



# **FCC Radio Test Report**

# FCC ID: RWO-RZ030513

This report concerns: Original Grant

2401C209

Gaming Keyboard

:

2 2

Project No.	
Equipment	
Brand Name	

		RAZER,
Test Model	:	RZ03-0513
Series Model	:	RZ03-0513XXXX-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.
Address	:	Razer SEA HQ, 1 One-north Crescent, #02-01, Singapore 138538
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	:	Mar. 01, 2024
Date of Test	:	Mar. 01, 2024 ~ Mar. 31, 2024
Issued Date	:	Apr. 07, 2024
<b>Report Version</b>	:	R00
Test Sample	:	Sample No.: DG202403058 for conducted, DG20240301128 for AC
		power line conducted emissions, DG20240301128 and DG20240321225
		for radiated emissions.
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

: Vin cent. Tan Vincent Tan Chay. Cai

Approved by

Chay Cai

Room 108, 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** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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**BTL**'s laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

#### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective. Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.



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REPORT ISSUED HISTORY				
Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2401C209	R00	Original Report.	Apr. 07, 2024	Valid
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# 1. APPLICABLE STANDARDS

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of A2LA: KDB 558074 D01 15.247 Meas Guidance v05r02

# 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

	FCC CFR Title 47, Part 15, Subpart C				
Standard(s) Section	Test Item	Test Result	Judgment	Remark	
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS		
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS		
15.247(a)(2)	Bandwidth	APPENDIX E	PASS		
15.247(b)(3)	Maximum Output Power	APPENDIX F	PASS		
15.247(d)	Conducted Spurious Emission	APPENDIX G	PASS		
15.247(e)	Power Spectral Density	APPENDIX H	PASS		
15.203	Antenna Requirement		PASS	Note(2)	

Note:

(1) "N/A" denotes test is not applicable 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 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	<i>U</i> ,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.88

#### B. Radiated emissions Measurement:

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

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

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

Test Site	Method	Measurement Frequency Range	<i>U</i> ,(dB)
DG-CB03		18 ~ 26.5 GHz	3.36
(1m)	CISPR -	26.5 ~ 40 GHz	3.58



**BIL** 

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

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

# 2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
AC Power Line Conducted Emissions	21°C	60%	AC 120V/60Hz	Hayden Chen	Mar. 13, 2024
Radiated Emissions-9 kHz to 30 MHz	22°C	53%	DC 5V	Hayden Chen	Mar. 14, 2024
Radiated Emissions-30 MHz to 1000 MHz	21°C	40%	DC 5V	Jensen Zhou	Mar. 14, 2024
Radiated Emissions-Above 1000 MHz	21-23°C	40-45%	DC 5V	Allen Tong	Mar. 12, 2024~ Mar. 26, 2024
Bandwidth	24°C	48%	DC 5V	Steve Zhou	Mar. 12, 2024
Maximum Output Power	24°C	48%	DC 5V	Steve Zhou	Mar. 12, 2024
Conducted Spurious Emission	24°C	48%	DC 5V	Steve Zhou	Mar. 12, 2024
Power Spectral Density	24°C	48%	DC 5V	Steve Zhou	Mar. 12, 2024



# 3. GENERAL INFORMATION

# 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Gaming Keyboard
Brand Name	RAZER,
Test Model	RZ03-0513
Series Model	RZ03-0513XXXX-XXXX (X can be 0-9 or A-Z)
Model Difference(s)	Only differ in the model name.
Hardware Version	V1.2
Software Version	v0.00.02
Power Source	1# Supplied from USB port. 2# Supplied from battery. Model: 5936142P
Power Rating	1# 5V <b>===</b> 2A 2# 3.87Vdc 306mAh, 1.185Wh
Operation Frequency	2402 MHz ~ 2480 MHz
Modulation Type	GFSK
Bit Rate of Transmitter	1Mbps, 2Mbps
Max. Output Power	1Mbps: 4.25 dBm (0.0027 W)

Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- 2. The system's model name is RZ03-0513XXXX-XXXX (X: Can be 0-9, A-Z), and the system contains a Gaming Keyboard (Model name:RZ03-0513) and Wireless Dongle (Model name: HSD01).



# 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

#### 4. Table for Filed Antenna:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		RFPCA470909IMAB301	PCB	N/A	4.1



# 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_1Mbps Channel 39		

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

AC power line conducted emissions test				
Final Test Mode Description				
Mode 3 TX Mode_1Mbps Channel 39				

Radiated emissions test - Below 1GHz				
Final Test Mode Description				
Mode 3 TX Mode_1Mbps Channel 39				

Radiated emissions test - Above 1GHz				
Final Test Mode Description				
Mode 1	TX Mode_1Mbps Channel 00/19/39			
Mode 2	TX Mode_2Mbps Channel 00/19/39			

Conducted test				
Final Test Mode Description				
Mode 1 TX Mode_1Mbps Channel 00/19/39				
Mode 2 TX Mode_2Mbps Channel 00/19/39				

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 AC power line conducted emissions and radiated emissions below 1 GHz test, the 1Mbps Channel 39 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) There are three versions of this product, namely US (81 keys), UK (82 keys), JP (86 keys). All versions are evaluated and the worst case is recorded in this report.
- (5) For radiated emission above 1 GHz of Harmonic test: The polarization of Vertical and Horizontal are evaluated, the worst case is Vertical and recorded.
- (6) For radiated emission above 1 GHz of Bandedge test: The polarization of Vertical and Horizontal are evaluated, the worst case is Horizontal and recorded.





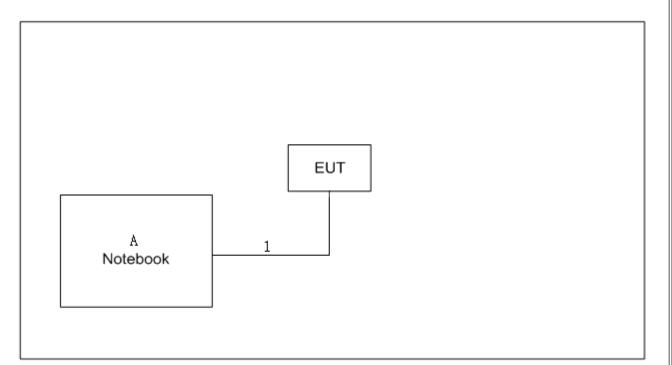
# 3.3 PARAMETERS OF TEST SOFTWARE

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	FCCMTKTest_v0.00.02_20200109		
Frequency (MHz)	2402	2440	2480
1Mbps	4	4	4
2Mbps	4	4	4



# 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



# 3.5 SUPPORT UNITS

For AC Power Line Conducted Emissions and Radiated Emissions – Above 18G:

Item	Equipment	Brand	Model No.	Series No.
А	Notebook	HONOR	NBLK-WAX9X	N/A

For others:

A Notebook Lenovo Pro 13 N/A		Item	Equipment	Brand	Model No.	Series No.
	ſ	А	Notebook	Lenovo	Pro 13	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 (dBµV)		
Frequency of Emission (MHz)	Quasi-peak	Average	
0.15 - 0.5	66 to 56*	56 to 46*	
0.5 - 5.0	56	46	
5.0 - 30.0	60	50	

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

# 4.2 TEST PROCEDURE

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

#### The following table is the setting of the receiver:

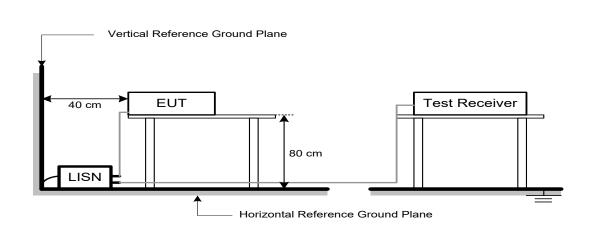
U	
Receiver Parameters	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

# 4.3 DEVIATION FROM TEST STANDARD

No deviation.



# 4.4 TEST SETUP



# 4.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

# 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 30 MHz.



# **5. RADIATED EMISSIONS**

# 5.1 LIMIT

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

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

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

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

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

Note:

(1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.

1

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4)

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

20log (d<sub>limit</sub>/d<sub>measure</sub>)=20log (3/1)=9.5 dB.



# 5.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance of 3 m or 1m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1 GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

Spectrum ParametersSettingStart ~ Stop Frequency9 kHz~150 kHz for RBW 200 HzStart ~ Stop Frequency0.15 MHz~30 MHz for RBW 9 kHzStart ~ Stop Frequency30 MHz~1000 MHz for RBW 100 kHz

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

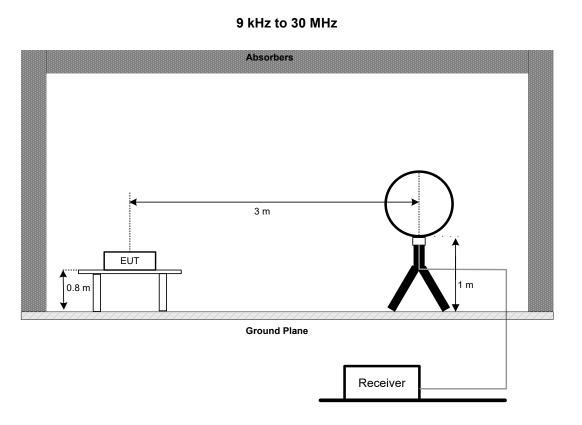
The following table is the setting of the receiver:



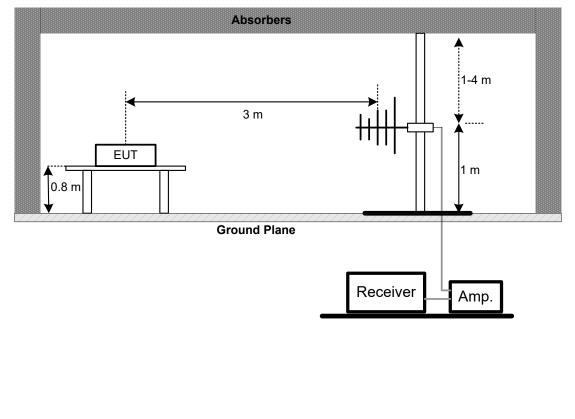
# 5.3 DEVIATION FROM TEST STANDARD

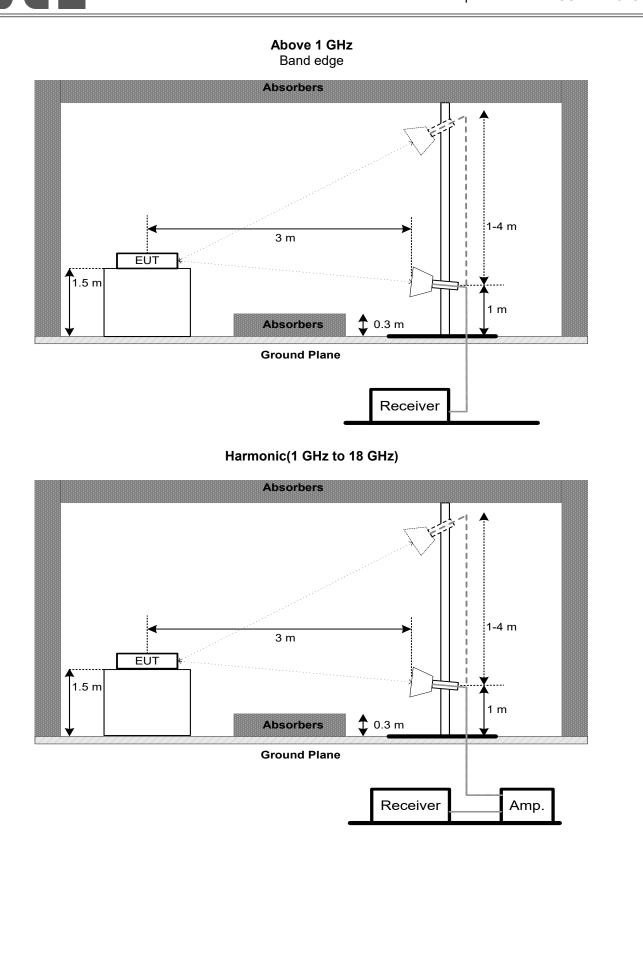
No deviation.

# 5.4 TEST SETUP

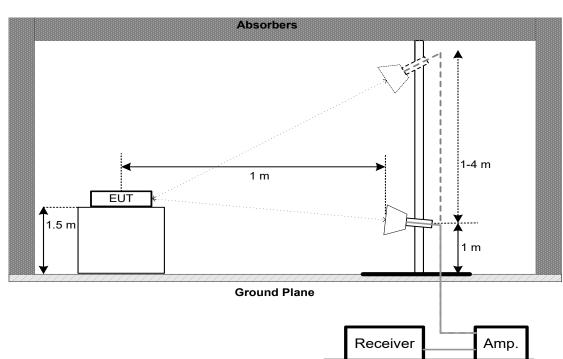


#### 30 MHz to 1 GHz





### 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 RESULT - 9 kHz TO 30 MHz

Please refer to the APPENDIX B.

#### Remark:

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

# 5.7 TEST RESULT - 30 MHz TO 1000 MHz

Please refer to the APPENDIX C.

# 5.8 TEST RESULT - ABOVE 1000 MHz

Please refer to the APPENDIX D.

#### Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable. For fundamental signal judgment was referred to Peak output test.



# 6. BANDWIDTH

## 6.1 LIMIT

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

## 6.2 TEST PROCEDURE

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

For 6 dB Bandwidth:

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

#### For 99% Emission Bandwidth:

Spectrum Parameters	Setting	
Span Frequency	Between 1.5 times and 5.0 times the OBW	
RBW	30 kHz	
VBW	100 kHz	
Detector	Peak	
Trace	Max Hold	
Sweep Time	Auto	

6.3 DEVIATION FROM STANDARD

No deviation.

# 6.4 TEST SETUP



# 6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 6.6 TEST RESULTS

Please refer to the APPENDIX E.



# 7. MAXIMUM OUTPUT POWER

#### 7.1 LIMIT

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

#### 7.2 TEST PROCEDURE

- a. The EUT was directly connected to the 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	≥ 3×RBW
RBW	3 MHz
VBW	3 MHz
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. CONDUCTED SPURIOUS EMISSION

# 8.1 LIMIT

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

#### 8.2 TEST PROCEDURE

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

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

# 8.3 DEVIATION FROM STANDARD

No deviation.

# 8.4 TEST SETUP



#### **8.5 EUT OPERATION CONDITIONS**

The EUT was programmed to be in continuously transmitting mode.

### 8.6 TEST RESULTS

Please refer to the APPENDIX G.



# 9. POWER SPECTRAL DENSITY

#### 9.1 LIMIT

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

#### 9.2 TEST PROCEDURE

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

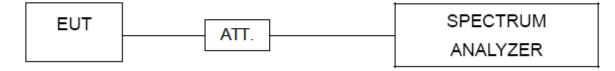
b. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Span Frequency	2 MHz (1 Mbps) / 4 MHz (2 Mbps)
RBW	3 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

# 9.3 DEVIATION FROM STANDARD

No deviation.

# 9.4 TEST SETUP



#### 9.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 9.6 TEST RESULTS

Please refer to the APPENDIX H.



# **10. MEASUREMENT INSTRUMENTS LIST**

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

	Radiated Emissions - 9 kHz to 30 MHz									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until					
1	Active Loop Antenna	ive Loop Antenna Schwarzbeck FMZB 15		1513-60 B-034	Apr. 01, 2024					
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	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A					
5	966 Chamber room	ETS	9*6*6	N/A	Jul. 11, 2024					

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



	Radiated Emissions - Above 1 GHz											
Item												
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		N/A	Aug. 08, 2024								
7	966 Chamber room	СМ	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	N/A		N/A	N/A							
12	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330 -K	619413	Jul. 06, 2024							
13	Cable	RegalWay	RWLP50-2.6A-2.92 M2.92M-1.1M	N/A	Jul. 26, 2024							
14	Cable	Tonscend	HF160-KMKM-3M	N/A	Jul. 26, 2024							
15	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170(3m)	9170-319	Jun. 20, 2024							
16	EXA Spectrum Analyzer	Keysight	N9010A	MY55150209	Jun. 16, 2024							

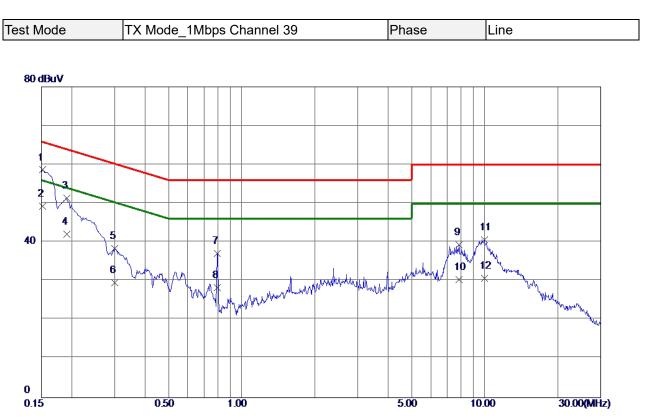
	Bandwidth & Maximum Output Power & Power Spectral Density & Conducted Spurious Emission									
Item	Kind of Equipment Manufacturer Type No. Serial No. Calibrated									
1	Spectrum Analyzer	R&S	FSP40	100185	Jun. 16, 2024					
2	Measurement Software	BTL	BTL Conducted Test	N/A	N/A					
3	Attenuator	Talent Microwave	TA10A0-S-26.5	N/A	N/A					
4	DC Block	N/A	N/A	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**



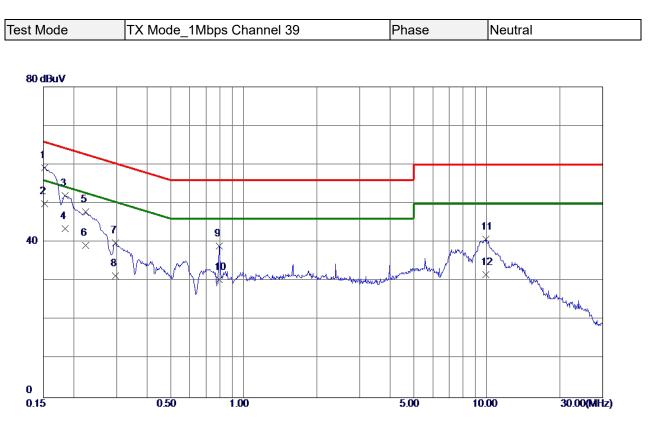


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1522	48.90	9.74	58. <b>64</b>	65.88	-7.24	QP	
2 *	0.1522	39.60	9.74	49.34	55.88	-6. 54	AVG	
3	0.1905	41.60	9.74	51.34	64.01	-12.67	QP	
4	0.1905	32. 30	9.74	42.04	<b>54.01</b>	-11.97	AVG	
5	0.3007	28.57	9.77	38. 34	<b>60.</b> 22	-21.88	QP	
6	0.3007	19.80	9.77	29.57	<b>50.</b> 22	-20.65	AVG	
7	0.7957	27.26	9.81	37.07	56.00	-18. 93	QP	
8	0.7957	18. 50	9.81	28.31	46.00	-17. <b>69</b>	AVG	
9	7.8383	29.10	10.26	39.36	60.00	-20.64	QP	
10	7.8383	20. 20	10.26	30.46	<b>50.00</b>	-19. 54	AVG	
11	9.9533	29.99	10. 59	<b>40.</b> 58	60.00	-1 <b>9. 4</b> 2	QP	
12	9. 9533	20.10	10. 59	30.69	50.00	-19.31	AVG	

**REMARKS**:

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





No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1522	49.68	9. 59	59.27	65.88	- <b>6. 61</b>	QP	
2 *	0.1522	40.30	9. 59	49.89	55.88	-5.99	AVG	
3	0.1838	42.38	9. 59	51. 97	64.31	-12.34	QP	
4	0.1838	33.90	9. 59	43. 49	54.31	-10.82	AVG	
5	0. 2243	38.23	9.61	47.84	62.66	-14.82	QP	
6	0. 2243	29.59	9.61	39.20	52. 66	-13.46	AVG	
7	0.2962	30.20	9.63	39.83	60.35	-20. 52	QP	
8	0.2962	21.70	9.63	31. 33	50.35	-19.02	AVG	
9	0.7957	29.34	9.67	<b>39.0</b> 1	56.00	-16. 99	QP	
10	0.7957	20.80	9.67	30. 47	46.00	-15.53	AVG	
11	9.9308	<b>30.</b> 32	10.45	40.77	60.00	-19.23	QP	
12	9. 9308	21. 20	10.45	31.65	50.00	-18.35	AVG	

**REMARKS**:

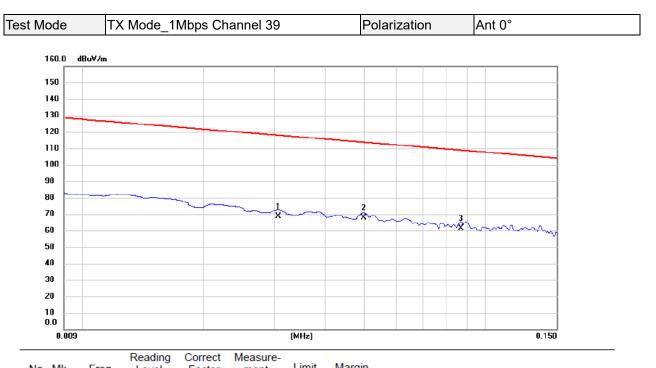
- Measurement Value = Reading Level + Correct Factor.
  Margin Level = Measurement Value Limit Value.



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







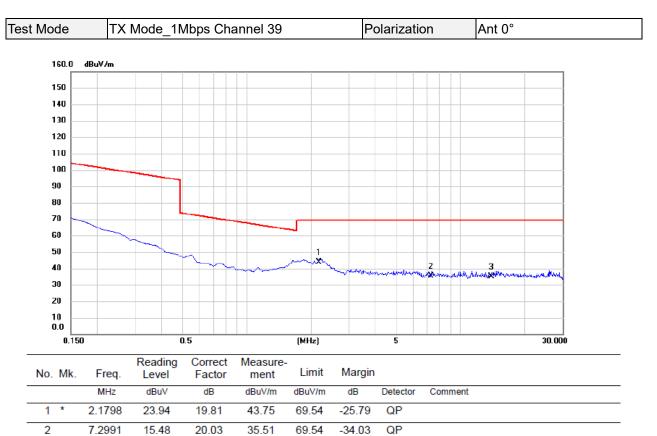
No. Mk.	Freq.	Level	Factor	ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0306	48.65	19.80	68.45	117.89	-49.44	AVG	
2 *	0.0498	47.81	19.80	67.61	113.66	-46.05	AVG	
3	0.0870	41.39	19.86	61.25	108.81	-47.56	AVG	

#### **REMARKS**:

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







69.54

35.11

QP

-34.43

#### REMARKS:

3

13.9258

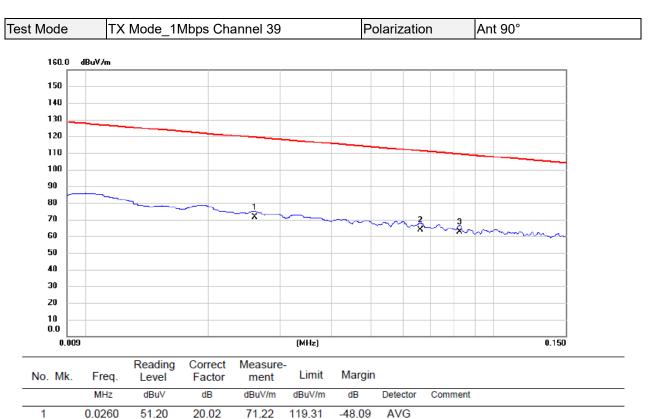
(1) Measurement Value = Reading Level + Correct Factor.

20.25

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

14.86





-47.32

-46.53

AVG

AVG

#### REMARKS:

2

3 \*

0.0662

0.0826

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

19.85

19.89

63.87

62.74

111.19

109.27

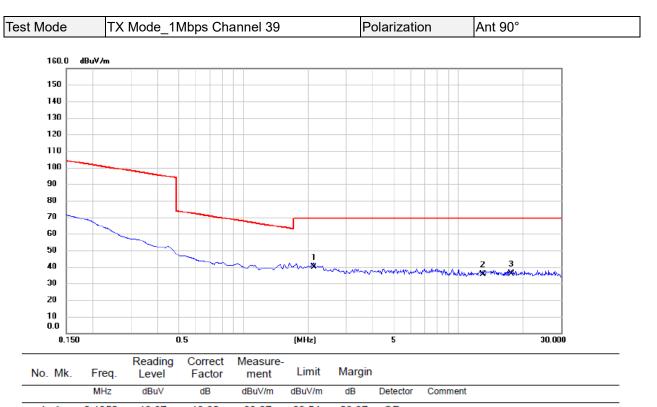
(2) Margin Level = Measurement Value - Limit Value.

44.02

42.85







	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2.1350	19.87	19.80	39.67	69.54	-29.87	QP	
2	12.9557	15.23	20.24	35.47	69.54	-34.07	QP	
3	17.6421	15.42	20.47	35.89	69.54	-33.65	QP	

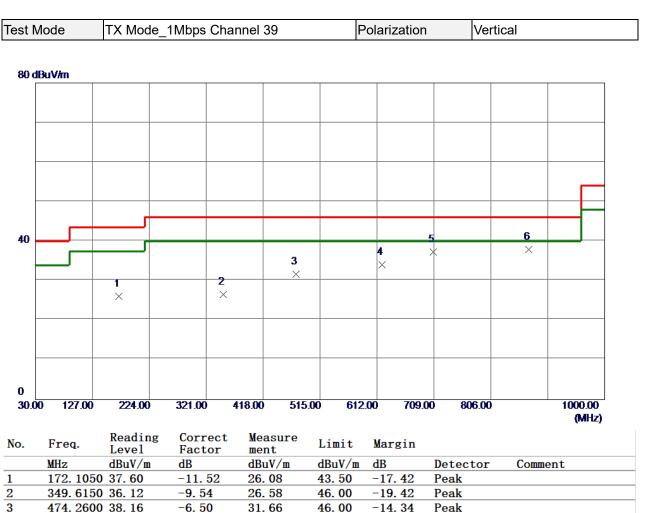
#### REMARKS:

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



# APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ





46.00

46.00

46.00

-11.94

-8.79

-8.15

Peak

Peak

Peak

**REMARKS**:

4

5

6 \*

620.7300 37.49

708.0300 39.47

870.9900 38.13

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

-3.43

-2.26

-**0.** 28

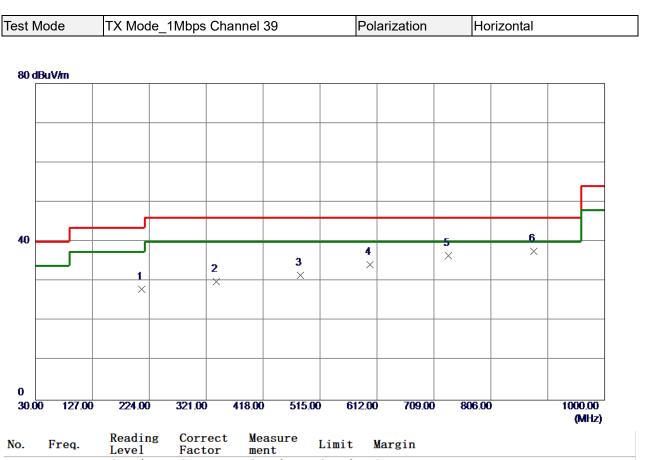
34.06

37.21

37.85

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





NO.	Preq.	Level	Factor	ment	LIMIC	margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	211. 3900	42.51	-14. 49	28. <b>0</b> 2	43. 50	-15.48	Peak	
2	338. 4600	39.61	-9.64	29.97	46.00	-16. 03	Peak	
3	481. 5350	37.86	-6. 40	31.46	46.00	-14. 54	Peak	
4	599.8750	37.96	-3.75	34.21	46.00	-11.79	Peak	
5	733. 7350	38.17	-1.63	36. 54	46.00	-9.46	Peak	
6 *	879. 2350	37.76	-0.16	37.60	46.00	-8. 40	Peak	

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

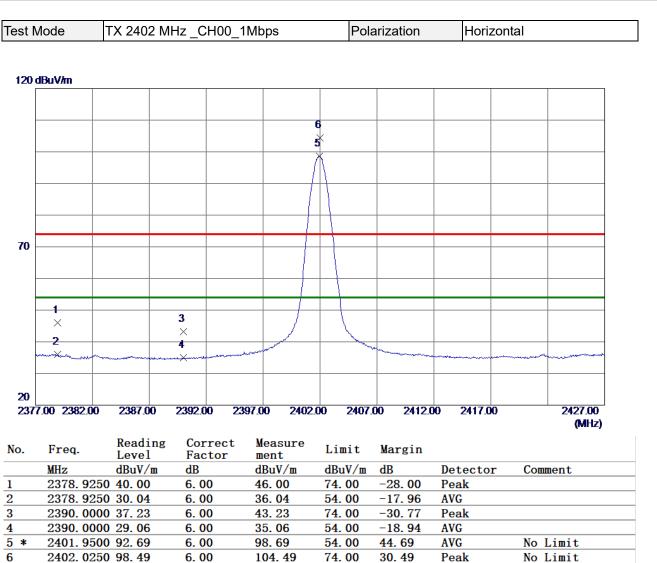


## **APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ**



80 dBuV/n        1	
30      1      1      1        X      2      1      1      1        X      2      1      1      1      1        X      2      1      1      1      1      1        X      2      1      1      1      1      1      1        X      1	
30      ×      2	
30      ×      2	
30      ×      2	
30      ×      2	
30      ×      2	
30      2	
30	
20      300.00      200.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        20      1	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        p.      Freq.      Reading Level      Correct Factor      Measure ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        b.      Freq.      Reading Level      Correct Factor      Measure ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        o.      Freq.      Reading Level      Correct Factor      Measure ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        o.      Freq.      Reading Level      Correct Factor      Measure ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        o.      Freq.      Reading Level      Correct Factor      Measure ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        o.      Freq.      Reading Level      Correct Factor      Measure ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        o.      Freq.      Reading Correct Measure Level Factor ment      Limit Margin      Margin      MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
1000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      1        o.      Freq.      Reading Correct Measure Level Factor ment      Limit Margin      Margin      MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	
MHz      Level      Factor      ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	8000.0
D.      Freq.      Level      Factor      ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Commen        4803.4600      47.28      0.66      47.94      74.00      -26.06      Peak	(MHz)
4803. 4600 47. 28 0. 66 47. 94 74. 00 -26. 06 Peak	
	t





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

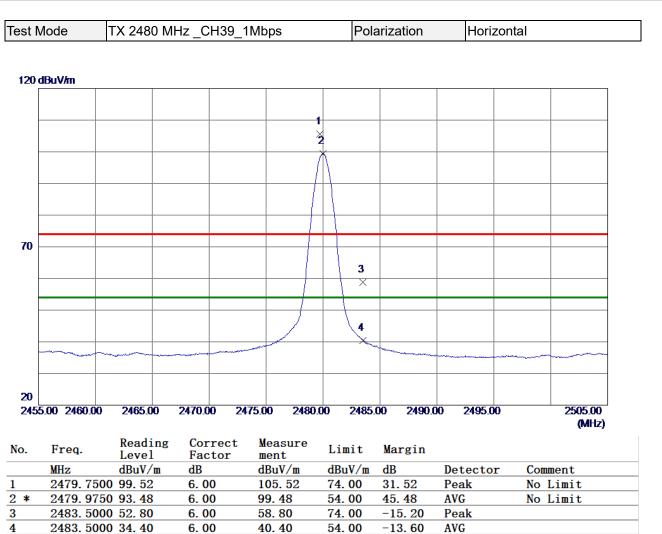


est Mode	TX 2440	) MHz _(	CH19	_1Mbp	S	Po	lariza	ation		Vertic	al		
80 dBuV/m													
							_						
		2											
		× 1											
		×											
30							_						
							_						
						_							
							_						
-20 1000.00 270	0.00 4400.0	0 6100.	00	7800.00	9500	.00 1120	0.00	12900	.00	14600.0	0		18000.00
													(MHz)
. Freq.	Readi	ng Co	rrect		asure	Limit	Ma	rgin					
o. Freq. MHz	Readi Level dBuV/	Fa	rrect ctor	me		Limit dBuV/m		rgin	De	tector		Com	nent
MHz * 4880.	Level dBuV/ 0500 36.59	Fa m dB 0.3	ctor 88	me dBu 37.	nt 1V/m 47	dBuV/m 54.00	dB -16	6. 53	AV	G		Сош	nent
MHz * 4880.	Level dBuV/	Fa m dB 0.3	ctor 88	me dBu 37.	nt ıV/m	dBuV/m	dB -16			G		Com	nent
MHz * 4880.	Level dBuV/ 0500 36.59	Fa m dB 0.3	ctor 88	me dBu 37.	nt 1V/m 47	dBuV/m 54.00	dB -16	6. 53	AV	G		Comr	nent



80 dBuV/n 30 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	st Mode	Γ	FX 2480	MHz_C	CH39_11	Mbps	6	Po	lariza	ation		Vertic	al		
20      2      30      2      30 <th></th>															
30      ×      1      ×      1        30      ×	80 dBuV/m														
30      ×      1      ×      1        30      ×															
30    X															
30    ×    1															
X    I    X    I      30    X    X    X    X      30    X    X    X    X    X															
30      ×      1      ×      1        30      ×					2	2									
30    X					>	×									
30					1										
20      .															
MHz      dBuV/m      dB      dBuV/m      dB      uV/m      uV/m      dB      uV/m	30														
MHz      Buv/m      B															
MHz      dBuV/m      dB      dBuV/m      dB      UV/m      dB      V/m      Detector      Comment        *      7440.5250      32.77      5.96      38.73      54.00      -15.27      AVG															
MHz      Buv/m      B									_						
MHz      dBuV/m      dB      dBuV/m      dB      UV/m      dB      Duv/m      Duv/m      dB      Duv/m      Duv/m <td></td>															
MHz      dBuV/m      dB      dBuV/m      dB      MuV/m      dB      Devent      Comment        *      7440.5250      32.77      5.96      38.73      54.00      -15.27      AVG															
I000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      18000.00      (MHz)        b.      Freq.      Reading Level      Correct Factor      Measure ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Comment        *      7440.5250      32.77      5.96      38.73      54.00      -15.27      AVG															
I000.00      2700.00      4400.00      6100.00      7800.00      9500.00      11200.00      12900.00      14600.00      18000.00      (MHz)        b.      Freq.      Reading Level      Correct Factor ment      Measure Limit dBuV/m      Limit dBuV/m      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Comment        *      7440.5250      32.77      5.96      38.73      54.00      -15.27      AVG															
Keading    Correct    Measure    Limit    Margin      MHz    dBuV/m    dB    dBuV/m    dB    Detector    Comment      *    7440.5250    32.77    5.96    38.73    54.00    -15.27    AVG															
MHz      Level      Factor      ment      Limit      Margin        MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Comment        *      7440.5250      32.77      5.96      38.73      54.00      -15.27      AVG	000.00 27	00.00	4400.00	6100.0	)0 780	0.00	9500.	00 1120	0.00	12900	0.00	14600.0	0		18000.0
MHz      dBuV/m      dB      dBuV/m      dBuV/m      dB      Detector      Comment        *      7440.5250      32.77      5.96      38.73      54.00      -15.27      AVG	1000.00 27	700.00	4400.00	6100.0	)0 780	0.00	9500.	00 1120	0.00	12900	00.	14600.0	0		
			Readir	ıg Cor	rect	Mea	sure				00	14600.0	0		
7440. 6250 41. 92 5. 96 47. 88 74. 00 -26. 12 Peak	. Free		Readir Level	ng Cor Fac	rect	Mea men	sure t	Limit	Ma	rgin				Com	(MHz)
	Free MHz 7440	q. ). 5250	Readin Level dBuV/m 32.77	ng Cor Fac 1 dB 5.9	crect ctor	Mea men dBu 38.	sure t V/m 73	Limit dBuV/m 54.00	Ma: dB -1	rgin 5.27	De AV	tector G		Com	(MHz)
	Free MHz * 7440	q. ). 5250	Readin Level dBuV/m 32.77	ng Cor Fac 1 dB 5.9	crect ctor	Mea men dBu 38.	sure t V/m 73	Limit dBuV/m 54.00	Ma: dB -1	rgin 5.27	De AV	tector G		Com	(MHz)





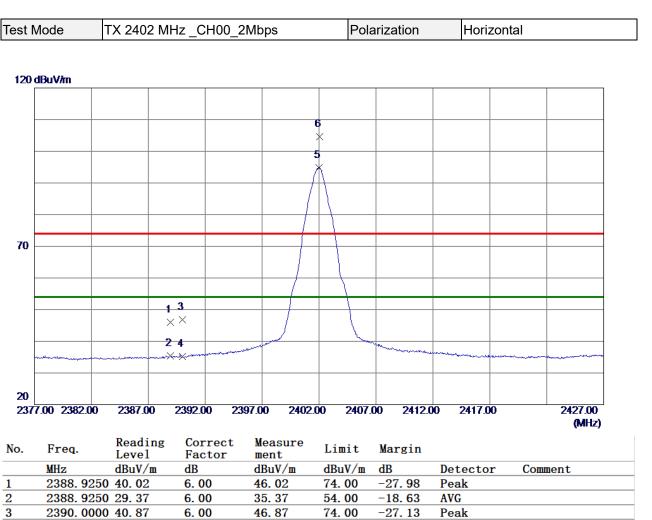
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



est l	Node	TX 2402	MHz_C	H00_2	Mbps	Pola	arization		Vertical		
<b>80</b> o	lBuV/m										
			1 ×								
			2								
30			×								
-20	0.00 2700.0	0 4400.00	6100.0	0 78(	0.00 9500.	00 1120	0.00 12900	100 1	4600.00		18000.00
100	0.00 2100.0		0100.0			00 1120	0.00 12.00		1000.00		(MHz)
lo.	Freq.	Readir Level	ng Cor Fac	rect	Measure ment	Limit	Margin				
	MHz	dBuV/m	ı dB		dBuV/m	dBuV/m			ector	Comm	ent
*		50 43. 44 50 32. 82	0.6		44. 10 33. 48	74.00 54.00	-29. 90 -20. 52	Peal AVG			

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





3	2390.0000 40.87	6.00	46.87	74.00	-27.13	Peak	
4	2390.0000 29.16	6.00	35.16	<b>54.00</b>	-18.84	AVG	
5 *	2402.0000 88.82	6.00	<b>94.</b> 82	54.00	40.82	AVG	No Limit
6	2402.0500 98.66	6.00	104.66	74.00	30.66	Peak	No Limit

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



est N	Node	TX 2440 M	Hz_CH19_2	2Mbps	Pol	arization	Vertica	al
	liouo	17(21101)					Vortioe	
80 d	lBuV/m							
		<b>2</b> ×						
		1						
0		×						
1								
0	0.00 2700.00	4400.00	6100.00 7	800.00 9500.	.00 11200	D.00 12900	).00 <b>14600.00</b>	18000.00
	0.00 2100.00					12000		(MHz)
	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
L.	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector AVG	Comment
k	4880.023		0.88	34.28 45.28	54.00 74.00	-19.72 -28.72	Peak	



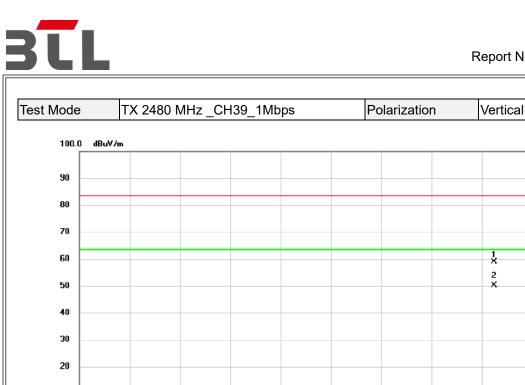
Test N	Node	TX 2480 M	Hz _CH39_	_2Mbps	P	olarization	Vert	ical	
80 d	BuV/m								
				2					
				×					
				1					
				-×					
30									
-20									
100	0.00 2700.00	0 4400.00	6100.00	7800.00	9500.00 112	00.00 1290	0.00 14600	.00	18000.00 (MHz)
	_	Reading	Correct	Measu	ire				(MILZ)
No.	Freq.	Level	Factor	ment	LIMIU	Margin			
1 *	MHz 7440.05	dBuV/m 00 33.95	dB 5.96	dBuV/ 39. 91		n dB -14.09	Detecto AVG	r Co	mment
2		00 47.30	5.96	53.26			Peak		



Test N	Node	TX 2480 M	Hz_CH3	9_2Mk	ops		Pola	arization	Horiz	ontal	
120	dBuV/m										
120											
					· ·						
						Å					
					/	$\mathbb{A}^{-}$					
					/	$  \rangle$					
						+					
						+					
70											
						$  \langle \rangle$	3				
							$\setminus$ $\times$				
							1				
							4				
				. and the second	and the second s		X				
	mandelina								-		
20											
245	5.00 2460.0	0 2465.00	2470.00	2475.0	0 2480.0	00	2485.	00 2490.0	00 2495.00	)	2505.00 (MHz)
No.	Freq.	Reading	Correc		leasure	Lin	+	Margin			
NO.		Level	Factor		ent				<b>D</b>	-	
1	MHz 2479 50	dBuV/m 000 99.30	dB 6.00		BuV/m 05. 30	<u>dBu</u> 74.		dB 31. 30	Detector Peak		ment Limit
1 2 *		750 89.04	6.00		5. 04	<u>74.</u> 54.		41.04	AVG		Limit Limit
2 * 3		000 53.60	6.00		9.60	74.		-14. 40	Peak		
4		000 36.08	6.00		2. 08	54.		-11. 92	AVG		

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





10 0.0 18000.000 18850.00 19700.00 20550.00 21400.00 22250.00 23100.00 23950.00 24800.00 26500.00 MHz Reading Correct Measure-No. Mk. Freq. Limit Margin Level Factor ment MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 25004.00 50.00 8.79 58.79 83.50 1 -24.71 peak 25004.00 41.25 8.79 50.04 63.50 -13.46 AVG 2 \*

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





Mode	9	TX 2	2480 M	Hz_CH	139_1	Mbps		Po	olarizati	on	Hor	izonta	al	
100.0														
100.0	) dBuV/m													1
90														
80														
70														
60									1 X					
50									2 X					
40														
30														
20														
10														
0.0														
19	000.000 18	850.00	19700.	.00 2055	0.00 2	1400.00	22250.0	0 2310	0.00 239	)50.00	24800.00		26500.00	MHz
No. Mk	. Fre	q.	Reading Level	Corre Facto		asure- nent	Limit	Margi	n					
	MH:	Z	dBuV	dB	dB	uV/m	dBuV/m	dB	Detecto	or Co	mment			
1	23665.2	25	49.20	7.80	) 5	7.00	83.50	-26.50	) peak					
2 *	23665.2	25	38.77	7.80	) 4	6.57	63.50	-16.93	AVG					

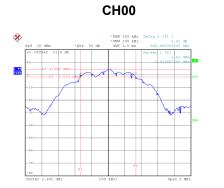
- Measurement Value = Reading Level + Correct Factor.
  Margin Level = Measurement Value Limit Value.

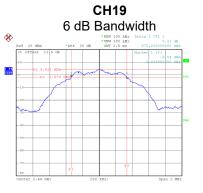


## **APPENDIX E - BANDWIDTH**

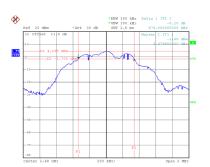


Т	est Mode	TX Mode _1	Mbps			
	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Test Result
	00	2402	0.669	1.048	0.5	Pass
	19	2440	0.672	1.044	0.5	Pass
	39	2480	0.676	1.060	0.5	Pass

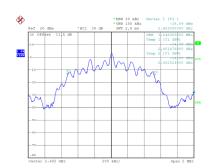




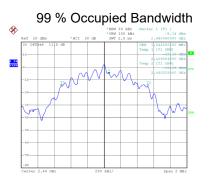
CH39



Date: 12.MAR.2024 01:09:41



Date: 12.MAR.2024 01:11:45



Date: 12.MAR.2024 01:14:26

Date: 12.MAR.2024 01:14:33



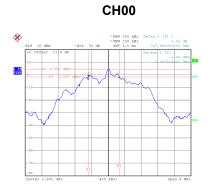
Date: 12.MAR.2024 01:09:00

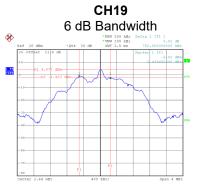
Date: 12.MAR.2024 01:11:51



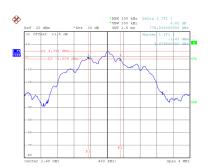


Test Mode	TX Mode _2	Mbps			
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Test Result
00	2402	0.748	2.016	0.5	Pass
19	2440	0.752	2.016	0.5	Pass
39	2480	0.778	2.072	0.5	Pass

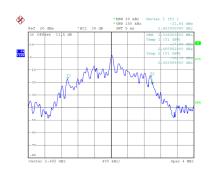




CH39



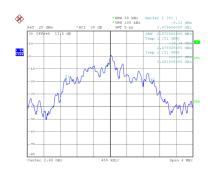
Date: 12.MAR.2024 01:16:39



99 % Occupied Bandwidth

Date: 12.MAR.2024 01:21:25

Date: 12.MAR.2024 01:21:33



Date: 12.MAR.2024 01:15:53

Date: 12.MAR.2024 01:18:54

Date: 12.MAR.2024 01:18:47

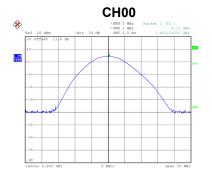


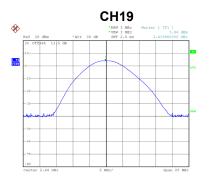
## **APPENDIX F - MAXIMUM OUTPUT POWER**

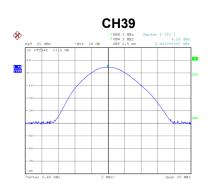


Test Mode		TX Mode _1Mbps					
	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result	
	2402	4.13	0.0026	30.00	1.0000	Pass	
	2440	3.96	0.0025	30.00	1.0000	Pass	
	2480	4.25	0.0027	30.00	1.0000	Pass	

### Note: Output power = Measure result + Cable loss







Date: 12.MAR.2024 00:58:27

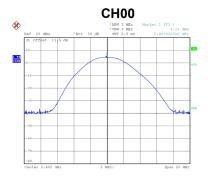
Date: 12.MAR.2024 01:00:05

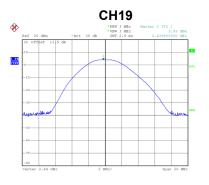
Date: 12.MAR.2024 01:02:29

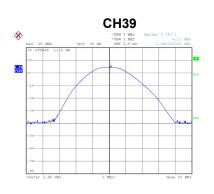


Te	est Mode	TX Mode _2Mbps					
	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result	
	2402	4.14	0.0026	30.00	1.0000	Pass	
	2440	3.93	0.0025	30.00	1.0000	Pass	
	2480	4.21	0.0026	30.00	1.0000	Pass	

### Note: Output power = Measure result + Cable loss







Date: 12.MAR.2024 01:07:09

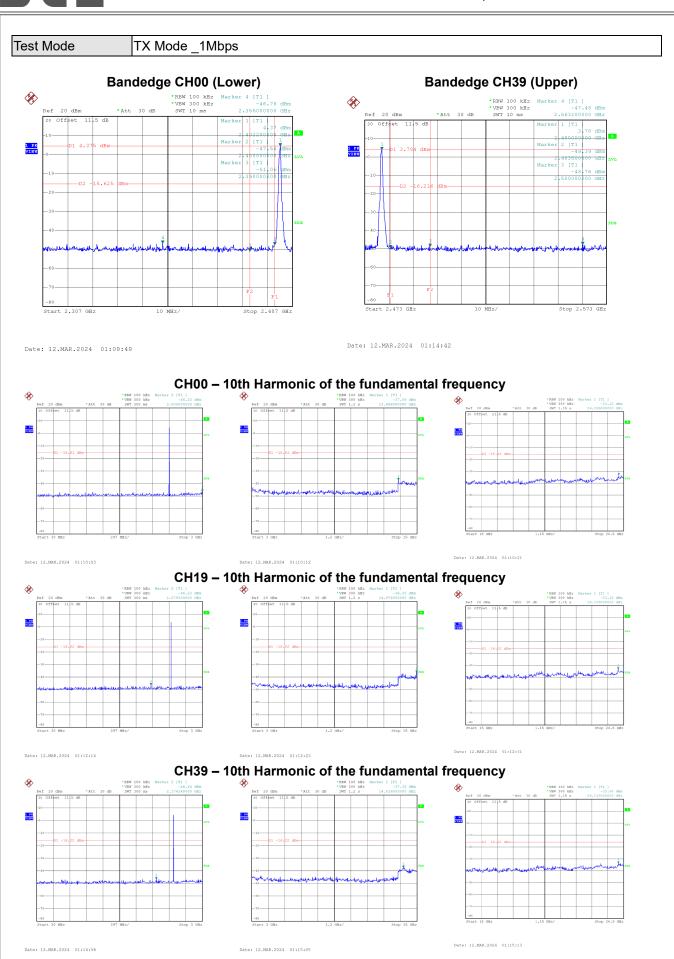
Date: 12.MAR.2024 01:05:54

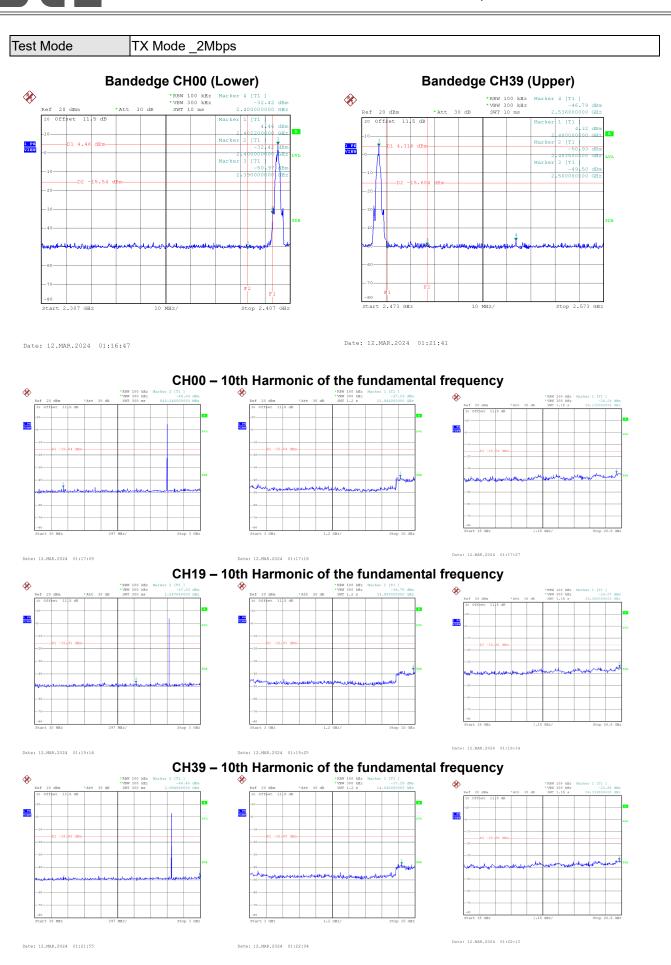
Date: 12.MAR.2024 01:06:37

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# **APPENDIX G - CONDUCTED SPURIOUS EMISSION**



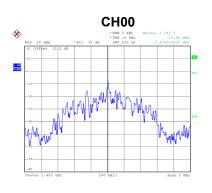




# **APPENDIX H - POWER SPECTRAL DENSITY**



Test Mode TX Mode _1Mbps					
	Channel	Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Max. Limit (dBm/3 kHz)	Test Result
	00	2402	-10.86	8.00	Pass
	19	2440	-11.44	8.00	Pass
	39	2480	-13.43	8.00	Pass





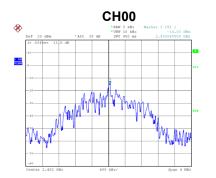


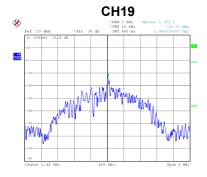
Date: 12.MAR.2024 01:10:28

Test Mode

TX Mode \_2Mbps

Power Spectral Density Frequency Max. Limit Channel Test Result (MHz) (dBm/3 kHz) (dBm/3 kHz) 00 2402 -14.03 8.00 Pass 19 2440 -12.71 8.00 Pass 39 2480 -14.42 8.00 Pass







Date: 12.MAR.2024 01:17:34

Date: 12.MAR.2024 01:19:41

#### Date: 12.MAR.2024 01:22:20

End of Test Report