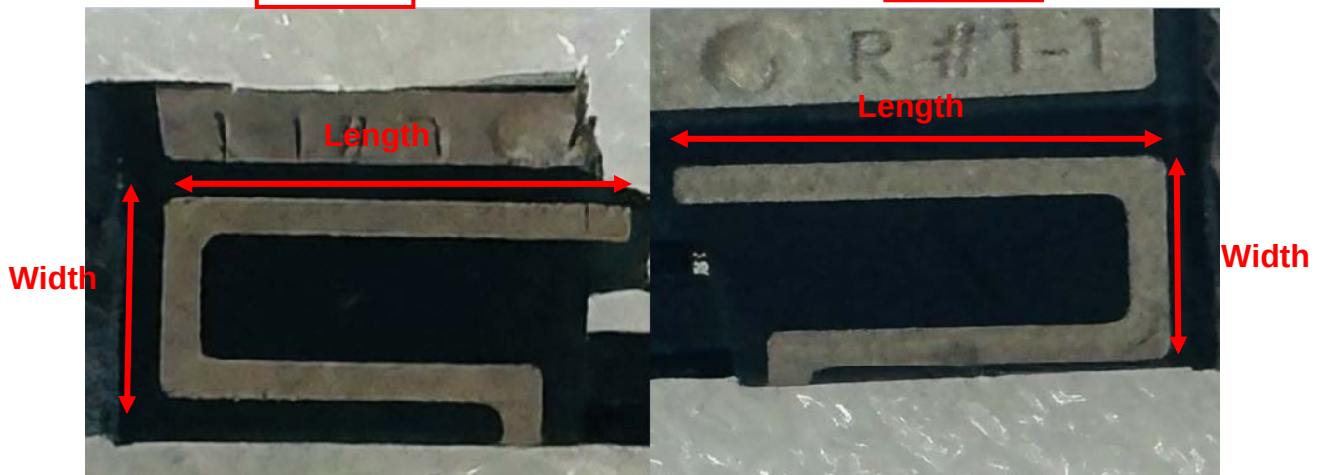


## Antenna Information

| Item                      | Contents                                |                                             |
|---------------------------|-----------------------------------------|---------------------------------------------|
| Antenna Type              | LDS Antenna                             |                                             |
| Antenna peak gain         | Left                                    | -7.3 dBi                                    |
|                           | Right                                   | -7.3 dBi                                    |
| Manufacturer / Model name | Left                                    | KYOCERA AVX INC. / SM-R630 LEFT BT ANTENNA  |
|                           | Right                                   | KYOCERA AVX INC. / SM-R630 RIGHT BT ANTENNA |
| Address of manufacturer   | 1 Avx Blvd, Fountain Inn, SC 29644, USA |                                             |
| Test Laboratory           | KYOCERA AVX INC.                        |                                             |
| Left Antenna Length       | 0.7 cm                                  |                                             |
| Left Antenna Width        | 0.4 cm                                  |                                             |
| Right Antenna Length      | 0.7 cm                                  |                                             |
| Right Antenna Width       | 0.4 cm                                  |                                             |

Left

Right



Model name: SM-R630



**DESIGN SPECIFICATION**  
**Part Number: LT31453 (SM-R630)**  
**Rev. A**

## DESIGN SPECIFICATION

|                 |                               |
|-----------------|-------------------------------|
| DESIGN          | INTERNAL ANTENNA              |
| MODEL / TYPE    | SM-R630 LEFT BT INTENNA       |
| KYOCERA AVX P/N | LT31453                       |
| SEC CODE        | GH42-07066A                   |
| CUSTOMER        | SAMSUNG ELECTRONICS CO., LTD. |
| SUPPLIER        | KYOCERA AVX INC.              |
| TEST DATE       | 2024.03.19                    |

| ENGINEERING MANAGER<br>CHECKED                                                              | MECHANICAL MANAGER<br>CHECKED                                                                | DESIGN MANAGER<br>CHECKED                                                                       |
|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <br>CS Ma | <br>JC Kim | <br>KJ Chun |



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**DESIGN SPECIFICATION**  
**Part Number: LT31453 (SM-R630)**  
**Rev. A**

**2. ELECTRICAL SPECIFICATION FOR SM-R630**

**2.1. Frequency Band**

| Mode | Frequency Band (MHz) |
|------|----------------------|
| BT   | 2,400~2,485 MHz      |

**2.2. Electrical Characteristics**

**2.2.1. VSWR**

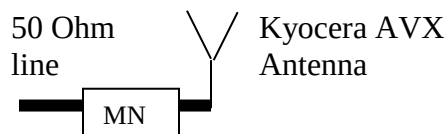
**< wireless earphone mounted typical measurements >**

|                 |             |             |
|-----------------|-------------|-------------|
| Frequency Range | 2,400 MHz   | 2,485 MHz   |
| V.S.W.R         | 1.2 ± 0.5:1 | 1.1 ± 0.5:1 |

<BT Antenna>

**Matching Requirements**

In order to assure the best performance of the antenna, the matching will be evaluated in free space and in talk position. The antenna will comply with the Electrical Specification requirements, as set out below, while mounted on the Smart Watch containing the PCB. The Smart Watch and PCB are to be provided by the customer and should be representative of the latest design version of all parts. Any modifications in the Smart Watch or PCB can affect the performance of the antenna and should be discussed with Kyocera AVX to determine the affect of such changes on the antenna performance and delivery requirements.



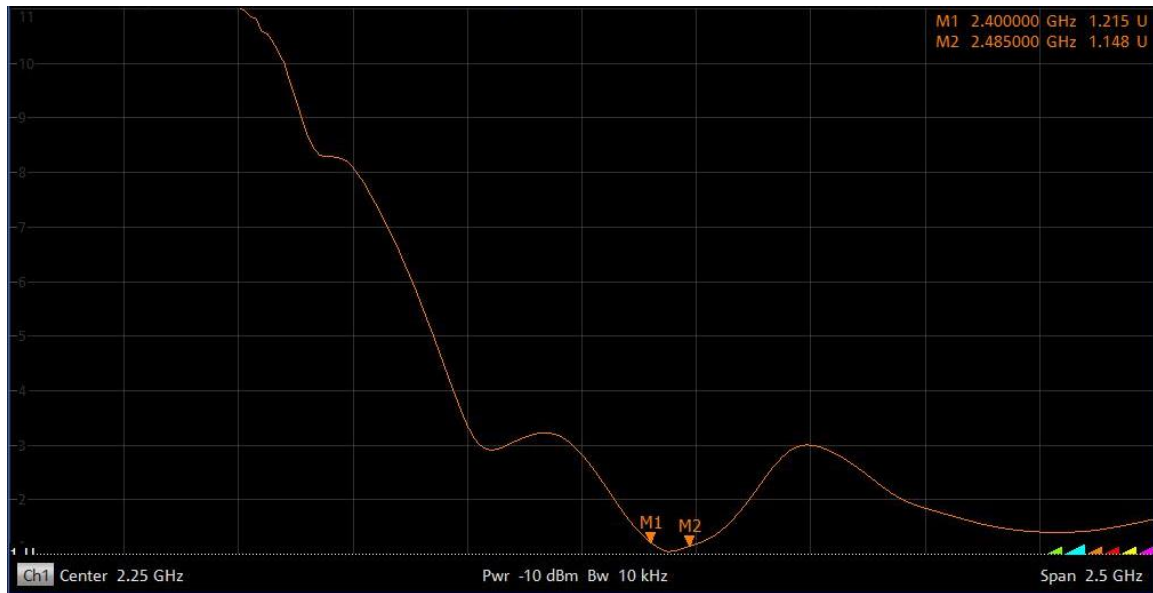
Optional matching network to be  
determined by SAMSUNG RF team if needed.



**DESIGN SPECIFICATION**  
**Part Number: LT31453 (SM-R630)**  
**Rev. A**

**2.3. Passive Measurement**

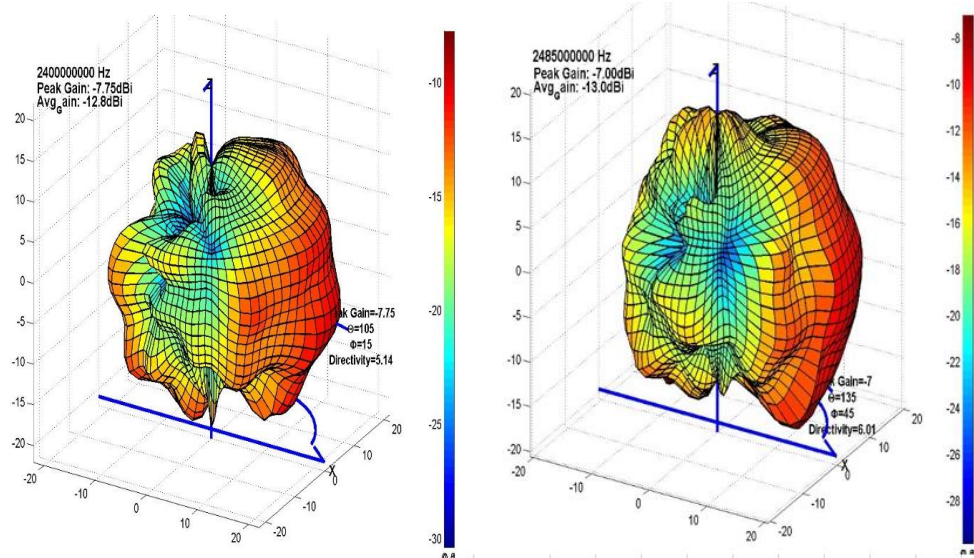
**2.3.1. Input Return Loss and VSWR**



BT Antenna

**DESIGN SPECIFICATION**  
**Part Number: LT31453 (SM-R630)**  
**Rev. A**

**2.4. SM-R630 LEFT BT ANTENNA**



< Wireless earphone mounted typical measurements >

| Frequency        | Efficiency | Average Gain |           |           | Max Gain |          |          |
|------------------|------------|--------------|-----------|-----------|----------|----------|----------|
|                  |            | Ver          | Hor       | Total     | Ver      | Hor      | Total    |
| 2,400,000,000 Hz | 5.1 %      | -15.0 dBi    | -17.1 dBi | -12.9 dBi | -8.2 dBi | -9.0 dBi | -7.8 dBi |
| 2,417,000,000 Hz | 5.7 %      | -14.6 dBi    | -16.4 dBi | -12.4 dBi | -7.7 dBi | -8.6 dBi | -7.3 dBi |
| 2,434,000,000 Hz | 5.8 %      | -14.7 dBi    | -16.2 dBi | -12.4 dBi | -7.7 dBi | -8.2 dBi | -7.3 dBi |
| 2,451,000,000 Hz | 5.3 %      | -15.4 dBi    | -16.2 dBi | -12.8 dBi | -8.3 dBi | -8.2 dBi | -7.3 dBi |
| 2,468,000,000 Hz | 4.7 %      | -16.1 dBi    | -16.5 dBi | -13.3 dBi | -9.3 dBi | -8.4 dBi | -7.5 dBi |
| 2,485,000,000 Hz | 5.0 %      | -15.9 dBi    | -16.2 dBi | -13.0 dBi | -9.6 dBi | -8.1 dBi | -7.0 dBi |



**DESIGN SPECIFICATION**  
**Part Number: LT31454 (SM-R630)**  
**Rev. A**

## DESIGN SPECIFICATION

|                 |                               |
|-----------------|-------------------------------|
| DESIGN          | INTERNAL ANTENNA              |
| MODEL / TYPE    | SM-R630 RIGHT BT INTENNA      |
| KYOCERA AVX P/N | LT31454                       |
| SEC CODE        | GH42-07067A                   |
| CUSTOMER        | SAMSUNG ELECTRONICS CO., LTD. |
| SUPPLIER        | KYOCERA AVX INC.              |
| TEST DATE       | 2024.03.19                    |

| ENGINEERING MANAGER<br>CHECKED                                                              | MECHANICAL MANAGER<br>CHECKED                                                                | DESIGN MANAGER<br>CHECKED                                                                       |
|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <br>CS Ma | <br>JC Kim | <br>KJ Chun |



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**DESIGN SPECIFICATION**  
**Part Number: LT31454 (SM-R630)**  
**Rev. A**

**2. ELECTRICAL SPECIFICATION FOR SM-R630**

**2.1. Frequency Band**

| Mode | Frequency Band (MHz) |
|------|----------------------|
| BT   | 2,400~2,485 MHz      |

**2.2. Electrical Characteristics**

**2.2.1. VSWR**

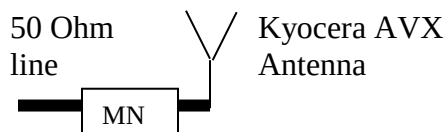
**< wireless earphone mounted typical measurements >**

|                 |             |             |
|-----------------|-------------|-------------|
| Frequency Range | 2,400 MHz   | 2,485 MHz   |
| V.S.W.R         | 1.1 ± 0.5:1 | 1.2 ± 0.5:1 |

<BT Antenna>

**Matching Requirements**

In order to assure the best performance of the antenna, the matching will be evaluated in free space and in talk position. The antenna will comply with the Electrical Specification requirements, as set out below, while mounted on the Smart Watch containing the PCB. The Smart Watch and PCB are to be provided by the customer and should be representative of the latest design version of all parts. Any modifications in the Smart Watch or PCB can affect the performance of the antenna and should be discussed with Kyocera AVX to determine the affect of such changes on the antenna performance and delivery requirements.

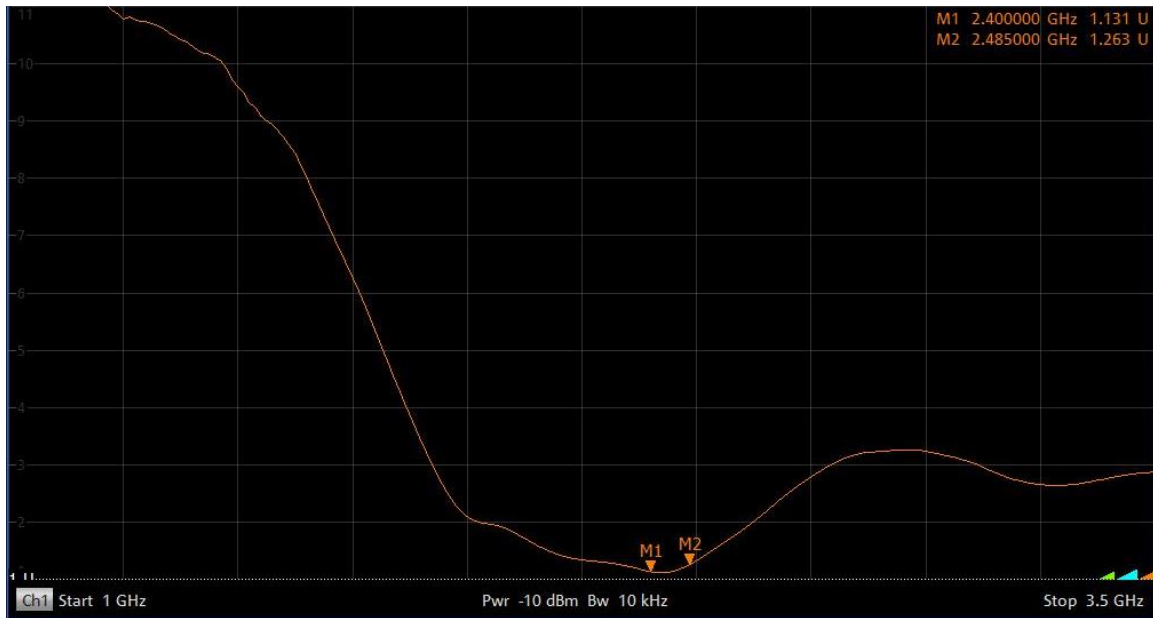


Optional matching network to be  
determined by SAMSUNG RF team if needed.

**DESIGN SPECIFICATION**  
**Part Number: LT31454 (SM-R630)**  
**Rev. A**

**2.3. Passive Measurement**

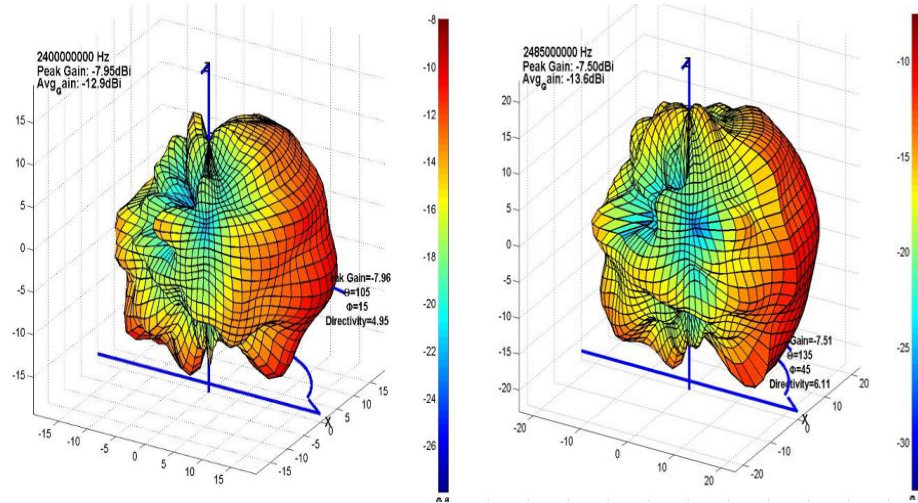
**2.3.1. Input Return Loss and VSWR**



BT/WIFI Antenna

**DESIGN SPECIFICATION**  
**Part Number: LT31454 (SM-R630)**  
**Rev. A**

**2.4. SM-R630 RIGHT BT ANTENNA**



< wireless earphone mounted typical measurements >

| Frequency        | Efficiency | Average Gain |           |           | Max Gain  |          |          |
|------------------|------------|--------------|-----------|-----------|-----------|----------|----------|
|                  |            | Ver          | Hor       | Total     | Ver       | Hor      | Total    |
| 2,400,000,000 Hz | 5.1 %      | -15.1 dBi    | -16.9 dBi | -12.9 dBi | -8.4 dBi  | -8.7 dBi | -8.0 dBi |
| 2,417,000,000 Hz | 5.5 %      | -14.9 dBi    | -16.4 dBi | -12.6 dBi | -8.1 dBi  | -8.4 dBi | -7.7 dBi |
| 2,434,000,000 Hz | 5.6 %      | -15.1 dBi    | -16.1 dBi | -12.5 dBi | -8.0 dBi  | -8.0 dBi | -7.3 dBi |
| 2,451,000,000 Hz | 4.8 %      | -16.0 dBi    | -16.5 dBi | -13.2 dBi | -8.9 dBi  | -8.3 dBi | -7.6 dBi |
| 2,468,000,000 Hz | 4.1 %      | -16.8 dBi    | -16.9 dBi | -13.8 dBi | -9.8 dBi  | -8.7 dBi | -7.9 dBi |
| 2,485,000,000 Hz | 4.3 %      | -16.5 dBi    | -16.7 dBi | -13.6 dBi | -10.1 dBi | -8.5 dBi | -7.5 dBi |