



EMC TEST REPORT

Product : TRAVEL ADAPTER PLUG
Trade mark : RRTRAVEL
Model/Type reference : HHT528
Serial Number : N/A
Ratings : AC 100-240V, 50/60Hz, 6A, 600W-1440W
Report Number : EED32L00184701
Date of issue : Sept. 16, 2019
Regulations : See below

Test Standards	Results
<input checked="" type="checkbox"/> EN 55032: 2015	PASS
<input checked="" type="checkbox"/> EN 61000-3-2: 2014	PASS
<input checked="" type="checkbox"/> EN 61000-3-3: 2013	PASS
<input checked="" type="checkbox"/> EN 55035: 2017	PASS

Prepared for:

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Date of issue:

Sept. 16, 2019

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(Note: N/A means not applicable)

1. GENERAL INFORMATION

Applicant:	Shenzhen Ye Niu Electronic Co.,Ltd 3 Floor,F building , Zhongxi industrial park, Shajing street, Shenzhen city, Guangdong China 518104
Manufacturer:	Shenzhen Ye Niu Electronic Co.,Ltd 3 Floor,F building , Zhongxi industrial park, Shajing street, Shenzhen city, Guangdong China 518104
EMC Directive:	2014/30/EU
Product:	TRAVEL ADAPTER PLUG
Trade mark:	RRTRAVEL
Model/Type reference:	HHT528
Serial Number:	N/A
Report Number:	EED32L00184701
State of Sample(s):	Normal
Sample Received Date:	Jul. 15, 2019
Sample tested Date:	Jul. 15, 2019 to Sept. 04, 2019

The tested sample(s) and the sample information are provided by the client.

2. TEST SUMMARY

The Product has been tested according to the following specifications:

EMISSION		
Standard	Test Item	Test
EN 55032	Conducted disturbance	Yes
EN 55032	Radiated disturbance	Yes
EN 61000-3-2	Harmonic current emission	N/A ²
EN 61000-3-3	Voltage fluctuations & flicker	Yes

IMMUNITY (EN 55035)		
Standard	Test Item	Test
IEC 61000-4-2	Electrostatic discharge (ESD)	Yes
IEC 61000-4-3	Radio-frequency electromagnetic field Immunity	Yes
IEC 61000-4-4	Electrical fast transients (EFT)	Yes
IEC 61000-4-5	Surges	Yes
IEC 61000-4-6	Radio-frequency continuous conducted Immunity	Yes
IEC 61000-4-8	Power-frequency magnetic fields Immunity	N/A ¹
IEC 61000-4-11	Voltage dips and interruptions	Yes

1. The Product doesn't contain any device susceptible to magnetic fields.

2. The Product belongs to Class A, and its power is less than 75W, so it deems to fulfil this standard without testing.

3. TEST UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted disturbance	3.1
Radiated disturbance (30MHz to 1GHz)	4.9

4. PRODUCT INFORMATION AND TEST SETUP

4.1 PRODUCT INFORMATION

Ratings: AC 100-240V, 50/60Hz, 6A, 600W-1440W

The highest frequency of the internal sources of the EUT is:

- less than 108 MHz, the measurement shall only be made up to 1 GHz.
- between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.
- between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.
- above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

4.2 TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

4.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	Multimeter	FLUKE	15B	---	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

All test facilities used to collect the test data are located at Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

Shielding Room No. 3 - Conducted disturbance Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	R&S	ESCI	100435	05/18/2020
LISN	R&S	ENV216	100098	05/06/2020

3M Semi-anechoic Chamber (1)- Radiated disturbance Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	05/29/2022
Spectrum Analyzer	Agilent	E4443A	MY45300910	10/31/2019
Receiver	R&S	ESCI	100009	05/18/2020
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	484	05/22/2020
Multi device Controller	ETS-LINGREN	2090	00057230	---

Shielding Room No. 2 - Harmonic/Flicker Test (EN 61000-3-3)				
Equipment	Manufacturer	Model	Serial No.	Due Date
5KVA AC POWER SOURCE	California instruments	5001iX-400-413	56258	07/24/2020
Flicker & Harmonic Tester	California instruments	PACS-1	72492	07/24/2020

Shielding Room No. 3 - ESD Test (IEC 61000-4-2)				
Equipment	Manufacturer	Model	Serial No.	Due Date
ESD Simulator	TESEQ	NSG437	1182	07/14/2020

3M Full-anechoic Chamber - Radio-frequency electromagnetic field Immunity Test (IEC 61000-4-3)				
Equipment	Manufacturer	Model	Serial No.	Due Date

3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	05/29/2022
ESG Vector signal generators	Agilent	E4438C	MY42082153	01/17/2020
Power Amplifier	AR	150W1000	0322288	01/17/2020
Power Amplifier	RFLIGHT	NTWPA-106050	18019001	01/17/2020
Stacked double Log.-Per. Antenna	schwarzbeck	STLP 9128 E special	9128ES-110	---
Horn Antenna	AR	ATH800M5GA	0342530	---

Shielding Room No. 3 - EFT/Surges Test (IEC 61000-4-4) (IEC 61000-4-5)				
Equipment	Manufacturer	Model	Serial No.	Due Date
Compact Generator	EM-Test	UCS500M/6B	V0603101093	05/06/2020
Capacitive Clamp	EM-Test	C Clamp HFK	0306-43	03/08/2020

Shielding Room No. 2 - Radio-frequency continuous conducted Immunity Test (IEC 61000-4-6)				
Equipment	Manufacturer	Model	Serial No.	Due Date
Signal Generator	IFR	2023B	202307/883	01/17/2020
Power Amplifier	AR	75A 250A	320297	01/17/2020
Attenuator	BIRD	75-A-MFN-06	0543	08/05/2021
CDN	EM-Test	CDN M2/M3	0204-01	11/25/2019

Shielding Room No. 2 - Voltage dips and interruptions Test (IEC 61000-4-11)				
Equipment	Manufacturer	Model	Serial No.	Due Date
Power source	California instruments	15003iX-CTS-40 0-413-EOS3-LF	1726A00002	07/24/2020
Electronic output switch	California instruments	EOS3-230	1726A00001	06/26/2020

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. CONDUCTED DISTURBANCE

6.1 LIMITS

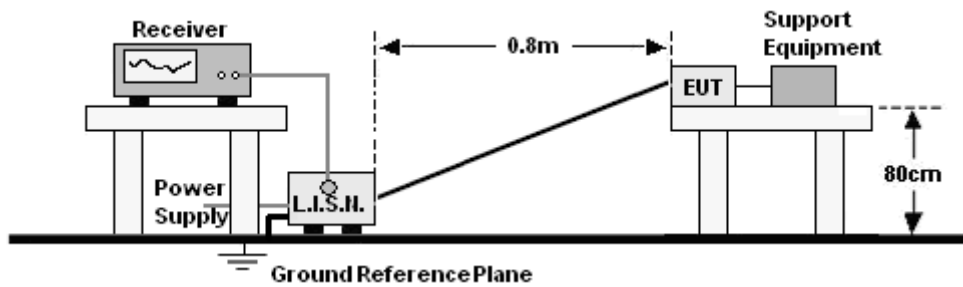
Requirements for conducted emissions from the AC mains power ports of Class B equipment

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

6.2 BLOCK DIAGRAM OF TEST SETUP

For AC mains power port:



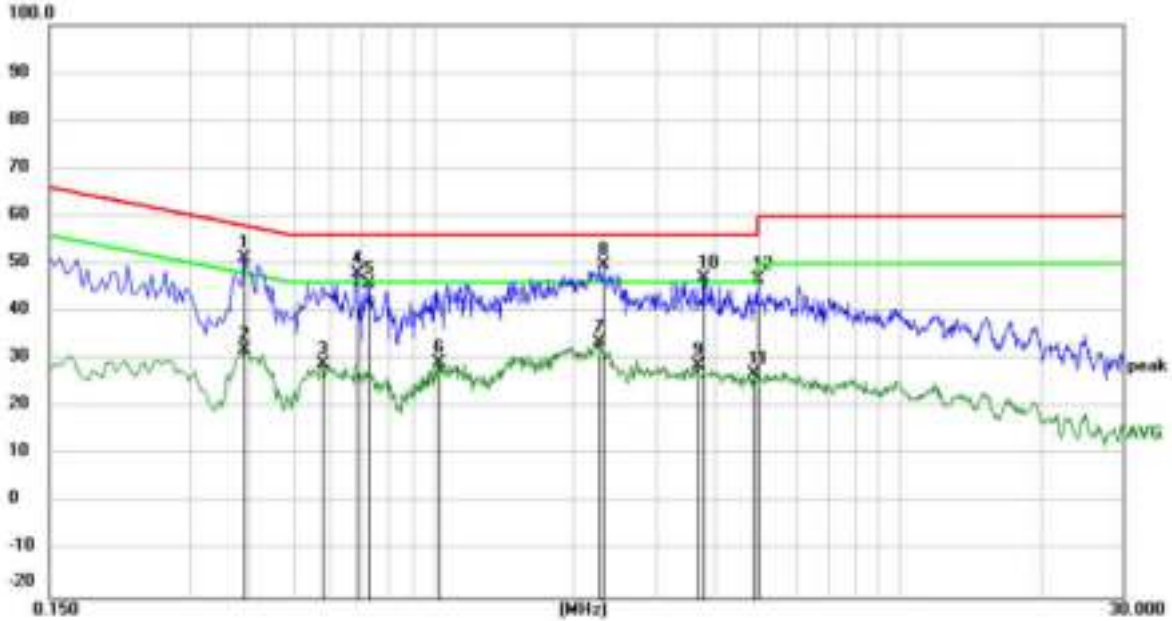
6.3 TEST PROCEDURE

For AC mains power port:

- a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

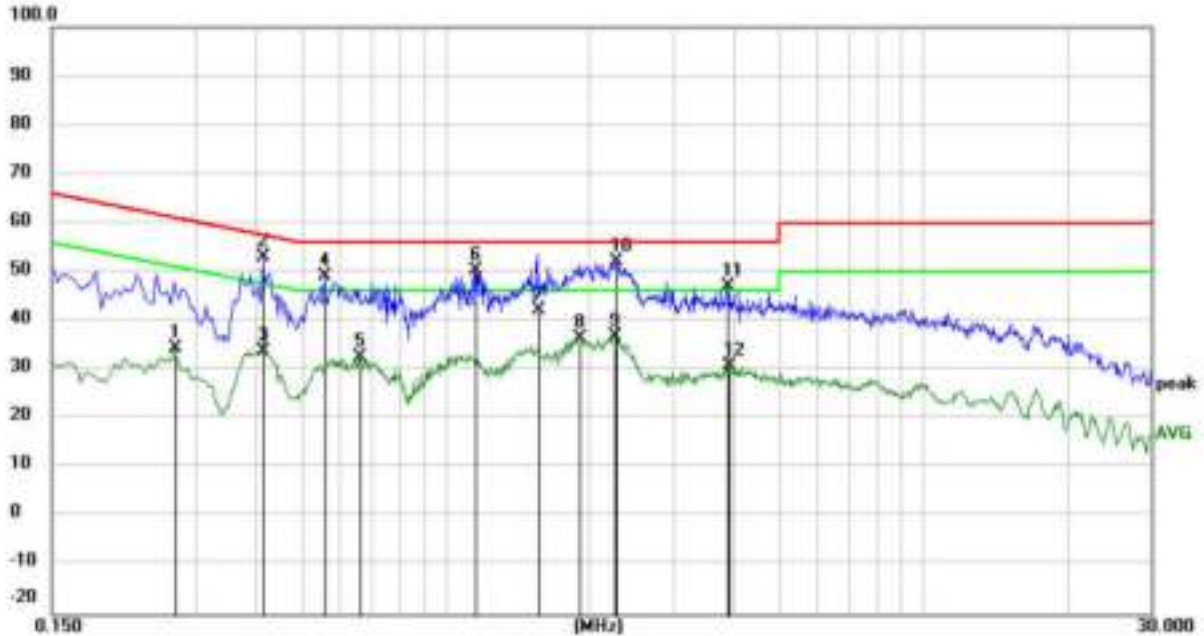
6.4 GRAPHS AND DATA

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 120V/60Hz **Temperature/Humidity** : 21°C/51%
Mode : ON **Phase** : L



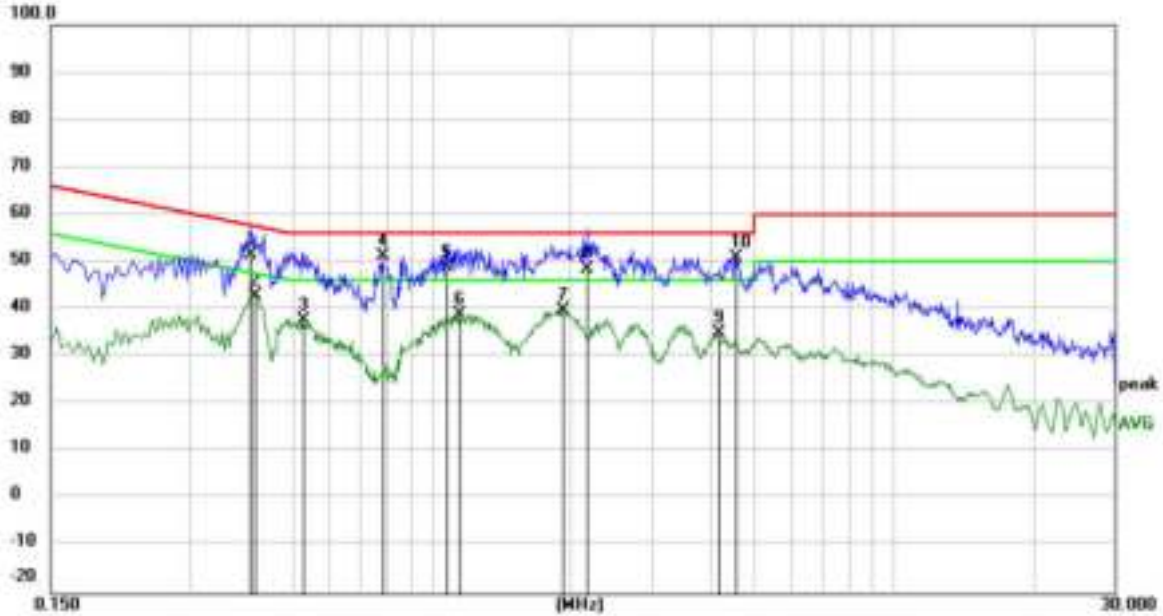
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.3930	41.34	10.01	51.35	58.00	-6.65	peak	
2		0.3930	22.02	10.01	32.03	48.00	-15.97	AVG	
3		0.5775	18.88	10.09	28.97	46.00	-17.03	AVG	
4		0.6855	38.23	9.71	47.94	56.00	-8.06	peak	
5		0.7260	36.26	9.71	45.97	56.00	-10.03	peak	
6		1.0230	19.59	9.91	29.50	46.00	-16.50	AVG	
7		2.2550	23.64	9.83	33.47	46.00	-12.53	AVG	
8	*	2.3190	39.97	9.83	49.80	56.00	-6.20	peak	
9		3.6690	18.97	9.83	28.80	46.00	-17.20	AVG	
10		3.7950	37.16	9.83	46.99	56.00	-9.01	peak	
11		4.8650	17.00	9.83	26.83	46.00	-19.17	AVG	
12		4.9560	36.93	9.83	46.76	56.00	-9.24	peak	

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 120V/60Hz **Temperature/Humidity** : 21°C/51%
Mode : ON **Phase** : N



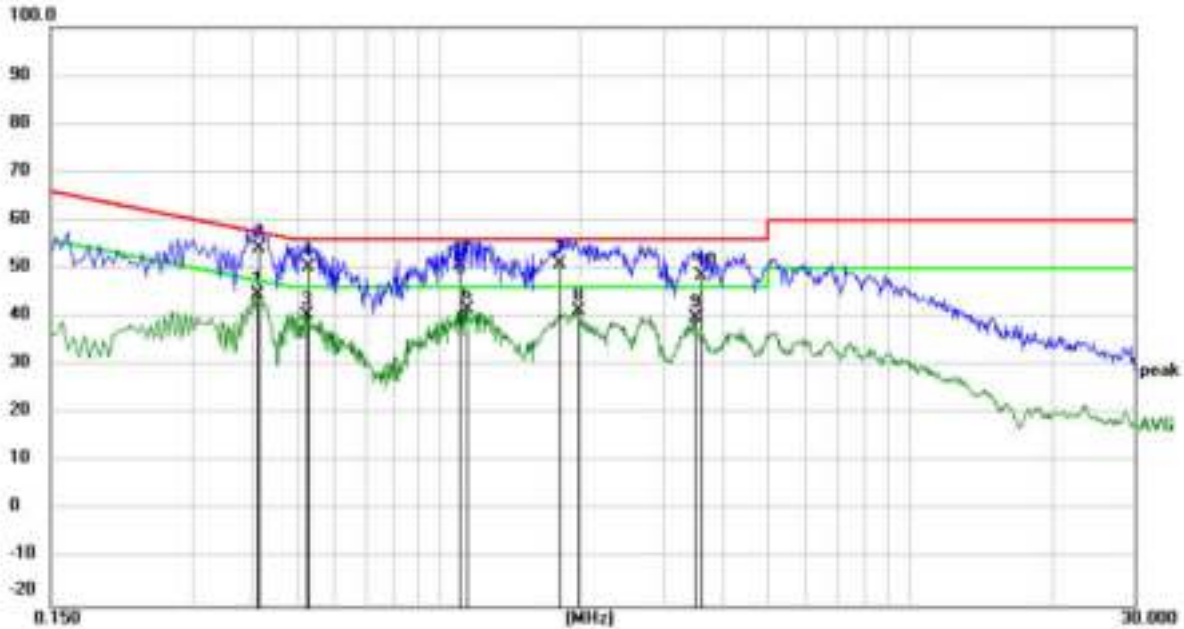
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.2714	24.37	10.08	34.45	51.07	-16.62	AVG	
2		0.4155	43.03	10.00	53.03	57.54	-4.51	peak	
3		0.4155	23.75	10.00	33.75	47.54	-13.79	AVG	
4		0.5595	39.18	10.07	49.25	56.00	-6.75	peak	
5		0.6585	22.68	9.84	32.52	46.00	-13.48	AVG	
6		1.1580	40.34	9.90	50.24	56.00	-5.76	peak	
7		1.5630	32.39	9.86	42.25	56.00	-13.75	QP	
8		1.9005	26.71	9.84	36.55	46.00	-9.45	AVG	
9		2.2695	27.06	9.83	36.89	46.00	-9.11	AVG	
10	*	2.2785	42.43	9.83	52.26	56.00	-3.74	peak	
11		3.8850	37.19	9.83	47.02	56.00	-8.98	peak	
12		3.9120	21.12	9.83	30.95	46.00	-15.05	AVG	

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 230V/50Hz **Temperature/Humidity** : 21°C/51%
Mode : ON **Phase** : L



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.4065	41.61	10.00	51.61	57.72	-6.11	QP	
2 *	0.4155	32.98	10.00	42.98	47.54	-4.56	AVG	
3	0.5280	27.82	10.03	37.85	46.00	-8.15	AVG	
4	0.7845	41.36	9.87	51.23	56.00	-4.77	peak	
5	1.0615	39.07	9.90	48.97	56.00	-7.03	QP	
6	1.1490	29.15	9.90	39.05	46.00	-6.95	AVG	
7	1.9230	30.06	9.84	39.90	46.00	-6.10	AVG	
8	2.1705	38.82	9.83	48.65	56.00	-7.35	QP	
9	4.1685	25.06	9.83	34.91	46.00	-11.09	AVG	
10	4.5285	41.02	9.83	50.85	56.00	-5.15	peak	

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 230V/50Hz **Temperature/Humidity** : 21°C/51%
Mode : ON **Phase** : N



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	*	0.4110	34.81	10.00	44.81	47.83	-3.02	AVG	
2		0.4155	44.31	10.00	54.31	57.54	-3.23	QP	
3		0.5237	30.31	10.03	40.34	46.00	-5.66	AVG	
4		0.5280	40.37	10.03	50.40	56.00	-5.60	QP	
5		1.1085	40.90	9.90	50.80	56.00	-5.20	QP	
6		1.1445	31.75	9.90	41.65	46.00	-4.35	AVG	
7		1.8060	41.05	9.85	50.90	56.00	-5.10	QP	
8		1.9770	31.44	9.83	41.27	46.00	-4.73	AVG	
9		3.4935	29.98	9.83	39.81	46.00	-6.19	AVG	
10		3.6015	38.77	9.83	48.60	56.00	-7.40	QP	

Note:

1. Margin(dB)=Measurement(dBuV)-Limit(dBuV)
2. Measurement(dBuV)=Reading_Level(dBuV)+Correct Factor(dB)
3. Correct Factor(dB)=Cable Factor(dB)+Lisn Factor(dB)

7. RADIATED DISTURBANCE (RE)

7.1 LIMITS

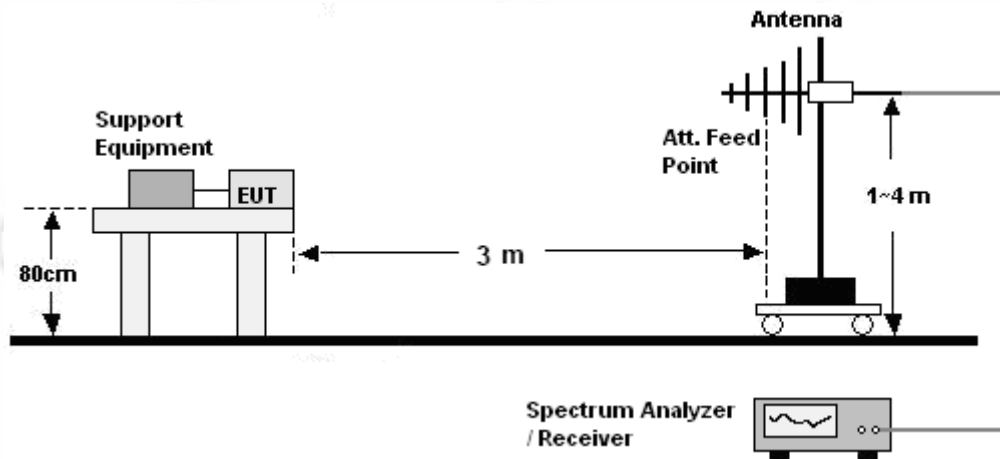
Requirements for radiated emissions at frequencies up to 1 GHz
for Class B equipment

Frequency (MHz)	Quasi-peak limits at 3m dB(μ V/m)
30-230	40
230-1000	47

NOTE: The lower limit shall apply at the transition frequencies.

7.2 BLOCK DIAGRAM OF TEST SETUP

30MHz ~ 1GHz:



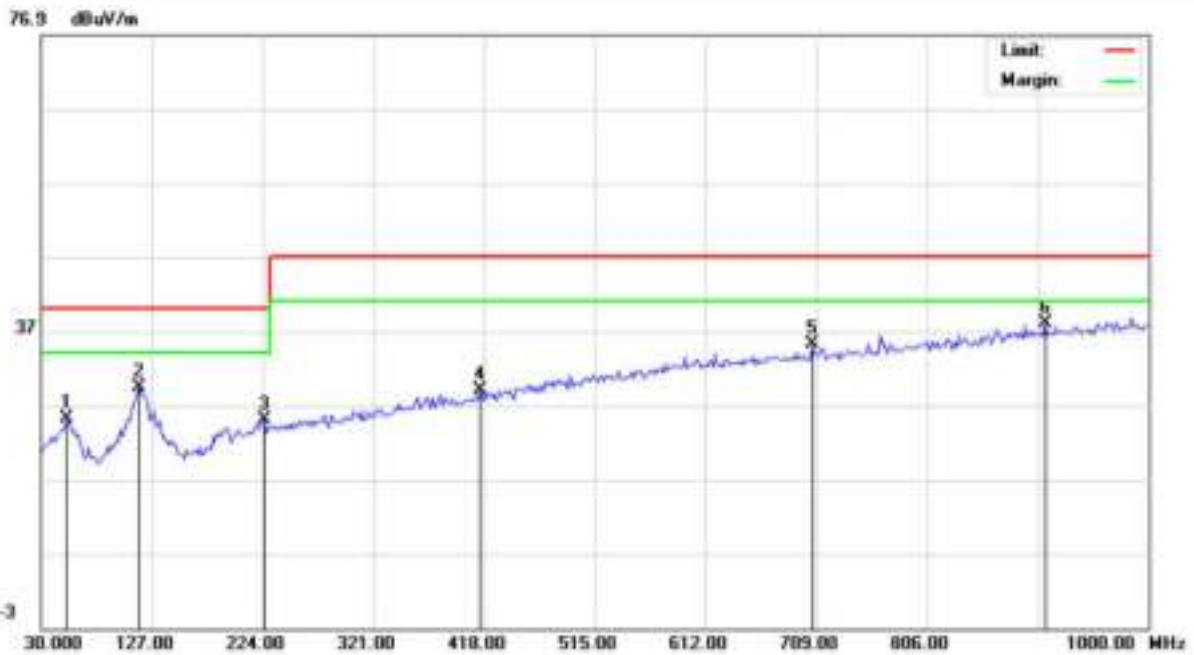
7.3 TEST PROCEDURE

30MHz ~ 1GHz:

- The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

7.4 GRAPHS AND DATA

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 120V/60Hz **Temperature** : 22°C
Mode : ON **Humidity** : 50%
Polarization : Horizontal



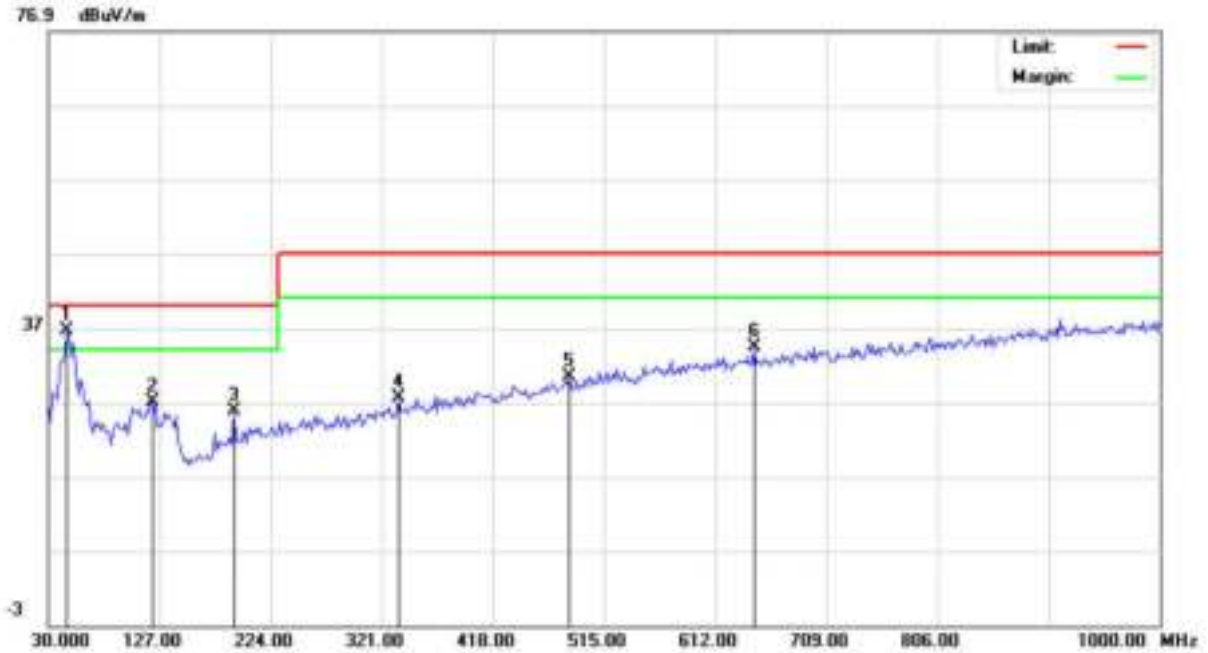
No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	52.6333	10.68			14.43	25.11			40.00			-14.89		P
2	115.6833	17.34			12.03	29.37			40.00			-10.63		P
3	225.6167	10.52			14.42	24.94			40.00			-15.06		P
4	414.7667	9.93			19.05	28.98			47.00			-18.02		P
5	705.7667	10.92			24.27	35.19			47.00			-11.81		P
6	909.4667	10.74			27.28	38.02			47.00			-8.98		P

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 120V/60Hz **Temperature** : 22°C
Mode : ON **Humidity** : 50%
Polarization : Vertical



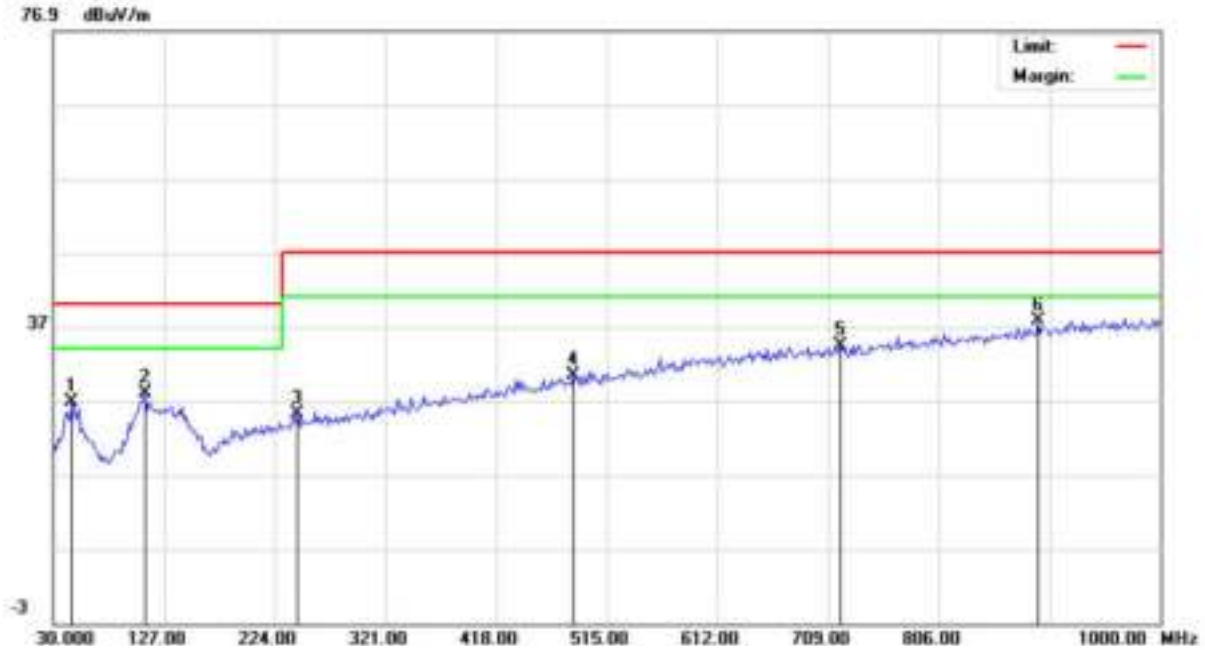
No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		PrF	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	52.8333	21.32			14.43	35.75			40.00		-4.25		P	
2	115.6833	18.77			12.03	30.80			40.00		-9.20		P	
3	202.9832	9.10			13.70	22.80			40.00		-17.20		P	
4	453.5867	9.72			19.96	29.68			47.00		-17.32		P	
5	654.0333	10.42			23.65	34.07			47.00		-12.93		P	
6	797.9167	9.61			25.68	35.27			47.00		-11.73		P	

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 230V/50Hz **Temperature** : 22°C
Mode : ON **Humidity** : 50%
Polarization : Horizontal



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	46.1667	22.26			14.42	36.68			40.00			-3.32		P
2	120.5333	15.35			11.73	27.08			40.00			-12.92		P
3	191.6667	12.73			12.98	25.71			40.00			-14.29		P
4	335.5500	10.38			17.24	27.62			47.00			-19.38		P
5	494.2833	9.92			20.52	30.44			47.00			-16.56		P
6	645.9500	10.86			23.57	34.43			47.00			-12.57		P

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 230V/50Hz **Temperature** : 22°C
Mode : ON **Humidity** : 50%
Polarization : Vertical



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	46.1667	12.43			14.42	26.85			40.00			-13.15		P
2	110.8333	15.69			12.33	28.02			40.00			-11.98		P
3	243.4000	10.15			14.99	25.14			47.00			-21.86		P
4	485.9000	9.88			20.55	30.43			47.00			-16.57		P
5	720.3167	9.96			24.44	34.40			47.00			-12.60		P
6	893.3000	10.66			27.07	37.73			47.00			-9.27		P

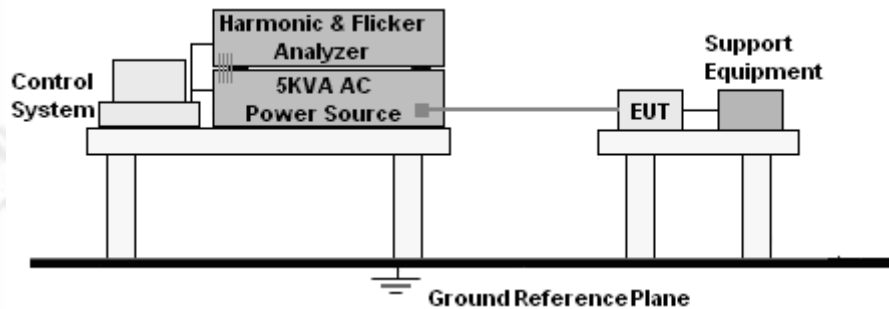
Note: 1. Margin(dB)=Measurement(dBuV/m)-Limit(dBuV)..
 2. Measurement(dBuV/m)=Reading_Level(dBuV)+Correct Factor(dB).
 3. Correct Factor(dB)=Ant Factor(dB)+Cable loss(dB).

8. VOLTAGE FLUCTUATIONS & FLICKER (FLICKER)

8.1 LIMITS

Please refer to EN 61000-3-3: 2013 Clause 5.

8.2 BLOCK DIAGRAM OF TEST SETUP



8.3 TEST PROCEDURE

- a. The Product was placed on the top of a non-conductive table above the ground and operated to produce the most unfavorable sequence of voltage changes under ON operating conditions.
- b. During the flick test, the measure time shall include that part of whole operation cycle in which the Product produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

8.4 TEST RESULTS

Product	: TRAVEL ADAPTER PLUG	Temperature	: 23°C
Model/Type reference	: HHT528	Humidity	: 51%
Power	: AC 230V/50Hz		
Mode	: ON		

Pass.

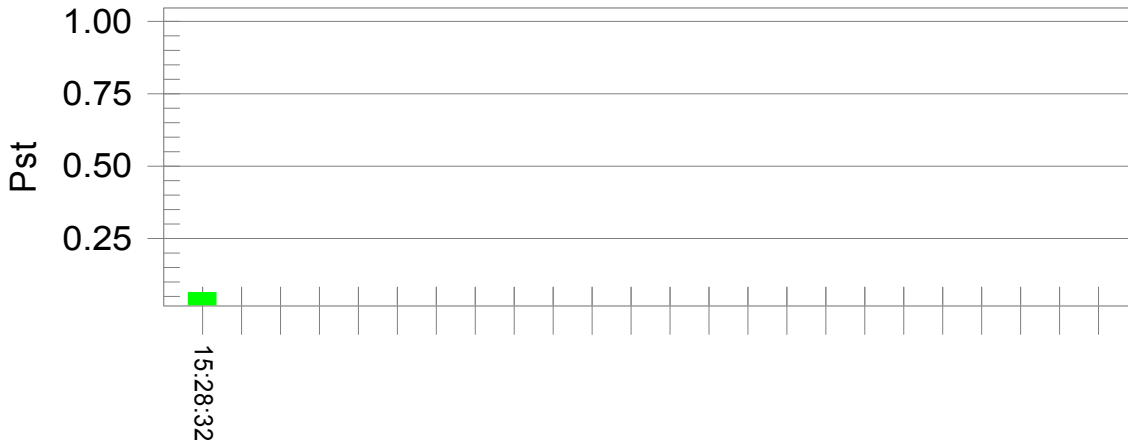
Flicker Test Summary per

Test Result: Pass

Status: Test Completed

Pst_i and limit line

European Limits



Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.68		
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.00	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.064	Test limit:	1.000 Pass

9. IMMUNITY TEST

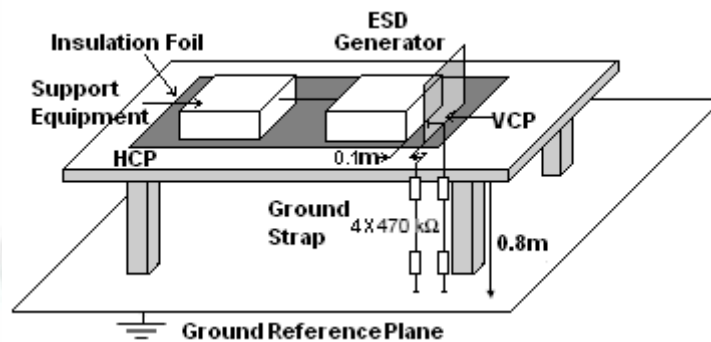
General Performance Criteria	
Product Standard	EN 55035: 2017 clause 8
CRITERION A	<p>The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer 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.</p>
CRITERION B	<p>During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.</p> <p>After the test, 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.</p> <p>If the minimum performance level (or the permissible performance loss), or recovery time, 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.</p>
CRITERION C	<p>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. A reboot or re-start operation is allowed.</p> <p>Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p>

9.1 ELECTROSTATIC DISCHARGE (ESD)

9.1.1 TEST SPECIFICATION

Basic Standard	: EN 55035 & IEC 61000-4-2
Test Port	: Enclosure port
Discharge Impedance	: 330 ohm / 150 pF
Discharge Mode	: Single Discharge
Discharge Period	: one second between each discharge

9.1.2 BLOCK DIAGRAM OF TEST SETUP



9.1.3 TEST PROCEDURE

- Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during ON operation.
- The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
- The time interval between two successive single discharges was at least 1 second.
- The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.
- Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the Product. The ESD generator was positioned vertically at a distance of 0.1 meters from the Product with the discharge electrode touching the HCP.
- At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the Product were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the Product.

9.1.4 RESULTS & PERFORMANCE

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 110V/60Hz, AC 230V/50Hz
Mode : ON
Press : 101kPa
Temperature : 24°C
Humidity : 50%

Discharge Method	Discharge Position	Voltage (±kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	4	10	B	A
	Indirect Discharge HCP	4	10	B	A
	Indirect Discharge VCP	4	10	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	8	10	B	A

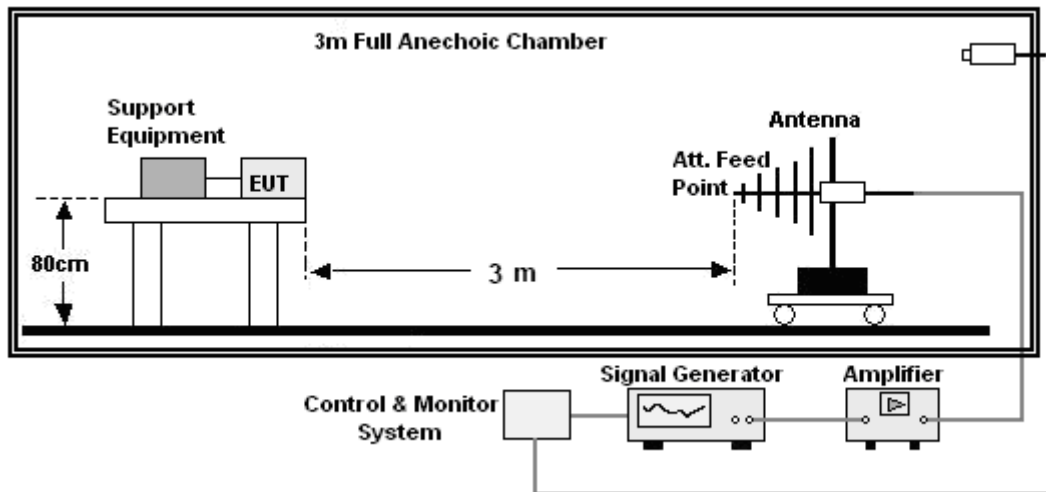
9.2 RADIO-FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY

9.2.1 TEST SPECIFICATION

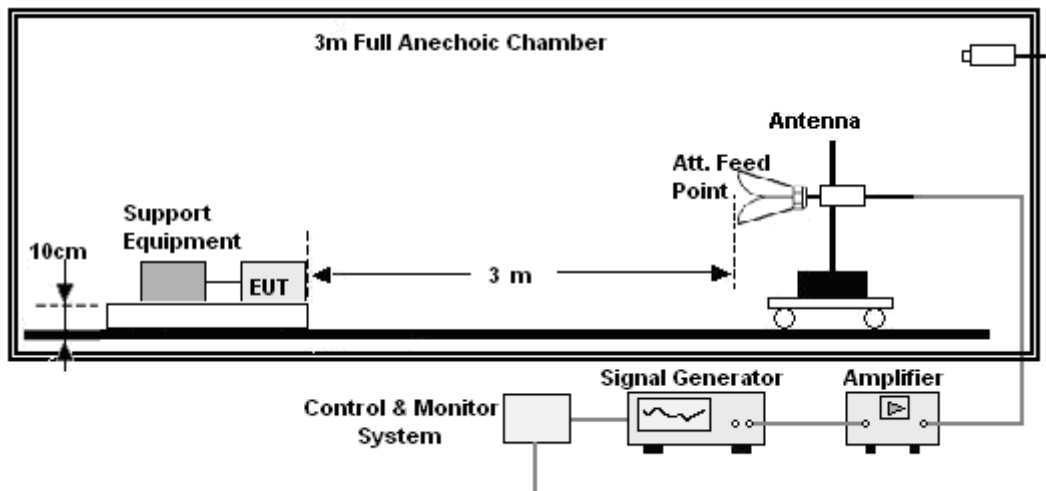
Basic Standard	: EN 55035 & IEC 61000-4-3
Test Port	: Enclosure port
Step Size	: 1%
Modulation	: 1kHz, 80% AM
Dwell Time	: 1 second
Polarization	: Horizontal & Vertical

9.2.2 BLOCK DIAGRAM OF TEST SETUP

Below 1GHz:



Above 1GHz:



9.2.3 TEST PROCEDURE

a. The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.

b. The frequency range is swept from 80MHz to 1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1%.

c. The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.

9.2.4 RESULTS & PERFORMANCE

Product	: TRAVEL ADAPTER PLUG	Temperature	: 24°C
Model/Type reference	: HHT528	Humidity	: 50%
Power	: AC 110V/60Hz, AC 230V/50Hz		
Mode	: ON		
Press	: 101kPa		

Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Performance Criterion
80 - 1000	Front, Right, Back, Left	3	A	A
1800	Front, Right, Back, Left	3	A	A
2600	Front, Right, Back, Left	3	A	A
3500	Front, Right, Back, Left	3	A	A
5000	Front, Right, Back, Left	3	A	A

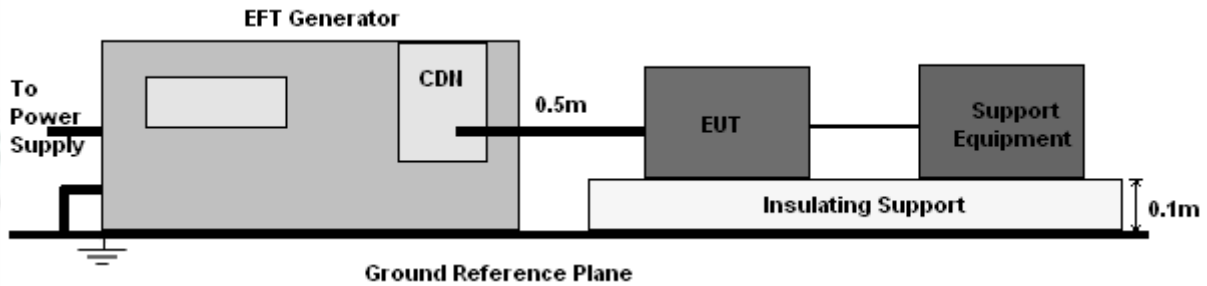
9.3 ELECTRICAL FAST TRANSIENTS (EFT)

9.3.1 TEST SPECIFICATION

Basic Standard	: EN 55035 & IEC 61000-4-4
Test Port	: Input AC mains power port
Impulse Frequency	: 5 kHz
Impulse Wave-shape	: 5/50 ns
Burst Duration	: 15 ms
Burst Period	: 300 ms
Test Duration	: 2 minute per polarity

9.3.2 BLOCK DIAGRAM OF TEST SETUP

For input AC mains power port



9.3.3 TEST PROCEDURE

- The Product and support units were located on a non-conductive table above ground reference plane.
- A 0.5m-long power cord was attached to Product during the test.

9.3.4 RESULTS & PERFORMANCE

Product	: TRAVEL ADAPTER PLUG	Temperature	: 24°C
Model/Type reference	: HHT528	Humidity	: 50%
Power	: AC 110V/60Hz, AC 230V/50Hz		
Mode	: ON		
Press	: 101kPa		

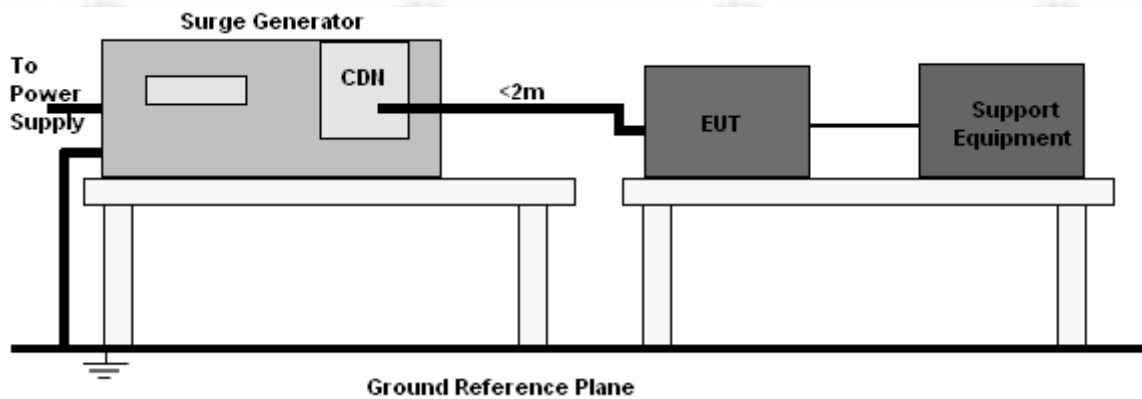
Coupling	Voltage (kV)	Polarity	Required Level	Performance Criterion
L - N -PE	1	±	B	A

9.4 SURGES

9.4.1 TEST SPECIFICATION

Basic Standard	: EN 55035 & IEC 61000-4-5
Test Port	: input AC mains power port
Wave-Shape	: Open Circuit Voltage - 1.2 / 50 us Short Circuit Current - 8 / 20 us
Phase Angle	: 90°/270°
Pulse Repetition Rate	: 1 pulse / min.
Test Events	: 5 pulses (positive & negative) for each polarity

9.4.2 BLOCK DIAGRAM OF TEST SETUP



9.4.3 TEST PROCEDURE

- The surge is to be applied to the Product power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave.
- The power cord between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter). Interconnection line between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter).

9.4.4 RESULTS & PERFORMANCE

Product	: TRAVEL ADAPTER PLUG	Temperature	: 24°C
Model/Type reference	: HHT528	Humidity	: 50%
Power	: AC 110V/60Hz, AC 230V/50Hz		
Mode	: ON		
Press	: 101kPa		

Coupling Line	Voltage (kV)	Polarity	Phase Angle	Required Level	Performance Criterion
L - N	1	+	90°	B	A
L - N	1	-	270°	B	A

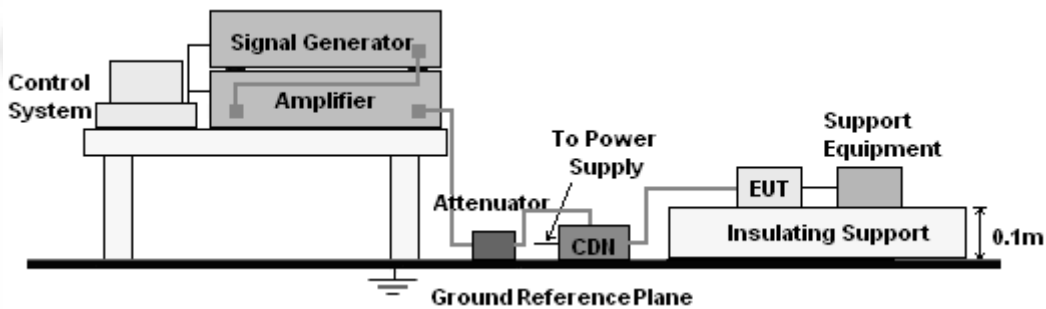
9.5 RADIO-FREQUENCY CONTINUOUS CONDUCTED IMMUNITY

9.5.1 TEST SPECIFICATION

Basic Standard : EN 55035 & IEC 61000-4-6
Test Port : input AC mains power port
Step Size : 1%
Modulation : 1kHz, 80% AM
Dwell Time : 1 second

9.5.2 BLOCK DIAGRAM OF TEST SETUP

For input AC mains power port :



9.5.3 TEST PROCEDURE

- a. The Product and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
- b. The frequency range is swept from 150 kHz to 80MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- c. The dwell time at each frequency shall be not less than the time necessary for the Product to be able to respond.

9.5.4 RESULTS & PERFORMANCE

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 110V/60Hz, AC 230V/50Hz
Mode : ON
Press : 101kPa
Temperature : 24°C
Humidity : 50%

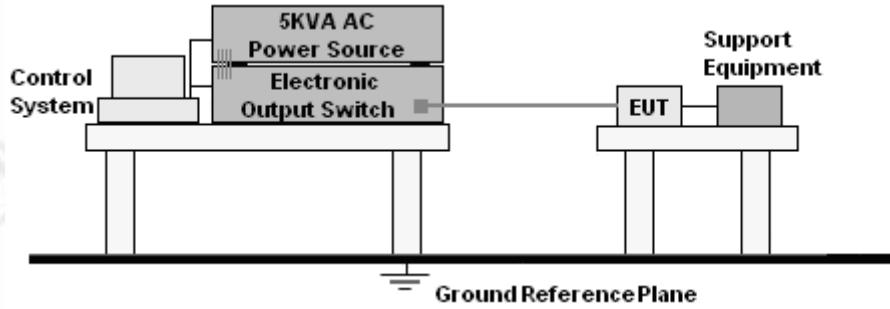
Inject Line	Frequency (MHz)	Voltage Level (V r.m.s.)	Required Level	Performance Criterion
AC mains power port	0.15 to 10	3	A	A
AC mains power port	10 to 30	3 to 1	A	A
AC mains power port	30 to 80	1	A	A

9.6 VOLTAGE DIPS AND INTERRUPTIONS

9.6.1 TEST SPECIFICATION

Basic Standard : EN 55035 & IEC 61000-4-11
Test Ports : Input a.c. power ports
Phase Angle : 0°, 180°

9.6.2 BLOCK DIAGRAM OF TEST SETUP



9.6.3 TEST PROCEDURE

- The Product and support units were located on a non-conductive table above ground floor.
- Set the parameter of tests and then perform the test software of test simulator.
- Conditions changes to occur at 0 degree crossover point of the voltage waveform.

9.6.4 RESULTS & PERFORMANCE

Product : TRAVEL ADAPTER PLUG
Model/Type reference : HHT528
Power : AC 110V/60Hz, **Temperature** : 22°C
 AC 230V/50Hz
Mode : ON **Humidity** : 50%
Press : 101kPa

Voltage Dips:

Test Level % UT	Reduction (%)	Number of cycles		Required Level	Performance criteria
		50Hz	60Hz		
<5	>95	0.5		B	A
<5	>95	1		B	A
70	30	25	30	C	A

Voltage Interruptions:

Test Level % UT	Reduction (%)	Number of cycles		Required Level	Performance criteria
		50Hz	60Hz		
<5	>95	250	300	C	C*

Remark*: The Product stop work during test and it can recover by itself after test.

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



CONDUCTED DISTURBANCE TEST SETUP



RADIATED DISTURBANCE TEST SETUP



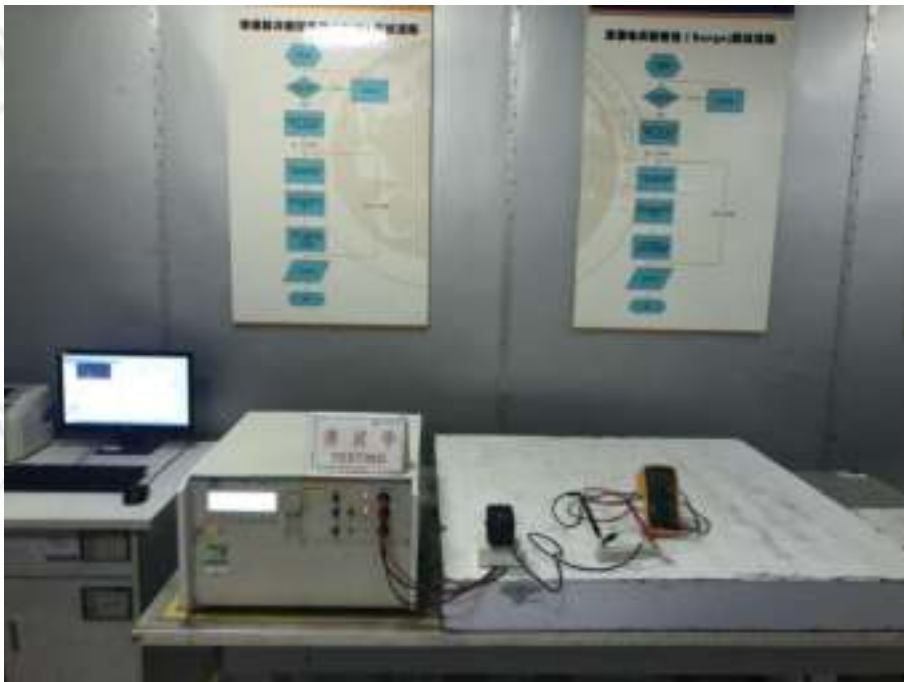
FLICKER TEST SETUP



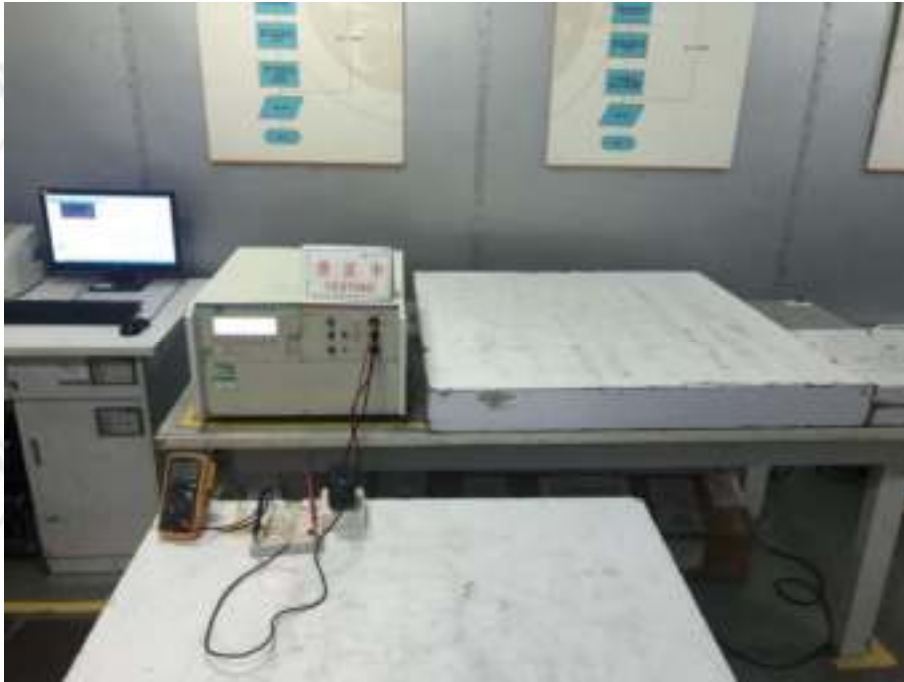
ESD TEST SETUP



RADIO-FREQUENCY ELECTROMAGNETIC FIELD TEST SETUP



EFT TEST SETUP



SURGE TEST SETUP



RADIO-FREQUENCY CONTINUOUS CONDUCTED IMMUNITY TEST SETUP



VOLTAGE DIPS AND INTERRUPTIONS TEST SETUP

APPENDIX 2 PHOTOGRAPHS OF PRODUCT



View of Product-1



View of Product-2



View of Product-3



View of Product-4



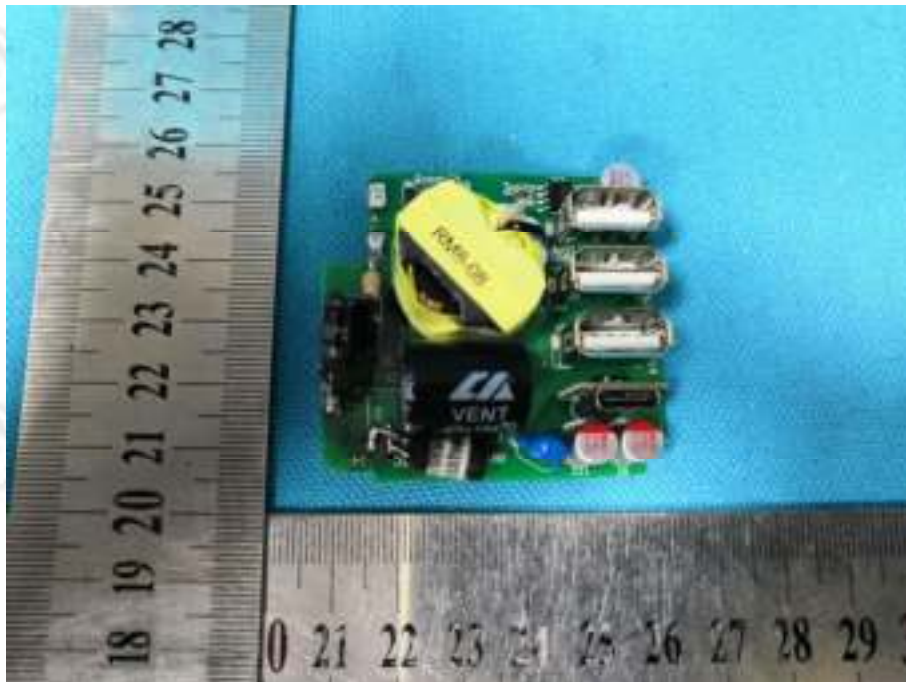
View of Product-5



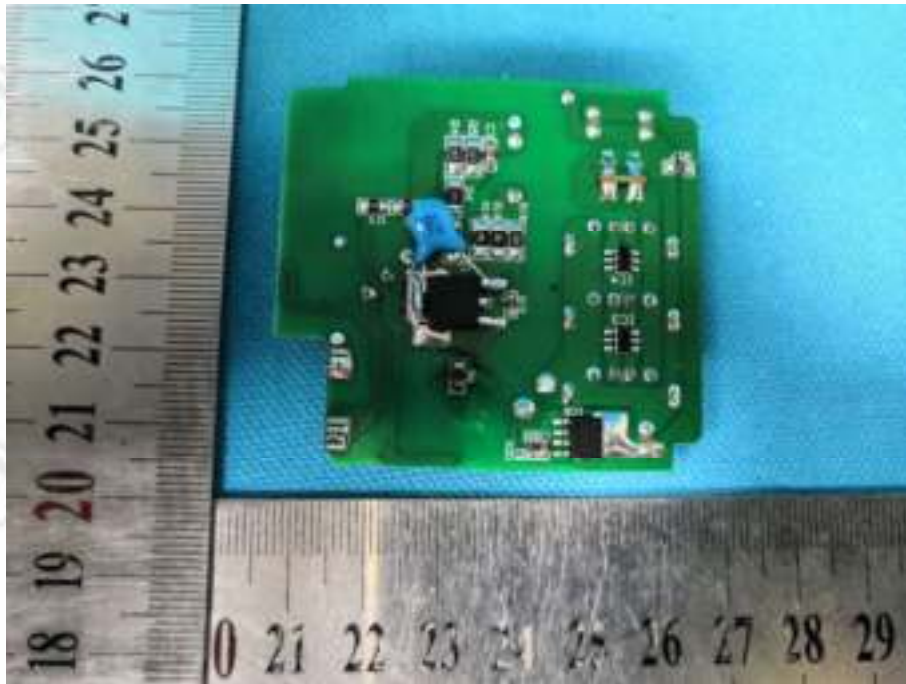
View of Product-6



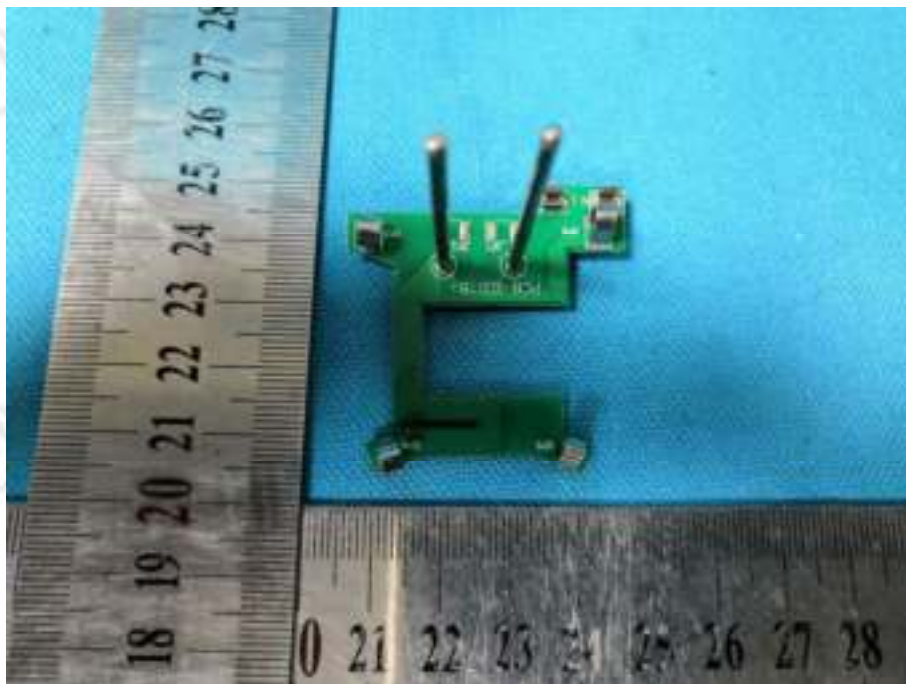
View of Product-7



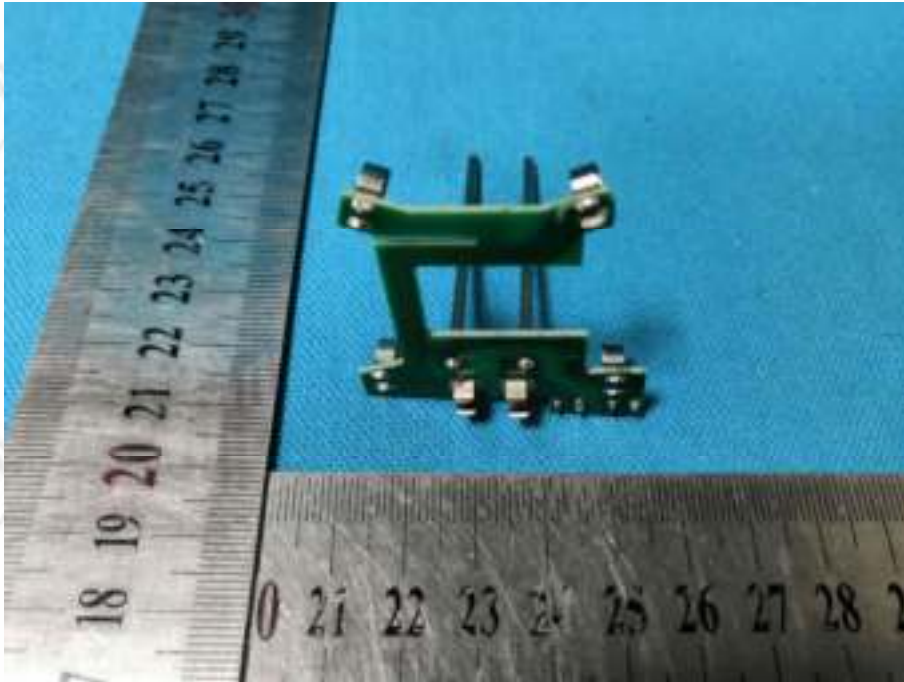
View of Product-8



View of Product-9



View of Product-10



View of Product-11

*** End of Report ***

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