samsara

Samsara Inc.

Dated: September 23, 2025

Subject: Antenna Justification Letter for FCC Part 15 Compliance
FCC ID: 2AIHD-2521
Model Number: 080-00001

To Whom It May Concern,

This letter provides justification for the antenna configuration used in the above-referenced device, submitted for certification under **FCC Part 15**.

BLE radio Antenna Gain Justification

The BLE antenna is permanently integrated into the product. For testing, the conducted output power of the BLE radio was verified using a temporary connector, with a maximum measured value of 18.5 dBm. The antenna was designed with an estimated gain of approximately 2 dBi.

Radiated measurements of the fundamental frequency produced 115.69 dBµV/m at 3 meters, equivalent to an EIRP of 20.46 dBm. This measured value aligns closely with the calculated EIRP (18.5 dBm + 2 dBi = 20.5 dBm), confirming that the estimated antenna gain of 2 dBi is accurate and that antenna performance was inherently captured in the radiated test results.

The resulting EIRP remains well below the FCC conducted output power limit of 30 dBm (1 W). Accordingly, no additional antenna gain documentation is required to demonstrate compliance.

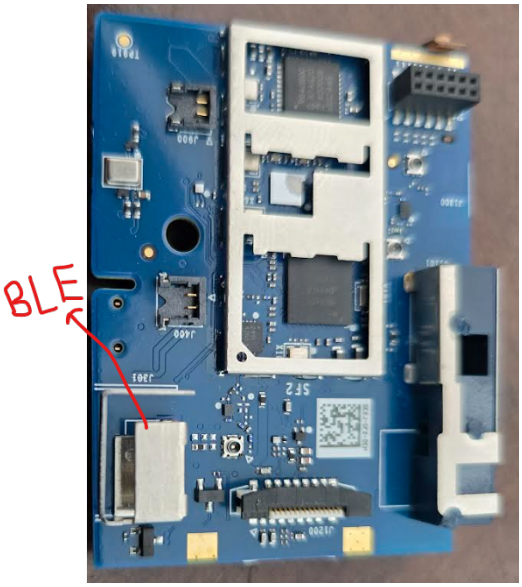
Antenna Description

- **Antenna Type:** Internal stamped metal antenna
- **Location:** Integrated on the main PCB, as shown in the internal photographs
- **Dimensions :** 12.5mm x 8mm x 6.35mm

- **Estimated Peak Gain:** 2dBi
- **Polarization:** Linear
- **Orientation:** Horizontal
- **Frequency Bands Supported:** 2.4–2.5 GHz

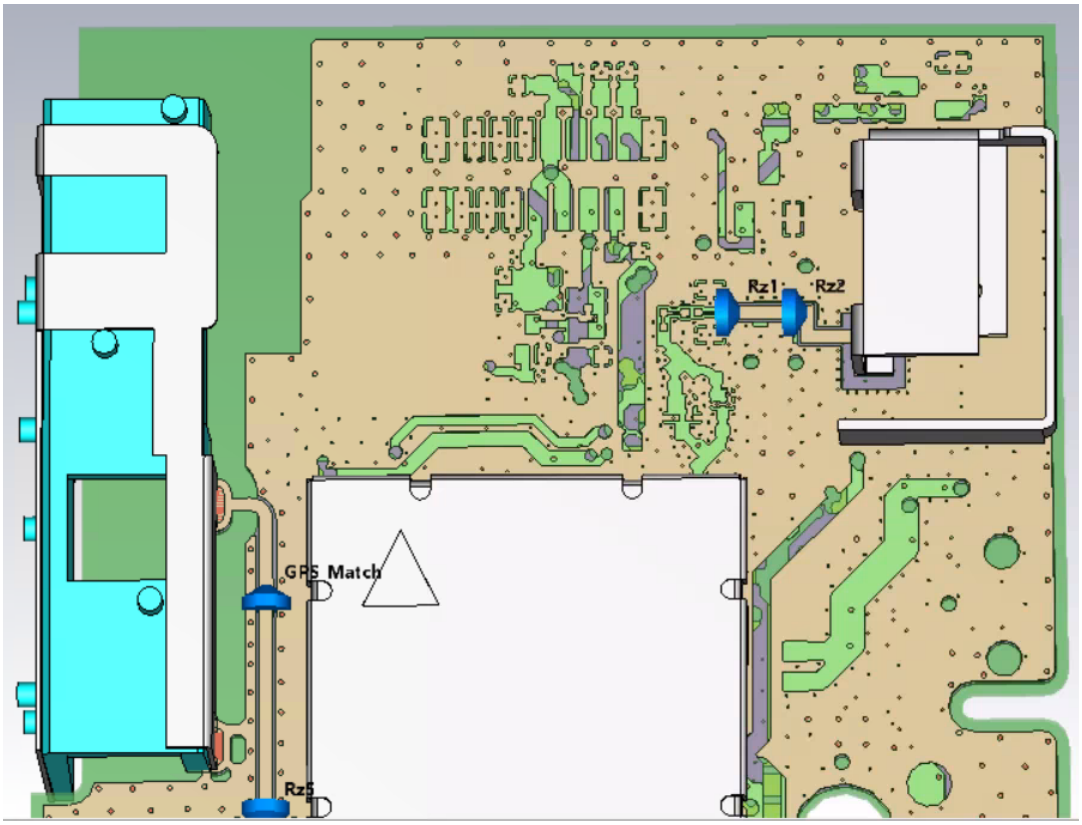
Supporting details and materials

1. **Internal Photographs**
    - Clearly annotate to show antenna location and layout



2. **PCB Layout Diagrams**

BLE:



3. **Antenna Specifications**
    - BLE antenna, S11 < -6dB in between 2.4GHz to 2.5GHz
4. **Estimated Gain Information**
    - Derived from reference design or engineering simulations
    - No passive reflectors or lenses are used

Compliance Statement

samsara

Samsara Inc.

The BLE 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 permanently affixed and not user-accessible or replaceable.

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

Sincerely, *Ryan Aalund*

Name:	Ryan Aalund
Title:	Director Hardware Reliability and Quality
Company:	Samsara Inc
Address:	1 De Haro St, San Francisco, CA 94107 USA
Phone:	415-329-6900
Email:	compliance@samsara.com