



DIVERSE

APPROVAL SHEET

UT-224 BLE Antenna

Project Name	UT-224
WoXu PN	AE20-BLDI100-00
DCT PN	F-WX0068-03-R
Vendor Name	DCT
Description (Version)	A01

Project: UT-224	Author:	File Name: F-WX0068-03-R
Date: 2021-08-27	Jack Li	
Revision: A01		
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1 Antenna description

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

1.1 Part number

DCT PN: F-WX0068-03-R
WoXu PN: AE20-BLDI100-00
Vender Name: DCT

1.2 Product pictures



Picture1. Product pictures

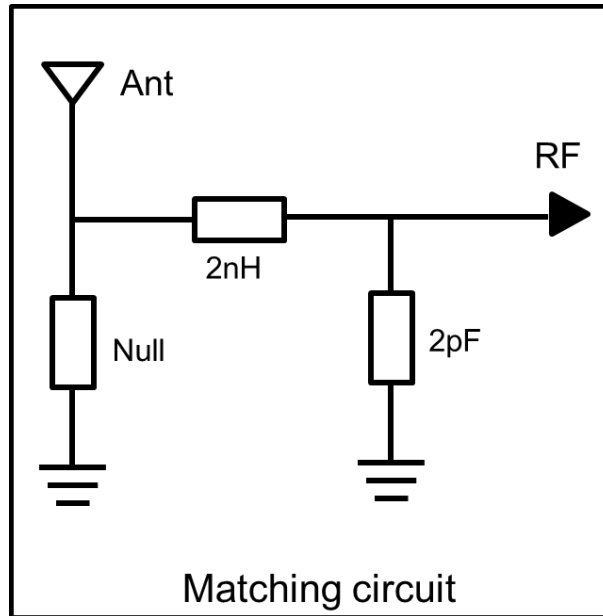
1.3 Antenna pictures



Picture 2. Antenna pictures

1.4 Antenna matching circuit

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2 Electrical Performance

2.1 Proposal specification for mass production

VSWR specification

The performance was tested in UT-224 product.

Frequency (GHz)	2.4	2.45	2.5
VSWR	≤ 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.

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



2.3 Reference measurement data

2.3.1 VSWR

BLE Antenna:

Frequency (GHz)	2.4	2.42	2.44	2.46	2.48	2.5
VSWR	1.7	1.5	1.3	1.1	1.2	1.4

2.3.2 Efficiency and Gain

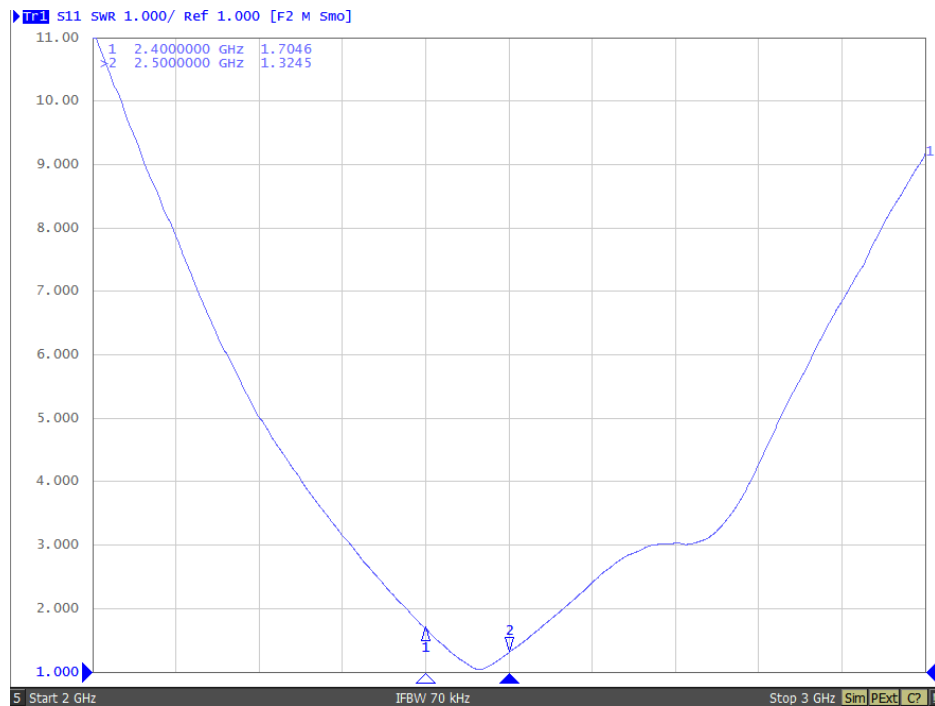
BLE Antenna

Frequency, MHz	Efficiency, dB	Gain, dBi
2400	-5.0	-2.0
2420	-4.5	-1.7
2440	-4.7	-1.6
2460	-4.4	-1.2
2480	-4.5	-1.0
2500	-4.6	-0.9

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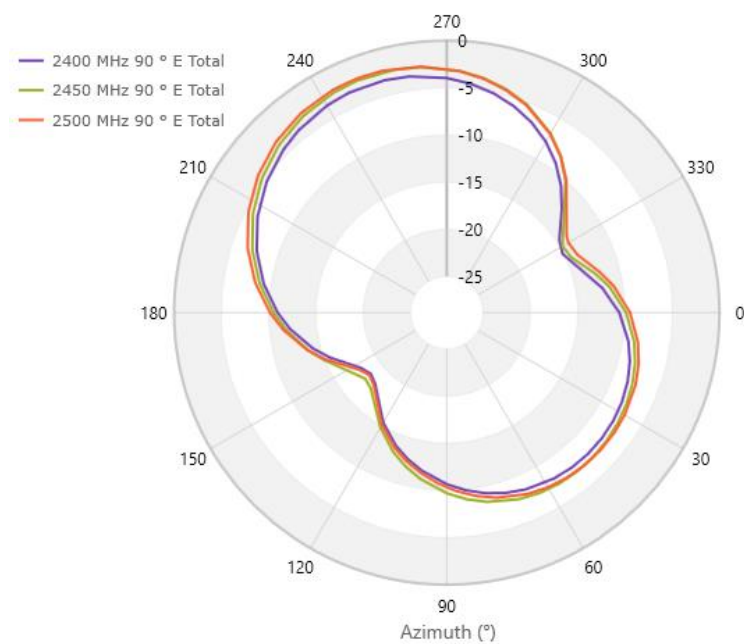
3 Plots

3.1 VSWR



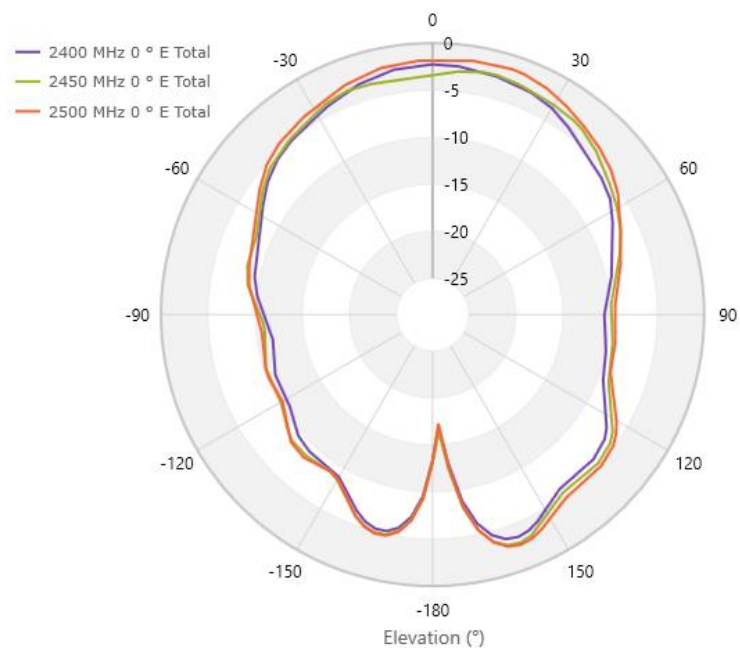
Picture 3. Antenna VSWR Results

3.2 Radiation pattern

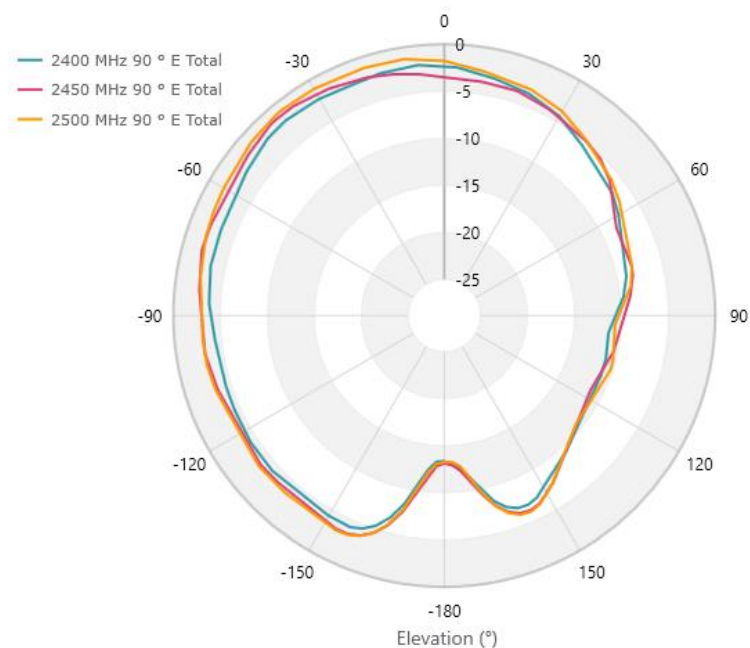


4-1. antenna radiation pattern (theta=90deg)

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4-2. antenna radiation pattern (Phi=0deg)



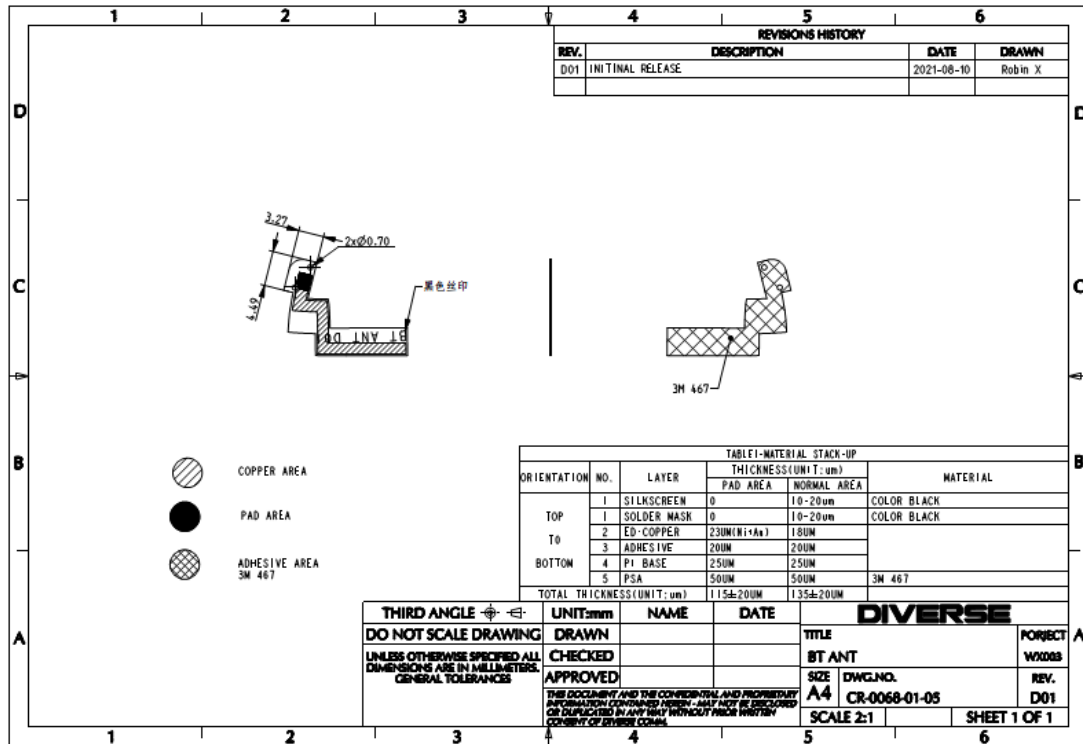
4-3. antenna radiation pattern (Phi=90deg)

Picture 4. Radiation Pattern

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4 Mechanical description

4.1 Drawings



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