



THDR60

Thunder Series

Integrated 5G/LTE Directional Antenna
for Semtech XR60

- Integrated Multi-band 5G Directional MIMO Antennas
- Cavity to install Semtech XR60 Router
- Robust, IP67 Rated Enclosure

Contents

Page:	Section:
3	Introduction
4	Specifications
5	Mechanical Specifications
6	Plots
19	Dimensions



Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.

© Taoglas 2025

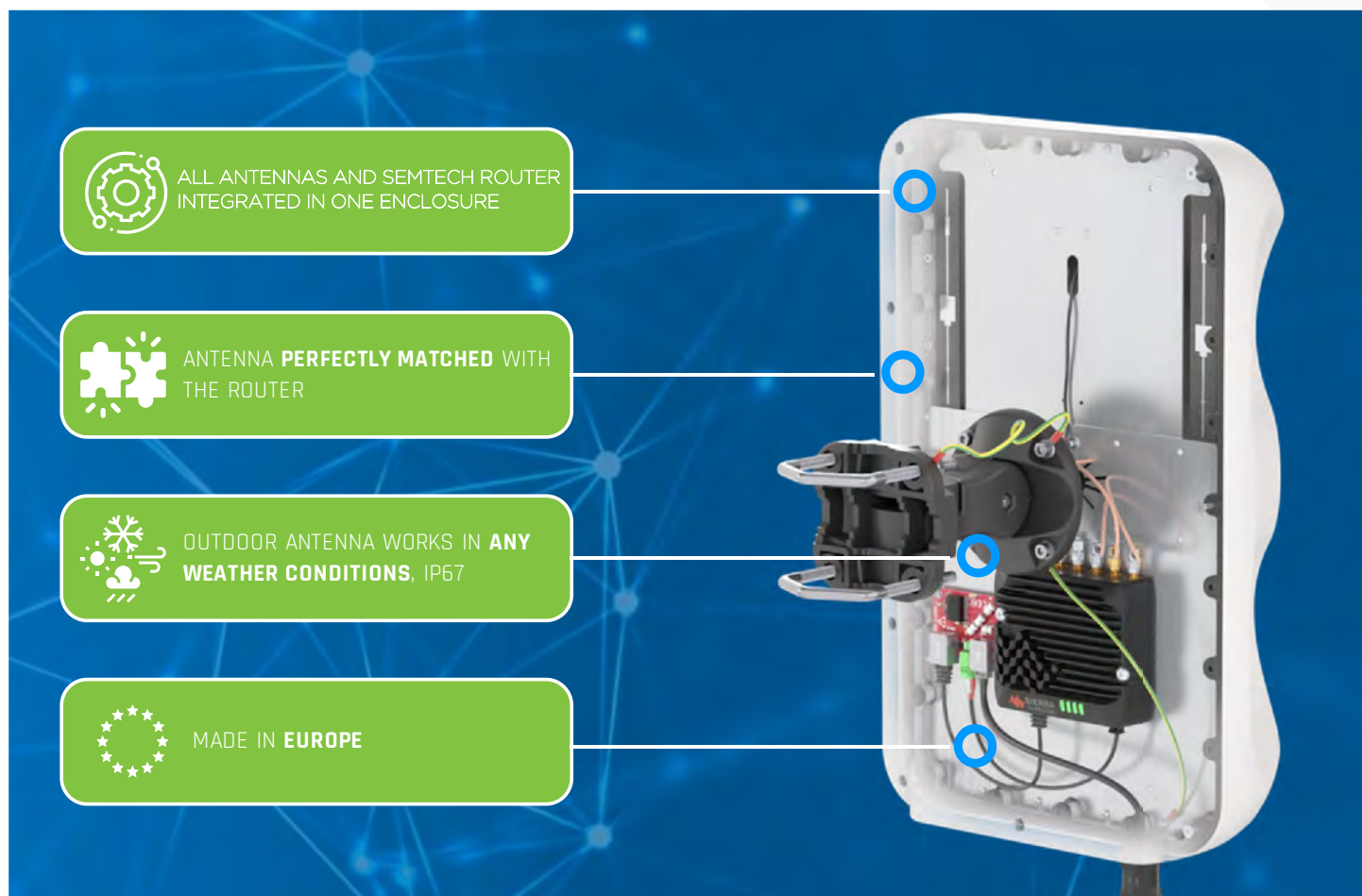


Thunder Series THDR60

Integrated Directional Antenna for Semtech XR60

**INTEGRATED MULTI-BAND LTE & 5G PANEL ANTENNA + WI-FI OMNI ANTENNA + GNSS ACTIVE ANTENNA
+ PLACE TO INSTALL SEMTECH XR60 (ALL-IN-ONE)**

The Taoglas **THDR60** Directional antenna for Semtech XR60 routers is designed for use in a variety of wireless communication applications. This all-in-one product consists of multi-band 5G, Wi-Fi®, and GNSS antennas, integrated in IP67 enclosure. It offers 7.5 dBi gain and wide beam width, which makes it suitable for use in both urban and rural environments. Combining the THDR60 Thunder Directional antenna with the Semtech XR60 router inside gives you complete outdoor solution with multiple use cases such as public transportation, energy, mining, IoT and much more.





5G / LTE ANTENNA SPECIFICATION

FREQUENCY	0.617 - 0.96 GHz 1.7 - 2.7 GHz 3.3 - 4.6 GHz 4.7 - 6.0 GHz
GAIN	0.617 - 0.96 GHz: 6 dBi 1.7 - 2.7 GHz: 7 dBi 3.3 - 4.6 GHz: 7 dBi 4.7 - 6.0 GHz: 5.5 dBi
SUPPORTED LTE BANDS	1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 14, 17, 18, 19, 20, 22, 25, 26, 27, 28, 29, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 46, 47, 48, 49, 52, 53, 65, 66, 67, 68, 69, 71, 85, 103, 106
SUPPORTED 5G BANDS	n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29, n30, n34, n38, n39, n40, n41, n46, n47, n48, n53, n65, n66, n67, n71, n77, n78, n80, n81, n82, n83, n84, n85, n86, n89, n90, n95, n97, n98, n100, n101, n256
VSWR	<<2.00, max <3.00
BEAMWIDTH	80°/80° ±15°
POLARIZATION	X [+45 degrees]
IMPEDANCE	50 Ω
CONNECTOR	4x SMA
CABLE TYPE	RG316



WI-FI ANTENNA SPECIFICATION

FREQUENCY	2.40 - 2.50 GHz 5.0 - 7.125 GHz
GAIN	2.40 - 2.50 GHz : 6 dBi 5.0 - 7.125 GHz : 7.5 dBi
VSWR	<1.70, max <2.00
BEAMWIDTH	360°/25° ±5°
POLARIZATION	Vertical
IMPEDANCE	50 Ω
CONNECTOR	2x RPSMA
CABLE TYPE	RG316

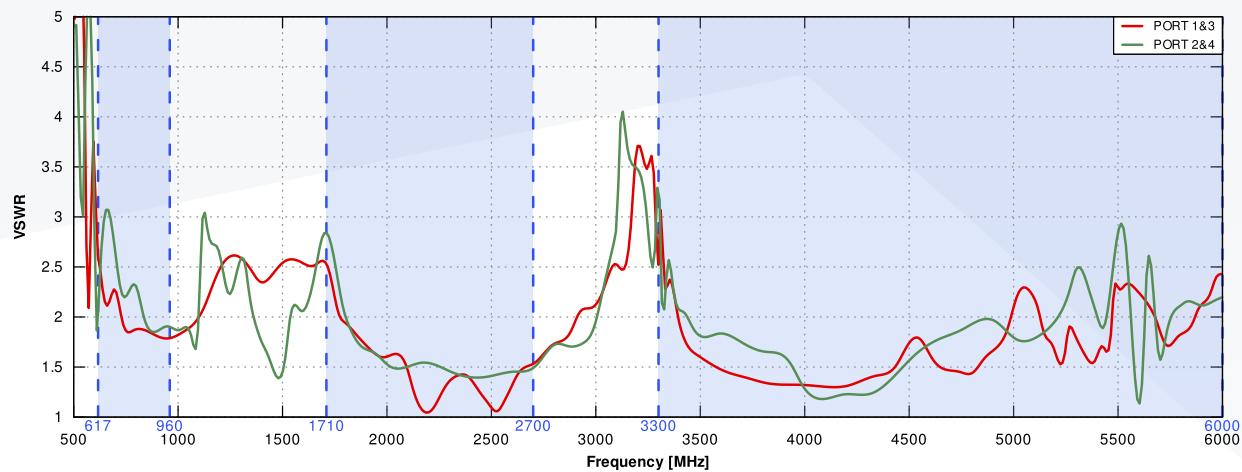
MECHANICAL SPECIFICATION

MATERIAL	ABS, Aluminum, PTFE, Fiberglass
INGRESS PROTECTION	IP67
CONNECTOR TYPE	RJ45
DIMENSIONS	480 x 292 x 175 mm 18.9 x 11.4 x 6.87 inch
WEIGHT	1.8 kg 3.97 lbs
OPERATING TEMPERATURE	From -40°C to 75°C From -40°F to 167°F

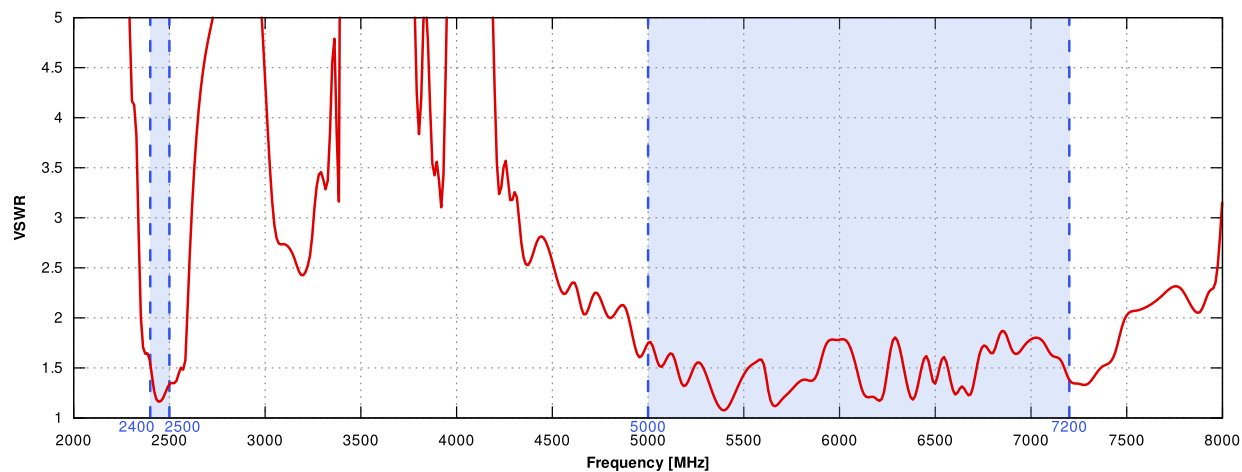


PLOTS

VSWR for 5G/LTE antenna

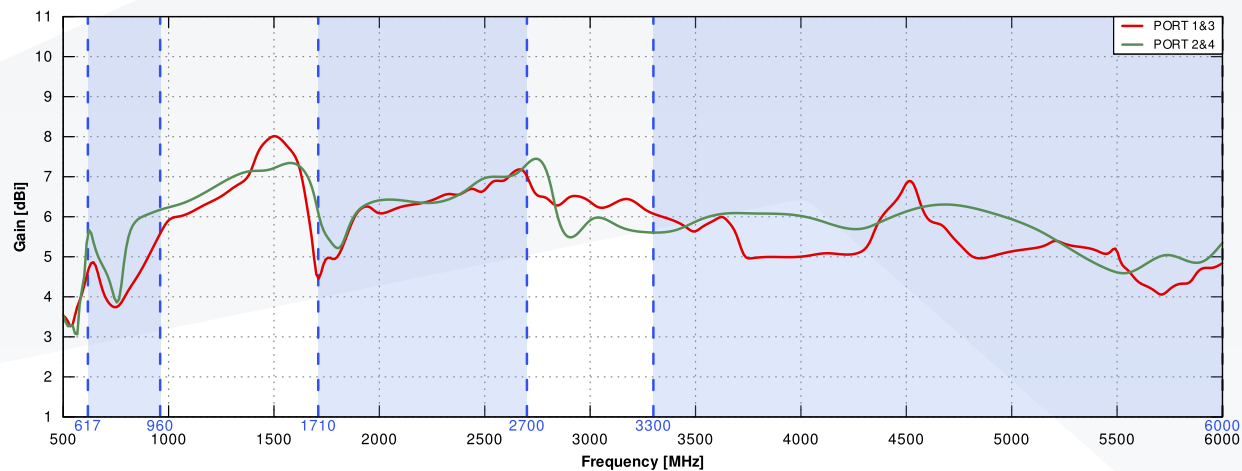


VSWR for Wi-Fi antenna

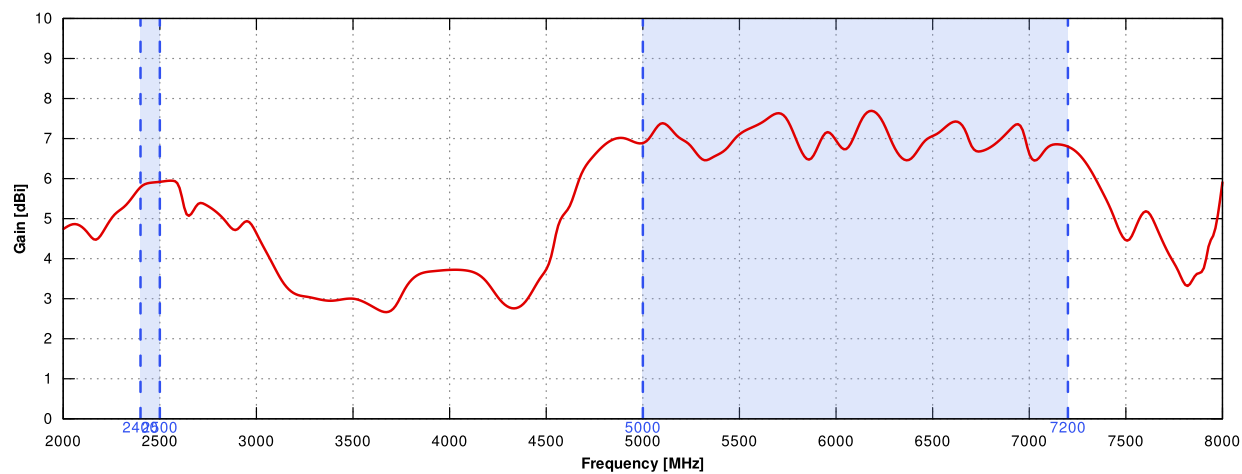




Gain for 5G/LTE antenna

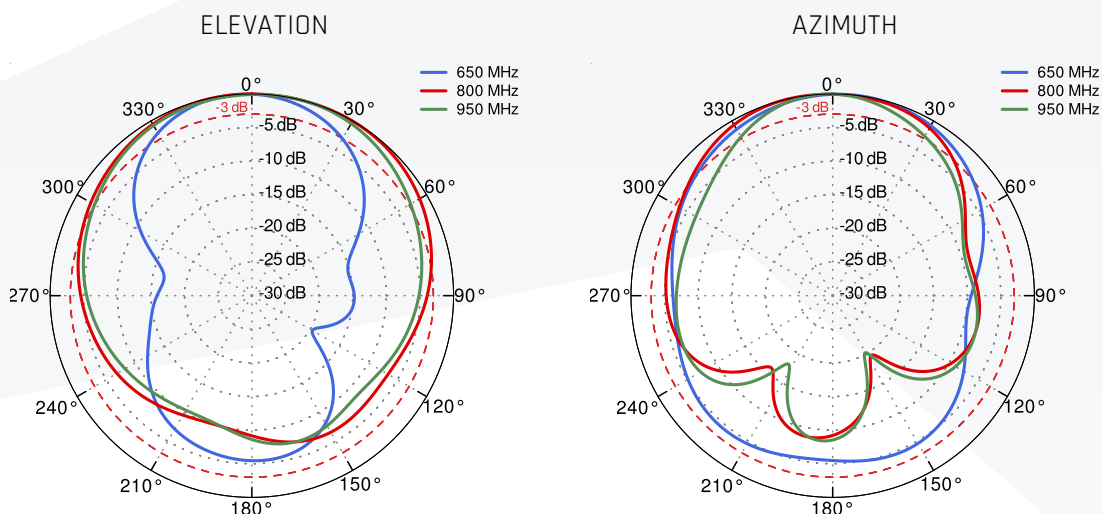


Gain for Wi-Fi antenna

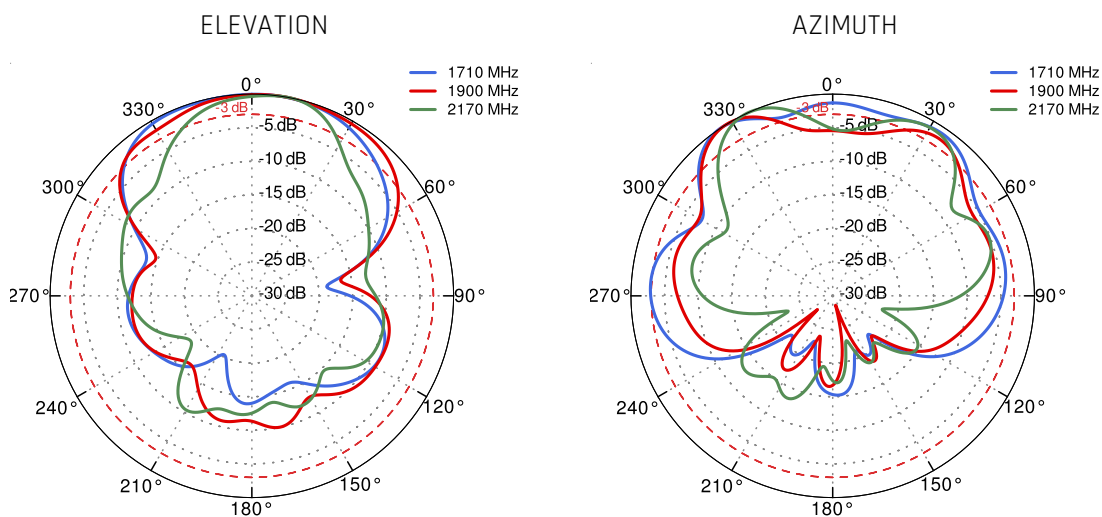




PORT 1&3 - 5G/LTE from 650MHz to 950MHz

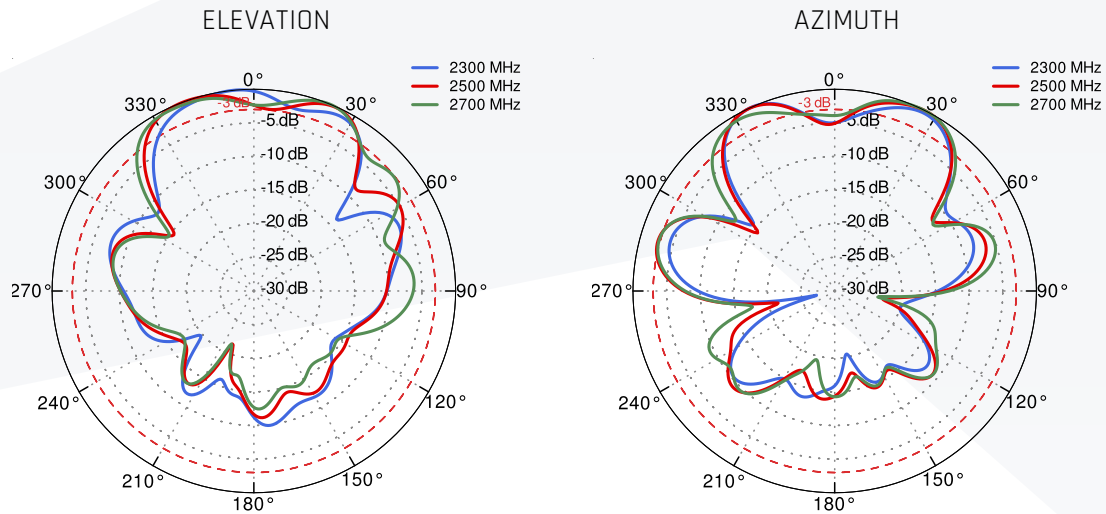


PORT 1&3 - 5G/LTE from 1.71GHz to 2.17GHz

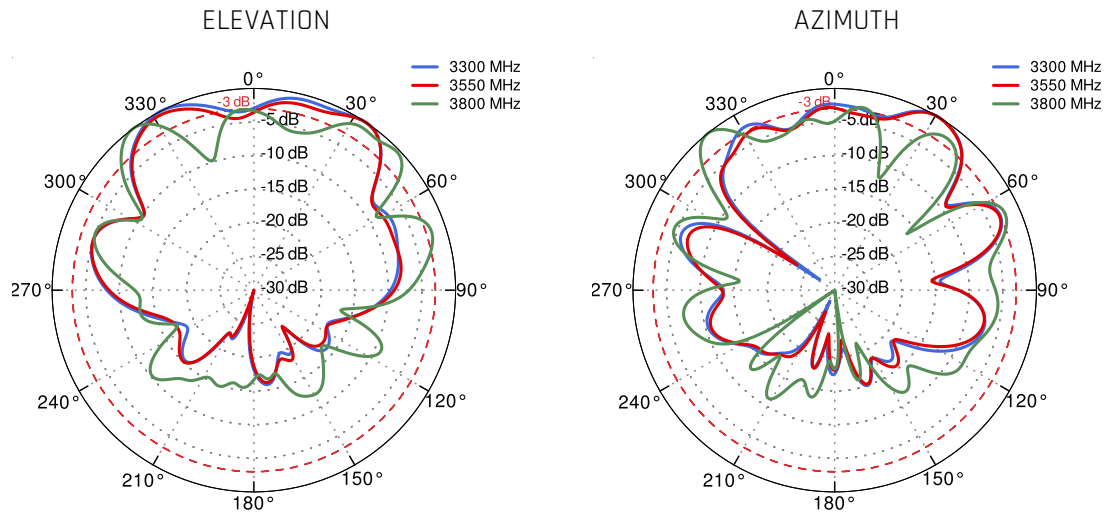




PORT 1&3 - 5G/LTE from 2.3GHz to 2.7GHz

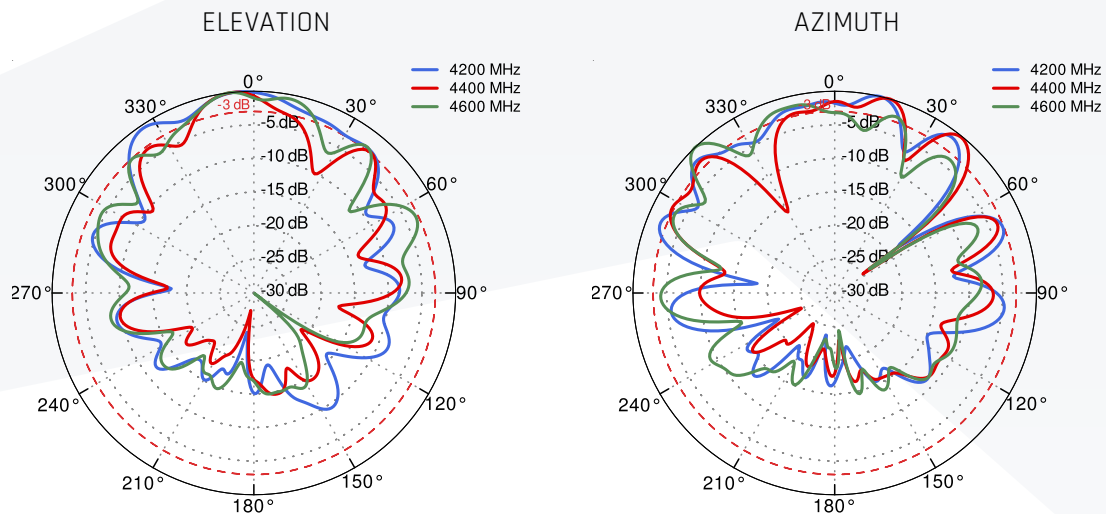


PORT 1&3 - 5G/LTE from 3.3GHz to 3.8GHz

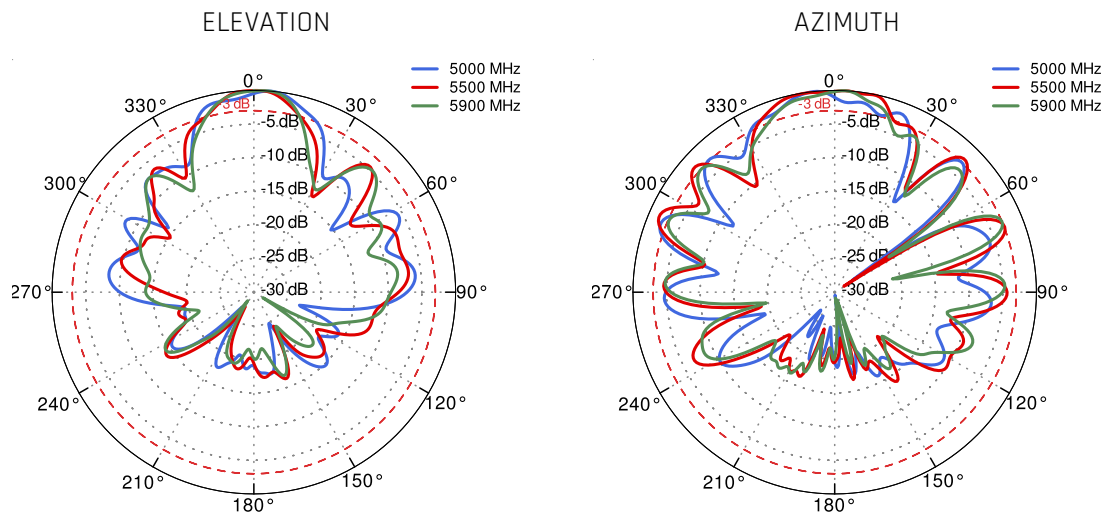




PORT 1&3 - 5G/LTE from 4.2GHz to 4.6GHz

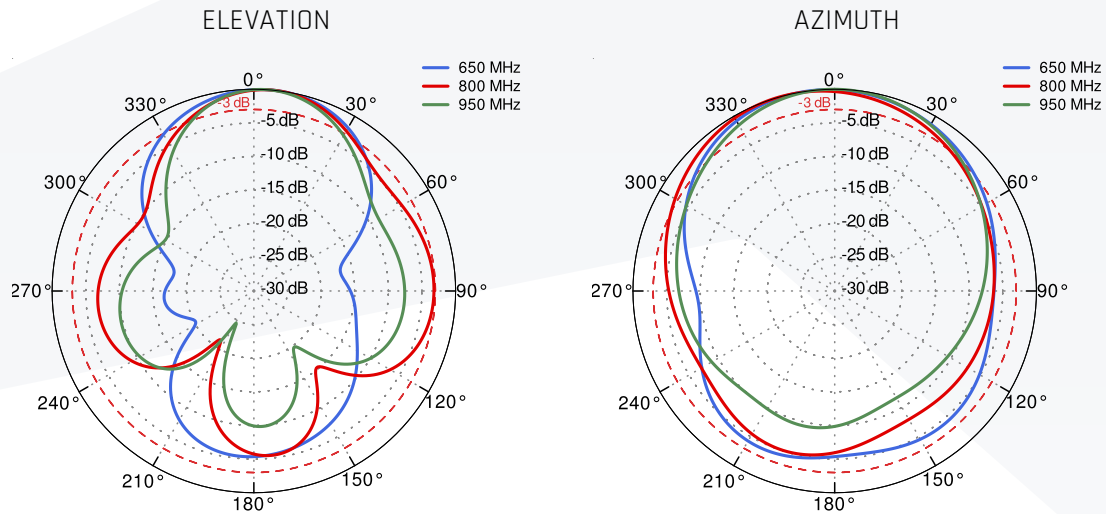


PORT 1&3 - 5G/LTE from 5.0GHz to 5.9GHz

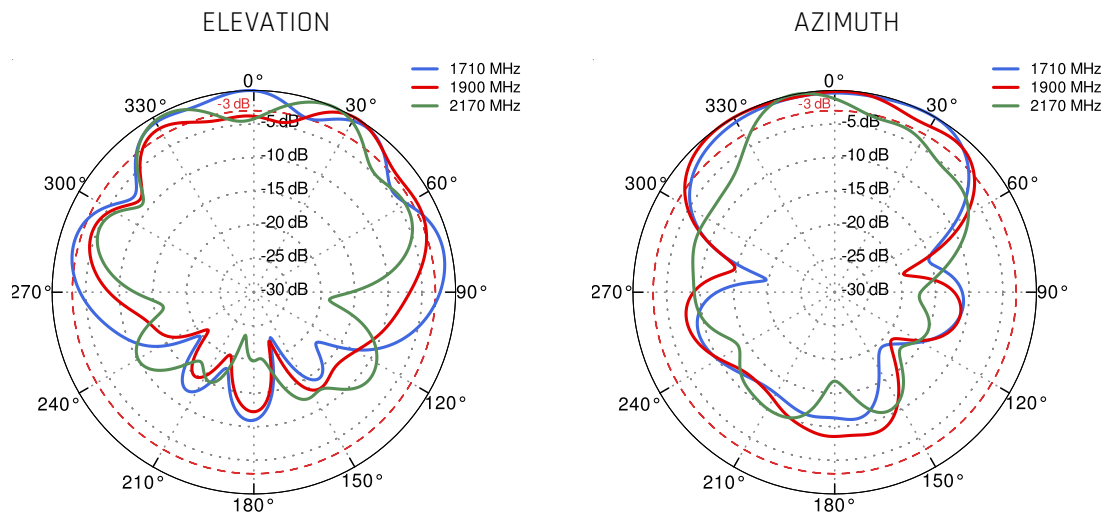




PORT 2&4 - 5G/LTE from 650MHz to 950MHz

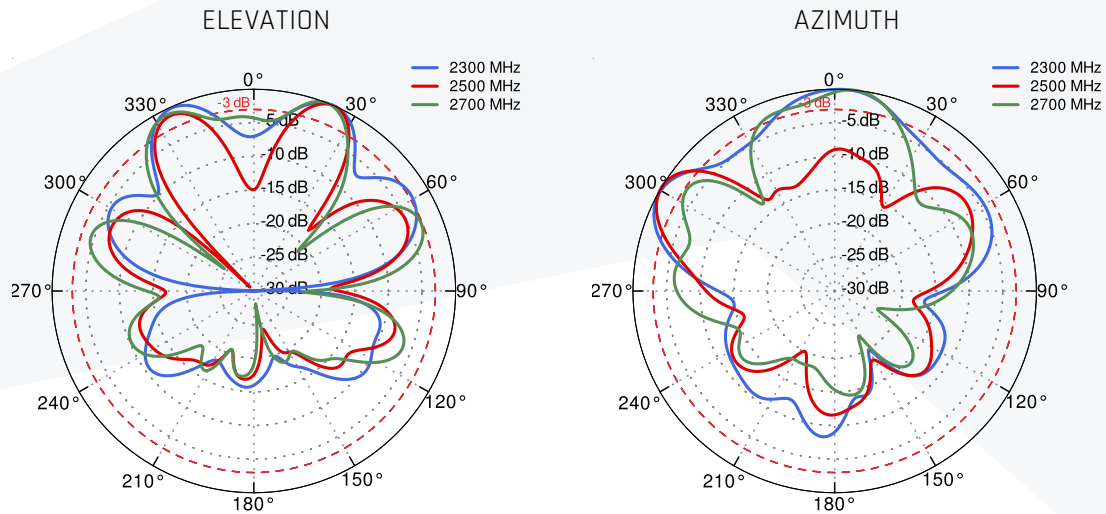


PORT 2&4 - 5G/LTE from 1.71GHz to 2.17GHz

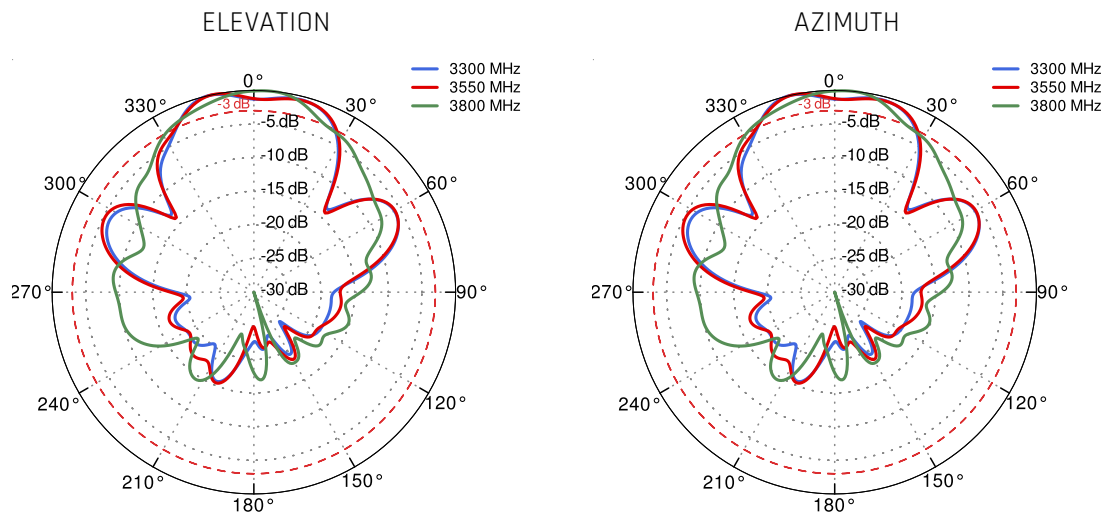




PORT 2&4 - 5G/LTE from 2.3GHz to 2.7GHz

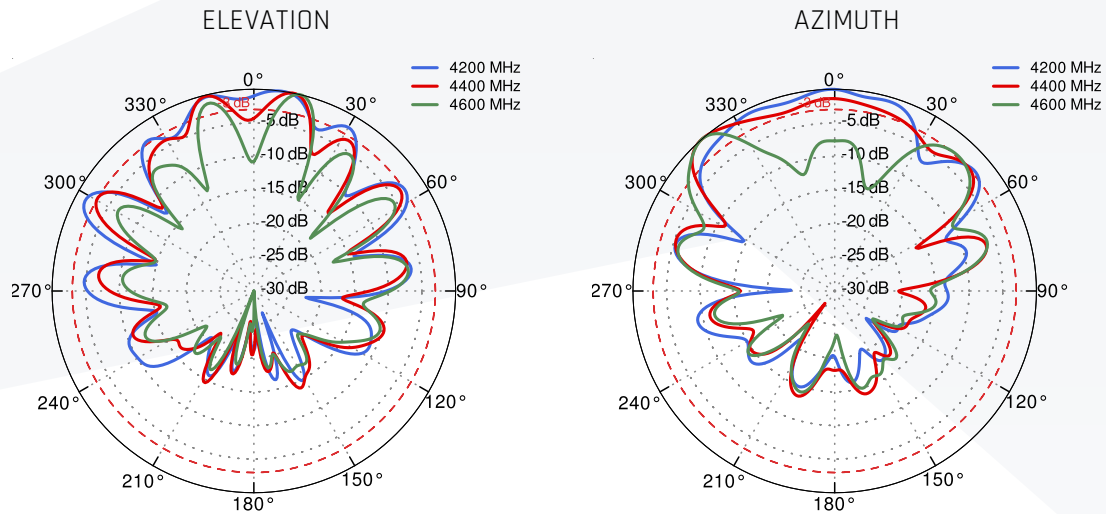


PORT 2&4 - 5G/LTE from 3.3GHz to 3.8GHz

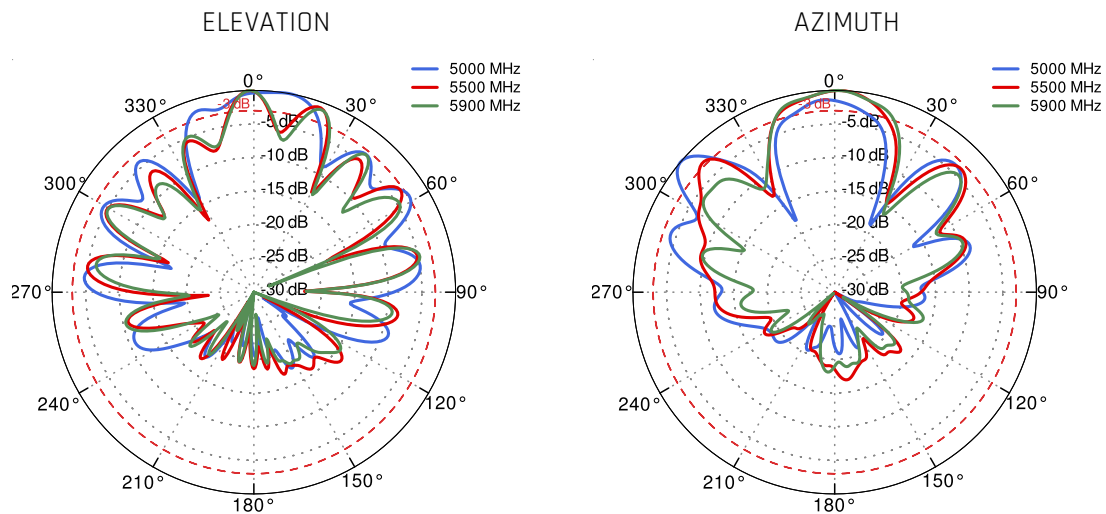




PORT 2 - 5G/LTE from 4.2GHz to 4.6GHz

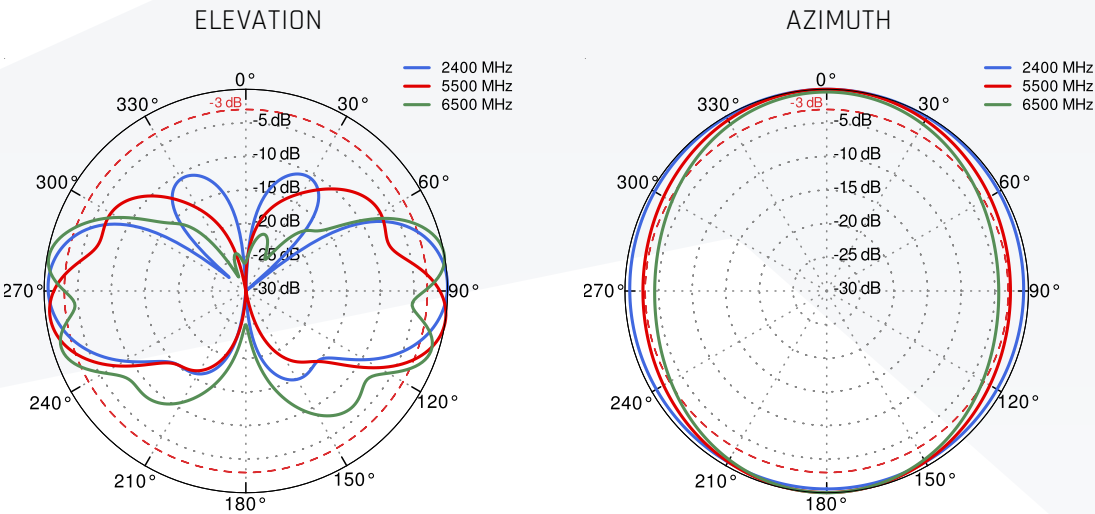


PORT 2 - 5G/LTE from 5.0GHz to 5.9GHz





Wi-Fi 2.4GHz and 5GHz and 6GHz





GNSS Specifications

GNSS Frequency Band							
GPS/QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz			
	☒	☐	☐	☐			
GLONASS	L5R 1176.45MHz	L3PT 1201.5MHz	L2PT 1246MHz	L1CR 1575.42MHz	L1PT 1602MHz		
	☐	☐	☐	☒	☒		
Galileo	E5a 1176.45MHz	E5b 1201.5MHz	E4 1215MHz	E3 1256MHz	E6 1278.75MHz	E2 1561MHz	E1 1575.42MHz
	☐	☐	☐	☐	☐	☐	☒
BeiDou	B1 1561MHz	B2 1207.14MHz	B3 1268.52MHz				
	☒	☐	☐				
Compass	E5B(B2)/ E6(B3) 1268.56MHz	E2(B1) 1561MHz					
	☐	☒					
SBAS	Omnistar 1542.5MHz	WAAS/EGN OS 1575.42MHz					
	☐	☒					

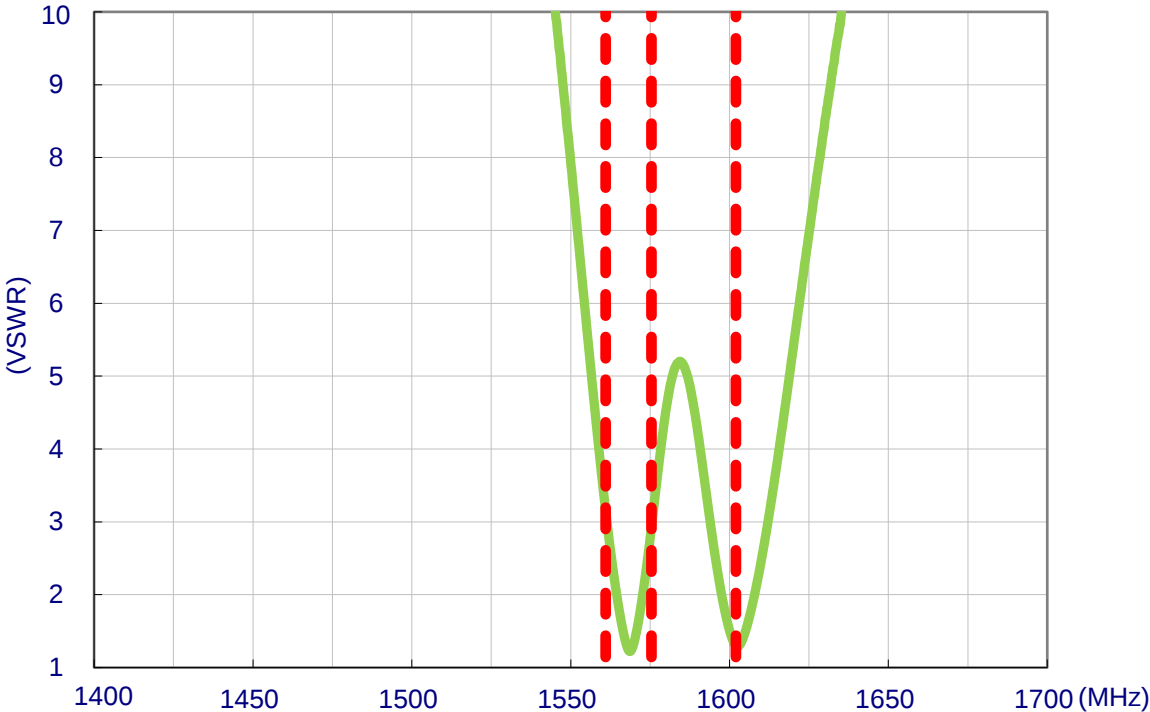
Electrical			
Frequency	BeiDou	GPS/GALILEO	GLONASS
	1561MHz	1575.42MHz	1602MHz
Efficiency (%)	49.8	46.5	60.1
Average Gain (dBi)	-3.03	-3.33	-2.21
Peak Gain (dBi)	2.44	1.72	1.67
Impedance	50Ω		
Polarization	RHCP		



LNA Specification			
Gain (dB)	14.8 ± 1	15.0 ± 1	15.0 ± 1
NF (dB)	2.4 ± 0.2	1.9 ± 0.2	2.2 ± 0.2
Input Voltage	+1.8 to +5 VDC		
Power Consumption	3 to 24.5mA typical		
Out-Of-Band Attenuation (dB)	10-500MHz	> 60	
	500-850MHz	> 40	
	850-1000MHz	> 35	
	1000-1500MHz	> 25	
	1700-2300MHz	> 19	
	2300-5000MHz	> 30	
	5000-6000MHz	> 25	

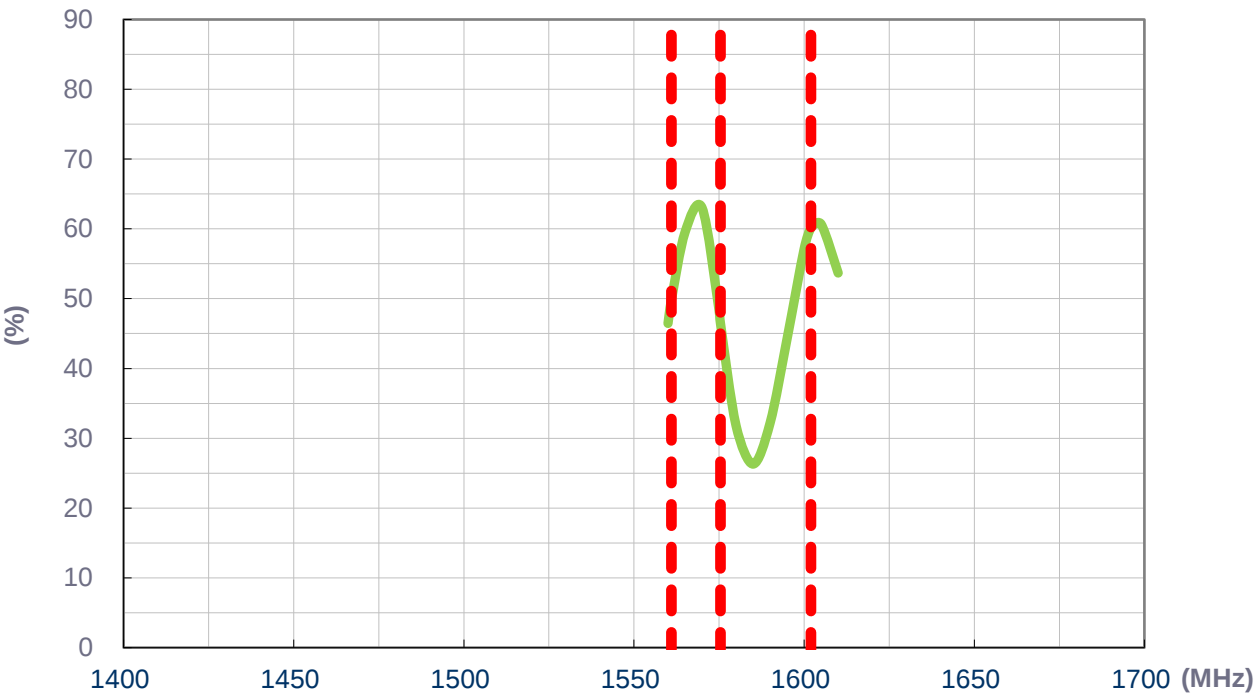
PLOTS

VSWR



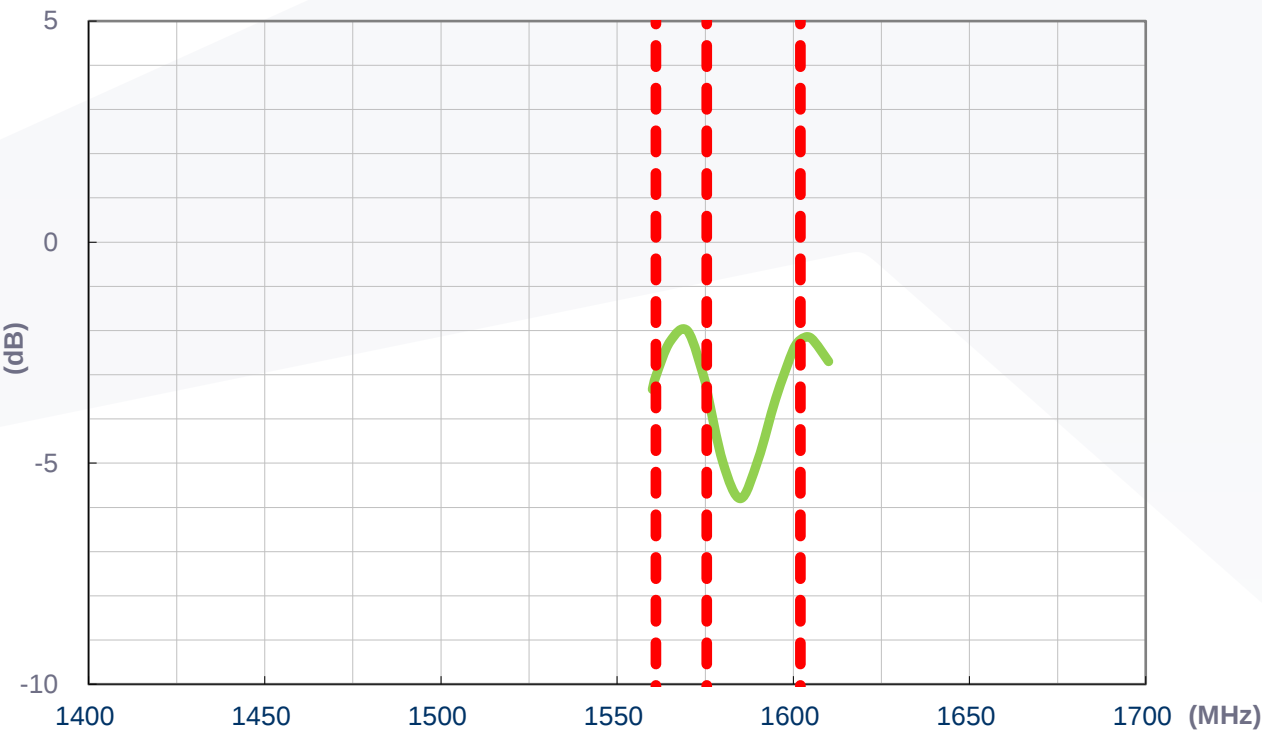


Efficiencyy

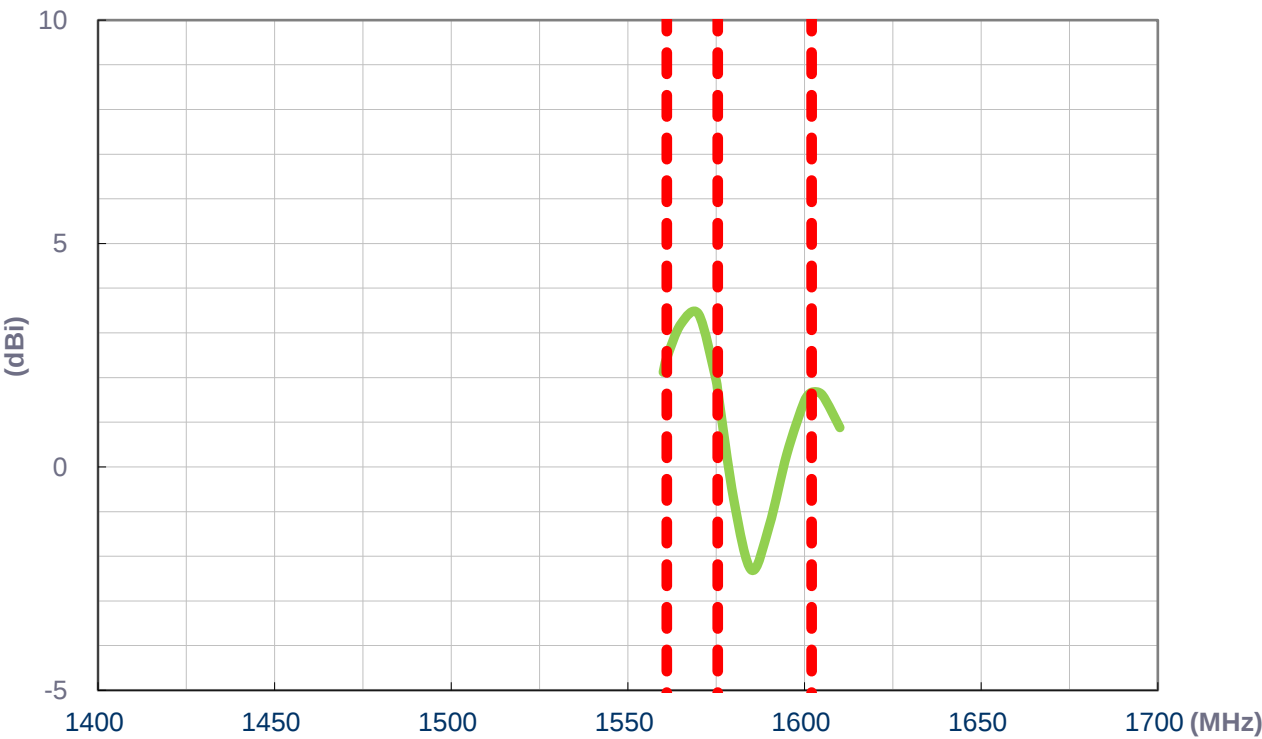




Average Gain



Peak Gain





DIMENSIONS

