

RP5000 Antenna Specification and Band 2, Band 66 Test Results

1.0 Product Description

The RP5000 radio modules support 2x2 MIMO functionality. Therefore, each radio module is fitted with a 2x2 MIMO antenna assembly.

Each radio module supports a single band of operations, e.g., B2 or B66. Different band assemblies can have different matching component values; however, all antenna assemblies have identical mechanical sizes regardless of frequency of operation.

Figure 1 shows a top view of a typical antenna assembly, indicating the two radiating elements; designated “F” and “Tee”. Also, the locations of the RF connectors and RF matching components can be seen. Figure 2 shows the bottom view of the assembly.

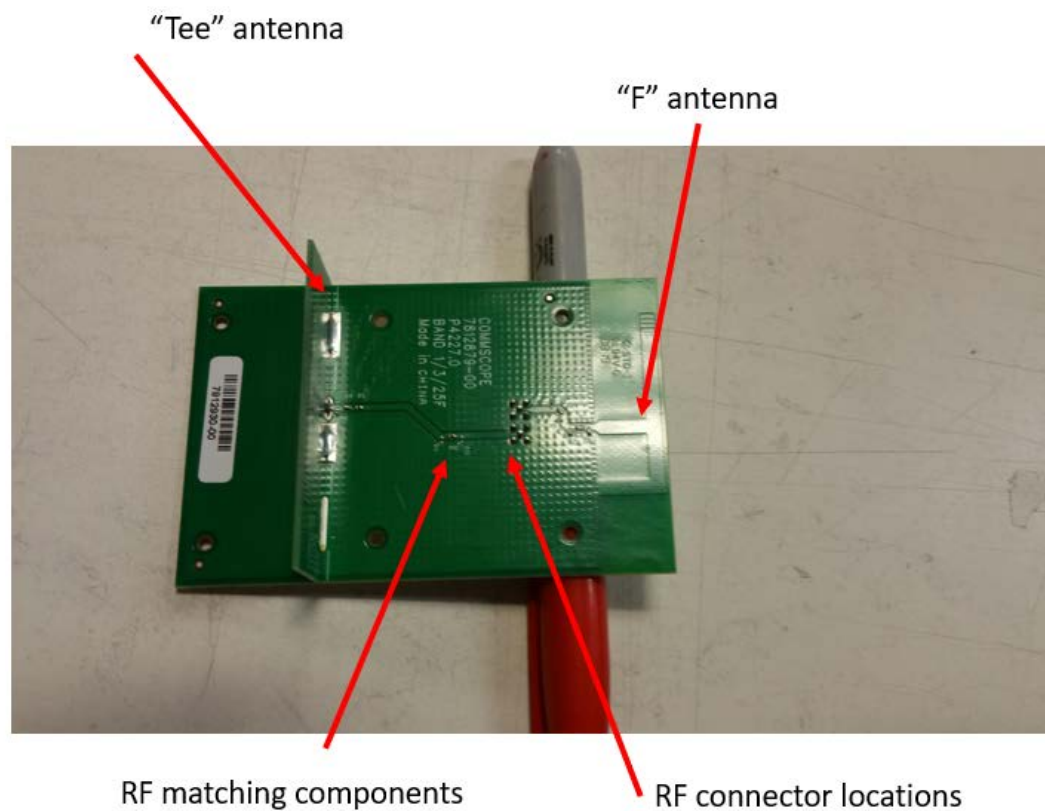


Figure 1 Antenna Assembly top view.

Dual RF connectors

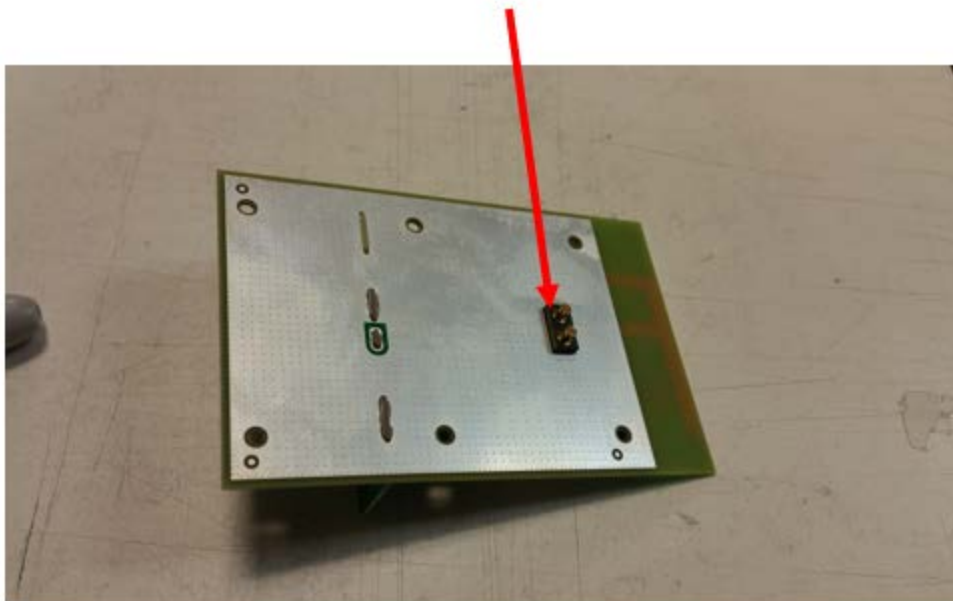


Figure 2 Antenna Assembly Bottom View

2.0 Electrical Specifications

The specifications for 1700 to 2200MHz antenna assembly are shown in Table 1. These specifications apply to both MIMO antennas of the antenna assembly (F and Tee). Slight variations in the antenna matching component values are allowed in order to optimize radiation efficiency for any specific band within the specified operating frequency range; e.g., B2, B66, B1, etc.

Table 1 Antenna Electrical Specifications

Parameter	Specification
Frequency Range (transmit and receive)	1700 to 2200MHz
Gain	Az: 0dBi El: +4dBi
VSWR	2:1, max
Impedance	50 ohms
Efficiency	>50%
Polarization	Linear
MIMO correlation coefficient	< 0.2
Power Handling	1 watt average

3.0 Mechanical Specifications

Table 2 Antenna Mechanical Specifications

Parameter	Specification
Coating	No exposed copper
Connector Type	MMCX Plug
Operating Temperature Range	-40 to +85C
Weight	<10g
RoHS compliance	YES

4.0 Measured Antenna Pattern Results (1700 – 2200MHz)

Figure 3 shows a typical measured radiation pattern for the F antenna. The azimuth pattern gain is approximately 0dBi, and the elevation gain is enhanced in the horizontal direction to approximately +3dBi, as specified. Figure 4 shows the measured radiation pattern for the T antenna, which displays a very similar performance. Figure 5 shows the antenna correlation coefficient measurement between the F and the T antennas. The correlation coefficient is less than 0.2 across the specified operating frequency range, as specified.

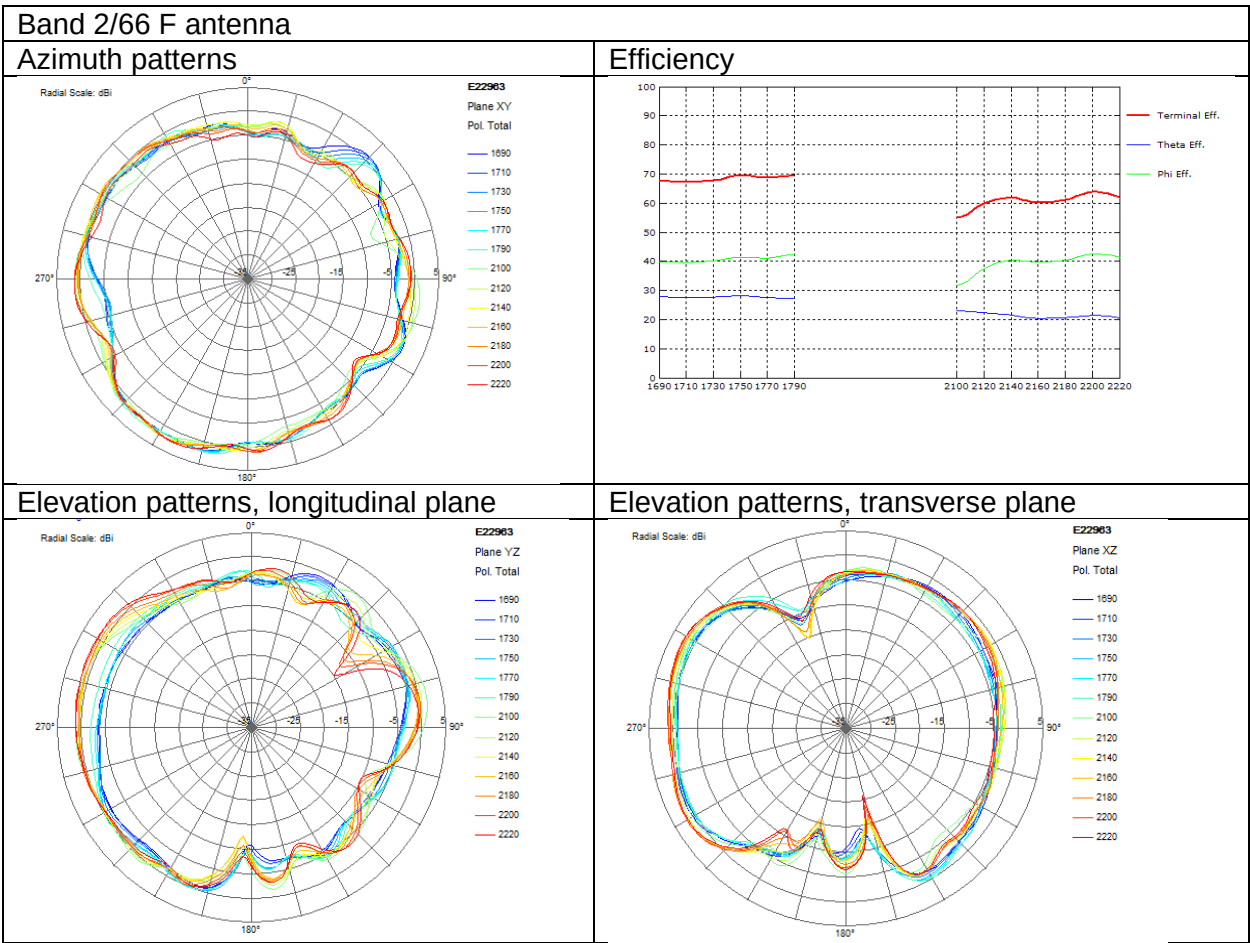


Figure 3 Measured F antenna radiation pattern

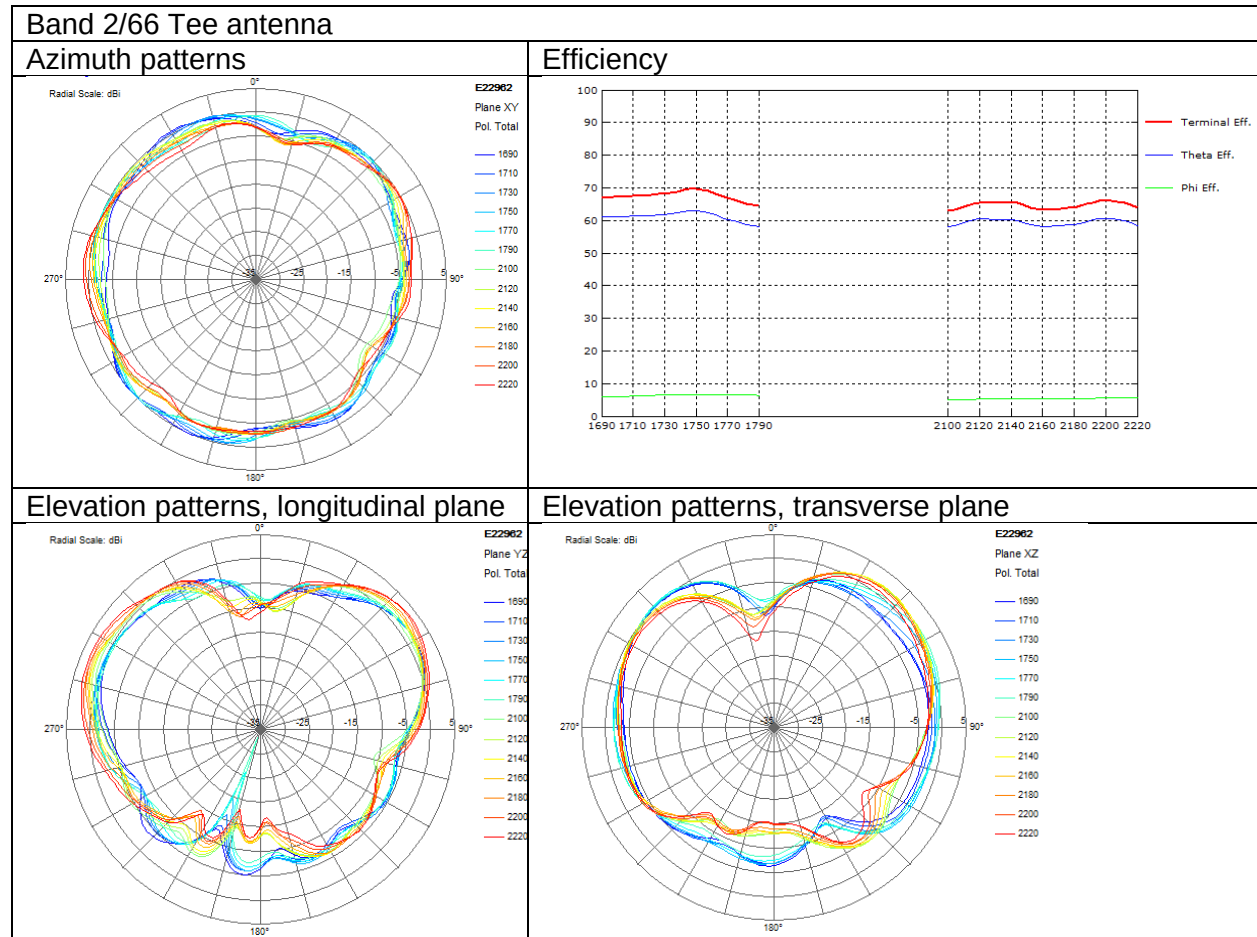


Figure 4 Measured T antenna radiation pattern

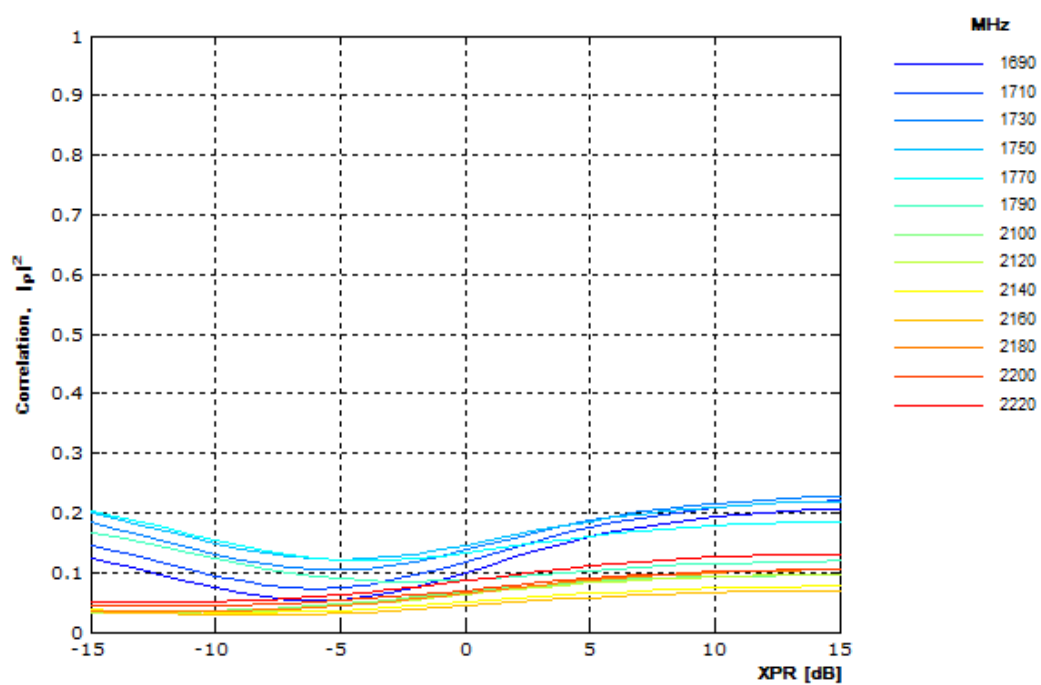


Figure 5 Antenna Correlation Coefficient (F to T antenna)