TEST REPORT

Report No.	CISRR24112214401
Project No.	CISR241122144
FCC ID	2BMEZ-M-A25
Applicant	Shenzhen Xunman Technology Co., Ltd
Address	3/F., #Building B, tongfu Rd., qiaotou community, Fuhai St., Baoan Dist.Shenzhen, China
Manufacturer	Shenzhen Xunman Technology Co., Ltd
Address	3/F., #Building B, tongfu Rd., qiaotou community, Fuhai St., Baoan Dist.Shenzhen, China
Product Name	WiFi Extender
Trade Mark	--
Model/Type reference	M-A25
Listed Model(s)	M-97A, M-97B, M-97C, M-97D, M-97E, M-97F, M-97G, M-97H, M-A17, M-A18, M-A19, M-A20, M-A21, M-A28, M-A26, M-A27, M-A29, M-A30, M-A31, M-A32, M-A33, M-A35, M-A36, M-A37, M-A38, M-A39, M-95G, M-AC15, M-AC16, M-95R, M-95H, M-95K, M-95Y, M-95W, M-AX05, M-AX06, M-AX07, M-AX08, M-AX09, M-AX10
Standard	Part 15 Subpart C Section 15.247
Test date	November 22, 2024 ~ December 9, 2024
Issue date	December 10, 2024
Test result	**Complied**

Rory Huang

Prepared by: Rory Huang

Genry Long

Approved by: Genry Long

The test results relate only to the tested samples.

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Contents

1. REPORT VERSION

Version No.	Issue date	Description
00	December 10, 2024	Original

2. SUMMARY OF TEST RESULT

Report clause	Test Item	Standard Requirement	Result
5.1	Antenna Requirement	15.203/15.247 (c)	PASS
5.2	AC Conducted Emission	15.207	PASS
5.3	Peak Output Power	15.247 (b)(3)	PASS
5.4	6 dB Bandwidth	15.247 (a)(2)	PASS
5.5	99% Occupied Bandwidth	-	PASS*1
5.6	Power spectral density	15.247 (e)	PASS
5.7	Conducted Band Edge and Spurious Emission	15.247(d)/15.205	PASS
5.8	Radiated Band Edge Emission	15.205/15.209	PASS
5.9	Radiated Spurious Emission	15.247(d)/15.205/15.209	PASS
5.10	Duty Cycle Correction Factor	-	PASS*1

Note:

– The measurement uncertainty is not included in the test result.

– *1: No requirement on standard, only report these test data.

3. SUMMARY

3.1. Product Description

Main unit information:	
Product Name:	WiFi Extender
Trade Mark:	--
Model No.:	M-A25
Listed Model(s):	M-97A, M-97B, M-97C, M-97D, M-97E, M-97F, M-97G, M-97H, M-A17, M-A18, M-A19, M-A20, M-A21, M-A28, M-A26, M-A27, M-A29, M-A30, M-A31, M-A32, M-A33, M-A35, M-A36, M-A37, M-A38, M-A39, M-95G, M-AC15, M-AC16, M-95R, M-95H, M-95K, M-95Y, M-95W, M-AX05, M-AX06, M-AX07, M-AX08, M-AX09, M-AX10
Power supply:	110-240V～,50/60Hz,1A
Hardware version:	V1.0
Software version:	V1.0

3.2. Radio Specification Description

Technology:	802.11b/802.11g/802.11n(HT20/HT40)
Modulation:	802.11b: DSSS 802.11g/802.11n(HT20/HT40): OFDM
Operation frequency:	802.11b/802.11g/802.11n: 2412MHz~2462MHz
Channel number:	802.11b/802.11g/802.11n(HT20): 11 802.11n(HT40): 9
Channel separation:	5MHz
Antenna type:	FPC Antenna
Antenna gain:	1.86 dBi for 2.4GWIFI

Channel List:

2.4GWIFI :

802.11b: DSSS, 802.11g/802.11n(HT20/HT40): OFDM

CH01	**2412 MHz**	CH07	2442MHz
CH02	2417 MHz	CH08	--
CH03	**2422 MHz**	CH09	**2452 MHz**
CH04	--	CH10	--
CH05	--	CH11	**2462 MHz**
CH06	**2437MHz**	--	--

3.3. Modification of EUT

No modifications are made to the EUT during all test items.

3.4. Testing Site

Laboratory Name	Shenzhen Bangce Testing Technology Co., Ltd.
Laboratory Location	101, building 10, Yunli Intelligent Park, Shutianpu community, Matian Street, Guangming District, Shenzhen, Guangdong, China
FCC registration number	736346

3.5. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS (dBuV/m) = RA (dBuV) + AF (dB/m) + CL (dB) – AG (dB)

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

3.6. DISTURBANCE Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

CD (dBuV) = RA (dBuV) + PL (dB) + CL (dB)

Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor

4. TEST CONFIGURATION

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
According to FCC’ s request, Test Procedure KDB558074 D01 15.247 Meas Guidance v05r02 is required to be used for this kind of FCC 15.247 digital modulation device.

4.1. Test frequency list

Channel	Frequency (MHz)	
	802.11b/g/n(HT20)	802.11n(HT40)
CH-L	2412	2422
CH-M	2437	2437
CH-H	2462	2452

4.2. Test mode

For RF test items:		
The engineering test program was provided(SecureCRTchs) and enabled to make EUT continuous transmitting.Power setting Default.		
Test Item	Test Mode	Modulation
Conducted test item	TX CH-L	802.11b/g/n(HT20/HT40)
	TX CH-M	802.11b/g/n(HT20/HT40)
	TX CH-H	802.11b/g/n(HT20/HT40)
	Normal link	--
	Charging	--
Radiated test item	TX CH-L	802.11b/g/n(HT20/HT40)
	TX CH-M	802.11b/g/n(HT20/HT40)
	TX CH-H	802.11b/g/n(HT20/HT40)
	Normal link	--
	Charging	--
Remark: – The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.All patterns have predictions, and the report only shows the worst pattern data.		

4.3. Support unit used in test configuration and system

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Item	Equipment name	Trade Name	Model No.
1	Adapter	Huawei	HW-05002000C
2	Phone	China Mobile	SP100

4.4. Test sample information

Type	sample no.
Engineer sample	CISR241122144-S01
Normal sample	CISR241122144-S02

4.5. Testing environmental condition

Type	Requirement	Actual
Temperature:	15~35°C	25°C
Relative Humidity:	25~75%	50%
Air Pressure:	860~1060mbar	1000mbar

4.6. Statement of the measurement uncertainty

No.	Test Items	Measurement Uncertainty
1	AC Conducted Emission	1.63dB
2	Peak Output Power	1.34dB
3	Power Spectral Density	1.34dB
4	6dB Bandwidth	0.002%
5	99% Occupied Bandwidth	0.002%
6	Conducted Band Edge and Spurious Emission	1.93dB
7	Radiated Band Edge Emission	3.76dB for 30MHz-1GHz 3.80dB for above 1GHz
8	Radiated Spurious Emission	3.76dB for 30MHz-1GHz 3.80dB for above 1GHz

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.7. Equipment Used during the Test

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
9*6*6 anechoic chamber	SKET	9.3*6.3*6	N/A	2024.09.01	3Year
Spectrum analyzer	Agilent	N9020A	MY50530263	2024.01.08	1Year
Receiver	ROHDE&SCHWARZ	ESCI	100853	2024.01.08	1Year
Spectrum analyzer	R&S	FSV-40N	/	2024.01.08	1Year
Bilog Antenna	Schwarzbeck	VULB 9163	1463	2023.01.09	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2487	2023.01.09	2Year
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	/	2023.01.09	2Year
RF Cable	Tonscend	Cable 1	/	2024.01.08	1Year
RF Cable	Tonscend	Cable 2	/	2024.01.08	1Year
RF Cable	SKET	Cable 3	/	2024.01.08	1Year
Pre-amplifier	Tonscend	TAP9K3G32	AP21G806153	2024.01.08	1Year
Pre-amplifier	Tonscend	TAP01018050	AP22E806229	2024.01.08	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8127	/	2024.01.08	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	2024.01.08	1 Year
Horn Antenna	SCHWARZBECK	BBHA9170	1130	2023.01.09	2 Year
Preamplifier	Tonscend	TAP18040048	AP21C806126	2024.01.08	1 Year
variable-frequency power source	Pinhong	PH1110	/	2024.01.08	1 Year
6dB Attenuator	SKET	DC-6G	/	N/A	N/A
Artificial power network	Schwarzbeck	NSLK8127	8127-01096	2024.01.08	1 Year
EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2024.01.08	1 Year
8-wire Impedance Stabilization Network	Schwarzbeck	NTFM 8158	8158-00337	2024.01.08	1 Year
Artificial power network	Schwarzbeck	ENV216	/	2024.01.08	1 Year
Antenna tower	SKET	Bk-4AT-BS	AT2021040101-V1	N/A	N/A
Power Meter	WCS	WCS-PM	WCSPM230405A	2024.01.08	1 Year

5. TEST CONDITIONS AND RESULTS

5.1. Antenna Requirement

Standard Applicable:	**FCC CFR Title 47 Part 15 Subpart C Section 15.203:** An intentional radiator shall be designed to ensure that no antenna other than that furnished by the response-ble party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
Description	The EUT antenna is FPC Antenna (1.86dBi for 2.4GWIFI), the directional gain of the antenna less than 6dBi. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used.Antenna structure please refer to the EUT internal photographs antenna photo.

Remark: The antenna gain is provided by the customer , if the data provided by the customer is not accurate, Shenzhen Bangce Testing Technology Co., Ltd. does not assume any responsibility.

5.2. AC Conducted Emission

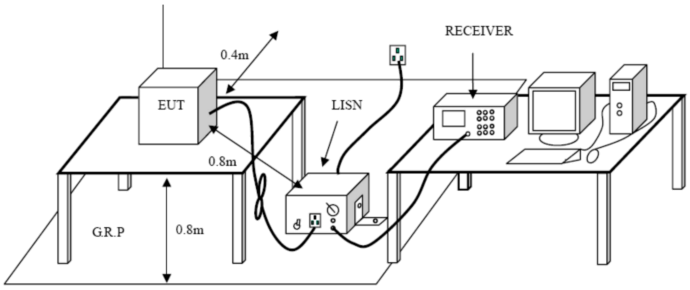
Limit:

FCC CFR Title 47 Part 15 Subpart C Section 15.207

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

Test configuration:



Test procedure:

1. The EUT was setup according to ANSI C63.10 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

Test mode:

Refer to the clause 4.2

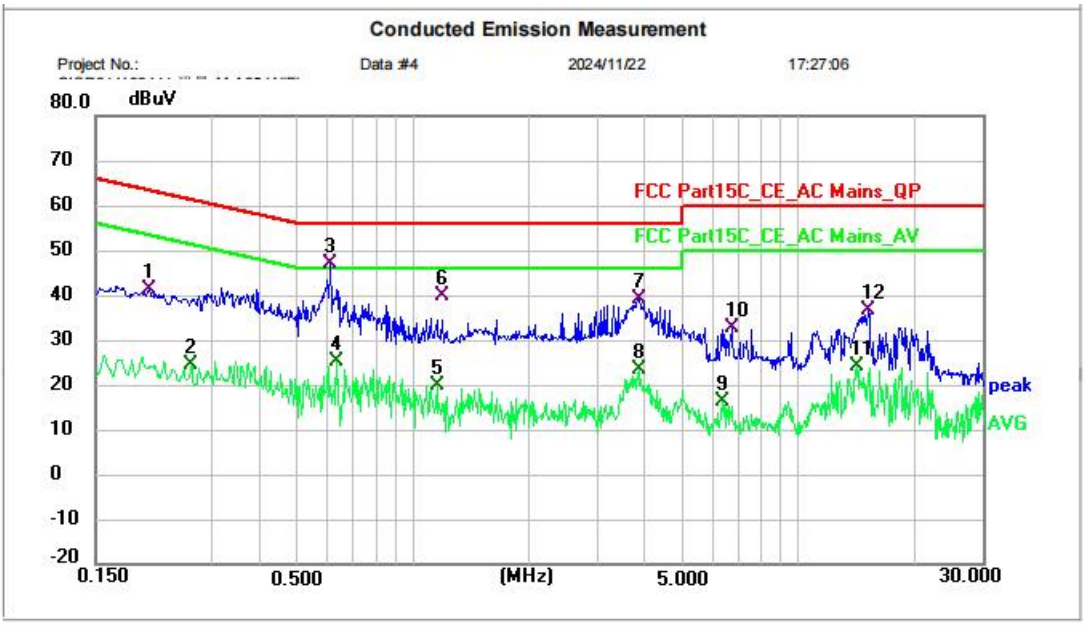
Result:

Passed

Note:
1. Factor = LISN Factor + Cable Factor
2. Level= Reading + Factor
3. Margin= Level – Limit

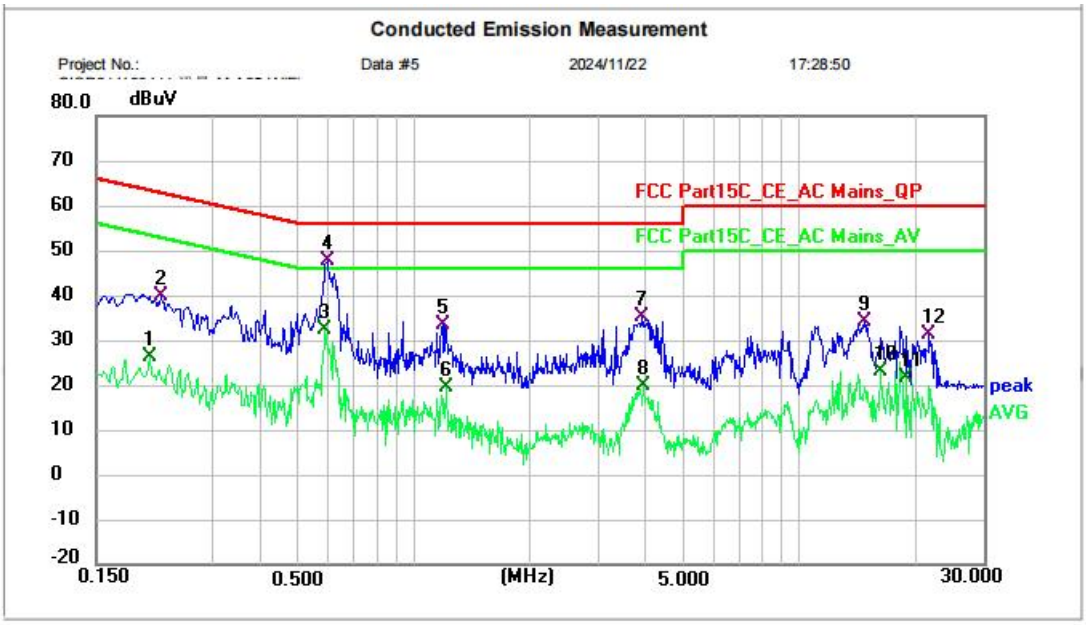
Test mode:Charging

Test Line:	L



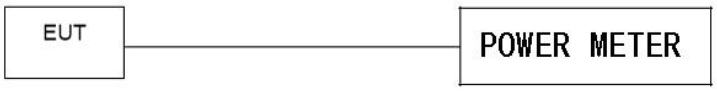
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.206	41.04	0.32	41.36	63.37	-22.01	QP	P	
2	0.266	24.05	0.33	24.38	51.24	-26.86	AVG	P	
3 *	0.610	46.70	0.40	47.10	56.00	-8.90	QP	P	
4	0.630	24.78	0.39	25.17	46.00	-20.83	AVG	P	
5	1.158	19.44	0.47	19.91	46.00	-26.09	AVG	P	
6	1.190	39.48	0.48	39.96	56.00	-16.04	QP	P	
7	3.870	37.71	1.32	39.03	56.00	-16.97	QP	P	
8	3.870	22.22	1.32	23.54	46.00	-22.46	AVG	P	
9	6.342	13.84	2.43	16.27	50.00	-33.73	AVG	P	
10	6.714	30.18	2.61	32.79	60.00	-27.21	QP	P	
11	14.154	18.23	5.79	24.02	50.00	-25.98	AVG	P	
12	15.146	30.38	6.21	36.59	60.00	-23.41	QP	P	

Test Line:	N

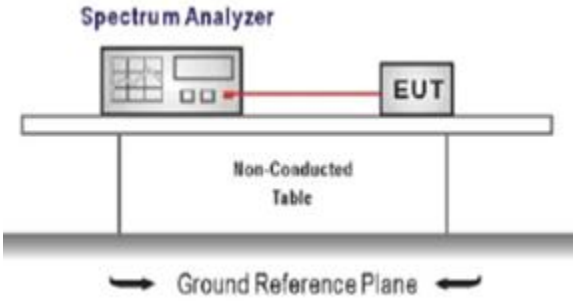


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.206	26.07	0.32	26.39	53.37	-26.98	AVG	P	
2	0.222	39.43	0.33	39.76	62.74	-22.98	QP	P	
3	0.590	32.01	0.39	32.40	46.00	-13.60	AVG	P	
4 *	0.594	47.19	0.39	47.58	56.00	-8.42	QP	P	
5	1.190	33.02	0.48	33.50	56.00	-22.50	QP	P	
6	1.210	19.04	0.48	19.52	46.00	-26.48	AVG	P	
7	3.906	33.67	1.35	35.02	56.00	-20.98	QP	P	
8	3.930	18.59	1.36	19.95	46.00	-26.05	AVG	P	
9	14.702	28.38	5.59	33.97	60.00	-26.03	QP	P	
10	16.230	17.32	5.77	23.09	50.00	-26.91	AVG	P	
11	18.914	15.67	5.91	21.58	50.00	-28.42	AVG	P	
12	21.662	25.58	5.76	31.34	60.00	-28.66	QP	P	

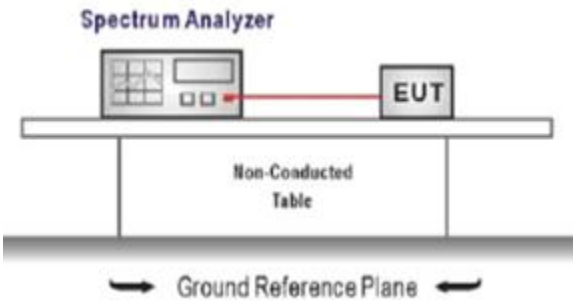
5.3. Peak Output Power

Limit:	**FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3):** For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is de ned as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test configuration:	
Test procedure:	1) The EUT is configured to transmit continuously. 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level. 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
Test mode:	Refer to the clause 4.2
Test data:	Refer to the Appendix A
Result:	**Passed**

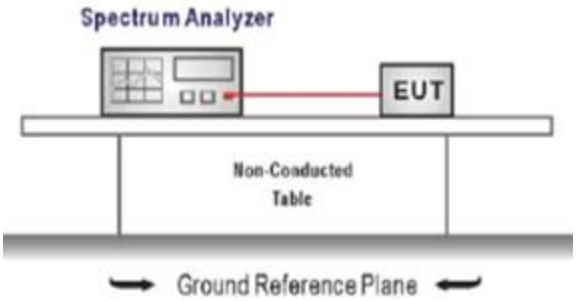
5.4. 6 dB Bandwidth

Limit:	--
Test configuration:	
Test procedure:	1. Connect EUT RF Output port to the Spectrum Analyzer through an RF attenuator. 2. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB. 3. The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. 4. Spectrum Setting: 6dB bandwidth: (1) Set RBW = 100 kHz. (2) Set the video bandwidth (VBW) ≥ 3*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 frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
Test mode:	Refer to the clause 4.2
Test data:	Refer to the Appendix A
Result:	**Passed**

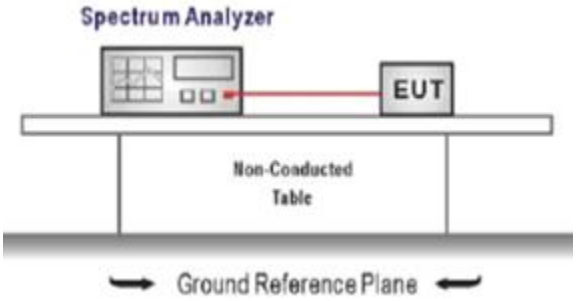
5.5. 99% Occupied Bandwidth

Limit:	--
Test configuration:	
Test procedure:	1. Connect the antenna port(s) to the spectrum analyzer input. 2. Configure the spectrum analyzer as shown below (enter all losses between the transmitter output andthe spectrum analyzer). Center Frequency =channel center frequency Span≥1.5 * OBW RBW = 1%~5%OBW, VBW ≥ 3* RBW Sweep time= auto couple Detector = Peak, Trace mode = max hold 3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer.
Test mode:	Refer to the clause 4.2
Test data:	Refer to the Appendix A
Result:	**Passed**

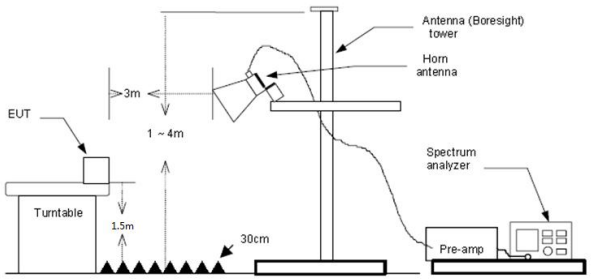
5.6. Power spectral density

Limit:	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.
Test configuration:	
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 ⩾ 3 kHz. 3. Set the VBW ⩾ 3× RBW. 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 power level. 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat. 11. The resulting peak less than 8dBm.
Test mode:	Refer to the clause 4.2
Test data:	Refer to the Appendix A
Result:	**Passed**

5.7. Conducted Band edge and Spurious Emission

Limit:	**FCC CFR Title 47 Part 15 Subpart C Section15.247 (d):** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.
Test configuration:	
Test procedure:	1. Connect the antenna port(s) to the spectrum analyzer input. 2. Emission level measurement Set the center frequency and span to encompass frequency range to be measured RBW = 100 kHz, VBW ≥ 3 x RBW Detector = peak, Sweep time = auto couple, Trace mode = max hold Allow trace to fully stabilize Use the peak marker function to determine the maximum amplitude level. 3. Place the radio in continuous transmit mode, allow the trace to stabilize, view the transmitter waveform on the spectrum analyzer. 4. Ensure that the amplitude of all unwanted emission outside of the authorized frequency band excluding restricted frequency bands) are attenuated by at least the minimum requirements specified (at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz). Report the three highest emission relative to the limit.
Test mode:	Refer to the clause 4.2
Test data:	Refer to the Appendix A
Result:	**Passed**

5.8. Radiated Band edge Emission

Limit:	**FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, Radiated Emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the Radiated Emissions limits specified in §15.209(a) (see §15.205(c)).
Test configuration:	
Test procedure:	1. The EUT was setup and tested according to ANSI C63.10 . 2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. 3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters. 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find themaximum emission, all of the interface cables were manipulated according to ANSI C63.10 on radiated measurement. 5. Use the following spectrum analyzer settings: a) Span shall wide enough to fully capture the emission being measured b) Set RBW=100kHz for <1GHz, VBW=3*RBW, Sweep time=auto, Detector=peak, Trace=max hold c) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement d) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=Average, Trace=RMS for Average measurement
Test mode:	Refer to the clause 4.2
Result:	**Passed**

Note:

1) Level= Reading + Factor; Factor =Antenna Factor+ Cable Loss- Preamp Factor
2) Margin = Limit - Level
3) Average measurement was not performed if peak level is lower than average limit
4) The other emission levels were very low against the limit.

Have pre-scanned all test channels and antennas and found that mode 11B is the worst case, so only the worst-case data is displayed in this report.

ANT0:

Test channel:CH1										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
2390.00	70.35	28.62	4.08	38.62	-5.92	64.43	74	9.57	Peak	Horizontal
2390.00	51.05	28.62	4.08	38.62	-5.92	45.13	54	8.87	Average	Horizontal
2390.00	68.84	28.62	4.08	38.62	-5.92	62.92	74	11.08	Peak	Vertical
2390.00	50.56	28.62	4.08	38.62	-5.92	44.64	54	9.36	Average	Vertical

Test channel:CH11										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
2483.50	70.22	29.45	3.91	40.17	-6.81	63.41	74	10.59	Peak	Horizontal
2483.50	49.65	29.45	3.91	40.17	-6.81	42.84	54	11.16	Average	Horizontal
2483.50	68.25	29.45	3.91	40.17	-6.81	61.44	74	12.56	Peak	Vertical
2483.50	51.12	29.45	3.91	40.17	-6.81	44.31	54	9.69	Average	Vertical

ANT1:

Test channel:CH1										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
2390.00	70.64	28.62	4.08	38.62	-5.92	64.72	74	9.28	Peak	Horizontal
2390.00	51.24	28.62	4.08	38.62	-5.92	45.32	54	8.68	Average	Horizontal
2390.00	68.96	28.62	4.08	38.62	-5.92	63.04	74	10.96	Peak	Vertical
2390.00	49.73	28.62	4.08	38.62	-5.92	43.81	54	10.19	Average	Vertical

Test channel:CH11										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
2483.50	70.26	29.45	3.91	40.17	-6.81	63.45	74	10.55	Peak	Horizontal
2483.50	49.75	29.45	3.91	40.17	-6.81	42.94	54	11.06	Average	Horizontal
2483.50	68.33	29.45	3.91	40.17	-6.81	61.52	74	12.48	Peak	Vertical
2483.50	50.71	29.45	3.91	40.17	-6.81	43.90	54	10.10	Average	Vertical

5.9. Radiated Spurious Emission

Limit:

FCC CFR Title 47 Part 15 Subpart C Section 15.209

Frequency	Limit (dBuV/m)	Value
0.009 MHz ~0.49 MHz	2400/F(kHz) @300m	Quasi-peak
0.49 MHz ~ 1.705 MHz	24000/F(kHz) @30m	Quasi-peak
1.705 MHz ~30 MHz	30 @30m	Quasi-peak

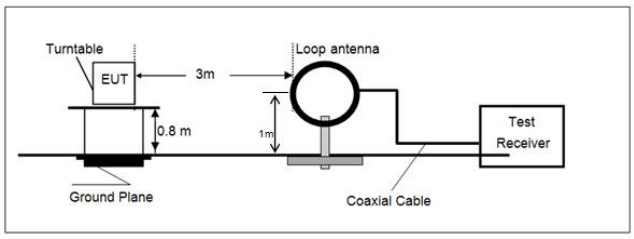
Limit dBuV/m @3m = Limit dBuV/m @300m + 40*log(300/3

Limit dBuV/m @3m = Limit dBuV/m @30m +40*log(30/3)

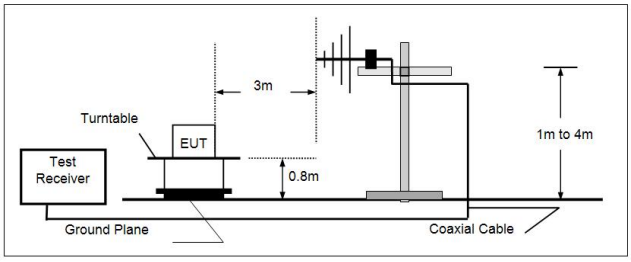
Frequency	Limit (dBuV/m @3m)	Value
30MHz~88MHz	40.00	Quasi-peak
88MHz~216MHz	43.50	Quasi-peak
216MHz~960MHz	46.00	Quasi-peak
960MHz~1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

Test configuration:

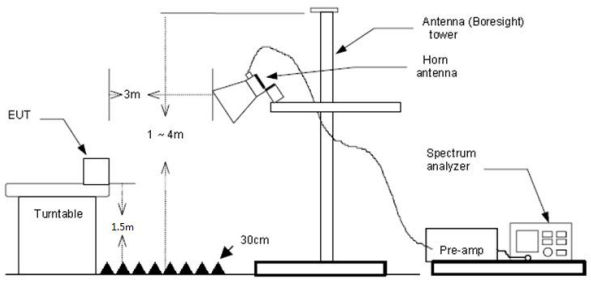
9kHz~30MHz



30 MHz ~ 1 GHz



Above 1 GHz



Test procedure:	1. The EUT was setup and tested according to ANSI C63.10. 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower. 4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines. 5. Set to the maximum power setting and enable the EUT transmit continuously. 6. Use the following spectrum analyzer settings a) Span shall wide enough to fully capture the emission being measured; b) Below 1 GHz: RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. c) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement d) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=Average, Trace=RMS for Average measurement
Test mode:	Refer to the clause 4.2
Result:	**Passed**

Note:

1) Level= Reading + Factor/Transd; Factor/Transd =Antenna Factor+ Cable Loss- Preamp Factor
2) Margin = Limit – Level
3) Average measurement was not performed if peak level is lower than average limit(54 dBuV/m) for above 1GHz.
4) The other emission levels were very low against the limit.
5) This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.

For 9 kHz ~ 30 MHz

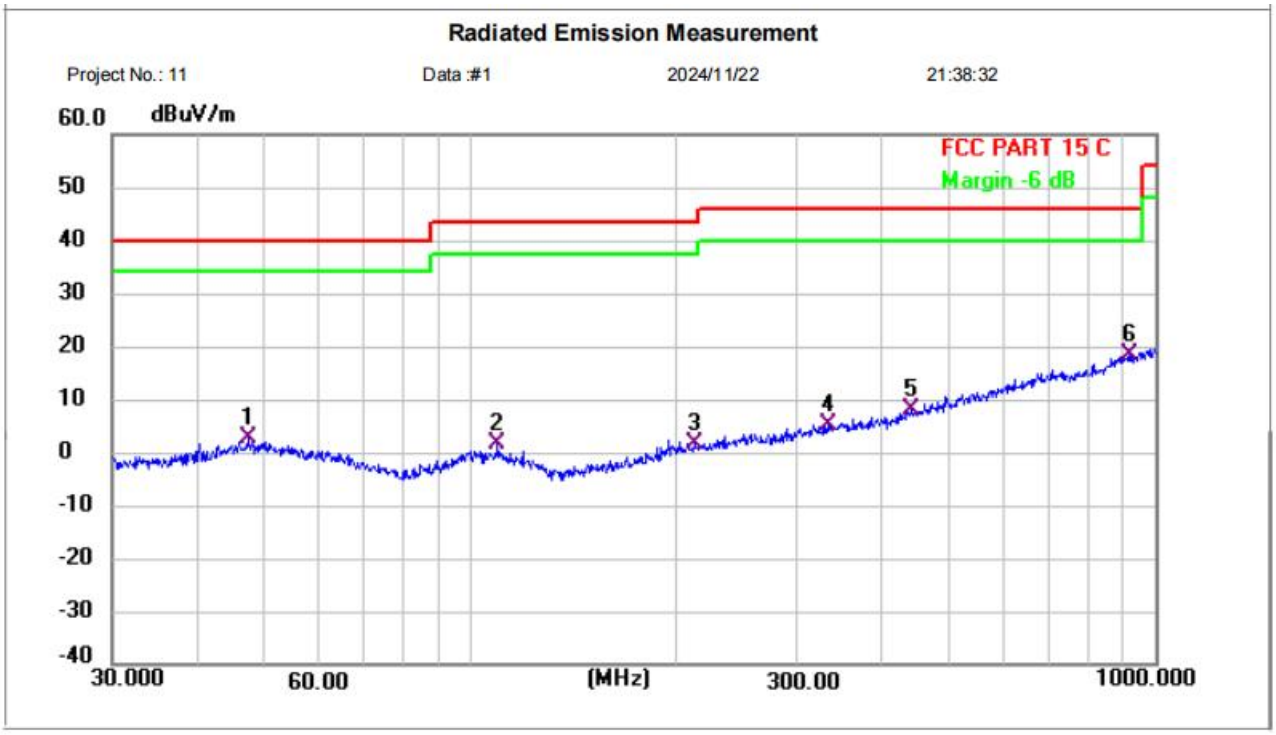
The EUT was pre-scanned this frequency band, found the radiated level 20dB lower than the limit, so don't show data on this report.

For 30 MHz ~ 1000 MHz

Have pre-scan all test channel, found 11B mode CH01 which it was worst case, so only show the worst case's data on this report.

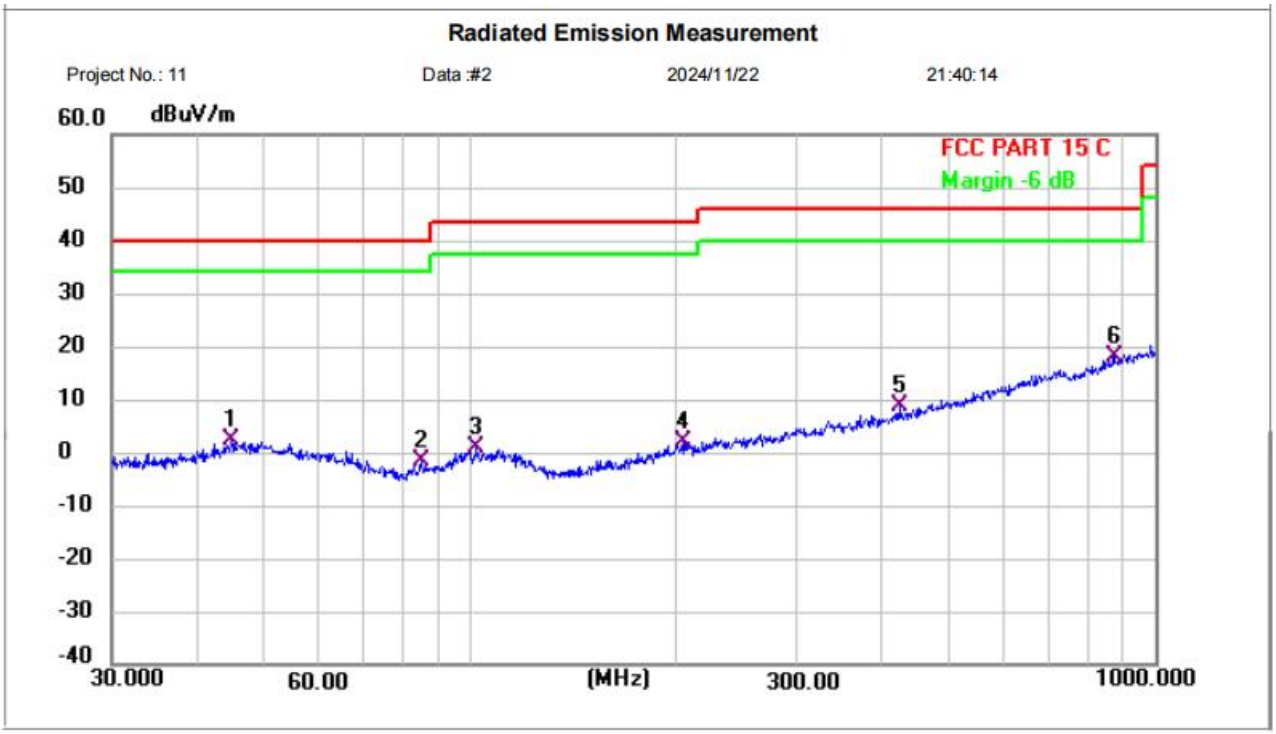
ANT0:

Polarization:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	47.325	31.75	-29.23	2.52	40.00	-37.48	QP	100	106	P	
2	109.796	32.17	-30.48	1.69	43.50	-41.81	QP	100	1	P	
3	212.269	31.43	-29.68	1.75	43.50	-41.75	QP	100	47	P	
4	332.519	31.33	-26.23	5.10	46.00	-40.90	QP	100	259	P	
5	441.743	31.72	-23.74	7.98	46.00	-38.02	QP	100	40	P	
6 *	916.069	33.28	-14.78	18.50	46.00	-27.50	QP	100	232	P	

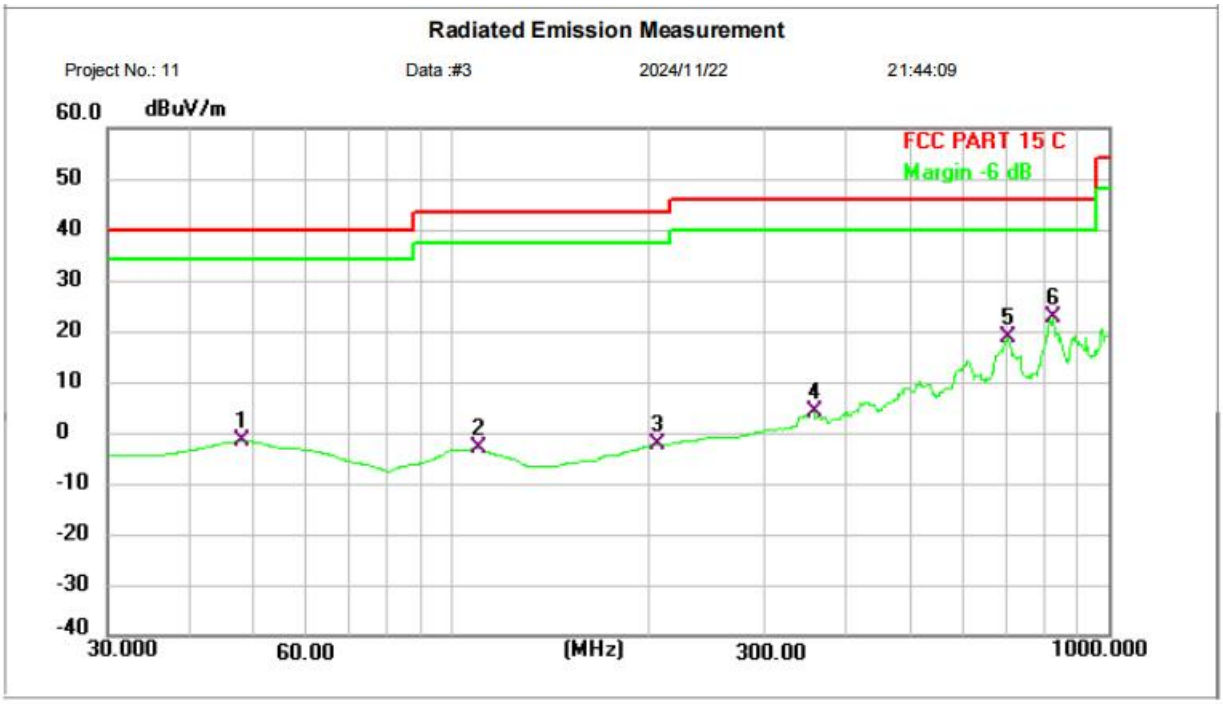
Polarization:	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	44.901	31.71	-29.37	2.34	40.00	-37.66	QP	100	199	P	
2	84.999	32.13	-33.91	-1.78	40.00	-41.78	QP	100	206	P	
3	102.360	31.60	-30.84	0.76	43.50	-42.74	QP	100	13	P	
4	204.955	31.64	-29.63	2.01	43.50	-41.49	QP	100	60	P	
5	425.028	32.78	-24.10	8.68	46.00	-37.32	QP	100	282	P	
6 *	872.183	33.14	-15.21	17.93	46.00	-28.07	QP	100	106	P	

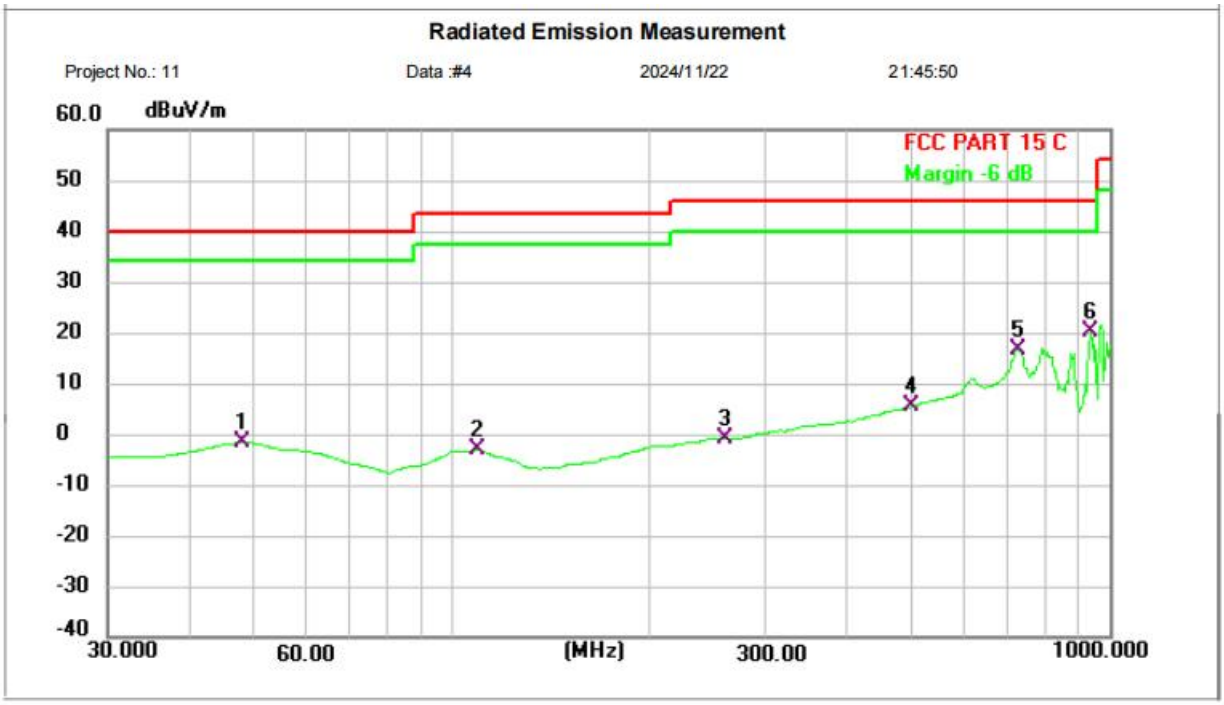
ANT1:

Polarization:	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	47.994	27.47	-29.20	-1.73	40.00	-41.73	QP	100	276	P	
2	110.182	27.48	-30.51	-3.03	43.50	-46.53	QP	100	67	P	
3	205.675	27.43	-29.63	-2.20	43.50	-45.70	QP	100	67	P	
4	356.676	29.92	-25.68	4.24	46.00	-41.76	QP	100	201	P	
5	701.761	35.53	-16.90	18.63	46.00	-27.37	QP	100	201	P	
6 *	824.597	39.02	-16.34	22.68	46.00	-23.32	QP	100	16	P	

Polarization:	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	47.994	27.47	-29.20	-1.73	40.00	-41.73	QP	100	237	P	
2	109.796	27.40	-30.48	-3.08	43.50	-46.58	QP	100	13	P	
3	260.144	27.42	-28.25	-0.83	46.00	-46.83	QP	100	13	P	
4	499.425	27.47	-21.99	5.48	46.00	-40.52	QP	100	13	P	
5	724.261	33.04	-16.56	16.48	46.00	-29.52	QP	100	13	P	
6 *	935.546	34.76	-14.41	20.35	46.00	-25.65	QP	100	360	P	

For 1 GHz ~ 25 GHz

Have pre-scan all test mode, found TM1 11B mode which it was worst case, so only show the worst case's data on this report.

1.In order to prevent the amplifier from saturating, we add a band-stop filter that filters out the main frequency.
2.18GHz-25GHz is the background of the site, there is no radiated spurious.

ANT0:

Test channel:CH01										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
4824.00	68.94	31.33	4.23	38.62	-3.06	65.88	74	8.12	Peak	Horizontal
4824.00	48.96	31.33	4.23	38.62	-3.06	45.90	54	8.10	Average	Horizontal
4824.00	64.90	31.33	4.23	38.62	-3.06	61.84	74	12.16	Peak	Vertical
4824.00	51.60	31.33	4.23	38.62	-3.06	48.54	54	5.46	Average	Vertical

Test channel:CH06										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
4874.00	70.54	30.26	4.09	38.29	-3.94	66.60	74	7.40	Peak	Horizontal
4874.00	50.98	30.26	4.09	38.29	-3.94	47.04	54	6.96	Average	Horizontal
4874.00	67.07	30.26	4.09	38.29	-3.94	63.13	74	10.87	Peak	Vertical
4874.00	50.65	30.26	4.09	38.29	-3.94	46.71	54	7.29	Average	Vertical

Test channel:CH11										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
4924.00	64.66	31.97	4.11	38.47	-2.39	62.27	74	11.73	Peak	Horizontal
4924.00	50.54	31.97	4.11	38.47	-2.39	48.15	54	5.85	Average	Horizontal
4924.00	67.85	31.97	4.11	38.47	-2.39	65.46	74	8.54	Peak	Vertical
4924.00	51.57	31.97	4.11	38.47	-2.39	49.18	54	4.82	Average	Vertical

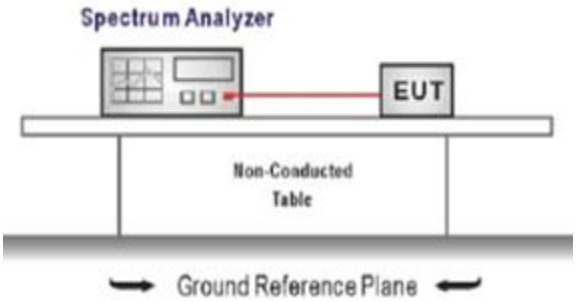
ANT1:

Test channel:CH01										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
4824.00	68.89	31.33	4.23	38.62	-3.06	65.83	74	8.17	Peak	Horizontal
4824.00	48.93	31.33	4.23	38.62	-3.06	45.87	54	8.13	Average	Horizontal
4824.00	65.45	31.33	4.23	38.62	-3.06	62.39	74	11.61	Peak	Vertical
4824.00	51.61	31.33	4.23	38.62	-3.06	48.55	54	5.45	Average	Vertical

Test channel:CH06										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
4874.00	70.49	30.26	4.09	38.29	-3.94	66.55	74	7.45	Peak	Horizontal
4874.00	50.77	30.26	4.09	38.29	-3.94	46.83	54	7.17	Average	Horizontal
4874.00	66.80	30.26	4.09	38.29	-3.94	62.86	74	11.14	Peak	Vertical
4874.00	50.49	30.26	4.09	38.29	-3.94	46.55	54	7.45	Average	Vertical

Test channel:CH11										
Freq. (MHz)	Reading (dBuv)	Ant. Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)	Level (dBuv)	Limit (dBuV/m)	Margin (dB)	Remark	Polarity
4924.00	64.68	31.97	4.11	38.47	-2.39	62.29	74	11.71	Peak	Horizontal
4924.00	50.31	31.97	4.11	38.47	-2.39	47.92	54	6.08	Average	Horizontal
4924.00	67.26	31.97	4.11	38.47	-2.39	64.87	74	9.13	Peak	Vertical
4924.00	51.06	31.97	4.11	38.47	-2.39	48.67	54	5.33	Average	Vertical

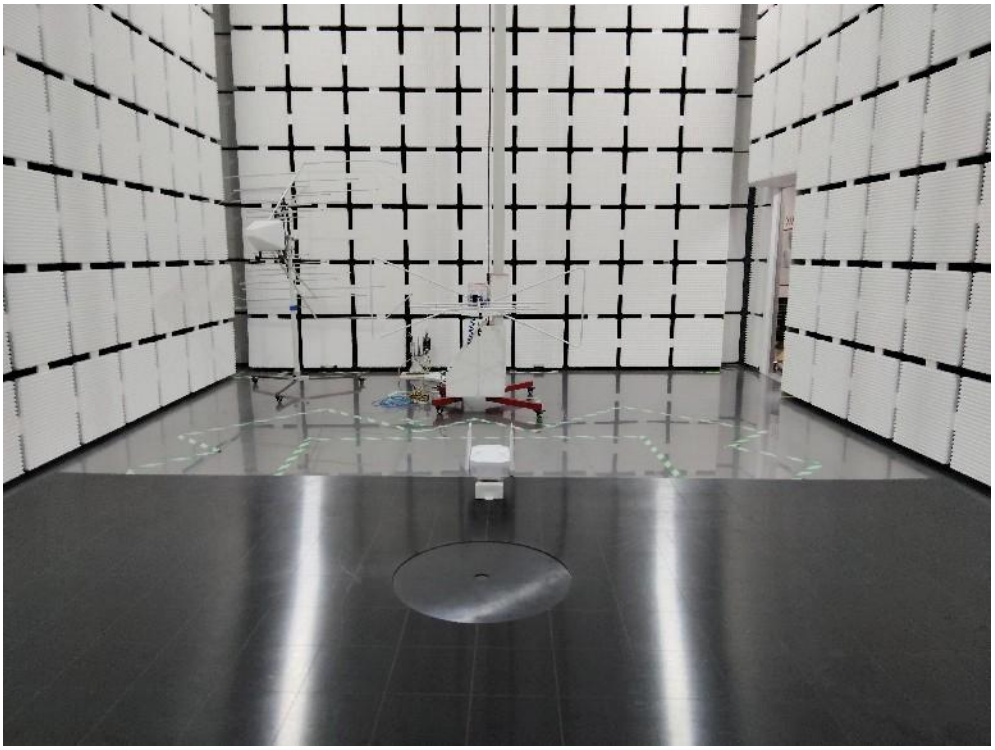
5.10. Duty Cycle Correction Factor (DCCF)

Limit:	--
Test configuration:	
Test procedure:	1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement. 2. Set to the maximum power setting and enable the EUT transmit continuously 3. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel, RBW= 10 MHz, VBW ≥ RBW, Sweep = as necessary to capture the entire dwell time channel Detector function = RMS, Trigger mode 4. Measure and record the duty cycle data
Test mode:	Refer to the clause 4.2
Test data:	Refer to the Appendix A
Result:	**Passed**

6. TEST SETUP PHOTOS

Radiated Emission

Below 1GHz:

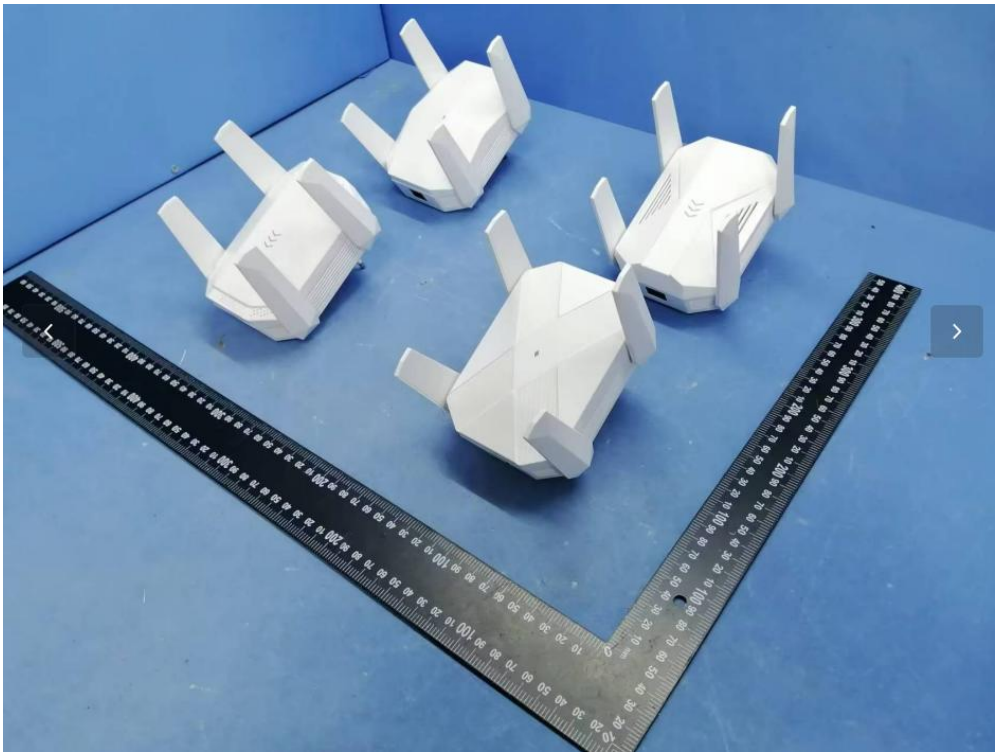


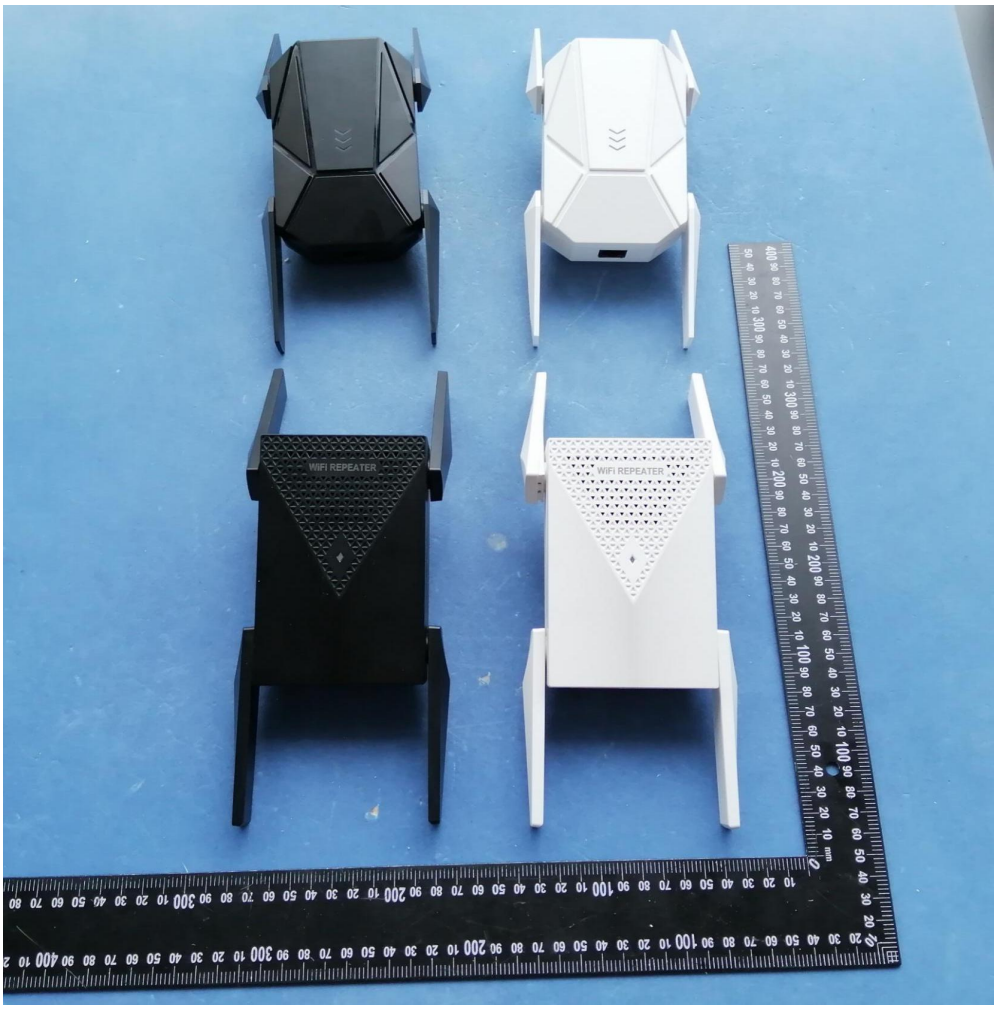
Above 1GHz:

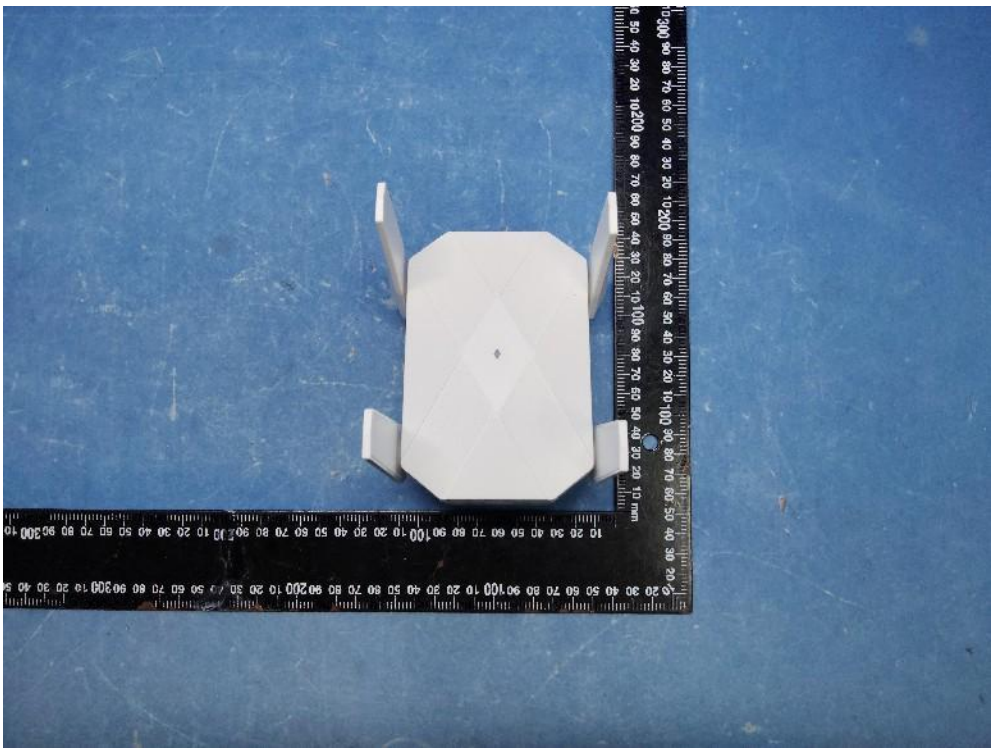
AC Conducted Emission

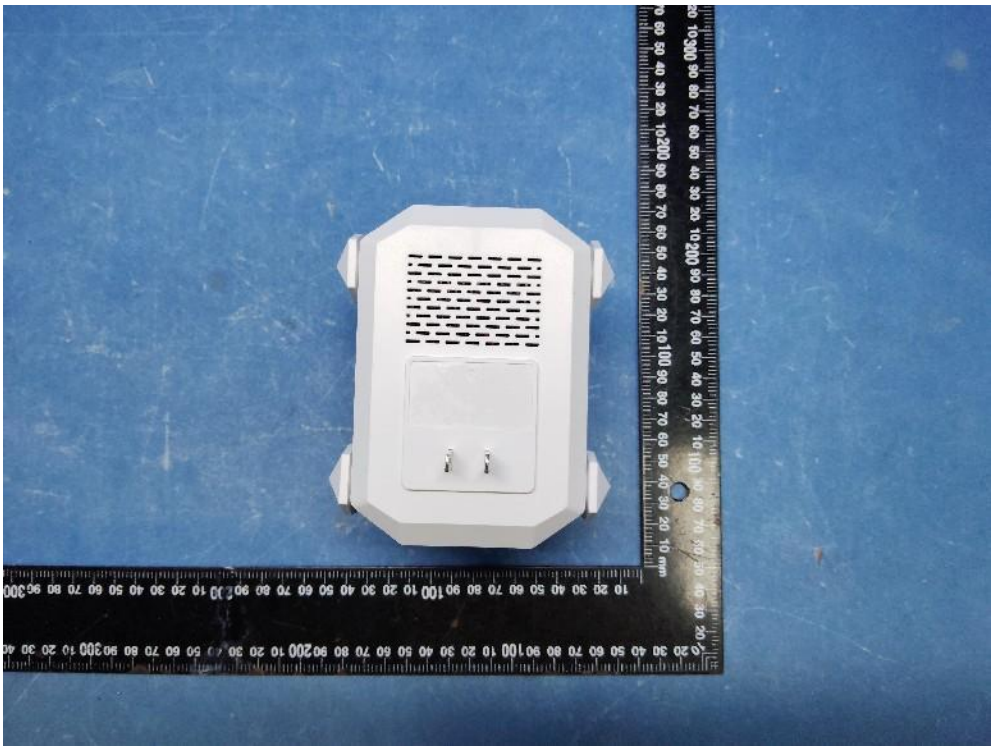
7. EXTERNAL AND INTERNAL PHOTOS

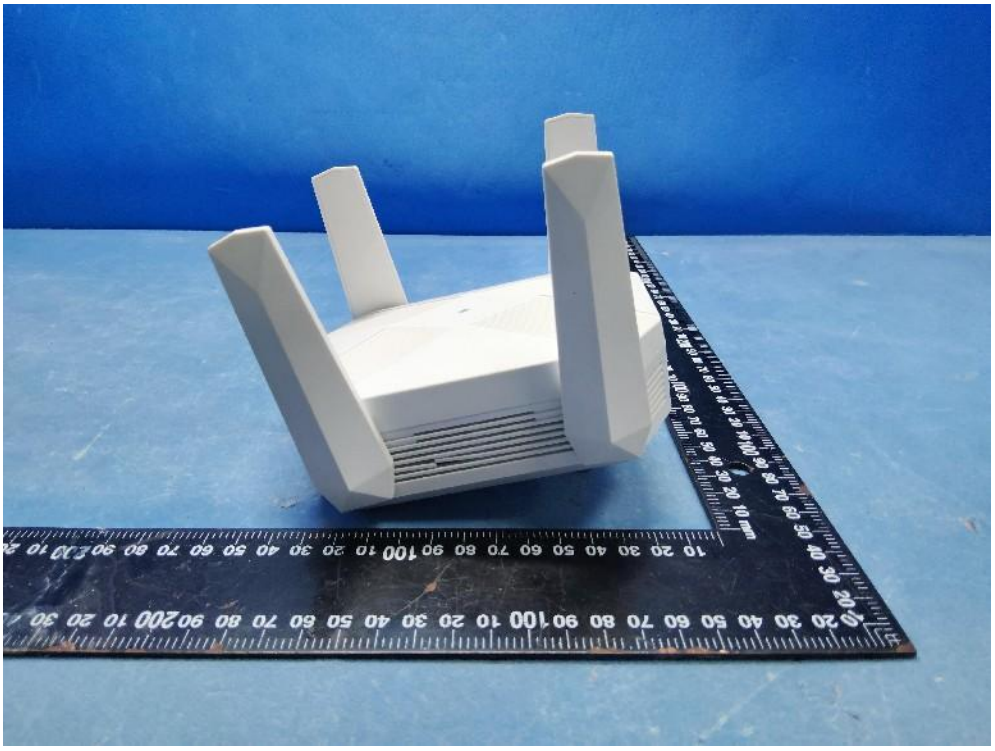
7.1. External Photos

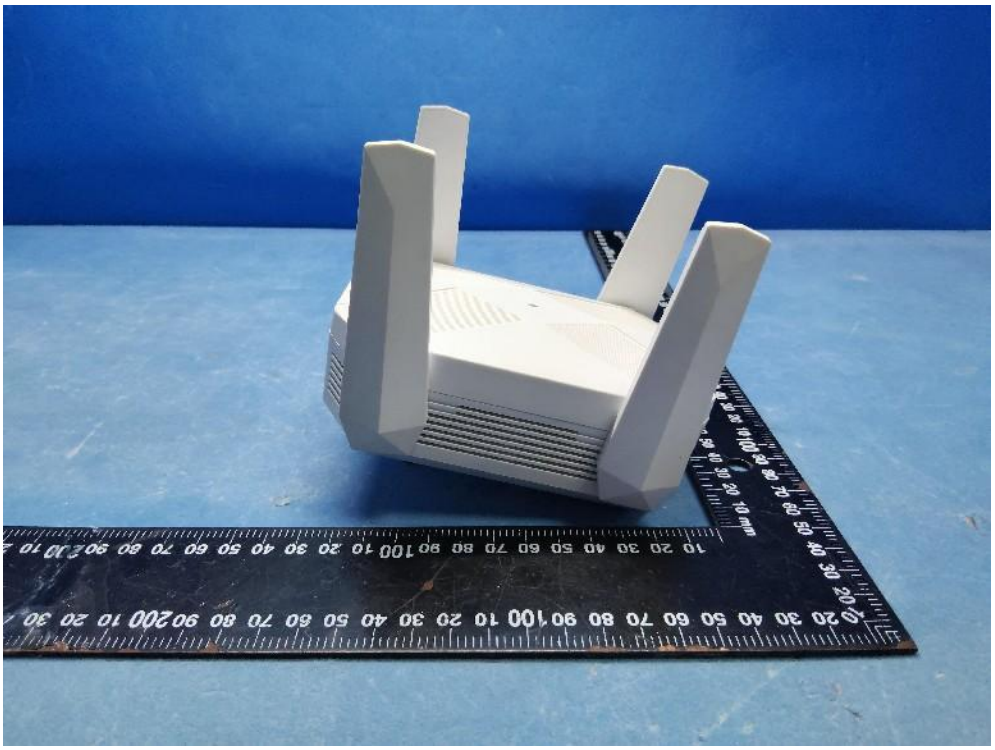



WIFI REPEATER
WIFI REPEATER

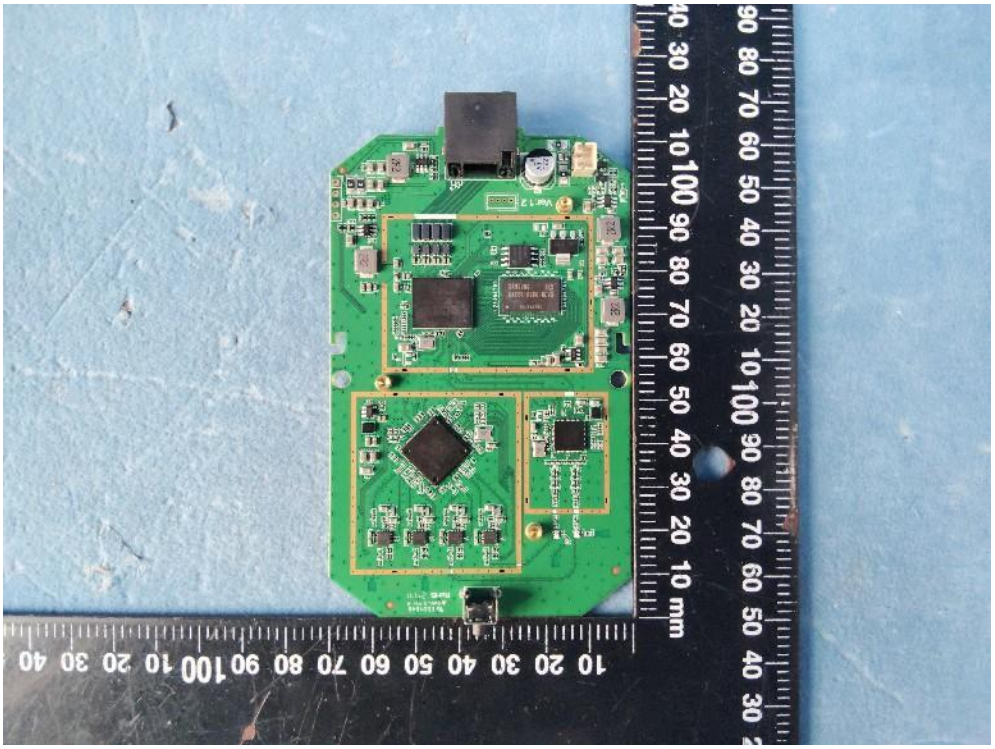


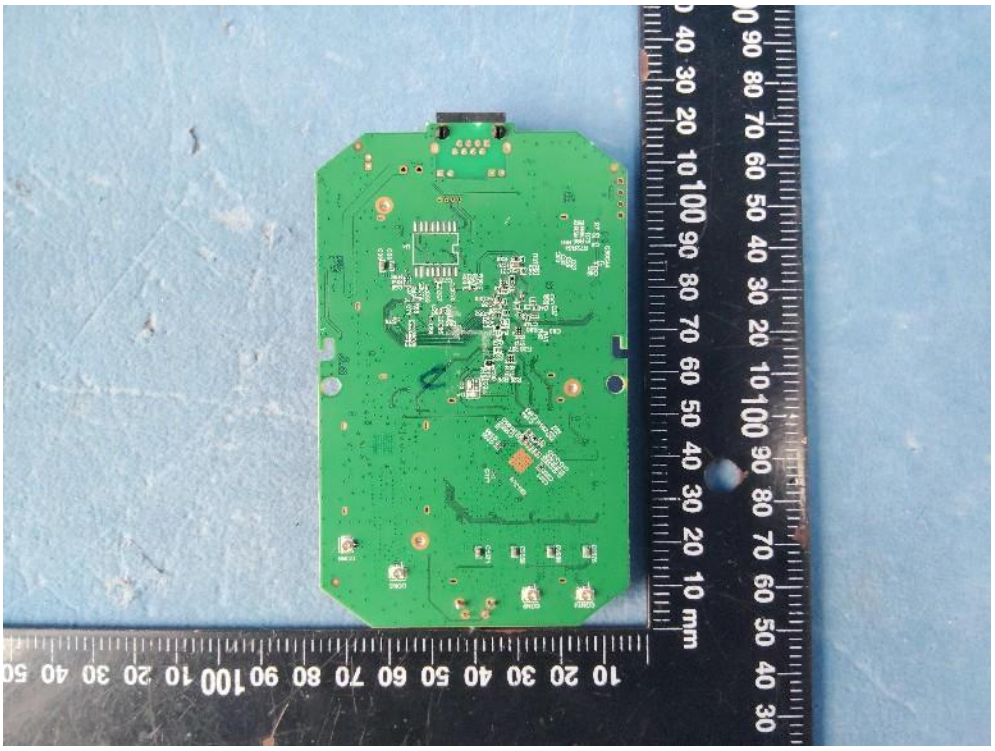


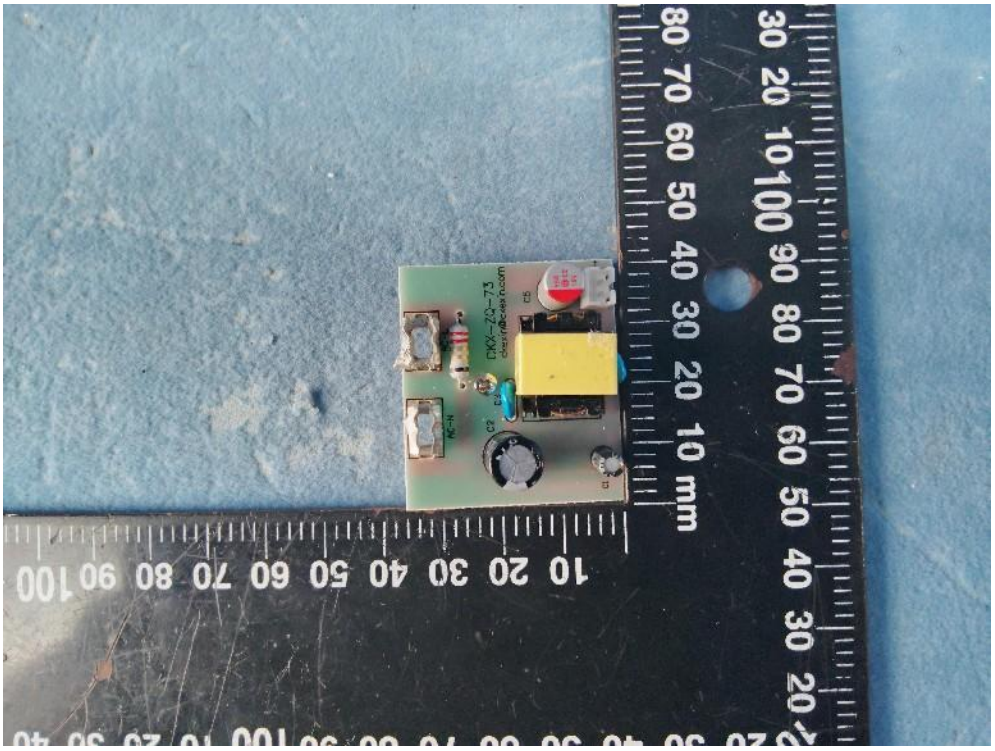


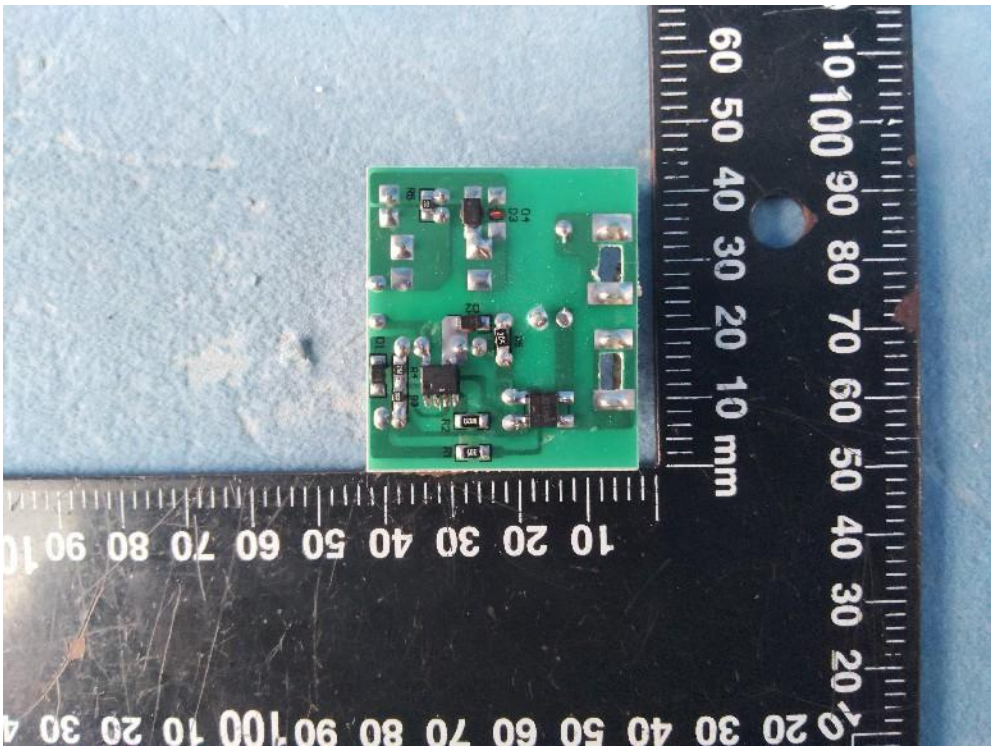


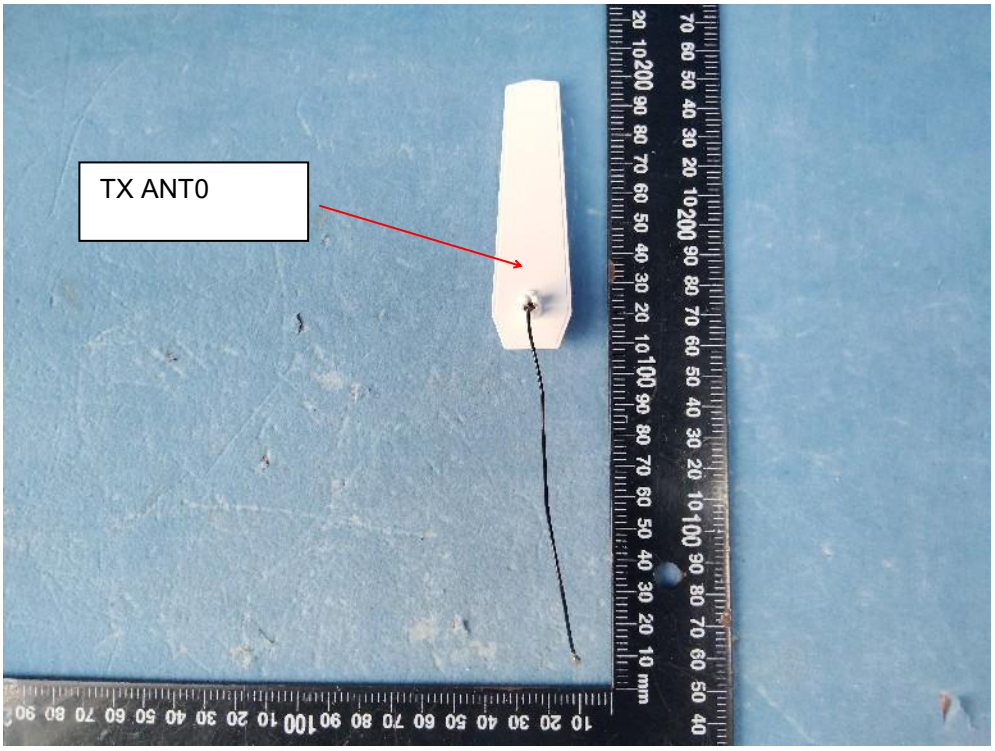
7.2. Internal photos

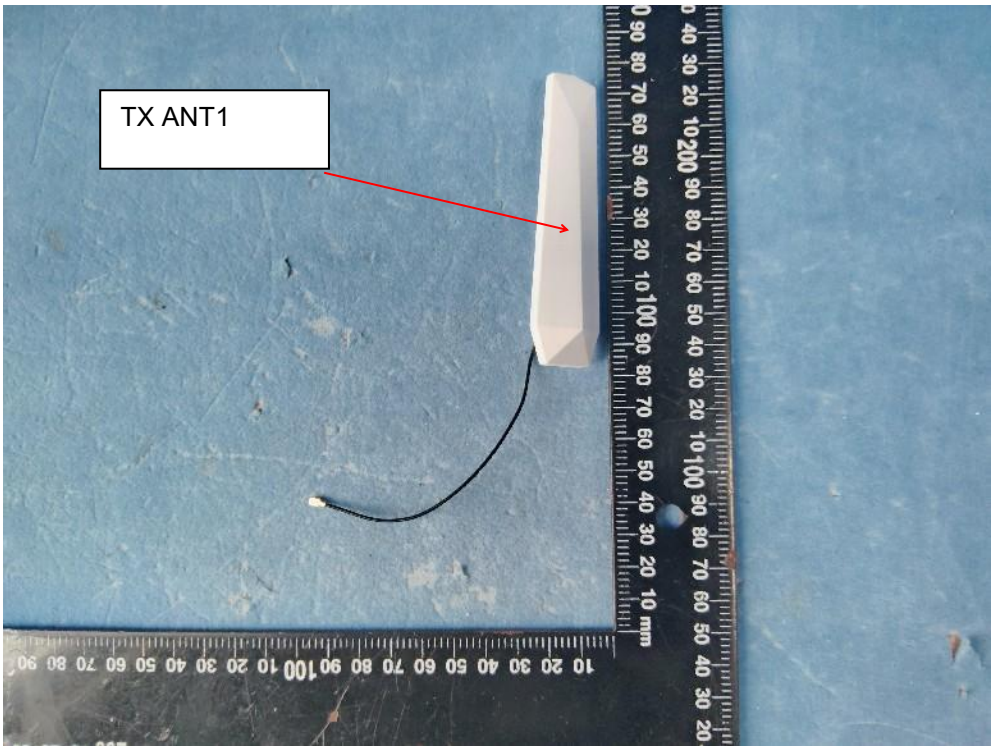


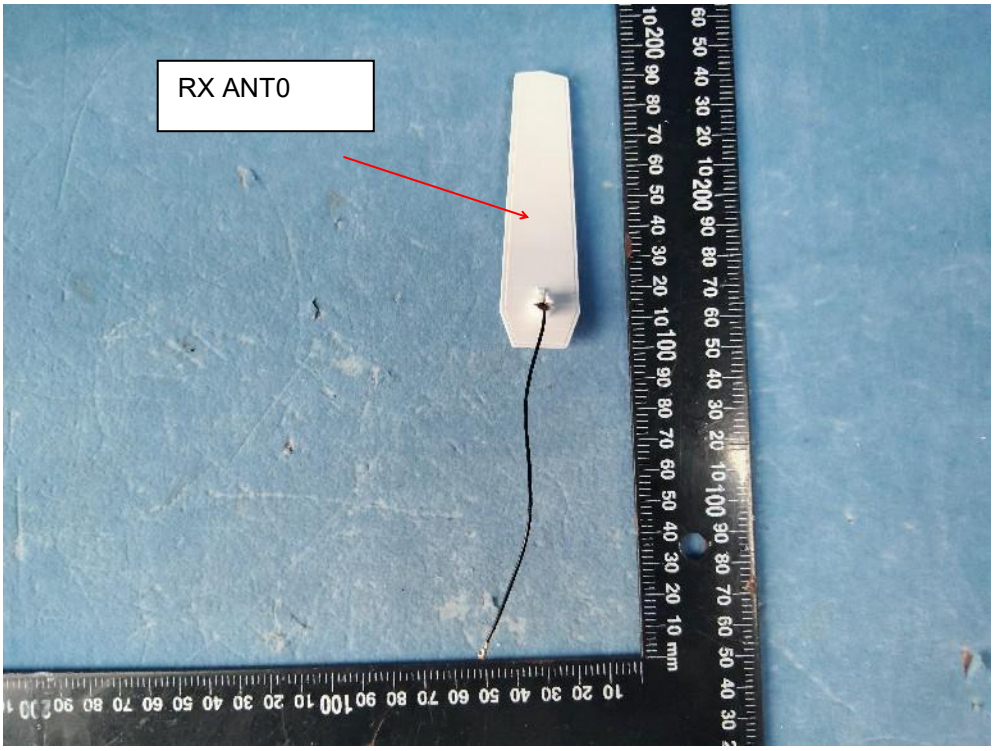


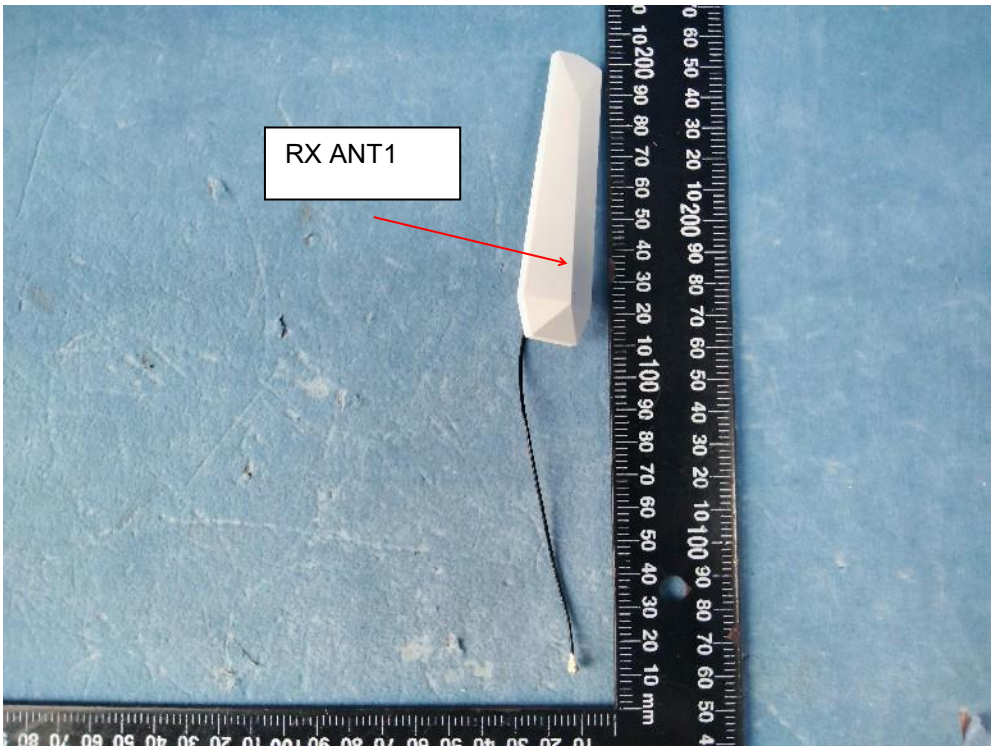


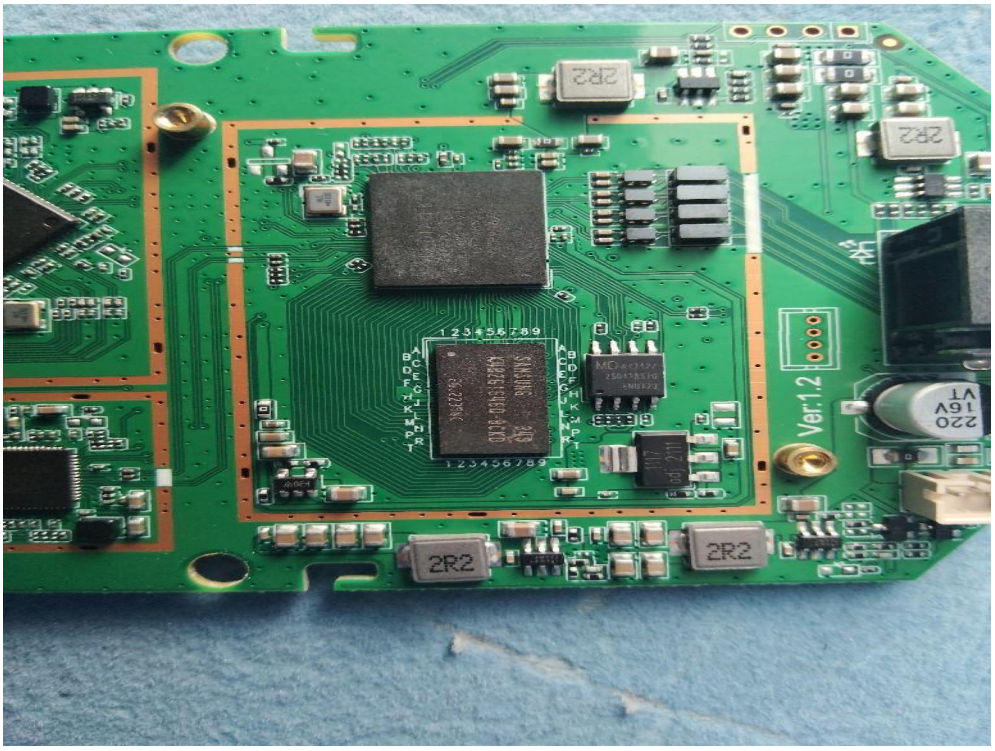


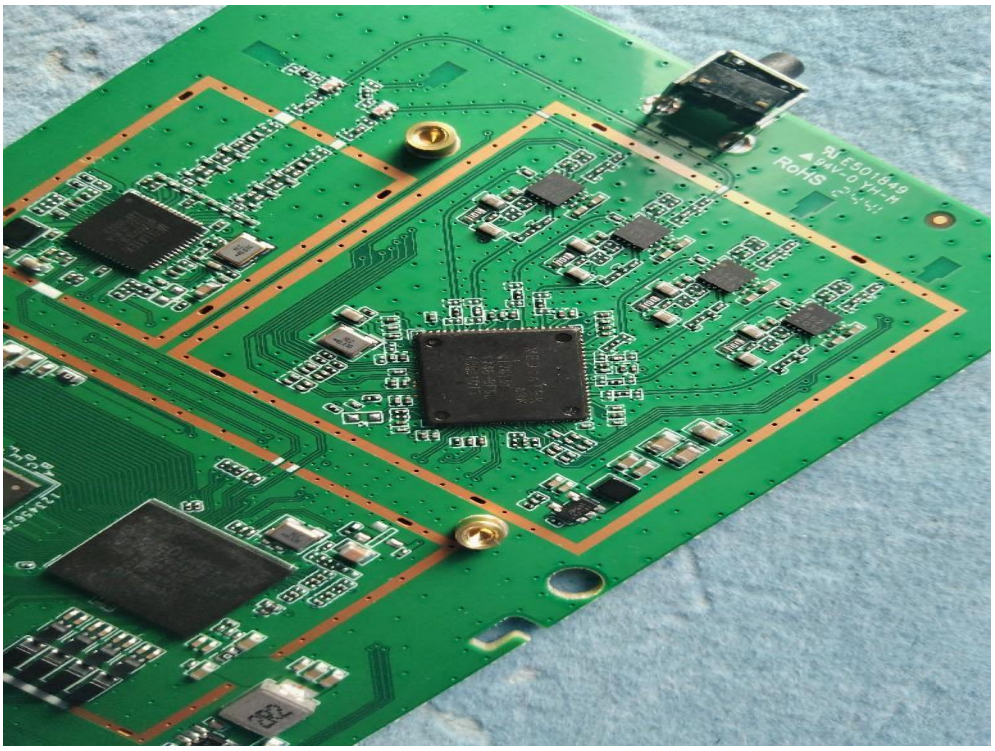

TX ANT0

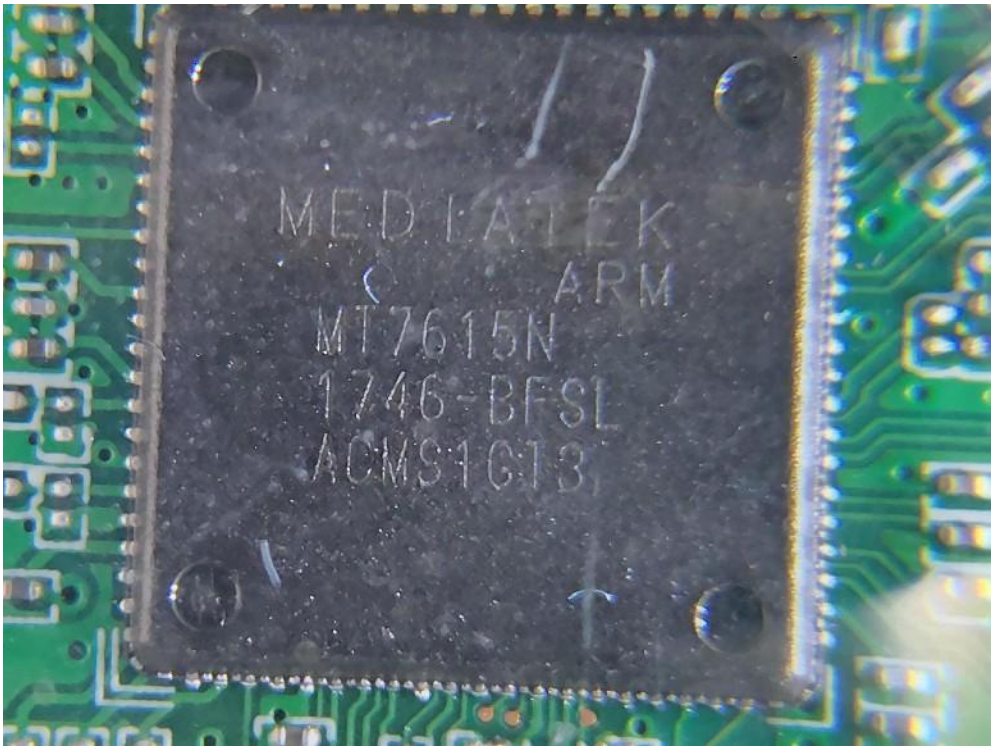

TX ANT1


RX ANT0


RX ANT1


Ver1.2

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MEDIATEK


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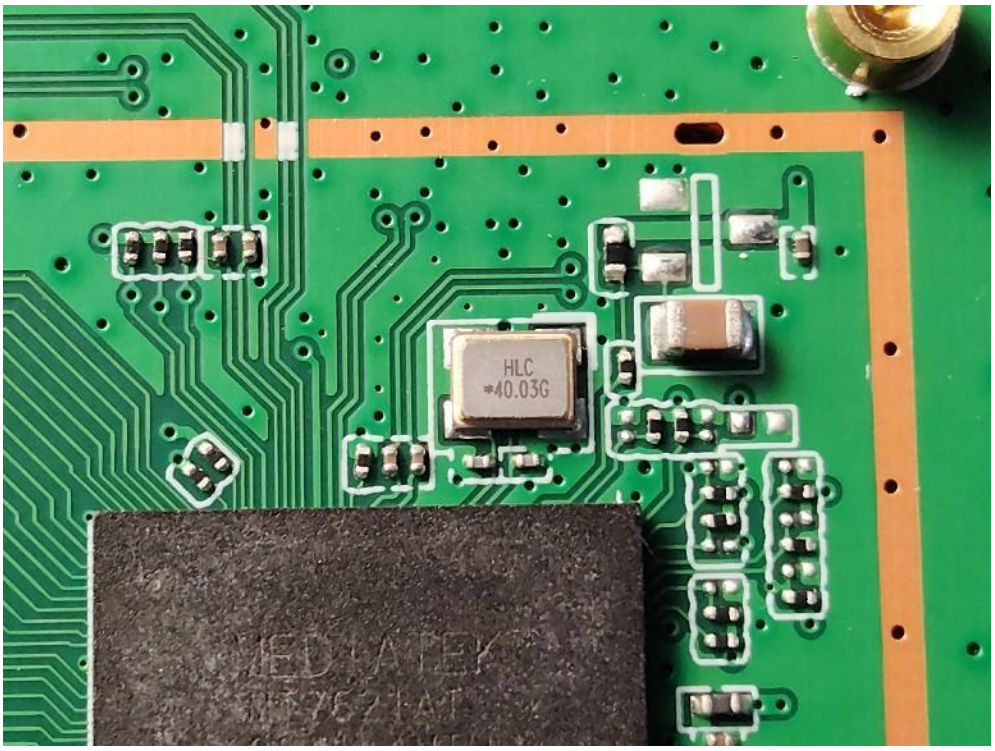
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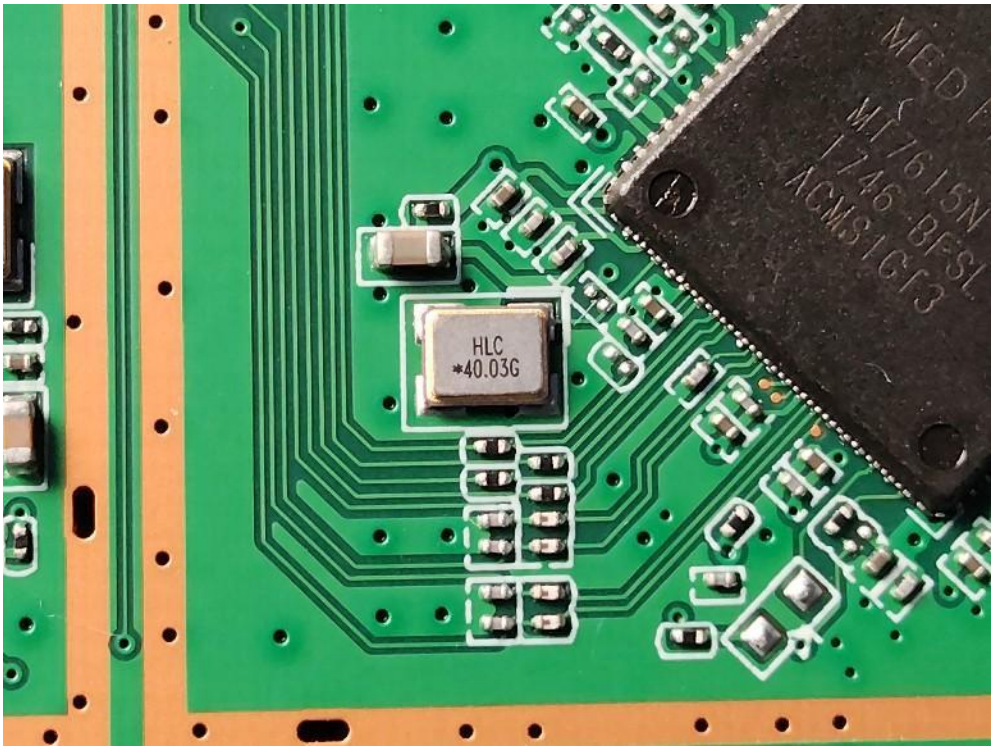
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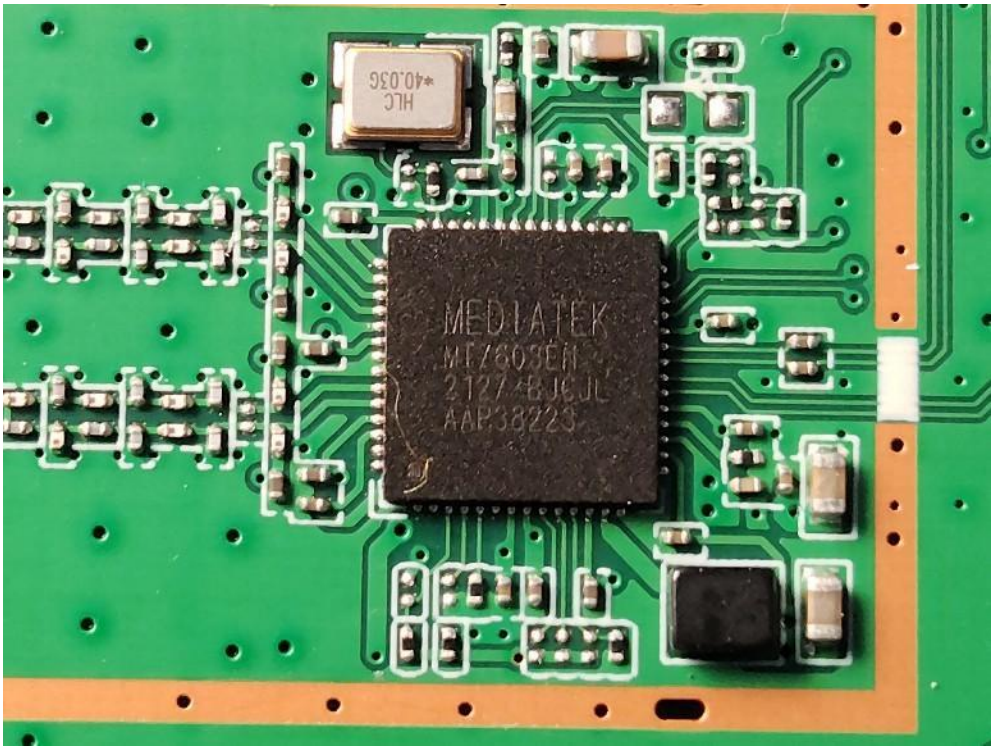
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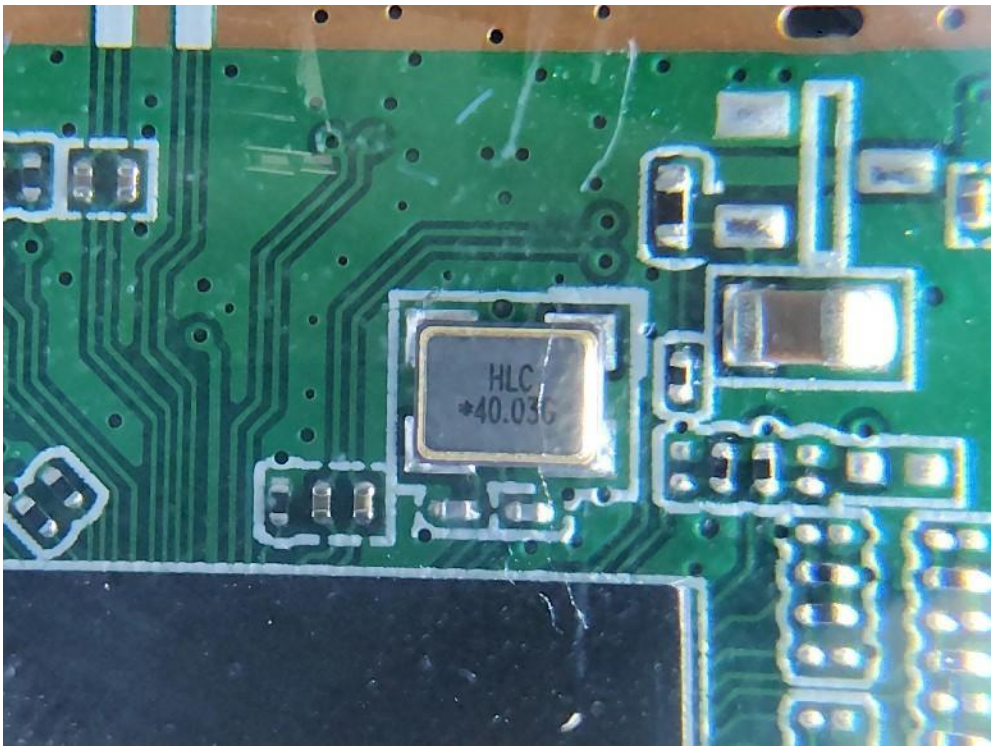
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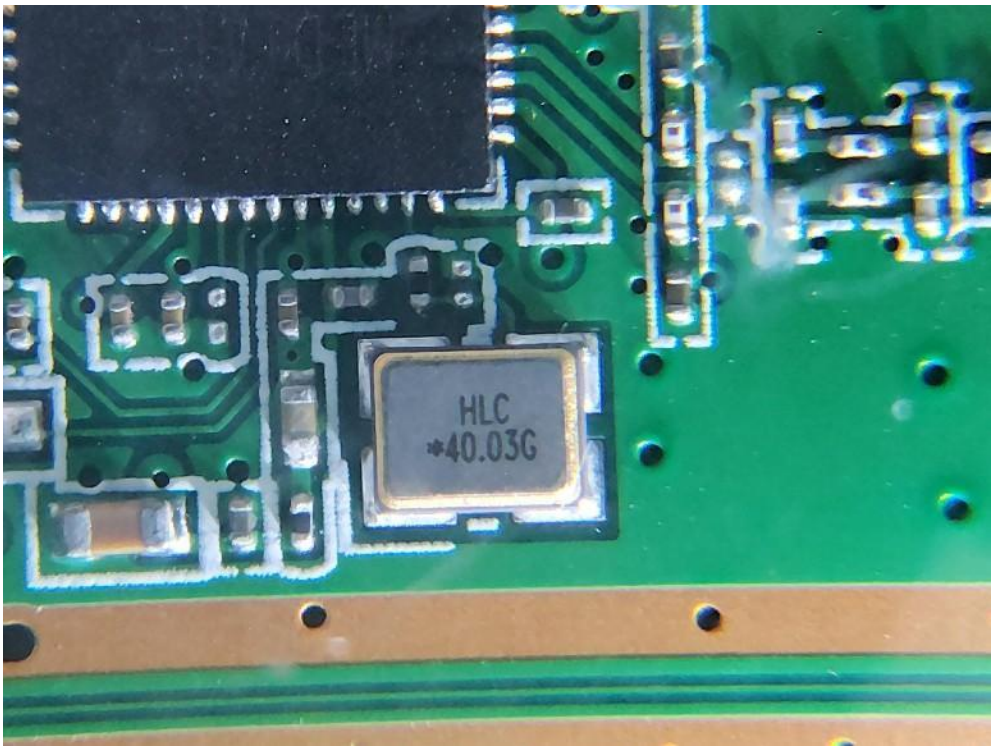
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