SPECIFICATION

PATENT PENDING

Part No   :   **FXUB70.A.07.C.001**

Product Name   :   4G LTE Wide Band Flex MIMO Antenna

698-3000 MHz

Features   :   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 plastic. 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

ELECTRICAL								
Band	700/800/850/900	1575	1700/1800/1900	2100	2300	2400	2600	3500
Standard	CELL	GPS	CELL	CELL	CELL	ISM	CELL	CELL
Frequency (MHz)	698-960	1575.42	1710-1990	1755-2170	2305-2360	2400-2500	2500-2690	3400-3600
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

Band Number	LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA			
	Uplink	**Downlink**	**MIMO 1**	**MIMO 2**
1	UL: 1920 to 1980	DL: 2110 to 2170	✔	✔
2	UL: 1850 to 1910	DL: 1930 to 1990	✔	✔
3	UL: 1710 to 1785	DL: 1805 to 1880	✔	✔
4	UL: 1710 to 1755	DL: 2110 to 2155	✔	✔
5	UL: 824 to 849	DL: 869 to 894	✔	✔
7	UL: 2500 to 2570	DL:2620 to 2690	✔	✔
8	UL: 880 to 915	DL: 925 to 960	✔	✔
9	UL: 1749.9 to 1784.9	DL: 1844.9 to 1879.9	✔	✔
11	UL: 1427.9 to 1447.9	DL: 1475.9 to 1495.9	✘	✘
12	UL: 699 to 716	DL: 729 to 746	✔	✔
13	UL: 777 to 787	DL: 746 to 756	✔	✔
14	UL: 788 to 798	DL: 758 to 768	✔	✔
17	UL: 704 to 716	DL: 734 to 746 (LTE only)	✔	✔
18	UL: 815 to 830	DL: 860 to 875 (LET only)	✔	✔
19	UL: 830 to 845	DL: 875 to 890	✔	✔
20	UL: 832 to 862	DL: 791 to 821	✔	✔
21	UL: 1447.9 to 1462.9	DL: 1495.9 to 1510.9	✘	✘
22	UL: 3410 to 3490	DL: 3510 to 3590	✔	✔
23	UL:2000 to 2020	DL: 2180 to 2200 (LTE only)	✔	✔
24	UL:1625.5 to 1660.5	DL: 1525 to 1559 (LTE only)	✔	✔
25	UL: 1850 to 1915	DL: 1930 to 1995	✔	✔
26	UL: 814 to 849	DL: 859 to 894	✔	✔
27	UL: 807 to 824	DL: 852 to 869 (LTE only)	✔	✔
28	UL: 703 to 748	DL: 758 to 803 (LTE only)	✔	✔
29	UL: -	DL: 717 to 728 (LTE only)	✔	✔
30	UL: 2305 to 2315	DL: 2350 to 2360 (LTE only)	✔	✔
31	UL: 452.5 to 457.5	DL: 462.5 to 467.5 (LTE only)	✘	✘
32	UL: -	DL: 1452 - 1496	✘	✘
35	1850 to 1910		✔	✔
38	2570 to 2620		✔	✔
39	1880 to 1920		✔	✔
40	2300 to 2400		✔	✔
41	2496 to 2690		✔	✔
42	3400 to 3600		✔	✔
43	3600 to 3800		✘	✘

*Covered bands represent an efficiency greater than 20%

3. Antenna Parameters

3.1. Return Loss
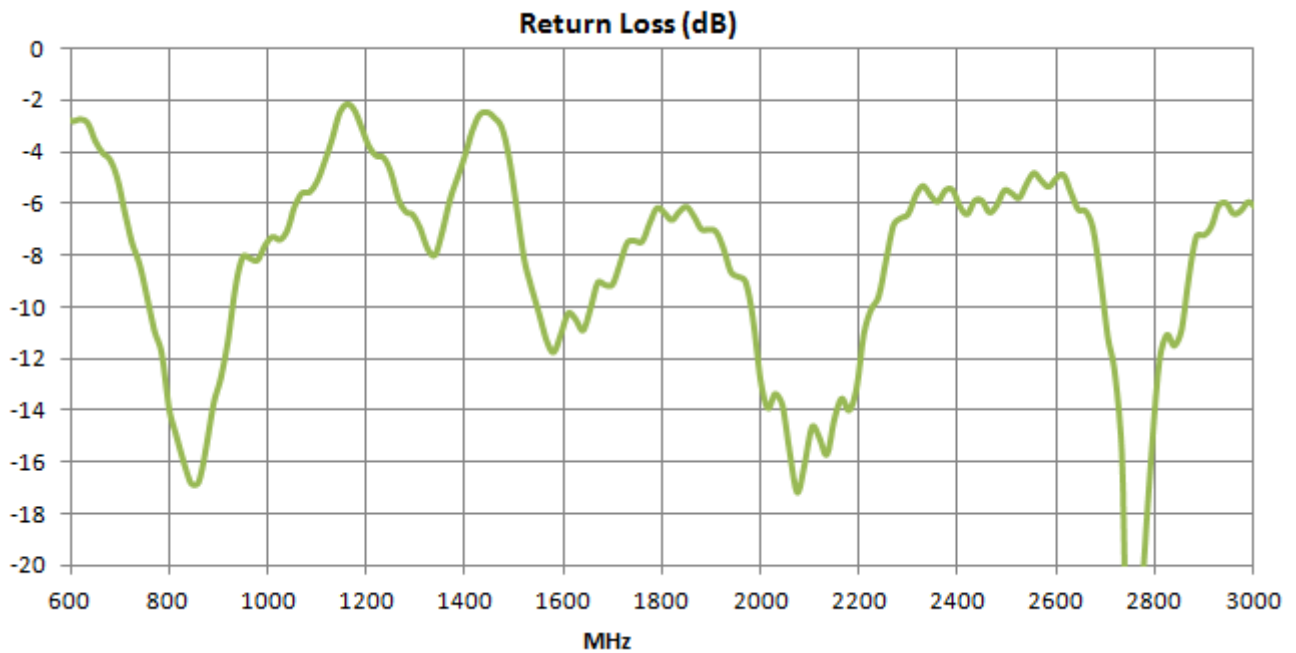
Return Loss (dB)

Figure 1. Return loss of FXUB70 Port 1.
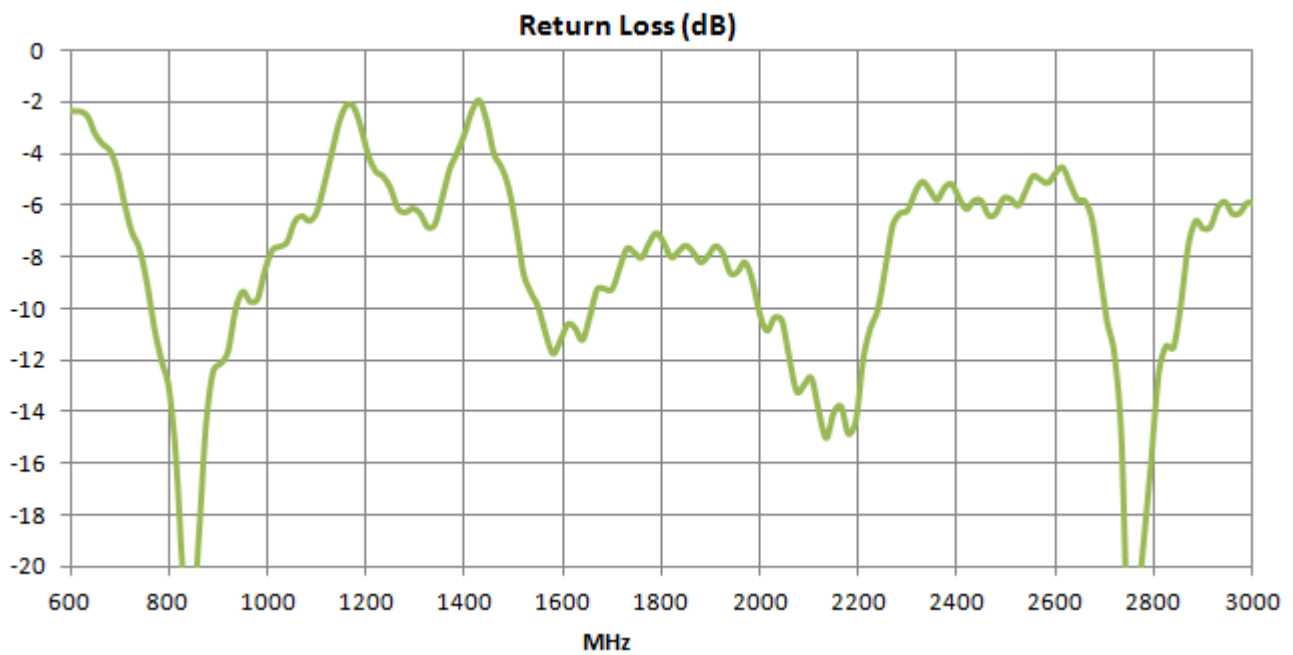
Return Loss (dB)

Figure 2. Return loss of FXUB70 Port 2.

3.2. VSWR
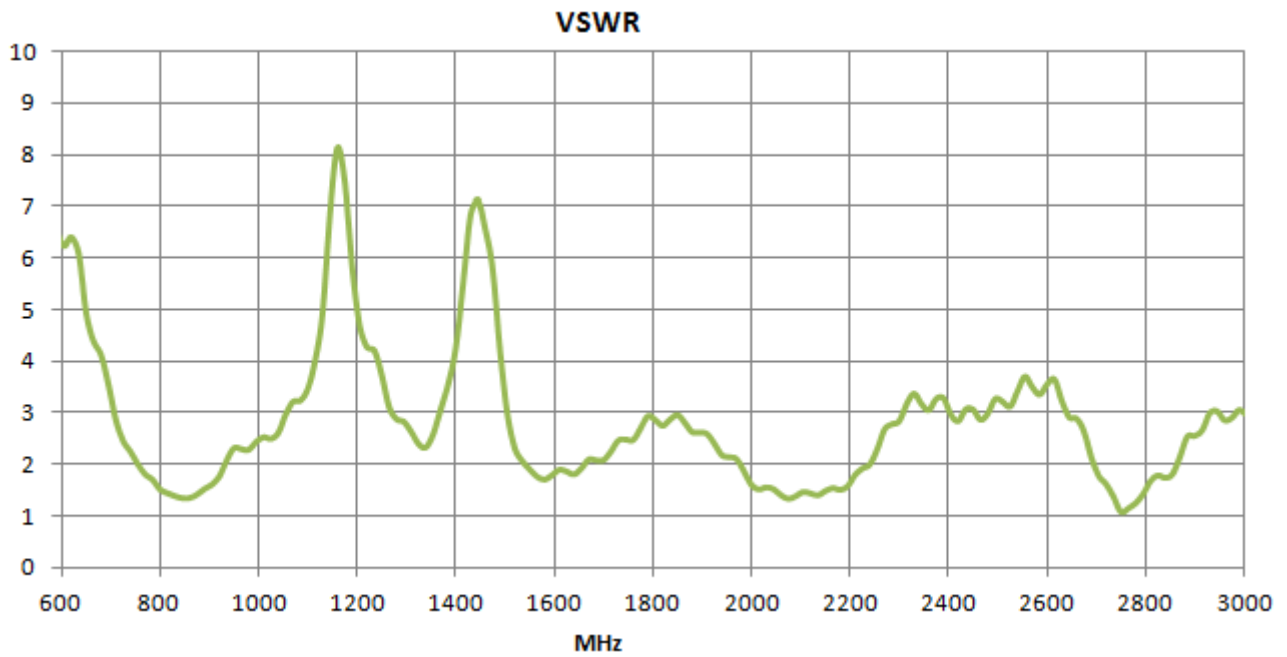
Figure 3. VSWR of FXUB70 Port 1.
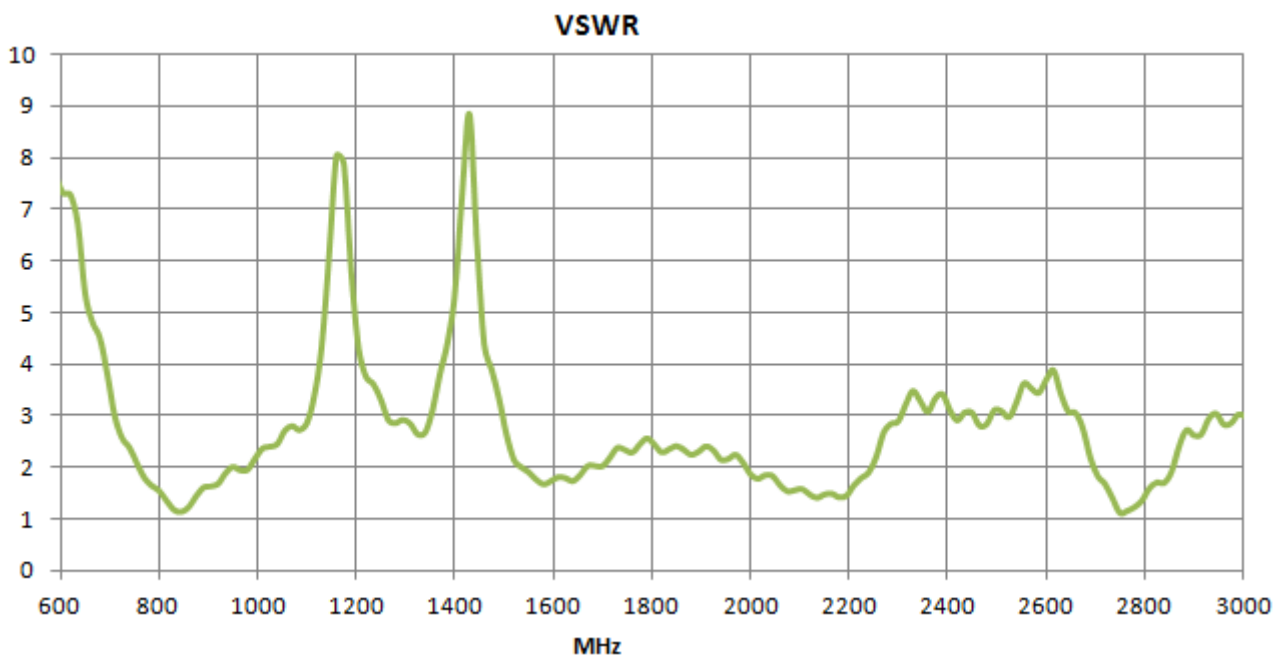
Figure 4. VSWR of FXUB70 Port 1.

3.3. Isolation
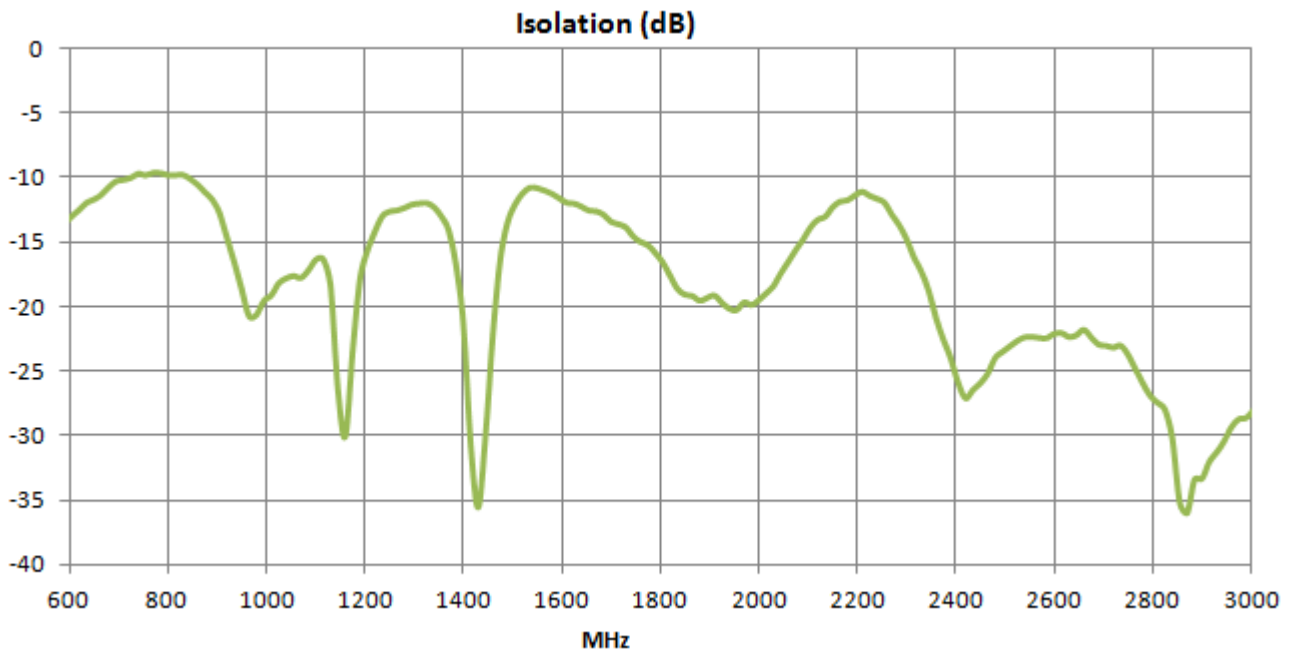
Figure 5. Isolation of FXUB70 in between Port 1 and Port 2.
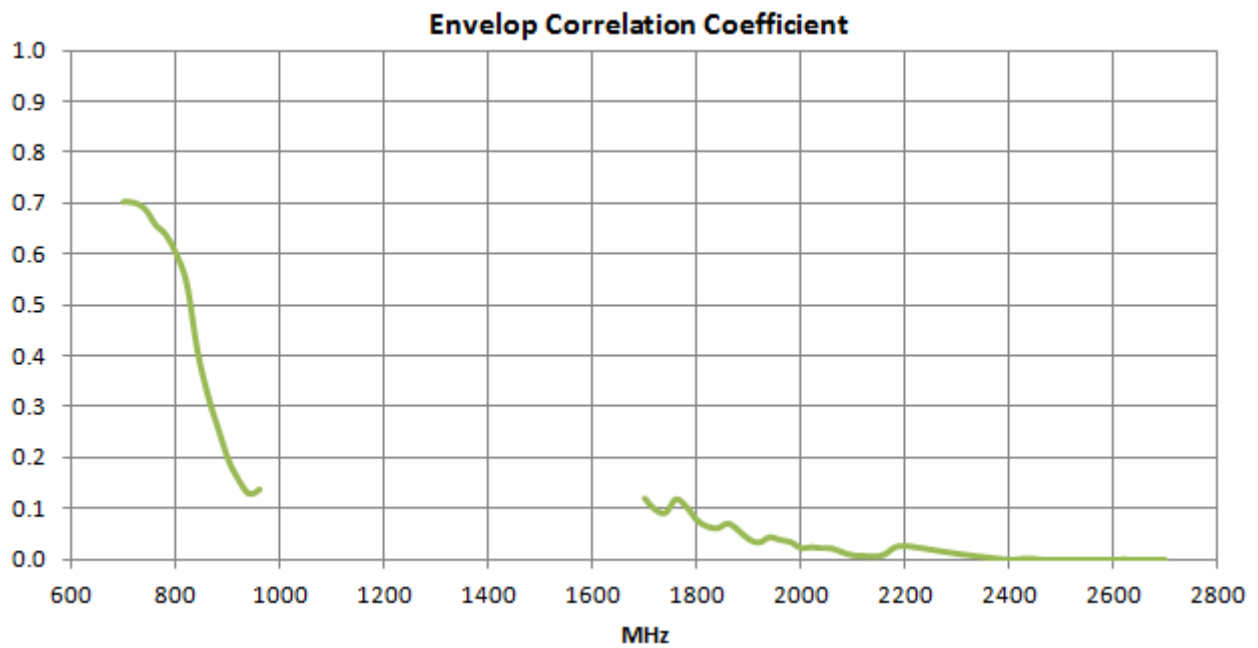
3.4. Envelope Correlation Coefficient

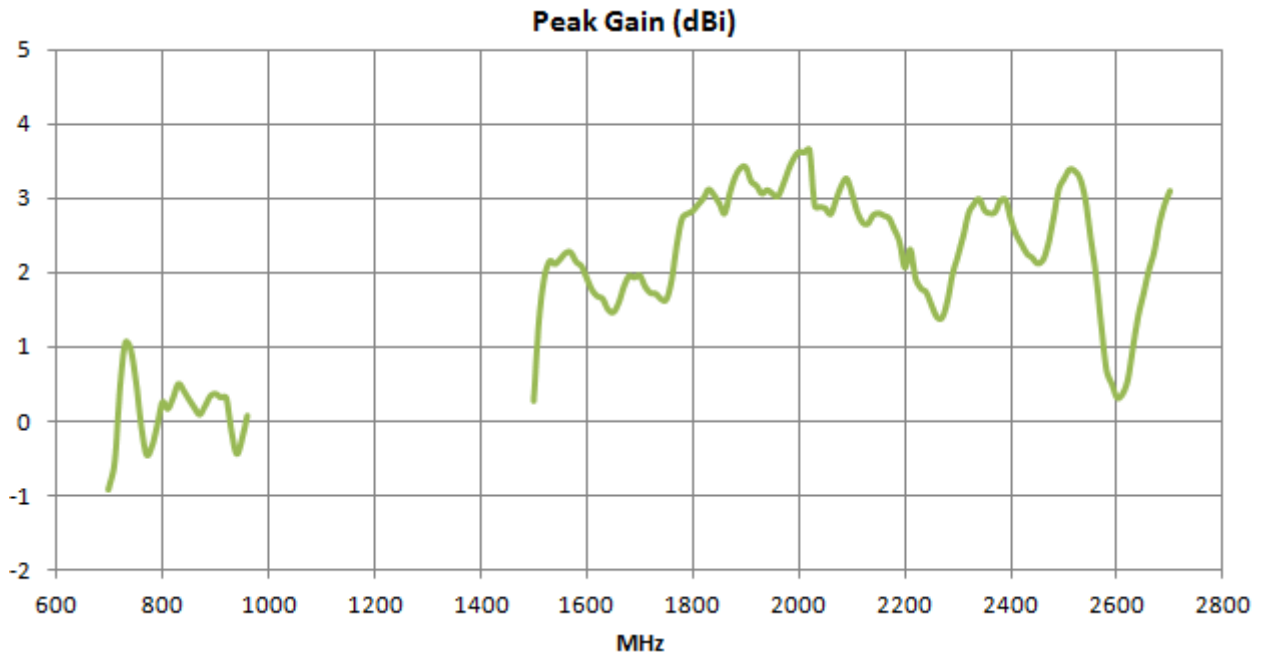**Figure 6.** ECC of FXUB70 in between Port 1 and Port 2.

3.5. Peak Gain

Figure 7. Peak Gain of FXUB70 Port 1.
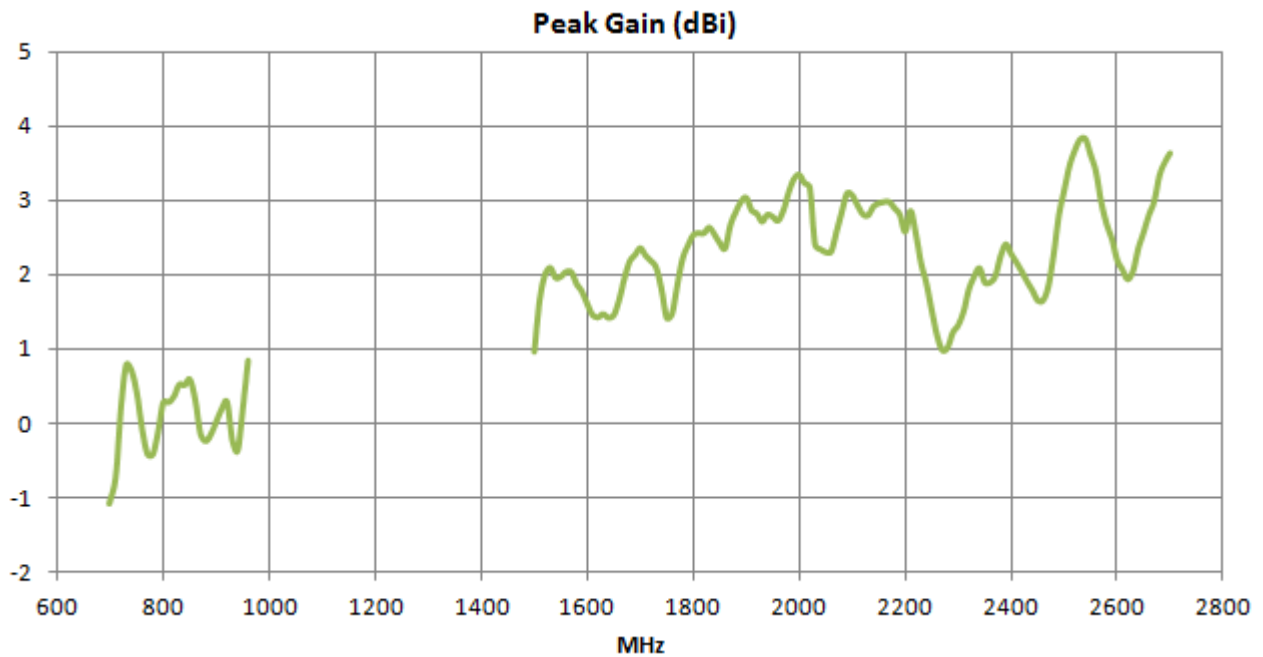
Figure 8. Peak Gain of FXUB70 Port 2.

3.6. Efficiency
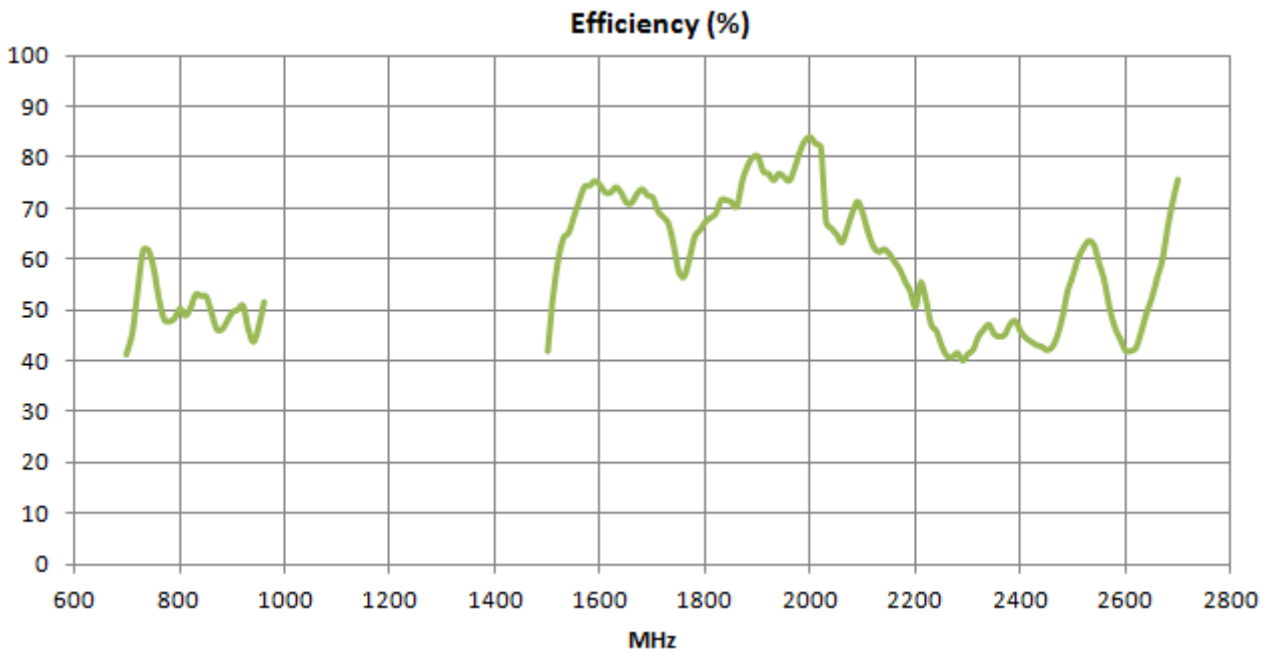
Figure 9. Efficiency of FXUB70 Port 1.
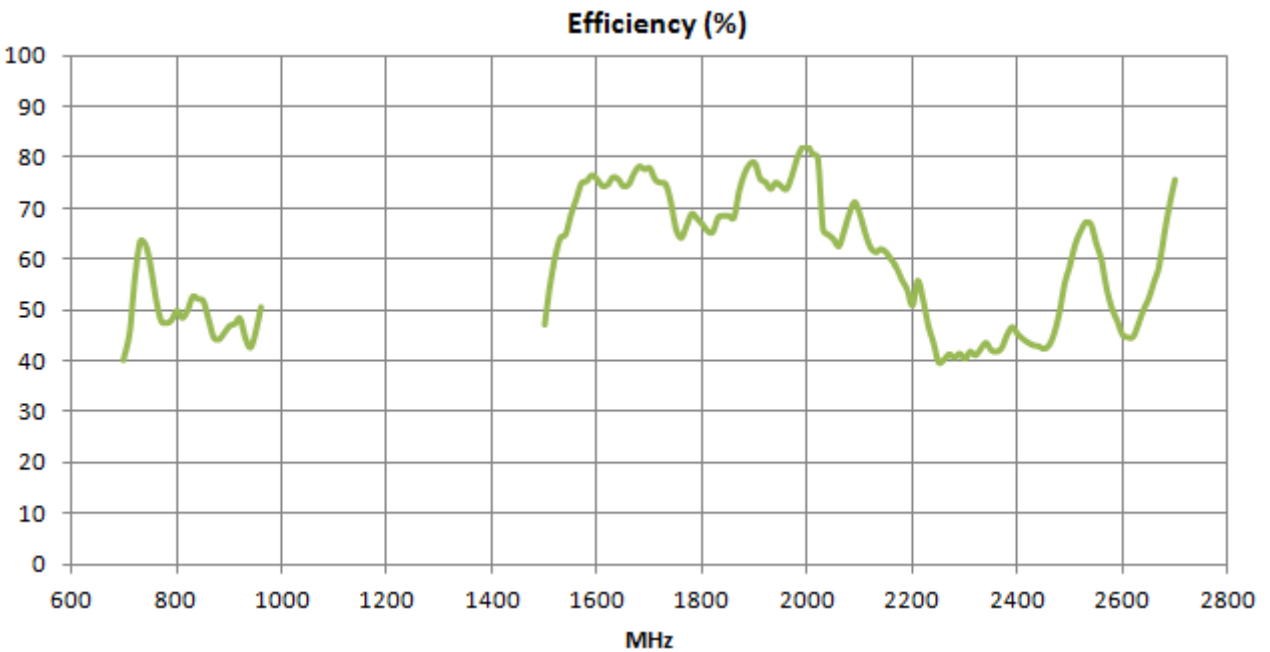
Figure 10. Efficiency of FXUB70 Port 2.

3.7. Average Gain
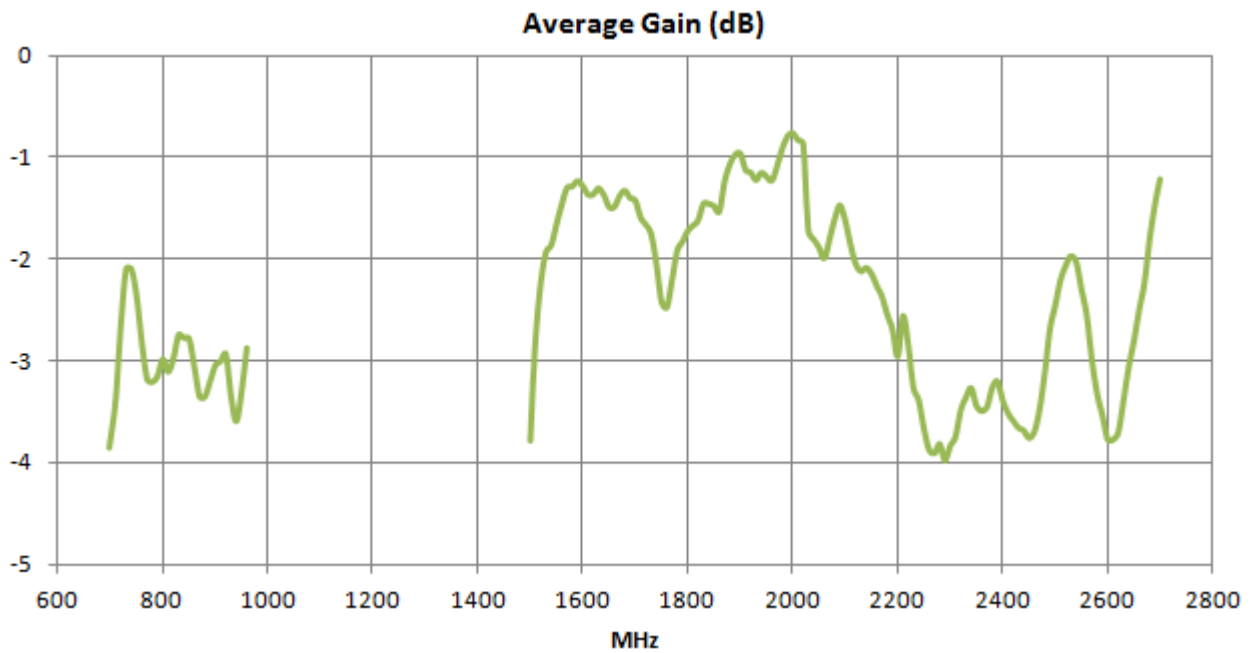
Figure 11. Average Gain of FXUB70 Port 1.
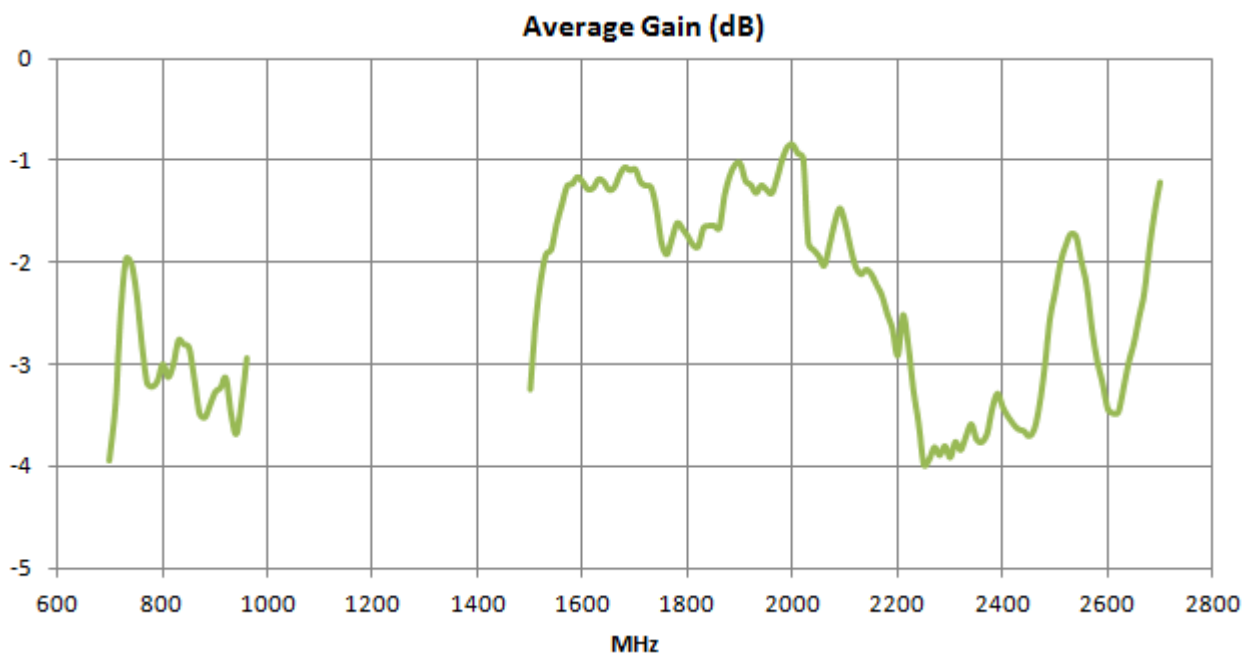
Figure 12. Average Gain of FXUB70 Port 2.

3.8. Radiation Pattern
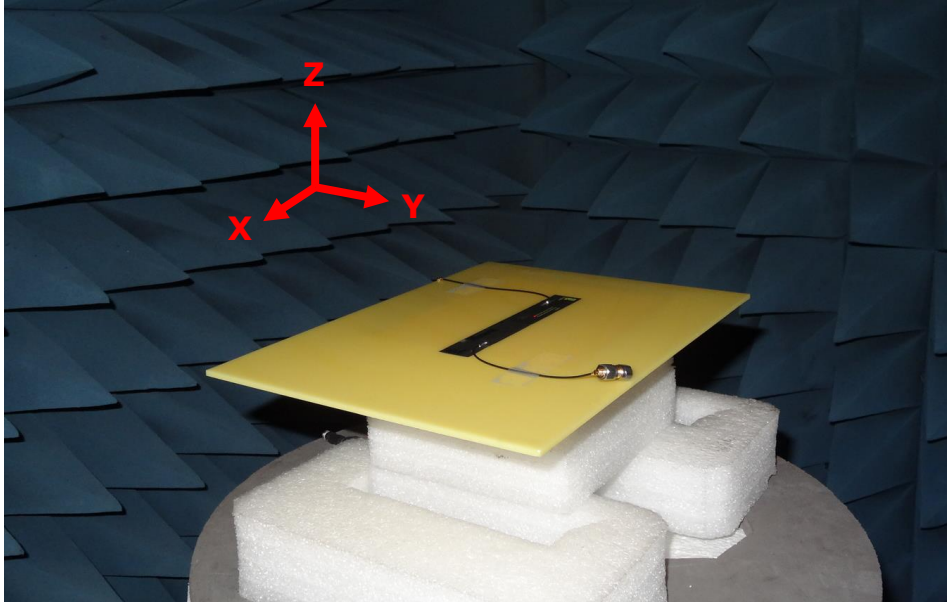
Figure 13. Radiation Pattern Reference of FXUB70.
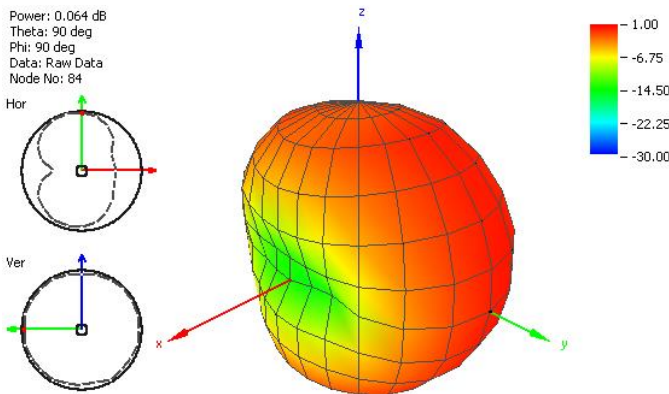
Figure 14. Radiation Pattern at 750 MHz of FXUB70 Port 1.
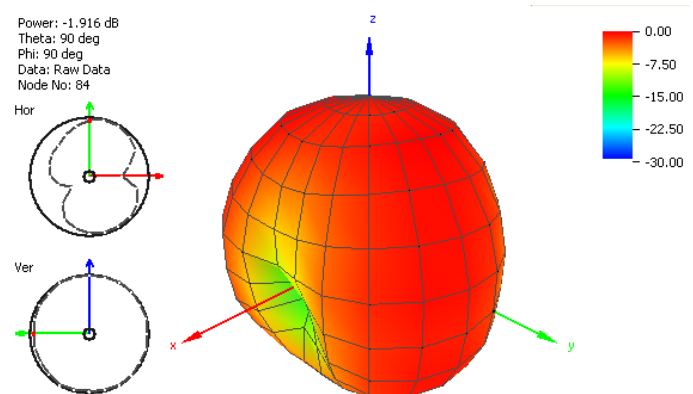
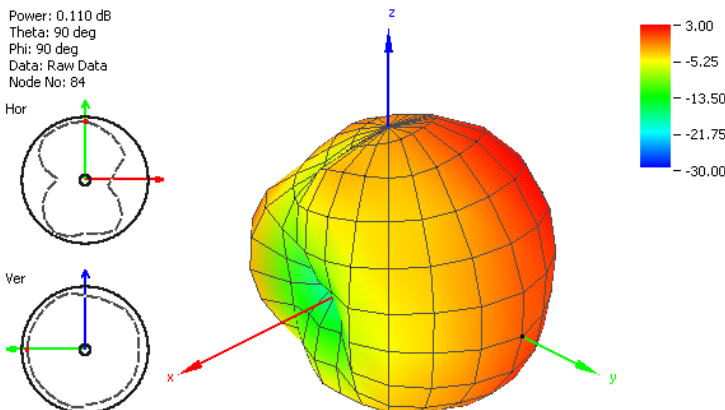**Figure 15.** Radiation Pattern at 750 MHz of FXUB70 Port 2.
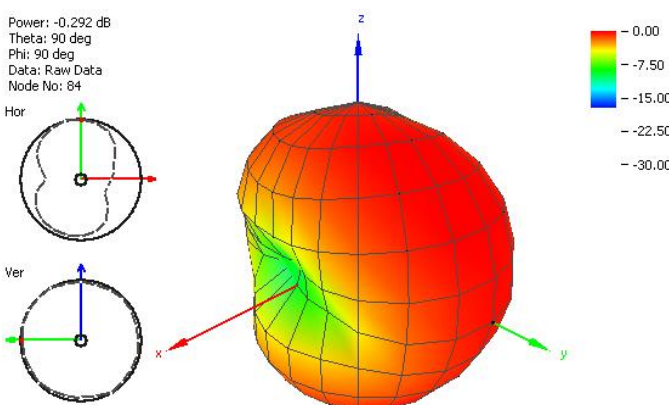
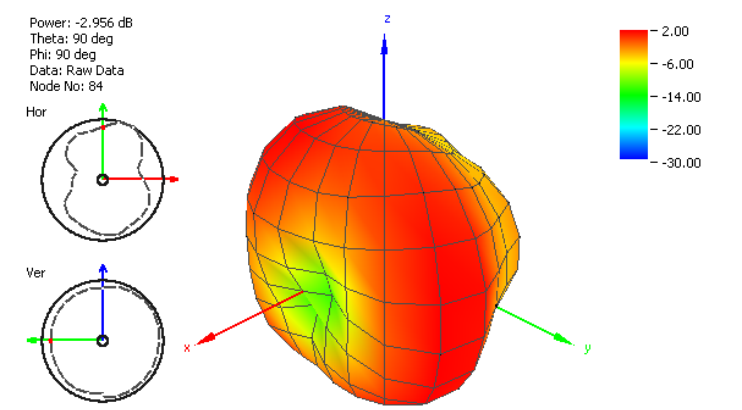**Figure 16.** Radiation Pattern at 850 MHz of FXUB70 Port 1.
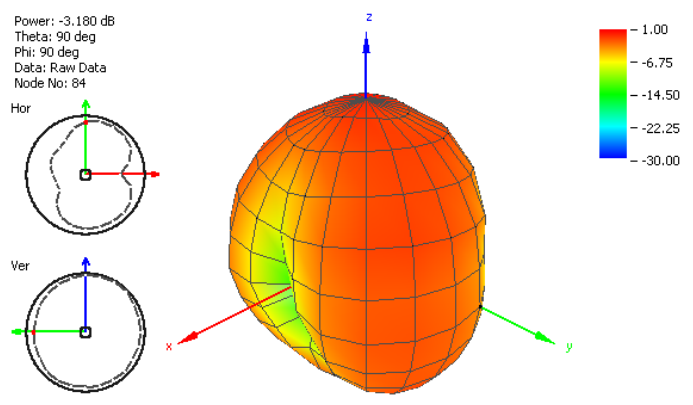
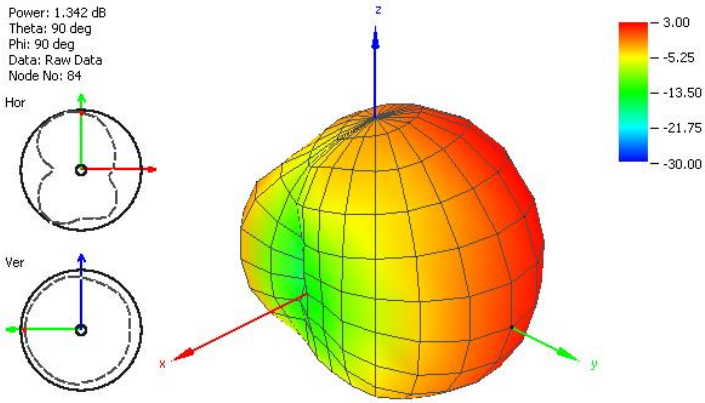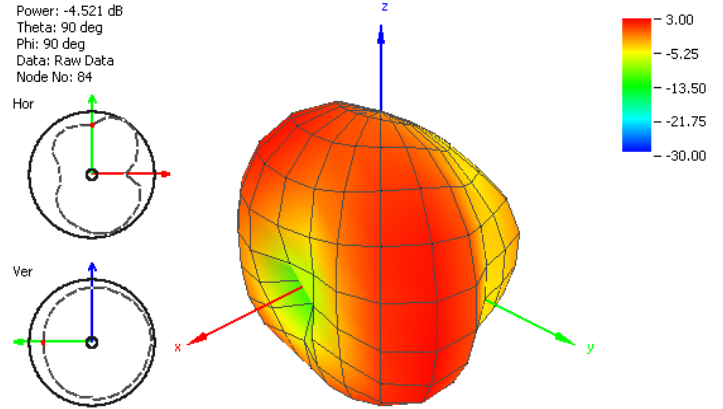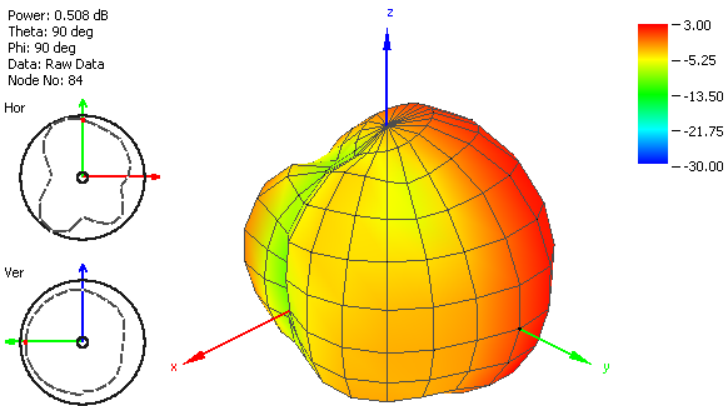**Figure 17.** Radiation Pattern at 850 MHz of FXUB70 Port 2.
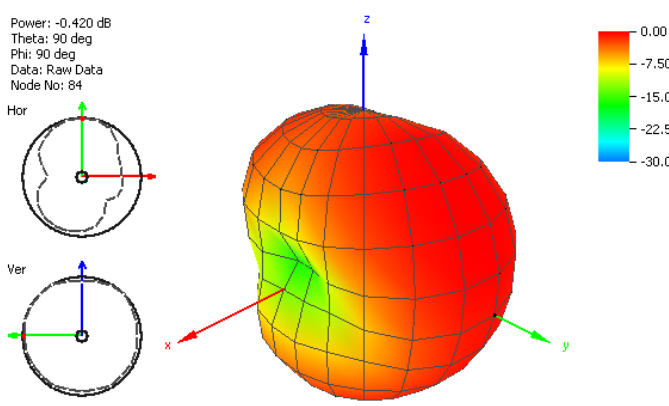
Figure 18. Radiation Pattern at 925 MHz of FXUB70 Port 1.
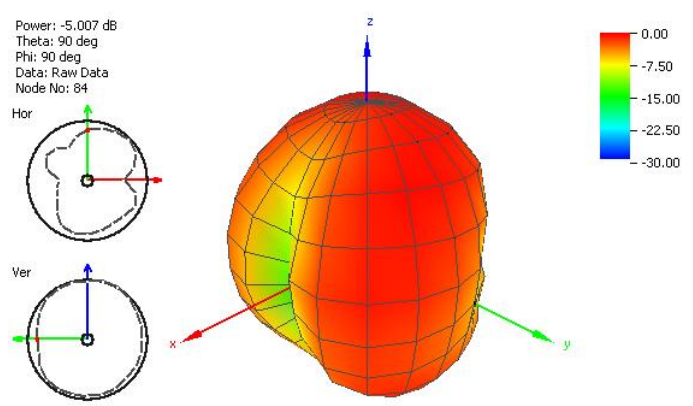
Figure 19. Radiation Pattern at 925 MHz of FXUB70 Port 2.
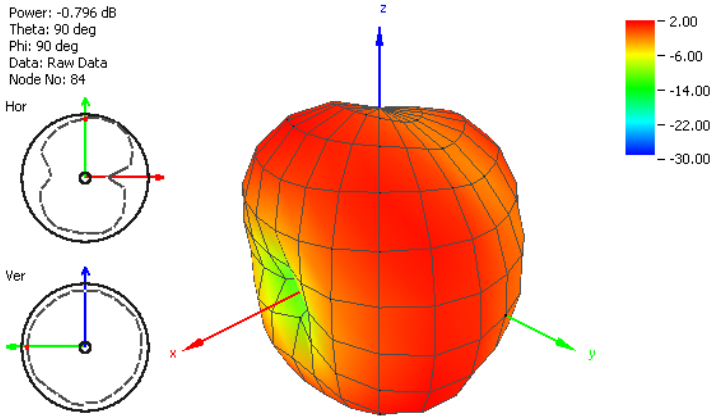
Figure 20. Radiation Pattern at 1575 MHz of FXUB70 Port1
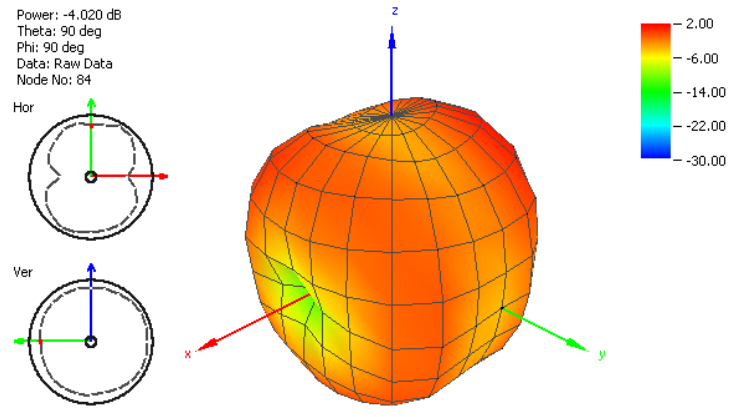
Figure 21. Radiation Pattern at 1575 MHz of FXUB70 Port 2.
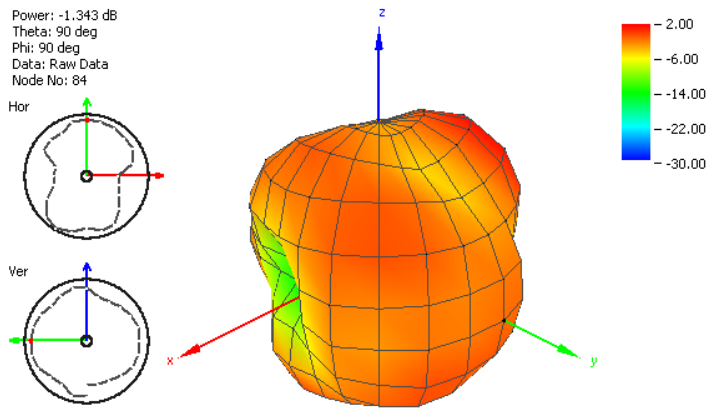
Figure 22. Radiation Pattern at 1750 MHz of FXUB70 Port 1.
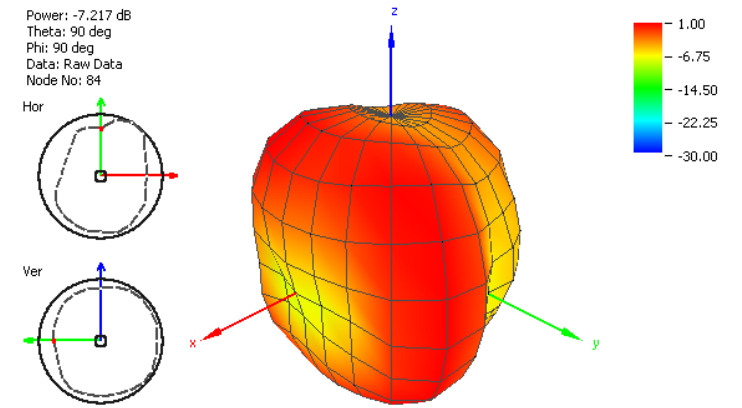
Figure 23. Radiation Pattern at 1750 MHz of FXUB70 Port 2.

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

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

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

Figure 27. Radiation Pattern at 1950 MHz of FXUB70 Port 2.

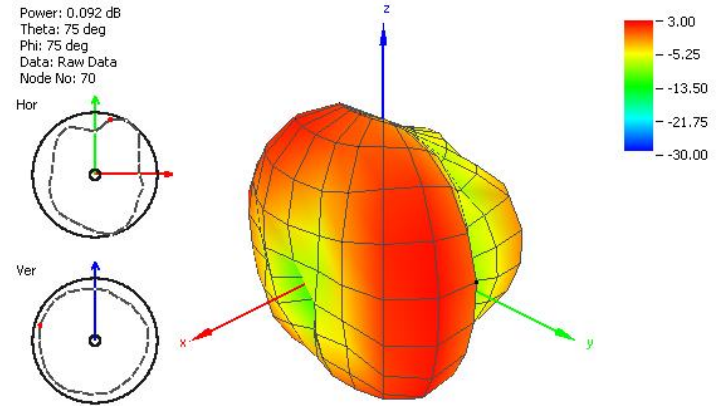**Figure 28.** Radiation Pattern at 2100 MHz of FXUB70 Port 1.

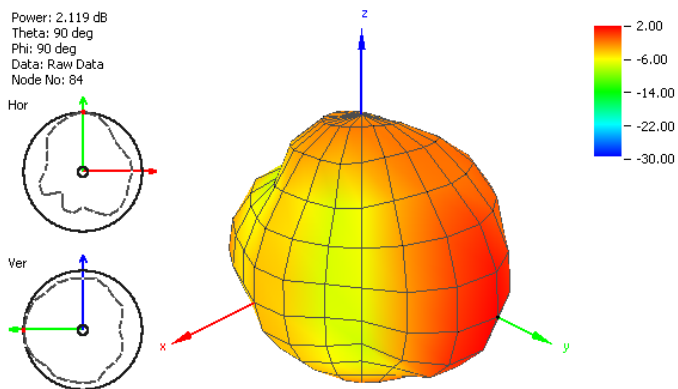**Figure 29.** Radiation Pattern at 2100 MHz of FXUB70 Port 2.
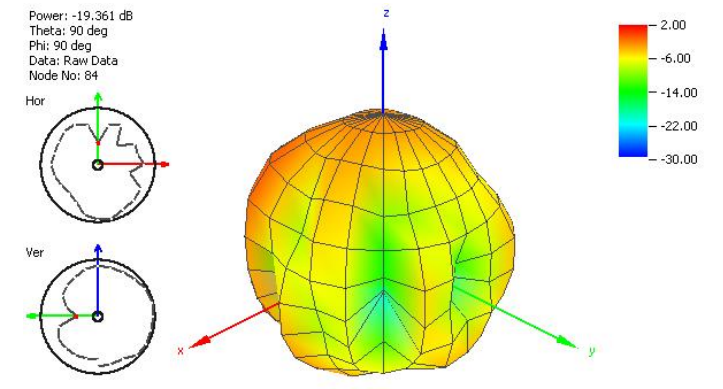

Figure 30. Radiation Pattern at 2450 MHz of FXUB70 Port 1.

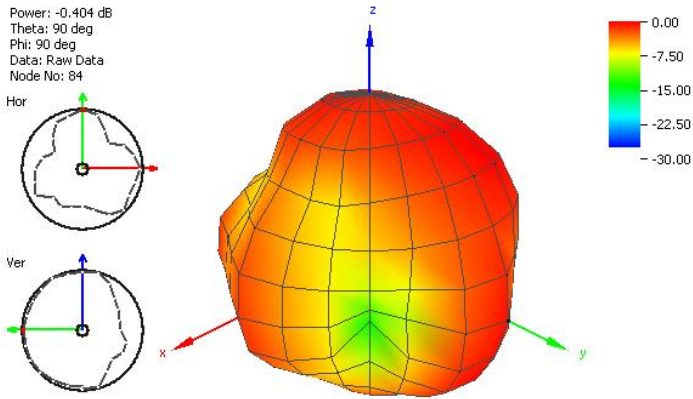**Figure 31.** Radiation Pattern at 2450 MHz of FXUB70 Port 2.

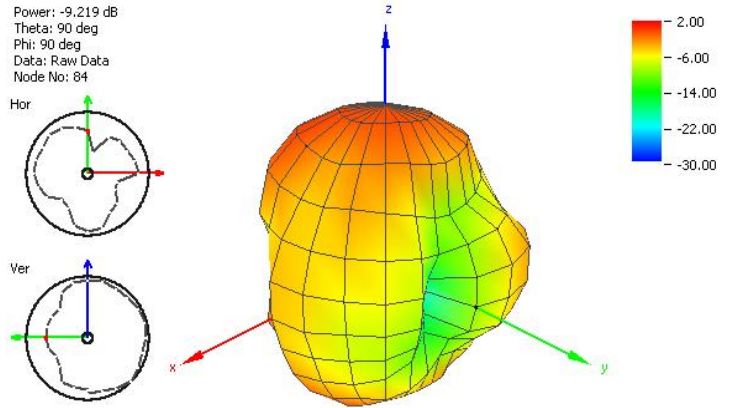**Figure 32.** Radiation Pattern at 2600 MHz of
FXUB70 Port 1.

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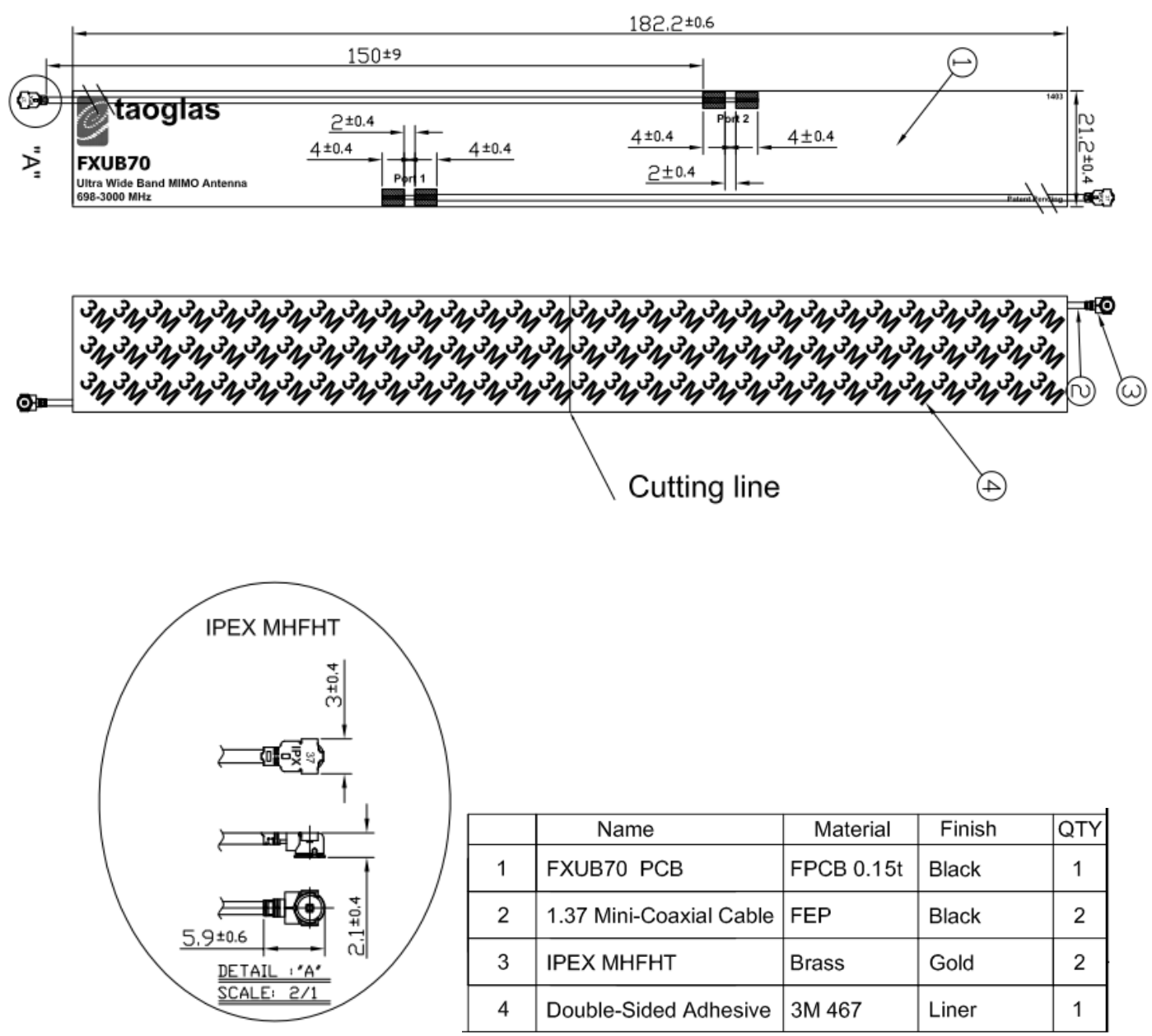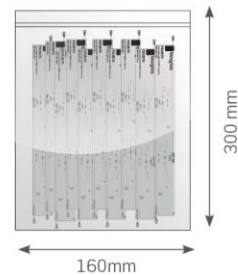FXUB70 Port 2.

4. Mechanical Drawings

Figure 34. Mechanical drawing of FXUB70 UWB Antenna.

|	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

4. Packaging

100pcs FXUB70.A.07.C.001 per PE Bag
Bag Dimensions - 300 x 160mm
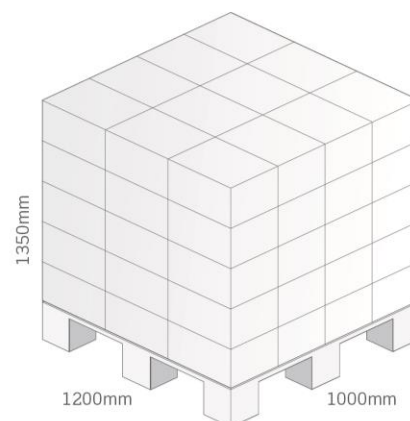Weight - 340g

300 mm

160mm

200pcs FXUB70.A.07.C.001 per Large PE Bag
Bag Dimensions - 450 x 280mm
Weight - 696g

450 mm

280 mm
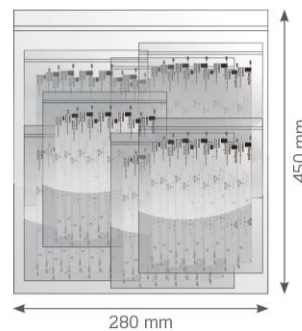
2,000 pcs FXUB70.A.07.C.001 per carton
Carton - 330 x 250 x 230mm
Weight - 7Kg

240mm

330mm   260mm
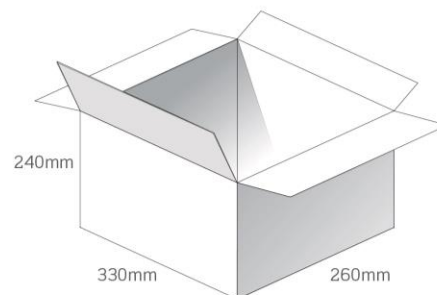
Pallet Dimensions 1200x 1000 x 1350mm
60 Cartons per Pallet
12 Cartons per layer
5 Layers

1350mm

1200mm   1000mm

Mouser Electronics

Authorized Distributor

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