

# ANTENNA UNDER TEST (AUT) REPORT

For the

eero Model V010001

Wi-Fi Router/Access Point

FCC ID 2AEM4-711917312

IC ID: 20631-711917312

Version	Date	Author	Description
A	9/8/2023	C. Clarke	Release for FCC filing. Incorporated all prior review feedback.
B	9/22/2023	C. Clarke	Update antenna summary tables.
B.1	9/25/2023	C. Clarke	Corrected min gain values in 6 GHz band

The eero Model V010001 uses custom designed antennas.

Antenna locations and construction details can be found in the Antenna Test Report Photographs exhibit.

Summary Characteristics of each antenna are given in the table below:

<b>Antenna</b>	<b>Frequency Range</b>	<b>Max Gain (dBi)</b>
ANT1	5 GHz WLAN CH0 5150-5850 MHz	
	UNII-1	3.82
	UNII-2A	3.21
	UNII-2C	3.36
	UNII-3	3.27
ANT2	2.4 GHz WLAN CH0 2400-2483.5 MHz	4.19
ANT3	6 GHz WLAN CH0 5925-7125 MHz	
	UNII-5	4.62
	UNII-6	5.80
	UNII-7	5.87
	UNII-8	4.37
ANT4	5 GHz WLAN CH1 5150-5850 MHz	
	UNII-1	3.91
	UNII-2A	4.32
	UNII-2C	3.89
	UNII-3	3.72
ANT5	6 GHz WLAN CH1 5925-7125 MHz	
	UNII-5	5.29
	UNII-6	4.05
	UNII-7	4.83
	UNII-8	4.40
ANT6	5 GHz WLAN CH2 5150-5850 MHz	
	UNII-1	3.29
	UNII-2A	3.05
	UNII-2C	3.88
	UNII-3	4.16

ANT7	2.4 GHz WLAN CH1 2400-2483.5 MHz	3.36
ANT8	6 GHz WLAN CH2 5925-7125 MHz	
	UNII-5	5.02
	UNII-6	5.64
	UNII-7	5.34
	UNII-8	4.62
ANT9	5 GHz WLAN CH3 5150-5850 MHz	
	UNII-1	4.47
	UNII-2A	4.30
	UNII-2C	3.20
	UNII-3	3.28
ANT10	6 GHz WLAN CH3 5925-7125 MHz	
	UNII-5	5.54
	UNII-6	3.62
	UNII-7	3.75
	UNII-8	3.53
ANT11	2.4 GHz; BLE/802.15.4 2402-2480 MHz	4.90

## Summary Antenna Gains

Maximum Gains. Calculated per KDB 662911 with no unintentional Beamforming and with  $N_{ANT} < 5$

2.4 GHz Wi-Fi	3.80
UNII-1	3.89
UNII-2A	3.76
UNII-2C	3.59
UNII-3	3.62
UNII-5	5.13
UNII-6	4.88
UNII-7	5.02
UNII-8	4.35
2.4 GHz; BLE/802.15.4	4.90

Minimum Gains. Used in the 6 GHz band Contention Based Protocol (CBP) testing. (Highlighted values used for the testing)

Band	Frequency Range (MHz)	Minimum Gain			
		Ant 3	Ant 5	Ant 8	Ant 10
UNII-5	5925-6425	3.38	4.17	3.9	3.62
UNII-6	6425-6525	5.76	3.63	5.2	2.99
UNII-7	6525-6875	4.73	4.12	4.6	3.12
UNII-8	6875-7125	3.63	3.35	3.1	4.03

# **eero Model V010001 Antenna Data Test Report**

Test Date: May 15, 2023

Location: Data collection performed at Luxshare Antenna Group;

**Luxshare Precision Industry Co., LTD**

**Wireless Communications BU**

No. 158 Jinchang Road, Jinxi Town

+86 138-1721-3541

**Technician: Xingyu Guo**

**Supervisor: Justin Fu**

## **Luxshare test equipment**

GTS Rayzone2800 Anechoic Chamber

3x3x3 m<sup>3</sup> chamber size

Passive Measurements 600-8500 MHz

Keysight E5063A Spectrum Analyzer

Test software– GTS MaxSign

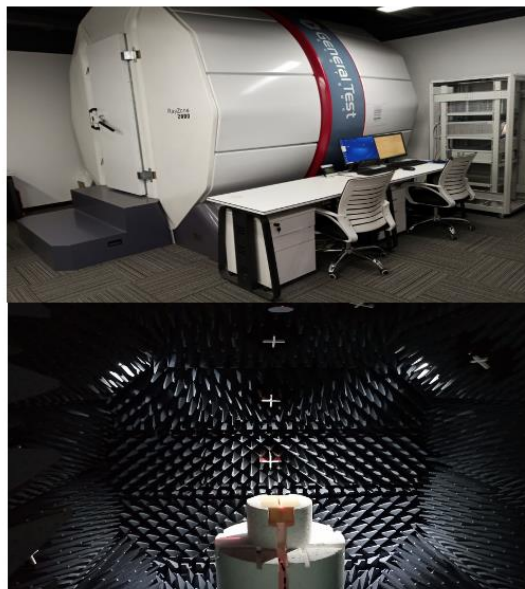


Figure 1. GTS Rayzone2800 Anechoic Chamber



Figure 2. Keysight E5071C Network Analyzer

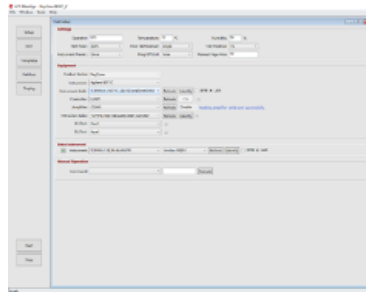


Figure 3. GTS MaxSign

Table 1. Equipment and Calibrations Dates

Equipment	Calibration Date
Rayzone2800	2023/02/09
Keysight 5071C	2023/01/13

# 1. Setup

Device Under Test is placed in chamber in the Chamber. DUT is categorized as “tabletop” and has only one allowed orientation, with the major axis vertical.

Software settings are confirmed and testing is performed (See measurement data).

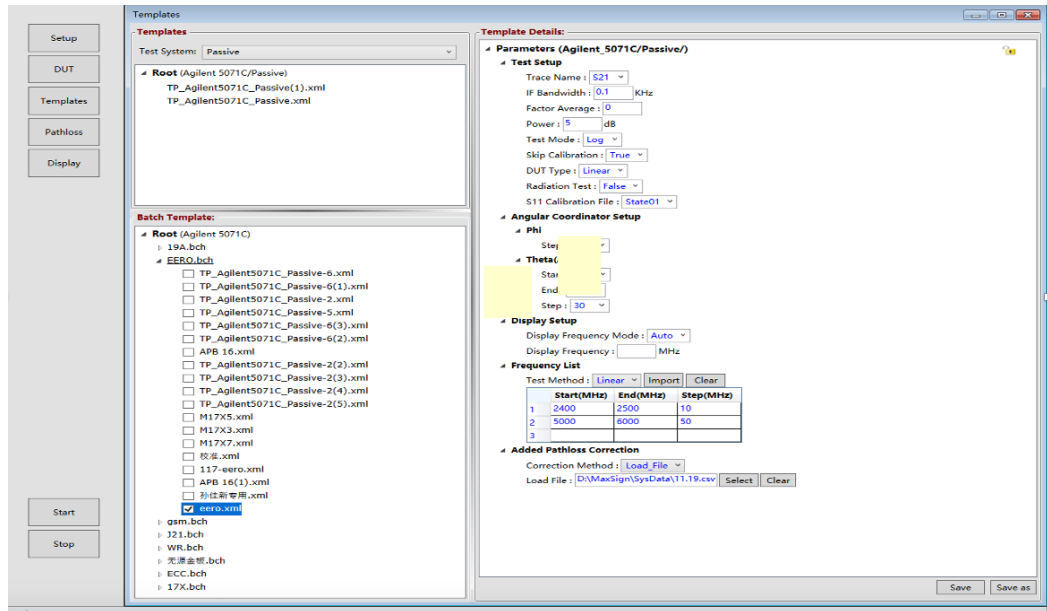
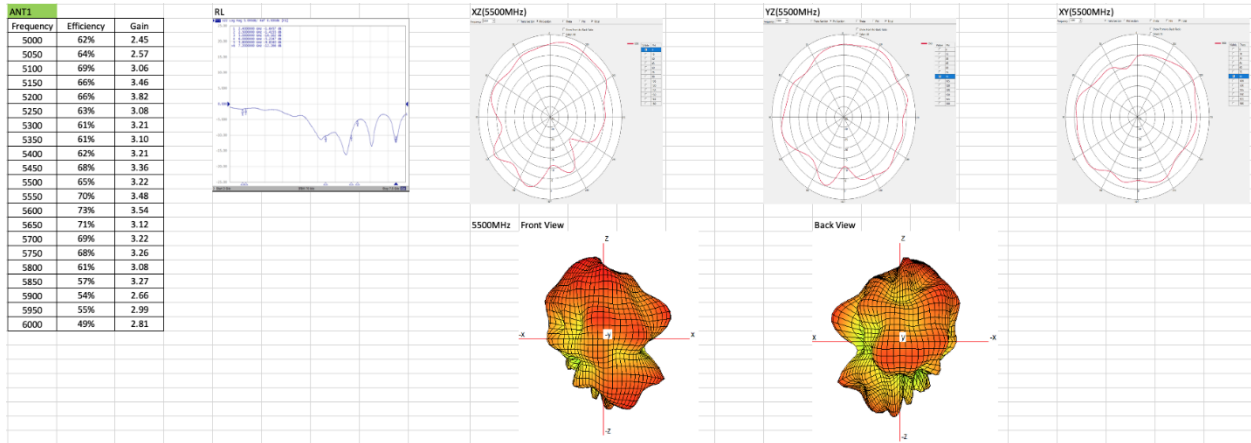


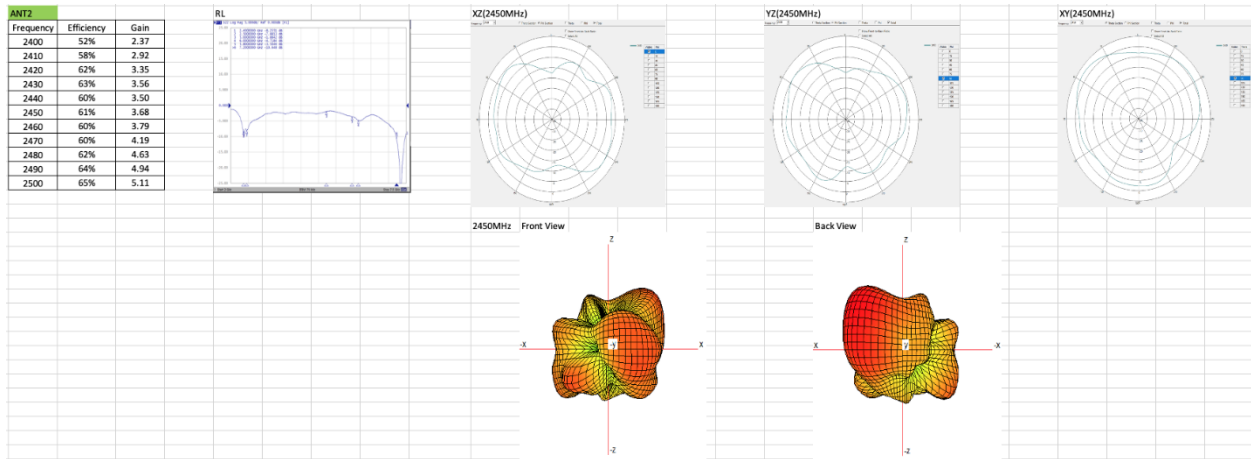
Figure 5. Test software settings

# 1. Measurement Data

## Antenna 1 – 5 GHz WLAN CH0 5150-5850 MHz

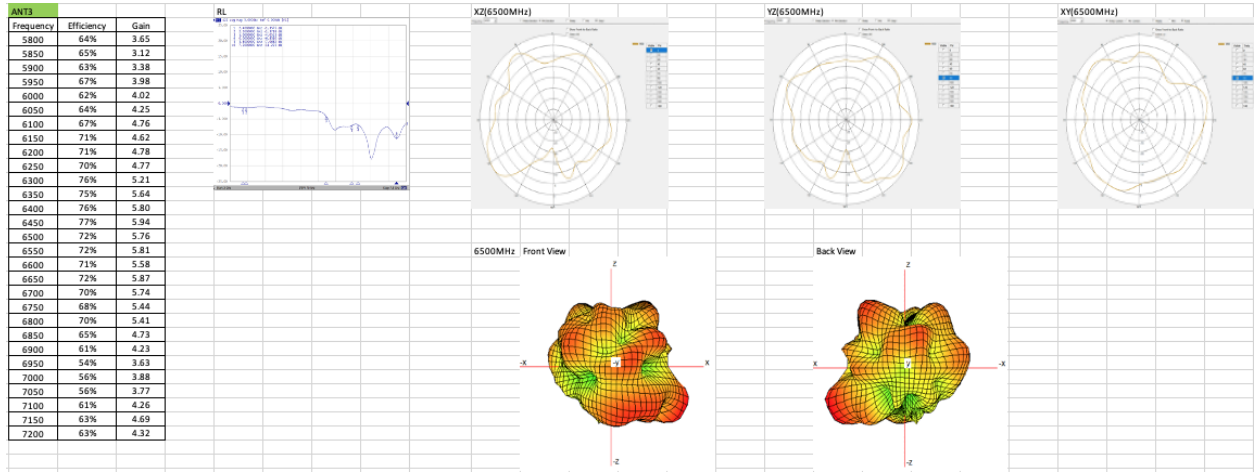


## Antenna 2 – 2.4 GHz WLAN CH0 2400-2483.5 MHz

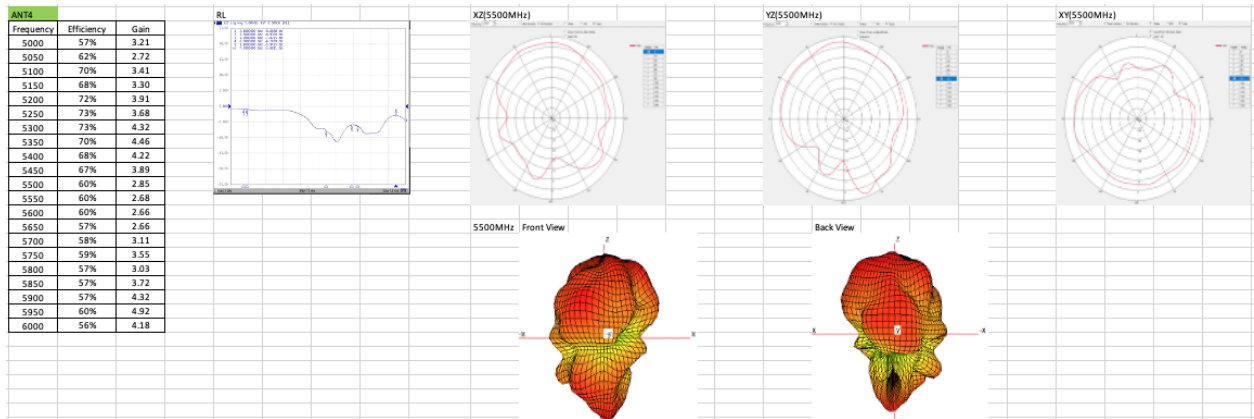




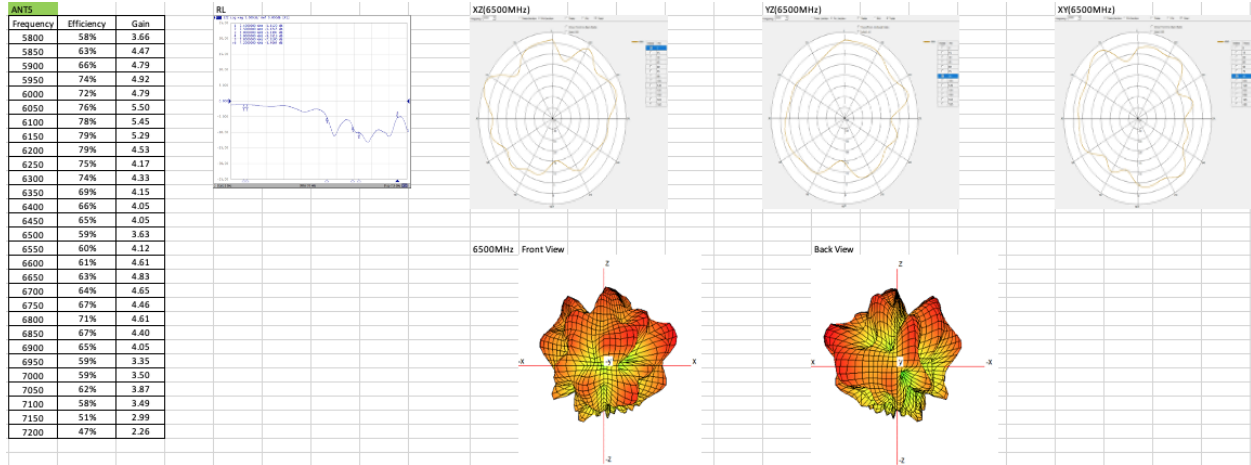
Antenna 3 – 6 GHz WLAN CH0 5925-7125 MHz



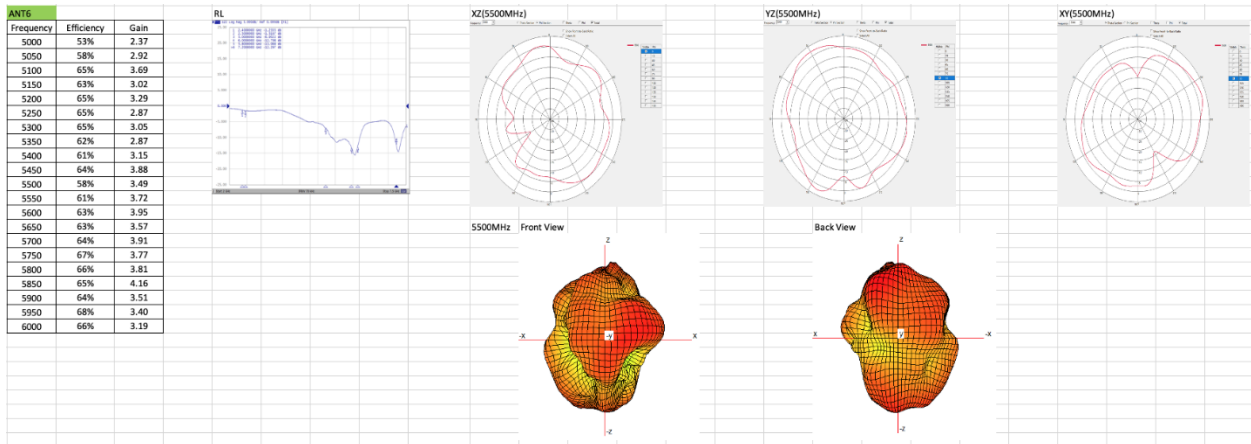
Antenna 4 – 5 GHz WLAN CH1 5150-5850 MHz



Antenna 5 – 6 GHz WLAN CH1 5925-7125 MHz

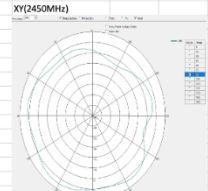
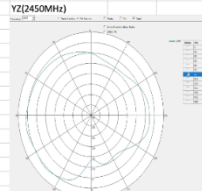
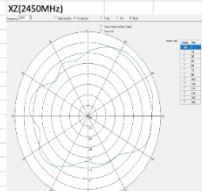
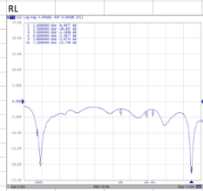


Antenna 6 – 5 GHz WLAN CH2 5150-5850 MHz



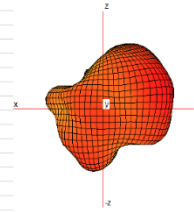
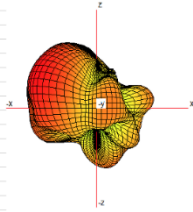
Antenna 7 – 2.4 GHz WLAN CH1 2400-2483.5 MHz

ANT7		
Frequency	Efficiency	Gain
2400	64%	3.30
2410	65%	3.34
2420	67%	3.48
2430	67%	3.54
2440	65%	3.36
2450	66%	3.37
2460	67%	3.35
2470	69%	3.36
2480	73%	3.56
2490	74%	3.73
2500	74%	3.70



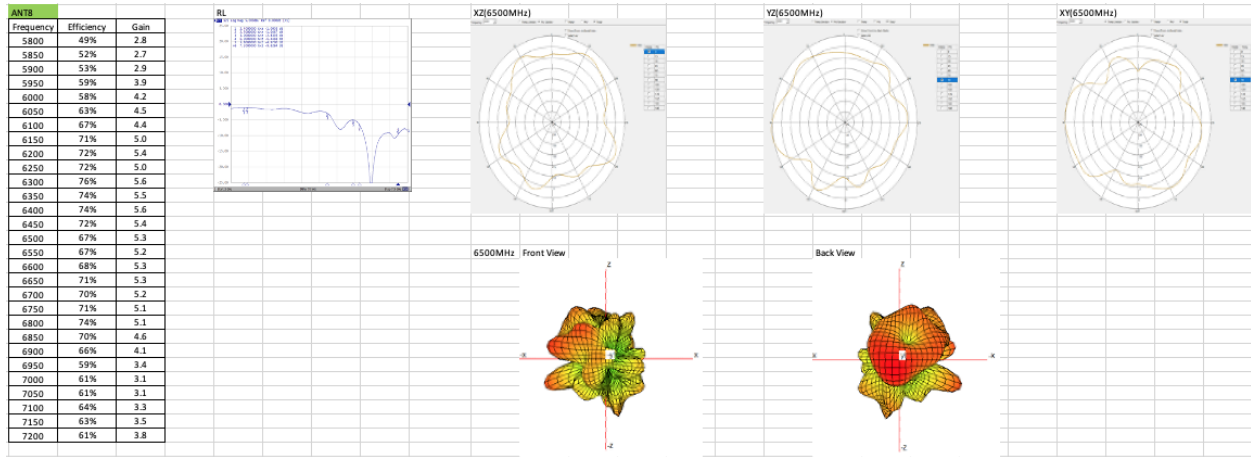
2450MHz Front View

Back View

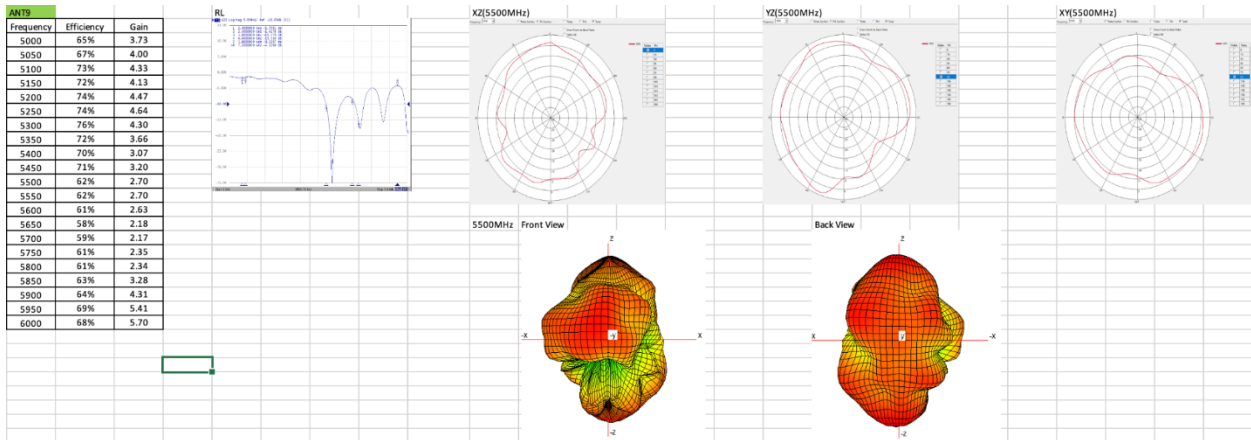


[Green box]

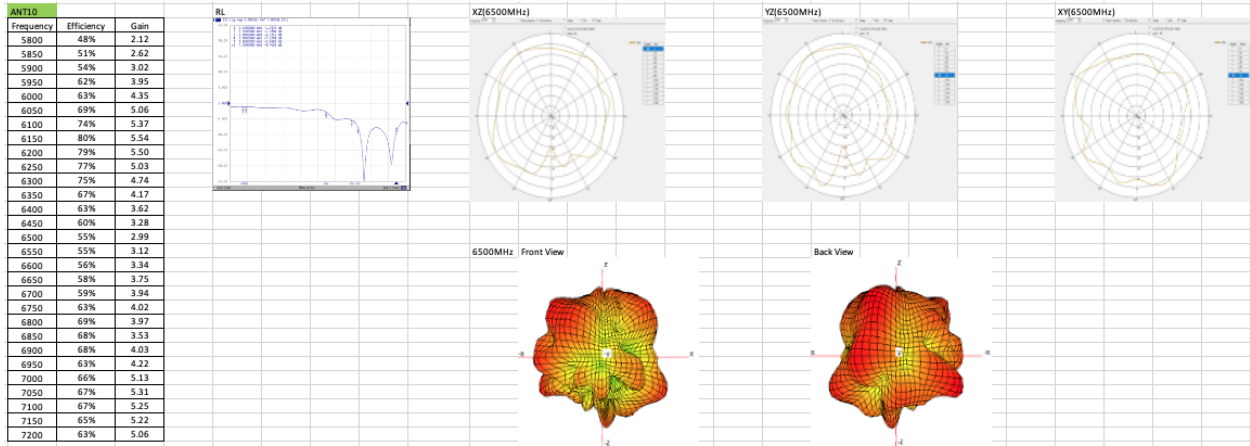
Antenna 8 – 6 GHz WLAN CH2 5925-7125 MHz



Antenna 9 – 5 GHz WLAN CH3 5150-5850 MHz



Antenna 10 – 6 GHz WLAN CH3 5925-7125 MHz



BLE/802.15.4 – 2.4 GHz; BLE/ZigBee 2402-2480 MHz

