FCC TEST REPORT

47 CFR FCC Part 15 Subpart B

Report Reference No.....:	**JTT20151100306**	
FCC ID.....:	**2AEP7N502**	
Compiled by (position+printed name+signature)..:	File administrators Kevin Liu	kevin . Liu
Supervised by (position+printed name+signature)..:	Project Engineer Kevin Liu	kevin . Liu
Approved by (position+printed name+signature)..:	RF Manager Eric Wang	Eric Wang
Date of issue.....:	Nov 16, 2015	
Representative Laboratory Name .:	**SHENZHEN JIETONG INFORMATION TECHNOLOGY CO., LTD**	
Address .....:	No.12 Building Shangsha, Innovation & Technology Park, Futian District, Shenzhen, P.R.China	
Testing Laboratory Name .....:	**Shenzhen Academy of Metrology and Quality Inspection**	
Address .....:	No.4 TongFa Road, Xili TownNanshan District, Shenzhen, China	
Applicant's name.....:	**NOBLEX ARGENTINA S.A.**	
Address .....:	Jaramillo 3670 – CIUDAD AUTONOMA DE BUENOS AIRES – ARGENTINA	
Test specification .....**:**		
Standard .....:	**47 CFR FCC Part 15 Subpart B - Unintentional Radiators**	
	ANSI C63.4: 2014	
TRF Originator.....:	SHENZHEN JIETONG INFORMATION TECHNOLOGY CO., LTD	

Test item description .....:	Smart Phone
Trade Mark .....:	NOBLEX
Manufacturer.....:	**AMER MOBILE CO.,LIMITED**
Model/Type reference.....:	N502
Listed Models .....:	N/A
Rating .....:	DC 3.70V
Hardware version .....:	E520_WMCK
Software version .....:	NOBLEX_L500C_V01_20150925
Result.....:	**PASS**

T E S T R E P O R T

Test Report No. :	JTT20151100306	Nov 16, 2015 Date of issue

Equipment under Test	:	Smart Phone
Model /Type	:	N502
Listed Models	:	N/A
Applicant	:	**NOBLEX ARGENTINA S.A.**
Address	:	Jaramillo 3670 – CIUDAD AUTONOMA DE BUENOS AIRES – ARGENTINA
Manufacturer	:	**AMER MOBILE CO.,LIMITED**
Address	:	FLAT / RM 1903 ,19/F PODIUM PLAZA 5 HANOI ROAD TSIM SHA TSUI KL HONG KONG.

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: 2014 – 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	:	Oct 01,2015
Testing commenced on	:	Nov 15,2015
Testing concluded on	:	Nov 16, 2015

2.2 Product Description

The **NOBLEX ARGENTINA S.A.**'s Model: N502 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	Smart Phone
Model Number	N502
Modilation Type	GMSK for GSM/GPRS, 8-PSK for EDGE,QPSK for UMTS, QPSK, 16QAM for LTE
Antenna Type	Internal
UMTS Operation Frequency Band	Device supported UMTS FDD Band II/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 10
HSUPA Release Version	Release 6
DC-HSUPA Release Version	Not Supported
WCDMA Release Version	R99
LTE Release Version	R8
UMTS Operation Frequency Band	Device supported FDD band 4, FDD band 7
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,8DPSK,π/4DQPSK(BT 3.0+EDR)
Hardware version	E520_WMCK
Software version	NOBLEX_L500C_V01_20150925
Android version	Android 4.4.2
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	3.40VDC to 4.20VDC (nominal: 3.80VDC)
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

N502 is subscriber equipment in the WCDMA/GSM /LTE system. The HSPA/UMTS frequency band is Band II and Band 5,LTE frequency band is band 4 and band 7; The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only Band II and Band V and GSM850 and PCS1900 bands test data included in this report. The Smart Phone implements such functions as RF signal receiving/transmitting, HSPA/UMTS ,LTE 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.

2.4.2 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	3.8VDC	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: 2AEP7N502** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.7 Internal Identification of AE used during the test

AE ID*	Description
AE1	Charger

AE1
Model: S005UA0500100
INPUT: AC100-240V 50/60Hz 150mA
OUTPUT: DC 5.0V 1.0A

*AE ID: is used to identify the test sample in the lab internally.
We not used AE2 when for FCC Part 15B test.

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:

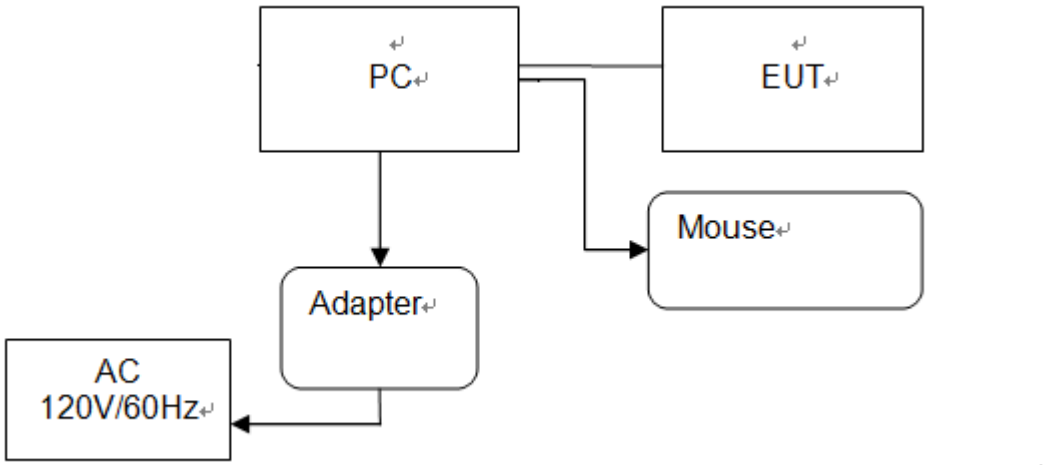
● - supplied by the manufacturer

○ - 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	ThinkPad	E430C	A131101550	/	/	DOC
2	Mouse	DELL	MO56UOA	G0E02SY7	1.00m	unshielded	DOC
3	USB Cable (EUT to PC)	Genshuo	USB 2.0	N/A	0.60m	unshielded	N/A
4	Power line	/	/	N/A	1.00m	unshielded	N/A

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen Academy of Metrology and Quality Inspection

No.4 TongFa Road, Xili TownNanshan District, Shenzhen, China
The sites are constructed in conformance with the requirements of 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 information:

Shenzhen Academy of Metrology and Quality Inspection
No.4 TongFa Road, Xili TownNanshan District, Shenzhen, China
Test Firm FCC Registration number: 806614

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 Academy of Metrology and Quality Inspection 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 Academy of Metrology and Quality Inspection National Digital Electronic Product Testing Center
is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.5 dB	(1)
Radiated Emission	1~18GHz	4.6 dB	(1)
Conducted Disturbance	0.009~30MHz	3.5 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

Conducted Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB3319	EMI Test Receiver	R&S	ESCS30	Dec.20,2014	1 Year
SB4357	AMN	R&S	ENV216	Oct.14,2015	1 Year
SB3321	AMN	R&S	ESH2-Z5	Jan.19,2015	1 Year

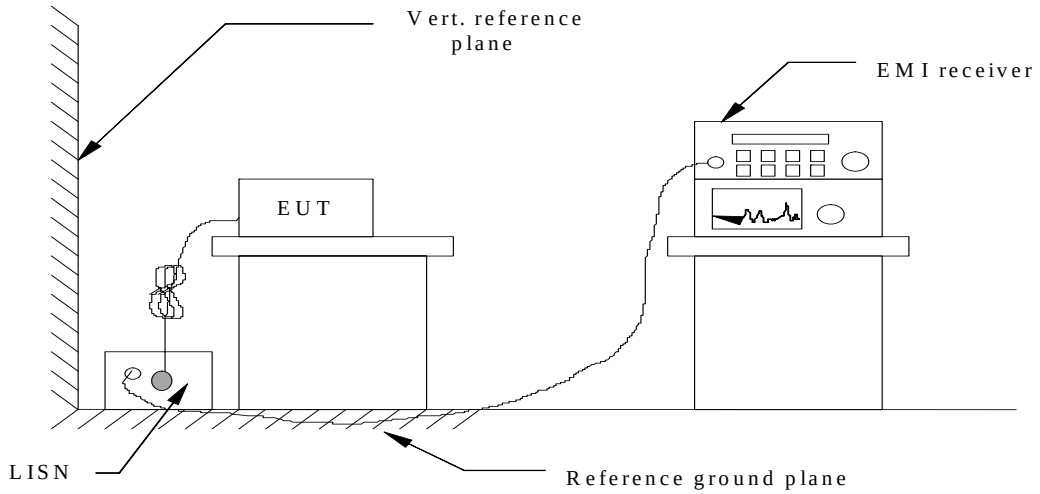
Radiated Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Dec.29,2014	1 Year
SB5472/02	Bilog Antenna	SCHWARZBECK	VULB9163	Jan.18,2015	1 Year
SB9422/16	Horn Antenna	Rohde & Schwarz	HF907	May.19.2015	1Year
SB3345	Loop Antenna	Schwarzbeck	FMZB1516	Jan.20, 2015	1Year
N/A	EMI TEST Software	Rohde&Schwarz	ESK1	N/A	N/A

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：

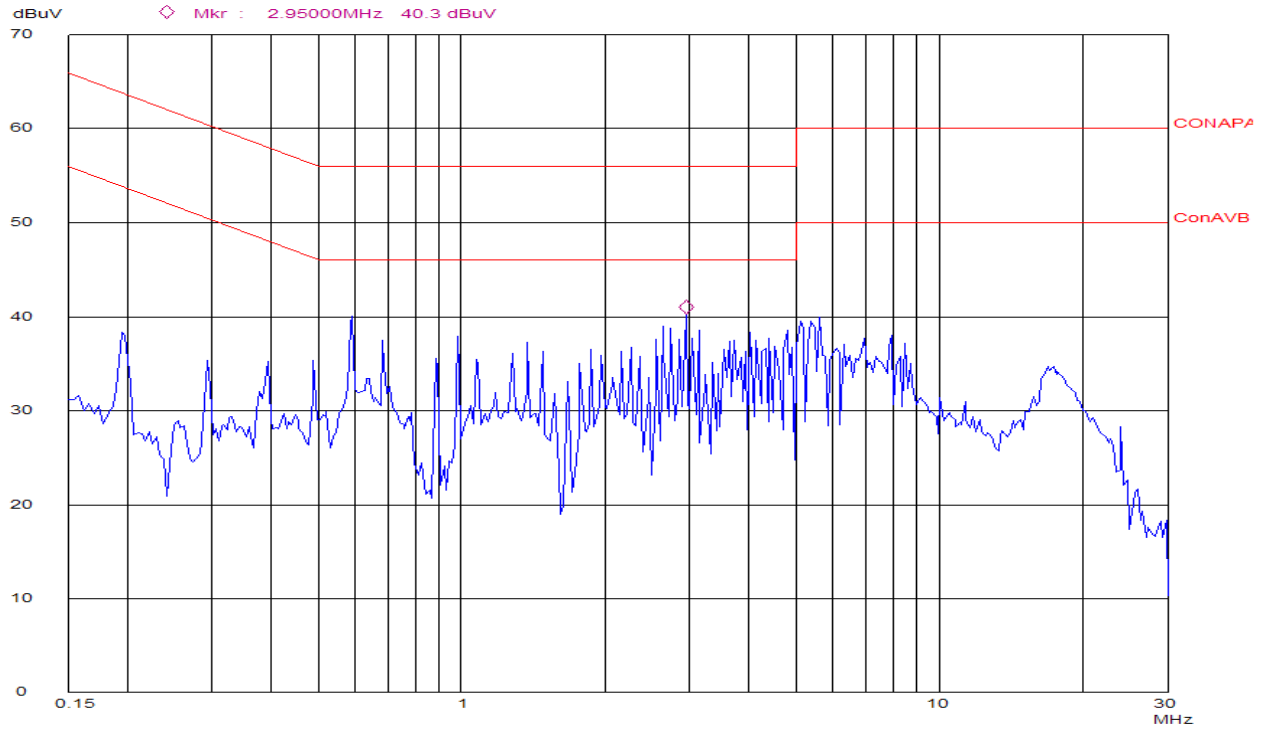
Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

TEST RESULTS

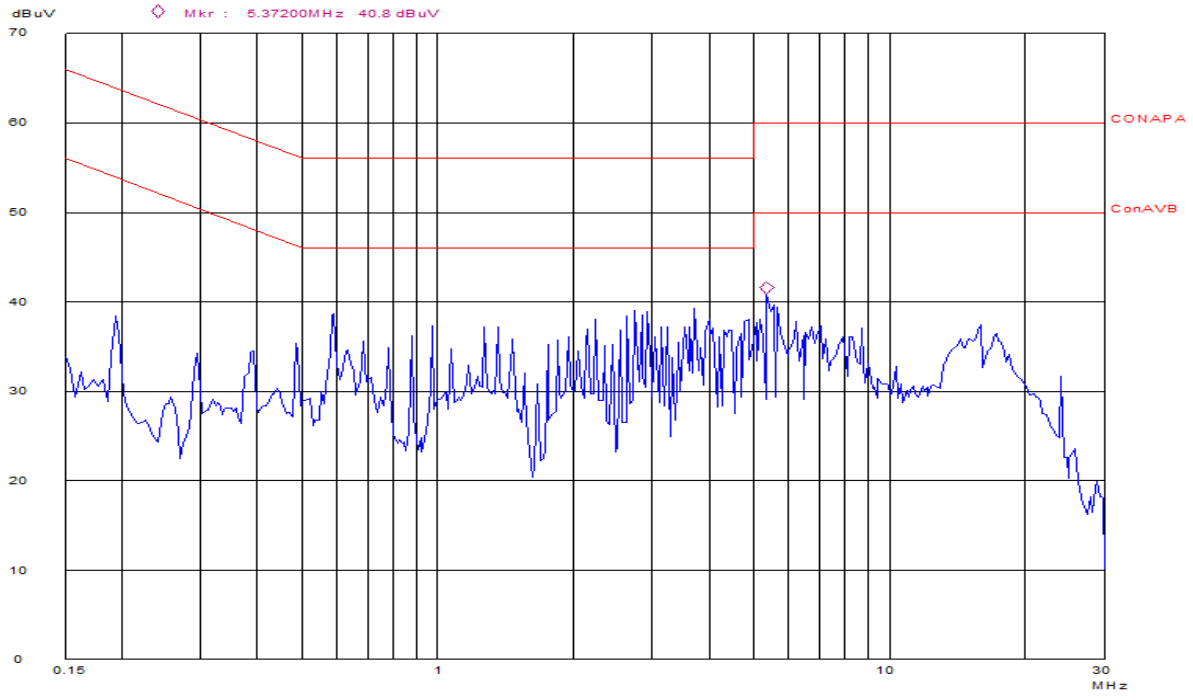
Note: We tested the playing video Mode, Data transmission (connected PC) Mode, camera Mode and so on, and recorded the worst case at the playing video Mode.

N



Frequency	QP level	QP Limit	AV level	AV Limit	QP read	AV read	Factor	QP margin	AV margin
0.59	38.2	56	36.1	46	28.4	26.3	9.8	17.8	9.9
2.65	37.1	56	29.6	46	27.2	19.7	9.9	18.9	16.4
2.95	32.7	56	29	46	22.8	19.1	9.9	23.3	17.0

L

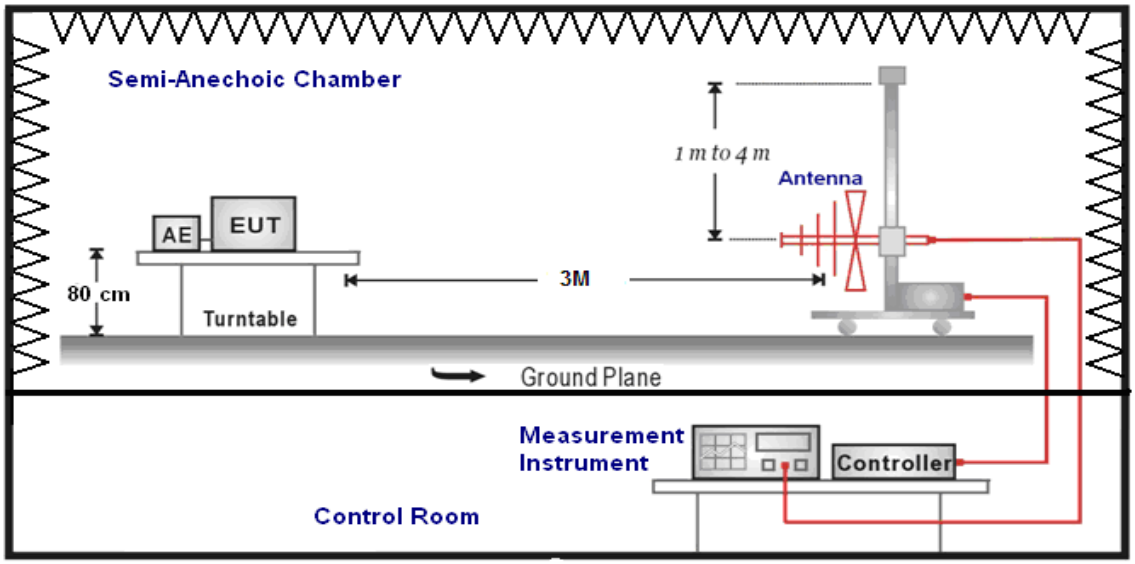


Frequency	QP level	QP Limit	AV level	AV Limit	QP read	AV read	Factor	QP margin	AV margin
0.59	30.1	56	21.9	46	20.3	12.1	9.8	25.9	24.1
5.372	31.7	60	22.6	50	21.7	12.6	10.0	28.3	27.4
15.98	29.7	60	19.6	50	19.8	9.7	9.9	30.3	30.4

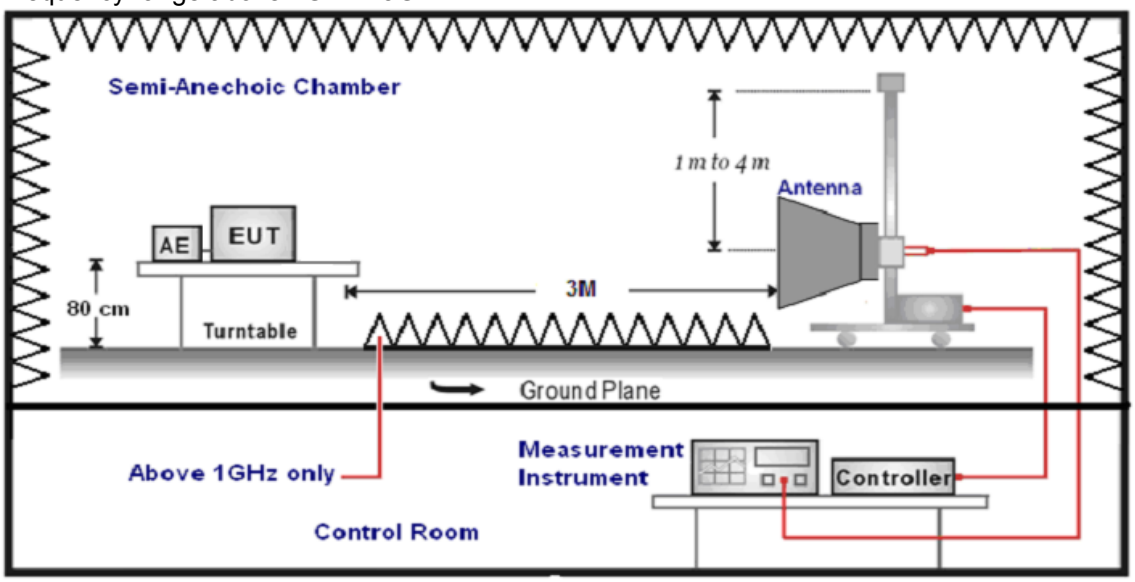
4.2 Radiated Emission Test

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 512MHz, 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 (Receiver)
	Average Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto	Average (Receiver)

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

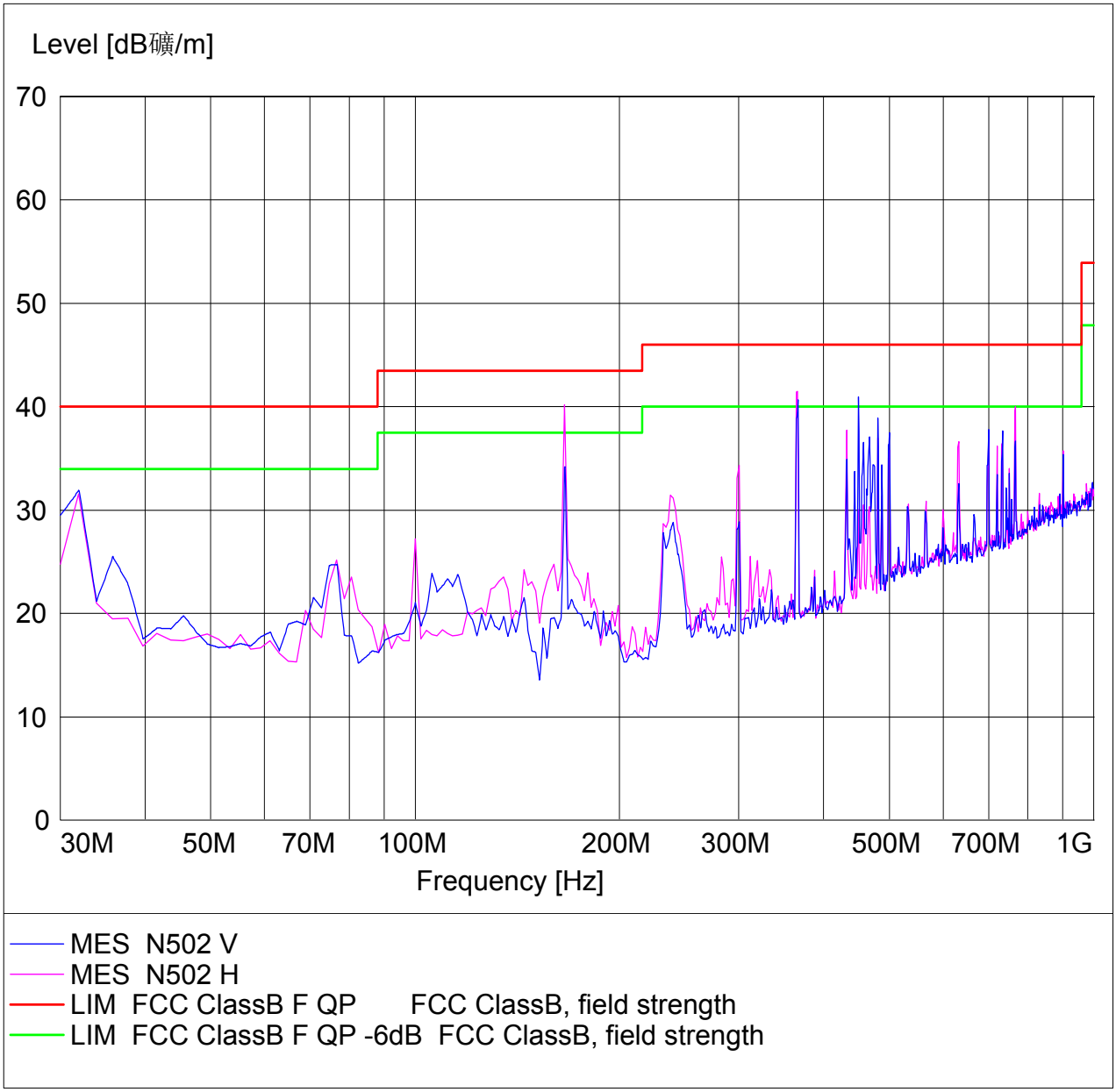
RADIATION LIMIT

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

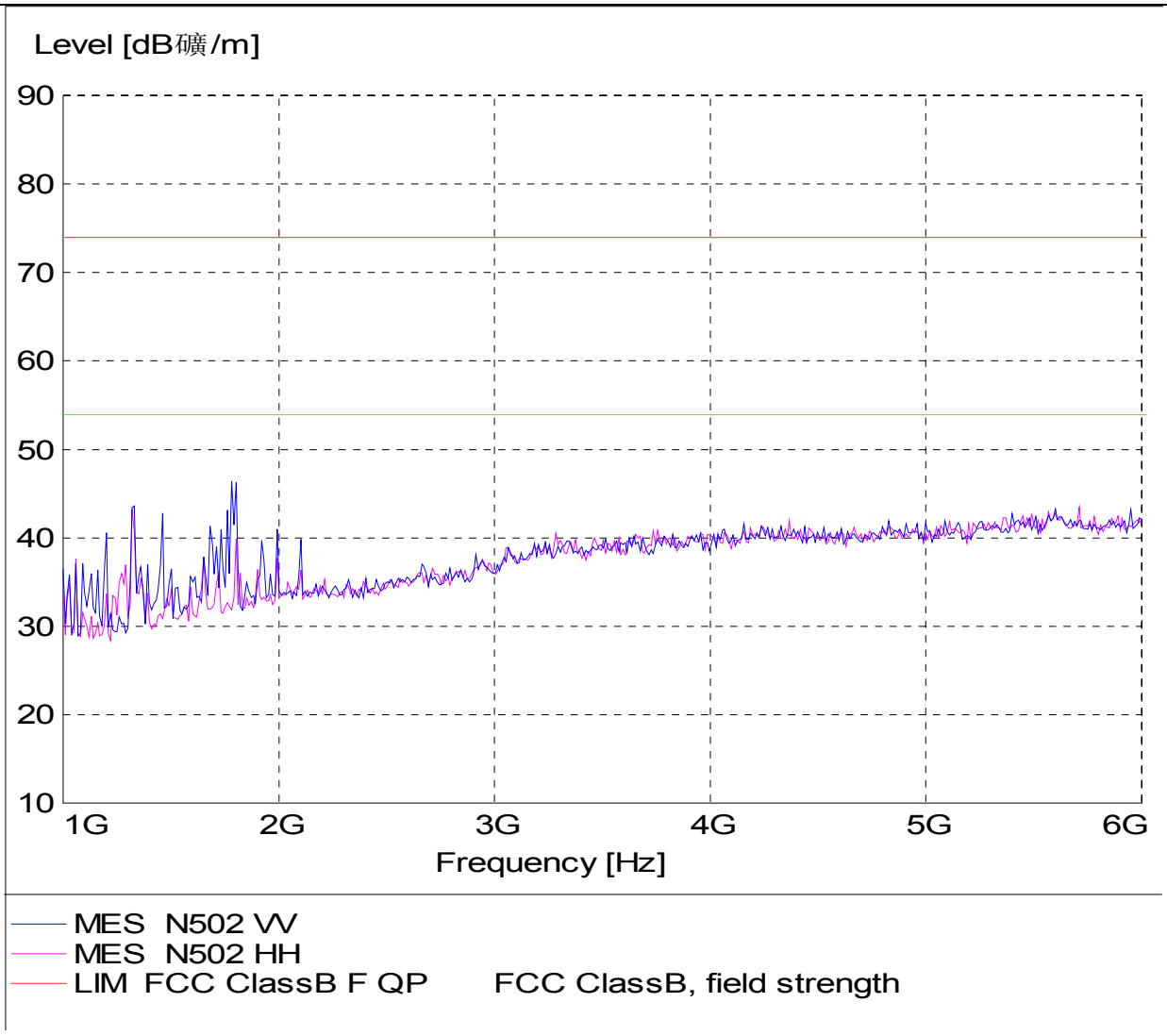
TEST RESULTS

Polarization	Horizontal& Vertical



freq	Polarity	cable loss	Antenna factor	readings	level
166.484	Horizontal	1.5	8.7	28.6	38.8
365.182	Horizontal	2.2	14.3	24.2	40.7
776.257	Horizontal	3.5	18.8	17.0	39.3
166.484	Vertical	1.5	8.7	23.9	34.1
365.182	Vertical	2.2	14.3	23.7	40.2
448.165	Vertical	2.6	15.6	21.4	39.6

30MHz-1GHz



Frequency MHz	Cable Loss +preamp(dB)	Antenna Factor(dB)	Readings(dBμV/m)	Level(dBμV/m)	Polarity(H/V)	Turntable Angle(deg)	Antenna Height(m)	Limits(dBμV/m)
PK								
1287.009	-40.8	24.3	58.1	41.6	V	240	1.0	74
1405.416	-40.7	25.1	55.9	40.3	V	340	1.0	74
1753.228	-40.5	26.7	57.6	43.8	V	250	1.0	74
1405.336	-40.7	25.1	53.1	37.5	H	80	1.0	74
1809.591	-40.5	26.9	47.0	33.4	H	290	1.0	74
1996.673	-40.4	26.9	51.6	38.1	H	170	1.0	74
AV								
1287.009	-40.8	24.3	42.6	26.1	V	240	1.0	54
1405.416	-40.7	25.1	41.3	25.7	V	340	1.0	54
1753.228	-40.5	26.7	41.4	27.6	V	250	1.0	54
1405.336	-40.7	25.1	40.9	25.3	H	80	1.0	54
1809.591	-40.5	26.9	39.7	26.1	H	290	1.0	54
1996.673	-40.4	26.9	37.8	24.3	H	170	1.0	54

1GHz-6GHz

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.....