



Willow Run (WR) Test Labs, Inc.
 7117 Fieldcrest Drive
 Brighton, MI 48116
 Phone: (734) 252-9785, e-mail: info@wrtest.com

RF EXPOSURE CALCULATIONS

Requirement:

According to USA CFR 15 §1.1307 (b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to radio frequency energy level in excess of the Commission's guidelines. For Canada, RSS-102 sets out the requirements and measurement techniques used to evaluate radio frequency (RF) exposure compliance of radiocommunication apparatus designed to be used within the vicinity of the human body.

Maximum Permissible Exposure Calculations:

USA REF: 1.1310, 2.1091/1093, 447498 D01 General RF Exposure Guidance v06
 IC REF: RSS-102 Issue 5, Safety Code 6
 Min. Sep. Distance: 20 cm (Mobile)

Test Date: 13-Jul-21
 Test Engineer: Joseph Brunett
 EUT: Allegion BE499WB
 EUT Mode: Worst Case
 Meas. Distance: 3 meters

Mode	Freq. MHz	Worst Case E3(Avg)* dBuV/m	E20cm(Avg) dBuV/m	H20cm(Avg) dBuA/m	Canada ISSED RSS-102 MPE			USA FCC 1.1310 MPE		
					SC6 Limit (E20cm) dBuV/m	SC6 Limit (H20cm) dBuA/m	Worst Case MPE Ratio	E20cm Limit*** dBuV/m	H20cm Limit*** dBuA/m	Worst Case MPE Ratio
LF Entry	13.56000	69.2	116.2	64.9	148.8	97.2	0.0006	175.8	124.2	0.0000
Mode	Freq. MHz	Worst Case EIRP(Avg)** dBm	E20cm(Avg) dBuV/m	S20cm(Avg)**** mW/cm2	Canada ISSED RSS-102 MPE			USA FCC 1.1310 MPE		
					SC6 Limit (S20cm) mW/cm2		MPE Ratio	S Limit mW/cm2		MPE Ratio
ZigBee/BLE (module)	2400-2483.5	18.6	137.3551	0.0145	5.47		0.0027	1.00000		0.0145
WLAN	2400-2483.5	20.4	139.1218	0.0218	5.47		0.0040	1.00000		0.0218
					MPE Total (<1):		.003	MPE Total (<1):		.015
					Complies?		Yes	Complies?		Yes

*As Measured / Computed from highest fundamental emission, see fundamental emission section of the NFC report.

**EIRP, as computed from either measured data reported in this application or the Modular Device RF Exposure Exhibits.

*** For FCC MPE, use of 300 kHz limit at 125 kHz as previously allowed by FCC.

**** EIRP (mW) = S (mW/cm²) x 4 x PI x 20cm²

Summary:

The EUT with all transmitters is compliant with both the FCC power density limit and the ISSED Exposure Evaluation limits.