

TEST REPORT

Applicant : Faytech Tech.Co., Ltd.
Address : Room 202A and 202B, 2nd Floor, Building 8, Yunli Intelligent Park,
No. 7, Changfa Middle Road, Yangmei Community, Bantian Street,
Longgang District, Shenzhen, Guangdong, China
Manufacturer : Faytech Tech.Co., Ltd.
Address : Room 202A and 202B, 2nd Floor, Building 8, Yunli Intelligent Park,
No. 7, Changfa Middle Road, Yangmei Community, Bantian Street,
Longgang District, Shenzhen, Guangdong, China
Factory : Sichuan faytech Tech.co.
Address : FL3,Guojun road no 29,National economic and technological
development zone,Suining city,Sichuan province,China
Product Name : 32" Capacitive Touch PC Kiosk
Model Number : FT32J4125CAPHBOB
Trademark : N/A
FCC ID : 2BQK4FT32J4125CAPH
Test Date : Nov. 20, 2025 - Dec. 30, 2025
Date of Report : Dec. 30, 2025
Test Result : This device described above has been tested by BKC, and the test
results show that the equipment under test (EUT) is in compliance
with the Standard requirements. And it is applicable only to the tested
sample identified in the report.

Test Procedure Used:

Standards : FCC CFR47 Part 15 Section 15.407
ANSI C63.10:2020
RSS-247 Issue 3 August 2023
RSS-Gen Issue 5, Amendment 2 (February 2021)

Prepared by(Test Engineer):
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Jerry Liao



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1. General Information

1.1. Customer basic information

Contacts : Zhongzhong Zhou
E-Mail : 372482756@QQ.com
Telephone : 13169599359

1.2. Description of Device (EUT)

EUT Name : 32" Capacitive Touch PC Kiosk
Model No. : FT32J4125CAPHBOB
Model Difference : /
Power supply : Input:100-240Vac, 50/60Hz, 4A
Wi-Fi Specification : IEEE 802.11a/b/g/n/ac
Operation frequency : IEEE 802.11a/n/ac(20M): 5150MHz ~5250MHz/ 4 channel
IEEE 802.11n/ac(40M): 5150MHz ~5250MHz/ 2 channel
Max. RF output power: : U-NII-1:12.01dBm
Modulation : Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type : PCB antenna, Maximum Gain is -0.72dBi
Device type : Slave Device(without Radar Detection)
wireless router : The restart time for the router and the module is 120 seconds

1.3. Channel List

U-NII-1 (5.15-5.25GHz)			
channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	38	5190
40	5200	42	5210
44	5220	46	5230
48	5240		

1.4. Summary of test result

RF PART		
Test Items	Test Requirement	Result
15.407(b), 15.209 RSS-Gen 8.9, RSS-247 5.5	Radiated Spurious Emission	PASS
15.207, RSS-Gen 8.8	Conducted Emission	PASS
15.407 (a) 15.407 (e) RSS-247 5.2(a)	99% , 6dB and 26dB Bandwidth	PASS
15.407 (a) RSS-247 6.2	Maximum Conducted Output Power	PASS
15.407(b) RSS-Gen 8.9, RSS-247 5.5	Band Edge	PASS
15.407 (a), RSS-247 6.2	Power Spectral Density	PASS
15.407(g)	Frequency Stability	PASS
15.203, RSS-Gen Section 7.1.2	Antenna Requirement	PASS
Remark: N/A is an abbreviation for Not Applicable. Measurement Uncertainty is not taken into account for conformity statement		

1.5. Special Accessories and Auxiliary Equipment

Description	Manufacturer	Model No.	Hardware Version	Software Version
/	/	/	/	/

1.6. Test mode

The special RF test software was used to control EUT work in Continuous WIFI TX mode, and select test channel, wireless mode.

For 802.11a/n/ac(HT20):

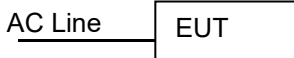
channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	40	5200
48	5240		
64	5320		

For 802.11n/ac(HT40):

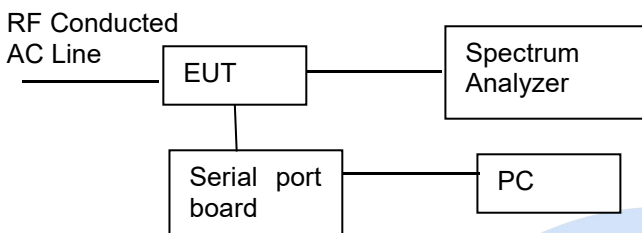
channel	Frequency(MHz)	channel	Frequency(MHz)
38	5190	46	5230

1.7. Block Diagram

Conducted Emission



Radiated Emission



1.8. Test Conditions

Category	Normal Conditions	Extreme Conditions
Temperature range	15-35°C	N/A
Humidity range	20-75%	N/A
Pressure range	86-106kPa	N/A
Power supply	AC 120V 60Hz	N/A

Note: N/A is an abbreviation for Not Applicable.

1.9. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for radio frequency	$\pm 7 \times 10^{-8}$	
Conducted Emissions (150kHz~30MHz)	$\pm 2.54\text{dB}$	
Radiated Emission(9KHz~30MHz)	$\pm 1.6\text{ dB}$	
Radiated Emission(30MHz~1GHz)	Vertical: $\pm 4.14\text{dB}$ Horizontal: $\pm 4.25\text{dB}$	
Radiated Emission(1GHz~6GHz)	$\pm 3.9\text{dB}$	
Radiated Emission(6GHz~18GHz)	$\pm 4.3\text{dB}$	
Radiated Emission(18GHz~40GHz)	$\pm 3.38\text{dB}$	
Uncertainty for conducted RF Power	$\pm 0.20\text{dB}$	
Conducted spurious emissions	$\pm 0.24\text{dB}$	
Uncertainty for temperature	0.6°C	
Uncertainty for humidity	1%	
Bandwidth	$\pm 1.5 \times 10^{-6}$	
Time	$\pm 2\%$	
Duty Cycle	$\pm 2\%$	

Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%

1.10. Test Facility

Site Description		
Name of Firm	:	Shenzhen BKC Testing Co., Ltd.
Site Location	:	Room 103, 1/F, Huaya Building, Huaya Industrial Park, Longhua Community, Longhua District, Shenzhen, Guangdong, China.
ISED CAB identifier	:	CN0188
ISED Company Number	:	34333
FCC Designation Number	:	CN1416
FCC Test Firm Registration Number	:	701543

1.11. Test Equipment

Conducted Test Site

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	102762	Mar. 10. 2025	Mar. 09. 2026
2	EMI Test Receiver	R&S	ESCI	101424	Mar. 10. 2025	Mar. 09. 2026
3	Rf cables	HTEC	HCE 2M-CE	N/A	Mar. 10. 2025	Mar. 09. 2026
4	Coupling/ Decoupling Network	Diamond	CX210	N/A	Mar. 10. 2025	Mar. 09. 2026
5	CE Testing software	EZ	EZ-EMC	/	/	/

Radiated Test Site(Below 1G and Above 1G)

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Antenna	Schwarzbeck	VULB 9168	01321	Mar. 20. 2025	Mar. 19. 2028
2	EMI Test Receiver	R&S	ESRP	101478	Mar. 10. 2025	Mar. 09. 2026
3	Preamplifier	HP	8447D	2727A05345	Mar. 10. 2025	Mar. 09. 2026
4	Double Ridged Broadband	SCHWARZBECK	BBHA 9120D	02621	Mar. 10. 2025	Mar. 19. 2028
5	Preamplifier	Schwarzbeck	BBV 9718D	00041	Mar. 10. 2025	Mar. 09. 2026
6	Rf cables	HUBER+SUHNER	8M-RE	N/A	Mar. 10. 2025	Mar. 09. 2026
7	Rf cables	HUBER+SUHNER	1.5M-RE	N/A	Mar. 10. 2025	Mar. 09. 2026
8	Rf cables	HUBER+SUHNER	1.5M-AP-RE	N/A	Mar. 10. 2025	Mar. 09. 2026
9	Loop antenna	TESEQ	HLA6121	58357	Mar. 09. 2025	Mar. 10. 2026
10	Spectrum analyzer	R&S	FSP40	200061	Feb. 13. 2025	Feb. 12. 2026

11	Double Ridged Broadband Horn Antenna	COM-POWER	AH-1840	10100009	Mar. 10. 2025	Mar. 09. 2026
12	Spectrum	Agilent	N9020A	MY50510311	Mar. 09. 2025	Mar. 10. 2026
13	RE Testing software	EZ	EZ-EMC	/		/

RF Test Site

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum	Agilent	N9020A	MY50510311	Mar. 09. 2025	Mar. 10. 2026
2	Vector source	Agilent	N5182A	MY47420223	Mar. 09. 2025	Mar. 10. 2026
3	All instrument	Rohde & Schwarz	CMW 500	101131	Mar. 09. 2025	Mar. 10. 2026
4	control unit	MW	MW100-RFCB	MW200411BK-34	Mar. 09. 2025	Mar. 10. 2026
5	RF Testing software	MW	MTS 8310	/	Mar. 09. 2025	/
6	Spectrum analyzer	R&S	FSP40	200061	Feb. 13. 2025	Feb. 12. 2026

Test software

Software name	RF Testing software
Software version	2.0.0.0
Software name	RE Testing software
Software version	EMEC-03A2 RE+
Software name	CE Testing software
Software version	EMEC-3A1+

2. Conducted emission at the mains terminals test

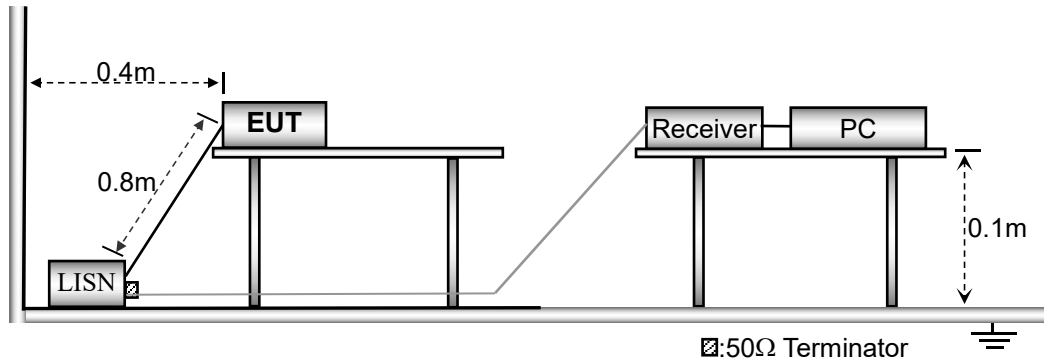
2.1.Limit

Test Requirement:	FCC Part15 C Section 15.207, RSS-Gen 8.8
Test Method:	ANSI C63.10:2020
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

- Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.2. Test Setup



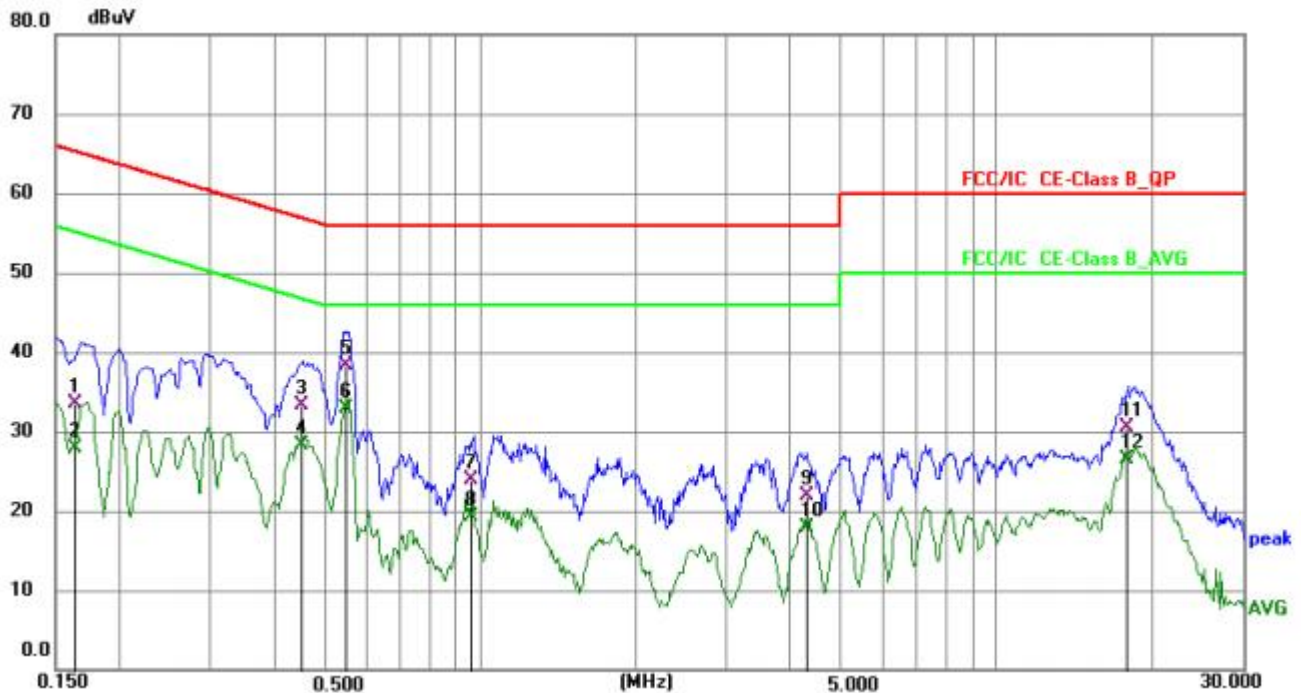
2.3. Test Procedure

1. The EUT was placed 0.1 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
2. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
4. LISN at least 80 cm from nearest part of EUT chassis.
5. For the actual test configuration, please refer to the related Item - EUT Test Photos.

2.4. Test Result

Conducted Emission At The Mains Terminals Test Data

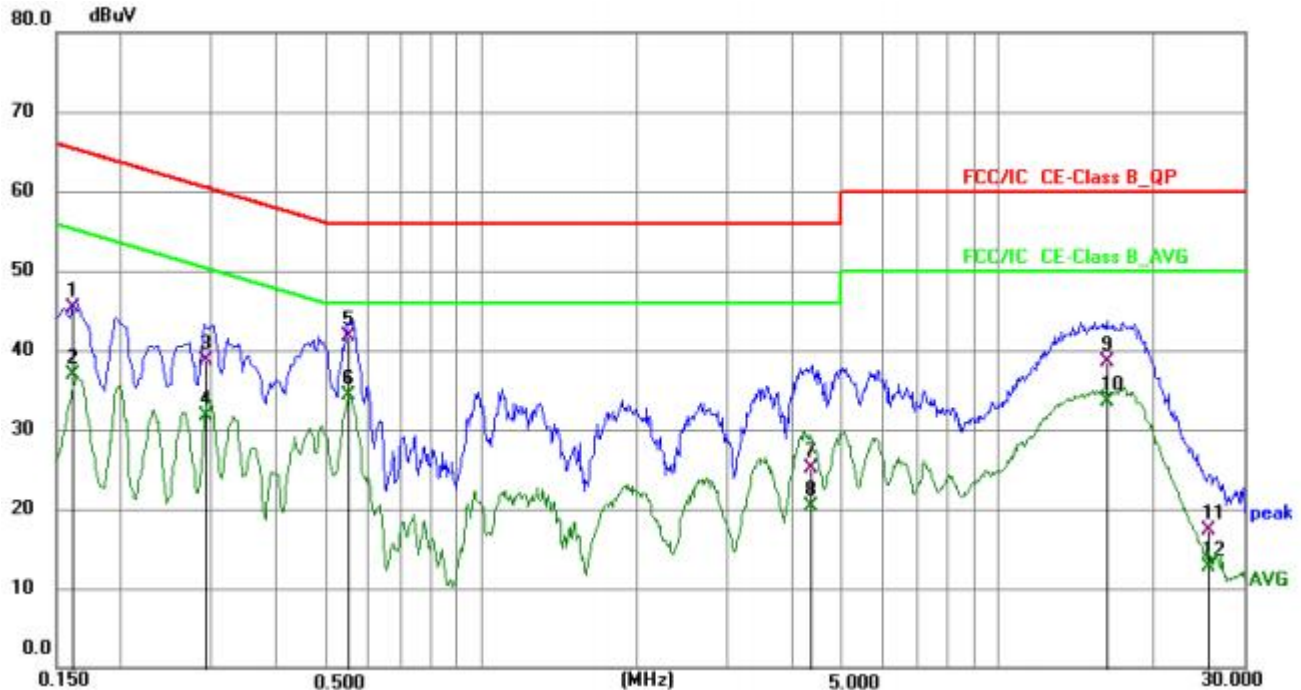
Temperature:	25.1°C	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	Line
Test Voltage :	AC 120V/60Hz	Test Mode:	802.11a 5180MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1634	23.97	9.56	33.53	65.29	-31.76	QP	P	
2	0.1634	18.39	9.56	27.95	55.29	-27.34	AVG	P	
3	0.4500	23.76	9.63	33.39	56.88	-23.49	QP	P	
4	0.4500	18.70	9.63	28.33	46.88	-18.55	AVG	P	
5	0.5505	28.65	9.65	38.30	56.00	-17.70	QP	P	
6 *	0.5505	23.35	9.65	33.00	46.00	-13.00	AVG	P	
7	0.9631	14.40	9.54	23.94	56.00	-32.06	QP	P	
8	0.9631	9.77	9.54	19.31	46.00	-26.69	AVG	P	
9	4.2910	12.39	9.53	21.92	56.00	-34.08	QP	P	
10	4.2910	8.33	9.53	17.86	46.00	-28.14	AVG	P	
11	17.9513	20.89	9.66	30.55	60.00	-29.45	QP	P	
12	17.9513	16.84	9.66	26.50	50.00	-23.50	AVG	P	

Conducted Emission At The Mains Terminals Test Data

Temperature:	25.1°C	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	Neutral
Test Voltage :	AC 120V/60Hz	Test Mode:	802.11a 5180MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1620	35.84	9.56	45.40	65.36	-19.96	QP	P	
2	0.1620	27.37	9.56	36.93	55.36	-18.43	AVG	P	
3	0.2925	29.11	9.68	38.79	60.45	-21.66	QP	P	
4	0.2925	22.11	9.68	31.79	50.45	-18.66	AVG	P	
5	0.5532	31.98	9.65	41.63	56.00	-14.37	QP	P	
6 *	0.5532	24.75	9.65	34.40	46.00	-11.60	AVG	P	
7	4.3576	15.54	9.53	25.07	56.00	-30.93	QP	P	
8	4.3576	10.69	9.53	20.22	46.00	-25.78	AVG	P	
9	16.2576	28.70	9.73	38.43	60.00	-21.57	QP	P	
10	16.2576	23.83	9.73	33.56	50.00	-16.44	AVG	P	
11	25.7227	7.62	9.67	17.29	60.00	-42.71	QP	P	
12	25.7227	2.95	9.67	12.62	50.00	-37.38	AVG	P	

3. Radiated Spurious Emissions

3.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.407, RSS-Gen 8.9
RSS-247 5.5

Test Method: KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018;
ANSI C63.10:2020

Test Result: PASS

Measurement Distance: 3m

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	20log(2400/F(kHz)) + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log(24000/F(kHz)) + 40
1.705 ~ 30	30	30	100 * 30	20log(30) + 40
30 ~ 88	100	3	100	20log(100)
88 ~ 216	150	3	150	20log(150)
216 ~ 960	200	3	200	20log(200)
Above 960	500	3	500	20log(500)

Undesirable emission limits

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (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.
- (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.

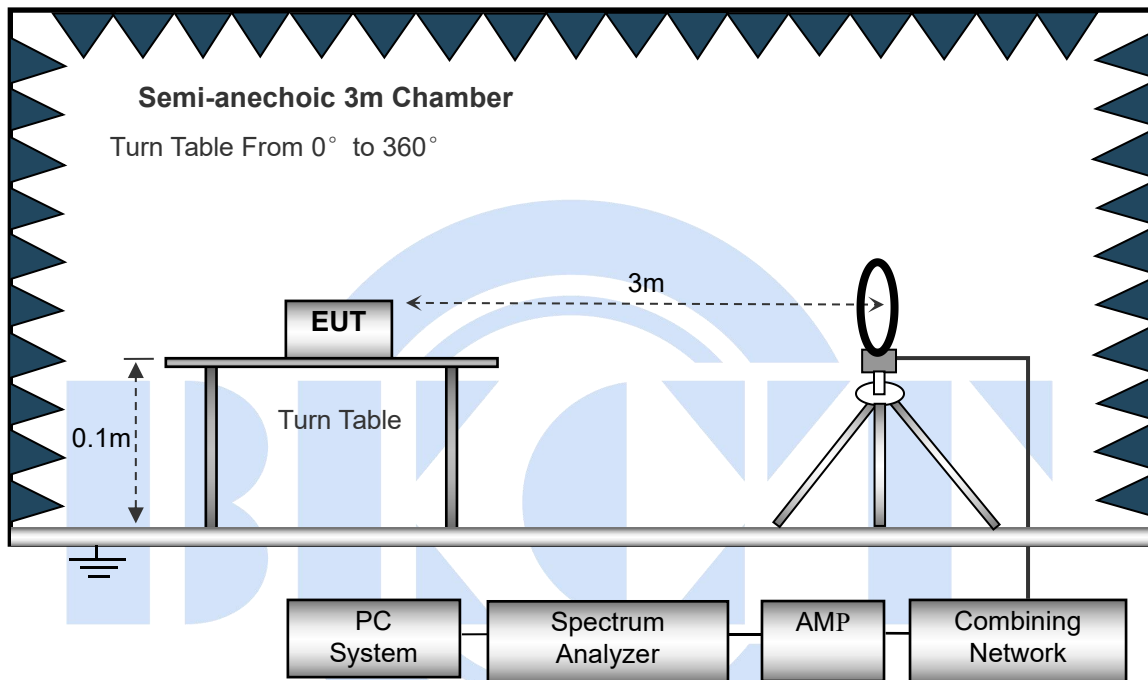
Requirement	Limit(EIRP)	Limit (Field strength at 3m)
15.407(b)(1)	PK:-27(dBm/MHz)	PK:68.2(dB μ V/m)

15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)		

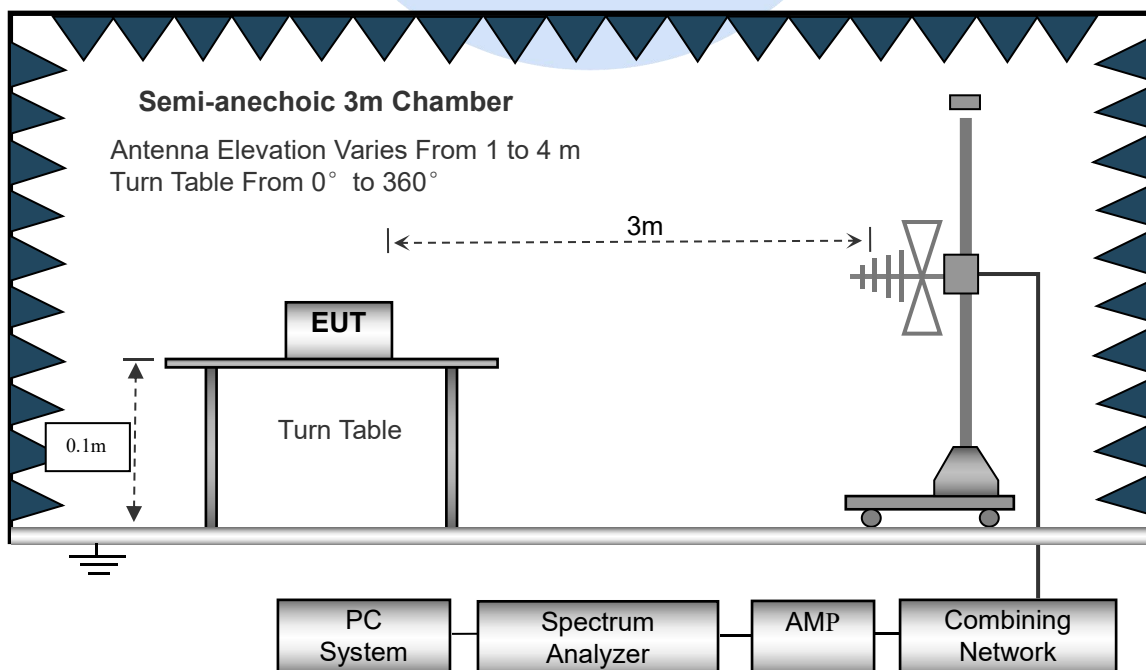
3.2.Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

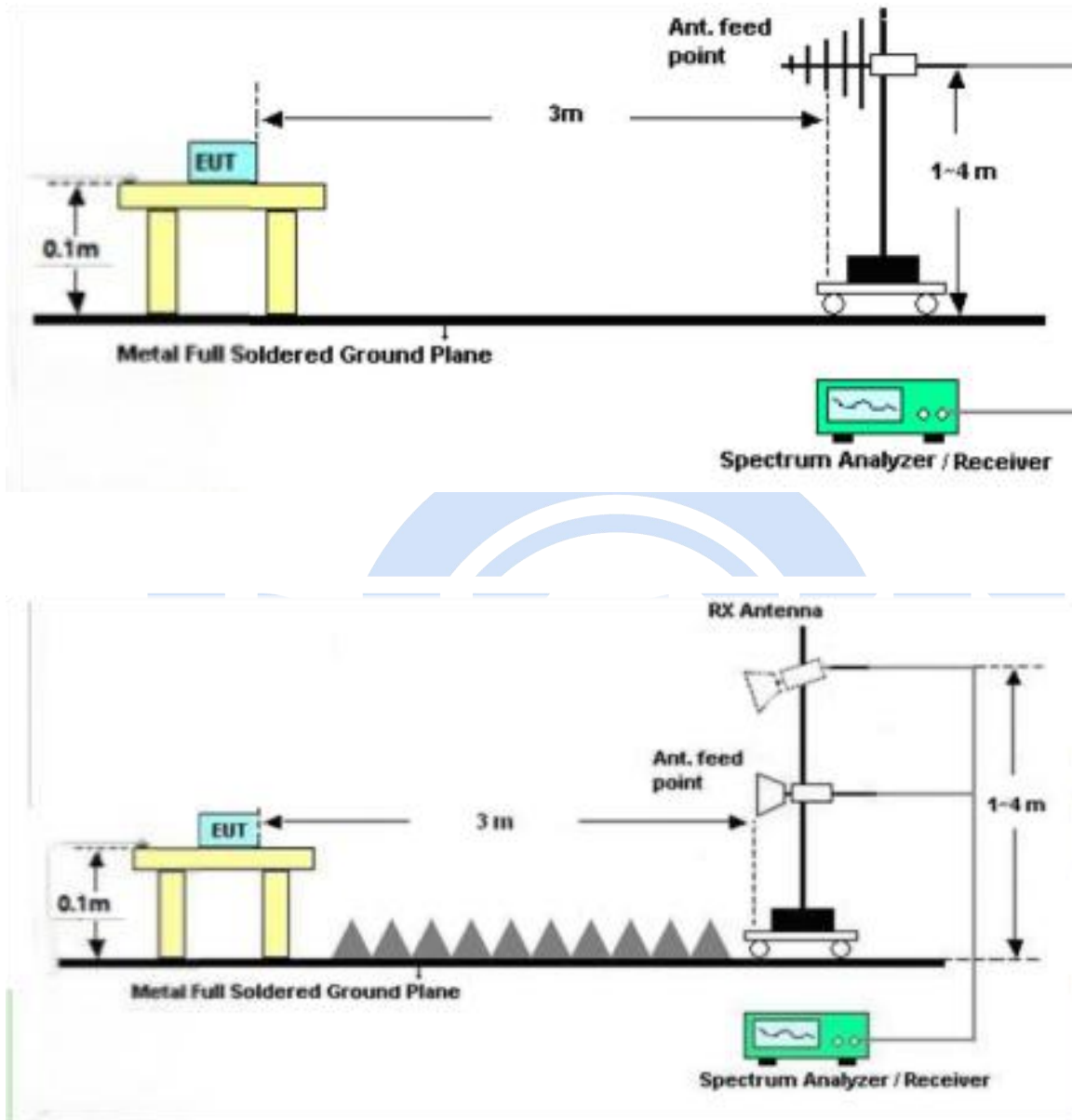
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



3.3. Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in Z axis,so the worst data were shown as follow.
8. A 2.4GHz high - pass filter is used during radiated emissions above 1GHz measurement.



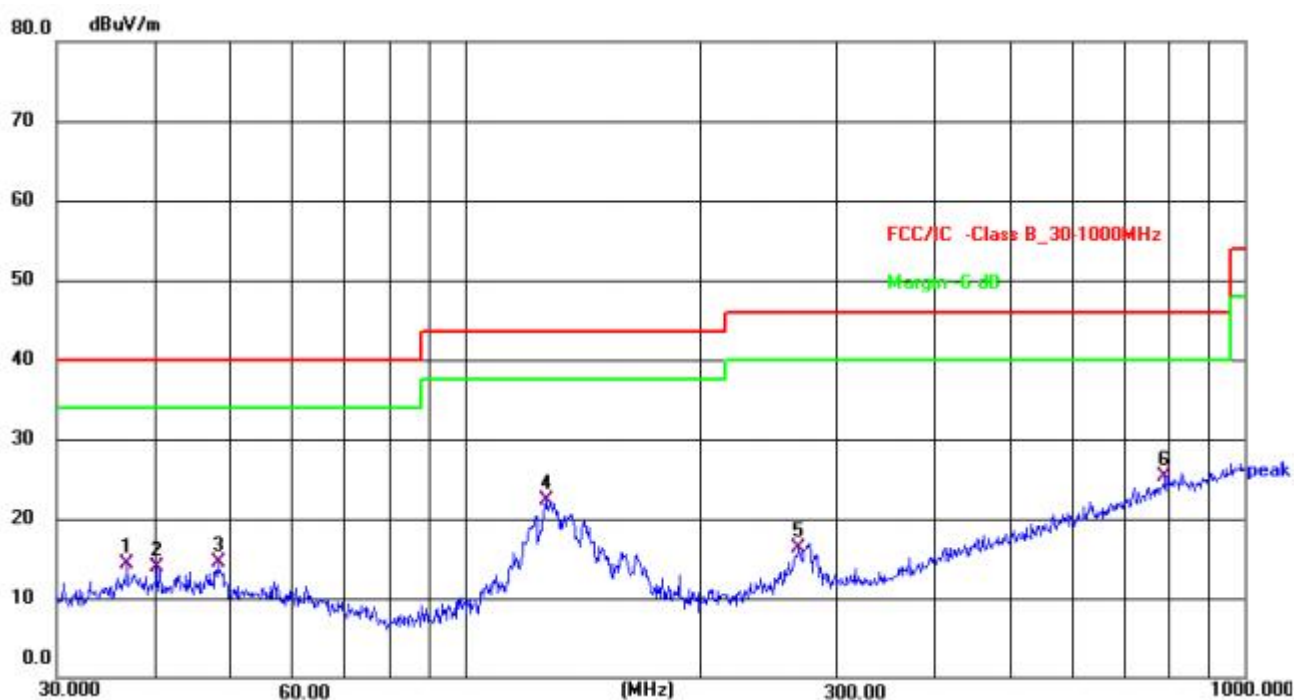
3.4. Test Result

Test Frequency: 9KHz~30MHz

The measurements were more than 20 dB below the limit and not reported.

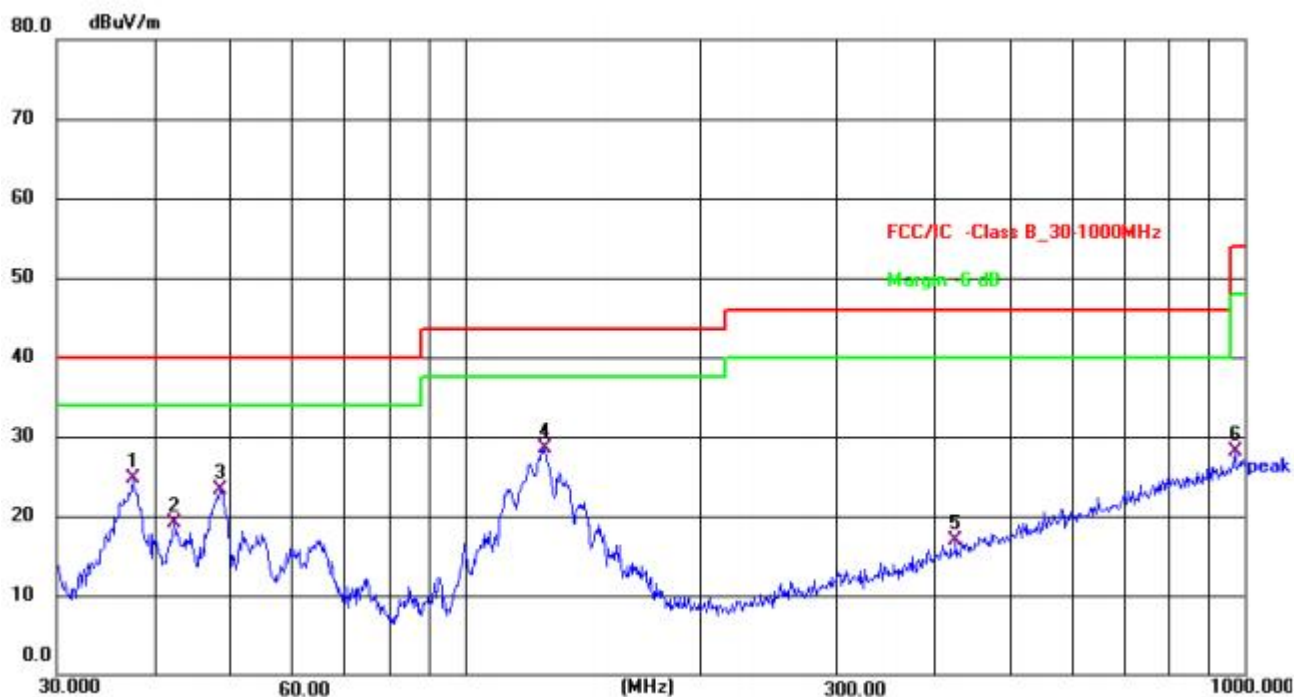
Test Frequency : 30MHz ~ 1GHz

Radiation Emission Test Data			
Temperature:	25.1°C	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	Horizontal
Test Voltage :	AC 120V/60Hz	Test Mode:	802.11a 5180MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.8952	30.38	-16.15	14.23	40.00	-25.77	QP
2	40.2754	29.65	-15.71	13.94	40.00	-26.06	QP
3	48.3316	30.96	-16.40	14.56	40.00	-25.44	QP
4	127.2176	40.06	-17.78	22.28	43.50	-21.22	QP
5	268.4852	33.49	-17.27	16.22	46.00	-29.78	QP
6 *	790.6186	29.95	-4.67	25.28	46.00	-20.72	QP

Radiation Emission Test Data			
Temperature:	25.1°C	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	802.11a 5180MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.5479	40.77	-16.05	24.72	40.00	-15.28	QP
2	42.4508	34.96	-15.82	19.14	40.00	-20.86	QP
3	48.6719	39.67	-16.44	23.23	40.00	-16.77	QP
4 *	126.7723	46.25	-17.80	28.45	43.50	-15.05	QP
5	426.5210	29.31	-12.49	16.82	46.00	-29.18	QP
6	972.3374	30.42	-2.35	28.07	54.00	-25.93	QP

U-NII-1 802.11a

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low Channel:5180MHz									
V	10360	53.84	30.55	5.77	24.66	53.72	74	-20.28	PK
V	10360	43.64	30.55	5.77	24.66	43.52	54	-10.48	AV
V	15540	54.80	30.33	6.32	24.55	55.34	68.2	-12.86	PK
V	15540	43.93	30.33	6.32	24.55	44.47	54	-9.53	AV
V	20720	54.17	30.85	7.45	24.69	55.46	68.2	-12.74	PK
V	20720	43.26	30.85	7.45	24.69	44.55	54	-9.45	AV
V	25900	51.47	31.02	8.99	25.57	55.01	68.2	-13.19	PK
V	25900	43.33	31.02	8.99	25.57	46.87	54	-7.13	AV
H	10360	51.58	30.55	5.77	24.66	51.46	74	-22.54	PK
H	10360	43.17	30.55	5.77	24.66	43.05	54	-10.95	AV
H	15540	50.43	30.33	6.32	24.55	50.97	68.2	-17.23	PK
H	15540	43.11	30.33	6.32	24.55	43.65	54	-10.35	AV
H	20720	50.88	30.85	7.45	24.69	52.17	74	-21.83	PK
H	20720	43.85	30.85	7.45	24.69	45.14	54	-8.86	AV
H	25900	52.76	31.02	8.99	25.57	56.30	68.2	-11.9	PK
H	25900	43.21	31.02	8.99	25.57	46.75	54	-7.25	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Middle Channel:5200MHz									
V	10400	53.93	30.55	5.77	24.66	53.81	74	-20.19	PK
V	10400	43.45	30.55	5.77	24.66	43.33	54	-10.67	AV
V	15600	50.16	30.33	6.32	24.55	50.70	68.2	-17.5	PK
V	15600	43.88	30.33	6.32	24.55	44.42	54	-9.58	AV
V	20800	54.88	30.85	7.45	24.69	56.17	68.2	-12.03	PK
V	20800	43.93	30.85	7.45	24.69	45.22	54	-8.78	AV
V	26000	50.55	31.02	8.99	25.57	54.09	68.2	-14.11	PK
V	26000	43.80	31.02	8.99	25.57	47.34	54	-6.66	AV
H	10400	54.26	30.55	5.77	24.66	54.14	74	-19.86	PK
H	10400	43.72	30.55	5.77	24.66	43.60	54	-10.4	AV
H	15600	51.99	30.33	6.32	24.55	52.53	68.2	-15.67	PK
H	15600	43.72	30.33	6.32	24.55	44.26	54	-9.74	AV
H	20800	52.05	30.85	7.45	24.69	53.34	74	-20.66	PK
H	20800	43.07	30.85	7.45	24.69	44.36	54	-9.64	AV
H	26000	52.92	31.02	8.99	25.57	56.46	68.2	-11.74	PK
H	26000	43.08	31.02	8.99	25.57	46.62	54	-7.38	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampli fier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:5240MHz									
V	10480	50.10	30.55	5.77	24.66	49.98	74	-24.02	PK
V	10480	43.37	30.55	5.77	24.66	43.25	54	-10.75	AV
V	15720	54.41	30.33	6.32	24.55	54.95	68.2	-13.25	PK
V	15720	43.74	30.33	6.32	24.55	44.28	54	-9.72	AV
V	20960	53.49	30.85	7.45	24.69	54.78	68.2	-13.42	PK
V	20960	43.52	30.85	7.45	24.69	44.81	54	-9.19	AV
V	26200	53.50	31.02	8.99	25.57	57.04	68.2	-11.16	PK
V	26200	43.05	31.02	8.99	25.57	46.59	54	-7.41	AV
H	10480	52.26	30.55	5.77	24.66	52.14	74	-21.86	PK
H	10480	43.83	30.55	5.77	24.66	43.71	54	-10.29	AV
H	15720	51.97	30.33	6.32	24.55	52.51	68.2	-15.69	PK
H	15720	43.53	30.33	6.32	24.55	44.07	54	-9.93	AV
H	20960	52.92	30.85	7.45	24.69	54.21	74	-19.79	PK
H	20960	43.85	30.85	7.45	24.69	45.14	54	-8.86	AV
H	26200	52.27	31.02	8.99	25.57	55.81	68.2	-12.39	PK
H	26200	43.88	31.02	8.99	25.57	47.42	54	-6.58	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss - Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
4. The worst mode is 802.11a, only the worst data is recorded.

Restrict Band EMISSION MEASUREMENT

U-NII-1

	Polar (H/V)	Frequenc y (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Margi n(dB)	Detect or Type
802.11a	Low Channel: 5180MHz									
	H	5150	54.53	30.22	4.85	23.98	53.14	74.00	-20.86	PK
	H	5150	44.03	30.22	4.85	23.98	42.64	54.00	-11.36	AV
	H	5145	54.23	30.22	4.85	23.98	52.84	74.00	-21.16	PK
	H	5145	44.63	30.22	4.85	23.98	43.24	54.00	-10.76	AV
	V	5150	53.37	30.22	4.85	23.98	51.98	74.00	-22.02	PK
	V	5150	44.06	30.22	4.85	23.98	42.67	54.00	-11.33	AV
	V	5145	53.01	30.22	4.85	23.98	51.62	74.00	-22.38	PK
	V	5145	44.94	30.22	4.85	23.98	43.55	54.00	-10.45	AV
	High Channel: 5230MHz									
	H	5350	54.16	30.22	4.85	23.98	52.77	74.00	-21.23	PK
	H	5350	44.81	30.22	4.85	23.98	43.42	54.00	-10.58	AV
	H	5370	53.19	30.22	4.85	23.98	51.80	74.00	-22.20	PK
	H	5370	44.45	30.22	4.85	23.98	43.06	54.00	-10.94	AV
	V	5350	53.95	30.22	4.85	23.98	52.56	74.00	-21.44	PK
	V	5350	44.30	30.22	4.85	23.98	42.91	54.00	-11.09	AV
	V	5370	54.21	30.22	4.85	23.98	52.82	74.00	-21.18	PK
	V	5370	44.03	30.22	4.85	23.98	42.64	54.00	-11.36	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. . The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
3. All the modes have tested and recorded the worst mode(802.11a) in the report

4. Maximum Peak Output Power

4.1.Limit

According to FCC §15.407, RSS-247 6.2

For an outdoor access point operating in the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

For the band 5.725–5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

According to RSS-247 6.2

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

4.2.Test Setup



4.3.Test Procedure

The EUT was directly connected to the Power meter

1. Device Configuration

If possible, configure or modify the operation of the EUT so that it transmits continuously at its maximum power control level (see section II.B.).

The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.

b) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations (e.g., overheating), the EUT shall be operated at its maximum power control level with the transmit duration as long as possible and the duty cycle as high as possible.

2. Measurement using a Spectrum Analyzer or EMI Receiver (SA)

Measurement of maximum conducted output power using a spectrum analyzer requires integrating the spectrum across a frequency span that encompasses, at a minimum, either the EBW or the 99-percent occupied bandwidth of the signal.¹ However, the EBW must be used to determine bandwidth dependent limits on maximum conducted output power in accordance with § 15.407(a).

a) The test method shall be selected as follows: (i) Method SA-1 or SA-1 Alternative (averaging with the EUT transmitting at full power throughout each sweep) shall be applied if either of the following conditions can be satisfied:

- The EUT transmits continuously (or with a duty cycle ≥ 98 percent).
- Sweep triggering or gating can be implemented in a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep (with the analyzer configured as in Method SA-1, below) is equal to or shorter than the duration T of each transmission from the EUT and if those transmissions exhibit full power throughout their durations.

(ii) Method SA-2 or SA-2 Alternative (averaging across on and off times of the EUT transmissions, followed by duty cycle correction) shall be applied if the conditions of (i) cannot be achieved and the transmissions exhibit

a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than ± 2 percent.

(iii) Method SA-3 (RMS detection with max hold) or SA-3 Alternative (reduced VBW with max hold) shall be applied if the conditions of (i) and (ii) cannot be achieved.

b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep): (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".

(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum

4.4. Test Result

Please see the attachment for WIFI 5G data.

5. -26 dB Bandwidth,-6dB Bandwidth and 99% Bandwidth Measurement

5.1.Limit

Test Standard	FCC Part15 C Section 15.407,RSS-247 5.2(a)
	The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band, the minimum bandwidth 6 dB bandwidth of U-NII devices shall be at least 500KHz. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

5.2.Test Setup



5.3.Test Procedure

- Set RBW = approximately 1 % of the EBW.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

The following procedure shall be used for measuring (99 %) power bandwidth:

- Set center frequency to the nominal EUT channel center frequency.
- Set span = 1.5 times to 5 times the OBW.
- Set RBW = 1 % to 5 % of the OBW
- Set VBW $\geq 3 \cdot$ RBW
- Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- Use the 99 % power bandwidth function of the instrument (if available).
- If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

5.4.Test Result

Please see the attachment for WIFI 5G data.

6. Power Spectral density

6.1.Limit

According to FCC § 15.407(3),RSS-247 6.2

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum

power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

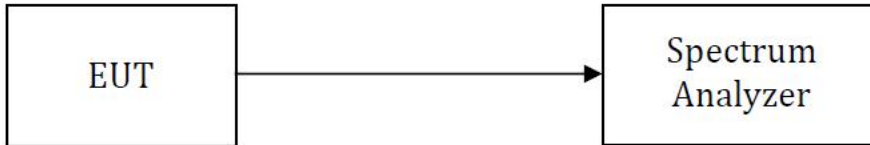
According to RSS-247 6.2

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log 10B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz

band.

6.2. Test Setup



6.3. Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above,
2. The testing follows FCC KDB 789033 D02.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
4. For U-NII1, U-NII-2A, U-NII-2C Band:
Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
For U-NII-3 Band:
Set RBW=510 kHz, VBW=3*RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)
5. Use the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).

6.4. Test Result

Please see the attachment for WIFI 5G data.

7. Out of Band Emissions and Spurious Emission

7.1.Limit

According to FCC §15.407(b), RSS-Gen 8.9, RSS-247 5.5

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(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.

(2) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

RSS-247 Section 6.2

Devices shall comply with the following:

All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.; or

All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device, except devices installed in vehicles, shall be labelled or include in the user manual the following text "for indoor use only."

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 Bm/MHz at 5 MHz above or below the band edges;

15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;

10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

7.2.Test Setup



7.3.Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

7.4.Test Result

Please see the attachment for WIFI 5G data.

8. Frequency Stability Measurement

8.1.Limit

FCC

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band(IEEE802.11n specification).

IC

If the frequency stability of the licence-exempt radio apparatus is not specified in the applicable RSS, the fundamental emissions of the radio apparatus should be kept within at least the central 80% of its permitted operating frequency band in order to minimize the possibility of out-of-band operation. In addition, its occupied bandwidth shall be entirely outside the restricted bands and the prohibited TV bands of 54-72 MHz, 76-88 MHz, 174-216 MHz, and 470-602 MHz, unless otherwise indicated.

8.2.Test setup



8.3.Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 20 ppm (IEEE 802.11n specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
Extreme temperature is $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

8.4. Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	1012 hPa	Test Voltage :	AC 120/60Hz
Test Mode :	TX		

U-NII-1

Reference Frequency(Middle Channel): 5200MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF	Error (ppm)
50	120	21	0.00363
40	120	24	0.00415
30	120	32	0.00553
20	120	22	0.0038
10	120	12	0.00207
0	120	32	0.00553
-10	120	24	0.00415
-20	120	22	0.0038
-30	120	12	0.00207

So, Frequency Stability Versus Input Voltage is:

U-NII-1

Reference Frequency(Middle Channel): 5180 MHz			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency	Error (ppm)
20	120	44	0.00759
	108	43	0.00743
	132	42	0.00725

All the modes have tested and recorded the worst mode(802.11a Middle Channel) in the report



9. Antenna Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	1) 15.203 requirement: 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. According to RSS-GEN section 6.8 The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list. For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below). When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer. The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested. For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location: This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device. Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.
Antenna Connected Construction	The antenna is PCB Antenna which permanently attached, and the best case gain of the antenna is (-0.72dBi). It complies with the standard requirement.

10. Test Photographs

Please see the attachment for Test Photographs.

Appendix I: Photos of the EUT

Please see the attachment

