



Report No.: TW2201122-02E
File Reference No.: 2022-02-14

Applicant: GUANGDONG MIETUBL HOLDING DEVELOPMENT CO., LTD

Product: SCREEN PROTECTOR CUTTER

Model No.: MTB-CUT M188

Trademark: MIETUBL

Test Standards: FCC Part 15.247

Test Result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10, FCC Part 15.247 for the evaluation of electromagnetic compatibility



Manager

Dated: February 14 2022

Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



Special Statement:

The testing quality ability of our laboratory meet with “Quality Law of People’s Republic of China” Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TESTING LABORATORIES.
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China
Telephone: (755) 83448688
Fax: (755) 83442996

1.2 Applicant Details

Applicant: GUANGDONG MIETUBL HOLDING DEVELOPMENT CO., LTD
Address: ROOM601, 602, 603, 605, 606, 607, 611, 612, 613, 5TH FLOOR NO.16 XIDI SECOND ROAD, LIWAN DISTRICT, GUANGZHOU (OFFICE ONLY)
Telephone: 18998293111
Fax: --

1.3 Description of EUT

Product: SCREEN PROTECTOR CUTTER
Manufacturer: GUANGDONG MIETUBL HOLDING DEVELOPMENT CO., LTD
Address: ROOM601, 602, 603, 605, 606, 607, 611, 612, 613, 5TH FLOOR NO.16 XIDI SECOND ROAD, LIWAN DISTRICT, GUANGZHOU (OFFICE ONLY)
Trademark: MIETUBL
Additional Trademark: N/A
Model Number: MTB-CUT M188
Additional Model: N/A
Number:
Hardware Version: V9.0810
Software Version: V21.0710
Serial No.: MT001080222084028
Type of Modulation: GFSK (Bluetooth BLE)
Frequency range: 2402-2480MHz
Frequency Selection: By software
Channel Number: 40
Rating: Input: DC24V, 2.7A, 50W
Power Supply1: Model: FJ-SW20172402700; Input: 100-240V~, 50/60Hz, 1.5A Max;
Output: 24V, 2.7A, 64.8W
Power Supply2: Model: GM60-240275-F; Input: 100-240V~, 50/60Hz, 2.0A;
Output: DC24V, 2.75A, 66W

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EUT has two alternative flash storage:

Model 1: KLM8G1GETF-B041, produced by Samsung;

Model 2: EMMC08G-T227, produced by Kingston;

1.4 Submitted Sample: 2 Sample

1.5 Test Duration

2022-01-12 to 2022-02-09

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

Print Name: Andy Yung



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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2021-06-18	2022-06-17
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2021-06-18	2022-06-17
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2021-06-18	2022-06-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2021-06-18	2022-06-17
Loop Antenna	EMCO	6507	00078608	2021-06-18	2022-06-17
Spectrum	R&S	FSIQ26	100292	2021-06-18	2022-06-17
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2021-06-18	2022-06-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2021-07-02	2024-07-01
Power meter	Anritsu	ML2487A	6K00003613	2021-06-18	2022-06-17
Power sensor	Anritsu	MA2491A	32263	2021-06-18	2022-06-17
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2021-07-02	2024-07-01
9*6*6 Anechoic	--	--	N/A	2021-07-02	2022-07-01
EMI Test Receiver	RS	ESVB	826156/011	2021-06-18	2022-06-17
EMI Test Receiver	RS	ESH3	860904/006	2021-06-18	2022-06-17
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2021-06-18	2022-06-17
Spectrum	HP/Agilent	E4407B	MY50441392	2021-06-18	2022-06-17
Spectrum	RS	FSP	1164.4391.38	2022-01-14	2023-01-13
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/F A	--	2021-06-18	2022-06-17
RF Cable	Zhengdi	7m	--	2021-06-18	2022-06-17
RF Switch	EM	EMSW18	060391	2021-06-18	2022-06-17
Pre-Amplifier	Schwarebeck	BBV9743	#218	2021-06-18	2022-06-17
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2021-06-18	2022-06-17
LISN	SCHAFFNER	NNB42	00012	2022-01-05	2023-01-04

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	Pass	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	Pass	Complies
FCC Part 15, Paragraph 15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	Pass	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm/3kHz	Pass	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	Pass	Complies

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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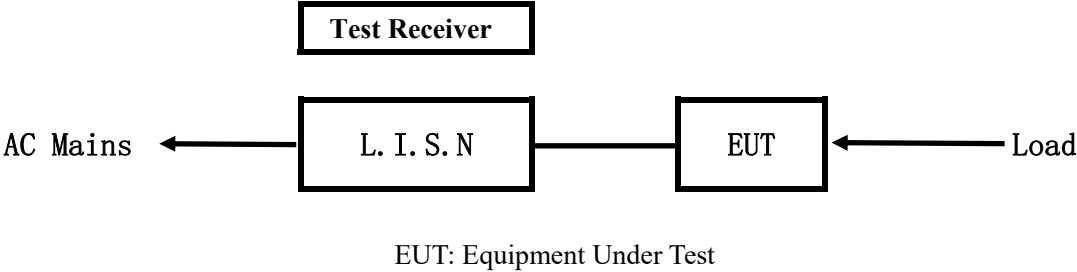
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5.Power Line Conducted Emission Test

5.1 Schematics of the test

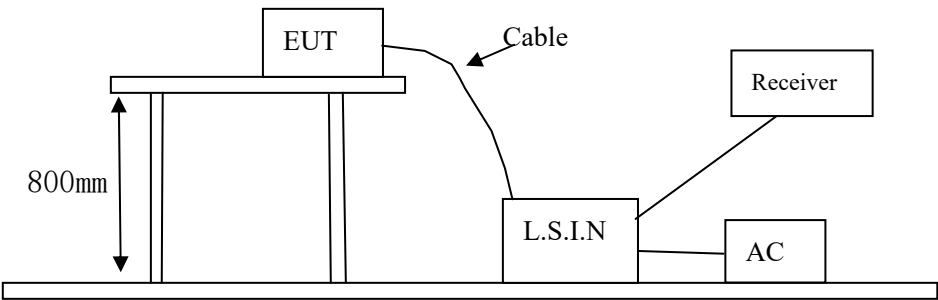


5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
SCREEN PROTECTOR CUTTER	GUANGDONG LONGOOD INTELLIGENT ELECTRIC CO.,LTD	MTB-CUT M188	2A4DW-M188

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B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	Rating
N/A			

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB μ V)	
	Quasi-peak Level	verage Level
0.15 ~ 0.50	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

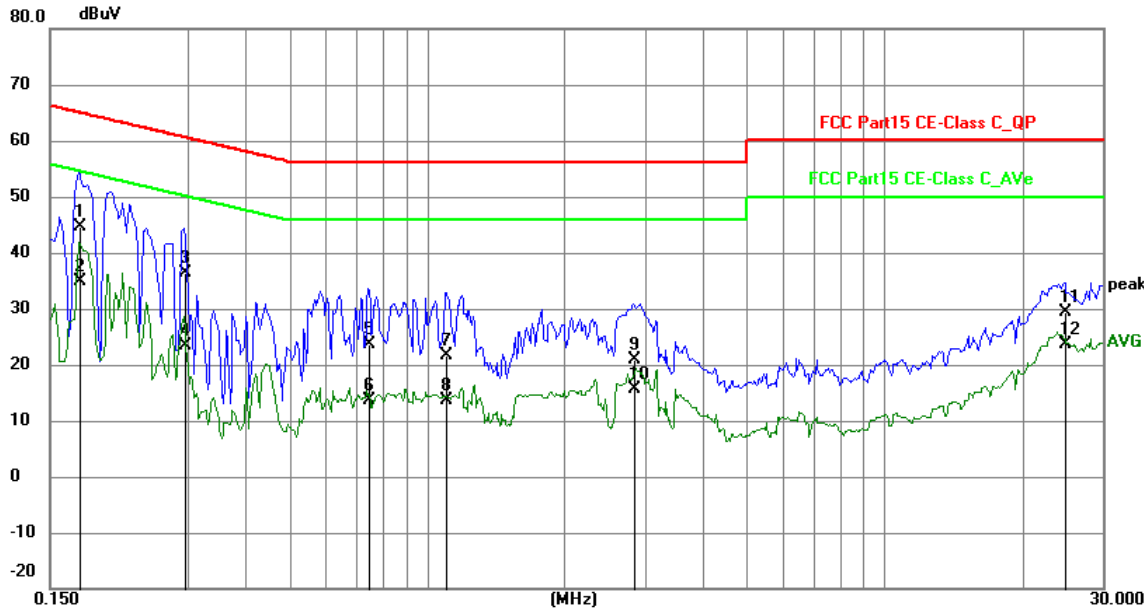
EUT Operating Environment

Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep BT Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1734	34.84	9.77	44.61	64.80	-20.19	QP	P
2	0.1734	25.13	9.77	34.90	54.80	-19.90	AVG	P
3	0.2943	26.66	9.76	36.42	60.40	-23.98	QP	P
4	0.2943	13.51	9.76	23.27	50.40	-27.13	AVG	P
5	0.7467	13.78	9.78	23.56	56.00	-32.44	QP	P
6	0.7467	3.90	9.78	13.68	46.00	-32.32	AVG	P
7	1.0976	11.93	9.79	21.72	56.00	-34.28	QP	P
8	1.0976	3.80	9.79	13.59	46.00	-32.41	AVG	P
9	2.8254	11.03	9.84	20.87	56.00	-35.13	QP	P
10	2.8254	5.72	9.84	15.56	46.00	-30.44	AVG	P
11	24.7815	18.48	10.98	29.46	60.00	-30.54	QP	P
12	24.7815	12.65	10.98	23.63	50.00	-26.37	AVG	P

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

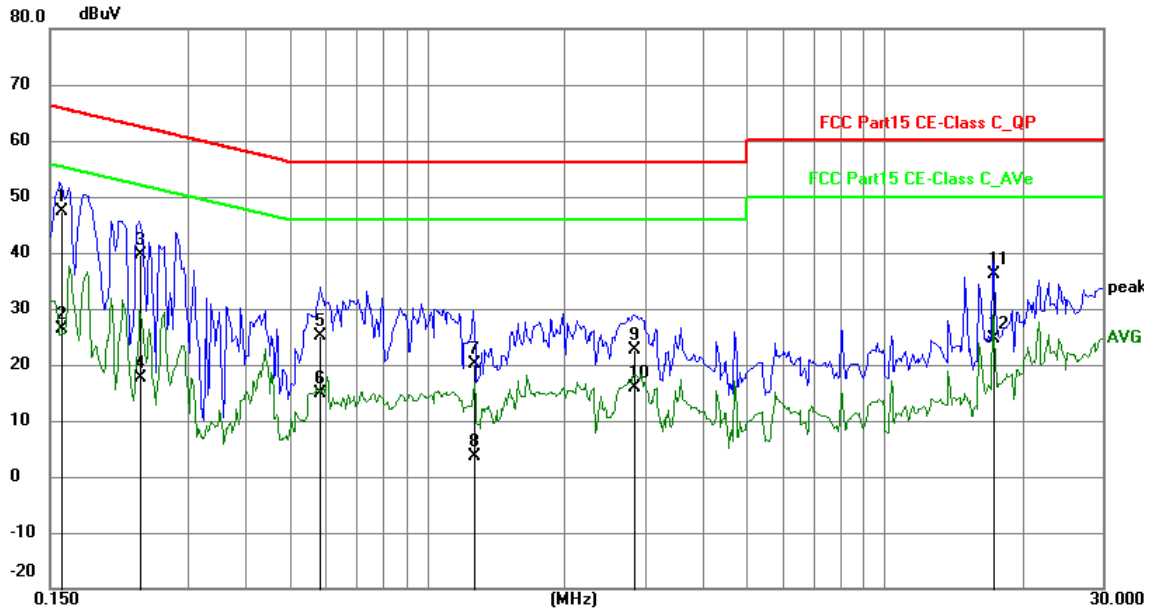
EUT Operating Environment

Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep BT Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1582	37.65	9.78	47.43	65.56	-18.13	QP	P
2	0.1582	16.72	9.78	26.50	55.56	-29.06	AVG	P
3	0.2358	29.82	9.75	39.57	62.24	-22.67	QP	P
4	0.2358	7.84	9.75	17.59	52.24	-34.65	AVG	P
5	0.5829	15.33	9.77	25.10	56.00	-30.90	QP	P
6	0.5829	5.08	9.77	14.85	46.00	-31.15	AVG	P
7	1.2653	10.40	9.79	20.19	56.00	-35.81	QP	P
8	1.2653	-6.27	9.79	3.52	46.00	-42.48	AVG	P
9	2.8254	12.85	9.84	22.69	56.00	-33.31	QP	P
10	2.8254	6.02	9.84	15.86	46.00	-30.14	AVG	P
11	17.2623	25.53	10.52	36.05	60.00	-23.95	QP	P
12	17.2623	14.13	10.52	24.65	50.00	-25.35	AVG	P

Note: Two power supplies and Flash storages were tested. In the test report, only the worst case was recorded.

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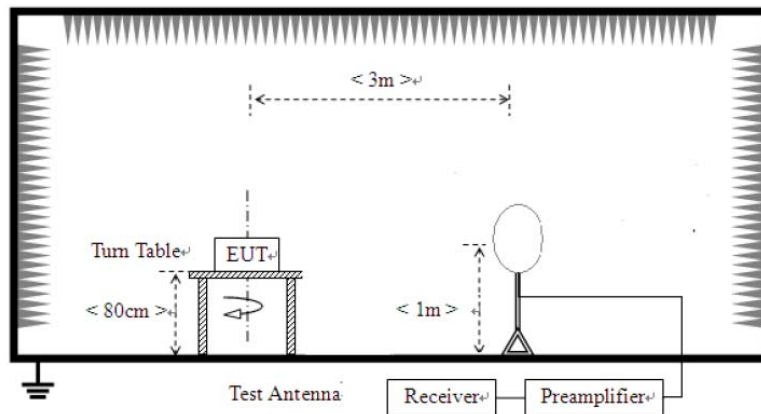
6 Radiated Emission Test

6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings were performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a “QP” in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



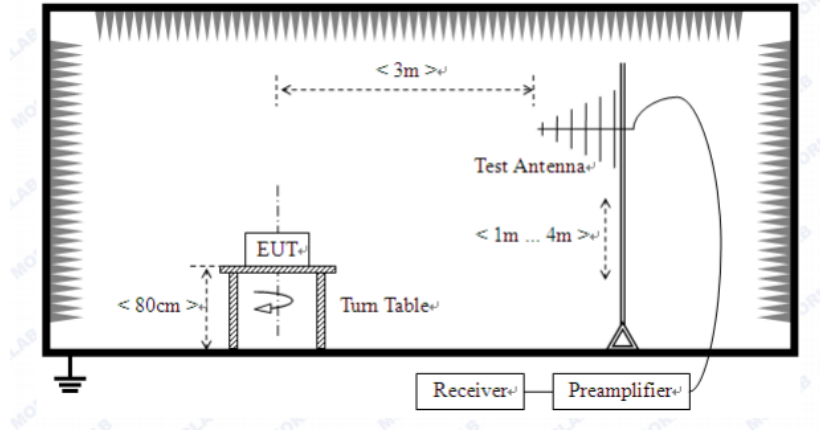
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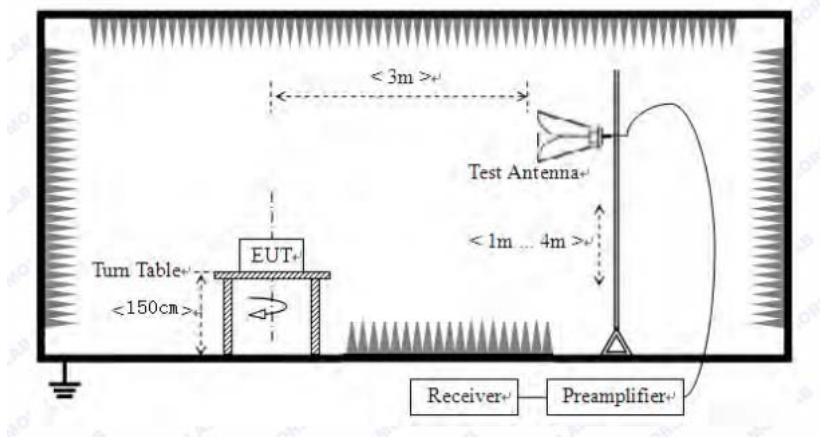
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For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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Frequencies in restricted band are complied to limit on Paragraph 15.209

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.049	3	$20\log(2400/F(\text{kHz})) + 40\log(300/3)$
0.490-1.705	3	$20\log(24000/F(\text{kHz})) + 40\log(30/3)$
1.705-30	3	69.5
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = $20 \log$ RF Voltage (μ V)
 2. In the Above Table, the higher limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.

Note: Two power supplies and Flash storages were tested. In the test report, only the worst case was recorded.

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

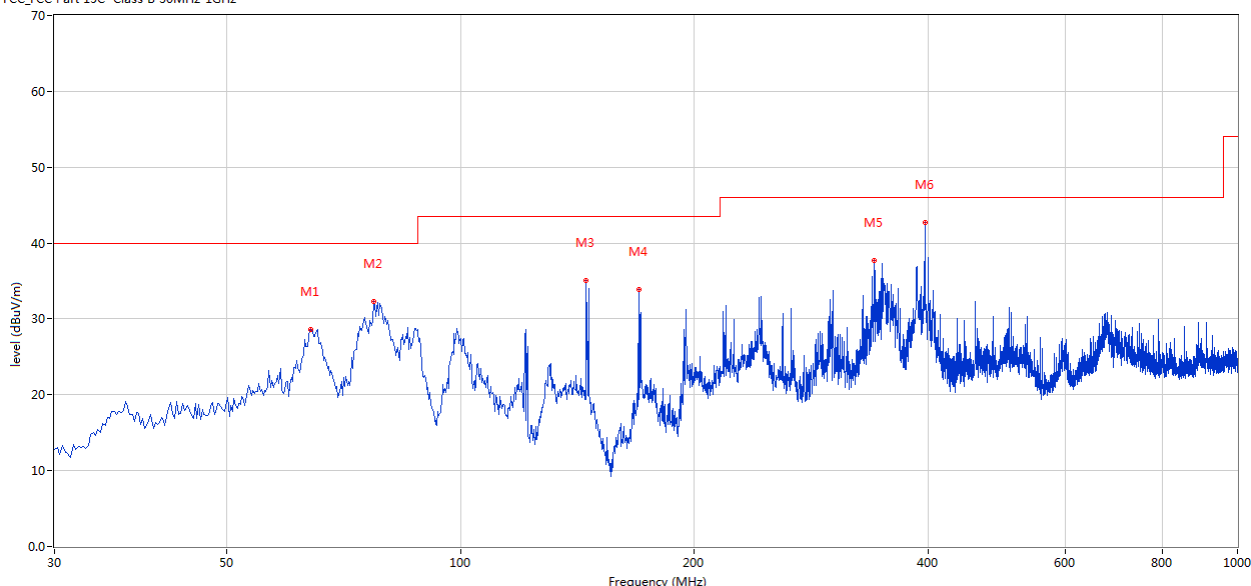
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Bluetooth Transmitting

Results: Pass

Test Figure:

FCC_FCC Part 15C Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	64.184	28.66	-13.37	40.0	-11.34	Peak	0.00	200	Horizontal	Pass
2	77.276	32.29	-17.58	40.0	-7.71	Peak	0.00	200	Horizontal	Pass
3	145.159	35.10	-17.26	43.5	-8.40	Peak	53.00	100	Horizontal	Pass
4	169.645	33.86	-16.06	43.5	-9.64	Peak	320.00	100	Horizontal	Pass
5	341.050	37.70	-9.75	46.0	-8.30	Peak	94.00	100	Horizontal	Pass
6	395.841	42.77	-8.70	46.0	-3.23	Peak	17.00	200	Horizontal	Pass

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Test result

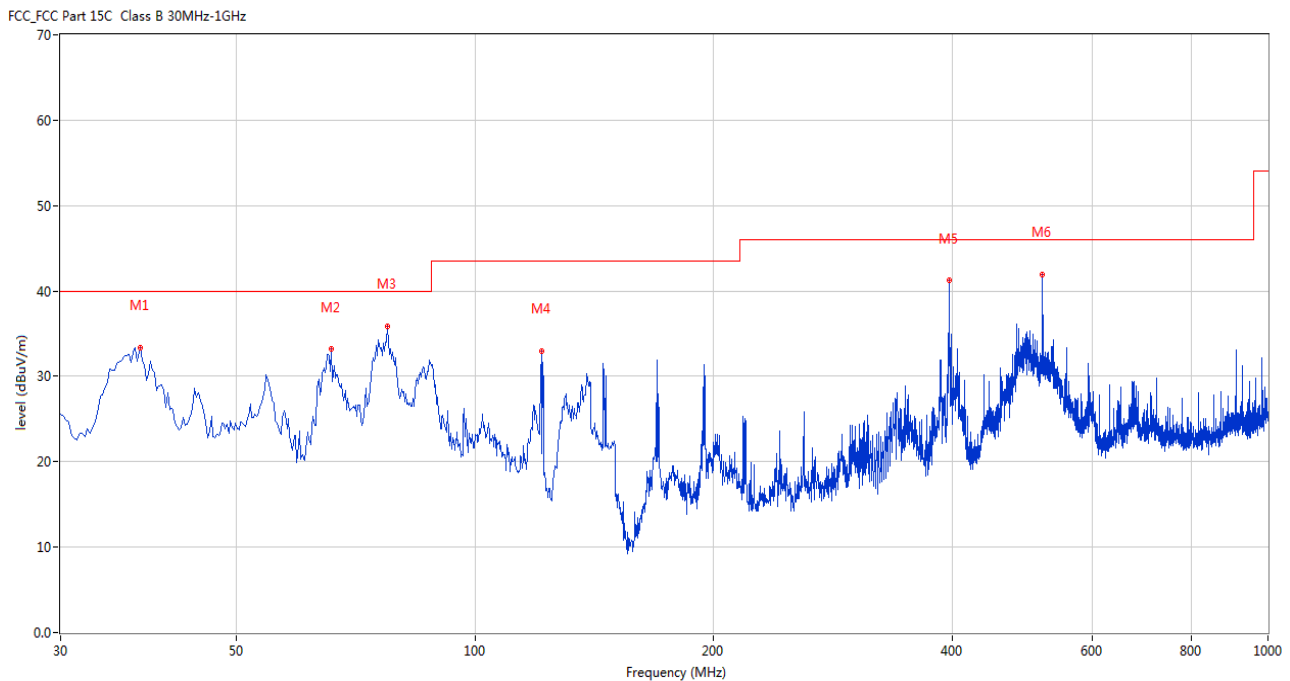
General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: **Keep Transmitting**

Results: Pass

Test Figure:



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	37.758	33.38	-12.84	40.0	-6.62	Peak	70.00	100	Vertical	Pass
2	65.881	33.16	-13.87	40.0	-6.84	Peak	282.00	100	Vertical	Pass
3	77.518	35.81	-17.56	40.0	-4.19	Peak	94.00	100	Vertical	Pass
4	121.157	32.90	-15.59	43.5	-10.60	Peak	285.00	100	Vertical	Pass
5	395.841	41.20	-8.70	46.0	-4.80	Peak	359.00	100	Vertical	Pass
6	519.728	41.94	-6.76	46.0	-4.06	Peak	359.00	100	Vertical	Pass

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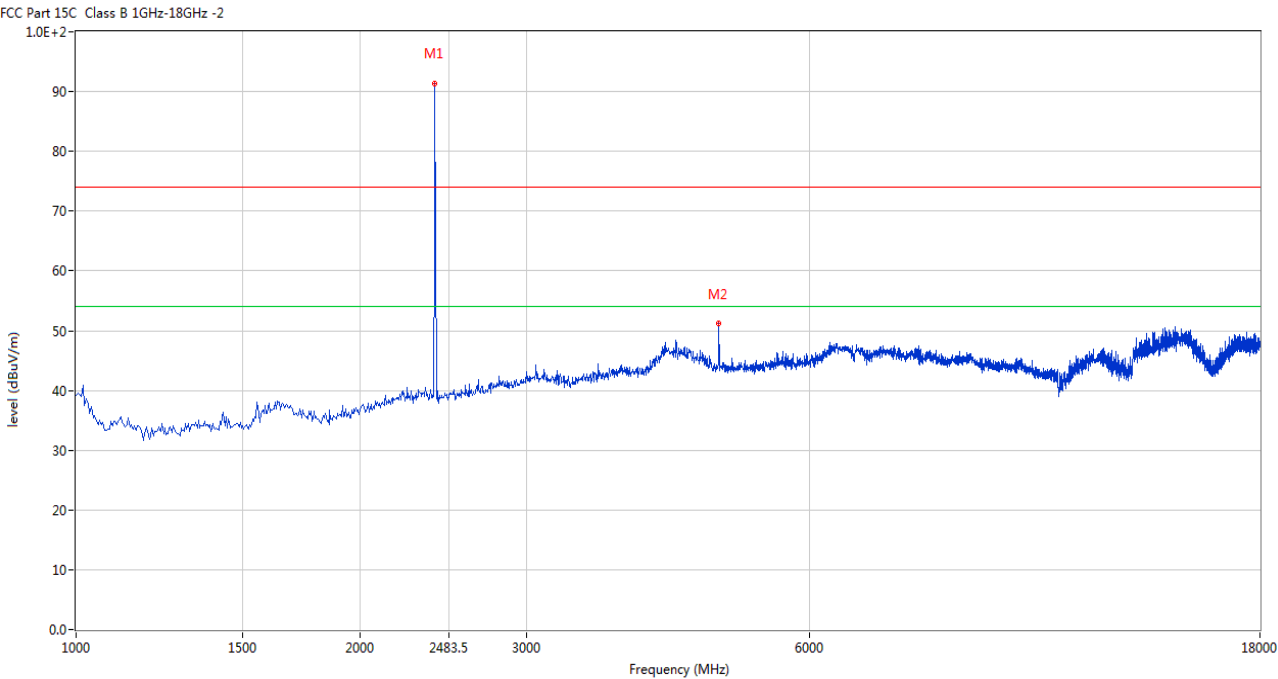
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Test Figures above 1GHz:

Please refer to the following test plots for details:

Low Channel: Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	4802.799	51.17	3.12	74.0	-22.83	Peak	133.00	100	Horizontal	Pass

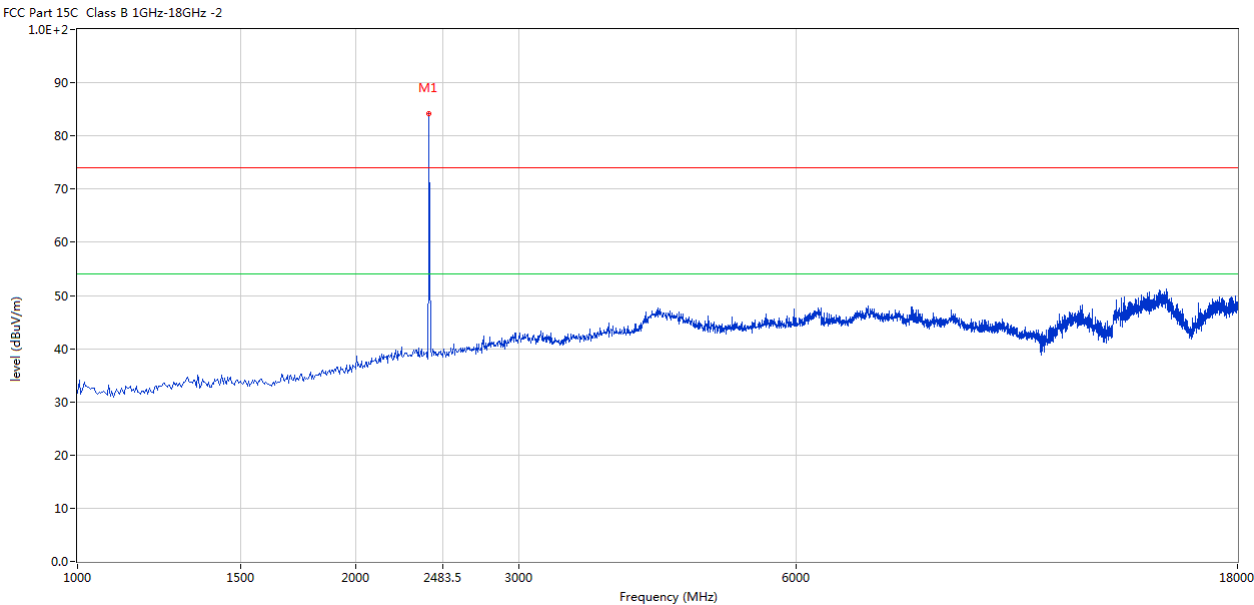
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Low Channel: Vertical



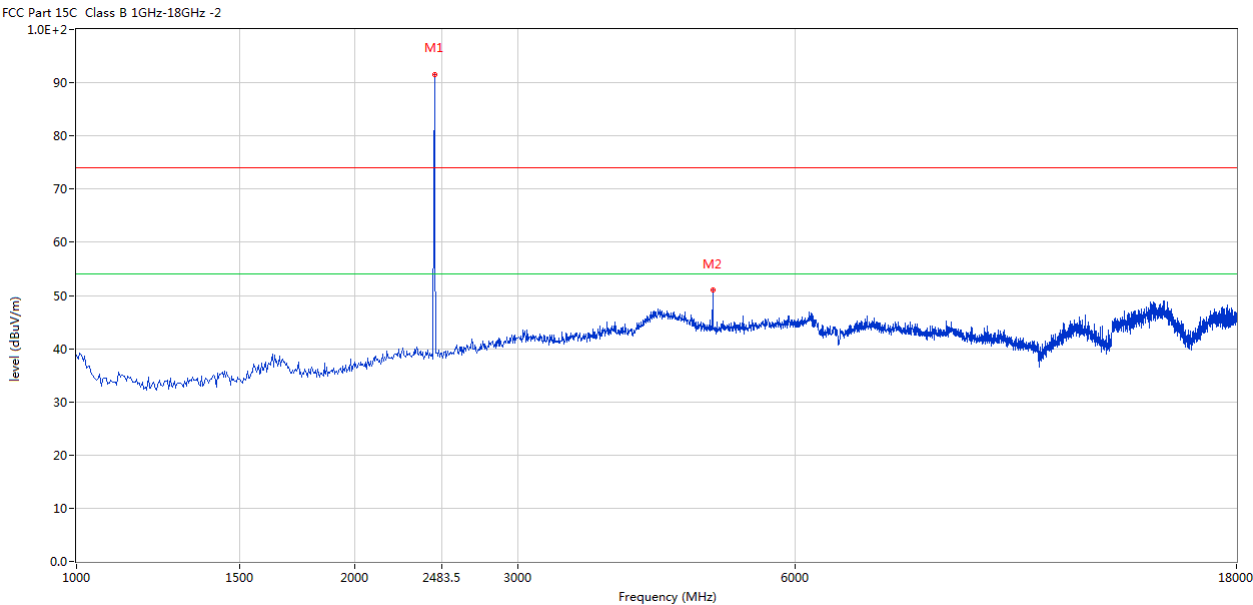
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Middle Channel: Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	4879.280	50.96	3.20	74.0	-23.04	Peak	93.00	100	Horizontal	Pass

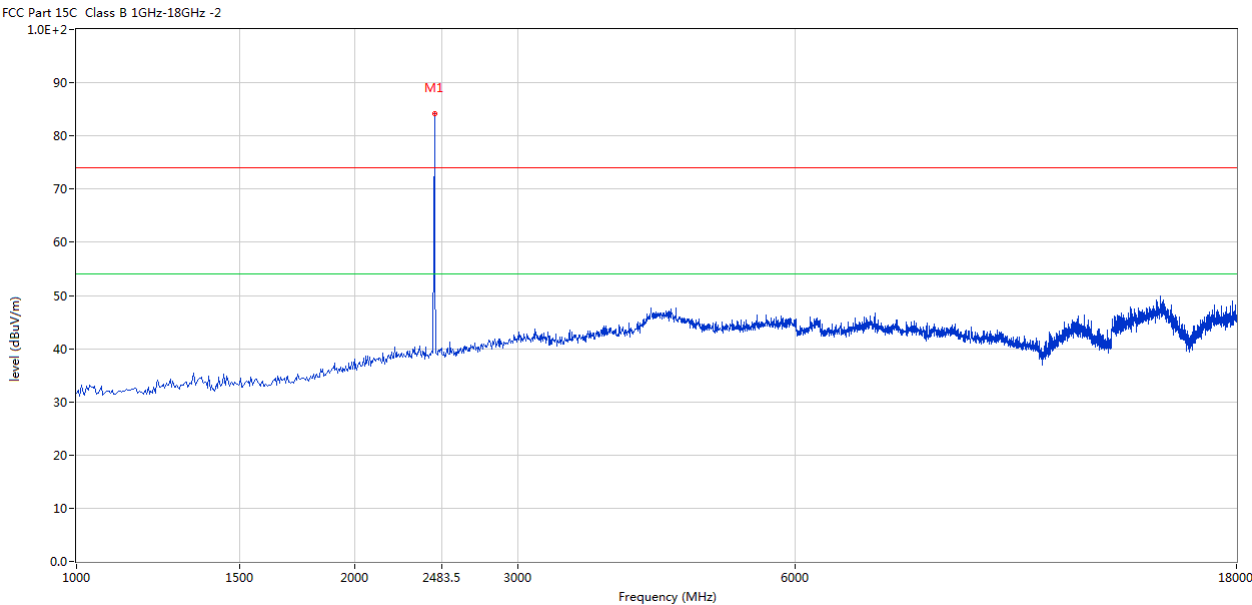
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Middle Channel: Vertical



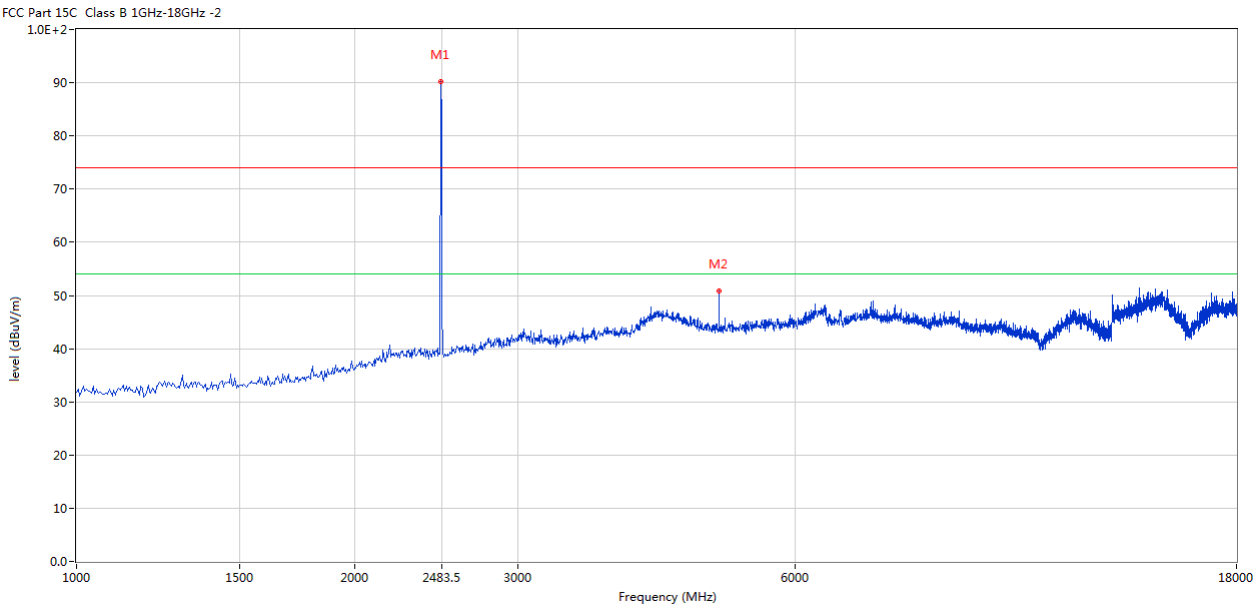
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High Channel: Horizontal



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
2	4960.010	50.89	3.36	74.0	-23.11	Peak	102.00	100	Horizontal	Pass

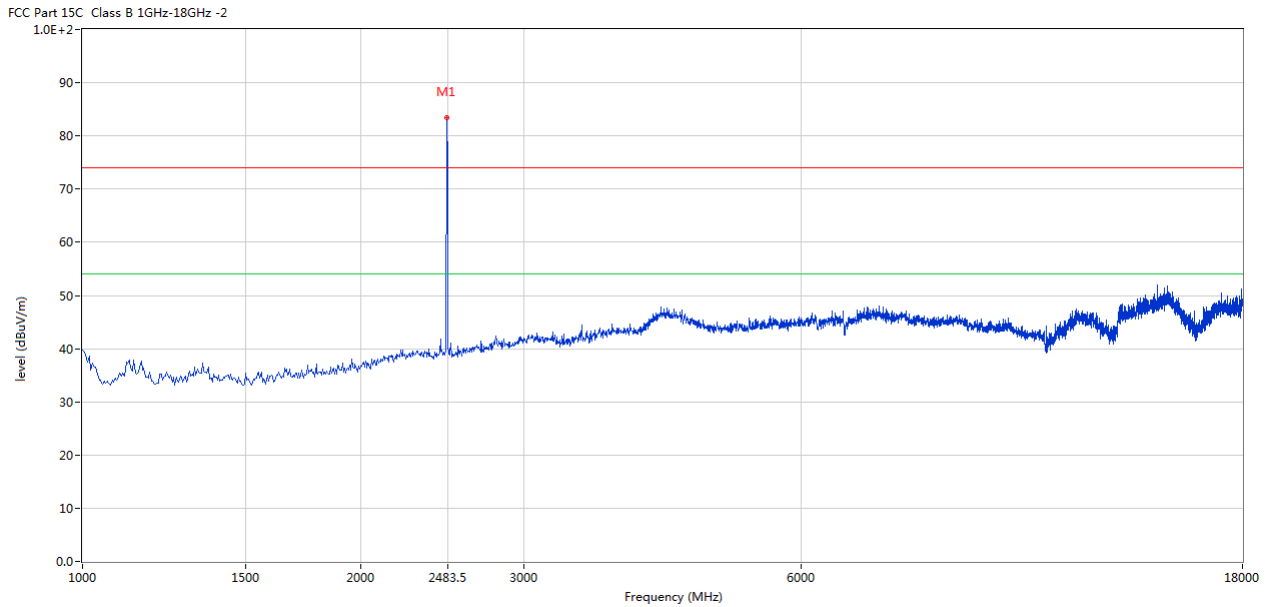
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High Channel: Vertical



- Note: 1. Level = Reading + AF + Cable - Preamp
2. For the radiated emissions above 18G and below 30MHz, it is the floor noise.
3. The measured PK value less than the AV limit, no necessary to take down the AV measurement result.

The report refers only to the sample tested and does not apply to the bulk.

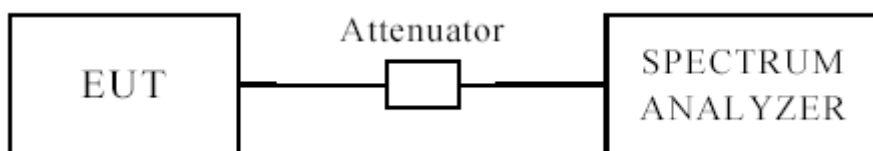
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7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

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6dB BW

EUT	SCREEN PROTECTOR CUTTER		Model	MTB-CUT M188	
Mode	Keep Transmitting		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	6 dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass/ Fail	
Low	2402	697	0.5	Pass	
Middle	2440	703	0.5	Pass	
High	2480	697	0.5	Pass	

The report refers only to the sample tested and does not apply to the bulk.

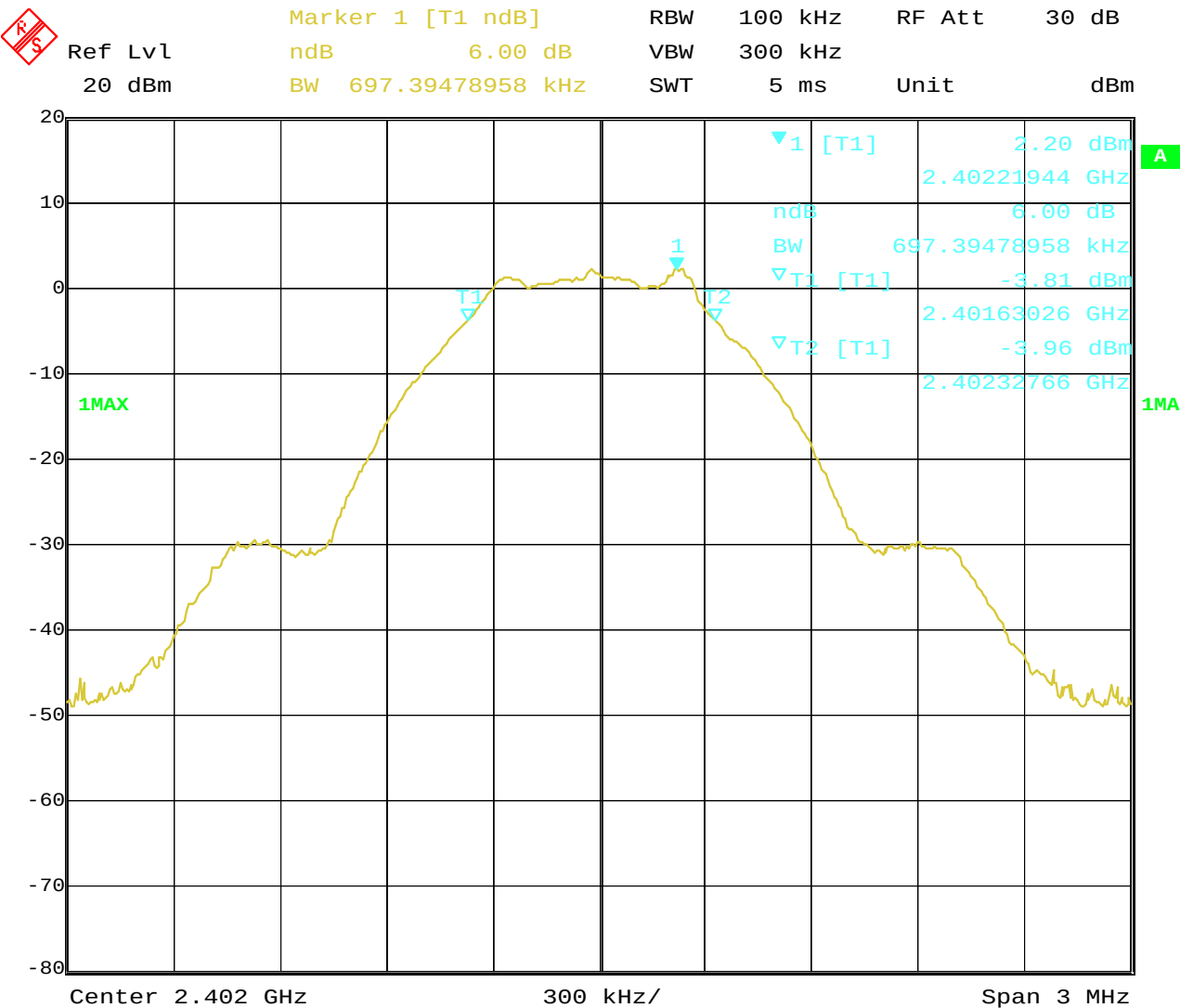
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Test Figure:

1. Condition: Low Channel

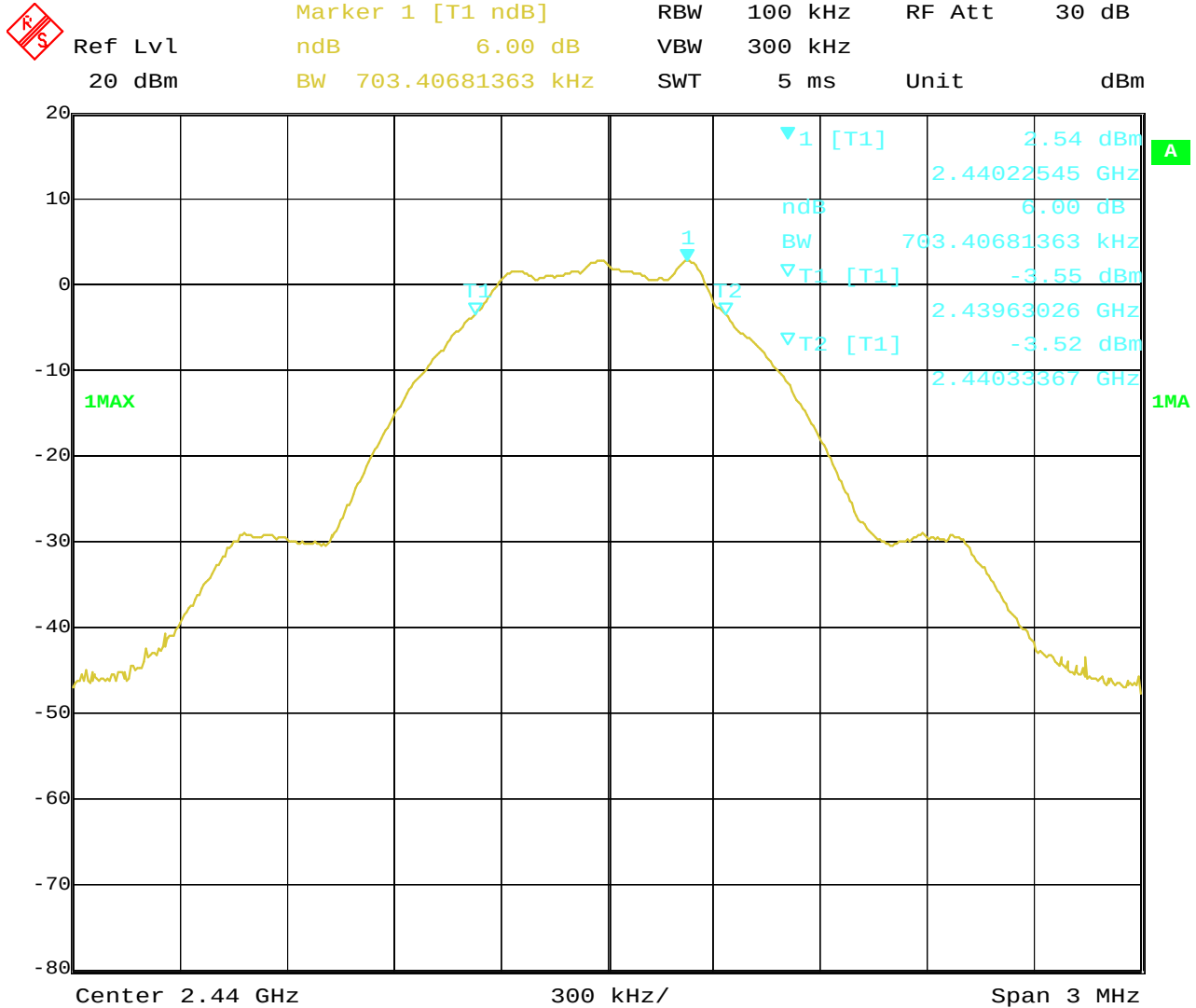


Date: 24. JAN. 2022 16:20:38

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2. Condition: Middle Channel



Date: 24.JAN.2022 16:28:33

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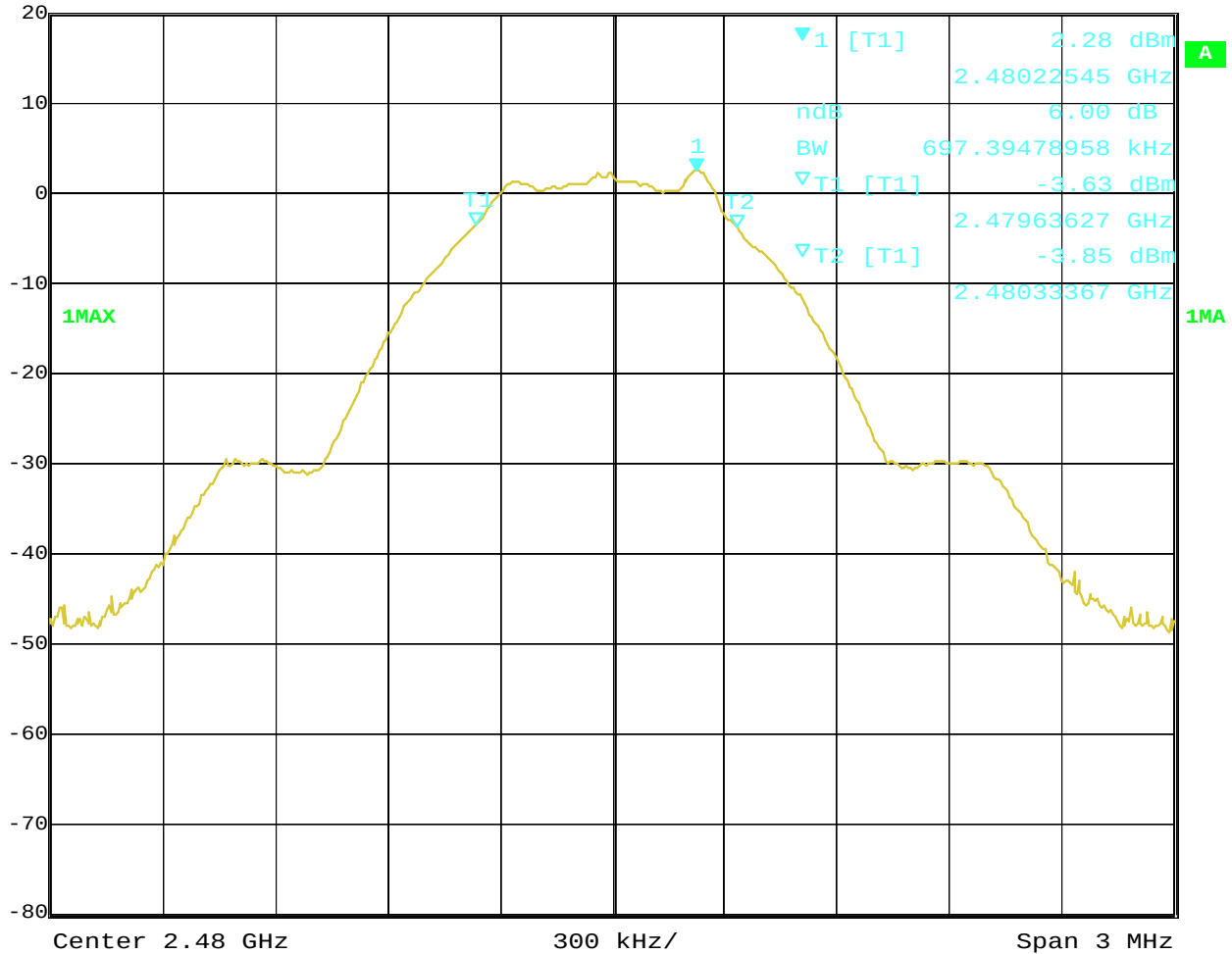
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3. High Channel



Ref Lvl	Marker 1 [T1 ndB]	RBW	100 kHz	RF Att	30 dB
20 dBm	ndB 6.00 dB	VBW	300 kHz		
	BW 697.39478958 kHz	SWT	5 ms	Unit	dBm



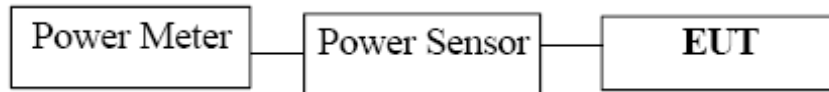
Date: 24.JAN.2022 16:29:27

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8. Maximum Output Power

8.1 Test Setup



8.2 Limits of Maximum Output Power

The Maximum Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the Peak power were measured.

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8.4 Test Results

EUT		SCREEN PROTECTOR CUTTER		Model	MTB-CUT M188			
Mode		Keep Transmitting		Input Voltage		120V~		
Temperature		24 deg. C,		Humidity		56% RH		
Channel	Channel Frequency (MHz)	Max. Power Output (dBm)			Peak Power Limit (dBm)	Pass/ Fail		
		Peak						
Low	2402	2.72			30	Pass		
Middle	2440	2.83			30	Pass		
High	2480	2.39			30	Pass		

Note: 1. the result basic equation calculation as follow:

$$\text{Max. Power Output} = \text{Power Reading} + \text{Cable loss} + \text{Attenuator}$$

The report refers only to the sample tested and does not apply to the bulk.

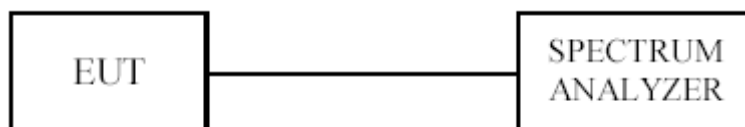
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9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm/3kHz.

9.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 10 kHz.
3. Set the VBW $\geq$ 30 kHz.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be $\leq$ 8 dBm/3kHz.

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9.4 Test Result

EUT		SCREEN PROTECTOR CUTTER		Model	MTB-CUT M188
Mode		Keep Transmitting		Input Voltage	120V~
Temperature		24 deg. C,		Humidity	56% RH
Channel	Peak Power Reading (dBm)	Cable Loss (dB)	Final Power Spectral Density (dBm/10kHz)	Maximum Limit (dBm/3kHz)	Pass/ Fail
Low	-6.93	0.2	-6.73	8	Pass
Middle	-6.76	0.2	-6.56	8	Pass
High	-7.02	0.2	-6.82	8	Pass

Note: The result basic equation calculation as follow:

$$\text{Peak Power Output} = \text{Peak Power Reading} + \text{Cable loss}$$

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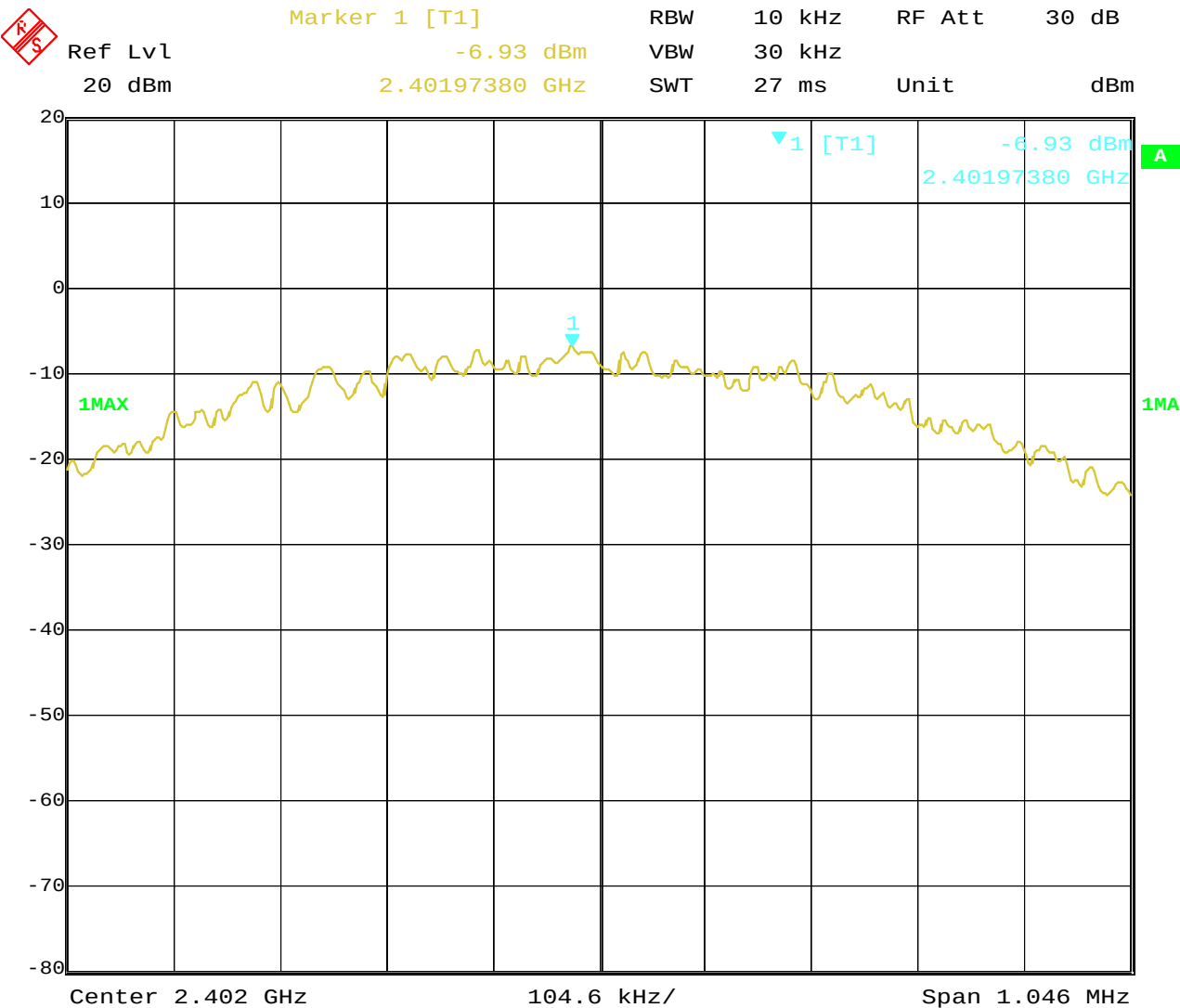
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Test Figure:

1. Condition: Low Channel



Date: 24.JAN.2022 16:32:06

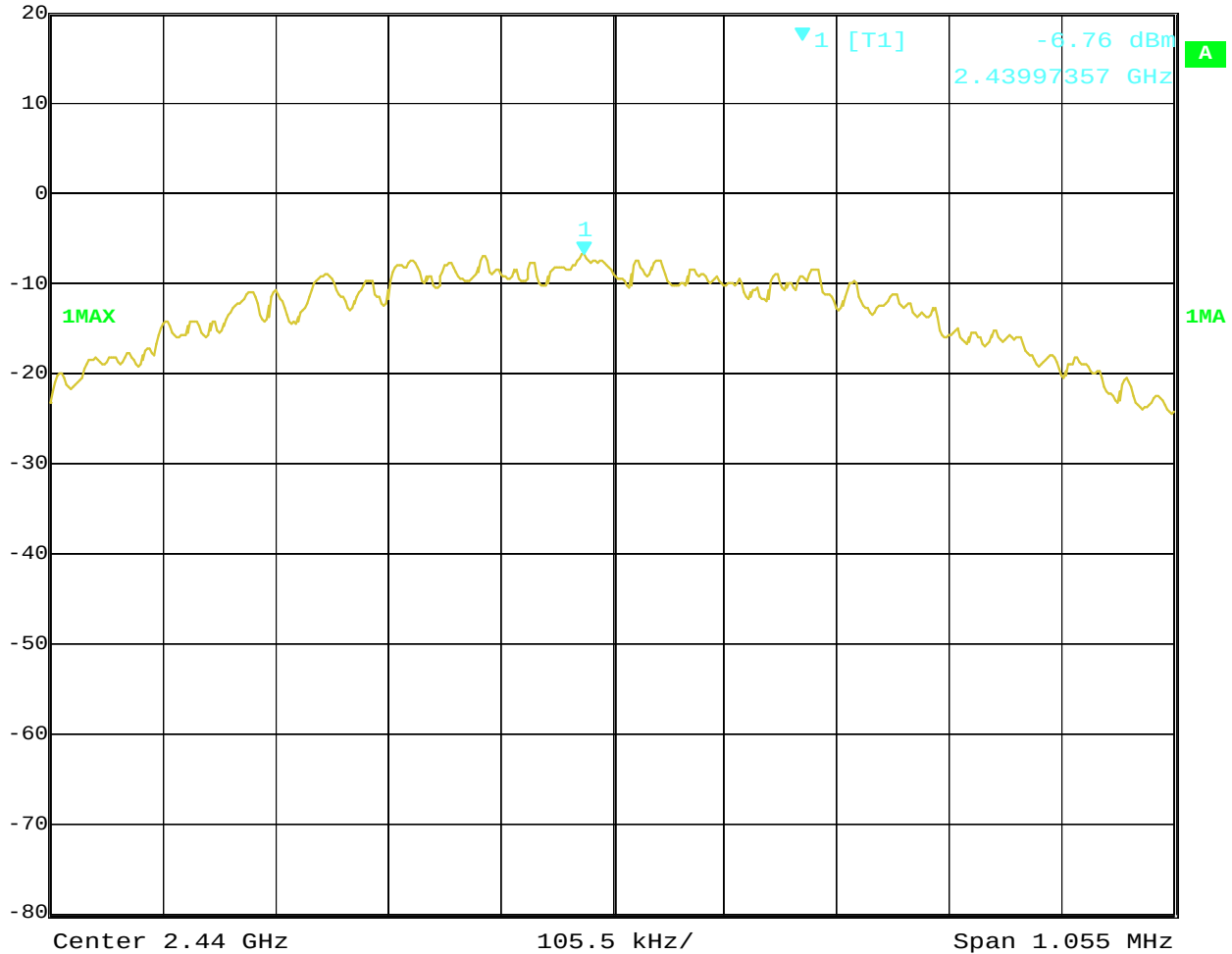
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2. Condition: Middle Channel



Marker 1 [T1] RBW 10 kHz RF Att 30 dB
Ref Lvl -6.76 dBm VBW 30 kHz
20 dBm 2.43997357 GHz SWT 27 ms Unit dBm



Date: 24.JAN.2022 16:34:31

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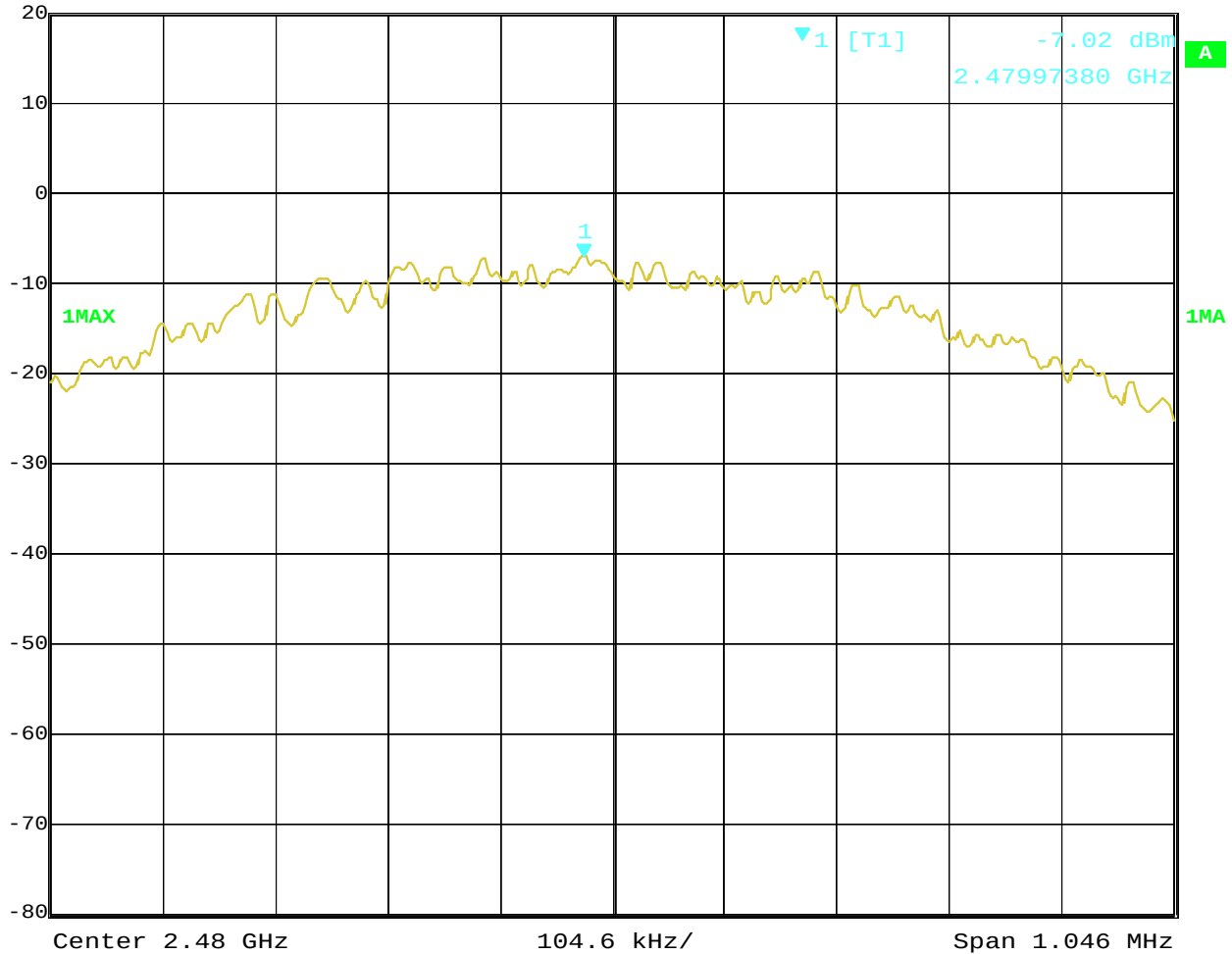
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3. High Channel



Marker 1 [T1] RBW 10 kHz RF Att 30 dB
Ref Lvl -7.02 dBm VBW 30 kHz
20 dBm 2.47997380 GHz SWT 27 ms Unit dBm



Date: 24.JAN.2022 16:33:34

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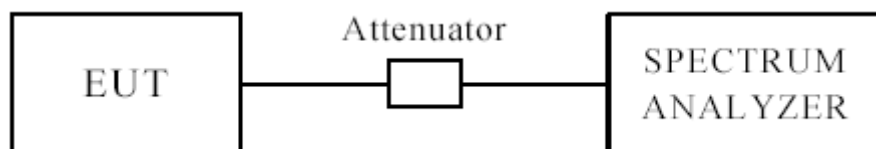
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10 Out of Band Measurement

10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

1. Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of Radiated emission test. (Peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

For bandage test, the spectrum set as follows: RBW=100 kHz, VBW=300 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

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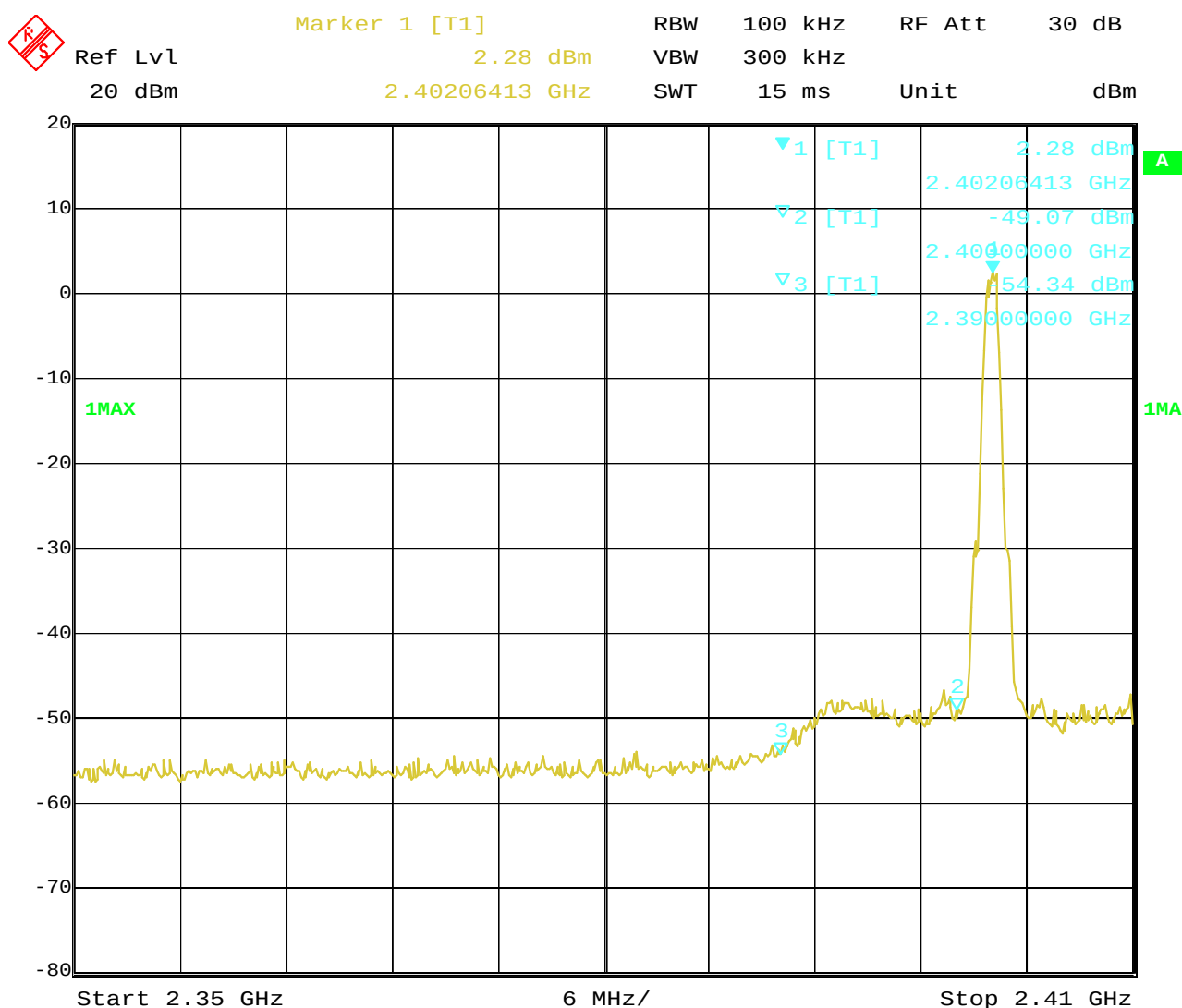
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10.4 Band-edge Measurement

EUT	SCREEN PROTECTOR CUTTER	Model	MTB-CUT M188
Mode	Keep Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 24.JAN.2022 16:35:07

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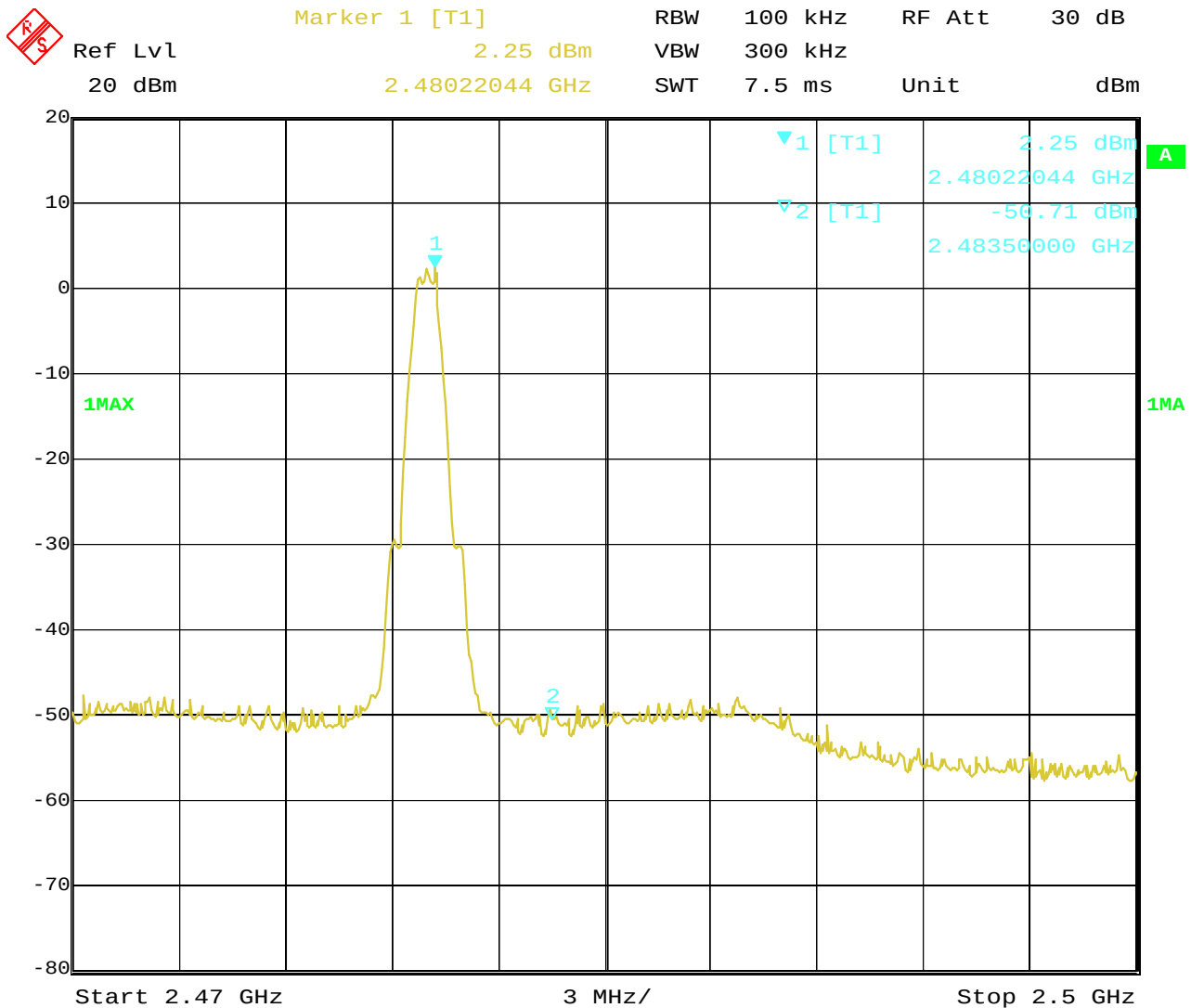
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10.4 Band-edge Measurement

EUT	SCREEN PROTECTOR CUTTER	Model	MTB-CUT M188
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 24.JAN.2022 16:35:41

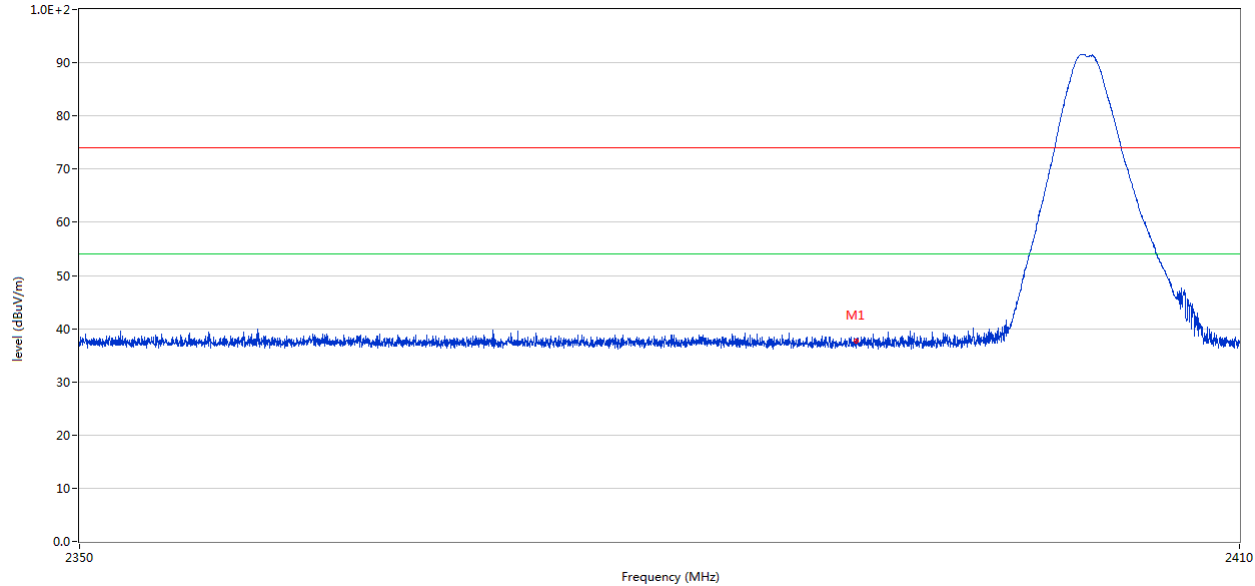
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10.4 Restrict Band Measurement

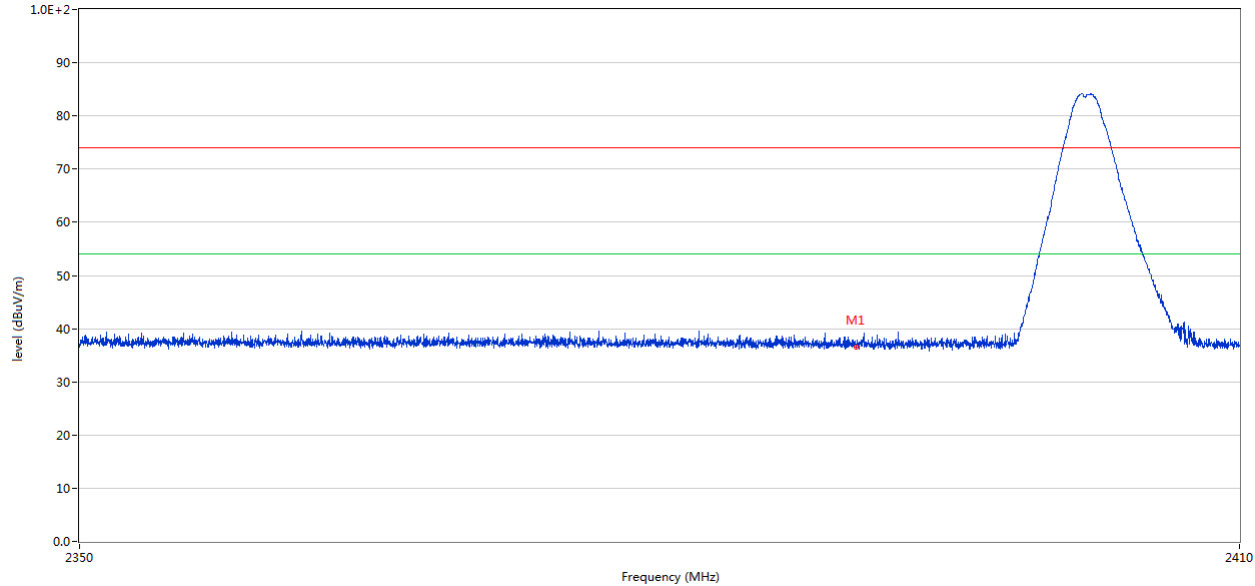
EUT	SCREEN PROTECTOR CUTTER	Model	MTB-CUT M188							
Mode	Keep Transmitting	Input Voltage	120V~							
Temperature	24 deg. C,	Humidity	56% RH							
Test Result:	Pass									
FCC Part 15C Class B 1GHz-18GHz -2										
										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2390.025	37.61	-3.53	74.0	-36.39	Peak	339.00	100	Horizontal	Pass

Note: The measured PK value less than the AV limit, no necessary to take down the AV measurement result.

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10.4 Restrict Band Measurement

EUT	SCREEN PROTECTOR CUTTER	Model	MTB-CUT M188							
Mode	Keep Transmitting	Input Voltage	120V~							
Temperature	24 deg. C,	Humidity	56% RH							
Test Result:	Pass									
FCC Part 15C Class B 1GHz-18GHz -2										
1.0E+2  Level (dBuV/m) 90 80 70 60 50 40 30 20 10 0.0 2350 2410 Frequency (MHz)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2390.010	36.58	-3.53	74.0	-37.42	Peak	64.00	100	Vertical	Pass

Note: The measured PK value less than the AV limit, no necessary to take down the AV measurement result.

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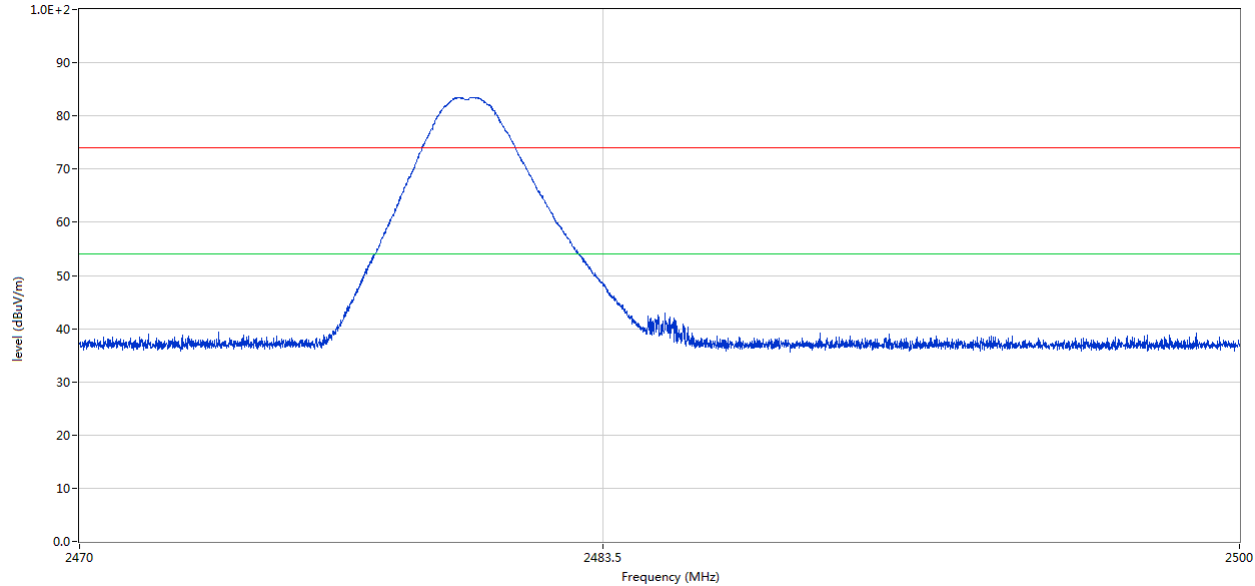
EUT	SCREEN PROTECTOR CUTTER	Model	MTB-CUT M188							
Mode	Keep Transmitting	Input Voltage	120V~							
Temperature	24 deg. C,	Humidity	56% RH							
Test Result:	Pass									
FCC Part 15C Class B 1GHz-18GHz -2 1.0E+2 90 80 70 60 50 40 30 20 10 0.0 2470 2483.5 2500 Frequency (MHz)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2483.444	55.30	-3.57	74.0	-18.70	Peak	96.00	100	Horizontal	Pass
1**	2483.444	47.24	-3.57	54.0	-6.76	AV	96.00	100	Horizontal	Pass

Note: The measured PK value less than the AV limit, no necessary to take down the AV measurement result.

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10.4 Restrict Band Measurement

EUT	SCREEN PROTECTOR CUTTER	Model	MTB-CUT M188							
Mode	Keep Transmitting	Input Voltage	120V~							
Temperature	24 deg. C,	Humidity	56% RH							
Test Result:	Pass									
FCC Part 15C Class B 1GHz-18GHz -2										
1.0E+2  Level (dBuV/m) 90 80 70 60 50 40 30 20 10 0.0 2470 2483.5 2500 Frequency (MHz)										
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2483.497	48.61	-3.57	74.0	-25.39	Peak	234.00	100	Vertical	Pass

Note: The measured PK value less than the AV limit, no necessary to take down the AV measurement result.

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11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

PCB antenna used. The gain of the antennas is 2.5dBi (Get from the antenna specification)

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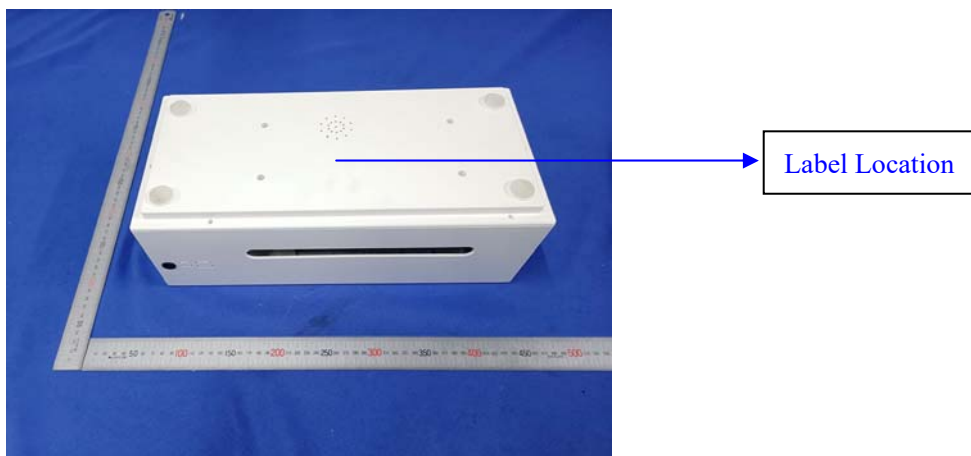
12.0 FCC ID Label

FCC ID: 2A4DW-M188

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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13.0 Photo of testing

Conducted Emission Test Setup:



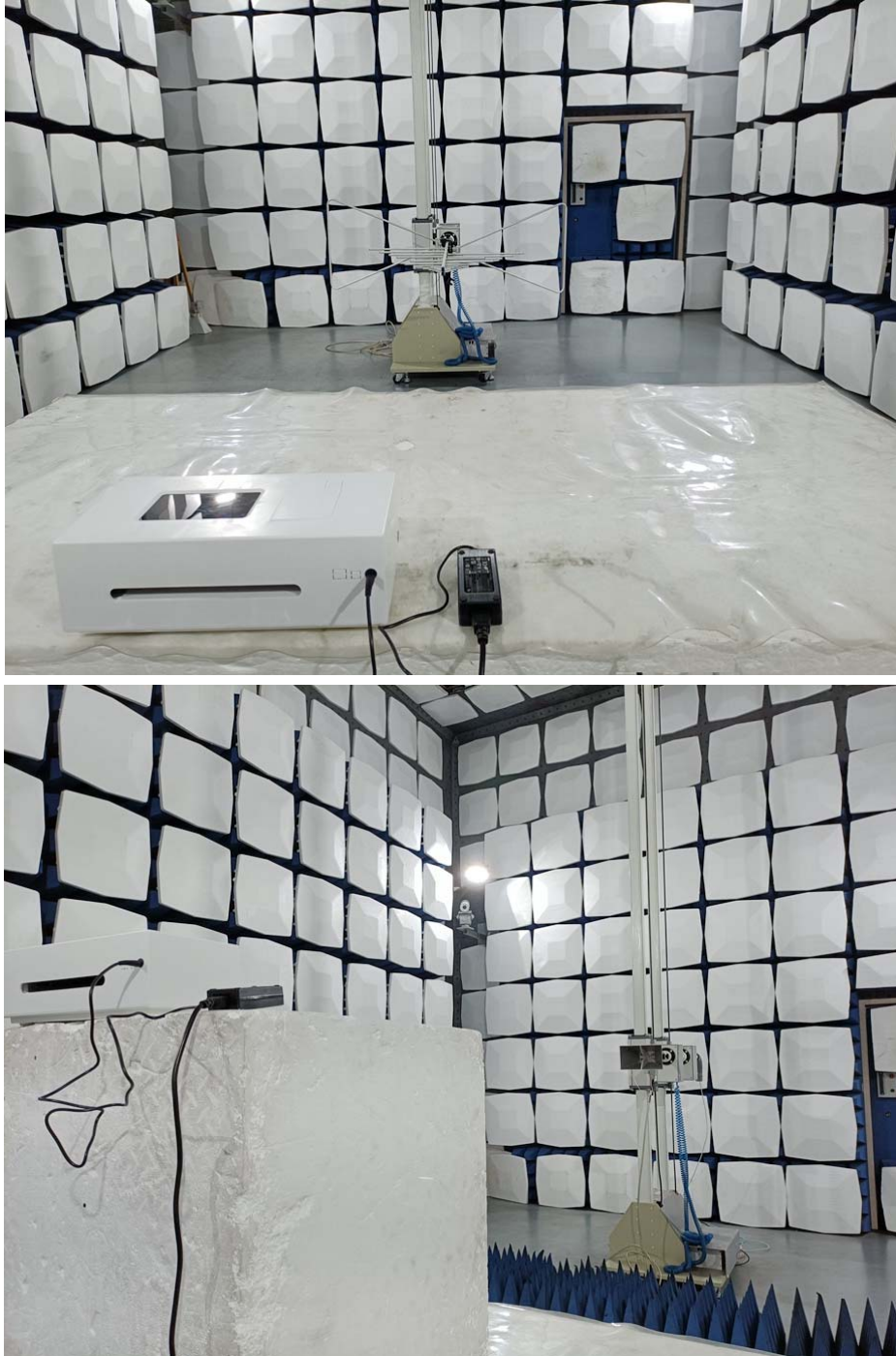
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Radiated Emission Test Setup:



Photographs - EUT

Please refer to test report TW2201122-01E

End of the report

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