FCC TEST REPORT

FCC ID	:	**TTU-BOCHGPAD**
Equipment	:	**Charging Pad**
Brand Name	:	**Bang & Olufsen**
Model Name	:	**Beoplay Charging Pad**
Applicant	:	**Bang & Olufsen A/S** **Bang og Olufsen Allé 1, 7600 Struer, Denmark**
Manufacturer	:	**Bang & Olufsen A/S** **Bang og Olufsen Allé 1, 7600 Struer, Denmark**
Standard	:	**47 CFR FCC Part 15.209**

The product was received on Jan. 15, 2019, and testing was started from Jan. 31, 2019 and completed on Feb. 01, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR910204AW	01	Initial issue of report	Feb. 19, 2019

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.209	Transmitter Radiated Emissions	PASS	-
3.3	15.215(c)	Emission Bandwidth	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
None.

Reviewed by: Sam Tsai

Report Producer: Amber Chiu

1 General Description

1.1 Information

1.1.1 General Information

Wireless Power Transfer General Information			
Frequency Range	**Modulation Mode**	**Charging Freq. (kHz)**	**Field Strength (dBuV/m)**
112-148 kHz	FSK	127.76	67.35
Power Transfer Method	**Output power from each primary coil**	**That may have multiple primary coils**	**Charging Method**
Magnetic induction and only single primary coil coupling secondary coil	<15W	No	Client directly contact
Note 1: Field strength performed peak level at 3m.			

1.1.2 Antenna Information

Antenna Category	
☐	Equipment placed on the market without antennas
☒	Integral antenna (antenna permanently attached)
	☐ Temporary RF connector provided
	☒ No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
☐	External antenna (dedicated antennas)

Antenna General Information		
No.	**Ant. Cat.**	**Ant. Type**
1	Integral	Coil

1.1.3 EUT Information

Operational Condition		
EUT Power Type	From AC Adapter / Host system	
Type of EUT		
☒	Stand-alone	
☐	Combined (EUT where the radio part is fully integrated within another device)	
	Combined Equipment - Brand Name / Model No.:	
☐	Plug-in radio (EUT intended for a variety of host systems)	
	Host System - Brand Name / Model No.:	
☐	Other:	The EUT place with the platform.

1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle
☒ Operated normally mode for worst duty cycle
☐ Operated test mode for worst duty cycle
Test Signal Duty Cycle (x)
☒ 100%

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 680106 D01 RF Exposure Wireless Charging Apps v03

1.3 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	TH06-HY	Gary	24.3°C / 63%	31/Jan/2019
RF Conducted	CO04-HY	Daniel	23.8°C / 59%	31/Jan/2019
Radiated Emission	03CH03-HY	Paul	22.6°C /52.3%	01/Feb/2019

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty			
Test Item		Uncertainty	Limit
Radio Frequency		± 6.7 X 10^{-8}	± 1 X 10^{-7}
All emissions, radiated	9 – 150 kHz	±1.6 dB	±6 dB
	0.15 – 30 MHz	±1.6 dB	±6 dB
	30 – 1000 MHz	±2.6 dB	±6 dB
Temperature		±0.8 °C	±1 °C
Humidity		±5 %	±5 %
DC and low frequency voltages		±0.9%	±3 %

2 Test Configuration of EUT

2.1 The Worst Case Configuration

Modulation Mode	Field Strength (dBuV/m at 3m)
FSK	67.35
Wireless charger were performed all charging conditions including variable loading and non-charging operation, the worst mode is full charging loading.	

2.2 The Worst Charger Frequencies Configuration

Modulation Mode	Charger Frequencies (kHz)
FSK	127.76
Wireless charger frequencies are variable frequency range (112-148 kHz) and depend on charging loading.	

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Adapter mode

The Worst Case Mode for Following Conformance Tests	
Tests Item	Transmitter Radiated Emissions, Emission Bandwidth
Test Condition	Radiated measurement
User Position	☐ EUT will be placed in fixed position.
	☒ EUT will be placed in mobile position and operating multiple positions.
	☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.
Operating Mode	Adapter Mode
Orthogonal Planes of EUT	**Z Plane**
	
Worst Planes of EUT	V

2.4 Accessories

Accessories				
USB Cable	**Brand Name**	Cabletech	**Model Name**	NA
	Signal Line	1.25 meter, shielded cable, w/o ferrite core		

Reminder: Regarding to more detail and other information, please refer to user manual.

2.5 Support Equipment

Support Equipment – AC Conduction				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	AC Adapter	UGREEN	CD122	-
2	Mobile phone	SAMSUNG	Galaxy S9+	-

Note: Support equipment No.1 & 2 was provided by customer.

Support Equipment – Conducted				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	AC Adapter	UGREEN	CD122	-
2	Mobile phone	SAMSUNG	Galaxy S9+	-

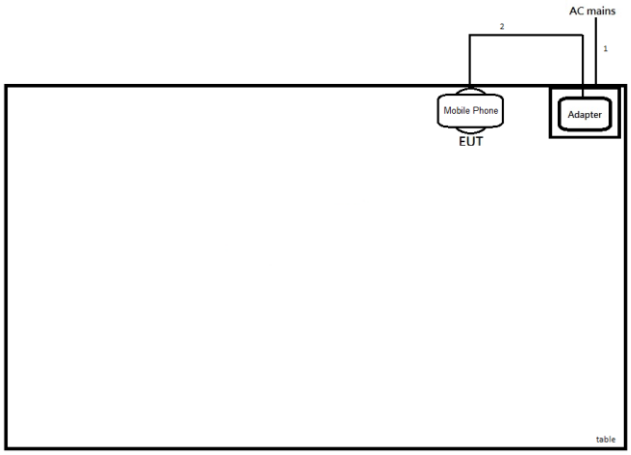
Note: Support equipment No.1 & 2 was provided by customer.

Support Equipment – Radiated				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	AC Adapter	UGREEN	CD122	-
2	Mobile phone	SAMSUNG	Galaxy S9+	-

Note: Support equipment No.1 & 2 was provided by customer.

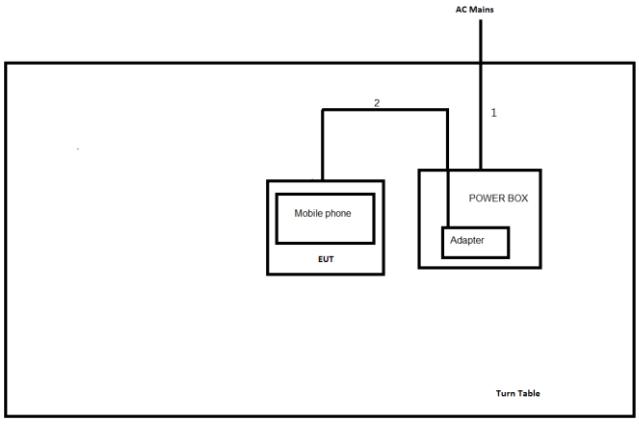
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.8	-
2	USB Cable	Yes	1.25	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.5	-
2	USB Cable	Yes	1.25	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

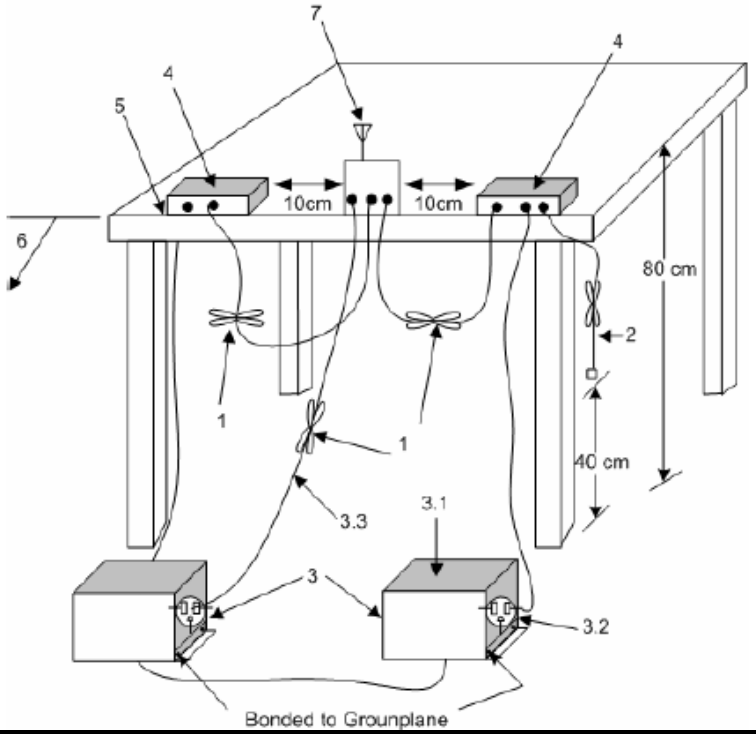
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.
☒	If AC conducted emissions fall in operating band, then following below test method confirm final result.
☐	Accept measurements done with a suitable dummy load replacing the antenna under the following conditions: (1) Perform the AC line conducted tests with the antenna connected to determine compliance with FCC 15.207 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load to determine compliance with FCC 15.207 limits within the transmitter's fundamental emission band.
☒	For a device with a permanent antenna operating at or below 30 MHz, accept measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) Perform the AC line conducted tests with the permanent antenna to determine compliance with the FCC 15.207 limits outside the transmitter's fundamental emission band; (2) Retest with a dummy load in lieu of the permanent antenna to determine compliance with the FCC 15.207 limits within the transmitter's fundamental emission band.

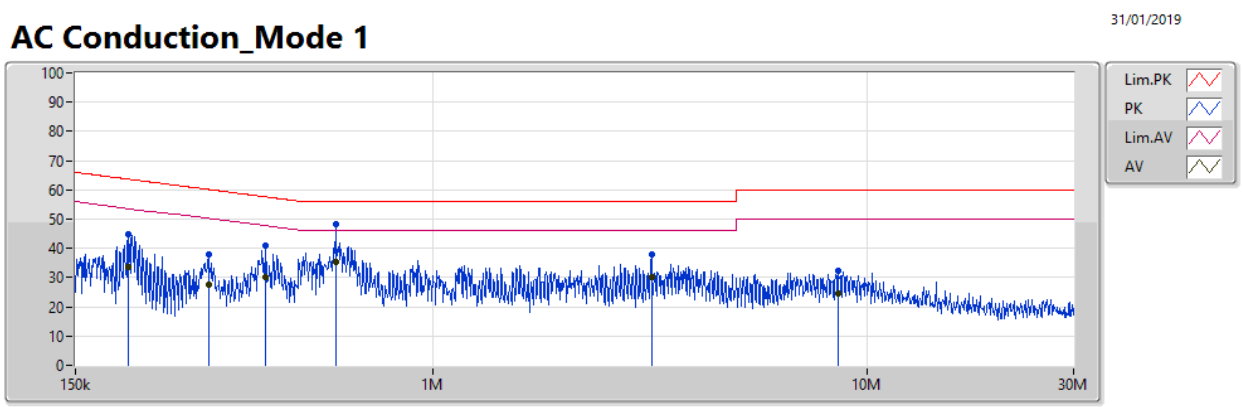
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

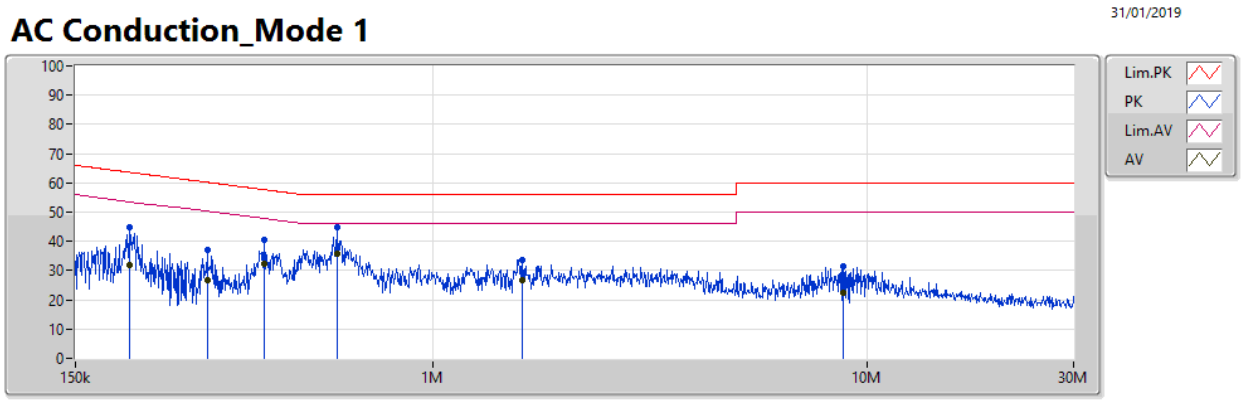
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Adapter mode		



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	199.152k	44.94	63.65	-18.71	19.47	Neutral	-	25.47	9.59	0.01	9.87
AV	199.152k	33.48	53.65	-20.17	19.47	Neutral	-	14.01	9.59	0.01	9.87
QP	304.059k	37.98	60.13	-22.15	19.48	Neutral	-	18.50	9.59	0.01	9.88
AV	304.059k	27.38	50.13	-22.75	19.48	Neutral	-	7.90	9.59	0.01	9.88
QP	410.192k	41.16	57.64	-16.48	19.48	Neutral	-	21.68	9.59	0.01	9.88
AV	410.192k	30.00	47.64	-17.64	19.48	Neutral	-	10.52	9.59	0.01	9.88
QP	599.363k	48.18	56.00	-7.82	19.48	Neutral	"Worst"	28.70	9.59	0.01	9.88
AV	599.363k	35.56	46.00	-10.44	19.48	Neutral	-	16.08	9.59	0.01	9.88
QP	3.192M	37.95	56.00	-18.05	19.54	Neutral	-	18.41	9.61	0.04	9.89
AV	3.192M	29.97	46.00	-16.03	19.54	Neutral	-	10.43	9.61	0.04	9.89
QP	8.626M	32.18	60.00	-27.82	19.62	Neutral	-	12.56	9.66	0.07	9.89
AV	8.626M	24.56	50.00	-25.44	19.62	Neutral	-	4.94	9.66	0.07	9.89

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)
Note 3: When emissions are in operating band over limits, retest with a dummy load for final in-band results.

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	Adapter mode		



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	199.949k	44.75	63.61	-18.86	19.48	Line	-	25.27	9.60	0.01	9.87
AV	199.949k	31.75	53.61	-21.86	19.48	Line	-	12.27	9.60	0.01	9.87
QP	301.641k	37.12	60.21	-23.09	19.48	Line	-	17.64	9.59	0.01	9.88
AV	301.641k	26.88	50.21	-23.33	19.48	Line	-	7.40	9.59	0.01	9.88
QP	408.557k	40.64	57.68	-17.04	19.48	Line	-	21.16	9.59	0.01	9.88
AV	408.557k	32.26	47.68	-15.42	19.48	Line	-	12.78	9.59	0.01	9.88
QP	601.76k	45.04	56.00	-10.96	19.48	Line	-	25.56	9.59	0.01	9.88
AV	601.76k	35.94	46.00	-10.06	19.48	Line	"Worst"	16.46	9.59	0.01	9.88
QP	1.607M	33.65	56.00	-22.35	19.53	Line	-	14.12	9.61	0.03	9.89
AV	1.607M	26.54	46.00	-19.46	19.53	Line	-	7.01	9.61	0.03	9.89
QP	8.835M	31.60	60.00	-28.40	19.62	Line	-	11.98	9.66	0.07	9.89
AV	8.835M	22.29	50.00	-27.71	19.62	Line	-	2.67	9.66	0.07	9.89

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)
Note 3: When emissions are in operating band over limits, retest with a dummy load for final in-band results.

3.2 Transmitter Radiated Emissions

3.2.1 Transmitter Radiated Emissions Limit

Transmitter Radiated Emissions Limit			
Frequency Range (MHz)	**Field Strength (uV/m)**	**Field Strength (dBuV/m)**	**Measure Distance (m)**
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: the frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 1GHz measurements employing a CISPR quasi-peak detector.

3.2.2 Measuring Instruments

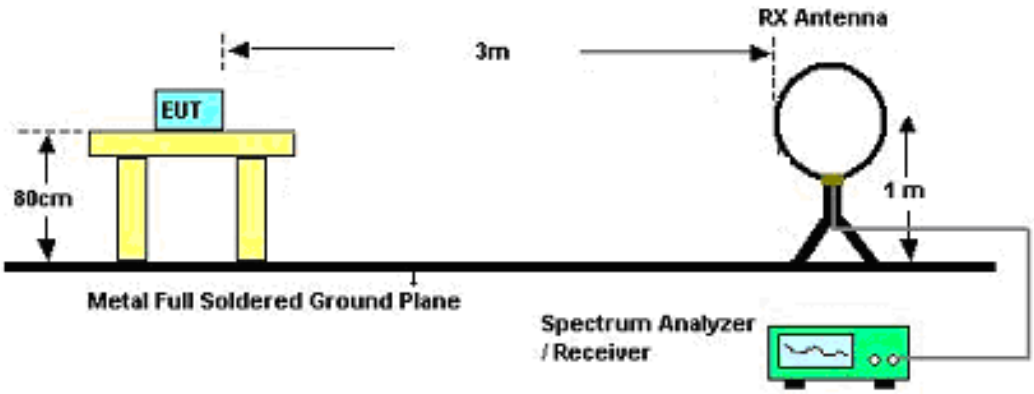
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz the frequency bands 9-90 kHz, 110-490 kHz measurements employing an average detector and other below 30MHz measurements employing a CISPR quasi-peak detector. Test distance is 3m.
☒	At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the requirements; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be following below methods.
☐	The results shall be extrapolated to the specified distance by making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
☒	The results shall be by using the square of an inverse linear distance extrapolation factor (40 dB/decade).
☒	For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.
☒	The any unwanted emissions level shall not exceed the fundamental emission level.
☒	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

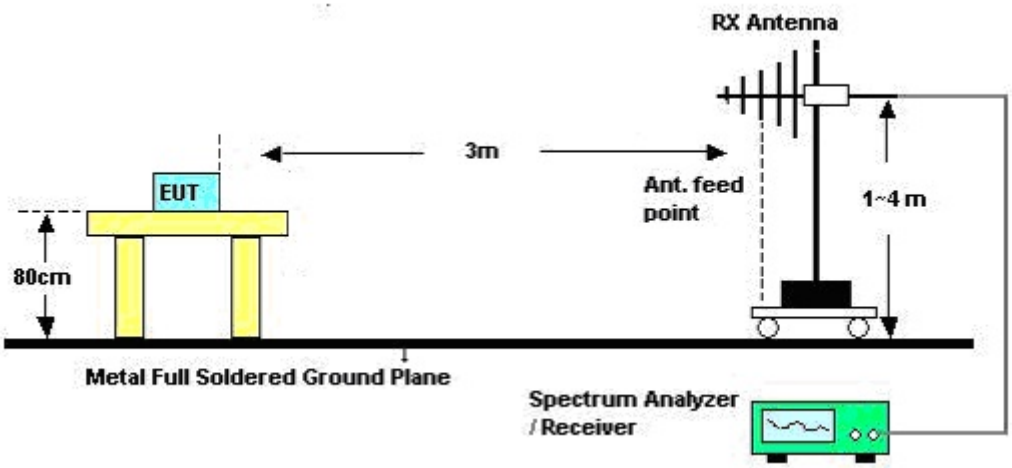
3.2.4 Test Setup

Transmitter Radiated Emissions (Below 30MHz)



Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna.

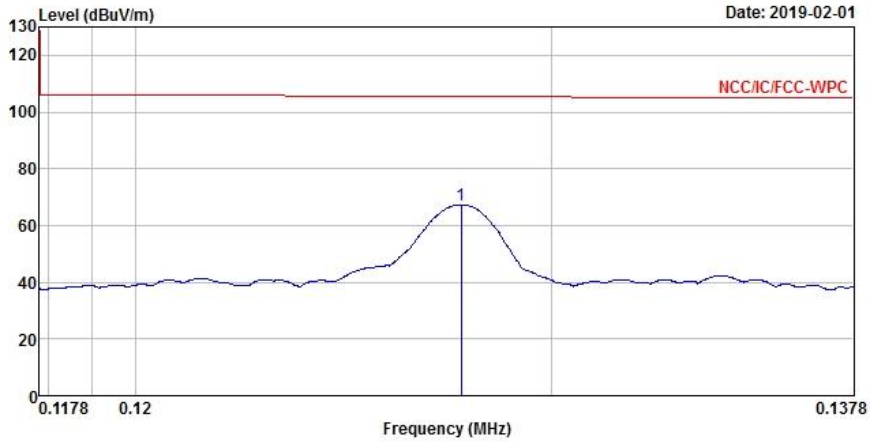
Transmitter Radiated Unwanted Emissions (Below 1GHz)



Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna.

3.2.5 Transmitter Radiated Emissions (Below 30MHz)

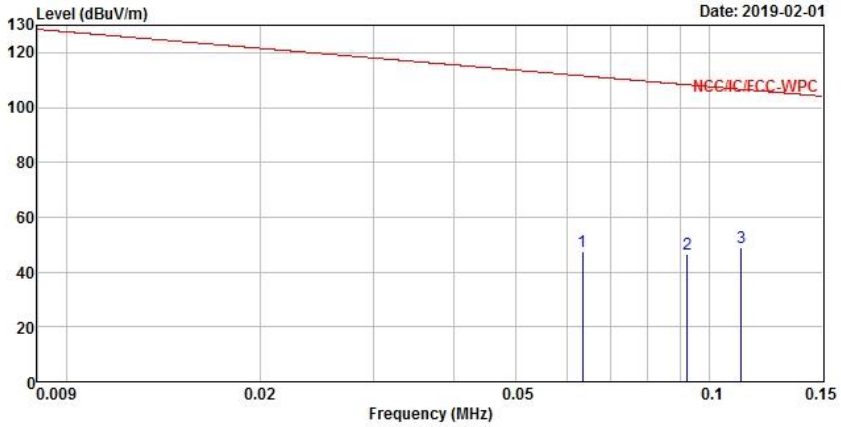
Transmitter Radiated Emissions(Fundamental emission)			
Modulation Mode	FSK	**Test Freq. (kHz)**	127.76
Operating Mode	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	0.12776	67.35	-38.13	105.48	46.59	20.67	0.09	0.00	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement worst emissions of receive antenna polarization: H(Horizontal).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.
Note 6: The test result in peak detector is less than average limit , so that we tested in peak detector only.

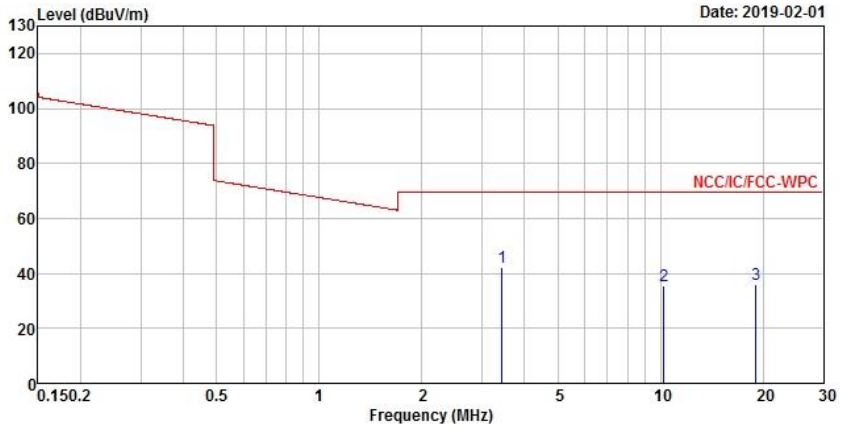
Transmitter Radiated Emissions (9 kHz – 150 kHz)			
Modulation Mode	FSK	**Test Freq. (kHz)**	127.76
Operating Mode	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	0.06343	47.53	-64.03	111.56	26.47	20.99	0.07	0.00	Peak
2	0.09219	46.33	-61.98	108.31	25.49	20.76	0.08	0.00	Peak
3	0.11193	48.73	-57.90	106.63	27.96	20.69	0.08	0.00	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement worst emissions of receive antenna polarization: H(Horizontal).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.

Transmitter Radiated Emissions (150 kHz – 30 MHz)			
Modulation Mode	FSK	**Test Freq. (kHz)**	127.76
Operating Mode	1	**Polarization**	H

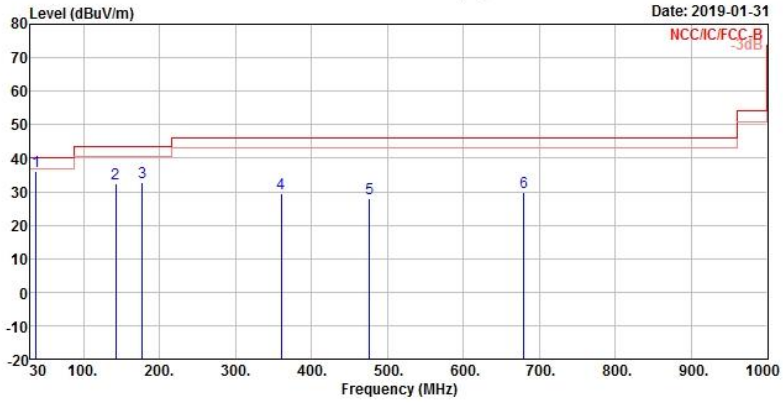


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	3.43350	42.19	-27.35	69.54	21.33	20.47	0.39	0.00	Peak
2	10.23930	35.64	-33.90	69.54	13.52	21.52	0.60	0.00	Peak
3	19.01520	35.97	-33.57	69.54	12.86	22.31	0.80	0.00	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement worst emissions of receive antenna polarization: H(Horizontal).
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.

3.2.6 Transmitter Radiated Emissions (Above 30MHz)

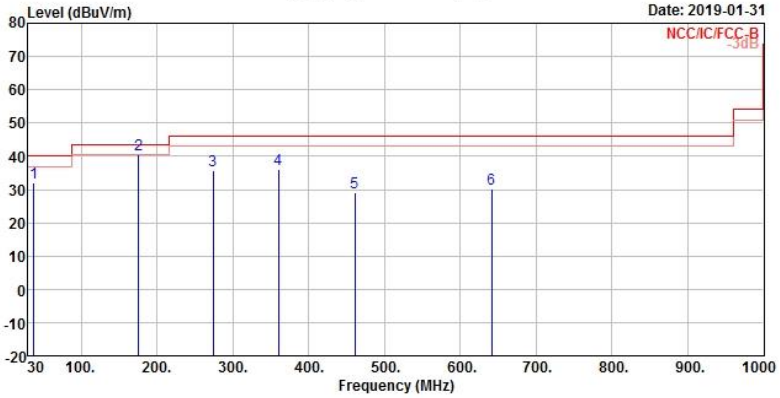
Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	FSK	**Test Freq. (kHz)**	127.76
Operating Mode	1	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	37.76000	36.04	-3.96	40.00	43.08	18.67	1.83	27.54	Peak
2	142.52000	32.33	-11.17	43.50	41.37	15.95	2.17	27.16	Peak
3	177.44000	32.91	-10.59	43.50	43.15	14.45	2.31	27.00	Peak
4	359.80000	29.33	-16.67	46.00	33.53	19.83	2.99	27.02	Peak
5	476.20000	28.02	-17.98	46.00	29.63	22.58	3.49	27.68	Peak
6	679.90000	29.71	-16.29	46.00	29.38	24.09	4.14	27.90	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.

Transmitter Radiated Emissions (Above 30MHz)			
Modulation Mode	FSK	**Test Freq. (kHz)**	127.76
Operating Mode	1	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	37.76000	32.20	-7.80	40.00	39.24	18.67	1.83	27.54	Peak
2	175.50000	40.39	-3.11	43.50	50.50	14.52	2.38	27.01	Peak
3	274.44000	35.88	-10.12	46.00	42.01	17.98	2.60	26.71	Peak
4	359.80000	35.93	-10.07	46.00	40.13	19.83	2.99	27.02	Peak
5	460.68000	29.18	-16.82	46.00	31.17	22.16	3.45	27.60	Peak
6	641.10000	30.10	-15.90	46.00	29.67	24.26	4.10	27.93	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 6 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: No level of unwanted emissions exceeds the level of the fundamental emission.
Note 5: Except fundamental emission, other emissions from digital circuitry used to control additional panel functions or display capabilities other than the touch panel radio transmission. While disable touch panel radio transmission, other emissions have the same levels. Therefore other emissions level could be exceed the fundamental emission level.

3.3 Emission Bandwidth

3.3.1 Emission Bandwidth Limit

Emission Bandwidth Limit
N/A

3.3.2 Measuring Instruments

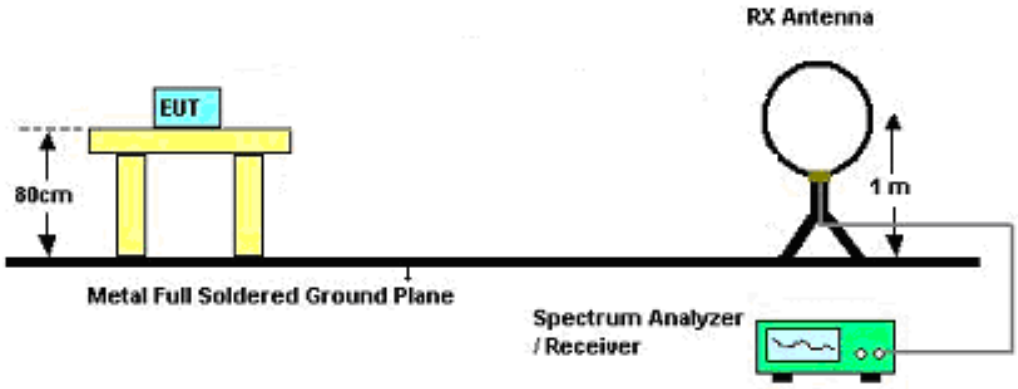
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
☒	For the emission bandwidth refer ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.
☒	For radiated measurement. Loop antenna was rotated about the horizontal and vertical axis and the equipment to be measured and the test antenna shall be oriented to obtain the maximum emitted field strength level.

3.3.4 Test Setup

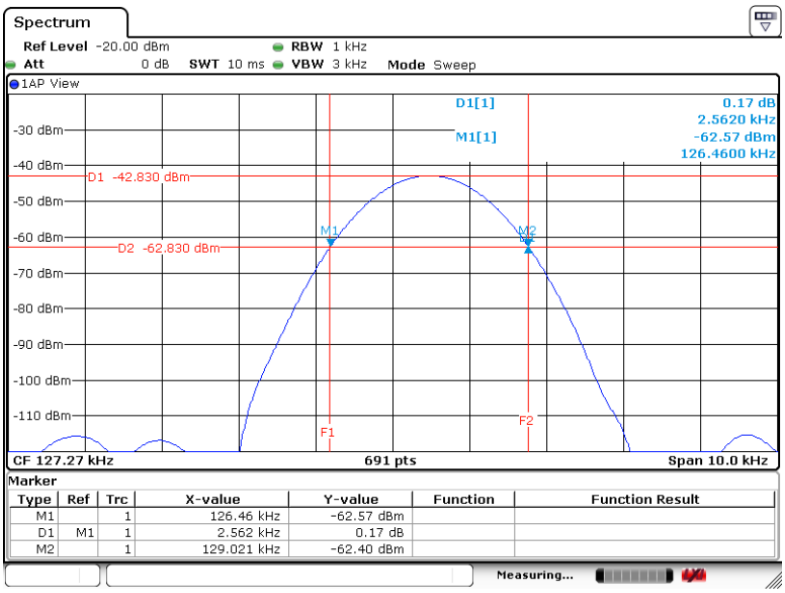
Emission Bandwidth



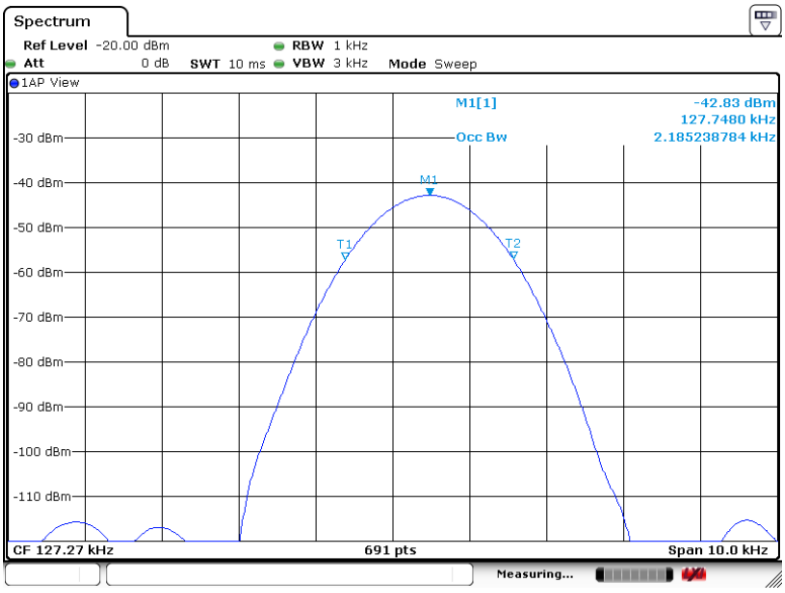
3.3.5 Test Result of Emission Bandwidth

Occupied Channel Bandwidth Result			
Modulation Mode	**Frequency (kHz)**	**20dB Bandwidth (kHz)**	**99% Bandwidth (kHz)**
FSK	127.76	2.5620	2.1852
Limit		**N/A**	**N/A**
Result		**Complied**	

Emission Bandwidth Plot 20dB Bandwidth



Emission Bandwidth Plot 99% Bandwidth



4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	08/Nov/2018	07/Nov/2019
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	17/Sep/2018	16/Sep/2019
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2018	11/Oct/2019

NCR : Non-Calibration Require

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	05/Feb/2018	04/Feb/2019
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	28/Mar/2018	27/Mar/2019

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	30/Oct/2018	29/Oct/2019
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	23/Apr/2018	19/Apr/2019
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	10/Apr/2018	09/Apr/2019
Bilog Antenna with 5dB Pad	ETS	3142B & MTJ6102-05	00022055	26 MHz - 3 GHz	19/Nov/2018	18/Nov/2019
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	18/Jul/2018	17/Jul/2019
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	29/Jan/2018	28/Jan/2019
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	28/Mar/2018	27/Mar/2019