EOSOL
AEROSPACE

ANTENNAS & FEEDS 2022 PRODUCT PORTFOLIO

ANTENNAS & FEEDS 2022 PRODUCT PORTFOLIO

INDEX

01

Antennas & Feeds

Page 4

A

Space

Page 7

B

Ground

Page 17

C

Satcom terminals

Page 19

02

Engineering services

Page 22

A

Antenna, feeds and RF Components design

Page 24

B

Reflector antennas

Page 28

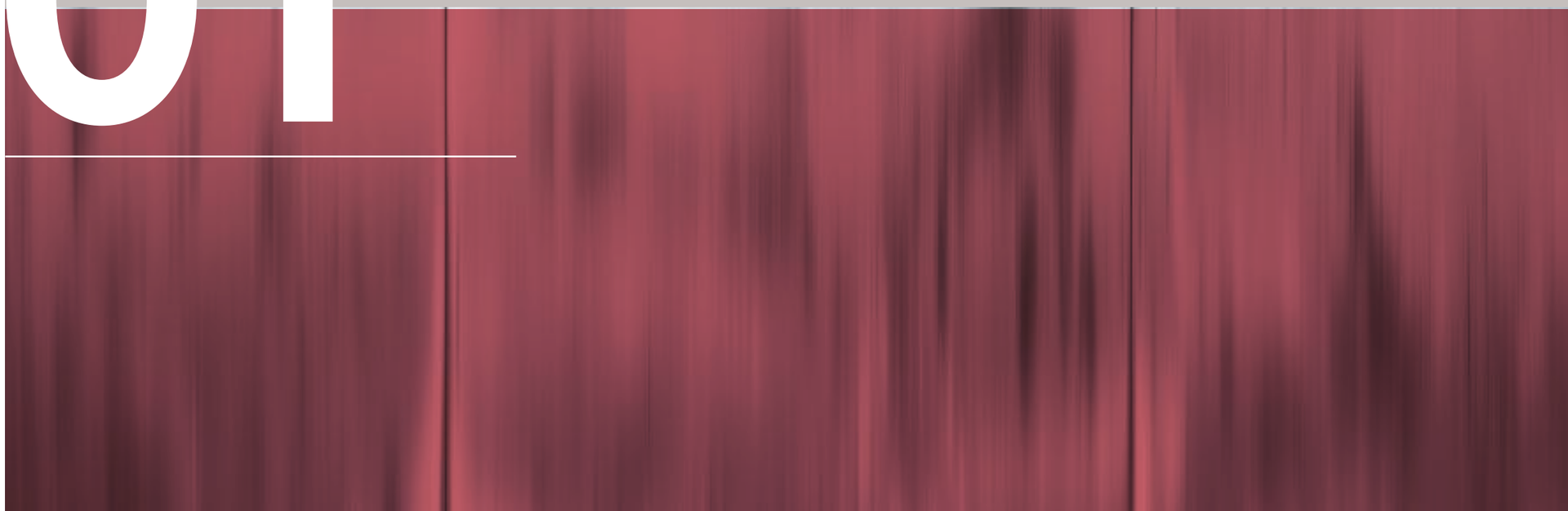
03

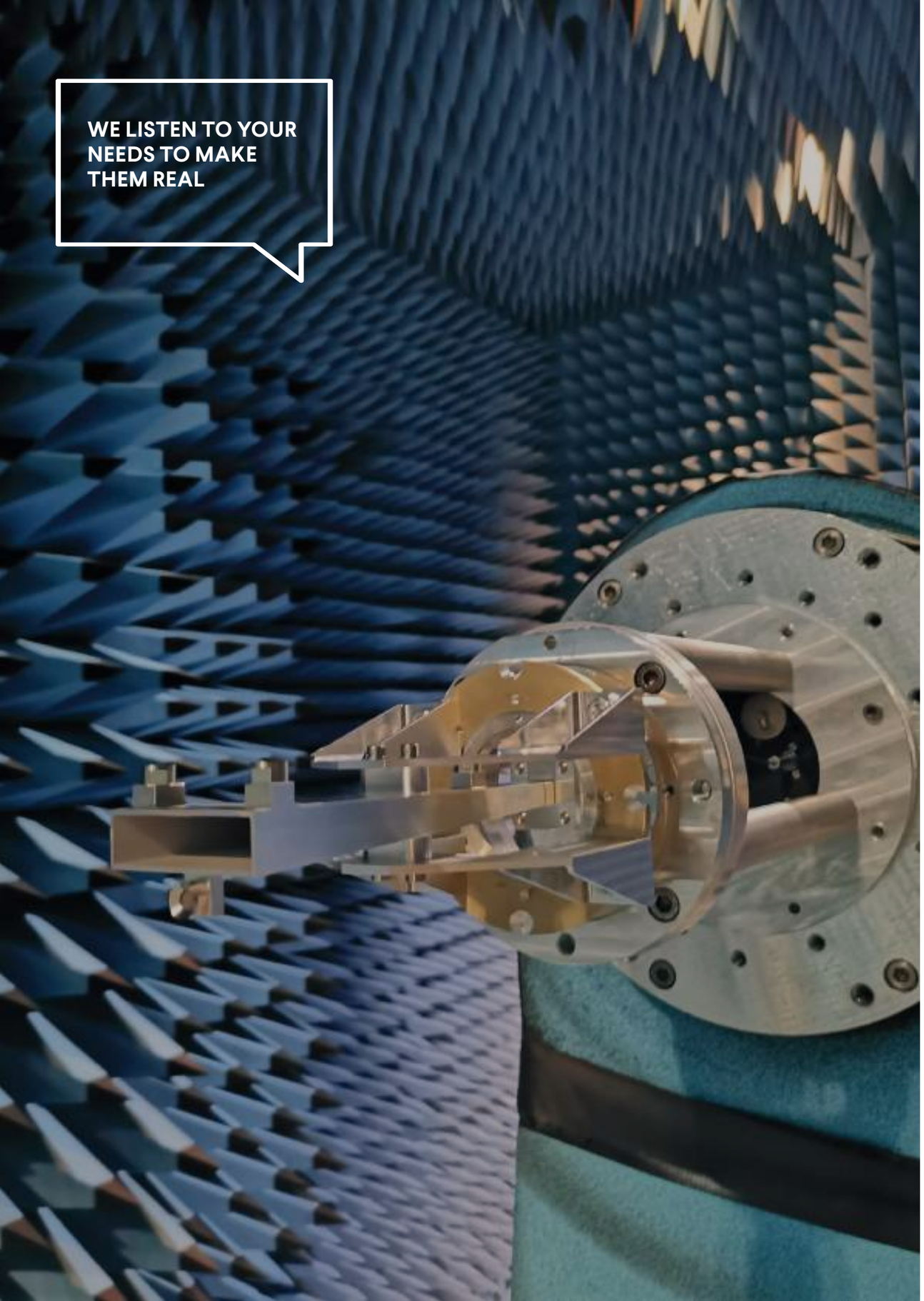
Offices

Page 30

01

Antennas & Feeds





Thanks to a unique engineering team with years of expertise. The Aerospace division of EOSOL Group offers high performance antennas and feeds for space, ground and SATCOM applications.

SPACE

State of the art antenna solutions for a challenging environment. Our antennas and feeds deliver an outstanding performance to meet more stringent requirements. Over the years our team has developed custom solutions for different types of spacecrafts delivering space qualified hardware. Our product portfolio includes feeds solutions for GEO, LEO and deep space spacecrafts.

GEO SATELLITES

Corrugated horns for payload reflector antenna systems for telecommunications satellites. These antennas can operate in main frequency bands of interest (X-/Ku-/Ka-band).

X BAND FEED

Parameter	Units	Value
Frequency	GHz	7.25-8.40
Directivity	dB	› 20
Return loss	dB	› 30
Crosspolar	dB	‹ -35

Dual circular polarization feed. It includes, under request, polarizer and diplexers.

Very estable phase center over frequency

KA BAND FEED

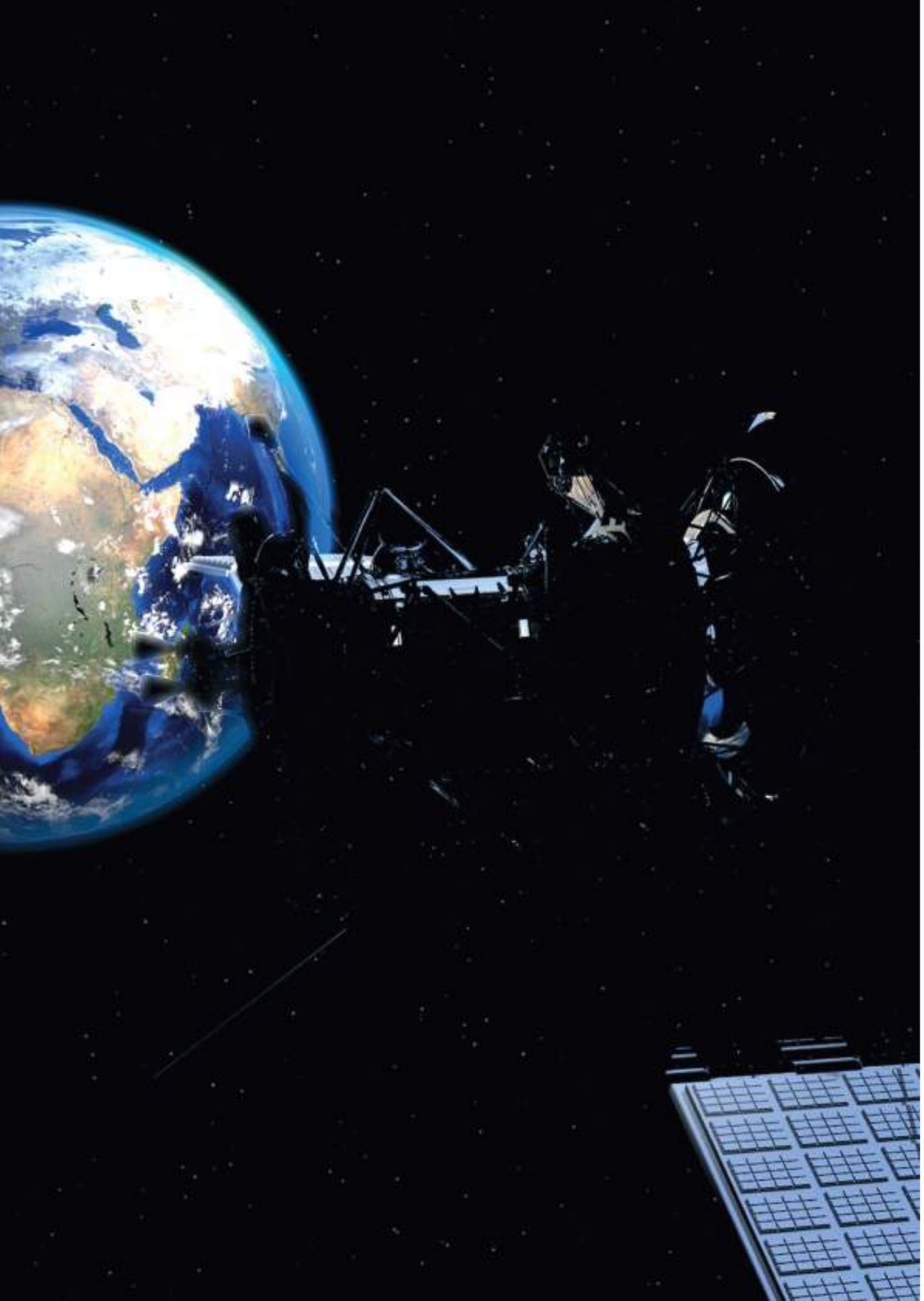
Parameter	Units	Value
Frequency	GHz	RX: 20.2 - 21.2 TX: 30.0 - 31.0
Directivity	dB	› 20
Return loss	dB	› 30
Crosspolar	dB	‹ -35
Dual circular polarization feed.		
Very estable phase center over frequency		

NGSO SATELLITES

Corrugated horns for payload reflector antenna systems for telecommunications satellites. These antennas can operate in main frequency bands of interest (X-/Ku-/Ka-band).

2U KA BAND ANTENNA

Parameter	Units	Value
Frequency	GHz	RX: 17.3 - 22.2 TX: 27.0 - 31.0
Directivity	dB	18 (@17GHz) | 24 (@31GHz)
Return loss	dB	› 20
Crosspolar	dB	‹ -25
Axial Ratio	dB	‹ 1
Dual circular polarization.		
Simultaneous Tx and Rx		
Very compact design (2U standard)		



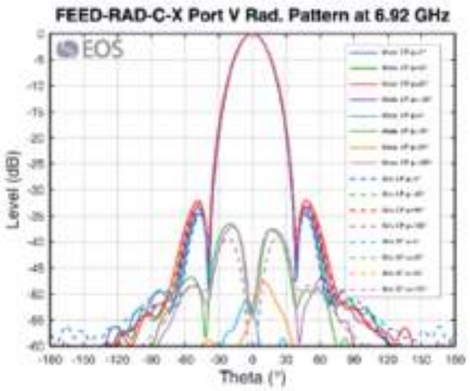
REMOTE SENSING

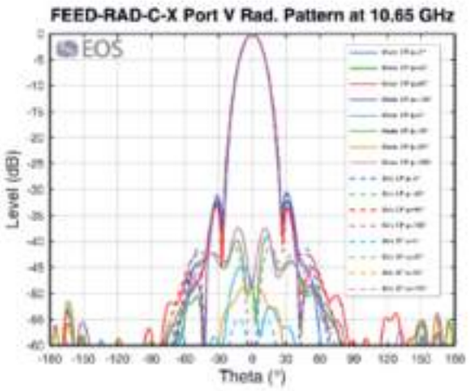
EOSOL provides a wide range of antennas and feeds for remote sensing applications. Our antennas and feeds are suitable for ultra-wide band or multi-frequency microwaves radiometers.

Based on our experience though the years, we can also offer antennas and feeds solution for different Remote Sensing applications (SAR, radiometry or altimetry).

C-X BAND FEED FOR RADIOMETRY

Frequency	6.6 - 7.25 GHz 10.6 - 10.7 GHz
Directivity	17.5 dB @ 6.6 GHz 20.75 dB @ 10.6 GHz
Return loss	25 dB
Crosspolar levels	Lower than -35 dB

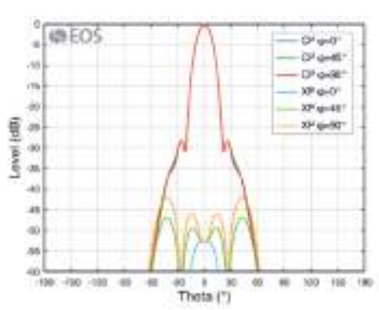




K-KA BAND FEED FOR RADIOMETRY

Frequency	18.6 - 18.8 GHz 36 - 37 GHz
Directivity	18.8 dB @ 18.7 GHz 22 dB @ 36.5 GHz
Return loss	25 dB
Crosspolar levels	Lower than - 30 dB

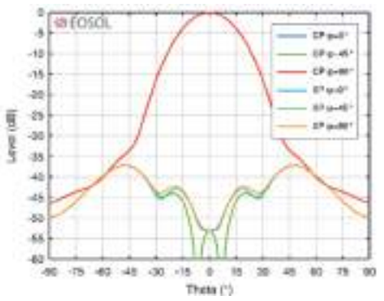
FEED-RAD-K-KA RADIATION PATTERN AT 36.50 GHZ



K-KA BAND FEED FOR RADIOMETRY AND ALTIMETRY

Frequency	35 - 36.0 GHz
Return loss	30 dB
Crosspolar levels	Lower than -30 dB
Isolation	Lower than -26 dB

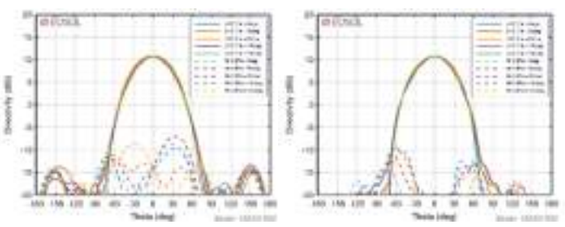
DERE 102A01R03 RADIATION PATTERN AT 35.50 GHZ



UHF ULTRA-WIDEBAND FEED FOR RADIOMETRY

Frequency	0.4 - 0.9 GHz
Return loss	20 dB
Crosspolar level	Typical -20 dB
Axial ratio	Lower than 1 dB
Dimensions	990 x 320 mm

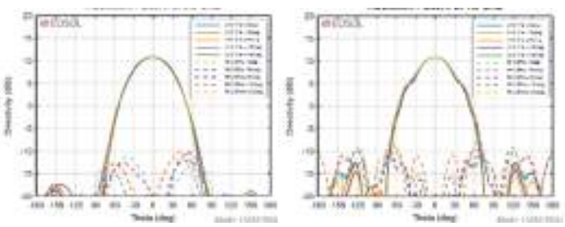
RADIATION PATTERN AT 0.4 GHZ AND 0.9 GHZ



K-KA BAND FEED FOR SAR AND RADAR ALTIMETRY

Frequency	0.9 - 2.0 GHz
Return loss	15 dB
Crosspolar level	Typical -20 dB
Axial ratio	Lower than 1.5 dB
Dimensions	455 x 150 mm

RADIATION PATTERN AT 0.9 GHZ AND 1.9 GHZ



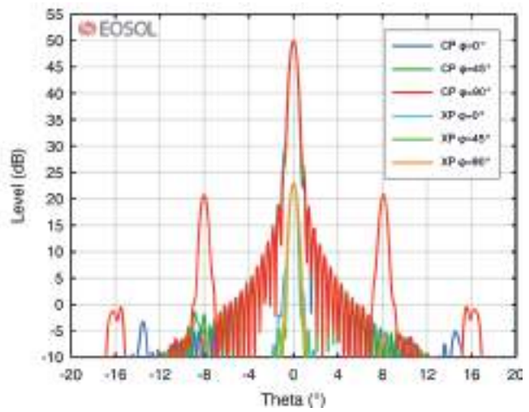
DEPLOYABLE REFLECTOR ANTENNA FOR CUBESATS AND SMALLSATS (X-/KA-BAND)

EOSOL is committed to develop new space antenna solutions. In partnership with COMET Ingeniería and PROSIX, the companies are working to develop new deployable antenna solutions providing cubesats and small satellites with communications and observation capabilities unprecedented to date.

MODULAR DEPLOYABLE ANTENNA REFLECTOR

Parameter	Value
Frequency	L-band to Ka-band
Diameter	1m (up to 3m)
Focal distance	Depending on application
Taper	Depending on application
Directivity	› 45 dB
Polarization	Linear or circular
Offset reflector configuration	
Very compact design (3U standard)	

RADIATION PATTERN AT 35.5 GHz



**Currently under development under ESA contract.*

B. GROUND

Antennas and feeds solutions for various applications such as Ground Control Stations or radio telescopes. We can be your partner in the way to connect and explore the space.

GROUND CONTROL STATIONS (S-/X-/KA-BAND)

Over the years the aerospace division at EOSOL has developed complex feeds systems to illuminate reflectors up to 18m class antennas for application such as TT&C, gateway or EO downlink.

KA BAND FEED WITH TRACKING MONOPULSE

Parameter	Units	Value
Frequency	GHz	RX: 17.3 - 18.1 TX: 25.5 - 27.0
Polarization	-	Single Circular RX: LHCP/RHCP TX: RHCP/LHCP
Return loss	dB	› 20
Crosspolar	dB	‹ -30
Dual circular polarization feed (6 ports).		
Max Tx power 200W		
Different versions (with and without monopulse) for 5m up to 13m class antennas.		

C. SATCOM TERMINALS

Our product portfolio includes different standard feeds or we can adjust them to your needs. Based on our experience we can adapt our products to your final application whether for terrestrial, for aerial or for naval applications.

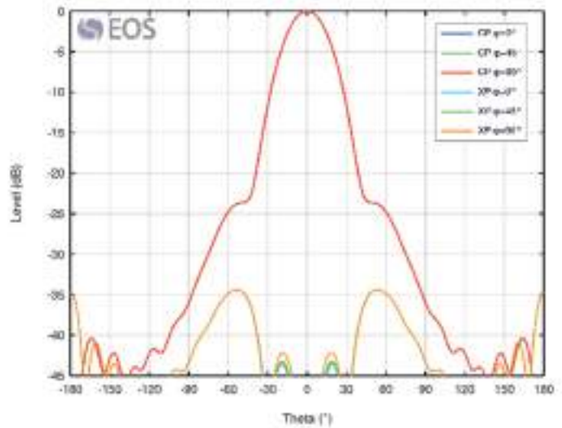
FEEDS FOR SATCOM TERMINALS (X-/KU-/KA-BAND)

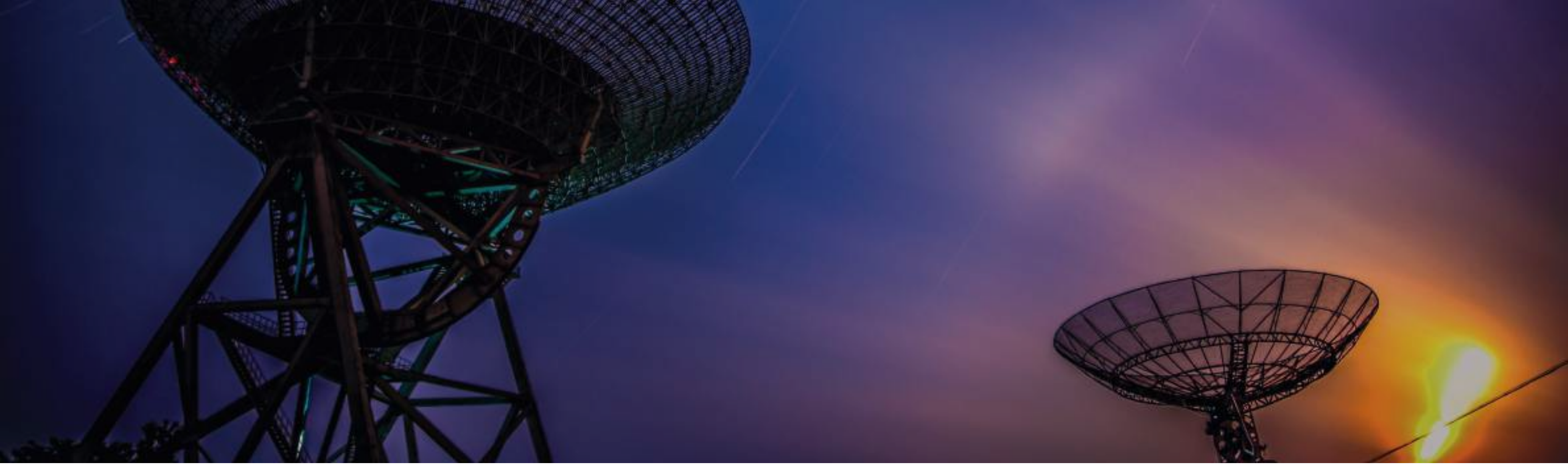
Our team counts with vast experience designing, manufacturing and testing different feeds and antennas for SATCOM applications (including military). Our capabilities include the development of corrugated feed horns, (conical) log spiral antennas, horn array antennas, etc. Our product portfolio includes a wide range of COST solutions for SATCOM terminals.

X BAND FEED
Fixed Satcom terminals | Flyaway Satcom terminals

Parameter	Value
Frequency	7.25 - 7.75 GHz & 7.9 - 8.4 GHz
Directivity	16 dB (typical).
Return loss	18 dB
Axial ratio	‹ 0.5 dB
Dimensions	281 x 118 x 118mm
Single circular polarization (RHCP or LHCP) in each frequency band.	

FEED-COMS-X-TX-RX-SCP RADIATION PATTERN AT 7.50 GHZ





KU BAND FEED

Fixed Satcom terminals | Flyaway Satcom terminals

Parameter	Units	Value
Frequency	GHz	RX: 10.95 - 12.75 TX: 13.75 - 14.50
Polarization	-	Single Circular RX: LHCP/RHCP TX: RHCP/LHCP
Return loss	dB	› 20 (typ.)
Directivity	dB	16 (typ.)
FoV	°	29
Tapper level @FoV	dB	-12 (typ.)
Axial ratio	dB	RX: ‹ 1.5 TX: ‹ 1
Insertion loss	dB	‹ 0.5
Dimensions	mm	220 x 65 x 130
Ports	-	2 ports, V a H TX interface: WR75 RX interface: WR75

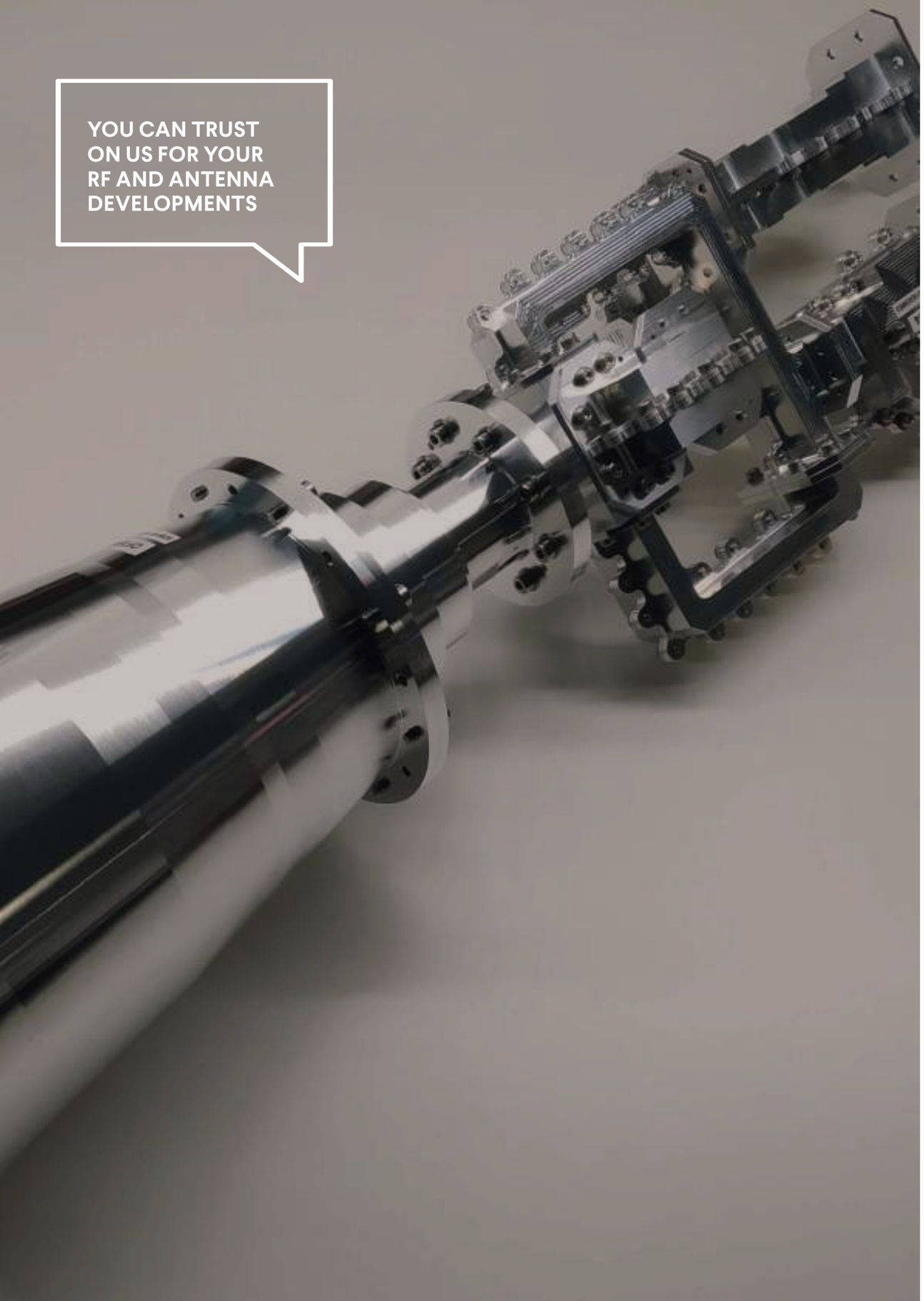
KA BAND FEED

Fixed Satcom terminals | Flyaway Satcom terminals

Parameter	Units	Value
Frequency	GHz	RX: 20.2 - 21.2 TX: 30.0 - 31.0
Polarization	-	Single Circular RX: LHCP/RHCP TX: RHCP/LHCP
Return loss	dB	› 18
Directivity	dB	16 (typ.)
FoV	°	31
Tapper level @FoV	dB	.12 (typ.)
Axial ratio	dB	RX: ‹ 1.5 TX: ‹ 1
Insertion loss	dB	‹ 0.5
Dimensions	mm	190 x 55 x 45
Ports	-	2 ports, RHCP and LHCP TX interface: WR28 RX interface: WR42

Engineering services

02



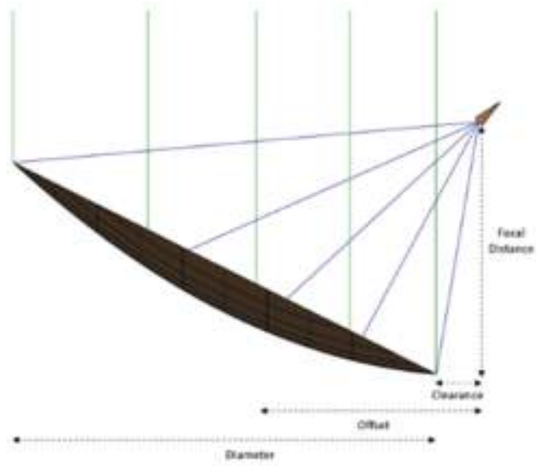
A. ANTENNA, FEEDS AND RF COMPONENTS DESIGN

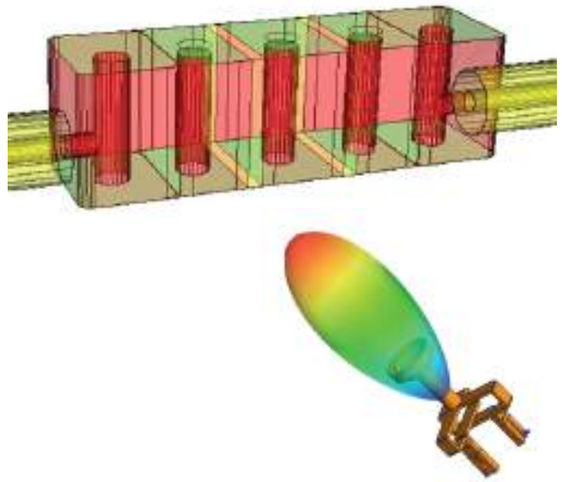
Out team has wide experience developing custom RF components and antenna solutions for different applications and sectors such as space, defense or science.

We can give you consultancy services or turn key solutions with the reliability of EOSOL Group. Our services include: RF and mechanical design/analysis, prototyping, manufacture and, test and qualification.

RF DESIGN

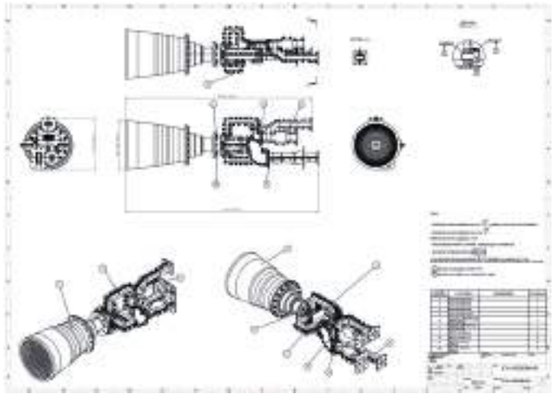
Electromagnetic simulation and analysis using advance SW tools such as FEKO, Microwave Wizard or GRASP. We count with senior RF and antenna engineers with years of experience designing antennas (including high performance and complex feeds) and RF components (filters, OMTs, diplexers, feeding and matching networks) for challenging applications (communications satellites, cryogenic applications, scientific radiometers or radio links).





MECHANICAL DESIGN

3D model and drawings generation with CAD software, we work with SolidWorks.

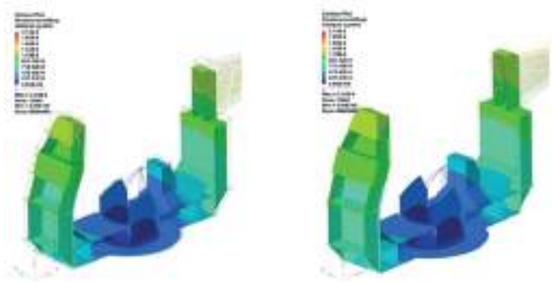


PROTOTYPING

Rapid prototype to speed up design process and to validate RF and mechanical aspects. We take advantage of additive manufacturing and other advance manufacture techniques in order to manufacture conceptual and functional prototypes previous to final manufactures.

THEMO-MECHANICAL ANALYSIS

We can accomplish structural and thermal finite elements, computational fluids dynamic (CFD, environmental or mechanisms simulations. To perform these analyses, SW tools such as Altair HyperWorks, Nastran or Patran are used.



MANUFACTURING AND TEST

After all the development phase and once the product is ready for manufacturing, we accomplish the whole process, including the qualification test campaign of first units, as well as the manufacture and test of recurrent units.

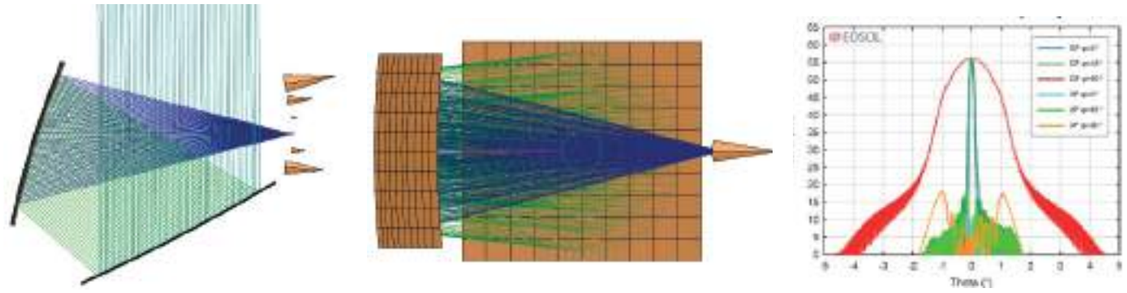
B. REFLECTOR ANTENNAS

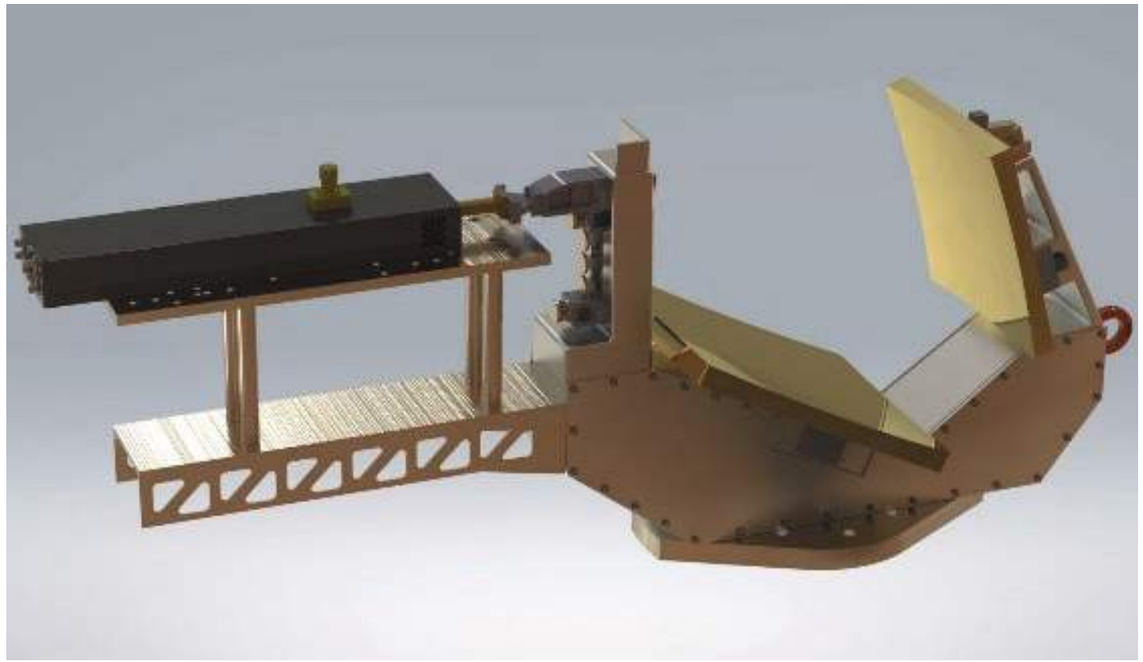
With more than 10 years of experience, our team has the expertise developing reflector antenna solutions from scratch. We accomplish the whole design. Among our solutions are reflectors made of aluminum, fiber (CFRP) or even mesh deployable.

APPLICATIONS

Space
- Data downlink
- Communications
- Remote sensing

Ground
- Ground Control Stations
- SATCOM terminals
- Science

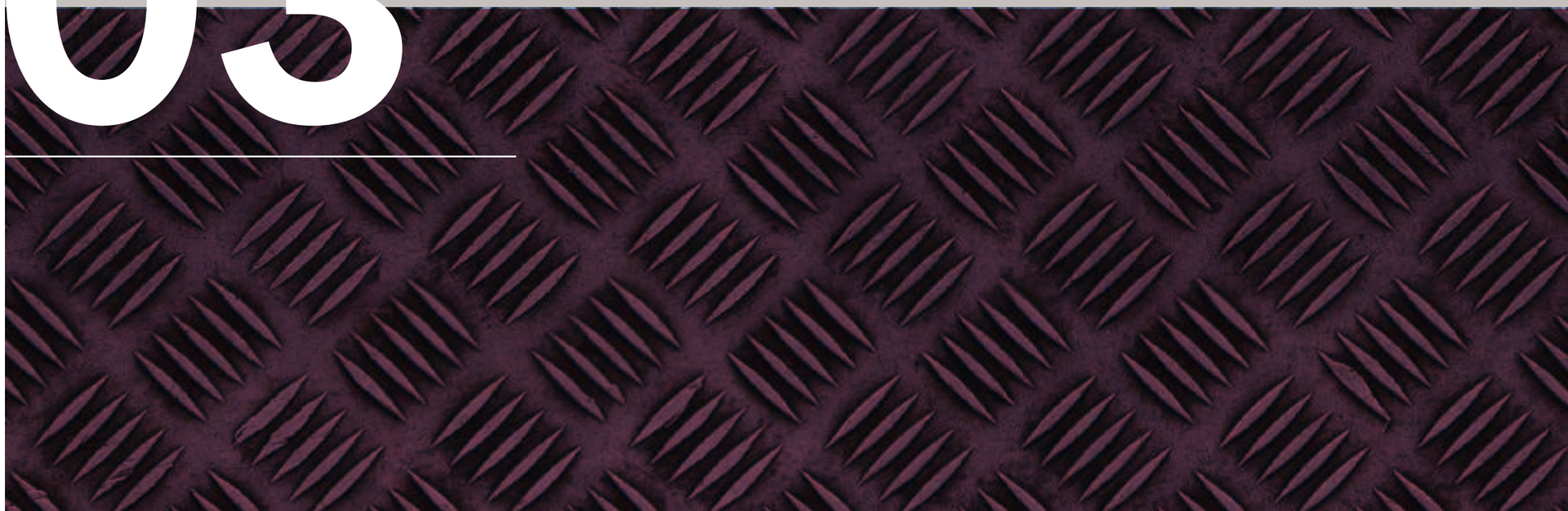




Sub-mmW VAST antenna for anechoic chamber .

Offices

03



OFFICES

HOUSTON, TX, USA
609 Main Street, 25th Floor, 77002
Houston, TX.
info@eosolgroup.com |
Tel. +1 (832) 444-4260

MIAMI, FL, USA
7301 SW 57 Court 440, 33142
Miami, FL

PAMPLONA, SPAIN
C/Camino de Labiano 45A Bajo, 31192
Pamplona, Spain
Tel. +34 948 32 69 72

MADRID, SPAIN
Avenida de Manoteras 24
28050 Madrid.
Tel. +34 918 04 96 74

TARRAGONA, SPAIN
Calle Pau Claris nº2
43005
Tarragona, Spain
Tel. +34 977 43 68 11

MURCIA, ESPAÑA
C/ Fernando Alonso Navarro, nº 12 4ª Pta (Edf. MBC) 30009
Murcia, Spain

MEXICO CITY, MEXICO
Av. Presidente Masaryk 17, int. 301 Col. Polanco – Del. Miguel Hidalgo 11560
Mexico City, Mexico
Tel. +52 (55) 5545 7753

DURANGO, MEXICO
Ave. Las Águilas No. 532, Col. Miraflores – Durango 34030
Durango, Mexico
Tel. +52 (618) 811 0961

GIZA, EGYPT
3 A Ahmed Orabi St., Sphinx Sq., Mohandeseen
Giza, Egypt

CASABLANCA, MOROCCO
59 Boulevard Zerktouni, 6º nº18
Casablanca, Morocco

LE BARP, FRANCE
1 Avenue du Medoc
Espace Sonora, 33114
Le Barp, France

SANTIAGO DE CHILE, CHILE
Padre Mariano 391 office 904, Providencia
Santiago de Chile, Chile

BARRANQUILLA, COLOMBIA
Calle 77B, No. 59-61
Of. 301, Edificio Las Américas II
Barranquilla, Colombia

CAPE TOWN, SOUTH AFRICA
Cube Workspace, The Icon Building, 24 Hans Strijdom Avenue
Cape Town, South Africa

KUWAIT CITY, KUWAIT
Al Soor Building, 16th Floor, Al Soor Street
Kuwait City, Kuwait