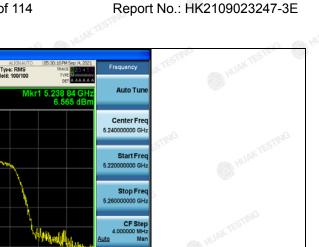
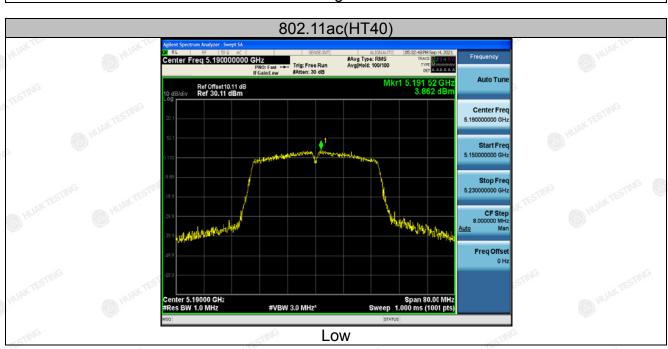
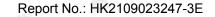


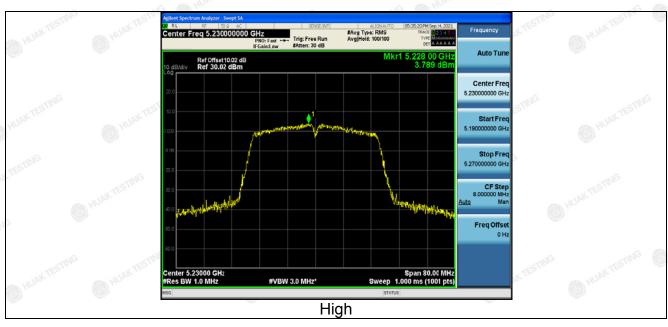
Ref Offset9.89 dB Ref 29.89 dBm

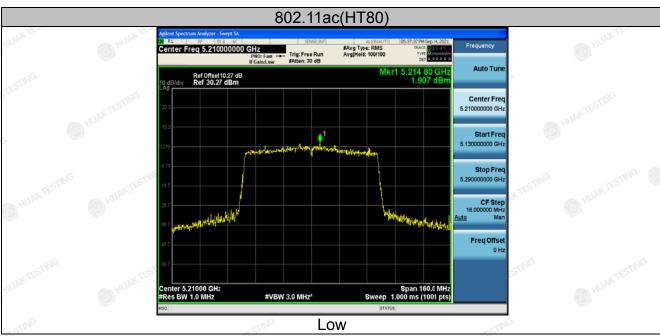














For MIMO antenna 1+antenna 2

Configuration Band IV (5150 - 5250MHz)

Mode	Test channel	Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
11n(HT20)	CH36	9.65	11.00	PASS
11n(HT20)	CH40	10.05	(a) HUM 11	PASS
11n(HT20)	CH48	10.27	5m/11	PASS
11n(HT40)	CH38	10.34	(h) H) MC	PASS
11n(HT40)	CH46	10.15	11 HUANTES	PASS
11ac(HT20)	CH36	10.07	11	PASS
11ac(HT20)	CH40	8.13	is 11	PASS
11ac(HT20)	CH48	7.55	11	PASS
11ac(HT40)	CH38	10.56	11 ₁₀	PASS
11ac(HT40)	CH46	10.19	MUAY 11	PASS
11ac(HT80)	CH42	9.91	11	PASS

Note: 1. According to KDB 662911, Result power = 10log(10(ant1/10)+10(ant2/10))

2. Result unit: W, The end result is converted to units of dBm.

Note: This product supports antenna 3 and antenna 4 launch, but only support 802.11 n/ac for MIMO mode, ot support 802.11 a for MIMO mode.



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4.6. BAND EDGE

4.6.1. Test Specification

Test Requirement:	FCC CFR47 Part 15E Section 15.407 & 15.209 & 15.205
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.i.r.p. of −27 dBm/MHz. The limit of frequency below 1GHz and which fall in restricted bands should complies 15.209.
Test Setup:	Ground Reference Plates Test Réceiver Test Réceiv
Test Mode:	Transmitting mode with modulation
Test Procedure:	 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. 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 and the rota 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, quasipeak or average method as specified and then reported in a data sheet.
Test Result:	PASS





4.6.2. Test Instruments

THE THE ARE THE ARE

		0" 0		(a) "	3)
	Ra	diated Emission	Test Site (96	6)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Receiver	R&S	ESRP3	HKE-005	Dec. 10, 2020	Dec. 09, 2021
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 10, 2020	Dec. 09, 2021
Preamplifier	EMCI	EMC051845S E	HKE-015	Dec. 10, 2020	Dec. 09, 2021
Preamplifier	Agilent	83051A	HKE-016	Dec. 10, 2020	Dec. 09, 2021
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Dec. 10, 2020	Dec. 09, 2021
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	Dec. 10, 2020	Dec. 09, 2021
Horn antenna	Schwarzbeck	9120D	HKE-013	Dec. 10, 2020	Dec. 09, 2021
Antenna Mast	Keleto	CC-A-4M	N/A	N/A	N/A
Position controller	Taiwan MF	MF7802	HKE-011	Dec. 10, 2020	Dec. 09, 2021
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) WAY
Hf antenna	Schwarzbeck	LB-180400-KF	HKE-031	Dec. 10, 2020	Dec. 09, 2021
RF cable	Tonscend	1-18G	HKE-099	Dec. 10, 2020	Dec. 09, 2021
RF cable	Times	1-40G	HKE-034	Dec. 10, 2020	Dec. 09, 2021
Horn Antenna	Schewarzbeck	BBHA 9170	HKE-017	Dec. 10, 2020	Dec. 09, 2021
Spectrum analyzer	R&S	FSP40	HKE-025	Dec. 10, 2020	Dec. 09, 2021

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

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	52.05	-2.49	49.56	74	-24.44	peak
5150	JAK TESTING	-2.49	STING LOW TEST	54	TESTING	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	53.45	-2.49	50.96	74	-23.04	peak
5150	1	-2.49	1	54	1	AVG
-mG	TING (ED)		mG Th	10 (EE)	m/G	CTING

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

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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Turns
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.78	-2.11	52.67	74	-21.33	peak
5350	STING /	-2.11	1 STING	54	AK TES	AVG

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Tyre
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Typ
5350	53.25	-2.11	51.14	5TH 74	-22.86	peak
5350	HILLAN /	-2.11	1 HUAR	54	HUAR	AVG

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

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Turns
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.63	-2.49	51.14	74	-22.86	peak
5150	TESTING	-2.49	LANTESTING	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	51.49	-2.49	49	74	-25	peak
5150	1	-2.49	1	54	TESTING	AVG
	TOPE	10%	din		Die	- MIC

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	53.41	-2.11	51.3	74	-22.7	peak
5350	-TING	-2.11	1 -1111/6	54	EST	AVG

Vertical:

15	475	45	1170		45	472
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	— Detector Type
5350	52.05	-2.11	49.94	<i>9</i> 74	-24.06	peak
5350	UPA	-2.11	A HUAR	54	UAR	AVG

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

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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	54.14	-2.49	51.65	74	-22.35	peak
5150	KIE UMB I	-2.49	LAK TESTING	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	。(dBμV/m)	(dB)	Detector Type
5150	53.86	-2.49	51.37	74	-22.63	peak
5150	1	-2.49	1	54	ESTING /	AVG

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



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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data stan Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.84	-2.11	51.73	74	-22.27	peak
5350	TING 1	-2.11	Lating	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.13	-2.11	51.02	<i>9</i> 74	-22.98	peak
5350	UPAC /	-2.11	N HILAN	54	UAR	AVG

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



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	53.13	-2.49	50.64	74	-23.36	peak
5150	TING /	-2.49	JAK 7.STING	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotoctor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	。(dBμV/m)	(dB)	Detector Type
5150	53.63	-2.49	51.14	74	-22.86	peak
5150	1	-2.49	1	54	ESTING /	AVG

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	54.14	-2.11	52.03	74	-21.97	peak
5350	TING /	-2.11	Lating	54 ^x	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	52.06	-2.11	49.95	74	-24.05	peak
5350	ALL PARCE /	-2.11	A HUAN	54	WAR	AVG

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

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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
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	55.25	-2.49	52.76	74	-21.24	peak
5150	LUNG 1	-2.49	LAK V.STINIS	54	1	AVG

Vertical:

	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	。 (dBμV/m)	(dB)	Detector Type
the second	5150	54.47	-2.49	51.98	74	-22.02	peak
TI S	5150	1	-2.49	1	54	ESTING	AVG
ŀ		100	10%	anle	-10%		40/6

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	Datastas Tipa
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.33	-2.11	52.22	74	-21.78	peak
5350	mic 1	-2.11	Lemig	54 ^x	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	51.71	-2.11	49.6	<i>§</i> 74	-24.4	peak
5350	HUAR	-2.11	HUAR	54	WAR	AVG

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 Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	55.63	-2.49	53.14	74	-20.86	peak
5150	TING /	-2.49	NY STING	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	。 (dBμV/m)	(dB)	Detector Type
5150	53.11	-2.49	50.62	74	-23.38	peak
5150	1	-2.49	1	54	ESTING /	AVG
	TIME	100	10/6	IAM		TUR

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



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Operation Mode: TX CH High with 5.2G

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data stan Tilba
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	55.32	-2.11	53.21	74	-20.79	peak
5350	TING 1	-2.11	Lame	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data stay Tura
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.22	-2.11	51.11	[©] 74	-22.89	peak
5350	1	-2.11	THUR!	54	UAR	AVG

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



ANT 2

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

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	D 1 1 T
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	52.66	-2.49	50.17	74	-23.83	peak
5150	11	-2.49	/	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	52.34	-2.49	49.85	74 _{HUP}	-24.15	peak
5150	1	-2.49	MAN I	54	1 (AVG

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	Datastas Tura
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.48	-2.11	52.37	74	-21.63	peak
5350	STING /	-2.11	1 TING	54	AK TES.	AVG

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	O HUN
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	52.22	-2.11	50.11	74	-23.89	peak
5350	HUAN /	-2.11	HUAN	54	HUAR	AVG

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



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

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Data star Tura
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	56.17	-2.49	53.68	74	-20.32	peak
5150	V TESTING	-2.49	/X TESTING	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	54.12	-2.49	51.63	74	-22.37	peak
5150	1	-2.49	1	54	TESTING	AVG
	-110	- 1 D2c	allo		Dir	anll o

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 stan Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	52.69	-2.11	50.58	74	-23.42	peak
5350	mic 1	-2.11	Lame	54	1	AVG

Vertical:

.700	- N	. 337			. 5.57	4.16
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	52.87	-2.11	50.76	74	-23.24	peak
5350	HUAR	-2.11	HUAN	54	WAR	AVG

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



Operation Mode: 802.11 n40 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	54.25	-2.49	51.76	74	-22.24	peak
5150	TES TIMES	-2.49	JAK 7.STINIS	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	。(dBμV/m)	(dB)	Detector Type
5150	53.78	-2.49	51.29	74	-22.71	peak
5150	1	-2.49	1	54	ESTING	AVG

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 stan Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	56.12	-2.11	54.01	74	-19.99	peak
5350	TING 1	-2.11	Lating	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.47	-2.11	52.36	<i>9</i> 74	-21.64	peak
5350	UAR /	-2.11	N HUAR	54	UAR	AVG

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



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

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	54.58	-2.49	52.09	74	-21.91	peak
5150	Wiles 1	-2.49	LAK 7.5TIMB	54	1	AVG

Vertical:

Frequer	cy Meter Re	ading Factor	Emission Leve	el Limits	Margin	Detector Type
(MHz)	(dBµ\	/) (dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.68	-2.49	51.16	74	-22.84	peak
5150	1	-2.49	1	54	ESTING /	AVG

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 Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.28	-2.11	52.17	74	-21.83	peak
5350	TING 1	-2.11	Lame	54	1	AVG

Vertical:

all the	TES	ar In		460	all the
Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
54.13	-2.11	52.02	[©] 74	-21.98	peak
UAR	-2.11	C HUAN	54	UAR 1	AVG
	(dBµV)	(dBμV) (dB) 54.13 -2.11	(dBμV) (dB) (dBμV/m) 54.13 -2.11 52.02	(dBμV) (dB) (dBμV/m) (dBμV/m) 54.13 -2.11 52.02 74	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 54.13 -2.11 52.02 74 -21.98

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

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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
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	55.47	-2.49	52.98	74	-21.02	peak
5150	TING /	-2.49	NY STING	54	1	AVG

Vertical:

	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	。 (dBμV/m)	(dB)	Detector Type
N.	5150	55.85	-2.49	53.36	74	-20.64	peak
(II)	5150	1	-2.49	1	54	ESTING	AVG
- 1		100	10%	AND.	10%		1016

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 stan Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	55.46	-2.11	53.35	74	-20.65	peak
5350	mic 1	-2.11	Lame	54	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.88	-2.11	51.77	<i>9</i> 74	-22.23	peak
5350	I I I	-2.11	C HUAR	54	Mar /	AVG
						•

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 Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.17	-2.49	50.68	74	-23.32	peak
5150	LUNG	-2.49	LAKY STAIS	54	1	AVG

Vertical:

٠,	605(73)		SS(0) 7 .	607(13)		Mile, V	
	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	。 (dBμV/m)	(dB)	Detector Type
N.	5150	55.13	-2.49	52.64	74	-21.36	peak
[1]	5150	1	-2.49	1	54	ESTING /	AVG
		-010	10%	dia	105		-010

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 stan Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.22	-2.11	51.11	74	-22.89	peak
5350	TING /	-2.11	Lemig	54 ^A	1	AVG

Vertical:

. 600	a Maria	. 10	- 1		. 60	44
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.26	-2.11	51.15	<i>§</i> 74	-22.85	peak
5350	AUAIR.	-2.11	HI ALL AND	54	WAR	AVG

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

THE HUARING

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

Horizontal

MIMO:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	D. WAR
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	53.15	-2.49	50.66	74	-23.34	peak
5150	1	-2.49	1	54	NG I	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	53.66	-2.49	51.17	74	-22.83	peak
5150	TESTINE /	-2.49	HUARTESTIN	54 🔘 🗥	1	AVG

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 Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	55.65	-2.11	53.54	74	-20.46	peak
5350	TING 1	-2.11	Lame	54	(S)	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.88	-2.11	52.77	<i>§</i> 74	-21.23	peak
5350	HUAR	-2.11	W HUAR	54	WAR	AVG

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

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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	56.04	-2.49	53.55	74	-20.45	peak
5150	TUNE	-2.49	NK 7.5 TING	54	1	AVG

Vertical:

9873733		SSAID A.	\$10°C(75°)		Alle A.	1073(73)
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	。 (dBμV/m)	(dB)	Detector Type
5150	55.62	-2.49	53.13	74	-20.87	peak
§ 5150	1	-2.49	1	54	ESTING	AVG
	-010	102	-010	105		-010

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 stan Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.23	-2.11	52.12	74	-21.88	peak
5350	TING /	-2.11	Lemig	54 ^A	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	(HOW
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	56.65	-2.11	54.54	<i>§</i> 74	-19.46	peak
5350	JAN 1	-2.11	HUAR	54	UAR	AVG

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

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

Horizontal

STI	requency	Meter Reading	Factor	Emission Level	s Limits	Margin	Detector Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
G	5150	53.24	-2.49	50.75	74	-23.25	peak
	5150	TIME /	-2.49	LAK Z STAIS	54	1	AVG

Remark: Factor = Antenna Factor + Gable Loss – Pre-amplil

Vertical:

(MHz) (dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 5150 54.62 -2.49 52.13 74 -21.87 peak 5150 / -2.49 / 54 / AVG	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	。(dBμV/m)	(dB)	Detector Type
5150 / -2.49 / 54 / AVG	5150	54.62	-2.49	52.13	74	-21.87	peak
150	5150	1	-2.49	1	54	ESTING	AVG

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 stan Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.31	-2.11	52.2	74	-21.8	peak
5350	TING 1	-2.11	Lame	54	1	AVG

Vertical:

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	<i>9</i> 74	-21.54	peak
5350	JAN 1	-2.11	N HILAN	54	UAR	AVG

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 Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	56.19	-2.49	53.7	74	-20.3	peak
5150	ES TIMES	-2.49	JAK 7.5 TIME	54	1	AVG

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	1	54	STING /	AVG
D	= Antonna Factor	ı Oabla Lasa	Due even lift all	- WAK	Ç3	TING

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	Datastar Tyra
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	54.24	-2.11	52.13	74	-21.87	peak
5350	TING /	-2.11	Lame	54 ^x	1	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	HURE
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	55.14	-2.11	53.03	§ 74	-20.97	peak
5350	JAK21	-2.11	WHUAK'S L	54	UARAL 1	AVG

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 Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5150	54.85	-2.49	52.36	74	-21.64	peak
5150	TING /	-2.49	NY STING	54	1	AVG

Vertical:

	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBµV)	(dB)	(dBµV/m)	。 (dBμV/m)	(dB)	Detector Type
N.	5150	53.15	-2.49	50.66	74	-23.34	peak
(III	5150	1	-2.49	1	54	ESTING /	AVG
ı		100	10%	- AND	10/2		1016

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 Tilia
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	55.26	-2.11	53.15	74	-20.85	peak
5350	TING 1	-2.11	Letting	54	(S)	AVG

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	HUP
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
5350	53.35	-2.11	51.24	· 74	-22.76	peak
5350	Upra	-2.11	HUARA	54	UARCE	AVG

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

4.7. SPURIOUS EMISSION

4.7.1.1. Test Specification

Test Requirement:	FCC CFR47	Part 15 Se	ction 15.	407 & 1	5.209 & 15.205
Test Method:	KDB 789033	D02 v02r0	1		(i)
Frequency Range:	9kHz to 40G	Hz		TESTING	
Measurement Distance:	3 m	JAK TESTING	O HO	1000	MAKTESTING
Antenna Polarization:	Horizontal &	Vertical		NG	
Operation mode:	Transmitting	mode with	modulat	ion	100
	Frequency	Detector	RBW	VBW	Remark
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
Receiver Setup:	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
•	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Above 1GHz	Peak	1MHz	10Hz	Average Value
Limit:	ands should of			na which	fall in restricted b
	For radiated	JWG	MAKTEST)MHz	STING OKTESTING
Test setup:	For radiated	emissions 3 m Turn Table Ground Plan	below 30	OMHz RX Antenna Time Receiver	STING HUAY TESTINE ATHAY TESTINE ATHAY TESTINE ESTINE
Test setup:	For radiated 30MHz to 10	emissions 3 m Turn Table Ground Plan	below 30	RX Antenna Receiver	

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AFICATION.

1. The EUT was placed on the top of a rotating table 0.8 meters above the groundat a 3 meter camber. The table was rotated 360 degrees todetermine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas 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. 4. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe 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 andthen reported in a data sheet. Test results:	AG GILL	- 16 MW V
1. The EUT was placed on the top of a rotating table 0.8 meters above the groundat a 3 meter camber. The table was rotated 360 degrees todetermine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas 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. 4. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe 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 andthen reported in a data sheet.		Doint 1-4 m
meters above the groundat a 3 meter camber. The table was rotated 360 degrees todetermine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas 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. 4. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe 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 andthen reported in a data sheet.	5	Receiver Amp.
Test results: PASS	Test Procedure:	meters above the groundat a 3 meter camber. The table was rotated 360 degrees todetermine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas 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. 4. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe 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 andthen
	Test results:	



4.7.2. Test Data

test mode: TX 802.11a 5180MHz

All the test modes completed for test. The worst case of Radiated Emission; the test data of this mode was reported.

Below 1GHz

Horizontal



OP Detector

	Suspe	cted List								
	NO.	Freq.	Factor	Reading	Level	Limit	Margin	Height	Angle	Delevity
	NO.	[MHz]	[dB]	[dBµV/m]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Polarity
	1	75.6356	-18.68	44.32	25.64	40.00	14.36	100	359	Horizontal
2	2	190.2102	-15.99	44.24	28.25	43.50	15.25	100	256	Horizontal
8	3	352.3624	-11.61	40.32	28.71	46.00	17.29	100	100	Horizontal
	4	444.6046	-9.22	45.58	36.36	46.00	9.64	100	76	Horizontal
	5	533.9339	-7.35	43.69	36.34	46.00	9.66	100	139	Horizontal
	6	742.6927	-4.02	42.24	38.22	46.00	7.78	100	143	Horizontal

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

Vertical



QP Detecto

Suspe	Suspected List										
NO.	Freq.	Factor	Reading	Level	Limit	Margin	Height	Angle	Delevity		
NO.	[MHz]	[dB]	[dBµV/m]	[dBµV/m]	[dBµV/m]	[dB]	[cm]	[°]	Polarity		
1	69.8098	-17.62	47.09	29.47	40.00	10.53	100	234	Vertical		
2	149.4294	-18.95	47.75	28.80	43.50	14.70	100	183	Vertical		
3	444.6046	-9.22	45.78	36.56	46.00	9.44	100	218	Vertical		
4	593.1632	-6.57	47.49	40.92	46.00	5.08	100	48	Vertical		
5	741.7217	-4.06	38.13	34.07	46.00	11.93	100	155	Vertical		
6	890.2803	-1.88	41.28	39.40	46.00	6.60	100	1	Vertical		

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

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

1000	100	AND
Frequency (MHz)	Level@3m (dBµV/m)	Limit@3m (dBµV/m)
(a)		O'''
	Olm	
-mG	ANTEST MIG	NAK TESTI
AKTES!	(i) h	WITES!

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.



Above 1GHz

5.2G 802.11 a Mode All modes of operation were investigated and the worst-case of Antenna 1 are reported. LOW CH 36

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	D. L. L. T.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.31	-4.59	54.72	74	-19.28	peak
3647	43.39	4.59-	38.8	54	-15.2	AVG
10360	53.55	3.74	57.29	68.2	-10.91	peak

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.67	-4.59	55.08	74 HUAK	-18.92	peak
3647	45.75	-4.59	41.16	54	-12.84	AVG
10360	50.09	3.74	53.83	68.2	-14.37	peak
emark: Factor	= Antenna Factor	+ Cable Loss –	Pre-amplifier.		TESTING	AKTESTING

MID CH40

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.72	-4.59	55.13	74	-18.87	peak
3647	46.87	-4.59	42.28	54	-11.72	AVG
10400	53.86	3.74	57.6	68.2	-10.6	peak

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
rrequericy	Meter Reading	i actor	Lillission Level	LIIIIIG	iviaigiii	Detector Type
(MHz)	(dBµV)	(dB)	。 (dBμV/m)	(dBµV/m)	(dB)	,
3647	60.89	-4.59	56.3	74	-17.7	peak
3647	43.07	-4.59	38.48	54	-15.52	AVG
10400	51.08	3.74	54.82	68.2	-13.38	peak

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



HIGH CH 48

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits د ا	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	58.58	-4.59	53.99	74	-20.01	peak
3647	42.14	-4.59	37.55	54	-16.45	AVG
10480	49.74	3.75	53.49	68.2	-14.71	peak

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.83	-4.59	55.24	74	-18.76	peak
3647	45.05	-4.59	40.46	54	-13.54	AVG
10480	50.94	3.75	54.69	68.2	-13.51	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.



5.2G 802.11n20 Mode

All modes of operation were investigated and the worst-case of MIMO are reported. LOW CH 36

Horizontal:

Factor Emission Level Limits Margin (dB) (dBμV/m) (dBμV/m) (dB) -4.59 57.17 74 -16.83 peak
(dB) (dBμV/m) (dBμV/m) (dB)
-4.59 57.17 74 -16.83 peak
-4.59 41.26 54 -12.74 AVG
3.74 57.36 68.2 -10.84 peak
Netistr.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Doto stor Tuno
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.53	-4.59	55.94	74	-18.06	peak
3647	42.72	-4.59	38.13	54	-15.87	AVG
10360	52.53	3.74	56.27	68.2	-11.93	peak

MID CH40

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Turns
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.3	-4.59	56.71	74	-17.29	peak
3647	46.61	-4.59	42.02	54	-11.98	AVG
10400	51.26	3.74	55	68.2	-13.2	peak

Vertical:

750		60000			CE-0040	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.98	-4.59	56.39	74	-17.61	peak
3647	40.5	-4.59	35.91	54	-18.09	AVG
10400	49.26	3.74	53	68.2	-15.2	peak

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



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	60.15	-4.59	55.56	74	-18.44	peak
3647	40.46	-4.59	35.87	54	-18.13	AVG
10480	52.79	3.75	56.54	68.2	-11.66	peak

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.62	-4.59	55.03	74	-18.97	peak
3647	43.41	-4.59	38.82	54	-15.18	AVG
10480	49.26	3.75	53.01	68.2	-15.19	peak
- 40	0.		- 10 hg	-	•	- uUpi-

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.



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

Horizontal:

T. V.	- W. V.	- 1	- 1/2			
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.96	-4.59	56.37	74	-17.63	peak
3647	46.43	-4.59	41.84	54	₆ -12.16	AVG
10360	49.62	3.74	53.36	68.2	-14.84	peak

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	62.72	-4.59	58.13	74	-15.87	peak
3647	46.6	-4.59	42.01	54	-11.99	AVG
10360	51.73	3.74	55.47	68.2	-12.73	peak

Remark. Factor - Antenna Factor + Cable 2055 - Fre-ampliner.



HIGH CH 46

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Turns
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.12	-4.59	55.53	74	-18.47	peak
3647	40.68	-4.59	36.09	54	-17.91	AVG
10480	52.87	3.75	56.62	68.2	-11.58	peak

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

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	62.12	-4.59	57.53	74	-16.47	peak
3647	42.38	-4.59	37.79	54	-16.21	AVG
10480	49.81	3.75	53.56	68.2	-14.64	peak
- UP	9		= UVA			- UDA

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	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.93	-4.59	57.34	74	-16.66	peak
3647	44.65	-4.59	40.06	54	-13.94	AVG
10360	53.14	3.74	56.88	68.2	·· -11.32	peak

Vertical:

Meter Reading	Factor	Emission Level	Limits	Margin	Detector Turns
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
59.42	-4.59	54.83	74	-19.17	peak
41.93	-4.59	37.34	54	-16.66	AVG
49.23	3.74	52.97	68.2	-15.23	peak
	(dBµV) 59.42 41.93	(dBµV) (dB) 59.42 -4.59 41.93 -4.59	(dBμV) (dB) (dBμV/m) 59.42 -4.59 54.83 41.93 -4.59 37.34	(dBμV) (dB) (dBμV/m) (dBμV/m) 59.42 -4.59 54.83 74 41.93 -4.59 37.34 54	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 59.42 -4.59 54.83 74 -19.17 41.93 -4.59 37.34 54 -16.66

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

AFICATION



MID CH40

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Tune
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	60.5	-4.59	55.91	74	-18.09	peak
3647	46.11	-4.59	41.52	54	-12.48	AVG
10400	53.41	3.74	57.15	68.2	-11.05	peak

Vertical:

CIO.	(II) V .	and MO.	105407		ALL MO	VOSABLY
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotootor Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	56.8	-4.59	52.21	74	-21.79	peak
3647	42.76	-4.59	38.17	54	-15.83	AVG
10400	51.33	3.74	55.07	68.2	-13.13	peak
	TESTING	HOAR	TESTIN	SA Y	Obs	TESTING

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



HIGH CH 48

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	58.55	-4.59	53.96	74	-20.04	peak
3647	41.08	-4.59	36.49	54	-17.51	AVG
10480	51.6	3.75	55.35	68.2	-12.85	peak

Vertical:

7/01	his.	1/01	SOLV AL		17/1	ACCESS ALL
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Dotostor Typo
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	62.05	-4.59	57.46	74	-16.54	peak
3647	43.79	-4.59	39.2	54	-14.8	AVG
10480	48.42	3.75	52.17	68.2	-16.03	peak
•	11/10	. 100	11/1/0		1997	11110

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 802.11ac40 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	Dotootor Tyro
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	58.87	-4.59	54.28	74	-19.72	peak
3647	42.59	-4.59	38	54	-16	AVG
10360	53.13	3.74	56.87	68.2	-11.33	peak
Remark: Factor	= Antenna Factor	+ Cable Loss –	Pre-amplifier.	lines D.	W TESTIN	S LAK TESTING

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.79	-4.59	55.2	74	-18.8	peak
3647	43.3	-4.59	38.71	54	-15.29	AVG
10360	51.83	3.74	55.57	68.2	-12.63	peak

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 Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	59.65	-4.59	55.06	74	-18.94	peak
3647	42.65	-4.59	38.06	54	-15.94	AVG
10480	55.72	3.75	59.47	68.2	-8.73	peak

Vertical:

7/01	hi-	1/01	SOLV AL			State Area
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
3647	61.01	-4.59	56.42	74	-17.58	peak
3647	46.77	-4.59	42.18	54	-11.82	AVG
10480	52.08	3.75	55.83	68.2	-12.37	peak
	1000	- 1 Dr.	ANIC		190	AUG.

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. CH 42

Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Date tunk Tes
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	 Detector Type
3647	61.29	-4.59	56.7	74	-17.3	peak
3647	46.37	-4.59	41.78	54	-12.22	AVG
10360	54.06	3.74	57.8	68.2	-10.4	peak

Vertical:

Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
61.67	-4.59	57.08	74	-16.92	peak
43.58	-4.59	38.99	54	-15.01	AVG
51.39	3.74	55.13	68.2	-13.07	peak
	(dBµV) 61.67 43.58	(dBµV) (dB) 61.67 -4.59 43.58 -4.59	(dBμV) (dB) (dBμV/m) 61.67 -4.59 57.08 43.58 -4.59 38.99	(dBμV) (dB) (dBμV/m) (dBμV/m) 61.67 -4.59 57.08 74 43.58 -4.59 38.99 54	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 61.67 -4.59 57.08 74 -16.92 43.58 -4.59 38.99 54 -15.01

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

Toet Poquiroment	ECC Part15 Section 15 407(a)
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
Remark:	N/A AFTES THE HUMETES THE HUMETES THE

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Test Result as follows:

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
HUAK	10.2V	5179.974	-26	5240.012	12
5.2G Band	12V	5180.012	12	5239.987	-13
V TESTING	13.8V	5179.996	™ -4	5239.989	-11 TESTIN

Mode	Temperature (°C)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
	-30	5179.976	-24	5240.008	8
3	-20	5180.013	13	5239.988	-12
HUAKTE	-10	5180.005	5 S	5240.012	12
	0	5179.976	-24	5239.995	-5
5.2G Band	10	5179.972	-28	5239.986	-14 ESTIV
MIAN.	20	5180.011	11	5239.976	-24
	30	5179.987	-13	5240.019	19
STING WANTESTI	40	5180.006	75 ⁷¹⁰ 6	5239.975	-25
	50	5180.031	31	5239.983	-17

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1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China



5. 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.

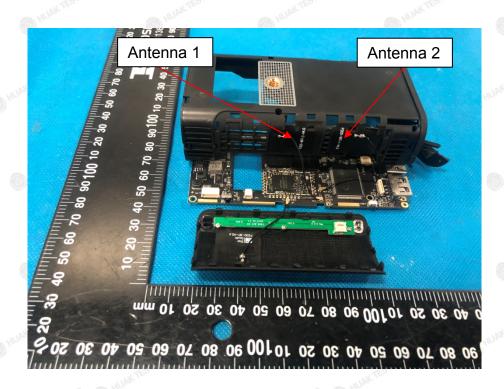
Refer to statement below for compliance.

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 Internal Antenna, which use a special interface and cannot easily replace. The directional gains of antenna used for transmitting is 1dBi.

WIFI ANTENNA

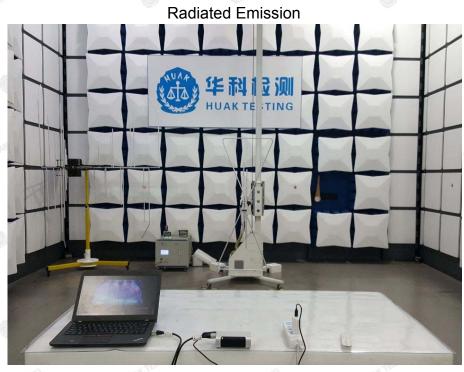


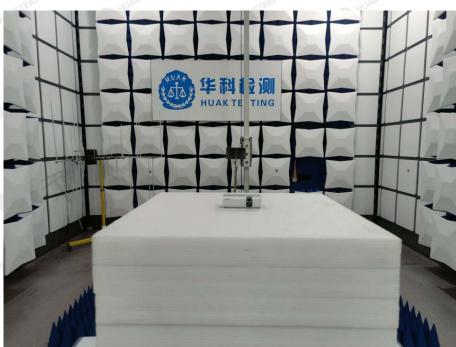
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6. PHOTOGRAPHS OF TEST SETUP





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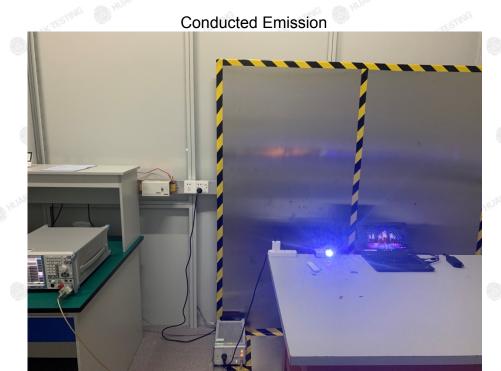
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The results shown in this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by HUAK, this document cannont be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.cer-mark.com.

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7. PHOTOS OF THE EUT

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

End of Report****