

FCC TEST REPORT

FCC ID: 2AWY4STG-6668-KB

Product Name:	Infrared induction wireless charging support
Trademark:	N/A
Model Number:	STG-6668-KB
Prepared For :	Shenzhen Pinjinda Electronics Technology Co., Ltd
Address :	Room 501, building F, 131 Bulan Road, shanglilang community, Nanwan street, Longgang District, Shenzhen, China
Prepared By :	Shenzhen BCTC Testing Co., Ltd.
Address :	BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Test Date:	Jul. 20, 2020 to Jul. 29, 2020
Date of Report :	Jul. 30, 2020
Report No.:	BCTC2007001047-2E

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TEST REPORT DECLARATION

Applicant : Shenzhen Pinjinda Electronics Technology Co., Ltd
Address : Room 501, building F, 131 Bulan Road, shanglilang community,
Nanwan street, Longgang District, Shenzhen, China
EUT Description : Infrared induction wireless charging support
Model Number : STG-6668-KB

Test Standards:

FCC Part 15 C

This device described above has been tested by BCTC, and the test results show that the equipment under And it is applicable only to the tested sample identified in the report.

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Prepared by(Engineer): Willem Wang

Willem Wang

Reviewer(Supervisor): Eric Yang

Eric Yang

Approved(Manager): Zero Zhou

Zero Zhou



1. GENERAL INFORMATION

1.1. Report information

- 1.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BCTC approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BCTC in any way guarantees the later performance of the product/equipment.
- 1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BCTC therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 1.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BCTC, unless the applicant has authorized BCTC in writing to do so.

1.2. Measurement Uncertainty

Available upon request.

1.3. Test Facility

Site Description
Name of Firm : Shenzhen BCTC Testing Co., Ltd.

Site Location : BCTC Building & 1-2F, East of B Building,
Pengzhou Industrial, Fuyuan 1st Road, Qiaotou
Community, Fuyong Street, Bao'an District,
Shenzhen, China

1.4. Test Uncertainty

Conducted Emission = $\pm 2.66\text{dB}$
Uncertainty
Radiated Emission Uncertainty = $\pm 4.15\text{dB}$

2. PRODUCT DESCRIPTION

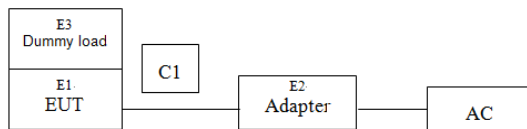
2.1.EUT Description

Description	: Infrared induction wireless charging support
Applicant	: Shenzhen Pinjinda Electronics Technology Co., Ltd Room 501, building F, 131 Bulan Road, shanglilang community, Nanwan street, Longgang District, Shenzhen, China
Manufacturer	: Shenzhen Pinjinda Electronics Technology Co., Ltd Room 501, building F, 131 Bulan Road, shanglilang community, Nanwan street, Longgang District, Shenzhen, China
Model Number	: STG-6668-KB
Model Difference	: N/A
Power Supply	: Input:DC5V/2A, DC9V/1.67A Output: DC5V/1.5A, DC9V/1.2A
Work Frequency	: 120-220KHz

2.2.Test mode

Test Modes	keeping TX+Charging mode
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2.3.Block Diagram of EUT Configuration



2.4.Test Conditions

Temperature: 23~26℃

Relative Humidity: 54~63 %

2.5. Description Of Support Units (Conducted Mode)

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	Mfr/Brand	Model/Type No.	Series No.	Note
E1	Collapsible wireless charging bracket	N/A	CCT3	N/A	EUT
E2	Adapter	N/A	BCTC-002	N/A	Auxiliary
E3	Dummy load	N/A	DL01	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	1.0M	DC cable unshielded

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" is means "shielded" "with core"; "NO" is means "unshielded" "without core".

3. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted disturbance	Pass
Radiated disturbance	Pass

Remark: "N/A" means "Not applicable."

4. TEST EQUIPMENT USED

4.1. For Conducted Emission Test

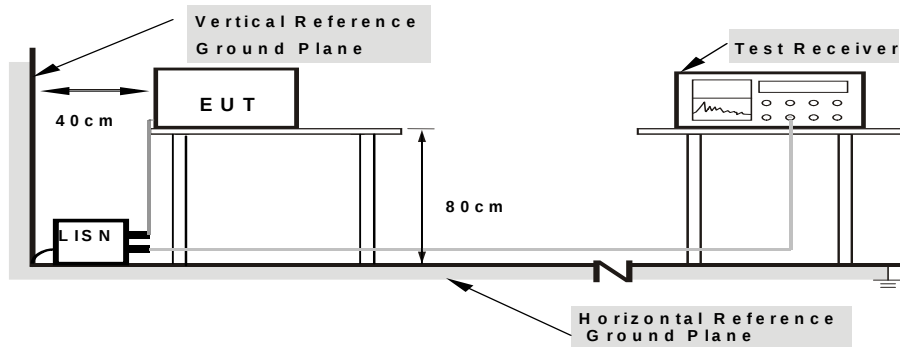
Disturbance voltages Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	Jun. 08, 2020	Jun. 07, 2021
LISN	R&S	ENV216	101375	Jun. 04, 2020	Jun. 03, 2021
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

4.2. For Radiated Emission Measurement

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4407B	MY45109572	Jun. 08, 2020	Jun. 07, 2021
2	Test Receiver (9kHz-7GHz)	R&S	ESR7	101154	Jun. 08, 2020	Jun. 07, 2021
3	Bilog Antenna (30MHz-3GHz)	SCHWARZBEC K	VULB9163	VULB9163-942	Jun. 08, 2020	Jun. 07, 2021
4	Horn Antenna (1GHz-18GHz)	SCHWARZBEC K	BBHA9120D	1541	Jun. 10, 2020	Jun. 09, 2021
5	Horn Antenna (18GHz-40GHz)	SCHWARZBEC K	BBHA9170	00822	Jun. 10, 2020	Jun. 09, 2021
6	Amplifier (9KHz-6GHz)	SCHWARZBEC K	BBV9744	9744-0037	Jun. 04, 2020	Jun. 03, 2021
7	Amplifier (0.5GHz-18GHz)	SCHWARZBEC K	BBV9718	9718-309	Jun. 04, 2020	Jun. 03, 2021
8	Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	Jun. 08, 2020	Jun. 07, 2021
9	Loop Antenna (9KHz-30MHz)	SCHWARZBEC K	FMZB1519B	00014	Jun. 08, 2020	Jun. 07, 2021
10	RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	Jun. 08, 2020	Jun. 07, 2021
11	RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	Jun. 08, 2020	Jun. 07, 2021
12	RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	Jun. 08, 2020	Jun. 07, 2021
13	Power Metter	Keysight	E4419B	\	Jun. 08, 2020	Jun. 07, 2021
14	Power Sensor (AV)	Keysight	E9 300A	\	Jun. 08, 2020	Jun. 07, 2021
15	Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	Jun. 04, 2020	Jun. 03, 2021
16	Spectrum Analyzer 9kHz-40GHz	Agilent	FSP40	100363	Jun. 13, 2020	Jun. 12, 2021
17	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
18	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

5. CONDUCTED EMISSION TEST

5.1. Block Diagram of Test Setup



Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure.
 The specification used was with the FCC Part 15.207 limits.

5.2. Test Standard

FCC§15.207

5.3. Conducted Emission Limit

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

5.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC Part 15.207 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

5.5. Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

5.5.2. Turn on the power of all equipments.

5.5.3. Let the EUT work in test modes (EUT Working) and test it.

5.6. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESHS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

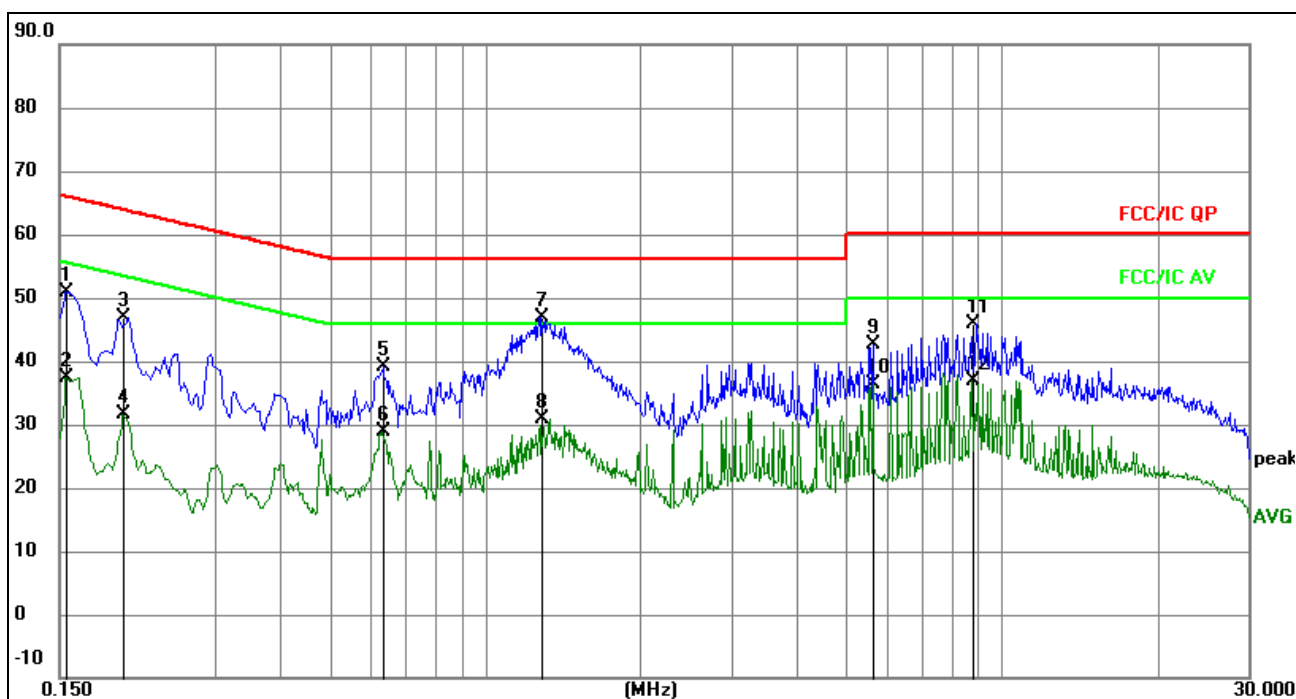
The bandwidth of the test receiver (R&S Test Receiver ESHS30) is set at 10KHz.

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

5.7. Test Result

PASS

EUT:	Infrared induction wireless charging support	Model Name :	STG-6668-KB
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	AC120V/60Hz	Test Mode:	Wireless charger

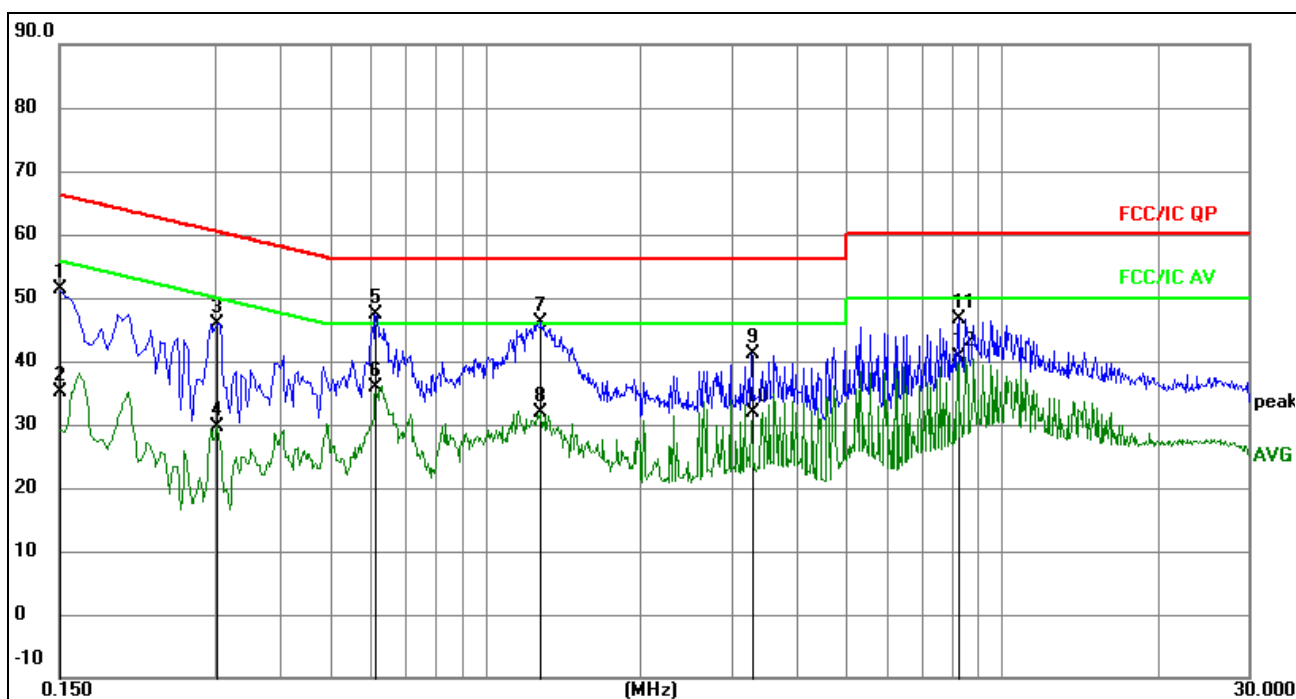


Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1545	41.39	9.51	50.90	65.75	-14.85	QP
2		0.1545	27.83	9.51	37.34	55.75	-18.41	AVG
3		0.1995	37.37	9.46	46.83	63.63	-16.80	QP
4		0.1995	22.06	9.46	31.52	53.63	-22.11	AVG
5		0.6315	29.23	9.89	39.12	56.00	-16.88	QP
6		0.6315	19.02	9.89	28.91	46.00	-17.09	AVG
7	*	1.2839	37.33	9.58	46.91	56.00	-9.09	QP
8		1.2839	21.40	9.58	30.98	46.00	-15.02	AVG
9		5.6400	32.88	9.77	42.65	60.00	-17.35	QP
10		5.6400	26.50	9.77	36.27	50.00	-13.73	AVG
11		8.7315	36.16	9.70	45.86	60.00	-14.14	QP
12		8.7315	27.16	9.70	36.86	50.00	-13.14	AVG

EUT:	Infrared induction wireless charging support	Model Name :	STG-6668-KB
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage :	AC120V/60Hz	Test Mode:	Wireless charger



Remark:

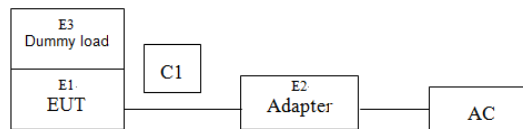
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.1500	41.97	9.52	51.49	66.00	-14.51	QP
2		0.1500	25.60	9.52	35.12	56.00	-20.88	AVG
3		0.3030	36.41	9.58	45.99	60.16	-14.17	QP
4		0.3030	20.17	9.58	29.75	50.16	-20.41	AVG
5	*	0.6134	37.40	9.95	47.35	56.00	-8.65	QP
6		0.6134	26.05	9.95	36.00	46.00	-10.00	AVG
7		1.2795	36.61	9.58	46.19	56.00	-9.81	QP
8		1.2795	22.35	9.58	31.93	46.00	-14.07	AVG
9		3.2820	31.34	9.68	41.02	56.00	-14.98	QP
10		3.2820	22.16	9.68	31.84	46.00	-14.16	AVG
11		8.2455	36.94	9.71	46.65	60.00	-13.35	QP
12		8.2455	30.86	9.71	40.57	50.00	-9.43	AVG

6. RADIATED EMISSION MEASUREMENT

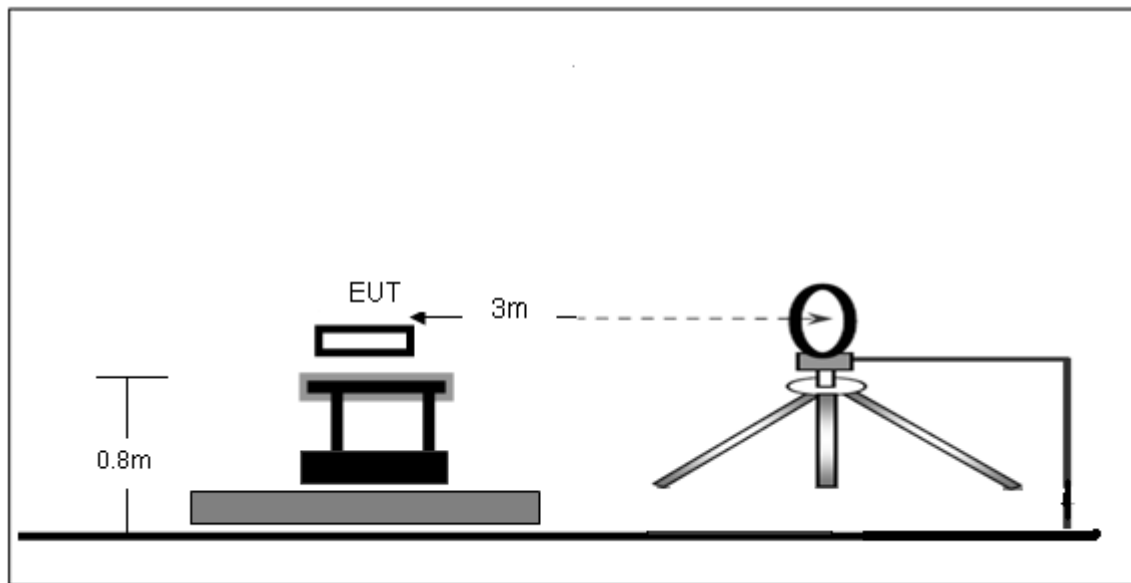
6.1. Block Diagram of Test Setup

6.1.1. Block Diagram of connection between the EUT and the simulators

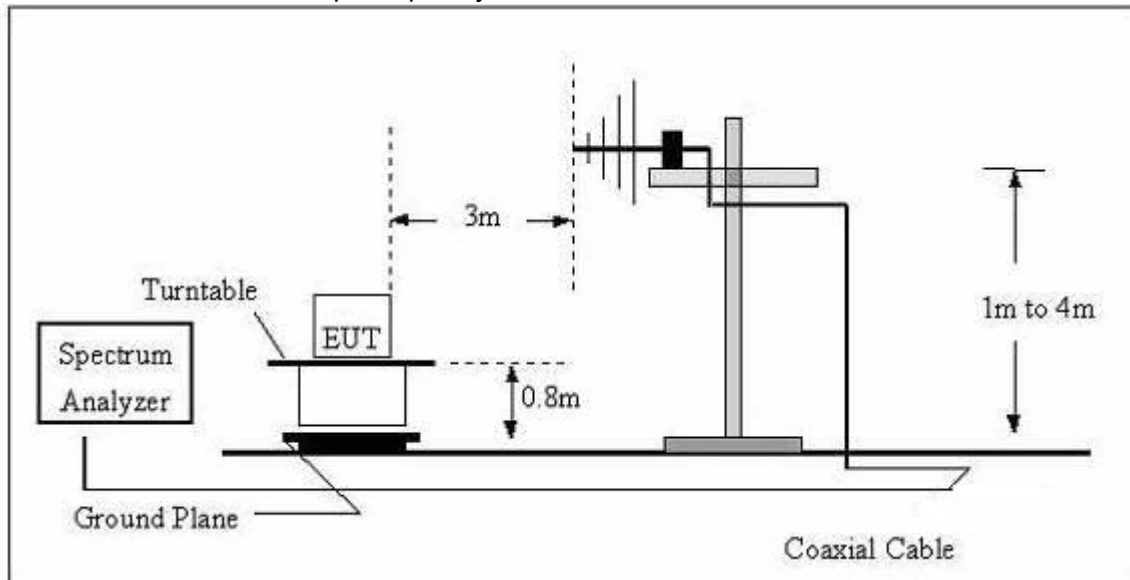


6.1.2. Anechoic Chamber Test Setup Diagram

(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.

6.2. Test Standard and Limit

FCC §15.209; §15.205

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz~1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz~30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

6.3.EMI Test Receiver Setup

The system was investigated from 9kHz to1GHz.

During the radiated emission test, the EMI test receiver setup was set with the following configurations:

Frequency Range	RBW	Video B/W	Detector
9 kHz – 150 kHz	200 kHz	1 kHz	QP
150 kHz – 30MHz	9kHz	30kHz	QP
30 MHz – 1000 MHz	120 kHz	300 kHz	QP

Note: For the frequency bands 9-90 kHz and 110-490 kHz, the test was based on average detector.

6.4.Test Procedure

The EUT is placed on a turn table which is 0.8 meter above 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 move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

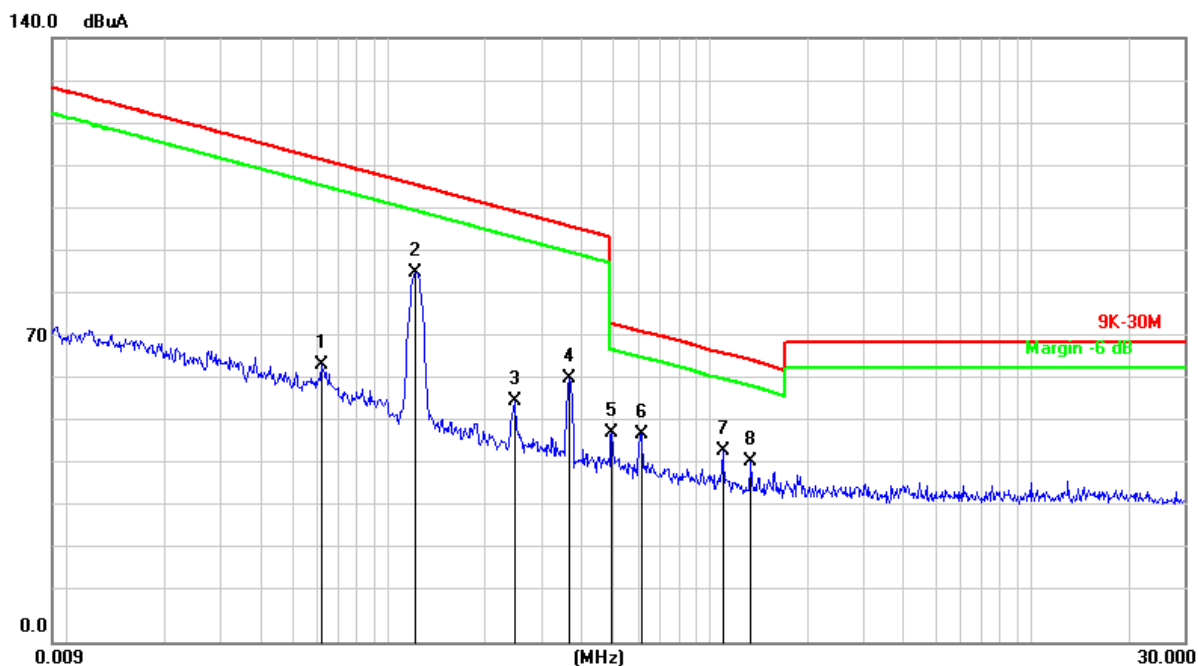
6.5.Test Result

PASS

Noet: We pretest DC 5V and DC 9V, the worst voltage was DC 9V and the data recording in the report.

9kHz-30MHz

EUT:	Infrared induction wireless charging support	Model Name :	STG-6668-KB
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Polarization :	Horizontal
Test Voltage :	AC120V/60Hz		
Test Mode :	Wireless charger		



Frequency (kHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
0.0620	44.89	19.32	64.21	131.76	-67.55	PK
0.0620	42.03	19.32	61.35	111.76	-50.41	AV
0.1256	66.30	19.34	85.64	125.91	-40.27	PK
0.1256	64.50	19.34	83.84	105.91	-22.07	AV
0.2464	36.23	19.67	55.9	119.78	-63.88	PK
0.2464	32.70	19.67	52.37	99.78	-47.41	AV
0.3636	41.30	19.76	61.06	116.39	-55.33	PK
0.3636	38.39	19.76	58.15	96.39	-38.24	AV
0.4949	27.96	20.55	48.51	73.71	-25.20	QP
0.6111	27.71	20.55	48.26	71.88	-23.62	QP
1.0959	23.52	20.64	44.16	66.80	-22.64	QP
1.3423	20.67	21.26	41.93	65.03	-23.10	QP

Note:

Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level- Limit.

30MHz-1GHz

EUT:	Infrared induction wireless charging support	Model Name :	STG-6668-KB
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Polarization :	Horizontal
Test Voltage :	AC120V/60Hz		
Test Mode :	Wireless charger		

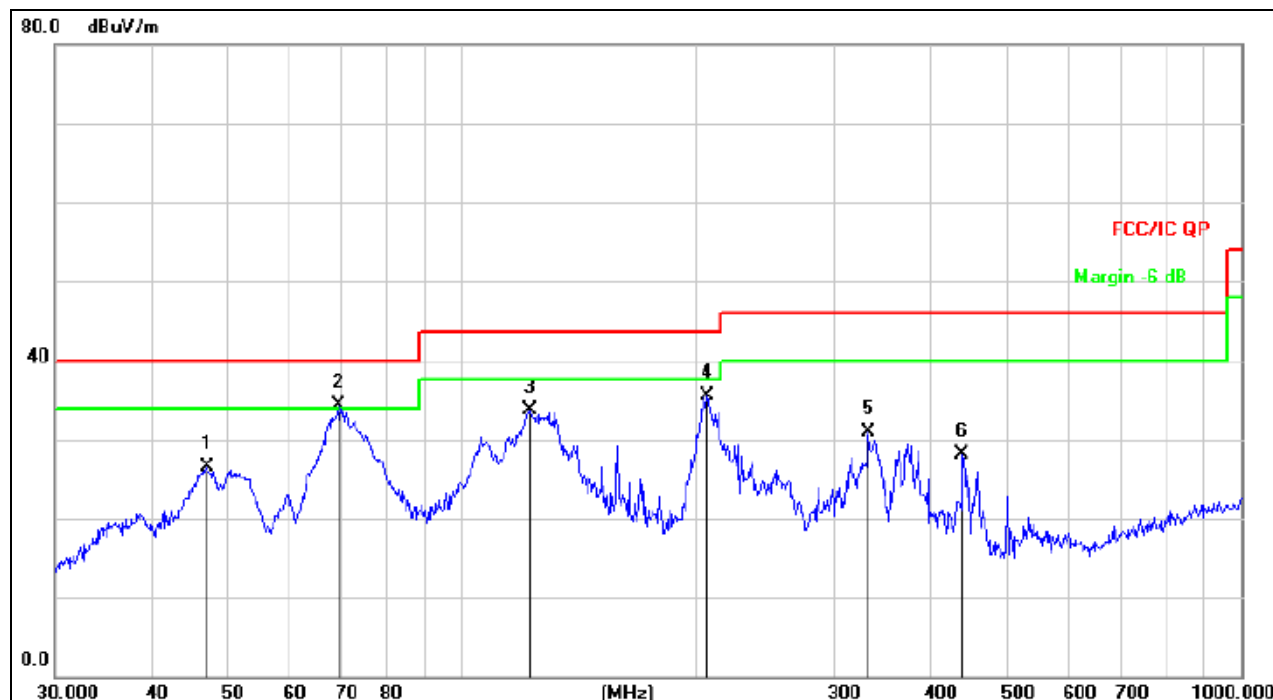


Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		46.5030	28.32	-15.05	13.27	40.00	-26.73	QP
2		69.3568	37.73	-18.04	19.69	40.00	-20.31	QP
3		124.1330	39.89	-17.83	22.06	43.50	-21.44	QP
4		213.7634	35.76	-15.98	19.78	43.50	-23.72	QP
5	*	336.0352	41.22	-12.61	28.61	46.00	-17.39	QP
6		860.0352	24.37	-2.32	22.05	46.00	-23.95	QP

EUT:	Infrared induction wireless charging support	Model Name :	STG-6668-KB
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Polarization :	Vertical
Test Voltage :	AC120V/60Hz		
Test Mode :	Wireless charger		



Remark:

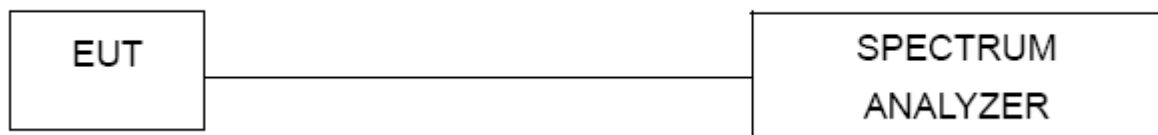
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1		46.9948	41.62	-15.02	26.60	40.00	-13.40	QP
2	*	69.3568	52.31	-18.04	34.27	40.00	-5.73	QP
3		122.4040	51.42	-17.72	33.70	43.50	-9.80	QP
4		206.3976	51.56	-16.15	35.41	43.50	-8.09	QP
5		332.5187	43.70	-12.71	30.99	46.00	-15.01	QP
6		438.6554	38.26	-10.22	28.04	46.00	-17.96	QP

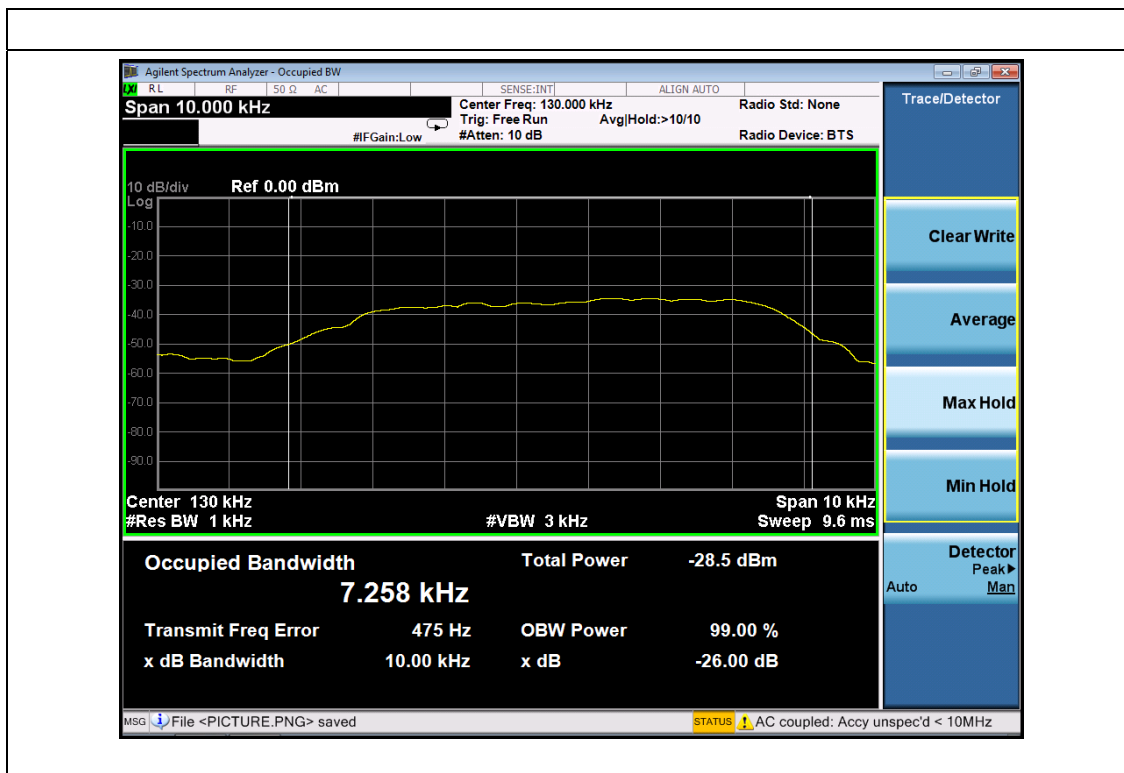
7. BANDWIDTH TEST

1. Set RBW = 1%~5% OBW.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



EUT:	Infrared induction wireless charging support	Model Name :	STG-6668-KB
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa		



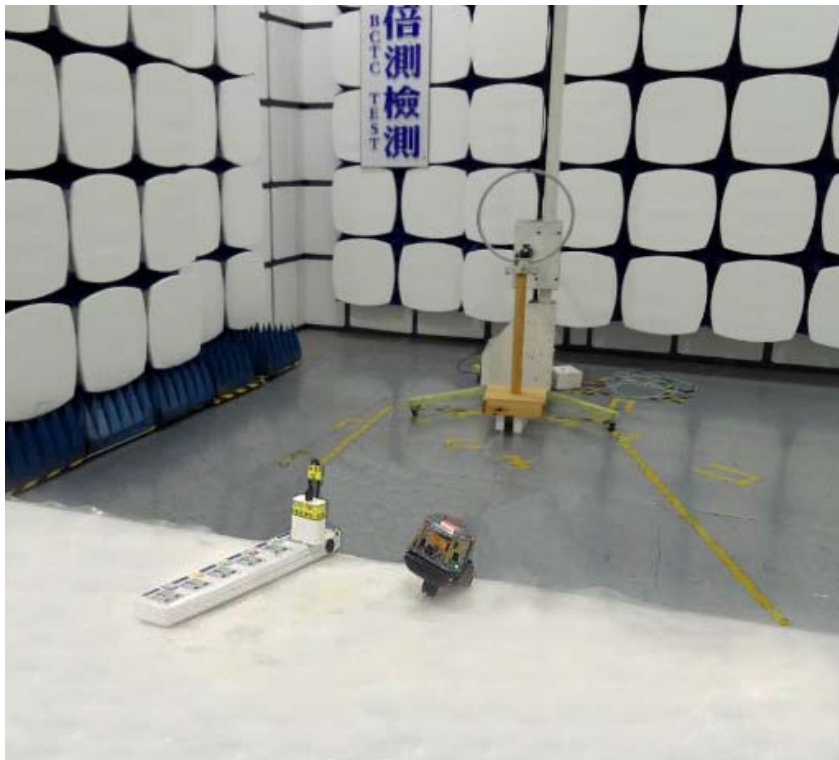
8. EUT TEST PHOTOS

Conducted Measurement Photos



Radiated Measurement Photos

9KHz-30MHz



30MHz-1GHz



9. EUT PHOTOS



***** END OF REPORT *****