





# FCC Radio Test Report

## FCC ID: RWO-RC300516

This report concerns: Original Grant

**Project No.** : 2404C036  
**Equipment** : OLED Control Hub  
**Brand Name** :   
**Test Model** : RAZER, RC30-0516  
**Series Model** : RC30-0516XXXX-XXXX (X can be 0-9 or A-Z)  
**Applicant** : Razer Inc.  
**Address** : 9 Pasteur, Suite 100, Irvine, CA92618, USA  
**Manufacturer** : RAZER (ASIA-PACIFIC) PTE. LTD.  
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**Factory** : RAZER TECHNOLOGY AND DEVELOPMENT (SHENZHEN) CO., LTD  
**Address** : East Wing, 3rd Floor, Block 2, Phase 1 of Vision Shenzhen Business Park Keji South Road, Hi-Tech Industrial Park, Shenzhen 518057, China  
**Date of Receipt** : Apr. 10, 2024  
**Date of Test** : Apr. 11, 2024 ~ Sep. 05, 2024  
**Issued Date** : Sep. 10, 2024  
**Report Version** : R00  
**Test Sample** : Sample No.: DG20240410125 for conducted, DG20240410126 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.

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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**.

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**BTL's** laboratory quality assurance procedures are in compliance with the ISO/IEC17025:2017 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-1-2404C036	R00	Original Report.	Sep. 10, 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 Emission	APPENDIX B APPENDIX C APPENDIX D	PASS	-----
15.247 (a)(1)(iii)	Number of Hopping Frequency	APPENDIX E	PASS	-----
15.247 (a)(1)(iii)	Average Time of Occupancy	APPENDIX F	PASS	-----
15.247(a)(1)	Hopping Channel Separation	APPENDIX G	PASS	-----
15.247(a)(1)	Bandwidth	APPENDIX H	PASS	-----
15.247(a)(1)	Maximum Output Power	APPENDIX I	PASS	-----
15.247(d)	Conducted Spurious Emission	APPENDIX J	PASS	-----
15.203	Antenna Requirement	-----	PASS	<b>Note(2)</b>

Note:

(1) "N/A" denotes test is not applicable in this test report

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

## 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 Measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.88

### B. Radiated emissions Measurement:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.70

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
Conducted Spurious Emission	1.9 dB
Maximum Output Power	1.3 dB
Bandwidth	0.90 %
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	26°C	50%	AC 120V/60Hz	Hayden Chen	Apr. 17, 2024
Radiated Emissions-9 kHz to 30 MHz	24°C	56%	DC 5V	Hayden Chen	May 09, 2024
Radiated Emissions-30 MHz to 1000 MHz	22°C	51%	DC 5V	Chen Mo	Apr. 18, 2024
Radiated Emissions-Above 1000 MHz	22°C	51%	DC 5V	Chen Mo	Apr. 18, 2024
	26°C	54%	DC 5V	Jensen Zhou	Aug. 29, 2024
Number of Hopping Frequency	20~22°C	51~52%	DC 5V	Arvin Tong	Apr. 15, 2024~ Apr. 27, 2024
Average Time of Occupancy	20~22°C	51~52%	DC 5V	Arvin Tong	Apr. 15, 2024~ Apr. 27, 2024
Hopping Channel Separation	20~22°C	51~52%	DC 5V	Arvin Tong	Apr. 15, 2024~ Apr. 27, 2024
Bandwidth	20~22°C	51~52%	DC 5V	Arvin Tong	Apr. 15, 2024~ Apr. 27, 2024
Maximum Output Power	20~22°C	51~52%	DC 5V	Arvin Tong	Apr. 15, 2024~ Apr. 27, 2024
Conducted Spurious Emission	20~22°C	51~52%	DC 5V	Arvin Tong	Apr. 15, 2024~ Sep. 5, 2024

### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

Equipment	OLED Control Hub
Brand Name	 RAZER,
Test Model	RC30-0516
Series Model	RC30-0516XXXX-XXXX (X can be 0-9 or A-Z)
Model Difference(s)	Only differ in the model name.
Hardware Version	V1.0
Software Version	V1.0.3
PowerSource	Supplied from USB port.
Power Rating	5V  500mA
Operation Frequency	1Mbps, 2Mbps: 2402 MHz ~ 2480 MHz  4Mbps: 2404 MHz ~ 2478 MHz
Modulation Type	GFSK
Bit Rate of Transmitter	1Mbps, 2Mbps, 4Mbps
Max. Output Power	2Mbps: 10.28 dBm (0.0107 W)

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- The system model number is RZ04-0516XXXX-XXXX, this system consists of Gaming Headset (Model: RZ04-0516) and OLED Control Hub (Model: RC30-0516), X can be 0-9 or A-Z.

## 3. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

Note: The 4Mbps transmit bit rate does not support 2402MHz, 2426MHz and 2480MHz channel, other rates support all channels.

## 4. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	RAZER	RC30-0516	FPC	N/A	2.96

### 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_1Mbps Channel 00/19/39
Mode 2	TX Mode_2Mbps Channel 00/19/39
Mode 3	TX Mode_4Mbps Channel 01/19/38
Mode 4	TX Mode_2Mbps Channel 19

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

<b>AC power line conducted emissions test</b>	
Final Test Mode	Description
Mode 4	TX Mode_2Mbps Channel 19

<b>Radiated emissions test - Below 1GHz</b>	
Final Test Mode	Description
Mode 4	TX Mode_2Mbps Channel 19

<b>Radiated emissions test - Above 1GHz</b>	
Final Test Mode	Description
Mode 1	TX Mode_1Mbps Channel 00/19/39
Mode 2	TX Mode_2Mbps Channel 00/19/39
Mode 3	TX Mode_4Mbps Channel 01/19/38

<b>Maximum Output Power</b>	
Final Test Mode	Description
Mode 1	TX Mode_1Mbps Channel 00/19/39
Mode 2	TX Mode_2Mbps Channel 00/19/39
Mode 3	TX Mode_4Mbps Channel 01/19/38

<b>Other Conducted test</b>	
Final Test Mode	Description
Mode 1	TX Mode_1Mbps Channel 00/19/39
Mode 2	TX Mode_2Mbps Channel 00/19/39
Mode 3	TX Mode_4Mbps Channel 01/19/38

**Note:**

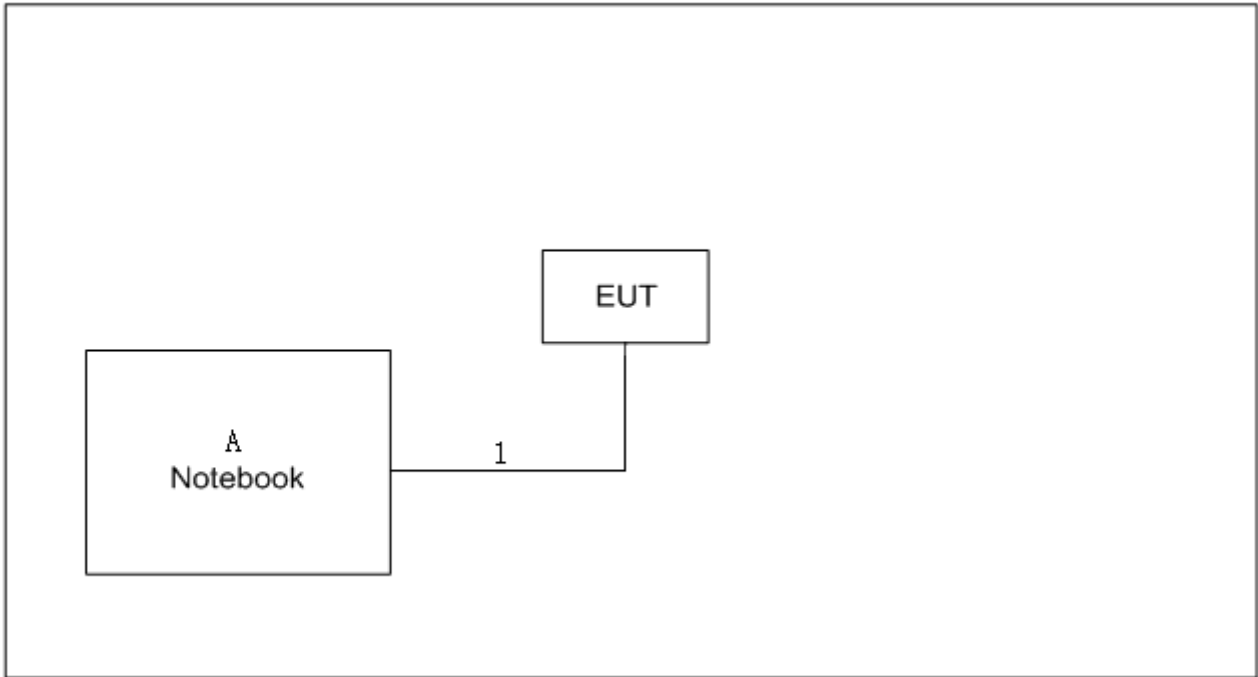
- (1) For radiated emission above 1GHz test, the spurious points of 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (2) For AC power line conducted emissions and radiated emissions below 1 GHz test, the 2Mbps Channel 19 is found to be the worst case and recorded.
- (3) For radiated emission Harmonic 18-26.5GHz test, only tested the worst case and recorded.
- (4) 1Mbps, 2Mbps and 4Mbps: For radiated emission above 1 GHz of Band edge test: The polarization of Vertical and Horizontal are evaluated, the worst case is Horizontal and recorded.
- (5) 1Mbps, 2Mbps: For radiated emission above 1 GHz of Harmonic test: The polarization of Vertical and Horizontal are evaluated, the worst case is Horizontal and recorded.
- (6) 4Mbps: For radiated emission above 1 GHz of Harmonic test: The polarization of Vertical and Horizontal are evaluated, the worst case is Vertical 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	AB157x_Airoha_Tool_Kit(ATK)_v3.7.5		
Frequency (MHz)	2402	2440	2480
1Mbps	61	61	61
2Mbps	61	61	61
Frequency (MHz)	2404	2440	2478
4Mbps	61	61	61

### 3.4 BLOCKDIAGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED



### 3.5 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Notebook	HONOR	Nbi-WAQ9HNRP	N/A

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

### 3.6 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 (dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56to 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.

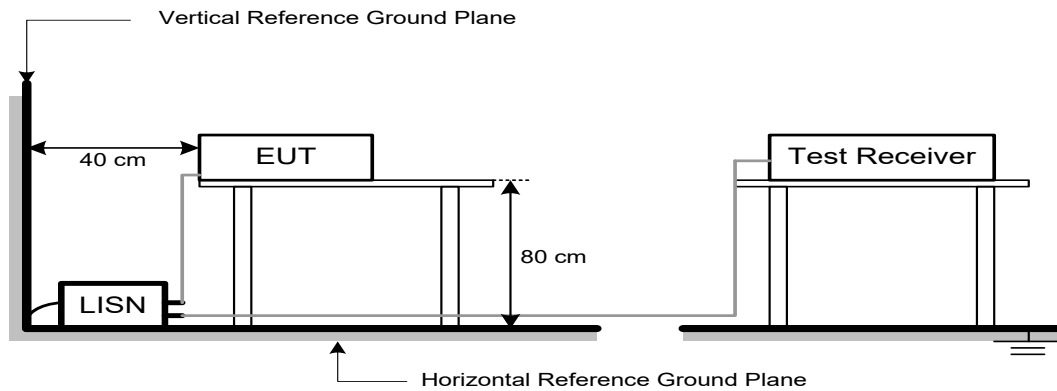
The following table is the setting of the receiver:

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

### 4.3 DEVIATIONFROMTESTSTANDARD

No deviation.

#### 4.4 TESTSETUP



#### 4.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical function (as a customer would normally use it), EUT was programmed to be in continuously transmitting data or hopping on mode.

#### 4.6 TEST RESULTS

Please refer to the APPENDIX A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of [Note] . If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a "\*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150 kHz to 30MHz.



## 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-1000MHz)

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 1000MHz)

Frequency (MHz)	Band edge/ Harmonic at 3m (dB $\mu$ V/m)		Harmonic at 1m (dB $\mu$ V/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 (dB $\mu$ V/m)=20log Emission level (uV/m).
- (4)

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

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

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

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

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

$d_{\text{measure}}$ : Harmonic Actual test distance.

## 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 1GHz)
- 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 1GHz.
- 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 1GHz)
- 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 1GHz)
- i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

The following table is the setting of the receiver:

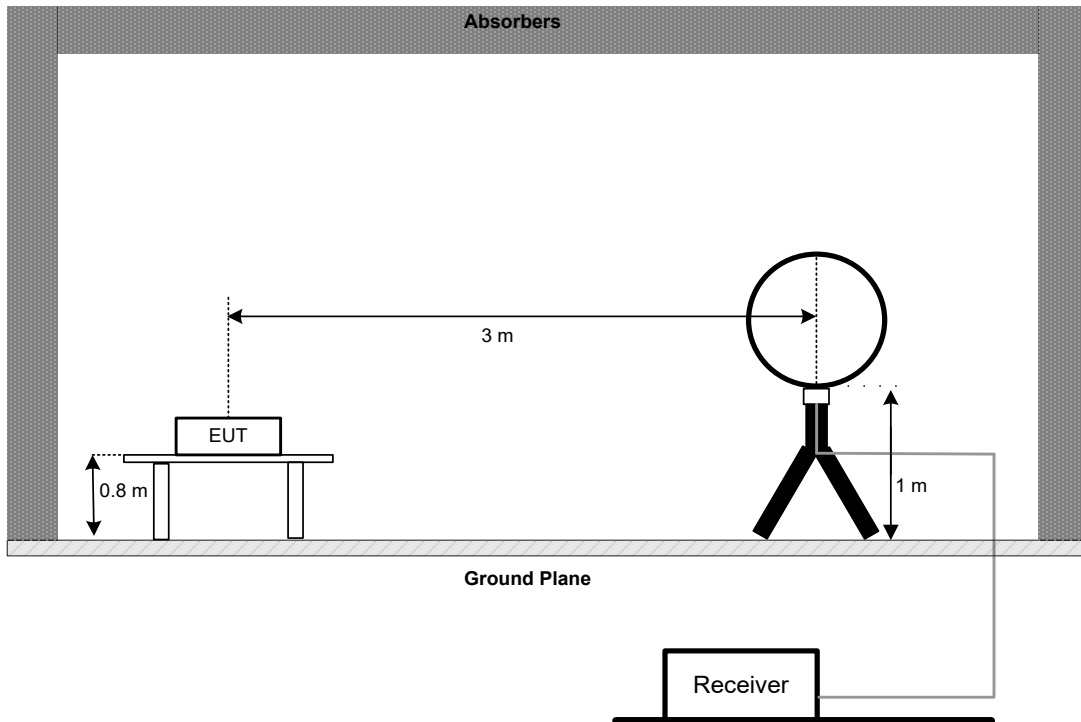
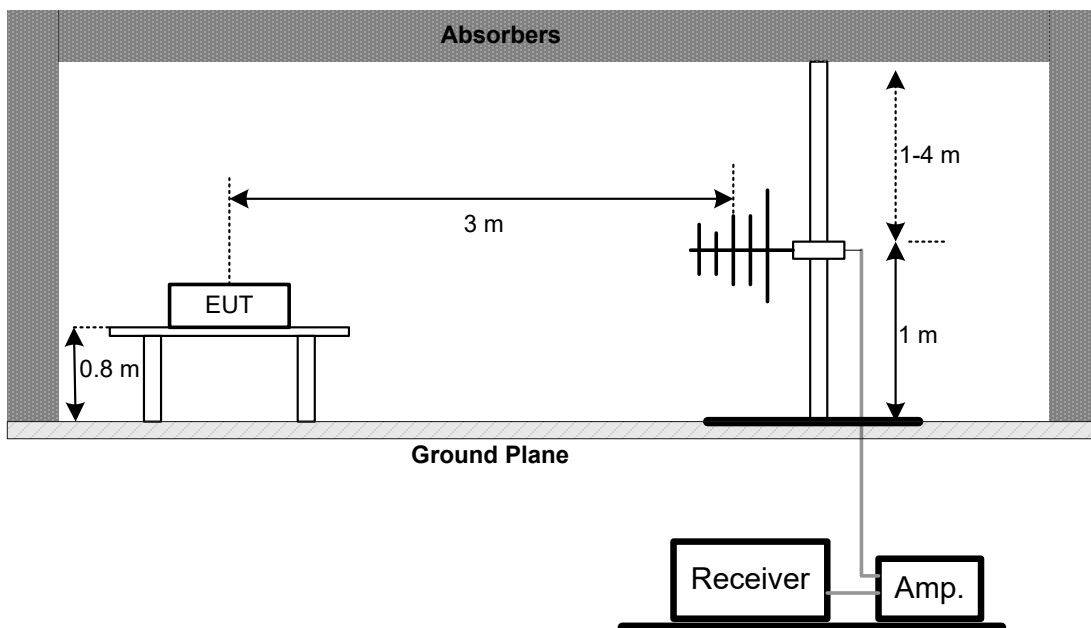
Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

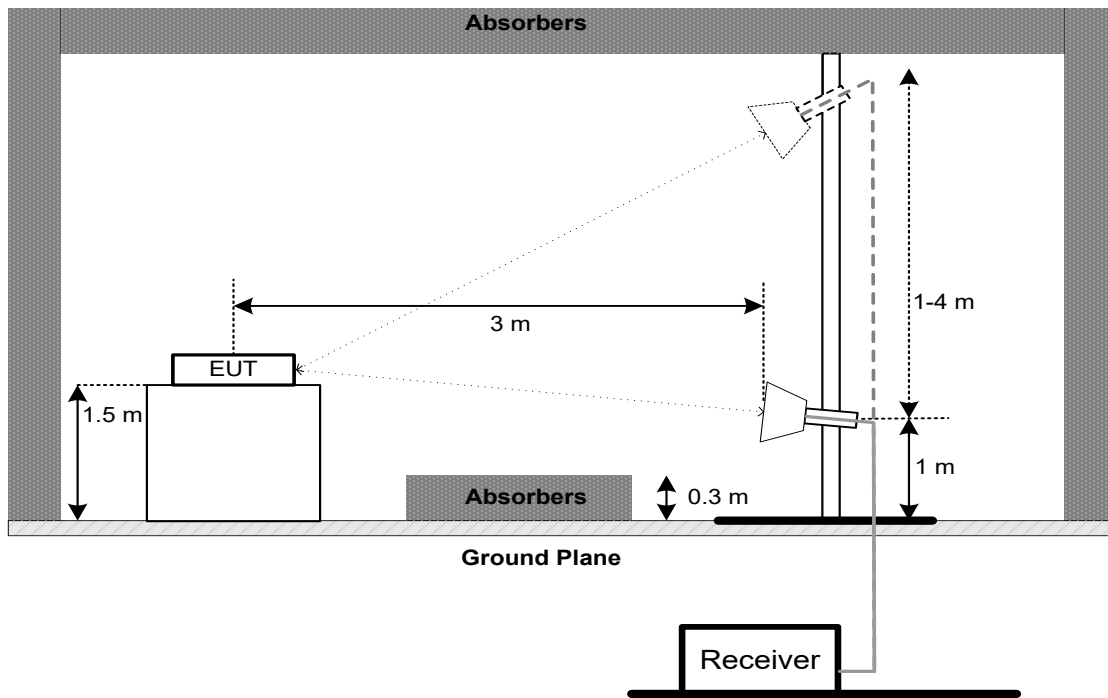
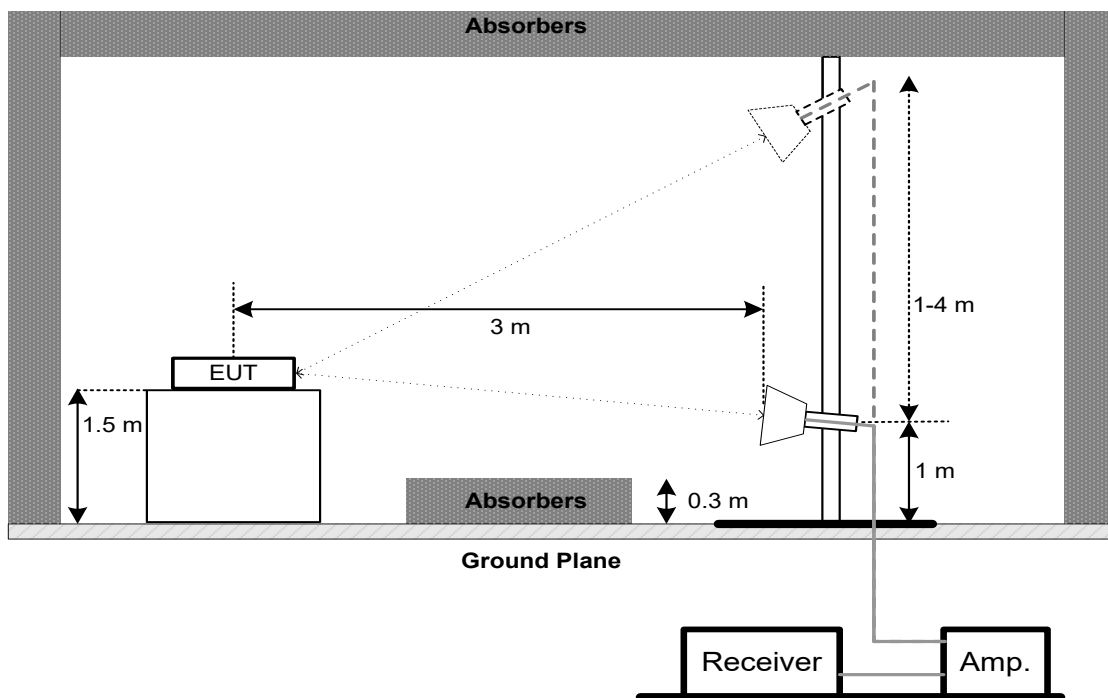
Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for PK value 1MHz / 1/THz for AVG value

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	30MHz~1000MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5GHz for PK/AVG detector

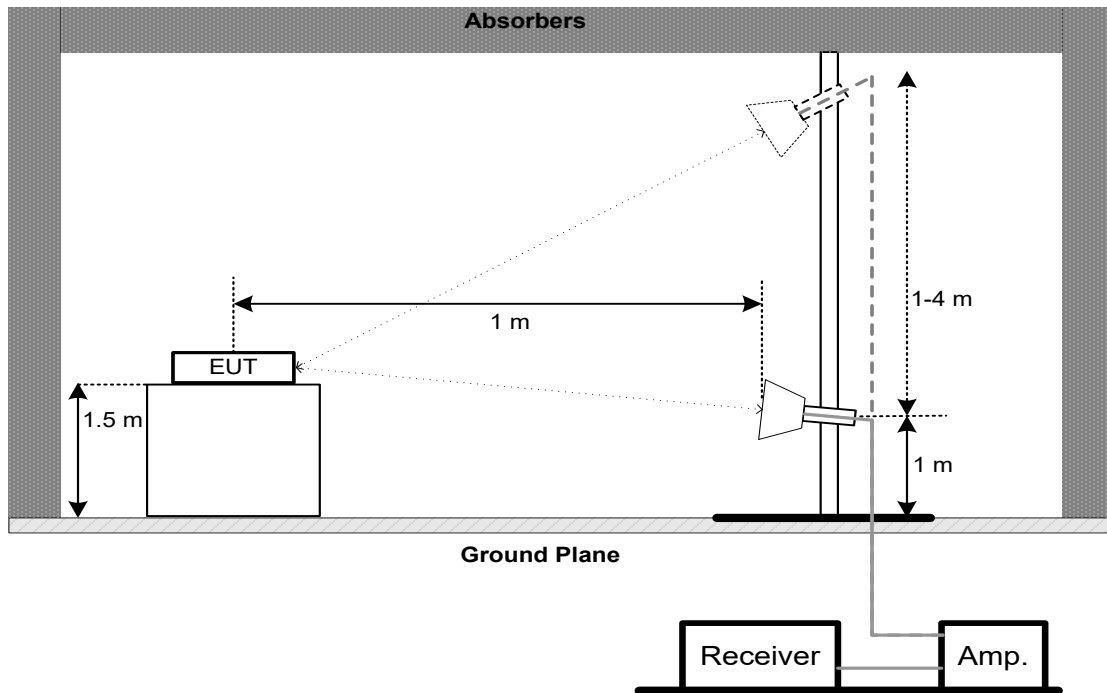
**5.3 DEVIATION FROM TEST STANDARD**

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 OPERATING CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

**5.6 TEST RESULTS - 9 kHz TO 30MHz**

Please refer to the APPENDIX B.

Remark:

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

**5.7 TEST RESULTS- 30 MHz TO 1000MHz**

Please refer to the APPENDIX C.

**5.8 TEST RESULTS - ABOVE 1000MHz**

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. NUMBER OF HOPPING FREQUENCY

### 6.1 LIMIT

Section	Test Item	Limit
FCC 15.247(a)(1)(iii)	Number of Hopping Frequency	15

### 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	> Operating Frequency Range
RBW	100kHz
VBW	100kHz
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. AVERAGE TIME OF OCCUPANCY

### 7.1 LIMIT

Section	Test Item	Limit
FCC 15.247(a)(1)(iii)	Average Time of Occupancy	0.4sec

### 7.2 TEST PROCEDURE

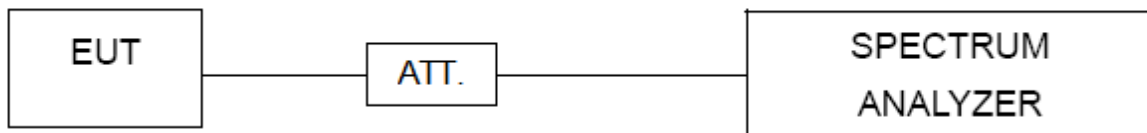
- Set the EUT for DH packet transmitting.
- Measure the maximum time duration of one single pulse.
- DH Packet permit maximum  $1600 / 40 / 2 = 20$  hops per second in each channel (1 time slot TX, 1 time slot RX). So, the dwell time is the time duration of the pulse times  $20 \times 16 = 320$  within 31.6 seconds.
- For 4Mbps DH Packet permit maximum  $1600 / 37 / 2 = 21.62$  hops per second in each channel (1 time slot TX, 1 time slot RX). So, the dwell time is the time duration of the pulse times  $21.62 \times 14.8 \approx 320$  within 14.8 seconds
- 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	0 MHz
RBW	1MHz
VBW	1MHz
Detector	Peak
Trace	Max Hold
Sweep Time	As necessary to capture the entire dwell time per hopping channel

### 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. HOPPING CHANNEL SEPARATION

### 8.1 LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### 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
Span Frequency	Wide enough to capture the peaks of two adjacent channels
RBW	30 kHz
VBW	100 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. BANDWIDTH

### 9.1 LIMIT

Section	Test Item
FCC 15.247(a)(1)	Bandwidth

### 9.2 TEST PROCEDURE

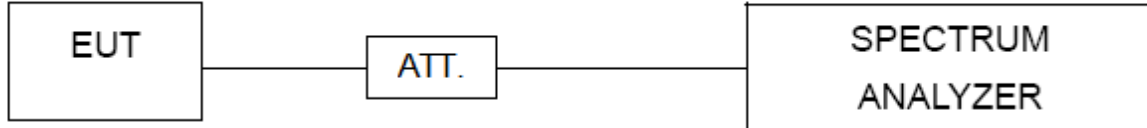
- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Span Frequency	> Measurement Bandwidth
RBW	30kHz
VBW	100kHz
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. MAXIMUM OUTPUT POWER

### 10.1 LIMIT

Section	Test Item	Limit
FCC 15.247(a)(1)	Maximum Output Power	0.1250Watt or 20.97dBm

Note:

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### 10.2 TEST PROCEDURE

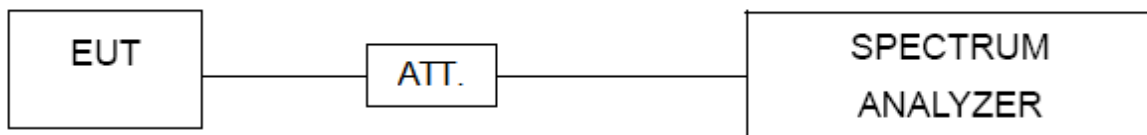
- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Span Frequency	Approximately five times the 20 dB bandwidth, centered on a hopping channel.
RBW	3 MHz
VBW	3 MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

### 10.3 DEVIATION FROM STANDARD

No deviation.

### 10.4 TEST SETUP



### 10.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 10.6 TEST RESULTS

Please refer to the APPENDIX I.

## 11. CONDUCTED SPURIOUS EMISSION

### 11.1 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.

### 11.2 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	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

### 11.3 DEVIATION FROM STANDARD

No deviation.

### 11.4 TEST SETUP



### 11.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 11.6 TEST RESULTS

Please refer to the APPENDIX J.

**12. MEASUREMENT INSTRUMENTS LIST**

AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI TEST RECEIVER	R&S	ESCI	100382	Dec. 22, 2024
2	TWO-LINE V-NETWORK	R&S	ENV216	10274	Dec. 22, 2024
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Dec. 22, 2024
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	Cable	N/A	SFT205-NMNM-9M -001	9M	Nov. 27, 2024

Radiated Emissions - 9 kHz to 30MHz					
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	MXE EMI Receiver	Keysight	N9038A	MY56400091	Dec. 22, 2024
3	Cable	N/A	RW2350-3.8A-NMB M-1.5M	N/A	Jun. 10, 2024
4	966 Chamber room	ETS	9*6*6	N/A	Jul. 11, 2024
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	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

For Apr. 18, 2024

Radiated Emissions - Above 1GHz					
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	MXA Signal Analyzer	KEYSIGHT	N9020B	MY63380204	Nov. 17, 2024
4	Double Ridged Guide Antenna	ETS	3115	75789	May 31, 2024
5	Cable	RegalWay	RWLP50-4.0A-SMS M-12.5M	N/A	Feb. 19, 2025
6	Cable	RegalWay	RWLP50-4.0A-NM RASM-2.5M	N/A	Aug. 08, 2024
7	Cable	RegalWay	RWLP50-4.0A-NM RASMRA-0.8M	N/A	Aug. 08, 2024
8	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330 -K	619413	Jul. 06, 2024
9	Cable	RegalWay	RWLP50-2.6A-2.92 M2.92M-1.1M	N/A	Jul. 26, 2024
10	Cable	Tonscend	HF160-KMKM-3M	N/A	Jul. 26, 2024
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170(3m)	9170-319	Jun. 20, 2024
12	966 Chamber room	CM	9*6*6	N/A	May 17, 2024
13	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
14	Filter	STI	STI15-9912	N/A	Jun. 16, 2024
15	Positioning Controller	MF	MF-7802	N/A	N/A
16	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

For Aug. 29, 2024

Radiated Emissions - Above 1GHz					
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-SMS M-12.5M	N/A	Feb. 19, 2025
5	Cable	RegalWay	RWLP50-4.0A-NM RASM-2.5M	N/A	Aug. 08, 2024
6	Cable	RegalWay	RWLP50-4.0A-NM RASMRA-0.8M	N/A	Aug. 08, 2024
7	966 Chamber room	CM	9*6*6	N/A	May 17, 2024
8	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
9	Filter	STI	STI15-9912	N/A	Jun. 16, 2024
10	Positioning Controller	MF	MF-7802	N/A	N/A
11	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

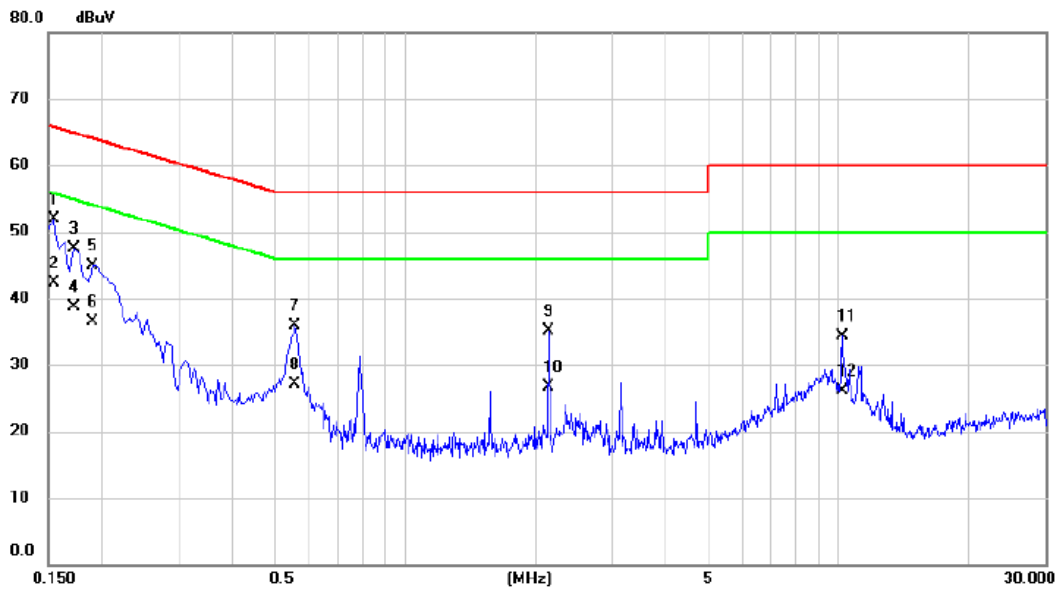
**Number of Hopping Frequency &  
Average Time of Occupancy &  
Hopping Channel Separation &  
Bandwidth &  
Maximum Output Power &  
Conducted Spurious Emission**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	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.

## **APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS**

Test Mode	TX Mode_2Mbps Channel 19	Phase	Line
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1545	41.86	9.97	51.83	65.75	-13.92	QP	
2	*	0.1545	32.30	9.97	42.27	55.75	-13.48	AVG	
3		0.1725	37.45	9.97	47.42	64.84	-17.42	QP	
4		0.1725	28.70	9.97	38.67	54.84	-16.17	AVG	
5		0.1905	35.00	9.98	44.98	64.01	-19.03	QP	
6		0.1905	26.50	9.98	36.48	54.01	-17.53	AVG	
7		0.5550	25.09	10.74	35.83	56.00	-20.17	QP	
8		0.5550	16.40	10.74	27.14	46.00	-18.86	AVG	
9		2.1480	24.33	10.86	35.19	56.00	-20.81	QP	
10		2.1480	15.80	10.86	26.66	46.00	-19.34	AVG	
11		10.2255	22.15	12.15	34.30	60.00	-25.70	QP	
12		10.2255	13.90	12.15	26.05	50.00	-23.95	AVG	

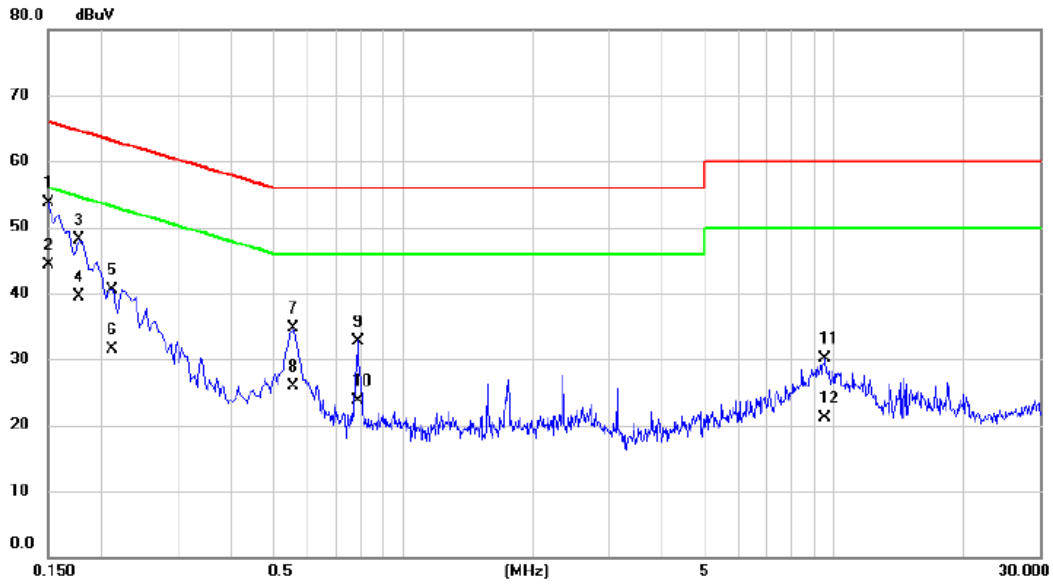
**REMARKS:**

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

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



Test Mode	TX Mode_2Mbps Channel 19	Phase	Neutral
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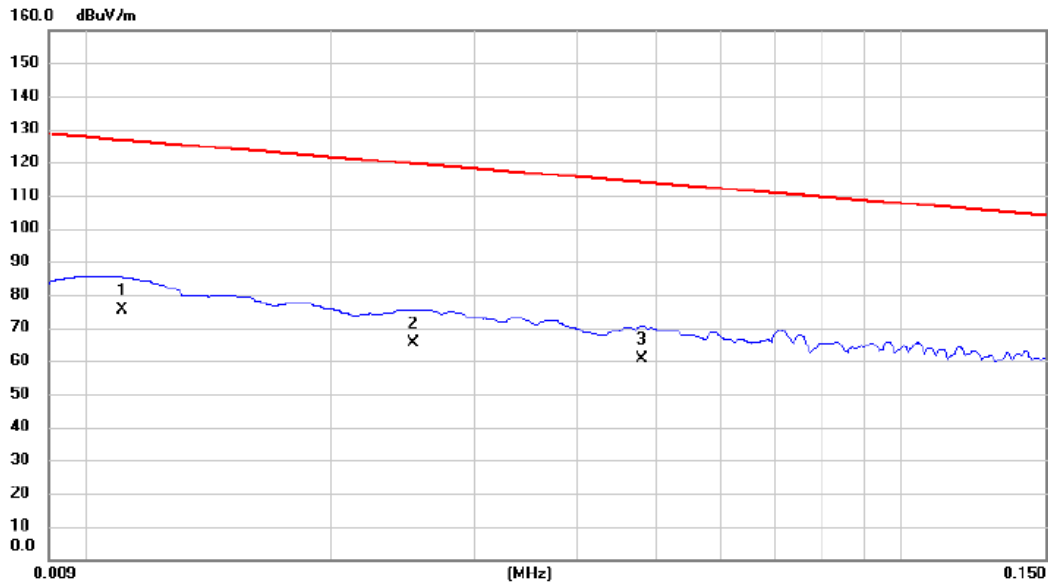
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	43.69	9.93	53.62	66.00	-12.38	QP	
2	*	0.1500	34.40	9.93	44.33	56.00	-11.67	AVG	
3		0.1770	38.22	9.93	48.15	64.63	-16.48	QP	
4		0.1770	29.60	9.93	39.53	54.63	-15.10	AVG	
5		0.2106	30.56	9.96	40.52	63.18	-22.66	QP	
6		0.2106	21.50	9.96	31.46	53.18	-21.72	AVG	
7		0.5550	24.08	10.70	34.78	56.00	-21.22	QP	
8		0.5550	15.30	10.70	26.00	46.00	-20.00	AVG	
9		0.7845	21.76	11.04	32.80	56.00	-23.20	QP	
10		0.7845	12.70	11.04	23.74	46.00	-22.26	AVG	
11		9.5190	18.28	11.89	30.17	60.00	-29.83	QP	
12		9.5190	9.20	11.89	21.09	50.00	-28.91	AVG	

**REMARKS:**

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

**APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30MHZ**

Test Mode	TX Mode_2Mbps Channel 19	Polarization	Ant 0°
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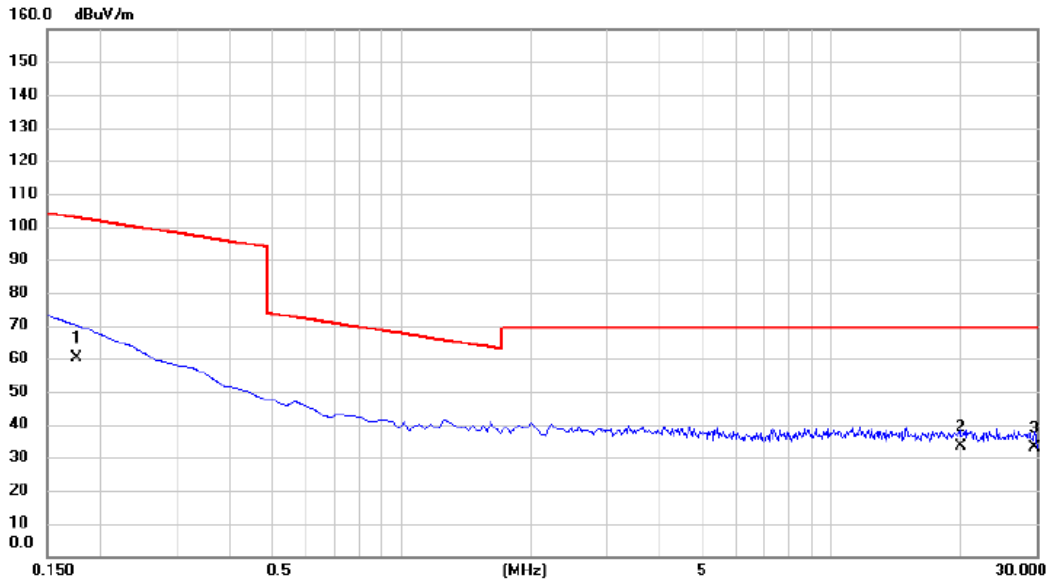


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0111	54.77	20.53	75.30	126.70	-51.40	AVG	
2		0.0252	44.63	20.96	65.59	119.58	-53.99	AVG	
3		0.0480	39.27	21.19	60.46	113.98	-53.52	AVG	

**REMARKS:**

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

Test Mode	TX Mode_2Mbps Channel 19	Polarization	Ant 0°
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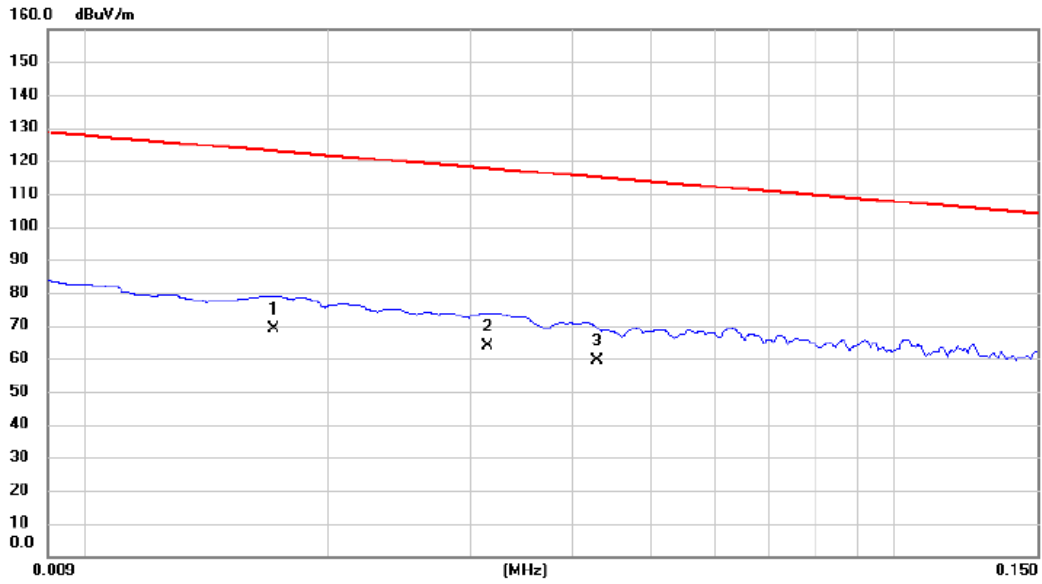


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.1758	38.92	21.23	60.15	102.71	-42.56	AVG	
2	*	19.9406	11.98	21.31	33.29	69.54	-36.25	QP	
3		29.6120	10.64	22.33	32.97	69.54	-36.57	QP	

**REMARKS:**

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

Test Mode	TX Mode_2Mbps Channel 19	Polarization	Ant 90°
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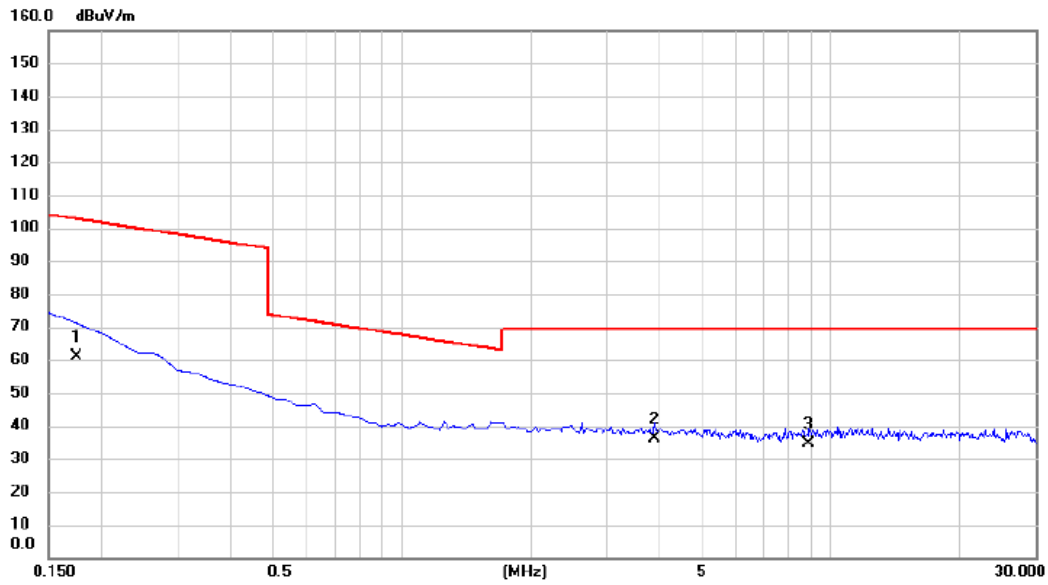


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		0.0171	48.27	20.71	68.98	122.94	-53.96	AVG	
2	*	0.0314	42.72	21.11	63.83	117.67	-53.84	AVG	
3		0.0430	38.18	21.16	59.34	114.94	-55.60	AVG	

**REMARKS:**

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

Test Mode	TX Mode_2Mbps Channel 19	Polarization	Ant 90°
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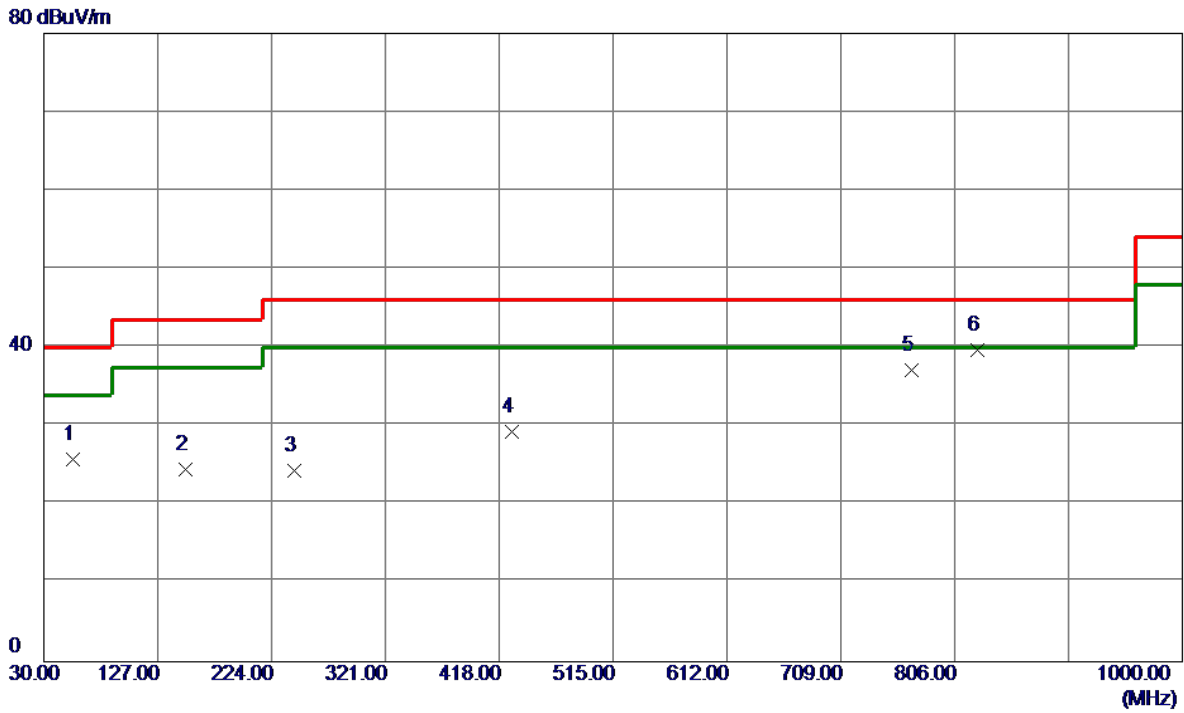
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		0.1750	39.95	21.23	61.18	102.75	-41.57	AVG	
2	*	3.8812	15.00	21.13	36.13	69.54	-33.41	QP	
3		8.8960	13.38	21.20	34.58	69.54	-34.96	QP	

**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 Mode_2Mbps Channel 19	Polarization	Vertical
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No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	55.2200	37.35	-11.52	25.83	40.00	-14.17	Peak	
2	150.2800	35.69	-11.22	24.47	43.50	-19.03	Peak	
3	242.9150	37.02	-12.68	24.34	46.00	-21.66	Peak	
4	429.1550	36.61	-7.40	29.21	46.00	-16.79	Peak	
5	769.1400	38.36	-1.31	37.05	46.00	-8.95	Peak	
6 *	824.9150	40.75	-1.00	39.75	46.00	-6.25	Peak	

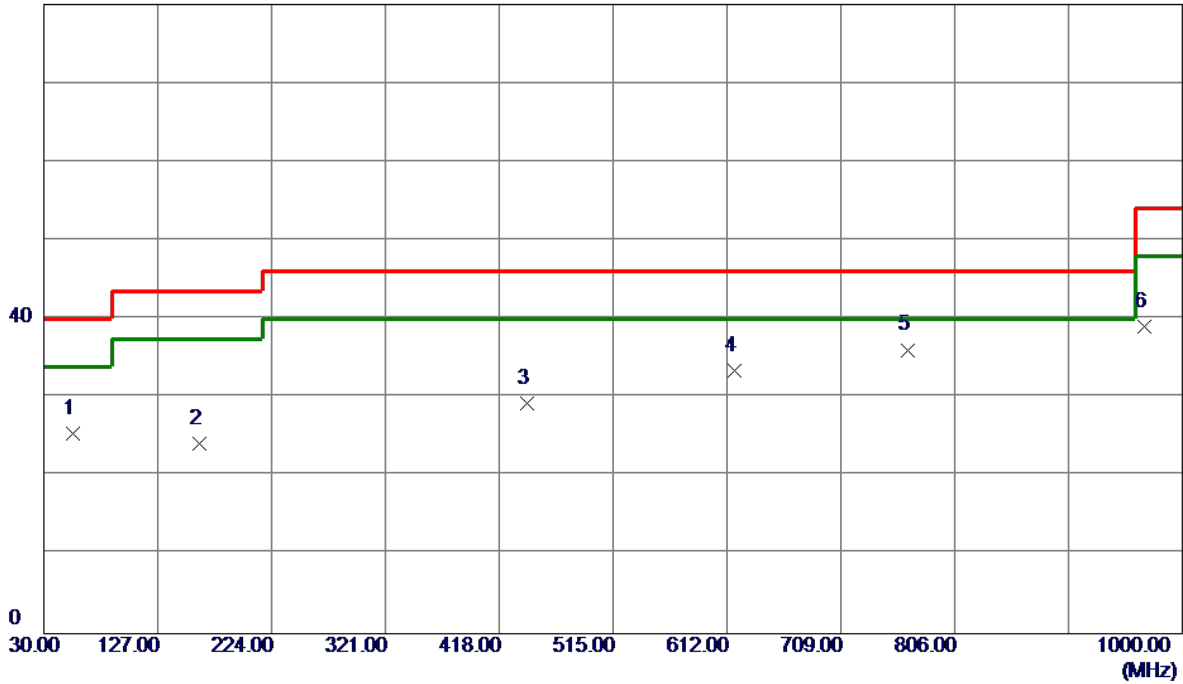
**REMARKS:**

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



Test Mode	TX Mode_2Mbps Channel 19	Polarization	Horizontal
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80 dBuV/m



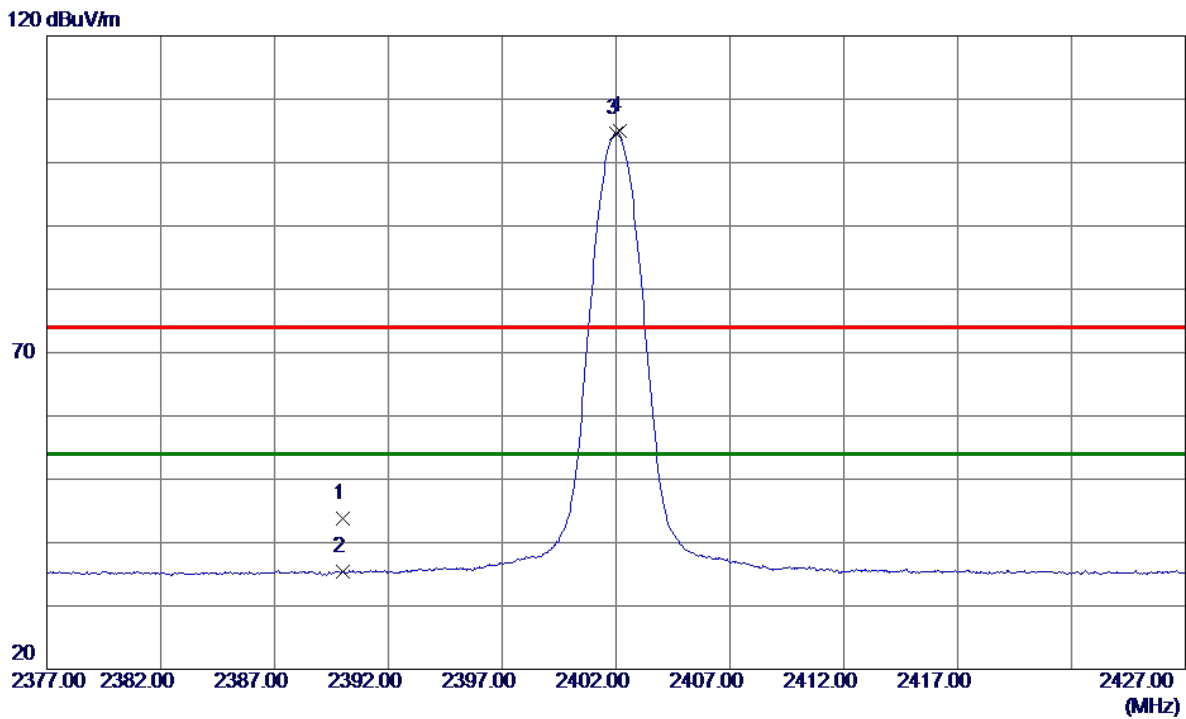
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	55.2200	37.02	-11.52	25.50	40.00	-14.50	Peak	
2	162.4050	35.13	-11.00	24.13	43.50	-19.37	Peak	
3	441.7650	36.40	-7.07	29.33	46.00	-16.67	Peak	
4	618.7900	36.87	-3.46	33.41	46.00	-12.59	Peak	
5 *	765.7450	37.38	-1.30	36.08	46.00	-9.92	Peak	
6	967.9900	38.59	0.50	39.09	54.00	-14.91	Peak	

**REMARKS:**

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

**APPENDIX D - RADIATED EMISSION - ABOVE 1000MHZ**

Test Mode	TX 2402 MHz_CH00_1Mbps	Polarization	Horizontal
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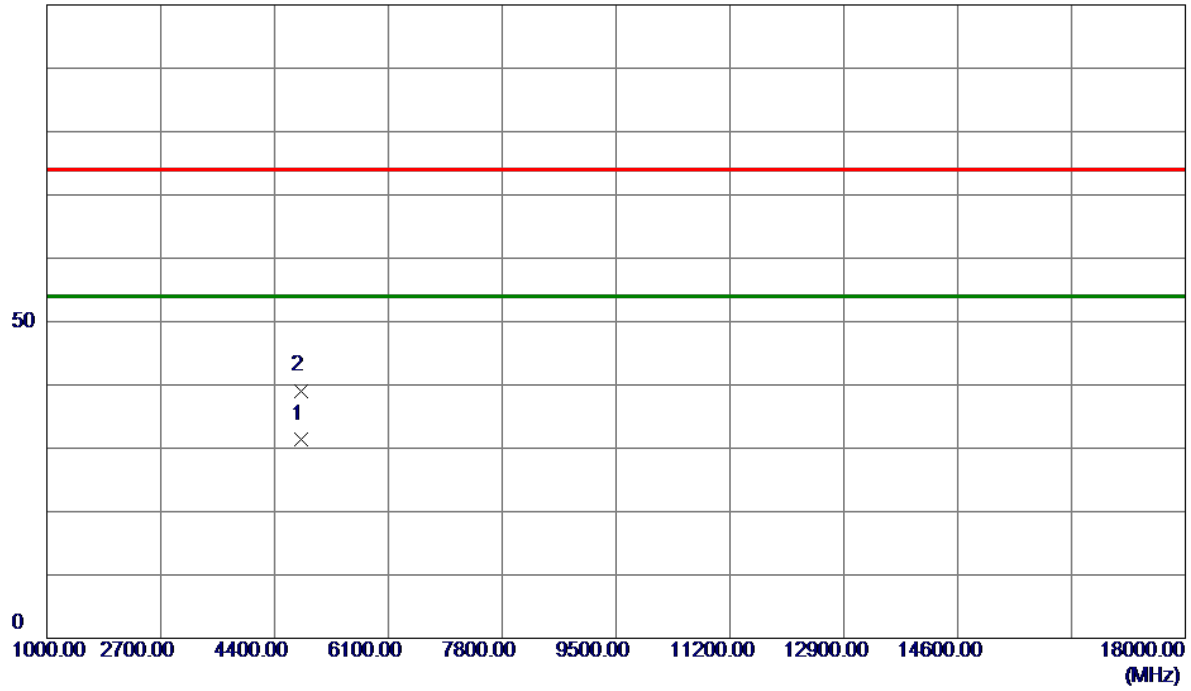
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	35.33	8.51	43.84	74.00	-30.16	Peak	
2	2390.0000	26.84	8.51	35.35	54.00	-18.65	AVG	
3 *	2402.0250	96.18	8.51	104.69	54.00	50.69	AVG	No Limit
4	2402.1500	96.51	8.51	105.02	74.00	31.02	Peak	No Limit

**REMARKS:**

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

Test Mode	TX 2402 MHz_CH00_1Mbps	Polarization	Horizontal
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100 dBuV/m



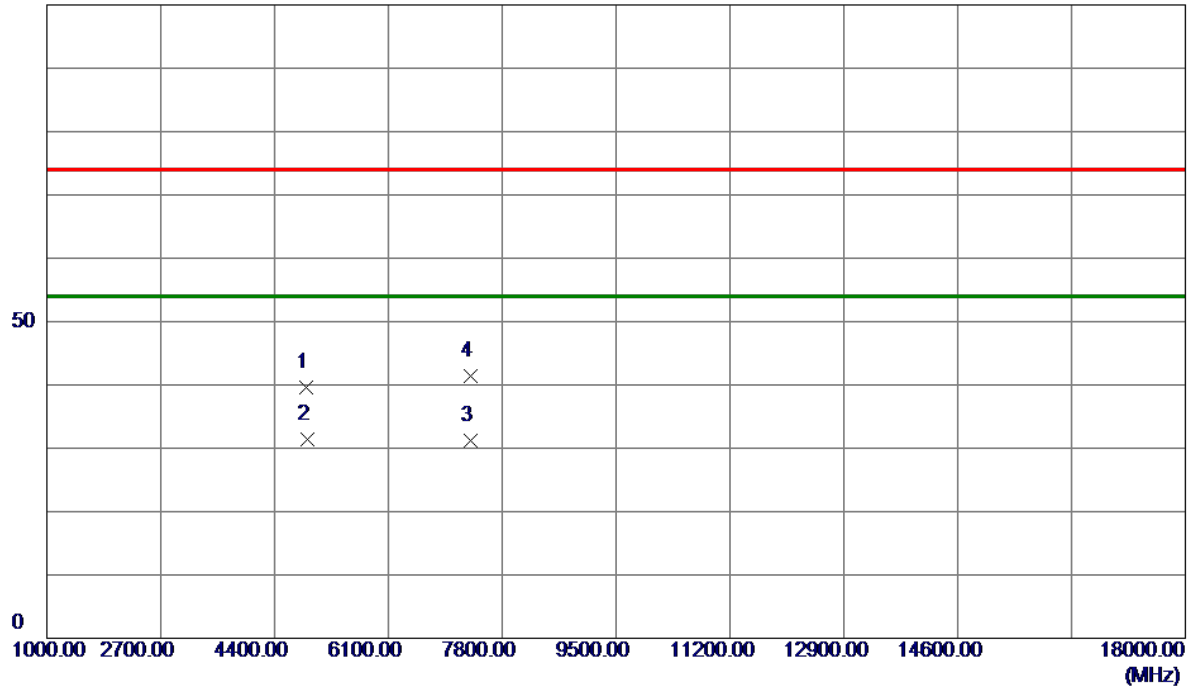
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4804.0299	28.93	2.41	31.34	54.00	-22.66	AVG	
2	4804.1200	36.69	2.41	39.10	74.00	-34.90	Peak	

REMARKS:

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

Test Mode	TX 2440 MHz_CH19_1Mbps	Polarization	Horizontal
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100 dBuV/m

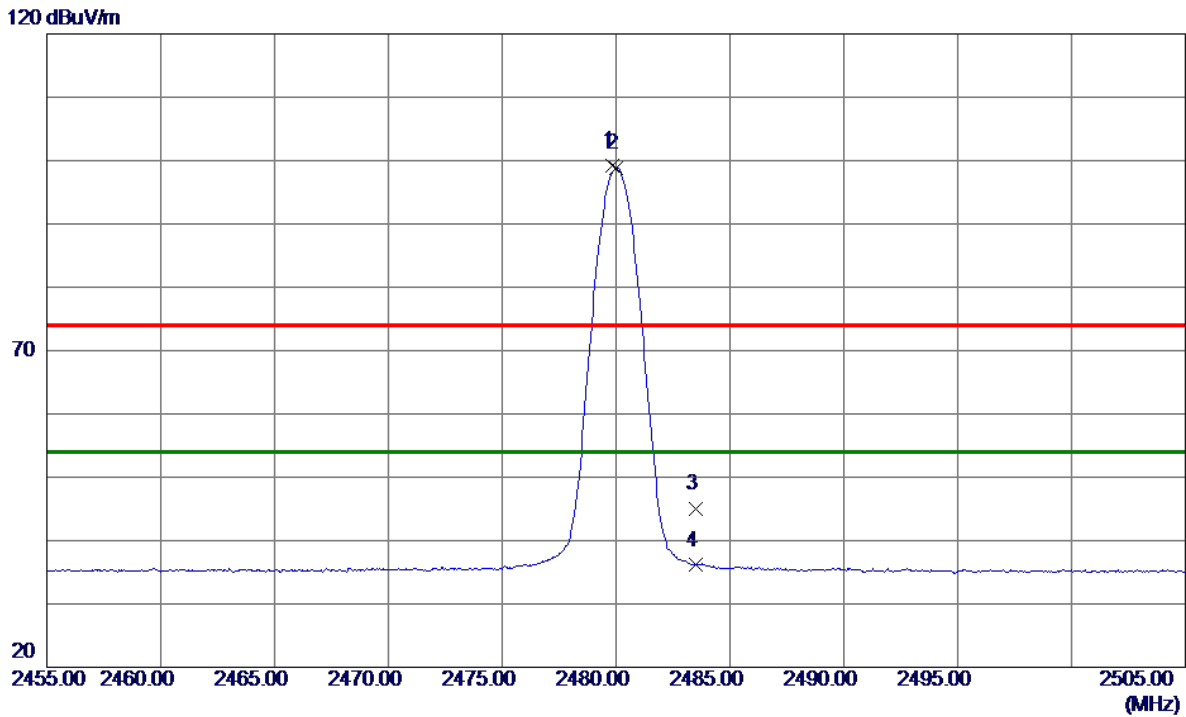


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4875.5400	36.95	2.58	39.53	74.00	-34.47	Peak	
2 *	4882.0200	28.72	2.59	31.31	54.00	-22.69	AVG	
3	7326.1500	24.05	7.08	31.13	54.00	-22.87	AVG	
4	7330.8900	34.30	7.08	41.38	74.00	-32.62	Peak	

REMARKS:

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

Test Mode	TX 2480 MHz_CH39_1Mbps	Polarization	Horizontal
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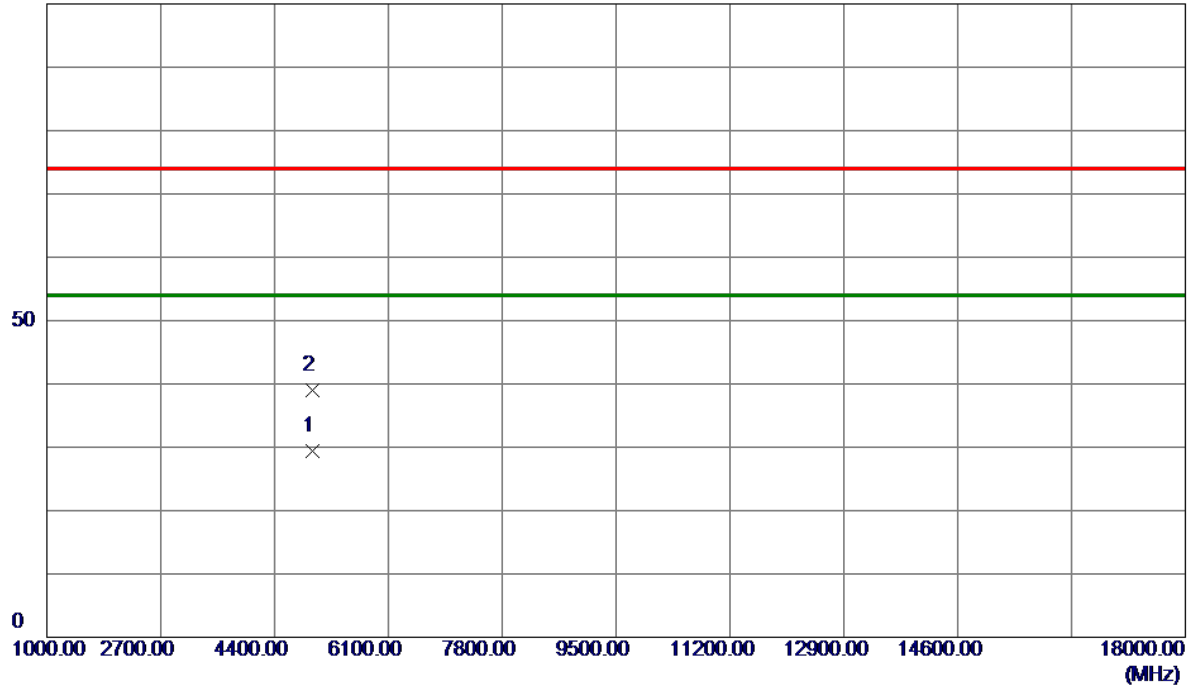
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2479.8500	90.68	8.48	99.16	74.00	25.16	Peak	No Limit
2 *	2480.0250	90.39	8.48	98.87	54.00	44.87	AVG	No Limit
3	2483.5000	36.47	8.48	44.95	74.00	-29.05	Peak	
4	2483.5000	27.62	8.48	36.10	54.00	-17.90	AVG	

**REMARKS:**

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

Test Mode	TX 2480 MHz_CH39_1Mbps	Polarization	Horizontal
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100 dBuV/m

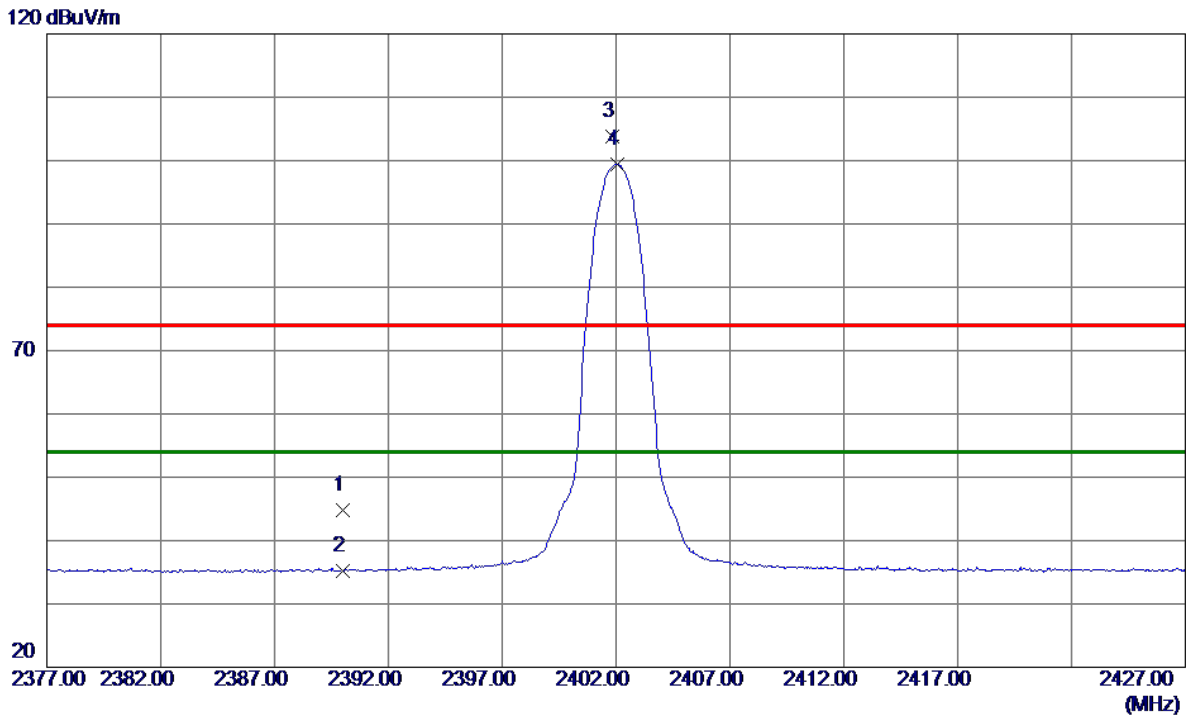


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4959.9900	26.60	2.78	29.38	54.00	-24.62	AVG	
2	4962.4700	36.19	2.78	38.97	74.00	-35.03	Peak	

**REMARKS:**

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

Test Mode	TX 2402 MHz_CH00_2Mbps	Polarization	Horizontal
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No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2390.0000	36.33	8.51	44.84	74.00	-29.16	Peak	
2	2390.0000	26.77	8.51	35.28	54.00	-18.72	AVG	
3	2401.8500	95.37	8.51	103.88	74.00	29.88	Peak	No Limit
4 *	2402.0750	90.90	8.51	99.41	54.00	45.41	AVG	No Limit

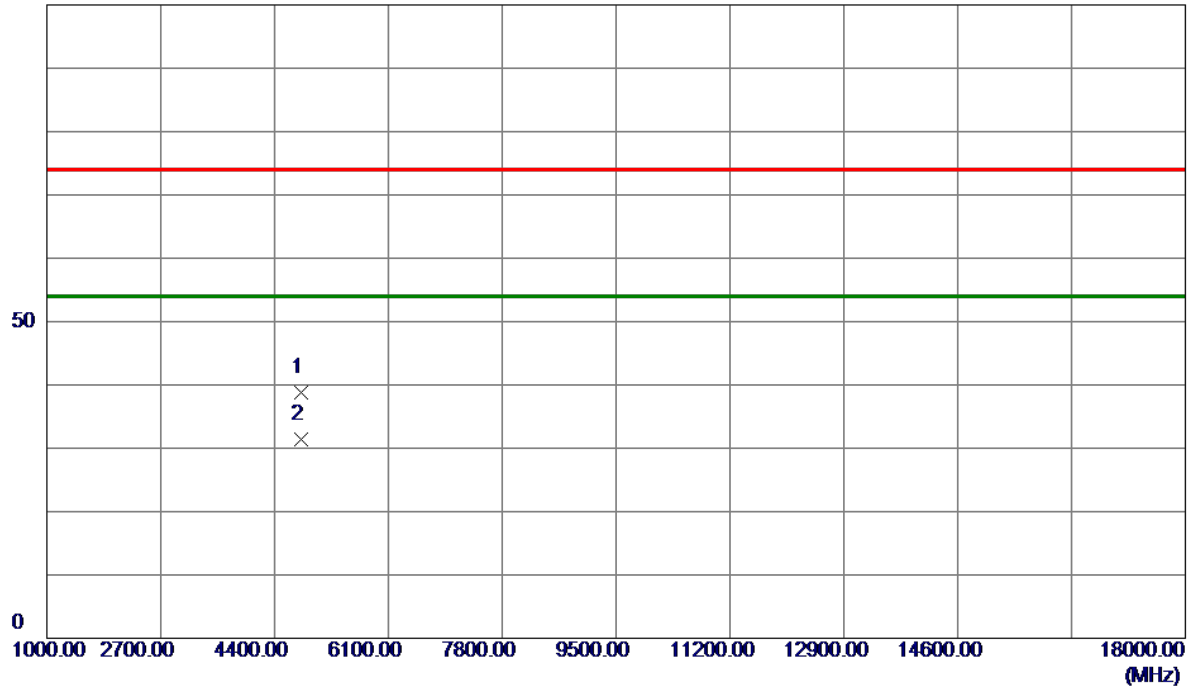
**REMARKS:**

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



Test Mode	TX 2402 MHz_CH00_2Mbps	Polarization	Horizontal
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100 dBuV/m



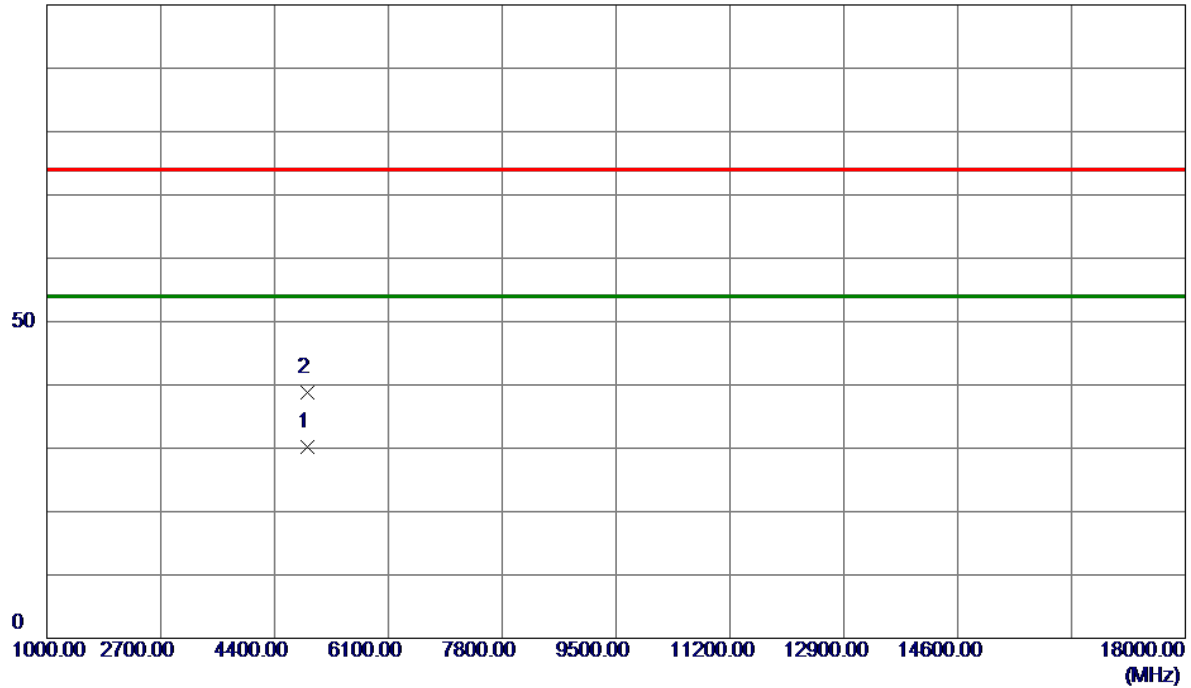
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4803.8700	36.43	2.41	38.84	74.00	-35.16	Peak	
2 *	4804.0000	29.08	2.41	31.49	54.00	-22.51	AVG	

REMARKS:

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

Test Mode	TX 2440 MHz _CH19_2Mbps	Polarization	Horizontal
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100 dBuV/m

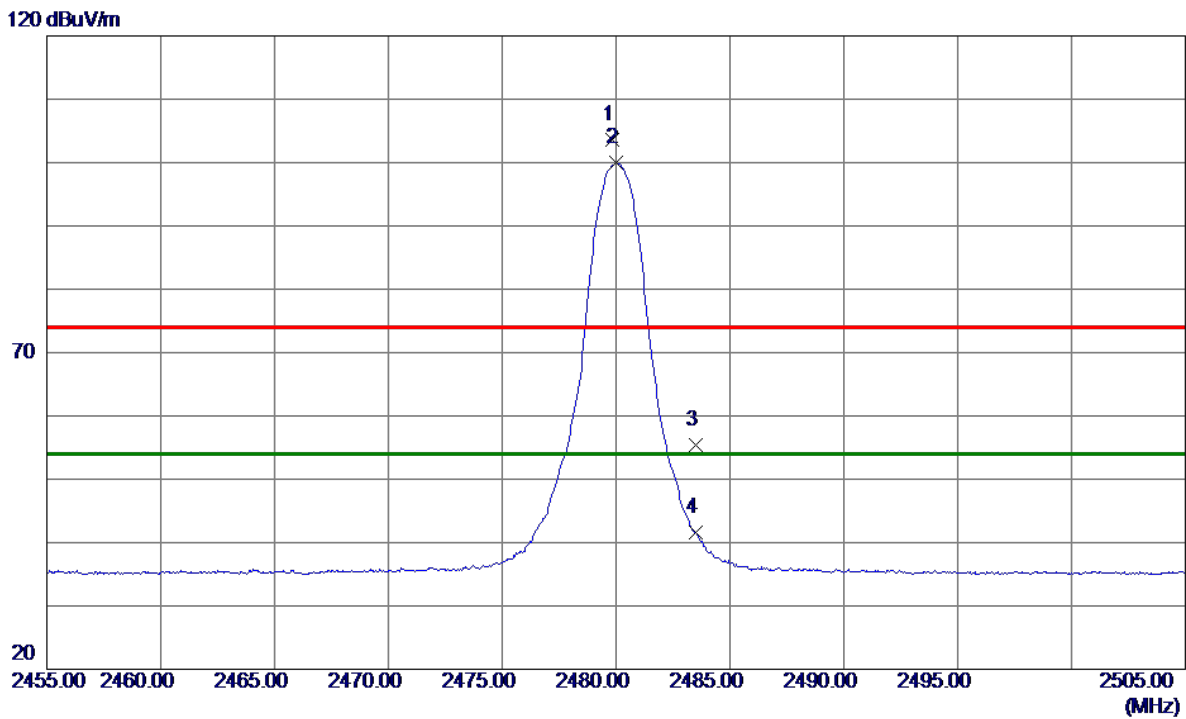


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	4882.0000	27.68	2.59	30.27	54.00	-23.73	AVG	
2	4883.4900	36.17	2.60	38.77	74.00	-35.23	Peak	

REMARKS:

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

Test Mode	TX 2480 MHz_CH39_2Mbps	Polarization	Horizontal
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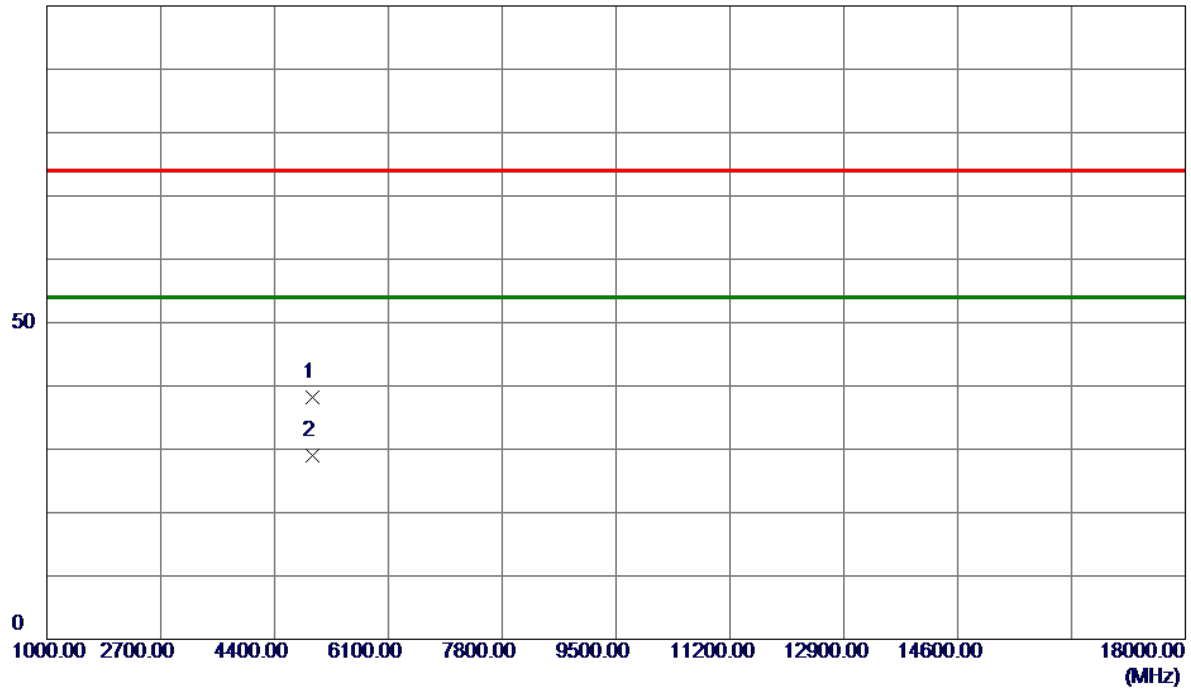
No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	2479.8500	95.09	8.48	103.57	74.00	29.57	Peak	No Limit
2 *	2479.9750	91.45	8.48	99.93	54.00	45.93	AVG	No Limit
3	2483.5000	46.88	8.48	55.36	74.00	-18.64	Peak	
4	2483.5000	33.13	8.48	41.61	54.00	-12.39	AVG	

**REMARKS:**

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

Test Mode	TX 2480 MHz_CH39_2Mbps	Polarization	Horizontal
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100 dBuV/m

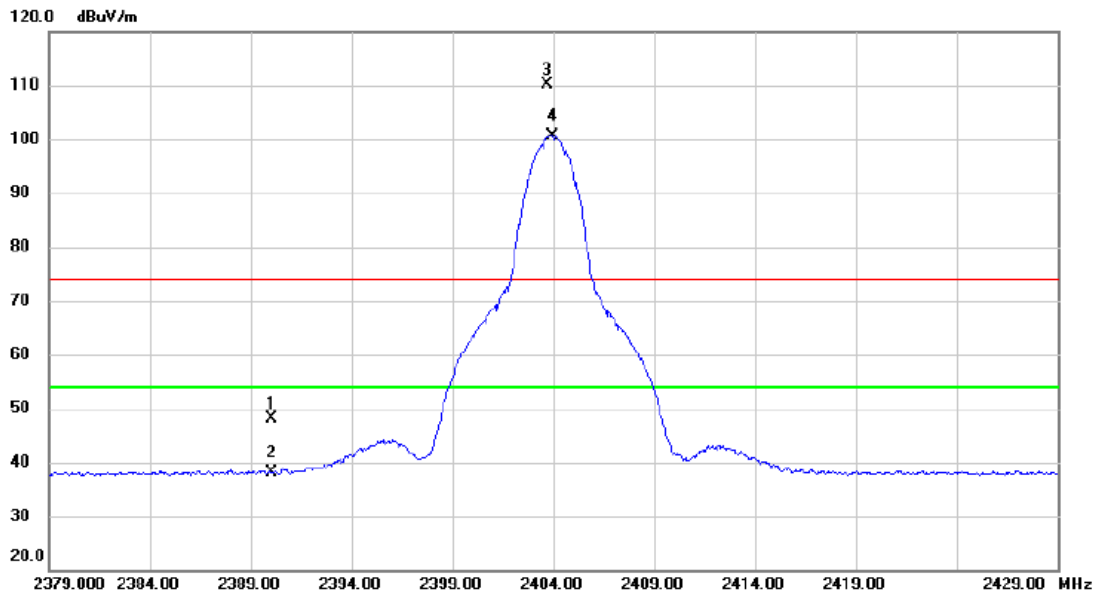


No.	Freq. MHz	Reading Level dBuV/m	Correct Factor dB	Measure ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	4959.9000	35.35	2.78	38.13	74.00	-35.87	Peak	
2 *	4960.0700	26.14	2.78	28.92	54.00	-25.08	AVG	

**REMARKS:**

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

Test Mode	TX 2404 MHz_CH01_4Mbps	Polarization	Horizontal
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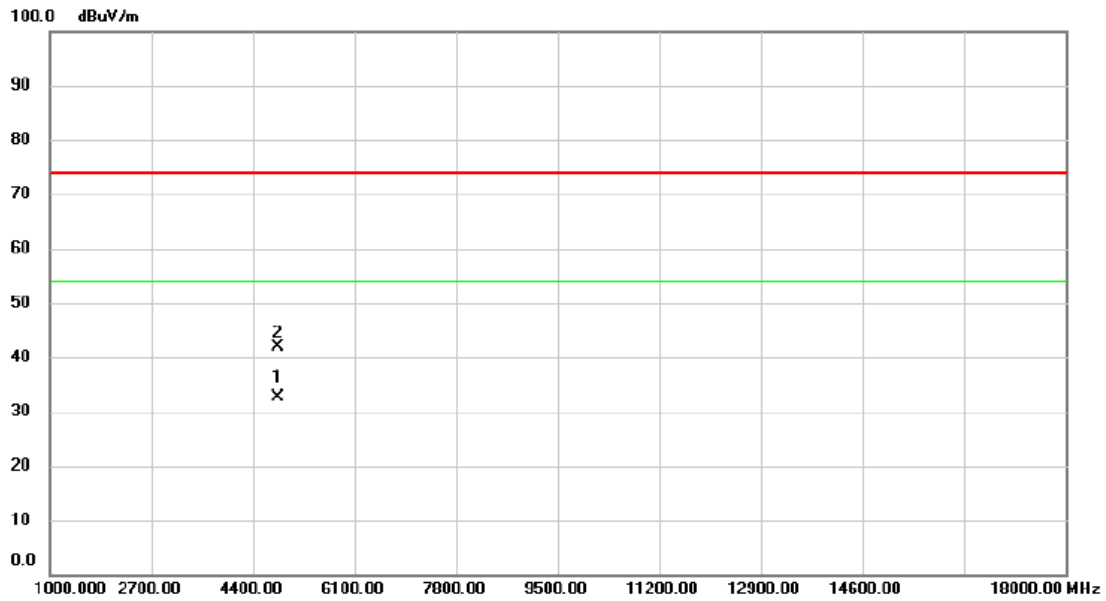


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2390.000	37.77	10.40	48.17	74.00	-25.83	peak	
2		2390.000	27.70	10.40	38.10	54.00	-15.90	AVG	
3	X	2403.675	99.62	10.42	110.04	74.00	36.04	peak	No Limit
4	*	2403.975	90.31	10.42	100.73	54.00	46.73	AVG	No Limit

**REMARKS:**

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

Test Mode	TX 2404 MHz_CH01_4Mbps	Polarization	Vertical
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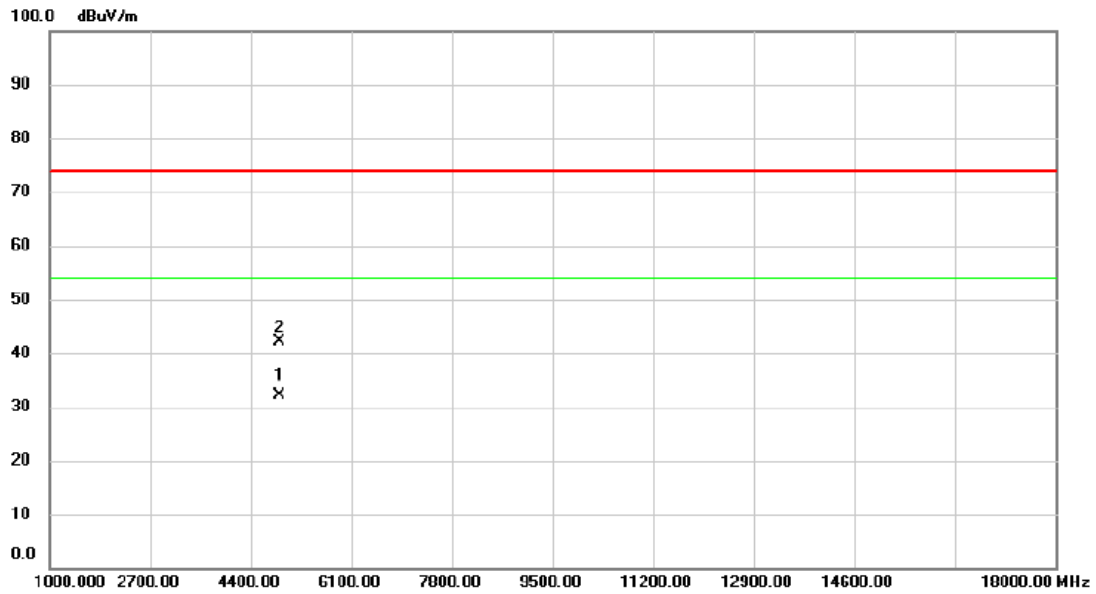


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4808.080	27.89	4.68	32.57	54.00	-21.43	AVG	
2		4808.170	37.28	4.68	41.96	74.00	-32.04	peak	

**REMARKS:**

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

Test Mode	TX 2440 MHz _CH19_4Mbps	Polarization	Vertical
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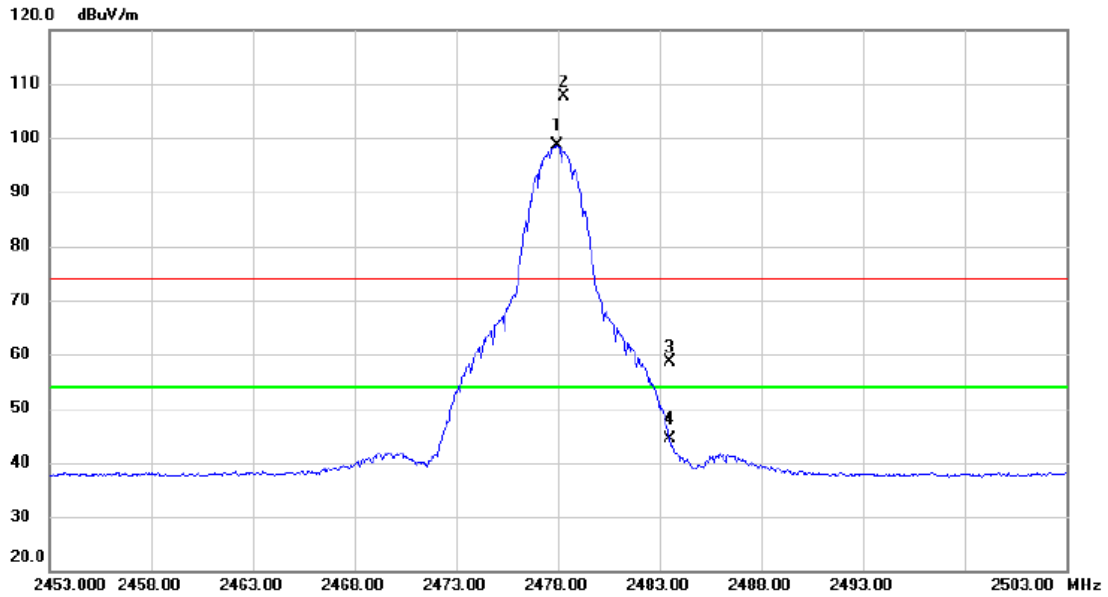


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4880.050	27.34	4.82	32.16	54.00	-21.84	AVG	
2		4879.910	37.35	4.82	42.17	74.00	-31.83	peak	

**REMARKS:**

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

Test Mode	TX 2478 MHz_CH39_4Mbps	Polarization	Horizontal
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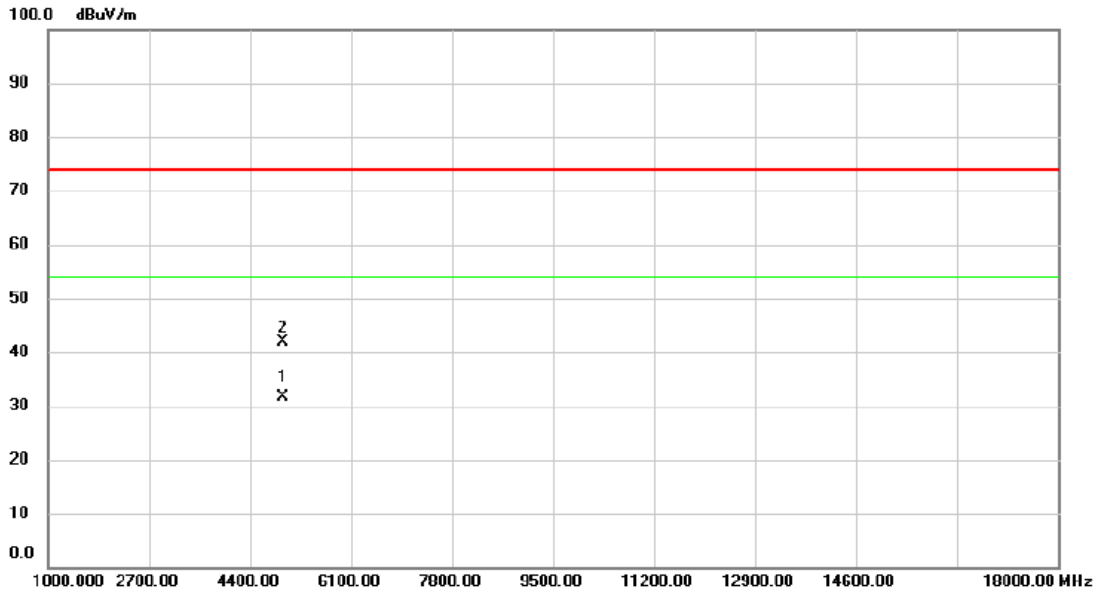
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2477.950	88.01	10.50	98.51	54.00	44.51	AVG	No Limit
2	X	2478.325	97.22	10.50	107.72	74.00	33.72	peak	No Limit
3		2483.500	48.15	10.51	58.66	74.00	-15.34	peak	
4		2483.500	33.90	10.51	44.41	54.00	-9.59	AVG	

**REMARKS:**

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



Test Mode	TX 2478 MHz_CH39_4Mbps	Polarization	Vertical
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No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4955.930	26.62	4.96	31.58	54.00	-22.42	AVG	
2		4959.520	36.97	4.97	41.94	74.00	-32.06	peak	

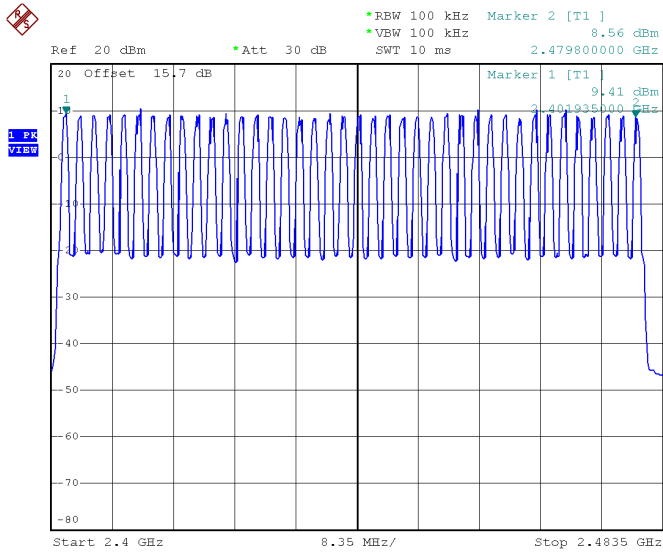
**REMARKS:**

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

**APPENDIX E - NUMBER OF HOPPING FREQUENCY**

Test Mode:	TX Mode_1Mbps
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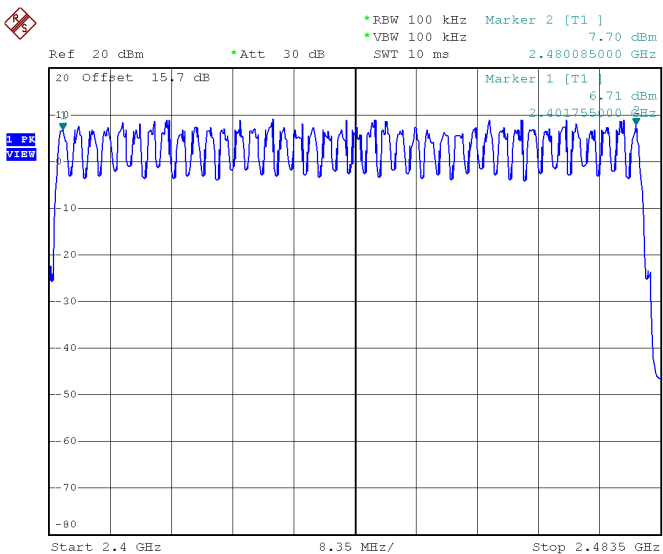
Test Mode	Hopping Mode_1Mbps	Limit	Test Result
Number of Hopping Frequency	40	15	Pass



Date: 15.AUG.2024 14:04:22

Test Mode:	TX Mode_2Mbps
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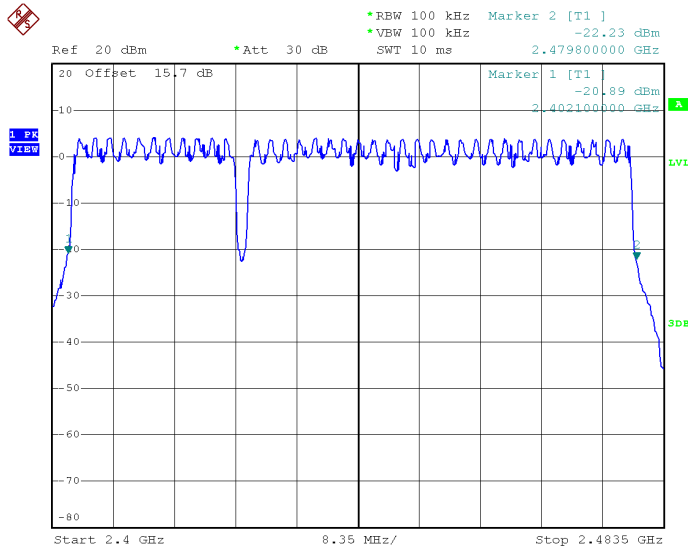
Test Mode	Hopping Mode_2Mbps	Limit	Test Result
Number of Hopping Frequency	40	15	Pass



Date: 15.AUG.2024 14:28:54

Test Mode:	TX Mode_4Mbps
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Test Mode	Hopping Mode_2Mbps	Limit	Test Result
Number of Hopping Frequency	37	15	Pass

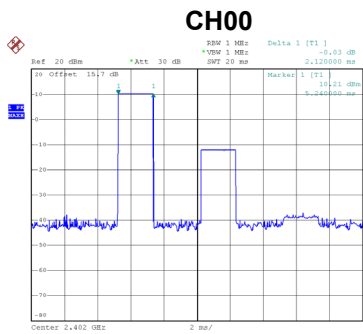


Date: 27.AUG.2024 20:50:35

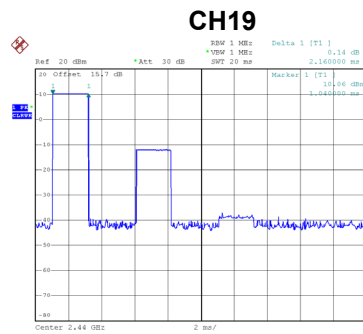
## **APPENDIX F - AVERAGE TIME OF OCCUPANCY**

Test Mode	Hopping Mode_1Mbps
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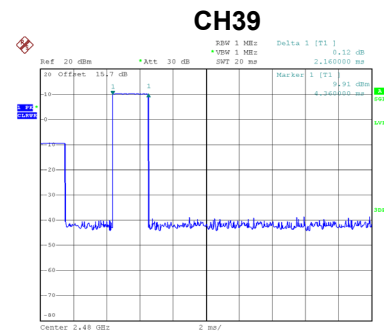
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH	2402	2.1200	0.2261	0.4000	Pass
DH	2440	2.1600	0.2304	0.4000	Pass
DH	2480	2.1600	0.2304	0.4000	Pass



Date: 15.AUG.2024 14:12:58



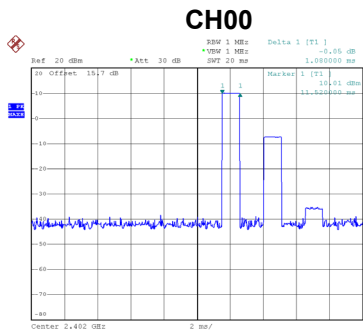
Date: 15.AUG.2024 14:13:53



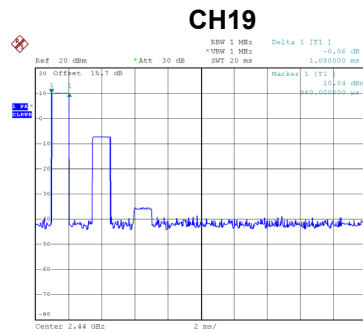
Date: 15.AUG.2024 14:15:32

Test Mode	Hopping Mode_2Mbps
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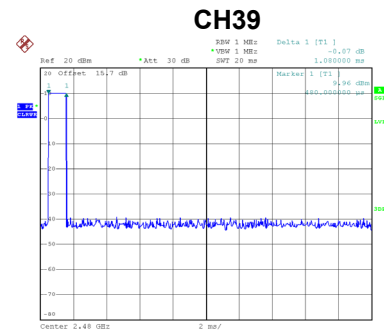
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH	2402	1.0800	0.1152	0.4000	Pass
DH	2440	1.0800	0.1152	0.4000	Pass
DH	2480	1.0800	0.1152	0.4000	Pass



Date: 15.AUG.2024 14:30:15



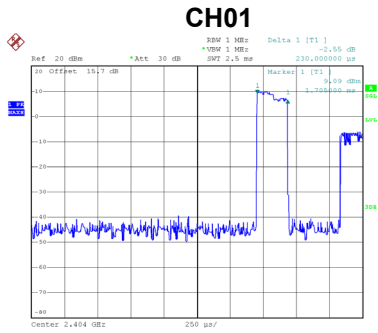
Date: 15.AUG.2024 14:30:39



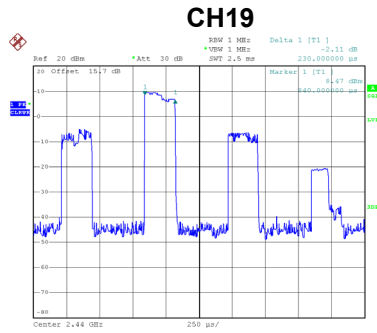
Date: 15.AUG.2024 14:31:11

Test Mode	Hopping Mode_4Mbps
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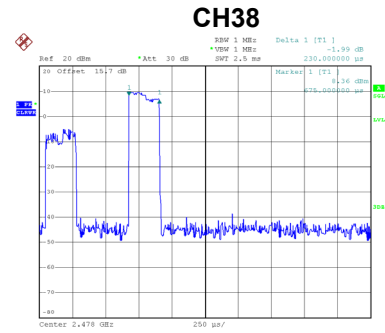
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH	2404	0.2300	0.0736	0.4000	Pass
DH	2440	0.2300	0.0736	0.4000	Pass
DH	2478	0.2300	0.0736	0.4000	Pass



Date: 27.AUG.2024 20:47:43



Date: 27.AUG.2024 20:48:05



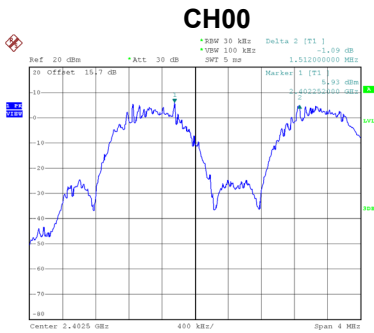
Date: 27.AUG.2024 20:48:45

## **APPENDIX G - HOPPING CHANNEL SEPARATION**

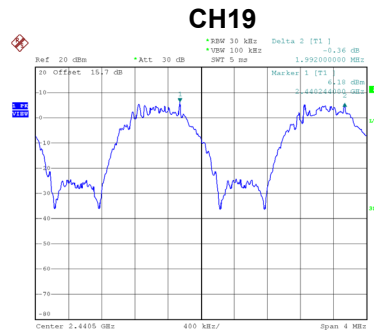


Test Mode	Hopping Mode_1Mbps
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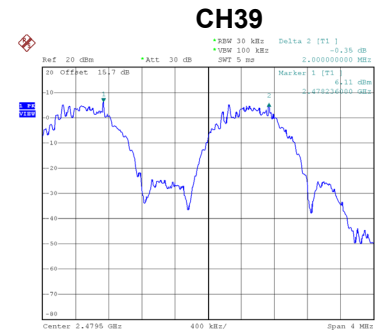
Channel	Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
00	2402	1.512	0.761	Pass
19	2440	1.992	0.788	Pass
39	2480	2.000	0.789	Pass



Date: 15.AUG.2024 14:17:25



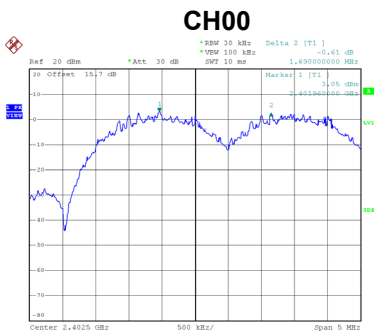
Date: 15.AUG.2024 14:19:05



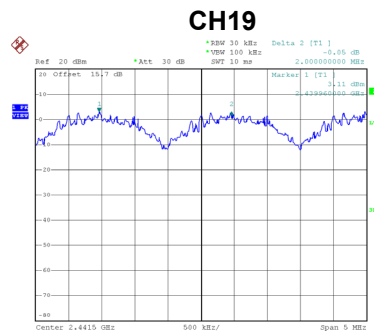
Date: 15.AUG.2024 14:20:43

Test Mode	Hopping Mode_2Mbps
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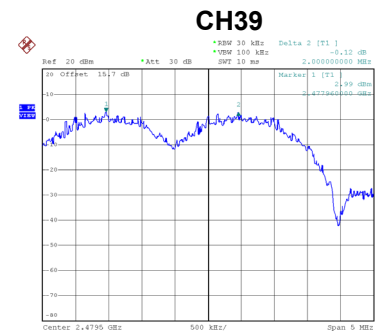
Channel	Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
00	2402	1.690	1.576	Pass
19	2440	2.000	1.576	Pass
39	2480	2.000	1.581	Pass



Date: 15.AUG.2024 14:34:35



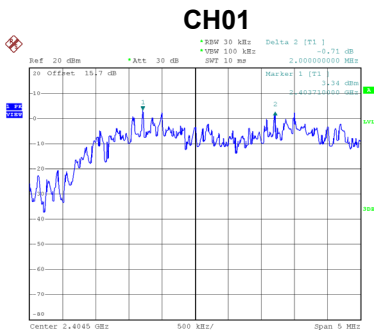
Date: 15.AUG.2024 14:36:18



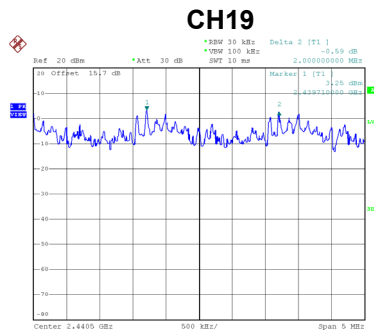
Date: 15.AUG.2024 14:38:31

Test Mode	Hopping Mode_4Mbps
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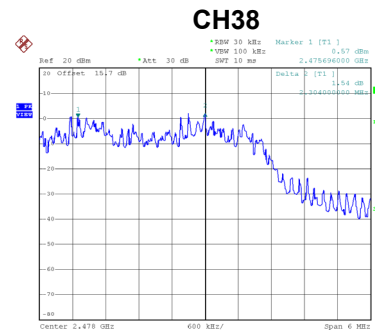
Channel	Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
01	2402	2.00	1.683	Pass
19	2440	2.00	1.712	Pass
38	2480	2.30	1.687	Pass



Date: 27\_AUG.2024 21:00:54



Date: 27\_AUG.2024 20:57:58

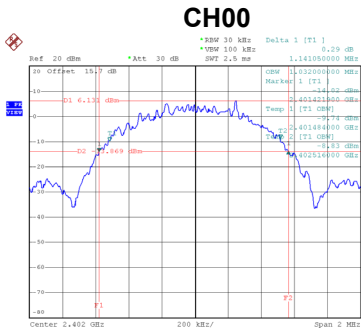


Date: 27\_AUG.2024 21:00:06

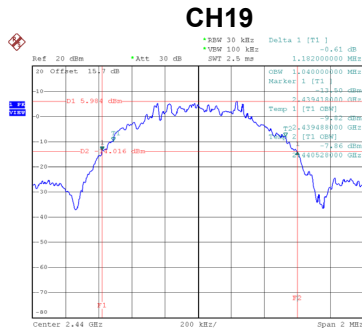
## APPENDIX H - BANDWIDTH

Test Mode	TX Mode _1Mbps
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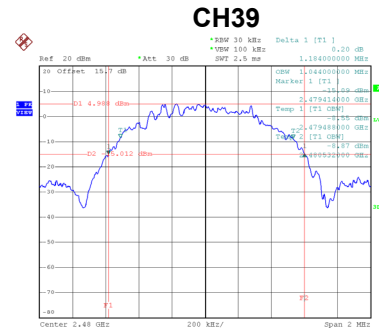
Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99 % Occupied Bandwidth(MHz)
00	2402	1.141	1.032
19	2440	1.182	1.040
39	2480	1.184	1.044



Date: 15\_AUG.2024 13:56:37



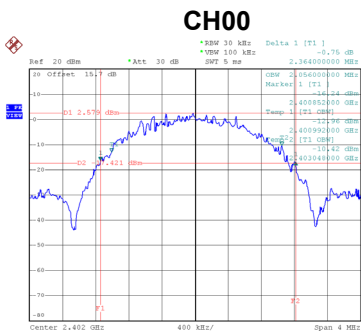
Date: 15\_AUG.2024 14:00:09



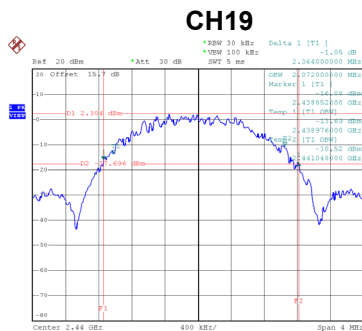
Date: 15\_AUG.2024 14:01:15

Test Mode	TX Mode _2Mbps
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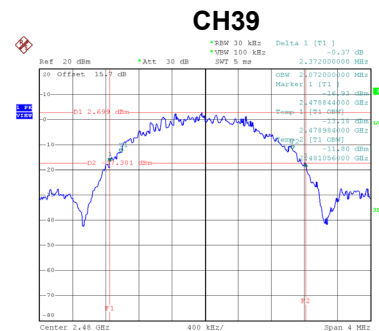
Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
00	2402	2.364	2.056
19	2440	2.364	2.072
39	2480	2.372	2.072



Date: 15\_AUG.2024 14:22:29



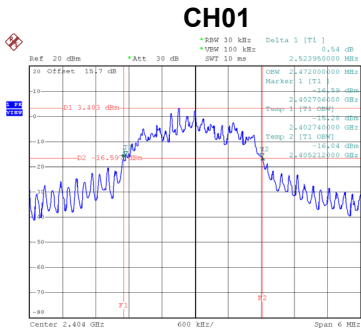
Date: 15\_AUG.2024 14:24:45



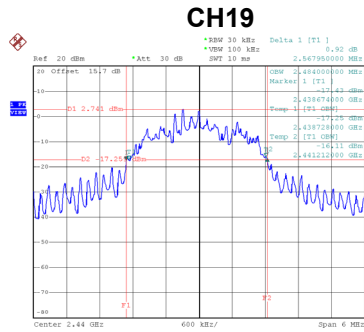
Date: 15\_AUG.2024 14:25:52

Test Mode	TX Mode_4Mbps
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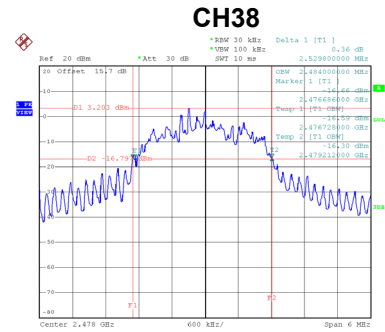
Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
01	2402	2.524	2.472
19	2440	2.568	2.484
38	2480	2.530	2.484



Date: 27.AUG.2024 20:41:28



Date: 27.AUG.2024 20:43:00



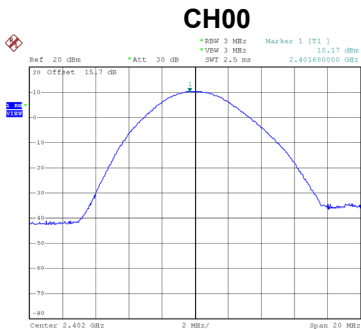
Date: 27.AUG.2024 20:46:06

## **APPENDIX I -MAXIMUM OUTPUT POWER**

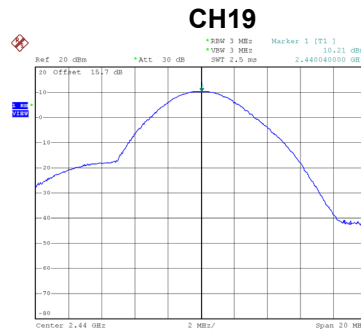
Test Mode	TX Mode _1Mbps
-----------	----------------

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Test Result
00	2402	10.17	20.97	0.1250	Pass
19	2440	10.21	20.97	0.1250	Pass
39	2480	10.06	20.97	0.1250	Pass

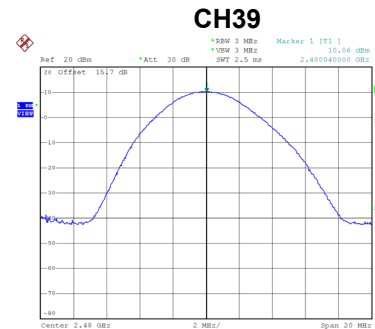
Note: Output power = Measure result + Cable loss



Date: 15\_AUG.2024 13:57:17



Date: 15\_AUG.2024 14:00:17

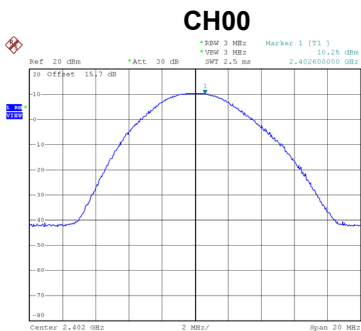


Date: 15\_AUG.2024 14:01:55

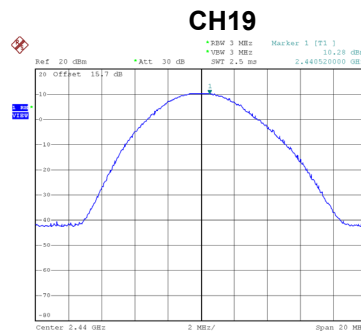
Test Mode	TX Mode _2Mbps
-----------	----------------

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Test Result
00	2402	10.25	20.97	0.1250	Pass
19	2440	10.28	20.97	0.1250	Pass
39	2480	10.14	20.97	0.1250	Pass

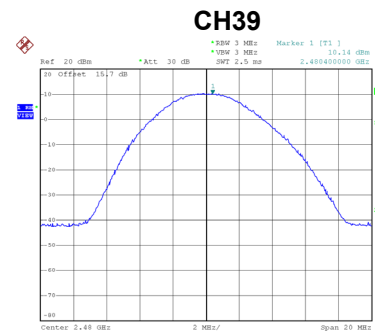
Note: Output power = Measure result + Cable loss



Date: 15\_AUG.2024 14:23:09



Date: 15\_AUG.2024 14:24:52

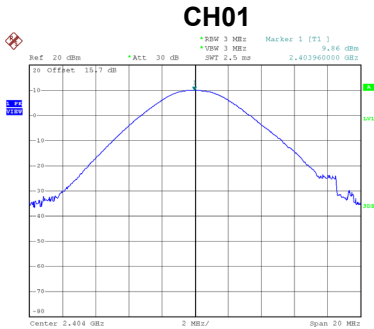


Date: 15\_AUG.2024 14:26:31

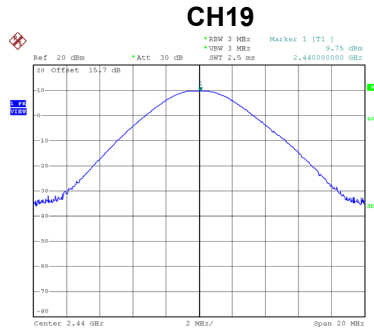
Test Mode	TX Mode_4Mbps
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Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Test Result
01	2404	9.86	20.97	0.1250	Pass
19	2440	9.75	20.97	0.1250	Pass
38	2478	9.66	20.97	0.1250	Pass

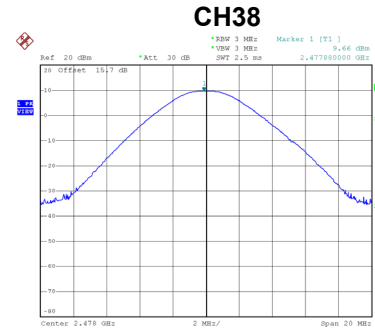
Note: Output power = Measure result + Cable loss



Date: 27\_AUG.2024 20:34:49



Date: 27\_AUG.2024 20:34:58



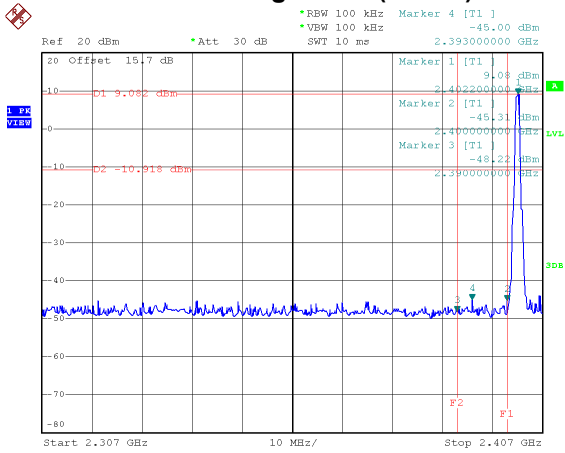
Date: 27\_AUG.2024 20:35:49



**APPENDIX J - CONDUCTED SPURIOUS EMISSION**

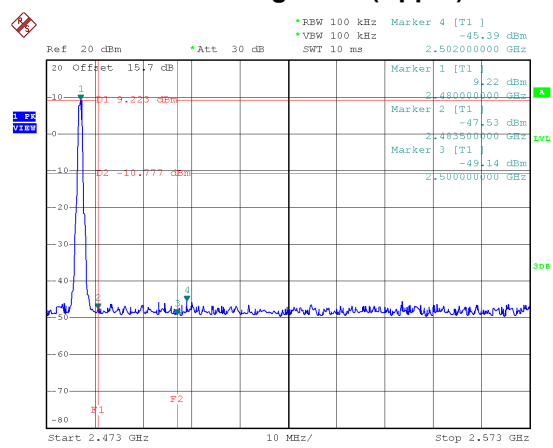
Test Mode TX Mode \_ 1Mbps

### BandedgeCH00 (Lower)



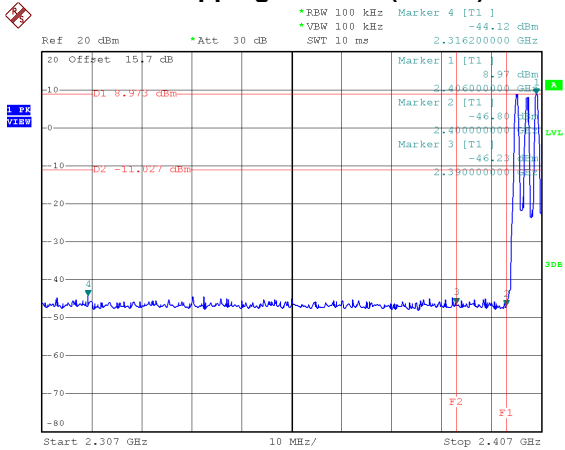
Date: 15.AUG.2024 13:55:53

### BandedgeCH39(Upper)



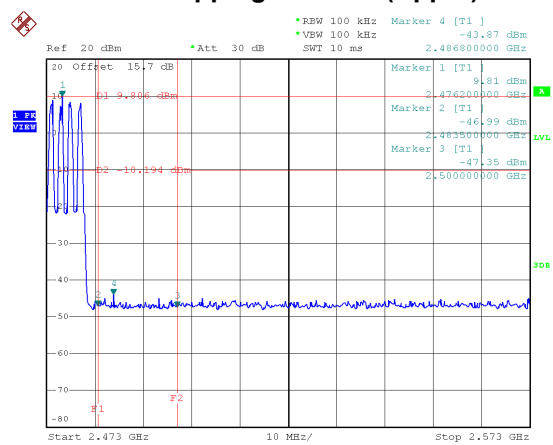
Date: 15.AUG.2024 14:00:33

### Hopping on mode(Lower)



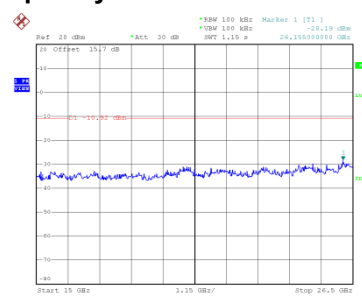
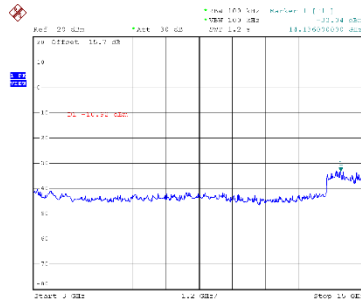
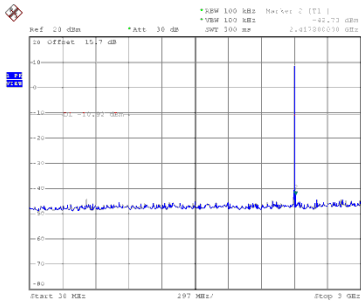
Date: 15.AUG.2024 14:04:58

### Hopping on mode(Upper)



Date: 15.AUG.2024 14:05:33

### CH00-10th Harmonic of the fundamental frequency

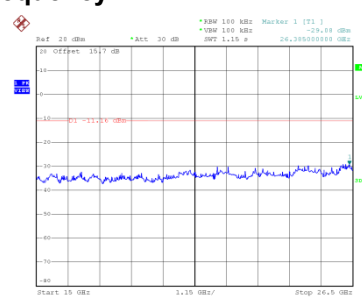
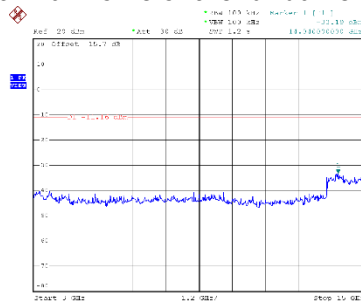
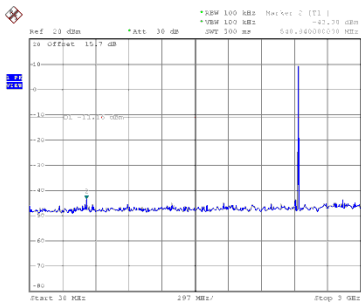


Date: 15.AUG.2024 12:56:52

Date: 15.AUG.2024 12:57:03

Date: 15.AUG.2024 13:57:10

### CH19-10th Harmonic of the fundamental frequency

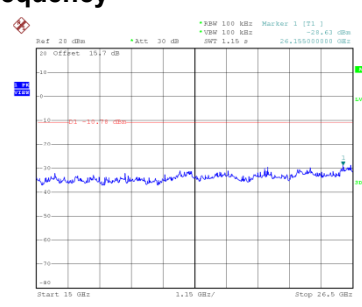
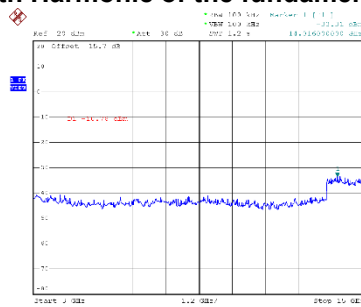
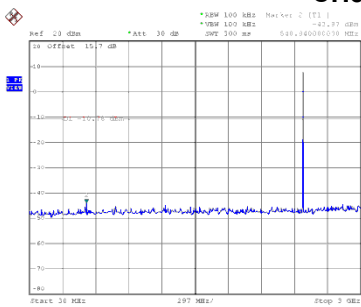


Date: 15.AUG.2024 13:59:11

Date: 15.AUG.2024 13:59:20

Date: 15.AUG.2024 13:59:29

### CH39-10th Harmonic of the fundamental frequency



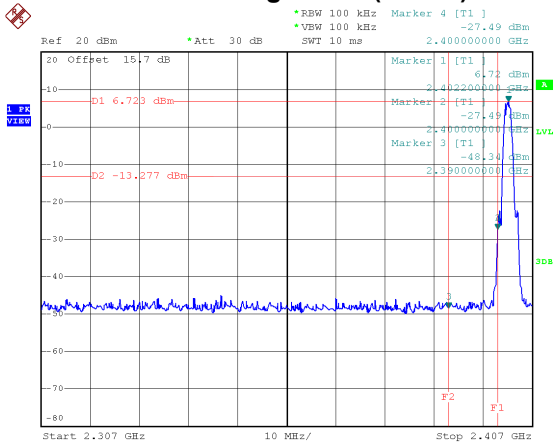
Date: 15.AUG.2024 14:01:30

Date: 15.AUG.2024 14:01:39

Date: 15.AUG.2024 14:01:48

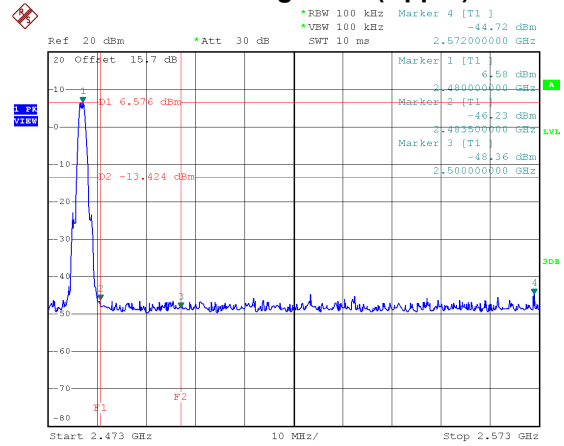
Test Mode TX Mode \_2Mbps

### BandedgeCH00 (Lower)



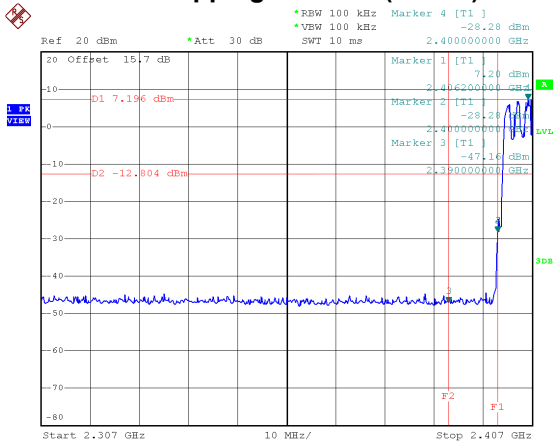
Date: 15.AUG.2024 14:21:48

### BandedgeCH39(Upper)



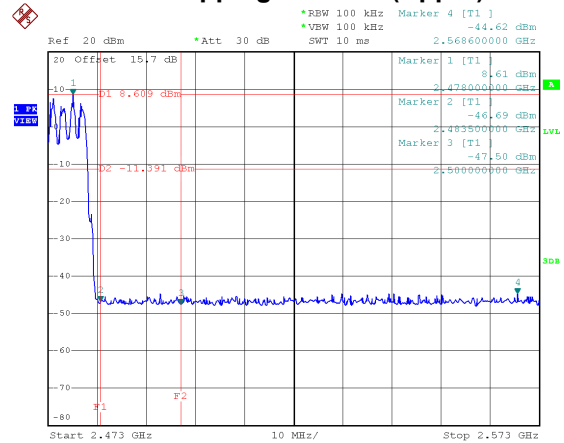
Date: 15.AUG.2024 14:25:10

### Hopping on mode(Lower)



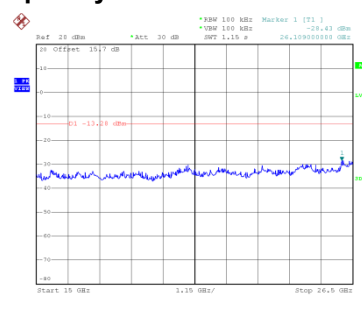
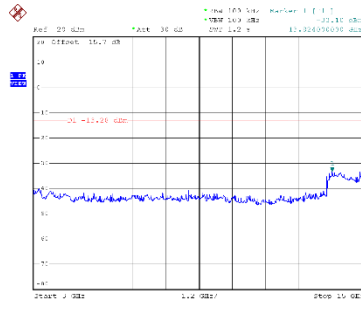
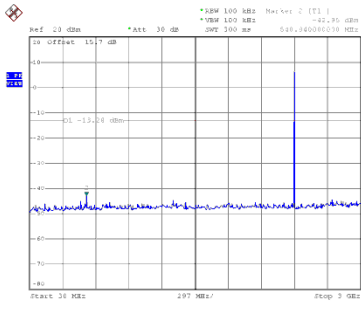
Date: 15.AUG.2024 14:29:30

### Hopping on mode(Upper)



Date: 15.AUG.2024 14:30:05

## CH00-10th Harmonic of the fundamental frequency

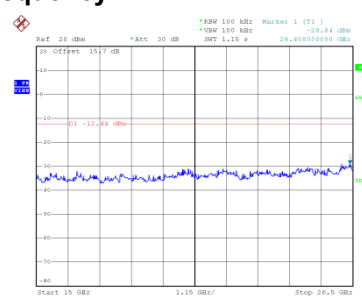
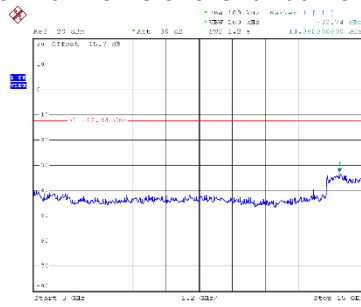
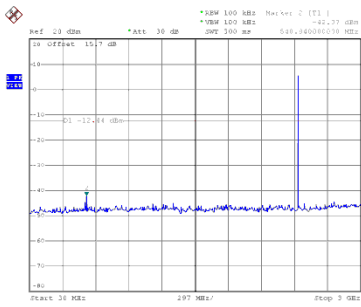


Date: 15.AUG.2024 14:22:44

Date: 15.AUG.2024 14:22:53

Date: 15.AUG.2024 14:23:02

## CH19-10th Harmonic of the fundamental frequency

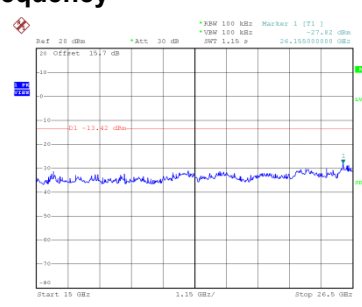
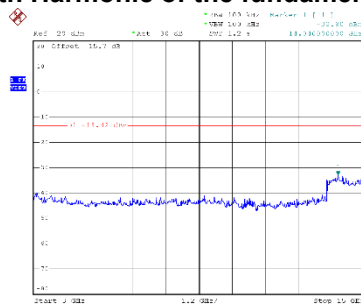
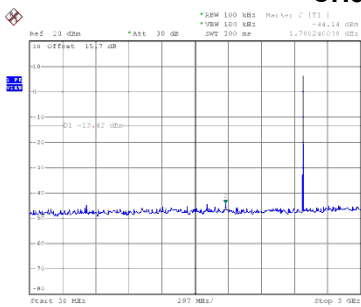


Date: 15.AUG.2024 14:23:46

Date: 15.AUG.2024 14:23:55

Date: 15.AUG.2024 14:24:04

## CH39-10th Harmonic of the fundamental frequency



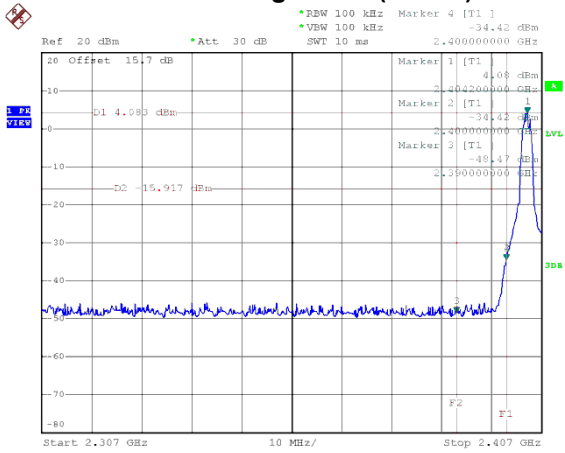
Date: 15.AUG.2024 14:26:06

Date: 15.AUG.2024 14:26:15

Date: 15.AUG.2024 14:26:25

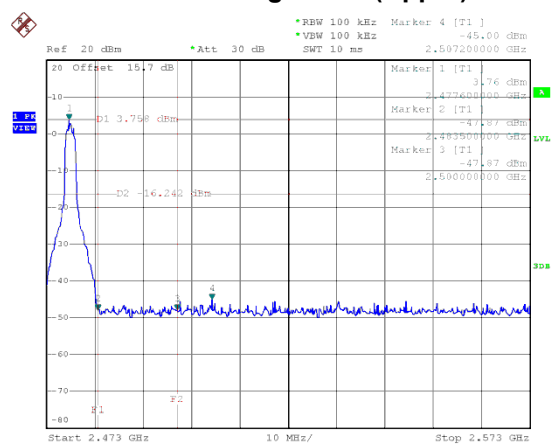
Test Mode TX Mode\_4Mbps

### BandedgeCH01 (Lower)



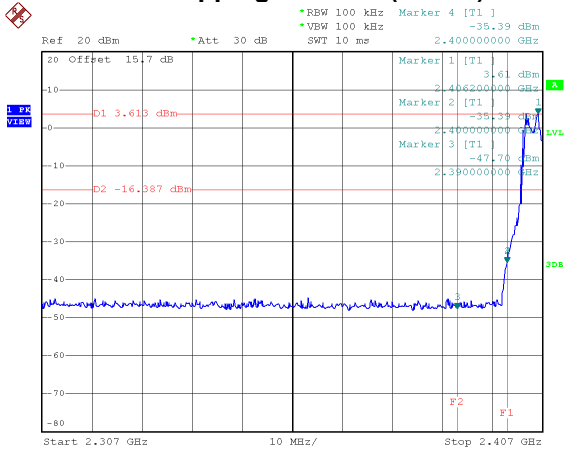
Date: 27.AUG.2024 20:38:13

### Bandedge CH38(Upper)



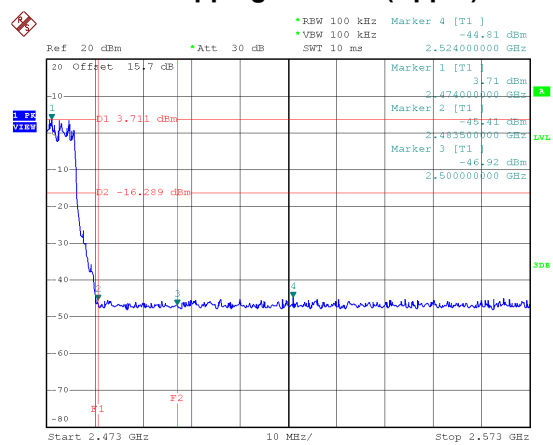
Date: 27.AUG.2024 20:44:57

### Hopping on mode(Lower)



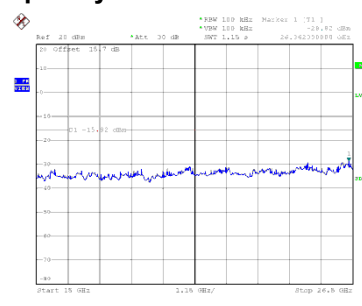
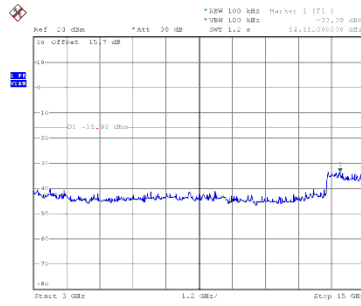
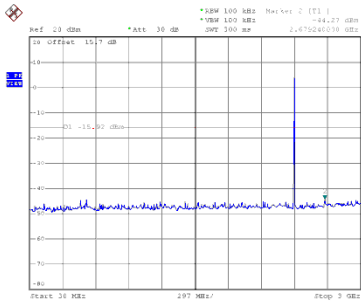
Date: 27.AUG.2024 20:51:10

### Hopping on mode(Upper)

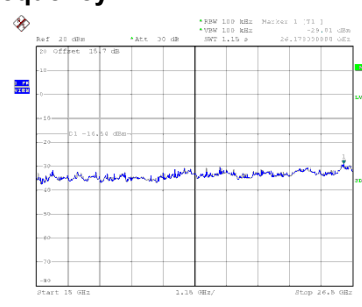
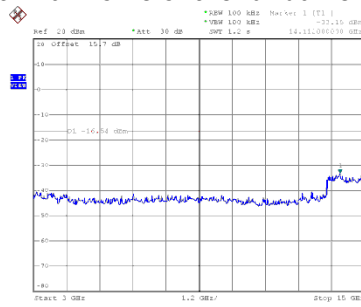
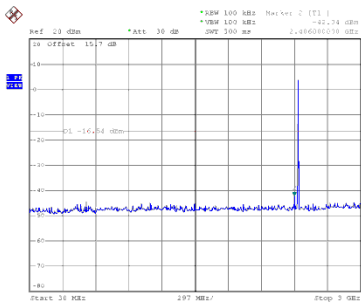


Date: 27.AUG.2024 20:51:45

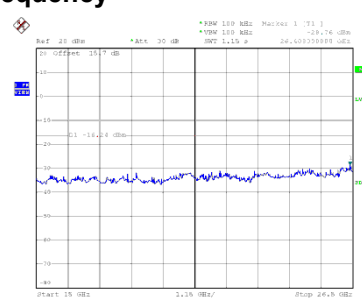
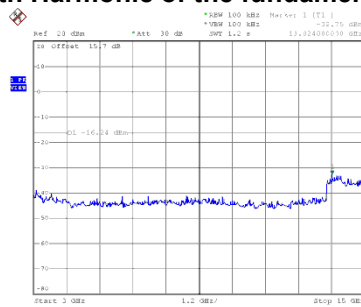
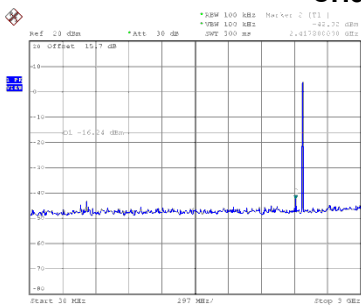
## CH01–10th Harmonic of the fundamental frequency



## CH19–10th Harmonic of the fundamental frequency



## CH38–10th Harmonic of the fundamental frequency



End of Test Report