



EMC TEST REPORT

Applicant ZTE Corporation
FCC ID SRQ-ZTEN9131
Product LTE/WCDMA/GSM /CDMA
Multi-Mode Digital Mobile Phone
Model N9131
Report No. RXA1603-0039EMC01
Issue Date April 19, 2016

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC Code CFR47 Part15B (2015)/ ANSI C63.4 (2014)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Wei Liu

Reviewed by: Wei Liu

Guangchang Fan

Approved by: Guangchang Fan



TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000



Table of Contents

1	Test Laboratory.....	4
1.1	Notes of the Test Report	4
1.2	Test facility	4
1.3	Testing Location.....	5
2	General Description of Equipment under Test.....	6
2.1	Client Information	6
2.2	General information.....	7
2.3	Applied Standards	8
3	Test Case Results	9
3.1	Radiated Emission	9
3.2	Conducted Emission	16
4	Main Test Equipment.....	18



Summary of measurement results

Number	Test Case	Clause in FCC Rules	Conclusion
1	Radiated Emission	15.109, ANSI C63.4-2014	PASS
2	Conducted Emission	15.107, ANSI C63. 4-2014	PASS
Date of Testing: March 21, 2016~ April 11, 2016			



1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of TA technology (shanghai) co., Ltd). The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by CNAS or any government agencies.

1.2 Test facility

CNAS (accreditation number: L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (recognition number is 428261)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.



1.3 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2 General Description of Equipment under Test

2.1 Client Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, #55 Keji Road South, Hi-Tech, Industrial Park, Nanshan District



2.2 General information

EUT Description	
Device Type:	Portable Device
Product Name:	LTE/WCDMA/GSM /CDMA Multi-Mode Digital Mobile Phone
Model Number:	N9131
HW Version:	cuza
SW Version:	N9131V1.0.0B01
MEID:	99000680000315
Antenna Type:	Internal Antenna
Used Host Product:	PC: Model: Vostrol 1320 (SN: HRCCPK1) Adapter: Model: LA90PM111(SN: PA-1900-32D)
Test Mode:	Transfer Data Mode
Clock Frequency:	19.2MHz
EUT Accessory	
Battery	Manufacturer: SCUD(FUJIAN)ELECTRONICS Model: Li3922T44P6h903546 Power Rating: DC 3.84V, Li-ion
Adapter	Manufacturer: RUIJING Model: STC-A508A-Z M5
USB Cable	101cm Cable, Shielded
Remark: The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details.	



2.3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards

FCC Code CFR47 Part15B (2015)

ANSI C63.4-2014

3 Test Case Results

3.1 Radiated Emission

Ambient condition

Temperature	Relative humidity	Pressure
24°C~26°C	45%~50%	102.5kPa

Methods of Measurement

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The distance between EUT and receive antenna should be 3 meters. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.4-2014. Sweep the whole frequency band through the range from 9 kHz to the 5th harmonic of the carrier. During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated signal level.

The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing. During the test, the EUT is worked at maximum output power.

Set the spectrum analyzer in the following:

Below 1GHz:

RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

Above 1GHz:

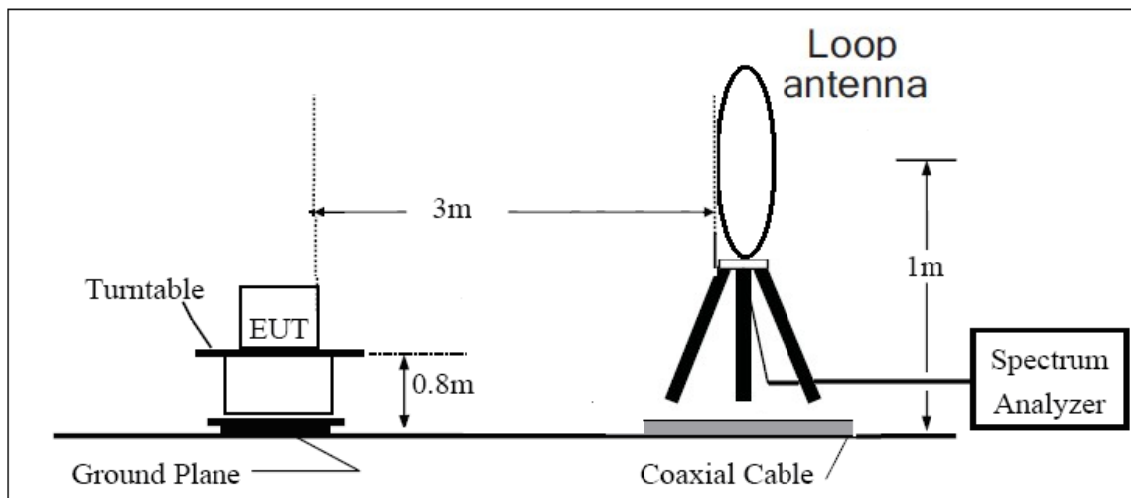
(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

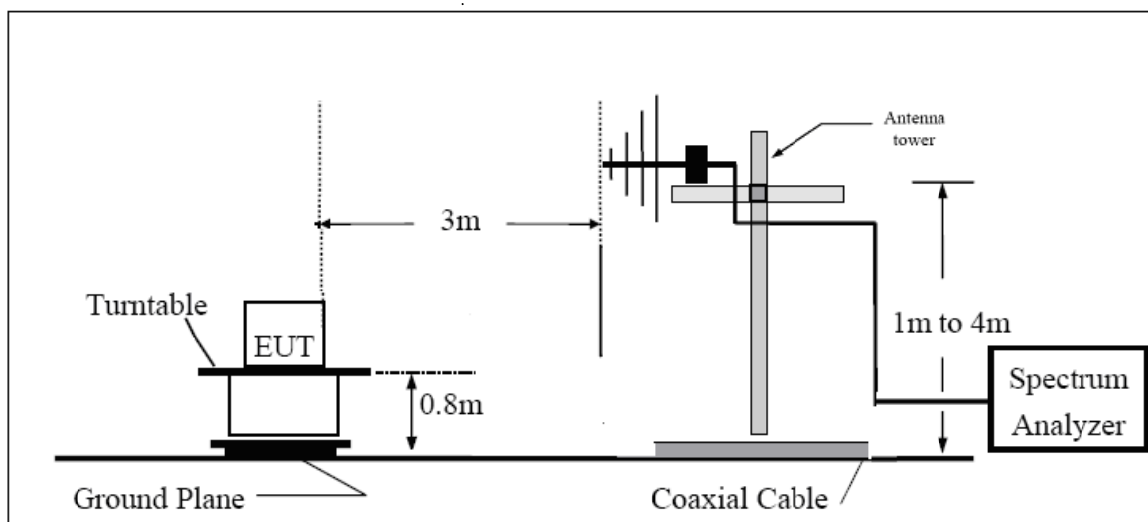
During the test, EUT is connected to a laptop via a USB cable in the case of Transfer Data mode. The EUT is used as the peripheral equipment of the PC. The data is transferred from EUT to PC; PC is connected to server via a long LAN cable.

Test Setup

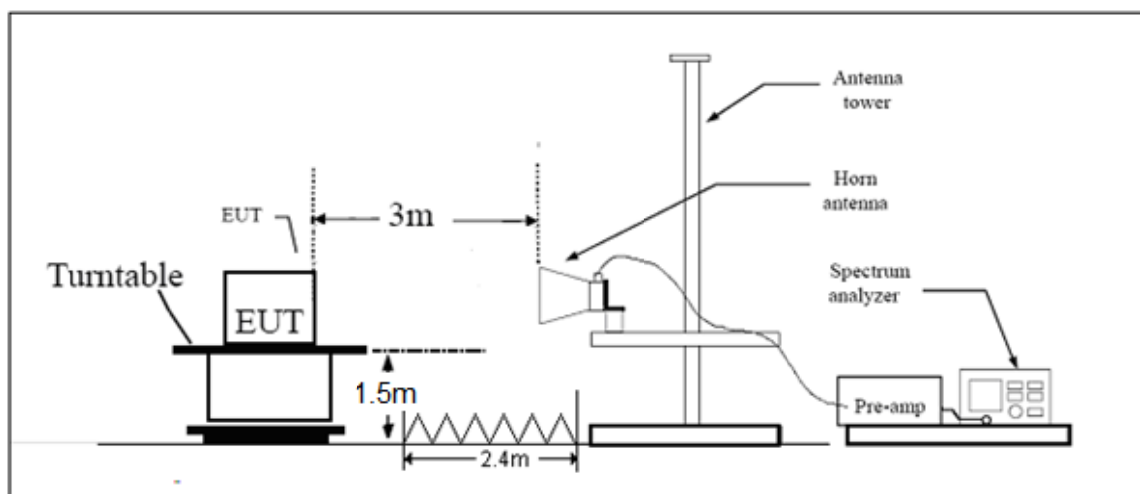
9 kHz-30MHz



30MHz -1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

limits

Frequency (MHz)	Field Strength (dB μ V/m)	Detector
30 -88	40.0	Quasi-peak
88-216	43.5	Quasi-peak
216 – 960	46.0	Quasi-peak
960-1000	54.0	Quasi-peak
1000-5 th harmonic of the highest frequency or 40GHz,which is lower	54 74	Average Peak

Measurement Uncertainty

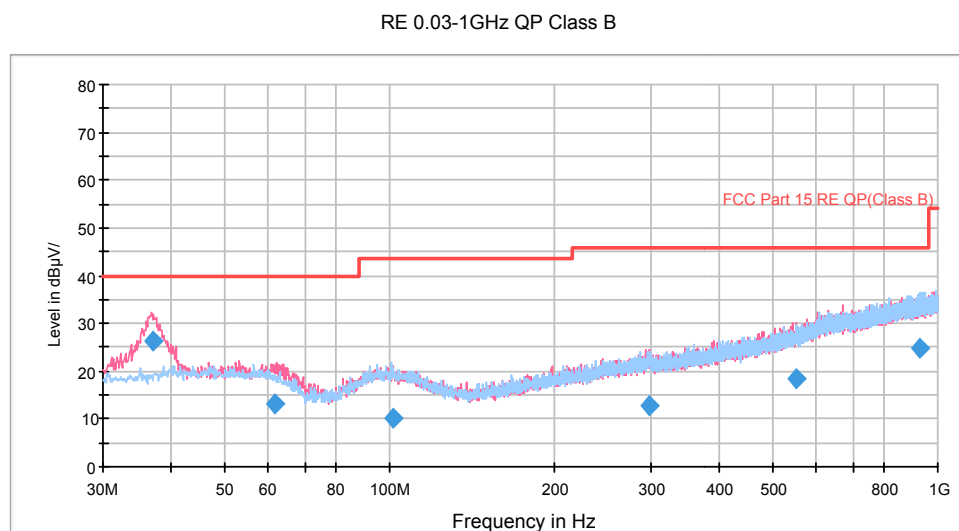
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$. $U = 3.92$ dB.

Test Results

Sweep from 9 kHz to 30MHz, and the emissions more than 20 dB below the permissible value are not reported.

The following graphs display the maximum values of horizontal and vertical by software.

For above 1GHz, Blue trace uses the peak detection, Green trace uses the average detection.



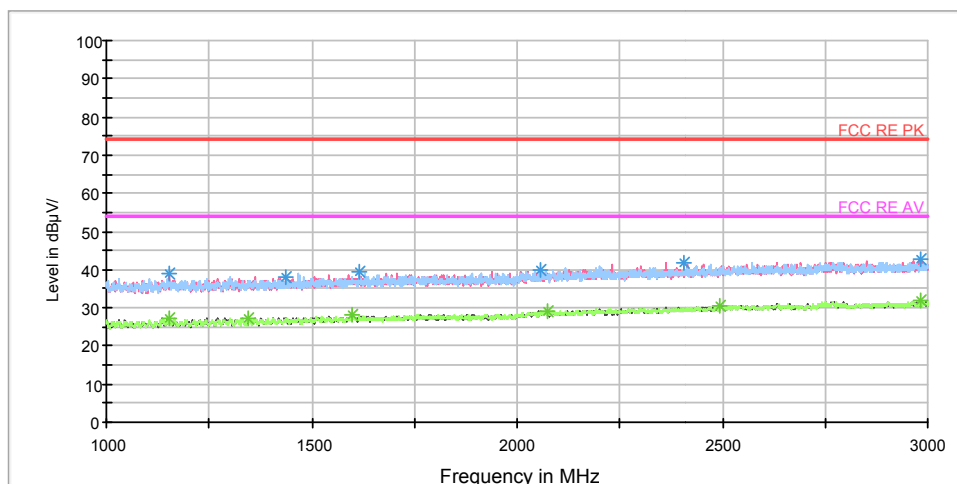
Radiated Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
36.990000	26.3	38.7	100.0	V	308.0	12.4	13.7	40.0
61.691250	13.3	25.1	100.0	V	190.0	11.8	26.7	40.0
101.167500	10.1	23.2	125.0	H	78.0	13.1	33.4	43.5
298.766250	12.7	28.1	100.0	V	262.0	15.4	33.3	46.0
552.423750	18.5	39.6	100.0	V	130.0	21.1	27.5	46.0
927.368750	24.9	50.7	100.0	H	19.0	25.8	21.1	46.0

Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

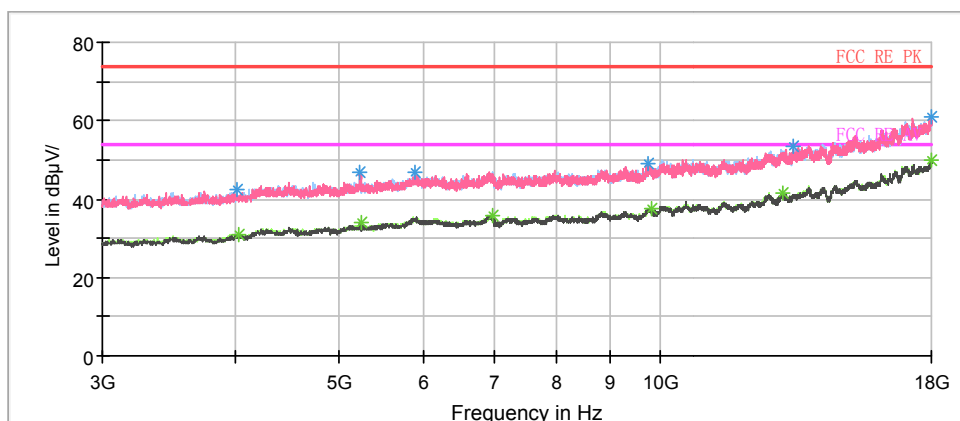


Radiated Emission from 1GHz to 3GHz

Frequency (MHz)	Peak (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1151.500000	36.3	47.1	100.0	H	2.0	-10.8	37.7	74
1347.000000	37.1	47.1	100.0	H	47.0	-10.0	36.9	74
1598.000000	36.9	45.9	100.0	V	58.0	-9.0	37.1	74
2073.500000	38.0	45.3	100.0	H	1.0	-7.3	36.0	74
2495.500000	40.4	45.4	100.0	V	350.0	-5.0	33.6	74
2984.000000	40.6	44.6	100.0	H	174.0	-4.0	33.4	74

Frequency (MHz)	Average (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1151.500000	27.4	38.2	100.0	H	2.0	-10.8	26.6	54
1347.000000	27.4	37.4	100.0	H	47.0	-10.0	26.6	54
1598.000000	28.1	37.1	100.0	V	58.0	-9.0	25.9	54
2073.500000	29.1	36.4	100.0	H	1.0	-7.3	24.9	54
2495.500000	30.4	35.4	100.0	V	350.0	-5.0	23.6	54
2984.000000	31.7	35.7	100.0	H	174.0	-4.0	22.3	54

RE 3-18GHz PK+AV

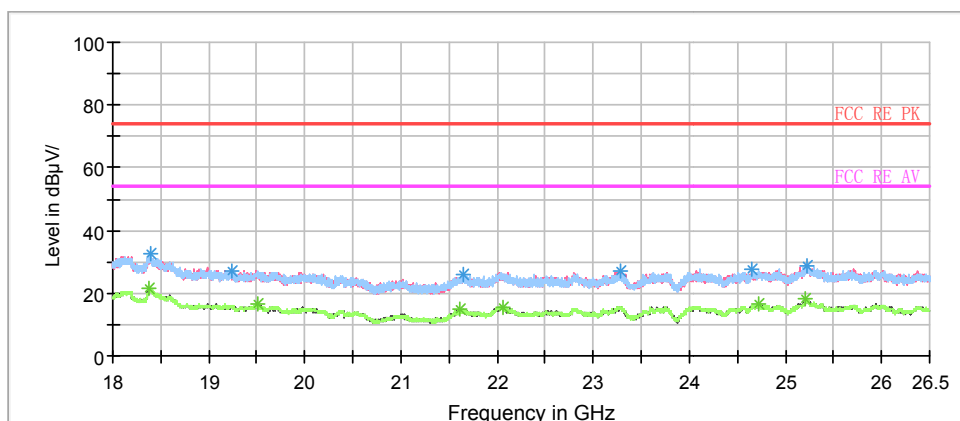


Radiated Emission from 3GHz to 18GHz

Frequency (MHz)	Peak (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4012.500000	42.4	42.9	101.0	H	45.0	0.5	31.6	74
5229.375000	47.0	50.7	201.0	V	168.0	3.7	27.0	74
5906.250000	47.0	53.2	201.0	H	0.0	6.2	27.0	74
9744.375000	48.9	60.5	101.0	H	222.0	11.6	25.1	74
13338.750000	53.3	69.0	201.0	H	112.0	15.7	20.7	74
17992.500000	61.1	86.4	101.0	H	222.0	25.3	12.9	74

Frequency (MHz)	Average (dBuV/m)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
4025.625000	30.9	31.5	201.0	H	0.0	0.6	23.1	54
5246.250000	34.1	37.8	201.0	V	253.0	3.7	19.9	54
6961.875000	35.7	42.3	201.0	H	243.0	6.6	18.3	54
9826.875000	37.5	49.5	201.0	V	210.0	12.0	16.5	54
13036.875000	41.5	57.7	201.0	V	0.0	16.2	12.5	54
17996.250000	50.1	75.5	201.0	H	243.0	25.4	3.9	54

RE 18-26.5GHz PK+AV



Radiated Emission from 18GHz to 26.5GHz

Frequency (MHz)	Peak (dBuV/m)	Reading value (dBuV/m)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18395.250000	32.6	37.5	H	95.0	-4.9	41.4	74
19233.562500	27.3	34.1	V	119.0	-6.8	46.7	74
21640.125000	26.1	35.2	V	305.0	-9.1	47.9	74
23285.937500	26.9	34.0	V	177.0	-7.1	47.1	74
24652.312500	27.7	34.7	V	296.0	-7.0	46.3	74
25229.250000	28.9	34.8	H	37.0	-5.9	45.1	74

Frequency (MHz)	Average (dBuV/m)	Reading value (dBuV/m)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
18385.687500	21.4	26.2	V	0.0	-4.8	32.6	54
19518.312500	16.4	23.8	V	219.0	-7.4	37.6	54
21619.937500	14.7	23.7	H	123.0	-9.0	39.3	54
22056.625000	15.7	23.8	V	278.0	-8.1	38.3	54
24719.250000	16.5	22.8	V	245.0	-6.3	37.5	54
25211.187500	18.0	24.2	H	20.0	-6.2	36.0	54

3.2 Conducted Emission

Ambient condition

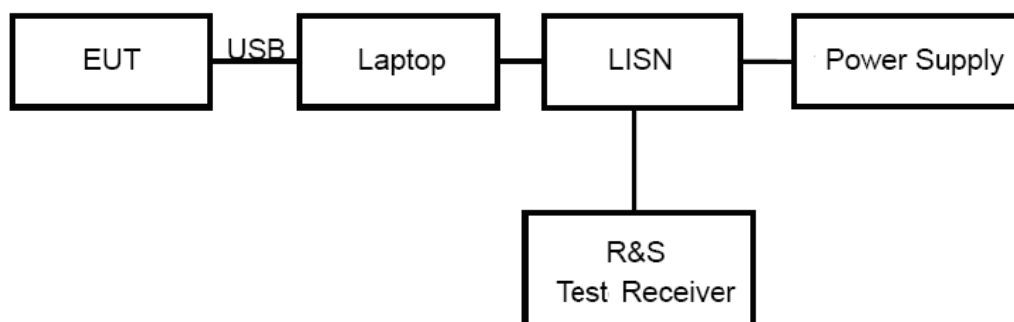
Temperature	Relative humidity	Pressure
24°C ~26°C	50%~55%	102.5kPa

Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10-2013. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz. The measurement result should include both L line and N line.

During the test, EUT is connected to a laptop via a USB cable in the case of Transfer Data mode. The EUT is used as the peripheral equipment of the PC. The data is transferred from EUT to PC; PC is connected to server via a long LAN cable.

Test Setup



Note: Power Supply is AC Power source and it is used to change the voltage 120V/60Hz.

Limits

Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50
*: Decreases with the logarithm of the frequency.		

Measurement Uncertainty

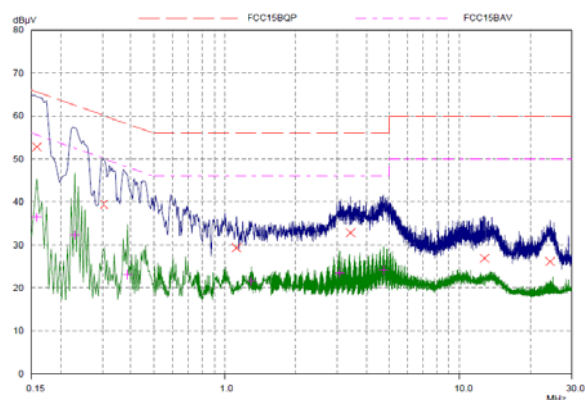
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$. $U = 2.69$ dB.

Test Results



Following plots, Blue trace uses the peak detection; Green trace uses the average detection.

CE 150 KHz to 30 MHz, L Line

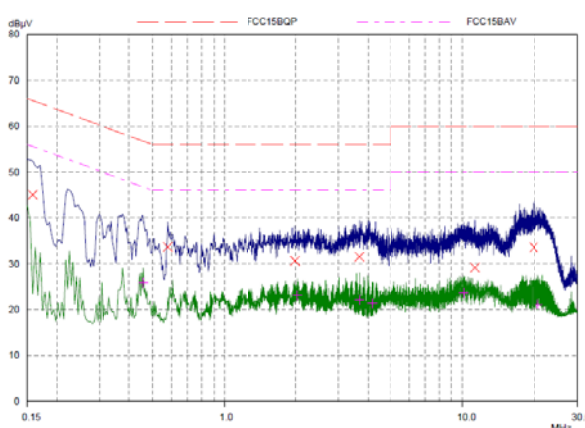


Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.15781	52.82	65.58	12.76	L1	gnd
0.30625	39.46	60.07	20.61	L1	gnd
1.11484	29.32	56.00	26.68	L1	gnd
3.41953	32.83	56.00	23.17	L1	gnd
12.76328	26.87	60.00	33.13	L1	gnd
24.41953	26.15	60.00	33.85	L1	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.15781	36.41	55.58	19.17	L1	gnd
0.22812	32.34	52.52	20.18	L1	gnd
0.38828	23.11	48.10	24.99	L1	gnd
1.30234	21.51	46.00	24.49	L1	gnd
3.07968	23.51	46.00	22.49	L1	gnd
4.72031	24.15	46.00	21.85	L1	gnd

CE 150 KHz to 30 MHz, N Line



Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB	Phase -	PE -
0.15781	45.04	65.58	20.54	N	gnd
0.57968	33.64	56.00	22.36	N	gnd
1.98593	30.61	56.00	25.39	N	gnd
3.67343	31.53	56.00	24.47	N	gnd
11.25546	29.15	60.00	30.85	N	gnd
19.88437	33.54	60.00	26.46	N	gnd

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB	Phase -	PE -
0.45859	25.87	46.72	20.85	N	gnd
2.03281	23.13	46.00	22.87	N	gnd
3.67343	22.10	46.00	23.90	N	gnd
4.1539	21.35	46.00	24.65	N	gnd
10.10312	23.69	50.00	26.31	N	gnd
20.81796	21.15	50.00	28.85	N	gnd

4 Main Test Equipment

Name	Type	Manufacturer	Serial Number	Last Cal.	Cal. Due Date
EMI Test Receiver	ESCI	R&S	100948	2015-05-22	2016-05-21
Signal Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Loop Antenna	FMZB1519	SCHWARZBECK	1519-047	2014-02-29	2017-02-28
Trilog Antenna	VULB 9163	SCHWARZBECK	9163-201	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100126	2014-12-06	2017-12-05
Horn Antenna	3160-09	ETS-Lindgren	00102643	2015-01-30	2018-01-29
EMI Test Receiver	ESCS30	R&S	100138	2015-12-17	2016-12-16
LISN	ENV216	R&S	101171	2015-12-18	2016-12-17
Bore Sight Antenna mast	2171B	ETS	00058752	NA	NA