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: VNNDD5622

Report Type:	**Product Type:**
Class II Permissive Change	Amplified DECT Phone (Base Unit)

Report Number:	RSZ160531003-00FPA1
Report Date:	2016-10-20
Reviewed By:	Jesse Huang Manager
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

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Global China Technology Limited*'s product, model number: *PowerTel 720 Assure + Twin (FCC ID: VNNDD5622)* (the "EUT") in this report was a base unit of *Amplified DECT Phone*, which was measured approximately: 10.4 cm (L) x 14.0 cm (W) x 5.4 cm (H), rated with input voltage: DC 5.9V 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 720 Assure +, PowerTel 725 Reliant +, PowerTel 720 Assure + Twin, PowerTel 730 Assure Voice +, PowerTel 735 Reliant Voice +, DD5622HER1, DD5632HER1, DD5622HER2, DD5622VHER1 and DD5632VHER1, they share the same product only named differently due to different combination per client's request. Model PowerTel 720 Assure + Twin 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: 1602381 (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 base's color.

3. Change base's silk logo and key's symbol.

For the change made to the device, the test item "Conducted Emissions" and "Radiated Emissions (Below 1 GHz)" was performed.

Related Submittal(s)/Grant(s)

Submitted with FCC part 15D handset unit of a system with FCC ID: VNNDD5622

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	±5.91dB
	Above 1G	±4.92dB
Temperature		±1.0℃
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

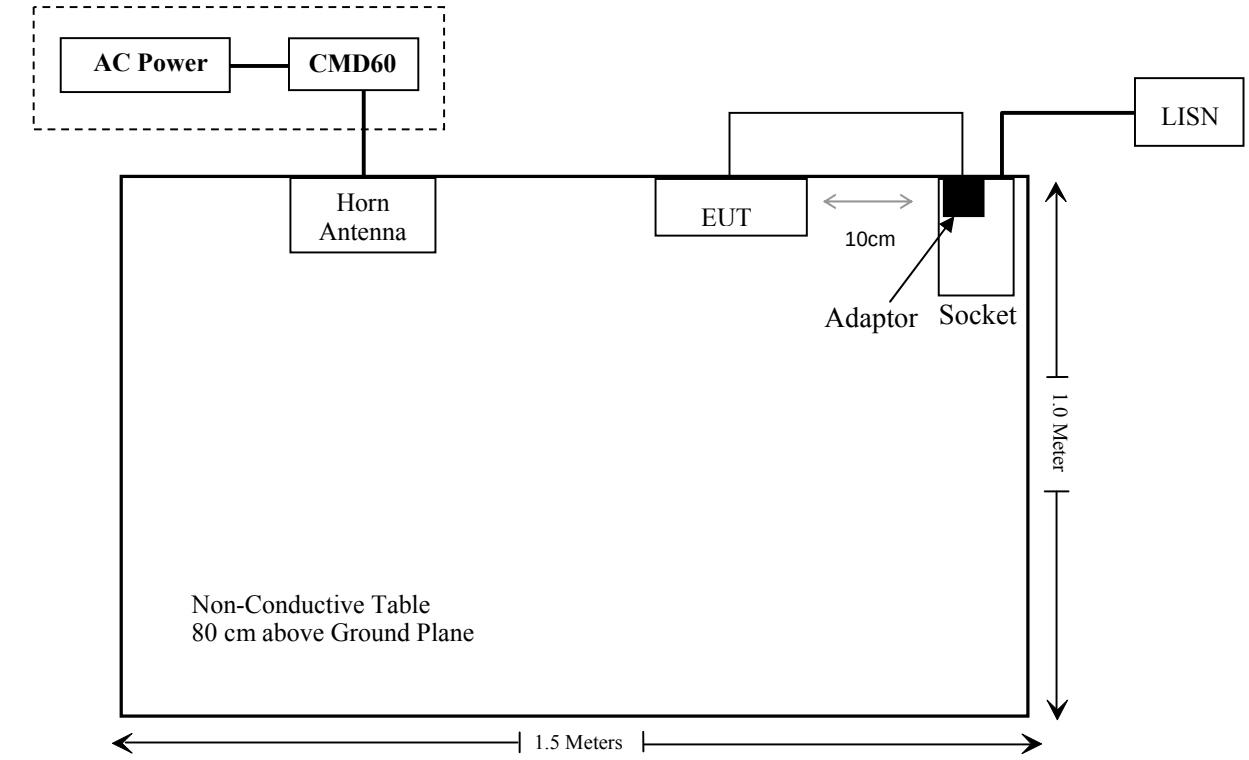
Manufacturer	Description	Model	Serial Number
R&S	Digital Radio-Communication Tester	CMD60	830553/018

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Detectable DC Power 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
§ 15.315 § 15.207	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	Compliance*
§ 15.323 (c)(e) § 15.319 (f)	Specific Requirements for UPCS device	Compliance*

Compliance*: Please referred to FCC ID: VNNDD5622 granted on 2013-11-22, original report was tested by Charlie Chen, 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 Tester	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 Instrunent	Amplifier	330	171377	2016-09-16	2017-09-16
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	-	-
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

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm^2);
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	15.79	37.931	20	0.00755	1.0
1924.992	0	1.0	15.66	36.813	20	0.00733	1.0
1928.448	0	1.0	15.43	34.914	20	0.00695	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 for DECT, which were permanently attached and the gain was 0 dBi, fulfill the requirement of this section. Please refer to the internal photos.

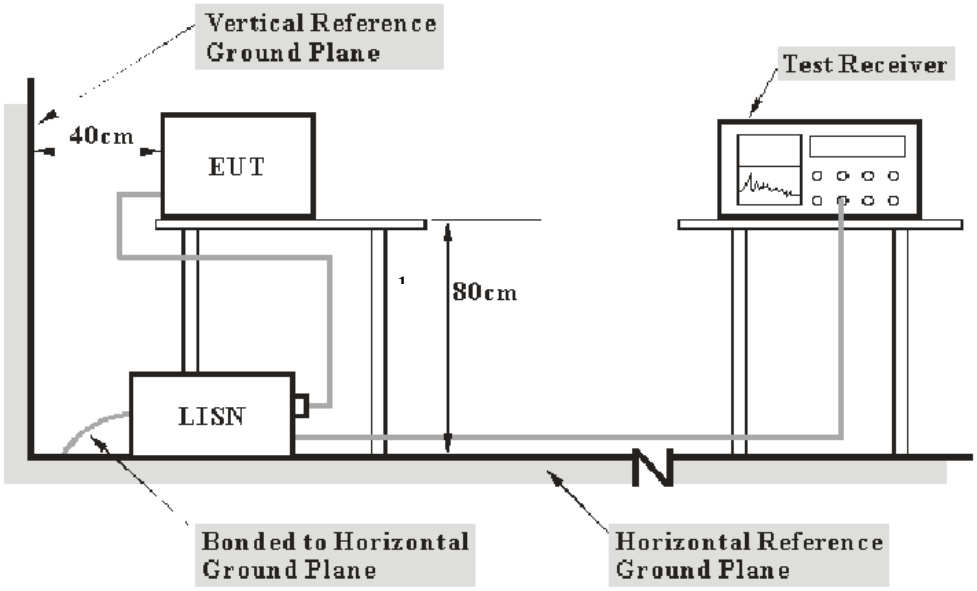
Result: Compliant.

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.

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:

6.07 dB at **0.375000 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

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

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

Test Data

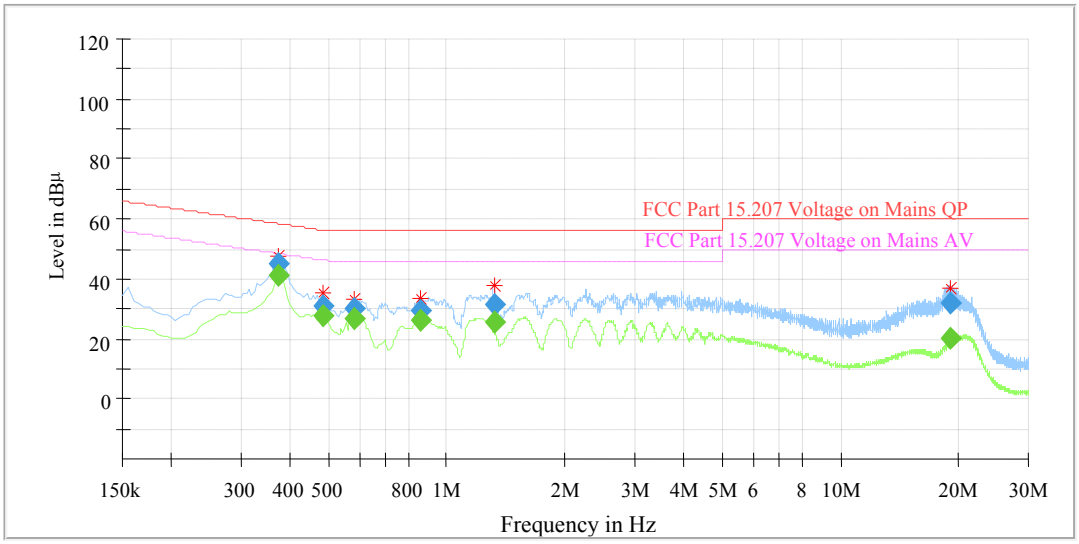
Environmental Conditions

Temperature:	27.0℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Ada Yu on 2016-10-19.

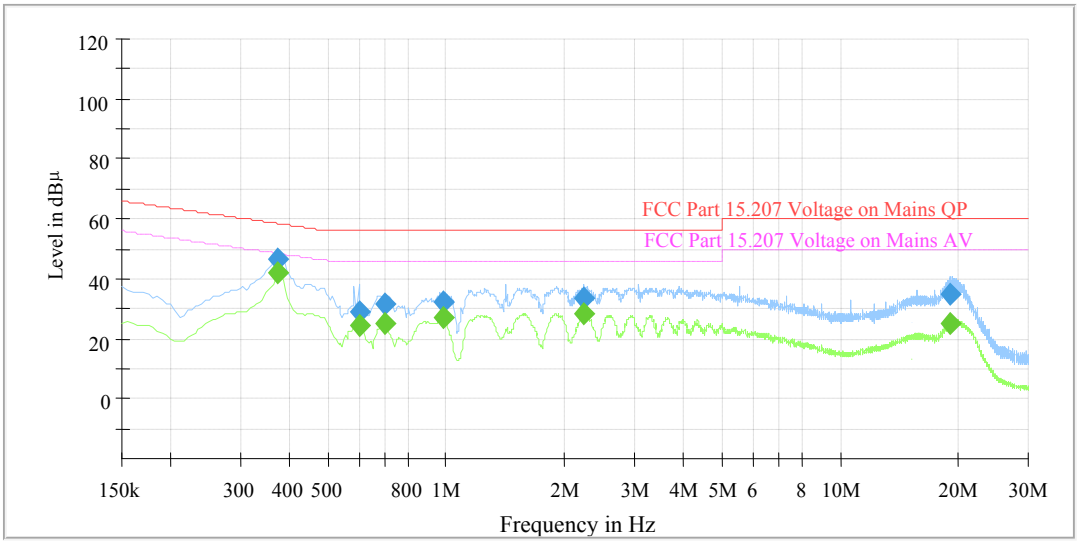
Test mode: Transmitting & Charging

AC 120V/60 Hz, Line



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.375000	---	41.12	9.000	L1	10.3	7.27	48.39	Compliance
0.375000	44.66	---	9.000	L1	10.3	13.73	58.39	Compliance
0.485000	---	27.98	9.000	L1	10.3	18.27	46.25	Compliance
0.485000	30.89	---	9.000	L1	10.3	25.36	56.25	Compliance
0.585000	---	27.45	9.000	L1	10.3	18.55	46.00	Compliance
0.585000	30.01	---	9.000	L1	10.3	25.99	56.00	Compliance
0.860000	---	26.65	9.000	L1	10.3	19.35	46.00	Compliance
0.860000	29.81	---	9.000	L1	10.3	26.19	56.00	Compliance
1.320000	---	25.46	9.000	L1	10.3	20.54	46.00	Compliance
1.320000	31.46	---	9.000	L1	10.3	24.54	56.00	Compliance
18.995000	---	20.17	9.000	L1	10.5	29.83	50.00	Compliance
18.995000	31.47	---	9.000	L1	10.5	28.53	60.00	Compliance

AC 120V/ 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.375000	---	42.32	9.000	N	10.3	6.07	48.39	Compliance
0.375000	47.07	---	9.000	N	10.3	11.32	58.39	Compliance
0.600000	---	24.83	9.000	N	10.3	21.17	46.00	Compliance
0.600000	29.20	---	9.000	N	10.3	26.80	56.00	Compliance
0.695000	---	25.71	9.000	N	10.3	20.29	46.00	Compliance
0.695000	31.85	---	9.000	N	10.3	24.15	56.00	Compliance
0.980000	---	27.08	9.000	N	10.3	18.92	46.00	Compliance
0.980000	32.62	---	9.000	N	10.3	23.38	56.00	Compliance
2.240000	---	28.47	9.000	N	10.4	17.53	46.00	Compliance
2.240000	33.91	---	9.000	N	10.4	22.09	56.00	Compliance
19.080000	---	25.52	9.000	N	10.5	24.48	50.00	Compliance
19.080000	35.00	---	9.000	N	10.5	25.00	60.00	Compliance

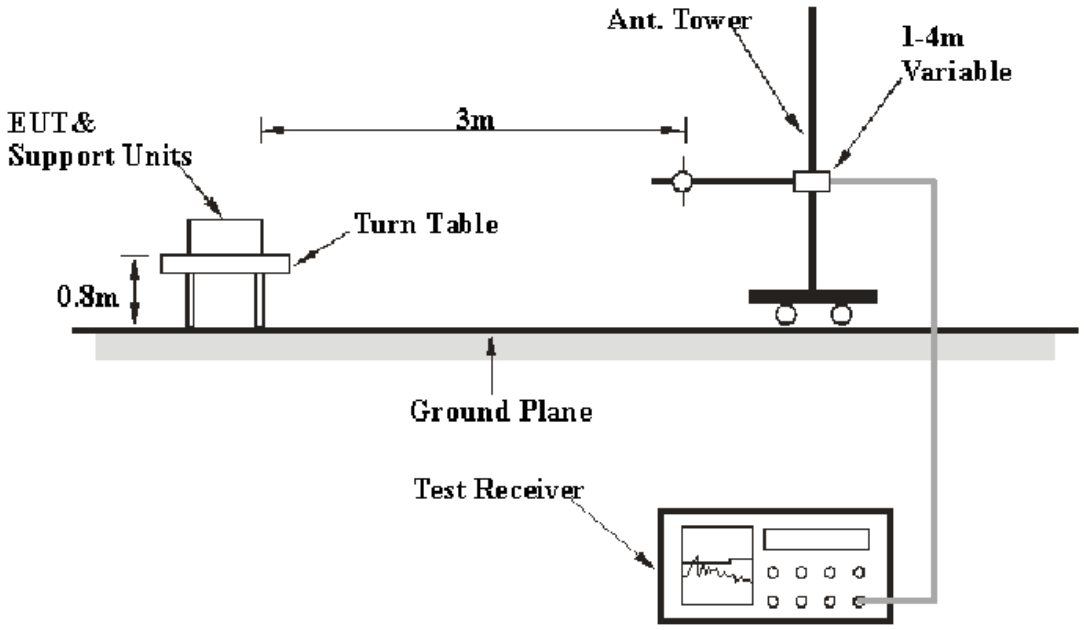
Note:
1) Correction Factor =LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Pulse Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
2) Corrected Amplitude = Reading + Correction Factor
3) Margin = Limit – Corrected Amplitude

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 15.247 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 & Spectrum Analyzer 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:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss- 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:

Margin = Limit - Corrected Amplitude

Test Results Summary

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

7.91 dB at **41.84 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

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

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

Test Data

Environmental Conditions

Temperature:	27.0℃
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Ada Yu on 2016-10-19.

Test mode: Transmitting

Below 1 GHz:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.319(g)/209/205	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
33.15	25.06	QP	263	1.2	H	-0.73	24.33	40.00	15.67
41.84	43.44	QP	60	1.1	H	-11.35	32.09	40.00	7.91
85.44	47.48	QP	142	1.0	H	-16.87	30.61	40.00	9.39
127.60	34.63	QP	151	1.1	H	-13.62	21.01	43.50	22.49
826.72	22.23	QP	279	1.1	H	-1.39	20.84	46.00	25.16
951.14	34.73	QP	82	2.3	H	-5.90	28.83	46.00	17.17

Note: For Above 1GHz data, Please referred to FCC ID: VNNDD5622 granted on 2013-11-22, original report was tested by Charlie Chen, Bay Area Compliance Laboratories Corp. (Shenzhen).

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