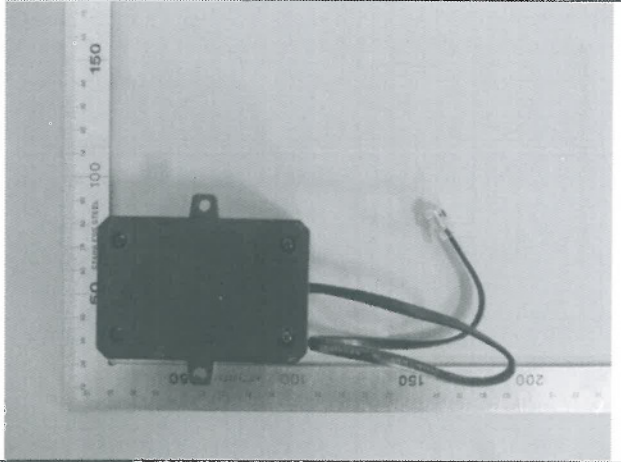


Prüfbericht-Nr.: <i>Test Report No.:</i>	50060522 001	Auftrags-Nr.: <i>Order No.:</i>	154185337	Seite 1 von 33 <i>Page 1 of 33</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	470783	Auftragsdatum: <i>Order date:</i>	2016.07.28	
Auftraggeber: <i>Client:</i>	OKIN Refined Electric Technology Co., Ltd Plant 4, No. 410, Xinyonglian Road, Wangjiangjing Development Zone, Jiaxing Zhejiang China			
Prüfgegenstand: <i>Test item:</i>	Bluetooth plugin control box			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	BT40A FCC ID: PCU-JLDP05 IC: 21319-JLDP05			
Auftrags-Inhalt: <i>Order content:</i>	Complete test			
Prüfgrundlage: <i>Test specification:</i>	FCC CFR47 Part 15, Subpart C Section 15.247 RSS-Gen Issue 4, November 2014 RSS-247 Issue 1, May 2015 ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v03r05 KDB 447498 D01 General RF Exposure Guidance V06 RSS-102 Issue 5, May 2015			
Wareneingangsdatum: <i>Date of receipt:</i>	2016.10.14			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000438897-001			
Prüfzeitraum: <i>Testing period:</i>	2016.10.14 to 2016.10.20			
Ort der Prüfung: <i>Place of testing:</i>	MRT Technology(Suzhou) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
2016.11.01	Elliot Zhang / Senior Project Engineer	2016.11.01	Shi Li / Section Manager	
Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>
Sonstiges / Other				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend
	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	5 = mangelhaft
Legend:	1 = very good	2 = good	3 = satisfactory	4 = sufficient
	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	5 = poor
				N/T = nicht getestet
				N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

V04

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 PEAK OUTPUT POWER

RESULT: Pass

5.1.3 6dB BANDWIDTH

RESULT: Pass

5.1.4 CONDUCTED SPURIOUS EMISSIONS

RESULT: Pass

5.1.5 POWER SPECTRAL DENSITY

RESULT: Pass

5.2.1 CONDUCTED EMISSION

RESULT: Pass

5.3.1 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.4.1 RF EXPOSURE STATEMENT

RESULT: Pass

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1. General Remarks

1.1 Complementary Materials

Null.

2. Test Sites

2.1 Test Facilities

MRT Technology (Suzhou) Co., Ltd.

D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

The used test equipment is in accordance with CISPR 16 for measurement of radio interference.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance with the requirements of section 2.948 of the FCC rules. The description of the test facility is listed under FCC registration number 809388.

The Industry Canada has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance. The description of the test facility is listed under chambers filing number 11384A.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment
Conducted Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
EMI Test Receiver	R&S	ESR7	101209	2016.11.03
Two-Line V-Network	R&S	ENV216	101683	2016.11.03
Two-Line V-Network	R&S	ENV216	101684	2016.11.03
Temperature/Humidity Meter	Yuhuaze	N/A	N/A	2016.12.20

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	MY45300136	2016.12.08
EMI Test Receiver	R&S	ESR7	101209	2016.11.03
Preamplifier	Schwarzbeck	BBV 9721	9721-008	2017.04.16
Preamplifier	Agilent	83017A	MY53270040	2017.03.29
Loop Antenna	Schwarzbeck	FMZB1519	1519-041	2016.12.14
TRILOG Antenna	Schwarzbeck	VULB9162	9162-047	2016.11.07
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1167	2016.11.07
Broadband Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170549	2017.01.04
Digital Thermometer & Hygrometer	Minggao	N/A	N/A	2016.11.30

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	2017.05.08
USB Wideband Power Sensor	Boonton	55006	8911	2017.05.08
Temperature/Humidity Meter	Yuhuaze	N/A	N/A	2016.12.20

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Antenna Port Conducted Emission	< 1GHz	±0.39dB
	> 1GHz	±0.68dB
Radiated Emission	30MHz - 1GHz	±5.34dB
	> 1GHz	±5.40dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is a Bluetooth plugin control box which use the technic of Bluetooth 4.0 Low Engry Only.

It is a standalone part of the system which generally used in the application such as 'Home theatre', 'VIP room in cinema' or 'Living room'. Generally, it should be used combine with the Main Control Box which listed in clause 4.3. And it is powerd by the Main Control Box via the RJ9 line.

Other smart device can connect with the EUT via Bluetooth, so that the controll function from the smart device can be achieved.

For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Kind of Equipment	: Bluetooth plugin control box
Type Designation	: JLDP.05.046.000
Operating Frequency band	: 2402 – 2480MHz
Modulation	: GFSK
Operation Voltage	: DC 29V (Powered by the main box listed in clause 4.3)
Antenna	: PCB, Max gain 0dBi

3.3 Independent Operation Modes

The basic operation modes are:

- A. Transmitting
 - 1. Low Channel
 - 2. Middle Channel
 - 3. High Channel
- B. Receiving
 - 1. Low Channel
 - 2. Middle Channel
 - 3. High Channel
- C. Standby
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- | | |
|--------------------|----------------------|
| - Bill of Material | - Circuit Diagram |
| - PCB Layout | - Instruction Manual |
| - Photo Document | - Rating Label |

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

4.3 Special Accessories and Auxiliary Equipment

Device	Manufacture	Model No.	Operation Voltage
Main Control Box	OKIN Refined Electric Technology Co., Ltd	JLDP.03.022.000	AC 110V

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

5. Test Results

5.1 Conducted Testing at Antenna Port

5.1.1 Antenna Requirement

RESULT:**Pass**

According to the manufacturer declared, the EUT has one PCB antenna, the directional gain of antenna is 0dBi and the PCB antenna is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Table 3: Antenna Requirement

FCC 15.203 – Antenna Requirement 1	
Requirement:	No antenna other than that furnished by the responsible party shall be used with the device
Results:	Antenna type: PCB Antenna
Verdict:	PASS

FCC 15.204 – Antenna Requirement 2	
Requirement:	An intentional radiator may be operated only with the antenna with which it is authorized. If an antenna is marketed with the intentional radiator, it shall be of a type which is authorized with the intentional radiator.
Results:	Only one integral antenna can be used
Verdict:	PASS

RSS-Gen 6.3 – External Control	
Requirement:	The device shall not have any external controls accessible to the user that enable it to be adjusted, selected or programmed to operate in violation of the limits prescribed in the applicable RSS.
Results:	The device does not have any transmitter external controls accessible to the user that can be adjusted and operated in violation of the limits of this standard.
Verdict:	PASS

RSS-Gen 8.3 – Antenna Requirement

Requirement: When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacture.

Results:

a) Antenna type:	PCB Antenna
b) Manufacture:	N/A
c) Model No.:	N/A
d) Gain with reference to an isotropic radiator:	0dBi

Verdict: PASS

5.1.2 Peak Output Power

RESULT:**Pass**

Date of testing : 2016.10.14
Test standard : FCC Part 15.247(b)(3)
Clause 5.4(4) of RSS-247 Issue 1 May 2015
Test procedure : ANSI C63.10: 2013
Clause 9.1 of KDB 558074 D01 v03r05
Limit : FCC Part 15.247(b)(3)
Clause 5.4(4) of RSS-247 Issue 1 May 2015
Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
Operation Mode : A.1; A.2; A.3
Ambient temperature : 25°C
Relative humidity : 52%
Atmospheric pressure : 101kPa

Table 4: Peak Output Power

Mode	Freq. [MHz]	Maximum Peak Conducted Output Power [dBm]	Maximum Average Conducted Output Power [dBm]	Limit [dBm]
BLE	2402	-2.94	-3.36	30
	2440	-3.82	-4.32	30
	2480	-4.69	-5.26	30

5.1.3 6dB Bandwidth**RESULT:****Pass**

Date of testing : 2016.10.14
Test standard : FCC Part 15.247(a)(2)
Clause 5.2(1) of RSS-247 Issue 1 May 2015
Test procedure : ANSI C63.10: 2013
Clause 8 of KDB 558074 D01 v03r05
Limit : FCC Part 15.247(a)(2)
Clause 5.2(1) of RSS-247 Issue 1 May 2015
Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
Operation Mode : A.1; A.2; A.3
Ambient temperature : 25°C
Relative humidity : 52%
Atmospheric pressure : 101kPa

Table 5: 6dB Bandwidth

Mode	Frequency [MHz]	6dB Bandwidth [kHz]	99% Bandwidth [kHz]	Limit [kHz]
BLE	2402	673.3	1103.5	500
	2440	683.5	1114.9	500
	2480	684.3	1106.3	500

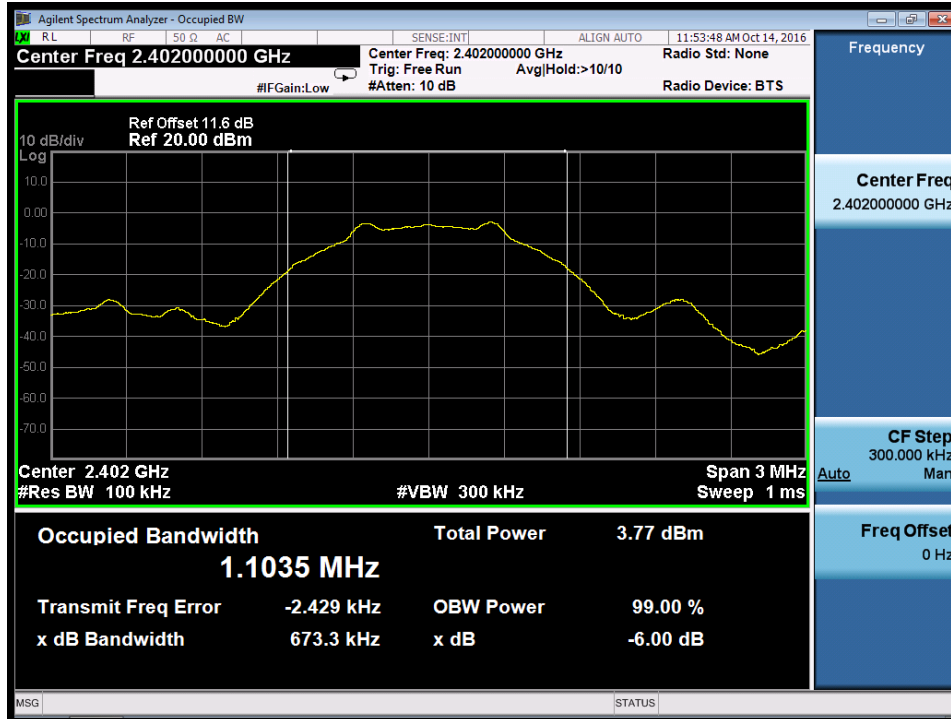
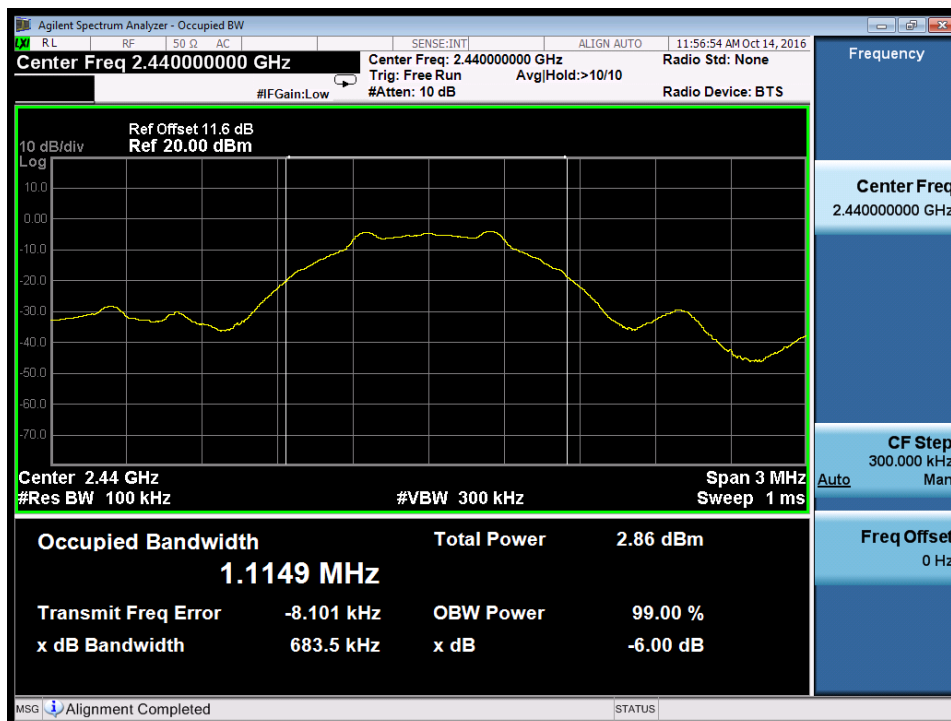
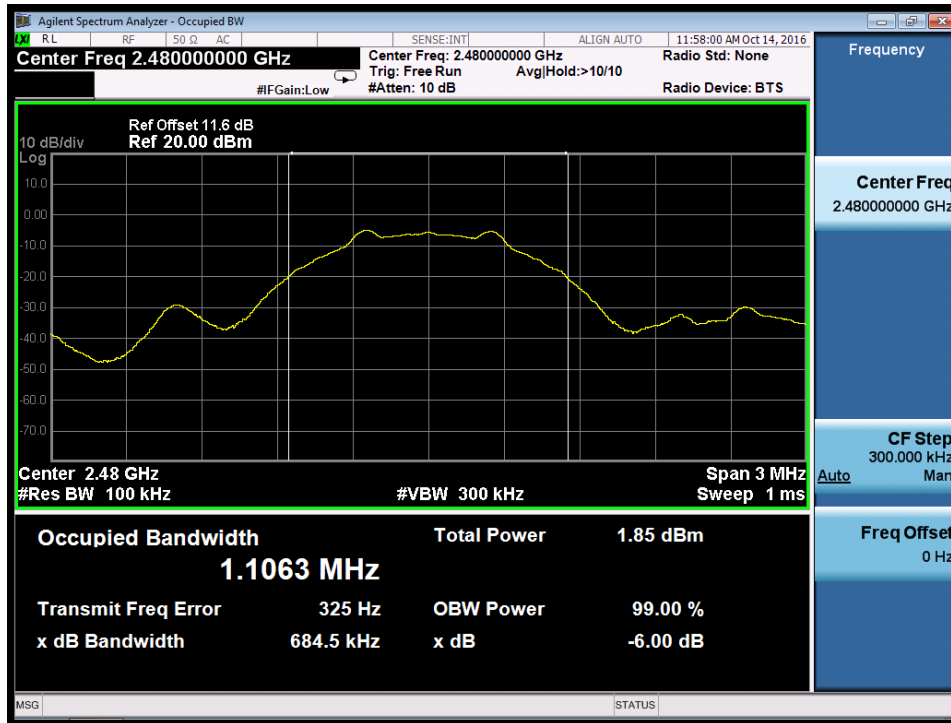
Figure 1: 6dB Bandwidth, 2402MHz

Figure 2: 6dB Bandwidth, 2440MHz


Figure 3: 6dB Bandwidth, 2480MHz



5.1.4 Conducted Spurious Emissions

RESULT:
Pass

Date of testing : 2016.10.14
 Test standard : FCC Part 15.247(d)
 Clause 5.5 of RSS-247 Issue 1 May 2015
 Test procedure : ANSI C63.10: 2013
 Clause 11&12 of KDB 558074 D01 v03r05
 Limit : FCC Part 15.247(d)
 Clause 5.5 of RSS-247 Issue 1 May 2015
 Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A.1; A.2; A.3
 Ambient temperature : 25°C
 Relative humidity : 52%
 Atmospheric pressure : 101kPa

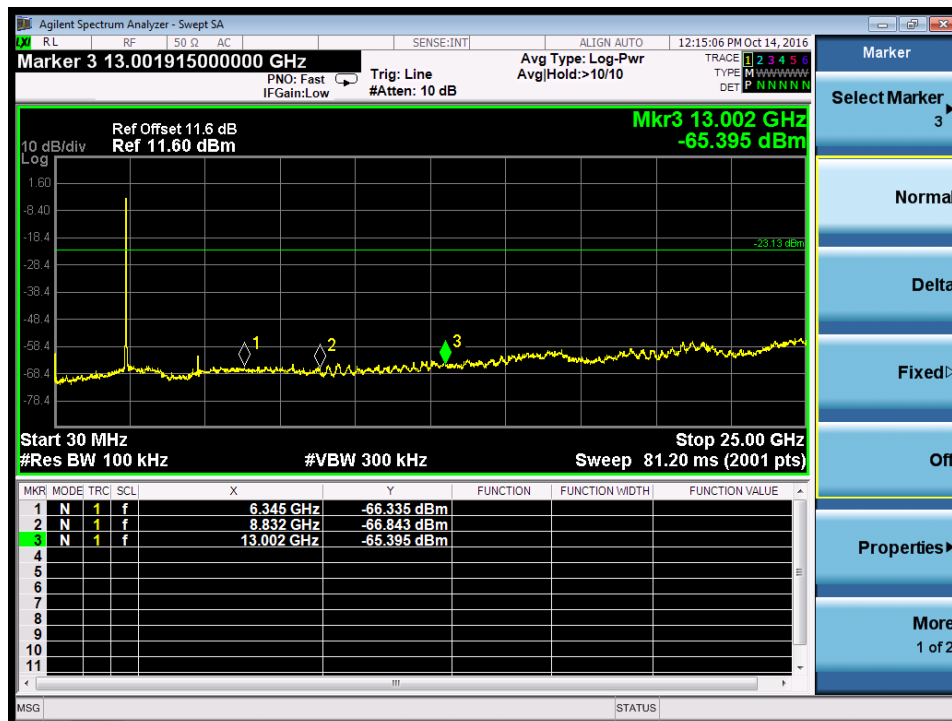
Figure 4: Conducted Spurious Emission, 2402MHz


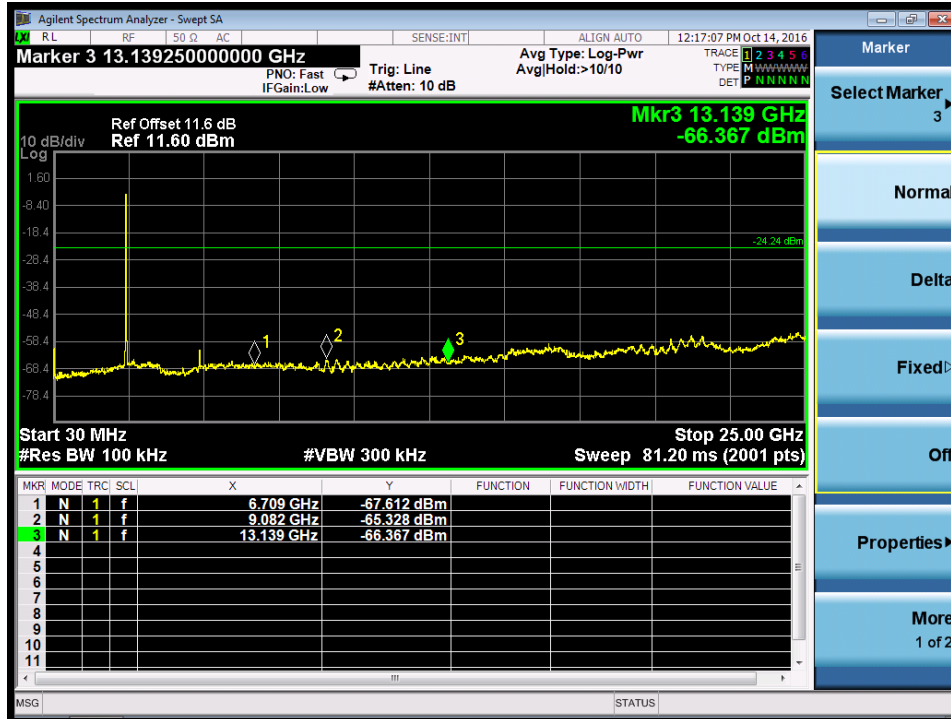
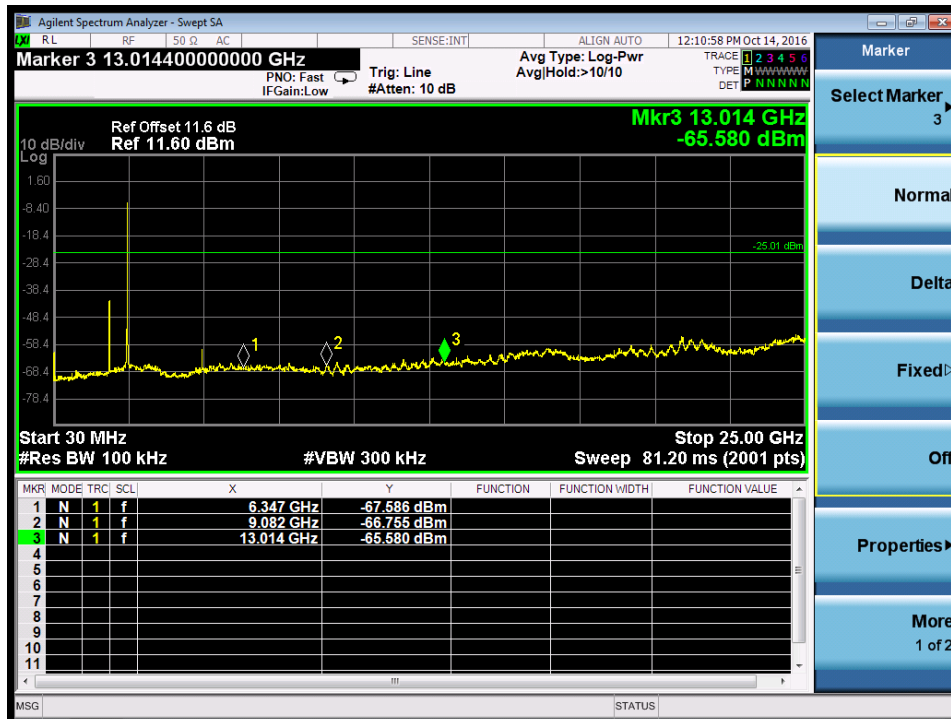
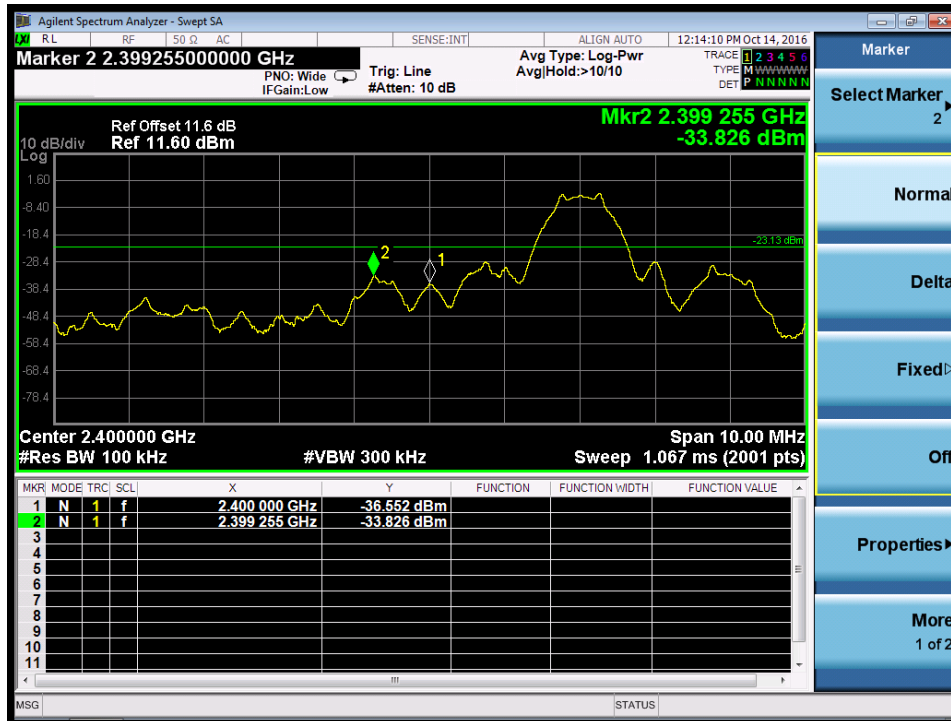
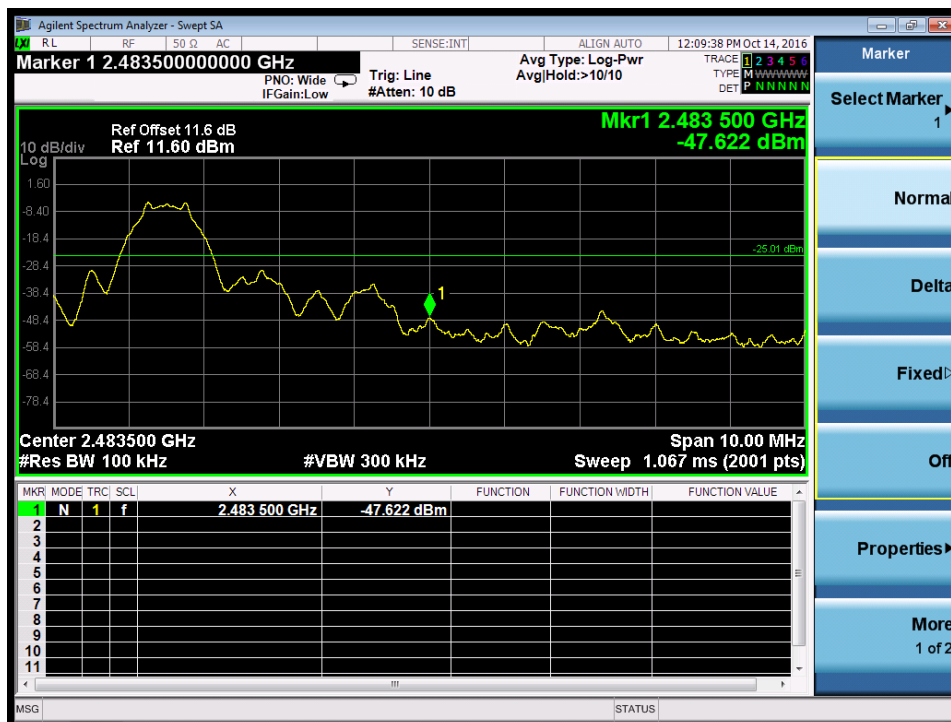
Figure 5: Conducted Spurious Emission, 2440MHz

Figure 6: Conducted Spurious Emission, 2480MHz


Figure 7: Conducted Bandedge, 2402MHz

Figure 8: Conducted Bandedge, 2480MHz


5.1.5 Power Spectral Density**RESULT:****Pass**

Date of testing : 2016.10.14
Test standard : FCC Part 15.247(e)
Clause 5.2(2) of RSS-247 Issue 1 May 2015
Test procedure : ANSI C63.10: 2013
Clause 10 of KDB 558074 D01 v03r05
Limit : FCC Part 15.247(e)
Clause 5.2(2) of RSS-247 Issue 1 May 2015
Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
Operation Mode : A.1; A.2; A.3
Ambient temperature : 25°C
Relative humidity : 52%
Atmospheric pressure : 101kPa

Table 6: Power Spectral Density

Mode	Frequency [MHz]	Result [dBm/3kHz]	Limit [dBm/3kHz]
BLE	2402	-14.882	8
	2426	-15.237	8
	2480	-16.452	8

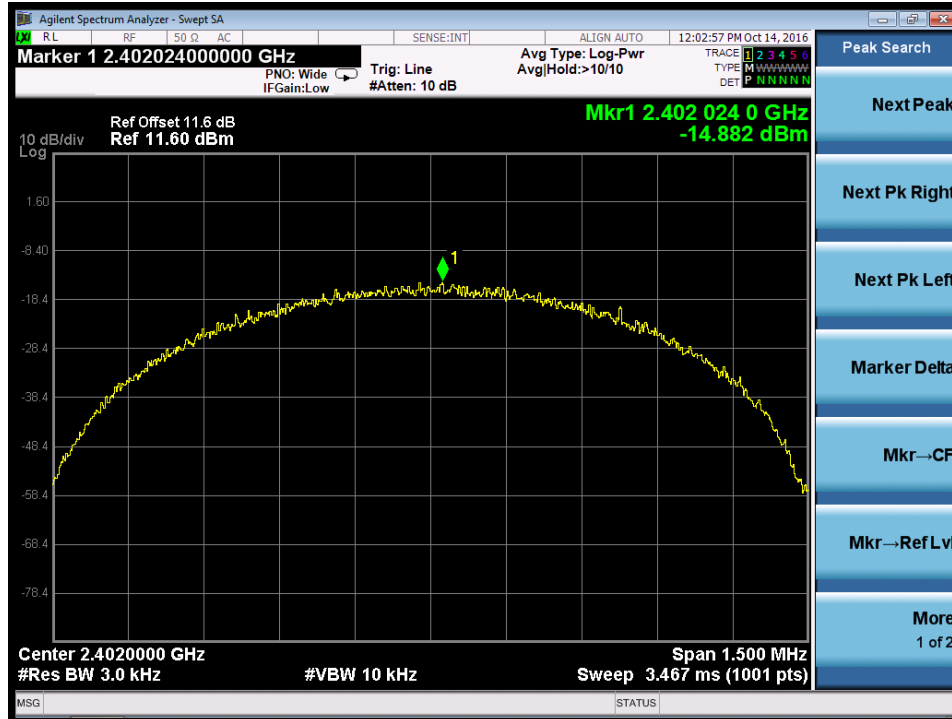
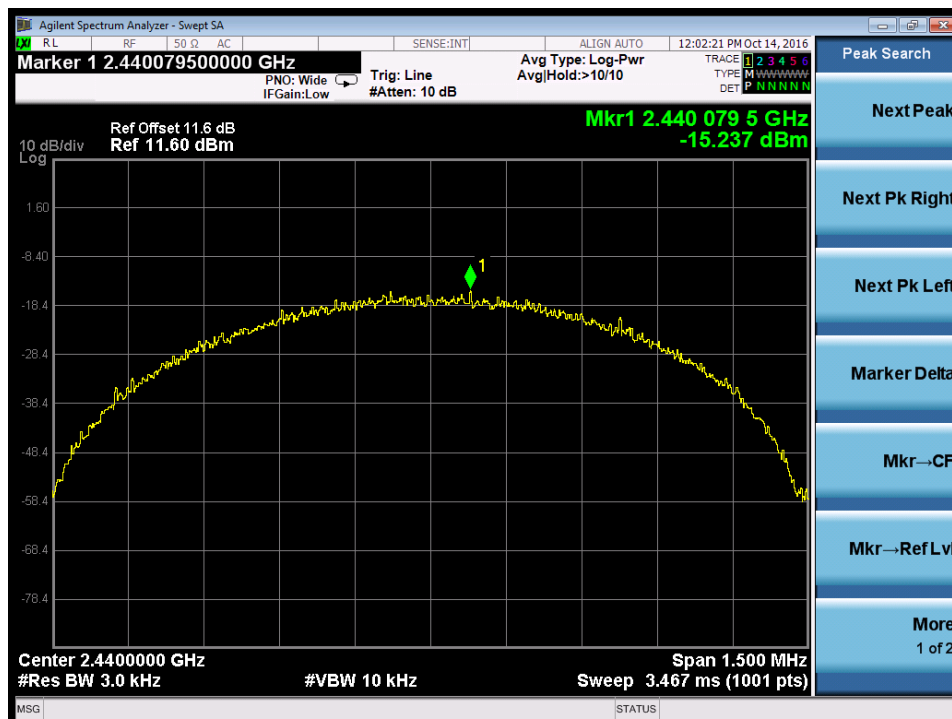
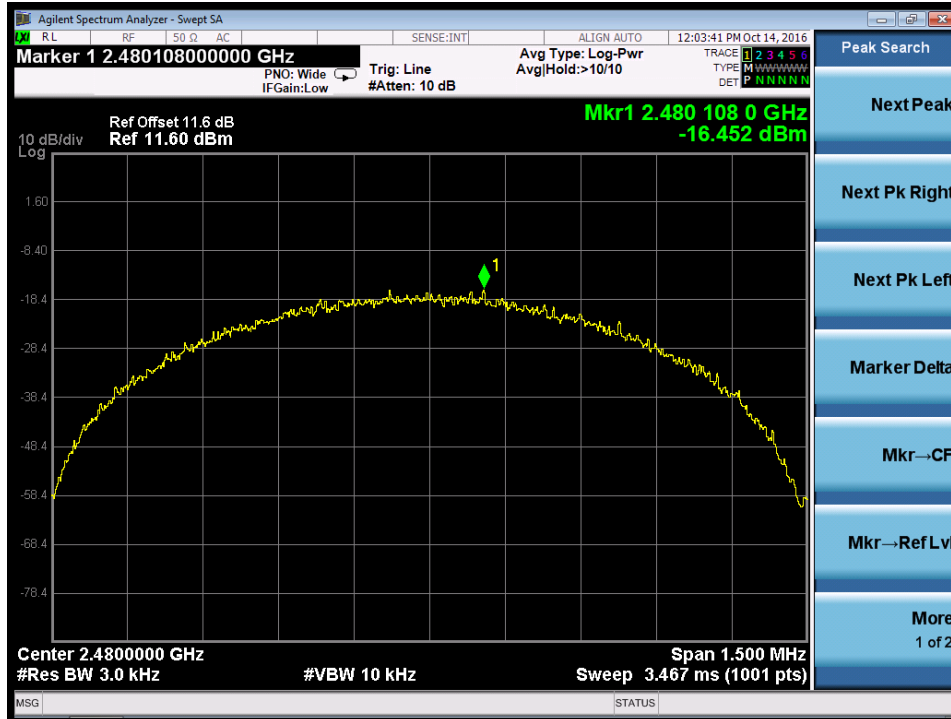
Figure 9: Power Spectral Density, 2402MHz

Figure 10: Power Spectral Density, 2440MHz


Figure 11: Power Spectral Density, 2480MHz



5.2 Emission in the Frequency Range up to 30MHz

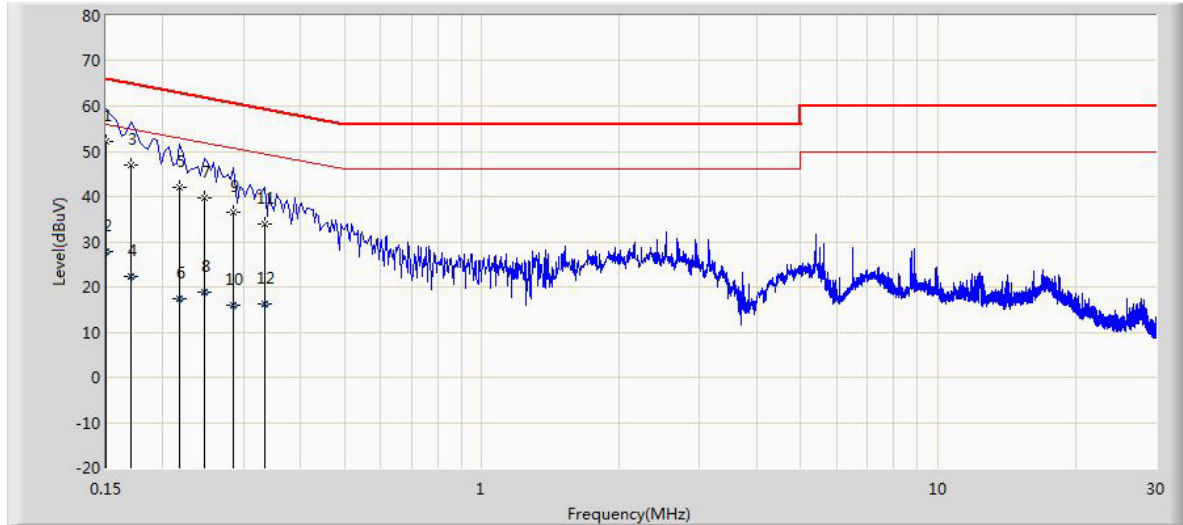
5.2.1 Conducted Emission

RESULT:**Pass**

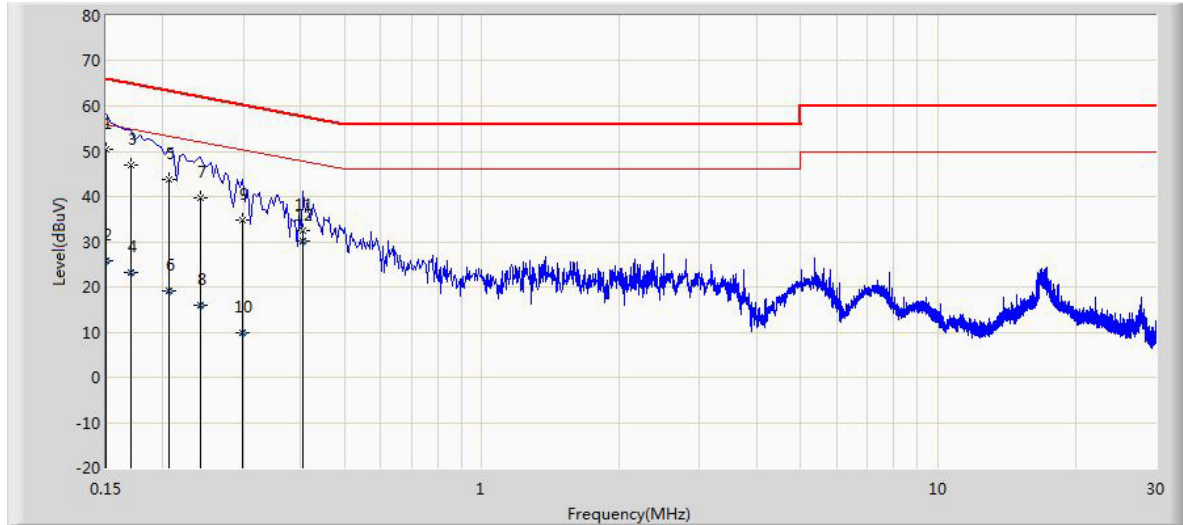
Date of testing	: 2016.10.20
Test standard	: FCC Part 15.207 (a) Clause 8.8 of RSS-Gen Issue 4, November 2014
Test procedure	: ANSI C63.10: 2013
Limit	: FCC Part 15.207(a) Clause 8.8 of RSS-Gen Issue 4, November 2014
Kind of test site	: Shielded room

Test setup

Operation Mode	: A
Ambient temperature	: 25°C
Relative humidity	: 52%
Atmospheric pressure	: 101kPa

Figure 12: Conducted Emission, L Line

Table 7: Conducted Emission, L Line

Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
0.150	52.161	40.992	-13.839	66.000	11.168	QP
0.150	27.927	16.759	-28.073	56.000	11.168	AV
0.170	46.854	36.777	-18.106	64.960	10.078	QP
0.170	22.339	12.262	-32.621	54.960	10.078	AV
0.218	41.930	31.985	-20.965	62.895	9.945	QP
0.218	17.381	7.436	-35.514	52.895	9.945	AV
0.246	39.820	29.859	-22.071	61.891	9.961	QP
0.246	18.717	8.756	-33.174	51.891	9.961	AV
0.286	36.405	26.412	-24.235	60.640	9.993	QP
0.286	15.798	5.806	-34.841	50.640	9.993	AV
0.334	33.776	23.745	-25.575	59.351	10.031	QP
0.334	16.289	6.257	-33.063	49.351	10.031	AV

Figure 13: Conducted Emission, N Line

Table 8: Conducted Emission, N Line

Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
0.150	50.295	39.153	-15.705	66.000	11.142	QP
0.150	25.739	14.597	-30.261	56.000	11.142	AV
0.170	46.998	36.934	-17.962	64.960	10.064	QP
0.170	23.064	13.000	-31.896	54.960	10.064	AV
0.206	43.652	33.651	-19.713	63.365	10.001	QP
0.206	19.105	9.104	-34.260	53.365	10.001	AV
0.242	39.637	29.642	-22.390	62.027	9.995	QP
0.242	15.898	5.903	-36.129	52.027	9.995	AV
0.298	34.754	24.718	-25.545	60.298	10.036	QP
0.298	9.714	-0.322	-40.584	50.298	10.036	AV
0.406	32.594	22.477	-25.136	57.730	10.116	QP
0.406	30.198	20.081	-17.532	47.730	10.116	AV

5.3 Emission in the Frequency Range above 30MHz

5.3.1 Radiated Spurious Emission

RESULT:
Pass

Date of testing : 2016.09.05
 Test standard : FCC Part 15.247(d)
 Clause 5.5 of RSS-247 Issue 1 May 2015
 Test procedure : ANSI C63.10: 2013
 Clause 11&12 of KDB 558074 D01 v03r05
 Limit : FCC Part 15.247(d)
 FCC Part 15.209(a)
 Clause 5.5 of RSS-247 Issue 1 May 2015
 Clause 8.9 of RSS-Gen Issue 4 November 2014
 Kind of test site : 3m Semi-Anechoic Chamber

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A.1; A.2; A.3
 Ambient temperature : 25°C
 Relative humidity : 52%
 Atmospheric pressure : 101kPa

Table 9: Radiated Spurious Emission, below 1GHz

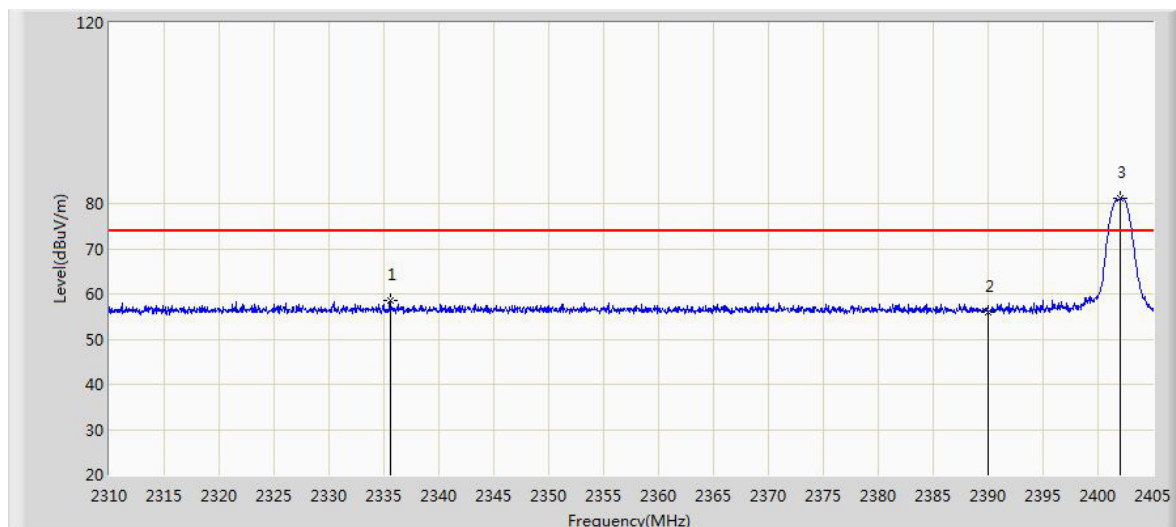
Channel	Freq. [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type	Ant. Pol.
Low	32.910	17.540	4.221	-22.460	40.000	13.319	QP	H
	191.990	21.134	10.778	-22.366	43.500	10.356	QP	H
	288.020	26.179	13.641	-19.821	46.000	12.538	QP	H
	384.050	31.270	16.798	-14.730	46.000	14.472	QP	H
	816.185	31.292	10.482	-14.708	46.000	20.810	QP	H
	912.215	32.973	11.172	-13.027	46.000	21.801	QP	H
	32.910	32.311	18.992	-7.689	40.000	13.319	QP	V
	56.190	19.331	6.280	-20.669	40.000	13.051	QP	V
	191.990	20.790	10.434	-22.710	43.500	10.356	QP	V
	384.050	29.895	15.423	-16.105	46.000	14.472	QP	V
	816.185	27.709	6.899	-18.291	46.000	20.810	QP	V
	912.215	24.046	2.245	-21.954	46.000	21.801	QP	V

Note:

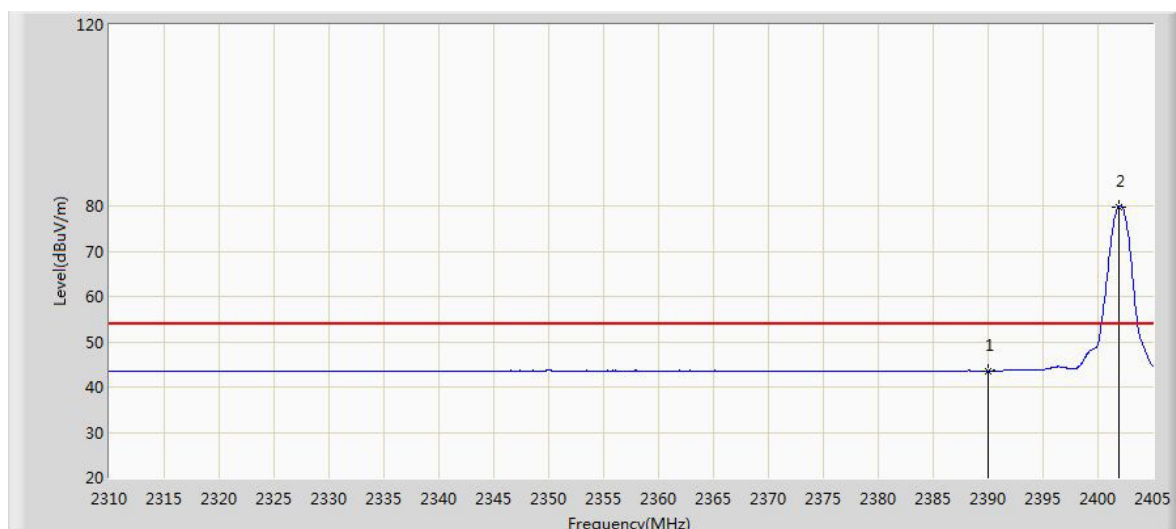
The radiated emission below 30MHz are very low, so they are not shown in this report.
 All the three channels have been evaluated, only the worst case was shown on the table above.

Table 10: Radiated Spurious Emission, above 1GHz

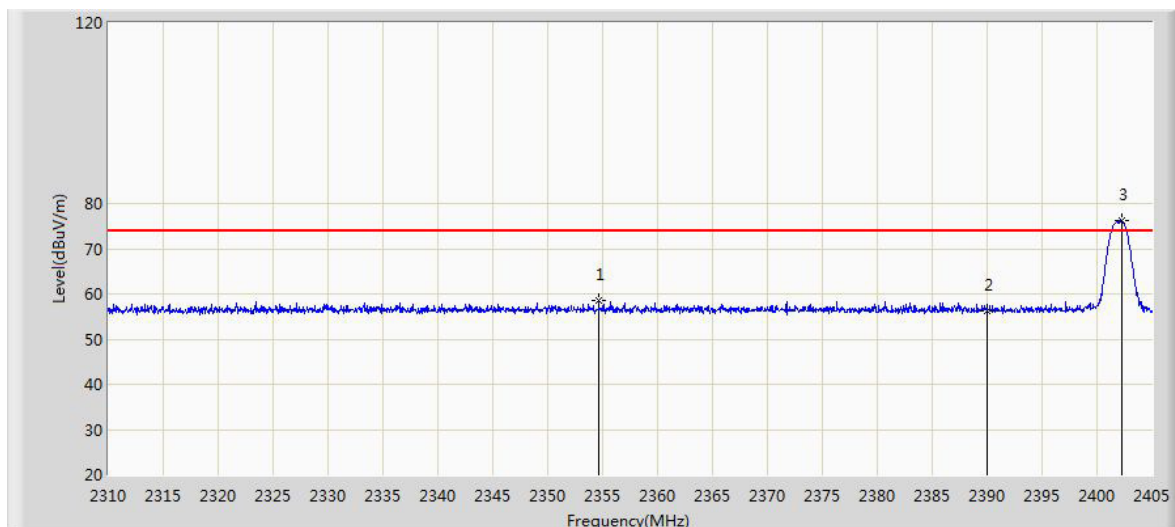
Channel	Freq. [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type	Ant. Pol.
Low	3864.500	34.801	34.713	-39.199	74.000	0.087	PK	H
	4833.500	35.923	33.225	-38.077	74.000	2.699	PK	H
	6627.000	39.825	33.806	-34.175	74.000	6.019	PK	H
	9814.500	44.872	33.298	-29.128	74.000	11.573	PK	H
	3983.500	35.895	35.530	-38.105	74.000	0.365	PK	V
	4816.500	37.149	34.452	-36.851	74.000	2.697	PK	V
	6508.000	41.130	35.159	-32.870	74.000	5.971	PK	V
	9746.500	44.653	33.351	-29.347	74.000	11.302	PK	V
Middle	3864.500	35.394	35.306	-38.606	74.000	0.087	PK	H
	4808.000	37.692	34.998	-36.308	74.000	2.694	AV	H
	6431.500	41.732	36.092	-32.268	74.000	5.640	PK	H
	9882.500	45.841	34.249	-28.159	74.000	11.592	PK	H
	3839.000	35.194	35.204	-38.806	74.000	-0.010	PK	V
	4731.500	37.264	34.793	-36.736	74.000	2.471	PK	V
	6482.500	41.067	35.207	-32.933	74.000	5.859	PK	V
	9738.000	45.496	34.283	-28.504	74.000	11.213	PK	V
High	3847.500	35.905	35.875	-38.095	74.000	0.029	PK	H
	4774.000	38.217	35.573	-35.783	74.000	2.644	PK	H
	6533.500	41.385	35.459	-32.615	74.000	5.927	PK	H
	9772.000	44.635	33.200	-29.365	74.000	11.435	PK	H
	3822.000	35.808	35.914	-38.192	74.000	-0.106	PK	V
	4893.000	37.576	34.881	-36.424	74.000	2.695	PK	V
	6559.000	41.191	35.228	-32.809	74.000	5.963	PK	V
	9729.500	44.212	33.073	-29.788	74.000	11.139	PK	V

Figure 14: Radiated Restricted Band Edge, 2402MHz, Horizontal, PK

Table 11: Radiated Restricted Band Edge, 2402MHz, Horizontal, PK,

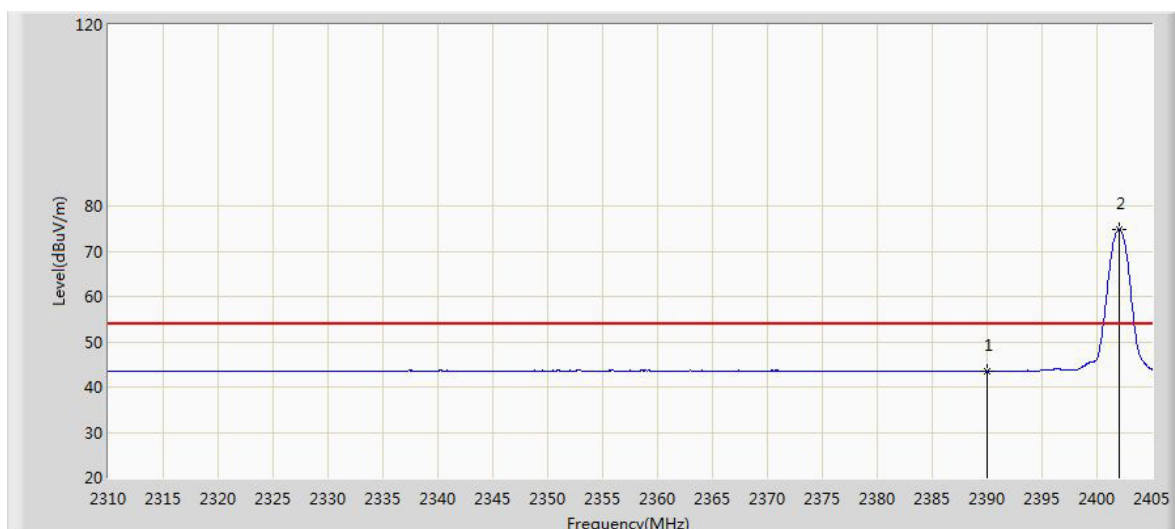
Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2335.603	58.478	27.128	-15.522	74.000	31.350	PK
2390.000	55.806	24.603	-18.194	74.000	31.203	PK
2402.055	81.031	49.847	N/A	N/A	31.184	PK

Figure 15: Radiated Restricted Band Edge, 2402MHz, Horizontal, AV

Table 12: Radiated Restricted Band Edge, 2402MHz, Horizontal, AV,

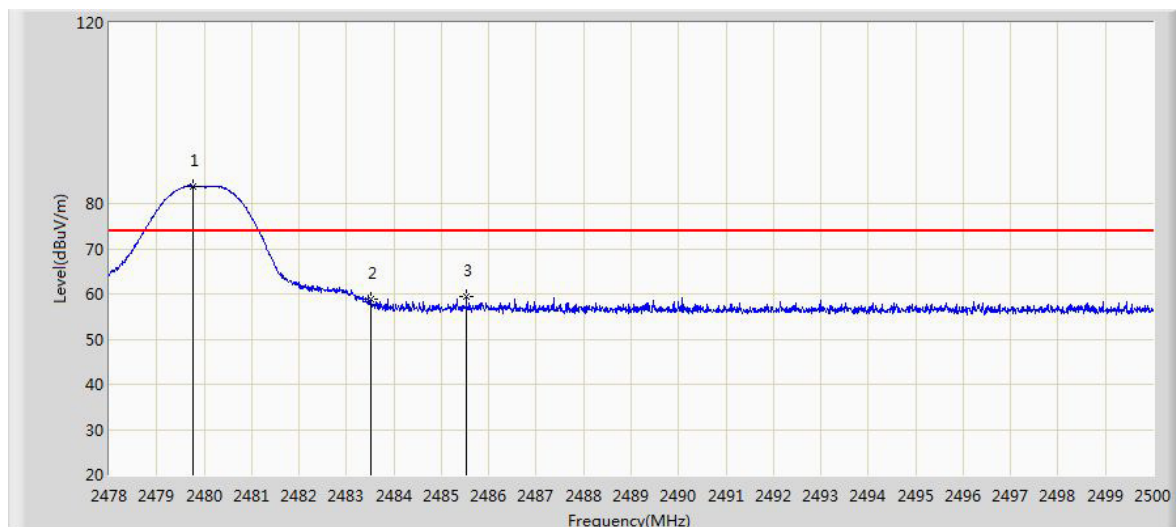
Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2390.000	43.601	12.398	-10.399	54.000	31.203	AV
2401.865	79.843	48.659	N/A	N/A	31.184	AV

Figure 16: Radiated Restricted Band Edge, 2402MHz, Vertical, PK

Table 13: Radiated Restricted Band Edge, 2402MHz, Vertical, PK

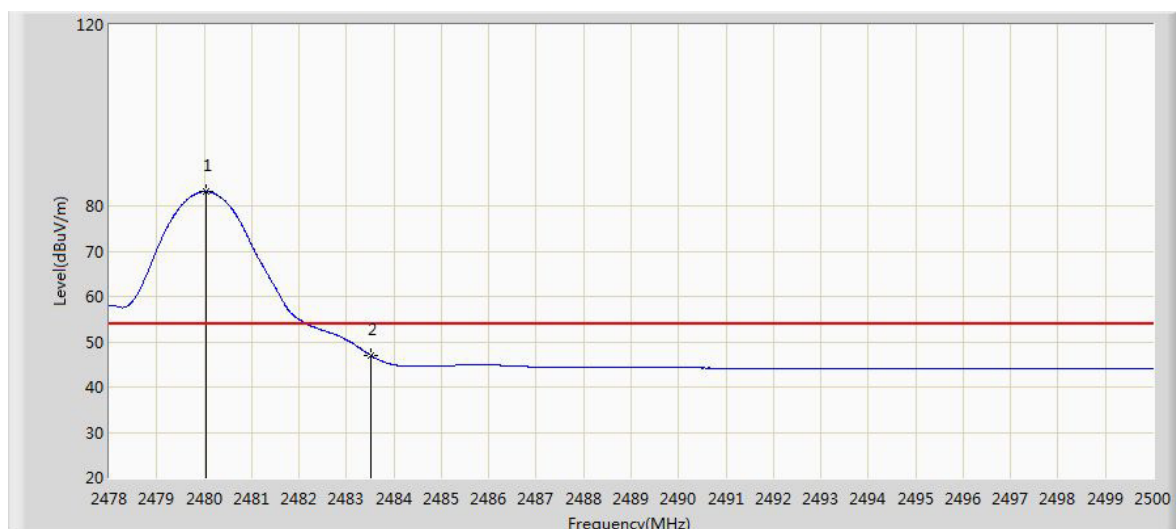
Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2354.650	58.409	27.134	-15.591	74.000	31.275	PK
2390.000	56.269	25.066	-17.731	74.000	31.203	PK
2402.245	76.376	45.192	N/A	N/A	31.184	PK

Figure 17: Radiated Restricted Band Edge, 2402MHz, Vertical, AV

Table 14: Radiated Restricted Band Edge, 2402MHz, Vertical, AV

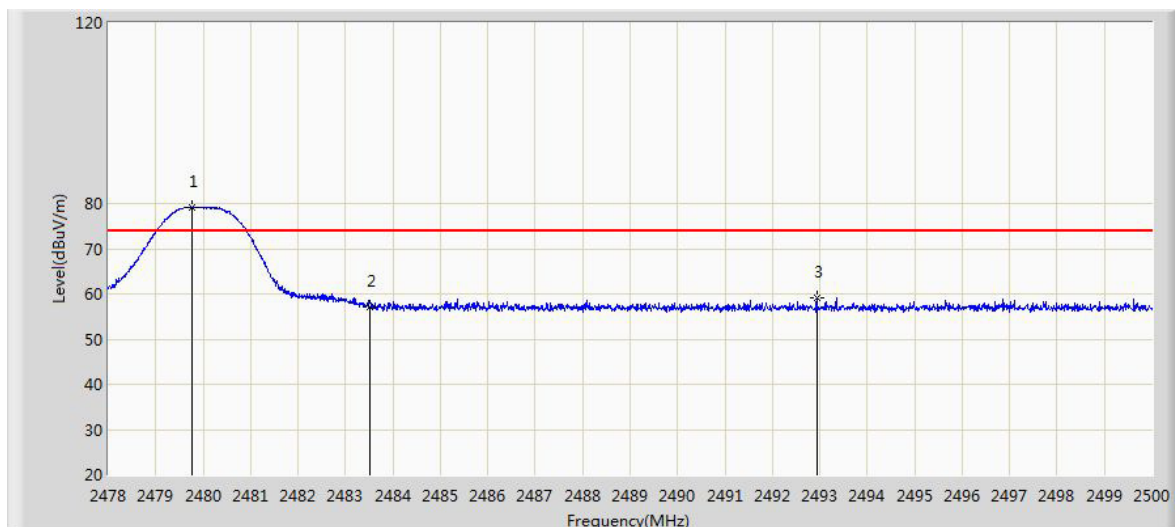
Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2390.000	43.571	12.368	-10.429	54.000	31.203	AV
2402.008	74.749	43.565	N/A	N/A	31.184	AV

Figure 18: Radiated Restricted Band Edge, 2480MHz, Horizontal, PK

Table 15: Radiated Restricted Band Edge, 2480MHz, Horizontal, PK

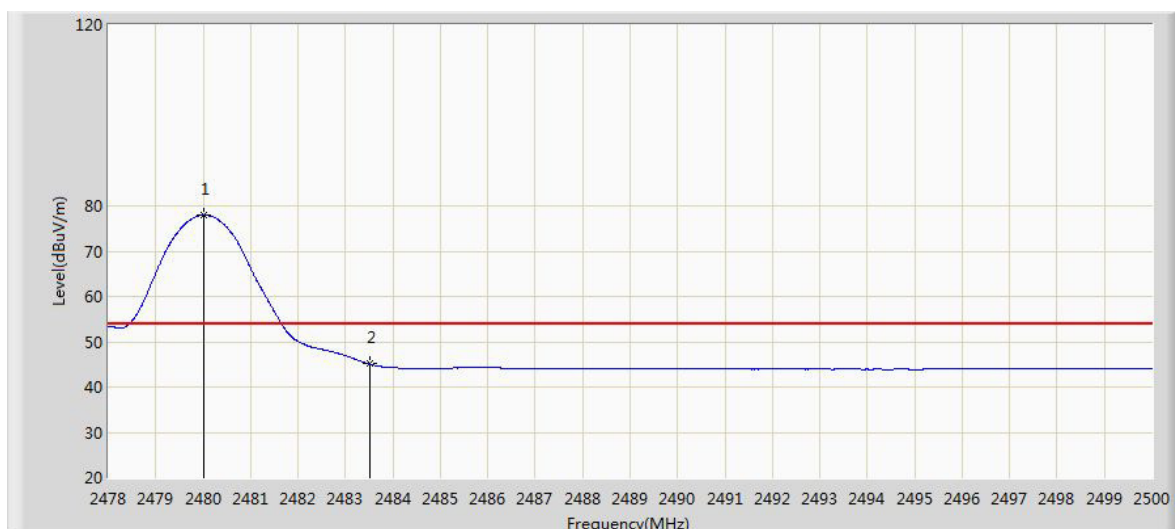
Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2479.771	83.895	52.711	N/A	N/A	31.184	PK
2483.500	58.723	27.530	-15.277	74.000	31.194	PK
2485.524	59.341	28.142	-14.659	74.000	31.198	PK

Figure 19: Radiated Restricted Band Edge, 2480MHz, Horizontal, AV

Table 16: Radiated Restricted Band Edge, 2480MHz, Horizontal, AV

Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2480.035	83.138	51.954	N/A	N/A	31.184	AV
2483.500	47.077	15.884	-6.923	54.000	31.194	AV

Figure 20: Radiated Restricted Band Edge, 2480MHz, Vertical, PK

Table 17: Radiated Restricted Band Edge, 2480MHz, Vertical, PK

Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2479.771	79.171	47.987	N/A	N/A	31.184	PK
2483.500	57.194	26.001	-16.806	74.000	31.194	PK
2492.938	58.989	27.771	-15.011	74.000	31.218	PK

Figure 21: Radiated Restricted Band Edge, 2480MHz, Vertical, AV

Table 18: Radiated Restricted Band Edge, 2480MHz, Vertical, AV

Frequency [MHz]	Measure Level [dBuV/m]	Reading Level [dBuV]	Over Limit [dB]	Limit [dBuV/m]	Factor [dB]	Type
2480.002	77.978	46.794	N/A	N/A	31.184	AV
2483.500	45.077	13.884	-8.923	54.000	31.194	AV

5.4 RF Exposure

5.4.1 RF Exposure Statement

RESULT:**Pass**

Evaluate standard : FCC KDB # 447498 D01 V06
RSS-102 Issue 5

The maximum measured transmitter power is the following:

Frequency [GHz]	Maximum Conducted (average) Output Power [dBm]	Maximum Conducted (average) Output Power [mW]
2.402	-3.36	0.46131757

Evaluation for FCC

According to FCC KDB # 447498 D01 V06, Clause 4.3.1

- (a) For 100MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$\frac{(\text{max. power of channel, including tune - up tolerance, mW})}{(\text{min. test separation distance, mm})} \times \sqrt{f(\text{GHz})}$$

≤ 3.0 , for 1-g SAR, and ≤ 7.5 , for 10-g extremity SAR

So, the max allowed power for 1-g SAR with distance 5mm at 2402MHz is 9.68mW

And the max allowed power for 10-g extremity SAR with distance 5mm at 2402MHz is 24.20mW

The EUT is well below the SAR test exclusion thresholds.

Evaluation for IC

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance^{4,5}

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

RSS-102 section 2.5.1 Exemption Limits for Routine Evaluation, Table 1 shows the SAR evaluation for a device with a separation distance of 5mm at 2450MHz is 4mW.

The EUT is well below the SAR test exclusion thresholds.

Conclusion

SAR data is not required for either FCC or IC.

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