PRODUCT CATALOGUE

We are at the forefront of driving technological change, shaping the future of testing automation with bold ideas and proven expertise. Our mission is to solve our customers' most complex challenges and deliver results that exceed expectations. Fueled by curiosity and innovation, we create transformative solutions and tailor them completely to our customers' needs.

Our Value Proposition: Solutions Tailored to Your Needs

At Orbis Systems, we believe every customer deserves a solution designed around their unique requirements. Our approach is not about one size fits all, but about building flexible, adaptable, and customer driven solutions that evolve with your needs. The units and examples presented in this datasheet are provided only as a reference framework. Nearly every element, whether technical, functional, or logistical, can be modified, scaled, or customized to ensure the best fit for your business.

Customer Intimacy

- Local application engineers available close to customers
- Full lifecycle support with modifications as required
- Joint development to solve specific customer problems

Capacity and Volume Deliveries

- Scalable delivery teams to match customer needs
- Proven track record in fast global deliveries
- Optimized logistics and supply chain in all regions
- Reduced carbon footprint through efficient operations

Technology

- Customized and innovative RF solutions
- Turnkey chamber solutions with automation, safety, and positioners
- Customer-driven R&D focused on cutting-edge OTA and automation roadmaps.

Quality and Cost Efficiency

- Strong commitment to quality and reliability
- Global project experience ensures smooth and timely delivery
- Clear and consistent communication with customers
- High-value and cost-effective approach

Global Presence

Having worked with most of the relevant companies in the telecommunication industry delivering cutting edge solutions, we believe Orbis Systems would have a tremendous impact on your achievements and bottom line. Our teams operate across key regions worldwide to ensure we are always close to our customers, enabling responsive support, smooth communication, and reliable project execution wherever they are located.

Key Message

Your business is unique and so are our solutions. Every element of the units presented can be reshaped, scaled, or customized to fit your specific requirements. At Orbis Systems, we ensure you get exactly what you need, nothing less and nothing more.

Dual Door RF Shielded Box Sub 8GHz

General Information

- **P/N:** F.07.F4013440
- **Mode of Operation**: Manual
- **Materials:** Sheet Metal
- **Color:** Blue (RAL 5013)
- **Double Door for full operation access**
- **External dimensions**: W600 x D630 x H348 (mm)
- **Inner dimensions**: W566 x D468 x H258 (mm)
- **Weight**: 37.5kg
- **Front door stopper**: 3 pcs, thickness is 5cm, door open angle is 90 degrees
- Feet 4 pcs, at four corners of box bottom, height is 1cm.
- Lifting handle(folding), 2 pcs on top of the box
- DUT support plate inside box
- **Flat absorber inside:**
  - Thickness 30mm on the door, 10mm on other side
  - Color: light blue
  - Flame Retardant NRL 8093 (test 1, 2, 3) and DIN4102 B2

Performance

- **Working frequency**:100MHz - 8GHz
- **Shielding Performance**: 60dB minimum for (100 MHz - 8 GHz)

Environmental Requirements

- **Temperature range on-site:** 25 +/- 5°C
- **Humidity:**< 80%

Interfaces

- Female SMA for RF connection (F2F external thread), quantity: 30
- C Type USB 3.2 Gen 2, 20Gbps maximum rate, quantity 2
- DC Power socket for FAN power supply,
- quantity 1
- Power adapter, 1 pc - one end is two pin female connector and one end is Europlug
- Fiber Optic feedthrough with 6 holes 6mm diameter, quantity 1
- Vent and Exhaust fan
- USB3.2 Cables, Type C F2F, quantity 2 pcs (0.8m inside the box) and 2 pcs (2m outside of the box)
- Banana Connector and 90-degree adaptor:
  - 2 pairs connectors inside box and 2 pairs outside of box
  - 4 pairs straight adaptors as accessories
- Exhaust fan (120mm x 120mm x 25.4mm): 1 pc at right side panel
- Honeycomb Vent (120mm x 120mm): 2 pcs at right side panel and 2 pcs at left side panel

Orbis Systems' RF Shielded Rack

General Information

- Working Frequency: 700MHz-6GHz RF
- Isolation: min. 60dB
- Materials: Steel with outside painted in black (color code: RAL9005)
- Dimensions:

  Exterior (L x W x D): 83.85 x 30.75 x 42.05 in (213 x 78.1 x 106.8 cm)

  Doorways (L x W): 75.59 x 21.26 in (192 x 54 cm)

  Rack module inside Height 43U, Width: 19-inch, Depth 29.5-inch (75 cm)
- Front and back doors
- Weight:

  Weight empty: 727 lb (330kg)

  Maximum payload: 1772lb (804kg)

  Total weight with maximum payload: 2500lb (1134kg)
- 4 pcs of 120mm height casters
- Air ventilation system

Power Distribution Unit

- Main Power Switch: Toggle switch, clearly marked for power disconnection
- Power Indicator: LED indicator light showing Power ON status, located next to the mains switch Breakers
- 8pcs receptacles inside (US. NEMA 5-15R 120VAC or EU. Schuko Female 230VAC), depending on the location requirements

Interfaces

- AC Filter
- RF connectors
- Ethernet and USB feedthroughs

Power Input

- Input Voltage: 100-240VAC (Single Phase), with ground connection (Notice! Power Outlet in building must be without RCD/GFCI device), US:120VAC, EU: 230VAC
- Frequency: 50/60Hz, US: 60Hz, EU:50Hz
- Max input Current: 30A

Environmental Requirements

- Temperature range: 50 to 95°F (10 to 40°C)
- Humidity: 20% to 80% (non-condensing)

RF Shielded Box-Rack mounted with Telescope Rail-5U

General Information

- **P/N: F.07.F4014246**
- **Mode of operation:** Manual
- **Materials:** 2mm galvanized steel sheet
- **External dimensions:** W590 x D812 x H225 (mm)
- **Inner dimensions:** W495 x D595 x H128 (mm)
- **Upper lid (open/close)**
- **Color:** White (RAL9003)
- **Weight**: 45kg

Absorber

- **Type:** Flat absorber, 3 cm thick
- **Color:** Black
- **Performance**: -37 dB (1-18 GHz)

Performance

- **Operation frequency range:** 1000MHz to 9000MHz
- **Shielding Performance:** 80dB
- **Lid Shielding System:** Two-layer gasket

Interfaces

- HDMI 2.0, quantity 1
- USB 3.0, quantity 2
- Optical fiber waveguide (6 holes, diameter 3.5mm), quantity 1
- Female SMA, for RF connection F2F external thread, quantity 8
- Ethernet 10Gbps x2pcs

Main Features

- **Ventilation**: two fans on the back (outlet), one passive honeycomb vent on the front
- **Dual slide system:** for easy extraction from cabinets
- **Internal sockets:** 8 Pcs/10A
- **Outer power connector:** C19
- **Auto-lock hinge:** Lid doesn't fall down when opened

Environmental Requirements

- **Temperature range on-site:** 25 +/- 5°C
- **Humidity:** <80%

5U Rack Mounted Shielded Box Type II

General Information

Rack-Mountable Design: The shielded box can be securely integrated into standard racks and is equipped with telescopic rails on both sides, allowing smooth and effortless withdrawal when needed.

Operator-Friendly Lid: Designed with an upward flap lid featuring a stage-locking function to prevent accidental falls, ensuring safe and easy access when placing or removing DUTs.

Part Number: F.07.F4017015

Materials: 2 mm galvanized steel sheet

Mode of Operation: Manual

Color: White (RAL9003)

Weight: ~45 kg

External: W590 × D812 × H225 mm

Internal: W495 × D595 × H128 mm

Absorber

- Type: Flat absorber, 3 cm thick
- Color: Black
- Performance: −37 dB (1−18 GHz)

Electrical Parameters

- **Rated Voltage:** AC 230 V, 50−60 Hz
- **Rated Current:** 16 A
- **Power Interface:** IEC60320 C19
- **Power Method:** AC power filter
- **Internal Socket:** SI-32-1-1, Qty: 8
- **Internal Lighting:** 1 × LED strip (24 V DC)

Passthrough Interfaces

- **Optical Fiber Waveguide:** 6 holes (Ø 3.5 mm)
- **SMA Female-to-Female:** 8 pcs (front panel)

Performance

- **Operating Frequency Range:** 1 GHz − 9 GHz
- **Shielding Effectiveness:** 75 dB

Environmental Requirements

- **Temperature Range:** 25 ± 5 °C
- **Humidity:** < 80%

Connectivity Interfaces

- **HDMI 2.0:** 1 pc
- **USB 3.0 Type A:** 2 pcs
- **Ethernet 10 Gbps:** 2 pcs
- **Fiber Optical Filter:** 1 pc
- **Ground Rod:** 1 pc

9U Rack Mounted Shielding Box

General Information

- Part. No: F.07.F4016905
- **Flat absorber inside:**
  - Thickness: 30 mm
  - Color: Light Blue
  - Flame retardant: NRL8093 (test 1, 2, 3) and DIN4102 B2

Environmental Requirements

- Operation temperature range on-site: 25 +/- 5 C
- Humidity: < 80%

Performance

- Working frequency range: 600MHz ~ 6GHz
- Shielding Performance: 70dB minimum for (600MHz - 6GHz)

Interfaces

- USB 3.0 Type A Filter (5 Gbps): Qty: 2
- USB 3.2 Gen 2 Type C Filter (10 Gbps): Qty:1
- SMA through connector (Type: F2F External thread, B.W: DC~18GHz): Qty: 4
- N through connector (Type: F2F External thread, B.W: DC~11 GHz): Qty: 4
- Exhaust fan (92mm x 92mm x 25mm): Qty:3
- Honeycomb vent (260 mm x 90mm x12.6mm): 1 pc at front side, 1 pc at back side
- AC 220V Connector (C20 Male type): Qty:1 pc
- Thermometer (70mm x 65 mm x 25mm): Qty:1 pc
- Power strip (Connector type: 5 pcs Europe outlet socket): Qty:1 pc

Key Features:

The 9U Rack Mounted Shielding Box from Orbis Systems is designed to deliver reliable isolation and performance for demanding testing needs. Engineered with precision, it ensures secure shielding with integrated absorber material, high-quality connectors, and effective cooling.

With multiple interface options, including USB, RF connectors, and DB9, along with a built-in power strip and temperature sensor, this solution provides both flexibility and stability. Compact, efficient, and robust, it is built to support advanced R&D and validation environments.

Door Feature:
Shielded box has single leaf door at front with manual tension levers to ensure optimal shielding performance.

Heat Dissipation:
A honeycomb is placed at the front bottom (inlet) and another at the back top (outlet), with three fans mounted on the back side. Cool air enters from the front bottom and hot air exits from the back top.

Power Distribution Unit:
One power distribution unit is located at left wall of shield box, with 5 pcs Europe outlet socket, provide power to the device inside the shielded box

Mechanical Specification	
Materials	Sheet metal
Mode of Operation	Manual
External dimensions (including mounting ears, lever, and feed)	W479mm x D724mm x H470mm
External dimensions (excluding mounting ears, lever, and feed)	W435mm x D560mm x H470mm
Inner dimensions	W370mm x D500mm x H400mm
Weight	42 Kg
Colour	RAL9003
Feet (Removable)	4 pcs, at four corners of box bottom

Rack Mounted 21U Shielded Box Sub 6GHz

General Information

- Part. No: F.07.F4015481
- Flat absorber: Thickness (30mm on the door, 10mm on other side)
- Color: Light blue
- DUT support plate (4 layers) inside Box

Environmental Requirements

- Operation temperature range on-site: 25 +/- 5℃
- Humidity: < 80%

Performance

- Working frequency range: 700MHz - 6GHz
- Shielding Performance: 80dB minimum for 700MHz - 6GHz

Interfaces

- USB 3.2 Gen 2 Type-C Filter (10 Gbps): Qty: 2
- SMA Through Connector (Type: F2F External Thread, B.W: DC~18 GHz): Qty: 8
- LAN Filter (1 Gbps): Qty: 4
- Flat Absorber: Thickness – 30 mm on the door, 10 mm on other sides
- Exhaust Fan (120 mm × 120 mm × 25.4 mm): Qty: 4
- Honeycomb Vent (120 mm × 120 mm): 2 pcs on right side, 2 pcs on left side
- DUT Support Plate (4 Layers): Inside box
- AC 220V Connector (C20 Male Type): Qty: 1
- PDU inside of the box (4Pcs Europe outlet socket) (244 mm L × 148 mm D × 80 mm H): Inside box, Qty: 1
- USB 3.1 Gen 2 Type-A Hub (10 Gbps, 10 ports per hub): Hub Qty: 2

Key Features:

The 21U Rack Mounted Shielded Box (6GHz) from Orbis Systems is purpose-built to meet demanding testing requirements. With advanced shielding and absorber material, it ensures reliable isolation and secure performance for high-frequency testing environments.

Designed with four internal bracket layers to hold DUTs and other devices, the box also integrates antenna installations as needed. Robust, efficient, and precise, it provides a dependable solution for complex R&D and validation needs.
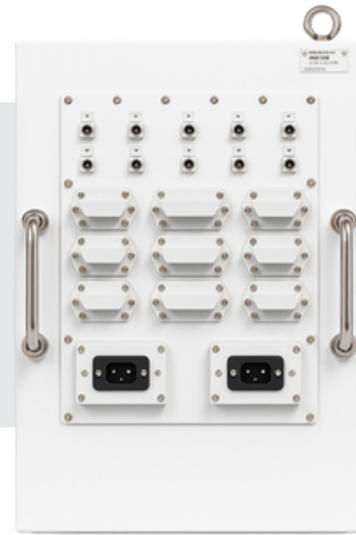
Programmable Power switch Feature:
A customized programmable power switch is integrated into the shielding box. It has four European socket outlets that can be controlled through a LAN port. Each outlet can be turned on or off remotely using commands.

Door Feature
Shielded box has single leaf door at front with manual tension levers to ensure optimal shielding performance.

Mechanical Specifications	
Materials	Sheet metal
Mode of Operation	Manual
External dimensions (including mounting ears, lever and feed)	W435 x D600 x H934 (mm)
External dimensions (excluding mounting ears, lever and feed)	W479 x D722 x H990 (mm)
Inner dimensions	W378 x D541 x H887 (mm)
Weight	100 Kg
Colour	RAL9003
Feet (Removable)	4 pcs, at four corners of box bottom, height is 17 mm
Lifting handle	4 pcs, on right and left sides

21U Rack Mounted Shielded Box Sub 6GHz Type II

General Information

- **Part No:** F.01.F4017079
- **Material:** Sheet metal
- **Mode of Operation:** Manual
- **External Dimensions (excluding mounting ears, lever, and feet):** W435 × D600 × H934 mm
- **External Dimensions (including mounting ears, lever, and feet):** W479 × D722 × H990 mm
- **Inner Dimensions:** W378 × D541 × H887 mm
- **Weight:** 85 kg
- **Color:** RAL9003
- **Feet (Removable):** 4 pcs, at four corners of box bottom, height 17 mm
- **Lifting Handles:** 4 pcs, located on right and left sides
- **Lifting Eyes:** 4 pcs, removable
- **Door:** Single leaf door at front; equipped with flat absorber material (light blue, 30 mm thickness) on six inner sides
- **DUT Support Plate:** 4 layers, color: black

Flat absorber:

- **Thickness:** 30mm on six inner sides
- **color**: light blue
- **Flame Retardant** - NRL8093 (Test 1,2,3), DIN4102 B2
- **Reflection Loss** (>3GHz) >13dB (Vertical incident)

Performance

- **Working Frequency Range:** 700 MHz – 6 GHz
- **Shielding Performance:** ≥ 80 dB minimum (for 700MHz - 6GHz)

Interfaces

- **USB 3.2 Gen 2 Type-C Filter (10 Gbps):** 16 pcs
- **SMA Through Connector (F2F External Thread, DC−18 GHz):** 12 pcs
- **Exhaust Fan (120 × 120 × 25.4 mm):** 4 pcs
- **Honeycomb vent (120 x 120 mm):** 2 at bottom left (air inlets) and 2 at top right (air outlets)
- **AC 220V Connector (C13 Type):** 2 pcs (1 for fans, 1 reserved)

RF Shielded Box TwinCase 40GHz
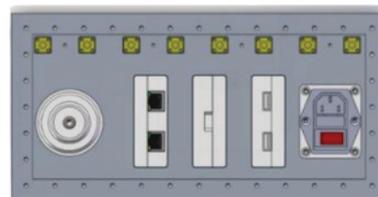
General Information

- **Part.no: F.07.F4016919**
- **Material**: Sheet metal
- **Mode of Operation**: Manual
- **External Dimensions** for each box: 940 mm (W) × 930 mm (D) × 1060 mm (H)
- **Inner Dimensions** for each box (absorber to absorber, exclude interface, honeycomb and fans): 836 mm (W) × 826 mm (D) × 956 mm (H)
- **Tray Dimensions** (with wheels): 940 mm (W) × 930 mm (D) × 352 mm (H)
- **External Dimensions** (twin stack): 940 mm (W) × 930 mm (D) × 2472 mm (H)
- **Weight**: 138 kg per box, 50 kg for tray, total 326 kg
- **Colour**: RAL9003
- **Wheels**: 4 pcs, located at four corners of the tray
- **Lifting Rings**: 4 pcs, removable
- **Door Operation**: The RF Twin Case has two independent doors equipped with manual tension levers to ensure optimal shielding performance
- **Absorber -** Thickness: 50 mm, Color - Light Blue

Performance

- Working frequency range 0.1GHz - 40GHz
- Shielding Performance
  - 85dB (for 0.1GHz - 0.6GHz)
  - 90 dB (for 0.6GHz - 40GHz)

Interfaces

- **USB 3.0 Type A Filter:** 5 Gbps: Qty – 2 pcs (per box)
- **LAN port Filter:** 10 Gbps: Qty – 2 pcs (per box)
- **HDMI Filter:** Qty – 1 pc
- **RF Connectors:** SMA Through Connector (Type: F2F, External thread, Bandwidth: DC–18 GHz): Qty – 8 pcs
- **Fiber Interface:** Waveguide for Fibers: Qty – 1 pc
- **Absorber:** Thickness: 50 mm, color: Light blue
- **Cooling**
  - Exhaust Fans: Qty – 4 pcs (mounted on right side for hot air expulsion)
  - Honeycomb Vents (260 mm × 260 mm): Qty – 2 pcs (1 at front side, 1 at right side)
- **Power Interfaces**
  - AC 220 V Connector (Type: C14 Male, 16 A): Qty – 1 pc (mounted on left panel)
  - Power Strip (16 A): Qty – 1 pc
- **Lighting:** Illumination LED: Qty – 1 pc

Environment Requirements

- Operation temperature range on-site: 25 +/- 5 °C
- Humidity: < 80%

Orbis Systems' RF Shielded Box

General Information

- **P/N: F.04.U44400-01**
- Mode of operation: Manual
- Materials: Sheet metal
- Color: Black (G150)
- External dimensions: W479 x D644 x H354 (mm) (include mounting ears and connectors on panel)
- Inner dimensions (Clear space): W295 x D390 x H250 (mm)
- **Flat absorber inside**
  - Thickness: 30mm
  - Color: Light Blue
  - Reflection loss (>3GHz): >13 dB (Vertical Incident)
  - Flame retardant NRL8093 (test 1, 2, 3) and DIN 4102 B2

Interfaces

- Female SMA, for RF connection F2F external thread,
- quantity 12
- Banana connector 10A, quantity 2 pairs
- A type USB 3.0 super speed (5Gbps max rate), quantity 2
- 110 AC with switch, quantity 1
- Vent and exhaust fan

Performance

- Working frequency: 800MHz – 6GHz
- Shielding performance: 80dB

Environmental requirements

- Temperature Range: Between 20 °C and 45 °C
- Humidity: <80%

Door locking system

- Open/Close systems
  - Mechanical access provided by key
  - Electronic access provided by password coding system
    - Master code, qty. 3
    - User code, qty. 100
  - Voice activation (optional)
- Battery details for the electronic and voice systems.
  - Supports more than 10,000 open/close operations
  - Low battery alarm function, battery can hold 300 open/close operations after alarming
  - Codes are kept recorded even without battery
  - USB port could be backup power feeding, make locker functional when running down of battery

RF SHIELD BOX

General Information

- **Mode of operation**: Manual
- **Materials:** 2mm galvanized steel sheet
- **External dimensions**: W635 x D635 x H495 (mm)
- **Inner dimensions:** W600x D600 x H460 (mm)
- **Color**: White (RAL9003)
- Door Opening on the front side, LHS to RHS
- Fans placed inside the box and honeycomb air vents fixed outside of the box
- One Handle on each side for Lifting

Absorber

- **Type:** Flat Foam Absorber 1"
- **Color:** Blue

Performance

- **Operation frequency range:** 0.5 - 6 GHz
- **Shielding Performance:** ≥85 dB for (0.5 GHz to 6 GHz)

Interfaces

- RF Connectors, SMA F - F (Gold) with dust cap - **8 Pcs**
- LAN (Ethernet Ports) - 1G - **2 Pcs**
- LAN (Ethernet Ports) - 10G - **1 Pc**
- AC Power Entry filter Module - **1 Pc**
- USB Ver. 3.0, A(F) - A(F) - **3 Pcs**
- USB "C" type - **5 Pcs**
- AC Power strip (Universal socket) - **1 Pc**
- Cooling FAN AC, 92mm x 25mm - **2 Pcs**

TWIN SHIELD BOX

General Information:

- **Sheet metal, Manual Operation**
- **Inner dimension**
  (L x W x H) (each Box) 50cm (L) x 40cm (W) x 40cm (H)
- **Outer dimension**
  (L x W x H) (each Box) 55cm (L) x 45cm(W) x 45 cm(H)
- **Outer dimension**
  (L x W x H) (Overall Box) 55cm (L) x 45cm(W)x 90 cm(H)
- **Colour:** RAL 7035

Locking systems:

- Mechanical locking system

Performance:

- **Operating Frequency (GHz):** 0.7 - 6 GHz
- **Shielding Effectiveness:** 80 dB for 0.7- 1 GHz; 90 dB for 1 GHz to 6 GHz

Interfaces:

I/O Connectors	BOX #1	BOX #2
1. USB Ver. 3.0, A(F) - A(F)	4 Pcs	4 Pcs
2. RJ45 Coupler (Ethernet Ports), 10G	4 Pcs	4 Pcs
3. HDMI Connector	2 Pcs	2 Pcs
4. SC - APC, Fiber Optic Panel Mount Adapter	2 Pcs	2 Pcs
5. RF Connectors, SMA F - F (Gold) with dust cap	8 Pcs	8 Pcs
6. IP PDU (Universal socket)	2 Pcs with 4 Sockets	2 Pcs with 4 Sockets
7. AC Power Entry Filter Module with Switch	1 Pc	1 Pc
8. Cooling FAN AC, 4" (supply & return)	2 Pcs	2 Pcs

COMMON SIGNAL SWITCHING UNIT (SSU)

Orbis Systems' Signal Switching Unit (SSU) is a multipurpose solution for RF signal routing from multiple instruments to one or more Devices Under Test (DUTs). It enables multiple tests to be performed using the same setup, eliminating the need for frequent disconnections. The Common SSU controls the switching operations and supports up to eight Application SSUs, enabling a 64-port configuration. This versatile module can be set up for extremely fast parallel pipe testing or, alternatively, for single-pipe testing when a slightly slower operation is acceptable. Thanks to the use of traditional coaxial relays, the Common SSU maintains an exceptionally low insertion loss (IL).

Power Input

230V/50 Hz AC

Software Interface

Controlling operations, whether for a single switch or a complete routing configuration, is fully supported, providing flexible and precise control over signal paths.

Additional Information

Ethernet interface for external controlling

4X24 BLOCKING MATRIX SWITCH

The 4x24 Coaxial Relay Switch supports 5G R&D project needs in remote-controlled over the air (OTA) and RF tests. The tests include automated software regression testing, transmitter and receiver testing.

Hardware

- Coaxial RF relays
- Modular: Configuration can be customized
- Interfaces:
    - RF connections 28pcs N-female
    - Control interfaces GPIB, LAN

Software Interface

The SSU configuration software is supplied by Orbis Systems. The software is used to configure the RF connection and to define measurement routes. The driver interface between the customer's test application and the SSU is provided by Orbis Systems.

Performance Specifications

- **SSU frequency range**: DC – 6 GHz
- **Power rating**
    - 2 W CW at 6 GHz (cold switching)
    - Hot switching 1 W CW max.
- **Isolation**
    - Input to input: 100 dB min.
    - Output to output: 100 dB min
- **VSWR**: ≤ 1.7 @ 6 GHz
- **Insertion loss**
    - From input to output:
    - <3dB @ 6 GHz
- **Delay between RF routes**: < ±1.5 ns
- **DC tolerance**: To "DUT" ports: 50 V max

40GHz 6X6 BLOCKING MATRIX SWITCH

The 6x6 Coaxial Relay Switch supports 5G R&D project needs in remote-controlled over the air (OTA) and RF tests. The tests include automated software regression testing, transmitter and receiver testing.

Hardware

- 12 pcs of SP6T Coaxial relays
- Modular: Configuration can be customized
- Interfaces:
    - RF connections 12 pcs 2.92mm
    - Control interfaces GPIB, LAN

Software Interface

The SSU configuration software is supplied by Orbis Systems. The software is used to configure the RF connection and to define measurement routes. The driver interface between the customer's test application and the SSU is provided by Orbis Systems.

Performance Specifications

- **SSU frequency range**: DC − 40 GHz
- **Power rating**
    - 5 W CW at 40 GHz (cold switching)
    - 10 W CW at 26.5 GHz (cold switching)
    - Hot switching 1 W CW max
- **Isolation**
    - Input to input: 60 dB min
    - Output to output: 60 dB min
- **VSWR**: ≤ 2.2 @ 40 GHz
- **Insertion loss**
    - From input to output:
    - <10dB @ 40 GHz
- **Delay between RF routes**: < ±0.5 ns
- **DC tolerance**: To "DUT" ports: 75 V max

64 X 4 PHASE SHIFTER MATRIX

The 64x4 Phase Shifter Matrix is a product used for example 5G MIMO beamforming testing purposes. The 64 inputs can be simultaneously connected to each of the four outputs, and the four outputs can then be connected to the DUTs. Its programmable phase shifting matrix is bi-directional system equipped with individual attenuators which can independently adjust the signal levels for each input.

General information

- **Mode of operation**: Operated by SW and APIs
- **Color**: Black
- **External dimensions**: W430 x D432 x H286 (mm)
- **Weight**: 16kg
- **Option**: Balance calibration unit

Performance

- **Working frequency**: 1.7GHz to 6GHz
- **Attenuation range**: 0 to 95dB, 0.25dB step
- **Phase shift range:** 360°, 1° per step
- **Voltage:** 100-240 Vac nominal
- **Frequency**: 50-60 Hz

Environmental Requirements

- **Temperature range:** -10 to 50^oC
- **Humidity:** <70%

Software

- OS: Microsoft Windows
- API functionalities: Create test sequences, manage phase and attenuation values individually, manage ethernet interface, reboot system, list the channel information
- API Communication: Through Ethernet via a Telnet-interface
- Possibility to run automated reports directly from the device unit

VARIABLE ATTENUATOR MATRIX 24X8

Variable Attenuator Matrix 24x8 can be used for example in 5G handover testing and multi UE testing scenarios. Programmable attenuator matrix is a bi-directional system equipped with 192 pcs programmable attenuators which can independently adjust signal level for each input.

General information

- **Color:** Black
- **External dimensions:** 19', 3U
- **Rear panel:** AC, Ethernet, 32pcs SMA(F)

Performance

- **Working frequency:** 600 MHz to 6GHz
- **Attenuation range:** 0 to 95dB, 0.25dB steps
- **Insertion loss:** <36dB
- **Input power max:** +33dBm
- **Voltage:** 100-240 Vac nominal
- **Frequency:** 50-60Hz

Environmental Requirements

- **Temperature range:** -10 to 50°C

Software

- Microsoft Windows GUI for manual attenuator settings.
- Possibility to run automated test sequences via ethernet remote interface.

Modular RF Chamber

Overview

- The chamber is designed for functional testing and measurement of RF module / radio /antenna over the frequency range of <0.6-40GHz>
- The system is provided with Doors on either side (Front & Rear) to access the AU/DUT & the UE / Mobile Phone
- Air vents with RF shielding is provided for improved ventilation inside the chamber
- RF Shielded Doors / Windows Manually operated
- Earthing resistance of the structure <0.5 Ohms
- Input/ Output interfaces installed on Interface Panels

The chamber structure is made of Galvanized steel sheets in modular PAN type self-supported structure.

Additional features:

DUT Holder,UE Holder,Light Source (for inner view), Temperature indicator/display,

Camera(for inside view of chamber), Smoke detector (Safety).

INTERFACES: (Installed on I/O Panels)

Interface panel with appropriate Chamber feed throughs provided
At the DUT End:

- DC Power input/ source   : 1 pc (48V/63A)
- RF Connections (SMA F-F type)   : 4 pcs
- RJ-45/LAN Connector   : 2 pcs
- Fiber optic Waveguide   : 2 pcs

At the UE/Mobile End:

- AC Power input w/Filter   : 2 pcs (90-265V/32A) :
- USB 3.0 Type A input   : 2 pcs
- RJ-45/LAN Connector/input   : 3 pcs

Other:

- Connectivity for Temperature indicator: 1 pc
- Connectivity for Smoke detector   : 1 pc
- Connectivity for Camera   : 1 pc

Absorbers: Poly Urethane based absorber (150mm thickness)

Frequency Range	0.6 - 40GHz
Chamber RF Shielding	>70dB
Absorbers reflectivity	3.0 GHz - >35dB; 5.0 GHz - >40dB >15 GHz - >50dB
Chamber - Internal dimensions (in Mtrs) DxWxH	1.8 x 1.3 x 1.3 Mtrs
Chamber - External dimensions (in Mtrs) DxWxH	2.1 x 1.6 x 1.6 Mtrs
Overall System dimensions (in Mtrs) DxWxH	2.1 x 1.6 x 2.0 Mtrs
Chamber Access (Front)	Door with locking and hinges Min: (800 x 800mm) – DUT Side
Chamber Access (Rear)	Door with locking and hinges Min: (800 x 800mm) – UE Side
Chamber structure	Stacked on Aluminium frames w/levelling legs /wheels; Honeycomb ventilation panel
Interface Panel	Two RF (SMA type), RF (N-type), 2 x USB-A3.0, 2 X LAN, 2 x WGF/Fiber optic waveguide, AC (90-265V, 63A) input filter & DC (40-57V, 15A, 520W) input filters
Optional	Interface panel for additional connectors, Fan Installation

Burn-in and Vibration Test Chamber

Performance:

- Working Frequency: 400 MHz - 12 GHz

- Shielding performance: 60 dB

- Temperature range: -40 $^{\circ}$C - +60 $^{\circ}$C

- Vibration frequency: 0 - 200 Hz sine wave

- Heating rate & Cooling rate: 3 $^{\circ}$C/min from RT~+60 $^{\circ}$C, 3 $^{\circ}$C/min from +RT~ - 40 $^{\circ}$C (empty load, average speed, after stabilization for 30mins)

- Power supply AC 3ϕ380V 50Hz / 60Hz

Note: The above performance guarantee needs to be measured after the temperature sensing is stable for 30 minutes!

Features Overview:

This Shielded Test Chamber integrates advanced high and low-temperature capabilities with vibration testing providing a comprehensive platform for evaluating the reliability of your Devices Under Test (DUTs). The main body is constructed with durable, high-quality panels, ensuring robust protection and ease of assembly. Also equipped with moving casters for smooth relocation and positioning cups at the bottom to secure the chamber firmly in place during testing. This design enhances flexibility and greatly reduces the difficulty of installation
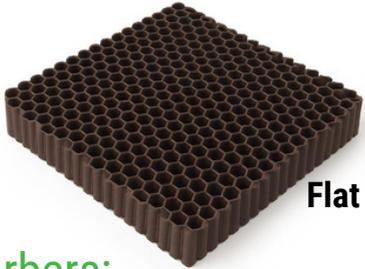
General Information:

- Part. No: F.07.F4014720
- Chamber outer dimensions W2400 x H2055 x D1700 mm
- Chamber inner dimensions (Free space) W1950 x H1450 x D1200 mm
- Volume of chamber 6468L
- Refrigerator outer dimensions W1950 x H2020 x D2070 mm

Conical Absorber

Flat honey-comb absorber

Absorbers:

- Absorbers in Chamber: 300mm conical absorber on top of the chamber and 100 mm on the side walls as well as shielded door
- Flat honeycomb absorber is under the top of the absorbing material, hybrid absorber can take 2.5Kw/m2 radio power illumination
- Panel structure: Sandwich structure
- Outer layer: Steel sheet with painting
- Middle layer: High-strength polyurethane foam
- Inner layer Stainless sheet
- Chamber colour: Outer can be customized and NO painting on inside face
- Weight: Chamber (Incl 2xVibration table): 2.1 Ton
- Refrigerator & Heater equipment: 2 Ton

Heating and Refrigeration Equipment:

Cooling System (Air-Cooled Condenser):
The air-cooled condenser uses a sloped evaporator and dew-point dehumidification control. It includes drier-filters with spiral K-type copper tubing for efficient refrigerant flow.
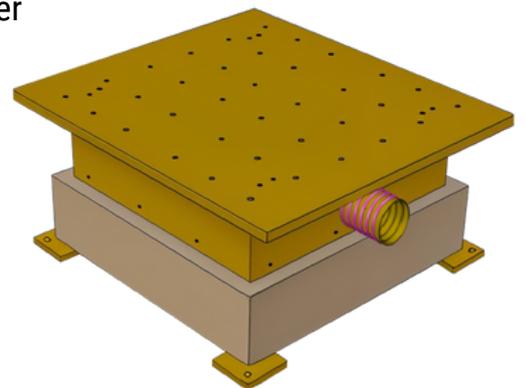
Heating System:
Equipped with stainless steel heaters offering high strength, excellent thermal efficiency, safety, easy installation, and long service life.

Air Circulation System:
An adjustable baffle design ensures uniform temperature distribution. The stainless steel extended shaft motor and high/low temperature-resistant aluminum alloy fan provide consistent and efficient airflow inside the chamber.

Vibration Table:

The vibration table is equipped with a cooling system to cope with high ambient room temperatures, isolating the table's operating temperature from the high and low temperatures in the chamber

Vibration Table

Thanks

If it's connected, we're testing it. If it's the future, we're already building it.

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