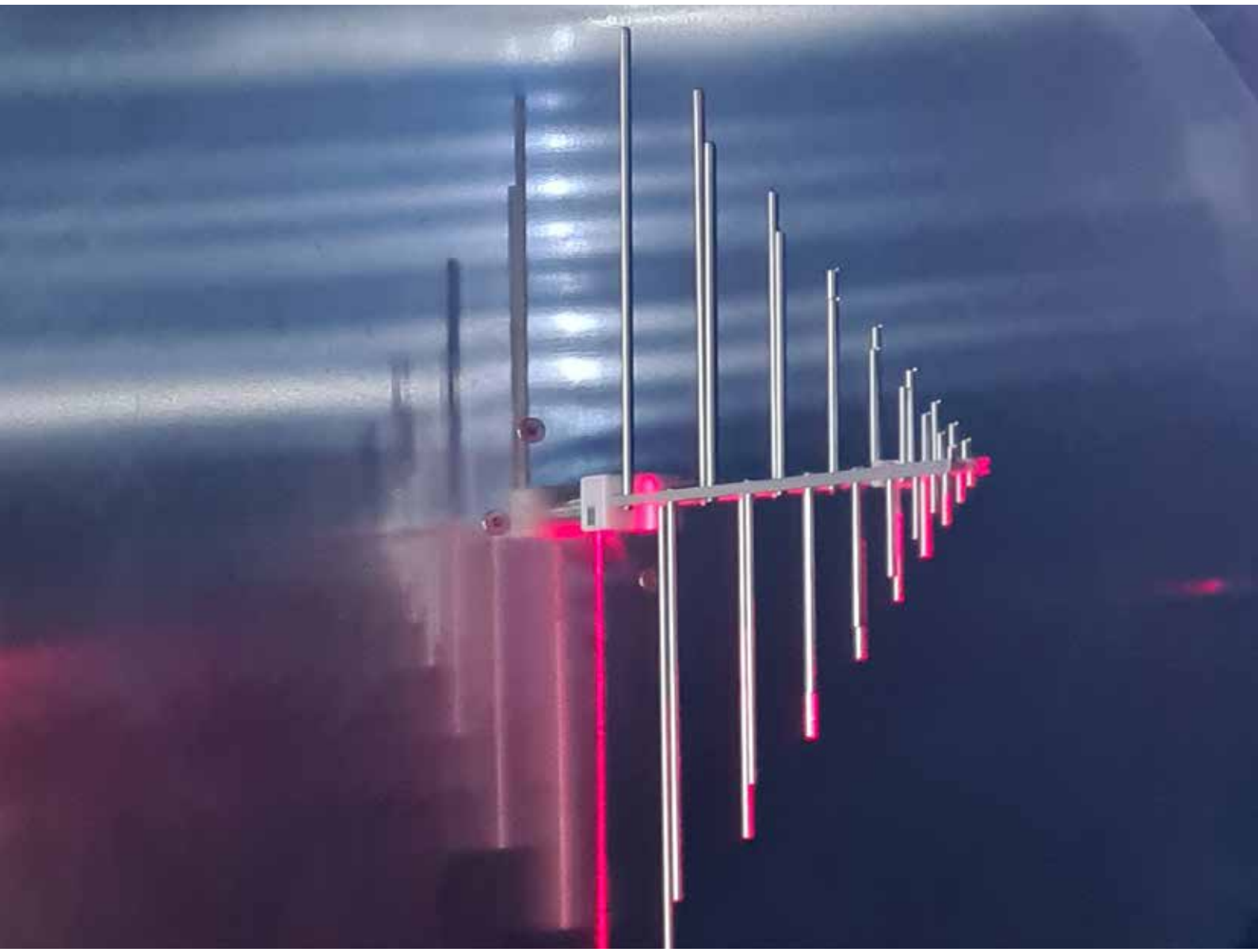
Established in 2008

Safety&Security

OPTIMAL CONNECTIVITY

Connecting your Solutions

2024



برنامج المحتوى الوطني

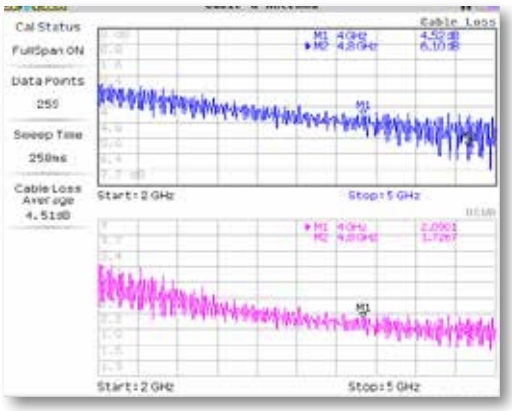
أوبتيمال كانكتيفيتي ش.ذ.م.م.
OPTIMAL CONNECTIVITY LLC

OPTIMAL CONNECTIVITY LLC is certified according to ISO 9001:2015, ISO 14000:2015 and ISO 45001:2018




RF Anechoic Chamber Measurements

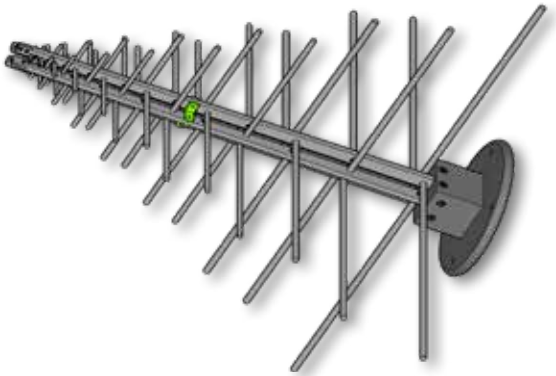
For precise determination of physical parameters of antennas and equipment, we are measuring signal coupling, propagation, etc. inside our anechoic RF chamber. Measurements are fully automated by using two 4-axis positioners together with latest analysis software created by OPTIMAL CONNECTIVITY.
We offer RF measurement of antennas, filters, absorbers, electronic equipment EMC/EMI performed under internationally recognized standards like IEEE STD 149-2021, MIL-STD-461D, ISO 17025, etc. These standards define key performance indicators like antenna pattern, gain chart, shielding efficiency, quiet zone and further parameters.
Our double-walled Faraday-Cage Anechoic Chamber with non-reflective, RF echo suppressing absorbers eliminates surrounding sources of radio signals, reflecting objects and electric fields.

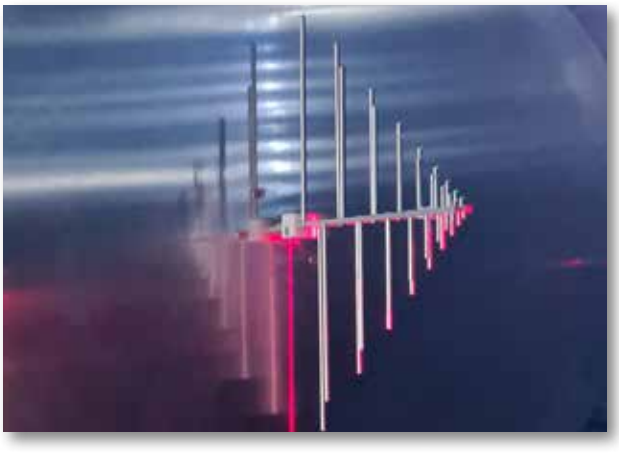


Our service includes the planning of the test scenario, in-house manufacturing of fixtures and accessories, provision of reference antennas, setup, calibration, etc. which allows us to address your needs with the lowest cost and shortest lead times.
Our Anechoic Chamber and its equipment are mechanically and electronically calibrated to achieve reliable and repeatable results with the highest accuracy.

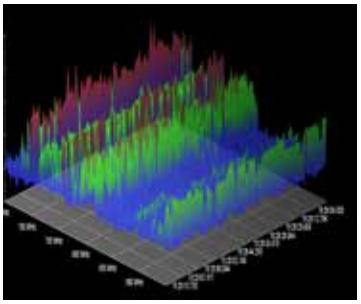
Key Features

- Frequency range: 300 MHz – 8000 MHz
- Near-field and Far-field Measurements
- Absorption Level 25 – 35 dB
- VNA (2-port and 4-port)
- Static Positioners
- Dynamic Tx and Rx Numeric Controlled 4-axis Positioners
- Mechanical resolution: linear 0.1 mm, radial 0.01 degree
- Automated operation for QA procedures
- Measurement database for traceability of all tests performed
- Test reports and SnP files generation
- 2D and 3D visualization of test results
- Radar Cross Section (RCS) measurements
- Passive Intermodulation (PIM)

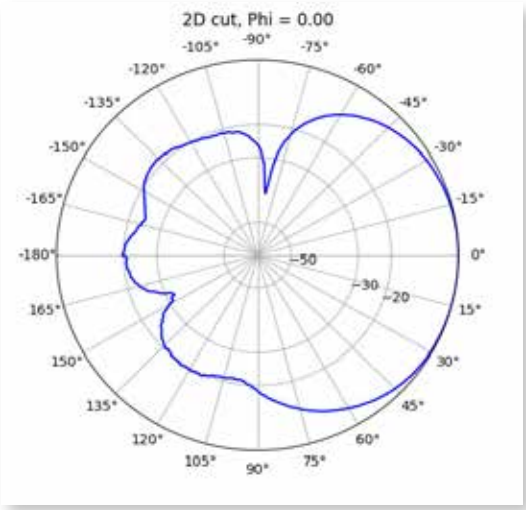






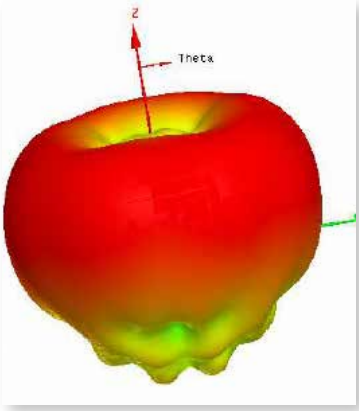



Anechoic Chamber Measurement Test Results



We provide a detailed explanation of your test results and a test report together with a recommendation in case your DUT could have performed better. The following characteristics can be measured:

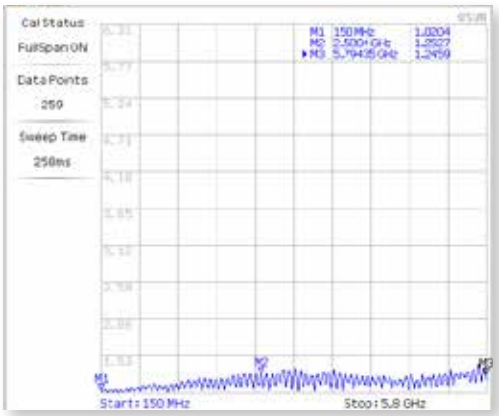
- Radiation pattern
- Directivity
- Beam Width
- Polarization
- Isolation
- Input impedance
- S-Parameters
- Voltage Standing Wave Ratio (VSWR)
- Impedance Matching (Smith Chart)
- Gain Chart
- Efficiency
- Effective Isotropically Radiated Power (EIRP)



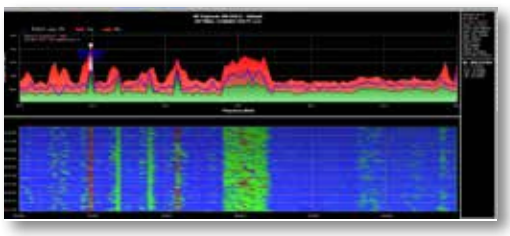
Frequency bands covered: VHF, UHF, GSM, GPS, GNSS 4G, 5G, 6G, WiFi-6E, Cu-Band, X-Band, etc.

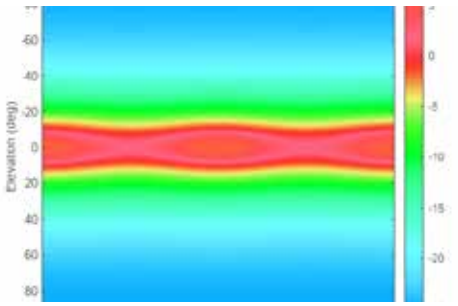
Measurement Standards

Our measurement procedures are following and are compliant with the following standards:



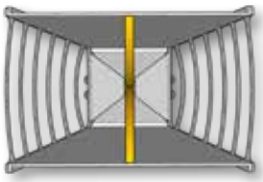
Standard	Description
IEEE STD-149-2021	IEEE STD-149-2021 IEEE Recommended Practice for Antenna Measurements (most comprehensive document)
MIL-STD-461D	This standard establishes the design requirements for the control of the electromagnetic emission and susceptibility characteristics of electronic, electrical, and electro-mechanical equipment and subsystems designed or procured for use by activities and agencies of the Department of Defense. Such equipment and subsystems may be used independently or as an integral part of other subsystems or systems.
ISO 10012	Measurement Management Systems, Requirements for Measurement Process and Measurement Equipment
MIL-STD-285	Military Standard of Attenuation Measurement for Enclosures, Electromagnetic Shielding and for Electronic Test Purposes
IEEE STD 1502-2020	IEEE Recommended Practice for Radar Cross-Section Measurement and Test Procedures
CISPR 16-1-4	S-VSWR Site Voltage Standing Wave Ratio (1GHz – 18GHz)
EN 61000-4-3	Field Uniformity (26MHz – 18GHz)
EN 50147-1	Anechoic Chamber Shield Attenuation Measurement (10 kHz – 40 GHz)





Custom-Designed Antennas

OPTIMAL CONNECTIVITY is the leading manufacturer of highly sophisticated custom-designed antenna systems. Based on latest technologies, we design antennas for mobile system solutions with SiSo, 2x2, 4x4, 6x6, 8x8, 10x10 ... 16x16 MiMo matrix based communication systems with highest integration of multi-band radiator with horizontal, vertical and cross-polarized pattern.



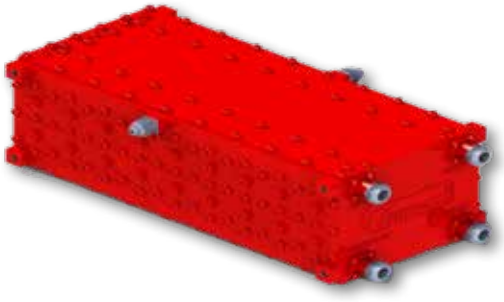
Tactical Cable Assemblies

OPTIMAL CONNECTIVITY provides standard lengths cable assemblies of tactical fiber optic cables coiled on mobile drums. We also offer manufacturing of customized cabling solutions for applications in rugged environment, power distribution, control rooms, network cabling and RF cabling etc. using high quality connectors like N, TNC, BNC, SMA, MMCX, Ethernet Cat.6 or Cat.7 data cable with RJ45, M8, M12, M23 etc.

Product Engineering

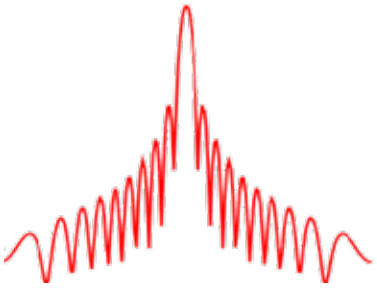
Product Simulation allows to safe precious time and cost and is offered by OPTIMAL CONNECTIVITY for products in electromagnetic and mechanical applications. Using Open Source software packages nearly every requirement can be addressed like heat or signal propagation, material strength, antenna pattern and signal coverage.

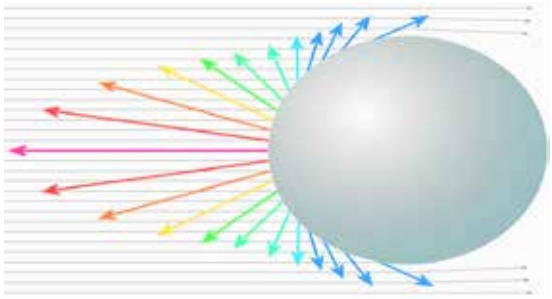
Manufacturing of precision parts from aluminium alloys, 6061, 5060, ... ferrous steels SS316 etc., Teflon, Noryl, ASA, ABS and other polymers like polyesters, filled polymers are our expertise, including manufacturing of radomes.



Interference Filters

Spurious interferences can be originating from various sources like WiFi access points, 5G modems, GNSS amplifiers and other transmitting devices. OPTIMAL CONNECTIVITY offers cavity, SAW, BAW and Dielectric band-pass filters for various frequency bands like for 433MHz, 868MHz, 1575 MHz, 2400 MHz, 5800MHz etc. which are efficiently suppressing unwanted interference intermodulation frequencies, compliant to EN 45545-2, R22-24.

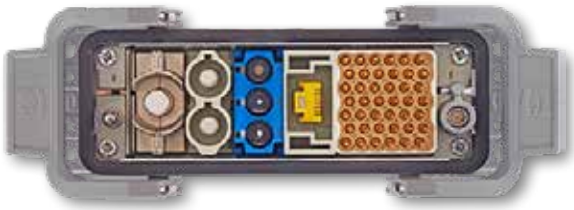




Installation & Maintenance - Commissioning

OPTIMAL CONNECTIVITY is recognized for its excellence in deployment of solutions and its commissioning of on-site systems which includes Field Service, Field Repair and Field Testing.

Heavy Duty Connectors



For Data, signals and power:

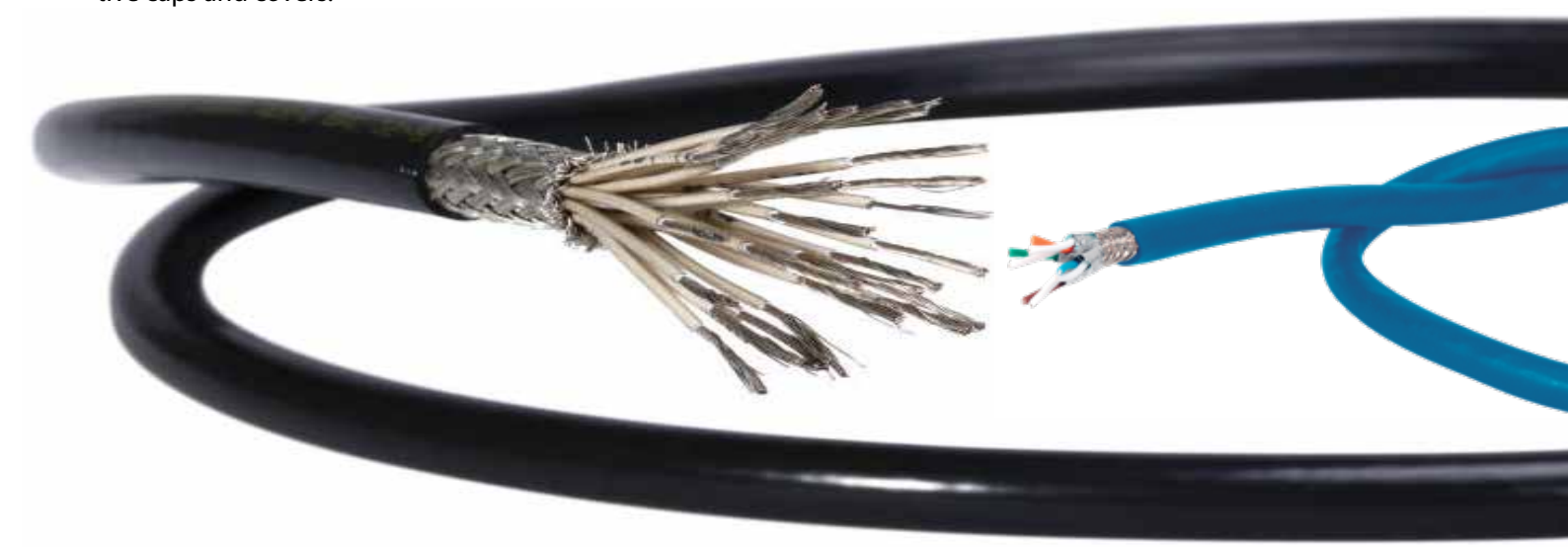
- Internal bus systems with the Han-Quintax® module or Han® Megabit
- Video and other data transmission using Han® Gigabit modules
- Low voltage supply and digital signals with Han DD® modules
- Transmission of mid-range power with Han® EE modules
- Transmission of higher power loads (batteries, air condition units) with modules for power levels: 40A to 200A (UIC 552)
- Han® Eco product range complies with standards IEC 61948 and EN 45545-2 HL3 and is fire-resistant according to UL94 V.

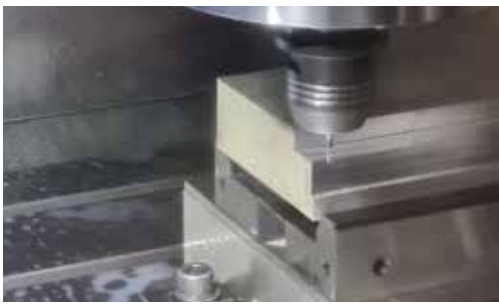
Hoods and housings from the Han® HPR series in size 24 B are providing reliable protection IP69 against environmental factors and adverse weather conditions.

Interconnecting Systems: MIL, VG, Ex

Our rugged cable assemblies combine sealing ability and physical strength with design simplicity, making them the most dependable. With IP67 rating our MIL 38999 type assemblies are reliable connections suitable to any industrial and military applications.

MIL 38999 type connectors are capable of providing almost every possible mix of signal, power, data, RF, fiber optic and multiple wires in a single connector housing. We understand your requirements an build unique connectivity solutions by selecting the right components form a list connectors, receptables, backshells, socket or pin contacts and finally protective caps and covers.





Phase Invariant Microwave Cable Assemblies

OPTIMAL CONNECTIVITY is offering cable assemblies according to MIL-17 standard for phase-critical applications where the electrical length of each assembly is determined.

Our products provide mechanical phase vs. bending and phase vs. temperature stability. Applications will be for frequencies up to 70 GHz. Our assemblies tolerate temperature changes and bending and achieve overall system accuracy and reliability.

We are offering copper and aluminium jacketed cables in sizes of .034, .047, .086, .141 and .250 diameters hand-formable, semi-rigid and rigid cable types, terminated with a variety of low insertion loss microwave connectors like MMPX, MMCX, BMA, N, SK, 2.92, 3.5, SMA, TNC.

Multi-screened flexible microwave cable assemblies are also part of our product portfolio.

Multi-core Coaxial Connectors

We are offering field-proven multi-coaxial 50 Ohm connectors with up to 12 coaxial contacts.

The up to 12 coaxial contacts allow carrier frequencies up to 26 GHz with a low VSWR (Voltage Standing Wave Ratio) and using a low loss communication cable like RG405, 40 GHz, outer diameter ø2.65 mm, FEP jacket low-loss multi-core coaxial assemblies are created.

Thanks to short manufacturing times and stock levels we can address request for assembly mass production including cutting, stripping, crimping, sealing, labeling and testing within shortest possible.

Low VSWR Single Core Coaxial Connectors

Our RF and Microwave portfolio includes connectors, cables and cable assemblies designed for use across all markets and manufactured in Dubai. In addition, we are specialized in filters, resistive components, wave guides and lightning protectors.

OPTIMAL CONNECTIVITY produces its own low-loss coaxial RG and MIL C17 type cables fitting to its own RF connectors types like N, TNC, SMA, ... corrugated feeder cable, 1/2, 3/8, 3/4, waveguides.

Hence, we can offer world class price/performance for these products. Key differentiators of our connectors are low IL, low attenuation and a high-performance tri-metal surface treatment.



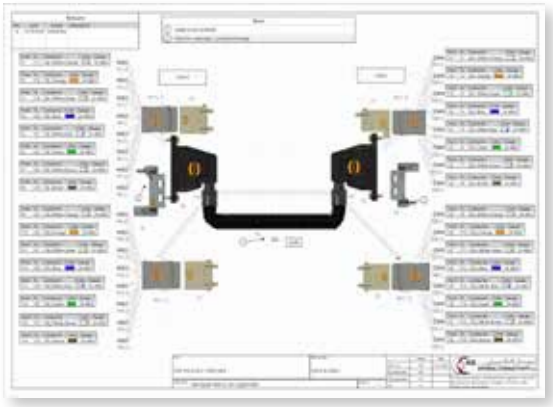

World-Class Service & Support

OPTIMAL CONNECTIVITY operates under UAE manufacturing license issued by Dubai Economic Department and Ministry of Industry and Advanced Technologies. We also own an ICV certificate as proof to our commitment to the growth of UAE.

We exclusively use products from top-quality manufacturers. Therefore we are able to offer beyond products also product design, manufacturing, local assembly and commissioning. With over 25 years of connectivity expertise, OPTIMAL CONNECTIVITY is set to provide support at all stages of a project which ranges from conception and prototyping to volume manufacturing, installation and field service.

Our Service Portfolio

- Offset Cooperation, Manufacturing in UAE
- Solution Development - Data Package
- System Design & Co-Design
- Technical Requirement Analysis
- Project Management
- Computer Aided Design CAD, Manufacturing CAM
- CNC Machining, metal works, laser cutting, bending, welding
- Surface Treatment, Galvanization, Passivation, HotDip
- Custom-made antennas
- Edge & Cloud data acquisition application design
- Radio Frequency & Microwave Assembly Manufacturing
- Power Cable Assembly Manufacturing
- Fiber Optic Cable Assembly Manufacturing
- Fusion Splicing of Fiber Optic Cables
- Field Termination
- Site Surveys, Heat Maps, Link Budget Calculation
- Testing & Measurement
- OTDR, Vector Network and Spectrum Analysis
- Refurbishment of outdated infrastructures
- Installation
- Contracting
- Logistics Support
- On-Site Maintenance and Repair
- Product Training



OPTIMAL CONNECTIVITY is certified according to

ISO 9001 : 2015
ISO 14001 : 2015
ISO 45001 : 2018

to achieve highest quality in management processes, production and occupational health & safety.

How to find our office:

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