



APPLICATION SPECIFICATION

4.2 ANTENNA PERFORMANCE

All measurements in this document are done with the part no.1461530100 with a cable length of 100mm

DESCRIPTION	EQUIPMENT	REQUIREMENT		
Frequency Range	VNA E5071C	2.4-2.5GHz	5.15-5.85GHz	5.925-7.125GHz
Return Loss	VNA E5071C	<- 10dB		
Peak Gain (Max)	OTA Chamber	3.0dBi	4.0dBi	5.5dBi
Average Total Efficiency	OTA Chamber	>75%	>75%	>70%
Polarization	OTA Chamber	Linear		
Input Impedance	VNA E5071C	50 ohms		

Note that the above antenna performance is measured with just the antenna mounted on a PC/ABS block to similar a free-space condition. When implement into the system, the frequency resonant might be off-tune due to the loading of surrounding components especially metal plane. This off-tune can be compensated through matching. Although module manufacturers specify a peak gain limit, it is based on free-space conditions. The peak gain will be degraded by 1 to 2dBi in the actual implementation as the radiation pattern will change due to the surround components. As such, during selection of antenna, you can select one with high peak gain to compensate for the loss. Molex can offer assistant to choose the best location and best tuning in-order to meet this peak gain requirement.

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AS-1461530100	Liu Hai 2021/08/12	Andy Zhang 2021/08/12	Chris Zhong 2021/08/12

4.3 RETURN LOSS PLOT

All measurements in this document are done with a cable length of 100mm.

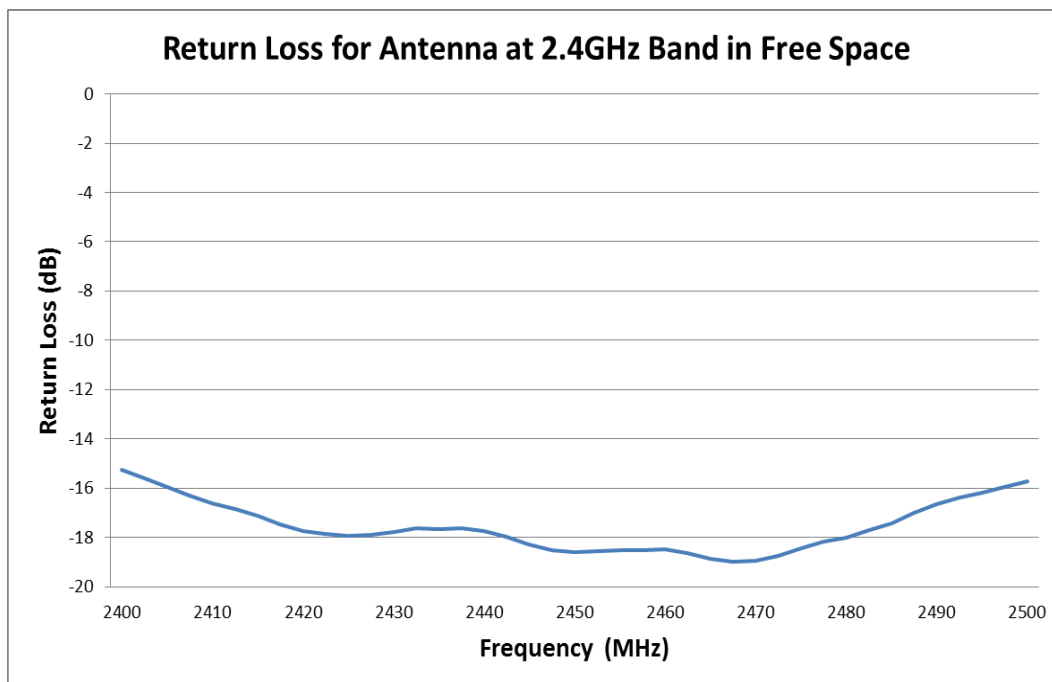


FIGURE 4.3.1 RETURN LOSS OF ANTENNA AT 2.4GHZ BAND IN FREE SPACE

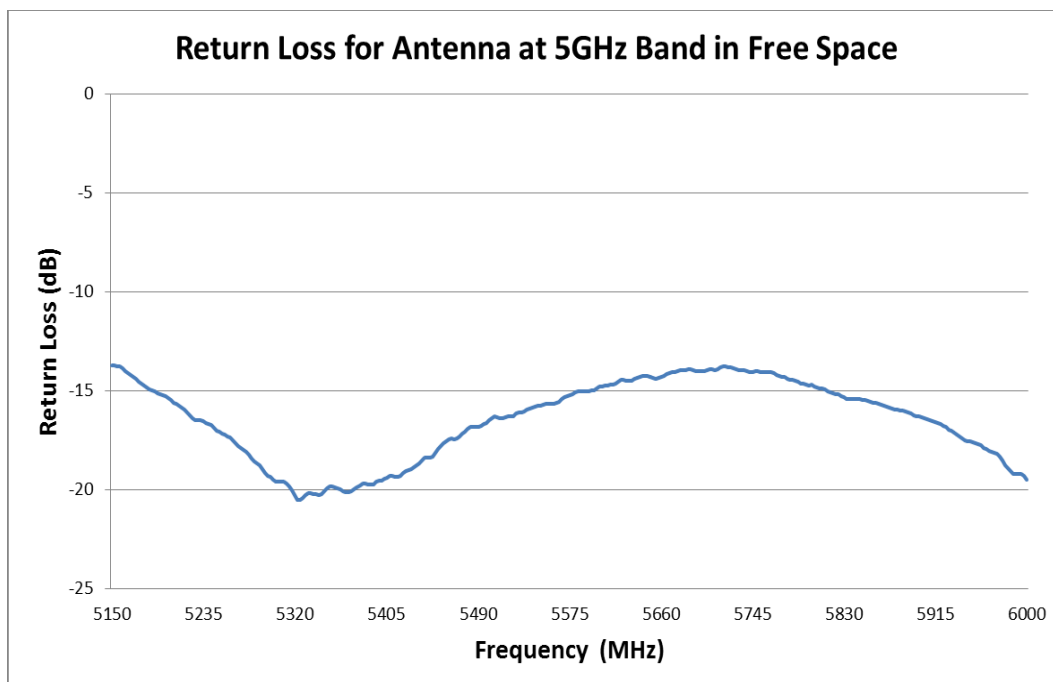


FIGURE 4.3.2 RETURN LOSS OF ANTENNA AT 5GHZ BAND IN FREE SPACE

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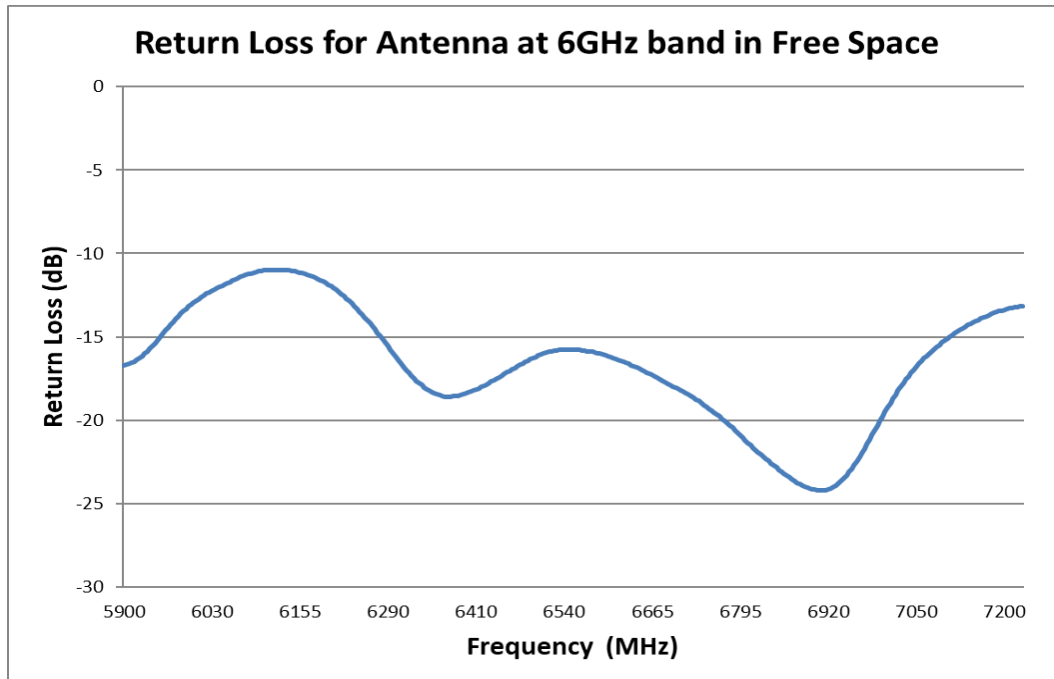


FIGURE 4.3.3 RETURN LOSS OF ANTENNA AT 6GHZ BAND IN FREE SPACE

4.4 EFFICIENCY PLOT

All measurements in this document are done with a cable length of 100mm.

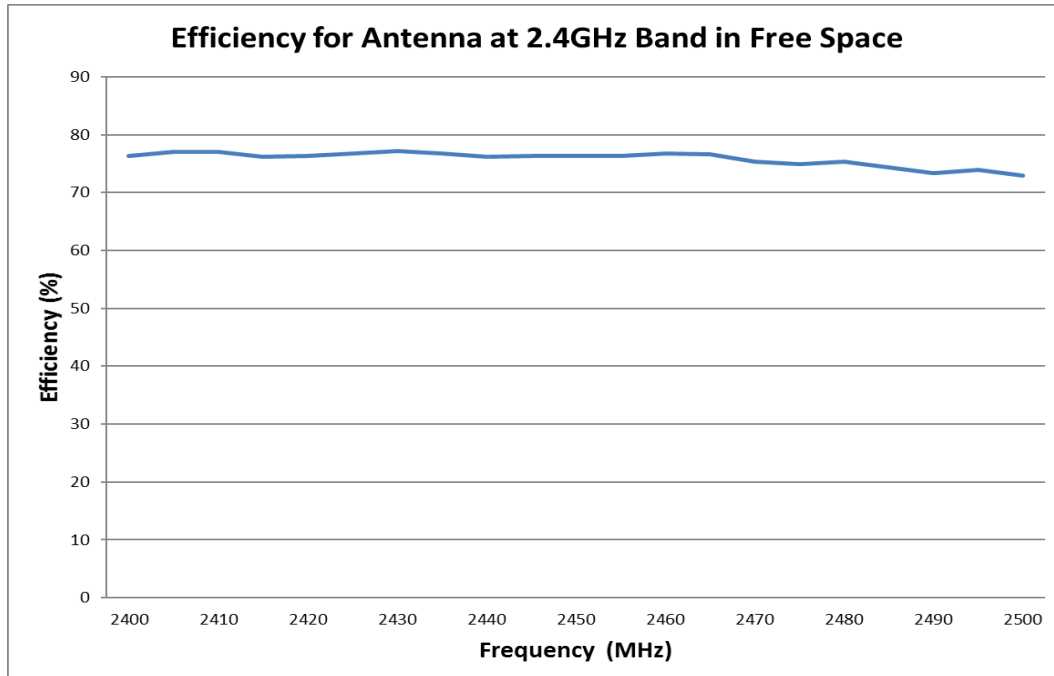


FIGURE 4.4.1 EFFICIENCY OF ANTENNA AT 2.4GHZ BAND IN FREE SPACE

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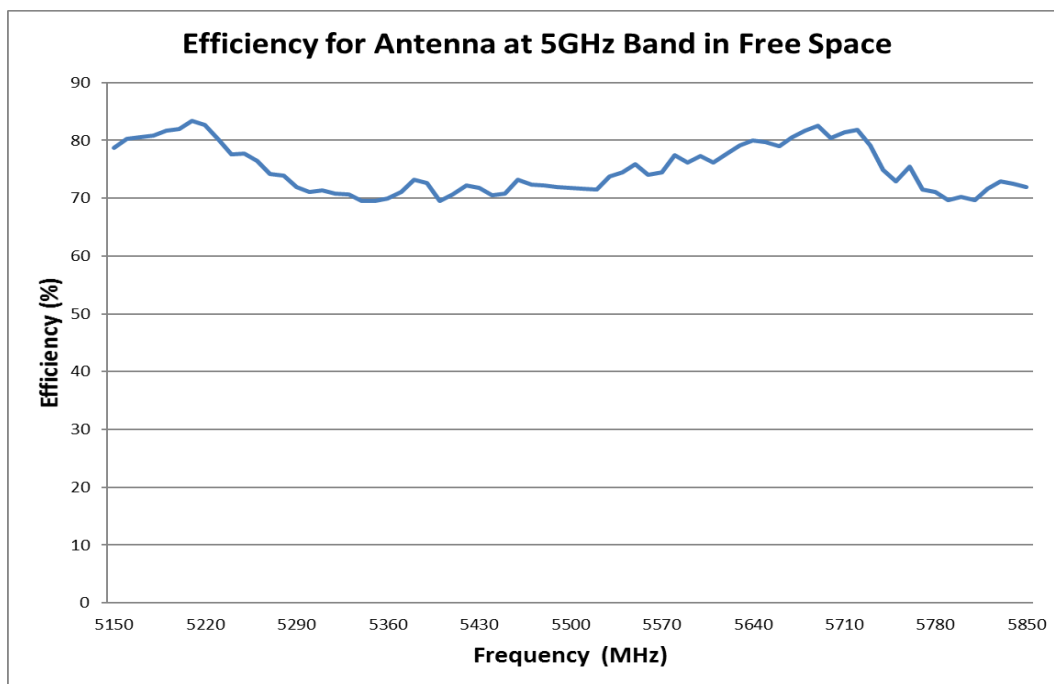


FIGURE 4.4.2 EFFICIENCY OF ANTENNA AT 5GHZ BAND IN FREE SPACE

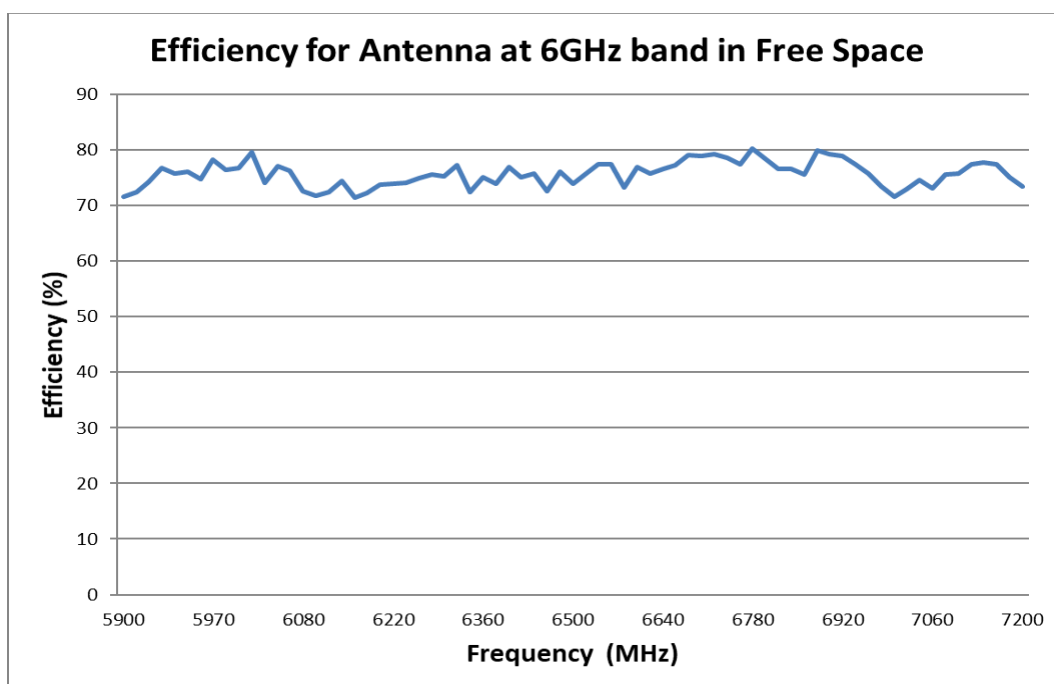


FIGURE 4.4.3 EFFICIENCY OF ANTENNA AT 6GHZ BAND IN FREE SPACE

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4.5 RADIATION PATTERN

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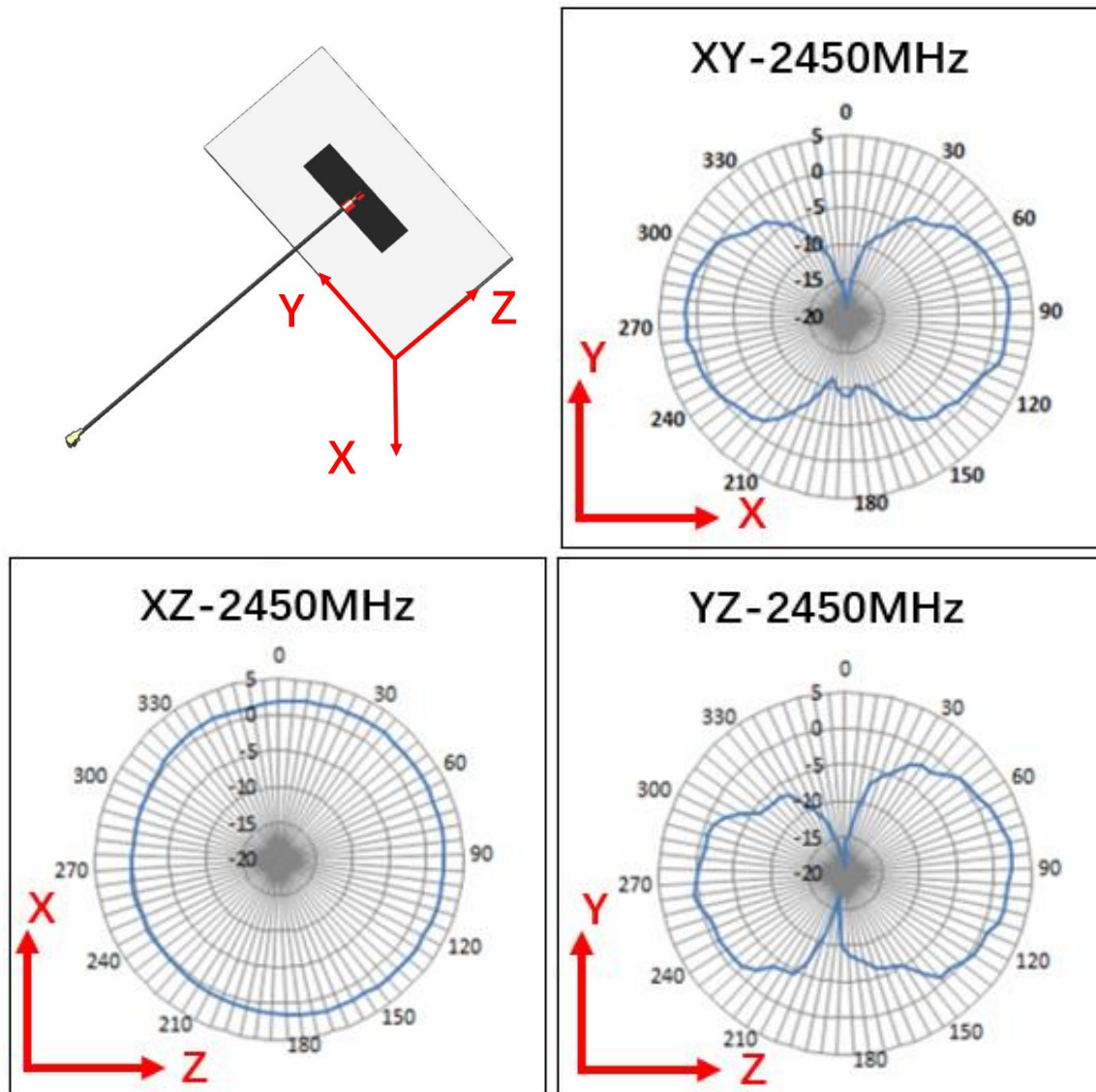


FIGURE 4.5.1 2D RADIATION PATTERN OF ANTENNA AT 2450MHZ IN FREE SPACE

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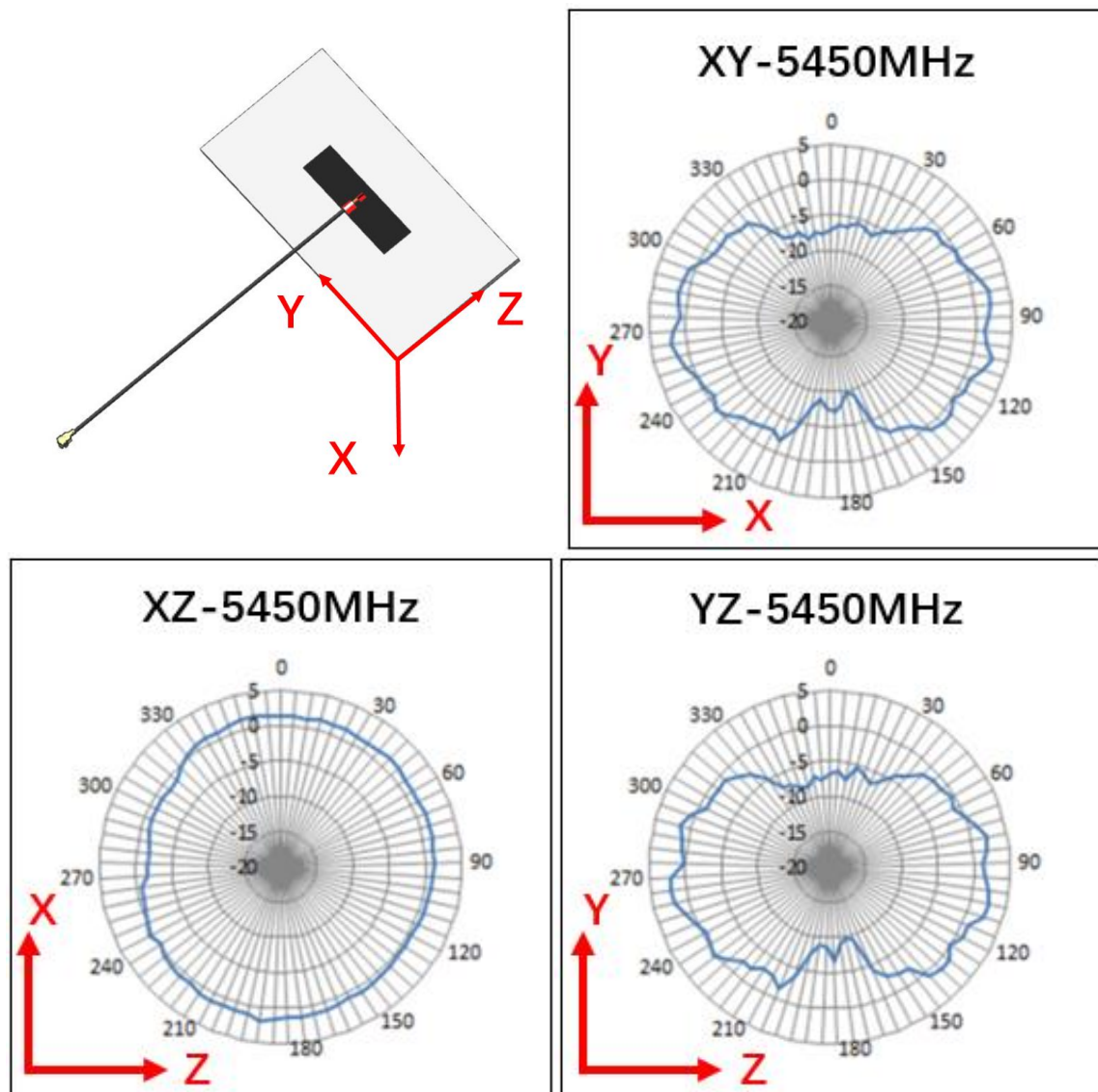


FIGURE 4.5.2 2D RADIATION PATTERN OF ANTENNA AT 5450MHZ IN FREE SPACE

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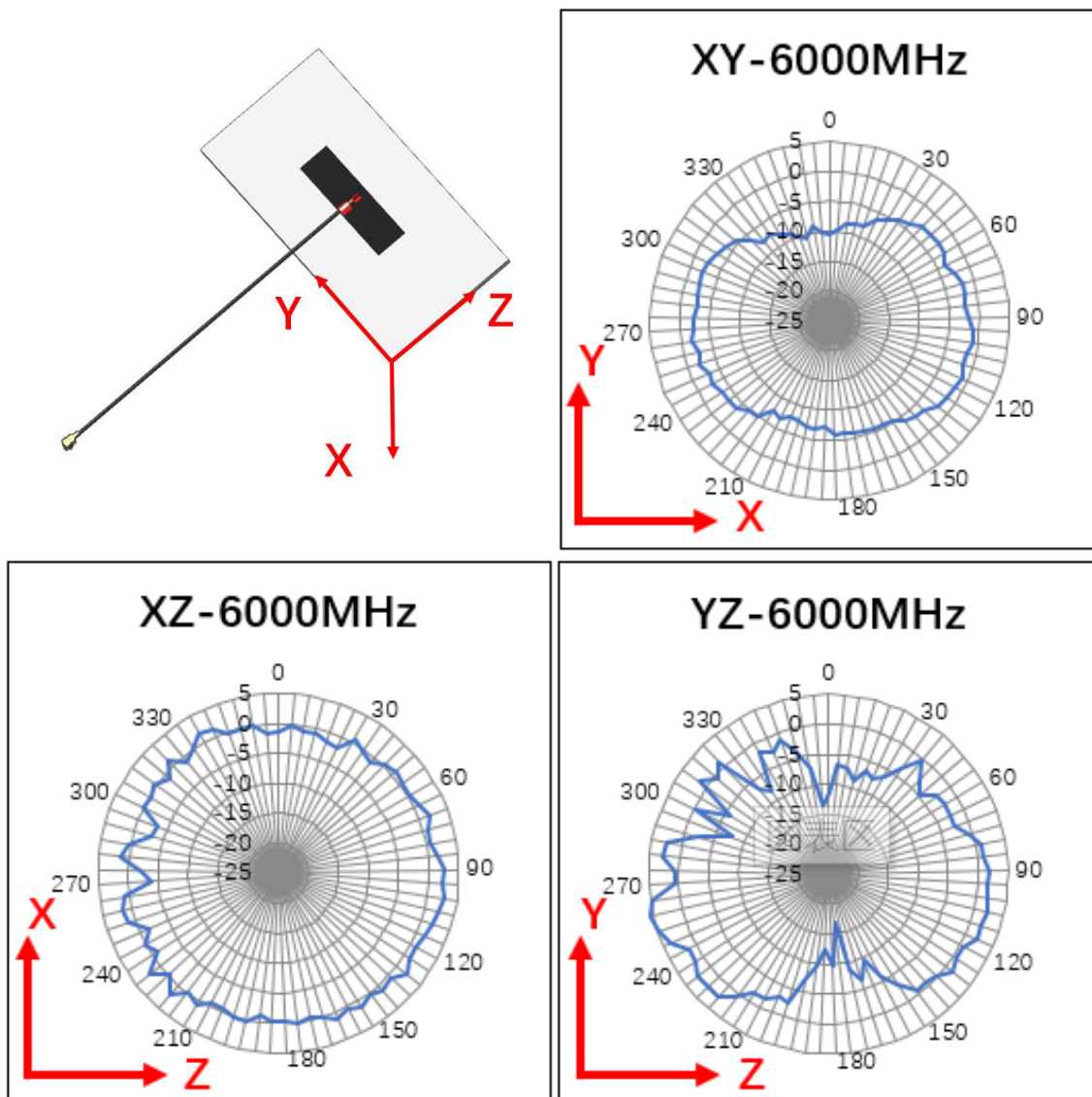


FIGURE 4.5.3 2D RADIATION PATTERN OF ANTENNA AT 6000MHZ IN FREE SPACE

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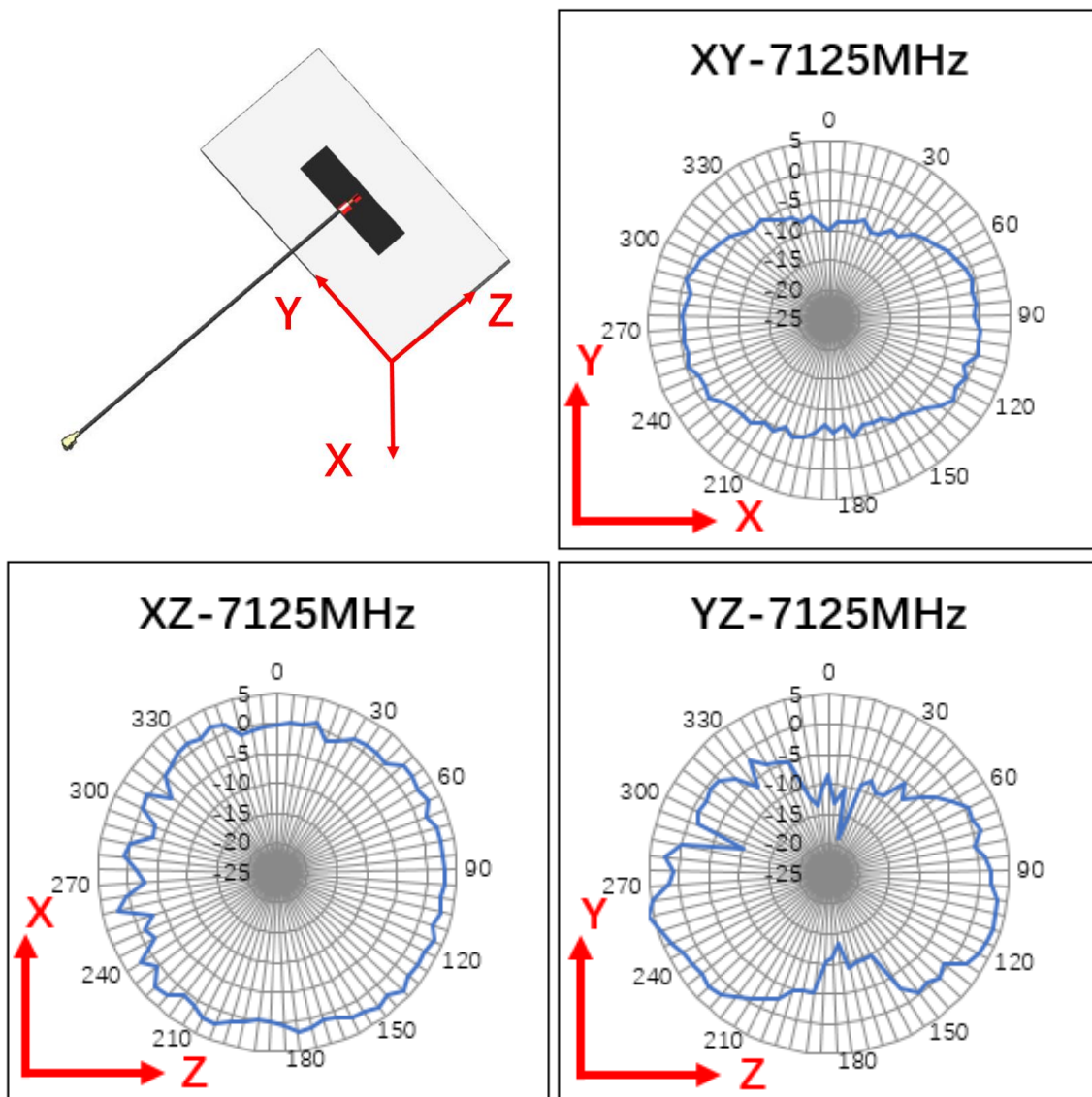


FIGURE 4.5.4 2D RADIATION PATTERN OF ANTENNA AT 7125MHZ IN FREE SPACE

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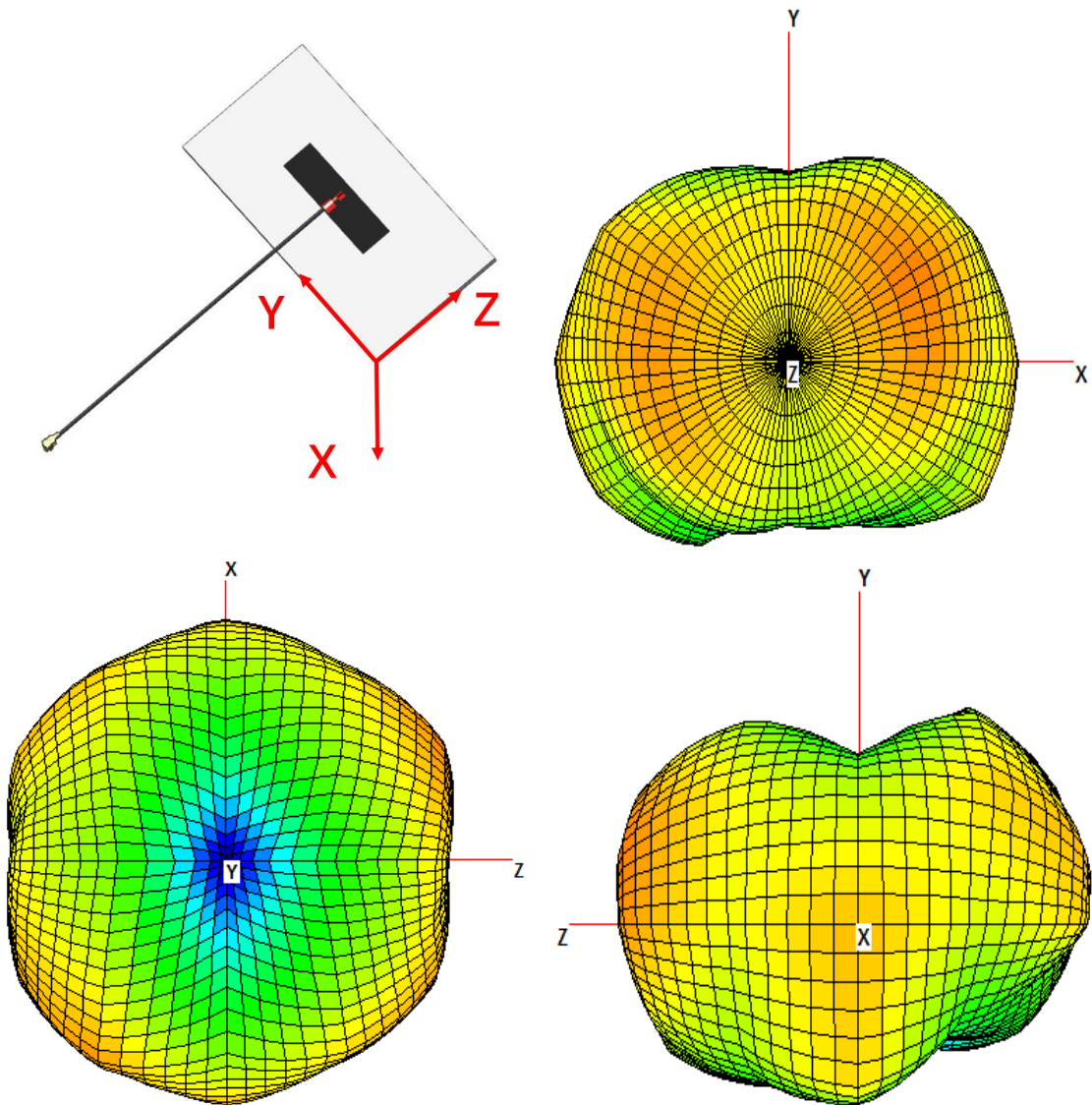


FIGURE 4.5.5 3D RADIATION PATTERN OF ANTENNA AT 2450MHZ BAND IN FREE SPACE

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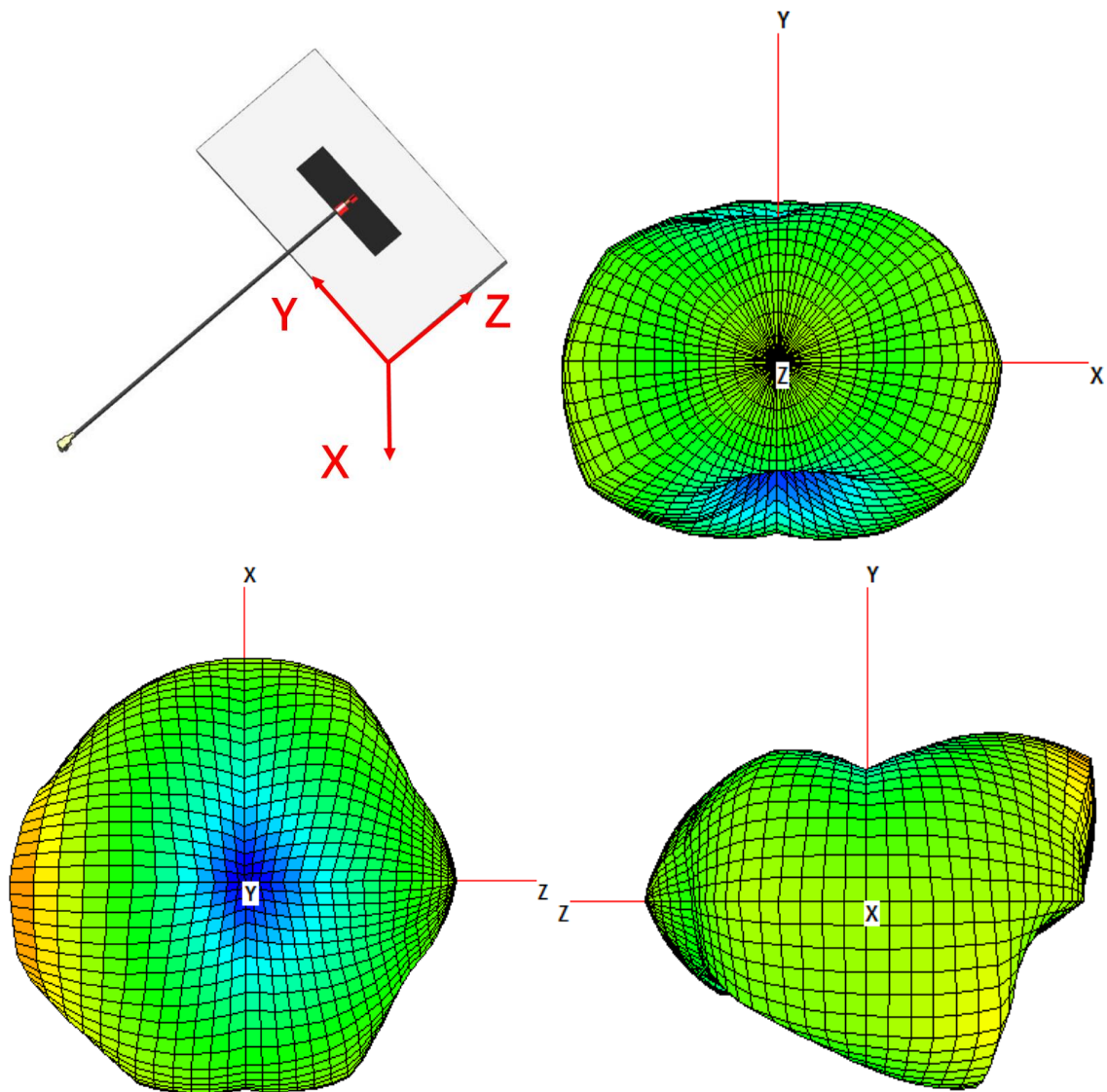


FIGURE 4.5.6 3D RADIATION PATTERN OF ANTENNA AT 5450MHZ BAND IN FREE SPACE

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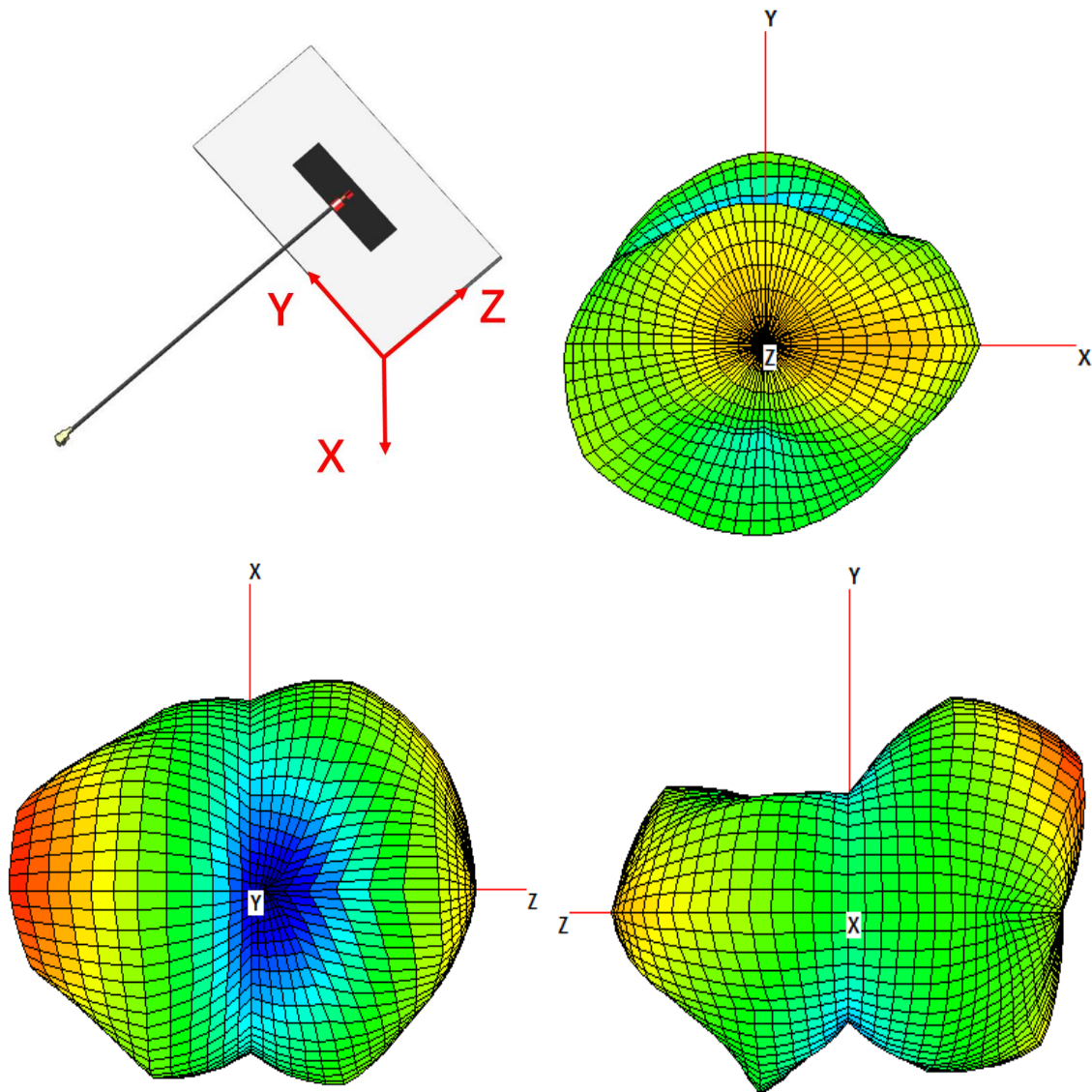


FIGURE 4.5.7 3D RADIATION PATTERN OF ANTENNA AT 6000MHZ BAND IN FREE SPACE

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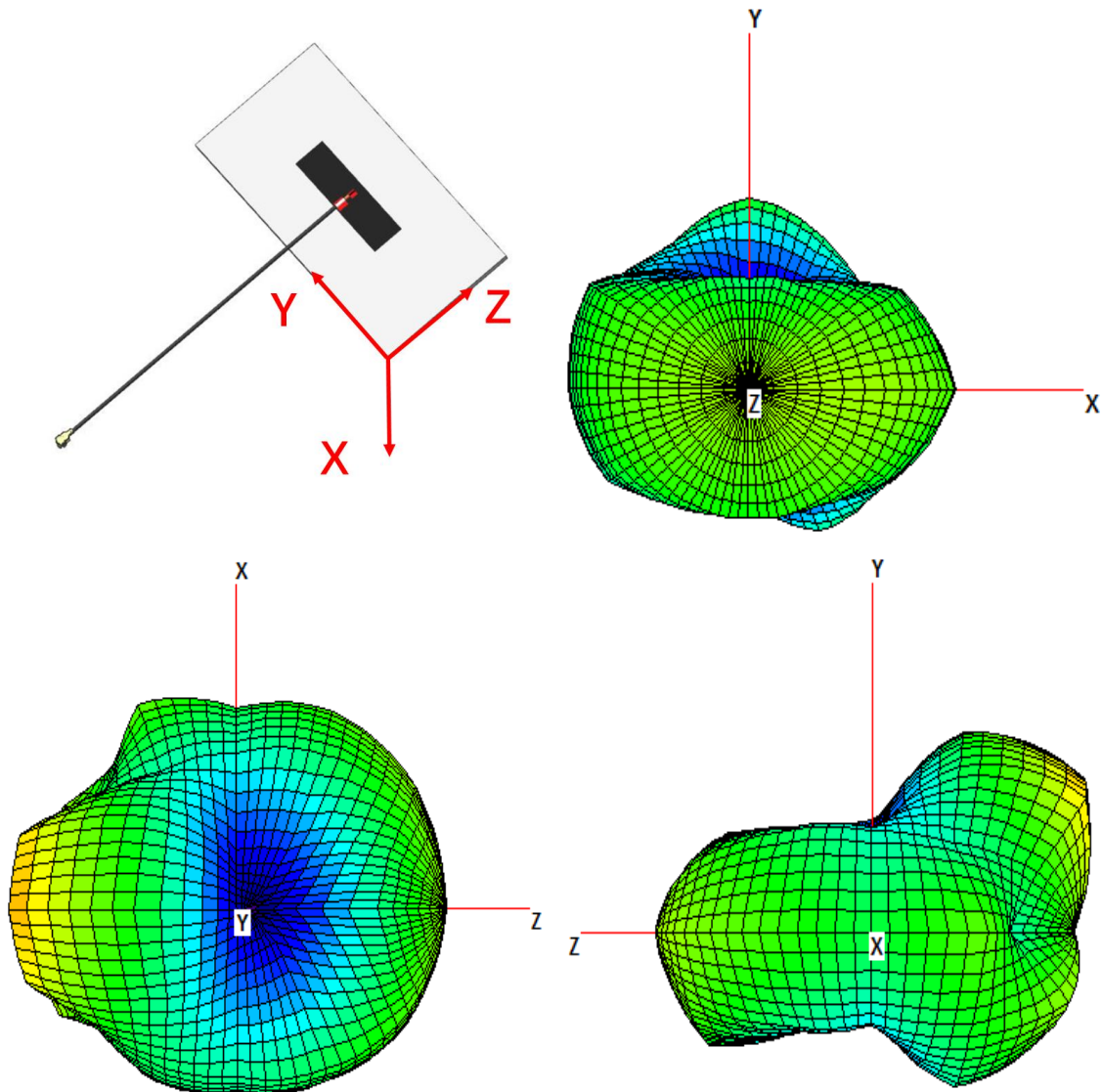


FIGURE 4.5.8 3D RADIATION PATTERN OF ANTENNA AT 7125MHZ BAND IN FREE SPACE

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