



SSA01 v3 – WIDE BANDWIDTH S-BAND PATCH ANTENNA

PRODUCT NAME

SSA01- WIDE BANDWIDTH S-BAND PATCH ANTENNA

SUMMARY

The EXA SSA01 is a wide bandwidth S-band antenna that can accommodate a bandwidth of up to 195 MHz for missions that need greater speed and/or bandwidth separation capabilities and great flexibility on the final frequencies selection. It will work between 2025 and 2120 MHz and 2200 and 2300 MHz without sacrificing gain, allowing your mission to not wait for the final bands and frequencies approval: By the time you get your approval papers from your telecommunications authority, you will be ready to fly, just request a frequency within SSA01's ample range and you save at least 6 months of red tape time.

FEATURES

- Flight heritage since 2020
- Wide bandwidth: 2025 to 2120 MHz and 2200 to 2300 MHz
- Only 8.4 mm thickness
- Custom configurable choice of connectors and/or cables
- Wide FOV of 120 degrees
- Designed for LEO missions and requirements
- Manufactured according to NASA and ESA space standards and materials

- Functional, performance, thermal bake out and vibration tests provided with documentation.
- Compatible and compliant with standard deployers and CubeSat Standard

PERFORMANCE

- Band Range:
 - First range: 2025 to 2120MHz
 - Second range: 2200 to 2300MHz
- 7.4 dB Gain typical
- 195 MHz total bandwidth
- FOV 120 degrees aperture:
 - Vertical beam: 60 degrees
 - Horizontal beam: 60 degrees
- Impedance: 50 Ohms
- Polarization: RHCP
- F/B ratio: > 20 dB
- RH/LH isolation: 14 dB typical
- VSWR:
 - < 1.09 for center band frequencies
 - < 1.85 for frequency range

PRODUCT PROPERTIES

- Mass: 40 g
- Dimensions: 96.5 x 69.7 x 8.4 mm
- Operating Temperature: -80 to +140°C
- Radiation Tolerance: 4 years minimum in LEO

MATERIALS

- Only TML and CVCN < 1% materials used, NASA and ESA approved
- Antenna Material: Rogers 4350
- Connector: SMA, MCX or Uf.I
- PTFE (Teflon) space grade cables, coax, custom choice

TESTING

All antennas are provided with tests reports regarding:

- Thermal Bake out (10E-5 mbar @ 50C for 72 hours)
- Full vibration test for Falcon 9, Electron, Soyuz, Dnepr and Long March 2D
- QT and AT is performed on the unit to be shipped

Test	QT	AT
Functional	✓	✓
Vibration		✓
Thermal Cycling		✓
Thermal Vacuum		✓
Antenna network VSWR Test	✓	✓

CONFIGURATION and PRICES

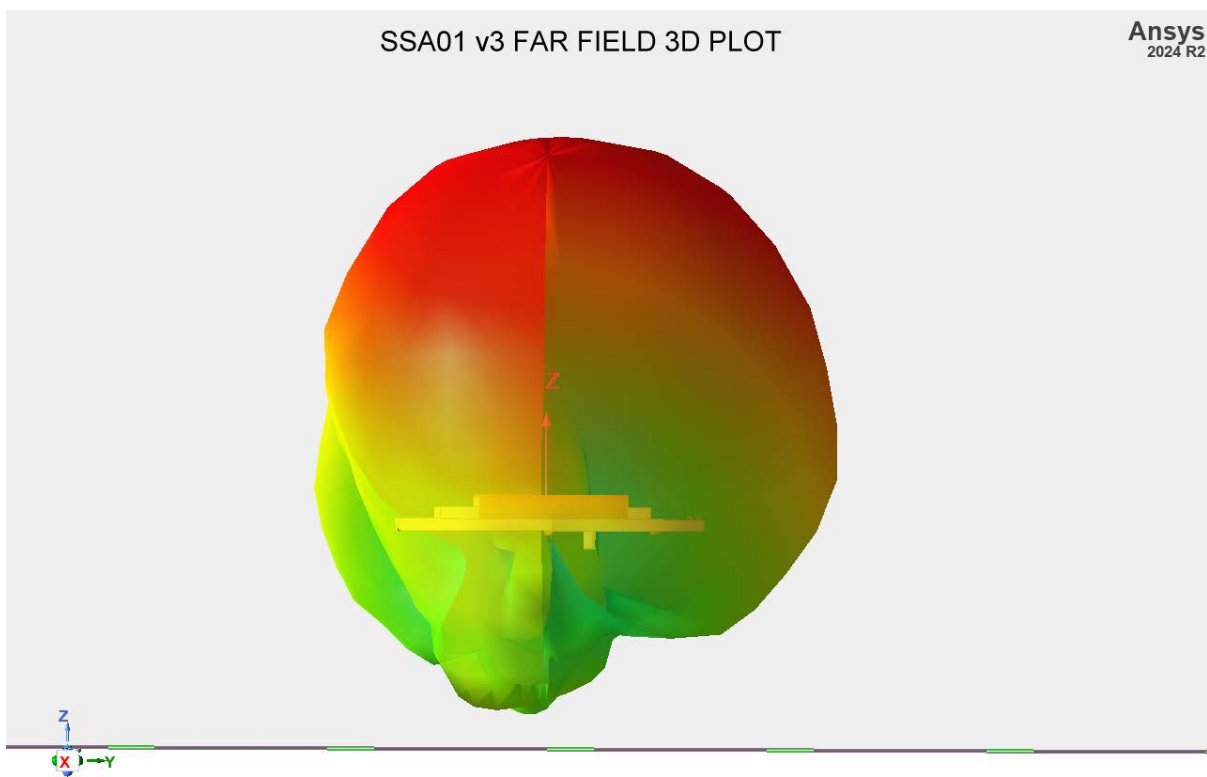
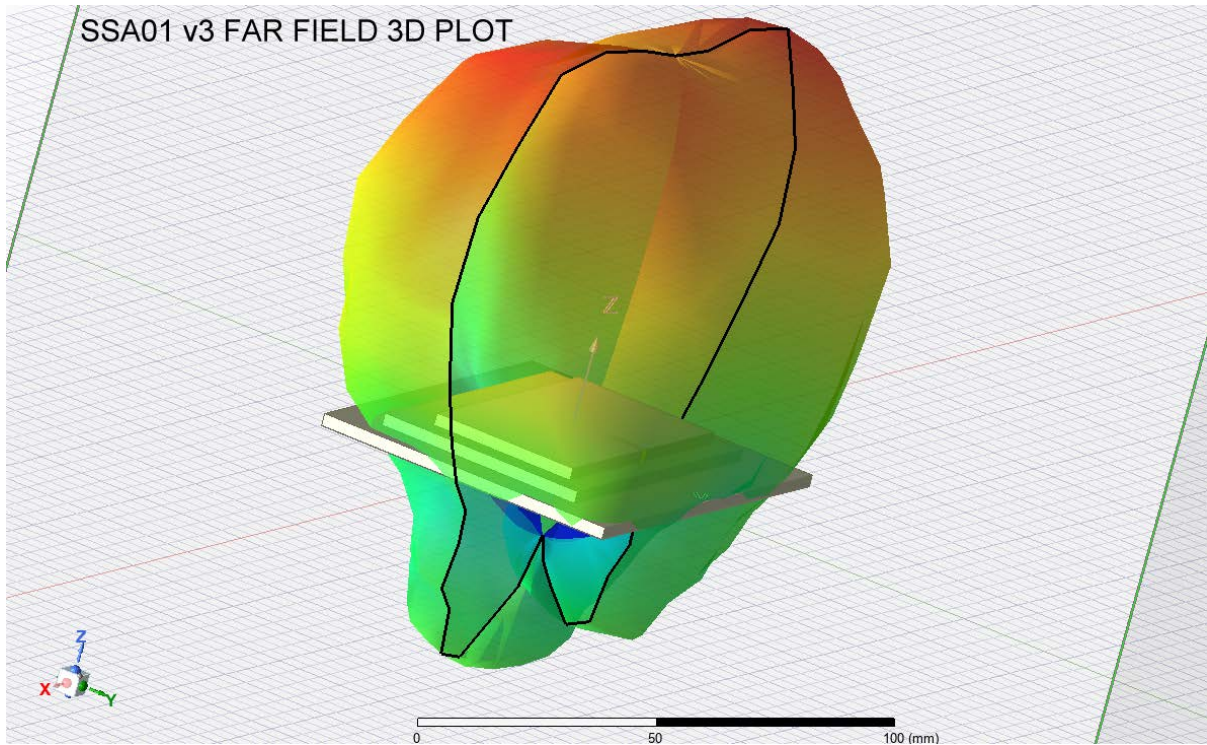
- SSA01 Wide Bandwidth S-Band Patch Antenna: 2200€

AVAILABILITY:

- Immediately



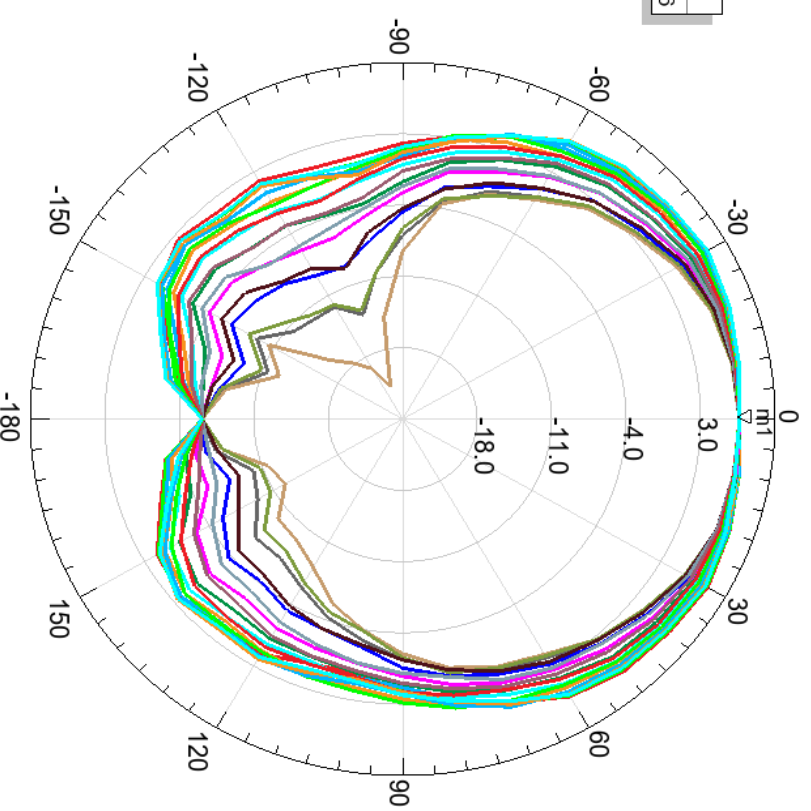
RADIATION PATTERNS



SSA01 FF VS GAIN

ANSYS
2024 R2

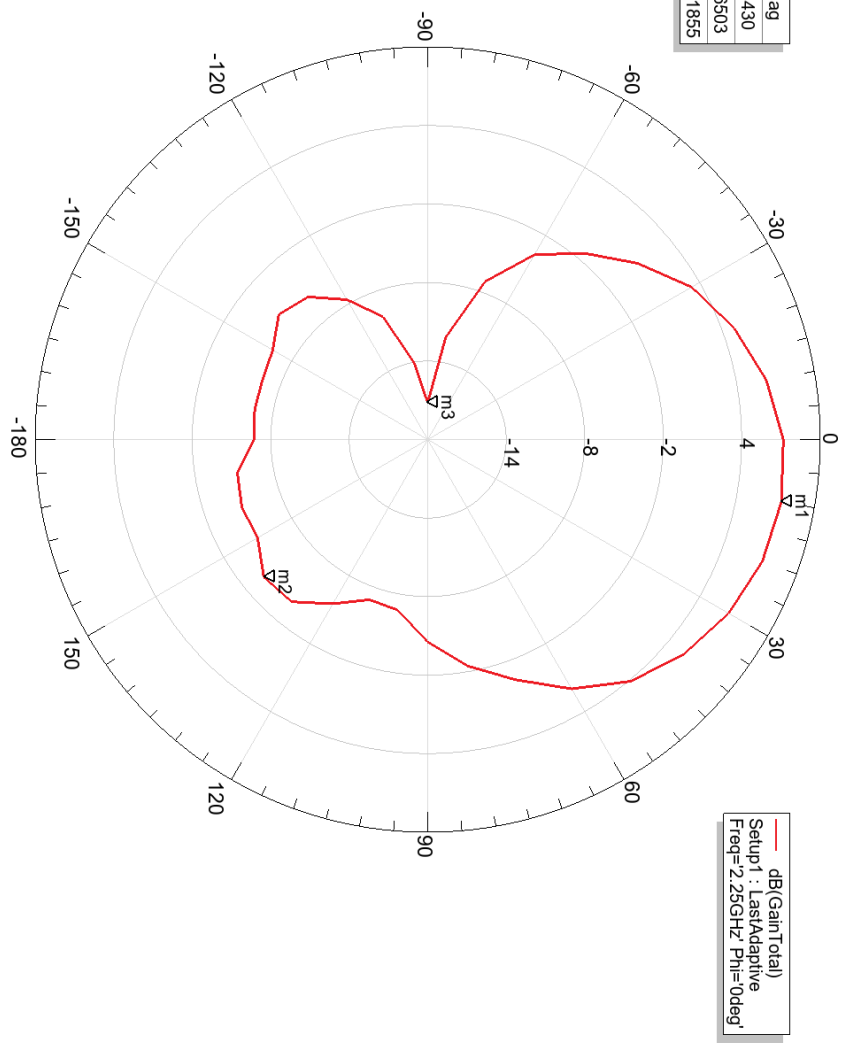
Name	Theta [degmin]	Ang	Mag
m1	2.16E+04	-5.1159E-13	6.6626



dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=0deg'
dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=10deg'
dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=20deg'
dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=30deg'
dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=40deg'
dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=50deg'
dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=60deg'
dB(rETotal)	Setup1 : LastAdaptive Freq=2.25GHz' Phi=70deg'

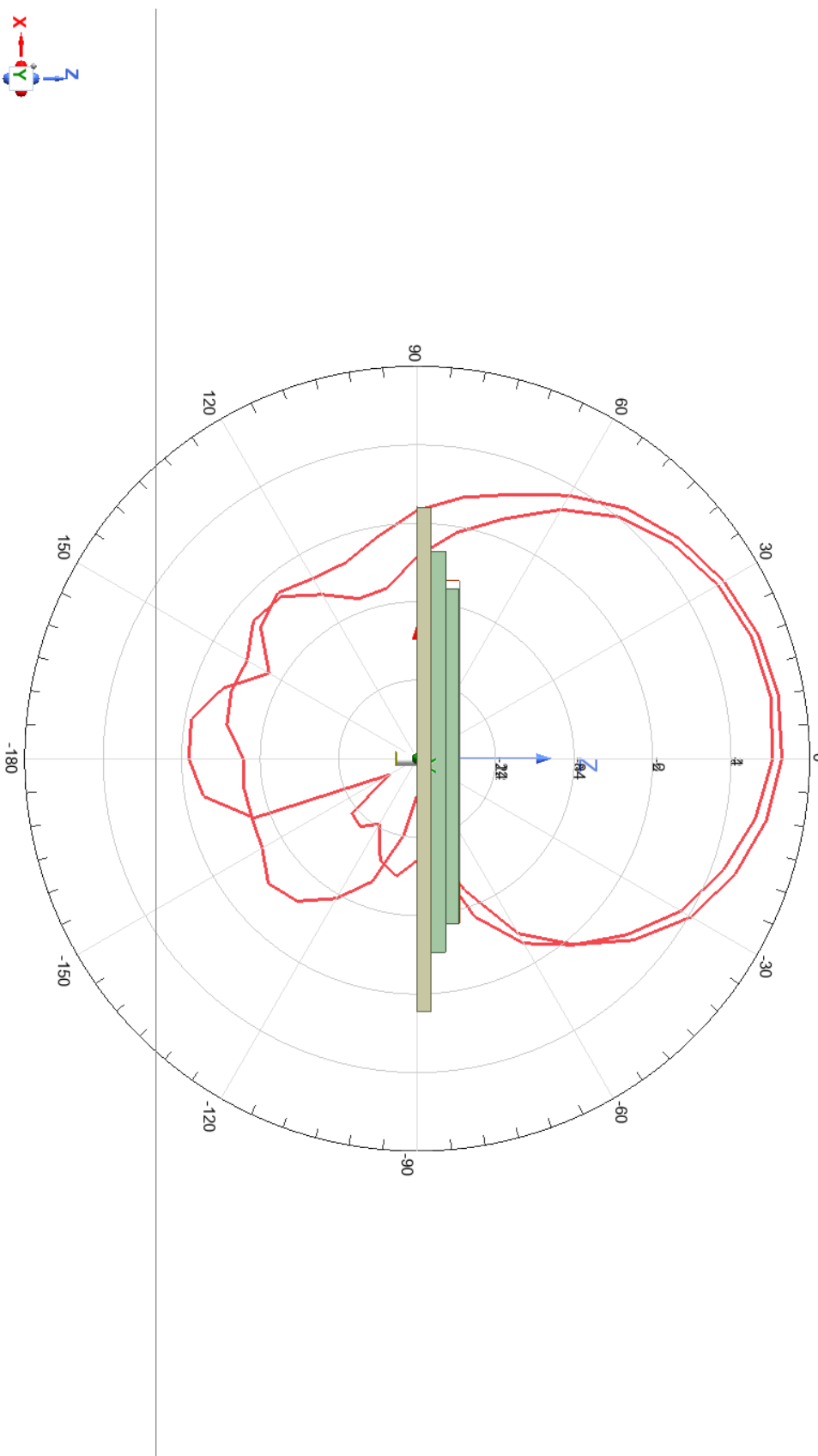
SSA01 v3 FAR FIELD Gain Plot

Name	Theta [degmin]	Ang	Mag
m1	600	10.0000	7.4430
m2	8400	140.0000	-3.6503
m3	1.62E+04	-90.0000	-17.1855



SSA01 v3 FAR FIELD PLOT XY + Z

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VSWR AND RETURN LOSS

