



LOW CH1 (802.11g Mode)/2412

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	57.49	-3.64	53.85	74	-20.15	peak
4824	45.17	-3.64	41.53	54	-12.47	AVG
7236	54.52	-0.95	53.57	74	-20.43	peak
7236	43.13	-0.95	42.18	54	-11.82	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	58.07	-3.64	54.43	74	-19.57	peak
4824	45.92	-3.64	42.28	54	-11.72	AVG
7236	56.24	-0.95	55.29	74	-18.71	peak
7236	42.19	-0.95	41.24	54	-12.76	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



MID CH6 (802.11g Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	58.69	-3.51	55.18	74	-18.82	peak
4874	46.05	-3.51	42.54	54	-11.46	AVG
7311	56.24	-0.82	55.42	74	-18.58	peak
7311	42.64	-0.82	41.82	54	-12.18	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	58.56	-3.51	55.05	74	-18.95	peak
4874	45.28	-3.51	41.77	54	-12.23	AVG
7311	57.08	-0.82	56.26	74	-17.74	peak
7311	40.94	-0.82	40.12	54	-13.88	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



HIGH CH11 (802.11g Mode)/2462

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	58.79	-3.43	55.36	74	-18.64	peak
4924	45.65	-3.43	42.22	54	-11.78	AVG
7386	56.23	-0.75	55.48	74	-18.52	peak
7386	42.38	-0.75	41.63	54	-12.37	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	57.49	-3.43	54.06	74	-19.94	peak
4924	47.14	-3.43	43.71	54	-10.29	AVG
7386	55.73	-0.75	54.98	74	-19.02	peak
7386	43.49	-0.75	42.74	54	-11.26	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not recorded in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) < 93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) < 54dBuV/m(AV Limit), the Average Detected not need to completed.



LOW CH1 (802.11n/H20 Mode)/2412

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	56.95	-3.64	53.31	74	-20.69	peak
4824	40.98	-3.64	37.34	54	-16.66	AVG
7236	55.76	-0.95	54.81	74	-19.19	peak
7236	41.61	-0.95	40.66	54	-13.34	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	59.24	-3.64	55.6	74	-18.4	peak
4824	44.31	-3.64	40.67	54	-13.33	AVG
7236	56.31	-0.95	55.36	74	-18.64	peak
7236	43.3	-0.95	42.35	54	-11.65	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



MID CH6 (802.11n/H20 Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	58.79	-3.51	55.28	74.00	-18.72	peak
4874	45.01	-3.51	41.50	54.00	-12.50	AVG
7311	56.32	-0.82	55.50	74.00	-18.50	peak
7311	43.25	-0.82	42.43	54.00	-11.57	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	58.74	-3.51	55.23	74.00	-18.77	peak
4874	43.55	-3.51	40.04	54.00	-13.96	AVG
7311	55.75	-0.82	54.93	74.00	-19.07	peak
7311	41.70	-0.82	40.88	54.00	-13.12	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



HIGH CH11 (802.11n/H20 Mode)/2462

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	59.01	-3.43	55.58	74	-18.42	peak
4924	45.19	-3.43	41.76	54	-12.24	AVG
7386	56.45	-0.75	55.7	74	-18.3	peak
7386	40.99	-0.75	40.24	54	-13.76	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	59.35	-3.43	55.92	74	-18.08	peak
4924	44.6	-3.43	41.17	54	-12.83	AVG
7386	54.98	-0.75	54.23	74	-19.77	peak
7386	44.08	-0.75	43.33	54	-10.67	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



LOW CH3 (802.11n/H40 Mode)/2422

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844	58.27	-3.63	54.64	74	-19.36	peak
4844	47.87	-3.63	44.24	54	-9.76	AVG
7266	56.44	-0.94	55.5	74	-18.5	peak
7266	41.02	-0.94	40.08	54	-13.92	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4844	59.57	-3.63	55.94	74	-18.06	peak
4844	45.56	-3.63	41.93	54	-12.07	AVG
7266	56.53	-0.94	55.59	74	-18.41	peak
7266	40.92	-0.94	39.98	54	-14.02	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



MID CH6 (802.11n/H40 Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	58.69	-3.51	55.18	74	-18.82	peak
4874	45.08	-3.51	41.57	54	-12.43	AVG
7311	56.3	-0.82	55.48	74	-18.52	peak
7311	40.92	-0.82	40.1	54	-13.9	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	60.68	-3.51	57.17	74	-16.83	peak
4874	45.06	-3.51	41.55	54	-12.45	AVG
7311	56.07	-0.82	55.25	74	-18.75	peak
7311	45.04	-0.82	44.22	54	-9.78	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



HIGH CH9 (802.11n/H40 Mode)/2452

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4904	59.29	-3.43	55.86	74	-18.14	peak
4904	42.42	-3.43	38.99	54	-15.01	AVG
7356	55.24	-0.75	54.49	74	-19.51	peak
7356	42.8	-0.75	42.05	54	-11.95	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4904	58.72	-3.43	55.29	74	-18.71	peak
4904	45.62	-3.43	42.19	54	-11.81	AVG
7356	57.57	-0.75	56.82	74	-17.18	peak
7356	44.61	-0.75	43.86	54	-10.14	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) The emissions are attenuated more than 20dB below the permissible limits are not recorded in the report.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

**Test Result of Radiated Spurious at Band edges**

Operation Mode:

802.11b Mode TX CH Low (2412MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	60.34	-5.81	54.53	74	-19.47	peak
2310.00	45.85	-5.81	40.04	54	-13.96	AVG
2390.00	61.54	-5.84	55.7	74	-18.3	peak
2390.00	45.12	-5.84	39.28	54	-14.72	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	60.35	-5.81	54.54	74	-19.46	peak
2310.00	48.08	-5.81	42.27	54	-11.73	AVG
2390.00	61.66	-5.84	55.82	74	-18.18	peak
2390.00	48.89	-5.84	43.05	54	-10.95	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	60.58	-5.81	54.77	74	-19.23	peak
2483.50	47.93	-5.81	42.12	54	-11.88	AVG
2500.00	60.51	-6.06	54.45	74	-19.55	peak
2500.00	45.68	-6.06	39.62	54	-14.38	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	61.35	-5.81	55.54	74	-18.46	peak
2483.50	47.58	-5.81	41.77	54	-12.23	AVG
2500.00	61.34	-6.06	55.28	74	-18.72	peak
2500.00	49.59	-6.06	43.53	54	-10.47	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						



Operation Mode: 802.11g Mode TX CH Low (2412MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	61.73	-5.81	55.92	74	-18.08	peak
2310.00	46.85	-5.81	41.04	54	-12.96	AVG
2390.00	61.45	-5.84	55.61	74	-18.39	peak
2390.00	45.42	-5.84	39.58	54	-14.42	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	62.17	-5.81	56.36	74	-17.64	peak
2310.00	46.25	-5.81	40.44	54	-13.56	AVG
2390.00	61.37	-5.84	55.53	74	-18.47	peak
2390.00	47.28	-5.84	41.44	54	-12.56	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	59.48	-5.65	53.83	74	-20.17	peak
2483.50	45.8	-5.65	40.15	54	-13.85	AVG
2500.00	60.75	-5.65	55.1	74	-18.9	peak
2500.00	45.14	-5.65	39.49	54	-14.51	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	62.38	-5.65	56.73	74	-17.27	peak
2483.50	47.96	-5.65	42.31	54	-11.69	AVG
2500.00	61.34	-5.65	55.69	74	-18.31	peak
2500.00	46.28	-5.65	40.63	54	-13.37	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						



Operation Mode: 802.11n/H20 Mode TX CH Low (2412MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	59.8	-5.81	53.99	74	-20.01	peak
2310.00	46.61	-5.81	40.8	54	-13.2	AVG
2390.00	59.92	-5.84	54.08	74	-19.92	peak
2390.00	47.65	-5.84	41.81	54	-12.19	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	62.37	-5.81	56.56	74	-17.44	peak
2310.00	46.59	-5.81	40.78	54	-13.22	AVG
2390.00	60.24	-5.84	54.4	74	-19.6	peak
2390.00	46.82	-5.84	40.98	54	-13.02	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	60.46	-5.65	54.81	74	-19.19	peak
2483.50	46.83	-5.65	41.18	54	-12.82	AVG
2500.00	60.07	-5.65	54.42	74	-19.58	peak
2500.00	47.49	-5.65	41.84	54	-12.16	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	61.37	-5.65	55.72	74	-18.28	peak
2483.50	45.89	-5.65	40.24	54	-13.76	AVG
2500.00	61.25	-5.65	55.6	74	-18.4	peak
2500.00	46.22	-5.65	40.57	54	-13.43	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						



Operation Mode: 802.11n/H40 Mode TX CH Low (2422MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	58.54	-5.81	52.73	74	-21.27	peak
2310.00	/	-5.81	/	54	/	AVG
2390.00	58.62	-5.84	52.78	74	-21.22	peak
2390.00	/	-5.84	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	57.98	-5.81	52.17	74	-21.83	peak
2310.00	/	-5.81	/	54	/	AVG
2390.00	58.41	-5.84	52.57	74	-21.43	peak
2390.00	/	-5.84	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



Operation Mode: TX CH High (2452MHz)

Horizontal

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	58.97	-5.65	53.32	74	-20.68	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	56.34	-5.65	50.69	74	-23.31	peak
2500.00	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	58.12	-5.65	52.47	74	-21.53	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	57.22	-5.65	51.57	74	-22.43	peak
2500.00	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						



4.8. ANTENNA REQUIREMENT

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, 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.

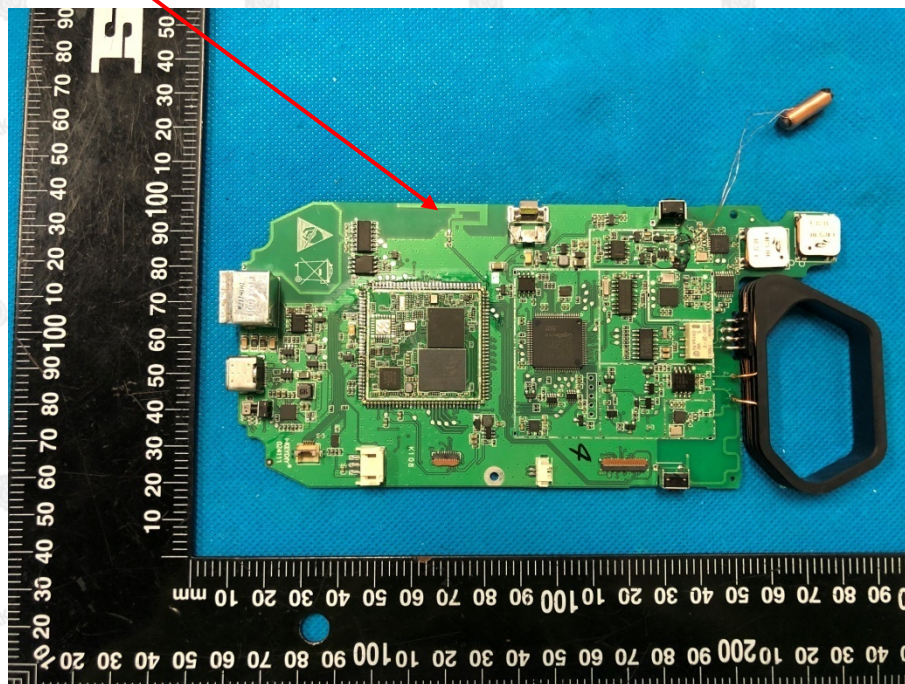
Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

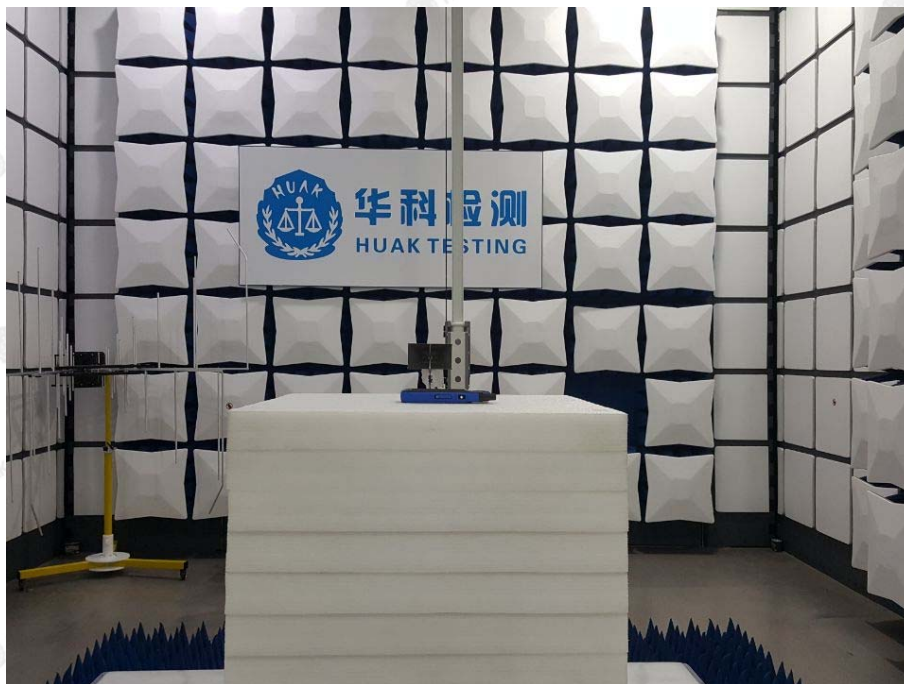
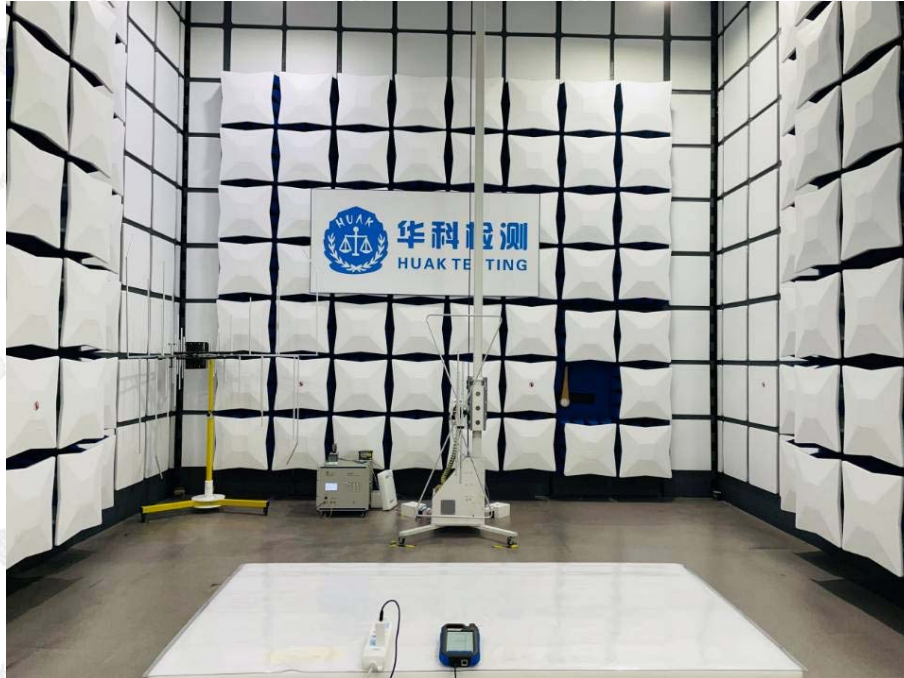
The antenna used in this product is a PCB Antenna, is a permanently attached antenna on the PCB. It conforms to the standard requirements, The directional gains of antenna used for transmitting is 1dBi.

WIFI ANTENNA





4.9. PHOTOGRAPH OF TEST



The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAKE, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at <http://www.cer-mark.com>.

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4.10. PHOTOS OF THE EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos

-----End of test report-----