

# FCC PART 15B MEASUREMENT AND TEST REPORT

For

## ZTE Corporation

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Shenzhen, Guangdong, China 518057

**FCC ID: Q78- ZTEC362**  
**Model: ZTE C362**

<b>Report Type:</b> Original Report	<b>Product Type:</b> CDMA 1X Digital Mobile Phone
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## TABLE OF CONTENTS

<b>1</b>	<b>GENERAL INFORMATION</b>	<b>3</b>
1.1	PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
1.2	EUT PHOTO	3
1.3	OBJECTIVE	3
1.4	RELATED SUBMITTAL(S)/GRANT(S)	4
1.5	TEST METHODOLOGY	4
1.6	TEST FACILITY	4
<b>2</b>	<b>SYSTEM TEST CONFIGURATION</b>	<b>5</b>
2.1	JUSTIFICATION	5
2.2	EQUIPMENT MODIFICATIONS	5
2.3	LOCAL SUPPORT EQUIPMENT LIST AND DETAILS	5
2.4	TEST SETUP BLOCK DIAGRAM	5
<b>3</b>	<b>SUMMARY OF TEST RESULTS</b>	<b>6</b>
<b>4</b>	<b>§15.107 – CONDUCTED EMISSION</b>	<b>7</b>
4.1	APPLICABLE STANDARD	7
4.2	EUT SETUP	7
4.3	TEST EQUIPMENT LIST AND DETAILS	7
4.4	TEST PROCEDURE	8
4.5	ENVIRONMENTAL CONDITIONS	8
4.6	SUMMARY OF TEST RESULTS	8
4.7	CONDUCTED EMISSIONS TEST PLOTS AND DATA	9
<b>5</b>	<b>§15.109 –RADIATED EMISSION</b>	<b>11</b>
5.1	APPLICABLE STANDARD	11
5.2	TEST SETUP	11
5.3	TEST EQUIPMENT LIST AND DETAILS	12
5.4	TEST PROCEDURE	12
5.5	ENVIRONMENTAL CONDITIONS	12
5.6	CORRECTED AMPLITUDE & MARGIN CALCULATION	13
5.7	SUMMARY OF TEST RESULTS – 30 MHZ TO 1 GHZ	13
<b>6</b>	<b>FCC ID LABEL INFORMATION</b>	<b>18</b>
6.1	FCC ID LABEL	18
6.2	FCC ID LABEL LOCATION	18
<b>7</b>	<b>EXHIBIT A - TEST SETUP PHOTOGRAPHS</b>	<b>19</b>
7.1	CONDUCTED EMISSIONS SETUP	19
7.2	RADIATED EMISSION	20
<b>8</b>	<b>EXHIBIT C - EUT PHOTOGRAPHS</b>	<b>21</b>
8.1	EUT FRONT VIEW	21
8.2	EUT REAR VIEW	21
8.3	EUT REAR OFF VIEW	22
8.4	EUT COVER OFF VIEW	22
8.5	EUT PCB VIEW	23
8.6	EUT POWER ADAPTER VIEW	23
8.7	EUT EARPHONE VIEW	24

## 1 GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

The ZTE Corporation's product, FCC ID: Q78-ZTEC362 or the "EUT" as referred to in this report is a CDMA 1X Digital Mobile Phone, which measures approximately 108.2mm(L) x 47mm(W) x 15mm(H). The frequency range is CDMA 800MHz Cellular (UL 824MHz ~ 849 MHz, DL 869 MHz ~ 894 MHz).

\* The test data gathered are from production sample, serial number: 290727810211, provided by the manufacturer.

### 1.2 EUT Photo



Additional Photos in Exhibit C

### 1.3 Objective

This report has been prepared by ZTE Corp. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communications Commission rules, and Canadian ICES-003, Interference – Causing Equipment Standards for Digital Apparatus.

The objective is to determine compliance with FCC Part 15 Standard, Class B limits, and Canadian ICES-003 Standard, Class B limits for conducted and radiated emission requirements for the digital device portion of this device.

#### **1.4 Related Submittal(s)/Grant(s)**

There is on related original submittal under the same FCC ID, for the intentional radiator portion of the EUT subject to the FCC part 22H requirements. Please refer to ZTE report RSZB0807254 for measurement and testing results.

#### **1.5 Test Methodology**

All measurements contained in this report were conducted in accordance with ANSI C63.4-2003, 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 measurements were performed at ZTE Corporation Reliability Testing Center

#### **1.6 Test Facility**

ZTE Corporation Reliability Testing Center

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, NanShan District, Shenzhen, Guangdong, 518057, P.R. of China

Tel: +86-755-26770345

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Test site at ZTE Corporation 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 25, 2005. ZTE Corporation Lab's FCC Registration Number is 373926.

## 2 SYSTEM TEST CONFIGURATION

### 2.1 Justification

The EUT was configured for testing according to ANSI C63.4-2003.

The final qualification test was performed with the EUT operating at normal mode.

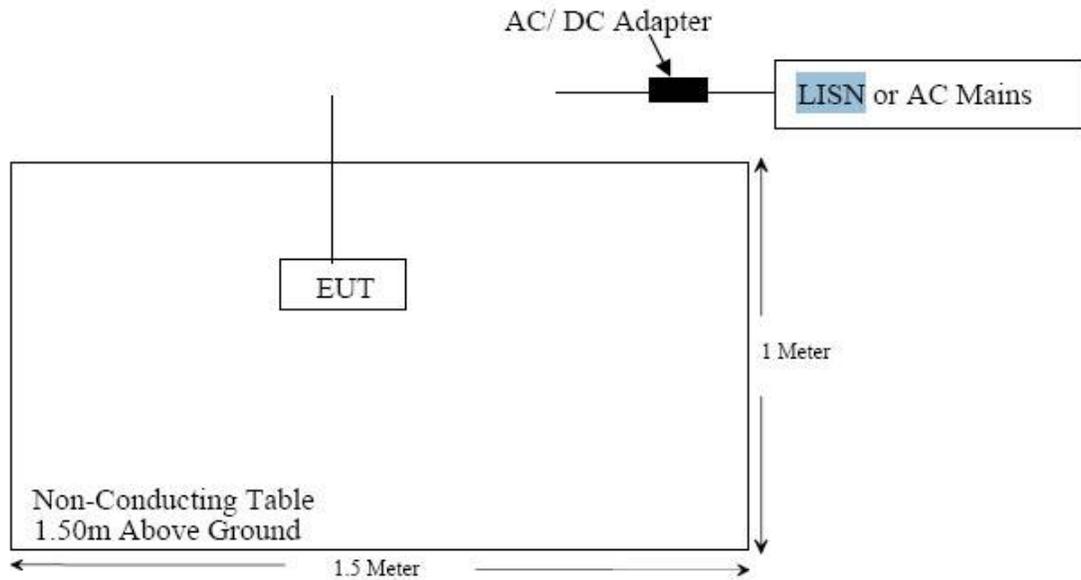
### 2.2 Equipment Modifications

No modifications were made to the EUT.

### 2.3 Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Agilent	Wireless communication test set	8960 E5515C	GB42431673
ZTE	AC/DC Adaptor	STC-A22050U8-C	100804271900338

### 2.4 Test Setup Block Diagram



### 3 SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC § 15.107	Conducted Emission at AC	Compliant
FCC § 15.109	Radiated Emission	Compliant

## 4 §15.107 – Conducted Emission

### 4.1 Applicable Standard

As per FCC §15.107: Conducted Limits

(a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

### 4.2 EUT Setup

The conducted emissions tests were performed in the 10-meter test chamber, using the setup in accordance with ANSI C63.4-2003 measurement procedures. The specifications used were in accordance with FCC Part 15 Standard, Class B limits.

The spacing between the peripherals was 10 cm.

The external I/O cables were draped along the test table and bundled as required.

The EUT was connected the AC/DC adapter which was connected to a LISN that provided 120 V/ 60 Hz power.

### 4.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Dates
R&S	EMI Test Receiver 20Hz~26.5GHz	ESI26	100058	2007-10-25
EMCO	LISN	ESH2-Z5	871884	2007-10-12

\* Statement of Traceability: ZTE Corporation Reliability Testing Center attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

#### 4.4 Test Procedure

During the conducted emissions test, the power cord of the host system was connected to the main outlet of the LISN-1.

Maximizing procedure was performed on the six (6) highest emission readings from the EUT.

All data was recorded in the peak detection mode, quasi-peak and average. Average readings are labeled "AV" and Quasi-peak readings are labeled "QP," in the test data hereinafter.

#### 4.5 Environmental Conditions

<b>Temperature:</b>	22° C
<b>Relative Humidity:</b>	55%
<b>ATM Pressure:</b>	1018mbar

\* The testing was performed by Guan Bin on 2008-07-16

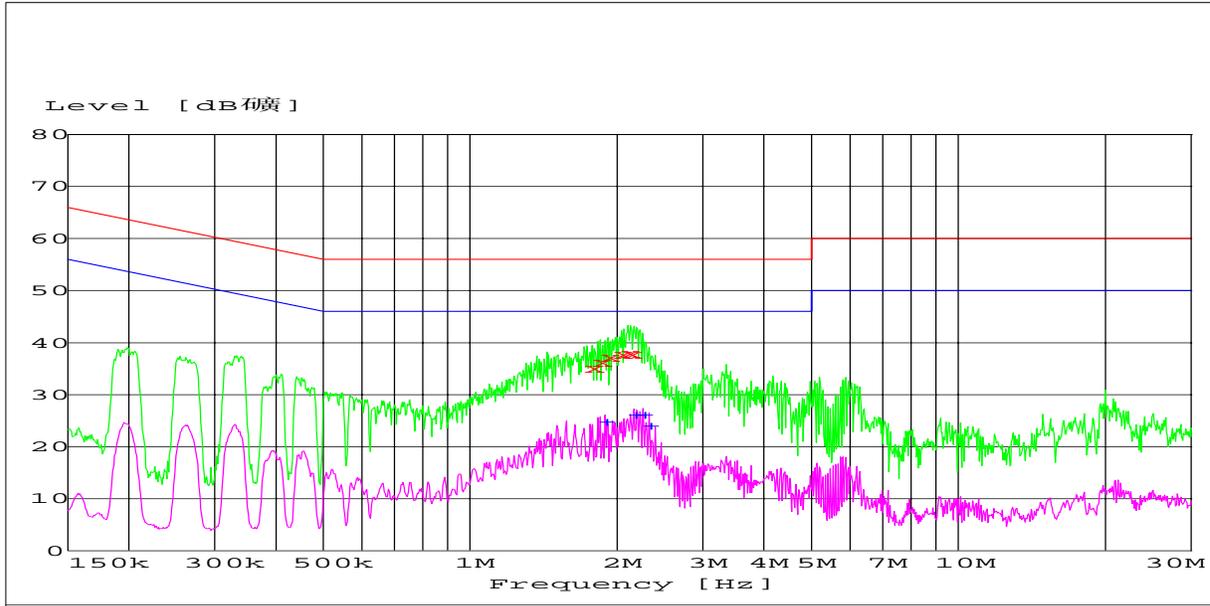
#### 4.6 Summary of Test Results

According to the recorded data, the EUT complied with FCC §15.107 Standard, Class B limits, and had the worst margin reading of:

Conducted Disturbance at AC port			
Margin (dB)	Frequency (MHz)	Conductor Mode (Hot/Neutral)	Range (MHz)
18.0	2.107702	HOT	0.150 MHz to 30 MHz

### 4.7 Conducted Emissions Test Plots and Data

Conducted Emission at AC port measurements were undertaken on the HOT



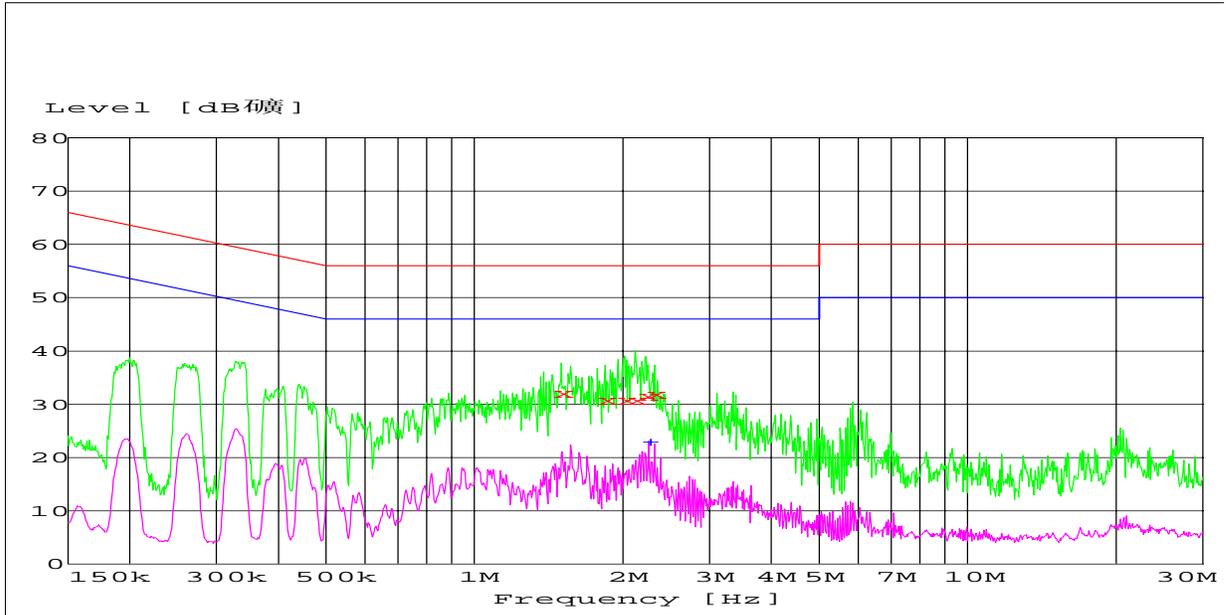
#### Quasi-Peak Measurements

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Transd. (dB)	Limit (dBµV)	Margin (dB)
2.107702	38.0	HOT	9.9	56	18.0
2.041453	37.8	HOT	9.9	56	18.2
2.133095	37.8	HOT	9.9	56	18.2
1.915138	37.2	HOT	9.9	56	18.8
1.847552	36.3	HOT	9.9	56	19.7
1.782351	35.1	HOT	9.9	56	20.9

#### Average Measurements

Frequency (MHz)	Average (dBµV)	Conductor (Hot/Neutral)	Transd. (dB)	Limit (dBµV)	Margin (dB)
2.16743	26.1	HOT	9.9	46	19.9
2.264728	26.1	HOT	9.9	46	19.9
1.892339	24.8	HOT	9.9	46	21.2
2.328906	24.1	HOT	9.9	46	21.9

Conducted Emission at AC port measurements were undertaken on the Neutral



**Quasi-Peak Measurements**

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/Neutral)	Transd. (dB)	Limit (dBµV)	Margin (dB)
1.501217	32.1	Neutral	9.9	56	23.9
2.319627	31.9	Neutral	9.9	56	24.1
2.228851	31.5	Neutral	9.9	56	24.5
2.116132	30.9	Neutral	9.9	56	25.1
1.840191	30.8	Neutral	9.9	56	25.2
2.01715	30.8	Neutral	9.9	56	25.2

**Average Measurements**

Frequency (MHz)	Average (dBµV)	Conductor (Hot/Neutral)	Transd. (dB)	Limit (dBµV)	Margin (dB)
2.255705	23.06	Neutral	9.9	46	23.1

## 5 §15.109 –Radiated Emission

### 5.1 Applicable Standard

As per FCC §15.109: Radiated Emission Limits

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength ( $\mu\text{V/m}$ )
33 -88	100
88 – 216	150
216 – 960	200
Above 960	500

(g) As an alternative to the radiated emission limits shown in paragraphs (a) and (b) of this section, digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, “Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement.”

Note: The CISPR 22 §6 Standard, Class B limits are applied to the test data hereinafter.

### 5.2 Test Setup

The radiated emissions tests were performed in the 10-meter test chamber, using the setup in accordance with ANSI C63.4-2003 measurement procedures. The specifications used were in accordance with CISPR 22 Standard, Class B limits for frequencies between 30 MHz and 1 GHz, and FCC Part 15 Standard, Class B limits for frequencies above 1 GHz.

The spacing between the peripherals was 10 cm.

The external I/O cables were draped along the test table and bundled as required.

The EUT was connected to the AC/DC adaptor which was connected to the AC Mains to represent normal operating conditions.

### 5.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
R&S	EMI Test Receiver 20Hz~26.5GHz	ESI26	100058	2007-10-25
R&S	Log periodic Antenna 30~3000MHz	HL562	100022	2007-3-7
R&S	Cable Set Up to 18Ghz	RF Cable	N/A	2007-10-25
Albatross	Anechoic Chamber 3m site	3m site	N/A	2007-5-14
R&S	Software	ES-K1	N/A	N/A
Agilent	Universal radio communication tester	8960	GB42431673	2007-01-18

\* Statement of Traceability: ZTE Corporation Reliability Testing Center attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

### 5.4 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4 (2003). The test distance was 3m. The EUT was set-up on insulator 0.8m above the Metallic Turntable

The radiated disturbance measurements were made using a Rohde and Schwarz ESI Test Receiver and control software ES-K1.

A preliminary scan and a final scan of the emissions were made from 30MHz to 1GHz by using test script of software; the emissions were measurement using a Quasi-Peak detector. The maximal emission value was acquired by adjusting the antenna height, polarization and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°. The receive antenna has two polarizations V and H.

### 5.5 Environmental Conditions

<b>Temperature:</b>	22.5° C
<b>Relative Humidity:</b>	57%
<b>ATM Pressure:</b>	1016mbar

\* The testing was performed by Guan Bin on 2008-07-16

## 5.6 Corrected Amplitude & Margin Calculation

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

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

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

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

## 5.7 Summary of Test Results – 30 MHz to 1 GHz

According to the recorded data, the EUT complied with FCC §15.109 Standard, Class B limits, and had the worst margin readings – when calculated using CISPR 22 Standard, Class B limits – of:

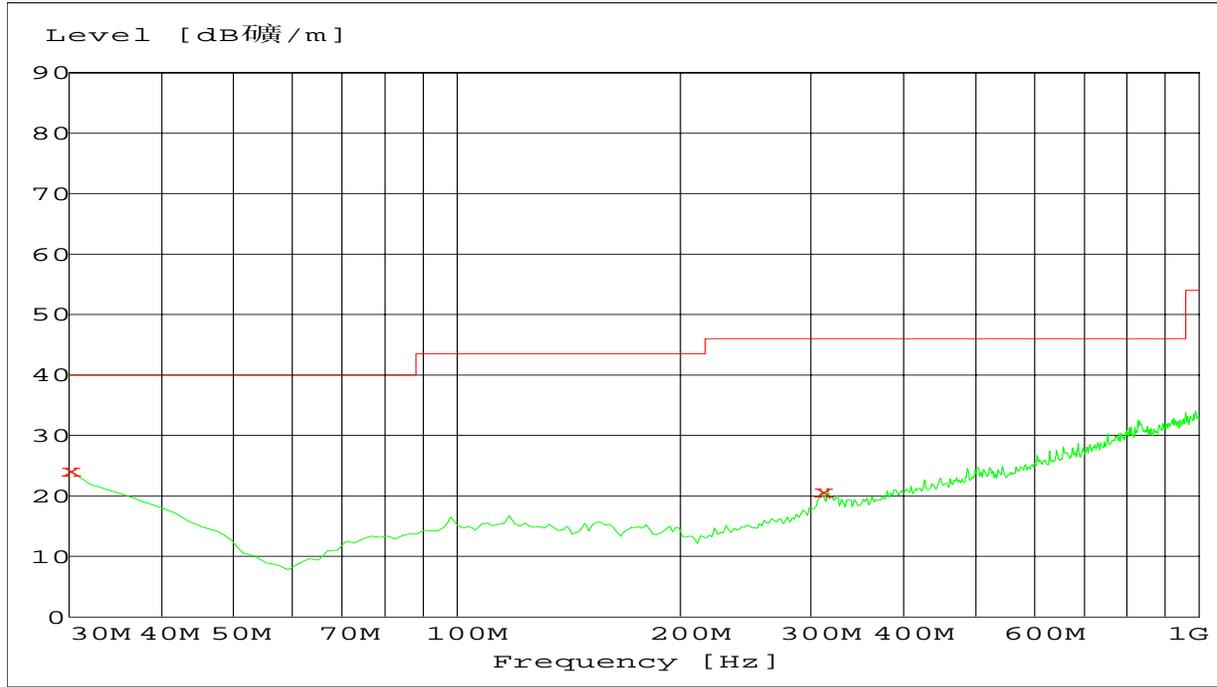
Test with headphones			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range (MHz)
15.7	30	Horizontal	30 MHz to 1000 MHz

Connection 120V /60Hz AC			
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)	Range (MHz)
1.9	55.270541	Vertical	30 MHz to 1000 MHz

**Radiated Emissions Test Plots and Data**

**EUT with headphone**

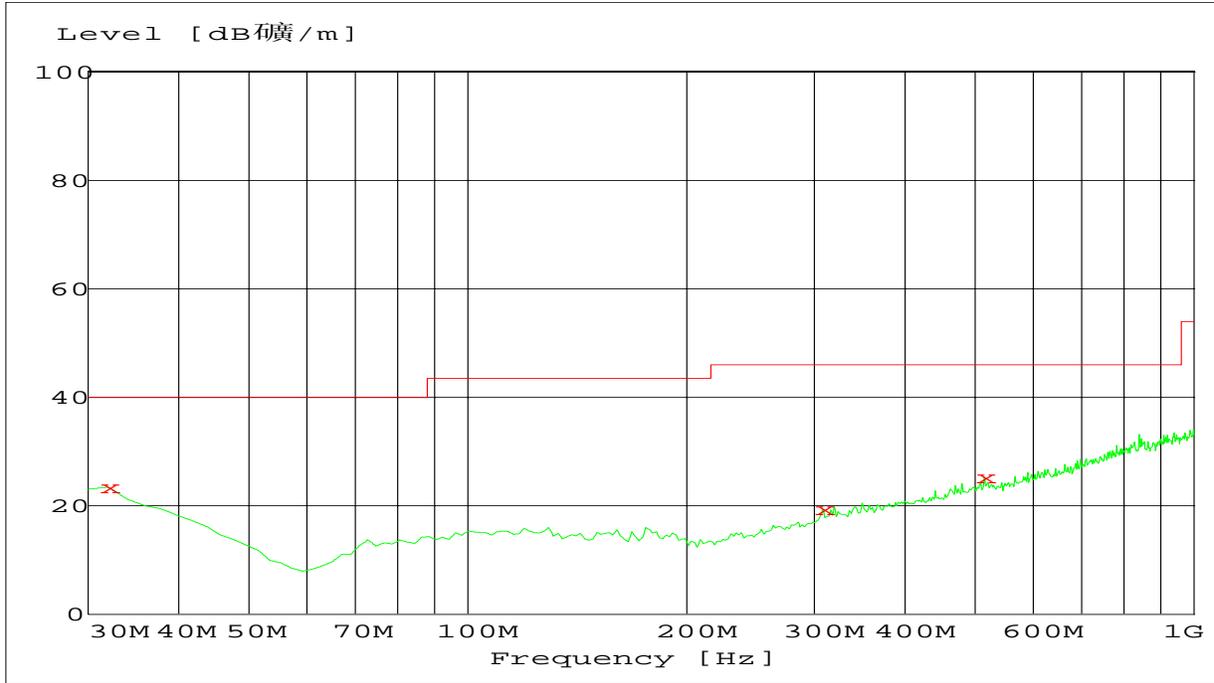
**Horizontal**



**Measurement Results: Quasi-Peak Detector**

Frequency (MHz)	Quasi-Peak (dBμV/m)	Turntable Position (degrees)	Antenna Height (cm)	Ant. Polarity (H/V)	Transd (dB)	Limit (dBμV/m)	Margin (dB)
30.0000	24.27	53	200	H	-10.8	40	15.7
309.9198	20.84	139	100	H	-15.7	46	25.2

**Vertical**

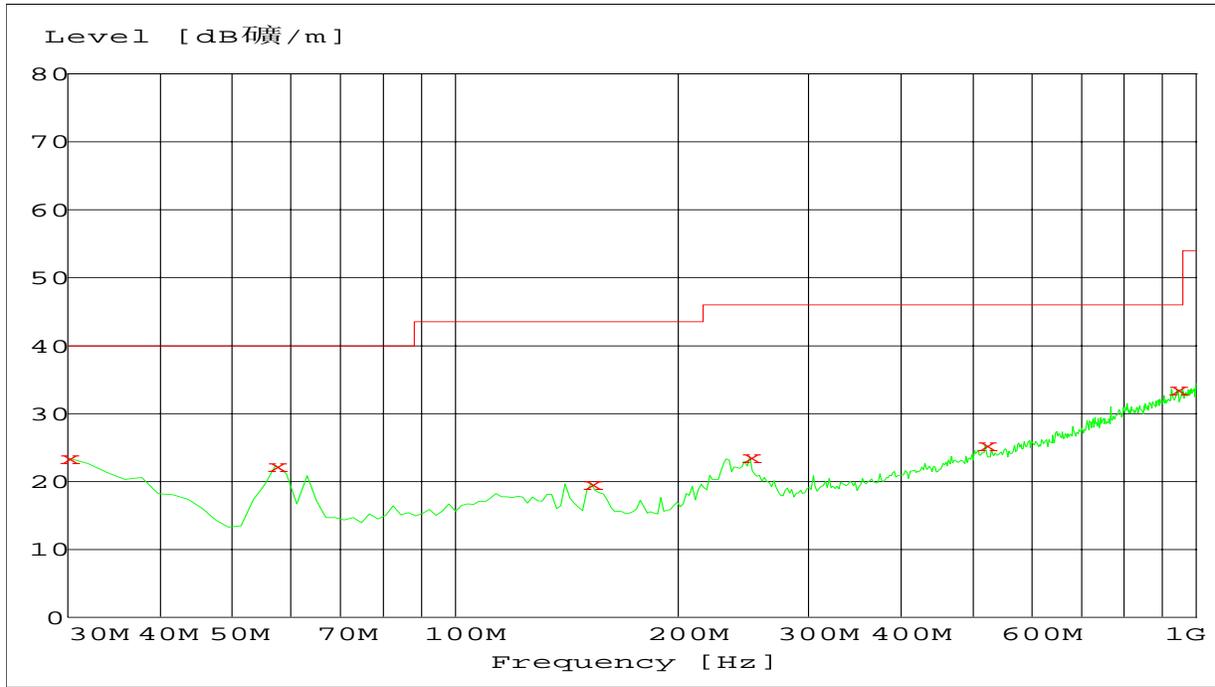


**Measurement Results: Quasi-Peak Detector**

Frequency (MHz)	Quasi-Peak (dBµV/m)	Turntable Position (degrees)	Antenna Height (cm)	Ant. Polarity (H/V)	Transd (dB)	Limit (dBµV/m)	Margin (dB)
31.94389	23.49	99	200	V	-11.8	40	16.5
514.0281	25.34	2	100	V	-10.7	46	20.7
307.9760	19.47	329	100	V	-15.8	46	26.5

Connection 120V /60Hz AC

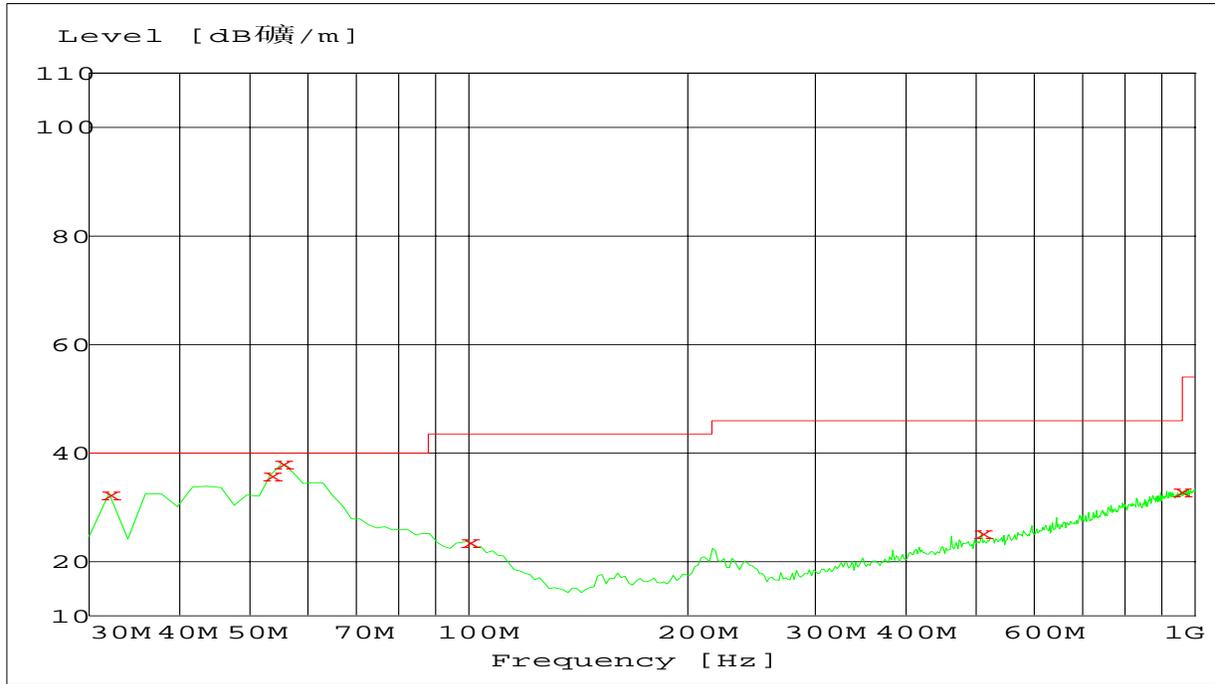
Horizontal



Measurement Results: Quasi-Peak Detector

Frequency (MHz)	Quasi-Peak (dBµV/m)	Turntable Position (degrees)	Antenna Height (cm)	Ant. Polarity (H/V)	Transd (dB)	Limit (dBµV/m)	Margin (dB)
30.000000	23.46	191.00	100.0	H	-10.8	40.0	16.5
57.214429	22.38	97.00	100.0	H	-26.0	40.0	17.6
152.464930	19.71	151.00	100.0	H	-21.0	43.5	23.8
249.659319	23.70	340.00	100.0	H	-18.2	46.0	22.3
519.859719	25.42	360.00	100.0	H	-10.5	46.0	20.6
941.683367	33.61	14.00	100.0	H	-3.1	46.0	12.4

**Vertical**



**Measurement Results: Quasi-Peak Detector**

Frequency (MHz)	Quasi-Peak (dBµV/m)	Turntable Position (degrees)	Antenna Height (cm)	Ant. Polarity (H/V)	Transd (dB)	Limit (dBµV/m)	Margin (dB)
31.943888	32.51	272	100	V	-11.8	40	7.5
53.326653	36.02	218	100	V	-24.3	40	4.0
55.270541	38.11	150	100	V	-25.3	40	1.9