

## RF EXPOSURE EVALUATION

### EUT Specification

<b>EUT</b>	Computer Speaker
<b>Model Number</b>	CO708
<b>Series models</b>	CO709,CO710,CO712,CO713,A-30,A-293,A-231,A-232, A-233,A-235,A-236
<b>FCC ID</b>	2BBOI-CO708
<b>Antenna gain (Max)</b>	-0.58dBi
<b>Operation Frequency</b>	2402-2480MHz
<b>Input Rating</b>	DC 5V
<b>Standard</b>	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
<b>Modulation</b>	GFSK, $\pi/4$ DQPSK,8DPSK

### Limits

According to FCC Part1.1310: 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 part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	60
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	60
30–300 .....	61.4	0.163	1.0	60
300–1500 .....	.....	.....	f/300	60
1500–100,000 .....	.....	.....	5	60
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	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

Friis Formula

Friis transmission formula:  $Pd = (Pout * G) / (4 * Pi * R^2)$

Where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

Test Procedure:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

### Calculated Result and Limit

#### BT:

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Maximum tune-up Power (mW)	Antenna gain		Power Density (S) (mW /cm <sup>2</sup> )	Limited of Power Density (S) (mW /cm <sup>2</sup> )	Test Result
						(dBi)	(Linear)			
GFSK	2402	-1.535	0.702	0±2	1.58	-0.58	0.87	0.0027	1	Complies
	2441	0.778	1.196	0±1	1.58	-0.58	0.87	0.0027	1	Complies
	2480	1.374	1.372	1±1	1.58	-0.58	0.87	0.0027	1	Complies
8DPSK	2402	-1.368	0.729	0±2	1.58	-0.58	0.87	0.0027	1	Complies
	2441	1.072	1.279	1±1	1.58	-0.58	0.87	0.0027	1	Complies
	2480	1.685	1.474	1±1	1.58	-0.58	0.87	0.0027	1	Complies

The Maximum power is less than the limit, complies with the exemption requirements, SAR is exempted.

Remark: The Max Conducted Peak Output Power data refer to report Report No.:  
90495-23-72-23-PP001