FCC TEST REPORT

47 CFR FCC Part 15 Subpart B

FCC ID.....:	**S6N-IP-100HD**
Report Reference No.....:	A1301096026-F
Compiled by (position+printed name+signature)..:	File administrators Tony Li
Supervised by (position+printed name+signature)..:	Technique principal Robin Fang
Approved by (position+printed name+signature)..:	Manager James Wu
Date of issue.....:	Feb 25, 2013
Representative Laboratory Name .:	Shenzhen CTL Electron Technology Co., Ltd.
Address .....:	Room 405, The 3# of 4th Building, Zhuguang No.2 Industrial District, Xili Town, Nanshan, Shenzhen, China
Testing Laboratory Name .....:	DTT Services Co.,Ltd
Address .....:	1F,2 Block,Jiaquan Building,Guanlan High-tech Park,Bao'an District, Shenzhen,Guangdong,China. 518110
Applicant's name.....:	**GlobalSat International Technology Ltd.**
Address .....:	Flat/RM 6, 25/F, 6 Shing Yip Street, Kwun Tong, KL, Hong Kong
Test specification:	
Standard .....:	**47 CFR FCC Part 15 Subpart B - Unintentional Radiators**
	ANSI C63.4: 2009
TRF Originator.....:	Shenzhen CTL Electron Technology Co., Ltd.
Master TRF.....:	Dated 2012-06

Test item description .....:	IPTV Receiver
Trade Mark .....:	/
Manufacturer .....:	Gotech International Technology Ltd
Model/Type reference.....:	IP-100HD
Listed Models .....:	/
Result.....:	**Positive**

TEST REPORT

Test Report No. :	A1301096026-F	Feb 25, 2013 Date of issue

Equipment under Test	:	IPTV Receiver
Model /Type	:	IP-100HD
Listed Models	:	/
Applicant	:	**GlobalSat International Technology Ltd.**
Address	:	Flat/RM 6, 25/F, 6 Shing Yip Street, Kwun Tong, KL, Hong Kong
Manufacturer		**Gotech International Technology Ltd**
Address	:	66 Yongda Road, Hongqi Town, Jinwan District, Zhuhai, Guangdong Province, China

Test Result according to the standards on page 4:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators

ANSI C63.4: 2009 – 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 40GHz

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Jan 28,2013
Testing commenced on	:	Jan 28,2013
Testing concluded on	:	Feb 25, 2013

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage	:	●	120V / 60 Hz	○	115V / 60Hz
		○	12 V DC	○	24 V DC
		○	Other (specified in blank below)		

/

2.3. Short description of the Equipment under Test (EUT)

IPTV Receiver

For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.4. EUT operation mode

The EUT has been tested under typical operating condition.

2.5. Related Submittal(s) / Grant (s)

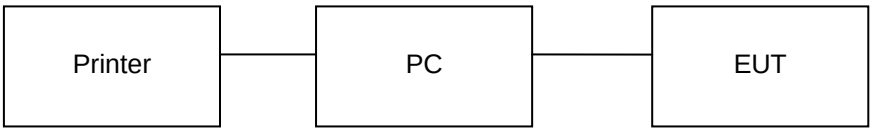
This submittal(s) (test report) is intended for **FCC ID: S6N-IP-100HD filing to** comply with the FCC Part 15, Subpart B Rules.

2.6. Modifications

No modifications were implemented to meet testing criteria.

2.7. Configuration of Tested System

Configuration of Tested System



Equipment Used in Tested System

No.	Equipment	Manufacturer	Model No.	Serial No.	Notes
1	PC	DELL	VOSTRO 2420	CNG8390Q6X	DOC
2	Printer	HP	Laserjet 1007	Laserjet 1007	DOC

2.8. NOTE

1. The functions of the EUT are listed as below:

	Test Standards	Reference Report
LAN Port	FCC Part 15 Subpart B	A1301096026-F

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

DTT Services Co.,Ltd
1F,2 Block,Jiaquan Building,Guanlan High-tech Park,Bao'an District, Shenzhen,Guangdong,China. 518110

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2003) and CISPR Publication 22.

3.2. Test Facility

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

IC Registration No.: 9783A

The 3m alternate test site of DTT Services Co.,Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Aug, 2011.

FCC-Registration No.: 214666

DTT Services 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 is maintained in our files. Registration 214666, Sep 19, 2011.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the DTT Services Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for DTT Services Co.,Ltd is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.39 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.5. Equipments Used during the Test

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI TEST RECEIVER	Rohde & Schwarz	ESCI	100106	2012/4/23
2	ARTIFICIAL MAINS	Rohde & Schwarz	ESH2-Z5	100028	2012/4/23
3	PULSE LIMITER	Rohde & Schwarz	ESHSZ2	100044	2012/4/23
4	EMI TEST SOFTWARE	Audix	Z3	N/A	----

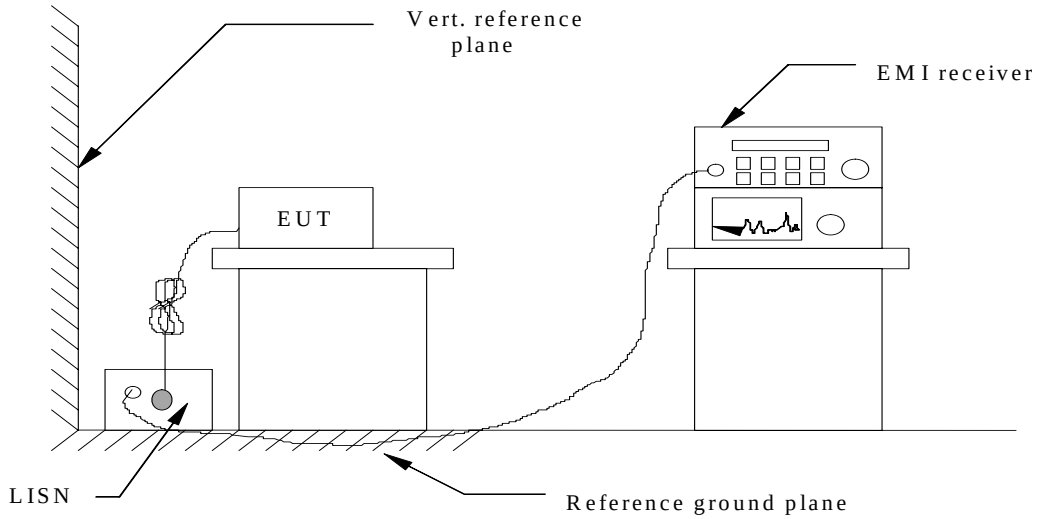
Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	539	2012/4/23
2	EMI TEST OFTWARE	Audix	Z3	N/A	----
3	RF TEST PANEL	Rohde & Schwarz	TS / RSP	335015/ 0017	2012/4/23
4	TURNTABLE	ETS	2088	2149	2012/4/23
5	ANTENNA MAST	ETS	2075	2346	2012/4/23
6	EMI TEST OFTWARE	Rohde & Schwarz	ESK1	N/A	2012/4/23
7	HORN ANTENNA	Rohde & Schwarz	HF906	100039	2012/4/23
8	Amplifer	Sonoma	310N	E009-13	2012/4/23
9	JS amplifer	Rohde & Schwarz	JS4-00101800-28-5A	F201504	2012/4/23

The calibration interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2009.
2 Support equipment, if needed, was placed as per ANSI C63.4-2009.
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009.
4 The EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

CONDUCTED POWER LINE EMISSION LIMIT

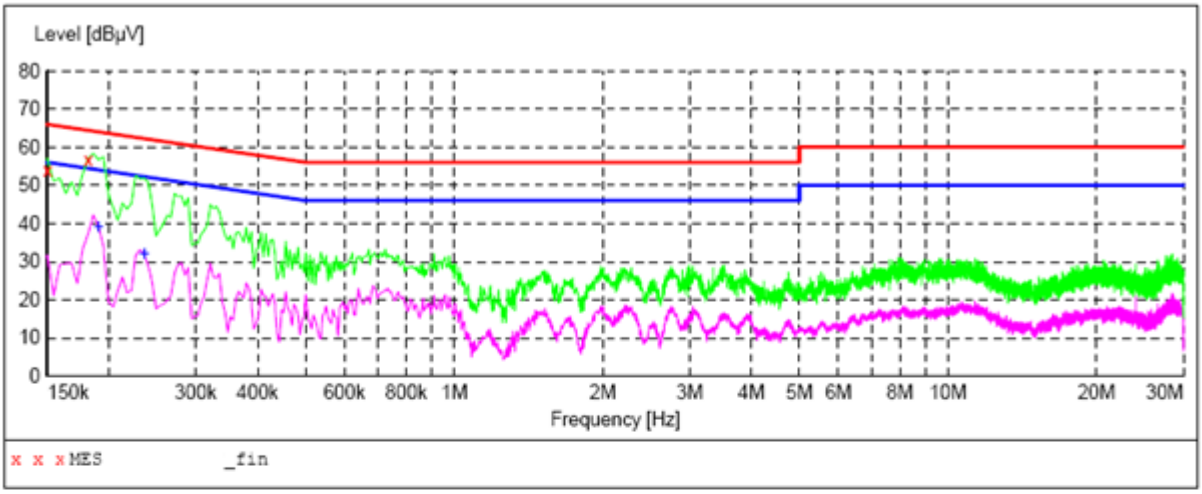
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

TEST RESULTS

For Neutral

SCAN TABLE: "Voltage(150K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT:

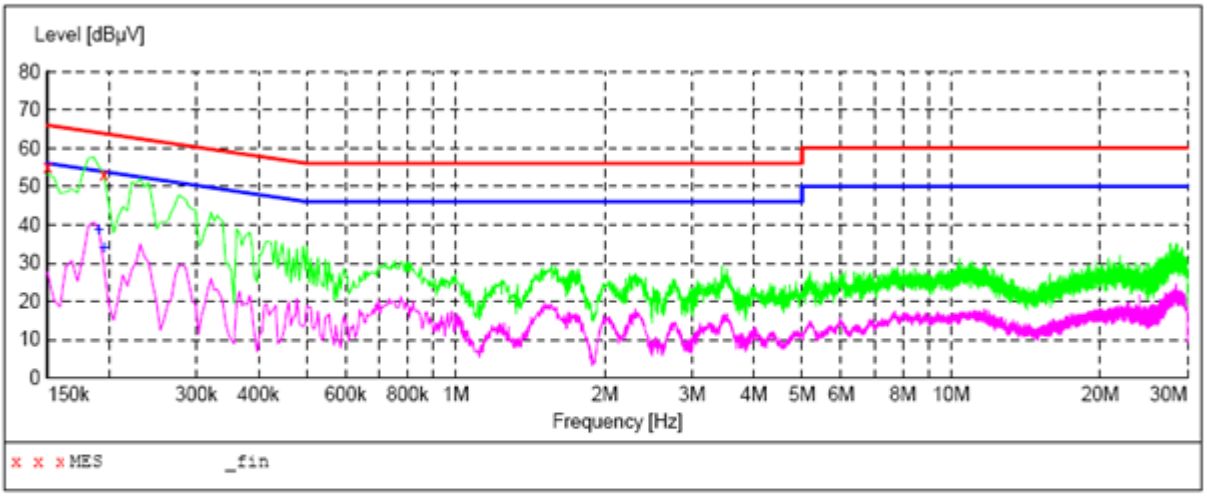
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	53.90	11.4	66	12.1	QP	N	GND
0.181500	56.70	11.0	64	7.7	QP	N	GND

MEASUREMENT RESULT:

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.190500	39.30	10.9	54	14.7	AV	N	GND
0.235500	32.00	10.7	52	20.3	AV	N	GND

For Line

SCAN TABLE: "Voltage(150K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT:

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	55.30	11.4	66	10.7	QP	L1	GND
0.195000	53.40	10.9	64	10.4	QP	L1	GND

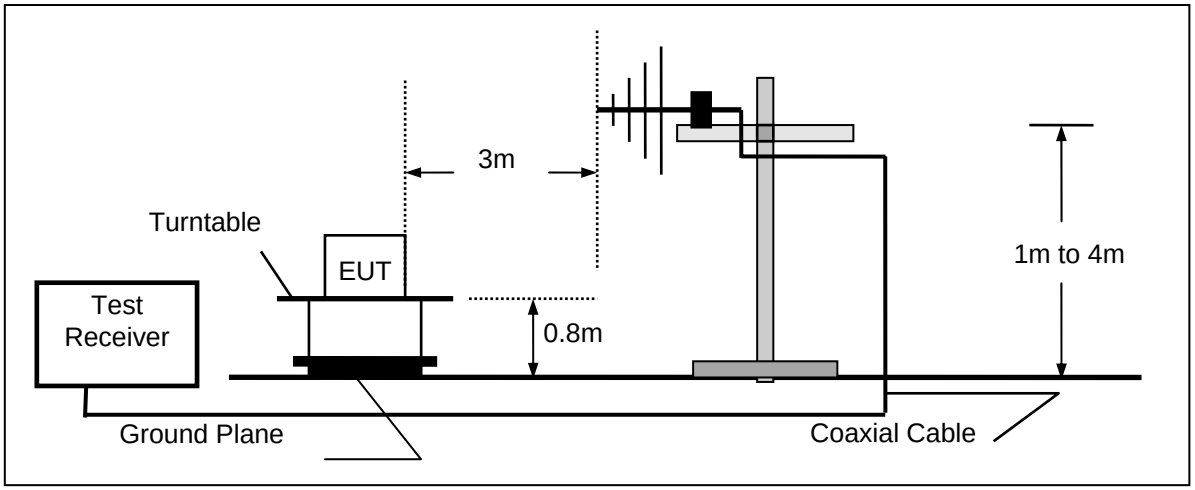
MEASUREMENT RESULT:

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.190500	38.80	10.9	54	15.2	AV	L1	GND
0.195000	34.00	10.9	54	19.8	AV	L1	GND

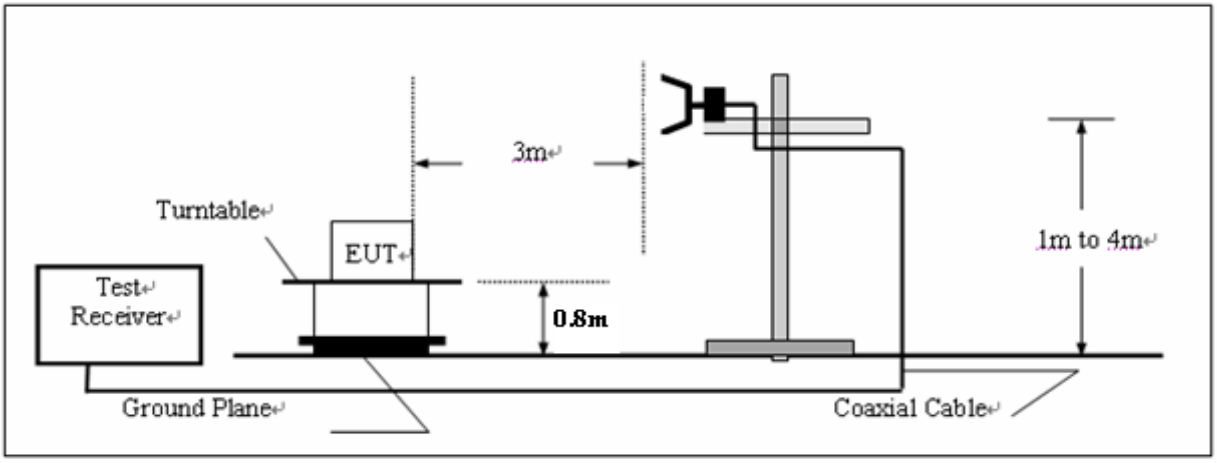
4.2. Radiated Emission Test

TEST CONFIGURATION

a) Radiated Emission Test Set-Up, Frequency below 1000MHz



b) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

For example

Frequency (MHz)	FS (dBμV/m)	RA (dBμV/m)	AF (dB)	CL (dB)	AG (dB)	Transd (dB)
300.00	40	58.1	12.2	1.6	31.90	-18.1

Transd=AF +CL-AG

RADIATION LIMIT

For unintentional device, according to § 15.109(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：

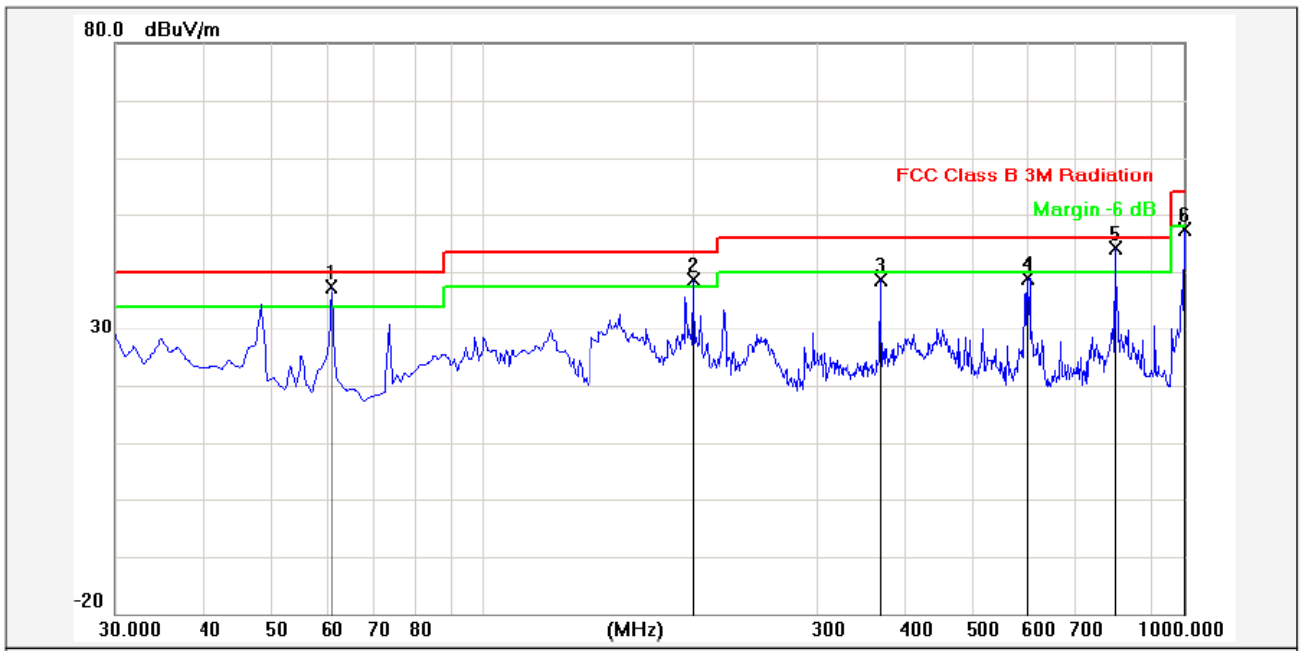
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

TEST CONDITION

TEST RESULTS

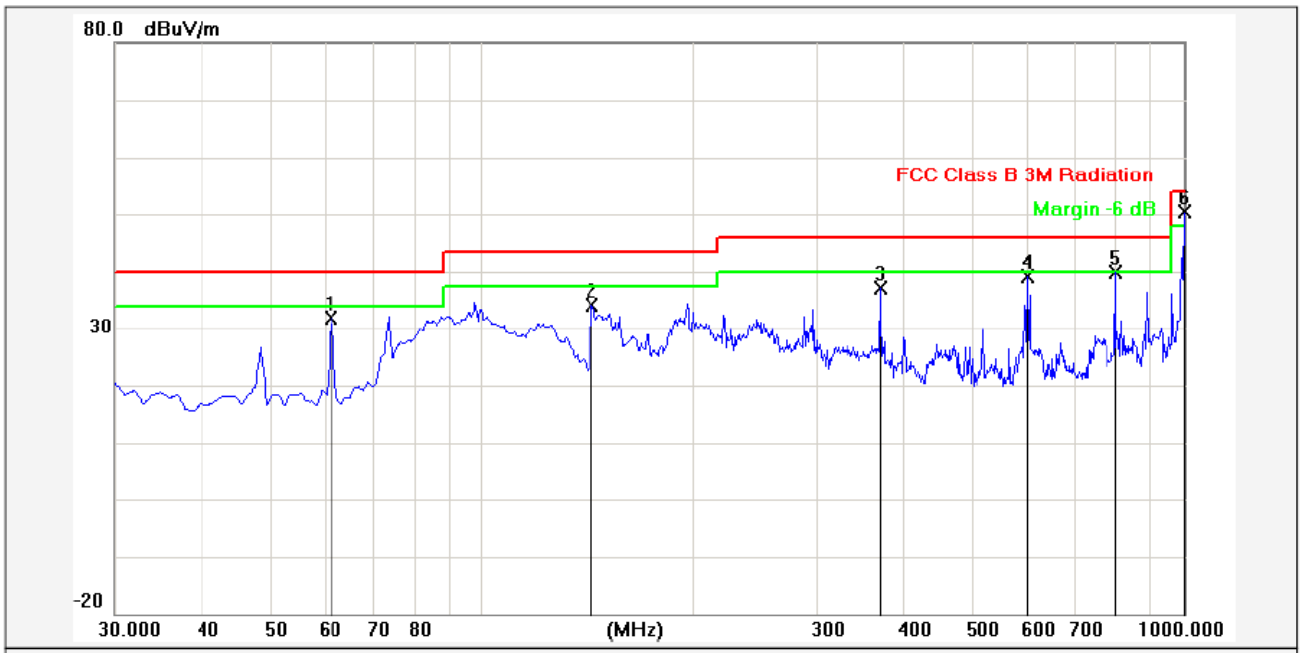
HORIZONTAL



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	61.0399	-17.89	55.16	37.27	40.00	-2.73	QP			P	
2	199.7500	-16.87	55.41	38.54	43.50	-4.96	QP			P	
3	370.4700	-13.39	52.12	38.73	46.00	-7.27	QP			P	
4	600.3600	-9.60	48.54	38.94	46.00	-7.06	QP			P	
5	800.1799	-6.28	50.34	44.06	46.00	-1.94	QP			P	
6	1000.0000	-2.46	49.84	47.38	54.00	-6.62	QP			P	

Remark:1.Emission Level= Factor+ Reading.
2.The Emission levels that are 20dB below the official limit are not reported.
3. The radiated measurement are performed the normal working mode and is the worst case.

VERTICAL

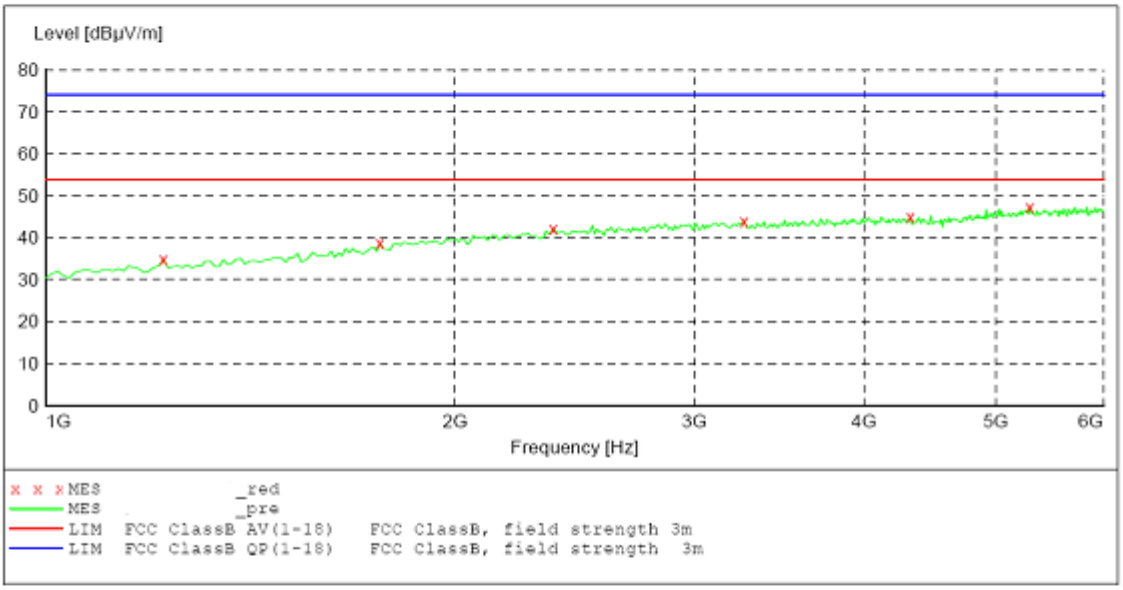


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	61.0399	-17.89	49.68	31.79	40.00	-8.21	QP			P	
2	143.4900	-17.94	52.09	34.15	43.50	-9.35	QP			P	
3	370.4700	-13.39	50.47	37.08	46.00	-8.92	QP			P	
4	600.3600	-9.60	48.66	39.06	46.00	-6.94	QP			P	
5	800.1799	-6.28	46.12	39.84	46.00	-6.16	QP			P	
6	1000.0000	-2.46	52.81	50.35	54.00	-3.65	QP			P	

Remark:1.Emission Level= Factor+ Reading.
2.The Emission levels that are 20dB below the official limit are not reported.
3. The radiated measurement are performed the normal working mode and is the worst case.

SWEEP TABLE: "test (1G-18G) P"

Short Description:		EN 55022 Field Strength			
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	500.0 ms	1 MHz	HF906 2011

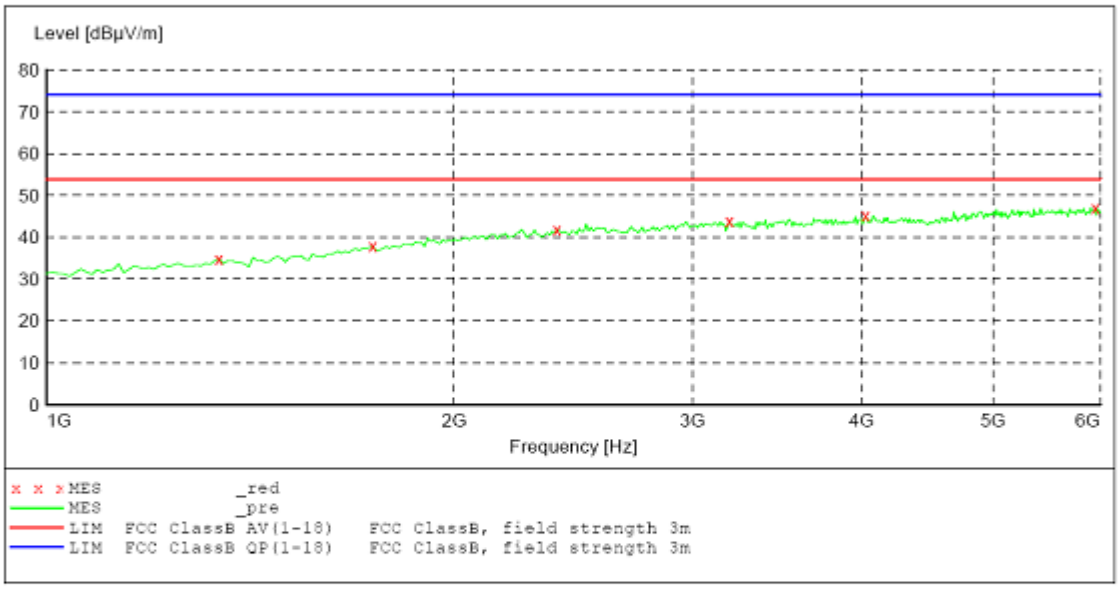


MEASUREMENT RESULT:

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1220.440882	34.80	-7.9	53.9	19.1	PK	100.0	122.00	HORIZONTAL
1761.523046	38.70	-3.4	53.9	15.2	PK	100.0	100.00	HORIZONTAL
2362.725451	42.10	0.3	53.9	11.8	PK	100.0	80.00	HORIZONTAL
3264.529058	44.00	2.4	53.9	9.9	PK	100.0	170.00	HORIZONTAL
4326.653307	44.90	3.5	53.9	9.0	PK	100.0	285.00	HORIZONTAL
5298.597194	47.30	6.2	53.9	6.6	PK	100.0	194.00	HORIZONTAL

SWEEP TABLE: "test (1G-18G) P"

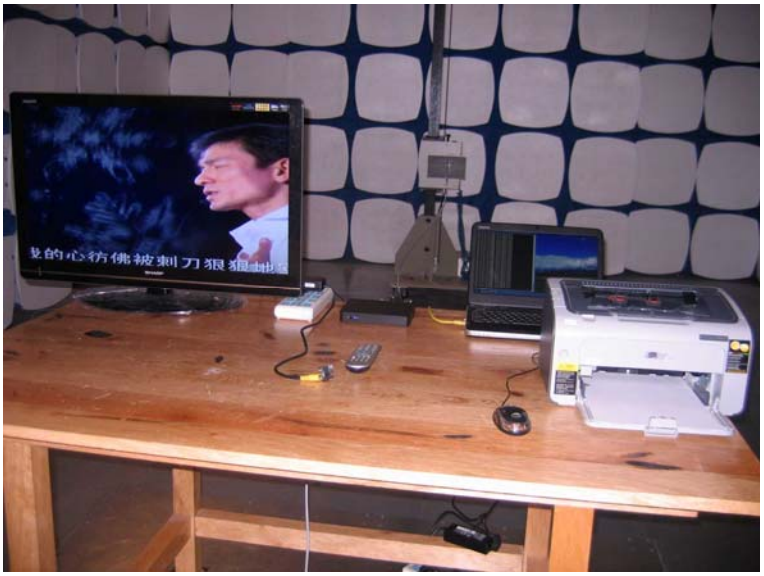
Short Description:		EN 55022 Field Strength			
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	500.0 ms	1 MHz	HF906 2011



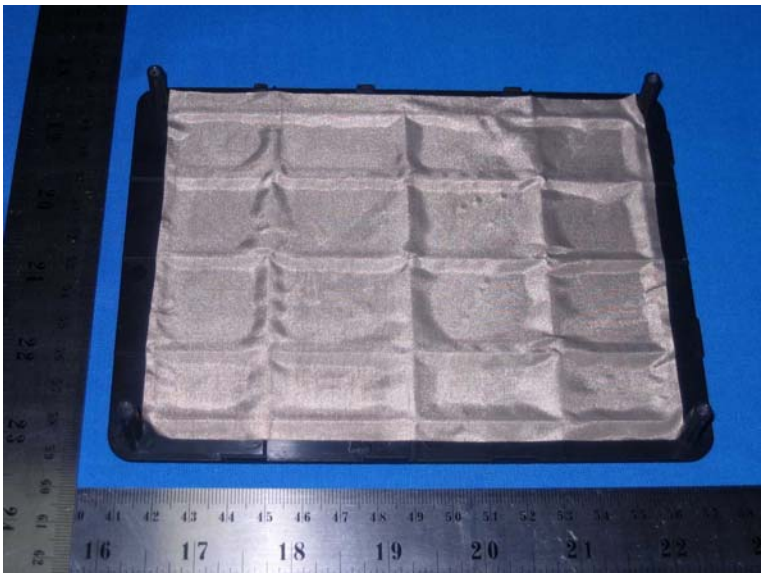
MEASUREMENT RESULT:

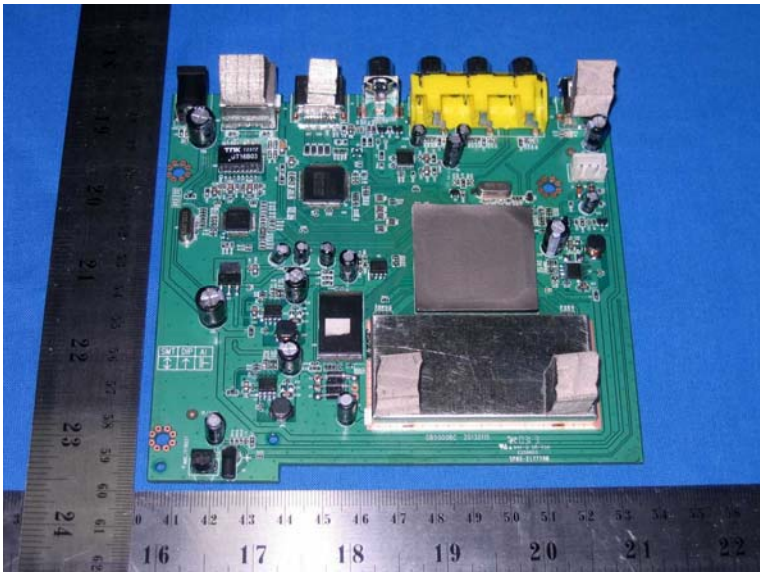
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1340.681363	34.90	-7.0	53.9	19.0	PK	100.0	259.00	VERTICAL
1741.482966	37.90	-3.6	53.9	16.0	PK	100.0	301.00	VERTICAL
2382.765531	42.00	0.4	53.9	11.9	PK	100.0	278.00	VERTICAL
3194.388778	43.90	2.3	53.9	10.0	PK	100.0	49.00	VERTICAL
4026.052104	45.20	3.6	53.9	8.7	PK	100.0	63.00	VERTICAL
5949.899800	47.20	7.3	53.9	6.7	PK	100.0	63.00	VERTICAL

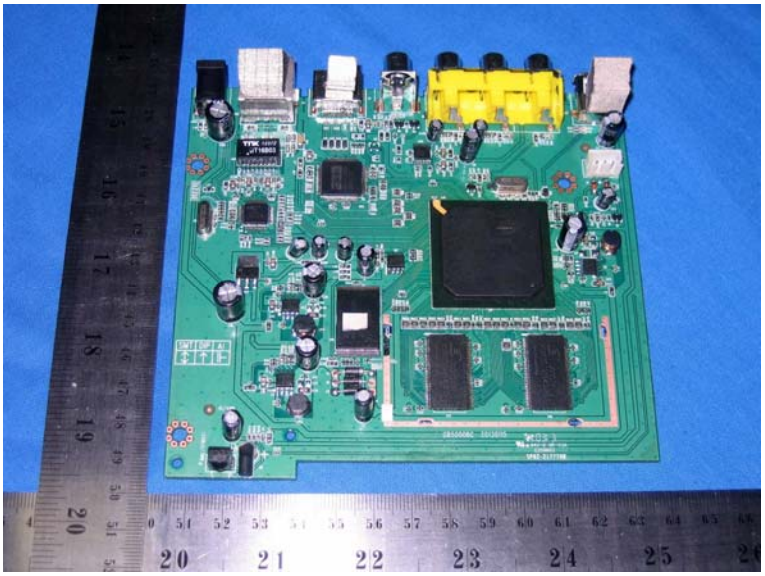
5. Test Setup Photos of the EUT

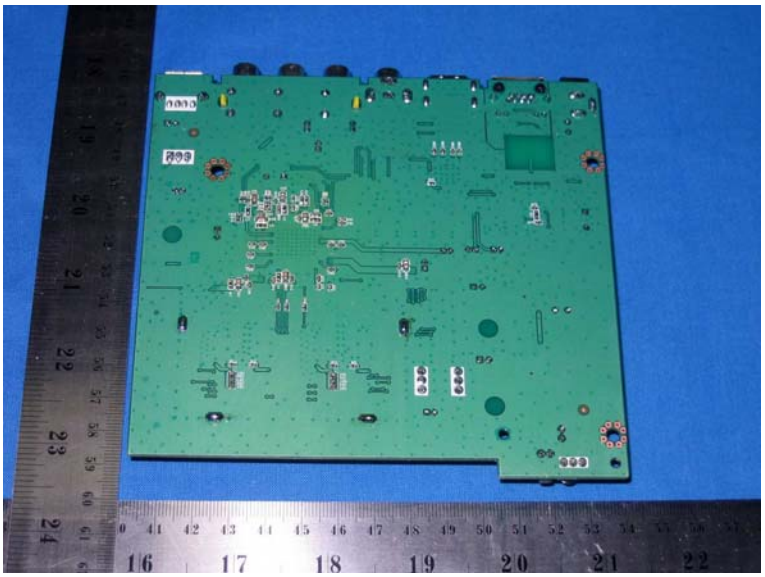


6. Photos of the EUT









.....End of Report.....