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Report No.: SHEM180300174701

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## TEST REPORT

**Application No.:** SHEM1803001747TX  
**Applicant:** Kinco Electric (Shenzhen) Ltd.  
**Address of Applicant:** Building 1, No. 6 Langshan 1st Rd, Hi-tech Park North, Nanshan, Shenzhen, China  
**Manufacturer:** Kinco Electric (Shenzhen) Ltd.  
**Address of Manufacturer:** Building 1, No. 6 Langshan 1st Rd, Hi-tech Park North, Nanshan, Shenzhen, China  
**Factory:** Kinco Electric (Shenzhen) Ltd.  
**Address of Factory:** Building 1, No. 6 Langshan 1st Rd, Hi-tech Park North, Nanshan, Shenzhen, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Industrial HMI  
**Model No.:** GH150E, GH150E-BLANK, GL150E, GL150E-BLANK;¤  
¤ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Trade mark:** Kinco  
**Standard(s) :** EN 61000-6-4:2007 +A1:2011  
EN 61000-6-2:2005  
**Date of Receipt:** 2018-03-09  
**Date of Test:** 2018-03-14 to 2018-03-23  
**Date of Issue:** 2018-03-27

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.




Parlam Zhan  
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record			
Version	Description	Date	Remark
00	Original	2018-03-27	/

<b>Authorized for issue by:</b>			
			
	_____ <b>Leo Xu /Project Engineer</b>		
			
	_____ <b>Zenger Zhang /Reviewer</b>		

## 2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	EN 61000-6-4:2007 +A1:2011	CISPR 16-2-1	N/A	Pass
Conducted Emissions at Telecommunication Port (150kHz-30MHz)	EN 61000-6-4:2007 +A1:2011	CISPR 22	N/A	Pass
Radiated Emissions (30MHz-1GHz)	EN 61000-6-4:2007 +A1:2011	CISPR 16-2-3	N/A	Pass
Radiated Emissions (above 1GHz)	EN 61000-6-4:2007 +A1:2011	CISPR 16-2-3	N/A	Pass
Harmonic Current Emission	EN 61000-6-4:2007 +A1:2011	EN 61000-3-2:2014	Class A	N/A*
Voltage Fluctuations and Flicker	EN 61000-6-4:2007 +A1:2011	EN 61000-3-3:2013	Clause 5 of EN 61000-3-3	Pass

N/A: Not applicable

N/A\*: Please refer to Section 6.5 of this report for details.

Immunity Part				
Item	Standard	Method	Requirement	Result
Electrostatic Discharge	EN 61000-6-2:2005	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Electrical Fast Transients/Burst at Power Port	EN 61000-6-2:2005	EN 61000-4-4:2012	1kV 5/50ns Tr/Td 5kHz Repetition Frequency	Pass
Electrical Fast Transients/Burst at Signal Port	EN 61000-6-2:2005	EN 61000-4-4:2012	0.5kV 5/50ns Tr/Td 5kHz Repetition Frequency	Pass
Surge at Power Port	EN 61000-6-2:2005	EN 61000-4-5:2014	1.2/50µs Tr/Td 0.5kV Line to Line 0.5kV Line to Ground	Pass
Surge at Signal Port	EN 61000-6-2:2005	EN 61000-4-5:2014	1.2/50µs Tr/Td 1kV Line to Ground	Pass
Conducted Immunity at Power Port (150kHz-80MHz)	EN 61000-6-2:2005	EN 61000-4-6:2014	10Vrms (emf), 80%, 1kHz Amp. Mod.	Pass
Conducted Immunity at Signal Port (150kHz-80MHz)	EN 61000-6-2:2005	EN 61000-4-6:2014	10Vrms (emf), 80%, 1kHz Amp. Mod.	Pass



Immunity Part				
Item	Standard	Method	Requirement	Result
Power Frequency Magnetic Field	EN 61000-6-2:2005	EN 61000-4-8:2010	50Hz 30A/m	Pass
Voltage Dips and Interruptions	EN 61000-6-2:2005	EN 61000-4-11:2004	0 % UT for 1per 40 % UT for 10per 70 % UT for 25per 0 % UT for 250per UT is Supply Voltage	Pass
Radiated Immunity(80MHz-2.7GHz)	EN 61000-6-2:2005	EN 61000-4-3:2006 +A1:2008+A2:2010	10V/m, 80%, 1kHz Amp. Mod. 3V/m, 80%, 1kHz Amp. Mod. 1V/m, 80%, 1kHz Amp. Mod.	Pass
Electrical Fast Transients/Burst at DC port	EN 61000-6-2:2005	EN 61000-4-4:2012	2kV 5/50ns Tr/Td 5kHz Repetition Frequency	Pass
Surge at DC Port	EN 61000-6-2:2005	EN 61000-4-5:2014	1.2/50 $\mu$ s Tr/Td 0.5kV Line to Line 0.5kV Line to Ground	Pass
Conducted Immunity at DC Port (150kHz-80MHz)	EN 61000-6-2:2005	EN 61000-4-6:2014	10Vrms (emf),80%,1kHz Amp. Mod.	Pass

N/A: Not applicable

**Note1:****Declaration of EUT Family Grouping:**

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model GH150E, was tested since their differences are model number and appearance.



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply: DC 24V  
 Test voltage: AC230V 50Hz

### 4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC power supply	MCH	MCH-303A	017040697
Laptop	LENOVO	R400	/
Laptop	LENOVO	X100e	/

### 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	3.2dB (9kHz to 150kHz)
		3.0dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	1.9 dB(9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	2.4 dB(150kHz to 30MHz)
4	Radiated Power	3.5dB
5	Radiated emission	4.4dB (30MHz-1GHz )
		4.6dB (1GHz-6GHz )

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.





#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab  
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

#### 4.5 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868,C-4336,T-12221,G-10830 respectively.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None

#### 4.8 Monitoring of EUT for All Immunity Test

Visual: working status

## 5 Equipment List

<b>Conducted Emissions at Mains Terminals (150kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-12-20	2018-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2018-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

<b>Conducted Emissions at Telecommunication Port (150kHz-30MHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2017-12-20	2018-12-19
Line impedance stabilization network	SCHWARZBECK	NSLK8127	SHEM061-1	2017-12-20	2018-12-19
Line impedance stabilization network	EMCO	3816/2	SHEM019-1	2017-12-20	2018-12-19
8-wire ISN cat 5	SCHWARZBECK	CAT5 8158	SHEM137-1	2017-12-20	2018-12-19
8-wire ISN cat 3	SCHWARZBECK	CAT3 8158	SHEM137-2	2017-12-20	2018-12-19
8-wire ISNcat 6	SCHWARZBECK	NTFM8158	SHEM137-3	2017-12-26	2018-12-25
2-Draht ISN	Schwarzbeck - Mess-Elektronik	NTFM 8131	SHEM139-1	2017-12-20	2018-12-19
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2017-12-20	2018-12-19
CE test Cable	/	/	CE01	2017-12-26	2018-12-25

<b>Radiated Emissions (30MHz-1GHz)</b>					
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Inventory No</b>	<b>Cal Date</b>	<b>Cal Due Date</b>
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2018-07-21
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21



Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2017-09-26	2018-09-25
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Double ridged broadband horn ANTENNA	SCHWARZBECK	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
High-amplifier	SCHWARZBECK	SCU-F0118-G40-BZ4-CS	SHEM050-2	2017-12-20	2018-12-19
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2018-07-21

Voltage Fluctuations and Flicker					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2017-08-22	2018-08-21
AC Power Source 5KVA	AMETEK	500iX	SHEM025-2	2017-08-22	2018-08-21

Electrostatic Discharge					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-1	2017-09-26	2018-09-25

Electrical Fast Transients/Burst at Power Port					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19

Electrical Fast Transients/Burst at Signal Port					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19
Capacitive coupling clamp	EM test	HFK	SHEM026-2	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19

Surge at Power Port					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19

Surge at Signal Port					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19



<b>Conducted Immunity at Power Port (150kHz-80MHz)</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	TST-150-761	SHEM151-1	N/A	N/A
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28

<b>Conducted Immunity at Signal Port (150kHz-80MHz)</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	TST-150-761	SHEM151-1	N/A	N/A
Coupling clamp	LIITHI	EM 101	SHEM027-1	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28

<b>Power Frequency Magnetic Field</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19
Motorised Variac	MV2616	MV2616	SHEM026-6	N/A	N/A
Current transformer for magnetic field coil	EM test	MC2630	SHEM026-7	2017-12-20	2018-12-19
Current transformer for magnetic field coil	EM test	MC26100	SHEM026-8	2017-12-20	2018-12-19
Magnetic field coil	EM test	MS100	SHEM026-9	2017-12-20	2018-12-19

<b>Voltage Dips and Interruptions</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19

<b>Radiated Immunity(80MHz-2.7GHz)</b>					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2017-12-20	2018-12-19
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2017-12-20	2018-12-19
Antenna	SCHWARZBECK	STLP9128D	SHEM130-1	N/A	N/A
Antenna	SCHWARZBECK	STLP9149	SHEM131-1	N/A	N/A
Amplifier	MILMEGA	80RF1000-250	SHEM132-1	N/A	N/A
Amplifier	MILMEGA	AS0840-55-55	SHEM133-1	N/A	N/A



Power meter sensor	Rohde & Schwarz	NRP-Z22	SHEM136-1	2017-12-19	2018-12-18
ElectroMagnetic Field Probe	ETS-Lindgren	HI-6113	SHEM134-1	2017-12-19	2018-12-18
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2018-07-21

Electrical Fast Transients/Burst at DC port					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19
Capacitive coupling clamp	EM test	HFK	SHEM026-2	2017-12-20	2018-12-19

Surge at DC Port					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Immunity Test System	EMC PARTNER	TRA3000 F-S-D-V	SHEM163-1	2017-12-20	2018-12-19
Data coupling network 4 line	EM test	CNV 504	SHEM026-3	2017-12-20	2018-12-19

Conducted Immunity at DC Port (150kHz-80MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Signal generator	Rohde & Schwarz	SMJ100A	SHEM141-1	2017-09-26	2018-09-25
PAMP Conducted RF test system	HAEFFLY	PAMP250	SHEM023-1	2017-12-20	2018-12-19
6dB Attenuator	HUAXIANG	TST-150-761	SHEM151-1	N/A	N/A
CDN impedance and K-factor	LUTHI	L-801 M1	SHEM023-5	2017-12-20	2018-12-19
CDN impedance and K-factor	LUTHI	L-801 M2/M3	SHEM023-6	2017-12-20	2018-12-19
Shielding Room	ZHONGYU	5*5*3M	SHEM079-6	2016-12-29	2019-12-28

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2019-01-24
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2017-09-13	2018-09-12
Digital Multimeter	FLUKE	17B	SHEM043-3	2017-09-11	2018-09-10
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2017-12-20	2018-12-19

## 6 Emission Test Results

### 6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement: EN 61000-6-4:2007 +A1:2011

Test Method: CISPR 16-2-1

Frequency Range: 150kHz to 30MHz

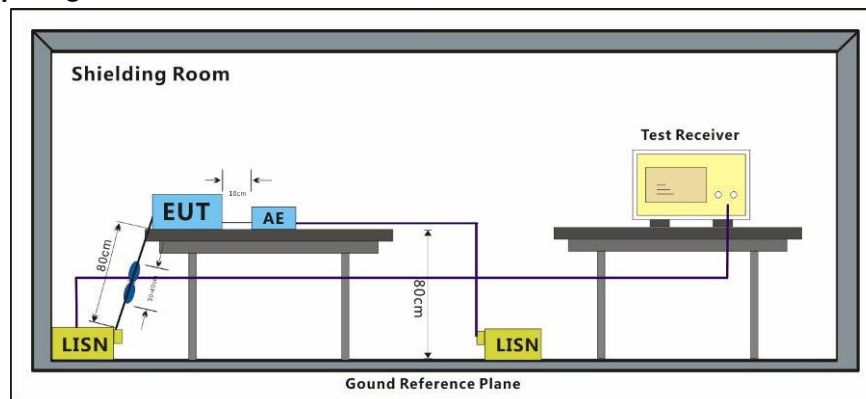
#### 6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode a: Keep EUT connecting continual.

#### 6.1.2 Test Setup Diagram

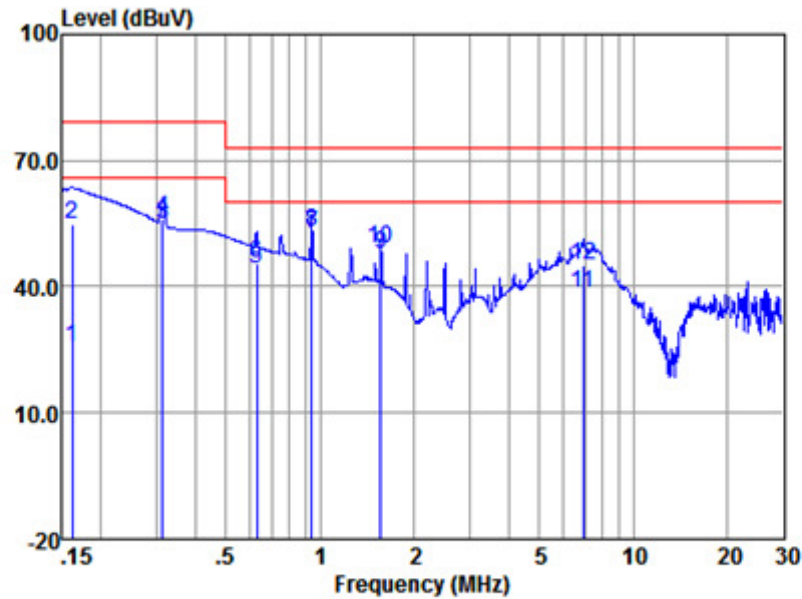


#### 6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.



Mode:a; Line:Live Line

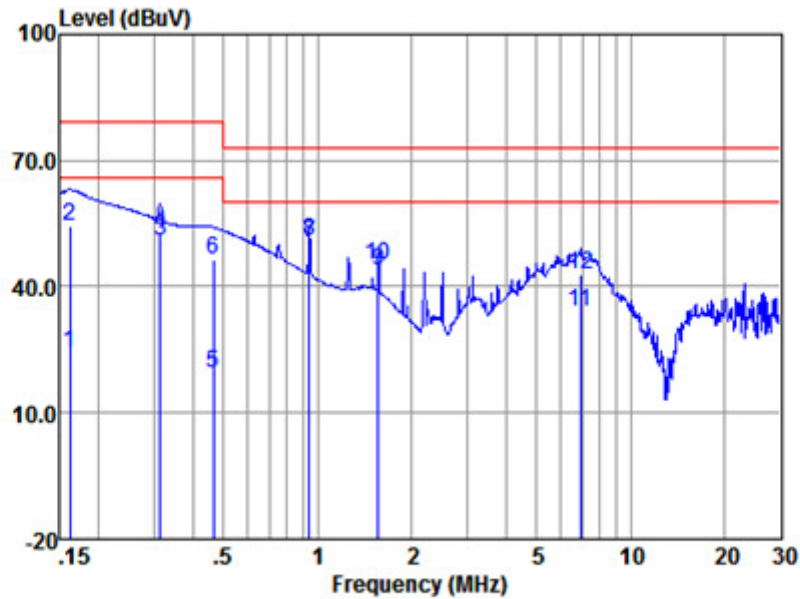


LISN : LINE  
 EUT/Project No : 1747TX  
 Test Mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.16	15.74	0.11	9.81	25.66	66.00	-40.34	Average
2	0.16	45.07	0.11	9.81	54.99	79.00	-24.01	QP
3	0.31	44.89	0.11	9.81	54.81	66.00	-11.19	Average
4	0.31	46.03	0.11	9.81	55.95	79.00	-23.05	QP
5	0.63	34.08	0.11	9.82	44.01	60.00	-15.99	Average
6	0.63	35.41	0.11	9.82	45.34	73.00	-27.66	QP
7	0.94	42.47	0.11	9.83	52.41	60.00	-7.59	Average
8	0.94	43.24	0.11	9.83	53.18	73.00	-19.82	QP
9	1.57	37.69	0.11	9.84	47.64	60.00	-12.36	Average
10	1.57	39.08	0.11	9.84	49.03	73.00	-23.97	QP
11	6.91	28.38	0.11	9.86	38.35	60.00	-21.65	Average
12	6.91	35.08	0.11	9.86	45.05	73.00	-27.95	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss

Mode:a; Line:Neutral Line



LISN : NEUTRAL  
 EUT/Project No : 1747TX  
 Test Mode : a

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.16	14.24	0.12	9.81	24.17	66.00	-41.83	Average
2	0.16	44.49	0.12	9.81	54.42	79.00	-24.58	QP
3	0.31	40.94	0.11	9.81	50.86	66.00	-15.14	Average
4	0.31	42.60	0.11	9.81	52.52	79.00	-26.48	QP
5	0.46	9.68	0.11	9.82	19.61	66.00	-46.39	Average
6	0.46	36.56	0.11	9.82	46.49	79.00	-32.51	QP
7	0.94	40.56	0.11	9.83	50.50	60.00	-9.50	Average
8	0.94	41.09	0.11	9.83	51.03	73.00	-21.97	QP
9	1.57	33.96	0.12	9.84	43.92	60.00	-16.08	Average
10	1.57	35.32	0.12	9.84	45.28	73.00	-27.72	QP
11	6.91	24.23	0.13	9.86	34.22	60.00	-25.78	Average
12	6.91	32.92	0.13	9.86	42.91	73.00	-30.09	QP

Notes: Emission Level = Read Level + LISN Factor + Cable loss



## 6.2 Conducted Emissions at Telecommunication Port (150kHz-30MHz)

Test Requirement: EN 61000-6-4:2007 +A1:2011

Test Method: CISPR 22

Frequency Range: 150kHz to 30MHz

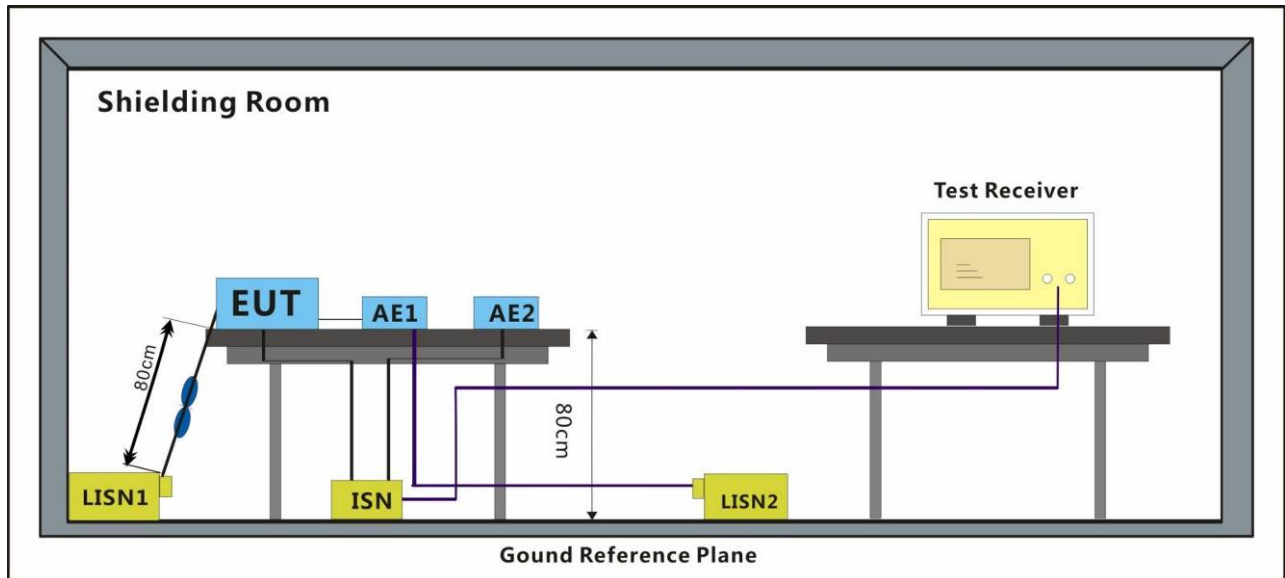
### 6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Keep EUT connecting continual.

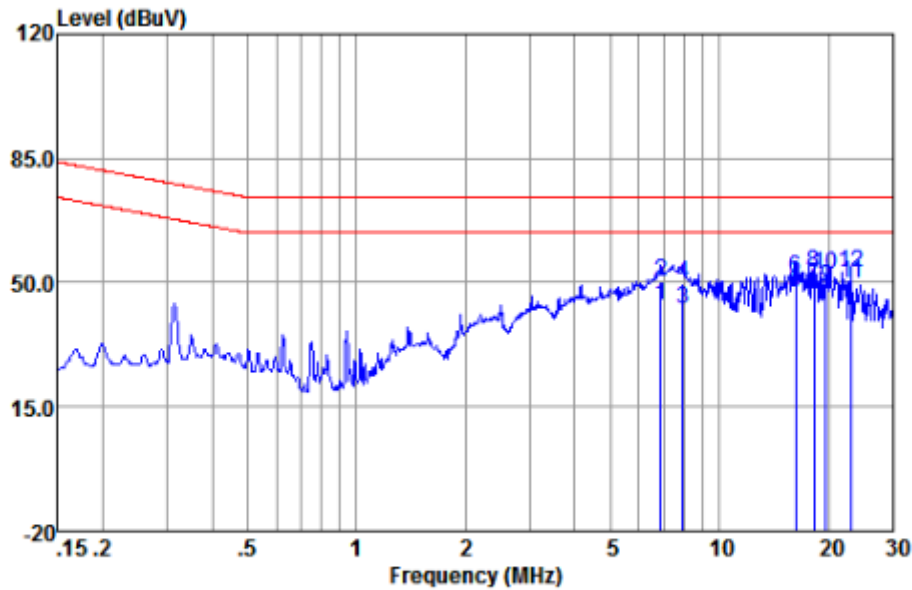
### 6.2.2 Test Setup Diagram



### 6.2.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Mode:a



ISN : ISN CAT5  
 EUT/Project No : 1747TX  
 Test Mode : a

	Freq (MHz)	Read level (dBuV)	ISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	6.91	33.81	0.00	9.86	43.67	64.00	-20.33	Average
2	6.91	40.27	0.00	9.86	50.13	74.00	-23.87	QP
3	7.92	32.79	0.00	9.86	42.65	64.00	-21.35	Average
4	7.92	39.82	0.00	9.86	49.68	74.00	-24.32	QP
5	16.23	37.38	0.00	10.02	47.40	64.00	-16.60	Average
6	16.23	41.08	0.00	10.02	51.10	74.00	-22.90	QP
7	18.25	39.25	0.00	10.03	49.28	64.00	-14.72	Average
8	18.25	42.93	0.00	10.03	52.96	74.00	-21.04	QP
9	19.71	38.50	0.00	10.03	48.53	64.00	-15.47	Average
10	19.71	42.14	0.00	10.03	52.17	74.00	-21.83	QP
11	23.13	39.62	0.00	10.04	49.66	64.00	-14.34	Average
12	23.13	42.81	0.00	10.04	52.85	74.00	-21.15	QP

Notes: Emission Level = Read Level + ISN Factor + Cable loss

### 6.3 Radiated Emissions (30MHz-1GHz)

Test Requirement:	EN 61000-6-4:2007 +A1:2011
Test Method:	CISPR 16-2-3
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz-230MHz	50 dB(μV/m) quasi-peak
230MHz-1GHz	57 dB(μV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

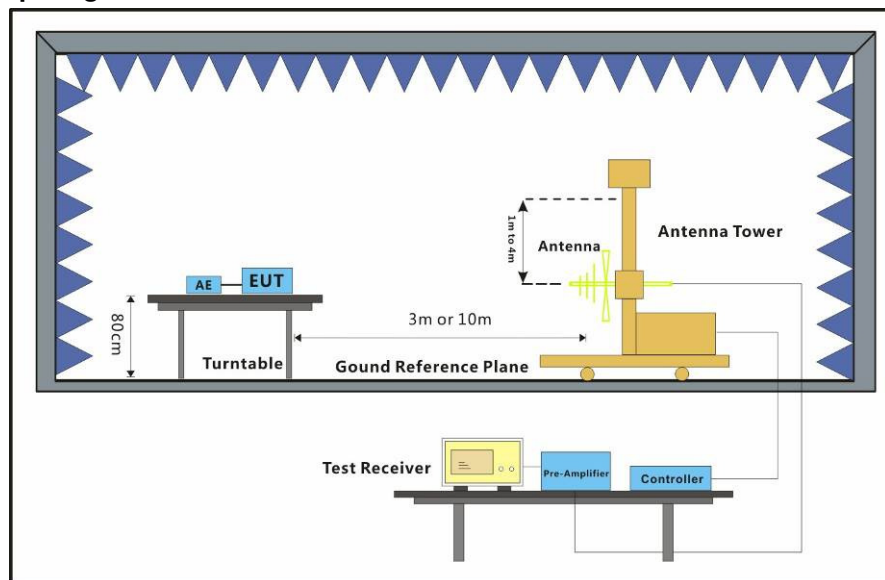
#### 6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C      Humidity: 51 % RH      Atmospheric Pressure: 1020 mbar

Test mode      a:Keep EUT connecting continual.

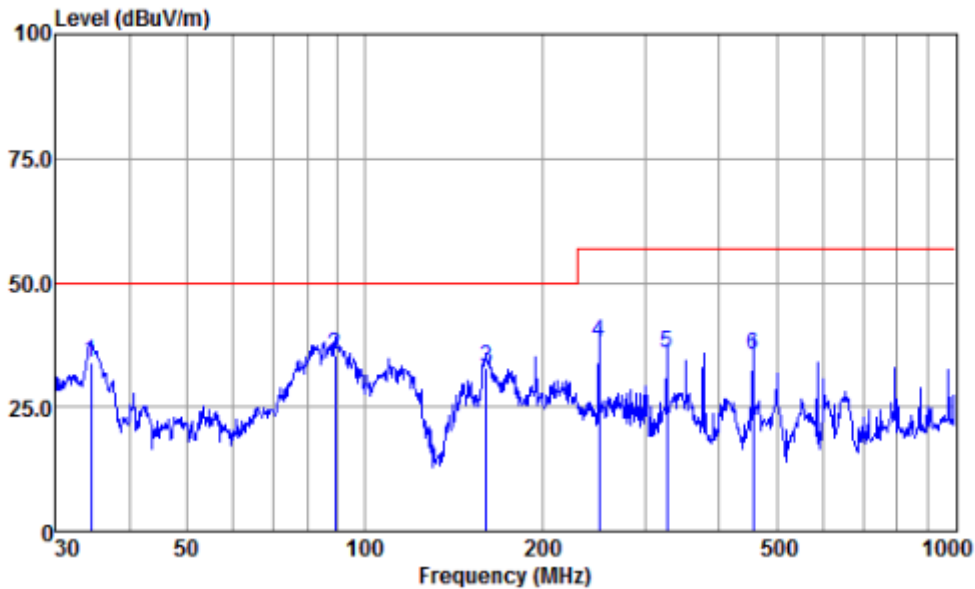
#### 6.3.2 Test Setup Diagram



#### 6.3.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Mode:a; Horizontal:



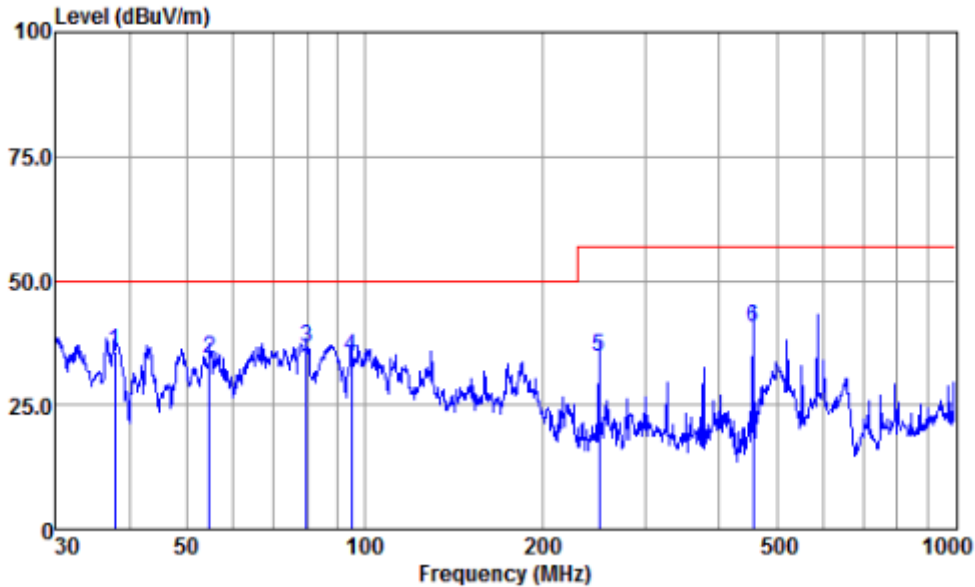
Antenna Polarity :HORIZONTAL  
 EUT/Project :1747TX  
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	34.40	60.50	15.78	0.20	42.61	33.87	50.00	-16.13 QP
2	89.28	69.46	8.09	0.41	42.68	35.28	50.00	-14.72 QP
3	160.91	61.81	12.93	0.64	42.59	32.79	50.00	-17.21 QP
4	250.30	68.11	11.50	0.77	42.46	37.92	57.00	-19.08 QP
5	325.60	63.39	13.73	0.88	42.32	35.68	57.00	-21.32 QP
6	455.91	59.96	16.33	1.10	42.12	35.27	57.00	-21.73 QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



Mode:a; Vertical:



Antenna Polarity :VERTICAL

EUT/Project :1747TX

Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	37.81	61.98	16.10	0.21	42.62	35.67	50.00	-14.33 QP
2	54.64	65.11	11.56	0.28	42.65	34.30	50.00	-15.70 QP
3	79.80	70.58	8.09	0.38	42.67	36.38	50.00	-13.62 QP
4	95.09	68.01	8.85	0.44	42.69	34.61	50.00	-15.39 QP
5	250.30	64.81	11.50	0.77	42.46	34.62	57.00	-22.38 QP
6	455.91	65.23	16.33	1.10	42.12	40.54	57.00	-16.46 QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

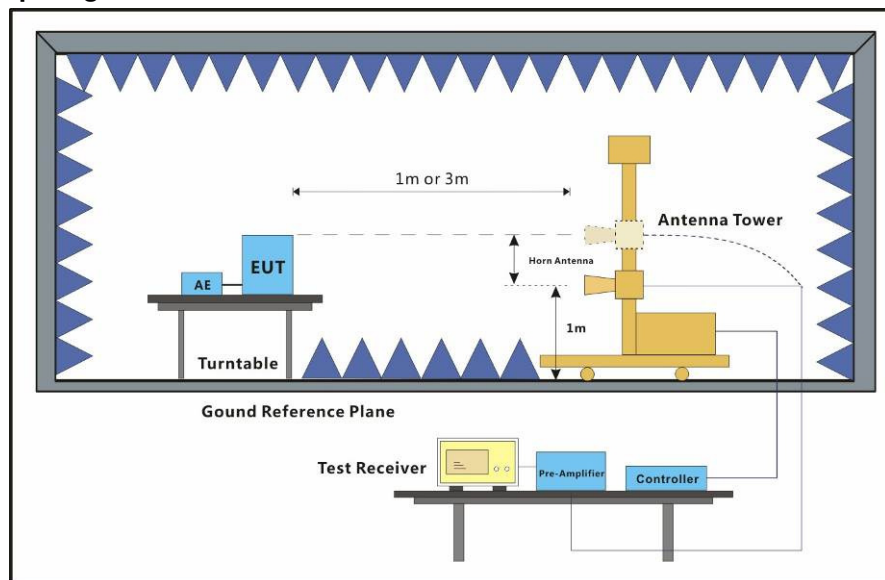
### 6.4 Radiated Emissions (above 1GHz)

Test Requirement: EN 61000-6-4:2007 +A1:2011  
 Test Method: CISPR 16-2-3  
 Frequency Range: Above 1GHz  
 Measurement Distance: 3m  
 Limit:  
 1GHz-3GHz 76 dB(μV/m) peak, 56 dB(μV/m) average  
 3GHz-6GHz 80 dB(μV/m) peak, 60dB(μV/m) average  
 Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to 6000MHz

#### 6.4.1 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar  
 Test mode a:Keep EUT connecting continual.

#### 6.4.2 Test Setup Diagram

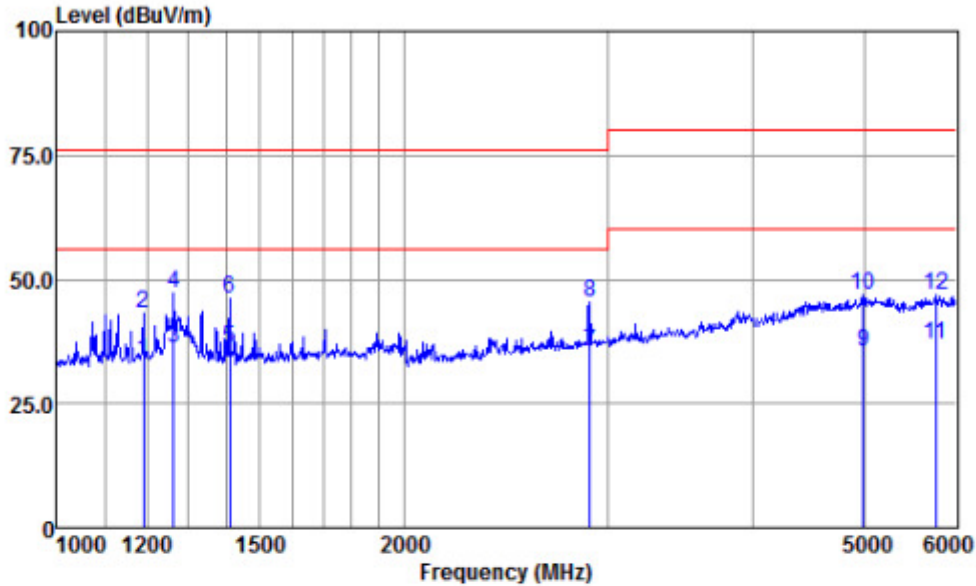


#### 6.4.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



Mode:a; Horizontal:

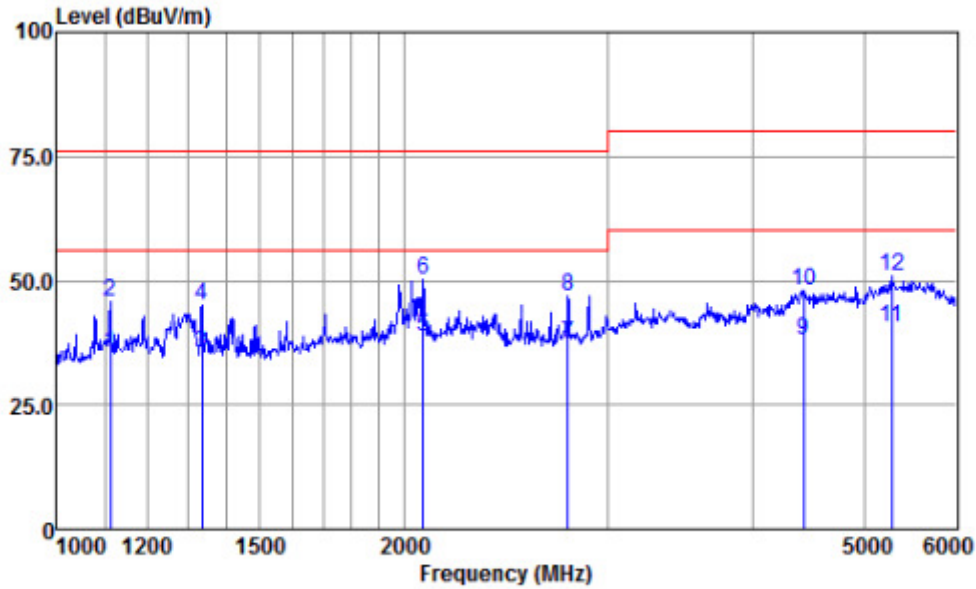


Antenna Polarity :HORIZONTAL  
 EUT/Project :1747TX  
 Test mode :a

	Read	Antenna	Cable	Preamp	Emission	Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	1187.69	47.34	24.57	3.37	41.82	33.46	56.00	-22.54 Average
2	1187.69	57.20	24.57	3.37	41.82	43.32	76.00	-32.68 Peak
3	1262.29	49.84	24.74	3.48	41.85	36.21	56.00	-19.79 Average
4	1262.29	60.82	24.74	3.48	41.85	47.19	76.00	-28.81 Peak
5	1410.60	49.31	25.03	3.71	41.90	36.15	56.00	-19.85 Average
6	1410.60	59.40	25.03	3.71	41.90	46.24	76.00	-29.76 Peak
7	2893.64	43.28	28.29	5.73	41.80	35.50	56.00	-20.50 Average
8	2893.64	53.16	28.29	5.73	41.80	45.38	76.00	-30.62 Peak
9	4988.86	37.35	31.57	8.19	41.61	35.50	60.00	-24.50 Average
10	4988.86	48.78	31.57	8.19	41.61	46.93	80.00	-33.07 Peak
11	5768.09	38.01	32.27	8.38	41.91	36.75	60.00	-23.25 Average
12	5768.09	48.18	32.27	8.38	41.91	46.92	80.00	-33.08 Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:a; Vertical:



Antenna Polarity :VERTICAL  
 EUT/Project :1747TX  
 Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	1113.50	49.56	24.39	3.25	41.79	35.41	56.00	-20.59	Average
2	1113.50	59.93	24.39	3.25	41.79	45.78	76.00	-30.22	Peak
3	1336.78	48.64	24.89	3.60	41.88	35.25	56.00	-20.75	Average
4	1336.78	58.43	24.89	3.60	41.88	45.04	76.00	-30.96	Peak
5	2077.24	50.02	26.24	4.60	42.21	38.65	56.00	-17.35	Average
6	2077.24	61.43	26.24	4.60	42.21	50.06	76.00	-25.94	Peak
7	2771.84	45.65	28.03	5.64	41.91	37.41	56.00	-18.59	Average
8	2771.84	55.06	28.03	5.64	41.91	46.82	76.00	-29.18	Peak
9	4432.45	41.74	30.49	7.64	41.70	38.17	60.00	-21.83	Average
10	4432.45	51.55	30.49	7.64	41.70	47.98	80.00	-32.02	Peak
11	5283.27	42.47	31.77	8.26	41.84	40.66	60.00	-19.34	Average
12	5283.27	52.80	31.77	8.26	41.84	50.99	80.00	-29.01	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor





## 6.5 Harmonic Current Emission

Test Requirement: EN 61000-6-4:2007 +A1:2011

Test Method: EN 61000-3-2:2014

Frequency Range: 100Hz to 2kHz

There is no need for Harmonics test to be performed on this product (rated power is less than 75W) in accordance with EN 61000-3-2:2014.

For further details, please refer to Clause 7 of EN 61000-3-2 which states:

"For the following categories of equipment, limits are not specified in this standard.- equipment with a rated power of 75W or less, other than lighting equipment."

## 6.6 Voltage Fluctuations and Flicker

Test Requirement: EN 61000-6-4:2007 +A1:2011

Test Method: EN 61000-3-3:2013

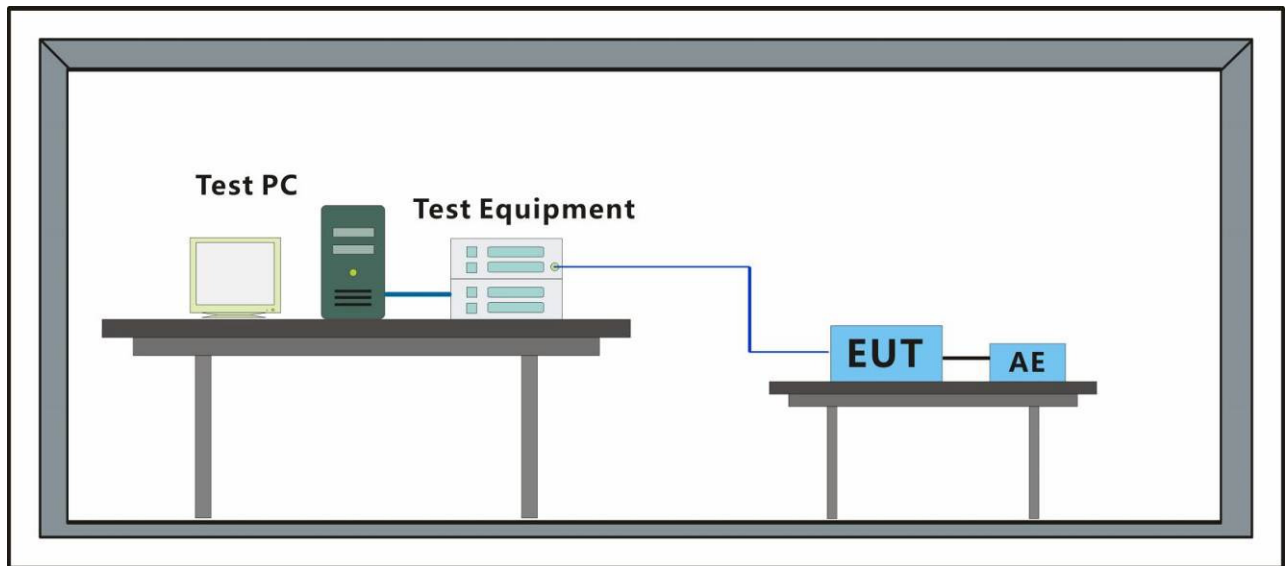
### 6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode a:Keep EUT connecting continual.

### 6.6.2 Test Setup Diagram



### 6.6.3 Measurement Data

Mode:a

Vrms at the end of test (Volt):	229.92	Test limit (mS):	500.0	Pass
T-max (mS):	0	Test limit (%):	3.30	Pass
Highest dc (%):	0.00	Test limit (%):	4.00	Pass
Highest dmax (%):	1.21	Test limit:	1.000	Pass
Highest Pst (10 min. period):	0.201	Test limit:	0.650	Pass
Highest Plt (2 hr. period):	0.088			

## 7 Immunity Test Results

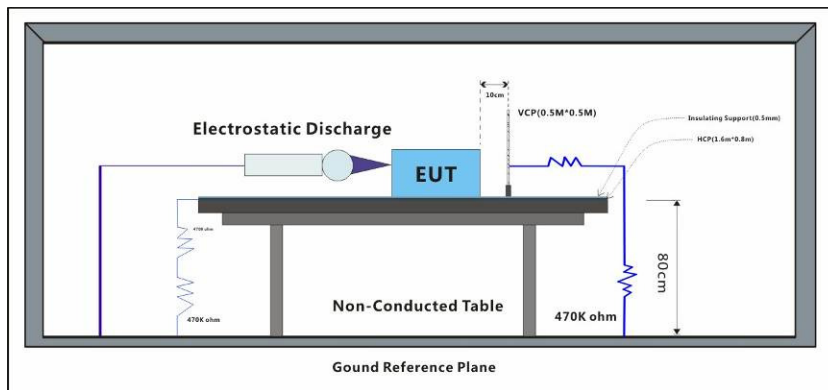
### 7.1 Performance Criteria Description in EN 61000-6-2:2005

- Criterion A** The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
- Criterion B** The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
- Criterion C** Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

## 7.2 Electrostatic Discharge

Test Requirement:	EN 61000-6-2:2005
Test Method:	EN 61000-4-2:2009
Performance Criterion:	B
Discharge Impedance:	330Ω/150pF
Number of Discharge:	Minimum 10 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

### 7.2.1 Test Setup Diagram



### 7.2.2 E.U.T. Operation

Operating Environment:			
Temperature:	22 °C	Humidity: 50 % RH	Atmospheric Pressure: 1002 mbar
Test mode:	a:Keep EUT connecting continual.		

### 7.2.3 Test Results:

- Observations: Test Point:
1. All insulated enclosure and seams.
  2. All accessible metal parts of the enclosure.
  3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	8	+	1	A
Air Discharge	8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

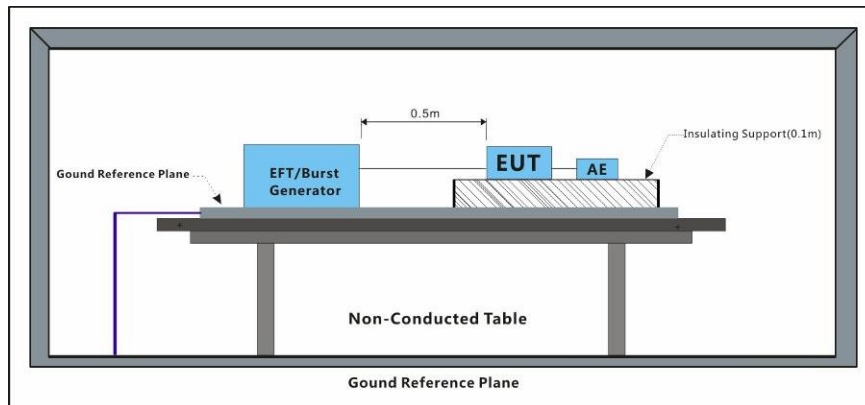
### Results:

A: No degradation in the performance of the EUT was observed.

### 7.3 Electrical Fast Transients/Burst at Power Port

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-4:2012  
 Performance Criterion: B  
 Repetition Frequency: 5kHz  
 Burst Period: 300ms  
 Test Duration: 2 minute per level & polarity

#### 7.3.1 Test Setup Diagram



#### 7.3.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1002 mbar  
 Test mode: a:Keep EUT connecting continual.

#### 7.3.3 Test Results:

Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	2	+	CDN	A
AC power port	2	-	CDN	A

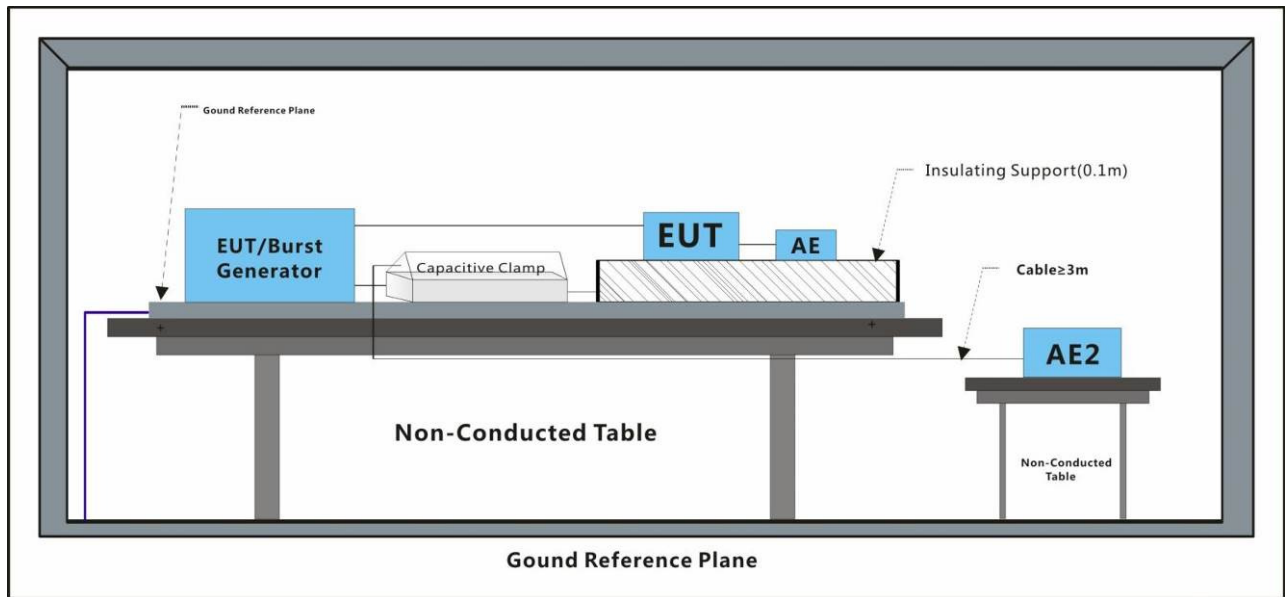
#### Results:

A: No degradation in the performance of the EUT was observed.

### 7.4 Electrical Fast Transients/Burst at Signal Port

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-4:2012  
 Performance Criterion: B  
 Repetition Frequency: 5kHz  
 Burst Period: 300ms  
 Test Duration: 2 minute per level & polarity

#### 7.4.1 Test Setup Diagram



#### 7.4.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1002 mbar  
 Test mode: a:Keep EUT connecting continual.

#### 7.4.3 Test Results:

Port	Level (kV)	Polarity	CDN/Clamp	Result / Observations
Signal port	1	+	Clamp	A
Signal port	1	-	Clamp	A

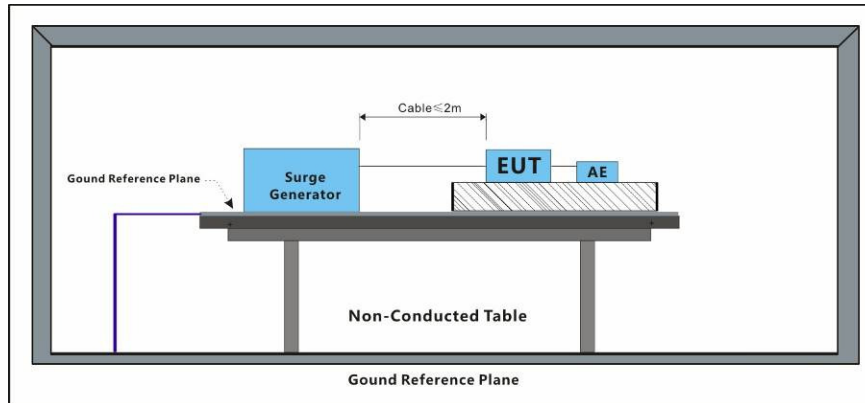
#### Results:

A: No degradation in the performance of the EUT was observed.

### 7.5 Surge at Power Port

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-5:2014  
 Performance Criterion: B  
 Interval: 60s between each surge  
 No. of surges: 5 positive, 5 negative at 0°, 90°, 180°, 270°.

#### 7.5.1 Test Setup Diagram



#### 7.5.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1002 mbar  
 Test mode: a:Keep EUT connecting continual.

#### 7.5.3 Test Results:

Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	0°	A
L-N	1	-	0°	A
L-N	1	+	90°	A
L-N	1	-	90°	A
L-N	1	+	180°	A
L-N	1	-	180°	A
L-N	1	+	270°	A
L-N	1	-	270°	A
L-PE	2	+	0°	A
L-PE	2	-	0°	A
L-PE	2	+	90°	A
L-PE	2	-	90°	A
L-PE	2	+	180°	A
L-PE	2	-	180°	A
L-PE	2	+	270°	A
L-PE	2	-	270°	A
N-PE	2	+	0°	A
N-PE	2	-	0°	A
N-PE	2	+	90°	A
N-PE	2	-	90°	A



N-PE	2	+	180°	A
N-PE	2	-	180°	A
N-PE	2	+	270°	A
N-PE	2	-	270°	A

**Results:**

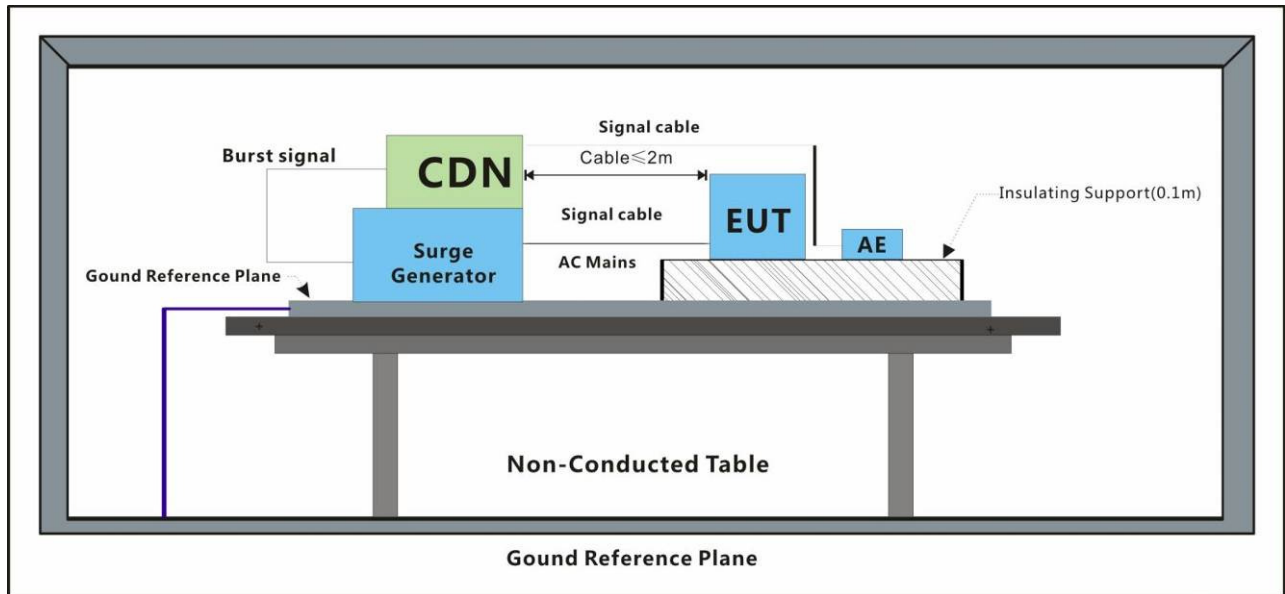
A: No degradation in the performance of the EUT was observed.



## 7.6 Surge at Signal Port

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-5:2014  
 Performance Criterion: B  
 Interval: 60s between each surge

### 7.6.1 Test Setup Diagram



### 7.6.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar  
 Test mode: a:Keep EUT connecting continual.

### 7.6.3 Test Results:

Port	Line	Level (kV)	Polarity	Result / Observations
Signal Port	Line-Ground	1	+	A
Signal Port	Line-Ground	1	-	A

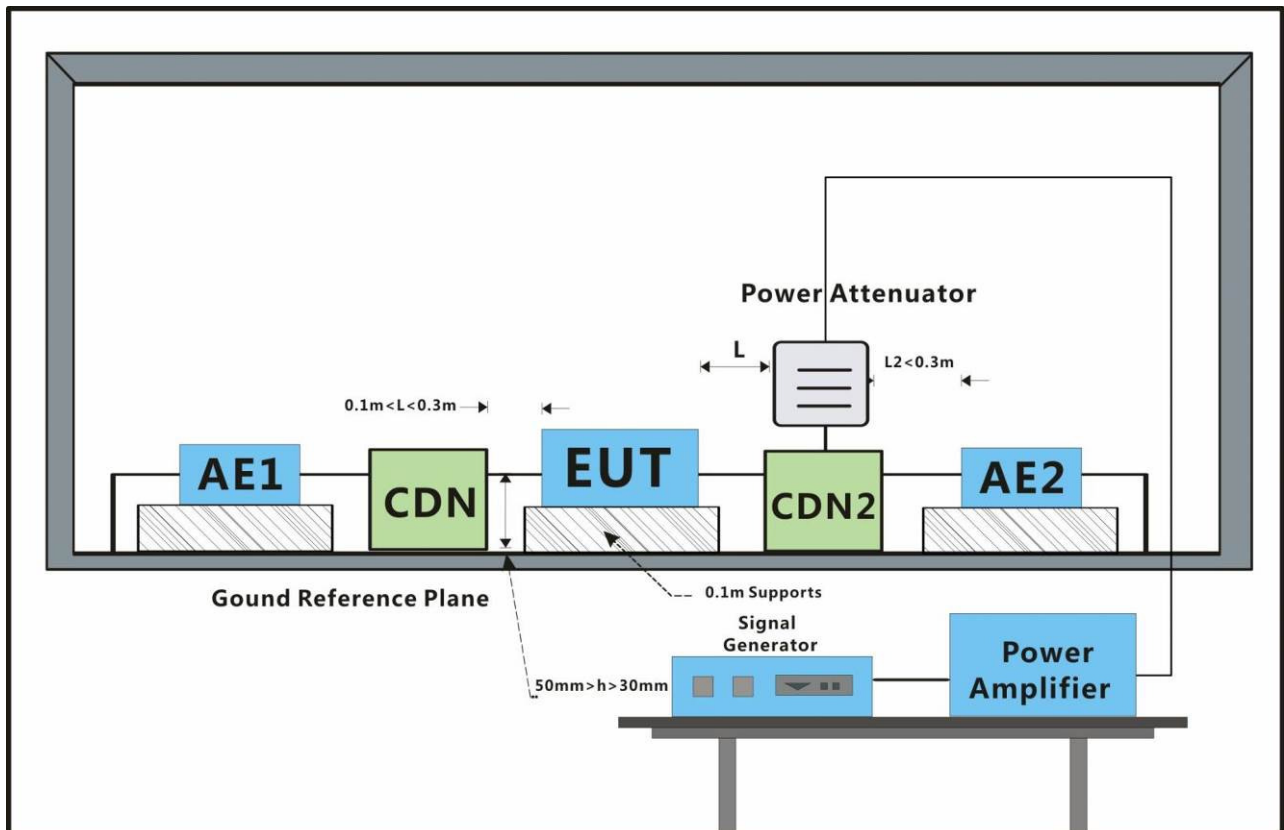
#### Results:

A: No degradation in the performance of the EUT was observed.

### 7.7 Conducted Immunity at Power Port (150kHz-80MHz)

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-6:2014  
 Performance Criterion: A  
 Frequency Range: 0.15MHz to 80MHz  
 Modulation: 80%, 1kHz Amplitude Modulation  
 Step Size: 1%

#### 7.7.1 Test Setup Diagram



#### 7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1020 mbar

Test mode: a:Keep EUT connecting continual.

#### 7.7.3 Test Results:

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	10	CDN	2s	A

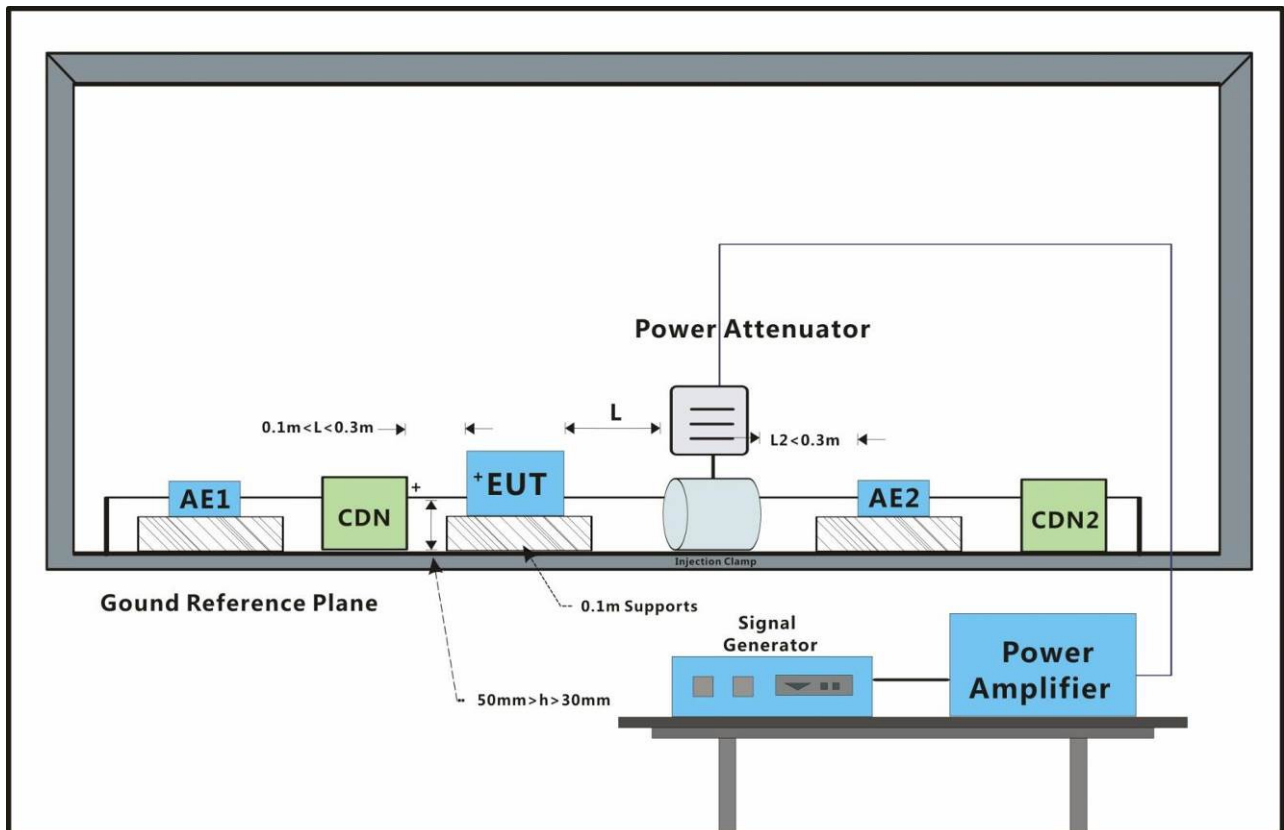
#### Results:

A: No degradation in the performance of the EUT was observed.

### 7.8 Conducted Immunity at Signal Port (150kHz-80MHz)

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-6:2014  
 Performance Criterion: A  
 Frequency Range: 0.15MHz to 80MHz  
 Modulation: 80%, 1kHz Amplitude Modulation  
 Step Size: 1%

#### 7.8.1 Test Setup Diagram



#### 7.8.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Keep EUT connecting continual.

#### 7.8.3 Test Results:

Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
Signal port	10	Coupling	2s	A

#### Results:

A: No degradation in the performance of the EUT was observed.

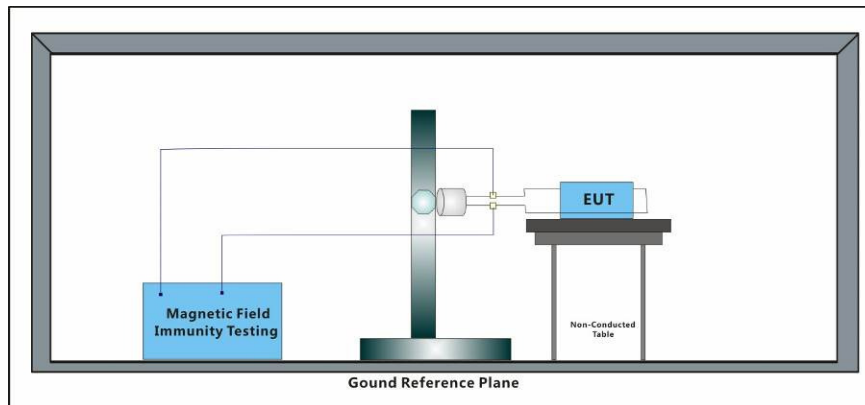
## 7.9 Power Frequency Magnetic Field

Test Requirement: EN 61000-6-2:2005

Test Method: EN 61000-4-8:2010

Performance Criterion: A

### 7.9.1 Test Setup Diagram



### 7.9.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a:Keep EUT connecting continual.

### 7.9.3 Test Results:

Frequency	Level (A/m)	Axial	Magnetic Field Type	Result / Observations
50Hz	30	X	Continuous filed	A
50Hz	30	Y	Continuous filed	A
50Hz	30	Z	Continuous filed	A

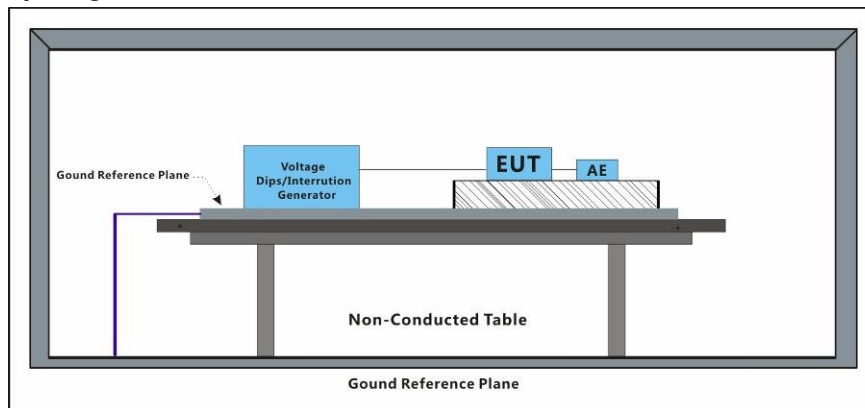
#### Results:

A: No degradation in the performance of the EUT was observed.

### 7.10 Voltage Dips and Interruptions

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-11:2004  
 Performance Criterion: 0% of UT (Supply Voltage) for 250 Periods:C; 40% of UT for 10 Periods:C; 70% of UT for 25 Periods:C; 0% of UT for 1 Periods:B;  
 No. of Dips / Interruptions: 3 per Level  
 Time between dropout 10s

#### 7.10.1 Test Setup Diagram



#### 7.10.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar  
 Test mode: a:Keep EUT connecting continual.

#### 7.10.3 Test Results:

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	1 Cycles	3	A
0	180°	1 Cycles	3	A
40	0°	10 Cycles	3	A
40	180°	10 Cycles	3	A
70	0°	25 Cycles	3	A
70	180°	25 Cycles	3	A
0	0°	250 Cycles	3	C
0	180°	250 Cycles	3	C

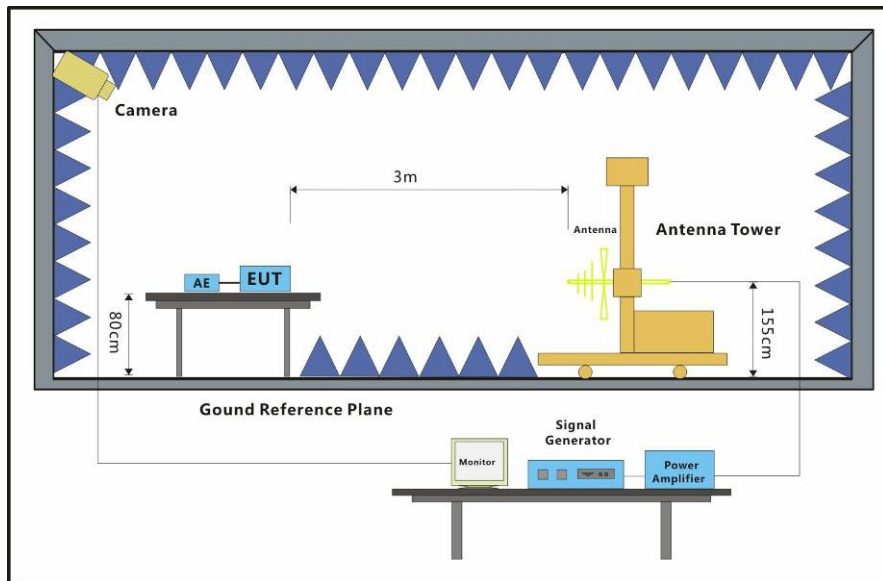
#### Results:

A: No degradation in the performance of the EUT was observed.  
 C: During test, EUT stop work, After test ,EUT restart by operator

### 7.11 Radiated Immunity(80MHz-2.7GHz)

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-3:2006 +A1:2008+A2:2010  
 Performance Criterion: A  
 Frequency Range: 80MHz to 1GHz, 1.4GHz to 2GHz, 2GHz to 2.7GHz  
 Antenna Polarisation: Vertical and Horizontal  
 Modulation: 1kHz,80% Amp. Mod,1% increment

#### 7.11.1 Test Setup Diagram



#### 7.11.2 E.U.T. Operation

Operating Environment:  
 Temperature: 22 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar  
 Test mode: a:Keep EUT connecting continual.

#### 7.11.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-1GHz	10	Front	2s	A
80MHz-1GHz	10	Back	2s	A
80MHz-1GHz	10	Left	2s	A
80MHz-1GHz	10	Right	2s	A
80MHz-1GHz	10	Top	2s	A
80MHz-1GHz	10	Underside	2s	A
1.4GHz-2GHz	3	Front	2s	A
1.4GHz-2GHz	3	Back	2s	A
1.4GHz-2GHz	3	Left	2s	A
1.4GHz-2GHz	3	Right	2s	A
1.4GHz-2GHz	3	Top	2s	A
1.4GHz-2GHz	3	Underside	2s	A
2GHz-2.7GHz	1	Front	2s	A
2GHz-2.7GHz	1	Back	2s	A
2GHz-2.7GHz	1	Left	2s	A



2GHz-2.7GHz	1	Right	2s	A
2GHz-2.7GHz	1	Top	2s	A
2GHz-2.7GHz	1	Underside	2s	A

**Results:**

A: No degradation in the performance of the EUT was observed.

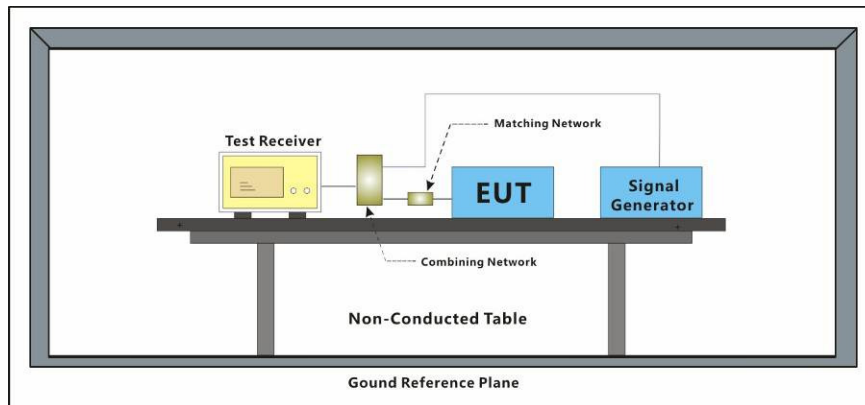
### 7.12 Electrical Fast Transients/Burst at DC port

Test Requirement: EN 61000-6-2:2005

Test Method: EN 61000-4-4:2012

Performance Criterion: B

#### 7.12.1 Test Setup Diagram



#### 7.12.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a:Keep EUT connecting continual.

#### 7.12.3 Test Results:

Port	Level (kV)	Polarity	CDN/Clamp	Result / Observations
DC power port	2	+	Clamp	A
DC power port	2	-	Clamp	A

#### Results:

A: No degradation in the performance of the EUT was observed.



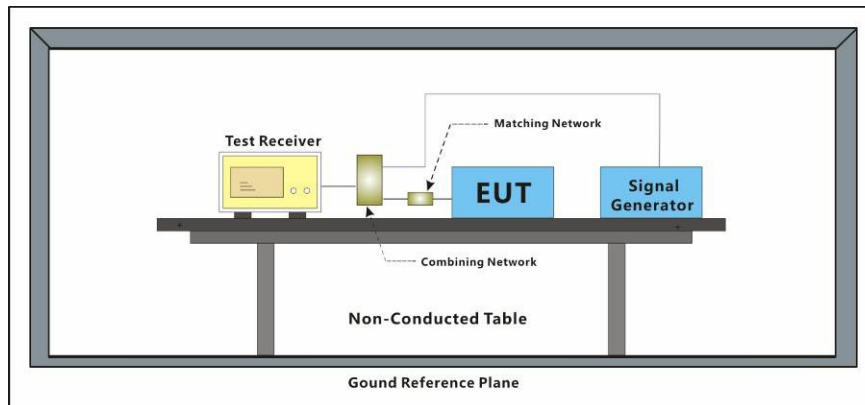
### 7.13 Surge at DC Port

Test Requirement: EN 61000-6-2:2005

Test Method: EN 61000-4-5:2014

Performance Criterion: B

#### 7.13.1 Test Setup Diagram



#### 7.13.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C      Humidity: 50 % RH      Atmospheric Pressure: 1002 mbar

Test mode: a:Keep EUT connecting continual.

#### 7.13.3 Test Results:

Port	Line	Level (kV)	Polarity	Result / Observations
DC power port	Line-Line	0.5	+	A
DC power port	Line-Line	0.5	-	A
DC power port	Line-Ground	0.5	+	A
DC power port	Line-Ground	0.5	-	A

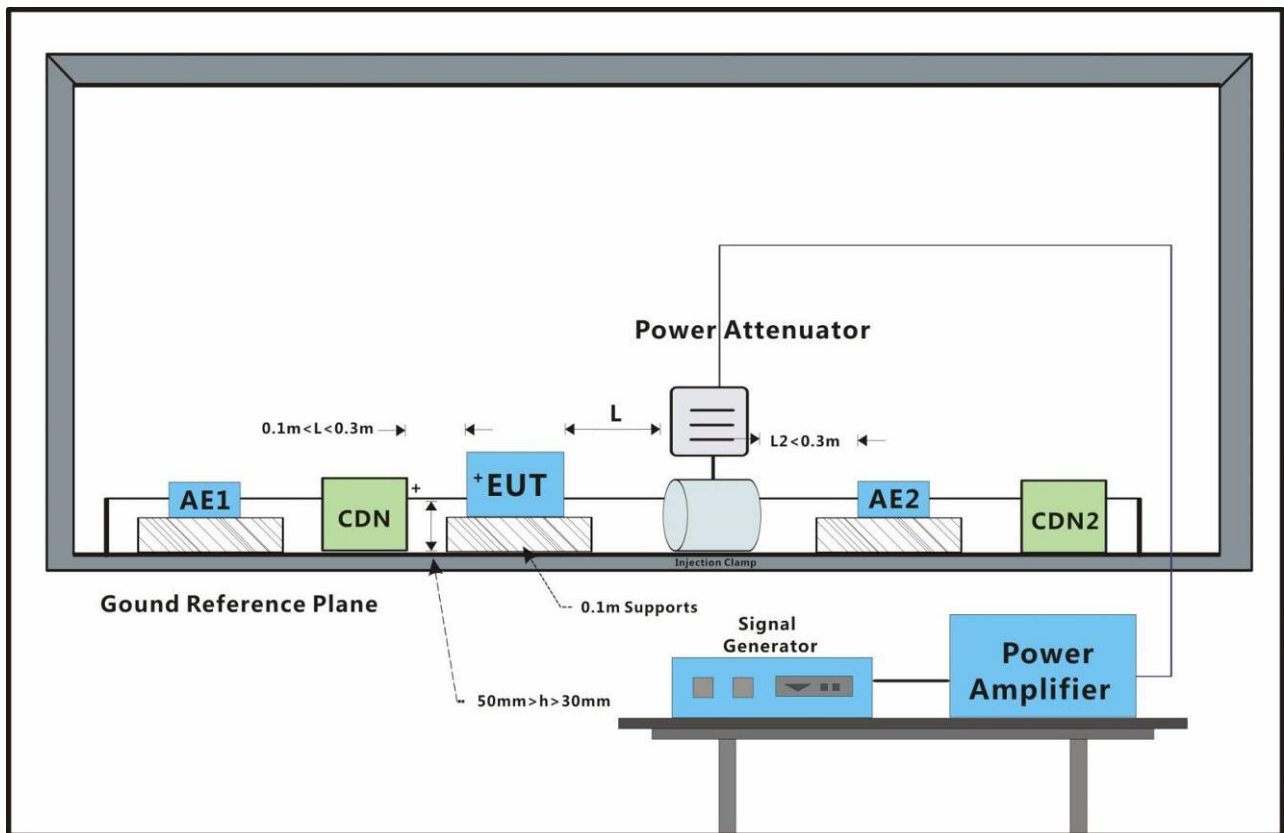
#### Results:

A: No degradation in the performance of the EUT was observed.

### 7.14 Conducted Immunity at DC Port (150kHz-80MHz)

Test Requirement: EN 61000-6-2:2005  
 Test Method: EN 61000-4-6:2014  
 Performance Criterion: B  
 Performance Criterion: A  
 Frequency Range: 0.15MHz to 80MHz  
 Modulation: 80%, 1kHz Amplitude Modulation  
 Step Size 1%

#### 7.14.1 Test Setup Diagram



#### 7.14.2 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Keep EUT connecting continual.

#### 7.14.3 Test Results:

Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
DC power port	10	Clamp	2s	A

#### Results:

A: No degradation in the performance of the EUT was observed.

## 8 Photographs

### 8.1 Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup



## 8.2 Conducted Emissions at Telecommunication Port (150kHz-30MHz) Test Setup





### 8.3 Radiated Emissions (30MHz-1GHz) Test Setup



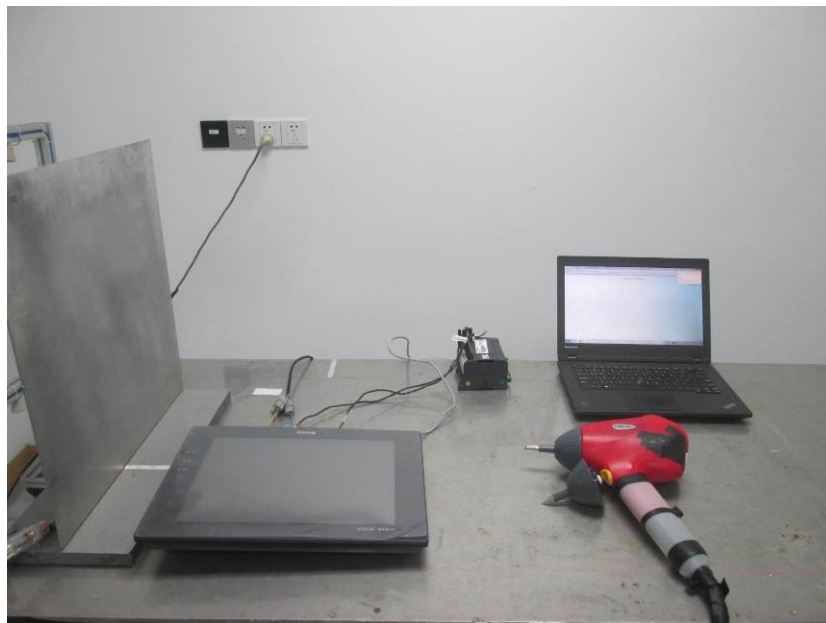
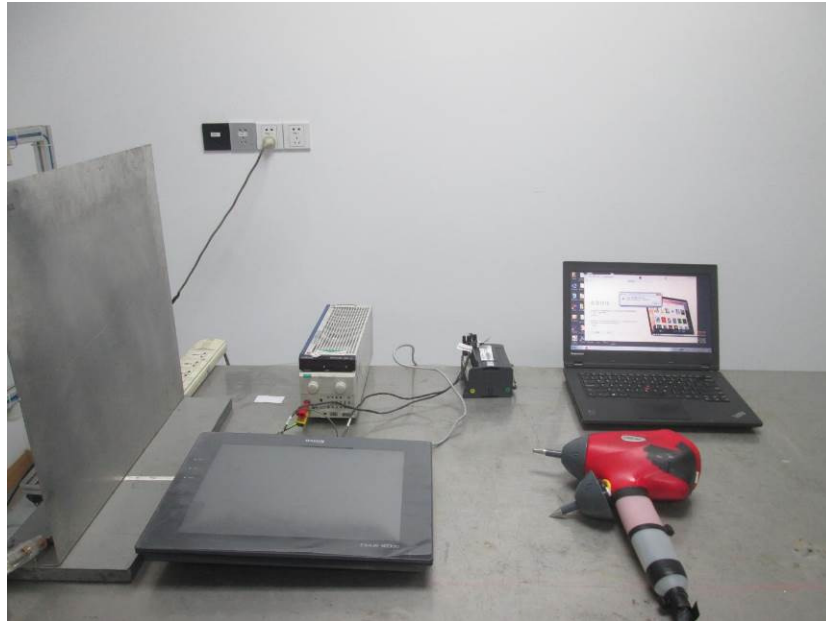
### 8.4 Radiated Emissions (above 1GHz) Test Setup



## 8.5 Voltage Fluctuations and Flicker Test Setup



## 8.6 Electrostatic Discharge Test Setup



## 8.7 Electrical Fast Transients/Burst at Power Port Test Setup





### 8.8 Electrical Fast Transients/Burst at Signal Port Test Setup



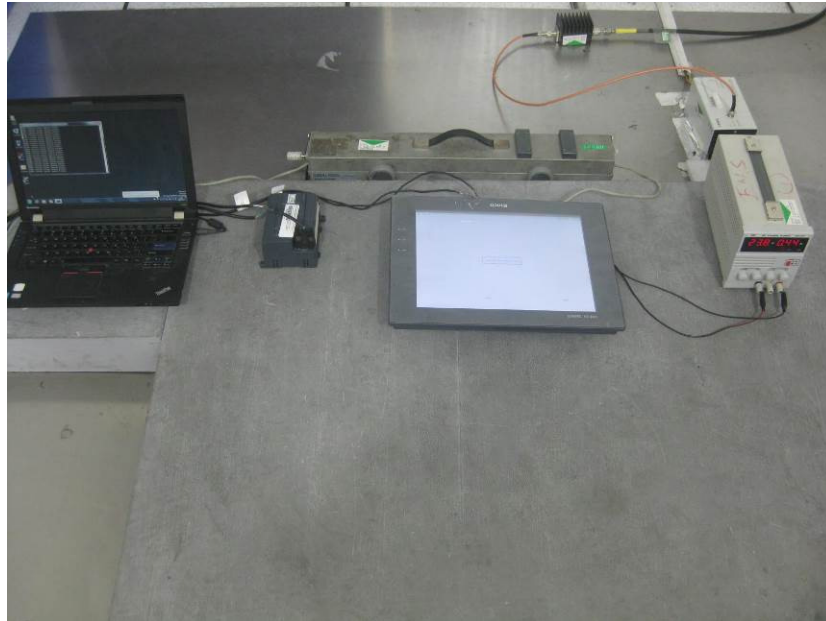
## 8.9 Surge at Power Port Test Setup



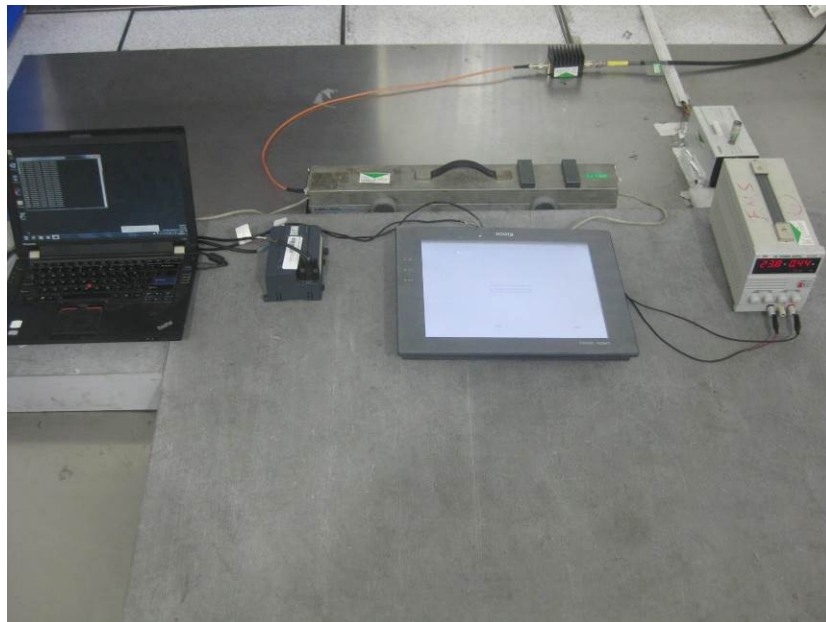
### 8.10 Surge at Signal Port Test Setup



### 8.11 Conducted Immunity at Power Port (150kHz-80MHz) Test Setup

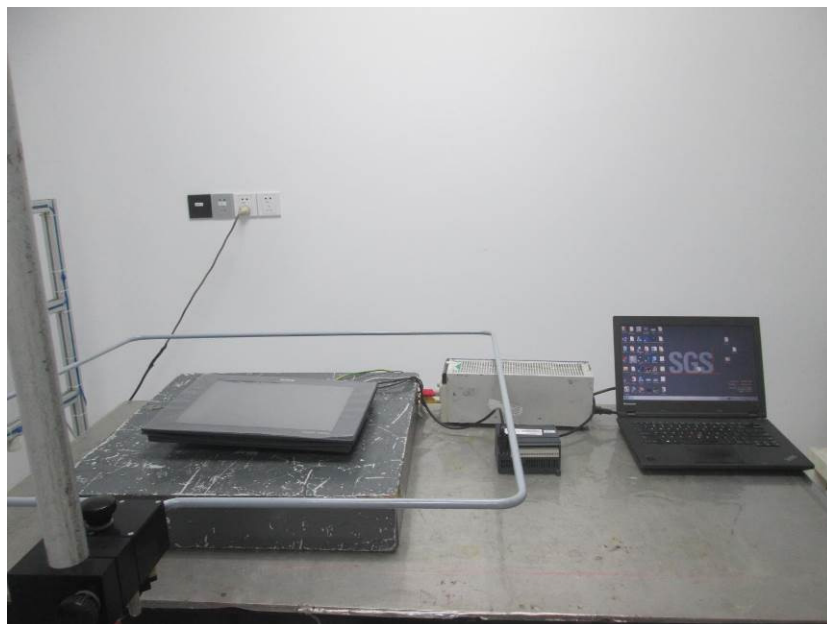
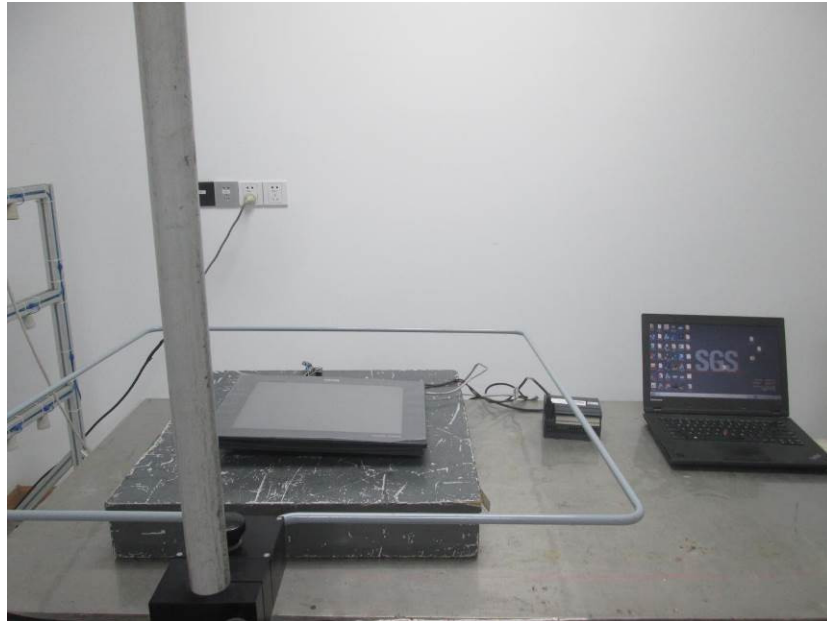


### 8.12 Conducted Immunity at Signal Port (150kHz-80MHz) Test Setup





### 8.13 Power Frequency Magnetic Field Test Setup



### 8.14 Voltage Dips and Interruptions Test Setup



### 8.15 Radiated Immunity(80MHz-2.7GHz) Test Setup



### 8.16 Electrical Fast Transients/Burst at DC port Test Setup



### 8.17 Surge at DC Port Test Setup



### 8.18 Conducted Immunity at DC Port (150kHz-80MHz) Test Setup

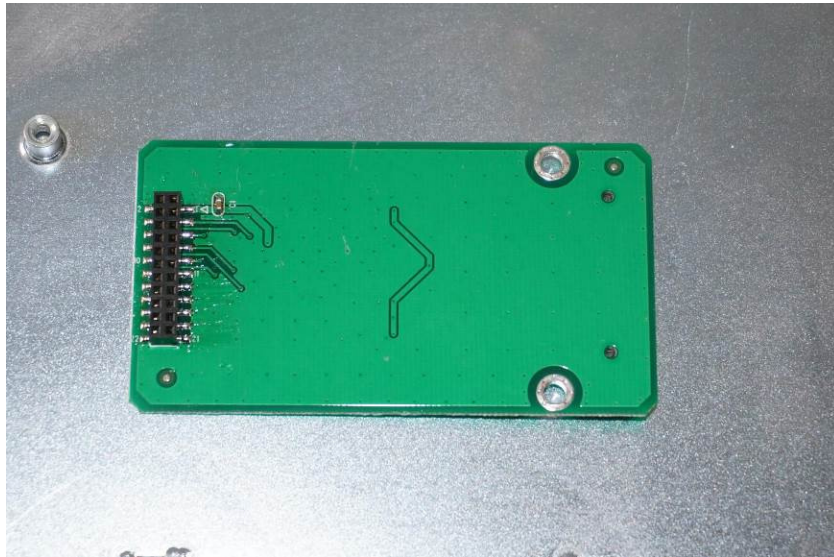




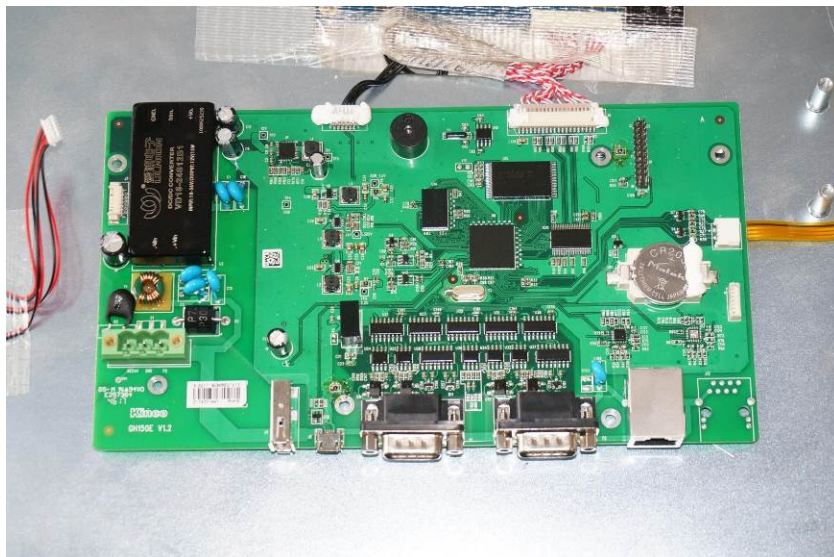
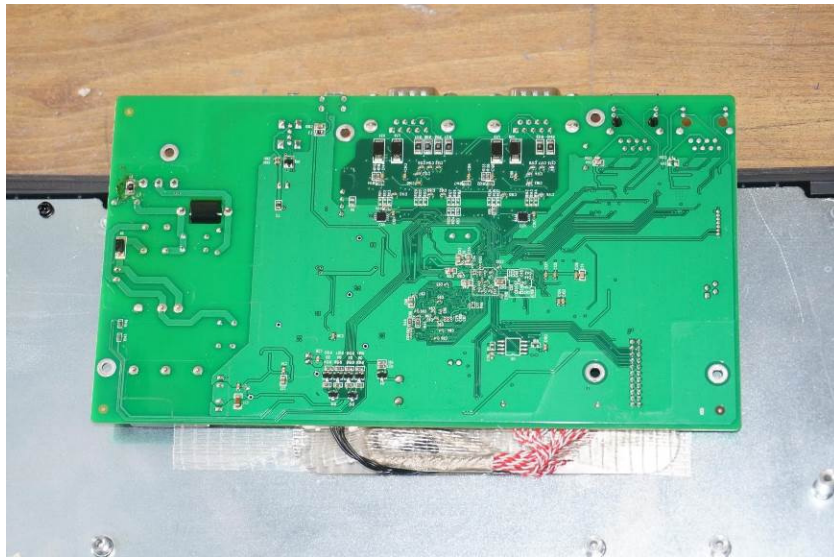
### 8.19 EUT Constructional Details (EUT Photos)











- End of the Report -