

FCC PART 15D
MEASUREMENT AND TEST REPORT

For

RTX Hong Kong Ltd.

8/F Corporation Square, 8 Lam Lok Street, Kowloon Bay, Hong Kong

FCC ID: T7HCT8171

Report Type: Original Report	Product Type: DECT-HiBAN Cordless Phone (Handset Unit)
Test Engineer: <u>Gardon Zhang</u>	<i>Gardon Zhang</i>
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Reviewed By: <u>Jimmy Xiao</u> RF Engineer	<i>Jimmy Xiao</i>
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 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.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *RTX Hong Kong Ltd.*'s product, model number: *Phonak DECT II Cordless phone US/CAN (FCC ID: T7HCT8171)* (the "EUT") in this report was a handset unit of *DECT-HiBAN Cordless Phone*, which was measured approximately: 13.5 cm (L) x 5.1 cm (W) x 2.1 cm (H), rated with input voltage: DC 3.7V battery.

** All measurement and test data in this report was gathered from production sample serial number: 1408195 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2014-08-26.*

Objective

This test report was based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.17 - 2006 and ANSI C63.4-2009.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart D, section 15.203, 15.315, 15.317, 15.319 and 15.323 rules.

Related Submittal(s)/Grant(s)

FCC part 15D base unit with FCC ID: T7HX8170 has been granted on 2013-07-12.
FCC part 15C handset unit submission with FCC ID: T7HCT8171.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.17 - 2006, 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. (Shenzhen).

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) 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 December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

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.

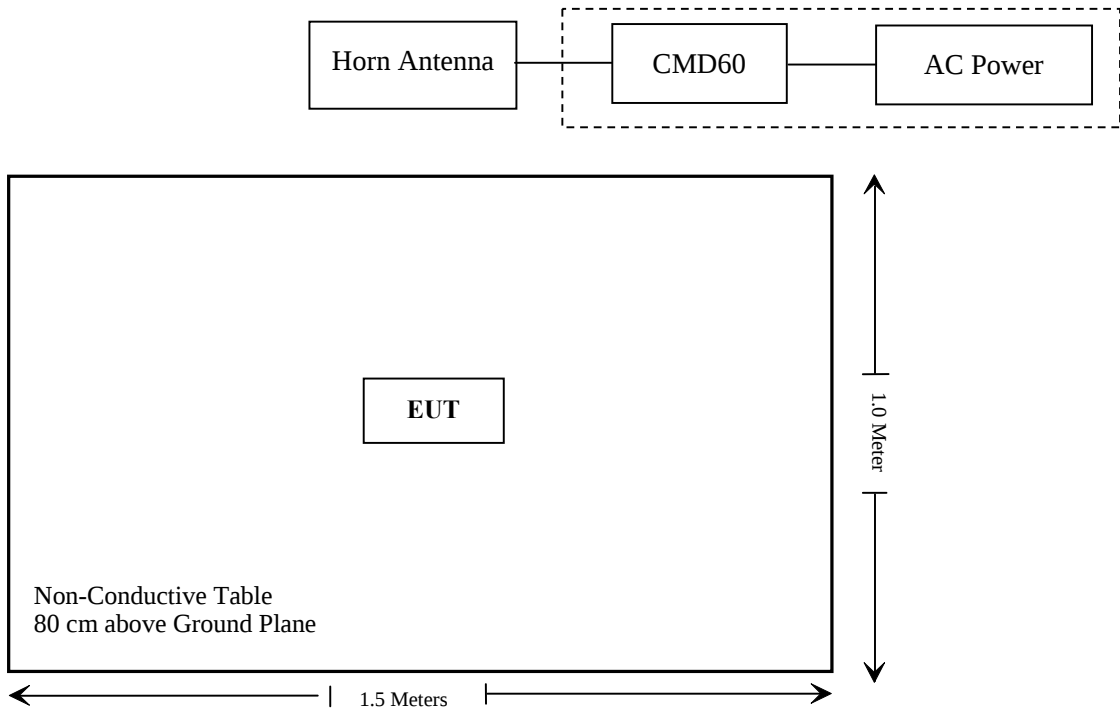
Equipment Modifications

No modification was made to the EUT tested.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Digital Radio-Communication Tester	CMD60	829902/026

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 15.319 (i)&2.1093	RF Exposure	Compliance
§ 15.317 § 15.203	Antenna Requirement	Compliance
§ 15.315 § 15.207	Conducted Emission	Not Applicable
§ 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 UPCS	Compliance*

Note:

The EUT is powered by battery only, so conducted emission test is not required.

Compliance*: The device is identical to the previously certified device except for changing HiBAN IC from Phonak WIMOX.X to Phonak WH3, the FCC ID: T7HX8170 granted on 2013-07-12, report No.: RSZ130321006-00PP.

FCC §15. 319 (i) & §2.1093 - RF EXPOSURE

Applicable Standard

According to FCC Part15.319 (i), Unlicensed PCS devices are subject to the radiofrequency radiation exposure requirements specified in§1.1307(b) and 2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a “general population/uncontrolled” environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

Result:

Please refer to SAR test report RSZ140826001-20.

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 has one integrated antenna arrangement for DECT, which was permanently attached and the gain was 1 dBi, fulfill the requirement of this section. Please refer to the internal photos.

Result: Compliant.

FCC§15.319 (g) - RADIATED EMISSIONS

Applicable Standard

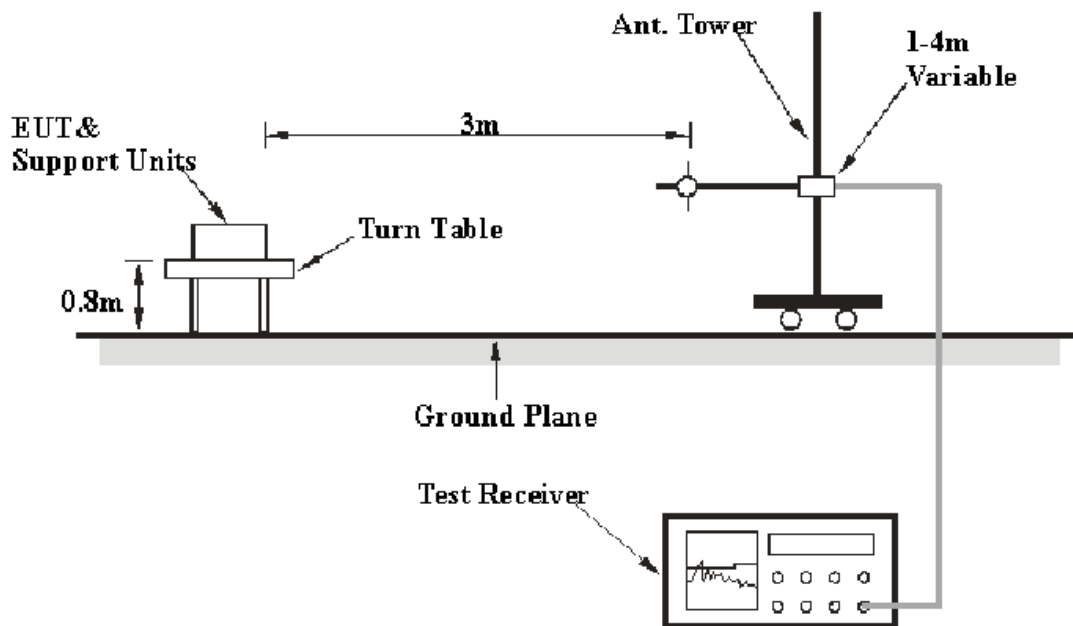
According to FCC§15.319(g), notwithstanding other technical requirements specified in this subpart, attenuation of emissions below the general emission limits in §15.209 is not required.

Measurement Uncertainty

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

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Shenzhen) is 5.91 dB for 30MHz-1GHz, and 4.92 dB for above 1GHz. And this uncertainty will not be taken into consideration for the test data recorded in the report.

EUT Setup



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.17 - 2006. The specification used was the FCC 15§ 15.319(g).

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

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 20 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
30MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	10 Hz	/	Ave.

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 and peak and Average detection modes for frequencies above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2014-05-06	2015-05-06
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2013-11-12	2014-11-12
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
SUPER ULTRA	Amplifier	ZVA-213+	N/A	2013-11-24	2014-11-23
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2014-11-30
BIZI	Signal Analyzer	FSIQ26	8386001028	2013-11-12	2014-11-12
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2011-10-14	2014-10-13
DUCOMMUN	Pre-amplifier	ALN-22093530-01	991373-01	2013-11-23	2014-11-23

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

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, the EUT complied with the FCC Part 15.319 (g), with the worst margin reading of:

14.88 dB at 689.6 MHz in the Vertical polarization

Test Data

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	51 %
ATM Pressure:	101.0 kPa

**The testing was performed by Gardon Zhang on 2014-09-12.*

Test mode: Transmitting

30 MHz ~ 20 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)
Low Channel (1921.536 MHz)									
689.6	36.32	QP	245	1.0	V	-5.2	31.12	46	14.88
1921.536	106.71	PK	123	1.3	H	2.63	109.34	/	/
1921.536	113.48	PK	105	2.3	V	2.63	116.11	/	/
3843.07	36.02	PK	330	1.9	H	9.7	45.72	74	28.28
3843.07	36.52	PK	283	1.2	V	9.7	46.22	74	27.78
5764.61	40.02	PK	171	1.6	H	13.51	53.53	74	20.47
5764.61	36.58	PK	274	1.9	V	13.51	50.09	74	23.91
7686.14	39.75	PK	40	1.3	H	16.01	55.76	74	18.24
7686.14	37.31	PK	156	1.2	V	16.01	53.32	74	20.68
Middle Channel (1924.992 MHz)									
689.6	36.03	QP	240	1.0	V	-5.2	30.83	46	15.17
1924.992	109.21	PK	159	2.3	H	2.63	111.84	/	/
1924.992	110.88	PK	78	2.1	V	2.63	113.51	/	/
3849.98	37.21	PK	119	1.4	H	9.7	46.91	74	27.09
3849.98	37.58	PK	111	1.1	V	9.7	47.28	74	26.72
5774.98	42.63	PK	234	2.2	H	13.51	56.14	74	17.86
5774.98	35.51	PK	259	1.0	V	13.51	49.02	74	24.98
7699.97	38.31	PK	131	2.2	H	16.47	54.78	74	19.22
7699.97	35.55	PK	344	1.7	V	16.47	52.02	74	21.98
High Channel (1928.448 MHz)									
689.6	36.21	QP	248	1.0	V	-5.2	31.01	46	14.99
1928.448	108.21	PK	56	2.1	H	2.63	110.84	/	/
1928.448	111.52	PK	241	2.5	V	2.63	114.15	/	/
3856.80	36.58	PK	111	1.6	H	9.7	46.28	74	27.72
3856.80	38.56	PK	246	1.0	V	9.7	48.26	74	25.74
5785.20	40.17	PK	60	1.5	H	13.87	54.04	74	19.96
5785.20	37.52	PK	360	1.1	V	13.87	51.39	74	22.61
7713.60	38.58	PK	290	1.0	H	16.47	55.05	74	18.95
7713.60	36.78	PK	241	1.9	V	16.47	53.25	74	20.75

Field Strength of Radiated Emission Average							
Freq. (MHz)	Peak Corrected Amplitude. @3m (dBμV/m)	Polar (H/V)	Duty Cycle Factor (dB)	Corrected Amplitude. (dBμV/m)	FCC 15.319/15.205/15.209		Comment
					Limit (dBμV/m)	Margin	
Low Channel (1921.536 MHz)							
1921.536	109.34	H	-26.33	83.01	/	/	Fundamental
1921.536	116.11	V	-26.33	89.78	/	/	Fundamental
3843.07	45.72	H	-26.33	19.39	54	34.61	Harmonic
3843.07	46.22	V	-26.33	19.89	54	34.11	Harmonic
5764.61	53.53	H	-26.33	27.20	54	26.80	Harmonic
5764.61	50.09	V	-26.33	23.76	54	30.24	Harmonic
7686.14	55.76	H	-26.33	29.43	54	24.57	Harmonic
7686.14	53.32	V	-26.33	26.99	54	27.01	Harmonic
Middle Channel (1924.992 MHz)							
1924.992	111.84	H	-26.33	85.51	/	/	Fundamental
1924.992	113.51	V	-26.33	87.18	/	/	Fundamental
3849.98	46.91	H	-26.33	20.58	54	33.42	Harmonic
3849.98	47.28	V	-26.33	20.95	54	33.05	Harmonic
5774.98	56.14	H	-26.33	29.81	54	24.19	Harmonic
5774.98	49.02	V	-26.33	22.69	54	31.31	Harmonic
7699.97	54.78	H	-26.33	28.45	54	25.55	Harmonic
7699.97	52.02	V	-26.33	25.69	54	28.31	Harmonic
High Channel (1928.448 MHz)							
1928.448	110.84	H	-26.33	84.51	/	/	Fundamental
1928.448	114.15	V	-26.33	87.82	/	/	Fundamental
3856.80	46.28	H	-26.33	19.95	54	34.05	Harmonic
3856.80	48.26	V	-26.33	21.93	54	32.07	Harmonic
5785.20	54.04	H	-26.33	27.71	54	26.29	Harmonic
5785.20	51.39	V	-26.33	25.06	54	28.94	Harmonic
7713.60	55.05	H	-26.33	28.72	54	25.28	Harmonic
7713.60	53.25	V	-26.33	26.92	54	27.08	Harmonic

Note:

Corrected Amplitude = Corrected Factor + Reading

Corrected Factor = Antenna Factor (Rx) + Cable Loss – Amplifier Factor

Margin = Limit - Corrected Amplitude

Duty Cycle = Ton/Tp*100%, Ton = 0.484 ms, Tp = 10.032 ms

Duty Cycle = Duty Cycle Factor = 20lg (Duty Cycle) = -26.33

AV = PK + 20*lg(Duty Cycle) = PK – 26.33

The duty cycle data please refer to FCC ID: T7HX8170 granted on 2013-07-12, report No.: RSZ130321006-00PP.

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