



Black Diamond Megawatt RF Switch Antenna Specification

Document number: PD_AZC776 Megawatt RF Switch Operation
Issue: 1v01

DOCUMENT CHANGE DETAIL:

Ver	Date	Description	Section nr
1v00	2025-02-24	Original	
1v01	2025-03-20	Add more detail for the Antenna	

1. ANTENNA DESCRIPTION

The product uses an onboard PCB dipole antenna. The resonant frequency is optimized with matching components for 433MHz. The antenna design shown in Figure 1 with the copper layout of the antenna showed in Figure 2. The antenna as implemented on the final product

The S11 parameters for the antenna as measured using a Lite VNA antenna analyser are shown in Figure 4. The main antenna parameters are shown in Table 1.

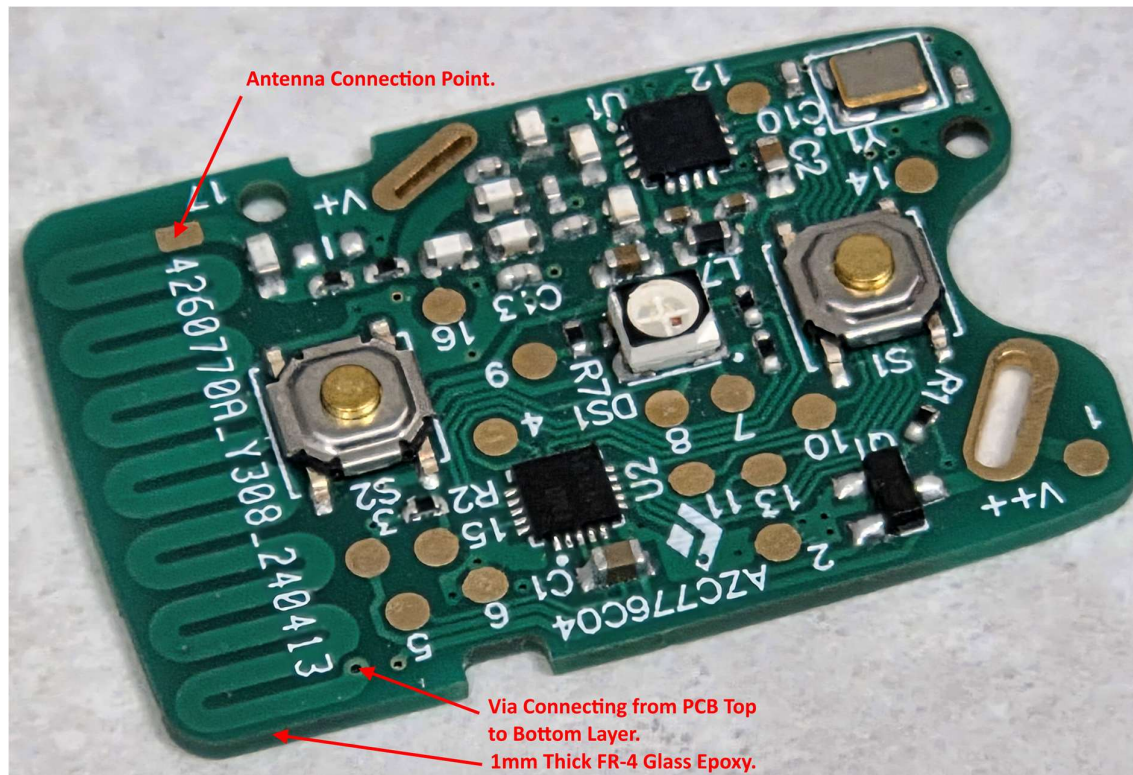


Figure 1: Antenna layout on product PCB.

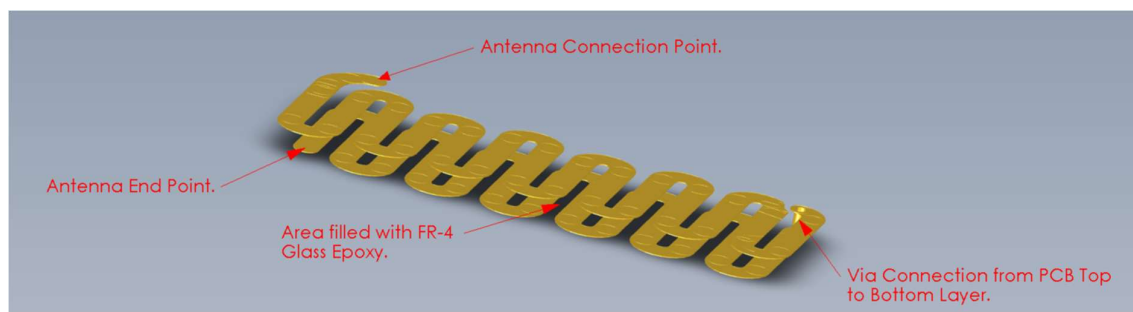


Figure 2: Antenna copper layout.

The Mechanical dimensions of the antenna layout are shown in Figure 3.

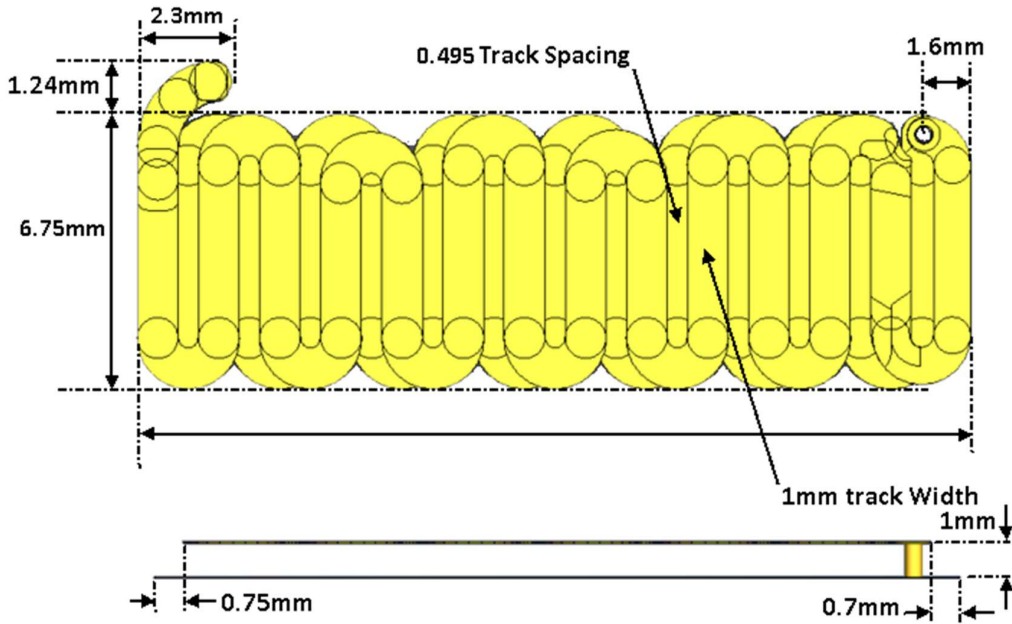


Figure 3: Antenna mechanical dimensions.

Operating Frequency	433MHz
Maximum Gain	To be confirmed.
Type	Dipole
Bandwidth	100MHz
VSWR	$\leq 1.31 : 1$, Maximum
Nominal Impedance	50 ohms
Connectors	PCB track direct connect
Dimensions (area on PCB)	20.43×6.75 mm
Approximate antenna track length	173.78mm

Table 1: Antenna main parameters.

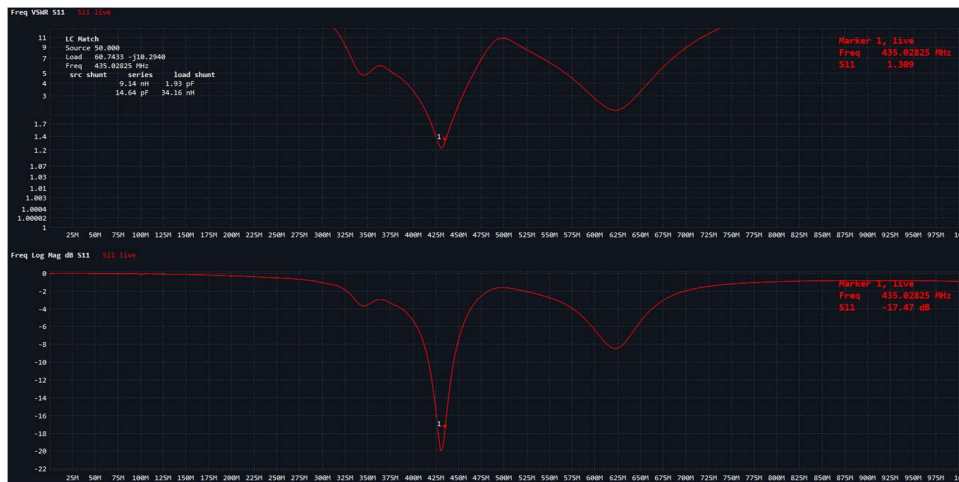


Figure 4: Frequency response for S11 Parameters of Antenna*.

* Parameters tested using LiteVNA antenna network analyser.