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Friday 11th July 2014

Statement of justification for compliance for RF Exposure
SAR evaluation in accordance with KDB 447498 D01 v05 Section 4.3.1

EUT Raymarine a9 and a12 range of Multifunction displays

Product is a multifunction display which is dashboard mounted, therefore 1 and 10-g extremity SAR evaluation will be used for the SAR exemption evaluation.

Test Frequency	2.4	GHz
Wifi Peak Power	45	mW
Wifi Duty Cycle	0.33	
Wifi Average Power	15	mW
Bluetooth Peak Power	5.5	mW
Bluetooth Duty Cycle	1	
Bluetooth Average Power	5.5	mW
User warning in manual for body distance	10	mm
Distance between screen front and antenna	5	mm

When distance is less than 5mm, 5mm shall be used according to 5) in section 4.1 of the above document

Extremity requirement

$$\frac{(Max.power\ of\ channel\ including\ tune-up\ tolerance,mW)}{(min.test\ depARATION\ distance,mm)} \times (\sqrt{f_{(GHz)}}) \leq 7.5$$

WIFI - Extremity

$$\frac{45 * 0.333}{5} * \sqrt{2.4} = 4.64$$

Bluetooth - Extremity

$$\frac{5.5 * 1}{5} * \sqrt{2.4} = 1.7$$

Body requirement

$$\frac{(Max.power\ of\ channel\ including\ tune-up\ tolerance,mW)}{(min.test\ depARATION\ distance,mm)} \times (\sqrt{f_{(GHz)}}) \leq 3.0$$

Wifi - body

$$\frac{45 * 0.333}{10} * \sqrt{2.4} = 2.32$$

Bluetooth - body

$$\frac{5.5 * 1}{10} * \sqrt{2.4} = 0.85$$

The front of the display is below the 10-g SAR evaluation level, therefore no warning is required

At a distance of 10mm the front of the display is below the 1-g SAR evaluation level, therefore a warning of 10mm separation is included in the manual

Review completed by Andrew Little
Compliance Manager
Raymarine UK Ltd