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Report No.: GZEM180400210801
Page: 1 of 21
FCC ID: 2APPC-019-A1

TEST REPORT

Application No.: GZEM1804002108LM
Applicant: Ninestar Coporation
Address of Applicant: Building 1, No.83 Guangwan Street, Xiangzhou, Zhuhai, Guangdong, P.R. China
Manufacturer: Ninestar Coporation
Address of Manufacturer: Building 1, No.83 Guangwan Street, Xiangzhou, Zhuhai, Guangdong, P.R. China

Equipment Under Test (EUT):

FCC ID: 2APPC-019-A1

EUT Name: Ninestar wireless charging base
Model No.: NSC019
Trade Mark: G&G
Standard(s) : 47 CFR Part 15, Subpart C 15.207, 15.209, 15.215
Date of Receipt: 2018-04-25
Date of Test: 2018-04-28 to 2018-05-03
Date of Issue: 2018-07-11

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



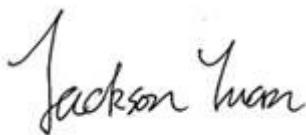
Kobe Jian

EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-07-11		Original

Authorized for issue by:			
Tested By	 Jackson Yuan	<hr/> Jackson_Yuan /Project Engineer	2018-04-28 to 2018-05-03
Checked By	 Ricky Liu	<hr/> Ricky_Liu /Reviewer	2018-05-25

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.203	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.207	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Radiated Emissions (9kHz-30MHz)	47 CFR Part 15, Subpart C 15.209	ANSI C63.10 (2013) Section 6.4	47 CFR Part 15, Subpart C 15.209	Pass
Radiated Emissions (30MHz-80MHz)	47 CFR Part 15, Subpart C 15.209	ANSI C63.10 (2013) Section 6.5	47 CFR Part 15, Subpart C 15.209	Pass
20dB Bandwidth	47 CFR Part 15, Subpart C 15.215	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass

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4 General Information

4.1 Details of E.U.T.

Modulation and Antenna	FSK Digital Modulation, Loop antenna
Type:	The antenna for the Tx and Rx is an integral antenna.
Power Supply:	DC 5V/2A, DC 9V/2A powered by AC/DC adaptor as below: Model: DBS15QC Input: AC 100-240V, 50/60Hz, 500mA, Max 18W Output: DC 5V, 3A or 9V, 2A or 12V, 1.5A; AC 120V, 60Hz
Test Voltage:	AC 120V, 60Hz
Cable:	Type C DC input/output cable (unshielded, 1m)
Detail channel & frequency:	127 kHz
EUT Function:	Wireless power transmission (WPT) systems in the 127 kHz.
Maximum communication distance D:	Contacted (<0.01m)
(Declared by manufacturer)	
Max Internal Source:	8 MHz

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Mobile Phone	SANSUNG	SM-9508	R28K110W9JV

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	+/-7.25 x 10 ⁻⁸
2	Timeout	+/-2s
3	Duty cycle	+/-0.37%
4	Occupied Bandwidth	+/-3%
5	RF Conducted power	+/-0.75dB
6	RF Power Density	+/-2.84dB
7	Conducted Spurious Emissions	+/-0.75dB
8	RF Radiated Power	+/-4.5dB (below 1GHz)
		+/-4.8dB (above 1GHz)
9	Radiated Spurious Emission Test	+/-4.5dB (30MHz-1GHz)
		+/-4.8dB (1GHz-18GHz)
10	Temperature	+/-0.4 °C
11	Humidity	+/-1.3%
12	Supply Voltages	+/-1.5%
13	Time	+/-3%

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

● **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

● **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

● **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

● **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

● **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

● **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

● **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC60068-2-27 and Rules of procedure IEC60068-2-27, and the relevant IEC60068-2-27 CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2138	2017-11-15	2018-11-14
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	Zhong Yu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-Line V-Netwok	R&S	ENV216	EMC0118	2018-01-19	2019-01-18
LISN	SCHAFFNER CHASE	MN2050D/1	EMC0102	2017-09-20	2018-09-19
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2017-11-27	2018-11-26
Coaxial Cable	HangTianXing	2m	EMC0107	2016-07-24	2018-07-23
Voltage Probe	SGS	N/A	EMC0106	2018-04-04	2020-04-03
Conical Metal Housing	SGS-EMC	N/A	EMC0167	2018-04-19	2020-04-18

Radiated Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2018-01-19	2019-01-18
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2018-01-19	2019-01-18
chamber cable	HangTianXing	N/A	EMC0542	2017-06-30	2019-06-30
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKMESS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2018-01-08	2019-01-07
Amplifier	HP	8447F	EMC2065	2017-06-19	2018-06-18
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2017-11-20	2018-11-19
Active Loop Antenna	EMCO	6502	EMC0523	2018-02-24	2019-02-23
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2018-01-19	2019-01-18
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2018-01-08	2019-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2017-06-18	2019-06-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-11-29	2018-11-28
MXE EMI Receiver	Keysight	N9038A	EMC2139	2017-11-15	2018-11-14
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2017-11-15	2018-11-14

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2017-07-26	2018-07-25
DMM	Fluke	73	EMC0007	2017-07-26	2018-07-25

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

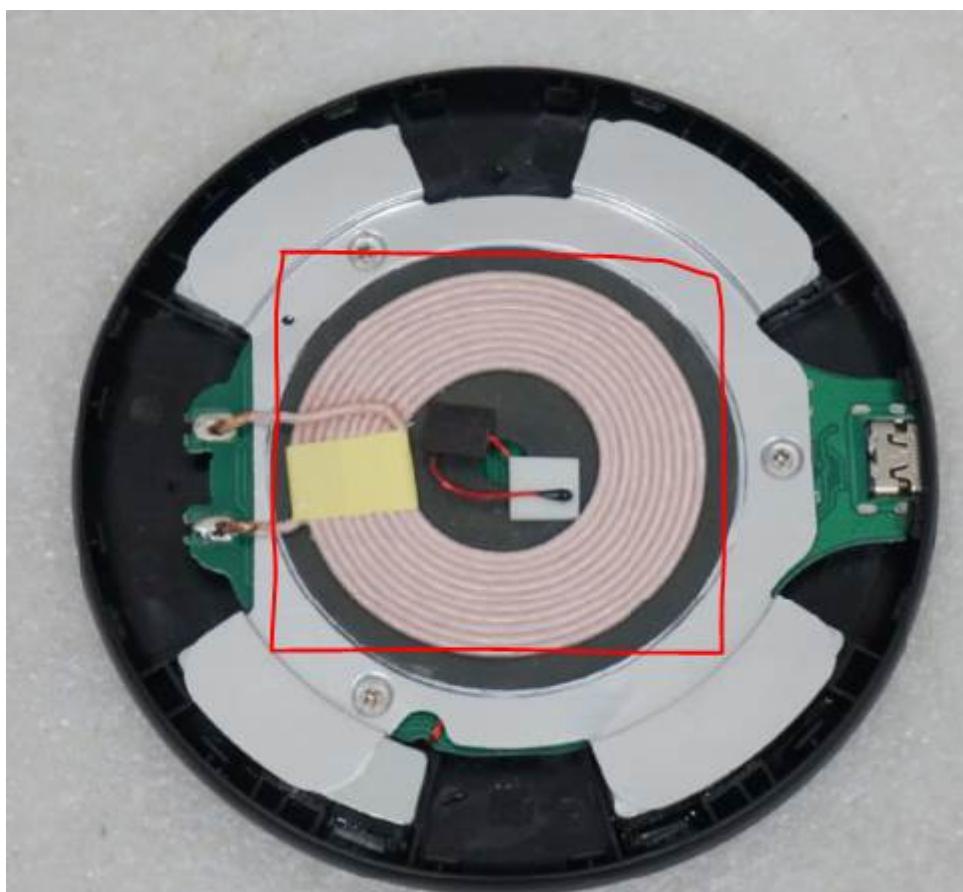
6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0 dBi.



Test result: The unit does meet the FCC requirements.

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

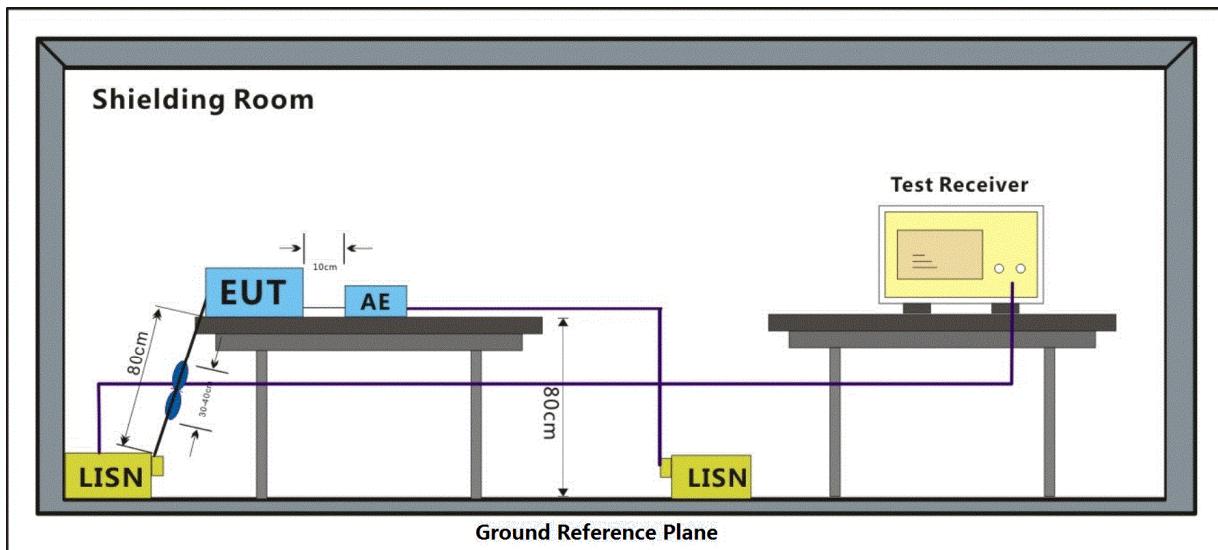
* Decreases with the logarithm of the frequency.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 63.1 % RH Atmospheric Pressure: 1020 mbar
Test mode a:Keep the EUT communicate with other auxiliary devices and charging.

7.1.2 Test Setup Diagram

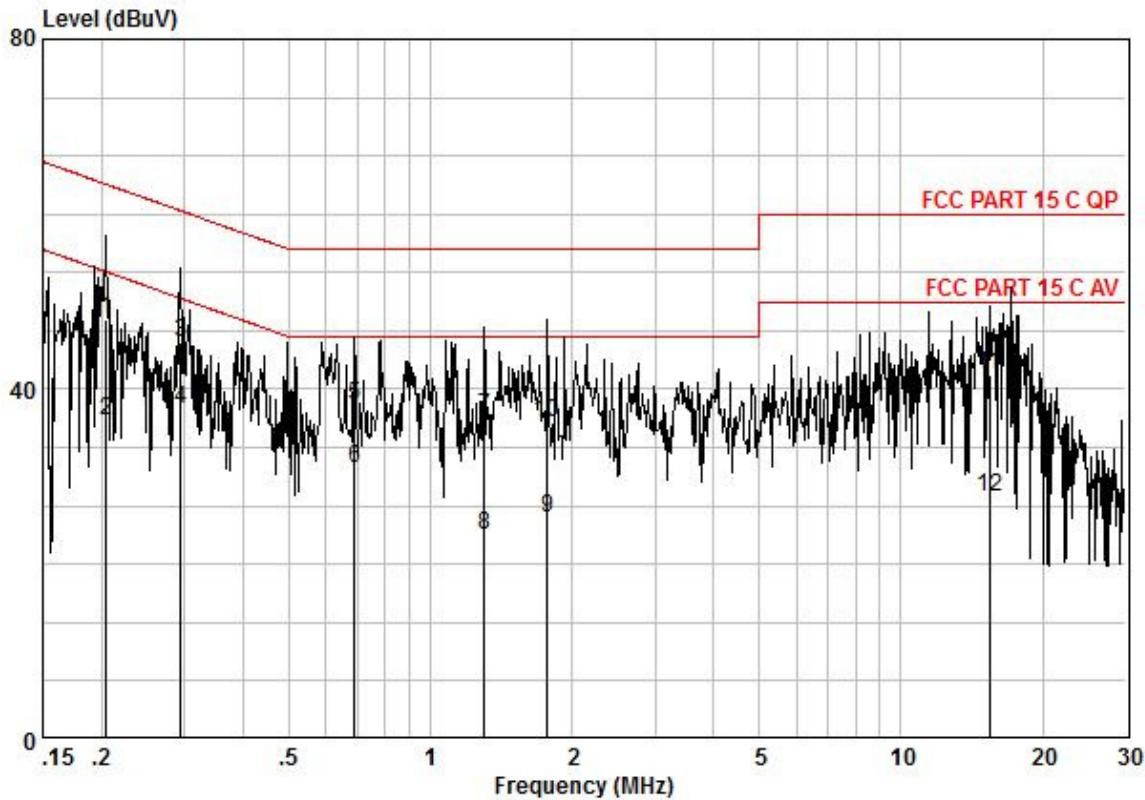


7.1.3 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50µH + 50hm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

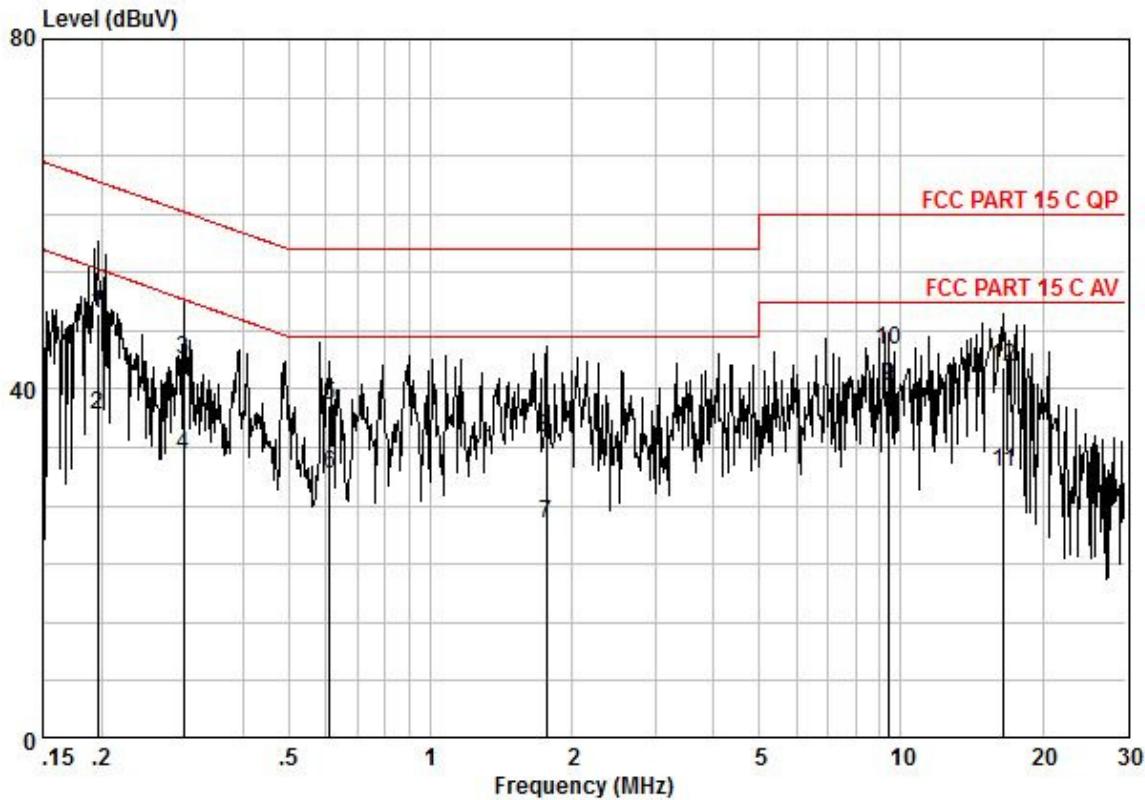
Mode:a; Line:Live Line



Pol :LIVE
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.21	38.29	0.10	9.62	48.01	63.40	-15.39	QP
0.21	26.58	0.10	9.62	36.30	53.40	-17.10	AVERAGE
0.29	35.55	0.14	9.63	45.33	60.41	-15.09	QP
0.29	27.90	0.14	9.63	37.68	50.41	-12.74	AVERAGE
0.69	28.38	0.25	9.61	38.24	56.00	-17.76	QP
0.69	21.00	0.25	9.61	30.86	46.00	-15.14	AVERAGE
1.30	26.87	0.30	9.62	36.79	56.00	-19.21	QP
1.30	18.42	0.30	9.62	23.34	46.00	-22.66	AVERAGE
1.77	15.38	0.36	9.61	25.35	46.00	-20.65	AVERAGE
1.77	26.22	0.36	9.61	36.19	56.00	-19.81	QP
15.39	31.14	0.70	9.69	41.53	60.00	-18.47	QP
15.39	17.23	0.70	9.69	27.62	50.00	-22.38	AVERAGE

Mode:a; Line:Neutral Line



Pol : NEUTRAL
No :
Model :

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0.20	38.85	0.10	9.58	48.53	63.76	-15.23	QP
0.20	27.32	0.10	9.58	37.00	53.76	-16.76	AVERAGE
0.30	33.69	0.14	9.57	43.41	60.28	-16.87	QP
0.30	22.69	0.14	9.57	32.41	50.28	-17.87	AVERAGE
0.61	28.43	0.23	9.57	38.23	56.00	-17.77	QP
0.61	20.57	0.23	9.57	30.37	46.00	-15.63	AVERAGE
1.76	14.82	0.36	9.53	24.71	46.00	-21.29	AVERAGE
1.76	24.53	0.36	9.53	34.42	56.00	-21.58	QP
9.45	30.10	0.61	9.63	40.34	50.00	-9.66	AVERAGE
9.45	34.13	0.61	9.63	44.37	60.00	-15.63	QP
16.57	20.08	0.70	9.73	30.51	50.00	-19.49	AVERAGE
16.57	32.09	0.70	9.73	42.52	60.00	-17.48	QP

7.2 Radiated Emissions (9kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209
Test Method: ANSI C63.10 (2013) Section 6.4
Measurement Distance: 10m
Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

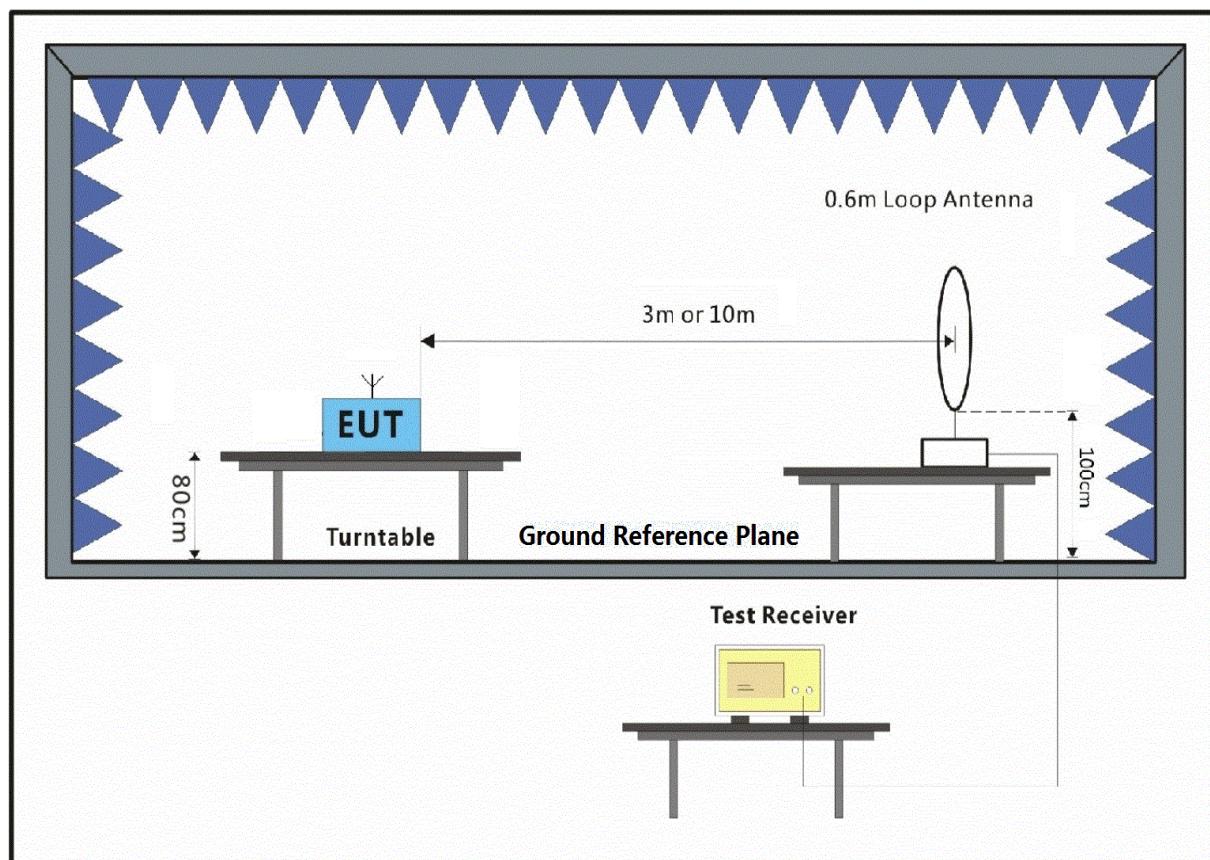
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test mode a:Keep the EUT communicate with other auxiliary devices and charging.

7.2.2 Test Setup Diagram

7.2.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

Maximum Frequency	Spurious Emission polarization and Level		Limit	Over Limit
	MHz	polarization	dBuV/m	dB
0.03077	Vertical	52.67	67.33	-14.66
0.06218	V	43.99	61.23	-17.24
0.14584	V	43.26	53.83	-10.57
0.17034	V	29.30	42.66	-13.36
0.2548	V	24.34	39.89	-15.55
2.371	V	23.31	28.37	-5.06
0.01146	Horizontal	60.59	75.9	-15.31
0.01929	H	55.98	71.38	-15.4
0.03052	H	51.2	67.41	-16.21
0.15649	H	42.05	53.22	-11.17
0.41048	H	32.53	44.86	-12.33
0.82172	H	26.46	38.83	-12.37

7.3 Radiated Spurious Emissions (30-80MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6

Scan from 30-80MHz, the disturbance was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

7.4 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215

Test Method: ANSI C63.10 (2013) Section 6.9

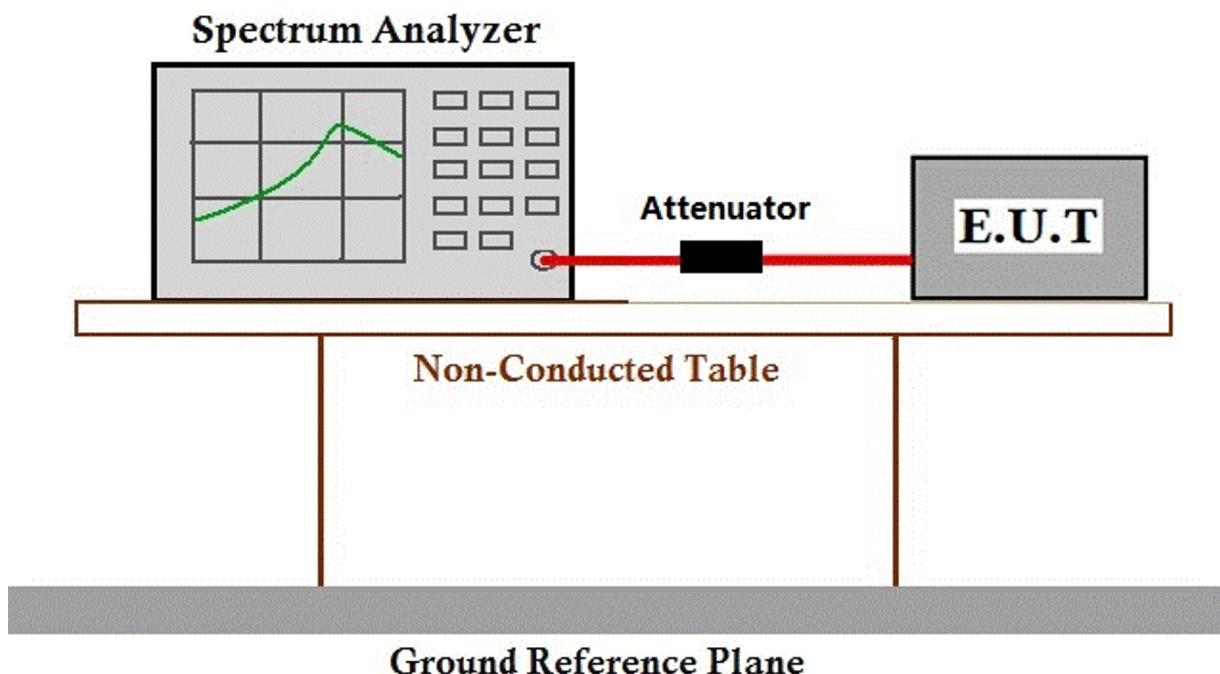
7.4.1 E.U.T. Operation

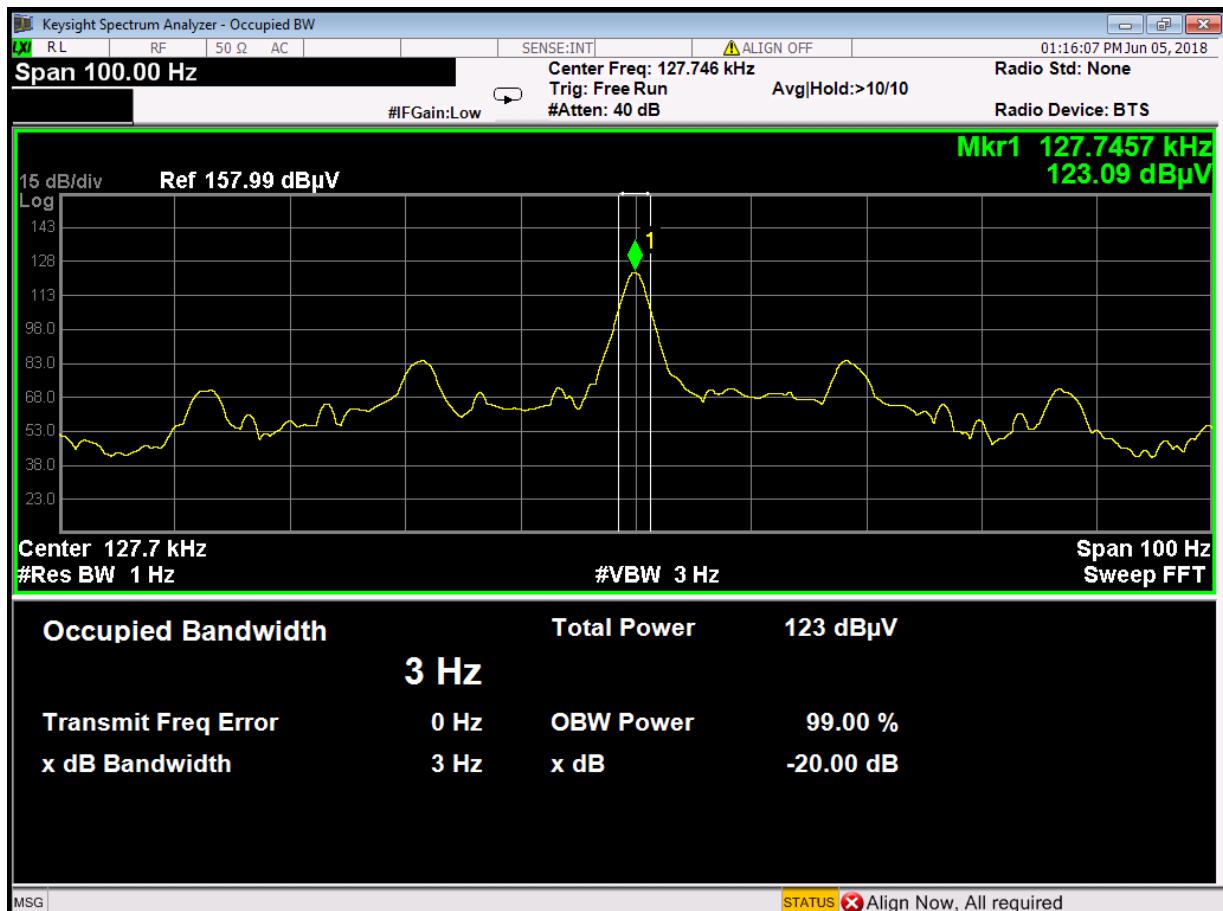
Operating Environment:

Temperature: 25 °C Humidity: 52 % RH Atmospheric Pressure: 1020 mbar

Test mode a:Keep the EUT communicate with other auxiliary devices and charging.

7.4.2 Test Setup Diagram



7.4.3 Measurement Procedure and Data**--End of Report—**