



Customer Name & Project: Askey WiFi7 for Charter

Prepared By: Angela

Date: 11th Mar 2024

Airgain, Inc.

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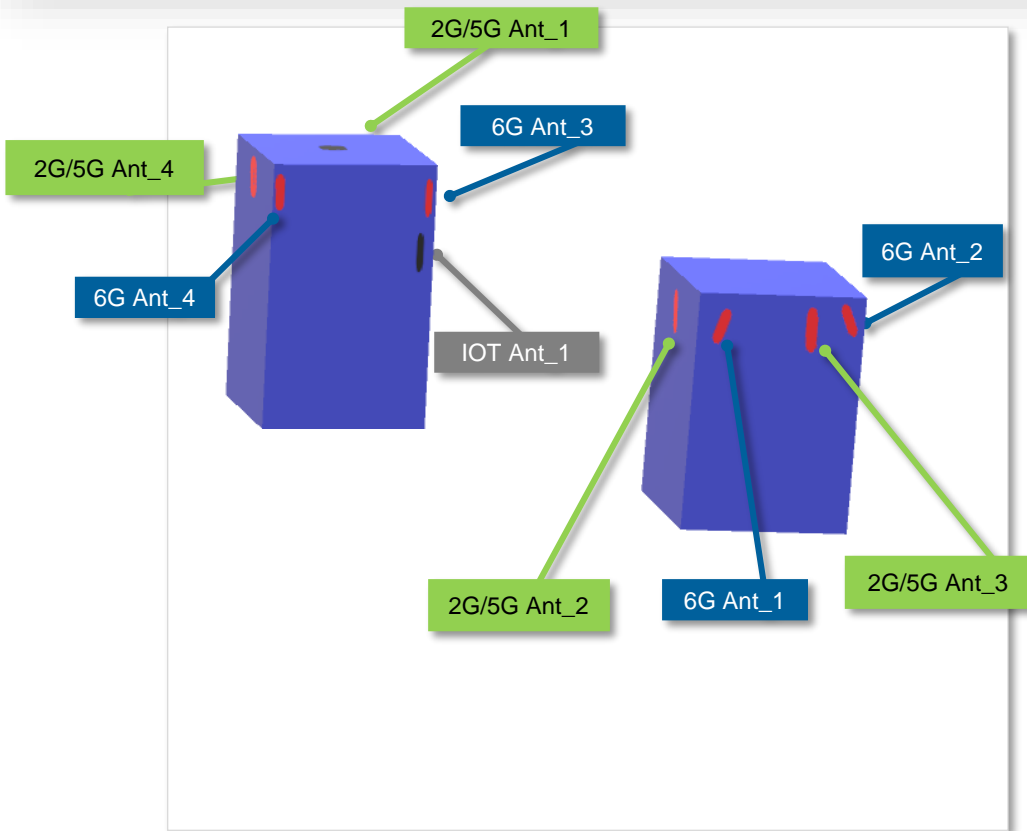
- Airgain proposes an embedded antenna solution for Askey WiFi 7 for charter
 - **The antenna solution is updated based upon the latest device provided by Feb 19th, 2024**
 - New ID

- The solution for this device is as follows:
 - **Cable-fed Antennas:**
 - 4 pcs 2.4G+5G dual band Antennas(2.4GHz-2.49GHz, 5.15GHz-5.925GHz)
 - 4 pcs 6G signal band Antennas(5.925GHz-7.125GHz)
 - 1 pcs IOT Antenna(2.4GHz-2.49GHz)
- The antenna is mounted on the plastic holder and connect to the radio through coaxial cable and U.FL. Connector.

- **Peak Gain**
 - Between 3-4dBi on 2.4GHz
 - Between 3-4.5dBi on 5GHz
 - Between 2-4dBi on 6GHz
- **Worst Case Max-Min**
 - <12dB for 2.4/5/6GHz
- **Return Loss**
 - >10dB for 2.4/5/6GHz
- **Isolation**
 - >20dB for 2.4/5/6GHz
- **Efficiency**
 - >70% for 2.4/5GHz
 - >65% for 6GHz

Airgain Antenna System Proposal

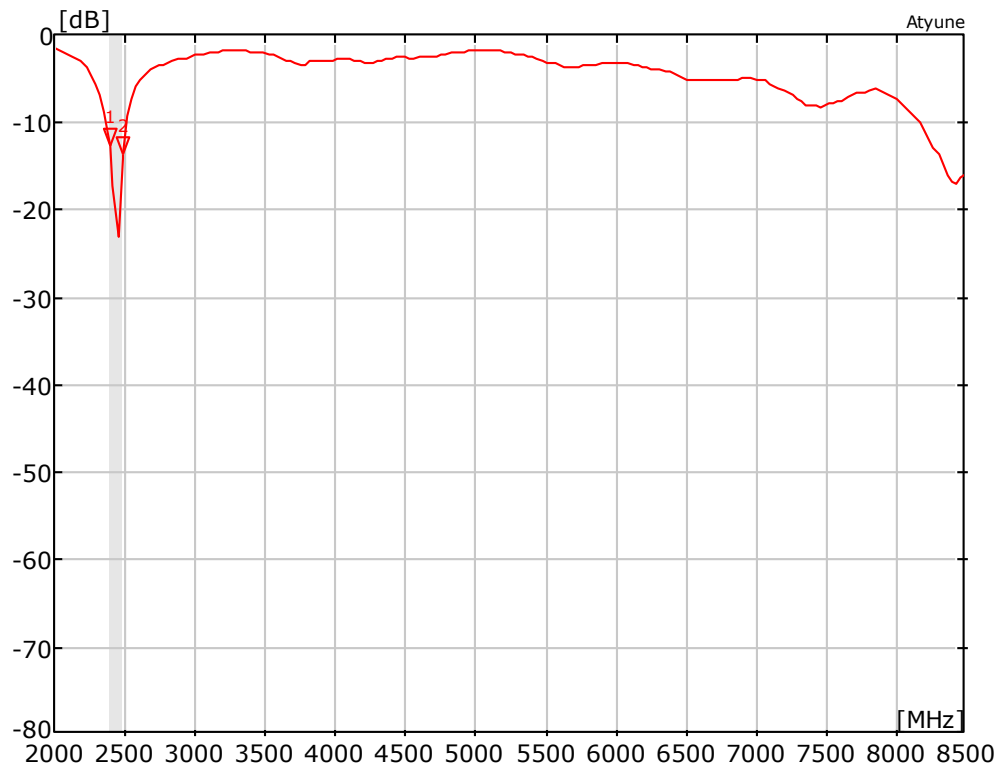
Antenna System Proposal



Antenna #	Part Number	Type
2G/5G Ant_1	N03AKBYA	FR4, Cable fed
2G/5G Ant_2	N03AKBYB	FR4, Cable fed
2G/5G Ant_3	N03AKBYC	FR4, Cable fed
2G/5G Ant_4	N03AKBYD	FR4, Cable fed
6G Ant_1	N06AKBYE	FR4, Cable fed
6G Ant_2	N06AKBYF	FR4, Cable fed
6G Ant_3	N06AKBG	FR4, Cable fed
6G Ant_4	N06AKBYH	FR4, Cable fed
IOT Ant_1	N01AKBYJ	FR4, Cable fed

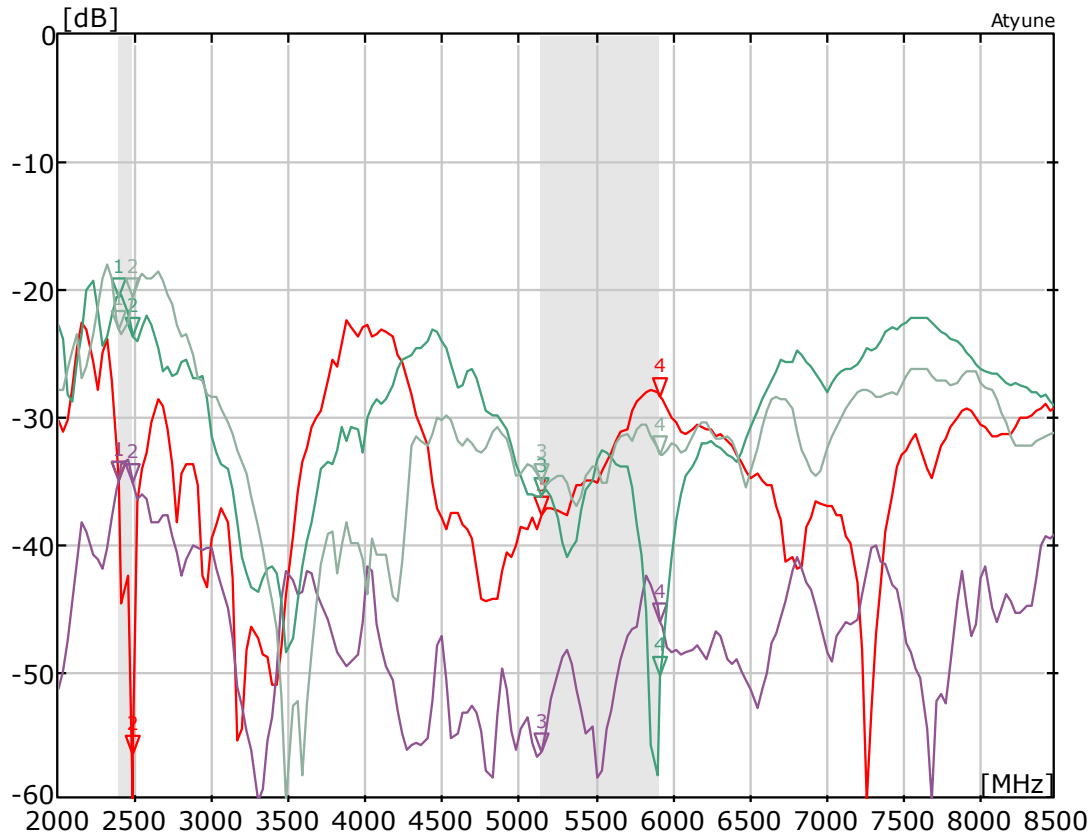
S-Parameters

S-Parameter – Return Loss for IOT Antenna



MARKERS:	MHz	dB
IOT Ant_1		
—	1: 2400	-12.58
—	2: 2490	-13.43

S-Parameter – Isolation for 2G/5G Antennas & IOT Antenna



MARKERS:		MHz	dB	MHz	dB
2G/5G Ant_1-IOT Ant_1					
—		1: 2400	-34.75	3: 5150	-37.58
—		2: 2490	-56.31	4: 5925	-28.26
2G/5G Ant_3-IOT Ant_1					
—		1: 2400	-34.79	3: 5150	-56.14
—		2: 2490	-35.05	4: 5925	-45.94
2G/5G Ant_2-IOT Ant_1					
—		1: 2400	-20.48	3: 5150	-36.02
—		2: 2490	-23.52	4: 5925	-50.12
2G/5G Ant_4-IOT Ant_1					
—		1: 2400	-23.03	3: 5150	-35.00
—		2: 2490	-20.41	4: 5925	-32.76

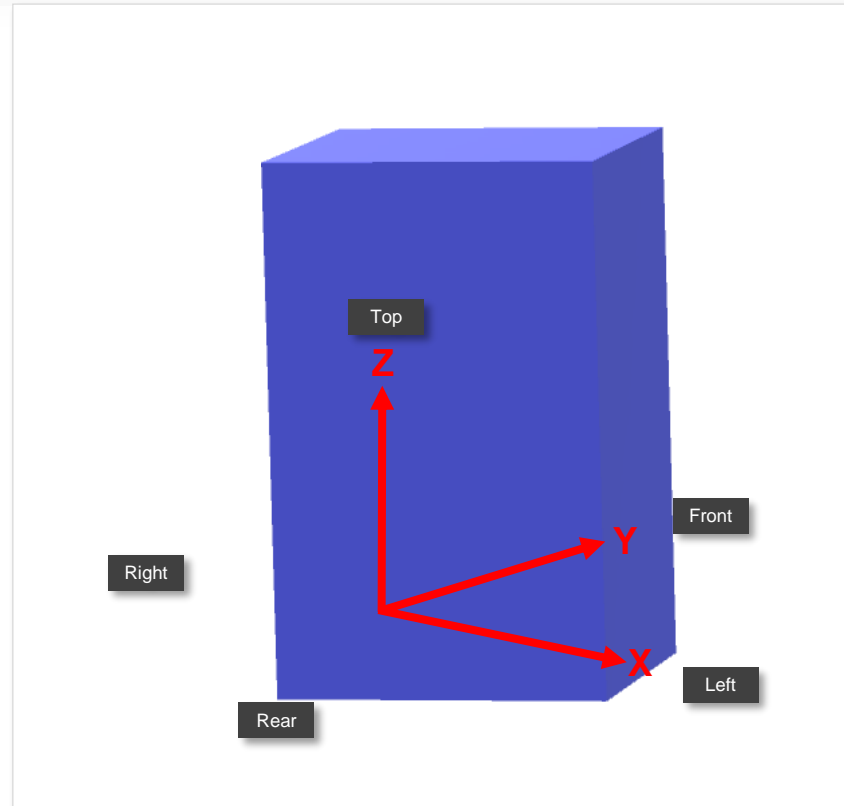
Radiated Measurements

Antenna Peak Gain & Efficiency– Additional IOT Antenna



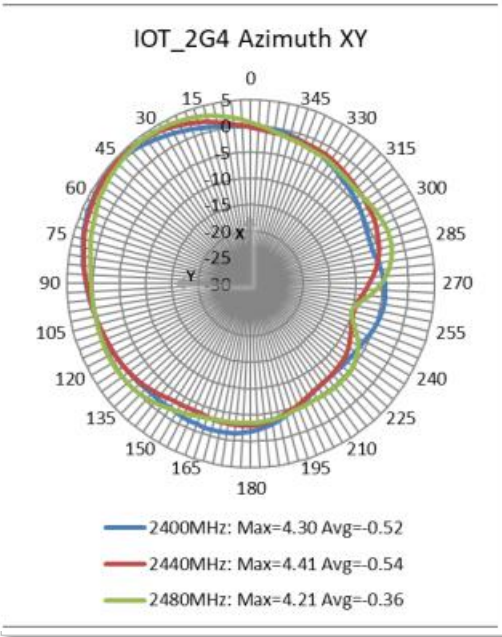
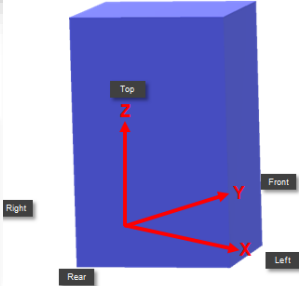
Frequency (MHz)	Peak Gain (dBi)	Efficiency (%)
2400	4.5	68.2
2410	4.7	69.2
2420	4.7	67.3
2430	5.1	68.9
2440	5.1	71.1
2450	5.1	71.0
2460	5.3	71.9
2470	5.1	72.9
2480	5.0	73.0
2490	4.8	71.6
Average	-	70.5

Radiation Patterns

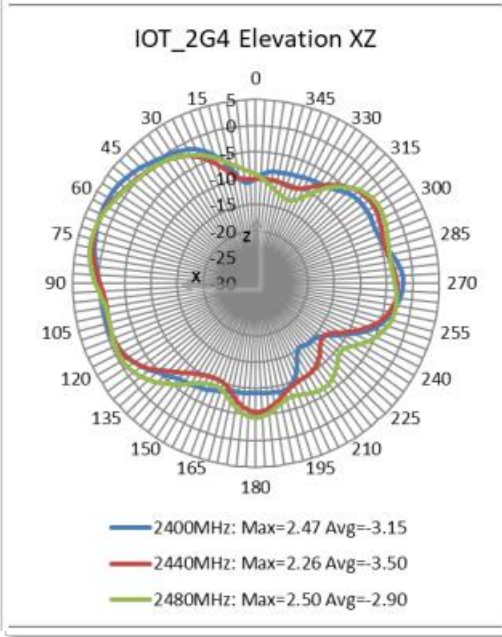


Orientation of Askey WiFi 7 for charter

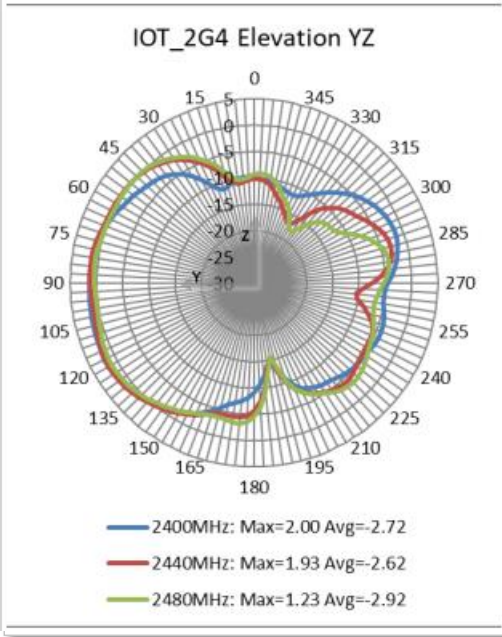
Total Gain Patterns: IOT_2G4



Azimuth (XY)



Side to Side (XZ)



Front to Back (YZ)

Total Gain 3D Pattern: IOT_2G4 at 2440MHz



WiFi 7 Charter IOT_2G4: Frequency = 2440 MHz Max Gain= 5.1 dBi

