



RF Exposure Evaluation Declaration

FCC ID: 2AK6V-FOC-BLE-1

APPLICANT: Nanjing Caliber Electronic Technology co., LTD

Application Type: Certification

Product: Smart Steer Socket

Model No.: FOC-BLE-1A, FOC-BLE-1B

FCC Classification: Digital Transmission System (DTS)

FCC Rule Part(s): FCC CFR 47 §2.1091

Test Date: January 01 ~ 21, 2017

Reviewed By : *Robin Wu*
(Robin Wu)

Approved By : *Marlin Chen*
(Marlin Chen)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2009. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1701RSU01002	Rev. 01	Initial report	02-06-2017	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	Smart Steer Socket
FCC ID	2AK6V-FOC-BLE-1
Model No.	FOC-BLE-1A, FOC-BLE-1B
Bluetooth Specification	
Bluetooth Frequency	2402~2480MHz
Bluetooth Version	v4.0
Type of modulation	FHSS
Data Rate	1Mbps(GFSK)
Antenna Type	PCB Antenna
Antenna Gain	3dBi

Note 1: FOC-BLE-1A apply to two-hole socket, FOC-BLE-1B apply to three-hole socket) , the other(PCB and schematics) was the same.

Note 2: The test report relate only to the “FOC-BLE-1A” tested.

1.2. Antenna Description

Antenna Type	Frequency Band (MHz)	Manufacturer	Max Peak Gain (dBi)
PCB Antenna	2402~2480	TELINK	3

2. RF Exposure Evaluation

2.1. Limits

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 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)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

Formula as follows:

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, $1mW/cm^2$. 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.

2.2. Test Result of RF Exposure Evaluation

Product	Smart Steer Socket
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.0dBi for Bluetooth band in logarithm scale.

For Bluetooth v4.0:

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at $r = 20 \text{ cm}$ (mW/cm^2)	FCC Limit (mW/cm^2)
Bluetooth v4.0	2402 ~ 2480	6.39	0.0017	1

CONCLUSION:

Therefore, the Max Power Density at $r (20 \text{ cm}) = 0.0017 \text{ mW}/\text{cm}^2 < 1 \text{ mW}/\text{cm}^2$.

So the EUT complies with the FCC requirement.

_____ The End _____