

## Info

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### **JANUS™ Interior OBU Family – 801660B MPE & SAR**

**References:** FCC: JQU 801660B  
Industry Canada 2665A-801660B  
RSS-102, Issue 5  
OET Bulletin 65, Edition 97  
447498 D01 General RF Exposure Guidance v06  
801660B User Manuals

The models are MPE and SAR test/evaluation exempt, as shown by calculation herein. Further due to the separation distance achieved by design, no user labelling is required as demonstrated herein.

The OBUs comprise a RF emitting PCB, including PCB antenna, inside an enclosure. The minimum distance from the transmit circuit and antenna on the PCB to the external of the enclosure is 5mm. The UUT has a maximum peak EIRP of 0.82 mW (ERP of 0.5mW) and maximum peak conducted output power of 0.4 mW.

In the limit, without any directives restricting separation distance to users in the manuals, the most conservative operating separation distance from the human body is 5mm. Note the normal mounting instructions (see user manuals) result in separation distances much greater than this.

For separation distances of <20cm SAR is applicable, while for  $\geq 20$  cm RF exposure (MPE) is applicable.

#### **SAR Evaluation Exemption RSS-102**

Per RSS-102, 2.5.1 and linearly interpolating for operating frequency into Table 1, at  $\leq 5$ mm the exemption limit at 915 MHz is 16.24 mW.

The units are therefore SAR evaluation exempt. Since the minimum separation distance is achieved by design no user instructions on maintaining separation distance are required.

### **SAR Test Exclusion Exemption KBD 447498**

Per KBD 447498, section 4.3.1 (a) the SAR test exemption limit is given by:

- a) For 100 MHz to 6 GHz and *test separation distances*  $\leq 50$  mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}] \leq 3.0$  for 1-g SAR, and  $\leq 7.5$  for 10-g extremity SAR,<sup>30</sup> where

- $f_{\text{(GHz)}}$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation<sup>31</sup>
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

The test exclusions are applicable only when the minimum *test separation distance* is  $\leq 50$  mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is  $< 5$  mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

Where power is maximum conducted power. Applying the formula we obtain:

Power (nearest mW)	1
Frequency	0.915 GHz
test separation distance	5 mm
formula result	0.19

The units are therefore SAR evaluation exempt. Since the minimum separation distance is achieved by design no user instructions on maintaining separation distance are required.