RF EXPOSURE EVALUATION

According to FCC 1.1310: 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 KDB 447498 D01 V06 and §1.1307(b)

CFR Title 47 §2.1091(b): (b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC ID: 2BOX8-F050700104BK

EUT Specification

EUT	Handlebar Speaker			
Frequency band (Operating)	□WLAN: 2.412GHz ~ 2.462GHz			
	□WLAN: 5.18GHz ~ 5.24GHz			
	□WLAN: 5.745GHz ~ 5.825GHz			
	⊠Others: 2.402GHz~2.480GHz			
Device category	☐Portable (<20cm separation)			
	⊠Mobile (>20cm separation)			
	Others			
Exposure classification	☐Occupational/Controlled exposure (S = 5mW/cm2)			
	⊠General Population/Uncontrolled exposure (S=1mW/cm2)			
Antenna diversity	☐Single antenna			
	⊠Multiple antennas			
	☐Tx diversity			
	☐Rx diversity			
	☐Tx/Rx diversity			
Evaluation applied	⊠MPE Evaluation			
	☐SAR Evaluation			

Limits for Maximum Permissible Exposure(MPE)

Frequency	Electric Field	Magnetic Field Power		Average			
Range(MHz)	Strength(V/m)	Strength(A/m)	Strength(A/m) Density(mW/cm²)				
(A) Limits for Occupational/Control Exposures							
300-1500			F/300	6			
1500-100000			5	6			
(B) Limits for General Population/Uncontrol Exposures							
300-1500			F/1500	6			
1500-100000			1	30			

Friis transmission formula: Pd=(Pout*G)\(4*pi*R2)

Where

Pd= Power density in mW/cm²
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 the limit of MPE, 1mW/cm2. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

BDR&EDR worst case:

	Channel	Measured	Tune up	Max. Tune	Antenna	Power density	Power density	
	Frequency	Power	tolerance	up Power	Gain	at 20cm	Limits	
	Mode	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm ²)	(mW/cm ²)
Ī	8DPSK	2480	-6.10	-6.10±1	-5.1	-0.58	0.0001	1

BLE worst case:

O	Channel	Measured	Tune up	Max. Tune	Antenna	Power density	Power density	
	Operating Mode	Frequency	Power	tolerance	up Power	Gain	at 20cm	Limits
		(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm ²)	(mW/cm ²)
	1M	2402	-3.98	-3.98±1	-2.98	-0.58	0.0001	1

Note: BDR&EDR and BLE cannot support simultaneous transmission.

Test Result: Pass