



DIVERSE

APPROVAL SHEET

UT-224 UWB Antenna

Project Name	UT-224
WoXu PN	AE20-UWDI00-00
DCT PN	F-WX0213-03-R
Vendor Name	DCT
Description (Version)	A02

Project: UT-224	Author:	File Name: F-WX0213-03-R
Date: 2023-05-15	Jack Li	
Revision: A02		
Zhejiang Diverse Communication Technology Co., Ltd Building 4, No.1, Chanzhi Road, Quzhou City, Zhejiang Province, China		

1	ANTENNA DESCRIPTION	3
1.1	Part number	3
1.2	Product pictures.....	3
1.3	Antenna pictures.....	3
2	ELECTRICAL PERFORMANCE	4
2.1	Proposal specification for mass production.....	4
2.1.1	VSWR specification	4
2.2	Measurement Set-up.....	4
2.2.1	VSWR and return loss	4
2.2.2	Efficiency, Gain.....	4
2.3	Reference measurement data.....	5
2.3.1	VSWR	5
2.3.2	Efficiency and Gain	5
3	PLOTS.....	6
3.1	VSWR.....	6
3.2	Radiation pattern.....	7
4	MECHANICAL DESCRIPTION	10
4.1	Drawings.....	10

Project: UT-224	Author:	File Name:
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Revision: A02		
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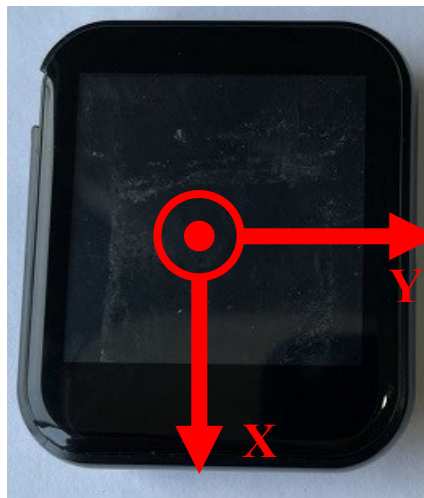
1 Antenna description

The antenna is a dipole antenna. The structure of the antenna is FPC type.

1.1 Part number

DCT PN: F-WX0213-03-R
WoXu PN: AE20-UWDI00-00
Vender Name: DCT

1.2 Product pictures



Picture1. Product pictures

1.3 Antenna pictures



Picture 2. Antenna pictures

Project: UT-224	Author: Jack Li	File Name: F-WX0213-03-R
Date: 2023-05-15		
Revision: A02		
CONFIDENTIAL Zhejiang Diverse Communication Technology Co., Ltd		

2 Electrical Performance

2.1 Proposal specification for mass production

2.1.1 VSWR specification

The performance was tested in UT-224 product.

Frequency (GHz)	6.1	6.4896	6.9	7.6	7.9872	8.4
VSWR	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2	≤ 2

2.2 Measurement Set-up

2.2.1 VSWR and return loss

VSWR measurements (S_{11}) were performed using an Agilent ENA series Network Analyser and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

2.2.2 Efficiency, Gain

The gain of the antenna was measured in DCT's 3D anechoic chamber in Zhejiang, China. The chamber is standard Satimo with 32 probes system capable of doing tests from 400MHz to 10GHz. Coaxial chokes on the feed cable were used to mitigate surface currents during passive tests. The measurement results are calibrated using dipole standards.

Chamber	SATIMO Chamber
Network Analyzer	KEYSIGHT E5071C
Comprehensive Tester	R&S CMW 500
Temperature	$20 \pm 2^{\circ}\text{C}$
Humidity	$50 \pm 20\%\text{rh}$



Project: UT-224	Author: Jack Li	File Name: F-WX0213-03-R
Date: 2023-05-15		
Revision: A02		
CONFIDENTIAL Zhejiang Diverse Communication Technology Co., Ltd		

2.3 Reference measurement data

2.3.1 VSWR

UWB Antenna:

Frequency (GHz)	6.1	6.3	6.4896	6.7	6.9	7.6	7.8	7.9872	8.2	8.4
VSWR	1.7	1.5	1.1	1.3	1.5	1.5	1.5	1.5	1.8	1.9

2.3.2 Efficiency and Gain

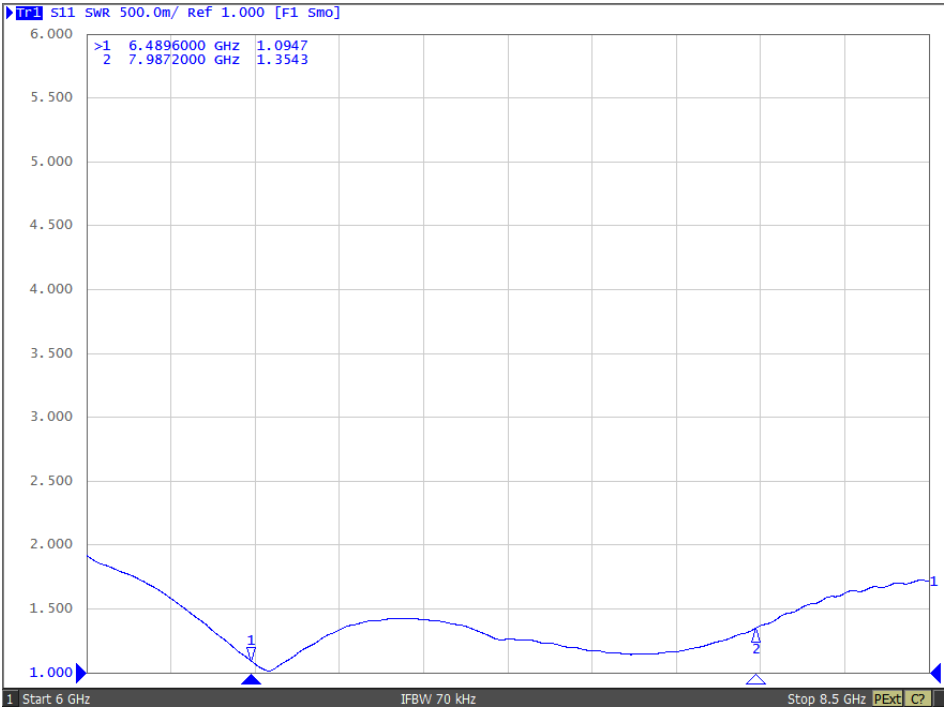
UWB Antenna

Frequency, MHz	Efficiency, dB	Gain, dBi
6100	-5.4	-1.4
6200	-5.3	-0.8
6300	-4.9	0.2
6400	-4.6	0.7
6489.6	-4.3	1.0
6600	-4.0	1.2
6700	-4.0	1.3
6800	-3.9	1.3
6900	-4.0	1.1
7600	-4.0	1.3
7700	-4.0	1.5
7800	-4.1	2.0
7900	-4.3	2.1
7987.2	-4.5	2.2
8100	-4.7	2.5
8200	-5.0	2.7
8300	-5.1	3.1
8400	-5.2	3.3

Project: UT-224	Author: Jack Li	File Name: F-WX0213-03-R
Date: 2023-05-15		
Revision: A02		
CONFIDENTIAL Zhejiang Diverse Communication Technology Co., Ltd		

3 Plots

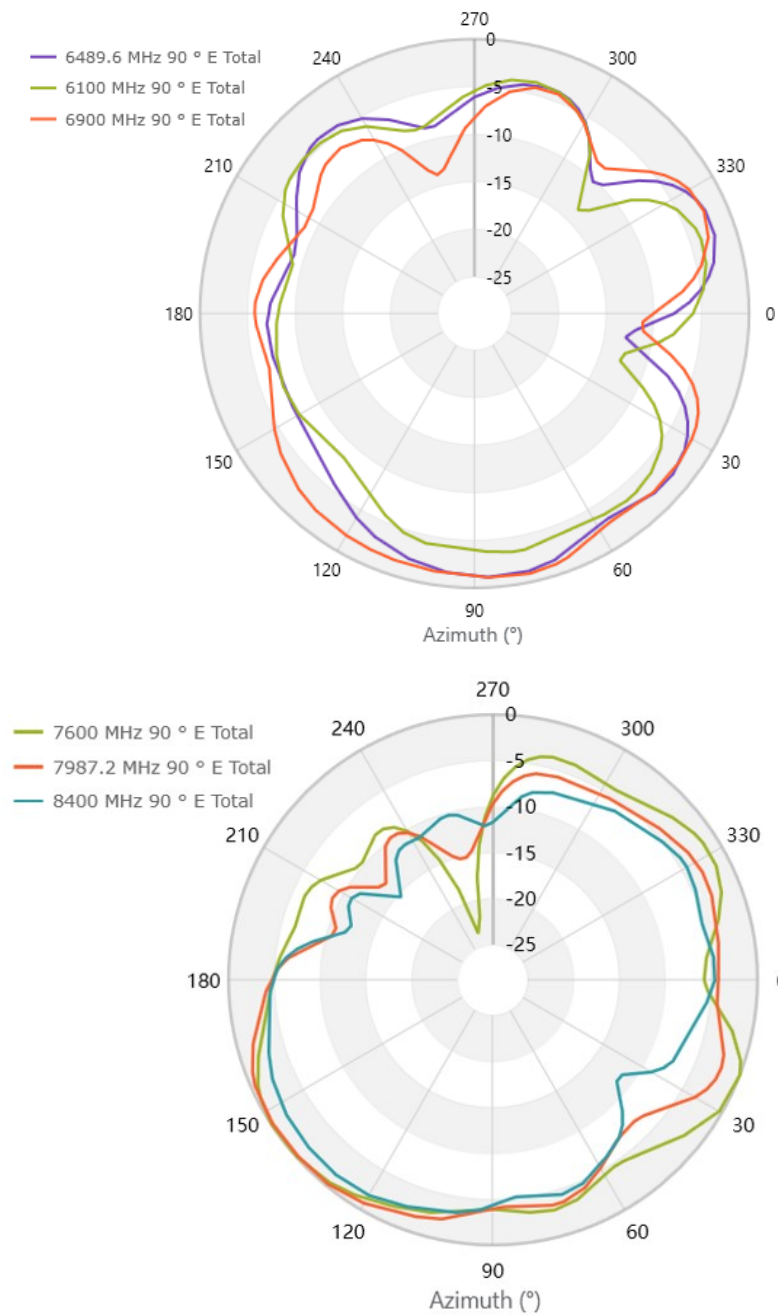
3.1 VSWR



Picture 3. Antenna VSWR Results

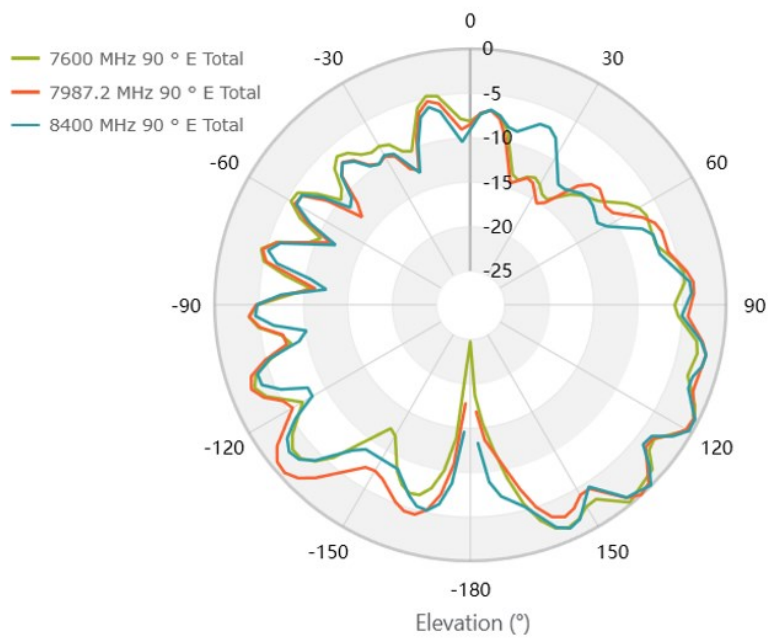
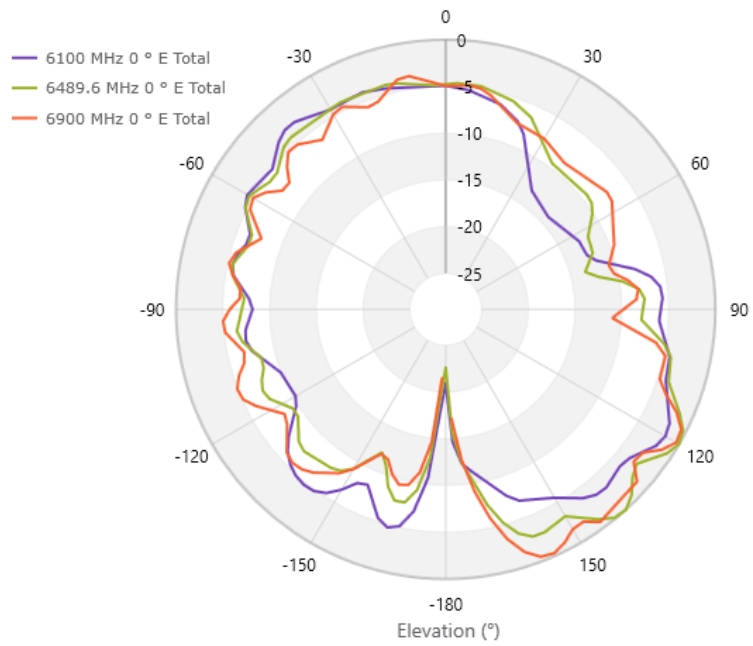
Project: UT-224	Author: Jack Li	File Name: F-WX0213-03-R
Date: 2023-05-15		
Revision: A02		
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3.2 Radiation pattern



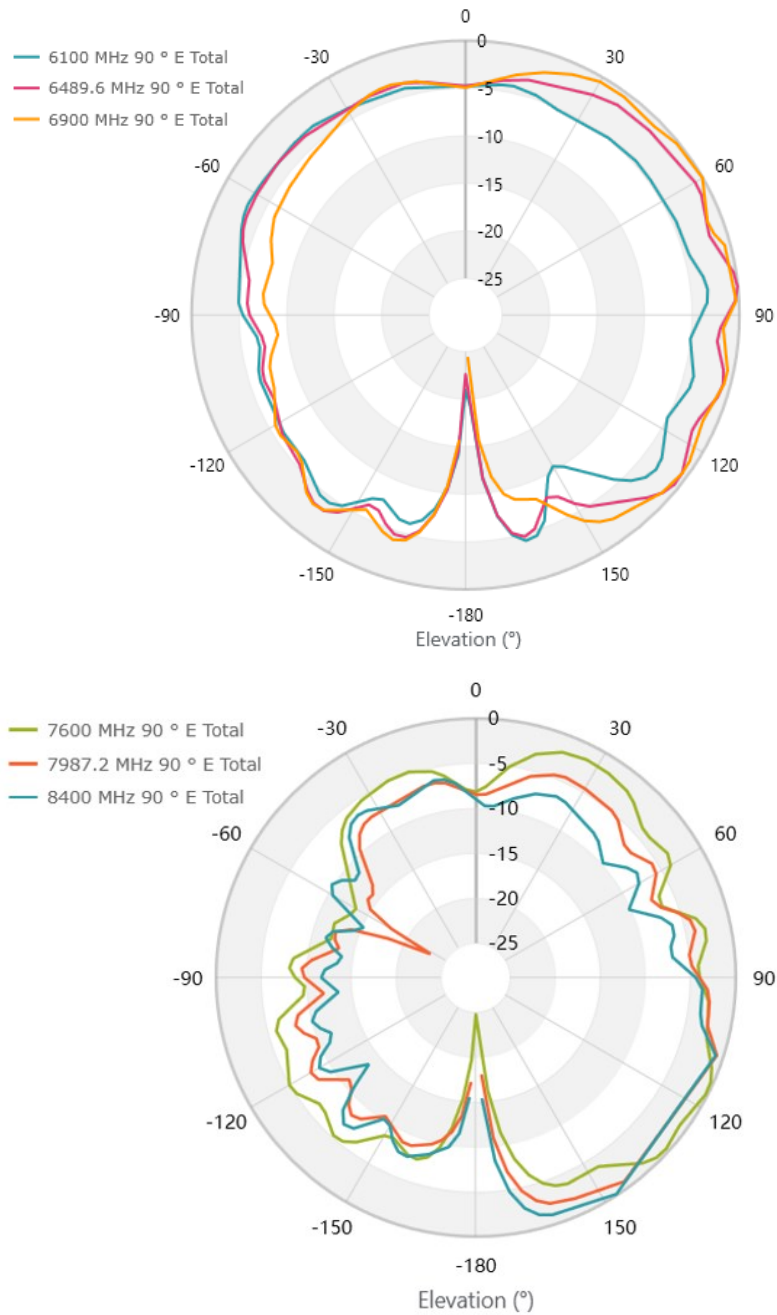
4-1. antenna radiation pattern ($\theta=90^\circ$)

Project: UT-224	Author: Jack Li	File Name: F-WX0213-03-R
Date: 2023-05-15		
Revision: A02		
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4-2. antenna radiation pattern (Phi=0deg)

Project: UT-224	Author:	File Name:
Date: 2023-05-15	Jack Li	F-WX0213-03-R
Revision: A02		
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4-3. antenna radiation pattern ($\Phi=90^\circ$)

Picture 4. Radiation Pattern

Project: UT-224	Author: Jack Li	File Name: F-WX0213-03-R
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