CIG SHANGHAI CO., LTD.

Application
For
Certification

FCC ID: SFK-OAPDBNA

WiFi Access Point

Model: WF-3220-Z1

Computer Peripheral

Report No.: 130422002SZN-004

Prepared and Checked by:

Sign on file

Billy Li
Supervisor

Approved by:

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Location: Intertek Testing Services

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Date: April 22, 2013

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LIST OF EXHIBITS

MEASUREMENT / TECHNICAL REPORT

CIG SHANGHAI CO., LTD.
MODEL: WF-3220-Z1
FCC ID: SFK-OAPDBNA

This report concerns (check one:) Original Grant ___X___ Class II Change _____

Equipment Type: JBP-Part 15 Class B Computing Device Peripheral

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Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No ___X___

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date
of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No ___X___

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-01-12 Edition] provision.

Report prepared by:

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List of attached file

Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf

EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a WiFi Access Point. The EUT was powered by a POE Adapter (Input: 100-240Vac 50/60Hz; output: DC48V, 500mA/25W). For more detailed features description, please refer to the user's manual.

1.2 Related Submittal(s) Grants

This is an application for certification of a computer peripheral.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

1.4 Test Facility

The Test site used by ZTE Corporation to collect test data is located in the 1/F,B2 Wing, ZTE Plaza, Keji Road South, Shenzhen, Guangdong, 518057, P.R.China, Tel: +86-755-26771609,Fax: +86-755-26770347. Test site at ZTE Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC). ZTE Corporation EMC Lab was certificated by CNAS and the registration number was L0611. The FCC registration number of ZTE corporation EMC lab is 373926. The IC registration number of ZTE corporation EMC lab is 5200A. The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The system was configured for Test in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2009).

The device is powered by POE Adapter through 120V/60Hz during the test. The worst case data was reported in this report.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for Test in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency range from 30MHz to 5GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted test was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified Test.

2.3 Special Accessories

N/A

2.4 Equipment Modification

Any modifications installed previous to Test by CIG SHANGHAI CO., LTD. Will be incorporated in each production model sold / leased in the United States.

No modifications were installed by ZTE Corporation.

2.5 Measurement Uncertainty

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

2.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.
RJ 45 Cable connected between POE adapter and EUT	N/A	unshielded 1.5m
RJ 45 Cable connected between POE adapter and PC	N/A	Unshielded 10m
PC	DELL	Pro80Jn
2 x Antenna Interconnecting Cable	CIG SHANGHAI	2.0m
2 x Terminal	N/A	50ohm
POE adapter	CIG SHANGHAI	Model: DBcom-PSE01A-G

EXHIBIT 3

EMISSION RESULTS

3.0 Emission Results

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by the reading on the Spectrum Analyzer adding the factors associated with preamplifiers (if any), antennas, cables. A sample calculation is included below.

FS = RA - AF
where
FS= Field Strength in dBµV/m
RA=Receiver Amplitude (including preamplifier) in dBµV
AF=Amplifier Gain - Antenna Factor - Cable Attenuation Factor in dB

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
At
43.607MHz

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos.pdf.

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 4.8dB margin

Applicant: CIG SHANGHAI CO., LTD. Date of Test: April 22, 2013
Model: WF-3220-Z1
Worst case operating Mode: Data transfer

Radiated Emissions (30MHz~5GHz)

Polarization	Frequency (MHz)	Reading (dBµV)	Transfer Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	43.607	24.1	-11.1	35.2	40.0	-4.8
Horizontal	66.934	10.1	-17.3	27.4	40.0	-12.6
Horizontal	893.086	38.3	2.8	35.5	46.0	-10.5
Vertical	37.775	21.2	-9.1	30.3	40.0	-9.7
Vertical	45.551	20.2	-11.1	31.3	40.0	-8.7
Vertical	922.244	29.2	3.4	25.8	46.0	-20.2
Horizontal	2002.004	31.6	-11.3	42.9	54.0	-11.1

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz and PEAK detector is used for frequency from 1-5GHz.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 0.3- meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions up to 1GHz are below the QP limit and all emissions between 1-5GHz are below the AV limit.

3.4 Conducted Emission Configuration Photograph

Worst Case Conducted Configuration
at
0.814 MHz

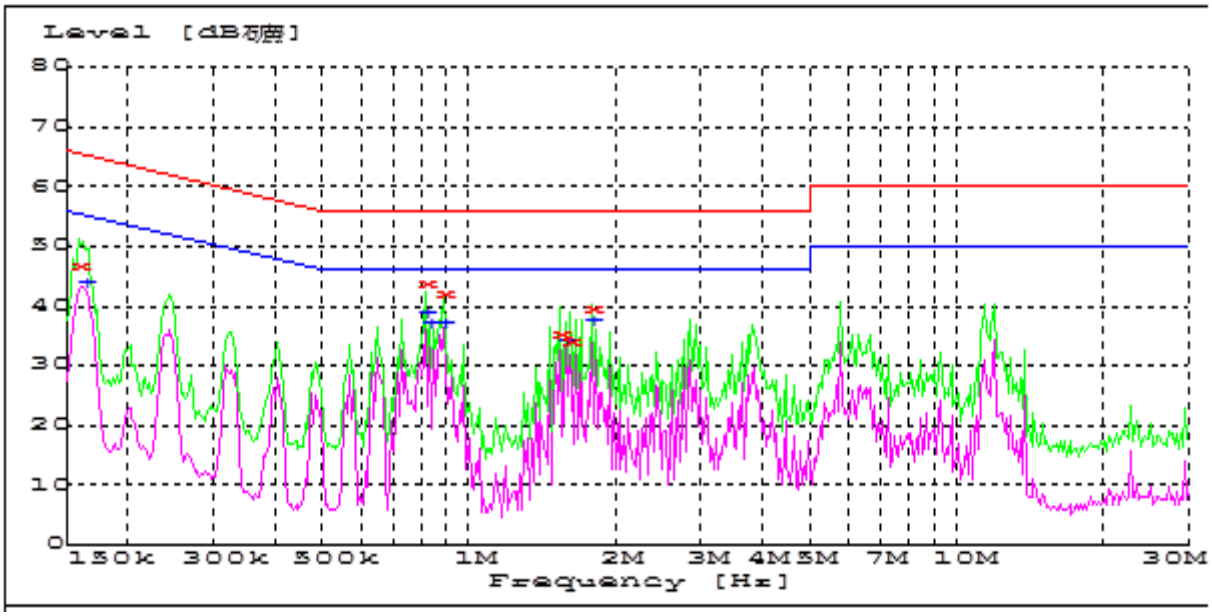
For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

3.5 Conducted Emission Data

Judgement: Passed by 7.3 dB margin

Applicant: CIG SHANGHAI CO., LTD. Date of Test: April 22, 2013
Model: WF-3220-Z1
Worst case operating Mode: Data transfer

Conducted Emission Test – FCC



Result Table QP

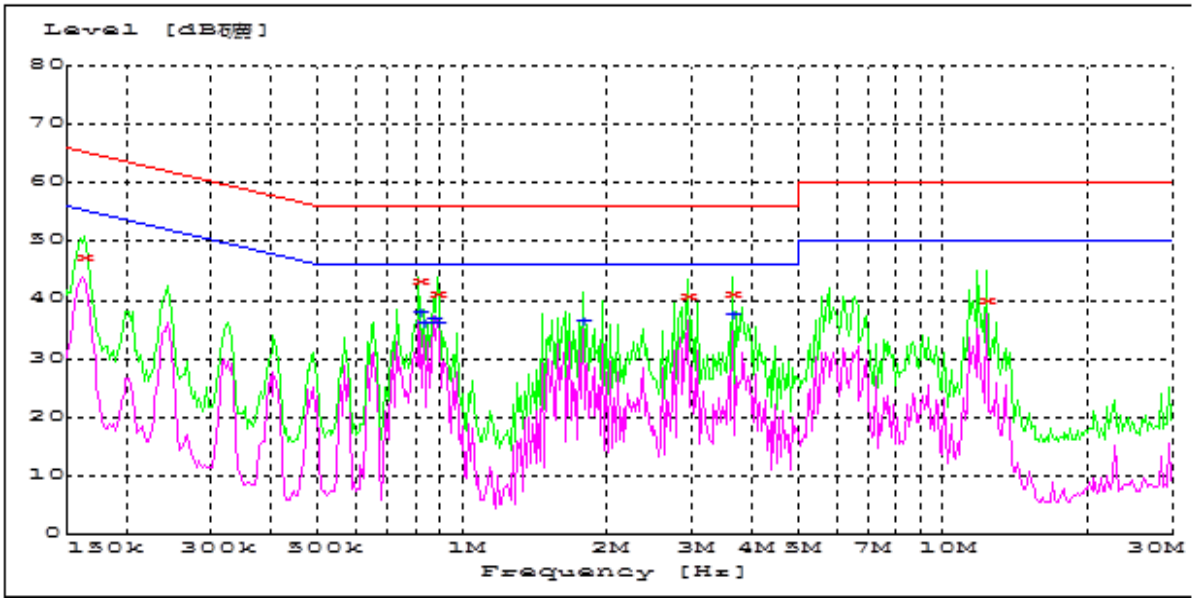
Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.159	46.9	L1	10.0	18.6	65.5
0.814	43.9	L1	10.1	12.1	56.0
0.890	42.2	L1	10.1	13.8	56.0
1.539	35.3	L1	10.1	20.7	56.0
1.617	33.9	L1	10.1	22.1	56.0
1.786	39.3	L1	10.1	16.7	56.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.162	43.8	L1	10.0	11.6	55.4
0.814	38.7	L1	10.1	7.3	46.0
0.830	36.9	L1	10.1	9.1	46.0
0.890	37.0	L1	10.1	9.0	46.0
1.585	33.8	L1	10.1	12.2	46.0
1.786	37.3	L1	10.1	8.7	46.0

Applicant: CIG SHANGHAI CO., LTD. Date of Test: April 22, 2013
Model: WF-3220-Z1
Worst case operating Mode: Data transfer

Conducted Emission Test – FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.162	47.2	N	10.0	18.2	65.4
0.814	43.0	N	10.1	13.0	56.0
0.890	40.8	N	10.1	15.2	56.0
2.938	40.5	N	10.2	15.5	56.0
3.658	40.9	N	10.2	15.1	56.0
12.315	39.7	N	10.5	20.3	60.0

Result Table AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.814	37.7	N	10.1	8.3	46.0
0.830	35.8	N	10.1	10.2	46.0
0.872	36.6	N	10.1	9.4	46.0
0.890	35.9	N	10.1	10.1	46.0
1.786	36.1	N	10.1	9.9	46.0
3.658	37.3	N	10.2	8.7	46.0

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

For electronic filing, photographs of the tested EUT are saved with filename: external photos.pdf and internal photos.pdf.

EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 Technical Specifications

For electronic filing, the block diagram of the tested EUT is saved with filename: block.pdf.

EXHIBIT 7

INSTRUCTION MANUAL

7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold / leased in the United States.

EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 **Miscellaneous Information**

This miscellaneous information includes emission measuring procedure.

8.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Test Services in the measurements of computer peripheral operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2009.

The computer equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are varied during the Test to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions are in QP mode from the frequency band 30MHz to 1GHz with RBW setting 120kHz. Detector function for radiated emissions are in PK&AV mode from the frequency band above 1GHz with RBW setting 1MHz. Detector function for conducted emissions are in QP & AV mode and IFBW setting is 9kHz from the frequency band 150kHz to 30MHz.

For radiated emission, the frequency range scanned is 30MHz to 5GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz.

8.1 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

Conducted measurements are made as described in ANSI C63.4 - 2009.

EXHIBIT 9

CONFIDENTIALITY REQUEST

9.0 **Confidentiality Request**

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

EXHIBIT 10

TEST EQUIPMENT LIST

10.0 **Test Equipment List**

Manufacturer	Equipment	Model	Last Cal.	Cal. Interval
R&S	EMI Test receiver	ESCI 3	2012-7-25	1 year
TESE Q	ISN	ISN T800	2012-5-24	1 year
Schwarzbeck	LISN-001	NSLK8128	2012-10-24	1 year
Schwarzbeck	LISN-002	NSLK8128	2012-10-24	1 year
R&S	EMI Test receiver	ESU26	2012-11-3	1 year
R&S	Log periodic Antenna	SWB-VULB 9163	2012-7-25	1 year
R&S	Horn Antenna	HF907	2012-7-25	1 year