EMC TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the RED directive 2014/53/EU.

Applicant	:	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address	:	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Manufacturer/Factory	:	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address	:	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
E.U.T.	:	Computer multimedia speaker
Brand Name	:	F&D
Model No.	:	T5, T5-10, T6, T7, T8, T1, T3 (For model difference refer to section 2.1)
Measurement Standard	:	ETSI EN 301 489-1 v 2.2.0: 2017(draft) ETSI EN 301 489-17 v 3.2.0: 2017(draft)
Date of Receiver	:	November 24, 2017
Date of Test	:	November 24, 2017 to December 09, 2017
Date of Report	:	December 09, 2017

This Test Report is Issued Under the Authority of :

Prepared by	Approved & Authorized Signer
Knight Wen / Engineer	Iori Fan / Authorized Signatory

This test report is for the customer shown above and their specific product only. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

TEL: +86-769-22022444 FAX: +86-769-22022799 Web: www.ntc-c.com
Address: Building D, Gaosheng Science & Technology Park, Zhouxi Longxi Road, Nancheng District, Dongguan City, Guangdong, China

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Revision History of This Test Report

Report Number	Description	Issued Date
NTC1711193EV00	Initial Issue	2017-12-09

1. GENERAL INFORMATION

PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST

E.U.T.	:	Computer multimedia speaker
Main model number	:	T5
Additional Model number	:	T5-10, T6, T7, T8, T1, T3
Brand Name	:	F&D
E.U.T. Type	:	Class B
Operation Frequency	:	Below 108MHz (Except for BT function).
Operating Temperature Range	:	5°C to 45°C (Declaration by manufacturer)
Rating	:	AC 100V-240V, 50/60Hz DC 12V From internal sealed rechargeable battery
Test Voltage	:	AC 230V 50Hz
Cable	:	N/A
Description of model difference	:	Both of models have the same circuit schematic, construction, PCB Layout and critical components. Their difference in model number due to trading purpose.
HW	:	V1.0
SW	:	V1.0
Remark	:	According to the model difference, all tests were carried on model T5.

Technical Specification:

For BT Function

Frequency	:	2402-2480MHz
Bluetooth Version	:	BT4.2+EDR
Modulation	:	GFSK, π/4-DQPSK, 8DPSK
Number of Channel	:	79
Channel space	:	1MHz
Antenna Type	:	PCB
Antenna Gain	:	0 dBi (Declaration by manufacturer)
Adaptive/Non-Adaptive Equipment	:	Adaptive equipment
Receicer Category	:	Category 2

2. SUMMARY OF TEST RESULTS

The E.U.T. has been tested according to the following specifications:

ETSI EN 301 489-1 v 2.2.0: 2017(draft)/ ETSI EN 301 489-17 v 3.2.0: 2017(draft)			
EMISSION			
Standard	**Test Type**	**Result**	**Remarks**
EN 55032: 2015	Mains Terminal Disturbance Voltage Test	PASS	Uncertainty: 2.7dB
	Radiated Emission Test	PASS	Uncertainty: 3.4dB
EN 61000-3-2: 2014	Harmonic current emission	PASS	Meets the requirements.
EN 61000-3-3: 2013	Voltage fluctuations & flicker	PASS	Meets the requirements.
IMMUNITY			
Standard	**Test Type**	**Result**	**Remarks**
EN 61000-4-2: 2009	Electrostatic discharge immunity test	PASS	Meets the requirements of Performance Criterion B
EN 61000-4-3: 2006+A2: 2010	Radio-frequency, electromagnetic field immunity test	PASS	Meets the requirements of Performance Criterion A
EN 61000-4-4: 2012	Electrical fast transient/ burst immunity test	PASS	Meets the requirements of Performance Criterion B
EN 61000-4-5: 2014	Surge immunity test	PASS	Meets the requirements of Performance Criterion B
EN 61000-4-6: 2014	Injected Currents immunity test	PASS	Meets the requirements of Performance Criterion A
EN 61000-4-11: 2004	Voltage Dips and Interruptions	PASS	Meets the requirements of Performance Criterion B&C

3. TEST METHODOLOGY

As per table 2 of clause 7.1 of ETSI EN 301 489-1 V2.1.1, the measurement was performed under EUT combined condition during the tests. The ports on the ancillary left empty during the measurement in this report.

4. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

5. TEST FACILITY

Site Description

EMC Lab	:	Listed by CNAS, August 14, 2015 The certificate is valid until August 13, 2018 The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 The Certificate Registration Number is L5795. Listed by A2LA, November 01, 2017 The certificate is valid until December 31, 2019 The Laboratory has been assessed and proved to be in compliance with ISO17025 The Certificate Registration Number is 4429.01 Listed by FCC, November 06, 2017 The Designation Number is CN1214 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743
Name of Firm 1	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Site Location 1	:	Building D, Gaosheng Science & Technology Park, Zhouxi Longxi Road, Nancheng District, Dongguan City, Guangdong Province, China
Name of Firm 2	:	Bureau Veritas Shenzhen Co., Ltd., Dongguan Branch
Site Location 2	:	No. 34, Chenwulu Section, Guantai Rd., Houjie Town, Dongguan City, Guangdong 523942, China

6. SUPPORT EQUIPMENT

iPod	**:**	Manufacturer: Apple M/N: A1446 S/N: DCYNV5EMFOGQ
USB Flash Disk	**:**	Manufacturer: Sony M/N: USB 3.0 8GB
Mobile Phone	:	Manufacturer: Vivo Model: X5SL S/N: 867047023930426
FM signal Generator	**:**	Manufacturer: LEADER M/N: 3214 S/N: 110064

7. PERFORMANCE CRITERIA

ETSI EN301489-17 v 3.1.1: 2017		
Criteria	**During Test**	**After Test**
A	Shall operate as intended. (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.	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.
B	May show loss of function (one or more). May show degradation of performance (see note 2). Shall be no unintentional transmissions.	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.
C	May be loss of function (one or more).	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 3).

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 (CT & CR)

At the conclusion of the test the EUT shall operated as intended with no loss of user control functions or stored data, the communication link shall have been maintained during the test.

Performance Criteria For Transitent Phenomena (TT & TR)

At the conclusion of each exposure the EUT shall operated with no user noticeable loss of communication link.

8. ETSI EN 301 489-1/-17 REQUIREMENTS

8.1 RADIATED EMISSION LIMIT

According standard ETSI EN 301 489-1 v 2.1.1 Clause 8.2.3, Table 3 and EN 55032: 2015 Clause 6, Table 6, Class B

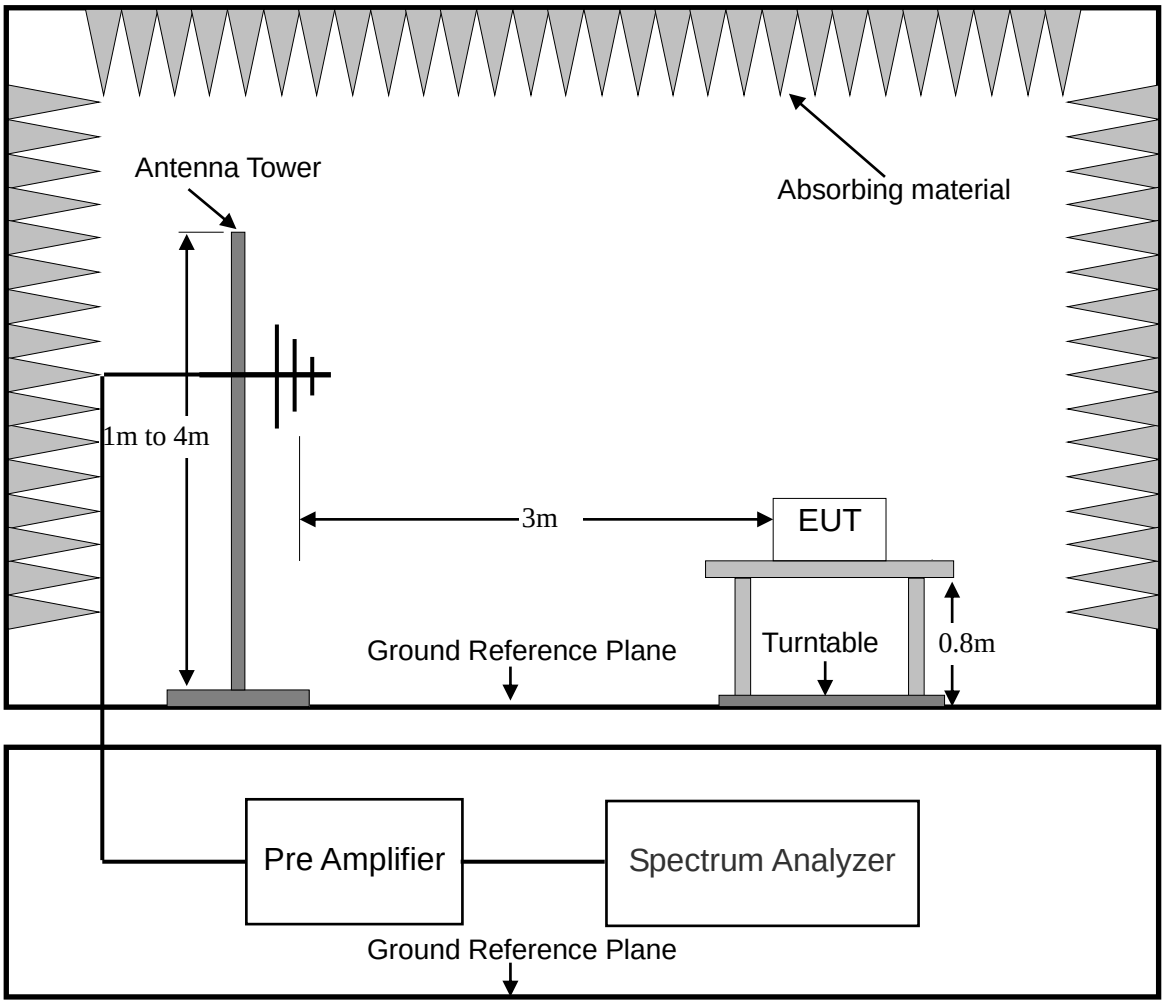
Limits for radiated disturbance Blow 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47
Note: (1) The smaller limit shall apply at the combination point between two frequency bands. (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.		

Limits for radiated disturbance Above 1GHz

FREQUENCY (MHz)	DISTANCE (Meters)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)
1000 ~ 3000	3	50	70
3000 ~ 6000	3	54	74
Note: The lower limit applies at the transition frequency.			

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 8.2.3 and EN 55032: 2015 Clause 6 for the measurement methods.

TEST RESULT

PASS

Please refer to following data tables.

Dongguan NTC Co., Ltd.
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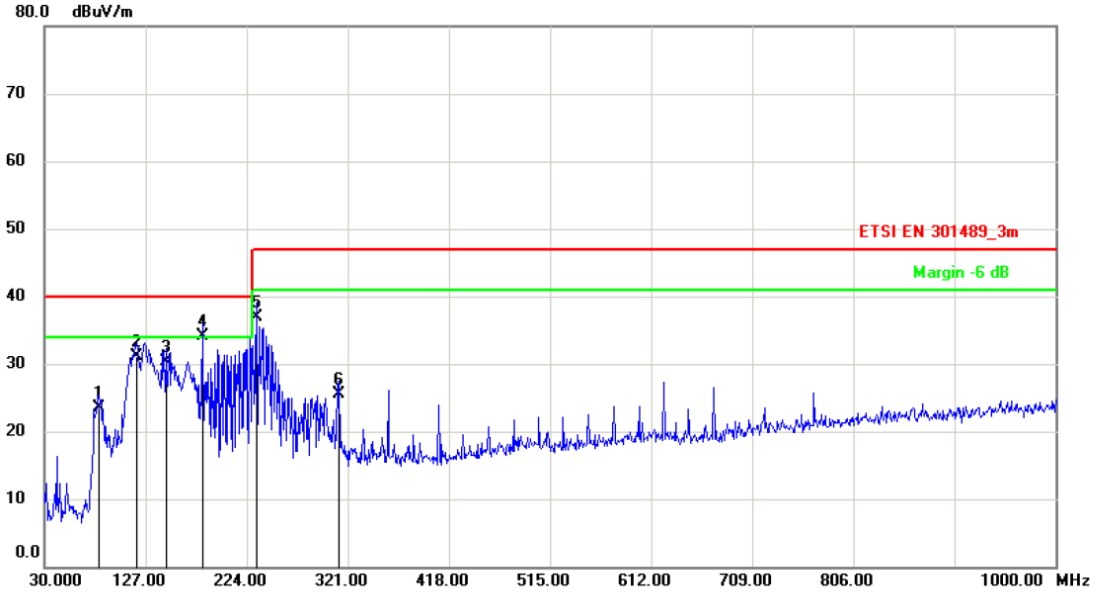
Web: Http://www.ntc-c.com

Radiated Emission Measurement

File :T5 Data :#26 Date: 2017-11-27 Time: 17:53:43



Site		Polarization: ***Horizontal***	Temperature: 26
Limit:	ETSI EN 301489_3m	Power: DC12V	Humidity: 60 %
EUT:	Computer multimedia speaker	Distance: 3m	
M/N:	T5		
Mode:	BT Link		
Note:			

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		82.3800	39.18	-15.68	23.50	40.00	-16.50	QP			
2		118.2700	44.88	-13.68	31.20	40.00	-8.80	QP			
3		146.4000	45.98	-15.58	30.40	40.00	-9.60	QP			
4	*	181.3200	48.26	-14.06	34.20	40.00	-5.80	QP			
5		233.7000	49.30	-12.30	37.00	47.00	-10.00	QP			
6		312.2700	35.73	-10.13	25.60	47.00	-21.40	QP			

*:Maximum data x:Over limit !:over margin 〈Reference Only

File :T5\Data :#26 *Page: 1* Engineer Signature: Lay

Dongguan NTC Co., Ltd.
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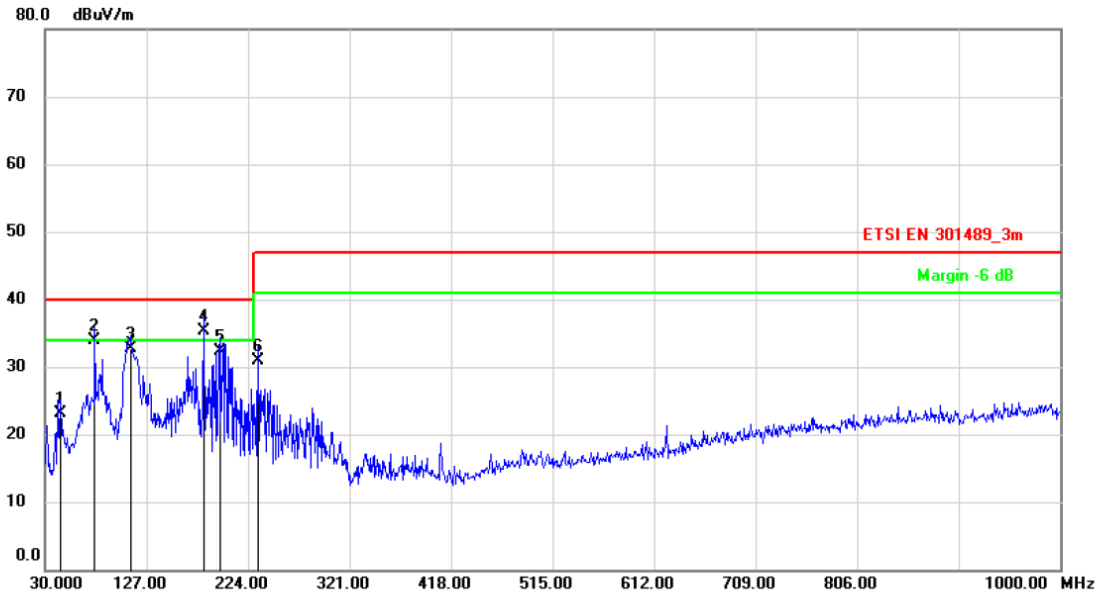
Web: Http://www.ntc-c.com

Radiated Emission Measurement

File :T5 Data :#25 Date: 2017-11-27 Time: 17:59:11



Site
Limit: ETSI EN 301489_3m
EUT: Computer multimedia speaker
M/N: T5
Mode: BT Link
Note:

Polarization: *Vertical*
Power: DC12V
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		44.5500	36.97	-13.87	23.10	40.00	-16.90	QP			
2		77.5300	52.98	-19.08	33.90	40.00	-6.10	QP			
3		111.4800	48.92	-16.12	32.80	40.00	-7.20	QP			
4	*	181.3200	52.36	-17.06	35.30	40.00	-4.70	QP			
5		197.8100	48.73	-16.43	32.30	40.00	-7.70	QP			
6		233.7000	46.30	-15.30	31.00	47.00	-16.00	QP			

*:Maximum data x:Over limit !:over margin 〈Reference Only

File :T5\Data :#25 *Page: 1* Engineer Signature: Lay

Dongguan NTC Co., Ltd.
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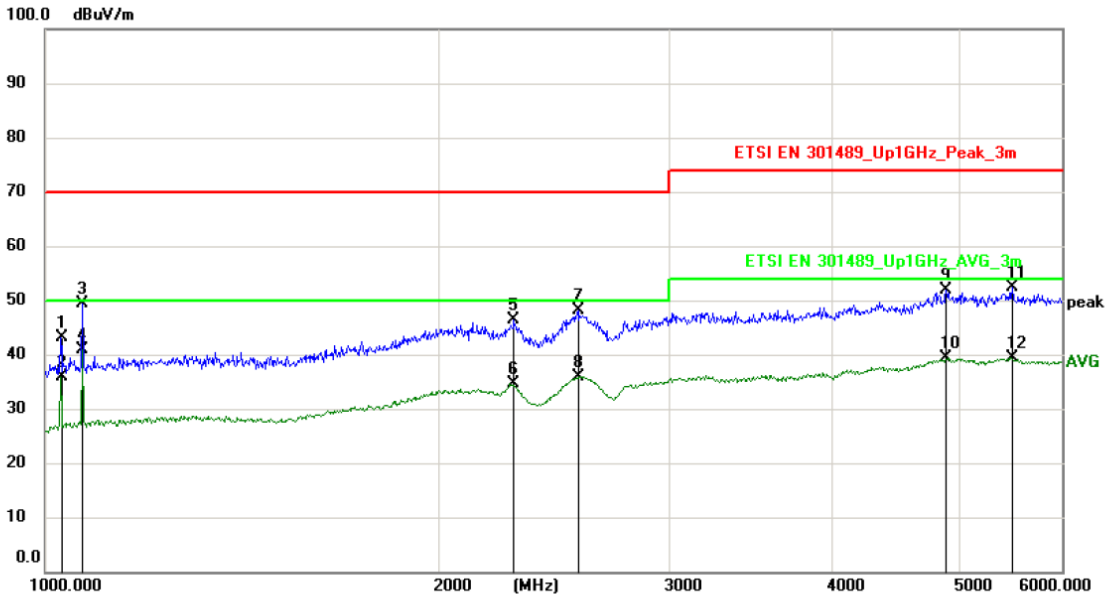
Web: Http://www.ntc-c.com

Radiated Emission Measurement

File :T5 Data :#32 Date: 2017-11-27 Time: 17:29:32



Site
Limit: ETSI EN 301489_Up1GHz_Peak_3m
EUT: Computer multimedia speaker
M/N: T5
Mode: BT Link
Note:

Polarization: *Horizontal*
Power: DC12V
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1027.241	52.56	-9.36	43.20	70.00	-26.80	peak			
2		1027.241	45.29	-9.36	35.93	50.00	-14.07	AVG			
3		1068.542	58.37	-8.89	49.48	70.00	-20.52	peak			
4	*	1068.542	49.81	-8.89	40.92	50.00	-9.08	AVG			
5		2284.166	46.46	-0.19	46.27	70.00	-23.73	peak			
6		2284.166	34.71	-0.19	34.52	50.00	-15.48	AVG			
7		2557.121	47.49	0.60	48.09	70.00	-21.91	peak			
8		2557.121	35.21	0.60	35.81	50.00	-14.19	AVG			
9		4891.499	45.34	6.64	51.98	74.00	-22.02	peak			
10		4891.499	32.71	6.64	39.35	54.00	-14.65	AVG			
11		5495.685	45.67	6.81	52.48	74.00	-21.52	peak			
12		5495.685	32.54	6.81	39.35	54.00	-14.65	AVG			

*:Maximum data x:Over limit !:over margin 〈Reference Only

File :T5\Data :#32 *Page: 1* Engineer Signature: Lay

Dongguan NTC Co., Ltd.
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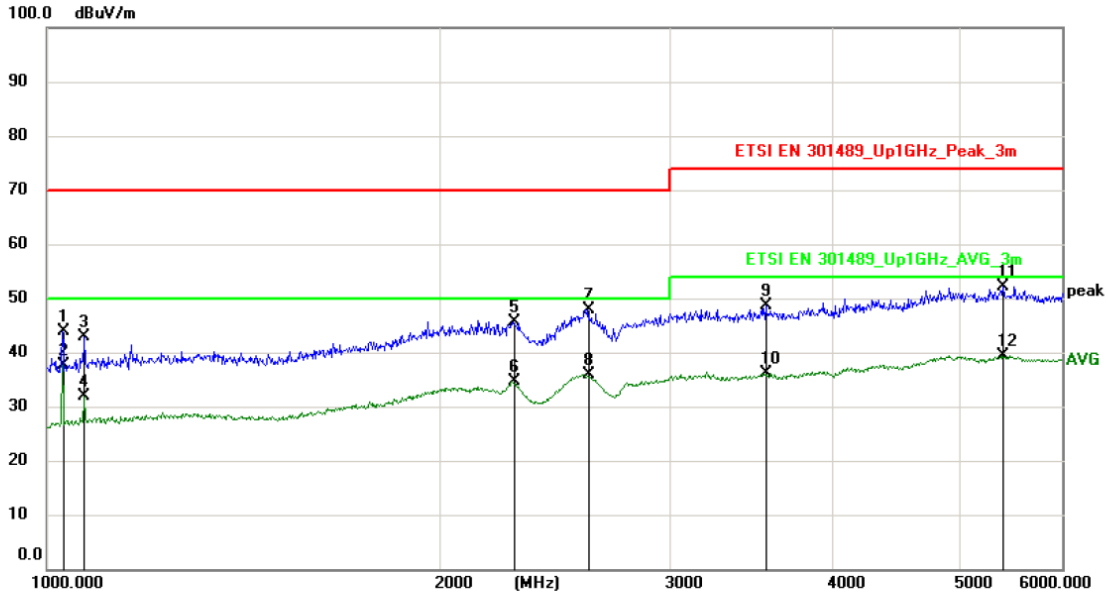
Web: Http://www.ntc-c.com

Radiated Emission Measurement

File :T5 Data :#31 Date: 2017-11-27 Time: 17:36:20



Site
Limit: ETSI EN 301489_Up1GHz_Peak_3m
EUT: Computer multimedia speaker
M/N: T5
Mode: BT Link
Note:

Polarization: *Vertical*
Power: DC12V
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		1027.241	53.31	-9.36	43.95	70.00	-26.05	peak			
2	*	1027.241	46.87	-9.36	37.51	50.00	-12.49	AVG			
3		1068.542	51.70	-8.89	42.81	70.00	-27.19	peak			
4		1068.542	40.83	-8.89	31.94	50.00	-18.06	AVG			
5		2275.996	45.95	-0.22	45.73	70.00	-24.27	peak			
6		2275.996	34.74	-0.22	34.52	50.00	-15.48	AVG			
7		2598.691	47.11	0.74	47.85	70.00	-22.15	peak			
8		2598.691	35.06	0.74	35.80	50.00	-14.20	AVG			
9		3555.749	45.73	2.86	48.59	74.00	-25.41	peak			
10		3555.749	33.15	2.86	36.01	54.00	-17.99	AVG			
11		5407.773	45.21	6.80	52.01	74.00	-21.99	peak			
12		5407.773	32.53	6.80	39.33	54.00	-14.67	AVG			

*:Maximum data x:Over limit !:over margin 〈Reference Only

File :T5\Data :#31 *Page: 1* Engineer Signature: Lay

8.2 AC POWER CONDUCTED EMISSION

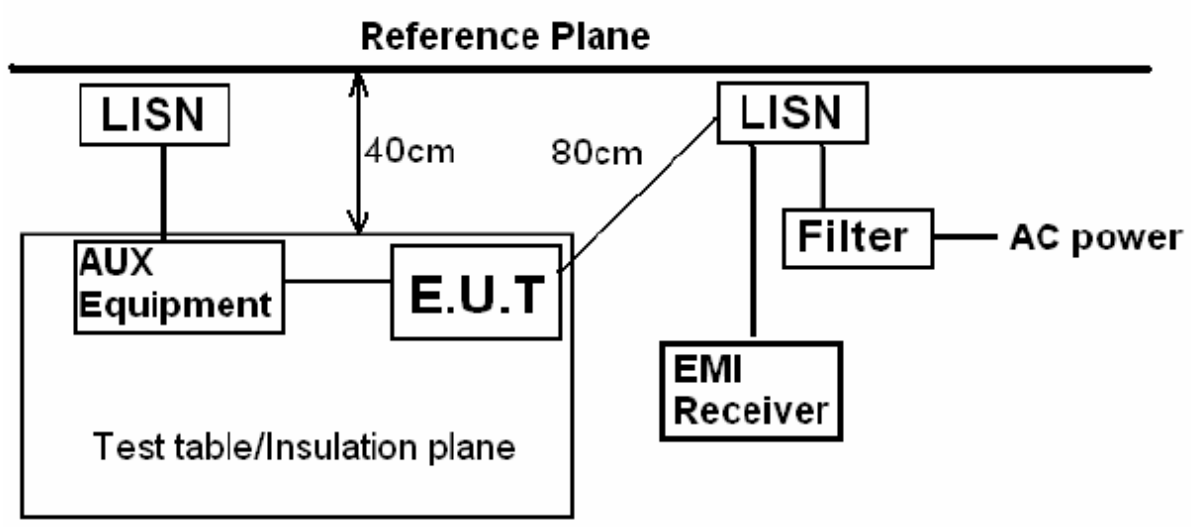
LIMIT

According to standard ETSI EN 301 489-1 V2.1.1 Clause 8.3.3, Table 8 and EN 55032: 2015Clause 5, Table 2, Class B

Limits for conducted disturbance at the mains ports of class B ITE.

Frequency range	Limits (dB(uV))	
(MHz)	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 8.3.3 and EN 55032: 2015Clause 5 for the measurement methods.

TEST RESULTS

PASS

Please refer to following data tables.

Dongguan NTC Co., Ltd.
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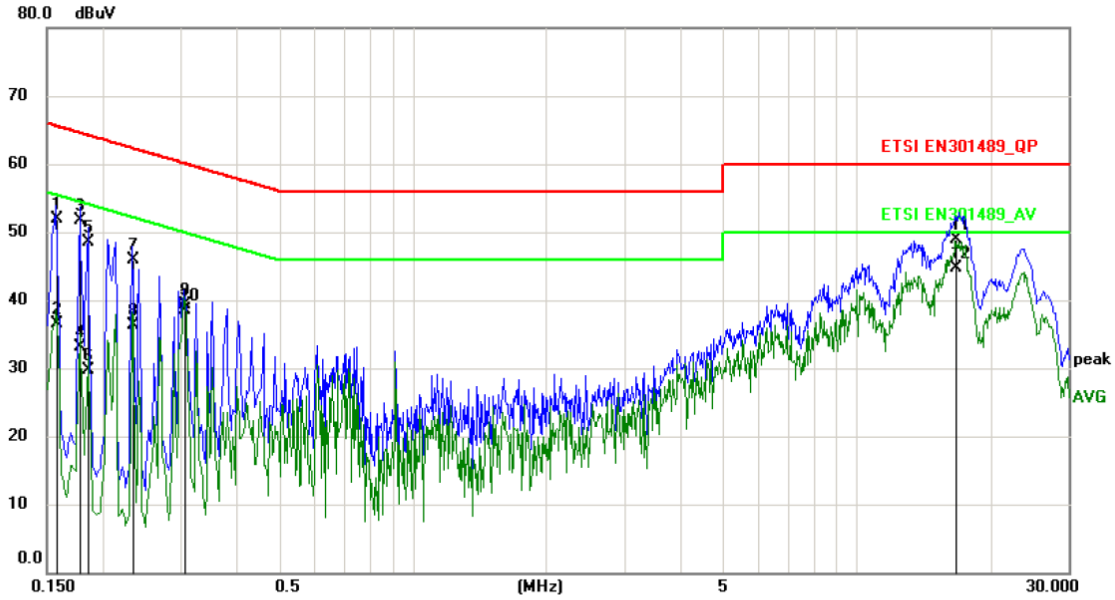
Conducted Emission Measurement

File :T5 Data :#9 Date: 2017-11-27 Time: 10:51:33



Site Phase: *L1* Temperature: 26
Limit: ETSI EN301489_QP Power: AC230V/50Hz Humidity: 53 %
EUT: Computer multimedia speaker
M/N: T5
Mode: Charging+BT Link
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1580	41.10	10.80	51.90	65.57	-13.67	QP	
2		0.1580	25.70	10.80	36.50	55.57	-19.07	AVG	
3		0.1780	41.00	10.80	51.80	64.58	-12.78	QP	
4		0.1780	22.40	10.80	33.20	54.58	-21.38	AVG	
5		0.1860	37.80	10.80	48.60	64.21	-15.61	QP	
6		0.1860	18.90	10.80	29.70	54.21	-24.51	AVG	
7		0.2340	35.10	10.80	45.90	62.31	-16.41	QP	
8		0.2340	25.60	10.80	36.40	52.31	-15.91	AVG	
9		0.3060	28.60	10.80	39.40	60.08	-20.68	QP	
10		0.3060	27.80	10.80	38.60	50.08	-11.48	AVG	
11		16.7300	38.10	10.80	48.90	60.00	-11.10	QP	
12	*	16.7300	33.90	10.80	44.70	50.00	-5.30	AVG	

*:Maximum data x:Over limit !:over margin 〈Reference Only

File :T5\Data :#9 *Page: 1* Engineer Signature: Lee

Dongguan NTC Co., Ltd.
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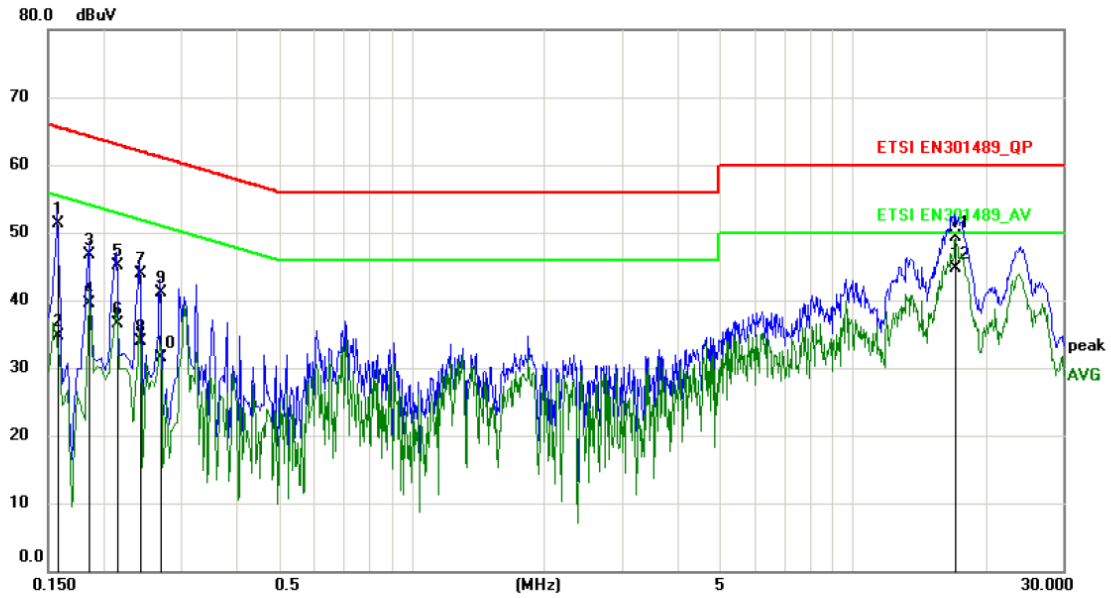
Web: Http://www.ntc-c.com

Conducted Emission Measurement

File :T5 Data :#8 Date: 2017-11-27 Time: 10:58:10



Site
Limit: ETSI EN301489_QP
EUT: Computer multimedia speaker
M/N: T5
Mode: Charging+BT Link
Note:

Phase: N
Power: AC230V/50Hz

Temperature: 26
Humidity: 53 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1580	40.50	10.80	51.30	65.57	-14.27	QP	
2		0.1580	24.00	10.80	34.80	55.57	-20.77	AVG	
3		0.1860	35.90	10.80	46.70	64.21	-17.51	QP	
4		0.1860	28.70	10.80	39.50	54.21	-14.71	AVG	
5		0.2140	34.30	10.80	45.10	63.05	-17.95	QP	
6		0.2140	25.80	10.80	36.60	53.05	-16.45	AVG	
7		0.2420	33.10	10.80	43.90	62.03	-18.13	QP	
8		0.2420	23.10	10.80	33.90	52.03	-18.13	AVG	
9		0.2700	30.40	10.80	41.20	61.12	-19.92	QP	
10		0.2700	20.70	10.80	31.50	51.12	-19.62	AVG	
11		17.0740	38.50	10.80	49.30	60.00	-10.70	QP	
12	*	17.0740	34.00	10.80	44.80	50.00	-5.20	AVG	

*:Maximum data x:Over limit !:over margin 〈Reference Only

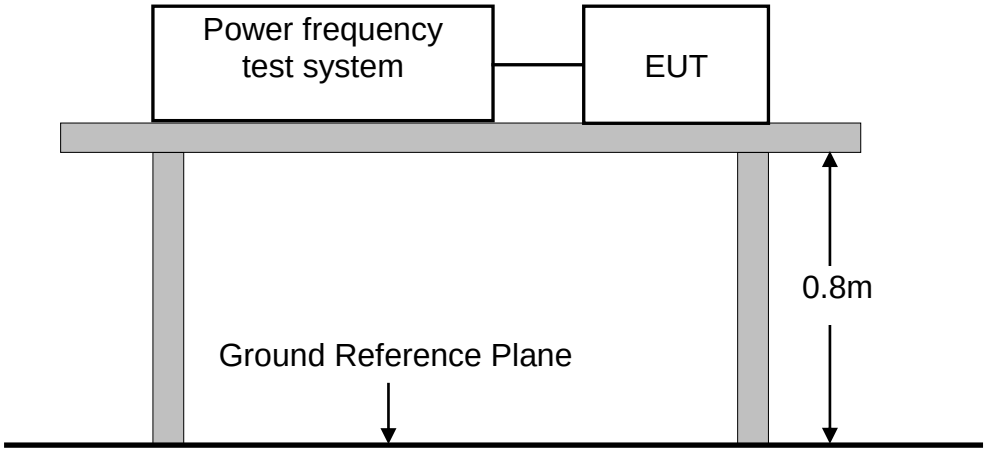
File :T5\Data :#8 *Page: 1* Engineer Signature: Lee

8.3 AC MAINS HARMONIC CURRENT EMISSION

LIMIT

Please refer to EN 61000-3-2

TEST CONFIGURATION



Ambient Condition of the Test Site			
Temperature	22°C	**Test Voltage**	AC 230V/50Hz
Humidity	49%RH	**Tested by**	Ivan
Pressure	1022mbar		

TEST PROCEDURE

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

TEST RESULTS

Pass

Test Mode: Charging+BT Link

According to clause 7 of EN 61000-3-2, equipment with a rated power of 75W or less, no limits apply. It is considered to meet the requirements of the standard.

8.4 AC MAINS VOLTAGE FLUCTUATION AND FLICKER

LIMIT

Please refer to EN 61000-3-3

TEST CONFIGURATION

(Same as the configuration of the AC MAINS HARMONIC CURRENT EMISSIONS TEST)

Ambient Condition of the Test Site			
Temperature	22°C	**Test Voltage**	AC 230V/50Hz
Humidity	49%RH	**Tested by**	Ivan
Pressure	1022mbar		

TEST PROCEDURE

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

TEST RESULTS

Pass.

Test Mode : Charging+BT Link

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

EUT: Computer multimedia speaker **Tested by: Ivan**
Test category: All parameters (European limits)Test Margin: 100
Test date: 2017-11-28 **Start time: 13:07:55 End time: 13:18:26**
Test duration (min): 10 **Data file name: F-001019.cts_data**
Comment: Charging+BT Link
Customer: FENDA
M/N：T5
Test Result: Pass **Status: Test Completed**

Psti and limit line **European Limits**

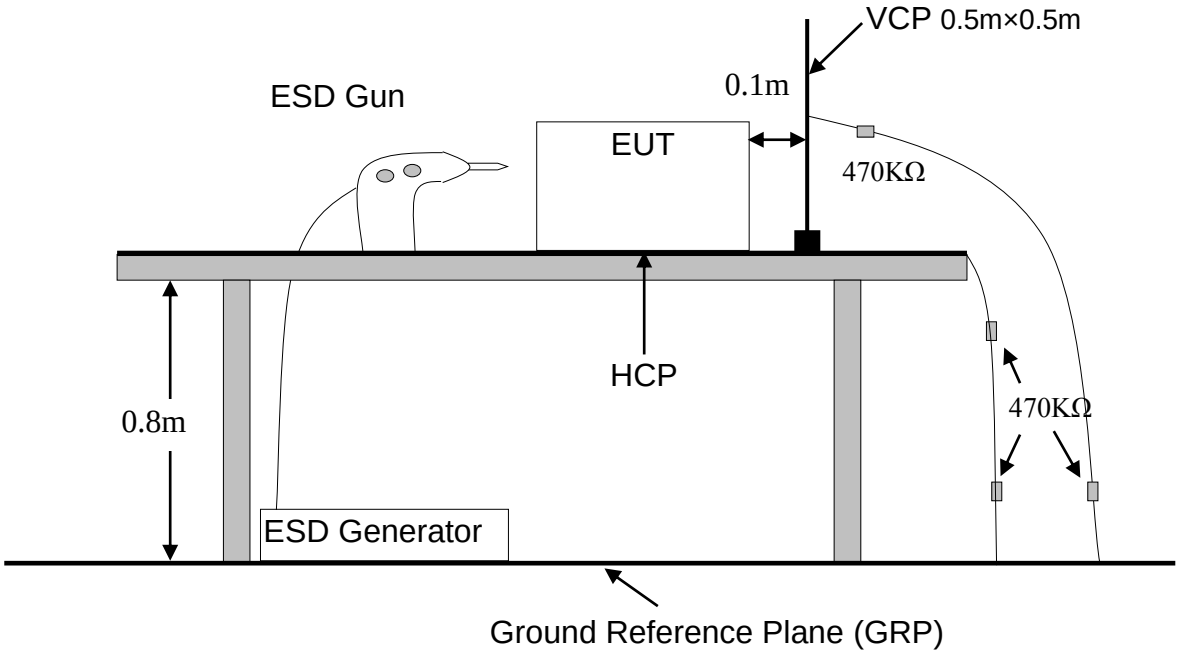
Plt and limit line

Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.27**			
Highest dt (%):	**0.00**	**Test limit (%):**	**N/A**	**N/A**
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.06**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.273**	**Test limit:**	**1.000**	**Pass**
Highest Plt (2 hr. period):	**0.119**	**Test limit:**	**0.650**	**Pass**

8.5 ELECTROSTATIC DISCHARGE

TEST CONFIGURATION



TEST PROCEDURE:

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 9.3.2 and EN 61000-4-2 for the measurement methods.

TEST RESULT

PASS

please refer to following data table.

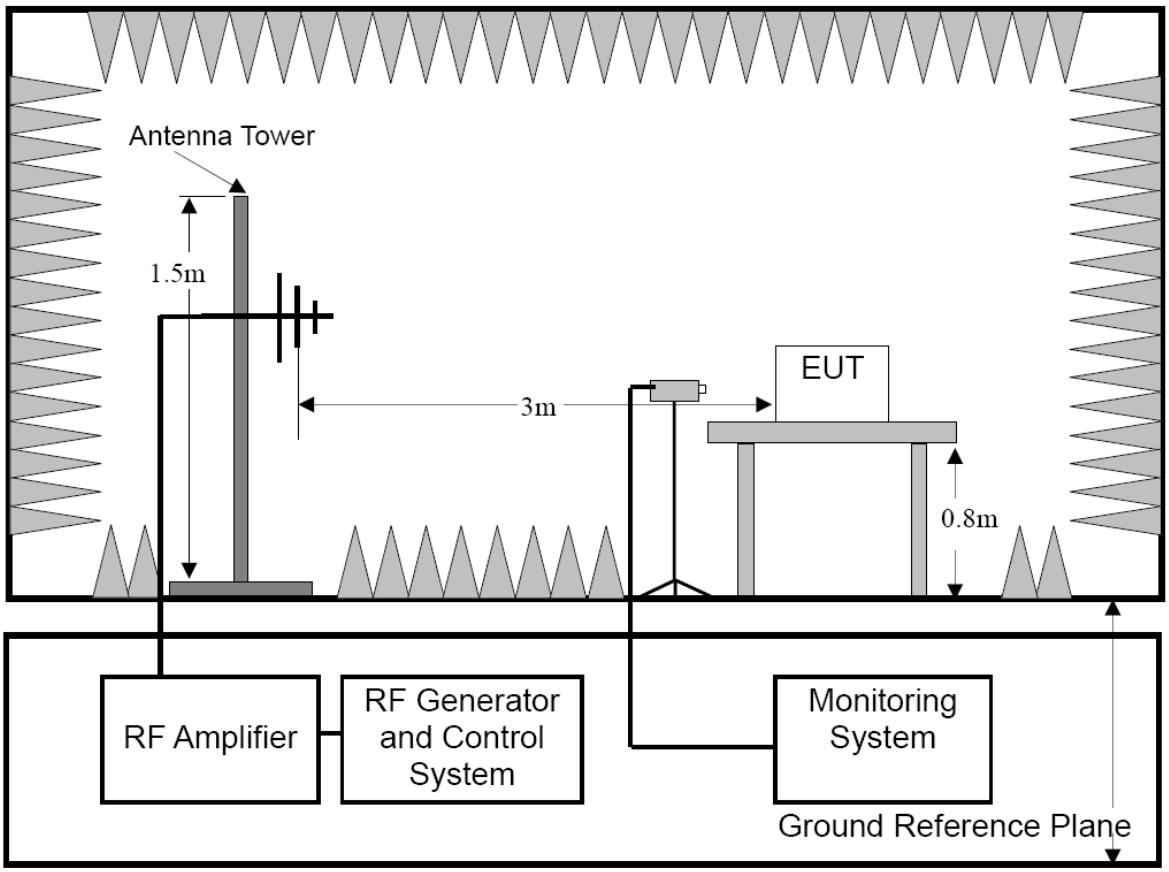
Test Condition			
Temperature	23°C	Test Voltage	AC 230V/50Hz DC 12V
Humidity	50%RH	Tested by	Ivan
Pressure	1022mbar	Performance Criterion :	CR & CT & B
Ground Bond Resistance		0.2 Ω	
Time Between Each Discharge :		>1 second	
Test Mode		BT Link, Charging+BT Link	
Test Level		± 2.0, ± 4.0, ±8.0 kV (Air Discharge) ± 2.0, ±4.0 kV (Contact Discharge) ± 2.0, ±4.0 kV (Indirect Contact Discharge)	

Test Result		
Discharge Type	Level	Result
Contact Discharge	± 2, ± 4kV	Pass*
Air Discharge	± 2, ± 4, ± 8kV	Pass
Indirect HCP Discharge	± 2, ± 4kV	Pass
Indirect VCP Discharge	± 2, ± 4kV	Pass

Note*: In test modes, the sound of EUT muting occurs during test, but it can be resumed by itself after test.

8.6 RF ELECTROMAGNETIC FIELD

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 9.2.2 and EN61000-4-3 for the measurement methods.

TEST RESULT

PASS

please refer to following data table.

Test Condition			
Temperature	23°C	Test Voltage	AC 230V/50Hz DC 12V
Humidity	50%RH	Tested by	Ivan
Pressure	1022mbar	Performance Criterion	CR & CT & A
Frequency Range		80-6000 MHz	
Test Modulation		1kHz, 80% AM	
Dwell time		1 second	
Frequency Step		1%	
Antenna Polarization		Horizontal and Vertical	
Test Mode		BT Link, Charging+BT link	
Test Level		3V/m	

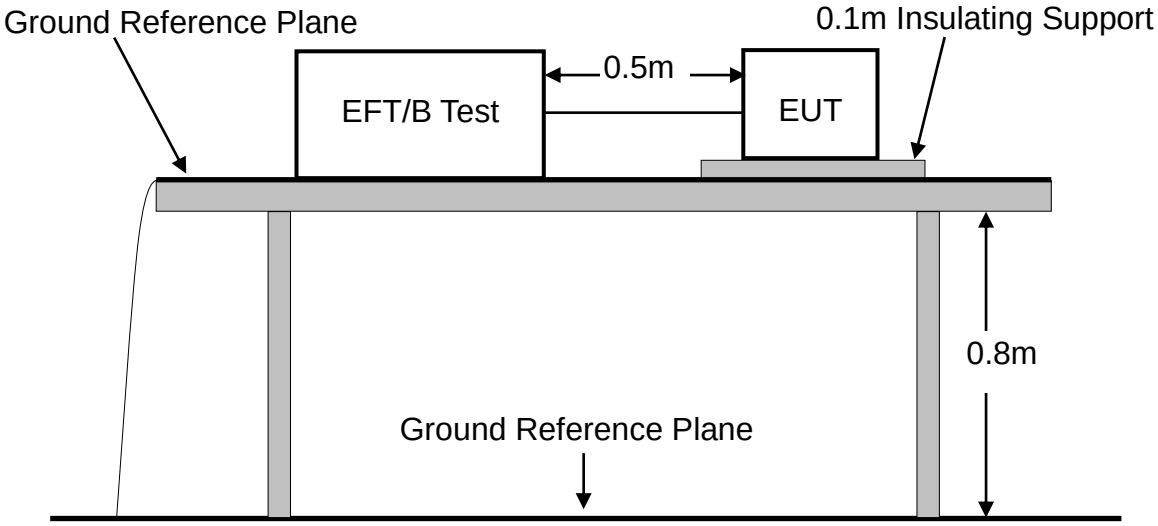
Test Result		
Frequency (MHz)	Exposed Side	Result
80 to 6000	Front	Pass
80 to 6000	Left	Pass
80 to 6000	Rear	Pass
80 to 6000	Right	Pass

Note: The exclusion band for 2,40 GHZ equipment falling within the scope of the present document extends from 2 280 MHz to 2 603,50 MHz.

Note: This test was carry out on Bureau Veritas Shenzhen Co., Ltd., Dongguan Branch.

8.7 AC MAINS FAST TRANSIENTS COMMON MODE

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 9.4.2 and EN 61000-4-4 for the measurement methods.

TEST RESULT

PASS

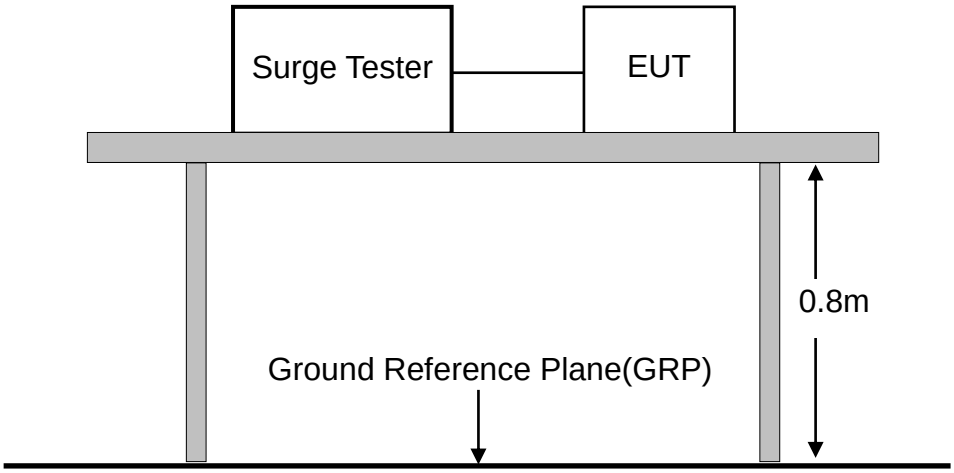
please refer to following data table.

Test Condition			
Temperature	23°C	Test Voltage	AC 230V/50Hz
Humidity	50%RH	Tested by	Ivan
Pressure	1022mbar	Performance Criterion	CR & CT & B
Impulse Frequency		5kHz	
Tr/Th		5/50ns	
Burst Duration		15ms	
Burst Period		300ms	
Port		AC Power	
Test Mode		Charging+BT Link	
Test Level		±1.0kV	

Test Result		
Injection Line	Level	Result
Line	±1.0kV	Pass
Neutral	±1.0kV	Pass
PE	N/A	N/A
Line + Neutral	±1.0kV	Pass
Line + PE	N/A	N/A
Neutral + PE	N/A	N/A
DC Power Line	N/A	N/A
Signal Line	N/A	N/A

8.8 AC MAINS SURGE

TEST CONFIGURATION



TEST PROCEDURE:

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 9.8.2 and EN 61000-4-5 for the measurement
methods.

TEST RESULT

PASS

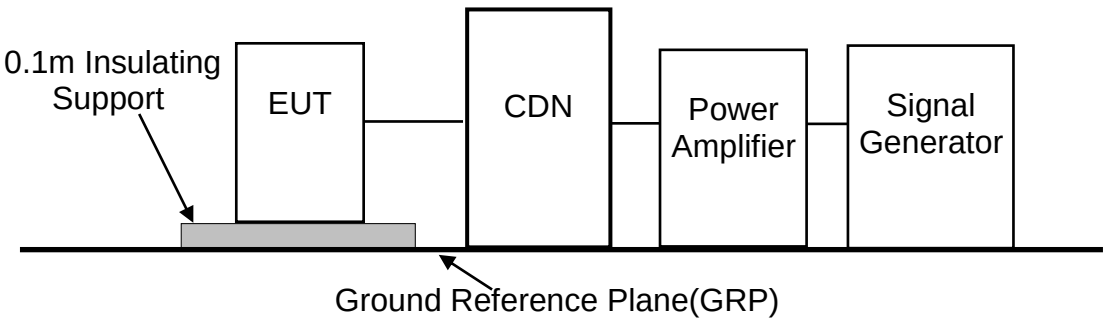
please refer to following data table.

Test Condition			
Temperature	23°C	Test Voltage	AC 230V/50Hz
Humidity	50%RH	Tested by	Ivan
Pressure	1022mbar	Performance Criterion	CR & CT & B
Voltage Waveform		1.2/50 us	
Current Waveform		8/20 us	
Polarity		Positive/Negative	
Phase angle		0º, 90º, 180 º, 270º	
Repetition Rate		1 minute	
Test Mode		Charging+BT Link	
Test Level		±1.0kV / 5 Positive And 5 Negative Surges	

Test Result		
Coupling Line	Level	Result
Line + Neutral	±1.0kV	Pass
Line + PE	N/A	N/A
Neutral + PE	N/A	N/A
T, R-Ground	N/A	N/A
L1, 2, 3, 4-G (LAN)	N/A	N/A

8.9 RADIO FREQUENCY COMMON MODE

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 9.5.2, EN61000-4-6 for the measurement methods.

TEST RESULT

PASS

please refer to following data table.

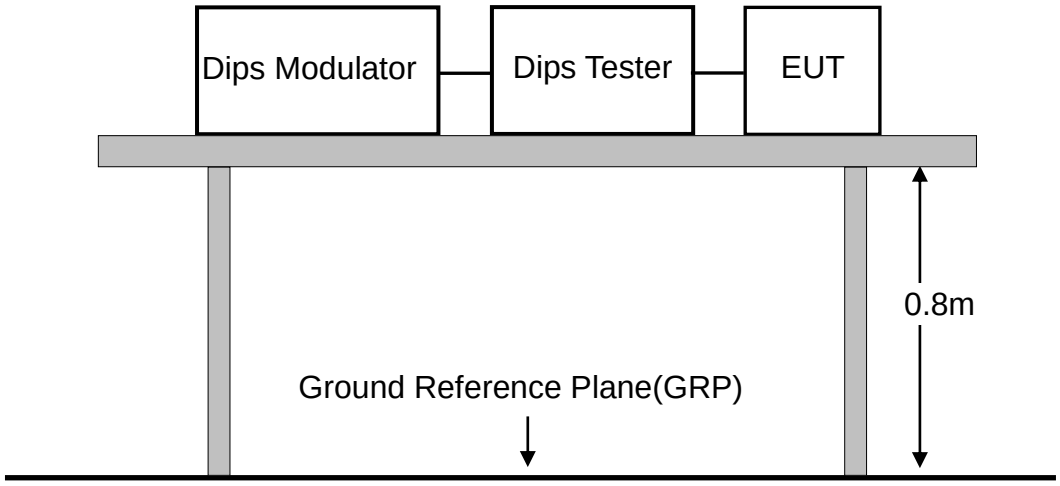
Test Condition			
Temperature	23°C	Test Voltage	AC 230V/50Hz
Humidity	50%RH	Tested by	Ivan
Pressure	1022mbar	Performance Criterion	CR & CT & A
Frequency Range		0.15MHz~80MHz	
Frequency Step		1%	
Dwell time		1s	
Test Modulation		1 kHz, 80% AM	
Source Impedance		150Ω	
Test Mode		Charging+BT Link	
Test Level		3V(r.m.s)	

Test Result		
Injection Line	Level	Result
AC Power Line	3V(r.m.s)	Pass
Telecommunication Line	N/A	N/A
DC Line	N/A	N/A
Signal Line	N/A	N/A
Control Line	N/A	N/A

Note: This test was carry out on Bureau Veritas Shenzhen Co., Ltd., Dongguan Branch.

8.10 VOLTAGE DIPS AND INTERRUPTION

TEST CONFIGURATION



TEST PROCEDURE

Please refer to ETSI EN 301 489-1 V2.1.1 Clause 9.7.2 and EN 61000-4-11 for the measurement methods.

TEST RESULT

PASS

please refer to following data table.

Test Condition			
Temperature	23°C	Test Voltage	AC 230V 50Hz
Humidity	50%RH	Tested by	Ivan
Pressure	1022mbar	Performance Criterion	B&C
Phase angles		0º, 45º, 90º, 135º, 180º, 225º, 270 º, 315º	
Number of Dips/Interruptions :		3 times	
Repetition Rate		10s	
Test Mode		Charging+BT Link	

Test Level				
	Test Level (% U_T)	Reduction (%)	Duration (ms)	Criterion
Voltage Dips	70	30%	500	B
	0	100%	20	B
	0	100%	10	B
Voltage Interruption	0	100%	5000	C

Test Result			
Test Level (% U_T)	Reduction (%)	Duration (ms)	Result
70	30%	500	Pass*
0	100%	20	Pass*
0	100%	10	Pass*
0	100%	5000	Pass*

Note : During the test, the EUT power off, but it could recovered by itself after test.

8.11 TEST EQUIPMENT LIST

FOR MAINS TERMINALS DISTURBANCE VOLTAGE TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 14, 2017	1 Year
2.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 14, 2017	1 Year
3.	L.I.S.N	Schwarzbeck	NNLK8129	8129212	Mar. 07, 2017	1 Year
4.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar. 14, 2017	1 Year

FOR RADIATED EMISSION MEASUREMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 14, 2017	1 Year
2.	Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 15, 2017	1 Year
3.	Positioning Controller	UC	UC 3000	N/A	N/A	N/A
4.	Color Monitor	SUNSPO	SP-140A	N/A	N/A	N/A
5.	Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
6.	3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
7.	DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
8.	Cable	Huber+Suhner	CBL3-NN-9M	21490001	Mar. 14, 2017	1 Year
9.	Cable	Huber+Suhner	RG223U	N/A	Mar. 14, 2017	1 Year
10.	Power Amplifier	HP	HP 8447D	1145A00203	Mar. 14, 2017	1 Year
11.	Horn Antenna	COM-Power	AH-118	071078	Mar. 15, 2017	1 Year
12.	Pre-Amplifier	COM-Power	PAM-118	443007	Apr. 25, 2017	1 Year

FOR HARMONIC / FLICKER MEASUREMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Power Frequency Analyser	California Instruments	PACS-1	72846	Mar. 14, 2017	1 Year
2.	5KVA AC Power Source	California Instruments	500liX	60137	Mar. 14, 2017	1 Year
3.	Software	California Instruments	CTS30	N/A	N/A	N/A

FOR ELECTROSTATIC DISCHARGE TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	TESEQ	NSG 437	432	Mar. 15, 2017	1 Year

FOR RF ELECTROMAGNETIC FIELD IMMUNITY TEST

(Bureau Veritas Shenzhen Co., Ltd., Dongguan Branch)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	Agilent	N5181A	MY50142530	Aug 31, 2017	1 Year
2.	Antenna Log-Periodic	CORAD	ATR80M6G	0337307	Aug 31, 2017	1 Year
3.	Switch Controller	CORAD	SC1000	0337343	Aug 31, 2017	1 Year
4.	RF Power Meter	ESE	4242	13984	Aug 31, 2017	1 Year
5	Power Sensor	ESE	51011EMC	35716	Aug 31, 2017	1 Year
6	E-Field probe	Narda	NBM-520	2403/01B	Aug 31, 2017	1 Year
7	Power Amplifier	TESEQ	CBA 1G-150	T44029	N/A	N/A
8	Power Amplifier	TESEQ	CBA 3G-100	T44030	N/A	N/A
9	Power Amplifier	TESEQ	CBA 6G-050	1041204	N/A	N/A
10	Dual Directional Coupler	TESEQ	C5982	95208	Aug 31, 2017	1 Year
11	Dual Directional Coupler	TESEQ	C6187	95175	Aug 31, 2017	1 Year
12	Dual Directional Coupler	TESEQ	CPH-274F	M251304-01	Aug 31, 2017	1 Year

FOR ELECTRICAL FAST TRANSIENT /BURST IMMUNITY TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Burst Tester	EM TEST	UCS 500N	V1104108683	Mar. 14, 2017	1 Year
2.	Coupling Clamp	EM TEST	HFK	0311-94	Mar. 14, 2017	1 Year
3.	Test Soft	EM TEST	lec. control	N/A	N/A	N/A

FOR SURGE IMMUNITY TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Surge Tester	EM TEST	UCS 500N	V1104108683	Mar. 14, 2017	1 Year
2.	Test Soft	EM TEST	lec. control	N/A	N/A	N/A

FOR INJECTED CURRENTS IMMUNITY MEASUREMENT

(Bureau Veritas Shenzhen Co., Ltd., Dongguan Branch)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	HP	8648A	3426A01263	Oct.18, 2017	1 Year
2.	CDN	Luthi	L-801M2/M3	2015	Oct.18, 2017	1 Year
3.	CDN(AUX)	TESEQ	CDN M016	27452	Oct.18, 2017	1 Year
4.	6dB 50Watt Attenuator	Huber+Suhner	5906.17.0005	303688	Oct.18, 2017	1 Year
5.	Signal Amplifier	HAEFELY	PAMP250	149594	Oct.18, 2017	1 Year
6.	Electromagnetic Injection Clamp	Luthi	EM101	35640	Oct.18, 2017	1 Year
7.	C/S Test System	HAEFELY	WinPAMP	NSEMC002	Oct.18, 2017	1 Year

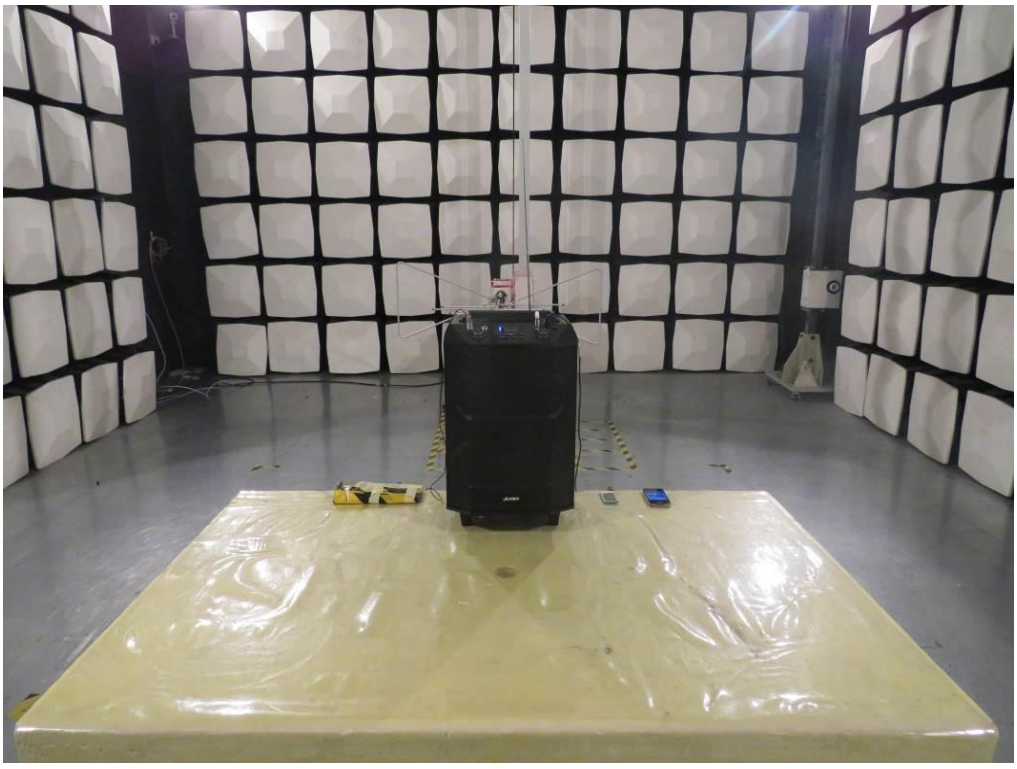
FOR VOLTAGE DIPS AND INTERRUPTIONS MEASUREMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Dips Tester	EM TEST	UCS500N	V1104108683	Mar. 14, 2017	1 Year
2.	Test Soft	EM TEST	lec.control	N/A	N/A	N/A
3.	Dips Modulator	EM TEST	V4780S2	0111-11	Mar. 14, 2017	1 Year

APPENDIX 1
PHOTOGRPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST

RADIATED EMISSION TEST



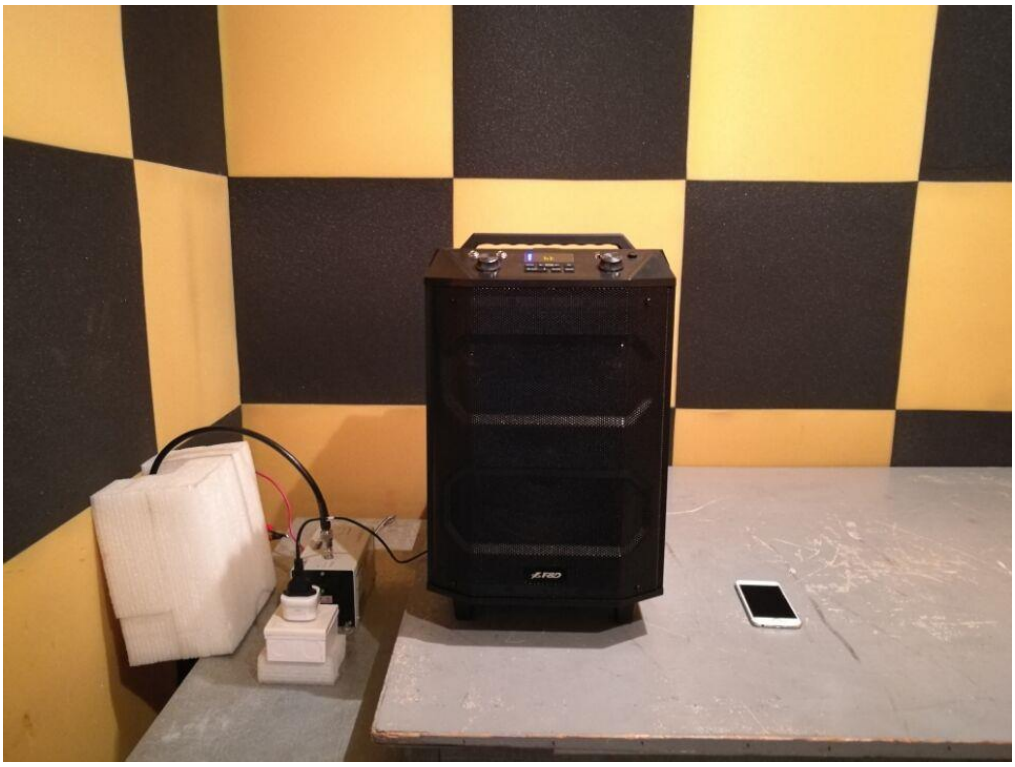
POWER HARMONIC & VOLTAGE FLUCTUATION / FLICKER TEST

ELECTROSTATIC DISCHARGE TEST

RADIATED ELECTROMAGNETIC FIELD TEST

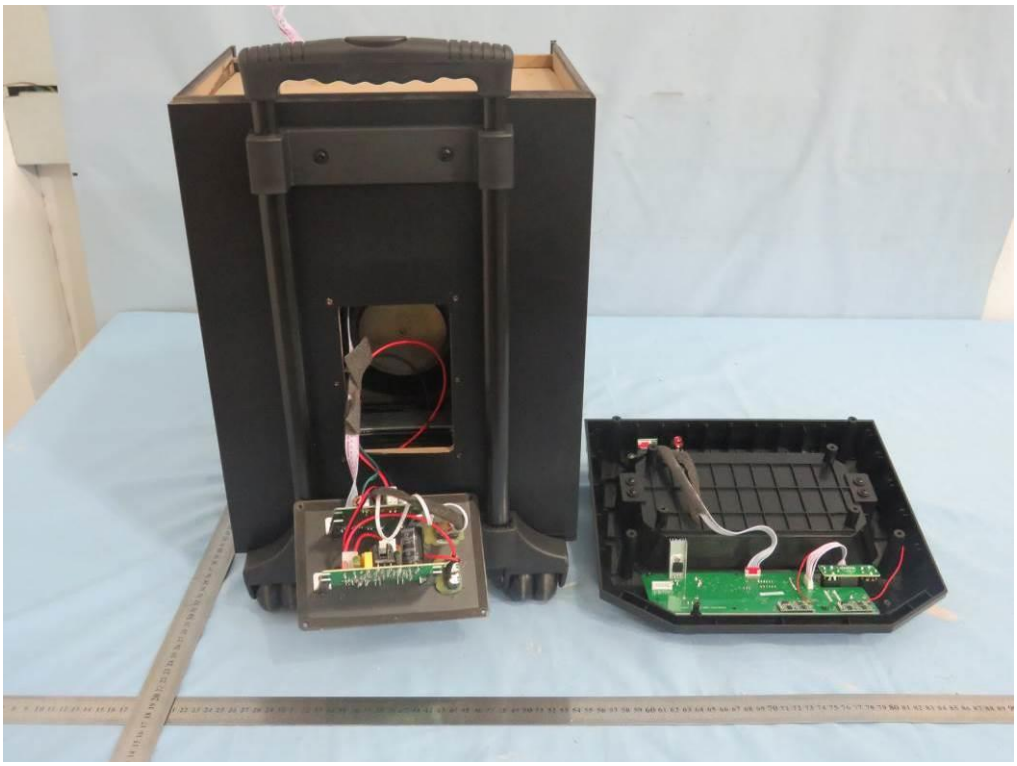
ELECTRICAL FAST TRANSIENTS/BURST/ SURGE/ VOLTAGE DIPS TEST

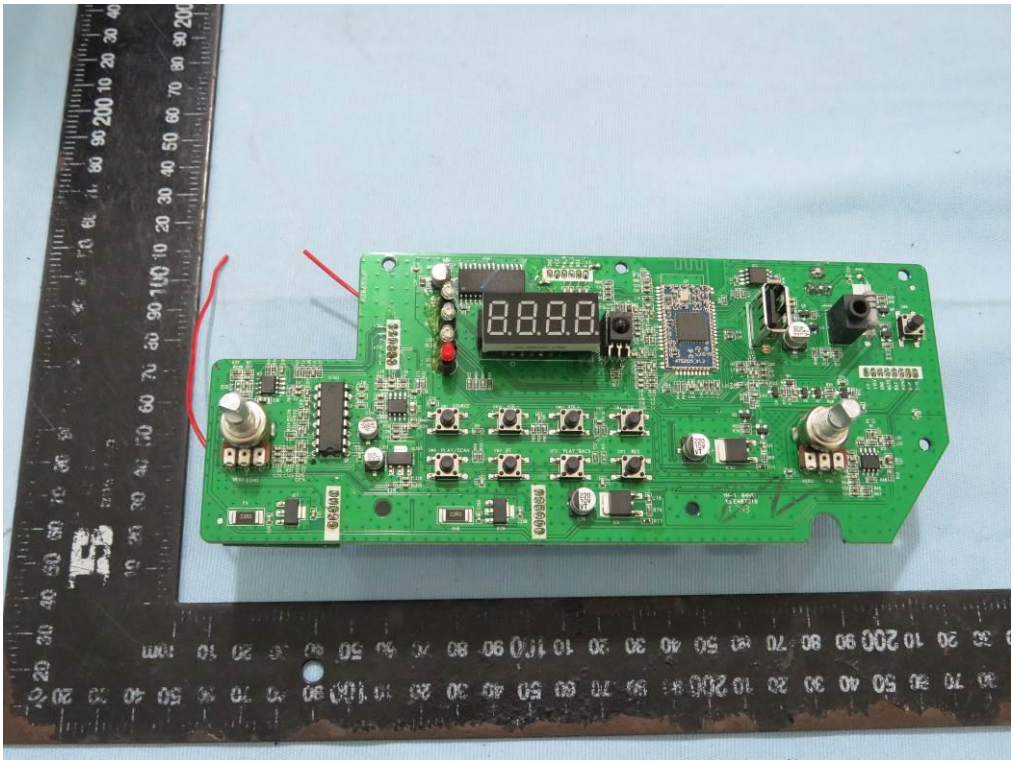
RADIO FREQUENCY COMMON MODE TEST

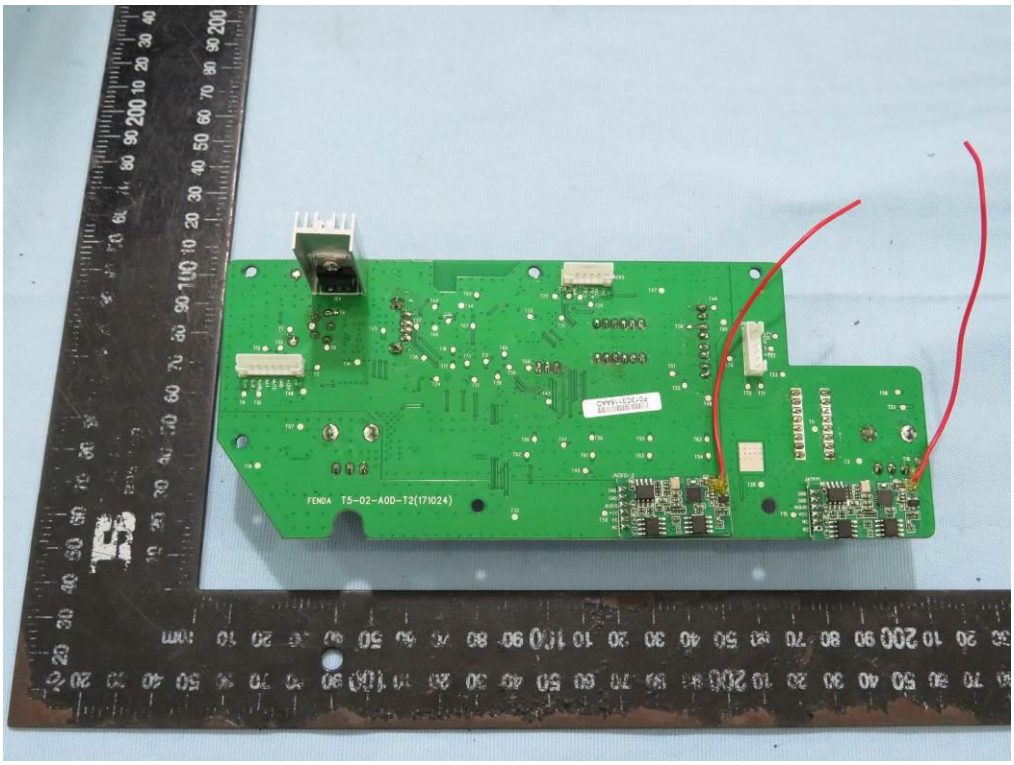


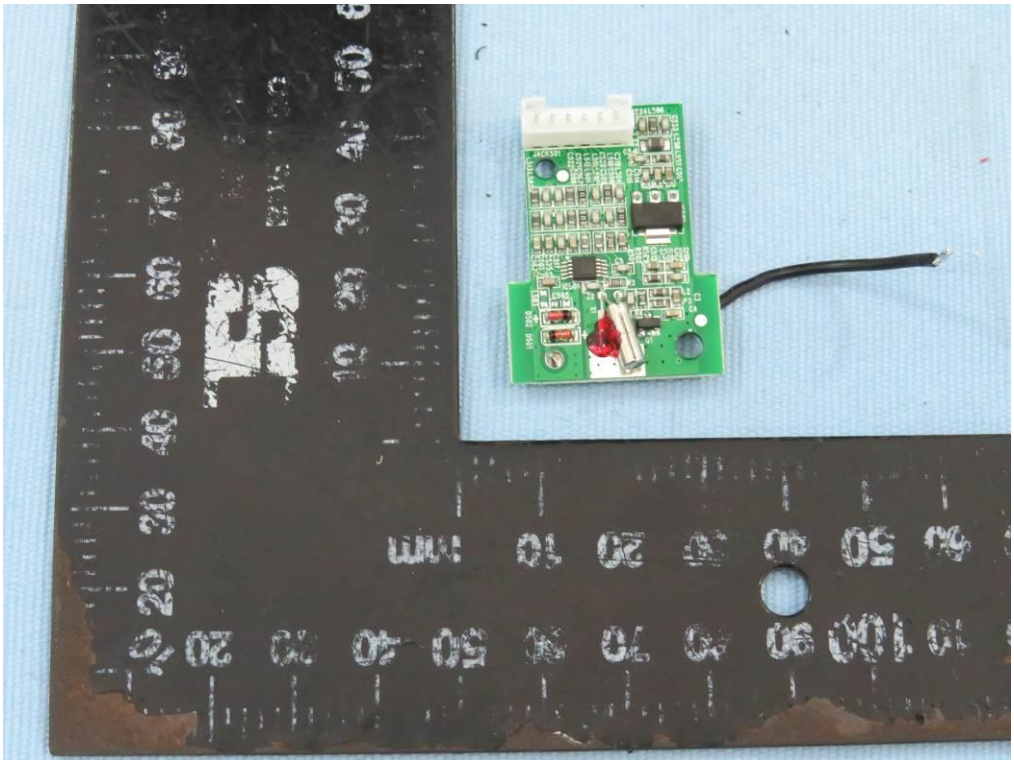
General Appearance of the E.U.T.

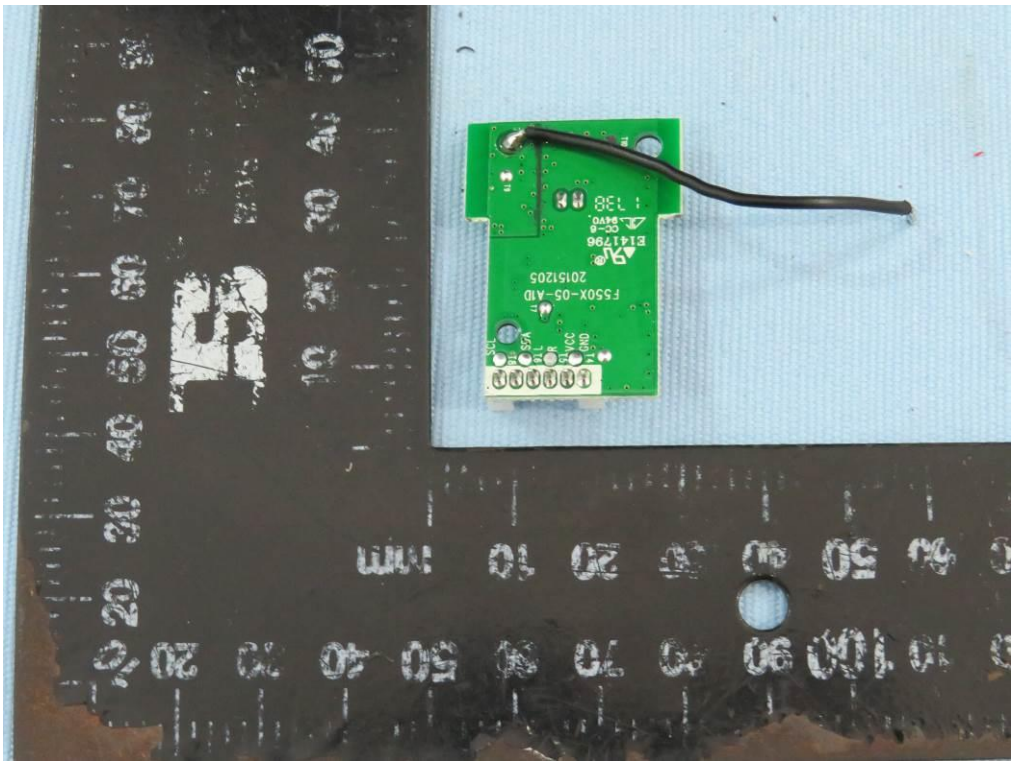

Guitar
MIC
USB
Source
MASTER VOLUME
EQ
Scan
Rec.play
Record
ECHO

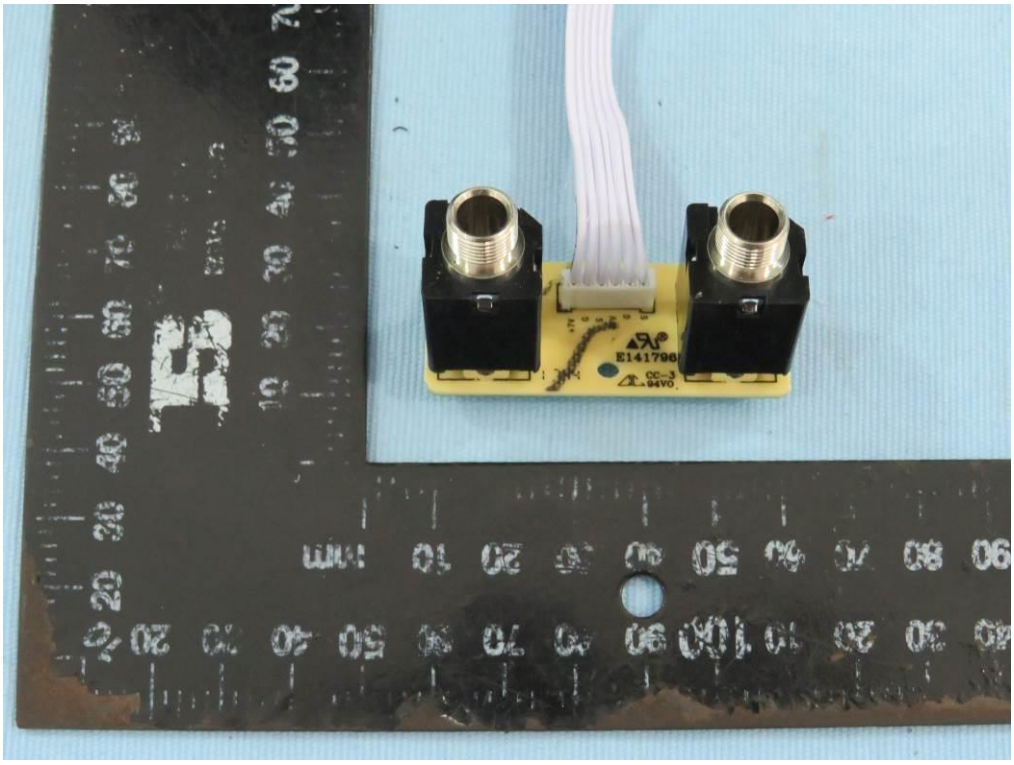


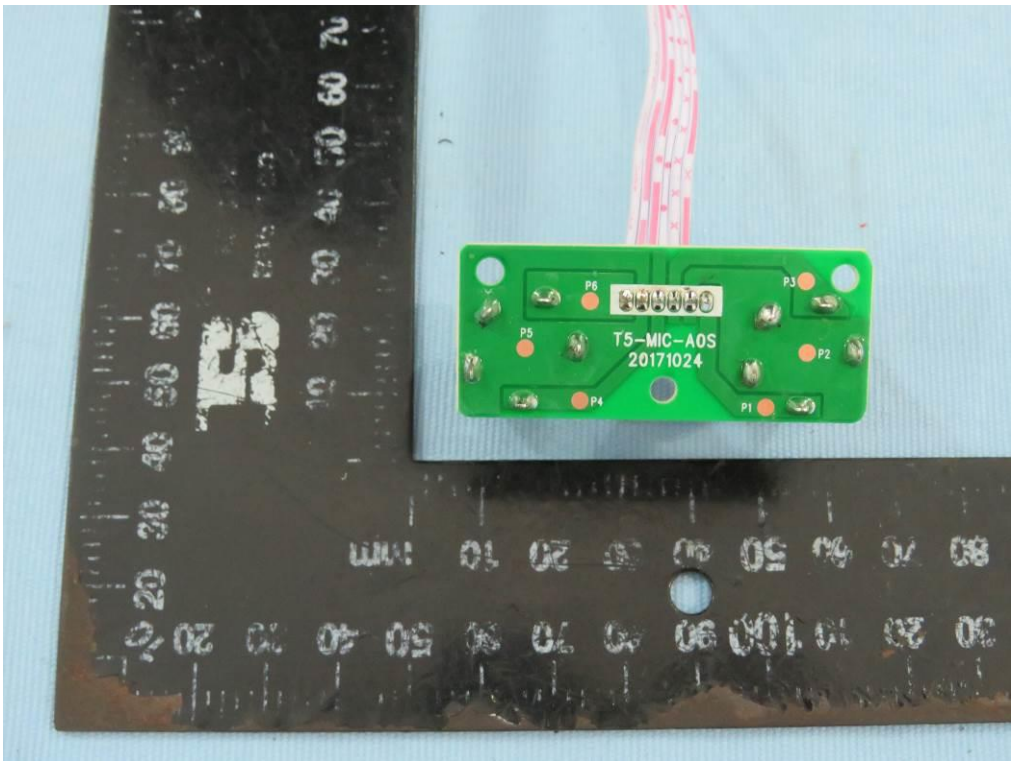


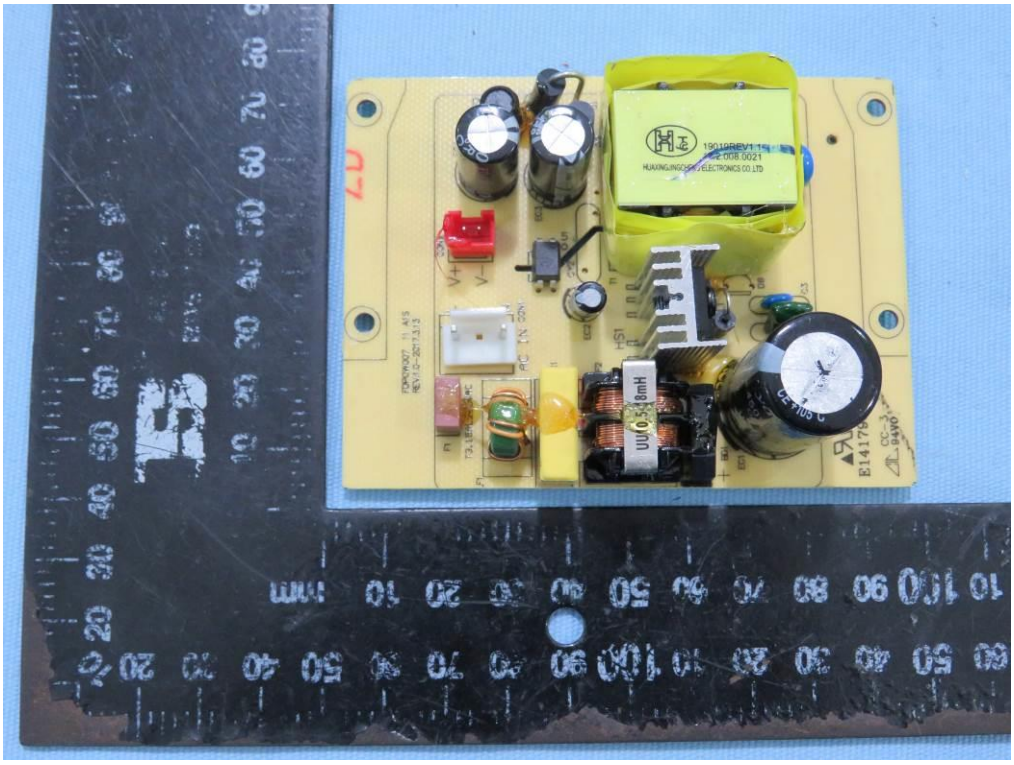

FENDA T5-02-A0D-T2(171024)

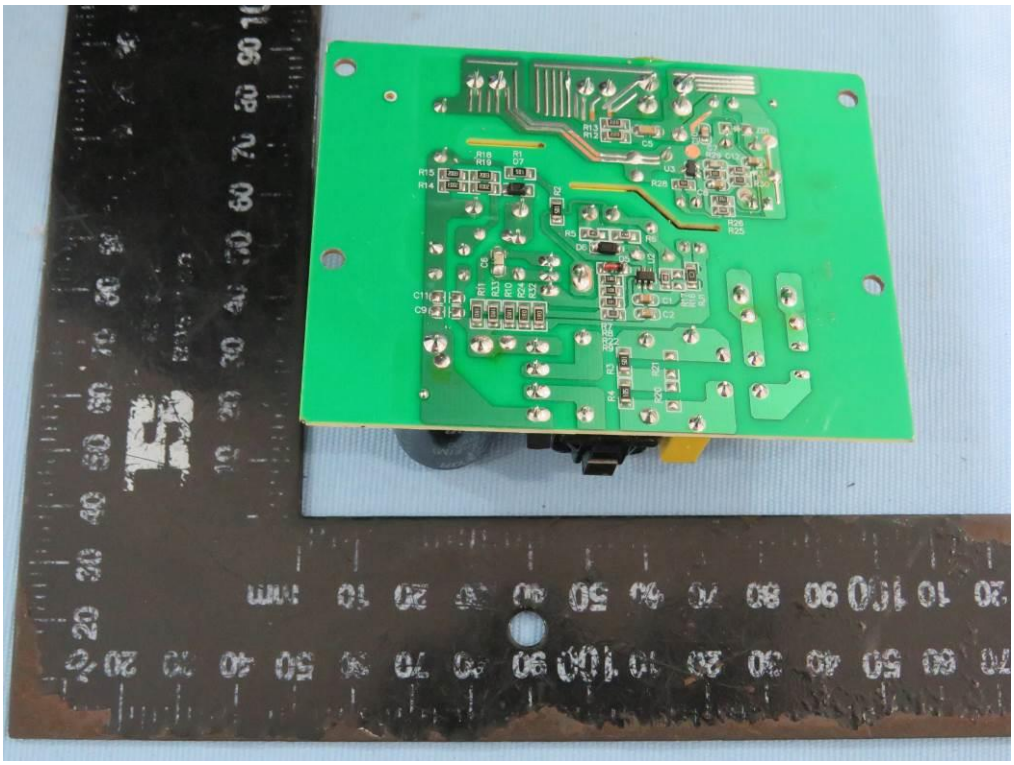


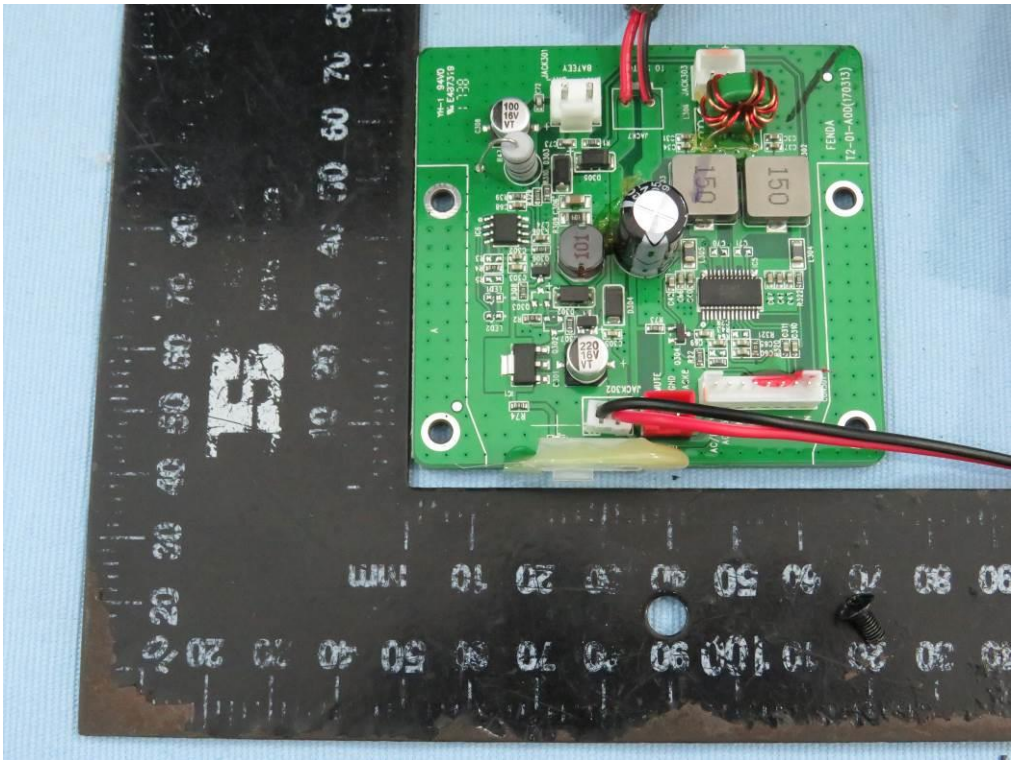


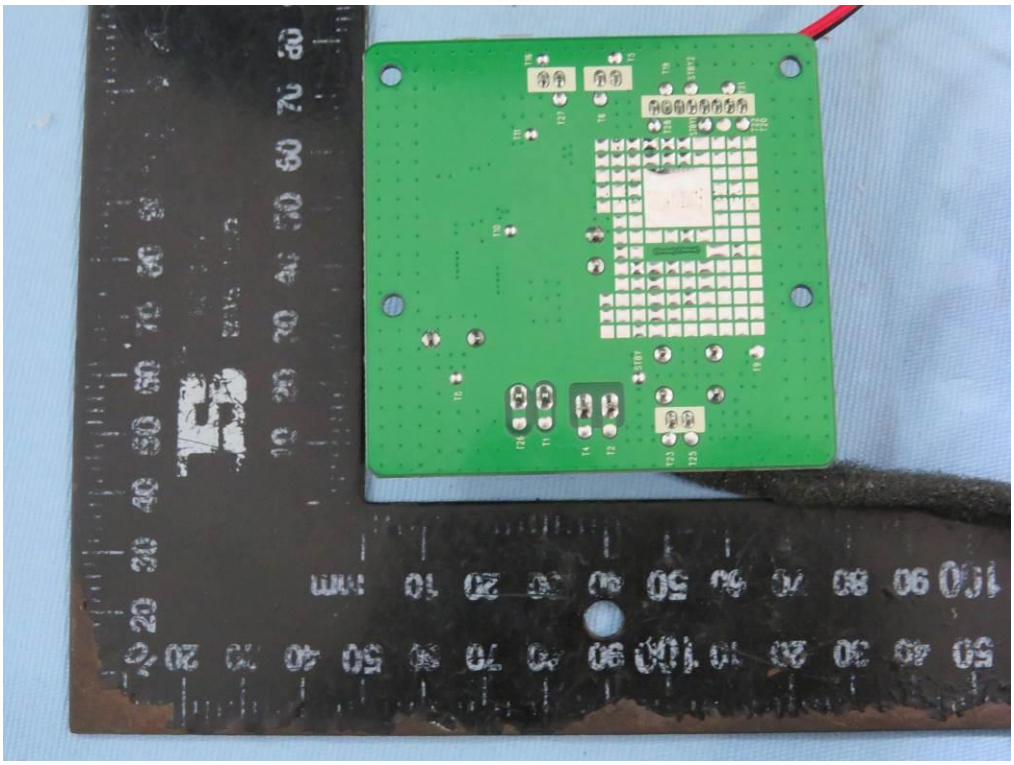

E141796


P6
P3
P5
T5-MIC-AOS
20171024
P2
P4
P1









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