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EMI Test Report

On Model Name: IP Multimedia Phone

Model Number: GXV3174

Prepared for Grandstream Networks,Inc

FCC ID Number: YZZGXV3174

According to FCC Part 15 (2009), Subpart B

Test Report #:	SHE-1011-10533-FCC ID
Prepared by:	May Wang
Reviewed by:	Jawen Yin
QC Manager:	Swall Zhang

Test Report Released by: Swall Zhang December 2, 2010

Swall Zhang Date

Test Location

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

Test Site Location : Guangdong Galanz Enterprise Co. Ltd

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*

Guangdong Galanz Enterprise Co. Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements)for the Competence of Testing Laboratories.

- *FCC – Registration No.: 580210*

Guangdong Galanz Enterprise Co. Ltd., 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.

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List Attached Files

Exhibit Type	File Description	File Name
Test Report	Test Report	YZZGXV3174 _Test report.pdf
Operation Description	Technical Description	YZZGXV3174_operation description.pdf
External Photos	External Photos	YZZGXV3174_External Photos
Internal Photos	Internal Photos	YZZGXV3174_Internal Photos
Block Diagram	Block Diagram	YZZGXV3174_Block Diagram.pdf
Schematics	Circuit Diagram	YZZGXV3174 _Schematics.pdf
ID Label/Location	Label and Location	YZZGXV3174 _Label & Location.pdf
User Manual	User Manual	YZZGXV3174 _User Manual.pdf
Test setup photos	Test setup photos	YZZGXV3174 _Test Setup Photos

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT).Without the permission of EMC Compliance Management Group 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 data 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 Data

Test Sample	*: IP Multimedia Phone*
Model Numbers	*: GXV3174*
Model Tested	*: GXV3174*
Date Tested	*: November 22, 2010*
Applicant	*: Grandstream Networks,Inc*
	: 5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China
Telephone	*: +86-755-26014600*
Fax	*: +86-755-26014601*
Manufacturer	*: Grandstream Networks,Inc*
	: 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 number GXV3174 (referred to as the EUT in this report) is a IP Multimedia Phone.

Technical specifications of EUT as below:

Parameter		***Range***
Basic parameters	*Rated voltage*	*DC12V*
	Rated Current	*1.5A*
I/O Port	*Internet Port x 2*	*One connected to PC,other connected to internet.*
	USB port x2	*Connected to USB device(for example with USB interface storage device,mouse,keyboard etc.)*
	Earphone port	*Connected to earphone*
	Video port	*Connected to other video display device*
	SD CARD	*inserted SD Storage device*
AC/DC Adapter info	*Input*	*AC 100-240V,50/60Hz,0.55A*
	Output	*12VDC,1.5A*
	Model	*N/A*

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

Test Summary

The Electromagnetic Compatibility requirements on model GXV3174 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 mode from all possible combinations between available mode.

Following the worst-case mode was selected for final test as listed below.

1) *Connected EUT to PC by a RJ 45 signal line, also ping "192.168.0.163 –t" to EUT.*
2) *Turn off WIFI function of EUT,connected EUT to other IP call and let EUT keep a video call link with other IP call.*

The final testing shall be performed at 1) and 2) opetating mode.

EUT exercise Software

No test 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 EMC Compliance Management Group test personnel.

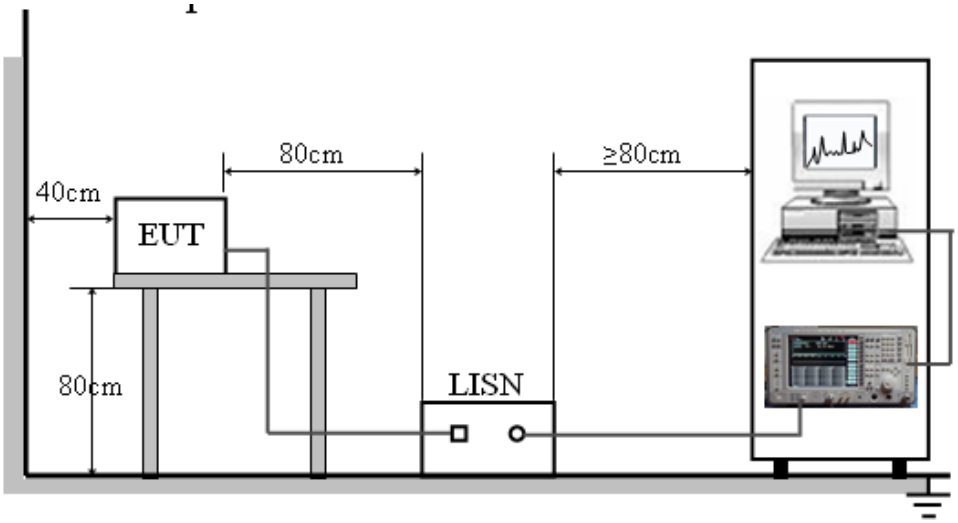
Test System Details

EUT	
Model Number:	GXV3174
Model Tested:	GXV3174
Description:	IP Multimedia Phone
Input:	AC 120V/60Hz
Manufacturer:	Grandstream Networks,Inc

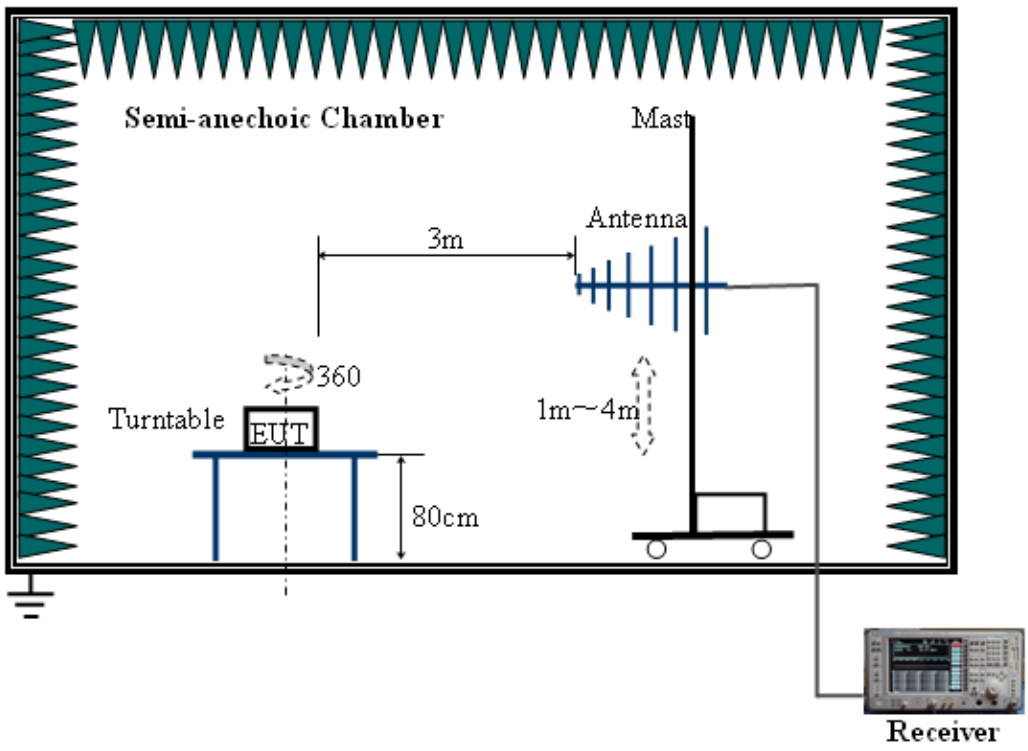
Support Equipment			
Description	Model Number	**Serial Number**	**Manufacturer**
Notebook	NC4000	CNU4122BCL	HP
AC/DC Adapter Of Notebook	PPP009H	239427-003	HP

Cable Description					
Description	**From**	**to**	**Length (Meters)**	**Shielded (Y/N)**	**Ferrite (Y/N)**
AC/DC Adapter Cord Of Notebook	Adapter	Notebook	1.6	N	Y
	Notebook	AC Plug	1.2	N	N
AC/DC Adapter of EUT	EUT	Plug	1.6	N	N
Note:The "EUT" means "IP Multimedia Phone".					

Testing System configuration



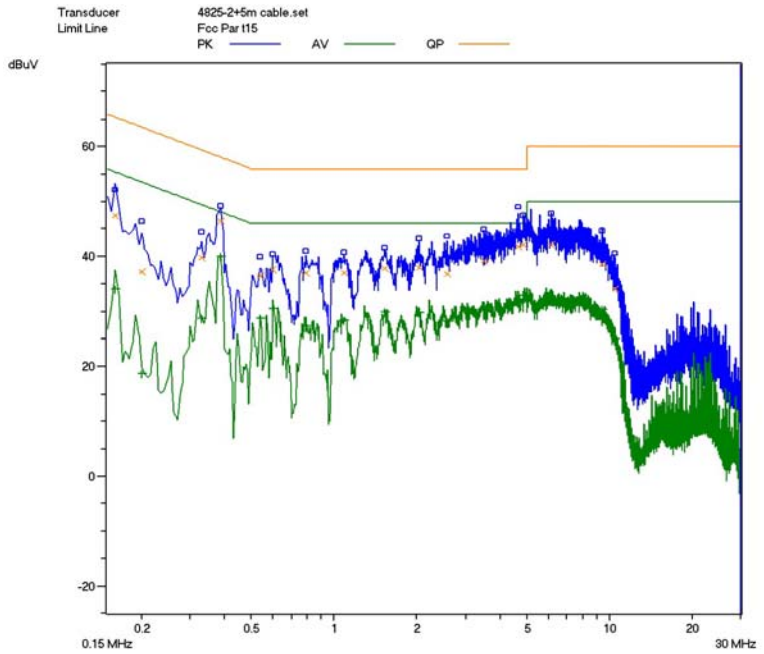
Block Diagram of Radiated Emission Test



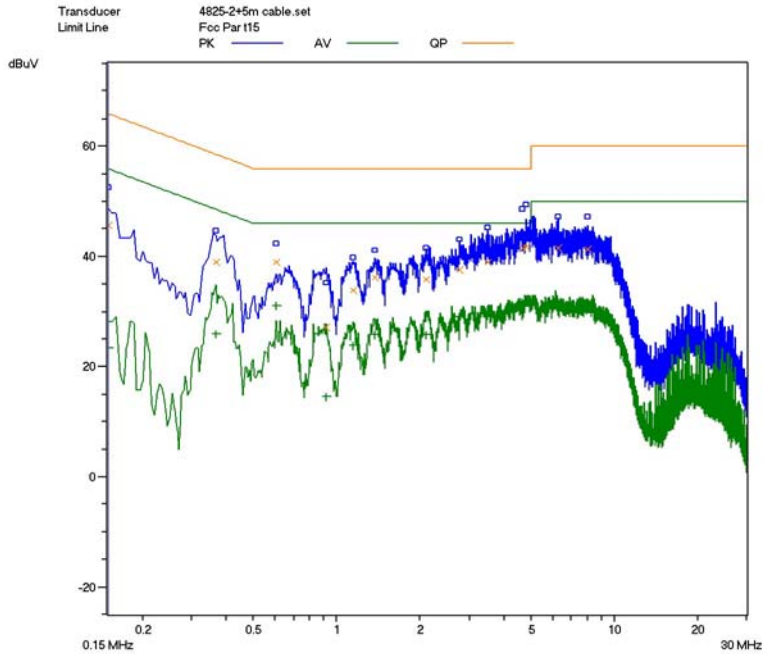
Radiated Emission Test set up photograph

ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

CLIENT:	Grandstream Networks,Inc	**TEST STANDERD:**	FCC Part 15,Class B
MODEL NUMBERS:	GXV3174	**PRODUCT:**	IP Multimedia Phone
MODEL TESTED:	GXV3174	**EUT DESIGNATION:**	Commercial and Residential use
TEMPERATURE:	21°C	**HUMIDITY:**	56%
ATM PRESSURE:	101kPa	**GROUNDING:**	None
TESTED BY:	May Wang	**DATE OF TEST:**	November 23, 2010
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.		
DESCRIPTION OF TEST MODE	Refer to test mode justification.		
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 EMC Compliance Management Group test personnel.		
M. UNCERTAINTY:	Freq. ± 2x10-7 x Center Freq., Amp ± 2.6 dB		



Line L Conducted Emission Graph



Line N Conducted Emission Graph

Conducted Emission Test Data:

Line	*Frequency (MHz)*	*Corrected QP Level (dBµV)*	*Limits QP (dBuV)*	*Margin QP (dB)*	*Frequency (MHz)*	*Corrected AVE Level (dBµV)*	*Limits AVE (dBµV)*	*Margin AVE (dB)*
L	*0.1600*	*46.5*	*65.4*	*-18.9*	*0.1600*	*32.0*	*55.4*	*-23.4*
L	*0.2000*	*37.5*	*63.5*	*-26.0*	*0.2000*	*18.5*	*53.5*	*-35.0*
L	*0.3300*	*35.7*	*59.4*	*-23.7*	*0.3300*	*28.7*	*49.4*	*-20.7*
N	*0.1500*	*45.2*	*65.9*	*-20.7*	*0.1500*	*23.5*	*55.9*	*-32.4*
N	*0.3650*	*36.5*	*58.6*	*-22.1*	*0.3650*	*26.1*	*48.6*	*-22.5*
N	*0.6050*	*38.0*	*56.0*	*-18.0*	*0.6050*	*31.5*	*46.0*	*-14.5*

Note :
1) All readings are using a bandwidth of 9 kHz, with a 500 ms sweep time. A video filter was not use.
2) "QP" means "Quasi-Peak" values, "AV" means "Average" values.
3) The other reading are too low against official limits that are not be recorded.

Test Equipment List:

Test Equipment	*Model No.*	*Manufacturer*	*Serial No.*	*Last Cal.*	*Cal. Interval*
Receiver	*SMR4503*	*SCHAFFNER*	*11725*	*2010.07.08*	*2011.07.08*
Line impedance stabilization network	*4825/2*	*ETS*	*1161*	*2010.07.08*	*2011.07.08*

Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.

SIGNED BY: _____ ***REVIEWED BY:*** _____

ENGINEER ***SENIOR ENGINEER***

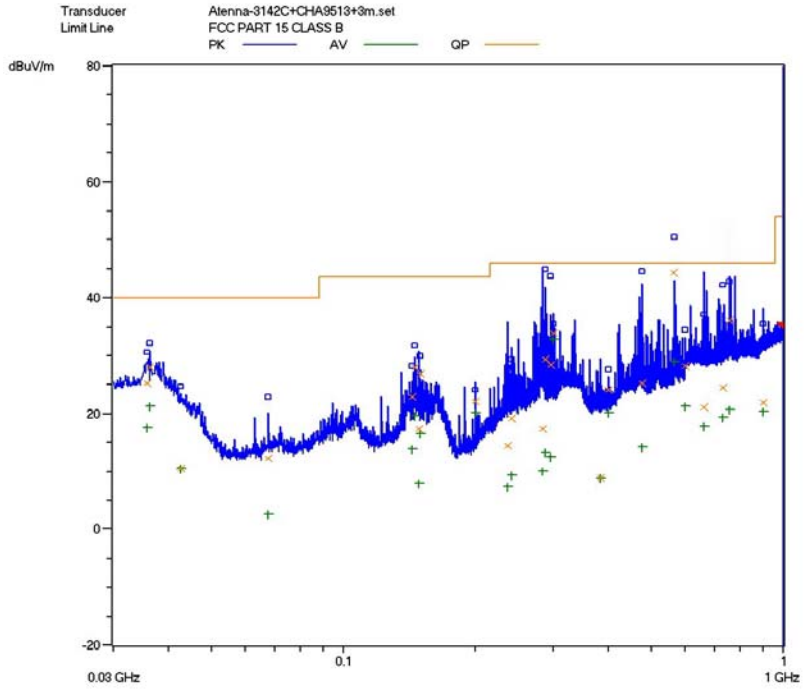
Conducted Emission Test Set-up

ATTACHMENT 2 – RADIATED EMISSION MEASUREMENT

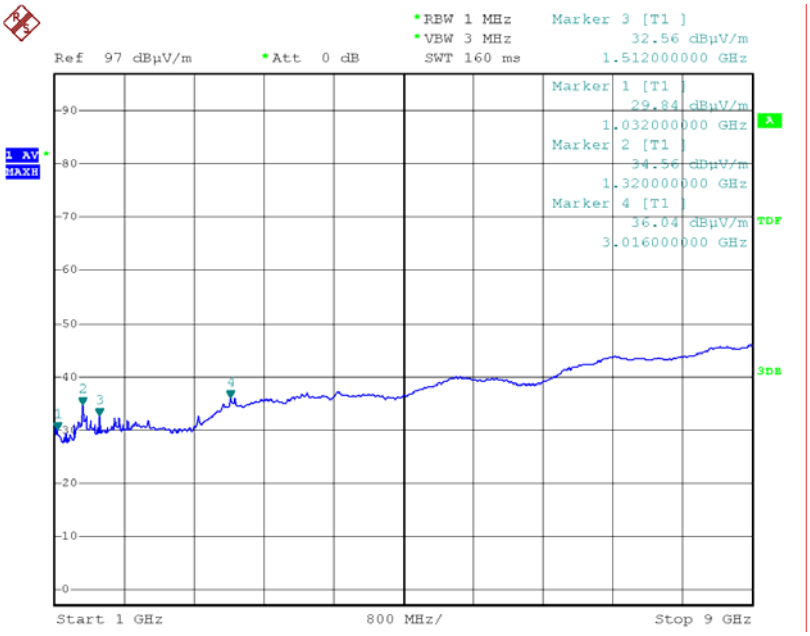
CLIENT:	Grandstream Networks,Inc	**TEST STANDERD:**	FCC Part 15,Class B
MODEL NUMBERS:	GXV3174	**PRODUCT:**	IP Multimedia Phone
EUT MODEL:	GXV3174	**EUT DESIGNATION:**	Commercial and Residential use
TEMPERATURE:	23°C	**HUMIDITY:**	47%RH
ATM PRESSURE:	101.0kPa	**GROUNDING:**	None
TESTED BY:	May Wang	**DATE OF TEST:**	November 23, 2010
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 frequency range of 30 MHz to 1GHz and Average in the frequency range of 1GHz to 9GHz at an Anechoic chamber. The following data lists the significant emission frequencies, measured levels, correction factors (including cable and antenna correction factors), and the corrected readings 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	Refer to test mode justification.		
TESTED RANGE:	The EUT highest operated frequency is 810MHz, so test frequency range is 30MHz to 9GHz		
TEST VOLTAGE:	AC 120V/60Hz		

Continue on to next page...

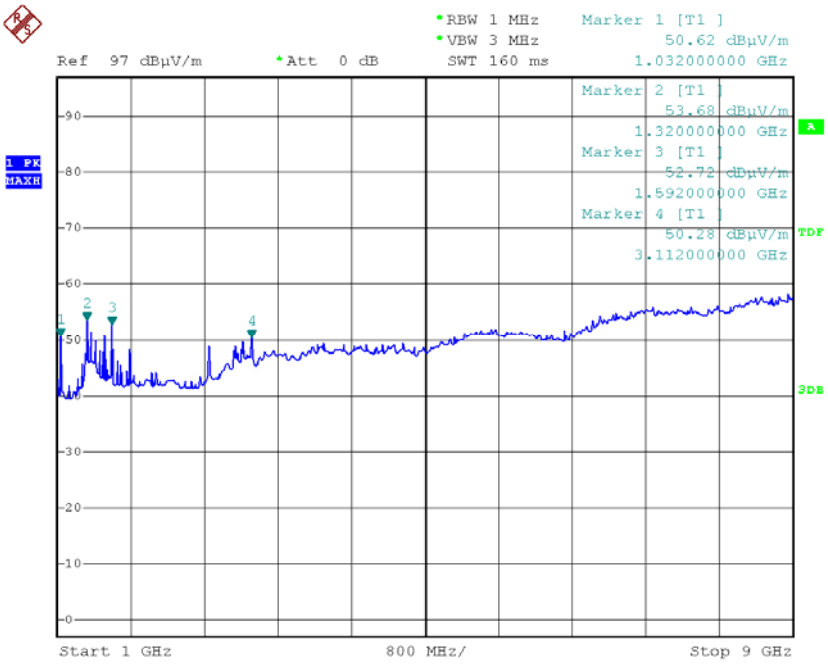
RESULTS:	The EUT meet the requirements of test reference for radiated emissions. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.
M. UNCERTAINTY:	Freq. ± 2x10-7 x Center Freq., Amp ± 2.6 dB



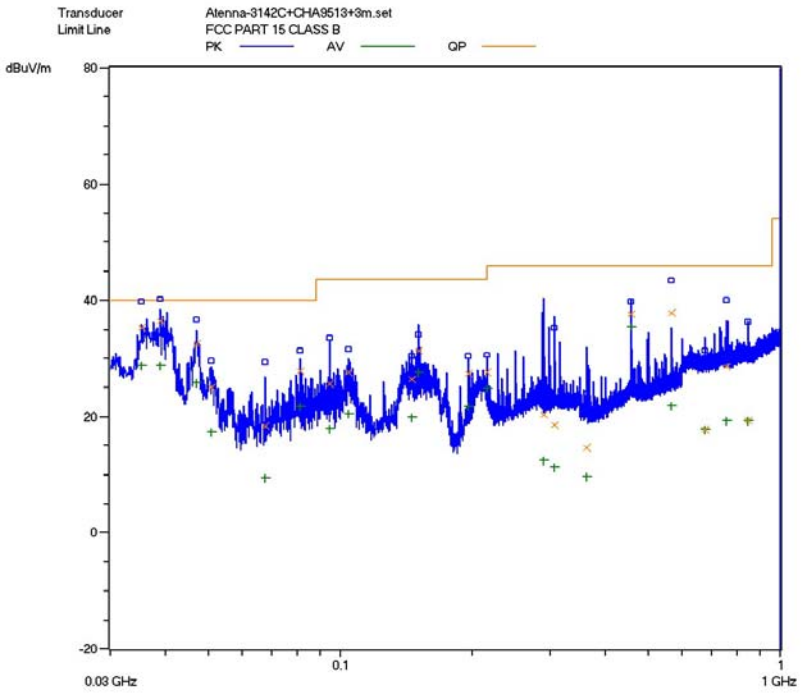
Horizontal Radiated Emission (Below 1GHz)



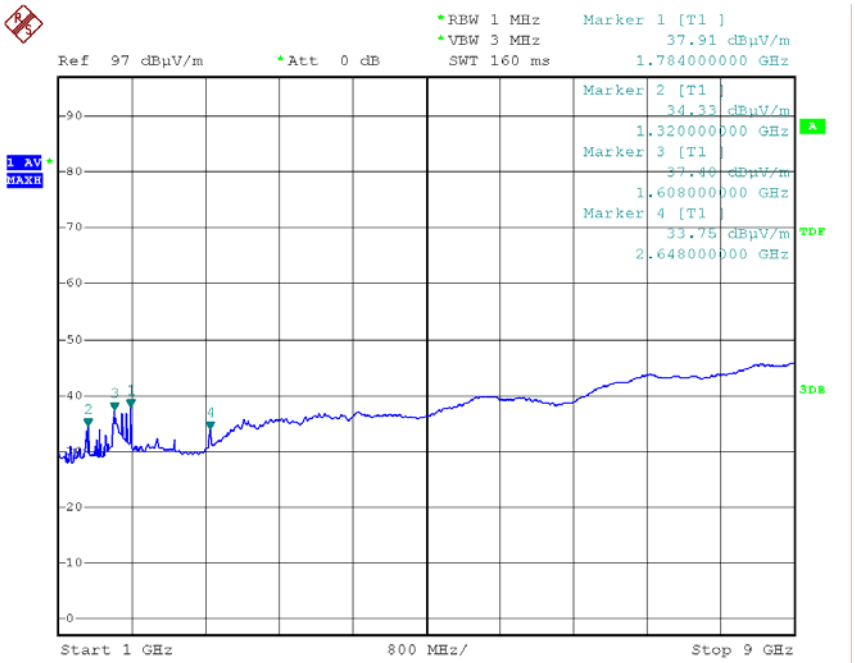
Horizontal Radiated Emission—AV Detector (Above 1GHz)



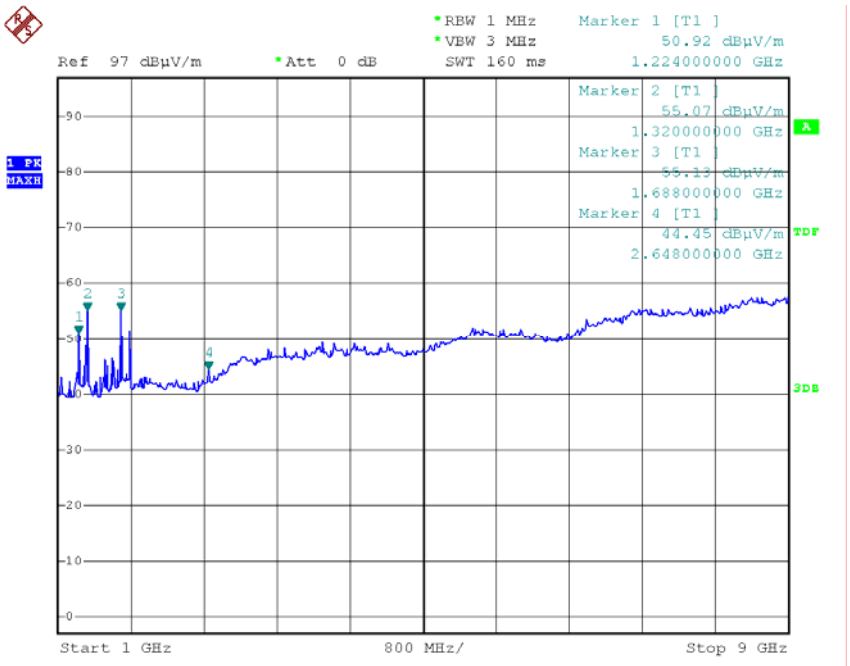
Horizontal Radiated Emission—Peak Detector (Above 1GHz)



Vertical Radiated Emission (Below 1GHz)



Vertical Radiated Emission—AV Detector (Above 1GHz)



Vertical Radiated Emission—Peak Detector (Above 1GHz)

Radiated Emission Test Data:

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							
35.7600	*0.35*	*17.9*	*25.50*	*17.75*	*25.0*	*40.0*	*-15.0*
36.1600	*0.35*	*18.4*	*26.80*	*19.05*	*27.1*	*40.0*	*-12.9*
567.0400	*1.61*	*18.5*	*25.50*	*36.11*	*41.5*	*46.0*	*-4.5*
729.0400	*2.00*	*21.1*	*26.85*	*20.25*	*24.0*	*46.0*	*-22.0*
756.0800	*2.00*	*21.1*	*26.85*	*33.35*	*37.1*	*46.0*	*-8.9*
899.3600	*2.00*	*23.2*	*26.95*	*20.95*	*22.7*	*46.0*	*-23.3*
Vertical							
35.3600	*0.35*	*17.9*	*25.50*	*27.75*	*35.0*	*40.0*	*-5.0*
38.9600	*0.35*	*18.4*	*26.80*	*25.45*	*33.5*	*40.0*	*-6.5*
567.0400	*1.61*	*18.5*	*25.50*	*32.11*	*37.5*	*46.0*	*-8.5*
675.1200	*1.84*	*20.1*	*30.80*	*8.74*	*17.6*	*46.0*	*-28.4*
756.1600	*2.00*	*21.1*	*26.85*	*24.25*	*28.0*	*46.0*	*-18.0*
846.4800	*2.00*	*23.2*	*26.95*	*16.65*	*18.4*	*46.0*	*-27.6*

Note: 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.

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								
3112.00	2.57	31.5	32.1	54.25	52.28	74	-21.72	H
1592.00	1.71	26.1	33.6	46.96	52.75	74	-21.25	H
1320.00	1.39	23.9	33.6	45.45	53.76	74	-20.24	H
1032.00	1.39	23.9	33.6	42.31	50.62	74	-23.38	H
1200.50	1.39	23.9	33.6	39.19	47.50	74	-26.50	H
1600.00	1.71	26.1	33.6	47.71	53.50	74	-20.50	H
2648.00	2.3	29.3	33.0	43.05	44.45	74	-29.55	V
1688.00	1.71	26.1	33.6	49.37	55.16	74	-18.84	V
1320.00	1.39	23.9	33.6	45.74	54.05	74	-19.95	V
1224.00	1.39	23.9	33.6	44.61	52.92	74	-21.08	V
1500.50	1.71	26.1	33.6	45.71	51.50	74	-22.50	V
1300.50	1.39	23.9	33.6	42.69	51.00	74	-23.00	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: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor –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.*

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)
Average Measurement								
3016.00	2.57	31.5	32.1	37.01	35.04	54	-18.96	H
1320.00	1.39	23.9	33.6	25.95	34.26	54	-19.74	H
1032.00	1.39	23.9	33.6	21.39	29.70	54	-24.30	H
1512.00	1.71	26.1	33.6	26.71	32.50	54	-21.50	H
1600.00	1.71	26.1	33.6	28.26	34.05	54	-19.95	H
1200.00	1.39	23.9	33.6	24.19	32.50	54	-21.50	H
2648.00	2.3	29.3	33.0	32.35	33.75	54	-20.25	V
1608.00	1.71	26.1	33.6	29.61	35.40	54	-18.60	V
1320.00	1.39	23.9	33.6	26.02	34.33	54	-19.67	V
1784.00	1.71	26.1	33.6	32.01	37.80	54	-16.20	V
1550.00	1.71	26.1	33.6	29.71	35.50	54	-18.50	V
1300.00	1.39	23.9	33.6	25.19	33.50	54	-20.50	V

Note:

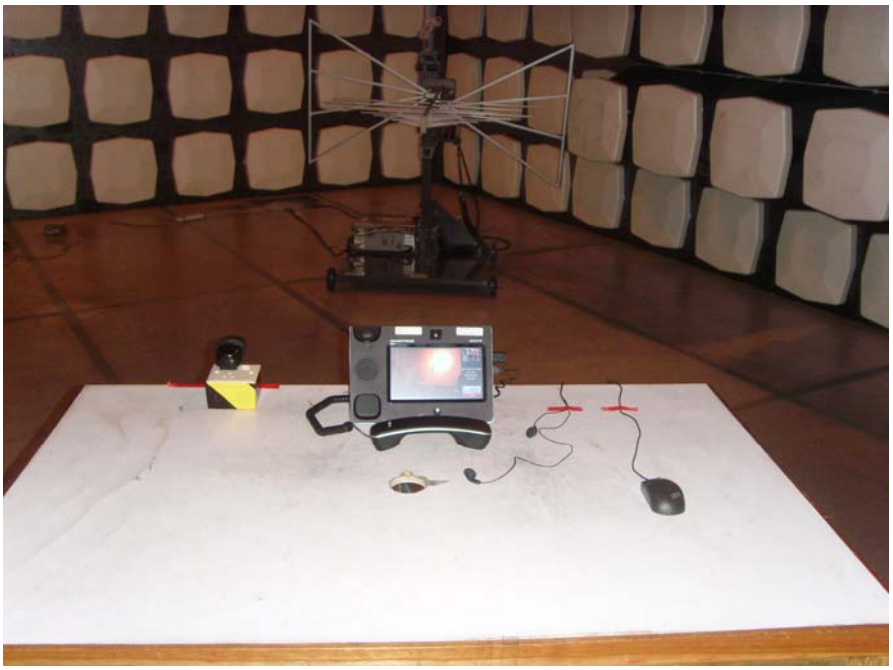
1) *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level =Receiver Reading + Antenna Factor + Cable Factor –Preamplifier Factor.*
2) *The limits shown are based on Peak value and Average 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:

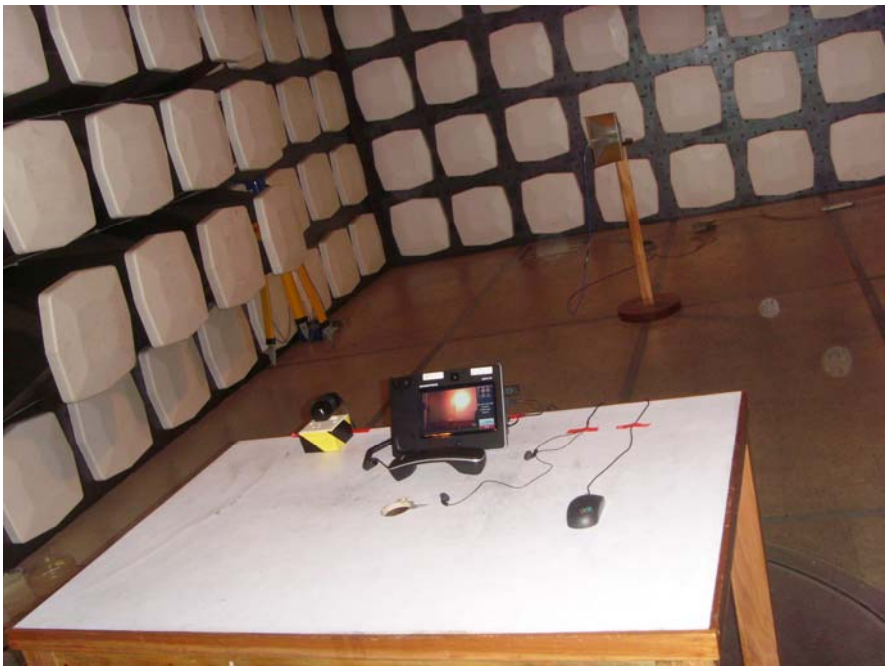
Test Equipment	*Model No.*	*Manufacturer*	*Serial No.*	*Last Cal.*	*Cal. Due*
Receiver	*SMR4503*	*SCHAFFNER*	*11725*	*2010.07.08*	*20110.07.07*
Double-ridged Wave guide horn	*3115*	*ETS*	*6587*	*2010.08.02*	*2011.08.01*
Microwave system amplifier	*83017A*	*Agilent*	*MY39500438*	*2010.07.11*	*2011.07.10*
Biconilog Antenna	*3142C*	*ETS*	*00042672*	*2010.09.28*	*2011.09.27*
Band-pass Filter	*BRM50702*	*Micro-Tronic*	*S/N-030*	*2010.11.30*	*2011.11.29*
Spectrum Analyzer	*FSP30*	*R&S*	*100755*	*2010.11.30*	*2011.11.29*
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: _____ ***REVIEWED BY:*** _____

ENGINEER ***SENIOR ENGINEER***



Radiated Emission Test Set-up(Below 1GHz)



Radiated Emission Test Set-up(Above 1GHz)