

FCC Radio Test Report

FCC ID: RWO-RC30035302

This report concerns: Class II Permissive Change

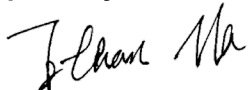
Project No. : 2101C012
Equipment : Wireless Keyboard
Brand Name : RAZER
Test Model : RZ03-0389
Series Model : RZ03-0389XXXX-XXXX (X can be 0-9 or A-Z)
Applicant : Razer Inc.
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Manufacturer : Razer (Asia-Pacific) Pte.,Ltd.
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Date of Receipt : Jan. 04, 2021
Date of Test : Jan. 05, 2021 ~ Jan. 26, 2021
Issued Date : Feb. 09, 2021
Report Version : R00
Test Sample : Sample No.: DG20210105142
Standard(s) : FCC Part15, Subpart C (15.247)
 ANSI C63.10-2013
 FCC KDB 558074 D01 15.247 Meas Guidance v05r02

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



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Declaration

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** requirements, and accredited by the conformity assessment authorities listed in this test report.

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

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

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Feb. 09, 2021

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.247)				
Standard(s) Section	Test Item	Test Result	Judgment	Remark
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS	-----
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	-----
15.247(a)(2)	Bandwidth	-----	PASS	-----
15.247(b)(3)	Maximum Output Power	APPENDIX E	PASS	-----
15.247(d)	Conducted Spurious Emission	-----	PASS	-----
15.247(e)	Power Spectral Density	-----	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.
- (3) The RF module of this Wireless Keyboard has been tested and certified. Please refer to the module report as listed in the below table for the test results of the RF module.

RF Module Model	Module Function	Report Number	Standard
RC30-035302	Bluetooth LE	BTL-FCCP-1-2005C131	FCC Part15, Subpart C (15.247) ANSI C63.10-2013
	2.4G SRD	BTL-FCCP-2-2005C131	

Thus, the AC Power Line Conducted Emissions, radiated spurious emissions and output power were evaluated and recorded in this report. For the test results of all other test items please refer to above module test report.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's Test Firm Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.68

B. Radiated emissions Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9kHz ~ 30MHz	-	3.02
		30MHz ~ 200MHz	V	4.26
		30MHz ~ 200MHz	H	3.38
		200MHz ~ 1,000MHz	V	3.98
		200MHz ~ 1,000MHz	H	3.94
		1GHz ~ 6GHz	-	3.96
		6GHz ~ 18GHz	-	5.24
		18GHz ~ 26.5GHz	-	3.62
		26.5GHz ~ 40GHz	-	4.00

C. Other Measurement:

Test Item	Uncertainty
Maximum Output Power	±0.95 dB
Temperature	±0.08 °C
Humidity	±1.5%

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

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	25°C	53%	AC120V/60Hz	Luca Jiang
Radiated Emissions-9K-30MHz	25°C	60%	DC 5V	Hayden Chen
Radiated Emissions-30 MHz to 1GHz	26°C	52%	DC 5V	Hayden Chen
Radiated Emissions-Above 1000 MHz	26°C	52%	DC 5V	Hayden Chen
Maximum Output Power	24°C	52%	DC 5V	Laughing Zhang

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Keyboard
Brand Name	RAZER
Test Model	RZ03-0389
Series Model	RZ03-0389XXXX-XXXX (X can be 0-9 or A-Z)
Model Difference(s)	The system's model name is RZ03-0389XXXX-XXXX (X can be 0-9 or A-Z), and the system is contain a Wireless Keyboard (Model name: RZ03-0389) and USB Dongle (Model name: DGRFG7).
Power Source	1# Supplied from PC USB port. 2# Supplied from battery. Model: 5936142P
Power Rating	1# DC 5V 2# DC 3.7V 4200mAh, 15.54Wh
Operation Frequency	2402 MHz ~ 2480 MHz
Modulation Technology	GFSK
Bit Rate of Transmitter	1Mbps, 2Mbps
Max. Output Power	3.84 dBm (0.0024 W) For 1Mbps 3.84 dBm (0.0024 W) For 2Mbps

Note:

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

2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	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

3. Table for Filed Antenna:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	INPAQ	RFPCA371113IMAB301	PCB	N/A	3.9
1	WoodStone	WIA3511IMN135320	PCB	N/A	3.7

Note:

- (1) The antenna gain is provided by the manufacturer.
- (2) Both INPAQ and WoodStone antenna were evaluated, the worst was the INPAQ, and recorded in the test report.

2.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	TX Mode_ 1Mbps NOTE (1)
Mode 2	TX Mode_ 2Mbps NOTE (1)
Mode 3	TX Mode Channel 39 _2Mbps

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 Channel 39 _2Mbps

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 3	TX Mode Channel 39 _2Mbps

Radiated emissions test - Above 1GHz	
Final Test Mode	Description
Mode 1	TX Mode_ 1Mbps NOTE (1)
Mode 2	TX Mode_ 2Mbps NOTE (1)

Output Power test	
Final Test Mode	Description
Mode 1	TX Mode_ 1Mbps NOTE (1)
Mode 2	TX Mode_ 2Mbps NOTE (1)

Note:

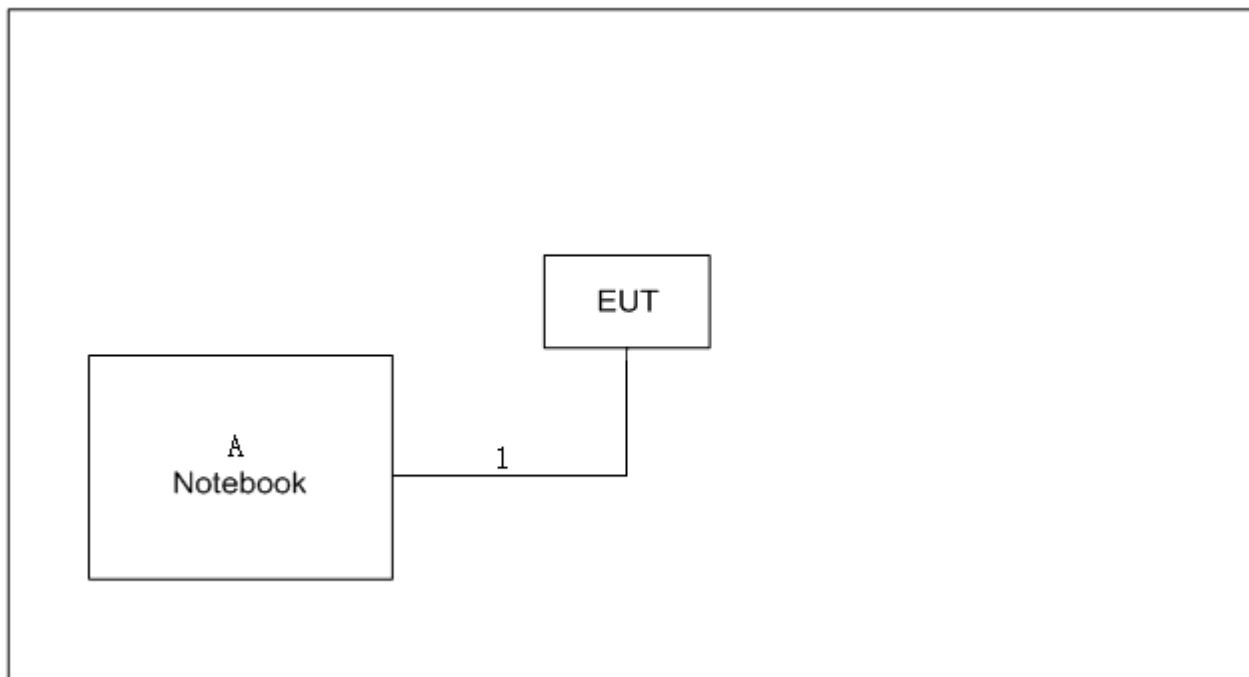
- (1) The measurements are performed at the high, middle, low available channels.
- (2) For radiated emission above 1 GHz test, 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (3) For AC power line conducted emissions test and radiated emission below 1 GHz test, the channel 39_2Mbps is found to be the worst case and recorded.

2.3 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	FCCMTKTest_v0.00.02_20200109		
Frequency (MHz)	2402	2440	2480
1Mbps	3	2	2
2Mbps	3	2	2

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
A	Notebook	Lenovo	G410	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	USB Type-C Cable	NO	NO	2m

3. AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency of Emission (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56*	56 to 46*
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note:

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

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

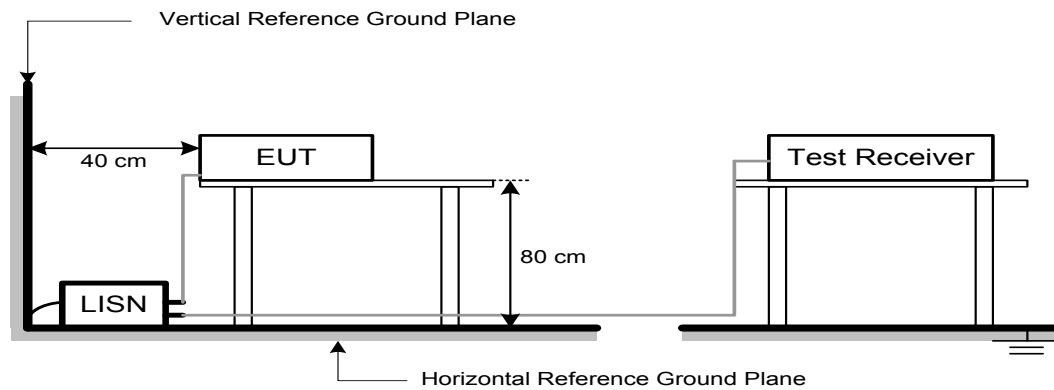
3.2 TEST PROCEDURE

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

3.3 DEVIATION FROM TEST STANDARD

No deviation

3.4 TEST SETUP



3.5 EUT 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.

3.6 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.

4. RADIATED EMISSION TEST

4.1 LIMIT

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

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

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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	(dBuV/m at 3 m)	
	Peak	Average
Above 1000	74	54

Note:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	RBW 1 MHz VBW 3 MHz peak detector for Pk value RMS detector for AV value

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector

4.2 TEST PROCEDURE

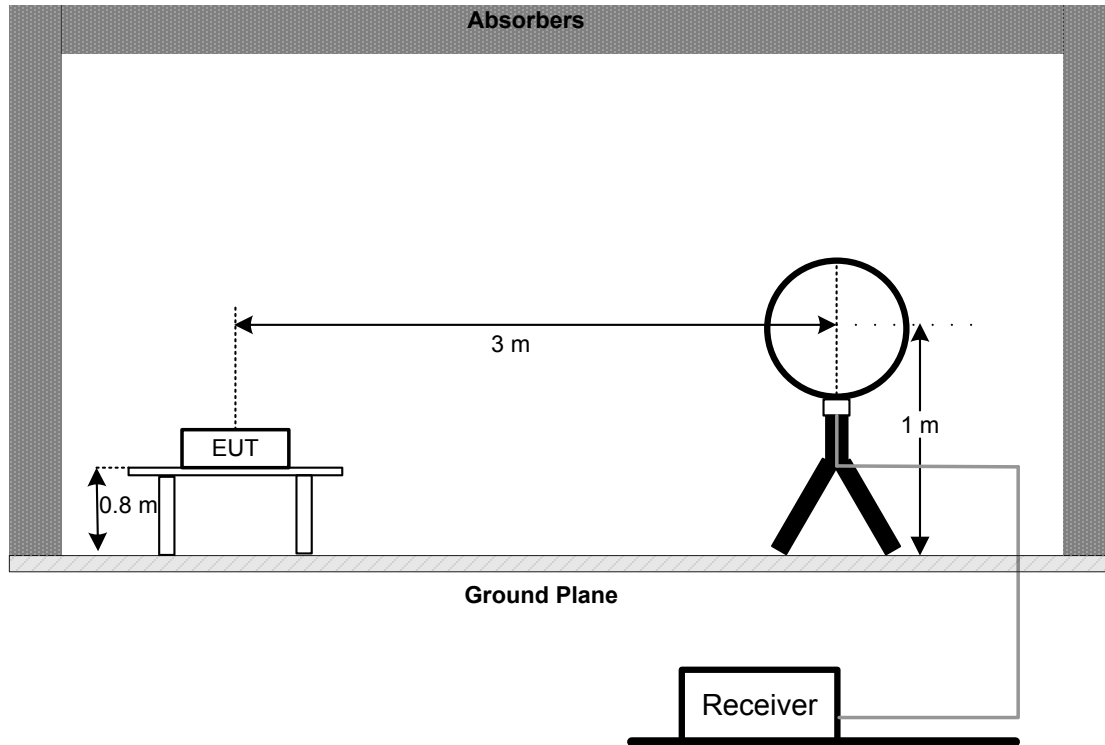
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance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

4.3 DEVIATION FROM TEST STANDARD

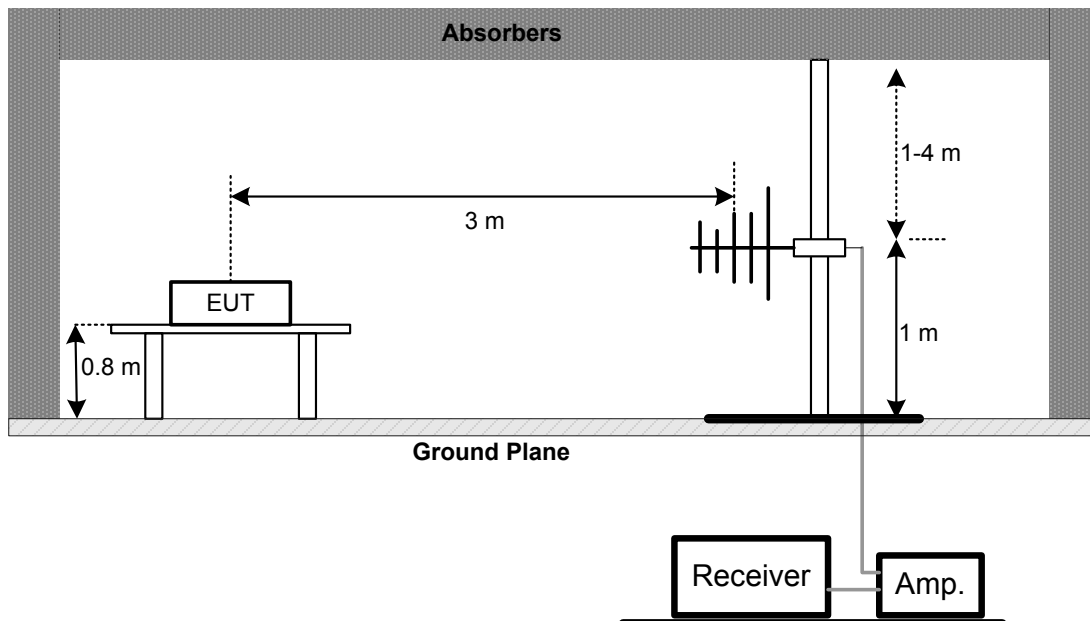
No deviation

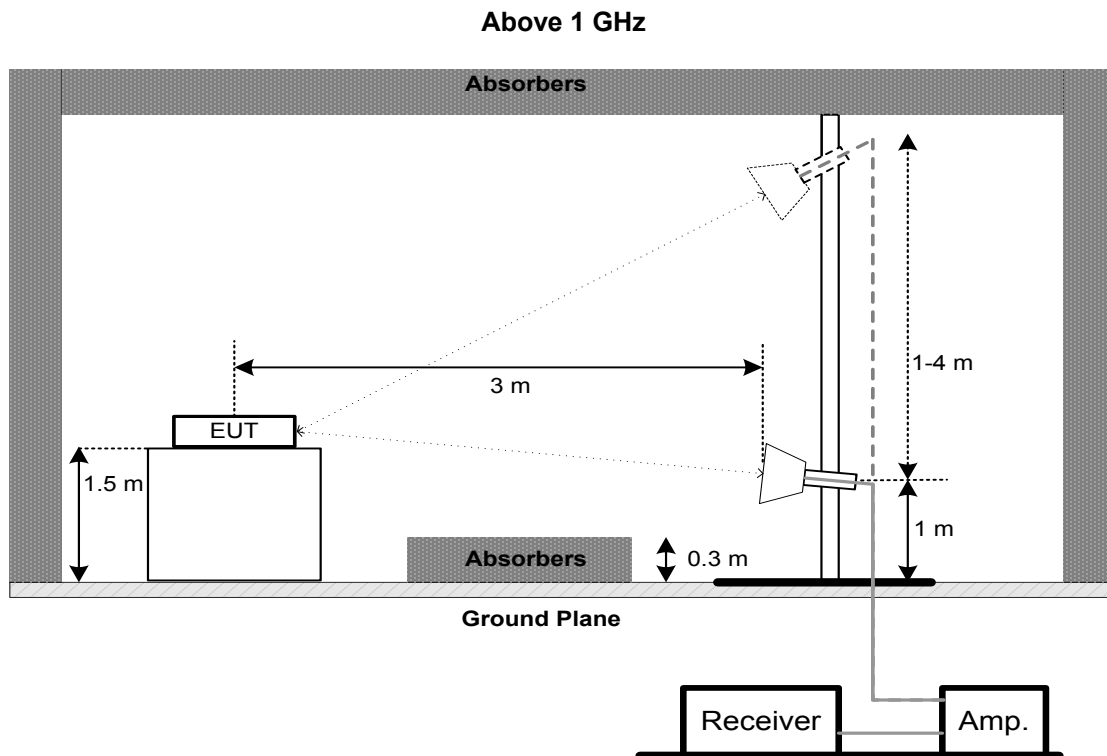
4.4 TEST SETUP

9 kHz-30 MHz



30 MHz to 1 GHz





4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULT - 9 kHz TO 30 MHz

Please refer to the APPENDIX B

Remark:

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

4.7 TEST RESULT - 30 MHz TO 1000 MHz

Please refer to the APPENDIX C.

4.8 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.

5. MAXIMUM OUTPUT POWER

5.1 LIMIT

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

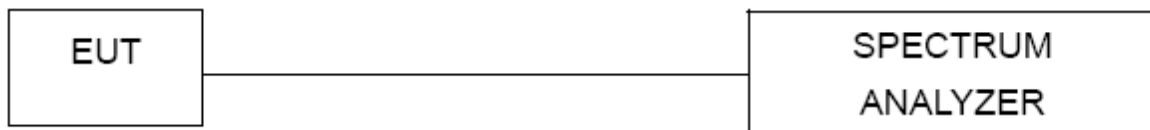
5.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- The maximum conducted output power was performed in accordance with method 11.9.1.1 of ANSI C63.10-2013.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

Please refer to the APPENDIX E.

6. 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	Feb. 28, 2021
2	LISN	EMCO	3816/2	52765	Mar. 01, 2021
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 28, 2021
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 01, 2021
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Cable	N/A	RG223	12m	Mar. 10, 2021
7	643 Shield Room	ETS	6*4*3m	N/A	N/A

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	EM	EM-6876-1	230	Apr. 16, 2021
2	Cable	N/A	RG 213/U	N/A	May 29, 2021
3	EMI Test Receiver	R&S	ESCI	100895	Feb. 28, 2021
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
5	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 09, 2021
2*	Amplifier	HP	8447D	2944A09673	Aug. 11, 2021
3	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 22, 2021
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
8	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	May 12, 2021
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 22, 2021
3	Amplifier	Agilent	8449B	3008A02333	Mar. 01, 2021
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 07, 2021
5	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	N/A	EMC104-SM-SM-6000	N/A	May 09, 2021
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	Filter	STI	STI15-9912	N/A	Jul. 25, 2021
11	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021

Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 25, 2021
2	DC Block	Mini	N/A	N/A	N/A
3	RF Cable	Tongkaichuan	N/A	N/A	N/A

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

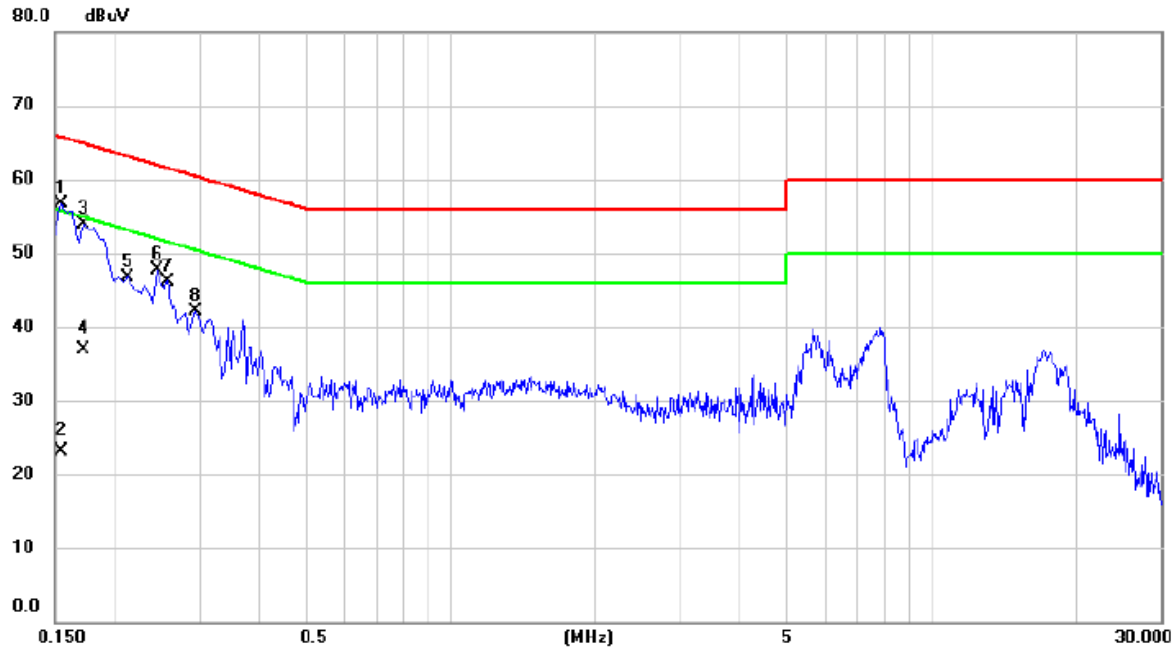
"**" calibration period of equipment list is three year.

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

APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode:	TX Mode Channel 39 _2Mbps
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Line



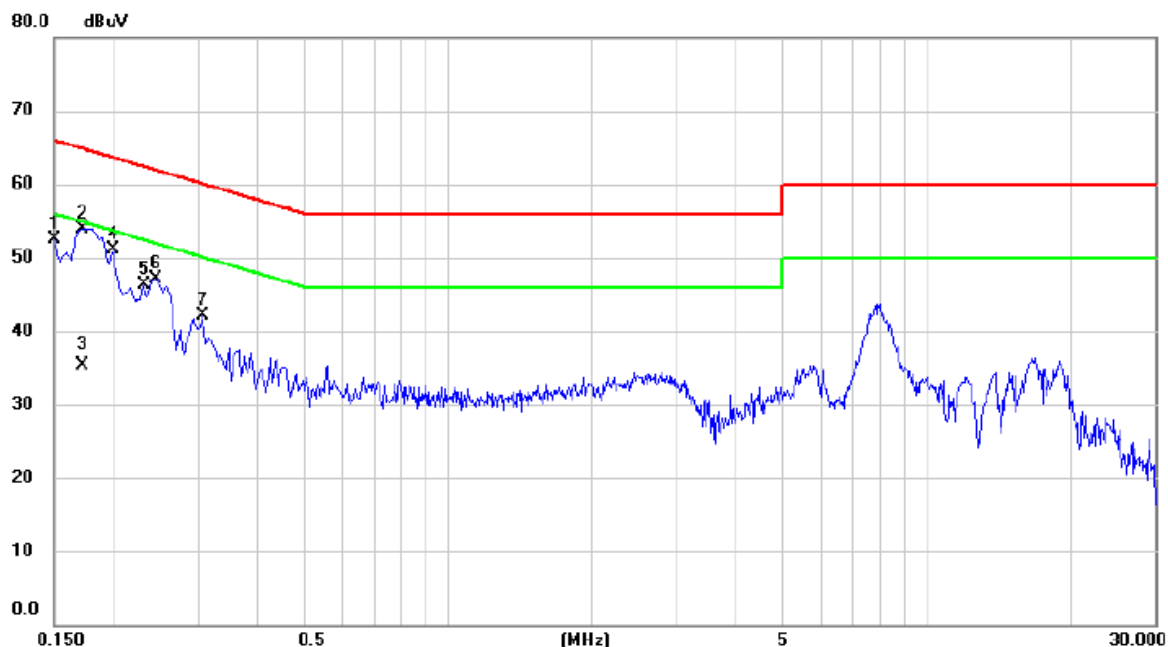
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1545	47.07	9.70	56.77	65.75	-8.98	peak	
2		0.1545	13.40	9.70	23.10	55.75	-32.65	AVG	
3		0.1725	44.16	9.83	53.99	64.84	-10.85	peak	
4		0.1725	27.00	9.83	36.83	54.84	-18.01	AVG	
5		0.2130	36.90	9.90	46.80	63.09	-16.29	peak	
6		0.2445	37.74	9.87	47.61	61.94	-14.33	peak	
7		0.2580	36.33	9.87	46.20	61.50	-15.30	peak	
8		0.2940	32.28	9.88	42.16	60.41	-18.25	peak	

REMARKS:

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

Test Mode: TX Mode Channel 39 _2Mbps

Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	42.82	9.74	52.56	66.00	-13.44	peak	
2	*	0.1725	44.03	9.91	53.94	64.84	-10.90	peak	
3		0.1725	25.30	9.91	35.21	54.84	-19.63	AVG	
4		0.1995	41.03	10.01	51.04	63.63	-12.59	peak	
5		0.2310	36.22	9.99	46.21	62.41	-16.20	peak	
6		0.2445	37.05	9.97	47.02	61.94	-14.92	peak	
7		0.3075	32.04	10.01	42.05	60.04	-17.99	peak	

REMARKS:

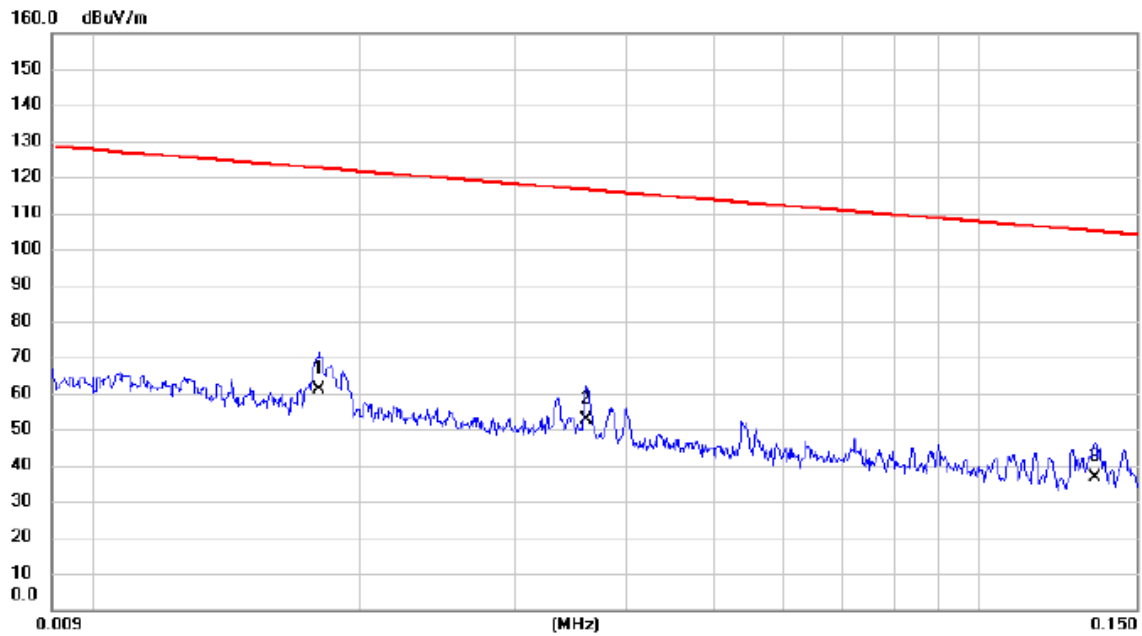
(1) Measurement Value = Reading Level + Correct Factor.

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

APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ

Test Mode: TX Mode Channel 39 _2Mbps

Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	0.0180	47.03	13.84	60.87	122.50	-61.63	AVG		
2		0.0360	39.64	12.79	52.43	116.48	-64.05	AVG		
3		0.1348	23.84	12.73	36.57	105.01	-68.44	AVG		

REMARKS:

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

Test Mode: TX Mode Channel 39 _2Mbps

Ant 0°



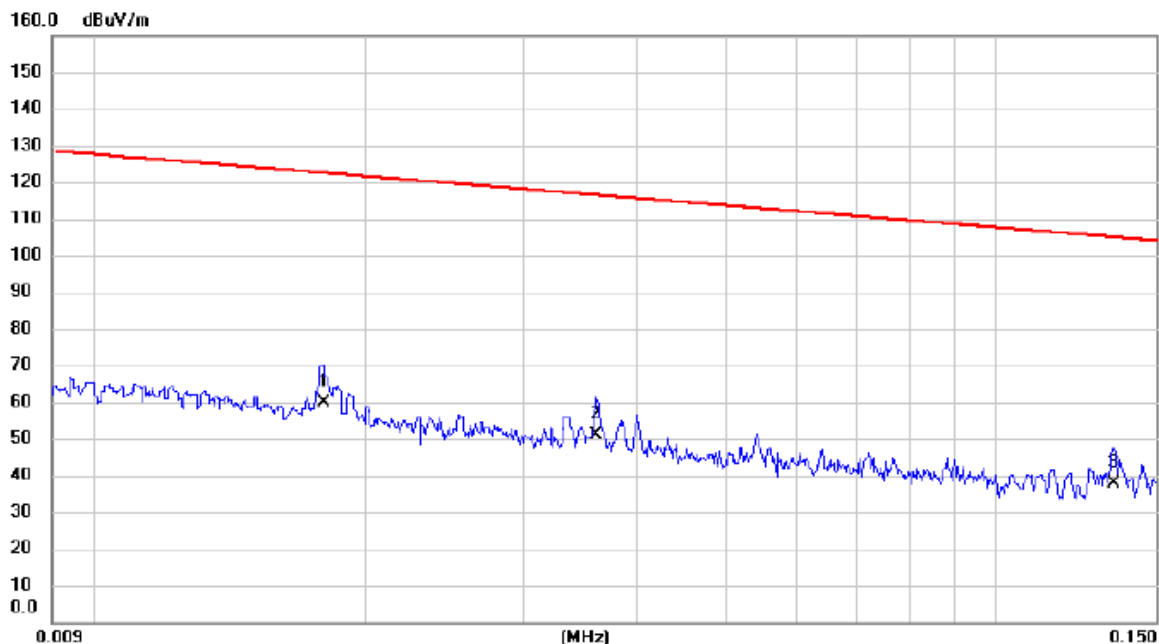
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Antenna Height cm	Table Degree degree	Comment
1		0.4020	35.67	12.25	47.92	95.52	-47.60	AVG		
2		0.8618	30.14	11.86	42.00	68.90	-26.90	QP		
3	*	2.2486	41.06	11.18	52.24	69.54	-17.30	QP		

REMARKS:

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

Test Mode: TX Mode Channel 39 _2Mbps

Ant 90°



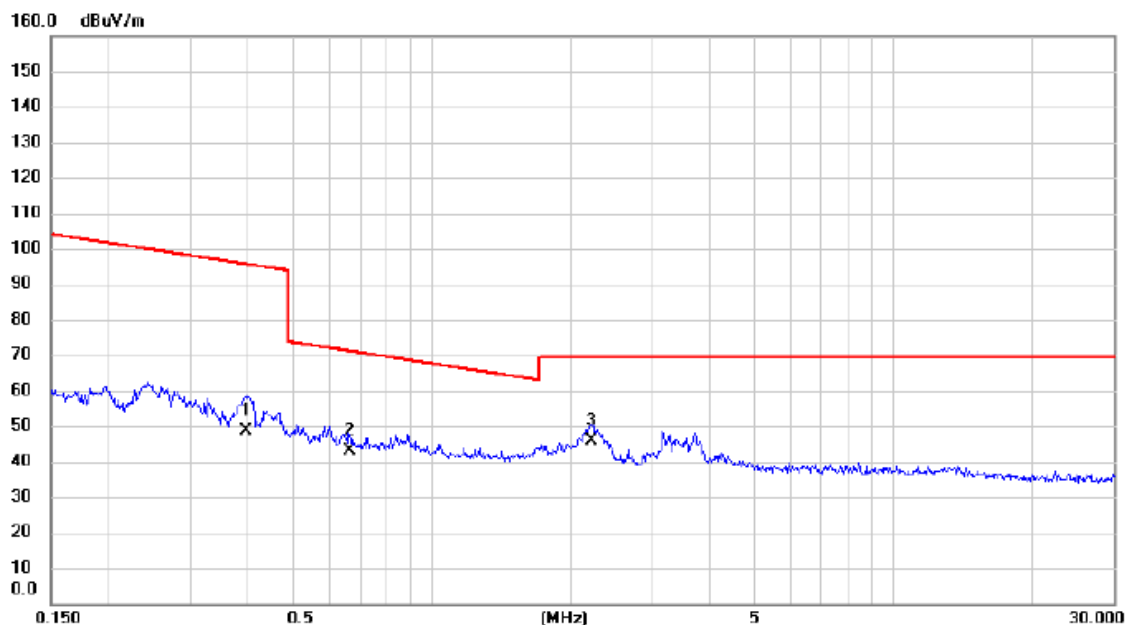
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	*	0.0180	46.16	13.84	60.00	122.50	-62.50	AVG		
2		0.0360	38.36	12.79	51.15	116.48	-65.33	AVG		
3		0.1348	24.91	12.73	37.64	105.01	-67.37	AVG		

REMARKS:

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

Test Mode: TX Mode Channel 39 _2Mbps

Ant 90°



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		0.3955	36.25	12.27	48.52	95.66	-47.14	AVG		
2		0.6613	31.05	11.95	43.00	71.20	-28.20	QP		
3	*	2.2132	34.62	11.19	45.81	69.54	-23.73	QP		

REMARKS:

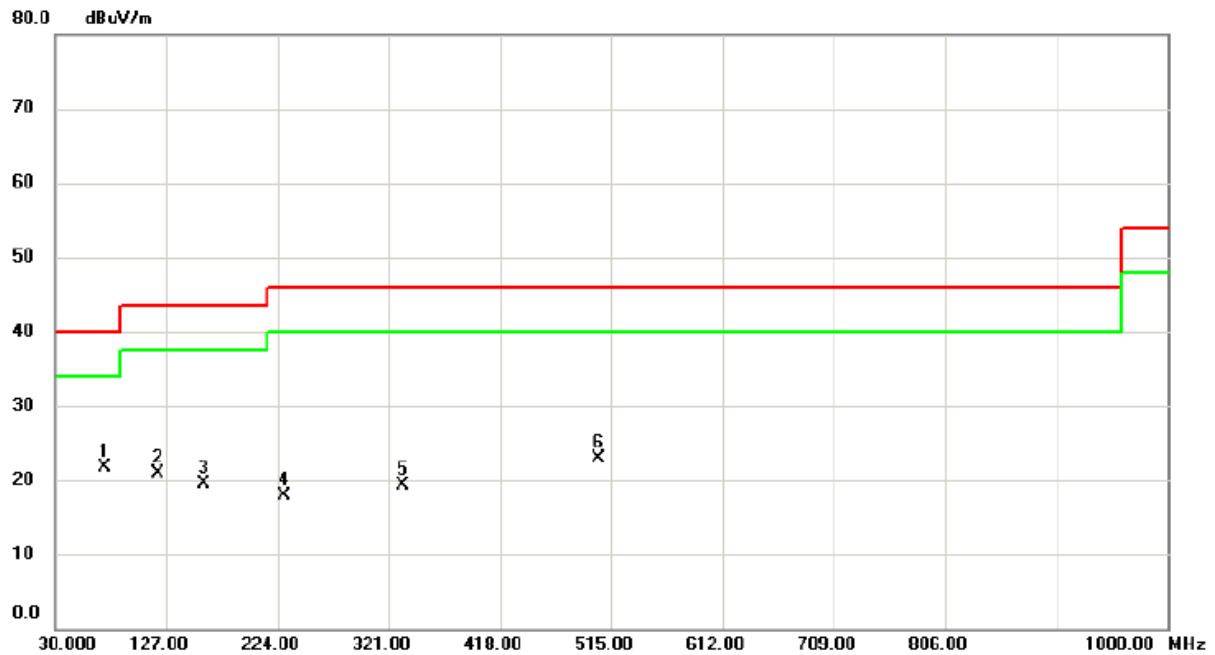
(1) Measurement Value = Reading Level + Correct Factor.

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

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

Test Mode: TX Mode Channel 39_2Mbps

Vertical

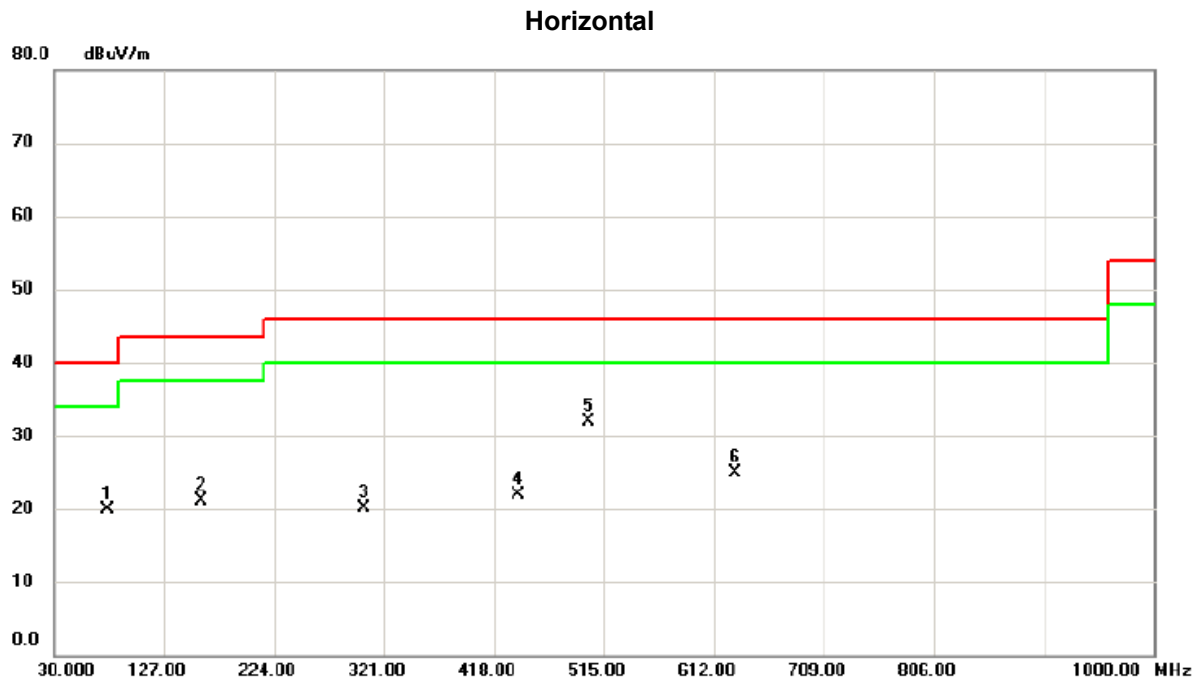


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	72.680	38.12	-16.42	21.70	40.00	-18.30	peak	
2		120.210	33.67	-12.74	20.93	43.50	-22.57	peak	
3		159.980	30.18	-10.67	19.51	43.50	-23.99	peak	
4		229.820	31.85	-13.87	17.98	46.00	-28.02	peak	
5		332.640	29.73	-10.48	19.25	46.00	-26.75	peak	
6		503.360	30.16	-7.24	22.92	46.00	-23.08	peak	

REMARKS:

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

Test Mode:	TX Mode Channel 39_2Mbps
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No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		77.530	37.14	-17.29	19.85	40.00	-20.15	peak	
2		159.980	31.79	-10.67	21.12	43.50	-22.38	peak	
3		303.540	31.08	-10.94	20.14	46.00	-25.86	peak	
4		439.340	29.89	-7.93	21.96	46.00	-24.04	peak	
5	*	501.420	39.13	-7.25	31.88	46.00	-14.12	peak	
6		630.430	29.53	-4.69	24.84	46.00	-21.16	peak	

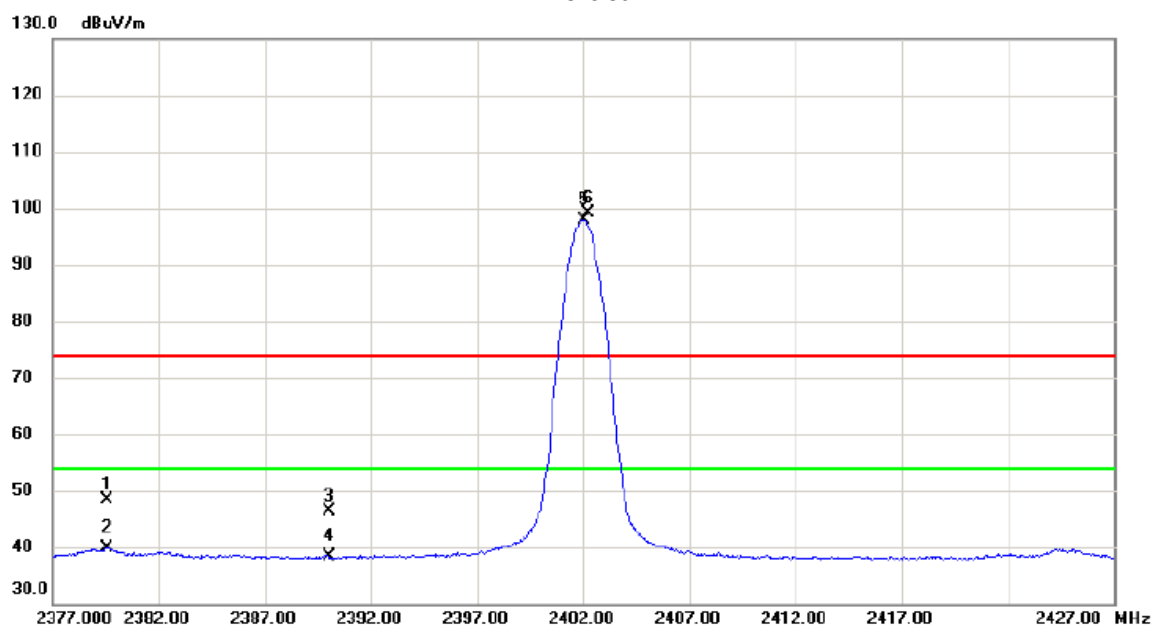
REMARKS:

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

APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

Test Mode : TX 2402 MHz _CH00_1Mbps

Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2379.600	41.06	7.26	48.32	74.00	-25.68	peak	
2		2379.600	32.74	7.26	40.00	54.00	-14.00	AVG	
3		2390.000	39.20	7.26	46.46	74.00	-27.54	peak	
4		2390.000	31.13	7.26	38.39	54.00	-15.61	AVG	
5	*	2402.000	90.73	7.26	97.99	54.00	43.99	AVG	No Limit
6	X	2402.250	91.94	7.26	99.20	74.00	25.20	peak	No Limit

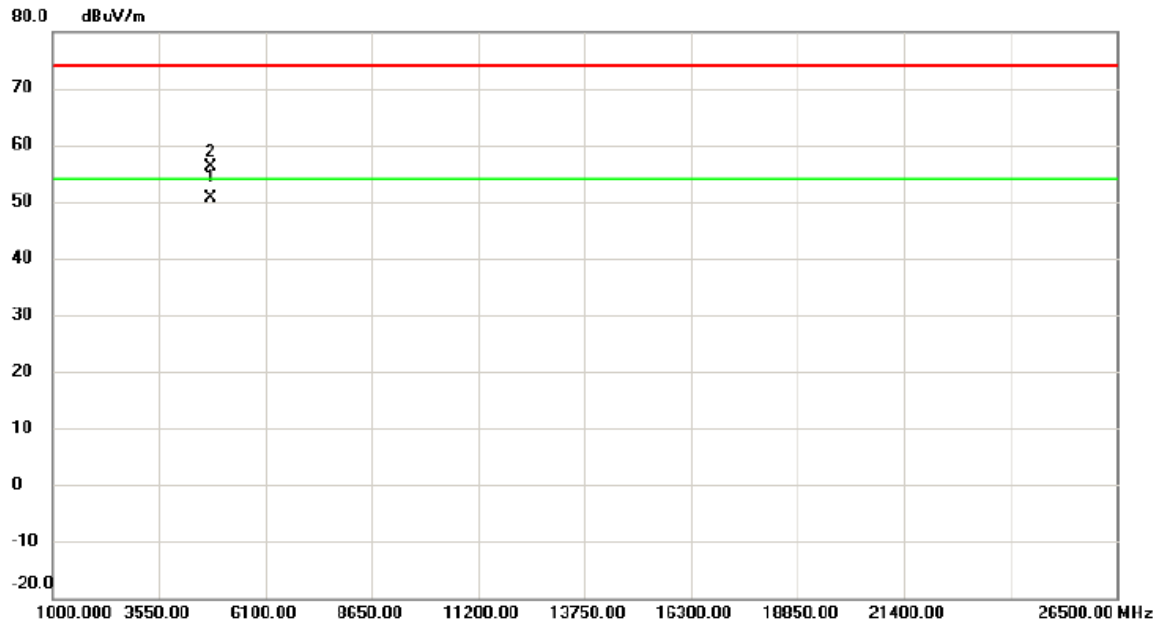
REMARKS:

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

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

Test Mode :	TX 2402 MHz _CH00_1Mbps
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Vertical



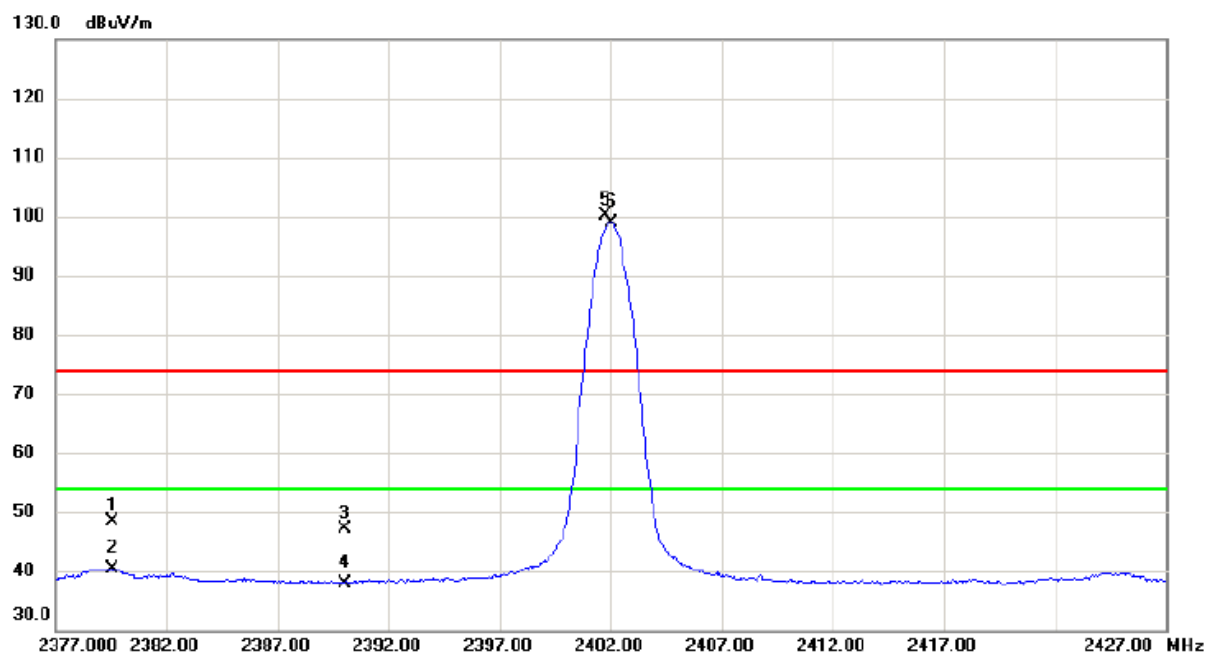
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4804.055	46.22	4.40	50.62	54.00	-3.38	AVG	
2		4804.137	51.69	4.40	56.09	74.00	-17.91	peak	

REMARKS:

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

Test Mode : TX 2402 MHz _CH00_1Mbps

Horizontal



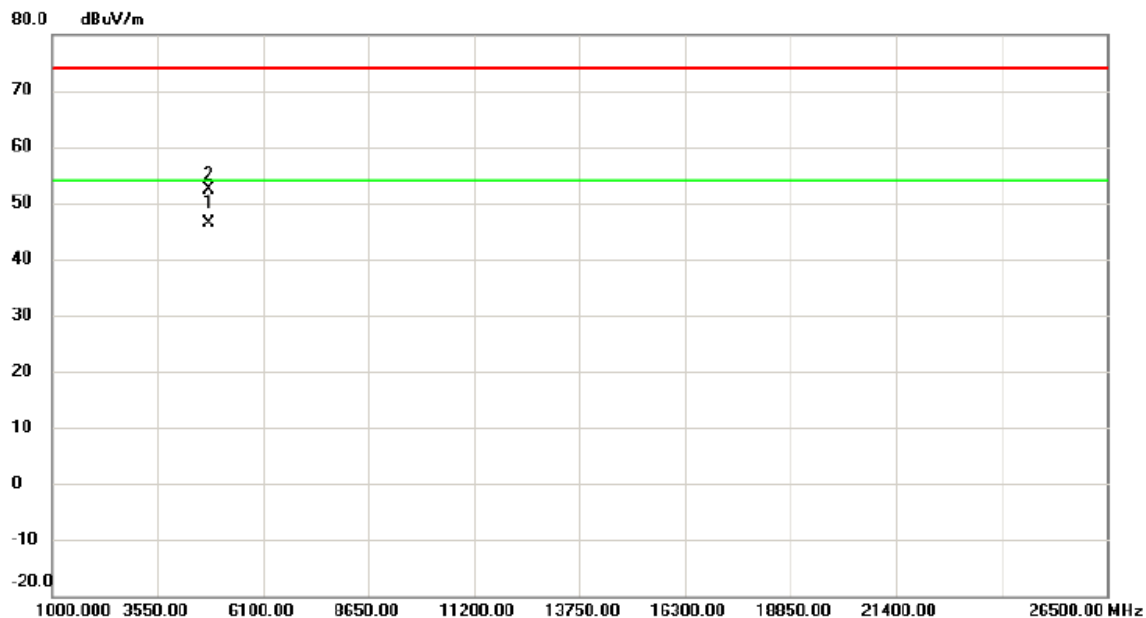
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2379.600	41.06	7.26	48.32	74.00	-25.68	peak	
2		2379.600	33.04	7.26	40.30	54.00	-13.70	AVG	
3		2390.000	39.90	7.26	47.16	74.00	-26.84	peak	
4		2390.000	30.74	7.26	38.00	54.00	-16.00	AVG	
5	X	2401.750	92.93	7.26	100.19	74.00	26.19	peak	No Limit
6	*	2402.000	91.67	7.26	98.93	54.00	44.93	AVG	No Limit

REMARKS:

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

Test Mode : TX 2402 MHz _CH00_1Mbps

Horizontal

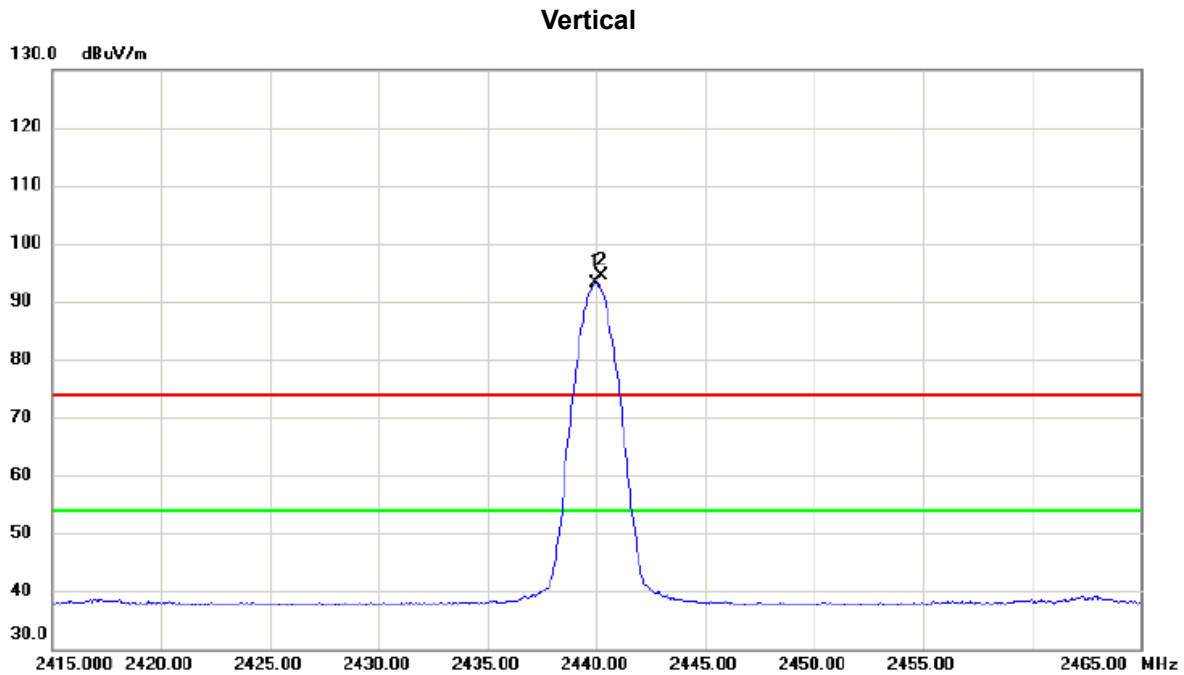


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4804.038	41.93	4.40	46.33	54.00	-7.67	AVG	
2		4804.450	48.05	4.40	52.45	74.00	-21.55	peak	

REMARKS:

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

Test Mode : TX 2440 MHz _CH19_1Mbps



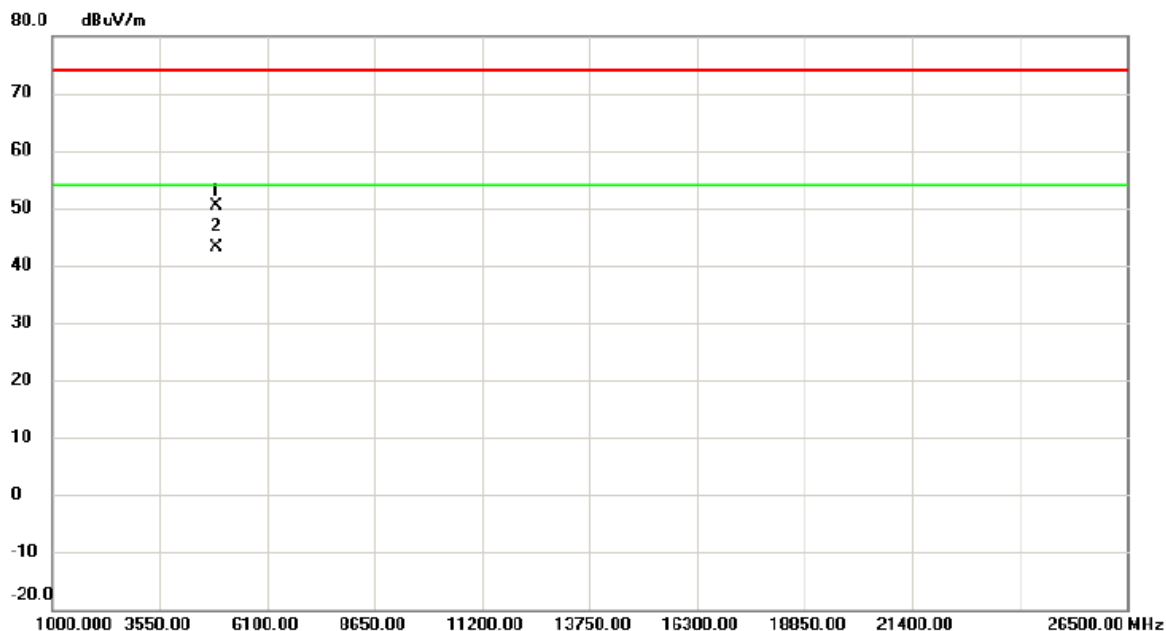
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2439.950	85.88	7.25	93.13	54.00	39.13	AVG	No Limit
2	X	2440.250	87.13	7.25	94.38	74.00	20.38	peak	No Limit

REMARKS:

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

Test Mode : TX 2440 MHz _CH19_1Mbps

Vertical



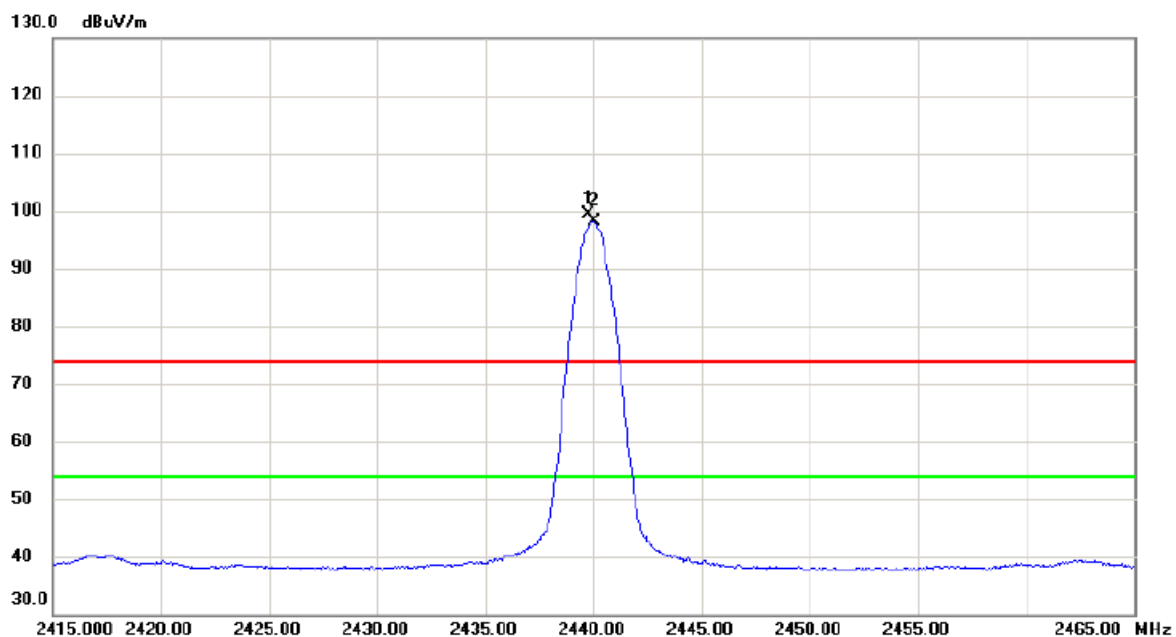
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4879.390	45.75	4.60	50.35	74.00	-23.65	peak	
2	*	4879.805	38.52	4.61	43.13	54.00	-10.87	AVG	

REMARKS:

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

Test Mode : TX 2440 MHz _CH19_1Mbps

Horizontal



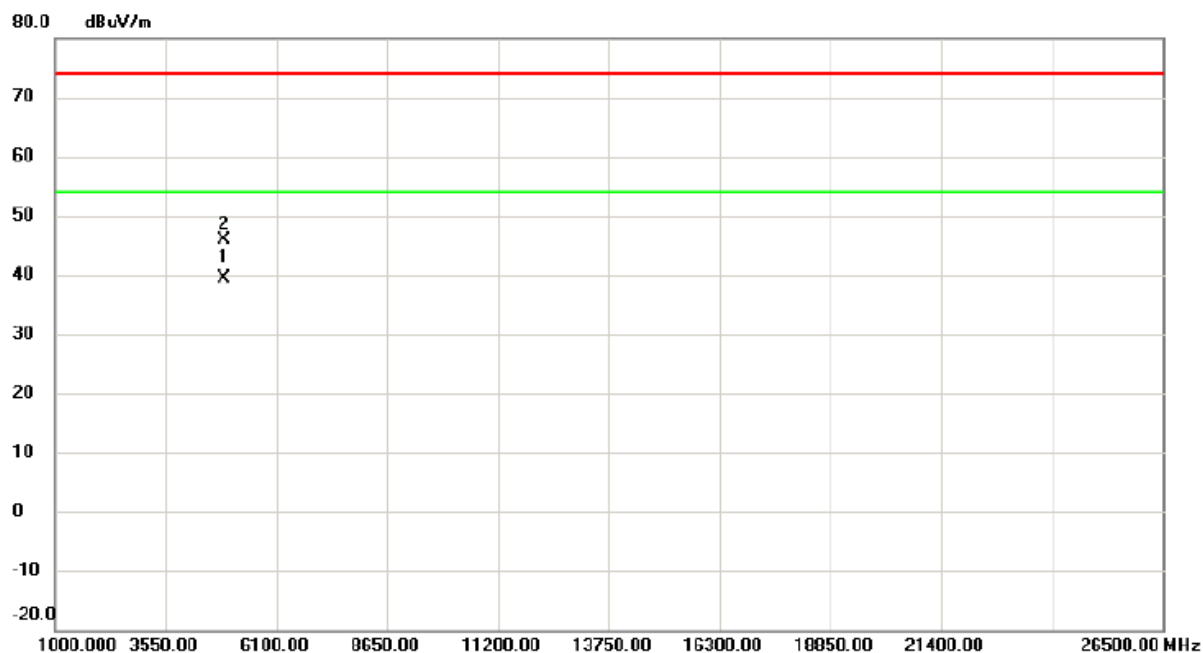
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2439.750	92.10	7.25	99.35	74.00	25.35	peak	No Limit
2	*	2440.000	90.93	7.25	98.18	54.00	44.18	AVG	No Limit

REMARKS:

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

Test Mode :	TX 2440 MHz _CH19_1Mbps
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Horizontal



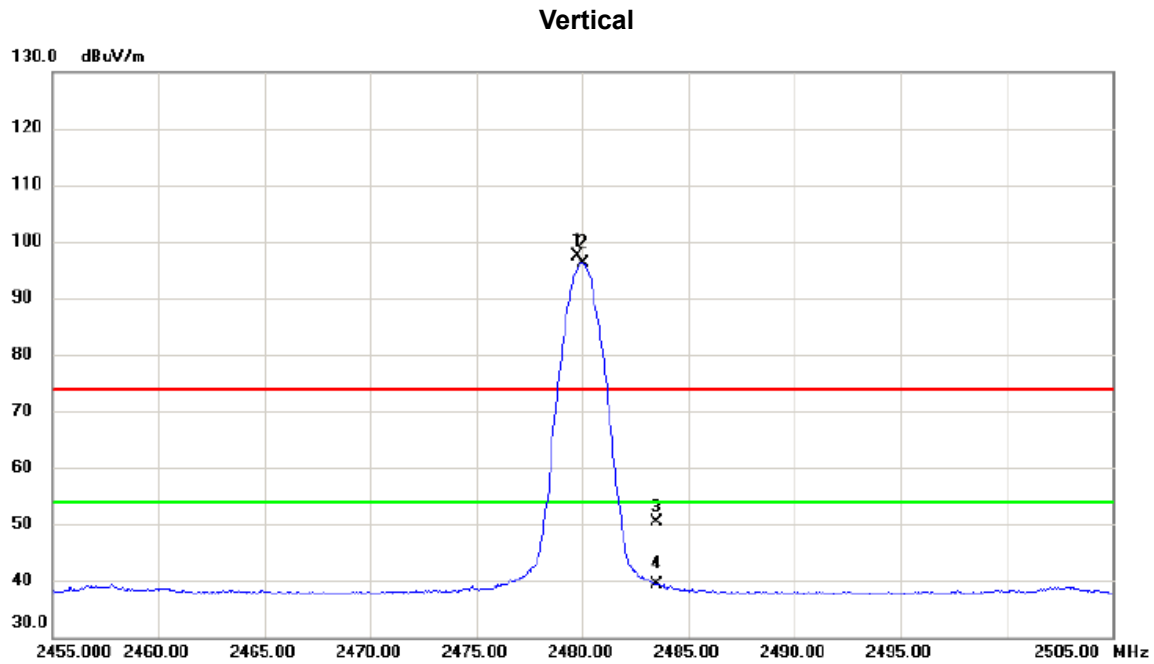
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4880.057	34.78	4.61	39.39	54.00	-14.61	AVG	
2		4880.267	41.31	4.61	45.92	74.00	-28.08	peak	

REMARKS:

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

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

Test Mode :	TX 2480 MHz _CH39_1Mbps
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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	X	2479.750	90.07	7.25	97.32	74.00	23.32	peak	No Limit
2	*	2480.000	88.87	7.25	96.12	54.00	42.12	AVG	No Limit
3		2483.500	43.23	7.25	50.48	74.00	-23.52	peak	
4		2483.500	32.21	7.25	39.46	54.00	-14.54	AVG	

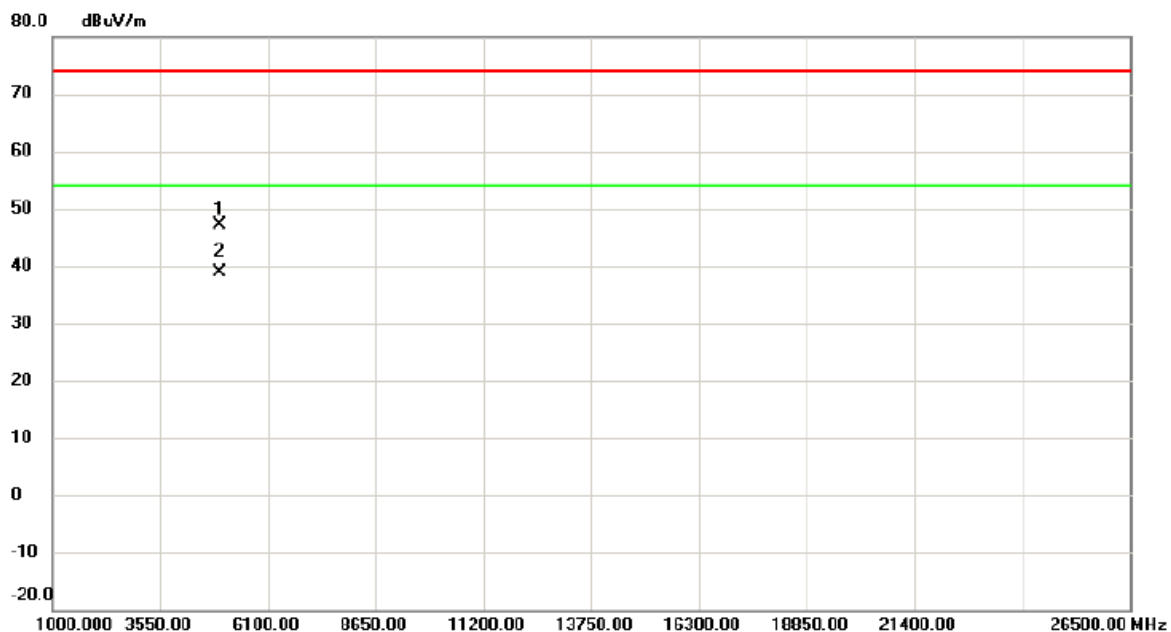
REMARKS:

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

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

Test Mode : TX 2480 MHz _CH39_1Mbps

Vertical



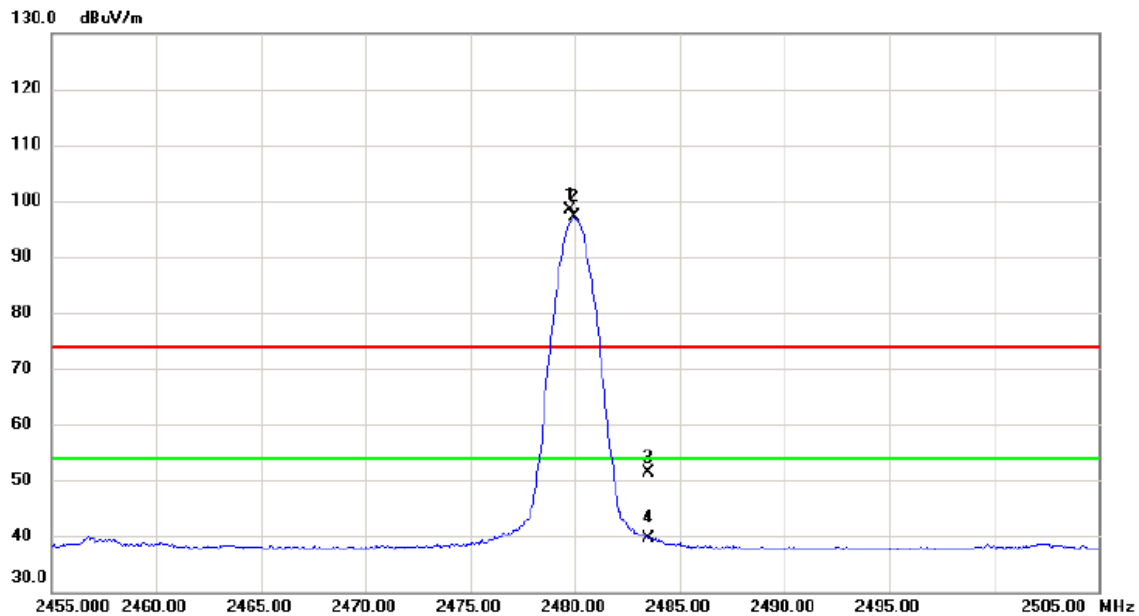
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4959.458	42.41	4.81	47.22	74.00	-26.78	peak	
2	*	4960.165	33.97	4.81	38.78	54.00	-15.22	AVG	

REMARKS:

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

Test Mode : TX 2480 MHz _CH39_1Mbps

Horizontal



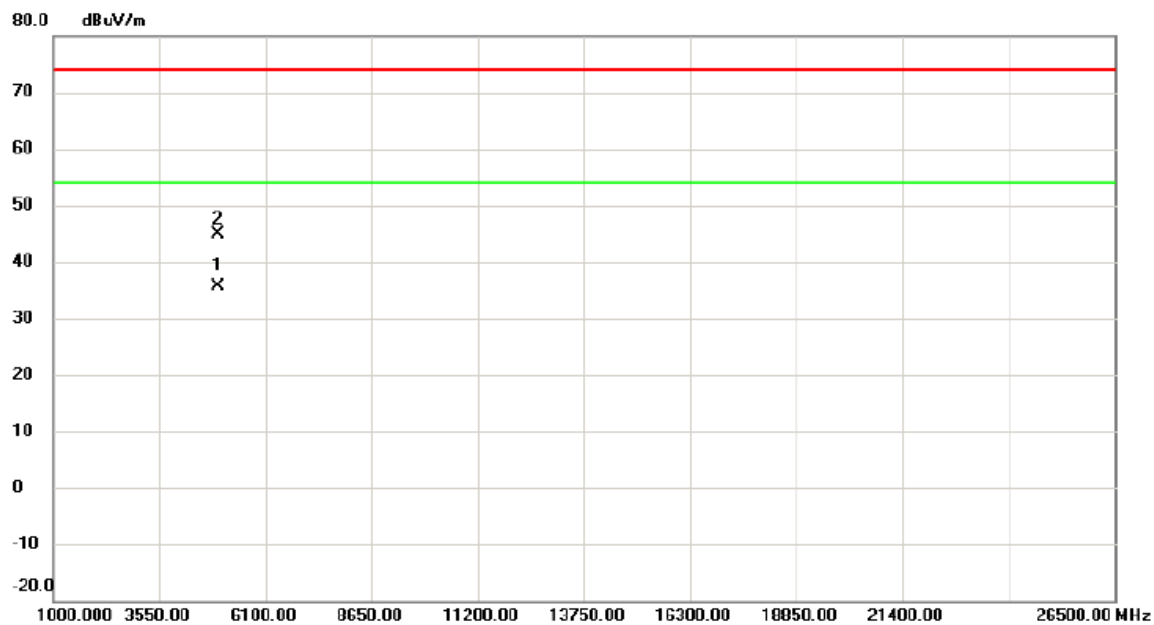
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	X	2479.750	91.02	7.25	98.27	74.00	24.27	peak	No Limit
2	*	2479.950	89.76	7.25	97.01	54.00	43.01	AVG	No Limit
3		2483.500	44.16	7.25	51.41	74.00	-22.59	peak	
4		2483.500	32.46	7.25	39.71	54.00	-14.29	AVG	

REMARKS:

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

Test Mode : TX 2480 MHz _CH39_1Mbps

Horizontal



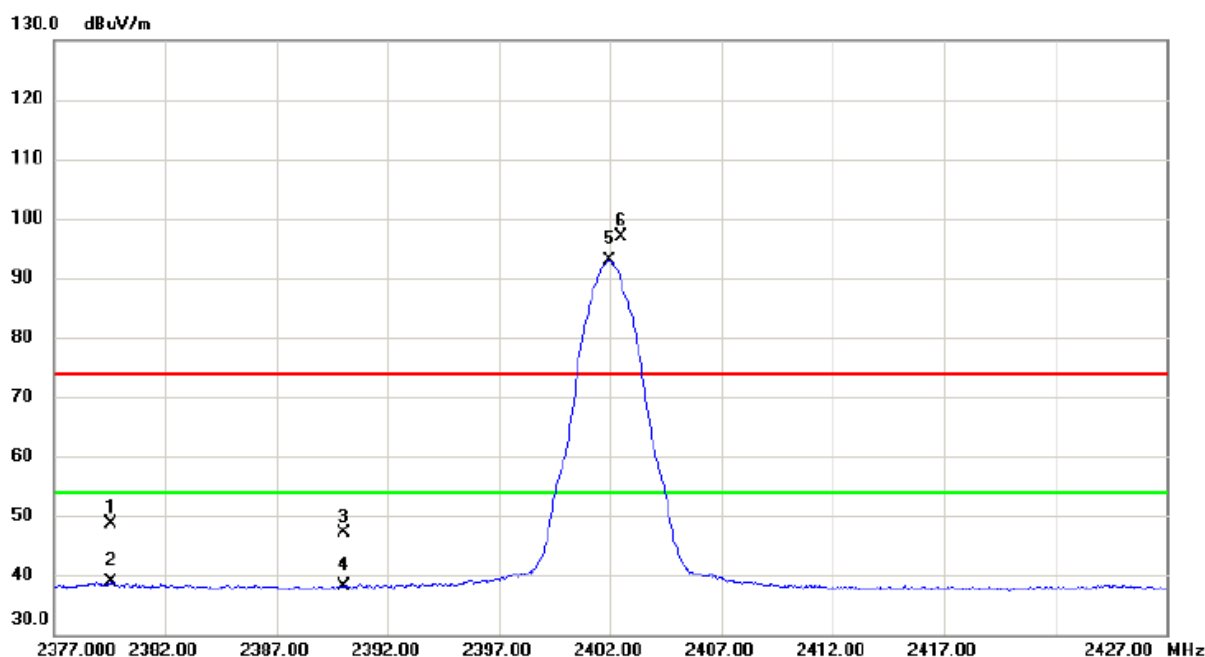
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4960.267	30.84	4.81	35.65	54.00	-18.35	AVG	
2		4960.310	40.13	4.81	44.94	74.00	-29.06	peak	

REMARKS:

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

Test Mode : TX 2402 MHz _CH00_2Mbps

Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2379.600	41.41	7.26	48.67	74.00	-25.33	peak	
2		2379.600	31.59	7.26	38.85	54.00	-15.15	AVG	
3		2390.000	39.89	7.26	47.15	74.00	-26.85	peak	
4		2390.000	30.86	7.26	38.12	54.00	-15.88	AVG	
5	*	2401.950	85.65	7.26	92.91	54.00	38.91	AVG	No Limit
6	X	2402.500	89.59	7.26	96.85	74.00	22.85	peak	No Limit

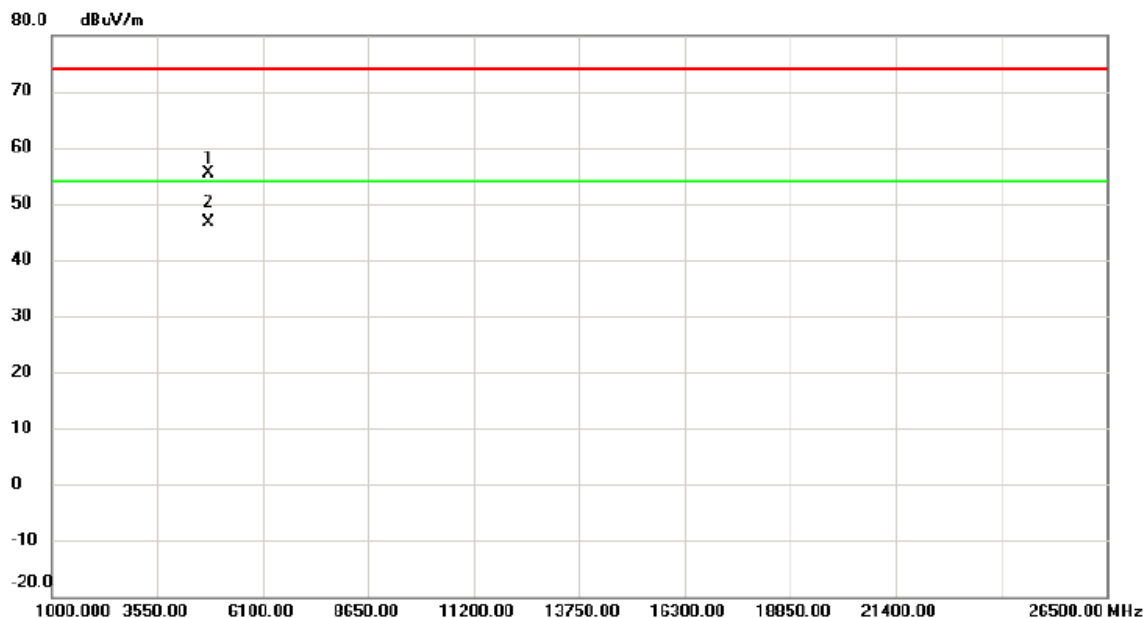
REMARKS:

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

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

Test Mode : TX 2402 MHz _CH00_2Mbps

Vertical



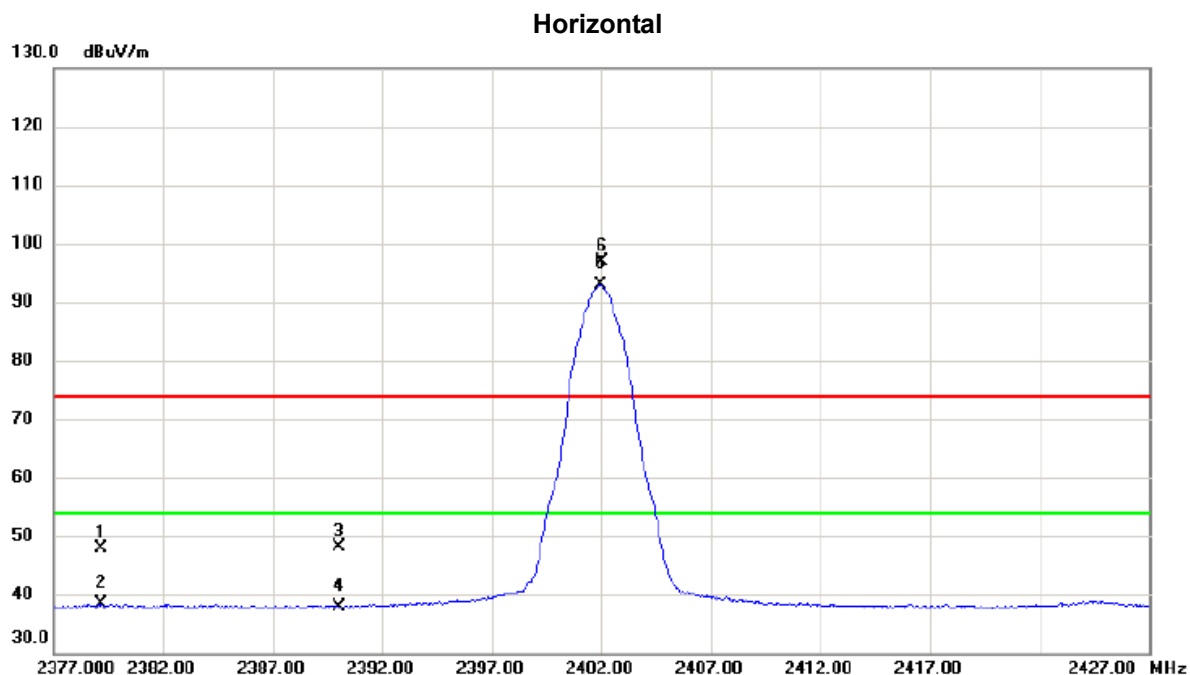
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4804.038	51.01	4.40	55.41	74.00	-18.59	peak	
2	*	4804.842	42.15	4.40	46.55	54.00	-7.45	AVG	

REMARKS:

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

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

Test Mode : TX 2402 MHz _CH00_2Mbps



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		2379.200	40.56	7.26	47.82	74.00	-26.18	peak	
2		2379.200	31.19	7.26	38.45	54.00	-15.55	AVG	
3		2390.000	40.83	7.26	48.09	74.00	-25.91	peak	
4		2390.000	30.69	7.26	37.95	54.00	-16.05	AVG	
5	*	2401.950	85.65	7.26	92.91	54.00	38.91	AVG	No Limit
6	X	2402.000	89.56	7.26	96.82	74.00	22.82	peak	No Limit

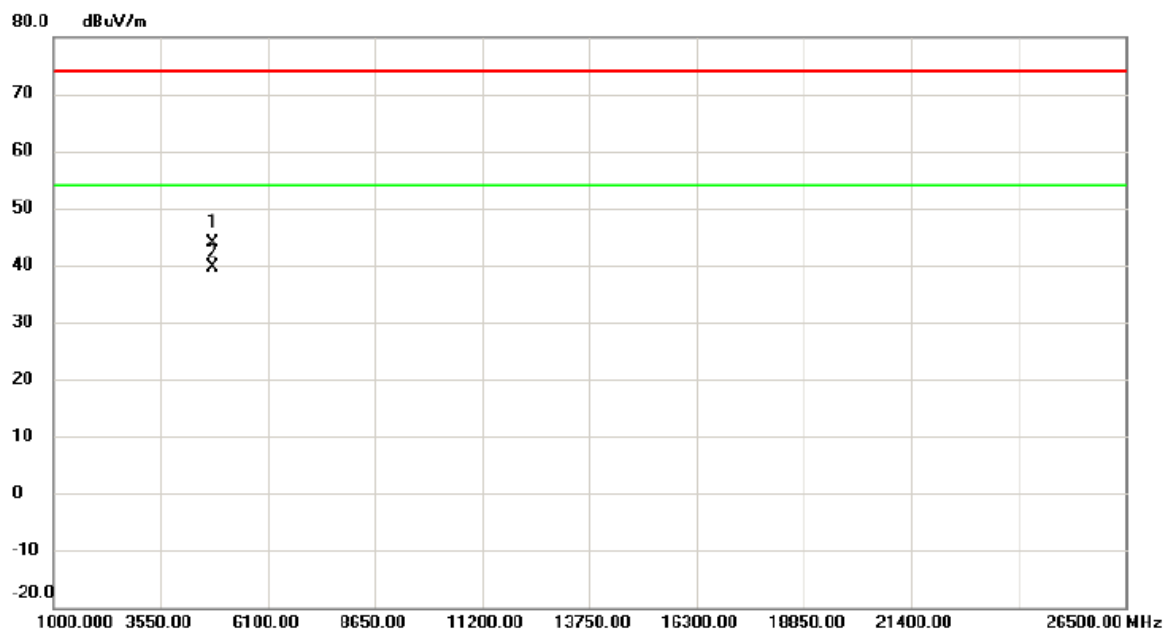
REMARKS:

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

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

Test Mode : TX 2402 MHz _CH00_2Mbps

Horizontal

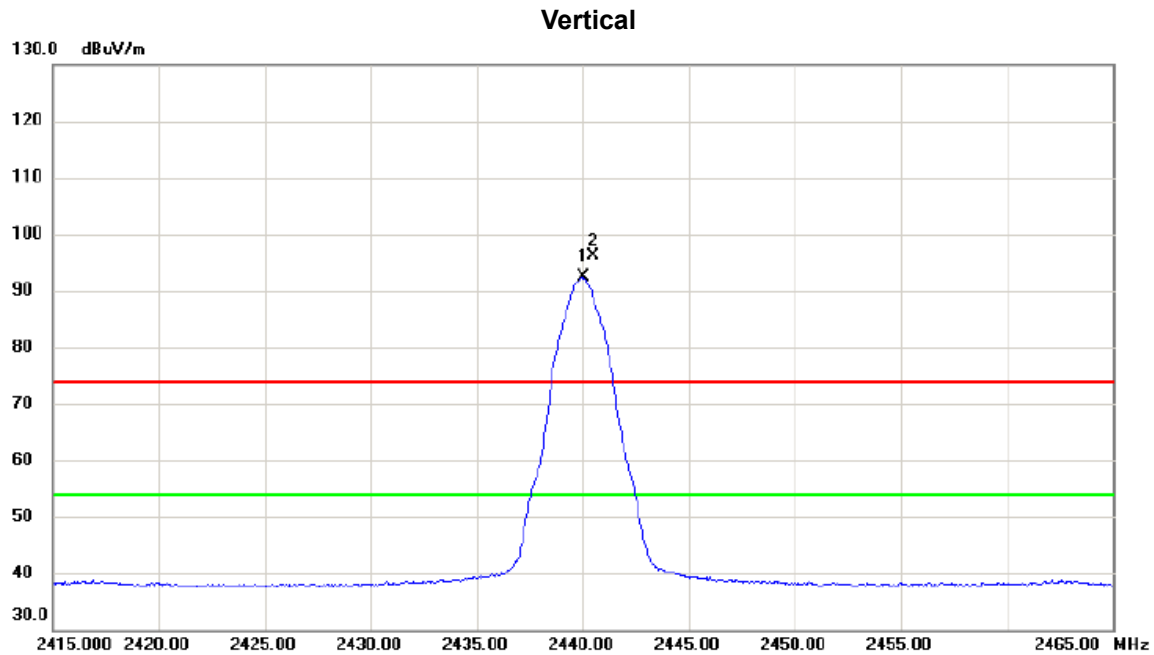


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4804.833	39.47	4.40	43.87	54.00	-10.13	AVG	
2		4804.915	35.22	4.40	39.62	74.00	-34.38	peak	

REMARKS:

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

Test Mode : TX 2440 MHz _CH19_2Mbps



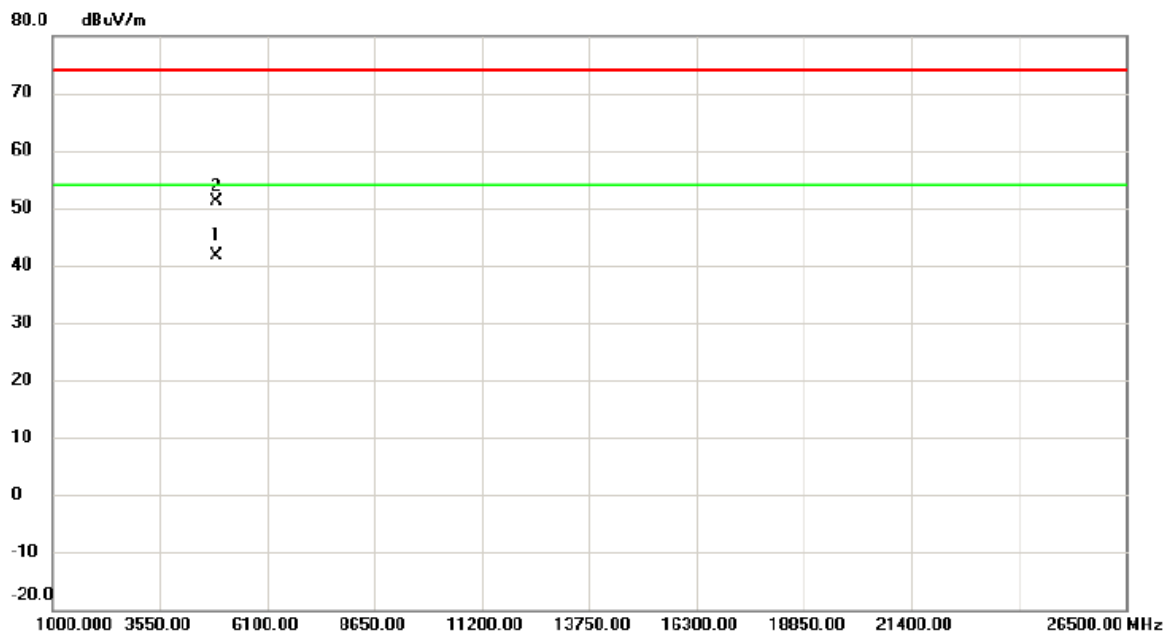
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2440.000	85.01	7.25	92.26	54.00	38.26	AVG	No Limit
2	X	2440.500	88.93	7.25	96.18	74.00	22.18	peak	No Limit

REMARKS:

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

Test Mode :	TX 2440 MHz _CH19_2Mbps
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Vertical



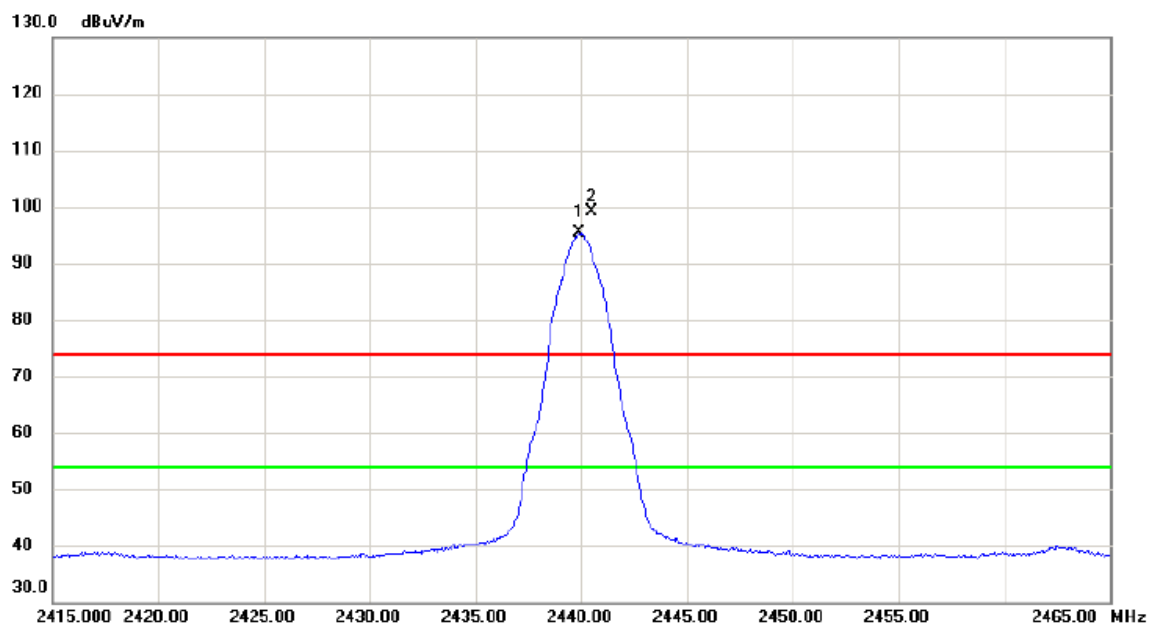
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4879.023	37.10	4.60	41.70	54.00	-12.30	AVG	
2		4880.983	46.47	4.61	51.08	74.00	-22.92	peak	

REMARKS:

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

Test Mode : TX 2440 MHz _CH19_2Mbps

Horizontal



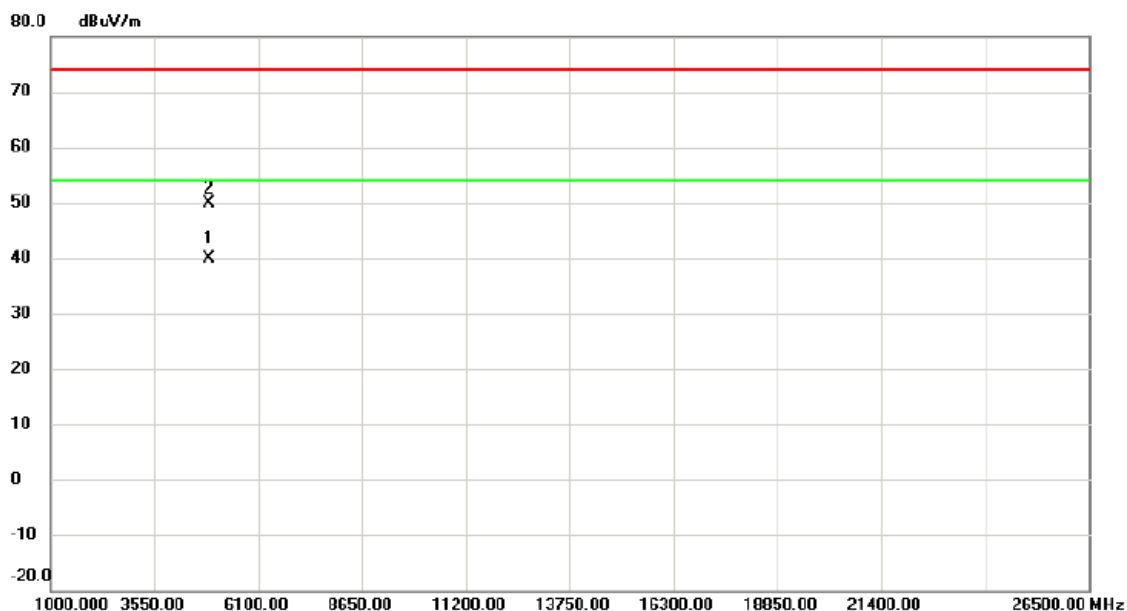
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2439.900	88.06	7.25	95.31	54.00	41.31	AVG	No Limit
2	X	2440.500	91.89	7.25	99.14	74.00	25.14	peak	No Limit

REMARKS:

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

Test Mode : TX 2440 MHz _CH19_2Mbps

Horizontal



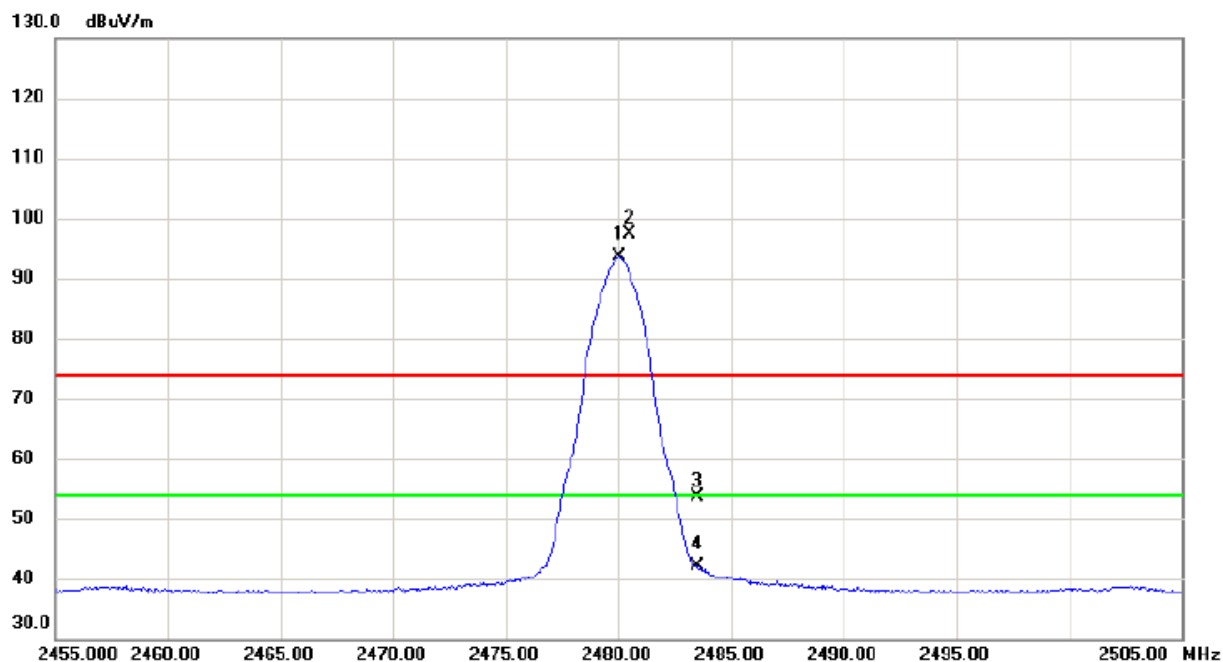
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	4879.057	35.19	4.60	39.79	54.00	-14.21	AVG	
2		4880.807	45.33	4.61	49.94	74.00	-24.06	peak	

REMARKS:

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

Test Mode : TX 2480 MHz _CH39_2Mbps

Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2480.000	86.27	7.25	93.52	54.00	39.52	AVG	No Limit
2	X	2480.500	90.22	7.25	97.47	74.00	23.47	peak	No Limit
3		2483.500	46.50	7.25	53.75	74.00	-20.25	peak	
4		2483.500	34.80	7.25	42.05	54.00	-11.95	AVG	

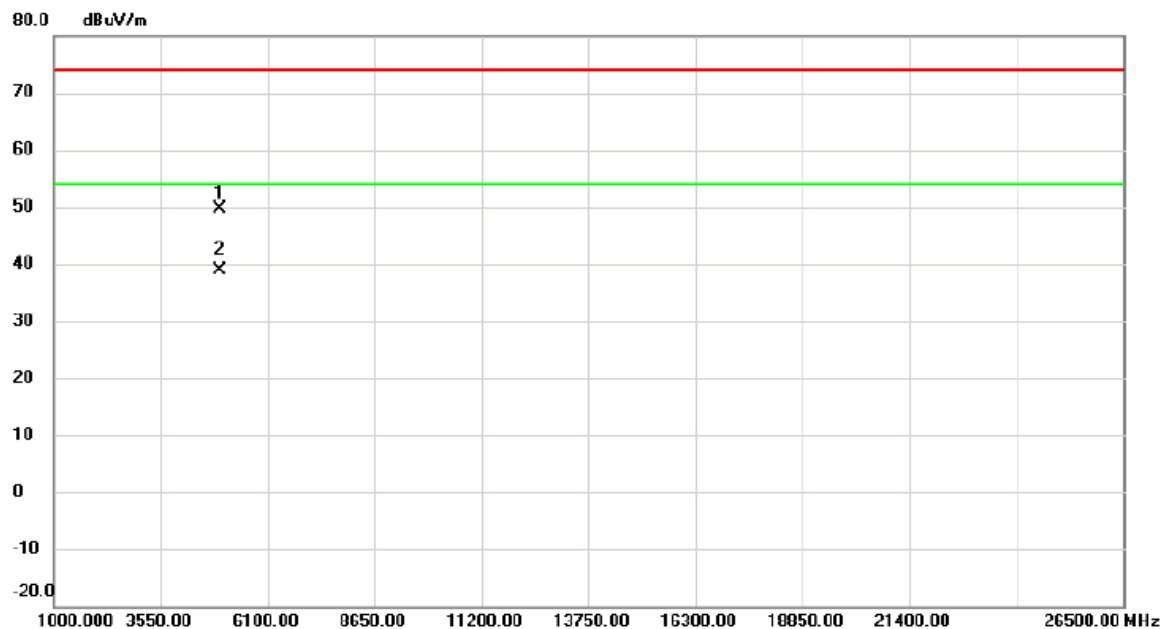
REMARKS:

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

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

Test Mode :	TX 2480 MHz _CH39_2Mbps
-------------	-------------------------

Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.802	44.89	4.81	49.70	74.00	-24.30	peak	
2	*	4960.895	34.03	4.81	38.84	54.00	-15.16	AVG	

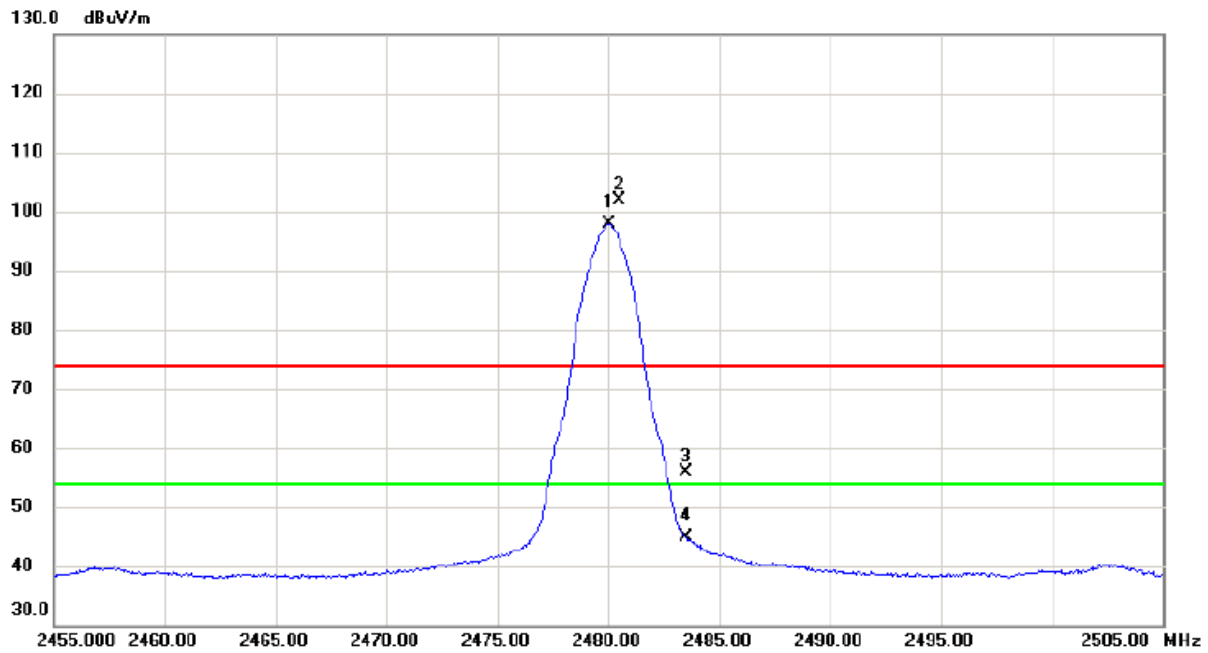
REMARKS:

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

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

Test Mode : TX 2480 MHz _CH39_2Mbps

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	2480.000	90.60	7.25	97.85	54.00	43.85	AVG	No Limit
2	X	2480.500	94.55	7.25	101.80	74.00	27.80	peak	No Limit
3		2483.500	48.67	7.25	55.92	74.00	-18.08	peak	
4		2483.500	37.55	7.25	44.80	54.00	-9.20	AVG	

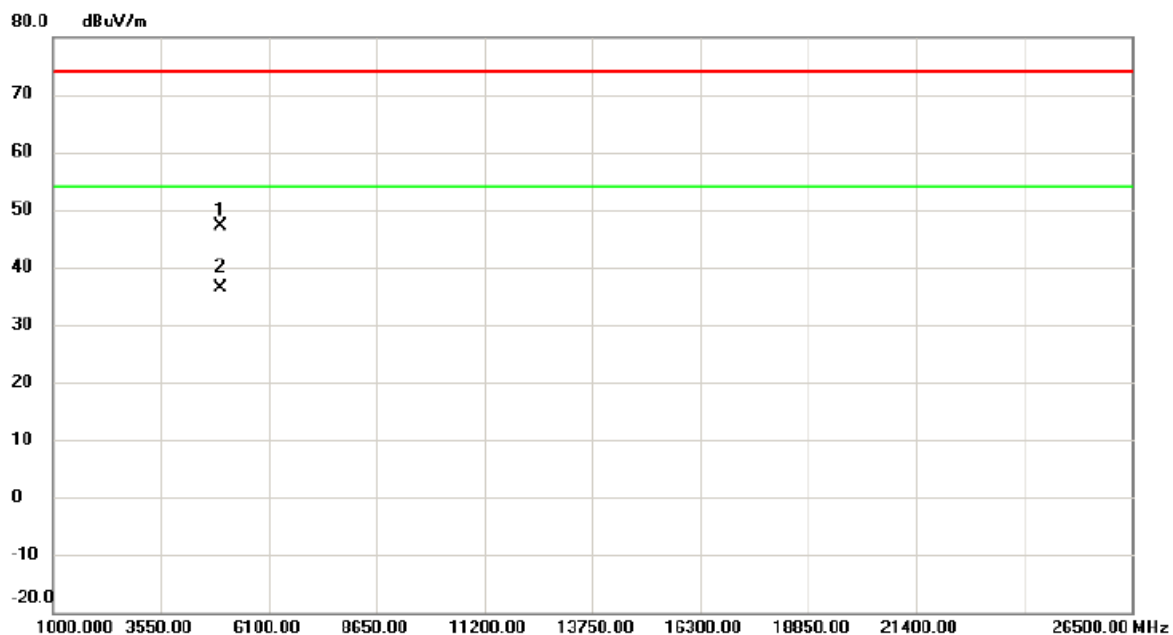
REMARKS:

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

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

Test Mode : TX 2480 MHz _CH39_2Mbps

Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		4960.698	42.37	4.81	47.18	74.00	-26.82	peak	
2	*	4960.927	31.58	4.81	36.39	54.00	-17.61	AVG	

REMARKS:

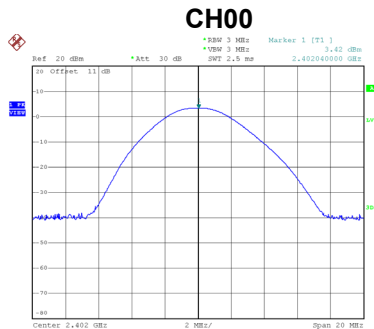
(1) Measurement Value = Reading Level + Correct Factor.

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

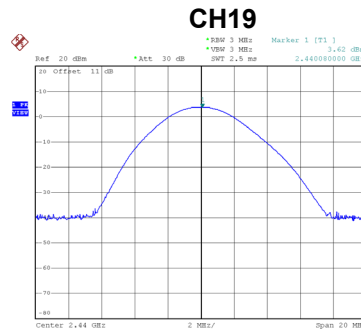
APPENDIX E - MAXIMUM OUTPUT POWER

Test Mode : CH00, CH19 , CH39 - 1Mbps

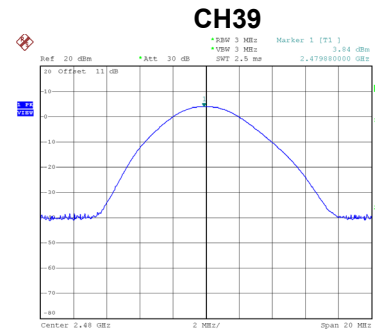
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	3.42	0.0022	30.00	1.00	Pass
2440	3.62	0.0023	30.00	1.00	Pass
2480	3.84	0.0024	30.00	1.00	Pass



Date: 28.JAN.2021 11:56:26



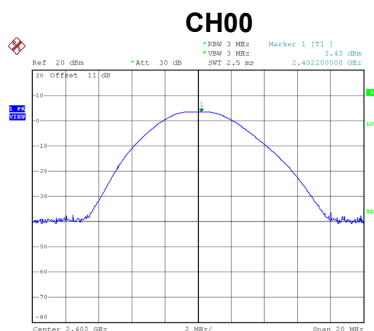
Date: 28.JAN.2021 11:56:38



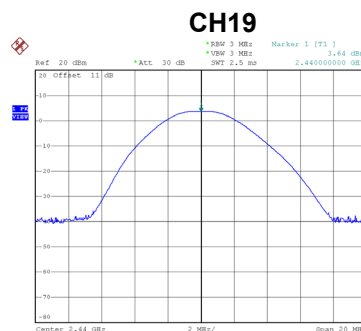
Date: 28.JAN.2021 11:56:49

Test Mode : CH00, CH19 , CH39 - 2Mbps

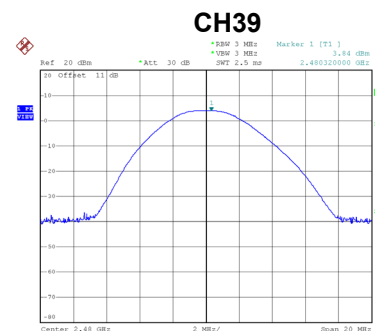
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	3.43	0.0022	30.00	1.00	Pass
2440	3.64	0.0023	30.00	1.00	Pass
2480	3.84	0.0024	30.00	1.00	Pass



Date: 28.JAN.2021 11:57:37



Date: 28.JAN.2021 11:57:49



Date: 28.JAN.2021 11:58:01

End of Test Report