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EMI TEST REPORT

On Model Name: IP Phone

Model Number: GXP2130

Brand Name: Grandstream

Prepared for Grandstream Networks, INC

FCC ID Number: YZZGXP2130

According to FCC 47 CFR Part 15, Subpart B

Test Report #: SHE-1402-11113-FCC

Tested by: Daomen — Galanz
Daomen /Engineer — Company Name

Reviewed by: ECMG
Jawen Yin/ Senior Engineer — Company Name

QC Manager: ECMG
Swall Zhang/QC Manager — Company Name

Test Report Released by: Swall Zhang — February 28th, 2014
Swall Zhang — Date

Test Location

Tests performed in a Certified ANSI Semi-Anechoic Chamber and Shielded Room.

Test Site Location	*: Galanz*
	25 South Ronggui Rd.,Shunde, Foshan,Guangdong, China
Tel	*: (86)-757-23612785*
Fax	*: (86)-757-23612537*

Test Facility

The test facility was recognized, certified, or accredited by the following organizations:

- *CNAL – LAB Code: L2244*

Galanz EMC Laboratory has been assessed and in compliance with CN AL/AC01:2002 accreditation criteria for testing laboratories (identic al to ISO/IEC 17025:2005 General Requirements)for the Competence of Testing Laboratories.

- *FCC – Registration No.: 580210*

Galanz EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC was maintained in our files.

Table of Contents

List Attached Files

Exhibit Type	File Description	File Name
Test Report	Test Report	YZZGXP2130 _Test report.pdf
Operation Description	Technical Description	YZZGXP2130_operation description.pdf
External Photos	External Photos	YZZGXP2130_External Photos
Internal Photos	Internal Photos	YZZGXP2130_Internal Photos
Block Diagram	Block Diagram	YZZGXP2130_Block Diagram.pdf
Schematics	Circuit Diagram	YZZGXP2130 _Schematics.pdf
ID Label/Location	Label and Location	YZZGXP2130_Label & Location.pdf
User Manual	User Manual	YZZGXP2130 _User Manual.pdf
Test set-up photos	Test set-up photos	YZZGXP2130 _Test Set-up Photos

Government Disclaimer Notice

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT).Without the permission of ECMG Electronic Technical Testing Corp (Shenzhen) Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.

Statement of Measurement Uncertainty

The dIP Phone and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative IP Phone

Test Sample	*: IP Phone*
Model Numbers	*: GXP2130*
Model Tested	*: GXP2130*
Receipt Date	*: February 24th, 2014*
Date Tested	*: February 25th, 2014*
Applicant	*: Grandstream Networks, INC*
Address	*5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China*
Telephone	*: (86)-755-26014600*
Fax	*: (86)-755-26014601*
Manufacturer	*: Grandstream Networks, INC*
Address	*5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China*
Telephone	*: (86)-755-26014600*
Fax	*: (86)-755-26014601*
Factory	*: Grandstream Networks, INC*
Address	*5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China*
Telephone	*: (86)-755-26014600*
Fax	*: (86)-755-26014601*

EUT Description

Grandstream Networks, INC., model tested GXP2130 (referred to as the EUT in this report) is an IP Phone.

Technical specifications of the EUT are as belows:

Parameter		***Range***
Basic parameters	*Rated voltage*	*+12VDC*
	Rated Current	*0.5A*
PoE		*Integrated Power-over-Ethernet (802.3af)*
I/O Ports	*Power Cable*	*Power Adapter connection*
	LAN Port (RJ-45)	*Connect to the internal LAN network or router.*
	PC Port (RJ-45)	*Connect to PC*
	Handset (RJ-11)	*Connect to handset*
	Headset (RJ-11)	*Connect to headset*
Power Adapter #1 (Mass power)	*Input*	*100-240VAC 50/60Hz 0.15A*
	Output	*12VDC,0.5A*
	Model	*WCF1200050A1BA*
	Brand name	*Mass power*
Power Adapter #2 (UE power)	*Input*	*100-240VAC 50/60Hz 0.2A*
	Output	*12VDC,0.5A*
	Model	*UE120801DGCL02-R*
	Brand name	*UE power*

NOTE: For more detailed informations or features please refer to user's manual of EUT.

Test Summary

The Electromagnetic Compatibility requirements on model GXP2130 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

Emission Tests				
Specifications	***Description***	***Test Results***	***Test Point***	***Remark***
FCC Part 15.107 ANSI C63.4 -2003	*Conducted Emission*	*Passed*	*AC Input Port*	*Attachment 1*
FCC Part 15.109 ANSI C63.4 -2003	*Radiated Emission*	*Passed*	*Enclosure*	*Attachment 2*

Test Mode Justification

Pre-scan has been conducted to determine the worst-case from all possible combinations between available operation modes. The following mode was chosen for the final test as described below.

IP Call mode:
Connected the EUT to another an IP Phone by an RJ-45 cable and established an call Links between them. Then connected a notebook PC to PC port of the EUT by another an RJ-45 cable and ping "192.168.0.161 –t" to the EUT and measured it.

For PoE Mode:
Removed power adaptor of EUT, Let EUT was powered by PoE mode and measured it.

EUT Exercise Software

No exercise sofware support this test.

Equipment Modification

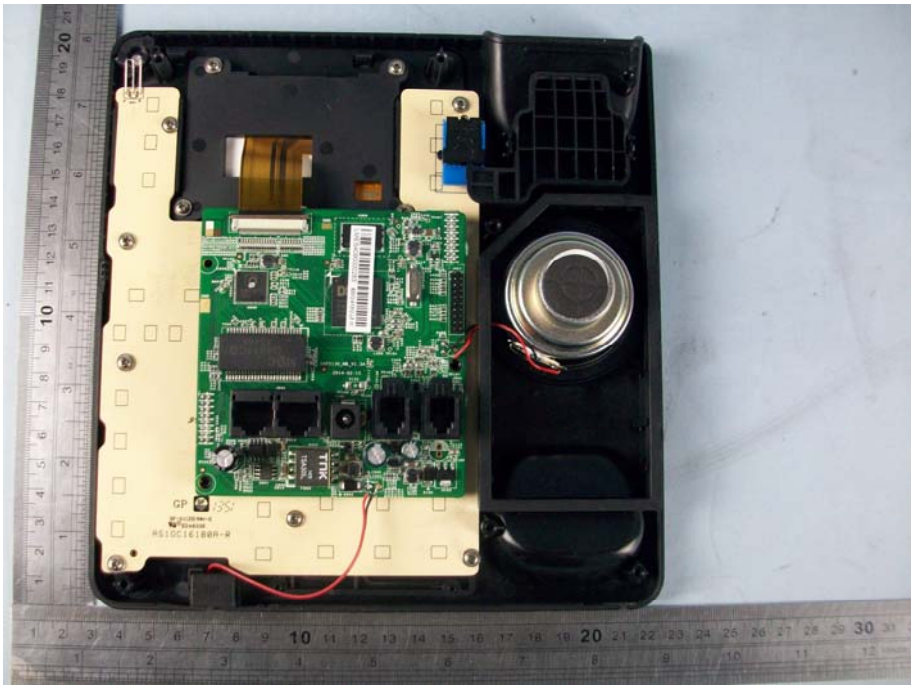
Any modifications installed previous to testing by Grandstream Networks, INC. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen). Test personnel.

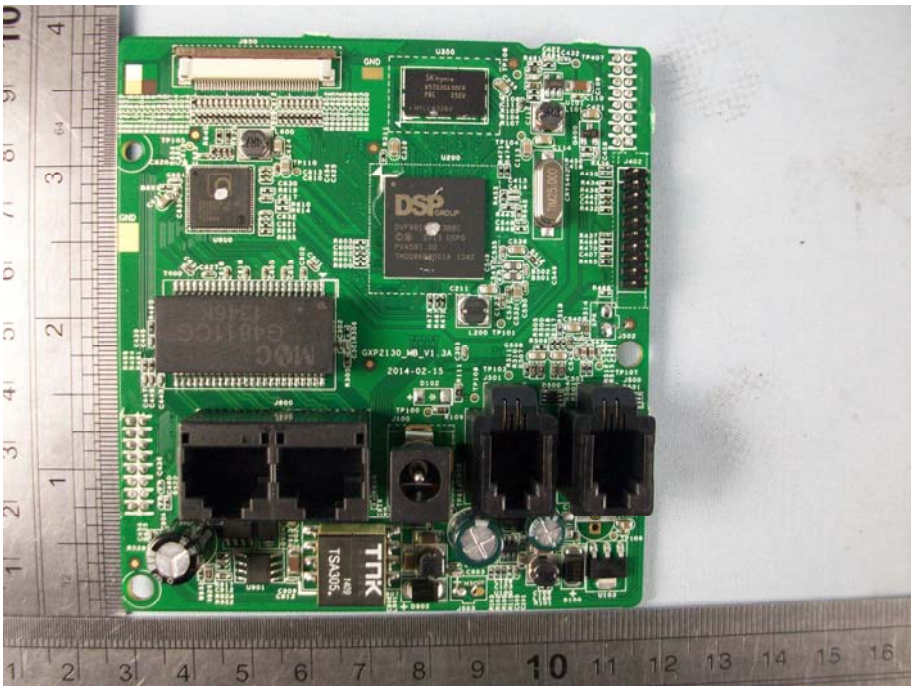
EUT Sample Photos for model GXP2130

EUT- Front&Top View

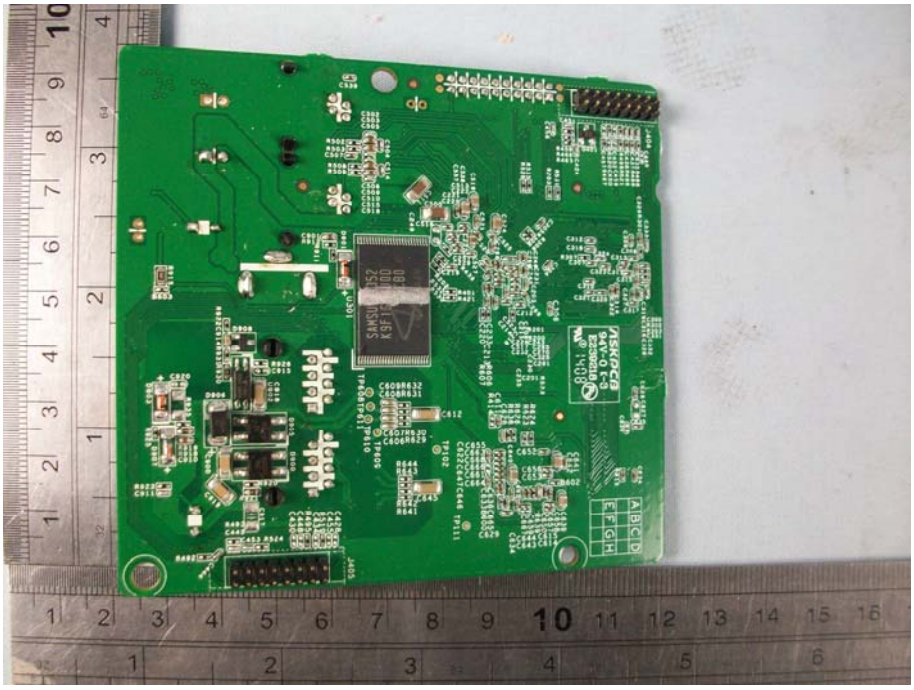
EUT- Rear View



EUT-Uncovered View



Main board- Top View



Main board- Bottom View

Power Adaptor #1 View (Manufacturer: Mass Power)

Power Adaptor #2 View (Manufacturer: UE power)

Test System Details

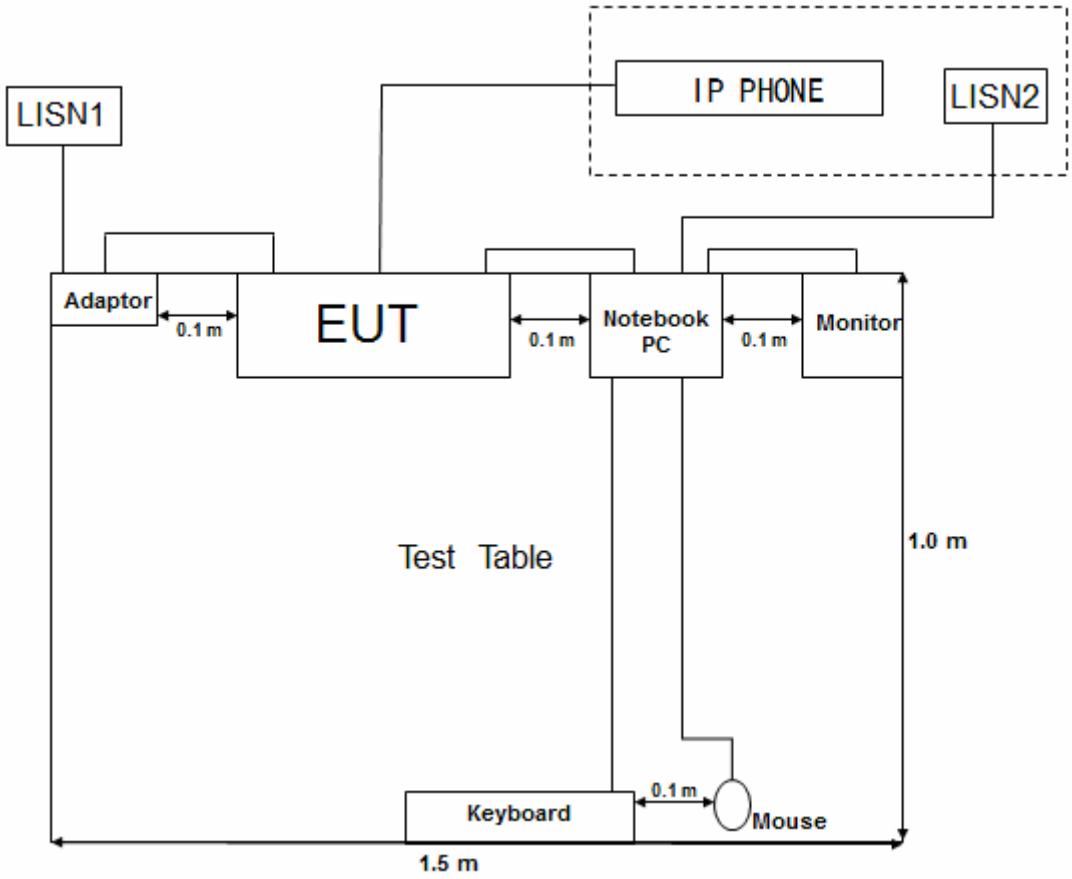
EUT			
Model Number:	GXP2130		
Model Tested:	GXP2130		
Description:	IP PHONE		
Input:	AC 120V/60Hz		
Manufacturer:	Grandstream Networks, INC		
Support Equipment			
Description	**Model Number**	**Serial Number**	**Manufacturer**
Notebook PC	ThinkPad x121e	---	Lenovo
Power Adapter Of Notebook PC	ThinkPad 57Y4614	---	Lenovo
Mouse	MO32B0	23-033131	IBM
Keyboard	SK-1788	---	Lenovo
Monitor	TFT1780PS	B8879HA021638	AOC

Continue on to next page…

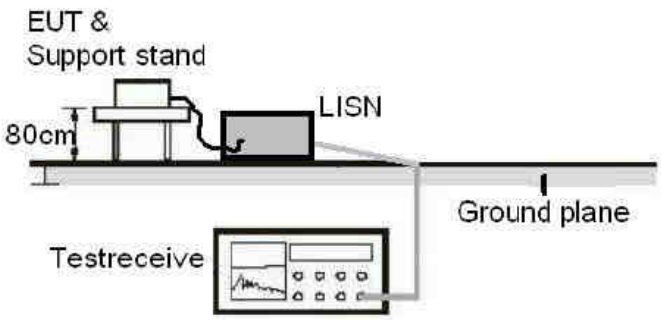
Cable Description					
Description	**From**	**To**	**Length (Meters)**	**Shielded (Y/N)**	**Ferrite (Y/N)**
Power Cord Of Notebook PC	Power Adapter	Notebook PC	1.6	N	Y
	Power Adapter	AC Plug	1.2	N	Y
Power power cord of monitor	Monitor	Plug	1.2	N	Y
Mouse cord	Mouse	Plug	1.2	N	Y
Keyboard cord	Keyboard	Plug	1.2	N	Y
VGA Cord	Monitor	PC	1.2	Y	Y
RJ-45 Cord 1	EUT	Notebook PC	1.5	N	N
RJ-45 Cord 2	EUT	IP PHONE	3.0	N	N
Power cord of power Adapter #1 (Mass power)	EUT	Plug	1.8	N	N
Power cord of power Adapter #2 (UE power)	EUT	Plug	1.8	N	N
Note:The "EUT" means "IP PHONE".					

NOTE:The EUT has been tested as an independent unit together with other necessary accessories or support units. The above support units or accessories were used to form a representative test configuration during the test tests.

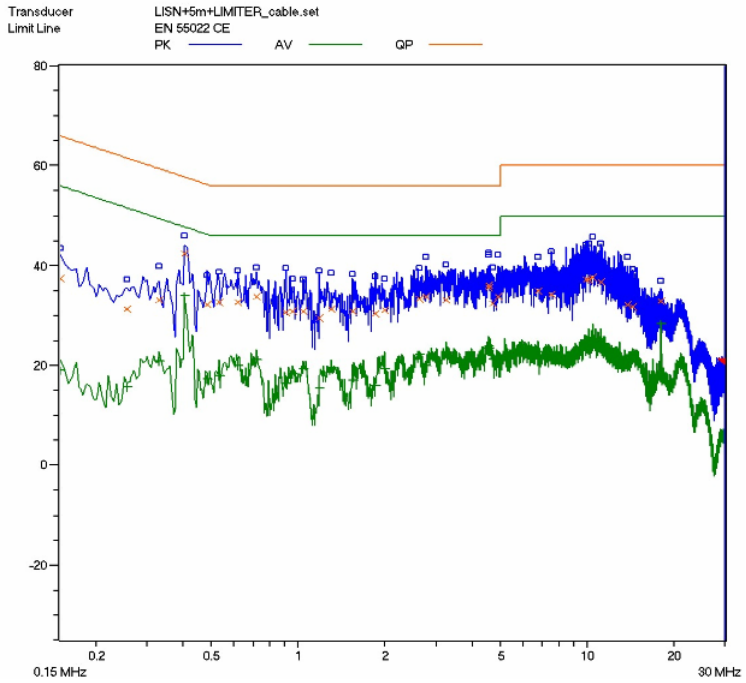
Configuration of Tested System



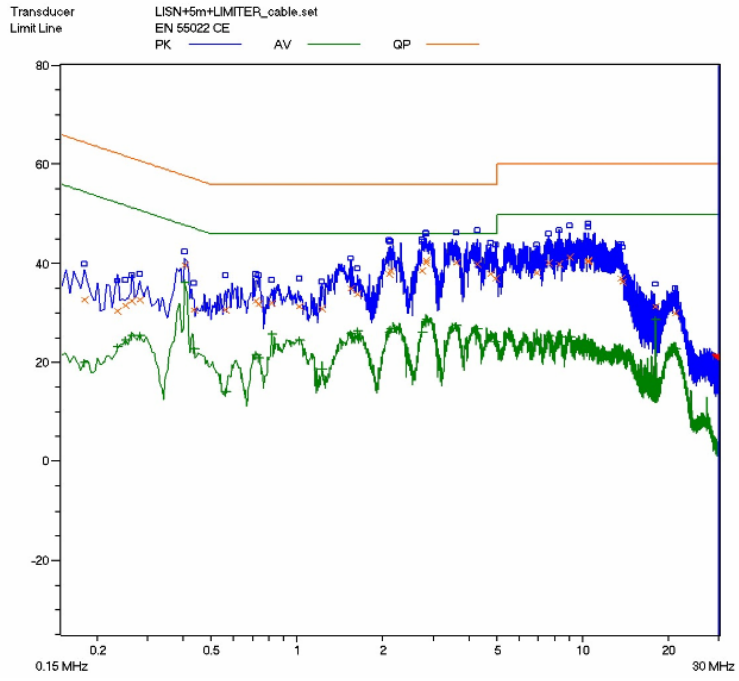
ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Grandstream Networks, INC	**TEST STANDERD:**	FCC Part 15, Subpart B, Section 15.107
MODEL NUMBERS:	GXP2130	**PRODUCT:**	IP Phone
MODEL TESTED:	GXP2130	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	23°C	**HUMIDITY:**	51%
ATM PRESSURE:	103kPa	**GROUNDING:**	None
TESTED BY:	Daomen	**DATE OF TEST:**	February 25th , 2014
TEST REFERENCE:	ANSI C63.4 -2003		
TEST PROCEDURE:	The EUT was set up according to the guidelines of ANSI C63.4 -2003 for conducted emissions. The measurement was using a AMN on each line and an EMI receiver peak scan was made at the frequency measurement range. The six highest significant peaks were then marked, and these signals were then quasi-peaked and averaged. The frequency range investigated was from 150KHz to 30MHz.		
TEST MODE:	IP Call		
TEST SET UP			
TESTED RANGE:	150kHz to 30MHz		
TEST VOLTAGE:	AC 120V/60Hz		
RESULTS:	The EUT meets the requirements of test reference for Conducted Emissions. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen). test personnel.		
M. UNCERTAINTY:	Freq. ± $2x10^{-7}$ x Center Freq., Amp ± 2.6 dB		

Power Adaptor #1:(Mass power)

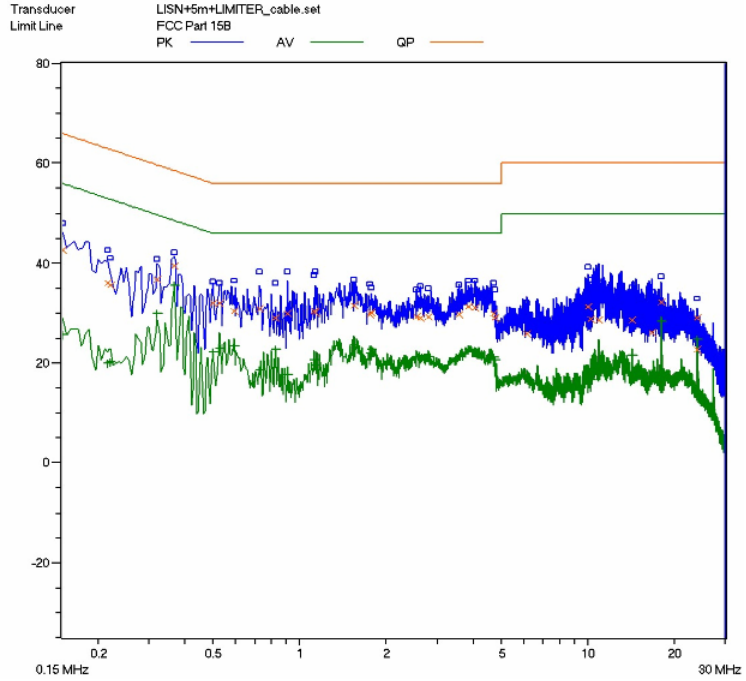


Line L Conducted Emission Graph

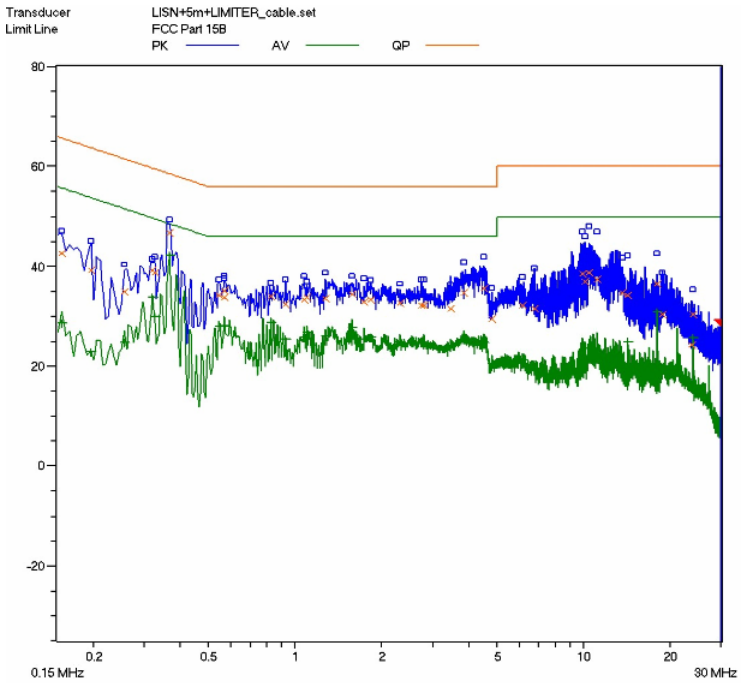


Line N Conducted Emission Graph

Power Adaptor #2:(UE power)



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Test Data:

Power Adaptor #1(Mass power)

Lines	*Frequency (MHz)*	*Corrected QP Level (dBuV)*	*Limits QP (dBuV)*	*Margin QP (dB)*	*Frequency (MHz)*	*Corrected AVE Level (dBuV)*	*Limits AVE (dBuV)*	*Margin AVE (dB)*
L	*0.405*	*42.5*	*57.8*	*-15.3*	*0.405*	*34*	*47.8*	*-13.8*
L	*4.545*	*35.6*	*56*	*-20.4*	*4.545*	*23.5*	*46*	*-22.5*
L	*4.585*	*36.1*	*56*	*-19.9*	*4.585*	*23.8*	*46*	*-22.2*
N	*2.115*	*38.6*	*56*	*-17.4*	*2.115*	*26.7*	*46*	*-19.3*
N	*2.815*	*40.2*	*56*	*-15.8*	*2.815*	*28.2*	*46*	*-17.8*
N	*4.990*	*37.0*	*56*	*-19.0*	*4.99*	*24.1*	*46*	*-21.9*

Note:
1) *All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not used.*
2) *Other emission levels are too low against official limt that are not reported.*

Power Adaptor #2(UE power)

Lines	*Frequency (MHz)*	*Corrected QP Level (dBuV)*	*Limits QP (dBuV)*	*Margin QP (dB)*	*Frequency (MHz)*	*Corrected AVE Level (dBuV)*	*Limits AVE (dBuV)*	*Margin AVE (dB)*
L	*0.150*	*42.8*	*66*	*-23.2*	*0.15*	*25.7*	*56*	*-30.3*
L	*0.320*	*36.7*	*59.7*	*-23*	*0.32*	*29.9*	*49.7*	*-19.8*
L	*0.365*	*39.5*	*58.6*	*-19.1*	*0.365*	*35.7*	*48.6*	*-12.9*
N	*0.320*	*39.1*	*59.7*	*-20.6*	*0.32*	*33.9*	*49.7*	*-15.8*
N	*0.325*	*38.8*	*59.6*	*-20.8*	*0.325*	*30*	*49.6*	*-19.6*
N	*0.365*	*46.8*	*58.6*	*-11.8*	*0.365*	*42.3*	*48.6*	*-6.3*

Note:
1) *All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not used.*
2) *Other emission levels are too low against official limta that are not report.*

Test Equipment List:

Test Equipment	*Model No.*	*Manufacturer*	*Serial No.*	*Last Cal.*	*Cal. Interval*
EMI Receiver	*SMR4503*	*SCHAFFNER*	*11725*	*2013.07.08*	*2014.07.08*
Line impedance stabilization network	*ESH2-Z5*	*R&S*	*N/A*	*2013.07.08*	*2014.07.08*
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

TESTED BY: Daomen ***GALANZ***

ENGINEER ***COMPANY NAME***

REVIEWED BY: ***ECMG***

SENIOR ENGINEER ***COMPANY NAME***

Conducted Emission Test Set-up –Front View

Conducted Emission Test Set-up –Rear View

ATTACHMENT 2 – RADIATED EMISSION MEASUREMENT

CLIENT:	Grandstream Networks, INC	**TEST STANDERD:**	FCC Part 15,Subpart B, Section 15.109
MODEL NUMBERS:	GXP2130	**PRODUCT:**	IP Phone
EUT MODEL:	GXP2130	**EUT DESIGNATION:**	Home or Office
TEMPERATURE:	23°C	**HUMIDITY:**	49%RH
ATM PRESSURE:	103.0kPa	**GROUNDING:**	None
TESTED BY:	Daomen	**DATE OF TEST:**	February 25th , 2014
TEST REFERENCE:	ANSI C63.4 -2003		
TEST PROCEDURE:	The EUT was set up according to the guidelines of ANSI C63.4 -2003 for radiated emissions. An EMI receiver peak scan was made at the frequency measurement range (pre-scan) in an Anechoic chamber.signal discrimination was then performed and the significant peaks marked.these peaks were then quasi-peaked in the frequ ency range of 30 MHz to 1GHz and average and peak in the frequency range of 1 GHz to 5GHz at an anechoic chamber. The following data lists the significant emission frequencies, measured levels, corre ction factors (including cable and antenna correction factors), and the corrected rea dings against the limits. Explanation of the Correction Factor are given as follows: FS= RA + AF + CF - AG Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain		
TEST MODE	IP Call mode and PoE mode		
TESTED RANGE:	9K-30MHz and 30MHz to 5GHz		
TEST VOLTAGE:	AC 120V/60Hz		
RESULTS:	The EUT meet the requirements of test reference for radiated emissions. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Electronic Technical Testing Corp (Shenzhen). Test personnel.		
M. UNCERTAINTY:	Freq. $\pm$ 2x10^{-7} x Center Freq., Amp $\pm$ 3.6 dB		

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TEST SET-UP:

Frequency measured at 9KHz to 30MHz:

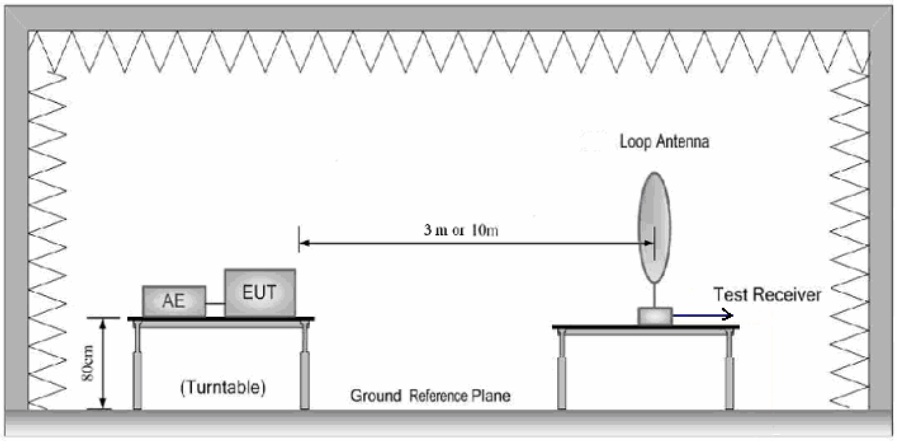


Figure 1 : Frequencies measured below 1 GHz configuration

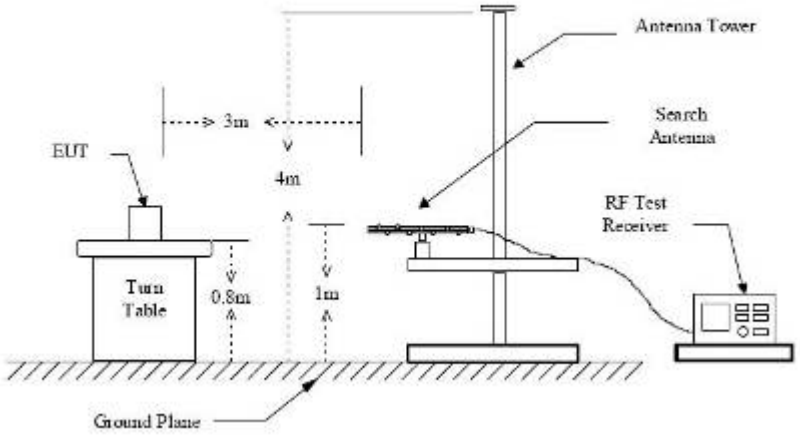
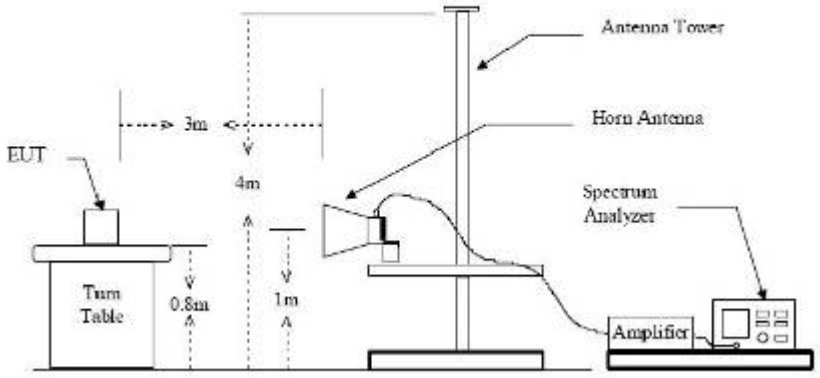
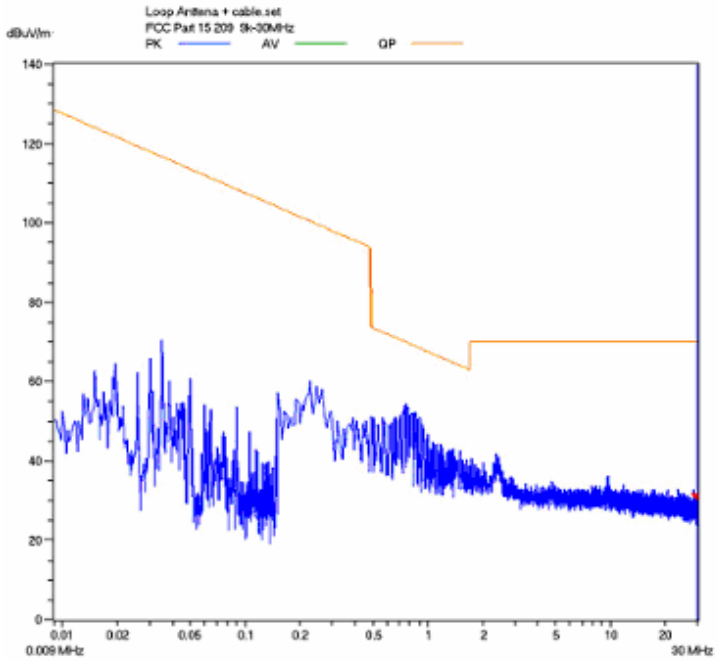


Figure 2 : Frequencies measured above 1 GHz configuration

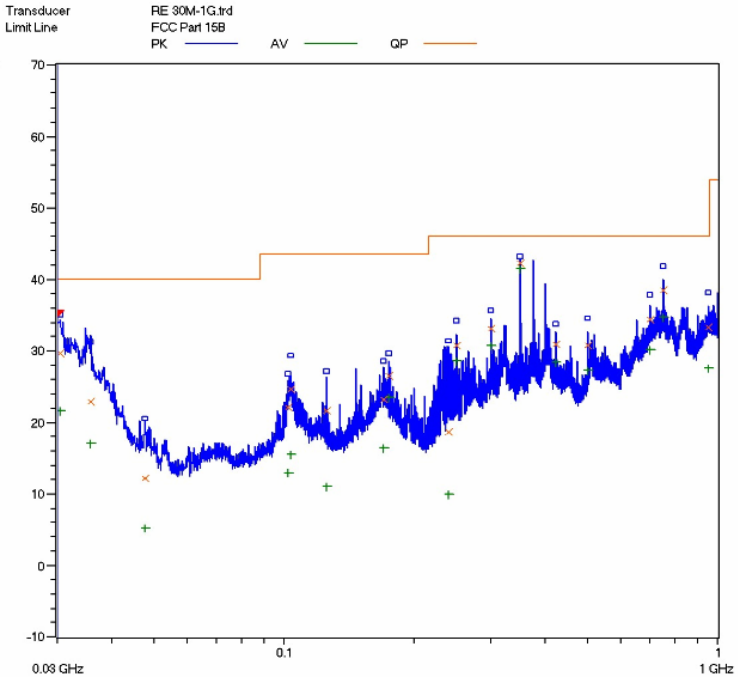


For 9KHz-30MHz:

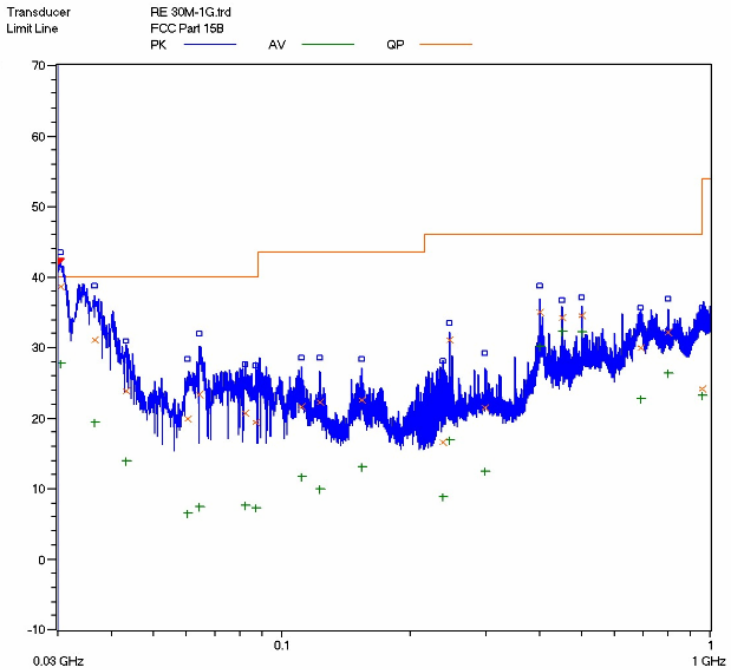


Radiated Filed Strength Emission Test Plot (Peak,maxhold)-Power Adapter #1

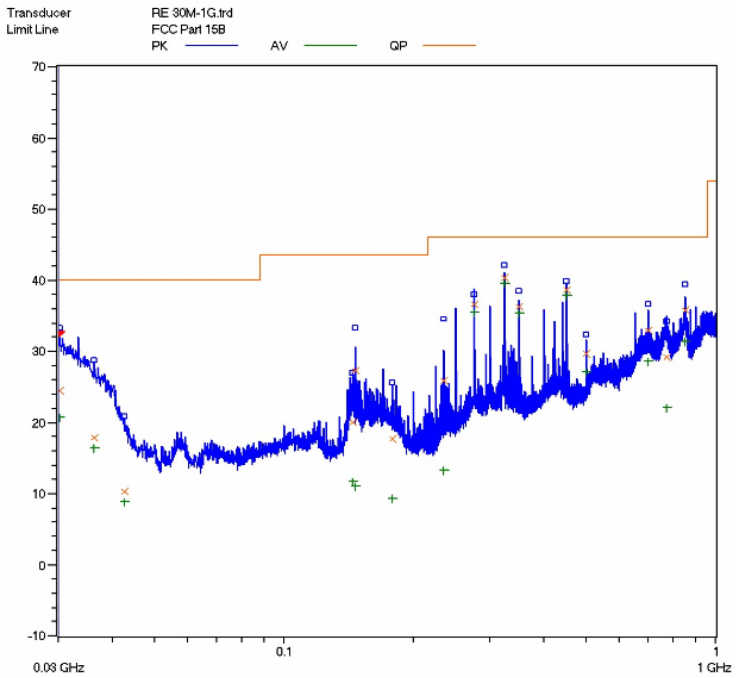
For 30-1000MHz:



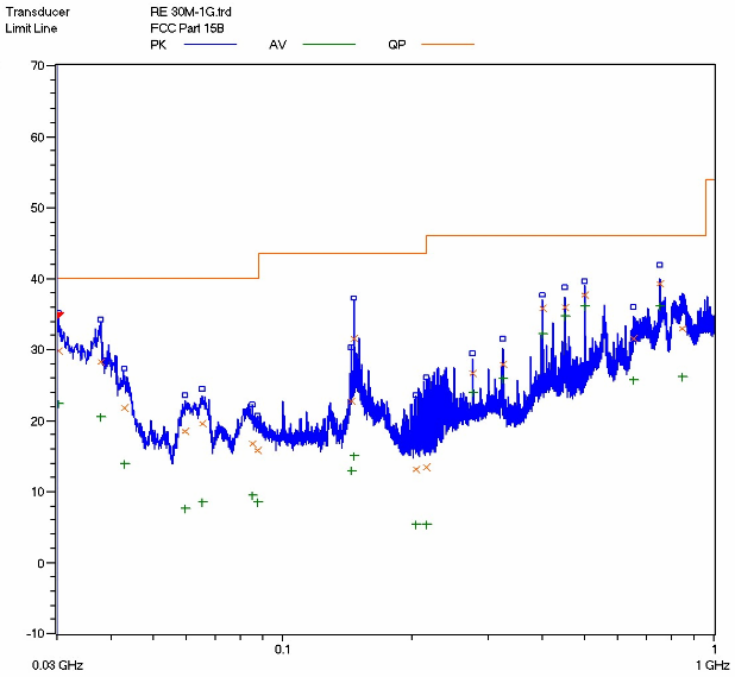
Horizontal: Radiated Emission Test Plot (Peak,maxhold)- Power Adaptor #1(Mass power)



Vertical: Radiated Emission Test Plot (Peak,maxhold) Power Adaptor #1(Mass power)

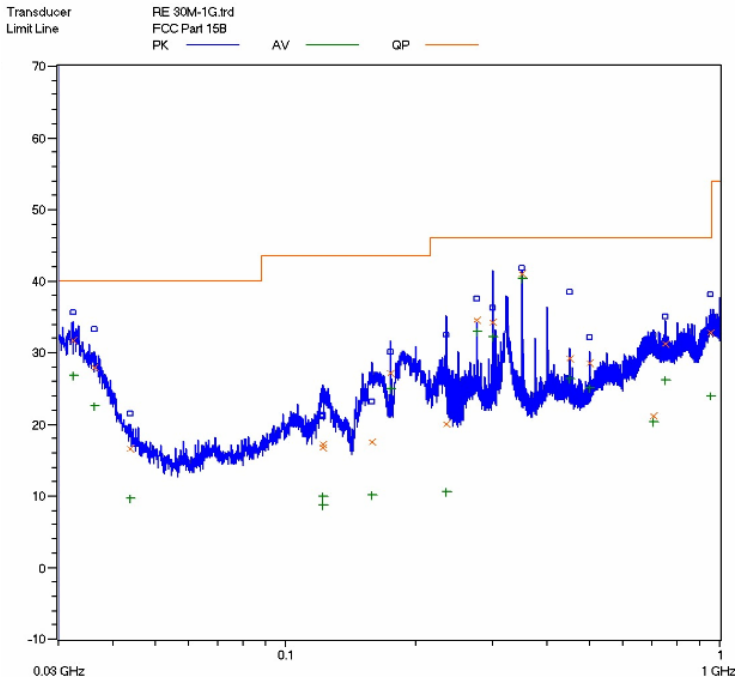


Horizontal: Radiated Emission Test Plot (Peak,maxhold) Power Adaptor #2(UE Power)

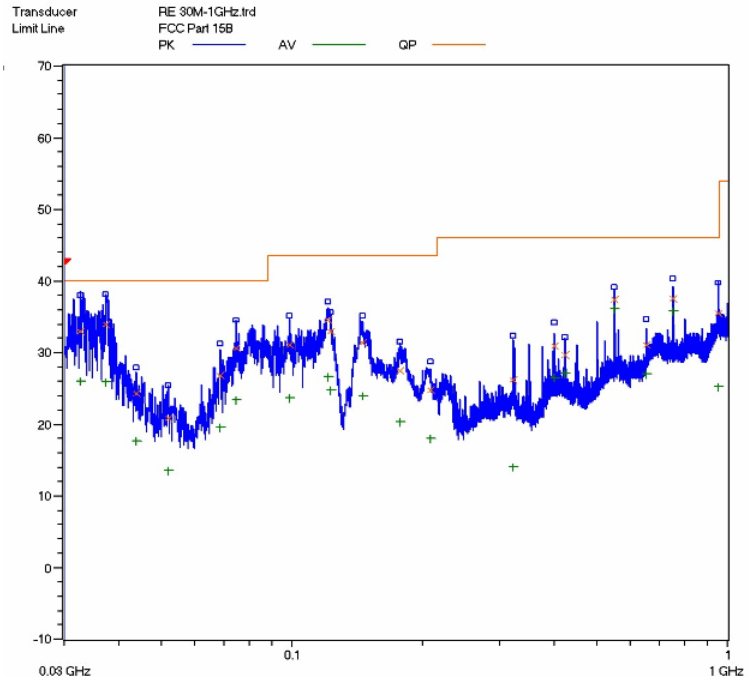


Vertical: Radiated Emission Test Plot (Peak,maxhold) Power Adaptor #2(UE Power)

For PoE mode:



Horizontal:Radiated Emission Test Plot (30MHz-1000MHz)



Vertical:Radiated Emission Test Plot (30MHz-1000MHz)

Test Data:

9KHz to 30MHz:

Test No.#:	Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Reading Level QP (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	/	/	/	/	/	/	/
2	/	/	/	/	/	/	/
3	/	/	/	/	/	/	/
4	/	/	/	/	/	/	/
5	/	/	/	/	/	/	/
6	/	/	/	/	/	/	/

Note:

1. *The field strength is calculated by adding the antenna factor, cable factor. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss.*
2. *For band in 9KHz to 30MHz,Pre-scan has been conducted to determine the worst-case. Power apaptor #1 was selected for the final testing.*
3. *The limits shown are based on quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. the bandwidth of Test Receiver was set at 200Hz in frequency range of 9KHz to 150KHz, 9kHz in the frequency range of 150KHz to 30MHz.*
4. *All emission levels in the frequency range of 9KHz to 30MHz are 20dB below the official limits that are not reported.*

Test Data:
Power Adaptor #1(Mass power):
Below 1GHz:

Frequency (MHz)	*Cable Loss (dB)*	*Antenna Factor (dB)*	*Preamp Factor (dB)*	*Reading Level QP (dBuV/m)*	*Emission Level (dBuV/m)*	*Limit (dBuV/m)*	*Margin (dB)*
Horizontal							
250.000	*0.12*	*11.8*	*/*	*0.12*	*30.8*	*46*	*-15.2*
300.000	*0.16*	*13.3*	*/*	*0.16*	*33.1*	*46*	*-12.9*
350.000	*0.16*	*13.8*	*/*	*0.16*	*42.3*	*46*	*-3.7*
700.000	*0.36*	*20.4*	*/*	*0.36*	*34.5*	*46*	*-11.5*
750.000	*0.39*	*21.1*	*/*	*0.39*	*38.5*	*46*	*-7.5*
950.000	*0.44*	*24*	*/*	*0.44*	*33.3*	*46*	*-12.7*
Vertical							
30.400	*0.02*	*16.7*	*/*	*21.98*	*38.7*	*40*	*-1.3*
36.640	*0.02*	*18.4*	*/*	*12.68*	*31.1*	*40*	*-8.9*
246.000	*0.12*	*11.4*	*/*	*19.48*	*31.0*	*46*	*-15.0*
400.000	*0.16*	*14.7*	*/*	*20.14*	*35.0*	*46*	*-11.0*
450.000	*0.2*	*16.8*	*/*	*17.3*	*34.3*	*46*	*-11.7*
500.000	*0.2*	*17.4*	*/*	*17*	*34.6*	*46*	*-11.4*

Note:

1. *All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 60 s sweep time. A video filter was not used.*
2. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.*
3. *The other emission levels are 20dB below the official limits that are not reported.*

Above 1GHz:

Frequency (GHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
Peak Measurement								
1.170	1.12	24.5	-34.45	-10.89	49.18	74	-24.82	H
1.194	1.20	24.7	-34.45	-14.34	46.01	74	-27.99	H
1.630	1.75	26.8	-33.6	-19.19	42.96	74	-31.04	H
1.170	1.12	24.5	-34.45	-7.6	52.47	74	-21.53	V
1.300	1.45	25.2	-33.6	-10.01	50.24	74	-23.76	V
1.640	1.75	26.8	-33.6	-13.63	48.52	74	-25.48	V
Average Measurement								
1.170	1.12	24.5	-34.45	-24.36	35.71	54	-18.29	H
1.194	1.20	24.7	-34.45	-27.08	33.27	54	-20.73	H
1.630	1.75	26.8	-33.6	-25.26	36.89	54	-17.11	H
1.170	1.12	24.5	-34.45	-24.87	35.20	54	-18.8	V
1.300	1.45	25.2	-33.6	-24.14	36.11	54	-17.89	V
1.640	1.75	26.8	-33.6	-24.95	37.20	54	-16.8	V

Note:

1. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.*
2. *The limits shown are based on Peak value and Average value detector above 1GHz,the bandwidth of Test Receiver was set at 1MHz above 1GHz.*
3. *The other emission levels are 20dB below the official limits that are not reported.*

Power Adaptor #2(UE Power):
Below 1GHz:

Frequency (MHz)	*Cable Loss (dB)*	*Antenna Factor (dB)*	*Preamp Factor (dB)*	*Reading Level QP (dBuV/m)*	*Emission Level (dBuV/m)*	*Limit (dBuV/m)*	*Margin (dB)*
Horizontal							
30.160	*0.02*	*16.7*	*/*	*7.68*	*24.4*	*40*	*-15.6*
274.960	*0.15*	*13.4*	*/*	*23.05*	*36.6*	*46*	*-9.4*
324.960	*0.16*	*13.4*	*/*	*26.74*	*40.3*	*46*	*-5.7*
350.000	*0.16*	*13.8*	*/*	*22.44*	*36.4*	*46*	*-9.6*
450.000	*0.2*	*16.8*	*/*	*21.7*	*38.7*	*46*	*-7.3*
850.000	*0.42*	*22.4*	*/*	*13.08*	*35.9*	*46*	*-10.1*
Vertical							
400.000	*0.16*	*14.7*	*/*	*20.94*	*35.8*	*46*	*-10.2*
450.000	*0.2*	*16.8*	*/*	*19*	*36.0*	*46*	*-10*
500.000	*0.2*	*17.4*	*/*	*20.1*	*37.7*	*46*	*-8.3*
650.000	*0.36*	*20*	*/*	*11.24*	*31.6*	*46*	*-14.4*
750.000	*0.39*	*21.1*	*/*	*17.71*	*39.2*	*46*	*-6.8*
847.200	*0.42*	*22.4*	*/*	*10.28*	*33.1*	*46*	*-12.9*

Note:

1. *All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 60 s sweep time. A video filter was not used.*
2. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.*
3. *The other emission levels are 20dB below the official limits that are not reported.*

Above 1GHz:

Frequency (GHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
Peak Measurement								
1.170	1.12	24.5	-34.45	-12.86	47.21	74	-26.79	H
1.194	1.20	24.7	-34.45	-13.55	46.80	74	-27.2	H
1.630	1.75	26.8	-33.6	-16.55	45.60	74	-28.4	H
1.170	1.12	24.5	-34.45	-11.11	48.96	74	-25.04	V
1.300	1.45	25.2	-33.6	-12.03	48.22	74	-25.78	V
1.640	1.75	26.8	-33.6	-13.43	48.72	74	-25.28	V
Average Measurement								
1.170	1.12	24.5	-34.45	-24.8	35.27	54	-18.73	H
1.194	1.20	24.7	-34.45	-24.25	36.10	54	-17.9	H
1.630	1.75	26.8	-33.6	-26.88	35.27	54	-18.73	H
1.170	1.12	24.5	-34.45	-22.97	37.10	54	-16.9	V
1.300	1.45	25.2	-33.6	-24.92	35.33	54	-18.67	V
1.640	1.75	26.8	-33.6	-25.95	36.20	54	-17.8	V

Note:

1. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.*
2. *The limits shown are based on Peak value and Average value detector above 1GHz,the bandwidth of Test Receiver was set at 1MHz above 1GHz.*
3. *The other emission levels are 20dB below the official limits that are not reported.*

PoE Mode/Below 1GHz:

Frequency (MHz)	*Cable Loss (dB)*	*Antenna Factor (dB)*	*Preamp Factor (dB)*	*Reading Level QP (dBuV/m)*	*Emission Level (dBuV/m)*	*Limit (dBuV/m)*	*Margin (dB)*
Horizontal							
32.480	*0.02*	*17.3*	*/*	*14.48*	*31.8*	*40*	*-8.2*
274.960	*0.15*	*13.4*	*/*	*20.95*	*34.5*	*46*	*-11.5*
300.000	*0.16*	*13.3*	*/*	*20.74*	*34.2*	*46*	*-11.8*
350.000	*0.16*	*13.8*	*/*	*27.04*	*41.0*	*46*	*-5*
750.000	*0.39*	*21.1*	*/*	*9.81*	*31.3*	*46*	*-14.7*
954.240	*0.44*	*24.1*	*/*	*8.36*	*32.9*	*46*	*-13.1*
Vertical							
32.720	*0.02*	*17.3*	*/*	*15.68*	*33.0*	*40*	*-7*
37.360	*0.02*	*18.4*	*/*	*15.58*	*34.0*	*40*	*-6*
550.000	*0.3*	*18.5*	*/*	*18.6*	*37.4*	*46*	*-8.6*
650.000	*0.36*	*20*	*/*	*10.94*	*31.3*	*46*	*-14.7*
750.000	*0.39*	*21.1*	*/*	*16.11*	*37.6*	*46*	*-8.4*
954.160	*0.44*	*24.1*	*/*	*10.96*	*35.5*	*46*	*-10.5*

Note:

1. *All readings are quasi-peak unless stated otherwise, using a QPA bandwidth of 120kHz, with a 60 s sweep time. A video filter was not used.*
2. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.*
3. *The other emission levels are 20dB below the official limits that are not reported.*

PoE Mode/Above 1GHz:

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB)	Preamp Factor (dB)	Reading Level (dBuV/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarization (H/V)
Peak Measurement								
1.170	1.12	24.5	-34.45	-11.9	48.17	74	-25.83	H
1.194	1.20	24.7	-34.45	-13.13	47.22	74	-26.78	H
1.630	1.75	26.8	-33.6	-15.26	46.89	74	-27.11	H
1.170	1.12	24.5	-34.45	-13.8	46.27	74	-27.73	V
1.300	1.45	25.2	-33.6	-12.98	47.27	74	-26.73	V
1.640	1.75	26.8	-33.6	-12.65	49.50	74	-24.5	V
Average Measurement								
1.170	1.12	24.5	-34.45	-27.29	32.78	54	-21.22	H
1.194	1.20	24.7	-34.45	-25.21	35.14	54	-18.86	H
1.630	1.75	26.8	-33.6	-25.92	36.23	54	-17.77	H
1.170	1.12	24.5	-34.45	-22.97	37.10	54	-16.9	V
1.300	1.45	25.2	-33.6	-24.15	36.10	54	-17.9	V
1.640	1.75	26.8	-33.6	-24.76	37.39	54	-16.61	V

Note:

1. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Emission Level =Reading Level + Antenna Factor + Cable Loss –Preamplifier Factor.*
2. *The limits shown are based on Peak value and Average value detector above 1GHz,the bandwidth of Test Receiver was set at 1MHz above 1GHz.*
3. *The other emission levels are 20dB below the official limits that are not reported.*

Test Equipment List:

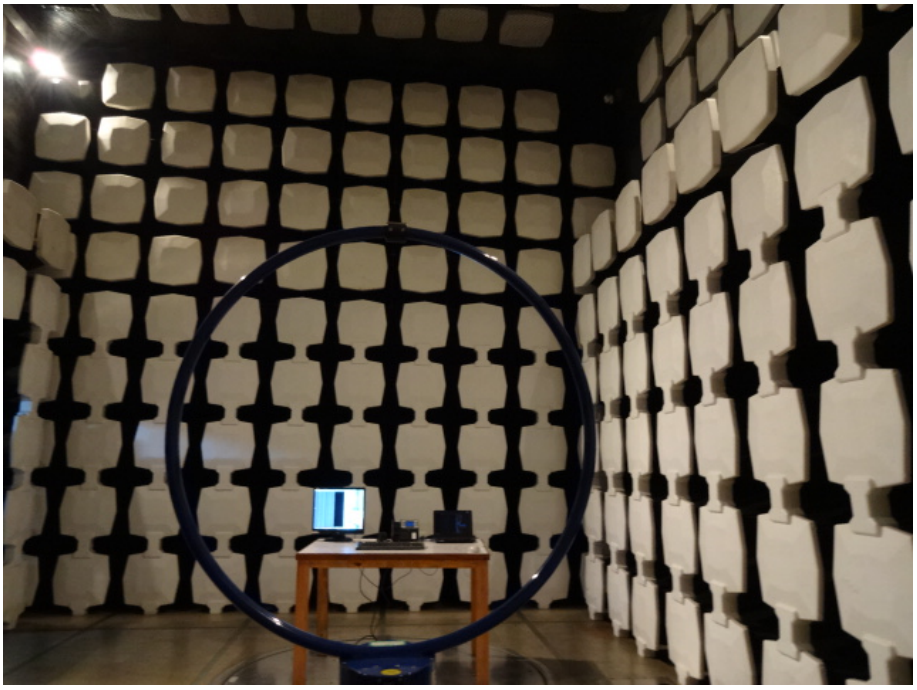
Test Equipment	*Model No.*	*Manufacturer*	*Serial No.*	*Last Cal.*	*Cal. Due*
Receiver	*SMR4503*	*SCHAFFNER*	*11725*	*2013.07.08*	*2014.07.07*
HF Loop Antenna	*HLA6120*	*TESEQ*	*26348*	*2013.09.27*	*2014.09.26*
Double-ridged Wave guide horn	*3115*	*ETS*	*6587*	*2013.08.02*	*2014.08.01*
Microwave system amplifier	*83017A*	*Agilent*	*MY39500438*	*2013.07.11*	*2014.07.10*
Biconilog Antenna	*3142C*	*ETS*	*00042672*	*2013.09.28*	*2014.09.27*
Band-pass Filter	*BRM50702*	*Micro-Tronic*	*S/N-030*	*2013.11.30*	*2014.11.29*
Spectrum Analyzer	*FSP30*	*R&S*	*100755*	*2013.11.30*	*2014.11.29*
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

TESTED BY: Daomen _____ ***GALANZ***

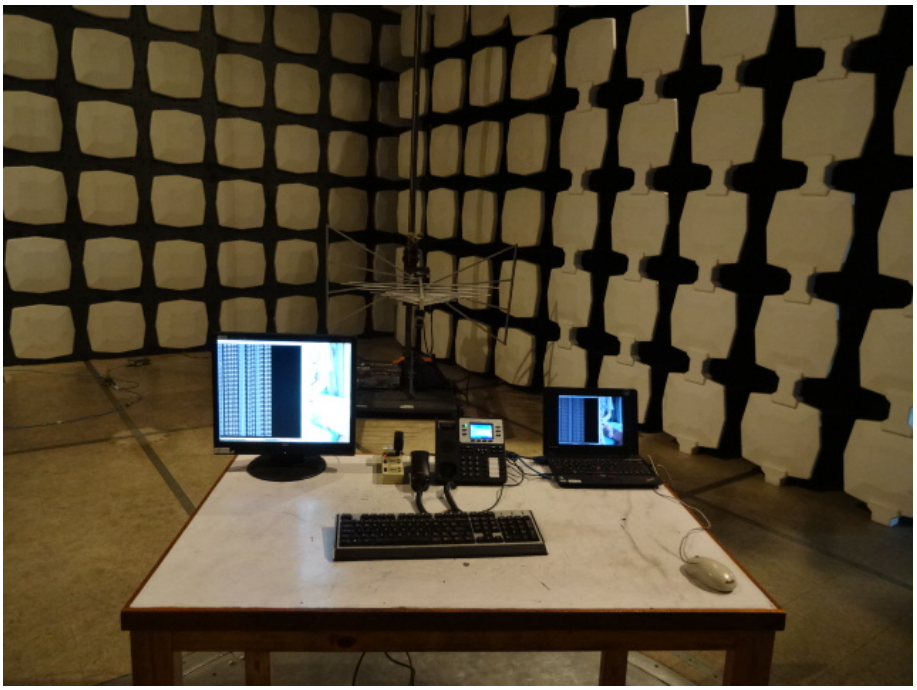
ENGINEER ***COMPANY NAME***

REVIEWED BY: _____ ***ECMG***

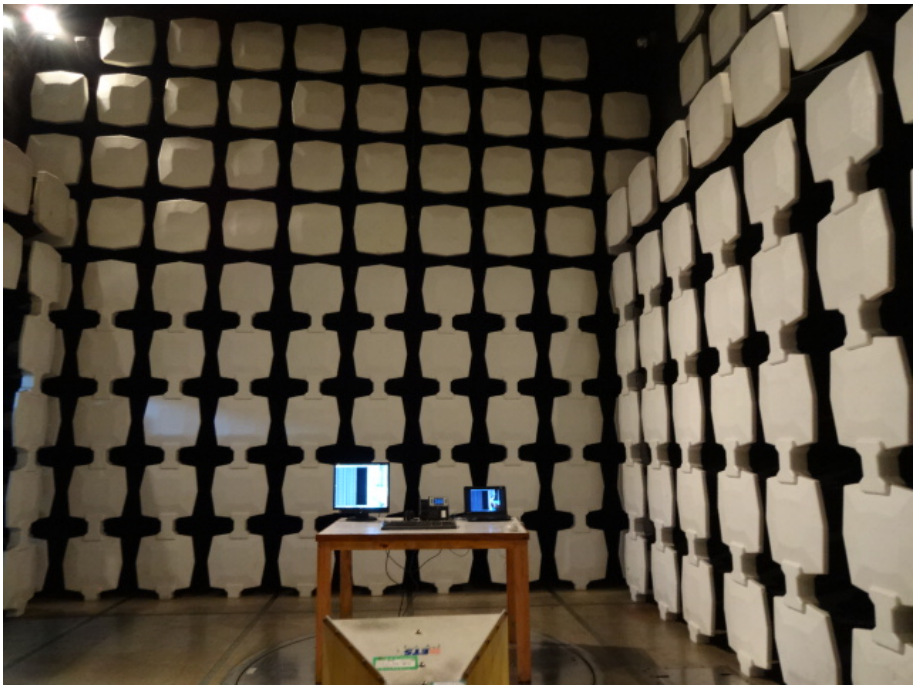
SENIOR ENGINEER ***COMPANY NAME***



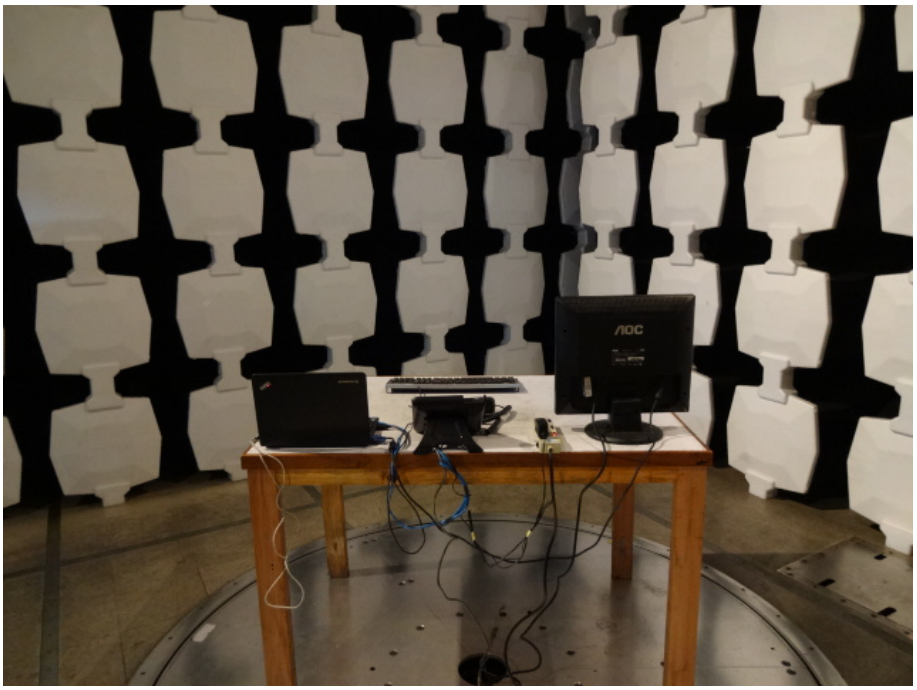
Radiated Emission Test Set-up (9KHz-30MHz)



Radiated Emission Test Set-up (Below 1GHz)



Radiated Emission Test Set-up (Above 1GHz)



Radiated Emission Test Set-up (Rear View)