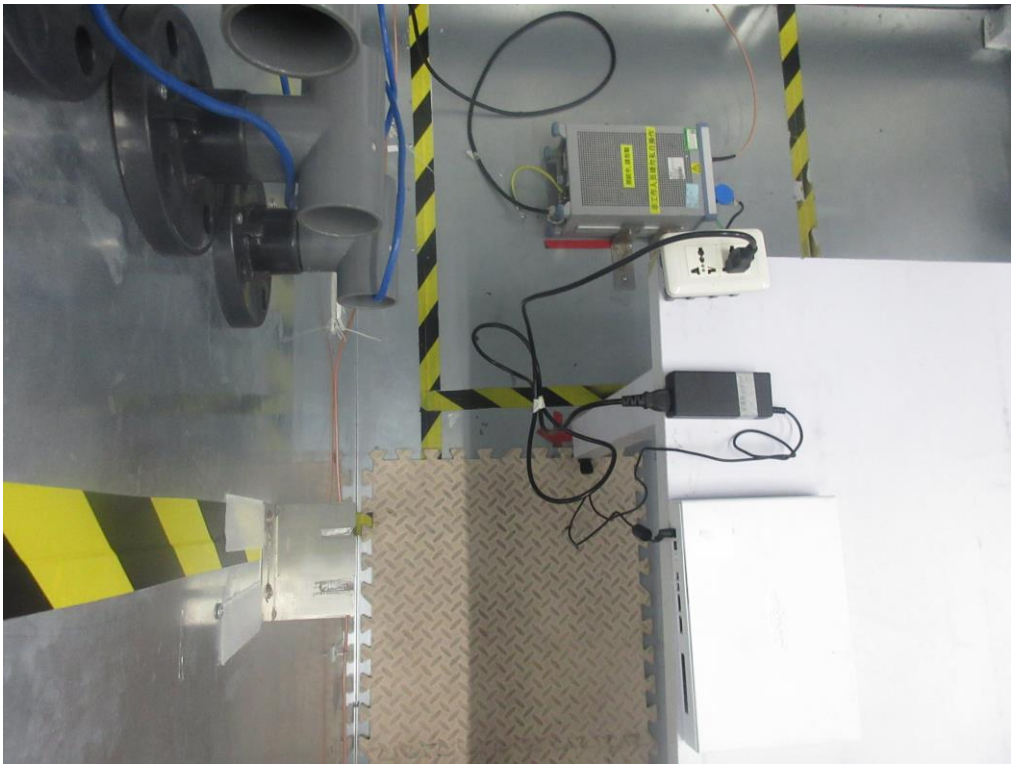
Antenna Conducted Spurious Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100626	May. 06, 2021

Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100626	May. 06, 2021

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

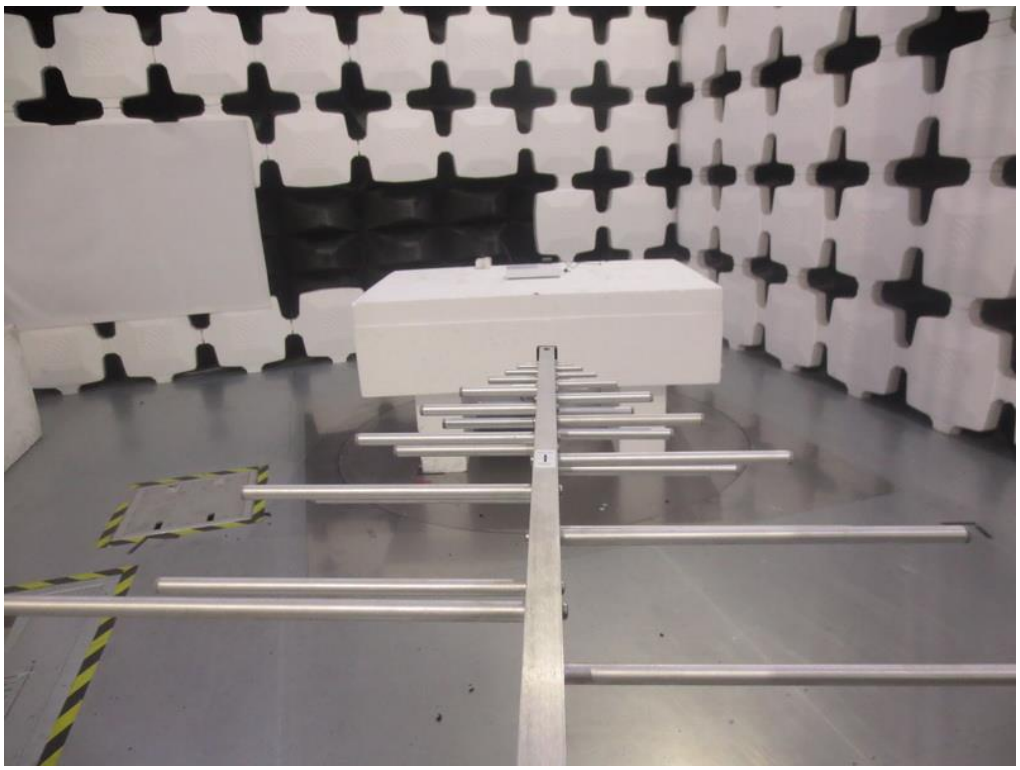
10. EUT TEST PHOTO

Conducted Emissions Test Photos



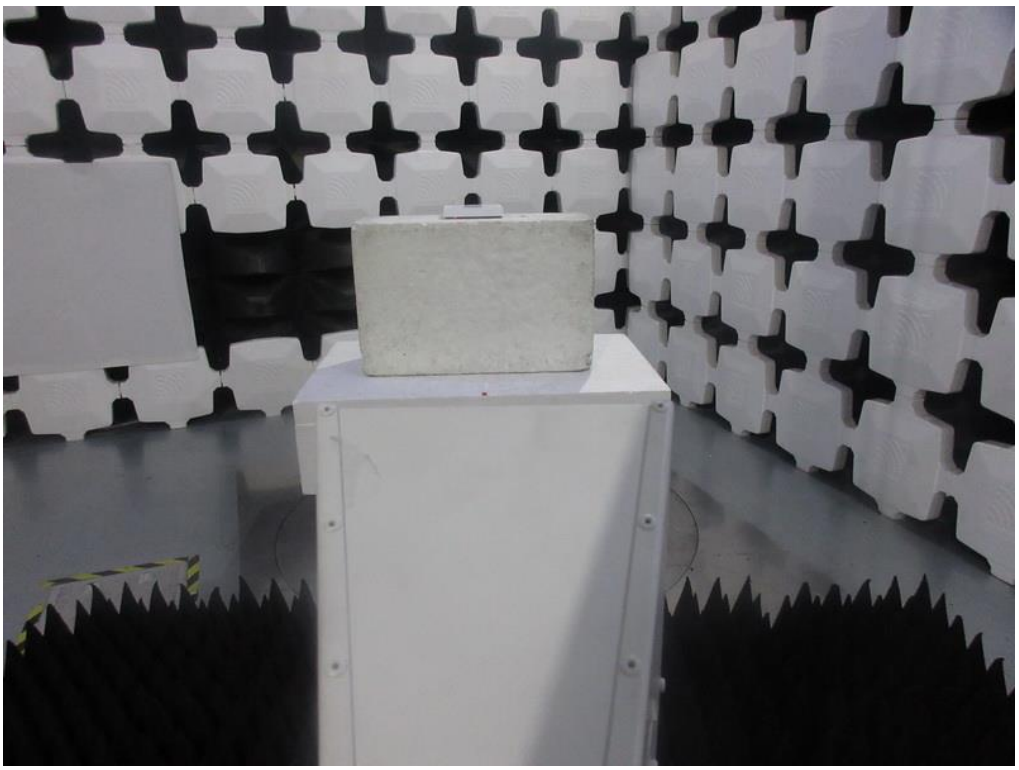
Radiated Emissions Test Photos

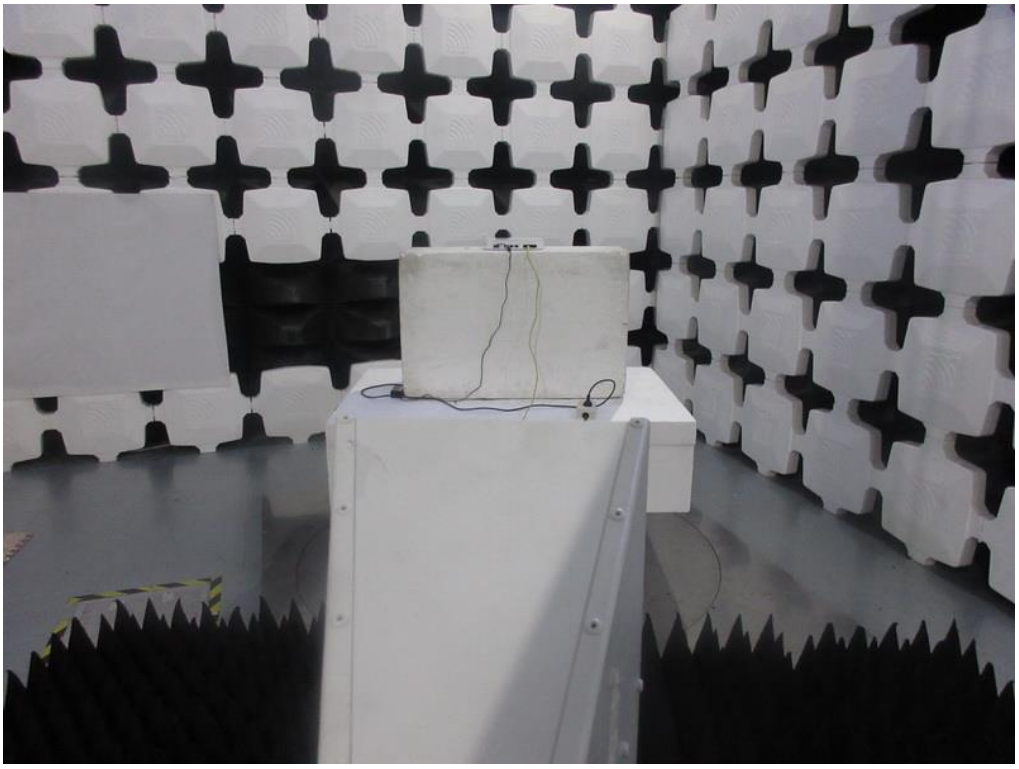
30 MHz to 1 GHz



Radiated Emissions Test Photos

Above 1 GHz

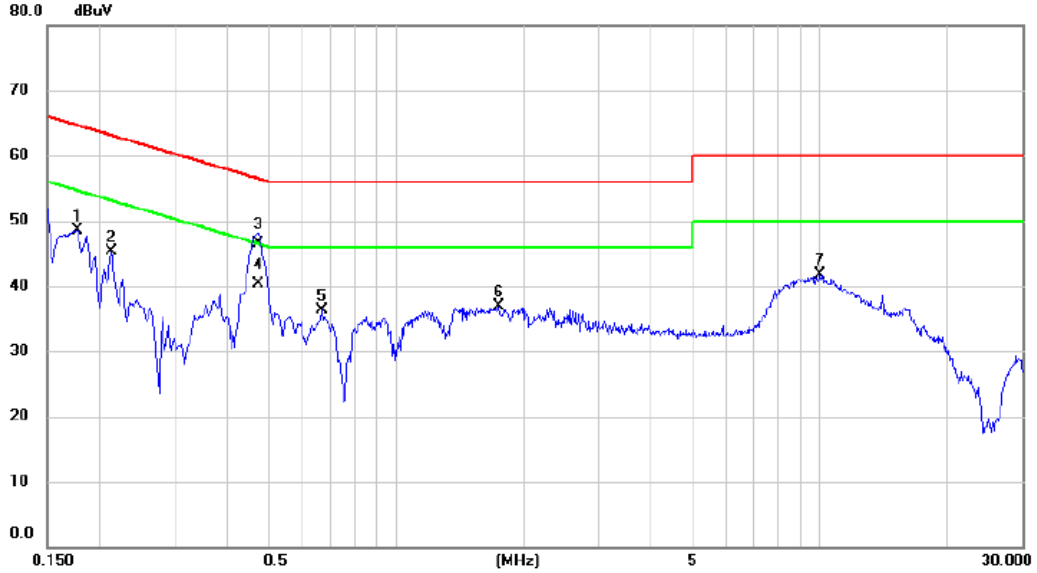




APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode:	TX G Mode Channel 06

Line

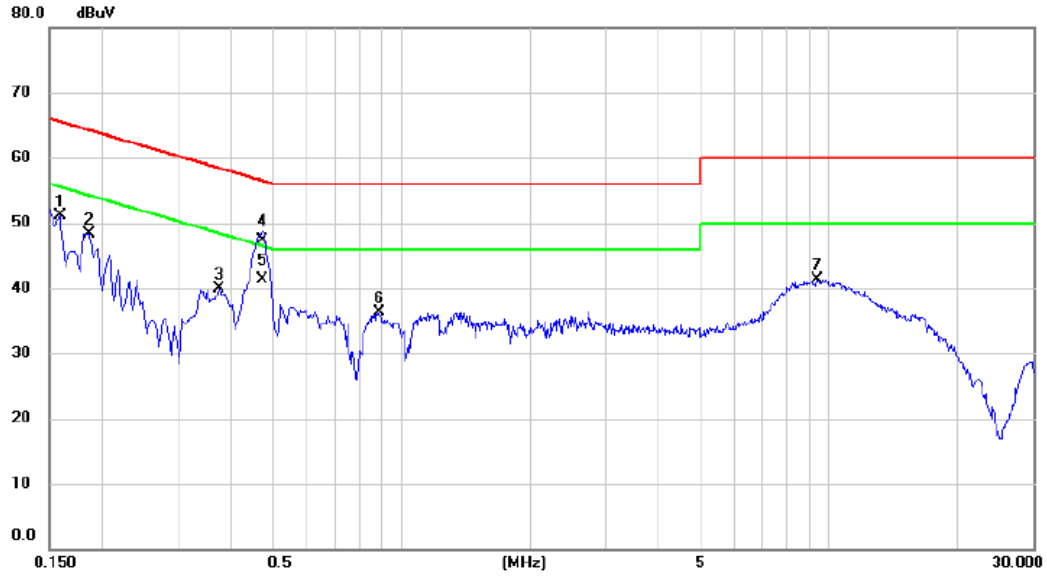


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1770	38.78	9.76	48.54	64.63	-16.09	peak	
2		0.2130	35.60	9.78	45.38	63.09	-17.71	peak	
3		0.4740	36.70	9.89	46.59	56.44	-9.85	QP	
4	*	0.4740	30.50	9.89	40.39	46.44	-6.05	AVG	
5		0.6675	26.53	9.85	36.38	56.00	-19.62	peak	
6		1.7430	27.05	9.78	36.83	56.00	-19.17	peak	
7		10.0275	31.55	10.19	41.74	60.00	-18.26	peak	

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

Test Mode:	TX G Mode Channel 06

Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1590	41.50	9.61	51.11	65.52	-14.41	peak	
2		0.1860	38.77	9.63	48.40	64.21	-15.81	peak	
3		0.3750	30.23	9.67	39.90	58.39	-18.49	peak	
4		0.4740	37.70	9.69	47.39	56.44	-9.05	QP	
5	*	0.4740	31.60	9.69	41.29	46.44	-5.15	AVG	
6		0.8835	26.59	9.72	36.31	56.00	-19.69	peak	
7		9.3525	31.24	10.15	41.39	60.00	-18.61	peak	

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

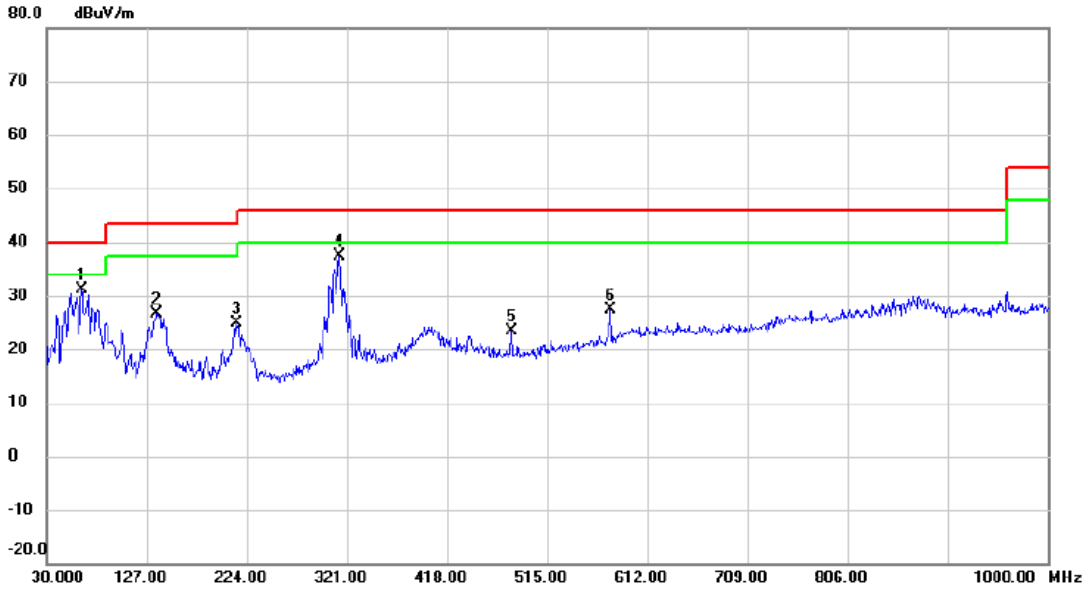
APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Note: Below 30MHz, The measured value have enough margin over 20dB than the limit, therefore they are not reported

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode:	TX G Mode Channel 06

Vertical

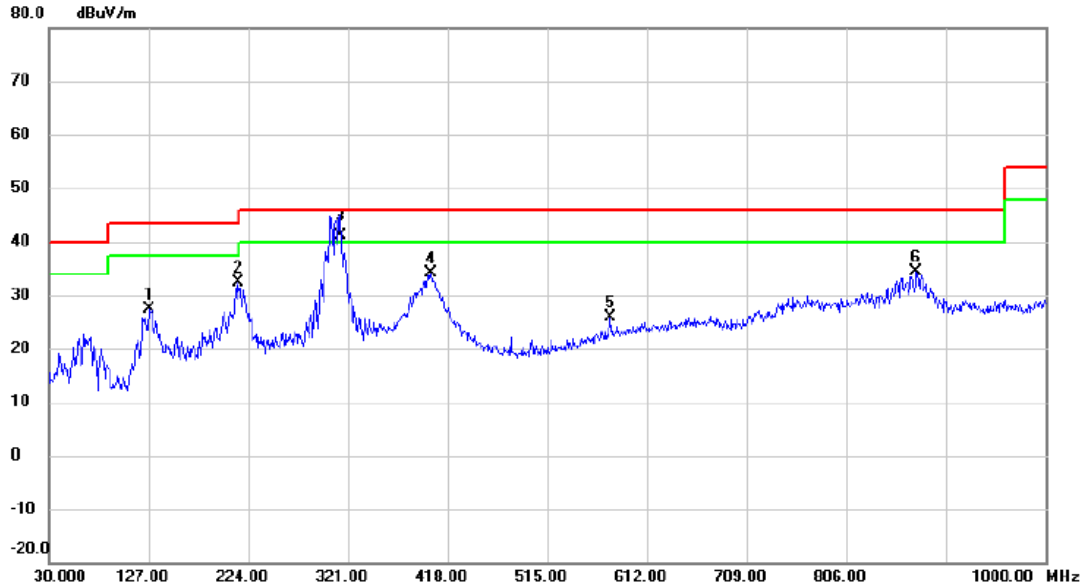


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		64.4350	49.89	-18.72	31.17	40.00	-8.83	peak	
2		137.1850	42.61	-16.02	26.59	43.50	-16.91	peak	
3		214.3000	43.17	-18.17	25.00	43.50	-18.50	peak	
4	*	314.2100	51.58	-14.09	37.49	46.00	-8.51	peak	
5		480.0800	36.13	-12.83	23.30	46.00	-22.70	peak	
6		576.1100	37.31	-9.88	27.43	46.00	-18.57	peak	

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

Test Mode:	TX G Mode Channel 06

Horizontal



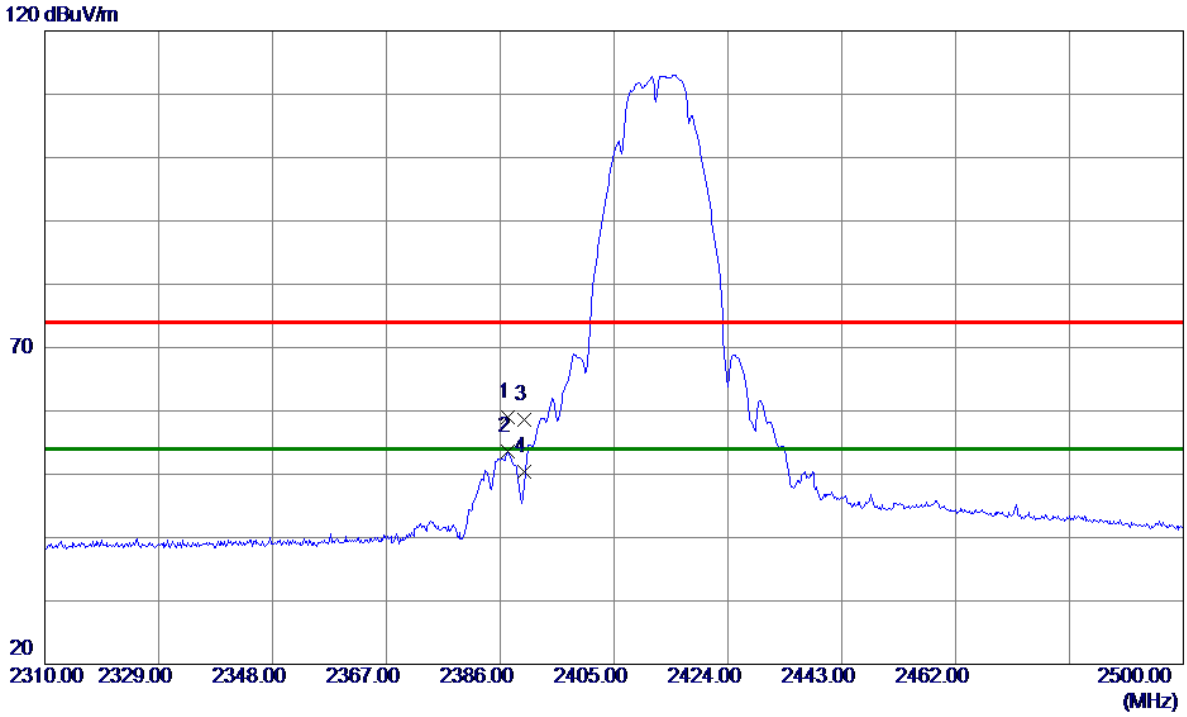
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		127.4850	44.38	-16.93	27.45	43.50	-16.05	peak	
2		214.7850	50.41	-18.15	32.26	43.50	-11.24	peak	
3	*	313.7250	55.31	-14.09	41.22	46.00	-4.78	QP	
4		401.5100	48.02	-13.84	34.18	46.00	-11.82	peak	
5		576.1100	35.83	-9.88	25.95	46.00	-20.05	peak	
6		874.3850	40.02	-5.73	34.29	46.00	-11.71	peak	

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

APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ

Test Mode:	TX B Mode 2412 MHz

Vertical

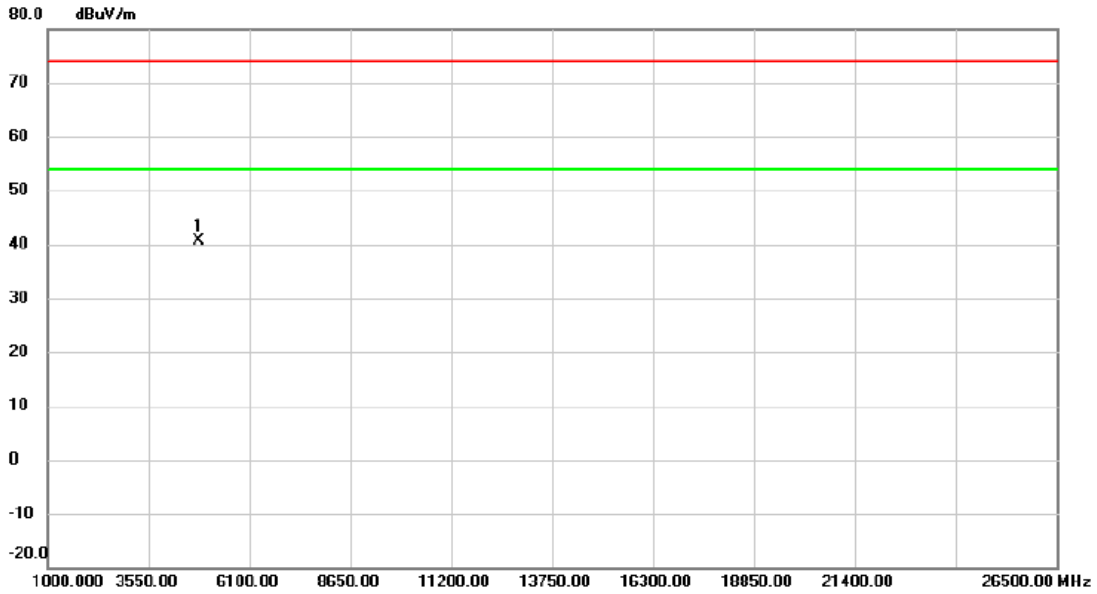


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2387.3300	26.66	32.39	59.05	74.00	-14.95	Peak	
2 *	2387.3300	21.15	32.39	53.54	54.00	-0.46	AVG	
3	2390.0000	26.25	32.39	58.64	74.00	-15.36	Peak	
4	2390.0000	18.08	32.39	50.47	54.00	-3.53	AVG	

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

Test Mode:	TX B Mode 2412 MHz

Vertical

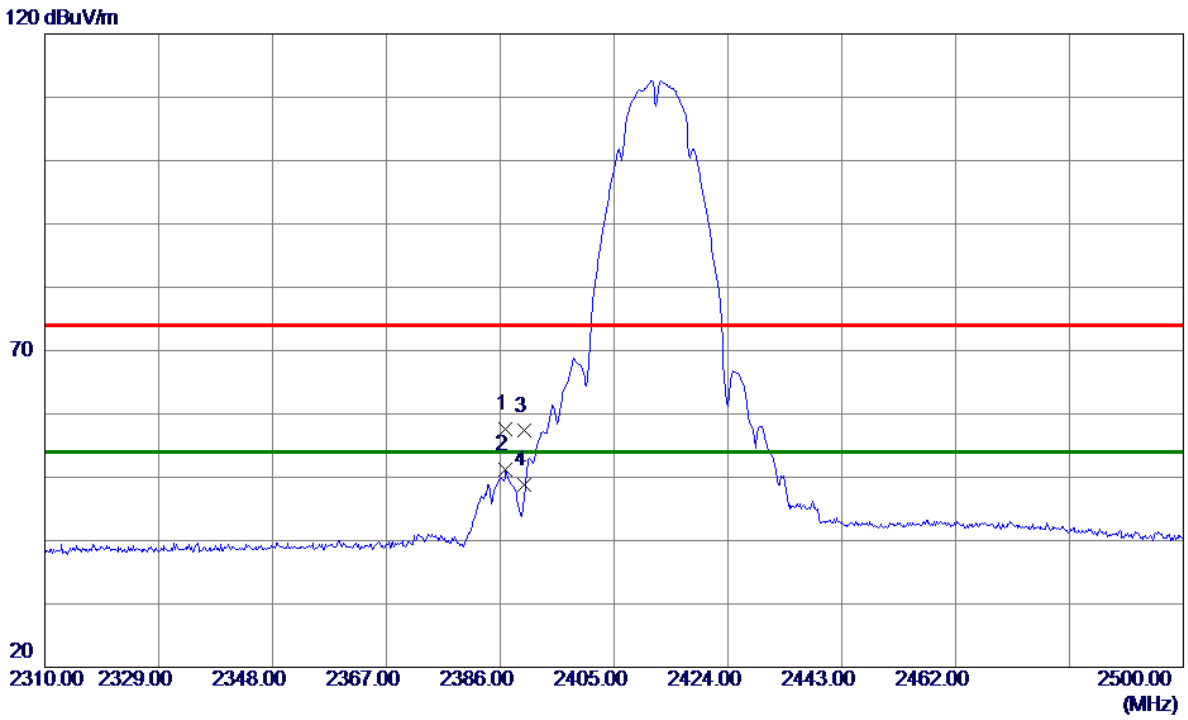


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4824.000	54.07	-13.55	40.52	74.00	-33.48	peak	

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

Test Mode:	TX B Mode 2412 MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2386.9500	25.21	32.38	57.59	74.00	-16.41	Peak	
2 *	2386.9500	18.73	32.38	51.11	54.00	-2.89	AVG	
3	2390.0000	24.91	32.39	57.30	74.00	-16.70	Peak	
4	2390.0000	16.38	32.39	48.77	54.00	-5.23	AVG	

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

Test Mode:	TX B Mode 2412 MHz

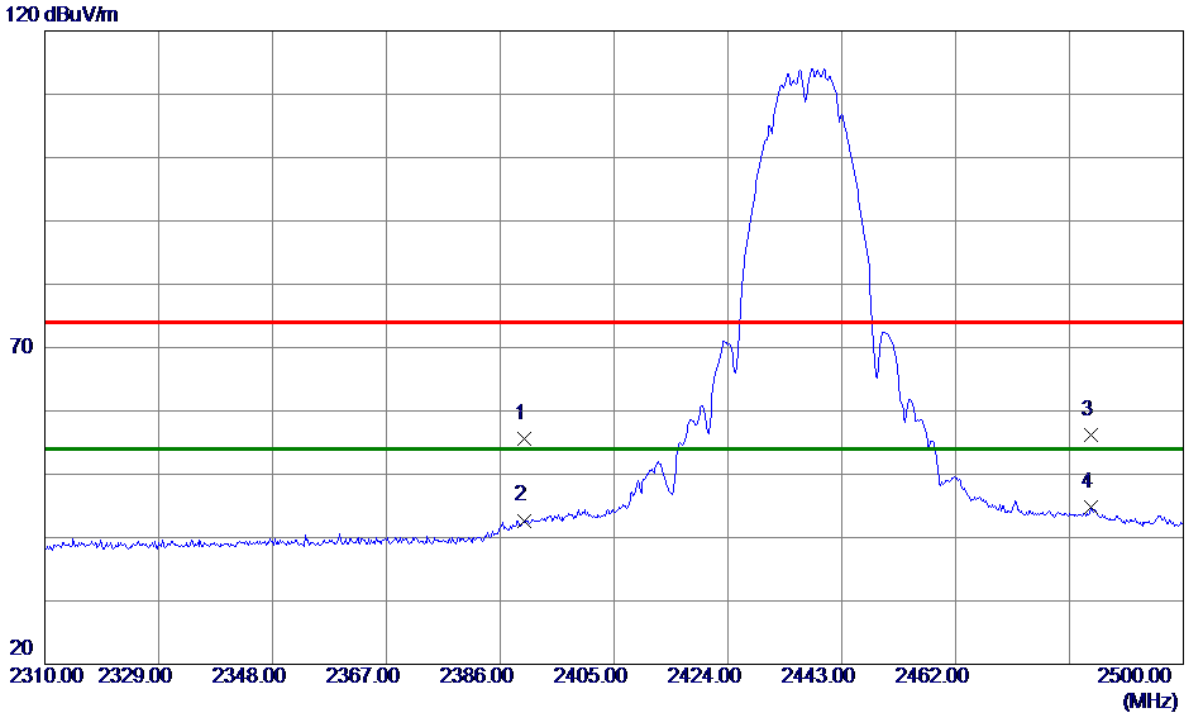
Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4824.000	54.82	-13.55	41.27	74.00	-32.73	peak	

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

Test Mode:	TX B Mode 2437 MHz

Vertical

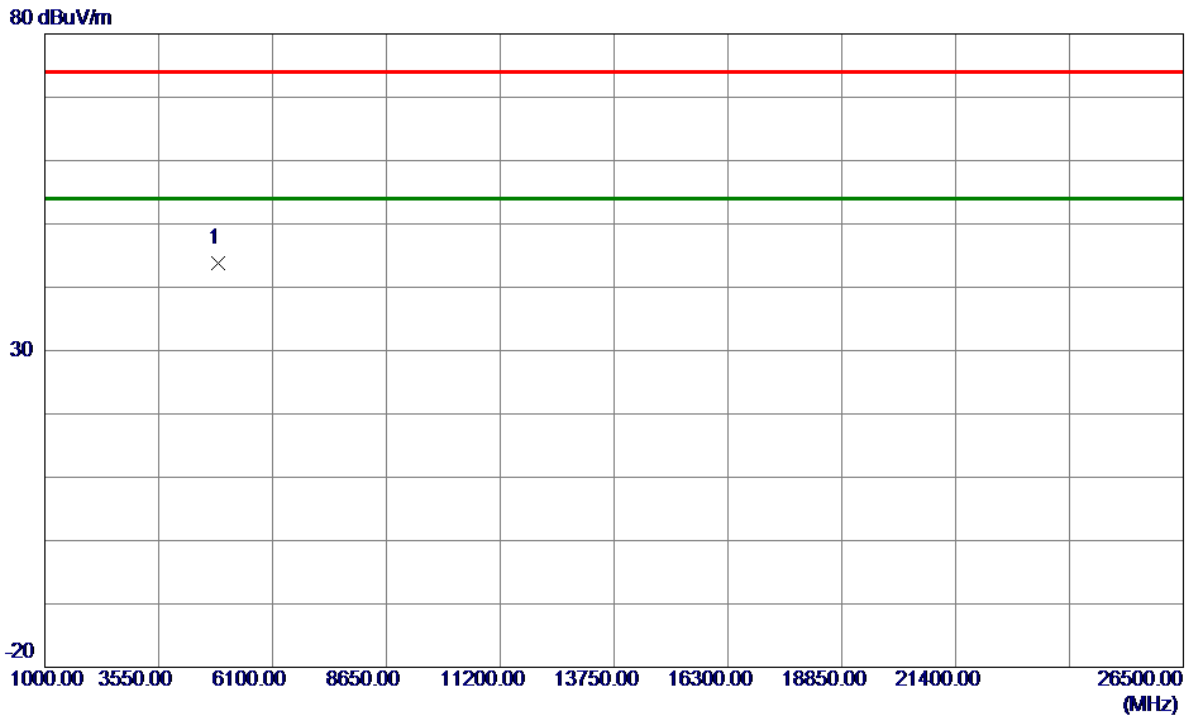


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.14	32.39	55.53	74.00	-18.47	Peak	
2	2390.0000	10.31	32.39	42.70	54.00	-11.30	AVG	
3	2484.6100	23.58	32.67	56.25	74.00	-17.75	Peak	
4 *	2484.6100	12.11	32.67	44.78	54.00	-9.22	AVG	

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

Test Mode:	TX B Mode 2437 MHz

Vertical

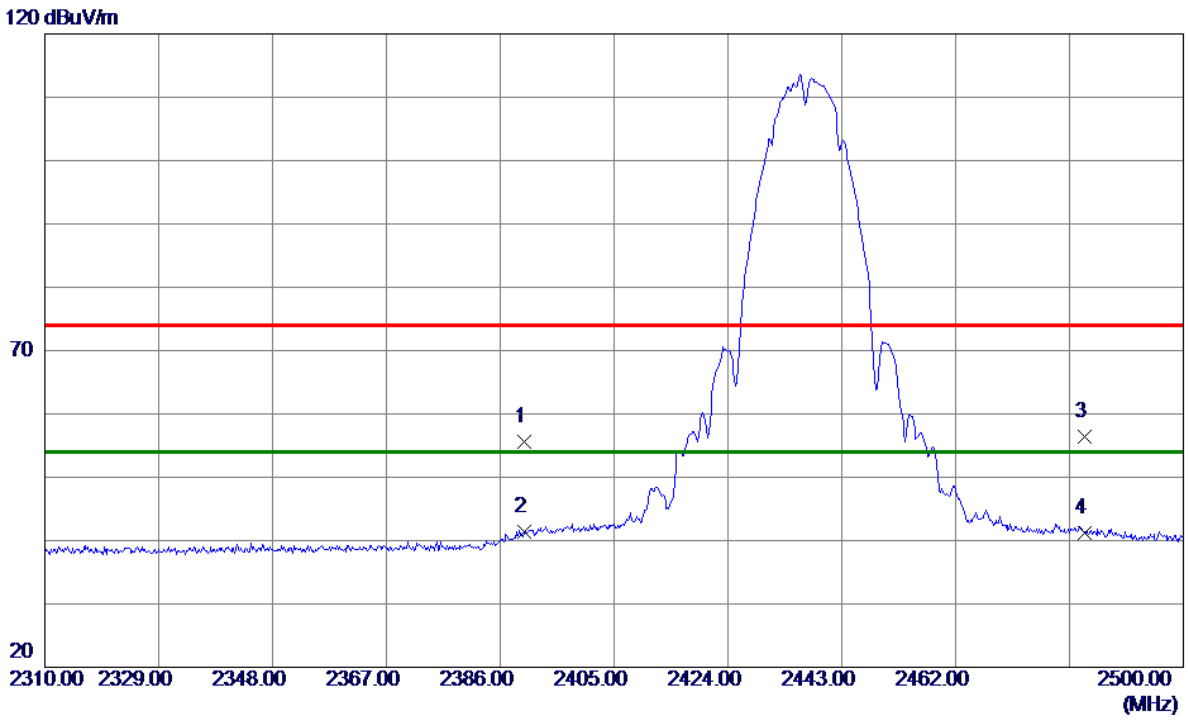


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.4500	57.20	-13.37	43.83	74.00	-30.17	Peak	

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

Test Mode:	TX B Mode 2437 MHz

Horizontal

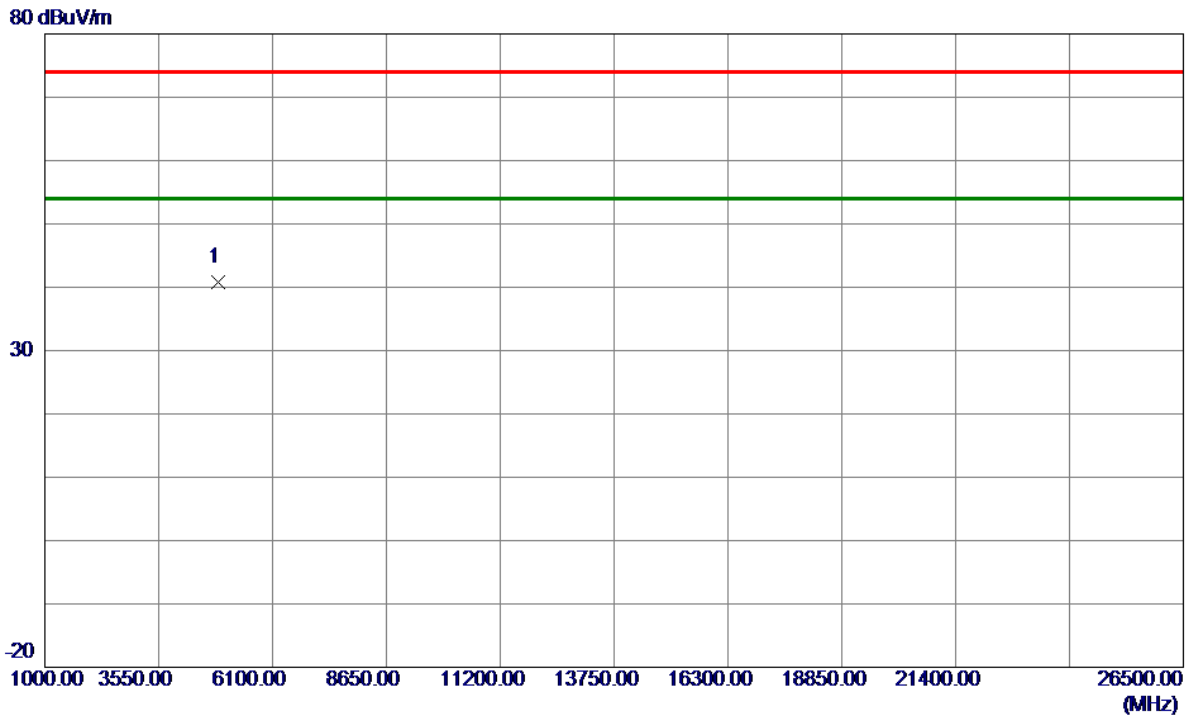


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.21	32.39	55.60	74.00	-18.40	Peak	
2 *	2390.0000	9.02	32.39	41.41	54.00	-12.59	AVG	
3	2483.5000	23.75	32.66	56.41	74.00	-17.59	Peak	
4	2483.5000	8.51	32.66	41.17	54.00	-12.83	AVG	

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

Test Mode:	TX B Mode 2437 MHz

Horizontal

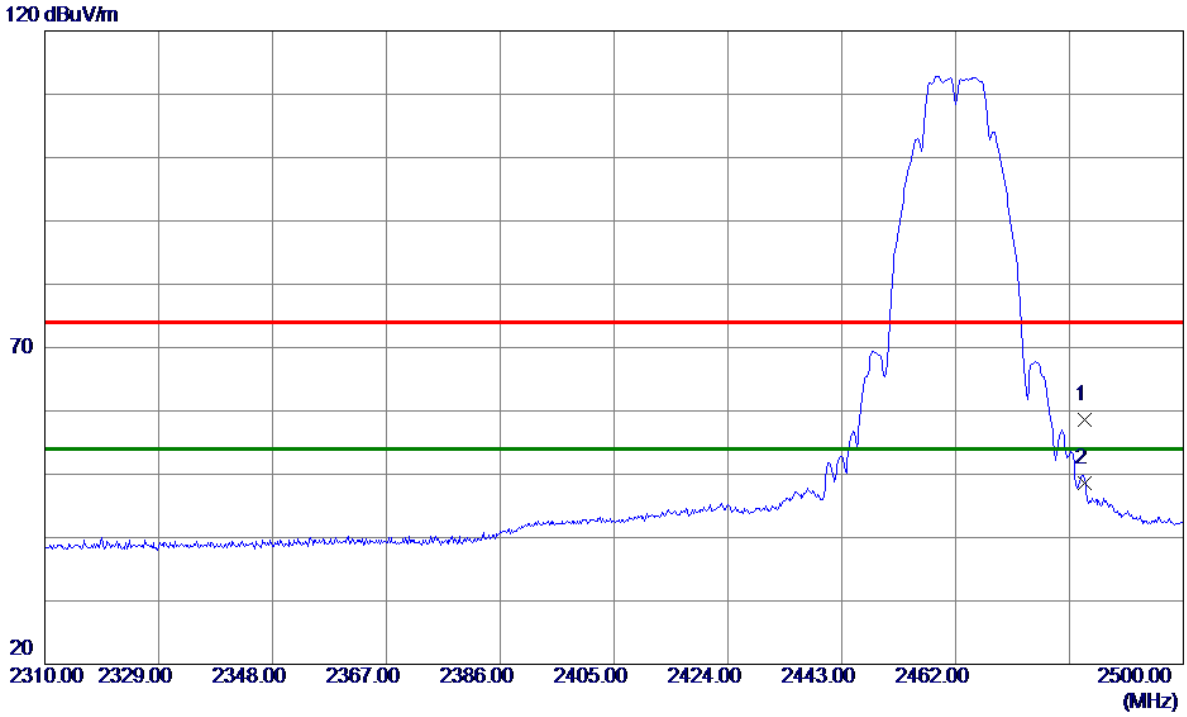


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.4500	54.08	-13.37	40.71	74.00	-33.29	Peak	

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

Test Mode:	TX B Mode 2462 MHz

Vertical

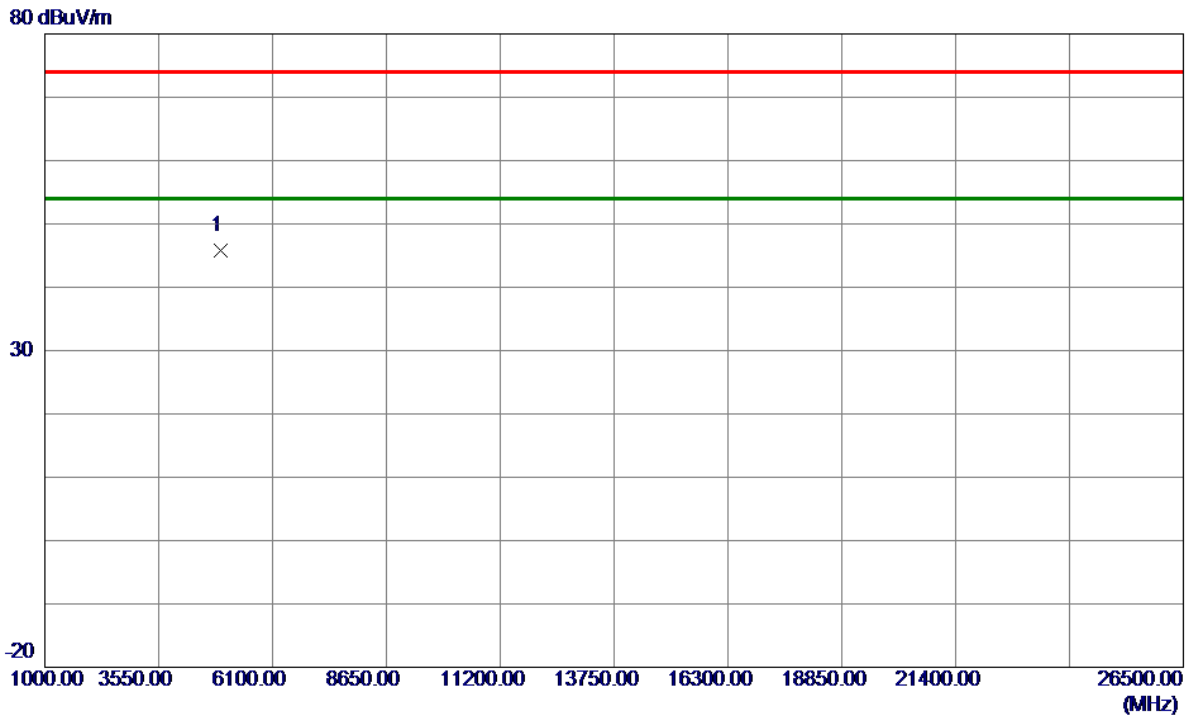


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2483.5000	25.89	32.66	58.55	74.00	-15.45	Peak	
2 *	2483.5000	15.91	32.66	48.57	54.00	-5.43	AVG	

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

Test Mode:	TX B Mode 2462 MHz

Vertical

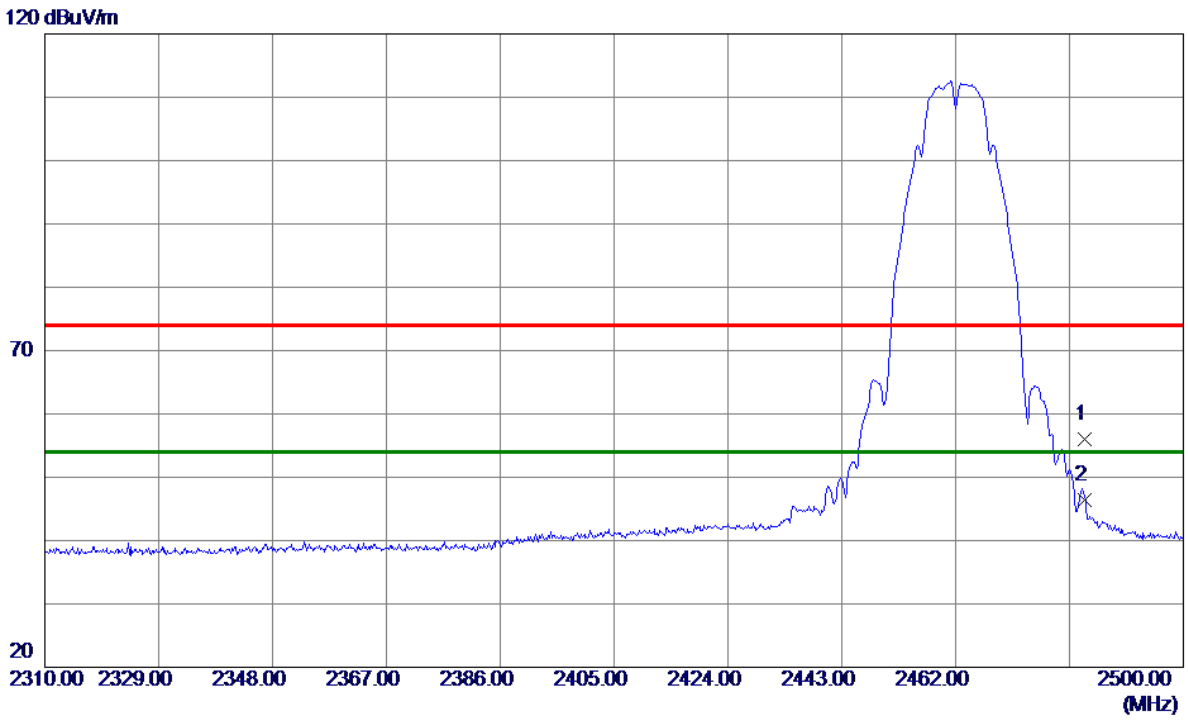


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.4500	59.00	-13.18	45.82	74.00	-28.18	Peak	

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

Test Mode:	TX B Mode 2462 MHz

Horizontal

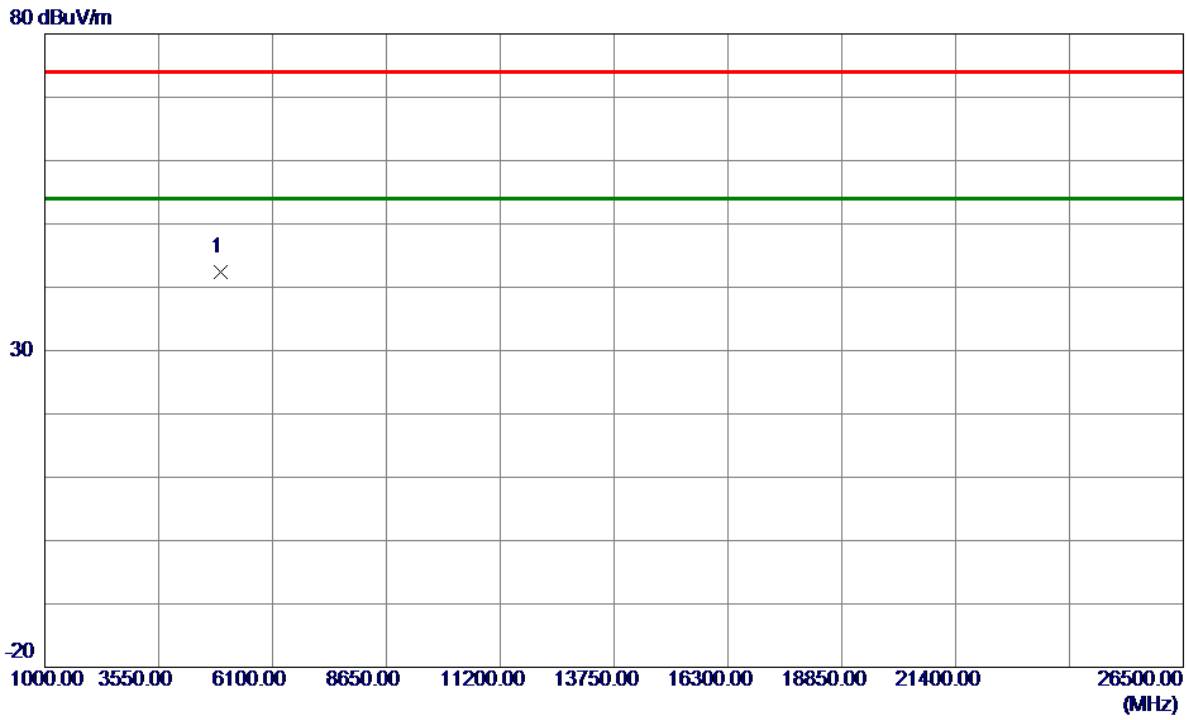


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2483.5000	23.31	32.66	55.97	74.00	-18.03	Peak	
2 *	2483.5000	13.77	32.66	46.43	54.00	-7.57	AVG	

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

Test Mode:	TX B Mode 2462 MHz

Horizontal

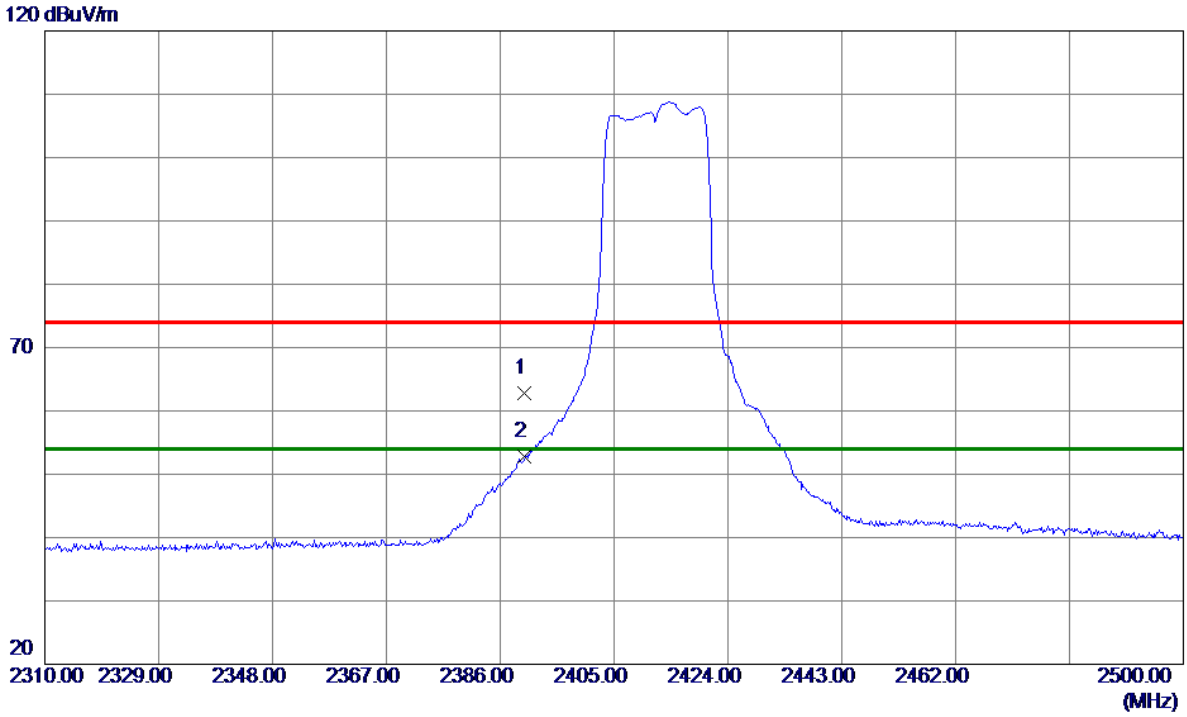


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.4500	55.54	-13.18	42.36	74.00	-31.64	Peak	

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

Test Mode:	TX G Mode 2412 MHz

Vertical

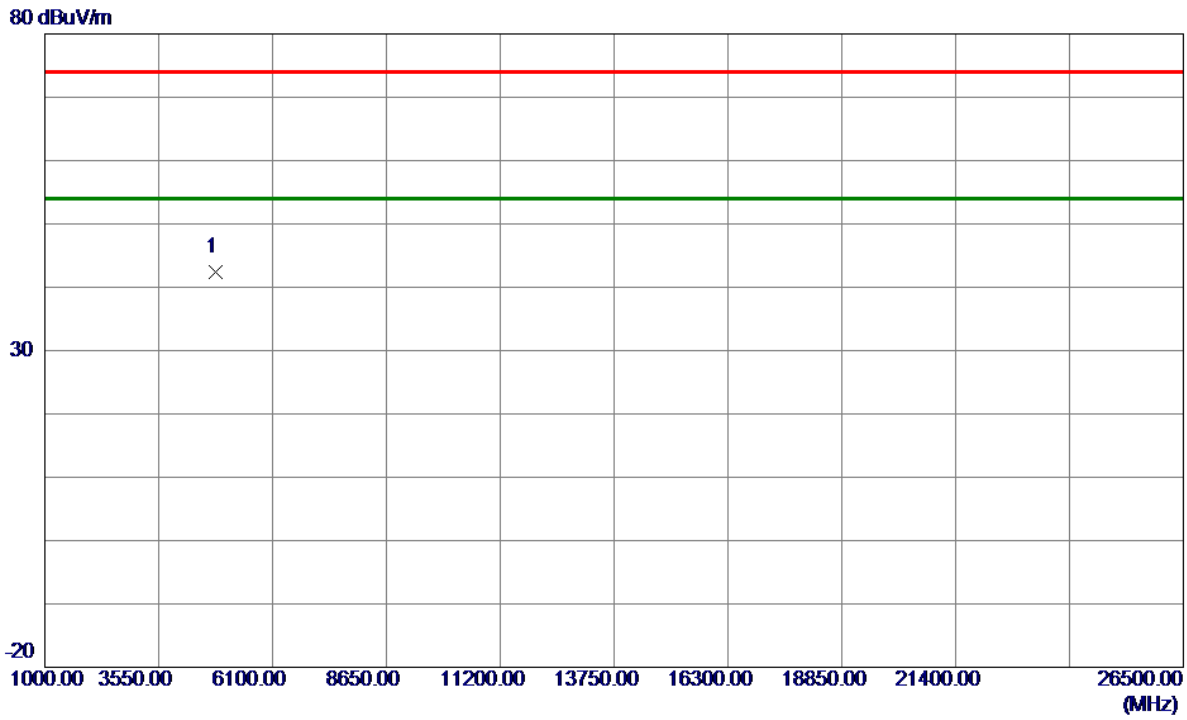


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	30.33	32.39	62.72	74.00	-11.28	Peak	
2 *	2390.0000	20.33	32.39	52.72	54.00	-1.28	AVG	

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

Test Mode:	TX G Mode 2412 MHz

Vertical

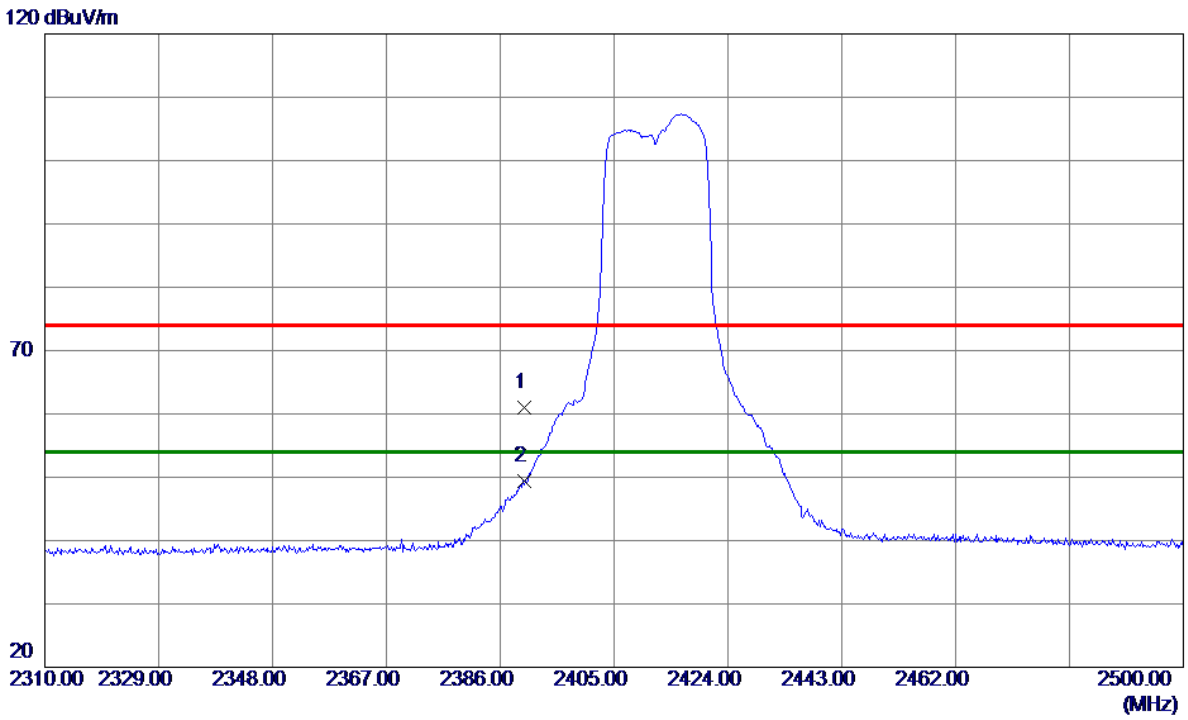


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4827.5500	55.93	-13.53	42.40	74.00	-31.60	Peak	

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

Test Mode:	TX G Mode 2412 MHz

Horizontal

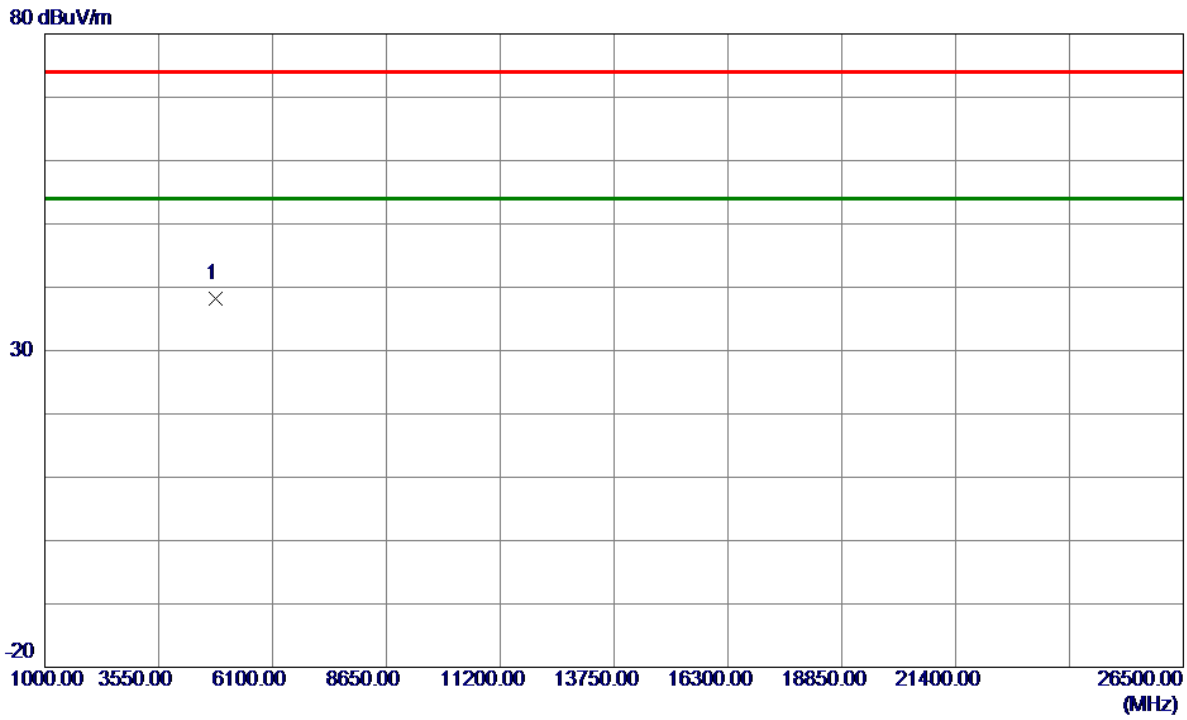


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	28.66	32.39	61.05	74.00	-12.95	Peak	
2 *	2390.0000	16.92	32.39	49.31	54.00	-4.69	AVG	

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

Test Mode:	TX G Mode 2412 MHz

Horizontal

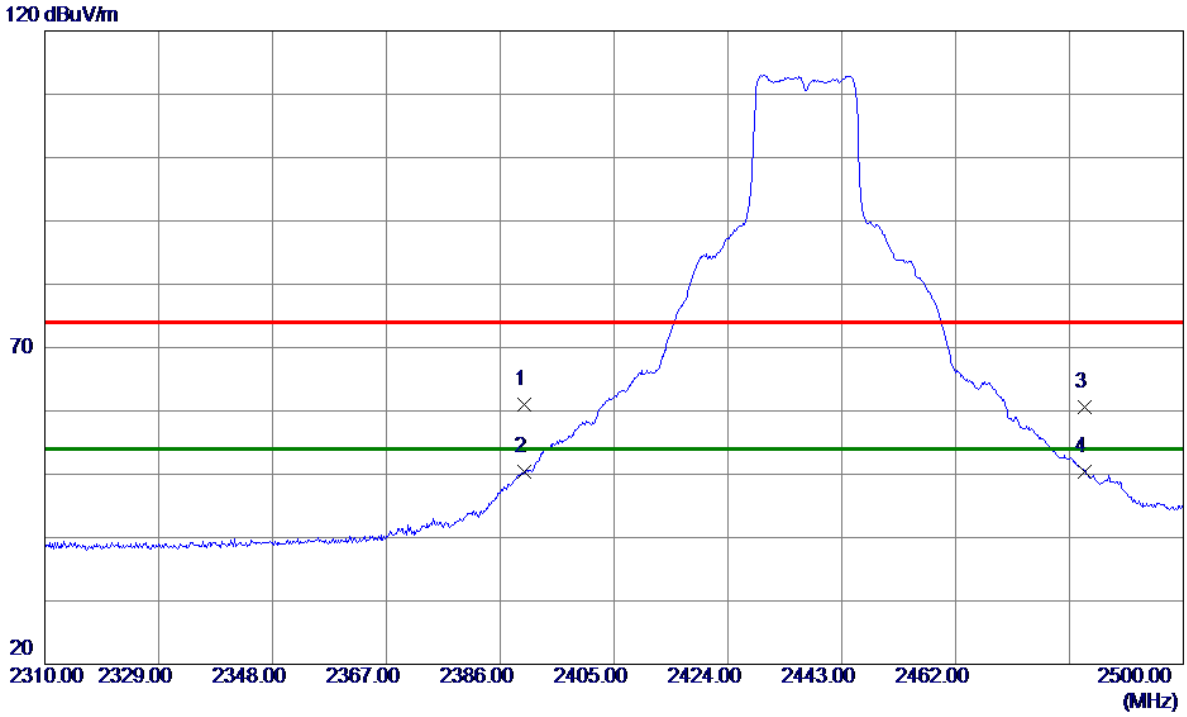


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0000	51.78	-13.55	38.23	74.00	-35.77	Peak	

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

Test Mode:	TX G Mode 2437 MHz

Vertical

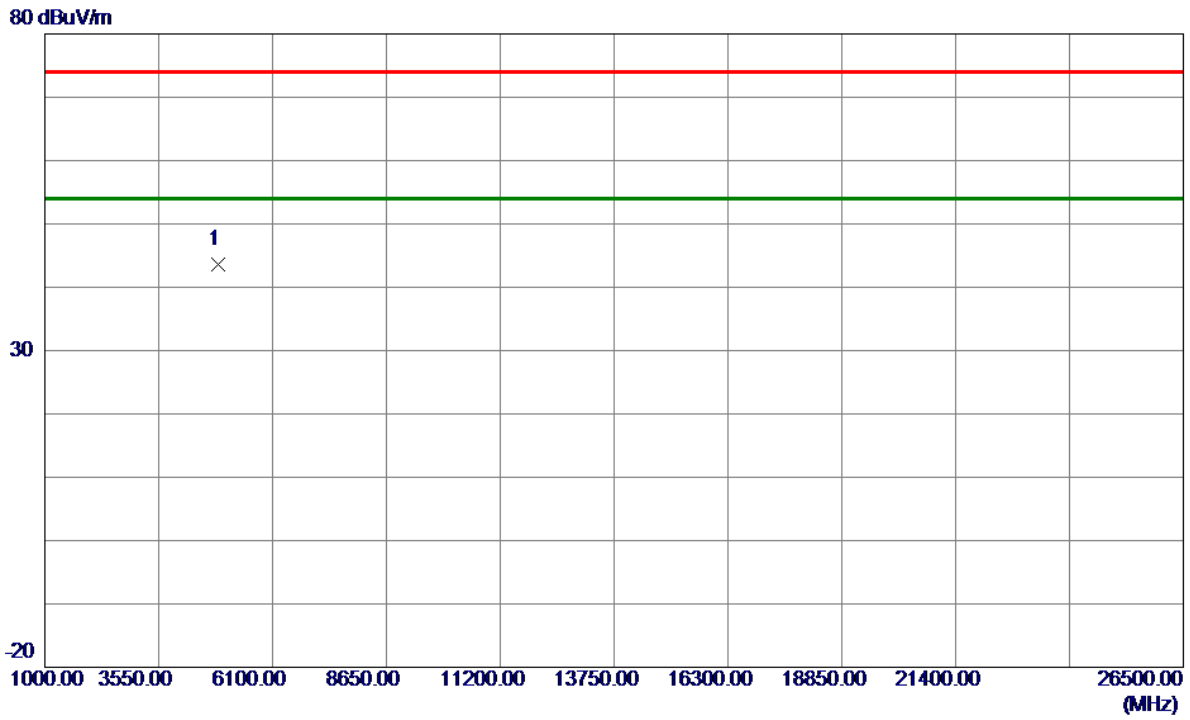


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	28.68	32.39	61.07	74.00	-12.93	Peak	
2 *	2390.0000	18.08	32.39	50.47	54.00	-3.53	AVG	
3	2483.5000	27.95	32.66	60.61	74.00	-13.39	Peak	
4	2483.5000	17.67	32.66	50.33	54.00	-3.67	AVG	

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

Test Mode:	TX G Mode 2437 MHz

Vertical

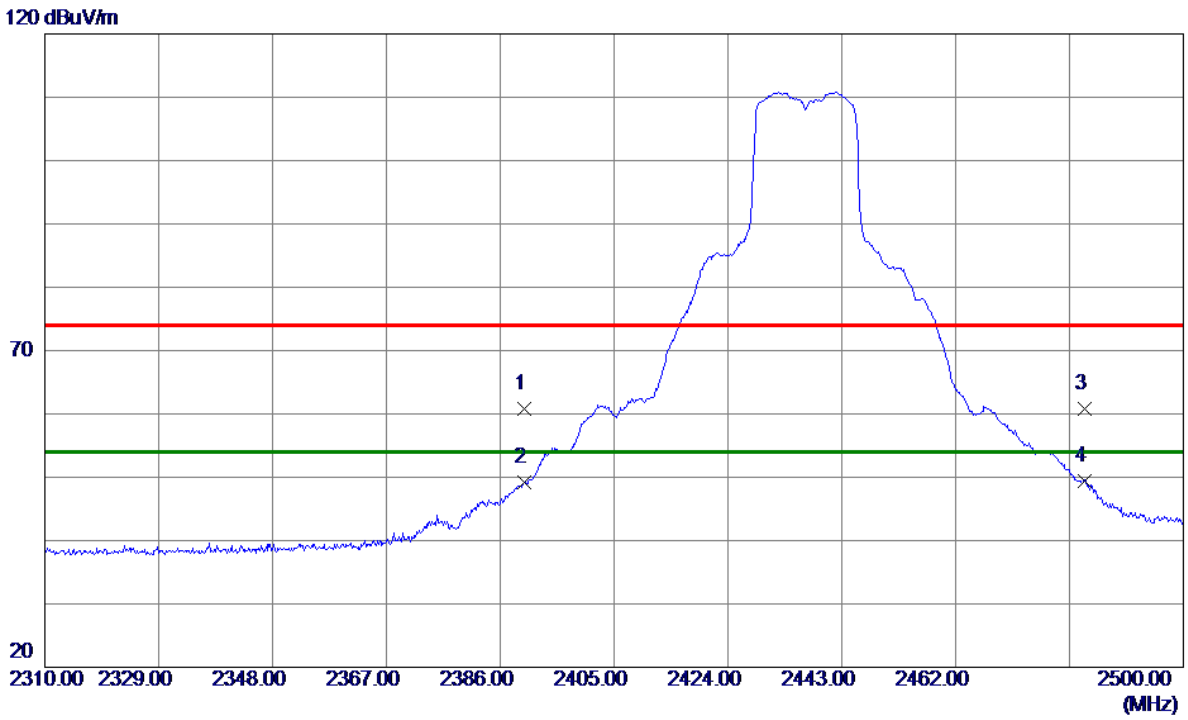


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4881.1000	56.89	-13.34	43.55	74.00	-30.45	Peak	

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

Test Mode:	TX G Mode 2437 MHz

Horizontal

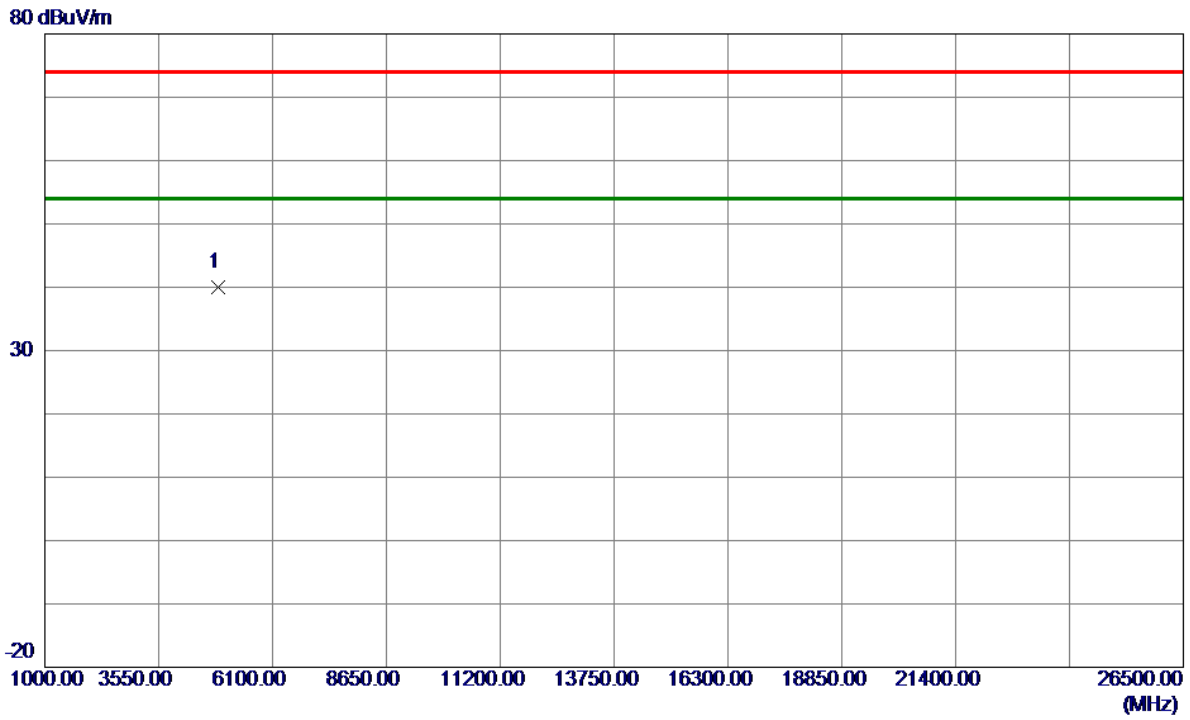


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	28.49	32.39	60.88	74.00	-13.12	Peak	
2	2390.0000	16.85	32.39	49.24	54.00	-4.76	AVG	
3	2483.5000	28.13	32.66	60.79	74.00	-13.21	Peak	
4 *	2483.5000	16.72	32.66	49.38	54.00	-4.62	AVG	

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

Test Mode:	TX G Mode 2437 MHz

Horizontal

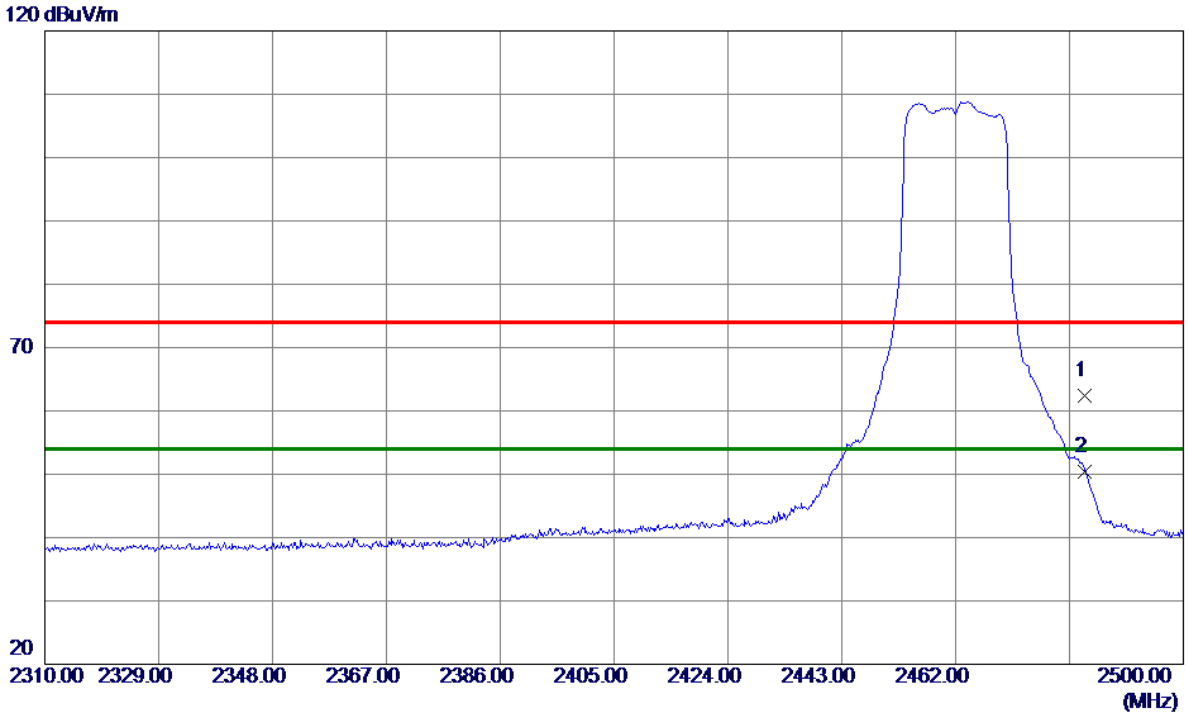


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4883.6500	53.27	-13.33	39.94	74.00	-34.06	Peak	

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

Test Mode:	TX G Mode 2462 MHz

Vertical

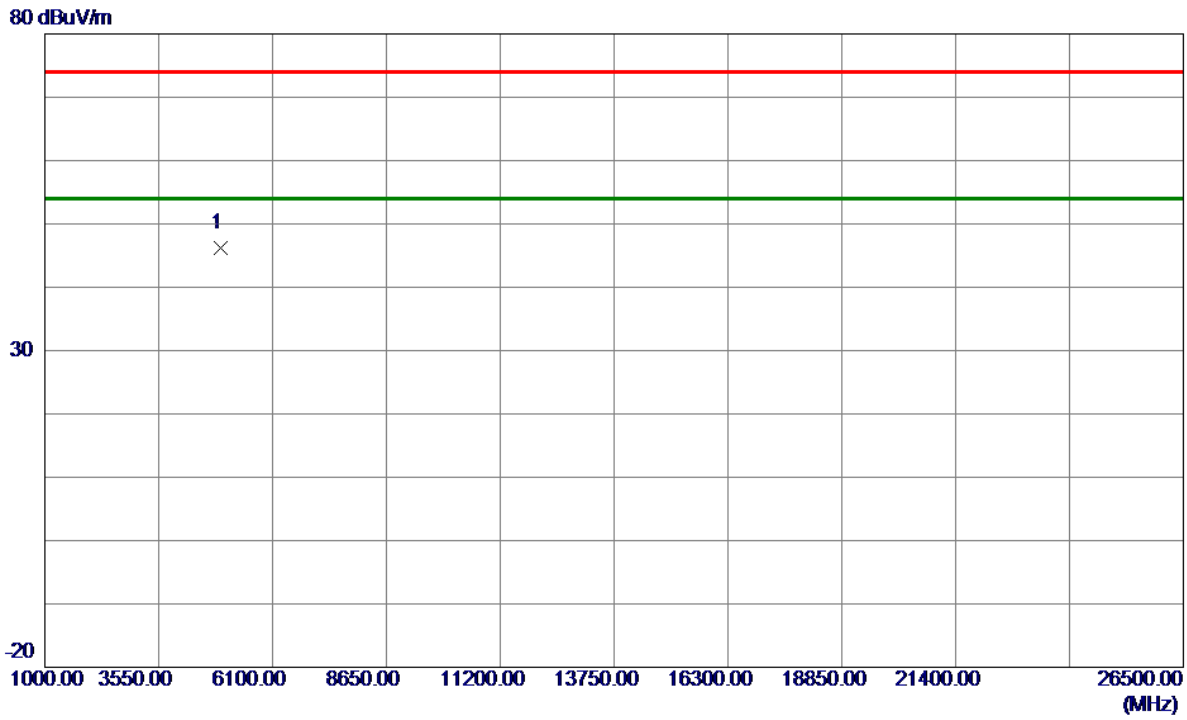


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2483.5000	29.72	32.66	62.38	74.00	-11.62	Peak	
2 *	2483.5000	17.81	32.66	50.47	54.00	-3.53	AVG	

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

Test Mode:	TX G Mode 2462 MHz

Vertical

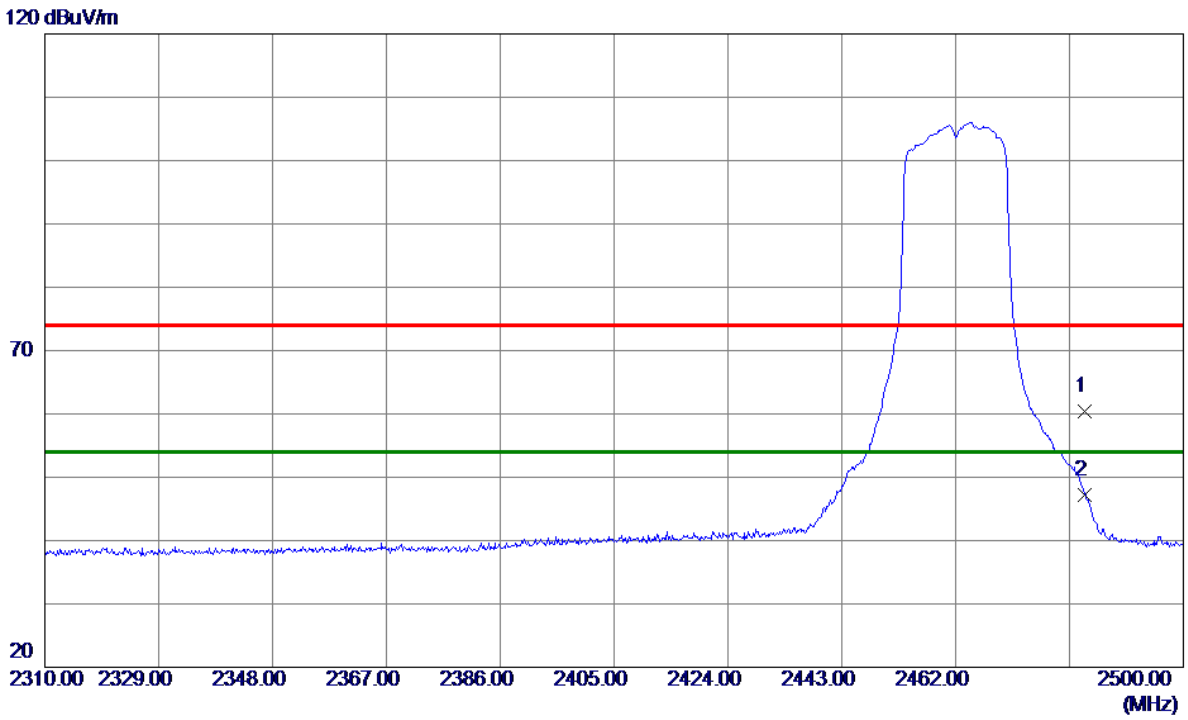


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4927.0000	59.32	-13.17	46.15	74.00	-27.85	Peak	

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

Test Mode:	TX G Mode 2462 MHz

Horizontal

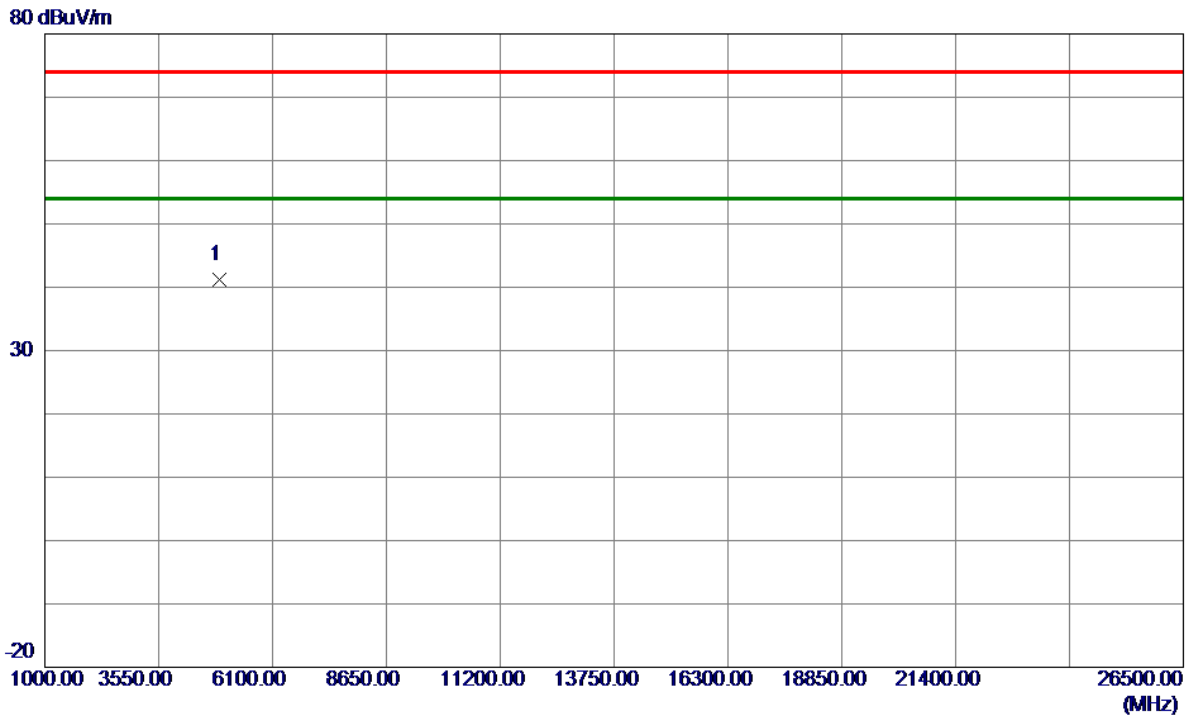


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2483.5000	27.65	32.66	60.31	74.00	-13.69	Peak	
2 *	2483.5000	14.45	32.66	47.11	54.00	-6.89	AVG	

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

Test Mode:	TX G Mode 2462 MHz

Horizontal

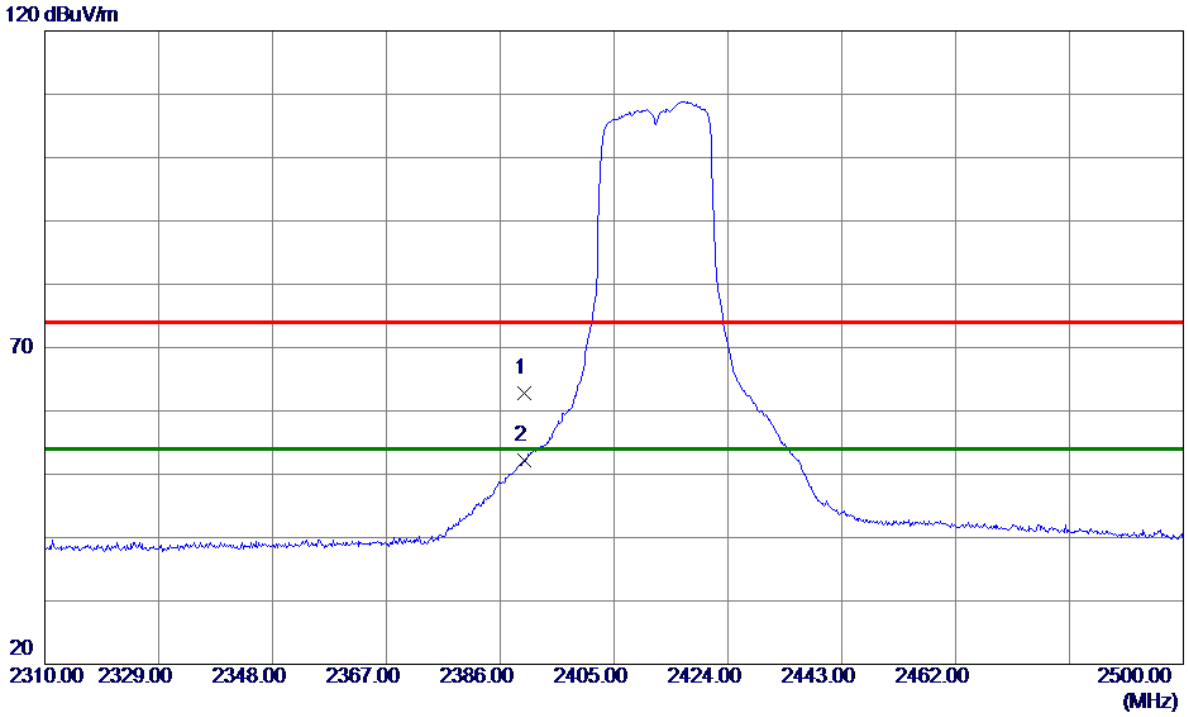


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.0000	54.44	-13.18	41.26	74.00	-32.74	Peak	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2412 MHz

Vertical

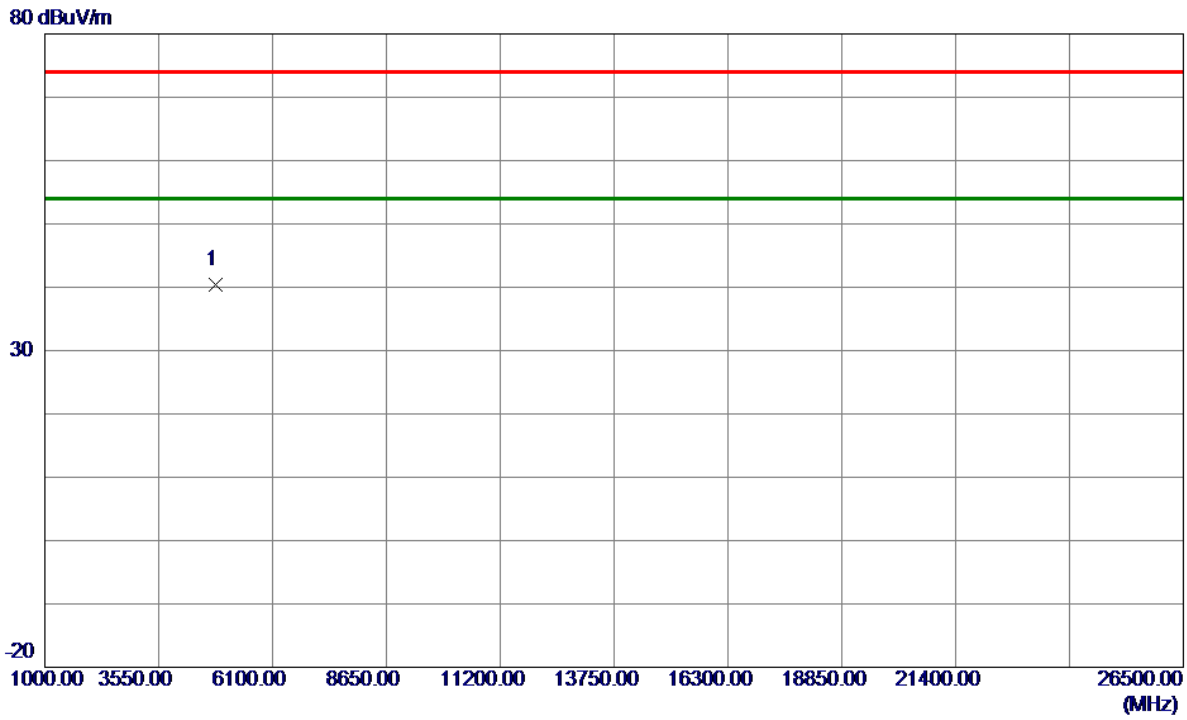


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	30.32	32.39	62.71	74.00	-11.29	Peak	
2 *	2390.0000	19.77	32.39	52.16	54.00	-1.84	AVG	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2412 MHz

Vertical

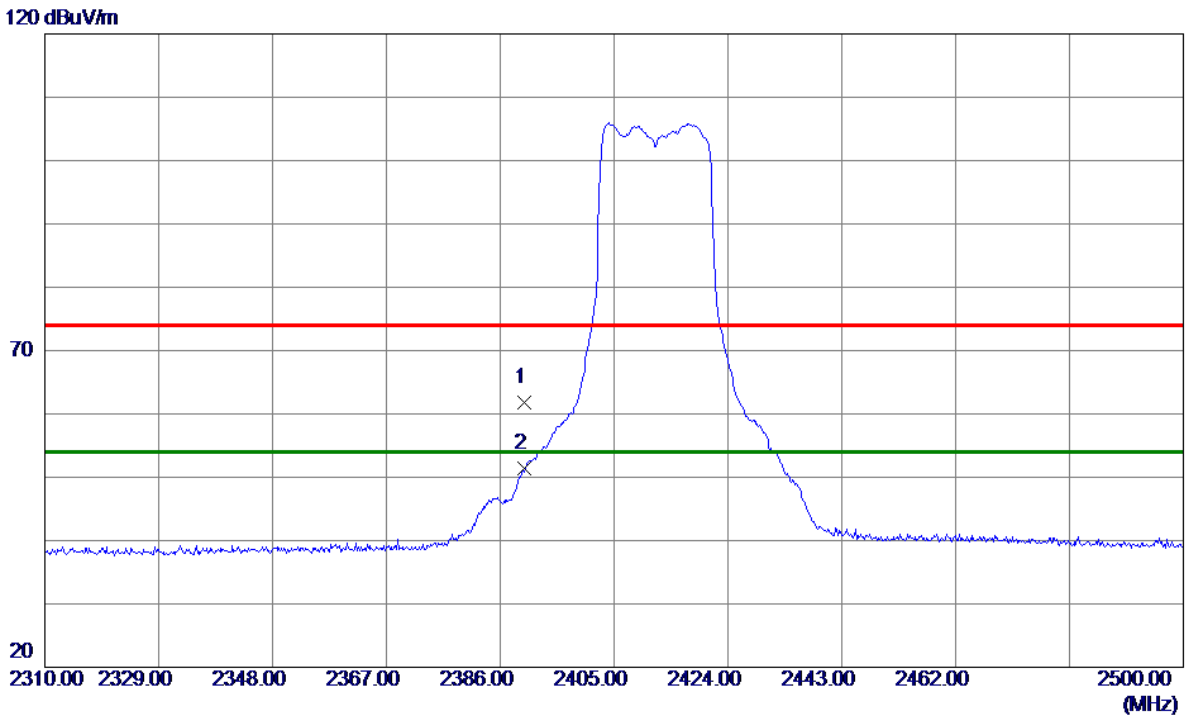


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0000	53.96	-13.55	40.41	74.00	-33.59	Peak	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2412 MHz

Horizontal

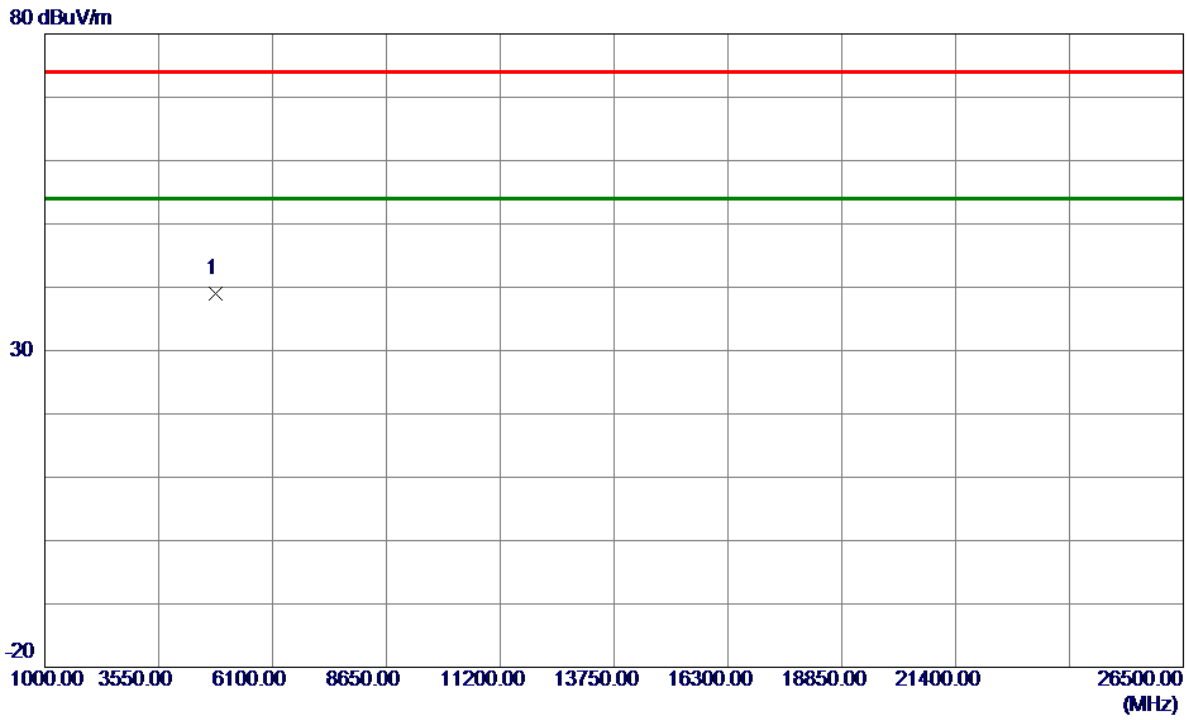


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	29.33	32.39	61.72	74.00	-12.28	Peak	
2 *	2390.0000	19.03	32.39	51.42	54.00	-2.58	AVG	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2412 MHz

Horizontal

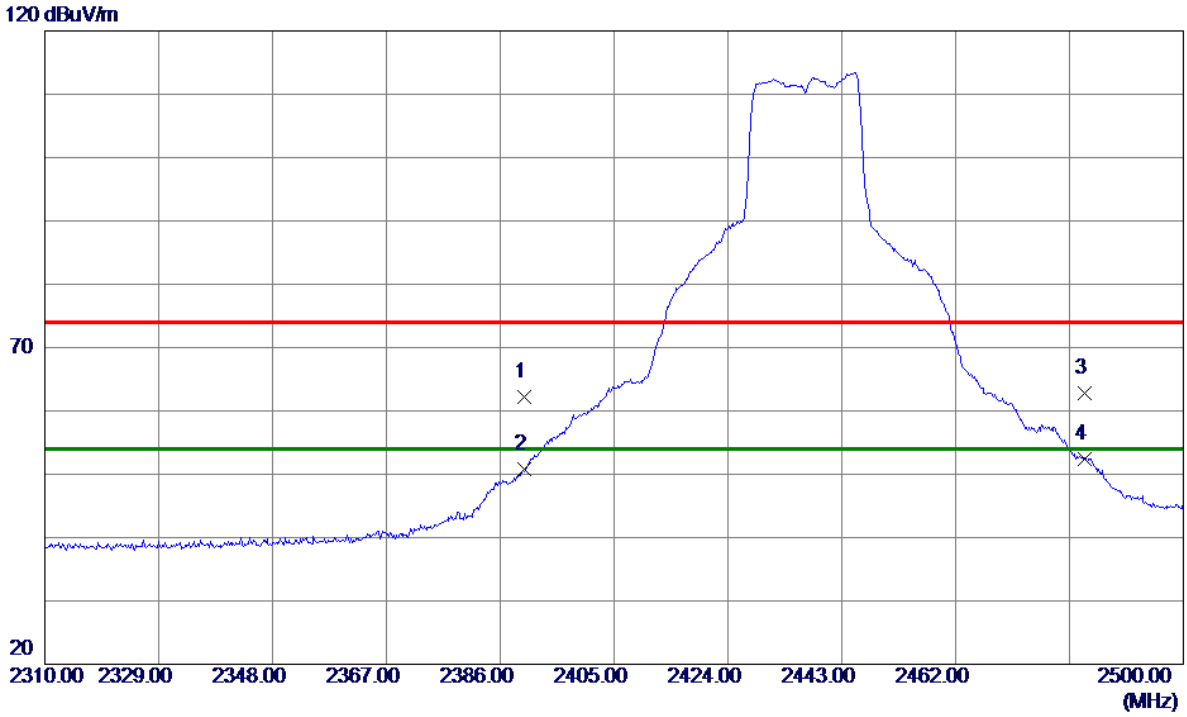


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0000	52.48	-13.55	38.93	74.00	-35.07	Peak	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2437 MHz

Vertical

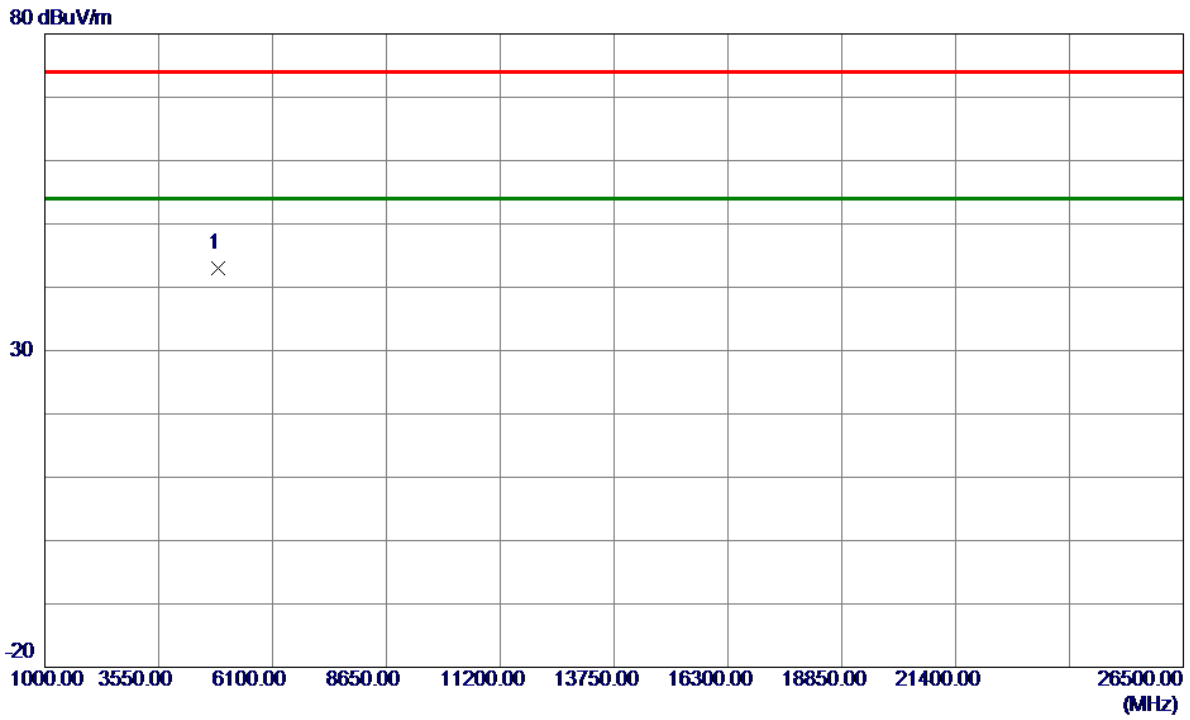


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	29.76	32.39	62.15	74.00	-11.85	Peak	
2	2390.0000	18.39	32.39	50.78	54.00	-3.22	AVG	
3	2483.5000	30.05	32.66	62.71	74.00	-11.29	Peak	
4 *	2483.5000	19.81	32.66	52.47	54.00	-1.53	AVG	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2437 MHz

Vertical

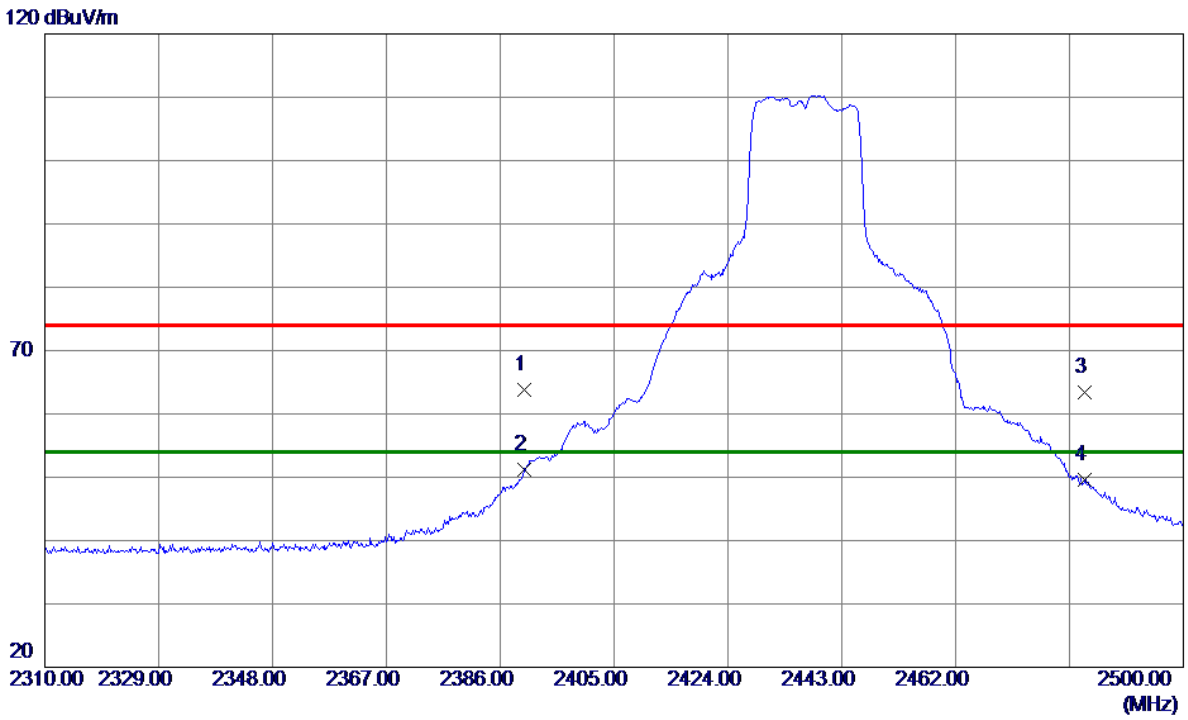


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.0000	56.32	-13.36	42.96	74.00	-31.04	Peak	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2437 MHz

Horizontal

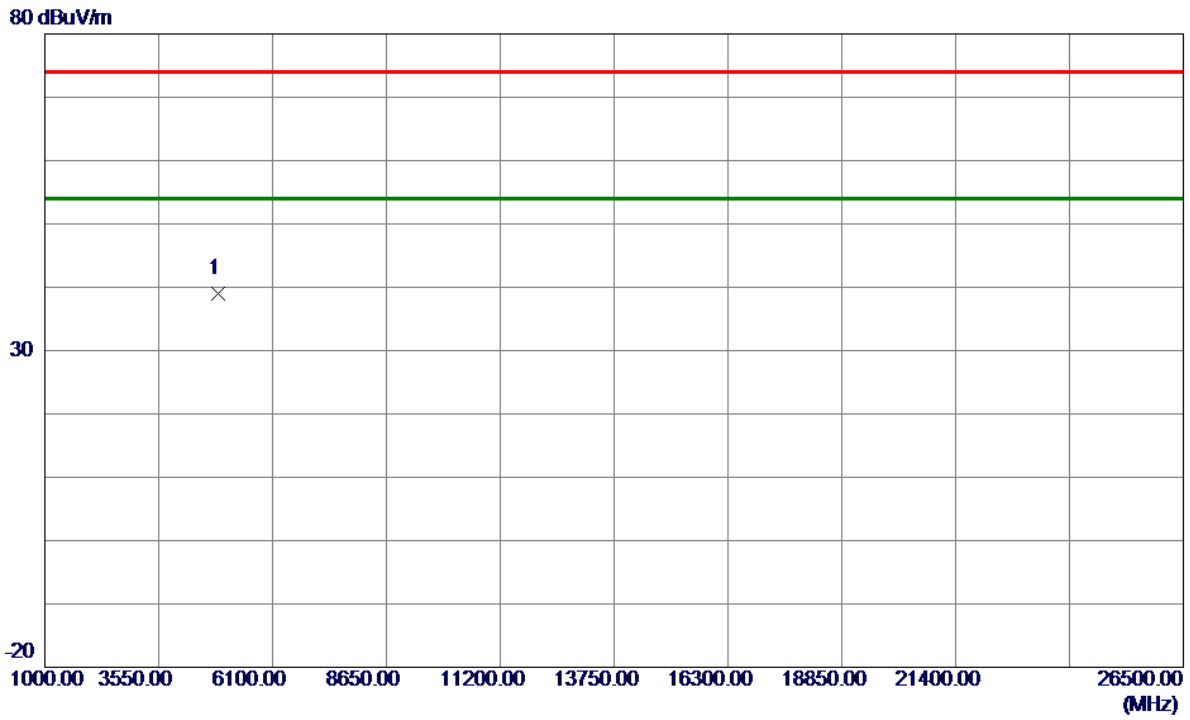


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	31.47	32.39	63.86	74.00	-10.14	Peak	
2 *	2390.0000	18.76	32.39	51.15	54.00	-2.85	AVG	
3	2483.5000	30.83	32.66	63.49	74.00	-10.51	Peak	
4	2483.5000	16.97	32.66	49.63	54.00	-4.37	AVG	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2437 MHz

Horizontal

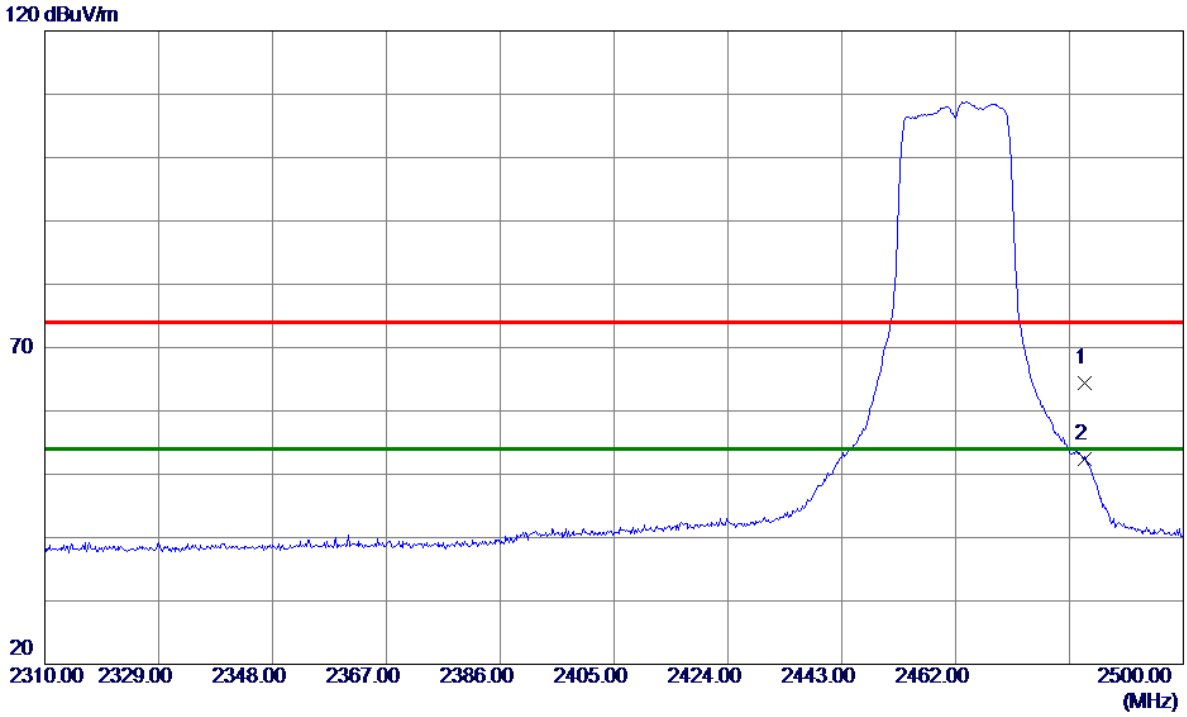


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.0000	52.38	-13.36	39.02	74.00	-34.98	Peak	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2462 MHz

Vertical

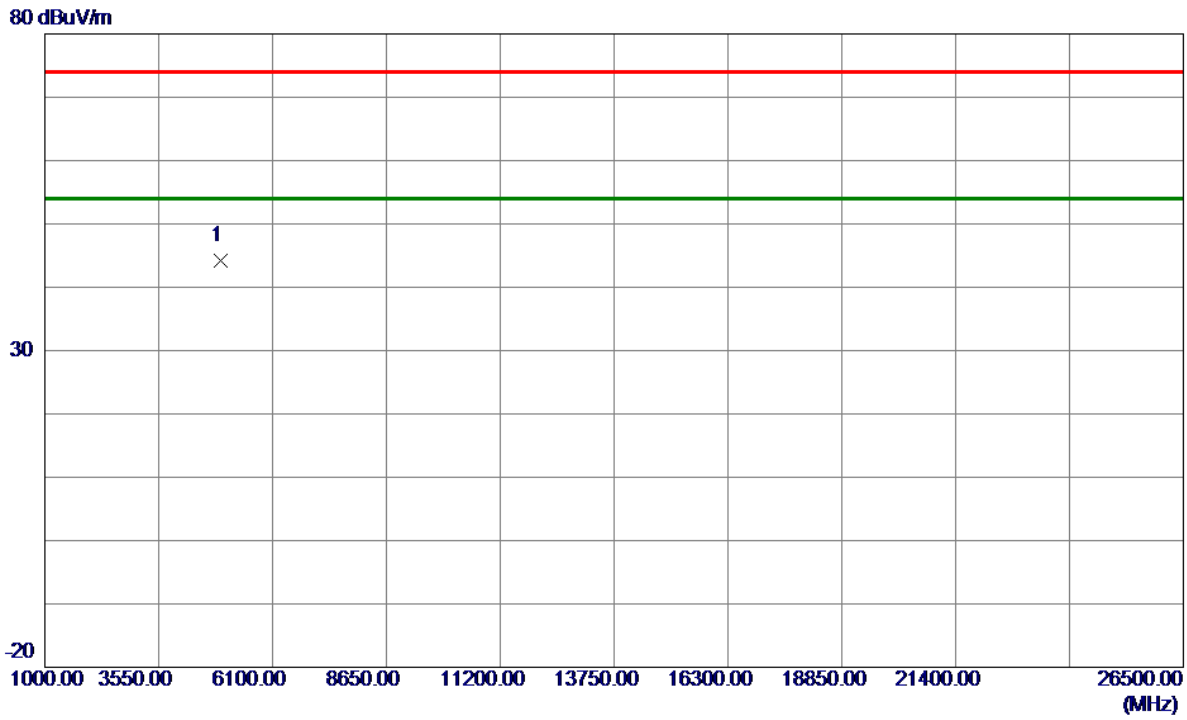


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2483.5000	31.75	32.66	64.41	74.00	-9.59	Peak	
2 *	2483.5000	19.67	32.66	52.33	54.00	-1.67	AVG	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2462 MHz

Vertical

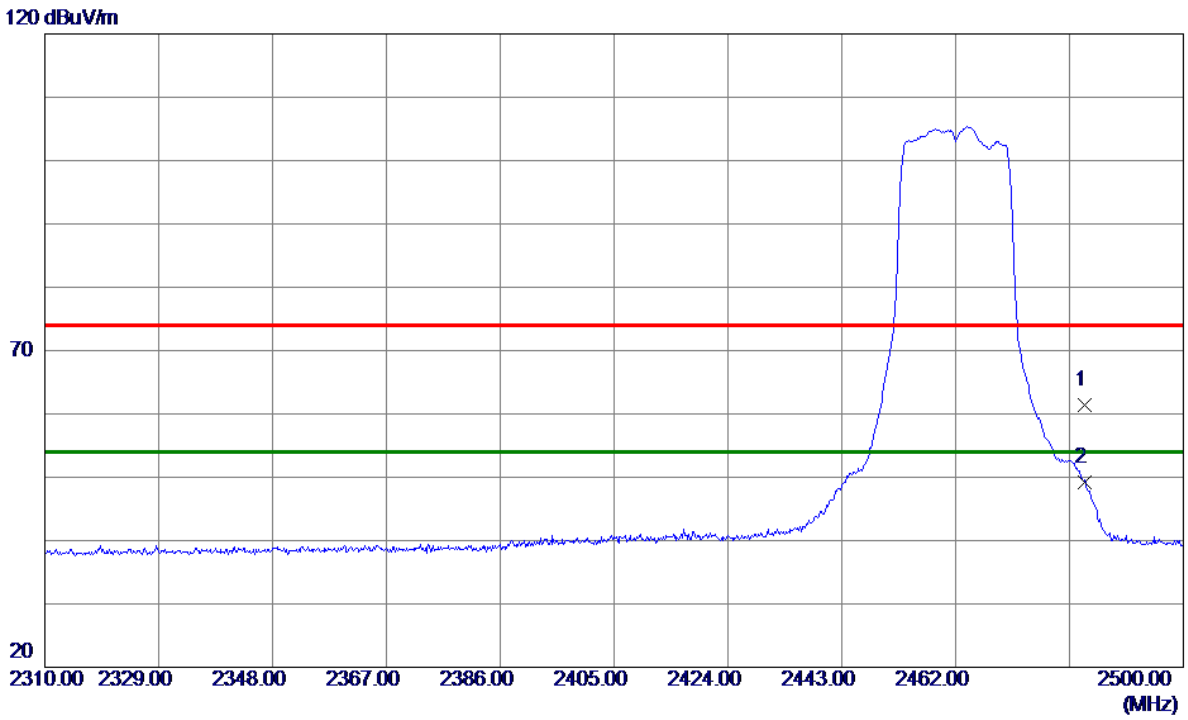


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4927.0000	57.46	-13.17	44.29	74.00	-29.71	Peak	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2462 MHz

Horizontal

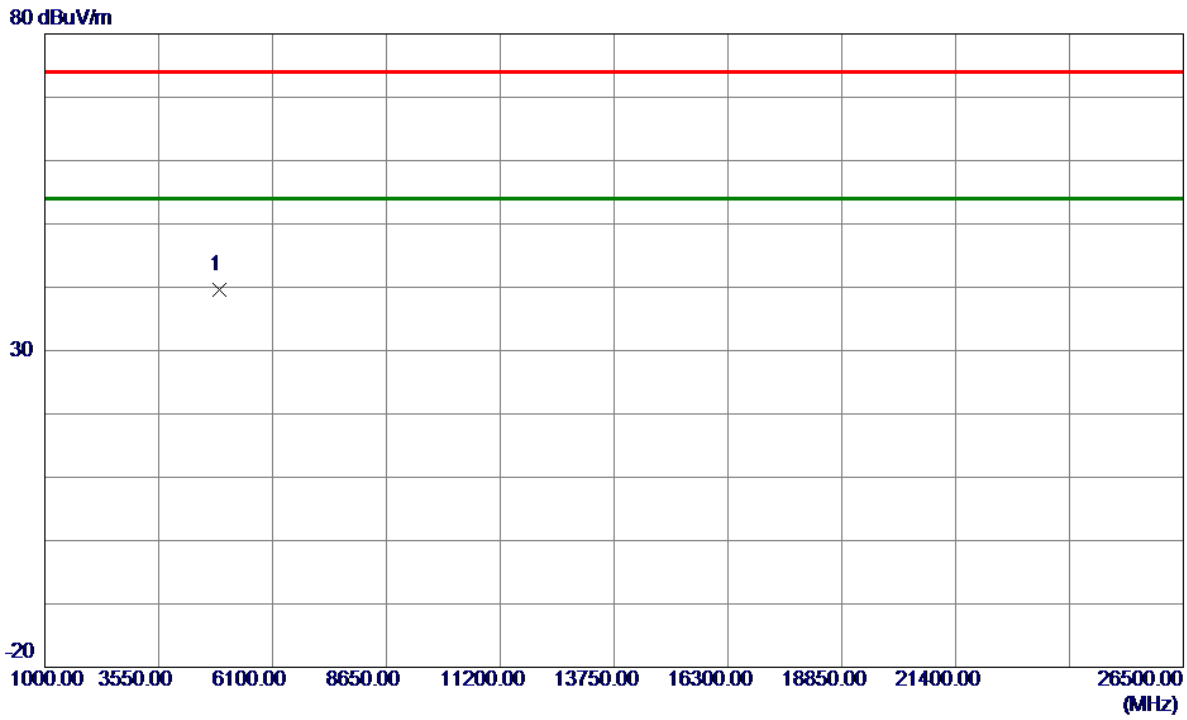


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2483.5000	28.81	32.66	61.47	74.00	-12.53	Peak	
2 *	2483.5000	16.54	32.66	49.20	54.00	-4.80	AVG	

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

Test Mode:	TX AC (VHT 20MHz) Mode 2462 MHz

Horizontal

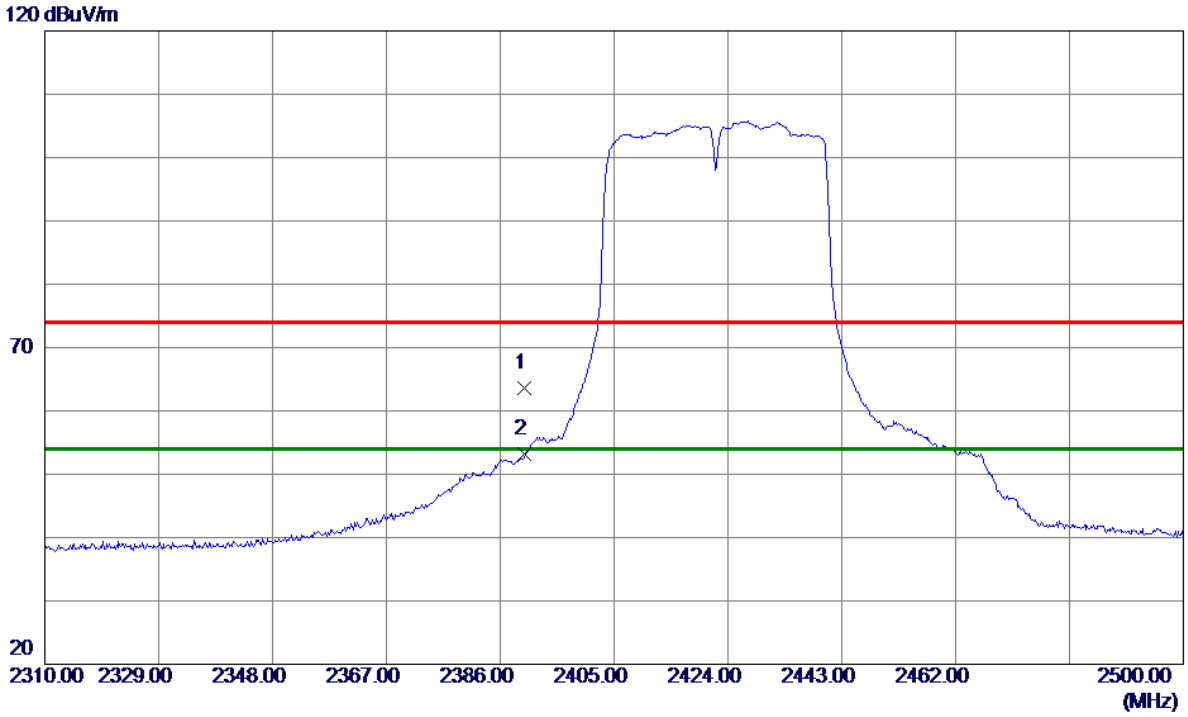


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.0000	52.85	-13.18	39.67	74.00	-34.33	Peak	

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

Test Mode:	TX AC (VHT 40MHz) Mode 2422MHz

Vertical

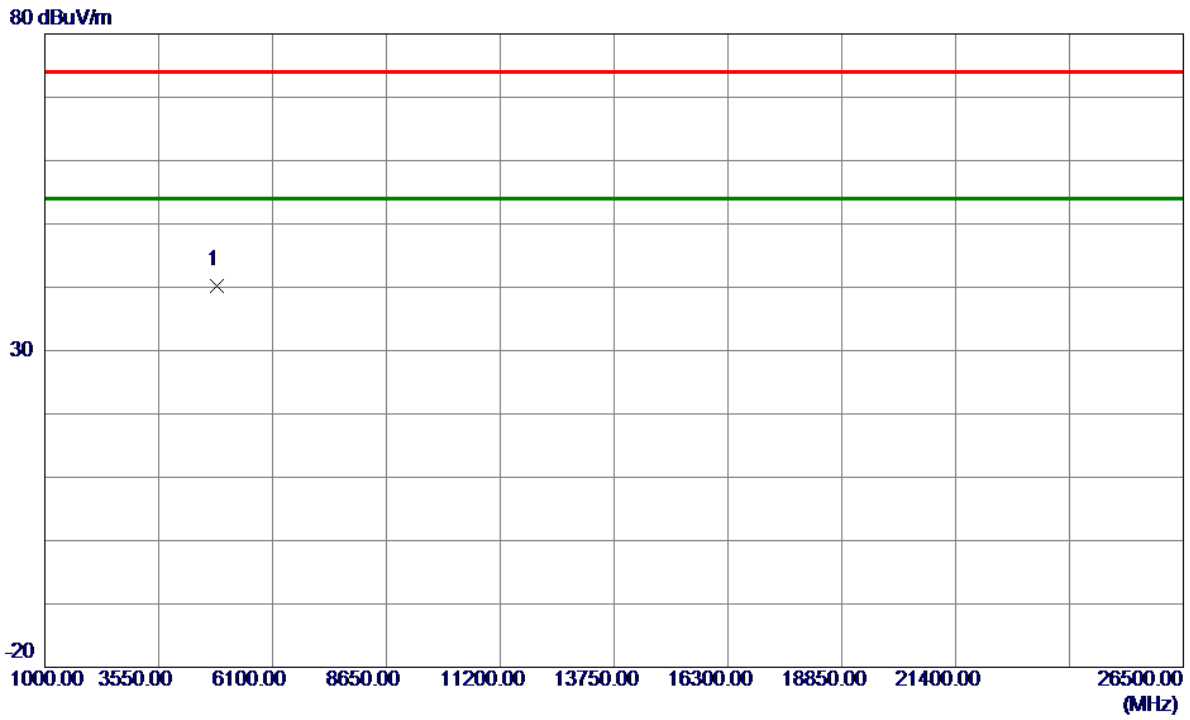


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	31.19	32.39	63.58	74.00	-10.42	Peak	
2 *	2390.0000	20.90	32.39	53.29	54.00	-0.71	AVG	

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

Test Mode:	TX AC (VHT 40MHz) Mode 2422MHz

Vertical

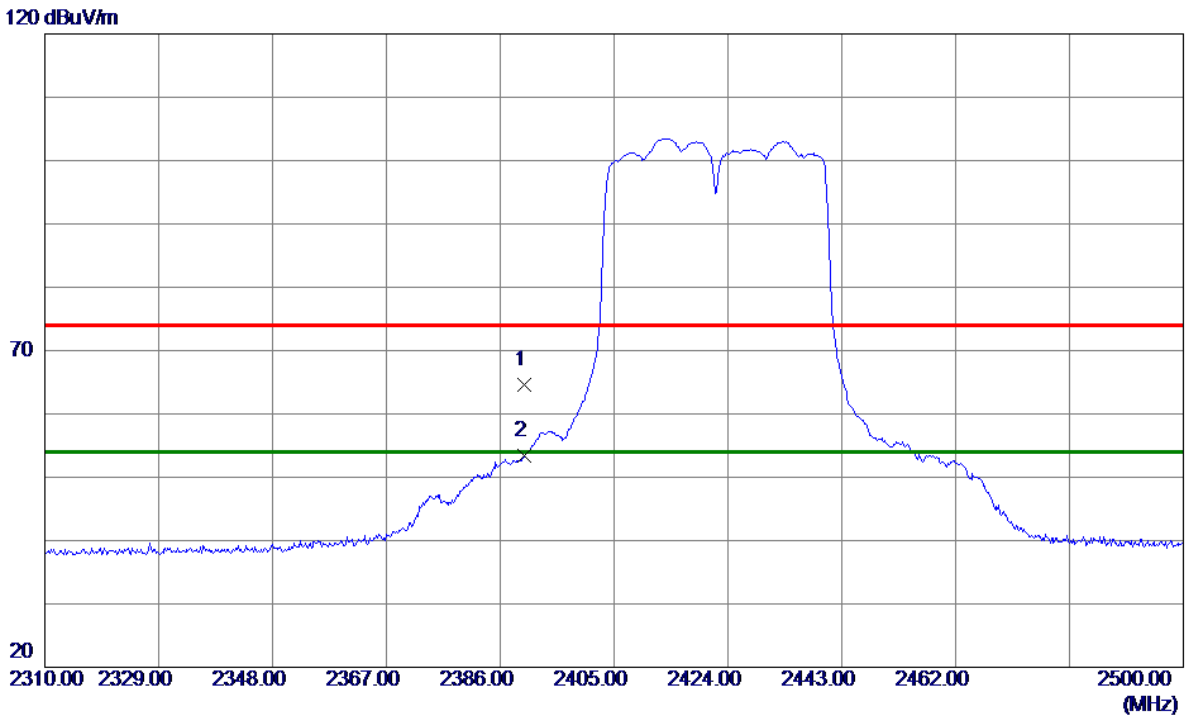


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4844.0000	53.77	-13.47	40.30	74.00	-33.70	Peak	

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

Test Mode:	TX AC (VHT 40MHz) Mode 2422MHz

Horizontal

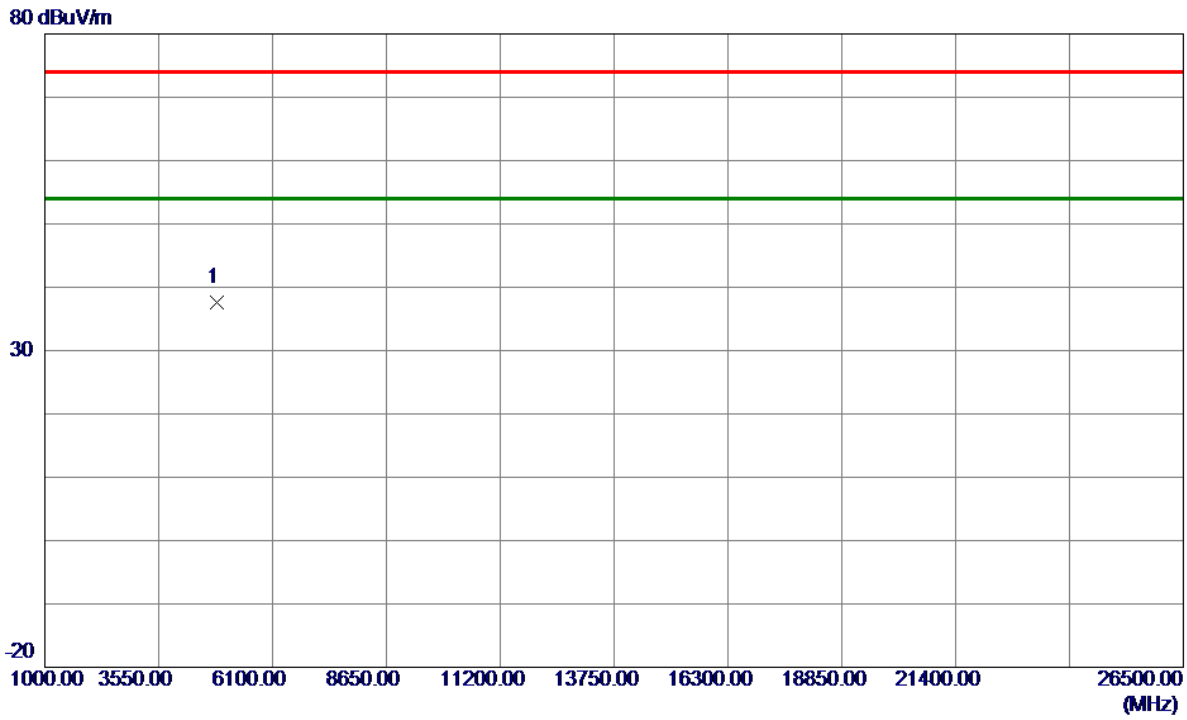


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	32.28	32.39	64.67	74.00	-9.33	Peak	
2 *	2390.0000	21.06	32.39	53.45	54.00	-0.55	AVG	

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

Test Mode:	TX AC (VHT 40MHz) Mode 2422MHz

Horizontal

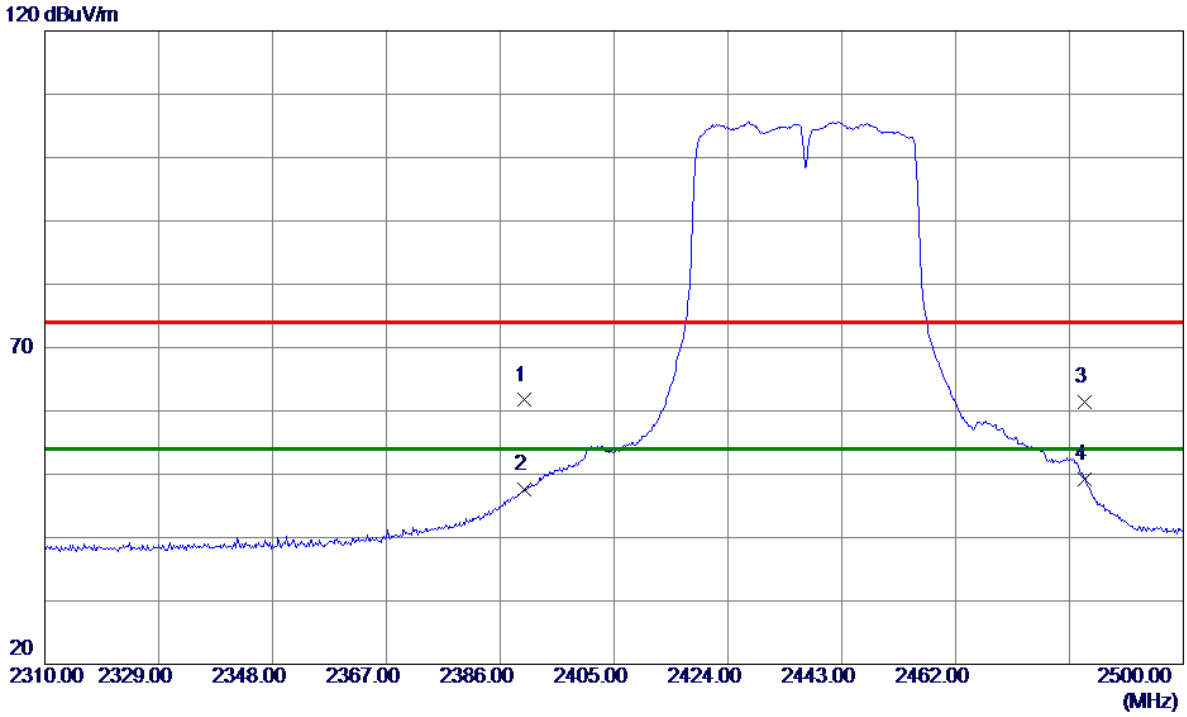


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4844.0000	51.00	-13.47	37.53	74.00	-36.47	Peak	

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

Test Mode:	TX AC (VHT 40MHz) Mode 2437 MHz

Vertical

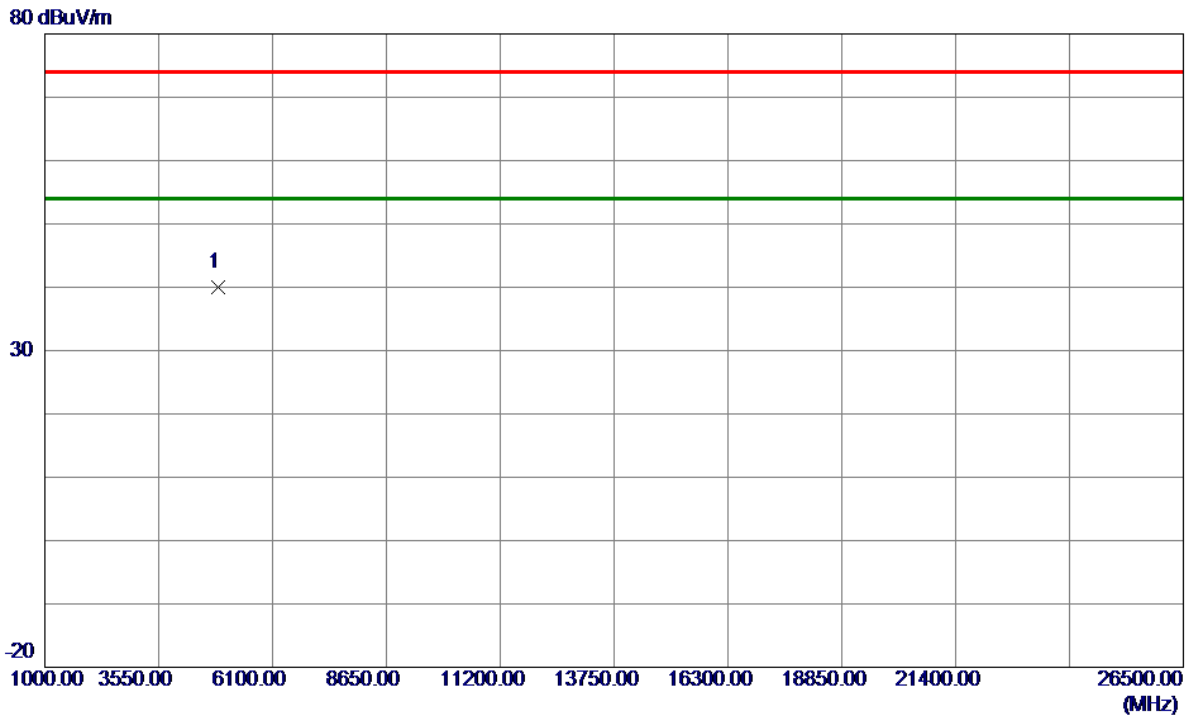


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	29.31	32.39	61.70	74.00	-12.30	Peak	
2	2390.0000	15.27	32.39	47.66	54.00	-6.34	AVG	
3	2483.5000	28.79	32.66	61.45	74.00	-12.55	Peak	
4 *	2483.5000	16.62	32.66	49.28	54.00	-4.72	AVG	

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

Test Mode:	TX AC (VHT 40MHz) Mode 2437 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.0000	53.36	-13.36	40.00	74.00	-34.00	Peak	

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