



13.2-Mtr Antenna Program

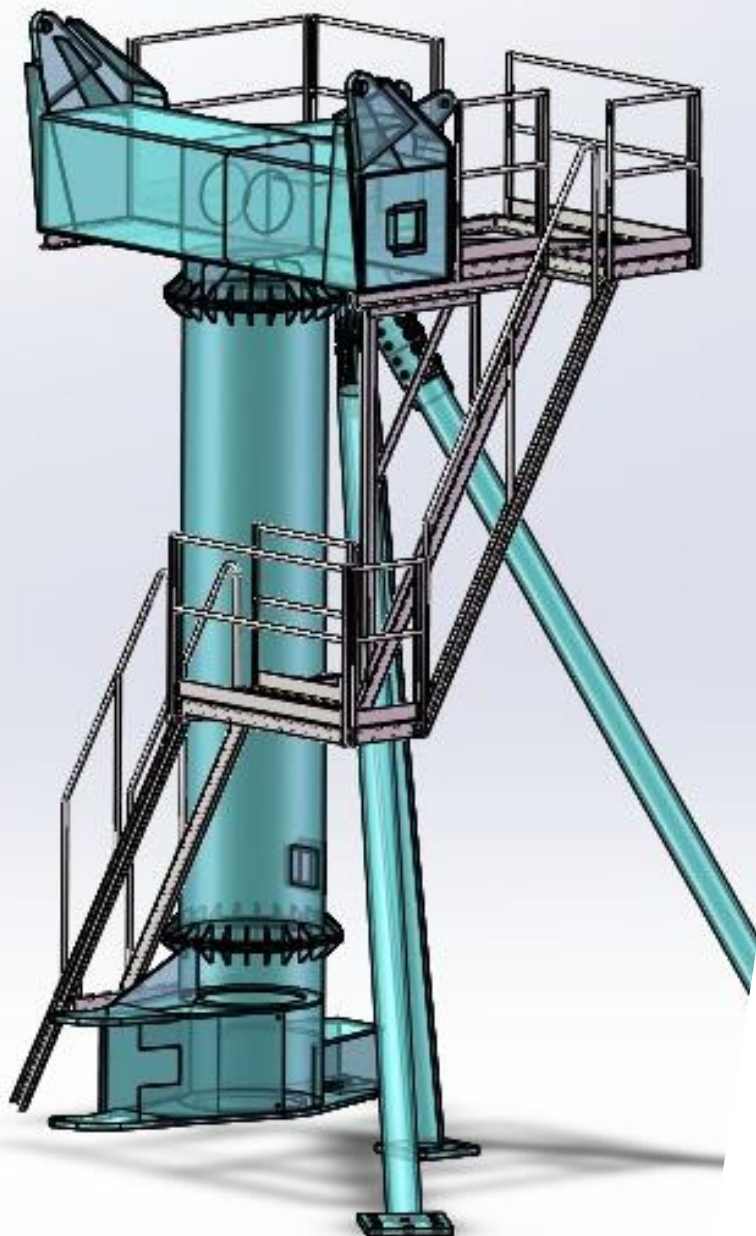
November 2017



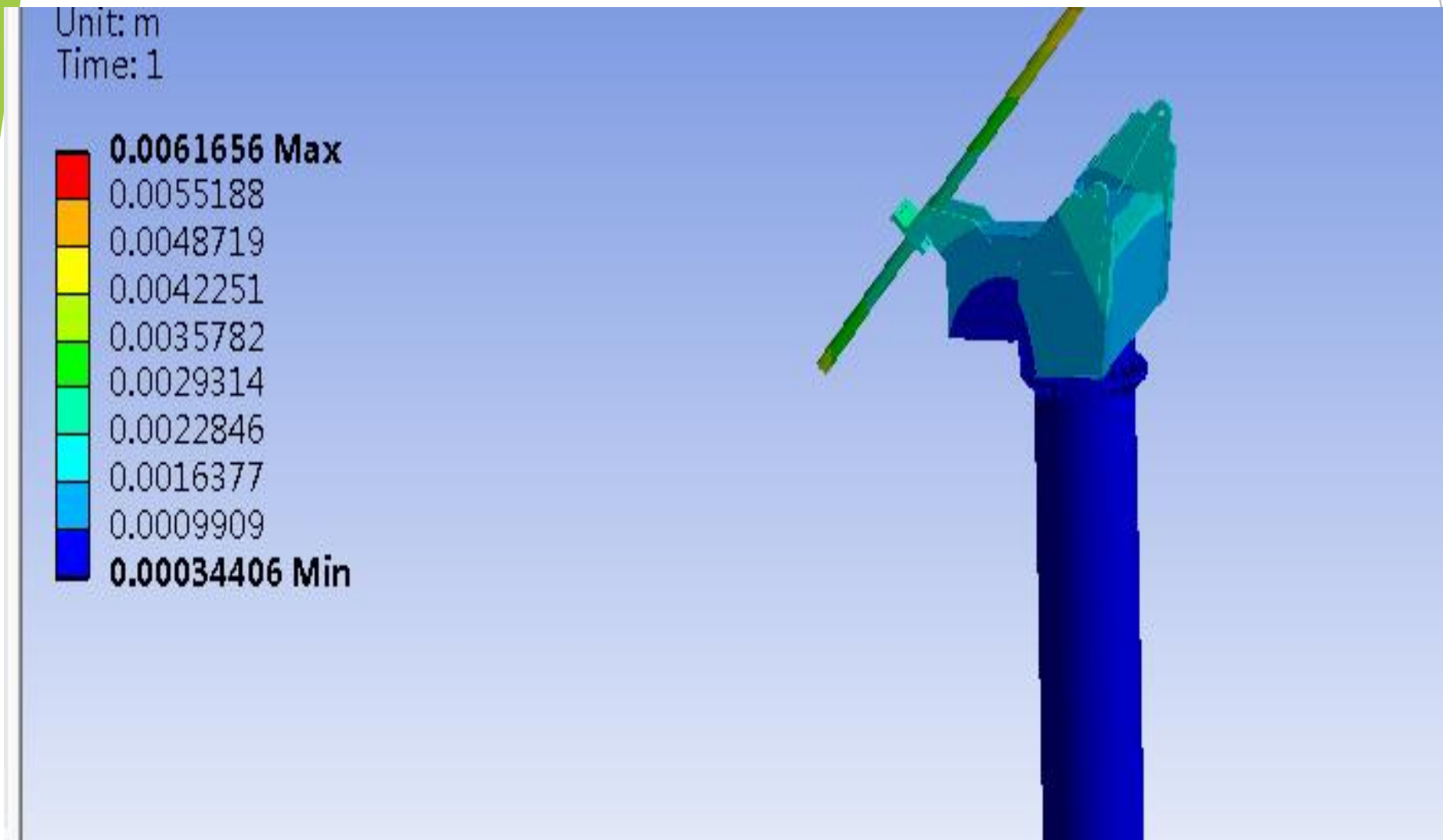
Initial Concept

A wireframe model of a dome-like structure, possibly a geodesic dome, is shown. The model is composed of numerous interconnected lines forming a complex, spherical shape. The lines are black on a white background, with some lines highlighted in green. The dome is centered on a dark gray circular base. The text "Solid Works Layout" is overlaid in green on the right side of the dome.

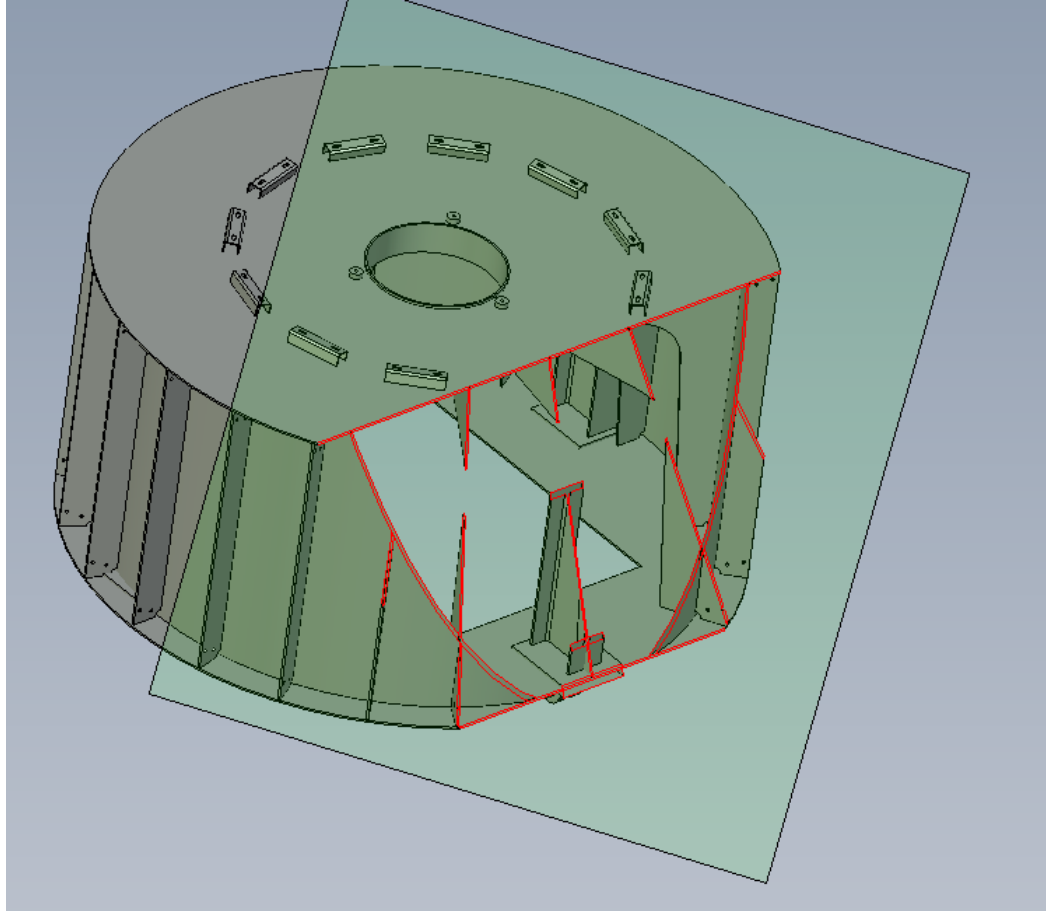
Solid Works Layout



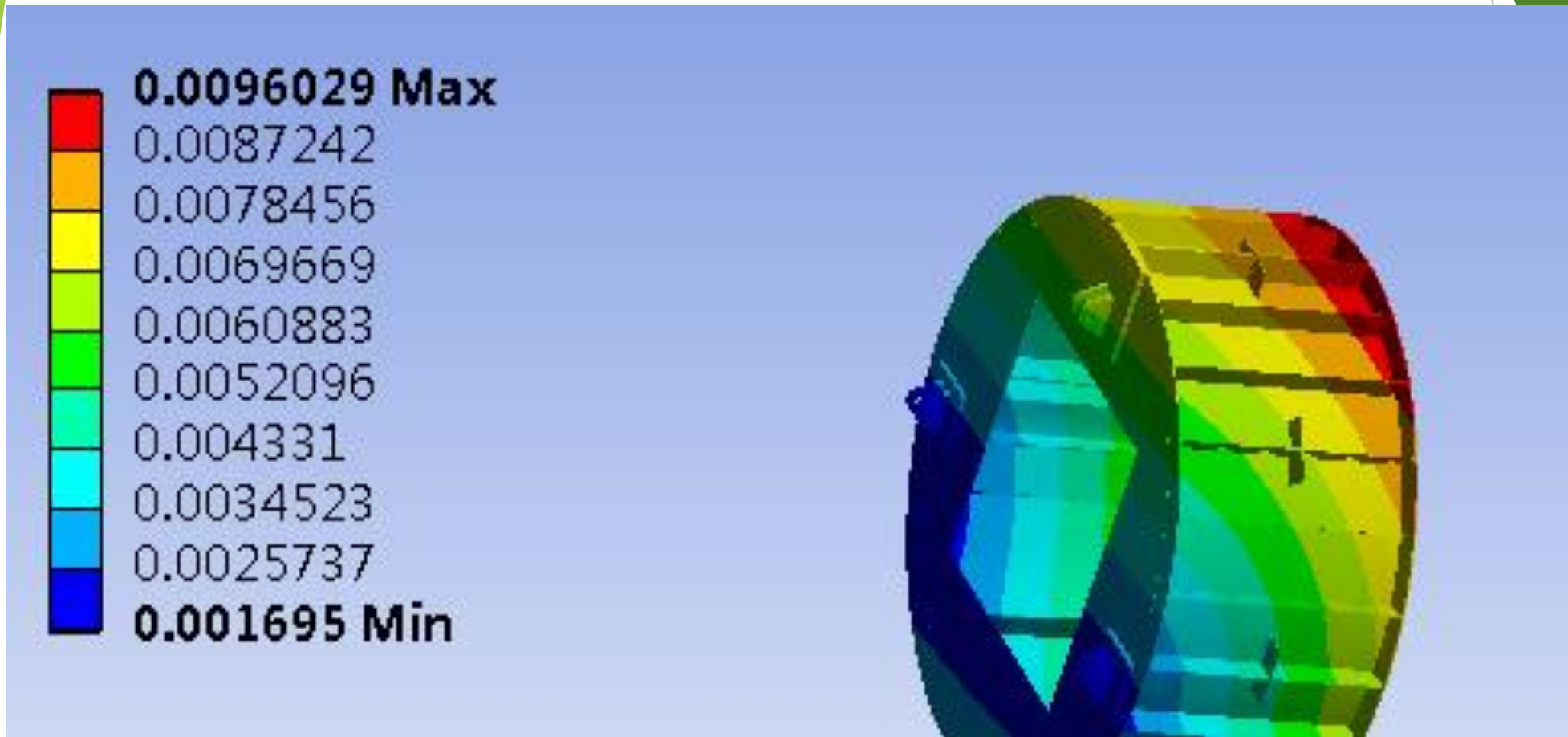
Pedestal Layout



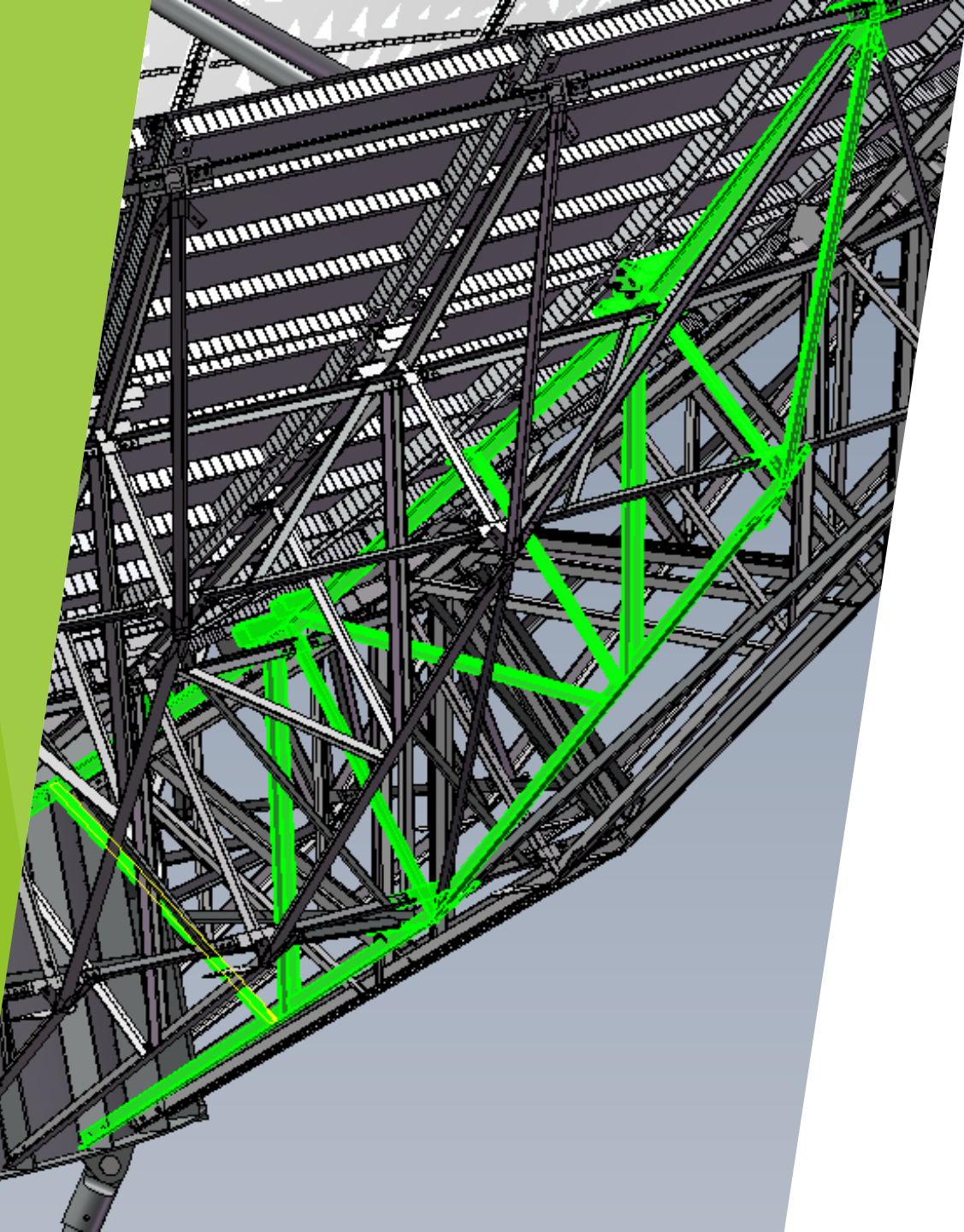
Pedestal FEA



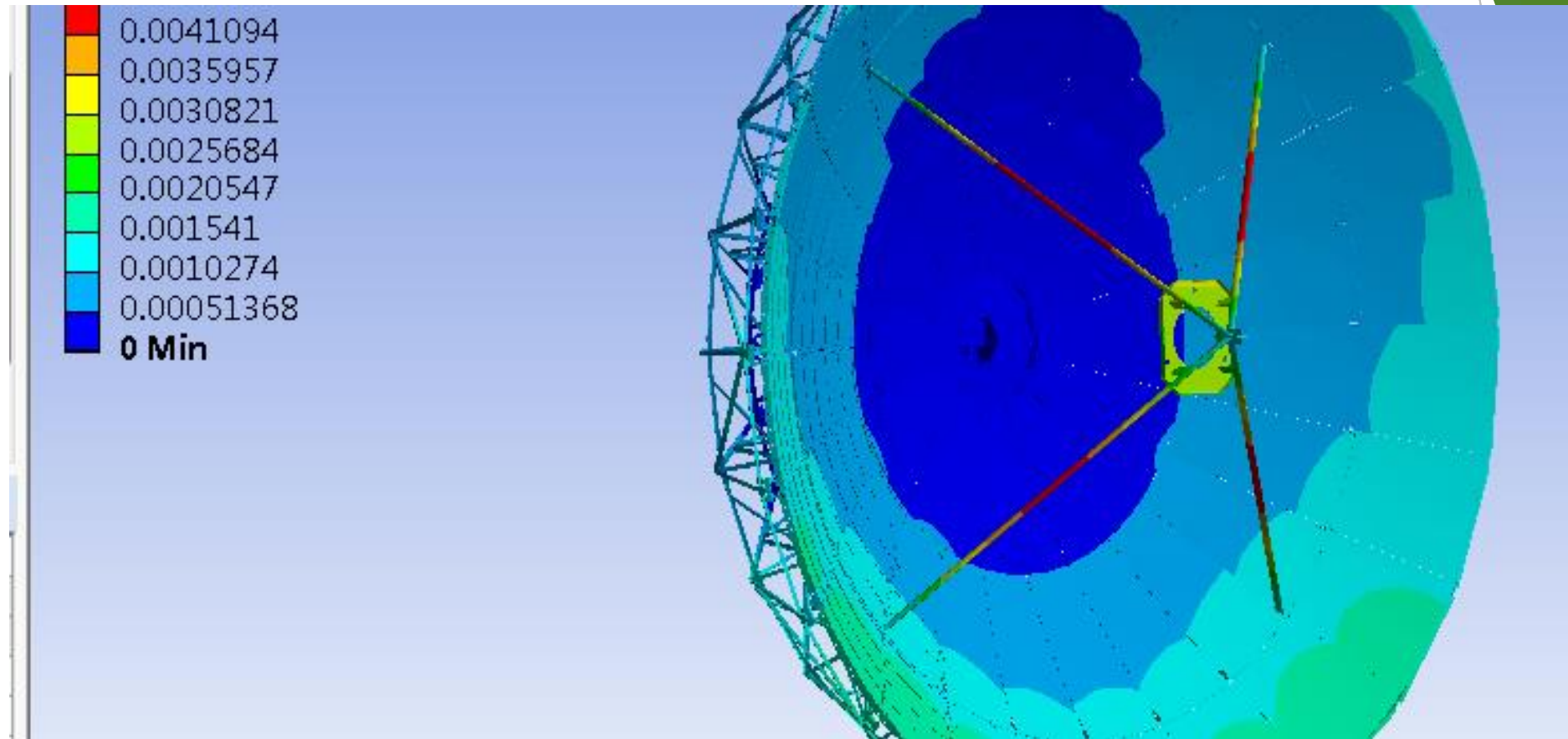
Hub Details



Hub FEA



Radial Analysis



Reflector FEA

Pedestal Assembly Flanges





Lower Pedestal Sub-Assembly



Pedestal w/Upper Interface Sub-assembly



Lower
Pedestal Sub-
Assembly



Lower
Pedestal
Sub-
Assembly

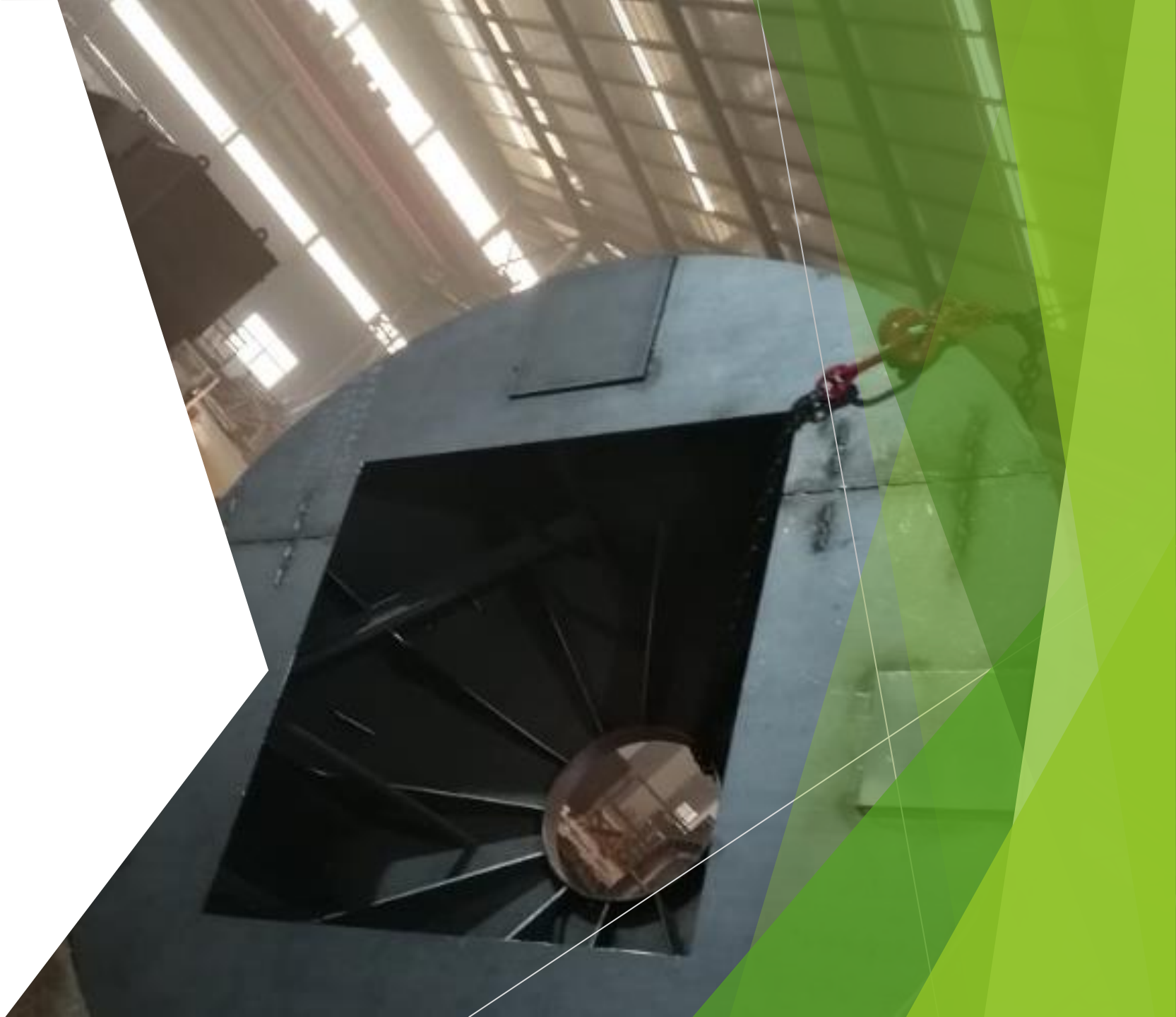


Platform Assembly Bottom View



Top View
of
Platform

Hub Assembly





Galvanized Hub



Galvanized Radials



Hub, Radial, Panel Assembly



Pedestal Installation



Platform Assembly

Azimuth Jack Assembly



Inboard Panels

**All panels are measured by
Photogrammetry to assure
quality.**



Panels Crating





Panel
Installation
&
Alignment



Initial Reflector Assembly



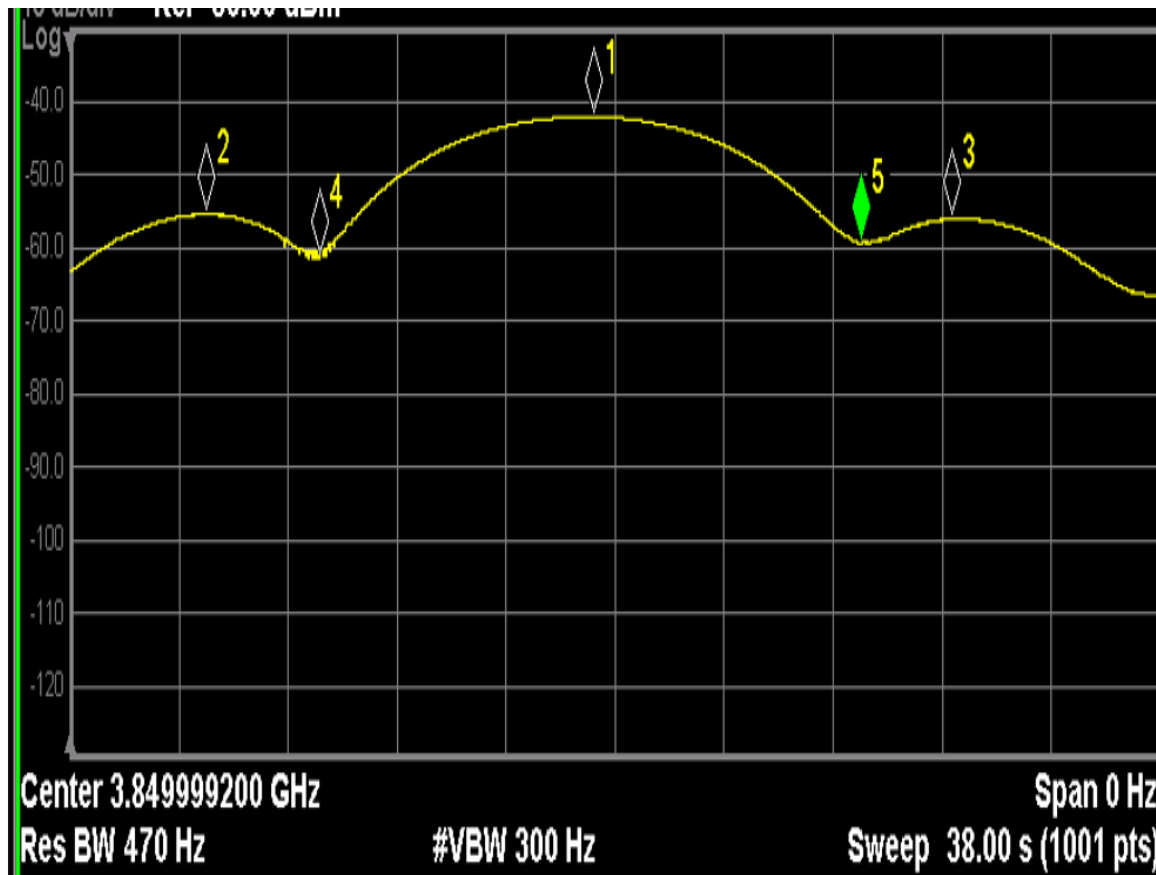
13.2-mtr Profile





13.2-mtr
Limited
Motion
Kingpost

13.2-mtr C-Band Pattern



MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t	18.24 s	-42.10 dBm			
2	N	1	t	4.750 s	-55.41 dBm			
3	N	1	t	30.74 s	-56.09 dBm			
4	N	1	t	8.702 s	-61.44 dBm			
5	N	1	t	27.59 s	-59.34 dBm			

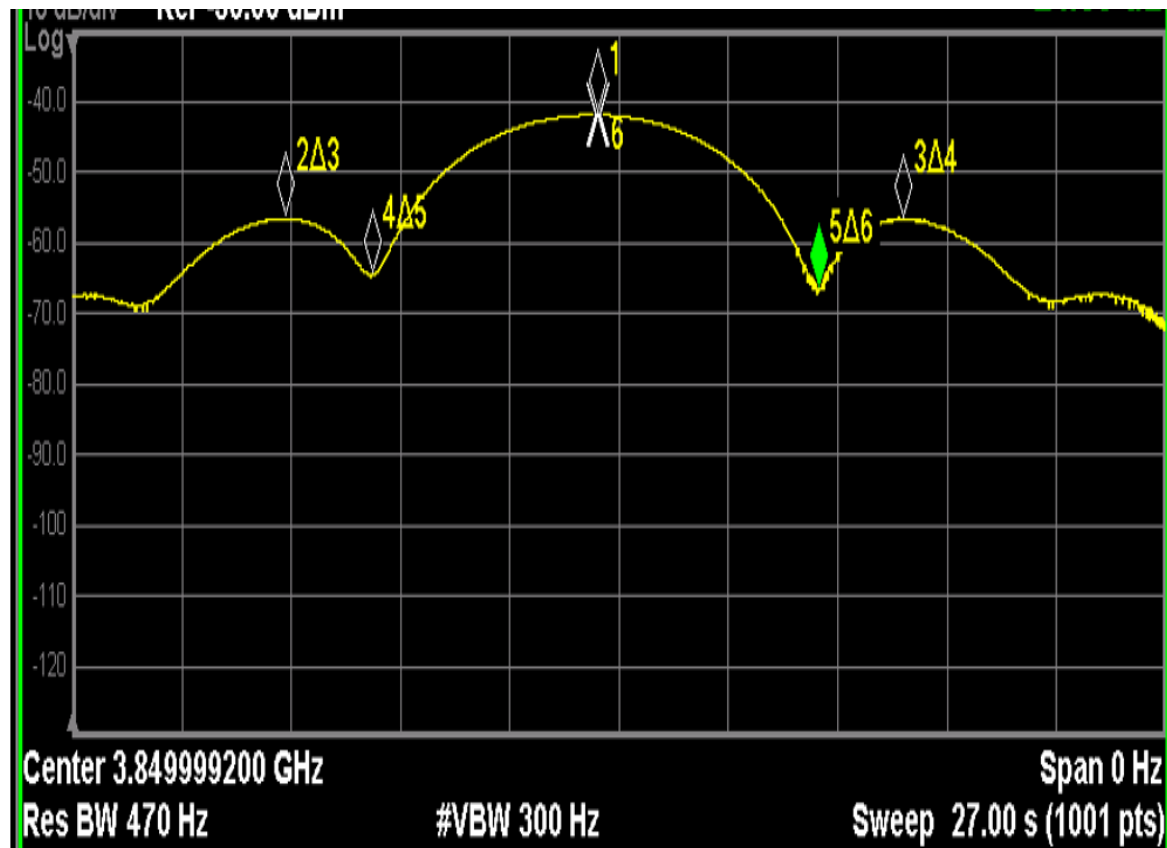
Normal

Delta

Fixed

Off

Properties



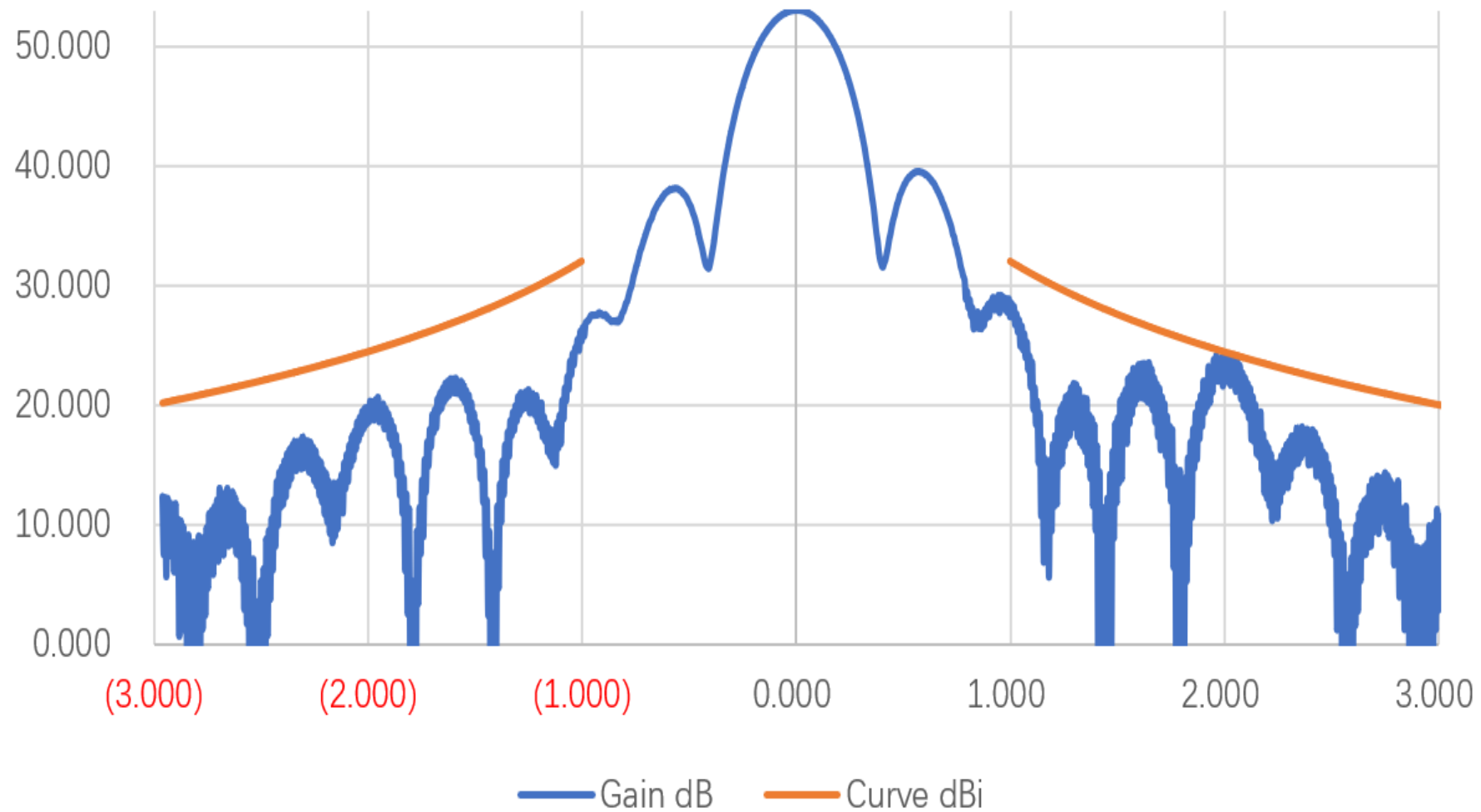
MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	t	12.96 s	-41.95 dBm			
2	Δ3	1	t (Δ)	-15.26 s (Δ)	0.10 dB			
3	Δ4	1	t (Δ)	13.12 s (Δ)	7.81 dB			
4	Δ5	1	t (Δ)	-11.04 s (Δ)	2.18 dB			
5	Δ6	1	t (Δ)	5.481 s (Δ)	-24.88 dB			

Marker Count [Off]

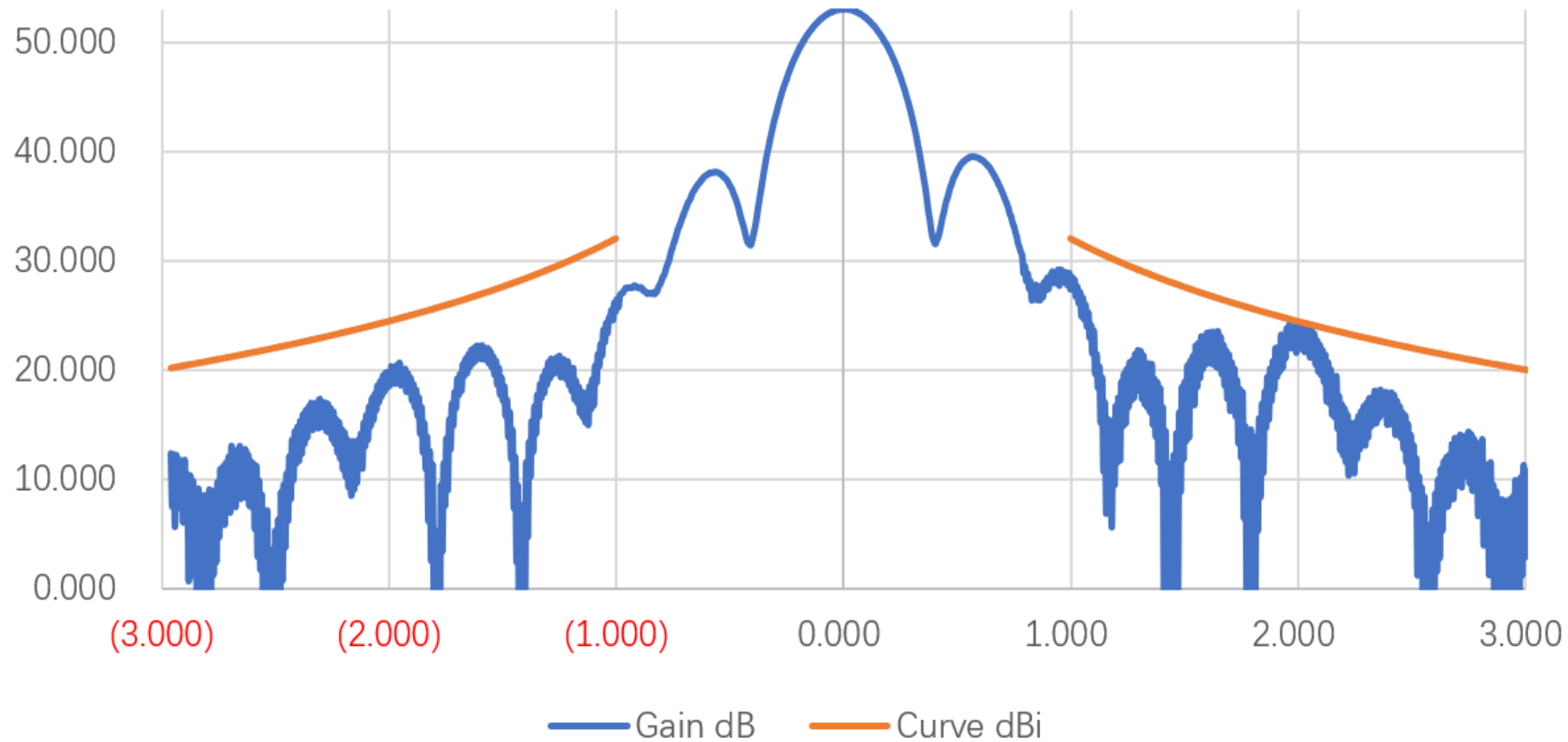
Couple Markers On Off

All Markers Off

13.2-mtr Pattern



13.2-mtr Elevation Pattern



13.2-mtr Azimuth Pattern

Nicely Done!



On The Board

- All 13.2-mtr antenna structures are designed and fabricated for Ka-Band operation, as are all Alpha Satcom antennas.
- The azimuth travel of 190° for the Limited Motion Antenna (LMA) is provided via three separate jack positions.
- The azimuth jack is attached to the pedestal; therefore, the switching from one segment to another can be quickly done by one or two men using simple hand tools and without the need of lifting equipment.
- Under design is a Full Motion Antenna (FMA) pedestal that will include a counterweighted reflector, which will easily interface the bottom of the upper reflector assembly, using dual biased azimuth drives interfaced to a slew gear.
- The FMA will use the proven Reflector Assembly and either a Smart Step Track ACU for frequencies up to DBS-band and Monopulse Tracking for DBS or Ka-band applications.