TEST REPORT

Applicant:	DA KAI INDUSTRIES LIMITED.
Address of Applicant:	3/F., BLK. 4, LIANJIAN INDUSTRIAL PARK, HUA RONG ROAD, LONGHUA DISTRICT , SHENZHEN, GUANGDONG, CHINA
Manufacturer/Factory:	DA KAI INDUSTRIES LIMITED.
Address of Manufacturer/Factory:	3/F., BLK. 4, LIANJIAN INDUSTRIAL PARK, HUA RONG ROAD, LONGHUA DISTRICT , SHENZHEN, GUANGDONG, CHINA

Equipment Under Test (EUT)

Product Name:	2.4G Module
Model No.:	DKL 1613_V.1
FCC ID:	2APYU-DKL1613
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of sample receipt:	December 02,2019
Date of Test:	December 02-24,2019
Date of report issued:	December 25,2019
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	*December 25,2019*	*Original*

Prepared By:		***Date:***	*December 25,2019*
	Project Engineer		
Check By:		***Date:***	*December 25,2019*
	Reviewer		

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	N/A
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

Remark：

Test according to ANSI C63.10:2013.

Pass: The EUT complies with the essential requirements in the standard.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 General Description of EUT

Product Name:	2.4G Module
Model No.:	DKL 1613_V.1
Serial No.:	N/A
Test sample(s) ID:	GTS201912000310-1
Sample(s) Status	Engineer sample
Operation Frequency:	2402MHz~2465MHz
Channel numbers:	3
Modulation type:	GFSK
Antenna Type:	Cable antenna
Antenna gain:	0.4dBi(declare by Applicant)
Power supply:	DC 4.2V

Operation Frequency each of channel	
Channel	Frequency
1	2402MHz
2	2442MHz
3	2465MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the dutycycle >98%, 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.	

Pre-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	98.69	101.06	100.14

5.3 Description of Support Units

None

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

● **IC —Registration No.: 9079A**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2019	Oct. 18 2020
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2019	Oct. 18 2020
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2019	Oct. 18 2020
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 26 2019	June. 25 2020
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 26 2019	June. 25 2020
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 26 2019	June. 25 2020
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 26 2019	June. 25 2020
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 26 2019	June. 25 2020
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 26 2019	June. 25 2020
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 26 2019	June. 25 2020

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
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.	
EUT Antenna:	
The antenna is Cable antenna, the best case gain of the antenna is 0.4dBi *Please refer to the appendix of external and internal photo*	

7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.10:2013
Test Frequency Range:	9kHz to 25GHz
Test site:	Measurement Distance: 3m

Receiver setup:

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: (Field strength of the fundamental signal)

Frequency	Limit (dBuV/m @3m)	Remark
2400MHz-2483.5MHz	94.00	Average Value
	114.00	Peak Value

Limit: (Spurious Emissions)

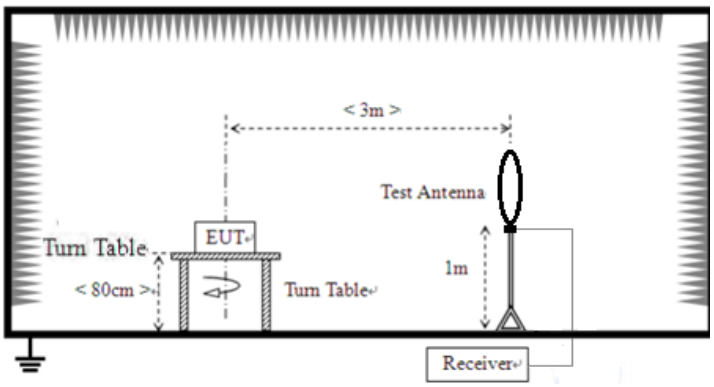
Frequency	Limit (uV/m)	Value	Measurement Distance
0.009MHz-0.490MHz	2400/F(KHz)	QP	300m
0.490MHz-1.705MHz	24000/F(KHz)	QP	300m
1.705MHz-30MHz	30	QP	30m
30MHz-88MHz	100	QP	3m
88MHz-216MHz	150	QP	
216MHz-960MHz	200	QP	
960MHz-1GHz	500	QP	
Above 1GHz	500	Average	
	5000	Peak	

Limit: (band edge)

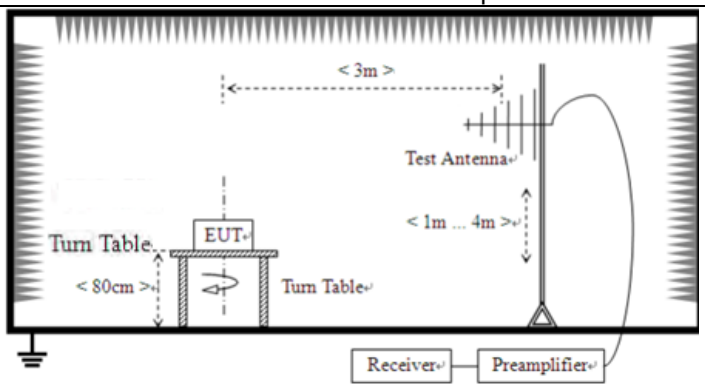
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

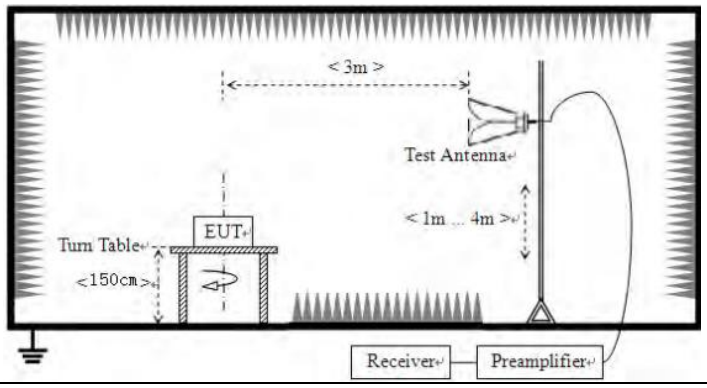
Test setup:

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz

<table>
<tr><td></td><td>


For radiated emissions above 1GHz


</td></tr>
<tr><td>Test Procedure:</td><td>
1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test voltage:</td><td>DC 5V</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

Measurement data:

7.2.1 Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	105.02	27.43	2.93	36.87	98.51	114.00	-15.49	Vertical
2402.00	104.39	27.43	2.93	36.87	97.88	114.00	-16.12	Horizontal
2442.00	103.65	27.52	2.95	36.89	97.23	114.00	-16.77	Vertical
2442.00	104.58	27.52	2.95	36.89	98.16	114.00	-15.84	Horizontal
2465.00	107.35	27.64	2.99	36.92	101.06	114.00	-12.94	Vertical
2465.00	106.54	27.64	2.99	36.92	100.25	114.00	-13.75	Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2402.00	85.24	27.43	2.93	36.87	78.73	94.00	-15.27	Vertical
2402.00	84.02	27.43	2.93	36.87	77.51	94.00	-16.49	Horizontal
2442.00	84.21	27.52	2.95	36.89	77.79	94.00	-16.21	Vertical
2442.00	85.36	27.52	2.95	36.89	78.94	94.00	-15.06	Horizontal
2465.00	85.46	27.64	2.99	36.92	79.17	94.00	-14.83	Vertical
2465.00	87.69	27.64	2.99	36.92	81.4	94.00	-12.6	Horizontal

Remark:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

7.2.2 Spurious emissions

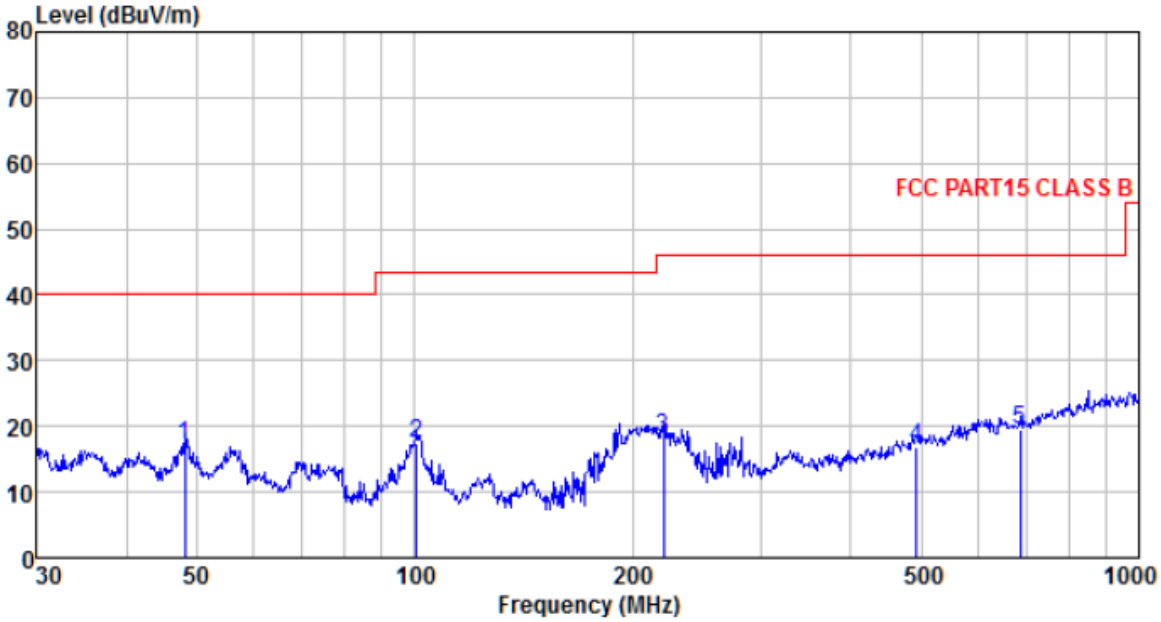
■ **9KHz to 30MHz**

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), the test result no need to reported.

■ **Below 1GHz**

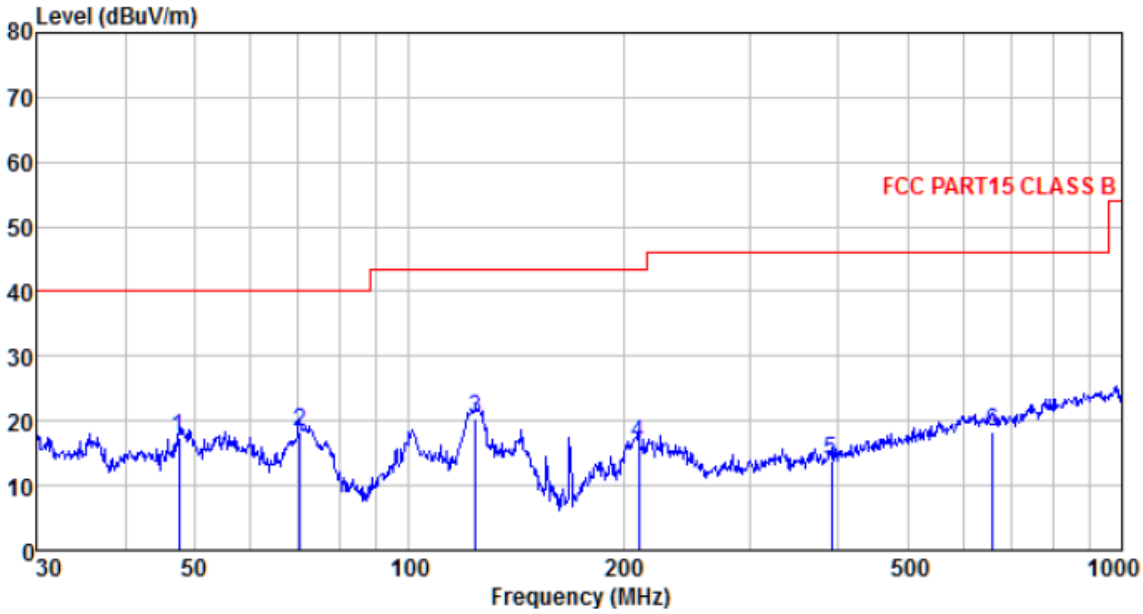
Note: Pre-test al of the lowest, middle and highest channel and found the highest channel was the worst case. So only show the worst test result on the report.

Mode:	Transmitting mode	Test channel:	Highest channel
Temp./Hum.(%H):	26℃/56%RH	Polarization:	Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
48.163	40.05	12.28	0.75	36.09	16.99	40.00	-23.01	QP
100.581	40.88	12.10	1.19	36.73	17.44	43.50	-26.06	QP
220.617	42.56	11.16	1.96	37.35	18.33	46.00	-27.67	QP
492.469	33.77	17.18	3.27	37.51	16.71	46.00	-29.29	QP
684.745	33.54	19.58	4.04	37.62	19.54	46.00	-26.46	QP

Mode:	Transmitting mode	Test channel:	Highest channel
Temp./Hum.(%H):	26℃/56%RH	Polarization:	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
47.492	40.37	12.28	0.74	36.06	17.33	40.00	-22.67	QP
70.337	46.18	7.50	0.94	36.45	18.17	40.00	-21.83	QP
124.133	46.88	8.96	1.39	36.91	20.32	43.50	-23.18	QP
210.048	41.23	10.80	1.90	37.34	16.59	43.50	-26.91	QP
390.723	33.34	15.16	2.81	37.51	13.80	46.00	-32.20	QP
658.836	32.34	19.56	3.94	37.59	18.25	46.00	-27.75	QP

■ **Above 1GHz**

Mode:	Transmitting mode	Test channel:	Lowest channel
Temp./Hum.(%H):	26℃/56%RH	Polarization:	Horizontal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	36.57	31.78	8.60	32.09	44.86	74.00	-29.14	Vertical
7206.00	32.37	36.15	11.65	32.00	48.17	74.00	-25.83	Vertical
9608.00	31.27	37.95	14.14	31.62	51.74	74.00	-22.26	Vertical
12010.00	*					74.00		Vertical
14412.00	*					74.00		Vertical
4804.00	41.52	31.78	8.60	32.09	49.81	74.00	-24.19	Horizontal
7206.00	33.62	36.15	11.65	32.00	49.42	74.00	-24.58	Horizontal
9608.00	31.47	37.95	14.14	31.62	51.94	74.00	-22.06	Horizontal
12010.00	*					74.00		Horizontal
14412.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4804.00	25.84	31.78	8.60	32.09	34.13	54.00	-19.87	Vertical
7206.00	21.12	36.15	11.65	32.00	36.92	54.00	-17.08	Vertical
9608.00	19.48	37.95	14.14	31.62	39.95	54.00	-14.05	Vertical
12010.00	*					54.00		Vertical
14412.00	*					54.00		Vertical
4804.00	29.78	31.78	8.60	32.09	38.07	54.00	-15.93	Horizontal
7206.00	22.26	36.15	11.65	32.00	38.06	54.00	-15.94	Horizontal
9608.00	18.84	37.95	14.14	31.62	39.31	54.00	-14.69	Horizontal
12010.00	*					54.00		Horizontal
14412.00	*					54.00		Horizontal

Remark:

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. *"*", means this data is the too weak instrument of signal is unable to test.*

Test channel:	Middle channel

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4882.00	37.12	31.85	8.67	32.12	45.52	74.00	-28.48	Vertical
7323.00	32.32	36.37	11.72	31.89	48.52	74.00	-25.48	Vertical
9764.00	32.05	38.35	14.25	31.62	53.03	74.00	-20.97	Vertical
12205.00	*					74.00		Vertical
14646.00	*					74.00		Vertical
4882.00	41.42	31.85	8.67	32.12	49.82	74.00	-24.18	Horizontal
7323.00	33.42	36.37	11.72	31.89	49.62	74.00	-24.38	Horizontal
9764.00	30.42	38.35	14.25	31.62	51.40	74.00	-21.60	Horizontal
12205.00	*					74.00		Horizontal
14646.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4882.00	26.02	31.85	8.67	32.12	34.42	54.00	-19.58	Vertical
7323.00	20.35	36.37	11.72	31.89	36.55	54.00	-17.45	Vertical
9764.00	19.75	38.35	14.25	31.62	40.73	54.00	-13.27	Vertical
12205.00	*					54.00		Vertical
14646.00	*					54.00		Vertical
4882.00	29.81	31.85	8.67	32.12	38.21	54.00	-15.39	Horizontal
7323.00	22.33	36.37	11.72	31.89	38.53	54.00	-15.94	Horizontal
9764.00	18.99	38.35	14.25	31.62	39.97	54.00	-13.89	Horizontal
12205.00	*					54.00		Horizontal
14646.00	*					54.00		Horizontal

Remark:

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. *"*", means this data is the too weak instrument of signal is unable to test.*

Test channel:	Highest channel

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4930.00	37.02	31.93	8.73	32.16	45.52	74.00	-28.48	Vertical
7395.00	32.13	36.59	11.79	31.78	48.73	74.00	-25.27	Vertical
9860.00	31.24	38.81	14.38	31.88	52.55	74.00	-21.45	Vertical
12325.00	*					74.00		Vertical
14790.00	*					74.00		Vertical
4930.00	41.24	31.93	8.73	32.16	49.74	74.00	-24.26	Horizontal
7395.00	33.15	36.59	11.79	31.78	49.75	74.00	-24.25	Horizontal
9860.00	30.78	38.81	14.38	31.88	52.09	74.00	-21.91	Horizontal
12325.00	*					74.00		Horizontal
14790.00	*					74.00		Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4930.00	26.12	31.93	8.73	32.16	34.62	54.00	-19.38	Vertical
7395.00	20.52	36.59	11.79	31.78	37.12	54.00	-16.88	Vertical
9860.00	19.36	38.81	14.38	31.88	40.67	54.00	-13.33	Vertical
12325.00	*					54.00		Vertical
14790.00	*					54.00		Vertical
4930.00	29.98	31.93	8.73	32.16	38.48	54.00	-15.52	Horizontal
7395.00	22.28	36.59	11.79	31.78	38.858	54.00	-15.12	Horizontal
9860.00	18.99	38.81	14.38	31.88	40.30	54.00	-13.70	Horizontal
12325.00	*					54.00		Horizontal
14790.00	*					54.00		Horizontal

Remark:

2. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

3. The emission levels of other frequencies are very lower than the limit and not show in test report.

"", means this data is the too weak instrument of signal is unable to test.*

7.2.3 Bandedge emissions

Mode:	Transmitting mode	Test channel:	Lowest channel
Temp./Hum.(%H):	26℃/56%RH	Polarization:	Horizontal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	39.06	27.59	5.38	30.18	41.85	74.00	-32.15	Horizontal
2400.00	55.30	27.58	5.39	30.18	58.09	74.00	-15.91	Horizontal
2390.00	39.24	27.59	5.38	30.18	42.03	74.00	-31.97	Vertical
2400.00	56.93	27.58	5.39	30.18	59.72	74.00	-14.28	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	30.47	27.59	5.38	30.18	33.26	54.00	-20.74	Horizontal
2400.00	41.48	27.58	5.39	30.18	44.27	54.00	-9.73	Horizontal
2390.00	30.14	27.59	5.38	30.18	32.93	54.00	-21.07	Vertical
2400.00	42.77	27.58	5.39	30.18	45.56	54.00	-8.44	Vertical

Test channel:	Highest channel

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	40.71	27.53	5.47	29.93	43.78	74.00	-30.22	Horizontal
2500.00	40.61	27.55	5.49	29.93	43.72	74.00	-30.28	Horizontal
2483.50	40.92	27.53	5.47	29.93	43.99	74.00	-30.01	Vertical
2500.00	41.24	27.55	5.49	29.93	44.35	74.00	-29.65	Vertical

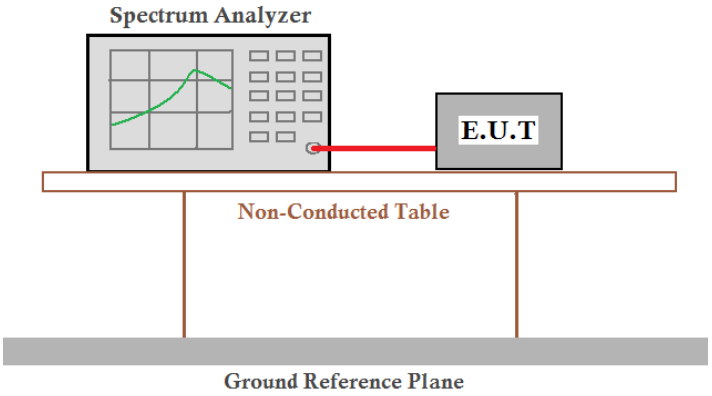
Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	33.26	27.53	5.47	29.93	36.33	54.00	-17.67	Horizontal
2500.00	31.80	27.55	5.49	29.93	34.91	54.00	-19.09	Horizontal
2483.50	34.15	27.53	5.47	29.93	37.22	54.00	-16.78	Vertical
2500.00	31.41	27.55	5.49	29.93	34.52	54.00	-19.48	Vertical

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*

7.3 20dB Occupy Bandwidth

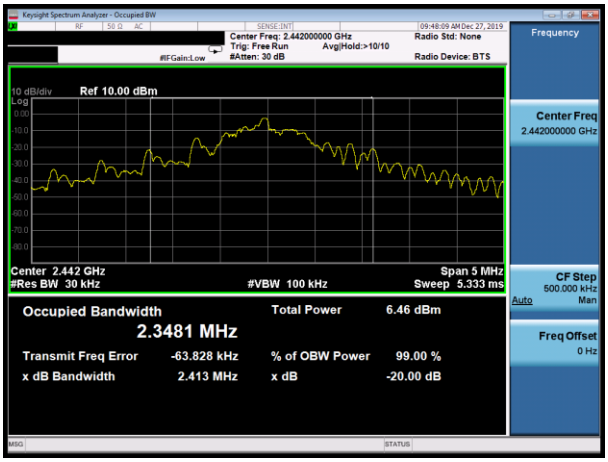
Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.10:2013
Limit:	Operation Frequency range 2400MHz~2483.5MHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Test channel	20dB bandwidth(MHz)	Result
2408MHz	2.1077	Pass
2450MHz	2.3481	Pass
2475MHz	2.4398	Pass

Test plot as follows:

2410MHz



2442MHz

2465MHz

8 Test Setup Photo

Please refer to the appendix of RF test setup photo.

9 EUT Constructional Details

Please refer to the appendix of external and internal photo

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