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FCC TEST REPORT

Product name.....: Collaboration Touch Screen

Trademark .....: NewLine

Model/Type reference.....: X5

Listed Model(s) .....: X5xxxxx (x=0-9,a-z,A-Z, - or blank)

FCC ID.....: 2ACYT-BNL16X5

Test Standards.....: **47 CFR FCC Part 15 Subpart B - Unintentional Radiators**
ANSI C63.4: 2014

Applicant .....: SHENZHEN Hitevision Technology Co., Ltd.

Address of applicant.....: No. 8, Qinglan 1st Road, Pingshan, Shenzhen, Guangdong 518118, P. R. China.

Date of Receipt .....: June 10, 2016

Date of Test Date.....: June 11, 2016 to June 15, 2016

Data of issue. .....: June 16, 2016

Test result	Pass *

∗ In the configuration tested, the EUT complied with the standards specified above

GENERAL DESCRIPTION OF EUT	
Equipment	Collaboration Touch Screen
Model Name	X5
Adding model:	X5xxxxx (x=0-9,a-z,A-Z, - or blank)
Model differenct	x=0-9,a-z,A-Z, - or blank, It's with different model number only. Different model number should be used in different sales region and channels)
Manufacturer:	Newline Interactive Inc.
Manufacturer Address:	101 East Park Blvd. Suite 807 Plano TX 75074 U.S.A.
Power Rating:	Input: 100-240V～, 50/60Hz, Max2A

Compiled By: Thomas Morgan

(Thomas Morgan)

Reviewed By: Tony Wang

(Tony Wang)

Approved By:

(Walter Chen)

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1. SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators

ANSI C63.4: 2014 – 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

1.2 Test Description

Emission Measurement requirements		
Radiated Emission	Part15.109	PASS
Conducted Disturbance	Part15.107	PASS

Remark: The measurement uncertainty is not included in the test result.

1.3 Test Facility

1.3.1 Address of the test laboratory

Shenzhen General Testing & Inspection Technology Co., Ltd.

Add: 1F, 2 Block,Jiaquan Building, Guanlan High-tech Park Baoan District, Shenzhen, Guangdong,China.

1.3.2 Laboratory accreditation

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

IC Registration No.: 9783A

The 3m alternate test site of Shenzhen GTI Technology 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

Shenzhen GTI Technology 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

1.4 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 Shenzhen General Testing & Inspection Technology 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 General Testing & Inspection laboratory is reported:

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U(dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.7 dB	(1)
Radiated Emission	1~18GHz	5.0 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

2. GENERAL INFORMATION

2.1 Environmental conditions

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

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101KPa

2.2 General Description of EUT

Product Name:	Collaboration Touch Screen
Model/Type reference:	X5
Listed Model(s):	X5xxxxx (x=0-9,a-z,A-Z, - or blank)
Model(s) Differences:	x=0-9,a-z,A-Z, - or blank, It's with different model number only. Different model number should be used in different sales region and channels)
Power Rating:	Input: 100-240VAC, 50/60Hz, Max2A
Hardware version:	UC-918-X5 V02
Software version:	V4.3
WIFI	
Supported type:	802.11b/802.11g/802.11n(H20)/802.11n(H40)
Modulation technology:	802.11b: DSSS 802.11g/802.11n(H20)/802.11n(H40): OFDM
Modulation type:	802.11b: BPSK/QPSK/CCK 802.11g/802.11n(H20)/802.11n(H40): BPSK/QPSK/16QAM/64QAM
Operation frequency:	802.11b/802.11g/802.11n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
Channel number:	802.11b/802.11g/802.11n(HT20): 11 802.11n(HT40): 7
Channel separation:	5MHz
Antenna type:	Monopole Antenna
Antenna gain:	3.0dBi

Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.3 Description of Test Modes

Frequency range investigated: conduction 150 kHz to 30 MHz; radiation 30MHz-6GHz(30MHz to the 5th harmonic of the highest fundamental frequency).

The pre-test operation mode selected to test as follows:

Test Mode	Function	Description
1	HDMI1 mode	Keep EUT working with external HDMI source via front panel HDMI port and HDMI signal output via rear panel HDMI port.
2	HDMI2 mode	Keep EUT working with external HDMI source via front panel HDMI port and HDMI signal output via rear panel HDMI port.
3	LAN mode	Build the connection between EUT and internet,Keep EUT working with external internet source.
4	VGA and Audio in mode	Set the brightness and contrast to the maximum, Kept displaying character “H” in all screen.
5	SD card mode	Keep EUT playing with SD card.
6	USB mode	Keep EUT working with 1-8 USB ports, pretest at each ports to find the worst case.
7	Top camera mode	Keep EUT recording via top camera.
8	Bottom camera mode	Keep EUT recording via bottom camera.
9	MIC record mode	Keep EUT recording via micphone.
10	Normally working mode	Keep EUT working normally.

For final test:

Test Item	EUT Configure Mode
AC Conducted Emission	Mode 1
Radiated Emissions <1GHz	Mode 1
Radiated Emissions ⩾1GHz	Mode 1

2.4 Description of Peripheral during Testing

No.	Product	Manufacturer	Serial No.	Certification
1	PC	Lenovo	H435	DOC
2	Mouse	DELL	N889	DOC

2.5 Measurement Instruments List

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	LISN	R&S	ENV216	101112	Jan 04,2017
2	LISN	R&S	ENV216	101113	Jan 04,2017
3	EMI Test Receiver	R&S	ESCI	100920	Jan 04,2017
4	Cable	Schwarzbeck	AK9515E	33156	Jan 04,2017

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100967	Jan 04,2017
2	Log-Bicon Antenna	Schwarzbeck	CBL6141 A	4180	Jan 04,2017
3	Spectrum Analyzer	Rohde & Schwarz	FSU	100105	Jan 04,2017
4	Horn Antenna	Schwarzbeck	BBHA 9120D	648	Jan 07,2017
5	Pre-Amplifier	HP	8447D	1937A030 50	Jan 04,2017
6	Pre-Amplifier	EMCI	EMC051 835	980075	Jan 04,2017
7	Antenna Mast	UC	UC3000	N/A	N/A
8	Turn Table	UC	UC3000	N/A	N/A
9	Cable Below 1GHz	Schwarzbeck	AK9515E	33155	Jan 04,2017
10	Cable Above 1GHz	Hubersuhner	SUCOFLE X102	DA1580	Jan 04,2017

Note: 1. The Cal. Interval was one year.

3. EMC EMISSION TEST

3.1 Conducted Emission Measurement

LIMIT

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

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

TEST PROCEDURE

a) 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 C63.4-2014.

b) Support equipment, if needed, was placed as per ANSI C63.4-2014.

c) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2014.

d) An USB Line connection between the EUT and PC which received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.

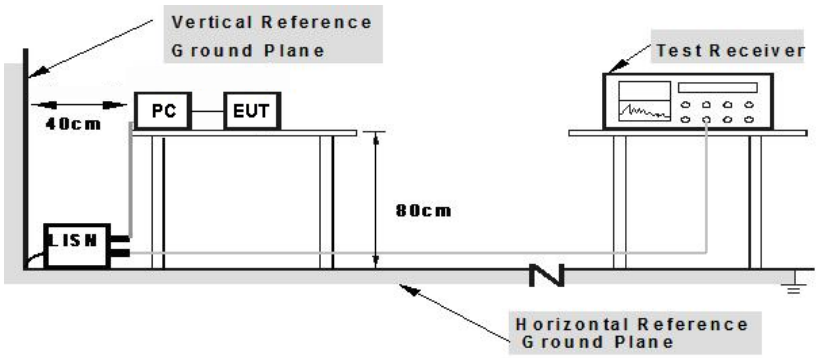
e) All support equipments received AC power from a second LISN, if any.

f) 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.

g) Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

h) During the above scans, the emissions were maximized by cable manipulation.

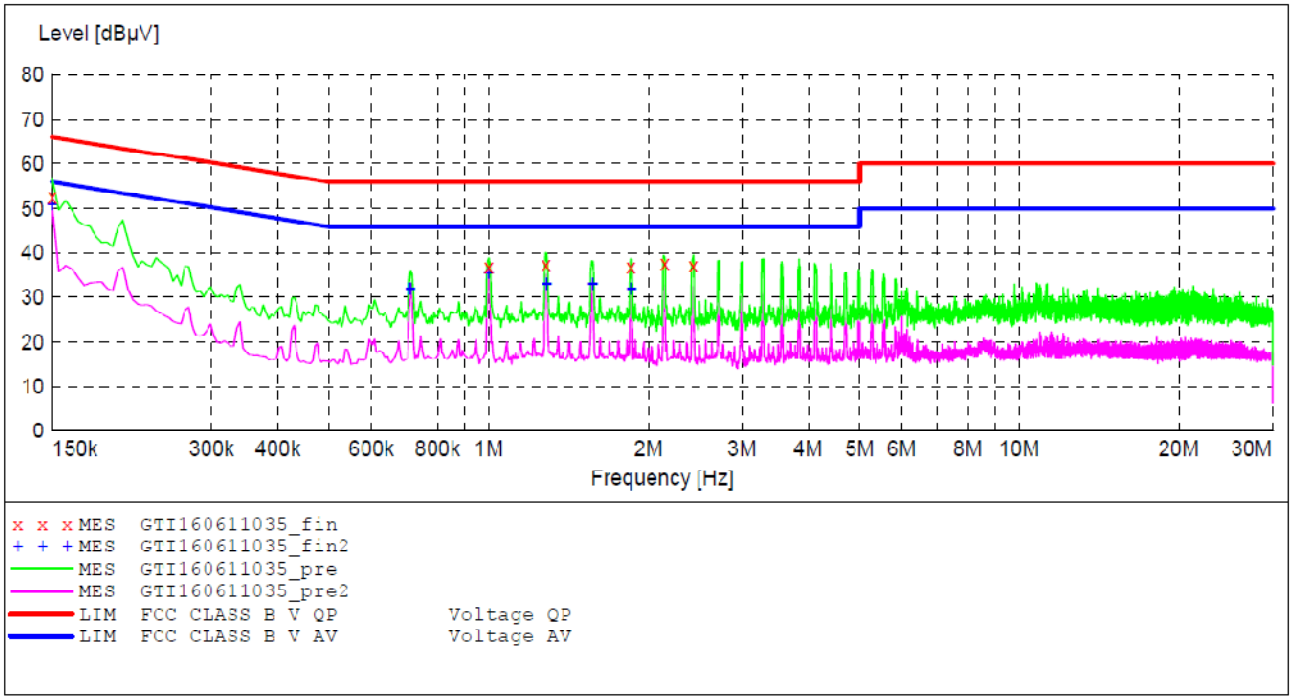
TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

TEST RESULTS

Test mode:	Mode 1	Polarization:	L



MEASUREMENT RESULT: "GTI160611035_fin"

6/11/2016 2:25PM

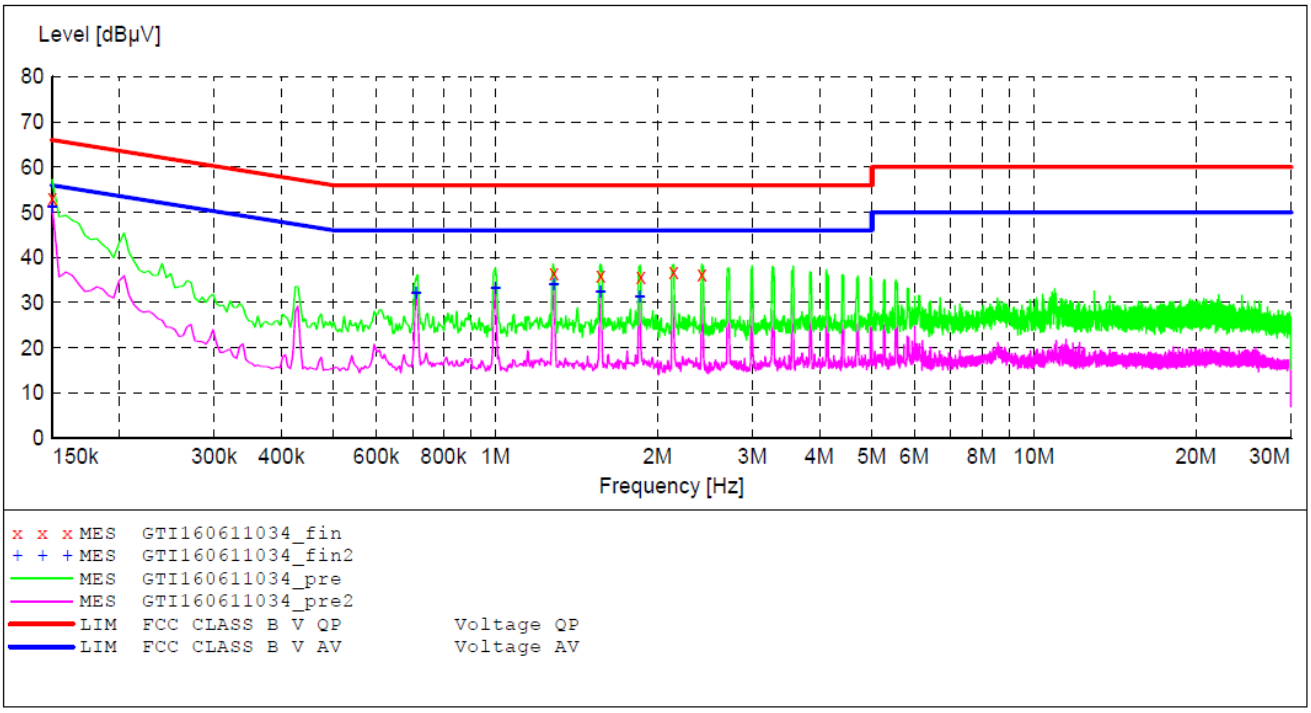
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	52.70	9.8	66	13.3	QP	L1	GND
0.998000	36.70	10.0	56	19.3	QP	L1	GND
1.280000	37.50	10.1	56	18.5	QP	L1	GND
1.850000	36.80	10.2	56	19.2	QP	L1	GND
2.144000	37.60	10.3	56	18.4	QP	L1	GND
2.426000	37.20	10.3	56	18.8	QP	L1	GND

MEASUREMENT RESULT: "GTI160611035_fin2"

6/11/2016 2:25PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	51.00	9.8	56	5.0	AV	L1	GND
0.710000	31.90	9.9	46	14.1	AV	L1	GND
0.998000	35.30	10.0	46	10.7	AV	L1	GND
1.286000	32.90	10.1	46	13.1	AV	L1	GND
1.568000	32.90	10.2	46	13.1	AV	L1	GND
1.856000	31.80	10.2	46	14.2	AV	L1	GND

Test mode:	Mode 1	Polarization:	N



MEASUREMENT RESULT: "GTI160611034_fin"

6/11/2016 2:22PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	53.10	9.5	66	12.9	QP	N	GND
1.283000	36.60	9.8	56	19.4	QP	N	GND
1.566500	35.90	9.9	56	20.1	QP	N	GND
1.859000	35.80	10.0	56	20.2	QP	N	GND
2.142500	36.90	10.0	56	19.1	QP	N	GND
2.417000	36.30	10.1	56	19.7	QP	N	GND

MEASUREMENT RESULT: "GTI160611034_fin2"

6/11/2016 2:22PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	51.40	9.5	56	4.6	AV	N	GND
0.711500	32.20	9.6	46	13.8	AV	N	GND
0.999500	33.30	9.7	46	12.7	AV	N	GND
1.283000	34.00	9.8	46	12.0	AV	N	GND
1.566500	32.50	9.9	46	13.5	AV	N	GND
1.854500	31.50	10.0	46	14.5	AV	N	GND

3.2 Radiated Emission

LIMITS

LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (at 3m) dBuV/m		Class B (at 3m) dBuV/m	
	Peak	Avg	Peak	Avg
Above 1000	80	60	74	54

Notes:

1) The limit for radiated test was performed according to as following: CISPR 22/ FCC PART 15B /ICES-003.
2) The tighter limit applies at the band edges.
3) Emission level (dBuV/m)=20log Emission level (uV/m).

TEST PROCEDURE

a) The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c) The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP (AV) Limits and then no additional QP Mode measurement performed.

Note: For the radiated emission test above 1GHz:

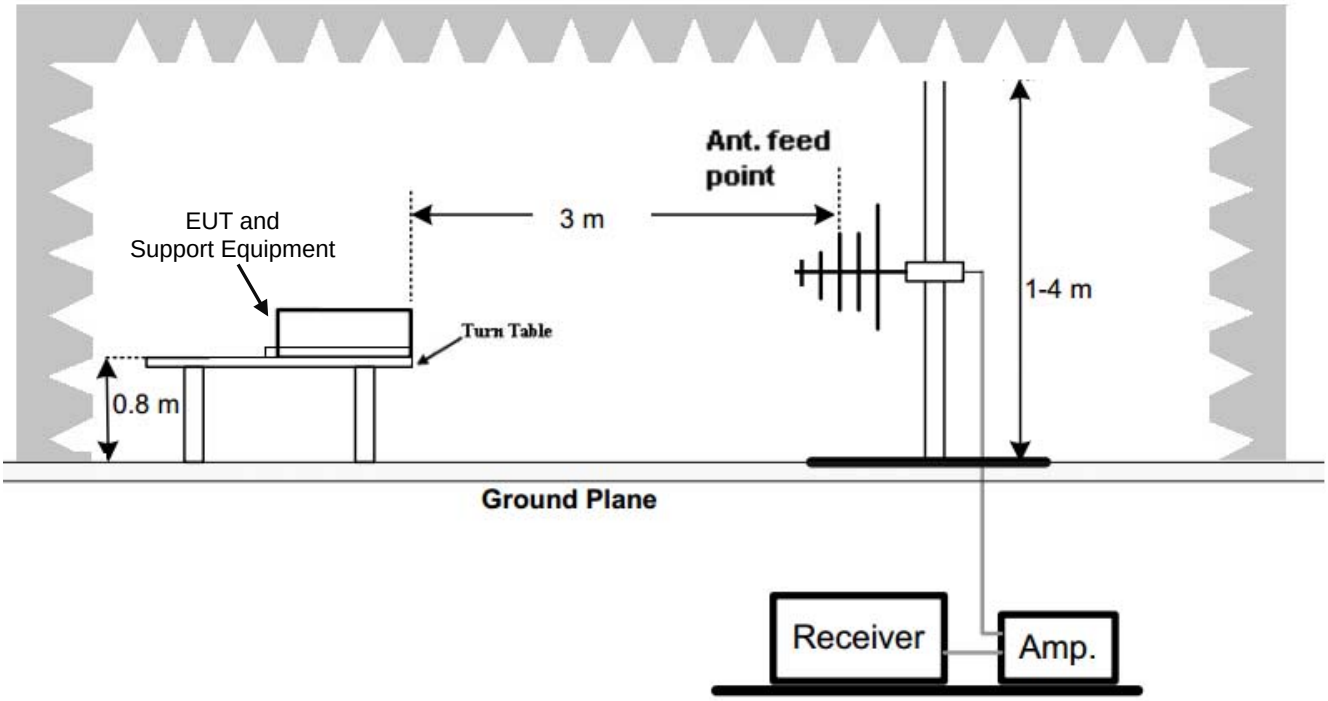
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that

which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

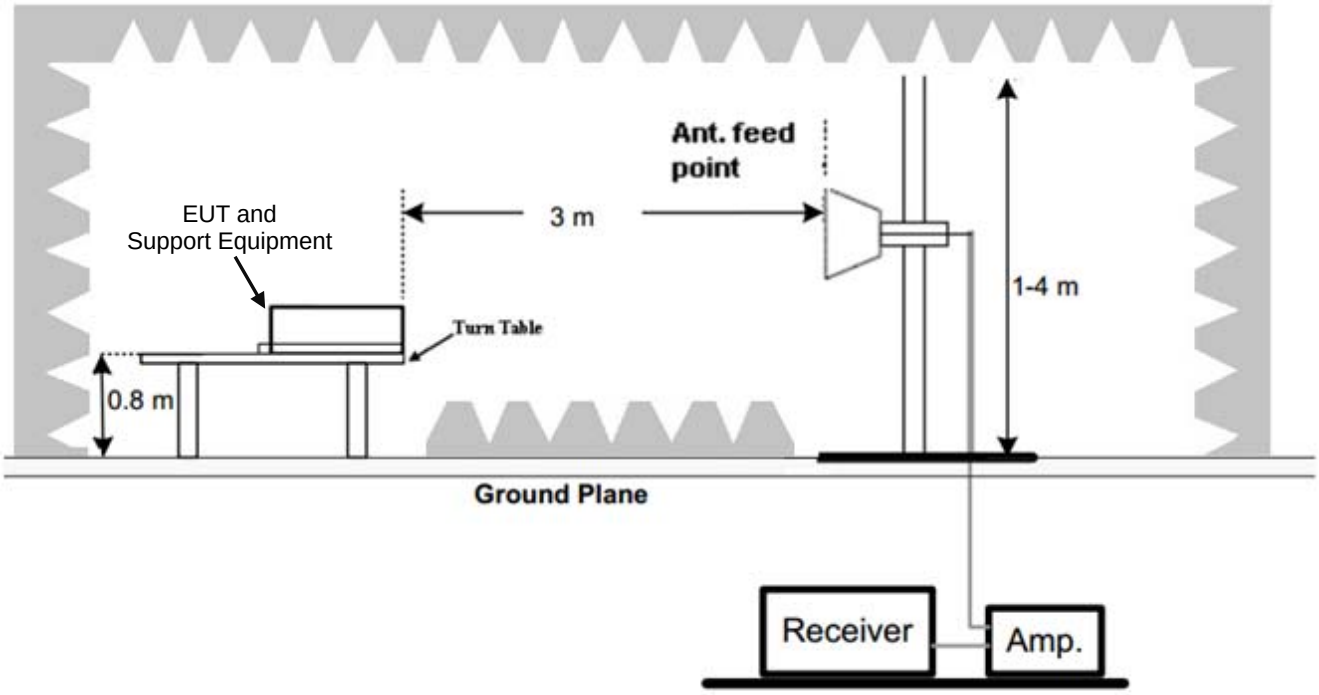
TEST SETUP

For the actual test configuration, please refer to the related Item –EUT Test Photos.

(A) Radiated Emission Test Set-Up Frequency below 1 GHz

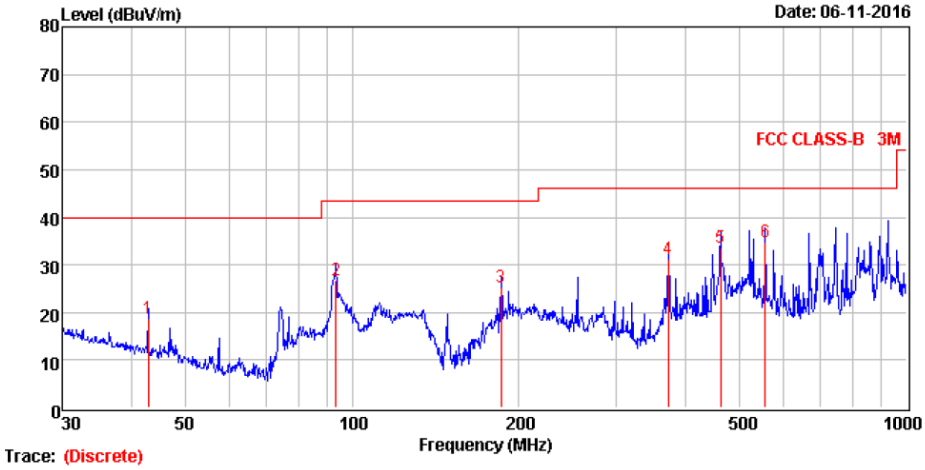


(B) Radiated Emission Test Set-UP Frequency above 1GHz

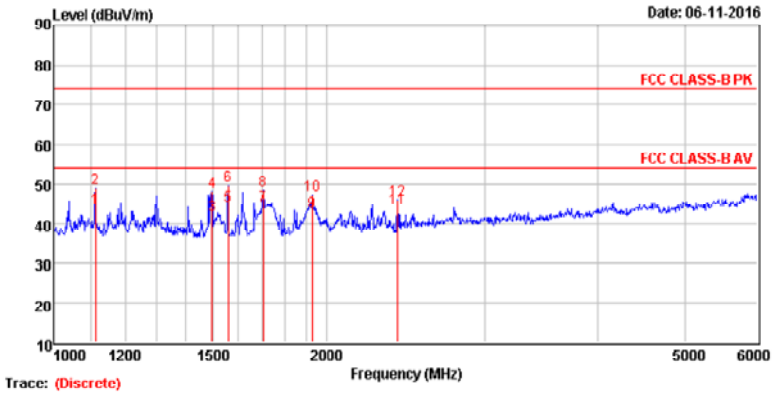


TEST RESULTS

Test mode:	Mode 1	Polarization:	Horizontal

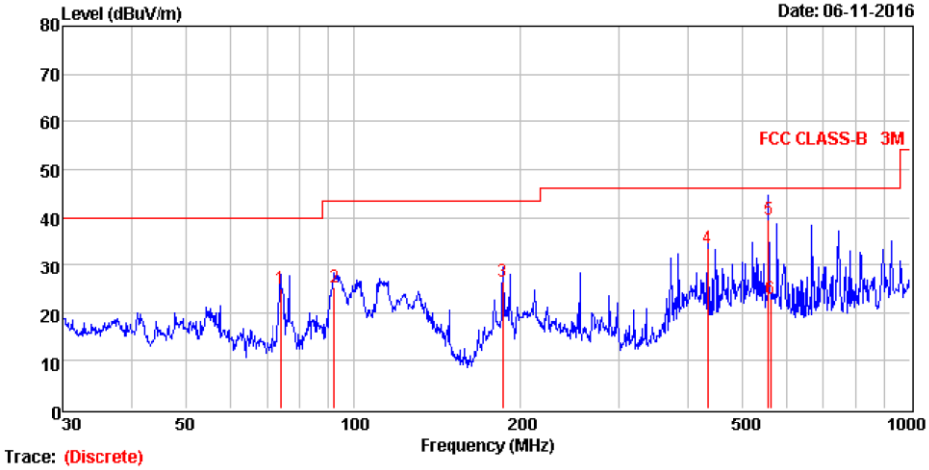


Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	42.90	18.74	-13.26	32.00	40.00	21.26	HORIZONTAL	QP
2	93.44	26.82	-19.97	46.79	43.50	16.68	HORIZONTAL	QP
3	185.79	25.38	-19.22	44.60	43.50	18.12	HORIZONTAL	QP
4	372.00	31.17	-14.33	45.50	46.00	14.83	HORIZONTAL	QP
5	462.35	33.73	-12.17	45.90	46.00	12.27	HORIZONTAL	QP
6	556.77	34.67	-10.73	45.40	46.00	11.33	HORIZONTAL	QP

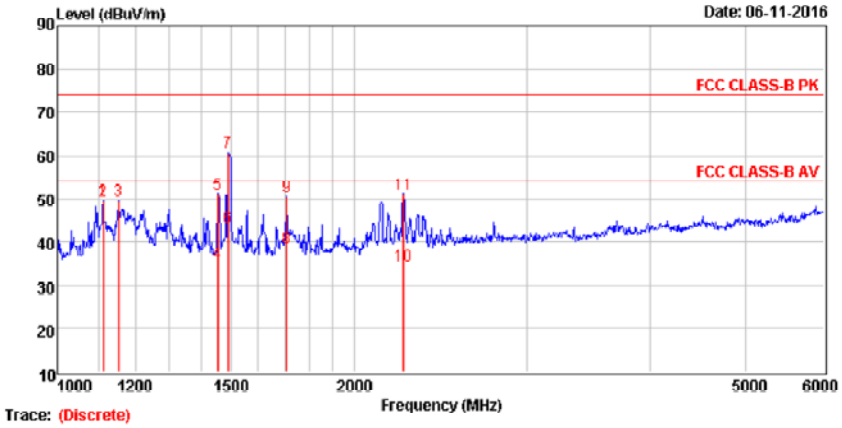


Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	1113.50	44.00	-14.80	58.80	54.00	10.00	HORIZONTAL	Average
2	1113.50	48.93	-14.80	63.73	74.00	25.07	HORIZONTAL	Peak
3	1496.53	42.13	-13.57	55.70	54.00	11.87	HORIZONTAL	Average
4	1496.53	48.17	-13.57	61.74	74.00	25.83	HORIZONTAL	Peak
5	1559.49	44.54	-13.55	58.09	54.00	9.46	HORIZONTAL	Average
6	1559.49	49.47	-13.55	63.02	74.00	24.53	HORIZONTAL	Peak
7	1705.65	44.44	-13.36	57.80	54.00	9.56	HORIZONTAL	Average
8	1705.65	48.47	-13.36	61.83	74.00	25.53	HORIZONTAL	Peak
9	1930.11	43.15	-12.45	55.60	54.00	10.85	HORIZONTAL	Average
10	1930.11	47.22	-12.45	59.67	74.00	26.78	HORIZONTAL	Peak
11	2401.69	43.83	-10.17	54.00	54.00	10.17	HORIZONTAL	Average
12	2401.69	45.88	-10.17	56.05	74.00	28.12	HORIZONTAL	Peak

Test mode:	Mode 1	Polarization:	Vertical



Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
1	74.14	24.98	-22.52	47.50	40.00	15.02	VERTICAL	QP
2	92.46	25.14	-20.05	45.19	40.00	14.86	VERTICAL	QP
3	185.79	26.48	-19.22	45.70	40.00	13.52	VERTICAL	QP
4	432.55	33.64	-12.67	46.31	47.00	13.36	VERTICAL	QP
5	556.77	39.57	-10.73	50.30	47.00	7.43	VERTICAL	QP
6	560.69	22.96	-10.68	33.64	47.00	24.04	VERTICAL	Peak

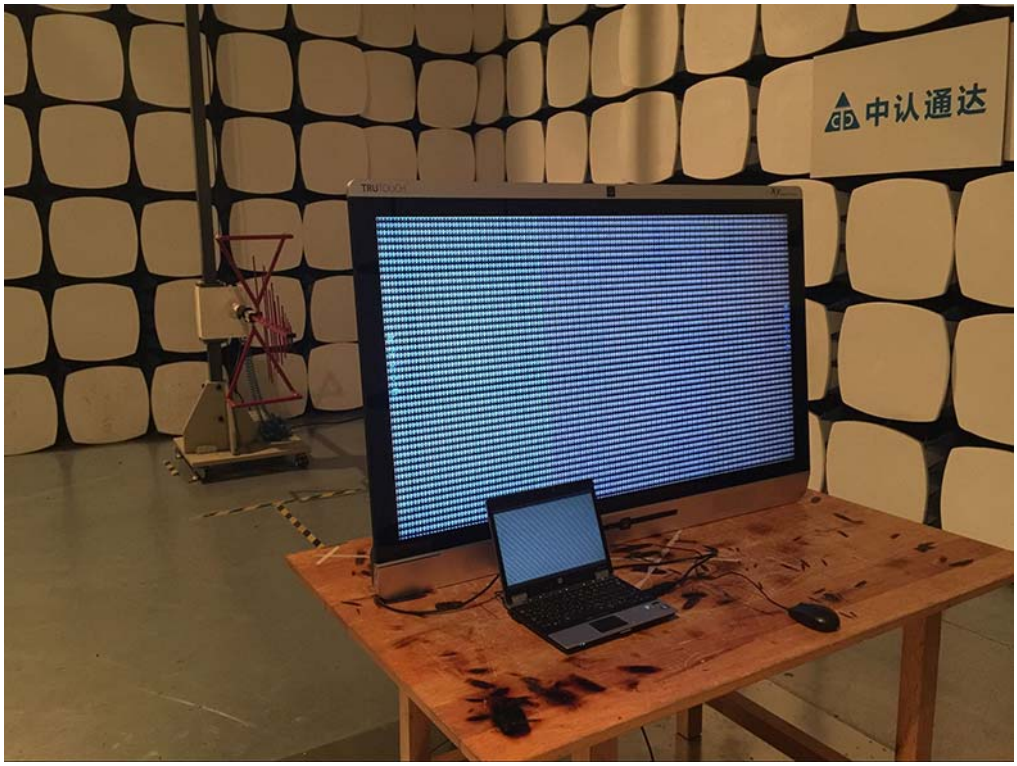


Mark	Frequency MHz	Level dBuV/m	Factor dB/m	Reading dBuV	Limit dBuV/m	Margin dB	Polarization	Detector
2	1113.50	49.68	-14.80	64.48	74.00	24.32	VERTICAL	Peak
3	1154.12	49.43	-14.77	64.20	74.00	24.57	VERTICAL	Peak
4	1454.23	34.84	-13.57	48.41	54.00	19.16	VERTICAL	Average
5	1454.23	51.12	-13.57	64.69	74.00	22.88	VERTICAL	Peak
7	1491.17	60.66	-13.57	74.23	74.00	13.34	VERTICAL	Peak
8	1708.71	38.54	-13.36	51.90	54.00	15.46	VERTICAL	Average
9	1708.71	50.37	-13.36	63.73	74.00	23.63	VERTICAL	Peak
10	2247.63	34.41	-10.89	45.30	54.00	19.59	VERTICAL	Average
11	2247.63	51.15	-10.89	62.04	74.00	22.85	VERTICAL	Peak

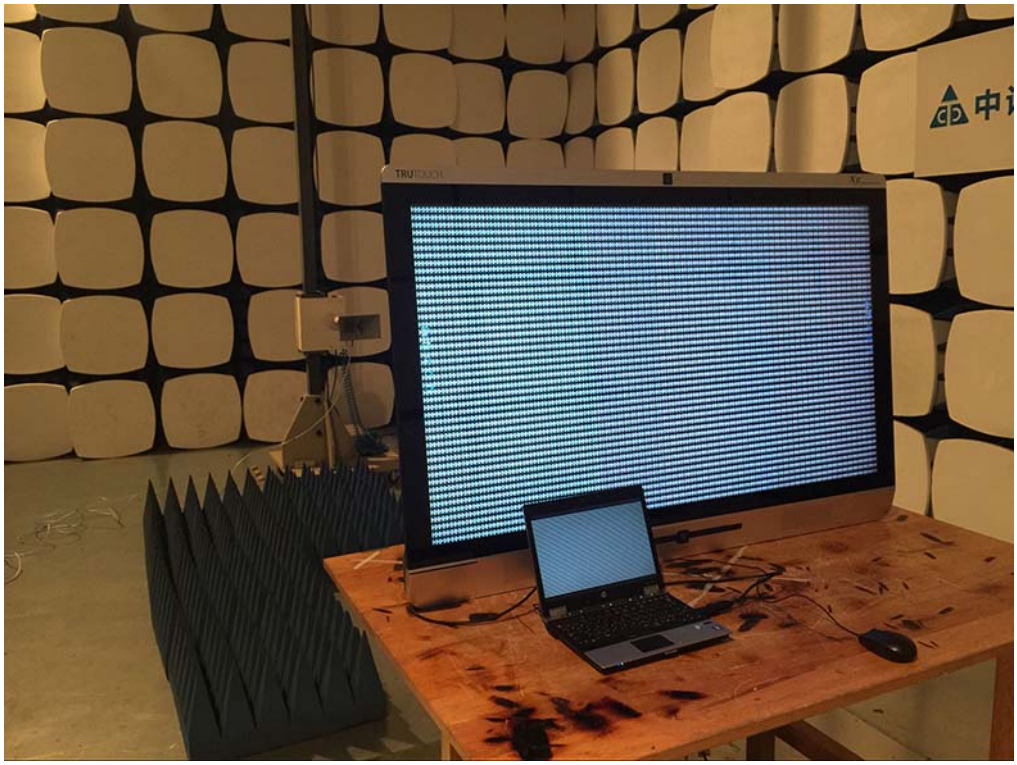
4. EUT TEST PHOTO

Conducted Emission

Radiated Emission below 1GHz



Radiated Emission above 1GHz



5. PHOTOGRAPHS OF EUT CONSTRUCTIONAL

Please reference to the test report No.: GTI20160419F-1

**********THE END**********