



# EMC TEST REPORT

Issued for

DENGTEC ELECTRONIC TECHNOLOGY CO., LTD.

No.5 Xinxing Rd, Kunshan City, Jiangsu Province

<b>Product Name:</b>	LED Linear Lighting
<b>Brand Name:</b>	DENGTEC
<b>Model Name:</b>	AP-001-U
<b>Series Model:</b>	N/A
<b>Test Standard:</b>	EN 55015:2013/A1:2015 EN 61547:2009



### TEST RESULT CERTIFICATION

Applicant's Name..... : DENGTEC ELECTRONIC TECHNOLOGY CO., LTD.

Address..... : No.5 Xinxing Rd, Kunshan City, Jiangsu Province

Manufacture's Name..... : DENGTEC ELECTRONIC TECHNOLOGY CO., LTD.

Address..... : No.5 Xinxing Rd, Kunshan City, Jiangsu Province

#### Product Description

Product Name..... : LED Linear Lighting

Brand Name ..... : DENGTEC

Model Name..... : AP-001-U

Series Model..... : N/A

Test Standards..... : EN 55015:2013/A1:2015  
EN 61547:2009

This device described above has been tested by FCS, and the test results show that the equipment under test (EUT) is in compliance with the 2014/30/EU EMC Directive requirements. And it is applicable only to the tested sample identified in the report. This report shall not be reproduced except in full, without the written approval of FCS, this document may be altered or revised by FCS, personal only, and shall be noted in the revision of the document.

#### Date of Test..... :

Date (s) of performance of tests : 20 Feb. 2021 ~ 26 Feb. 2021

Date of Issue..... : 26 Feb. 2021

Test Result..... : Pass

Tested by : Scott Shen  
(Scott Shen)

Reviewed by : Duke Qian  
(Duke Qian)

Approved by : Kait Chen  
(Kait Chen)



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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	26 Feb. 2021	FCS202102005E01	ALL	Initial Issue

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### 1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
EN 55015:2013/A1:2015	Conducted Emissions From The AC Mains Power Ports	Class B	PASS	
	Conducted Emissions From Asymmetric Mode	Class B	N/A	
	Conducted Differential Voltage Emissions	Class B	N/A	
	Radiated Emissions	Class B	PASS	
EN61000-3-2:2014	Harmonic Current Emission	Class A	N/A	<b>NOTE (1)</b>
EN61000-4-3:2006/A2:2010	Voltage Fluctuations & Flicker	-----	N/A	
EMC Immunity				
Section	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN 61000-4-3:2006/A2:2010	RF Electromagnetic Field	A	PASS	
EN 61000-4-4:2012	Fast Transients	B	N/A	
EN 61000-4-5:2014/A1:2017	Surges	B	N/A	
EN 61000-4-6:2014/AC:2015	Radio-frequency Common Mode / Conducted Susceptibility	A	N/A	
EN 61000-4-8:2010	Power Frequency Magnetic Field	A	PASS	
EN 61000-4-11:2020	Volt. Interruptions Volt. Dips	B / C / C	N/A	<b>NOTE (2)</b>

**Note:**

- (1)Voltage Dip: 100% reduction – Performance Criteria **B**
- Voltage Dip: 30% reduction – Performance Criteria **C**
- Voltage Interruption: 100% Interruption – Performance Criteria **C**

### 1.1 TEST FACTORY

Company Name:	Flux Compliance Service Laboratory.
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan,

### 1.2 MEASUREMENT UNCERTAINTY

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

#### A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
FCSC01	ANSI	9KHz ~ 150KHz	3.18	
		150 KHz ~ 30MHz	2.70	

#### B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
FCSC02	ANSI	9KHz ~ 30MHz	2.50	
		30MHz ~ 200MHz	3.43	
		200MHz ~ 1000MHz	3.57	
		1GHz ~ 6 GHz	4.13	

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	LED Linear Lighting
Brand Name	DENGTEC
Model Name	AP-001-U
Series Name	N/A
Product Differences	N/A
Battery	DC12V
Hardware version number	V1.0
Software version number	V1.0

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## 2.2 DESCRIPTION OF THE TEST MODES

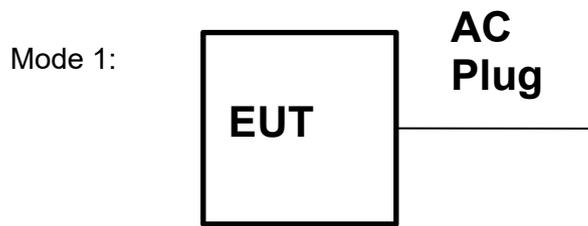
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Mode	Description
Mode 1	ON

Note: The test modes were carried out for all operation modes. Only worst case will be show in this report.

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### 2.3 DESCRIPTION OF THE TEST SETUP



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**2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL**

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Accessories equipment

Mode 1:

Item	Equipment	Mfr/Brand	Model/Type No.
E-1			

Auxiliary equipment

Mode 2:

Item	Equipment	Mfr/Brand	Model/Type No.

Cable

Mode 1:

Item	Type	Shielded Type	Ferrite Core	Length
C-1				

Mode 2:

Item	Type	Shielded Type	Ferrite Core	Length

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

## 2.5 MEASUREMENT INSTRUMENTS LIST

### RADIATED TEST SITE

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESRP	104741	2020.05.08	2021.05.08
Bi-log Antenna	SCHWARZBECK	VULB 9168	34678	2020.05.08	2021.05.08
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1343	2020.05.08	2021.05.08
Pre-amplifier(1G-18G)	SKET	LNPA-01018G-45	SK2018080901	2020.05.08	2021.05.08
Pre-amplifier(20M-3GHz)	EM	EM330N	980622	2020.05.08	2021.05.08
MXA Signal Analyzer	Agilent	N9020A	MY49100060	2020.05.08	2021.05.08
RE Cable (9K-1G)	N/A	EMCCFD400-NM-NM-4000	181105	2020.05.08	2021.05.08
Temperature & Humidity	victor	HTC-1	N/A	2020.05.08	2021.05.08
Testing Software	EZ-EMC(Ver. 03A1 RE)				

### ESD

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Electrostatic Discharge Simulator	KZKUSUI	SIMULATOR	1070011337	2019.05.07	2020.05.07
Temperature & Humidity	victor	HTC-1	N/A	2019.05.07	2020.05.07

### PFMF

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
MF Generator	HTEC	HMFG-COMB	143903	2020.10.13	2021.10.12
Magnetic Field Coil	HTEC	HCOIL 100	143808	2020.10.13	2021.10.12
Universal Radio Communication Tester	R&S	CMW500	117239	2020.10.13	2021.10.12
Temperature & Humidity	Mieo	HH660	N/A	2020.10.13	2021.10.12

**RS**

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Power Meter	Agilent	E4419B	QB4331226	2020.10.13	2021.10.12
Power Sensor	Hp	E9300A	US39210170	2020.10.13	2021.10.12
Power Sensor	Hp	E9300A	US39210476	2020.10.13	2021.10.12
Signal Generator	Agilent	N5181A	MY56144718	2020.10.13	2021.10.12
Power Amplifier	MICOTOP	MPA-80-1000-250	MPA1711489	2020.10.13	2021.10.12
Power Amplifier	MICOTOP	MPA-1000-3000-75	MPA1711488	2020.10.13	2021.10.12
Power Amplifier	MICOTOP	MPA-3000-6000-50	MPA1711490	2020.10.13	2021.10.12
RS Test Antenna (80-1GHz)	SCHWARZBECK	VULP 9118E	000999	2020.10.13	2021.10.12
RS Test Antenna (1G-10GHz)	SCHWARZBECK	STLP 9149	000648	2020.10.13	2021.10.12
Universal Radio Communication Tester	R&S	CMU200	109200	2020.10.13	2021.10.12
Universal Radio Communication Tester	R&S	CMW500	117239	2020.10.13	2021.10.12
Audio Analyzer	R&S	UPL	100689	2020.10.13	2021.10.12
Audio Breakthrough Shielding Box	SKET	SB_ABT/C35	N/A	2020.10.13	2021.10.12
Ear Simulator	SKET	AE_ABT/C35	N/A	2020.10.13	2021.10.12
Mouth Simulator	SKET	AM_ABT/C35	N/A	2020.10.13	2021.10.12
1KHz Standard Source	SKET	MSC_ABT/C35	N/A	2020.10.13	2021.10.12
Field Probe	Narda	EP601	611WX80261	2020.10.13	2021.10.12
Temperature & Humidity	Mieo	HH660	N/A	2020.10.13	2021.10.12
Testing Software	EMC-S V1.2.0.90				

### 3. EMC EMISSION TEST

#### 3.1 RADIATED EMISSION MEASUREMENT

##### 3.1.1 LIMITS OF THE RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Distance (m)	Detector type/ bandwidth	Class A	Class B
			dBuV/m	dBuV/m
30 - 230	3	Quasi peak/ 120 kHz	50	40
230 - 300	3	Quasi peak/ 120 kHz	57	47

Notes:

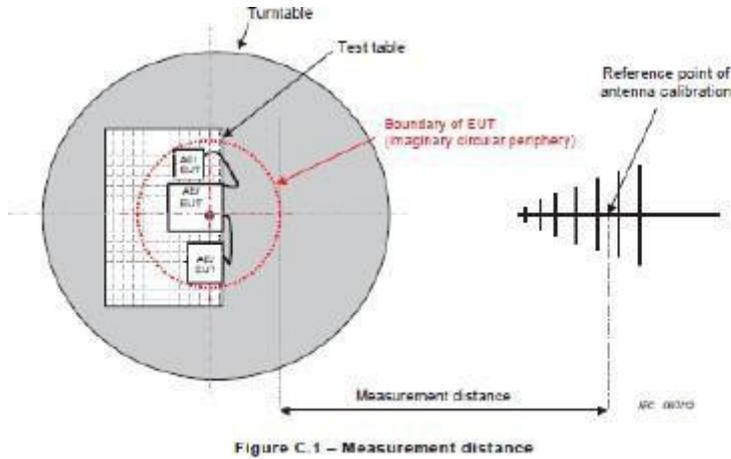
- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m) = 20log Emission level (uV/m).

##### 3.1.2 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
- f. For the actual test configuration, please refer to the related Item –EUT TestPhotos.

### 3.1.3 TEST SETUP

#### (A) Radiated Emission Test Set-Up Frequency Below 1 GHz



### 3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the following during the testing.

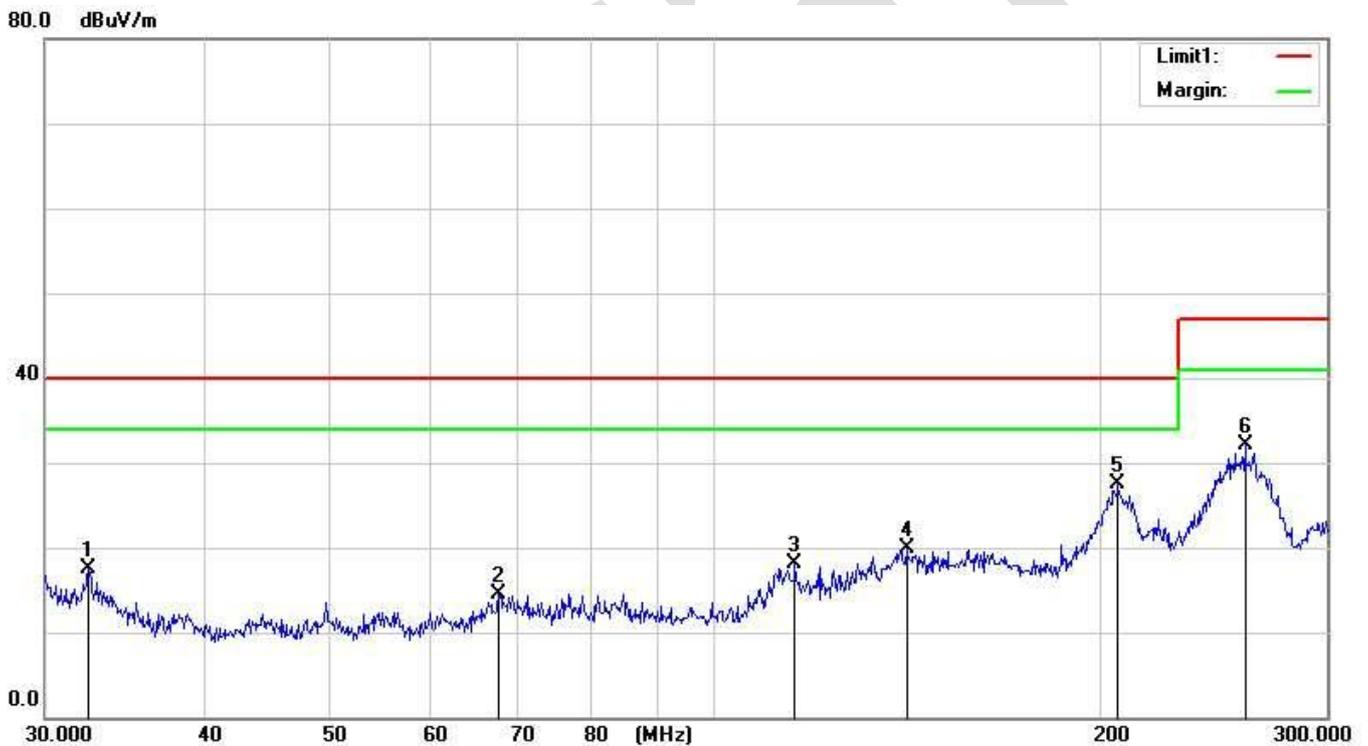
### 3.1.5 TEST RESULTS

Temperature:	24.4°C	Relative Humidity:	51%
Phase:	Horizontal	Test Mode:	Mode 1
Test Voltage:	DC 12V		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	32.4430	32.47	-14.92	17.55	40.00	-22.45	QP
2	67.7831	33.02	-18.46	14.56	40.00	-25.44	QP
3	115.3775	36.80	-18.76	18.04	40.00	-21.96	QP
4	140.9682	37.90	-18.08	19.82	40.00	-20.18	QP
5	206.1205	44.24	-16.82	27.42	40.00	-12.58	QP
6	258.8936	49.02	-17.00	32.02	47.00	-14.98	QP

Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )–Limit
3. Factor= Cable Loss +Antenna Factor–Amplifier Gain





Temperature:	24.4°C	Relative Humidity:	51%
Phase:	Vertical	Test Mode:	Mode 1
Test Voltage:	DC 12V		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	32.5928	31.99	-14.27	17.72	40.00	-22.28	QP
2	68.5680	37.77	-18.17	19.60	40.00	-20.40	QP
3	77.8254	39.78	-19.73	20.05	40.00	-19.95	QP
4	111.4606	38.09	-18.08	20.01	40.00	-19.99	QP
5	147.9521	37.59	-15.00	22.59	40.00	-17.41	QP
6	258.2981	42.57	-16.81	25.76	47.00	-21.24	QP

Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )-Limit
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain



#### 4. EMC IMMUNITY TEST

##### 4.1 STANDARD COMPLIANCE/SERVRITY LEVEL/CRITERIA

Tests Standard No.	TEST SPECIFICATION	Test Mode Test Ports	Perform. Criteria
1. ESD EN 61000-4-2	8KV air discharge 4KV contact discharge	Direct Mode	B
	4KV HCP discharge 4KV VCP discharge	Indirect Mode	B
2. RS EN 61000-4-3	80 MHz - 6GHz, 1000Hz, 80%, AM modulated	Enclosure	A
3. Power Frequency Magnetic Field EN 61000-4-8	50 Hz,	Enclosure	A

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#### 4.2 GENERAL PERFORMANCE CRITERIA

According to EN 61547 standard, the general performance criteria as following:

<p><b>Criterion A</b></p>	<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>
<p><b>Criterion B</b></p>	<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>
<p><b>Criterion C</b></p>	<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>

##### 4.2.1 GENERAL PERFORMANCE CRITERIA TEST SETUP

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the following during the testing.

### 4.3 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

#### 4.3.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance:	B
Discharge Voltage:	Air Discharge: 2KV/4KV/8KV (Direct) Contact Discharge: 2KV/4KV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total 20 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

#### 4.3.2 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manners:

- a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal 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 EUT.

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 EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

Horizontal Coupling Plane (HCP):

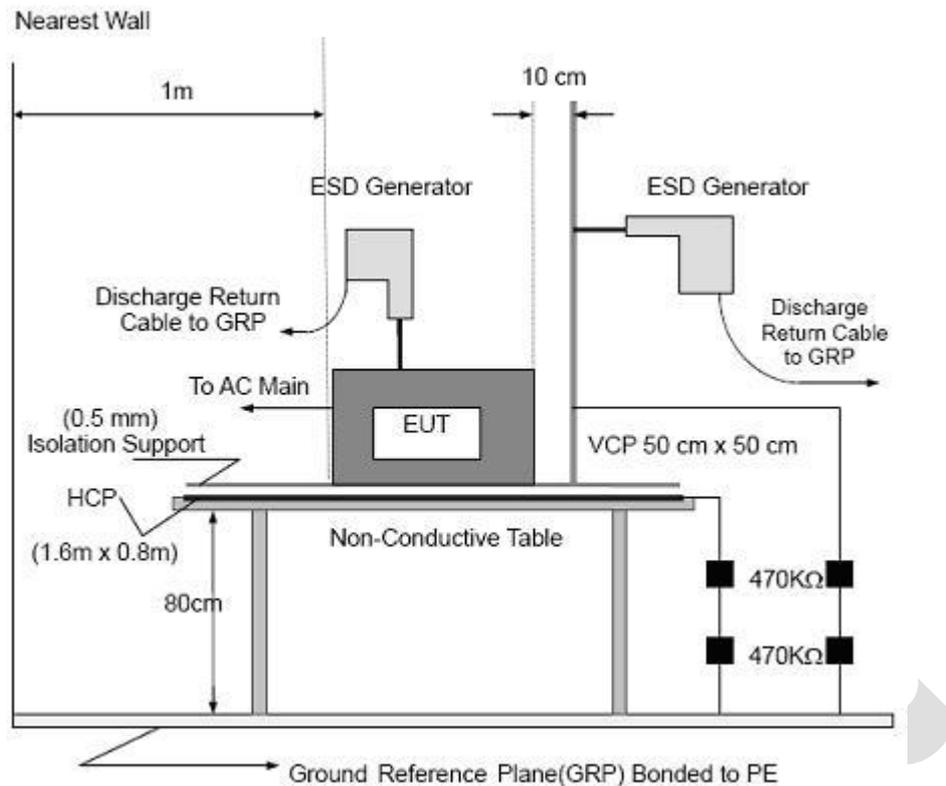
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

- b. Air discharges at insulation surfaces of the EUT.

It was at least ten single discharges with positive and negative at the same selected point.

### 4.3.3 TEST SETUP



Note:

#### TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of 0.8-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

#### FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1 meter thickness. The GRP was consisted of a sheet of aluminum that is at least 0.25mm thick, and extended at least 0.5 meters from the EUT on all sides.

#### 4.3.4 TEST RESULTS

Temperature:	23.9°C	Relative Humidity:	56%
Pressure:	1020.1hPa	Test Voltage:	DC 12V
Test Mode:	Mode1		

Discharge Level	Polarity	Test Points	Contact Discharge	Air Discharge	Criterion	Test Result
4	+/-	VCP/HCP	NOTE	N/A	A	PASS
2,4	+/-	Green Dot	NOTE	N/A	A	PASS
2,4,8	+/-	Red Dot	N/A	NOTE	A	PASS

Note: The EUT function was correct during the test.

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#### 4.4 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

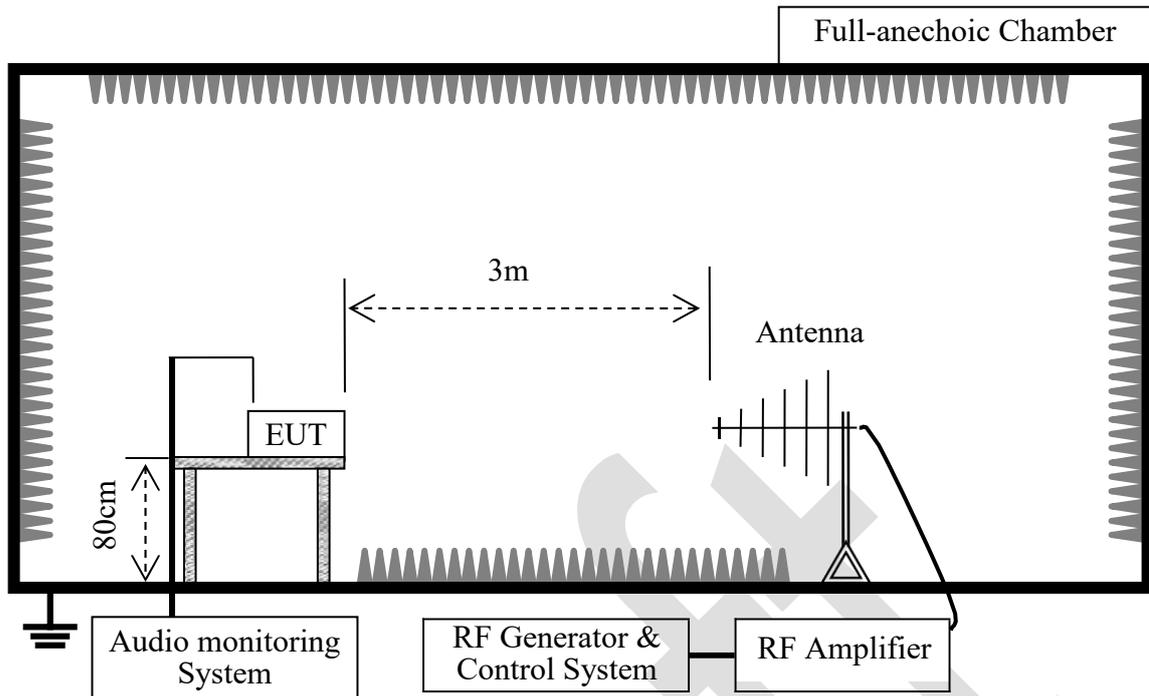
##### 4.4.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-3
Required Performance:	A
Frequency Range:	80 MHz - 6GHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	$1.5 \times 10^{-3}$ decade/s

##### 4.4.2 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 EUT.
- b. The frequency range is swept from 80 MHz to 1000 MHz, 1800 MHz, 2600 MHz, 3500 MHz, 5000 MHz, with the signal 80% amplitude modulated with a 1kHz sine-wave. The rate of sweep did not exceed  $1.5 \times 10^{-3}$  decade/s, where the frequency range is swept incrementally, the step size was 1% of preceding frequency value.
- c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

### 4.4.3 TEST SETUP



Note:

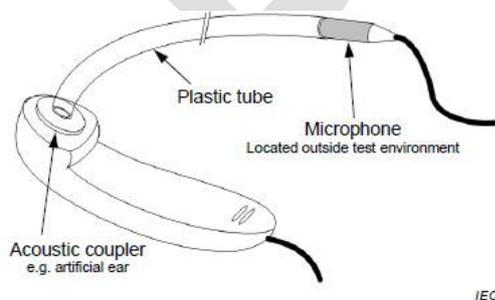
#### TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

#### FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

For Audio output function use below setting



NOTE 1 The microphone is connected via the cable to a suitable amplifier.

NOTE 2 This setup is suitable for radiated immunity testing. See G.6.3

Figure G.5 – Example test setup for on-ear acoustic measurements, microphone located away from earpiece transducer

**4.4.4 TEST RESULTS**

Temperature:	23.9°C	Relative Humidity:	54%
Test Voltage:	DC 12V	Test Mode:	Mode1

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Perform. Criteria	Results	Judgment
80MHz - 6GHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			

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## 4.5 POWER FREQUENCY MAGNETIC FIELD TESTING

### 4.5.1 TEST SPECIFICATION

Basic Standard:	EN 61000-4-8
Required Performance:	A
Frequency Range:	50Hz
Field Strength:	1 A/m
Observation Time:	1 minute
Inductance Coil:	Rectangular type, 1m*1m

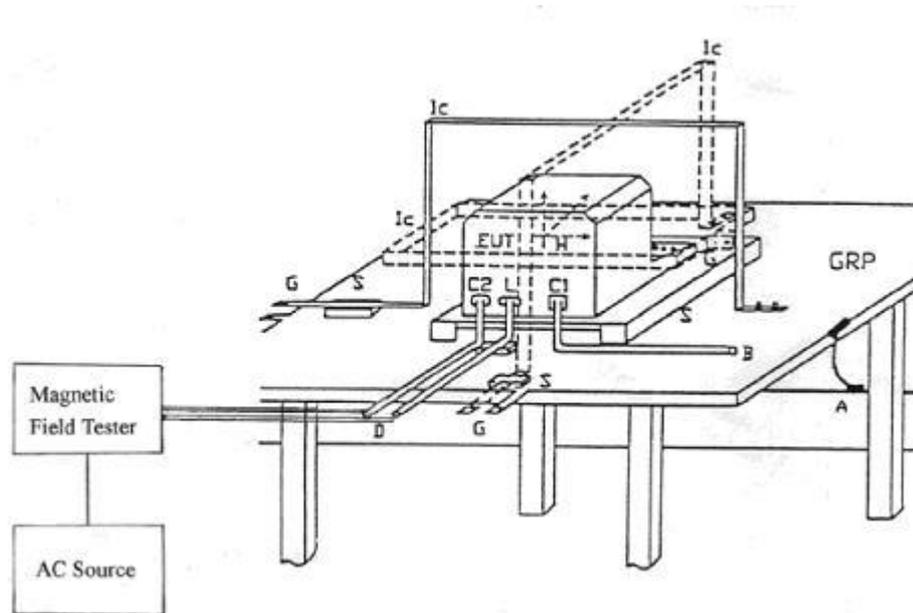
### 4.5.2 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter & 0.1 meter above a metal ground plane measured 1m\*1m min.

The other condition need as following manners:

- a. The equipment cabinets shall be connected to the safety earth directly on the GRP via the earth terminal of the EUT.
- b. The cables supplied or recommended by the equipment manufacturer shall be used. 1 meter of all cables used shall be exposed to the magnetic field.

### 4.5.3 TEST SETUP



Note:

#### TABLE-TOP EQUIPMENT

The equipment shall be subjected to the test magnetic field by using the induction coil of standard dimension (1 m x 1 m). The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.

#### FLOOR-STANDING EQUIPMENT

The equipment shall be subjected to the test magnetic field by using induction coils of suitable dimensions. The test shall be repeated by moving and shifting the induction coils, in order to test the whole volume of the EUT for each orthogonal direction. The test shall be repeated with the coil shifted to different positions along the side of the EUT, in steps corresponding to 50 % of the shortest side of the coil. The induction coil shall then be rotated by 90 degrees in order to expose the EUT to the test field with different orientations.



#### 4.5.4 TEST RESULTS

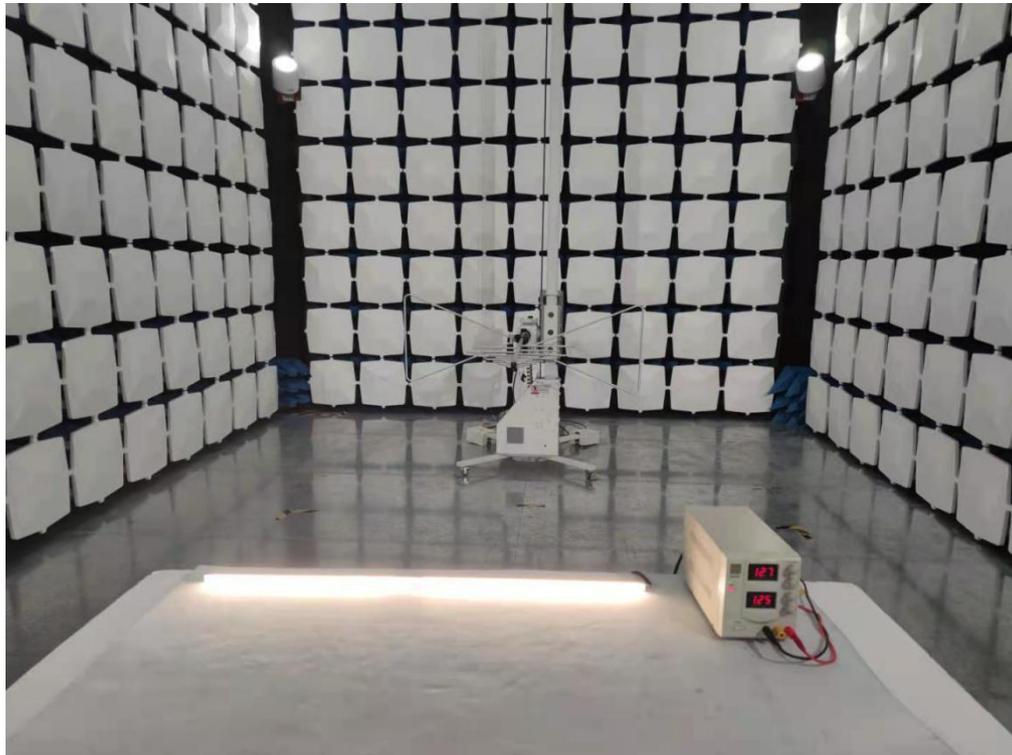
Temperature:	23.9°C	Relative Humidity:	54%
Test Voltage:	DC 12V	Test Mode:	Mode1

Test Mode	Test Level	inductive coil	Duration (s)	Perform Criteria	Results	Judgment
Enclosure	3A/m	X	60s	A	A	PASS
Enclosure	3A/m	Y	60s	A	A	PASS
Enclosure	3A/m	Z	60s	A	A	PASS

Draft

### APPENDIX 1- TEST SETUP

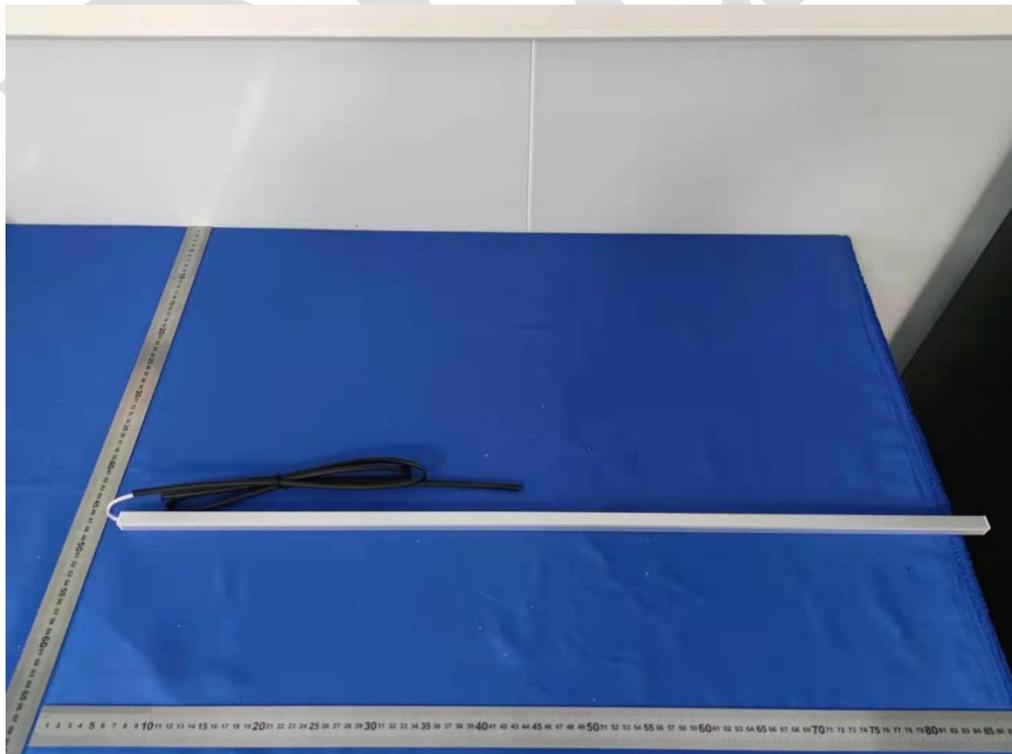
RE

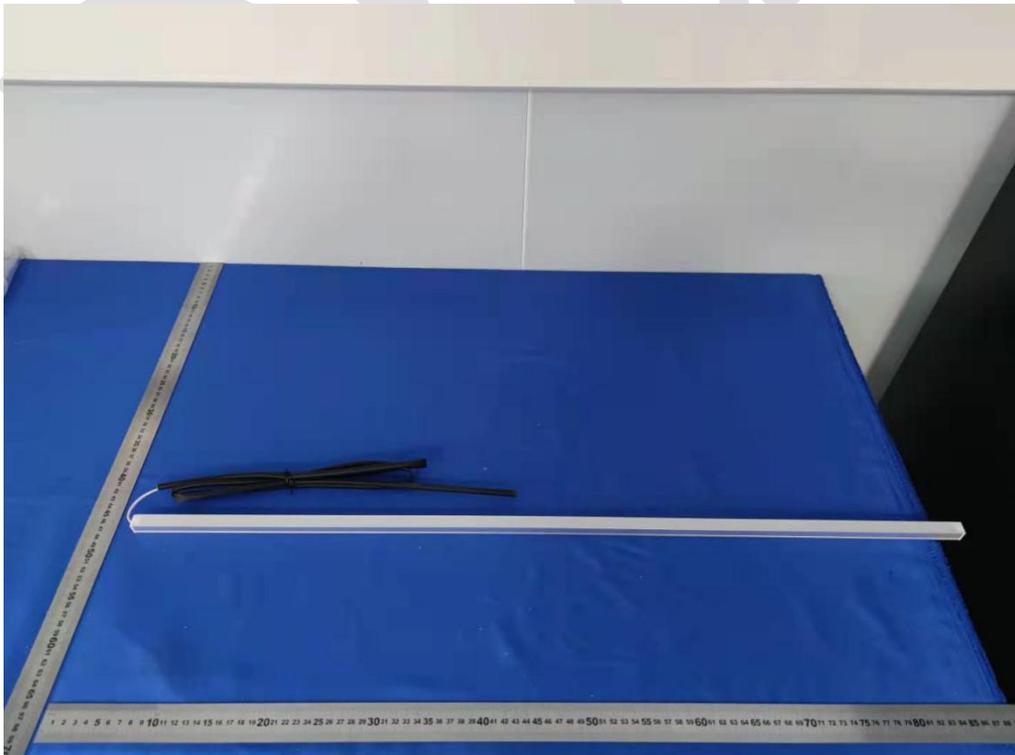


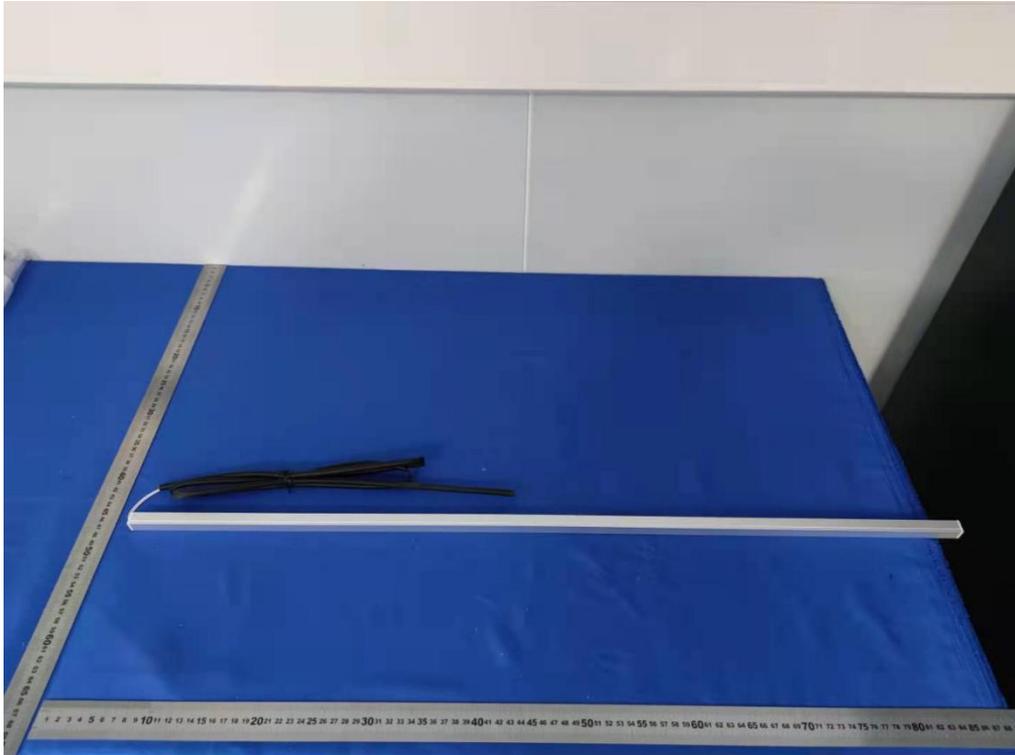
ESD



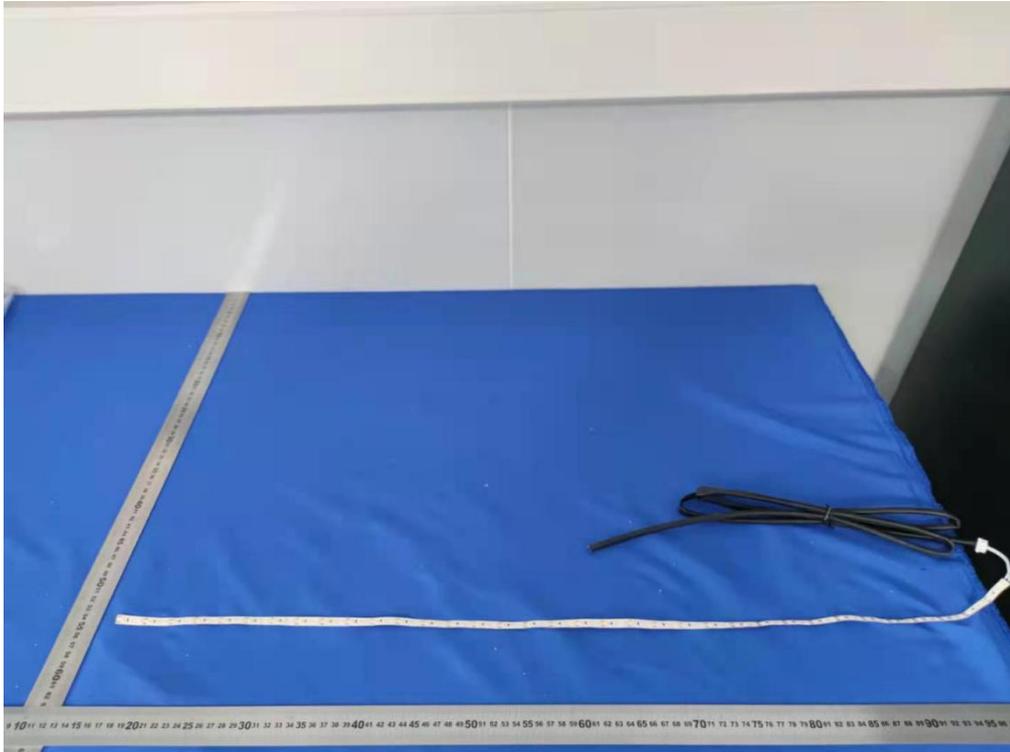
## APPENDIX 2-EUT PHOTO











※※※※※END OF THE REPORT※※※※※