



11A-Ant1-5745



11A-Ant1-5785



11A-Ant1-5825



11N20SISO-Ant1-5180



11N20SISO-Ant1-5200



11N20SISO-Ant1-5240



11N20SISO-Ant1-5745



11N20SISO-Ant1-5785



11N20SISO-Ant1-5825



11N40SISO-Ant1-5190



11N40SISO-Ant1-5230

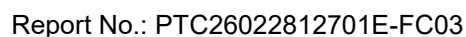


11N40SISO-Ant1-5755



11N40SISO-Ant1-5795





TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	19.960	5170.080	5190.040	---	---
11A	Ant1	5200	19.720	5190.320	5210.040	---	---
11A	Ant1	5240	20.360	5230.120	5250.480	---	---
11N20SISO	Ant1	5180	19.800	5170.040	5189.840	---	---
11N20SISO	Ant1	5200	20.840	5189.480	5210.320	---	---
11N20SISO	Ant1	5240	20.160	5229.920	5250.080	---	---
11N40SISO	Ant1	5190	38.000	5171.120	5209.120	---	---
11N40SISO	Ant1	5230	38.400	5210.960	5249.360	---	---

The screenshot shows an Agilent Spectrum Analyzer interface. The main display is a frequency plot with a yellow trace showing a signal at 5.18 GHz. The plot has a grid and a scale of 10 dB/div. The signal is a narrowband signal with a peak at 5.18 GHz. The plot is labeled with 'Center Freq 5.180000000 GHz', 'Span 40.00 MHz', and 'Sweep 1.000 ms (1001 pts)'. The plot also shows 'Ref Offset 15.75 dB' and 'Ref 20.00 dBm'. The plot is labeled with 'ΔMkr3 19.96 MHz' and '0.016 dB'.

The table below the plot shows measurement data:

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.170 08 GHz	-30.267 dBm			
2	N	1	f	5.179 00 GHz	-2.857 dBm			
3	Δ1	1	f (Δ)	19.96 MHz (Δ)	0.016 dB			

The right side of the interface has several control panels:

- Frequency**: Center Freq 5.180000000 GHz, Start Freq 5.160000000 GHz, Stop Freq 5.200000000 GHz.
- Auto Tune**: CF Step 4.000000 MHz, Man.
- Frequency Offset**: 0 Hz.

The bottom of the interface shows a status bar with 'MSG' and 'STATUS' indicators.



11A-Ant1-5240



11N20SISO-Ant1-5180



11N20SISO-Ant1-5200



11N20SISO-Ant1-5240



11N40SISO-Ant1-5190



11N40SISO-Ant1-5230



Minimum 6 dB bandwidth:

TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	14.160	5737.400	5751.560	0.5	PASS
11A	Ant1	5785	14.000	5777.480	5791.480	0.5	PASS
11A	Ant1	5825	15.400	5817.080	5832.480	0.5	PASS
11N20SISO	Ant1	5745	11.320	5738.680	5750.000	0.5	PASS
11N20SISO	Ant1	5785	13.800	5778.640	5792.440	0.5	PASS
11N20SISO	Ant1	5825	12.200	5818.680	5830.880	0.5	PASS
11N40SISO	Ant1	5755	30.080	5738.680	5768.760	0.5	PASS
11N40SISO	Ant1	5795	32.480	5777.480	5809.960	0.5	PASS



Minimum 6 dB bandwidth Test Graphs:

11A-Ant1-5745-PASS



11A-Ant1-5785-PASS



11A-Ant1-5825-PASS



11N20SISO-Ant1-5745-PASS



11N20SISO-Ant1-5785-PASS



11N20SISO-Ant1-5825-PASS



11N40SISO-Ant1-5755-PASS



11N40SISO-Ant1-5795-PASS



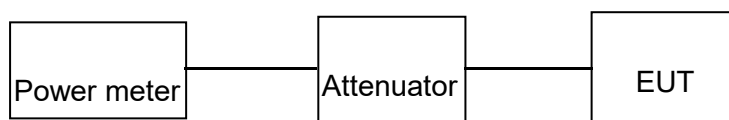


8 Maximum Conducted Output Power

Test Requirement	: FCC CFR47 Part 15 Section 15.407(a)
Test Method	: ANSI C63.10-2020
Test Limit	: For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

8.1 Test Setup



8.2 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, The use Power Meter 1. Place the EUT on a bench and set it in transmitting mode. 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a Power meter.



8.3 Test Result

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	7.48	≤23.98	PASS
11A	Ant1	5200	7.49	≤23.98	PASS
11A	Ant1	5240	9.42	≤23.98	PASS
11A	Ant1	5745	9.75	≤30.00	PASS
11A	Ant1	5785	10.10	≤30.00	PASS
11A	Ant1	5825	8.40	≤30.00	PASS
11N20SISO	Ant1	5180	6.20	≤23.98	PASS
11N20SISO	Ant1	5200	7.15	≤23.98	PASS
11N20SISO	Ant1	5240	9.04	≤23.98	PASS
11N20SISO	Ant1	5745	9.72	≤30.00	PASS
11N20SISO	Ant1	5785	9.42	≤30.00	PASS
11N20SISO	Ant1	5825	8.03	≤30.00	PASS
11N40SISO	Ant1	5190	8.78	≤23.98	PASS
11N40SISO	Ant1	5230	9.05	≤23.98	PASS
11N40SISO	Ant1	5755	9.87	≤30.00	PASS
11N40SISO	Ant1	5795	9.25	≤30.00	PASS



9 Power Spectral density

Test Requirement	: FCC CFR47 Part 15 Section 15.2407(a)
Test Method	: ANSI C63.10-2020
Test Limit	: For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.. For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHzband. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations

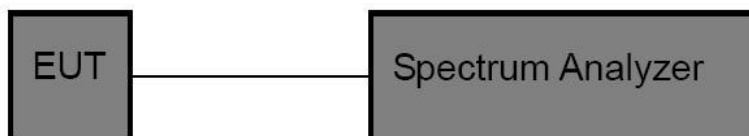


9.1 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 and ANSI C63.10 - 2020 Sec 10.3.7. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set the RBW to 1 MHz.
- b) Set the VBW to be at least 1 MHz (a VBW of 3 MHz is desirable).
- c) Set the frequency span to examine the spectrum across a convenient frequency segment (e.g., 600 MHz).
- d) Select the power averaging (rms) detector.
- e) Set the sweep time so that there is no more than a 1 ms integration period over each measurement bin.
- f) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

9.2 Test Setup





9.3 Test Result

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations / data rates and antenna ports.

Following channel was selected for the final test as listed below

TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	-3.25	≤11.00	PASS
11A	Ant1	5200	-2.67	≤11.00	PASS
11A	Ant1	5240	-0.2	≤11.00	PASS
11N20SISO	Ant1	5180	-3.44	≤11.00	PASS
11N20SISO	Ant1	5200	-2.68	≤11.00	PASS
11N20SISO	Ant1	5240	-0.74	≤11.00	PASS
11N40SISO	Ant1	5190	-2.96	≤11.00	PASS
11N40SISO	Ant1	5230	-2.94	≤11.00	PASS

TestMode	Antenna	Frequency[MHz]	Result [dBm/300kHz]	Result [dBm/500kHz]	Limit[dBm/500kHz]	Verdict
11A	Ant1	5745	-2.39	-0.17	≤30.00	PASS
11A	Ant1	5785	-2.43	-0.21	≤30.00	PASS
11A	Ant1	5825	-4.06	-1.84	≤30.00	PASS
11N20SISO	Ant1	5745	-2.4	-0.18	≤30.00	PASS
11N20SISO	Ant1	5785	-3.02	-0.80	≤30.00	PASS
11N20SISO	Ant1	5825	-4.19	-1.97	≤30.00	PASS
11N40SISO	Ant1	5755	-5.86	-3.64	≤30.00	PASS
11N40SISO	Ant1	5795	-5.98	-3.76	≤30.00	PASS

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2. in the band 5.725–5.85 GHz the test RBW select 300KHz,so the measured result corrected by Result+10 log (500 kHz/300kHz).

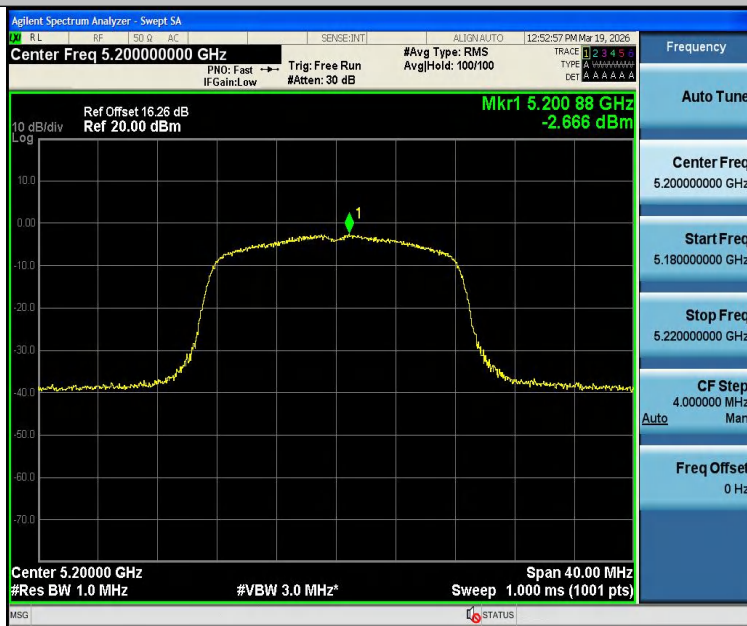


Test Graphs:

11A-Ant1-5180-PASS



11A-Ant1-5200-PASS



11A-Ant1-5240-PASS



11A-Ant1-5745-PASS



11A-Ant1-5785-PASS



11A-Ant1-5825-PASS



11N20SISO-Ant1-5180-PASS



11N20SISO-Ant1-5200-PASS



11N20SISO-Ant1-5240-PASS



11N20SISO-Ant1-5745-PASS



11N20SISO-Ant1-5785-PASS



11N20SISO-Ant1-5825-PASS



11N40SISO-Ant1-5190-PASS



11N40SISO-Ant1-5230-PASS



11N40SISO-Ant1-5755-PASS



11N40SISO-Ant1-5795-PASS



Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.



9.4 Antenna Requirement

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 transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

9.5 Result

The EUT'S antenna, permanent attached antenna, is Ceramic antenna. The antenna's gain is 5.40 dBi and meets the requirement.

10 Frequency Stability

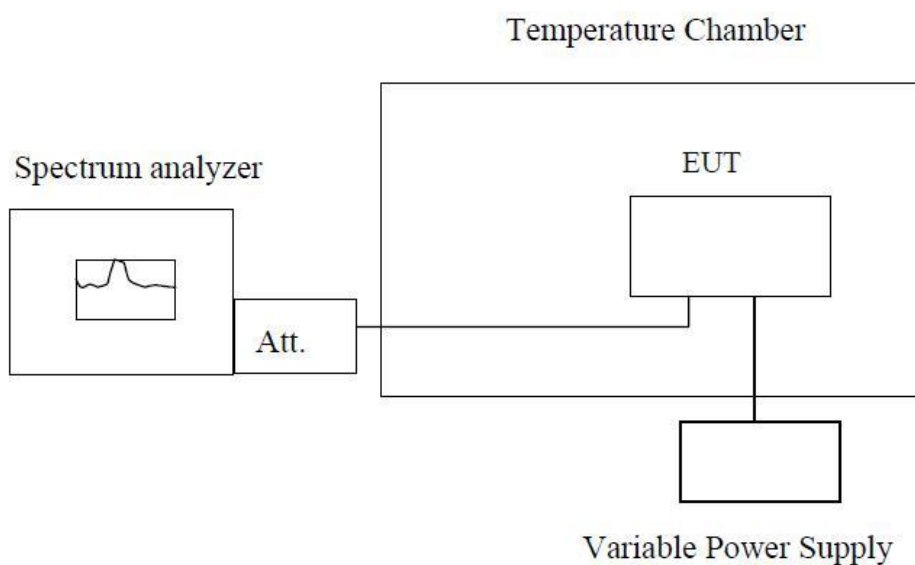
Test Requirement : FCC Part15 E Section 15.407 (g)

Test Limit
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

10.1 Test Procedure

1. The EUT is installed in an environment test chamber with external power source.
2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.
3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
4. When temperature is stabled, measure the frequency stability.
5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.

10.2 Test Setup





10.3 Test Result

TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-32000.00	-6.177606	20	PASS
11A	Ant1	5180	LV	NT	-32000.00	-6.177606	20	PASS
11A	Ant1	5180	HV	NT	-32000.00	-6.177606	20	PASS
11A	Ant1	5200	NV	NT	-33000.00	-6.346154	20	PASS
11A	Ant1	5200	LV	NT	-33000.00	-6.346154	20	PASS
11A	Ant1	5200	HV	NT	-33000.00	-6.346154	20	PASS
11A	Ant1	5240	NV	NT	-31000.00	-5.916031	20	PASS
11A	Ant1	5240	LV	NT	-33000.00	-6.297710	20	PASS
11A	Ant1	5240	HV	NT	-33000.00	-6.297710	20	PASS
11A	Ant1	5745	NV	NT	-24000.00	-4.177546	20	PASS
11A	Ant1	5745	LV	NT	-29000.00	-5.047868	20	PASS
11A	Ant1	5745	HV	NT	-31000.00	-5.395997	20	PASS
11A	Ant1	5785	NV	NT	-31000.00	-5.358686	20	PASS
11A	Ant1	5785	LV	NT	-35000.00	-6.050130	20	PASS
11A	Ant1	5785	HV	NT	-35000.00	-6.050130	20	PASS
11A	Ant1	5825	NV	NT	-33000.00	-5.665236	20	PASS
11A	Ant1	5825	LV	NT	-36000.00	-6.180258	20	PASS
11A	Ant1	5825	HV	NT	-36000.00	-6.180258	20	PASS
11N20SISO	Ant1	5180	NV	NT	-30000.00	-5.791506	20	PASS
11N20SISO	Ant1	5180	LV	NT	-32000.00	-6.177606	20	PASS
11N20SISO	Ant1	5180	HV	NT	-32000.00	-6.177606	20	PASS
11N20SISO	Ant1	5200	NV	NT	-28000.00	-5.384615	20	PASS
11N20SISO	Ant1	5200	LV	NT	-31000.00	-5.961538	20	PASS
11N20SISO	Ant1	5200	HV	NT	-32000.00	-6.153846	20	PASS
11N20SISO	Ant1	5240	NV	NT	-31000.00	-5.916031	20	PASS
11N20SISO	Ant1	5240	LV	NT	-32000.00	-6.106870	20	PASS



Report No.: PTC26022812701E-FC03

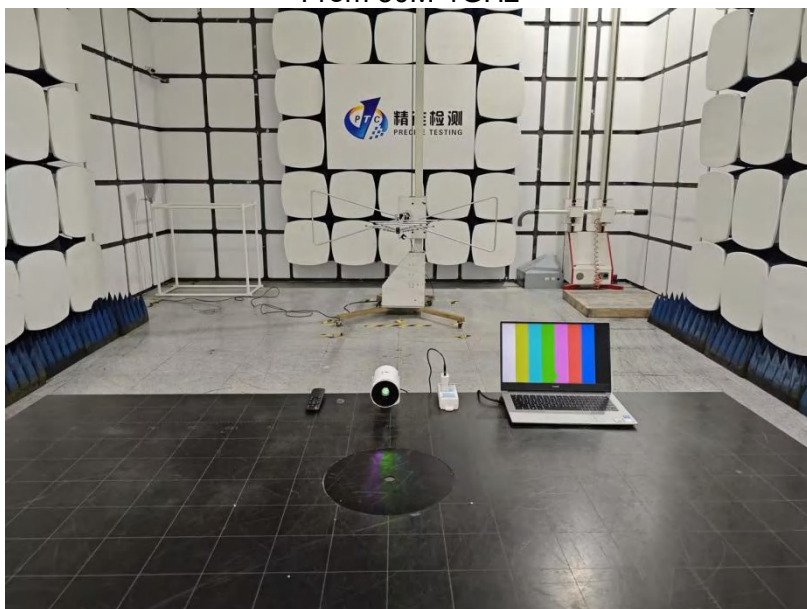
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11N20SISO	Ant1	5745	HV	NT	-35000.00	-6.092254	20	PASS
11N20SISO	Ant1	5785	NV	NT	-35000.00	-6.050130	20	PASS
11N20SISO	Ant1	5785	LV	NT	-36000.00	-6.222990	20	PASS
11N20SISO	Ant1	5785	HV	NT	-37000.00	-6.395851	20	PASS
11N20SISO	Ant1	5825	NV	NT	-35000.00	-6.008584	20	PASS
11N20SISO	Ant1	5825	LV	NT	-36000.00	-6.180258	20	PASS
11N20SISO	Ant1	5825	HV	NT	-37000.00	-6.351931	20	PASS
11N40SISO	Ant1	5190	NV	NT	-31000.00	-5.973025	20	PASS
11N40SISO	Ant1	5190	LV	NT	-32000.00	-6.165703	20	PASS
11N40SISO	Ant1	5190	HV	NT	-32000.00	-6.165703	20	PASS
11N40SISO	Ant1	5230	NV	NT	-30000.00	-5.736138	20	PASS
11N40SISO	Ant1	5230	LV	NT	-32000.00	-6.118547	20	PASS
11N40SISO	Ant1	5230	HV	NT	-32000.00	-6.118547	20	PASS
11N40SISO	Ant1	5755	NV	NT	-28000.00	-4.865334	20	PASS
11N40SISO	Ant1	5755	LV	NT	-33000.00	-5.734144	20	PASS
11N40SISO	Ant1	5755	HV	NT	-34000.00	-5.907906	20	PASS
11N40SISO	Ant1	5795	NV	NT	-35000.00	-6.039689	20	PASS
11N40SISO	Ant1	5795	LV	NT	-36000.00	-6.212252	20	PASS
11N40SISO	Ant1	5795	HV	NT	-36000.00	-6.212252	20	PASS

11 Test Setup

Conducted Emissions



Radiated Emissions From 30M-1GHz



Above 1GHz

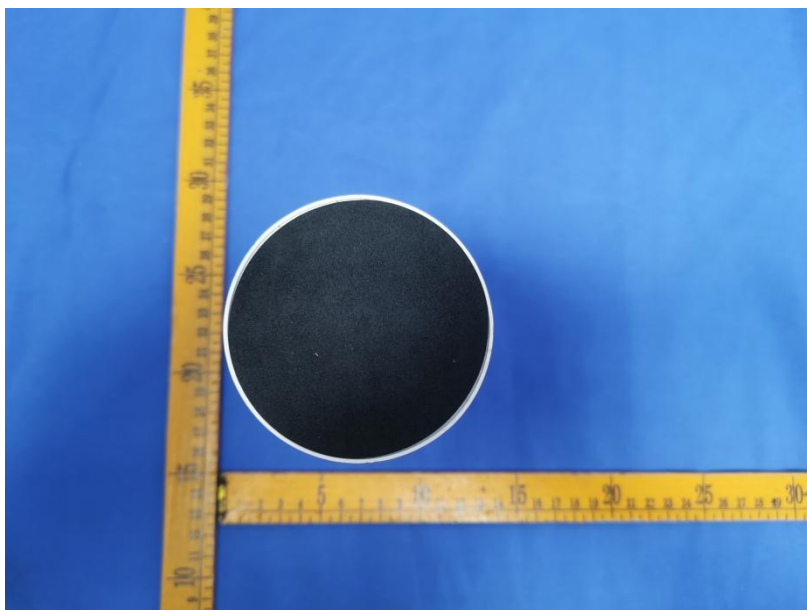


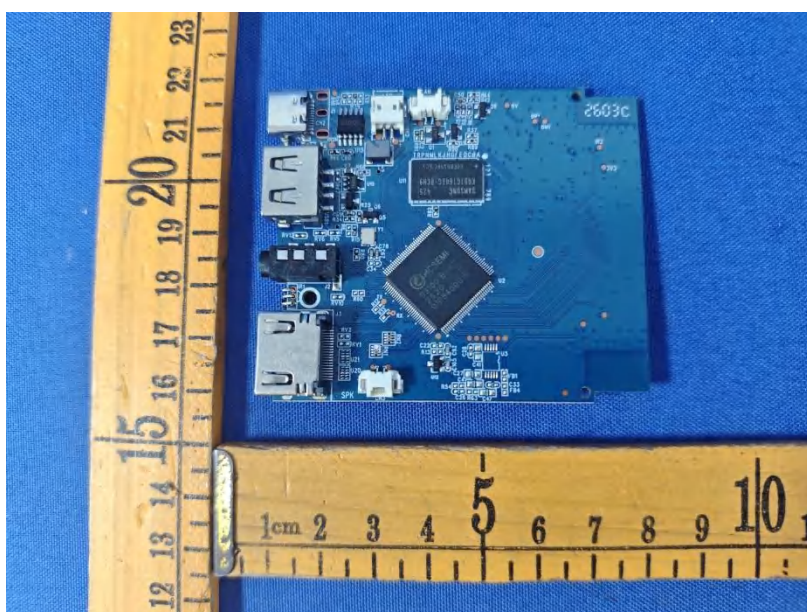
12 EUT PHOTOS

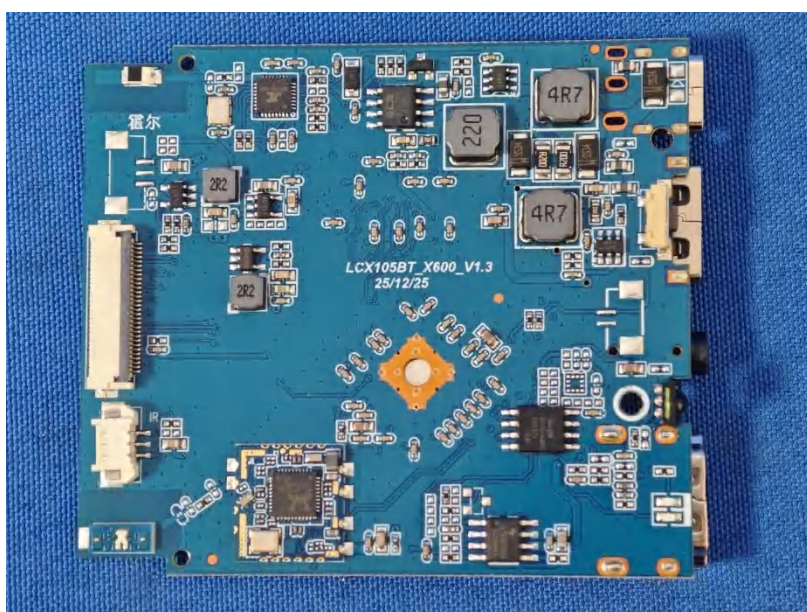
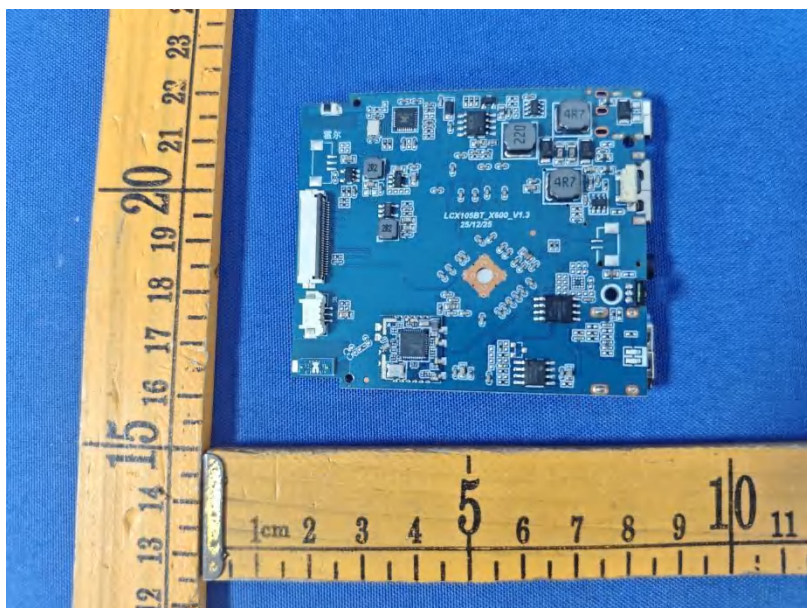


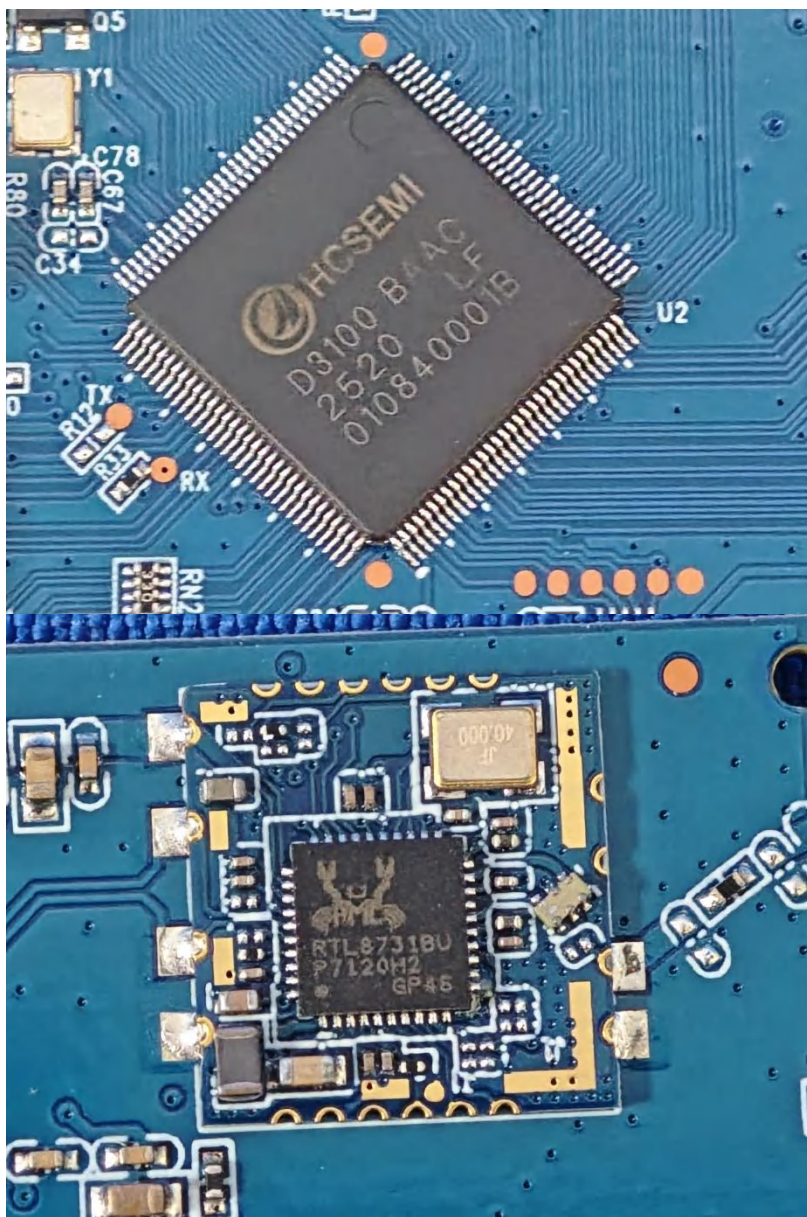


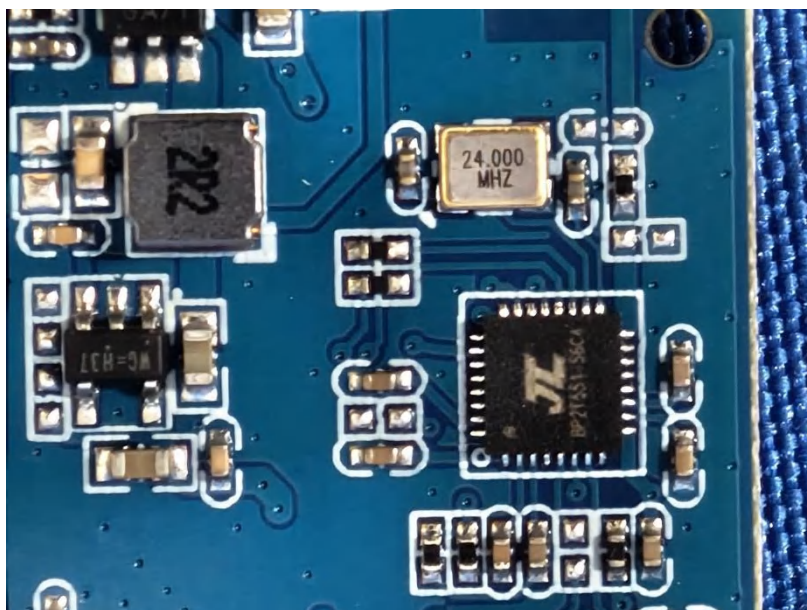












*******THE END REPORT*******