

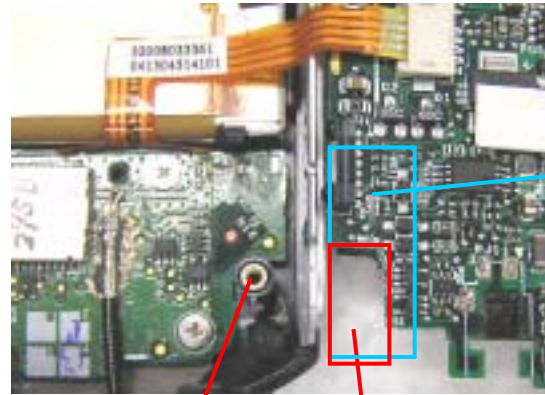
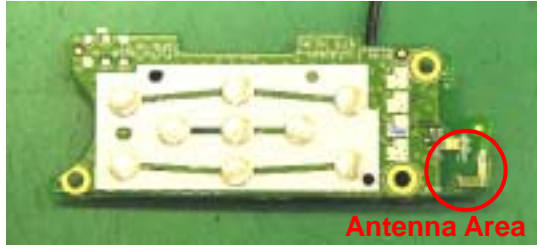
Chip Multilayer Antenna for Bluetooth

No.02

Multilayer Components Department

Murata Manufacturing Co., Ltd.

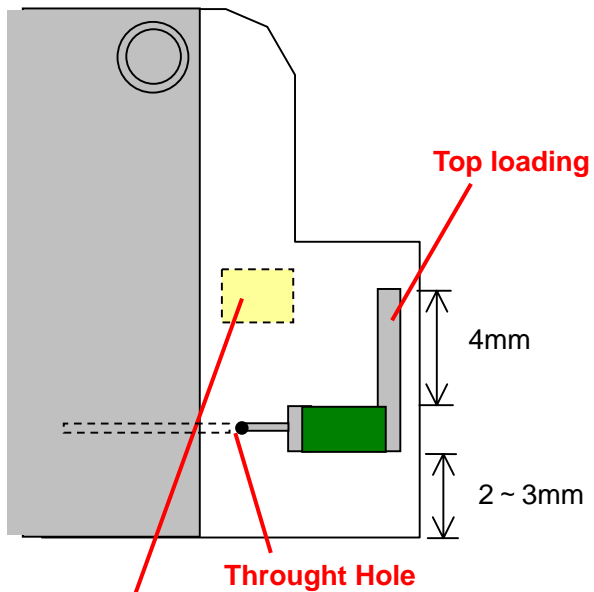
Recommendation of layout



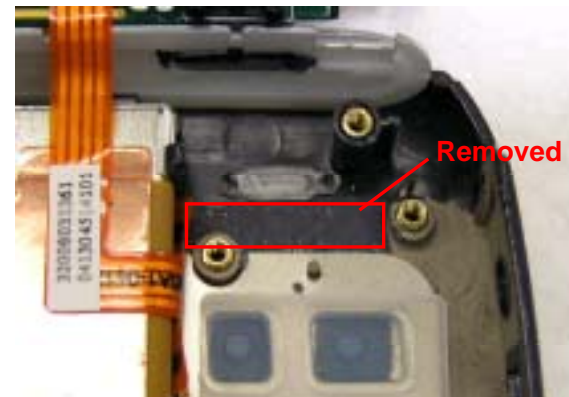
No GND Area (Ideal condition)

The screw is not connected to the GND.

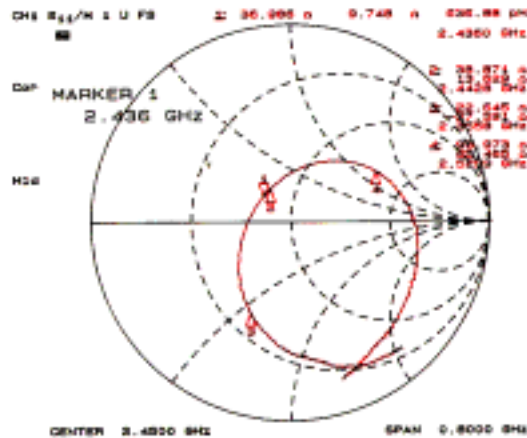
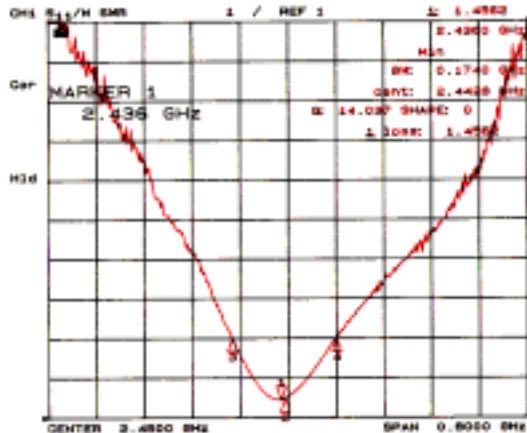
No GND Area



This component should be removed or shifted



Original layout



(2400MHz)

| Plane | polarization | Gain [dBd] | |
|--------------------------|--------------|------------|-------|
| | | Max | Ave. |
| X-Y | vertical | -13.2 | -17.3 |
| X-Y | horizontal | -15.7 | -21.8 |
| Z-X | vertical | -9.9 | -13.5 |
| Z-X | horizontal | -12.5 | -17.3 |
| Y-Z | vertical | -14.0 | -19.8 |
| Y-Z | horizontal | -12.2 | -16.4 |
| Total Average Gain [dBi] | | -11.8 | |
| Efficiency (XY,YZ) [dB] | | -14.0 | |
| Efficiency (ZX,YZ) [dB] | | -11.2 | |

(2442MHz)

| Plane | polarization | Gain [dBd] | |
|--------------------------|--------------|------------|-------|
| | | Max | Ave. |
| X-Y | vertical | -13.5 | -17.0 |
| X-Y | horizontal | -15.8 | -19.5 |
| Z-X | vertical | -9.6 | -13.6 |
| Z-X | horizontal | -12.7 | -16.8 |
| Y-Z | vertical | -12.7 | -18.8 |
| Y-Z | horizontal | -11.3 | -16.6 |
| Total Average Gain [dBi] | | -11.5 | |
| Efficiency (XY,YZ) [dB] | | -13.1 | |
| Efficiency (ZX,YZ) [dB] | | -10.7 | |

(2484MHz)

| Plane | polarization | Gain [dBd] | |
|--------------------------|--------------|------------|-------|
| | | Max | Ave. |
| X-Y | vertical | -14.5 | -17.8 |
| X-Y | horizontal | -15.0 | -19.2 |
| Z-X | vertical | -9.8 | -13.9 |
| Z-X | horizontal | -12.5 | -16.6 |
| Y-Z | vertical | -12.5 | -18.4 |
| Y-Z | horizontal | -11.3 | -16.6 |
| Total Average Gain [dBi] | | -11.6 | |
| Efficiency (XY,YZ) [dB] | | -13.4 | |
| Efficiency (ZX,YZ) [dB] | | -11.0 | |

3030MHz

