FCC REPORT

Applicant:	Shenzhen Senkaixin Technology Co. Ltd.
Address of Applicant:	Nine 101 Hongqiaotou Hengzhao Industrial Zone, Songgang Street, Bao'an District, Shenzhen
Equipment Under Test (EUT)	
Product Name:	WIRELESS CHARGER
Model No.:	SKX-D4
Trade mark:	SKX
FCC ID:	2AQKHSKX-D4
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.209
Date of sample receipt:	04 Jul., 2018
Date of Test:	04 Jul., to 10 Jul., 2018
Date of report issue:	2 Aug., 2018
Test Result:	PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of theCCISproduct certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	*12 Jul., 2018*	*Original*
01	*2 Aug., 2018*	*Update page 12, 13*

Prepared By: Zora Lee ***Date:*** *2 Aug., 2018*

Report Clerk

Check By: Winner Zhang ***Date:*** *2 Aug., 2018*

Project Engineer

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4 Test Summary

Test Item	Section in CFR 47	Result
Spurious emissions	15.209	Pass
20dB Bandwidth	15.215(c)	Pass
Conducted Emission	15.207	Pass
Remark: *Pass: The EUT complies with the essential requirements in the standard.*		

Note: Test according to ANSI C63.4-2014 ; ANSI C63.10-2013

5 General Information

5.1 Client Information

Applicant:	Shenzhen Senkaixin Technology Co. Ltd.
Address:	Nine 101 Hongqiaotou Hengzhao Industrial Zone, Songgang Street, Bao'an District, Shenzhen
Manufacturer/Factory:	Shenzhen Senkaixin Technology Co. Ltd.
Address:	Nine 101 Hongqiaotou Hengzhao Industrial Zone, Songgang Street, Bao'an District, Shenzhen

5.2 General Description of E.U.T.

Product Name:	WIRELESS CHARGER
Model No.:	SKX-D4
Operation Frequency:	112.84kHz~146.80kHz
Modulation type:	ASK
Antenna Type:	Coil Antenna
Power supply:	Input: 5V, 2A / 9V, 1.67A Output: 5W/7.5W/10W

5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation
Remark: *Tested with input: 5V/2A, output: 5W mode /7.5W mode /10W mode and input: 9V/1.67A, output: 5W mode /7.5W mode /10W mode ,Then found input: 5V/2A, output: 10W mode was worse case . Only worse case is reported.*	

5.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
Skytek	Wireless charging match load	N/A	N/A	N/A
Shenzhen HengChangshengding Electronics Co., ltd.	USB Cable	N/A	N/A	N/A
Shenzhen HengChangshengding Electronics Co., ltd.	Adapter	HCSD-12650100	N/A	SDOC

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	±2.22 dB
Radiated Emission (9kHz ~ 30MHz)	±2.76 dB
Radiated Emission (30MHz ~ 1000MHz)	±4.28 dB
Radiated Emission (1GHz ~ 18GHz)	±5.72 dB
Radiated Emission (18GHz ~ 26.5GHz)	±2.88 dB

5.6 Laboratory Facility

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

- **FCC - Registration No.: 727551**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.8 Test Instrumentslist

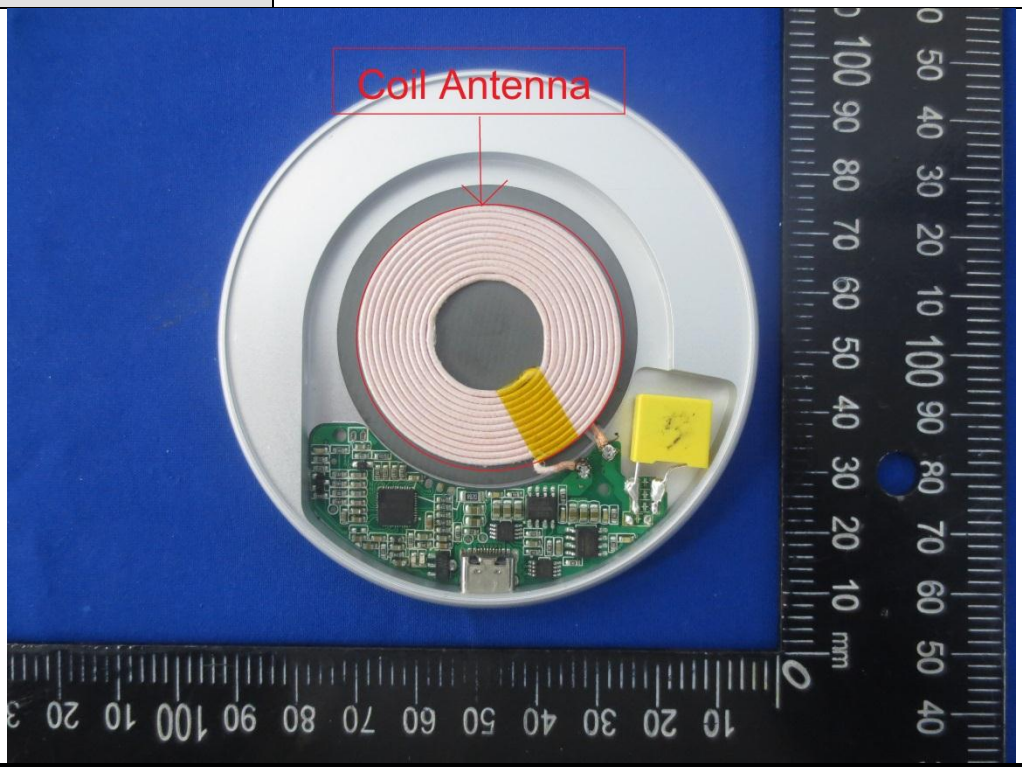
Radiated Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-16-2018	03-15-2019
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-16-2018	03-15-2019
Loop Antenna	SCHWARZBECK	FMZB 1519 B	00044	02-25-2018	02-24-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A
Pre-amplifier	HP	8447D	2944A09358	03-07-2018	03-06-2019
Pre-amplifier	CD	PAP-1G18	11804	03-07-2018	03-06-2019
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-07-2018	03-06-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-07-2018	03-06-2019
Simulated Station	Anritsu	MT8820C	6201026545	03-07-2018	03-06-2019
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2018	03-06-2019
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2018	03-06-2019
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2018	03-06-2019

Conducted Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-07-2018	03-06-2019
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-07-2018	03-06-2019
LISN	CHASE	MN2050D	1447	03-19-2018	03-18-2019
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2017	07-20-2018
Cable	HP	10503A	N/A	03-07-2018	03-06-2019
EMI Test Software	AUDIX	E3	6.110919b	N/A	N/A

6 Test results andMeasurement Data

6.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
15.203 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 a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna:	



6.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209
Test Method:	ANSI C63.4-2014 ; ANSI C63.10-2013
TestFrequencyRange:	9kHz to 1000MHz
Test site:	Measurement Distance: 3m(Semi-Anechoic Chamber)

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
9kHz-150kHz	PK /AV	200Hz	600Hz	PK /AV
150kHz-30MHz	PK/ AV /QP	9kHz	30kHz	PK /AV/ QP
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value

Limit:

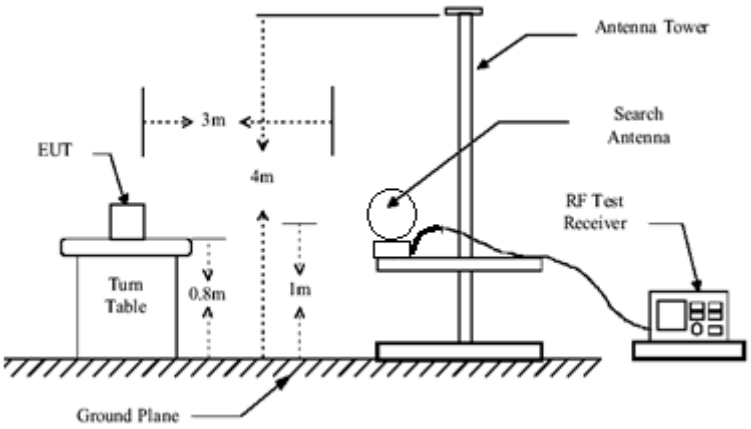
Frequency (MHz)	Limit (uV/m @3m)	Distance (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 1GHz	500	3

Test Procedure:

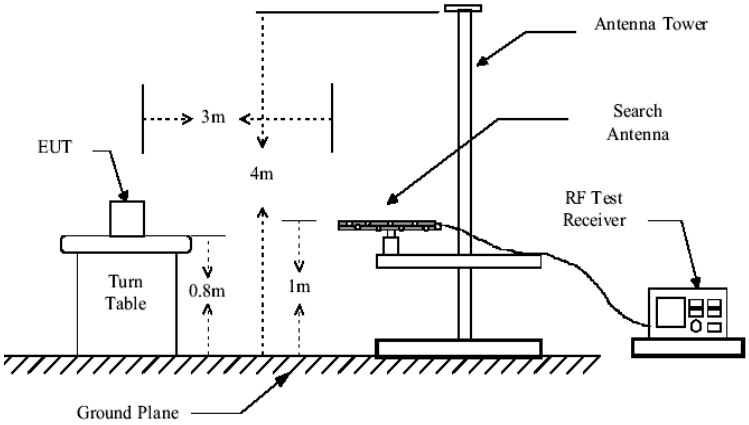
a. The EUT was placed on the top of a rotating table 0.8 meters above the groundat a 3 meter semi-anechoic camber. The table was rotated 360 degrees todetermine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four 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 thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatabletable was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.

Test setup:

9kHz-30MHz



30MHz-1GHz

	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass
Remark:	The emission levels of above 1 GHz are very lower than the limit and not show in test report.

Measurement Data: MID CH 129.82KHz

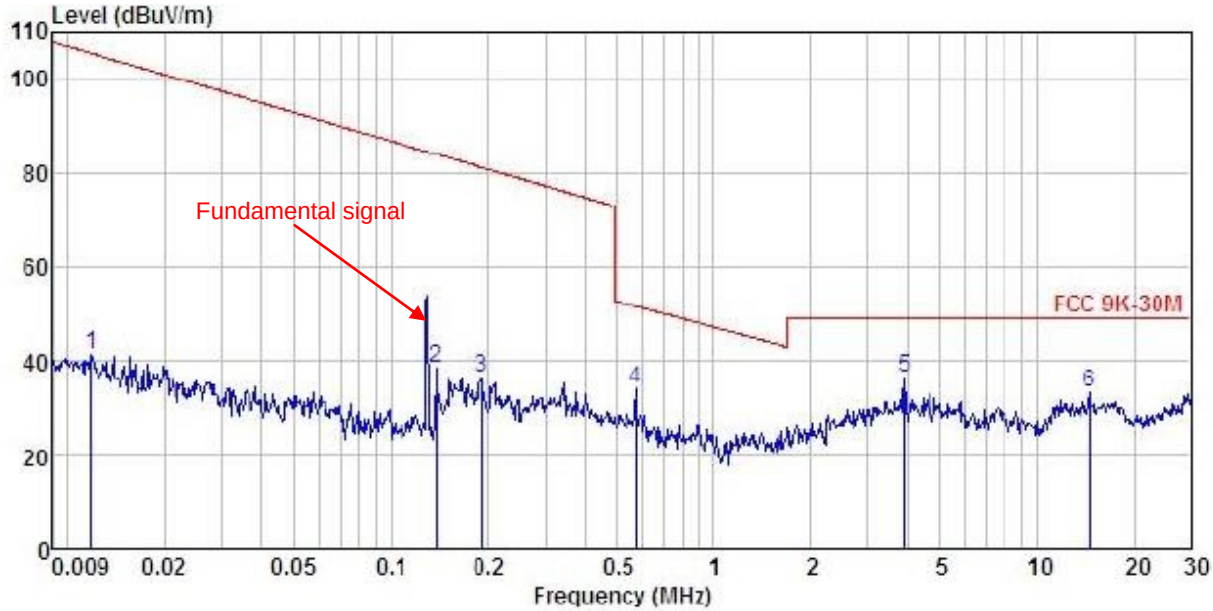
a) Fundamental field strength

Peak value				
Test Polarization	Frequency (kHz)	Result (dBμV/m)	Limit@3m (dBμV/m)	Result
Horizontal	129.82	57.98	125.34	Pass
Vertical	129.82	56.15	125.34	Pass
Average value				
Test Polarization	Frequency (kHz)	Result (dBμV/m)	Limit@3m (dBμV/m)	Result
Horizontal	129.82	46.37	105.34	Pass
Vertical	129.82	44.54	105.34	Pass

b) Radiated spurious:

9kHz~30MHz

Test Polarization: Horizontal



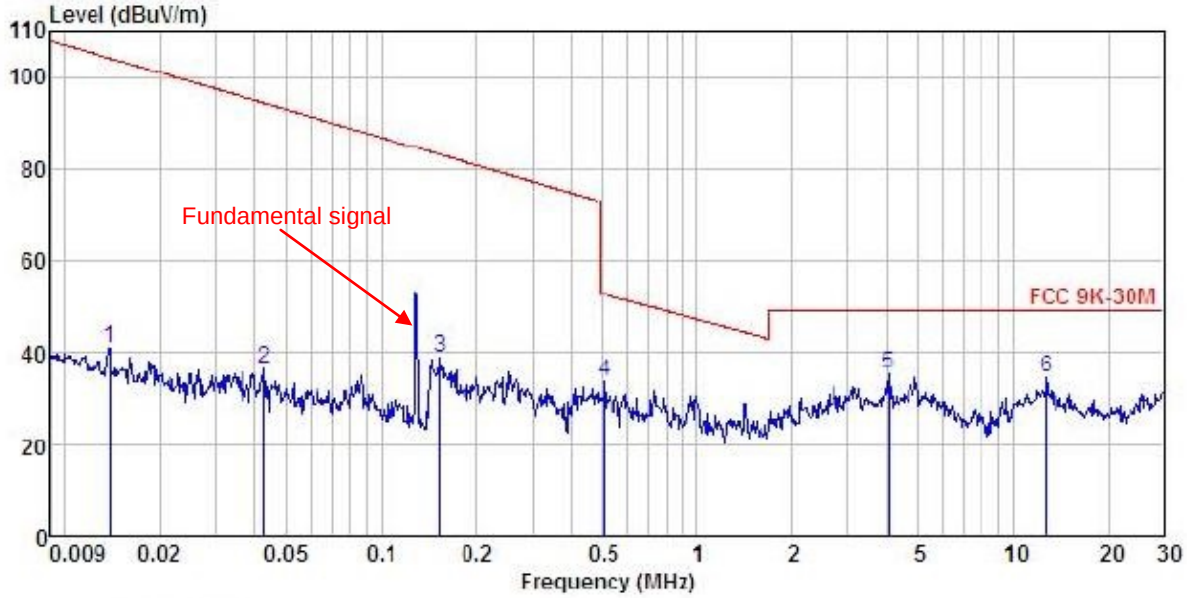
Site : 3m chamber
Condition : FCC 9K-30M 3m LOOP-FMZB 1519B HORIZONTAL
EUT : WIRELESS CHARGER
Model : SKK-D4
Test mode : Charging Mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Zora
REMARK :

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.012	67.16	-25.82	0.03	0.00	41.37			Peak
2	0.139	64.53	-26.15	0.25	0.00	38.63			Peak
3	0.192	62.32	-26.19	0.32	0.00	36.45			Peak
4	0.577	60.08	-26.30	0.50	0.00	34.28			Peak
5	3.885	62.52	-26.57	0.66	0.00	36.61			Peak
6	14.693	59.07	-26.49	0.66	0.00	33.24			Peak

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC 9K-30M 3m LOOP-FMZB 1519B VERTICAL
EUT : WIRELESS CHARGER
Model : SKX-D4
Test mode : Charging Mode
Power Rating : AC120V/60Hz
Environment : Temp:25.5'C Huni:55%
Test Engineer: Zora
REMARK :

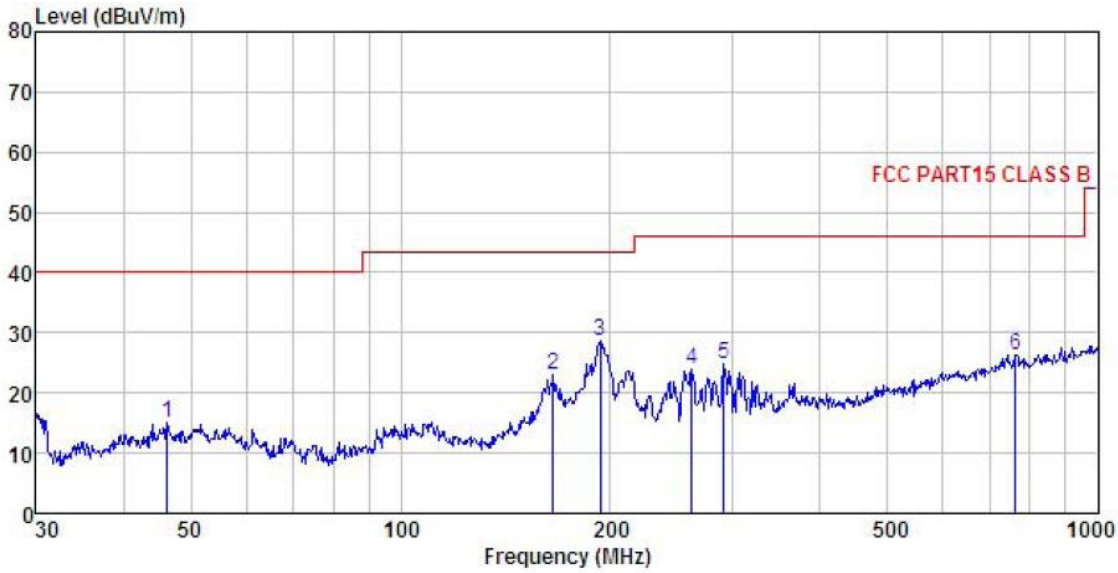
	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.014	66.86	-25.85	0.04	0.00	41.05			Peak
2	0.043	62.41	-25.98	0.16	0.00	36.59			Peak
3	0.154	64.74	-26.16	0.27	0.00	38.85			Peak
4	0.507	59.41	-26.30	0.46	0.00	33.57			Peak
5	4.045	61.34	-26.58	0.66	0.00	35.42			Peak
6	12.697	60.22	-26.46	0.61	0.00	34.37			Peak

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

30MHz~1000MHz

Test Polarization: Horizontal



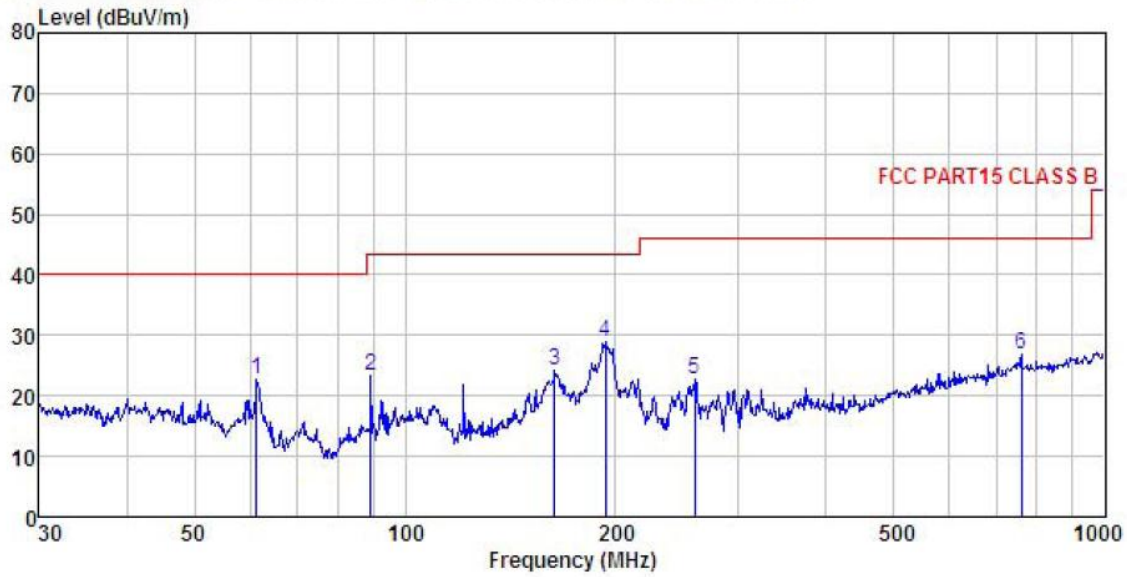
Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) HORIZONTAL
EUT : WIRELESS CHARGER
Model : SKX-D4
Test mode : Charing mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: Zora
REMARK :

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	46.178	29.68	13.80	1.28	29.85	14.91	40.00	-25.09	QP
2	165.487	40.19	9.27	2.62	29.09	22.99	43.50	-20.51	QP
3	193.095	43.36	11.29	2.82	28.88	28.59	43.50	-14.91	QP
4	261.975	36.16	13.38	2.84	28.52	23.86	46.00	-22.14	QP
5	291.036	36.82	13.55	2.92	28.47	24.82	46.00	-21.18	QP
6	763.376	29.29	21.00	4.36	28.40	26.25	46.00	-19.75	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test Polarization: Vertical



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) VERTICAL
EUT : WIRELESS CHARGER
Model : SKX-D4
Test mode : Charing mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55% 101KPa
Test Engineer: Zora
REMARK :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	61.346	39.25	11.92	1.38	29.77	22.78	40.00	-17.22	QP
2	89.276	41.11	9.87	2.04	29.57	23.45	43.50	-20.05	QP
3	163.755	41.54	9.21	2.62	29.10	24.27	43.50	-19.23	QP
4	193.095	43.82	11.29	2.82	28.88	29.05	43.50	-14.45	QP
5	259.234	34.93	13.36	2.83	28.52	22.60	46.00	-23.40	QP
6	760.704	29.87	21.00	4.36	28.42	26.81	46.00	-19.19	QP

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

6.3 Conducted Emission

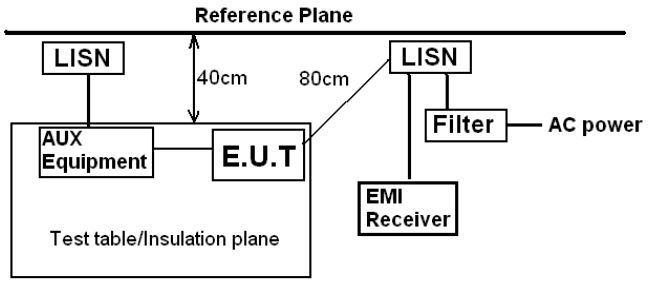
Test Requirement:	FCC Part 15 C Section 15.207
Test Method:	ANSI C63.4-2014 ; ANSI C63.10-2013
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz

Limit:

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

* Decreases with the logarithm of the frequency.

Test setup:



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

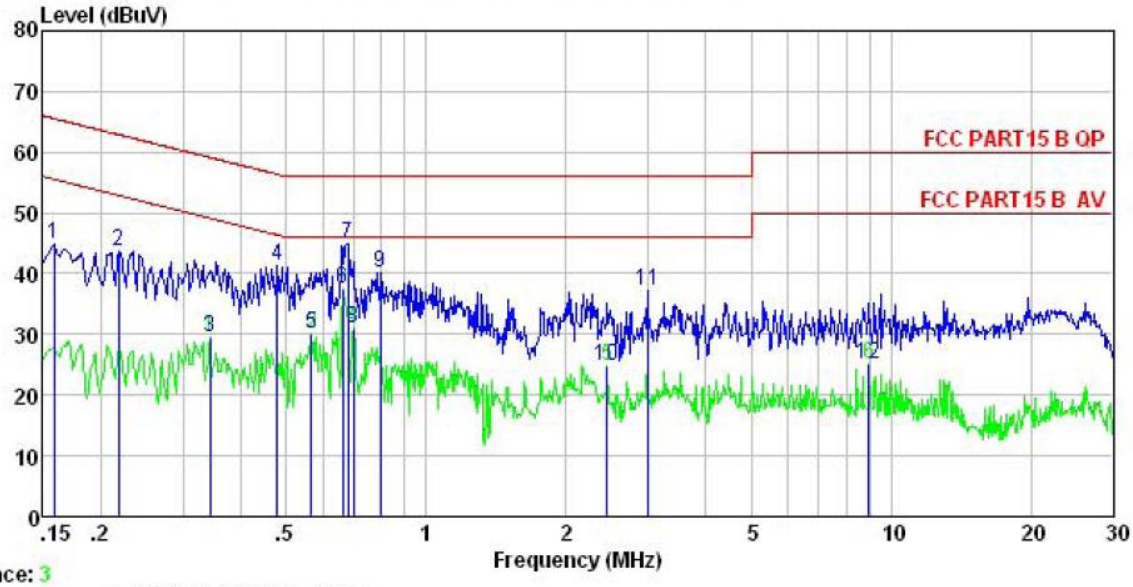
Test procedure

1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Test environment:	Temp.:	23 °C	Humid.:	56%	Press.:	101kPa
Test Instruments:	Refer to section 5.9 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Pass					

Measurement data:

Test Phase: Line



Trace: 3

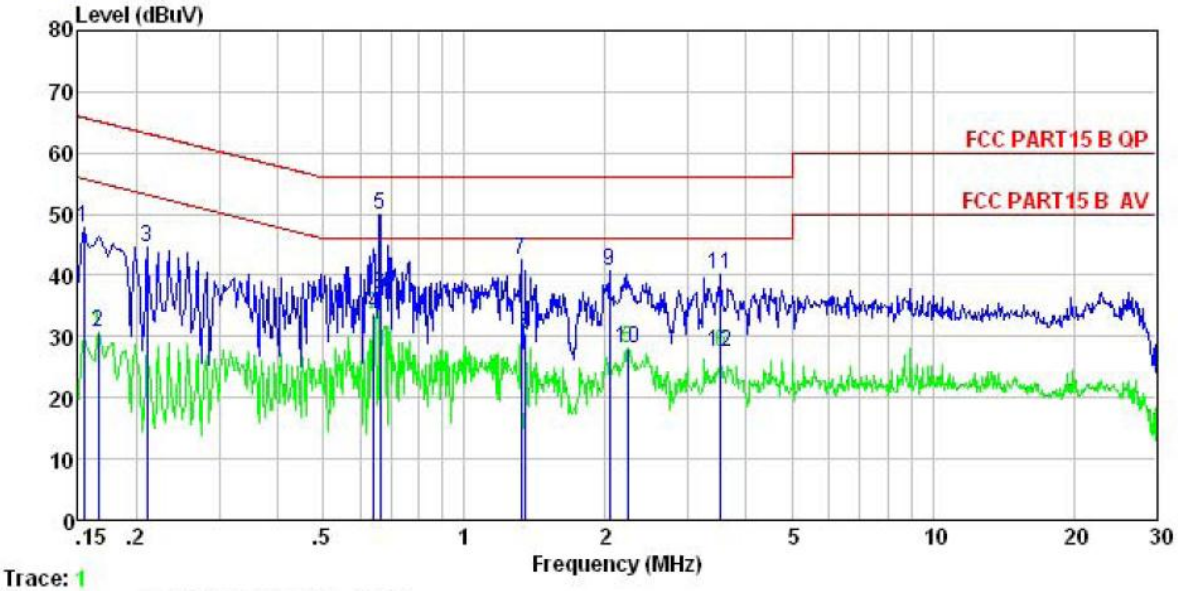
```
Site          : CCIS Shielding Room
Condition     : FCC PART15 B QP LISN LINE
EUT           : WIRELESS CHARGER
Model         : SKX-D4
Test mode     : Charging Mode
Power Rating  : AC 120V/60Hz
Environment   : Temp:25.5℃ Huni:55%
Test Engineer: Zora
Remark        :
```

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.158	33.85	0.17	10.77	44.79	65.56	-20.77	QP
2	0.219	32.91	0.15	10.76	43.82	62.88	-19.06	QP
3	0.343	18.61	0.13	10.73	29.47	49.13	-19.66	Average
4	0.479	30.59	0.12	10.75	41.46	56.36	-14.90	QP
5	0.567	19.21	0.12	10.76	30.09	46.00	-15.91	Average
6	0.661	26.52	0.13	10.77	37.42	46.00	-8.58	Average
7	0.679	33.99	0.13	10.77	44.89	56.00	-11.11	QP
8	0.697	20.21	0.13	10.77	31.11	46.00	-14.89	Average
9	0.796	29.33	0.13	10.81	40.27	56.00	-15.73	QP
10	2.448	13.66	0.15	10.94	24.75	46.00	-21.25	Average
11	2.993	26.26	0.16	10.92	37.34	56.00	-18.66	QP
12	8.964	13.81	0.30	10.90	25.01	50.00	-24.99	Average

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

Test Phase: Neutral



Trace: 1

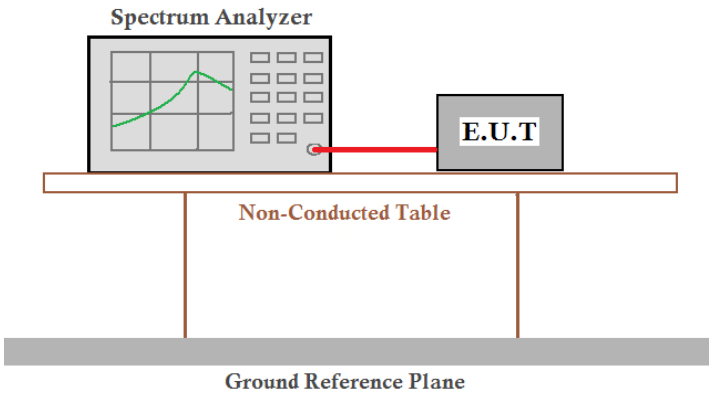
Site : CCIS Shielding Room
Condition : FCC PART15 B QP LISN NEUTRAL
EUT : WIRELESS CHARGER
Model : SKX-D4
Test mode : Charging Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Zora
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	36.05	0.98	10.78	47.81	65.78	-17.97	QP
2	0.166	18.86	0.97	10.77	30.60	55.16	-24.56	Average
3	0.211	32.98	0.93	10.76	44.67	63.18	-18.51	QP
4	0.641	21.91	0.97	10.77	33.65	46.00	-12.35	Average
5	0.661	38.18	0.97	10.77	49.92	56.00	-6.08	QP
6	0.661	25.16	0.97	10.77	36.90	46.00	-9.10	Average
7	1.324	30.57	0.97	10.91	42.45	56.00	-13.55	QP
8	1.352	18.63	0.97	10.91	30.51	46.00	-15.49	Average
9	2.044	28.91	0.98	10.96	40.85	56.00	-15.15	QP
10	2.237	16.22	0.98	10.95	28.15	46.00	-17.85	Average
11	3.528	28.35	1.00	10.90	40.25	56.00	-15.75	QP
12	3.528	15.44	1.00	10.90	27.34	46.00	-18.66	Average

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Cable Loss.*

6.4 20dB Bandwidth

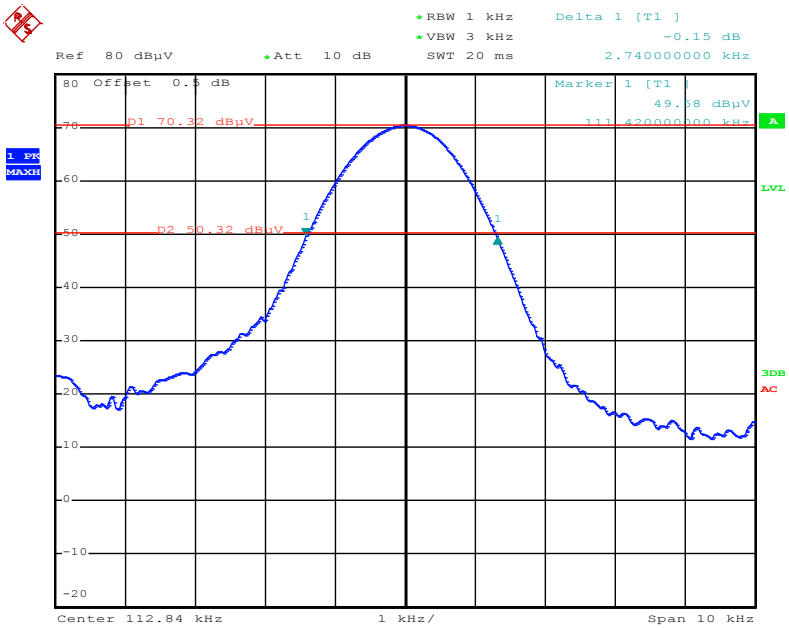
Test Requirement:	FCC Part15 C Section 15.215 (c)
Test Method:	ANSI C63.4-2014 ; ANSI C63.10-2013
Receiver setup:	RBW=1 kHz, VBW=3 kHz, detector: Peak
Limit:	The fundamentalemission be kept within atleast the central 80% of the permittedband
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. 4. Read 20dB bandwidth.
Test setup:	
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

20dB bandwidth (kHz)	Limits
2.74	N/A
2.72	
Remark: For report purpose only.	

Test plot as follows:

Test Frequency= 112.84 kHz



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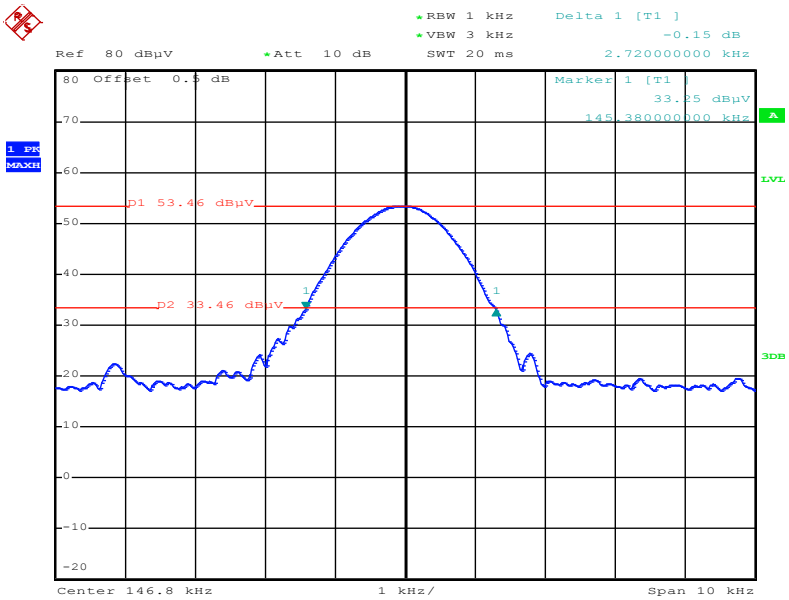
Test Frequency= 146.80 kHz



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