FCC EMC Test Report

Subject to

Supplier's Declaration of Conformity

Procedure

Product : Car Quick Charger

Trade Mark : Lohee

Model Number : S-33, S-32, S-32A, S-32B, S-32C, S-32D, S-33A, S-33B, S-41, S-41A, S-42, S-42A, S-S-43, S-43A, SW-XC769, GD-CC30

Prepared for

Shenzhen Luoxi Technology Co.,Ltd.

6F, Building B1, Anle Industrial Zone, No. 172, Hangcheng Avenue, Xixiang Town, Bao'an District, Shenzhen

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

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Tel.: 400-800-6106, 0755-2320 0050 / 2320 0090 Website: http://www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's Name ..... :	Shenzhen Luoxi Technology Co.,Ltd.
Address..... :	6F, Building B1, Anle Industrial Zone, No. 172, Hangcheng Avenue, Xixiang Town, Bao'an District, Shenzhen
Manufacturer's Name..... :	Shenzhen Luoxi Technology Co.,Ltd.
Address..... :	6F, Building B1, Anle Industrial Zone, No. 172, Hangcheng Avenue, Xixiang Town, Bao'an District, Shenzhen
Factory's Name ..... :	Shenzhen Luoxi Technology Co.,Ltd.
Address..... :	6F, Building B1, Anle Industrial Zone, No. 172, Hangcheng Avenue, Xixiang Town, Bao'an District, Shenzhen

Product description

Product name..... :	Car Quick Charger
Model and/or type reference ..:	S-33, S-32, S-32A, S-32B, S-32C, S-32D, S-33A, S-33B, S-41, S-41A, S-42, S-42A, S-S-43, S-43A, SW-XC769, GD-CC30
Standards..... :	47 CFR FCC part 15 subpart B, 10-1-2021 ANSI C63.4:2014

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Test Sample Number ..... :	S220531027003
Date of Test ..... :	
Date (s) of performance of tests ..... :	01 Jun. 2022 ~ 10 Jun. 2022
Date of Issue ..... :	10 Jun. 2022
Test Result..... :	**Pass**

Testing Engineer : Korka Lin
(Korka Lin)

Technical Manager : Sky Zhang
(Sky Zhang)

Authorized Signatory : Alex
(Alex)

Shenzhen NTEK Testing Technology Co., Ltd. NTEK Report Seal

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1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
47 CFR FCC part 15 subpart B, 10-1-2021 ANSI C63.4: 2014	Conducted Emission	------	N/A	
	Radiated Emission	Class B	PASS	

NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report

(2) For client's request and manual description, the test will not be executed.

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd.

Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street Bao'an District, Shenzhen 518126 P.R. China

CNAS-Lab. : The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2018 (identical to ISO/IEC 17025:2017)
The Certificate Registration Number is L5516

IC-Registration : The Certificate Registration Number is CN0074

FCC- Accredited : Test Firm Registration Number: 463705
Designation Number: CN1184

A2LA-Lab. : The Certificate Registration Number is 4298.01
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

1.2 MEASUREMENT UNCERTAINTY

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

Test Item	Measurement Frequency Range	K	U(dB)
Conducted Emission	0.009kHz ~ 0.15MHz	2	2.66
Conducted Emission	0.15MHz ~ 30MHz	2	2.80
Telecom Conducted Emission (Cat 3)	0.15MHz ~ 30MHz	2	3.08
Telecom Conducted Emission (Cat 5)	0.15MHz ~ 30MHz	2	3.60
Telecom Conducted Emission (Cat 6)	0.15MHz ~ 30MHz	2	4.14
Radiated Emission	30MHz ~ 1000MHz	2	2.64
Radiated Emission	1000MHz ~ 18000MHz	2	5.10
Power Clamp	30MHz ~ 300MHz	2	2.20

Revision History

Report No.	Version	Description	Issued Date
S22053102702001	Rev.01	Initial issue of report	Jun. 10, 2022

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Car Quick Charger</td></tr>
<tr><td>Model Name</td><td>S-33</td></tr>
<tr><td>Additional Model Number(s)</td><td>S-32, S-32A, S-32B, S-32C, S-32D, S-33A, S-33B, S-41, S-41A, S-42, S-42A, S-S-43, S-43A, SW-XC769, GD-CC30</td></tr>
<tr><td>Model Difference</td><td>All models are identical except model's name and appearance.</td></tr>
<tr><td>Product Description</td><td>The EUT is a Car Quick Charger.
<table><tr><td>Operating frequency:</td><td>Below 108 MHz (Declaration by factory)</td></tr><tr><td>Connecting I/O port:</td><td>N/A</td></tr></table>Based on the application, features, or specification exhibited in User's Manual. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Power Source</td><td>DC Voltage</td></tr>
<tr><td>Power Rating</td><td>Input: DC 12-24V
USB Output: DC 4.5V, 5A / DC 5V, 4.5A / DC 9V, 3A / DC 12V, 2.5A
Type-C Output: DC 5V, 3A / DC 9V, 3A / DC 12V, 2.5A
USB + Type-C Output: DC 5V, 5A (Max.)</td></tr>
</table>

2.2 DESCRIPTION OF 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.

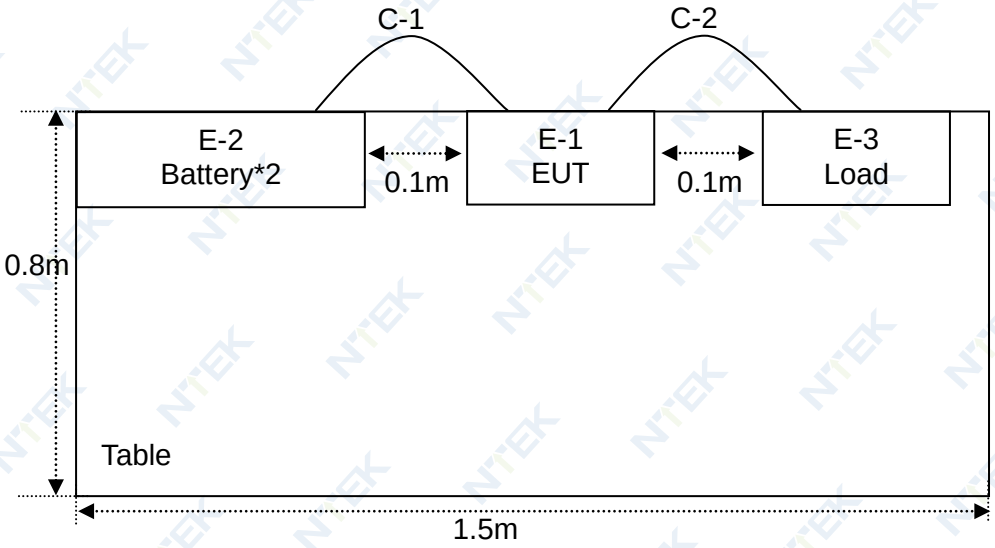
All test modes in the table below are tested, the worst case is listed on this report.

Pretest Mode	Description
Mode 1	Full Load(12V / 24V)(USB: 4.5V, 5A / 12V, 2.5A)
Mode 2	Full Load(12V / 24V)(Type-C: 5V, 3A / 12V, 2.5A)
Mode 3	Full Load(12V / 24V)(USB-A + USB-C)5V, 5A

For Radiated Test	
Final Test Mode	Description
Mode 1	Full Load(12V / 24V)(USB: 4.5V, 5A / 12V, 2.5A)
Mode 2	Full Load(12V / 24V)(Type-C: 5V, 3A / 12V, 2.5A)
Mode 3	Full Load(12V / 24V)(USB-A + USB-C)5V, 5A

2.3 DESCRIPTION OF TEST SETUP

Mode RE : Full Load



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.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
E-1	Car Quick Charger	Lohee	S-33	N/A	EUT
E-2	Battery * 2	N/A	N/A	N/A	
E-3	Load	N/A	N/A	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	80cm	
C-2	NO	NO	80cm	

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

2.5.1 RADIATED TEST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	EMI Test Receiver	R&S	ESPI7	101318	Apr. 06, 2022	Apr. 05, 2023	1 year
2	Bilog Antenna	TESEQ	CBL6111D	31216	Mar. 30, 2022	Mar. 29, 2023	1 year
3	System Controller	SKET	N/A	N/A	N/A	N/A	N/A
4	Antenna Mast	SKET	N/A	N/A	N/A	N/A	N/A
5	System Controller	ADT	SC100	N/A	N/A	N/A	N/A
6	Antnna Mast	ADT	N/A	N/A	N/A	N/A	N/A
7	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	May 11, 2020	May 10, 2023	3 years
8	Cable	Talent Microwave	A81-NWMSMAM-12M	21120897	Dec. 16, 2021	Dec. 15, 2024	3 years
9	Attenuator	Eastsheep	5W-N-JK-6G-6DB	N/A	Aug. 13, 2021	Aug. 12, 2022	1 year
10	RF Cable	Pasternack	PE332-1000CM	N/A	Nov. 10, 2019	Nov. 09, 2022	3 years
11	Broadband Horn Antenna	EM	EM-AH-10180	2011071402	Mar. 31, 2022	Mar. 30, 2023	1 year
12	Spectrum Analyzer	Agilent	E4407B	MY45108040	Apr. 01, 2022	Mar. 31, 2023	1 year
13	Pre-Amplifier	EMC	EMC051835SE	980246	Jul. 01, 2021	Jun. 30, 2022	1 year
14	Cable	Keysight	A40-2.92M2.92M-2M	1808041	Nov. 18, 2019	Nov. 17, 2022	3 years

3. EMC EMISSION TEST

3.1 RADIATED EMISSION MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	☐Class A (at 3m)	☒Class B (at 3m)
	dBμV/m	dBμV/m
30 ~ 88	49.5	40.0
88 ~ 216	53.9	43.5
216 ~ 960	56.9	46.0
Above 960	60.0	54.0

Notes:

(1) The limit for radiated test was performed according to as following: FCC PART 15B.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBμV/m)=20log Emission level (uV/m).

3.1.2 TEST PROCEDURE

a. The measuring distance of at 3m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

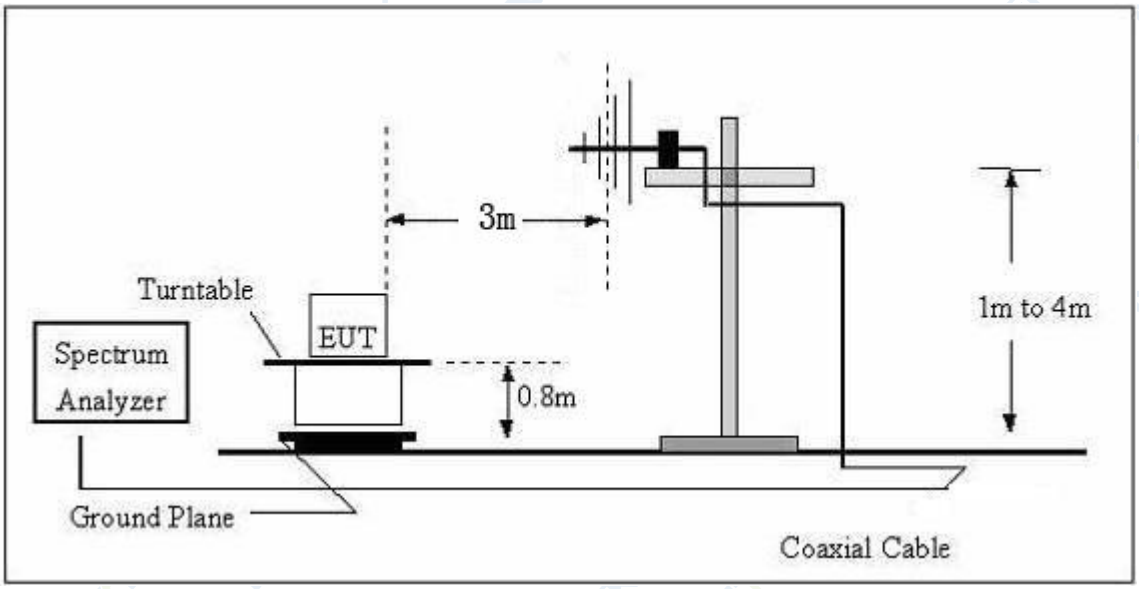
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked And then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.

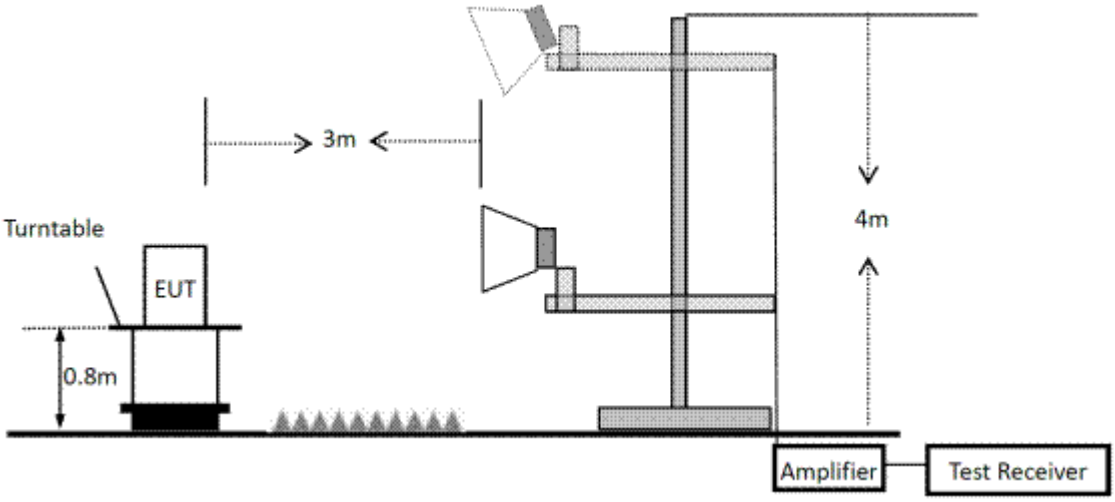
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP

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



(B) Radiated Emission Test Set-Up Frequency Above 1GHz

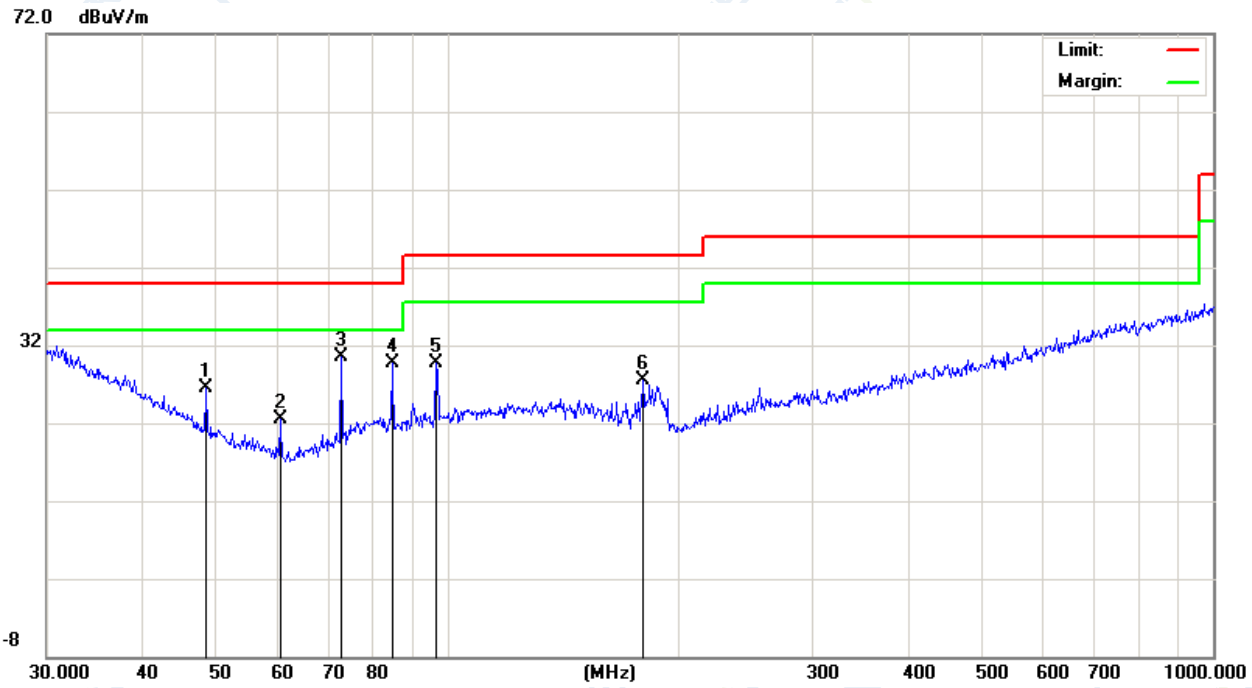


3.1.4 EUT OPERATING CONDITIONS

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

3.1.5 TEST RESULTS(30-1000MHz)

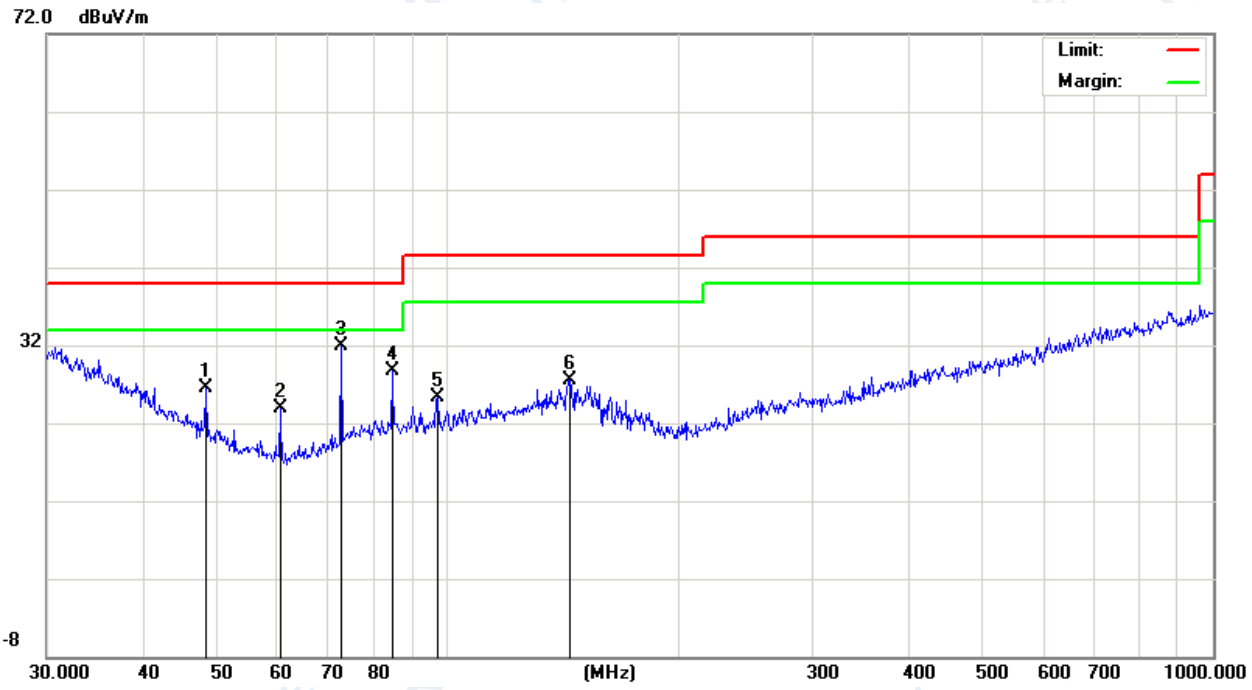
EUT:	Car Quick Charger	Model Name:	S-33
Temperature:	25.4℃	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2022-06-08
Test Mode:	Full Load(Type-C:12V, 2.5A)	Polarization:	Horizontal
Test Power:	DC 24V powered by Battery		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		48.5016	10.67	15.91	26.58	40.00	-13.42	QP			
2		60.4919	10.24	12.24	22.48	40.00	-17.52	QP			
3	*	72.5916	16.32	14.23	30.55	40.00	-9.45	QP			
4		84.7018	13.24	16.39	29.63	40.00	-10.37	QP			
5		96.7749	12.21	17.44	29.65	43.50	-13.85	QP			
6		180.0165	10.87	16.64	27.51	43.50	-15.99	QP			

Remark:
Correct Factor = Antenna Factor + Cable Loss – Pre-Amplifier gain
Measurement Level = Reading Level + Correct Factor
Over Level = Measurement Level - Limit

EUT:	Car Quick Charger	Model Name:	S-33
Temperature:	25.4℃	Relative Humidity:	54%
Pressure:	1010hPa	Test Date:	2022-06-08
Test Mode:	Full Load(Type-C:12V, 2.5A)	Polarization:	Vertical
Test Power:	DC 24V powered by Battery		

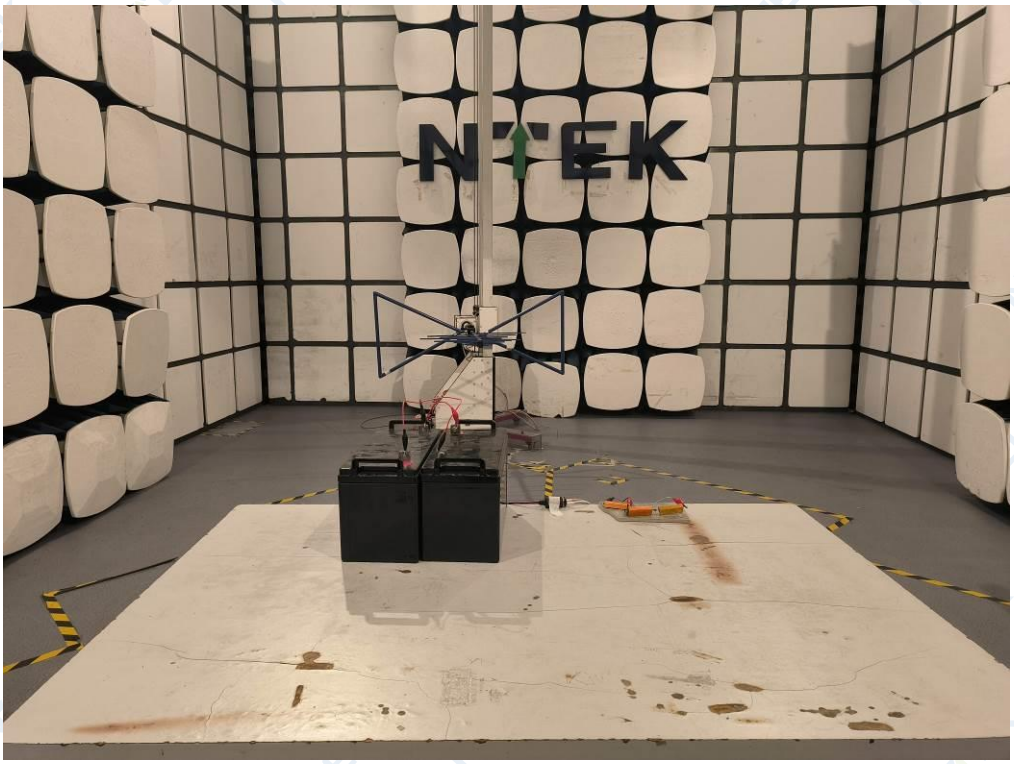


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		48.3318	10.54	16.05	26.59	40.00	-13.41	QP			
2		60.4919	11.74	12.24	23.98	40.00	-16.02	QP			
3	*	72.5916	17.66	14.23	31.89	40.00	-8.11	QP			
4		84.7018	12.40	16.39	28.79	40.00	-11.21	QP			
5		97.1148	7.87	17.42	25.29	43.50	-18.21	QP			
6		144.8418	9.14	18.43	27.57	43.50	-15.93	QP			

Remark:
Correct Factor = Antenna Factor + Cable Loss – Pre-Amplifier gain
Measurement Level = Reading Level + Correct Factor
Over Level = Measurement Level - Limit

4. EUT TEST PHOTO

Radiated Measurement Photo



ATTACHMENT PHOTOGRAPHS OF EUT

Photo 1

Photo 2

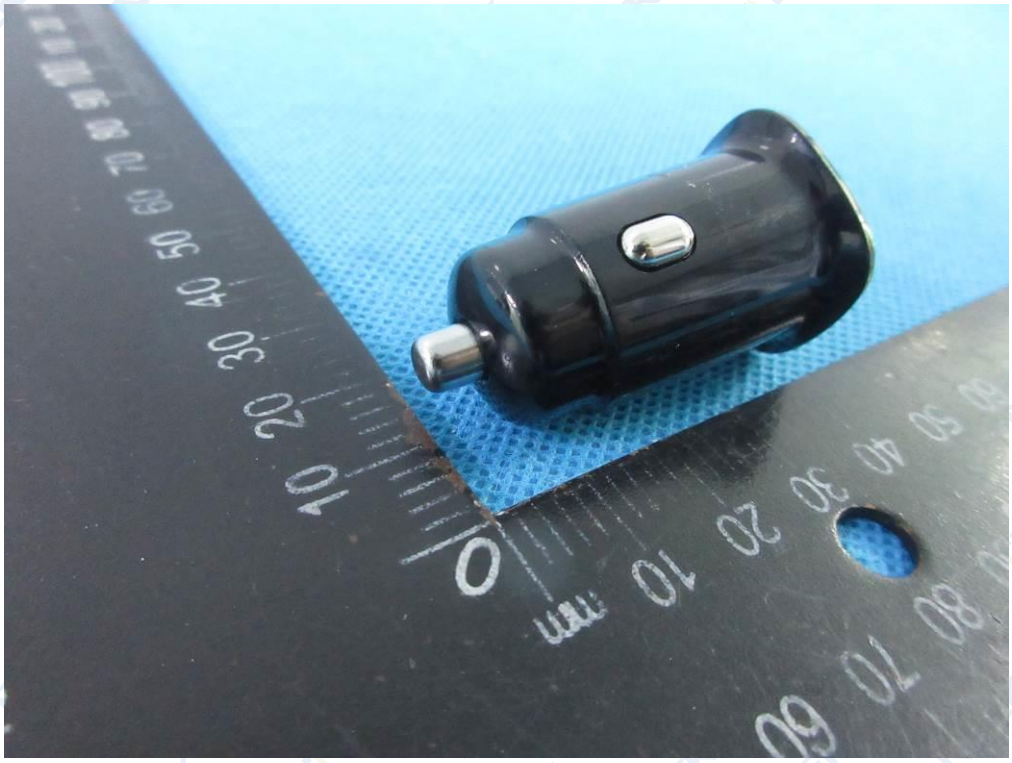


Photo 3

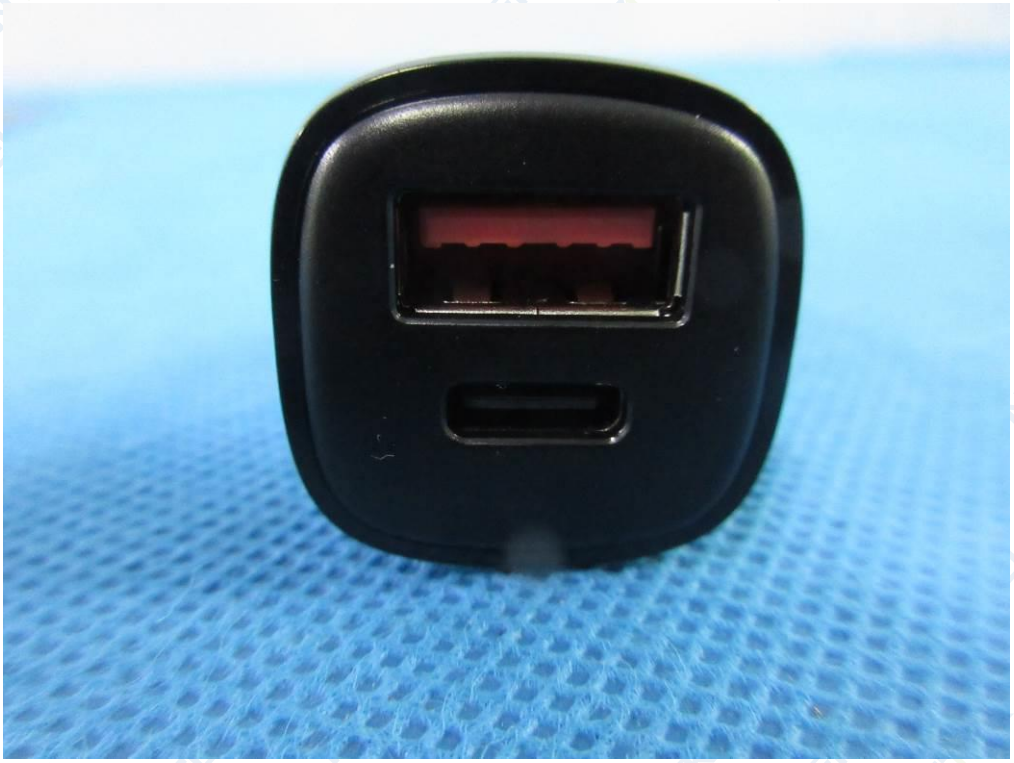


Photo 4

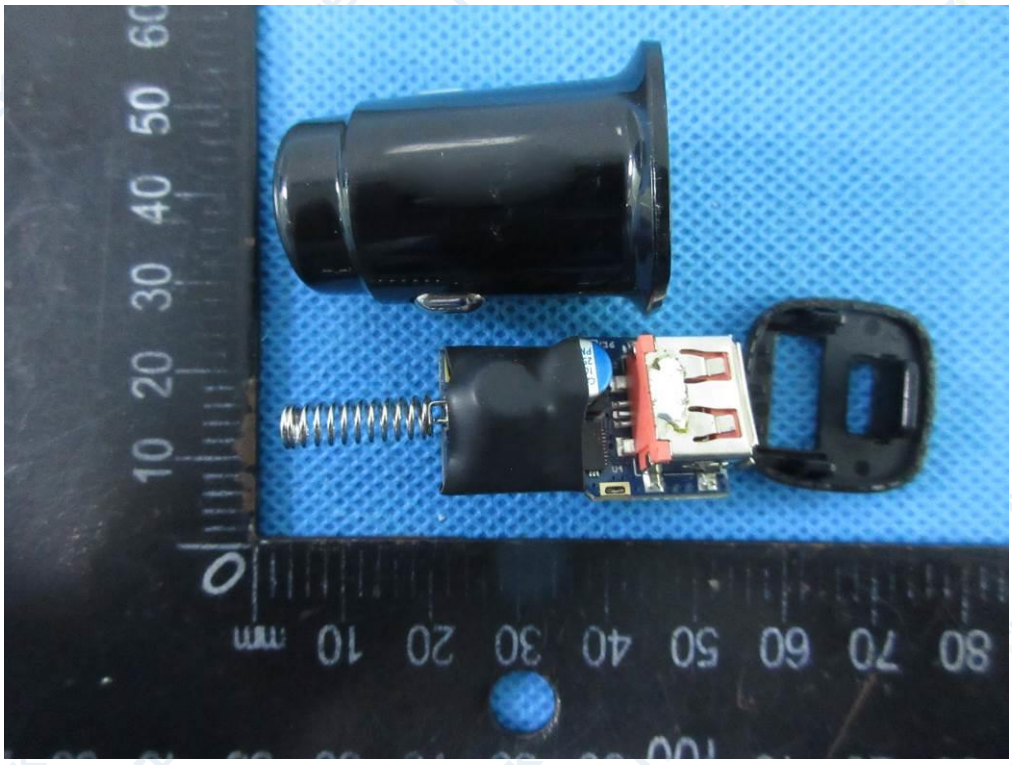


Photo 5

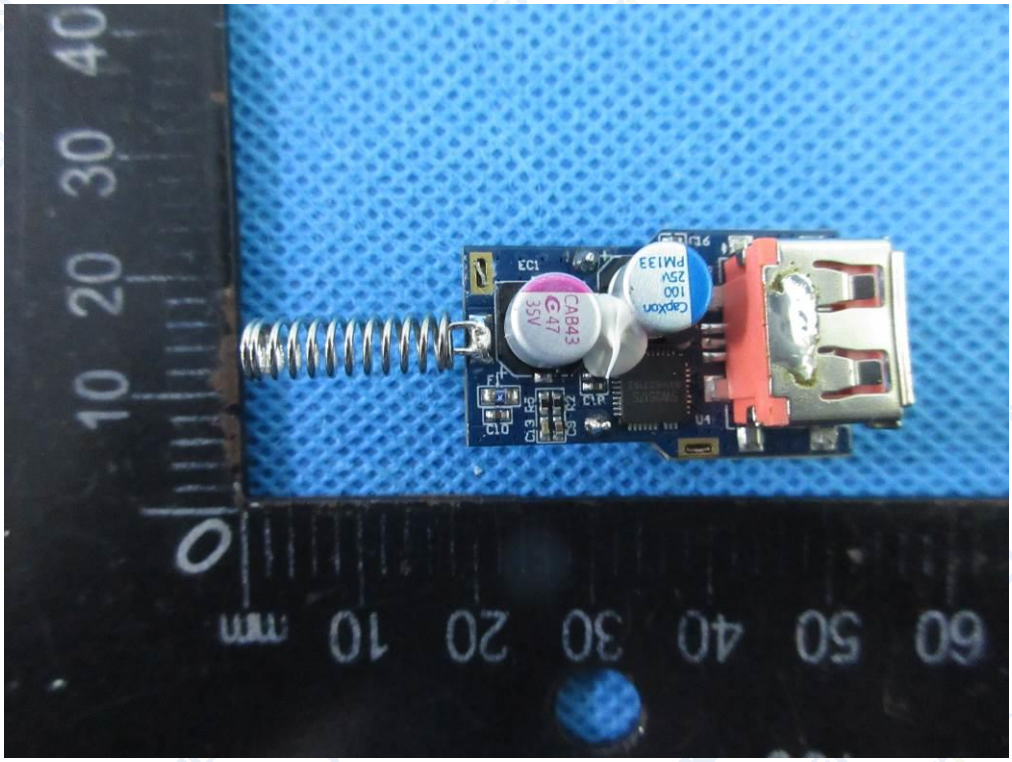
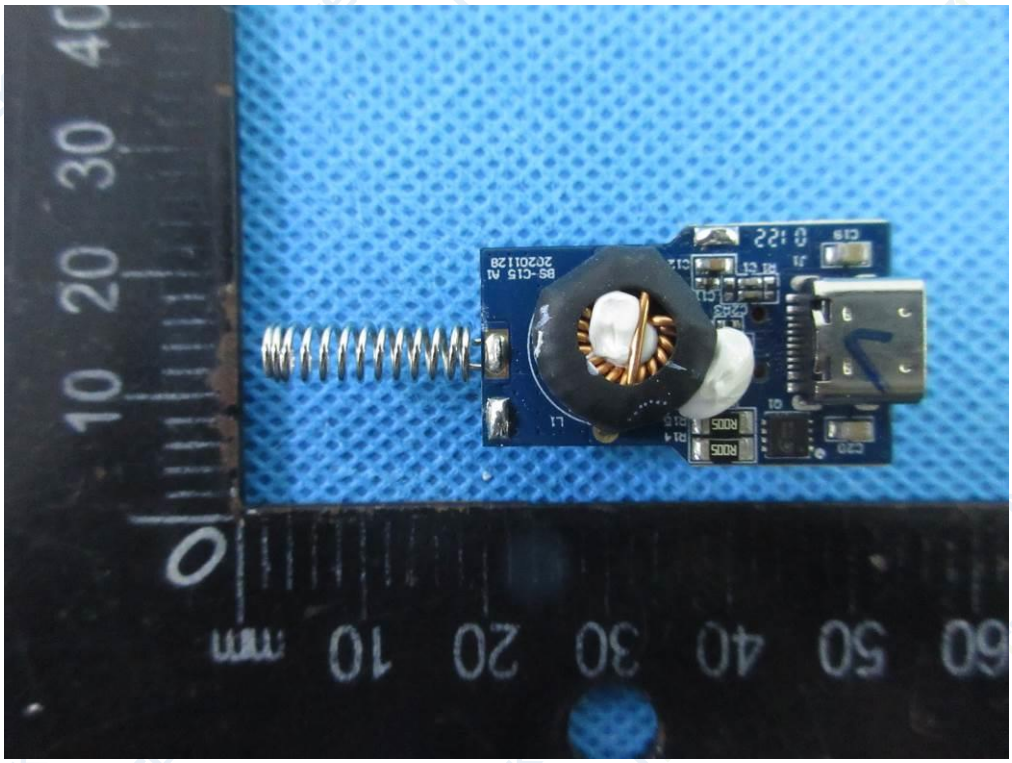


Photo 6



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