FCC Radio Test Report

FCC ID: ZVAOH00025

This report concerns: Original Grant

Project No.	:	2010C054
Equipment	:	Shine Bathroom Assistant
Brand Name	:	SHINE
Test Model	:	SHINE-BA-01
Series Model	:	N/A
Applicant	:	TCL Technoly Electronics (Huizhou) Co., Ltd
Address	:	Section 37, Zhongkai High-tech development Zone, Huizhou City, Guangdong Province, China 516006
Manufacturer	:	Shine Bathroom Technologies, Inc.
Address	:	1222 State Street, Santa Barbara, CA 93101
Factory	:	TCL Technoly Electronics (Huizhou) Co., Ltd
Address	:	Section 37, Zhongkai High-tech development Zone, Huizhou City, Guangdong Province, China 516006
Date of Receipt	:	Oct. 19, 2020
Date of Test	:	Oct. 20, 2020 ~ Nov. 02, 2020
Issued Date	:	Nov. 18, 2020
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG20201020102 for conducted, DG20201020103 for radiated.
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.

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Declaration

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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.	Nov. 18, 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	150kHz ~ 30MHz	2.68

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9kHz ~ 30MHz	-	3.02
		30MHz ~ 200MHz	V	4.26
		30MHz ~ 200MHz	H	3.38
		200MHz ~ 1,000MHz	V	3.98
		200MHz ~ 1,000MHz	H	3.94
		1GHz ~ 6GHz	-	3.96
		6GHz ~ 18GHz	-	5.24
		18GHz ~ 26.5GHz	-	3.62
		26.5GHz ~ 40GHz	-	4.00

C. Other Measurement:

Test Item	Uncertainty
Bandwidth	±3.8 %
Maximum Output Power	±0.95 dB
Conducted Spurious Emission	±2.71 dB
Power Spectral Density	±0.86 dB
Temperature	±0.08 °C
Time	±0.58 %
Supply voltages	±0.3 %

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	Hand Huang
Radiated Emissions-9K-30MHz	25°C	60%	DC 5V	Kwok Guo
Radiated Emissions-30 MHz to 1GHz	26°C	52%	DC 5V	Kwok Guo
Radiated Emissions-Above 1000 MHz	26°C	52%	DC 5V	Kwok Guo
Bandwidth	25°C	56%	DC 5V	Jesse Wang
Maximum output power	25°C	56%	DC 5V	Hand Huang
Conducted Spurious Emissions	25°C	56%	DC 5V	Jesse Wang
Power Spectral Density	25°C	56%	DC 5V	Jesse Wang

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Shine Bathroom Assistant
Brand Name	SHINE
Test Model	SHINE-BA-01
Series Model	N/A
Model Difference(s)	N/A
Power Source	1# DC voltage supplied from external power supply. 2# Supplied from battery. Model: 651001
Power Rating	1# DC 5V 2# DC 7.3V, 2500mAh ⎓ 18.25Wh
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: 20.17 dBm (0.1040 W) IEEE 802.11g: 22.35 dBm (0.1718 W) IEEE 802.11n (HT20): 22.11 dBm (0.1626 W) IEEE 802.11n (HT40): 22.03 dBm (0.1596 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	N/A	N/A	PCB	N/A	3.7

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 N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09
Mode 5	TX G Mode Channel 01

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 G Mode Channel 01

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 5	TX G Mode Channel 01

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 N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 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 N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09

NOTE:

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

(2) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.

(3) For radiated emission below 1 GHz test, the IEEE 802.11g Channel 01 is found to be the worst case and recorded.

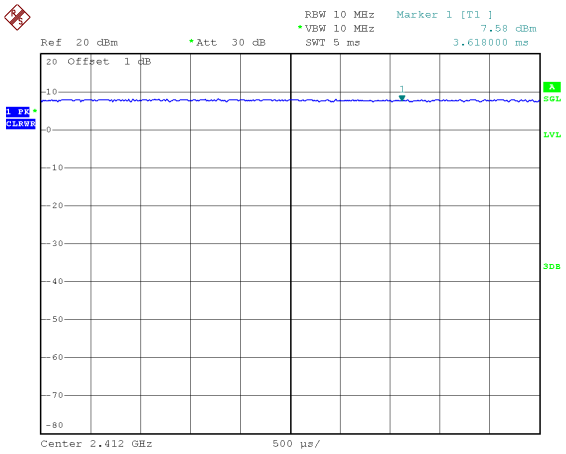
(4) For radiated emission above 1 GHz test, 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

2.3 PARAMETERS OF TEST SOFTWARE

Test Software	ESP_RF_test_tool_v2.5		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	16	14	11
IEEE 802.11g	14	12	9
IEEE 802.11n (HT20)	9	6	5
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	9	7	5

2.4 DUTY CYCLE

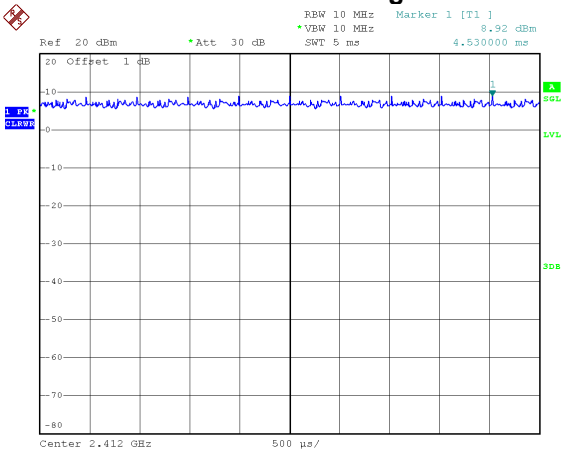
IEEE 802.11b



Date: 2.NOV.2020 12:55:25

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

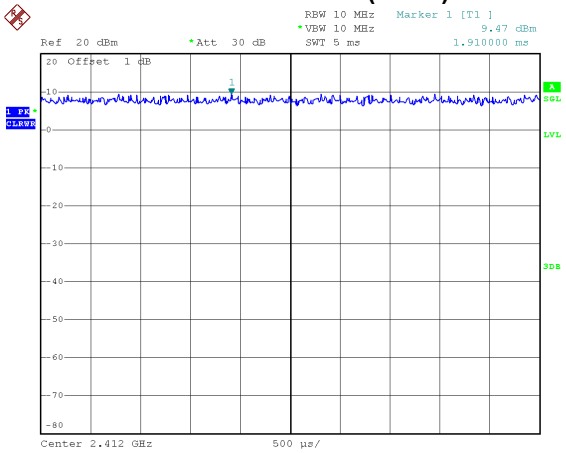
IEEE 802.11g



Date: 2.NOV.2020 13:00:25

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

IEEE 802.11n (HT20)



Date: 2.NOV.2020 13:01:09

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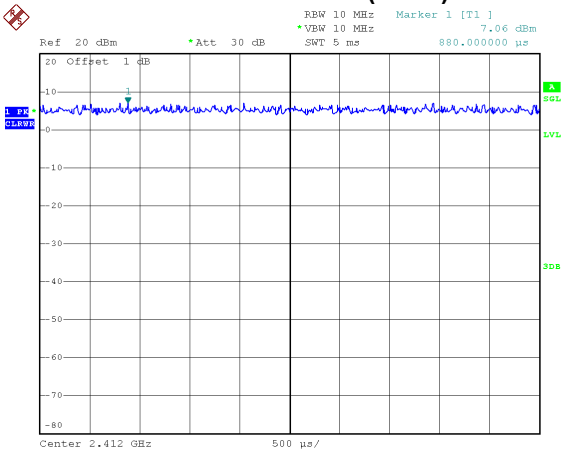
Duty Factor = 10 log(1/Duty cycle) = 0.00

IEEE 802.11n (HT40)

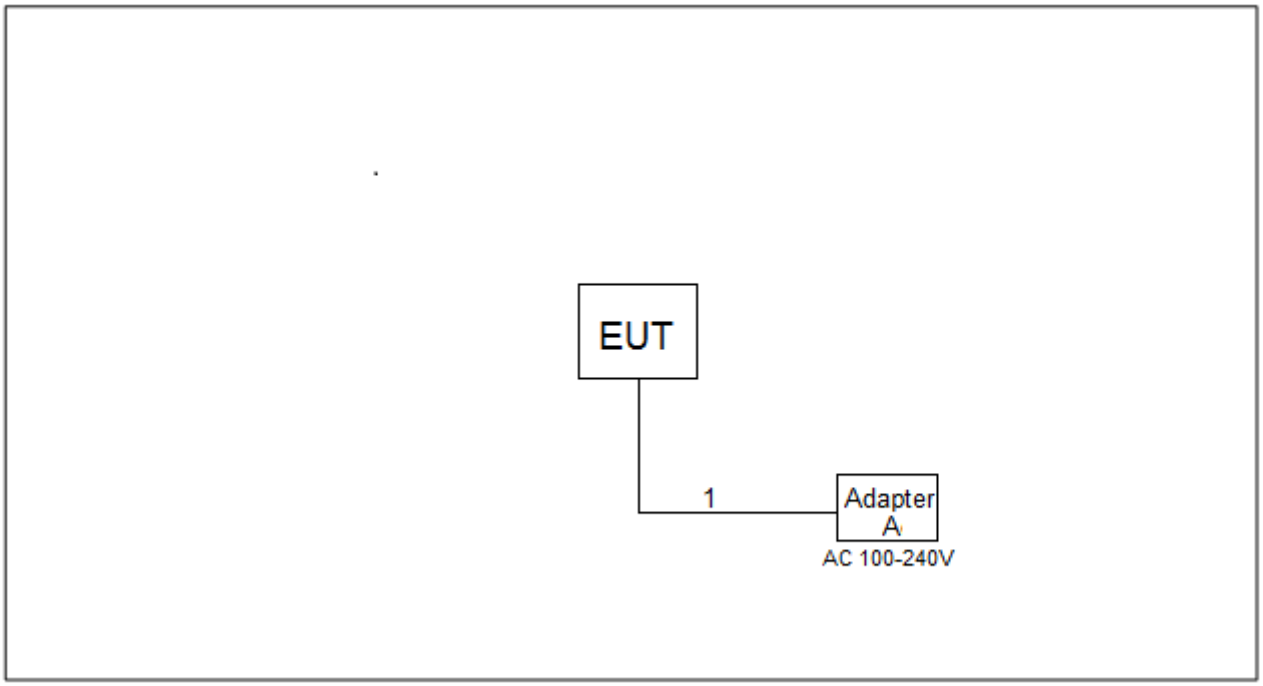


Date: 2.NOV.2020 13:02:03

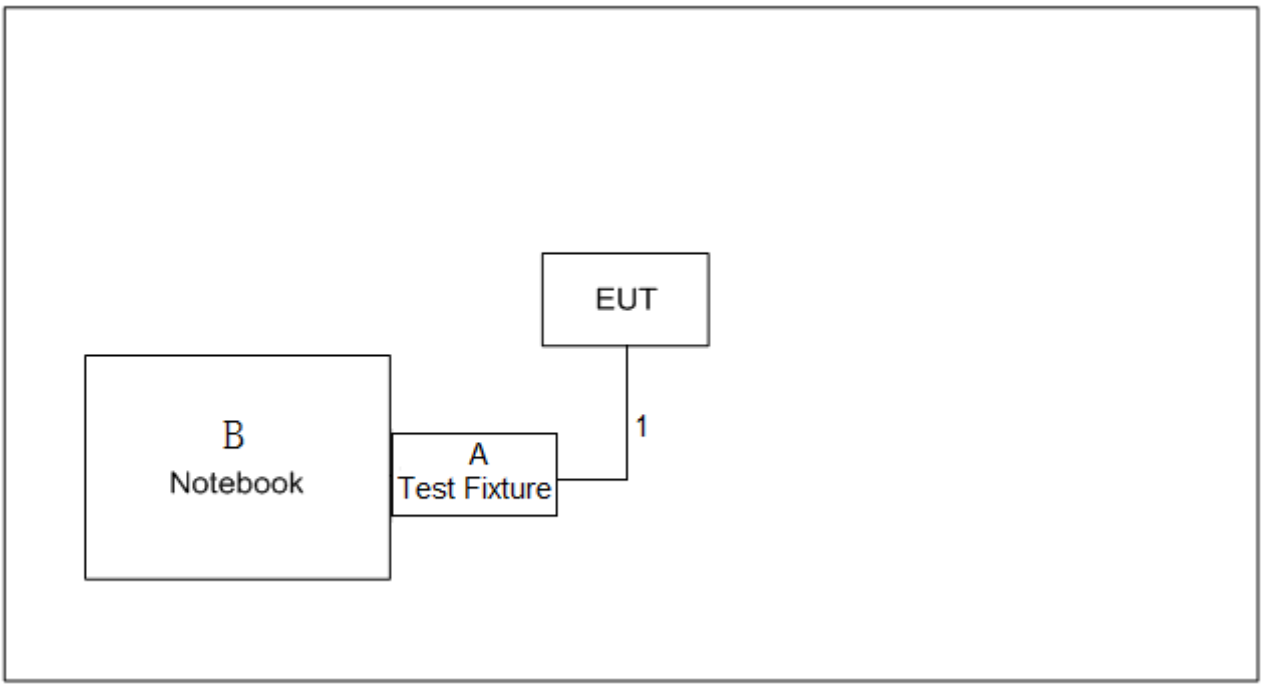
Duty cycle = 0.000 ms / 0.000 ms = 0.00%
Duty Factor = 10 log(1/Duty cycle) = 0.00

2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

For AC power line conducted emissions



For Radiated emissions



2.6 SUPPORT UNITS

For AC power line conducted emissions

Item	Equipment	Brand	Model No.	Series No.
A	Adapter	huawei	N/A	N/A

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

For Radiated emissions

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

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	Data Cable	NO	NO	0.8m

3. AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency of Emission (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 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

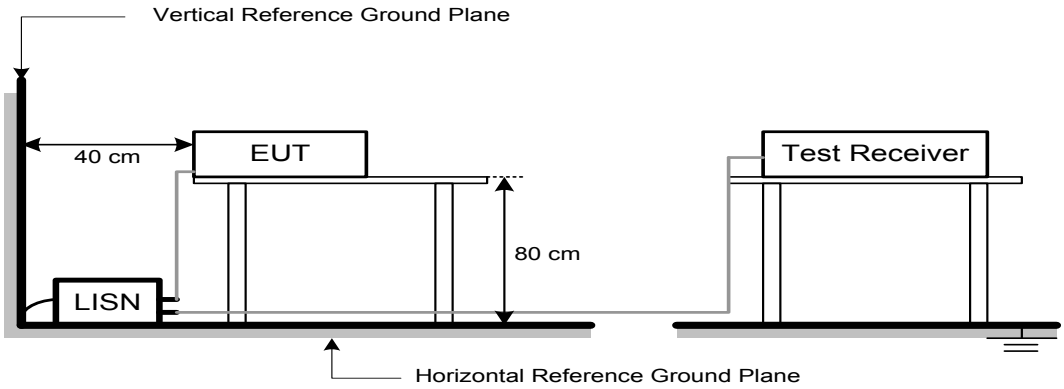
3.2 TEST PROCEDURE

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

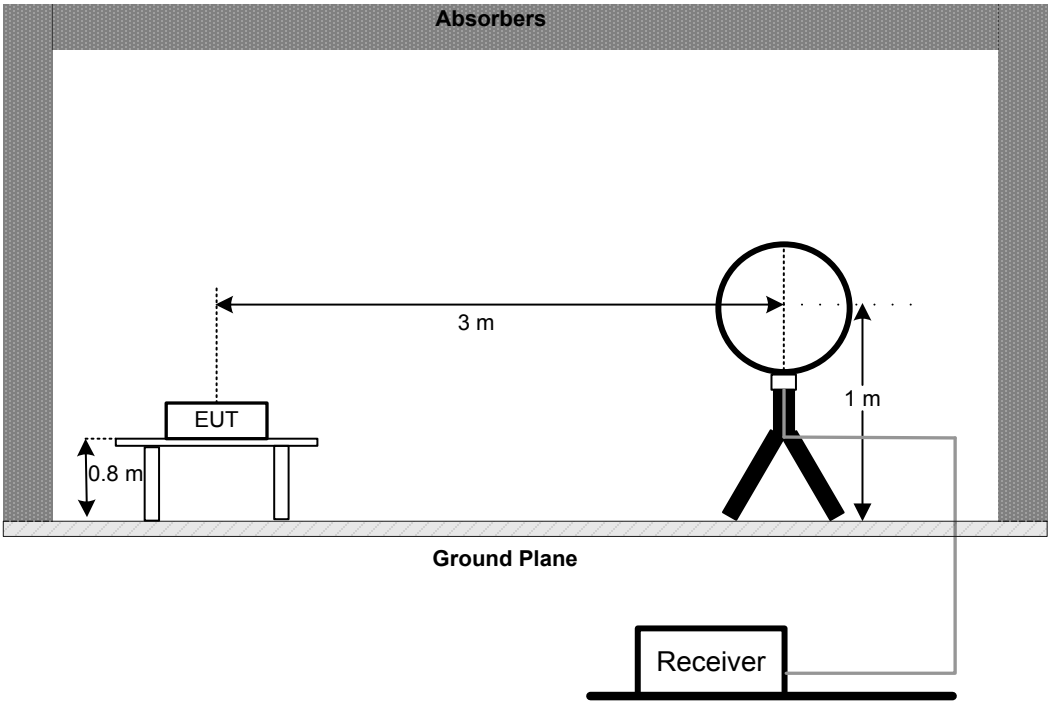
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance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

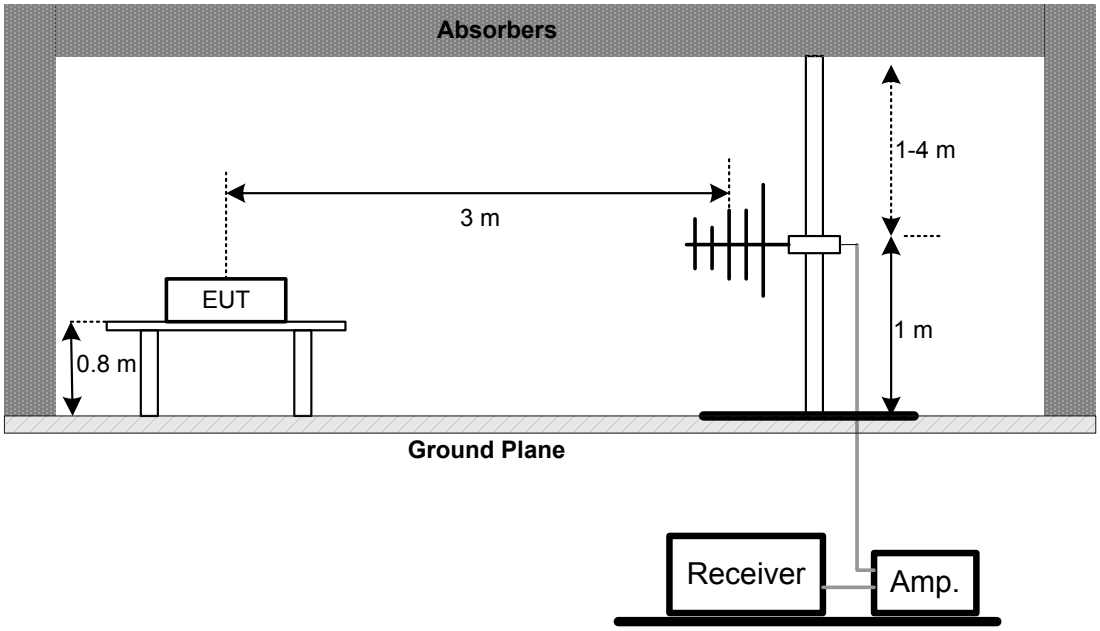
No deviation

4.4 TEST SETUP

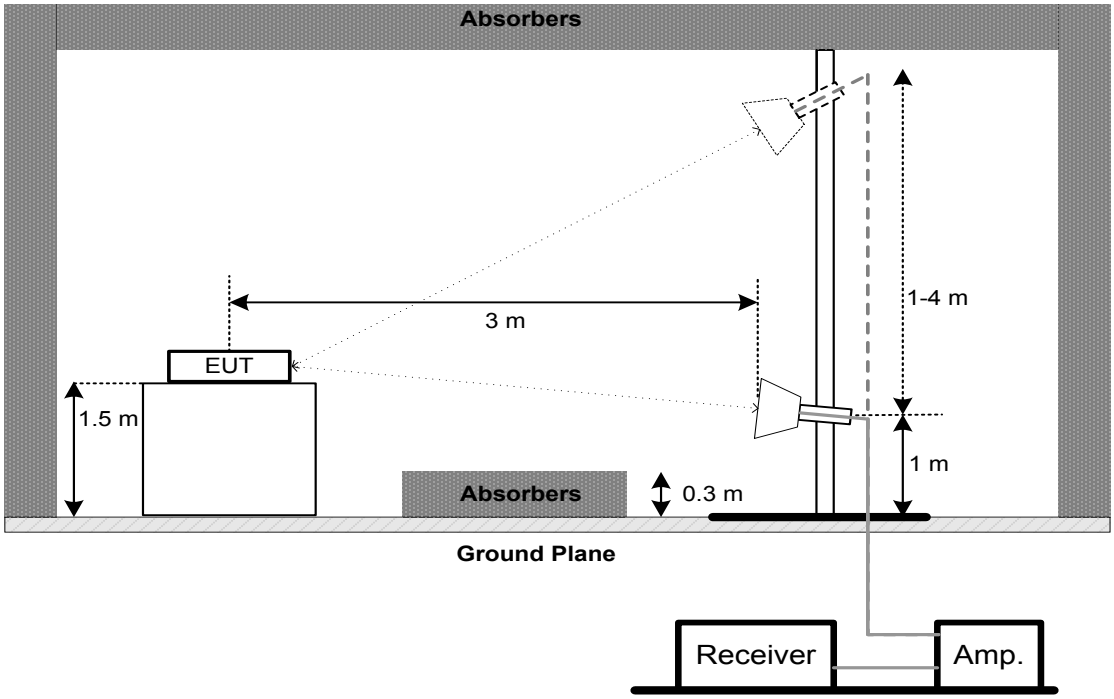
9 kHz-30 MHz



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.

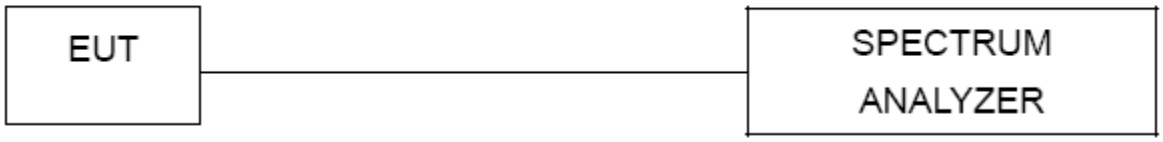
7.2 TEST PROCEDURE

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)

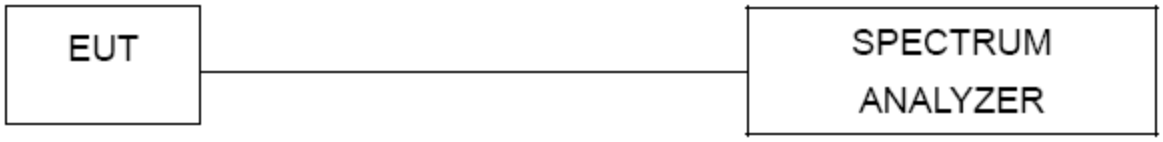
8.2 TEST PROCEDURE

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	Feb. 28, 2021
2	LISN	EMCO	3816/2	52765	Mar. 01, 2021
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 28, 2021
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 01, 2021
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 10, 2021
7	643 Shield Room	ETS	6*4*3m	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	EM	EM-6876-1	230	Apr. 16, 2021
2	Cable	N/A	RG 213/U	N/A	May 29, 2021
3	EMI Test Receiver	R&S	ESCI	100895	Feb. 28, 2021
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

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, 2021
2*	Amplifier	HP	8447D	2944A09673	Aug. 11, 2021
3	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 22, 2021
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
8	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	May 12, 2021
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jul. 07, 2021
3	Amplifier	Agilent	8449B	3008A02333	Mar. 01, 2021
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 07, 2021
5	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	N/A	EMC104-SM-SM-6 000	N/A	May 09, 2021
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	Filter	STI	STI15-9912	N/A	Jul. 25, 2021
11	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

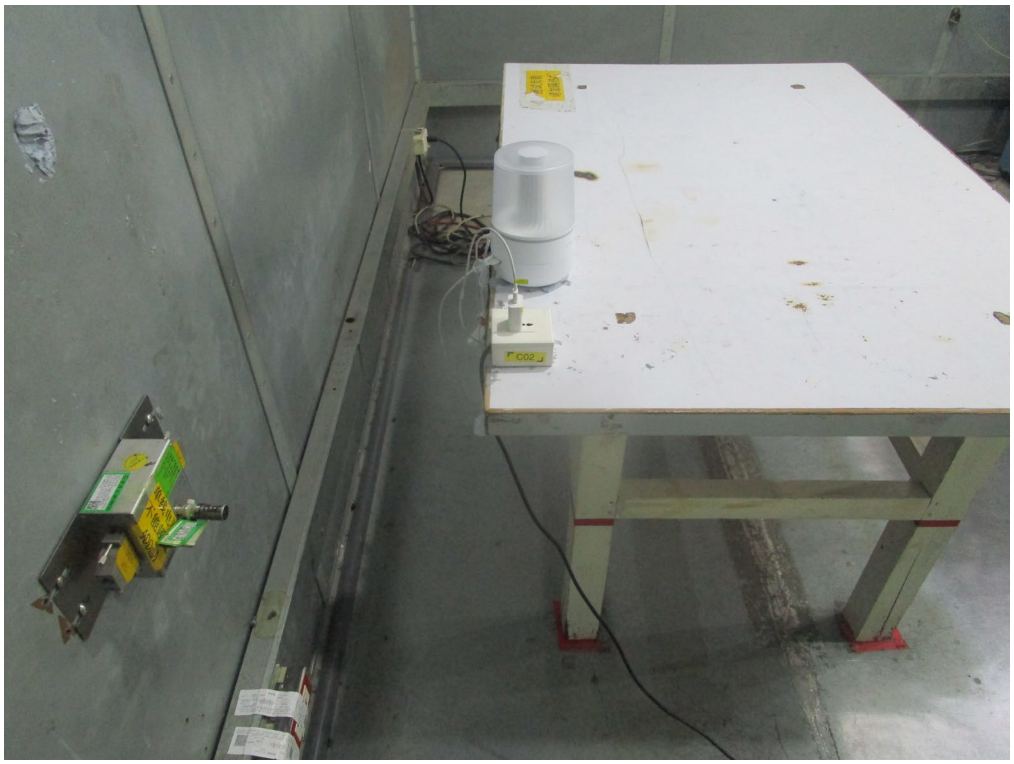
Bandwidth & Conducted Spurious Emissions & Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 25, 2021
2	RF Cable	Tongkaichuan	N/A	N/A	N/A
3	DC Block	Mini	N/A	N/A	N/A

Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Aug. 07, 2021
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jul. 25, 2021
3	Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 11, 2021
4	RF Cable	Tongkaichuan	N/A	N/A	N/A

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.

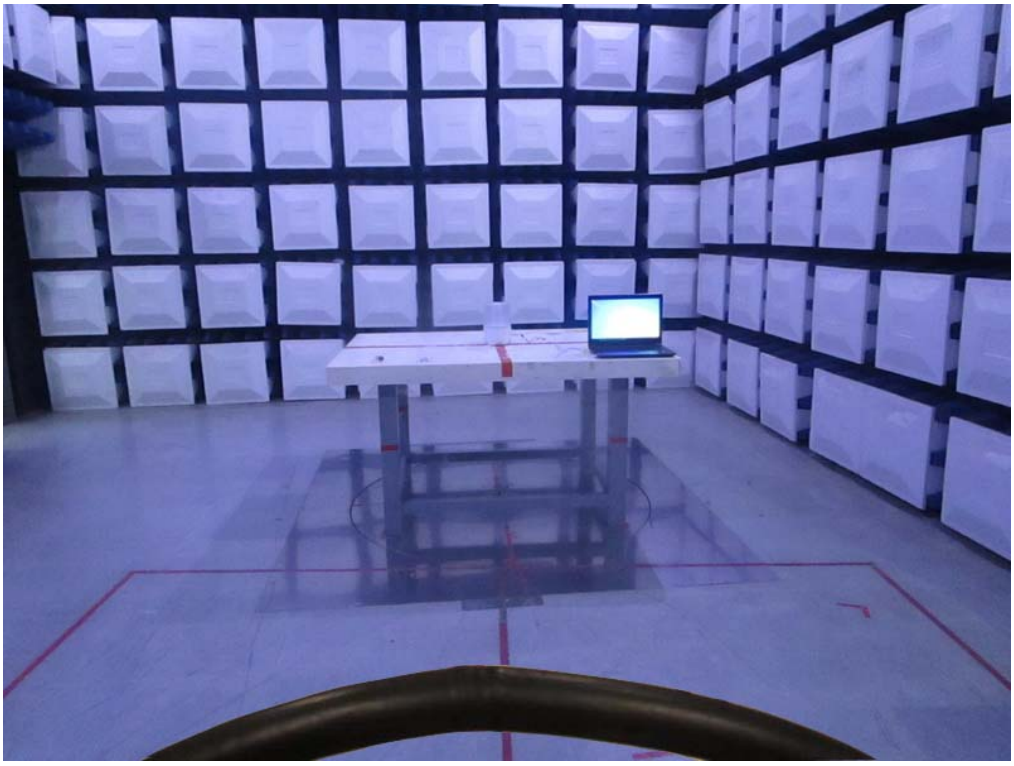
10. EUT TEST PHOTO

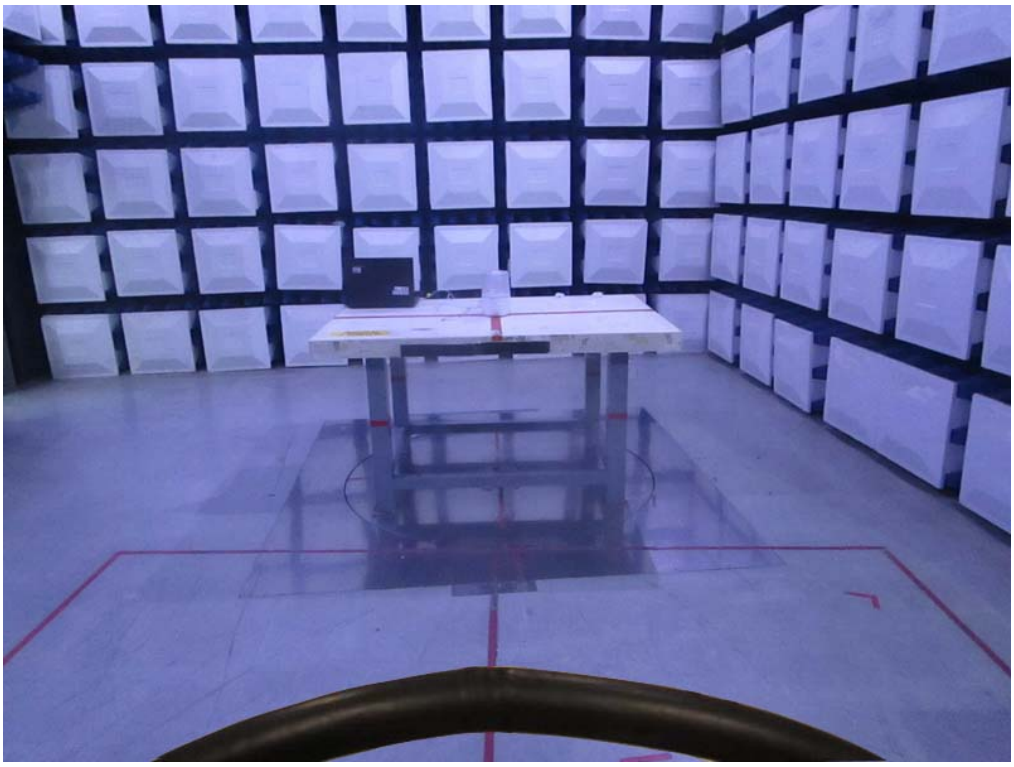
AC Power Line Conducted Emissions Test Photos



Radiated Emissions Test Photos

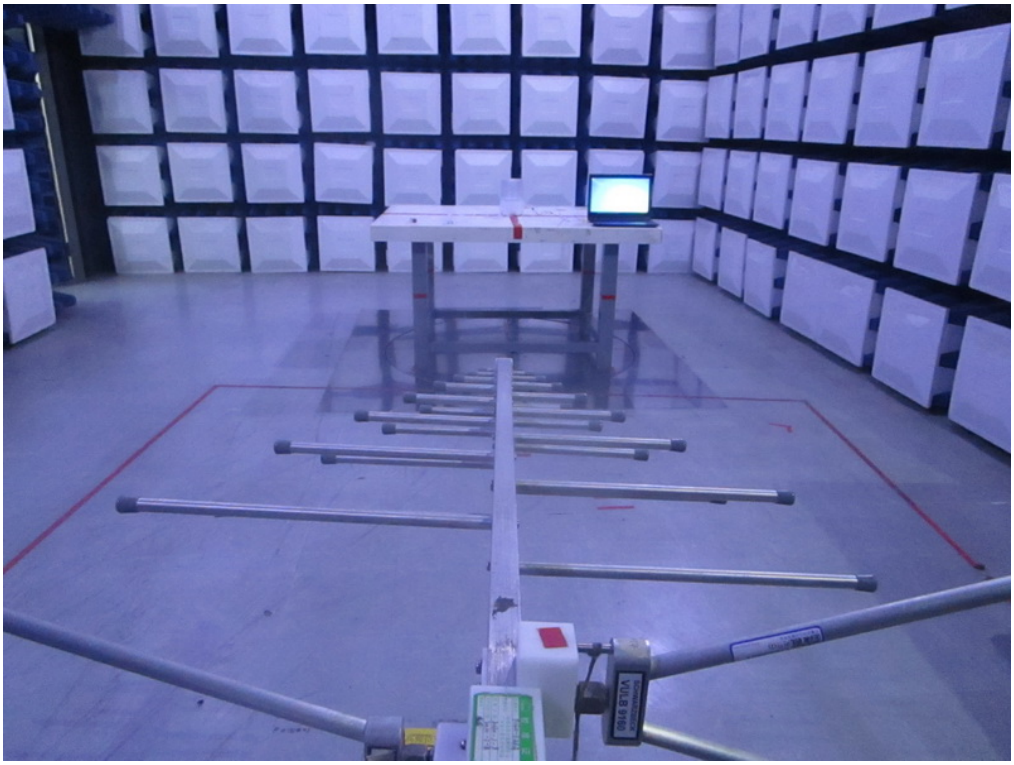
9 kHz to 30 MHz

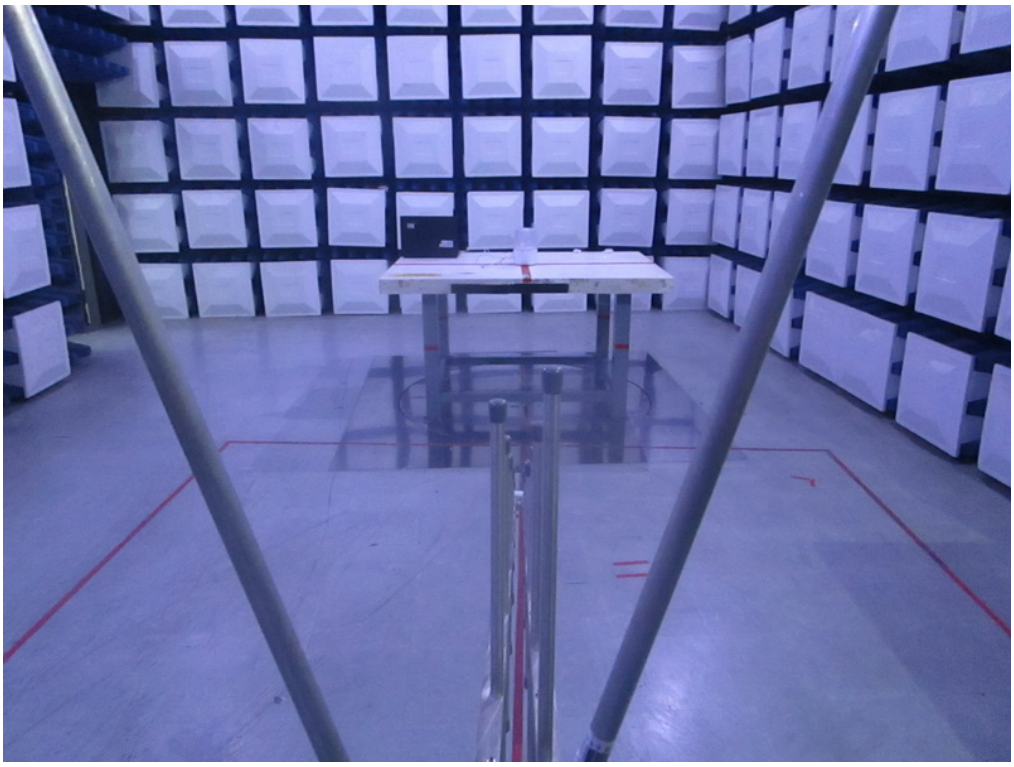




Radiated Emissions Test Photos

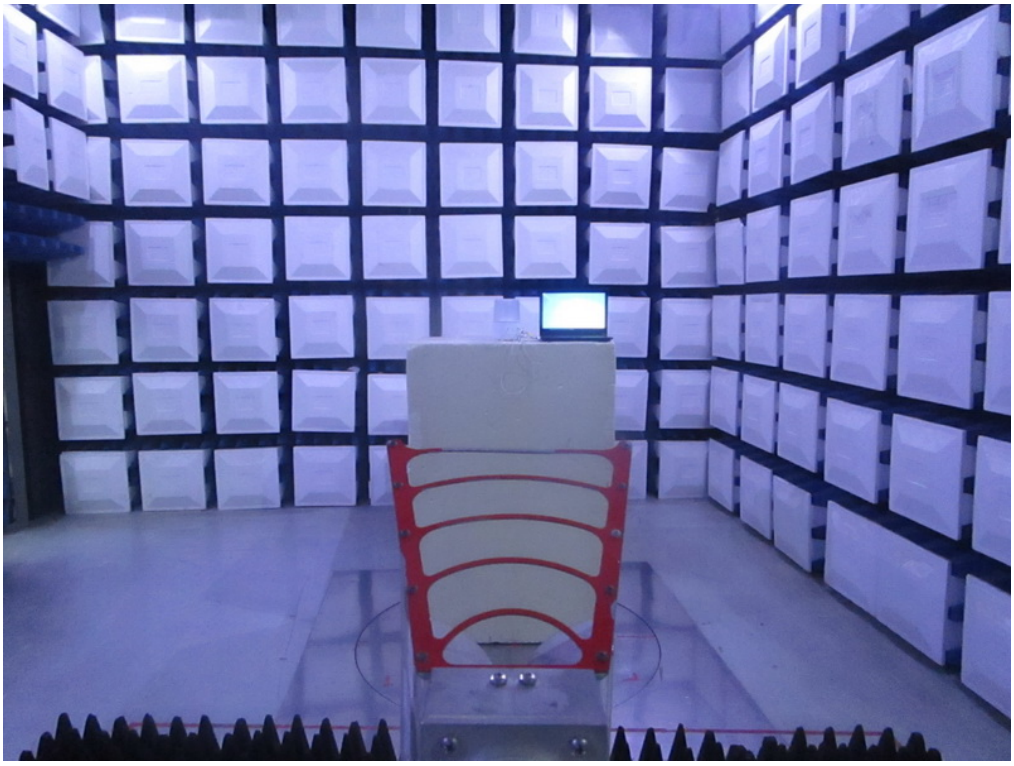
30 MHz to 1000 MHz





Radiated Emissions Test Photos

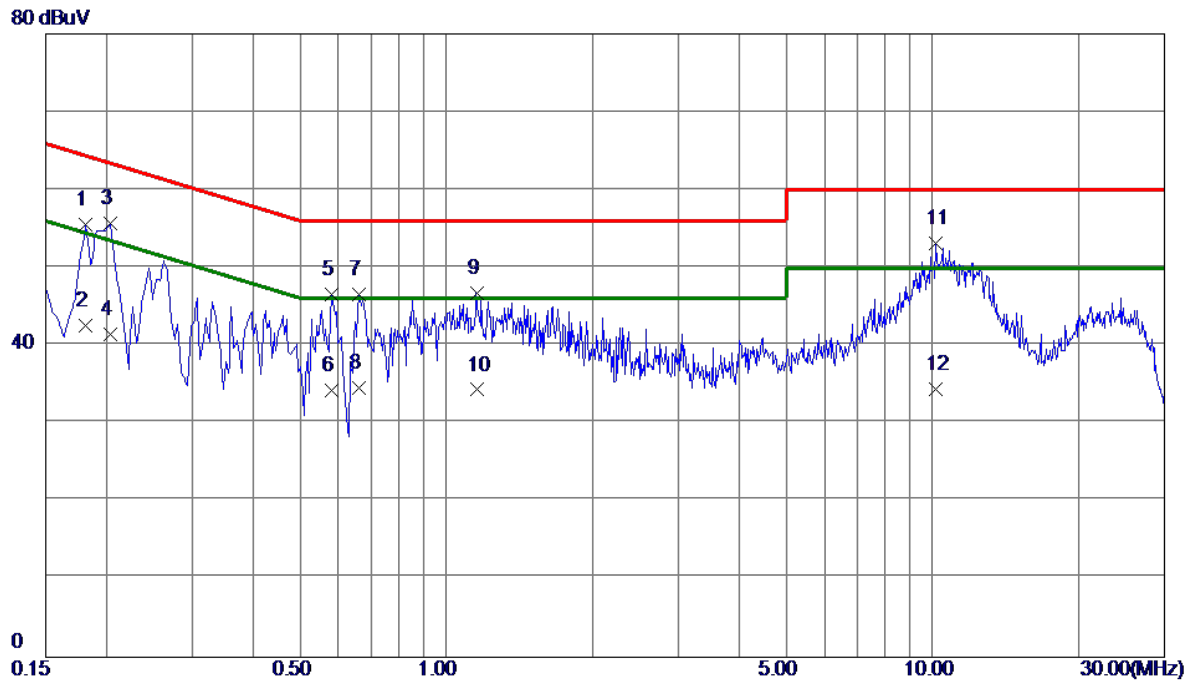
Above 1 GHz



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode:	TX G Mode Channel 01

Line

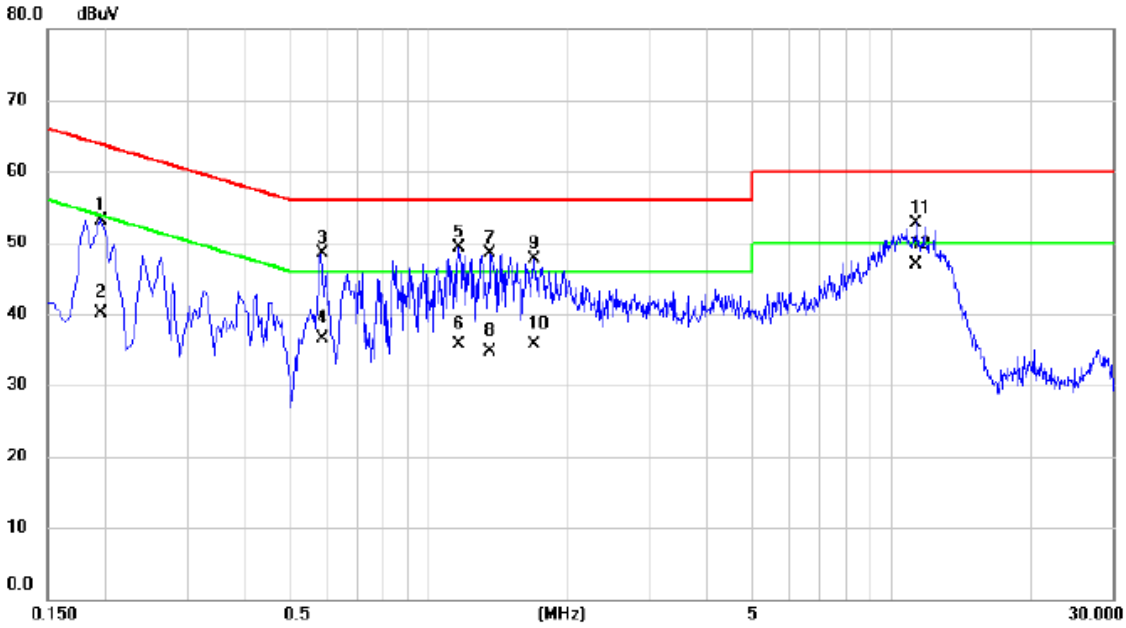


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1815	45.66	9.85	55.51	64.42	-8.91	Peak	
2	0.1815	32.70	9.85	42.55	54.42	-11.87	AVG	
3	0.2040	45.79	9.91	55.70	63.45	-7.75	Peak	
4	0.2040	31.60	9.91	41.51	53.45	-11.94	AVG	
5	0.5820	36.60	9.96	46.56	56.00	-9.44	Peak	
6	0.5820	24.30	9.96	34.26	46.00	-11.74	AVG	
7	0.6630	36.64	9.90	46.54	56.00	-9.46	Peak	
8	0.6630	24.71	9.90	34.61	46.00	-11.39	AVG	
9	1.1535	36.76	10.02	46.78	56.00	-9.22	Peak	
10	1.1535	24.30	10.02	34.32	46.00	-11.68	AVG	
11 *	10.1400	42.38	10.71	53.09	60.00	-6.91	Peak	
12	10.1400	23.69	10.71	34.40	50.00	-15.60	AVG	

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

Test Mode:	TX G Mode Channel 01

Neutral



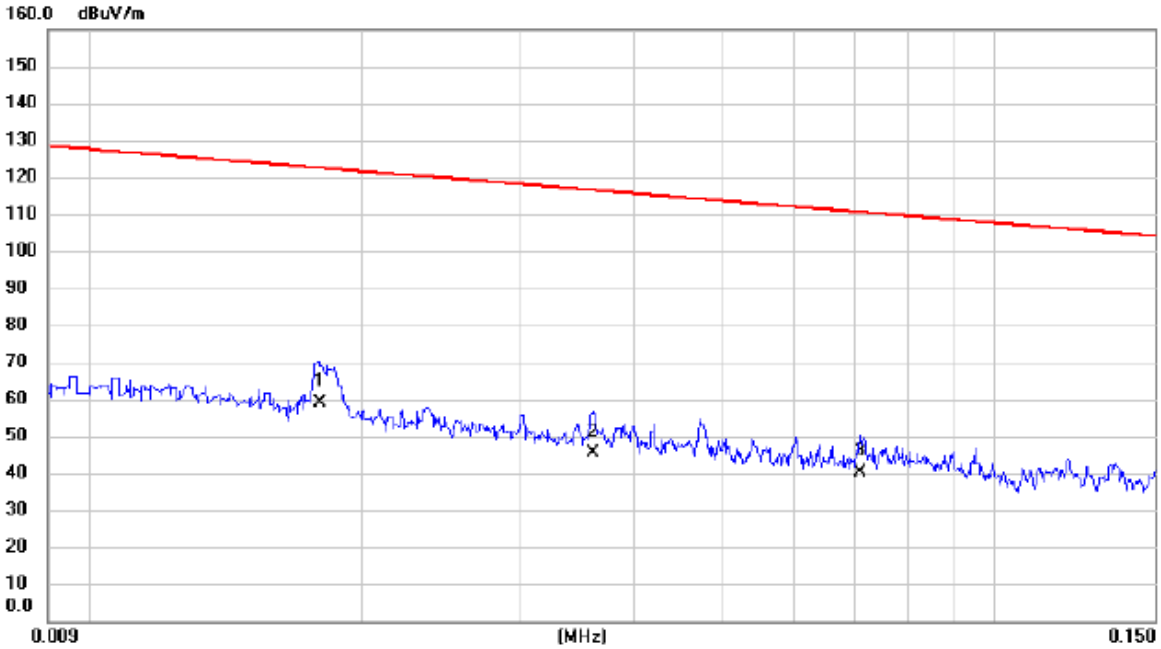
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.195	43.21	9.99	53.20	63.82	-10.62	peak	
2		0.195	30.10	9.99	40.09	53.82	-13.73	AVG	
3		0.587	38.36	10.18	48.54	56.00	-7.46	peak	
4		0.587	26.30	10.18	36.48	46.00	-9.52	AVG	
5		1.163	38.92	10.32	49.24	56.00	-6.76	peak	
6		1.163	25.40	10.32	35.72	46.00	-10.28	AVG	
7		1.356	38.14	10.34	48.48	56.00	-7.52	peak	
8		1.356	24.30	10.34	34.64	46.00	-11.36	AVG	
9		1.685	37.24	10.39	47.63	56.00	-8.37	peak	
10		1.685	25.40	10.39	35.79	46.00	-10.21	AVG	
11		11.265	41.72	11.08	52.80	60.00	-7.20	peak	
12	*	11.265	35.80	11.08	46.88	50.00	-3.12	AVG	

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 G Mode Channel 01

Ant 0°

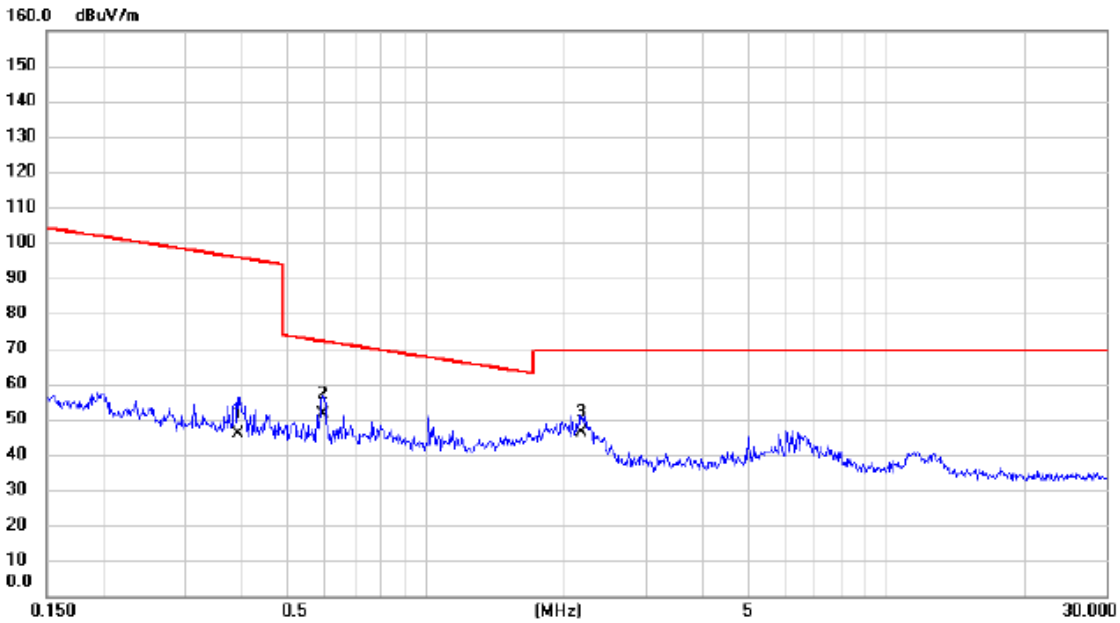


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0180	45.32	13.84	59.16	122.50	-63.34	AVG	
2		0.0360	32.56	12.79	45.35	116.48	-71.13	AVG	
3		0.0711	27.58	12.55	40.13	110.57	-70.44	AVG	

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

Test Mode:	TX G Mode Channel 01

Ant 0°

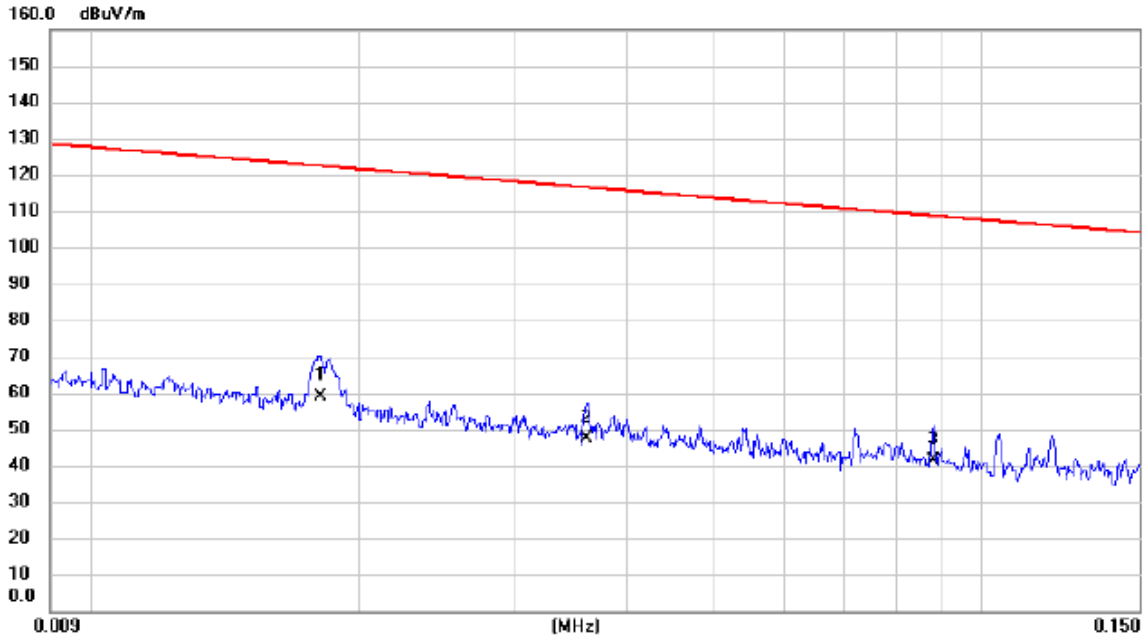


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.3914	33.45	12.29	45.74	95.75	-50.01	AVG	
2	*	0.5980	39.58	11.97	51.55	72.07	-20.52	QP	
3		2.1668	35.15	11.22	46.37	69.54	-23.17	QP	

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

Test Mode:	TX G Mode Channel 01

Ant 90°

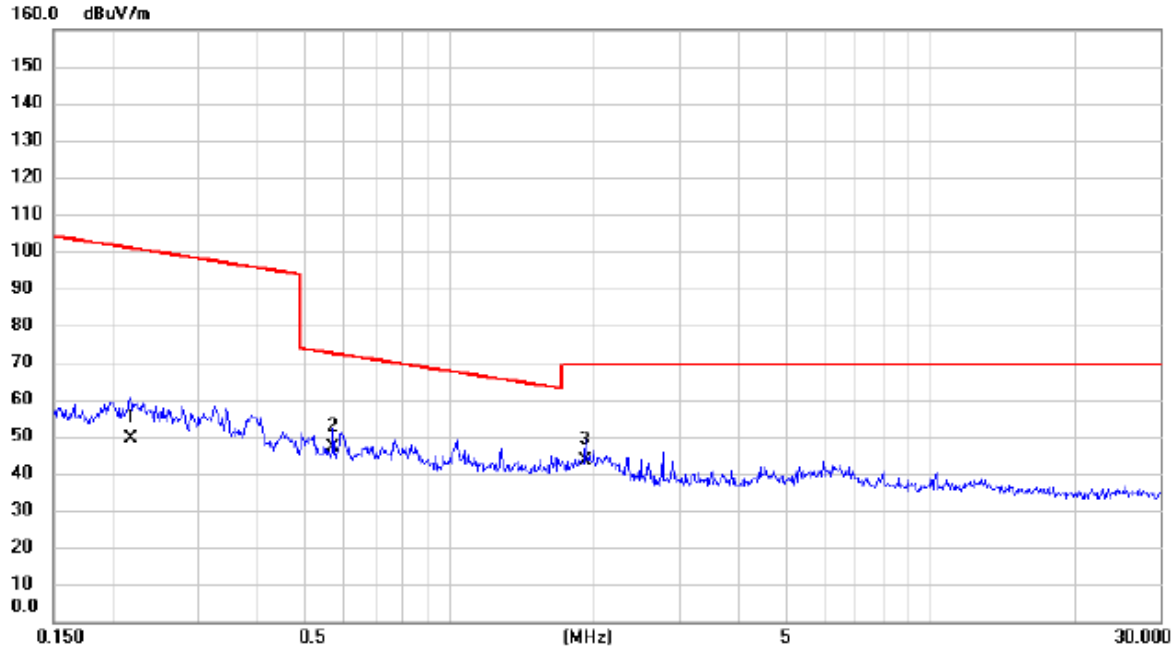


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0181	45.25	13.81	59.06	122.45	-63.39	AVG	
2		0.0360	34.63	12.79	47.42	116.48	-69.06	AVG	
3		0.0881	28.58	12.65	41.23	108.71	-67.48	AVG	

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

Test Mode:	TX G Mode Channel 01

Ant 90°



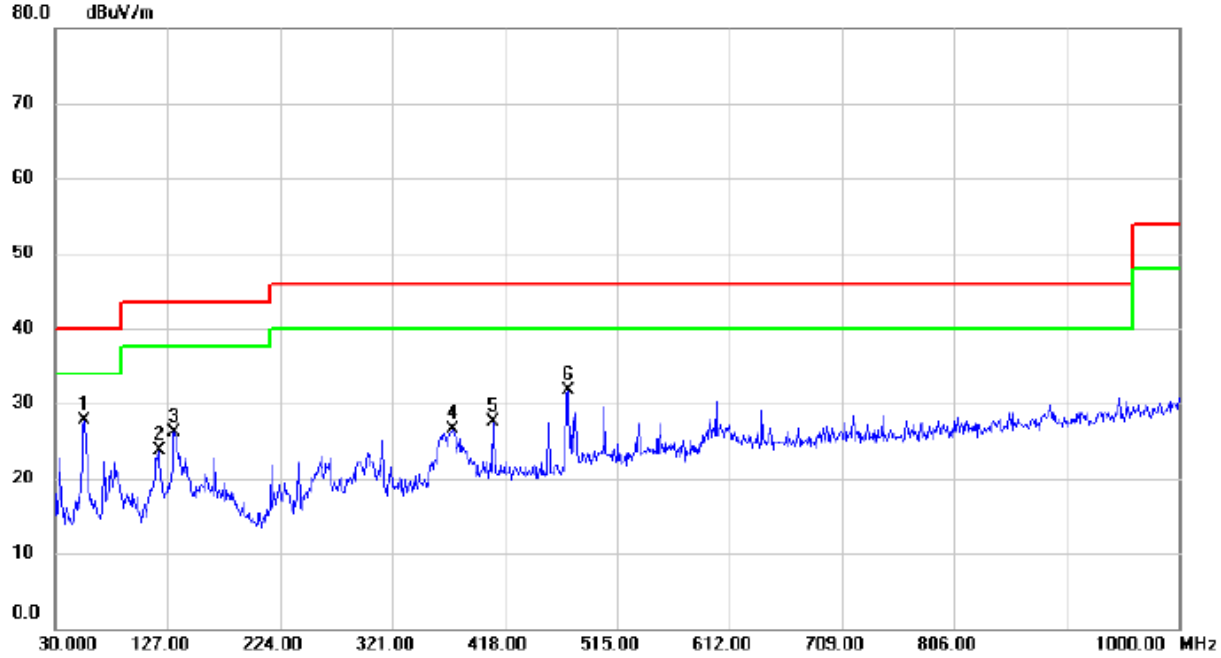
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.2174	36.65	12.72	49.37	100.86	-51.49	AVG	
2	*	0.5731	35.00	11.98	46.98	72.44	-25.46	QP	
3		1.9182	32.25	11.34	43.59	69.54	-25.95	QP	

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 G Mode Channel 01

Vertical

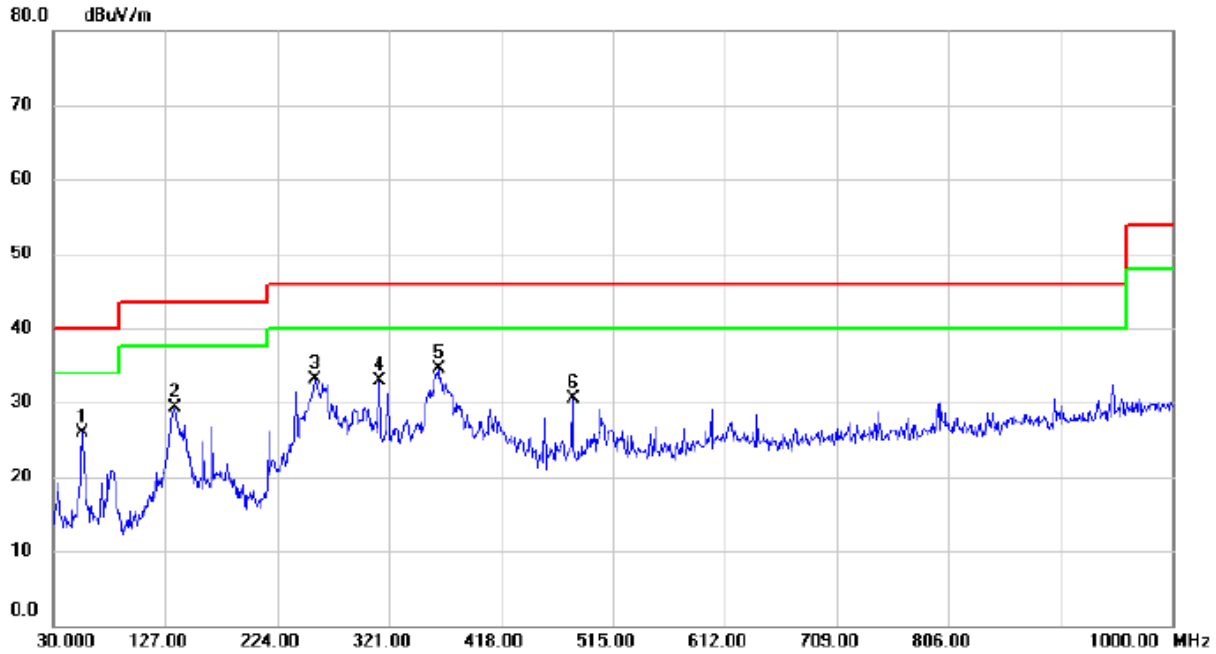


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	55.220	41.34	-13.68	27.66	40.00	-12.34	peak	
2		119.240	36.49	-12.85	23.64	43.50	-19.86	peak	
3		132.820	38.81	-12.69	26.12	43.50	-17.38	peak	
4		373.380	36.13	-9.65	26.48	46.00	-19.52	peak	
5		408.300	36.24	-8.78	27.46	46.00	-18.54	peak	
6		472.320	39.26	-7.47	31.79	46.00	-14.21	peak	

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

Test Mode:	TX G Mode Channel 01

Horizontal



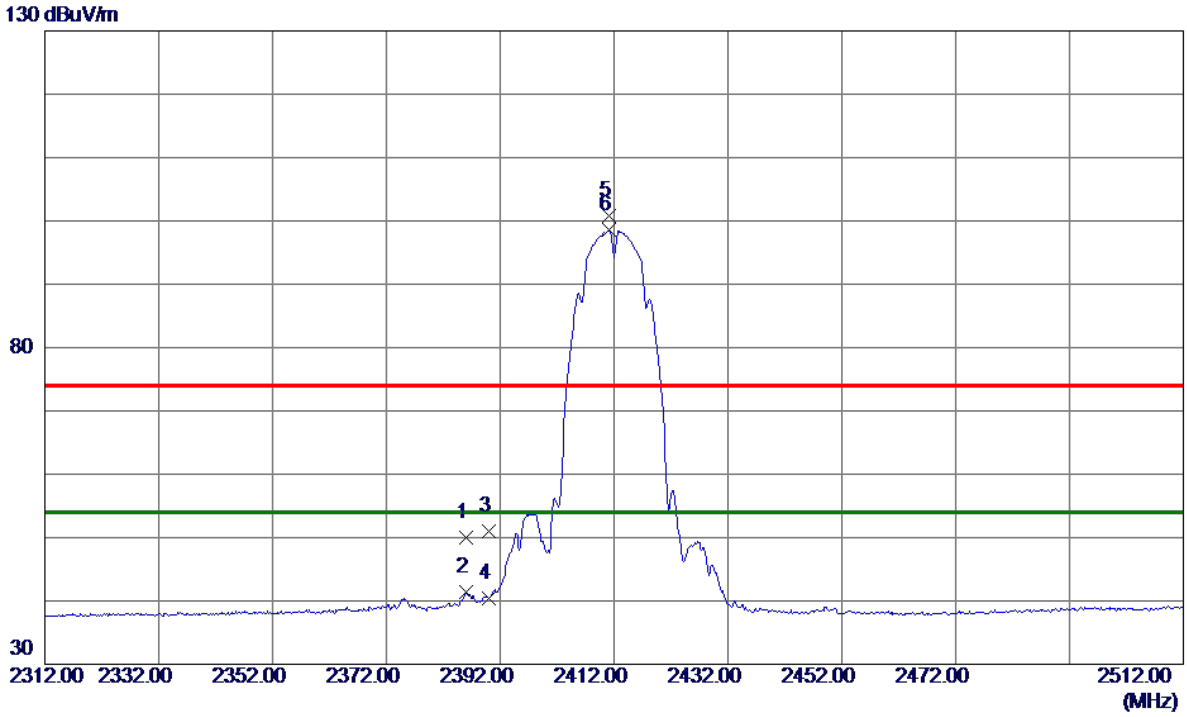
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		55.220	39.62	-13.68	25.94	40.00	-14.06	peak	
2		134.760	41.93	-12.65	29.28	43.50	-14.22	peak	
3		256.980	45.74	-12.55	33.19	46.00	-12.81	peak	
4		312.270	43.75	-10.80	32.95	46.00	-13.05	peak	
5	*	363.680	44.31	-9.87	34.44	46.00	-11.56	peak	
6		480.080	37.91	-7.41	30.50	46.00	-15.50	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	2386.0000	42.76	7.26	50.02	74.00	-23.98	Peak	
2	2386.0000	34.09	7.26	41.35	54.00	-12.65	AVG	
3	2390.0000	43.70	7.26	50.96	74.00	-23.04	Peak	
4	2390.0000	33.12	7.26	40.38	54.00	-13.62	AVG	
5	2411.2000	93.60	7.26	100.86	74.00	26.86	Peak	No Limit
6 *	2411.2000	91.28	7.26	98.54	54.00	44.54	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

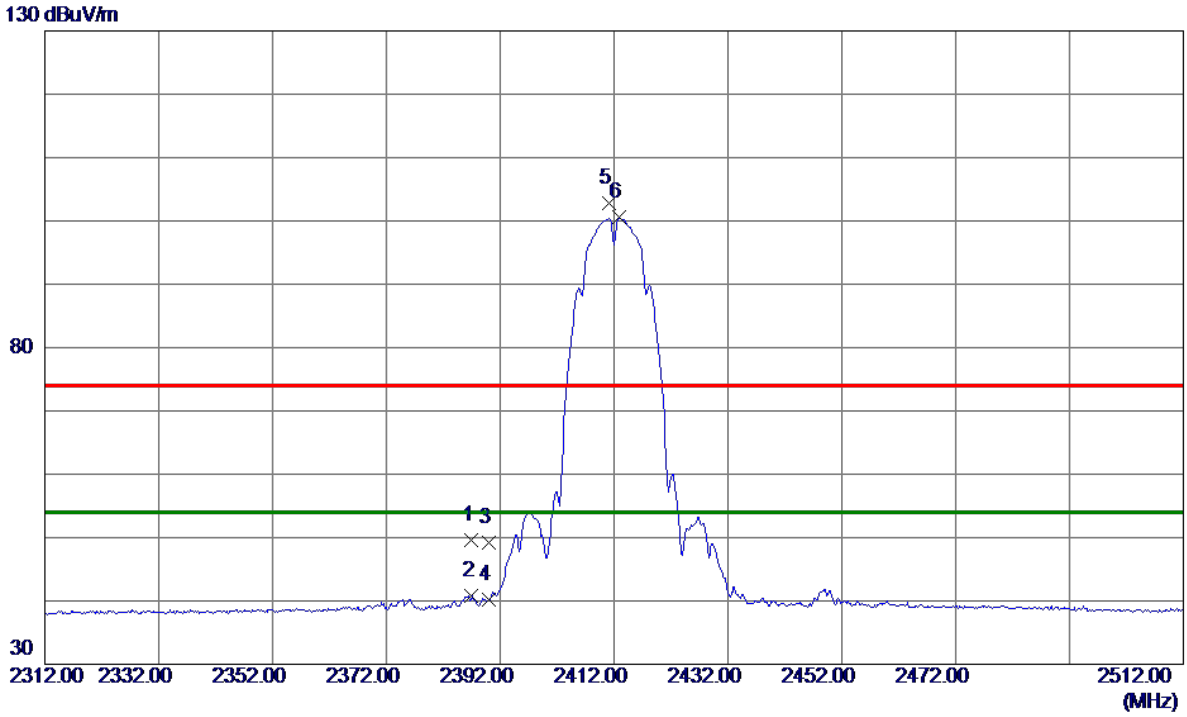
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4821.1230	39.69	4.44	44.13	54.00	-9.87	AVG	
2	4822.9830	42.19	4.45	46.64	74.00	-27.36	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	2387.0000	42.31	7.26	49.57	74.00	-24.43	Peak	
2	2387.0000	33.62	7.26	40.88	54.00	-13.12	AVG	
3	2390.0000	41.94	7.26	49.20	74.00	-24.80	Peak	
4	2390.0000	32.95	7.26	40.21	54.00	-13.79	AVG	
5	2411.2000	95.57	7.26	102.83	74.00	28.83	Peak	No Limit
6 *	2412.8000	93.40	7.26	100.66	54.00	46.66	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

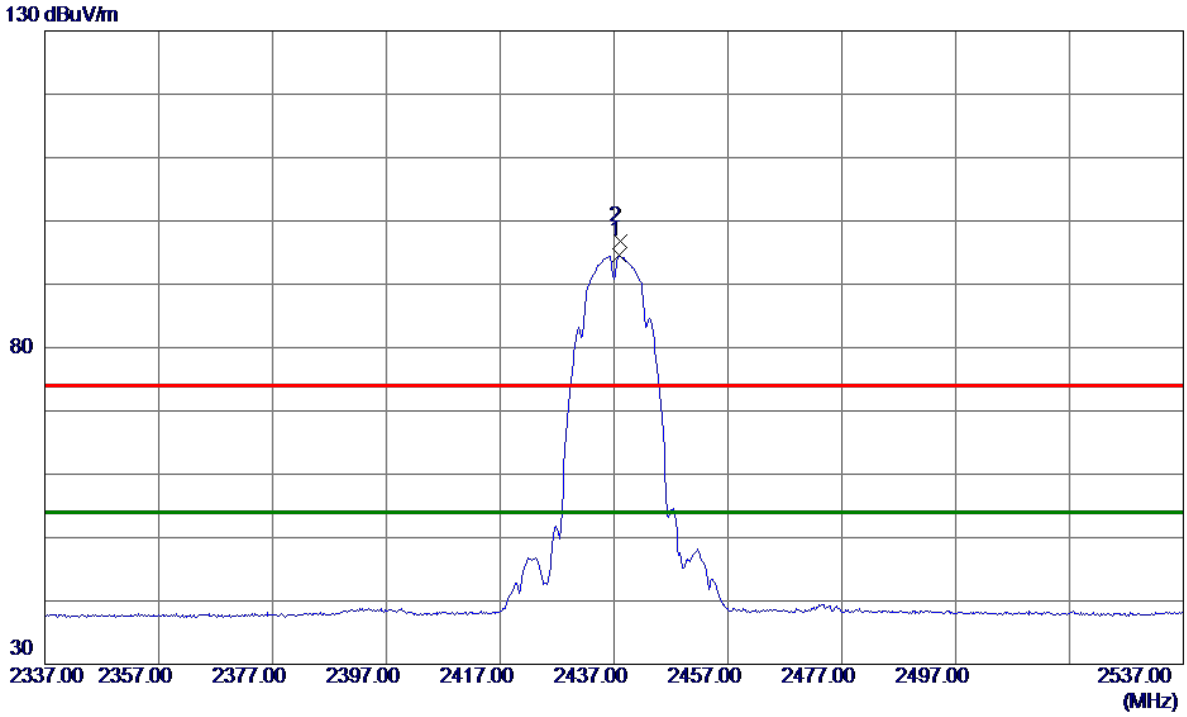
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.1690	35.91	4.45	40.36	54.00	-13.64	AVG	
2	4824.5710	41.90	4.45	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 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 *	2437.8000	87.34	7.25	94.59	54.00	40.59	AVG	No Limit
2	2438.0000	89.53	7.25	96.78	74.00	22.78	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

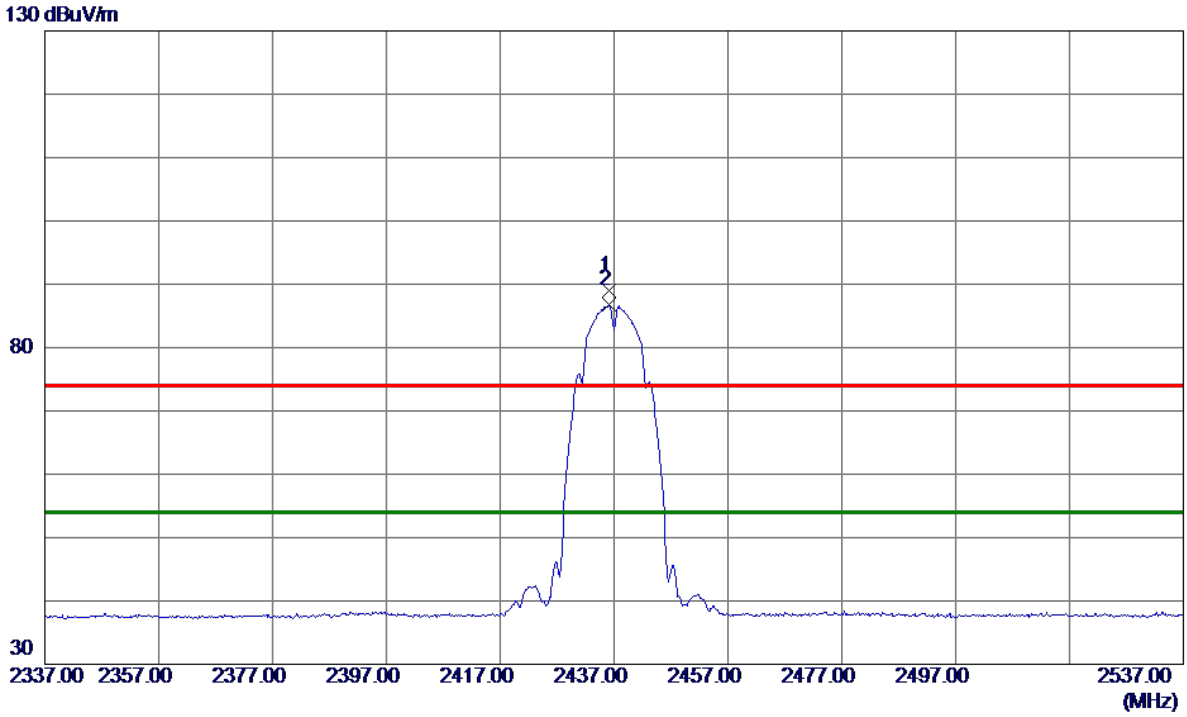
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9980	46.00	4.58	50.58	54.00	-3.42	AVG	
2	4874.0550	48.73	4.58	53.31	74.00	-20.69	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	2436.2000	81.76	7.25	89.01	74.00	15.01	Peak	No Limit
2 *	2436.2000	79.46	7.25	86.71	54.00	32.71	AVG	No Limit

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

Test Mode:	TX B Mode 2437 MHz

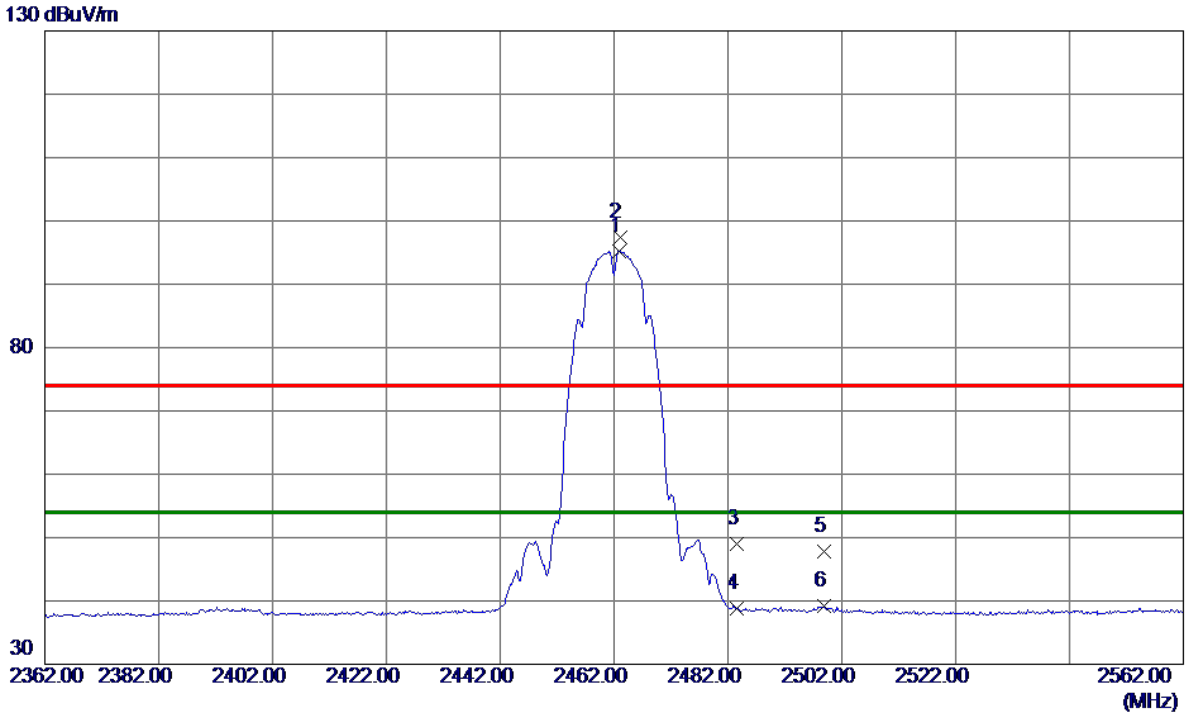
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9800	42.97	4.58	47.55	54.00	-6.45	AVG	
2	4874.1400	45.70	4.58	50.28	74.00	-23.72	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 *	2462.8000	88.03	7.25	95.28	54.00	41.28	AVG	No Limit
2	2463.0000	90.24	7.25	97.49	74.00	23.49	Peak	No Limit
3	2483.5000	41.80	7.25	49.05	74.00	-24.95	Peak	
4	2483.5000	31.64	7.25	38.89	54.00	-15.11	AVG	
5	2498.8000	40.56	7.25	47.81	74.00	-26.19	Peak	
6	2498.8000	31.95	7.25	39.20	54.00	-14.80	AVG	

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

Test Mode:	TX B Mode 2462 MHz

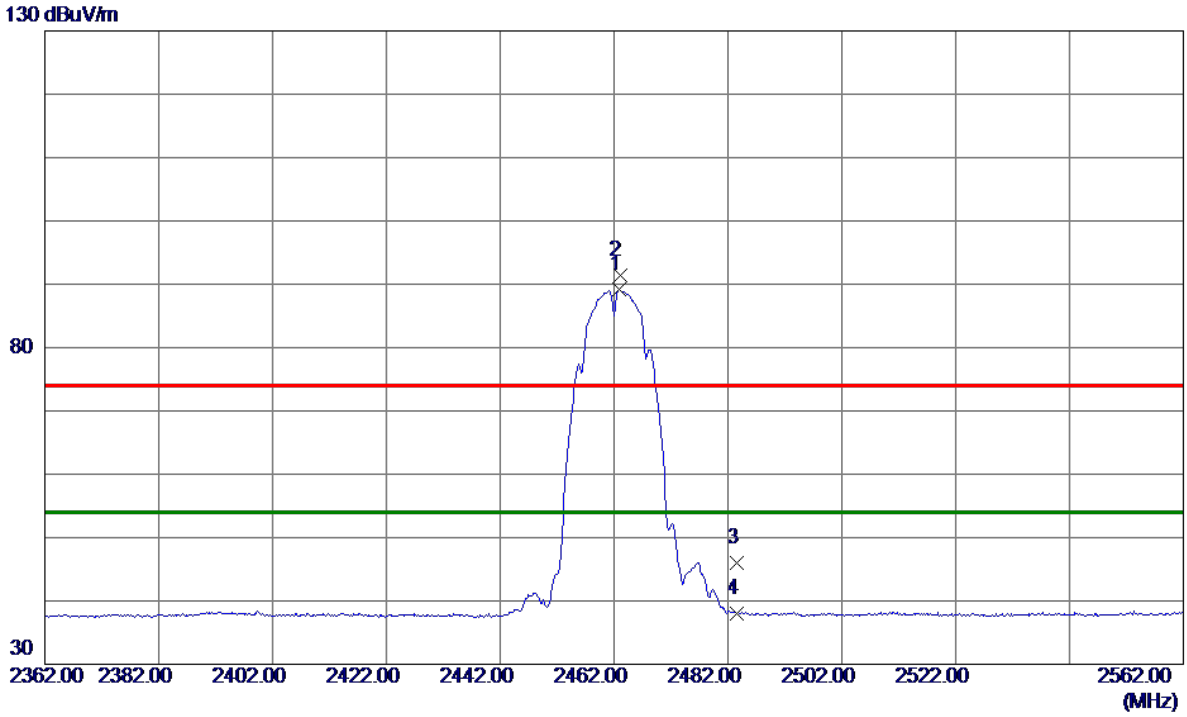
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.9750	45.77	4.72	50.49	54.00	-3.51	AVG	
2	4923.9980	48.40	4.72	53.12	74.00	-20.88	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 *	2462.8000	81.97	7.25	89.22	54.00	35.22	AVG	No Limit
2	2463.0000	84.17	7.25	91.42	74.00	17.42	Peak	No Limit
3	2483.5000	38.81	7.25	46.06	74.00	-27.94	Peak	
4	2483.5000	30.75	7.25	38.00	54.00	-16.00	AVG	

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

Test Mode:	TX B Mode 2462 MHz

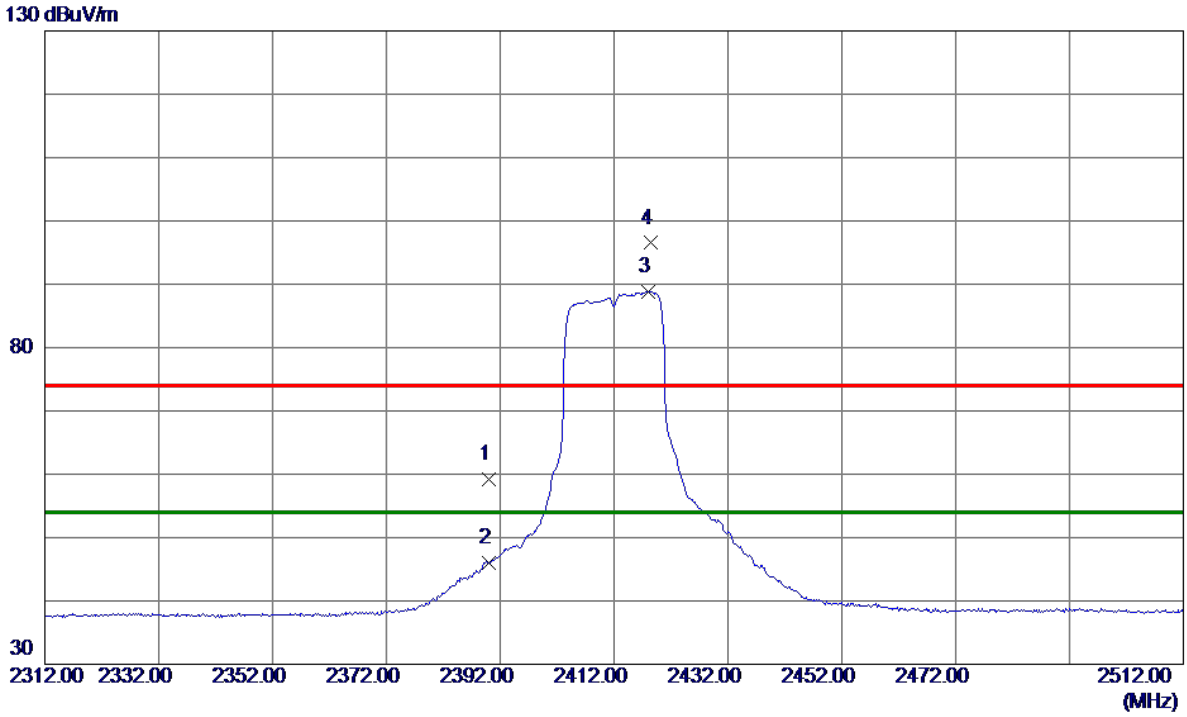
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.9800	46.65	4.72	51.37	74.00	-22.63	Peak	
2 *	4924.0099	43.82	4.72	48.54	54.00	-5.46	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	2390.0000	52.03	7.26	59.29	74.00	-14.71	Peak	
2	2390.0000	38.73	7.26	45.99	54.00	-8.01	AVG	
3 *	2418.0000	81.50	7.26	88.76	54.00	34.76	AVG	No Limit
4	2418.4000	89.24	7.26	96.50	74.00	22.50	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

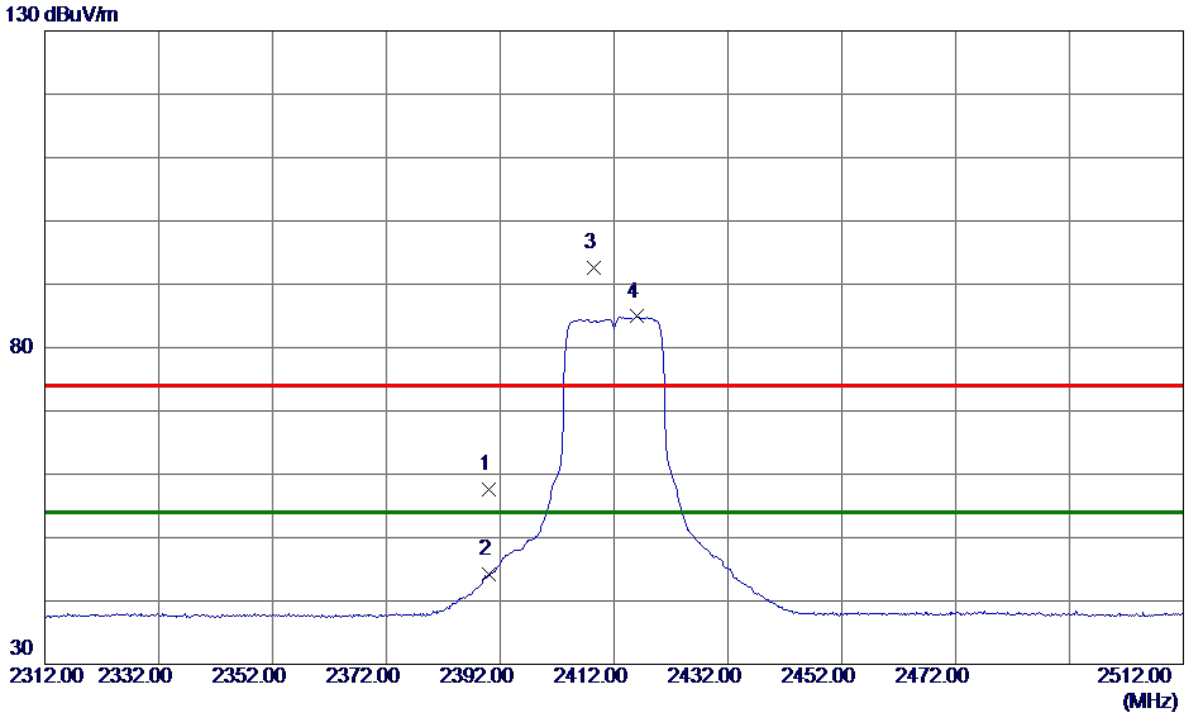
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.5750	36.53	4.45	40.98	54.00	-13.02	AVG	
2	4825.0250	47.07	4.45	51.52	74.00	-22.48	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	50.40	7.26	57.66	74.00	-16.34	Peak	
2	2390.0000	36.85	7.26	44.11	54.00	-9.89	AVG	
3	2408.4000	85.30	7.26	92.56	74.00	18.56	Peak	No Limit
4 *	2416.0000	77.64	7.26	84.90	54.00	30.90	AVG	No Limit

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

Test Mode:	TX G Mode 2412 MHz

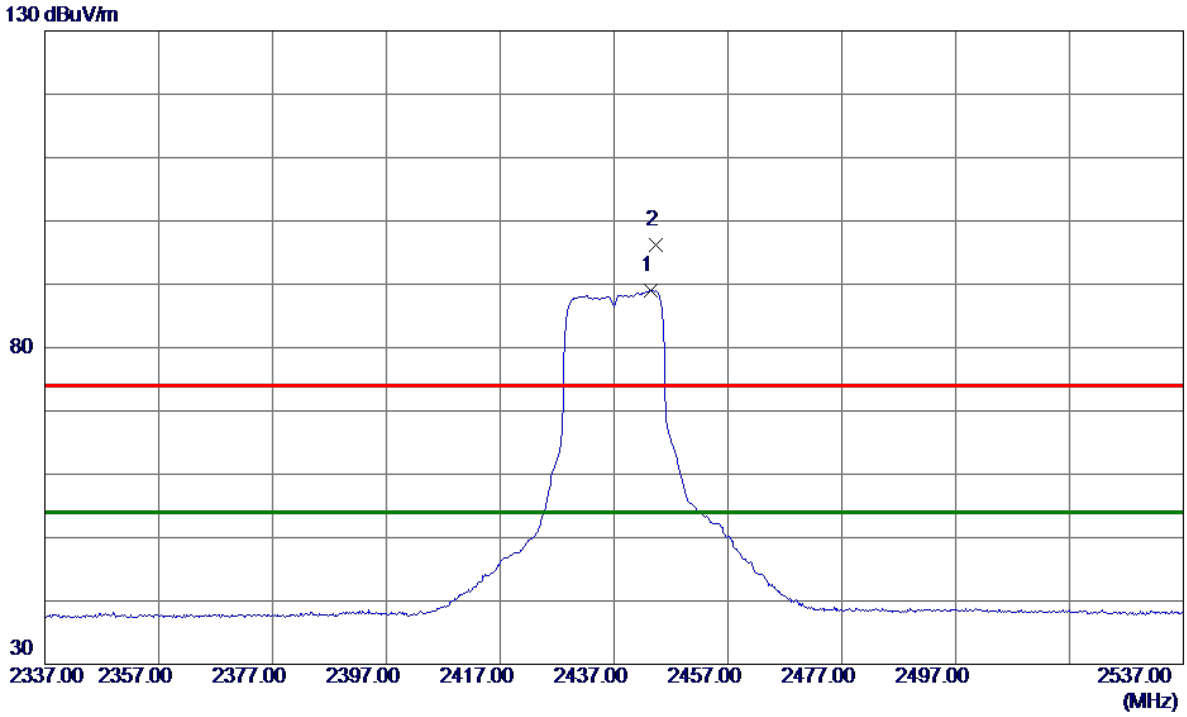
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4821.6250	42.20	4.44	46.64	74.00	-27.36	Peak	
2 *	4824.5250	31.74	4.45	36.19	54.00	-17.81	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 *	2443.4000	81.73	7.25	88.98	54.00	34.98	AVG	No Limit
2	2444.4000	89.02	7.25	96.27	74.00	22.27	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

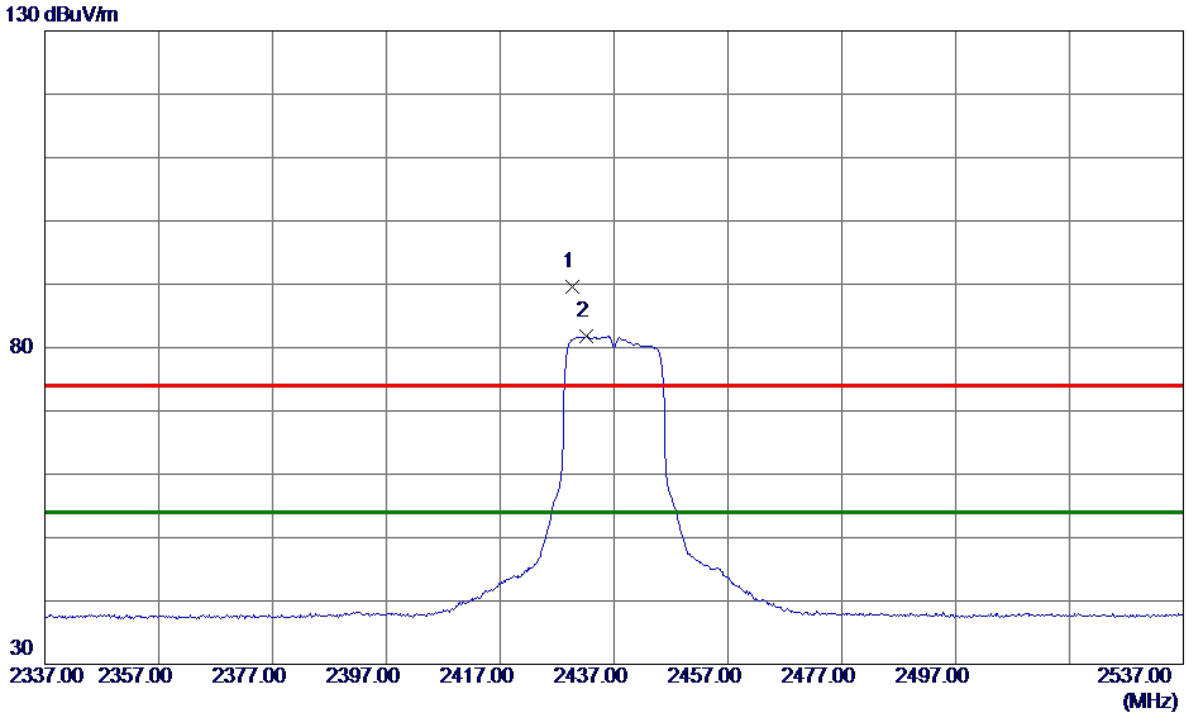
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4867.4500	44.92	4.57	49.49	74.00	-24.51	Peak	
2 *	4874.6500	35.00	4.59	39.59	54.00	-14.41	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	2429.6000	82.37	7.25	89.62	74.00	15.62	Peak	No Limit
2 *	2432.2000	74.57	7.25	81.82	54.00	27.82	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

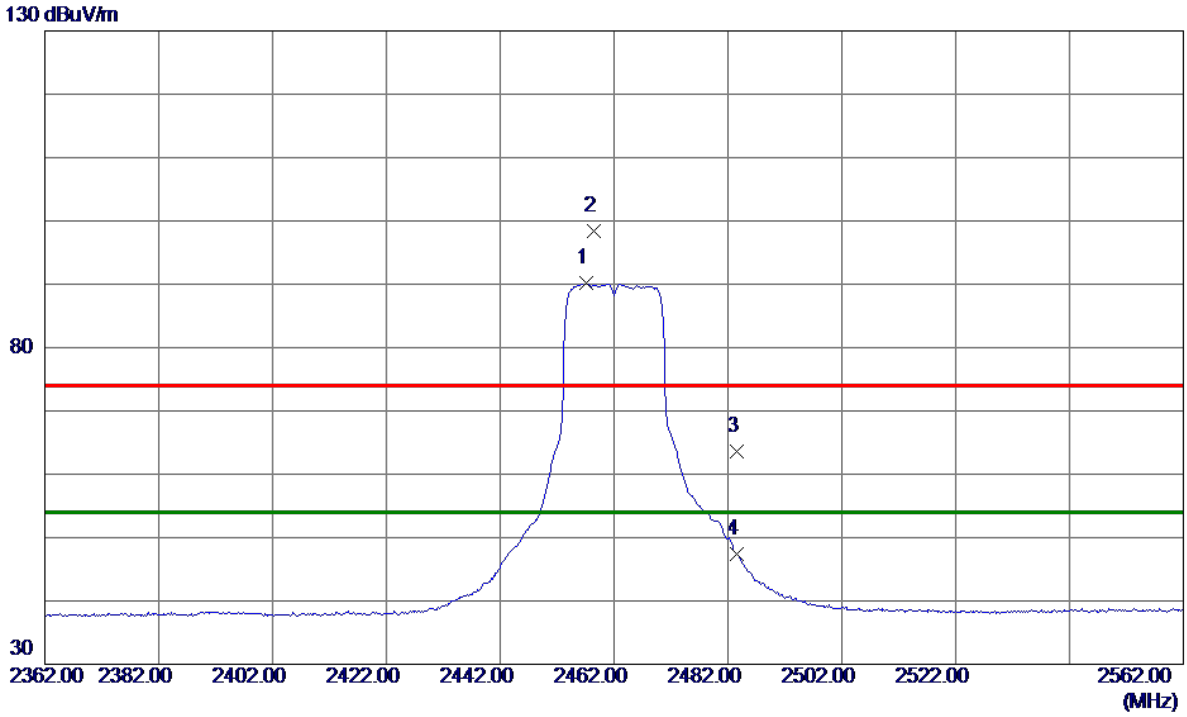
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.7000	42.02	4.58	46.60	74.00	-27.40	Peak	
2 *	4874.4750	32.01	4.58	36.59	54.00	-17.41	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 *	2457.2000	82.86	7.25	90.11	54.00	36.11	AVG	No Limit
2	2458.4000	91.13	7.25	98.38	74.00	24.38	Peak	No Limit
3	2483.5000	56.36	7.25	63.61	74.00	-10.39	Peak	
4	2483.5000	40.21	7.25	47.46	54.00	-6.54	AVG	

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

Test Mode:	TX G Mode 2462 MHz

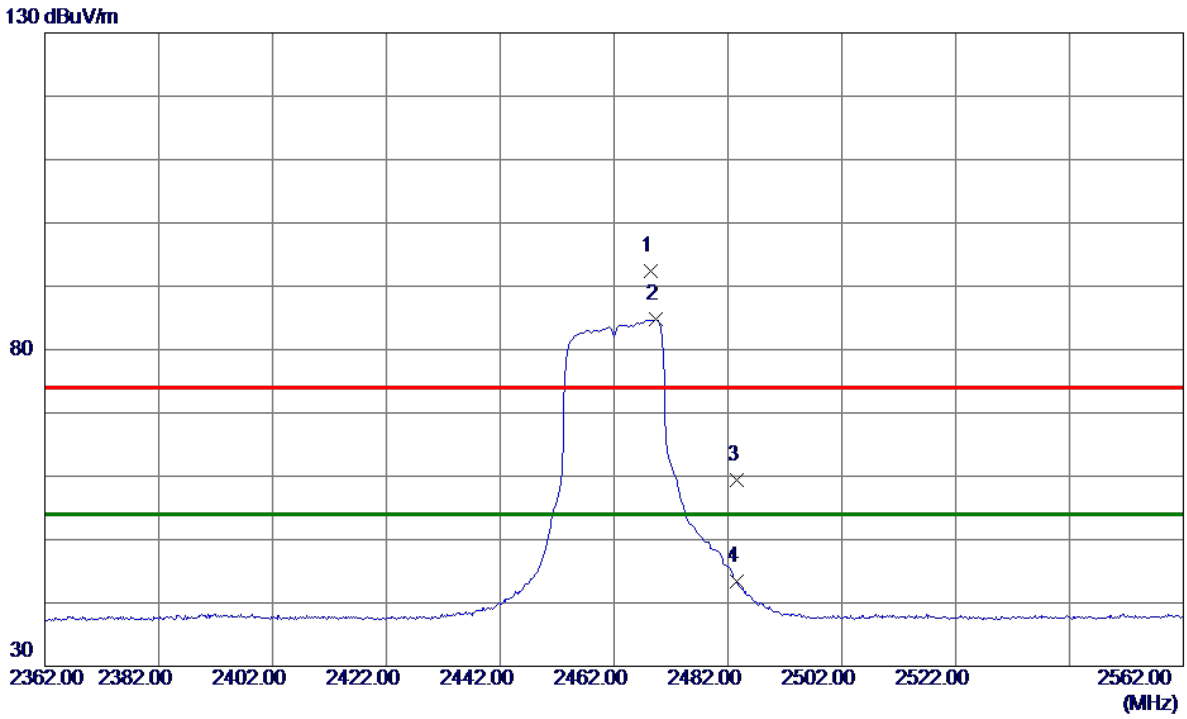
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.6750	36.51	4.72	41.23	54.00	-12.77	AVG	
2	4926.0250	46.68	4.72	51.40	74.00	-22.60	Peak	

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

Test Mode:	TX G Mode 2462 MHz

Horizontal

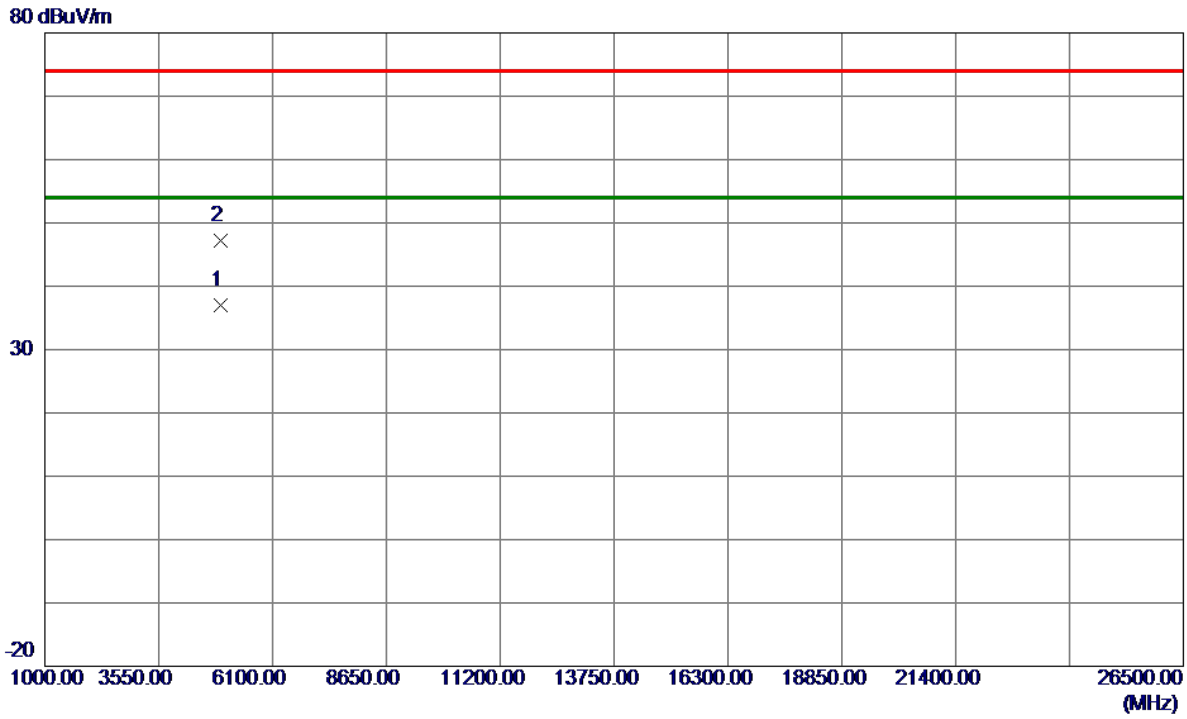


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2468.4000	85.15	7.25	92.40	74.00	18.40	Peak	No Limit
2 *	2469.4000	77.47	7.25	84.72	54.00	30.72	AVG	No Limit
3	2483.5000	52.06	7.25	59.31	74.00	-14.69	Peak	
4	2483.5000	36.24	7.25	43.49	54.00	-10.51	AVG	

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

Test Mode:	TX G Mode 2462 MHz

Horizontal

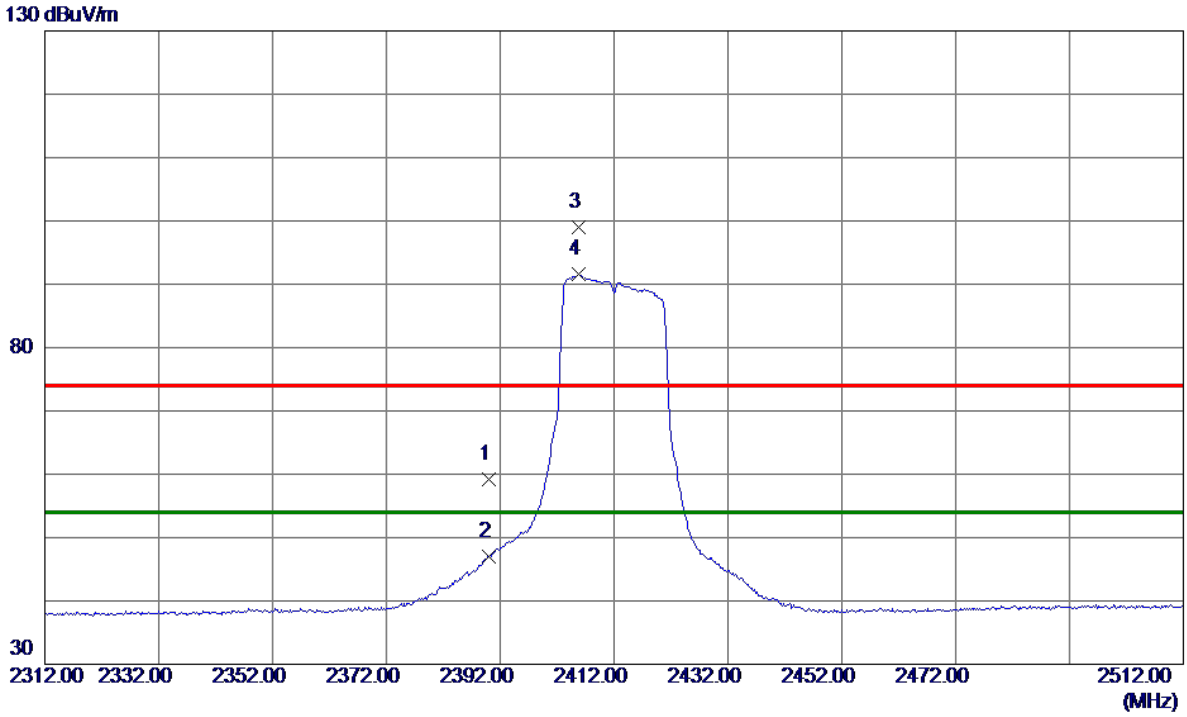


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.7750	32.22	4.72	36.94	54.00	-17.06	AVG	
2	4931.0750	42.54	4.74	47.28	74.00	-26.72	Peak	

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

Test Mode:	TX N-20M Mode 2412 MHz

Vertical

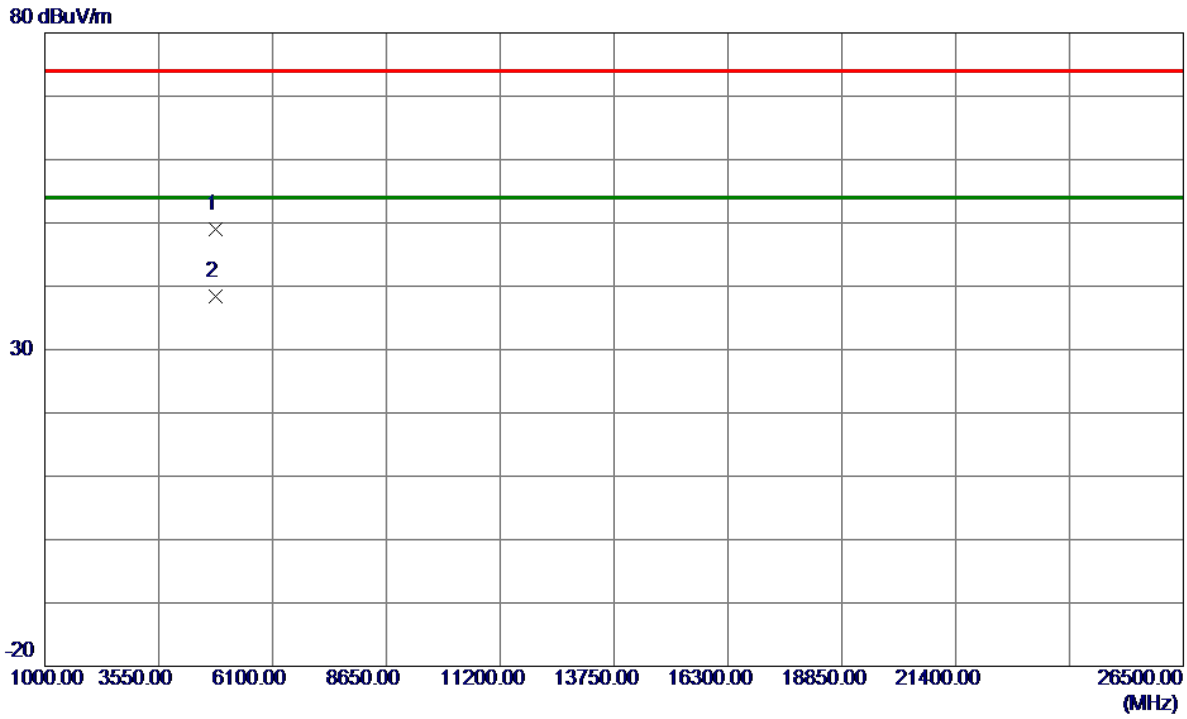


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	51.92	7.26	59.18	74.00	-14.82	Peak	
2	2390.0000	39.66	7.26	46.92	54.00	-7.08	AVG	
3	2405.8000	91.73	7.26	98.99	74.00	24.99	Peak	No Limit
4 *	2405.8000	84.25	7.26	91.51	54.00	37.51	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

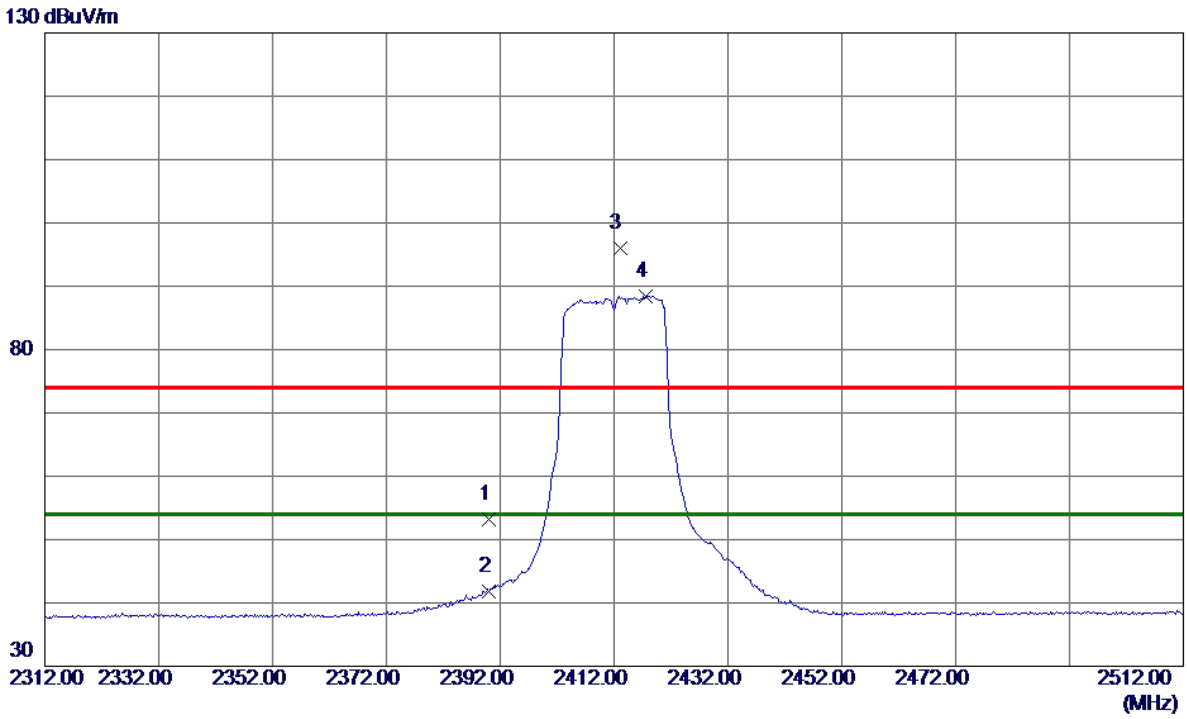


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4822.6750	44.60	4.45	49.05	74.00	-24.95	Peak	
2 *	4825.3750	34.04	4.45	38.49	54.00	-15.51	AVG	

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

Test Mode:	TX N-20M Mode 2412 MHz

Horizontal

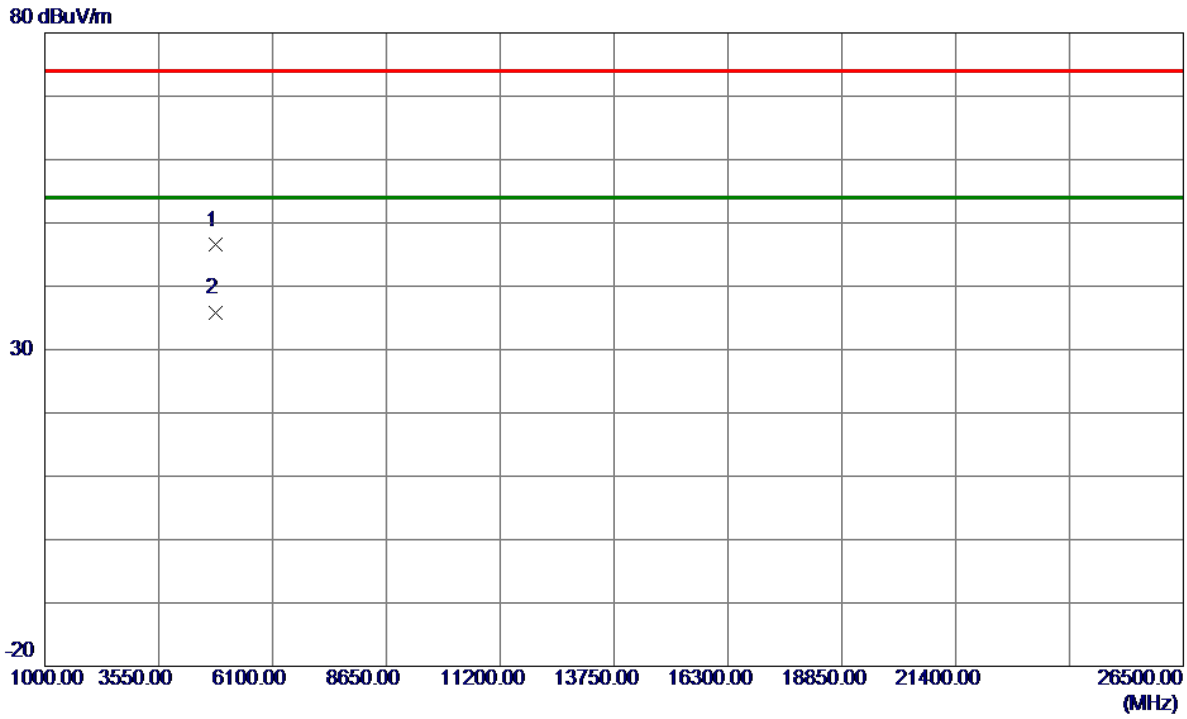


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	46.00	7.26	53.26	74.00	-20.74	Peak	
2	2390.0000	34.55	7.26	41.81	54.00	-12.19	AVG	
3	2413.0000	88.73	7.26	95.99	74.00	21.99	Peak	No Limit
4 *	2417.6000	81.15	7.26	88.41	54.00	34.41	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

Horizontal

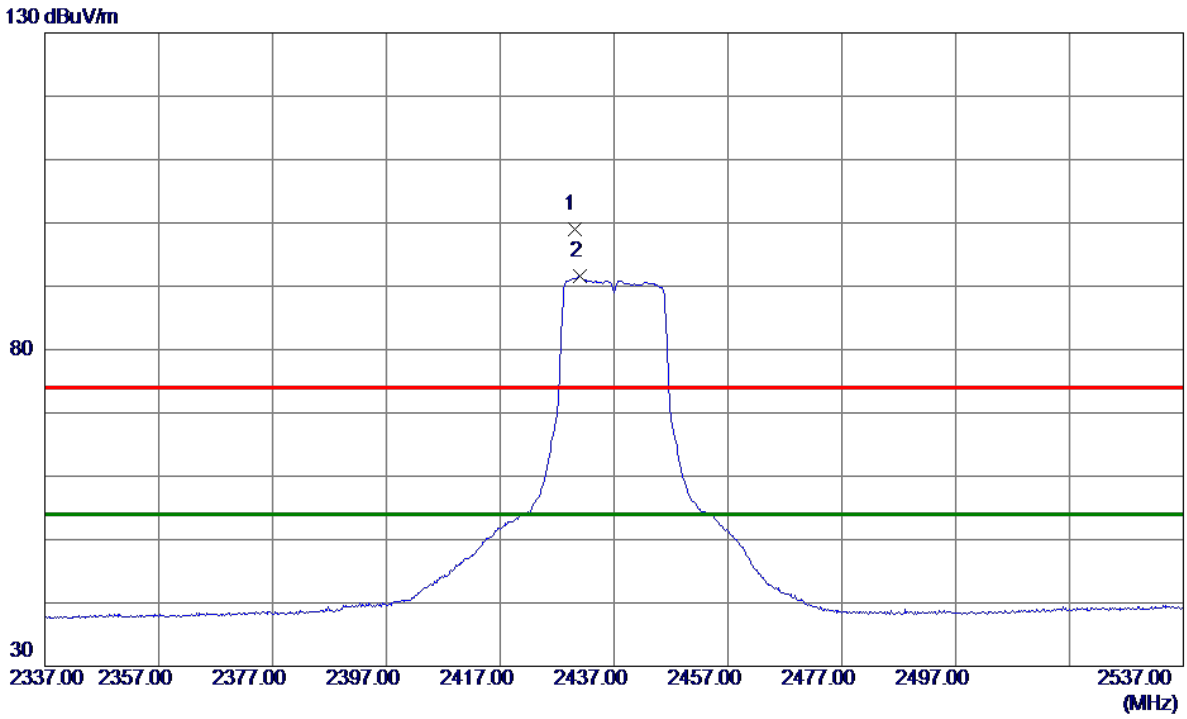


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4821.7250	42.06	4.44	46.50	74.00	-27.50	Peak	
2 *	4822.8250	31.37	4.45	35.82	54.00	-18.18	AVG	

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

Test Mode:	TX N-20M Mode 2437 MHz

Vertical

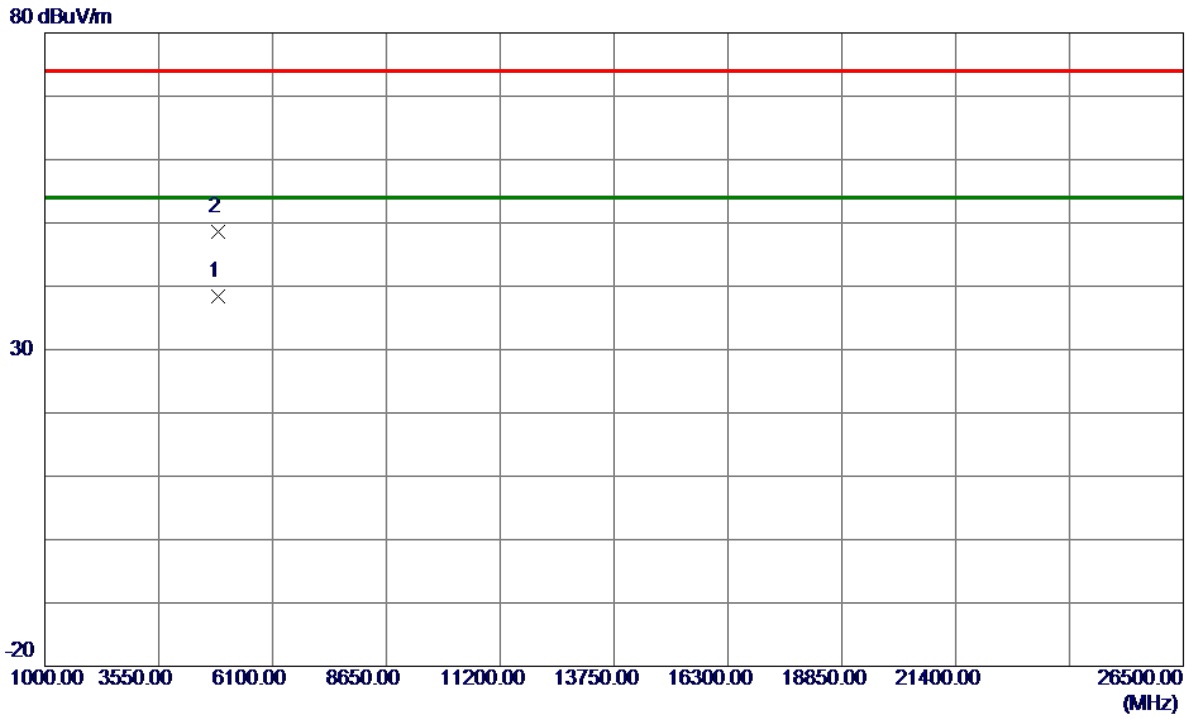


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2430.0000	91.80	7.25	99.05	74.00	25.05	Peak	No Limit
2 *	2431.0000	84.27	7.25	91.52	54.00	37.52	AVG	No Limit

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

Test Mode:	TX N-20M Mode 2437 MHz

Vertical

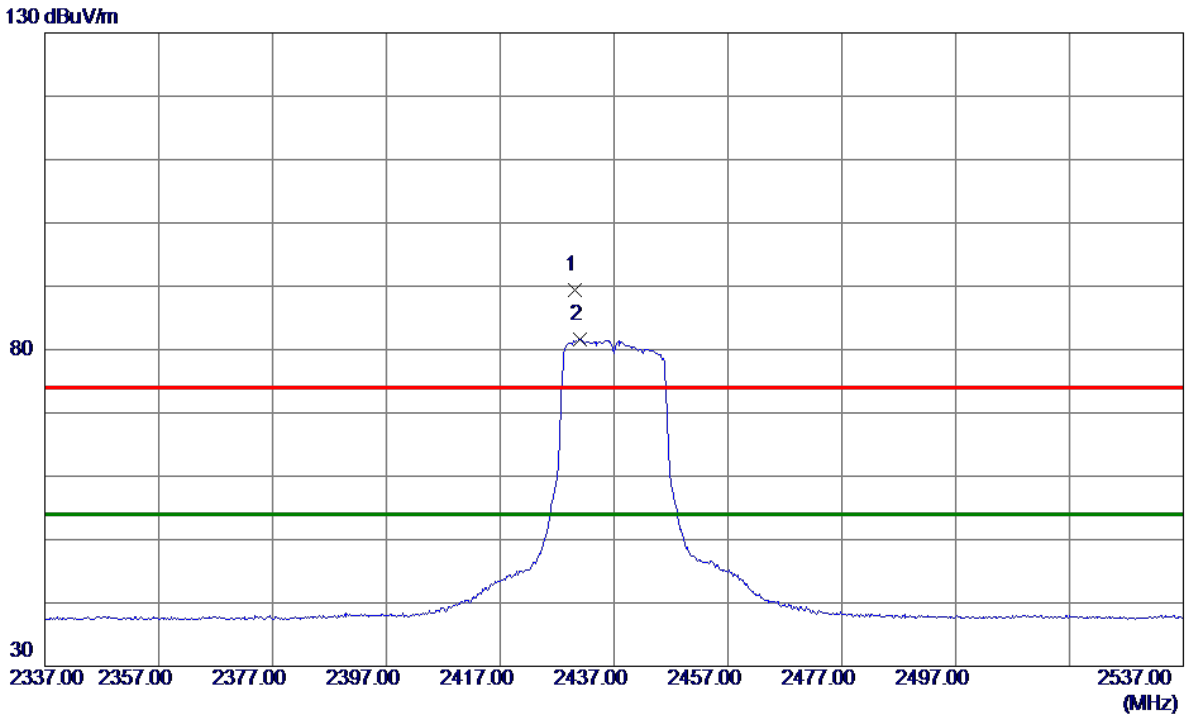


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4872.9000	33.80	4.58	38.38	54.00	-15.62	AVG	
2	4876.6750	44.04	4.59	48.63	74.00	-25.37	Peak	

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

Test Mode:	TX N-20M Mode 2437 MHz

Horizontal

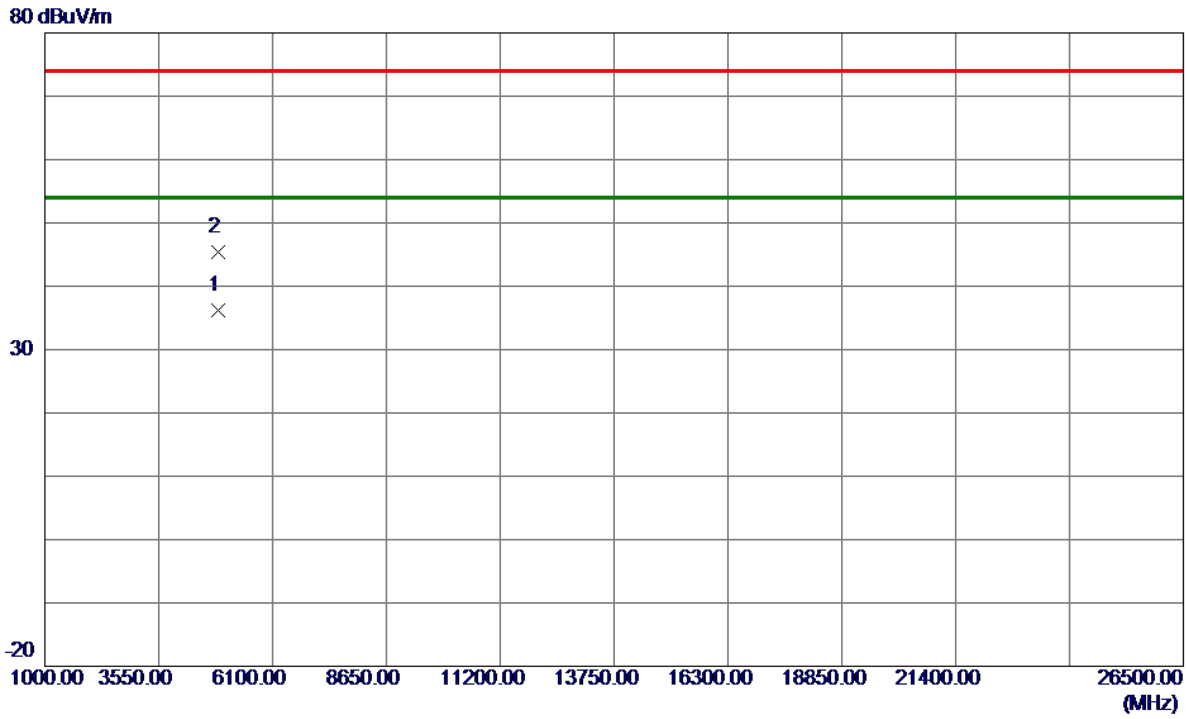


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2430.2000	82.06	7.25	89.31	74.00	15.31	Peak	No Limit
2 *	2431.0000	74.44	7.25	81.69	54.00	27.69	AVG	No Limit

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

Test Mode:	TX N-20M Mode 2437 MHz

Horizontal

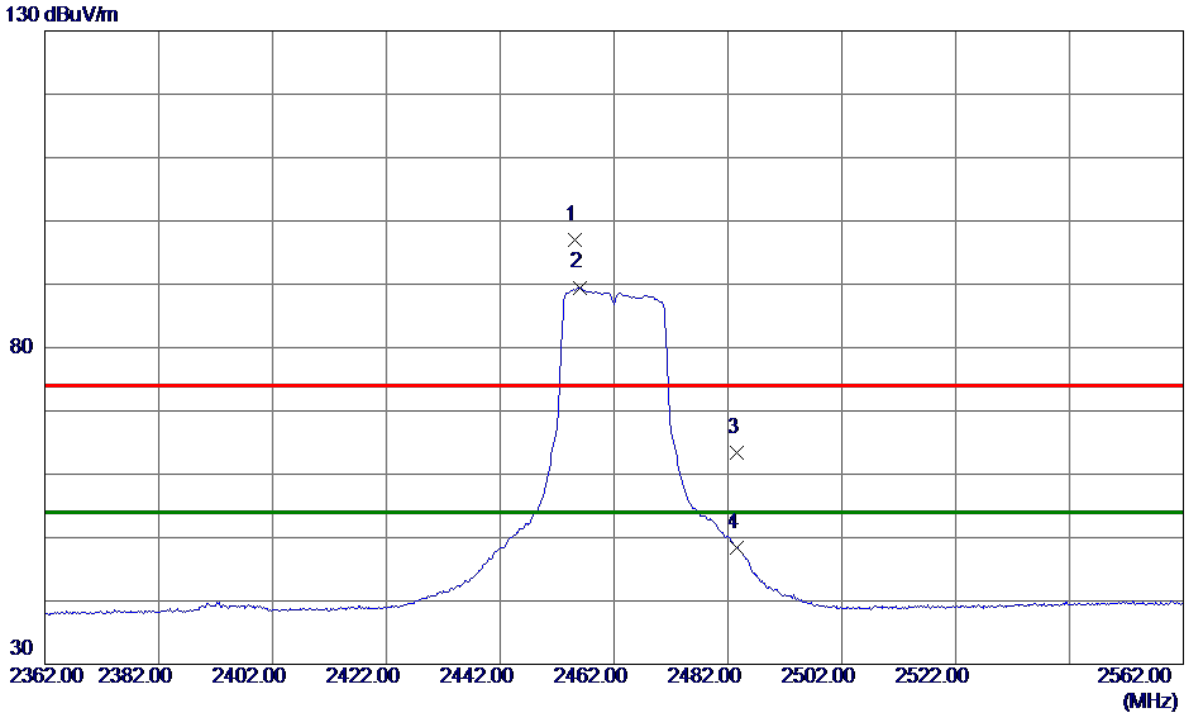


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4872.7500	31.67	4.58	36.25	54.00	-17.75	AVG	
2	4873.4000	40.85	4.58	45.43	74.00	-28.57	Peak	

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

Test Mode:	TX N-20M Mode 2462 MHz

Vertical

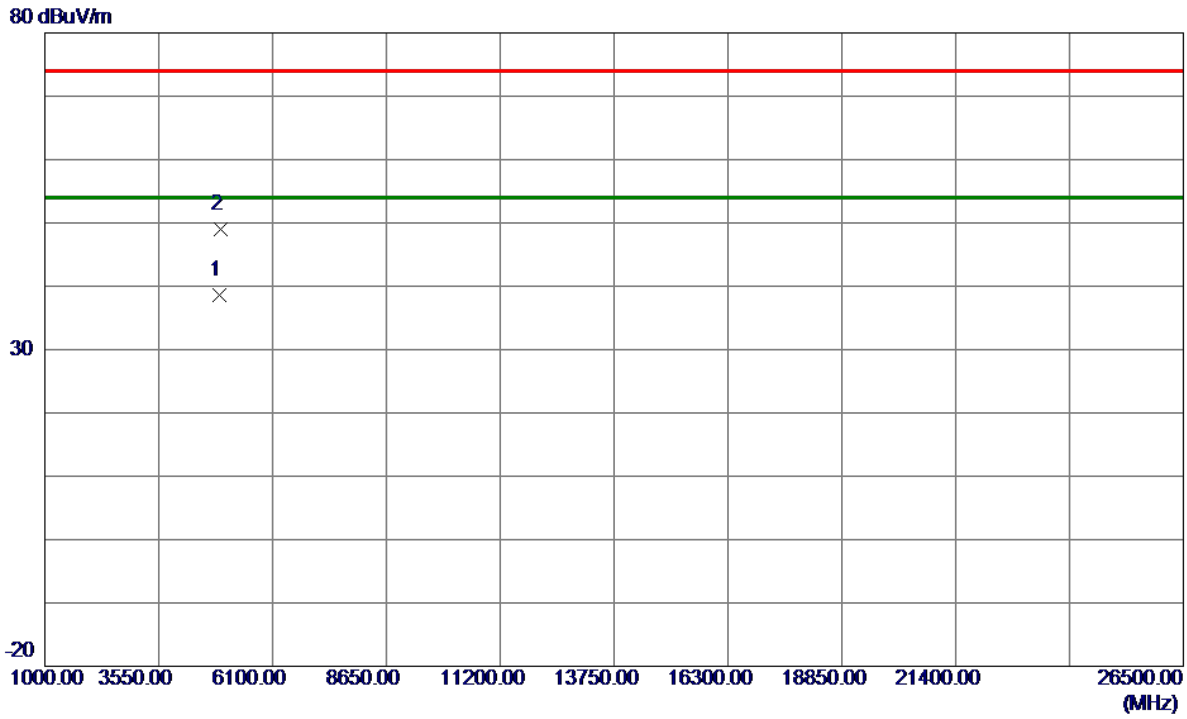


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2455.2000	89.85	7.25	97.10	74.00	23.10	Peak	No Limit
2 *	2456.0000	82.25	7.25	89.50	54.00	35.50	AVG	No Limit
3	2483.5000	56.10	7.25	63.35	74.00	-10.65	Peak	
4	2483.5000	41.21	7.25	48.46	54.00	-5.54	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

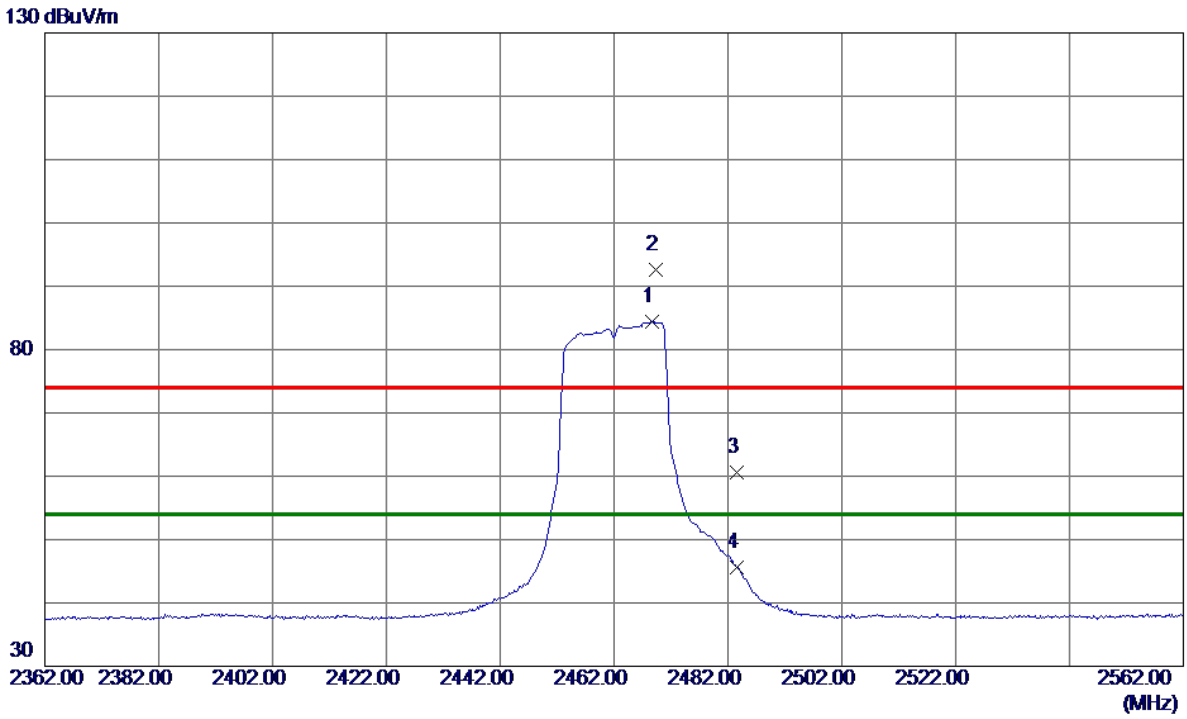


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4922.6000	33.95	4.71	38.66	54.00	-15.34	AVG	
2	4924.6500	44.32	4.72	49.04	74.00	-24.96	Peak	

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

Test Mode:	TX N-20M Mode 2462 MHz

Horizontal

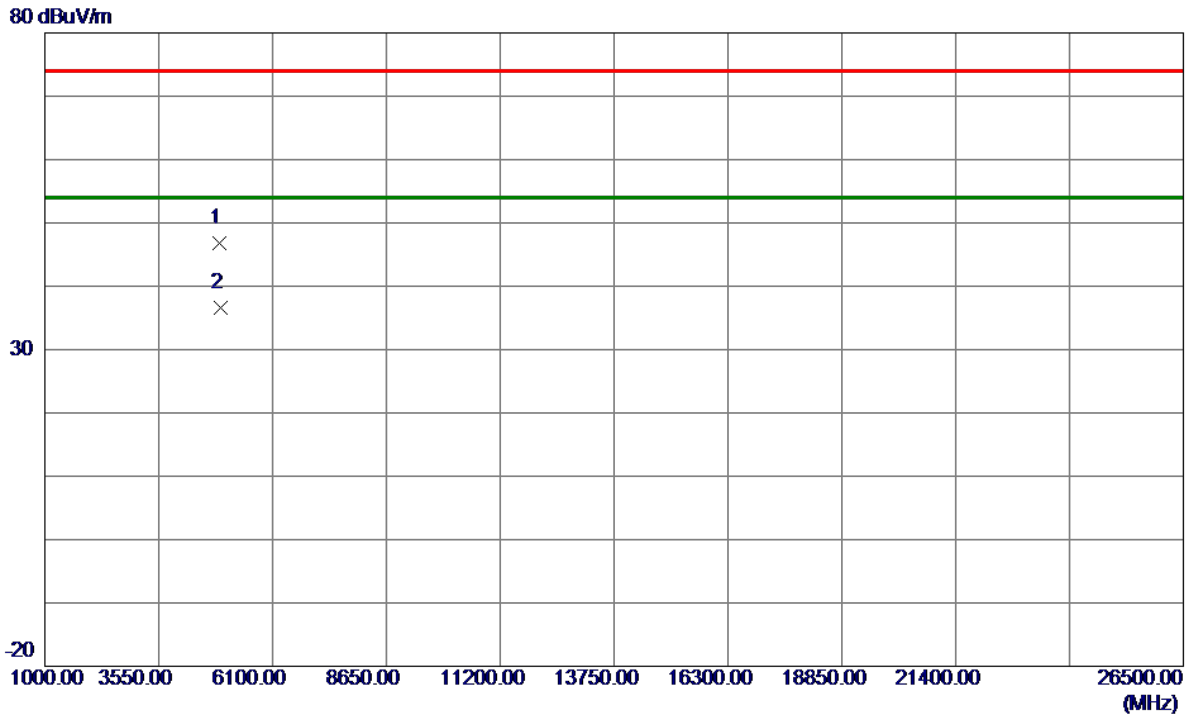


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2468.6000	77.12	7.25	84.37	54.00	30.37	AVG	No Limit
2	2469.4000	85.31	7.25	92.56	74.00	18.56	Peak	No Limit
3	2483.5000	53.31	7.25	60.56	74.00	-13.44	Peak	
4	2483.5000	38.40	7.25	45.65	54.00	-8.35	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

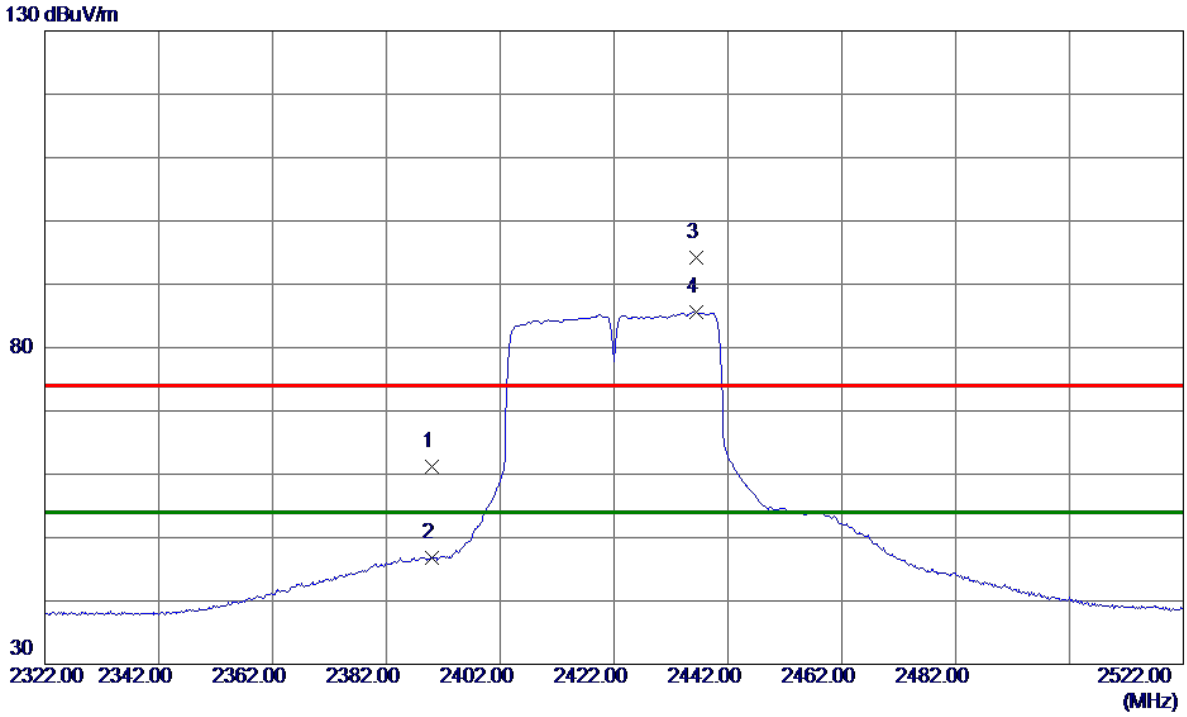


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4914.2500	42.06	4.69	46.75	74.00	-27.25	Peak	
2 *	4925.6000	31.90	4.72	36.62	54.00	-17.38	AVG	

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

Test Mode:	TX N-40M Mode 2422MHz

Vertical

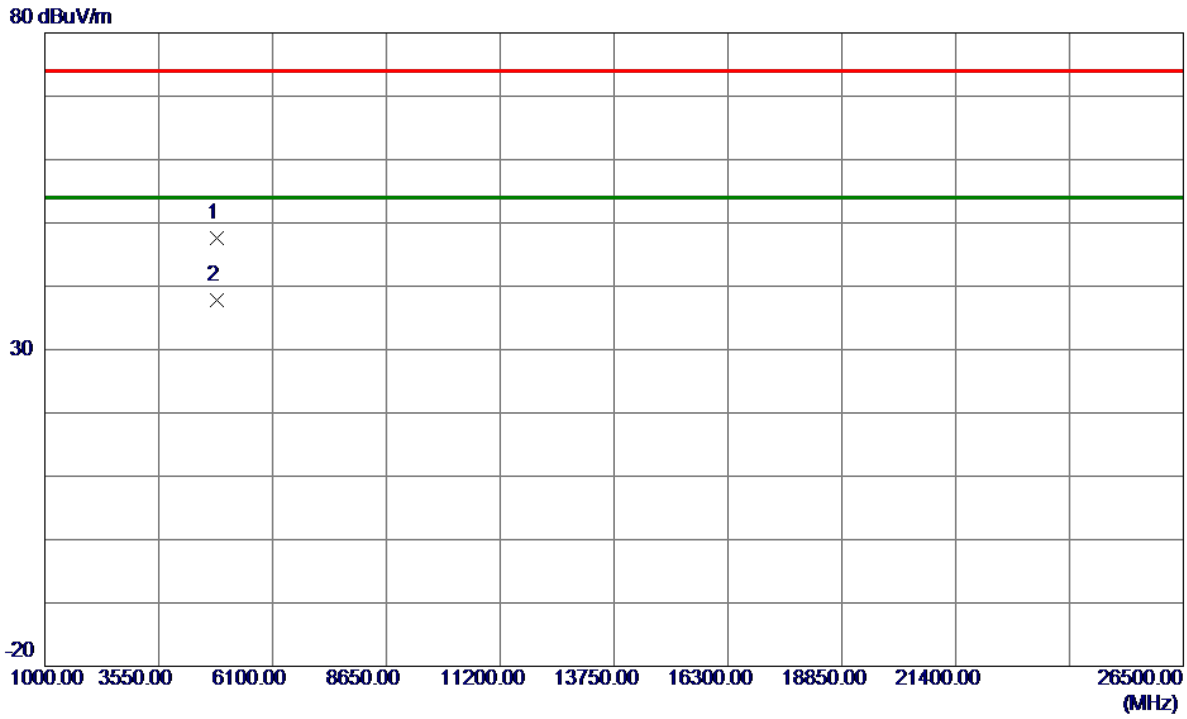


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	53.92	7.26	61.18	74.00	-12.82	Peak	
2	2390.0000	39.50	7.26	46.76	54.00	-7.24	AVG	
3	2436.4000	86.86	7.25	94.11	74.00	20.11	Peak	No Limit
4 *	2436.4000	78.29	7.25	85.54	54.00	31.54	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

Vertical

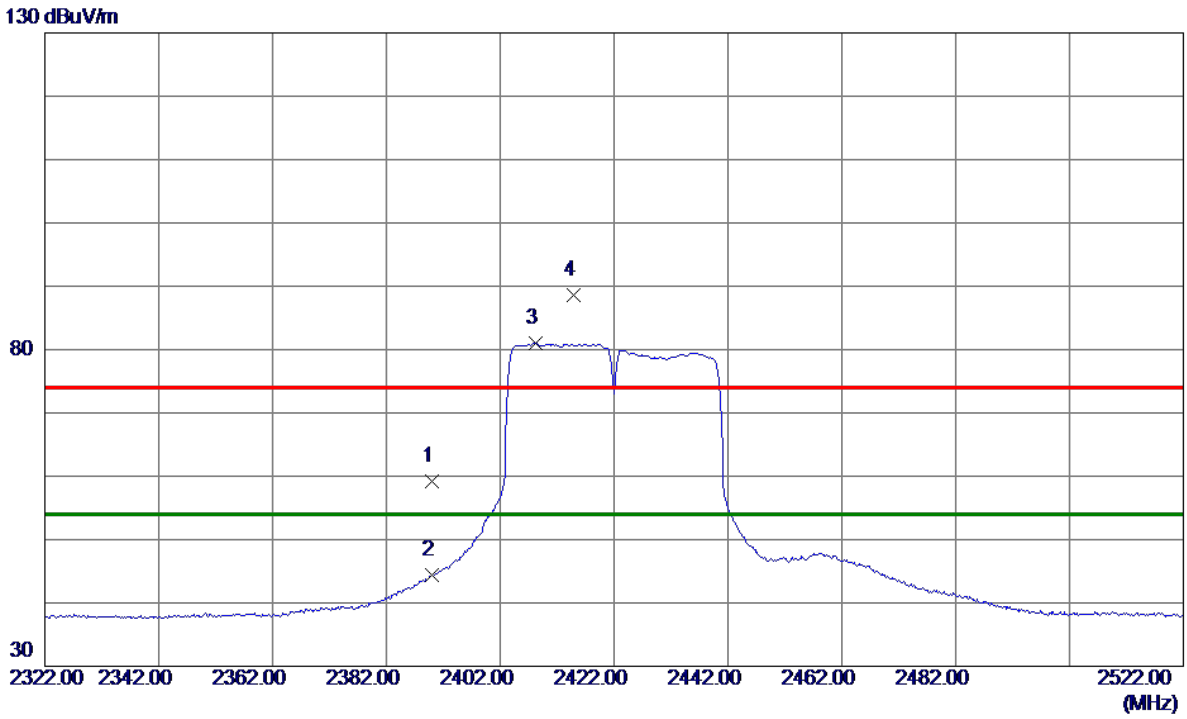


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4844.0000	43.09	4.50	47.59	74.00	-26.41	Peak	
2 *	4847.9500	33.26	4.51	37.77	54.00	-16.23	AVG	

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

Test Mode:	TX N-40M Mode 2422MHz

Horizontal

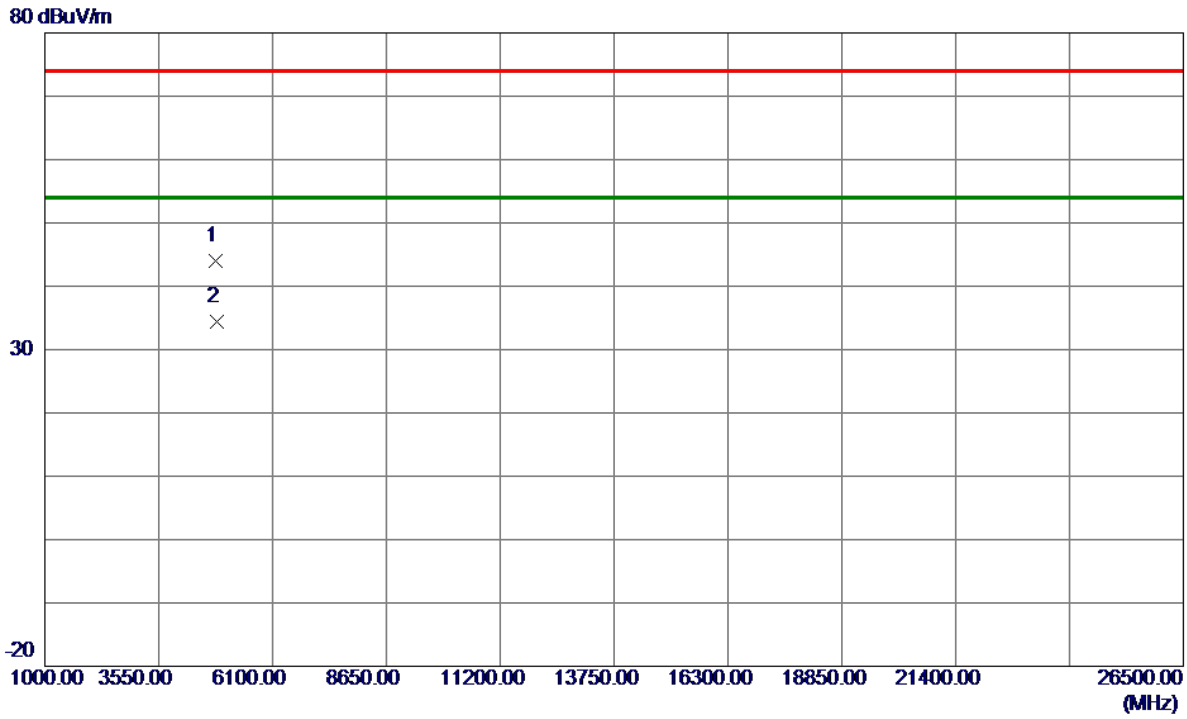


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	51.98	7.26	59.24	74.00	-14.76	Peak	
2	2390.0000	37.07	7.26	44.33	54.00	-9.67	AVG	
3 *	2408.2000	73.75	7.26	81.01	54.00	27.01	AVG	No Limit
4	2414.8000	81.32	7.26	88.58	74.00	14.58	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

Horizontal

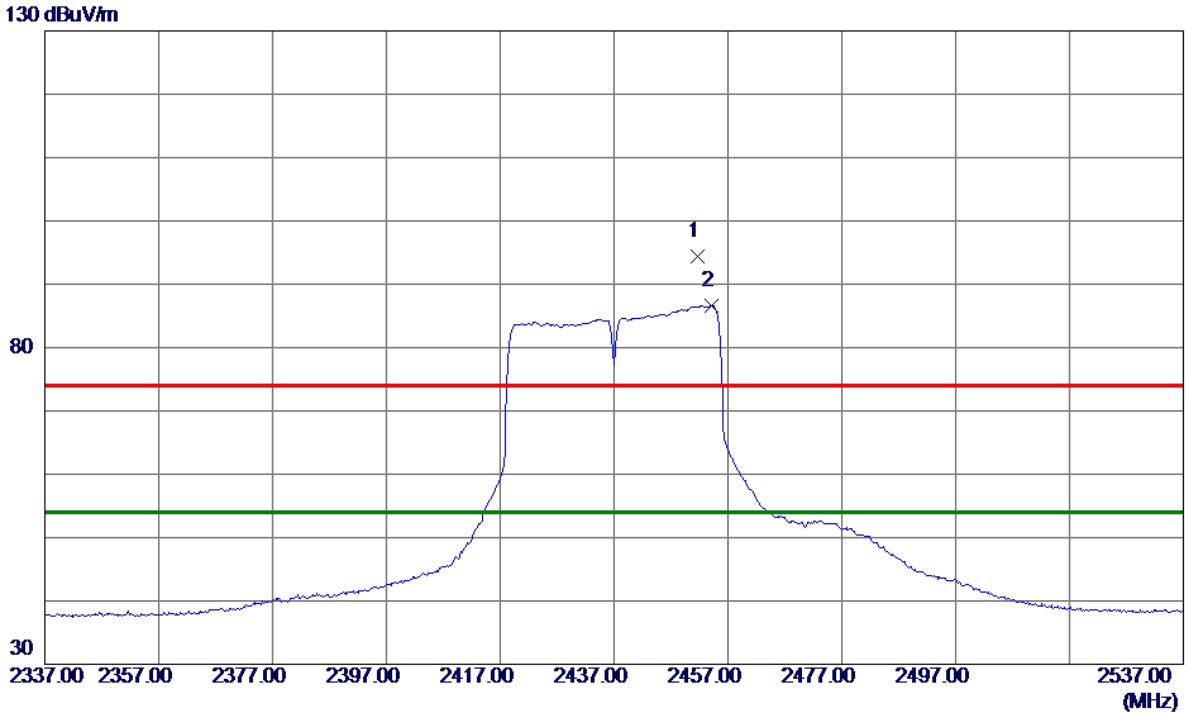


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4835.9000	39.55	4.48	44.03	74.00	-29.97	Peak	
2 *	4844.8000	29.83	4.51	34.34	54.00	-19.66	AVG	

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

Test Mode:	TX N-40M Mode 2437 MHz

Vertical

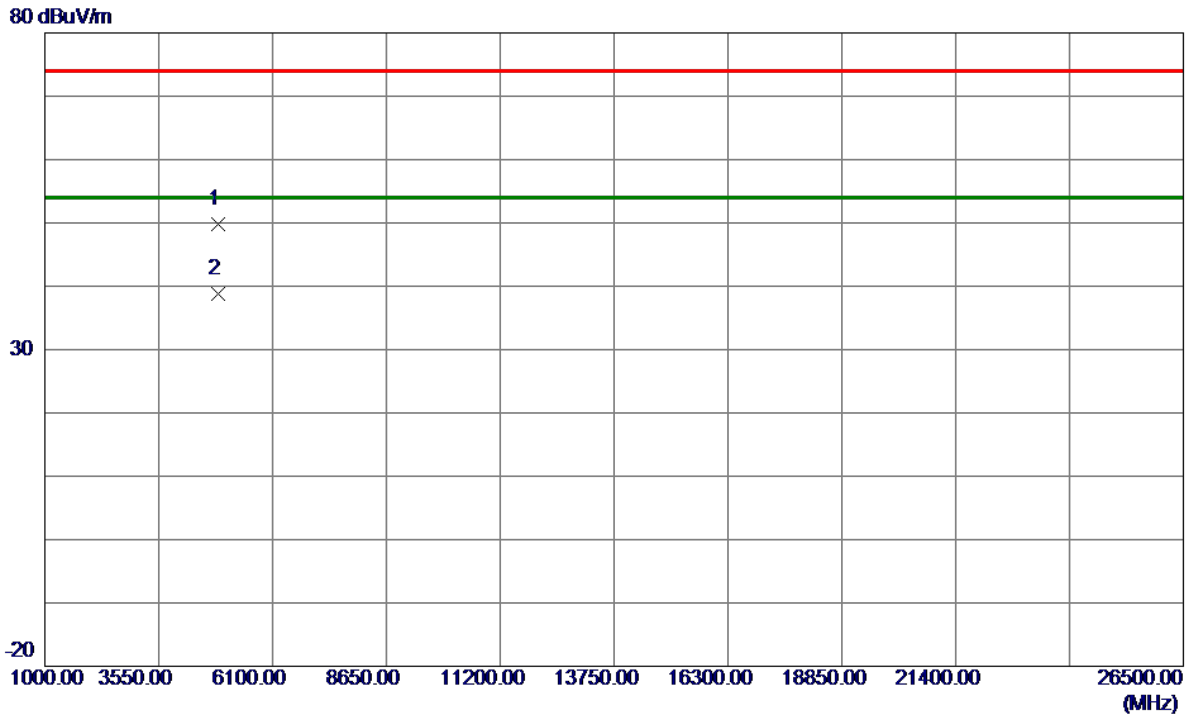


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2451.6000	87.09	7.25	94.34	74.00	20.34	Peak	No Limit
2 *	2454.2000	79.38	7.25	86.63	54.00	32.63	AVG	No Limit

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

Test Mode:	TX N-40M Mode 2437 MHz

Vertical

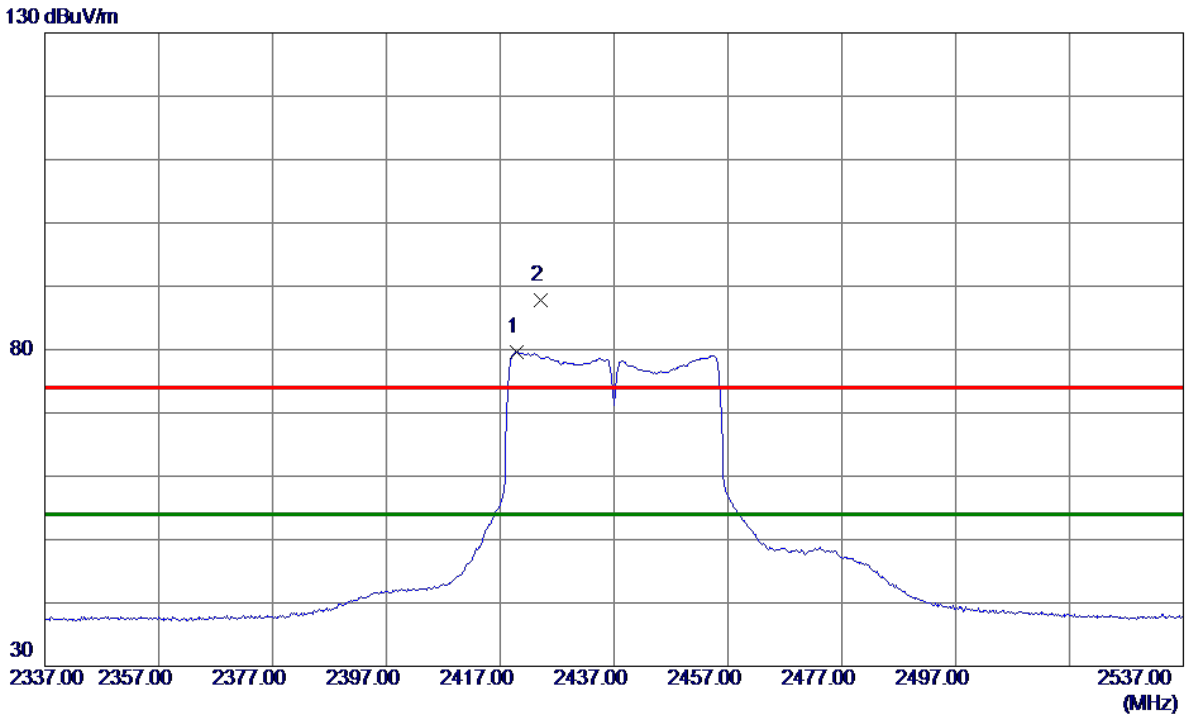


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.4500	45.14	4.58	49.72	74.00	-24.28	Peak	
2 *	4878.3500	34.29	4.60	38.89	54.00	-15.11	AVG	

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

Test Mode:	TX N-40M Mode 2437 MHz

Horizontal

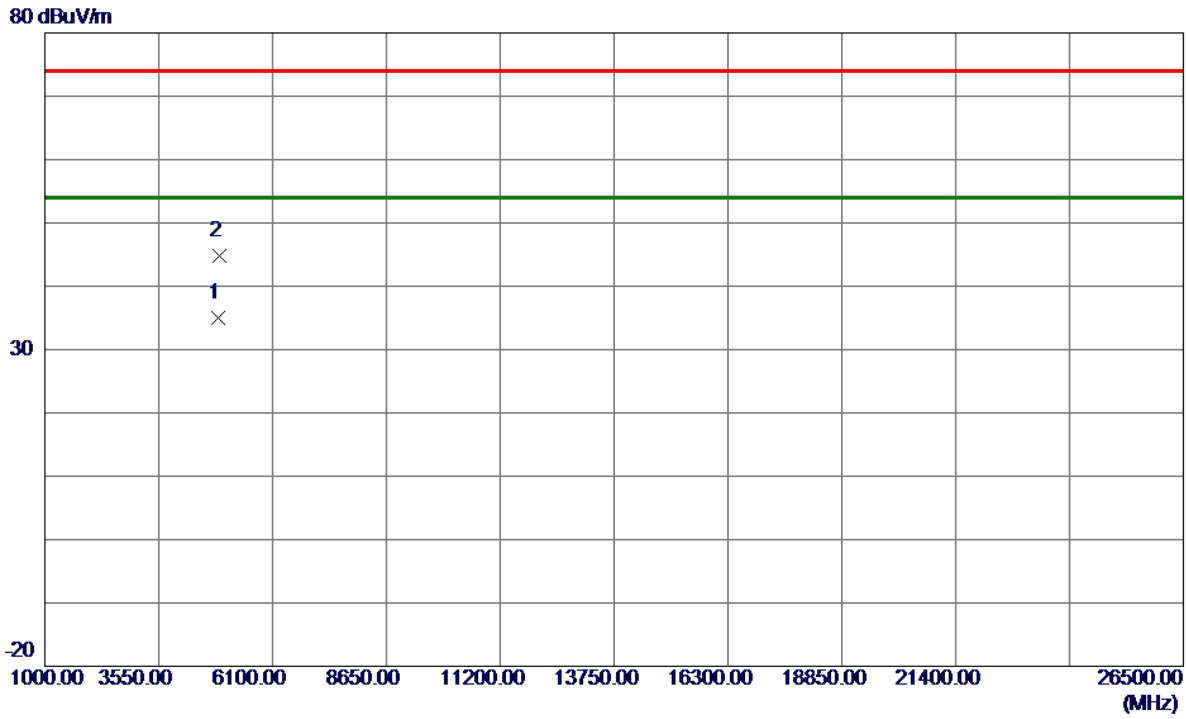


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2419.8000	72.38	7.26	79.64	54.00	25.64	AVG	No Limit
2	2424.2000	80.46	7.25	87.71	74.00	13.71	Peak	No Limit

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

Test Mode:	TX N-40M Mode 2437 MHz

Horizontal

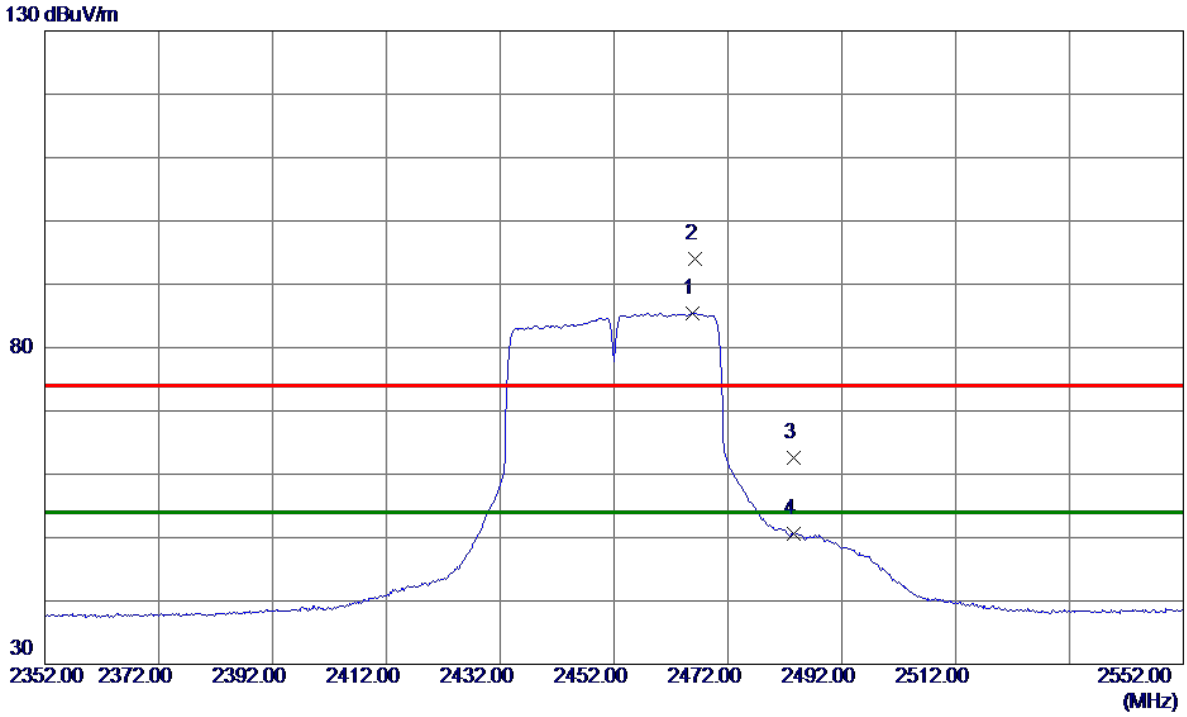


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4878.4000	30.39	4.60	34.99	54.00	-19.01	AVG	
2	4899.7000	40.08	4.65	44.73	74.00	-29.27	Peak	

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

Test Mode:	TX N-40M Mode 2452 MHz

Vertical

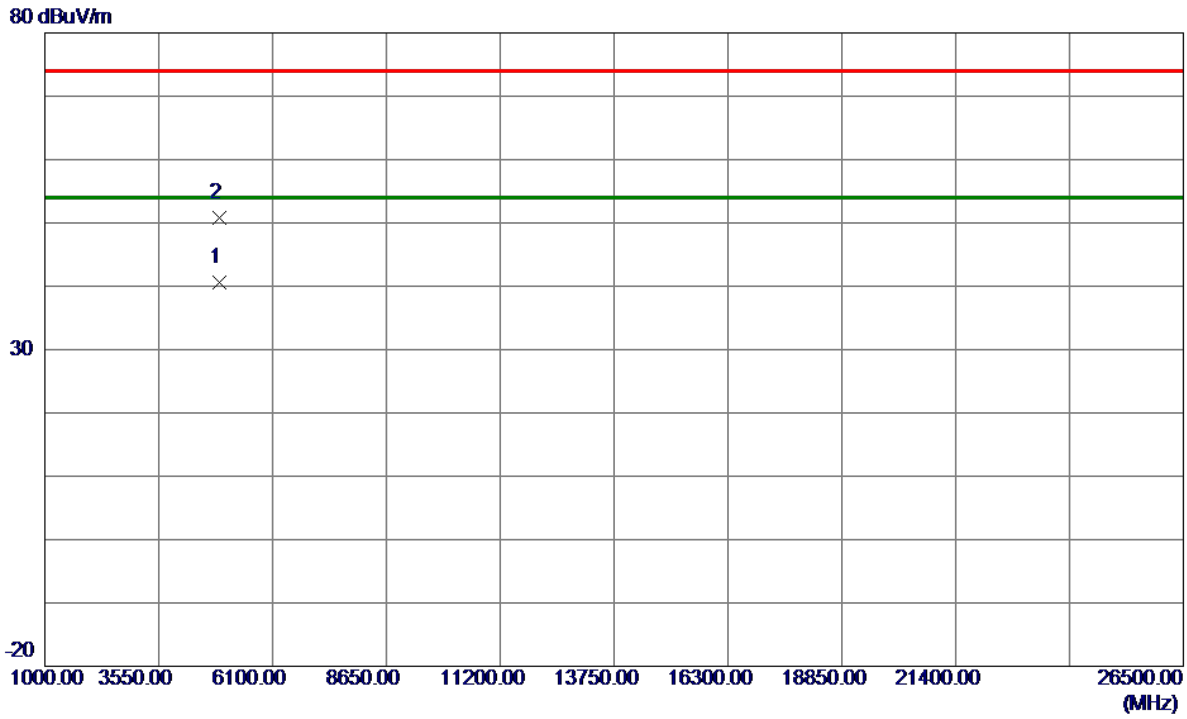


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2465.8000	78.11	7.25	85.36	54.00	31.36	AVG	No Limit
2	2466.2000	86.67	7.25	93.92	74.00	19.92	Peak	No Limit
3	2483.5000	55.31	7.25	62.56	74.00	-11.44	Peak	
4	2483.5000	43.32	7.25	50.57	54.00	-3.43	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

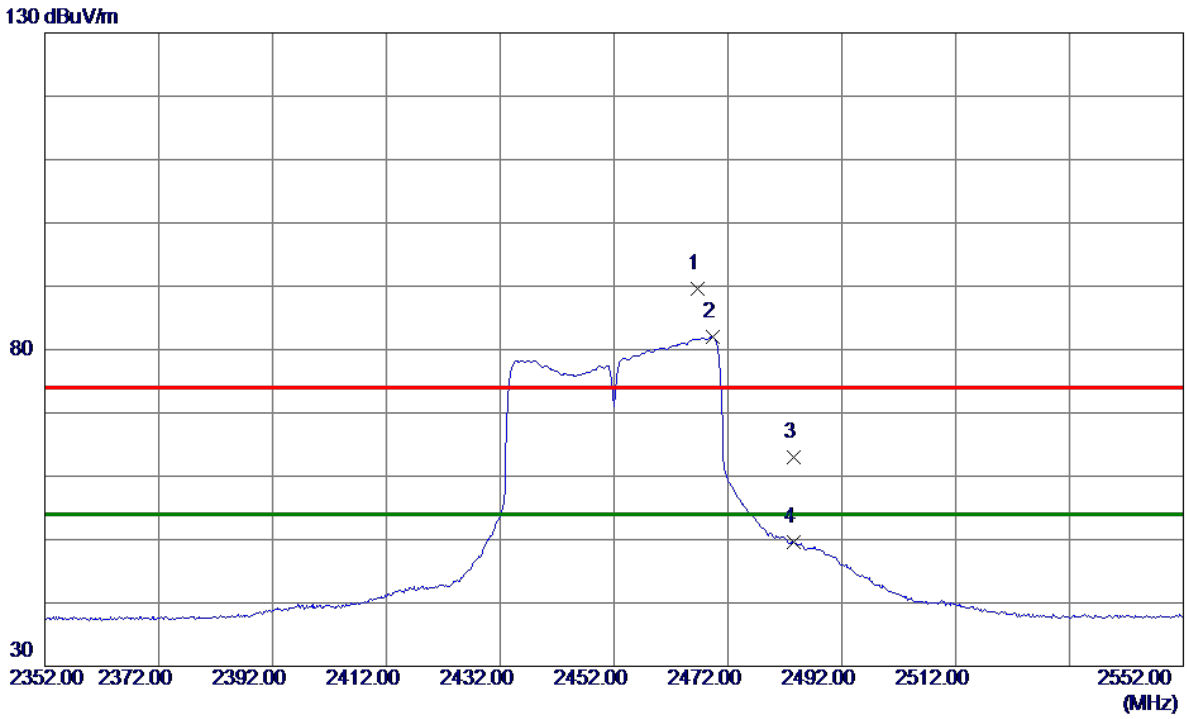


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4904.3500	35.99	4.66	40.65	54.00	-13.35	AVG	
2	4904.5000	46.22	4.67	50.89	74.00	-23.11	Peak	

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

Test Mode:	TX N-40M Mode 2452 MHz

Horizontal

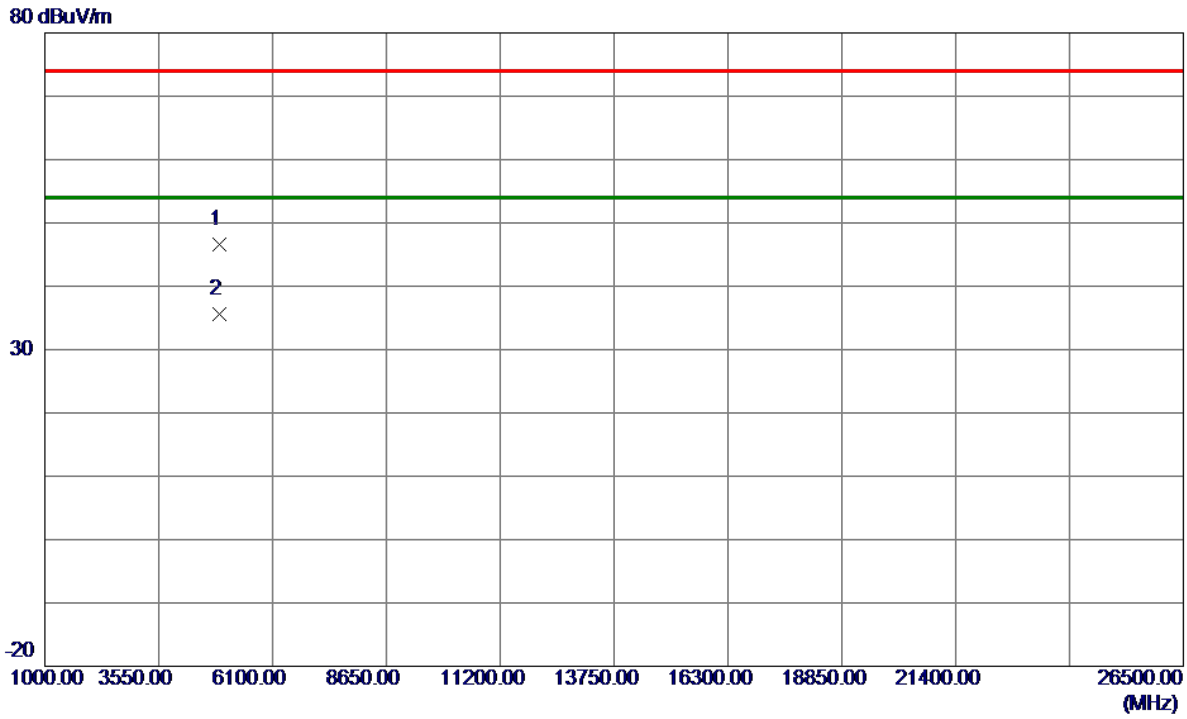


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2466.6000	82.30	7.25	89.55	74.00	15.55	Peak	No Limit
2 *	2469.4000	74.76	7.25	82.01	54.00	28.01	AVG	No Limit
3	2483.5000	55.84	7.25	63.09	74.00	-10.91	Peak	
4	2483.5000	42.37	7.25	49.62	54.00	-4.38	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	4904.0000	41.98	4.66	46.64	74.00	-27.36	Peak	
2 *	4905.1500	30.92	4.67	35.59	54.00	-18.41	AVG	

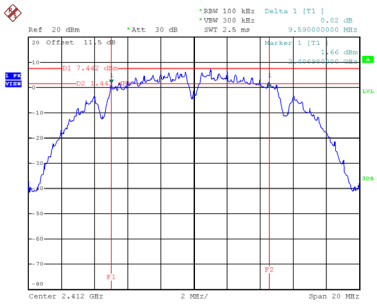
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX E - BANDWIDTH

Test Mode	TX B Mode

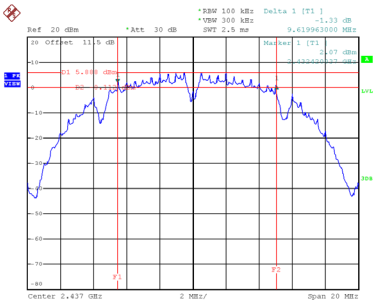
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	9.59	500	Complies
06	2437	9.62	500	Complies
11	2462	10.03	500	Complies

CH01



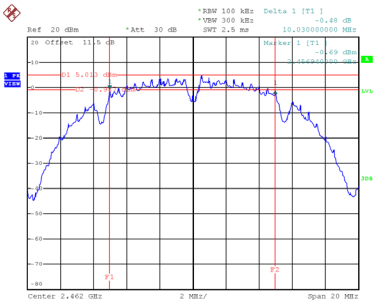
Date: 29.OCT.2020 09:28:34

CH06



Date: 29.OCT.2020 09:30:13

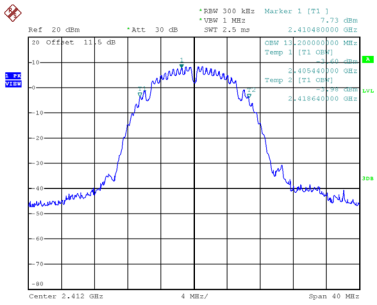
CH11



Date: 29.OCT.2020 09:31:54

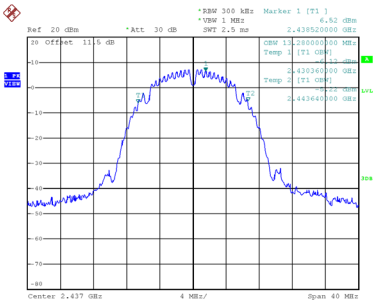
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	13.20	Complies
06	2437	13.28	Complies
11	2462	13.20	Complies

CH01



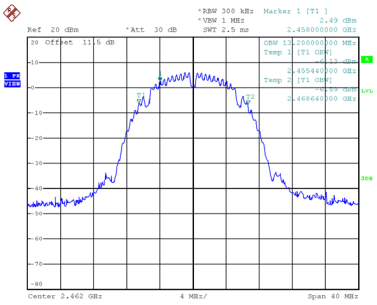
Date: 29.OCT.2020 09:28:40

CH06



Date: 29.OCT.2020 09:30:20

CH11

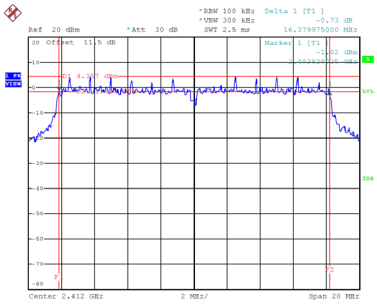


Date: 29.OCT.2020 09:32:01

Test Mode	TX G Mode

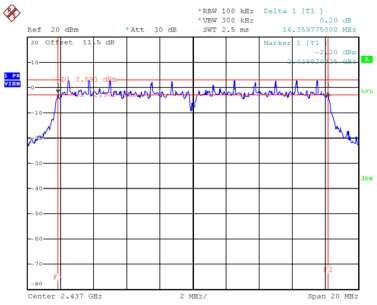
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	16.38	500	Complies
06	2437	16.36	500	Complies
11	2462	16.42	500	Complies

CH01



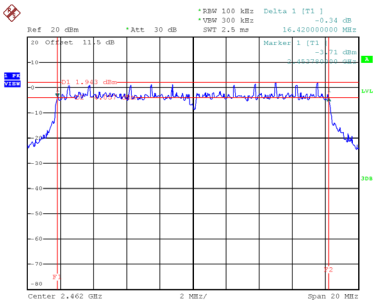
Date: 29.OCT.2020 09:34:03

CH06



Date: 29.OCT.2020 09:35:45

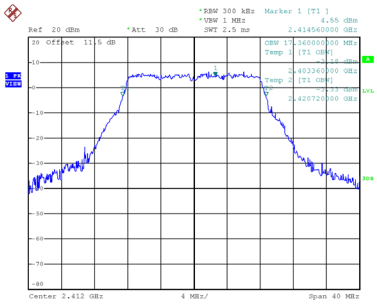
CH11



Date: 29.OCT.2020 09:37:49

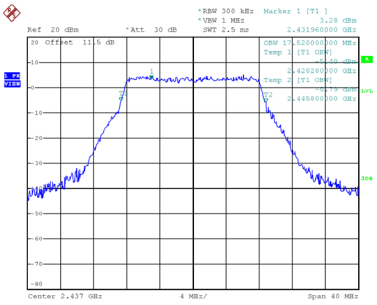
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	17.36	Complies
06	2437	17.52	Complies
11	2462	17.44	Complies

CH01



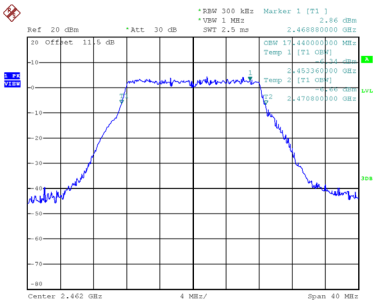
Date: 29.OCT.2020 09:34:10

CH06



Date: 29.OCT.2020 09:35:51

CH11

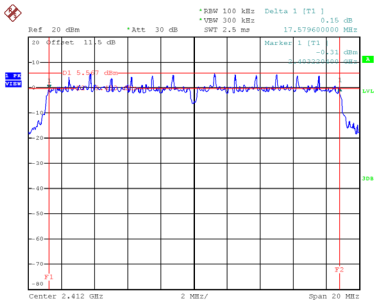


Date: 29.OCT.2020 09:37:56

Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	17.58	500	Complies
06	2437	17.60	500	Complies
11	2462	17.62	500	Complies

CH01



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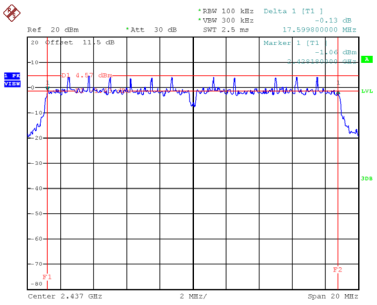
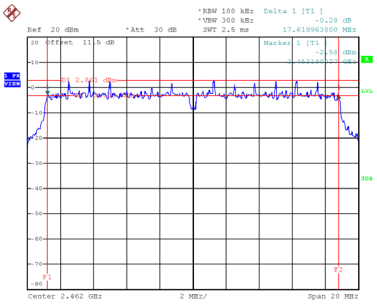
CH06



Date: 29.OCT.2020 09:43:08

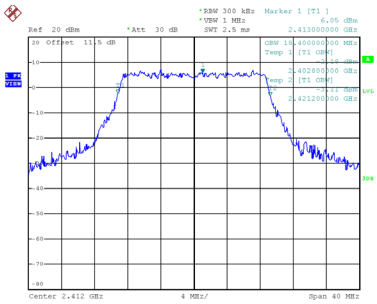
CH11



Date: 29.OCT.2020 09:45:18

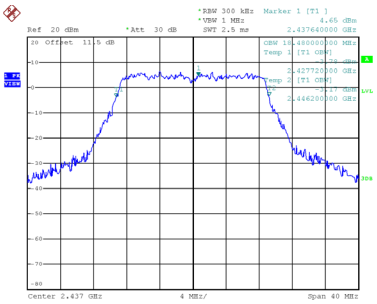
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	18.40	Complies
06	2437	18.48	Complies
11	2462	18.40	Complies

CH01



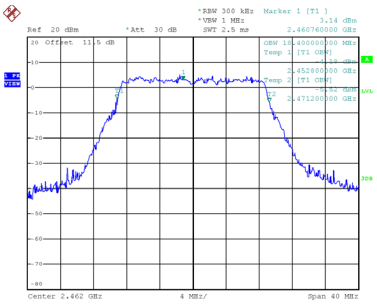
Date: 29.OCT.2020 09:41:12

CH06



Date: 29.OCT.2020 09:43:14

CH11

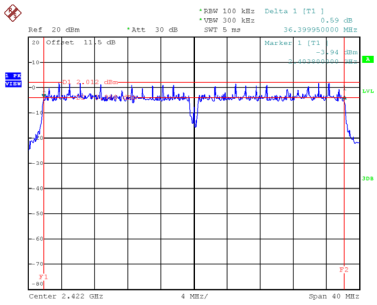


Date: 29.OCT.2020 09:45:25

Test Mode	TX N-40M Mode

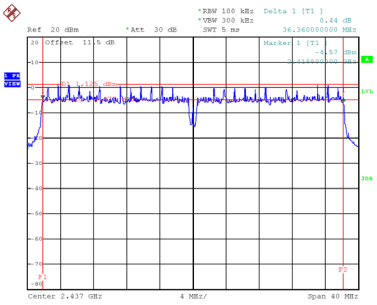
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
03	2422	36.40	500	Complies
06	2437	36.36	500	Complies
09	2452	36.44	500	Complies

CH03



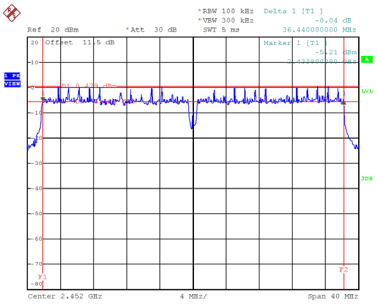
Date: 29.OCT.2020 09:47:24

CH06



Date: 29.OCT.2020 09:49:28

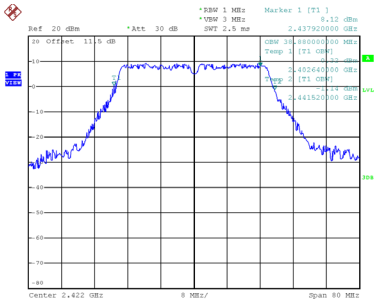
CH09



Date: 29.OCT.2020 09:50:51

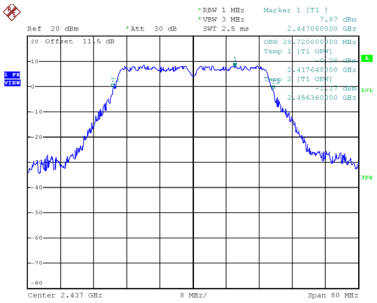
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
03	2422	38.88	Complies
06	2437	38.72	Complies
09	2452	38.72	Complies

CH03



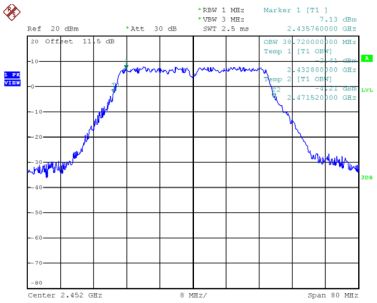
Date: 29.OCT.2020 09:47:31

CH06



Date: 29.OCT.2020 09:49:35

CH09



Date: 29.OCT.2020 09:50:57

APPENDIX F - MAXIMUM OUTPUT POWER

Test Mode	TX B Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	20.17	0.1040	30.00	1.0000	Complies
06	2437	19.89	0.0975	30.00	1.0000	Complies
11	2462	19.92	0.0982	30.00	1.0000	Complies

Test Mode	TX G Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	22.35	0.1718	30.00	1.0000	Complies
06	2437	22.17	0.1648	30.00	1.0000	Complies
11	2462	22.08	0.1614	30.00	1.0000	Complies

Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	22.11	0.1626	30.00	1.0000	Complies
06	2437	21.74	0.1493	30.00	1.0000	Complies
11	2462	21.85	0.1531	30.00	1.0000	Complies

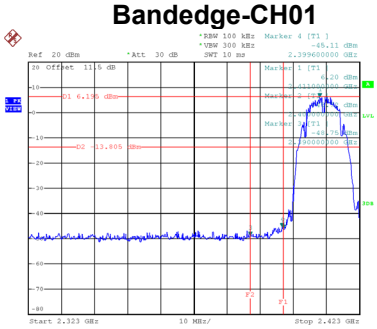
Test Mode	TX N-40M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	22.03	0.1596	30.00	1.0000	Complies
06	2437	21.39	0.1377	30.00	1.0000	Complies
09	2452	20.48	0.1117	30.00	1.0000	Complies

APPENDIX G - CONDUCTED SPURIOUS EMISSIONS

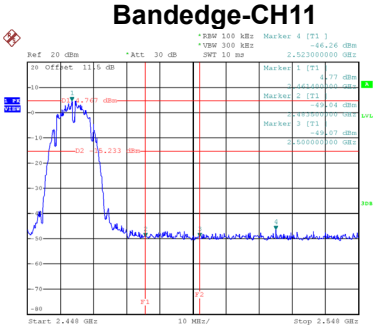
Test Mode	TX B Mode

Bandedge-CH01



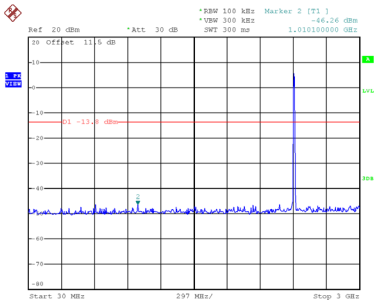
Date: 29.OCT.2020 09:28:48

Bandedge-CH11

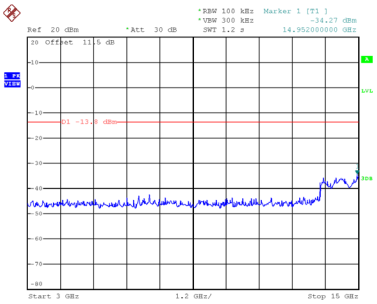


Date: 29.OCT.2020 09:32:08

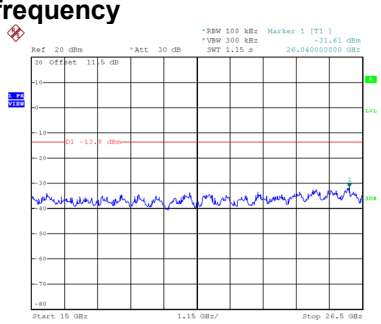
CH01 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:29:01

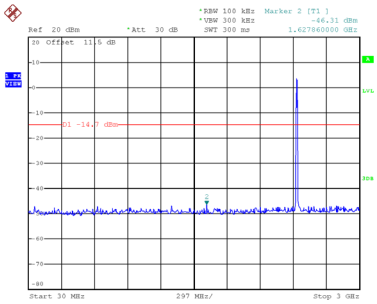


Date: 29.OCT.2020 09:29:08

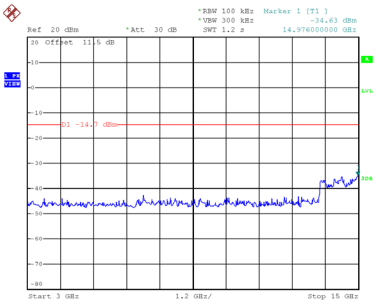


Date: 29.OCT.2020 09:29:15

CH06 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:30:40



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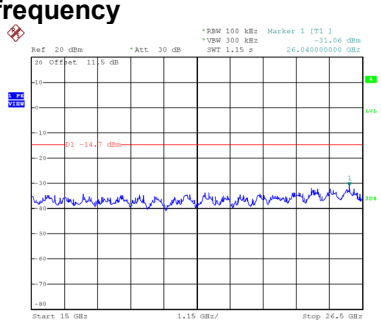

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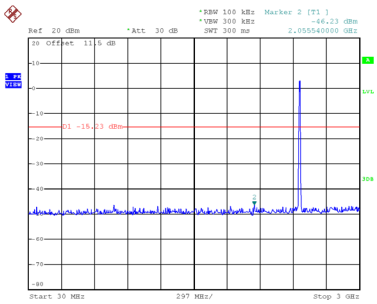
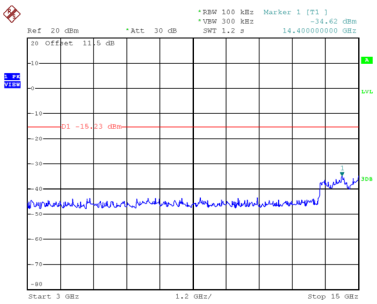
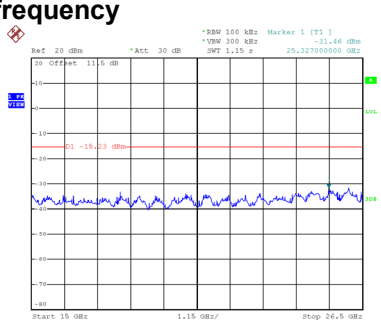
CH11 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:32:21



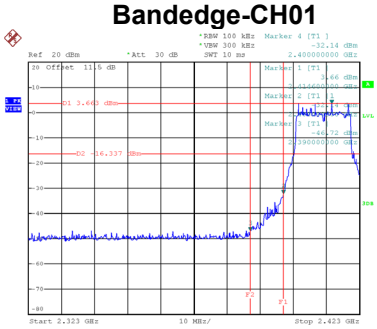
Date: 29.OCT.2020 09:32:28



Date: 29.OCT.2020 09:32:35

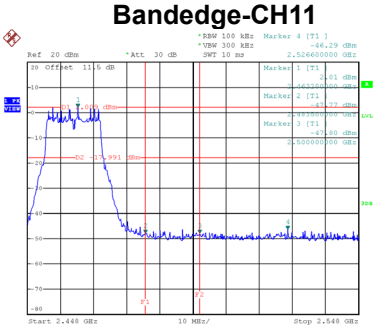
Test Mode	TX G Mode

Bandedge-CH01



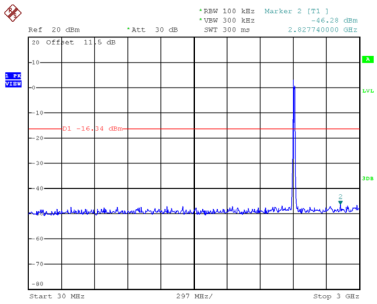
Date: 29.OCT.2020 09:34:17

Bandedge-CH11

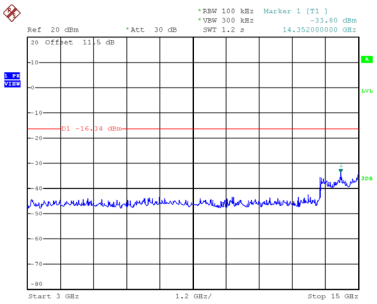


Date: 29.OCT.2020 09:38:03

CH01 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:34:30



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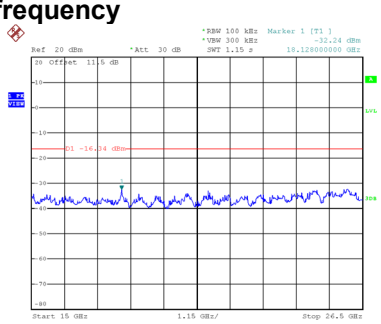
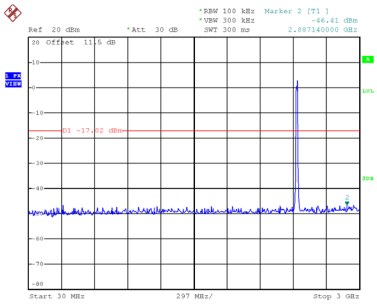
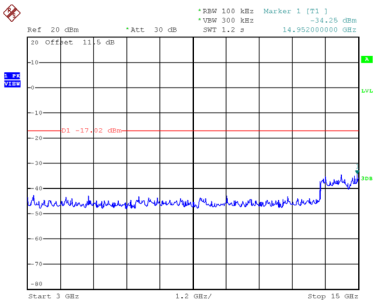


Date: 29.OCT.2020 09:34:44

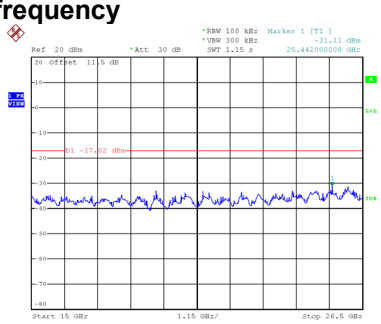
CH06 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:36:12

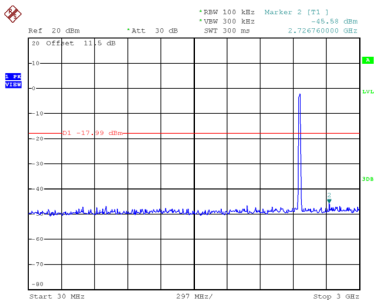


Date: 29.OCT.2020 09:36:19

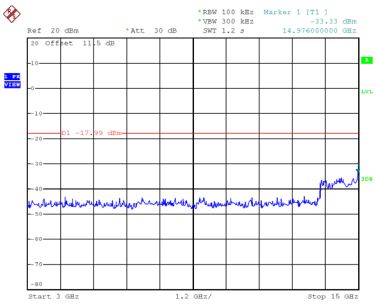


Date: 29.OCT.2020 09:36:26

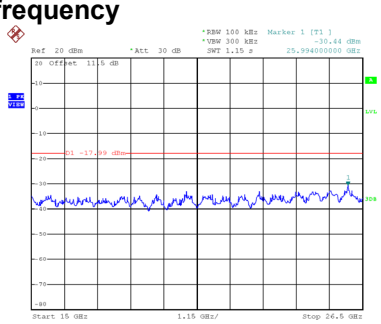
CH11 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:38:16



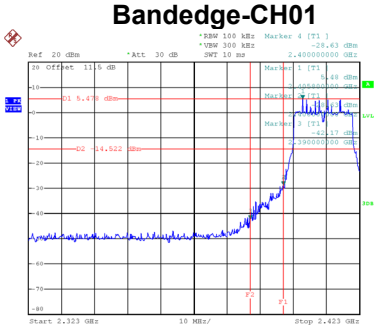
Date: 29.OCT.2020 09:38:23



Date: 29.OCT.2020 09:38:30

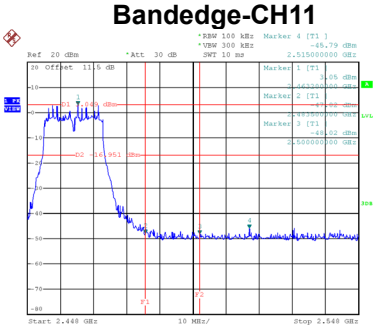
Test Mode	TX N-20M Mode

Bandedge-CH01



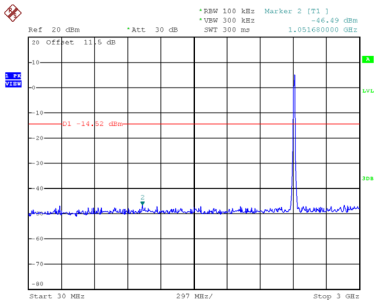
Date: 29.OCT.2020 09:41:19

Bandedge-CH11

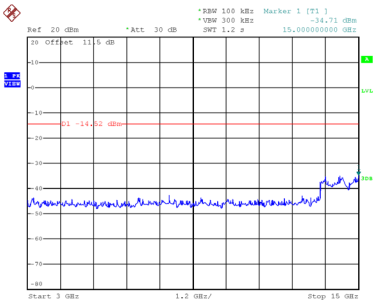


Date: 29.OCT.2020 09:45:32

CH01 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:41:32



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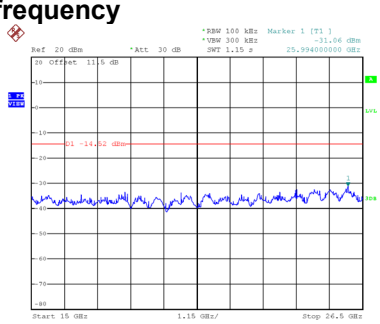
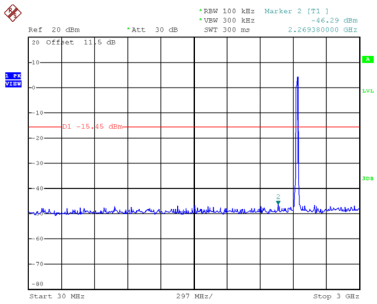
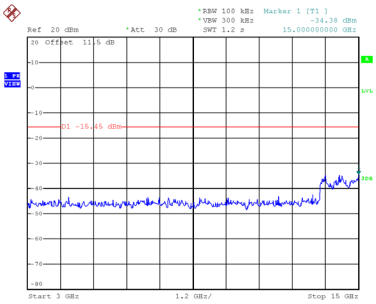


Date: 29.OCT.2020 09:41:46

CH06 – 10th Harmonic of the fundamental frequency



Date: 29.OCT.2020 09:43:35



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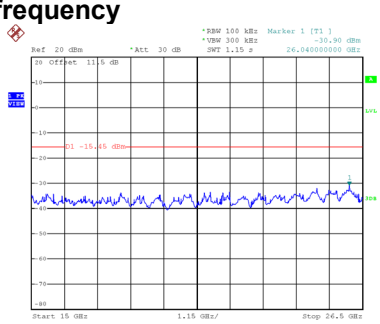
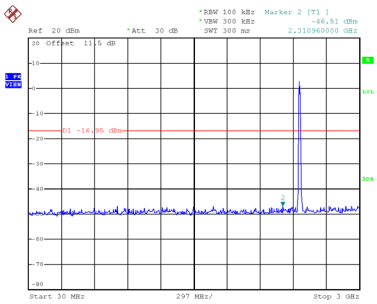


Date: 29.OCT.2020 09:43:48

CH11 – 10th Harmonic of the fundamental frequency



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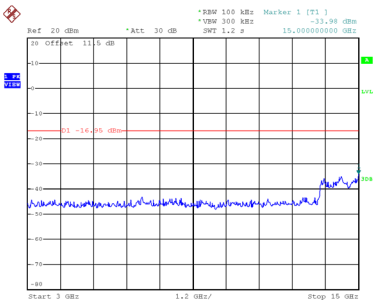
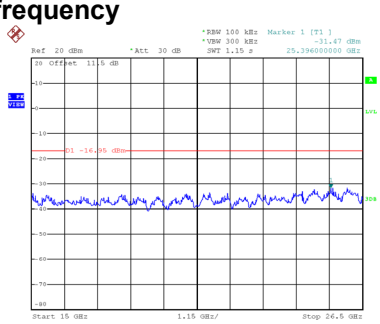


Date: 29.OCT.2020 09:45:51



Date: 29.OCT.2020 09:45:59