

Dated: September 4, 2026

Subject: Antenna Justification Letter for FCC Part 15 Compliance

FCC ID: PDG-BR2401

IC: 12550A-BR2401

Model Number: BR-2401

To Whom It May Concern,

This letter provides justification for the antenna configuration used in the above-referenced device, submitted for certification under FCC 47 CFR Part 15, Section 15.245, and ISSED RSS-210 / RSS-GEN.

Radiated Measurement Justification

All compliance testing, including fundamental and spurious emissions, was performed using **radiated measurement methods**. As such, antenna gain and performance characteristics were inherently captured in the test results. Therefore, no separate antenna gain documentation is required to demonstrate compliance with FCC limits.

This approach aligns with the guidance provided in the **FCC TCB Workshop (October 2022)** and **KDB 353028 D01**, which allows for a justification statement in lieu of antenna gain documentation when radiated measurements are used exclusively.

Antenna Description

- **Antenna Type:** Microstrip patch array printed on the assy1000480 printed circuit board (proprietary Infinition design; no separate manufacturer part number). The board carries two separate arrays fed from the BGT24MTR11 transceiver: a smaller TRANSMIT array and a larger RECEIVE-ONLY array. Only the transmit array radiates.
- **Location:** Integrated on the main PCB, as shown in the internal photographs
- **Dimensions:** Transmit array 8 x 4 elements, approx. 80 x 35 mm. Receive-only array 16 x 12 elements, approx. 160 x 104 mm. Element pitch approx. 10.0 mm (H) x 8.7 mm (V), i.e. 0.80 and 0.70 wavelengths at 24.125 GHz. Overall PCB approx. 208 x 219 mm.

- **Estimated Peak Gain:** 20 dBi (transmit array). The receive-only array is not part of the intentional radiator and its gain does not enter the emission calculation.
- **Polarization:** Vertical
- **Orientation:** Fixed. Boresight normal to the antenna PCB plane.
- **Frequency Bands Supported:** 24.080 GHz to 24.168 GHz (12 CW channels, 8 MHz spacing), within the 24.0–24.25 GHz ISM band

Compliance Statement

The antenna configuration has not been altered in a way that would affect radiated performance. No external gain-enhancing accessories (e.g. reflectors, lenses) are used. The antenna is integral to the transmitter, permanently affixed, and has no connector: it is not user-accessible, not detachable and not replaceable. All compliance measurements for this device were performed radiated, so the antenna gain of 20 dBi is inherently included in the reported field strength results.

Should you require any additional information or clarification, please do not hesitate to contact us.

Sincerely,



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