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antenna solutions

Antenna Top

Antenna Bottom

FXUB70.A.07.C.001

Specification

Part No.	FXUB70.A.07.C.001
Product Name	4G LTE Wide Band Flex MIMO Antenna 698-3000 MHz
Feature	Patent Pending Covers 4G LTE, 3G HSPA, 2G GSM/GPRS/CDMA Ground Plane Independent 698-3000 MHz 5 dBi Peak Gain 182*21*0.2 mm size 150mm Ø1.37mm Cable IPEX MHFI (U.FL Compatible) RoHS Compliant

1. Introduction

The patent pending FXUB70 LTE Wide-band flexible wideband antenna has been designed to cover all working frequencies in the 698-3000 MHz spectrum, covering all Cellular, 2.4GHz Wi-Fi, ISM and AGPS. The antenna is delivered with a flexible body with excellent efficiencies on all bands, ground independent, with cable and connector for easy installation.

The FXUB70 flexible polymer antenna, at 182*21*0.2mm, is ultra thin and truly wideband with high efficiencies across the bands. It is assembled by a simple "peel and stick" process, attaching securely to non-metal surfaces via 3M 467 automotive approved adhesive. It enables designers to use only one antenna that covers all common frequencies for LTE and 4G globally.

The FXUB70 antenna is a durable flexible polymer antenna that has a peak gain of 5dBi, an efficiency of more than 45% across the bands and is designed to be mounted directly onto a plastics. It is an ideal choice for any device maker that needs to keep manufacturing costs down over the lifetime of a product. It is ground plane independent and delivered with a cable and connector for easy connecting to the wireless module or customer PCB. Like all such antennas, care should be taken to mount the antenna at least 10mm from metal components or surfaces, and ideally 20mm for best radiation efficiency.

Cables and Connectors are customizable. If cable routing is not convenient on this antenna, the alternative FXUB71 is recommended.

2. Specification

Band	700/850/900	1575	1700/1800/1900	2100	2400	2600
Standard	CELL	GPS	CELL	CELL	ISM	CELL
Frequency (MHz)	698-960	1575.42	1710-1990	1755-2170	2400-2500	2500-2690
Max VSWR	2:1	2:1	1.8:1	1.7:1	1.7:1	2.3:1
Max Return Loss (dB)	-10	-10	-11	-12	-12	-8
Peak Gain (dBi)	1	2.5	3.5	5	5	4.5
Efficiency (%)	50	75	78	65	75	75
Average Gain (dB)	-3	-2	-2	-2.5	-2	-2
Radiation Properties	Omni-directional					
Max Input Power (Watts)	5					
Polarization	Linear					
Impedance (Ohms)	50 Ohms					

*Antenna measured on plastic plate of 3 mm thickness.

MECHANICAL	
Dimensions (mm)	182*21*0.2 mm
Material	Flexible Polymer
Connector and Cable	U.FL and 1.37 mm mini coax with 150 mm
Cable length	150 mm
ENVIRONMENTAL	
Operation Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Relative Humidity	40% to 95%
RoHs Compliant	Yes

3. Antenna Parameters

3.1　Return Loss

Figure 1. Return loss of FXUB70 Port 1
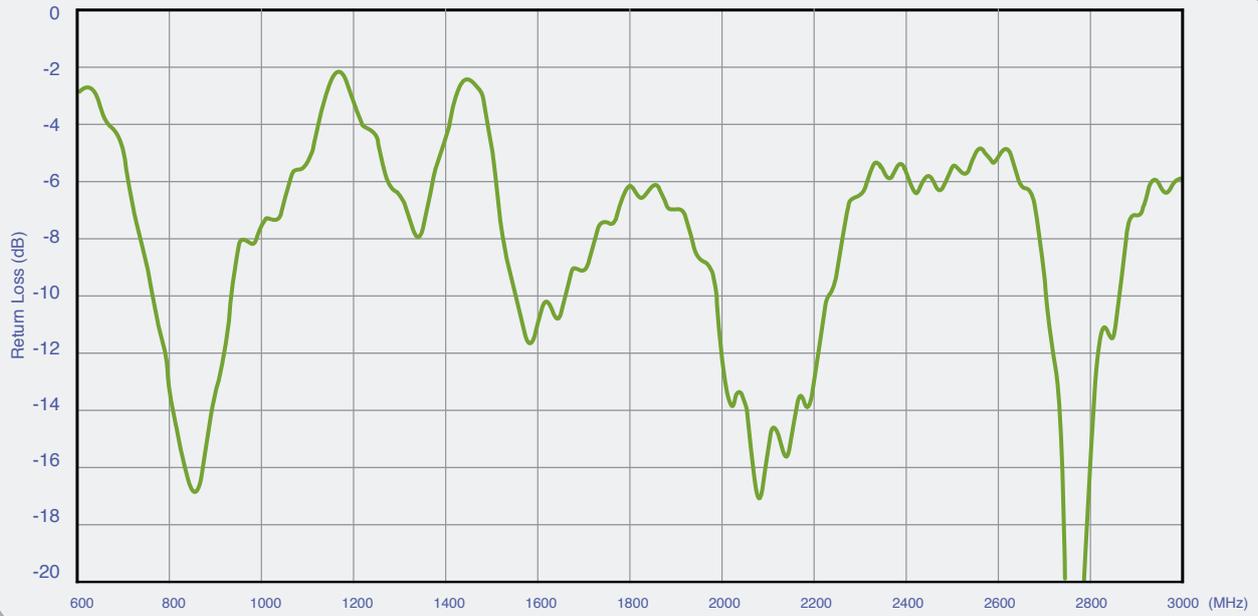
Figure 2. Return loss of FXUB70 Port 2
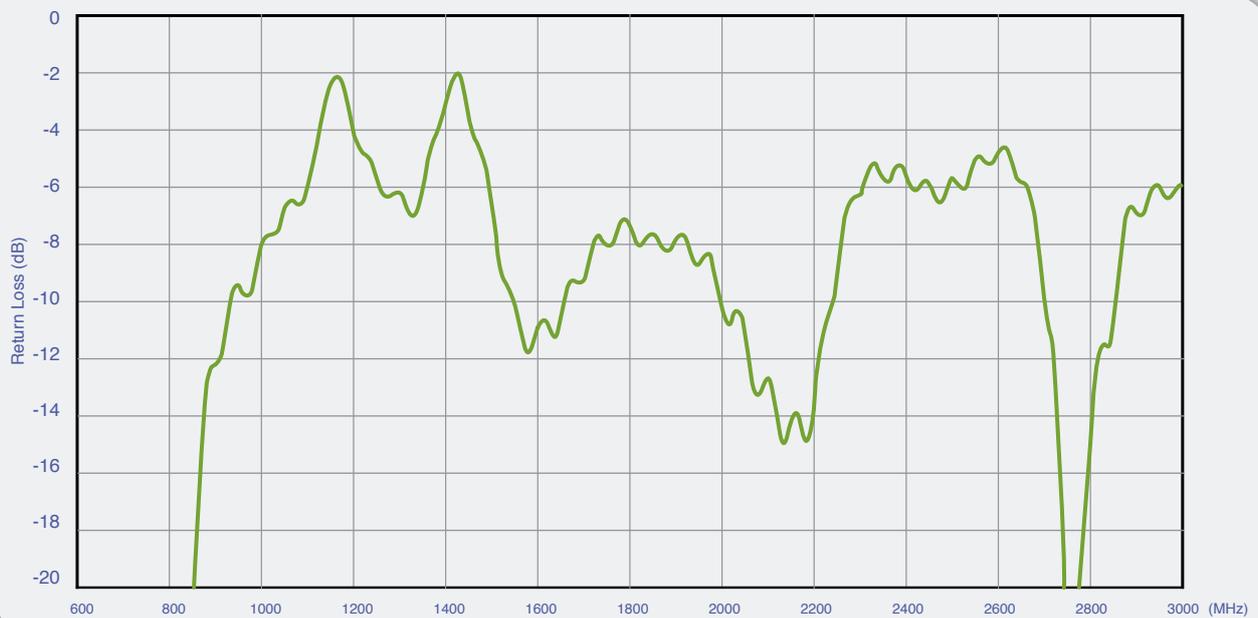
3. Antenna Parameters
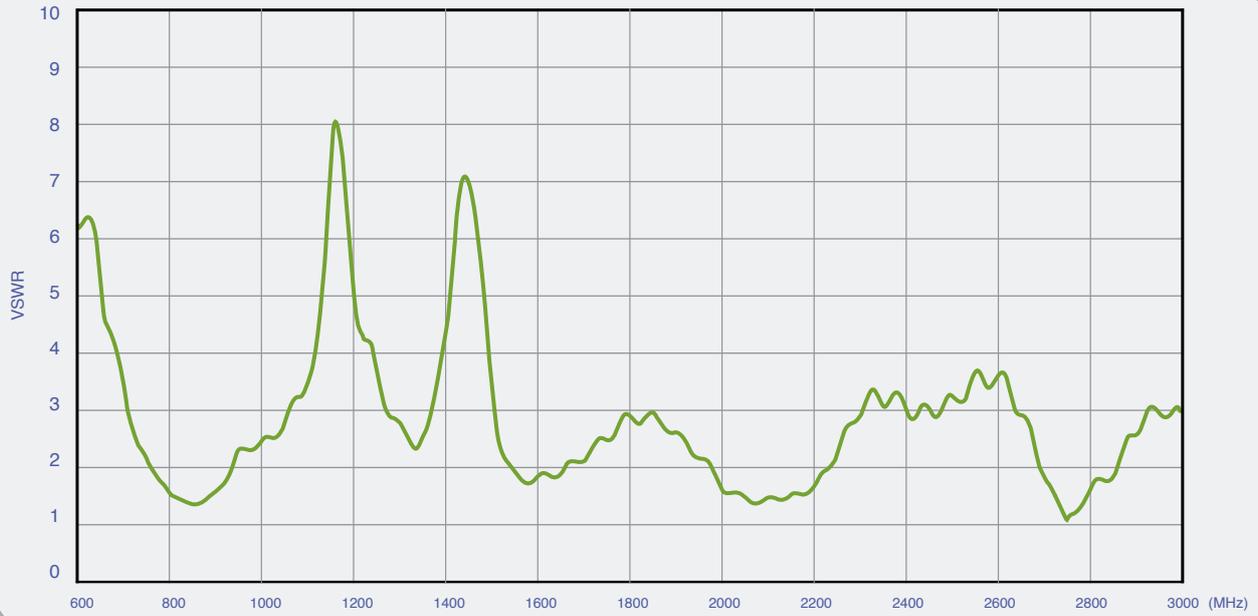
3.2 VSWR

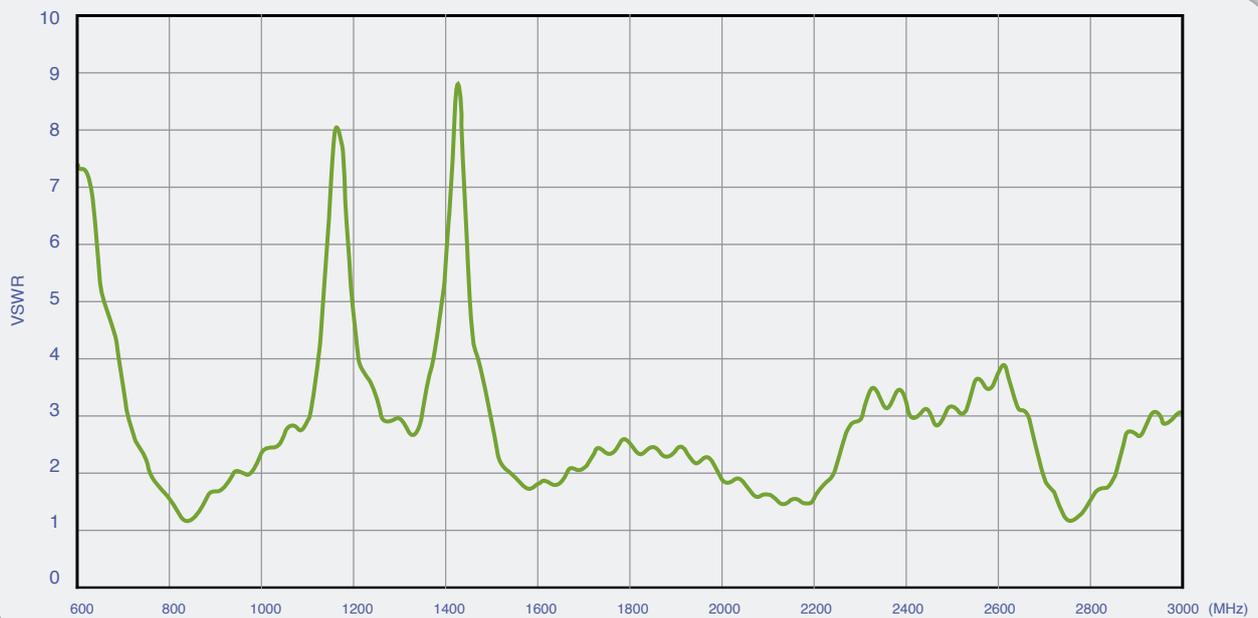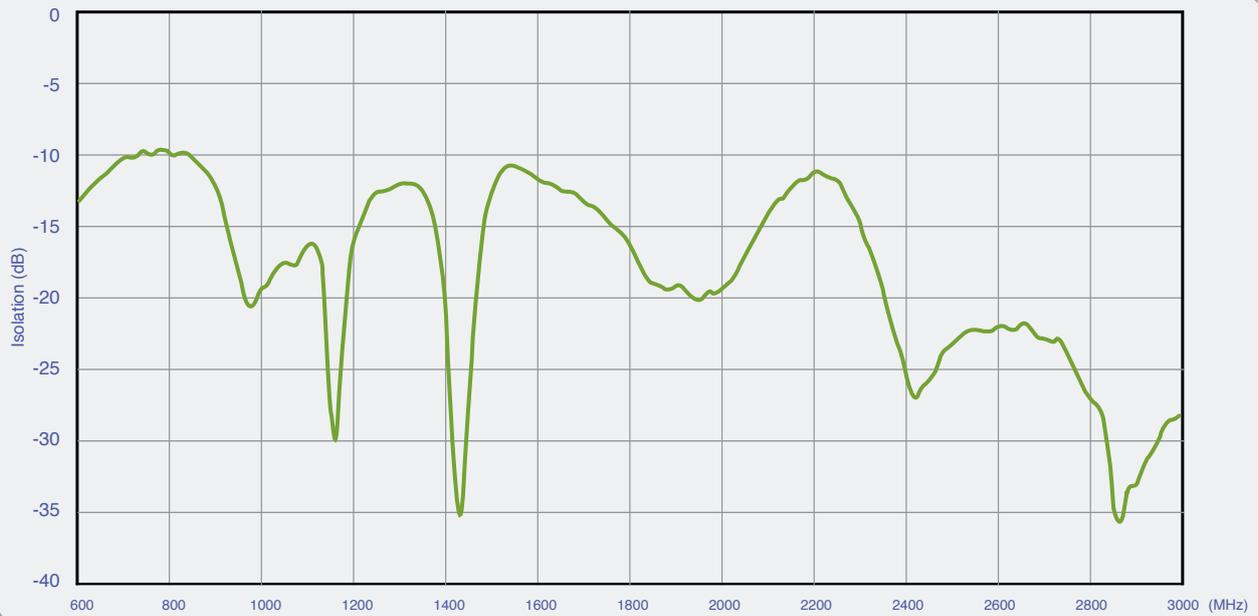Figure 3. VSWR of FXUB70 Port 1

Figure 4. VSWR of FXUB70 Port 2
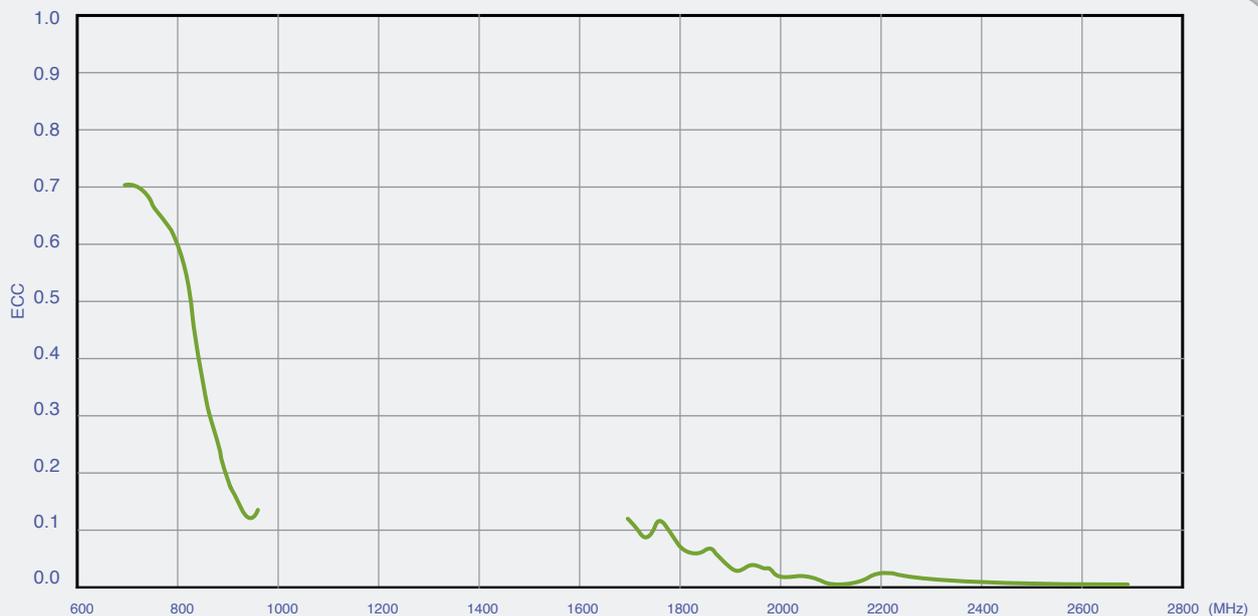
3. Antenna Parameters

3.3. Isolation

Figure 5. Isolation of FXUB70 in between Port 1 and Port 2.

3.4. Envelope Correlation Coefficient

Figure 6. ECC of FXUB70 in between Port 1 and Port 2.

3. Antenna Parameters

3.5. Peak Gain

Figure 7. Peak Gain of FXUB70 Port 1
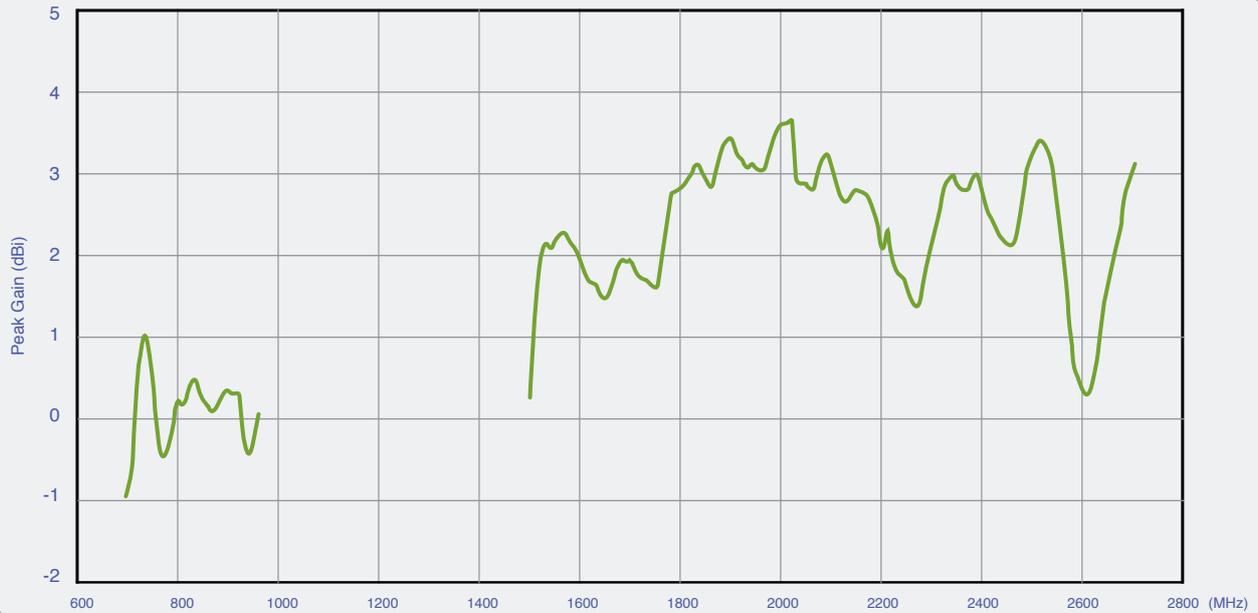
Figure 8. Peak Gain of FXUB70 Port 2
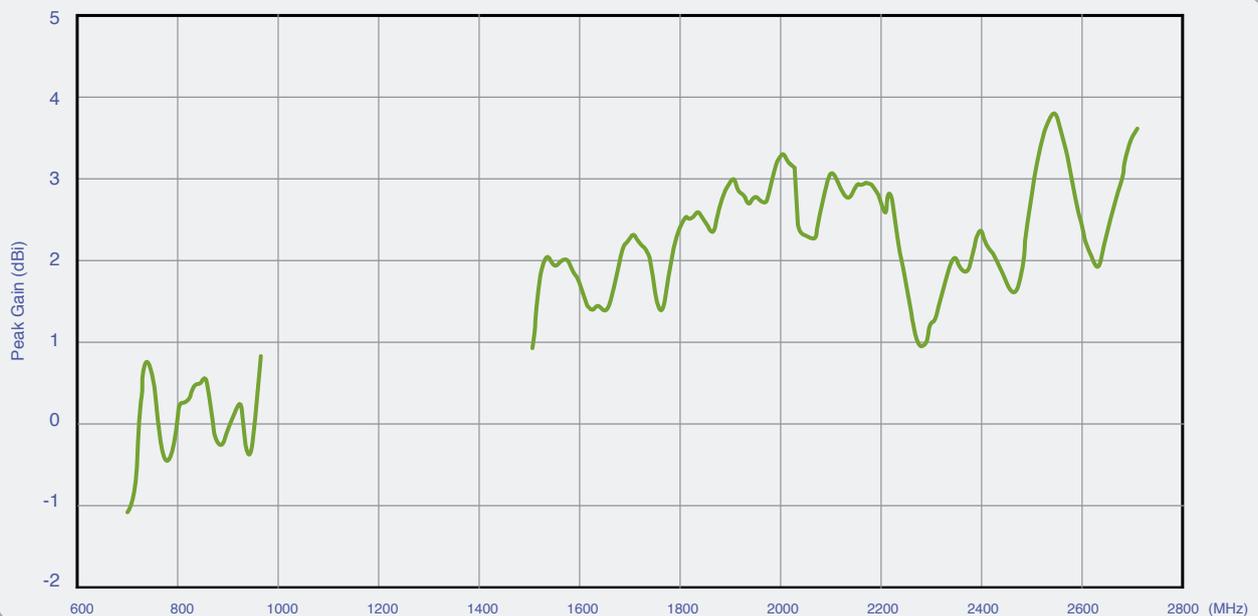
3. Antenna Parameters

3.6   Efficiency

Figure 9. Efficiency of FXUB70 Port 1
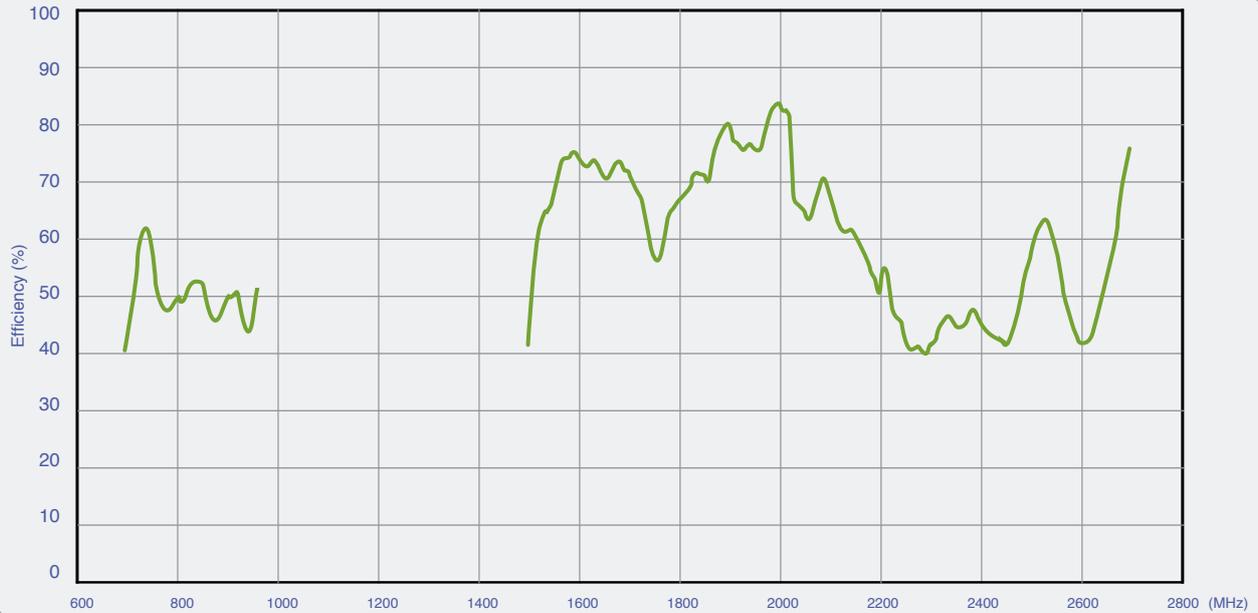
Figure 10. Efficiency of FXUB70 Port 2
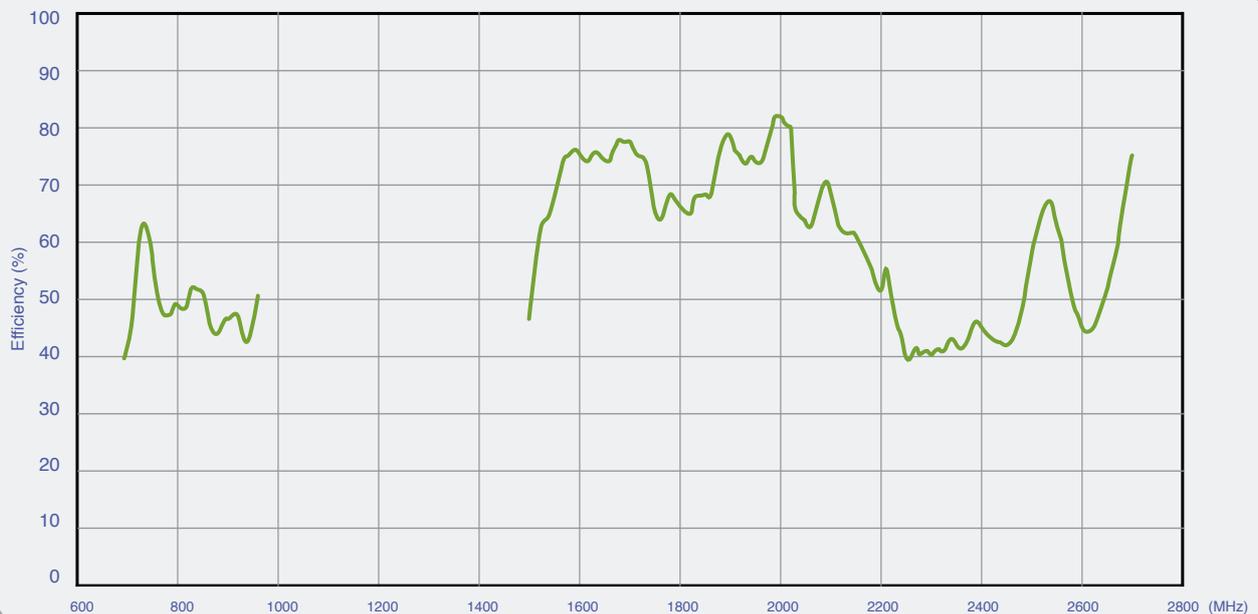
3. Antenna Parameters

3.7   Average Gain
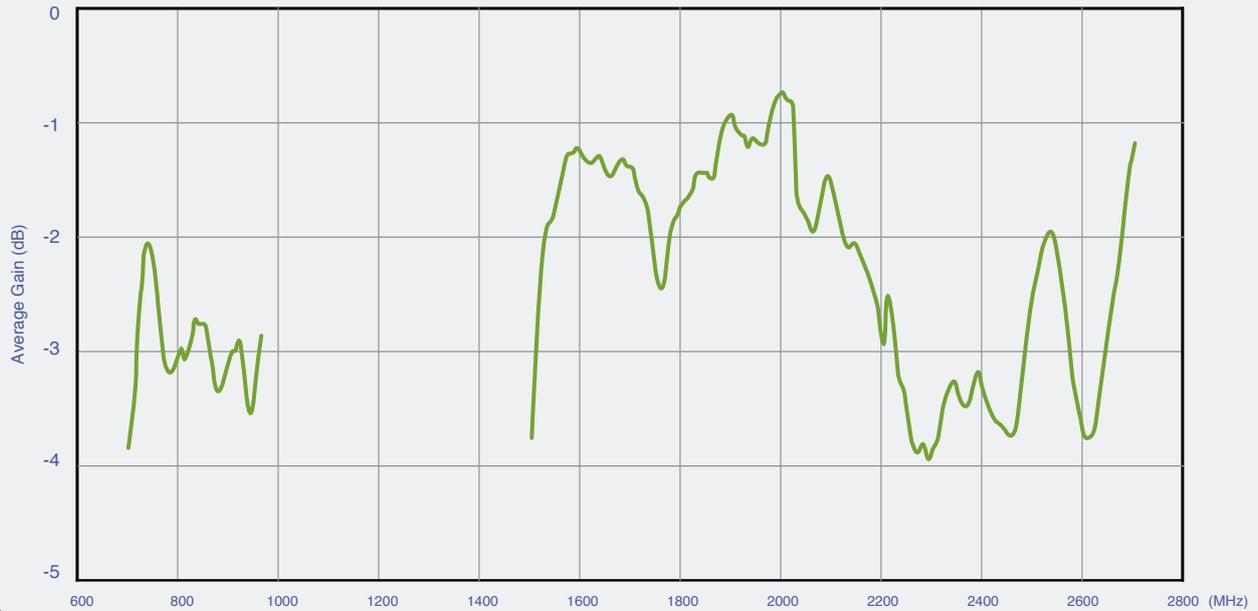

Figure 11. Average Gain of FXUB70 Port 1

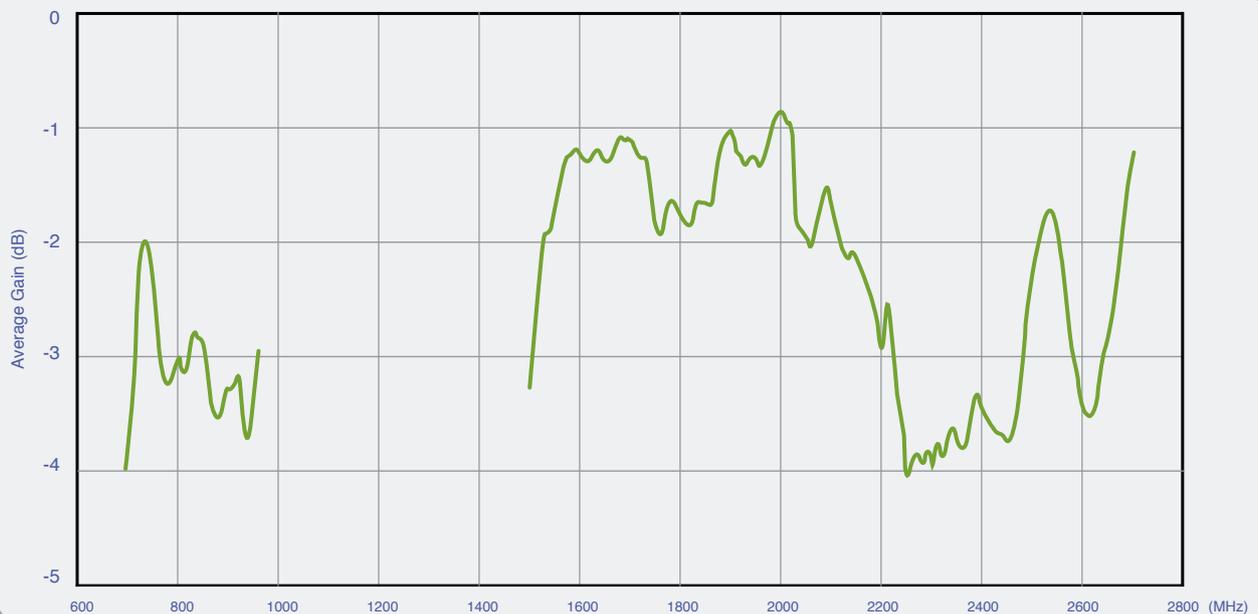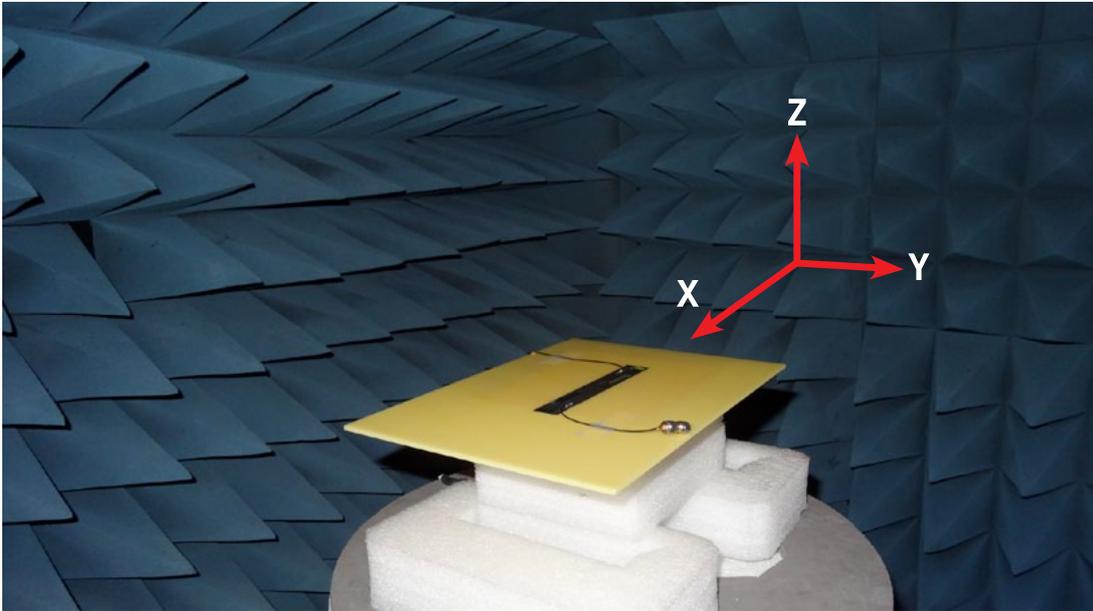Figure 12. Average Gain of FXUB70 Port 2

3.8. Radiation Pattern

Figure 13. Radiation Pattern Reference of FXUB70

Power: 0.064 dB
Theta: 90 deg
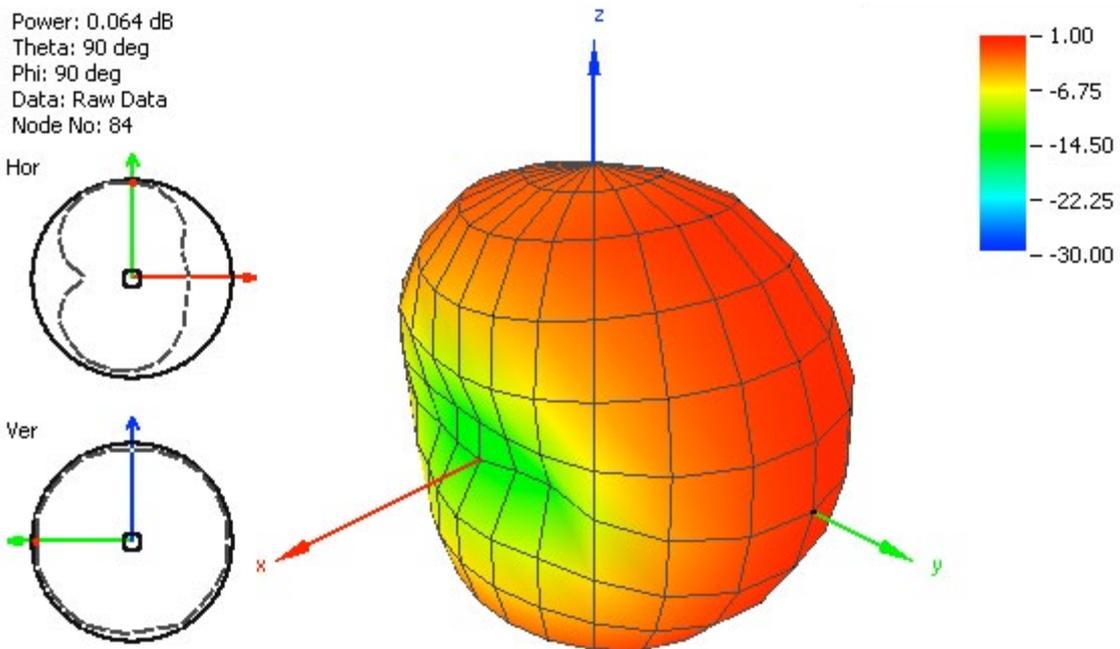Phi: 90 deg
Data: Raw Data
Node No: 84

Figure 14. Radiation Pattern at 750 MHz of FXUB70 Port 1

Power: -1.916 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
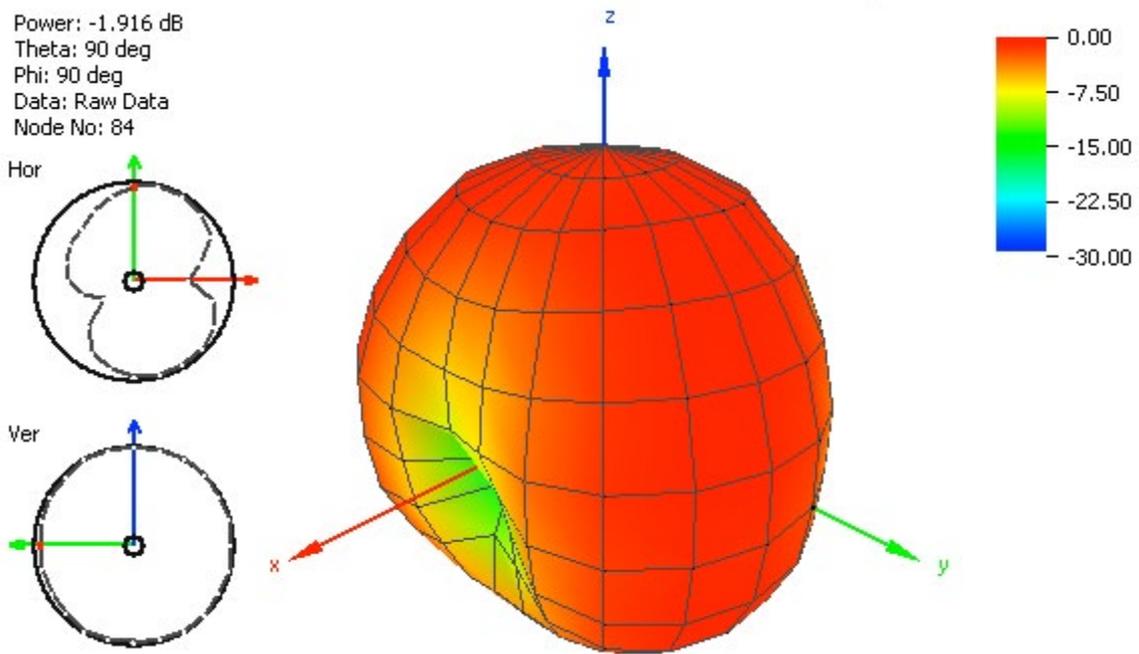
Figure 15. Radiation Pattern at 750 MHz of FXUB70 Port 2

Power: -0.292 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
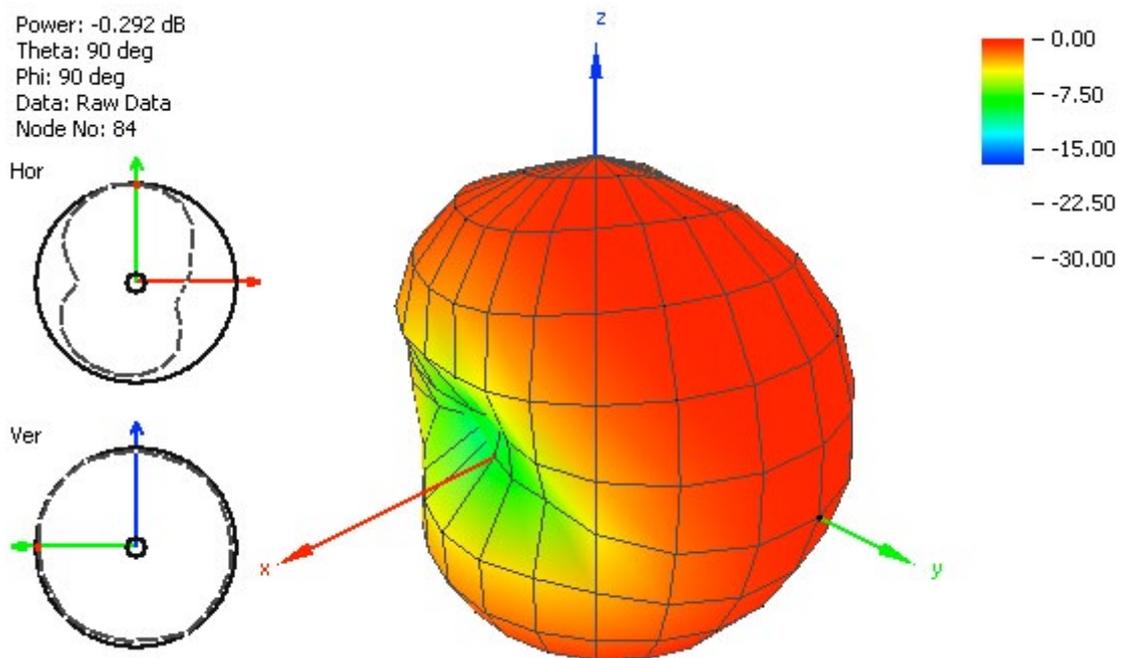
Figure 16. Radiation Pattern at 850 MHz of FXUB70 Port 1.

Power: -3.180 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

1.00
-6.75
-14.50
-22.25
-30.00
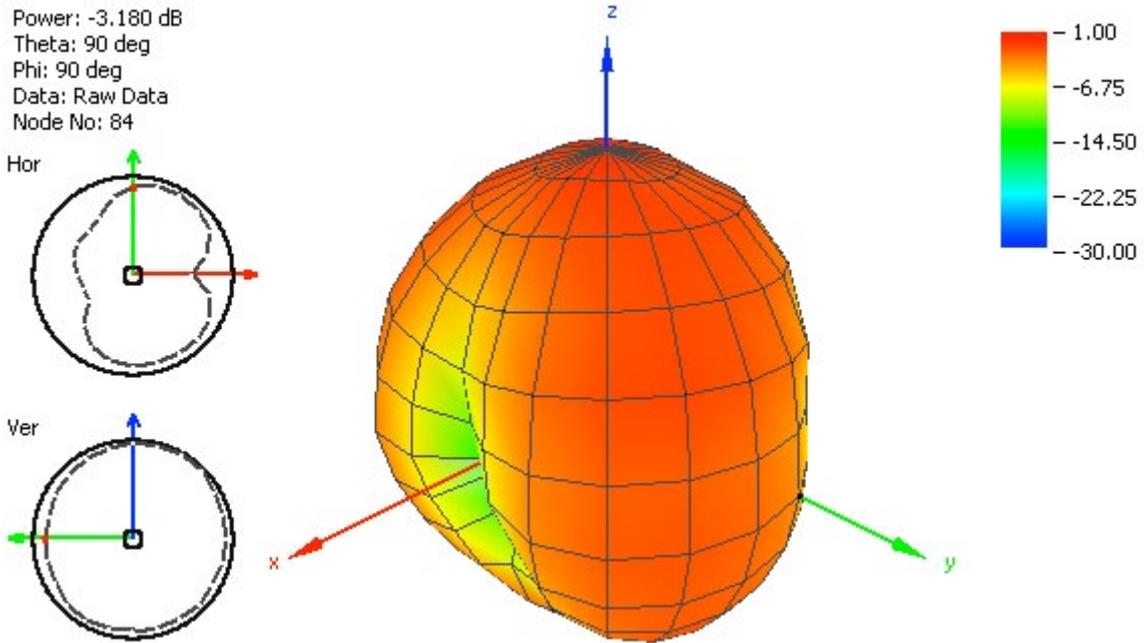
Figure 17. Radiation Pattern at 850 MHz of FXUB70 Port 2

Power: -0.420 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

0.00
-7.50
-15.00
-22.50
-30.00
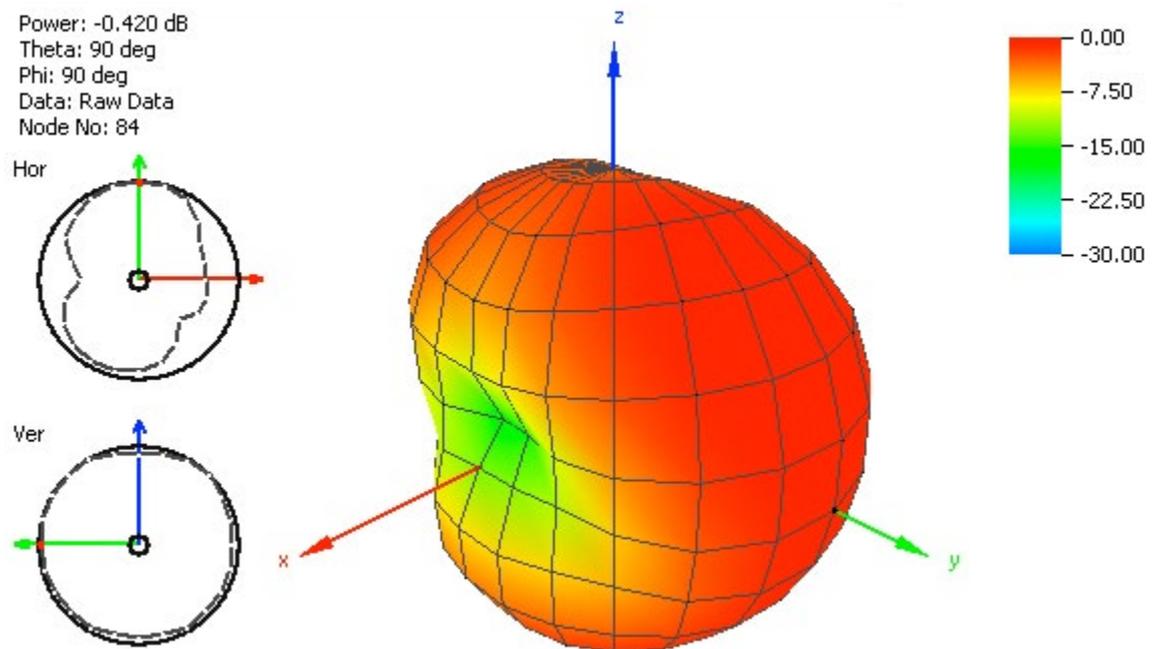
Figure 18. Radiation Pattern at 925 MHz of FXUB70 Port 1

Power: -5.007 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

0.00
-7.50
-15.00
-22.50
-30.00
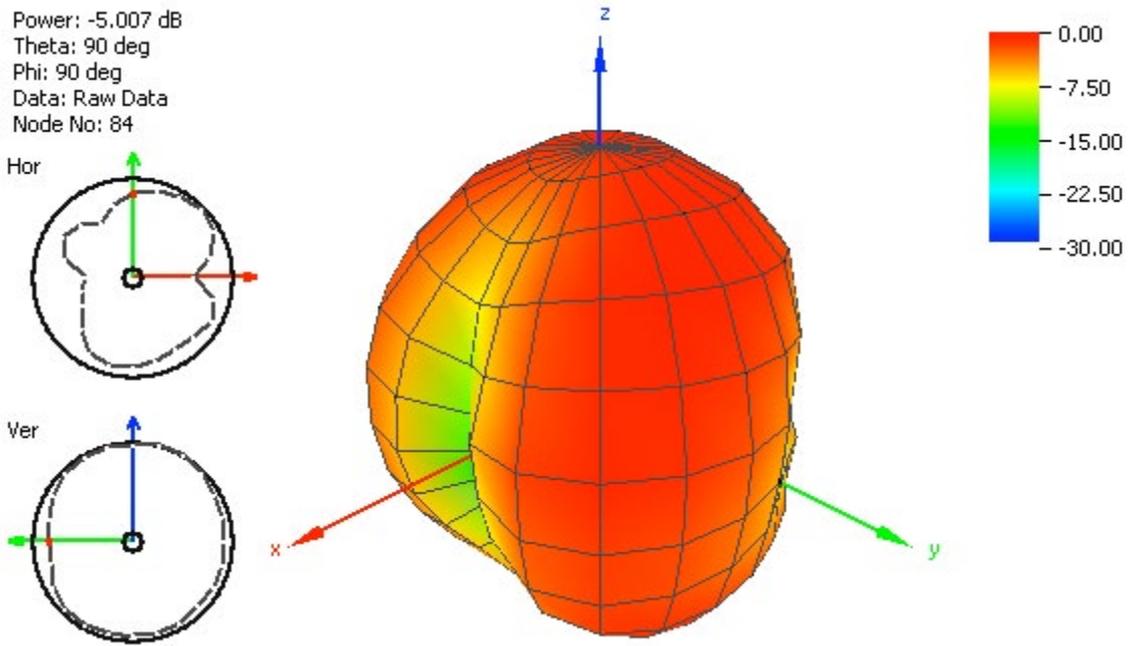
Figure 19. Radiation Pattern at 925 MHz of FXUB70 Port 2

Power: -0.796 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

2.00
-6.00
-14.00
-22.00
-30.00
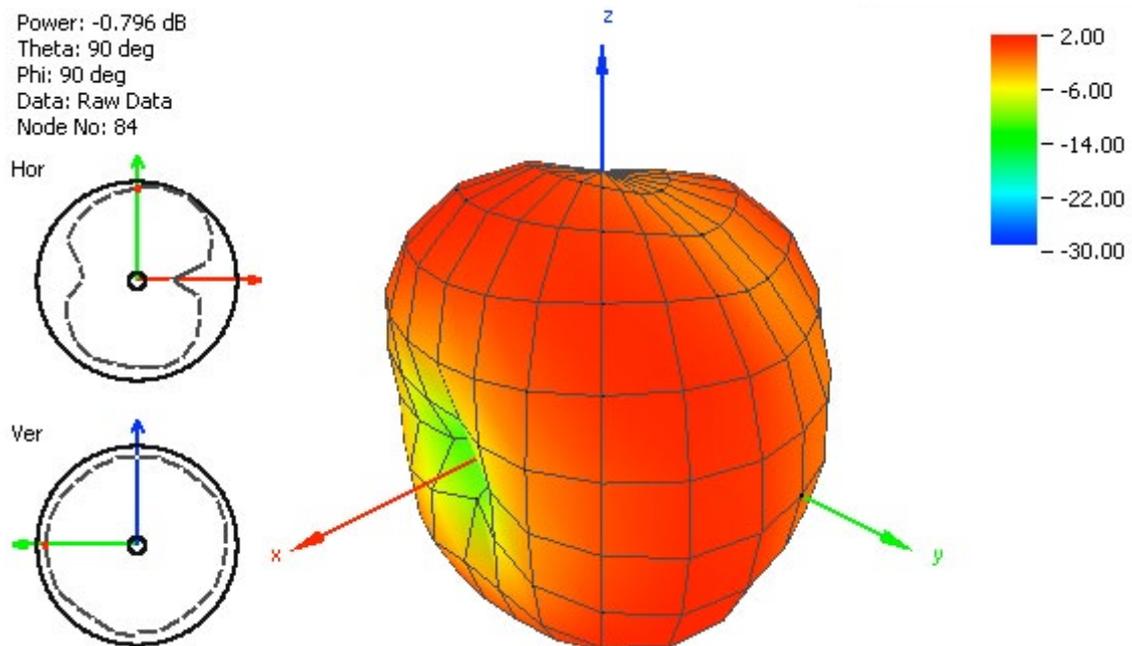
Figure 20. Radiation Pattern at 1575 MHz of FXUB70 Port1

Power: -4.020 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
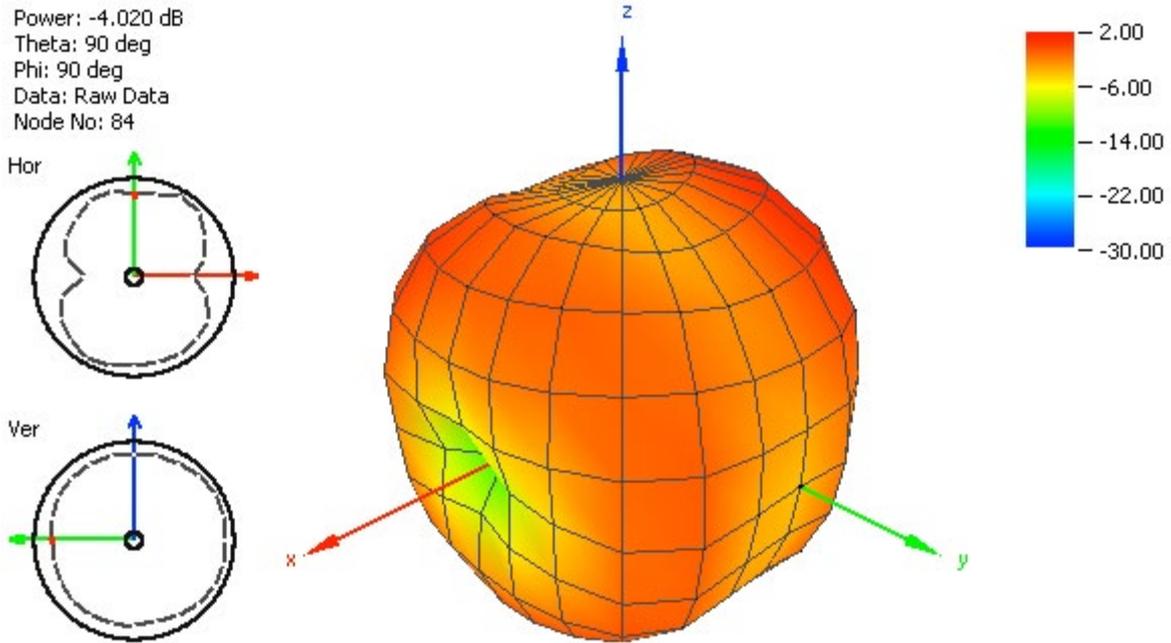
Figure 21. Radiation Pattern at 1575 MHz of FXUB70 Port 2

Power: -1.343 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
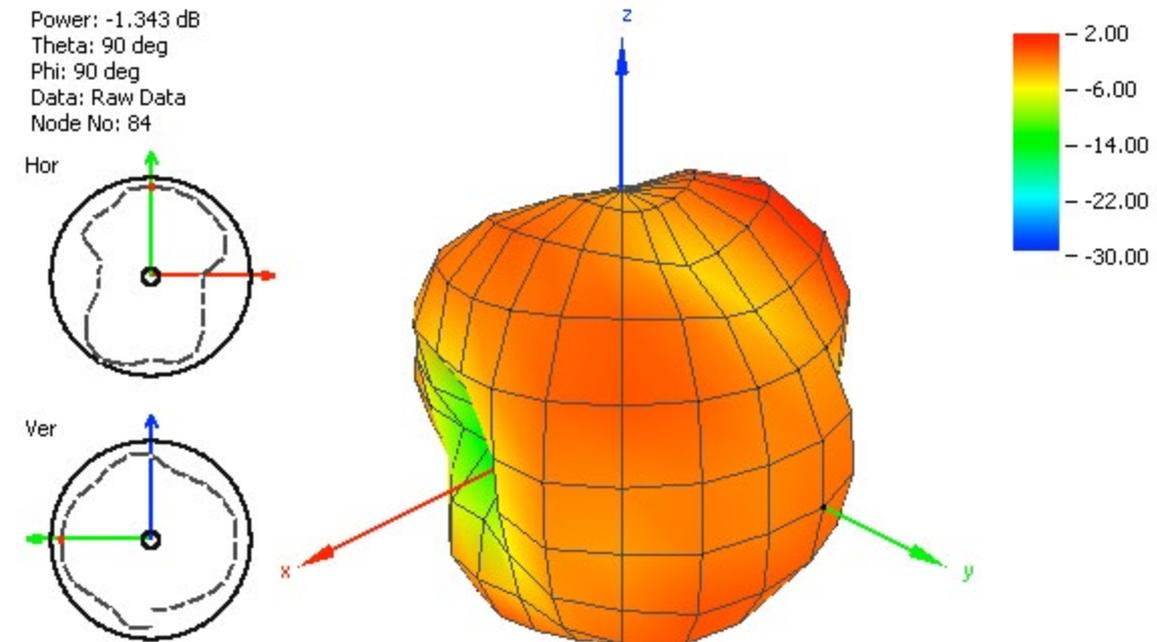
Figure 22. Radiation Pattern at 1750 MHz of FXUB70 Port 1

Power: -7.217 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
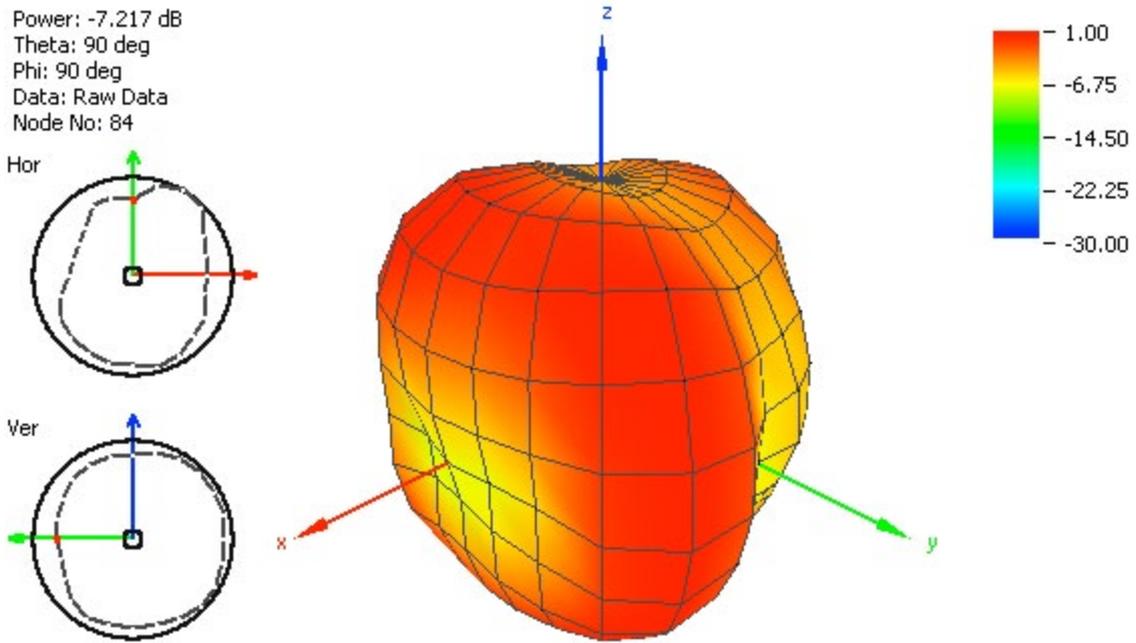
Figure 23. Radiation Pattern at 1750 MHz of FXUB70 Port 2

Power: 0.110 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
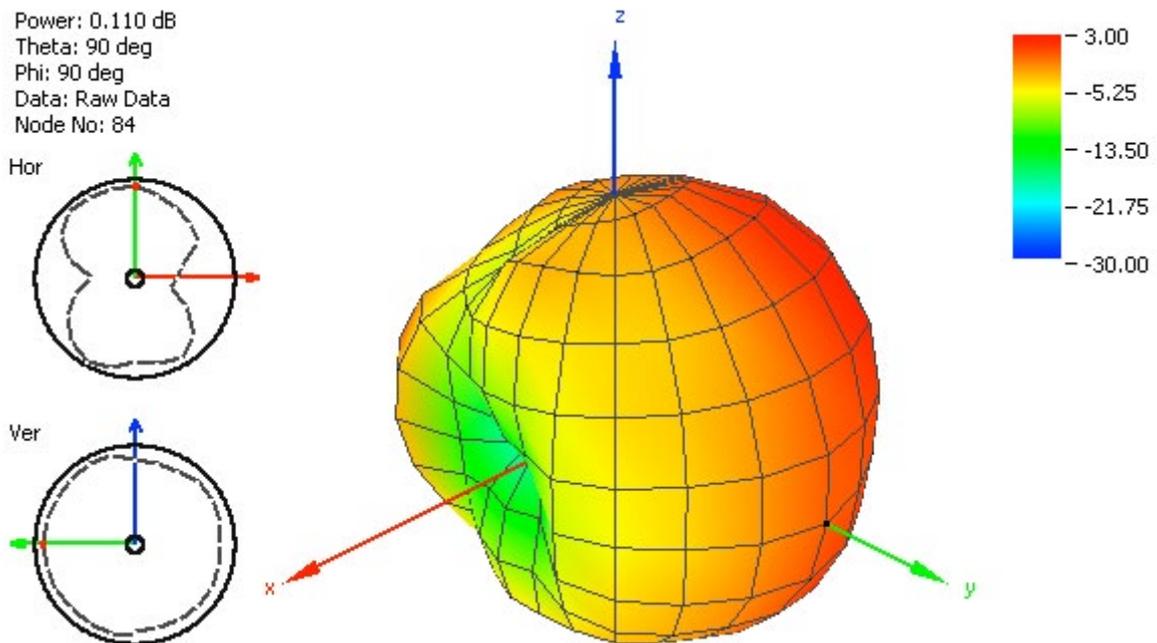
Figure 24. Radiation Pattern at 1850 MHz of FXUB70 Port 1.

Power: -2.956 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
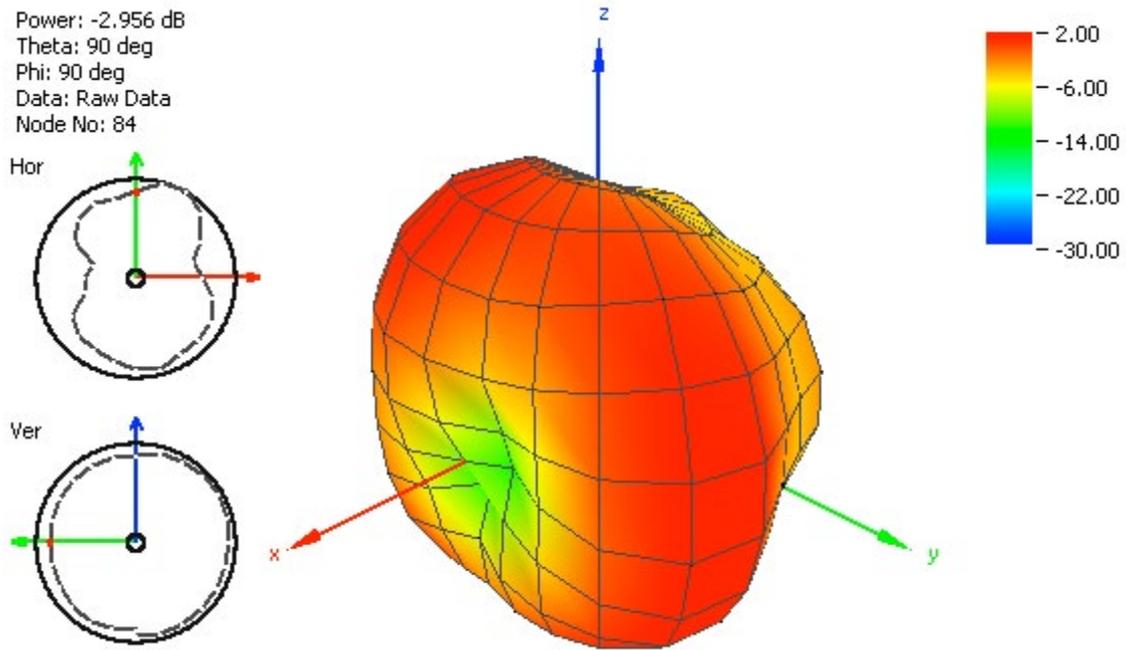
Figure 25. Radiation Pattern at 1850 MHz of FXUB70 Port 2

Power: 1.342 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver
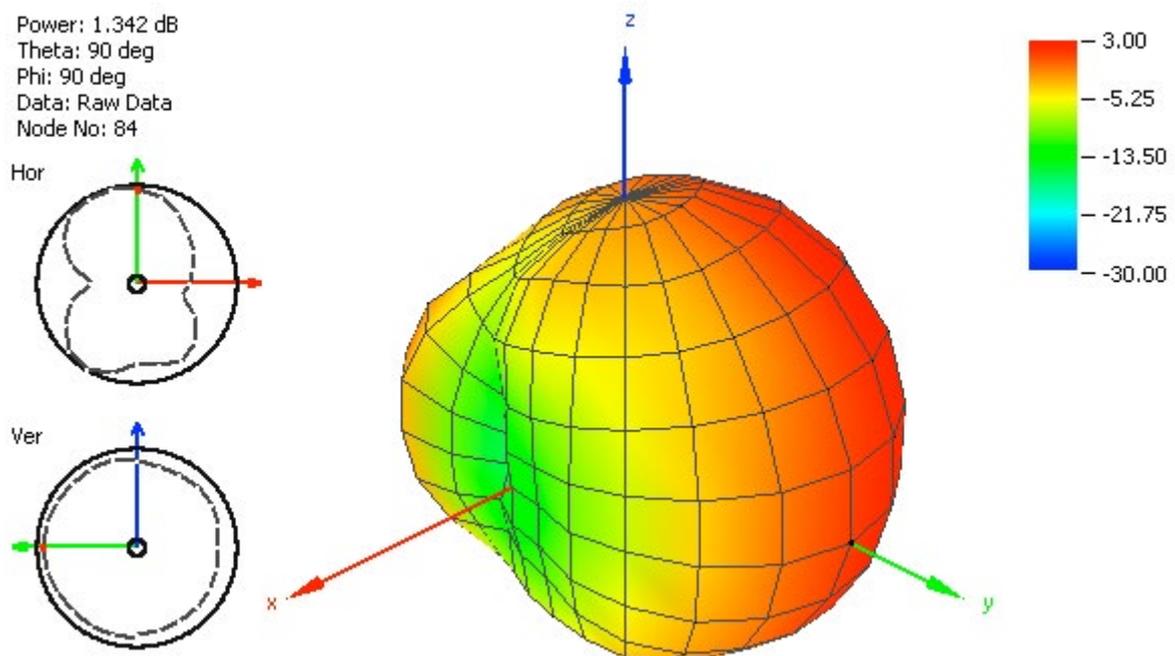
Figure 26. Radiation Pattern at 1950 MHz of FXUB70 Port 1

Power: -4.521 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

3.00
-5.25
-13.50
-21.75
-30.00
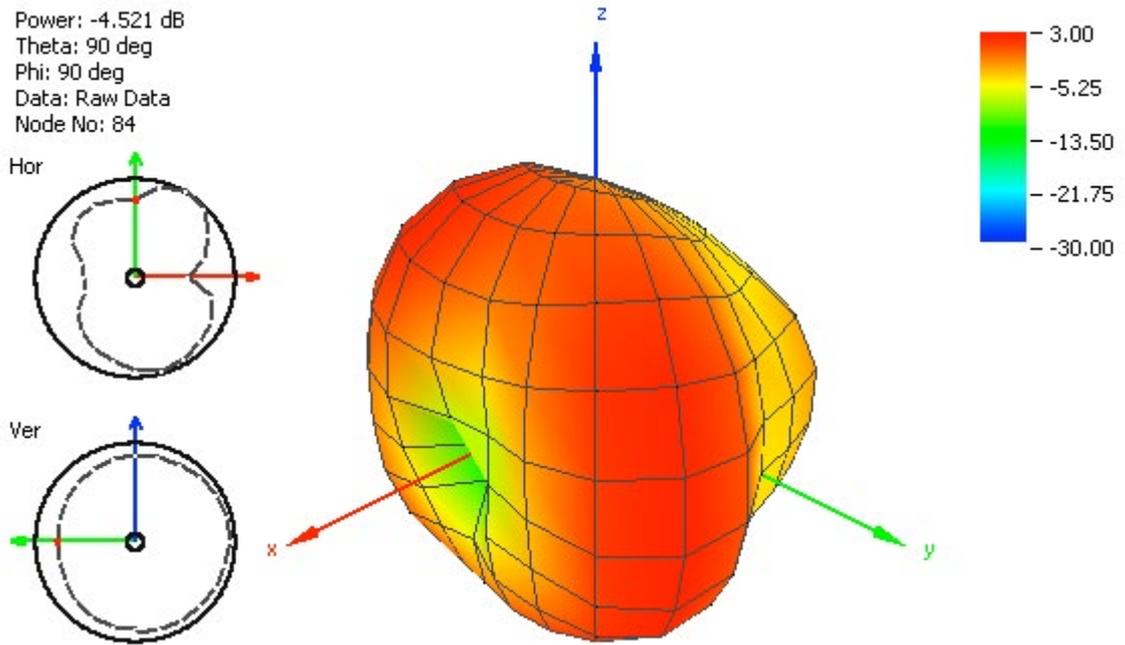
Figure 27. Radiation Pattern at 1950 MHz of FXUB70 Port 2.

Power: 0.508 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

3.00
-5.25
-13.50
-21.75
-30.00
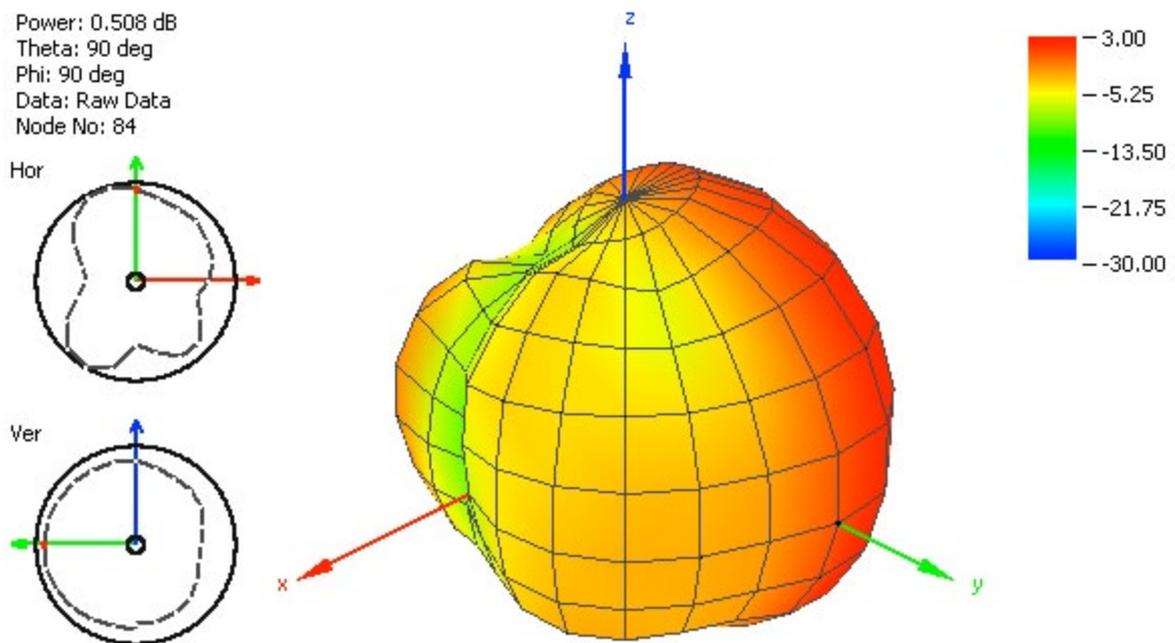
Figure 28. Radiation Pattern at 2100 MHz of FXUB70 Port 1

Power: 0.092 dB
Theta: 75 deg
Phi: 75 deg
Data: Raw Data
Node No: 70

Hor

Ver

3.00
-5.25
-13.50
-21.75
-30.00
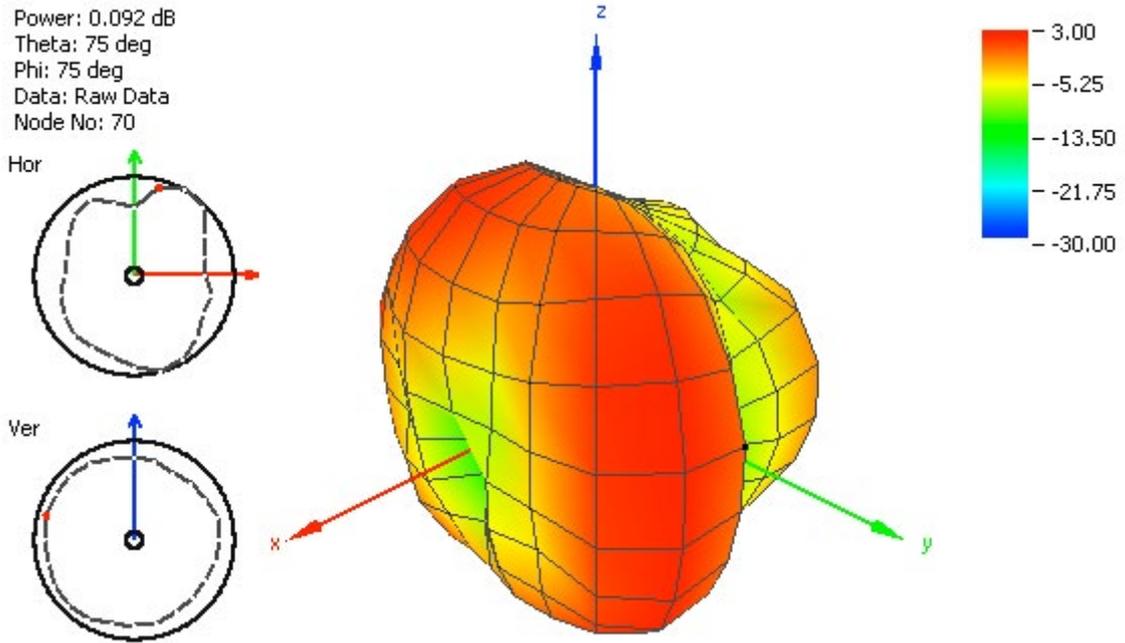
Figure 29. Radiation Pattern at 2100 MHz of FXUB70 Port 2

Power: 2.119 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

2.00
-6.00
-14.00
-22.00
-30.00
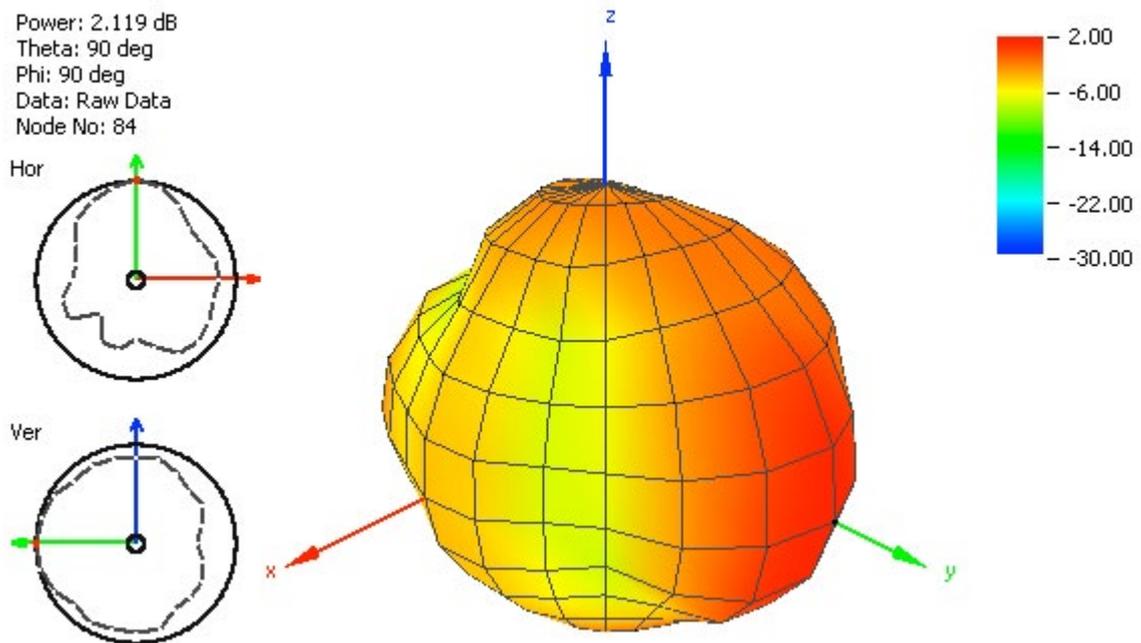
Figure 30. Radiation Pattern at 2450 MHz of FXUB70 Port 1

Power: -19.361 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

- 2.00
- -6.00
- -14.00
- -22.00
- -30.00
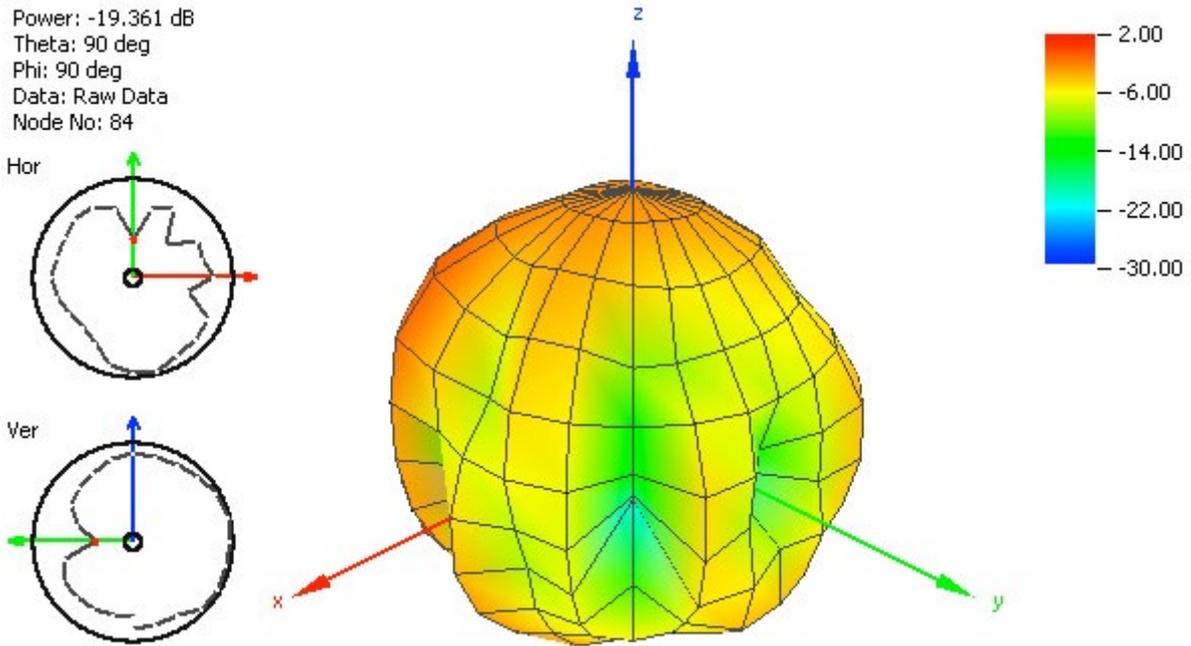
Figure 31. Radiation Pattern at 2450 MHz of FXUB70 Port 2.

Power: -0.404 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Hor

Ver

- 0.00
- -7.50
- -15.00
- -22.50
- -30.00
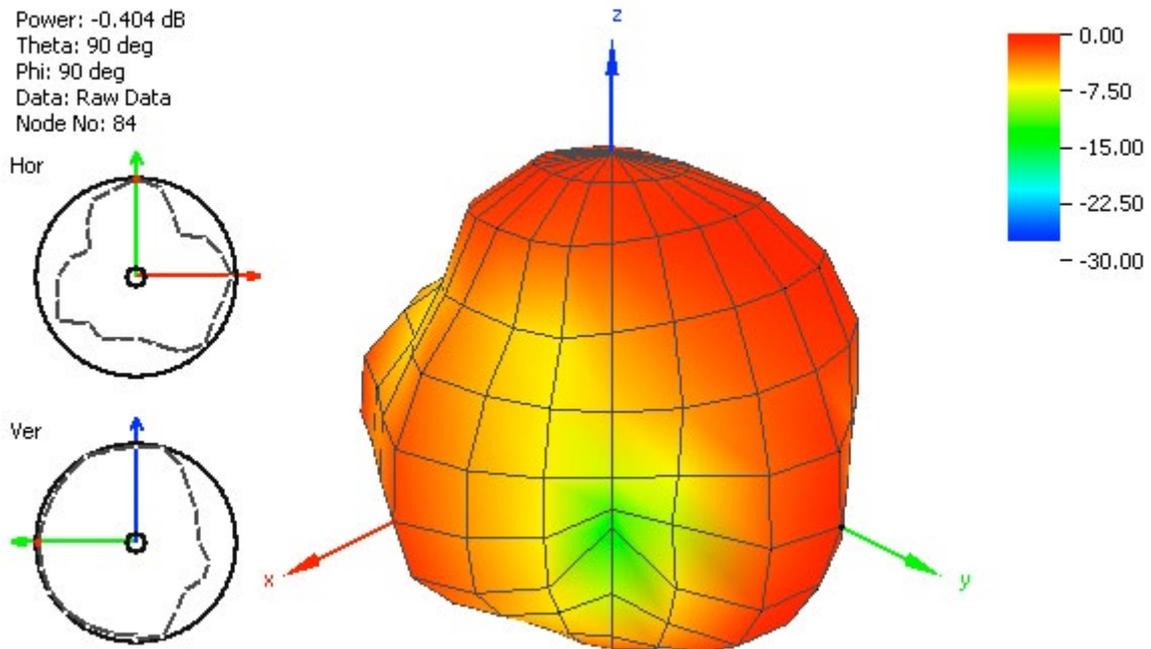
Figure 32. Radiation Pattern at 2600 MHz of FXUB70 Port 1

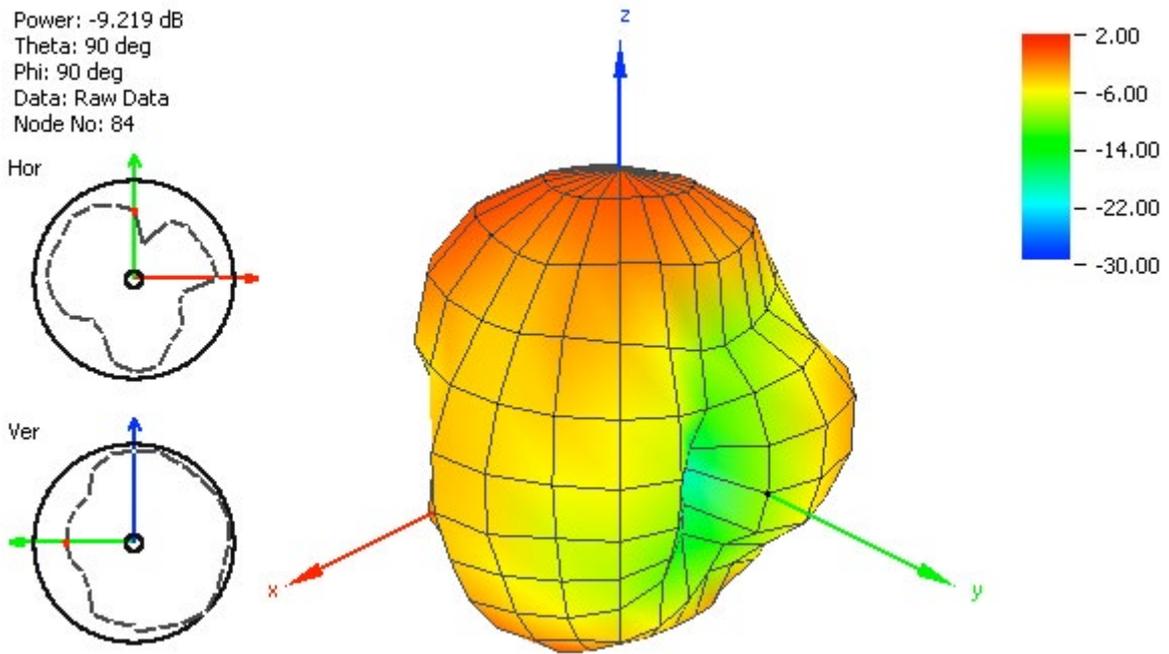Power: -9.219 dB
Theta: 90 deg
Phi: 90 deg
Data: Raw Data
Node No: 84

Figure 33. Radiation Pattern at 2600 MHz of FXUB70 Port 2.

4. Mechanical Drawing
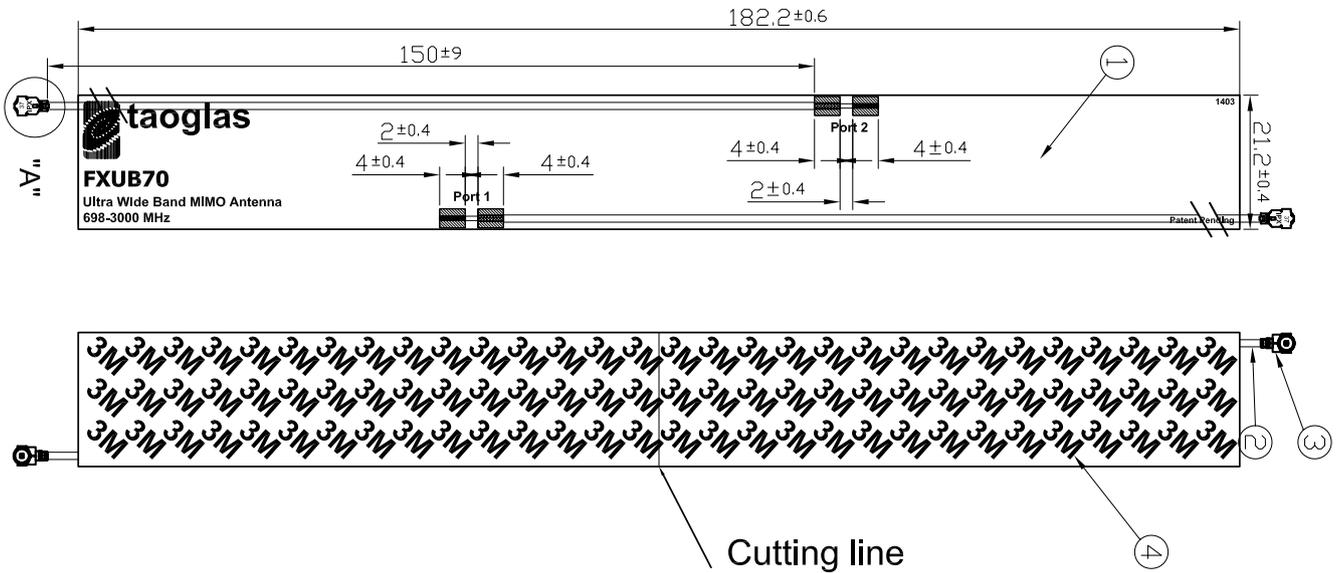
Figure 34. Mechanical drawing of FXUB70 UWB Antenna.

IPEX MHFHT

DETAIL :"A"
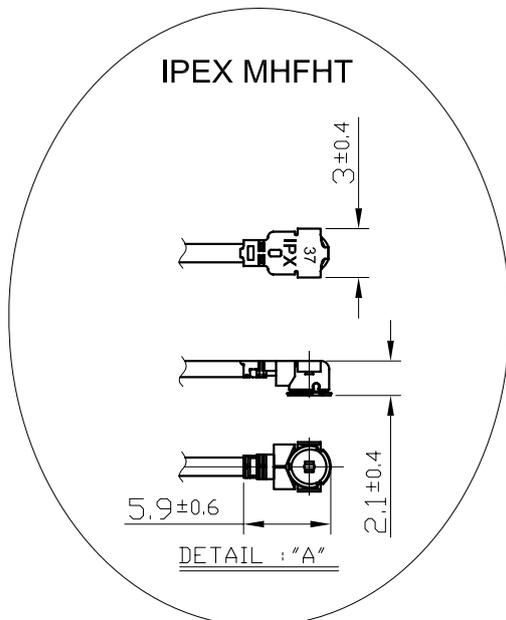
	Name	Material	Finish	QTY
1	FXUB70 PCB	FPCB 0.15t	Black	1
2	1.37 Mini-Coaxial Cable	FEP	Black	2
3	IPEX MHFHT	Brass	Gold	2
4	Double-Sided Adhesive	3M 467	Liner	1

Mouser Electronics

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