

🧲 Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No.: CCISE190111101

TEST REPORT

Applicant: Nebra Ltd

Address of Applicant: Unit 4 Bells Yew Green Business Court, Bells Yew Green, Kent,

TN3 9BJ, United Kindgom

Equipment Under Test (EUT)

Product Name: Pi PoE Switch HAT

Model No.: v2.6

Applicable standards: EN 61000-6-1:2019

EN 61000-6-3:2007+A1:2011+AC:2012

Date of sample receipt: 13 May 2019

Date of Test: 14 May to 20 Jul., 2019

Date of report issue: 21 Jul., 2019

Test Result: PASS*

* 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 EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to electromagnetic compatibility contained in Directive 2014/30/EU are considered.



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Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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.

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2 Version

Version No.	Date	Description
00	21 Jul., 2019	Original

Test Engineer

Reviewed by: 21 Jul., 2019

Project Engineer





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Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission	EN 61000-6-3	EN 61000-6-3	See Table 1	PASS
Conducted Emission	EN 61000-6-3	EN 61000-6-3	See Table 1	N/A
ESD	EN 61000-6-1	EN61000-4-2:2009	Contact ±4 kV Air ±8 kV	PASS
Continuous RF electromagnetic radiated field disturbances	EN 61000-6-1	EN61000-4-3: 2006+A1:2007+A2:2010	80MHz-1.0 GHz: 3V/m 1.4 GHz-2.0 GH: 3V/m 2.0 GHz-2.7 GH: 1V/m 80%, 1kHz Amp. Mod.	PASS
Electrical Fast Transients (EFT)	EN 61000-6-1	EN 61000-4-4:2012	AC ± 1.0kV	N/A
Surge	EN 61000-6-1	EN 61000-4-5: 2014+A1:2017	Line-line:±1kV Line-earth: ±2kV	N/A
Continuous induced RF disturbances	EN 61000-6-1	EN61000-4-6: 2014+AC:2015	0.15-80MHz: 3V 80%, 1kHz, AM	N/A
Power frequency magnetic field	EN 61000-6-1	EN 61000-4-8:2010	50/60 Hz 3A/m	N/A
Voltage Dips and Interruptions	EN 61000-6-1	EN61000-4-11: 2004+A1:2017	0 % U_T^* for 0.5per 0 % U_T^* for 250per 70 % U_T^* for 25per	N/A

Remark:

* UT is the nominal supply voltage.
Pass: Meet the requirements, N/A: not applicable.



5 General Information

5.1 Client Information

Applicant:	Nebra Ltd
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Kent, TN3 9BJ, United Kindgom
Manufacturer:	Nebra Ltd
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Kent, TN3 9BJ, United Kindgom
Factory	Sunsoar Tech Co. Ltd
Address:	9F, A block, Nanchang Huafeng The Second Industrial Zone, Hangkong Road, Xixiang Town, Bao'an District, Shenzhen City, China

5.2 General Description of E.U.T.

Product Name:	Pi PoE Switch HAT
Model No.:	v2.6
Hardware version:	v2.6
Software version:	v2.6
Power supply:	DC 48V

5.3 Test mode and voltage

On mode:	Keep the EUT in working mode	
Test voltage:	AC 230V/50Hz	

5.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
Nebra	Raspberry Pi	V1.2	N/A	N/A
RS Components	Adapter	DSA-13PFC-05	N/A	N/A
TP-Link	PoE Injector	TL-POE150S	N/A	N/A

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB
Radiated Emission (30MHz ~ 1000MHz)	±4.54 dB
Radiated Emission (1GHz ~ 18GHz)	±5.84 dB
Radiated Emission (18GHz ~ 26.5GHz)	±3.36 dB

5.6 Description of Cable Used

Cable Type	Description	Length	From	То
N/A	N/A	N/A	N/A	N/A

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China
Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366



5.7 Laboratory Facility

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

• FCC - Registration No.: 727551

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

A2LA - Registration No.: 4346.01

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.8 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.9 Monitoring of EUT for the Immunity Test

Visual:	N/A
Sound:	N/A
Other:	Monitored the data link of EUT



5.10Test Instruments list

Radiated Emission:							
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)		
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020		
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-18-2019	03-17-2020		
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-18-2019	03-17-2020		
EMI Test Software	AUDIX	E3	\	Version: 6.110919b			
Pre-amplifier	HP	8447D	2944A09358	03-18-2019	03-17-2020		
Pre-amplifier	CD	PAP-1G18	11804	03-18-2019	03-17-2020		
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-18-2019	03-17-2020		
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-18-2019	03-17-2020		
Simulated Station	Anritsu	MT8820C	6201026545	03-18-2019	03-17-2020		
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-18-2019	03-17-2020		
Cable	MICRO-COAX	MFR64639	K10742-5	03-18-2019	03-17-2020		
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-18-2019	03-17-2020		

ESD:						
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
ESD Simulator	Haefely	ONYX30	183900	03-19-2019	03-18-2020	

Continuous RF electromagnetic radiated field disturbances							
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)		
Signal Generator	Rohde & Schwarz	SMR27	1104.002.20	03-18-2019	03-17-2020		
RF Amplifier 80M-1GHz	Amplifier Research	AR 150W1000	115243	03-18-2019	03-17-2020		
RF Amplifier 1GHz-4.2GHz	Amplifier Research	AR 25S1G4AM1	145863	03-18-2019	03-17-2020		
RF Amplifier 4GHz-6GHz	Amplifier Research	35S4G8A	247443	03-18-2019	03-17-2020		
Power Meter	Rohde & Schwarz	NRVS	1020.1809.02	03-18-2019	03-17-2020		
Power Sensor	Rohde & Schwarz	URV5-Z2	N/A	03-18-2019	03-17-2020		
Power Sensor	Rohde & Schwarz	URV5-Z2	3654	03-18-2019	03-17-2020		
Software EMC32	Rohde & Schwarz	EMC32-S	7412	N/A	N/A		
Log-periodic Antenna	Amplifier Research	AT1080	6987	03-18-2019	03-17-2020		
Antenna Tripod	Amplifier Research	TP1000A	3003552	N/A	N/A		
High Gain Horn Antenna	Amplifier Research	AT4002A	N/A	03-18-2019	03-17-2020		
Nexus Condutuining Amplifier	B&K	2690	N/A	N/A	N/A		
MUTH Simulator	B&K	4227	100150	N/A	N/A		
Sound Level Calibrator	B&K	4231	1104.002.20	N/A	N/A		
Audio Analyzer	Rohde & Schwarz	UPL 16	115243	03-18-2019	03-17-2020		



6 Test Results

6.1 EMI (Emission)

6.1.1 Radiated Emission

Test Requirement:	EN 61000-6-3						
Test Method:	EN 61000-6-3						
Test Frequency Range:	30MHz to 6GHz						
Test Distance:	3m						
Receiver setup:	Frequency	Det	ector	RBW	VBW	Remark	
	30MHz-1GHz	Quas	si-peak	100kHz	300kHz	QP Value	
	A h a v a 4 C l l =	Pe	eak	1MHz	3MHz	PK Value	
	Above 1GHz	Ave	erage	1MHz	3MHz	AV Value	
Limit:	Frequency		Limi	t (dBuV/m @3m)	F	Remark	
	30MHz-230MH	z		40.0	C	P Value	
	230MHz-1GHz	<u>z</u>		47.0	C	P Value	
	1GHz-3GHz			50.0	A	V Value	
	IGHZ-3GHZ			70.0	Р	K Value	
	3GHz-6GHz			54.0	A	V Value	
				74.0		K Value	
Test setup:	Below 1GHz:			Above	1GHz:		
	Test Receiver Test Receiver Gottobler				Antenna Tower Antenna Tower Pre Controller		
	Test table Reference point of antenna calibration Test table Reference point of antenna calibration Reference point of antenna calibration of ante						
Test Procedure:	30MHz to 10	Hz:				MC_	
	 The radiated emissions test was conducted in a semi-anechoic chamber. The table top EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization. Above 1GHz: The radiated emissions test was conducted in a fully-anechoic chamber. The table top EUT was placed upon anon-metallic table 0.8m above the 						
	was placed or metallic conta 3. Before final metallic conta 3. Before final metallic contacts 4. The frequency radiated emise rotated 360°, in order to defend performed for Above 1GHz: 1. The radiated of metallic contacts 1. The radiated of metallic contacts of the me	nce plant the horizontal the special interest of mand the sermine both horizontal interest of the sermine both horizontal interest of the sermine sermine the serm	ne. And prizontal the group ments of ctrum ments of spectrum maximum measurer exantenna the maximum orizontal ons test v	for floor-standing round reference play fradiated emissione with the pear plots of the Element. At each fradiated and vertical and vertical and vertical and vertical in the pear conducted in the pear fragility.	ng arrangement the plane, but so ane by 0.1m of sions, a pre-sca ak detector to four JT. determined in equency, the Ed d lowered from the dece. Measurem tenna polarization	8m above the left, the EUT eparated from finsulation. In was find out the left the final EUT was in 1 to 4 meter leents were left to the left was in 1 to 4 meter leents were left to the left was in 1 to 4 meter leents were left to the left was in 1 to 4 meter leents were left was left to the l	



	 ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation. 3. Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum plots of the EUT. 4. The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

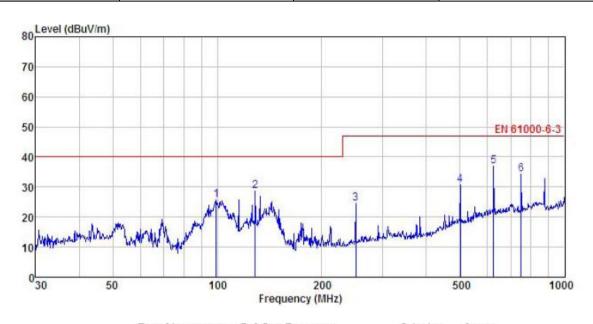




Measurement Data:

Below 1GHz:

Product Name:	Pi PoE Switch HAT	Product Model:	v2.6
Test By:	Mike	Test mode:	On mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 230/50Hz	Environment:	Temp: 24℃ Huni: 57%



	Freq		Antenna Factor						Remark
	MHz	dBu∜	dB/m	dB	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1	99.180	40.93	12.32	1.95	29.53	25.67	40.00	-14.33	QP
1 2 3 4 5	128.563	45.34	10.25	2.27	29.34	28.52	40.00	-11.48	QP
3	250, 301	37.55	12.70	2.81	28.54	24.52	47.00	-22.48	QP
4	501.179	37.89	18.20	3.63	28.96	30.76	47.00	-16.24	QP
5	625.078	42.31	19.61	3.90	28.86	36.96	47.00	-10.04	QP
6	750.108	37.85	20.60	4.36	28.48	34.33	47.00	-12.67	QP

Remark

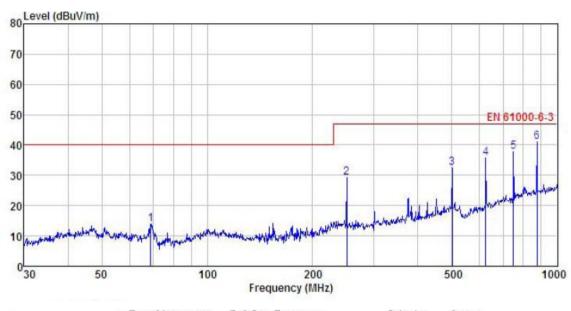
^{1.} Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor.

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.





Product Name:	Pi PoE Switch HAT	Product Model:	v2.6
Test By:	Mike	Test mode:	On mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 230/50Hz	Environment:	Temp: 24℃ Huni: 57%



	Freq		Antenna Factor				Limit Line	Over Limit	
	MHz	dBu∜	<u>dB</u> /m	₫B	<u>dB</u>	dBuV/m	dBuV/m	dB	
1	68.872	33.52	8.74	1.49	29.73	14.02	40.00	-25.98	QP
2 3 4 5 6	250.301	42.26	12.70	2.81	28.54	29.23	47.00	-17.77	QP
3	501.179	39.59	18.20	3.63	28.96	32.46	47.00	-14.54	QP
4	625.078	41.04	19.61	3.90	28.86	35.69	47.00	-11.31	QP
5	750.108	41.16	20.60	4.36	28.48	37.64	47.00	-9.36	QP
6	875.247	42.46			27.94				

Remark:

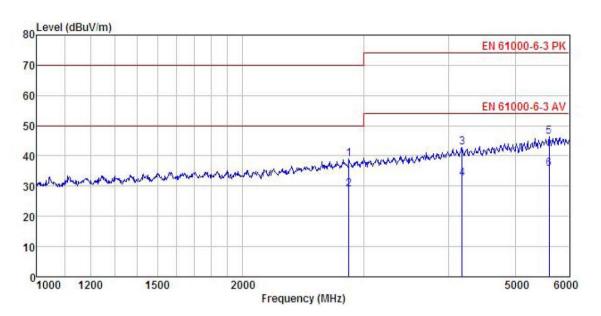
- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





Above 1GHz:

Product Name:	Pi PoE Switch HAT	Product Model:	v2.6
Test By:	Mike	Test mode:	On mode
Test Frequency:	1 GHz ~ 6 GHz	Polarization:	Vertical
Test Voltage:	AC 230/50Hz	Environment:	Temp: 24℃ Huni: 57%



Freq						Limit	Over Limit	Remark
MHz	−−dBuV	dB/π	<u>ab</u>	<u>ab</u>	$\overline{dBuV/m}$	dBuV/m	<u>ab</u>	
2857.568	47.12	28.20	5.19	41.62	38.89	70.00	-31.11	Peak
2857.568	37.12	28.20	5.19	41.62	28.89	50.00	-21.11	Average
4185.457	47.76	30.34	6.37	41.81	42.66	74.00	-31.34	Peak
4185.457	37.56	30.34	6.37	41.81	32.46	54.00	-21.54	Average
5605.076	48.14	32.62	7.30	41.79	46.27	74.00	-27.73	Peak
5605.076	37.51	32.62	7.30	41.79	35.64	54.00	-18.36	Average
	MHz 2857.568 2857.568 4185.457 4185.457 5605.076	Freq Level MHz dBuV 2857.568 47.12 2857.568 37.12 4185.457 47.76 4185.457 37.56 5605.076 48.14	Freq Level Factor MHz dBuV dB/m 2857.568 47.12 28.20 2857.568 37.12 28.20 4185.457 47.76 30.34 4185.457 37.56 30.34 5605.076 48.14 32.62	Freq Level Factor Loss MHz dBuV dB/m dB 2857.568 47.12 28.20 5.19 2857.568 37.12 28.20 5.19 4185.457 47.76 30.34 6.37 4185.457 37.56 30.34 6.37 5605.076 48.14 32.62 7.30	Freq Level Factor Loss Factor MHz dBuV dB/m dB dB 2857.568 47.12 28.20 5.19 41.62 2857.568 37.12 28.20 5.19 41.62 4185.457 47.76 30.34 6.37 41.81 4185.457 37.56 30.34 6.37 41.81 5605.076 48.14 32.62 7.30 41.79	MHz dBuV dB/m dB dB dBuV/m 2857.568 47.12 28.20 5.19 41.62 38.89 2857.568 37.12 28.20 5.19 41.62 28.89 4185.457 47.76 30.34 6.37 41.81 42.66 4185.457 37.56 30.34 6.37 41.81 32.46 5605.076 48.14 32.62 7.30 41.79 46.27	MHz dBuV dB/m dB dB dBuV/m dBuV/m dBuV/m 2857.568 47.12 28.20 5.19 41.62 38.89 70.00 2857.568 37.12 28.20 5.19 41.62 28.89 50.00 4185.457 47.76 30.34 6.37 41.81 42.66 74.00 4185.457 37.56 30.34 6.37 41.81 32.46 54.00 5605.076 48.14 32.62 7.30 41.79 46.27 74.00	MHz dBuV dB/m dB dB dBuV/m dBuV/m dBuV/m dB 2857.568 47.12 28.20 5.19 41.62 38.89 70.00 -31.11 2857.568 37.12 28.20 5.19 41.62 28.89 50.00 -21.11 4185.457 47.76 30.34 6.37 41.81 42.66 74.00 -31.34 4185.457 37.56 30.34 6.37 41.81 32.46 54.00 -21.54 5605.076 48.14 32.62 7.30 41.79 46.27 74.00 -27.73

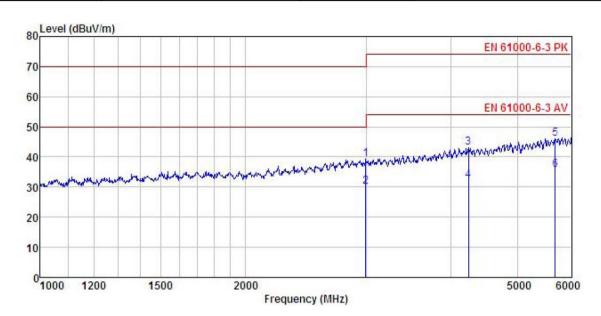
Remark:

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





Product Name:	Pi PoE Switch HAT	Product Model:	v2.6
Test By:	Mike	Test mode:	On mode
Test Frequency:	1 GHz ~ 6 GHz	Polarization:	Horizontal
Test Voltage:	AC 230/50Hz	Environment:	Temp: 24℃ Huni: 57%



	Freq		Antenna Factor				Limit Line	Over Limit	Remark
	MHz	dBu∀	$\overline{dB}/\overline{m}$	<u>d</u> B	<u>d</u> B	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>d</u> B	
1	2999.209	46.97	28.50	5.35	41.51	39.31	70.00	-30.69	Peak
2	2999.209	37.76	28.50	5.35	41.51	30.10	50.00	-19.90	Average
3	4238.283	48.13	30.35	6.47	41.84	43.11	74.00	-30.89	Peak
4	4238.283	37.30	30.35	6.47	41.84	32.28	54.00	-21.72	Average
5	5685.998	47.84	32.64	7.55	41.89	46.14	74.00	-27.86	Peak
6	5685.998	37.46	32.64	7.55	41.89	35.76			Average

Remark:

- 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor.
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



6.2 EMS (Immunity)

6.2.1 Performance Criteria Description in EN 61000-6-1

	<u> </u>
Criterion A:	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment 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, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B:	After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.
	During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.
	If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C:	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.
	Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.



6.2.2 Electrostatic Discharge

5.2.2 Licotrostatio Disorial ge					
Test Requirement: EN 61000-6-1					
Test Method: EN 61000-4-2					
Discharge Voltage: Contact Discharge, HCP and VCP: ±2kV, ±4kV	,				
Air Discharge: ±2kV, ±4kV, ±8kV					
Polarity: Positive & Negative					
Number of Discharge: Contact Discharge: Minimum 25 times at each	test point,				
Air Discharge: Minimum 10 times at each test p	ooint.				
Discharge Mode: Single Discharge					
Discharge Period: 1 second minimum					
Testsetup: Compared to the property of the	Insulating Support(0.5mm)HCP(1.5m*0.8m)				
0 12/ 2					
or services of the control of the co	Ground Reference Plane				
Test Procedure: 1) Air discharge: The test was applied on non-conductive sur discharge tip of the discharge electrode wa possible to touch the EUT. After each discharge was removed from the EUT. The generator was ingle discharge and repeated 10 times for each time that the air discharge: The test was applied on conductive surfaces of re-triggered for a new single discharge and repre-selected test point. The tip of the discharge EUT before the discharge switch was operated to single discharges shall be applied HCP opposite the centre point of each unit of the front of the EUT. The long axis of the discharge plane of the HCP and perpendicular to it discharge. Consideration should be given to EUT. 4) Indirect discharge for vertical coupling At least 10 single discharges were applied to edge of the coupling plane. The coupling plane. Single discharges were applied to edge of the coupling plane. The coupling plane the EUT. Discharges were applied to the coupling sufficient different positions that the four completely illuminated.	s approached as fast as le, the discharge electrode was re-triggered for a new ich pre-selected test point. Scharge completed of EUT. the generator was epeated 10 times for each electrode was touch the electrode was touch the electrode shall be in the le electrode shall be in the exposing all sides of the plane the center of one vertical me, of dimensions 0.5m X at a distance of 0.1m from bling plane, with this plane				
Test environment: Temp.: 26°C Humid.: 54%	Press.: 101kPa				
Test environment: Temp.: 26°C Humid.: 54% Test Instruments: Refer to section 5.10 for details	Press.: 101kPa				
	Press.: 101kPa				





Measurement Record:

Foot mainte.	I: N/A						
Test points:	II: N/A						
Direct discharge							
Discharge Voltage (KV)	Type of discharge	Test points	Observations (Performance Criterion)	Result			
± 2, ± 4	Contact	II	N/A	N/A			
± 2, ± 4,± 8	Air	1	N/A	N/A			
Indirect discharge							
Discharge Voltage (KV)	Type of discharge	Test points	Observation Performance	Result			
± 2, ± 4	HCP-Bottom/Top/ Front/Back/Left/Right	Edge of the HCP	А	Pass			
± 2, ± 4	VCP-Front/Back /Left/Right	Center of the VCP	А	Pass			

^{1.} A: No degradation in performance of the EUT was observed.



6.2.3 Continuous RF electromagnetic radiated field disturbances

Took Dominous out	EN 04000 C 4				
Test Requirement:	EN 61000-6-1				
Test Method:	EN 61000-4-3				
Frequency range:	80 MHz to 1 GHz, 1.4 GH to 2.0 GHz, 2.0 GHz to 2.7 GHz				
Test Level:	80 MHz to 1 GHz and 1.4 GH to 2.0 GHz: 3V/m				
	2.0 GHz to 2.7 GHz: 1V/m				
Modulation:	80%, 1kHz Amplitude Modulation				
Performance Criterion:	Criteria A				
Test setup:	Antenna Tower Ground Reference Plane Ground Reference Plane Signal Generator Ampdifer				
Test Procedure:	 For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items. If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length. The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area). The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Where the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value. The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 5 s. The test normally was performed with the generating antenna facing each side of the EUT. The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally. The EUT was performed in a configuration to actual installation conditions, a video camera and/or a audio monitor were used to monitor the performance of the EUT. 				
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar				
Test Instruments:	Refer to section 5.10 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				
100110001101					





Measurement Record:

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	Result
80 MHz-1 GHz 1.4 GHz-2.0 GHz			V	Front	Α	Pass
			Н		А	Pass
		1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=5seconds	V	Rear	А	Pass
			Н		Α	Pass
			V	Left	Α	Pass
	0.1//		Н		Α	Pass
	3 V/M		V	Right	А	Pass
			Н		Α	Pass
			V	Тор	А	Pass
			Н		А	Pass
			V	Dattern	Α	Pass
		Н	Bottom	А	Pass	

Remarks:

A: No degradation in the performance of the E.U.T. was observed.

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	Result
2.0 GHz-2.7 GHz 1 V/m		1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=5seconds	V	Front	Α	Pass
			Н		Α	Pass
			V	Rear	Α	Pass
			Н		Α	Pass
			V	Left	А	Pass
	4.1//		Н		А	Pass
	1 V/M		V	Right	Α	Pass
			Н		Α	Pass
			V	Тор	Α	Pass
			Н		Α	Pass
			V	Dattern	А	Pass
			Н	Bottom	Α	Pass

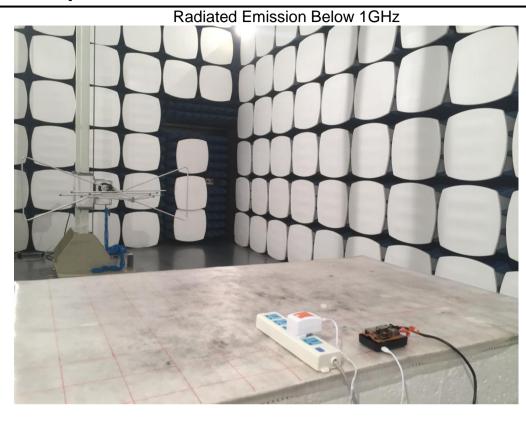
Remarks:

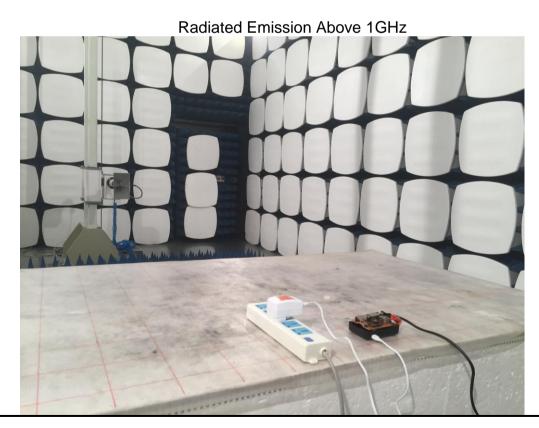
A: No degradation in the performance of the E.U.T. was observed.





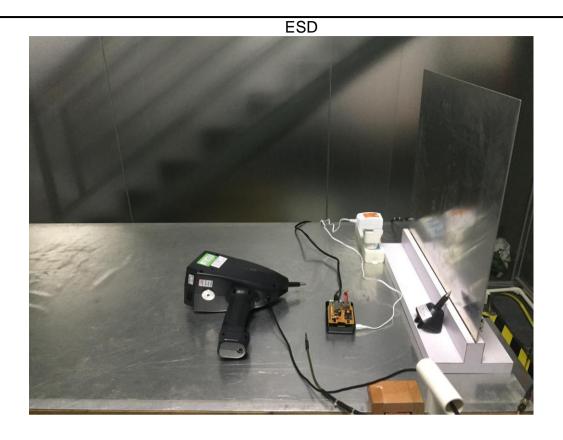
7 Test Setup Photo

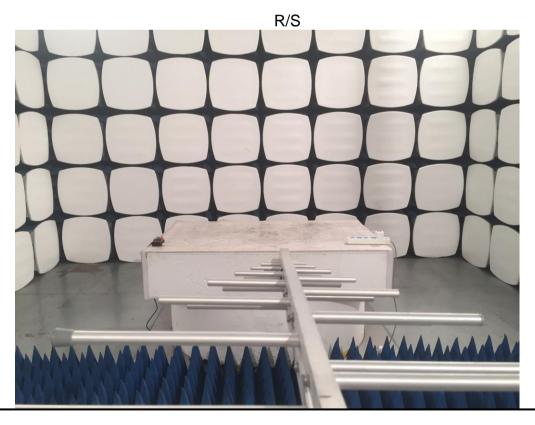








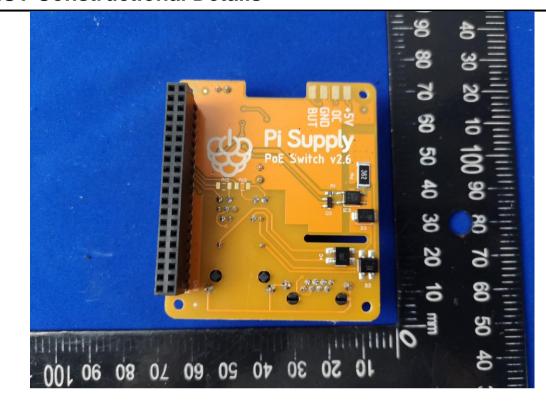


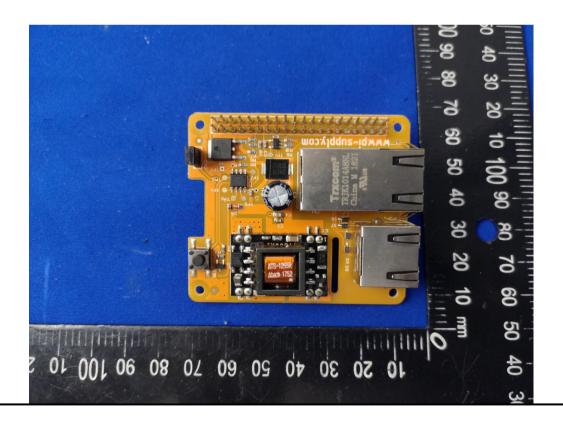






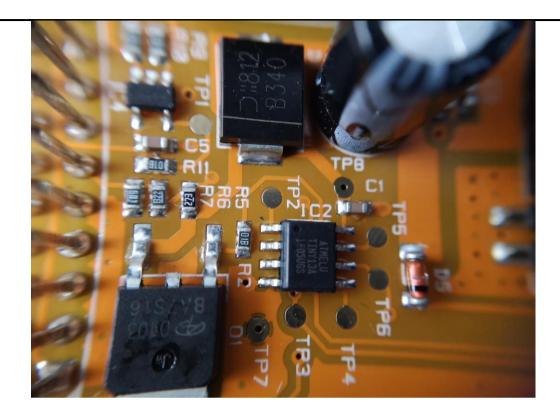
8 EUT Constructional Details







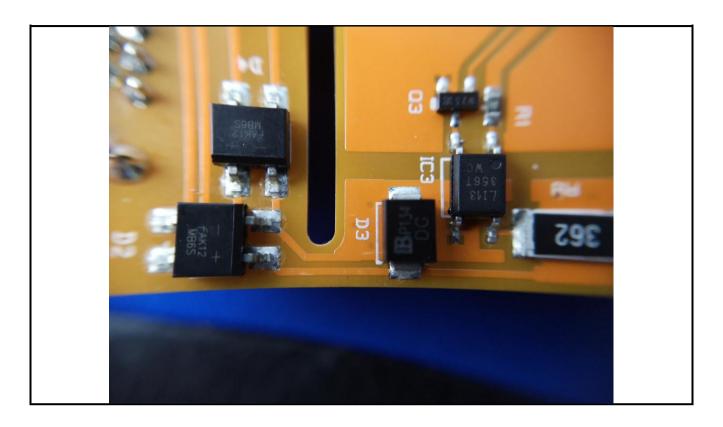












-----End of report-----