






TEST REPORT	
ETSI EN 301 489-1 V2.2.0: 2017-03	
ETSI EN 301 489-17 V3.2.0: 2017-03	
Report Reference No.:	HTT190102090E-1
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Date of issue.....:	Jan.11,2019
Testing Laboratory Name	Shenzhen HTT Technology Co., Ltd.
Address	7F,A Building,Smart valley Science and technology innovation Park,Xixiang,Baoan District,Shenzhen,Guangdong,China
Applicant's name :	VISSONIC Electronics Limited
Address	Room 305,Building No. 9 KeJi St.,Lanyusi St.,Kaifa Rd.,Economic development Zone,Huangpu district,Guangzhou,China
Test specification	
Standard	ETSI EN 301 489-1 V2.2.0: 2017-03 ETSI EN 301 489-17 V3.2.0: 2017-03
Test item description	Full Digital DSP Wireless Conference System
Trade Mark	VISSONIC
Manufacturer	VISSONIC Electronics Limited Room 305,Building No. 9 KeJi St.,Lanyusi St.,Kaifa Rd.,Economic development Zone,Huangpu district,Guangzhou,China
Model/Type reference.....:	VIS-DCP2000-W
Serial Model.....:	VIS-WDC-T, VIS-WDD-T, VIS-WVC-T, VIS-WVD-T, VIS-WSC-T, VIS-WSD-T, VIS-WVCIC-T, VIS-WVDIC-T, VIS-WDC-TD, VIS-WDD-TD, VIS-WVC-TD, VIS-WVD-TD, VIS-WVCIC-TD, VIS-WVDIC-TD,VIS-AP4C, VIS-WCH1,VIS-WBTY1
Ratings	Input: 110/220V~ 50/60Hz, 3A,150W Output: 48Vdc, 3.125A
Result.....:	PASS





TEST REPORT

Test Report No. :	HTT190102090E-1	Jan.11,2019
		Date of issue

Equipment under Test : Full Digital DSP Wireless Conference System

Model Name : VIS-DCP2000-W

Serial Model : VIS-WDC-T, VIS-WDD-T, VIS-WVC-T, VIS-WVD-T, VIS-WSC-T, VIS-WSD-T, VIS-WVCIC-T, VIS-WVDIC-T, VIS-WDC-TD, VIS-WDD-TD, VIS-WVC-TD, VIS-WVD-TD, VIS-WVCIC-TD, VIS-WVDIC-TD, VIS-AP4C, VIS-WCH1, VIS-WBTY1

Trade Mark : VISSONIC

Applicant : VISSONIC Electronics Limited
Address : Room 305, Building No. 9 KeJi St., Lanyusi St., Kaifa Rd., Economic development Zone, Huangpu district, Guangzhou, China

Manufacturer : VISSONIC Electronics Limited
Address : Room 305, Building No. 9 KeJi St., Lanyusi St., Kaifa Rd., Economic development Zone, Huangpu district, Guangzhou, China

Test Result	PASS
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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.



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1. TEST STANDARDS

The tests were performed according to following standards:

ETSI EN 301 489-1 V2.2.0 (2017-03)–ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;Part 1: Common technical requirements;Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
ETSI EN 301 489-17 V3.2.0 (2017-03)–ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems;Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU



2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Jan.07,2019
Testing commenced on	:	Jan.07,2019
Testing concluded on	:	Jan.11,2019

2.2. Product Description

Product Name:	Full Digital DSP Wireless Conference System
Model:	VIS-DCP2000-W
Serial Model:	VIS-WDC-T, VIS-WDD-T, VIS-WVC-T, VIS-WVD-T, VIS-WSC-T, VIS-WSD-T, VIS-WVCIC-T, VIS-WVDIC-T, VIS-WDC-TD, VIS-WDD-TD, VIS-WVC-TD, VIS-WVD-TD, VIS-WVCIC-TD, VIS-WVDIC-TD, VIS-AP4C, VIS-WCH1, VIS-WBTY1
Model Difference:	All the model are the same circuit and RF module, except the model name and colour.
Trade Mark:	VISSONIC
Adapter:	Input: 110/220V~ 50/60Hz, 3A,150W Output: 48Vdc, 3.125A
Operation frequency	WIFI: IEEE 802.11b:2412-2472MHz IEEE 802.11g:2412-2472MHz IEEE 802.11n HT20:2412-2472MHz IEEE 802.11n HT40:2422-2462MHz
Modulation Type	WIFI: IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK)



2.3. DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	WIFI mode
Mode 2	Normal working mode

For Conducted Test	
Final Test Mode	Description
Mode 1	WIFI Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	WIFI Mode

For EMS Test	
Pretest Mode	Description
Mode 1	WIFI mode
Mode 2	Normal working mode

2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

<input type="radio"/>	/	M/N:	/
<input type="checkbox"/>		Manufacturer:	/

2.5. Modifications

No modifications were implemented to meet testing criteria.



3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen HTT Technology Co., Ltd.

7F,A Building,Smart valley Science and technology innovation Park,Xixiang,Baoan

District,Shenzhen,Guangdong,China

3.2. Environmental conditions

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

Normal Temperature:	25°C
Lative Humidity	55 %
Air Pressure	989 hPa



3.3. Test Description

Test procedures according to the technical standards:

ETSI EN 301 489-1 V2.2.0: 2017-03
ETSI EN 301 489-17 V3.2.0: 2017-03

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN 55032:2012+AC:2013	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	
EN 61000-3-2: 2014	Harmonic Current Emission	Class A or D NOTE (2)	N/A	
EN 61000-3-3: 2013	Voltage Fluctuations & Flicker	-----	PASS	
EMC Immunity				
Section EN 55024: 2010+A1:2015	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN 61000-4-3:2006+A1:2008+A2:2010	RF electromagnetic field	A	PASS	
EN 61000-4-4:2012	Fast transients	B	PASS	
EN 61000-4-5:2014	Surges	B	PASS	
EN 61000-4-6:2014+AC:2015	Injected Current	A	PASS	
EN 61000-4-11:2004+A1:2017	Volt. Interruptions Volt. Dips	B / C / C NOTE (3)	PASS	

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) The power consumption of EUT is less than 75W and no Limits apply.
- (3) Voltage dip: 100% reduction – Performance Criteria **B**
Voltage dip: 30% reduction – Performance Criteria **C**
Voltage Interruption: 100% Interruption – Performance Criteria **C**
- (4) For client's request and manual description, the test will not be executed.



3.4. Statement of the measurement uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

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

3.5. Equipments Used during the Test

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	103710	2018/05/02	2019/05/01
2	LISN	SCHWARZBECK	NSLK 8127	860014/010	2018/05/02	2019/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2018/05/02	2019/05/01

Radiated Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ULTRA-BROADBAND ANTENNA	Sunol Sciences Corp.	JB1 Antenna	A061713	2018/05/02	2019/05/01
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	1166.5950.03	2018/05/02	2019/05/01
3	Horn Antenna	Sunol Sciences Corp	DRH-118	A062013	2018/05/02	2019/05/01
4	Pre-Amplifier	Agilent	8447D	2944A10176	2018/05/02	2019/05/01
5	Pre-Amplifier	Agilent	8449B	3008A02306	2018/05/02	2019/05/01
6	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2018/05/02	2019/05/01



Harmonic Current/ Voltage Fluctuation and Flicker						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Purified Power Source	MToni	PHF 5010	N/A	2018/05/02	2019/05/01
2	Harmonic And Flicker Analyzer	Voltech	PM6000	N/A	2018/05/02	2019/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2018/05/02	2019/05/01

Electrostatic Discharge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	ESD Simulator	Schloder GmbH	SESD3000	509325	2018/05/02	2019/05/01
2	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2018/05/02	2019/05/01

Electrical Fast Transient/Surge						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EFT Simulator	HTEC INSTRUMENTS	HCWG 51	153702	2018/05/02	2019/05/01
2	Surge Simulator	HTEC INSTRUMENTS	HEFT 51	000211	2018/05/02	2019/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2018/05/02	2019/05/01



RF Field Strength Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	SIGNAL GENERATOR	IFR	2032	203002/100	2018/05/02	2019/05/01
2	AMPLIFIER	AR	150W1000	301584	2018/05/02	2019/05/01
3	DUAL DIRECTIONAL COUPLER	AR	DC6080	301508	2018/05/02	2019/05/01
4	POWER HEAD	AR	PHT2000	301193	2018/05/02	2019/05/01
5	POWER METER	AR	PM2002	302799	2018/05/02	2019/05/01
6	Audio Analyzer	Rohde&Schwarz	UPL	SB3439	2018/05/02	2019/05/01
7	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2018/05/02	2019/05/01

Conducted Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	Conducted Disturbances test system	Schloder GmbH	CDG 6000-25	N/A	2018/05/02	2019/05/01
2	Amplifier	SCHLODER	4N100W-6DB	N/A	2018/05/02	2019/05/01
3	EM CLAMP	LÜTHI	EM101	335625	2018/05/02	2019/05/01
4	CDN	SCHLODER	CDN M2+M3	A2210225/2013	2018/05/02	2019/05/01
5	Audio Analyzer	Rohde&Schwarz	UPL	SB3439	2018/05/02	2019/05/01

DIP						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	DIP Simulator	RIMA	DRP61011AG	PR15056303	2018/05/02	2019/05/01
3	Radio Communication Tester	Rohde&Schwarz	CMU200	115419	2018/05/02	2019/05/01

The calibration interval is 1 year.

4. TEST CONDITIONS AND RESULTS

4.1. EMISSION

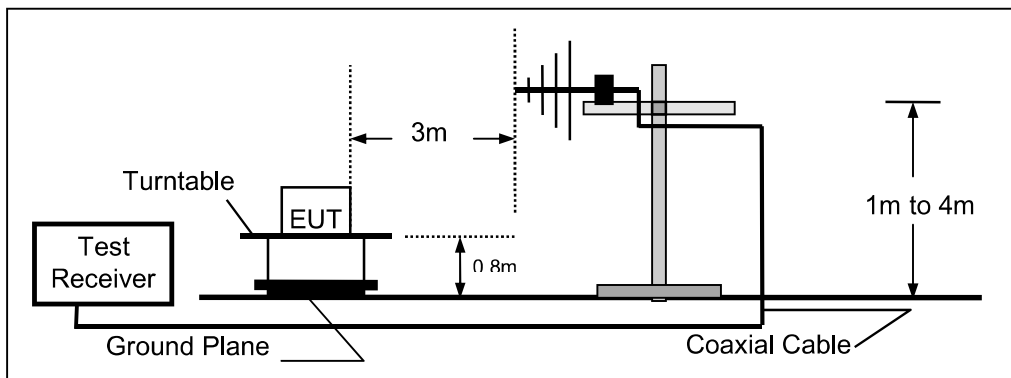
4.1.1. Radiated Emission

LIMIT

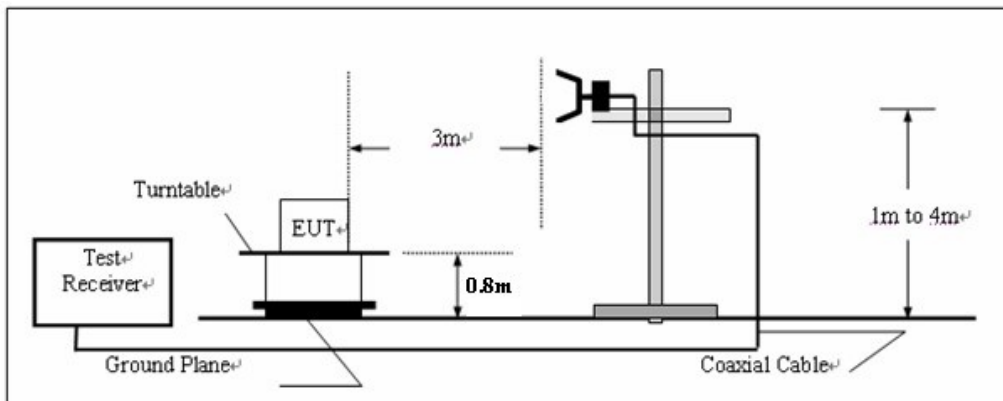
Please refer to ETSI EN301489-1 Clause 8.2.3 and EN55032 annex A

TEST CONFIGURATION

- a) Radiated emission test set-up, frequency below 1000MHz:



- b) Radiated emission test set-up, frequency above 1000MHz



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 8.2.3 and EN 55032 Clause 6 for the measurement methods

TEST RESULTS

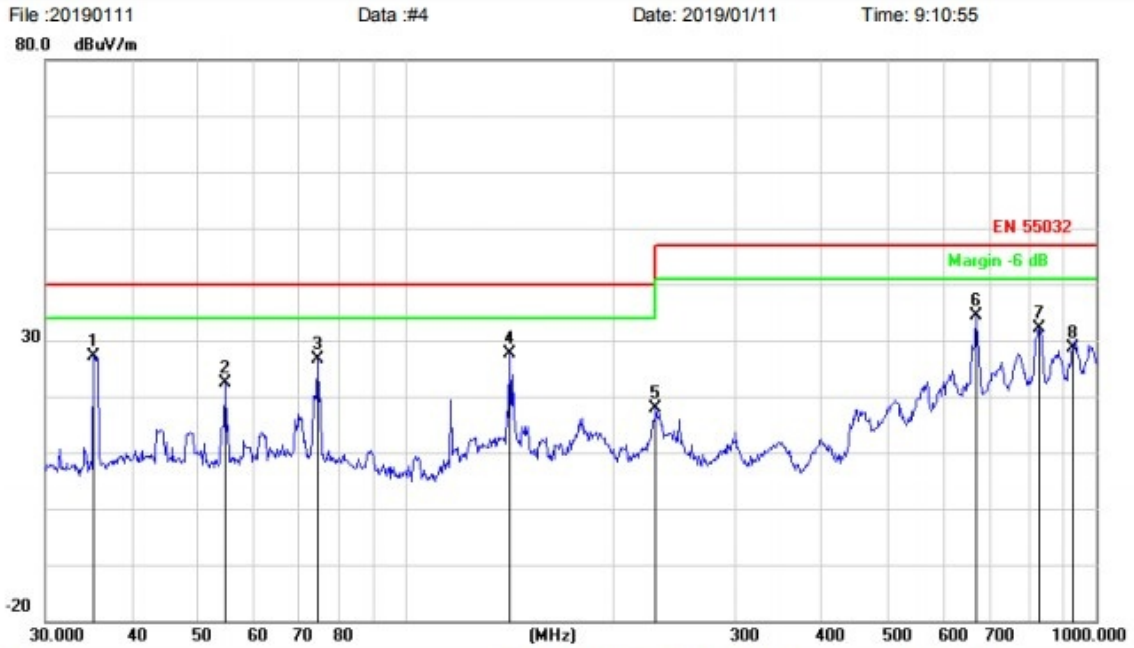
Passed

Please refer to the below test data:



30-1000MHz

Test mode:	Mode 1	Polarization	Horizontal
------------	--------	--------------	------------



Site LAB	Polarization: Horizontal	Temperature: 26
Limit: EN 55032	Power:	Humidity: 60 %
EUT:	Distance:	
M/N:		
Mode:		
Note:		

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		35.2511	46.86	-19.61	27.25	40.00	-12.75	peak			
2		54.6428	38.68	-16.22	22.46	40.00	-17.54	peak			
3		74.3953	44.84	-18.20	26.64	40.00	-13.36	peak			
4	*	141.3298	42.99	-15.45	27.54	40.00	-12.46	peak			
5		230.0985	33.01	-15.13	17.88	47.00	-29.12	peak			
6		670.4891	40.30	-5.91	34.39	47.00	-12.61	peak			
7		827.4932	35.67	-3.66	32.01	47.00	-14.99	peak			
8		925.7563	30.81	-2.19	28.62	47.00	-18.38	peak			



Test mode:

Mode 1

Polarization

Vertical

Radiated Emission Measurement

File :20190111

Data :#3

Date: 2019/01/11

Time: 9:08:03



Site LAB

Limit: EN 55032

EUT:

M/N:

Mode:

Note:

Polarization: **Vertical**

Power:

Distance:

Temperature: 26

Humidity: 60 %

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1	57.7961	33.37	-18.01	15.36	40.00	-24.64	peak			
2	65.1145	36.13	-19.05	17.08	40.00	-22.92	peak			
3	75.1822	40.43	-21.27	19.16	40.00	-20.84	peak			
4	138.8735	33.17	-17.76	15.41	40.00	-24.59	peak			
5	300.3672	37.14	-17.84	19.30	47.00	-27.70	peak			
6 *	506.4791	42.04	-9.25	32.79	47.00	-14.21	peak			
7	726.8052	35.94	-5.81	30.13	47.00	-16.87	peak			



1000-6000 MHz

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
V	1254.328	63.471	-17.16	46.311	70.00	-23.91	peak
V	1254.328	43.341	-17.16	26.181	50.00	-24.04	AVG
V	1875.148	61.571	-12.00	49.571	70.00	-20.65	peak
V	1875.148	42.421	-12.00	30.421	50.00	-19.8	AVG
V	3054.058	61.541	-10.38	51.161	74.00	-23.06	peak
V	3054.058	38.641	-5.01	33.631	54.00	-20.59	AVG
H	1345.348	65.291	-10.66	54.631	70.00	-15.59	peak
H	1345.348	47.541	-10.66	36.881	50.00	-13.34	AVG
H	2146.508	61.911	-7.34	54.571	70.00	-15.65	peak
H	2146.508	46.221	-7.34	38.881	50.00	-11.34	AVG
H	3354.128	59.991	-0.72	59.271	74.00	-14.95	peak
H	3354.128	38.491	-0.72	37.771	54.00	-16.45	AVG

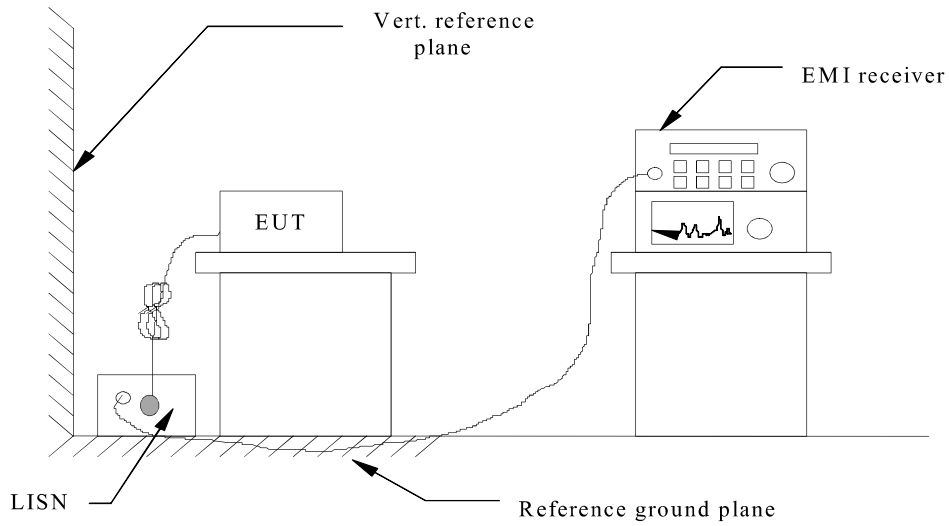
Remark:
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

4.1.2. Conducted Emission (AC Mains)

LIMIT

Please refer to ETSI EN301489-1 Clause 8.4.3 and EN55032 annex A

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 8.4.3 and EN 55032 Clause 6 for the measurement methods

TEST RESULTS

Passed

Please refer to the below test data:

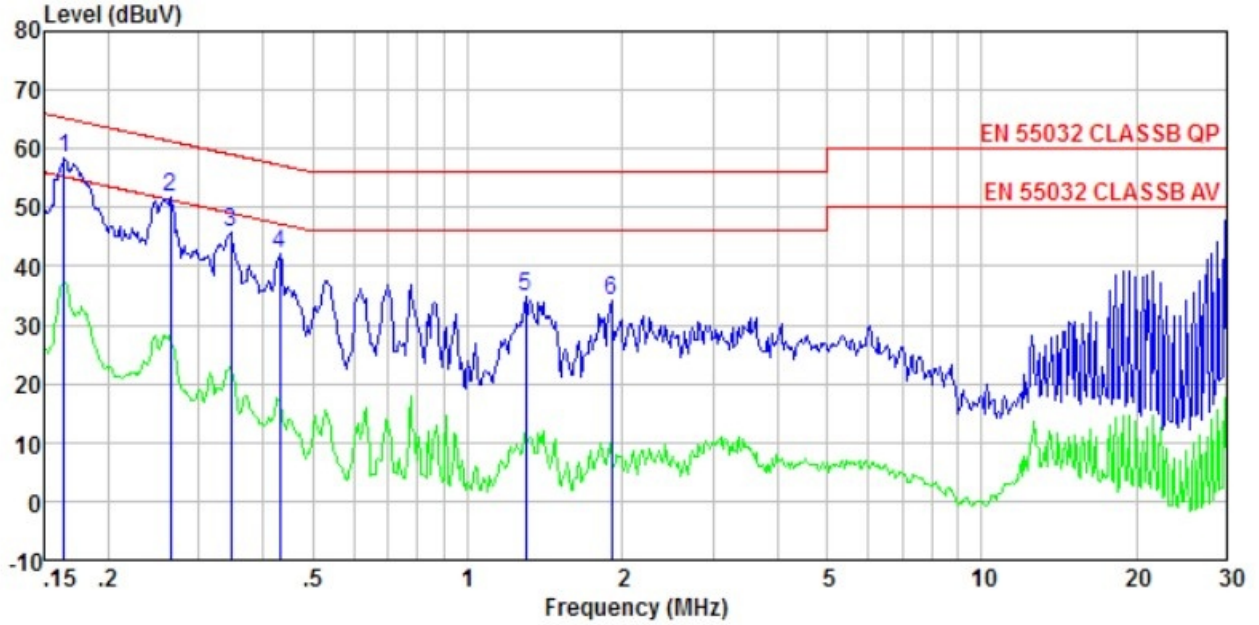


Test mode:

Mode 1

Polarization

L



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.16	57.78	0.40	0.08	58.26	65.25	-6.99	Peak
0.26	51.24	0.40	0.10	51.74	61.29	-9.55	Peak
0.35	45.26	0.38	0.10	45.74	59.05	-13.31	Peak
0.43	41.56	0.34	0.11	42.01	57.24	-15.23	Peak
1.30	34.57	0.20	0.16	34.93	56.00	-21.07	Peak
1.91	33.78	0.20	0.17	34.15	56.00	-21.85	Peak

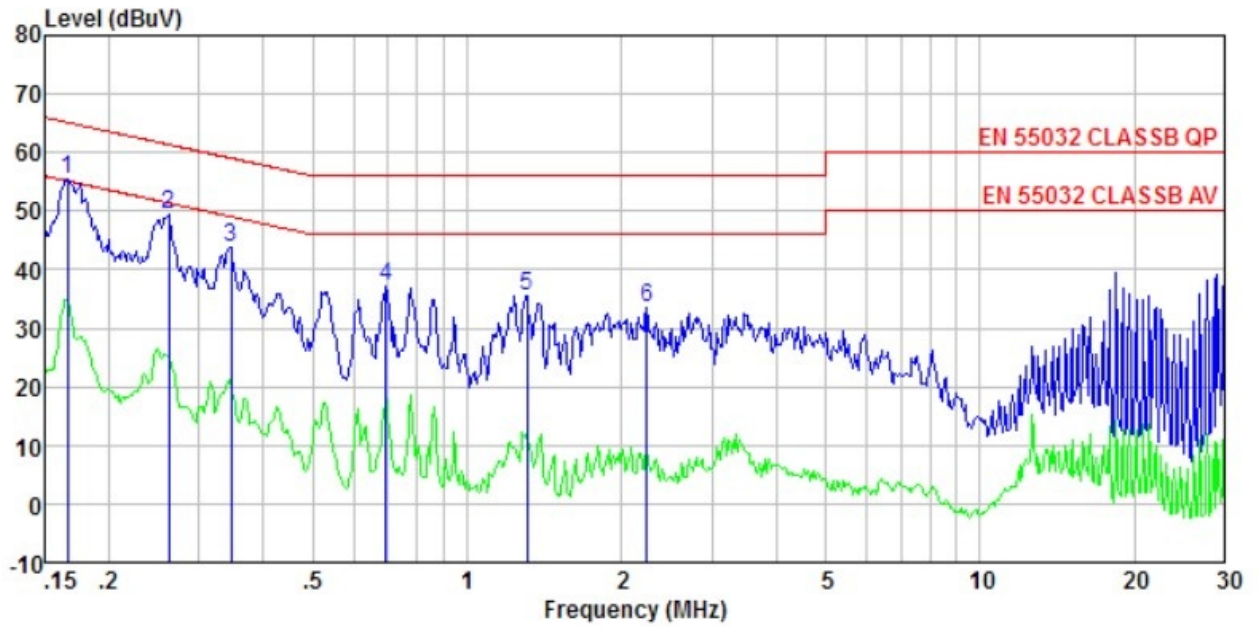


Test mode:

Mode 1

Polarization

N



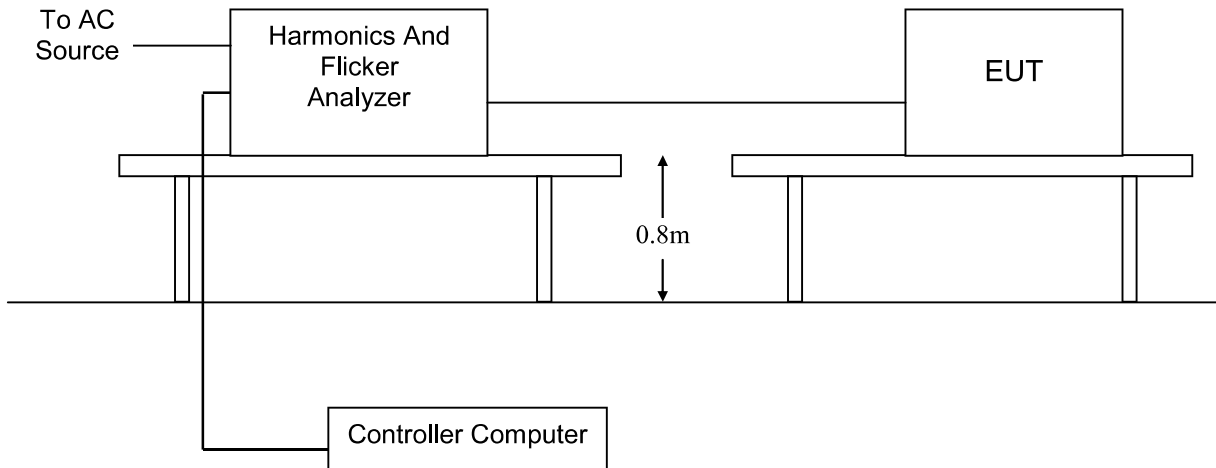
Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.17	54.89	0.40	0.08	55.37	65.16	-9.79	Peak
0.26	49.10	0.40	0.10	49.60	61.38	-11.78	Peak
0.35	43.44	0.38	0.10	43.92	59.05	-15.13	Peak
0.69	36.89	0.26	0.13	37.28	56.00	-18.72	Peak
1.31	35.14	0.20	0.16	35.50	56.00	-20.50	Peak
2.24	33.17	0.20	0.18	33.55	56.00	-22.45	Peak

4.1.3. Harmonic Current Emission

LIMIT

Please refer to EN 61000-3-2

TEST CONFIGURATION



TEST PROCEDURE

Please refer to EN 61000-3-2 for the measurement methods.

TEST RESULTS

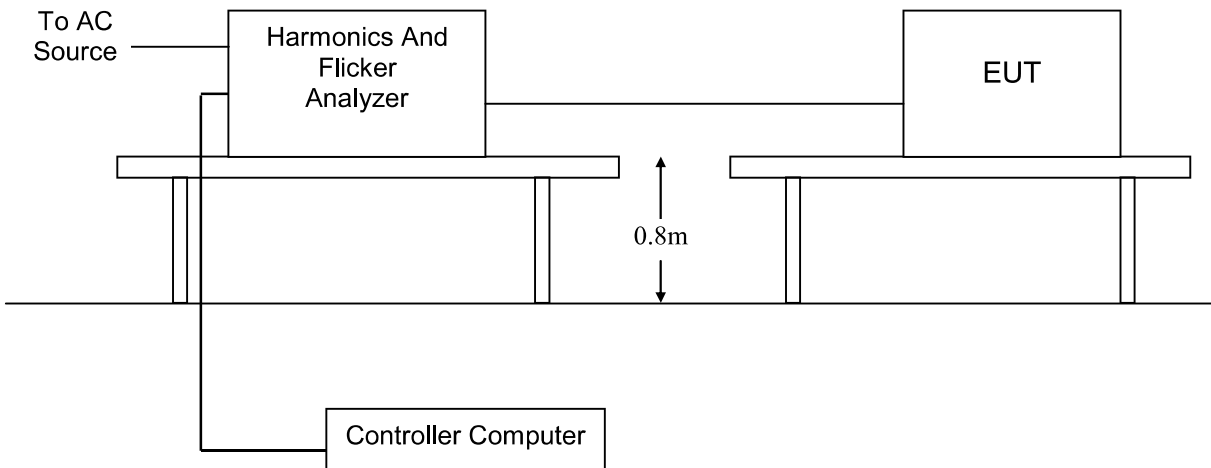
Note: The active input power of the EUT is less than 75 W. No limits apply for equipment with an active input power up to and including 75W

4.1.4. Voltage Fluctuation and Flicker

LIMIT

Please refer to EN 61000-3-3

TEST CONFIGURATION



TEST PROCEDURE

Please refer to EN 61000-3-3 for the measurement methods.

TEST RESULTS

	EUT values	Limit	Result
Pst	0.037	1.00	PASS
Plt	0.029	0.65	PASS
dc [%]	0.002	3.30	PASS
dmax [%]	0.126	7.00	PASS
dt [s]	0.001	0.50	PASS

4.2. IMMUNITY

4.2.1. Performance criteria

■ ETSI EN301489-17

General performance criteria

- Performance criteria A for immunity tests with phenomena of a continuous nature;
- Performance criteria B for immunity tests with phenomena of a transient nature;
- Performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following.

Criteria	During test	After test
A	<p>Shall operate as intended. (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.</p>	<p>Shall operate as intended. Shall be no degradation of performance (see note 3). Shall be no loss of function. Shall be no loss of stored data or user programmable functions.</p>
B	<p>May show loss of function (one or more). May show degradation of performance (see note 2). Shall be no unintentional transmissions</p>	<p>Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3). Shall be no loss of stored data or user programmable functions.</p>
C	<p>May be loss of function (one or more).</p>	<p>Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3)</p>

NOTE 1:

Operate as intended during the test allows a level of degradation not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 2:

Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance.

If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

NOTE 3:

No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some



cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

Performance criteria for Continuous phenomena applied to Transmitters (CT)

The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Transmitters (TT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Continuous phenomena applied to Receivers (CR)

The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

Performance criteria for Transient phenomena applied to Receivers (TR)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

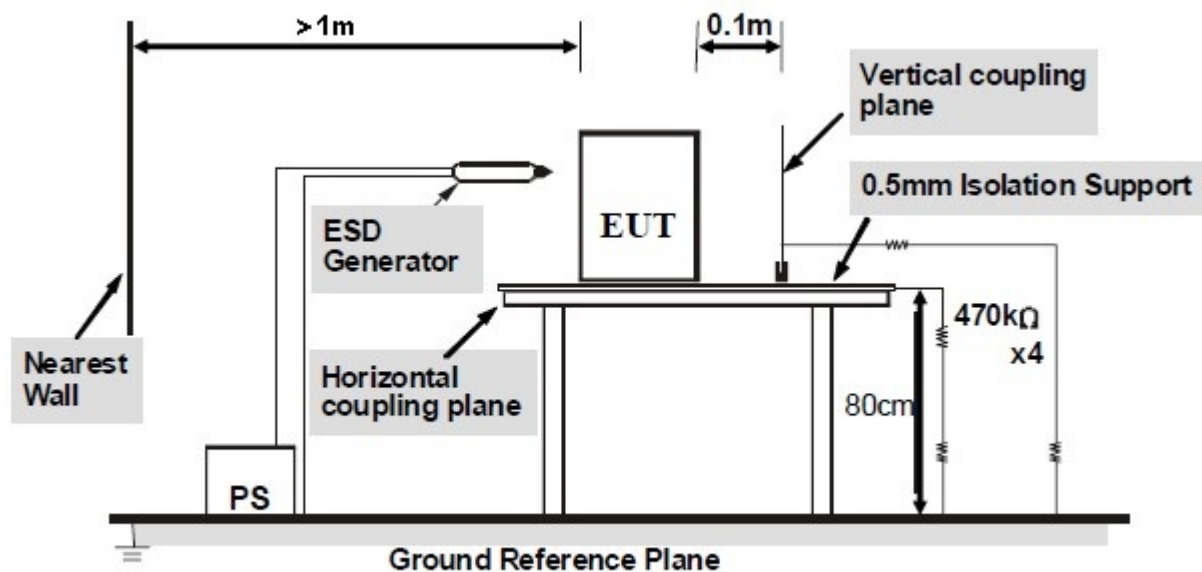
4.2.2. Electrostatic Discharge

LIMIT

SEVERITY LEVELS OF ELECTROSTATIC DISCHARGE

Test level: Contact Discharge at $\pm 2\text{KV}$, $\pm 4\text{KV}$ Air Discharge at $\pm 2\text{KV}$, $\pm 4\text{KV}$, $\pm 8\text{KV}$

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.3.2 , EN 55024 and EN 61000-4-2 for the measurement methods.

Contact Discharge:

The ESD generator is held perpendicular to the surface to which the discharge is applied and the tip of the discharge electrode touch the surface of EUT. Then turn the discharge switch. The generator is then re-triggered for a new single discharge and repeated at least 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Air Discharge:

Air discharge is used where contact discharge can't be applied. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated at least 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

Indirect discharge for horizontal coupling plane:

At least 10 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT.

Indirect discharge for vertical coupling plane:

At least 10 single discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

TEST MODE



Please reference to the section 2.3

TEST RESULTS

Direct discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
Contact discharge	±2	No degradation in performance of the EUT was observed (A)	B	Pass
	±4	A	B	
Air discharge	±2	A	B	
	±4	A	B	
	±8	A	B	
Indirect discharge				
Type of discharge	Discharge voltage (KV)	Observations Performance	Criteria Level	Result
HCP (6 sides)	±2	A	B	Pass
	±4	A	B	
VCP (4 sides)	±2	A	B	
	±4	A	B	

Remark: The ancillary equipment's specification for an acceptable level of performance or degradation of performance during and/or after the ESD tests.

4.2.3. RF Electromagnetic Field

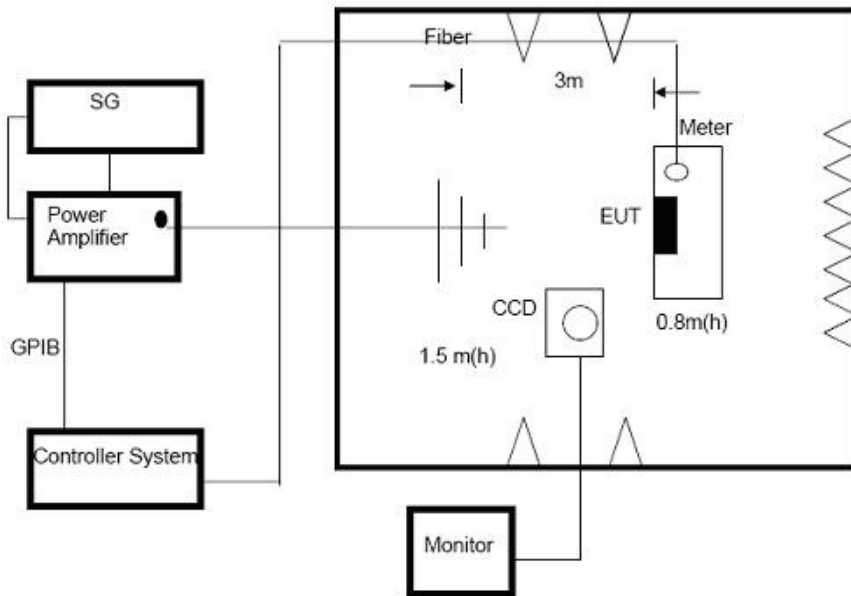
PERFORMANCE CRITERION

Criteria A

TEST LEVEL

3V/m (80%, 1kHz Amplitude Modulation)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.2.2 and EN 61000-4-3 for the measurement methods.

TEST MODE

Please reference to the section 2.3



TEST RESULTS

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Observation	Perform. Criteria	Results
80~1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	CT,CR	A	P
			Rear			
			Left			
			Right			

Note: "A" stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

Note:

- 1) N/A - denotes test is not applicable in this test report.
- 2) There was not any unintentional transmission in standby mode
- 3) In the table: 'P' represents 'PASS'; 'F' represents 'FAIL'.

4.2.4. Surges

PERFORMANCE CRITERION

Criteria B

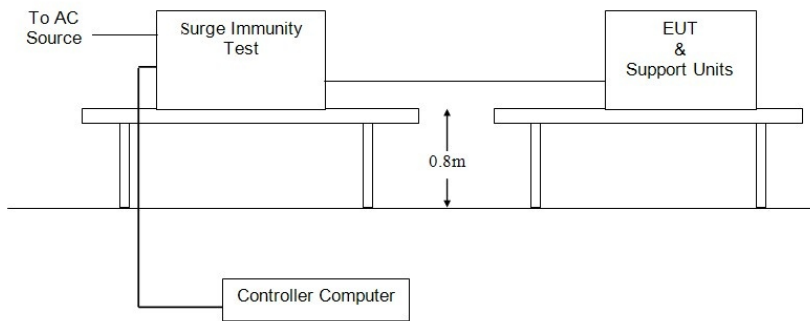
TEST LEVEL

1kV Line to Line: Differential mode

2kV Line to Ground: Common mode

(Voltage Waveform: 1.2/50 us; Current Waveform: 8/20 us)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.8.2 and EN 61000-4-5 for the measurement methods.

TEST MODE

Please reference to the section 2.3

TEST RESULTS

Location	Level(kV)	Pulse No	Surge Interval	Phase(deg)	Observations (Performance Criterion)	Result
L-N	± 1	5	60s	0°	A	Pass
				90°	A	Pass
				180°	A	Pass
				270°	A	Pass

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

4.2.5. RF- Common Mode 0.15MHz to 80MHz

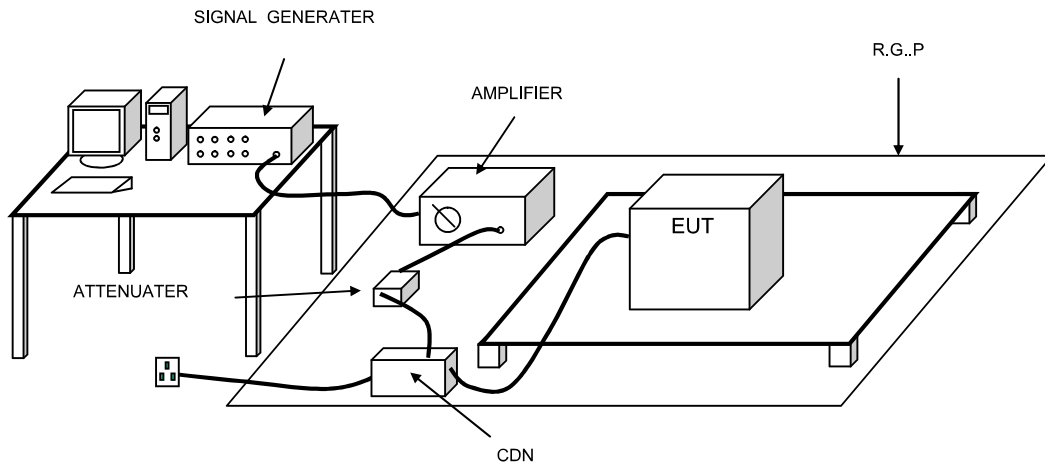
PERFORMANCE CRITERION

Criteria A

TEST LEVEL

3Vrms on AC main port (80%, 1kHz Amplitude Modulation)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.5.2 and EN 61000-4-6 for the measurement methods.

TEST MODE

Please reference to the section 2.3

TEST RESULTS

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Observation	Perform. Criteria	Results
Input/ Output AC. Power Port	0.15 ---80	3V(rms) AM Modulated 1000Hz, 80%	CT, CR	A	P
Input/ Output DC. Power Port	0.15 --- 80		N/A	N/A	N/A
Signal Line	0.15 --- 80		N/A	N/A	N/A

4.2.6. Fast Transients Common Mode

PERFORMANCE CRITERION

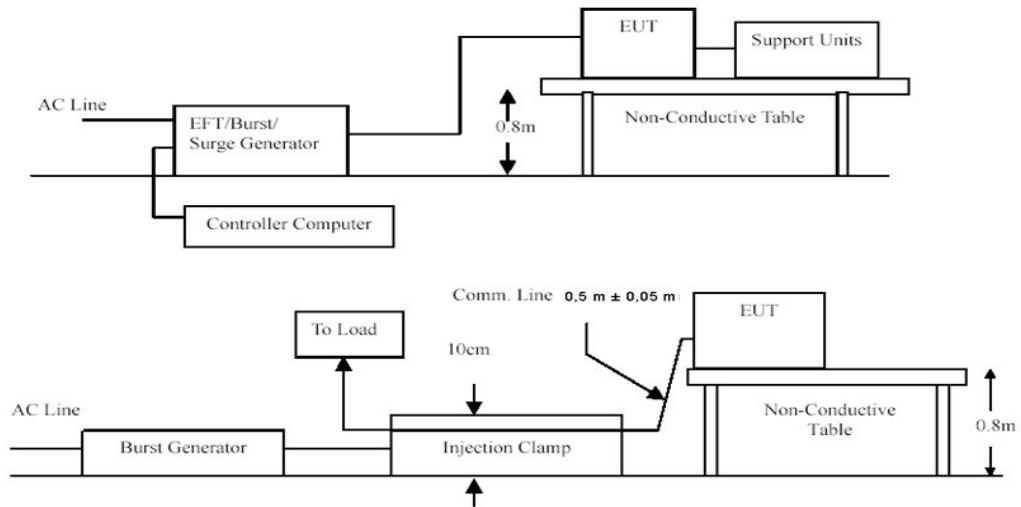
Criteria B

TEST LEVEL

1KV for AC main port

(Impulse Frequency: 5 kHz; Tr/Th: 5/50ns; Burst Duration: 15ms; Burst Period: 3Hz)

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.4.2 and EN 61000-4-4 for the measurement methods.

TEST MODE

Please reference to the section 2.3

TEST RESULTS

Lead under Test	Level (\pm kV)	Coupling Direct/Clamp	Observations (Performance Criterion)	Result
L	± 1	Direct	A	Pass
N	± 1	Direct	A	Pass
L-N	± 1	Direct	A	Pass

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

4.2.7. Voltage Dips and Interruptions

PERFORMANCE CRITERION

>95% VD, 0.5 period----Performance criterion: B

>95% VD, 1.0 period----Performance criterion: B

30% VD, 25 period----Performance criterion: C

>95% VI, 250 period----Performance criterion: C

TEST LEVEL

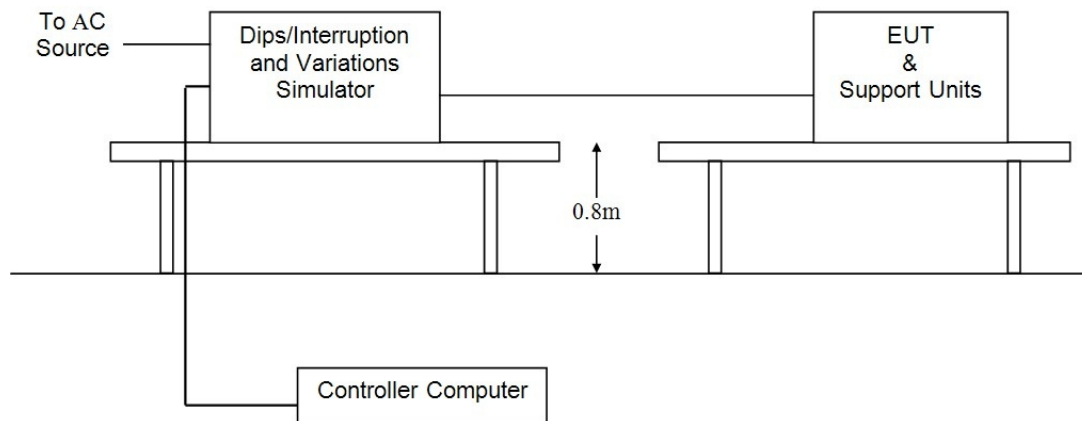
0% of VT(Supply Voltage) for 0.5 period

0% of VT(Supply Voltage) for 1.0 period

70% of VT(Supply Voltage) for 25 period

0% of VT(Supply Voltage) for 250 period

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 Clause 9.7.2 and EN 61000-4-11 for the measurement methods.

TEST MODE

Please reference to the section 2.3



TEST RESULTS

Test Level % UT	Duration (Periods)	Phase angle	No. of drop out	Time between dropout	Observations (Performance Criterion)	Result
0	0.5	0°, 90°, 180°, 270°	3	10s	A	Pass
0	1.0	0°, 90°, 180°, 270°	3	10s	A	Pass
70	25	0°, 90°, 180°, 270°	3	10s	A	Pass
0	250	0°, 90°, 180°, 270°	3	10s	B	Pass

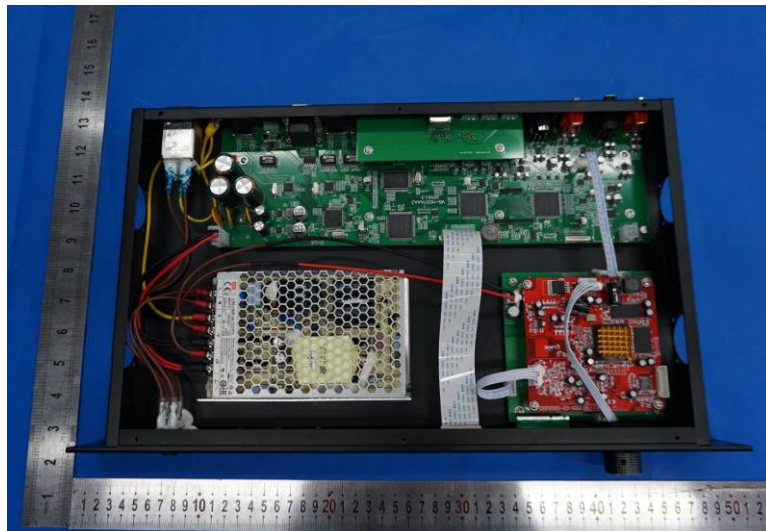
Remark :

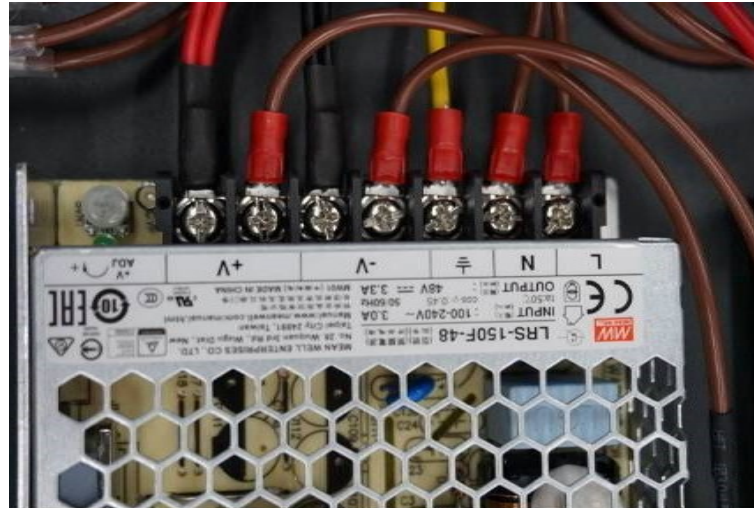
A: No degradation in performance of the EUT was observed.

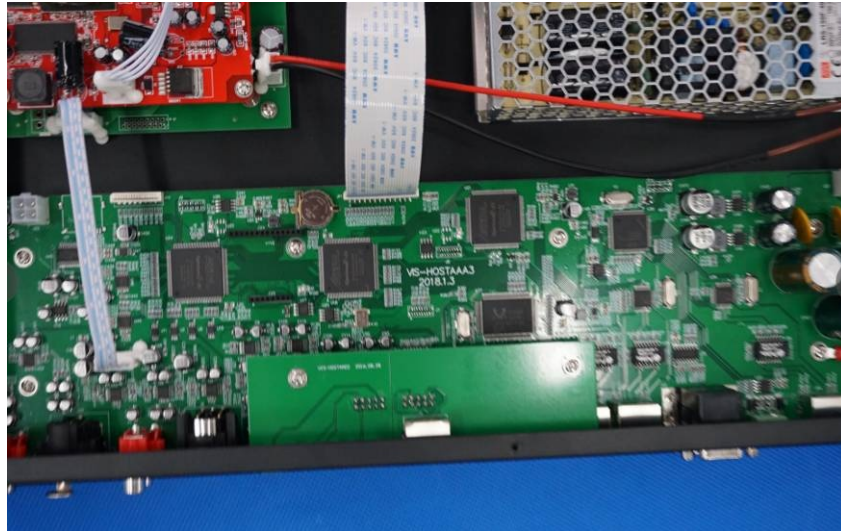
B: During the test, the power shut down, after the experiment, the function can automatically return to normal.

5. External and Internal Photos of the EUT









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