FCC Radio Test Report

FCC ID: 2AUSF-BKW700

This report concerns: Original Grant

Project No.	:	1909C175
Equipment	:	Borqs Kids Smartwatch
Brand Name	:	WatchMeGo
Model Name	:	BKW700, ANSBKW700
Applicant	:	BORQS INTERNATIONAL HOLDING CORP
Address	:	Building B23-A,Universal Business Park, No.10 jiuxianqiao Road,Chaoyang District Beijing, 100015 China
Manufacturer	:	BORQS INTERNATIONAL HOLDING CORP
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Factory	:	BORQS INTERNATIONAL HOLDING CORP
Address	:	Building B23-A,Universal Business Park, No.10 jiuxianqiao Road,Chaoyang District Beijing, 100015 China
Date of Receipt	:	Sep. 27, 2019
Date of Test	:	Sep. 27, 2019 ~ Dec. 13, 2019
Issued Date	:	Dec. 17, 2019
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2019092792 for conducted, DG2019112538 for radiated.
Standard(s)	:	FCC Part15, Subpart C (15.247) ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02

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

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Declaration

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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.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Dec. 17, 2019

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 Peak 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	2.60

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	Laughing Zhang
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V/60Hz	Laughing Zhang
Radiated Emissions-30 MHz to 1GHz	24°C	68%	AC 120V/60Hz	Sheldon Ou
Radiated Emissions-Above 1000 MHz	24°C	68%	AC 120V/60Hz	Sheldon Ou
Bandwidth	23.6°C	47.3%	DC 3.8V	Jonas Chen
Maximum Peak Output Power	23.6°C	47.3%	DC 3.8V	Jonas Chen
Conducted Spurious Emissions	23.6°C	47.3%	DC 3.8V	Jonas Chen
Power Spectral Density	23.6°C	47.3%	DC 3.8V	Jonas Chen

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Borqs Kids Smartwatch
Brand Name	WatchMeGo
Model Name	BKW700, ANSBKW700
Model Difference(s)	Only differ in model name.
Hardware Version	DVT1
Software Version	SW_MD_034_190920_GCF_USERDEBUG
Power Source	1# Supplied from battery. Model: ZWD512724V 2# DC Voltage supplied from AC/DC adapter. Model: A18A-050100U-US2 3# Supplied from USB port.
Power Rating	1# DC 4.35V(Limited Charge), 400mAh 2# Input: 100-240V~, 50/60Hz, Max 0.2A, Output:5V ⎓ 1A 3# DC 5V 1A
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 Peak Output Power	IEEE 802.11b: 16.96 dBm (0.0497 W) IEEE 802.11g: 20.78 dBm (0.1197 W) IEEE 802.11n (HT20): 20.61 dBm (0.1151 W) IEEE 802.11n (HT40): 20.48 dBm (0.1117 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	Internal	N/A	-1.5

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 06

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

AC power line conducted emissions test	
Final Test Mode	Description
Mode 5	TX G Mode Channel 06

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

Radiated emissions test - Above 1GHz	
Final Test Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX 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) 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 802.11g Channel 06 is found to be the worst case and recorded.

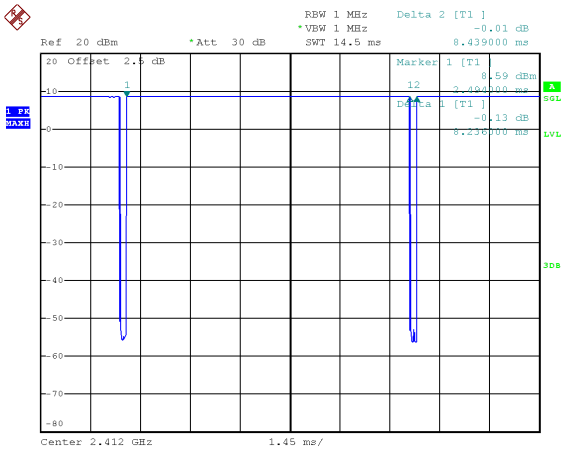
(4) For radiated emission above 1 GHz test, 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case.

2.3 PARAMETERS OF TEST SOFTWARE

Test Software	QRCT		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	15	16.5	16.6
IEEE 802.11g	15	16	15.5
IEEE 802.11n (HT20)	14	15	14.5
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	15	14	13.5

2.4 DUTY CYCLE

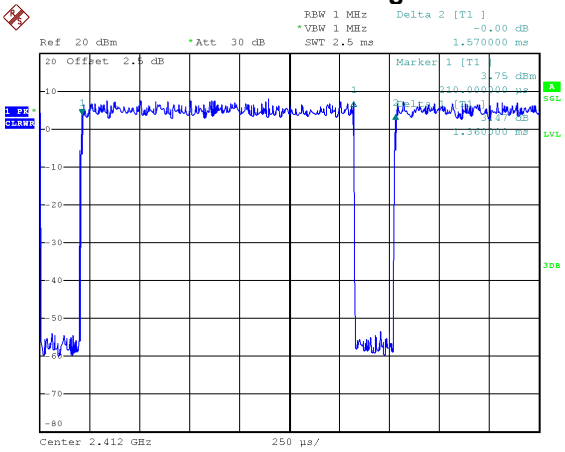
IEEE 802.11b



Date: 12.OCT.2019 11:50:47

Duty cycle = 8.236 ms / 8.439 ms = 97.59%
Duty Factor = 10 log(1/Duty cycle) = 0.11

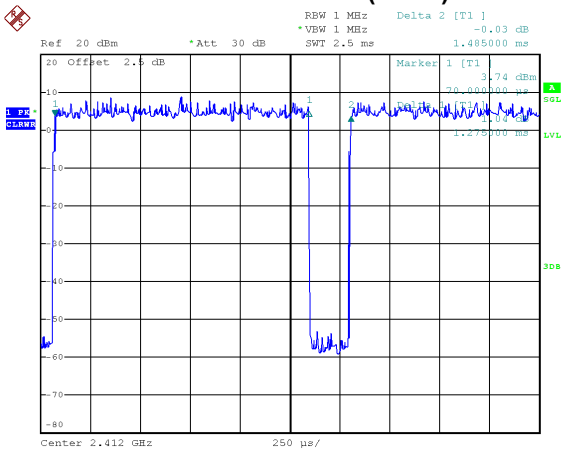
IEEE 802.11g



Date: 12.OCT.2019 11:51:08

Duty cycle = 1.360 ms / 1.570 ms = 86.62%
Duty Factor = 10 log(1/Duty cycle) = 0.62

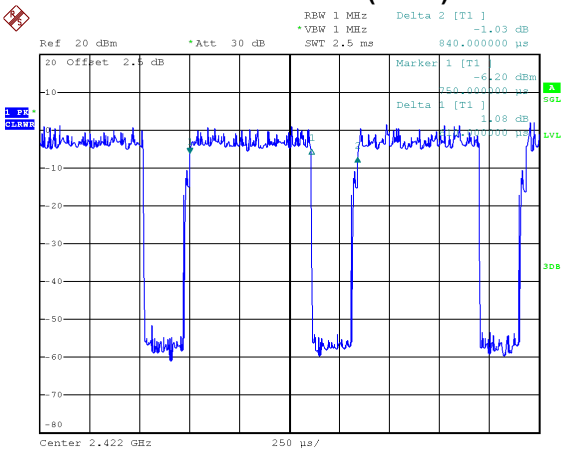
IEEE 802.11n (HT20)



Date: 12.OCT.2019 11:52:04

Duty cycle = 1.275 ms / 1.485 ms = 85.86%
Duty Factor = 10 log(1/Duty cycle) = 0.66

IEEE 802.11n (HT40)



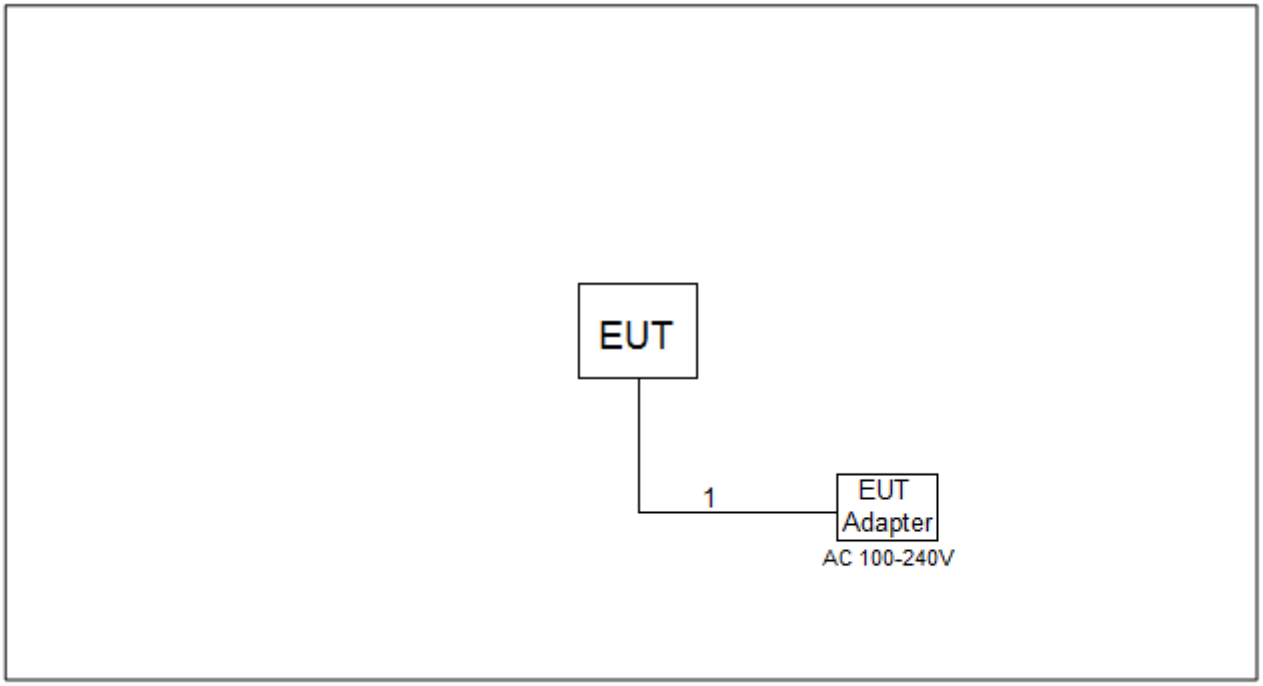
Date: 12.OCT.2019 11:52:38

Duty cycle = 0.610 ms / 0.840 ms = 72.62%
Duty Factor = 10 log(1/Duty cycle) = 1.39

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	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

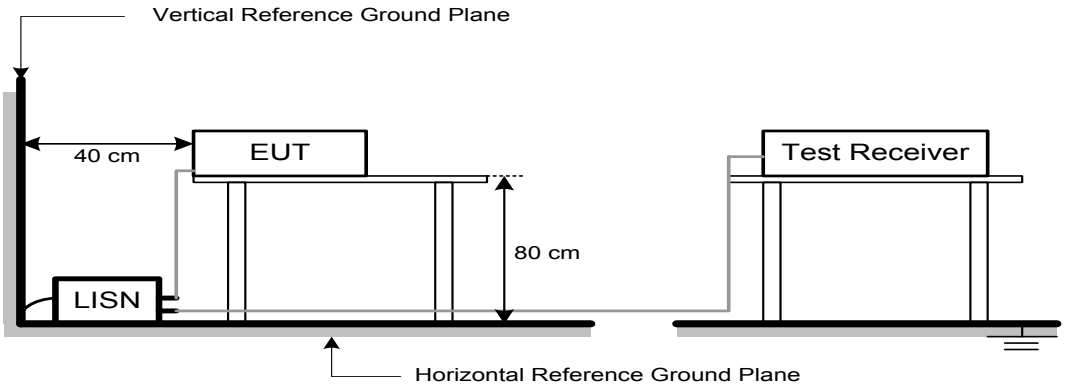
3.2 TEST PROCEDURE

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

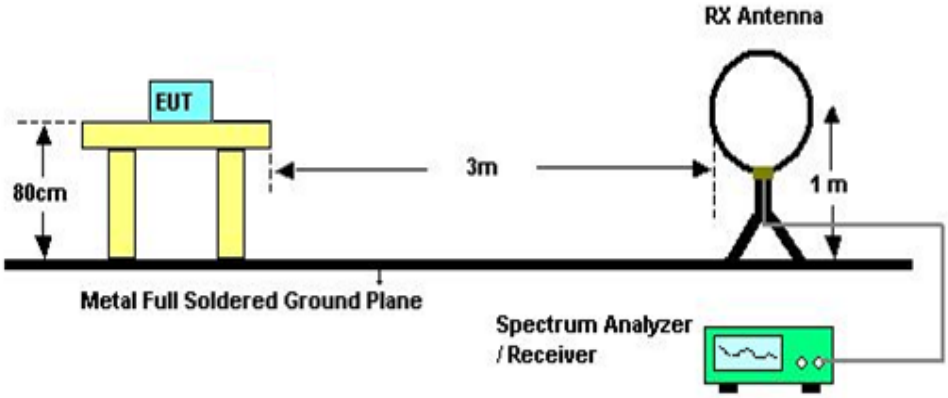
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance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

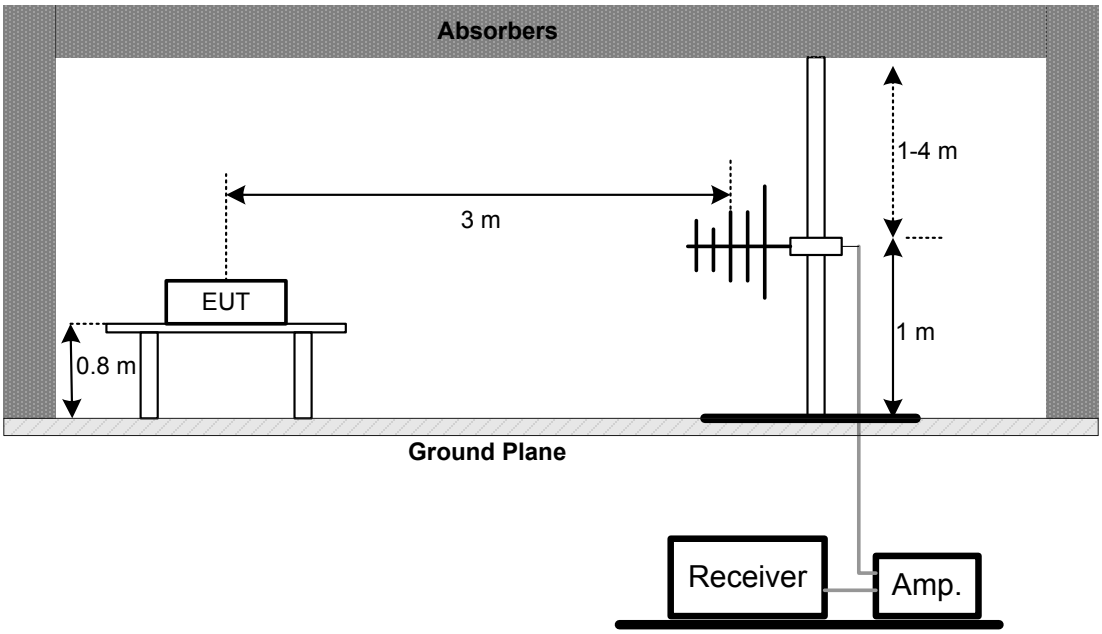
No deviation

4.4 TEST SETUP

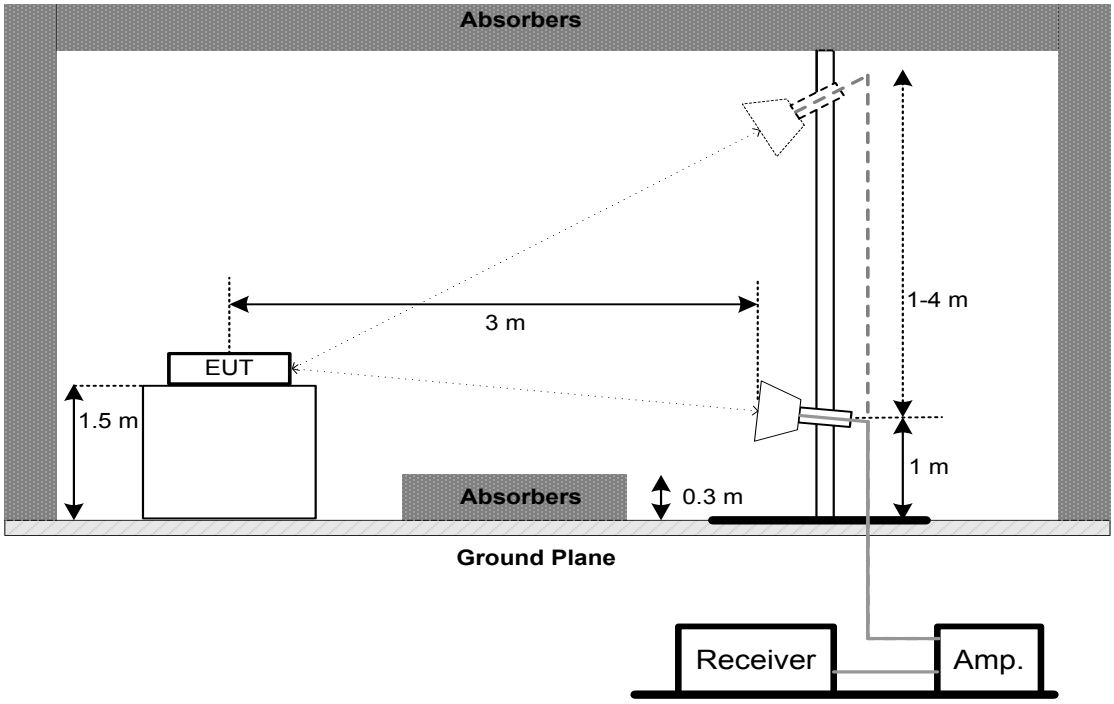
9 kHz-30 MHz



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.

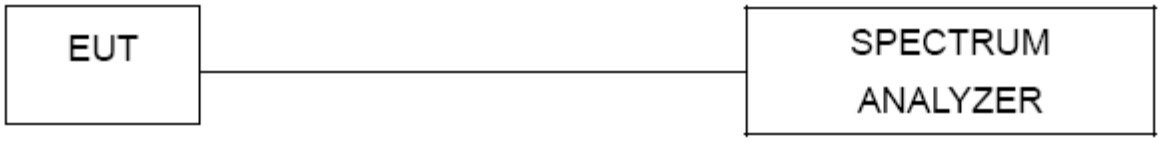
b. Spectrum Setting:
For 6 dB Bandwidth : RBW= 100 kHz, VBW=300 kHz, Sweep time = 2.5 ms.
For 99% Emission Bandwidth B/G/N-20 Mode: RBW= 300 KHz, VBW=1 MHz, Sweep time = 2.5 ms.
For 99% Emission Bandwidth N-40 Mode: RBW= 1 MHz, VBW=3 MHz, Sweep time = 2.5 ms.

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 PEAK OUTPUT POWER TEST

6.1 LIMIT

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

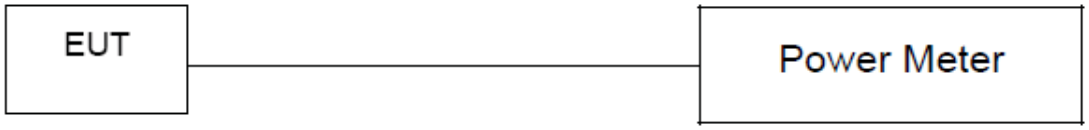
6.2 TEST PROCEDURE

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.

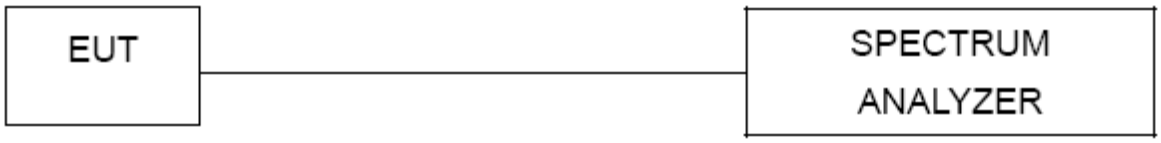
7.2 TEST PROCEDURE

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)

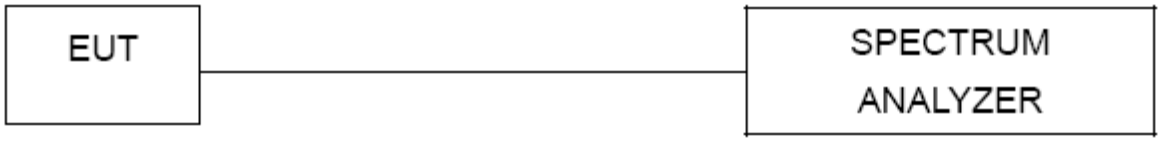
8.2 TEST PROCEDURE

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 Peak 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

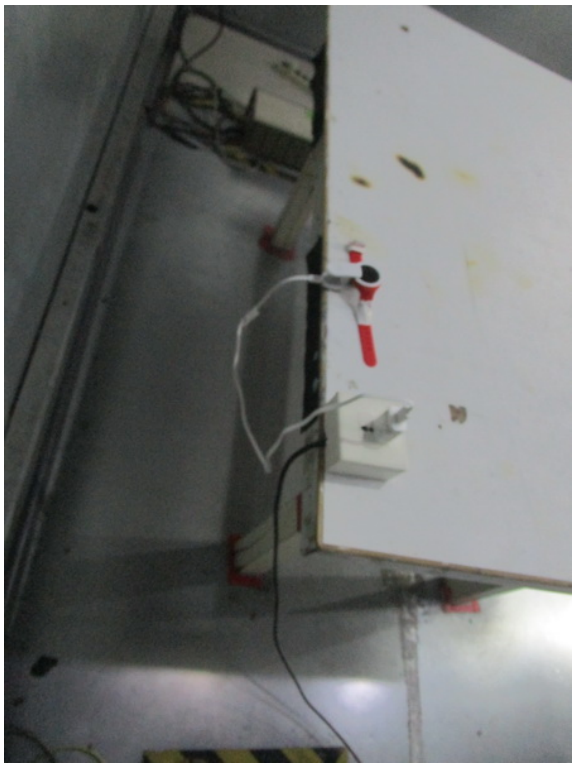
Remark: ”N/A” denotes no model name, serial no. or calibration specified.

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

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

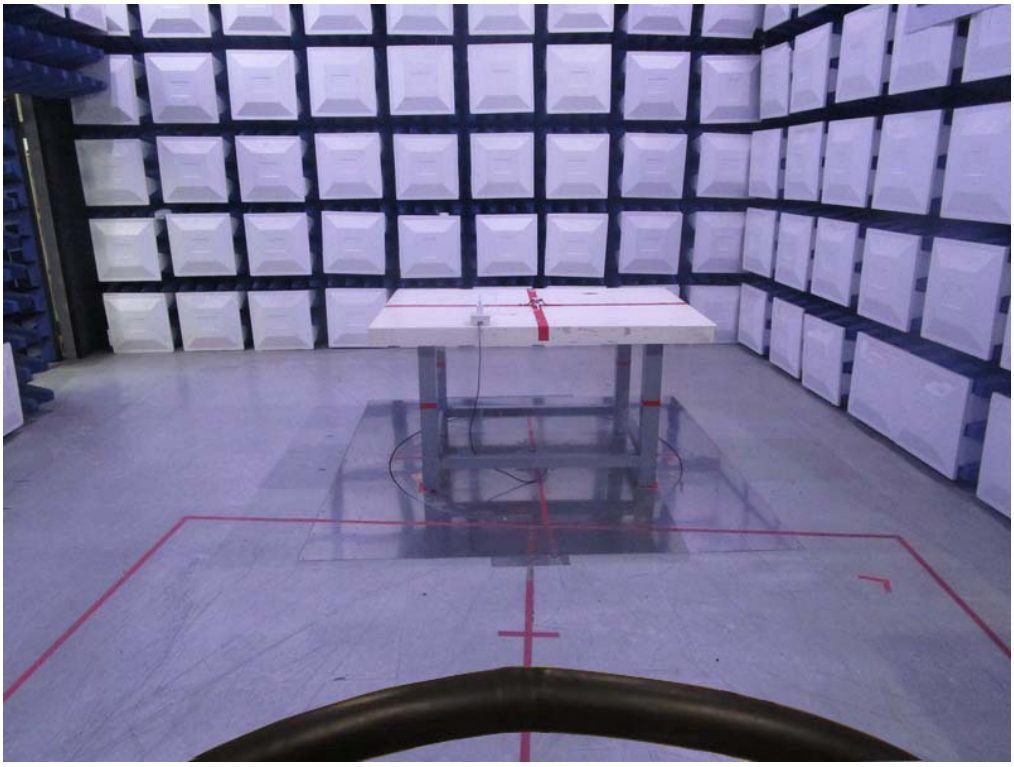
10. EUT TEST PHOTO

AC Power Line Conducted Emissions Test Photos



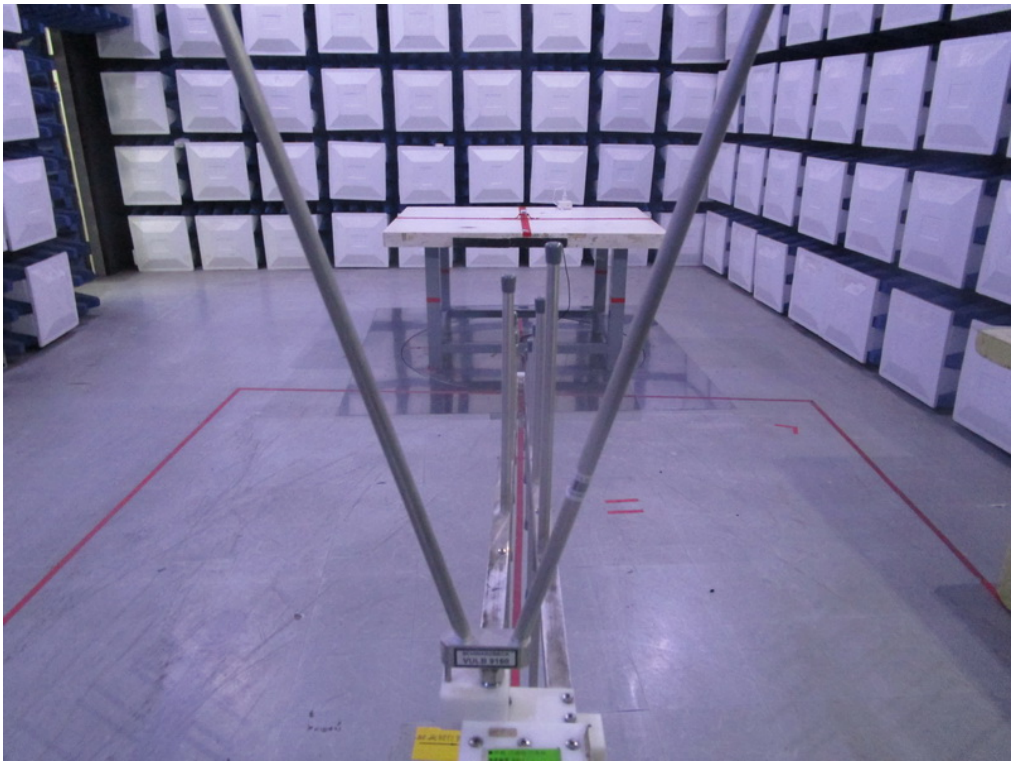
Radiated Emissions Test Photos

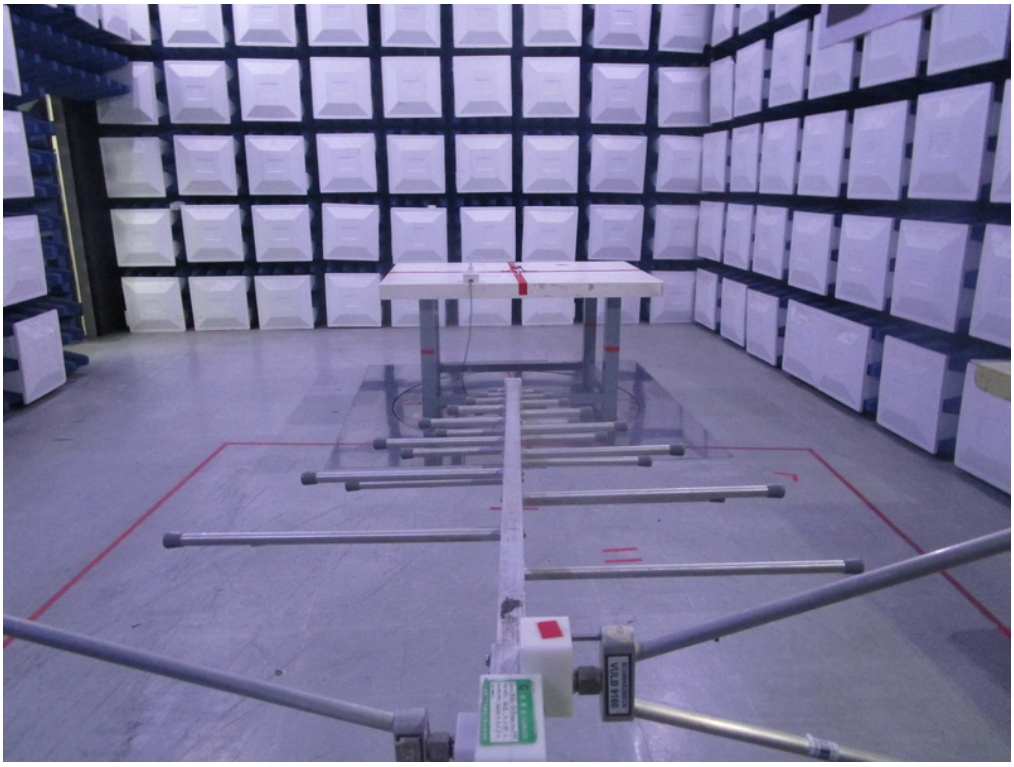
9 kHz to 30 MHz



Radiated Emissions Test Photos

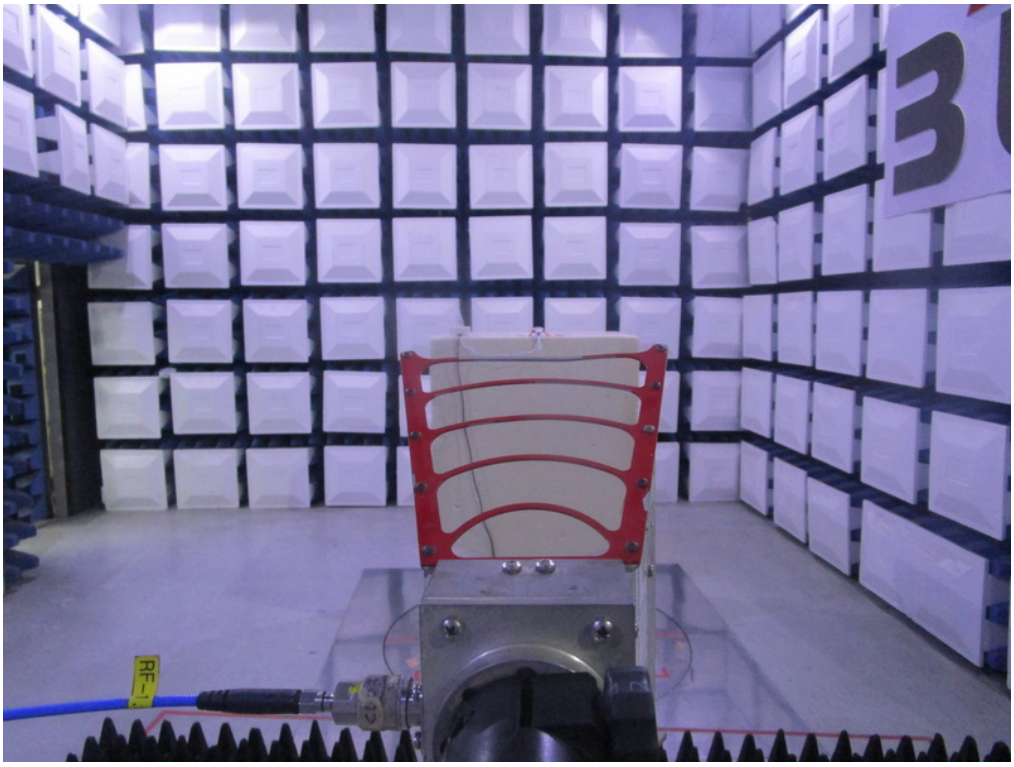
30 MHz to 1 GHz





Radiated Emissions Test Photos

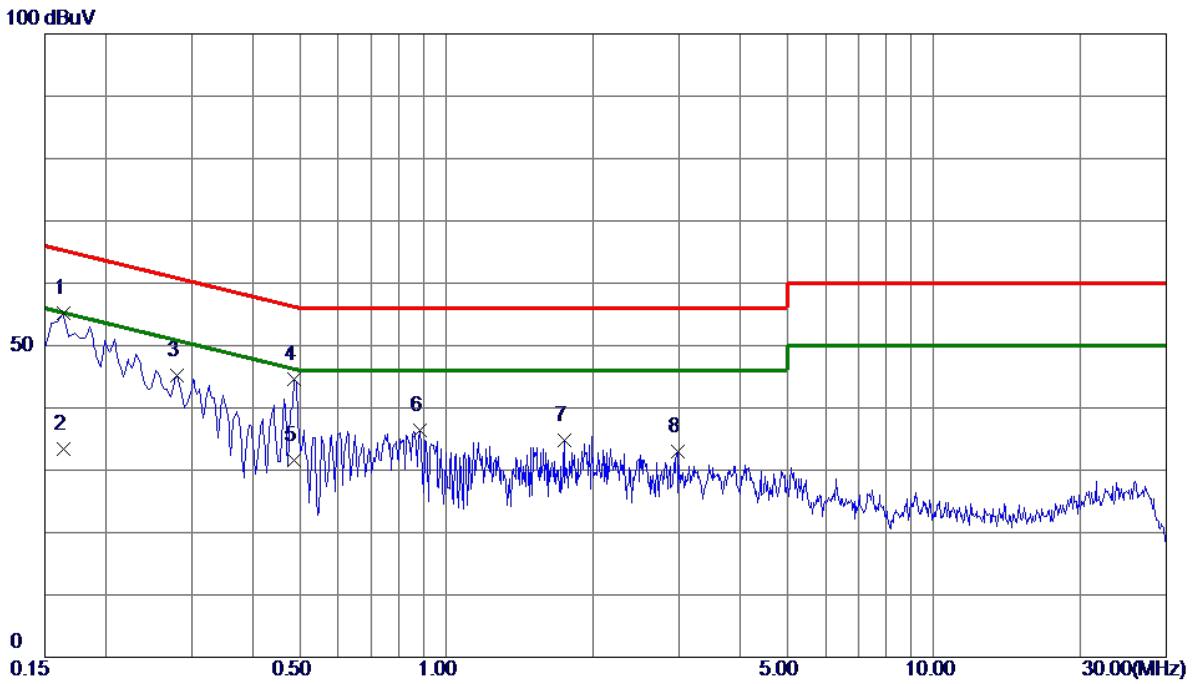
Above 1 GHz



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode:	TX G Mode Channel 06

Line

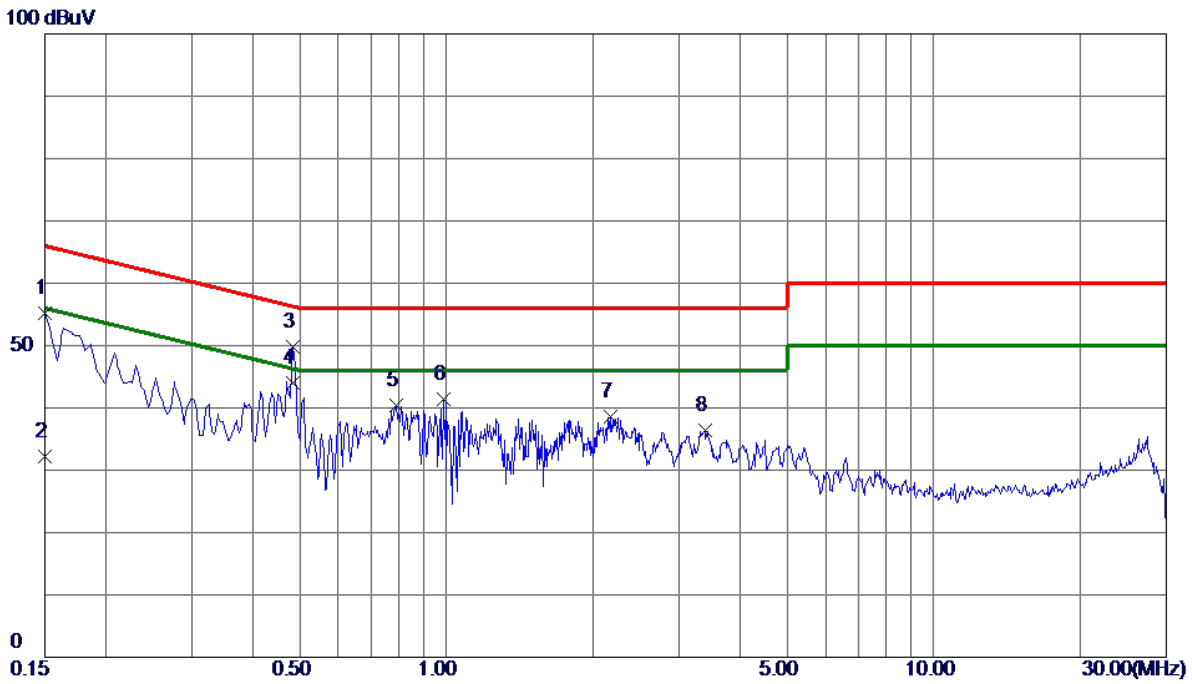


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1635	45.32	9.82	55.14	65.28	-10.14	Peak	
2	0.1635	23.54	9.82	33.36	55.28	-21.92	AVG	
3	0.2805	35.45	9.84	45.29	60.80	-15.51	Peak	
4	0.4875	34.71	9.88	44.59	56.21	-11.62	Peak	
5	0.4875	21.76	9.88	31.64	46.21	-14.57	AVG	
6	0.8835	26.46	9.91	36.37	56.00	-19.63	Peak	
7	1.7430	24.90	9.98	34.88	56.00	-21.12	Peak	
8	2.9760	22.85	10.06	32.91	56.00	-23.09	Peak	

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

Test Mode:	TX G Mode Channel 06

Neutral



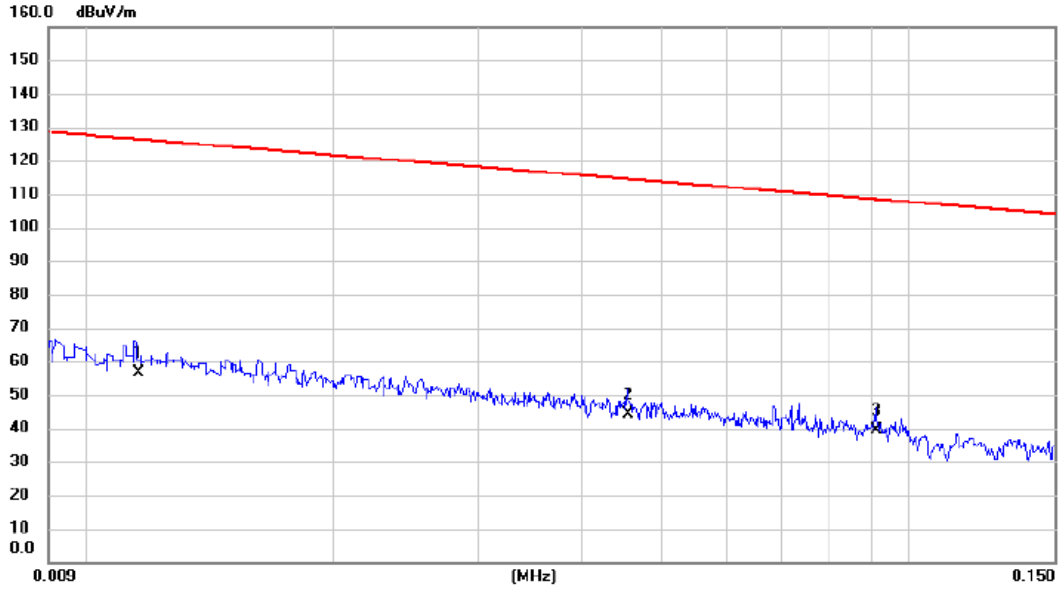
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1500	45.31	9.91	55.22	66.00	-10.78	Peak	
2	0.1500	22.27	9.91	32.18	56.00	-23.82	AVG	
3	0.4830	39.75	10.03	49.78	56.29	-6.51	Peak	
4 *	0.4830	33.92	10.03	43.95	46.29	-2.34	AVG	
5	0.7890	30.28	10.09	40.37	56.00	-15.63	Peak	
6	0.9870	31.33	10.12	41.45	56.00	-14.55	Peak	
7	2.1750	28.33	10.20	38.53	56.00	-17.47	Peak	
8	3.3990	26.05	10.28	36.33	56.00	-19.67	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 G Mode Channel 06

Ant 0°

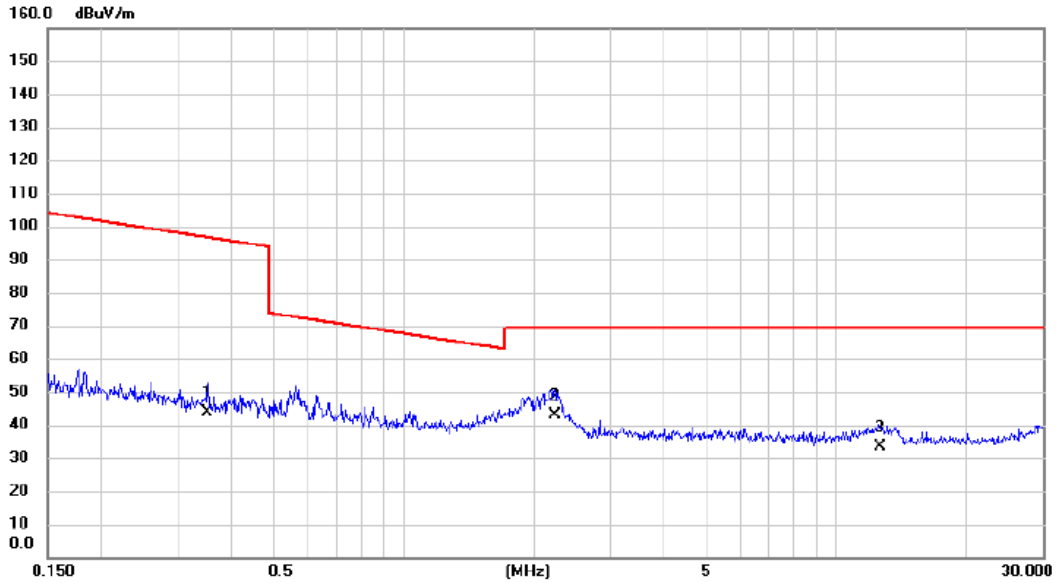


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0116	40.20	16.34	56.54	126.32	-69.78	AVG	
2		0.0456	30.12	13.92	44.04	114.43	-70.39	AVG	
3	*	0.0912	25.69	13.54	39.23	108.41	-69.18	QP	

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

Test Mode:	TX G Mode Channel 06

Ant 0°

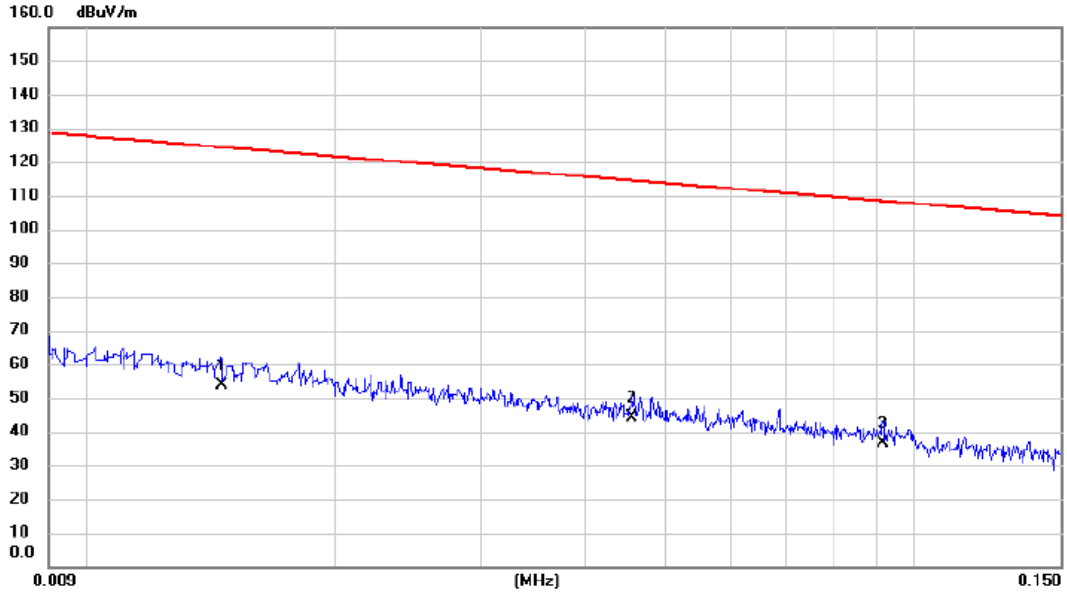


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.3520	30.25	13.42	43.67	96.67	-53.00	AVG	
2	*	2.2367	31.45	11.68	43.13	69.54	-26.41	QP	
3		12.5821	21.84	11.60	33.44	69.54	-36.10	QP	

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

Test Mode:	TX G Mode Channel 06

Ant 90°

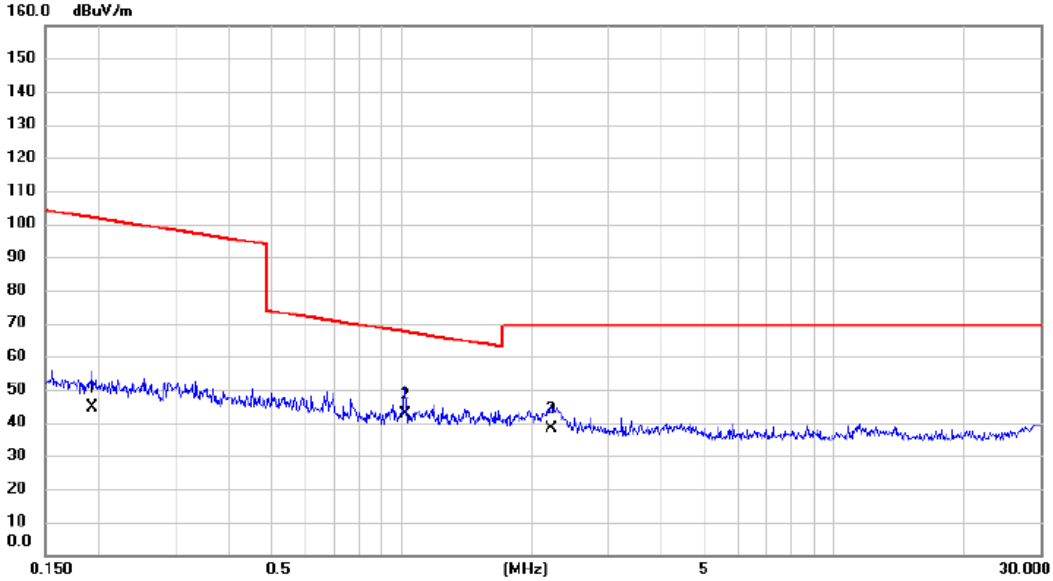


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0146	38.45	15.44	53.89	124.32	-70.43	AVG	
2	*	0.0456	30.47	13.92	44.39	114.43	-70.04	AVG	
3		0.0916	22.90	13.54	36.44	108.37	-71.93	QP	

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

Test Mode:	TX G Mode Channel 06

Ant 90°



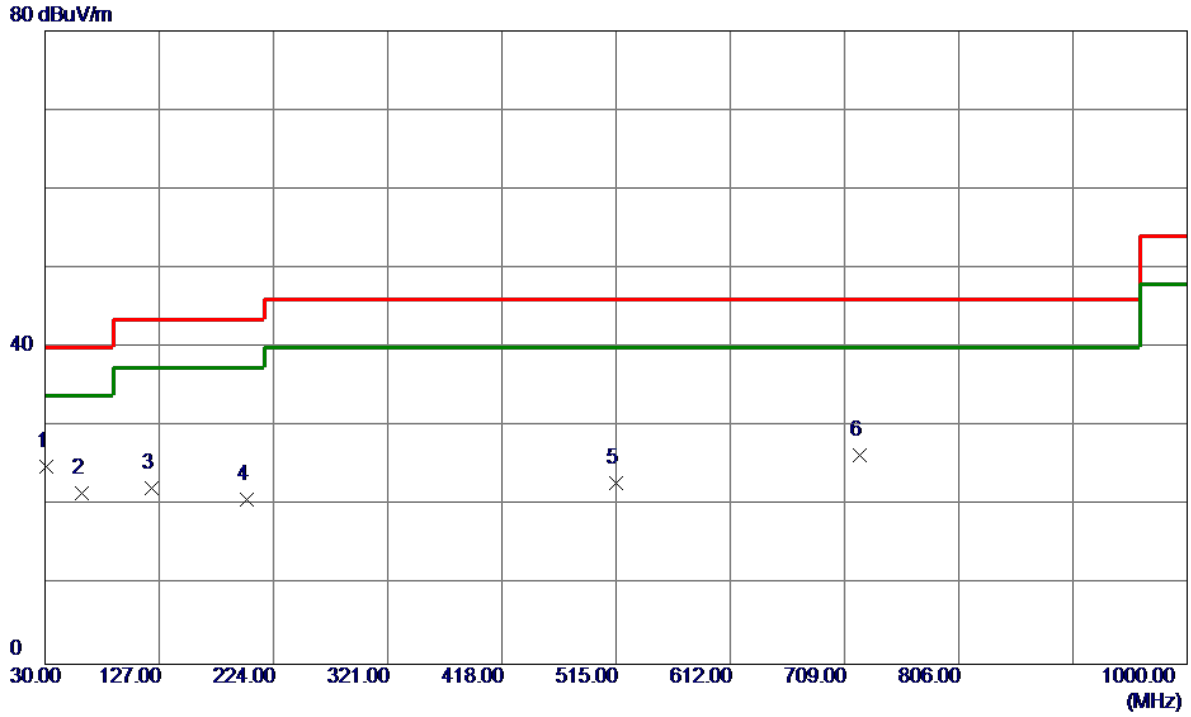
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.1934	31.15	13.60	44.75	101.88	-57.13	AVG	
2	*	1.0211	30.25	12.49	42.74	67.42	-24.68	QP	
3		2.2250	26.49	11.68	38.17	69.54	-31.37	QP	

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 06

Vertical

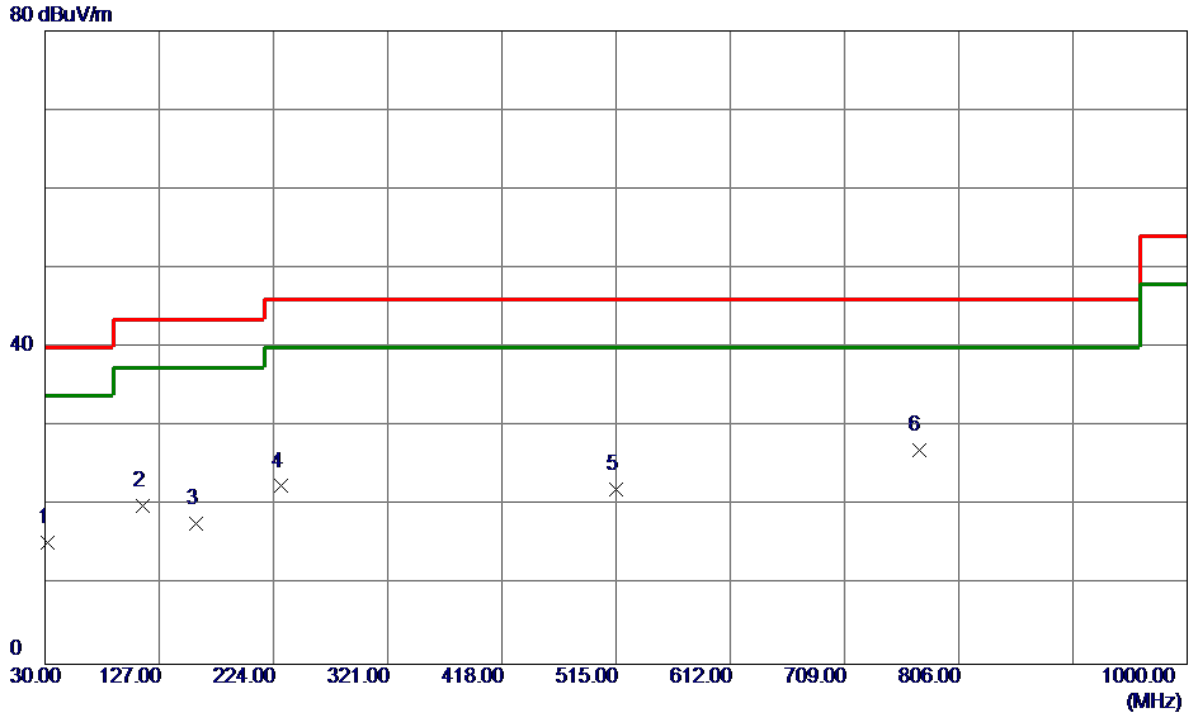


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	30.9700	39.93	-14.91	25.02	40.00	-14.98	Peak	
2	61.0400	36.50	-14.92	21.58	40.00	-18.42	Peak	
3	120.2100	35.28	-13.10	22.18	43.50	-21.32	Peak	
4	201.6900	36.18	-15.31	20.87	43.50	-22.63	Peak	
5	515.0000	30.57	-7.61	22.96	46.00	-23.04	Peak	
6	721.6100	30.24	-3.87	26.37	46.00	-19.63	Peak	

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

Test Mode:	TX G Mode Channel 06

Horizontal



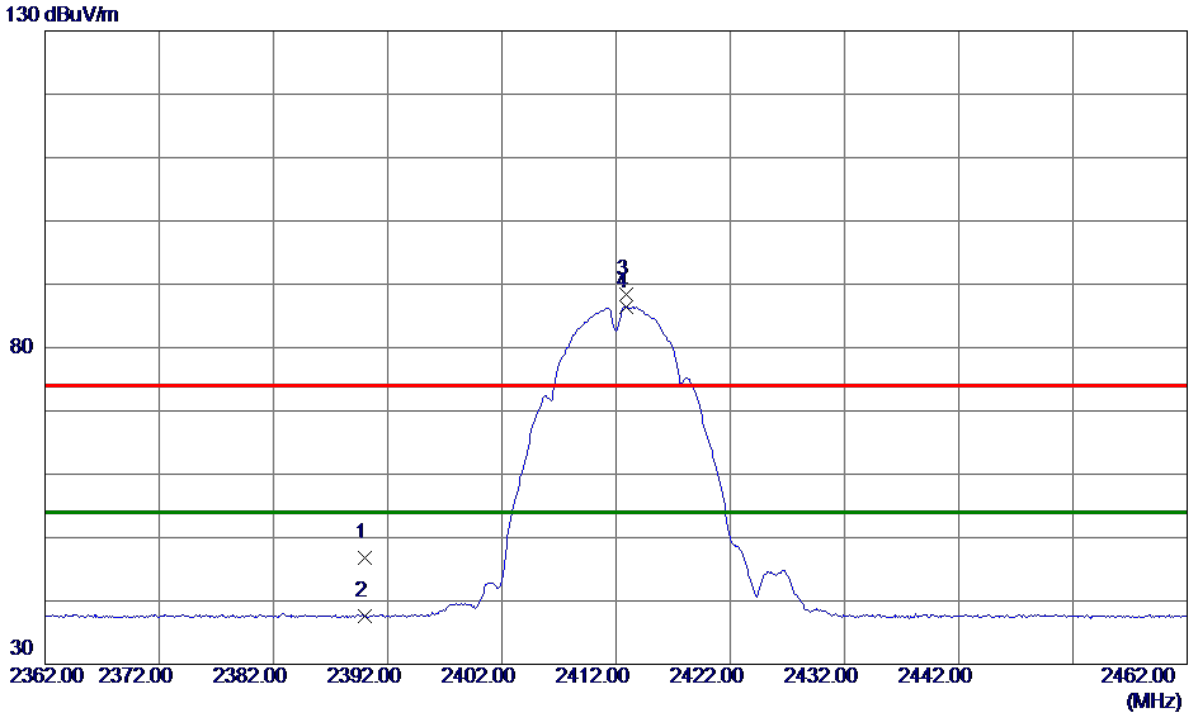
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	31.9400	30.16	-14.80	15.36	40.00	-24.64	Peak	
2	113.4200	34.02	-14.07	19.95	43.50	-23.55	Peak	
3	158.0399	29.02	-11.32	17.70	43.50	-25.80	Peak	
4	230.7900	36.79	-14.31	22.48	46.00	-23.52	Peak	
5	515.0000	29.75	-7.61	22.14	46.00	-23.86	Peak	
6 *	772.0500	30.48	-3.38	27.10	46.00	-18.90	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	2390.0000	37.81	9.07	46.88	74.00	-27.12	Peak	
2	2390.0000	28.60	9.07	37.67	54.00	-16.33	AVG	
3	2412.9000	79.42	9.06	88.48	74.00	14.48	Peak	No Limit
4 *	2412.9000	77.43	9.06	86.49	54.00	32.49	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

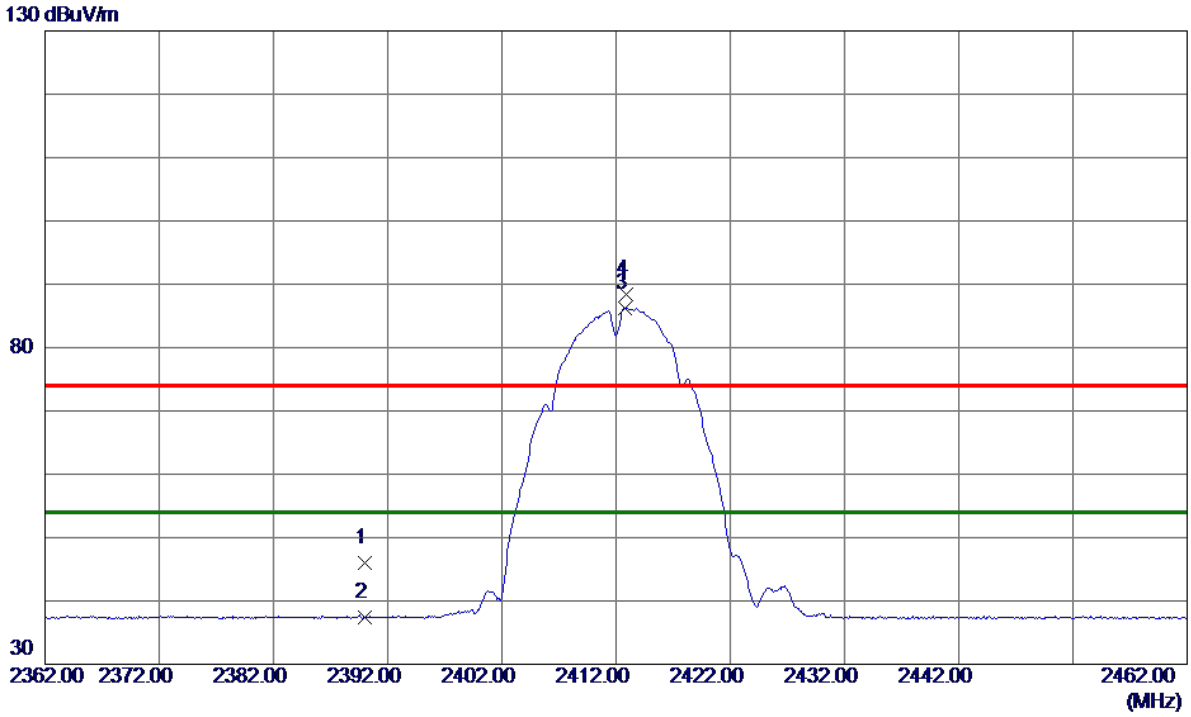
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0000	32.06	8.04	40.10	54.00	-13.90	AVG	
2	4824.1800	37.99	8.04	46.03	74.00	-27.97	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	36.95	9.07	46.02	74.00	-27.98	Peak	
2	2390.0000	28.33	9.07	37.40	54.00	-16.60	AVG	
3 *	2412.8000	77.15	9.06	86.21	54.00	32.21	AVG	No Limit
4	2412.9000	79.42	9.06	88.48	74.00	14.48	Peak	No Limit

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

Test Mode:	TX B Mode 2412 MHz

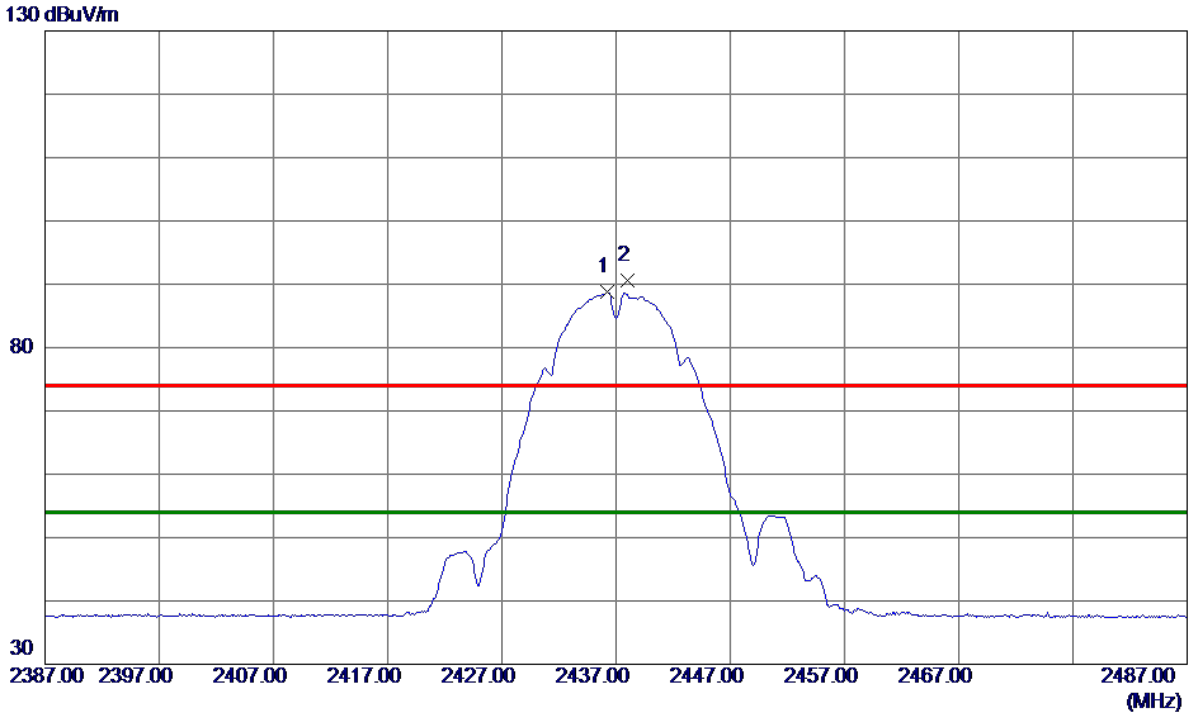
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.7480	36.59	8.04	44.63	74.00	-29.37	Peak	
2 *	4823.9900	25.45	8.04	33.49	54.00	-20.51	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 *	2436.2000	79.68	9.04	88.72	54.00	34.72	AVG	No Limit
2	2438.0000	81.55	9.04	90.59	74.00	16.59	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

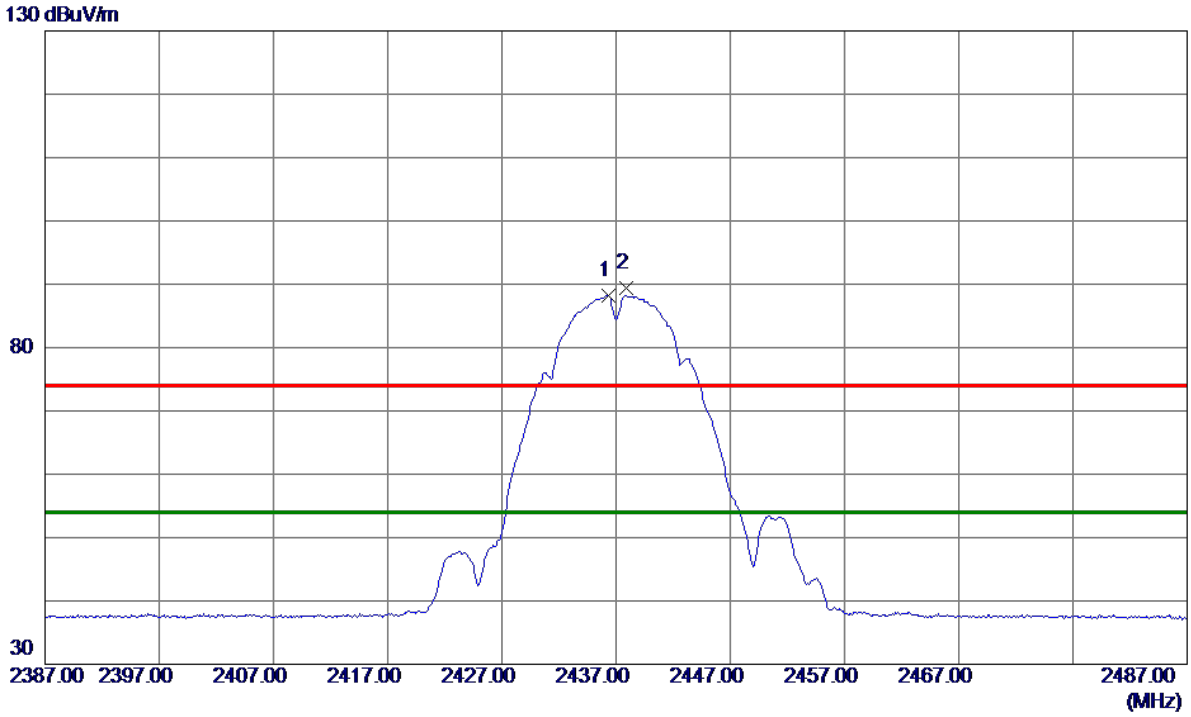
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9850	29.27	8.21	37.48	54.00	-16.52	AVG	
2	4873.9950	37.82	8.21	46.03	74.00	-27.97	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 *	2436.3000	79.15	9.04	88.19	54.00	34.19	AVG	No Limit
2	2437.9000	80.27	9.04	89.31	74.00	15.31	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

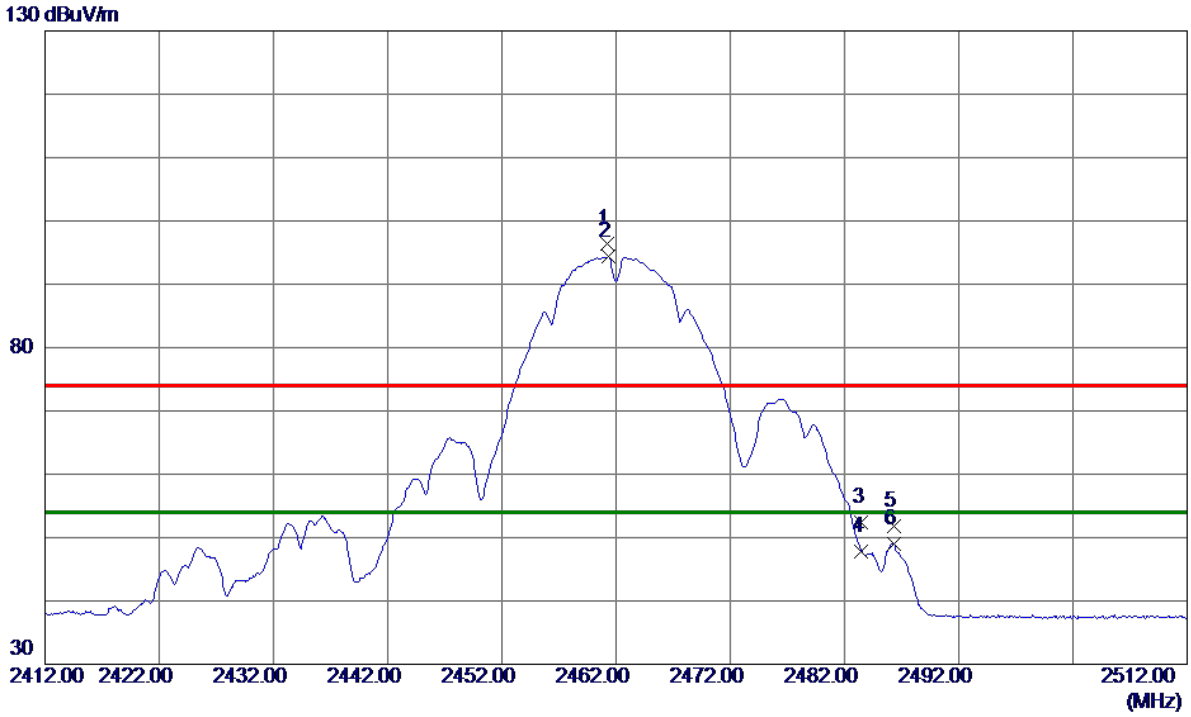
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.0280	27.96	8.21	36.17	54.00	-17.83	AVG	
2	4874.5080	37.10	8.21	45.31	74.00	-28.69	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	2461.2000	87.43	9.03	96.46	74.00	22.46	Peak	No Limit
2 *	2461.3000	85.29	9.03	94.32	54.00	40.32	AVG	No Limit
3	2483.5000	43.38	9.01	52.39	74.00	-21.61	Peak	
4	2483.5000	38.80	9.01	47.81	54.00	-6.19	AVG	
5	2486.3000	42.83	9.01	51.84	74.00	-22.16	Peak	
6	2486.3000	40.07	9.01	49.08	54.00	-4.92	AVG	

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

Test Mode:	TX B Mode 2462 MHz

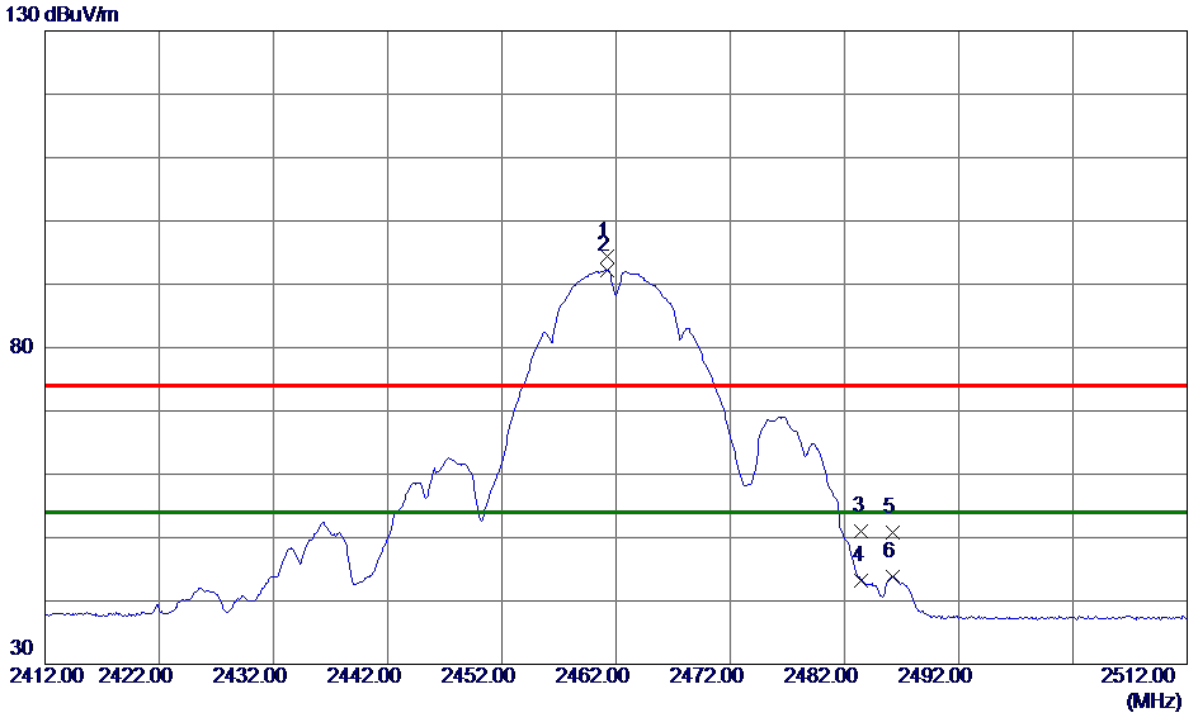
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.9360	39.37	8.38	47.75	54.00	-6.25	AVG	
2	4924.1700	42.72	8.38	51.10	74.00	-22.90	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	2461.2000	85.35	9.03	94.38	74.00	20.38	Peak	No Limit
2 *	2461.2000	83.12	9.03	92.15	54.00	38.15	AVG	No Limit
3	2483.5000	42.07	9.01	51.08	74.00	-22.92	Peak	
4	2483.5000	34.28	9.01	43.29	54.00	-10.71	AVG	
5	2486.2000	41.83	9.01	50.84	74.00	-23.16	Peak	
6	2486.2000	34.74	9.01	43.75	54.00	-10.25	AVG	

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

Test Mode:	TX B Mode 2462 MHz

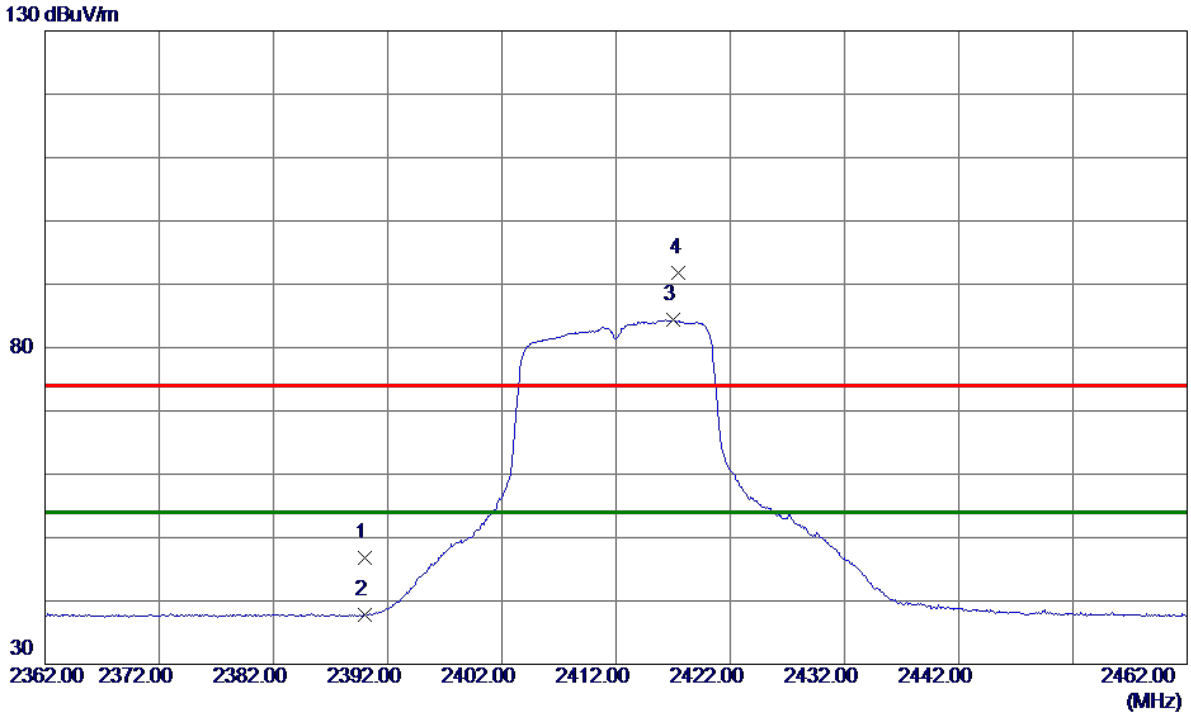
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923.9380	44.06	8.38	52.44	74.00	-21.56	Peak	
2 *	4923.9480	41.28	8.38	49.66	54.00	-4.34	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	37.67	9.07	46.74	74.00	-27.26	Peak	
2	2390.0000	28.66	9.07	37.73	54.00	-16.27	AVG	
3 *	2417.0000	75.28	9.05	84.33	54.00	30.33	AVG	No Limit
4	2417.5000	82.83	9.05	91.88	74.00	17.88	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

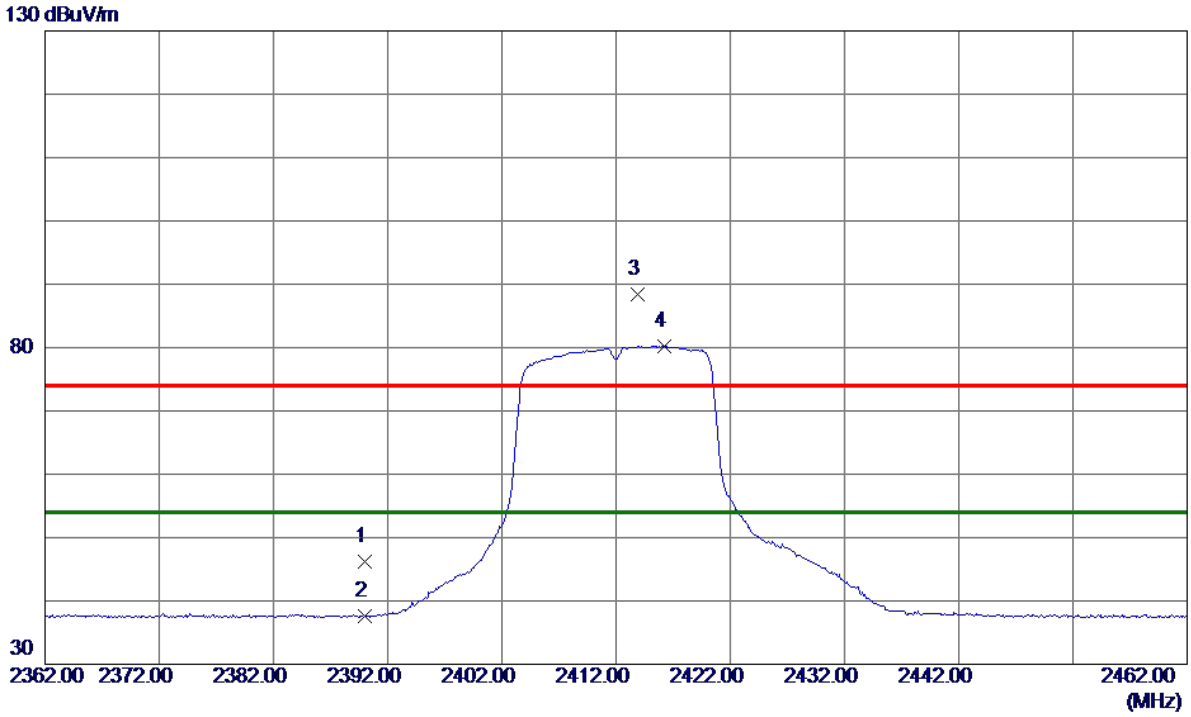
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4813.5000	42.88	8.01	50.89	74.00	-23.11	Peak	
2 *	4814.9000	32.45	8.01	40.46	54.00	-13.54	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	37.04	9.07	46.11	74.00	-27.89	Peak	
2	2390.0000	28.53	9.07	37.60	54.00	-16.40	AVG	
3	2413.9000	79.30	9.06	88.36	74.00	14.36	Peak	No Limit
4 *	2416.2000	71.16	9.05	80.21	54.00	26.21	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

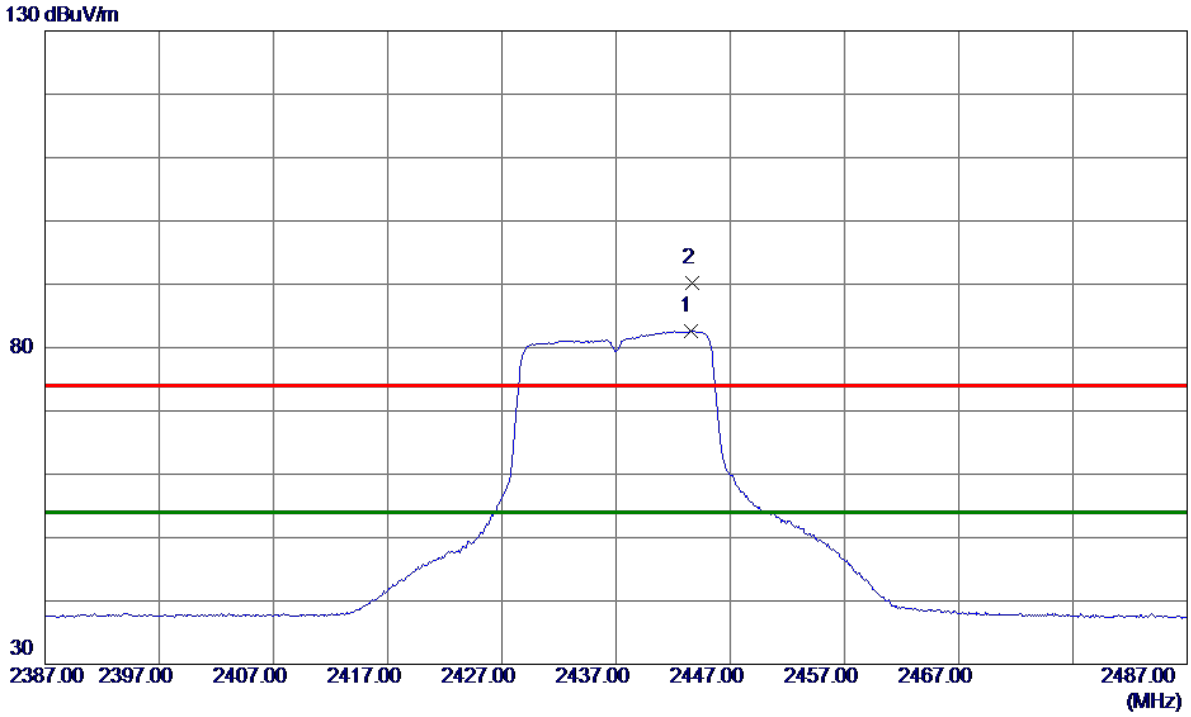
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.2100	25.72	8.04	33.76	54.00	-20.24	AVG	
2	4824.0580	36.99	8.04	45.03	74.00	-28.97	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 *	2443.5000	73.58	9.04	82.62	54.00	28.62	AVG	No Limit
2	2443.7000	81.17	9.04	90.21	74.00	16.21	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

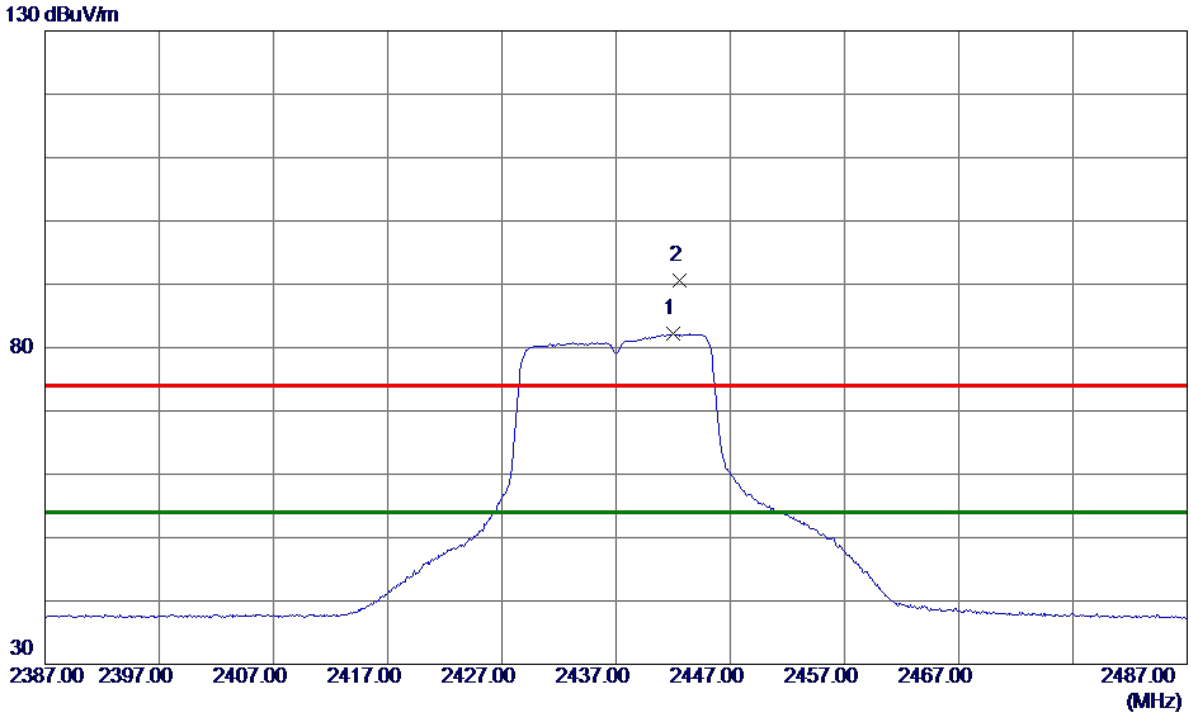
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.4000	36.25	8.21	44.46	74.00	-29.54	Peak	
2 *	4874.2000	25.37	8.21	33.58	54.00	-20.42	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 *	2442.0000	73.17	9.04	82.21	54.00	28.21	AVG	No Limit
2	2442.6000	81.50	9.04	90.54	74.00	16.54	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

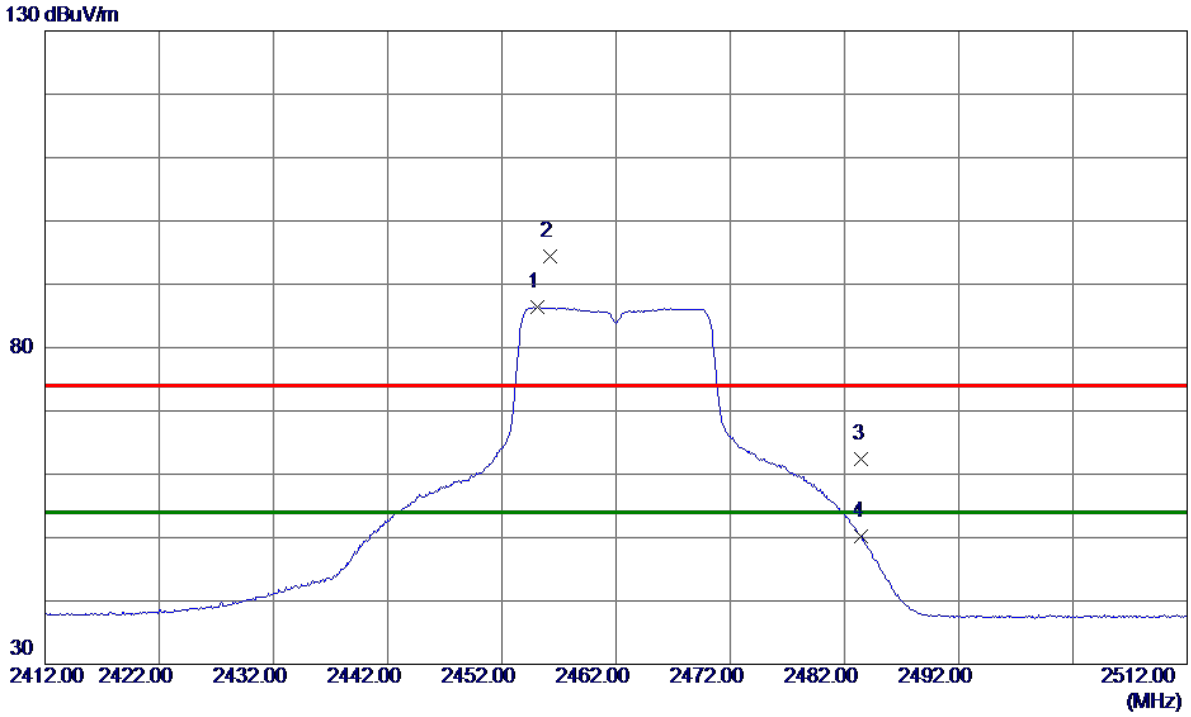
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.4360	25.05	8.21	33.26	54.00	-20.74	AVG	
2	4874.5240	36.29	8.21	44.50	74.00	-29.50	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 *	2455.1000	77.41	9.03	86.44	54.00	32.44	AVG	No Limit
2	2456.2000	85.38	9.03	94.41	74.00	20.41	Peak	No Limit
3	2483.5000	53.37	9.01	62.38	74.00	-11.62	Peak	
4	2483.5000	41.12	9.01	50.13	54.00	-3.87	AVG	

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

Test Mode:	TX G Mode 2462 MHz

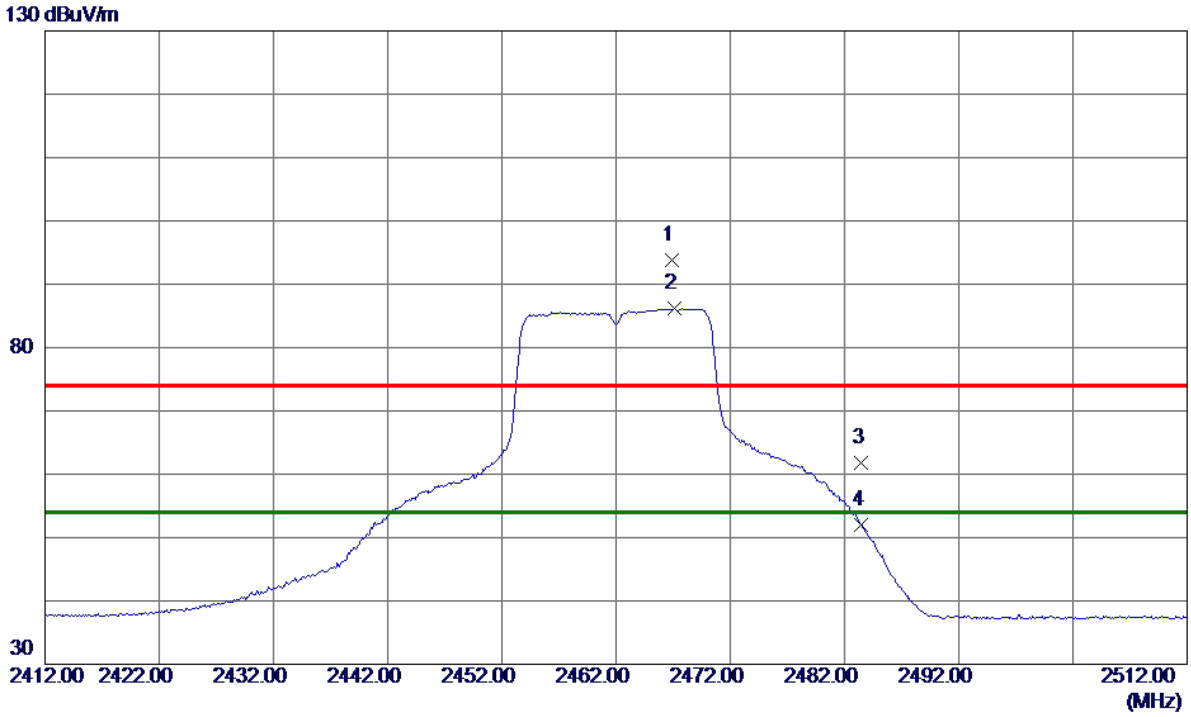
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923.7500	26.09	8.37	34.46	54.00	-19.54	AVG	
2	4928.7500	36.01	8.39	44.40	74.00	-29.60	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	2466.9000	84.86	9.02	93.88	74.00	19.88	Peak	No Limit
2 *	2467.1000	77.12	9.02	86.14	54.00	32.14	AVG	No Limit
3	2483.5000	52.70	9.01	61.71	74.00	-12.29	Peak	
4	2483.5000	42.95	9.01	51.96	54.00	-2.04	AVG	

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

Test Mode:	TX G Mode 2462 MHz

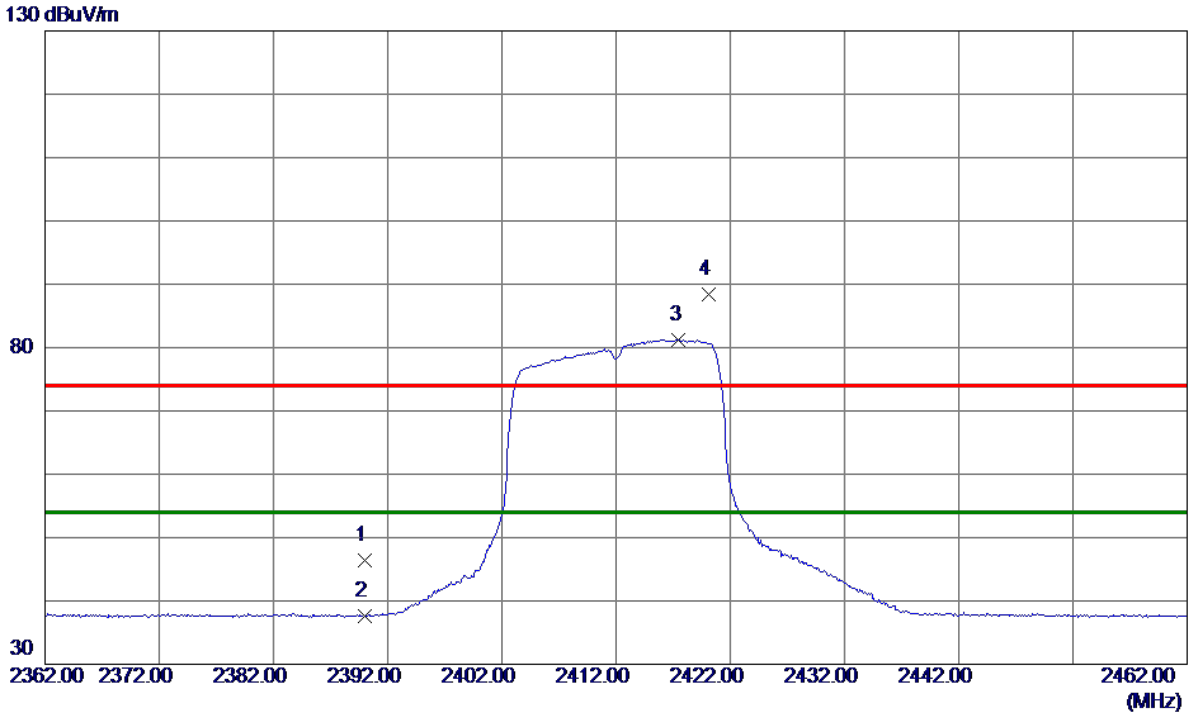
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.6200	37.30	8.38	45.68	74.00	-28.32	Peak	
2 *	4924.9200	26.24	8.38	34.62	54.00	-19.38	AVG	

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	37.41	9.07	46.48	74.00	-27.52	Peak	
2	2390.0000	28.62	9.07	37.69	54.00	-16.31	AVG	
3 *	2417.5000	72.19	9.05	81.24	54.00	27.24	AVG	No Limit
4	2420.1000	79.40	9.05	88.45	74.00	14.45	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

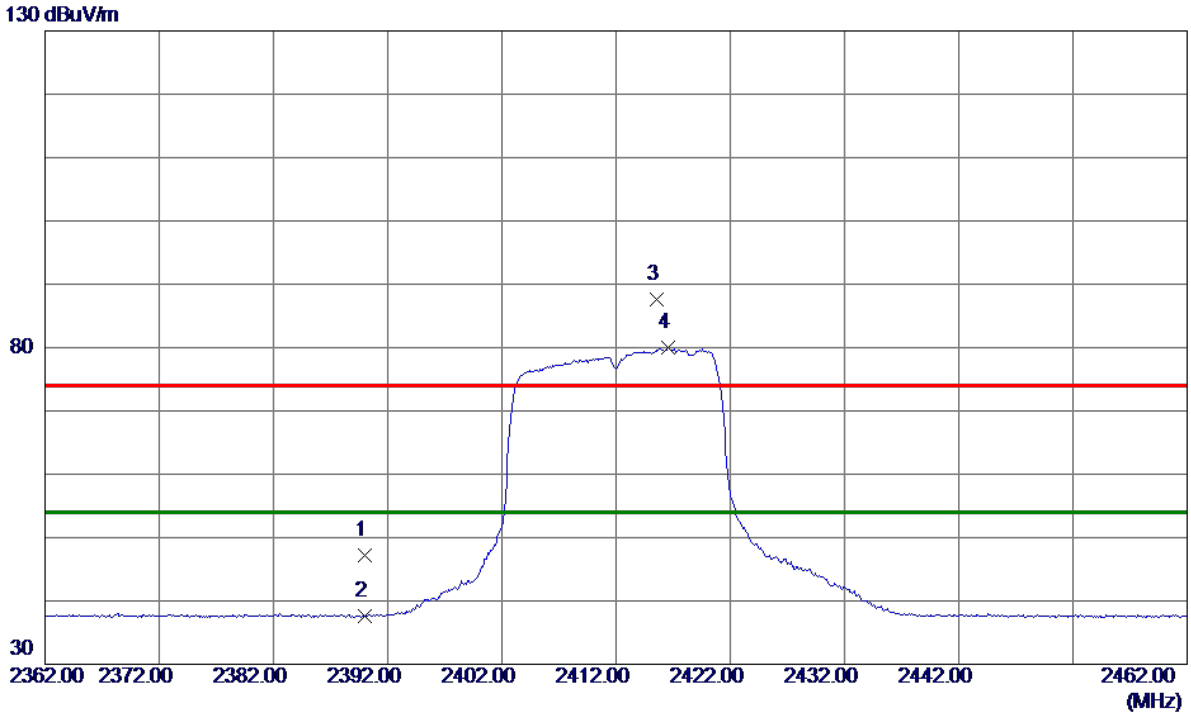
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4814.0000	42.29	8.01	50.30	74.00	-23.70	Peak	
2 *	4814.4000	31.05	8.01	39.06	54.00	-14.94	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	38.15	9.07	47.22	74.00	-26.78	Peak	
2	2390.0000	28.54	9.07	37.61	54.00	-16.39	AVG	
3	2415.6000	78.55	9.05	87.60	74.00	13.60	Peak	No Limit
4 *	2416.6000	70.88	9.05	79.93	54.00	25.93	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

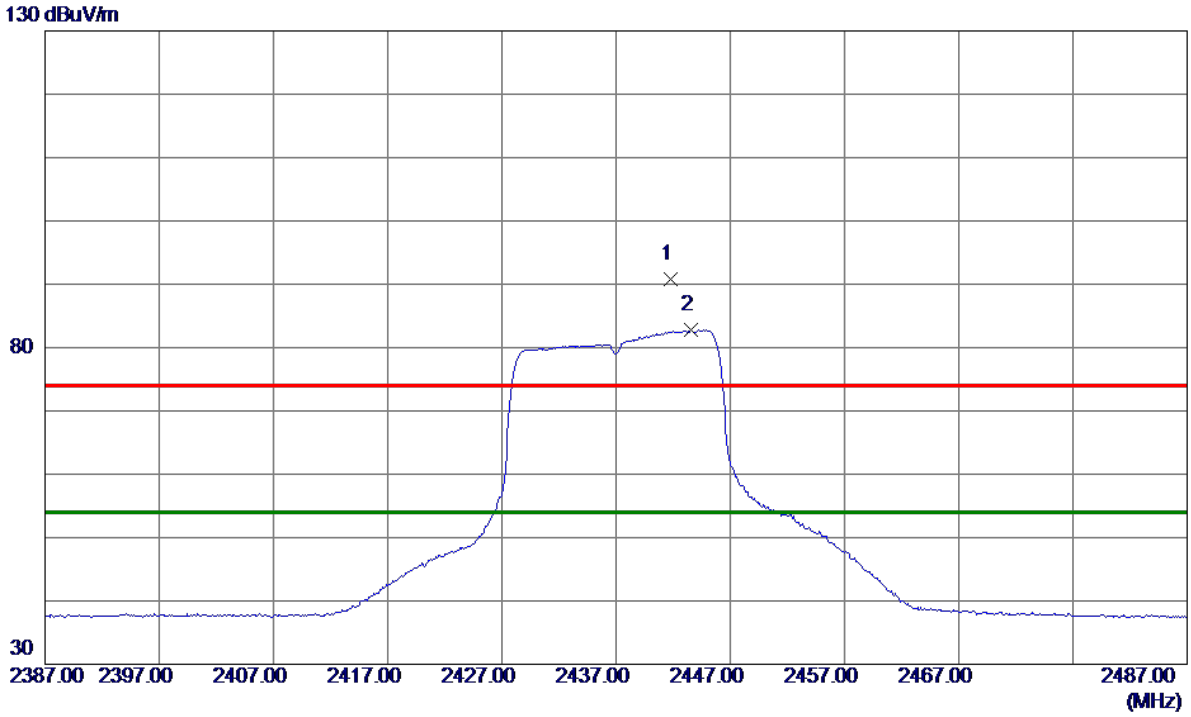
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4811.6500	40.35	8.00	48.35	74.00	-25.65	Peak	
2 *	4813.0000	30.20	8.00	38.20	54.00	-15.80	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	2441.8000	81.72	9.04	90.76	74.00	16.76	Peak	No Limit
2 *	2443.6000	73.78	9.04	82.82	54.00	28.82	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

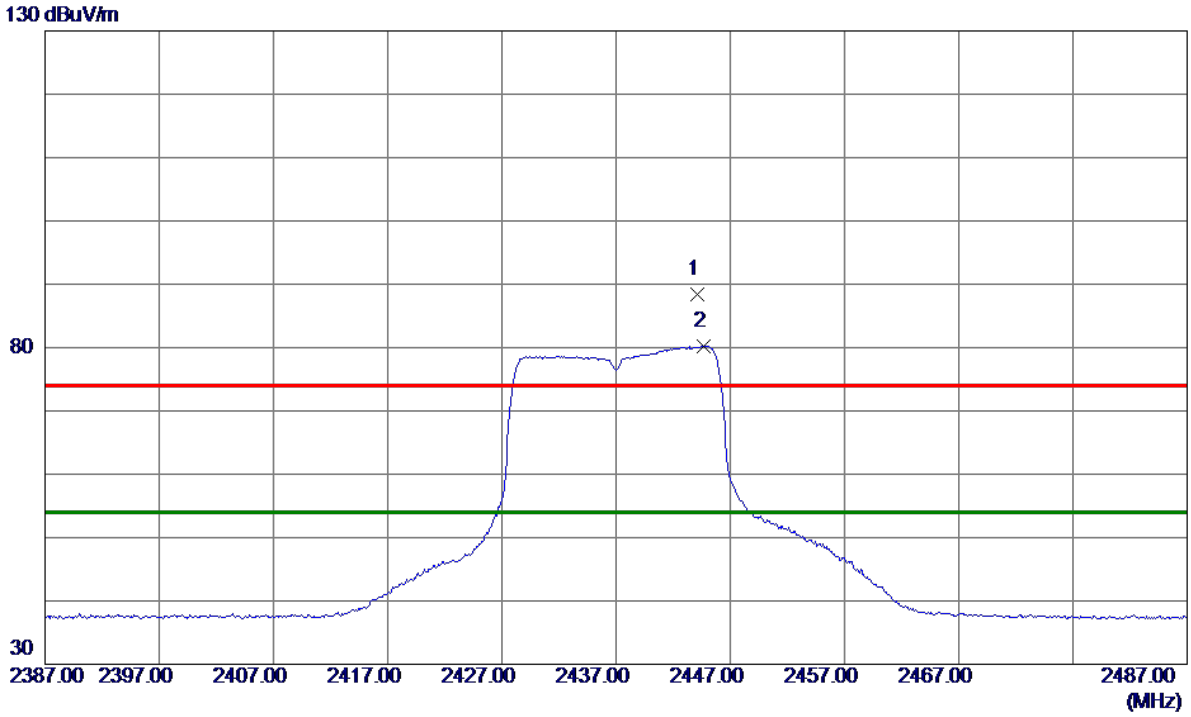
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.1500	25.54	8.21	33.75	54.00	-20.25	AVG	
2	4875.5000	36.75	8.21	44.96	74.00	-29.04	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	2444.1000	79.33	9.04	88.37	74.00	14.37	Peak	No Limit
2 *	2444.7000	71.21	9.04	80.25	54.00	26.25	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

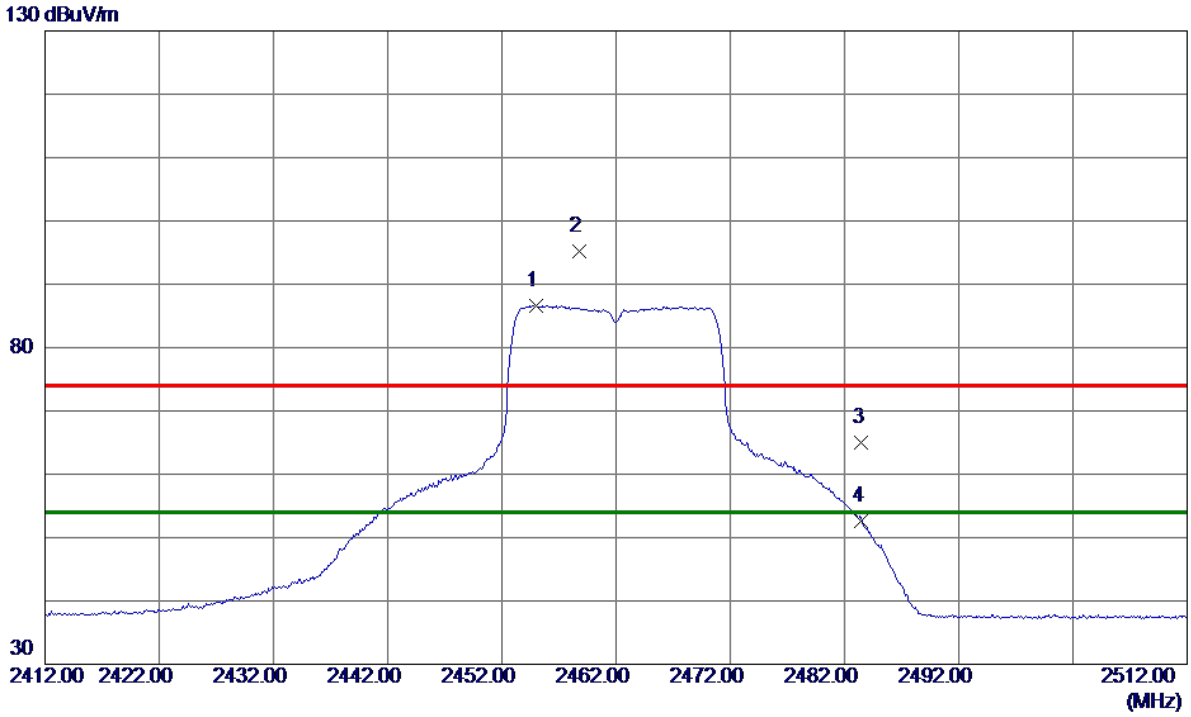
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4877.8700	35.41	8.22	43.63	74.00	-30.37	Peak	
2 *	4878.2599	24.99	8.22	33.21	54.00	-20.79	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 *	2455.0000	77.55	9.03	86.58	54.00	32.58	AVG	No Limit
2	2458.8000	86.21	9.03	95.24	74.00	21.24	Peak	No Limit
3	2483.5000	55.99	9.01	65.00	74.00	-9.00	Peak	
4	2483.5000	43.68	9.01	52.69	54.00	-1.31	AVG	

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

Test Mode:	TX N-20M Mode 2462 MHz

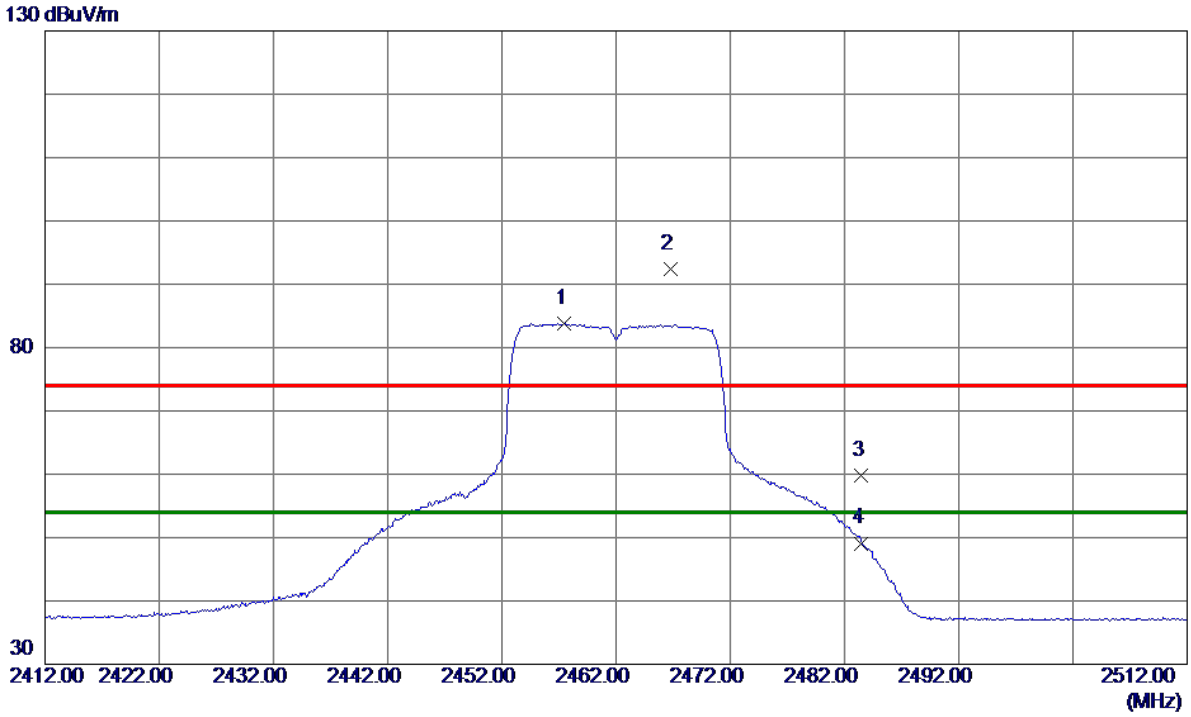
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4915.1000	26.32	8.35	34.67	54.00	-19.33	AVG	
2	4915.2500	37.01	8.35	45.36	74.00	-28.64	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 *	2457.5000	74.78	9.03	83.81	54.00	29.81	AVG	No Limit
2	2466.8000	83.40	9.02	92.42	74.00	18.42	Peak	No Limit
3	2483.5000	50.76	9.01	59.77	74.00	-14.23	Peak	
4	2483.5000	40.09	9.01	49.10	54.00	-4.90	AVG	

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

Test Mode:	TX N-20M Mode 2462 MHz

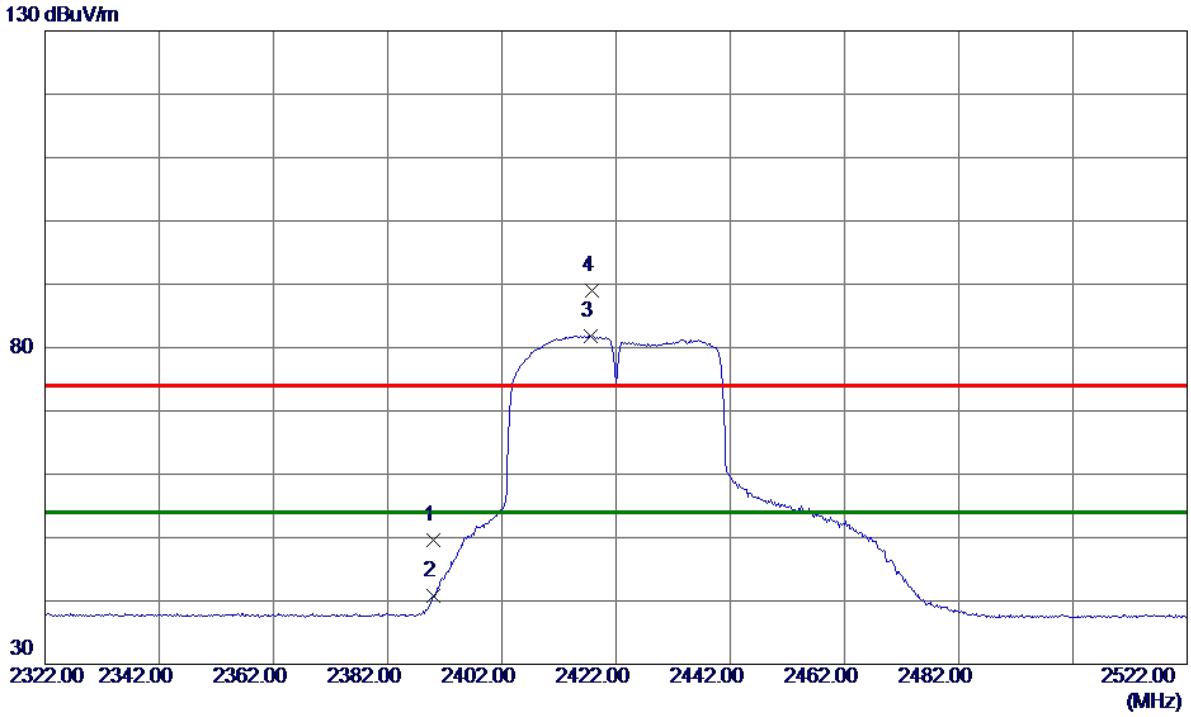
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4925.0900	26.17	8.38	34.55	54.00	-19.45	AVG	
2	4926.3600	37.44	8.38	45.82	74.00	-28.18	Peak	

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

Test Mode:	TX N-40M Mode 2422 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	40.44	9.07	49.51	74.00	-24.49	Peak	
2	2390.0000	31.79	9.07	40.86	54.00	-13.14	AVG	
3 *	2417.6000	72.80	9.05	81.85	54.00	27.85	AVG	No Limit
4	2417.8000	79.98	9.05	89.03	74.00	15.03	Peak	No Limit

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

Test Mode:	TX N-40M Mode 2422 MHz

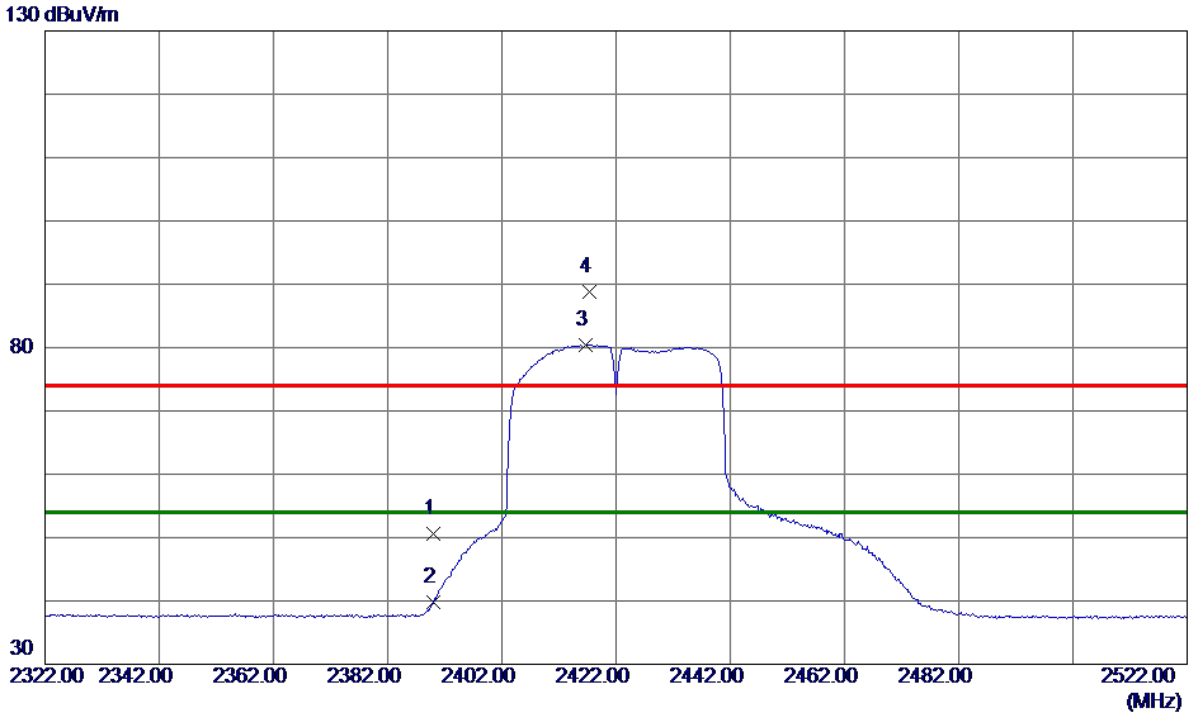
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4842.2000	37.02	8.10	45.12	74.00	-28.88	Peak	
2 *	4843.2000	27.51	8.10	35.61	54.00	-18.39	AVG	

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

Test Mode:	TX N-40M Mode 2422 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	41.56	9.07	50.63	74.00	-23.37	Peak	
2	2390.0000	30.81	9.07	39.88	54.00	-14.12	AVG	
3 *	2416.6000	71.44	9.05	80.49	54.00	26.49	AVG	No Limit
4	2417.4000	79.80	9.05	88.85	74.00	14.85	Peak	No Limit

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

Test Mode:	TX N-40M Mode 2422 MHz

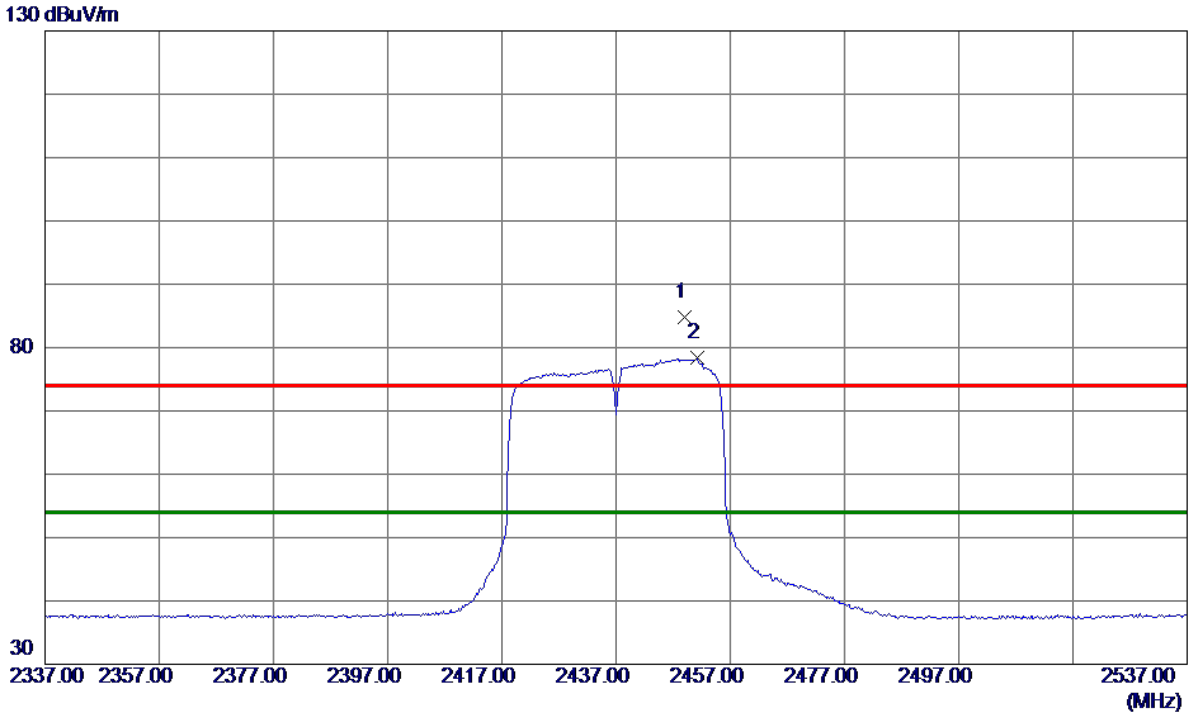
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4814.3000	37.86	8.01	45.87	74.00	-28.13	Peak	
2 *	4815.4000	27.61	8.01	35.62	54.00	-18.38	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

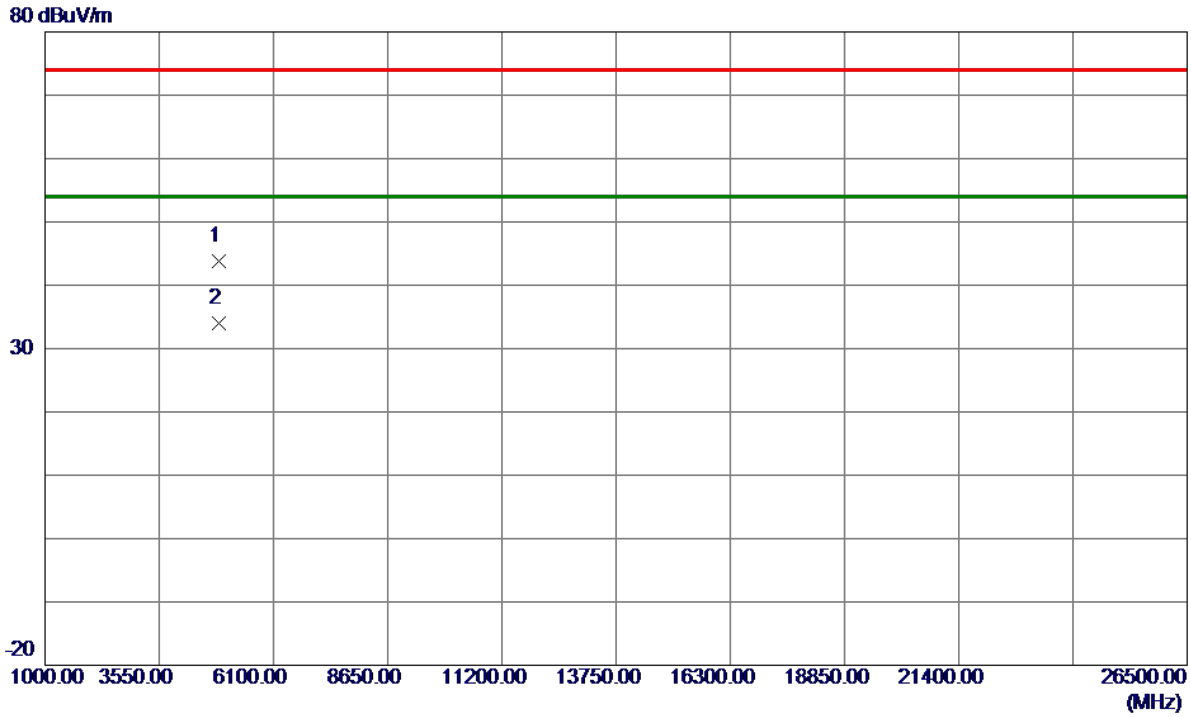


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2449.0000	75.68	9.04	84.72	74.00	10.72	Peak	No Limit
2 *	2451.2000	69.33	9.03	78.36	54.00	24.36	AVG	No Limit

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

Test Mode:	TX N-40M Mode 2437 MHz

Vertical

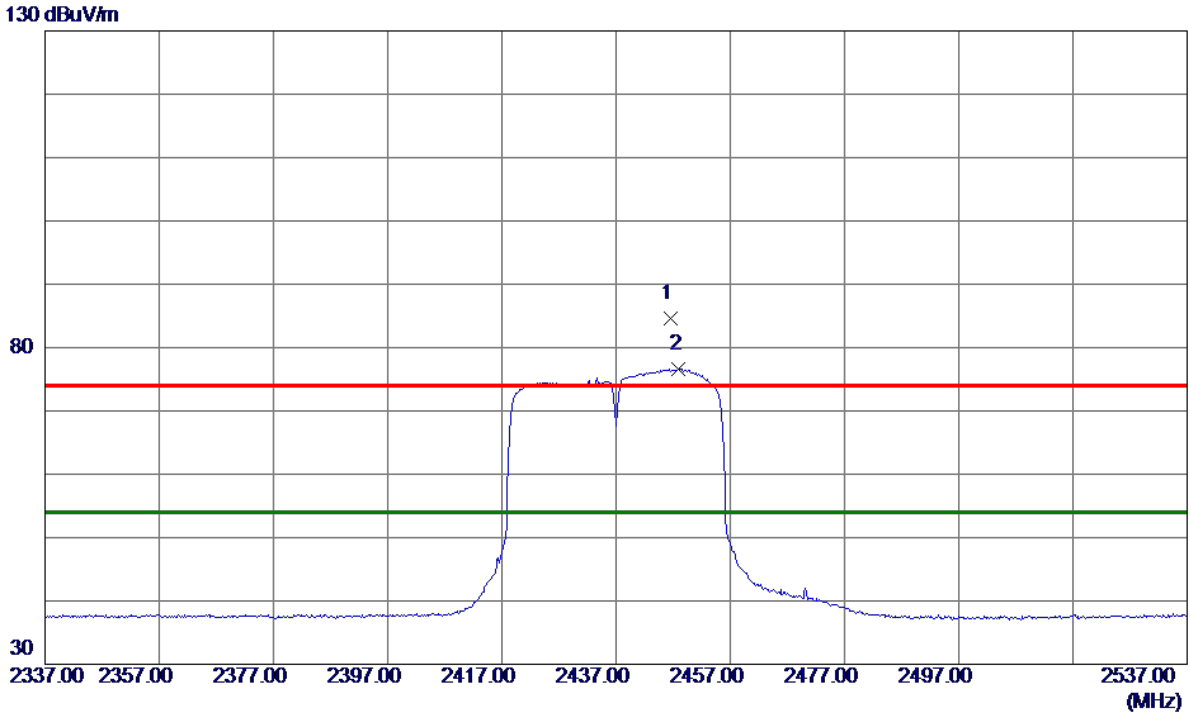


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.2000	35.53	8.21	43.74	74.00	-30.26	Peak	
2 *	4874.6000	25.80	8.21	34.01	54.00	-19.99	AVG	

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	2446.6000	75.55	9.04	84.59	74.00	10.59	Peak	No Limit
2 *	2448.0000	67.55	9.04	76.59	54.00	22.59	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

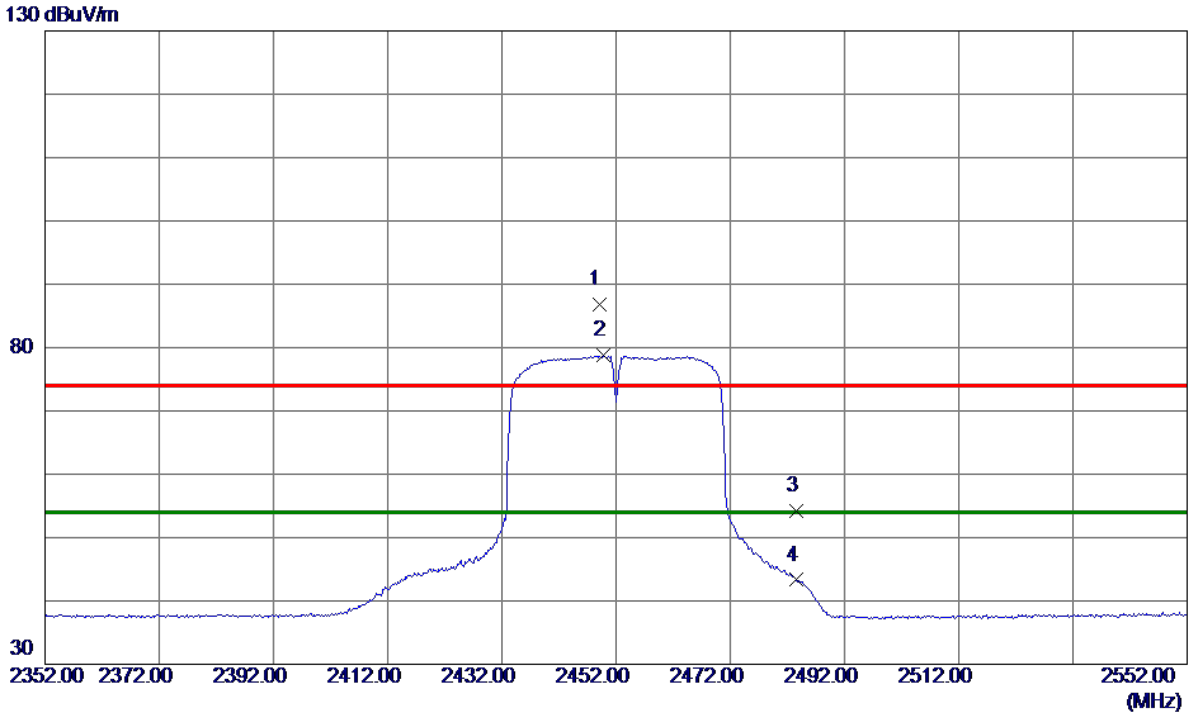
Horizontal

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.2000	25.50	8.21	33.71	54.00	-20.29	AVG	
2	4875.5000	36.42	8.21	44.63	74.00	-29.37	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	2449.0000	77.68	9.04	86.72	74.00	12.72	Peak	No Limit
2 *	2449.8000	69.69	9.03	78.72	54.00	24.72	AVG	No Limit
3	2483.5000	45.18	9.01	54.19	74.00	-19.81	Peak	
4	2483.5000	34.29	9.01	43.30	54.00	-10.70	AVG	

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

Test Mode:	TX N-40M Mode 2452 MHz

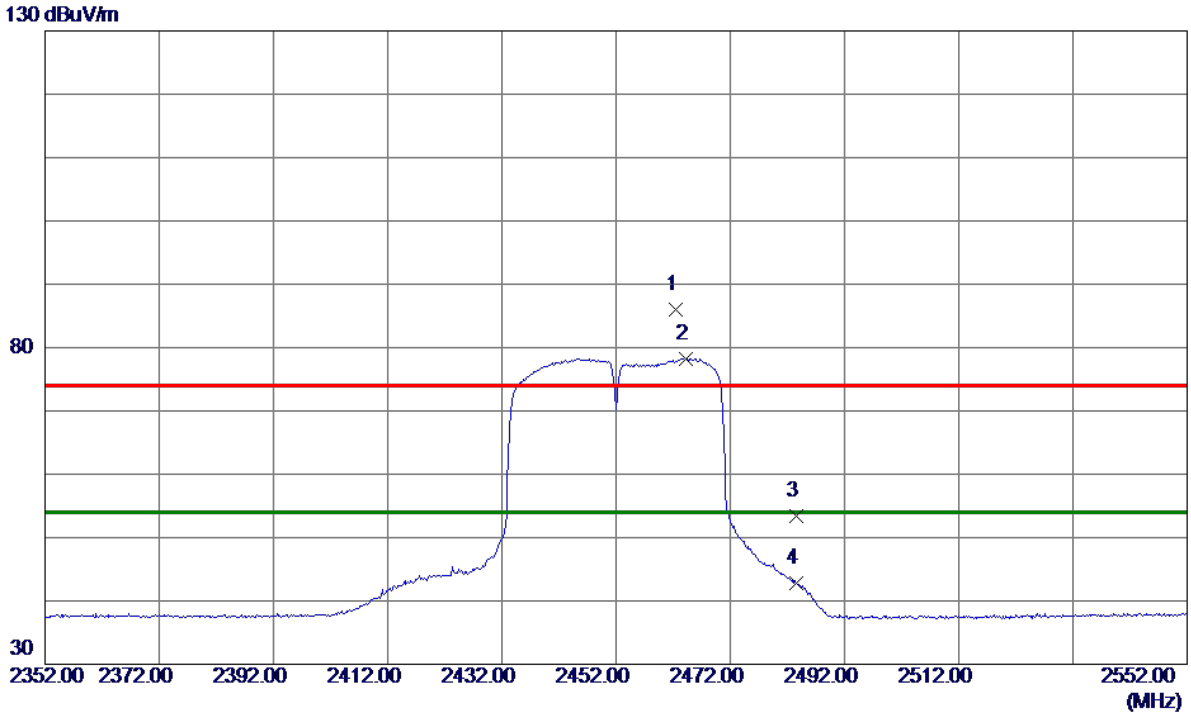
Vertical

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4901.7000	25.39	8.30	33.69	54.00	-20.31	AVG	
2	4902.3000	35.54	8.30	43.84	74.00	-30.16	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	2462.4000	76.97	9.03	86.00	74.00	12.00	Peak	No Limit
2 *	2464.2000	69.24	9.03	78.27	54.00	24.27	AVG	No Limit
3	2483.5000	44.35	9.01	53.36	74.00	-20.64	Peak	
4	2483.5000	33.80	9.01	42.81	54.00	-11.19	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 *	4910.3000	24.95	8.33	33.28	54.00	-20.72	AVG	
2	4912.4000	35.92	8.34	44.26	74.00	-29.74	Peak	

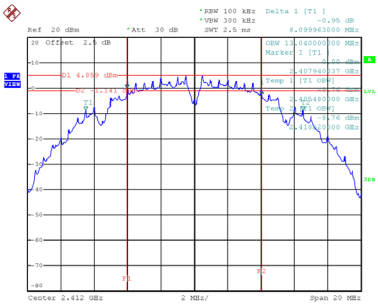
REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX E - BANDWIDTH

Test Mode	TX B Mode

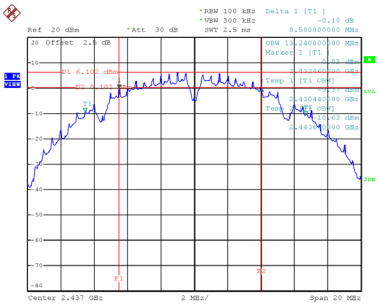
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	8.10	500	Complies
06	2437	8.58	500	Complies
11	2462	8.07	500	Complies

CH01



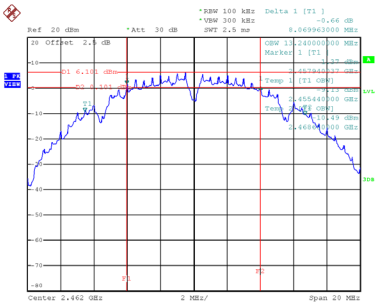
Date: 15.OCT.2019 09:44:35

CH06



Date: 15.OCT.2019 09:46:29

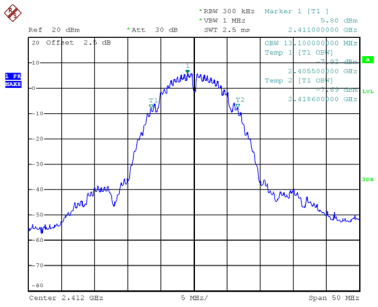
CH11



Date: 15.OCT.2019 09:47:56

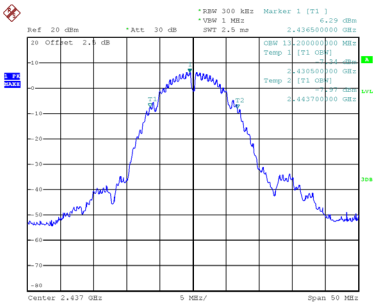
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	13.10	Complies
06	2437	13.20	Complies
11	2462	13.40	Complies

CH01



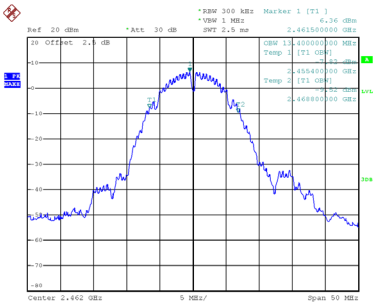
Date: 15.OCT.2019 10:28:38

CH06



Date: 15.OCT.2019 10:29:10

CH11

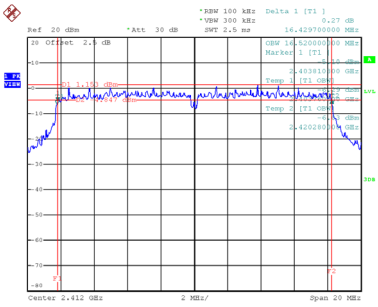


Date: 15.OCT.2019 10:30:00

Test Mode	TX G Mode

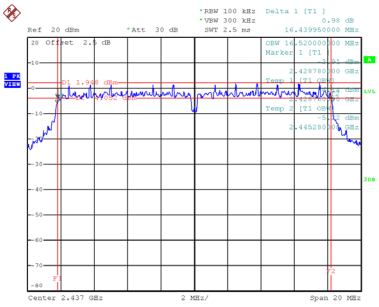
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	16.43	500	Complies
06	2437	16.44	500	Complies
11	2462	16.42	500	Complies

CH01



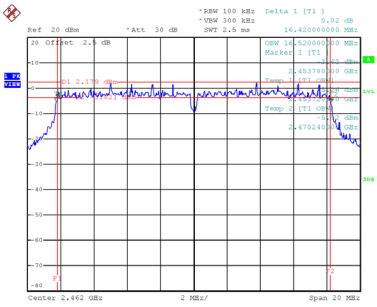
Date: 15.OCT.2019 09:49:50

CH06



Date: 15.OCT.2019 09:51:10

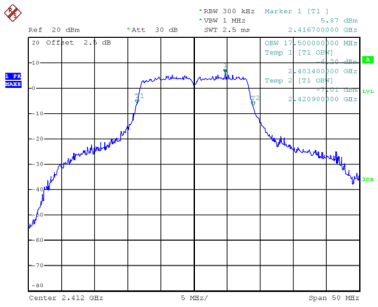
CH11



Date: 15.OCT.2019 09:52:36

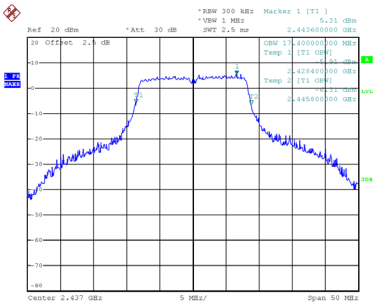
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	17.50	Complies
06	2437	17.40	Complies
11	2462	17.50	Complies

CH01



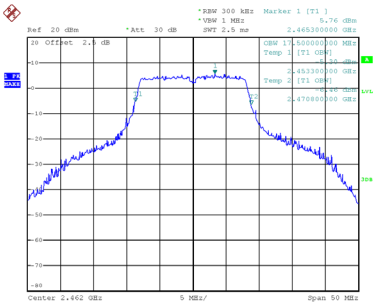
Date: 15.OCT.2019 10:31:11

CH06



Date: 15.OCT.2019 10:31:40

CH11

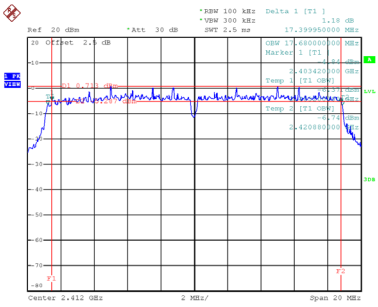


Date: 15.OCT.2019 10:33:53

Test Mode	TX N-20M Mode

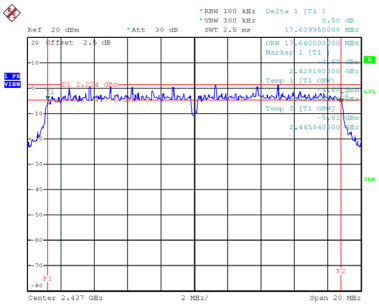
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	17.40	500	Complies
06	2437	17.64	500	Complies
11	2462	17.62	500	Complies

CH01



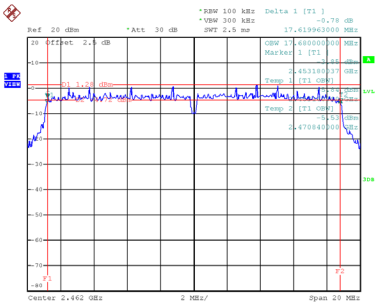
Date: 15.OCT.2019 09:54:56

CH06



Date: 15.OCT.2019 09:57:08

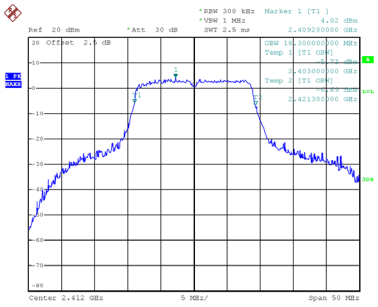
CH11



Date: 15.OCT.2019 09:58:30

Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	18.30	Complies
06	2437	18.30	Complies
11	2462	18.30	Complies

CH01



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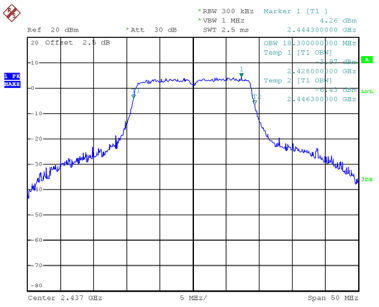
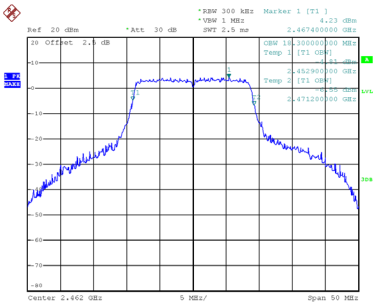
CH06



Date: 15.OCT.2019 10:39:21

CH11

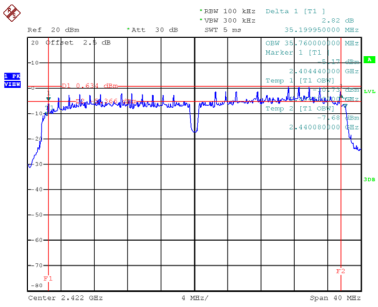


Date: 15.OCT.2019 10:39:52

Test Mode	TX N-40M Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
03	2422	35.20	500	Complies
06	2437	35.43	500	Complies
09	2452	35.20	500	Complies

CH03



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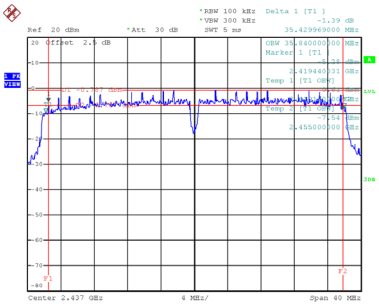
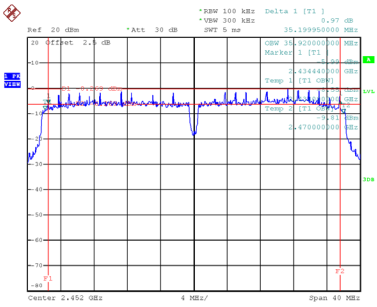
CH06



Date: 15.OCT.2019 10:07:23

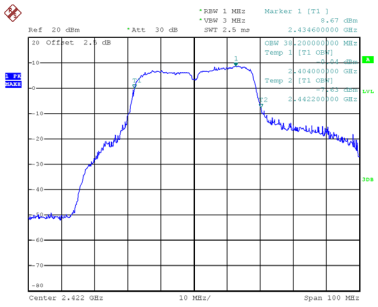
CH09



Date: 15.OCT.2019 10:10:16

Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
03	2422	38.20	Complies
06	2437	37.40	Complies
09	2452	37.40	Complies

CH03



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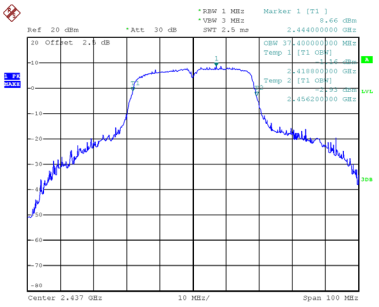
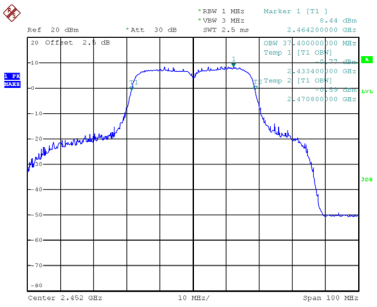
CH06



Date: 15.OCT.2019 10:41:52

CH09



Date: 15.OCT.2019 10:44:36

APPENDIX F - MAXIMUM PEAK OUTPUT POWER

Test Mode	TX B Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	16.71	30.00	1.0000	Complies
06	2437	16.96	30.00	1.0000	Complies
11	2462	16.82	30.00	1.0000	Complies

Test Mode	TX G Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	20.36	30.00	1.0000	Complies
06	2437	20.78	30.00	1.0000	Complies
11	2462	20.01	30.00	1.0000	Complies

Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	20.07	30.00	1.0000	Complies
06	2437	20.61	30.00	1.0000	Complies
11	2462	19.75	30.00	1.0000	Complies

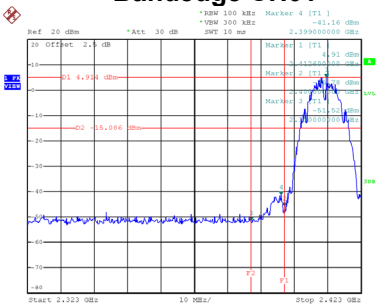
Test Mode	TX N-40M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	19.71	30.00	1.0000	Complies
06	2437	20.41	30.00	1.0000	Complies
09	2452	20.48	30.00	1.0000	Complies

APPENDIX G - CONDUCTED SPURIOUS EMISSIONS

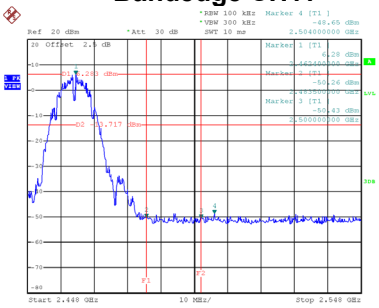
Test Mode	TX B Mode

Bandedge CH01



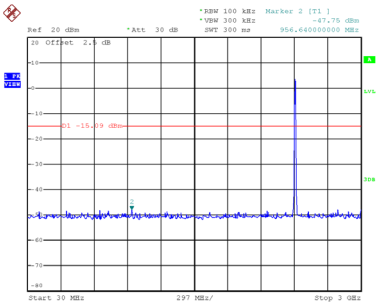
Date: 15.OCT.2019 09:44:43

Bandedge CH11

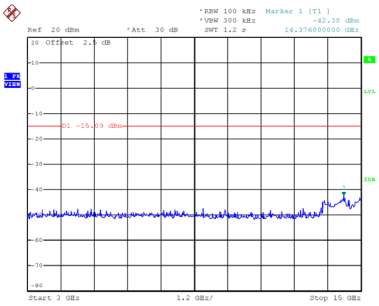


Date: 15.OCT.2019 09:48:03

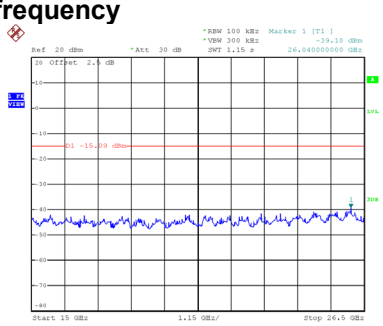
CH01 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:44:55

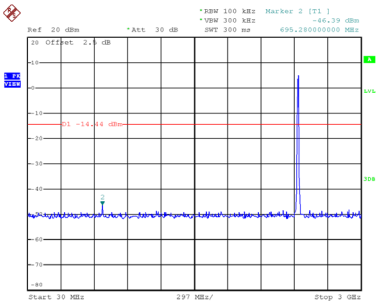


Date: 15.OCT.2019 09:45:02

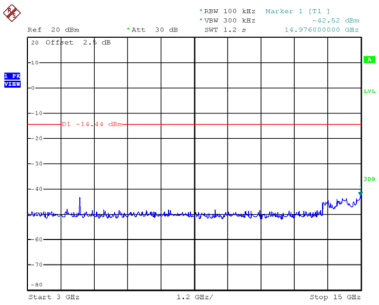


Date: 15.OCT.2019 09:45:09

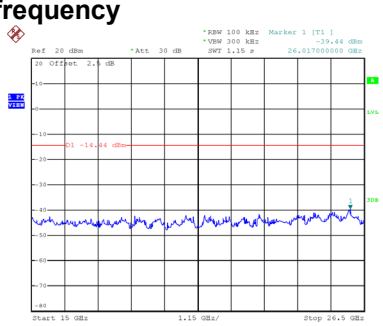
CH06 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:46:49

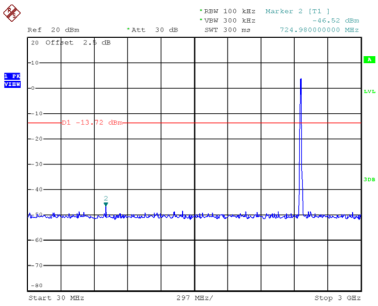


Date: 15.OCT.2019 09:46:56

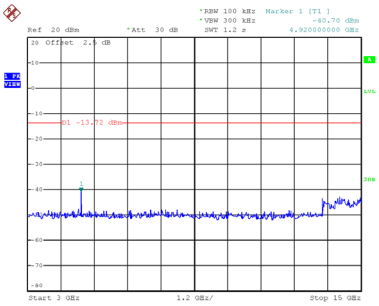


Date: 15.OCT.2019 09:47:03

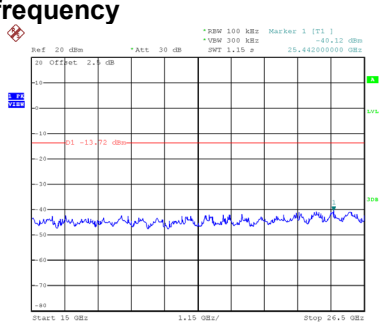
CH11 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:48:16



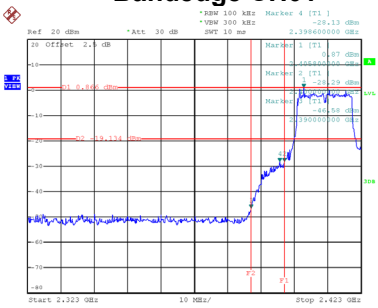
Date: 15.OCT.2019 09:48:23



Date: 15.OCT.2019 09:48:30

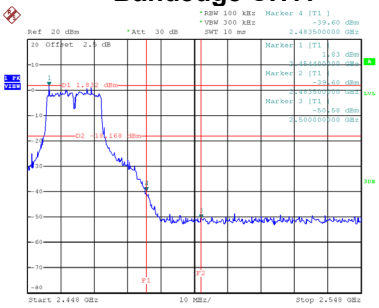
Test Mode	TX G Mode

Bandedge CH01



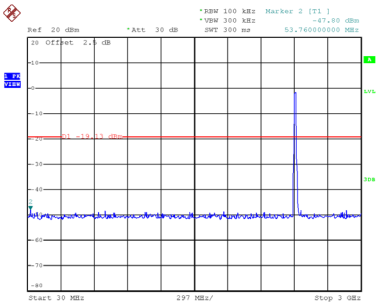
Date: 15.OCT.2019 09:49:57

Bandedge CH11

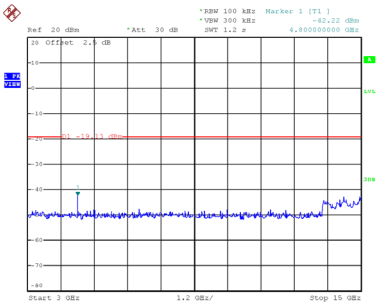


Date: 15.OCT.2019 09:52:43

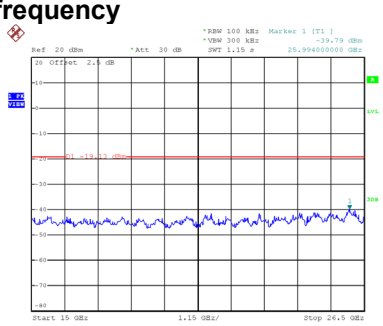
CH01 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:50:10

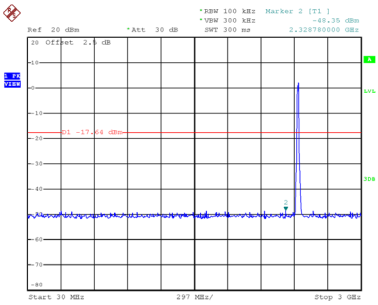


Date: 15.OCT.2019 09:50:17

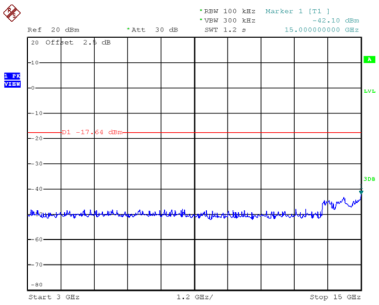


Date: 15.OCT.2019 09:50:24

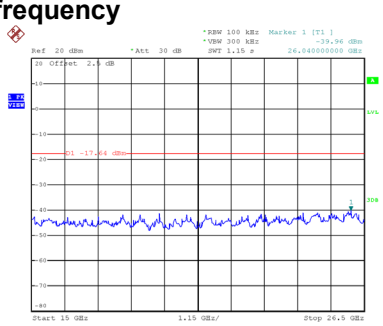
CH06 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:51:30

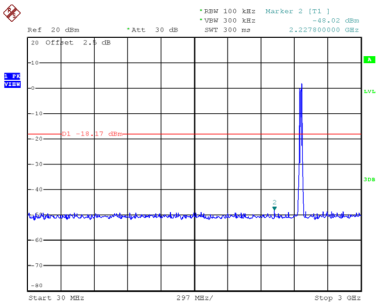


Date: 15.OCT.2019 09:51:37

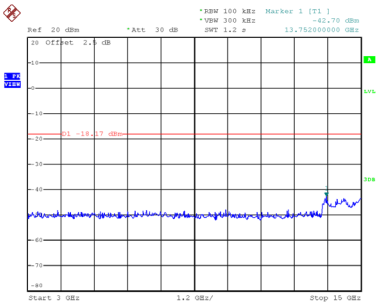


Date: 15.OCT.2019 09:51:45

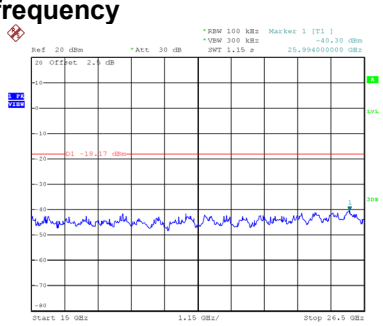
CH11 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:52:56



Date: 15.OCT.2019 09:53:02



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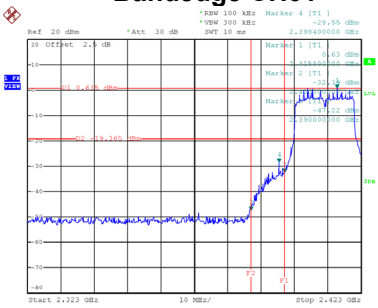
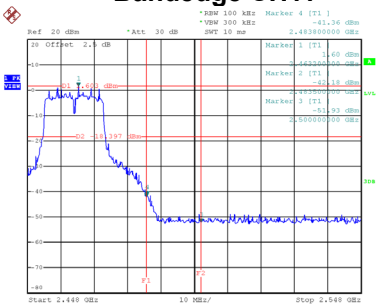
Test Mode	TX N-20M Mode

Bandedge CH01



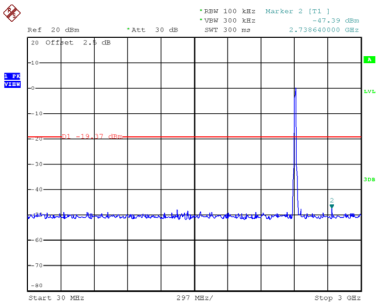
Date: 15.OCT.2019 09:55:03

Bandedge CH11

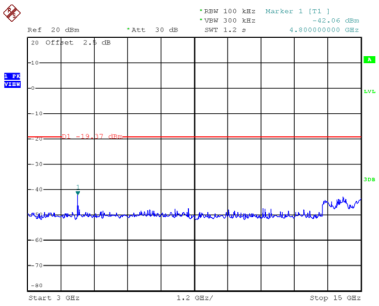


Date: 15.OCT.2019 09:58:37

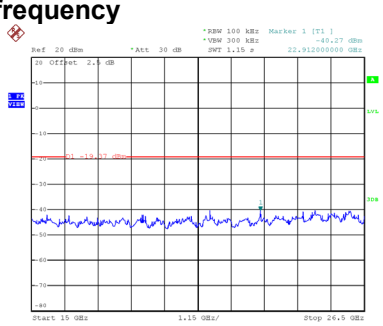
CH01 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:55:16

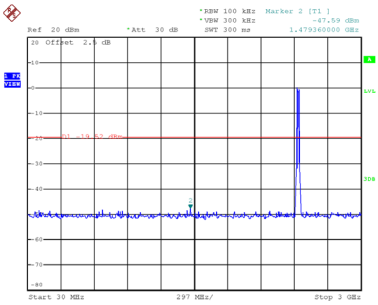


Date: 15.OCT.2019 09:55:23

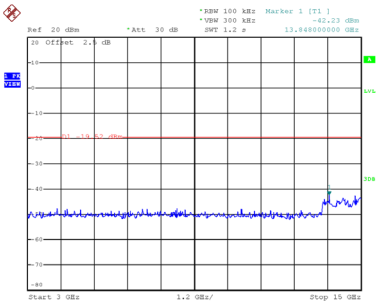


Date: 15.OCT.2019 09:55:30

CH06 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:57:29



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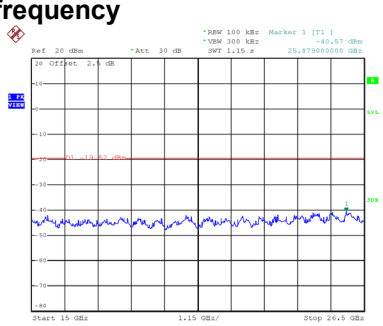
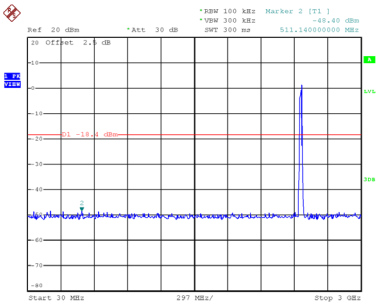
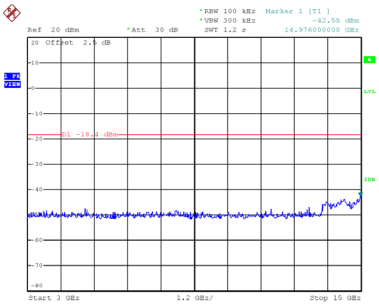


Date: 15.OCT.2019 09:57:43

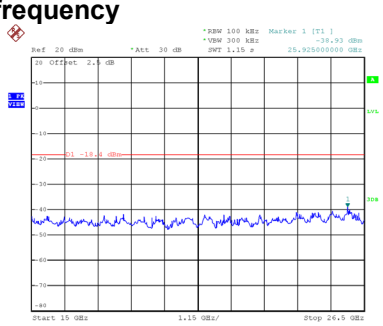
CH11 – 10th Harmonic of the fundamental frequency



Date: 15.OCT.2019 09:58:50



Date: 15.OCT.2019 09:58:57



Date: 15.OCT.2019 09:59:04