

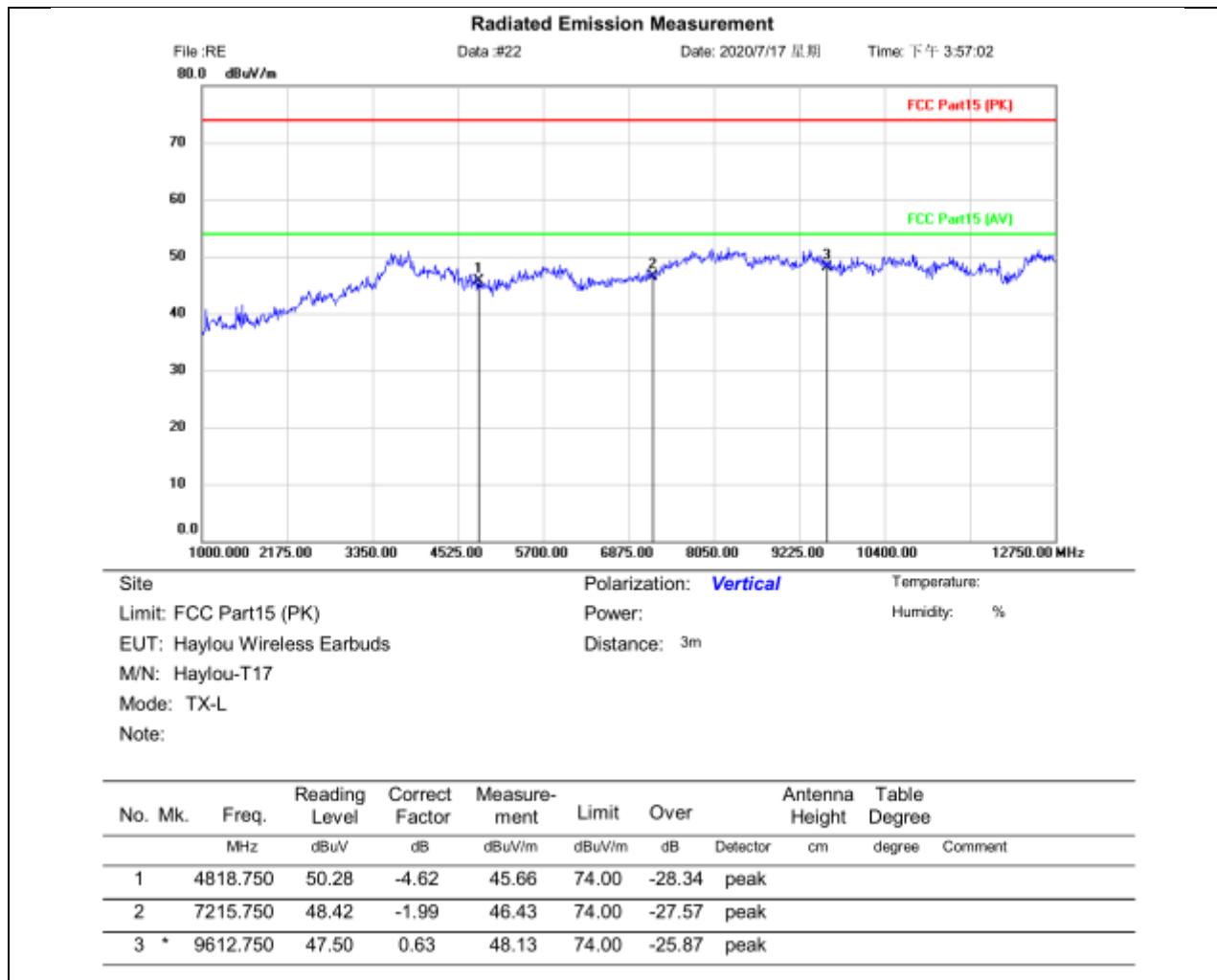
[Test Mode: GFSK]

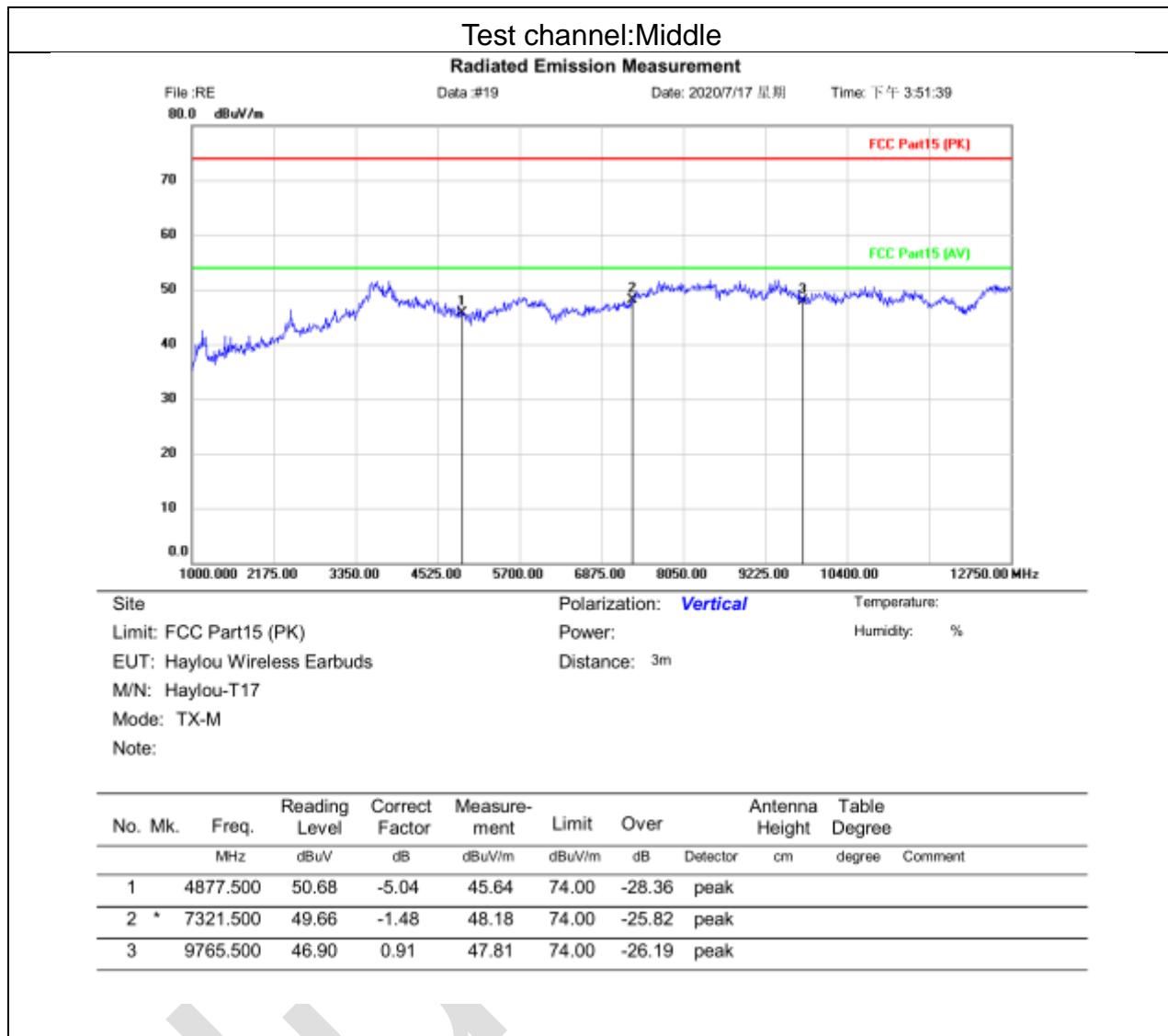
Remark: During the test, pre-scan the GFSK, $\pi/4$ DQPSK and 8DPSK modulation, and found the GFSK modulation which is worse case.

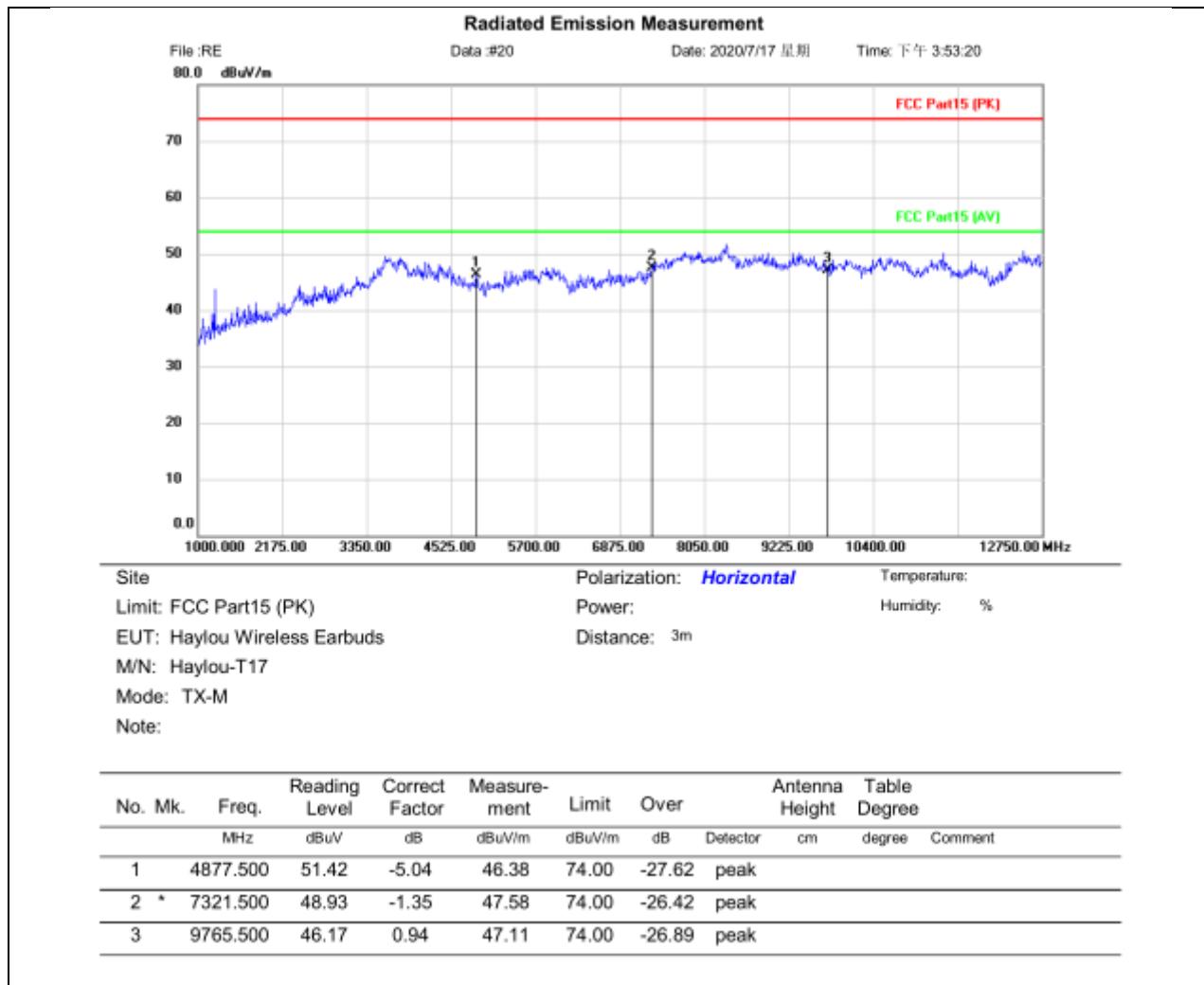
Test channel:lowest
Radiated Emission Measurement

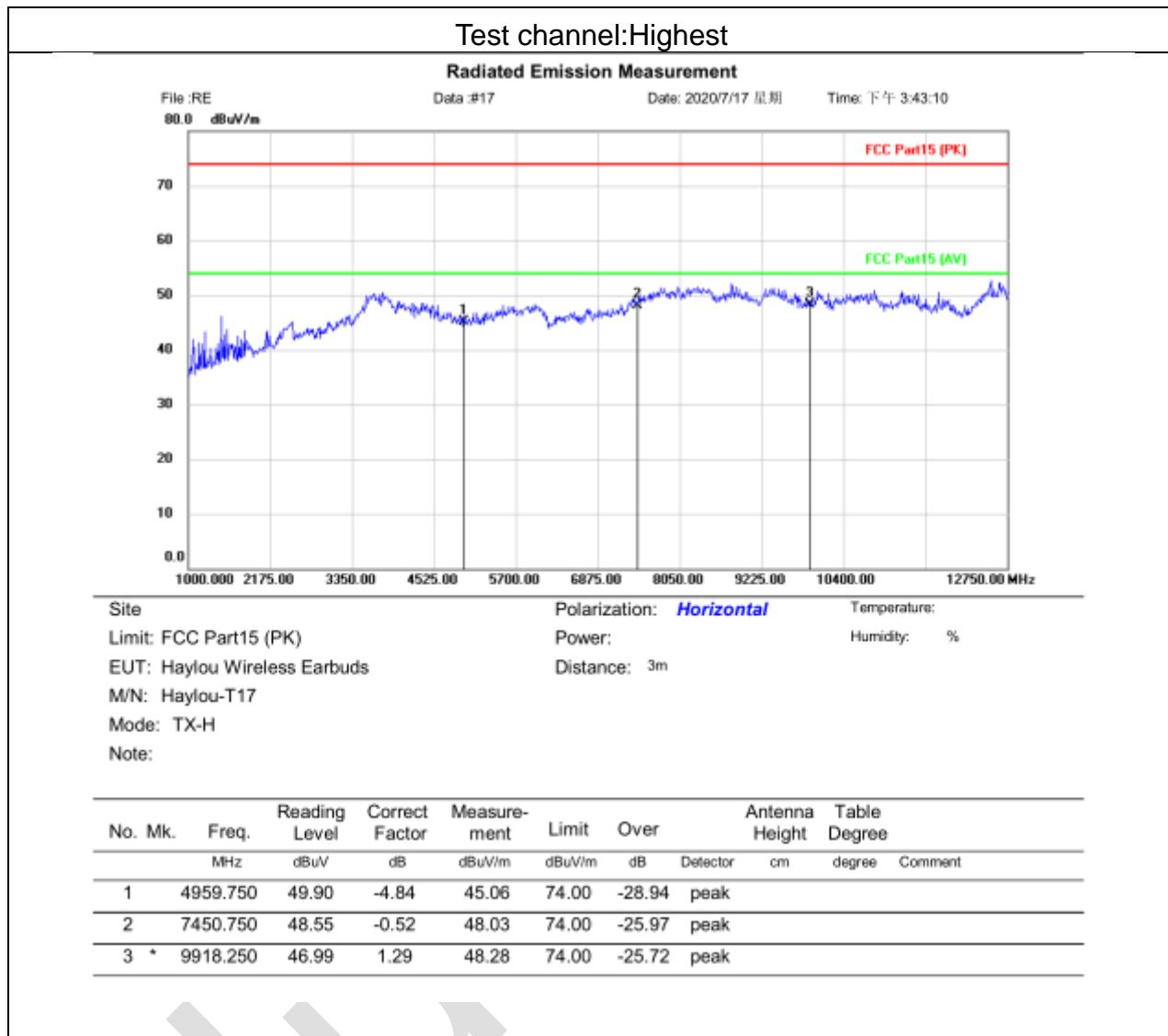

Site: Polarization: **Horizontal** Temperature:
 Limit: FCC Part15 (PK) Power: Humidity: %
 EUT: Haylou Wireless Earbuds Distance: 3m
 M/N: Haylou-T17
 Mode: TX-L
 Note:

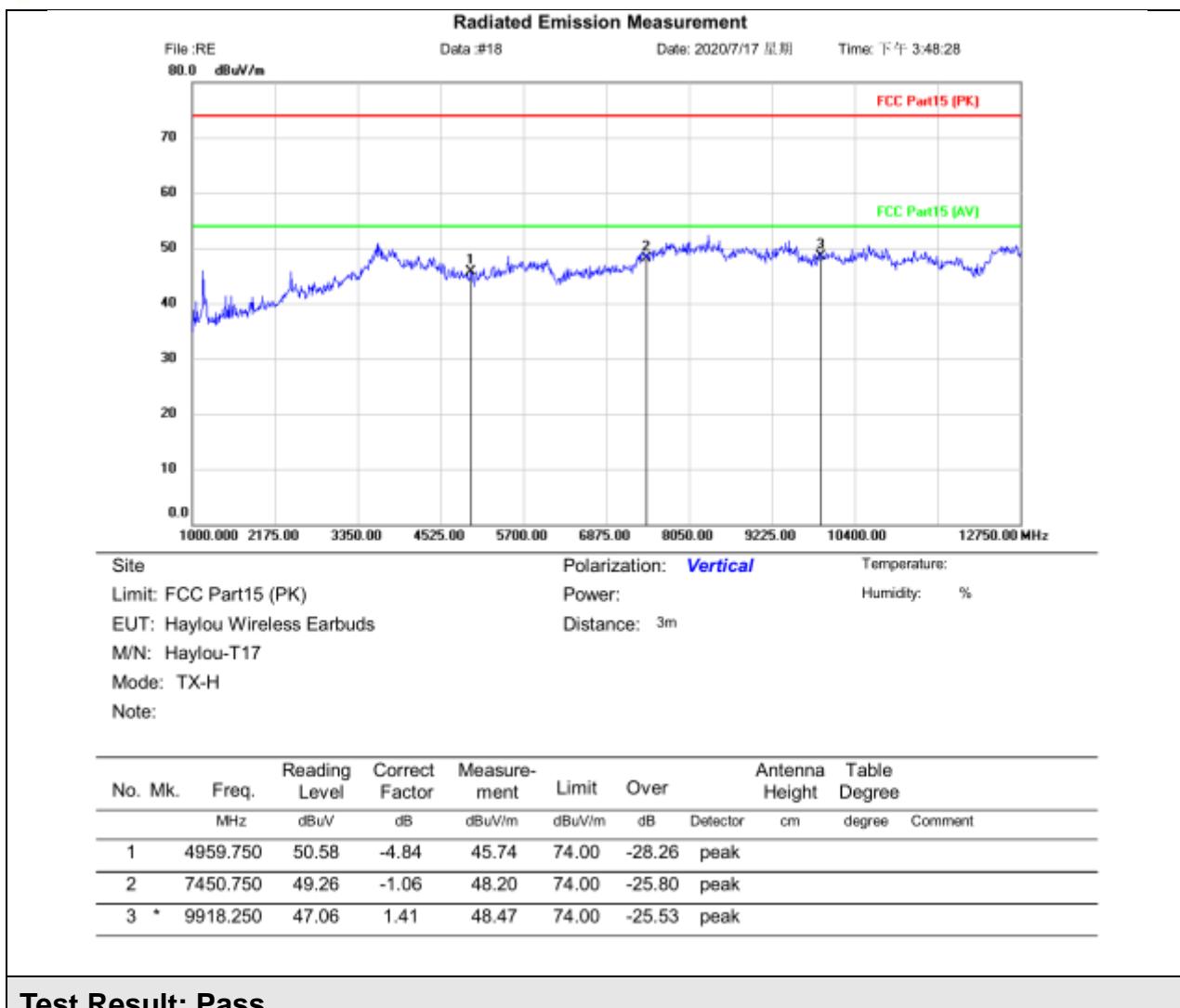
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		4818.750	50.14	-4.62	45.52	74.00	-28.48	peak		
2		7215.750	48.56	-2.20	46.36	74.00	-27.64	peak		
3	*	9612.750	47.40	0.82	48.22	74.00	-25.78	peak		











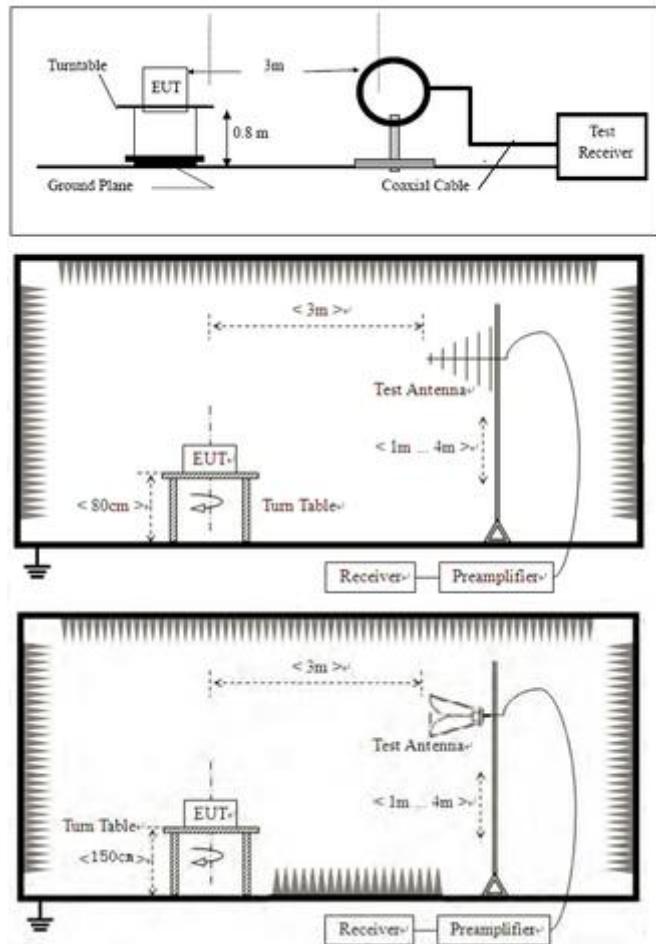
RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.10.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25°C
Humidity	55%

LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

BLOCK DIAGRAM OF TEST SETUP

PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

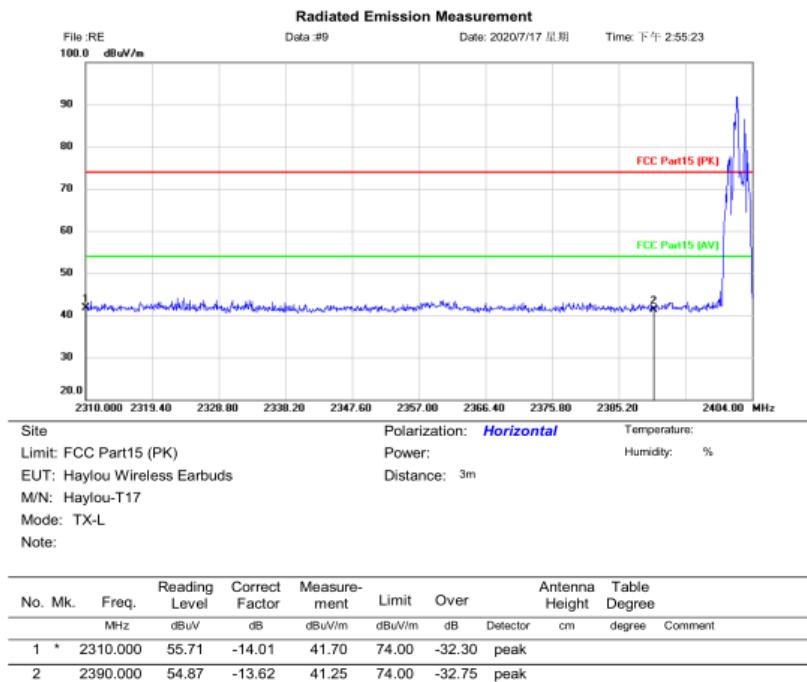
BlueAsia

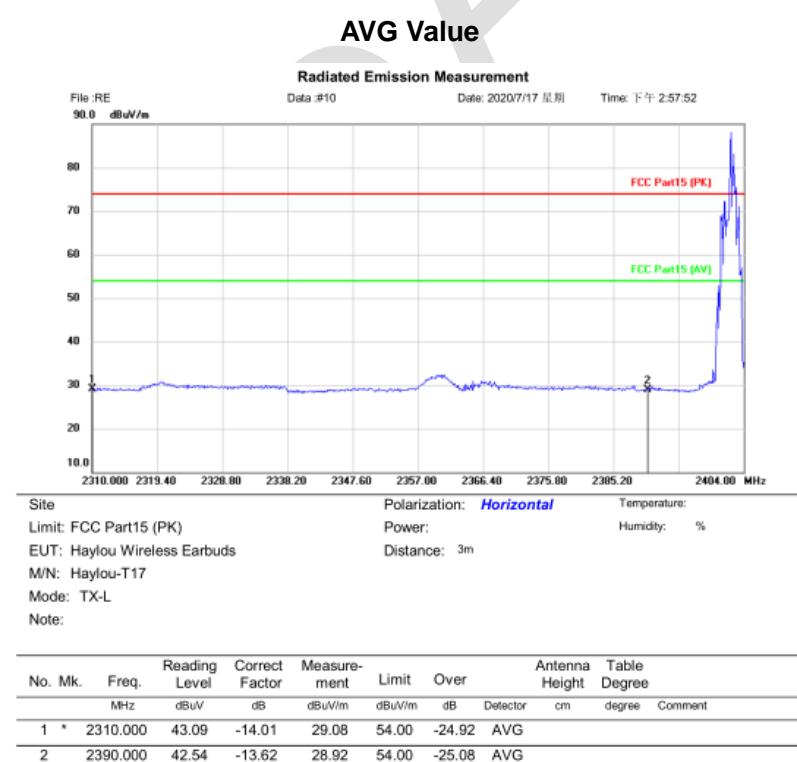
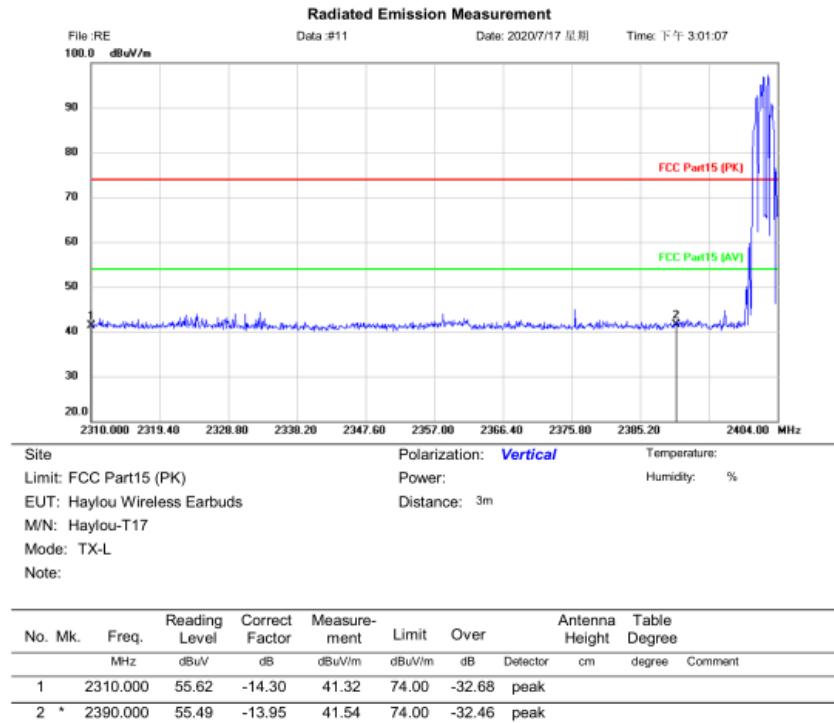
TEST DATA

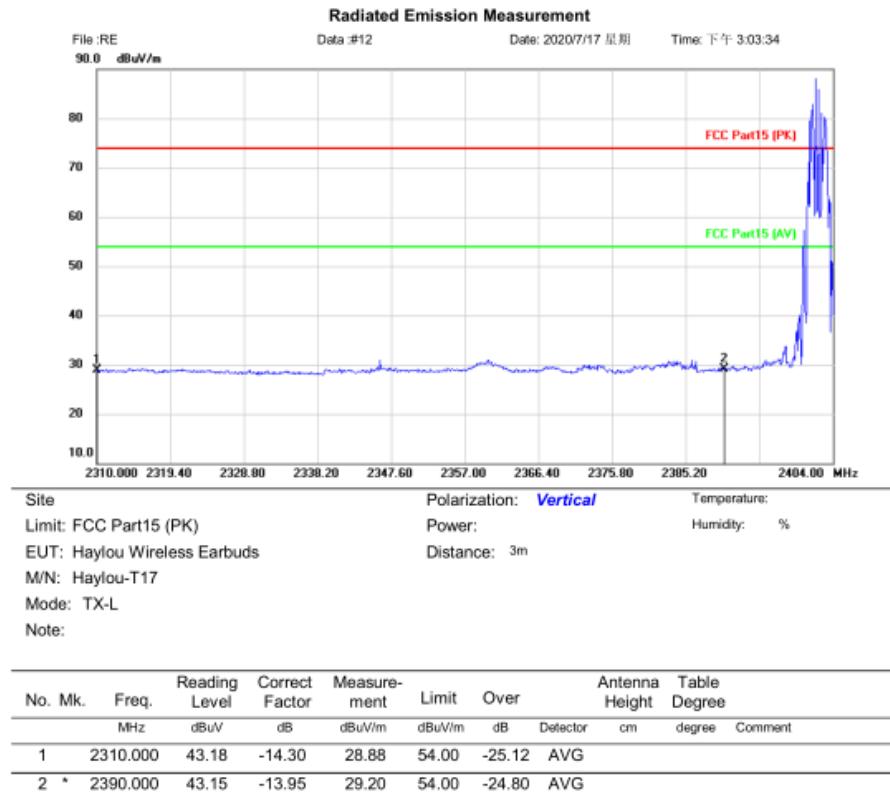
Remark: During the test, pre-scan the GFSK, $\pi/4$ DQPSK, 8-DPSK modulation, and found the GFSK modulation which it is worse case.

Lowest channel

Peak value



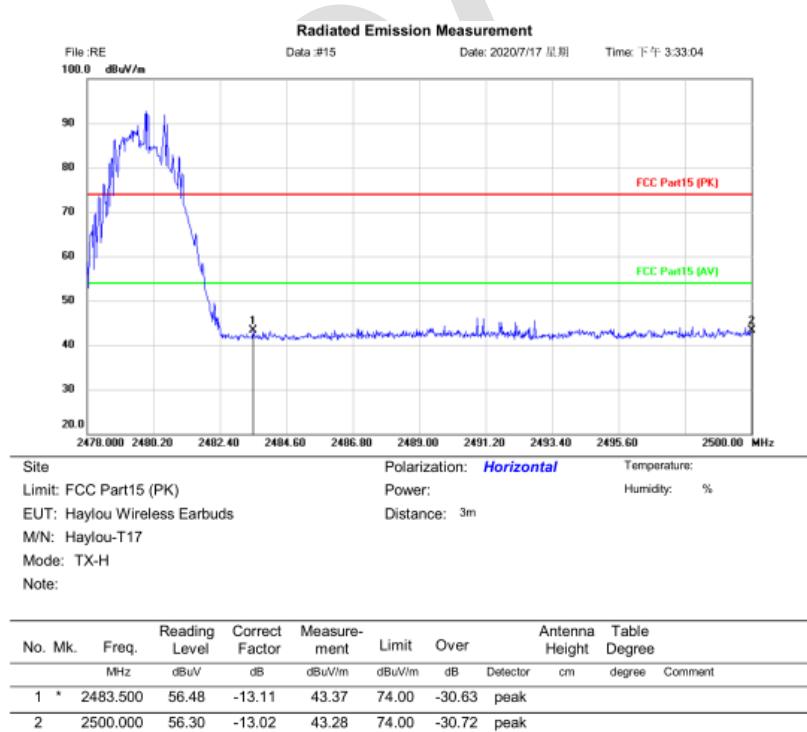
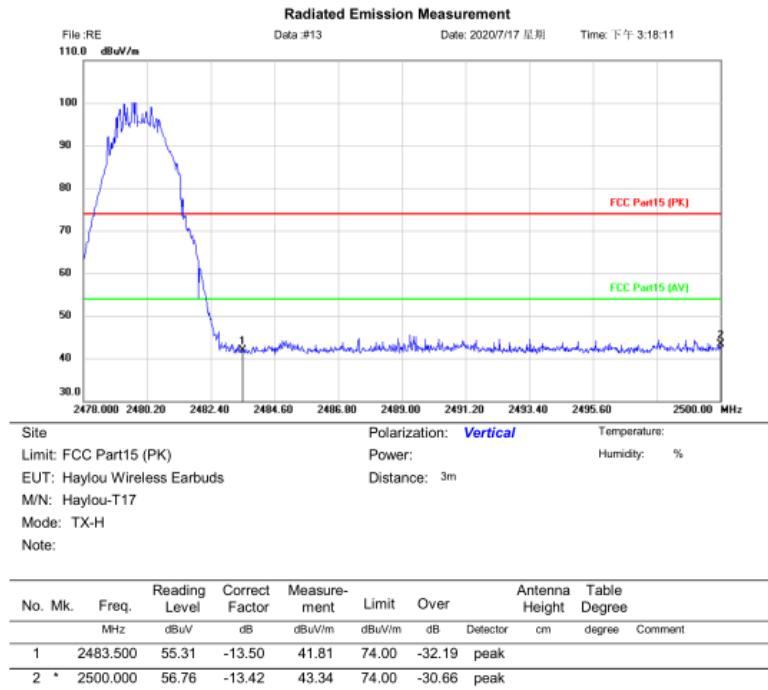


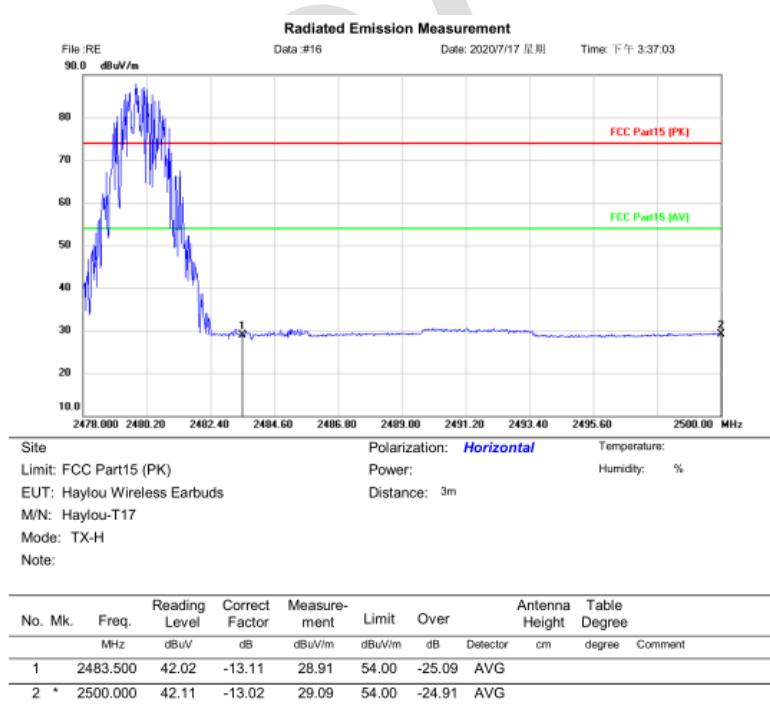
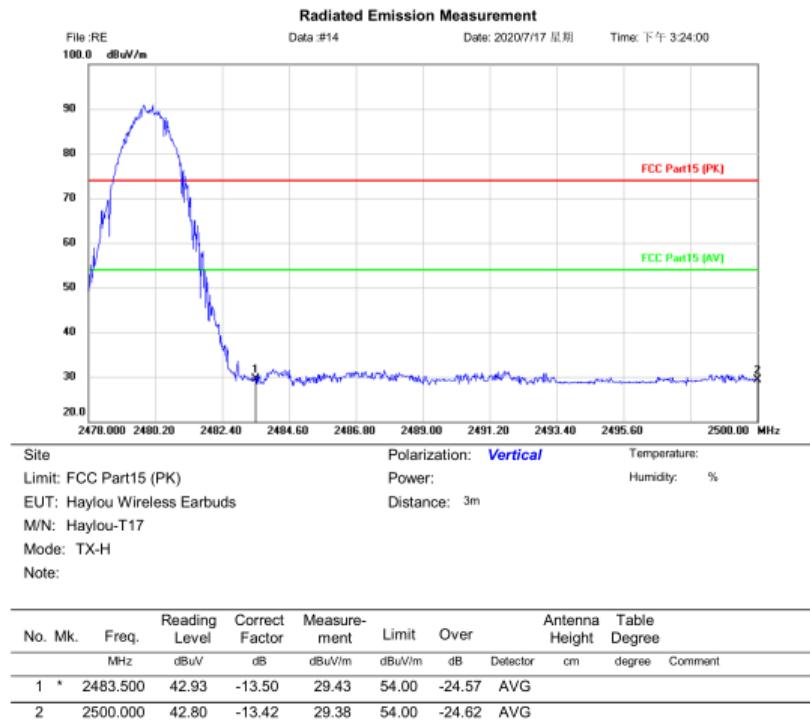


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Highest channel

Peak value



AVG Value


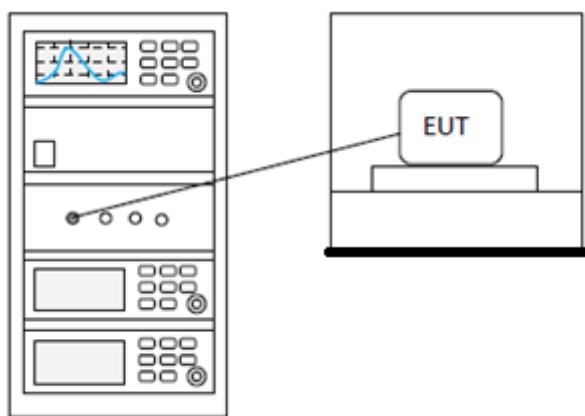
CONDUCTED BAND EDGES MEASUREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25 °C
Humidity	60%

LIMITS

Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
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BLOCK DIAGRAM OF TEST SETUP



TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

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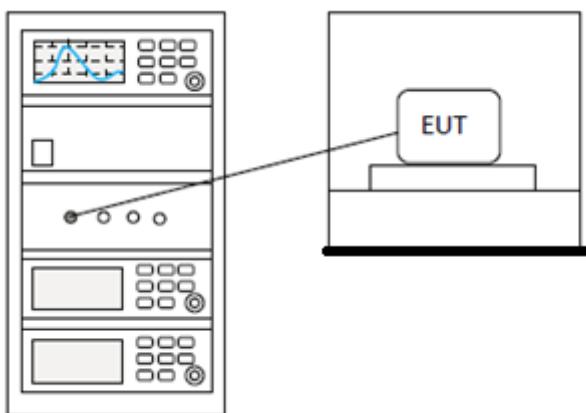
DWELL TIME

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.4
Test Mode (Pre-Scan)	TX_non-Hop mode
Test Mode (Final Test)	TX_non-Hop mode
Tester	Eason
Temperature	25 °C
Humidity	60%

LIMITS

Frequency(MHz)	Limit
902-928	0.4S within a 20S period(20dB bandwidth<250kHz)
	0.4S within a 10S period(20dB bandwidth≥250kHz)
2400-2483.5	0.4S within a period of 0.4S multiplied by the number of hopping channels
5725-5850	0.4S within a 30S period

BLOCK DIAGRAM OF TEST SETUP



TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

BlueAsia

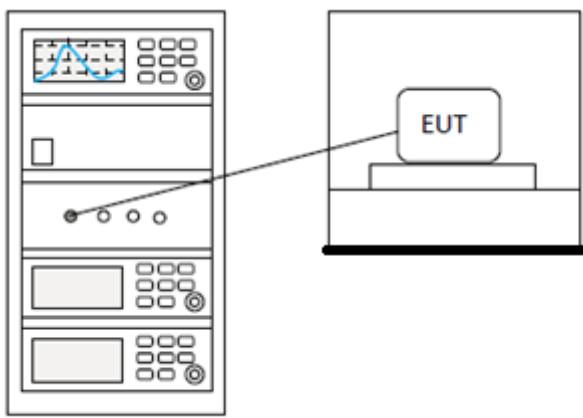
HOPPING CHANNEL NUMBER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.3
Test Mode (Pre-Scan)	TX_non-Hop mode
Test Mode (Final Test)	TX_non-Hop mode
Tester	Eason
Temperature	25 °C
Humidity	60%

LIMITS

Frequency range(MHz)	Number of hopping channels (minimum)
902-928	50 for 20dB bandwidth <250kHz
	25 for 20dB bandwidth ≥250kHz
2400-2483.5	15
5725-5850	75

BLOCK DIAGRAM OF TEST SETUP



TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

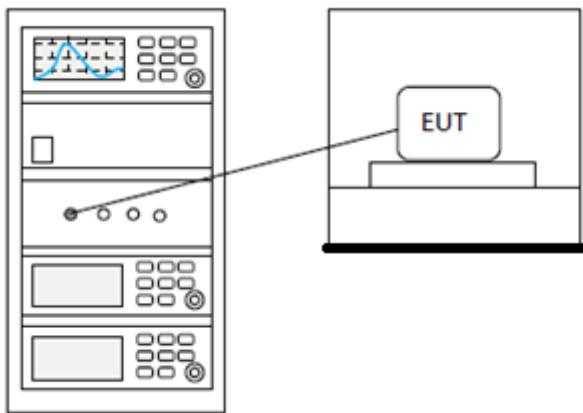
CARRIER FREQUENCIES SEPARATION

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.2
Test Mode (Pre-Scan)	TX_non-Hop mode
Test Mode (Final Test)	TX_non-Hop mode
Tester	Eason
Temperature	25 °C
Humidity	60%

LIMITS

Limit: 2/3 of the 20dB bandwidth base on the transmission power is less than 0.125W

BLOCK DIAGRAM OF TEST SETUP



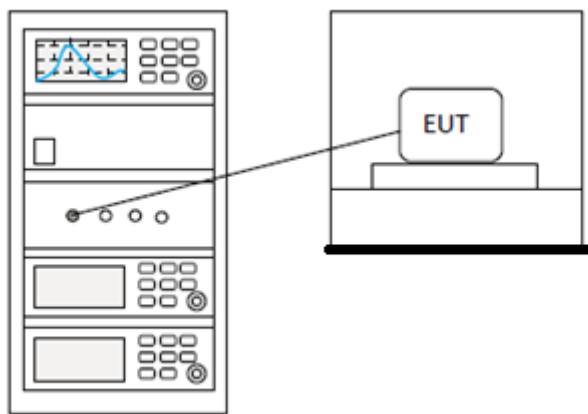
TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

20DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.7
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25 °C
Humidity	60%

BLOCK DIAGRAM OF TEST SETUP



TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

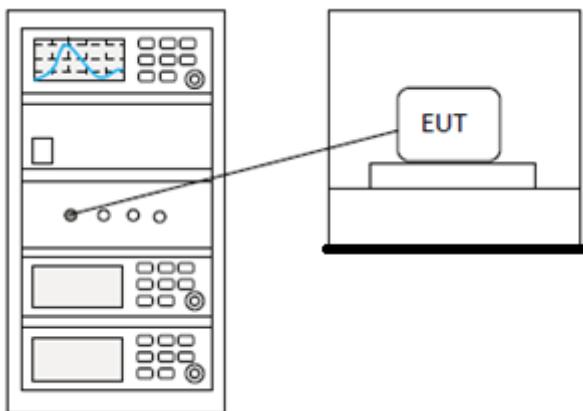
CONDUCTED PEAK OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Eason
Temperature	25 °C
Humidity	60%

LIMITS

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

BLOCK DIAGRAM OF TEST SETUP



TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

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10 APPENDIX

Appendix1

10.1 APPENDIX: 20DBEMISSION BANDWIDTH

Test Result

TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH1	Ant1	2402	1.110	2401.442	2402.552	---	PASS
		2441	1.107	2440.442	2441.549	---	PASS
		2480	1.098	2479.448	2480.546	---	PASS
2DH1	Ant1	2402	1.395	2401.292	2402.687	---	PASS
		2441	1.395	2440.292	2441.687	---	PASS
		2480	1.401	2479.292	2480.693	---	PASS
3DH1	Ant1	2402	1.362	2401.313	2402.675	---	PASS
		2441	1.365	2440.313	2441.678	---	PASS
		2480	1.371	2479.310	2480.681	---	PASS

Test Graphs



2DH1_Ant1_2402

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

IOT Test Centre of BlueAsia, No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

Email:marketing@cblueasia.com