4.6. Band Edge

4.6.1. Test Specification

Test Requirement:	FCC CFR47 Part 15E Section 15.407
Test Method:	ANSI C63.10 2013
Limit:	(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.ir.p. of -27 dBm/MHz. (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of-27 dBm/MHz. (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of-27 dBm/MHz. (4) For transmitters operating in the 5.725-5.85 GHz band: (i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. The limit of frequency below 1GHz and which fall in restricted bands should complies 15.209.
Test Setup:	Ant. feed point 1-4 m Ground Plane Receiver Amp.
Test Mode:	Transmitting mode with modulation

	 The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the
	interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
	3. 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.
Test Procedure:	4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
	5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
	6. 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.
Test Result:	PASS



4.6.2. Test Instruments

	Radia	ated Emission	Test Site (90	66)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESRP3	HKE-005	Feb. 17, 2023	Feb. 16, 2024
Spectrum analyzer	Agilent	N9020A	HKE-048	Feb. 17, 2023	Feb. 16, 2024
Preamplifier	EMCI	EMC051845 SE	HKE-015	Feb. 17, 2023	Feb. 16, 2024
Preamplifier	Agilent	83051A	HKE-016	Feb. 17, 2023	Feb. 16, 2024
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Feb. 17, 2023	Feb. 16, 2024
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	Feb. 17, 2023	Feb. 16, 2024
Horn antenna	Schwarzbeck	9120D	HKE-013	Feb. 17, 2023	Feb. 16, 2024
Antenna Mast	Keleto	CC-A-4M	N/A	N/A	N/A
Position controller	Taiwan MF	MF7802	HKE-011	Feb. 17, 2023	Feb. 16, 2024
Radiated test software	Tonscend	TS+ Rev 2.5.0.0	HKE-082	N/A	N/A
RF cable (9KHz-1GHz)	Times	381806-001	N/A	N/A	N/A
Hf antenna	Schwarzbeck	LB-180400-K F	HKE-031	Feb. 17, 2023	Feb. 16, 2024
RF cable	Tonscend	1-18G	HKE-099	Feb. 17, 2023	Feb. 16, 2024
RF cable	Times	1-40G	HKE-034	Feb. 17, 2023	Feb. 16, 2024
Horn Antenna	Schewarzbeck	BBHA 9170	HKE-017	Feb. 17, 2023	Feb. 16, 2024
Spectrum analyzer	R&S	FSP40	HKE-025	Feb. 17, 2023	Feb. 16, 2024

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

4.6.3. Test Data

ANT 1

Operation Mode: 802.11a Mode with 5.2G TX CH Low

Horizontal

(0)	III. V.	Walley V.	ASSAULT V.	10/68	V / .	423487 A.
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	55.34	-2.49	52.85	74	-21.15	peak
5150	1 HOI	-2.49	1	54	1	AVG
e)(C)	VII.a. 1000		The Cha	10000	Clla	1/1/4

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.49	-2.49	51	74	-23	peak
5150	1	-2.49	HUPKTES	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.78	-2.11	52.67	74	-21.33	peak
5350	I I	-2.11	1	54	KTESTING /	AVG
	160	COST TO	160	VEND 44.		160

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	51.69	-2.11	49.58	74	-24.42	peak
5350	HUAKTES!	-2.11	HUAKTE	54	HUAKTES	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11n20 Mode with 5.2G TX CH Low

Horizontal

Er	equency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
() Pro-	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
STING	5150	53.46	-2.49	50.97	74	-23.03	peak
	5150	TESTA /	-2.49	HU TESTA	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	dBμV/m)	(dBµV/m)	(dB)	Detector Type
5150	50.47	-2.49	47.98	74	-26.02	peak
5150	1	-2.49	1	54	TESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.



Operation Mode: TX CH High with 5.2G

Horizontal

Frequenc	y Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.16	-2.11	51.05	74	-22.95	peak
5350	ING 1	-2.11	1	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	50.87	-2.11	48.76	74	-25.24	peak
5350	HUAK TES 1	-2.11	I HUAK TES	54	WAKTES	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 n40 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	54.29	-2.49	51.8	74	-22.2	peak
5150	1	-2.49	HUAYTES	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	50.04	-2.49	47.55	74	-26.45	peak
5150	STAG I	-2.49	J TESTING	54 MARC	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: TX CH High with 5.2G

Horizontal

F	requency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
AKTEST	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
	5350	53.53	-2.11	51.42	74	-22.58	peak
1 mic	5350	THE I	-2.11	/ mg	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data dan Tura
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	50.82	-2.11	48.71	74	-25.29	peak
5350	HUAK TESS /	-2.11	HUAK TES	54	AUAK TEST	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 ac20 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	54.18	-2.49	51.69	74	-22.31	peak
5150	1	-2.49	HUAYTES	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	52.56	-2.49	50.07	74	-23.93	peak
5150	1	-2.49	1	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	simits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.47	-2.11	51.36	74	-22.64	peak
5350	VIESTING /	-2.11	N. TESTING	54 (a) MUP	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotoctor Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	51.92	-2.11	49.81	74	-24.19	peak
5350	1	-2.11		54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 ac40 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	52.38	-2.49	49.89	74	-24.11	peak
5150	TETNE	-2.49	/ TESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	50.76	-2.49	48.27	74	-25.73	peak
5150	1	-2.49	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.





Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.18	-2.11	51.07	74	-22.93	peak
5350	STATE /	-2.11	LAK ESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	50.22	-2.11	48.11	74	-25.89	peak
5350	1	-2.11		54	/	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

of 112 Report No.: HK2310265038-1E

Operation Mode: 802.11 ac80 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	50.12	-2.49	47.63	74	-26.37	peak
5150	STING /	-2.49	J TESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	50.25	-2.49	47.76	74	-26.24	peak
5150	1	-2.49	7	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.



STING

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
§° 5350	53.98	-2.11	51.87	74	-22.13	peak
5350	STATE /	-2.11	LAK ESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

. 1 D/1"	(O)	. 100	and UU'		100	and DD'
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	— Detector Type
5350	51.14	-2.11	49.03	74	-24.97	peak
5350	1	-2.11		54	1	AVG
-G		·G	-		10	-

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark:

- 1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
- 2. In restricted bands of operation, the spurious emissions below the permissible value more than 20dB.
- 3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

ANT 2

Operation Mode: 802.11a Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	54.62	-2.49	52.13	74	-21.87	peak
5150	1	-2.49	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	51.69	-2.49	49.2	74	-24.8	peak
5150	ESTING /	-2.49	THUR. TESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Simits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.74	-2.11	51.63	74	-22.37	peak
5350	TESTING /	-2.11	/ TESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

30)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
- 63	5350	52.03	-2.11	49.92	74	-24.08	peak
	5350) HO 1	-2.11		54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11n20 Mode with 5.2G TX CH Low

Horizontal

Frequ	iency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(M	Hz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
51 ^{111/G} 51	50	53.71	-2.49	51.22	74	-22.78	peak
51	50 111/11/	TESTA /	-2.49	HU A TESTIN	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotoctor Type
(MHz)	(dBµV)	(dB)	dBμV/m)	(dBµV/m)	(dB)	Detector Type
5150	51.36	-2.49	48.87	74	-25.13	peak
5150	1	-2.49	1	54	TESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.



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Operation Mode: TX CH High with 5.2G

Horizontal

Frequ	iency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MI	Hz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
53	50	54.22	-2.11	52.11	74	-21.89	peak
53	50	I I	-2.11	1 MG	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	52.49	-2.11	50.38	74	-23.62	peak
5350	MAKTES	-2.11	HUAKTES	54	WAKTES	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 n40 Mode with 5.2G TX CH Low

Horizontal

	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
AKT	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
100	5150	54.29	-2.49	51.8	74	-22.2	peak
)	5150	STING /	-2.49	LESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotootor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	√ (dBµV/m)	(dB)	Detector Type
5150	50.04	-2.49	47.55	74	-26.45	peak
5150	1	-2.49	1	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.53	-2.11	51.42	74	-22.58	peak
5350	IIIIG /	-2.11	1 mg	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

TES .	1.10	10	1		160	- K. 15
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	50.82	-2.11	48.71	74	-25.29	peak
5350	AUAK TESS /	-2.11	HUAKTES	54	MAKTES!	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 ac20 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	54.18	-2.49	51.69	74	-22.31	peak
5150	JKTS. 1	-2.49	HUALTES	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	√ (dBµV/m)	(dB)	Detector Type
5150	52.56	-2.49	50.07	74	-23.93	peak
5150	1	-2.49	1	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.47	-2.11	51.36	74	-22.64	peak
5350	K LESTING	-2.11	JAK TESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

4 1/4	No	47 170	100 hr. 140		4 100	ATTING THE PARTY OF THE PARTY O
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	51.92	-2.11	49.81	74	-24.19	peak
5350) 1	-2.11		54	1	AVG
-allo		-allo			-allo	

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 ac40 Mode with 5.2G TX CH Low

Horizontal

	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
PICT	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
100	5150	52.38	-2.49	49.89	74	-24.11	peak
>	5150	STING /	-2.49	/ TESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	50.76	-2.49	48.27	74	-25.73	peak
5150	1	-2.49	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.





Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.18	-2.11	51.07	74	-22.93	peak
5350	STATE /	-2.11	LAK ESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

100° U	(O)	. 100	and UU'		100	and Divi
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	50.22	-2.11	48.11	74	-25.89	peak
5350	1	-2.11		54	1	AVG
1G		·G	-		-6	-

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.



Operation Mode: 802.11 ac80 Mode with 5.2G TX CH Low

Horizontal

	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
ALTE	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
rank.	5150	50.12	-2.49	47.63	74	-26.37	peak
,	5150	STING /	-2.49	TESTING	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	50.25	-2.49	47.76	74	-26.24	peak
5150	I	-2.49	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Datastar Tyra
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.98	-2.11	51.87	74	-22.13	peak
5350	IIIIG /	-2.11	/ mg	54	ESTING /	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

LOK TE	W. TEST	1226.	- WAKTES	- WTES	NA L. D. J.	WIES
Detector Typ	Margin	Limits	Emission Level	Factor	Meter Reading	Frequency
Detector Typ	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(dBµV)	(MHz)
peak	-24.97	74	49.03	-2.11	51.14	5350
AVG	WAX TEST	54	HUAKTES	-2.11	HUAKTES /	5350

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark:

- 1. If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.
- 2. In restricted bands of operation, the spurious emissions below the permissible value more than
- 3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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MIMO

Operation Mode: 802.11n20 Mode with 5.2G TX CH Low

Horizontal

(MHz) (dBμV) (dB) (dBμV/m) (dBμV/m) (dB)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
5150 54.05 -2.49 51.56 74 -22.44 peal	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
The State of the S	5150	54.05	-2.49	51.56	74	-22.44	peak
5150 / -2.49 / 54 / AVC	5150	MG MH	-2.49	1	54	1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.16	-2.49	50.67	74	-23.33	peak
5150	1	-2.49	1 HUAR	54	1	AVG
		THE		-61	1	

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.



Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.28	-2.11	51.17	74	-22.83	peak
5350	-m/G	-2.11	1 NG	54	ESTING	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	51.96	-2.11	49.85	74	-24.15	peak
5350	HUAK TES /	-2.11	HUAKTES	54	WAK TES!	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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Operation Mode: 802.11 n40 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotootor Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.64	-2.49	51.15	74	-22.85	peak
5150	1	-2.49	HUAKTES	54	1	AVG

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data star Tura
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	 Detector Type
5150	55.62	-2.49	53.13	74	-20.87	peak
5150	I I	-2.49	1	54	esting /	AVG
-78	5'	100	TED	VAR 4		TES

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



Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data et au Turra
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.17	-2.11	52.06	74	-21.94	peak
5350	I	-2.11	1	54	ESTING	AVG

Vertical:

	211/2	-C51		100		-711/2	-651
11	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotactor Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
	5350	56.89	-2.11	54.78	74	-19.22	peak
7	5350	UAK TES 1	-2.11	HUAKTES	54	UAKTES /	AVG
		-				•	

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

f 112 Report No.: HK2310265038-1E

Operation Mode: 802.11 ac20 Mode with 5.2G TX CH Low

Horizontal

requency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.24	-2.49	50.75	74	-23.25	peak
5150	mig /	-2.49	KESTING	54	1	AVG
	(MHz) 5150	(MHz) (dBμV) 5150 53.24	(MHz) (dBμV) (dB) 5150 53.24 -2.49	(MHz) (dBμV) (dB) (dBμV/m) 5150 53.24 -2.49 50.75	(MHz) (dBμV) (dB) (dBμV/m) (dBμV/m) 5150 53.24 -2.49 50.75 74	(MHz) (dBμV) (dB) (dBμV/m) (dBμV/m) (dB) 5150 53.24 -2.49 50.75 74 -23.25

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

Vertical:

Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type	
54.21	-2.49	51.72	74	-22.28	peak	
1	-2.49	1	54	THE I	AVG	
	(dBµV)	(dBµV) (dB) 54.21 -2.49	(dBμV) (dB) (dBμV/m) 54.21 -2.49 51.72	(dBμV) (dB) (dBμV/m) (dBμV/m) 54.21 -2.49 51.72 74	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 54.21 -2.49 51.72 74 -22.28	

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

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.57	-2.11	52.46	74	-21.54	peak
5350	ang /	-2.11	1 mg	54	ESTING /	AVG

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

Vertical:

Detector Type	Margin	Limits	Emission Level	Factor	Meter Reading	Frequency
Detector Type	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(dBµV)	(MHz)
peak	-21.79	₆ 74	52.21	-2.11	54.32	5350
AVG	WAKTES /	54	HUAKTES	-2.11	UAKTES /	5350

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



Operation Mode: 802.11 ac40 Mode with 5.2G TX CH Low

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	56.64	-2.49	54.15	74	-19.85	peak
5150	STING 1	-2.49	LESTING	54	1	AVG

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	55.65	-2.49	53.16	74	-20.84	peak
5150	1	-2.49	7	54	n/G /	AVG
		ONTES	D 115 10	- 1	TEST	

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

Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.32	-2.11	52.21	74	-21.79	peak
5350	auG 1	-2.11	1	54	ESTING /	AVG

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

Vertical:

Detector Type	Margin	Limits	Emission Level	Factor	Meter Reading	Frequency
	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(dBµV)	(MHz)
peak	-21.06	₆ 74	52.94	-2.11	55.05	5350
AVG	MAKTED /	54	HUAKTES	-2.11	UAKTES /	5350

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

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Operation Mode: 802.11 ac80 Mode with 5.2G TX CH Low

Horizontal

	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Tune
E	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
G	5150	54.96	-2.49	52.47	74	-21.53	peak
	5150	mig /	-2.49	LESTING	54	1	AVG

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
5150	53.15	-2.49	50.66	74	-23.34	peak
5150	1	-2.49	1	54	TING /	AVG
		N TED	-	d'	PEO	

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





Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data atau Tuma
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	55.88	-2.11	53.77	74	-20.23	peak
5350	1	-2.11	1	54	ESTINE	AVG

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.14	-2.11	51.03	74	-22.97	peak
5350	JAKTES 1	-2.11	HUAKTE	54	UAKTES	AVG

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

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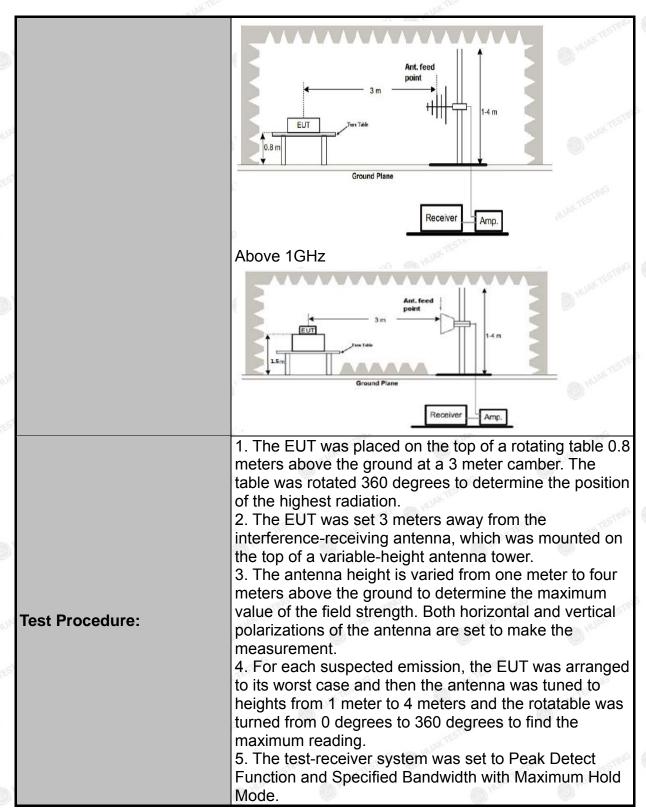
4.7. Spurious Emission

4.7.1.1. Test Specification

Test Requirement:	FCC CFR47	Part 15	Section 15	407	IG TESTI		
Test Method:	KDB 789033	D02 v02	2r01	HUA	O HUN		
Frequency Range:	9kHz to 40G	Hz		ESTING			
Measurement Distance:	3 m	NY TESTING	(a) H	DAK	NY TESTING		
Antenna Polarization:	Horizontal &	Vertical		a)G	(1) HO.		
Operation mode:	Transmitting	mode w	ith modulat	ion			
	Frequency 9kHz- 150kHz 150kHz-	Detector Quasi-pea Quasi-pea	ak 200Hz	VBW 1kHz 30kHz	Remark Quasi-peak Value Quasi-peak Value		
Receiver Setup:	30MHz 30MHz-1GHz	Quasi-pea Peak		300KHz 3MHz	Quasi-peak Value Peak Value		
	Above 1GHz	Peak	1MHz	10Hz	Average Value		
	Unwanted spu FCC Part15.20 general field st)5 shall co	mply with th	e TING	9 as below table,		
	Frequency	JAKTE	Field Streng (microvolts)	/meter)	Measurement Distance (meters)		
	0.009-0.490		2400/F(KH:		300		
	0.490-1.705	W TESTIN	24000/F(KI	HZ)	30		
1 : :	1.705-30 30-88	AU Pro	30	MAN HUAK	30		
Limit:	88-216	9	100 150	(03)	3		
	216-960		200		3		
	Above 960		500		3		
	Above 900	TES	3				
	Frequency	Muak.	Limit (dBu\ @3m)	//m	Detector		
	Above 1G		74.0	AK TESTINE	Peak		
		OKTESTING	54.0) h	Average		
Test setup:	For radiated Some state of the	Grou	3 m	RX Antenna	A TESTING		

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	6. 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 bere-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test results:	PASS

4.7.2. Test Data

All the test modes completed for test. only the worst result of (802.11a at 5180MHz) was reported Below 1GHz

Horizontal



QP Detecto

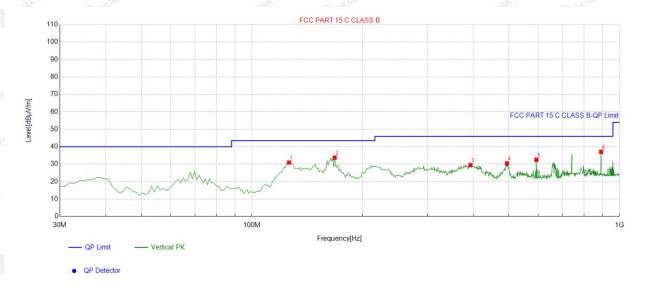
Suspe	Suspected List											
NO.	Freq.	Factor	Reading	Level	Limit	Margin	Height	Angle	Polarity			
110.	[MHz]	[dB]	[dBµV/m]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]				
1	69.80981	-15.91	32.81	16.90	40.00	23.10	100	189	Horizontal			
2	216.42642	-14.39	50.31	35.92	46.00	10.08	100	124	Horizontal			
3	412.56256	-9.05	35.87	26.82	46.00	19.18	100	91	Horizontal			
4	594.13413	-5.30	37.31	32.01	46.00	13.99	100	187	Horizontal			
5	742.69269	-2.96	46.26	43.30	46.00	2.70	100	313	Horizontal			
6	891.25125	-0.67	33.14	32.47	46.00	13.53	100	310	Horizontal			

7	Final D	ata List								
8	NO.	Freq.	Factor [dB]	QP Reading [dBµV/m]	QP Value [dBμV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle	Polarity
	1	742.4774	-2.96	45.33	42.37	46.00	3.63	100	313	Horizontal

Remark: Factor = Cable loss + Antenna factor - Preamplifier; Level = Reading + Factor; Margin = Limit - Level

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Vertical



Suspe	Suspected List											
NO	Freq.	Factor	Reading	Level	Limit	Margin	Height	Angle	5.1."			
NO.	[MHz]	[dB]	[dBµV/m]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Polarity			
1	126.12612	-16.21	47.16	30.95	43.50	12.55	100	107	Vertical			
2	167.87787	-16.99	50.77	33.78	43.50	9.72	100	157	Vertical			
3	393.14314	-9.88	39.34	29.46	46.00	16.54	100	248	Vertical			
4	494.12412	-7.29	37.76	30.47	46.00	15.53	100	195	Vertical			
5	594.13413	-5.30	37.81	32.51	46.00	13.49	100	215	Vertical			
6	891.25125	-0.67	37.79	37.12	46.00	8.88	100	278	Vertical			

Remark: Factor = Cable loss + Antenna factor – Preamplifier; Level = Reading + Factor; Margin = Limit – Level

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBµV/m)	Limit@3m (dBµV/m)
HUAL	Intland	HURA
	W _C	-TING
HUAKTE		Jak
TESTING TESTING	TSTING TESTING	TS THE

Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

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0



Above 1GHz

RADIATED EMISSION TEST

LOW CH 36 (802.11 a Mode with 5.2G)/5180

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	54.38	-4.59	49.79	74 TING	-24.21	peak
3647	40.14	-4.59	35.55	54	-18.45	AVG
10360	51.21	3.74	54.95	68.2	-13.25	peak

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	54.76	-4.59	50.17	74	-23.83	peak
3647	40.24	-4.59	35.65	54	-18.35	AVG
10360	52.28	3.74	56.02	68.2	-12.18	peak

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

MID CH40 (802.11 a Mode with 5.2G)/5200

Horizontal:

Meter Reading	Factor	Emission Level	Limits	Margin	Data star Time
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
53.75	-4.59	49.16	74	-24.84	peak
42.51	-4.59	37.92	54	-16.08	AVG
50.92	3.74	54.66	68.2	-13.54	peak
	(dBµV) 53.75 42.51	(dBµV) (dB) 53.75 -4.59 42.51 -4.59	(dBμV) (dB) (dBμV/m) 53.75 -4.59 49.16 42.51 -4.59 37.92	(dBμV) (dB) (dBμV/m) (dBμV/m) 53.75 -4.59 49.16 74 42.51 -4.59 37.92 54	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 53.75 -4.59 49.16 74 -24.84 42.51 -4.59 37.92 54 -16.08

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	52.72	-4.59	48.13	74	-25.87	peak
3647	41.29	-4.59	36.7	54	-17.3	AVG
10400	50.78	3.74	54.52	68.2	-13.68	peak

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

HIGH CH 48 (802.11a Mode with 5.2G)/5240

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Toron
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	53.72	-4.59	49.13	74	-24.87	peak
3647	39.61	-4.59	35.02	54 AM	-18.98	AVG
10480	52.51	3.75	56.26	68.2	-11.94	peak

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	52.69	-4.59	48.1	74	-25.9	peak
3647	42.17	-4.59	37.58	54	-16.42	AVG
10480	50.87	3.75	54.62	68.2	-13.58	peak

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark.

- (1) Measuring frequencies from 1 GHz to the 40 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 record 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. (7) All modes of operation were investigated and the worst-case of Ant 1 are reported.

5.2G 802.11n20 Mode

All modes of operation were investigated and the worst-case of MIMO are reported.

LOW CH 36

Horizontal:

200	200	200	20		200	200
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	— Detector Type
3647	55.07	-4.59	50.48	74	-23.52	peak
3647	41.33	-4.59	36.74	54	-17.26	AVG
10360	51.31	3.74	55.05	68.2	-13.15	peak
TIME	ESIM		TIME		MILE	25/11

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	£imits	Margin	Datastar Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	55.32	-4.59	50.73	74	-23.27	peak
3647	41.2	-4.59	36.61	54	-17.39	AVG
10360	51.85	3.74	55.59	68.2	-12.61	peak
		24		10%		•

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

MID CH40

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Torre
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	52.75	-4.59	48.16	74	-25.84	peak
3647	41.26	-4.59	36.67	54 AM	-17.33	AVG
10400	51.64	3.74	55.38	68.2	-12.82	peak

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	56.63	-4.59	52.04	74	-21.96	peak
3647	41.85	-4.59	37.26	54	-16.74	AVG
10400	52.81	3.74	56.55	68.2	-11.65	peak

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

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HIGH CH 48

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	51.18	-4.59	46.59	74	-27.41	peak
3647	40.95	-4.59	36.36	54	-17.64	AVG
10480	50.65	3.75	54.4	68.2	-13.8	peak

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data stan Tona
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	54.85	-4.59	50.26	74	-23.74	peak
3647	41.9	-4.59	37.31	54	-16.69	AVG
10480	51.95	3.75	55.7	68.2	-12.5	peak

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier; Level = Reading + Factor; Margin = Level-Limit.

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 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 record 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.



 $5.2G\ 802.11n40\ Mode$ All modes of operation were investigated and the worst-case of MIMO are reported. LOW CH 38

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.43	-4.59	56.84	74	-17.16	peak
3647	47.24	-4.59	42.65	54	-11.35	AVG
10360	50.51	3.74	54.25	68.2	-13.95	peak

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Detector Type
3647	62.79	-4.59	58.2	74	-15.8	peak
3647	45.79	-4.59	41.2	54	-12.8	AVG
10360	50.66	3.74	54.4	68.2	-13.8	peak
	•	TUG	•	1	ING.	

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

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HIGH CH 46

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.23	-4.59	54.64	74	-19.36	peak
3647	40.51	-4.59	35.92	54	-18.08	AVG
10480	52.87	3.75	56.62	68.2	-11.58	peak
	•	-1G			a)G	9

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

Vertical:

ALC: UNITED BY		40h W	DESTA.		ATTEN MY	DESIGN.
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.71	-4.59	57.12	74	-16.88	peak
3647	43.29	-4.59	38.7	54	-15.3	AVG
10480	49.54	3.75	53.29	68.2	-14.91	peak
	- C 10 T	All and a second	- (6)	ATTACA Y		

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

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 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 record 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.



5.2G 802.11ac20 Mode All modes of operation were investigated and the worst-case of MIMO are reported. LOW CH 36

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data stay Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.68	-4.59	57.09	74	-16.91	peak
3647	44.44	-4.59	39.85	54	-14.15	AVG
10360	52.72	3.74	56.46	68.2	11.74	peak

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.46	-4.59	54.87	74	-19.13	peak
3647	42.78	-4.59	38.19	54	-15.81	AVG
10360	49.48	3.74	53.22	68.2	-14.98	peak
HO.			AND HOME		-	III. HOM

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

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MID CH40

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.47	-4.59	54.88	74	-19.12	peak
3647	45.08	-4.59	40.49	54	-13.51	AVG
10400	54.01	3.74	57.75	68.2	-10.45	peak

Vertical:

. 414	47/2	. 63	477		44.	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	55.99	-4.59	51.4	74	-22.6	peak
3647	42.86	-4.59	38.27	54	-15.73	AVG
10400	52.22	3.74	55.96	68.2	-12.24	peak
	CTING _	MAKE	- STING		UAK	STING

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

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HIGH CH 48

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.63	-4.59	55.04	74	-18.96	peak
3647	41.7	-4.59	37.11	54	-16.89	AVG
10480	51.2	3.75	54.95	68.2	-13.25	peak

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

Vertical:

44.	- 1D3		. 101		- 1	100
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotactor Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.37	-4.59	55.78	74	-18.22	peak
3647	43.33	-4.59	38.74	54	-15.26	AVG
10480	50.03	3.75	53.78	68.2	-14.42	peak

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

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 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 record 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.

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5.2G 802.11ac40 Mode All modes of operation were investigated and the worst-case of MIMO are reported. LOW CH 38

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data ton Ton
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.23	-4.59	55.64	74	-18.36	peak
3647	43.07	-4.59	38.48	54	-15.52	AVG
10360	51.5	3.74	55.24	68.2	-12.96	peak

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	58.32	-4.59	53.73	74	-20.27	peak
3647	42.5	-4.59	37.91	54	-16.09	AVG
10360	51.88	3.74	55.62	68.2	-12.58	peak
	•	TNG.			m/G	

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



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HIGH CH 46

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Tune
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.34	-4.59	54.75	74	-19.25	peak
3647	42.29	-4.59	37.7	54	-16.3	AVG
10480	56.01	3.75	59.76	68.2	-8.44	peak

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

Vertical:

	- A 100		410		4.56	4 177
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.55	-4.59	56.96	74	-17.04	peak
3647	45.66	-4.59	41.07	54	-12.93	AVG
10480	52.93	3.75	56.68	68.2	-11.52	peak
		1.10			11/0	

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

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 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 record 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.



5.2G 802.11ac80 Mode

All modes of operation were investigated and the worst-case of MIMO are reported.

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.94	-4.59	56.35	74	-17.65	peak
3647	46.9	-4.59	42.31	54	-11.69	AVG
10360	53.43	3.74	57.17	68.2	-11.03	peak
		K TEO	•	W.TES		•

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.59	-4.59	57	74	-17	peak
3647	42.54	-4.59	37.95	54	-16.05	AVG
10360	51.46	3.74	55.2	68.2	-13	peak

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

Remark:

- (1) Measuring frequencies from 1 GHz to the 40 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 record 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.



4.8. Frequency Stability Measurement

4.8.1. Test Specification

Test Requirement:	FCC Part15 Section 15.407(g)					
Test Method:	ANSI C63.10: 2013					
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.					
Test Setup:	Spectrum Analyzer EUT AC/DC Power supply					
Test Procedure:	The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage. b. Turn the EUT on and couple its output to a spectrum analyzer. c. Turn the EUT off and set the chamber to the highest temperature specified. d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature. f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.					
Test Result:	PASS MARTESTING WHITESTING MARTESTING MARTESTING					
Remark:	N/A					



Test Result as follows:

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
5.2G Band	4.25V	5180.012	12	5240.008	8
	5.0V	5180.024	24	5239.981	-19
	5.75V	5179.989	-11	5239.969	-31

Mode	Temperature (°C)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
	-30	5180.022	22	5239.979	-21
3	-20	5179.986	-14	5240.013	13
WANTES	-10	5180.004	4	5239.982	-18
	0	5180.016	16	5239.991	-9
5.2G Band	10	5179.981	-19	5240.022	22
NUANTES.	20	5179.905	-95	5240.014	14
	30	5180.012	12	5240.011	11
STING V. TESTIN	40	5180.019	19	5240.008	8
O HUAN	50	5179.975	-25	5239.981	-19
	(0)	33		467203	

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4.9. Antenna Requirement

Standard Applicable

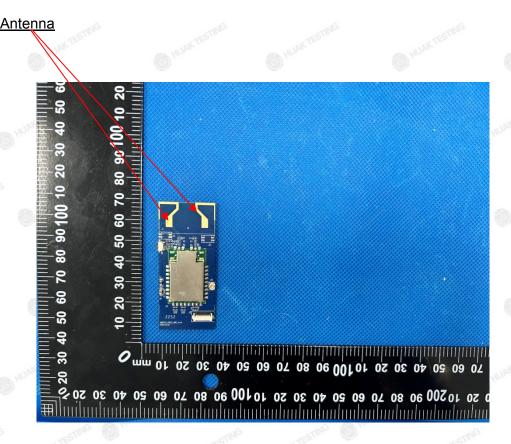
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain 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

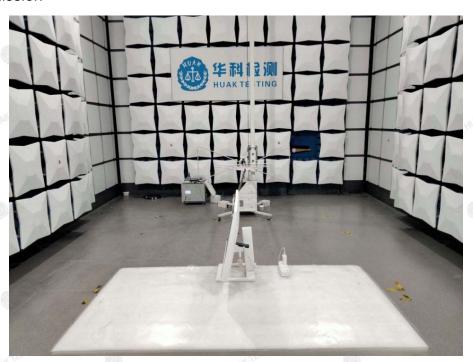
The antenna used in this product is a PCB Antenna, which permanently attached. It conforms to the standard requirements. and the best case gain of the antenna is Antenna port 1:1.2dBi and Antenna port 2:1dBi.

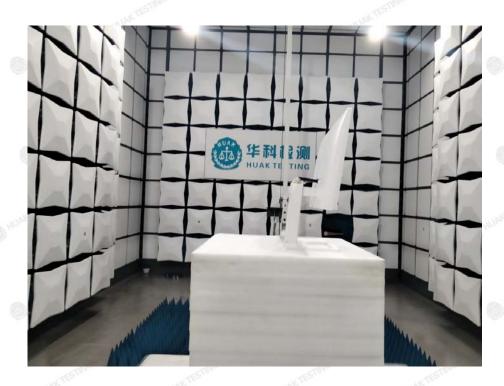




5. Photographs of Test Setup

Radiated Emission





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Conducted Emission





6. Photos of the EUT

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

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