

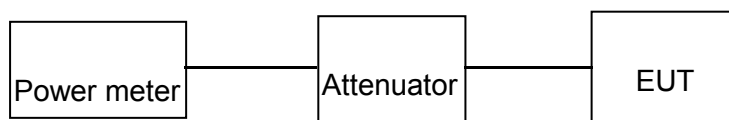


8 Maximum Conducted Output Power

Test Requirement	: FCC CFR47 Part 15 Section 15.247
Test Method	: ANSI C63.10:2013
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]	Conducted Power [dBm]	Limit [dBm]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11A	Ant1	5180	13.87	≤23.98	15.96	---	PASS
11A	Ant1	5200	14.46	≤23.98	16.55	---	PASS
11A	Ant1	5240	15.49	≤23.98	17.58	---	PASS
11A	Ant1	5745	16.95	≤30.00	19.11	---	PASS
11A	Ant1	5785	16.15	≤30.00	18.31	---	PASS
11A	Ant1	5825	15.64	≤30.00	17.80	---	PASS
11N20SISO	Ant1	5180	13.11	≤23.98	15.20	---	PASS
11N20SISO	Ant1	5200	13.88	≤23.98	15.97	---	PASS
11N20SISO	Ant1	5240	15.16	≤23.98	17.25	---	PASS
11N20SISO	Ant1	5745	16.55	≤30.00	18.71	---	PASS
11N20SISO	Ant1	5785	16.01	≤30.00	18.17	---	PASS
11N20SISO	Ant1	5825	15.41	≤30.00	17.57	---	PASS



9 Power Spectral density

Test Requirement	: FCC CFR47 Part 15 Section 15.2407(a)
Test Method	: ANSI C63.10:2013
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

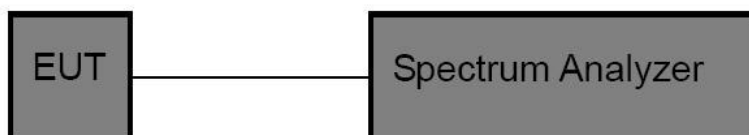


9.1 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 and ANSI 63.10: 2013 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]	EIRP spectral density[dBm/MHz]	EIRP. spectral density Limit[dBm/MHz]	Verdict
11A	Ant1	5180	4.12	-	6.21	≤10	PASS
11A	Ant1	5200	4.72	-	6.81	≤10	PASS
11A	Ant1	5240	5.79	-	7.88	≤10	PASS
11N20SISO	Ant1	5180	3.29	-	5.38	≤10	PASS
11N20SISO	Ant1	5200	4.1	-	6.19	≤10	PASS
11N20SISO	Ant1	5240	5.37	-	7.46	≤10	PASS

TestMode	Antenna	Frequency[MHz]	Result [dBm/300kHz]	Result [dBm/500kHz]	Limit[dBm/500kHz]	Verdict
11A	Ant1	5745	4.50	6.72	≤30.00	PASS
11A	Ant1	5785	3.67	5.89	≤30.00	PASS
11A	Ant1	5825	3.34	5.56	≤30.00	PASS
11N20SISO	Ant1	5745	3.99	6.21	≤30.00	PASS
11N20SISO	Ant1	5785	3.52	5.74	≤30.00	PASS
11N20SISO	Ant1	5825	2.85	5.07	≤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





10 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.

10.1 Result

The EUT'S antenna, permanent attached antenna, is FPC Antenna. The antenna's gain is 5.2G:2.09 dBi; 5.8G:2.16 dBi and meets the requirement.

11 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.

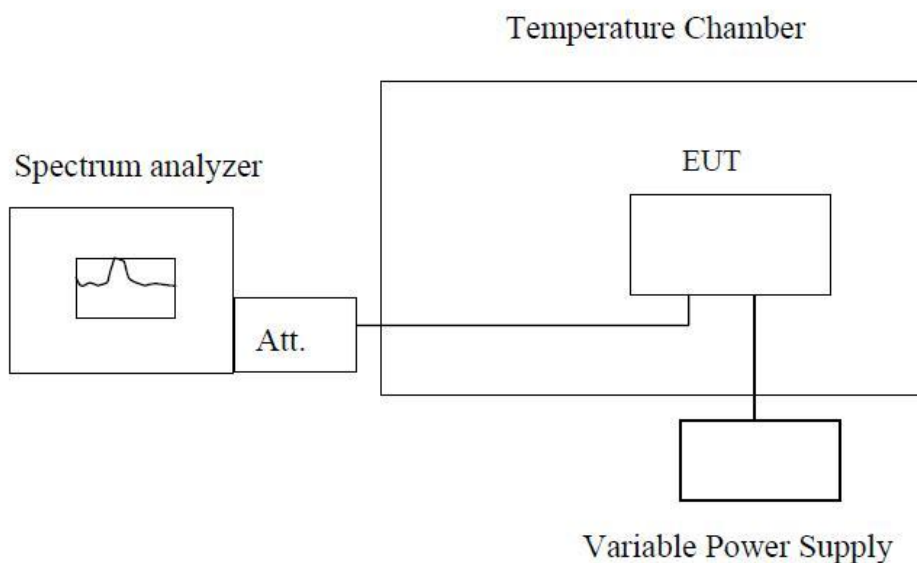
11.1 Test Procedure

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.

Test voltage:

NV	LV	HV
5V	4.5V	5.5V

11.2 Test Setup





11.3 Test Result

TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	LV	NT	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	HV	NT	-45000.00	-8.687259	20	PASS
11A	Ant1	5200	NV	NT	-43000.00	-8.269231	20	PASS
11A	Ant1	5200	LV	NT	-44000.00	-8.461538	20	PASS
11A	Ant1	5200	HV	NT	-45000.00	-8.653846	20	PASS
11A	Ant1	5240	NV	NT	-31000.00	-5.916031	20	PASS
11A	Ant1	5240	LV	NT	-40000.00	-7.633588	20	PASS
11A	Ant1	5240	HV	NT	-42000.00	-8.015267	20	PASS
11A	Ant1	5745	NV	NT	-46000.00	-8.006963	20	PASS
11A	Ant1	5745	LV	NT	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	HV	NT	-49000.00	-8.529156	20	PASS
11A	Ant1	5785	NV	NT	-45000.00	-7.778738	20	PASS
11A	Ant1	5785	LV	NT	-48000.00	-8.297321	20	PASS
11A	Ant1	5785	HV	NT	-49000.00	-8.470182	20	PASS
11A	Ant1	5825	NV	NT	-47000.00	-8.068670	20	PASS
11A	Ant1	5825	LV	NT	-49000.00	-8.412017	20	PASS
11A	Ant1	5825	HV	NT	-49000.00	-8.412017	20	PASS
11N20SISO	Ant1	5180	NV	NT	-43000.00	-8.301158	20	PASS
11N20SISO	Ant1	5180	LV	NT	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	HV	NT	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5200	NV	NT	-42000.00	-8.076923	20	PASS
11N20SISO	Ant1	5200	LV	NT	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5200	HV	NT	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5240	NV	NT	-41000.00	-7.824427	20	PASS
11N20SISO	Ant1	5240	LV	NT	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	HV	NT	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5745	NV	NT	-45000.00	-7.832898	20	PASS
11N20SISO	Ant1	5745	LV	NT	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5745	HV	NT	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5785	NV	NT	-47000.00	-8.124460	20	PASS
11N20SISO	Ant1	5785	LV	NT	-48000.00	-8.297321	20	PASS
11N20SISO	Ant1	5785	HV	NT	-49000.00	-8.470182	20	PASS
11N20SISO	Ant1	5825	NV	NT	-47000.00	-8.068670	20	PASS
11N20SISO	Ant1	5825	LV	NT	-48000.00	-8.240343	20	PASS
11N20SISO	Ant1	5825	HV	NT	-49000.00	-8.412017	20	PASS

TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	-30	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	NV	-20	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	NV	-10	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	NV	0	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	NV	10	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	NV	20	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	NV	30	-45000.00	-8.687259	20	PASS
11A	Ant1	5180	NV	40	-45000.00	-8.687259	20	PASS



11A	Ant1	5180	NV	50	-45000.00	-8.687259	20	PASS
11A	Ant1	5200	NV	-30	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	-20	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	-10	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	0	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	10	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	20	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	30	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	40	-45000.00	-8.653846	20	PASS
11A	Ant1	5200	NV	50	-45000.00	-8.653846	20	PASS
11A	Ant1	5240	NV	-30	-44000.00	-8.396947	20	PASS
11A	Ant1	5240	NV	-20	-44000.00	-8.396947	20	PASS
11A	Ant1	5240	NV	-10	-44000.00	-8.396947	20	PASS
11A	Ant1	5240	NV	0	-45000.00	-8.587786	20	PASS
11A	Ant1	5240	NV	10	-45000.00	-8.587786	20	PASS
11A	Ant1	5240	NV	20	-45000.00	-8.587786	20	PASS
11A	Ant1	5240	NV	30	-45000.00	-8.587786	20	PASS
11A	Ant1	5240	NV	40	-45000.00	-8.587786	20	PASS
11A	Ant1	5240	NV	50	-45000.00	-8.587786	20	PASS
11A	Ant1	5745	NV	-30	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	-20	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	-10	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	0	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	10	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	20	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	30	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	40	-49000.00	-8.529156	20	PASS
11A	Ant1	5745	NV	50	-49000.00	-8.529156	20	PASS
11A	Ant1	5785	NV	-30	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	-20	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	-10	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	0	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	10	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	20	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	30	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	40	-49000.00	-8.470182	20	PASS
11A	Ant1	5785	NV	50	-49000.00	-8.470182	20	PASS
11A	Ant1	5825	NV	-30	-49000.00	-8.412017	20	PASS
11A	Ant1	5825	NV	-20	-49000.00	-8.412017	20	PASS
11A	Ant1	5825	NV	-10	-49000.00	-8.412017	20	PASS
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11A	Ant1	5825	NV	40	-49000.00	-8.412017	20	PASS
11A	Ant1	5825	NV	50	-49000.00	-8.412017	20	PASS
11N20SISO	Ant1	5180	NV	-30	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	-20	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	-10	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	0	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	10	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	20	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	30	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	40	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5180	NV	50	-44000.00	-8.494208	20	PASS
11N20SISO	Ant1	5200	NV	-30	-44000.00	-8.461538	20	PASS



11N20SISO	Ant1	5200	NV	-20	-44000.00	-8.461538	20	PASS
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11N20SISO	Ant1	5200	NV	0	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5200	NV	10	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5200	NV	20	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5200	NV	30	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5200	NV	40	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5200	NV	50	-44000.00	-8.461538	20	PASS
11N20SISO	Ant1	5240	NV	-30	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	-20	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	-10	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	0	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	10	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	20	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	30	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	40	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5240	NV	50	-44000.00	-8.396947	20	PASS
11N20SISO	Ant1	5745	NV	-30	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5745	NV	-20	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5745	NV	-10	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5745	NV	0	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5745	NV	10	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5745	NV	20	-48000.00	-8.355091	20	PASS
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11N20SISO	Ant1	5745	NV	40	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5745	NV	50	-48000.00	-8.355091	20	PASS
11N20SISO	Ant1	5785	NV	-30	-49000.00	-8.470182	20	PASS
11N20SISO	Ant1	5785	NV	-20	-48000.00	-8.297321	20	PASS
11N20SISO	Ant1	5785	NV	-10	-49000.00	-8.470182	20	PASS
11N20SISO	Ant1	5785	NV	0	-48000.00	-8.297321	20	PASS
11N20SISO	Ant1	5785	NV	10	-48000.00	-8.297321	20	PASS
11N20SISO	Ant1	5785	NV	20	-48000.00	-8.297321	20	PASS
11N20SISO	Ant1	5785	NV	30	-48000.00	-8.297321	20	PASS
11N20SISO	Ant1	5785	NV	40	-48000.00	-8.297321	20	PASS
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11N20SISO	Ant1	5825	NV	-30	-48000.00	-8.240343	20	PASS
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11N20SISO	Ant1	5825	NV	-10	-48000.00	-8.240343	20	PASS
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11N20SISO	Ant1	5825	NV	20	-48000.00	-8.240343	20	PASS
11N20SISO	Ant1	5825	NV	30	-48000.00	-8.240343	20	PASS
11N20SISO	Ant1	5825	NV	40	-48000.00	-8.240343	20	PASS
11N20SISO	Ant1	5825	NV	50	-48000.00	-8.240343	20	PASS

12 Test Setup

Conducted Emissions

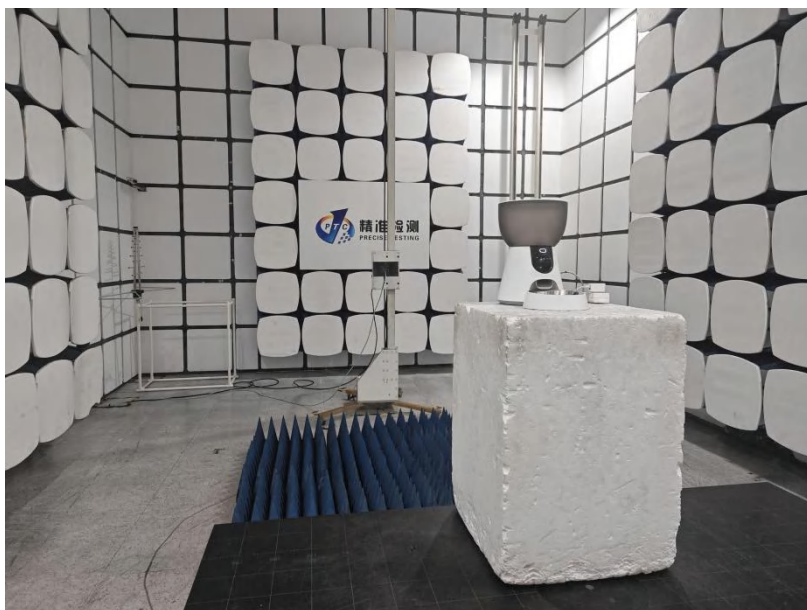


Radiated Spurious Emissions

Test Frequency From Below 30MHz



Test frequency from Above 1GHz

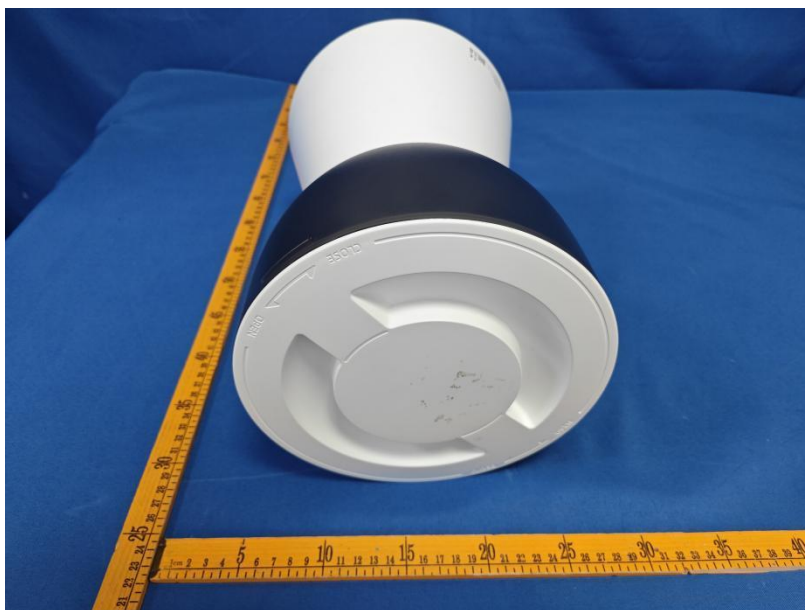


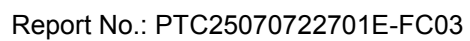
13 EUT PHOTOS

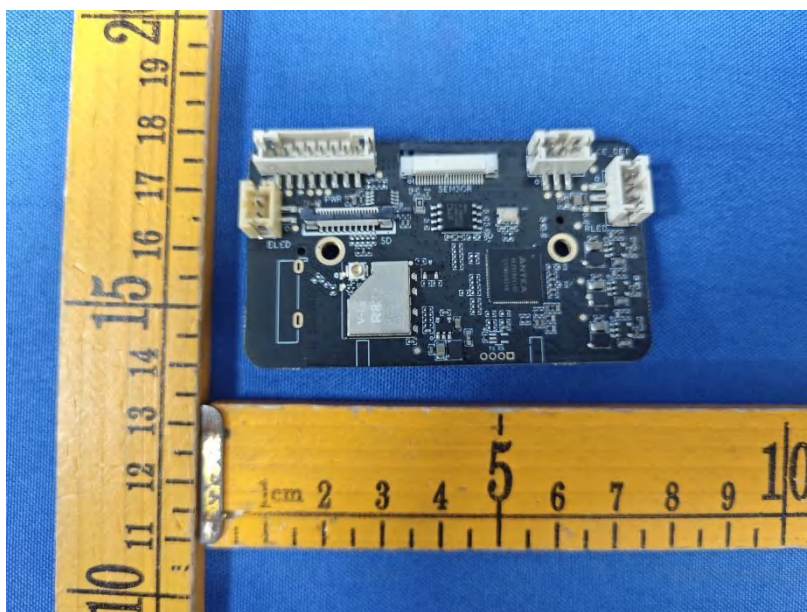
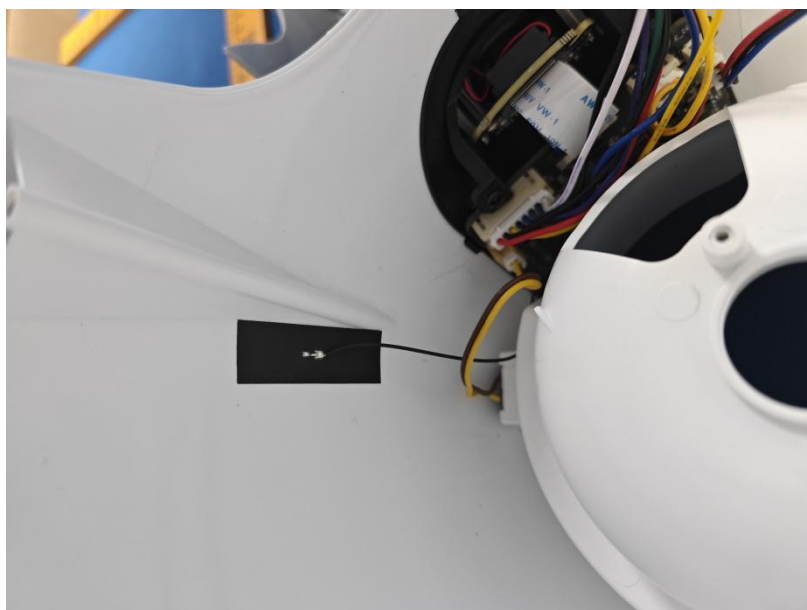


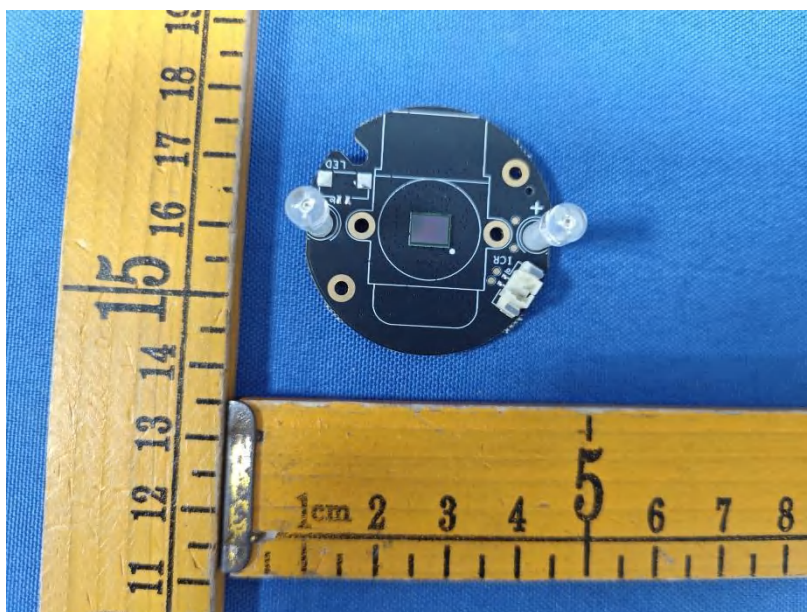
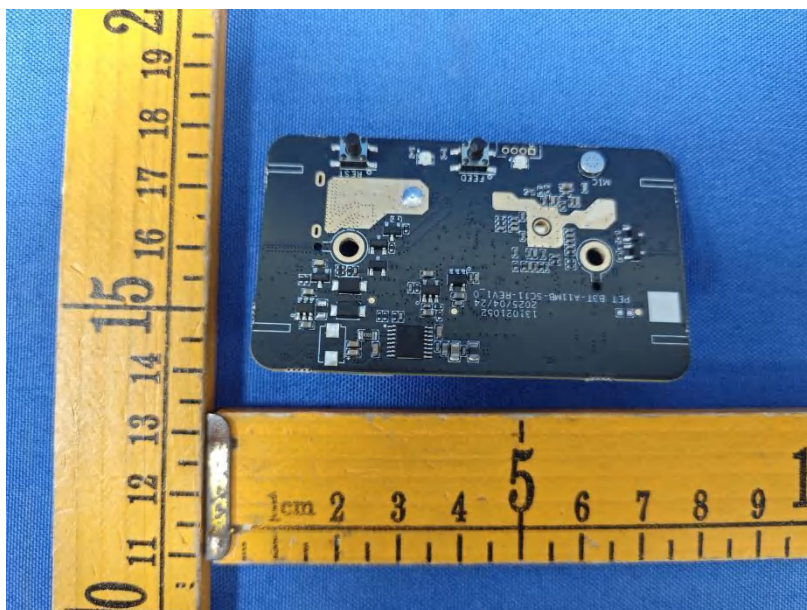


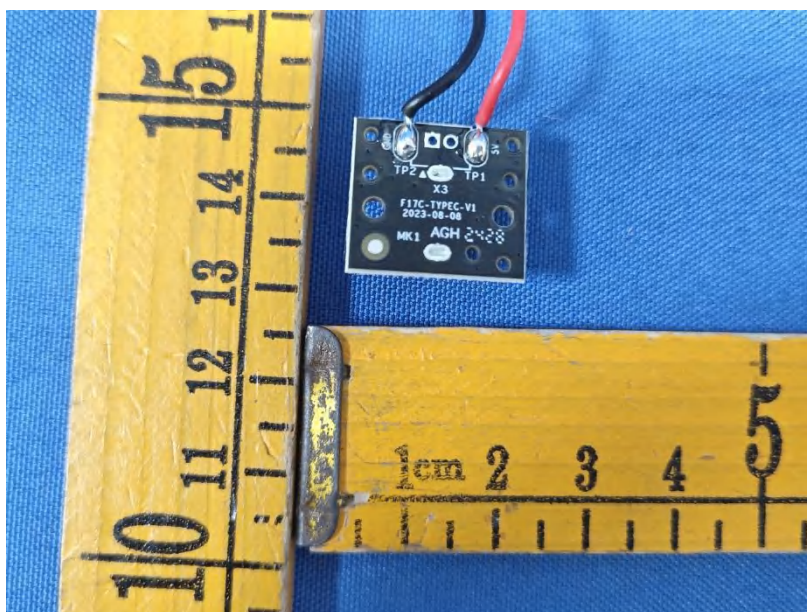
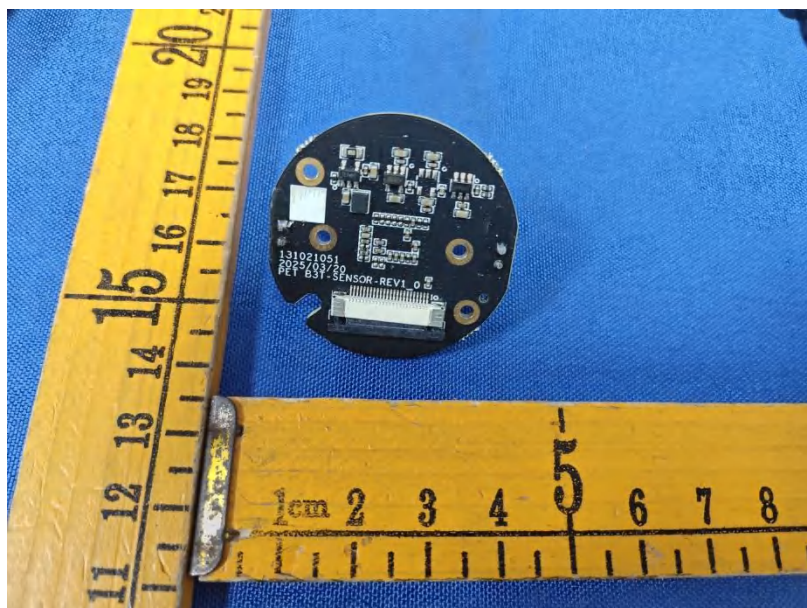


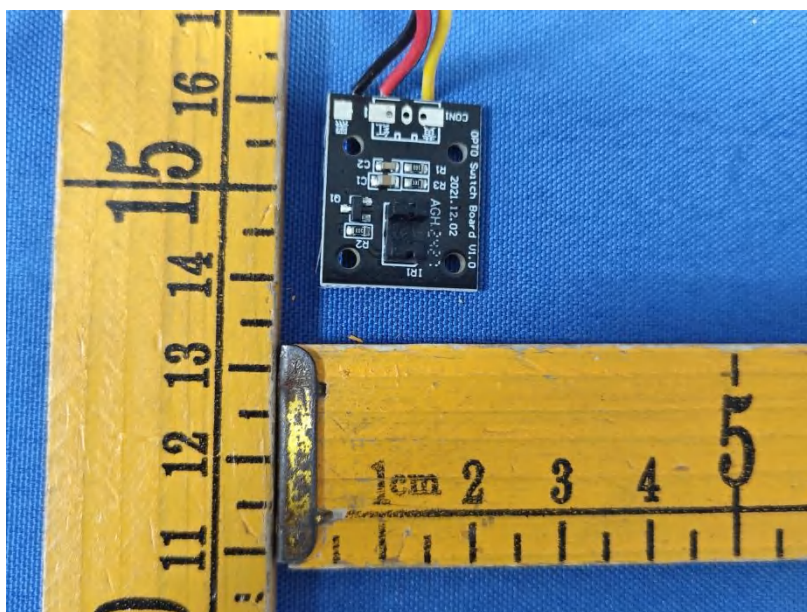
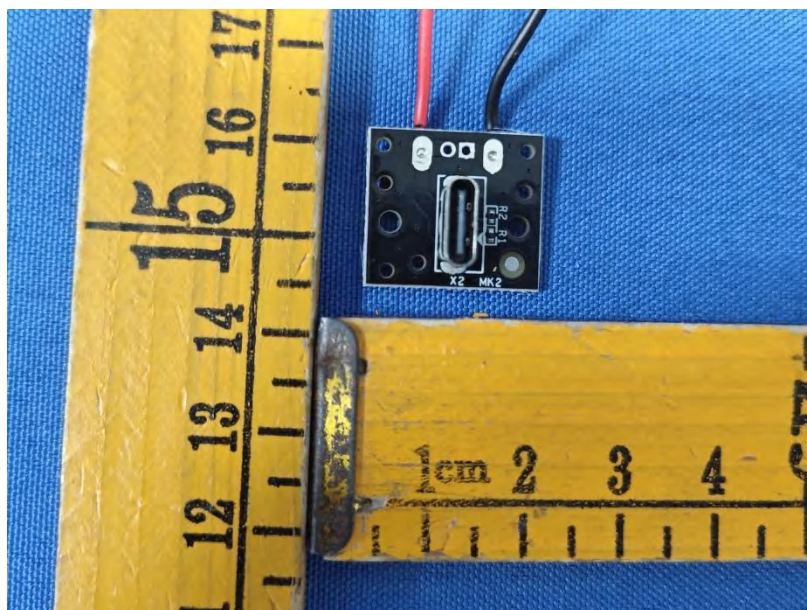


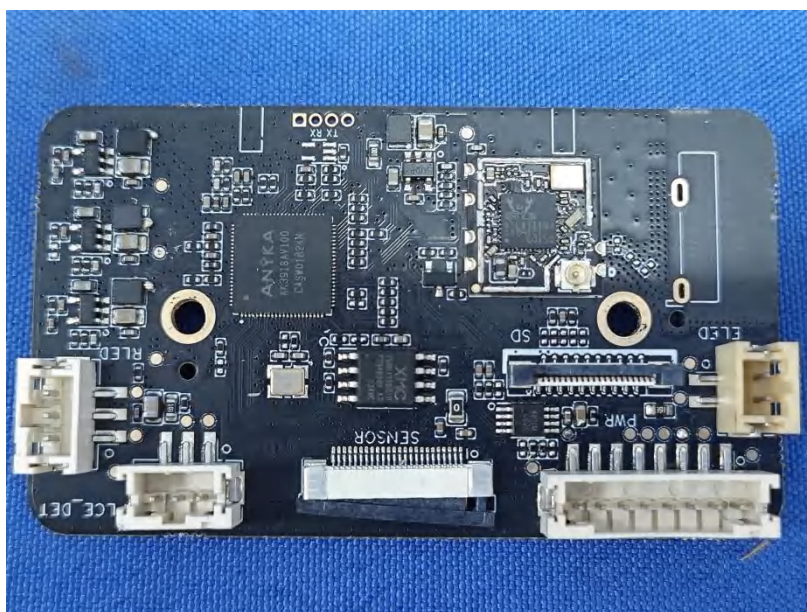
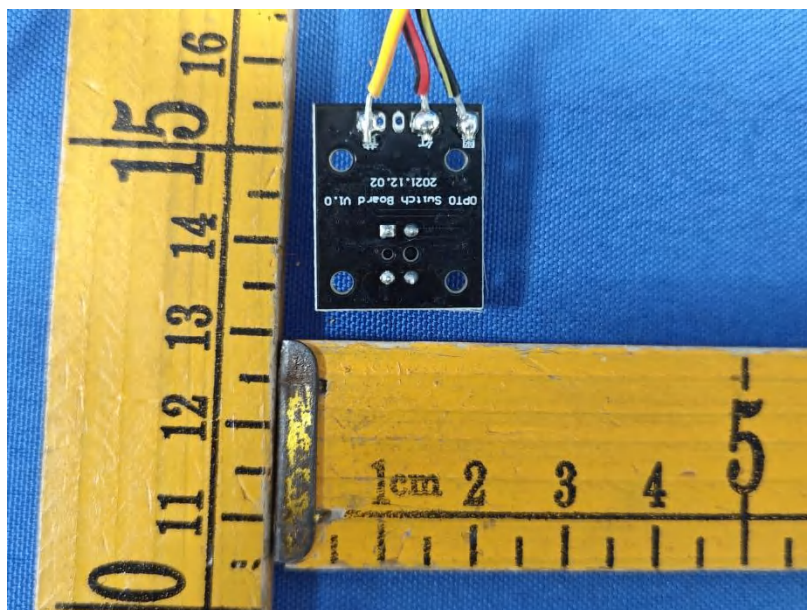


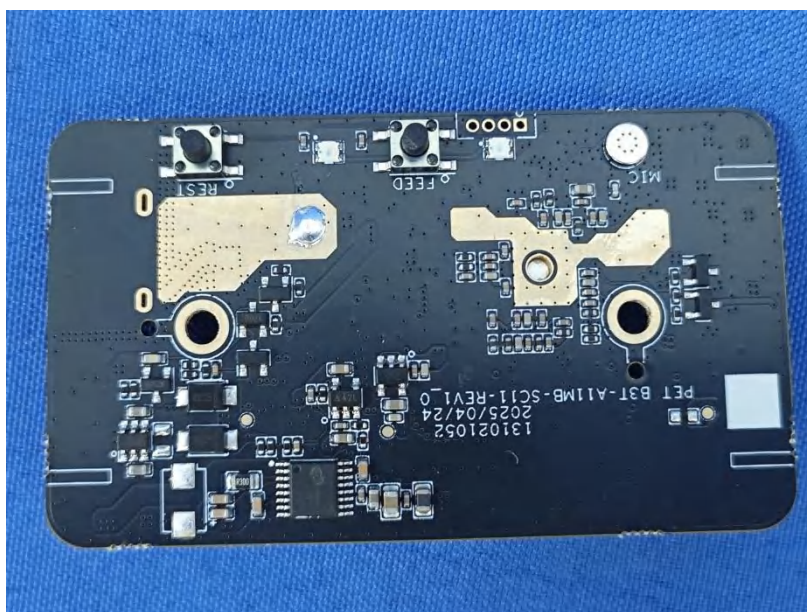
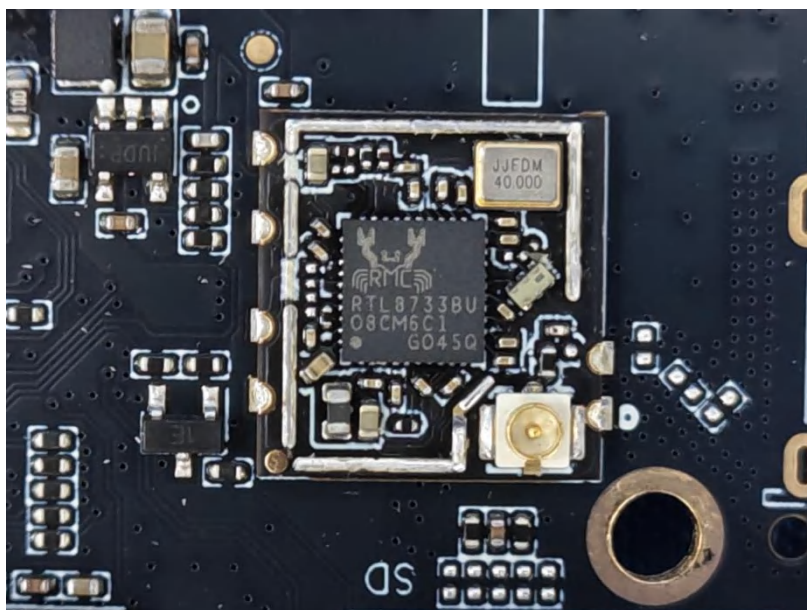


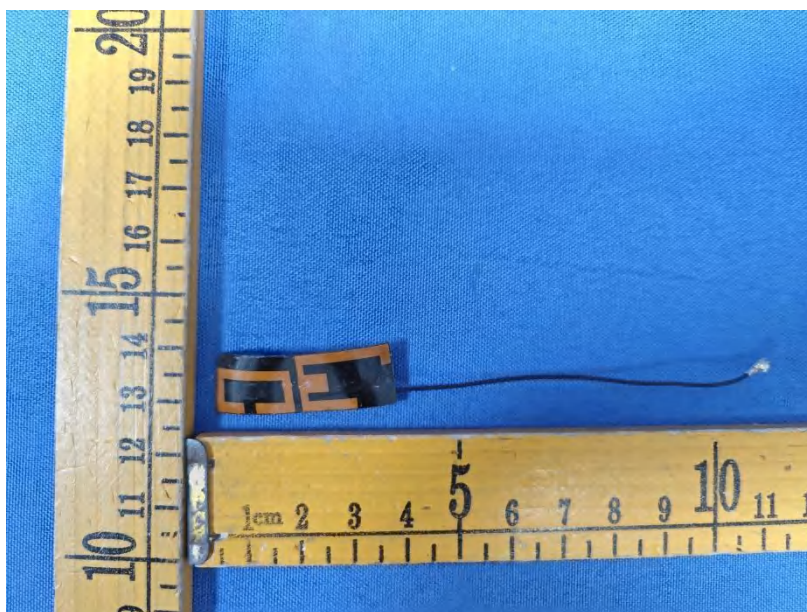
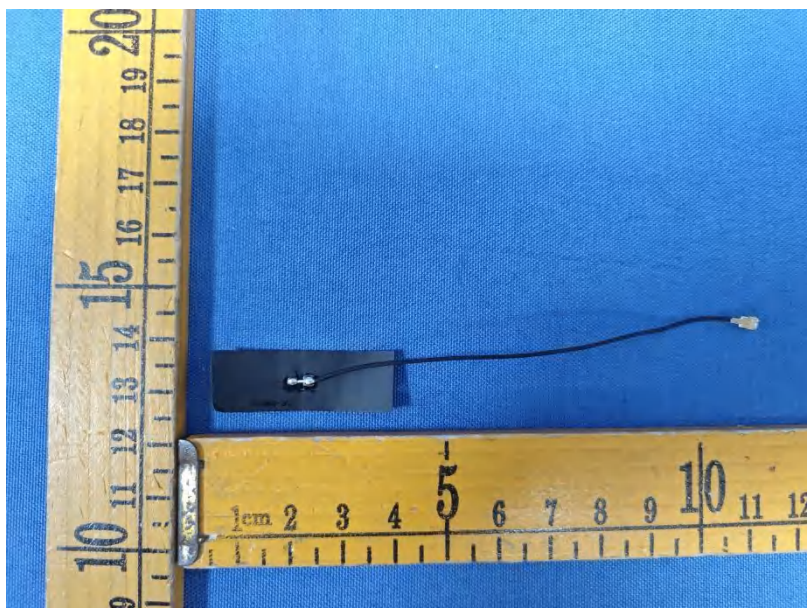


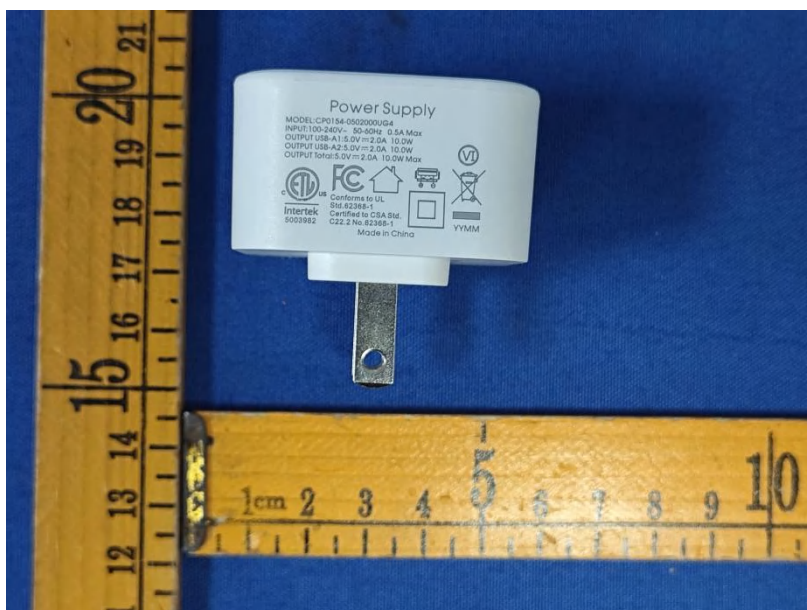
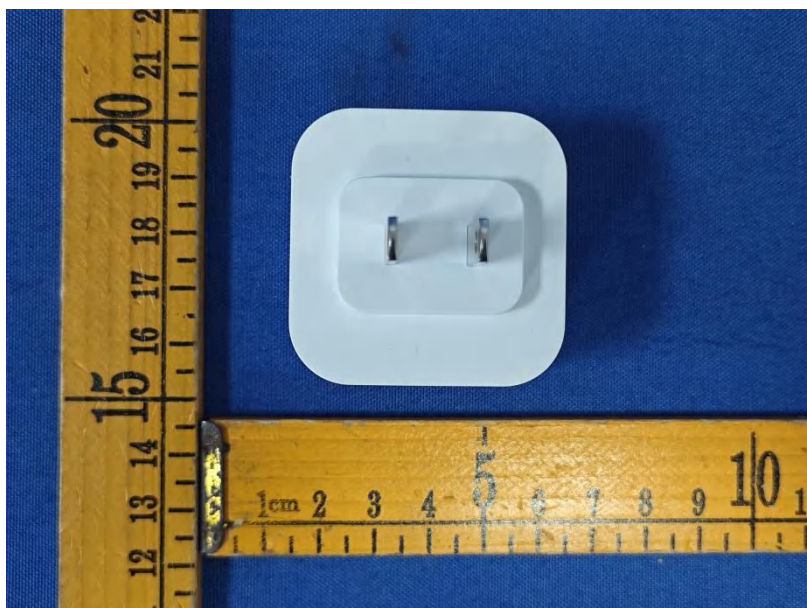


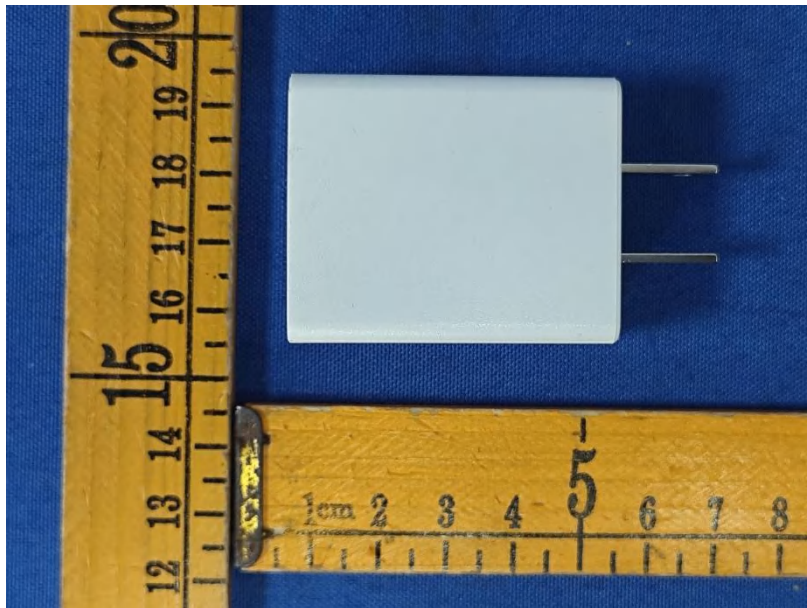












*****THE END REPORT*****