



FCC Radio Test Report

FCC ID: 2ABVN-98

This report concerns: Original Grant

Project No. : 2410E006
Equipment : MSI Bluetooth Mouse
Brand Name : MSI
Test Model : M98
Series Model : N/A
Applicant : Verico International Co., Ltd
Address : 12F-6., No.872, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)
Manufacturer : Verico International Co., Ltd
Address : 12F-6., No.872, Zhongzheng Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)
Factory : Dongguan You Hong Plastic Electronics Co.,Ltd.
Address : No.5, Xiabaotan Industrial 2nd Road, Shipai Town, Dongguan City, Guangdong Province, China
Date of Receipt : Oct. 29, 2024
Date of Test : Oct. 30, 2024 ~ Jan. 17, 2025
Issued Date : Mar. 12, 2025
Report Version : R00
Test Sample : Engineering Sample No.: DG20241029530 for conducted, DG20241029532 and DG20241029537 for radiated
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

:

Nick Chen

Approved by

:

Welly Zhou

Room 108-116, 309-310, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China.

Tel: +86-769-8318-3000

Web: www.newbtl.com

Service mail: btl_qa@newbtl.com

Declaration

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

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** 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.

Table of Contents	Page
REPORT ISSUED HISTORY	5
1 . APPLICABLE STANDARDS	6
2 . SUMMARY OF TEST RESULTS	6
2.1 TEST FACILITY	7
2.2 MEASUREMENT UNCERTAINTY	7
2.3 TEST ENVIRONMENT CONDITIONS	8
3 . GENERAL INFORMATION	9
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	10
3.3 PARAMETERS OF TEST SOFTWARE	10
3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	11
3.5 SUPPORT UNITS	11
3.6 CUSTOMER INFORMATION DESCRIPTION	11
4 . RADIATED EMISSIONS	12
4.1 LIMIT	12
4.2 TEST PROCEDURE	13
4.3 DEVIATION FROM TEST STANDARD	14
4.4 TEST SETUP	14
4.5 EUT OPERATING CONDITIONS	16
4.6 TEST RESULT - 9 KHZ TO 30 MHZ	16
4.7 TEST RESULT - 30 MHZ TO 1000 MHZ	16
4.8 TEST RESULT - ABOVE 1000 MHZ	16
5 . BANDWIDTH	17
5.1 LIMIT	17
5.2 TEST PROCEDURE	17
5.3 DEVIATION FROM STANDARD	17
5.4 TEST SETUP	17
5.5 EUT OPERATION CONDITIONS	17
5.6 TEST RESULTS	17
6 . MAXIMUM OUTPUT POWER	18
6.1 LIMIT	18
6.2 TEST PROCEDURE	18

Table of Contents	Page
6.3 DEVIATION FROM STANDARD	18
6.4 TEST SETUP	18
6.5 EUT OPERATION CONDITIONS	18
6.6 TEST RESULTS	18
7 . CONDUCTED SPURIOUS EMISSION	19
7.1 LIMIT	19
7.2 TEST PROCEDURE	19
7.3 DEVIATION FROM STANDARD	19
7.4 TEST SETUP	19
7.5 EUT OPERATION CONDITIONS	19
7.6 TEST RESULTS	19
8 . POWER SPECTRAL DENSITY	20
8.1 LIMIT	20
8.2 TEST PROCEDURE	20
8.3 DEVIATION FROM STANDARD	20
8.4 TEST SETUP	20
8.5 EUT OPERATION CONDITIONS	20
8.6 TEST RESULTS	20
9 . MEASUREMENT INSTRUMENTS LIST	21
10 . EUT TEST PHOTO	23
APPENDIX A - RADIATED EMISSION - 9 KHZ TO 30 MHZ	28
APPENDIX B - RADIATED EMISSION - 30 MHZ TO 1000 MHZ	33
APPENDIX C - RADIATED EMISSION - ABOVE 1000 MHZ	36
APPENDIX D - BANDWIDTH	44
APPENDIX E - MAXIMUM OUTPUT POWER	46
APPENDIX F - CONDUCTED SPURIOUS EMISSION	48
APPENDIX G - POWER SPECTRAL DENSITY	50

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-2-2410E006	R00	Original Report.	Mar. 12, 2025	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	-----	N/A	-----
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX A APPENDIX B APPENDIX C	PASS	-----
15.247(a)(2)	Bandwidth	APPENDIX D	PASS	-----
15.247(b)(3)	Maximum Output Power	APPENDIX E	PASS	-----
15.247(d)	Conducted Spurious Emission	APPENDIX F	PASS	-----
15.247(e)	Power Spectral Density	APPENDIX G	PASS	-----
15.203	Antenna Requirement	-----	PASS	Note(2)

Note:

(1) "N/A" denotes test is not applicable to this device.

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

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of 1-2/F, 4/F, Building A, 1-2/F, Building B, 3/F, Building C, No.3, Jinshagang 1st Road, Dalang Town, 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. Radiated emissions Measurement:

Test Site	Method	Measurement Frequency Range	U , (dB)
DG-CB01	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

B. 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
Radiated Emissions-9 kHz to 30 MHz	26°C	47%	DC 3V	Hayden Chen	Nov. 14, 2024
Radiated Emissions-30 MHz to 1000 MHz	23°C	42%	DC 3V	Jensen Zhou	Nov. 15, 2024
Radiated Emissions-Above 1000 MHz	22°C	50%	DC 3V	Allen Tong	Nov. 14, 2024
	23°C	42%	DC 3V	Jensen Zhou	Nov. 15, 2024
Bandwidth	22°C	51%	DC 3V	Arvin Tong	Jan. 08, 2025
Maximum Output Power	22°C	51%	DC 3V	Arvin Tong	Jan. 08, 2025
Conducted Spurious Emission	22°C	51%	DC 3V	Arvin Tong	Jan. 08, 2025
Power Spectral Density	22°C	51%	DC 3V	Arvin Tong	Jan. 08, 2025

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	MSI Bluetooth Mouse
Brand Name	MSI
Test Model	M98
Series Model	N/A
Model Difference(s)	N/A
Power Source	Supplied from 2*AAA battery.
Power Rating	DC 3V --- 6mA
Operation Frequency	2402 MHz ~ 2480 MHz
Modulation Type	FSK
Bit Rate of Transmitter	2Mbps
Max. Output Power	2Mbps: -1.20dBm (0.0008 W)

Note:

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

2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2405	08	2440
01	2409	09	2445
02	2413	10	2450
03	2417	11	2455
04	2422	12	2460
05	2426	13	2465
06	2430	14	2467
07	2435	15	2470

3. Table for Filed Antenna:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	Mosart Semiconductor Corp	N/A	Printed	N/A	-0.61

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 Mode_2Mbps Channel 00/06/15
Mode 2	TX Mode_2Mbps Channel 06

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

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 2	TX Mode_2Mbps Channel 06

Radiated emissions test - Above 1GHz	
Final Test Mode	Description
Mode 1	TX Mode_2Mbps Channel 00/06/15

Conducted test	
Final Test Mode	Description
Mode 1	TX Mode_2Mbps Channel 00/06/15

Note:

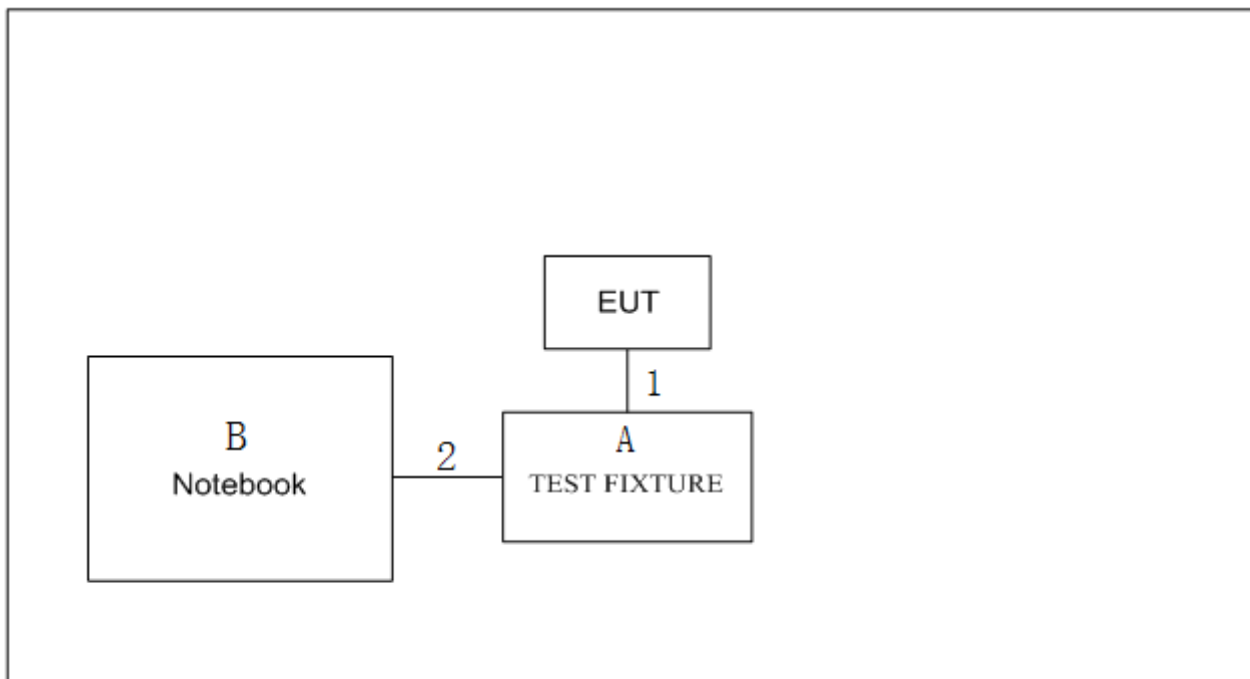
- (1) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (2) For radiated emission Harmonic 18-26.5GHz test, only tested the worst case and recorded.
- (3) For radiated emission Harmonic above 1 GHz test, the polarization of Vertical and Horizontal are evaluated, the worst case is Vertical and recorded.
- (4) For radiated emission bandedge above 1 GHz test, the polarization of Vertical and Horizontal are evaluated, the worst case is Vertical and recorded.
- (5) For radiated emission below 1 GHz test, the TX 2Mbps Mode Channel 00 is found to be the worst case and recorded.

3.3 PARAMETERS OF TEST SOFTWARE

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

Test Software Version	Non_Signaling_Test_Tool		
Frequency (MHz)	2405	2430	2470
2Mbps	10.8	11.5	11.5

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Test Fixture	N/A	N/A	N/A
B	Notebook	HUAWEI	NbDE-WFH9	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	Data Cable	NO	NO	0.2m
2	USB Cable	NO	NO	0.6m

3.6 CUSTOMER INFORMATION DESCRIPTION

- 1) The antenna gain is provided by the manufacturer.
- 2) Except for radiated emissions, the results of all test items include cable losses. Part of the cable losses (1dB) are provided by the manufacturer, while the other parts of the cable losses are provided by the testing laboratory.

4. RADIATED EMISSIONS

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)	Band edge/ Harmonic at 3m (dBμV/m)		Harmonic at 1m (dBμV/m)	
	Peak	Average	Peak	Average
Above 1000	74	54	83.5 (Note 5)	63.5 (Note 5)

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) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
 Margin Level = Measurement Value - Limit Value

(5)

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

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

FS_{limit}: Harmonic at 3m Peak and Average limit.

FS_{max}: Harmonic at 1m Peak and Average Maximum value.

d_{limit}: Harmonic at 3m test distance.

d_{measure}: Harmonic Actual test distance.

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 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

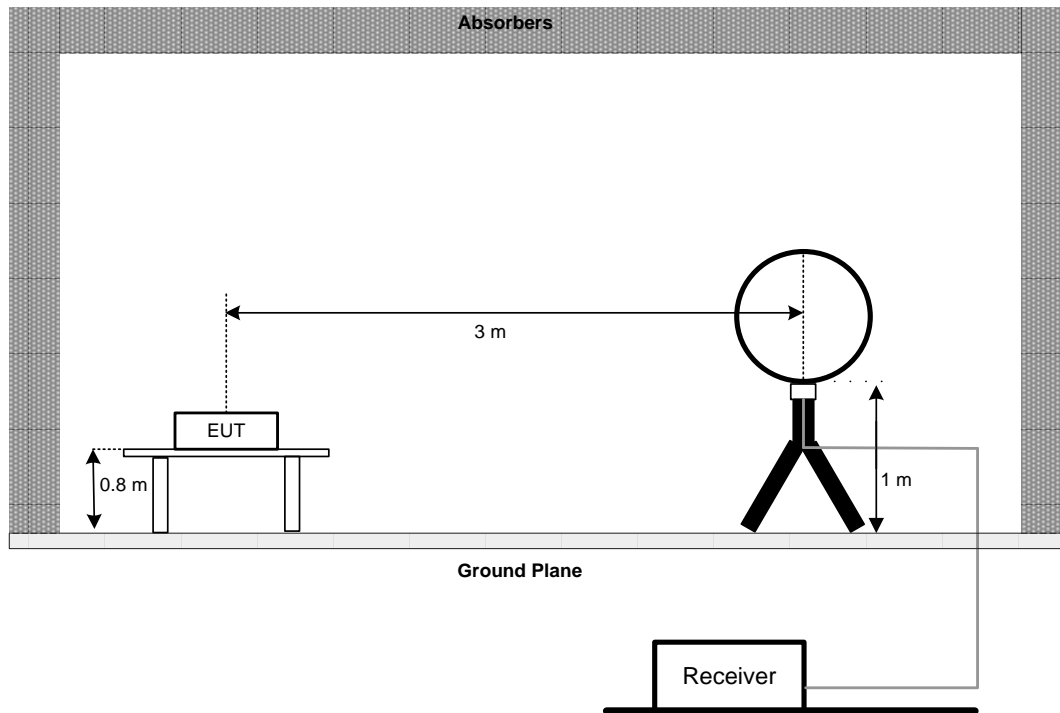
Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector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

4.3 DEVIATION FROM TEST STANDARD

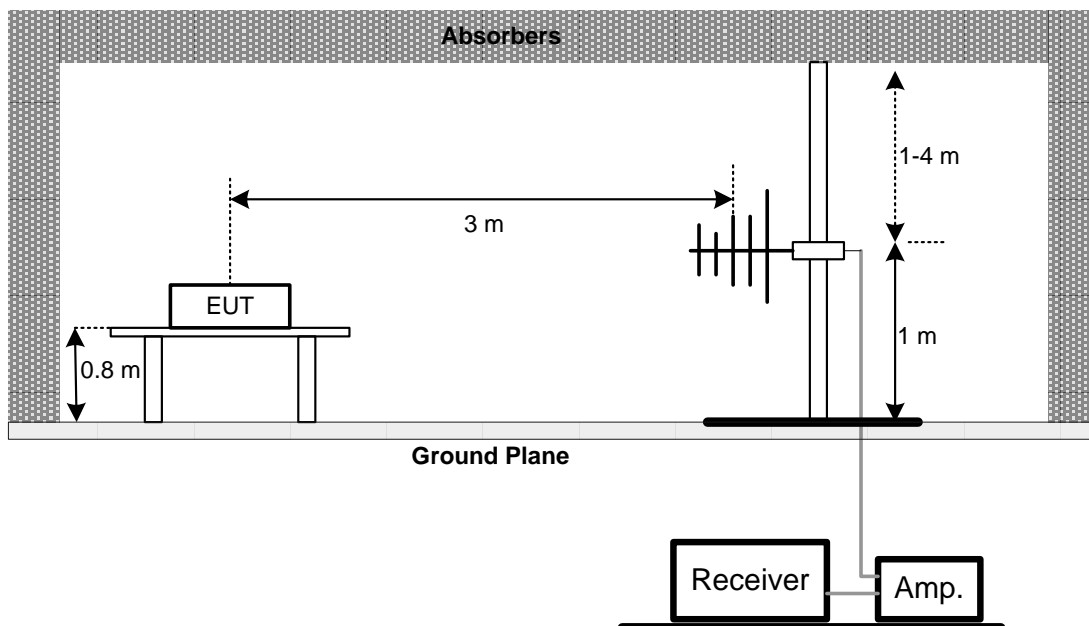
No deviation.

4.4 TEST SETUP

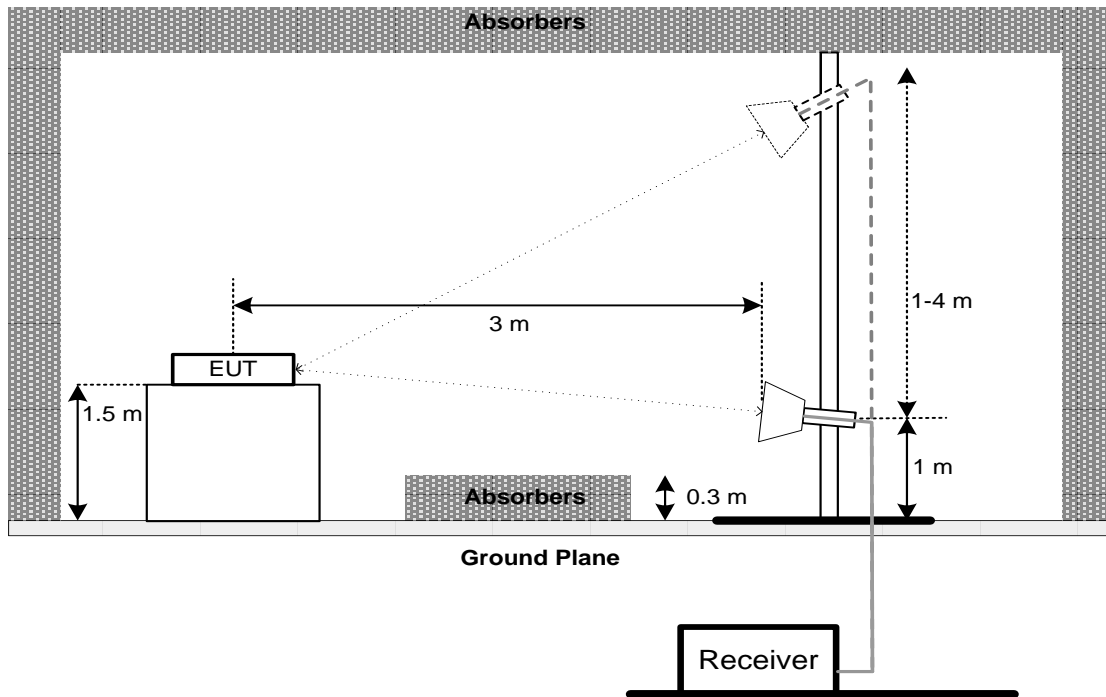
9 kHz to 30 MHz



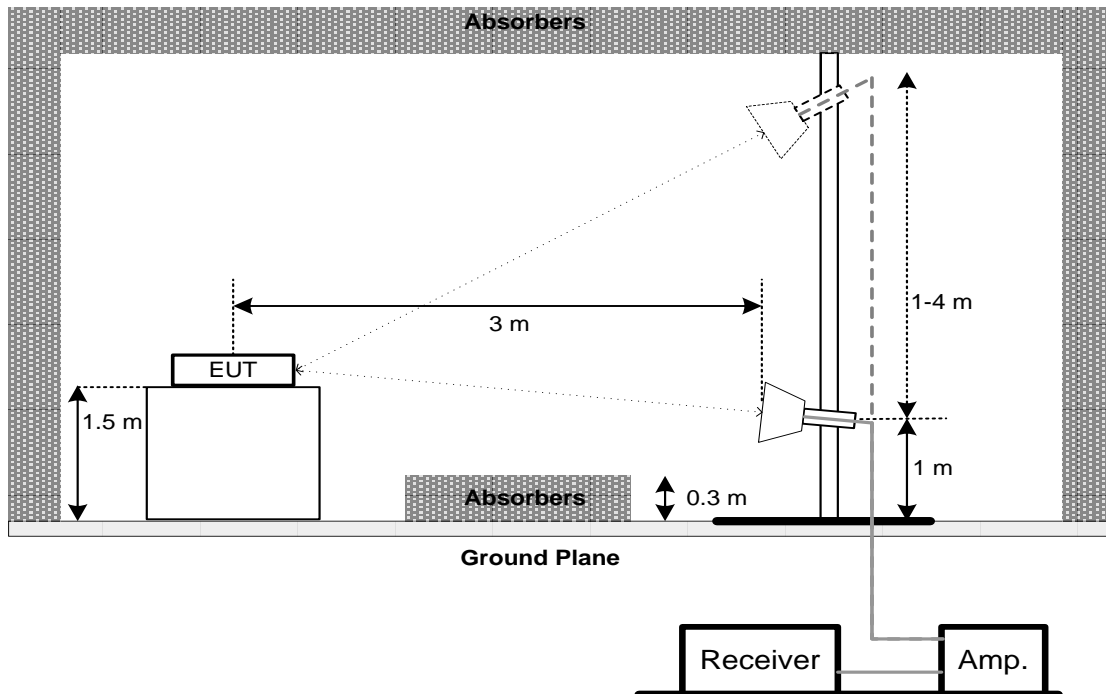
30 MHz to 1 GHz



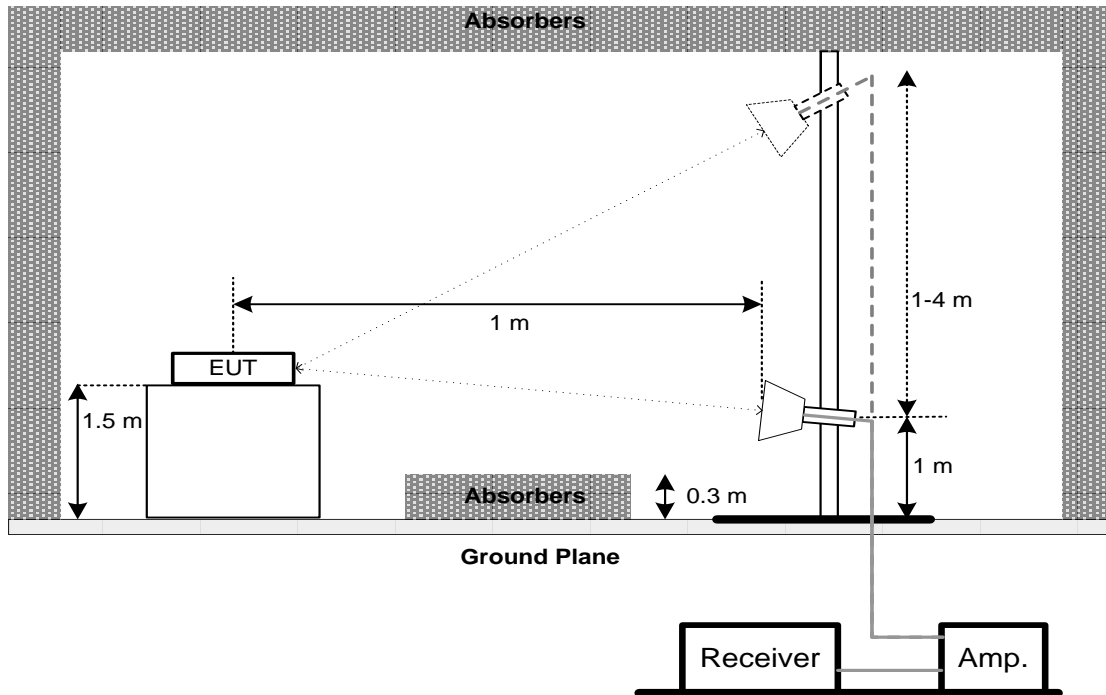
Above 1 GHz Band edge



Harmonic(1 GHz to 18 GHz)



Harmonic(18 GHz to 26.5 GHz)



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULT - 9 kHz TO 30 MHz

Please refer to the APPENDIX A.

Remark:

- (1) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7 TEST RESULT - 30 MHz TO 1000 MHz

Please refer to the APPENDIX B.

4.8 TEST RESULT - ABOVE 1000 MHz

Please refer to the APPENDIX C.

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

5.1 LIMIT

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

5.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- 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	30 kHz
VBW	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

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 D.

6. MAXIMUM OUTPUT POWER

6.1 LIMIT

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

6.2 TEST PROCEDURE

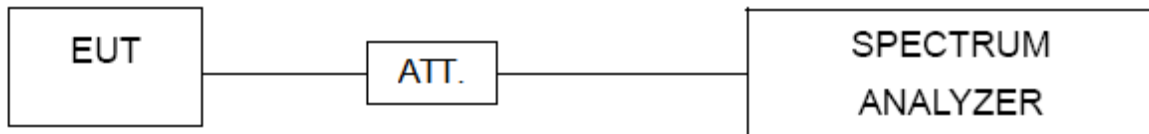
- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Span Frequency	$\geq 3 \times \text{RBW}$
RBW	3 MHz
VBW	3 MHz
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. CONDUCTED SPURIOUS EMISSION

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

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

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. POWER SPECTRAL DENSITY

8.1 LIMIT

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

8.2 TEST PROCEDURE

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

Spectrum Parameters	Setting
Span Frequency	2 MHz (1 Mbps)
RBW	3 kHz
VBW	10 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. MEASUREMENT INSTRUMENTS LIST

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	0034	Mar. 30, 2025
2	MXE EMI Receiver	Keysight	N9038A	MY56400091	Dec. 06, 2025
3	Cable	N/A	RW2350-3.8A-NMB M-1.5M	N/A	Sept. 09, 2025
4	Cable	N/A	LMR400-NMNM-8 M	N/A	Sept. 09, 2025
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	966 Chamber room	ETS	9*6*6	N/A	May 16, 2025

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	01462	Dec. 14, 2025
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 14, 2025
3	Preamplifier	EMC INSTRUMENT	EMC001330	980998	May 31, 2025
4	Cable	RegalWay	LMR400-NMNM-12 .5m	N/A	Jun. 06, 2025
5	Cable	RegalWay	LMR400-NMNM-3 m	N/A	Jun. 06, 2025
6	Cable	RegalWay	LMR400-NMNM-0. 5m	N/A	Jun. 06, 2025
7	MXE EMI Receiver	KEYSIGHT	N9038B	MY62210123	Oct. 29, 2025
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 16, 2025

Radiated Emissions - 1 GHz to 18GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Keysight	N9010A	MY55150209	Aug. 20, 2025
2	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980878	Nov. 25, 2025
3	Double Ridged Guide Antenna	ETS	3115	75789	Jun. 15, 2025
4	Cable	RegalWay	RWLP50-4.0A-SMS M-12.5M	N/A	Jul. 03, 2025
5	Cable	RegalWay	RWLP50-4.0A-NM RASM-2.5M	N/A	Jul. 03, 2025
6	Cable	RegalWay	RWLP50-4.0A-NM RASMRA-0.8M	N/A	Jul. 03, 2025
7	966 Chamber room	CM	9*6*6	N/A	Dec. 28, 2025
8	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
9	Filter	STI	STI15-9912	N/A	May 31, 2025
10	Positioning Controller	MF	MF-7802	N/A	N/A
11	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emissions - Above 18 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Signal Analyzer	Keysight	N9010A	MY56480488	Dec. 22, 2024
2	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330-K	619413	Jul. 17, 2025
3	Cable	RegalWay	RWLP50-2.6A-2.92 M2.92M-1.1M	N/A	Jul. 25, 2025
4	Cable	Tonscend	HF160-KMKM-3M	N/A	Jul. 25, 2025
5	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170(3m)	9170-319	Jun. 16, 2025
6	966 Chamber room	CM	9*6*6	N/A	May 19, 2025
7	Positioning Controller	MF	MF-7802	N/A	N/A
8	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

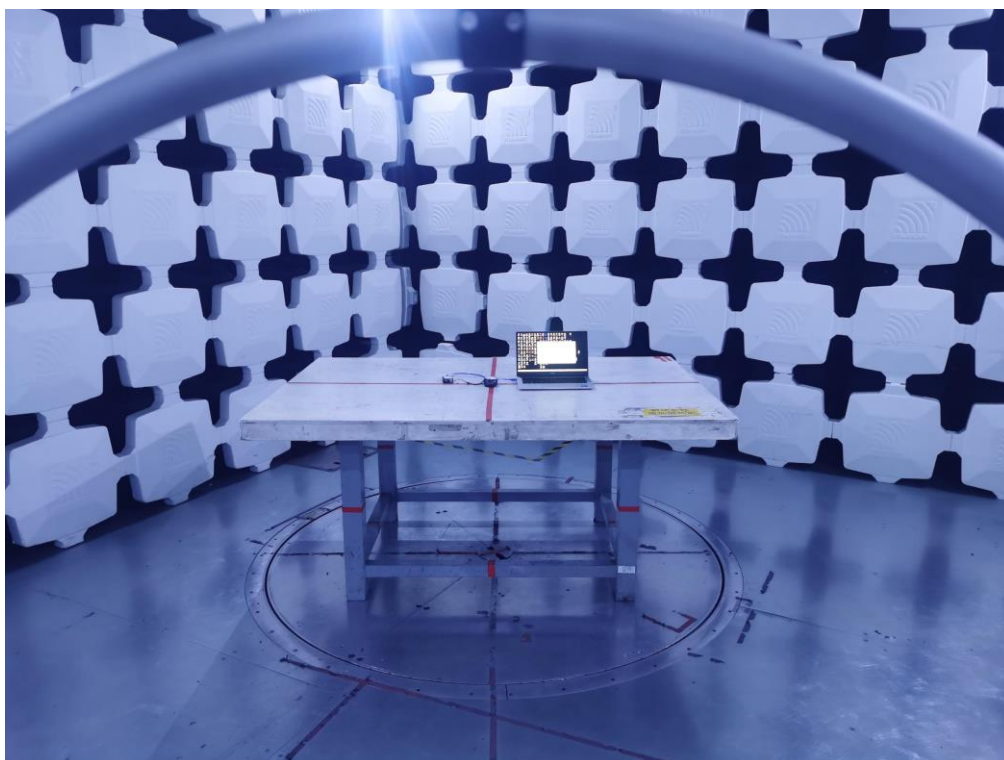
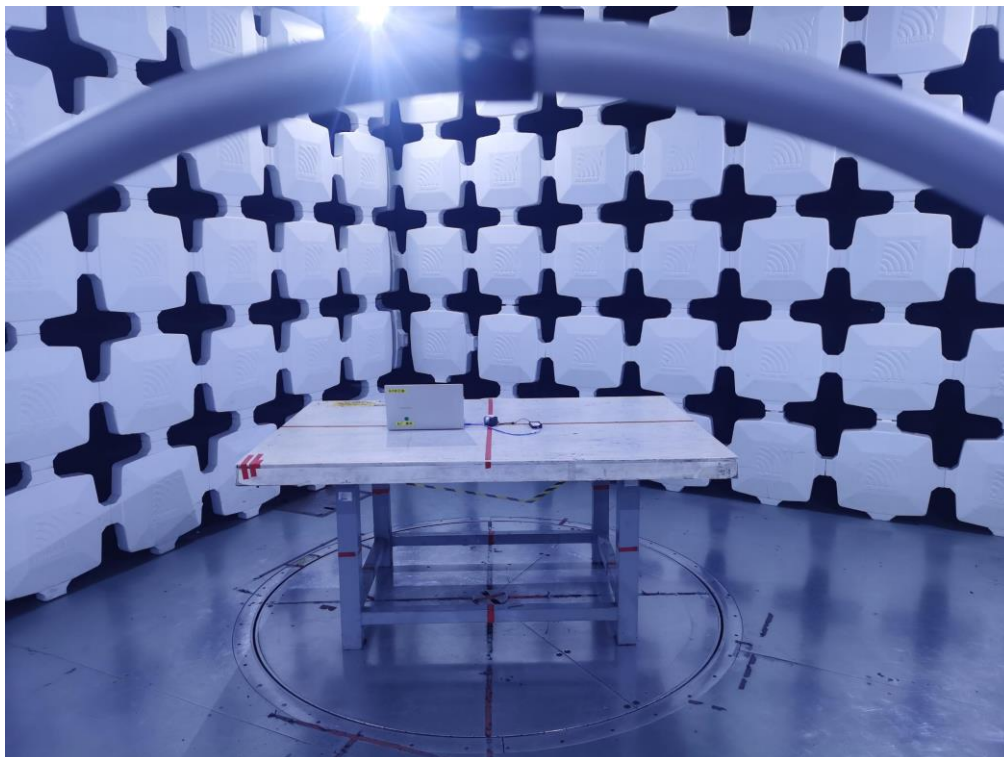
Bandwidth & Maximum Output Power & Power Spectral Density & Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP38	100852	May 31, 2025
2	Measurement Software	BTL	BTL Conducted Test	N/A	N/A
3	Isolation attenuator	Z-Link	ASMA-16-18-2W	N/A	N/A

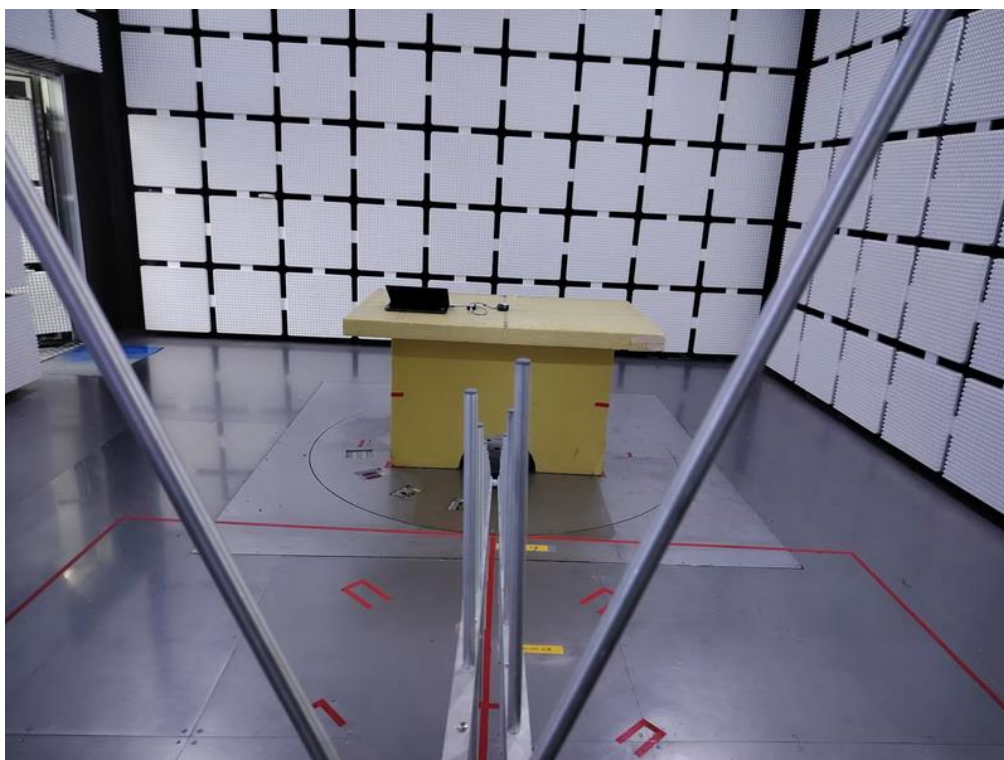
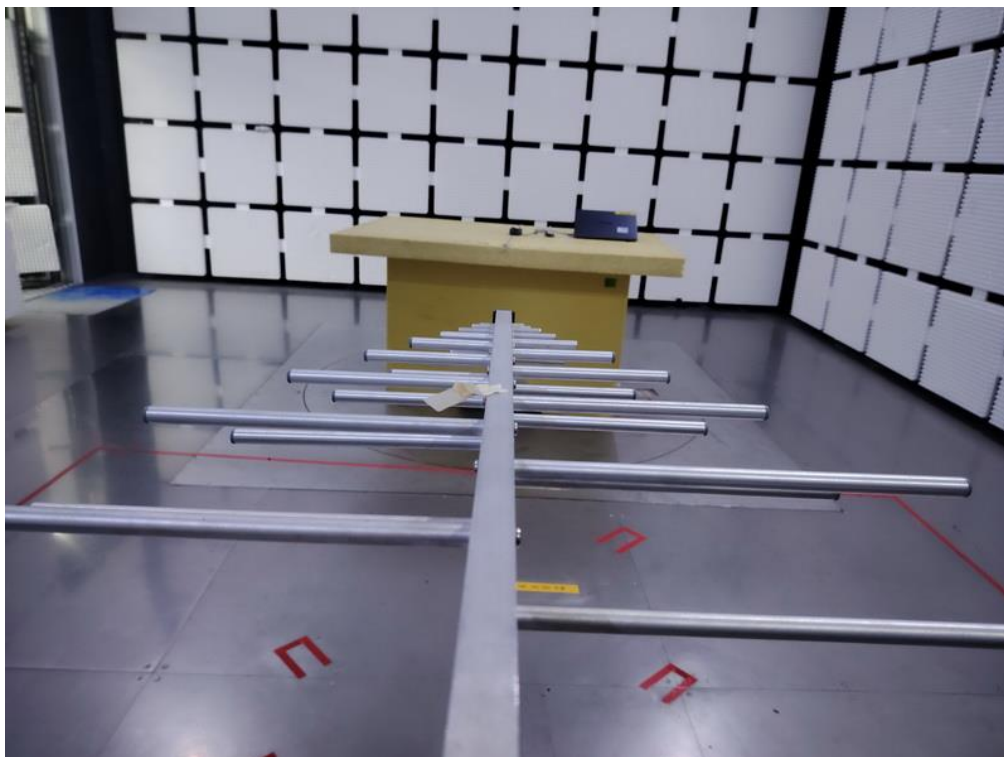
Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

10. EUT TEST PHOTO

Radiated Emissions Test Photos

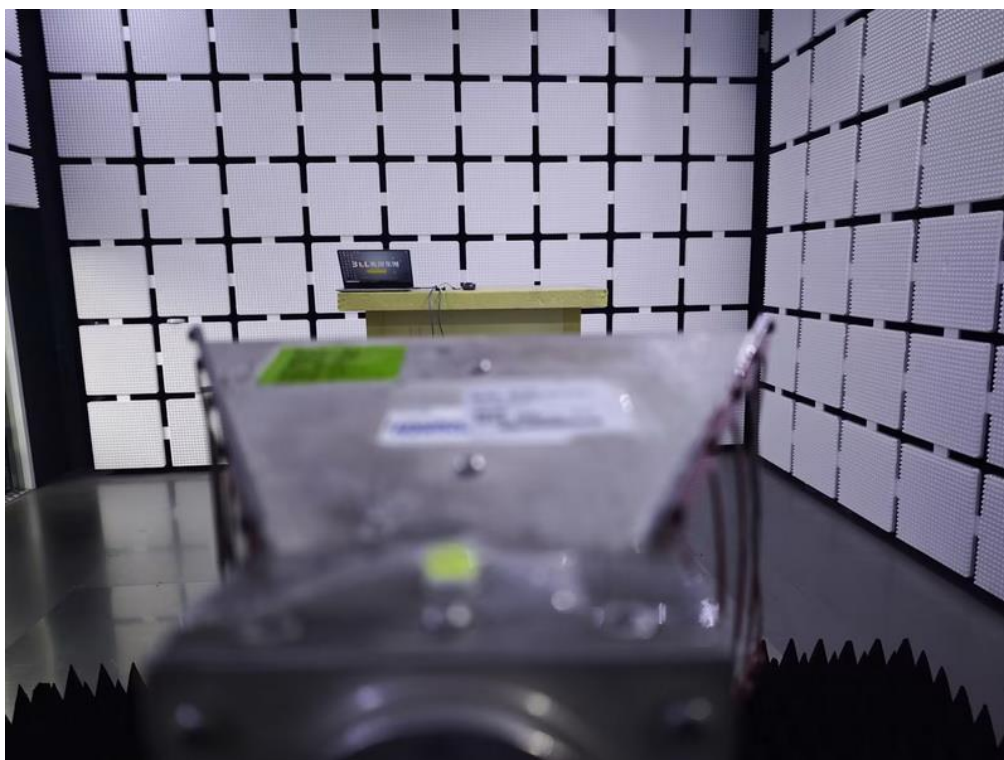
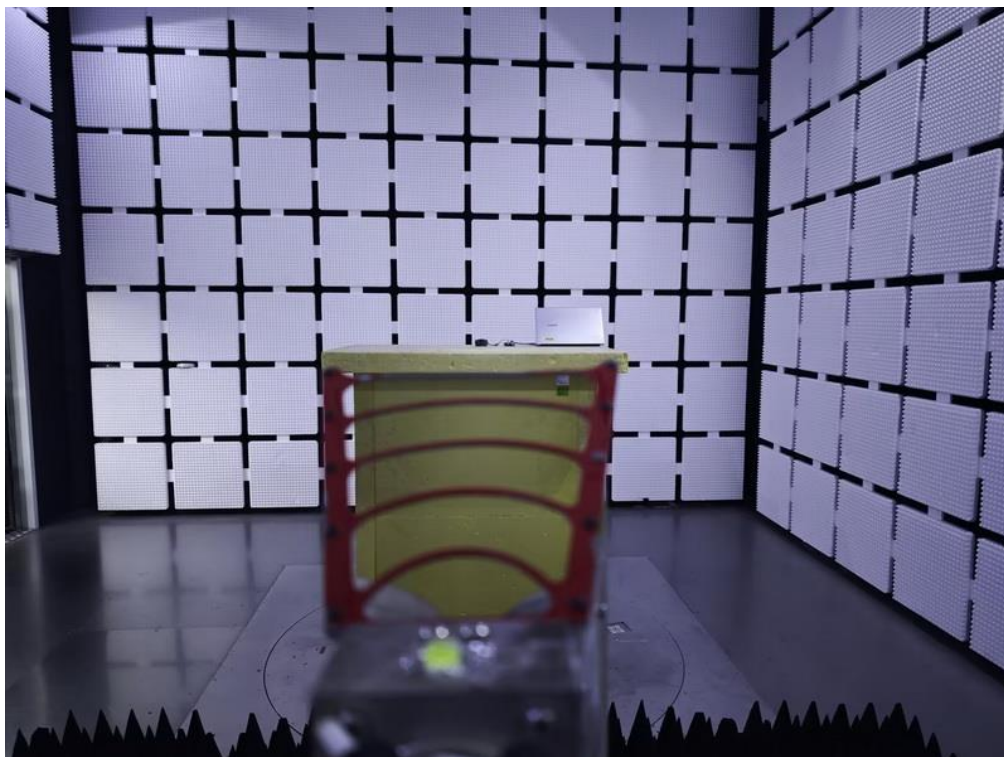
9 kHz to 30 MHz



Radiated Emissions Test Photos**30 MHz to 1000 MHz**

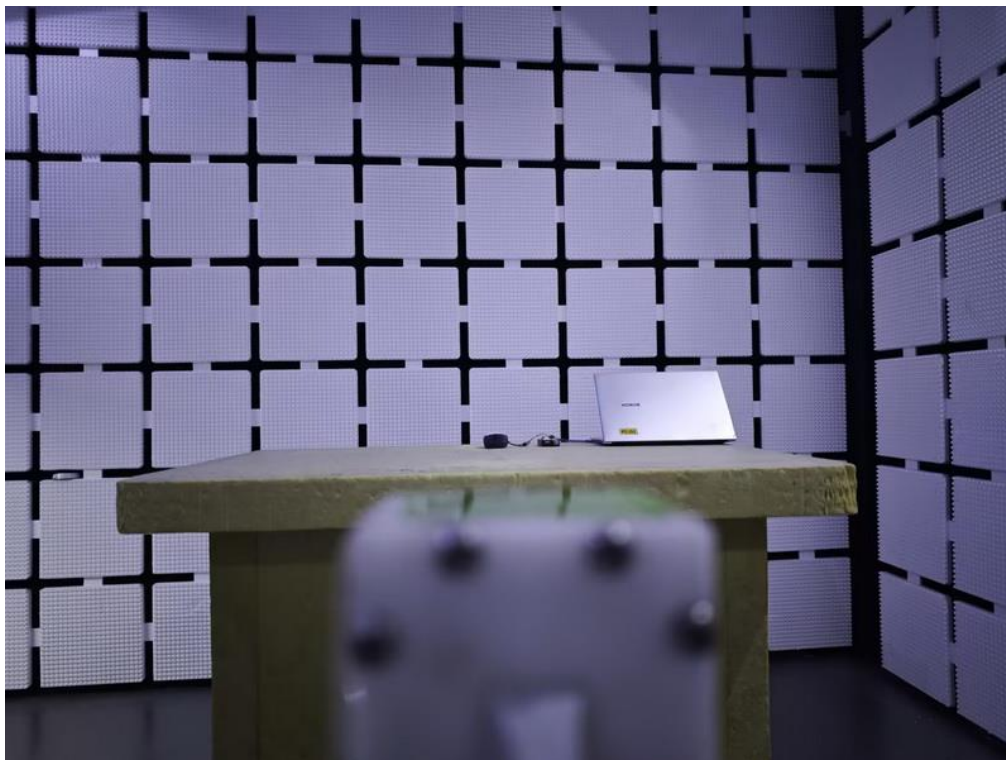
Radiated Emissions Test Photos

Band edge & Harmonic (1 GHz to 18 GHz)

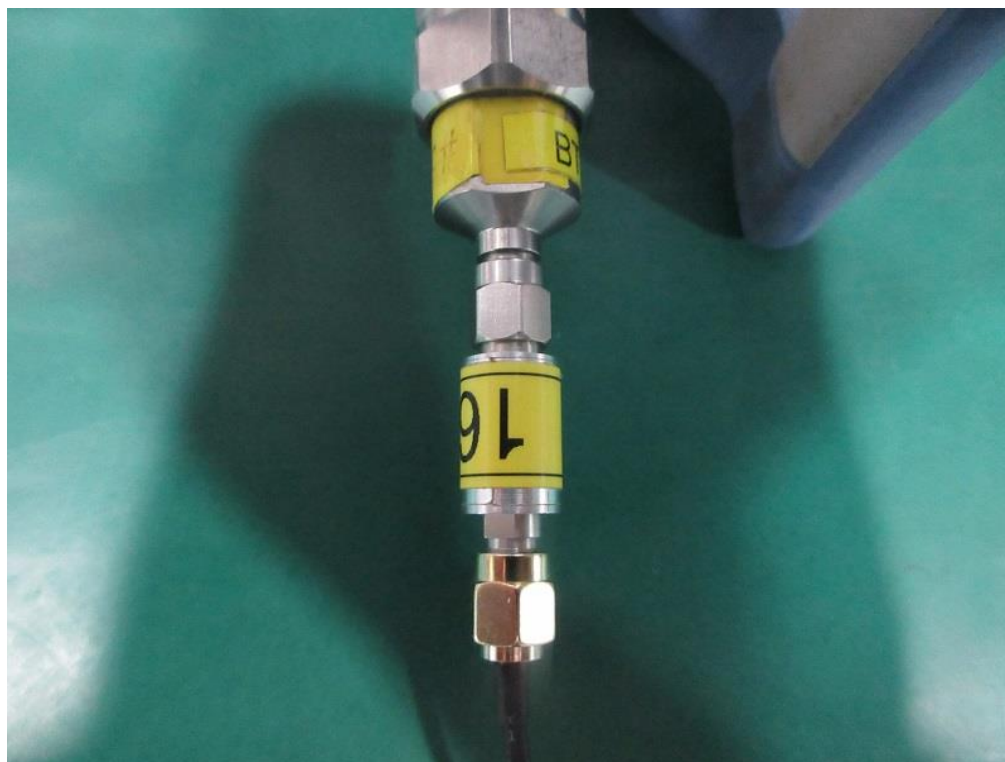


Radiated Emissions Test Photos

Harmonic (18 GHz to 26.5 GHz)

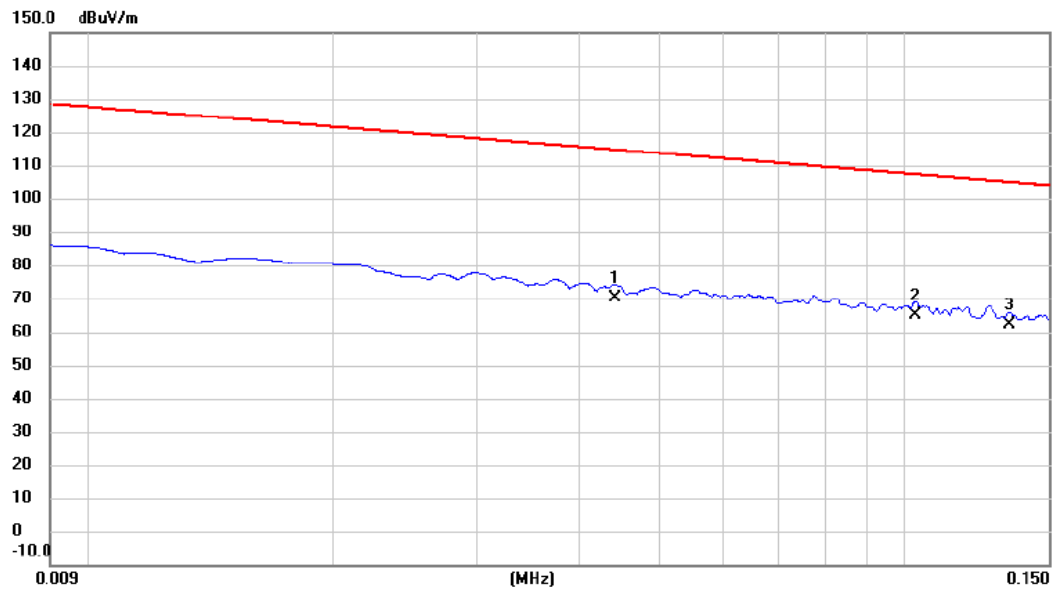


Conducted Test Photos



APPENDIX A - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Ant 0°
-----------	--------------------------	--------------	--------



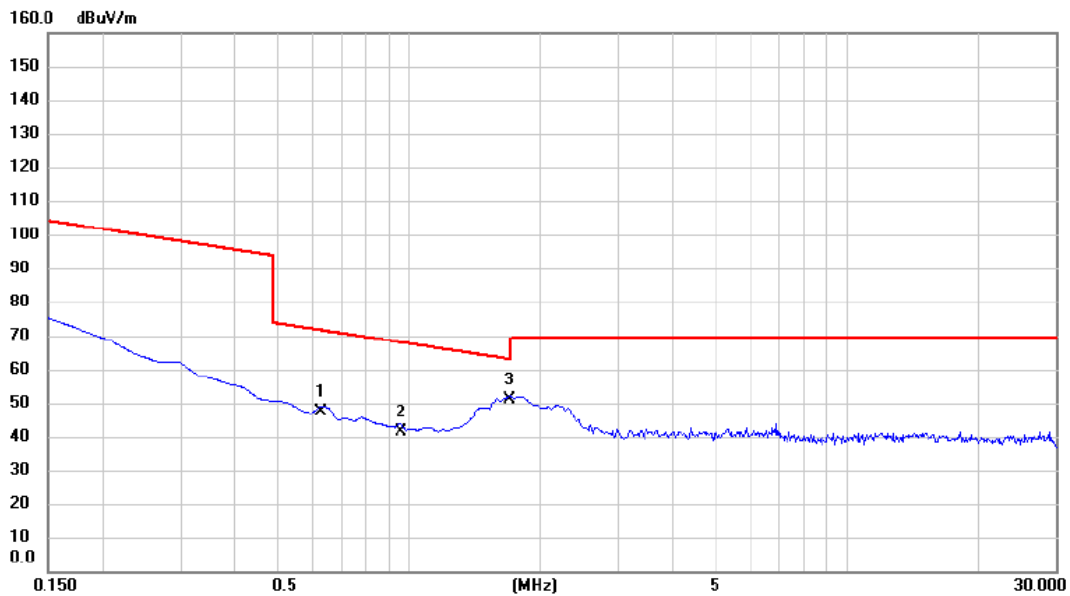
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0442	48.95	21.21	70.16	114.70	-44.54	AVG	
2	*	0.1030	43.56	21.34	64.90	107.35	-42.45	QP	
3		0.1343	41.03	21.29	62.32	105.05	-42.73	AVG	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Ant 0°
-----------	--------------------------	--------------	--------



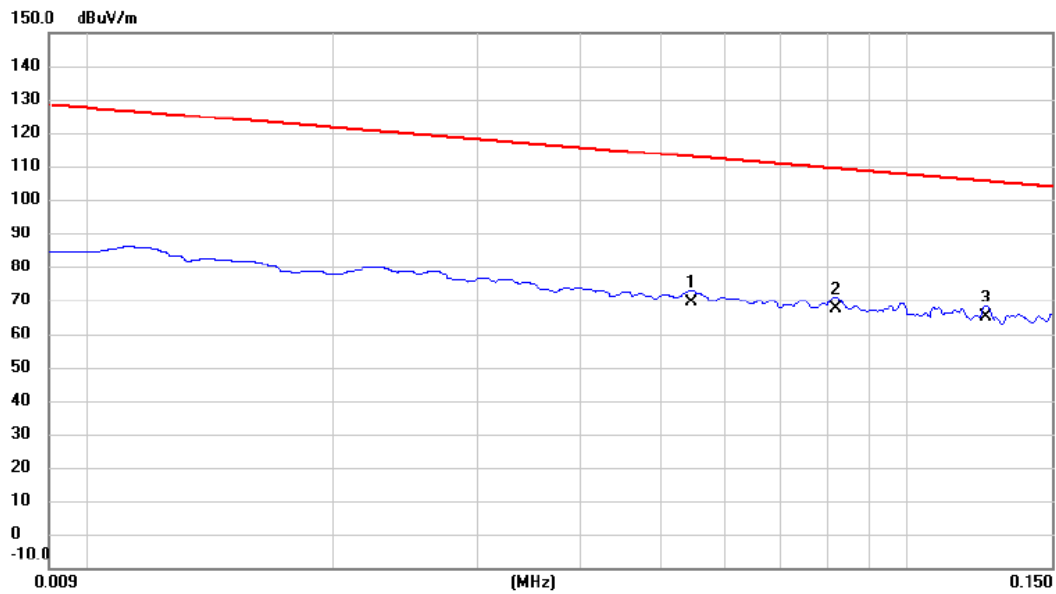
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.6276	26.25	21.10	47.35	71.65	-24.30	QP	
2		0.9560	20.36	21.19	41.55	68.00	-26.45	QP	
3	*	1.7022	29.84	21.14	50.98	62.98	-12.00	QP	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Ant 90°
-----------	--------------------------	--------------	---------

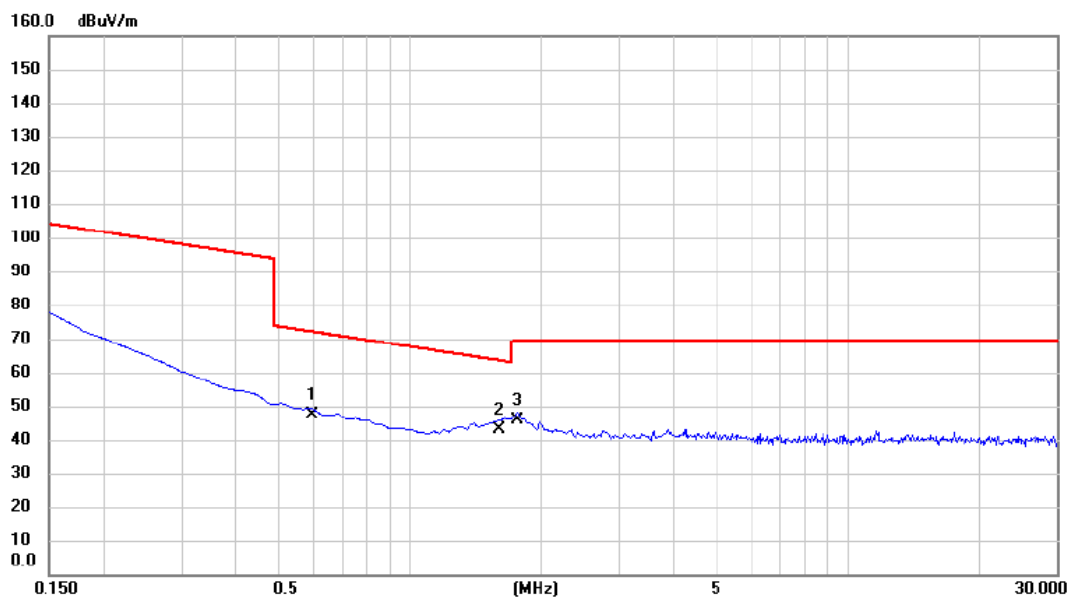


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0545	48.20	21.25	69.45	112.88	-43.43	AVG	
2		0.0818	46.22	21.34	67.56	109.35	-41.79	AVG	
3	*	0.1246	43.71	21.30	65.01	105.70	-40.69	AVG	

REMARKS:

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

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Ant 90°
-----------	--------------------------	--------------	---------

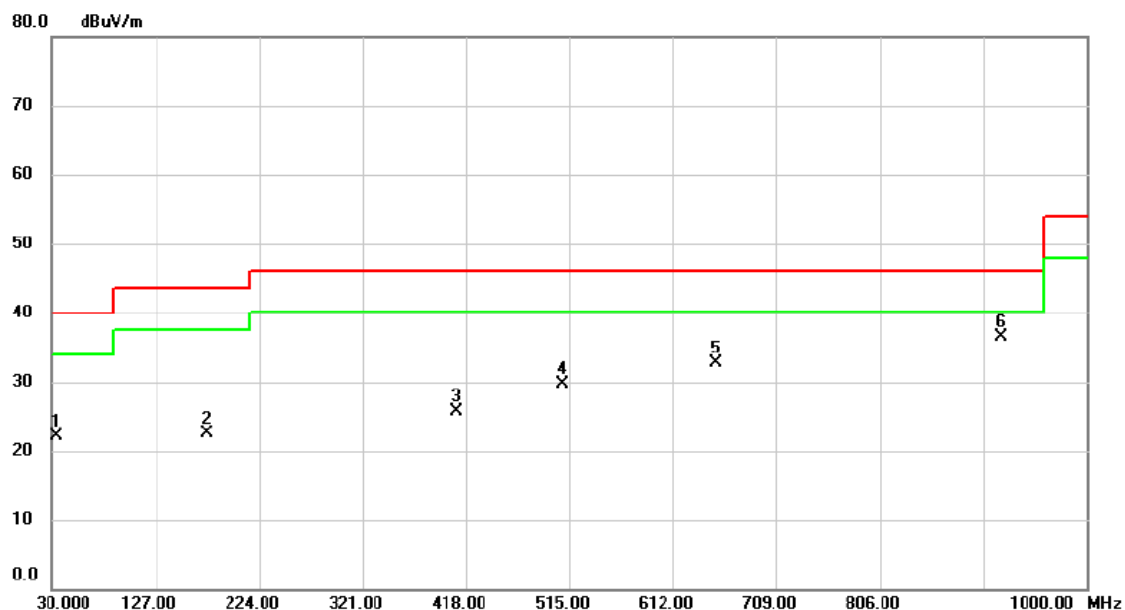


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.5978	26.12	21.09	47.21	72.07	-24.86	QP	
2	*	1.5935	22.03	21.15	43.18	63.56	-20.38	QP	
3		1.7620	24.69	21.13	45.82	69.54	-23.72	QP	

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

APPENDIX B - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Vertical
-----------	--------------------------	--------------	----------



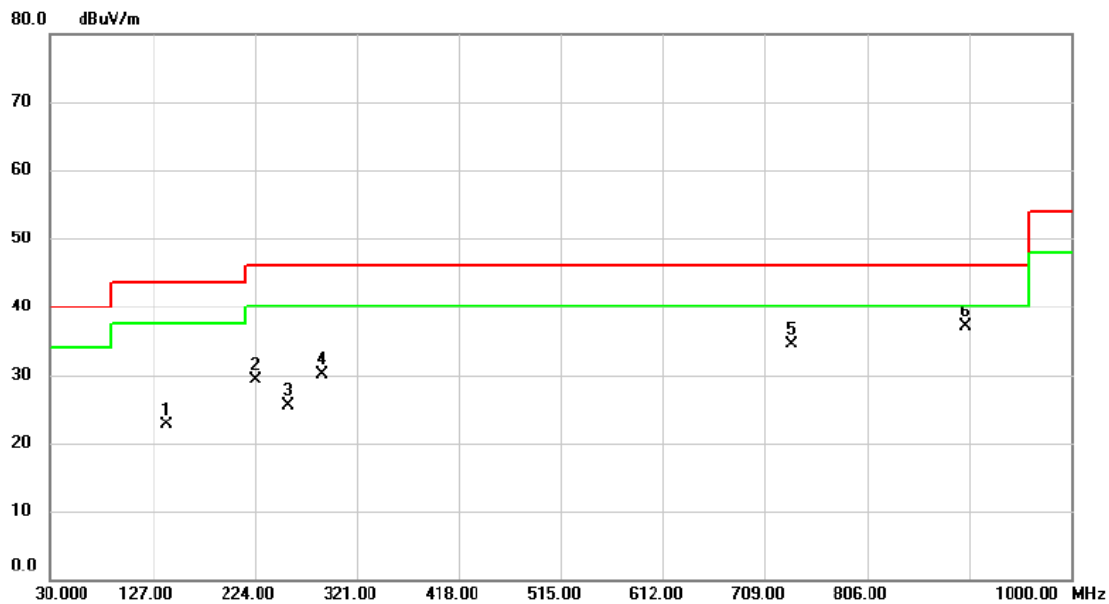
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		34.850	34.60	-12.40	22.20	40.00	-17.80	peak	
2		175.015	34.52	-11.95	22.57	43.52	-20.95	peak	
3		409.755	33.53	-7.77	25.76	46.02	-20.26	peak	
4		508.695	35.30	-5.67	29.63	46.02	-16.39	peak	
5		653.225	35.20	-2.56	32.64	46.02	-13.38	peak	
6	*	920.945	35.91	0.64	36.55	46.02	-9.47	peak	

REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Horizontal
-----------	--------------------------	--------------	------------



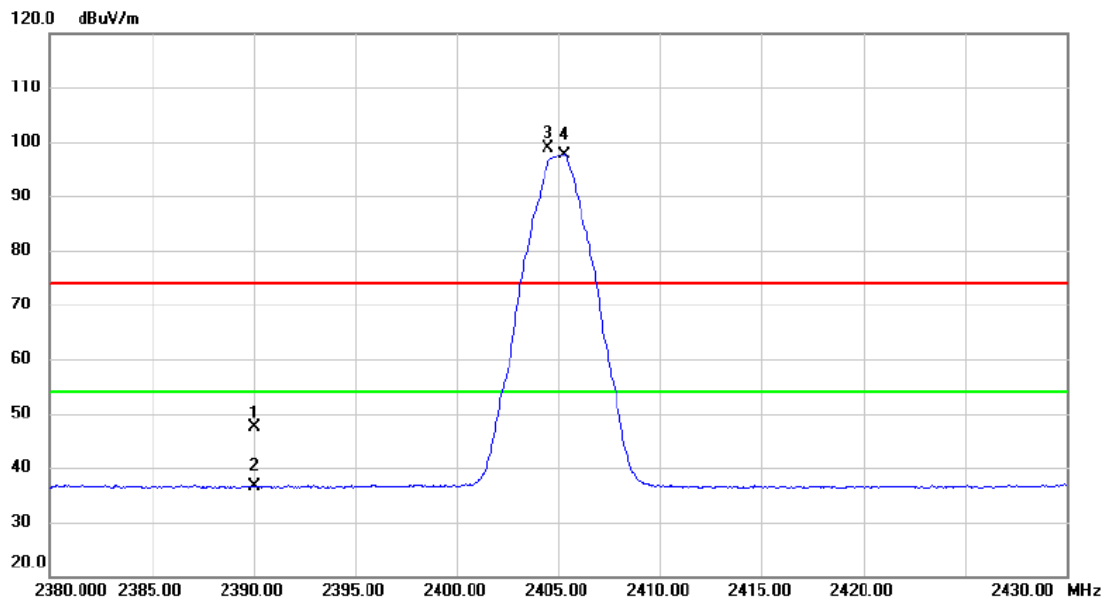
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		140.095	34.40	-11.67	22.73	43.52	-20.79	peak	
2		224.000	43.29	-14.01	29.28	46.02	-16.74	peak	
3		256.010	37.66	-12.07	25.59	46.02	-20.43	peak	
4		288.020	40.70	-10.65	30.05	46.02	-15.97	peak	
5		734.220	35.77	-1.36	34.41	46.02	-11.61	peak	
6	*	899.605	36.55	0.50	37.05	46.02	-8.97	peak	

REMARKS:

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

APPENDIX C - RADIATED EMISSION - ABOVE 1000 MHZ

Test Mode	TX 2405 MHz _CH00_2Mbps	Polarization	Horizontal
-----------	-------------------------	--------------	------------

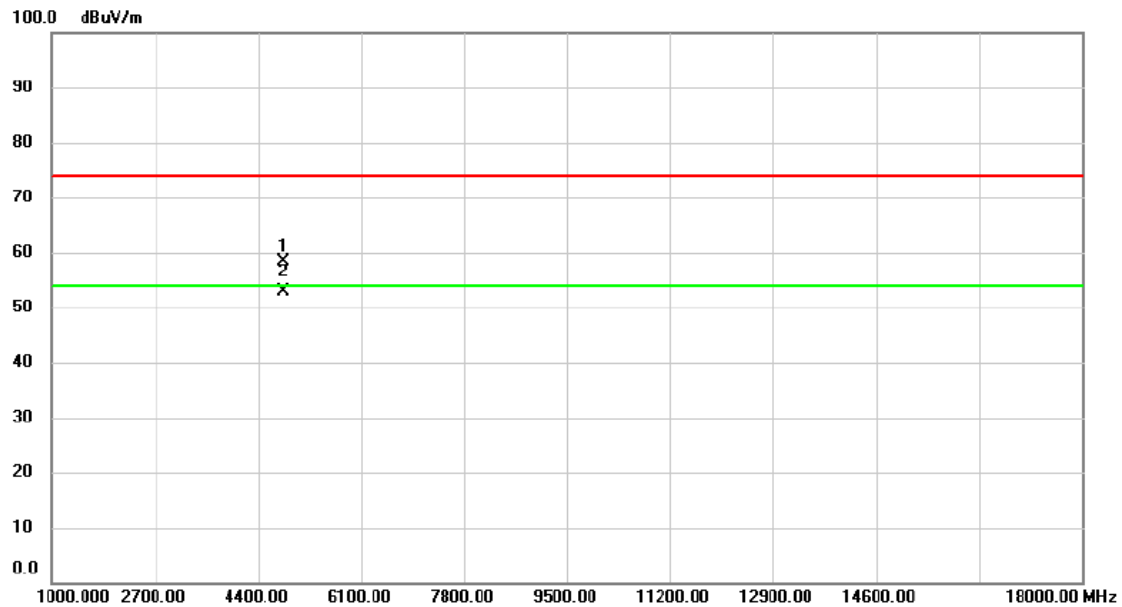


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	38.81	8.69	47.50	74.00	-26.50	peak	
2		2390.000	27.95	8.69	36.64	54.00	-17.36	AVG	
3	X	2404.500	90.05	8.71	98.76	74.00	24.76	peak	No Limit
4	*	2405.275	89.04	8.71	97.75	54.00	43.75	AVG	No Limit

REMARKS:

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

Test Mode	TX 2405 MHz _CH00_2Mbps	Polarization	Vertical
-----------	-------------------------	--------------	----------

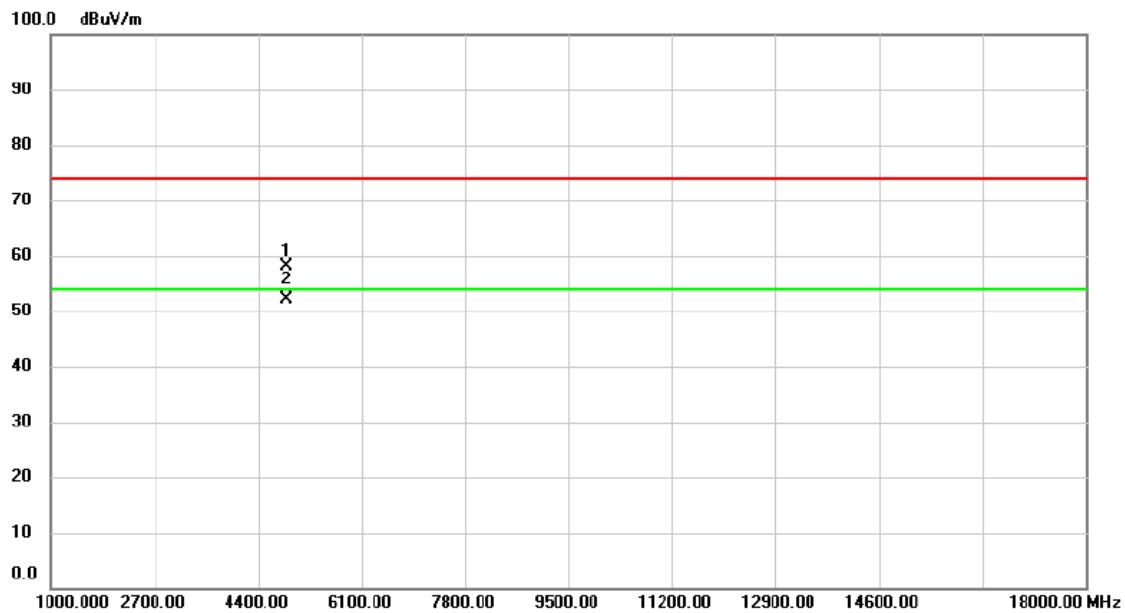


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4808.960	53.91	4.51	58.42	74.00	-15.58	peak	
2	*	4810.300	48.39	4.52	52.91	54.00	-1.09	AVG	

REMARKS:

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

Test Mode	TX 2430 MHz _CH06_2Mbps	Polarization	Vertical
-----------	-------------------------	--------------	----------

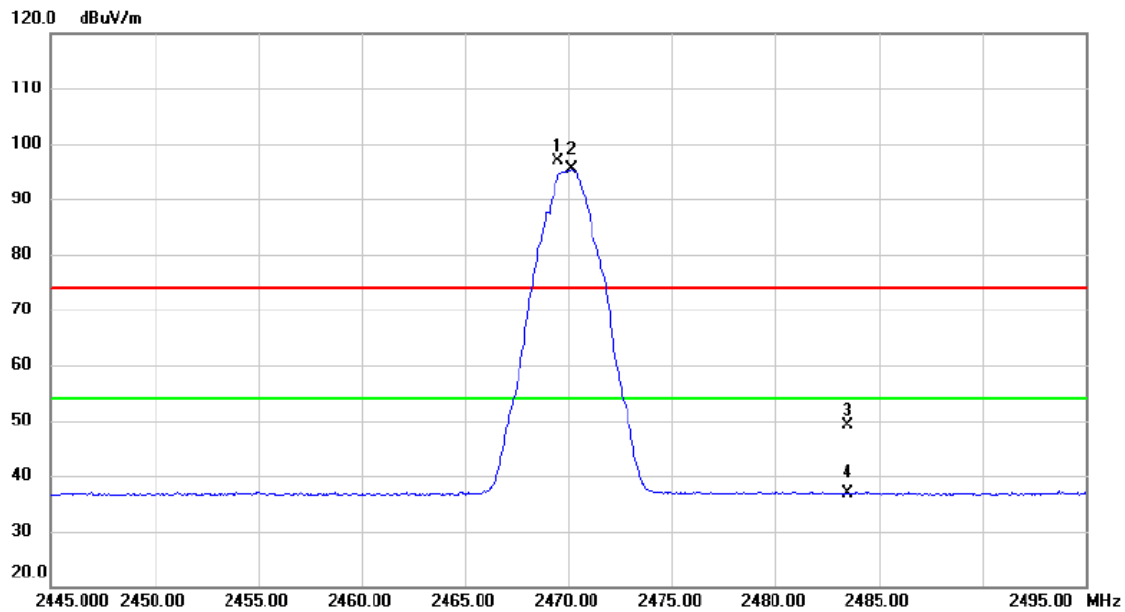


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4858.970	53.61	4.64	58.25	74.00	-15.75	peak	
2	*	4859.510	47.39	4.64	52.03	54.00	-1.97	AVG	

REMARKS:

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

Test Mode	TX 2470 MHz _CH15_2Mbps	Polarization	Horizontal
-----------	-------------------------	--------------	------------

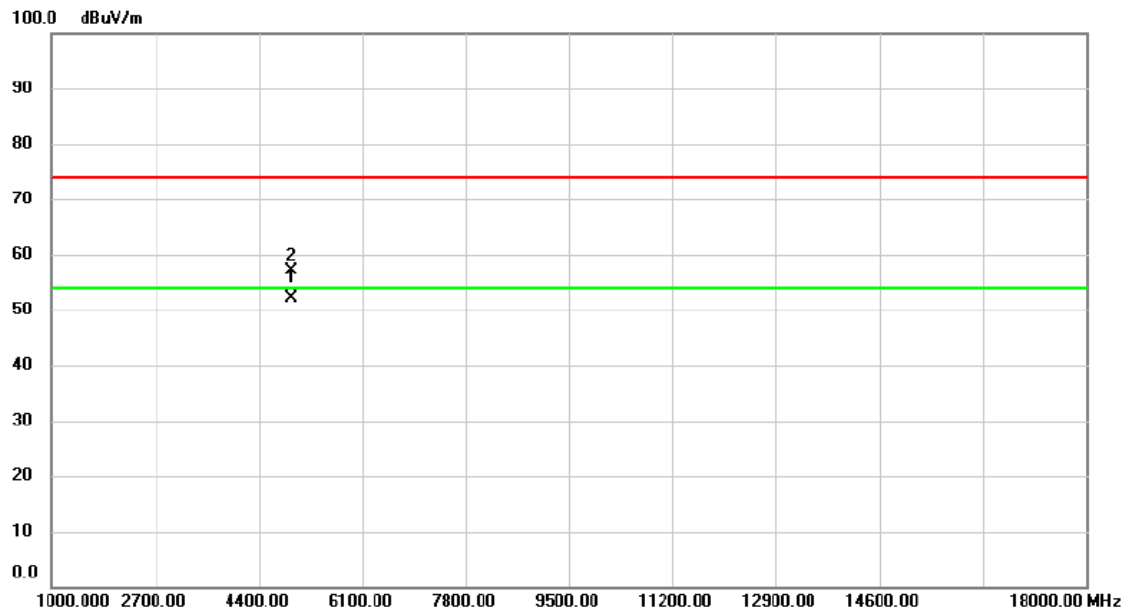


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2469.475	88.08	8.81	96.89	74.00	22.89	peak	No Limit
2	*	2470.200	86.55	8.81	95.36	54.00	41.36	AVG	No Limit
3		2483.500	40.18	8.84	49.02	74.00	-24.98	peak	
4		2483.500	27.96	8.84	36.80	54.00	-17.20	AVG	

REMARKS:

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

Test Mode	TX 2470 MHz _CH15_2Mbps	Polarization	Vertical
-----------	-------------------------	--------------	----------

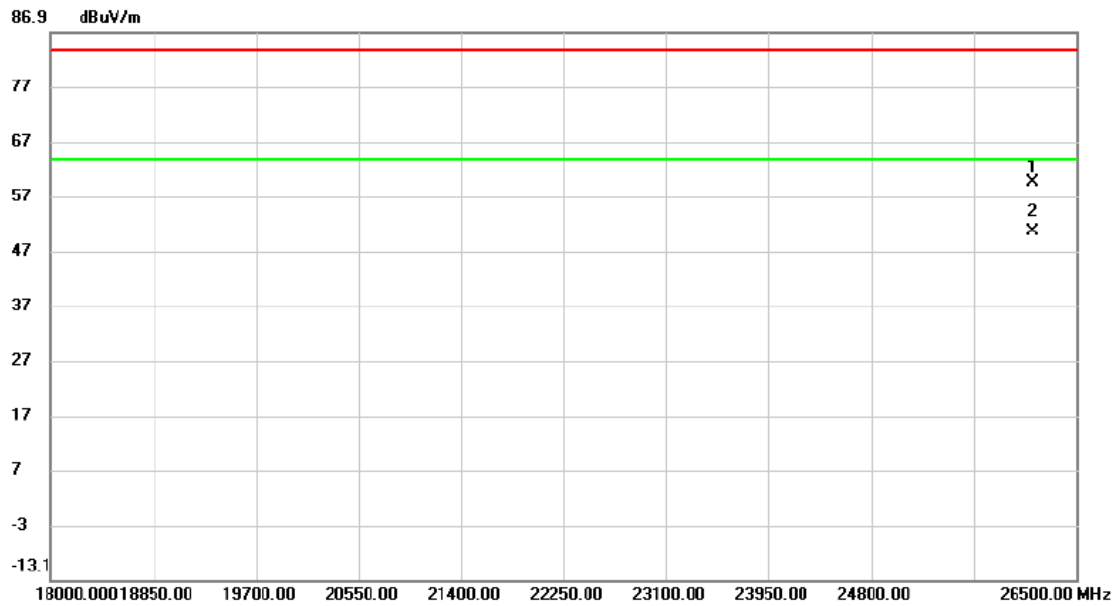


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4939.020	47.21	4.83	52.04	54.00	-1.96	AVG	
2		4940.880	52.28	4.85	57.13	74.00	-16.87	peak	

REMARKS:

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

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Vertical
-----------	--------------------------	--------------	----------

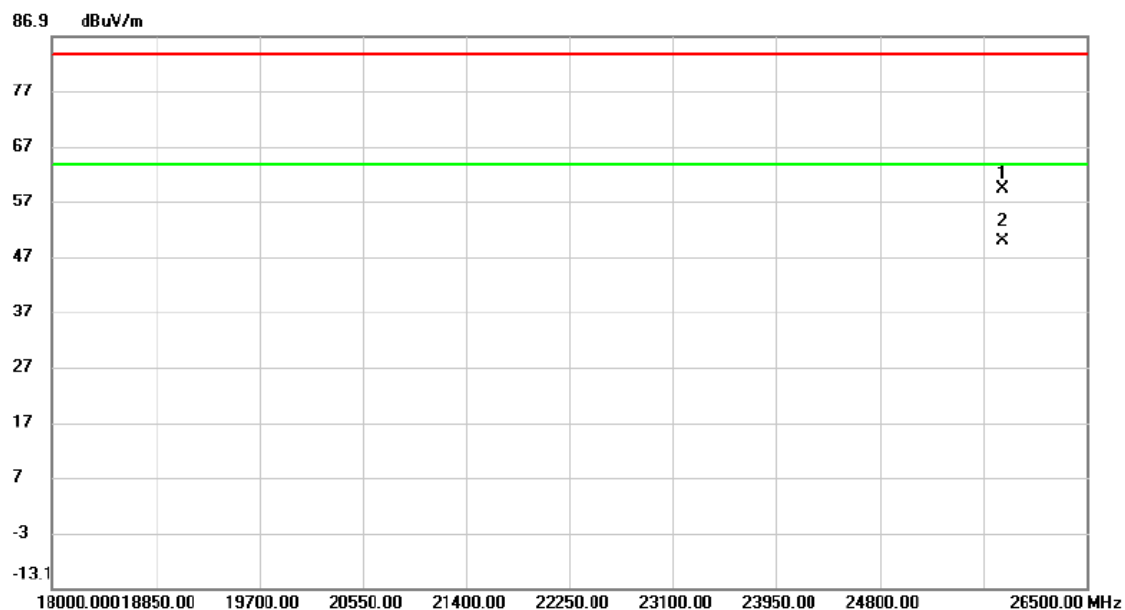


No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	26143.000	47.19	12.28	59.47	83.50	-24.03	peak	
2 *	26143.000	38.20	12.28	50.48	63.50	-13.02	AVG	

REMARKS:

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

Test Mode	TX Mode_2Mbps Channel 06	Polarization	Horizontal
-----------	--------------------------	--------------	------------



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		25815.750	47.11	12.28	59.39	83.50	-24.11	peak	
2	*	25815.750	37.51	12.28	49.79	63.50	-13.71	AVG	

REMARKS:

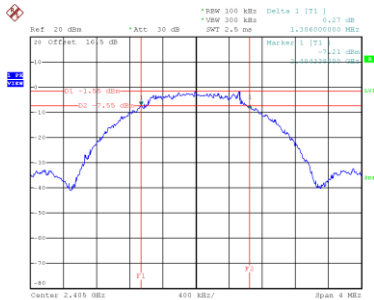
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - BANDWIDTH

Test Mode	TX Mode _2Mbps
-----------	----------------

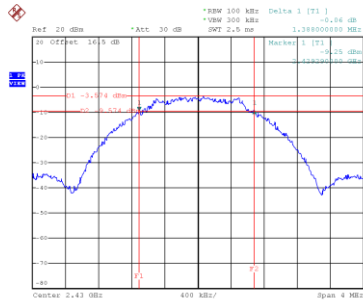
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Test Result
00	2405	1.306	2.056	0.5	Pass
06	2430	1.388	2.032	0.5	Pass
15	2470	1.336	2.080	0.5	Pass

CH00



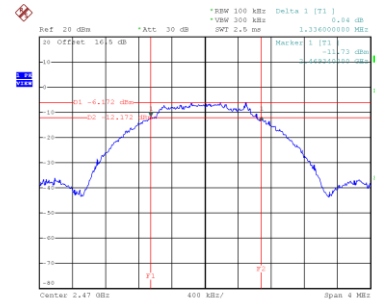
Date: 14.NOV.2024 09:51:52

CH06
6 dB Bandwidth



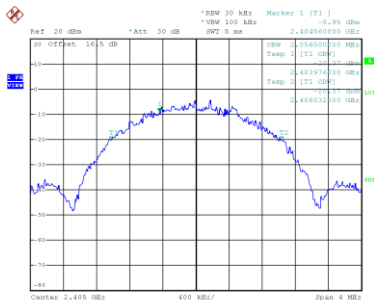
Date: 14.NOV.2024 10:19:30

CH15

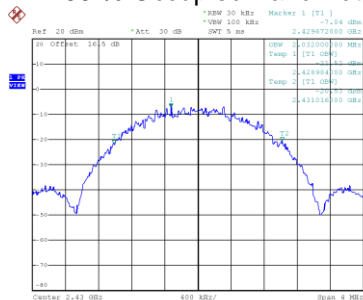


Date: 14.NOV.2024 10:24:59

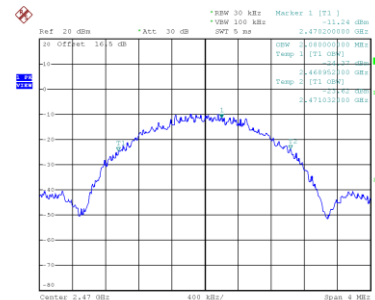
99 % Occupied Bandwidth



Date: 14.NOV.2024 09:51:12



Date: 14.NOV.2024 10:19:37



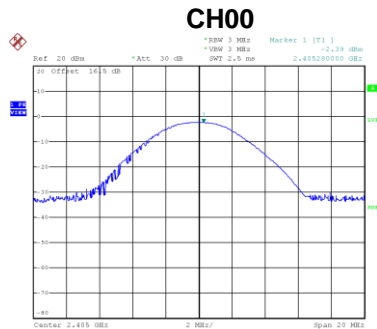
Date: 14.NOV.2024 10:25:06

APPENDIX E - MAXIMUM OUTPUT POWER

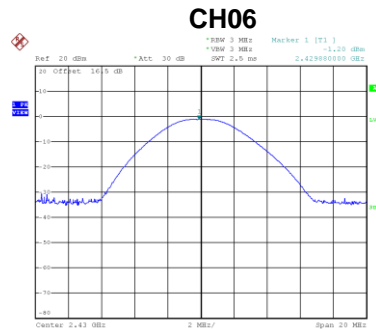
Test Mode	TX Mode _2Mbps
-----------	----------------

Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2405	-2.39	0.0006	30.00	1.0000	Pass
2430	-1.20	0.0008	30.00	1.0000	Pass
2470	-4.21	0.0004	30.00	1.0000	Pass

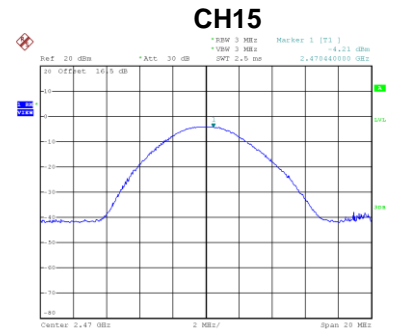
Note: Output power = Measure result + Cable loss



Date: 21.NOV.2024 09:34:37



Date: 14.NOV.2024 10:29:34

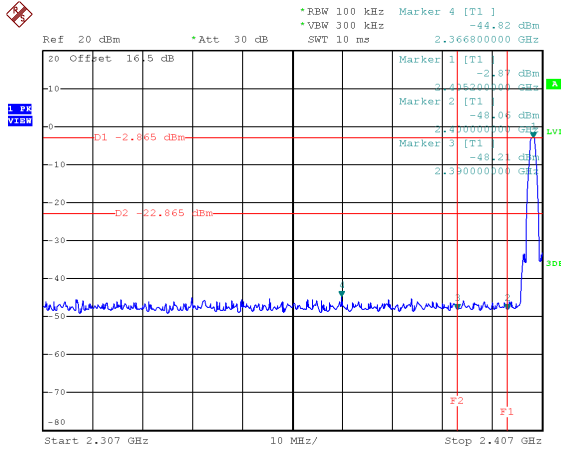


Date: 14.NOV.2024 10:31:49

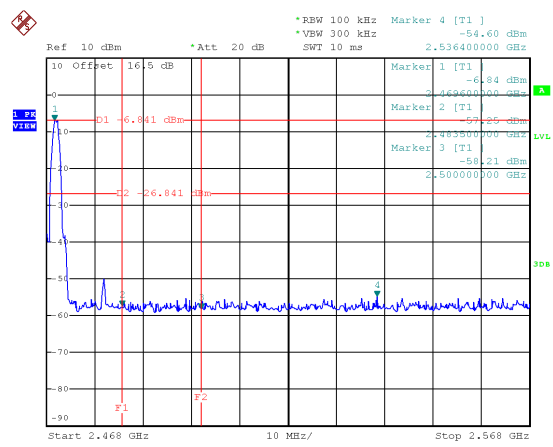
APPENDIX F - CONDUCTED SPURIOUS EMISSION

Test Mode TX Mode _2Mbps

Bandedge CH00 (Lower)



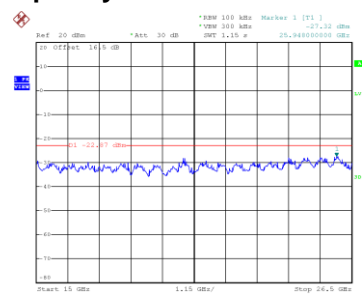
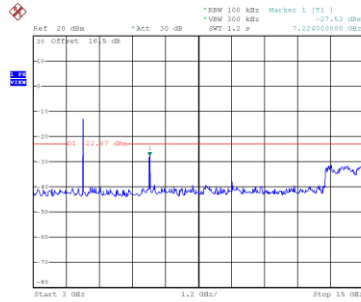
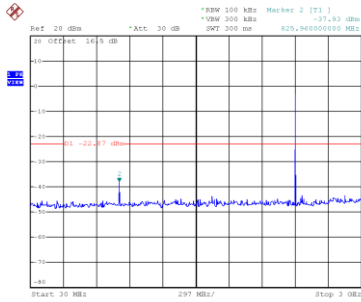
Bandedge CH15 (Upper)



Date: 14.NOV.2024 09:52:38

Date: 14.NOV.2024 10:26:46

CH00 – 10th Harmonic of the fundamental frequency

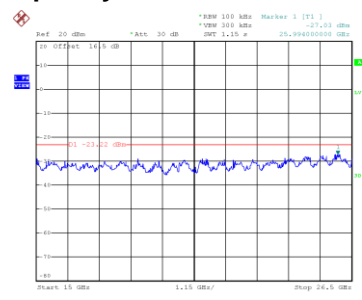
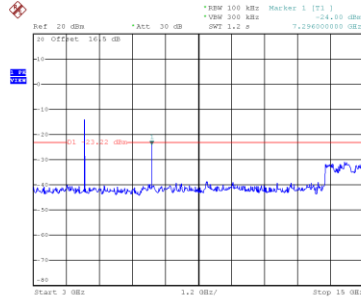
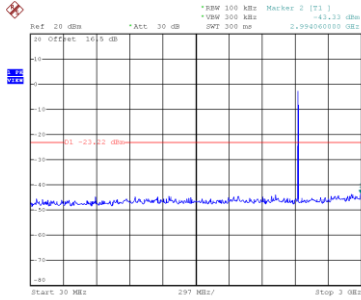


Date: 14.NOV.2024 09:52:51

Date: 14.NOV.2024 10:34:49

Date: 14.NOV.2024 09:53:55

CH06 – 10th Harmonic of the fundamental frequency

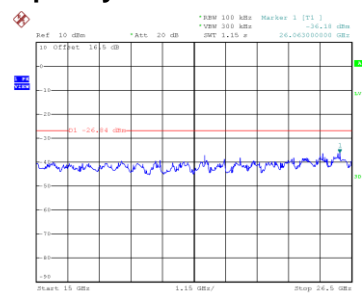
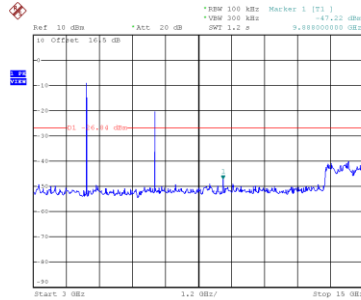
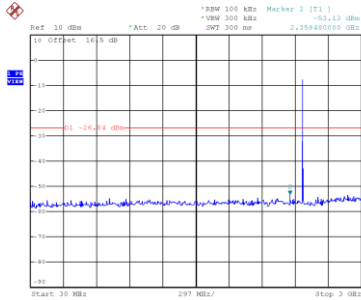


Date: 14.NOV.2024 10:20:44

Date: 14.NOV.2024 10:21:58

Date: 14.NOV.2024 10:20:59

CH15 – 10th Harmonic of the fundamental frequency



Date: 14.NOV.2024 10:27:00

Date: 14.NOV.2024 10:28:07

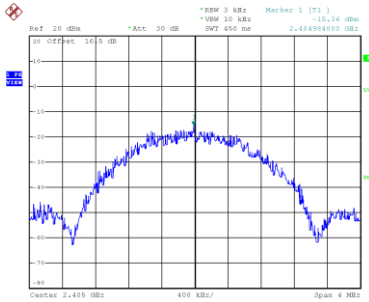
Date: 14.NOV.2024 10:27:16

APPENDIX G - POWER SPECTRAL DENSITY

Test Mode	TX Mode _2Mbps
-----------	----------------

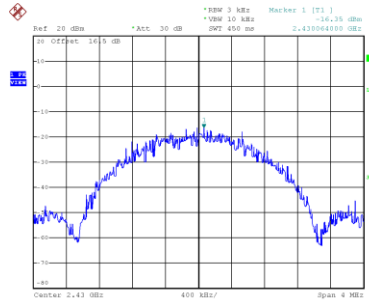
Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Max. Limit (dBm/3 kHz)	Test Result
00	2405	-15.36	8.00	Pass
06	2430	-16.35	8.00	Pass
15	2470	-19.62	8.00	Pass

CH00



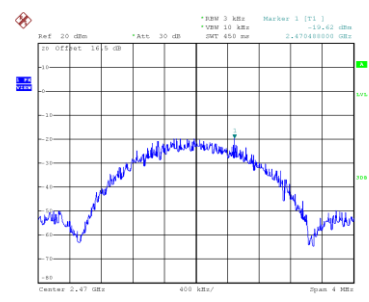
Date: 14.NOV.2024 10:16:00

CH06



Date: 14.NOV.2024 10:19:43

CH15



Date: 14.NOV.2024 10:25:12

End of Test Report