Certificate #7130.01

FCC Radio Test Report

FCC ID: 2AJYB-S1832AE

This report concerns: Original Grant

Project No.	:	2404C068
Equipment	:	Network Audio Streaming Module
Brand Name	:	StreamUnlimited
Test Model	:	Stream1832AE
Series Model	:	N/A
Applicant	:	StreamUnlimited Engineering GmbH
Address	:	StreamUnlimited Engineering GmbH, Gutheil Schoder Gasse 10, Vienna 1100, Austria
Manufacturer	:	StreamUnlimited Engineering GmbH
Address	:	StreamUnlimited Engineering GmbH, Gutheil Schoder Gasse 10, Vienna 1100, Austria
Factory	:	StreamUnlimited Engineering GmbH
Address	:	StreamUnlimited Engineering GmbH, Gutheil Schoder Gasse 10, Vienna 1100, Austria
Date of Receipt	:	Apr. 09, 2024
Date of Test	:	Apr. 10, 2024 ~ May 30, 2024
Issued Date	:	Jun. 25, 2024
Report Version	:	R01
Test Sample	:	Engineering Sample No.: DG20240409195 for radiated emissions 30 MHz to 1000 MHz and 18GHz to 26.5GHz, DG20240409194 for others.
Standard(s)	:	FCC CFR Title 47, Part 15, Subpart C

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

Prepared by : Antony Liang

Approved by : Chay Cai

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Declaration

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

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

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

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

BTL's laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 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 No.	Version	Description	Issued Date	Note
BTL-FCCP-3-2404C068	R00	Original Report.	Jun. 17, 2024	Invalid
BTL-FCCP-3-2404C068	R01	Updated the antenna information.	Jun. 25, 2024	Valid

1. APPLICABLE STANDARDS

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:
ANSI C63.10-2013
The following reference test guidance is not within the scope of accreditation of A2LA:
KDB 558074 D01 15.247 Meas Guidance v05r02

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C				
Standard(s) Section	**Test Item**	**Test Result**	**Judgment**	**Remark**
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS	------
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	------
15.247(a)(2)	Bandwidth	APPENDIX E	PASS	------
15.247(b)(3)	Maximum 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) Devices connected to antennas using non-standard jack are considered sufficient to comply with 15.203.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Dalang, Dongguan City, Guangdong People's Republic of China.
BTL's Registration Number for FCC: 747969
BTL's Designation Number for FCC: CN1377

2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95.45% 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	2.88

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	*U*,(dB)
DG-CB02	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	*U*,(dB)
DG-CB03 (3m)	CISPR	30MHz ~ 200MHz	V	4.40
		30MHz ~ 200MHz	H	3.62
		200MHz ~ 1,000MHz	V	4.58
		200MHz ~ 1,000MHz	H	3.98

Test Site	Method	Measurement Frequency Range	*U*,(dB)
DG-CB03 (3m)	CISPR	1GHz ~ 6GHz	4.08
		6GHz ~ 18GHz	4.62

Test Site	Method	Measurement Frequency Range	*U*,(dB)
DG-CB03 (1m)	CISPR	18 ~ 26.5 GHz	3.36

C. Other Measurement:

Test Item	Uncertainty
Bandwidth	0.90 %
Maximum Output Power	1.3 dB
Conducted Spurious Emission	1.9 dB
Power Spectral Density	1.4 dB
Temperature	0.8 °C
Humidity	2.2 %

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

2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
AC Power Line Conducted Emissions	24°C	74%	AC 120V/60Hz	Hayden Chen	Apr. 24, 2024
Radiated Emissions -9kHz to 30 MHz	23°C	56%	DC 5V	Hayden Chen	May 07, 2024
Radiated Emissions -30MHz to 1000MHz	22°C	51%	DC 5V	Chen Mo	Apr. 18, 2024
Radiated Emissions -Above 1000MHz	22-23°C	51%	DC 5V	Jensen Zhou Chen Mo	Apr. 18, 2024- May 21, 2024
Bandwidth	25°C	52%	DC 5V	Steve Zhou	May 09, 2024
Maximum Output Power	21-22°C	53-54%	DC 5V	Oliver Wang	Apr. 25, 2024- May 22, 2024
Conducted Spurious Emissions	25°C	52%	DC 5V	Steve Zhou	May 09, 2024
Power Spectral Density	25°C	52%	DC 5V	Steve Zhou	May 09, 2024

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Network Audio Streaming Module
Brand Name	StreamUnlimited
Test Model	Stream1832AE
Series Model	N/A
Model Difference(s)	N/A
Software Version	V0
Hardware Version	L0
Power Source	Supplied from external power supply.
Power Rating	DC 3.7V-5.2V
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM IEEE 802.11ax: OFDMA
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 72.2 Mbps IEEE 802.11ax: up to 143.4 Mbps
Maximum Output Power	IEEE 802.11b: 15.44 dBm (0.0350 W)

Note:

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

2. Channel List:

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11ax(HE20)							
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:

Group 1:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	StreamUnlimited	N/A	FPC	MHF4	3
2	StreamUnlimited	N/A	FPC	MHF4	3

Note: There are two antennas but only one antenna works at a time.

Group 2:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	2J antenna conceptor	2JF0102	FPC	Most RF Connectors	2.2
2	2J antenna conceptor	2JF0102	FPC	Most RF Connectors	2.2

Note: There are two antennas but only one antenna works at a time.

3.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N(HT20) Mode Channel 01/06/11
Mode 4	TX AX(HE20) Mode Channel 01/06/11
Mode 5	TX B 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 B Mode Channel 01

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 5	TX B 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(HT20) Mode Channel 01/06/11
Mode 4	TX AX(HE20) Mode Channel 01/06/11

Conducted test	
Final Test Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N(HT20) Mode Channel 01/06/11
Mode 4	TX AX(HE20) Mode Channel 01/06/11

NOTE:
(1) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
(2) For AC power line conducted emissions and radiated emission below 1 GHz test, the TX B Mode Channel 01 is found to be the worst case and recorded.
(3) For radiated emission above 1 GHz test, the spurious points of 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.
(4) For radiated emission above 1 GHz test, the polarization of Vertical and Horizontal are evaluated, only the worst case is recorded.
(5) For radiated emission Harmonic 18-26.5GHz test, only tested the worst case and recorded.
(6) Both Ant.1 and Ant.2 had been tested, but the data of Ant.1 were the worst case, so only the data of Ant.1 had been recorded.
(7) There are two antenna groups for this Network Audio Streaming Module which are only differ in gain. Only tested with the max gain's antenna group and recorded.

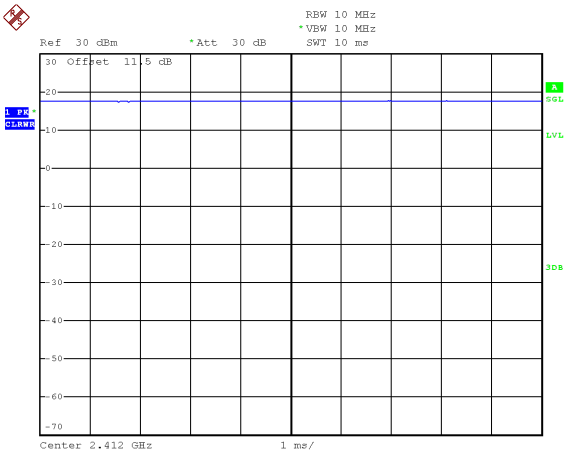
3.3 PARAMETERS OF TEST SOFTWARE

Test Software Version	Labtool 1.0.0.45.6		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	15	15	12
IEEE 802.11g	14	14	11
IEEE 802.11n(HT20)	14	14	11
IEEE 802.11ax(HE20)	14	14	11

3.4 DUTY CYCLE

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

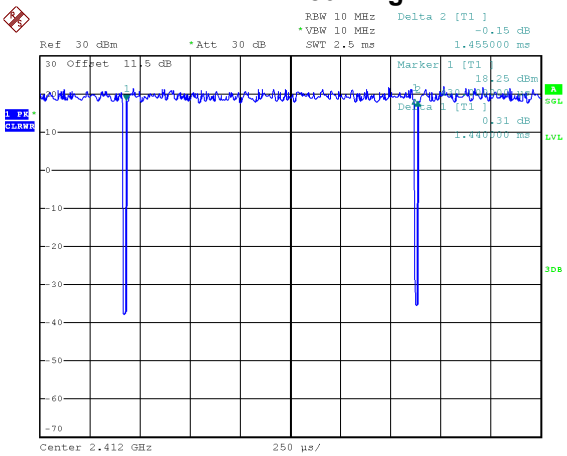
IEEE 802.11b



Date: 9.MAY.2024 02:43:17

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

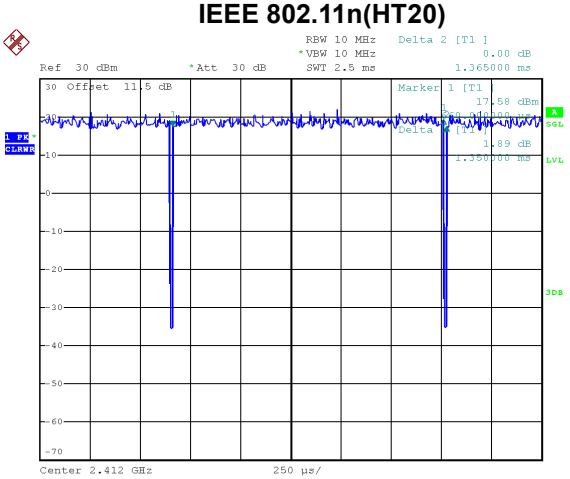
IEEE 802.11g



Date: 9.MAY.2024 02:43:38

Duty cycle = 1.440 ms / 1.455 ms = 98.97%
Duty Factor = 10 log(1/Duty cycle) = 0.00

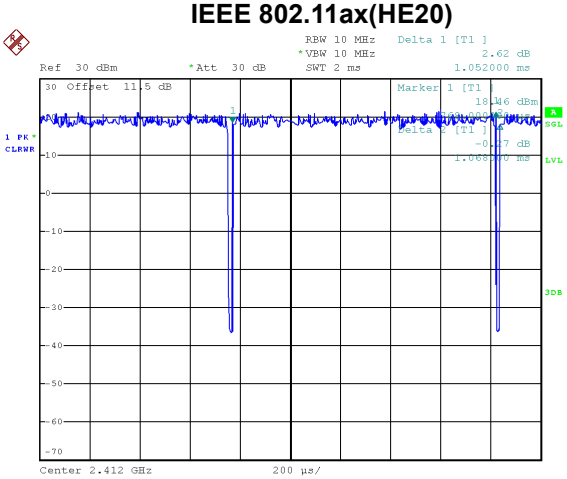
IEEE 802.11n(HT20)



Date: 9.MAY.2024 02:43:55

Duty cycle = 1.350 ms / 1.365 ms = 98.90%
Duty Factor = 10 log(1/Duty cycle) = 0.00

IEEE 802.11ax(HE20)



Date: 9.MAY.2024 02:46:26

Duty cycle = 1.052 ms / 1.068 ms = 98.50%
Duty Factor = 10 log(1/Duty cycle) = 0.00

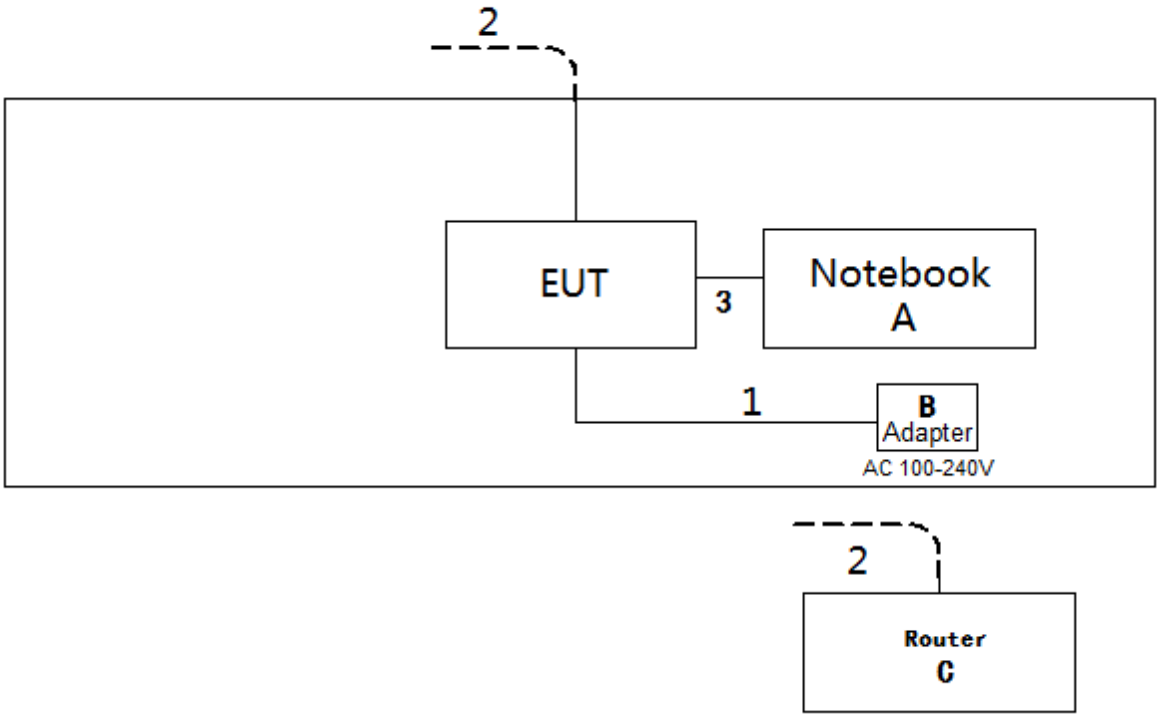
NOTE:
For IEEE 802.11b:
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz.

For IEEE 802.11g:
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.

For 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.

For IEEE 802.11ax(HE20):
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.

3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Notebook	HUAWEI	NbDE-WFH9	N/A
B	Adapter	ShenZhenJingQuanHua	0D264	N/A
C	Router	HUAWEI	W826E	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m
2	RJ45 Cable	NO	NO	10m
3	USB Cable	NO	NO	1.5m

3.7 CUSTOMER INFORMATION DESCRIPTION

1) The antenna gain is provided by the manufacturer.
2) Except for AC power line conducted emissions and radiated emissions, the results of all test items include cable losses. All cable losses are provided by the testing laboratory.

4. AC POWER LINE CONDUCTED EMISSIONS

4.1 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.

4.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

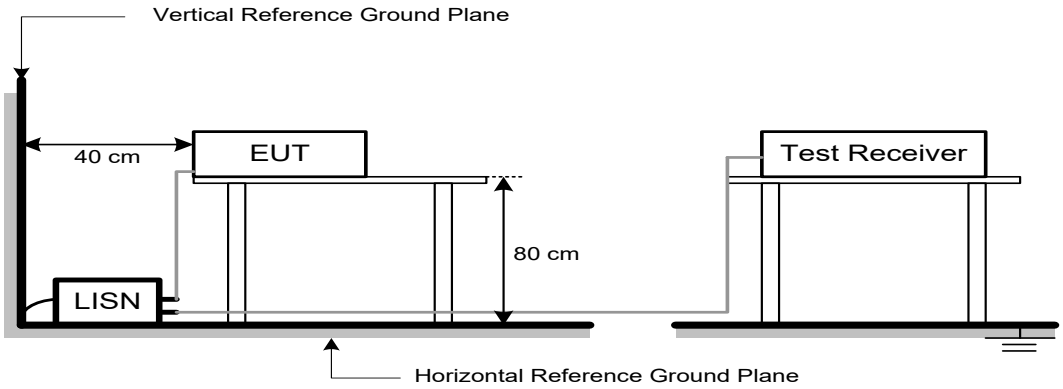
The following table is the setting of the receiver:

Receiver Parameters	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.3 DEVIATION FROM TEST STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS

Please refer to the APPENDIX A.

5. RADIATED EMISSIONS

5.1 LIMIT

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

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

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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Band edge/ Harmonic at 3m (dBμV/m)		Harmonic at 1m (dBμV/m)	
	Peak	Average	Peak	Average
Above 1000	74	54	83.5 (Note 4)	63.5 (Note 4)

Note:
(1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).
(4)

$$FS_{\text{limit}} = FS_{\max} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

20log ($d_{limit}/d_{measure}$)=20log (3/1)=9.5 dB.

5.2 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 or 1m 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 1GHz)
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.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1 MHz / 3 MHz for PK value 1 MHz / 1/T Hz for AVG value

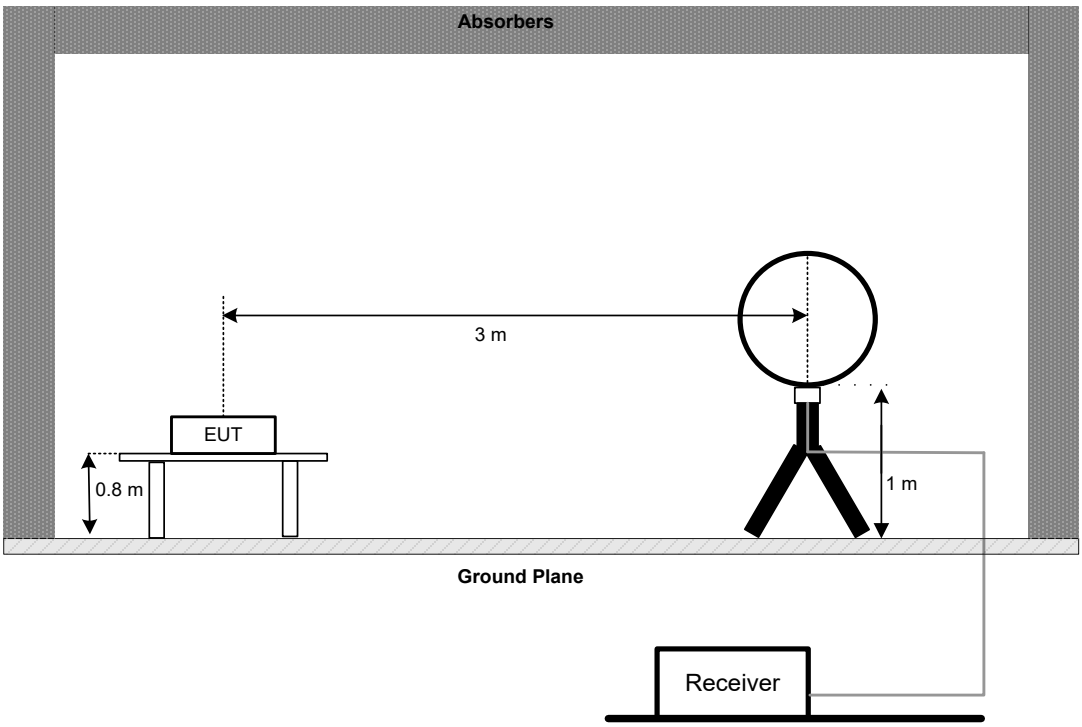
Receiver Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector

5.3 DEVIATION FROM TEST STANDARD

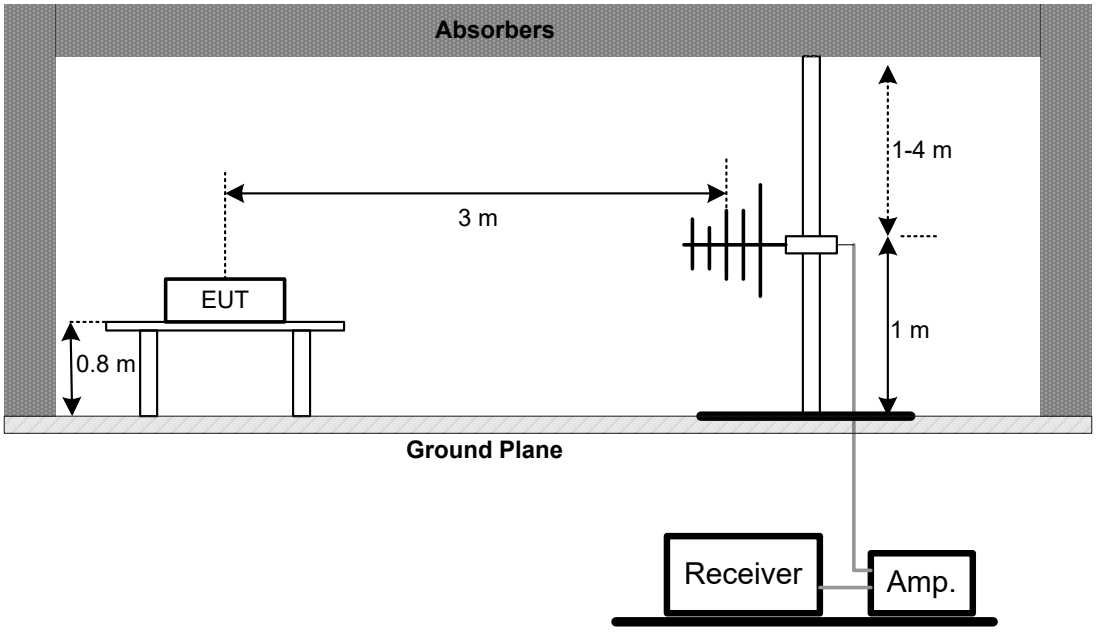
No deviation.

5.4 TEST SETUP

9 kHz to 30 MHz

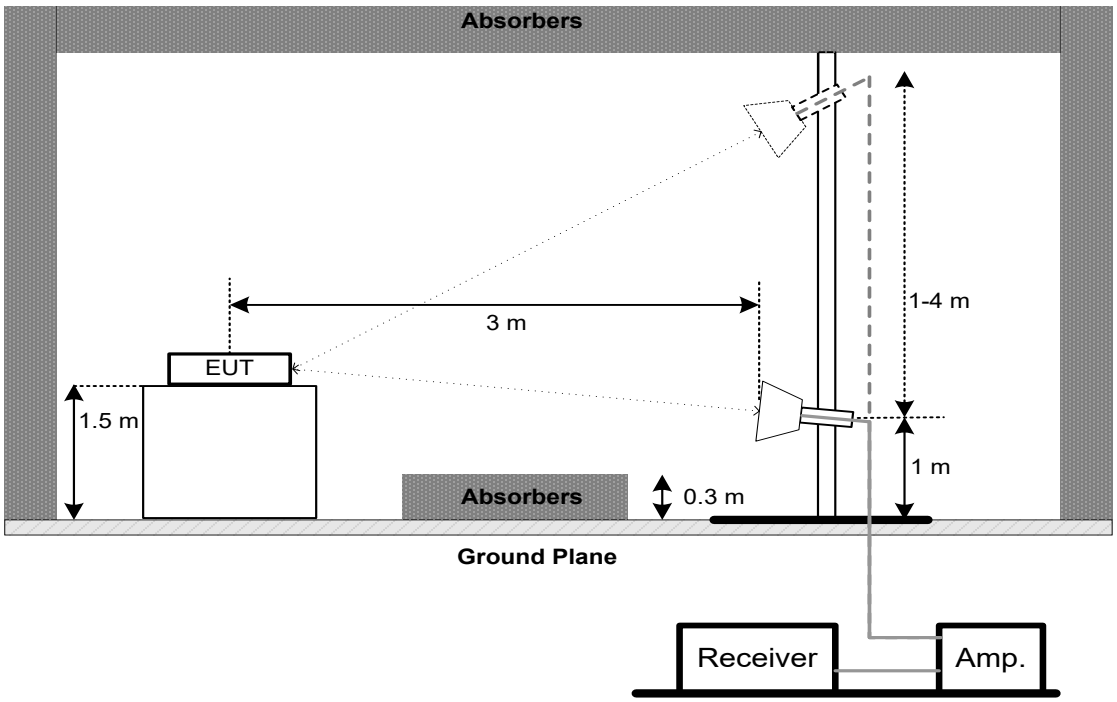


30 MHz to 1 GHz

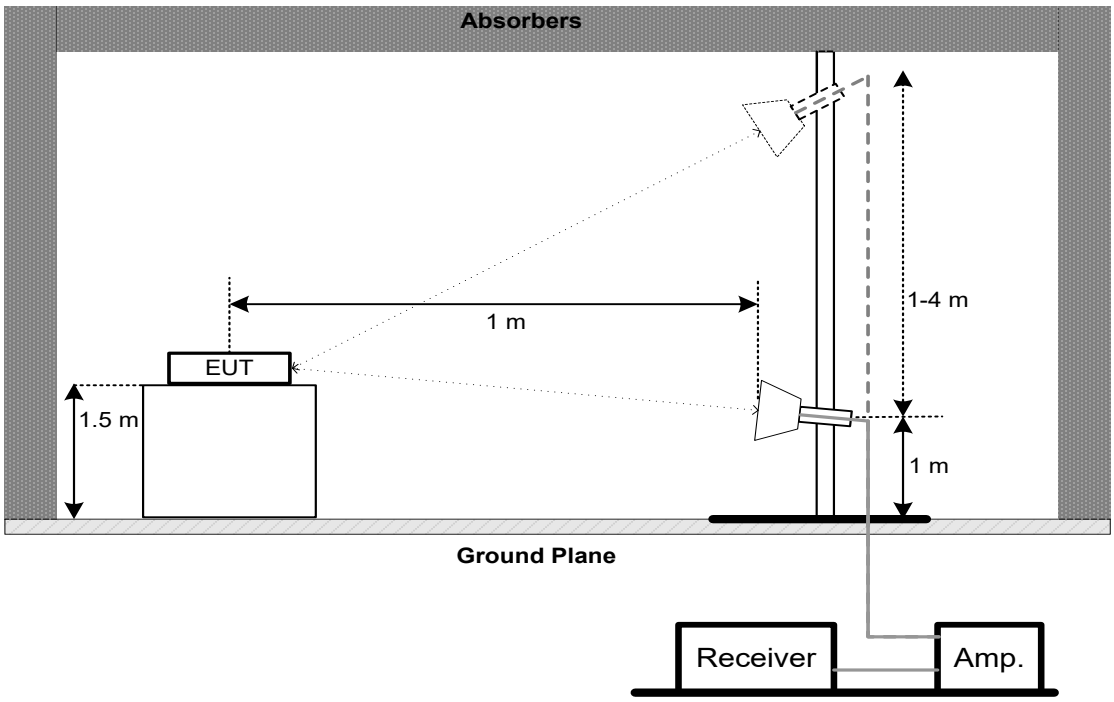


Above 1 GHz

Band edge & Harmonic (1 GHz to 18 GHz)



Harmonic (18 GHz to 26.5 GHz)



5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 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.

5.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

5.8 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.

6. BANDWIDTH

6.1 LIMIT

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

6.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. The following table is the setting of the spectrum analyzer:

For 6 dB Bandwidth:

Spectrum Parameters	Setting
Span Frequency	> Measurement Bandwidth
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

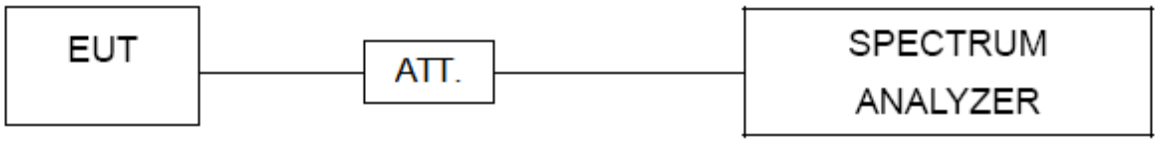
For 99% Emission Bandwidth:

Spectrum Parameters	Setting
Span Frequency	Between 1.5 times and 5.0 times the OBW
RBW	300 kHz For 20MHz 1 MHz For 40MHz
VBW	1 MHz For 20MHz 3 MHz For 40MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

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 E.

7. MAXIMUM OUTPUT POWER

7.1 LIMIT

Section	Test Item	Limit
FCC 15.247(b)(3)	Maximum Output Power	1.0000 Watt or 30.00 dBm

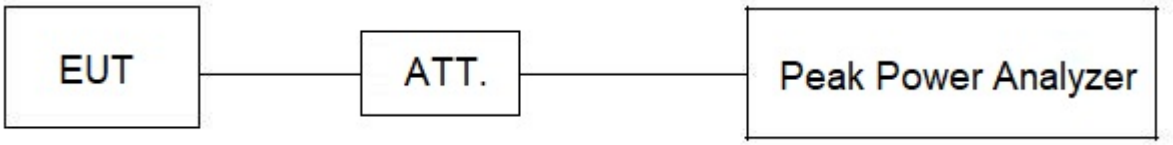
7.2 TEST PROCEDURE

a. The EUT was directly connected to the peak power analyzer and antenna output port as show in the block diagram below.
b. The maximum conducted output power was performed in accordance with method 11.9.2.3.1 of ANSI C63.10-2013.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX F.

8. CONDUCTED SPURIOUS EMISSIONS

8.1 LIMIT

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

8.2 TEST PROCEDURE

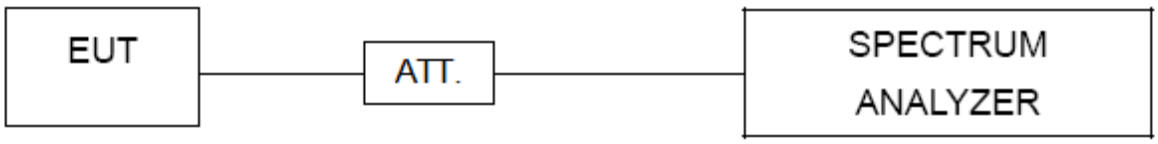
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Start Frequency	30 MHz
Stop Frequency	26.5 GHz
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to the APPENDIX G.

9. POWER SPECTRAL DENSITY

9.1 LIMIT

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

9.2 TEST PROCEDURE

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

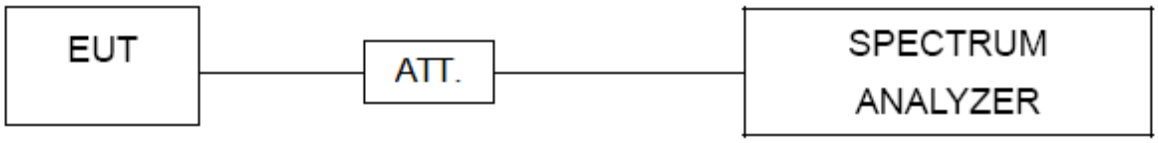
b. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Span Frequency	25 MHz (20 MHz) / 60 MHz (40 MHz)
RBW	3 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



9.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

9.6 TEST RESULTS

Please refer to the APPENDIX H.

10. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESR3	103027	Jun. 16, 2024
2	TWO-LINE V-NETWORK	R&S	ENV216	101447	Dec. 22, 2024
3	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
4	Cable	N/A	SFT205-NMNM-9M -001	9M	Nov. 27, 2024
5	643 Shield Room	ETS	6*4*3	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60B	1513-60 B-034	Mar. 30, 2025
2	EMI Test Receiver	Keysight	N9038A	MY56400060	Dec. 22, 2024
3	Cable	RW	LMR-400(30MHz-1 GHz)(10m+2.5m+0. 8M)	N/A	Jul. 04, 2024
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	1266 Chamber room	ETS	12*6*6	N/A	May 21, 2024

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	1462	Dec. 13, 2024
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 13, 2024
3	Preamplifier	EMC INSTRUMENT	EMC001330	980998	Nov. 17, 2024
4	Cable	RegalWay	LMR400-NMNM-12 .5m	N/A	Jul. 04, 2024
5	Cable	RegalWay	LMR400-NMNM-3 m	N/A	Jul. 04, 2024
6	Cable	RegalWay	LMR400-NMNM-0. 5m	N/A	Jul. 04, 2024
7	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
8	Positioning Controller	MF	MF-7802	N/A	N/A
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	966 Chamber room	CM	9*6*6	N/A	May 17, 2024

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024
2	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980888	Nov. 17, 2024
3	Double Ridged Guide Antenna	ETS	3115	75789	May 31, 2024
4	Cable	RegalWay	RWLP50-4.0A-SMSM-12.5M	N/A	Feb. 19, 2025
5	Cable	RegalWay	RWLP50-4.0A-NMRASM-2.5M	N/A	Aug. 08, 2024
6	Cable	RegalWay	RWLP50-4.0A-NMRASMRA-0.8M	N/A	Aug. 08, 2024
7	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330-K	619413	Jul. 06, 2024
8	Cable	RegalWay	RWLP50-2.6A-2.92M2.92M-1.1M	N/A	Jul. 26, 2024
9	Cable	Tonscend	HF160-KMKM-3M	N/A	Jul. 26, 2024
10	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170(3m)	9170-319	Jun. 20, 2024
11	966 Chamber room	CM	9*6*6	N/A	May 17, 2024 May 19, 2025
12	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
13	Filter	STI	STI15-9912	N/A	Jun. 21, 2024
14	Positioning Controller	MF	MF-7802	N/A	N/A
15	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

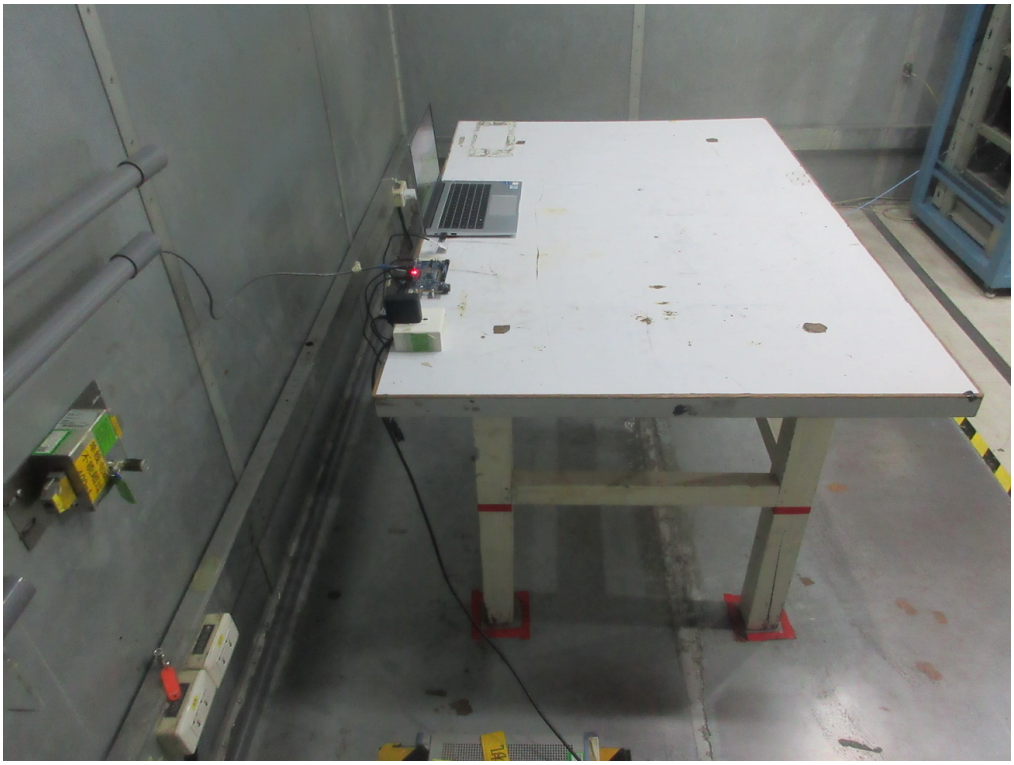
Bandwidth & Conducted Spurious Emissions & Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP38	100852	Jun. 16, 2024
2	Attenuator	Talent Microwave	TA10A0-S-26.5	N/A	N/A
3	DC Block	N/A	N/A	N/A	N/A
4	Measurement Software	BTL	BTL Conducted Test	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	Jun. 17, 2024
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jun. 17, 2024
3	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A

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

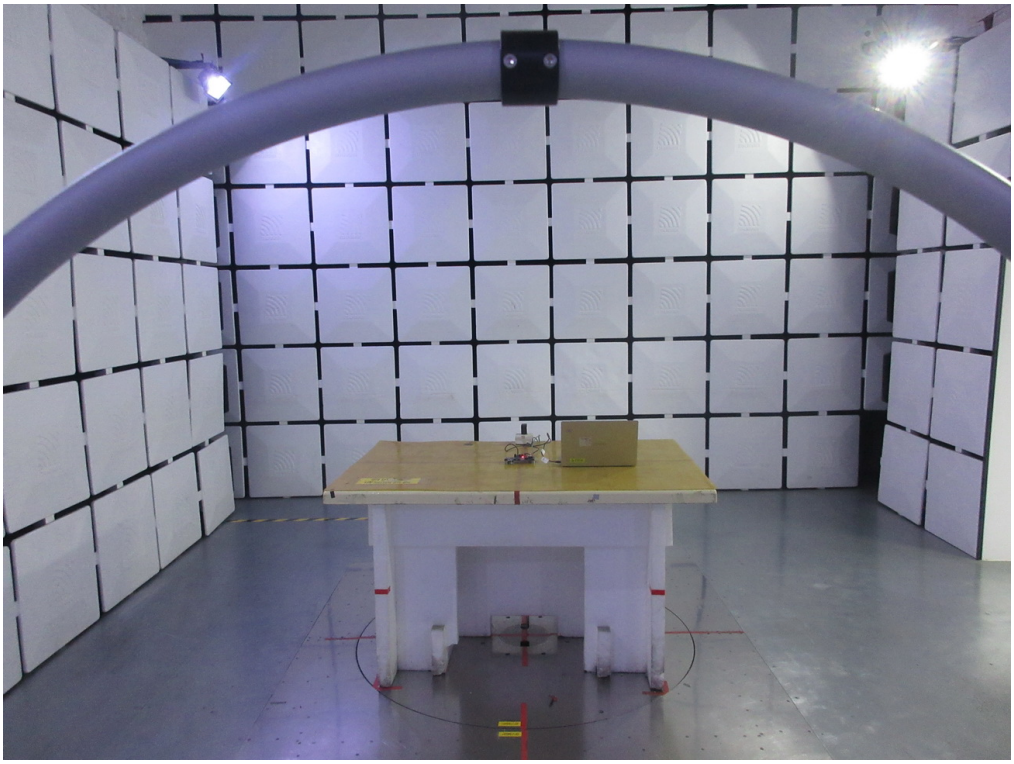
11. EUT TEST PHOTO

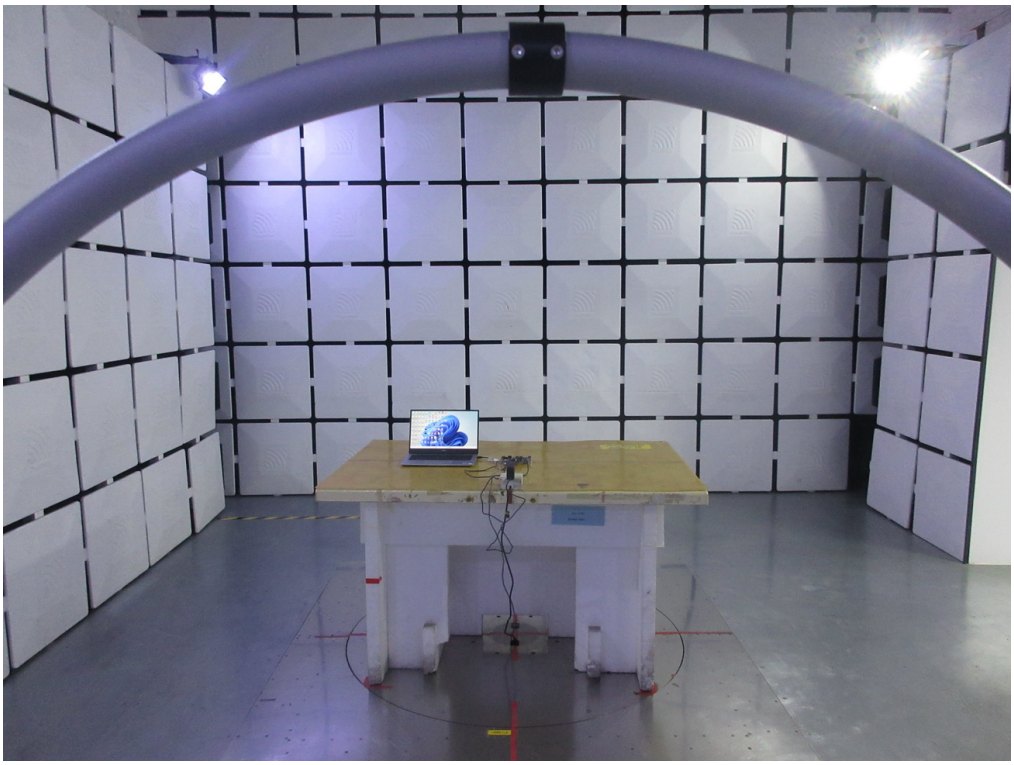
AC Power Line Conducted Emissions Test Photos



Radiated Emissions Test Photos

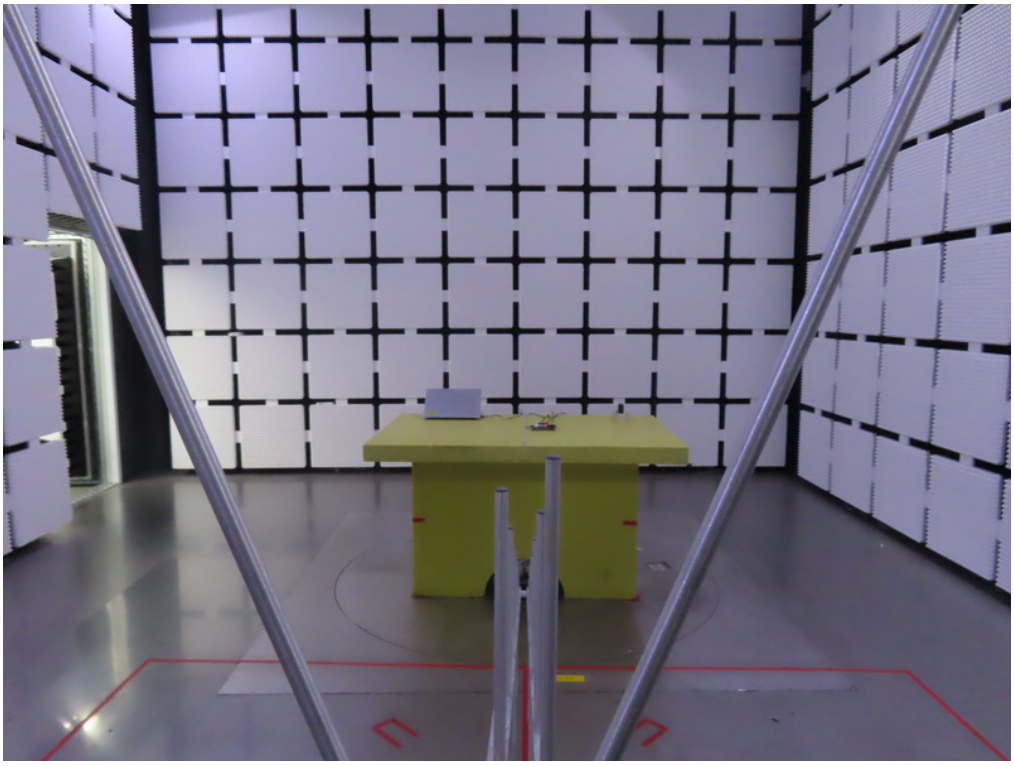
9 kHz to 30 MHz

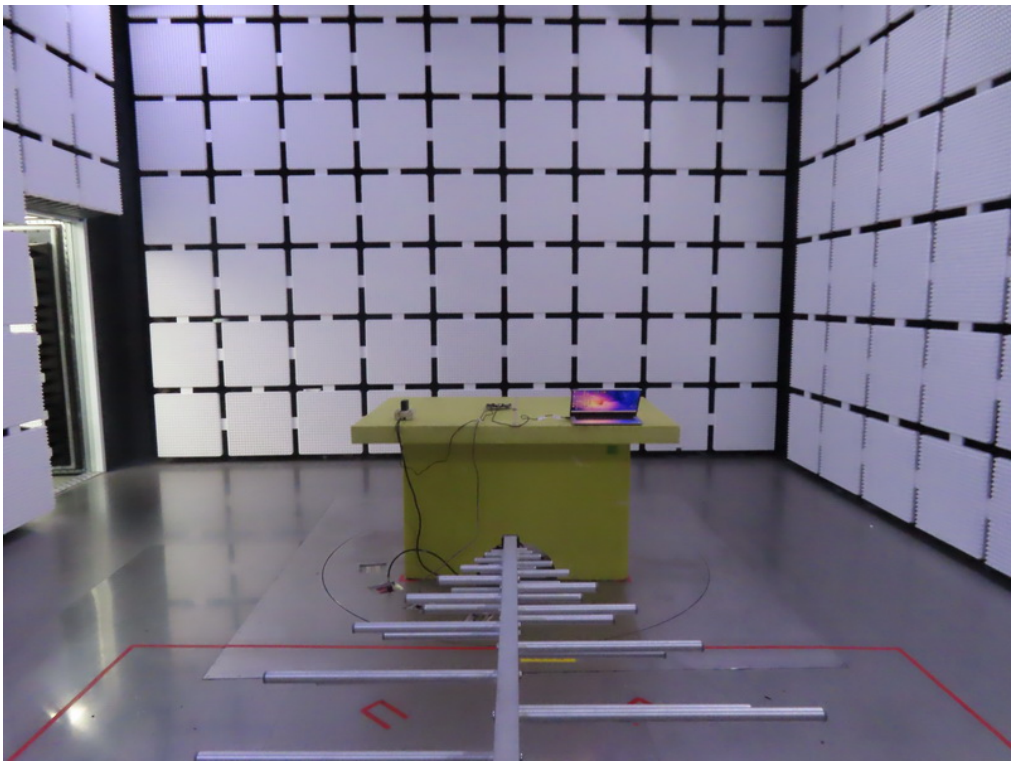




Radiated Emissions Test Photos

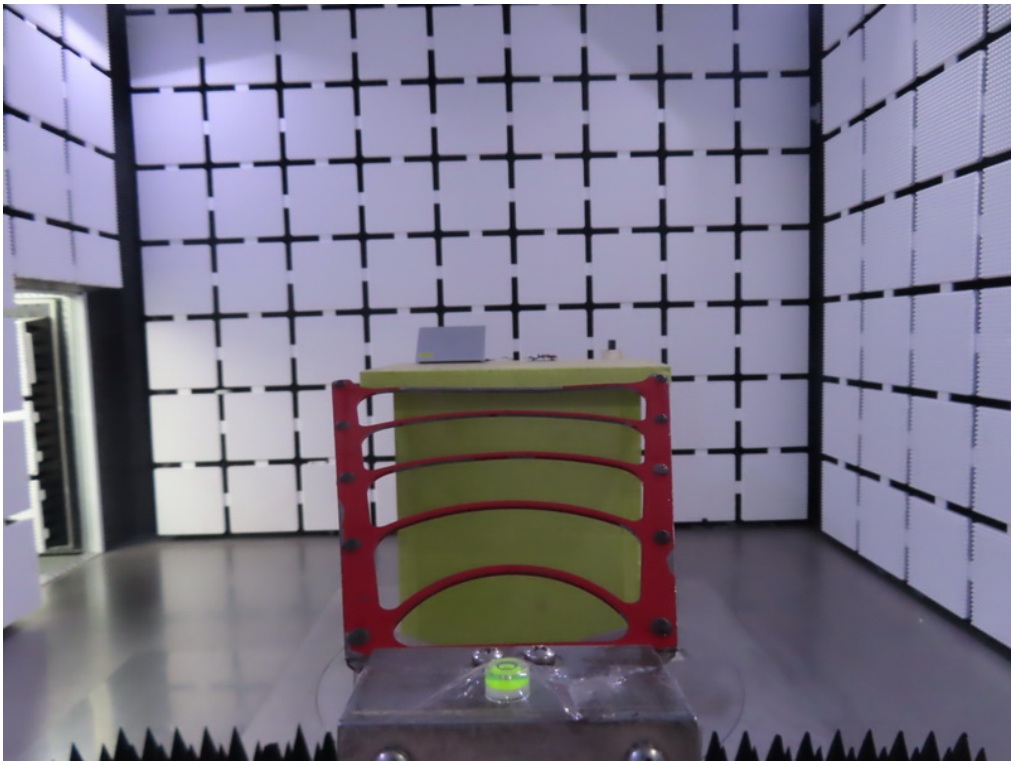
30 MHz to 1000 MHz

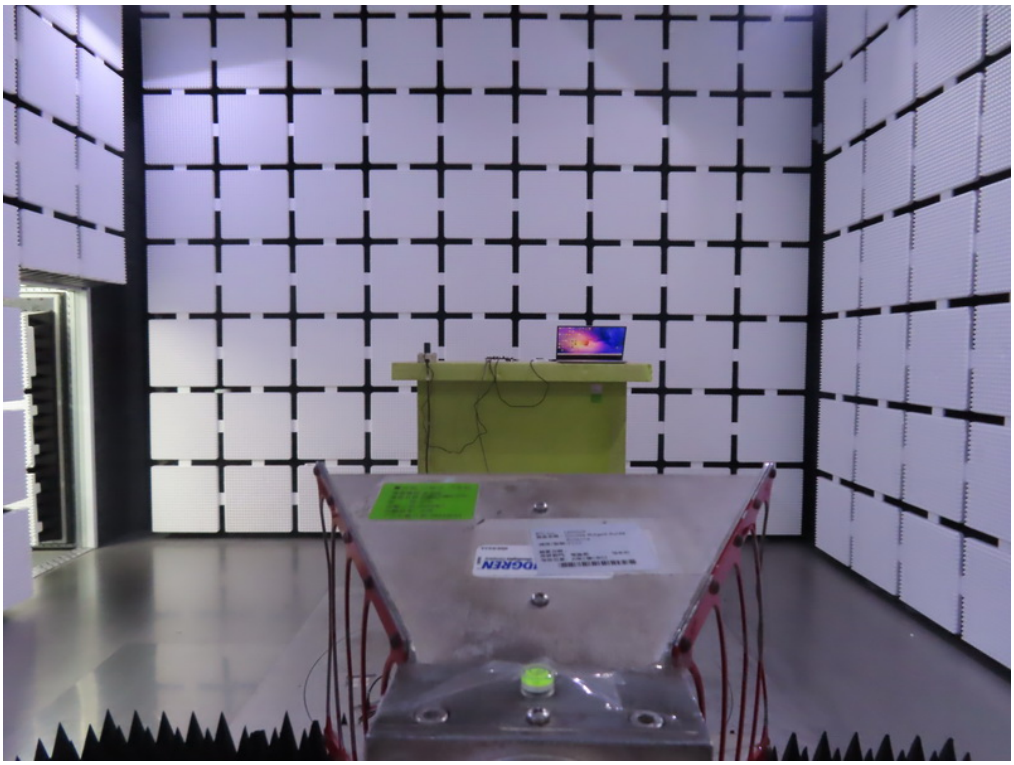




Radiated Emissions Test Photos

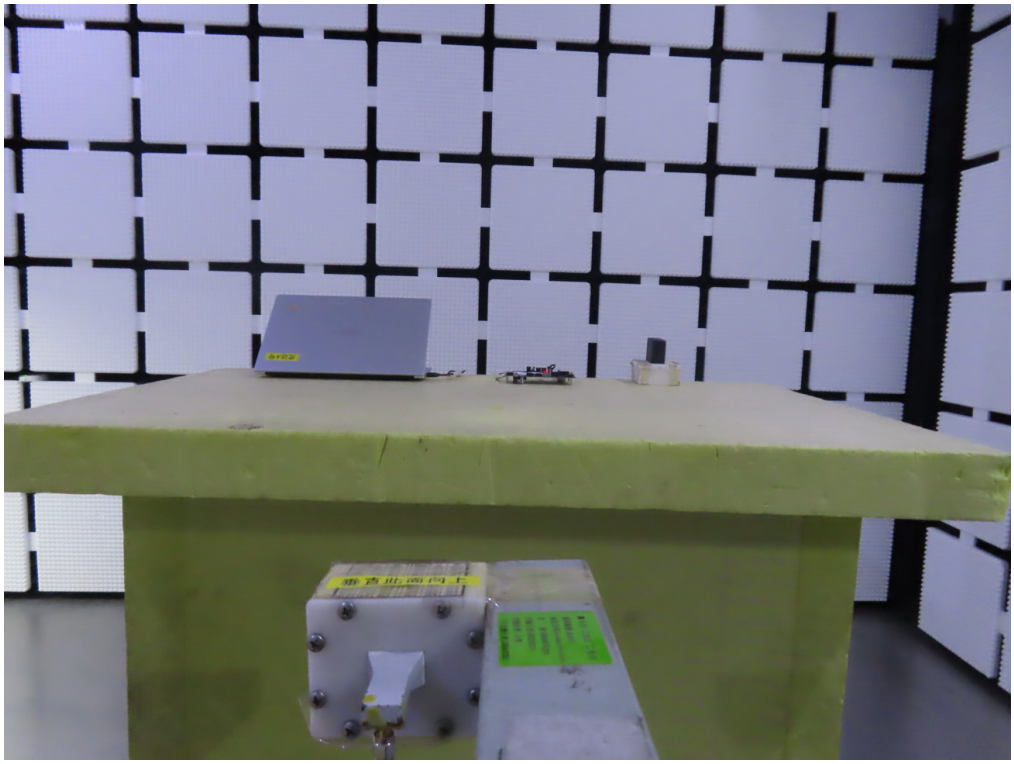
Above 1 GHz_Band edge and Harmonic (1 GHz to 18 GHz)

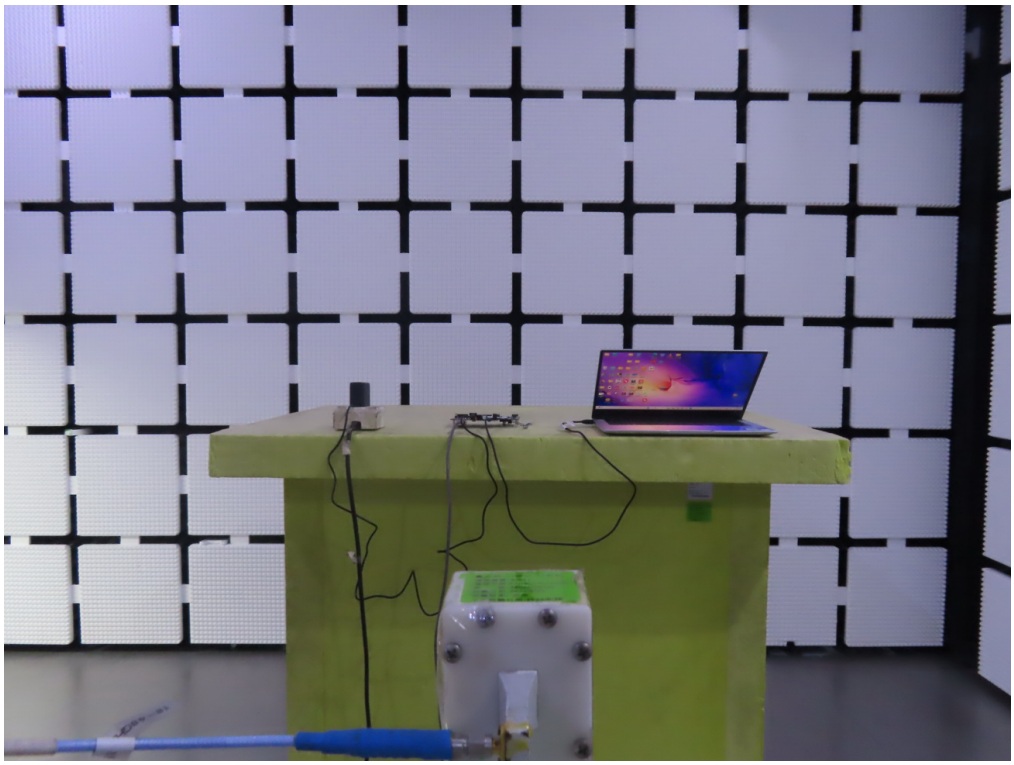




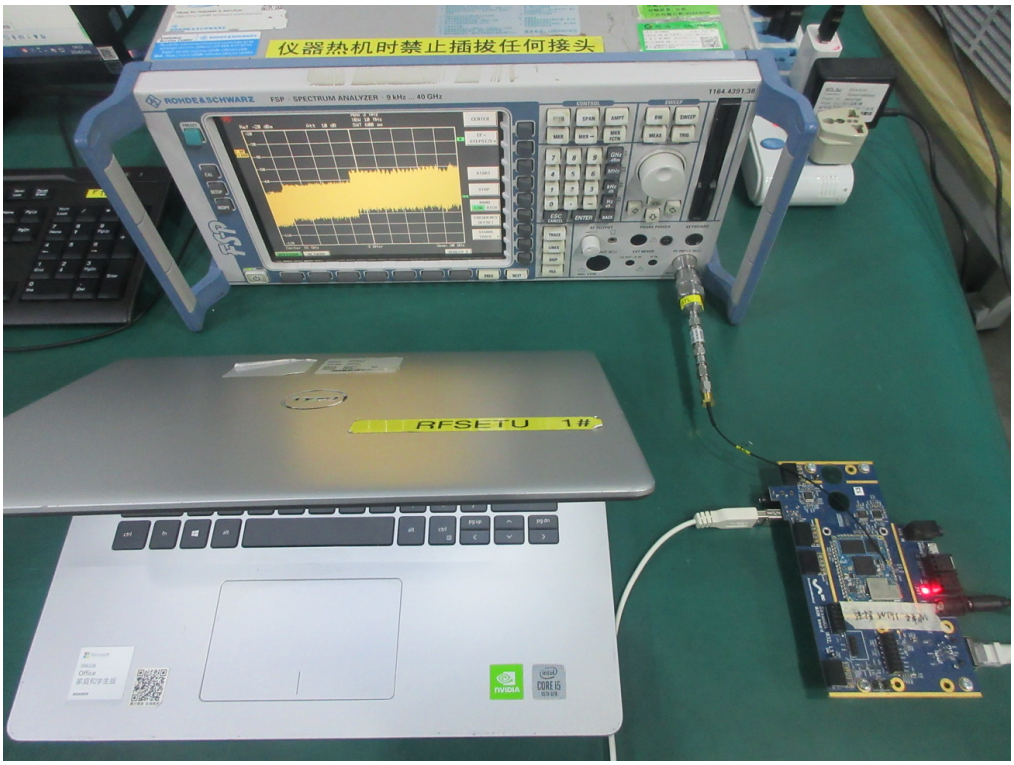
Radiated Emissions Test Photos

Above 1 GHz_Harmonic (18 GHz to 26.5 GHz)



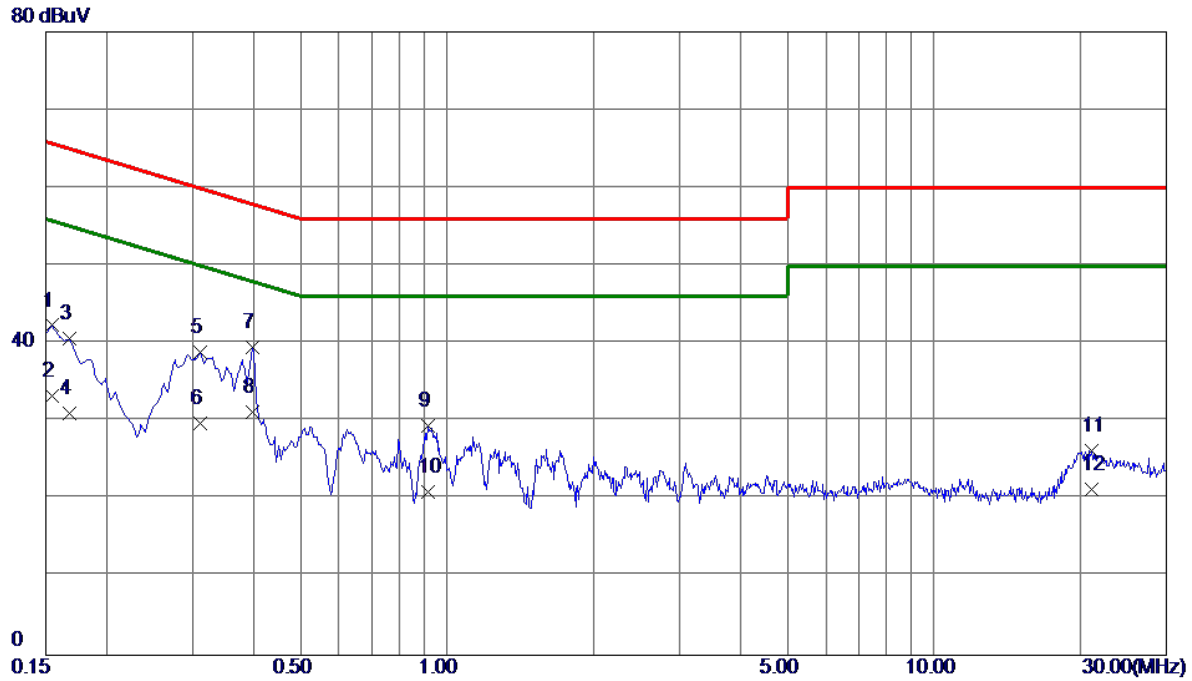


Conducted Test Photos



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

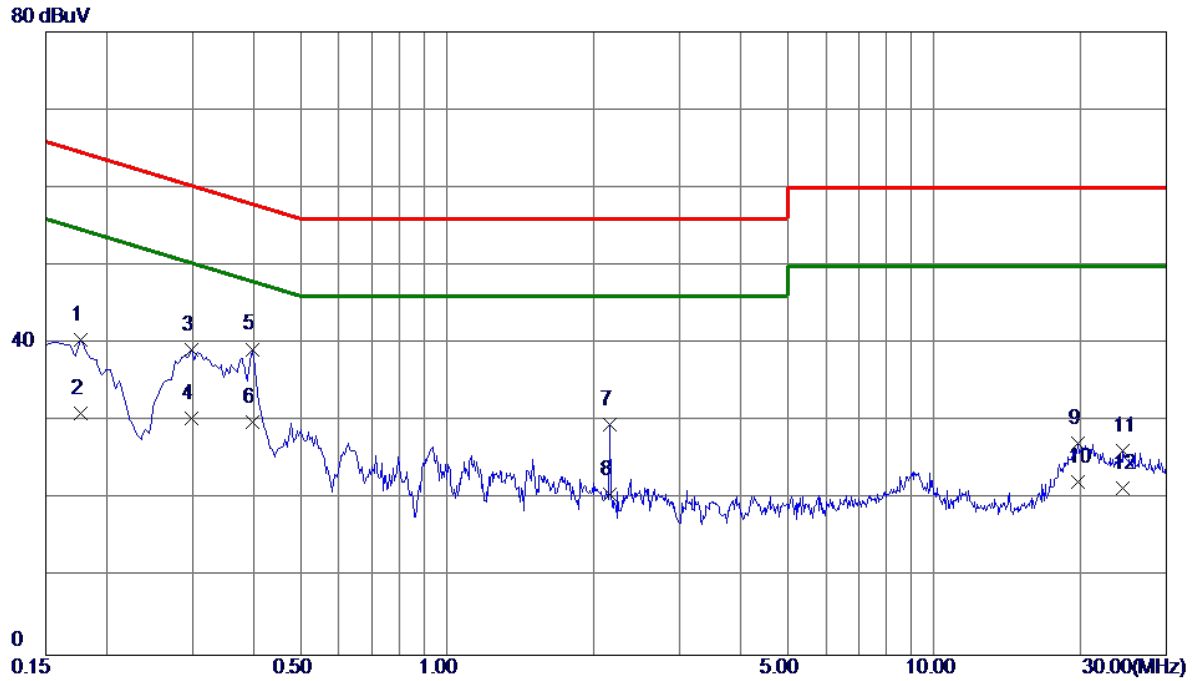
Test Mode	TX B Mode Channel 01	Phase	Line



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1544	32.35	9.97	42.32	65.76	-23.44	QP	
2	0.1544	23.30	9.97	33.27	55.76	-22.49	AVG	
3	0.1680	30.63	9.97	40.60	65.06	-24.46	QP	
4	0.1680	21.10	9.97	31.07	55.06	-23.99	AVG	
5	0.3120	28.71	10.20	38.91	59.92	-21.01	QP	
6	0.3120	19.60	10.20	29.80	49.92	-20.12	AVG	
7	0.3975	29.20	10.39	39.59	57.91	-18.32	QP	
8 *	0.3975	20.80	10.39	31.19	47.91	-16.72	AVG	
9	0.9150	18.30	11.21	29.51	56.00	-26.49	QP	
10	0.9150	9.70	11.21	20.91	46.00	-25.09	AVG	
11	21.0930	11.55	14.76	26.31	60.00	-33.69	QP	
12	21.0930	6.50	14.76	21.26	50.00	-28.74	AVG	

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

Test Mode	TX B Mode Channel 01	Phase	Neutral

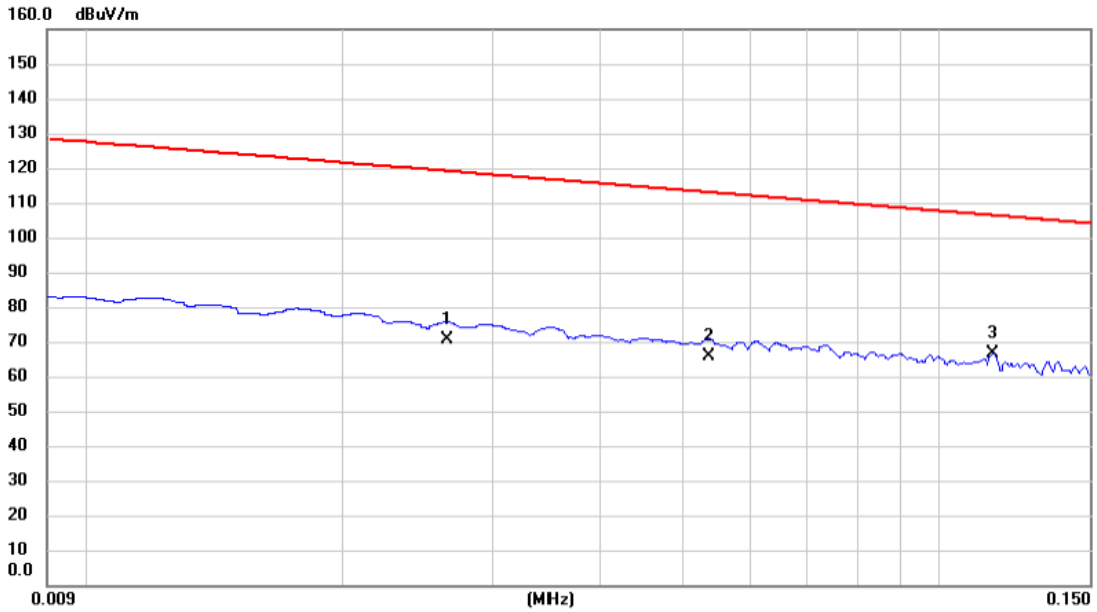


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1770	30.61	9.93	40.54	64.63	-24.09	QP	
2	0.1770	21.10	9.93	31.03	54.63	-23.60	AVG	
3	0.2985	29.13	10.13	39.26	60.28	-21.02	QP	
4	0.2985	20.30	10.13	30.43	50.28	-19.85	AVG	
5	0.3975	28.93	10.35	39.28	57.91	-18.63	QP	
6 *	0.3975	19.60	10.35	29.95	47.91	-17.96	AVG	
7	2.1570	18.87	10.80	29.67	56.00	-26.33	QP	
8	2.1570	9.90	10.80	20.70	46.00	-25.30	AVG	
9	19.8015	12.76	14.43	27.19	60.00	-32.81	QP	
10	19.8015	7.80	14.43	22.23	50.00	-27.77	AVG	
11	24.4635	11.04	15.27	26.31	60.00	-33.69	QP	
12	24.4635	6.21	15.27	21.48	50.00	-28.52	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

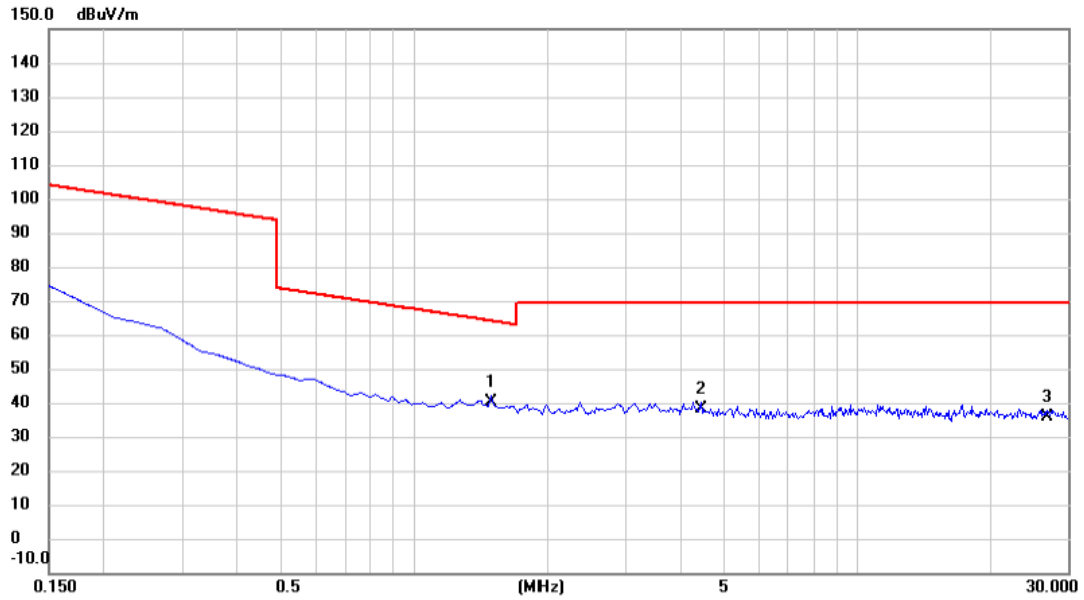
Test Mode	TX B Mode Channel 01	Polarization	Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0265	49.71	21.00	70.71	119.14	-48.43	AVG	
2		0.0536	44.67	21.21	65.88	113.02	-47.14	AVG	
3	*	0.1153	45.20	21.30	66.50	106.37	-39.87	AVG	

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

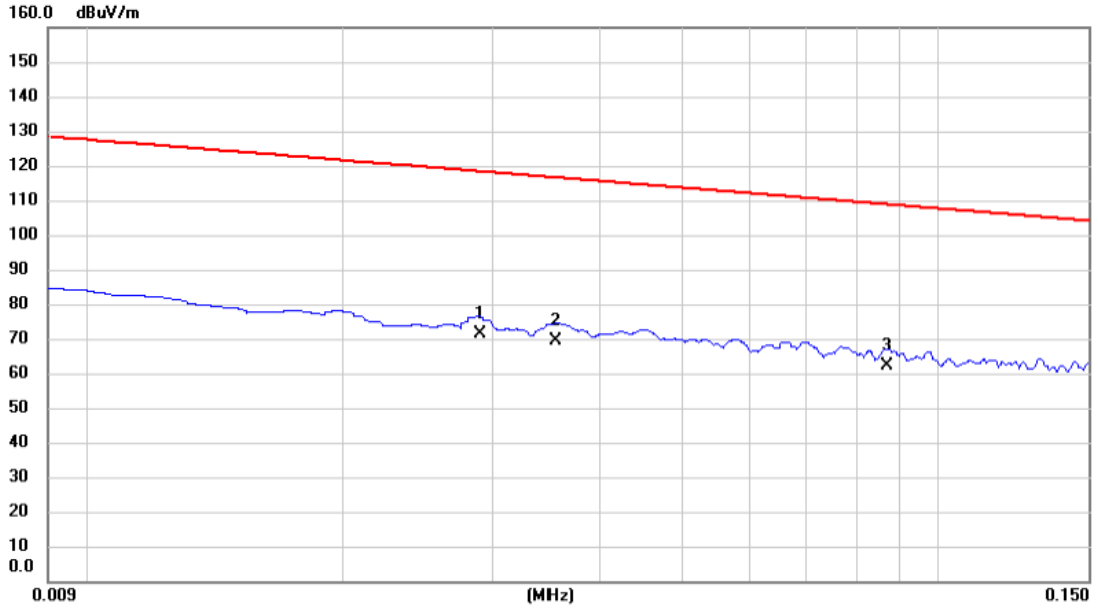
Test Mode	TX B Mode Channel 01	Polarization	Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	1.4932	18.94	21.17	40.11	64.12	-24.01	QP	
2		4.4335	16.95	21.21	38.16	69.54	-31.38	QP	
3		26.8508	14.12	21.86	35.98	69.54	-33.56	QP	

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

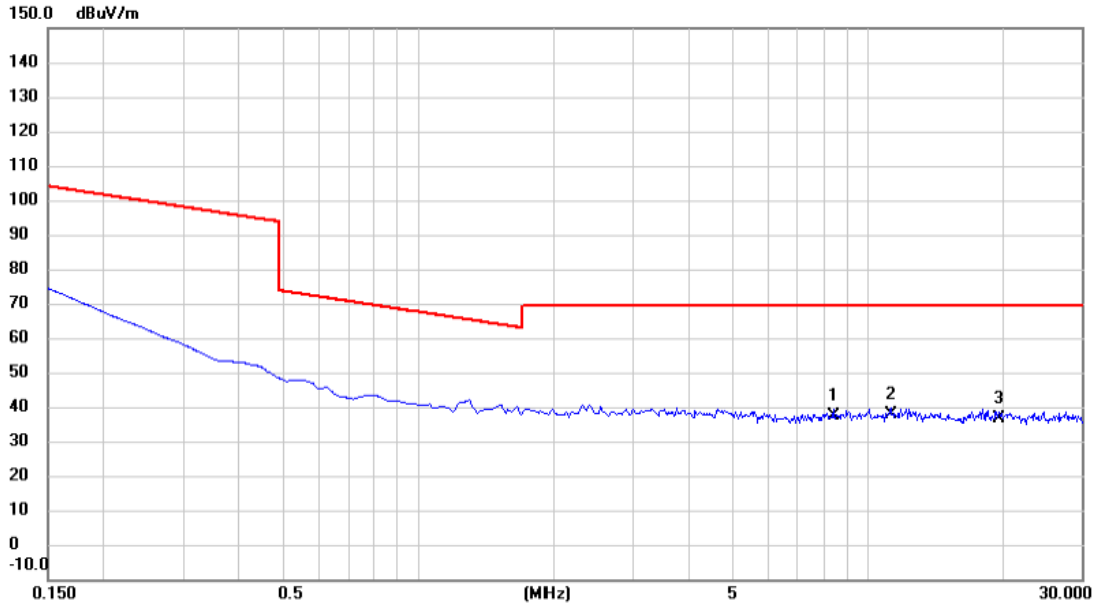
Test Mode	TX B Mode Channel 01	Polarization	Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.0290	50.43	21.07	71.50	118.36	-46.86	AVG	
2		0.0355	48.31	21.13	69.44	116.60	-47.16	AVG	
3	*	0.0870	40.76	21.30	62.06	108.81	-46.75	AVG	

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

Test Mode	TX B Mode Channel 01	Polarization	Ant 90°

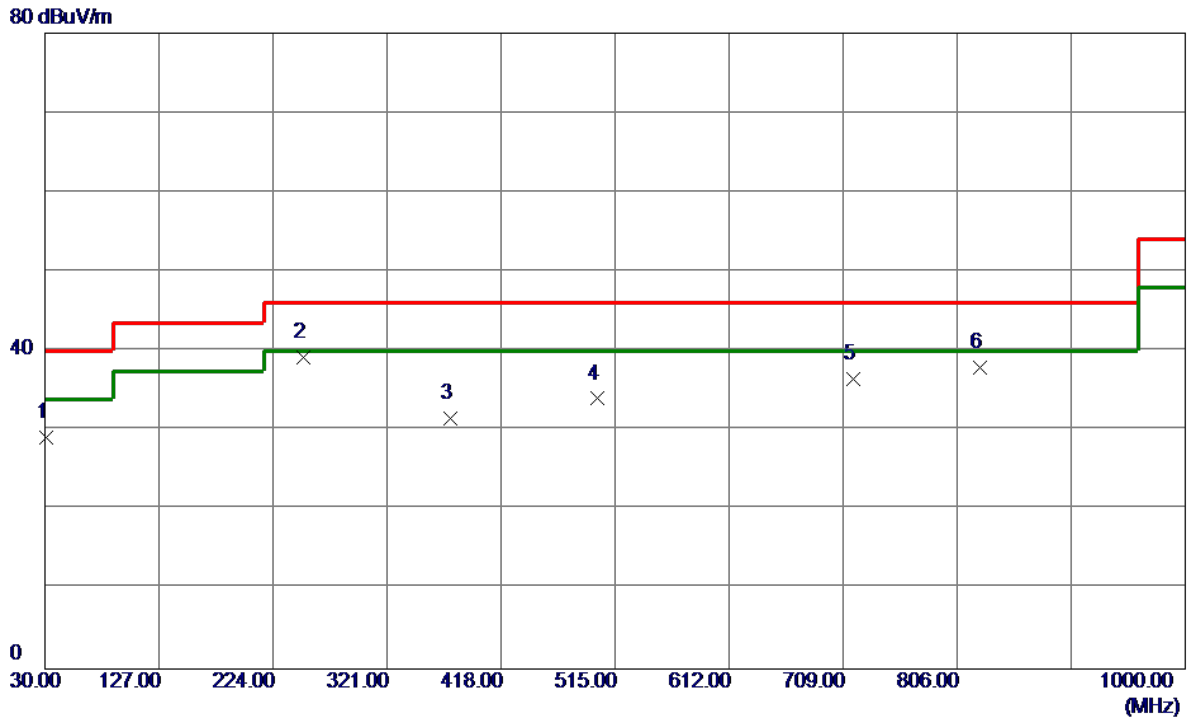


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		8.3588	16.01	21.27	37.28	69.54	-32.26	QP	
2	*	11.2542	16.55	21.24	37.79	69.54	-31.75	QP	
3		19.5525	15.10	21.37	36.47	69.54	-33.07	QP	

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

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

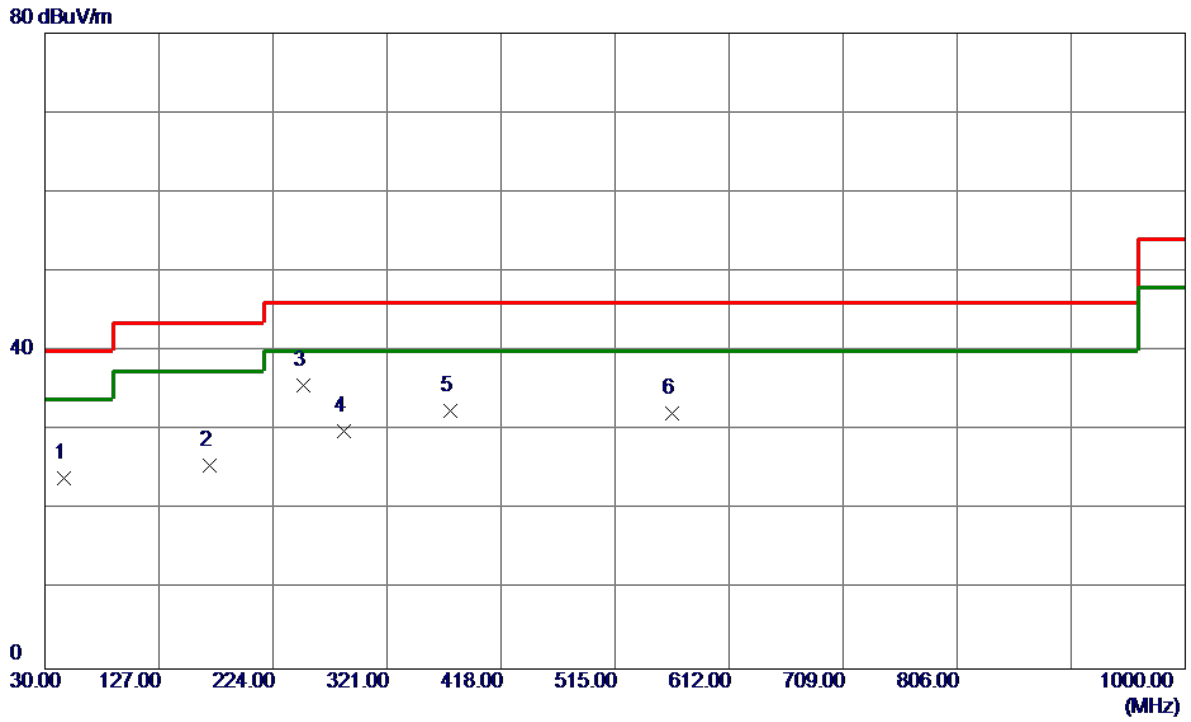
Test Mode	TX B Mode Channel 01	Polarization	Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	30.9700	42.05	-12.96	29.09	40.00	-10.91	Peak	
2 *	250.1900	51.65	-12.42	39.23	46.00	-6.77	Peak	
3	374.8350	40.46	-8.91	31.55	46.00	-14.45	Peak	
4	499.9650	40.12	-6.12	34.00	46.00	-12.00	Peak	
5	717.7300	38.48	-2.03	36.45	46.00	-9.55	Peak	
6	824.9150	38.86	-1.00	37.86	46.00	-8.14	Peak	

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

Test Mode	TX B Mode Channel 01	Polarization	Horizontal

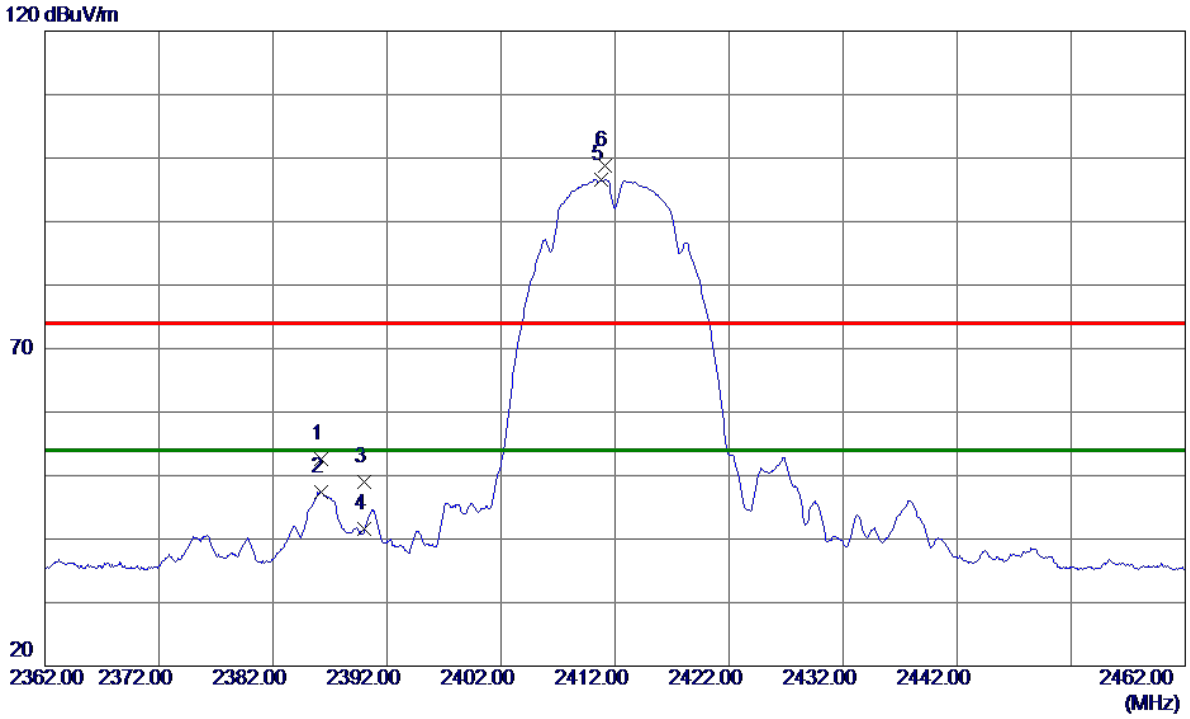


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	46.4900	35.26	-11.33	23.93	40.00	-16.07	Peak	
2	169.6799	36.88	-11.30	25.58	43.50	-17.92	Peak	
3 *	250.1900	48.16	-12.42	35.74	46.00	-10.26	Peak	
4	284.6250	40.87	-10.98	29.89	46.00	-16.11	Peak	
5	374.8350	41.32	-8.91	32.41	46.00	-13.59	Peak	
6	563.0150	36.88	-4.76	32.12	46.00	-13.88	Peak	

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

APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ

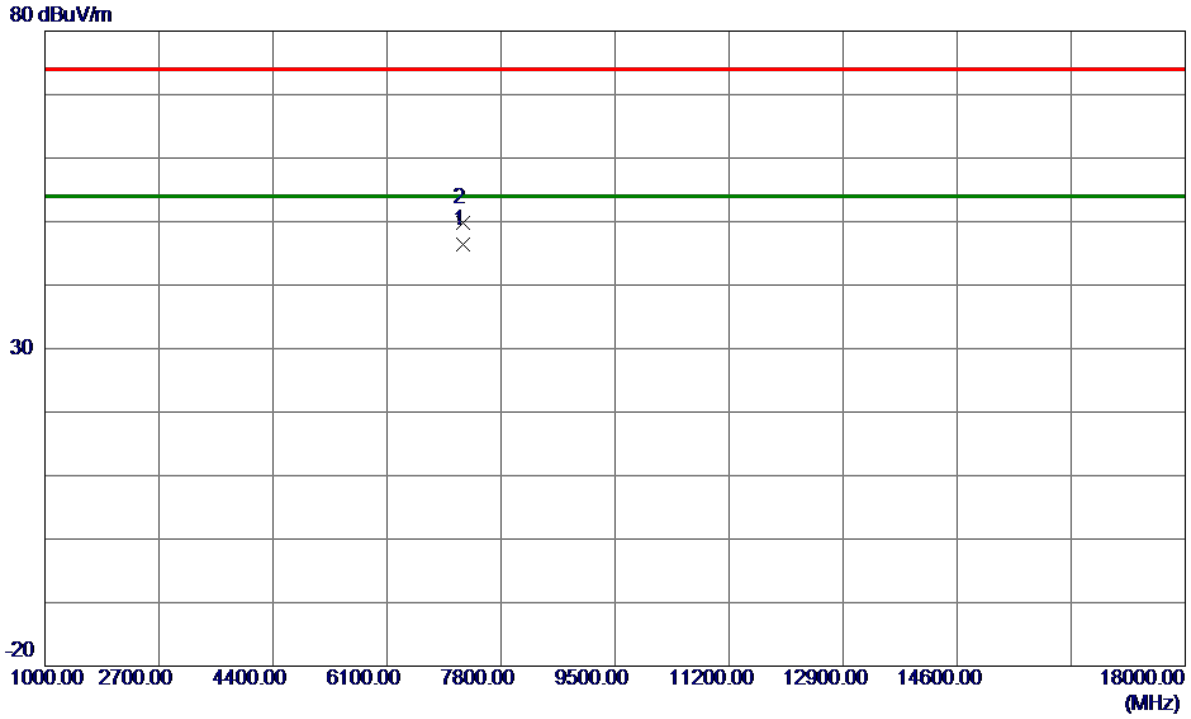
Test Mode	TX B Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2386.2000	46.67	6.00	52.67	74.00	-21.33	Peak	
2	2386.2000	41.39	6.00	47.39	54.00	-6.61	AVG	
3	2390.0000	42.94	6.00	48.94	74.00	-25.06	Peak	
4	2390.0000	35.54	6.00	41.54	54.00	-12.46	AVG	
5 *	2410.8000	90.60	6.00	96.60	54.00	42.60	AVG	No Limit
6	2411.1500	92.81	6.00	98.81	74.00	24.81	Peak	No Limit

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

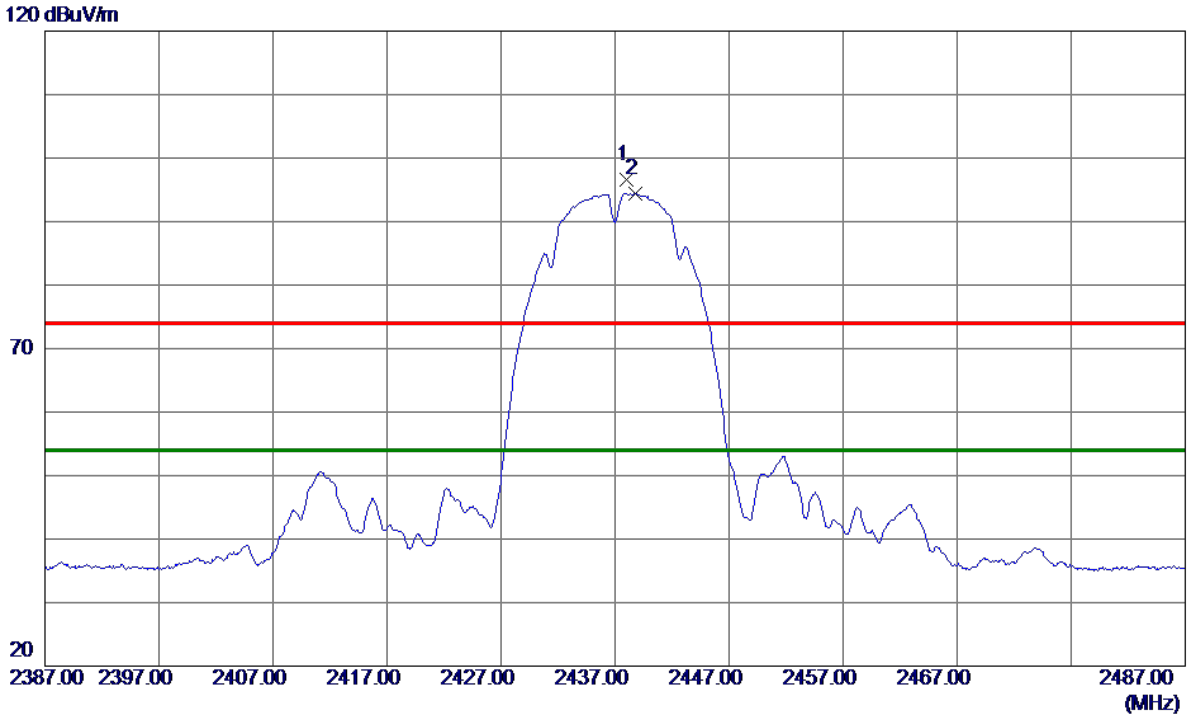
Test Mode	TX B Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	7236.7500	40.55	5.91	46.46	54.00	-7.54	AVG	
2	7236.8750	43.92	5.91	49.83	74.00	-24.17	Peak	

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

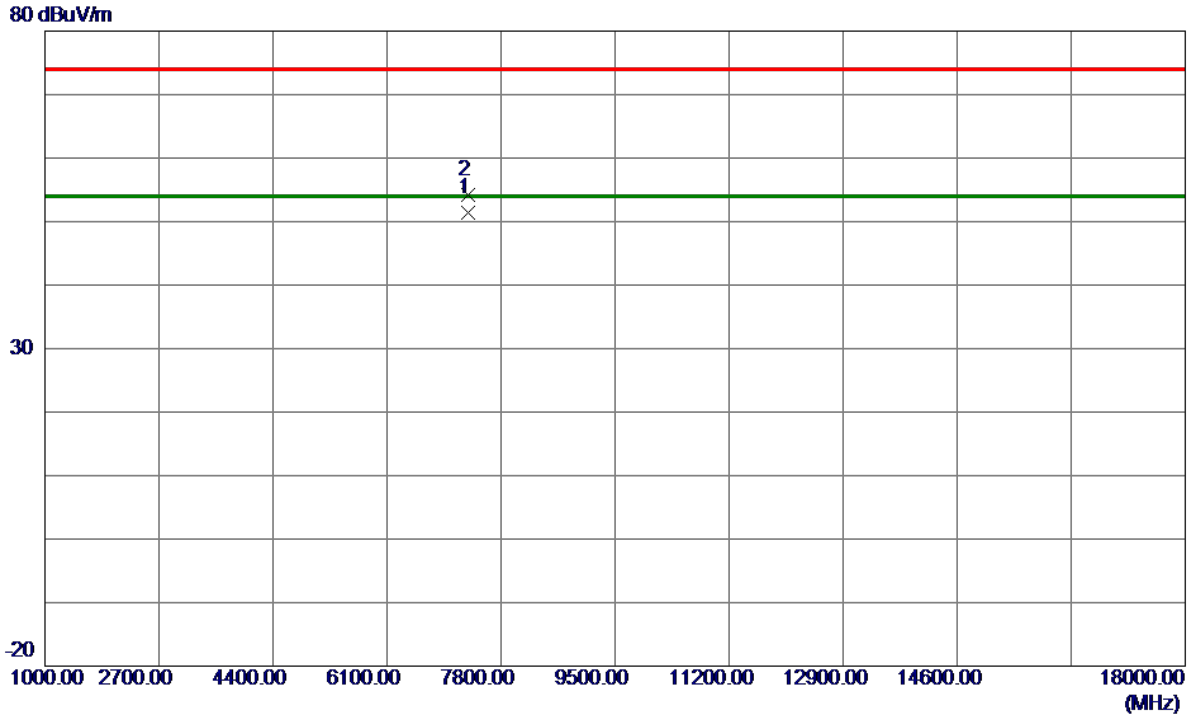
Test Mode	TX B Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2437.9500	90.69	6.00	96.69	74.00	22.69	Peak	No Limit
2 *	2438.8000	88.49	6.00	94.49	54.00	40.49	AVG	No Limit

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

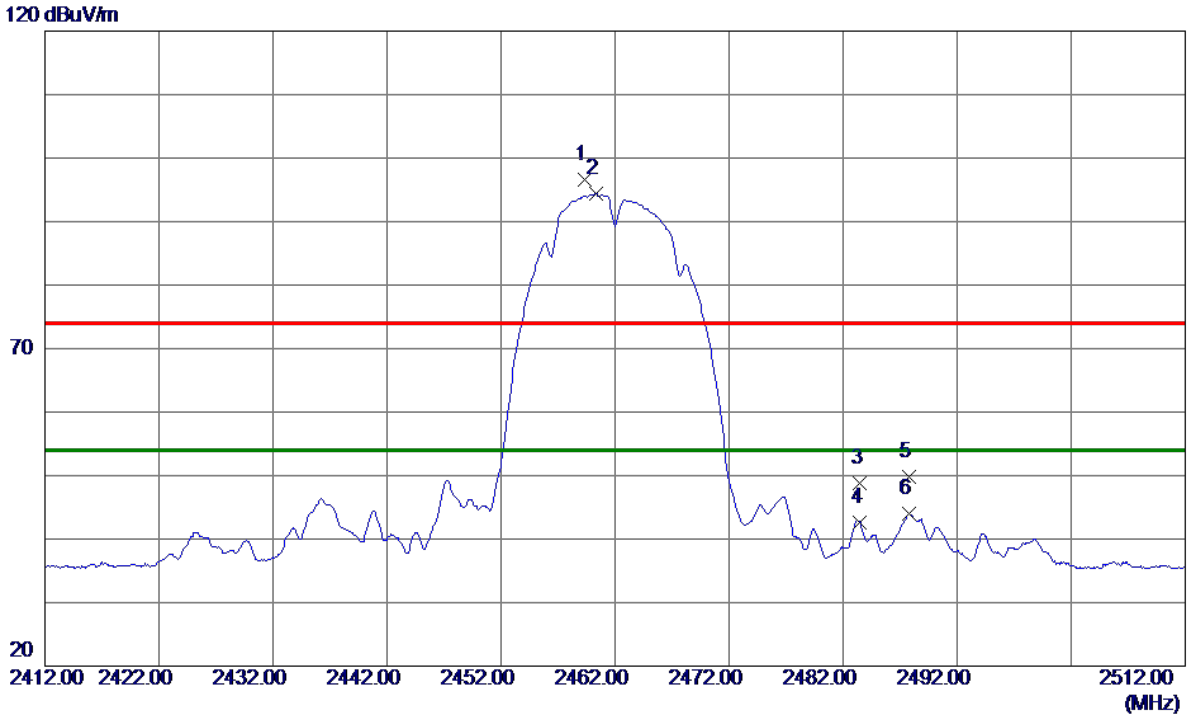
Test Mode	TX B Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	7310.2500	45.49	5.93	51.42	54.00	-2.58	AVG	
2	7310.4250	48.35	5.93	54.28	74.00	-19.72	Peak	

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

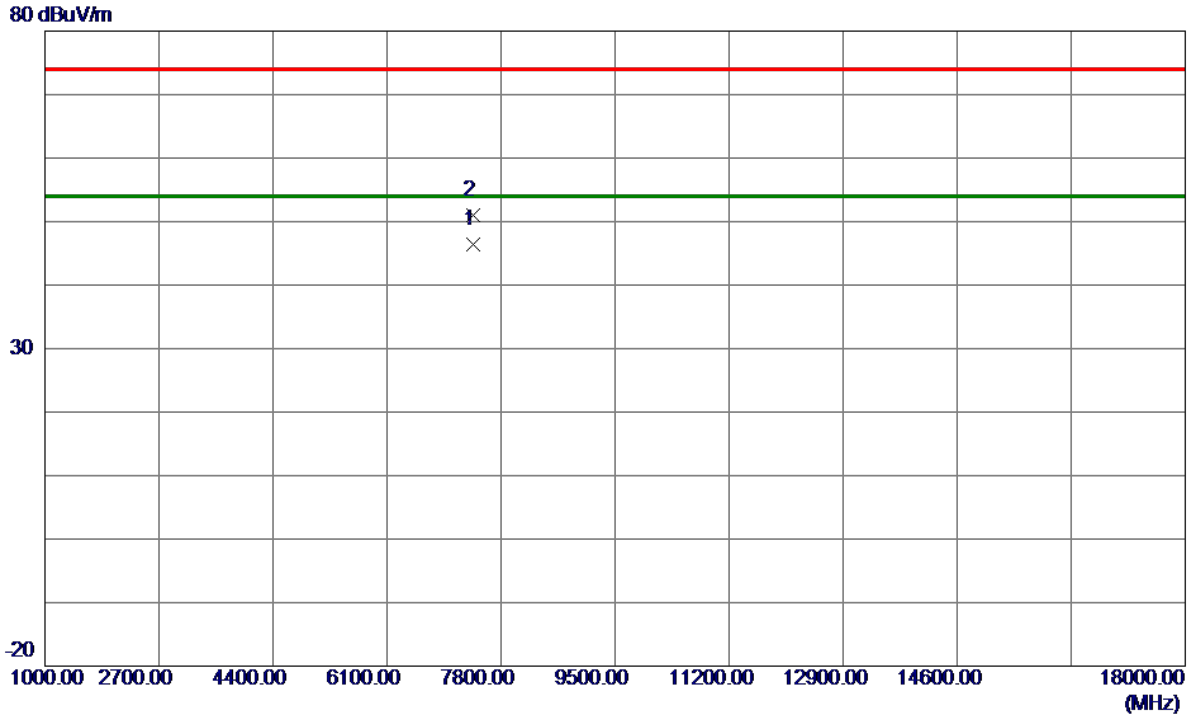
Test Mode	TX B Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2459.3000	90.56	6.00	96.56	74.00	22.56	Peak	No Limit
2 *	2460.3500	88.39	6.00	94.39	54.00	40.39	AVG	No Limit
3	2483.5000	42.71	6.00	48.71	74.00	-25.29	Peak	
4	2483.5000	36.67	6.00	42.67	54.00	-11.33	AVG	
5	2487.8000	43.89	6.00	49.89	74.00	-24.11	Peak	
6	2487.8000	38.09	6.00	44.09	54.00	-9.91	AVG	

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

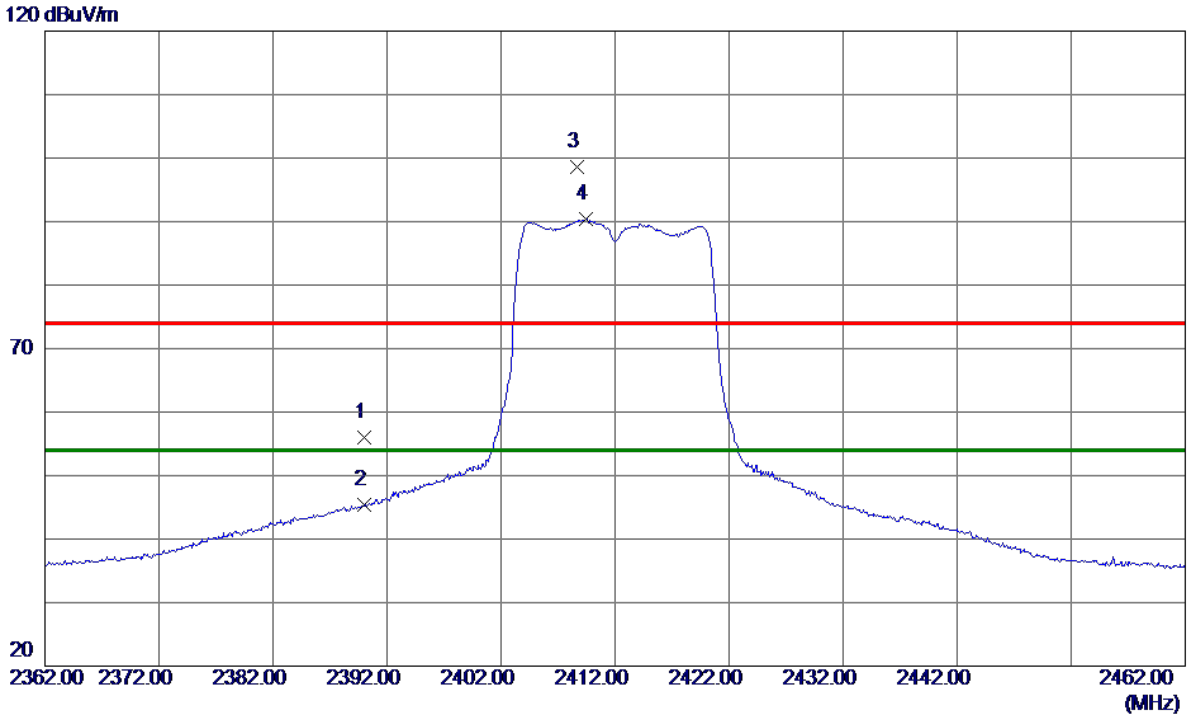
Test Mode	TX B Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	7385.3000	40.50	5.94	46.44	54.00	-7.56	AVG	
2	7385.6500	45.06	5.94	51.00	74.00	-23.00	Peak	

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

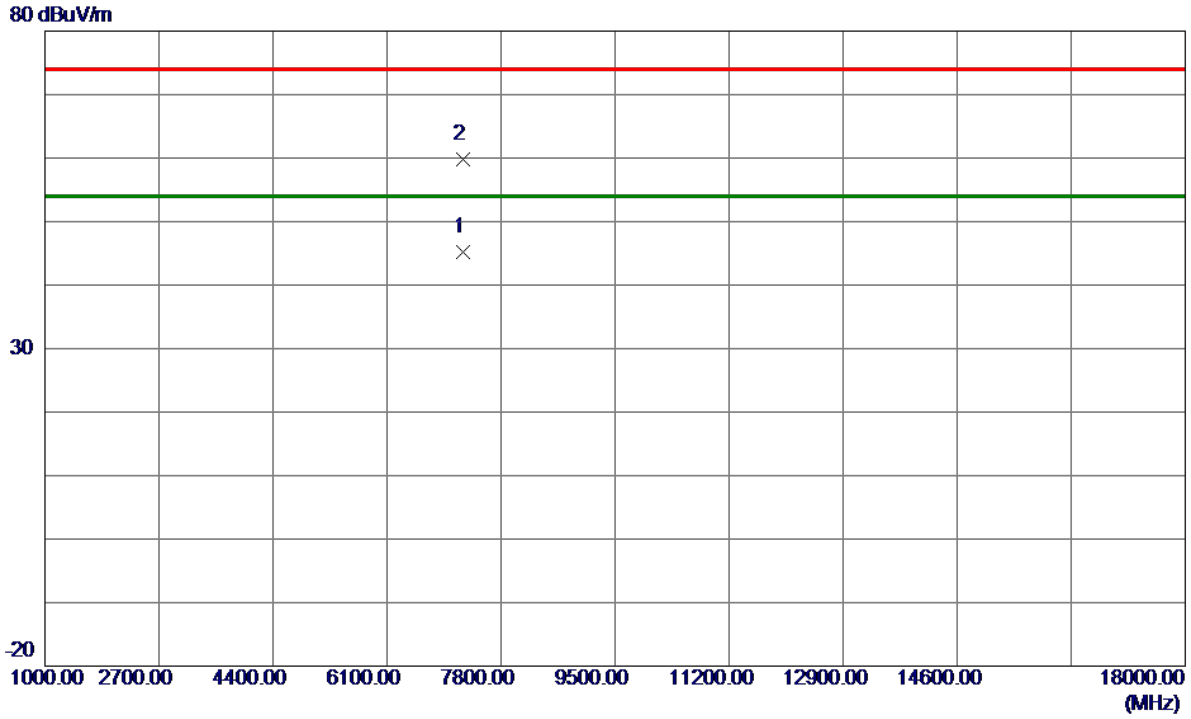
Test Mode	TX G Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	50.05	6.00	56.05	74.00	-17.95	Peak	
2	2390.0000	39.34	6.00	45.34	54.00	-8.66	AVG	
3	2408.7000	92.52	6.00	98.52	74.00	24.52	Peak	No Limit
4 *	2409.4500	84.37	6.00	90.37	54.00	36.37	AVG	No Limit

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

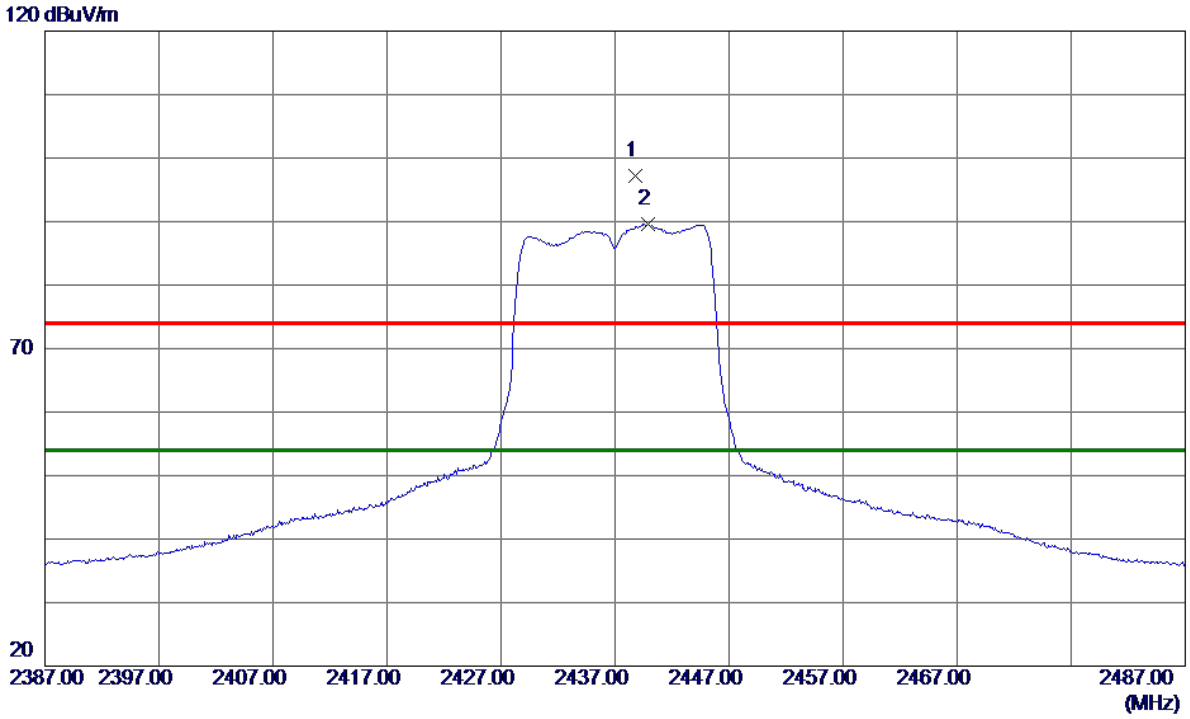
Test Mode	TX G Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	7237.0500	39.37	5.91	45.28	54.00	-8.72	AVG	
2	7238.0500	53.94	5.91	59.85	74.00	-14.15	Peak	

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

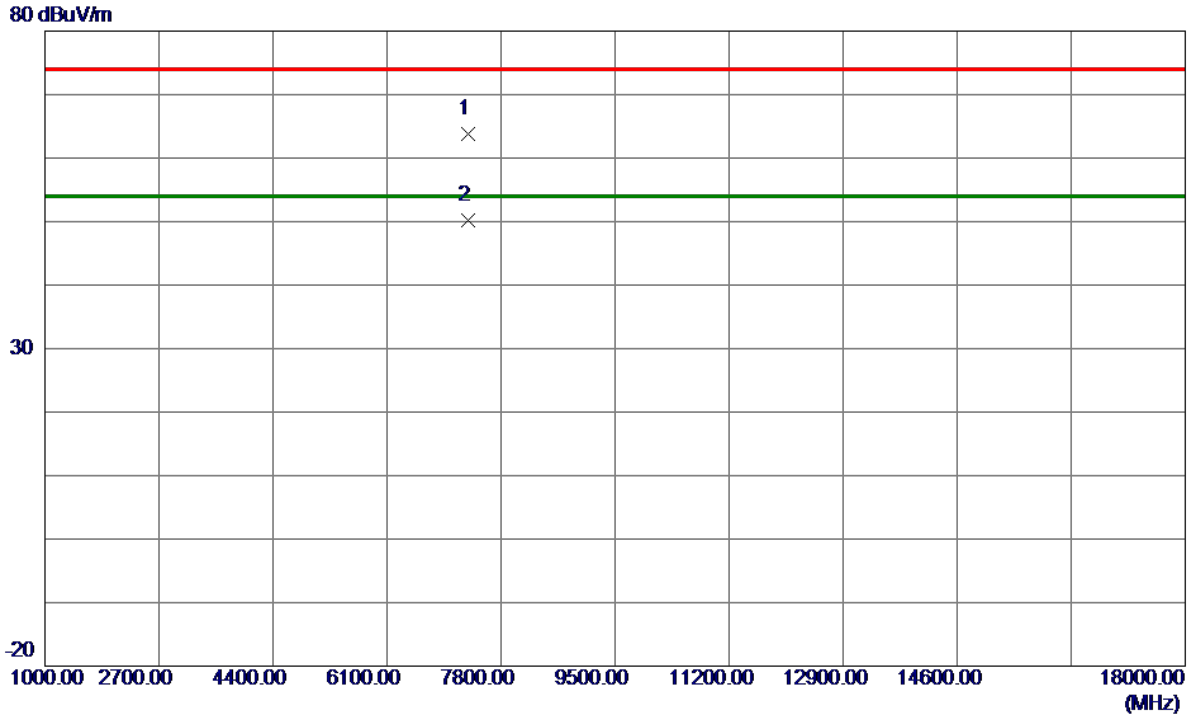
Test Mode	TX G Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2438.8000	91.28	6.00	97.28	74.00	23.28	Peak	No Limit
2 *	2439.8500	83.54	6.00	89.54	54.00	35.54	AVG	No Limit

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

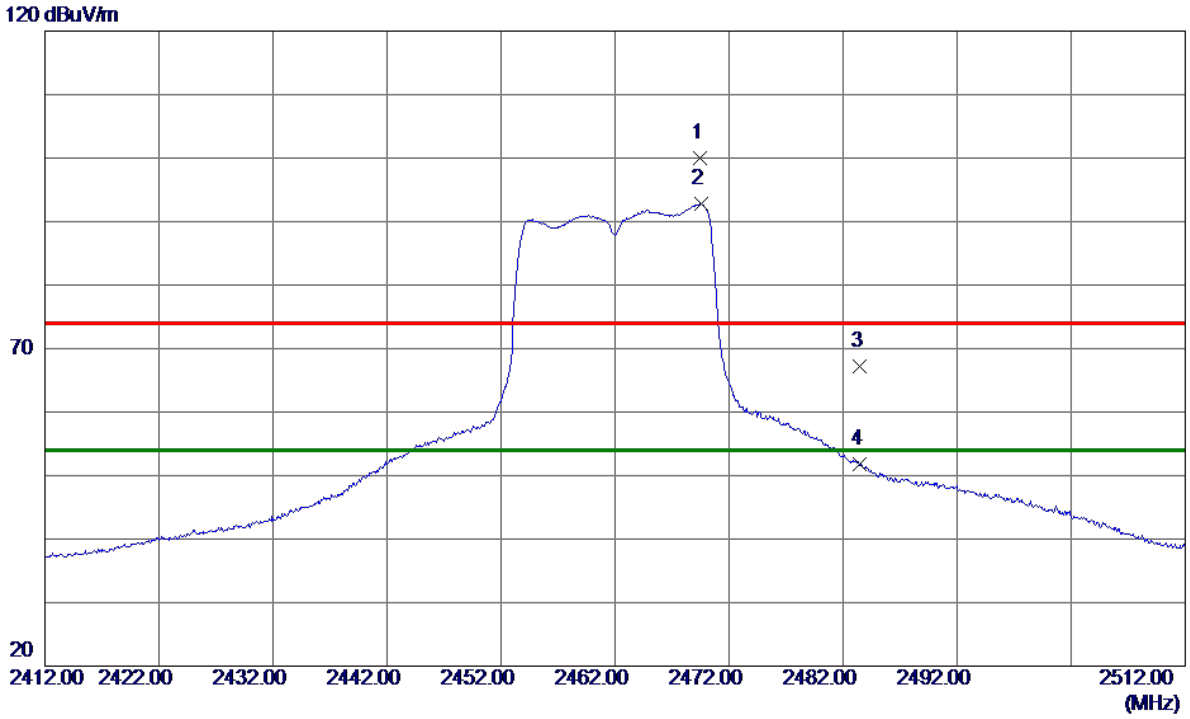
Test Mode	TX G Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	7304.6000	57.89	5.93	63.82	74.00	-10.18	Peak	
2 *	7309.9500	44.27	5.93	50.20	54.00	-3.80	AVG	

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

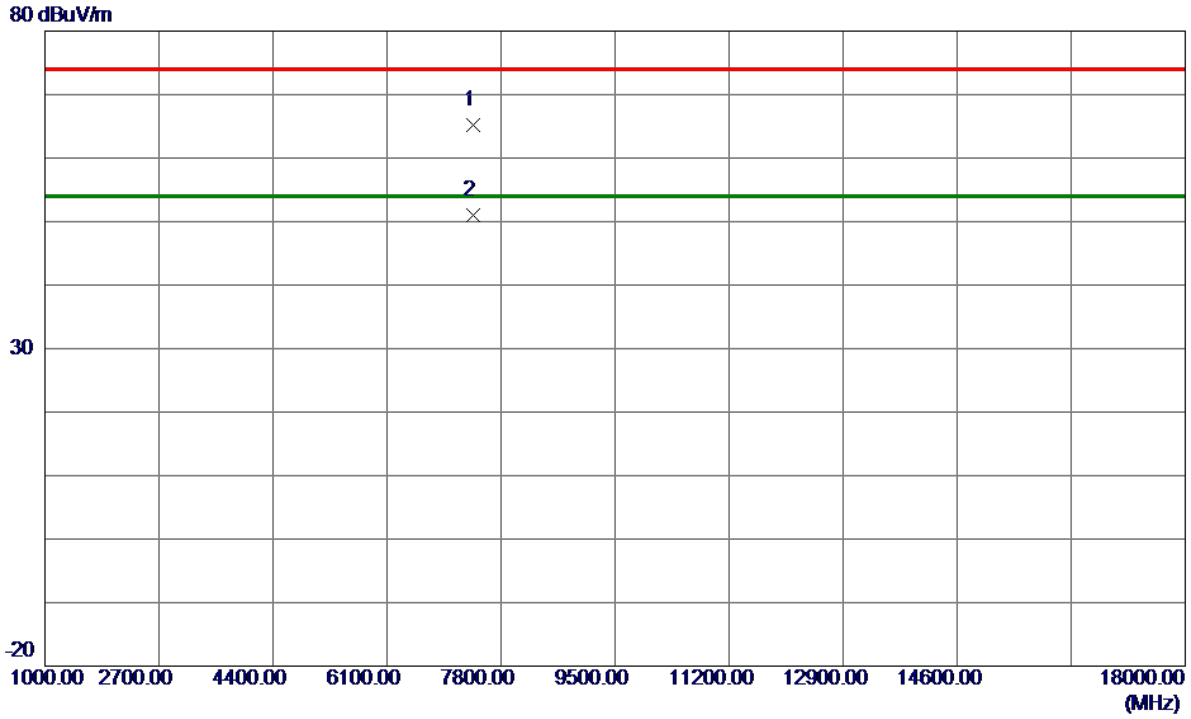
Test Mode	TX G Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2469.5000	94.03	6.00	100.03	74.00	26.03	Peak	No Limit
2 *	2469.6000	86.84	6.00	92.84	54.00	38.84	AVG	No Limit
3	2483.5000	61.18	6.00	67.18	74.00	-6.82	Peak	
4	2483.5000	45.82	6.00	51.82	54.00	-2.18	AVG	

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

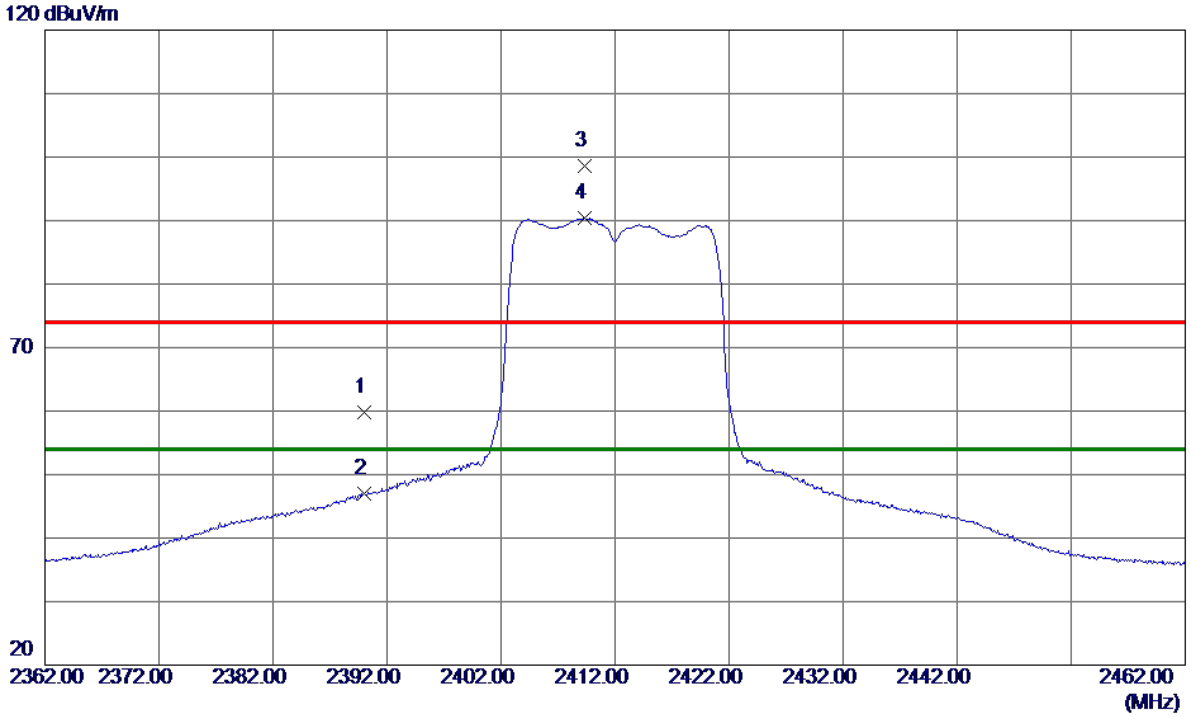
Test Mode	TX G Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	7381.4000	59.27	5.94	65.21	74.00	-8.79	Peak	
2 *	7385.3000	45.09	5.94	51.03	54.00	-2.97	AVG	

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

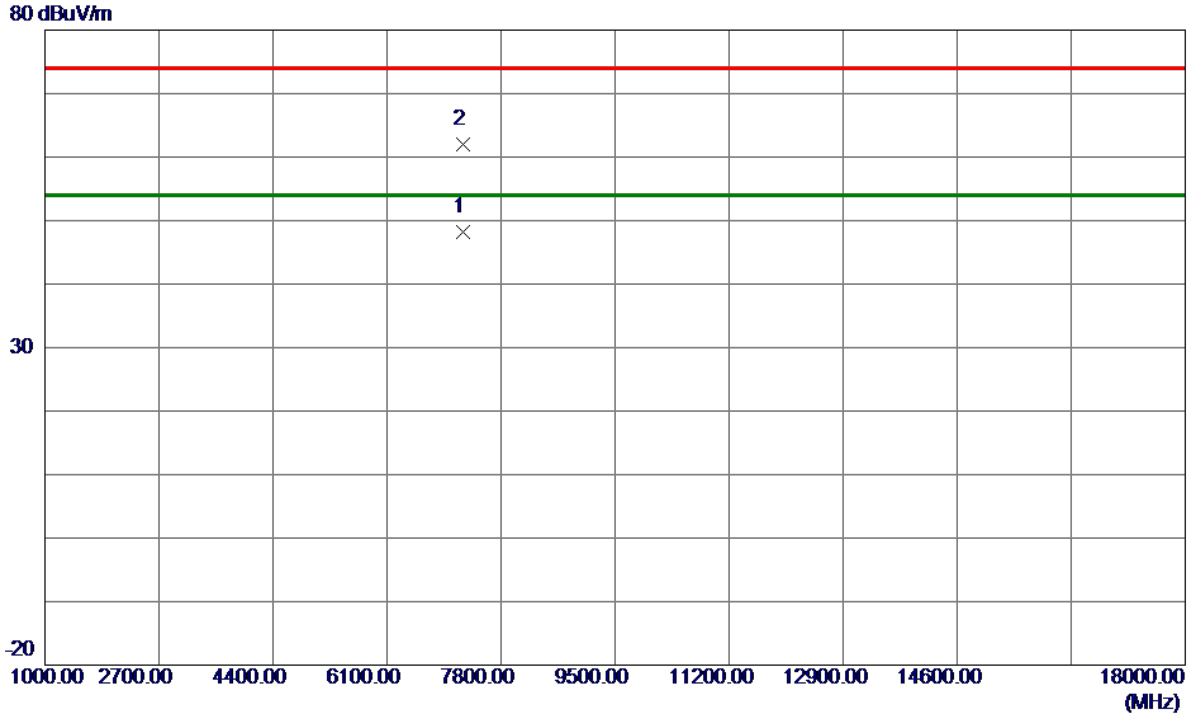
Test Mode	TX N(HT20) Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	53.82	6.00	59.82	74.00	-14.18	Peak	
2	2390.0000	40.98	6.00	46.98	54.00	-7.02	AVG	
3	2409.3000	92.62	6.00	98.62	74.00	24.62	Peak	No Limit
4 *	2409.3000	84.33	6.00	90.33	54.00	36.33	AVG	No Limit

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

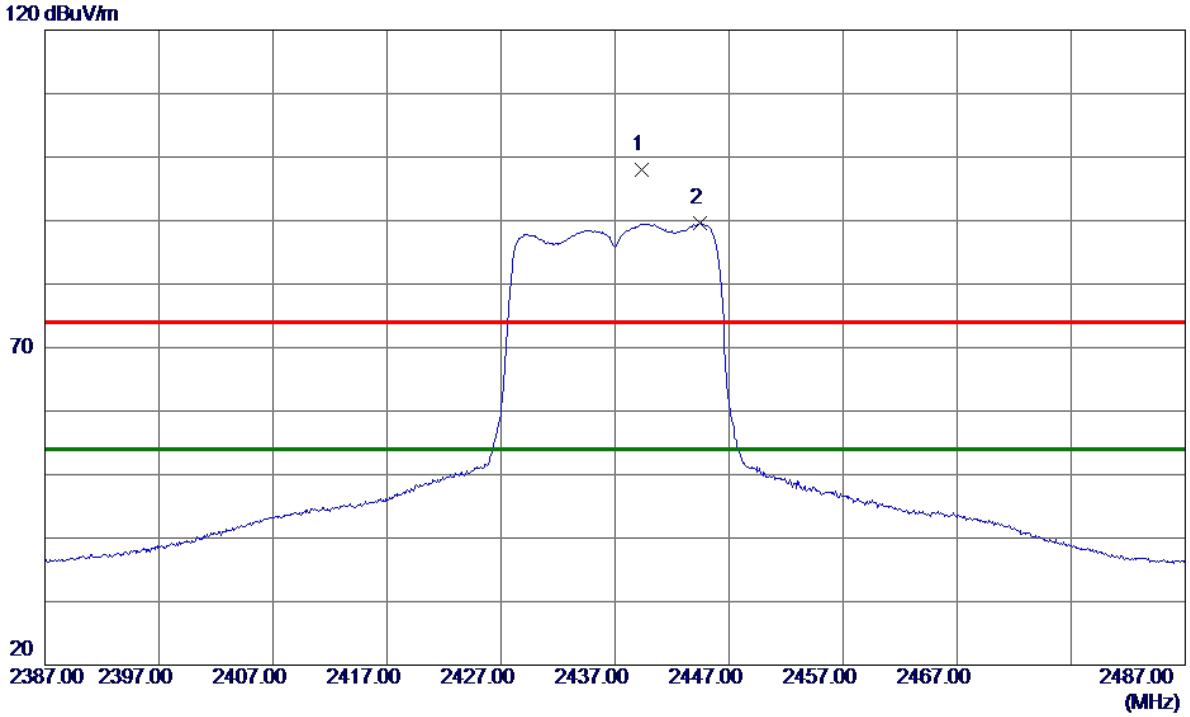
Test Mode	TX N(HT20) Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	7238.2500	42.23	5.91	48.14	54.00	-5.86	AVG	
2	7239.1500	56.17	5.91	62.08	74.00	-11.92	Peak	

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

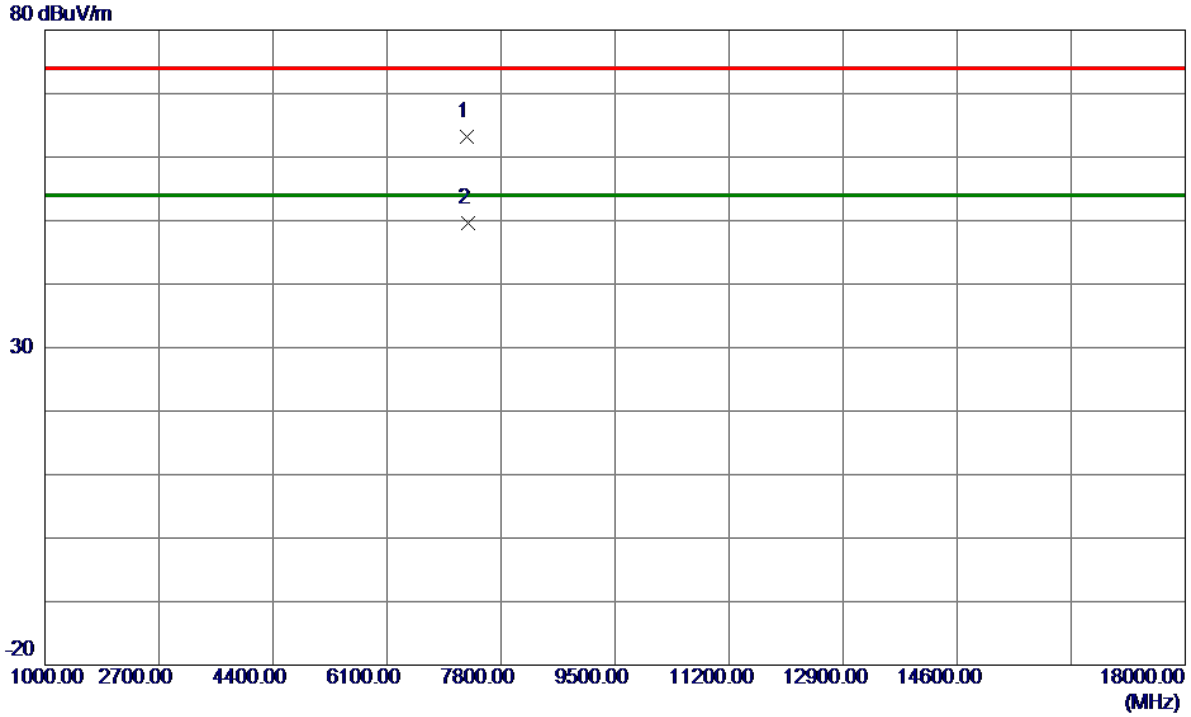
Test Mode	TX N(HT20) Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2439.3500	91.99	6.00	97.99	74.00	23.99	Peak	No Limit
2 *	2444.4500	83.65	6.00	89.65	54.00	35.65	AVG	No Limit

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

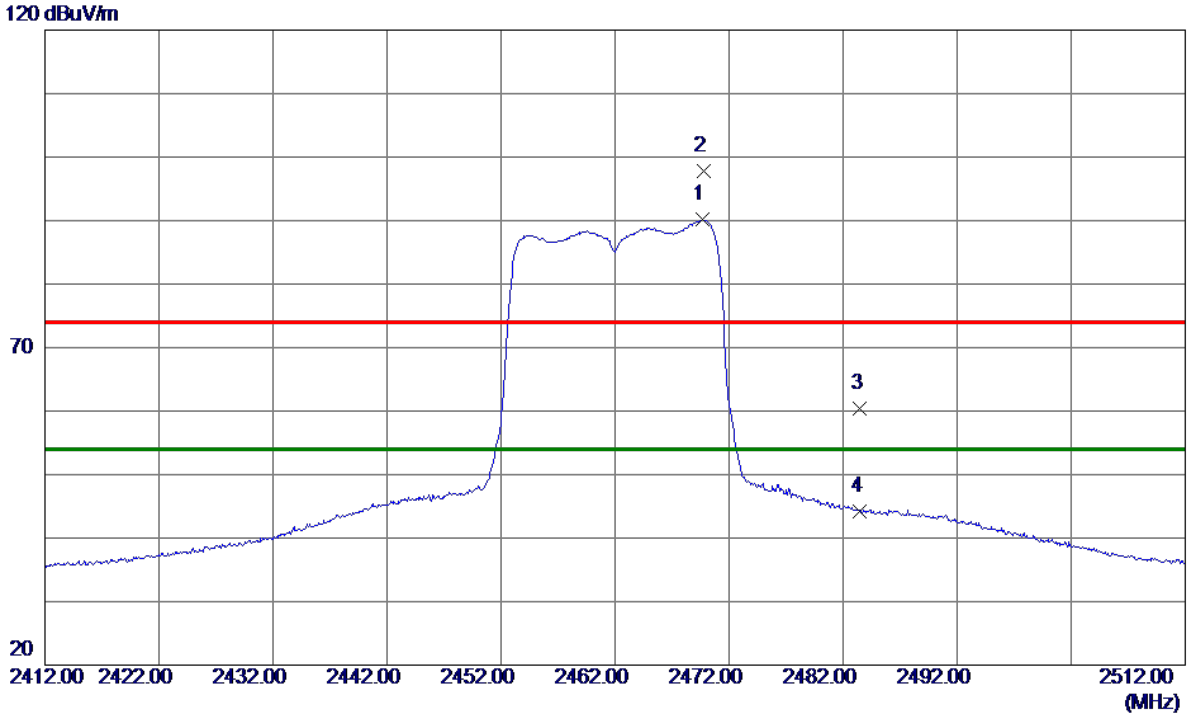
Test Mode	TX N(HT20) Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	7295.3000	57.31	5.92	63.23	74.00	-10.77	Peak	
2 *	7308.0500	43.58	5.93	49.51	54.00	-4.49	AVG	

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

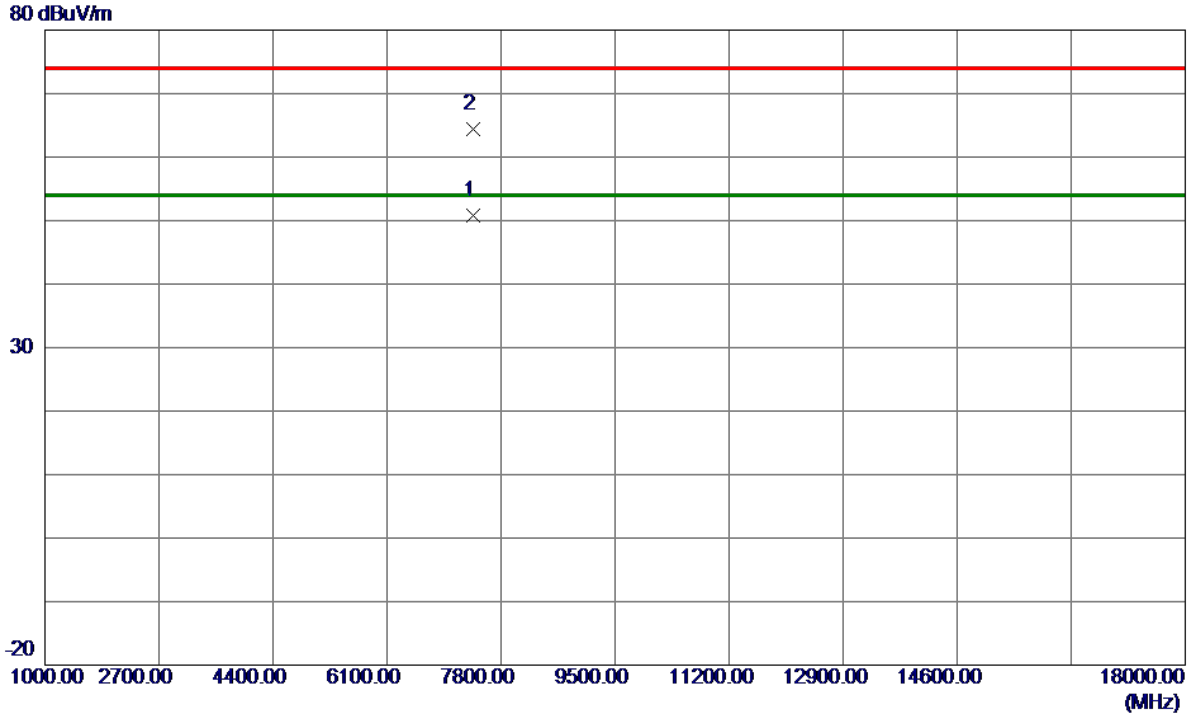
Test Mode	TX N(HT20) Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2469.7000	84.17	6.00	90.17	54.00	36.17	AVG	No Limit
2	2469.8000	91.78	6.00	97.78	74.00	23.78	Peak	No Limit
3	2483.5000	54.40	6.00	60.40	74.00	-13.60	Peak	
4	2483.5000	38.12	6.00	44.12	54.00	-9.88	AVG	

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

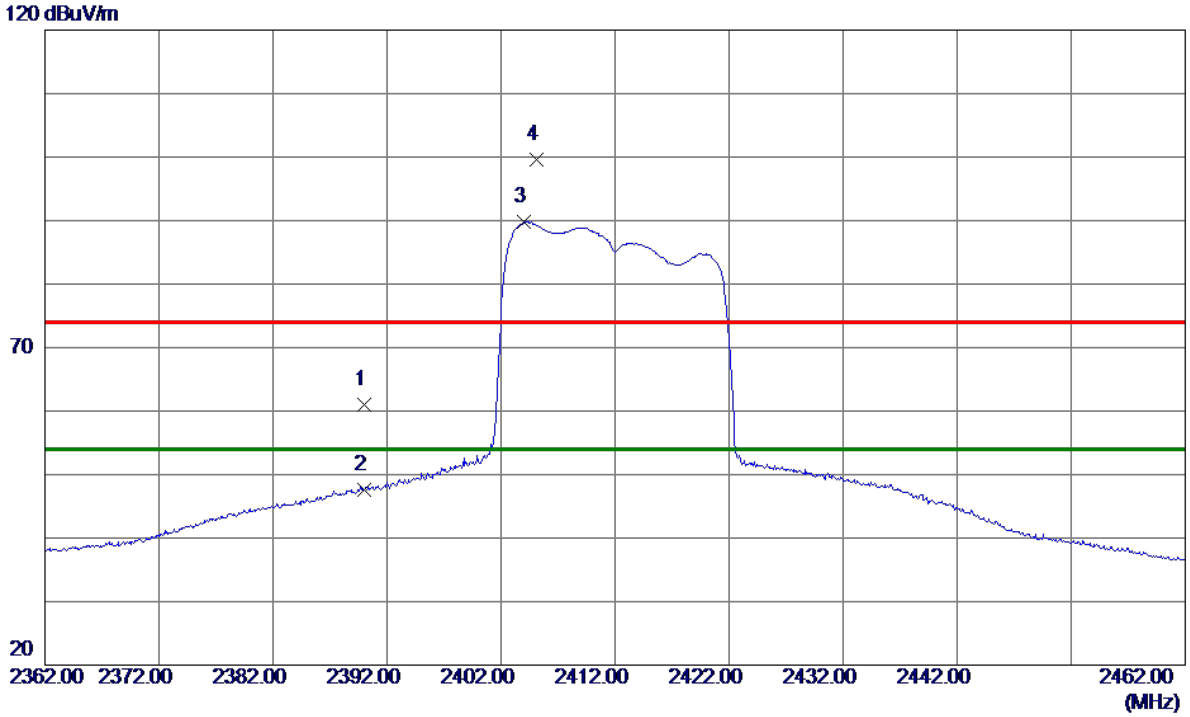
Test Mode	TX N(HT20) Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	7385.7500	44.95	5.94	50.89	54.00	-3.11	AVG	
2	7393.0500	58.38	5.95	64.33	74.00	-9.67	Peak	

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

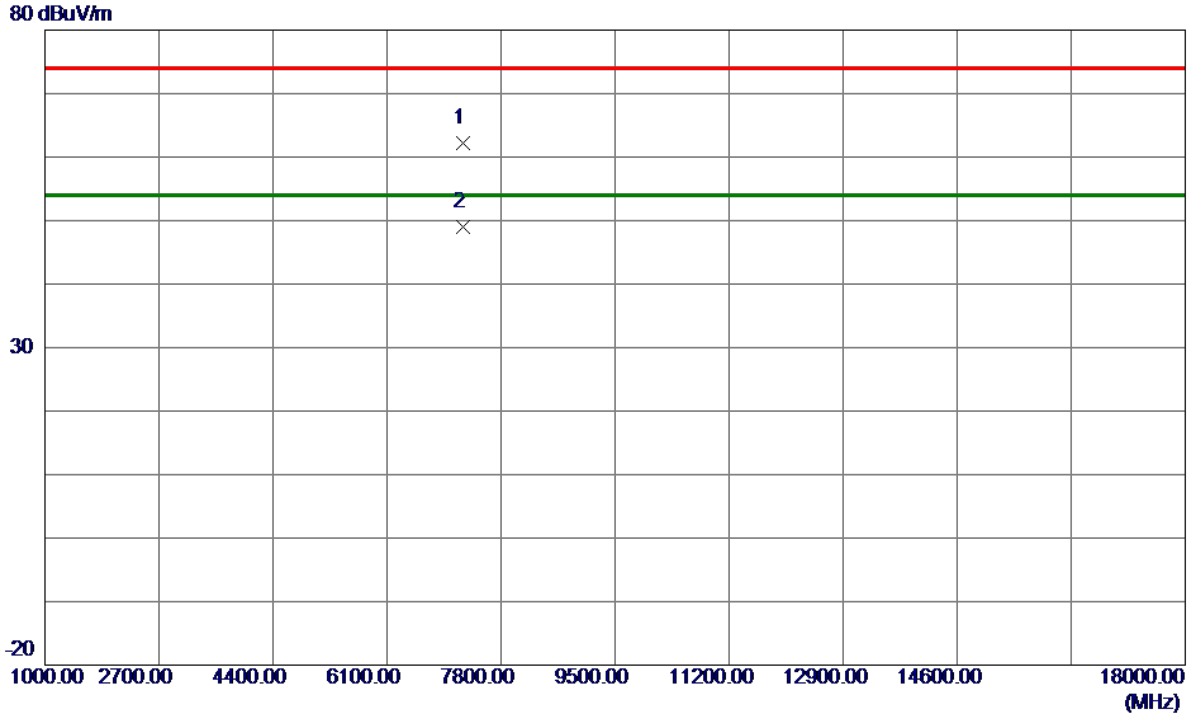
Test Mode	TX AX(HE20) Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	54.95	6.00	60.95	74.00	-13.05	Peak	
2	2390.0000	41.55	6.00	47.55	54.00	-6.45	AVG	
3 *	2404.0500	83.83	6.00	89.83	54.00	35.83	AVG	No Limit
4	2405.1500	93.60	6.00	99.60	74.00	25.60	Peak	No Limit

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

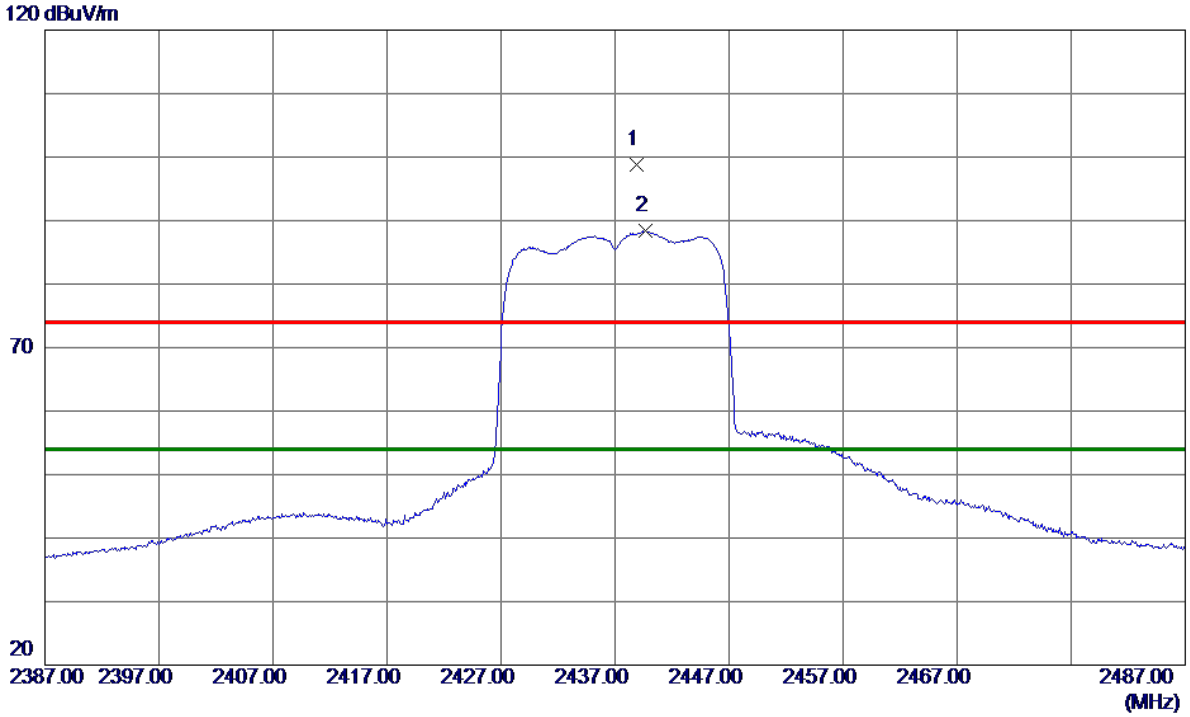
Test Mode	TX AX(HE20) Mode 2412 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	7237.2000	56.21	5.91	62.12	74.00	-11.88	Peak	
2 *	7238.6500	43.05	5.91	48.96	54.00	-5.04	AVG	

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

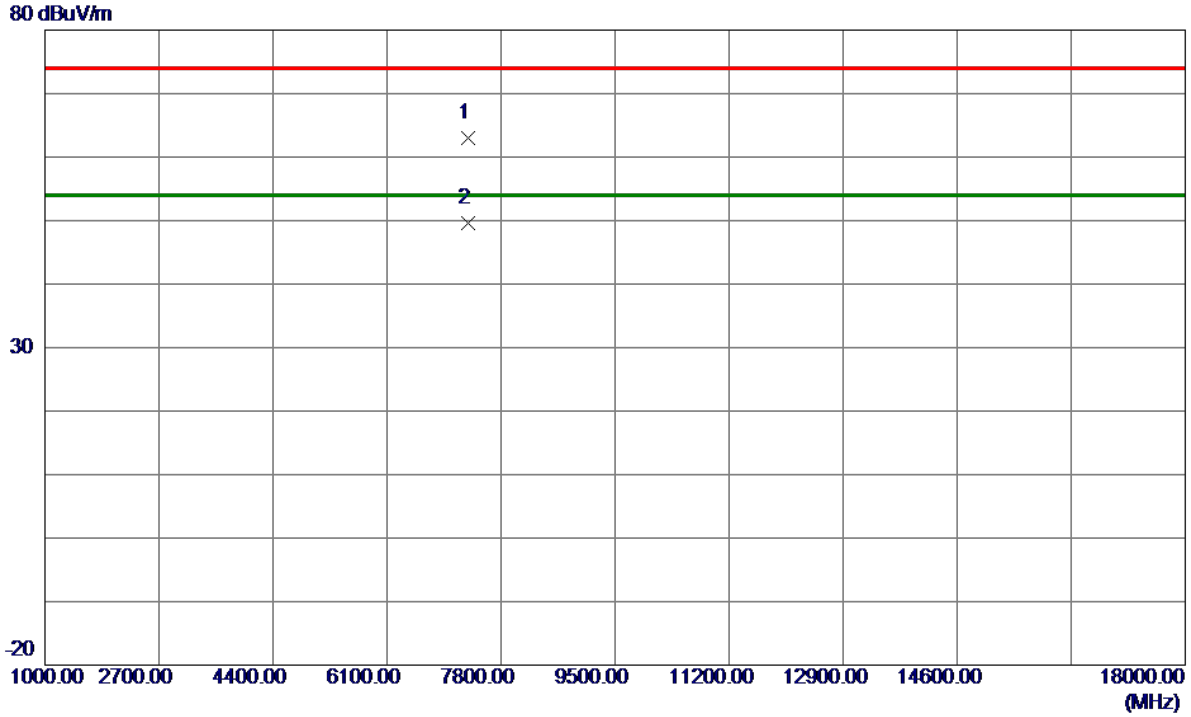
Test Mode	TX AX(HE20) Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2438.8500	92.80	6.00	98.80	74.00	24.80	Peak	No Limit
2 *	2439.7000	82.42	6.00	88.42	54.00	34.42	AVG	No Limit

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

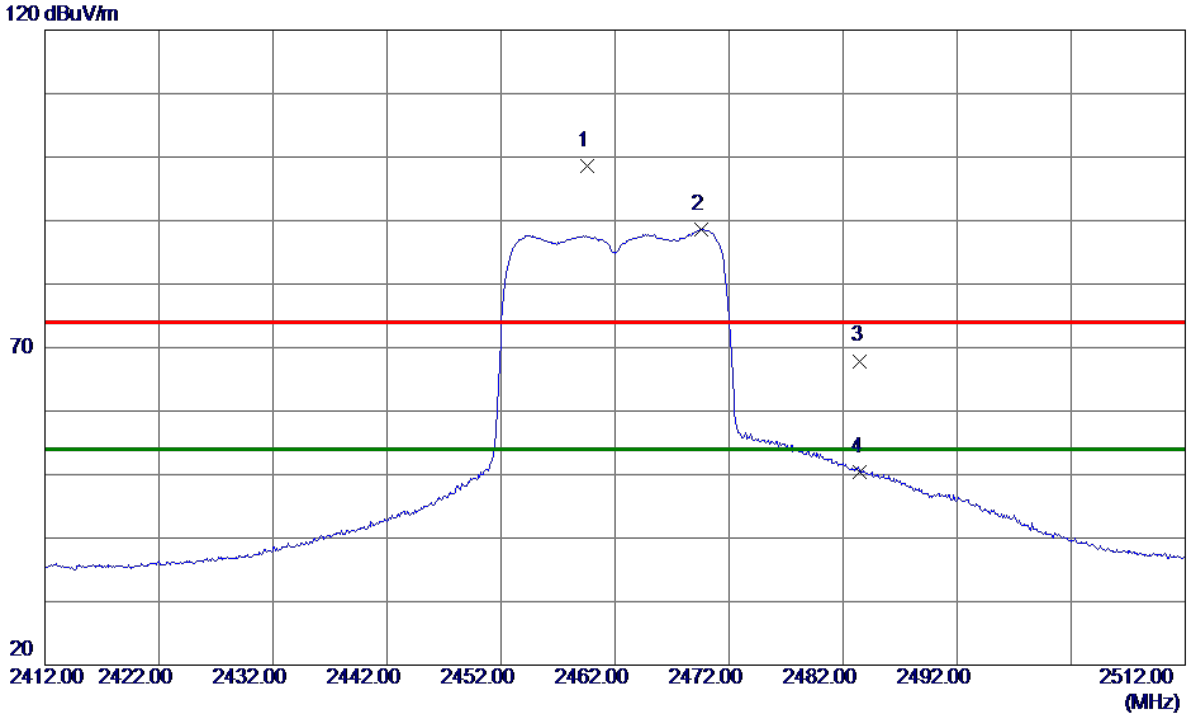
Test Mode	TX AX(HE20) Mode 2437 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	7305.9500	57.09	5.93	63.02	74.00	-10.98	Peak	
2 *	7308.3500	43.72	5.93	49.65	54.00	-4.35	AVG	

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

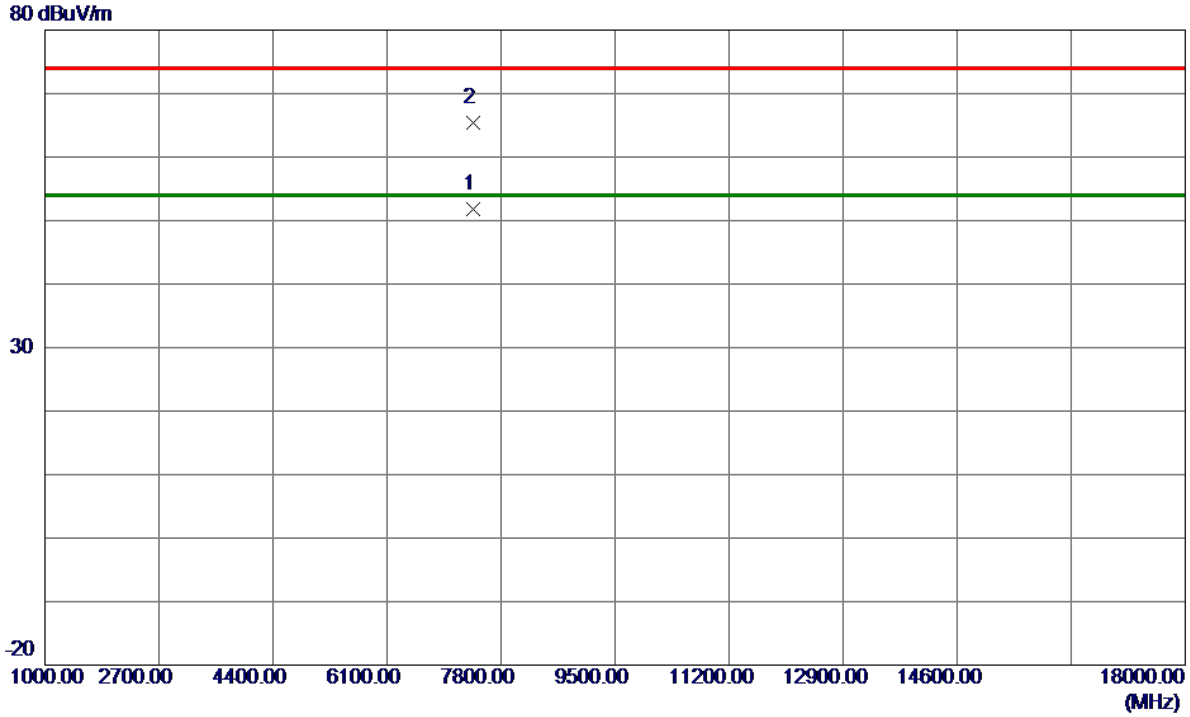
Test Mode	TX AX(HE20) Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2459.5500	92.52	6.00	98.52	74.00	24.52	Peak	No Limit
2 *	2469.6000	82.60	6.00	88.60	54.00	34.60	AVG	No Limit
3	2483.5000	61.90	6.00	67.90	74.00	-6.10	Peak	
4	2483.5000	44.43	6.00	50.43	54.00	-3.57	AVG	

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

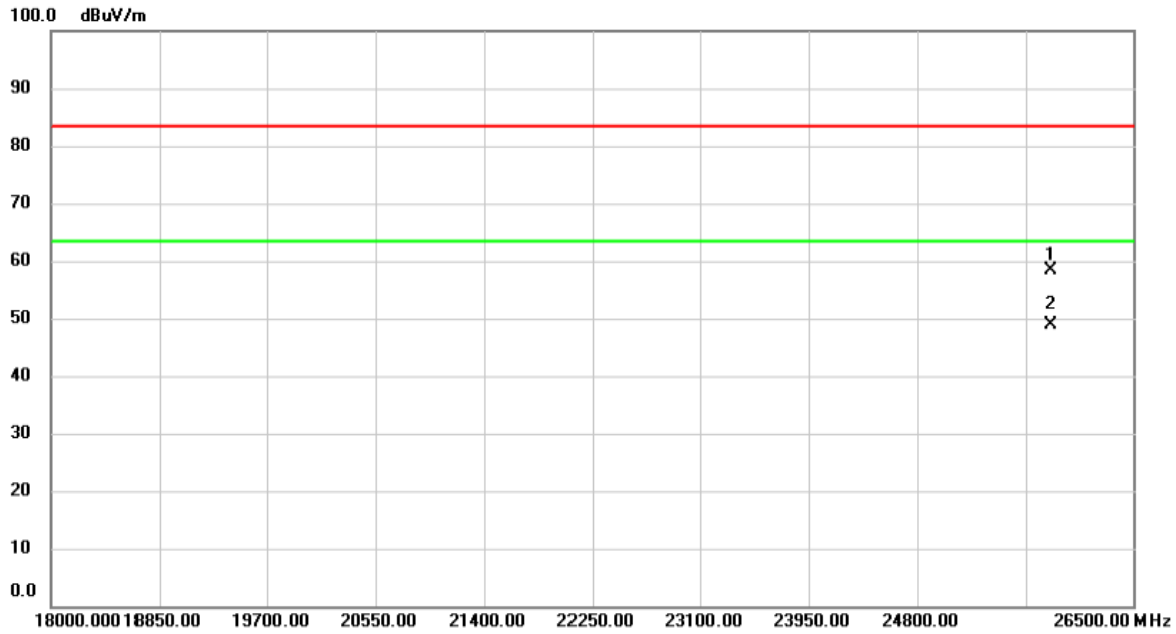
Test Mode	TX AX(HE20) Mode 2462 MHz	Polarization	Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	7386.0500	45.77	5.94	51.71	54.00	-2.29	AVG	
2	7386.4500	59.41	5.95	65.36	74.00	-8.64	Peak	

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

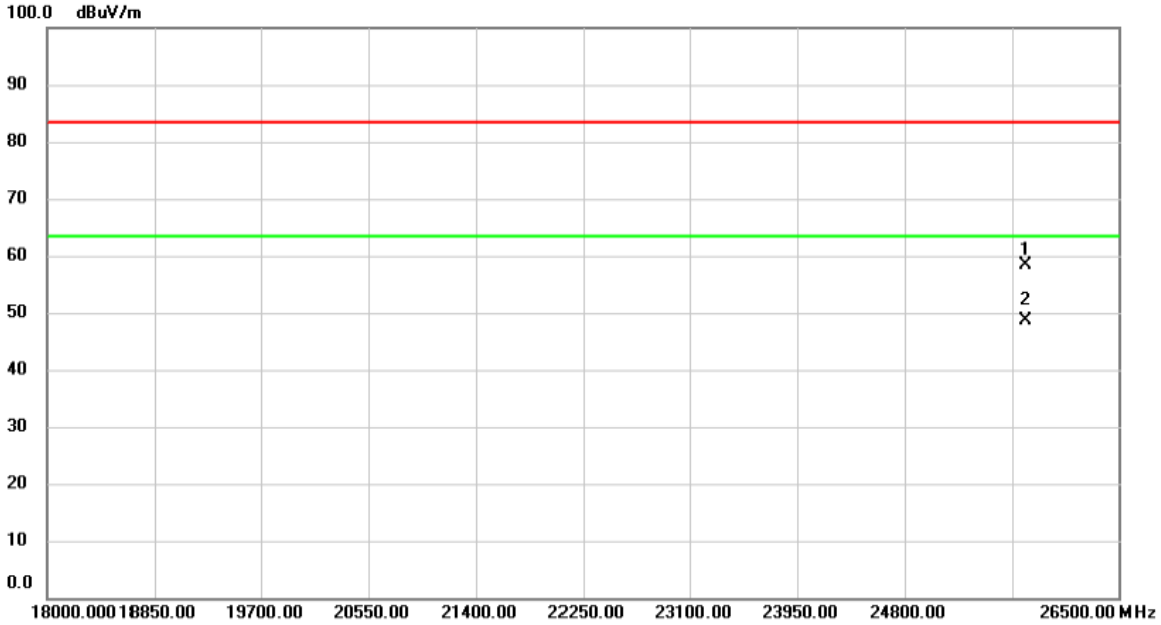
Test Mode	TX B Mode Channel 01	Polarization	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		25845.500	48.27	10.23	58.50	83.50	-25.00	peak	
2	*	25845.500	38.61	10.23	48.84	63.50	-14.66	AVG	

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

Test Mode	TX B Mode Channel 01	Polarization	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		25756.250	48.19	10.07	58.26	83.50	-25.24	peak	
2	*	25756.250	38.64	10.07	48.71	63.50	-14.79	AVG	

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

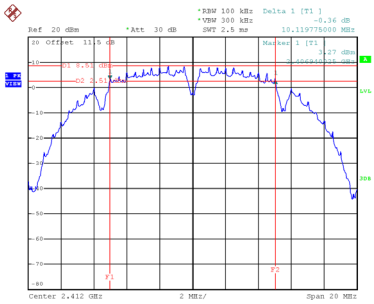
APPENDIX E - BANDWIDTH

Test Mode	TX B Mode

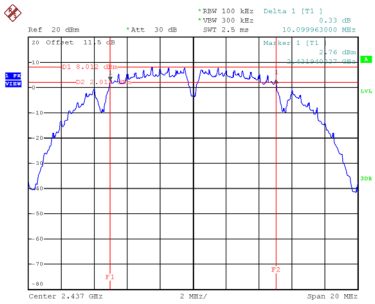
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	10.120	13.520	0.5	Complies
06	2437	10.100	13.600	0.5	Complies
11	2462	10.100	13.600	0.5	Complies

CH01 **CH06** **CH11**

6 dB Bandwidth



Date: 9.MAY.2024 01:57:57



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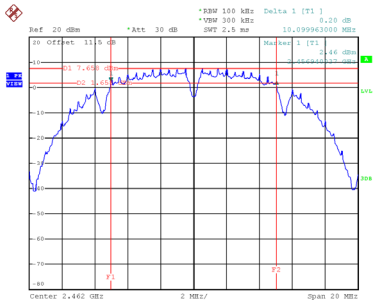
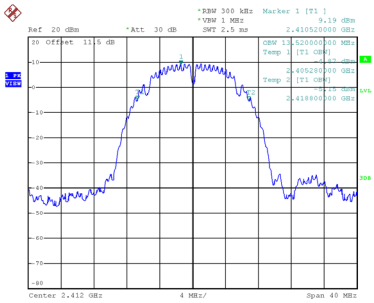


Date: 9.MAY.2024 02:03:37

99 % Occupied Bandwidth



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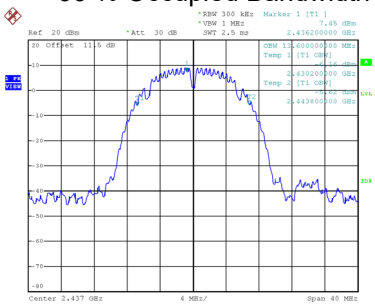

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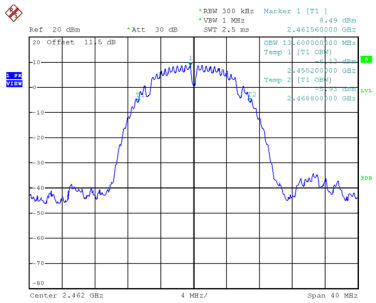


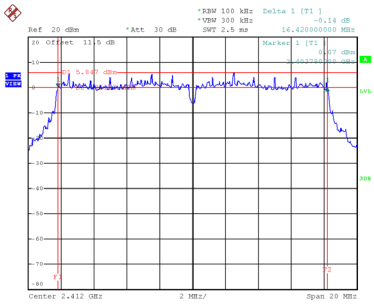
Date: 9.MAY.2024 02:03:43

Test Mode	TX G Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	16.420	17.040	0.5	Complies
06	2437	16.420	17.040	0.5	Complies
11	2462	16.420	17.200	0.5	Complies

CH01 **CH06** **CH11**

6 dB Bandwidth



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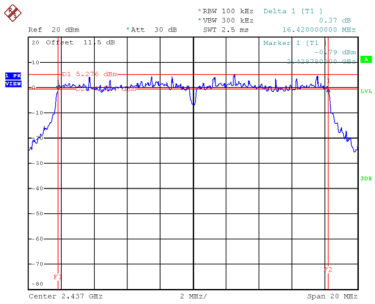

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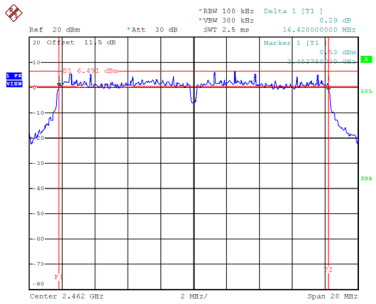

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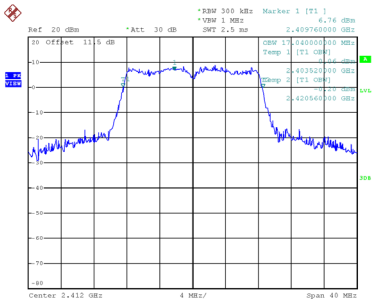
99 % Occupied Bandwidth



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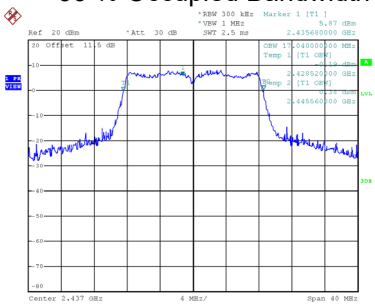

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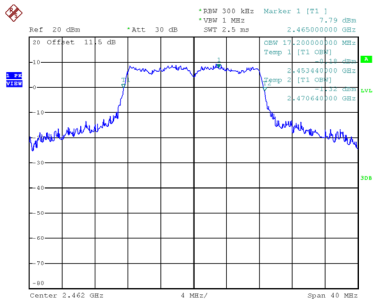

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