R&TTE AND AUTOMOTIVE COMPONENTS LABORATORY

RF Exposure Evaluation

No. AE14S0259859-04/2

performed in accordance with
FCC Rules: Code of Federal Regulations and KDB 447498

PRODUCT	RF radio module for wireless communication integrated in a sound system
MODEL(s) TESTED	WKBT0204AR
FCC ID	2AFJMESS-SSY
TRADE MARK(s)	EFFEGIBI

APPLICANT	EFFEGIBI S.r.l. ~ Via Gallo, 769 ~ I - 47522 Borello di Cesena (FC)

Approved by	Roberto Colombo *[Laboratory manager]*	

Revision Sheet

Release No.	Date	Revision Description
Rev. 0	2015-07-15	First edition
Rev. 1	2015-09-31	Modified the FCC ID

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TEST REQUIREMENT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines § 1.1307(b)(1).

EUT classification (fixed, mobile or portable devices)	Fixed according to § 2.1093(b) of this Chapter
LIMITS	According to § 2.1093 of this Chapter, by means of the following guidelines: OET Bulletin 65 and Mobile Portable RF Exposure v.04 (KDB no 447498)

Limit for maximum permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Avarage Time (minutes)
(A) Limits for Occupational/Controlled Exposure				
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÷3.0	614	1.63	(100)*	30
3.0÷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				

MPE Calculation method:
$$E(V/m)= \frac{\sqrt{30 \times P \times G}}{d}$$

Power density
$$Pd(W/m^2)= \frac{E^2}{377}$$

E= electric field (V/m)
P= Peak RF output power (W)
G= EUT antenna numeric gain (numeric), Gain numeric=$10^{(dBi/10)}$
d= Separation distance between radiator and human body (m)

The formula can be changed to:
$$Pd= \frac{30 \times P \times G}{377 \times d^2}$$

Equipment	Max output power (dBm)	Peak output power (mW)	Power density (S)(mW/cm^2)	Limit of power density (S)(mW/cm^2)
DOCKING	3.68	2.333	0,000464462	1
RECEIVER	3.04	2.014	0,000400821	1

TEST RESULT

This value is less than the low threshold limit corresponding to the general population exposure

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category and therefore no SAR test is required.

SAR TEST EXCLUSION CONSIDERATIONS (According to KDB 447498 §4.3)

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] · [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

• f(GHz) is the RF channel transmit frequency in GHz : 2.48
• Power (mW): 3.3
• Distance (mm): 5

$$\frac{3.3}{5} \times \sqrt{2.48} = 1.04$$

EVALUATIO RESULT
The device never require the SAR test.