FCC TEST REPORT
FCC ID: 2A242-CP20

Report Number	ZKT-210904L278-03
Date of Test	Aug. 26, 2021 -- Sep. 14, 2021
Date of issue	Sep. 14, 2021
Total number of pages	47
Test Result	PASS
Testing Laboratory	**Shenzhen ZKT Technology Co., Ltd.**
Address	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name	SHENZHEN ZHENYI INTELLIGENT TECH CO., LTD
Address	701 Building A, Haohe Zhichuang, No.10, Fuyuan, 2nd road Zhancheng Community, Fuhai Street, BaoAn District, Shenzhen, Guangdong, China
Manufacturer's name	SHENZHEN PEICHENG TECHNOLOGY CO.,LTD
Address	5th floor, 64 building,baotian Industrial Zone,qianjin 2nd road,xixiang,bao'an District, Shenzhen,Guangdong, China
Test specification:	
Standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10:2013 KDB 789033 D02 V01r02
Test procedure	/
Non-standard test method	N/A
Test Report Form No.	TRF-EL-110_V0
Test Report Form(s) Originator	ZKT Testing
Master TRF	Dated: 2020-01-06

This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Product name	tablet PC
Trademark	ZZB
Model/Type reference	CP20
Ratings	DC 3.7V from battery DC 5V 2A from adapter or others

Testing procedure and testing location:

Testing Laboratory.....	**:**	**Shenzhen ZKT Technology Co., Ltd.**
Address.....	:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Tested by (name + signature).....	:	Alen He
Reviewer (name + signature).....	:	Joe Liu
Approved (name + signature).....	:	Lake Xie

Table of Contents

1. VERSION

Report No.	Version	Description	Approved
ZKT-210904L278-03	Rev.01	Initial issue of report	Sep. 14, 2021

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Result	Remark
15.203/15.247 (c)	Antenna requirement	PASS	
15.207	AC Power Line Conducted Emission	PASS	
15.407 (a) (b)	Spurious Radiated Emissions and Band Edge	PASS	
15.407 (e)	6 dB bandwidth	PASS	
15.407 (a)	Power Spectral Density	PASS	
15.407 (a)(1)(2)(3)	Maximum conducted output power	PASS	
15.407 (g)	Frequency Stability	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.
Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225
Designation Number: CN1299
IC Registered No.: 27033

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U · where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2 · providing a level of confidence of approximately 95 % 。

No.	tem	ncertainty
1	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.3dB
2	3m chamber Radiated spurious emission(1GHz-18GHz)	U=4.5dB
3	3m chamber Radiated spurious emission(18GHz-40GHz)	U=3.34dB
4	Conducted Adjacent channel power	U=1.38dB
5	Conducted output power uncertainty Above 1G	U=1.576dB
6	Conducted output power uncertainty below 1G	U=1.28dB
7	humidity uncertainty	U=5.3%
8	Temperature uncertainty	U=0.59℃
9	Radiated disturbance(30MHz-1000MHz)	U=4.8dB
10	Radiated disturbance(1GHz-6GHz)	U=4.9dB
11	Radiated disturbance(1GHz-18GHz)	U=5.0dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	tablet PC	
Model No.:	CP20	
Model Different.:	/	
Serial No.:	N/A	
Hardware Version:	V1.0	
Software Version:	V1.0	
Sample(s) Status:	Engineer sample	
	IEEE802.11 WLAN mode supported	802.11n/ac(20MHz channel bandwidth) 802.11n/ ac (40MHz channel bandwidth)
	Date rate	802.11ac:MCS0-MCS9 802.11n: MCS0-MCS7
	Modulation	OFDM
	Frequency Range :	IEEE802.11 ac /n (HT20): 5745-5825 MHz IEEE802.11 ac /n (HT40): 5755-5795 MHz
	Channels	IEEE802.11 ac /n (HT20): 5 IEEE802.11 ac /n (HT40): 2
Antenna Type:	FPCantenna	
Antenna gain:	1.09dBi	
Power supply:	DC 3.7V from battery DC 5V 2A from adapter or others	

Frequency and Channel list for 802.11n/ac(20MHz) band IV(5725-5850MHz)

802.11n-HT20/ac-VHT20 carrier frequency channel							
Channel	frequency	Channel	frequency	Channel	frequency	Channel	frequency
149	5745 MHz	153	5765MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz						

Frequency and Channel list for 802.11n/ac(40MHz) band IV(5755-5795MHz)

802.11n-HT20/ac-VHT20 carrier frequency channel							
Channel	frequency	Channel	frequency	Channel	frequency	Channel	frequency

151	5755 MHz	159	5795MHz				

3.2 DESCRIPTION OF TEST MODES

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Mode	Tx/Rx Frequency	Test RF Channel Lists		
		Lowest(L)	Middle(M)	Highest(H)
IEEE 802.11n-20 IEEE 802.11ac20	5725 MHz to 5850 MHz	Channel 149	Channel 157	Channel 165
		5745 MHz	5785 MHz	5825 MHz
IEEE 802.11n-40 IEEE 802.11ac-40	5725 MHz to 5850 MHz	Channel 151	--	Channel 159
		5755 MHz	--	5795 MHz

Worst Case Configuration: transmitting both 2.4GHz mode and 5GHz mode

Description	2.4 GHz Emission	5 GHz Emission
Antenna	ANT1	ANT1
Channel	1	38
Operating Frequency (MHz)	2462	802.11ac-20
Data Rate (Mbps)	DSSS/1Mbps	OFDM/13.5Mbps
Mode	2.4GWIFI-802.11b	UNII-AC20

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission

AC Line — EUT

Radiated Emission

AC Line — EUT

Conducted Spurious

EUT

3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1					

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

3.5EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY45109572	Sep. 22, 2020	Sep. 21, 2021
2	Spectrum Analyzer (1GHz-40GHz)	Agilent	E4446A	100363	Sep. 22, 2020	Sep. 21, 2021
3	Test Receiver (9kHz-7GHz)	R&S	ESCI7	101169	Sep. 22, 2020	Sep. 21, 2021
4	Bilog Antenna (30MHz-1400MHz)	Schwarzbeck	VULB9168	00877	Sep. 22, 2020	Sep. 21, 2021
5	Horn Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA9120D	1541	Sep. 22, 2020	Sep. 21, 2021
6	Horn Antenna (18GHz-40GHz)	A.H. System	SAS-574	588	Sep. 22, 2020	Sep. 21, 2021
7	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	N/A	Sep. 22, 2020	Sep. 21, 2021
8	Amplifier (1GHz-40GHz)	QUANJUDA	DLE-161	097	Sep. 22, 2020	Sep. 21, 2021
9	Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519B	014	Sep. 22, 2020	Sep. 21, 2021
10	RF cables1 (9kHz-30MHz)	N/A	9kHz-30MHz	N/A	Sep. 22, 2020	Sep. 21, 2021
11	RF cables2 (30MHz-1GHz)	N/A	30MHz-1GHz	N/A	Sep. 22, 2020	Sep. 21, 2021
12	RF cables3 (1GHz-40GHz)	N/A	1GHz-40GHz	N/A	Sep. 22, 2020	Sep. 21, 2021
13	CMW500 Test	R&S	CMW500	106504	Sep. 22, 2020	Sep. 21, 2021
14	ESG Signal Generator	Agilent	E4421B	GB40051203	Sep. 22, 2020	Sep. 21, 2021
15	Signal Generator	Agilent	N5182A	MY47420215	Sep. 22, 2020	Sep. 21, 2021
16	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
17	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Sep. 22, 2020	Sep. 21, 2021
2	LISN	CYBERTEK	EM5040A	E1850400149	Sep. 22, 2020	Sep. 21, 2021
3	Test Cable	N/A	C01	N/A	Sep. 22, 2020	Sep. 21, 2021
4	Test Cable	N/A	C02	N/A	Sep. 22, 2020	Sep. 21, 2021
5	EMI Test Receiver	R&S	ESRP3	101946	Sep. 22, 2020	Sep. 21, 2021
6	Absorbing Clamp	DZ	ZN23201	N/A	Sep. 22, 2020	Sep. 21, 2021

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:
(1) *Decreases with the logarithm of the frequency.

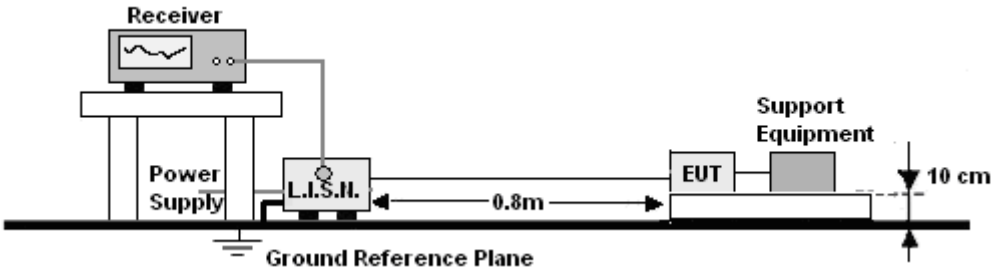
4.1.2 TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.e.
8 For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



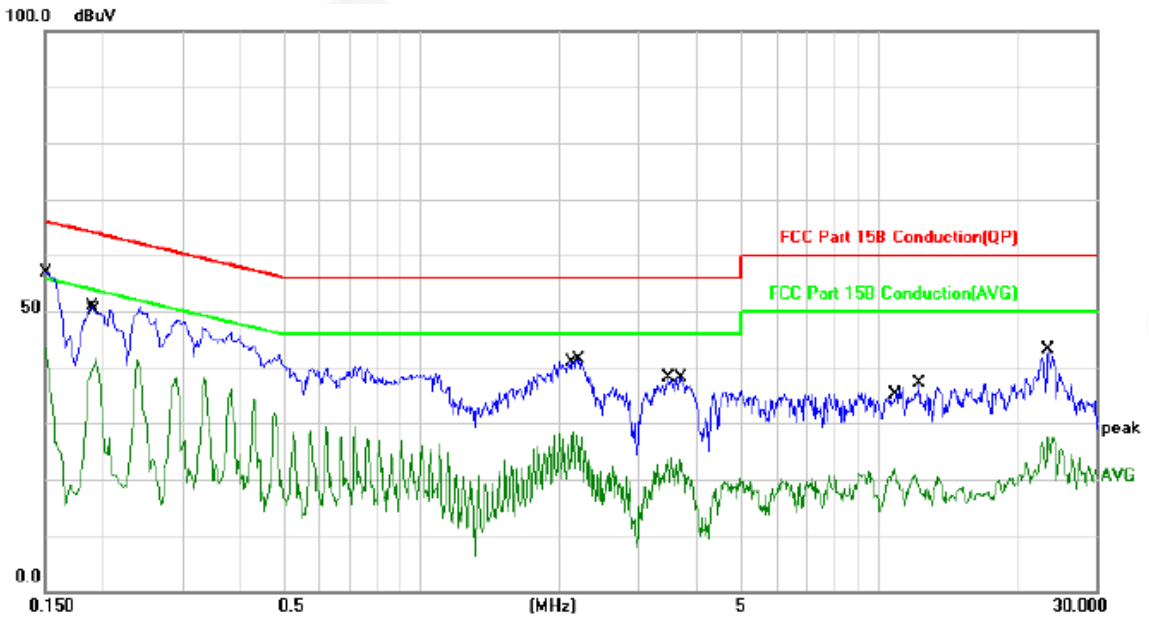
4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

4.1.6 TEST RESULT

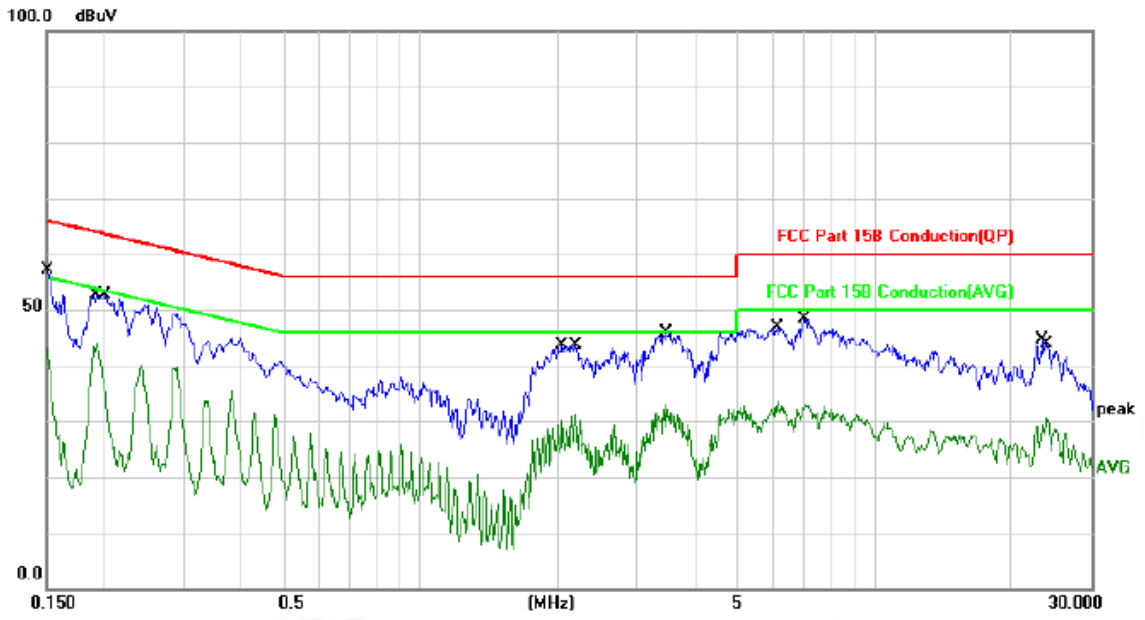
Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase :N	L
Test Voltage ：	AC 120V/60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1499	57.02	-0.13	56.89	66.00	-9.11	QP	
2		0.1499	43.61	-0.13	43.48	56.00	-12.52	AVG	
3		0.1900	51.07	-0.13	50.94	64.03	-13.09	QP	
4		0.1940	41.86	-0.13	41.73	53.86	-12.13	AVG	
5		2.1460	28.67	-0.24	28.43	46.00	-17.57	AVG	
6		2.2020	41.64	-0.24	41.40	56.00	-14.60	QP	
7		3.5260	24.16	-0.19	23.97	46.00	-22.03	AVG	
8		3.7100	38.30	-0.19	38.11	56.00	-17.89	QP	
9		10.8459	21.97	-0.11	21.86	50.00	-28.14	AVG	
10		12.2579	37.15	-0.13	37.02	60.00	-22.98	QP	
11		23.4860	27.99	-0.42	27.57	50.00	-22.43	AVG	
12		23.5820	43.60	-0.42	43.18	60.00	-16.82	QP	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase :L	N
Test Voltage ：	AC 120V/60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1499	57.19	-0.13	57.06	66.00	-8.94	QP	
2		0.1499	43.24	-0.13	43.11	56.00	-12.89	AVG	
3		0.1940	44.27	-0.13	44.14	53.86	-9.72	AVG	
4		0.2006	52.64	-0.13	52.51	63.58	-11.07	QP	
5		2.0540	43.92	-0.23	43.69	56.00	-12.31	QP	
6		2.1940	31.40	-0.24	31.16	46.00	-14.84	AVG	
7		3.4820	46.18	-0.19	45.99	56.00	-10.01	QP	
8		3.4820	33.29	-0.19	33.10	46.00	-12.90	AVG	
9		6.1179	33.88	-0.25	33.63	50.00	-16.37	AVG	
10		6.9859	48.74	-0.28	48.46	60.00	-11.54	QP	
11		23.4619	45.16	-0.42	44.74	60.00	-15.26	QP	
12		24.0140	31.16	-0.43	30.73	50.00	-19.27	AVG	

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

1. Radiated emissions from9 kHz to25 GHz were measured according to the methods defines in ANSI C63.10-2013.The EUT was placed above the ground plane, 0.8 meter for frequency below 1GHzand1.5meterforfrequencyabove1GHz. The interface cable sand equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

2. For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of –27dBm/MHz.

3. For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

4. For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRPof -27 dBm/MHz.

5. KDB789033v02r01G)2)c)Asspecifiedin15.407(b),emissionsabove1000MHzthatareout sideofthe restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

According to§15.209(a),exceptasprovidedelsewhereinthisSubpart,theemissionsfroman intentionalradiatorshallnotexceedthefieldstrengthlevelsspecifiedinthefollowingtable:

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meter semi-anechoiccamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of avariable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum valueof the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned toheights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could bestopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reportedin a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber andchange form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).

h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

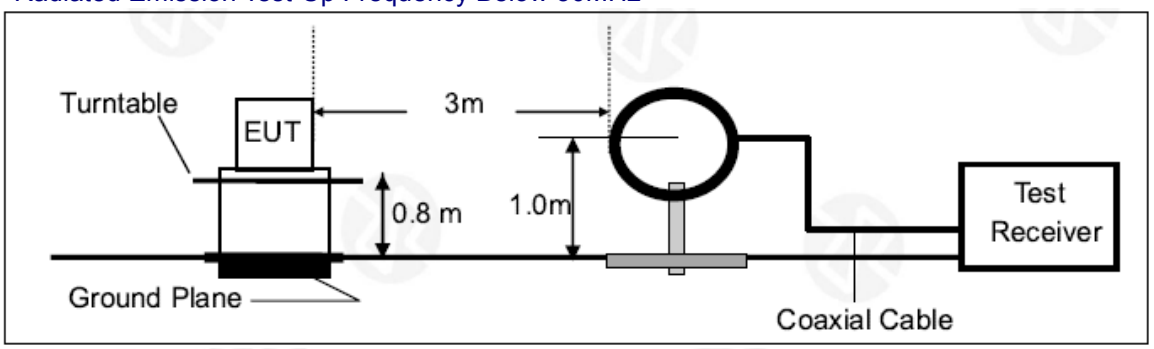
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

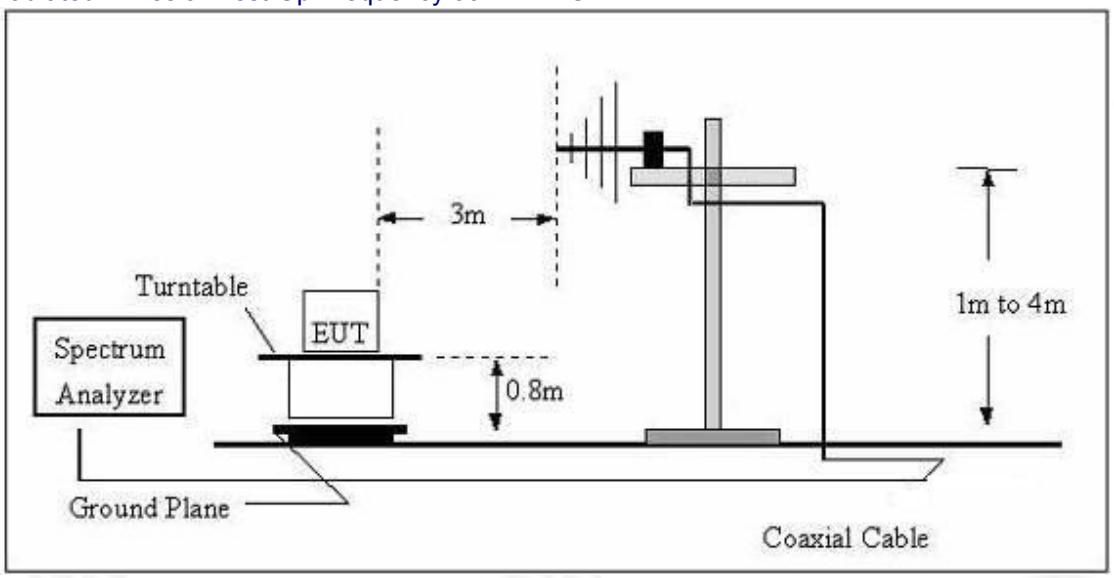
No deviation

4.2.4 TEST SETUP

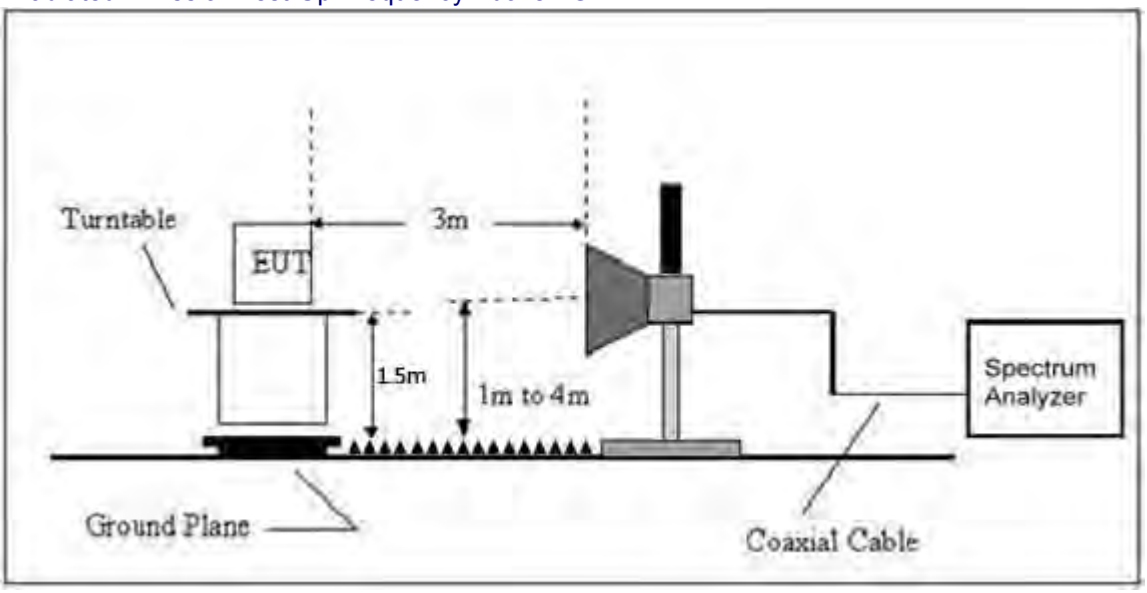
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

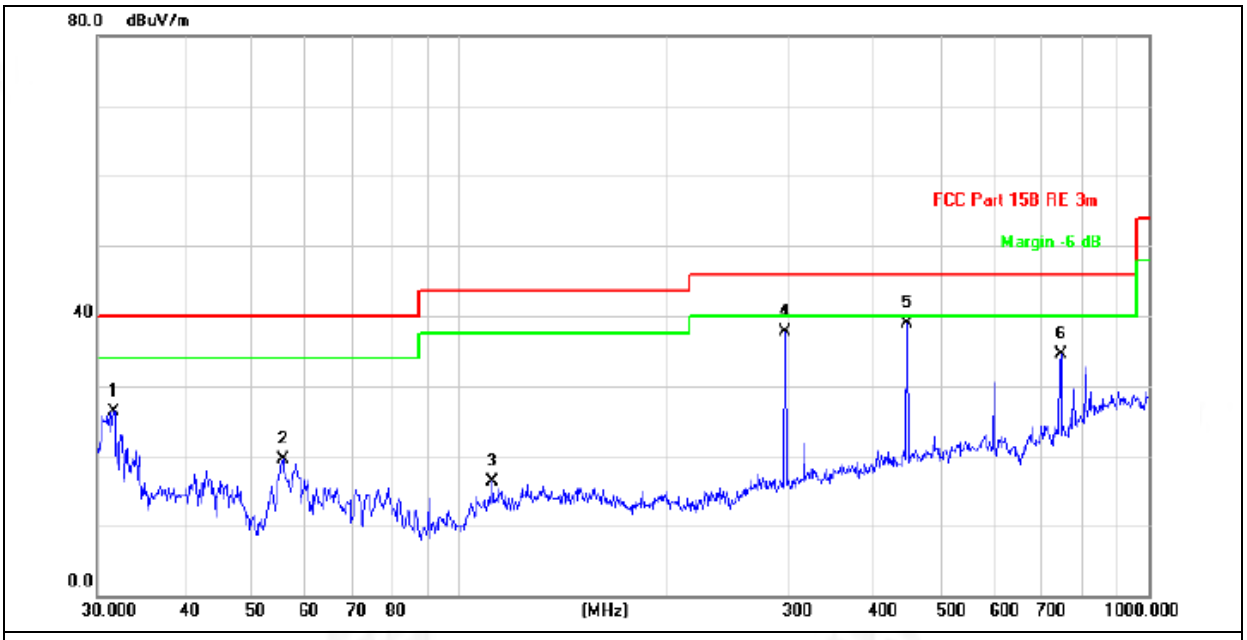
4.2.6 TEST RESULTS

Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

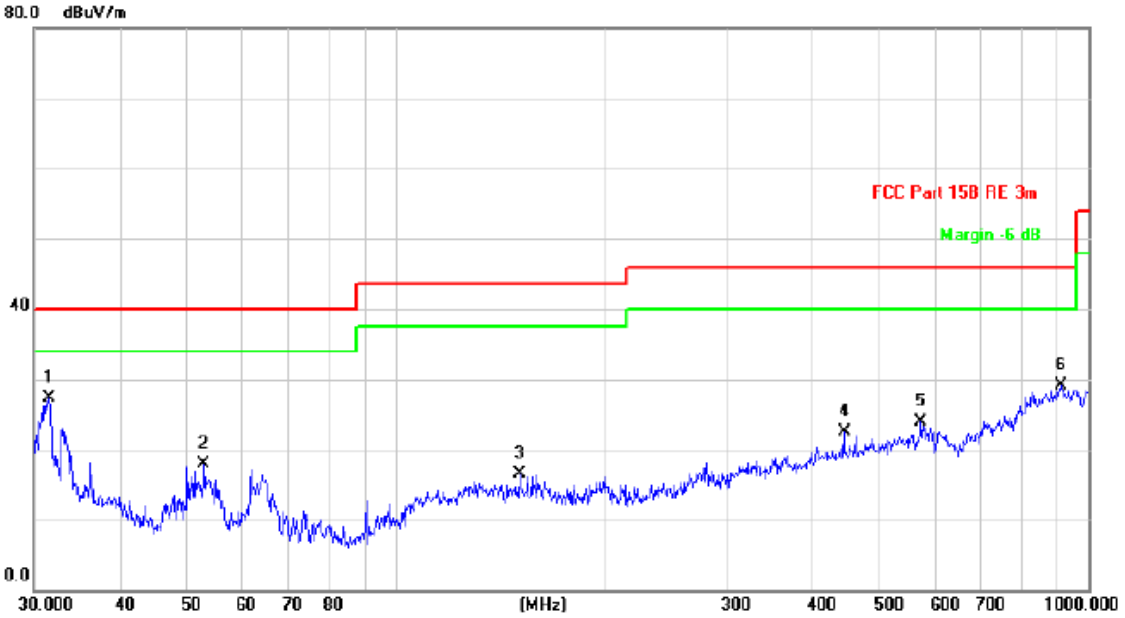
Between 30MHz – 1GHz

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		31.6202	27.62	-1.33	26.29	40.00	-13.71	QP			
2		55.6094	36.00	-16.55	19.45	40.00	-20.55	QP			
3		111.7379	22.52	-6.20	16.32	43.50	-27.18	QP			
4		297.2241	42.00	-4.28	37.72	46.00	-8.28	QP			
5	*	446.4141	39.59	-0.77	38.82	46.00	-7.18	QP			
6		744.8661	33.05	1.49	34.54	46.00	-11.46	QP			

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.5095	28.35	-1.13	27.22	40.00	-12.78	QP			
2		52.7600	34.89	-17.07	17.82	40.00	-22.18	QP			
3		150.5378	22.20	-5.66	16.54	43.50	-26.96	QP			
4		443.2943	23.42	-0.87	22.55	46.00	-23.45	QP			
5		572.6144	22.64	1.20	23.84	46.00	-22.16	QP			
6		912.8620	21.76	7.30	29.06	46.00	-16.94	QP			

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.
3.The test data shows only the worst case 802.11ac mode

1GHz~40GHz

802.11n20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:5745MHz									
V	11490	55.52	30.55	5.77	24.66	55.40	74	-18.60	PK
V	11490	43.32	30.55	5.77	24.66	43.20	54	-10.80	AV
V	17235	55.86	30.33	6.32	24.55	56.40	74	-17.60	PK
V	17235	41.39	30.33	6.32	24.55	41.93	54	-12.07	AV
V	22980	55.58	30.85	7.45	24.69	56.87	74	-17.13	PK
V	22980	40.02	30.85	7.45	24.69	41.31	54	-12.69	AV
H	11490	55.60	30.55	5.77	24.66	55.48	74	-18.52	PK
H	11490	44.48	30.55	5.77	24.66	44.36	54	-9.64	AV
H	17235	55.07	30.33	6.32	24.55	55.61	74	-18.39	PK
H	17235	41.61	30.33	6.32	24.55	42.15	54	-11.85	AV
H	22980	55.90	30.85	7.45	24.69	57.19	74	-16.81	PK
H	22980	39.75	30.85	7.45	24.69	41.04	54	-12.96	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5785MHz									
V	11570	57.24	30.55	5.77	24.66	57.12	74	-16.88	PK
V	11570	43.01	30.55	5.77	24.66	42.89	54	-11.11	AV
V	17355	55.81	30.33	6.32	24.55	56.35	74	-17.65	PK
V	17355	42.77	30.33	6.32	24.55	43.31	54	-10.69	AV
V	23140	53.98	30.85	7.45	24.69	55.27	74	-18.73	PK
V	23140	42.24	30.85	7.45	24.69	43.53	54	-10.47	AV
H	11570	58.76	30.55	5.77	24.66	58.64	74	-15.36	PK
H	11570	42.86	30.55	5.77	24.66	42.74	54	-11.26	AV
H	17355	55.56	30.33	6.32	24.55	56.10	74	-17.90	PK
H	17355	42.17	30.33	6.32	24.55	42.71	54	-11.29	AV
H	23140	55.61	30.85	7.45	24.69	56.90	74	-17.10	PK
H	23140	39.96	30.85	7.45	24.69	41.25	54	-12.75	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5825MHz									
V	11650	55.10	30.55	5.77	24.66	54.98	74	-19.02	PK
V	11650	43.42	30.55	5.77	24.66	43.30	54	-10.70	AV
V	17475	55.12	30.33	6.32	24.55	55.66	74	-18.34	PK
V	17475	41.80	30.33	6.32	24.55	42.34	54	-11.66	AV
V	23300	55.21	30.85	7.45	24.69	56.50	74	-17.50	PK
V	23300	41.09	30.85	7.45	24.69	42.38	54	-11.62	AV
H	11650	58.75	30.55	5.77	24.66	58.63	74	-15.37	PK
H	11650	44.36	30.55	5.77	24.66	44.24	54	-9.76	AV
H	17475	54.76	30.33	6.32	24.55	55.30	74	-18.70	PK
H	17475	41.19	30.33	6.32	24.55	41.73	54	-12.27	AV
H	23300	55.66	30.85	7.45	24.69	56.95	74	-17.05	PK
H	23300	42.50	30.85	7.45	24.69	43.79	54	-10.21	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.

802.11ac20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:5745MHz									
V	11490	56.39	30.55	5.77	24.66	56.27	74	-17.73	PK
V	11490	43.41	30.55	5.77	24.66	43.29	54	-10.71	AV
V	17235	55.25	30.33	6.32	24.55	55.79	74	-18.21	PK
V	17235	41.71	30.33	6.32	24.55	42.25	54	-11.75	AV
V	22980	56.27	30.85	7.45	24.69	57.56	74	-16.44	PK
V	22980	40.93	30.85	7.45	24.69	42.22	54	-11.78	AV
H	11490	57.10	30.55	5.77	24.66	56.98	74	-17.02	PK
H	11490	41.91	30.55	5.77	24.66	41.79	54	-12.21	AV
H	17235	56.02	30.33	6.32	24.55	56.56	74	-17.44	PK
H	17235	40.88	30.33	6.32	24.55	41.42	54	-12.58	AV
H	22980	55.33	30.85	7.45	24.69	56.62	74	-17.38	PK
H	22980	43.17	30.85	7.45	24.69	44.46	54	-9.54	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5785MHz									
V	11570	56.53	30.55	5.77	24.66	56.41	74	-17.59	PK
V	11570	42.34	30.55	5.77	24.66	42.22	54	-11.78	AV
V	17355	55.88	30.33	6.32	24.55	56.42	74	-17.58	PK
V	17355	43.37	30.33	6.32	24.55	43.91	54	-10.09	AV
V	23140	55.99	30.85	7.45	24.69	57.28	74	-16.72	PK

V	23140	41.60	30.85	7.45	24.69	42.89	54	-11.11	AV
H	11570	58.46	30.55	5.77	24.66	58.34	74	-15.66	PK
H	11570	42.65	30.55	5.77	24.66	42.53	54	-11.47	AV
H	17355	55.44	30.33	6.32	24.55	55.98	74	-18.02	PK
H	17355	43.10	30.33	6.32	24.55	43.64	54	-10.36	AV
H	23140	54.69	30.85	7.45	24.69	55.98	74	-18.02	PK
H	23140	43.49	30.85	7.45	24.69	44.78	54	-9.22	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:5825MHz									
V	11650	57.67	30.55	5.77	24.66	57.55	74	-16.45	PK
V	11650	42.67	30.55	5.77	24.66	42.55	54	-11.45	AV
V	17475	54.77	30.33	6.32	24.55	55.31	74	-18.69	PK
V	17475	40.93	30.33	6.32	24.55	41.47	54	-12.53	AV
V	23300	54.09	30.85	7.45	24.69	55.38	74	-18.62	PK
V	23300	41.02	30.85	7.45	24.69	42.31	54	-11.69	AV
H	11650	56.84	30.55	5.77	24.66	56.72	74	-17.28	PK
H	11650	43.83	30.55	5.77	24.66	43.71	54	-10.29	AV
H	17475	55.93	30.33	6.32	24.55	56.47	74	-17.53	PK
H	17475	43.17	30.33	6.32	24.55	43.71	54	-10.29	AV
H	23300	56.31	30.85	7.45	24.69	57.60	74	-16.40	PK
H	23300	41.64	30.85	7.45	24.69	42.93	54	-11.07	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.

802.11n40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:5755MHz									
V	11510	58.15	30.55	5.77	24.66	58.03	74	-15.97	PK
V	11510	43.88	30.55	5.77	24.66	43.76	54	-10.24	AV
V	17265	55.81	30.33	6.32	24.55	56.35	74	-17.65	PK
V	17265	41.07	30.33	6.32	24.55	41.61	54	-12.39	AV
V	23020	55.21	30.85	7.45	24.69	56.50	74	-17.50	PK
V	23020	40.10	30.85	7.45	24.69	41.39	54	-12.61	AV
H	11510	55.60	30.55	5.77	24.66	55.48	74	-18.52	PK
H	11510	44.49	30.55	5.77	24.66	44.37	54	-9.63	AV
H	17265	55.64	30.33	6.32	24.55	56.18	74	-17.82	PK
H	17265	41.24	30.33	6.32	24.55	41.78	54	-12.22	AV
H	23020	55.68	30.85	7.45	24.69	56.97	74	-17.03	PK
H	23020	42.35	30.85	7.45	24.69	43.64	54	-10.36	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5795MHz									
V	11590	55.09	30.55	5.77	24.66	54.97	74	-19.03	PK
V	11590	43.50	30.55	5.77	24.66	43.38	54	-10.62	AV
V	17385	55.28	30.33	6.32	24.55	55.82	74	-18.18	PK
V	17385	43.12	30.33	6.32	24.55	43.66	54	-10.34	AV
V	23180	55.71	30.85	7.45	24.69	57.00	74	-17.00	PK
V	23180	42.86	30.85	7.45	24.69	44.15	54	-9.85	AV
H	11590	56.20	30.55	5.77	24.66	56.08	74	-17.92	PK
H	11590	44.42	30.55	5.77	24.66	44.30	54	-9.70	AV
H	17385	55.29	30.33	6.32	24.55	55.83	74	-18.17	PK
H	17385	41.86	30.33	6.32	24.55	42.40	54	-11.60	AV
H	23180	55.80	30.85	7.45	24.69	57.09	74	-16.91	PK
H	23180	41.70	30.85	7.45	24.69	42.99	54	-11.01	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.

802.11ac40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:5755MHz									
V	11510	56.12	30.55	5.77	24.66	56.00	74	-18.00	PK
V	11510	42.01	30.55	5.77	24.66	41.89	54	-12.11	AV
V	17265	56.15	30.33	6.32	24.55	56.69	74	-17.31	PK
V	17265	42.66	30.33	6.32	24.55	43.20	54	-10.80	AV
V	23020	55.86	30.85	7.45	24.69	57.15	74	-16.85	PK
V	23020	42.26	30.85	7.45	24.69	43.55	54	-10.45	AV
H	11510	54.88	30.55	5.77	24.66	54.76	74	-19.24	PK
H	11510	42.02	30.55	5.77	24.66	41.90	54	-12.10	AV
H	17265	55.66	30.33	6.32	24.55	56.20	74	-17.80	PK
H	17265	41.60	30.33	6.32	24.55	42.14	54	-11.86	AV
H	23020	56.52	30.85	7.45	24.69	57.81	74	-16.19	PK
H	23020	42.01	30.85	7.45	24.69	43.30	54	-10.70	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:5795MHz									
V	11590	58.18	30.55	5.77	24.66	58.06	74	-15.94	PK
V	11590	41.87	30.55	5.77	24.66	41.75	54	-12.25	AV
V	17385	54.89	30.33	6.32	24.55	55.43	74	-18.57	PK
V	17385	42.38	30.33	6.32	24.55	42.92	54	-11.08	AV
V	23180	55.71	30.85	7.45	24.69	57.00	74	-17.00	PK
V	23180	40.51	30.85	7.45	24.69	41.80	54	-12.20	AV

H	11590	55.01	30.55	5.77	24.66	54.89	74	-19.11	PK
H	11590	42.98	30.55	5.77	24.66	42.86	54	-11.14	AV
H	17385	56.76	30.33	6.32	24.55	57.30	74	-16.70	PK
H	17385	42.36	30.33	6.32	24.55	42.90	54	-11.10	AV
H	23180	54.71	30.85	7.45	24.69	56.00	74	-18.00	PK
H	23180	43.41	30.85	7.45	24.69	44.70	54	-9.30	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.

Radiated Band Edge Test:

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5650.00	56.43	-0.12	56.31	74	-17.69	peak	H
	43.07	-0.12	42.95	54	-11.05	AV	H
5650.00	56.27	-0.12	56.15	74	-17.85	peak	V
	42.62	-0.12	42.50	54	-11.50	AV	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850.00	56.94	-0.12	56.82	74	-17.18	peak	H
	42.34	-0.12	42.22	54	-11.78	AV	H
5850.00	55.99	-0.12	55.87	74	-18.13	peak	V
	43.67	-0.12	43.55	54	-10.45	AV	V

Worse case mode:		802.11n(HT40)(13.5Mbps)		Test channel:		151	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5650.00	58.09	-0.12	57.97	74	-16.03	peak	H
	43.88	-0.12	43.76	54	-10.24	AV	H
5650.00	54.35	-0.12	54.23	74	-19.77	peak	V
	43.67	-0.12	43.55	54	-10.45	AV	V

Worse case mode:		802.11n(HT40)(13.5Mbps)		Test channel:		159	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850.00	57.71	-0.12	57.59	74	-16.41	peak	H
	43.00	-0.12	42.88	54	-11.12	AV	H
5850.00	56.83	-0.12	56.71	74	-17.29	peak	V
	43.58	-0.12	43.46	54	-10.54	AV	V

Worse case mode:		802.11ac(HT20)(6.5Mbps)		Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5650.00	56.28	-0.12	56.16	74	-17.84	peak	H
	43.62	-0.12	43.50	54	-10.50	AV	H
5650.00	56.81	-0.12	56.69	74	-17.31	peak	V
	43.58	-0.12	43.46	54	-10.54	AV	V

Worse case mode:		802.11ac(HT20)(6.5Mbps)		Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850.00	58.93	-0.12	58.81	74	-15.19	peak	H
	44.21	-0.12	44.09	54	-9.91	AV	H
5850.00	55.23	-0.12	55.11	74	-18.89	peak	V
	43.61	-0.12	43.49	54	-10.51	AV	V

Worse case mode:		802.11ac(VHT40)(13.5Mbps)		Test channel:		151	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5650.00	56.07	-0.12	55.95	74	-18.05	peak	H
	41.74	-0.12	41.62	54	-12.38	AV	H
5650.00	55.02	-0.12	54.90	74	-19.10	peak	V
	43.76	-0.12	43.64	54	-10.36	AV	V

Worse case mode:		802.11ac(VHT40)(13.5Mbps)		Test channel:		159	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850.00	57.64	-0.12	57.52	74	-16.48	peak	H
	44.30	-0.12	44.18	54	-9.82	AV	H
5850.00	56.65	-0.12	56.53	74	-17.47	peak	V
	41.66	-0.12	41.54	54	-12.46	AV	V

Factor =Antenna Factor + Cable Loss – Pre-amplifier,

5.POWER SPECTRAL DENSITY TEST

Test Requirement:	FCC 47 CFR Part 15 Subpart E Section 15.407 (a)
Test Method:	KDB 789033 D02 v02r01

5.1 APPLIED PROCEDURES / LIMIT

LIMIT:	U-NII-1	11DBM/MHZ
	U-NII-2A	11DBM/MHZ
	U-NII-2C	11DBM/MHZ
	U-NII-3	30DBM/500KHZ

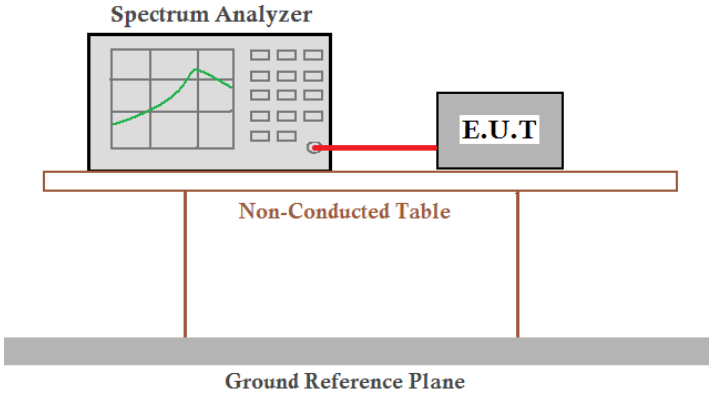
5.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

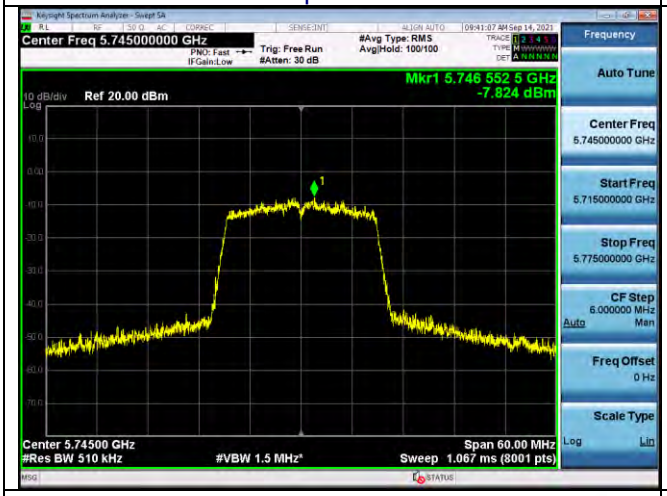
5.6 TEST RESULT

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX frequency band IV		

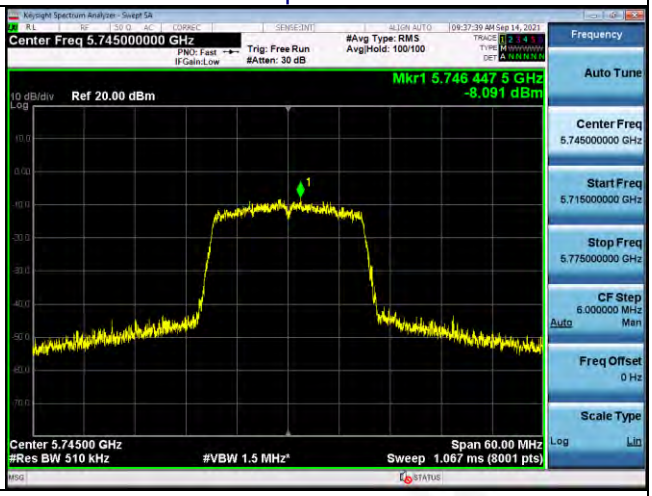
Test Mode	Test Channel	Meas PSD [dBm/510kHz]	PSD [dBm/500kHz]	Limit [dBm/500kHz]	Verdict
11N20	5745	-8.091	-8.177	30.00	PASS
11N20	5785	-7.471	-7.557	30.00	PASS
11N20	5825	-6.295	-6.381	30.00	PASS
11N40	5755	-11.212	-11.298	30.00	PASS
11N40	5795	-11.095	-11.181	30.00	PASS
11AC20	5745	-7.824	-7.910	30.00	PASS
11AC20	5785	-7.541	-7.627	30.00	PASS
11AC20	5825	-6.485	-6.571	30.00	PASS
11AC40	5755	-11.418	-11.504	30.00	PASS
11AC40	5795	-10.194	-10.280	30.00	PASS

PSD[dBm/500kHz]= Meas PSD [dBm/510kHz] + 10*log（500/510）

802.11ac PSD plot on channel 149



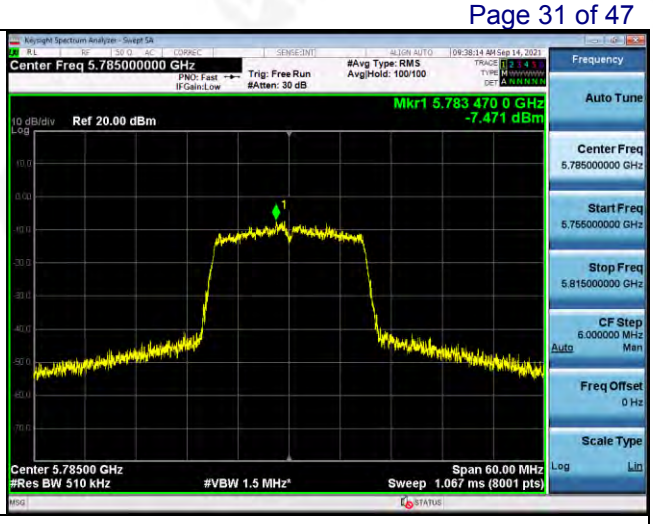
802.11n PSD plot on channel 149



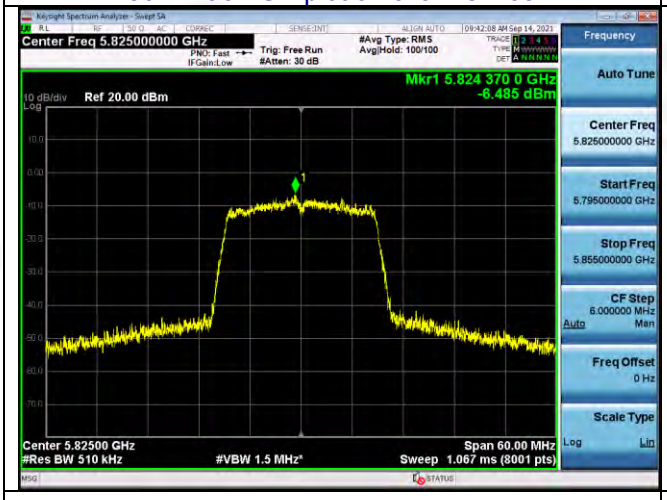
802.11ac PSD plot on channel 157

802.11n PSD plot on channel 157

802.11ac PSD plot on channel 165



802.11n PSD plot on channel 165

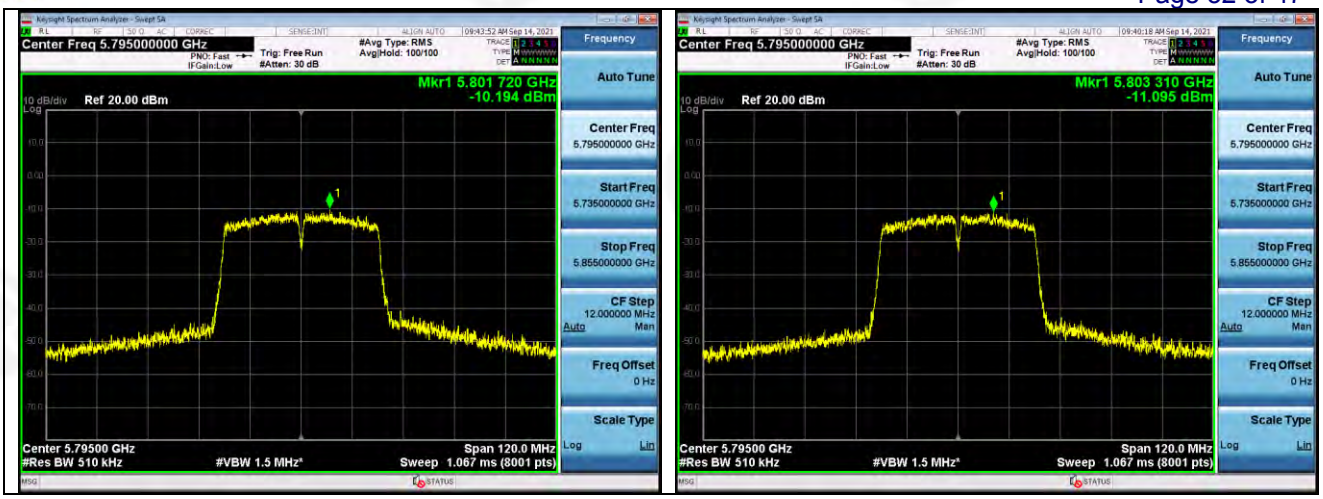


802.11ac PSD plot on channel 151

802.11n PSD plot on channel 151

802.11ac PSD plot on channel 159

802.11n PSD plot on channel 159


Center Freq 5.795000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
Mkr1 5.801 720 GHz
-10.194 dBm
10 dB/div
Ref 20.00 dBm
Center 5.79500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 120.0 MHz
Sweep 1.067 ms (8001 pts)
Frequency
Auto Tune
Center Freq
5.795000000 GHz
Start Freq
5.735000000 GHz
Stop Freq
5.855000000 GHz
CF Step
12.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
Center Freq 5.795000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
Mkr1 5.803 310 GHz
-11.095 dBm
10 dB/div
Ref 20.00 dBm
Center 5.79500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz*
Span 120.0 MHz
Sweep 1.067 ms (8001 pts)
Frequency
Auto Tune
Center Freq
5.795000000 GHz
Start Freq
5.735000000 GHz
Stop Freq
5.855000000 GHz
CF Step
12.000000 MHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

6. CHANNEL BANDWIDTH

Test Requirement:	Part 15 Subpart C Section 15.407 (e)
Test Method:	KDB 789033 D02 v02r01

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15.407 (e)		
Test Item	Limit	Result
Bandwidth	>= 500KHz (6dB bandwidth)	PASS

6.2 TEST PROCEDURE

a) Set RBW = 100KHz.

b) Set the VBW > RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) 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:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. 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.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. 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.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP

6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 3.7V
Test Mode ：	TX		

Test CH	Channel Bandwidth (MHz)				Limit(KHz)	Result
	802.11ac20	802.11ac40	802.11n20	802.11n40		
Lowest	17.63	36.38	17.64	36.38	>500	Pass
Middle	17.58	--	17.61	--		
Highest	17.61	36.37	17.64	36.37		

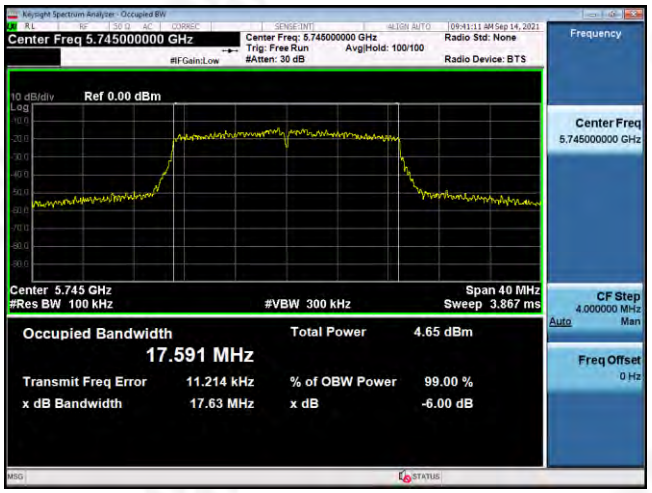
Test CH	99% Occupy Bandwidth (MHz)				Result
	802.11ac20	802.11ac40	802.11n20	802.11n40	
Lowest	17.591	35.947	17.582	35.958	Pass
Middle	17.597	--	17.598	--	
Highest	17.565	35.943	17.570	35.927	

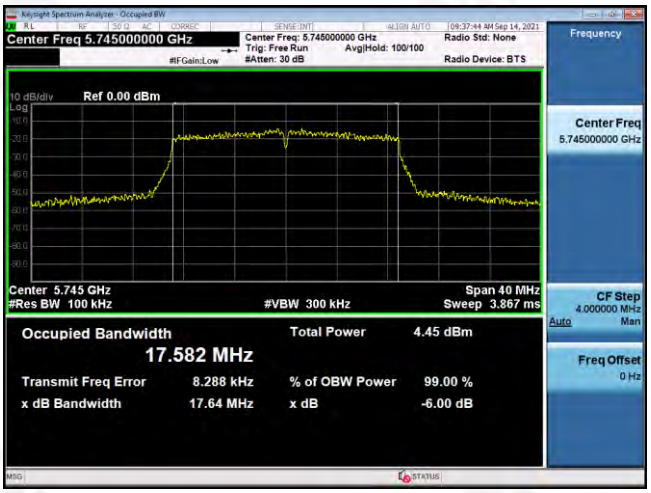
Test plot as follows:

802.11ac20

802.11n20

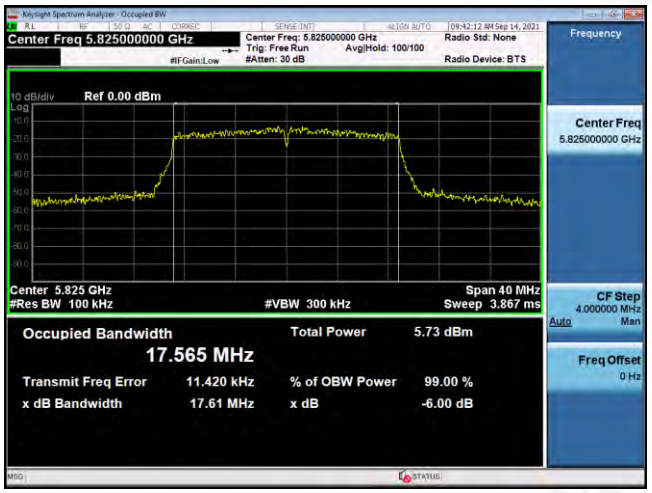
Lowest channel

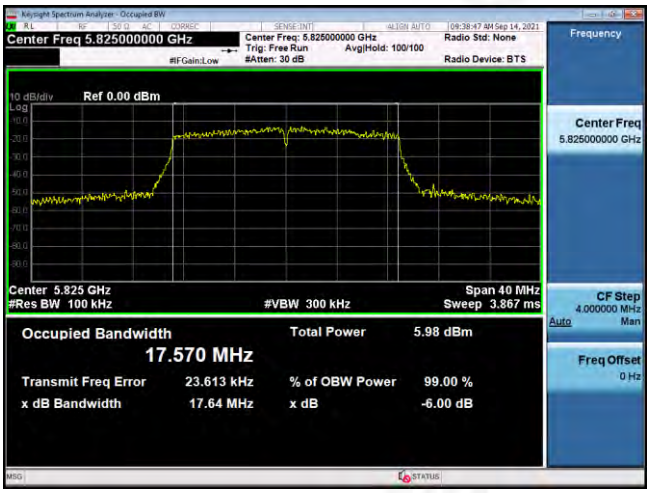




Middle channel

Highest channel

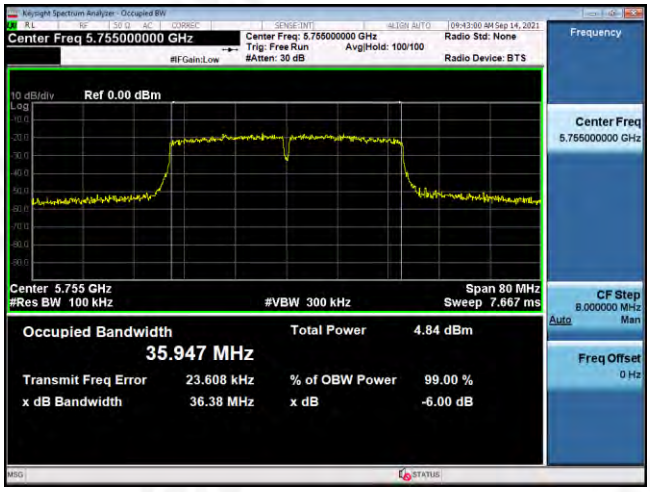


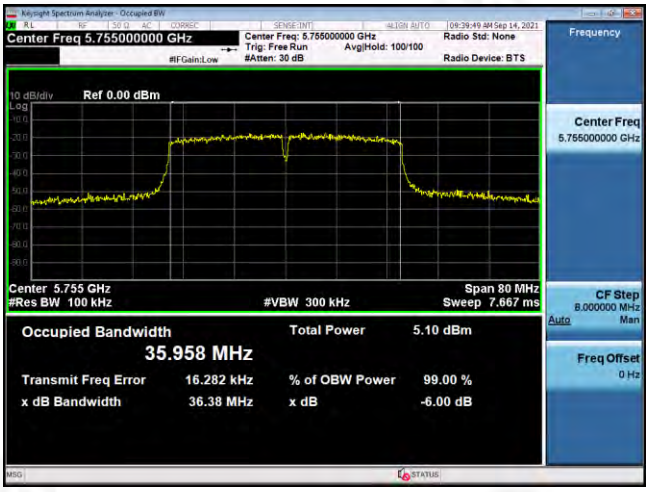


802.11ac40

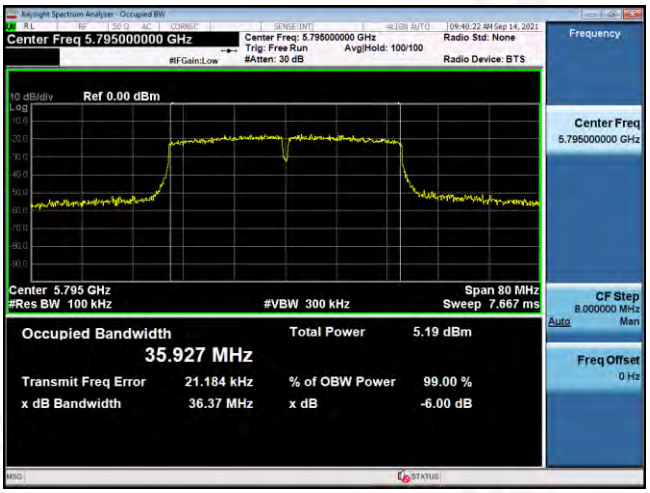
801.11n40

Lowest channel





Highest channel



7. OUTPUT POWER TEST

Test Requirement:	15.407 (a)(1)(2)(3)
Test Method:	KDB 789033 D02 v02r01

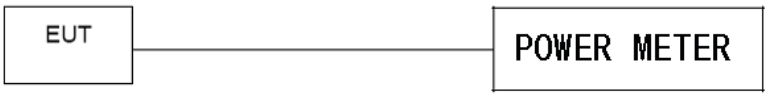
7.1 APPLIED PROCEDURES/LIMIT

FCC Part15 (15.247) , Subpart C			
Test Item	Limit	Frequency Range (MHz)	Result
Conducted Output Power	1 watt or 30dBm	5275-5850	PASS

7.2 DEVIATION FROM STANDARD

No deviation.

7.3 TEST SETUP



7.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.5 TEST RESULT

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 3.7V

Test CH	Frequency (MHz)	Peak Output Power (dBm)	Limit(dBm) (dBm)	Result
TX 802.11ac20 mode				
CH149	5745	1.17	30.00	Pass
CH157	5785	1.68	30.00	Pass
CH165	5825	1.23	30.00	Pass
TX 802.11n20 mode				
CH149	5745	1.34	30.00	Pass
CH157	5785	0.96	30.00	Pass
CH165	5825	0.89	30.00	Pass
TX 802.11ac40 mode				
CH151	5755	-0.26	30.00	Pass
CH159	5795	-0.55	30.00	Pass
TX 802.11n40 mode				
CH151	5755	-0.98	30.00	Pass
CH159	5795	-0.88	30.00	Pass

8. OUT OF BAND EDGE EMISSION

Test Requirement:	15.407 (b)
Test Method:	KDB 789033 D02 v02r01

8.1 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.

8.2 DEVIATION FROM STANDARD

No deviation.

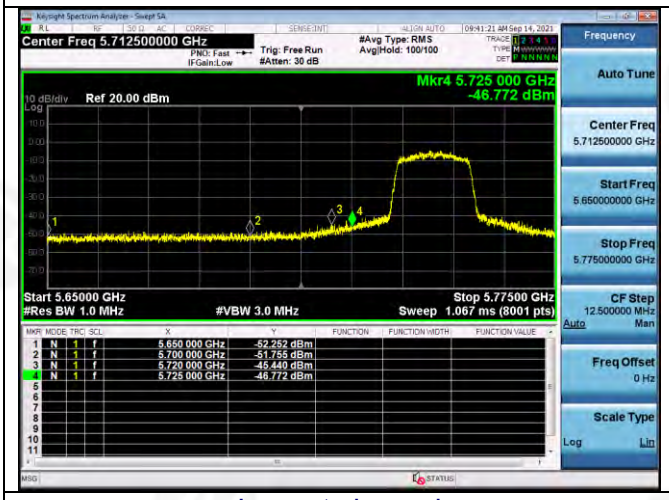
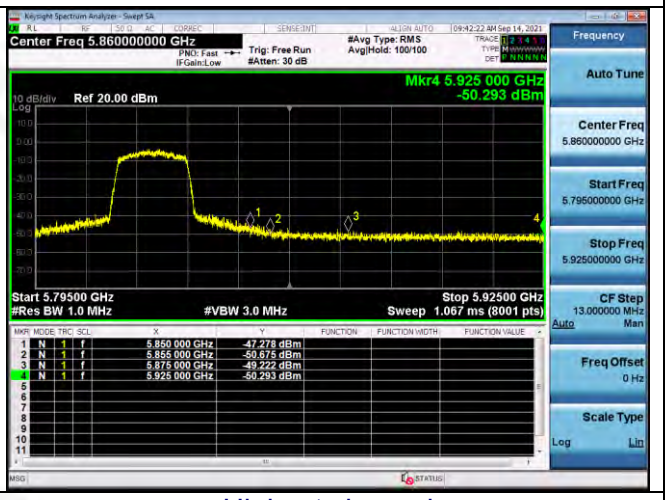
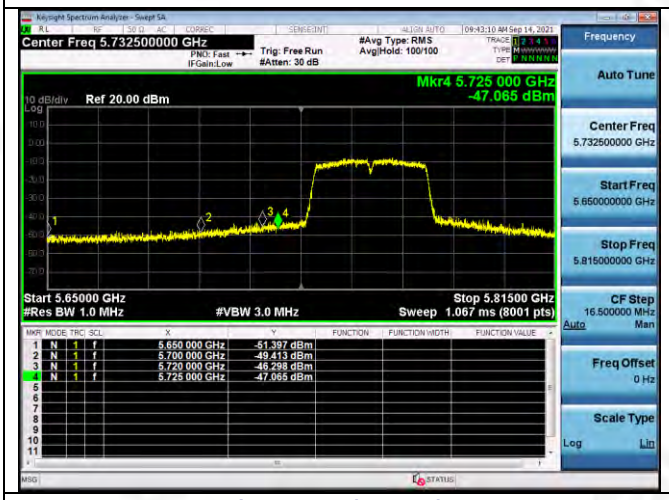
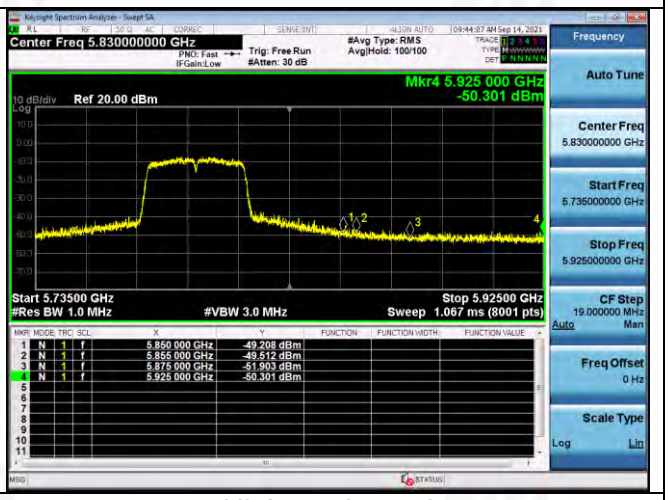
8.3 TEST SETUP

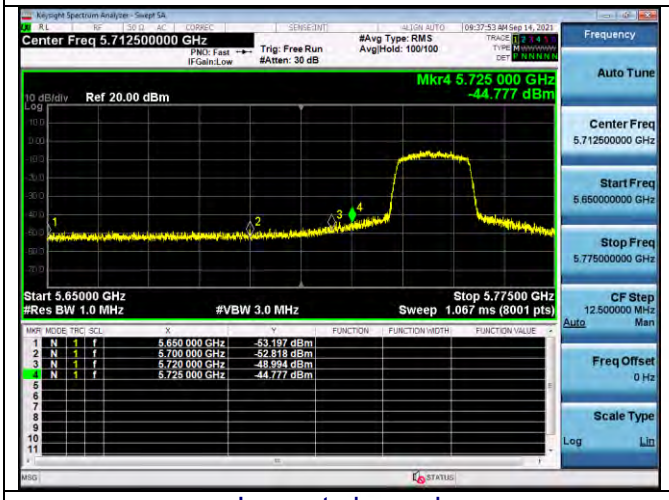
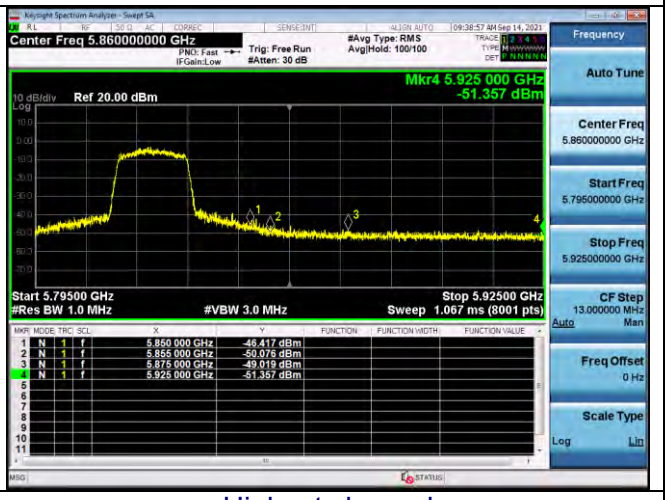
8.4 EUT OPERATION CONDITIONS

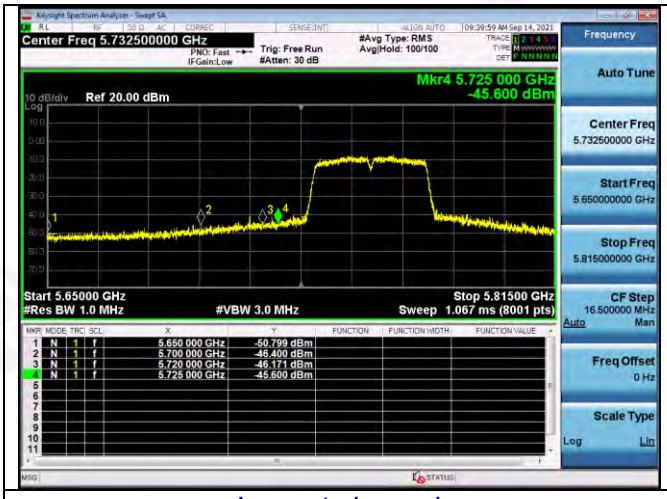
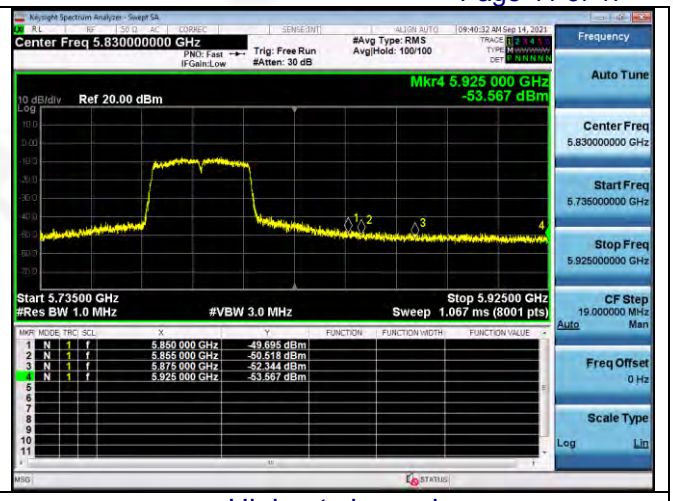
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.5 TEST RESULTS

Test plot as follows:

Test mode:	802.11ac20
	
Lowest channel	Highest channel
Test mode:	802.11ac40
	
Lowest channel	Highest channel

Test mode:	802.11n20
	
Lowest channel	Highest channel
Test mode:	802.11n40

	
Lowest channel	Highest channel

9. FREQUENCY STABILITY MEASUREMENT

9.1 LIMIT

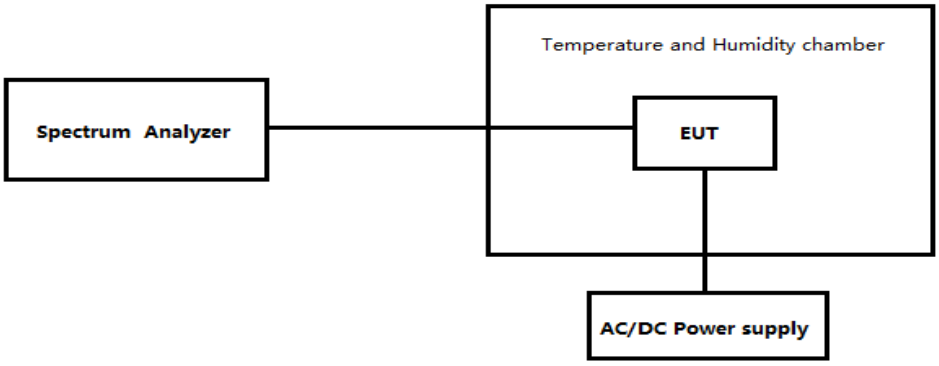
According to§15.407(g),Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of

normal operation as specified in the user's manual.

9.2 TESTPROCEDURE

1. To ensure emission at the band edge is main tainted within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, whichissettomaximumholdfunctionandpeakdetector.Thepeakvalueofthepowerenvelopewas measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

9.3 TESTCONFIGURATION



9.4 TEST RESULT

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Test Voltage ：	DC 3.7V

802.11ac(VHT20)- CH149

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	74	0.0129
40	3.7	86	0.0150
30	3.7	74	0.0129

20	3.7	90	0.0156
10	3.7	82	0.0143
0	3.7	88	0.0152
-10	3.7	91	0.0158
-20	3.7	99	0.0173
-30	3.7	95	0.0165

802.11ac(VHT20)- CH165

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	79	0.0137
40	3.7	78	0.0135
30	3.7	74	0.0128
20	3.7	83	0.0143
10	3.7	71	0.0122
0	3.7	97	0.0168
-10	3.7	98	0.0169
-20	3.7	92	0.0158
-30	3.7	96	0.0166

802.11n(HT20)- CH149

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	75	0.0131
40	3.7	80	0.0139
30	3.7	73	0.0126
20	3.7	98	0.0171
10	3.7	77	0.0135
0	3.7	70	0.0122
-10	3.7	90	0.0157
-20	3.7	83	0.0144
-30	3.7	78	0.0135

802.11n(HT20)- CH165

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	92	0.0158
40	3.7	71	0.0122
30	3.7	72	0.0124
20	3.7	72	0.0124
10	3.7	91	0.0157
0	3.7	82	0.0142
-10	3.7	76	0.0131
-20	3.7	75	0.0130
-30	3.7	73	0.0126

802.11ac(VHT40)-CH151

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	76	0.0132
40	3.7	70	0.0122
30	3.7	70	0.0122
20	3.7	86	0.0149
10	3.7	71	0.0123
0	3.7	95	0.0166
-10	3.7	85	0.0148
-20	3.7	84	0.0146
-30	3.7	89	0.0154

802.11ac(VHT40)-CH159

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	85	0.0147
40	3.7	84	0.0145
30	3.7	94	0.0163
20	3.7	93	0.0161
10	3.7	82	0.0141
0	3.7	90	0.0154
-10	3.7	75	0.0130
-20	3.7	82	0.0142
-30	3.7	87	0.0151

802.11n(HT40)-CH151

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	88	0.0153
40	3.7	90	0.0157
30	3.7	79	0.0137
20	3.7	88	0.0153
10	3.7	99	0.0171
0	3.7	92	0.0159
-10	3.7	80	0.0139
-20	3.7	91	0.0159
-30	3.7	93	0.0161

802.11n(HT40)-CH159

Temperature (°C)	Voltage (VDC)	Frequency Measure with time Elapsed	
		MCF	(ppm)
50	3.7	71	0.0122
40	3.7	72	0.0124
30	3.7	93	0.0161

20	3.7	88	0.0151
10	3.7	88	0.0152
0	3.7	95	0.0163
-10	3.7	85	0.0146
-20	3.7	84	0.0144
-30	3.7	94	0.0163

10.ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203 /247(c)

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance.

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

Antenna Connected Construction

The FPC antenna used in the product is a permanently connected antenna that complies with the provisions of part 15.203 requirement in this section. The antenna used in this product is a FPC antenna, The directional gains of antenna used for transmitting is 1.09 dBi.

EUT Antenna:

10. TEST SETUP PHOTO

Reference to the test setup file for details.

11. EUT CONSTRUCTIONAL DETAILS

Reference to the external photos file and internal photos file for details.

※※※※※ END OF REPORT ※※※※※