Product Name: Bluetooth speaker with wireless charger
Model No.: B81
Report Number: BLA-EMC-202010-A5903

Operation Frequency:	110KHz-205KHz
Modulation type:	Backscatter modulation
Antenna Type:	Inductive loop coil Antenna
Antenna Gain:	0dBi (Max)
Power Supply:	Input: DC 5V 1A Output: DC 5V 1A Power: 5W

RF Exposure Evaluation

1 Measuring Standard

KDB 680106 D01 RF Exposure Wireless Charging App v03r01

2 Requirements

According to the item 5 of KDB 680106 D01 RF Exposure Wireless Charging App v03r01:
(1) Power transfer frequency is less than 1 MHz.
Yes
(2) Output power from each primary coil is less than or equal to 15 watts.
Yes
(3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
Yes
(4)Client device is placed directly in contact with the transmitter.
Yes
(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
Yes
(6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
Yes

Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

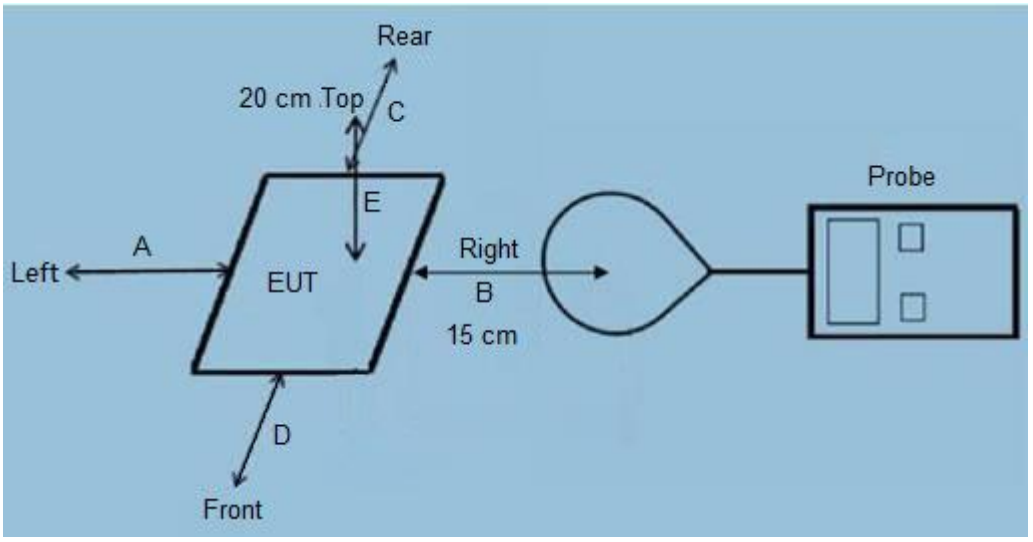
Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*($900/f^2$)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

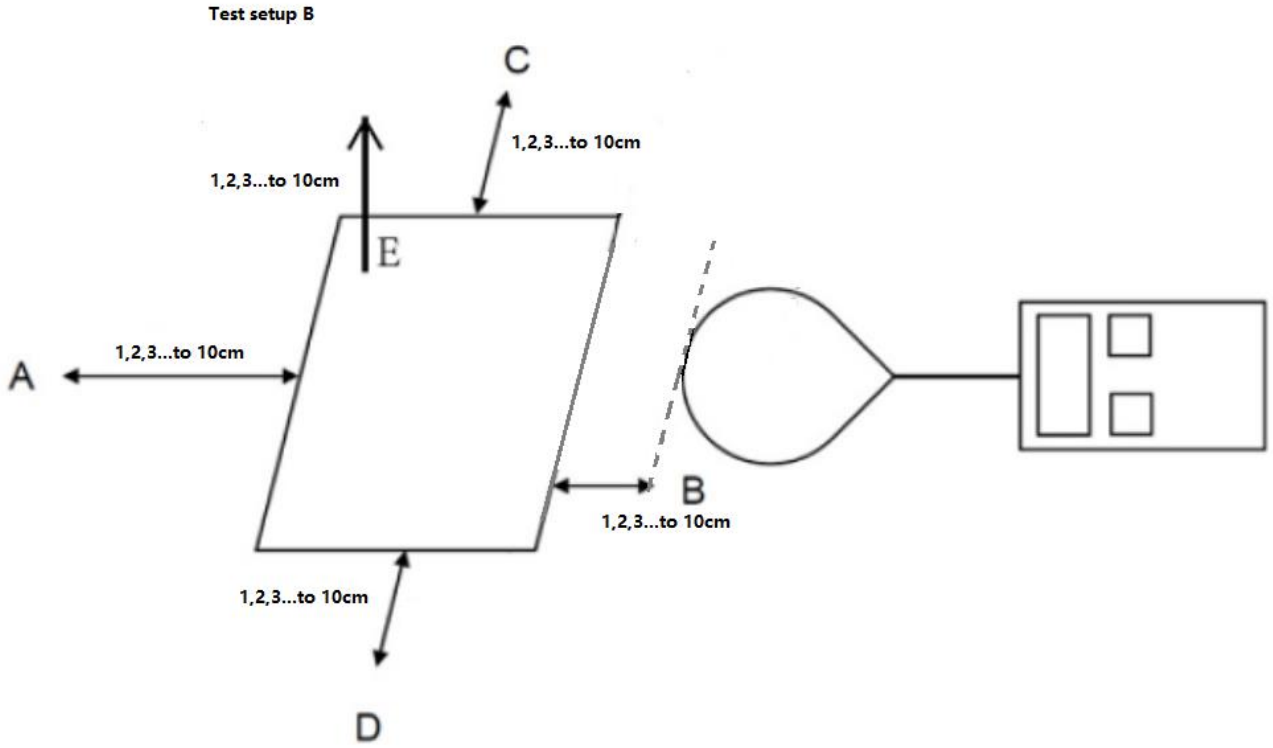
F=frequency in MHz
*=Plane-wave equivalent power density
RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

3 Test Setup

A:



B:



4 Test Procedure

1) The RF exposure test was performed in an echoic chamber;

2) <u>The measurement probe was placed at test distance(15 cm from edges, 20 cm from top) Which is between the edge of the charger and the geometric center of probe, for test setup A;</u>

3) <u>In addition to what is described in KDB 680106 D01, please measure and provide magnetic and electrical field strength at a distance 10cm to 1cm at 1cm iteration, i.e. at a distance of 10cm, 9cm, 8cm, ……. 1cm. Which is between the edge of the charger and the edge of of probe, for test setup B;</u>

4) The highest emission leve laws recorded and compared with limit as soon as measurement of each points (A,B, C,D, E)were completed;

5) The EUT was measured according to the dictates of KDB680106D01v03r01

Remark：The EUT' s test position A, B,C, D and E is valid for the E and H field measurements.

5 Test Instruments list

Test Equipment	Manufacturer	Model No.	SN.	Cal.Date (mm-dd-yy)	Cal.Duedate (mm-dd-yy)
E&H Field Probe	Schaffner	EMC20	EMC068	03-27-2020	03-26-2021
E&H Field meter	Schaffner	EMC20	EMC068	03-27-2020	03-26-2021

6 Test Result

Test Result for Test setup A:

Connect AC power in mode:

E-Filed Strength at (15 cm from edges A,B,C,D,15cm and 20 cm from top E) surrounding the EUT (V/m)

Charging Load Worse case	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E 15cm	Test Position E 20cm	Limits (V/m)
<5%	1.36	1.42	1.42	1.52	1.43	1.71	614
50%	1.22	1.39	1.03	1.29	1.24	1.35	614
>90 %	1.03	1.15	1.12	1.22	1.08	1.07	614

H-Filed Strength at (15 cm from edges A,B,C,D, 15cm and 20 cm from top E) surrounding the EUT (A/m)

Charging Load Worse case	Test Position A	Test Position B	Test Position C	Test Position D	Test Position E 15cm	Test Position E 20cm	Limits (A/m)
<5%	0.0036	0.0042	0.0025	0.0052	0.0032	0.0014	1.63
50%	0.0028	0.0033	0.0030	0.0047	0.0023	0.0023	1.63
>90 %	0.0041	0.0052	0.0034	0.0039	0.0027	0.0045	0.63

Test Result for Test setup B:

Connect AC power in mode

<5% ,50% ,>90% load all have been tested ,only worse case Max load (90%) is reported.

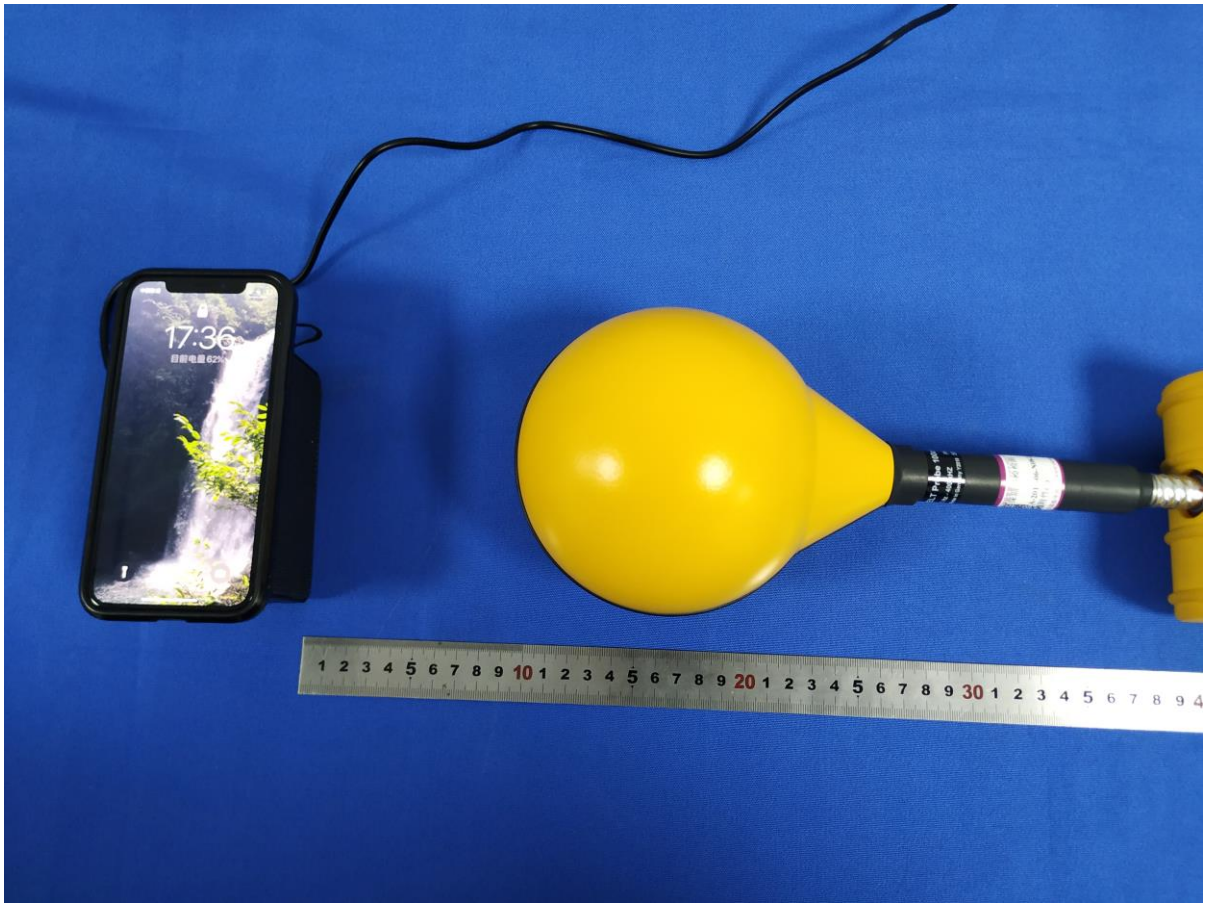
E-Filed Strength at (distance 10cm to 1cm at 1cm iteration, i.e. at a distance of 10cm, 9cm, 8cm, ……. 1cm, Which is between the edge of the charger and the edge of of probe,) surrounding the EUT (V/m)

Test distance (cm)	Test Position A(V/m)	Test Position B(V/m	Test Position C(V/m	Test Position D(V/m	Test Position E(V/m)	Limits (V/m)
1	2.36	2.48	2.59	2.17	2.06	614
2	2.03	2.12	2.08	2.43	2.32	614
3	2.17	2.34	2.47	2.51	2.06	614
4	1.56	1.43	1.71	1.55	1.62	614
5	1.43	1.35	1.39	1.27	1.41	614
6	1.23	1.11	1.09	1.24	1.65	614
7	1.08	1.02	1.05	1.04	1.13	614
8	1.01	1.03	1.06	1.00	1.02	614
9	0.89	0.74	0.81	0.93	0.91	614
10	0.84	0.85	0.74	0.81	0.67	614

H-Filed Strength at (distance 10cm to 1cm at 1cm iteration, i.e. at a distance of 10cm, 9cm, 8cm, ……. 1cm, Which is between the edge of the charger and the edge of of probe,) surrounding the EUT (A/m)

Test distance (cm)	Test Position A(A/m	Test Position B(A/m)	Test Position C(A/	Test Position D(A/m	Test Position E(A/m	Limits (A/m)
1	0.0050	0.0053	0.0061	0.0062	0.0048	1.63
2	0.0042	0.0047	0.0054	0.0038	0.0042	1.63
3	0.0039	0.0042	0.0051	0.0043	0.0046	1.63
4	0.0063	0.0062	0.0057	0.0053	0.0060	1.63
5	0.0053	0.0057	0.0042	0.0031	0.0039	1.63
6	0.0022	0.0021	0.0035	0.0030	0.0026	1.63
7	0.0032	0.0028	0.0036	0.0035	0.0041	1.63
8	0.0026	0.0025	0.0022	0.0017	0.0025	1.63
9	0.0034	0.0031	0.0034	0.0032	0.0028	1.63
10	0.0028	0.0023	0.0025	0.0027	0.0027	1.63

7 Test Set-up Photo



Test Engineer: Jason

Reviewer: Sweet. Liang

Test date: 2021-03-18

Review date: 2021-03-18