Antenna reference trace design

Layout and parts

RF traces from OSDI module pads W10 and W16 to the antenna must be made using micro-strip traces. This micro-strip trace must respect the design of the Gerber file associated with the following figures in order to obtain a uniform transmission line with a characteristic impedance of 50 ohms. The reference trace design is shown as the green trace along with the side copper filled with vias on the left side of Figure 1 where components G8, G10, G15, G16 and G18 are not installed; they were options on the reference board for future uses; these uses are not FCC authorized yet. As preliminary information the traces width of all sections are all 0.27mm and the length of each section, starting from the LGA pad to J53 connector are: LGA pad to G7: 15.38mm; G7 to G9: 12.37mm; G9 to G17: 6.7mm; G17 to R52: 2.1mm; R52 to J53: 7.2mm. However, refer to associated Gerber files for more details on dimensions and refer to Trilliant Networks Inc for more details on the Gerber files. Table 1 shows the parts used in the reference trace design

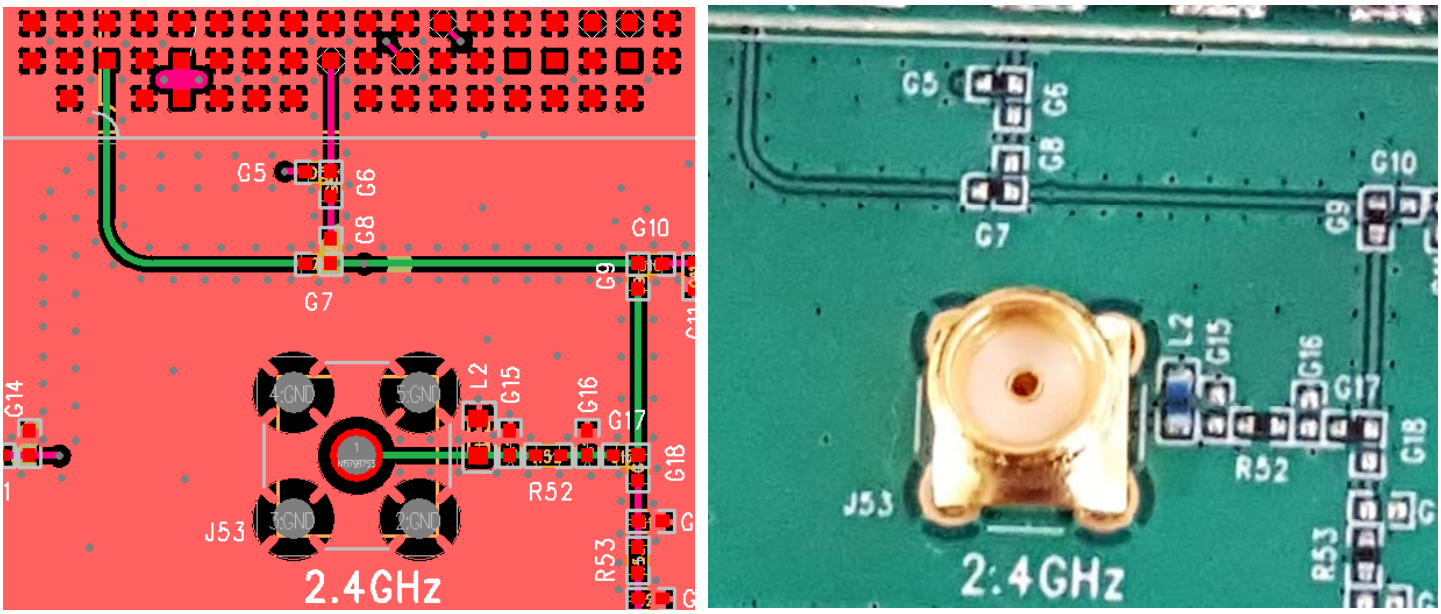

Figure 1 FCC and IC approved trace design layout and picture

Table 1 Antenna micro-strip trace parts

Part Number	Designator	Description	Manufacturer
N/A	G8, G10, G15, G16, G18	Not installed	N/A
RK73Z1ETTP	G7, G9, G17, R52	RESISTOR 0.0 OHMS 1/16W 5% 0402 SMT	KOA Speer Electronics
LQW18AN75NG00D	L2	INDUCTOR 75nH, 2%, 270mA 560mΩ, 0603 SMT	Murata Manufacturing
1-1478979-0	J53	SMA JACK CONNECTOR (FEMALE) PCB Mount 4 legs, SS/Gold pl.	TE Connectivity

Design validation & production procedures

To verify compliance of the reference trace, a coupon must be requested with every manufacturing panel form and for which the characteristics are described in the Gerber files. Part of these characteristics are shown in Figure 2. Then a network analyzer is used to measure the impedance of this coupon in order to validate the antenna trace.

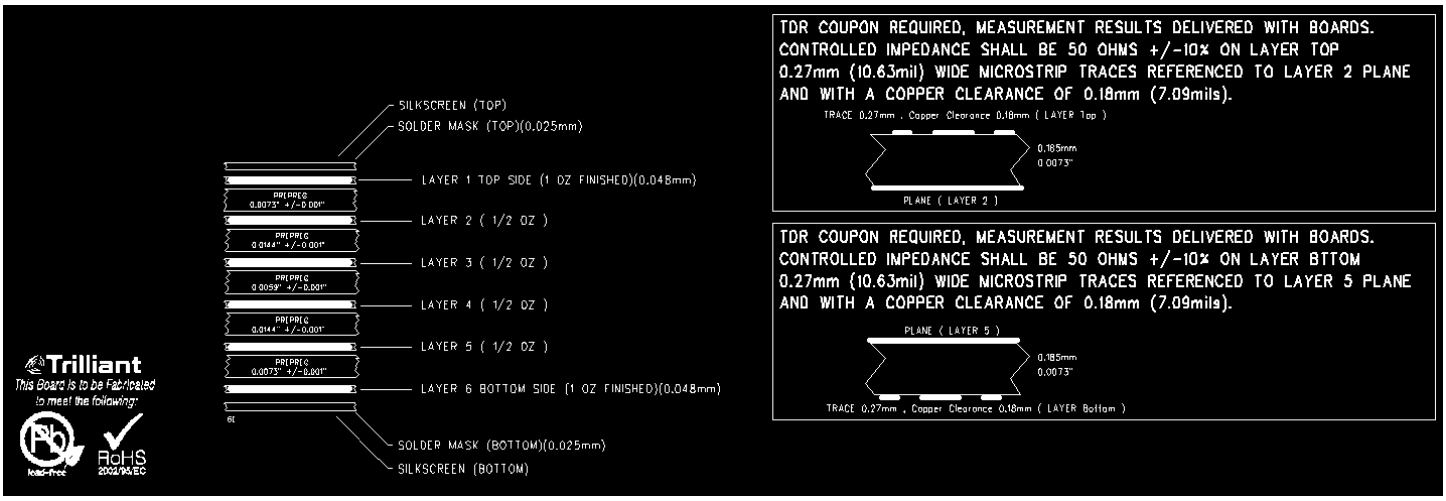

Figure 2 Coupon requirements to validate trace impedance

Other considerations

The only antennas that can be used with the module using the reference trace design are the:

- Larsen Antennas, RO2406NM, 6 dBi
- Mobile Mark, CVS-2400, 2.5 dBi

The use of any other antenna or any changes Figure 1to the reference trace design are subject to additional testing and authorization through a Class II permissive change.