FCC Part 15C&RSS-247 TEST REPORT

FCC ID:2BRDB-S1

IC:34372-S1

Prepared for	:	Electrotec Audio Inc
Address	:	17835 Newhope Street, unit A, Fountain Valley, California, United States, 92708
Trade Name	:	SKAA
E.U.T	:	Stage One
Model Number	:	S1
Prepared by	:	Keyway Testing Technology(Guangdong) Co., Ltd.
Address	:	Room 2102, Building 6, Dongyi Intelligent Equipment New Energy Vehicle Park, No.30 of Tangxia District, Dongshen Road, Tangxia Town, Dongguan, 523710, People's Republic of China
		Tel: 86-769-87182258
		Fax: 86-769-87181058
Report No.	:	TR25010067-E-001
Date of Test:	:	Feb. 28, 2025 ~ Aug. 29, 2025
Date of Report	:	Aug. 29, 2025

Keyway Testing Technology (Guangdong) Co., Ltd.

Applicant:	Electrotec Audio Inc
Address:	17835 Newhope Street, unit A, Fountain Valley, California, United States, 92708
Manufacturer:	Eleven Engineering Inc
Address:	10150 - 100 Street, Suite 800 Edmonton, AB, Canada T5J 0P6
E.U.T:	Stage One
Model Number:	S1
Trade Name:	SKAA
Date of Receipt:	Feb. 28, 2025
Date of Test:	Feb. 28, 2025 ~ Aug. 29, 2025
Test Specification :	FCC CFR47 Part 15 Section 15.247 RSS-247 Issue 3: August 2023 ANSI C63.10:2013 RSS-GEN Issue5, Amendment 2, February,2021
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied. **Issue Date: Aug. 29, 2025**

Tested by:	Reviewed by:	Authorized by:
Jacob Ouyang /Engineer	Billy Zeng / Supervisor	Cherry Chen / Manager

Abbreviations: OK/P=passed fail/F=failed N/A=not applicable E.U.T=equipment under tested

This device described above has been tested by Keyway, 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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Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2025.8.29		Original

Contents

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2 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions and Restricted Bandedge	15.205(a) 15.209 15.247(d) RSS-Gen.6.13 RSS-Gen.8.10	PASS
Conducted Unwanted emissions and Band edge	15.247(d) 15.205(a) RSS-247 5.5	PASS
Conduct Emission	15.207 RSS-Gen 8.8	PASS
20dB Bandwidth & 99% OCB	15.247(a)(1) RSS-247.5.1(b) RSS-Gen.6.7	PASS
Maximum Peak Output Power	15.247(b)(1) RSS-247.5.4(b)	PASS
Frequency Separation	15.247(a)(1) RSS-247.5.1(b)	PASS
Number of Hopping Frequency	15.247(a)(1)(iii) RSS-247.5.1(b)	PASS
Dwell time	15.247(a)(1)(iii) RSS-247.5.1(d)	PASS
Antenna Requirement	FCC part 15.203/15.247 (c) RSS-Gen 6.8	PASS

Remark:

1. “N/A” denotes test is not applicable in this Test Report.

3 TEST FACILITY

Lab Qualifications	:	Certificated by CMA Registration No.: 202319016955 Date of registration: July 23, 2024 Certificated by CNAS Registration No.: CNAS L5783 Date of registration: March 07, 2025 Certificated by A2LA Certificate Number:7404.01 Valild To: March 31.2027 FCC Designation No.: CN1412 Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules. ISED (Company No.: 33959) The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0186 Certificated by VCCI Member No.3498 R-20091:G-20277:966 Chamber 2 Below 1 G G-20277:966 Chamber 2 above 1 G C-20064:Conducted Emissions at Mains ports T-20120:Conducted Emissions at Wired network port Date of Valid until: Step. 19, 2027 Certificated by Nemko Registration No.: ELA 814 Date of registration: September 25, 2024 Certificated by UL Registration No.: 100567237 Date of registration: September 25, 2024
Name of Firm	:	Keyway Testing Technology(Guangdong) Co., Ltd.
Site Location	:	Room 2102, Building 6, Dongyi Intelligent Equipment New Energy Vehicle Park, No.30 of Tangxia District, Dongshen Road, Tangxia Town, Dongguan, 523710, People's Republic of China

4 General Information

4.1 General Description of E.U.T.

Product Name	:	Stage One
Model Name	:	S1
Sample ID	:	250106084
Sample(s) Status:	:	Engineer sample
Operating frequency	:	2403.5-2477.3MHz
Number of Channels	:	49 channels
Type of Modulation	:	FSK
Antenna installation	:	Internal Antenna 1
Antenna Gain	:	2.30dBi
Power supply	:	DC 21.9V By Li-ion Battery(5200mAh) *2 Recharged By Adapter Output
Hardware Version	:	N/A
Software Version	:	N/A
Adapter Rating	:	Model: CQ120-2600480-E2 Input: AC 100-240V, 50/60Hz, 2.0A Max Output: DC 26.0V, 4.8A, 124.8W
Remark：the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.		

4.2 Channel List

The EUT has been tested under its typical operating condition. Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2013 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonics of the highest fundamental frequency or to 40 GHz, whichever is lower).

The EUT has been tested under TX operating condition.

This EUT is a FHSS system, were conducted to determine the final configuration from all possible combinations. We use software control the EUT, Let EUT hopping on and transmit with highest power, all the modes FSK have been tested. 49 Channels are provided by EUT. The 3 channels of lower, medium and higher were chosen for test.

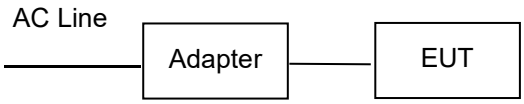
Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	**2403.5**	18	2431.2	36	2458.9
01	2405.1	19	2432.7	37	2460.4
02	2406.6	20	2434.3	38	2461.9
03	2408.1	21	2435.8	39	2463.5
04	2409.7	22	2437.4	40	2465.0
05	2411.2	23	2438.9	41	2466.6
06	2412.8	**24**	**2440.4**	42	2468.1
07	2414.3	25	2442.0	43	2469.6
08	2415.8	26	2443.5	44	2471.2
09	2417.4	27	2445.0	45	2472.7
10	2418.9	28	2446.6	46	2474.2
11	2420.4	29	2448.1	47	2475.8
12	2422.0	30	2449.6	**48**	**2477.3**
13	2423.5	31	2451.2		
14	2425.1	32	2452.7		
15	2426.6	33	2454.3		
16	2428.1	34	2455.8		
17	2429.7	35	2.457.3		

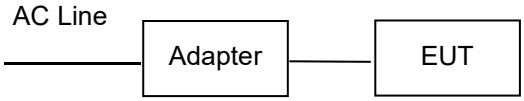
Channel	**Frequency(MHz)**
0	2403.5
24	2440.4
48	2477.3

4.3 Test Setup Configuration

Conducted Emission



Radiated Emission



Conducted Spurious

4.4 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

Test Software	Hoff-SXC-XDT_HUB1_MX2
Power level setup	≤16dBm

5 Equipment During Test

5.1 Equipments List

Equipment	Manufacturer	Model No.	Serial No.	Date of Cal.	Valid until
For conducted emission at the mains terminals and signal port test 944 Shielded Room					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-089	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	Apr 14, 25	Apr 13, 26
ArtificialMains Network	Rohde&Schwarz	ENV216	101314	Mar 05, 25	Mar 04, 26
RF Cable	FUJIKURA	3D-2W	KWET-030	Apr 14, 25	Apr 13, 26
Socket	Gongniu	KWET-003A1	KWET-003A1	Feb 21, 25	Feb 20, 26
For radiated emission test (30MHz-1GHz)966 Chamber 2					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-087	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101178	Apr 14, 25	Apr 13, 26
TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00829	May 10, 25	May 09, 26
3m Semi-anechoic Chamber	YIHENDIANZI	966	YH-KW-966-02	Mar 08, 24	Mar 07, 26
RF Cable	EMC Instruments	EMCCFD400-NM-NM-2000	240307	Apr 14, 25	Apr 13, 26
RF Cable	EMC Instruments	EMCCFD400-NM-NM-9000	240309	Apr 14, 25	Apr 13, 26
For radiated emission test (Above 1GHz)966 Chamber 2					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-087	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101178	Apr 14, 25	Apr 13, 26
Spectrum Analyzer	Agilent	N9020A	MY56070279	Apr 14, 25	Apr 13, 26
Spectrum analyzer	R&S	FSV 40	101059	Nov 06, 24	Nov 05, 25

Horn Antenna	DAZE	ZN30701	11003	Jul 27, 25	Jul 26, 26
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1368	May 16, 25	May 15, 26
Signal Amplifier	WCS Technology	DLNA-18000-40000	KWET-138	Apr 19, 25	Apr 18, 26
3m anechoic Chamber	YIHENDIANZI	966	YH-KW-966-02	Mar 07, 25	Mar 06, 29
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-1000	240301	Apr 14, 25	Apr 13, 26
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-2000	240302	Apr 14, 25	Apr 13, 26
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-9000	240303	Apr 14, 25	Apr 13, 26
RF Cable(18G-40GHz)	WCS Technology	CA360P-29M29M-1M	W2415130001	Apr 14, 25	Apr 13, 26
RF Cable(18G-40GHz)	WCS Technology	CA360P-29M29M-9M	W2415110001	Apr 14, 25	Apr 13, 26
For conducted emission test（RF）					
MXG Signal Analyzer	Agilent	N9020A	MY56070279	Apr 14, 25	Apr 13, 26
RF SWITCH BOX	CSKJ	SMU-1003	KWET-047	Apr 14, 25	Apr 13, 26
Attenuator	R&S	ESH3-Z2	102696	Apr 14, 25	Apr 13, 26
Power meter	YOKOKAWA	WY210	27D528405	Apr 14, 25	Apr 13, 26
RF sma cable	Keysight	ULC-1m-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1m-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1.5FT-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1.5FT-SMSM+	1623	May 15, 25	May 14, 26
Coupler	Keysight	ZHDC-10-63-S+	SF331801603	May 15, 25	May 14, 26
Test Software	CSKJ	CS-305X	KWET-149	/	/

5.2 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** %。

Parameter	**Uncertainty**
RF output power, conducted	±1.0dB
Power Spectral Density, conducted	±2.2dB
Radio Frequency	± 1 x 10^{-6}
Bandwidth	± 1.5 x 10^{-6}
Duty Cycle	±2%
Spurious emissions,conducted	±0.21dB
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emissions (150kHz~30MHz)	±3.64dB
Radiated Emission(9KHz~30MHz)	±4.51dB
Radiated Emission(30MHz~1GHz)	±5.03dB
Radiated Emission(1GHz~25GHz)	±4.74dB
Radiated Emission(25GHz~40GHz)	±3.38dB

5.3 Description of Support Units

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
E-1	Stage One	N/A	S1	N/A	EUT
E-2	Notebook	lenovo	B40-80	MP07F6JD	Auxiliary

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.

6 Conducted Emission

Test Requirement:	:	FCC CFR 47 Part 15 Section 15.207& RSS-Gen [8.8]
Test Method:	:	ANSI C63.10:2013
Test Result:	:	PASS
Frequency Range:	:	150kHz to 30MHz
Class/Severity:	:	Class B
Detector:	:	Peak for pre-scan (9kHz Resolution Bandwidth)

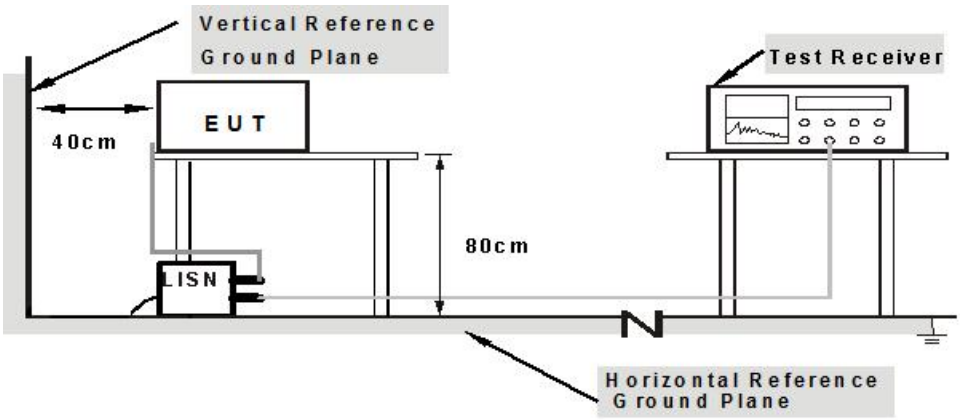
6.1 E.U.T. Operation

Operating Environment **:**

Temperature:	:	23.5°C
Humidity:	:	54 % RH
Atmospheric Pressure:	:	101.12 kPa
Test Voltage	:	AC 120V/60Hz

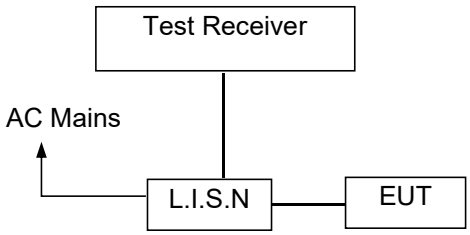
6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10: 2013



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

6.3 Test SET-UP (Block Diagram of Configuration)



6.4 Measurement Procedure:

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

6.5 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies

2.The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

6.6 Measurement Description

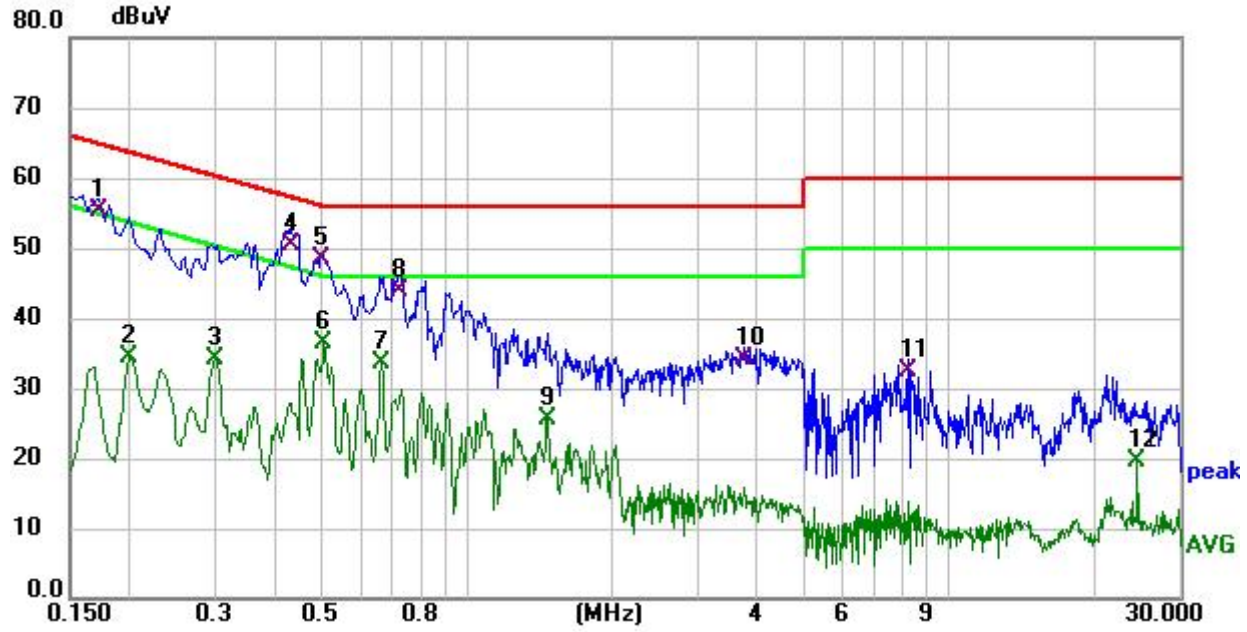
The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.7 Conducted Emission Test Result

Pass

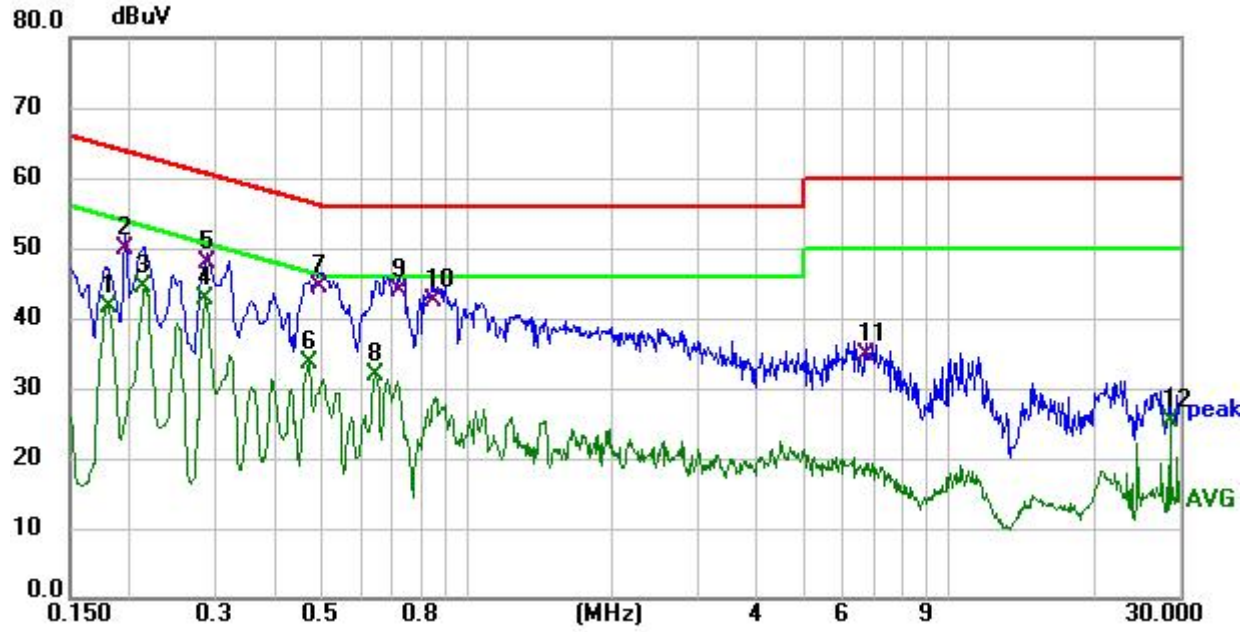
Conducted emission at both 120V & 240V is assessed, and emission at 120V represents the worst case. All the modulation modes were tested the data of the worst mode (FSK) are recorded in the following pages and the others modulation methods do not exceed the limits.

Channel:	High	Phase :	L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.172	45.17	10.08	55.25	64.86	-9.61	QP	P	
2	0.200	24.44	10.01	34.45	53.61	-19.16	AVG	P	
3	0.298	24.26	9.95	34.21	50.30	-16.09	AVG	P	
4 *	0.429	40.35	9.96	50.31	57.27	-6.96	QP	P	
5	0.499	38.31	10.00	48.31	56.02	-7.71	QP	P	
6	0.505	26.49	10.01	36.50	46.00	-9.50	AVG	P	
7	0.663	23.37	10.10	33.47	46.00	-12.53	AVG	P	
8	0.726	33.67	10.13	43.80	56.00	-12.20	QP	P	
9	1.468	14.97	10.48	25.45	46.00	-20.55	AVG	P	
10	3.763	24.03	10.23	34.26	56.00	-21.74	QP	P	
11	8.200	21.64	10.70	32.34	60.00	-27.66	QP	P	
12	24.575	8.69	10.83	19.52	50.00	-30.48	AVG	P	

Channel:	High	Phase :	N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.181	31.52	10.08	41.60	54.44	-12.84	AVG	P	
2	0.195	39.78	10.02	49.80	63.83	-14.03	QP	P	
3	0.213	34.56	9.99	44.55	53.09	-8.54	AVG	P	
4 *	0.285	32.61	9.98	42.59	50.67	-8.08	AVG	P	
5	0.289	37.84	9.98	47.82	60.55	-12.73	QP	P	
6	0.469	23.34	10.12	33.46	46.53	-13.07	AVG	P	
7	0.492	34.25	10.14	44.39	56.13	-11.74	QP	P	
8	0.649	21.67	10.21	31.88	46.00	-14.12	AVG	P	
9	0.726	33.49	10.23	43.72	56.00	-12.28	QP	P	
10	0.852	32.08	10.27	42.35	56.00	-13.65	QP	P	
11	6.700	24.33	10.42	34.75	60.00	-25.25	QP	P	
12	28.750	14.14	11.08	25.22	50.00	-24.78	AVG	P	

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

7 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247& RSS-247 [5.5]

Test Method : ANSI C63.10:2013

Test Result : PASS

Measurement Distance : 3m

Limit : See the follow table

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)	$20\log^{(2400/F(kHz))}$ + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))}$ + 40
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)}$ + 40
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

ISED

Frequency (MHz)	Magnetic field strength (H-Field) (μA/m)	Measurement distance (m)
0.009 ~ 0.490	6.37/F (F in kHz)	300
0.490 ~ 1.705	63.7/F (F in kHz)	30
1.705 ~ 30	0.08	30
Frequency (MHz)	Field strength (μV/m at 3 metres)	
30 ~ 88	100	
88 ~ 216	150	
216 ~ 960	200	
Above 960	500	

7.1 EUT Operation

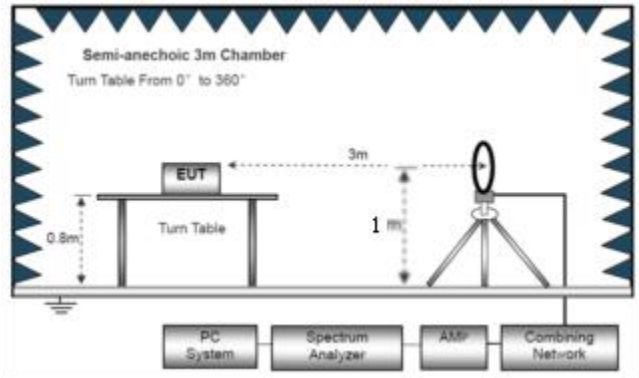
Operating Environment :

Temperature	:	26 °C
Humidity	:	54% RH
Atmospheric Pressure	:	101.3kPa
Test Voltage	:	AC 120V60Hz

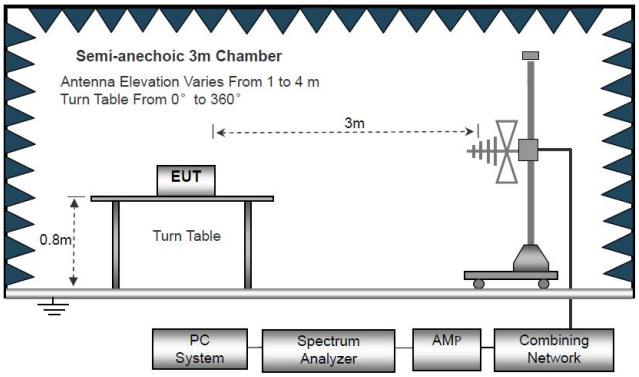
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

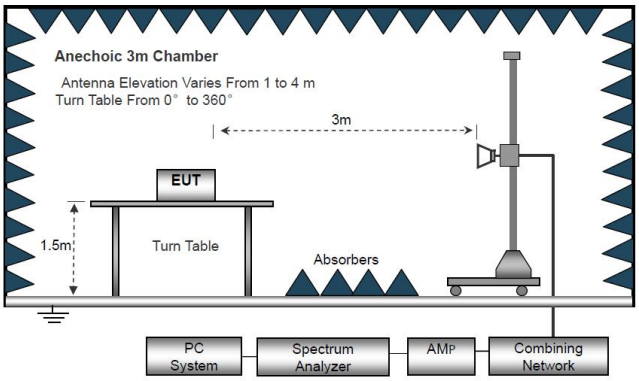
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / *10Hz* for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

7.4 Test Procedure

1. The testing follows the guidelines in Spurious Radiated Emissions of ANSI C63.10-2013.

2. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane. And above 1000MHz, The EUT was placed on a styrofoam table which is 0.8mm above ground plane.

3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (From 1m to 4m) and turntable (from 0 degree to 360 degree) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.

5. Set to the maximum power setting and enable the EUT transmit continuously.

6. Final measurement (Above 1GHz): The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1MHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 degree to 360 degree in order to have the antenna inside the cone of radiation.

7. Test Procedure of measurement (For Above 1GHz):

1) Monitor the frequency range at horizontal polarization and move the antenna over all sides of the EUT(if necessary move the EUT to another orthogonal axis).

2) Change the antenna polarization and repeat 1) with vertical polarization.

3) Make a hardcopy of the spectrum.

4) Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.

5) Change the analyser mode to Clear/ Write and found the cone of emission.

6) Rotate and move the EUT, so that the measuring distance can be enlarged to 3m and the antenna will be still inside the cone of emission.

7) Measure the level of the detected frequency with the correct resolution bandwidth, with the antenna polarization and azimuth and the peak and average detector, which causes the maximum emission.

8) Repeat steps 1) to 7) for the next antenna spot if the EUT is larger than the antenna beamwidth.

8. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.

7.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
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Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

Please refer to the following test plots,High Channel (2477.3MHz) Worst case FSK for record:

Model:	S1

Test plot for Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	57.999	11.03	13.20	24.23	40.00	-15.77	QP			P	
2	102.001	21.71	10.86	32.57	43.50	-10.93	QP			P	
3 *	152.130	19.54	14.68	34.22	43.50	-9.28	QP			P	
4	175.036	20.37	12.40	32.77	43.50	-10.73	QP			P	
5	237.476	21.67	11.73	33.40	46.00	-12.60	QP			P	
6	297.224	18.99	13.57	32.56	46.00	-13.44	QP			P	

Remark:Emission Level=Reading+Cable Loss+ANT Factor-Preamp Factor

Model:	S1

Test plot for Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	42.600	20.16	13.18	33.34	40.00	-6.66	QP			P	
2	100.934	22.63	10.49	33.12	43.50	-10.38	QP			P	
3	123.265	20.49	12.78	33.27	43.50	-10.23	QP			P	
4	157.559	18.79	14.43	33.22	43.50	-10.28	QP			P	
5	199.286	22.74	11.24	33.98	43.50	-9.52	QP			P	
6	298.268	21.52	13.59	35.11	46.00	-10.89	QP			P	

Remark:Emission Level=Reading+Cable Loss+ANT Factor-Preamp Factor

Test Frequency 1GHz-25GHz

SKAA(FSK)mode have been tested, and the worst result(FSK) was report as below

FSK

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:2403.5MHz									
V	4807	50.65	34.12	5.03	32.39	53.95	74	-20.05	Pk
V	4807	40.43	34.12	5.03	32.39	43.73	54	-10.27	AV
V	7210.5	42.01	32.54	6.29	35.86	51.62	74	-22.38	Pk
V	7210.5	32.00	32.54	6.29	35.86	41.61	54	-12.39	AV
V	9614	39.75	32.98	7.55	38.4	52.72	74	-21.28	Pk
V	9614	30.78	32.98	7.55	38.4	43.75	54	-10.25	AV
V	12017.5	38.86	32.09	8.93	39	54.70	74	-19.30	Pk
V	12017.5	29.82	32.09	8.93	39	45.66	54	-8.34	AV
H	4807	52.89	34.12	5.03	32.39	56.19	74	-17.81	Pk
H	4807	41.16	34.12	5.03	32.39	44.46	54	-9.54	AV
H	7210.5	43.23	32.54	6.29	35.86	52.84	74	-21.16	Pk
H	7210.5	33.18	32.54	6.29	35.86	42.79	54	-11.21	AV
H	9614	41.16	32.98	7.55	38.4	54.13	74	-19.87	Pk
H	9614	31.74	32.98	7.55	38.4	44.71	54	-9.29	AV
H	12017.5	39.91	32.09	8.93	39	55.75	74	-18.25	Pk
H	12017.5	29.93	32.09	8.93	39	45.77	54	-8.23	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:2440.4MHz									
V	4880.8	51.95	34.07	5.09	32.59	55.56	74	-18.44	Pk
V	4880.8	40.54	34.07	5.09	32.59	44.15	54	-9.85	AV
V	7321.2	41.18	32.63	6.34	35.96	50.85	74	-23.15	Pk
V	7321.2	33.92	32.63	6.34	35.96	43.59	54	-10.41	AV
V	9761.6	41.49	32.92	7.59	38.4	54.56	74	-19.44	Pk
V	9761.6	31.81	32.92	7.59	38.4	44.88	54	-9.12	AV
V	12202	39.37	31.96	8.88	39.04	55.33	74	-18.67	Pk
V	12202	29.91	31.96	8.88	39.04	45.87	54	-8.13	AV
H	4880.8	51.47	34.07	5.09	32.59	55.08	74	-18.92	Pk
H	4880.8	40.99	34.07	5.09	32.59	44.60	54	-9.40	AV
H	7321.2	41.82	32.63	6.34	35.96	51.49	74	-22.51	Pk
H	7321.2	34.10	32.63	6.34	35.96	43.77	54	-10.23	AV
H	9761.6	41.92	32.92	7.59	38.4	54.99	74	-19.01	Pk
H	9761.6	30.02	32.92	7.59	38.4	43.09	54	-10.91	AV
H	12202	37.79	31.96	8.88	39.04	53.75	74	-20.25	Pk
H	12202	28.83	31.96	8.88	39.04	44.79	54	-9.21	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:2477.3MHz									
V	4954.6	50.18	34.02	5.15	32.8	54.11	74	-19.89	Pk
V	4954.6	40.99	34.02	5.15	32.8	44.92	54	-9.08	AV
V	7431.9	41.26	32.71	6.4	36.05	51.00	74	-23.00	Pk
V	7431.9	33.86	32.71	6.4	36.05	43.60	54	-10.40	AV
V	9909.2	39.92	32.86	7.62	38.4	53.08	74	-20.92	Pk
V	9909.2	32.14	32.86	7.62	38.4	45.30	54	-8.70	AV
V	12386.5	38.70	31.82	8.84	39.08	54.80	74	-19.20	Pk
V	12386.5	28.93	31.82	8.84	39.08	45.03	54	-8.97	AV
H	4954.6	49.31	34.02	5.15	32.8	53.24	74	-20.76	Pk
H	4954.6	41.13	34.02	5.15	32.8	45.06	54	-8.94	AV
H	7431.9	42.84	32.71	6.4	36.05	52.58	74	-21.42	Pk
H	7431.9	34.17	32.71	6.4	36.05	43.91	54	-10.09	AV
H	9909.2	42.55	32.86	7.62	38.4	55.71	74	-18.29	Pk
H	9909.2	31.15	32.86	7.62	38.4	44.31	54	-9.69	AV
H	12386.5	39.47	31.82	8.84	39.08	55.57	74	-18.43	Pk
H	12386.5	29.81	31.82	8.84	39.08	45.91	54	-8.09	AV

Note: 1. The testing has been conformed to 10*2480MHz=24800MHz.

2. All other emissions more than 30dB below the limit.

3. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Emission Level = Reading + Factor
Margin=Emission Level-Limit

Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

SKAA (FSK)mode have been tested, and the worst result(FSK) was report as below

	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin(dB)	Detector Type	Result
FSK	Low Channel: 2403.5MHz										
	H	2390	56.19	35.17	3.48	27.49	51.99	74	-22.01	PK	PASS
	H	2390	46.64	35.17	3.48	27.49	42.44	54	-11.56	AV	PASS
	H	2400	55.60	35.16	3.49	27.52	51.45	74	-22.55	PK	PASS
	H	2400	46.05	35.16	3.49	27.52	41.90	54	-12.1	AV	PASS
	V	2390	57.21	35.17	3.48	27.49	53.01	74	-20.99	PK	PASS
	V	2390	46.98	35.17	3.48	27.49	42.78	54	-11.22	AV	PASS
	V	2400	55.98	35.16	3.49	27.52	51.83	74	-22.17	PK	PASS
	V	2400	44.41	35.16	3.49	27.52	40.26	54	-13.74	AV	PASS
	High Channel: 2477.3MHz										
	H	2483.5	55.90	35.11	3.56	27.75	52.10	74	-21.9	PK	PASS
	H	2483.5	47.28	35.11	3.56	27.75	43.48	54	-10.52	AV	PASS
	H	2500	57.55	35.1	3.57	27.8	53.82	74	-20.18	PK	PASS
	H	2500	47.64	35.1	3.57	27.8	43.91	54	-10.09	AV	PASS
	V	2483.5	55.94	35.11	3.56	27.75	52.14	74	-21.86	PK	PASS
	V	2483.5	58.02	35.11	3.56	27.75	54.22	54	0.22	AV	PASS
	V	2500	57.57	35.1	3.57	27.8	53.84	74	-20.16	PK	PASS
	V	2500	47.54	35.1	3.57	27.8	43.81	54	-10.19	AV	PASS

Remark:

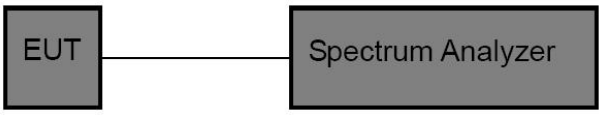
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit

8 Maximum Peak Output Power Test

8.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (b)(1) & RSS-247.5.4(b)
Test Limit	For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts. For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W.

8.2 Test Setup



8.3 Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above,

2. Spectrum Setting:

RBW > the 20 dB bandwidth of the emission being measured

Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

EIRP=Peak Output Power+Antenna Gain

8.4 Test Data

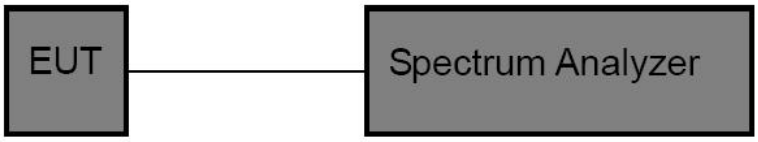
Please see the appendix V SKAA_Test data.

9 20DB Occupy Bandwidth & 99% OCB Test

9.1 Test Standard

Test Standard	FCC Part15 C Section 15.247 (a)(1)&RSS-247.5.1(b)&RSS-Gen.6.7

9.2 Test Setup



9.3 Test Procedure

Using the following spectrum analyzer settings:

1. Span= approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel.

2. Set the RBW = 30 kHz.

3. Set the VBW = 100 kHz.

4. Sweep time = auto couple.

5. Detector function = peak.

6. Trace mode = max hold.

7. Allow trace to fully stabilize.

9.4 Test Data

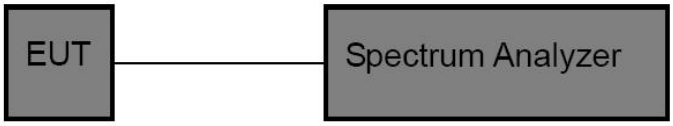
Please see the appendix V SKAA_Test data.

10 Carrier Frequency Separation Test

10.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1) & RSS-247.5.1(b)
Test Limit	FSK: 0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)

10.2 Test Setup



10.3 Test Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer settings:

1. Span= Wide enough to capture the peaks of two adjacent channels
2. Set the RBW = 100 kHz.
3. Set the VBW = 300 kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

10.4 Test Data

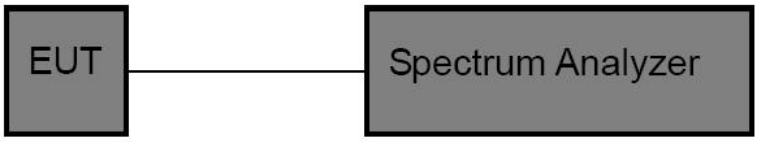
Please see the appendix V SKAA_Test data.

11 Number of Hopping Channel Test

11.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1) & RSS-247.5.1(b)
Test Limit	≥15 channels

11.2 Test Setup



11.3 Test Procedure

The EUT must have its hopping function enabled. Using the following spectrum analyzer setting:

1. Span= the frequency band of operation
2. Set the RBW = 100kHz.
3. Set the VBW = 300kHz.
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.

11.4 Test Data

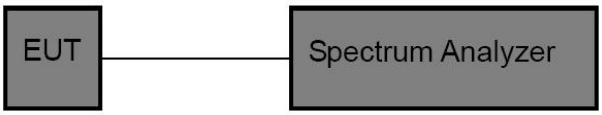
Please see the appendix V SKAA_Test data.

12 Dwell Time Test

12.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (a)(1) & RSS-247.5.1(d)
Test Limit	0.4 sec

12.2 Test Setup



12.3 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span= zero span, centered on a hopping channel

2. Set the RBW = 1 MHz.

3. Set the VBW = 3 MHz.

4. Sweep time = as necessary to capture the entire dwell time per hopping channel.

5. Detector function = peak.

6. Trace mode = max hold.

7. Allow trace to fully stabilize.

12.4 Test Data

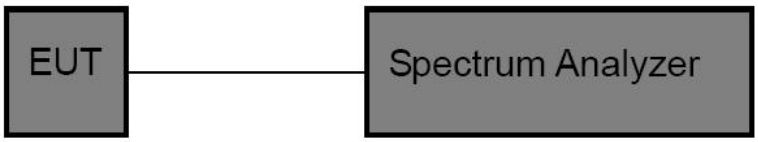
Please see the appendix V SKAA_Test data.

13 100kHz Bandwidth of Frequency Band Edge Requirement

13.1 Test Standard and Limit

Test Standard	FCC Part15 C Section 15.247 (d) & RSS-247 5.5
Test Limit	in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

13.2 Test Setup



13.3 Test Procedure

The EUT must have its hopping/Non-hopping function enabled. Using the following spectrum analyzer setting:

1. Set the RBW = 100kHz.

2. Set the VBW = 300kHz.

3. Sweep time = auto couple.

4. Detector function = peak.

5. Trace mode = max hold.

6. Allow trace to fully stabilize.

13.4 Test Data

Please see the appendix V SKAA_Test data.

14 Antenna Requirement

14.1 Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /247(c) & RSS-Gen 6.8
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. 2) 15.247(c) (1)(i) requirement: Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

14.2 Antenna Connected Construction

The antenna is Internal Antenna 1 which permanently attached, and the best case gain of the antenna is 2.30dBi. It complies with the standard requirement.

15 APPENDIX I -- TEST SETUP PHOTOGRAPH

Please see the attachment for details.

16 APPENDIX II -- EUT PHOTOGRAPH

Please see the attachment for details.

---------- End of Report ----------