



FCC PART 15D

MEASUREMENT AND TEST REPORT

For

Global China Technology Limited

Room 308, 3/F Kwong Sang Hong Centre, 151-153 Hoi Bun Road, Kwun Tong, Hong Kong

FCC ID: VNNDD5624

Report Type: Class II Permissive Change	Product Type: Amplified DECT Phone (Base Unit)
Report Number: <u>RSZ160531001-00AA1FP</u>	
Report Date: <u>2016-10-09</u>	
Oscar Ye 	
Reviewed By: <u>Engineer</u>	
Prepared By: Bay Area Compliance Laboratories Corp. (Kunshan) Chenghu Road, Kunshan Development Zone No.248, Kunshan, Jiangsu, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn	

Note: This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY	4
TEST FACILITY	4
SYSTEM TEST CONFIGURATION.....	5
DESCRIPTION OF TEST CONFIGURATION	5
EQUIPMENT MODIFICATIONS	5
SUPPORT EQUIPMENT LIST AND DETAILS	5
EXTERNAL I/O CABLE.....	5
BLOCK DIAGRAM OF TEST SETUP	5
SUMMARY OF TEST RESULTS	6
TEST EQUIPMENT LIST	7
FCC§ 15.319 (I) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE	8
FCC§15.317&§15.203 - ANTENNA REQUIREMENT	9
APPLICABLE STANDARD	9
ANTENNA CONNECTOR CONSTRUCTION	9
FCC §15.315&§15.207 - CONDUCTED EMISSIONS.....	10
APPLICABLE STANDARD	10
MEASUREMENT UNCERTAINTY	10
EUT SETUP	10
EMI TEST RECEIVER SETUP.....	11
TEST PROCEDURE	11
TEST RESULTS SUMMARY	11
TEST DATA	11
FCC§15.319 (G) - RADIATED EMISSIONS.....	14
APPLICABLE STANDARD	14
EUT SETUP	14
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP	14
TEST PROCEDURE	15
CORRECTED AMPLITUDE & MARGIN CALCULATION	15
TEST RESULTS SUMMARY	15
TEST DATA	15

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Global China Technology Limited*'s product, model number: *DD5634HER1* (FCC ID: *VNNDD5624*) (the "EUT") in this report was a base unit of *Amplified DECT Phone*, which was measured approximately: 20.0 cm (L) x 16.5 cm (W) x 7.0 cm (H), rated with input voltage: DC 5.9V charging from adapter

Adapter Information: AC Adapter

Model: HX-AD059080-U06;

Input: AC 100-240V, 50/60Hz, 0.15A;

Output: DC 5.9V, 0.8A

Note: The series product, for base unit model PowerTel 750 Assure, PowerTel 760 Assure, PowerTel 765 Assure Responder, PowerTel 770 Assure Voice, PowerTel 775 Responder Voice, PowerTel 780 Assure, PowerTel 785 Assure Responder, DD5623BHER0, DD5624BHER0, DD5634BHER0, DD5624VBHER0, DD5634VBHER0, DD5624HER1 and DD5634HER1, they share the same product only named differently due to different combination per client's request. Model DD5634HER1 selected for testing, the detailed information can be referred to the attached declaration letter that stated and guaranteed by the applicant.

** All measurement and test data in this report was gathered from production sample serial number: 828146. (Assigned by BACL, Kunshan). The EUT supplied by the applicant was received on 2016-05-31.*

Objective

This report is prepared on behalf of *Global China Technology Limited*. The measurements were performed according to the measurement procedure described in ANSI C63.17 - 2013 and ANSI C63.4 - 2014.

This is a CIIPC application of the device, the differences between the original device and the current one are as follows:

1. Change the adapter with DOE level 6 for base unit..
2. Change the color of base.
3. Change the silk logo and key's symbol of base

For the change made to the device, the test item "Conducted Emissions" and "Radiated Emissions with below 1GHz" was performed.

Related Submittal(s)/Grant(s)

Submitted with FCC part 15D handset unit of a system with FCC ID: *VNNDD5624*

Test Methodology

All measurements contained in this report were conducted with ANSI C63.17 - 2013, 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 40 GHz. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan).

The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item	Uncertainty
AC Power Lines Conducted Emissions	±3.26 dB
Radiated emission	30MHz~1GHz
	Above 1G
Temperature	±1.0°C
Humidity	±6%

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on Chenghu Road, Kunshan Development Zone No.248, Kunshan, Jiangsu, China.

Test site at Bay Area Compliance Laboratories Corp. (Kunshan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on October 31, 2013. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in TBR6 mode which is provided by the manufacturer.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

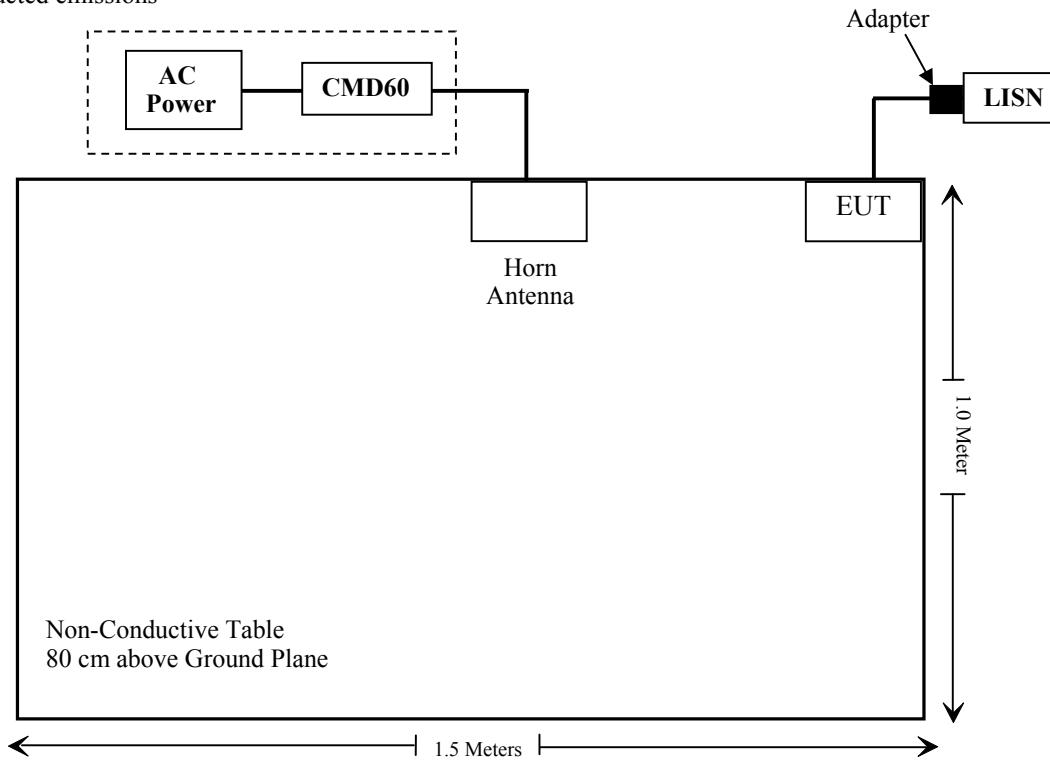
Manufacturer	Description	Model	Serial Number
R&S	Digital Radio-Communication Tester	CMD60	830553/018

External I/O Cable

Cable Description	Length (m)	From/Port	To
Un-shielded Detectable Adapter Cable	1.83	EUT	Adapter

Block Diagram of Test Setup

For conducted emissions



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 15.319 (i)&2.1091	Maximum Permissible Exposure	Compliance
§ 15.317 § 15.203	Antenna Requirement	Compliance
§ 15.207 § 15.315	Conducted Emission	Compliance
§ 15.323 (a)	Emission Bandwidth	Compliance*
§ 15.319 (c)	Peak Transmit Power	Compliance*
§ 15.319 (d)	Power Spectral Density	Compliance*
§ 15.323 (d)	Emission Inside and Outside the sub-band	Compliance*
§ 15.319 (g)	Radiated Emission	Compliance
§ 15.323 (f)	Frequency Stability Handset	Compliance*
§ 15.323 (c)(e) § 15.319 (f)	Specific Requirements for UPSCS	Compliance*

Compliance*: Please referred to original report with FCC ID: VNNDD5624 granted on 2013-10-31, which was tested by Sula Huang, Bay Area Compliance Laboratories Corp. (Shenzhen).

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCS30	934115/007	2015-11-12	2016-11-11
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2015-11-12	2016-11-11
Rohde & Schwarz	Pulse limiter	ESH3-Z2	879940/0058	2016-06-19	2017-06-18
Rohde & Schwarz	Digital Radio-Communication	CMD60	830553/018	2016-09-21	2017-09-20
MICRO-COAX	Coaxial line	UFB-293B-1-0480-50X50	97F0173	2016-09-01	2017-09-01
Rohde & Schwarz	CE Test software	EMC 32	V 09.10.0	-	-
Radiated Emission Test					
Sonoma Instrument	Amplifier	330	171377	2015-09-16	2016-09-16
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2015-11-12	2016-11-11
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2015-11-07	2016-11-06
Rohde & Schwarz	Digital Radio-Communication Tester	CMD60	830553/018	2016-09-21	2017-09-20
R&S	Auto test Software	EMC32	V 09.10.0	-	-
champrotek	Chamber	Chamber A	1#	2016-09-17	2017-09-16
BACL	RF cable	KS-LAB-012	KS-LAB-012	2015-12-16	2016-12-15
BACL	RF cable	KS-LAB-010	KS-LAB-010	2015-12-16	2016-12-15

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§ 15.319 (i) & §2.1091- Maximum Permissible Exposure

Applicable Standard

According to FCC §15.319(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	842/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

MPE Calculation

Prediction of MPE limit at a given distance

$$S = \frac{P \cdot G}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
	(dBi)	(numeric)	(dBm)	(mW)			
1921.536	0	1.0	16.15	41.21	20	0.00820	1.0
1924.992	0	1.0	16.17	41.40	20	0.00824	1.0
1928.448	0	1.0	16.15	41.21	20	0.00820	1.0

Result: The device meets MPE limit at 20 cm distance.

FCC§15.317&§15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Antenna Connector Construction

The EUT have one integrated antennas arrangement, which were permanently attached and the gain was 0 dBi, fulfill the requirement of this section. Please refer to the internal photos.

Result: Compliant.

FCC §15.315&§15.207 - CONDUCTED EMISSIONS

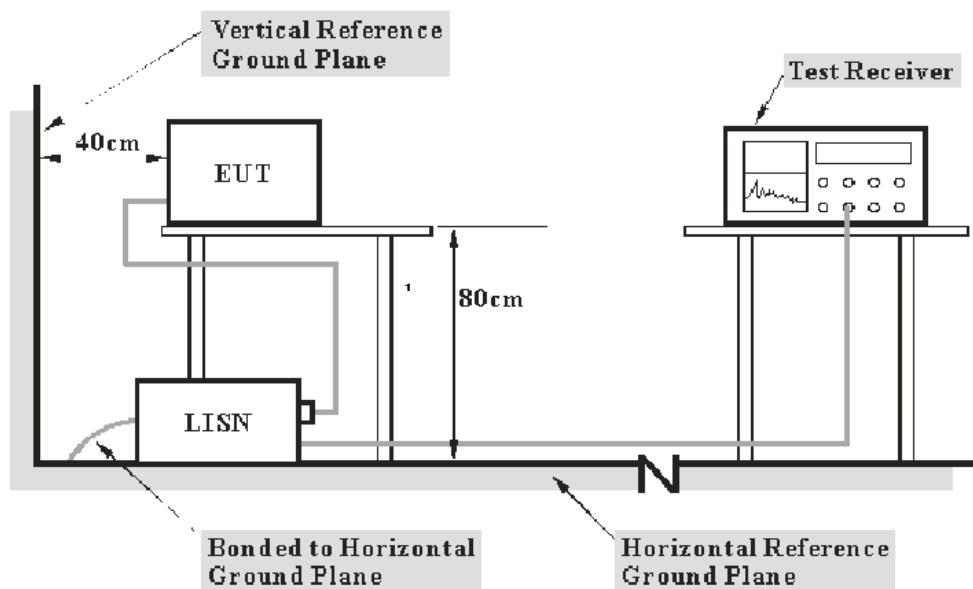
Applicable Standard

FCC§15.315, an unlicensed PCS device that is designed to be connected to the public utility (AC) power line must meet the limits specified in §15.207.

Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between LISN/ISN and receiver, LISN/ISN voltage division factor, AMN/ISN VDF frequency interpolation and receiver related input quantities, etc.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, with the worst margin reading of:

5.02 dB at 0.445000 MHz in the Neutral conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cisp}$$

In BACL, $U_{(Lm)}$ is less than U_{cisp} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data

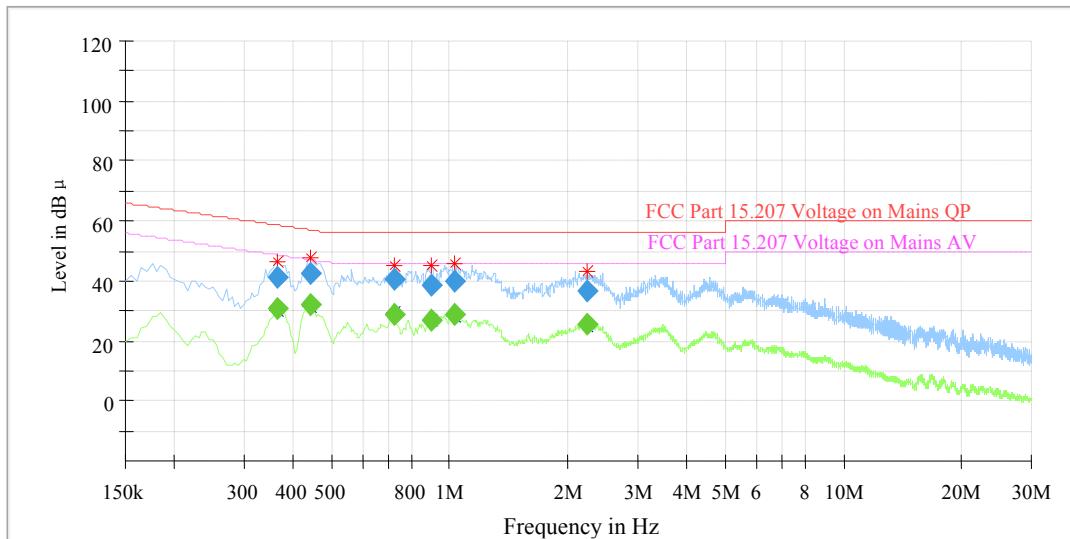
Environmental Conditions

Temperature:	27.0 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

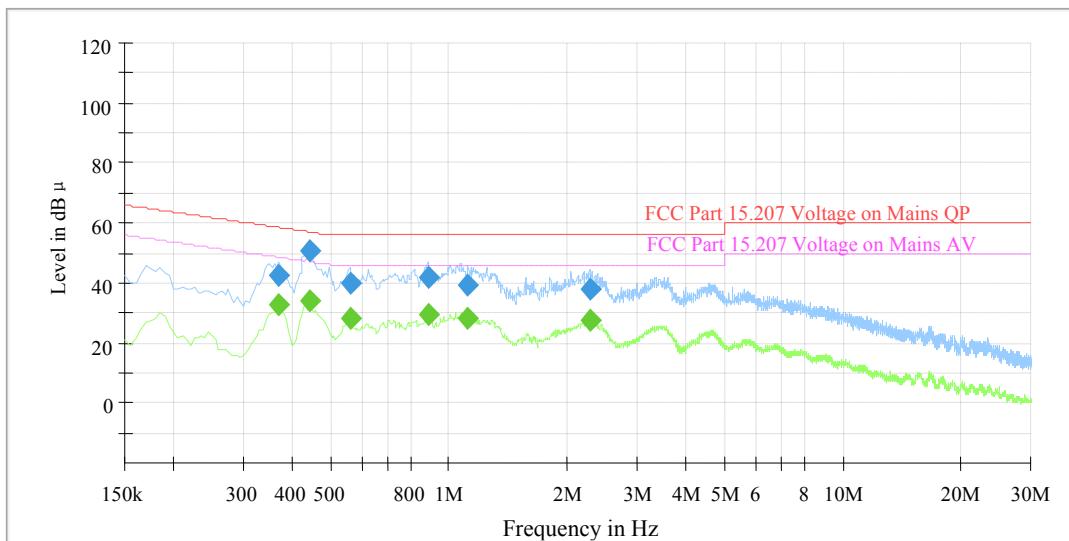
The testing was performed by Chris Wang on 2016-10-06.

Test mode: Transmitting

AC 120V/60 Hz, Line



Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.365000	---	30.64	9.000	L1	10.3	17.97	55.21	Compliance
0.365000	41.15	---	9.000	L1	10.3	17.46	48.61	Compliance
0.445000	---	31.82	9.000	L1	10.3	15.15	58.61	Compliance
0.445000	42.62	---	9.000	L1	10.3	14.35	46.97	Compliance
0.725000	---	28.81	9.000	L1	10.3	17.19	56.97	Compliance
0.725000	40.52	---	9.000	L1	10.3	15.48	46.00	Compliance
0.900000	---	27.20	9.000	L1	10.3	18.80	56.00	Compliance
0.900000	38.53	---	9.000	L1	10.3	17.47	46.00	Compliance
1.025000	---	28.76	9.000	L1	10.3	17.24	56.00	Compliance
1.025000	40.07	---	9.000	L1	10.3	15.93	46.00	Compliance
2.240000	---	25.66	9.000	L1	10.4	20.34	56.00	Compliance
2.240000	36.57	---	9.000	L1	10.4	19.43	46.00	Compliance

AC 120V/ 60 Hz, Neutral:

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.370000	---	32.60	9.000	N	10.3	15.90	48.50	Compliance
0.370000	42.61	---	9.000	N	10.3	15.89	58.50	Compliance
0.445000	---	35.13	9.000	N	10.3	11.84	46.97	Compliance
0.445000	47.95	---	9.000	N	10.3	5.02	56.97	Compliance
0.560000	---	27.92	9.000	N	10.3	18.08	46.00	Compliance
0.560000	39.88	---	9.000	N	10.3	16.12	56.00	Compliance
0.885000	---	29.47	9.000	N	10.3	16.53	46.00	Compliance
0.885000	41.80	---	9.000	N	10.3	14.20	56.00	Compliance
1.120000	---	27.88	9.000	N	10.3	18.12	46.00	Compliance
1.120000	38.97	---	9.000	N	10.3	17.03	56.00	Compliance
2.275000	---	27.23	9.000	N	10.5	18.77	46.00	Compliance
2.275000	37.66	---	9.000	N	10.5	18.34	56.00	Compliance

Note:

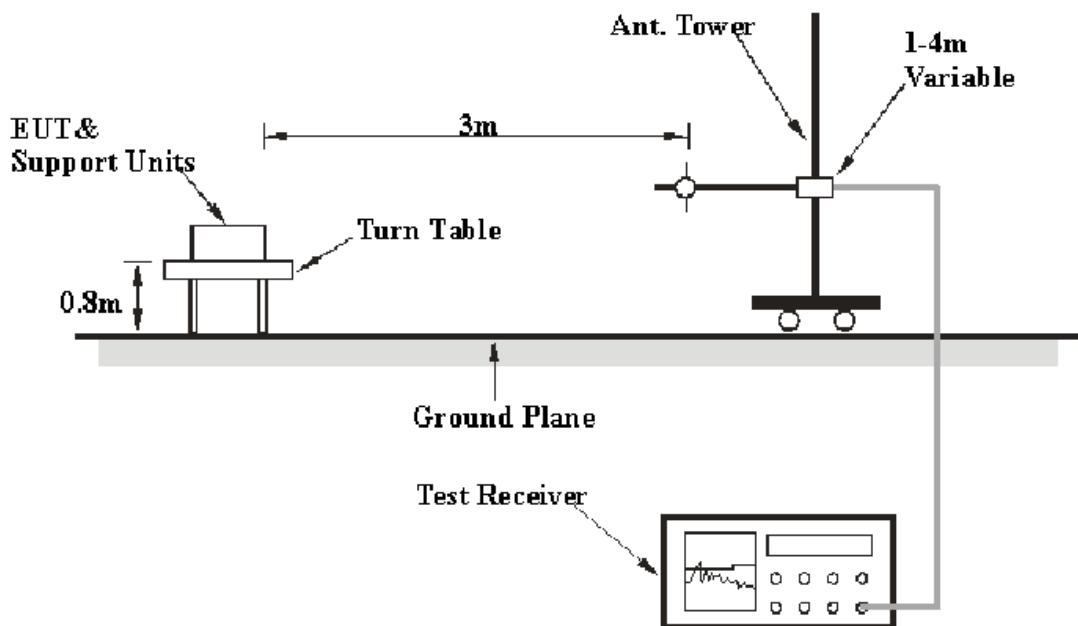
- 1) Correction Factor = LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Pulse Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
- 2) Corrected Amplitude = Reading + Correction Factor
- 3) Margin = Limit – Corrected Amplitude

FCC§15.319 (g) - RADIATED EMISSIONS

Applicable Standard

According to FCC§15.319(g), notwithstanding other technical requirements specified in this subpart, attenuation of emissions below the general emission limits in §15.209 is not required.

EUT Setup



The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI ANSI C63.4-2014. The specification used was the FCC 15.209 and FCC 15.319 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 1 GHz.

During the radiated emission test, the EMI test receiver Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, with the worst margin reading of:

16.24dB at 30.59 MHz in the Horizontal polarization

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{\text{lim}} + U_{\text{cisp}}$$

In BACL, $U_{(Lm)}$ is less than U_{cisp} , if L_m is less than L_{lim} , it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

Temperature:	27.0 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Chris Wang on 2016-10-06.

Test mode: Transmitting

Below 1 GHz:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dB μ V/m)	FCC Part 15.319(g)/209/205	
	Reading (dB μ V)	Detector (PK/QP/Ave.)		Height (cm)	Polar (H/V)			Limit (dB μ V/m)	Margin (dB)
30.59	29.61	QP	263	120	H	-5.28	24.33	40.00	16.24
39.41	41.98	QP	60	110	H	-9.89	32.09	40.00	16.67
43.37	42.91	QP	142	100	H	-12.30	30.61	40.00	19.65
121.77	35.46	QP	151	110	H	-14.45	21.01	43.50	29.18
650.16	24.57	QP	279	110	H	-3.73	20.84	46.00	23.94
833.91	30.17	QP	82	230	H	-1.34	28.83	46.00	22.55

Note: For Above 1GHz data, please referred to original report with FCC ID: VNNDD5624 granted on 2013-10-31, which was tested by Sula Huang, Bay Area Compliance Laboratories Corp. (Shenzhen).

***** END OF REPORT *****