



## Jabra Granite Antenna report

**Revision:** 2  
**Author:** Luisa Gong  
**Date:** 2024-08-01

### Revision History:

| Revision | Date       | Change by  | Description                                             |
|----------|------------|------------|---------------------------------------------------------|
| 1        | 2024.07.05 | Luisa Gong | First Revision                                          |
| 2.       | 2024.08.01 | Luisa Gong | Default power GC modify, and antenna information enrich |
|          |            |            |                                                         |

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## 1 Introduction

This document describes the radiation performance measurements made on a Jabra Granite. The measurement results provided in this report are: the total radiated power at three frequencies and the antenna radiation patterns at three frequencies in free space.

The measurements have been performed by:

**Luisa Gong**

**RF Engineer**

**GN Audio A/S**

## 2 Specification

### 2.1 Electrical Properties

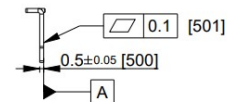
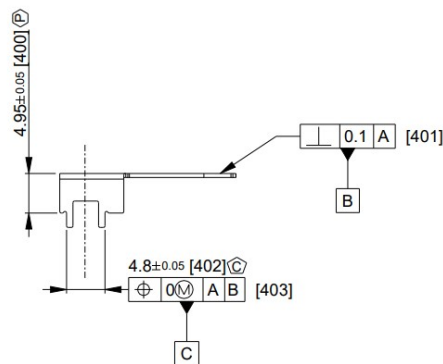
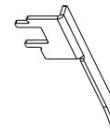
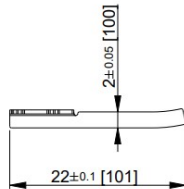
Frequency Range: 2.402GHz ~2.480GHz  
 Impedance: 50  $\Omega$  nominal  
 Radiation: omni-directional

### 2.2 Physical Properties

| PN         | Model Name | Specification | Manufacturer   |
|------------|------------|---------------|----------------|
| 50-10327-C | 50-10327   | PIFA          | C&I Technology |

Type: PIFA antenna

Operating temp: -30 ~ +60 °C



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### 3 Anechoic Chamber



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## 4 Results

### 4.1 Conducted power

#### Results:

Conducted output power is taken from the average value of 2 samples on each channel.

|                        |          |          |          |
|------------------------|----------|----------|----------|
| Channel                | 0        | 39       | 78       |
| Frequency[MHz]         | 2402     | 2441     | 2480     |
| Conducted output power | 9.72 dBm | 9.56 dBm | 9.41 dBm |

### 4.2 Total radiated power

|                                                 |           |          |           |
|-------------------------------------------------|-----------|----------|-----------|
| Channel                                         | 0         | 39       | 78        |
| Frequency[MHz]                                  | 2402      | 2441     | 2480      |
| Peak Equivalent isotropic radiated power (EIRP) | 11.58 dBm | 11.3 dBm | 11.45 dBm |
| Total radiated power                            | 8.11 dBm  | 7.62 dBm | 7.28 dBm  |

### 4.3 Antenna patterns

**2.402 GHz****CTIA TRP Report (RP\_Bluetooth)****Common Information**

|                       |                      |
|-----------------------|----------------------|
| Test Description:     | GN OTA Test Report   |
| Operating Conditions: | Granite_AP2.1_FS_TRP |
| Operator Name:        | Luisa                |
| Comment:              |                      |

**Test Information**

|                     |                                   |
|---------------------|-----------------------------------|
| Test Method:        | Radiated Power Mobile Phone       |
| Test Condition:     | FS: Free Space                    |
| EUT Identification: | Device Name: Bluetooth DU, BT a   |
| Radio Link:         | Bluetooth; Channel 0 (2402.000 M  |
| Test Time:          | Start: 8/1/2024 10:00:40 AM; Stop |
| CMU200 Connectors:  | In: RF2 (45.0 dB), Out: RF2 (45.0 |
| Cal Data Hor:       | 18.71 dB (X-OTA_OTA_RadPwr_       |
| Cal Data Ver:       | 19.74 dB (X-OTA_OTA_RadPwr_       |

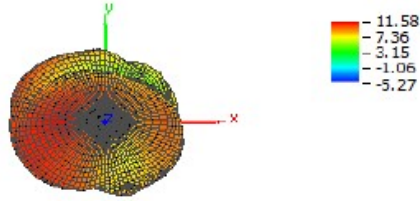
**OTA Evaluation Results**

|                      |           |
|----------------------|-----------|
| Total Radiated Power | 8.11 dBm  |
| Peak EIRP            | 11.58 dBm |
| Directivity          | 3.47 dBi  |
| Peak Gain            | 11.58 dBi |
| NHPRP 45j ã          | 6.49 dBm  |
| NHPRP 45j ã / TRP    | -1.62 dB  |
| NHPRP 45j ã / TRP    | 68.93 %   |
| NHPRP 30j ã          | 4.86 dBm  |
| NHPRP 30j ã / TRP    | -3.24 dB  |
| NHPRP 30j ã / TRP    | 47.39 %   |
| NHPRP 22.5j ã        | 3.63 dBm  |
| NHPRP 22.5j ã / TRP  | -4.47 dB  |
| NHPRP 22.5j ã / TRP  | 35.70 %   |
| UHRP                 | 5.35 dBm  |
| UHRP / TRP           | -2.76 dB  |
| UHRP / TRP           | 52.94 %   |
| LHRP                 | 4.83 dBm  |
| LHRP / TRP           | -3.27 dB  |

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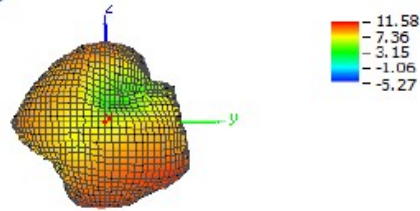
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**Theta = 180, Phi = 0**

x

**Theta = 90, Phi = 0**



**Theta = 90, Phi = 180**

y

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**2.441GHZ**

# CTIA TRP Report (RP\_Bluetooth

## Common Information

|                       |                      |
|-----------------------|----------------------|
| Test Description:     | GN OTA Test Report   |
| Operating Conditions: | Granite_AP2.1_FS_TRP |
| Operator Name:        | Luisa                |
| Comment:              |                      |

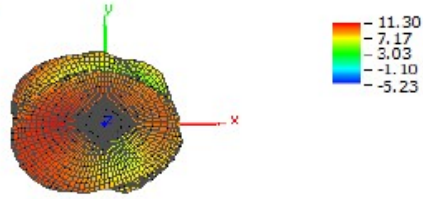
## Test Information

|                     |                                       |
|---------------------|---------------------------------------|
| Test Method:        | Radiated Power Mobile Phone           |
| Test Condition:     | FS: Free Space                        |
| EUT Identification: | Device Name: Bluetooth DU, BT addn    |
| Radio Link:         | Bluetooth; Channel 39 (2441.000 MHz;  |
| Test Time:          | Start: 8/1/2024 10:00:40 AM; Stop: 8/ |
| CMU200 Connectors:  | In: RF2 (45.0 dB), Out: RF2 (45.0 dB) |
| Cal Data Hor:       | 18.60 dB (X-OTA_OTA_RadPwr_220;       |
| Cal Data Ver:       | 19.59 dB (X-OTA_OTA_RadPwr_220;       |

## OTA Evaluation Results

|                      |           |
|----------------------|-----------|
| Total Radiated Power | 7.62 dBm  |
| Peak EIRP            | 11.30 dBm |
| Directivity          | 3.68 dBi  |
| Peak Gain            | 11.30 dBi |
| NHPRP 45j ã          | 5.99 dBm  |
| NHPRP 45j ã / TRP    | -1.62 dB  |
| NHPRP 45j ã / TRP    | 68.83 %   |
| NHPRP 30j ã          | 4.34 dBm  |
| NHPRP 30j ã / TRP    | -3.27 dB  |
| NHPRP 30j ã / TRP    | 47.06 %   |
| NHPRP 22.5j ã        | 3.09 dBm  |
| NHPRP 22.5j ã / TRP  | -4.52 dB  |
| NHPRP 22.5j ã / TRP  | 35.28 %   |
| UHRP                 | 4.85 dBm  |
| UHRP / TRP           | -2.76 dB  |
| UHRP / TRP           | 52.93 %   |
| LHRP                 | 4.34 dBm  |
| LHRP / TRP           | -3.27 dB  |

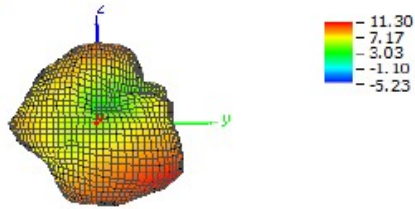
**Theta = 0, Phi = 0**



**Theta = 180, Phi = 0**

z

**Theta = 90, Phi = 0**



**Theta = 90, Phi = 180**

z

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**2.480GHZ**

# CTIA TRP Report (RP\_Bluetooth

## Common Information

|                       |                      |
|-----------------------|----------------------|
| Test Description:     | GN OTA Test Report   |
| Operating Conditions: | Granite_AP2.1_FS_TRP |
| Operator Name:        | Luisa                |
| Comment:              |                      |

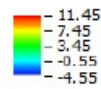
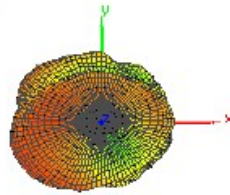
## Test Information

|                     |                                       |
|---------------------|---------------------------------------|
| Test Method:        | Radiated Power Mobile Phone           |
| Test Condition:     | FS: Free Space                        |
| EUT Identification: | Device Name: Bluetooth DU, BT ad      |
| Radio Link:         | Bluetooth; Channel 78 (2480.000 M     |
| Test Time:          | Start: 8/1/2024 10:00:40 AM; Stop: 1  |
| CMU200 Connectors:  | In: RF2 (45.0 dB), Out: RF2 (45.0 dB) |
| Cal Data Hor:       | 18.58 dB (X-OTA_OTA_RadPwr_22         |
| Cal Data Ver:       | 19.25 dB (X-OTA_OTA_RadPwr_22         |

## OTA Evaluation Results

|                      |           |
|----------------------|-----------|
| Total Radiated Power | 7.28 dBm  |
| Peak EIRP            | 11.45 dBm |
| Directivity          | 4.17 dBi  |
| Peak Gain            | 11.45 dBi |
| NHPRP 45j ã          | 5.69 dBm  |
| NHPRP 45j ã / TRP    | -1.59 dB  |
| NHPRP 45j ã / TRP    | 69.33 %   |
| NHPRP 30j ã          | 3.95 dBm  |
| NHPRP 30j ã / TRP    | -3.33 dB  |
| NHPRP 30j ã / TRP    | 46.46 %   |
| NHPRP 22.5j ã        | 2.64 dBm  |
| NHPRP 22.5j ã / TRP  | -4.65 dB  |
| NHPRP 22.5j ã / TRP  | 34.30 %   |
| UHRP                 | 4.52 dBm  |
| UHRP / TRP           | -2.76 dB  |
| UHRP / TRP           | 52.95 %   |
| LHRP                 | 4.01 dBm  |
| LHRP / TRP           | -3.27 dB  |

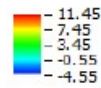
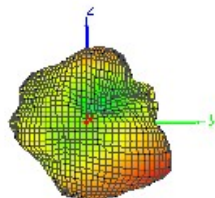
**Theta = 0, Phi = 0**



**Theta = 180, Phi = 0**



**Theta = 90, Phi = 0**



**Theta = 90, Phi = 180**



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## 5 Conclusion

The total radiated power from the Jabra Granite varies from 7.28 dBm to 8.11 dBm in free space depending on the frequency. The conducted power is around 9.5 dBm. These figures yield an antenna gain(peak) in the range of 1.74 dBi and 2.04 dBi.

|                                                 | 2402 MHz  | 2440 MHz | 2480 MHz  |
|-------------------------------------------------|-----------|----------|-----------|
| Conducted power                                 | 9.72 dBm  | 9.56 dBm | 9.41 dBm  |
| Peak Equivalent isotropic radiated power (EIRP) | 11.58 dBm | 11.3 dBm | 11.45 dBm |

|                     | 2402 MHz | 2440 MHz | 2480 MHz |
|---------------------|----------|----------|----------|
| Antenna gain (Peak) | 1.86 dBi | 1.74 dBi | 2.04 dBi |