FCC Radio Test Report

FCC ID: XU8TEW740APBOV3

This report concerns: Original Grant

Project No.	:	1911C149
Equipment	:	10 dBi Wireless N300 Outdoor PoE Access Point, 10 dBi Wireless N300 Outdoor PoE Preconfigured Point-to-Point Bridge Kit
Brand Name	:	TRENDnet, Inc.
Test Model	:	TEW-740APBO V3.0
Series Model	:	TEW-740APBO2K V3.0
Applicant	:	TRENDnet, Inc.
Address	:	20675 Manhattan Place, Torrance, CA 90501, USA
Manufacturer	:	TRENDnet, Inc.
Address	:	20675 Manhattan Place, Torrance, CA 90501, USA
Factory	:	TRENDnet, Inc.
Address	:	20675 Manhattan Place, Torrance, CA 90501, USA
Date of Receipt	:	Nov. 29, 2019
Date of Test	:	Dec. 26, 2019~Jan. 08, 2020
Issued Date	:	Apr. 13, 2020
Report Version	:	R01
Test Sample	:	Engineering Sample No.: DG201912044
Standard(s)	:	FCC Part15, Subpart C (15.247) ANSI C63.10-2013 FCC 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.

Nick Chen

Prepared by : Nick Chen

Ethan Ma

Approved by : Ethan Ma

Certificate #5123.02

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

Tel: +86-769-8318-3000

Web: www.newbtl.com

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

Table of Contents Page

Table of Contents Page

Table of Contents **Page**

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Mar. 20, 2020
R01	Updated the model difference.	Apr. 13, 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.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

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. 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	9kHz ~ 30MHz	V	3.79
		9kHz ~ 30MHz	H	3.57
		30MHz ~ 200MHz	V	4.88
		30MHz ~ 200MHz	H	4.14
		200MHz ~ 1,000MHz	V	4.62
		200MHz ~ 1,000MHz	H	4.80
		1GHz ~ 6GHz	-	4.58
		6GHz ~ 18GHz	-	5.18
		18GHz ~ 26.5GHz	-	3.62
		26.5GHz ~ 40GHz	-	4.00

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	25°C	53%	AC 120V/60Hz	Jonas Chen
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V/60Hz	Laughing Zhang
Radiated Emissions-30 MHz to 1GHz	24°C	68%	AC 120V/60Hz	Laughing Zhang
Radiated Emissions-Above 1000 MHz	24°C	68%	AC 120V/60Hz	Laughing Zhang
Bandwidth	25°C	60%	DC 12V	Jonas Chen
Maximum output power	25°C	60%	DC 12V	Laughing Zhang
Conducted Spurious Emissions	25°C	60%	DC 12V	Jonas Chen
Power Spectral Density	25°C	60%	DC 12V	Jonas Chen

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	10 dBi Wireless N300 Outdoor PoE Access Point, 10 dBi Wireless N300 Outdoor PoE Preconfigured Point-to-Point Bridge Kit
Brand Name	TRENDnet, Inc.
Test Model	TEW-740APBO V3.0
Series Model	TEW-740APBO2K V3.0
Model Difference(s)	The difference is that the software defaults are different. TEW-740APBO V3.0: AP Mode (Stand alone) TEW-740APBO2K V3.0: WDS Mode, Can make two groups of DUT automatically WDS connection (Two sets of a group)
Power Source	1) DC Voltage supplied from AC/DC adapter. Model: DSA-12PFT-12 FUS 2) Supplied from PoE
Power Rating	1) I/P: 100-240V~ 50/60Hz 0.5A O/P: +12V ⎓ 1A 2) DC 48V
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 150 Mbps
Maximum Output Power	IEEE 802.11b: 21.58 dBm (0.1439 W) IEEE 802.11g: 25.53 dBm (0.3573 W) IEEE 802.11n (HT20): 25.85 dBm (0.3846 W) IEEE 802.11n (HT40): 24.74 dBm (0.2979 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) CH03 - CH09 for IEEE 802.11n (HT40)							
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)
1	TRENDnet, Inc.	N/A	Internal	N/A	10

Note:
Antenna Gain=10 dBi. So, the output power limit is 30-(10-6)=26, the power spectral density limit is 8-(10-6)=4.

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 N20 MHz Mode Channel 01/06/11
Mode 4	TX N40 MHz Mode Channel 03/06/09
Mode 5	TX N20 Mode Channel 11

Following mode(s) was (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 N20 Mode Channel 11

Radiated emissions test - Below 1GHz	
Final Test Mode:	Description
Mode 5	TX N20 Mode Channel 11

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 N20 MHz Mode Channel 01/06/11
Mode 4	TX N40 MHz 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 N20 MHz Mode Channel 01/06/11
Mode 4	TX N40 MHz Mode Channel 03/06/09

NOTE:

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

(2) 802.11b mode: CCK (1 Mbps)
802.11g mode: OFDM (6 Mbps)
802.11n HT20 mode : BPSK (6.5 Mbps)
802.11n HT40 mode : BPSK (13.5 Mbps)
For radiated emission tests, the highest output powers were set for final test.

(3) For radiated emission below 1 GHz test, the IEEE 802.11n20 Channel 11 is found to be the worst case and recorded.

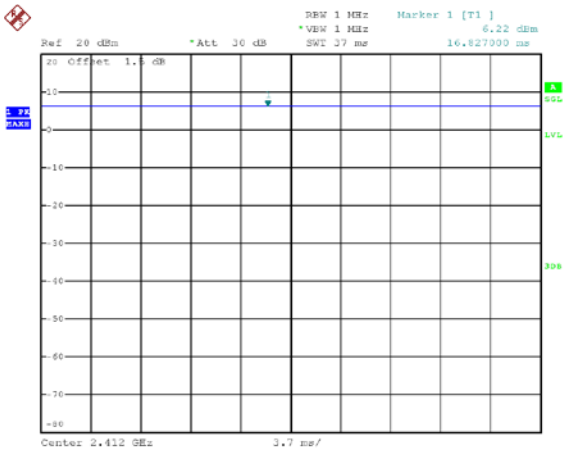
(4) For radiated emission above 1 GHz test, 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

2.3 PARAMETERS OF TEST SOFTWARE

Test Software	artgui.exe		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	16.5	15	14
IEEE 802.11g	16.5	17.5	19
IEEE 802.11n (HT20)	17	18.5	19.5
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	14	18.5	19

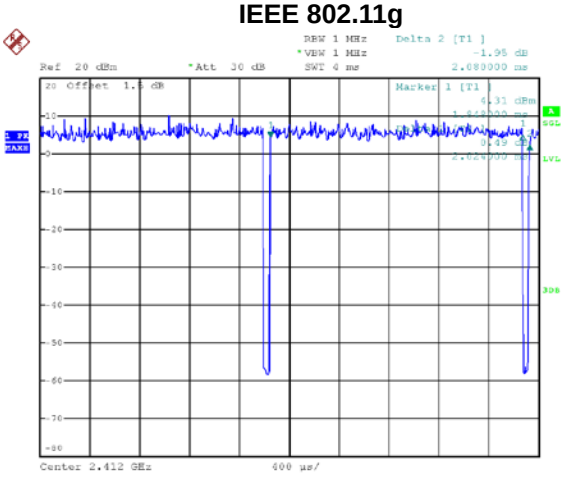
2.4 DUTY CYCLE

IEEE 802.11b



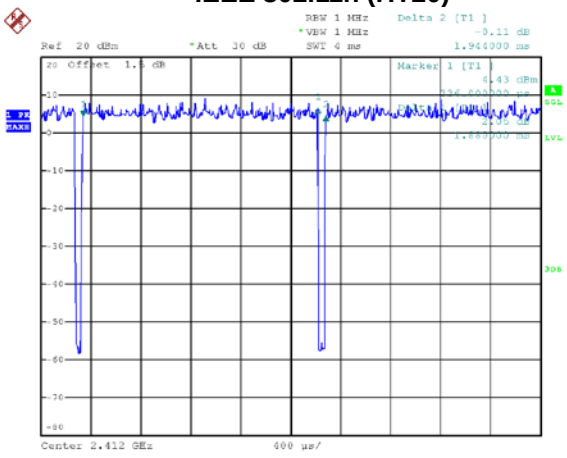
Duty cycle = 0.000 ms / 0.000 ms = 0.00%
Duty Factor = 10 log(1/Duty cycle) = 0.00

IEEE 802.11g



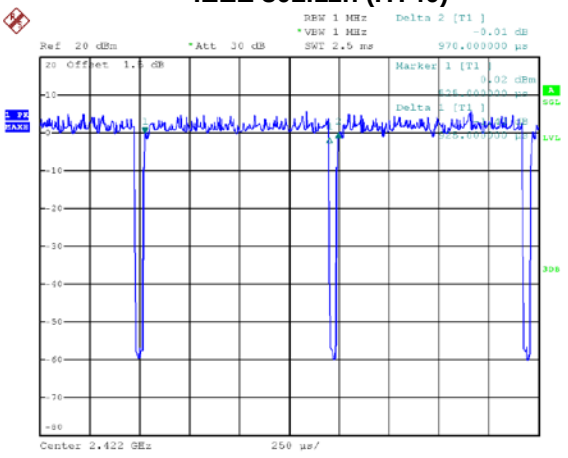
Duty cycle = 2.024 ms / 2.080 ms = 97.31%
Duty Factor = 10 log(1/Duty cycle) = 0.12

IEEE 802.11n (HT20)



Duty cycle = 1.880 ms / 1.944 ms = 96.71%
Duty Factor = 10 log(1/Duty cycle) = 0.15

IEEE 802.11n (HT40)

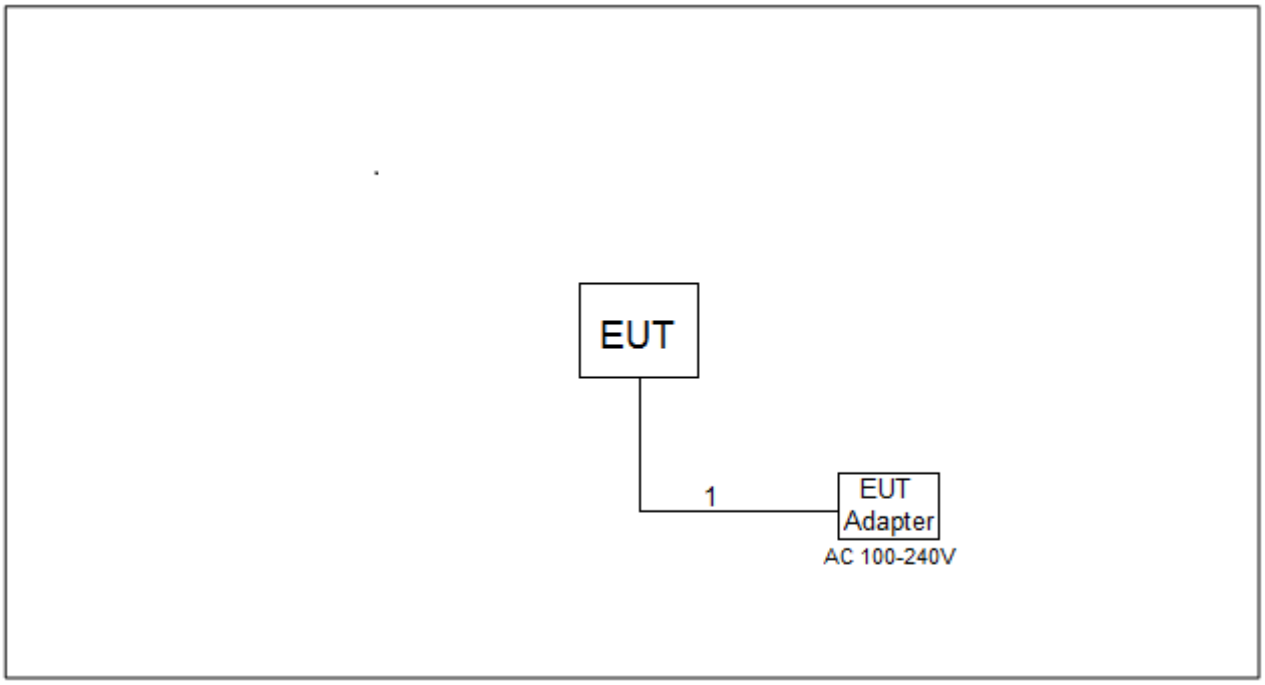


Duty cycle = 0.925 ms / 0.970 ms = 95.36%
Duty Factor = 10 log(1/Duty cycle) = 0.21

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 2 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.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m

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

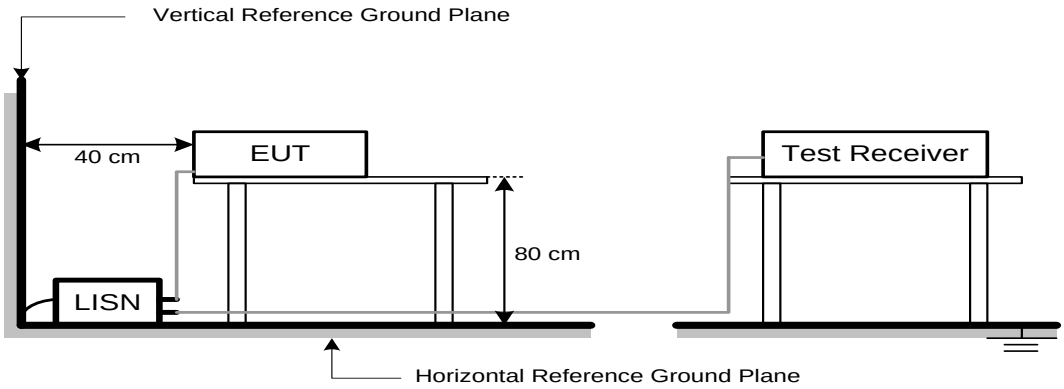
3.2 TEST PROCEDURE

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).

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

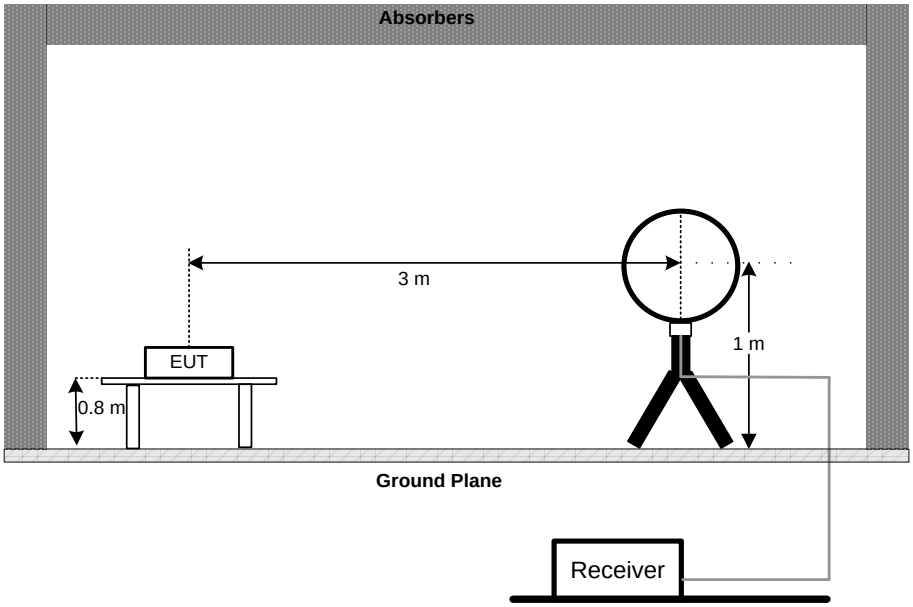
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance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

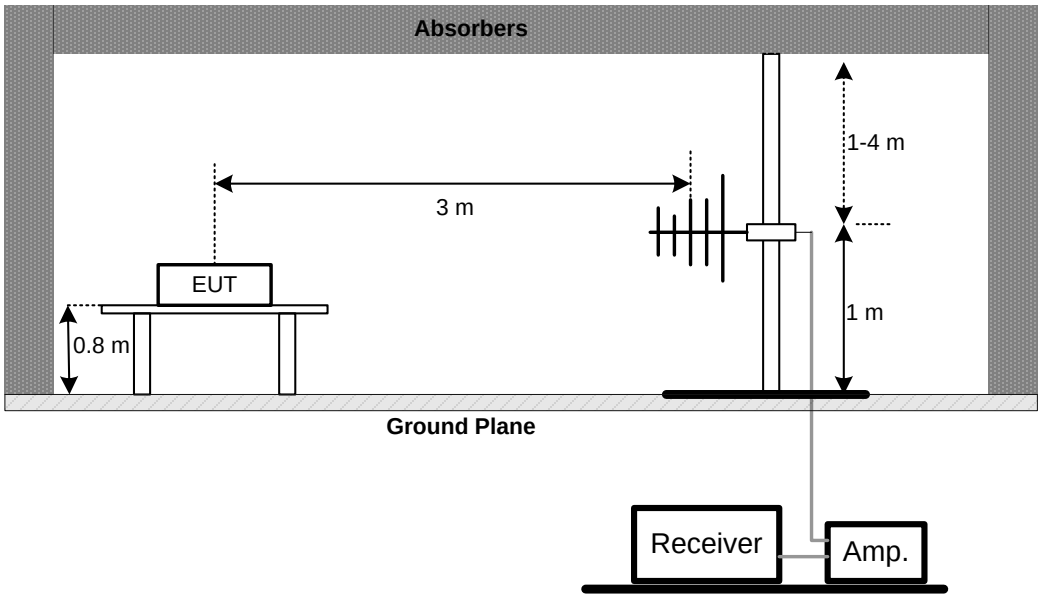
No deviation

4.4 TEST SETUP

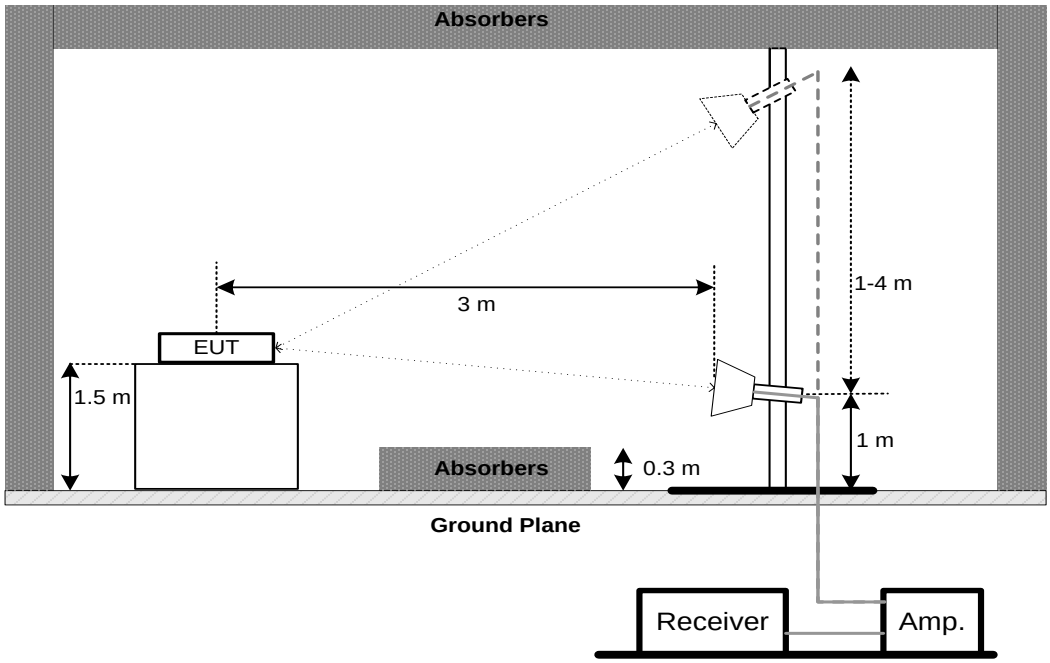
9 kHz-30 MHz



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	-

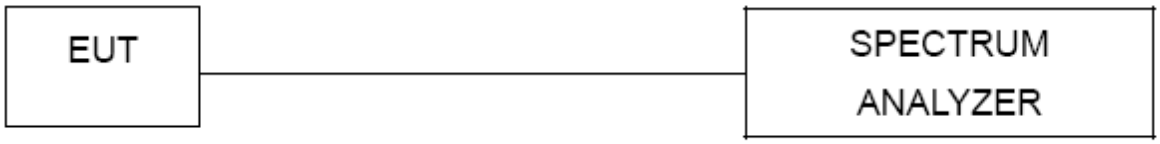
5.2 TEST PROCEDURE

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 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 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.

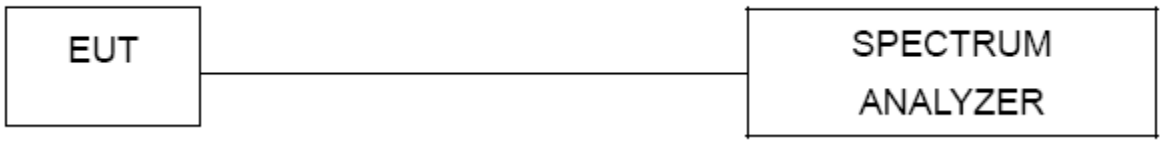
7.2 TEST PROCEDURE

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	EMI Test Receiver	R&S	ESCI	100382	Mar. 10, 2020
2	LISN	EMCO	3816/2	52765	Mar. 10, 2020
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	May. 19, 2020
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 10, 2020
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 12, 2020

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	May 31, 2020
3	EMI Test Receiver	R&S	ESCI	100895	Mar. 10, 2020
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. 09, 2020
2	Amplifier*	HP	8447D	2944A09673	Aug. 11, 2021
3	Receiver	Agilent	N9038A	MY52130039	Aug. 03, 2020
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 24, 2020
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. 09, 2020
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 23, 2020
3	Amplifier	Agilent	8449B	3008A02333	Mar. 10, 2020
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 10, 2020
5	Receiver	Agilent	N9038A	MY52130039	Aug. 03, 2020
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	mitron	B10-01-01-12M	18072744	Jun. 29, 2020
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Bandwidth & Antenna Conducted Spurious Emissions & Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 03, 2020

Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Aug. 03, 2020
2	Wideband power sensor	Keysight	N1923A	MY58310004	Aug. 03, 2020

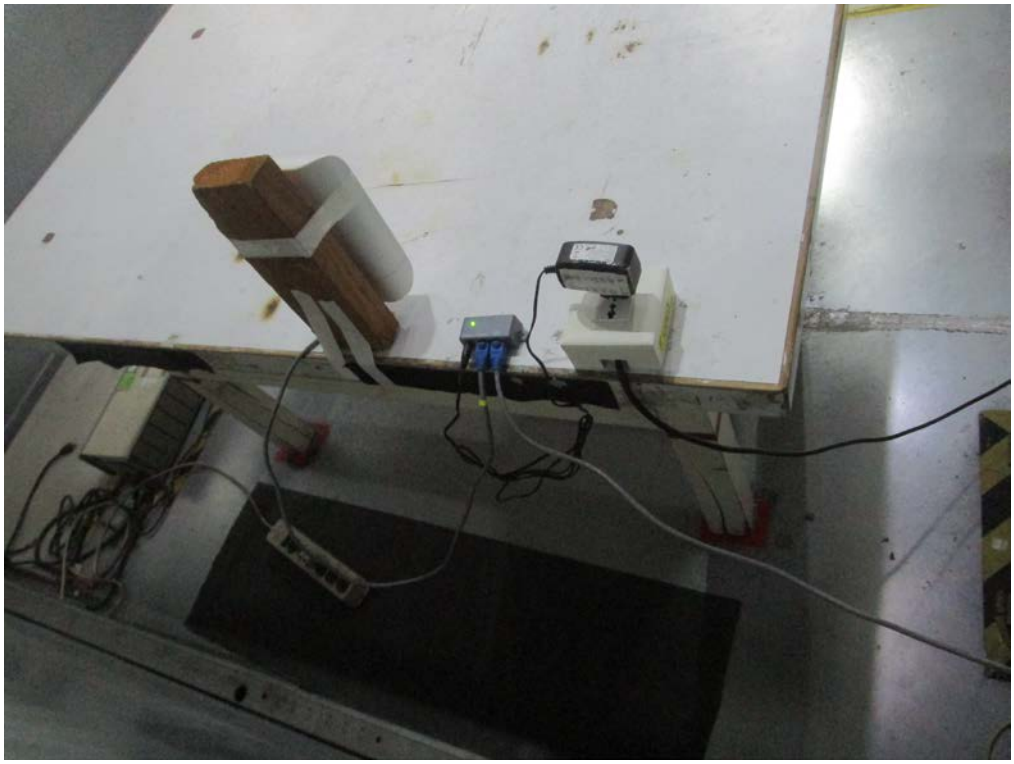
Remark: ”N/A” denotes no model name, serial no. or calibration specified.

“*” calibration period of equipment list is three year.

Except * item, all calibration period of equipment list is one year.

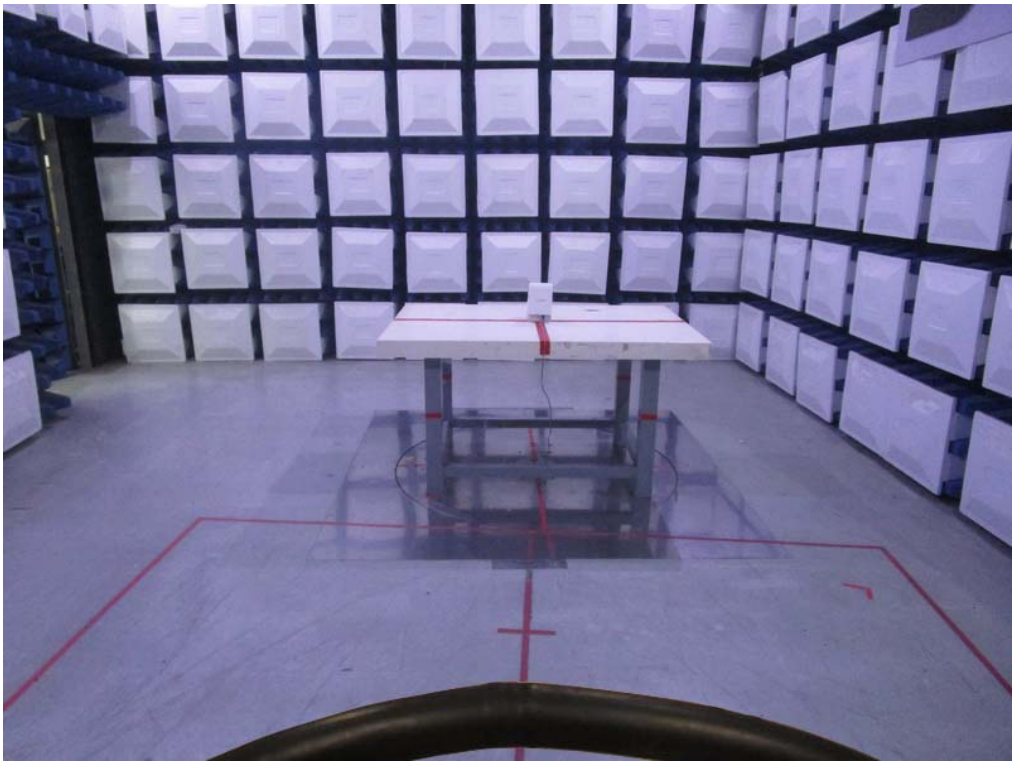
10. EUT TEST PHOTO

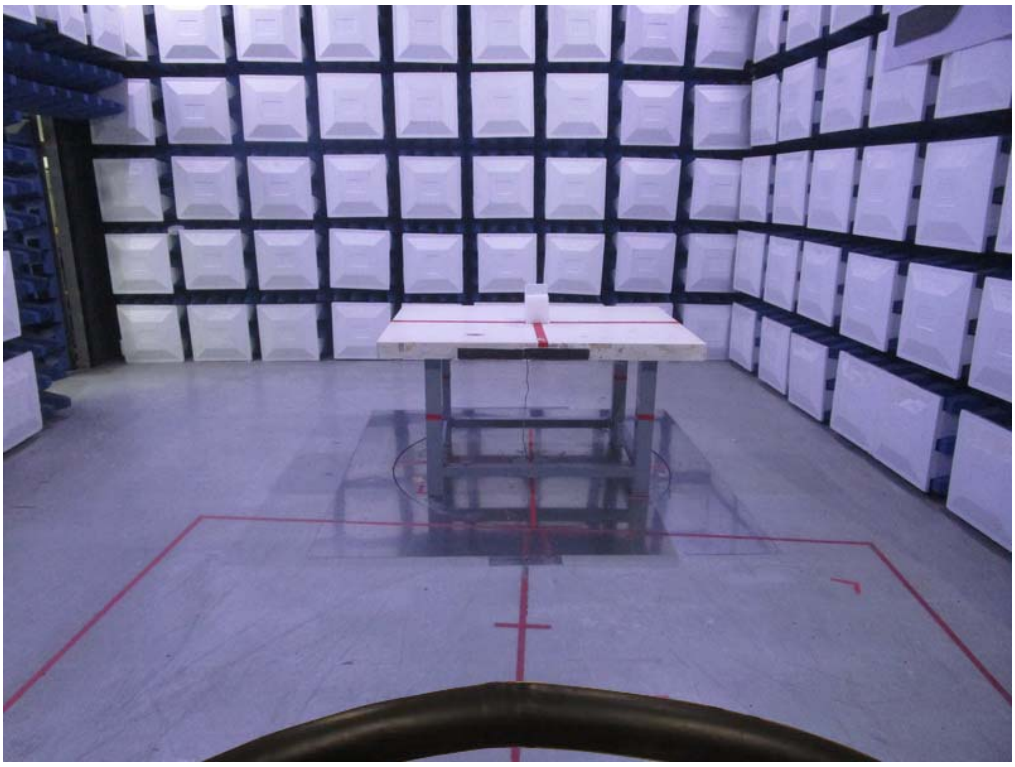
AC Power Line Conducted Emissions Test Photos



Radiated Emissions Test Photos

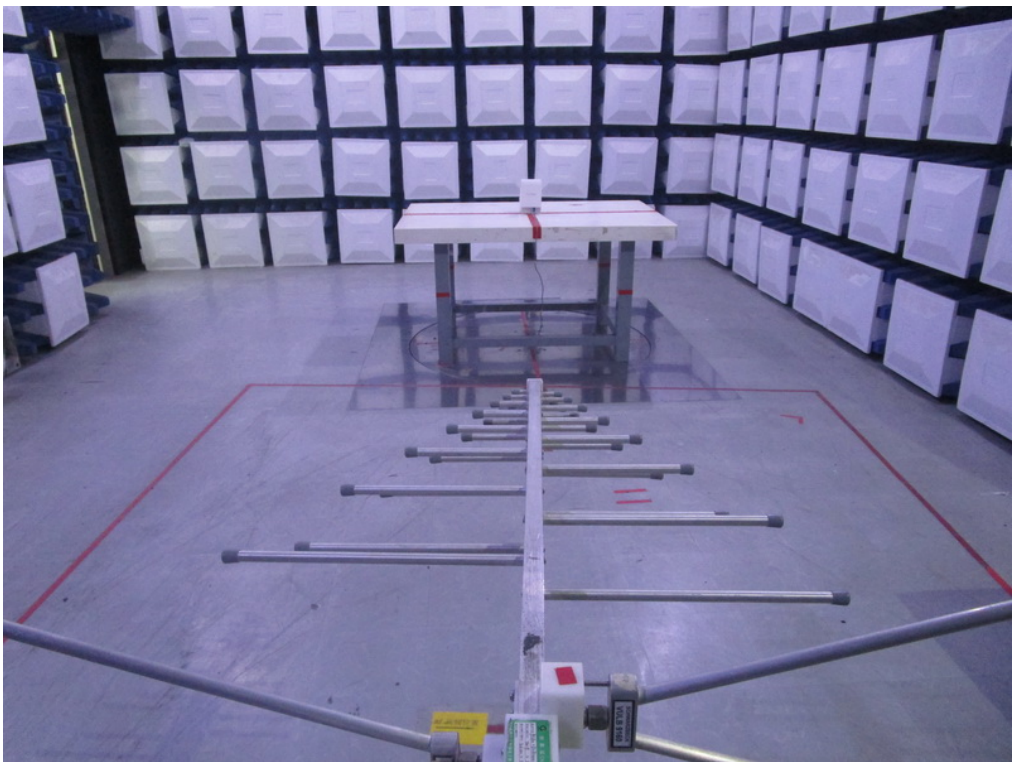
9 kHz to 30 MHz

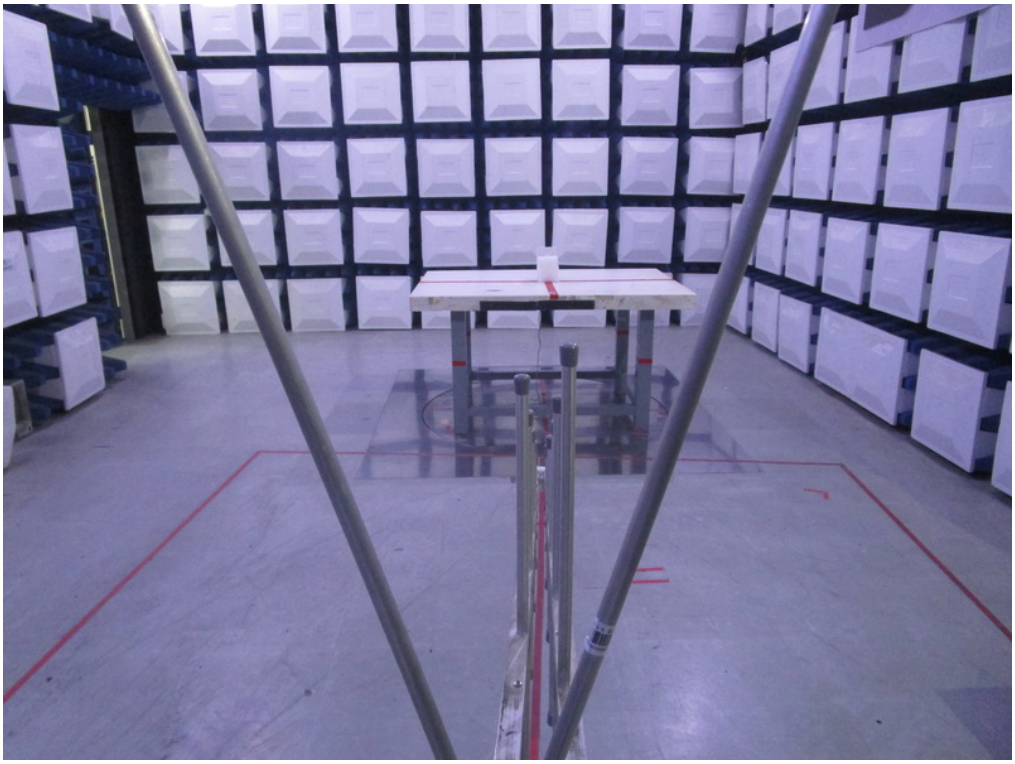




Radiated Emissions Test Photos

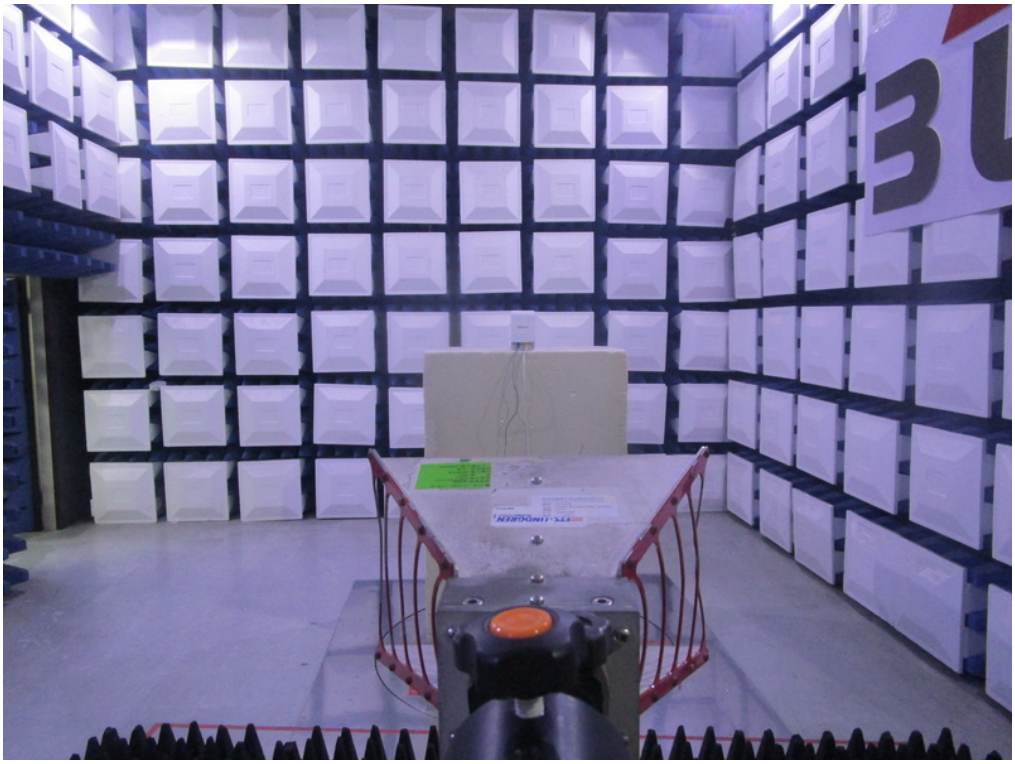
30 MHz to 1 GHz

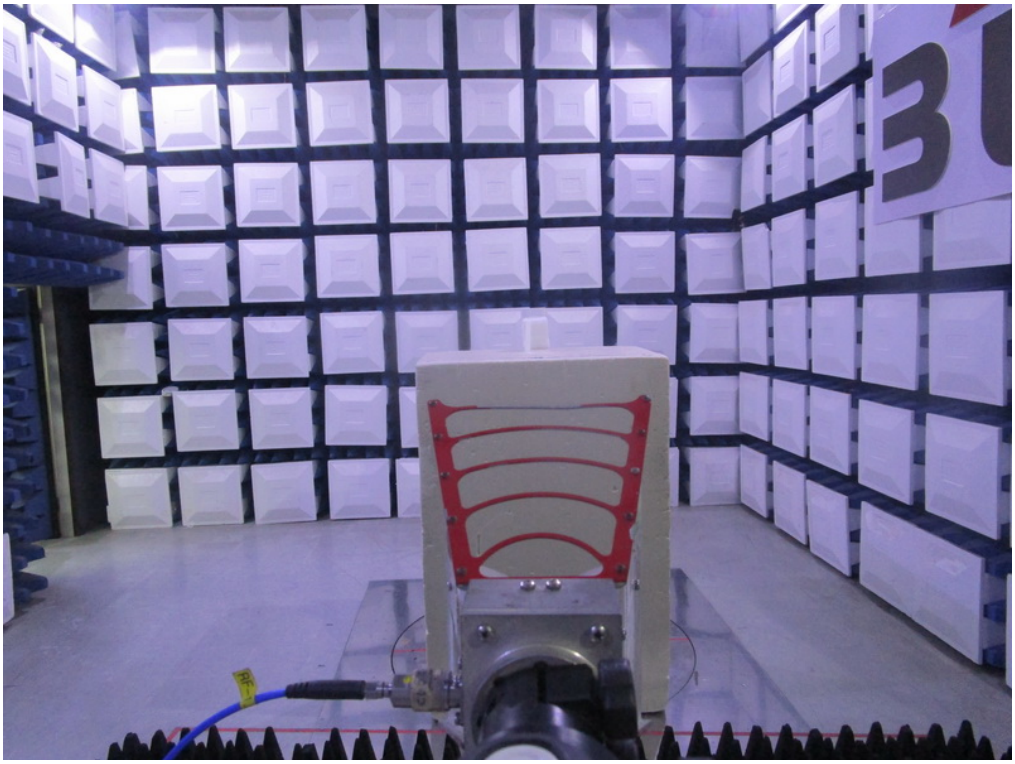




Radiated Emissions Test Photos

Above 1 GHz

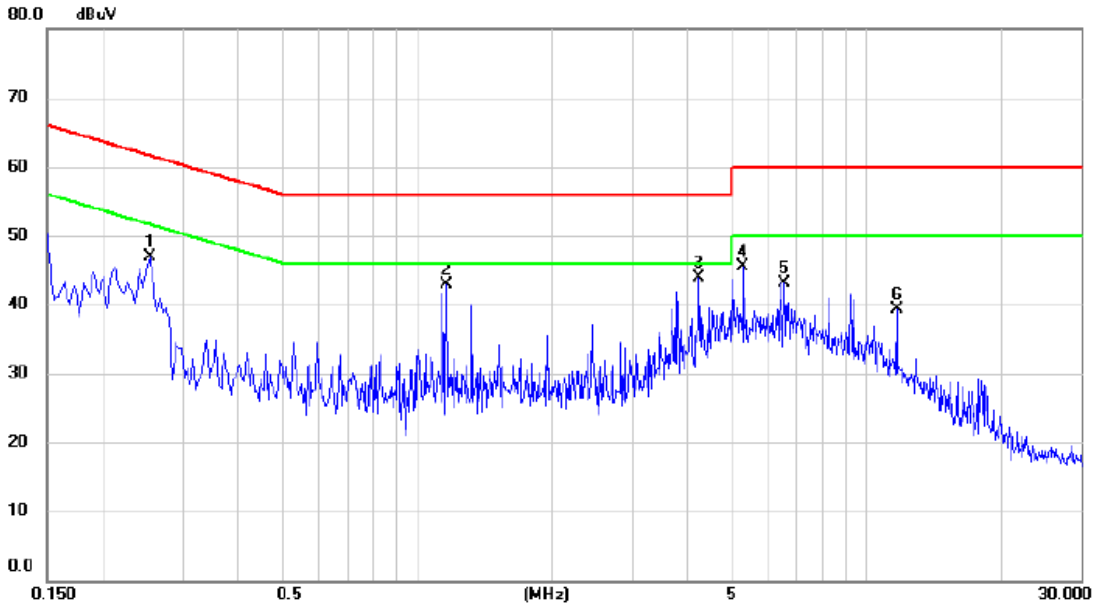




APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode:	TX N20 Mode Channel 11

Line

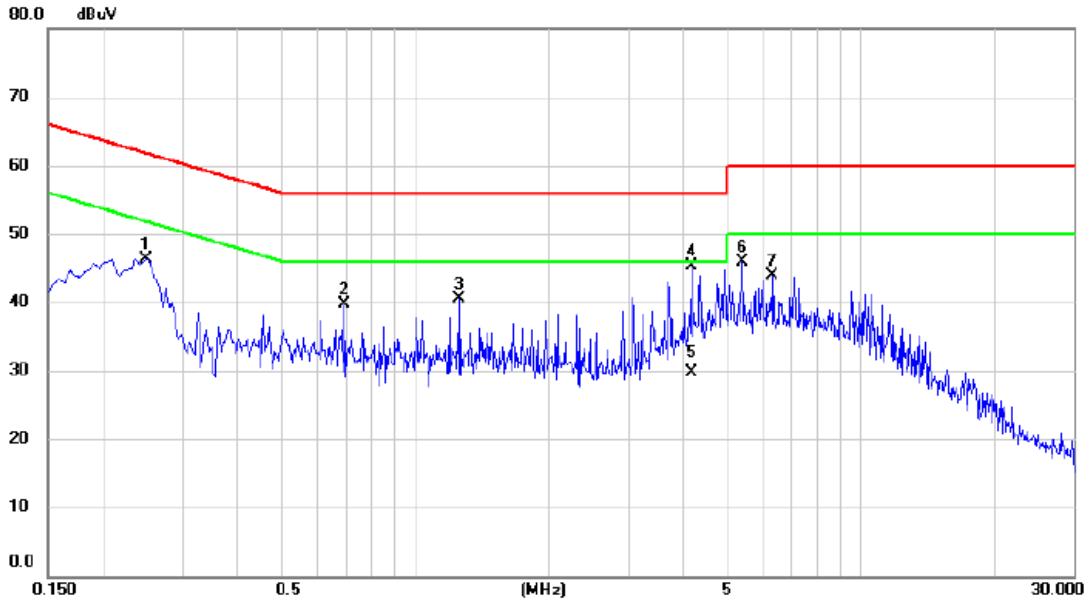


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2535	37.17	9.83	47.00	61.64	-14.64	peak	
2		1.1624	32.95	9.93	42.88	56.00	-13.12	peak	
3	*	4.2270	33.79	10.14	43.93	56.00	-12.07	peak	
4		5.3115	35.34	10.21	45.55	60.00	-14.45	peak	
5		6.5310	32.86	10.29	43.15	60.00	-16.85	peak	
6		11.6790	28.80	10.58	39.38	60.00	-20.62	peak	

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

Test Mode:	TX N20 Mode Channel 11

Neutral



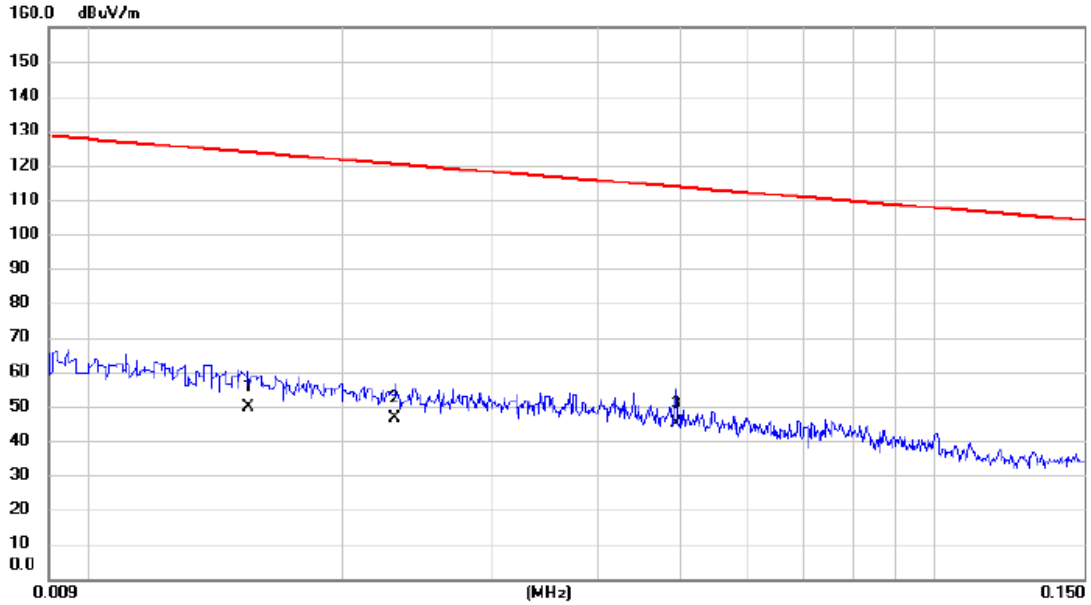
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2490	36.46	9.93	46.39	61.79	-15.40	peak	
2		0.6945	29.68	10.07	39.75	56.00	-16.25	peak	
3		1.2570	30.33	10.14	40.47	56.00	-15.53	peak	
4	*	4.1685	34.92	10.34	45.26	56.00	-10.74	peak	
5		4.1685	19.35	10.34	29.69	46.00	-16.31	AVG	
6		5.4105	35.53	10.43	45.96	60.00	-14.04	peak	
7		6.3195	33.38	10.52	43.90	60.00	-16.10	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 N20 Mode Channel 11

Ant 0°

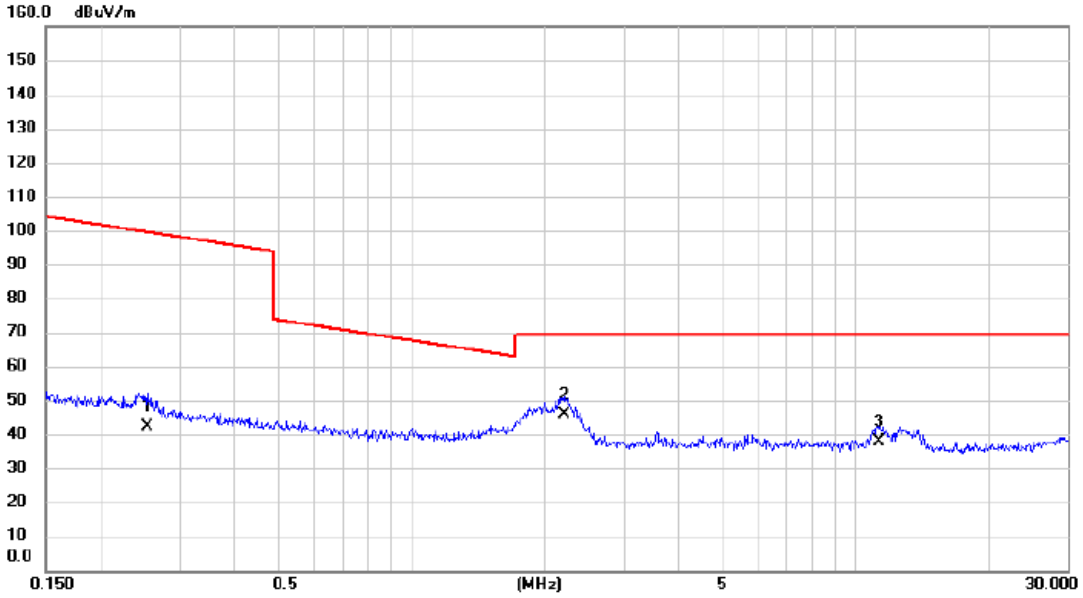


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0155	34.81	15.17	49.98	123.80	-73.82	AVG	
2		0.0230	32.68	13.83	46.51	120.37	-73.86	AVG	
3	*	0.0495	31.17	13.93	45.10	113.71	-68.61	AVG	

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

Test Mode:	TX N20 Mode Channel 11

Ant 0°

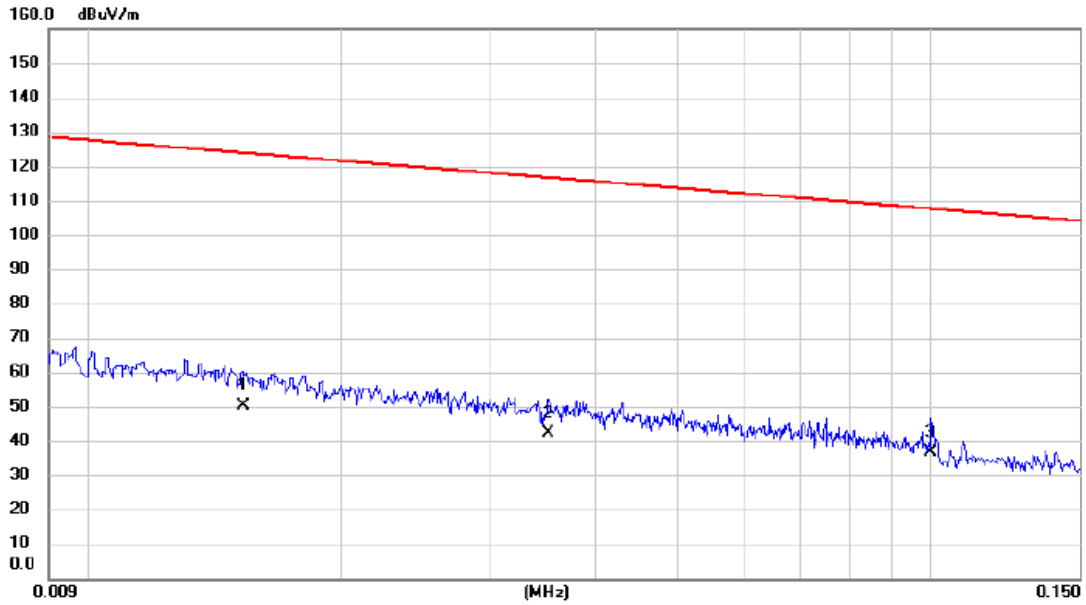


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.2535	28.57	13.65	42.22	99.53	-57.31	AVG	
2	*	2.2015	34.27	11.70	45.97	69.54	-23.57	QP	
3		11.2572	26.11	11.61	37.72	69.54	-31.82	QP	

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

Test Mode:	TX N20 Mode Channel 11

Ant 90°

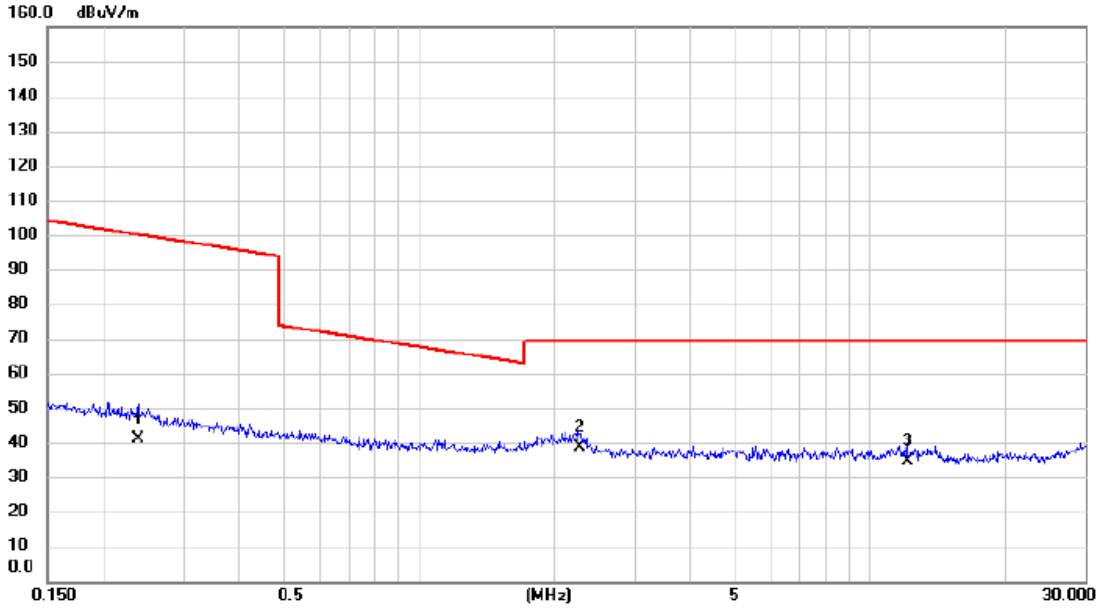


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0153	34.88	15.23	50.11	123.91	-73.80	AVG	
2		0.0352	28.14	13.88	42.02	116.67	-74.65	AVG	
3	*	0.1000	22.97	13.54	36.51	107.61	-71.10	AVG	

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

Test Mode:	TX N20 Mode Channel 11

Ant 90°



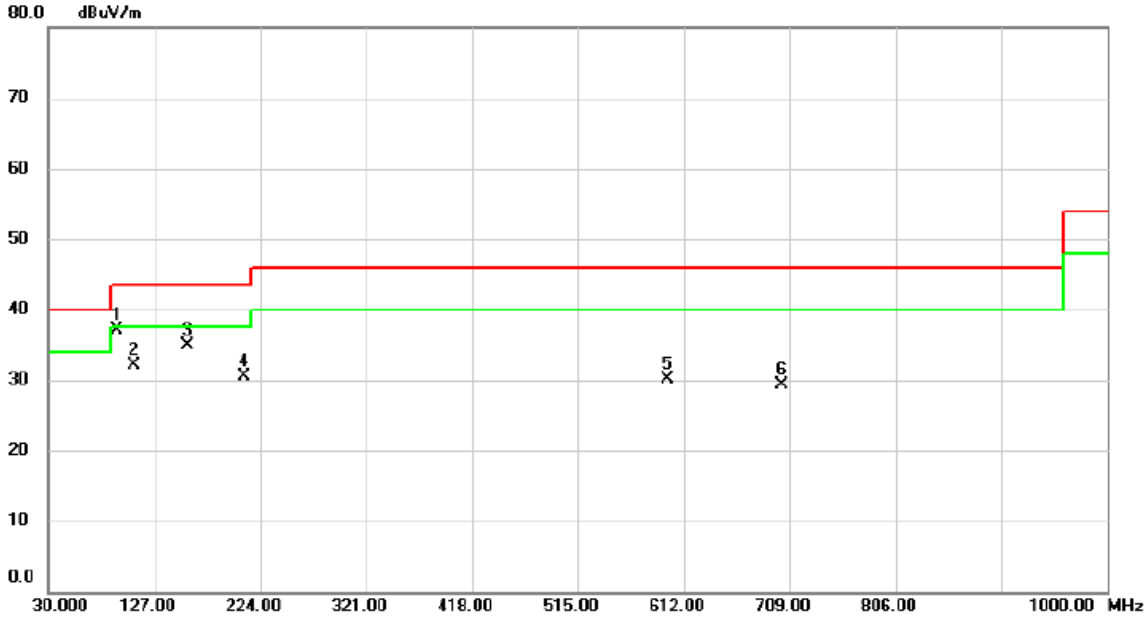
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.2378	27.17	13.65	40.82	100.08	-59.26	AVG	
2	*	2.2606	26.86	11.66	38.52	69.54	-31.02	QP	
3		12.0600	22.94	11.61	34.55	69.54	-34.99	QP	

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 N20 Mode Channel 11

Vertical

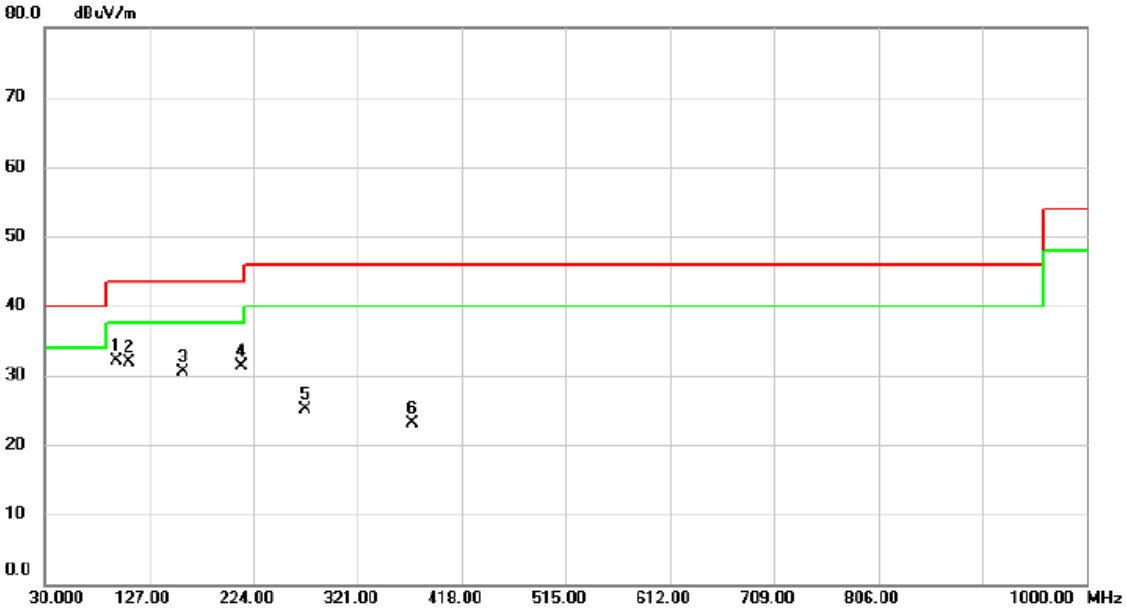


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	93.050	52.93	-15.78	37.15	43.50	-6.35	peak	
2		107.600	46.92	-14.74	32.18	43.50	-11.32	peak	
3		157.070	46.36	-11.44	34.92	43.50	-8.58	peak	
4		209.450	46.14	-15.65	30.49	43.50	-13.01	peak	
5		597.450	35.93	-5.88	30.05	46.00	-15.95	peak	
6		701.240	33.25	-4.03	29.22	46.00	-16.78	peak	

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

Test Mode:	TX N20 Mode Channel 11

Horizontal



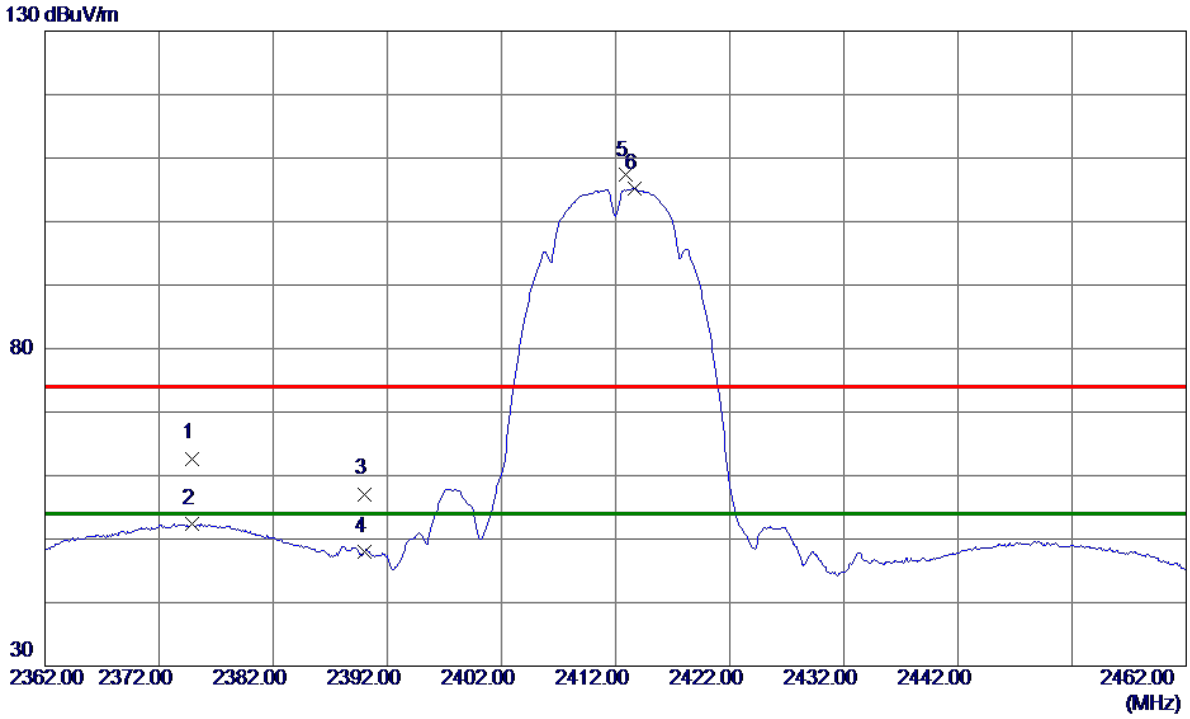
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	95.960	47.63	-15.52	32.11	43.50	-11.39	peak	
2		107.600	46.67	-14.74	31.93	43.50	-11.57	peak	
3		158.040	41.83	-11.32	30.51	43.50	-12.99	peak	
4		213.330	46.75	-15.35	31.40	43.50	-12.10	peak	
5		272.500	38.12	-13.04	25.08	46.00	-20.92	peak	
6		372.410	33.29	-10.20	23.09	46.00	-22.91	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	2374.9000	53.62	9.08	62.70	74.00	-11.30	Peak	
2	2374.9000	43.41	9.08	52.49	54.00	-1.51	AVG	
3	2390.0000	48.03	9.07	57.10	74.00	-16.90	Peak	
4	2390.0000	38.89	9.07	47.96	54.00	-6.04	AVG	
5	2412.9000	98.24	9.06	107.30	74.00	33.30	Peak	No Limit
6 *	2413.7000	96.16	9.06	105.22	54.00	51.22	AVG	No Limit

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

Test Mode:	TX B Mode 2412 MHz

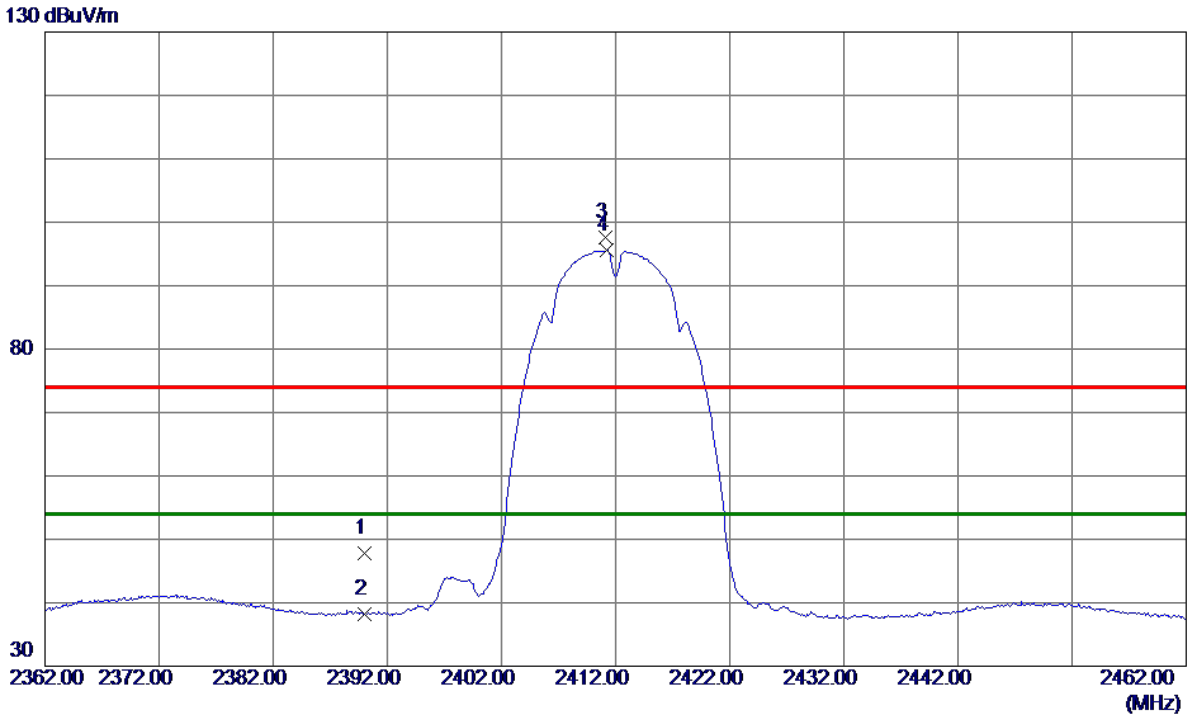
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.9460	43.88	8.04	51.92	54.00	-2.08	AVG	
2	4824.0240	46.31	8.04	54.35	74.00	-19.65	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	2390.0000	38.71	9.07	47.78	74.00	-26.22	Peak	
2	2390.0000	29.22	9.07	38.29	54.00	-15.71	AVG	
3	2411.1000	88.50	9.06	97.56	74.00	23.56	Peak	No Limit
4 *	2411.2000	86.52	9.06	95.58	54.00	41.58	AVG	No Limit

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

Test Mode:	TX B Mode 2412 MHz

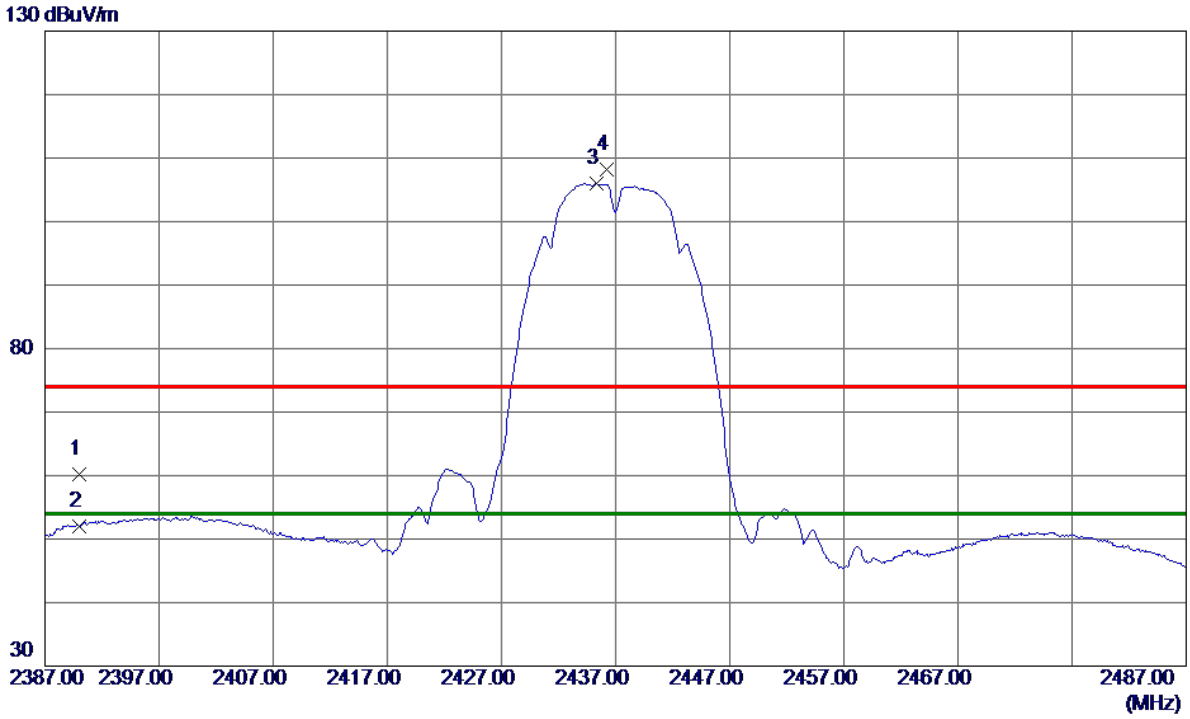
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.8900	47.02	8.04	55.06	74.00	-18.94	Peak	
2 *	4823.9220	44.86	8.04	52.90	54.00	-1.10	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	2390.0000	51.12	9.07	60.19	74.00	-13.81	Peak	
2	2390.0000	42.97	9.07	52.04	54.00	-1.96	AVG	
3 *	2435.3000	96.96	9.04	106.00	54.00	52.00	AVG	No Limit
4	2436.2000	99.23	9.04	108.27	74.00	34.27	Peak	No Limit

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

Test Mode:	TX B Mode 2437 MHz

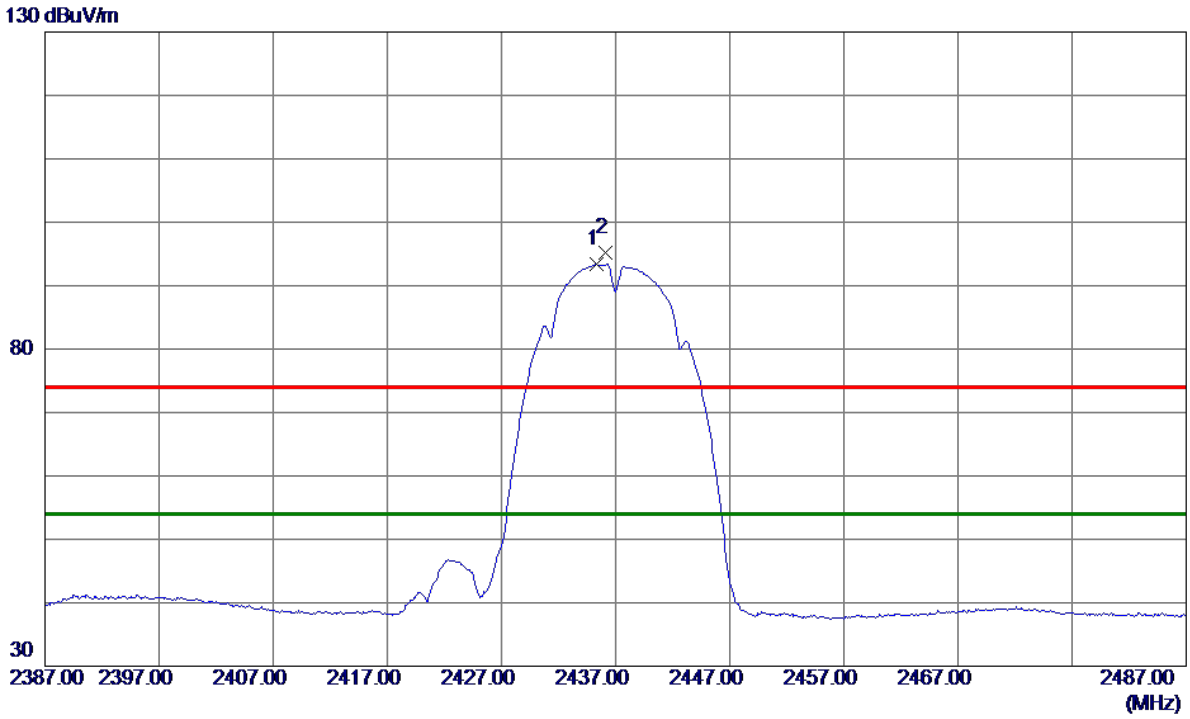
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9140	43.25	8.21	51.46	54.00	-2.54	AVG	
2	4874.0219	45.71	8.21	53.92	74.00	-20.08	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 *	2435.3000	84.31	9.04	93.35	54.00	39.35	AVG	No Limit
2	2436.1000	86.13	9.04	95.17	74.00	21.17	Peak	No Limit

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

Test Mode:	TX B Mode 2437 MHz

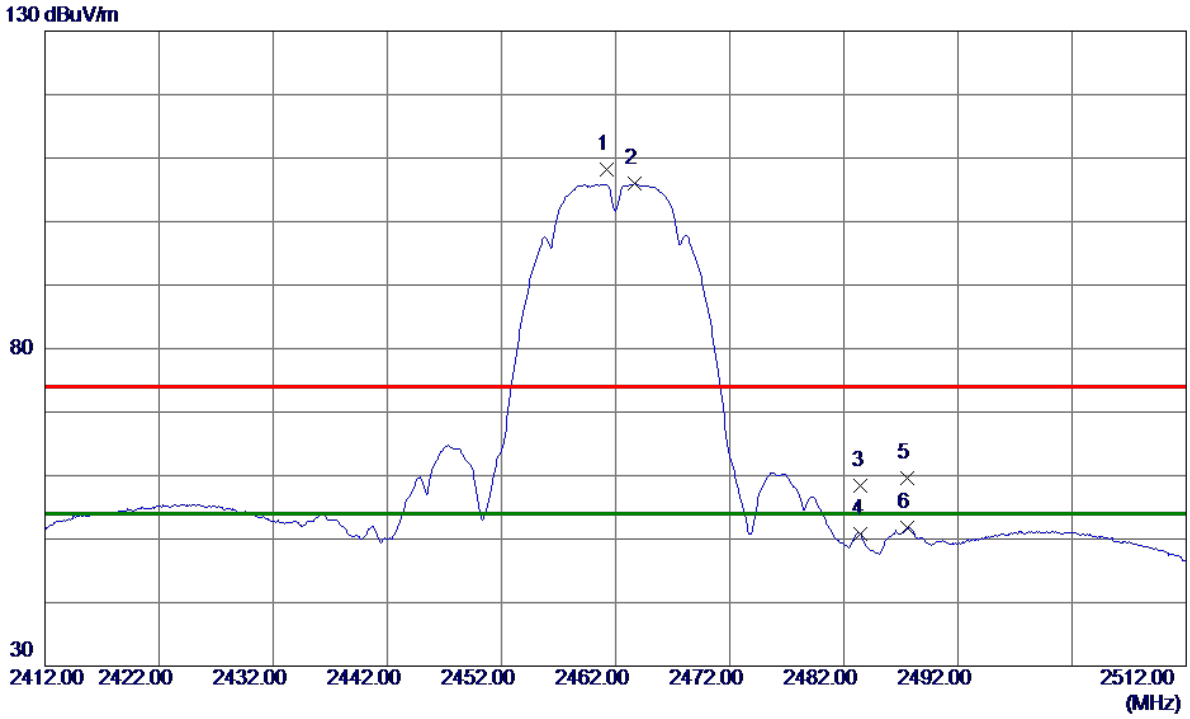
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.8840	46.31	8.21	54.52	74.00	-19.48	Peak	
2 *	4873.9360	43.92	8.21	52.13	54.00	-1.87	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	2461.2000	99.20	9.03	108.23	74.00	34.23	Peak	No Limit
2 *	2463.7000	96.92	9.03	105.95	54.00	51.95	AVG	No Limit
3	2483.5000	49.34	9.01	58.35	74.00	-15.65	Peak	
4	2483.5000	41.75	9.01	50.76	54.00	-3.24	AVG	
5	2487.6000	50.61	9.01	59.62	74.00	-14.38	Peak	
6	2487.6000	42.85	9.01	51.86	54.00	-2.14	AVG	

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

Test Mode:	TX B Mode 2462 MHz

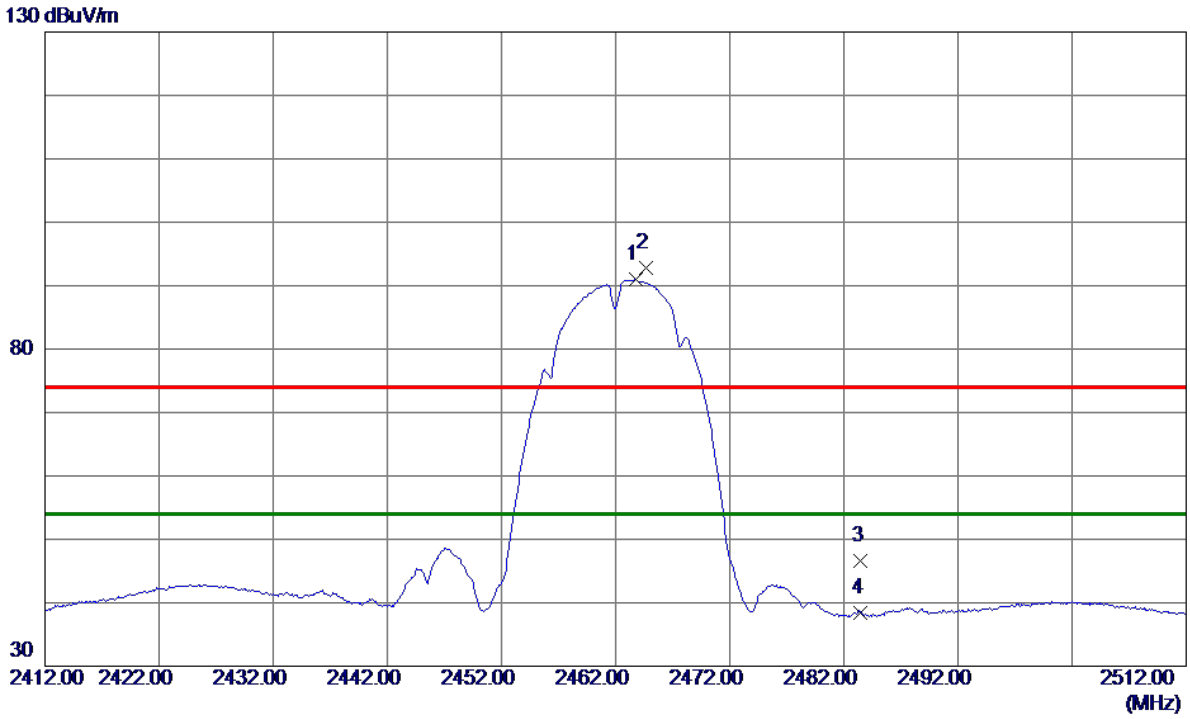
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.8820	46.21	8.37	54.58	74.00	-19.42	Peak	
2 *	4923.9340	43.31	8.38	51.69	54.00	-2.31	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 *	2463.8000	81.95	9.03	90.98	54.00	36.98	AVG	No Limit
2	2464.7000	83.82	9.03	92.85	74.00	18.85	Peak	No Limit
3	2483.5000	37.66	9.01	46.67	74.00	-27.33	Peak	
4	2483.5000	29.33	9.01	38.34	54.00	-15.66	AVG	

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

Test Mode:	TX B Mode 2462 MHz

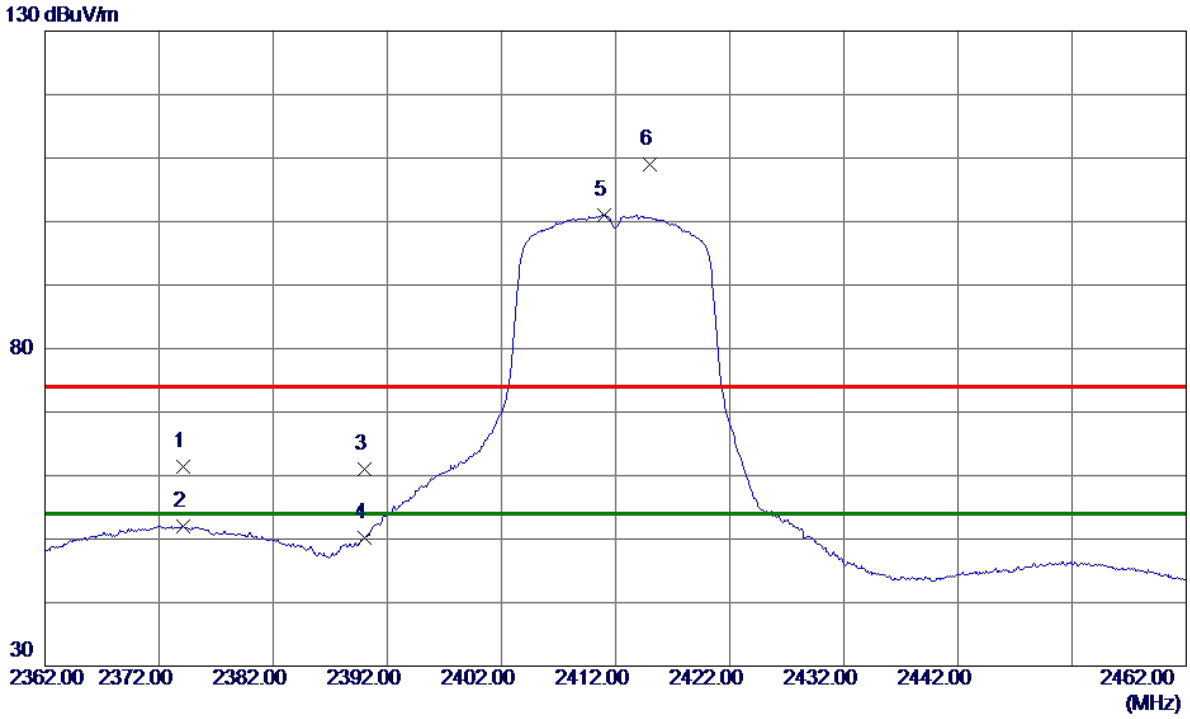
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.9180	46.29	8.38	54.67	74.00	-19.33	Peak	
2 *	4923.9380	44.01	8.38	52.39	54.00	-1.61	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	2374.1000	52.39	9.08	61.47	74.00	-12.53	Peak	
2	2374.1000	42.98	9.08	52.06	54.00	-1.94	AVG	
3	2390.0000	51.88	9.07	60.95	74.00	-13.05	Peak	
4	2390.0000	41.05	9.07	50.12	54.00	-3.88	AVG	
5 *	2411.0000	92.02	9.06	101.08	54.00	47.08	AVG	No Limit
6	2415.0000	99.89	9.06	108.95	74.00	34.95	Peak	No Limit

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

Test Mode:	TX G Mode 2412 MHz

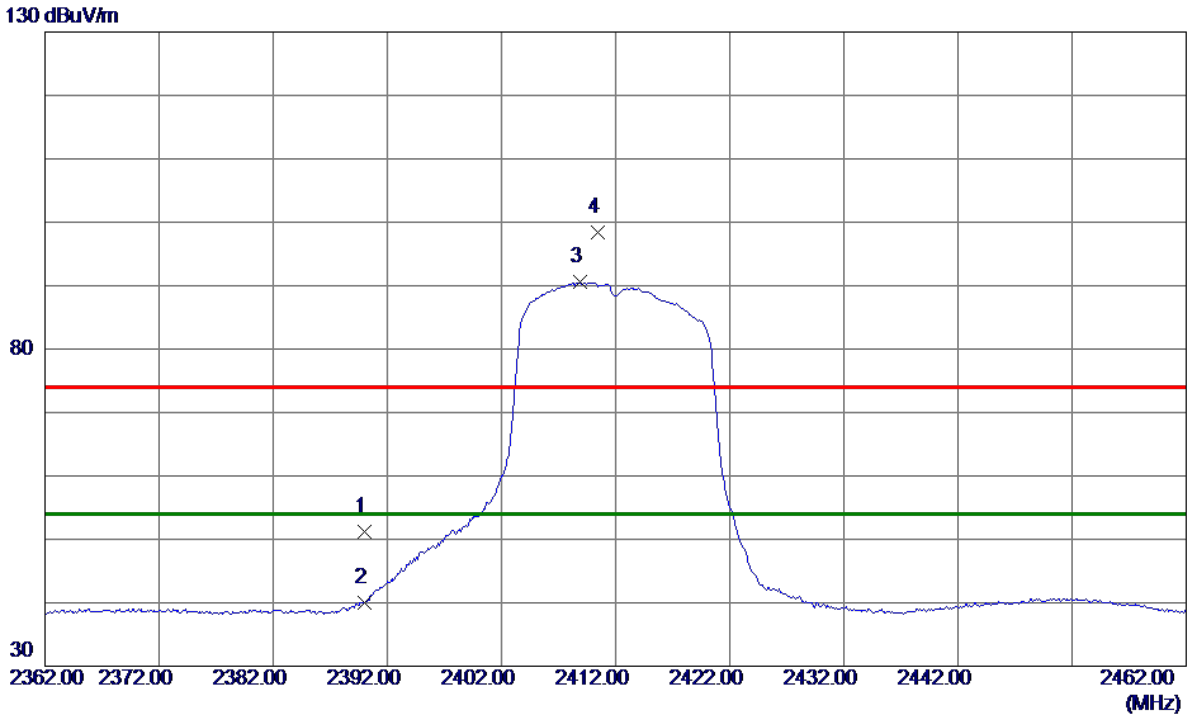
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4822.7799	44.23	8.04	52.27	74.00	-21.73	Peak	
2 *	4825.1600	32.41	8.04	40.45	54.00	-13.55	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	2390.0000	42.18	9.07	51.25	74.00	-22.75	Peak	
2	2390.0000	30.98	9.07	40.05	54.00	-13.95	AVG	
3 *	2408.9000	81.45	9.06	90.51	54.00	36.51	AVG	No Limit
4	2410.4000	89.30	9.06	98.36	74.00	24.36	Peak	No Limit

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

Test Mode:	TX G Mode 2412 MHz

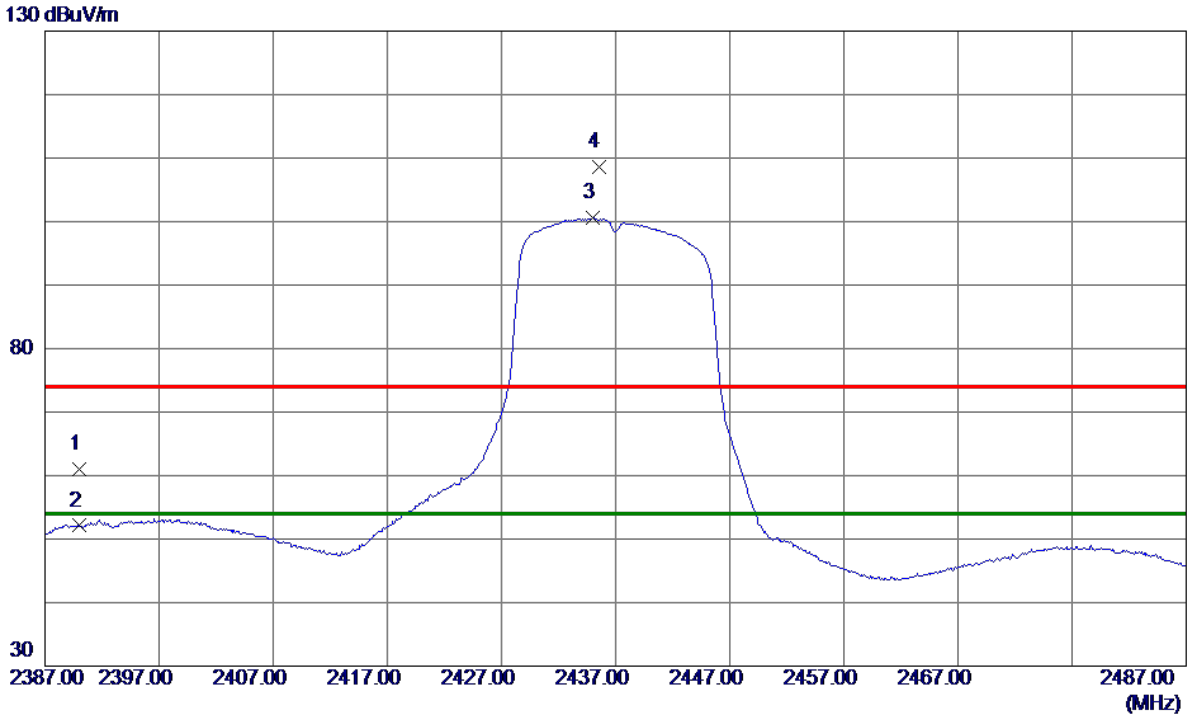
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.5600	33.91	8.04	41.95	54.00	-12.05	AVG	
2	4826.2000	45.44	8.05	53.49	74.00	-20.51	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	51.98	9.07	61.05	74.00	-12.95	Peak	
2	2390.0000	43.03	9.07	52.10	54.00	-1.90	AVG	
3 *	2435.0000	91.48	9.04	100.52	54.00	46.52	AVG	No Limit
4	2435.5000	99.59	9.04	108.63	74.00	34.63	Peak	No Limit

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

Test Mode:	TX G Mode 2437 MHz

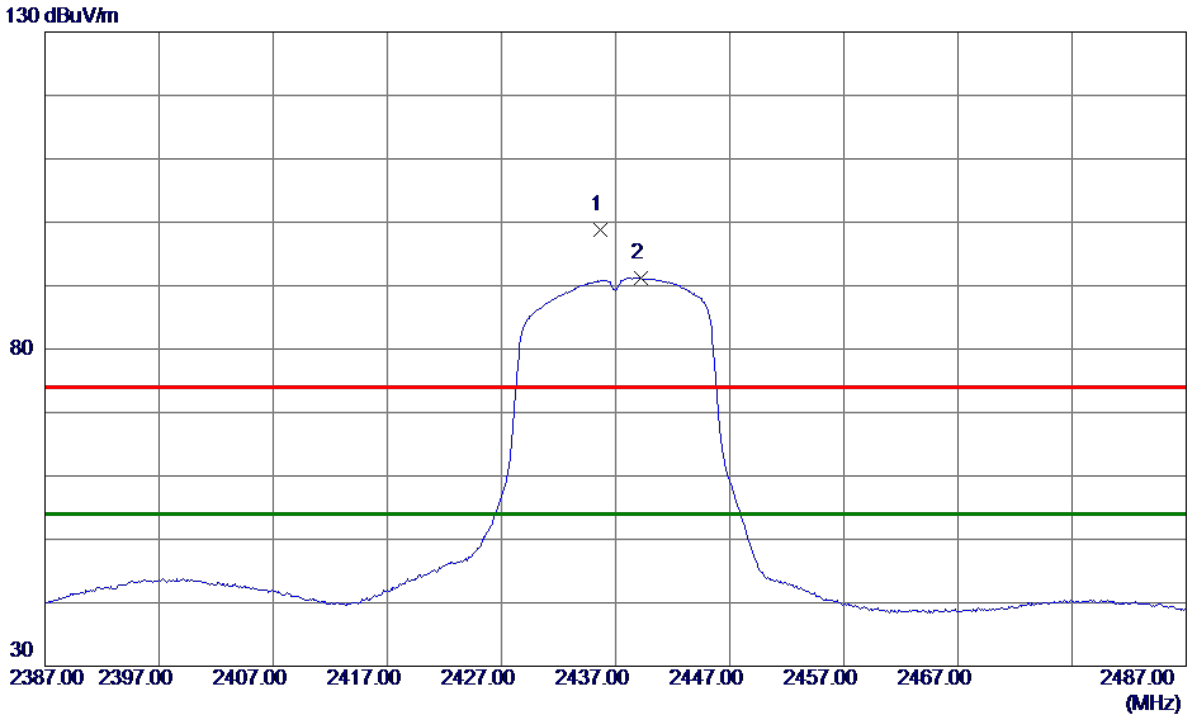
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4871.1600	47.11	8.20	55.31	74.00	-18.69	Peak	
2 *	4873.7200	35.75	8.21	43.96	54.00	-10.04	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	2435.7000	89.79	9.04	98.83	74.00	24.83	Peak	No Limit
2 *	2439.2000	82.21	9.04	91.25	54.00	37.25	AVG	No Limit

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

Test Mode:	TX G Mode 2437 MHz

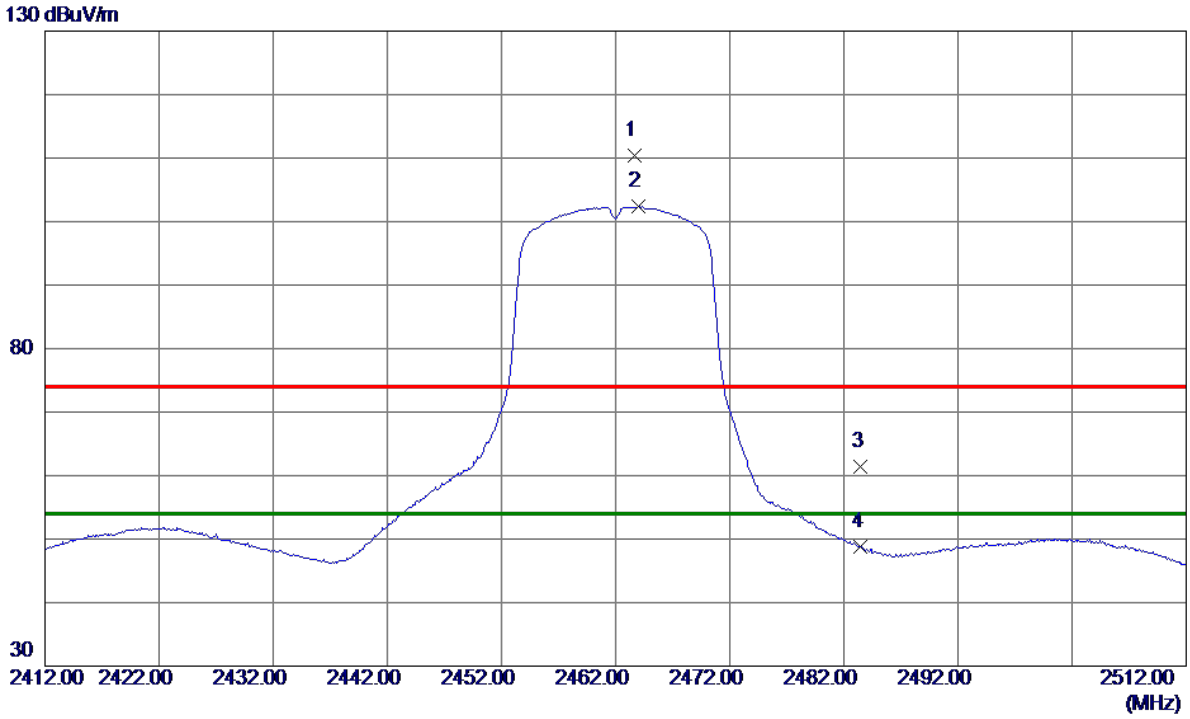
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.5800	37.12	8.21	45.33	54.00	-8.67	AVG	
2	4874.2190	48.29	8.21	56.50	74.00	-17.50	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	2463.7000	101.34	9.03	110.37	74.00	36.37	Peak	No Limit
2 *	2464.0000	93.28	9.03	102.31	54.00	48.31	AVG	No Limit
3	2483.5000	52.39	9.01	61.40	74.00	-12.60	Peak	
4	2483.5000	39.84	9.01	48.85	54.00	-5.15	AVG	

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

Test Mode:	TX G Mode 2462 MHz

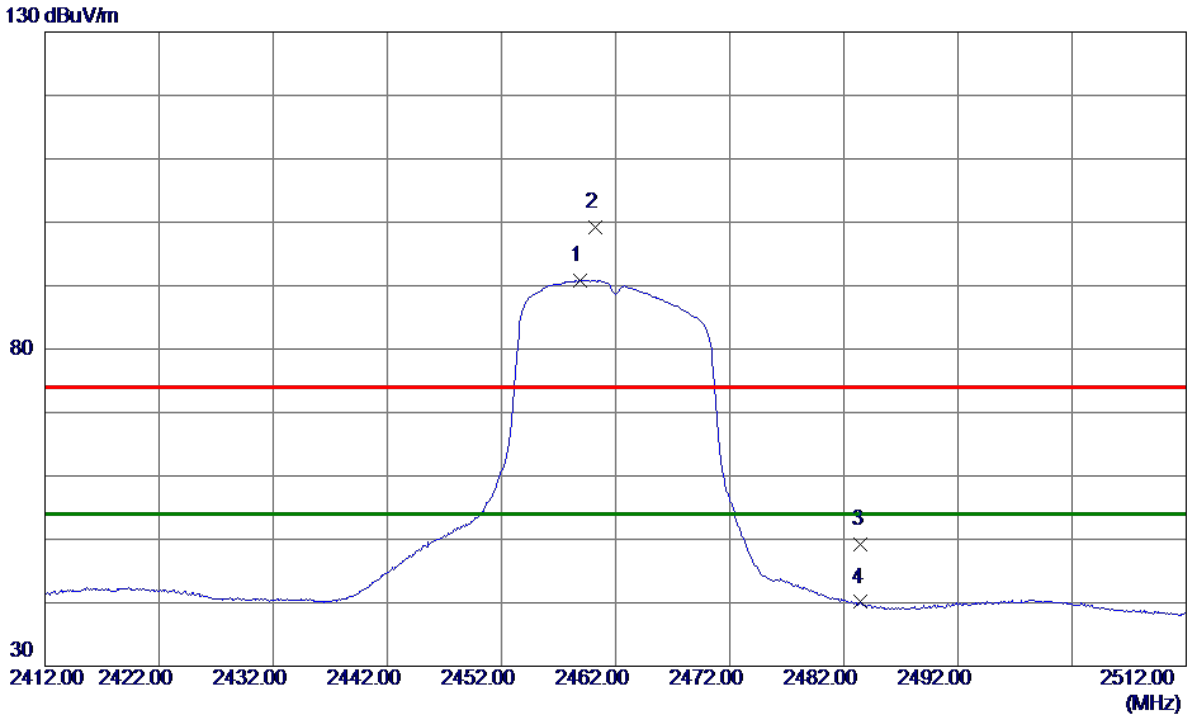
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4925.9600	40.96	8.38	49.34	54.00	-4.66	AVG	
2	4926.6600	52.54	8.38	60.92	74.00	-13.08	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 *	2458.9000	81.86	9.03	90.89	54.00	36.89	AVG	No Limit
2	2460.2000	90.24	9.03	99.27	74.00	25.27	Peak	No Limit
3	2483.5000	40.10	9.01	49.11	74.00	-24.89	Peak	
4	2483.5000	31.09	9.01	40.10	54.00	-13.90	AVG	

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

Test Mode:	TX G Mode 2462 MHz

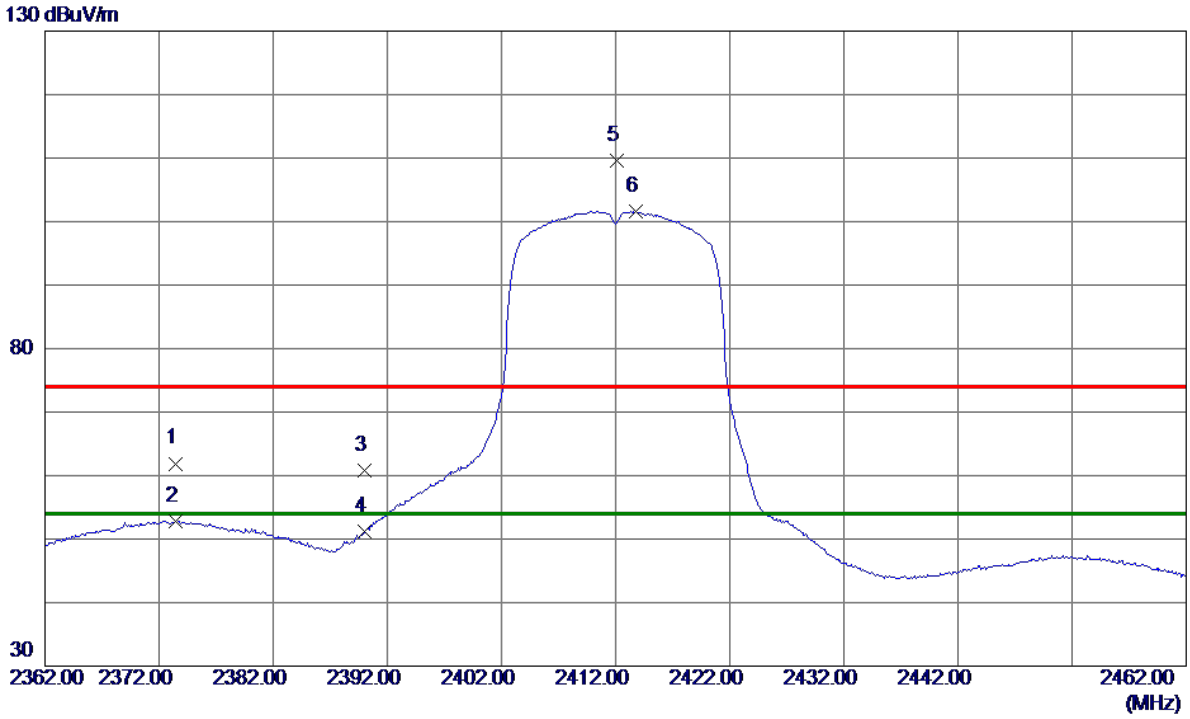
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4925.0200	42.23	8.38	50.61	54.00	-3.39	AVG	
2	4925.1200	53.08	8.38	61.46	74.00	-12.54	Peak	

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

Test Mode:	TX N-20M 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	2373.4000	52.82	9.08	61.90	74.00	-12.10	Peak	
2	2373.4000	43.80	9.08	52.88	54.00	-1.12	AVG	
3	2390.0000	51.66	9.07	60.73	74.00	-13.27	Peak	
4	2390.0000	42.13	9.07	51.20	54.00	-2.80	AVG	
5	2412.1000	100.63	9.06	109.69	74.00	35.69	Peak	No Limit
6 *	2413.8000	92.56	9.06	101.62	54.00	47.62	AVG	No Limit

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

Test Mode:	TX N-20M Mode 2412 MHz

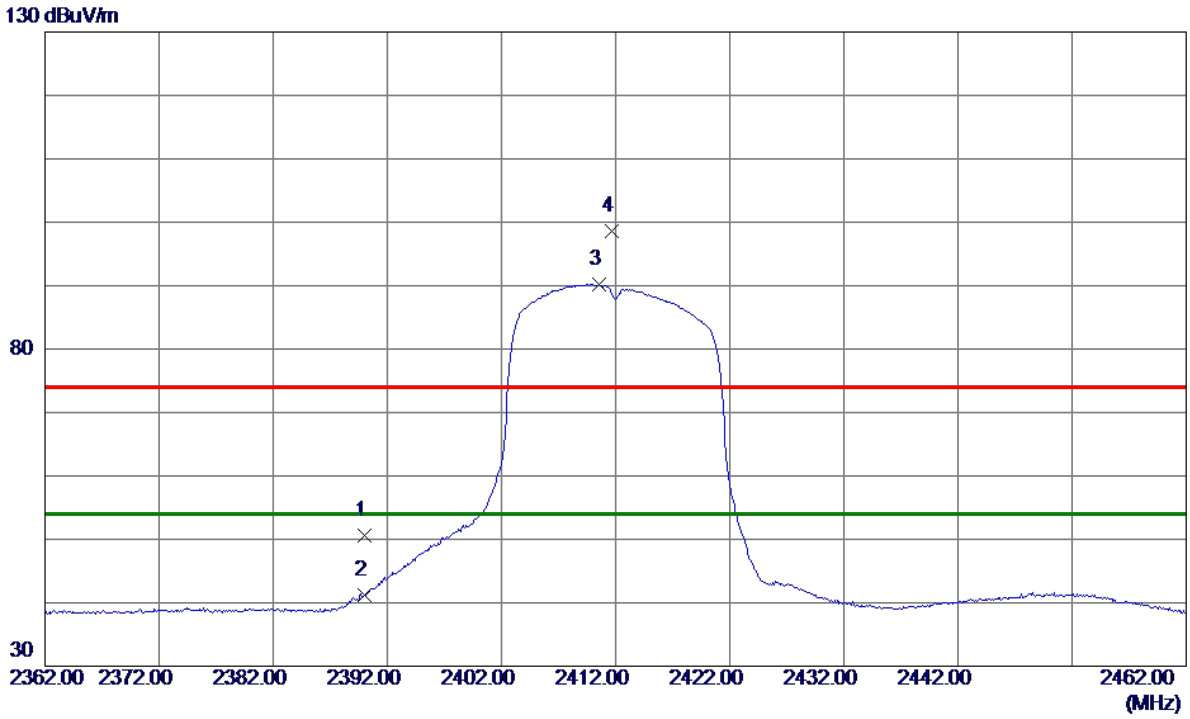
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.6800	44.63	8.04	52.67	74.00	-21.33	Peak	
2 *	4825.5600	33.13	8.05	41.18	54.00	-12.82	AVG	

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

Test Mode:	TX N-20M 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	41.51	9.07	50.58	74.00	-23.42	Peak	
2	2390.0000	32.08	9.07	41.15	54.00	-12.85	AVG	
3 *	2410.6000	81.11	9.06	90.17	54.00	36.17	AVG	No Limit
4	2411.7000	89.59	9.06	98.65	74.00	24.65	Peak	No Limit

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

Test Mode:	TX N-20M Mode 2412 MHz

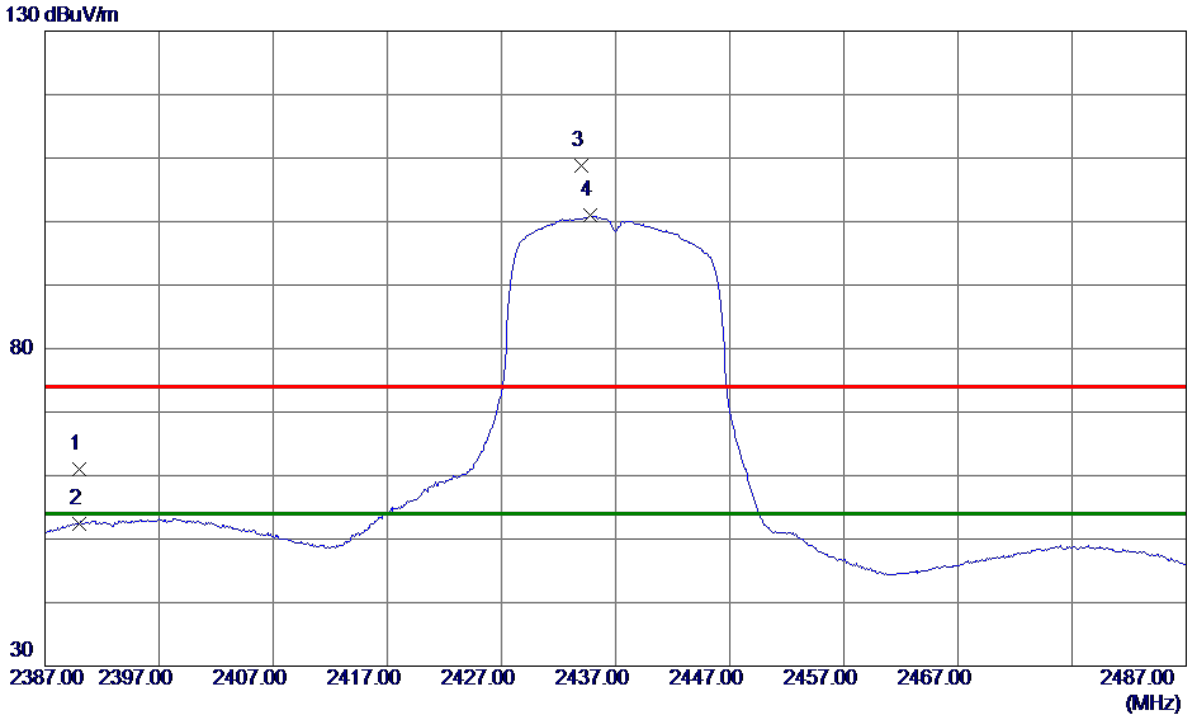
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4825.9400	34.92	8.05	42.97	54.00	-11.03	AVG	
2	4826.1600	47.17	8.05	55.22	74.00	-18.78	Peak	

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

Test Mode:	TX N-20M 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	51.99	9.07	61.06	74.00	-12.94	Peak	
2	2390.0000	43.30	9.07	52.37	54.00	-1.63	AVG	
3	2434.0000	99.79	9.04	108.83	74.00	34.83	Peak	No Limit
4 *	2434.8000	91.91	9.04	100.95	54.00	46.95	AVG	No Limit

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

Test Mode:	TX N-20M Mode 2437 MHz

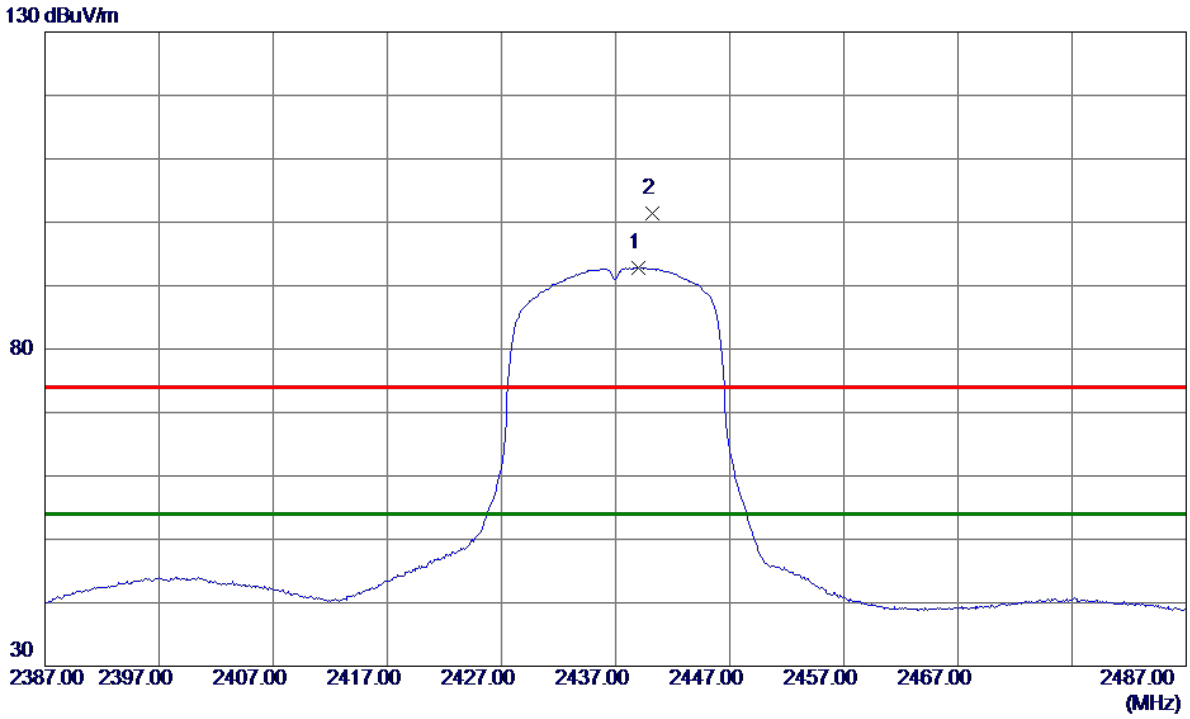
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.6200	48.04	8.21	56.25	74.00	-17.75	Peak	
2 *	4874.6200	36.63	8.21	44.84	54.00	-9.16	AVG	

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

Test Mode:	TX N-20M 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 *	2439.0000	83.82	9.04	92.86	54.00	38.86	AVG	No Limit
2	2440.2000	92.38	9.04	101.42	74.00	27.42	Peak	No Limit

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

Test Mode:	TX N-20M Mode 2437 MHz

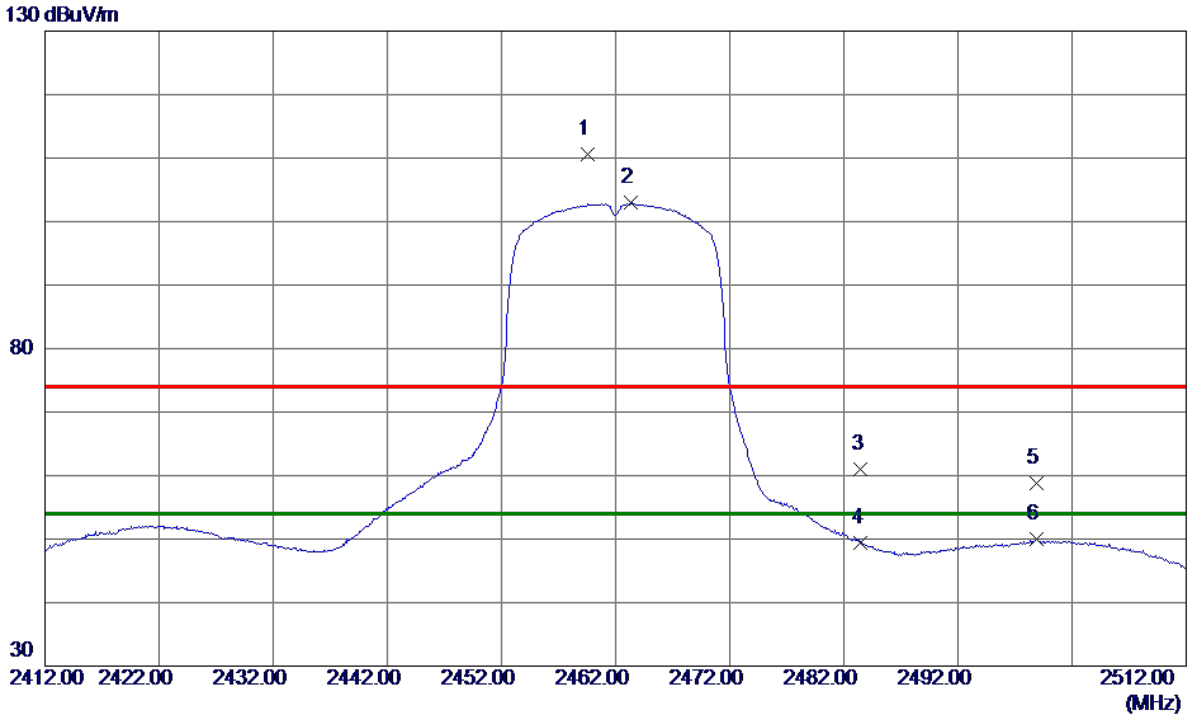
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4875.0200	37.78	8.21	45.99	54.00	-8.01	AVG	
2	4875.7000	47.78	8.21	55.99	74.00	-18.01	Peak	

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

Test Mode:	TX N-20M 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	2459.6000	101.64	9.03	110.67	74.00	36.67	Peak	No Limit
2 *	2463.3000	93.91	9.03	102.94	54.00	48.94	AVG	No Limit
3	2483.5000	52.07	9.01	61.08	74.00	-12.92	Peak	
4	2483.5000	40.45	9.01	49.46	54.00	-4.54	AVG	
5	2498.9000	49.88	9.01	58.89	74.00	-15.11	Peak	
6	2498.9000	40.96	9.01	49.97	54.00	-4.03	AVG	

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

Test Mode:	TX N-20M Mode 2462 MHz

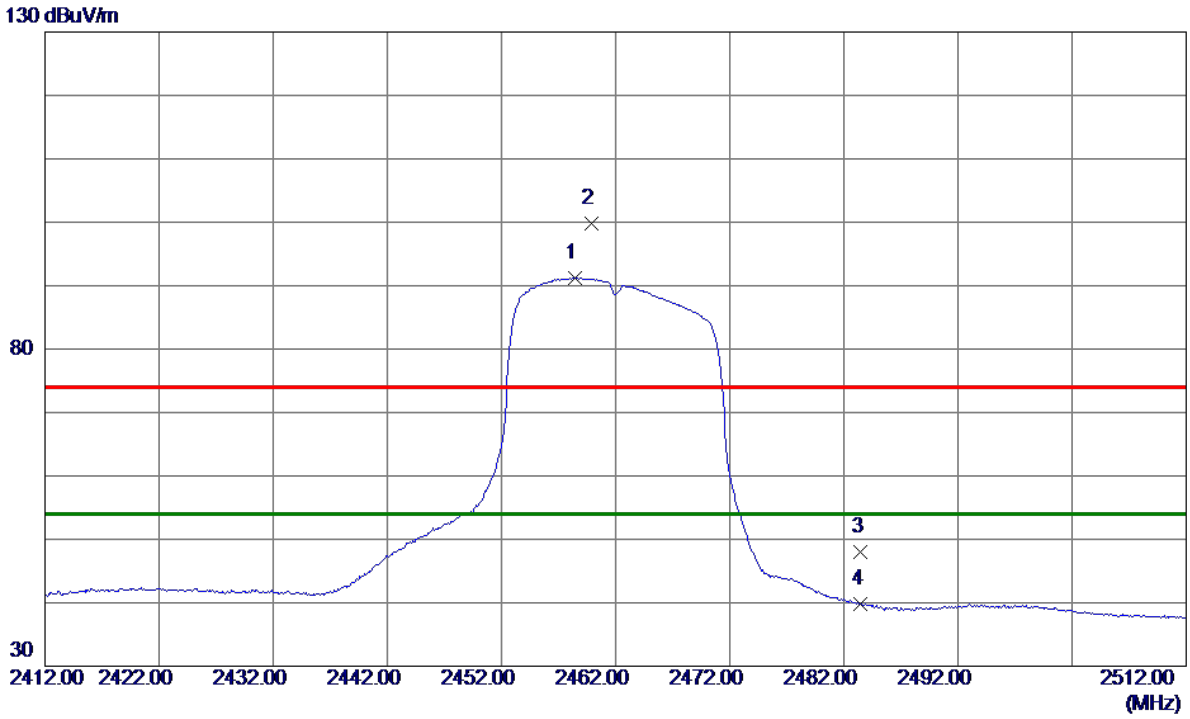
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.1000	52.77	8.38	61.15	74.00	-12.85	Peak	
2 *	4926.5200	42.34	8.38	50.72	54.00	-3.28	AVG	

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

Test Mode:	TX N-20M 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 *	2458.4000	82.20	9.03	91.23	54.00	37.23	AVG	No Limit
2	2459.9000	90.74	9.03	99.77	74.00	25.77	Peak	No Limit
3	2483.5000	38.99	9.01	48.00	74.00	-26.00	Peak	
4	2483.5000	30.72	9.01	39.73	54.00	-14.27	AVG	

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

Test Mode:	TX N-20M Mode 2462 MHz

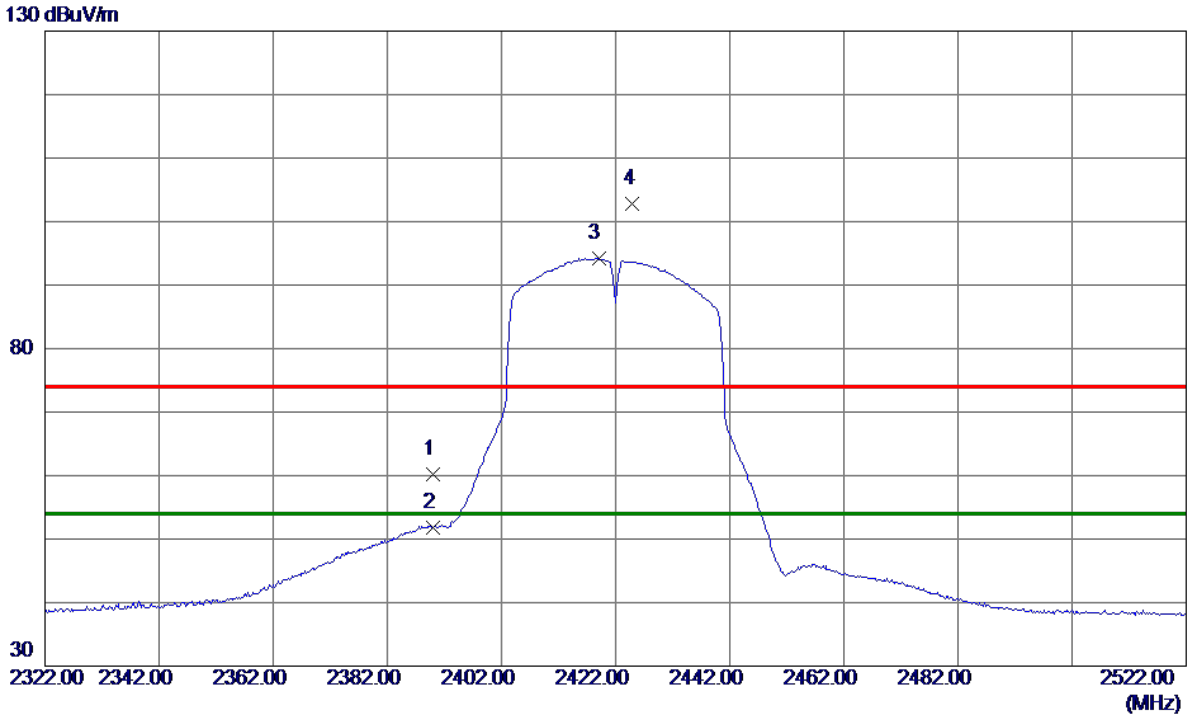
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4925.1000	54.90	8.38	63.28	74.00	-10.72	Peak	
2 *	4926.2400	42.95	8.38	51.33	54.00	-2.67	AVG	

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

Test Mode:	TX N-40M Mode 2422MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	51.21	9.07	60.28	74.00	-13.72	Peak	
2	2390.0000	42.73	9.07	51.80	54.00	-2.20	AVG	
3 *	2419.0000	85.18	9.05	94.23	54.00	40.23	AVG	No Limit
4	2425.0000	93.81	9.05	102.86	74.00	28.86	Peak	No Limit

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

Test Mode:	TX N-40M Mode 2422MHz

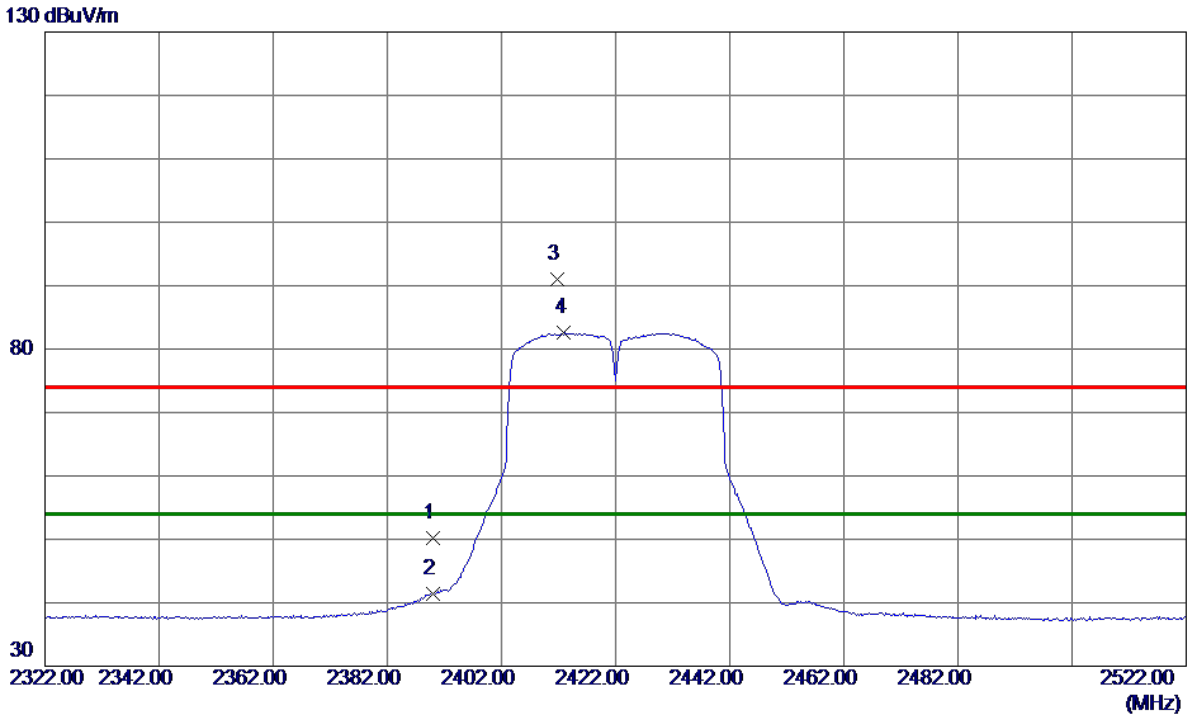
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4844.5500	26.79	8.11	34.90	54.00	-19.10	AVG	
2	4846.3300	38.23	8.12	46.35	74.00	-27.65	Peak	

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

Test Mode:	TX N-40M Mode 2422MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	41.05	9.07	50.12	74.00	-23.88	Peak	
2	2390.0000	32.28	9.07	41.35	54.00	-12.65	AVG	
3	2411.8000	82.02	9.06	91.08	74.00	17.08	Peak	No Limit
4 *	2413.0000	73.50	9.06	82.56	54.00	28.56	AVG	No Limit

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

Test Mode:	TX N-40M Mode 2422MHz

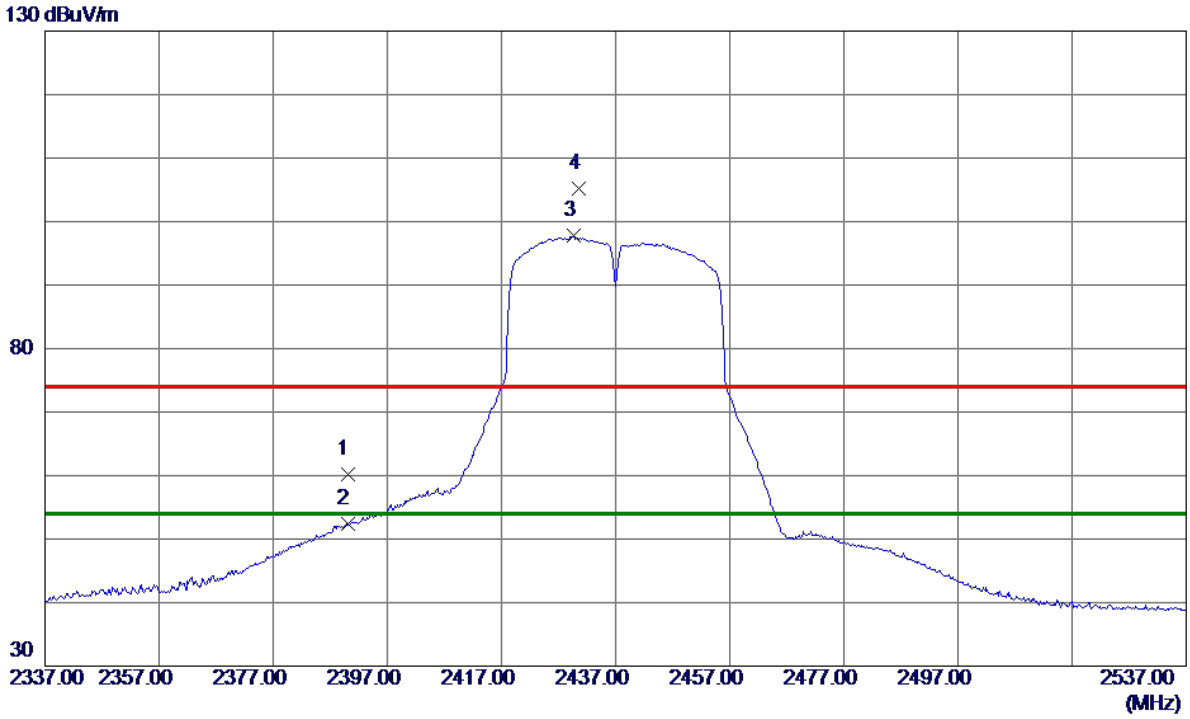
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4843.9800	28.37	8.11	36.48	54.00	-17.52	AVG	
2	4844.4600	39.54	8.11	47.65	74.00	-26.35	Peak	

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

Test Mode:	TX N-40M 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	51.10	9.07	60.17	74.00	-13.83	Peak	
2	2390.0000	43.34	9.07	52.41	54.00	-1.59	AVG	
3 *	2429.6000	88.67	9.05	97.72	54.00	43.72	AVG	No Limit
4	2430.6000	96.24	9.05	105.29	74.00	31.29	Peak	No Limit

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

Test Mode:	TX N-40M Mode 2437 MHz

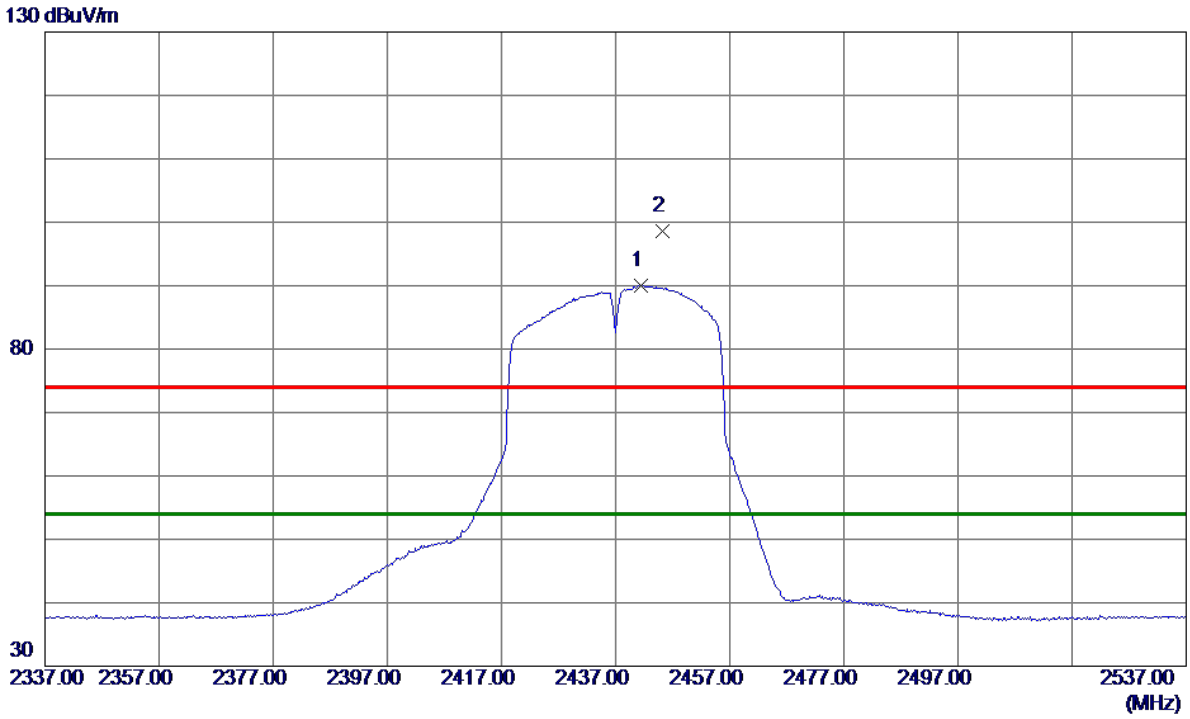
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4878.4000	33.12	8.22	41.34	54.00	-12.66	AVG	
2	4880.1000	43.94	8.23	52.17	74.00	-21.83	Peak	

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

Test Mode:	TX N-40M 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 *	2441.4000	81.01	9.04	90.05	54.00	36.05	AVG	No Limit
2	2445.2000	89.61	9.04	98.65	74.00	24.65	Peak	No Limit

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

Test Mode:	TX N-40M Mode 2437 MHz

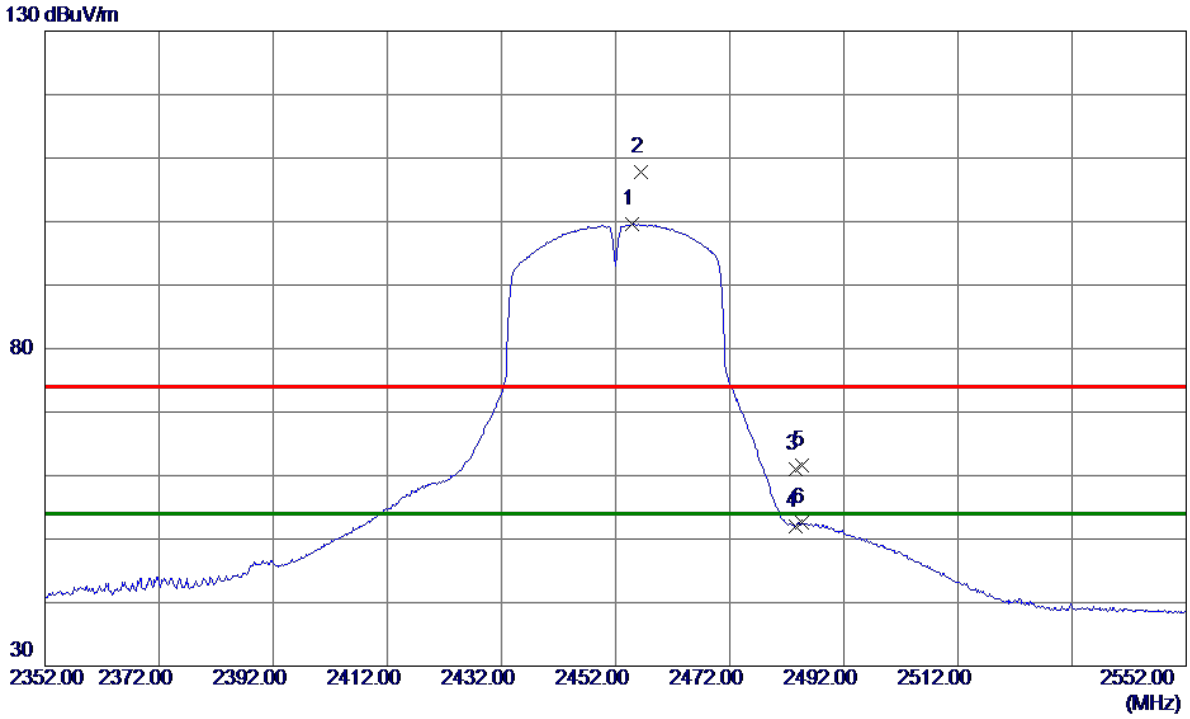
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4878.4000	35.27	8.22	43.49	54.00	-10.51	AVG	
2	4881.5000	44.90	8.23	53.13	74.00	-20.87	Peak	

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

Test Mode:	TX N-40M Mode 2452 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2454.8000	90.49	9.03	99.52	54.00	45.52	AVG	No Limit
2	2456.4000	98.86	9.03	107.89	74.00	33.89	Peak	No Limit
3	2483.5000	52.05	9.01	61.06	74.00	-12.94	Peak	
4	2483.5000	42.96	9.01	51.97	54.00	-2.03	AVG	
5	2484.6000	52.58	9.01	61.59	74.00	-12.41	Peak	
6	2484.6000	43.66	9.01	52.67	54.00	-1.33	AVG	

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

Test Mode:	TX N-40M Mode 2452 MHz

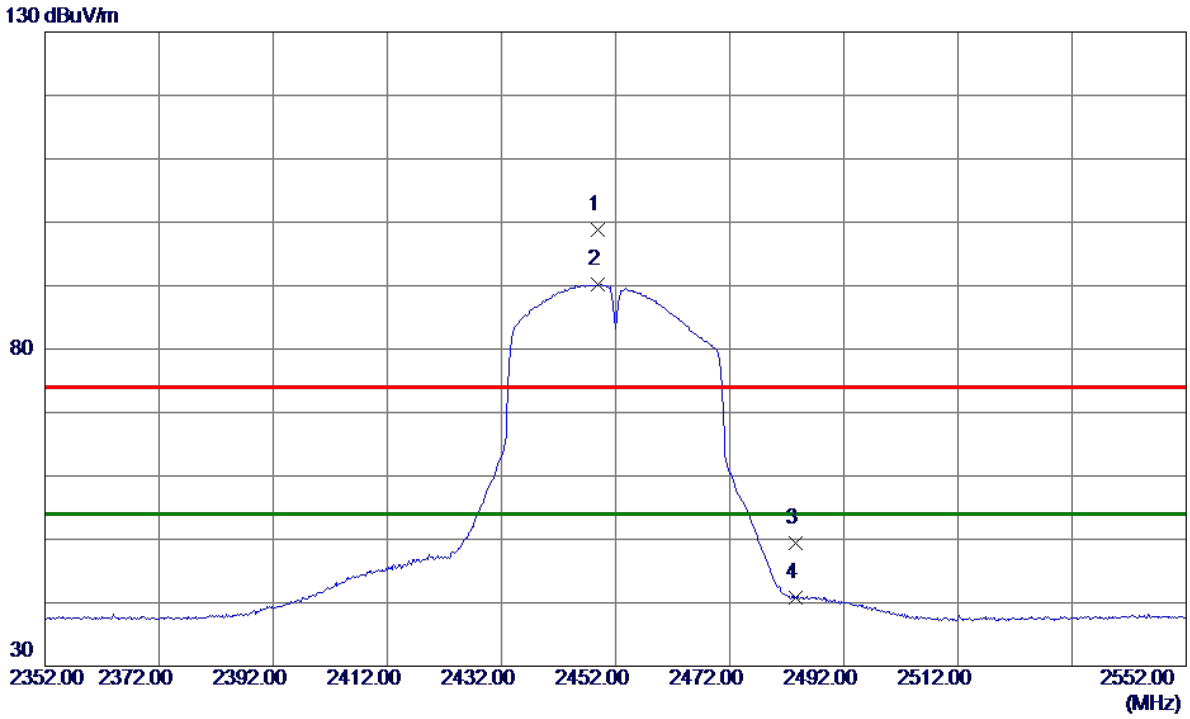
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4902.2000	46.56	8.30	54.86	74.00	-19.14	Peak	
2 *	4905.0000	36.97	8.31	45.28	54.00	-8.72	AVG	

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

Test Mode:	TX N-40M Mode 2452 MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2448.8000	89.76	9.04	98.80	74.00	24.80	Peak	No Limit
2 *	2448.8000	81.12	9.04	90.16	54.00	36.16	AVG	No Limit
3	2483.5000	40.36	9.01	49.37	74.00	-24.63	Peak	
4	2483.5000	31.73	9.01	40.74	54.00	-13.26	AVG	

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

Test Mode:	TX N-40M Mode 2452 MHz

Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4904.4000	38.15	8.31	46.46	54.00	-7.54	AVG	
2	4904.8000	48.15	8.31	56.46	74.00	-17.54	Peak	

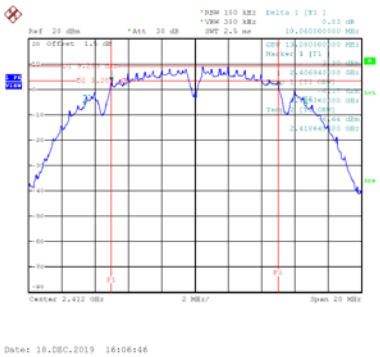
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX E - BANDWIDTH

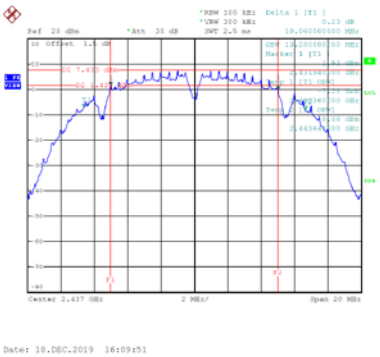
Test Mode	TX B Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	10.06	500	Complies
06	2437	10.06	500	Complies
11	2462	10.08	500	Complies

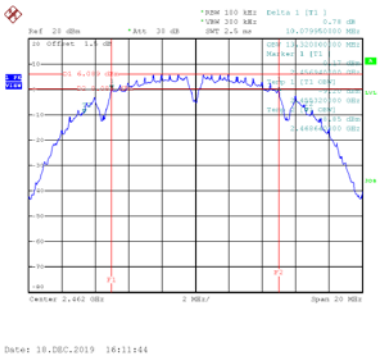
CH01



CH06

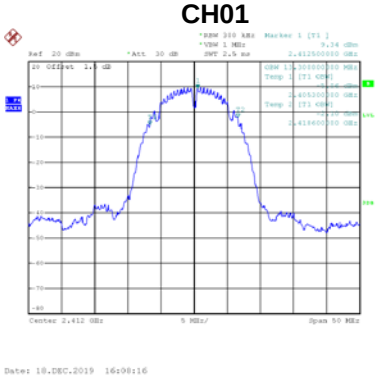


CH11

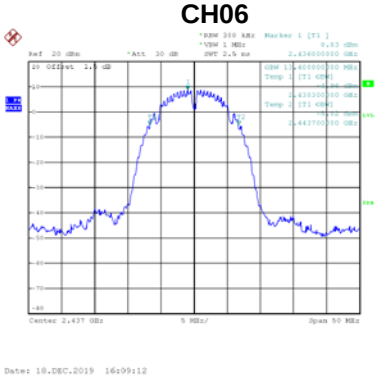


Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	13.30	Complies
06	2437	13.40	Complies
11	2462	13.40	Complies

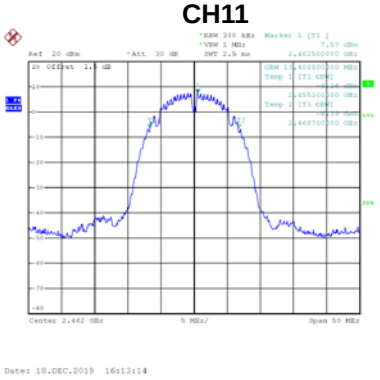
CH01



CH06



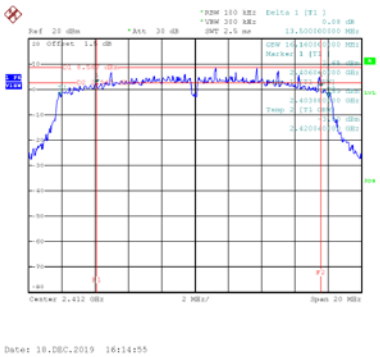
CH11



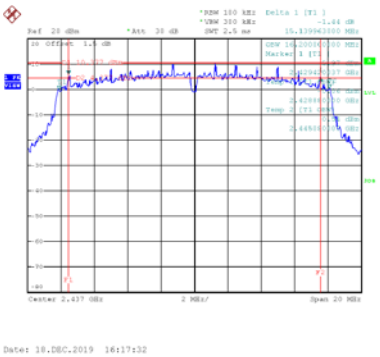
Test Mode	TX G Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	13.50	500	Complies
06	2437	15.14	500	Complies
11	2462	14.19	500	Complies

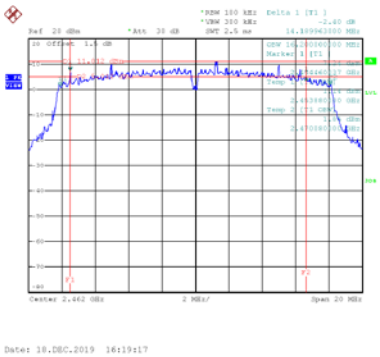
CH01



CH06

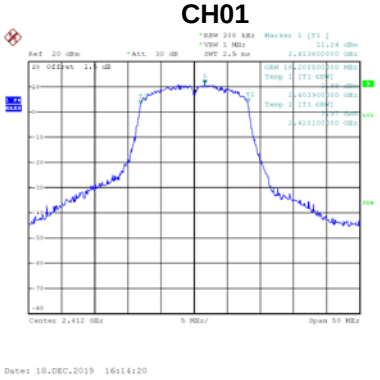


CH11

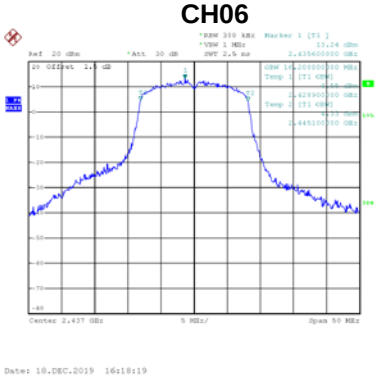


Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	16.20	Complies
06	2437	16.20	Complies
11	2462	16.30	Complies

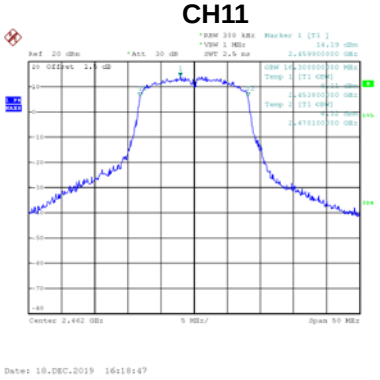
CH01



CH06



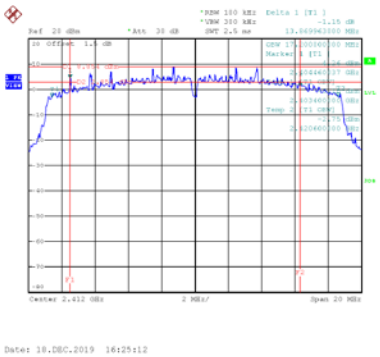
CH11



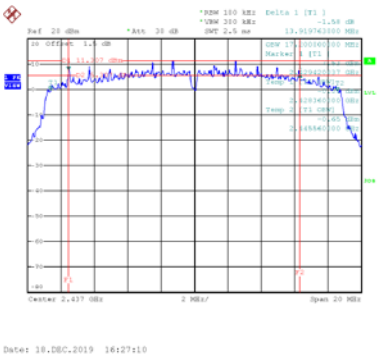
Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	13.87	500	Complies
06	2437	13.92	500	Complies
11	2462	15.10	500	Complies

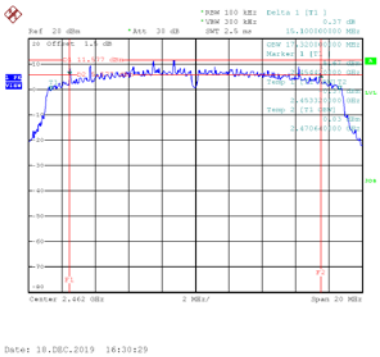
CH01



CH06

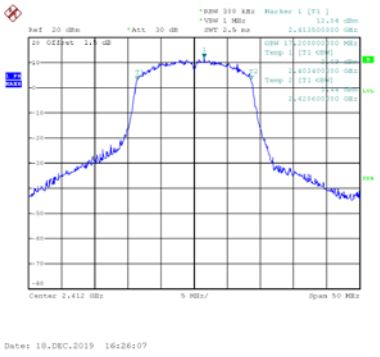


CH11

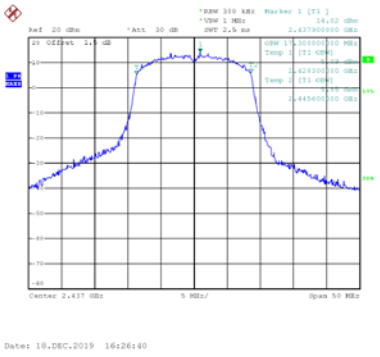


Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	17.20	Complies
06	2437	17.30	Complies
11	2462	17.30	Complies

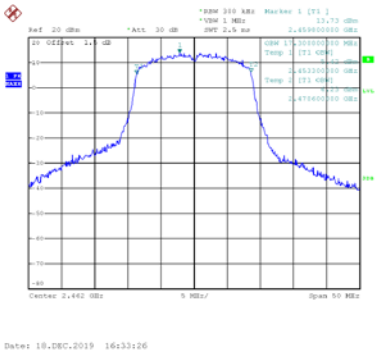
CH01



CH06



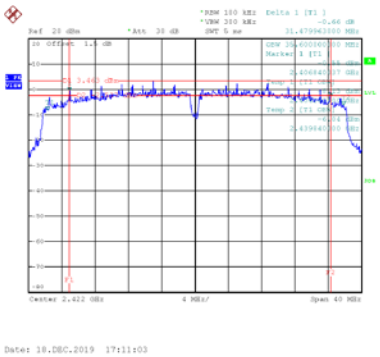
CH11



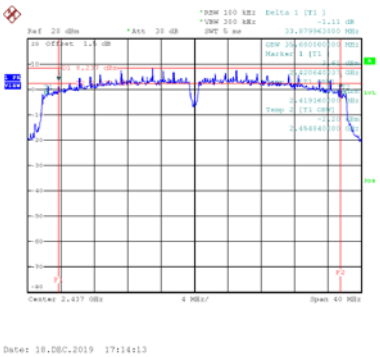
Test Mode	TX N-40M Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
03	2422	31.48	500	Complies
06	2437	33.88	500	Complies
09	2452	35.12	500	Complies

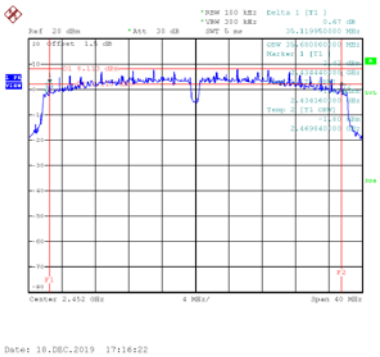
CH03



CH06

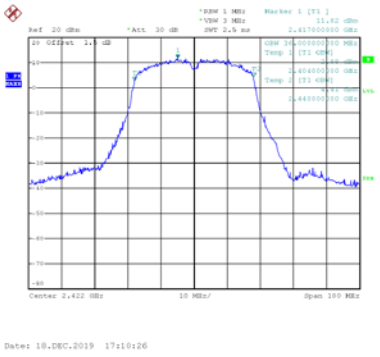


CH09

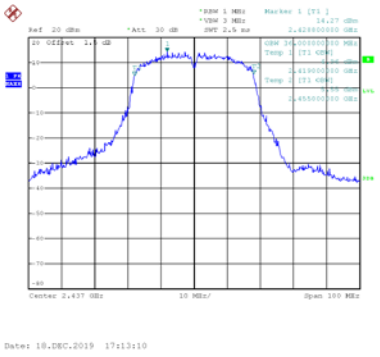


Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
03	2422	36.00	Complies
06	2437	36.00	Complies
09	2452	36.20	Complies

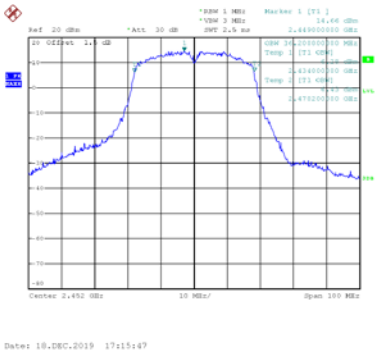
CH03



CH06



CH09



APPENDIX F - MAXIMUM OUTPUT POWER

Test Mode	TX B Mode

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	21.58	26.00	0.3981	Complies
06	2437	18.61	26.00	0.3981	Complies
11	2462	17.12	26.00	0.3981	Complies

Test Mode	TX G Mode

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	24.78	26.00	0.3981	Complies
06	2437	25.53	26.00	0.3981	Complies
11	2462	24.79	26.00	0.3981	Complies

Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	25.28	26.00	0.3981	Complies
06	2437	25.85	26.00	0.3981	Complies
11	2462	25.63	26.00	0.3981	Complies

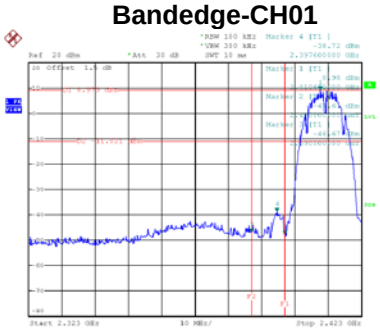
Test Mode	TX N-40M Mode

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	19.82	26.00	0.3981	Complies
06	2437	24.33	26.00	0.3981	Complies
09	2452	24.74	26.00	0.3981	Complies

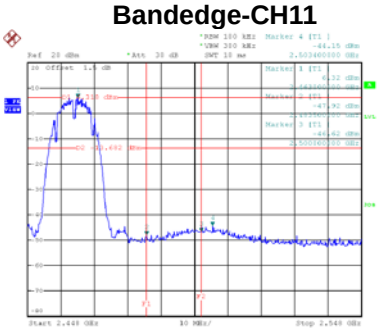
APPENDIX G - CONDUCTED SPURIOUS EMISSIONS

Test Mode	TX B Mode

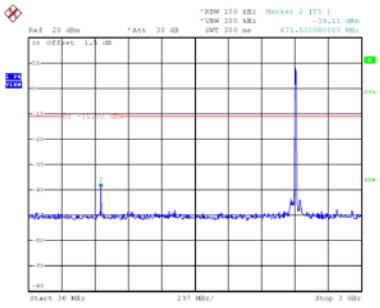
Bandedge-CH01

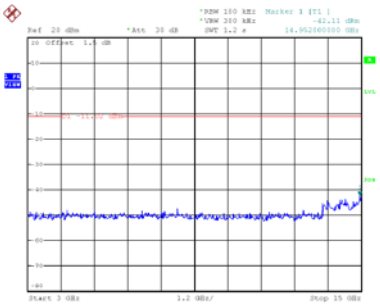


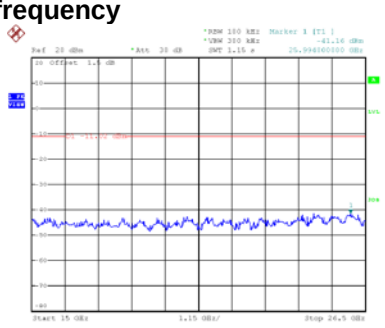
Bandedge-CH11



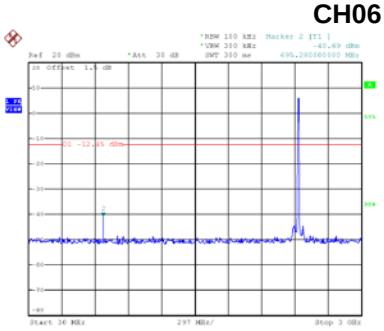
CH01 – 10th Harmonic of the fundamental frequency

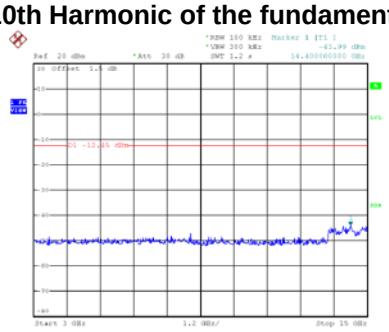


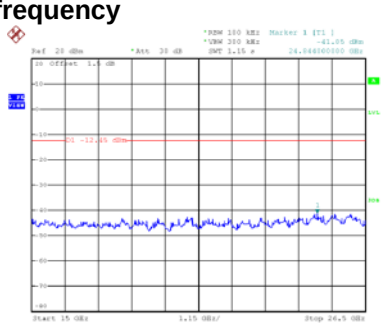




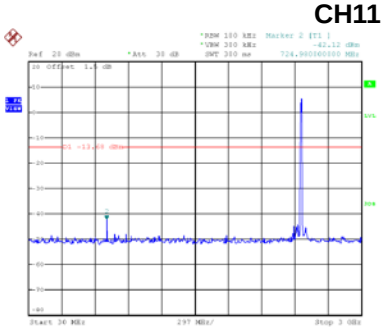
CH06 – 10th Harmonic of the fundamental frequency

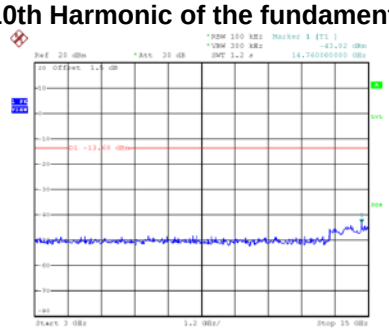


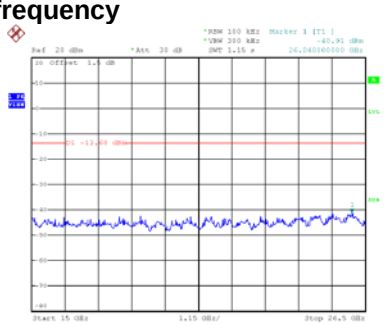




CH11 – 10th Harmonic of the fundamental frequency

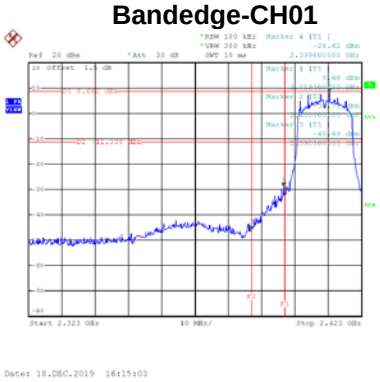




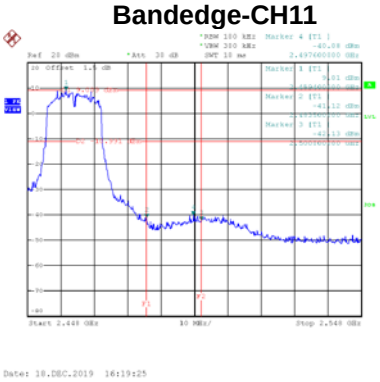


Test Mode	TX G Mode

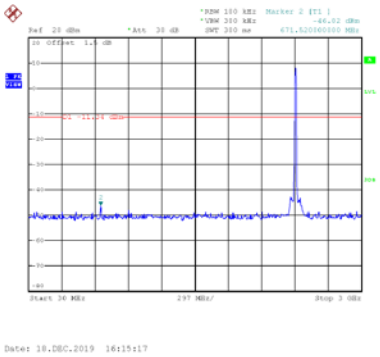
Bandedge-CH01

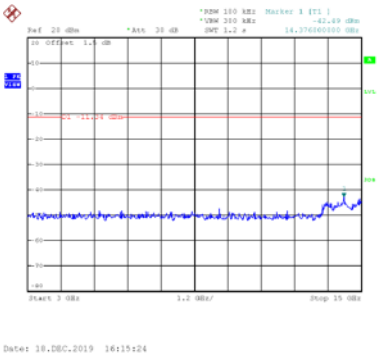


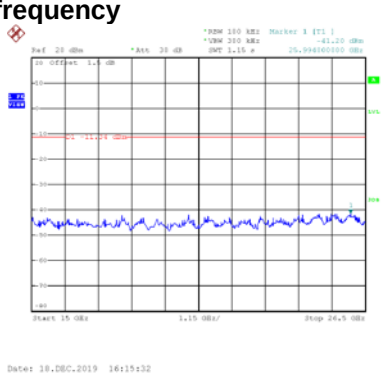
Bandedge-CH11



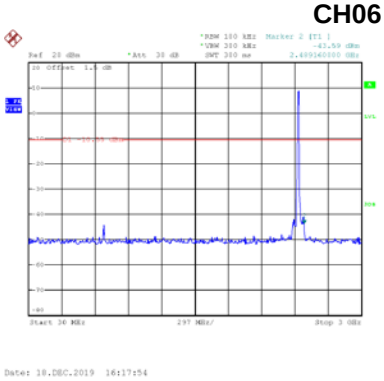
CH01 – 10th Harmonic of the fundamental frequency

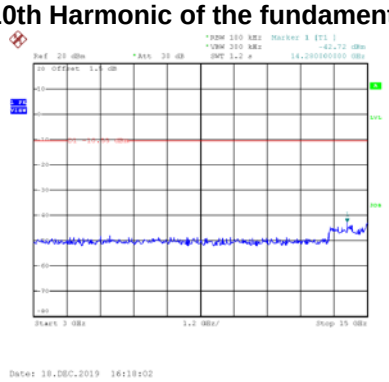


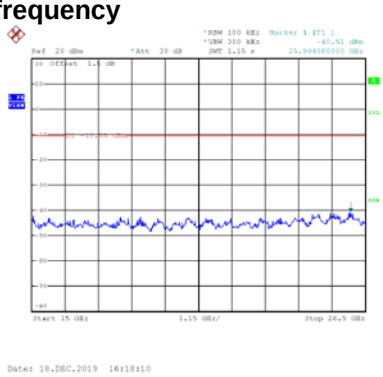




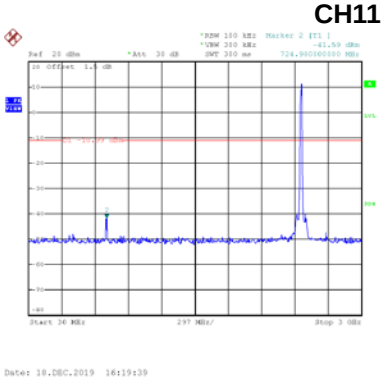
CH06 – 10th Harmonic of the fundamental frequency

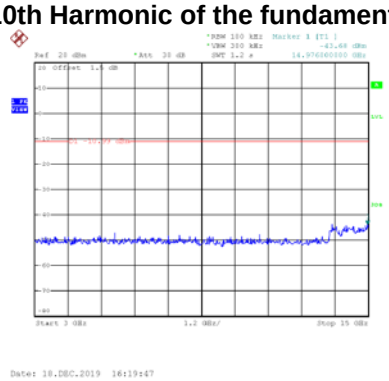


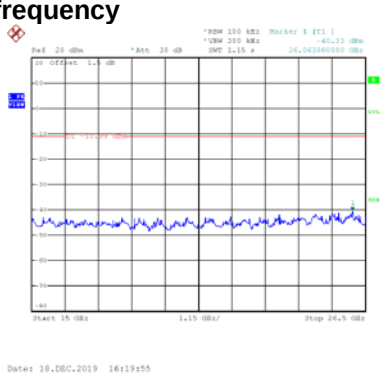




CH11 – 10th Harmonic of the fundamental frequency

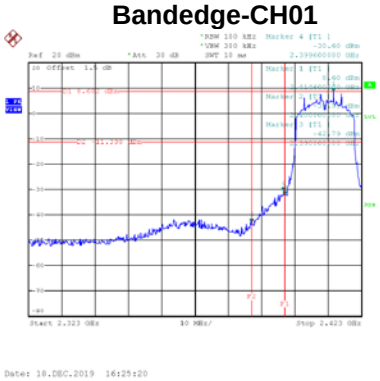




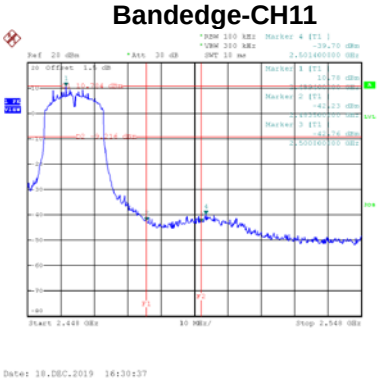


Test Mode	TX N-20M Mode

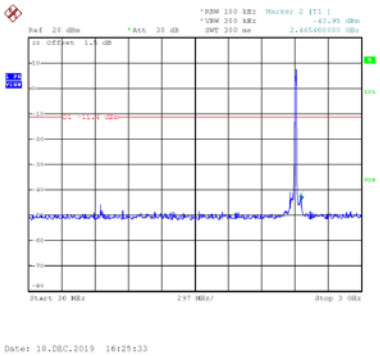
Bandedge-CH01

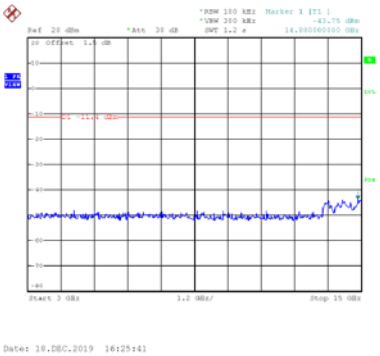


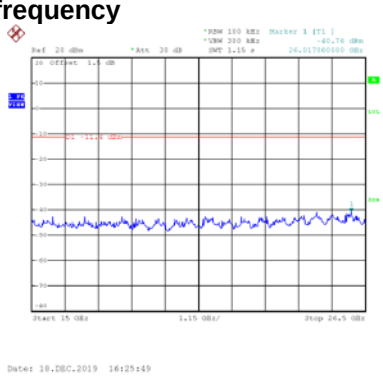
Bandedge-CH11



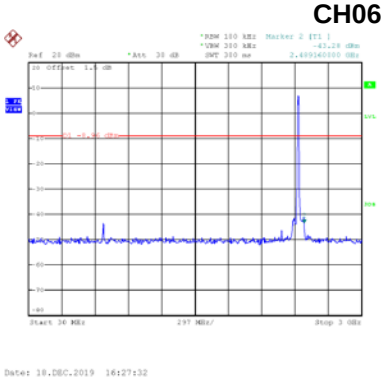
CH01 – 10th Harmonic of the fundamental frequency

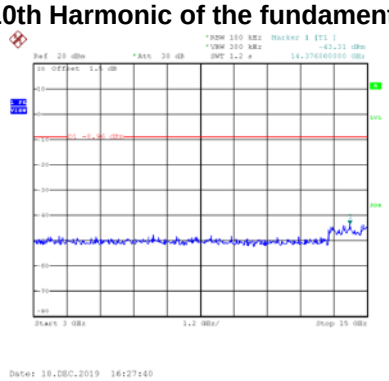


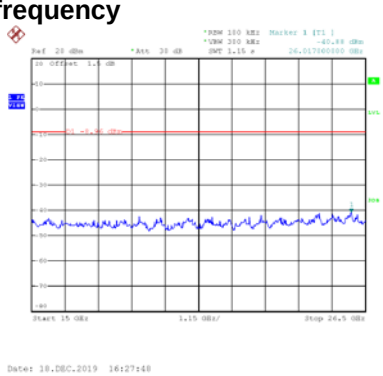




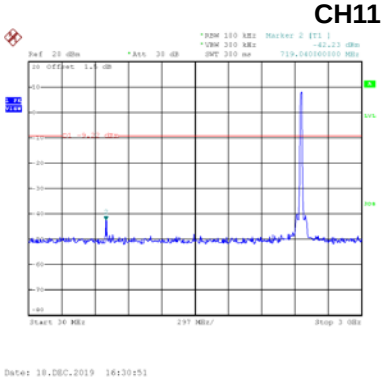
CH06 – 10th Harmonic of the fundamental frequency

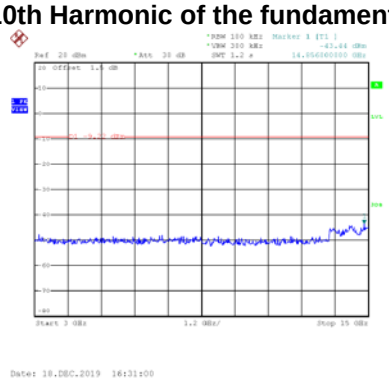


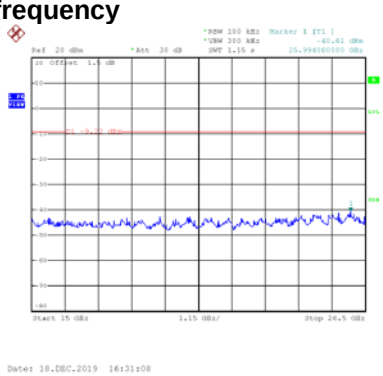




CH11 – 10th Harmonic of the fundamental frequency

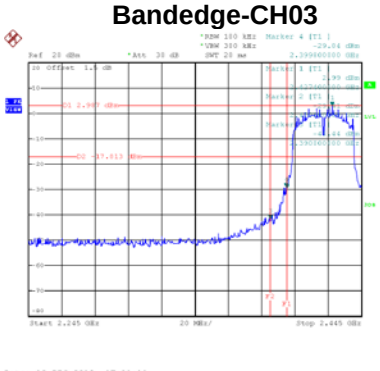




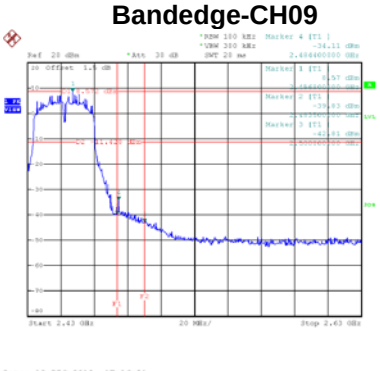


Test Mode	TX N-40M Mode

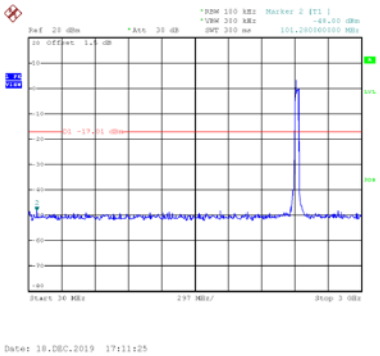
Bandedge-CH03

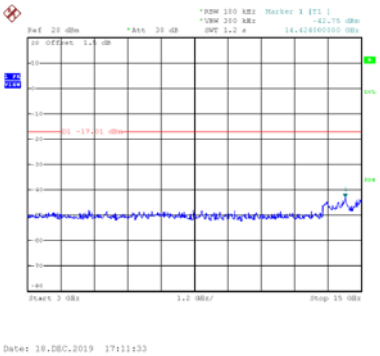


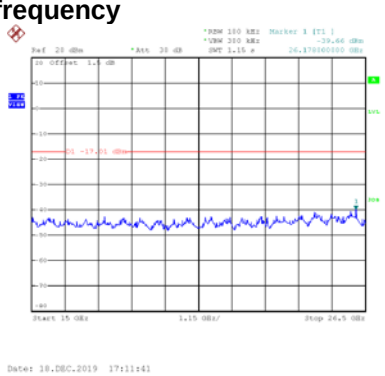
Bandedge-CH09



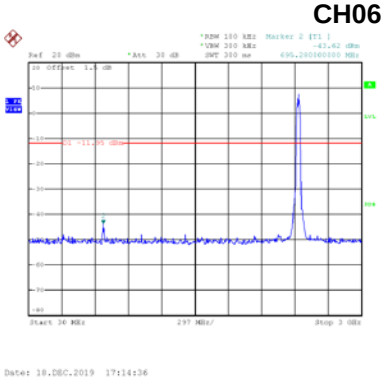
CH03 – 10th Harmonic of the fundamental frequency

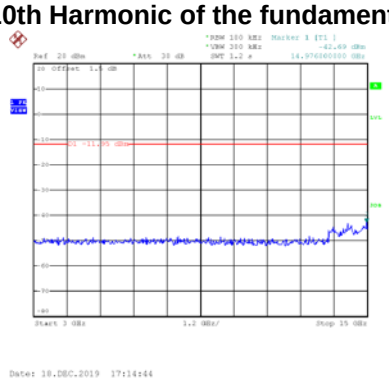


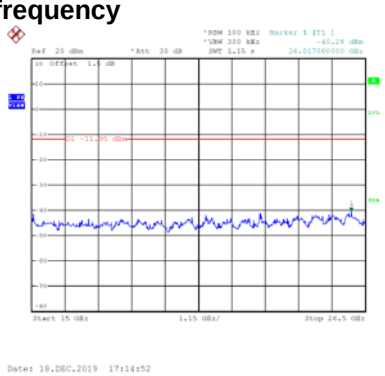




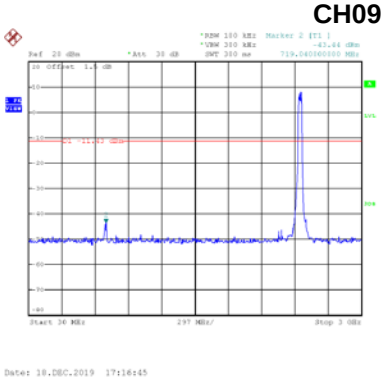
CH06 – 10th Harmonic of the fundamental frequency

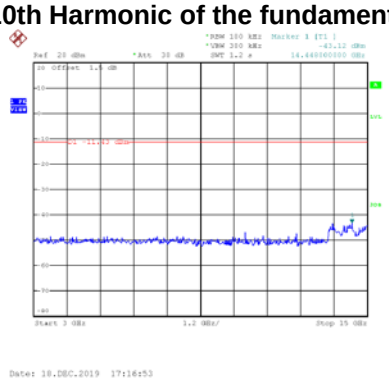


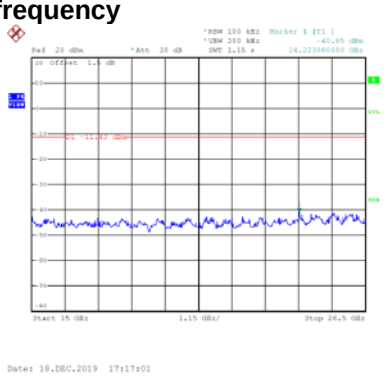




CH09 – 10th Harmonic of the fundamental frequency





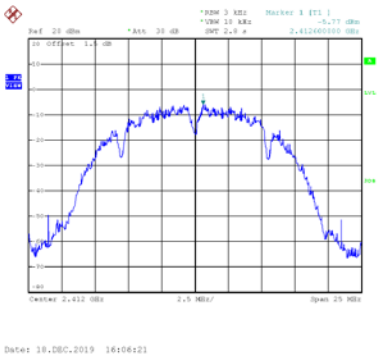


APPENDIX H - POWER SPECTRAL DENSITY

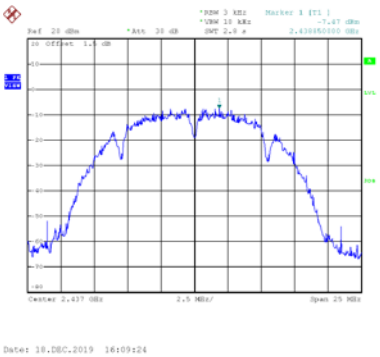
Test Mode	TX B Mode

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-5.77	4	Complies
06	2437	-7.47	4	Complies
11	2462	-7.68	4	Complies

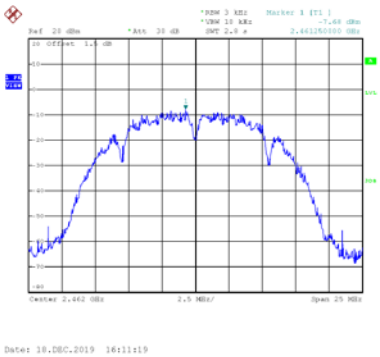
CH01



CH06



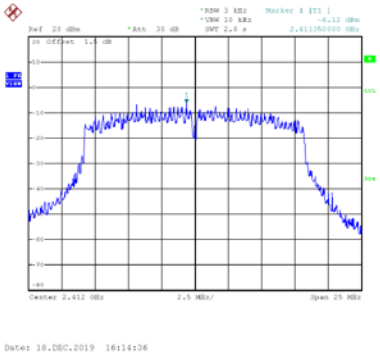
CH11



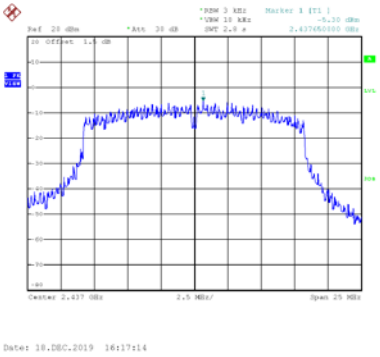
Test Mode	TX G Mode

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-6.12	4	Complies
06	2437	-5.30	4	Complies
11	2462	-3.59	4	Complies

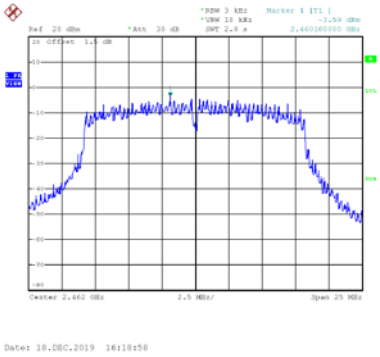
CH01



CH06



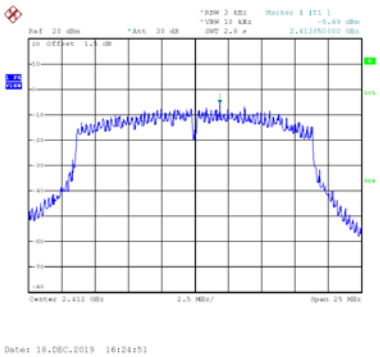
CH11



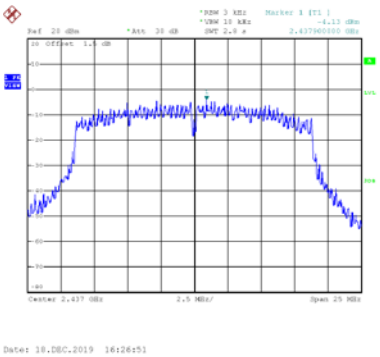
Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-5.69	4	Complies
06	2437	-4.13	4	Complies
11	2462	-3.83	4	Complies

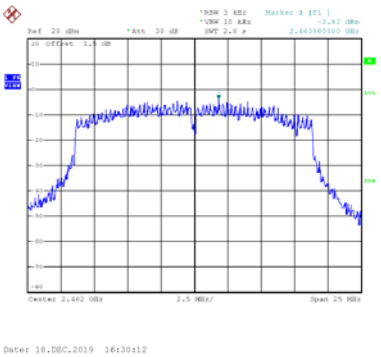
CH01



CH06



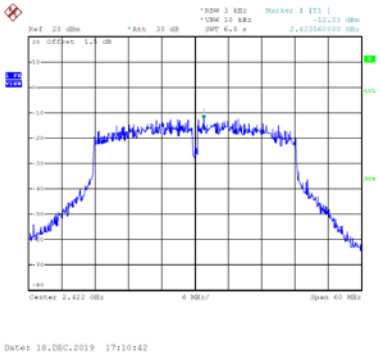
CH11



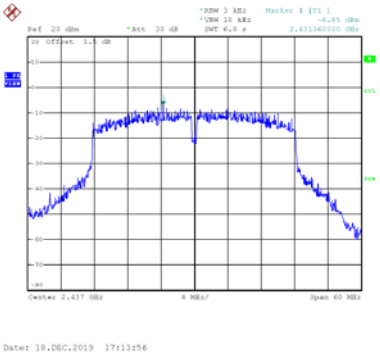
Test Mode	TX N-40M Mode

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-12.33	4	Complies
06	2437	-6.85	4	Complies
09	2452	-6.01	4	Complies

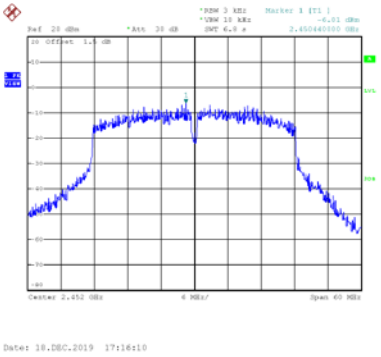
CH03



CH06



CH09



End of Test Report