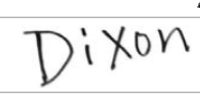
FCC TEST REPORT

47 CFR FCC Part 15 Subpart B

Report Reference No.....:	**MWR150600606**	
FCC ID.....:	**2AFAP0BQ1**	
Compiled by (position+printed name+signature)..:	File administrators Martin Ao	
Supervised by (position+printed name+signature)..:	Test Engineer Yuchao Wang	
Approved by (position+printed name+signature)..:	Manager Dixon Hao	
Date of issue.....:	July 14, 2015	
Representative Laboratory Name .:	**Maxwell International Co., Ltd.**	
Address .....:	Room 509,Hongfacenter building, Baoan District, Shenzhen, Guangdong, China	
Testing Laboratory Name .....:	**Shenzhen CTL Testing Technology Co., Ltd.**	
Address .....:	Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen, China	
Applicant's name.....:	**ALPHA EXPORT AND IMPORT CO.,LIMITED**	
Address .....:	Room 4d, Huashang Block, NO.3, Biezhan Road, Shenzhen , China	
Test specification .....**:**		
Standard .....:	**47 CFR FCC Part 15 Subpart B - Unintentional Radiators** **ANSI C63.4: 2009**	
TRF Originator.....:	Maxwell International Co., Ltd.	

Test item description .....:	Mobile Phone
Trade Mark .....:	ALPHARD
Manufacturer.....:	**ALPHA EXPORT AND IMPORT CO.,LIMITED**
Model/Type reference.....:	BQ1
Listed Models .....:	BQ2, BQ3, BQ4, BQ5, BQ6, BQ7, BQ8, BQ9, BQ10
Rating .....:	DC 3.70V
Hardware version .....:	S9-V2.2
Software version .....:	S9-V2.2_V1.0
Result.....:	**PASS**

T E S T R E P O R T

Test Report No. :	MWR150600606	July 14, 2015 Date of issue

Equipment under Test	:	Mobile Phone
Model /Type	:	BQ1
Listed Models	:	BQ2, BQ3, BQ4, BQ5, BQ6, BQ7, BQ8, BQ9, BQ10
Applicant	:	**ALPHA EXPORT AND IMPORT CO.,LIMITED**
Address	:	Room 4d, Huashang Block, NO.3, Biezhan Road, Shenzhen , China
Manufacturer	:	**ALPHA EXPORT AND IMPORT CO.,LIMITED**
Address	:	Room 4d, Huashang Block, NO.3, Biezhan Road, Shenzhen , China

Test Result:	**PASS**

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.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators

ANSI C63.4: 2009 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the
Range of 9 kHz to 40GHz

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Jun 20, 2015
Testing commenced on	:	Jun 21,2015
Testing concluded on	:	July 14 ,2015

2.2. Product Description

The **ALPHA EXPORT AND IMPORT CO.,LIMITED's** Model: BQ1 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.

Name of EUT	Mobile Phone
Model Number	BQ1
Modilation Type	GMSK for GSM/GPRS/EDGE 8PSK for EDGE downlink only QPSK for UMTS
Antenna Type	Internal
UMTS Operation Frequency Band	Device supported UMTS Band I/ Band V
WLAN FCC Operation frequency	IEEE 802.11b:2412-2462MHz IEEE 802.11g:2412-2462MHz IEEE 802.11n HT20:2412-2462MHz IEEE 802.11n HT40:2422-2452MHz
BT FCC Operation frequency	2402MHz-2480MHz
HSDPA Release Version:	Release 7, CAT14
HSUPA Release Version:	Release 6, CAT6
DC-HSUPA Release Version	Not Supported
WCDMA Release Version	R99
WLAN FCC Modulation Type	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK)
BT Modulation Type	GFSK (BT 4.0)/GFSK,8DPSK,π/4DQPSK(BT 3.0+EDR)
Hardware version	S9-V2.2
Software version	S9-V2.2_V1.0
GPS function	Supported
WLAN	Supported 802.11b/802.11g/802.11n
Bluetooth	Supported BT 4.0/BT 3.0+EDR
GSM/EDGE/GPRS	Supported GSM/GPRS/EDGE
GSM/EDGE/GPRS Power Class	GSM850:Power Class 4/PCS1900:Power Class 1
GSM/EDGE/GPRS Operation Frequency	GSM850 :824.2MHz-848.8MHz PCS1900:1850.2MHz-1909.8MHz
GSM/EDGE/GPRS Operation Frequency Band	GSM850/PCS1900/GPRS850/ GPRS1900/EDGE850/EDGE1900
GSM Release Version	R99
GPRS/EDGE Multislot Class	GPRS/EDGE: Multi-slot Class 12
Extreme temp. Tolerance	-30°C to +50°C
Extreme vol. Limits	3.00VDC to 4.35VDC (nominal: 3.70VDC)
GPRS operation mode	Class B

2.3. Equipment under Test

Power supply system utilised

Power supply voltage	:	○	120V / 60 Hz	○	115V / 60Hz
		○	12 V DC	○	24 V DC
		●	Other (specified in blank below)		

DC 3.70V

2.4. Short description of the Equipment under Test (EUT)

2.4.1 General Description

BQ1 is subscriber equipment in the UMTS/GSM system. The HSPA/UMTS frequency band I and band V, only UMTS band V used in USA; The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and SIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

2.4.1 Test Environments

NOTE: The values used in the test report maybe stringent than the declared.

Environment Parameter	Selected Values During Tests		
NTNV	Temperature	Voltage	Relative Humidity
	Ambient	3.70VDC	Ambient

2.5. EUT operation mode

The EUT has been tested under typical operating condition.

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

This submittal(s) (test report) is intended for **FCC ID: 2AFAP0BQ1** filing to comply with FCC Part 15B Rules.

2.7. Internal Identification of AE used during the test

AE ID*	Description
AE1	Charger

AE1
Model: ETA-U90JWE
INPUT:100-240V 50/60Hz 0.35A
OUTPUT: DC 5.0V,2 A

2.8. Modifications

No modifications were implemented to meet testing criteria.

2.9. EUT configuration

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

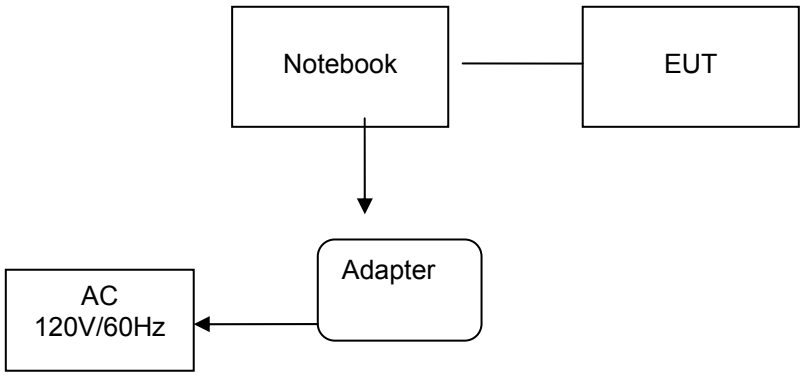
● - supplied by the manufacturer

○ - supplied by the lab

○	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
○	Multimeter	Manufacturer :	/
		Model No. :	/

2.10. Configuration of Tested System

Configuration of Tested System



Equipment Used in Tested System

No.	Equipment	Manufacturer	Model No.	Serial No.	Length	shielded/unshielded	Notes
1	Notebook	DELL	INS14MD -1328S	1RNN42X	/	/	DOC
5	USB Cable (EUT to PC)	Genshuo	USB 2.0	N/A	0.60m	unshielded	N/A
7	Power line	/	/	N/A	1.00m	unshielded	N/A
8	Adapter	HIPRO	DELL-A0904A3	F1120709016S404	1.50m	unshielded	DOC

2.11. Note

1. The EUT is a Mobile Phone with UMTS/GSM/GPRS/EDGE, WiFi and Bluetooth function, The functions of the EUT listed as below:

	Test Standards	Reference Report
GSM/GPRS/EDGE	FCC Part 22/FCC Part 24	MWR150600601
UMTS	FCC Part 22	MWR150600602
Bluetooth	FCC Part 15 C 15.247	MWR150600603
BLE	FCC Part 15 C 15.247	MWR150600604
WiFi	FCC Part 15 C 15.247	MWR150600605
USB Port	FCC Part 15 B	MWR150600606
SAR	FCC Part 2 §2.1093	MWR150600607

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, China
The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2003) and CISPR Publication 22.

3.2. Test Facility

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

FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. 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, Dec 19, 2013

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. 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. National Digital Electronic Product Testing Center 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 Shenzhen CTL Testing Technology Co., Ltd. National Digital Electronic Product Testing Center
is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.39 dB	(1)

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

3.5. Equipments Used during the Test

AC Power Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	LISN	R&S	ENV216	3560.6550.12	2015/06/02
2	LISN	R&S	ESH2-Z5	860014/010	2015/06/02
3	EMI Test Receiver	R&S	ESCI	103710	2015/06/02
4	Transient Limiter	SCHWARZCECK	VTSD 9561F	9666	2015/06/02
5	EMI Test Software	Rohde&Schwarz	ES-K1 V1.71	N/A	N/A
6	Coaxial Cables	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	2015/05/20

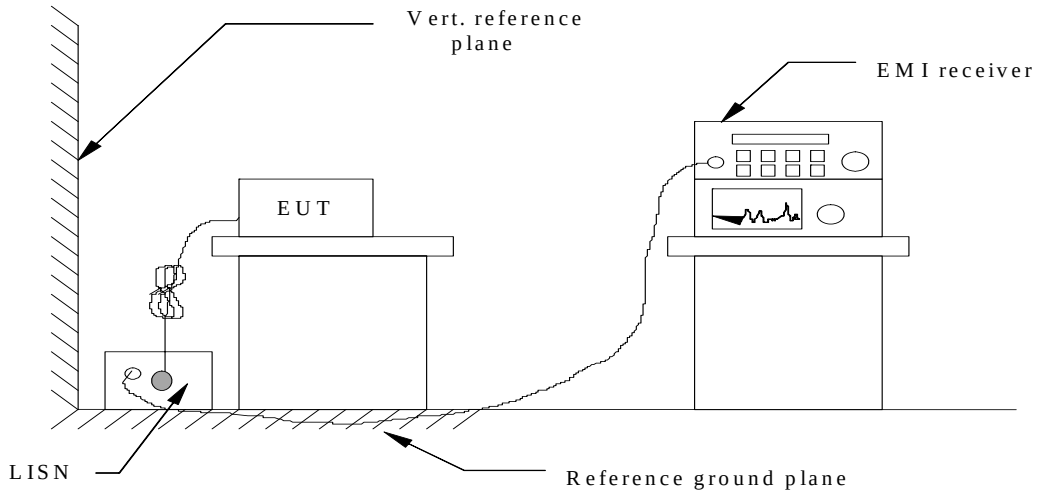
Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2015/06/02
2	EMI TEST Receivcer	R&S	ESCI	103710	2015/06/02
3	EMI TEST Software	Audix	E3	N/A	N/A
4	EMI TEST Software	Rohde&Schwarz	ESK1	N/A	N/A
5	HORN ANTENNA	Sunol Sciences Corp.	DRH-118	A062013	2015/05/19
6	Horn Antenna	ShwarzBeck	BBHA9170	25841	2015/05/19
7	Amplifer	HP	8349B	3008A02306	2015/05/19
8	Preamplifier	HP	8447D	2944A10176	2015/05/19
11	Spectrum Analyzer	Agilent	E4407B	MY41440676	2015/05/21
12	Coaxial Cables	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	2015/05/21
13	Coaxial Cables	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	2015/05/21

The Cal. Interval was one year

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 C63.4-2014.
2. Support equipment, if needed, was placed as per ANSI C63.4-2014.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2014.
4. The EUT 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.

CONDUCTED POWER LINE EMISSION LIMIT

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

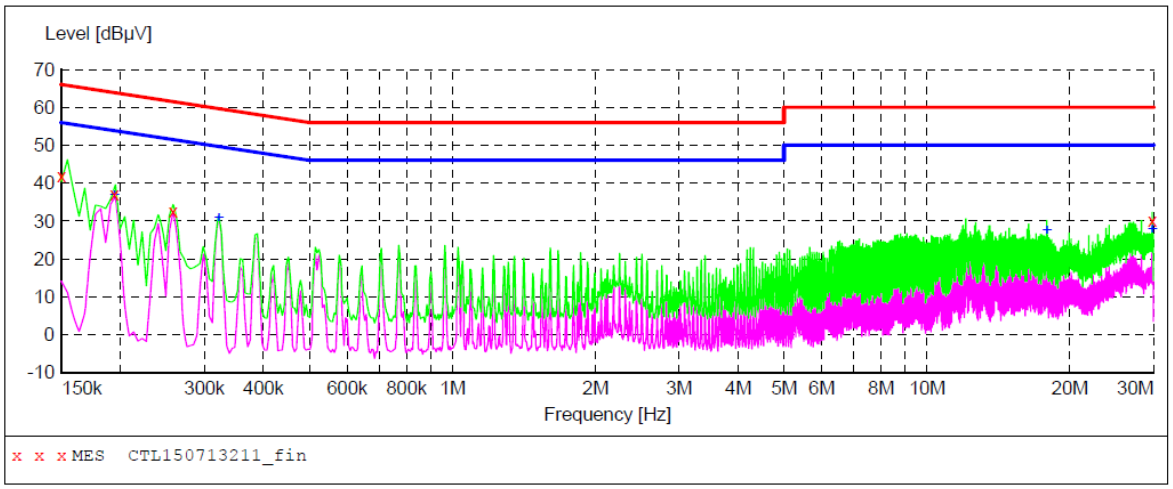
Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

TEST RESULTS

Note: Mode: Data transmission (connected PC)

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



MEASUREMENT RESULT: "CTL150713211_fin"

7/13/2015 2:30PM

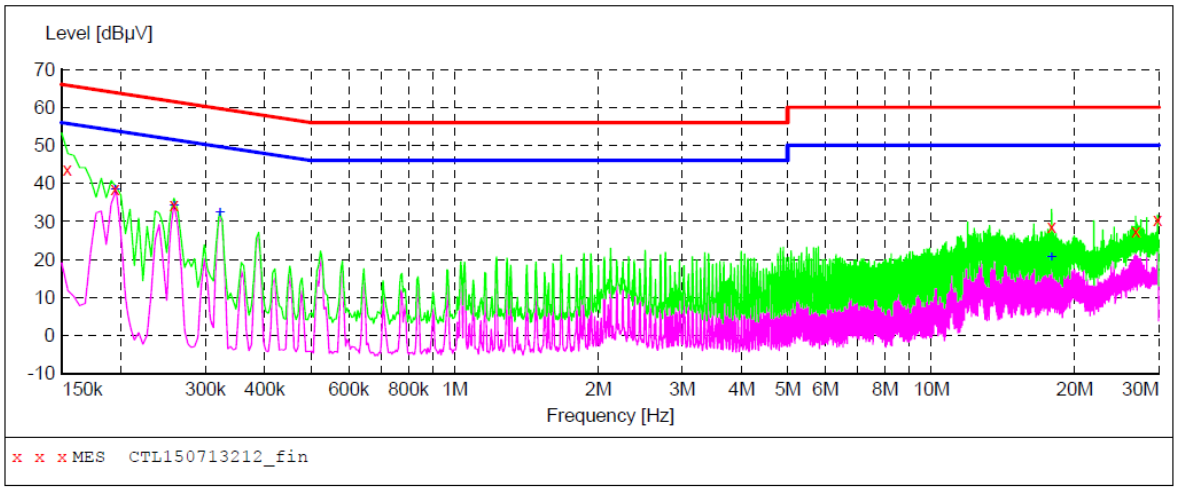
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	41.80	9.9	66	24.2	QP	N	GND
0.194000	37.10	9.9	64	26.8	QP	N	GND
0.258000	32.60	9.9	62	28.9	QP	N	GND
29.816000	30.30	11.1	60	29.7	QP	N	GND

MEASUREMENT RESULT: "CTL150713211_fin2"

7/13/2015 2:30PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.194000	36.90	9.9	54	17.0	AV	N	GND
0.322000	30.90	9.9	50	18.8	AV	N	GND
17.888000	27.40	10.8	50	22.6	AV	N	GND
29.816000	27.60	11.1	50	22.4	AV	N	GND

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



MEASUREMENT RESULT: "CTL150713212_fin"

7/13/2015 2:26PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	43.70	9.9	66	22.1	QP	L1	GND
0.194000	38.60	9.9	64	25.3	QP	L1	GND
0.258000	34.40	9.9	62	27.1	QP	L1	GND
17.900000	28.60	10.8	60	31.4	QP	L1	GND
26.846000	27.50	11.0	60	32.5	QP	L1	GND
29.828000	30.60	11.1	60	29.4	QP	L1	GND

MEASUREMENT RESULT: "CTL150713212_fin2"

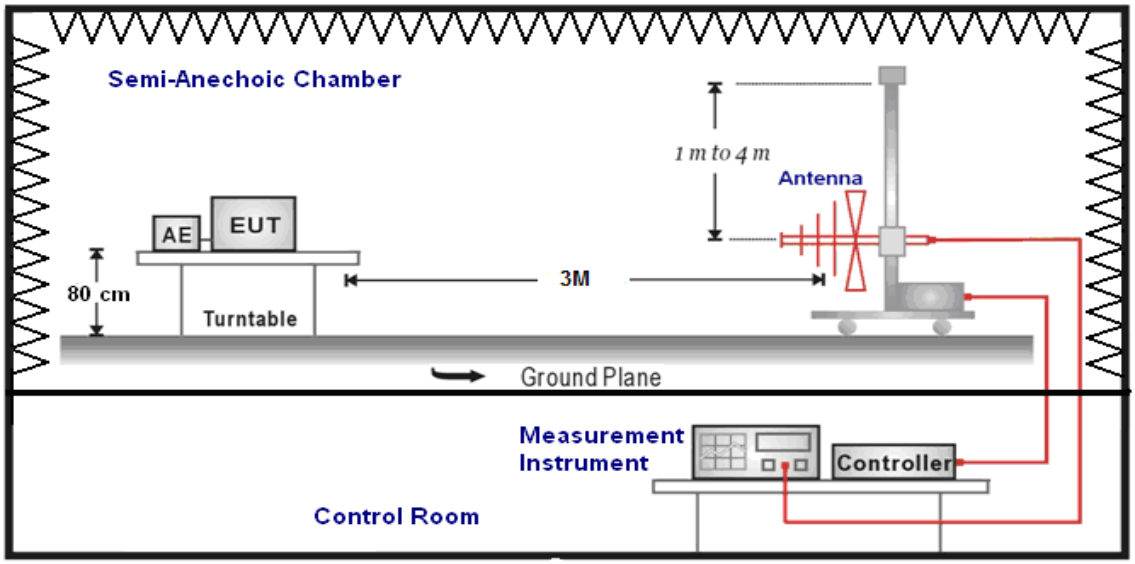
7/13/2015 2:26PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.194000	38.30	9.9	54	15.6	AV	L1	GND
0.258000	34.20	9.9	52	17.3	AV	L1	GND
0.322000	32.30	9.9	50	17.4	AV	L1	GND
17.900000	20.60	10.8	50	29.4	AV	L1	GND

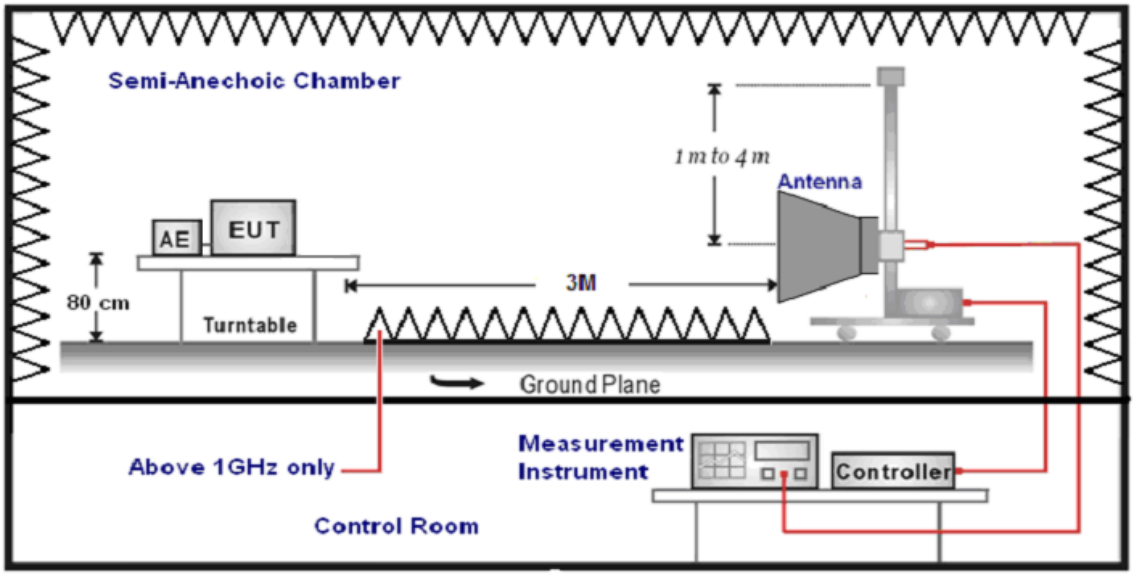
4.2. Radiated Emission Test

TEST CONFIGURATION

Frequency range: 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. 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. The maximum operation frequency was 1200MHz, the radiated emission test frequency from 30 MHz to 6GHz.
8. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-6GHz	Double Ridged Horn Antenna	3

9. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-6GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto	Peak
	Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

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:

FS = RA + AF + CL - AG

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

For example

Frequency (MHz)	FS (dBμV/m)	RA (dBμV/m)	AF (dB)	CL (dB)	AG (dB)	Transd (dB)
300.00	40	58.1	12.2	1.6	31.90	-18.1

Transd=AF +CL-AG

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)
0.009-0.49	300	20log(2400/F(KHz))+80	2400/F(KHz)
0.49-1.705	30	20log(24000/F(KHz))+40	24000/F(KHz)
1.705-30	30	20log(30)+40	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

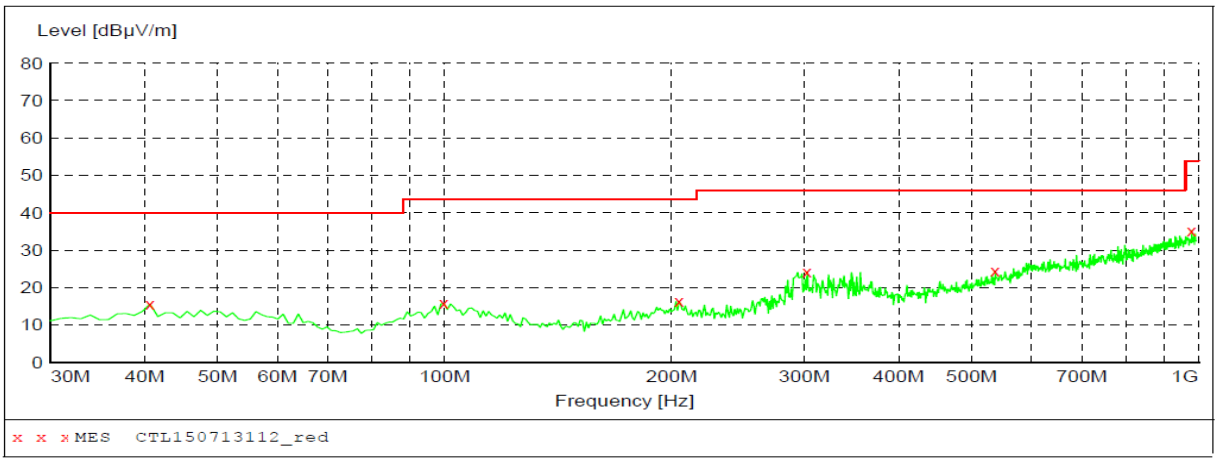
Note: Mode: Data transmission (connected PC)

For 30MHz-1GHz

Polarization	*Vertical*

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

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	JB1



MEASUREMENT RESULT: "CTL150713112_red"

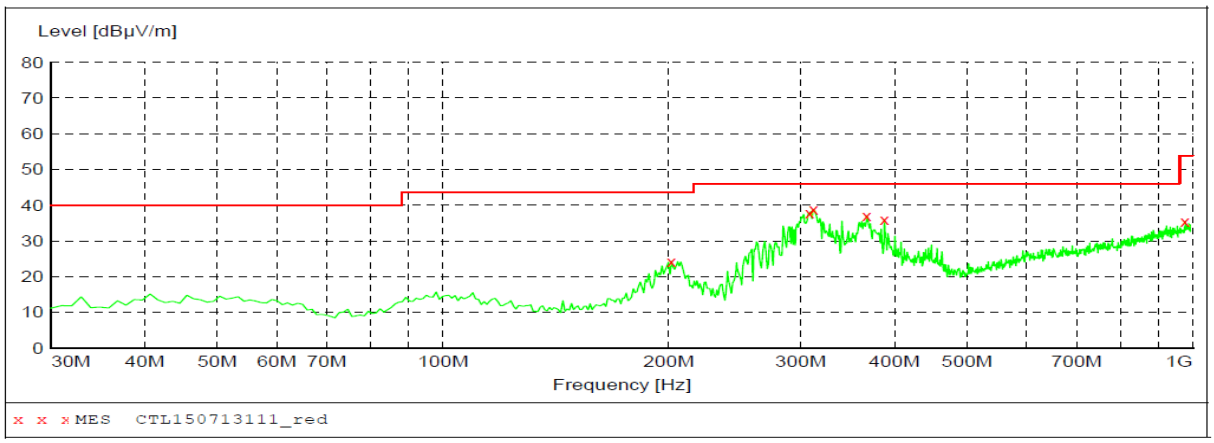
7/13/2015 7:22PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
40.670000	15.60	-15.0	40.0	24.4	PK	100.0	35.00	VERTICAL
99.840000	15.80	-13.7	43.5	27.7	PK	100.0	262.00	VERTICAL
204.600000	16.40	-14.7	43.5	27.1	PK	100.0	262.00	VERTICAL
302.570000	24.30	-13.7	46.0	21.7	PK	100.0	309.00	VERTICAL
537.310000	24.40	-5.7	46.0	21.6	PK	100.0	77.00	VERTICAL
979.630000	35.30	4.1	54.0	18.7	PK	100.0	0.00	VERTICAL

Polarization	*Horizontal*

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

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	JB1



MEASUREMENT RESULT: "CTL150713111_red"

7/13/2015 7:19PM

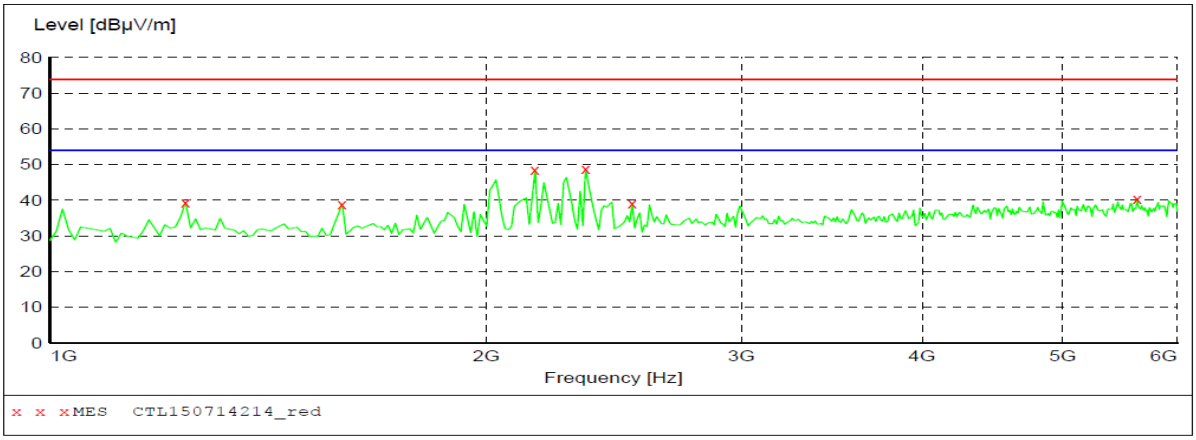
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
201.690000	24.30	-14.6	43.5	19.2	PK	100.0	160.00	HORIZONTAL
308.390000	37.90	-13.6	46.0	8.1	PK	100.0	48.00	HORIZONTAL
312.270000	38.90	-13.5	46.0	7.1	PK	100.0	48.00	HORIZONTAL
367.560000	37.10	-11.7	46.0	8.9	PK	100.0	207.00	HORIZONTAL
387.930000	36.10	-11.2	46.0	9.9	PK	100.0	207.00	HORIZONTAL
976.720000	35.50	4.0	54.0	18.5	PK	100.0	360.00	HORIZONTAL

For 1GHz-6GHz

Polarization	Vertical

SWEEP TABLE: "test (1G-6G) P"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	6.0 GHz	MaxPeak Average	Coupled	1 MHz	9120D_0328



MEASUREMENT RESULT: "CTL150713214_red"

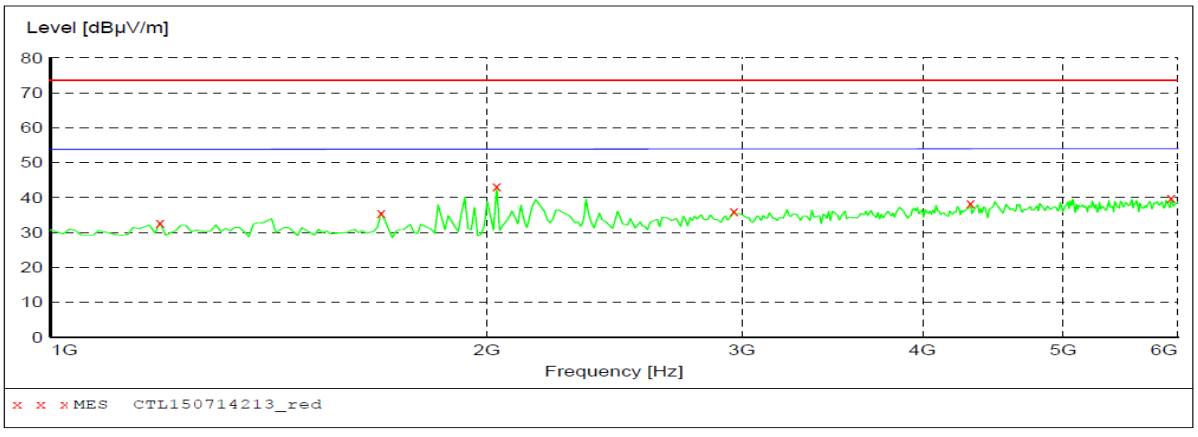
7/14/2015 6:13PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1240.480962	39.40	-8.5	74.0	34.6	---	100.0	0.00	VERTICAL
1591.182365	38.90	-8.4	74.0	35.1	---	100.0	0.00	VERTICAL
2162.324649	48.50	-5.3	74.0	25.5	---	100.0	0.00	VERTICAL
2342.685371	48.70	-5.1	74.0	25.3	---	100.0	0.00	VERTICAL
2523.046092	39.20	-5.1	74.0	30.8	---	100.0	0.00	VERTICAL
5629.258517	40.40	3.6	74.0	33.6	---	100.0	0.00	VERTICAL

Polarization	Horizontal

SWEEP TABLE: "test (1G-6G) P"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	6.0 GHz	MaxPeak Average	Coupled	1 MHz	9120D_0328



MEASUREMENT RESULT: "CTL150714213_red"

7/14/2015 5:56PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1190.380762	32.80	-9.0	74.0	41.2	---	100.0	10.00	HORIZONTAL
1691.382766	35.70	-8.4	74.0	38.3	---	100.0	5.00	HORIZONTAL
2032.064128	43.20	-6.7	74.0	30.8	---	100.0	0.00	HORIZONTAL
2963.927856	36.20	-3.3	74.0	37.8	---	100.0	0.00	HORIZONTAL
4316.633267	38.30	0.6	74.0	35.7	---	100.0	0.00	HORIZONTAL
5939.879760	39.90	4.3	74.0	34.1	---	100.0	0.00	HORIZONTAL

5. Test Setup Photos of the EUT

Please refer to separated files for Test Setup Photos of the EUT.

6. External Photos of the EUT

Please refer to separated files for External Photos of the EUT.

7. Internal Photos of the EUT

Please refer to separated files for Internal Photos of the EUT.

.....End of Report.....