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FCC PART 15 SUBPART C TEST REPORT

Report Reference No.: CTL1505301453-WB01

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Tracy Qi (Manager)

Nice Nong

Luy Cr.

Product Name..... Tablet phone

Model/Type reference..... **SKY 7.0Q**

List Model(s).....

Trade Mark..... N/A

FCC ID..... 2AE4P-SKY70Q

Applicant's name..... ShenZhen KINODA Technology Co.,Ltd

ROOM 5B-9. CHE KUNG TEMPLE OF TRADE AND INDUSTRY PARK Address of applicant.....

213, FUTIAN DISTRICT, SHENZHEN, CHINA

Test Firm....: Shenzhen CTL Testing Technology Co., Ltd.

Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan Address of Test Firm.....

District, Shenzhen, China 518055

Test specification.....

FCC Part 15.249: Operation within the bands 920-928 MHz, 2400-Standard....:

2483.5 MHz, 5725-5850 MHz and 24.0 - 24.25 GHz.

TRF Originator..... Shenzhen CTL Testing Technology Co., Ltd.

Master TRF..... Dated 2011-01

Date of Receipt...... May 30, 2015

Date of Test Date...... May 30, 2015 - July 02, 2015

Data of Issue...... July 02, 2015

Result..... Positive

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TEST REPORT

Test Report No. :	CTL1505301453-WB01	July 02, 2015
	C1E1303301433-WD01	Date of issue

Equipment under Test : Tablet phone

Model /Type : SKY 7.0Q

Applicant : ShenZhen KINODA Technology Co.,Ltd

Address : ROOM 5B-9, CHE KUNG TEMPLE OF TRADE AND

INDUSTRY PARK 213, FUTIAN DISTRICT, SHENZHEN,

Report No.: CTL1505301453-WB01

CHINA

Manufacturer ShenZhen KINODA Technology Co.,Ltd

Address ROOM 5B-9, CHE KUNG TEMPLE OF TRADE AND

INDUSTRY PARK 213, FUTIAN DISTRICT, SHENZHEN,

CHINA

	ANTO THE STATE OF
Test Result according to the standards on page 4:	Positive

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.249: Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 - 24.25 GHz.

ANSI C63.10-2013



2. SUMMARY

2.1. Equipment Under Test

Power supply system utilised

Power supply voltage : • 120V / 60 Hz o 115V / 60Hz

o 12 V DC o 24 V DC

Other (specified in blank below)

DC 3.7V from battery

2.2. Description of The Equipment Under Test (EUT)

The **ShenZhen KINODA Technology Co., Ltd**'s Model: SKY 7.0Q or the "EUT" as referred to in this report; more general information as follows, for more details, refer to the user's manual of the EUT.

General Description	
Name of EUT	Tablet phone
Brand	1
Model	SKY 7.0Q
Hardware version	M699_8312_MB_V1.2_150430
Software version	V1.2
IMEI	352585060680174
Device category	Portable Device
Exposure category	General population/uncontrolled environment
EUT Type	Production Unit
Rated Vlotage	DC 3.70 Battery
Hotsopt	Supported, power not reduced when Hotspot open

The EUT is GSM850/900/DCS1800/PCS1900, UMTS Band I,II,V Tablet phone. the Tablet phone is intended for speech and Multimedia Message Service (MMS) transmission. It is equipped with GPRS/EDGE class 12 for GSM850, PCS1900, UMTS Band II, Band V and Bluetooth, WiFi, and camera functions. For more information see the following datasheet

Technical Characteristics			
2G			
Support Networks	GSM, GPRS, EDGE		
Support Band	GSM850/PCS1900		
Holink Fraguency	GSM/GPRS/EDGE 850: 824~849MHz		
Uplink Frequency	GSM/GPRS/EDGE 1900: 1850~1910MHz		
Downlink Fraguency	GSM/GPRS/EDGE 850: 869~894MHz		
Downlink Frequency	GSM/GPRS/EDGE 1900: 1930~1990MHz		
Type of Modulation	GMSK, 8PSK for only downlink		
Antenna Type	Internal Antenna		
Antenna Gain	1.0 dBi for GSM850		
	0.5 dBi for DCS 1900		
GPRS/EDGE Class	Class 12		
HSDPA UE Category	10		
HSUPA UE Category	6		
GSM Release Version	R99		
GPRS operation mode	Class B		
DTM Mode	Not Supported		
3G			
Support Networks	UMTS		
Support Band	UMTS Band II, Band V		
Type of Modulation	QPSK		
Antenna Type	Internal Antenna		
Antenna Gain	1.0 dBi for WCDMA Band V		
	0.5 dBi for WCDMA Band II		
WiFi			
Support Standards	802.11b, 802.11g, 802.11n		
	2412-2462MHz for 11b/g/n(HT20)		
Frequency Range	2422-2452MHz for 11n(HT40)		
Type of Modulation	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM		

Data Rate	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels	11 for 11b/g/n(HT20), 7 for 11n(HT40)
Channel Separation	5MHz
Antenna Type	Internal Antenna
Antenna Gain	0 dBi
Bluetooth	
Bluetooth Version	V3.0+EDR/V4.0
Frequency Range	2402-2480MHz
Data Rate	1Mbps, 2Mbps, 3Mbps
Modulation	GFSK, π/4 QDPSK, 8DPSK
Quantity of Channels	79/40
Channel Separation	1MHz/2MHz
Antenna Type	Internal Antenna
Antenna Gain	0 dBi

Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	- 60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

Modulation: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)
For more details, refer to the user's manual of the EUT.
Serial number: Prototype

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2.3. EUT operation mode

Test Mode(TM)	Description	Remark
TM1	Bottom Channel Transmitting	1
TM2	Middle Channel Transmitting	1
TM3	Top Channel Transmitting	1
TM4	Charging and keeping TX	AC adapter
		charging

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis).

The following data show only with the worst case setup.

The worst case of Y axis was reported.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

Remark: The worst case mode is TM1(1Mbps) reported for unwanted emission and band edge test.

2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- o supplied by the manufacturer
- supplied by the lab

Dongguan Jin Ding Bao Electronics

● AC adapter Manufacturer : Techology Co.LTD

Model No.: SKY 7.0Q

2.5. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2AE4P-SKY70Q** filling to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

? Testing Technol

2.6. Modifications

No modifications were implemented to meet testing criteria.

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3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd. Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.10 and CISPR 22/EN 55022 requirements.

3.2. Test Facility

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

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. 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 our files. Registration 970318, December 19, 2013.

3.3. Environmental conditions

During the measurement the environment the environment the environment that the environment t	onmental conditions were within the listed ranges:15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System

EUT

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~26.5GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



3.6. Equipments Used during the Test

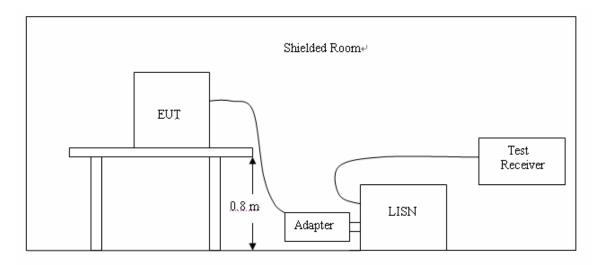
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
ULTRA-ROADBAND ANTENNA	Sunol Sciences Corp.	JB1	A061713	2015/06/02	2016/06/01
EMI Test Receiver	R&S	ESCI	103710	2015/06/02	2016/06/01
Spectrum Analyzer	Agilent	E4407B	MY41440676	2015/05/21	2016/05/20
Controller	EM Electronics	Controller EM 1000	N/A	2015/05/21	2016/05/20
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2015/05/19	2016/05/18
Active Loop Antenna	Daze	ZN30900A	N/A	2015/05/19	2016/05/18
LISN	R&S	ENV216	3560.6550.12	2015/06/02	2016/06/01
LISN	R&S	ESH2-Z5	860014/010	2015/06/02	2016/06/01
ISN	FCC	F-071115- 1057-1-09	11229	2015/05/19	2016/05/18
Amplifier	Agilent	8349B	3008A02306	2015/05/19	2016/05/18
Amplifier	Agilent	8447D	2944A10176	2015/05/19	2016/05/18
Transient Limiter	SCHWARZCECK	VTSD 9561F	9666	2015/06/02	2016/06/01
Radio Communication Tester	R&S	CMU200	115419	2015/05/22	2016/05/21
Temperature/Humidity Meter	Gangxing	CTH-608	02	2015/05/20	2016/05/19
SIGNAL GENERATOR	Agilent	E4421B	US40051744	2015/05/20	2016/05/19
Wideband Peak Power Meter	Anritsu	ML2495A	220.23.35	2015/05/20	2016/05/19
Climate Chamber	ESPEC	EL-10KA	A20120523	2015/05/20	2016/05/19
High-Pass Filter	K&L	9SH10- 2700/X12750 -O/O	N/A	2015/05/20	2016/05/19
High-Pass Filter	K&L	41H10- 1375/U12750 -O/O	Te ^C N/A	2015/05/20	2016/05/19
RF Cable	HUBER+SUHNER	RG214	N/A	2015/05/20	2016/05/19

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4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



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.
- 2 Support equipment, if needed, was placed as per ANSI C63.10.
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4 If a EUT received DC power from the USB Port of Notebook PC, the PC's 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.
- 8 During the above scans, the emissions were maximized by cable manipulation.

The RBW/VBW for 150KHz to 30MHz: 9KHz

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CONDUCTED POWER LINE EMISSION LIMIT

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following:

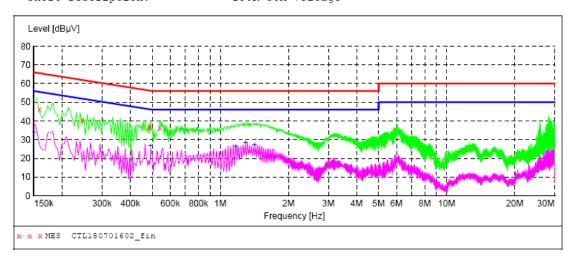
Fue acceptance	Maximum RF Line Voltage (dBμV)			
Frequency (MHz)	CLASS A		CLASS B	
(141112)	Q.P. Ave.		Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

^{*} Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

TEST RESULTS

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL150701602_fin"

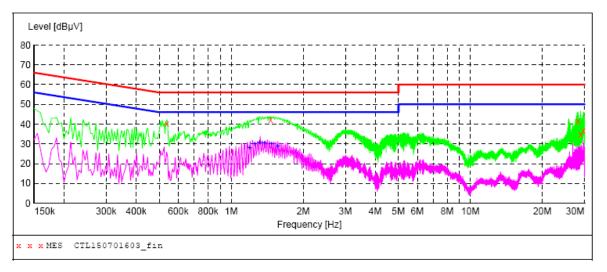
7/1/2015 3:	01PM						
Frequency				_	Detector	Line	PE
MHz	dΒμV	dB	dΒμV	dB			
0.159000	46.00	10.2	66	19.5	QP	N	GND
0.244500	40.70	10.2	62	21.2	QP	N	GND
0.483000	36.40	10.2	56	19.9	QP	N	GND
0.487500	37.10	10.2	56	19.1	QP	N	GND
0.541500	36.10	10.2	56	19.9	QP	N	GND

MEASUREMENT RESULT: "CTL150701602 fin2"

7/1/2015	3:01E	PM						
Frequ	ency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.15	0000	34.00	10.2	56	22.0	AV	N	GND
0.49	2000	26.90	10.2	46	19.2	AV	N	GND
1.17	1500	26.30	10.3	46	19.7	AV	N	GND
1.29	3000	28.20	10.3	46	17.8	AV	N	GND
1.41	4500	27.10	10.3	46	18.9	AV	N	GND

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL150701603_fin"

PM						
Level	Transd	Limit	Margin	Detector	Line	PE
dΒμV	dB	dΒμV	dB			
40.30	10.2	56	15.7	QP	L1	GND
42.20	10.3	56	13.8	QP	L1	GND
41.30	11.2	60	18.7	QP	L1	GND
34.60	11.2	60	25.4	QP	L1	GND
36.50	11.3	60	23.5	QP	L1	GND
	Level dBµV 40.30 42.20 41.30 34.60	Level Transd dB	Level Transd Limit dBμV dB dBμV 40.30 10.2 56 42.20 10.3 56 41.30 11.2 60 34.60 11.2 60	Level dBμV Transd dB dBμV Limit dBμV Margin dB 40.30 10.2 56 15.7 42.20 10.3 56 13.8 41.30 11.2 60 18.7 34.60 11.2 60 25.4	Level Transd Limit Margin Detector dBμV dB dBμV dB 40.30 10.2 56 15.7 QP 42.20 10.3 56 13.8 QP 41.30 11.2 60 18.7 QP 34.60 11.2 60 25.4 QP	Level Transd dB μV Limit dB μV Margin dB Detector Line dB μV 40.30 10.2 56 15.7 QP L1 42.20 10.3 56 13.8 QP L1 41.30 11.2 60 18.7 QP L1 34.60 11.2 60 25.4 QP L1

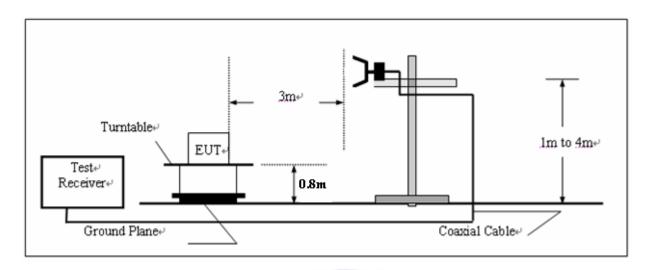
MEASUREMENT RESULT: "CTL150701603_fin2"

7/1/2015 Freque:				Margin dB	Detector	Line	PE
1.194	000 28.	10 10.3	46	17.9	AV	L1	GND
1.252	500 29.	80 10.3	46	16.2	AV	L1	GND
1.315	500 30.	70 10.3	46	15.3	AV	L1	GND
1.378	500 30.	30 10.3	46	15.7	AV	L1	GND
1.473	000 29.	80 10.3	46	16.2	AV	L1	GND
1.563	000 28.	60 10.3	46	17.4	AV	L1	GND

4.2. Fundamental Emissions

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TEST CONFIGURATION



Fundamental Emissions Limit

2400-2483.5 MHz Band: 94 dBuV/m (average)

For the transmitter emissions shall be measured using following options below:

Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. Adjusted by a "duty Cycle correction factor", derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle).

Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.

TEST RESULTS

			JULY STATE AND A STATE OF THE S									
	Field Strength of Fundamental Emissions Result											
Modulation	Frequency	Max.Fundamental	Margin	Limit	Туре							
Mode	(MHz)	(dBuV/m)@3m	(dB)	(dBuV/m)@3m								
GFSK	2402	93.44	20.56	114	peak							
GFSK	2402	76.81	17.19	94	average							
GFSK	2441	94.05	19.95	114	peak							
GFSK	2441	75.96	18.04	94	average							
GFSK	2480	93.59	20.41	114	peak							
GFSK	2480	75.82	18.18	94	average							

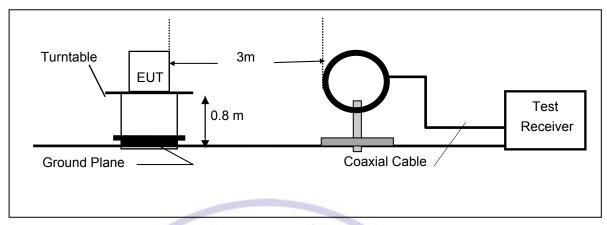
Note: Measurement worst emissions of receive antenna polarization: Vertical.

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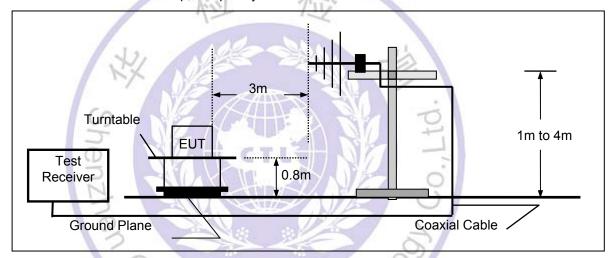
4.3. Transmitter Radiated Unwanted Emissions

TEST CONFIGURATION

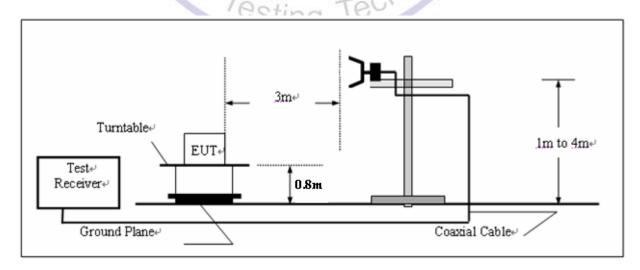
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

RADIATION LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

TEST PROCEDURE

- 1. The EUT is placed on a turntable, which is 0.8m above ground plane.
- The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.
- 7. Based on the Frequency Generator in the device include 26MHz. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note:

Three axes are chosen for pretest, the Y axis is the worst mode for final test. For battery operated equipment, the equipment tests shall be performed using a new battery.

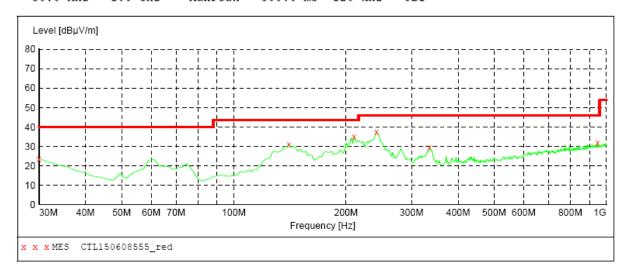
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TEST RESULTS

All the test modes (TM1, TM2, TM3 and TM4) completed for test. The worst case of Radiated Emission is TM1; the test data of this mode was reported.

Below 1GHz Test Results:

SWEEP TABLE: "test (30M-1G)" Field Strength Short Description: Start Stop Detector Meas. ΙF Transducer Time Frequency Frequency Bandw. 30.0 MHz 1.0 GHz 300.0 ms 120 kHz MaxPeak JB1



MEASUREMENT RESULT: "CTL150608555_red"

6/8/2015 6:18	BPM							
Frequency MHz	Level dBµV/m		Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	23.50	21.1	40.0	16.5		0.0	0.00	HORIZONTAL
140.580000	31.20	14.6	43.5	12.3		0.0	0.00	HORIZONTAL
210.420000	34.90	14.3	43.5	8.6		0.0	0.00	HORIZONTAL
241.460000	37.50	14.1	46.0	8.5		0.0	0.00	HORIZONTAL
334.580000	29.60	16.4	46.0	16.4		0.0	0.00	HORIZONTAL
947.620000	31.90	26.6	46.0	14.1		0.0	0.00	HORIZONTAL

Remark:

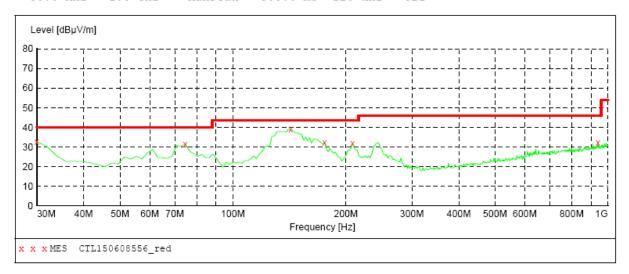
- (1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.

SWEEP TABLE: "test (30M-1G)"

Short Description: Field Strength

Start Stop Detector Meas. IF Transducer

Frequency Frequency Time Bandw. 30.0 MHz 1.0 GHz MaxPeak 300.0 ms 120 kHz JB1



MEASUREMENT RESULT: "CTL150608556_red"

6/8/2015 6:22	PM							
Frequency MHz	Level dBµV/m		Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	32.60	21.1	40.0	7.4		0.0	0.00	VERTICAL
74.620000	31.40	8.5	40.0	8.6		0.0	0.00	VERTICAL
142.520000	39.00	14.5	43.5	4.5		0.0	0.00	VERTICAL
175.500000	32.10	13.2	43.5	11.4		0.0	0.00	VERTICAL
208.480000	31.70	14.3	43.5	11.8		0.0	0.00	VERTICAL
939.860000	32.40	26.5	46.0	13.6		0.0	0.00	VERTICAL

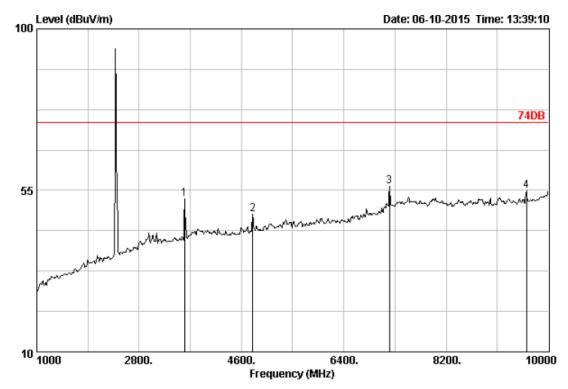
Remark:

- (1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.

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Above 1 GHz Test Results:

Bottom Channel (2402MHz):



Site no. : 3m Chamber

Dis. / Ant. : 3m DRH-118

Limit : 74DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

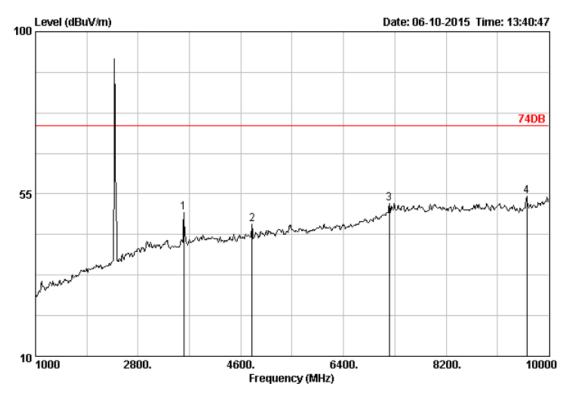
Data no. : 1426

Ant. pol. : HORIZONTAL

	Freq. (MHz)		Loss	Factor	Reading	_	Limits (dBuV/m)	_	Remark
1	3601.00	32.02	5.94	35.08	49.66	52.54	74.00	21.46	Peak
2	4798.00	33.44	6.90	34.35	42.40	48.39	74.00	25.61	Peak
3	7201.00	36.92	9.18	35.03	45.12	56.19	74.00	17.81	Peak
4	9613.00	38.54	10.98	35.98	41.38	54.92	74.00	19.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 1427
Dis. / Ant. : 3m DRH-118 Ant. pol. : VERTICAL

Limit : 74DB Env. / Ins. : 23*C/54%

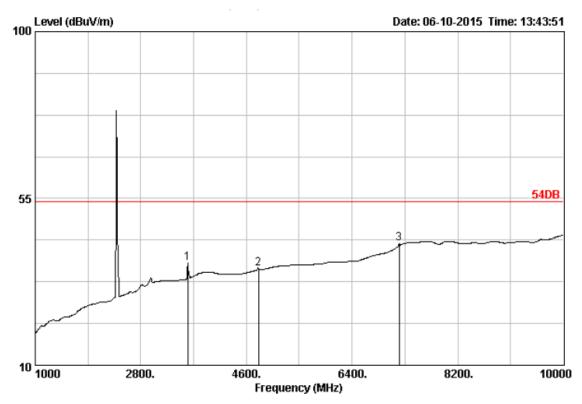
Engineer :
EUT :
Power :
M/N :
Test Mode :

	Freq. (MHz)		Loss	Factor	Reading		Limits (dBuV/m)		Remark
1	3601.00	32.02	5.94	35.08	47.10	49.98	74.00	24.02	Peak
2	4798.00	33.44	6.90	34.35	40.49	46.48	74.00	27.52	Peak
3	7201.00	36.92	9.18	35.03	41.34	52.41	74.00	21.59	Peak
4	9613.00	38.54	10.98	35.98	40.78	54.32	74.00	19.68	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

^{2.} The emission levels that are $20 \mathrm{dB}$ below the official limit are not reported.

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Site no. : 3m Chamber

Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

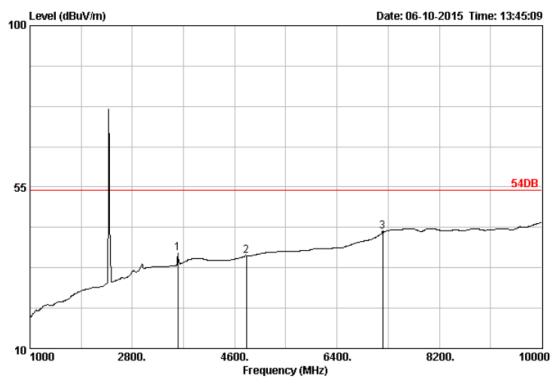
Data no. : 1428

Ant. pol. : HORIZONTAL

		Ant.	Cable	Атр		Emission			
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBu∀/m)	(dBu∀/m)	(dB)	
1	3601.00	32.02	5.94	35.08	34.80	37.68	54.00	16.32	Average
2	4804.00	33.48	6.91	34.34	29.98	36.03	54.00	17.97	Average
3	7206.00	36.92	9.18	35.03	31.66	42.73	54.00	11.27	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

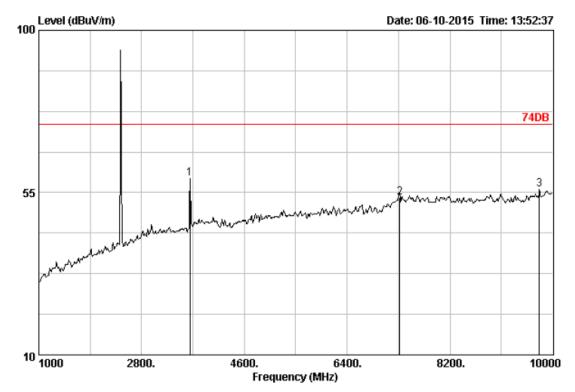
Data no. : 1429 Ant. pol. : VERTICAL

		Ant.	Cable	Amp		Emission	n		
	Freq.	Factor	Loss	Factor	Reading	g Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBu∀/m))(dBu∀/m)	(dB)	
1	3601.00	32.02	5.94	35.08	33.72	36.60	54.00	17.40	Average
2	4804.00	33.48	6.91	34.34	29.89	35.94	54.00	18.06	Average
3	7206.00	36.92	9.18	35.03	31.58	42.65	54.00	11.35	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

Middle Channel(2441 MHz):



Site no. : 3m Chamber

Dis. / Ant. : 3m DRH-118

Limit : 74DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

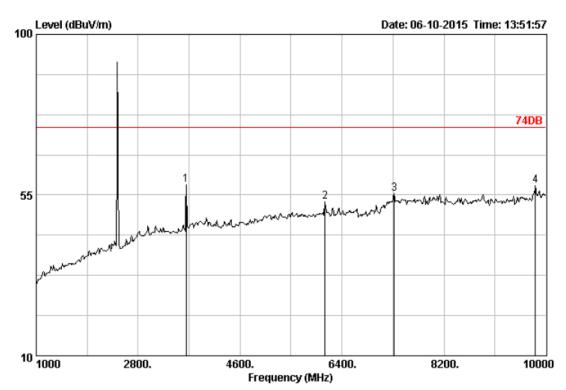
Data no. : 1433

Ant. pol. : HORIZONTAL

		Ant.	Cable	Amp		Emission			
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBu∀/m)	(dBu∀/m)	(dB)	
1	3646.00	32.33	6.00	35.04	55.67	58.96	74.00	15.04	Peak
2	7323.00	37.46	9.23	35.00	42.05	53.74	74.00	20.26	Peak
3	9764.00	38.67	11.04	35.68	41.80	55.83	74.00	18.17	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.



Data no.: 1432

Ant. pol. : VERTICAL

Site no. : 3m Chamber Dis. / Ant. : 3m DRH-118

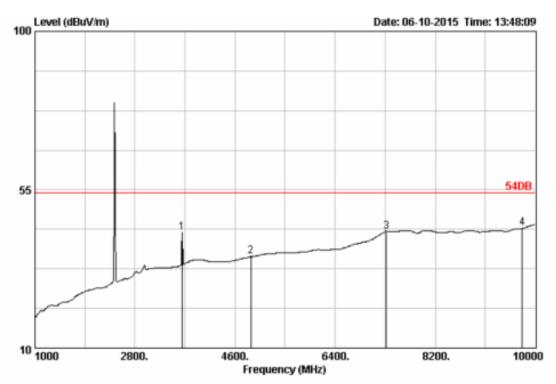
Limit : 74DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

		Ant.	Cable	Amp		Emission			
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBu∀/m)	(dBu∀/m)	(dB)	
1	3646.00	32.33	6.00	35.04	54.70	57.99	74.00	16.01	Peak
2	6103.00	35.20	7.74	34.64	44.77	53.07	74.00	20.93	Peak
3	7318.00	37.46	9.23	35.00	43.60	55.29	74.00	18.71	Peak
4	9811.00	38.71	11.05	35.58	43.40	57.58	74.00	16.42	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber

Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

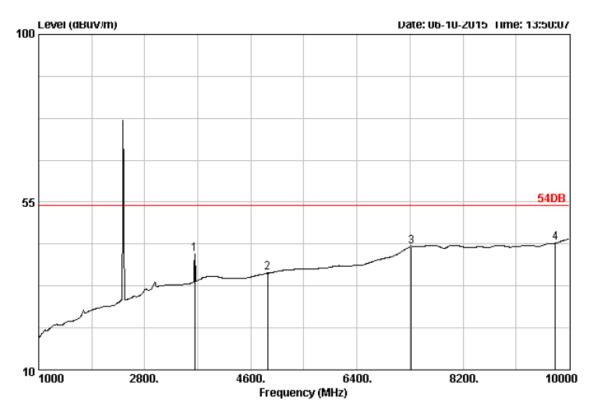
Data no. : 1430

Ant. pol. : HORIZONTAL

Freq. (MHz)	Ant. Factor (dB/m)				_	Limits		Remark
1 3646.00 2 4882.00 3 7323.00 4 9764.00	37.46	6.95 9.23	35.04 34.30 35.00 35.68	29.81 31.50	42.72 36.06 43.19 44.15	54.00 54.00 54.00 54.00	11.28 17.94 10.81 9.85	Average Average Average Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1431 Ant. pol. : VERTICAL

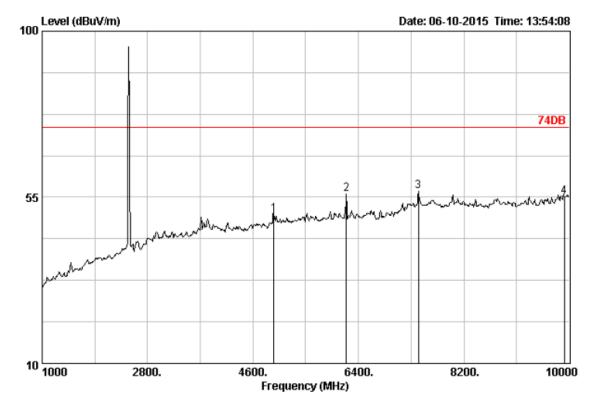
	Freq. (MHz)	Ant. Factor (dB/m)			Reading	,	Limits (dBuV/m)	_	Remark
1 2 3 4	3646.00 4882.00 7323.00 9764.00	33.60 37.46	6.95 9.23	35.00	29.70 31.44	41.17 35.95 43.13 44.11	54.00 54.00 54.00 54.00	12.83 18.05 10.87 9.89	Average Average Average Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

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Top Channel (2480MHz):



Site no. : 3m Chamber Data no. : 1434

Dis. / Ant. : 3m DRH-118 Ant. pol. : HORIZONTAL

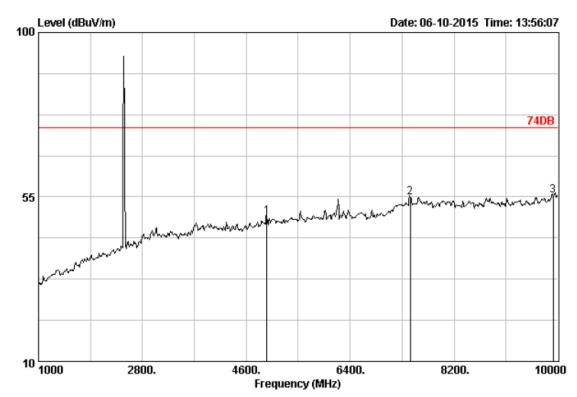
Limit : 74DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

		Ant.	Cable	Amp		Emission			
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBu∀/m)	(dBu∀/m)	(dB)	
1	4960.00	33.86	7.01	34.25	43.80	50.42	74.00	23.58	Peak
2	6193.00	35.19	7.87	34.68	47.42	55.80	74.00	18.20	Peak
3	7426.00	37.64	9.27	34.97	44.75	56.69	74.00	17.31	Peak
4	9920.00	38.90	11.10	35.37	40.56	55.19	74.00	18.81	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118

Limit : 74DB Env. / Ins. : 23*C/54%

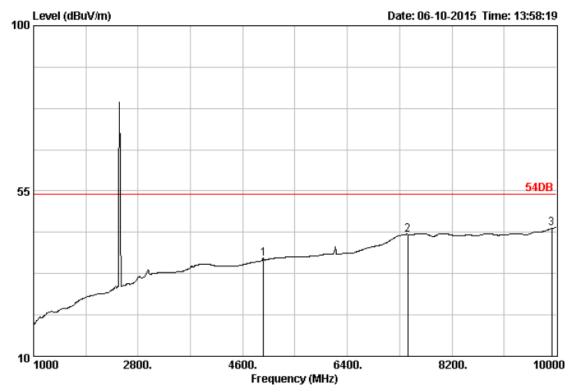
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1435 Ant. pol. : VERTICAL

		Ant.	Cable	Amp		Emission			
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBuV/m)	(dBu∀/m)	(dB)	
1	4960.00	33.86	7.01	34.25	42.95	49.57	74.00	24.43	Peak
2	7440.00	37.64	9.28	34.97	42.87	54.82	74.00	19.18	Peak
3	9920.00	38.90	11.10	35.37	40.72	55.35	74.00	18.65	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber

Dis. / Ant. : 3m DRH-118

: 54DB Limit Env. / Ins. : 23*C/54%

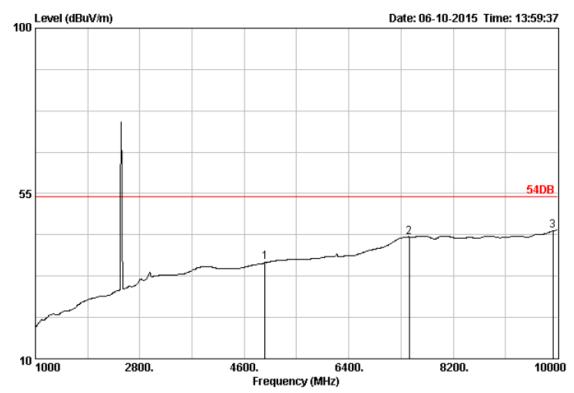
Engineer EUT Power M/N Test Mode : Data no. : 1436

Ant. pol. : HORIZONTAL

	Freq. (MHz)	Ant. Factor (dB/m)		Factor	Reading	_	n Limits)(dBuV/m)	_	Remark
1 2 3	4960.00 7440.00 9920.00	37.64	9.28	34.25 34.97 35.37	31.24	36.54 43.19 44.80	54.00 54.00 54.00	17.46 10.81 9.20	Average Average Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1437 Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB/m)		Factor	Reading		Limits (dBuV/m)	_	Remark
1	4960.00	33.86	7.01	34.25	29.67	36.29	54.00	17.71	Average
2	7440.00	37.64	9.28	34.97	31.20	43.15	54.00	10.85	Average
3	9920.00	38.90	11.10	35.37	30.16	44.79	54.00	9.21	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

Note: above 10GHz up to 25GHz was verified, and no any emission was found except system noise floor.

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4.4. Band Edge Measurement

TEST CONFIGURATION

Same as Section 4.2

TEST PROCEDURE

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 1 MHz and VBM to 3MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 1 MHz and VBM to 3 MHz, to measure the conducted peak band edge.

LIMIT

FCC PART 15.249(d) 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 §15.209, whichever is the lesser attenuation.

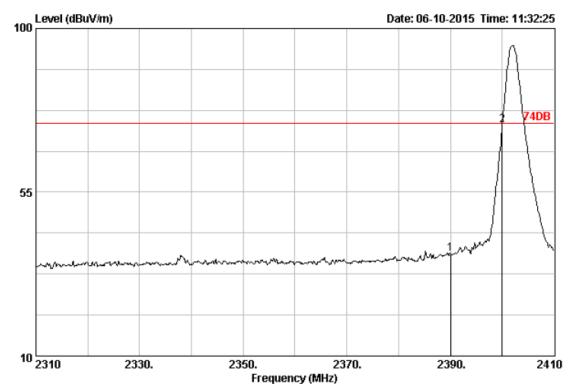


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Radiated Test:

Operation Mode: TX on Bot Channel

Polarity: Hor.



Site no. : 3m Chamber Data no. : 1419

Dis. / Ant. : 3m DRH-118 Ant. pol. : HORIZONTAL

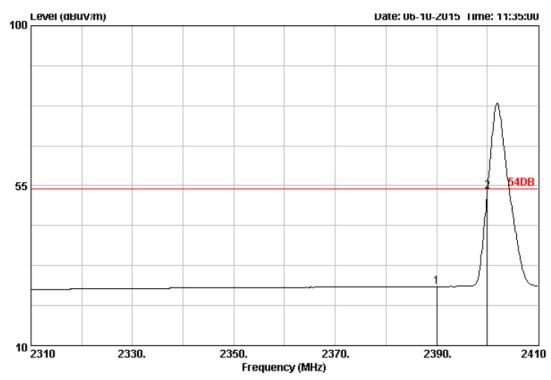
Limit : 74DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

	Factor	Loss	Factor	Reading	Limits (dBuV/m)	_	Remark
2390.00 2400.00					 		Peak Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber

Data no. : 1420 Dis. / Ant. : 3m DRH-118 Ant. pol. : HORIZONTAL

: 54DB Limit Env. / Ins. : 23*C/54%

Engineer : EUT Power M/N Test Mode

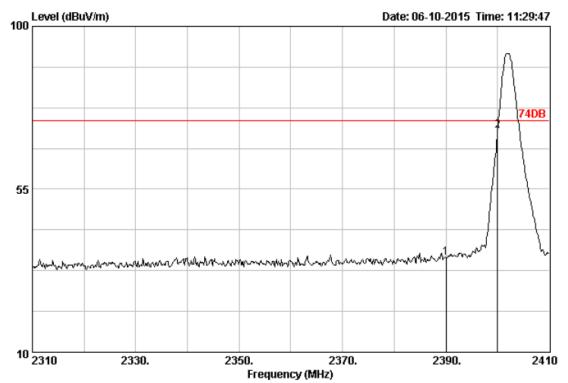
Freq. (MHz)	Factor	Loss	Factor	Reading	Emission Level (dBuV/m)	Limits	_	Remark
1 2390.00 2 2400.00								Average Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

Operation Mode: TX on Bot Channel

Polarity: Ver.



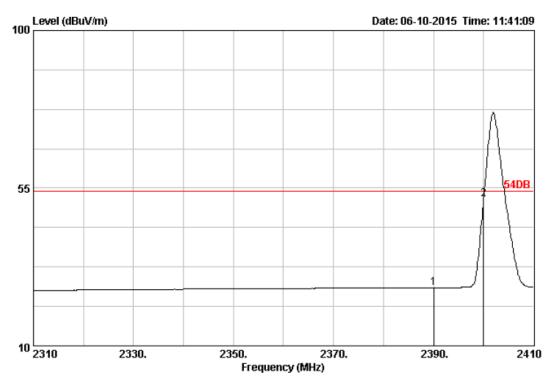
Site no. : 3m Chamber Data no. : 1418
Dis. / Ant. : 3m DRH-118 Ant. pol. : VERTICAL

Limit : 74DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

Freq. (MHz)	Factor	Loss	Factor	Reading	Emission g Level (dBuV/m)	Limits	_	Remark
2390.00 2400.00								Peak Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Data no. : 1421

Ant. pol. : VERTICAL

Site no. : 3m Chamber Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

Ant. Cable Amp Emission
Freq. Factor Loss Factor Reading Level Limits Margin Remark
(MHz) (dB/m) (dB) (dB) (dBuV) (dBuV/m) (dBuV/m) (dB)

1 2390.00 28.78 4.61 35.36 28.58 26.61 54.00 27.39 Average
2 2400.00 28.78 4.61 35.36 53.75 51.78 54.00 2.22 Average

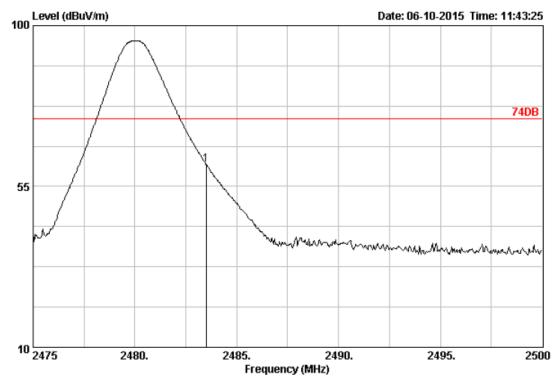
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

Note: The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

Operation Mode: TX on Top Channel

Polarity: Hor.



Site no. : 3m Chamber

Dis. / Ant. : 3m DRH-118

Limit : 74DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

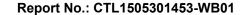
Data no. : 1422

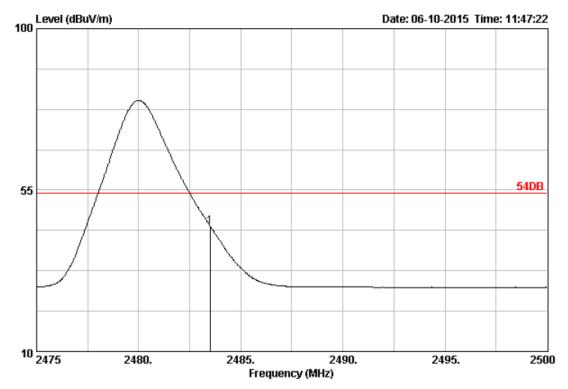
Ant. pol. : HORIZONTAL

	Factor	Loss	Factor	Reading	Emission Level (dBuV/m)		_	Remark
1 2483.50	28.93	4.70	35.38	62.82	61.07	74.00	12.93	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.





Site no. : 3m Chamber

Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1424

Ant. pol. : HORIZONTAL

		Factor	Loss	Factor	Reading	-	Limits (dBuV/m)	_	Remark
1	2483.50	28.93	4.70	35.38	46.59	44.84	54.00	9.16	Average

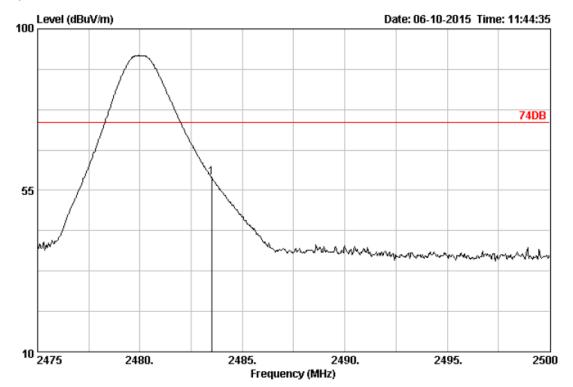
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

Report No.: CTL1505301453-WB01

Operation Mode: TX on Top Channel

Polarity: Ver.



Site no. : 3m Chamber Dis. / Ant. : 3m DRH-118

Limit : 74DB Env. / Ins. : 23*C/54%

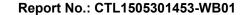
Engineer :
EUT :
Power :
M/N :
Test Mode :

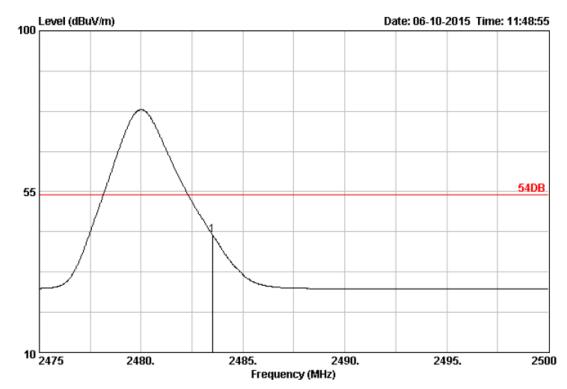
Data no. : 1423 Ant. pol. : VERTICAL

		Ant.	Cable	Amp		Emission			
	Freq.	Factor	Loss	Factor	Reading	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBu∀/m)	(dBu∀/m)	(dB)	
1	2483.50	28.93	4.70	35.38	60.26	58.51	74.00	15.49	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.





Site no. : 3m Chamber Dis. / Ant. : 3m DRH-118

Limit : 54DB Env. / Ins. : 23*C/54%

Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1425 Ant. pol. : VERTICAL

		Ant.	Cable	Атр		Emission			
	Freq.	Factor	Loss	Factor	Reading	g Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dB)	(dBu∀)	(dBu∀/m)	(dBu∀/m)	(dB)	
1	2483.50	28.93	4.70	35.38	44.71	42.96	54.00	11.04	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.

Note: The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

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4.5. Occupied Bandwidth Measurement

Measurement Procedure

- 1. Set EUT as normal operation.
- 2. RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW.
- 3. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

Test SET-UP (Block Diagram of Configuration)

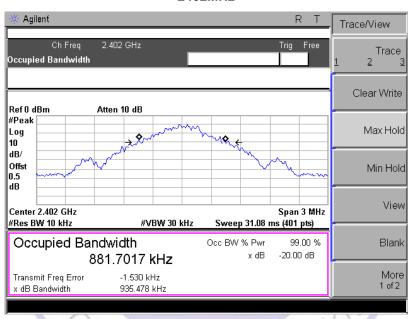
Same as 4.2 Radiated Emission Measurement.

Measurement Equipment Used:

Same as 4.2 Radiated Emission Measurement.

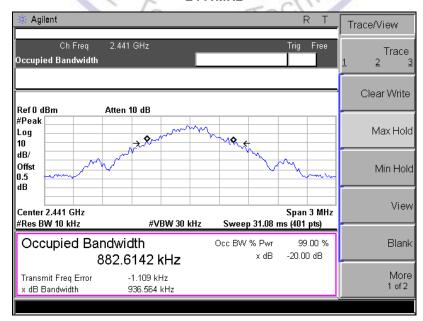
Measurement Results

2402MHz



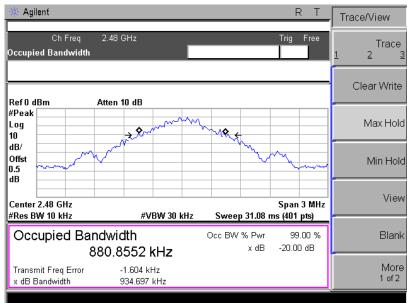
20dB Bandwidth: 935.478 KHz

2441MHz



20dB Bandwidth: 936.564 KHz

2480MHz





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5. Antenna Requirement

Standard Applicable

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 (c), 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.

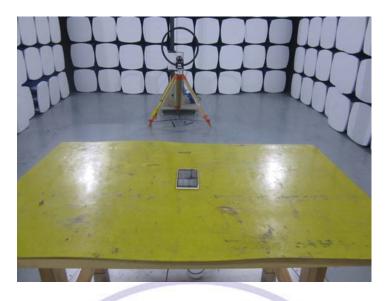
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The antenna used in this product is an internal Antenna, The directional gains of antenna used for transmitting is 0 dBi.

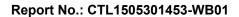


6. Test Setup Photos of the EUT











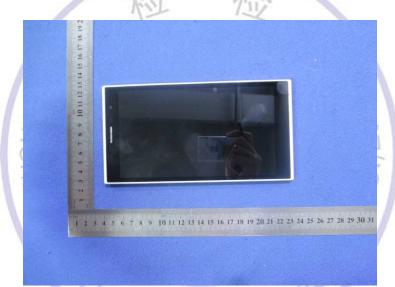


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7. External and Internal Photos of the EUT

External Photos of EUT

















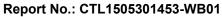
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Internal Photos of EUT



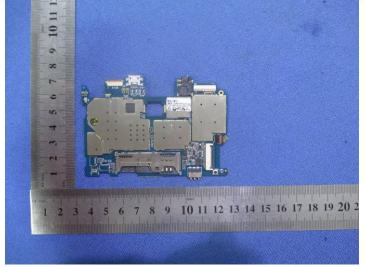




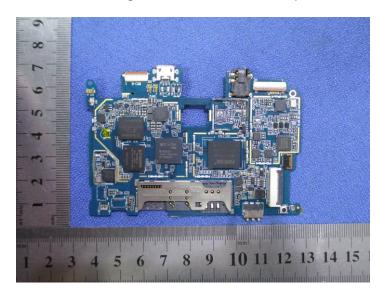








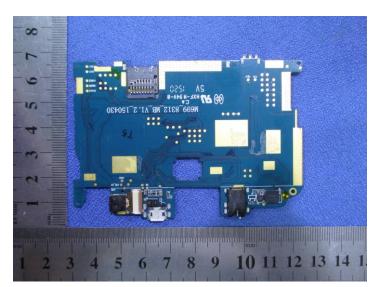








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