

FCC PART 18
TEST REPORT

For

RTX HONG KONG LIMITED

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

FCC ID: T7HCH8050

Report Type: Class II Permissive Change	Product Type: Desktop Charger
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Report Number: <u> RSZ140211001-00 </u>	
Report Date: <u> 2014-04-08 </u>	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *RTX Hong Kong Limited's* product, model number: *RTX8050 (FCC ID: T7HCH8050)* or the "EUT" in this report is a *Desktop Charger*, which was measured approximately: 8.0 cm (L) x 6.5 cm (W) x 9.0 cm (H), rated with input voltage: DC 12 V from adapter.

Adapter Information:

Type: FW7661/12

Input: 100-240V, 50-60 Hz, 120mA

Output: 12V, 400mA

Note: The product, series model 1755s Desktop Charger, 1755d Desktop charger, 4075 Desktop charger, 500 DECT Handset Desktop Charger and RTX8050 are electrically identical, they are just different in model number due to market purposes, which was explained in the attached declaration letter. And the model RTX8050 was selected for fully testing.

** All measurement and test data in this report was gathered from production sample serial number: 1401136 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2014-02-11.*

Objective

This test report is prepared on behalf of *RTX HONG KONG LIMITED* in accordance with Part 2-Subpart J and Part 18-Subparts A, B and C of the Federal Communication Commissions rules and regulations.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 18.

This is the CIIPC application of the device. The difference between the original device and the current one is as follows:

1. The external power adaptor is changed to another model with same power rating (DC 12V/400mA)
2. Added more copper foil inside the cabinet.

For the changes made to the device, all item testing were performed.

Related Submittal(s)/Grant(s)

Original submission with FCC ID: T7HCH8050 which is granted on 2008-10-30.

Test Methodology

All measurements contained in this report were conducted with MP-5, FCC Methods of Measurements of Radio Noise Emissions from ISM Equipment, February 1986. All measurement was performed at Bay Area Compliance Laboratories Corp. 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 518038, P.R.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

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

No exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

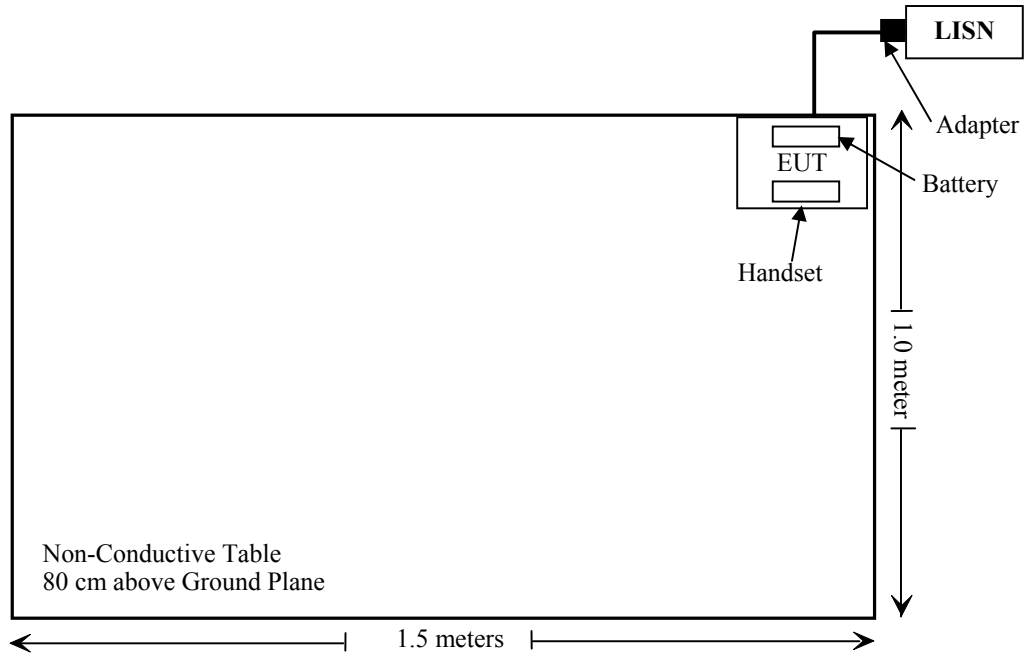
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
RTX	Battery	FOR 1755	053040A
RTX	Handset	1755d DECT Handset	0003064001602

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Undetachable DC Cable	1.0	Adapter	EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULT

FCC Rules	Description of Test	Results
§18.307	AC Line Conducted Emissions	Compliance
§18.305	Field Strength	Compliance

FCC §18.307 - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §18.307

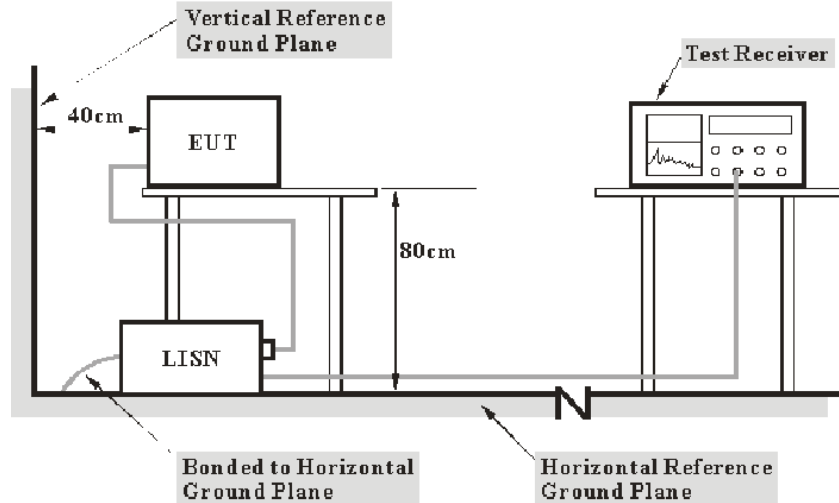
Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe 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 conducted disturbance test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report

Port	Measurement uncertainty
AC Mains	3.26 dB (k=2, 95% level of confidence)
CAT 3	3.70 dB (k=2, 95% level of confidence)
CAT 5	3.86 dB (k=2, 95% level of confidence)
CAT 6	4.64 dB (k=2, 95% level of confidence)

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 setup of EUT is according with MP-5: 1986 measurement procedure. Specification used was with the FCC Part 18 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 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

During the conducted emission test, the adapter was connected to the outlet of the LISN.

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

All data was recorded in the Quasi-Peak detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2013-06-17	2014-06-17
Rohde & Schwarz	LISN	ESH2-Z5	892107/021	2013-08-22	2014-08-22
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2013-10-15	2014-10-15
Rohde & Schwarz	CE Test software	EMC 32	V8.53	-	-
Rohde & Schwarz	LISN	ENV216	3560.6650.12-101613-Yb	2013-05-07	2014-05-07

* **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 Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Pulse Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Pulse Limiter Attenuation}$$

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 7 dB below the limit. The equation for margin calculation is as follows:

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

Test Results Summary

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

6.2 dB at 5.948810 MHz in the Line 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

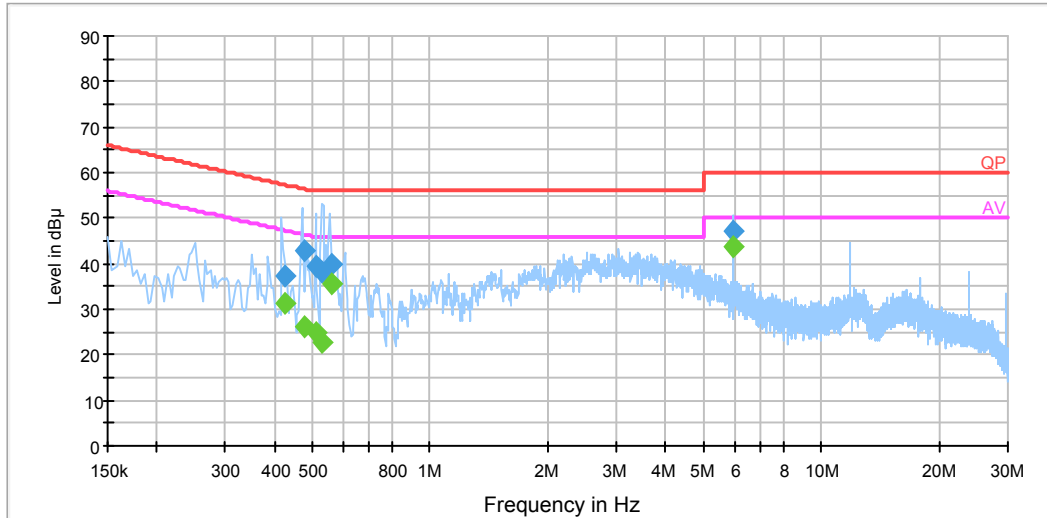
Temperature:	21 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

Testing was performed by Joson Xiao on 2014-02-11.

Test mode: Running (Charging with handset and battery)

AC 120V/60 Hz, Line

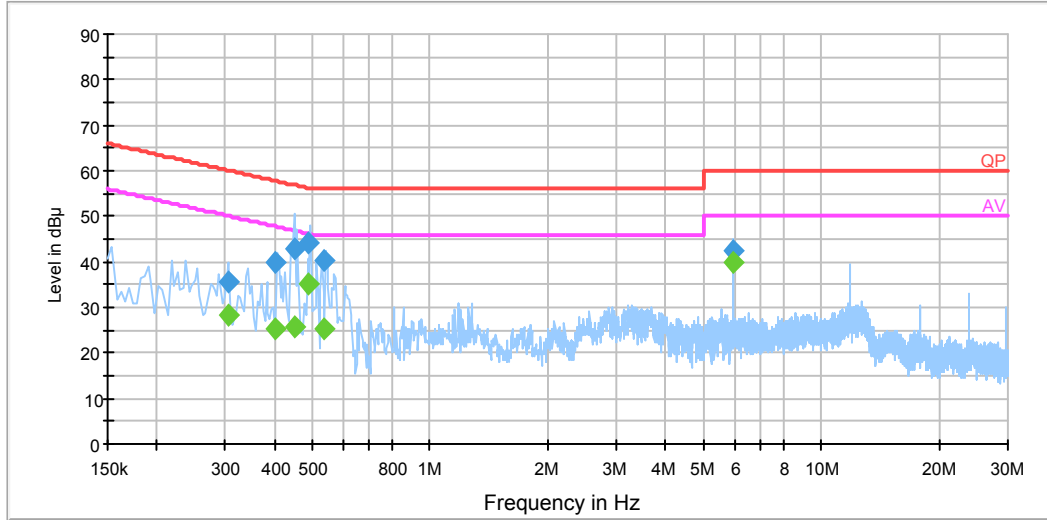
EMI Auto Test L



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/ QP/Ave.)
0.424270	37.4	19.6	57.4	20.0	QP
0.424270	31.5	19.6	47.4	15.9	Ave.
0.477050	42.9	19.6	56.4	13.5	QP
0.477050	26.3	19.6	46.4	20.1	Ave.
0.510350	39.4	19.6	56.0	16.6	QP
0.510350	24.7	19.6	46.0	21.3	Ave.
0.530050	38.2	19.6	56.0	17.8	QP
0.530050	22.5	19.6	46.0	23.5	Ave.
0.562310	39.9	19.6	56.0	16.1	QP
0.562310	35.7	19.6	46.0	10.3	Ave.
5.948810	46.9	19.7	60.0	13.1	QP
5.948810	43.8	19.7	50.0	6.2	Ave.

AC 120V/60 Hz, Neutral

EMI Auto Test N



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/ QP/Ave.)
0.305410	35.4	19.5	60.1	24.7	QP
0.305410	28.3	19.5	50.1	21.8	Ave.
0.399910	40.0	19.6	57.9	17.8	QP
0.399910	25.1	19.6	47.9	22.7	Ave.
0.451250	42.8	19.6	56.9	14.1	QP
0.451250	25.7	19.6	46.9	21.2	Ave.
0.486590	44.0	19.6	56.2	12.2	QP
0.486590	35.0	19.6	46.2	11.2	Ave.
0.533870	40.5	19.6	56.0	15.5	QP
0.533870	25.3	19.6	46.0	20.7	Ave.
5.944810	42.5	19.8	60.0	17.5	QP
5.944810	39.8	19.8	50.0	10.2	Ave.

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 §18.305 – FIELD STRENGTH

Applicable Standard

FCC §18.305

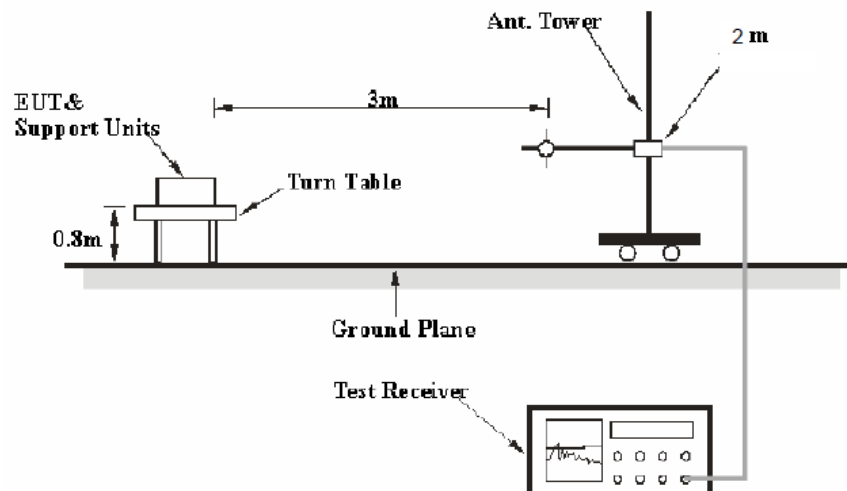
Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown in below table. And the uncertainty will not be taken into consideration for the test data recorded in the report

Frequency	Polarity	Measurement uncertainty
30MHz~200MHz	Horizontal	4.62 dB (k=2, 95% level of confidence)
	Vertical	4.54 dB (k=2, 95% level of confidence)
200MHz~1GHz	Horizontal	4.84 dB (k=2, 95% level of confidence)
	Vertical	5.91 dB (k=2, 95% level of confidence)
1 GHz~6 GHz	Horizontal / Vertical	4.68 dB (k=2, 95% level of confidence)
Above 6 GHz	Horizontal / Vertical	4.92 dB (k=2, 95% level of confidence)

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the FCC MP - 5.

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

EMI Test Receiver Setup and Spectrum Analyzer Setup

The system was investigated from 9 kHz to 1 GHz.

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
9 kHz – 150 kHz	100 Hz	300 Hz	200 Hz	QP
150 kHz – 30 MHz	10 kHz	30 kHz	9 kHz	QP
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP

Test Procedure

During the radiated emission test, the adapter was connected to the AC floor outlet.

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

All data was recorded in the Quasi-Peak detection mode.

Corrected Amplitude 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 limit. The equation for margin calculation is as follows:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
TDK	Chamber	Chamber A	2#	2012-10-15	2015-10-15
ETS-LINDGREN	Passive Loop Antenna	6512	00029604	2011-11-30	2014-11-29
HP	Amplifier	8447E	1937A01046	2013-09-30	2014-09-30
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
R&S	Auto test Software	EMC32	V9.10	-	-

* **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).

Test Results Summary

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

5.15 dB at 0.015574 MHz

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

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

in BACL., $U_{(L_m)}$ 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:	20 ~ 25 °C
Relative Humidity:	48 ~ 56 %
ATM Pressure:	101.0 kPa

The testing was performed by Joson Xiao from 2014-02-14 to 2014-04-08.

EUT operation mode: Running (Charging with handset and battery)

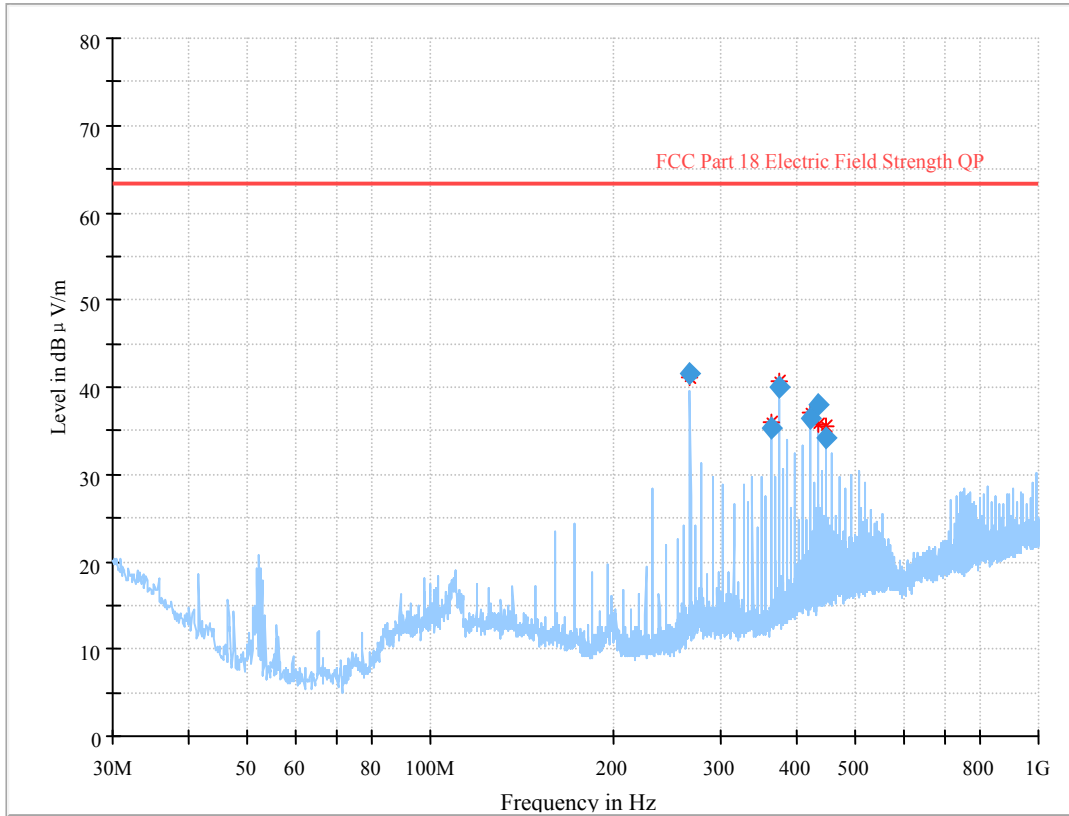
9 kHz ~ 30 MHz:

Frequency (MHz)	Corrected Amplitude (dB μ V/m)	Antenna Height (cm)	Turntable Position (Degree)	Correction Factor (dB/m)	Limit (dB μ V/m)	Margin (dB)
5.948363	48.07	201.0	119.0	8.6	103.52	55.45

30 MHz ~ 1000 MHz:

Horizontal:

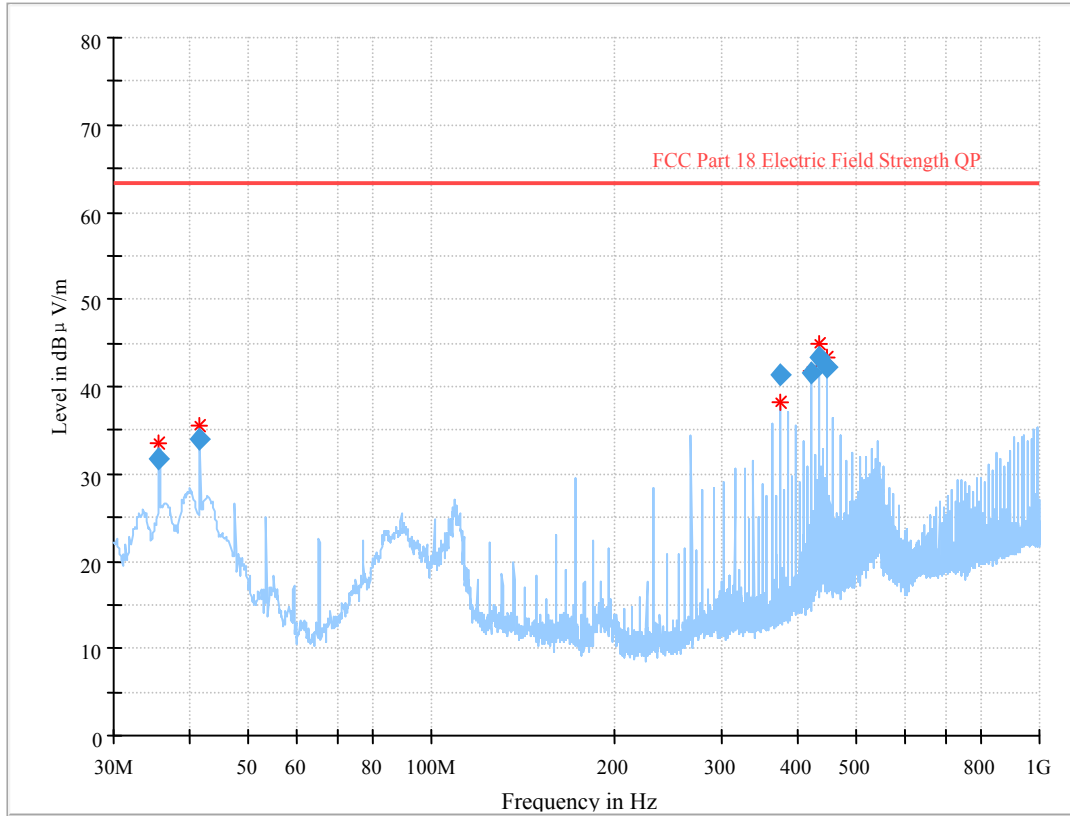
Full Spectrum



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity	Turntable Position (Degree)	Correction Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
267.592625	41.48	117.0	H	296.0	-13.7	63.52	22.04
362.743625	35.39	100.0	H	319.0	-12.3	63.52	28.13
374.638750	40.00	100.0	H	320.0	-12.1	63.52	23.52
422.210125	36.44	100.0	H	275.0	-10.6	63.52	27.08
434.098000	38.02	100.0	H	288.0	-10.7	63.52	25.50
445.983250	34.30	107.0	H	287.0	-10.6	63.52	29.22

Vertical:

Full Spectrum



Frequency (MHz)	Corrected Amplitude (dBμV/m)	Antenna Height (cm)	Antenna Polarity	Turntable Position (Degree)	Correction Factor (dB/m)	Limit (dBμV/m)	Margin (dB)
35.671250	31.79	100.0	V	109.0	-10.8	63.52	31.73
41.637375	33.93	100.0	V	234.0	-15.1	63.52	29.59
374.632125	41.29	131.0	V	199.0	-12.1	63.52	22.23
422.216000	41.63	114.0	V	185.0	-10.6	63.52	21.89
434.105875	43.28	117.0	V	177.0	-10.7	63.52	20.24
445.990000	42.17	114.0	V	181.0	-10.6	63.52	21.35

Note:

- 1) Corrected Amplitude = Meter Reading + Correction Factor
- 2) Correction Factor = Antenna Factor + Cable Loss - Amplifier Gain
The corrected factor has been input into the transducer of the test software.
- 3) Margin = Limit – Corrected Amplitude

PRODUCT SIMILARITY DECLARATION LETTER

RTX Hong Kong Ltd.,
8/F Corporation Square, 8 Lam Lok Street, Kowloon Bay, Hong Kong
Tel:24873718 Fax: 24806121

Product Similarity Declaration Letter

2014-3-18

To:
Bay Area Compliance Laboratories Corp.
1274 Anvilwood Ave.
Sunnyvale, CA 94089
Phone: 408-732-9162, Fax: 408-732-9164
<http://www.baclcorp.com>

Dear Sir or Madam:

We RTX Hong Kong Ltd. hereby declare that product: Desktop Charger, model(s): RTX8050 and 1755s Desktop Charger, 1755d Desktop charger, 4075 Desktop charger, 500 DECT Handset Desktop Charger are electrically identical, they have the same electromagnetic emissions and electromagnetic compatibility characteristics, the only difference is the model number for the purpose of market.

Model RTX8050 was tested by BAACL.

Please contact me if you have any question.

Signature:



Ted

Engineering Manager

BAACL-NF0028-A

****END OF REPORT****