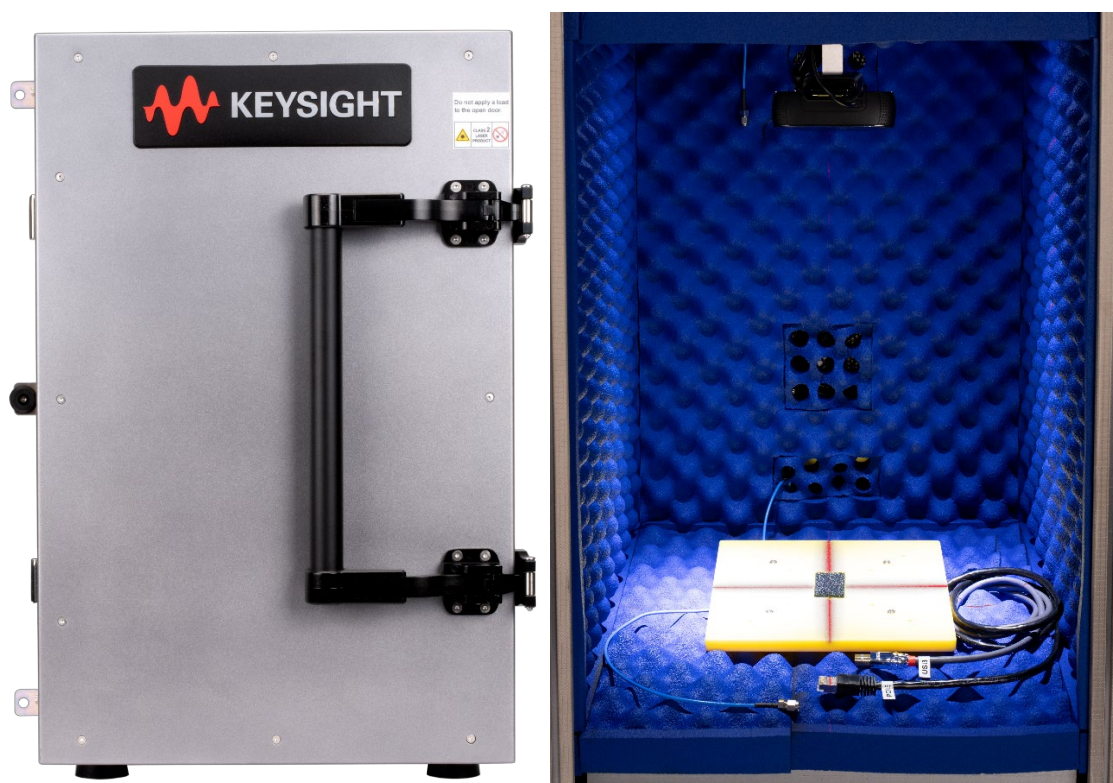


F9640A Mini Rack Mountable Test Chamber (Mini RMTC)

Millimeter-Wave Over-the-Air or Sub-6 GHz Conducted Mode Measurement Chamber

Introduction

The Keysight F9640A Mini Rack Mountable Test Chamber (Mini RMTC) is a shielded anechoic chamber which is suitable for Protocol, Functional, and Throughput testing of FR1 frequency bands in conducted mode or FR2 in radiated mode.



Overview

The Keysight F9640A Mini Rack Mountable Test Chamber (Mini RMTC) is a shielded anechoic chamber which is suitable for Protocol, Functional, and Throughput testing of FR1 frequency bands in conducted mode or FR2 in radiated mode. FR2 supports 2x2 MIMO over one Angle of Arrival. FR1 conducted mode supports 4x4 MIMO.

For FR2, there are options to choose mounting brackets based on the RRH used, and both the antennas are installed on the ceiling of the chamber. The 600-8000 MHz dual polarization antenna offers polarization rotation to provide maximal signal de-correlation.

There is an option to neatly mount all the system components in a rack.

Key Features

The key features of Keysight F9640A Mini RMTC are:

- FR2 protocol, functional, and 2x2 MIMO throughput testing
- FR1 protocol, functional, and 4x4 MIMO throughput testing in conducted mode
- Fully shielded and filtered
- Low path loss
- LED light to facilitate working inside the chamber
- USB camera to monitor inside the chamber
- Laser-guided crosshair for accurate DUT placement
- Optional rack to neatly mount all the system components

Contact Keysight to discuss further use cases as the OTA Test Bed performance is a task to evaluate with care.

System Specifications

F9640A: Anechoic Chamber

Description	Specification (Nominal)	Supplemental Information
Construction	NA	Aluminum frame and aluminum panels
Height (external / internal)	752 mm / 482 mm	With RRHs and feet
Width (external / internal)	472 mm / 364 mm	With doorstopper and door latch
Depth (external / internal)	582 mm / 368 mm	With door handle and panels
Weight	30 kg (66 lb)	Base configuration
Anechoic treatment	50 mm at Ceiling, 30 mm on Walls	Corrugated anechoic foam
Enclosure frequency range	700 MHz to 68 GHz	
Minimum isolation at 2.5 GHz	70 dB	From DUT to the outside of the chamber
Minimum isolation at 5.0 GHz	70 dB	
Minimum isolation at 28 GHz	70 dB	
Minimum isolation at 40 GHz	70 dB	
Operating voltage	AC, 100-120, 220-240 V, 50/60 Hz, 250 W	External
Power consumption	<220 W	
Ventilation	Two honeycomb structures with 1x fan for forced air flow	To the rear of the chamber
Power ports	1x AC power, 100-120 or 220-240 V, 50/60 Hz, 150 W Max	Internal
	2x DC power, 5 A	2.1 x 5.5 mm
Connectivity ports	1x USB 3.0	For camera
	1x USB 3.0	
	1x RJ45 Ethernet	RJ45, 10G PoE+
Illumination	2x LED-based lights	
Camera	USB output	
Crosshair laser for exact positioning of the DUT	Laser-based Wavelength: 630-680 nm Max power: 1.3 mW	
Operating temperature	15-35 °C (59-95 °F)	
Relative humidity	95 % RH	

Connector Panels – Order 1 for Each Panel

Description	Specification (Nominal)	Supplemental Information
Roof-top connector panel	Blank panel	F9640A-RT0
	4x SMA	F9640A-RT1
	4x SMA, 2x 2.4 mm	F9640A-RT2
Rear center connector panel	Blank panel	F9640A-RC0
	1x 2.4mm, 4x SMA	F9640A-RC1
	1x 2.4mm, 8x SMA	F9640A-RC2
Rear left connector panel	Blank panel	F9640A-RL0
	1x USB 3.1 Gen 2 Type C	F9640A-RL1
	8x SMA	F9640A-RL2
Rear right connector panel	Blank panel	F9640A-RR0
	1x USB 3.1 Gen 2 Type C	F9640A-RR1

F9640A-RL1 & F9640A-RR1: USB 3.1 Gen 2 Type C

Description	Specification (Nominal)	Supplemental Information
Connectivity port	1x USB 3.1 Gen 2 Type C	SuperSpeed+, 10 G
Power delivery	Downstream Facing Port	Red LED, Power Indicator
	Supports 4 Power Profiles over CC1 and CC2:	Yellow LED, High Power
	15W (5VDC 3A)	High Voltage Indicator Off
	27W (9VDC 3A)	High Voltage Indicator On
	45W (15VDC 3A)	High Voltage Indicator On
	60W (20VDC 3A)	High Voltage Indicator On
Data cables	2x USB 3.1 Gen 2 M-M 10 Gbps	

F9640A-AA1: 0.6-8 GHz Antenna

Description	Specification (Nominal)	Supplemental Information
Antenna type	Dual Polarization Vivaldi Antenna	
Antenna frequency range	0.6-8 GHz	
Connector type	SMA (f)	
Terminal	50 Ω	
VSWR	< 3.5 @ 0.6 ~ 8 GHz	

FR2 RF Characteristics

Description	Specification (Nominal)	Supplemental Information
Cross-polarization	< -30 dB	Max for DP antenna
Free space path loss	$FSPL = \frac{(4\pi R)^2}{\lambda^2}$	e.g., 53.4 dB for 37 cm, at 28 GHz
Reflectivity	< -50 dB	Measured with an empty chamber

F9640A-AB1: 22-50 GHz Dual Polarization Antenna

Description	Specification (Nominal)	Supplemental Information
Antenna frequency range	22-50 GHz	
Connector type	2x 1.85 mm (f)	
Return loss	12 dB	Min
Gain	9.5 dBi at 28 GHz 11 dBi at 40 GHz	
Beamwidth vs frequency	52 ° at 28 GHz 40 ° at 40 GHz	
Cross port isolation	< -40 dB	Coupling H to V
Cross-polarization	< -25 dB	Coupling to cross-polarized mode compared co-polarized mode
Cable loss to the RF head	~ 2 dB	Varies with frequency

F9640A-Cxx: Cables

Description	Specification (Nominal)	Supplemental Information
RF cable (RRH to chamber)	2.4 mm, M-M, 0.5 m	F9640A-CA0
RF cable (Calibration kit)	2.4 mm, M-M, 2.0 m	F9640A-CA2
RF cable (Chamber to DUT)	SMA-SMA, M-M, 1.2 m	F9640A-CB1
RF cable (UXM to RRH)	N-SMA, M-M, 3.0 m	F9640A-CC3
DC cable (for DUT, internal)	2.1 x 5.5 mm, 1.0 m	F9640A-CD1
DC cable (for DUT, external)	2.1 x 5.5 mm, 3.0 m	F9640A-CD3

F9640A-Mxx: Accessories

Description	Specification (Nominal)	Supplemental Information
Rack, 30U	1512 mm x 600 mm x 757 mm 42 kg	F9640A-M04
Mounting brackets for RRHs	For 2x M1740A For 2x M1749B	F9640A-M05 F9640A-M06

F9640BA1A: Calibration Kit

Description	Specification (Nominal)	Supplemental Information
Antenna frequency range	6-67 GHz	
Antenna connector	1.85 mm (f)	RF transparent holding fixture with the cable

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.