Lab Code: 200707-0

FCC PART 15B

TEST REPORT

For

ZTE Corporation

ZTE Plaza, Hi-Tech, Industrial Park, Nanshan District,
Shenzhen, Guangdong, China

FCC ID: Q78-ZXHNH108N

Report Type:	**Product Type:**
Original Report	Home Gateway

Test Engineer: Bruce Zhang

Report Number: RSZ110929001-00B

Report Date: 2011-11-08

Reviewed By: Alvin Huang, EMC Engineer

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *ZTE Corporation*'s product, model number: *ZXHN H108N (FCC ID: Q78-ZXHNH108N)* (the "EUT") in this report is a *Home Gateway*, which was measured approximately: 14.6 cm (L) x 5.3 cm (W) x 12.5 cm (H), rated input voltage: DC 12.0V adapter.The highest operating frequency of EUT is 1.6GHz

Adapter information:
Model: RD1201000-C55-2MG
Input: 100-240V_{AC} 50/60 Hz, 0.6A MAX
Output: 12V_{DC} 1.0A

** All measurement and test data in this report was gathered from production sample serial number: ERFCB5L00020.. The EUT was received on 2011-09-29.*

Objective

This report is prepared on behalf of *ZTE Corporation* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine compliance with FCC Part 15 Class B.

Related Submittal(s)/Grant(s)

FCC Part 15.247WiFi DTS submissions with FCC ID: Q78-ZXHNH108N

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.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2007070.htm.

SYSTEM TEST CONFIGURATION

Justification

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

EUT Exercise Software

N/A

Equipment Modifications

No modification was made to the unit tested.

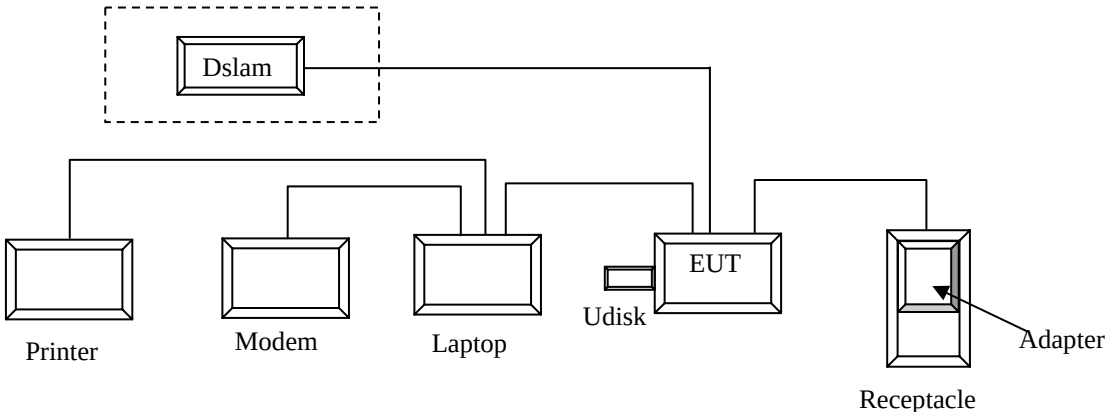
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	D600	00045-438-852-864
ZTE	Dslam	9806H	N/A
Kingston	Udisk	DataTraveler G3	N/A
HP	Laser Jet5L	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293

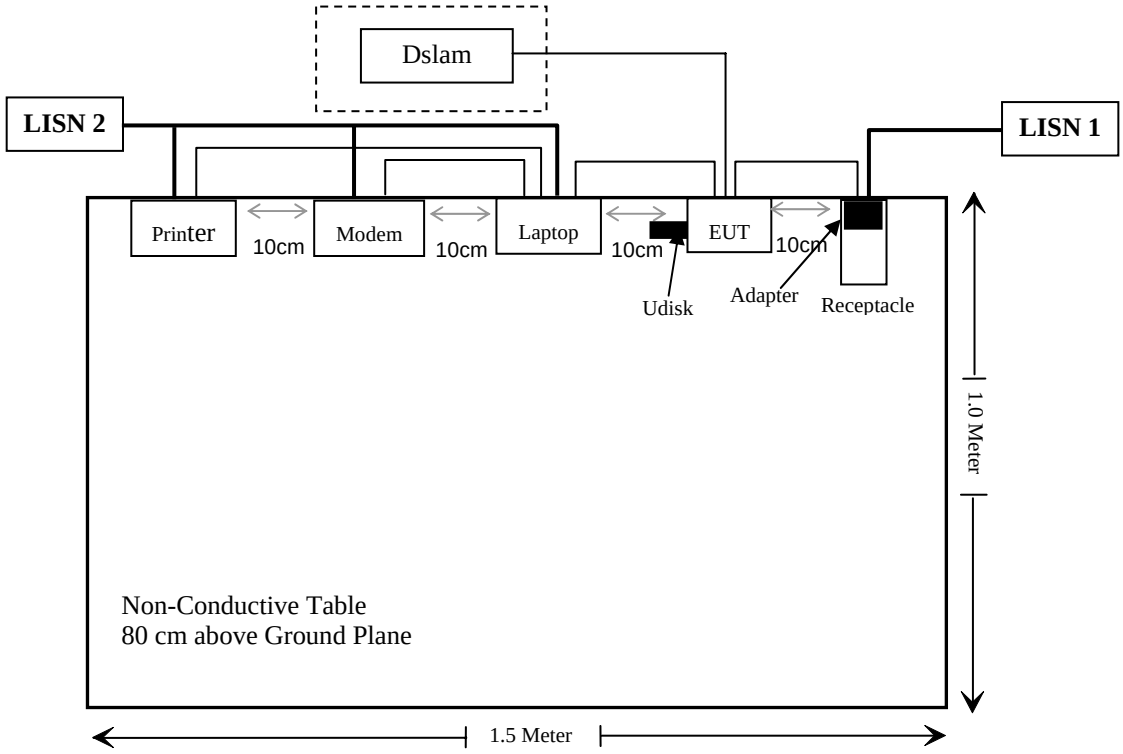
External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Undetachable Power Cable	1.5	EUT	AC Power
Unshielded Undetachable RJ45 Calbe	1.0	EUT	Laptop
Unshielded Undetachable RJ11 Calbe	1.0	EUT	Dslam
Shielded Detachable Printer Cable	1.2	Parallel Port/Host	Printer
Shielded Detachable Serial Cable	1.2	Serial Port/Host	Modem

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

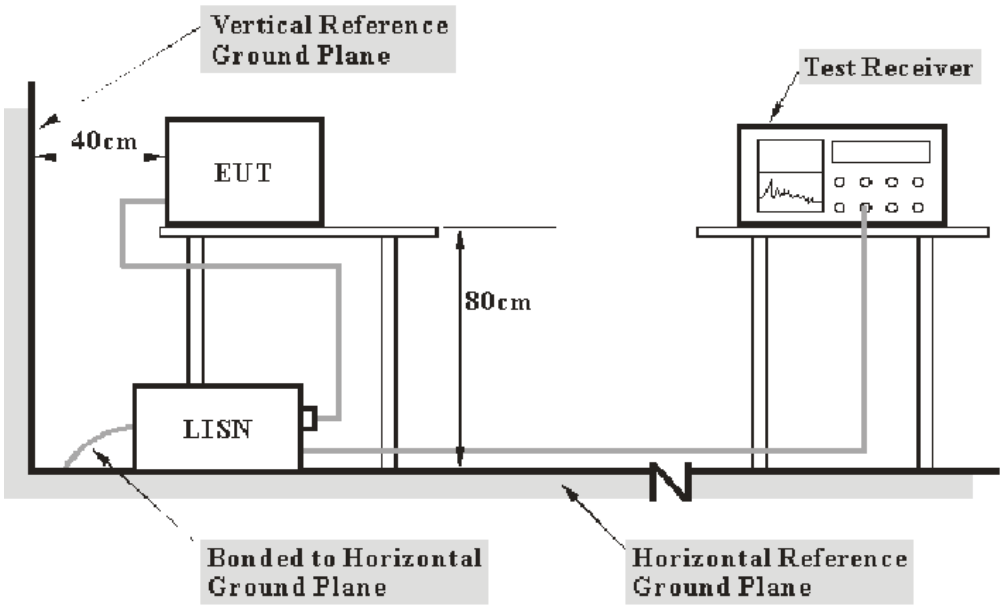
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±2.4 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 per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

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 and average detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2011-03-03	2012-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-03-09	2012-03-08
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, with the worst margin reading of:

9.54 dB at **1.420 MHz** in the **Neutral** conducted mode

Test Data

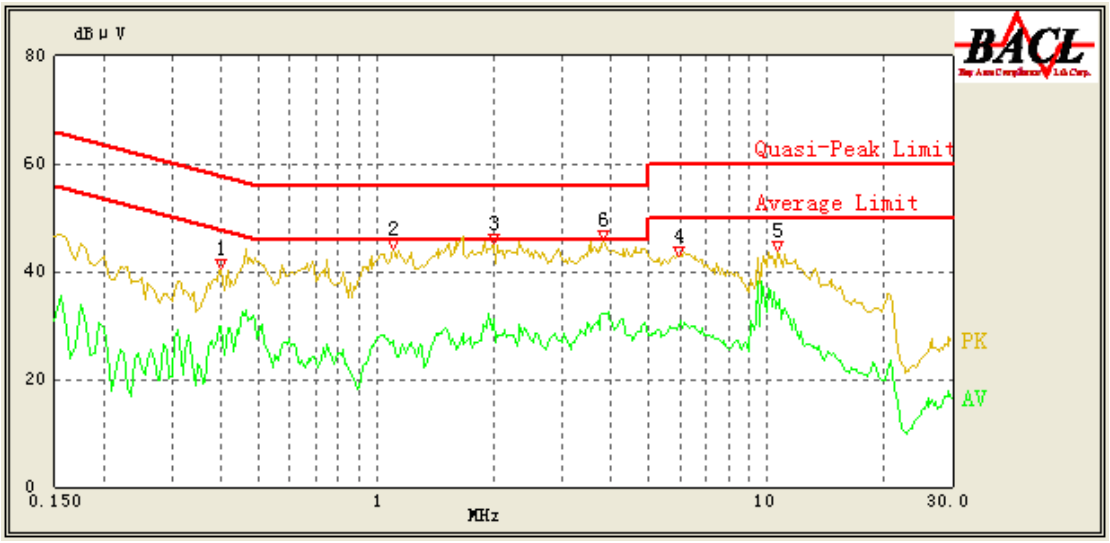
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Bruce Zhang on 2011-10-18.

Test mode: Operating

120 V, 60 Hz, Line:



Conducted Emissions			FCC Part 15.107 Class B		
Frequency (MHz)	**Corrected Result (dBμV)**	**Correction Factor (dB)**	**Limit (dBμV)**	**Margin (dB)**	**Remark (PK/ QP/Ave.)**
3.820	32.14	10.10	46.00	13.86	Ave.
2.005	31.33	10.10	46.00	14.67	Ave.
10.560	33.16	10.10	50.00	16.84	Ave.
1.100	27.16	10.10	46.00	18.84	Ave.
0.400	29.83	10.10	48.86	19.03	Ave.
2.010	36.51	10.10	56.00	19.49	QP
10.675	39.27	10.10	60.00	20.73	QP
5.885	29.16	10.10	50.00	20.84	Ave.
3.800	32.95	10.10	56.00	23.05	QP
1.105	32.76	10.10	56.00	23.24	QP
0.400	35.09	10.10	58.86	23.77	QP
5.960	33.57	10.10	60.00	26.43	QP

120 V, 60 Hz, Neutral:

Conducted Emissions			FCC Part 15.107 Class B		
Frequency (MHz)	**Corrected Result (dBμV)**	**Correction Factor (dB)**	**Limit (dBμV)**	**Margin (dB)**	**Remark (PK/ QP/Ave.)**
1.420	36.46	10.10	46.00	9.54	Ave.
9.855	38.39	10.10	50.00	11.61	Ave.
1.415	44.37	10.10	56.00	11.63	QP
0.450	35.58	10.10	47.43	11.85	Ave.
0.840	33.58	10.10	46.00	12.42	Ave.
0.840	43.41	10.10	56.00	12.59	QP
3.095	33.16	10.10	46.00	12.84	Ave.
0.450	43.09	10.10	57.43	14.34	QP
3.095	36.60	10.10	56.00	19.40	QP
9.740	40.18	10.10	60.00	19.82	QP
20.700	23.28	10.10	50.00	26.72	Ave.
20.680	27.70	10.10	60.00	32.30	QP

FCC §15.109 - RADIATED EMISSIONS

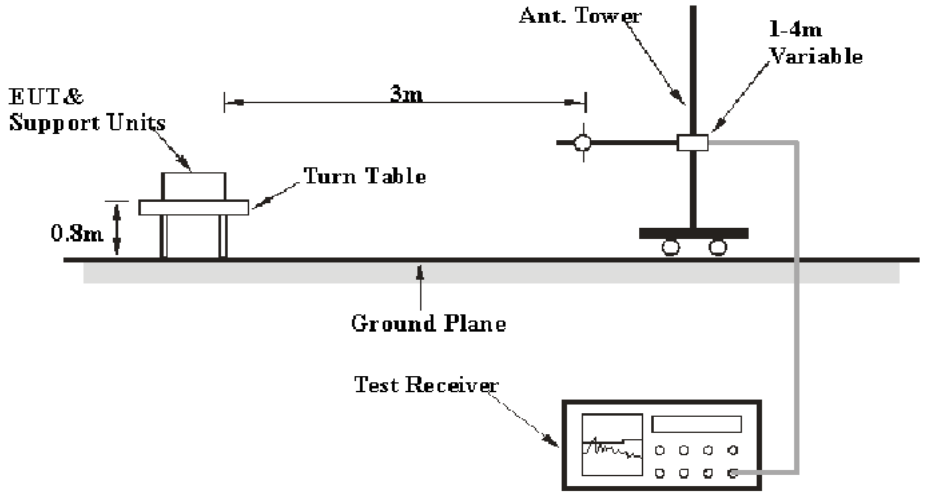
Measurement Uncertainty

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.

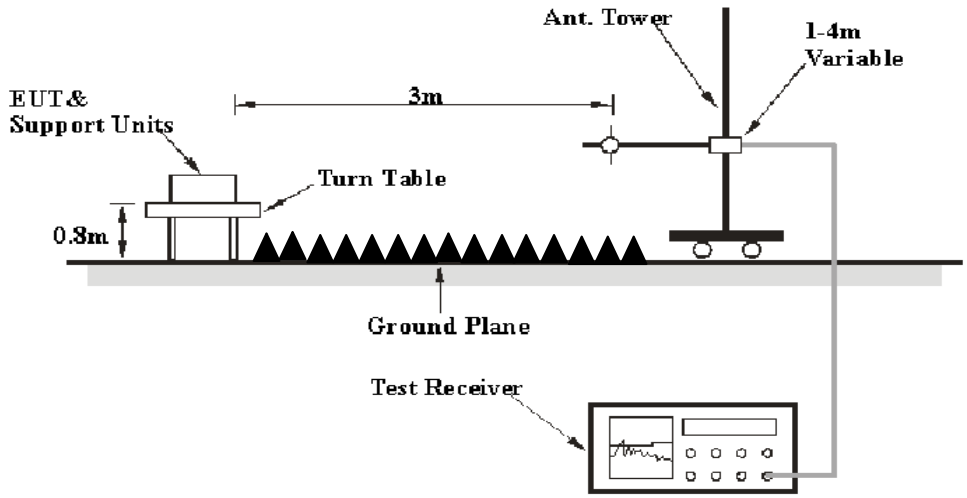
Based on CISPR 16-4-4, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB. (k=2, 95% level of confidence)

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15.109, Class B 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 connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 8 GHz.

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

Frequency Range	***RBW***	***Video B/W***	***Detector***
30MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 8 GHz	1 MHz	3 MHz	PK
1000 MHz – 8 GHz	1 MHz	10 Hz	Ave.

Test Procedure

For the radiated emissions test, the adapter was connected to AC floor outlet.

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

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Loss + 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 limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-03-11	2012-03-10
Mini-circuits	Pre-Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Signal Analyzer	FSIQ 26	609358	2011-07-08	2012-07-07

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp (Shenzhen). attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B, with the worst margin reading of:

Below 1GHz: 2.2 dB at **749.991000 MHz** in the **Vertical** polarization

Above 1GHz: 10.53 dB at **2302 MHz** in the **Vertical** polarization

Test Data

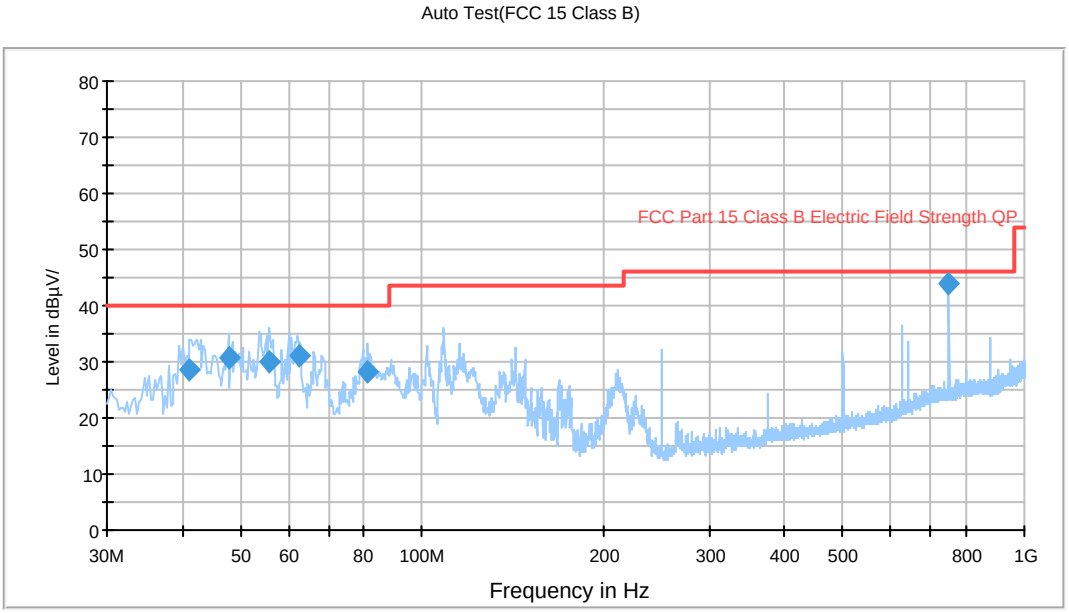
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Bruce Zhang on 2011-10-19.

Test Mode: Operating

1) Below 1 GHz:



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Test Antenna		Turntable Position (degree)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polarity (H/V)			
749.991000	43.8	103.0	V	287.0	46.0	2.2*
62.752000	31.2	102.0	V	347.0	40.0	8.8
47.822750	30.6	103.0	V	196.0	40.0	9.4
55.899250	29.9	103.0	V	323.0	40.0	10.1
41.101000	28.5	102.0	V	77.0	40.0	11.5
81.168750	28.2	102.0	V	245.0	40.0	11.8

**Within measurement uncertainty!*

2) Above 1 GHz:

Frequency (MHz)	Corrected Amplitude (dBµV/m)	Turntable Position (degrees)	Antenna Height (cm)	Antenna Polarity (V/H)	Detector (PK/Ave.)	Limit (dBµV/m)	Margin (dB)
2302	43.47	0	1.0	V	Ave.	54	10.53
2302	41.74	75	1.0	H	Ave.	54	12.26
2302	57.84	0	1.0	V	PK	74	16.16
2302	55.69	75	1.0	H	PK	74	18.31

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