

12<sup>th</sup> May 2016

Telecommunications Certification Body  
UL Verification Services Ltd  
Unit 3 Horizon  
Wade Road, Kingsland  
Basingstoke  
Hampshire  
RG24 8AH

**RE: 2GHz Band Outdoor Unit FCC ID: PKTODUBBR MPE Calculation**

To Whom It May Concern,

The General Dynamics Broadband 2GHz Band Outdoor Unit is considered to be mobile equipment and intended for operation with a minimum separation distance between the user and the equipment. The equipment is classed as a TV Pickup Station and operates under Part 74 Subpart F. The equipment is not certified under any of the rule parts identified in FCC rule 2.1091 c1 or c2 and is therefore categorically excluded from routine RF exposure evaluation under FCC rule 2.1091 c3. Equipment operating under Part 74 Subpart F is not covered by FCC rules 1.1307 (b)(1) and (b)(2) and therefore under FCC rule 1.1307 (b)(2)(v) is categorically excluded from routine RF exposure evaluation.

To ensure that adequate information is provided to the user, an RF exposure evaluation has been performed to determine minimum separation distances to comply with the Un-controlled / General Public MPE RF exposure limits. The equipment operates using Time Division Duplex (TDD) technology and source based averaging has been applied in the RF exposure calculation.

| MPE Distance Calculation                  | 6 or 12MHz Channel |                    |
|-------------------------------------------|--------------------|--------------------|
| Antenna Gain                              | 24                 | dBi                |
| Line Loss                                 | 0                  | dB                 |
| Antenna Gain Ratio                        | 251.19             |                    |
| 2GHz Band ODU Tx Output Power             | 39                 | dBm                |
| Upper Power Tolerance                     | 1                  | dB                 |
| Output Power mW inc. Tolerance            | 10000.00           | mW                 |
| Maximum EIRP (per Channel)                | 2511886.43         | mW                 |
| Maximum EIRP (per Channel)                | 2511.89            | W                  |
| Maximum EIRP (per Channel)                | 34.00              | dBW                |
| Maximum ERP (per Channel)                 | 1531087.46         | mW                 |
| Maximum ERP (per Channel)                 | 1531.09            | W                  |
| Frequency                                 | 2025               | MHz                |
| MPE Limit from 1.1310                     | 1.000              | mw/cm <sup>2</sup> |
| Un-controlled/General Public Limit        |                    |                    |
| <b>Minimum Distance to meet MPE Limit</b> | <b>447.09</b>      | <b>cm</b>          |
| (100% Duty Cycle)                         | <b>175.88</b>      | <b>inches</b>      |

**Table 1: 2GHz Band - MPE Calculation 100% Duty Cycle**

|                                             |               |               |
|---------------------------------------------|---------------|---------------|
| <b>Sourced Based Duty Cycle Adjustment</b>  |               |               |
| Total Timeslots in Frame                    | 10            |               |
| Timeslots for Transmit                      | 6             |               |
| Timeslots for Receive                       | 4             |               |
| Percentage time transmitting in Tx timeslot | 100           | %             |
| Power Control Attenuation                   | 0             | dB            |
| Duty Cycle Correction Factor                | 60.00         | %             |
| <b>Minimum Distance to meet MPE Limit</b>   | <b>346.31</b> | <b>cm</b>     |
| (80.00% Duty Cycle)                         | <b>136.24</b> | <b>inches</b> |

**Table 2: 2GHz Band - MPE Calculation with Source Based Averaging**

The calculations above show the 2GHz Band Outdoor Unit FCC ID: PKTODUBBR complies with the Un-controlled /General Public limits at a minimum distance of 3.47m when operated with antenna gains up to 24dBi.

Yours Faithfully



P Warburg  
Principal Engineer  
General Dynamics Broadband