

TEST REPORT

Product Name : WIRE TRACKER
Model Number : UT683 (UT683T TRANSMITTER, UT683R RECEIVER)

Prepared for : UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.
Address : No 6, Gong Ye Bei 1 st Road, Songshan Lake National High-Tech Industrial Development Zone, Dongguan City, Guangdong Province, China

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Report Number : ED200508040E
Date(s) of Tests : May 08, 2020 to May 15, 2020
Date of issue : May 15, 2020



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TEST REPORT DESCRIPTION

Applicant : UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.
Manufacturer : UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.
EUT : WIRE TRACKER
Model No. : UT683 (UT683T TRANSMITTER, UT683R RECEIVER)
Input Rating : DC 5V from USB port

Measurement Procedure Used:

EN 61326-1: 2013
EN 61326-2-2: 2013
EN 61000-3-2: 2014
EN 61000-3-3: 2013
(IEC 61000-4-2: 2008, IEC61000-4-3: 2006+A1: 2007+A2: 2010, IEC 61000-4-4: 2012,
IEC 61000-4-5: 2014, IEC 61000-4-6: 2013, IEC 61000-4-11: 2004)

The device described above is tested by EMTEK(DONGGUAN) CO., LTD. and EMTEK(SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK(DONGGUAN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the EN 61326-1, EN 61000-3-2, EN 61000-3-3 and 61326-2-2 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK(DONGGUAN) CO., LTD.

Date of Test :

May 08, 2020 to May 15, 2020

Bill Zhong

Prepared by :

Bill Zhong / Editor

Galen Xiao

Reviewer :

Galen Xiao / Supervisor

Approved & Authorized Signer :

Sam Lv / Manager

Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Report	/	ED200508040E



1. DESCRIPTION OF STANDARDS AND RESULTS

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted Disturbance at Mains Terminals	EN 61326-1: 2013	Clause 5	Pass
Radiated Disturbance	EN 61326-1: 2013	Clause 6	Pass
Harmonic Current Emissions	EN 61000-3-2: 2014	--	N/A
Voltage Fluctuation and Flicker	EN 61000-3-3: 2013	Clause 5	Pass
IMMUNITY			
Description of Test Item	Basic Standard	Performance Criteria	Results
Electrostatic Discharge (ESD)	IEC 61000-4-2: 2008	B	Pass
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3: 2006 +A1: 2007+A2: 2010	A	Pass
EFT/B Immunity	IEC 61000-4-4: 2012	B	Pass
Surge Immunity	IEC 61000-4-5: 2014	B	Pass
Conducted RF Immunity	IEC 61000-4-6: 2013	A	Pass
Power Frequency Magnetic Field	IEC 61000-4-8: 2009	--	N/A
Voltage Dips, >95% Reduction	IEC 61000-4-11: 2004	B	Pass
Voltage Dips, 30% Reduction		C	Pass
Voltage Interruptions		C	Pass
Note: N/A is an abbreviation for Not Applicable.			

2. GENERAL INFORMATION

2.1 Description of Device (EUT)

EUT	: WIRE TRACKER
Model Number	: UT683 (UT683T TRANSMITTER, UT683R RECEIVER)
Trade Mark	: UNI-T
Power Supply for Test	: DC 5V from USB port or DC 3.7 from battery
Operating Mode	: Charging, Testing
Applicant	: UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.
Address	: No 6, Gong Ye Bei 1 st Road, Songshan Lake National High-Tech Industrial Development Zone, Dongguan City, Guangdong Province, China
Manufacturer	: UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.
Address	: No 6, Gong Ye Bei 1 st Road, Songshan Lake National High-Tech Industrial Development Zone, Dongguan City, Guangdong Province, China
Factory	: UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.
Address	: No 6, Gong Ye Bei 1 st Road, Songshan Lake National High-Tech Industrial Development Zone, Dongguan City, Guangdong Province, China
Date of sample receiver	: May 08, 2020
Date of Test	: May 08, 2020 to May 15, 2020

2.2 Description of Test Facility

Site Description

EMC Lab : Accredited by CNAS, 2018.07.06
The certificate is valid until 2024.07.05
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2006
The Certificate Registration Number is L3150

Registered on Industry Canada, January 13, 2017
The Certificate Number is 9444A.

Name of Firm : EMTEK(DONGGUAN) CO., LTD.
Site Location : -1&2/F., Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

2.3 Measurement Uncertainty

Test Item	Uncertainty
Conducted Emission Uncertainty	: 2.42dB
Radiated Emission Uncertainty (3m Chamber)	: 3.2dB (30M~1GHz Polarize: H) 3.3dB (30M~1GHz Polarize: V)
Uncertainty for Flicker test	: 0.07%
Uncertainty for Harmonic test	: 1.8%
Uncertainty for C/S Test	: 1.45(Using CDN Test) 2.37(Using EM Clamp Test)
Uncertainty for R/S Test	: 2.10dB(80MHz-200MHz) 1.76dB(200MHz-1000MHz)
Uncertainty for test site temperature and humidity	: 0.6℃ 4%

2.4 Description of Support Device

Adapter : Model : YSV6-0501000
Input: AC 100-240V, 50/60Hz
Output: DC 5V, 1000mA

3. MEASURING DEVICES AND TEST EQUIPMENT

3.1 For Power Line Conducted Emission

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde&Schwarz	ESCI	100137	May 23, 2019	1 Year
2.	L.I.S.N.	Rohde&Schwarz	ENV216	101209	May 23, 2019	1 Year
3.	RF Switching Unit	CDS	RSU-M2	38401	May 23, 2019	1 Year
4	Artificial Mains Network	Schwarzbeck	NNLK-8121-641	8121-641	May 23, 2019	1 Year

3.2 For Radiated Emission Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	101415	May 23, 2019	1 Year
2.	Bilog Antenna	Schwarzbeck	VULB9163	9163-143	May 23, 2019	1 Year
3.	Power Amplifier	HP	8447F	EED184	May 23, 2019	1 Year
4.	Cable	N/A	CBL-26	N/A	May 23, 2019	1 Year
5.	Cable	N/A	CBL-26	N/A	May 23, 2019	1 Year
6.	Cable	N/A	CBL-26	N/A	May 23, 2019	1 Year
7.	Signal Analyzer	R&S	FSV30	103040	May 23, 2019	1 Year
8.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1272	May 23, 2019	1 Year
9.	Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	May 23, 2019	1 Year
10.	Cable	H+S	RG 233/U	525178	May 23, 2019	1 Year
11.	Cable	H+S	RG 233/U	528948 WP	May 23, 2019	1 Year
12.	Cable	H+S	RG 233/U	525179	May 23, 2019	1 Year

3.3 For Harmonic / Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Power Frequency Test System	TESEQ	5001IX-CT S-400-SC H	1805A03008	May 23, 2019	1 Year
2.	AC Frequency Conversion Power	TESEQ	100-CTS-2 30-TSQ	1804A03259	May 23, 2019	1 Year
3.	PC	LENOVO	T2900D	SS12485803	May 23, 2019	1 Year

3.4 For Electrostatic Discharge Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	ESD Tester	TESEQ	NSG437	409	May 23, 2019	1 Year

3.5 For RF Strength Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Signal Generator	Agilent	N5181A	MY50145187	May 23, 2019	1 Year
2.	RF Power Meter.	BOONTON	4232A	10539	May 23, 2019	1 Year
3.	50ohm Diode Power Sensor	BOONTON	51011EMC	34236/34238	May 23, 2019	1 Year
4.	Field Strength Meter	DARE	RSS1006A	10I00037SO22	May 23, 2019	1 Year
5.	50ohm Diode Power Sensor	BOONTON	51011EMC	36164	May 23, 2019	1 Year
6.	Power Amplifier	MILMEGA	80RF1000-175	1059345	May 23, 2019	1 Year
7.	Power Amplifier	MILMEGA	AS0102-55	1018770	May 23, 2019	1 Year
8.	Power Amplifier	MILMEGA	AS1860-50	1059346	May 23, 2019	1 Year
9.	Log.-Per. Antenna	Schwarzbeck	VULP 9118E	811	May 23, 2019	1 Year
10.	Broad-Band Horn Antenna	Schwarzbeck	STLP 9149	9149-227	May 23, 2019	1 Year
11.	Multi-function interface system	DARE	CTR1009B	12I00250SNO 72	N/A	N/A
12.	Automatic switch group	DARE	RSW1004A	N/A	N/A	N/A

3.6 For Electrical Fast Transient/Burst, Surge, Voltage Dips and Interruptions Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Three-in-one tester	HTEC	HCOMPACT1	190305	May 23, 2019	1 Year
2	Dips module	HTEC	HV1P16T	190302	May 23, 2019	1 Year

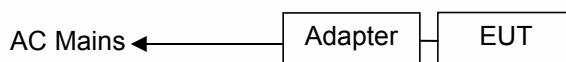
3.7 For Injected Currents Susceptibility Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Simulator	EM TEST	CWS500C	0900-12	May 23, 2019	1Year
2.	CDN	EM TEST	CDN-M2	5100100100	May 23, 2019	1 Year
3.	CDN	EM TEST	CDN-M3	0900-11	May 23, 2019	1 Year
4.	Injection Clamp	EM TEST	F-2031-23MM	368	May 23, 2019	1 Year
5.	Attenuator	EM TEST	ATT6	0010222A	May 23, 2019	1 Year

4. POWER LINE CONDUCTED MEASUREMENT

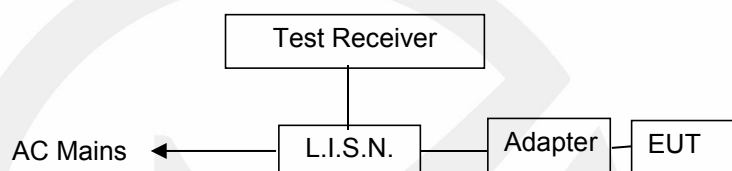
4.1 Block Diagram of Test Setup

4.1.1 Block diagram of connection between the EUT and simulators



(EUT: WIRE TRACKER)

4.1.2 Block diagram of test setup



(EUT: WIRE TRACKER)

4.2 Conducted Power Line Emission Measurement Standard and Limits

4.2.1 Standard: EN 61326-1: 2013

4.2.2 Limits

Frequency	At mains terminals (dBμV)	
	Quasi-peak Level	Average Level
150KHz ~ 0.5MHz	66 ~ 56*	56 ~ 46*
0.5MHz ~ 5MHz	56	46
5.0MHz ~ 30MHz	60	50

1. At the transition frequency the lower limit applies.
2. * decreasing linearly with logarithm of the frequency.

4.3 EUT Configuration on Measurement

The configuration of the EUT is same as Section 4.1.

4.4 Operating Condition of EUT

- 4.4.1 Setup the EUT as shown in Section 4.1.
- 4.4.2 Turn on the power of all equipments.
- 4.4.3 Let the EUT work in measuring mode (Charging) and measure it.

4.5 Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground and connected to the AC mains through a Line Impedance Stabilization Network (L.I.S.N.). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission according to the EN 55032 regulations during conducted emission measurement. And the voltage probe had been used for the load terminals measurement according to the EN 55032 standard.

The bandwidth of the test receiver (ESCI) is set at 200Hz in 9K~150KHz range and 9KHz in 150K~30MHz range.

The frequency range from 150KHz to 30MHz is checked.

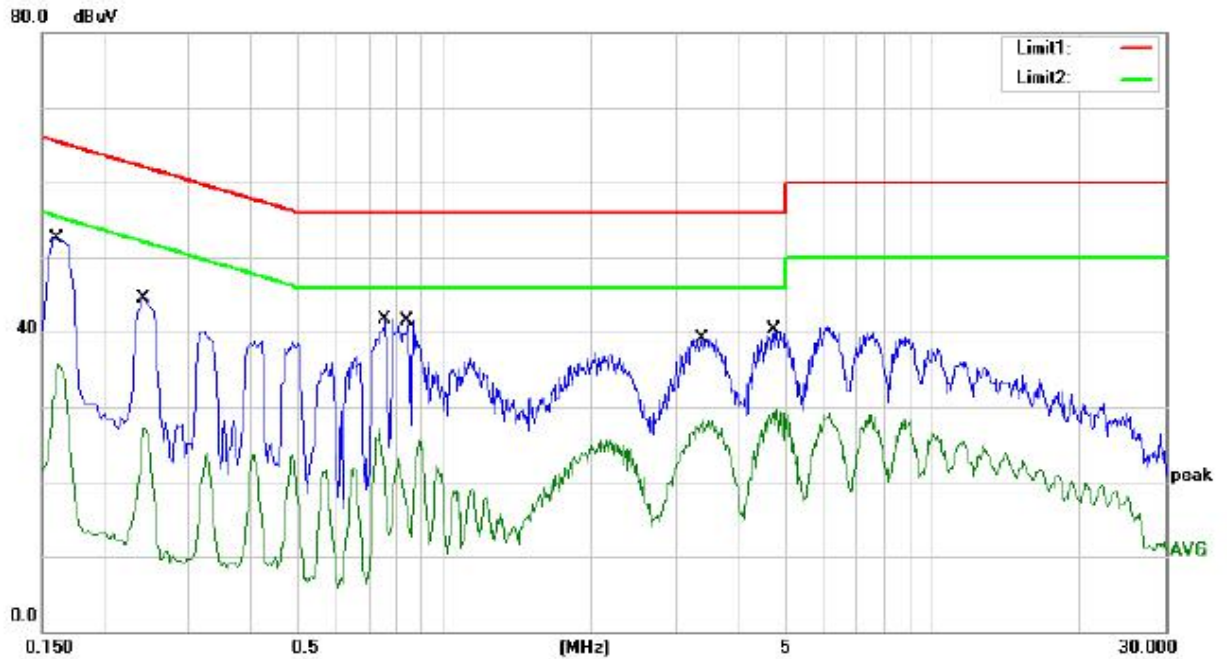
4.6 Measurement Results

PASS.

The frequency range from 150KHz to 30MHz is investigated.

The test mode (Charging) data are attached in the following pages.

UT683T TRANSMITTER



Site site #1

Phase: **L1**

Temperature: 25

Limit: EN 61326-1_QP (CE)

Power: DC 5V from USB port

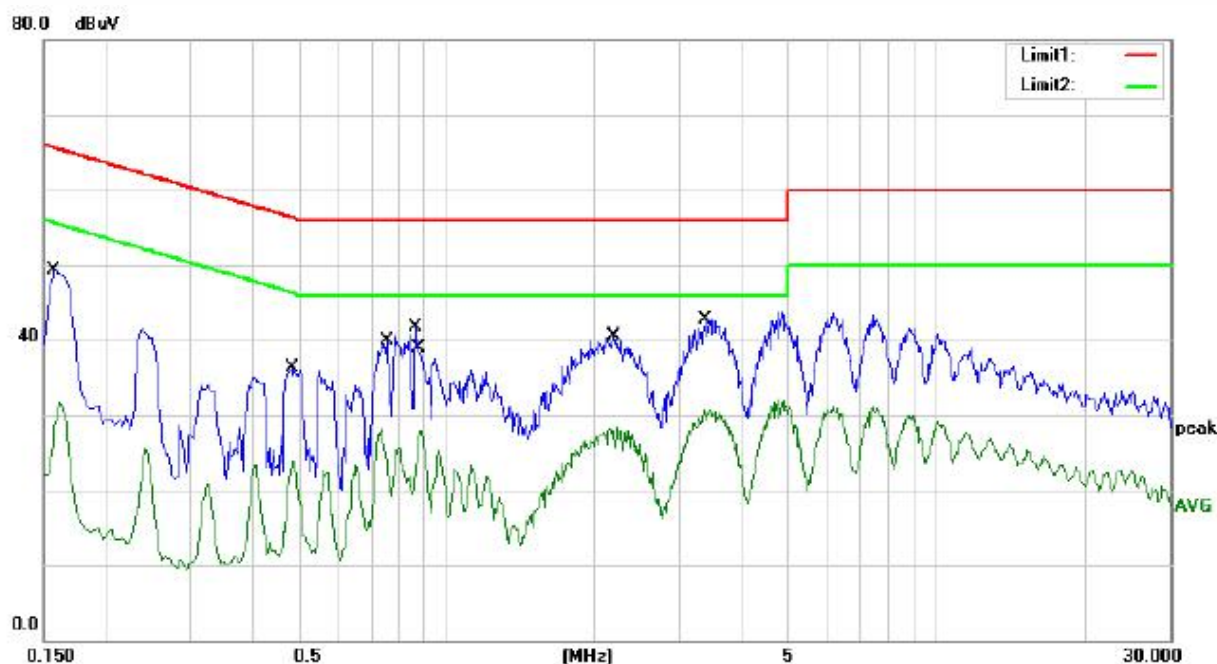
Humidity: 55 %

Mode: Charging

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1620	42.37	10.02	52.39	65.36	-12.97	QP	
2		0.1620	25.71	10.02	35.73	55.36	-19.63	AVG	
3		0.2420	34.39	10.05	44.44	62.03	-17.59	QP	
4		0.2420	17.10	10.05	27.15	52.03	-24.88	AVG	
5		0.7580	31.59	10.18	41.77	56.00	-14.23	QP	
6		0.7580	16.97	10.18	27.15	46.00	-18.85	AVG	
7		0.8420	31.39	10.18	41.57	56.00	-14.43	QP	
8		0.8420	15.41	10.18	25.59	46.00	-20.41	AVG	
9		3.3780	28.95	10.18	39.13	56.00	-16.87	QP	
10		3.3780	18.03	10.18	28.21	46.00	-17.79	AVG	
11		4.7220	30.18	10.18	40.36	56.00	-15.64	QP	
12		4.7220	19.55	10.18	29.73	46.00	-16.27	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Jason



Site site #1

Phase: **N**

Temperature: 25

Limit: EN 61326-1_QP (CE)

Power: DC 5V from USB port

Humidity: 55 %

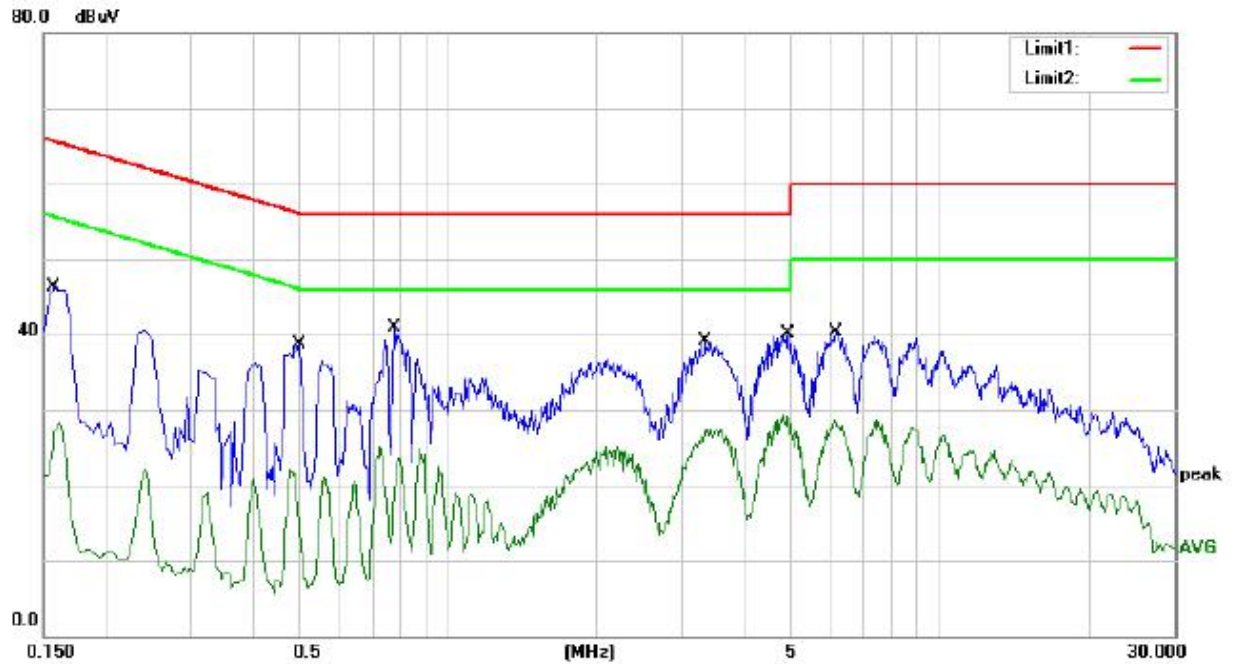
Mode: Charging

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	39.31	10.01	49.32	65.57	-16.25	QP	
2		0.1580	21.74	10.01	31.75	55.57	-23.82	AVG	
3		0.4820	26.04	10.17	36.21	56.30	-20.09	QP	
4		0.4820	13.78	10.17	23.95	46.30	-22.35	AVG	
5		0.7460	29.33	10.18	39.51	56.00	-16.49	QP	
6		0.7460	18.11	10.18	28.29	46.00	-17.71	AVG	
7		0.8660	31.44	10.18	41.62	56.00	-14.38	QP	
8		0.8860	17.75	10.18	27.93	46.00	-18.07	AVG	
9		2.1940	30.35	10.18	40.53	56.00	-15.47	QP	
10		2.1940	18.36	10.18	28.54	46.00	-17.46	AVG	
11	*	3.3700	32.52	10.18	42.70	56.00	-13.30	QP	
12		3.3700	20.50	10.18	30.68	46.00	-15.32	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Jason

UT683R RECEIVER



Site site #1

Phase: **L1**

Temperature: 25

Limit: EN 61326-1_QP (CE)

Power: DC 5V from USB port

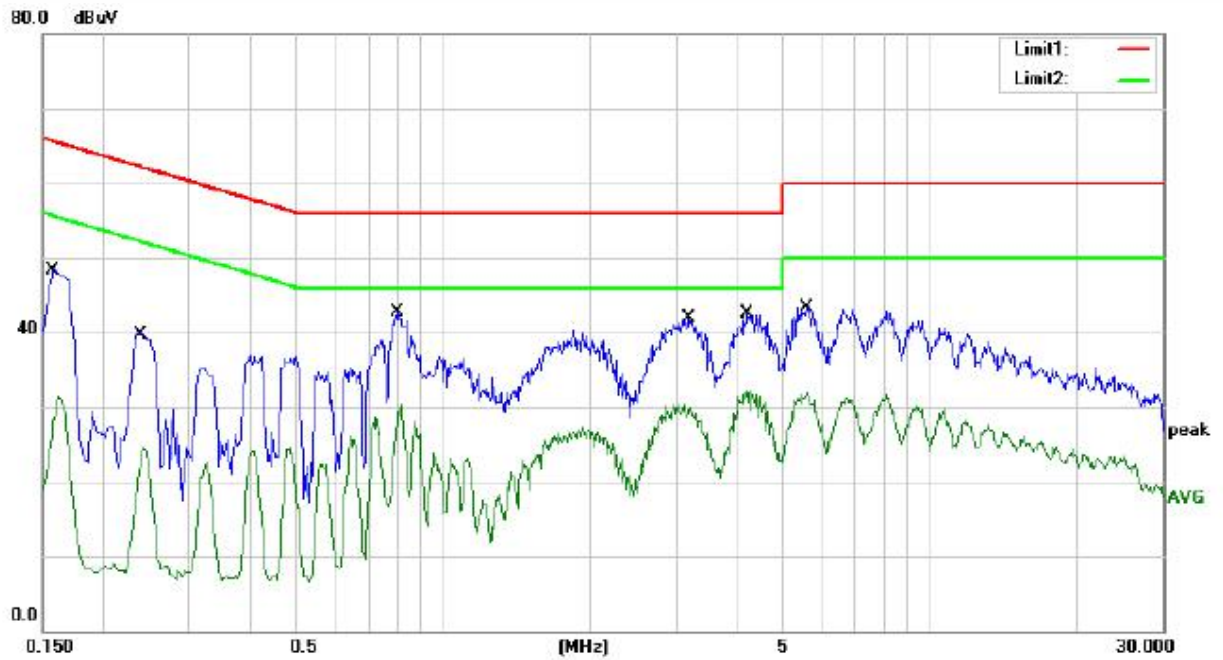
Humidity: 55 %

Mode: Charging

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1580	36.26	10.01	46.27	65.57	-19.30	QP	
2		0.1580	18.26	10.01	28.27	55.57	-27.30	AVG	
3		0.4980	28.42	10.18	38.60	56.03	-17.43	QP	
4		0.4980	11.88	10.18	22.06	46.03	-23.97	AVG	
5	*	0.7780	30.65	10.18	40.83	56.00	-15.17	QP	
6		0.7780	14.93	10.18	25.11	46.00	-20.89	AVG	
7		3.3340	28.96	10.18	39.14	56.00	-16.86	QP	
8		3.3340	17.39	10.18	27.57	46.00	-18.43	AVG	
9		4.9020	29.98	10.18	40.16	56.00	-15.84	QP	
10		4.9020	19.09	10.18	29.27	46.00	-16.73	AVG	
11		6.1700	30.14	10.19	40.33	60.00	-19.67	QP	
12		6.1700	18.46	10.19	28.65	50.00	-21.35	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Jason



Site site #1 Phase: **N** Temperature: 25
 Limit: EN 61326-1_QP (CE) Power: DC 5V from USB port Humidity: 55 %
 Mode: Charging
 Note:

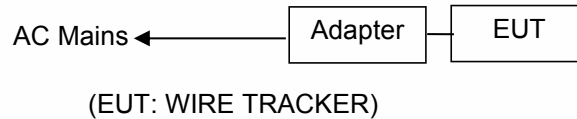
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1590	38.07	10.01	48.08	65.52	-17.44	QP	
2		0.1590	21.41	10.01	31.42	55.52	-24.10	AVG	
3		0.2380	29.72	10.05	39.77	62.17	-22.40	QP	
4		0.2380	14.44	10.05	24.49	52.17	-27.68	AVG	
5	*	0.8020	32.61	10.18	42.79	56.00	-13.21	QP	
6		0.8020	20.13	10.18	30.31	46.00	-15.69	AVG	
7		3.1980	31.75	10.18	41.93	56.00	-14.07	QP	
8		3.1980	19.66	10.18	29.84	46.00	-16.16	AVG	
9		4.2020	32.31	10.18	42.49	56.00	-13.51	QP	
10		4.2020	21.96	10.18	32.14	46.00	-13.86	AVG	
11		5.5820	33.19	10.18	43.37	60.00	-16.63	QP	
12		5.5820	21.73	10.18	31.91	50.00	-18.09	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Jason

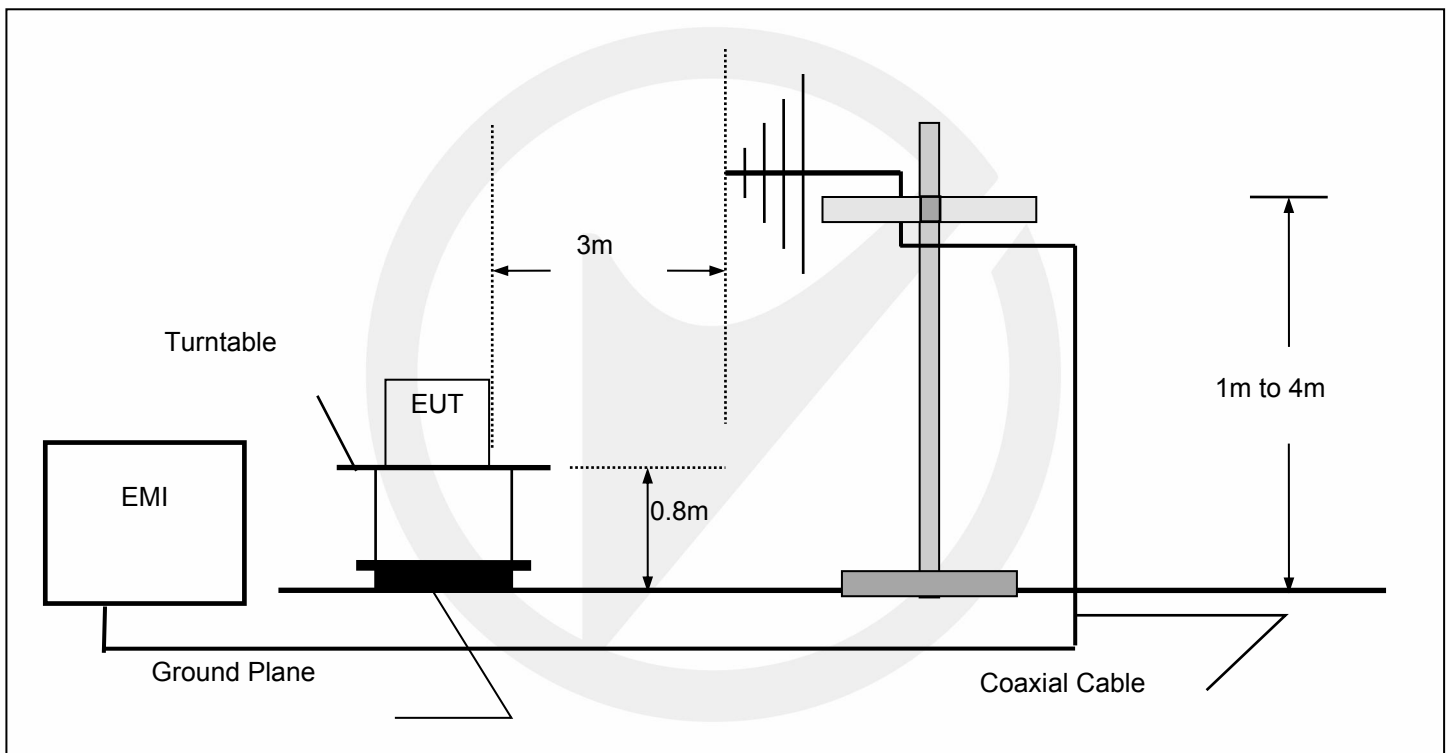
5. RADIATED EMISSION MEASUREMENT

5.1 Block Diagram of Test

5.1.1 Block diagram of connection between the EUT and simulators



5.1.2 Block diagram of test setup (In chamber)



(EUT: WIRE TRACKER)

5.2 Measuring Standard

EN 61326-1: 2013

5.3 Radiated Emission Limits

All emanations from a device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:
Limits 6 GHz

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMIT (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47
1000~3000	3	70
3000~6000	3	74

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.

5.4 EUT Configuration on Test

The EN 55032 regulations test method must be used to find the maximum emission during radiated emission measurement.

EUT : WIRE TRACKER
Model Number : UT683T TRANSMITTER, UT683R RECEIVER

5.5 Operating Condition of EUT

5.5.1 Turn on the power.

5.5.2 Let the EUT work in test mode (Charging, Testing) and measure it.

5.6 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarizations of the antenna are set on test.

The bandwidth of the Receiver (ESCI) is set at 120kHz.

5.7 Test Results

PASS.

The frequency range from 30MHz to 1000MHz is investigated.

All the mode were test and the worst data on mode(Charging) are listed in the following pages.

UT683T TRANSMITTER



Site Chamber #1

Polarization: **Horizontal**

Temperature: 26

Limit: (RE)EN 61326-1_3m

Power: DC 5V from USB port

Humidity: 55 %

Mode: Charging

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1		32.2925	36.84	-19.00	17.84	40.00	-22.16	QP		
2		35.8746	38.49	-18.24	20.25	40.00	-19.75	QP		
3		119.8556	36.59	-19.93	16.66	40.00	-23.34	QP		
4	*	220.6171	39.84	-16.73	23.11	40.00	-16.89	QP		
5		771.4485	29.65	-3.54	26.11	47.00	-20.89	QP		
6		968.9337	28.70	-0.18	28.52	47.00	-18.48	QP		

*:Maximum data x:Over limit !:over margin

Operator: Lian



Site Chamber #1

Polarization: **Vertical**

Temperature: 26

Limit: (RE)EN 61326-1_3m

Power: DC 5V from USB port

Humidity: 55 %

Mode: Charging

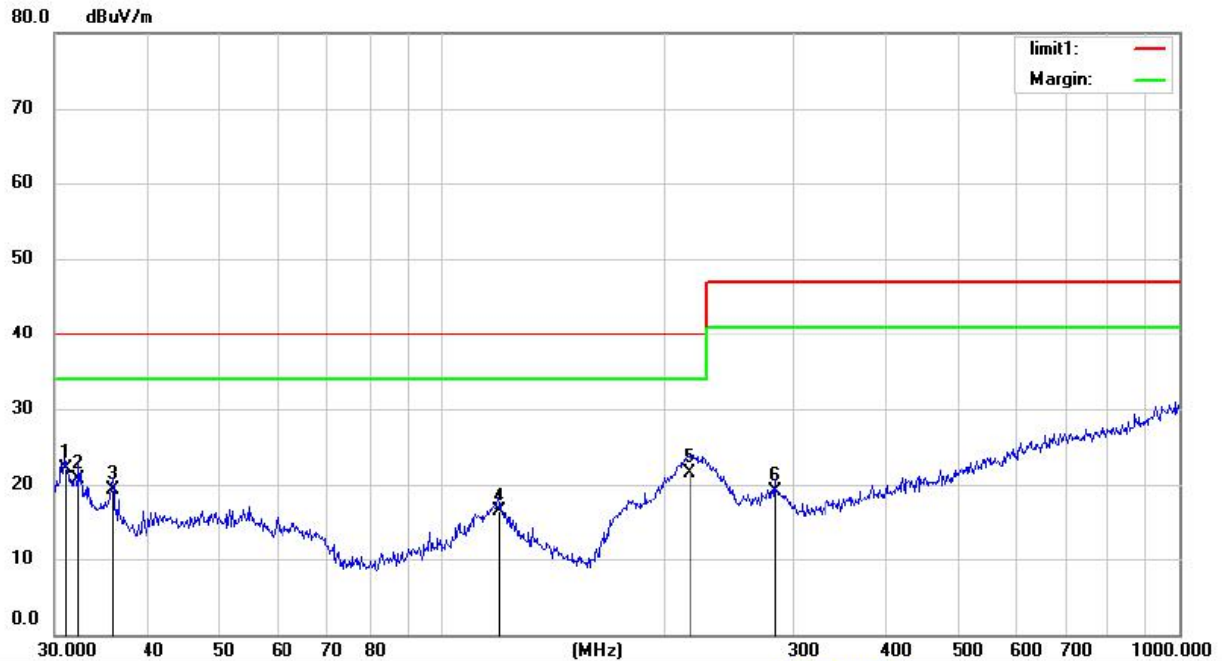
Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	30.0000	44.28	-18.76	25.52	40.00	-14.48	QP		
2		42.4508	36.50	-16.11	20.39	40.00	-19.61	QP		
3		62.2128	36.74	-17.37	19.37	40.00	-20.63	QP		
4		119.0180	41.85	-19.79	22.06	40.00	-17.94	QP		
5		226.0994	39.63	-16.54	23.09	40.00	-16.91	QP		
6		278.0668	36.50	-14.67	21.83	47.00	-25.17	QP		

*:Maximum data x:Over limit !:over margin

Operator: Lian

UT683R RECEIVER



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1	*	30.9620	40.89	-18.87	22.02	40.00	-17.98	QP			
2		32.2925	39.64	-19.00	20.64	40.00	-19.36	QP			
3		35.8746	37.50	-18.24	19.26	40.00	-20.74	QP			
4		119.4361	36.17	-19.87	16.30	40.00	-23.70	QP			
5		216.7828	38.45	-17.04	21.41	40.00	-18.59	QP			
6		282.9852	33.62	-14.43	19.19	47.00	-27.81	QP			

*:Maximum data x:Over limit !:over margin

Operator: Lian



Site Chamber #1 Polarization: **Vertical** Temperature: 26
 Limit: (RE)EN 61326-1_3m Power: DC 5V from USB port Humidity: 55 %
 Mode: Charging
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree	Comment
1	*	30.0000	46.84	-18.76	28.08	40.00	-11.92	QP		
2		35.4992	41.75	-18.40	23.35	40.00	-16.65	QP		
3		55.6093	35.63	-16.02	19.61	40.00	-20.39	QP		
4		119.0180	42.85	-19.79	23.06	40.00	-16.94	QP		
5		226.8936	39.60	-16.50	23.10	40.00	-16.90	QP		
6		281.9945	37.54	-14.50	23.04	47.00	-23.96	QP		

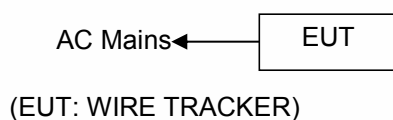
*:Maximum data x:Over limit !:over margin

Operator: Lian

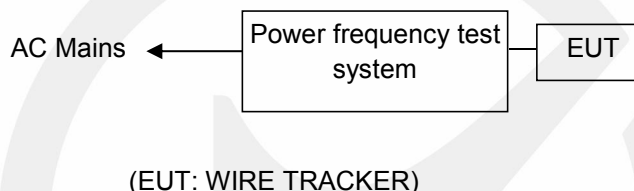
6. HARMONIC CURRENT MEASUREMENT

6.1 Block Diagram of Test Setup

6.1.1 Block diagram of connection between the EUT and simulators



6.1.2 Block Diagram of Harmonic Test Setup



6.2 Measuring Standard

EN 61000-3-2: 2014 Class A Power $\leq 75W$

6.3 Operating Condition of EUT

Same as Section 4.4 except that the test setup replaced by Section 6.1.

6.4 Test Results

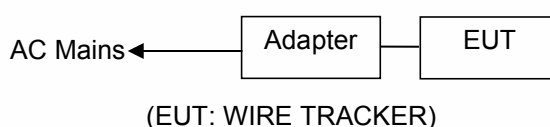
Not Applicable.

Because power of EUT is less than 75W, according to standard EN61000-3-2, Harmonics Current is not required.

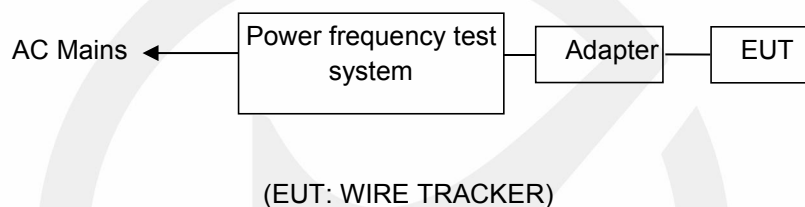
7. VOLTAGE FLUCTUATIONS & FLICKER MEASUREMENT

7.1 Block Diagram of Test Setup

7.1.1 Block diagram of connection between the EUT and simulators



7.1.2 Block Diagram of Flicker Test Setup



7.2 Measuring Standard

EN 61000-3-3: 2013

7.3 Operating Condition of EUT

Same as Section 4.4 except that the test setup replaced by Section 7.1.

7.4 Test Results

Pass.

Please refer to the following pages.

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

EUT: UT683T TRANSMITTER

Tested by: HUANG

Test category: dt,dmax,dc and Pst (European limits)

Test Margin: 100

Test date: 2020-5-11

Start time: 16:08:58

End time: 16:19:25

Test duration (min): 10

Data file name: F-000585.cts_data

Comment: Charging

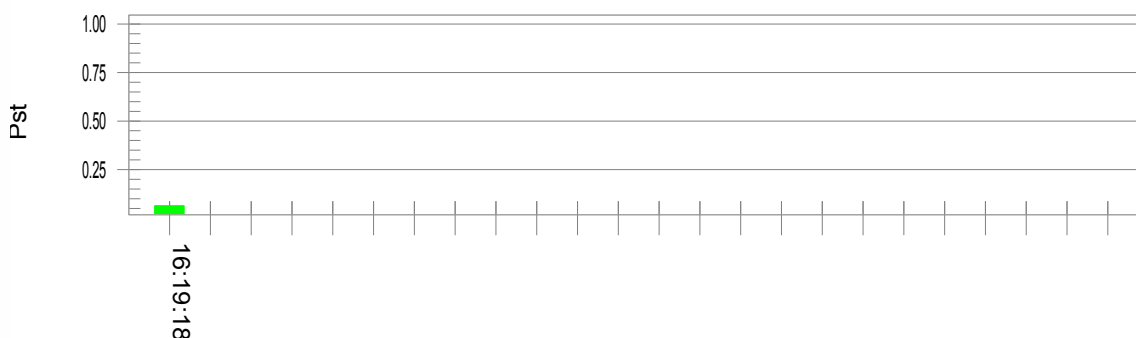
Customer: Customer information

Test Result: Pass

Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 229.79

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.064

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

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

EUT: UT683R RECEIVER
Test category: dt,dmax,dc and Pst (European limits)
Test date: 2020-5-11 Start time: 16:28:55
Test duration (min): 10 Data file name: F-000588.cts_data
Comment: Charging
Customer: Customer information

Tested by: HUANG

Test Margin: 100

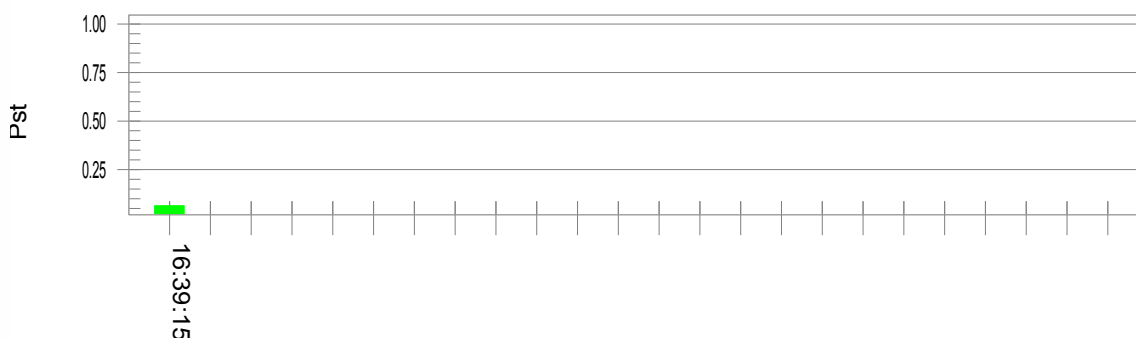
End time: 16:39:22

Test Result: Pass

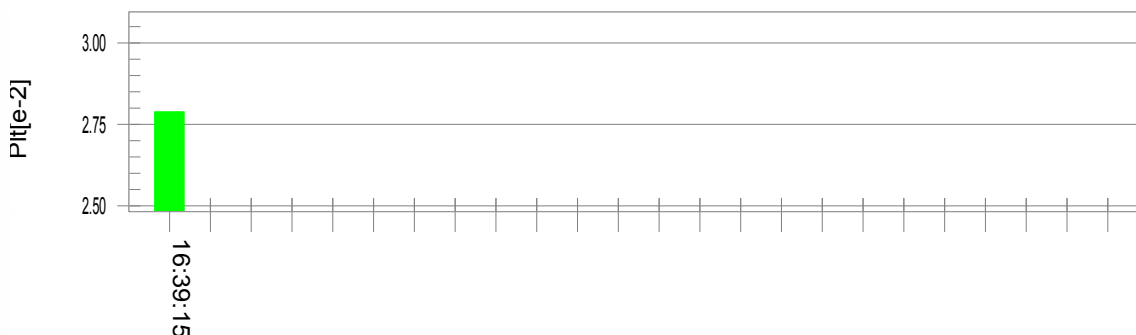
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



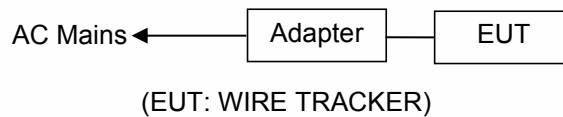
Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.84		
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

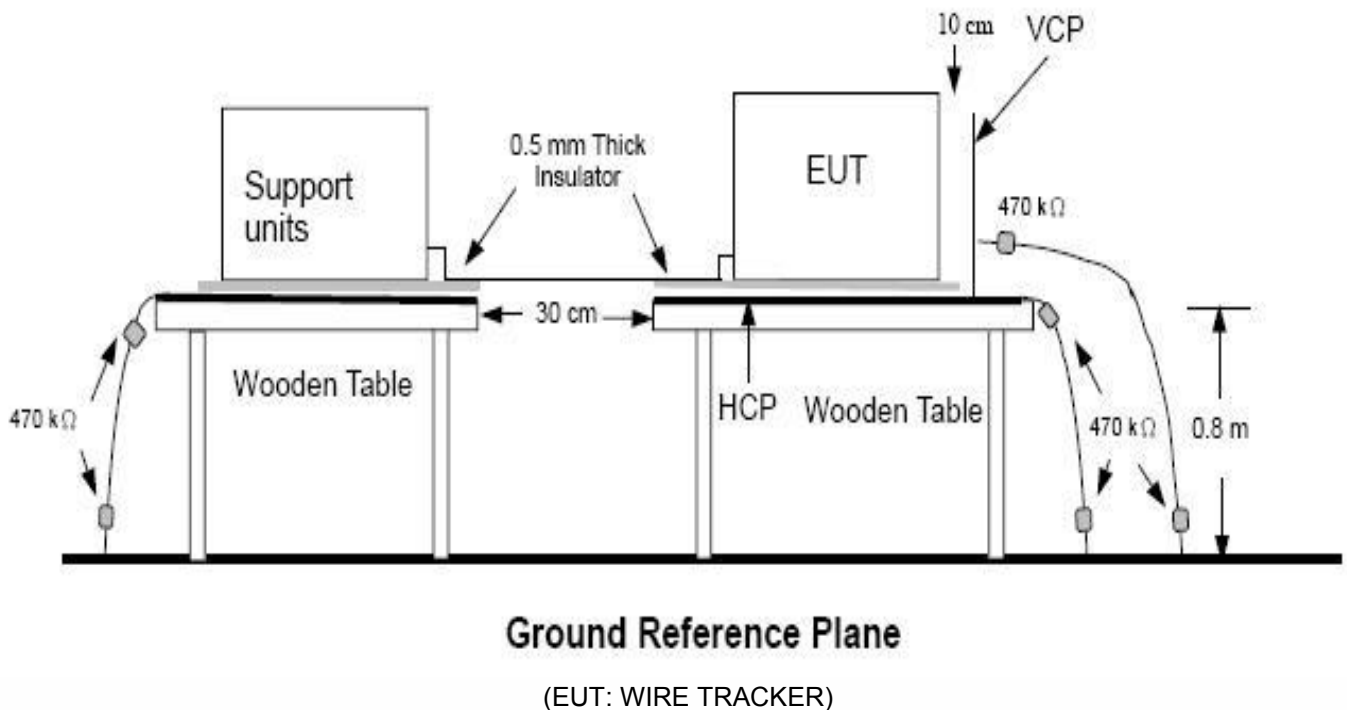
8. ELECTROSTATIC DISCHARGE TEST

8.1 Block Diagram of Test Setup

8.1.1 Block diagram of connection between the EUT and simulators



8.1.2 Block Diagram of ESD Test Setup



8.2 Test Standard

EN 61326-2-2: 2013

(IEC 61000-4-2: 2008 (Severity Level: 2 /Contact Discharge: ±4KV

Severity Level: 3 / Air Discharge: ±8KV))

8.3 Severity Levels and Performance Criterion

8.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	±2	±2
2.	±4	±4
3.	±6	±8
4.	±8	±15
X	Special	Special

8.3.2 Performance criterion: **B**

8.4 EUT Configuration

The configuration of EUT is listed in Section 8.1

8.5 Operating Condition of EUT

8.5.1 Setup the EUT as shown in Section 8.1.

8.5.2 Turn on the power of all equipments.

8.5.3 Let the EUT work in test mode (Charging, Testing) and measure it.

8.6 Test Procedure

8.6.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 25 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

8.6.2 Contact Discharge:

All the procedure shall be same as Section 8.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

8.6.3 Indirect discharge for horizontal coupling plane:

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

8.6.4 Indirect discharge for vertical coupling plane:

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

8.7 Test Results

PASS.

Please refer to the following page.

Electrostatic Discharge Test Results

EMTEK(DONGGUAN) CO., LTD.

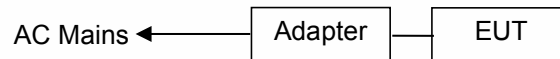
Applicant	: UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.	Test Date	: May 14, 2020
EUT	: WIRE TRACKER	Temperature	: 24℃
M/N	: UT683 (UT683T TRANSMITTER, UT683R RECEIVER)	Humidity	: 53%
Power Supply	: DC 5V from USB port or DC 3.7V from Battery	Test Engineer:	Huang
Test Mode	: Charging, Testing	Criterion	: B
Air Discharge: ±2, 4, 8KV			
Contact Discharge: ±2, 4KV # For each point positive 10 times and negative 10 times			
Location		Kind A-Air Discharge C-Contact Discharge	Result
VCP		C	PASS
HCP		C	PASS
Enclosure		A	PASS
LED		A	PASS
Button		A	PASS
Gap		A	PASS
USB Port		A&C	PASS
Remark :		Test Equipment : ESD Tester (TESEQ, 409)	

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).

9. RF FIELD STRENGTH SUSCEPTIBILITY TEST

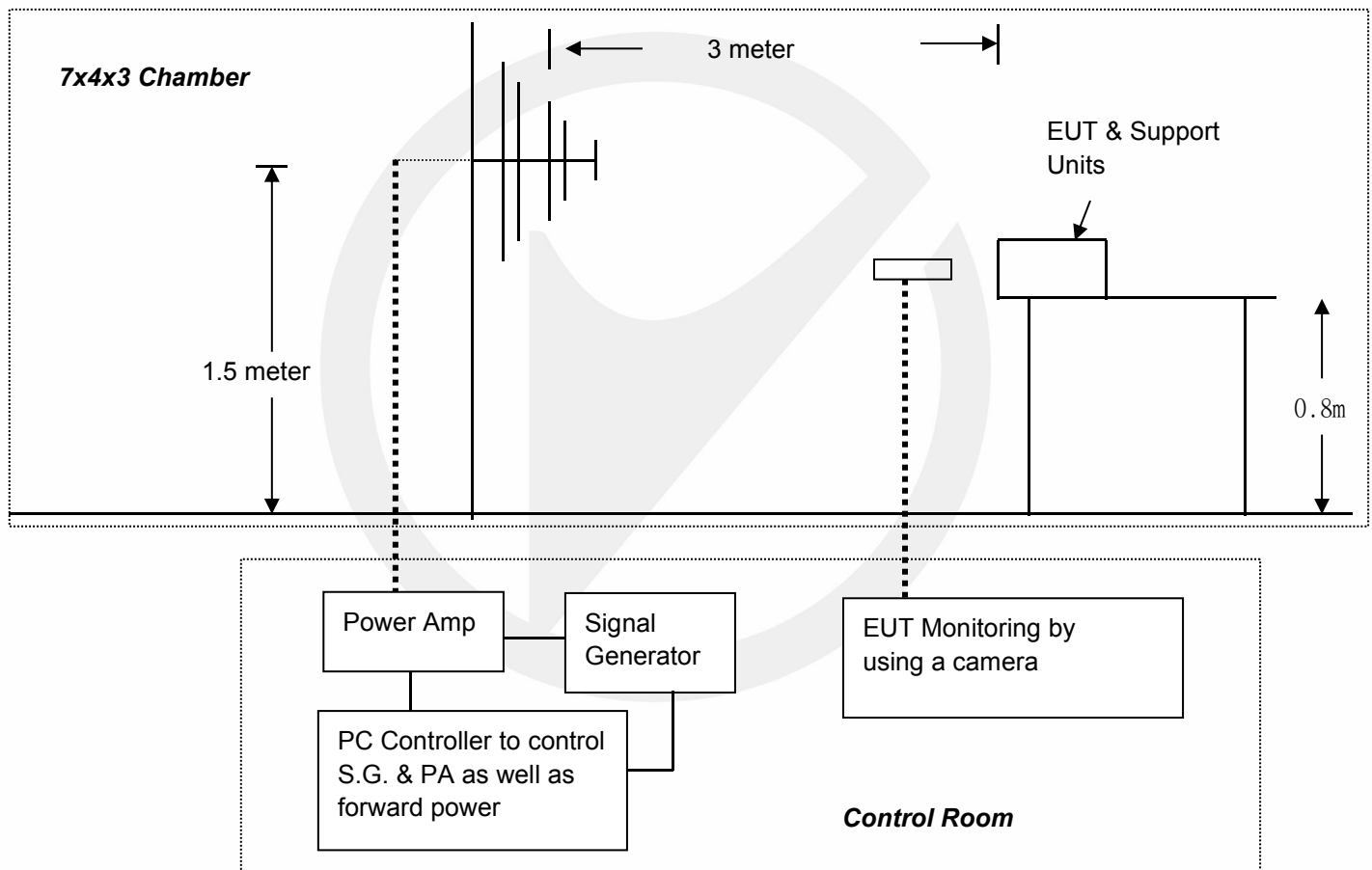
9.1 Block Diagram of Test Setup

9.1.1 Block diagram of connection between the EUT and simulators



(EUT: WIRE TRACKER)

9.1.2 Block diagram of R/S test set up



(EUT: WIRE TRACKER)

9.2 Test Standard

EN 61326-2-2: 2013

(IEC 61000-4-3: 2006+A1: 2007+A2: 2010 (Severity Level 2, 3V / m))

9.3 Severity Levels and Performance Criterion

9.3.1 Severity level

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

9.3.2 Performance criterion: **A**

9.4 EUT Configuration

The configurations of EUT are listed in Section 9.1.

9.5 Operating Condition of EUT

9.5.1 Setup the EUT as shown in Section 9.1.

9.5.2 Turn on the power of all equipments.

9.5.3 Let the EUT work in test mode (Charging, Testing) and measure it.

9.6 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remarks
1. Fielded Strength	1 V/m (Severity Level 1), 3 V/m (Severity Level 2)
2. Radiated Signal	Unmodulated
3. Scanning Frequency	80 - 2700 MHz
4. Dwell time of radiated	0.0015 decade/s
5. Waiting Time	1 Sec.

9.7 Test Results

PASS.

These test result outsourced to EMTEK(SHENZHEN) CO., LTD.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

EMTEK(SHENZHEN) CO., LTD

Applicant: UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.

Test Date : May 14, 2020

EUT : WIRE TRACKER

Temperature : 24°C

M/N : UT683 (UT683T TRANSMITTER, UT683R RECEIVER)

Humidity : 5%

Field Strength: 3 V/m,1 V/m

Criterion: A

Power Supply: DC 5V from USB port or DC 3.7V from Battery

Frequency Range: 80 - 1000MHz, 1400-2000, 2000-2700MHz

Test Engineer: Tom

Modulation: ☒ AM ☐ Pulse ☐ none 1 KHz 80%

Test Mode : Charging, Testing

Frequency Range : 80 - 1000MHz, 1400-2700 MHz for 3V/m,

Steps

1 %

Horizontal

Vertical

Front

PASS

PASS

Right

PASS

PASS

Rear

PASS

PASS

Left

PASS

PASS

Test Equipment :

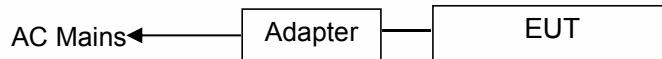
1. Signal Generator : N5181A (Agilent)
2. Power Amplifier : 80RF1000-175 (MILMEGA)& AS0102-55 (MILMEGA)& AS1860-50 (MILMEGA)
3. Log.-Per. Antenna: VULP 9118E(SCHWARZBECK)
4. Broad-Band Horn Antenna: STLP 9149 (SCHWARZBECK)
5. RF Power Meter. Dual Channel : 4232A (BOONTON)
6. Field Strength Meter: RSS1006A (DARE)

Note:

10. ELECTRICAL FAST TRANSIENT/BURST TEST

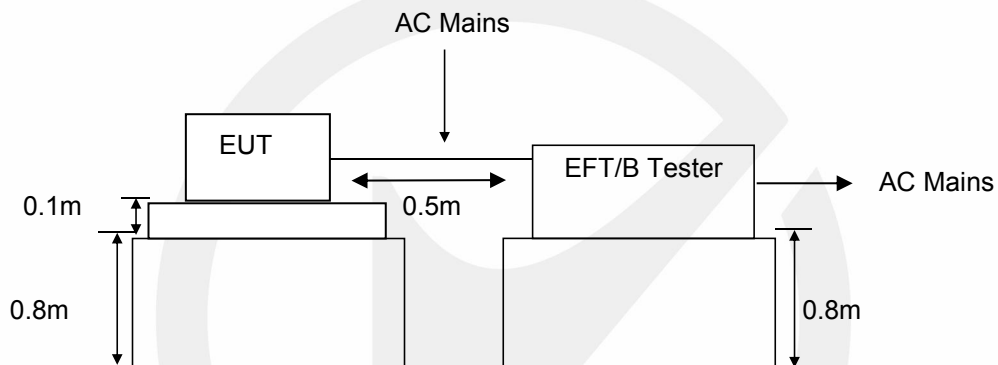
10.1 Block Diagram of Test Setup

10.1.1 Block Diagram of connection between the EUT and simulators



(EUT: WIRE TRACKER)

10.1.2 Block Diagram of EFT Test Setup



(EUT: WIRE TRACKER)

10.2 Test Standard

EN 61326-2-2: 2013
(IEC 61000-4-4: 2012, Severity Level, Level 2: 1KV)

10.3 Severity Levels and Performance Criterion

10.3.1 Severity level

Open circuit output test voltage and repetition rate of the impulses				
Level	On power port, PE		On I/O (Input/Output) Signal data and control ports	
	Voltage peak KV	Repetition rate KHz	Voltage peak KV	Repetition rate KHz
1.	0.5 KV	5 or 100	0.25 KV	5 or 100
2.	1 KV	5 or 100	0.5 KV	5 or 100
3.	2 KV	5 or 100	1 KV	5 or 100
4.	4 KV	5 or 100	2 KV	5 or 100
X	Special	Special	Special	Special
NOTE 1 Use of 5 KHz repetition rates is traditional; however, 100 KHz is closer to reality. Product committees should determine which frequencies are relevant for specific products or product types.				
NOTE 2 With some products, there may be no clear distinction, between power ports and I/O ports, in which case it is up to product committees to make this determination for test purposes.				
“X” is an open level. The level has to be specified in the dedicated equipment specification.				

10.3.2 Performance criterion: B

10.4 EUT Configuration

The configurations of EUT are listed in Section 10.1.

10.5 Operating Condition of EUT

- 10.5.2 Setup the EUT as shown in Section 10.1.
- 10.5.3 Turn on the power of all equipments.
- 10.5.4 Let the EUT work in test mode (Charging) and measure it.

10.6 Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.6.2 For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

10.6.3 For signal lines and control lines ports:

No I/O ports. It's unnecessary to test.

10.7 Test Results

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

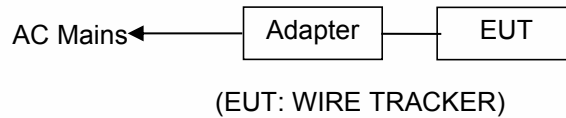
EMTEK(DONGGUAN) CO., LTD

Standard :	<input checked="" type="checkbox"/> IEC 61000-4-4 <input type="checkbox"/> EN 61000-4-4	Result : <input checked="" type="checkbox"/> PASS / <input type="checkbox"/> FAIL	
Applicant : UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.			
EUT :	WIRE TRACKER		
M/N :	UT683 (UT683T TRANSMITTER, UT683R RECEIVER)		
Input Voltage:	DC 5V from USB port		
Criterion :	B		
Ambient Condition :	24 °C	53% RH	
Operation Mode : Charging			
Line : <input checked="" type="checkbox"/> AC Mains	Line : <input type="checkbox"/> Signal <input type="checkbox"/> I/O Cable		
Coupling : <input checked="" type="checkbox"/> Direct	Coupling : <input type="checkbox"/> Capacitive		
Test Time : 120s			
Line	Test Voltage	Result (+)	Result (-)
L	1KV	PASS	PASS
N	1KV	PASS	PASS
PE			
L、N	1KV	PASS	PASS
L、PE			
N、PE			
L、N、PE			
Signal Line			
DC Line			
Note:			
Test Equipment		Burst Tester Model : UCS500M6B	

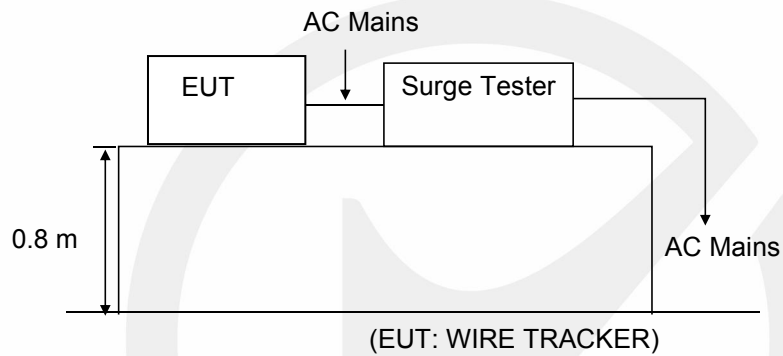
11. SURGE IMMUNITY TEST

11.1 Block Diagram of Test Setup

11.1.1 Block Diagram of the EUT



11.1.2 Surge Test Setup



11.2 Test Standard

EN 61326-2-2: 2013
(IEC 61000-4-5: 2014, Severity Level: Line to Line: Level 2, 1.0KV)

11.3 Severity Levels and Performance Criterion

11.3.1 Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

11.3.2 Performance criterion: **B**

11.4 EUT Configuration

The configurations of EUT are listed in Section 11.1.

11.5 Operating Condition of EUT

11.5.1 Setup the EUT as shown in Section 11.1.

11.5.2 Turn on the power of all equipments.

11.5.3 Let the EUT work in test mode (Charging) and measure it.

11.6 Test Procedure

- 1) Set up the EUT and test generator as shown on Section 11.1.2.
- 2) For line to line coupling mode, provide a 1.0KV, 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.7 Test Results

PASS.

Please refer to the following page.

Surge Immunity Test Results

EMTEK(DONGGUAN) CO., LTD.

Applicant : <u>UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.</u>				Test Date : <u>May 14, 2020</u>	
EUT : <u>WIRE TRACKER</u>				Temperature : <u>25°C</u>	
M/N : <u>UT683 (UT683T TRANSMITTER, UT683R RECEIVER)</u>				Humidity : <u>50%</u>	
Power Supply : <u>DC 5V from USB port</u>				Test Engineer : <u>Huang</u>	
Test Mode : <u>Charging</u>				Criterion : <u>B</u>	

Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (KV)	Result
L-N	±	0°	5	1.0	PASS
	±	90°	5	1.0	PASS
	±	180°	5	1.0	PASS
	±	270°	5	1.0	PASS
L-PE					
N-PE					

Remark:	Test Equipment : Surge Generator VCS 500M6T
---------	--

12. INJECTED CURRENTS SUSCEPTIBILITY TEST

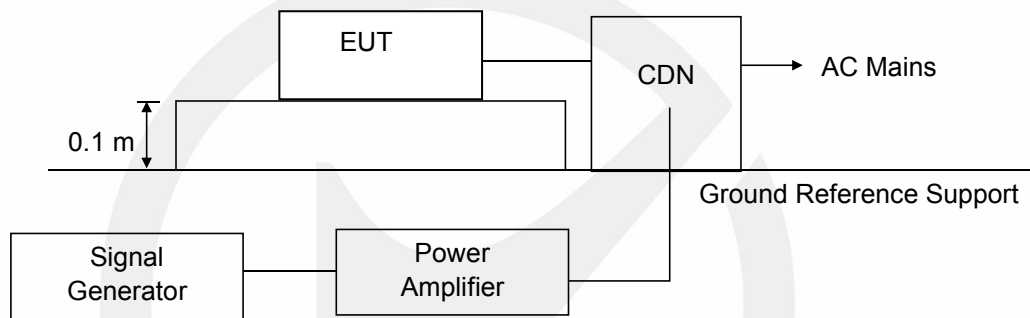
12.1 Block Diagram of Test Setup

12.1.1 Block Diagram of the EUT



(EUT: WIRE TRACKER)

Block Diagram of Test Setup



(EUT: WIRE TRACKER)

12.2 Test Standard

EN 61326-2-2: 2013

(IEC 61000-4-6: 2013, Severity Level 2: 3V (rms), 0.15MHz ~ 80MHz)

12.3 Severity Levels and Performance Criterion

12.3.1 Severity level

Level	Field Strength V
1.	1
2.	3
3.	10
X	Special

12.3.2 Performance criterion: A

12.4 EUT Configuration

The configurations of EUT are listed in Section 12.1.

12.5 Operating Condition of EUT

12.5.2 Setup the EUT as shown in Section 12.1.

12.5.3 Turn on the power of all equipments.

12.5.4 Let the EUT work in test mode (Charging) and measure it.

12.6 Test Procedure

- 1) Set up the EUT, CDN and test generators as shown on Section 12.1.2.
- 2) Let the EUT work in test mode and measure it.
- 3) The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
- 7) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.7 Test Results

PASS.

These test result outsourced to EMTEK(SHENZHEN) CO., LTD.

Please refer to the following page.

Injected Currents Susceptibility Test Results

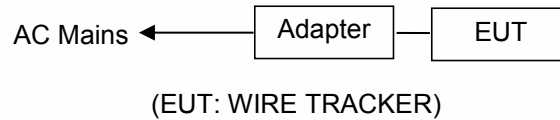
EMTEK(SHENZHEN) CO., LTD

Applicant : <u>UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.</u>		Test Date : <u>May 14, 2020</u>		
EUT : <u>WIRE TRACKER</u>		Temperature : <u>24℃</u>		
M/N : <u>UT683 (UT683T TRANSMITTER, UT683R RECEIVER)</u>		Humidity : <u>53%</u>		
Power Supply : <u>DC 5V from USB port</u>		Test Engineer : <u>Tom</u>		
Test Mode : <u>Charging</u>				
Frequency Range (MHz)	Injected Position	Strength	Criterion	Result
0.15 ~ 80	AC Mains	3V(rms)	A	PASS
Test Mode : _____				
Frequency Range (MHz)	Injected Position	Strength	Criterion	Result
Remark : 1. Modulation Signal:1KHz 80% AM Measurement Equipment : Simulator: CIT-10 (FRANKONIA) CDN : <input checked="" type="checkbox"/> CDN-M2 (SWITZERLAND EM TEST) <input type="checkbox"/> CDN-M3 (SWITZERLAND EM TEST)		Note:		

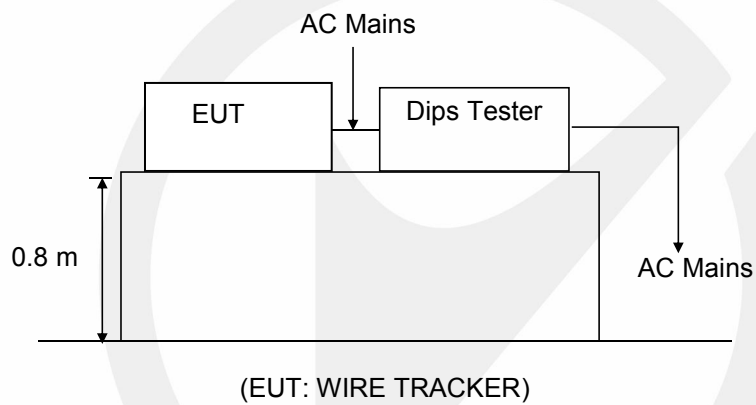
13. VOLTAGE DIPS AND INTERRUPTIONS TEST

13.1 Block Diagram of Test Setup

13.1.1 Block Diagram of the EUT



13.1.2 Dips Test Setup



13.2 Test Standard

EN 61326-2-2: 2013
(IEC 61000-4-11: 2004)

13.3 Severity Levels and Performance Criterion

13.3.1 Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5
40	60	1
70	30	5
		10
		25
		50
		*

13.3.2 Performance criterion: **B, C**

13.4 EUT Configuration

The configurations of EUT are listed in Section 13.1.

13.5 Operating Condition of EUT

- 13.5.1 Setup the EUT as shown in Section 13.1.
- 13.5.2 Turn on the power of all equipments.
- 13.5.3 Let the EUT work in test mode (Charging) and measure it.

13.6 Test Procedure

- 1) Set up the EUT and test generator as shown on Section 13.1.2.
- 2) The interruption is introduced at selected phase angles with specified duration.
- 3) Record any degradation of performance.

13.7 Test Results

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

EMTEK(SHENZHEN) CO., LTD

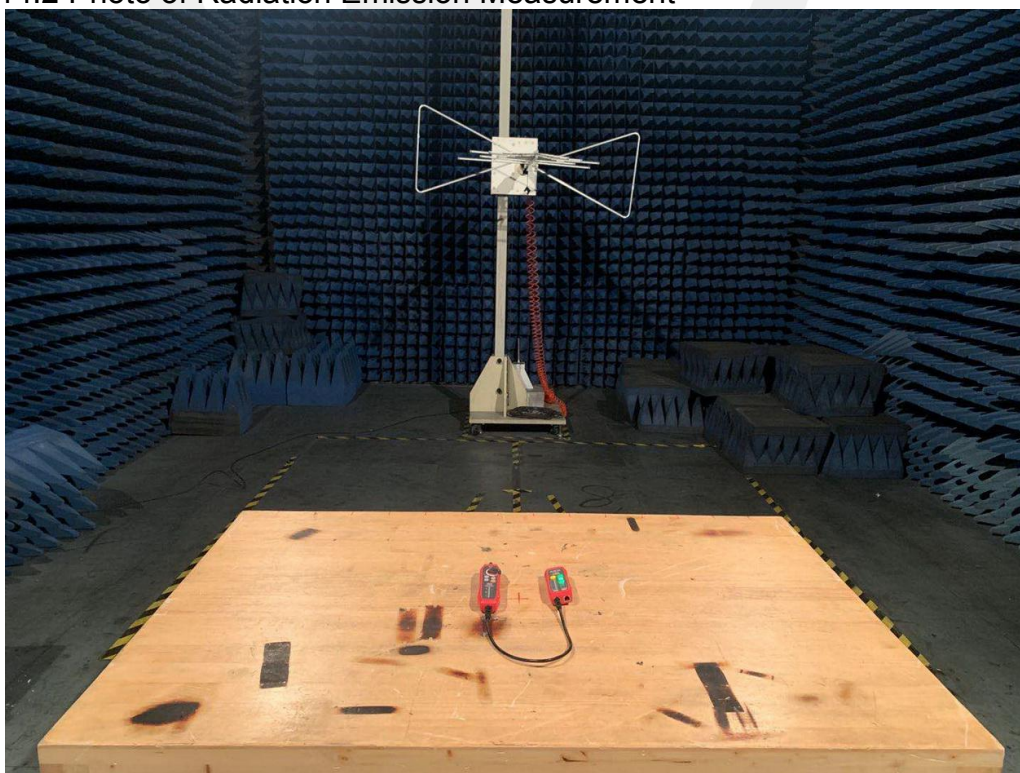
Applicant : <u>UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.</u>			Test Date : <u>May 14, 2020</u>	
EUT : <u>WIRE TRACKER</u>			Temperature : <u>25°C</u>	
M/N : <u>UT683 (UT683T TRANSMITTER, UT683R RECEIVER)</u>			Humidity : <u>50%</u>	
Power Supply : <u>DC 5V from USB port</u>			Test Engineer : <u>Huang</u>	
Test Model : <u>Charging</u>				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in period)	Criterion <input type="checkbox"/> A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	Result
70	30	25P	C	PASS
0	100	1P	B	PASS
0	100	0.5P	B	PASS
Test Model :				
Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in period)	Criterion <input type="checkbox"/> A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D	Result
Remark: U _T is the rated voltage for the equipment.			Test Equipment : Dips Tester Pline1610	

14. PHOTOGRAPH

14.1 Photo of Conducted Emission Measurement



14.2 Photo of Radiation Emission Measurement



14.3 Photo of Harmonic / Flicker Measurement



14.4 Photo of Electrostatic Discharge Test



14.5 Photo of RF Field Strength susceptibility Test



14.6 Photo of Electrical Fast Transient /Burst Test



14.7 Photo of Surge Immunity Test



14.8 Photo of Injected Currents Susceptibility Test



14.9 Photo of Voltage Dips and Interruption Immunity Test



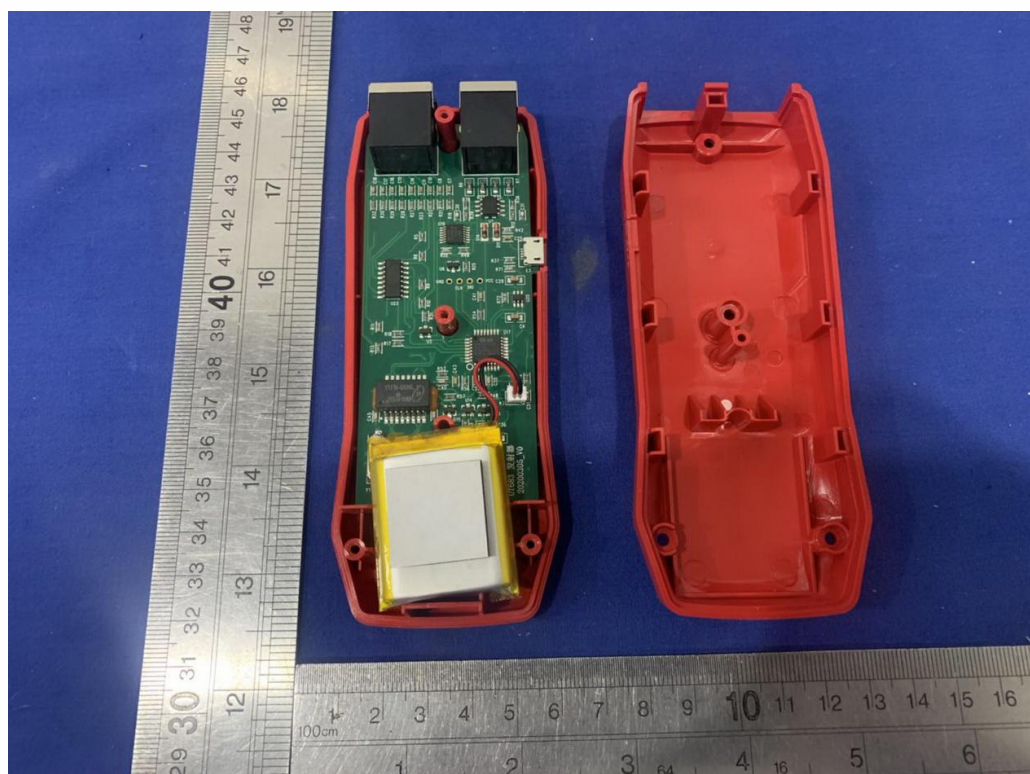
APPENDIX I (Photos of EUT)

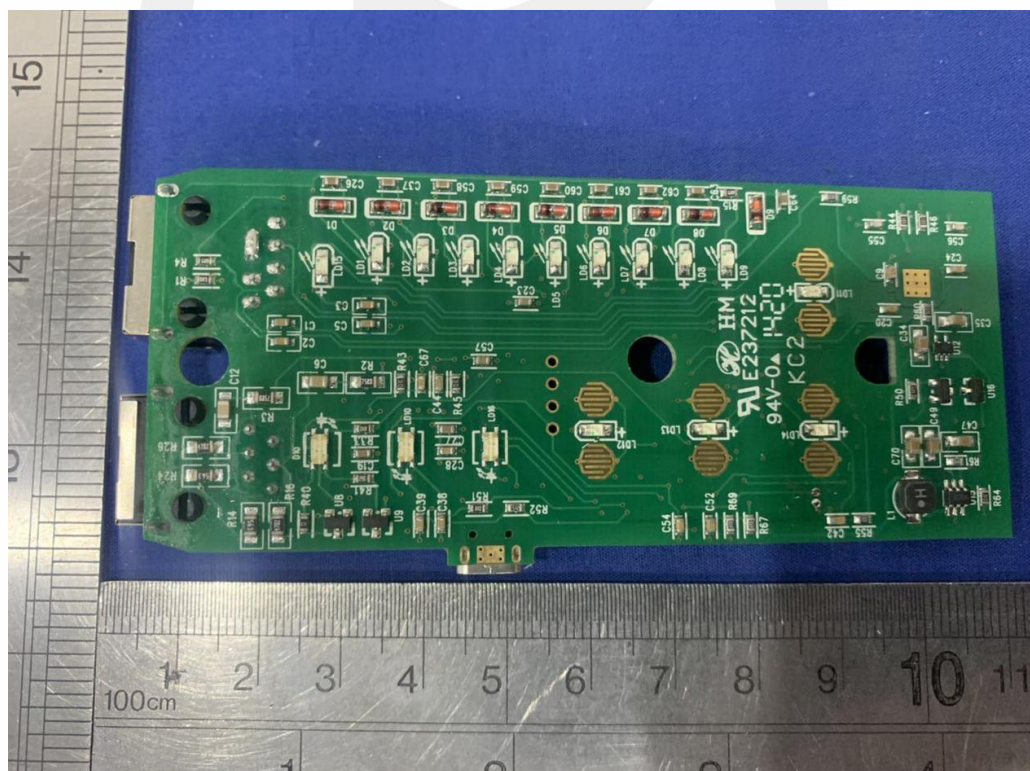
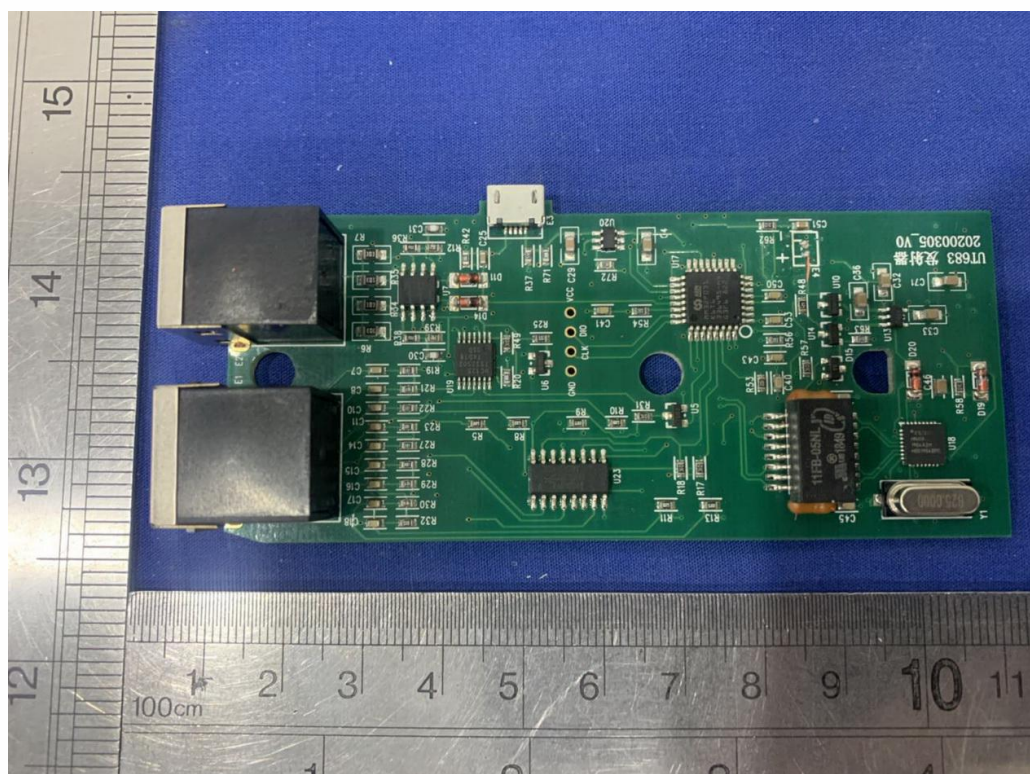


UT683T TRANSMITTER

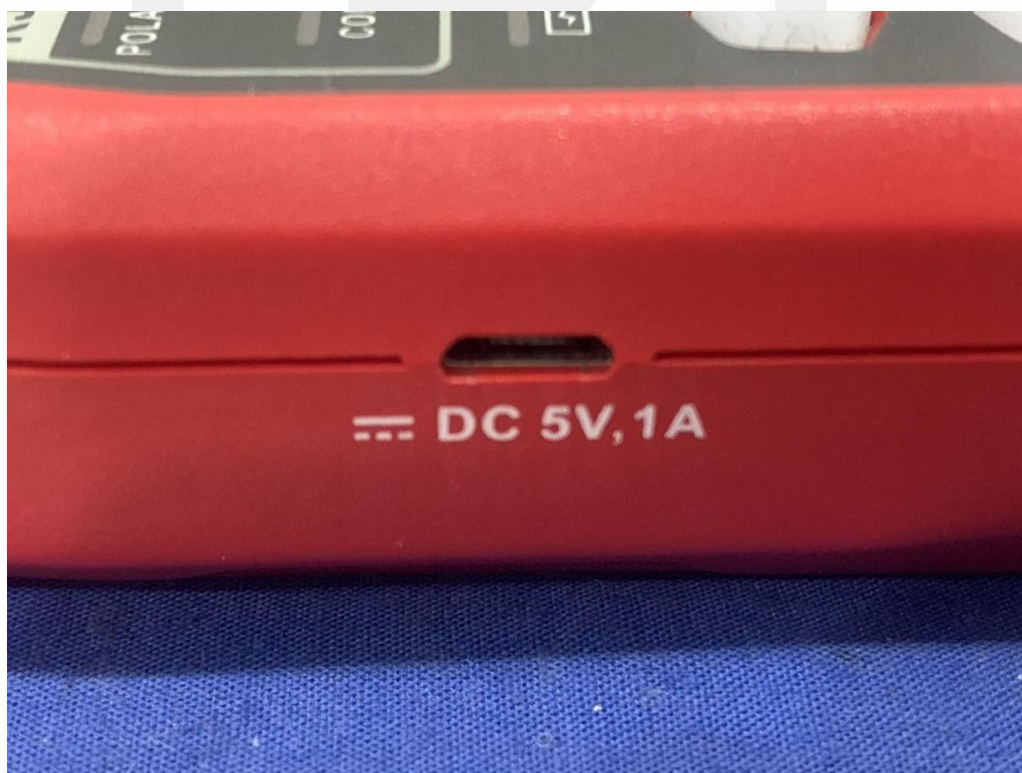


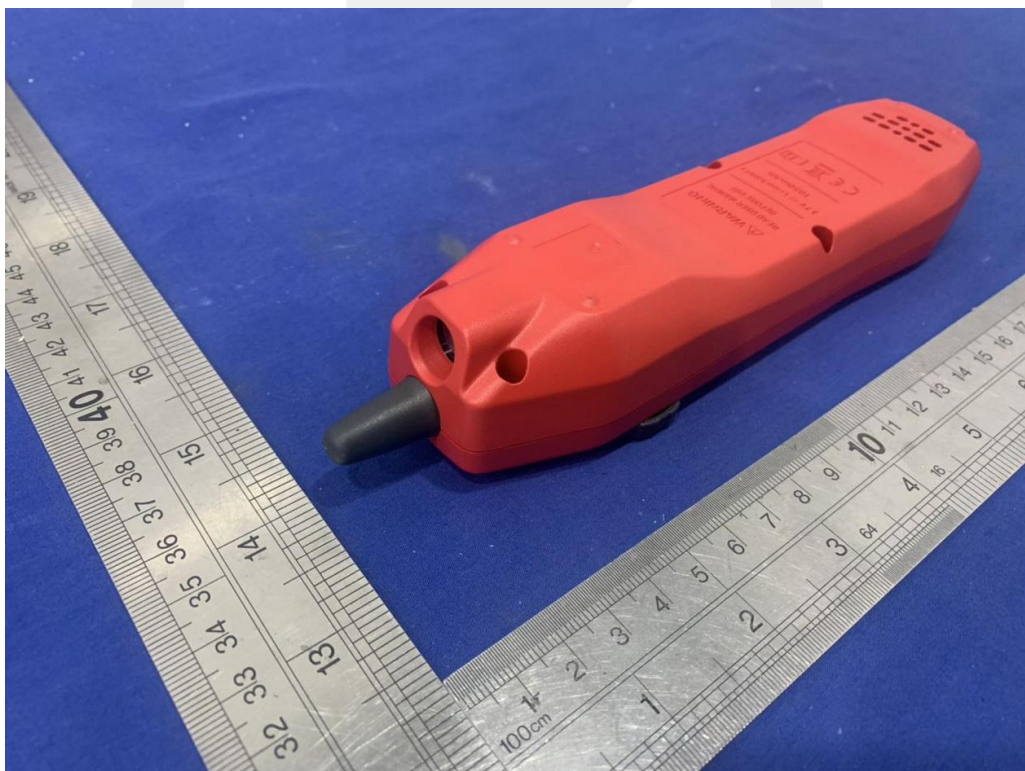


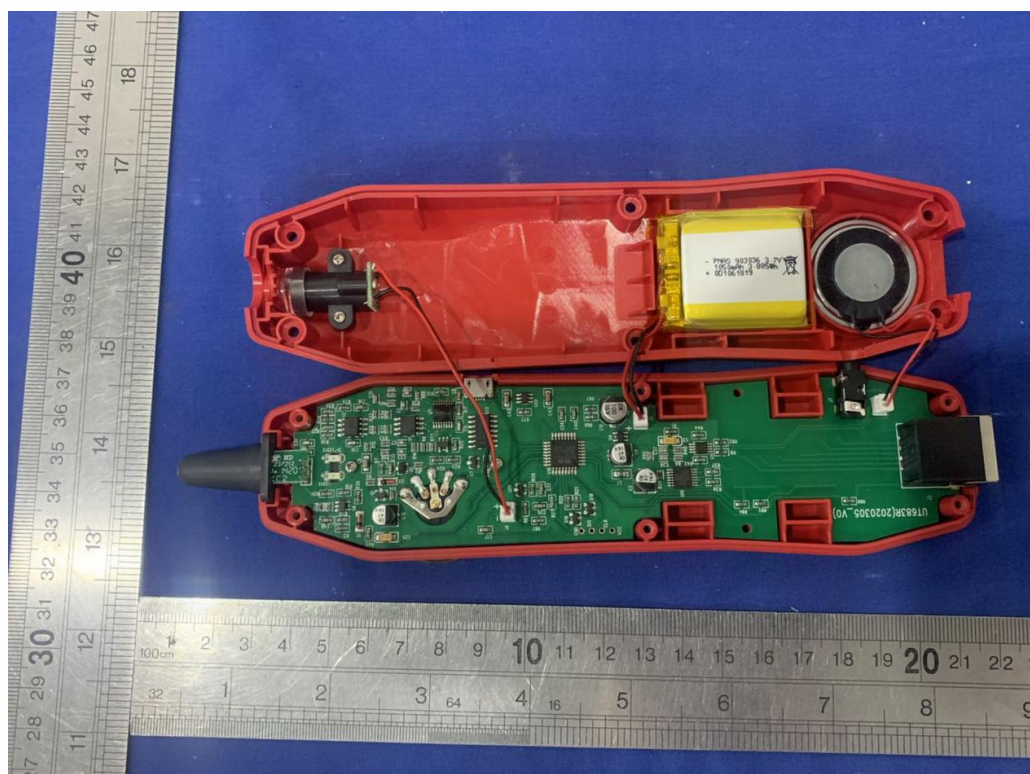


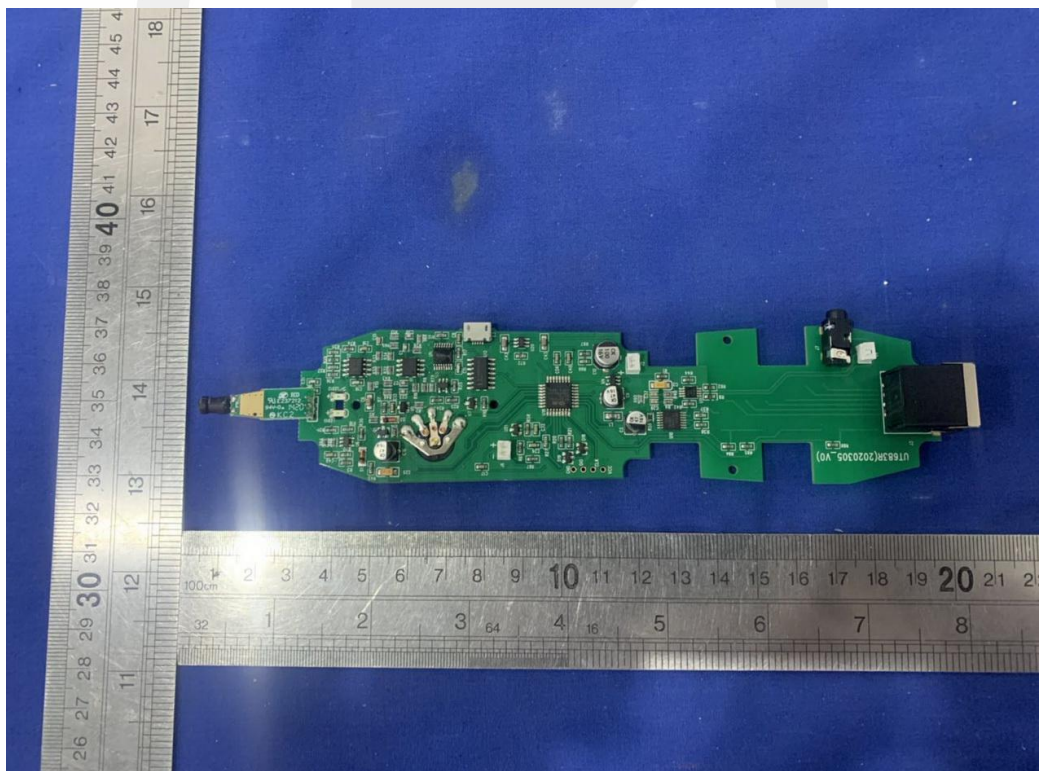
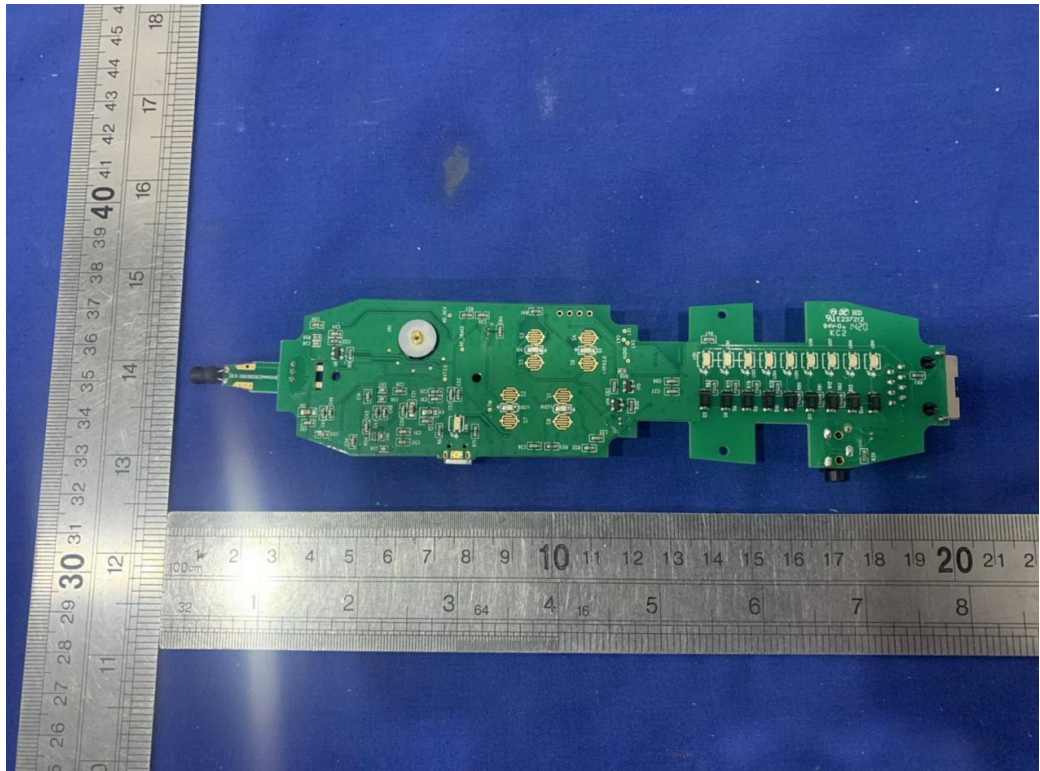


UT683R RECEIVER









-----The end-----

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