



BIP roottek

RF Shielded enclosure

Products Datasheet

RT- 2121 RT- 2123 RT- 2124 RT- 2125

RT- 1330 RT- 1331 RT- 2330 RT- 2340

RT- 3130 RT- 3140

Pneumatic shielding box

5G shielding box (RT-5330/5331/5340 &Antenna)

RF Accessory

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RF Accessory

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Product Introduction

Manual RF shielding box



The BIP Roottek manual RF shielding box supports broad band testing frequency and provides optimal testing circumstance to test mobile device. These shielding box gives many advantages for user to test device in both development and production because of its high shielding performance and very good reflectivity of inner absorber.

Pneumatic RF shielding box



The BIP Roottek Pneumatic RF shielding box is suitable for production and very easy to use. Durability is also excellent. The all manual RF shielding boxes except RT-2122 can be converted to Pneumatic type.

mmwave Products & others



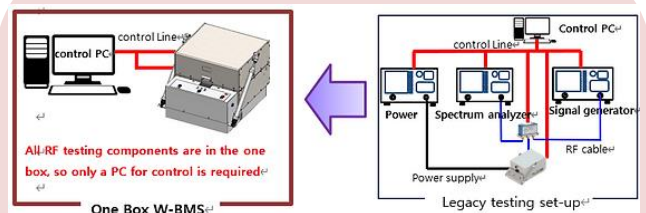
The BIP Roottek 5G RF shielding box, antenna and waveguide adapter provide user with a cost-effective test solution and stable test result BIP Roottek also have various antennas, fixtures and other components. In addition, customizing for all products are also available .

Customizable OTA Chamber



The customizable OTA chamber is configured to provide an optimal environment for measuring wireless antenna performance. The size and internal configuration can be customized and the chamber can be used in a variety of ways as it is light in weight and can be easily moved as it is equipped with casters.

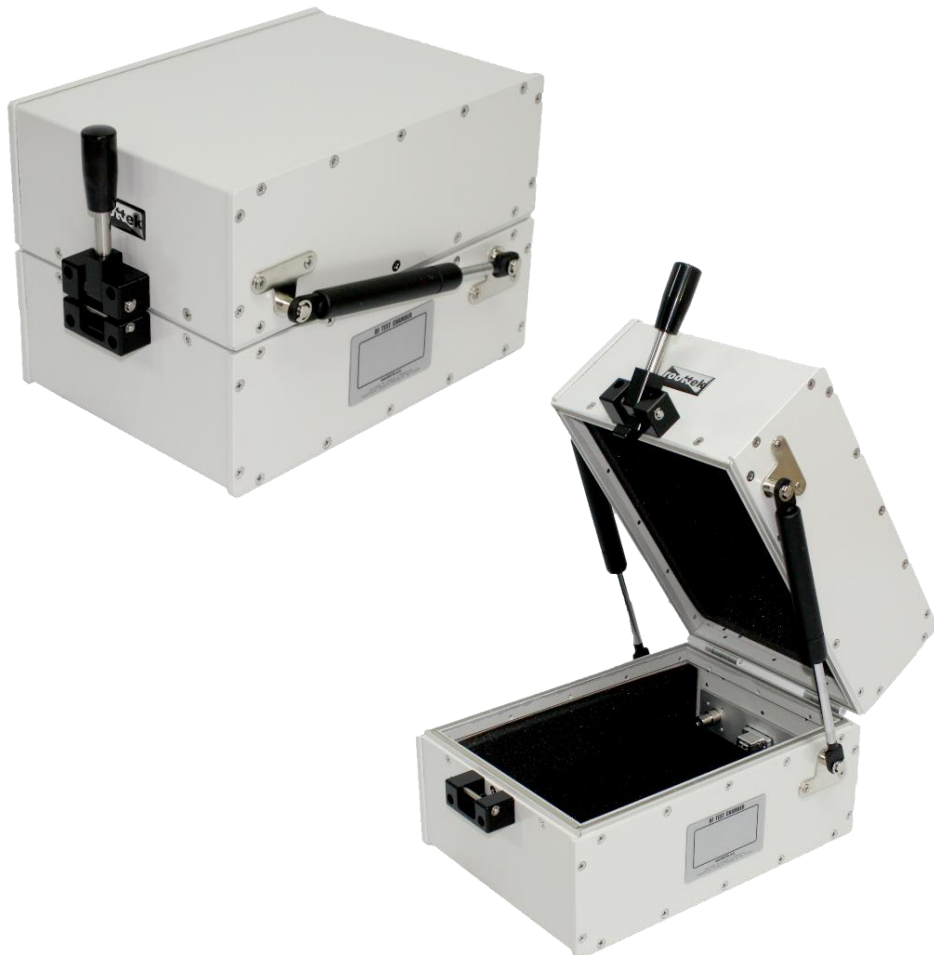
OneBox W-BMS



BIP Roottek One Box - W-BMS test equipment from BIP Roottek is a total solution consists of a single box with all the equipments necessary for W-BMS testing, and it provides an auto test program, allowing test without any additional equipment and program. This product not only simplifies the production line and maximizes space efficiency, but is also highly price competitive.

RF TEST ENCLOSURE

RT-2121



1. Main Features

RT-2121 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability and simple structure
- Convenient use and maintenance
- Supports an I/O interface panel to apply various interface (IB-series)
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Fixture mounting holes in the Bottom Plate,

2. Product Specifications

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	248	305	212
Outer Size (Opened)	248	394	409
Inner Size	173	248	134
Weight	Approx. 6 Kg		
Packing Size	360	430	330
Packing Weight	Approx. 7.6 Kg		
Interface	I/O Panel : IB-Series		

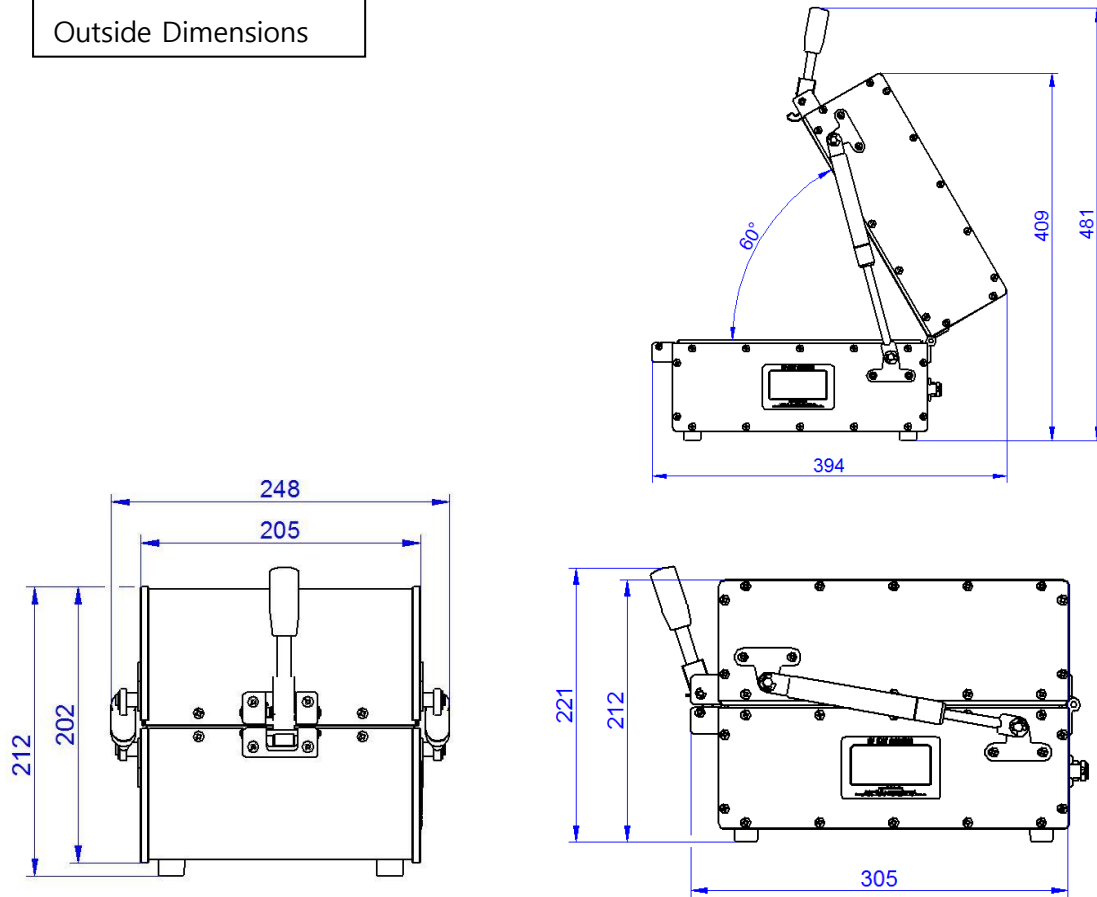
Shielding Effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

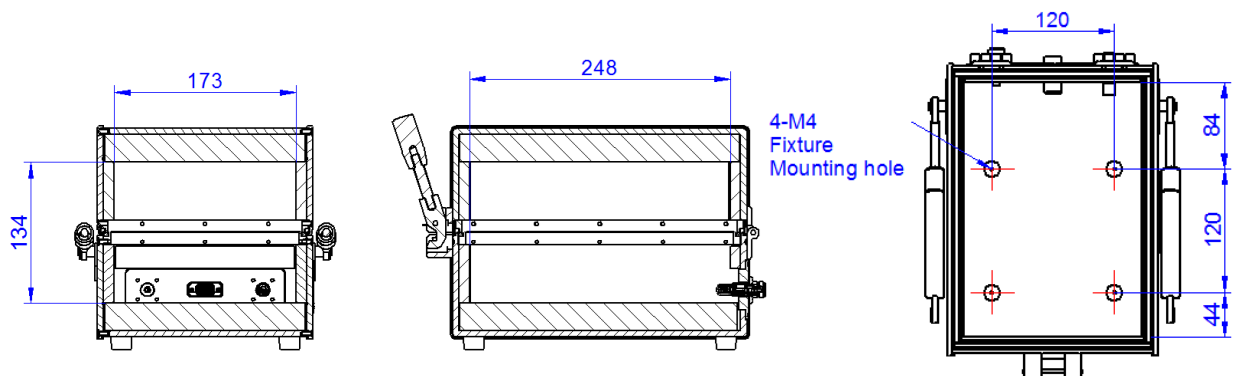
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions



Inside Dimensions



RF TEST ENCLOSURE

RT-2123



1. Main Features

RT-2123 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability and simple structure
- Convenient use and maintenance
- Supports an I/O interface panel to apply various interface (IB-series)
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Fixture mounting holes in the Bottom Plate,

2. Product Specifications

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	278	347	252
Outer Size (Opened)	278	445	467
Inner Size	203	288	174
Weight	Approx. 9 Kg		
Packing Size	450	530	330
Packing Weight	Approx. 11 Kg		
Interface	I/O Panel : IB-Series		

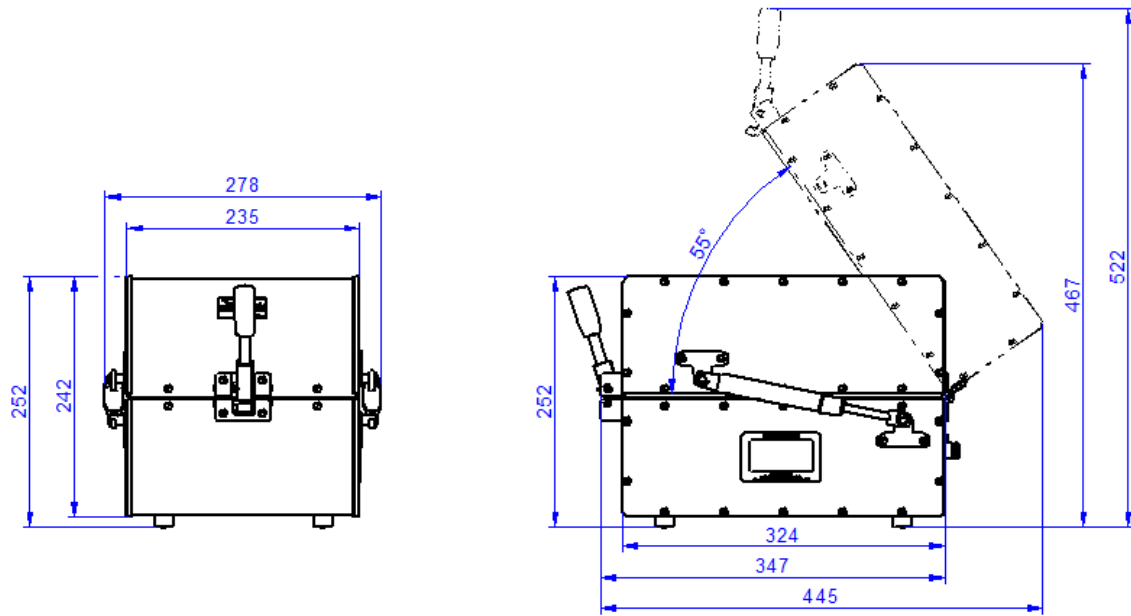
Shielding Effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

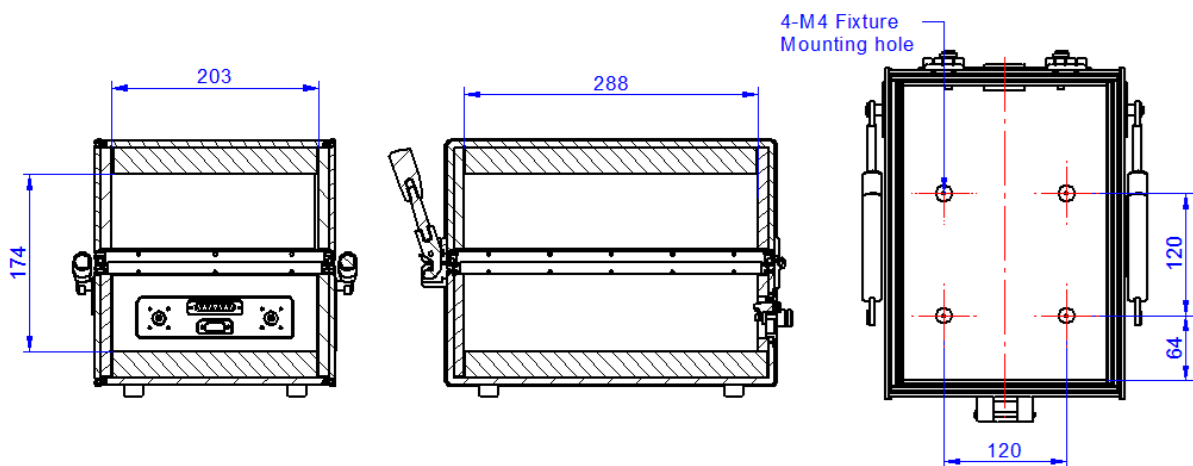
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions



Inside Dimensions



RF TEST ENCLOSURE

RT-2124



1. Main Features

RT-2124 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability and simple structure
- Convenient use and maintenance
- Supports an I/O interface panel to apply various interface (IB-series)
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Fixture mounting holes in the Bottom Plate

2. Product Specifications

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	410	347	252
Outer Size (Opened)	410	445	467
Inner Size	333	288	174
Weight	Approx. 11 Kg		
Packing Size	530	450	330
Packing Weight	Approx. 13 Kg		
Interface	I/O Panel : IB-Series		

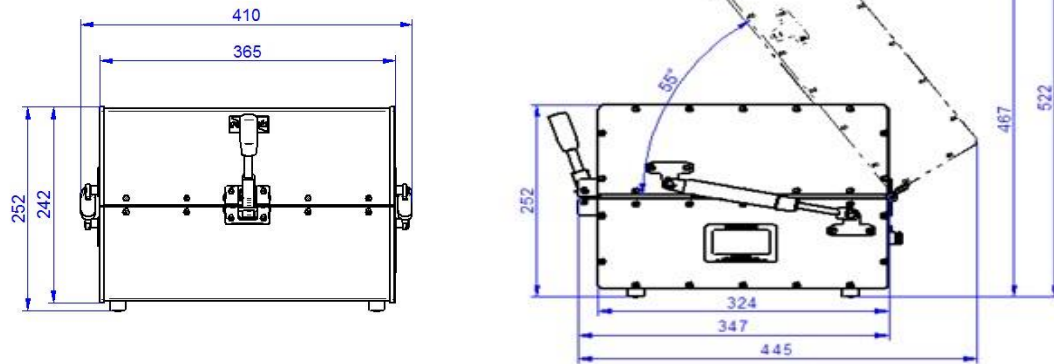
Shielding Effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

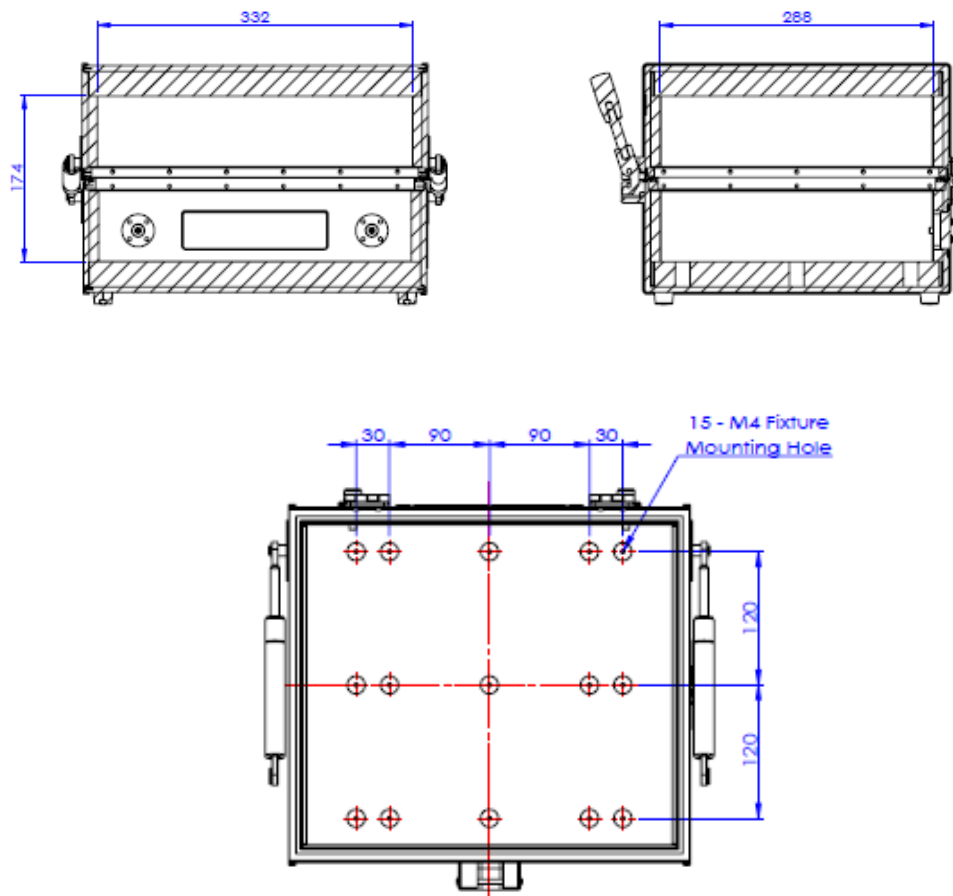
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions

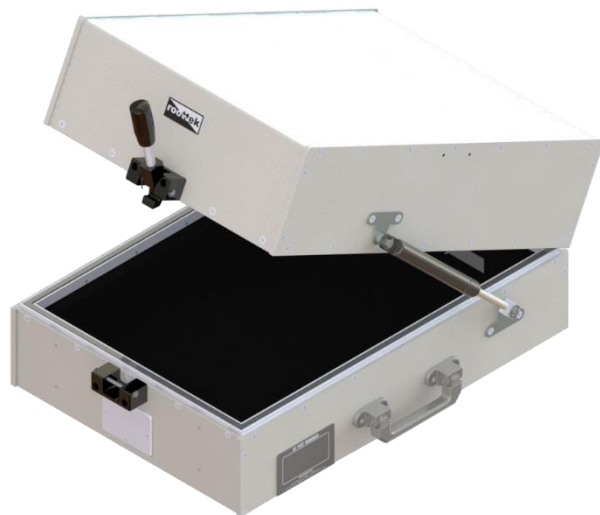


Inside Dimensions



RF TEST ENCLOSURE

RT-2125



1. Main Features

RT-2125 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability and simple structure
- Convenient use and maintenance
- Supports an I/O interface panel to apply various interface (IB-series)
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Fixture mounting holes in the Bottom Plate,

2. Product Specifications

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	369	526	242
Outer Size (Opened)	369	585	622
Inner Size	258	388	163
Weight	Approx. 18 Kg		
Packing Size	530	585	330
Packing Weight	Approx. 22 Kg		
Interface	I/O Panel : IB-Series		

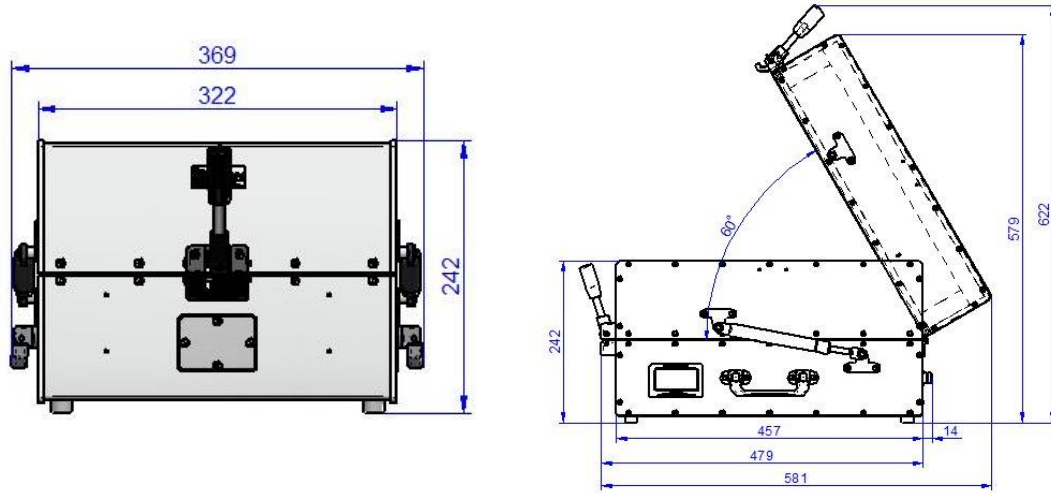
Shielding Effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

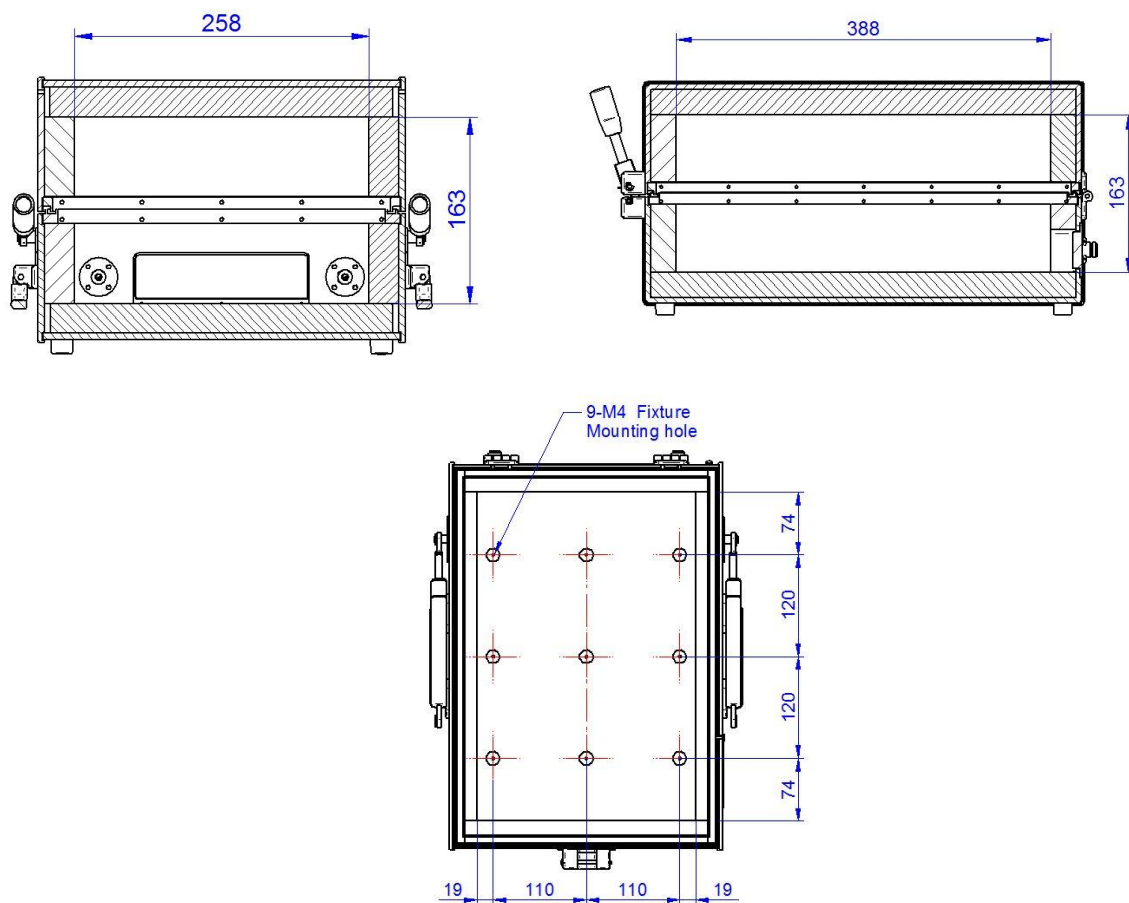
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions



Inside Dimensions



RF TEST ENCLOSURE

RT-1330



1. Main features

RT-1330 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability and simple structure.
- Convenient use and maintenance.
- Supports 2x I/O interface panel(IA-series)
- High performance RF absorber on inside walls
- High shielding effectiveness using double layer gasket structure.
- 19" Rack Mountable
- Fixture mounting holes in the top, bottom and side panels

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	434	437	294
Outer Size (Opened)	500	763	294
Inner Size	368	321	215
Weight	Approx. 18.5 Kg		
Packing Size	530	585	385
Packing Weight	Approx. 22.5 Kg		
Interface	I/O Panel : IA-Series		

Shielding effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

The shielding effectiveness in the above is measured when the blank I/O panel is attached.

RF TEST ENCLOSURE

RT-1331



1. Main features

RT-1331 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability and simple structure.
- Convenient use and maintenance.
- Supports 2x I/O interface panel (IA-series)
- High performance RF layered absorber on inside walls
- High shielding effectiveness using double layer gasket structure.
- 19" Rack Mountable
- Fixture mounting holes in the top and side walls
- Support air ventilation with an externally mounted AC fan.

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	434	695	444
Outer Size (Opened)	555	1011	444
Inner Size	366	555	370
Weight	Approx. 34 Kg		
Packing Size	595	805	625
Packing Weight	Approx. 40 Kg		
Interface	I/O Panel : IA-Series		

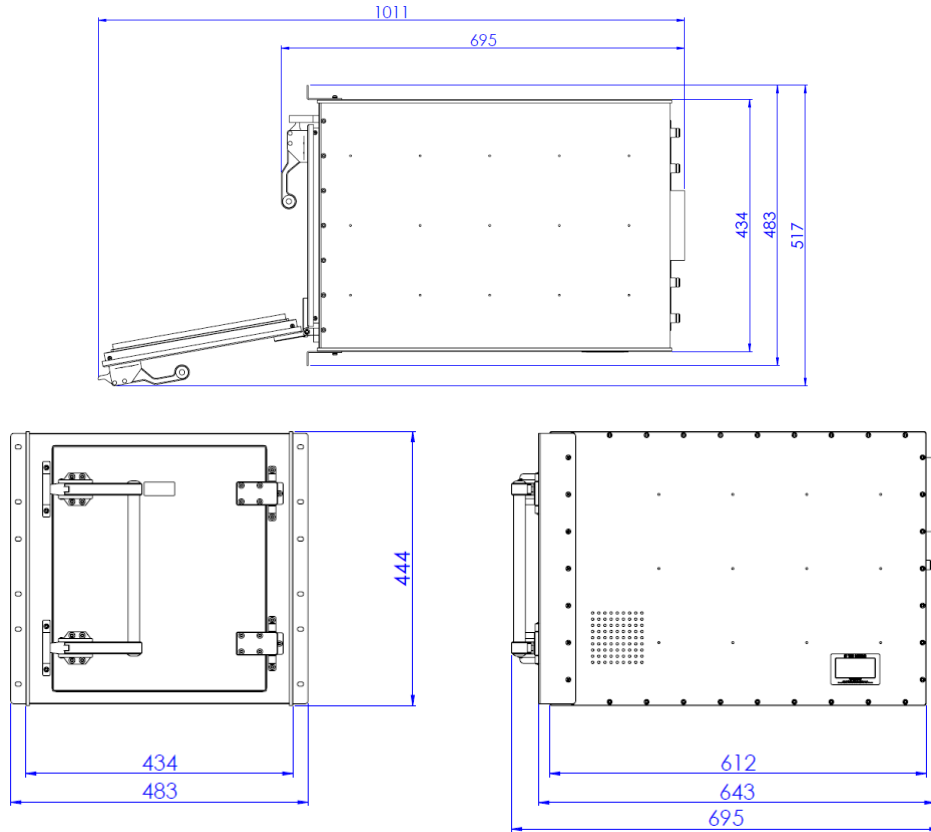
Shielding effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

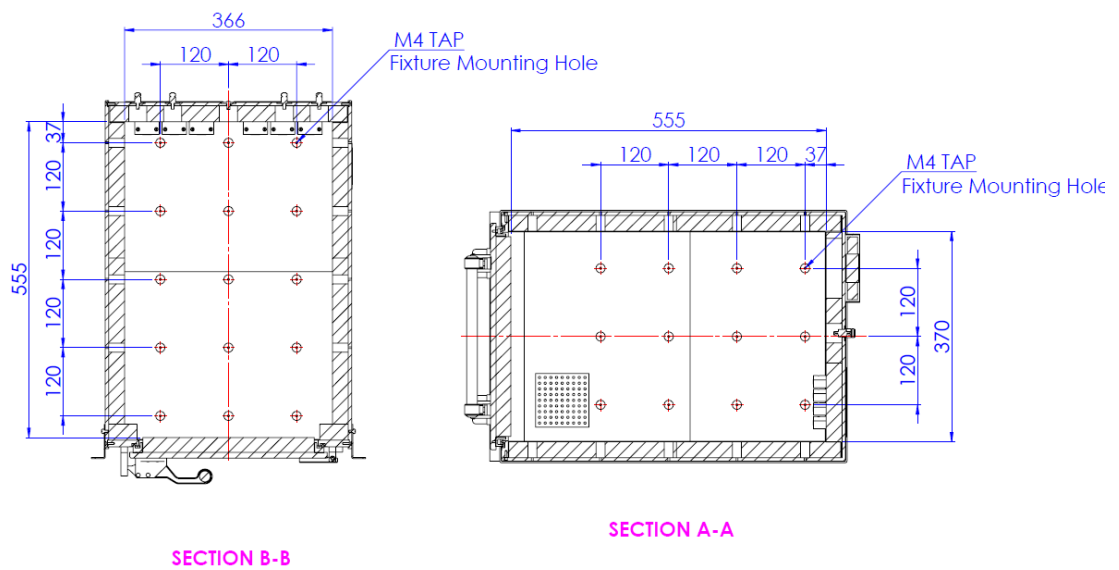
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions



Inside Dimensions



RF TEST ENCLOSURE

RT-2330



1. Main features

RT-2330 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability
- Convenient use and maintenance.
- Supports 2x I/O interface panel (IA-series)
- High performance RF absorber on inside walls
- High shielding effectiveness using double layer gasket structure.
- Reliable test result and repeatability
- Fixture mounting holes in the top, bottom and side walls

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	517	634	444
Outer Size (Opened)	517	1019	444
Inner Size	457	480	358
Weight	Approx. 37 Kg		
Packing Size	595	805	625
Packing Weight	Approx. 44 Kg		
Interface	I/O Panel : IA-Series		

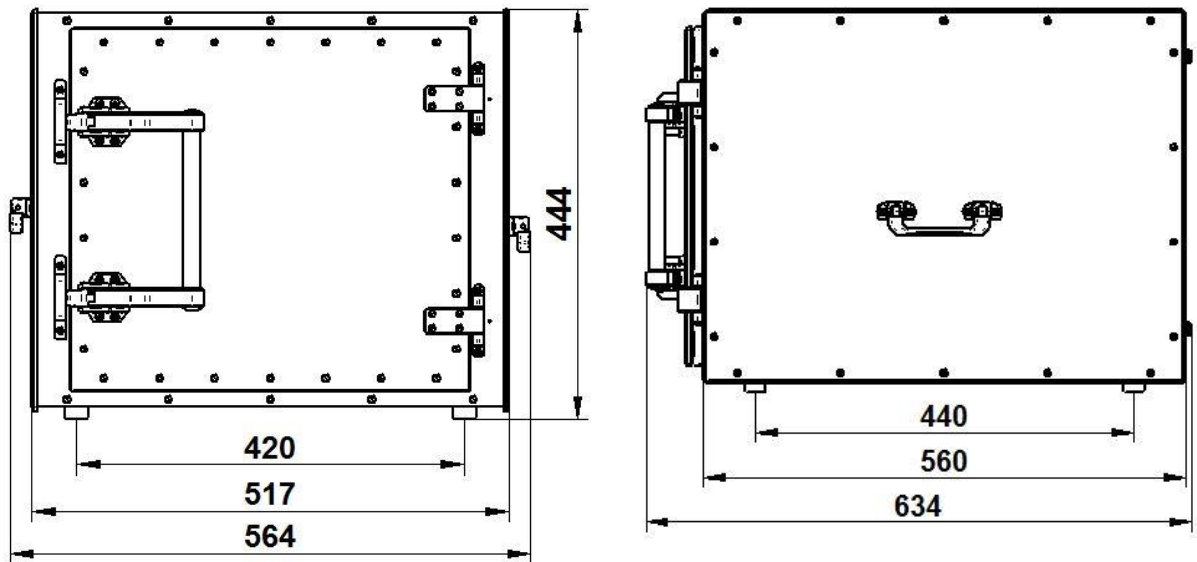
Shielding effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

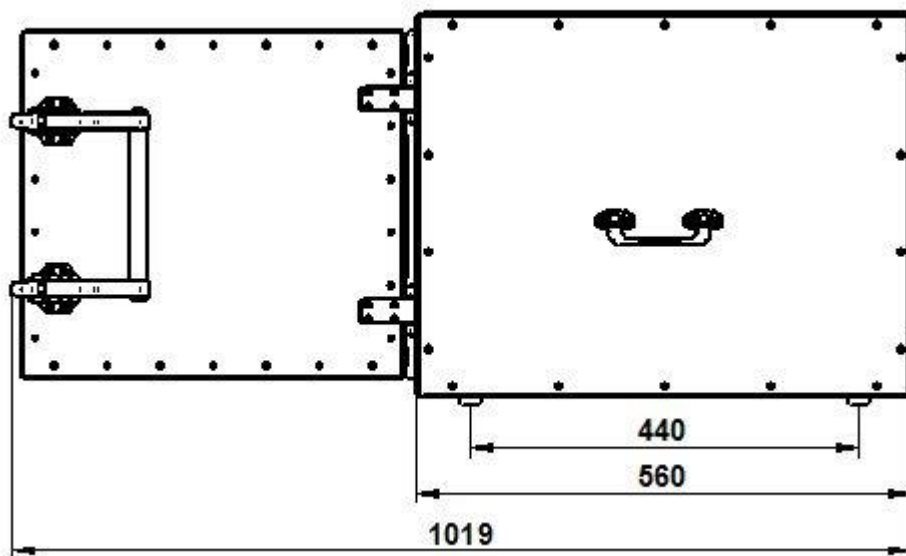
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions

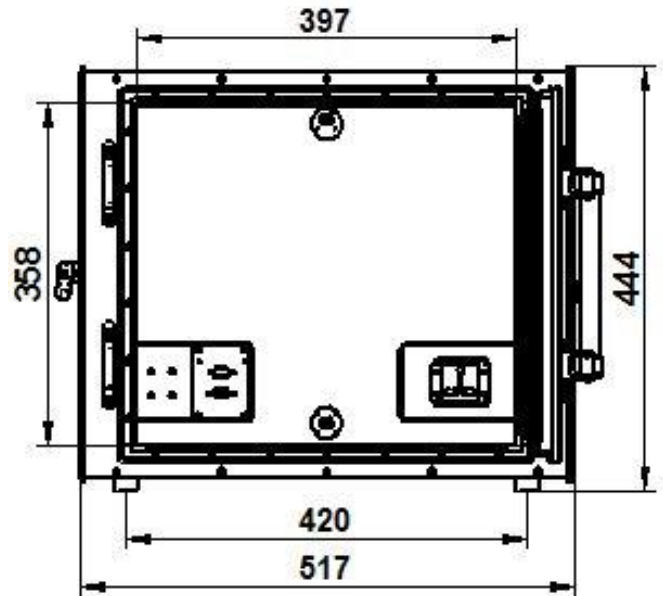
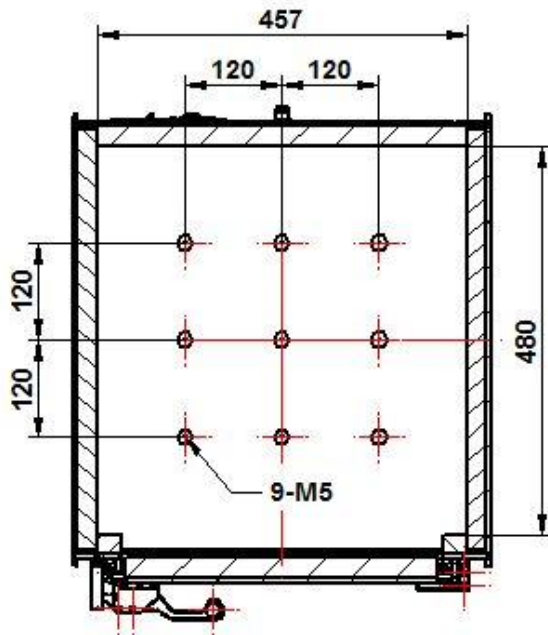


CLOSED



OPENED

Inside Dimensions



RF TEST ENCLOSURE

RT-2340



1. Main features

RT-2340 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability
- Convenient use and maintenance.
- Supports 2x I/O interface panel (IA-series)
- High performance RF absorber on inside walls
- High shielding effectiveness using double layer gasket structure.
- Reliable test result and repeatability
- Fixture mounting holes in the top, bottom and side walls

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	892	862	613
Outer Size (Opened)	911	1449	613
Inner Size	786	711	502
Weight	Approx. 69 Kg		
Packing Size	1040	1030	760
Packing Weight	Approx. 83 Kg		
Interface	I/O Panel : IA-Series		

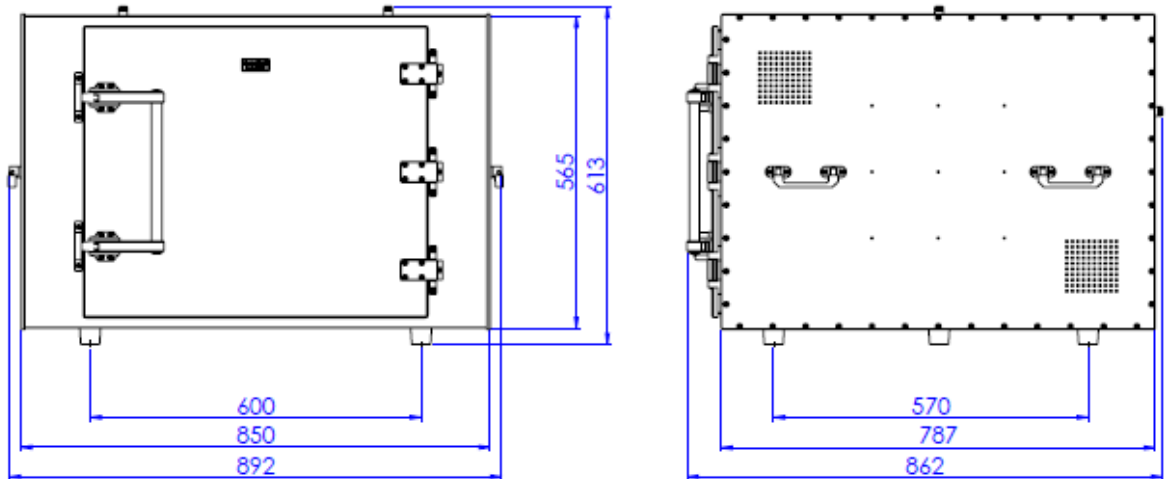
Shielding effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

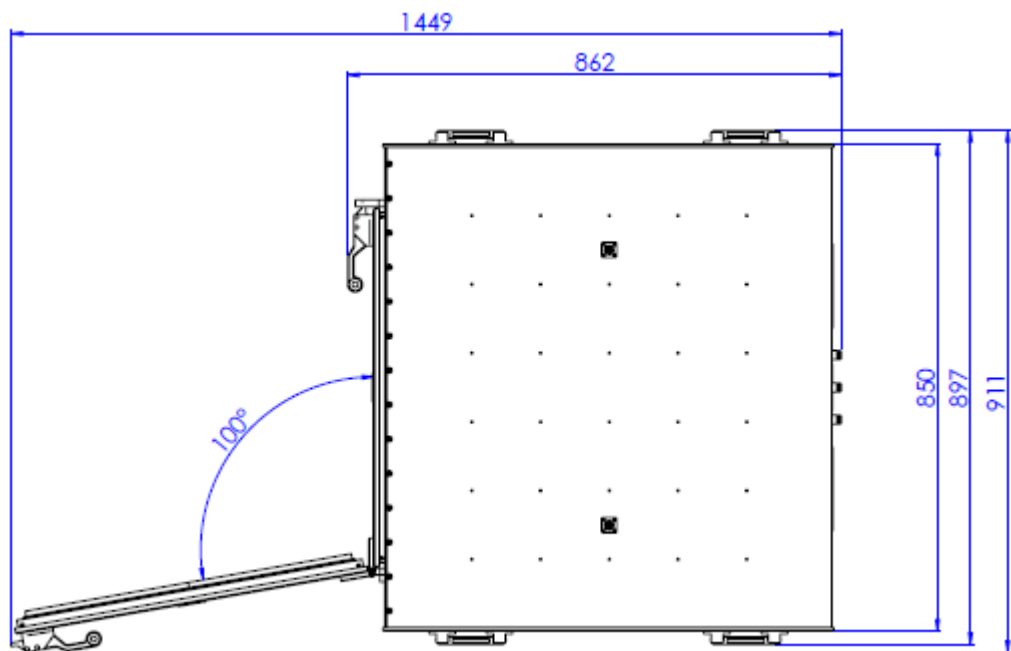
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions

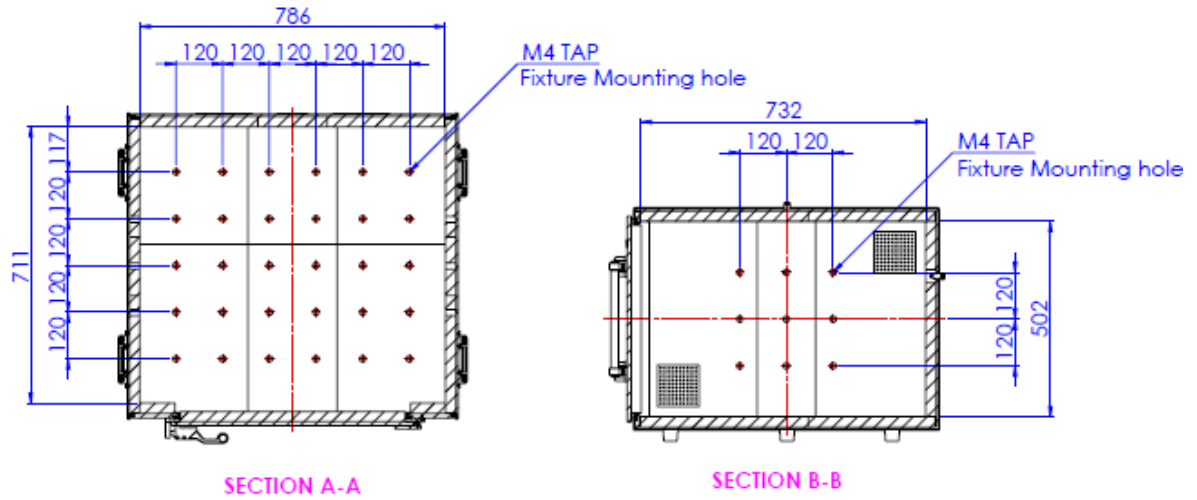


CLOSED



OPENED

Inside Dimensions



RF TEST ENCLOSURE

RT-3130



1. Main features

RT-3130 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability
- Convenient use and maintenance.
- Supports 2x I/O interface panel (IA-series)
- High performance RF absorber on inside walls
- High shielding effectiveness using double layer gasket structure.
- Reliable test result and repeatability
- Fixture mounting holes in the top, bottom and side walls

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	574	607	451
Outer Size (Opened)	574	629	755
Inner Size	467	498	358
Weight	Approx. 28 Kg		
Packing Size	595	805	625
Packing Weight	Approx. 35 Kg		
Interface	I/O Panel : IA-Series		

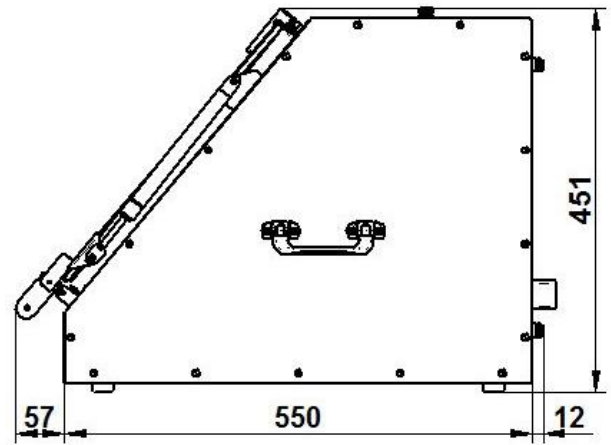
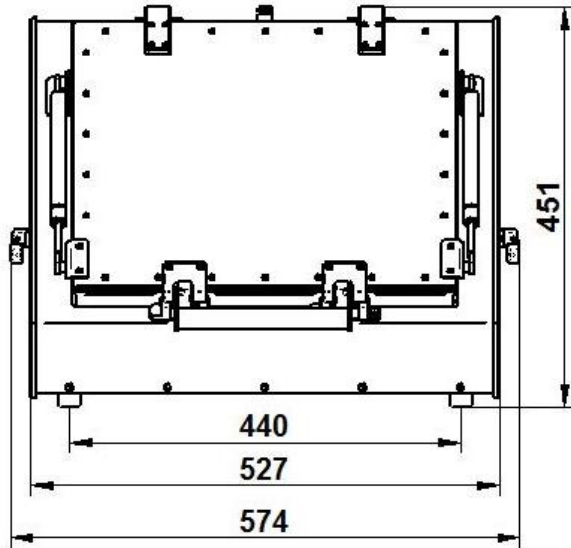
Shielding effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

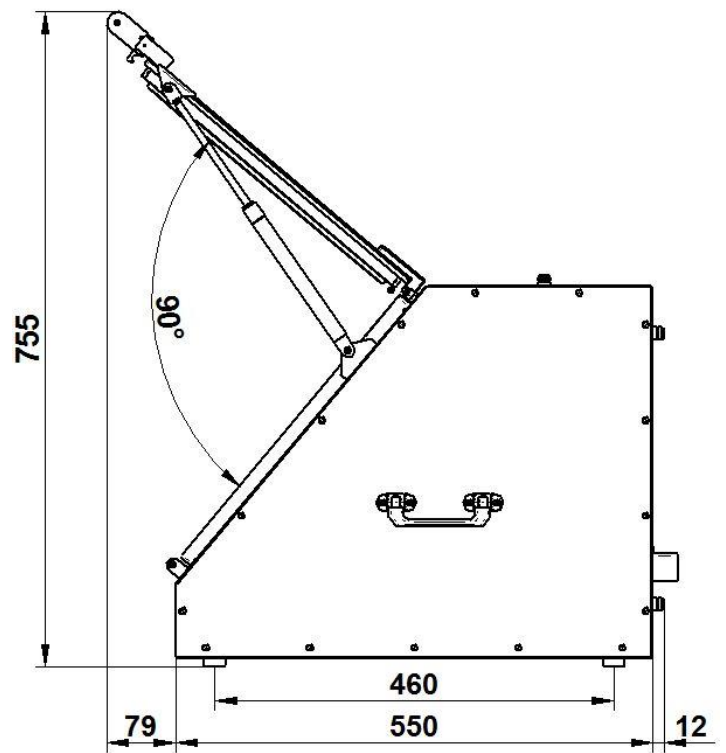
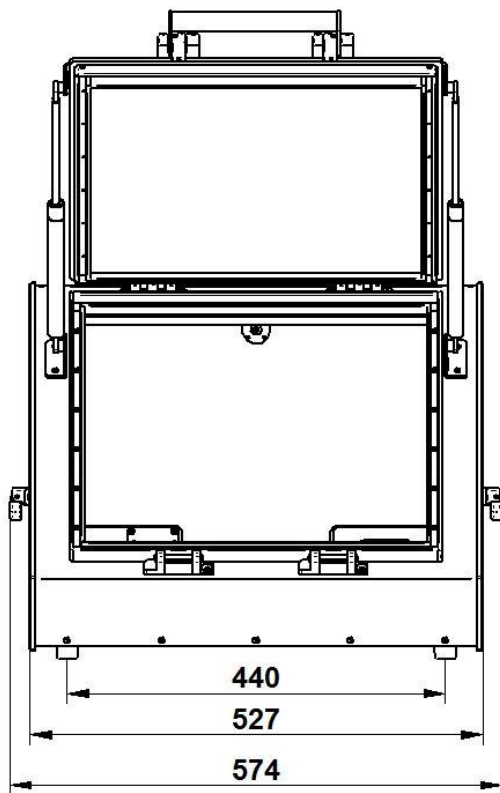
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions

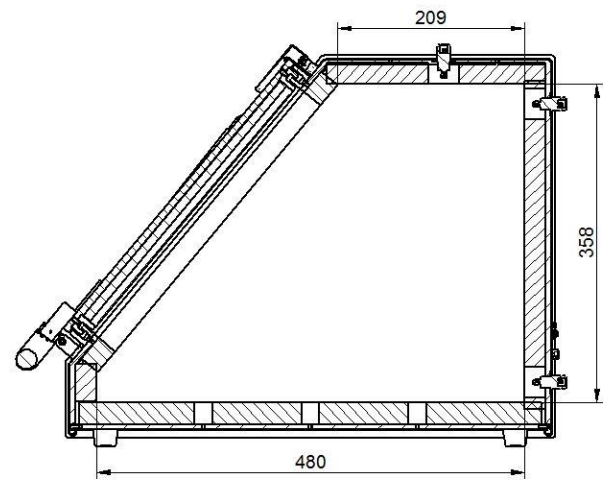
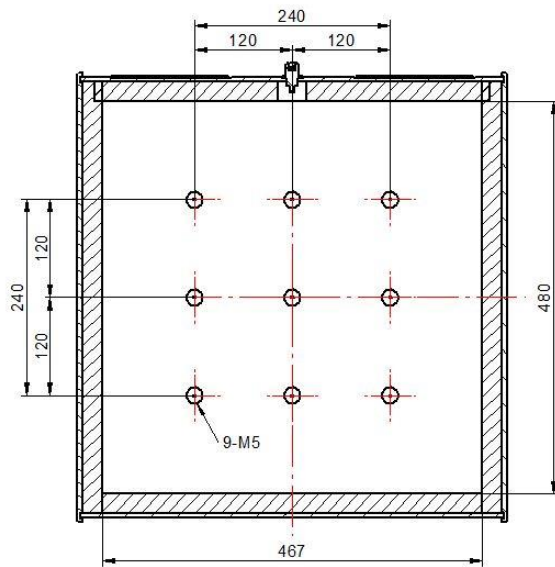


CLOSED



OPENED

Inside Dimensions



RF TEST ENCLOSURE

RT-3140



1. Main features

RT-3140 RF Test Enclosure supports broad band testing frequency and provides optimal testing condition to test mobile device.

- Outstanding durability
- Convenient use and maintenance.
- Supports 2x I/O interface panel (IA-series)
- High performance RF absorber on inside walls
- High shielding effectiveness using double layer gasket structure.
- Reliable test result and repeatability
- Fixture mounting holes in the top, bottom and side walls

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	954	801	493
Outer Size (Opened)	954	727	850
Inner Size	843	650	351
Weight	Approx. 52Kg		
Packing Size	1100	950	600
Packing Weight	Approx. 66Kg		
Interface	I/O Panel : IA-Series		

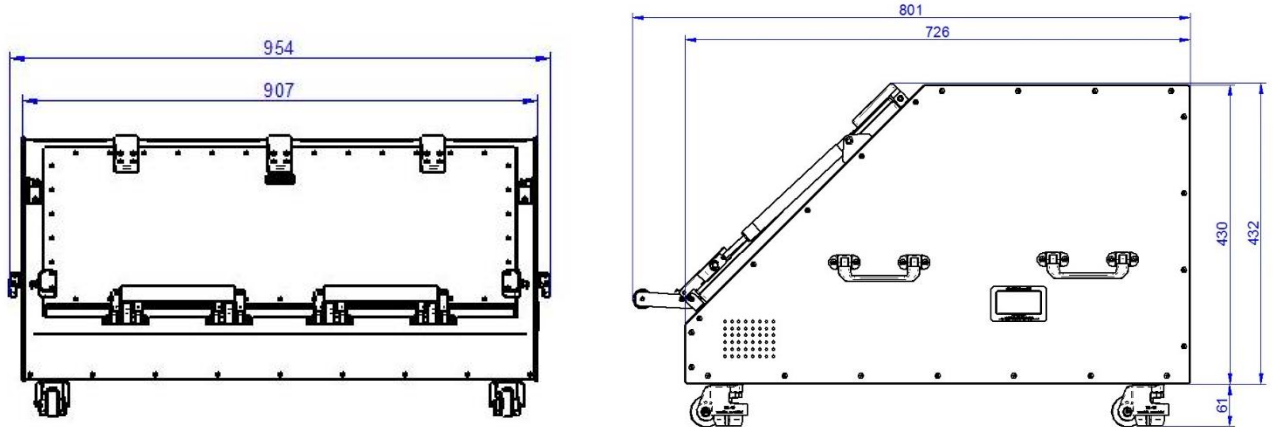
Shielding effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

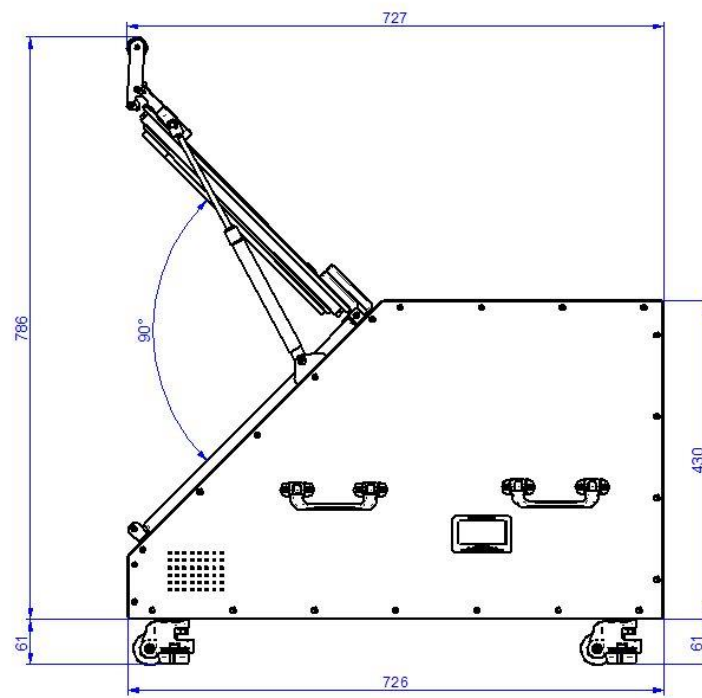
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions

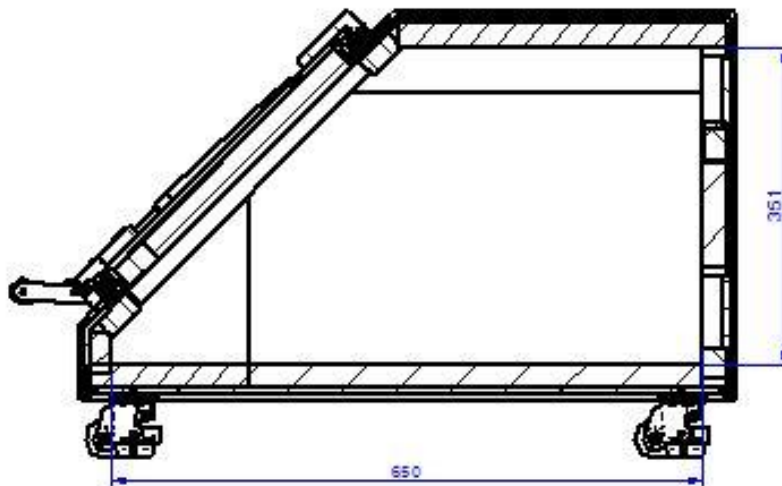
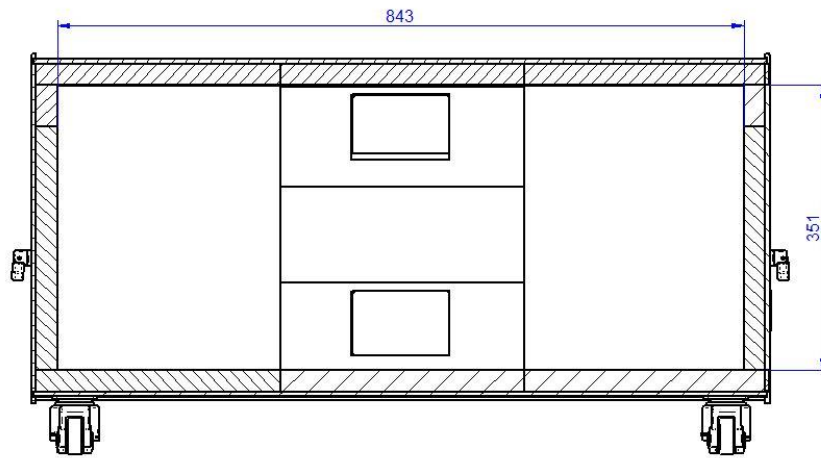


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OPENNED

Inside Dimensions



PNEUMATIC RF TEST ENCLOSURE



1. 1. Main Features

BIP Roottek Pneumatic RF shielding box supports broad band testing frequency and provides optimal testing condition to test mobile device. All manual RF shielding box can be designed to Pneumatic RF shielding box.

- Outstanding durability and simple structure
- Convenient use and maintenance
- Supports an I/O interface panel to apply various interface (IB-series)
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Fixture mounting holes in the Bottom Plate/ Support fixture automation
- Support automatic door/lid control by using RS-232C control

2. Product Specification

		Specification
Recommended Air pressure		5~6 bar
Air connection	Main	6mm Air hose, push fitting
	Fixture	4mm Air hose, push fitting
Voltage		DC 24V, 3A Max
Button operation	Main	Two button operations
	Fixture	One button operation (for test only)
Remote control		RS-232C, DB9(s)

Shielding effectiveness

Frequency – Unit : MHz	Shielding effectiveness – Unit : dB
100-3000	> 80
3000-6000	> 70
6000-18000 (optional)	> 70

The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Remote control

BIP Roottek Pneumatic Shield box can be controlled the two buttons on the front panel and also can be controlled via RS-232C for automation.

1. RS-232C setting

The basic RS-232C setting are shown in the table below.

Bps	9600bps
Data bit	8
Parity	None
Stop bit	1
Flow control	None

2. Operating command

The Operating commands for Roottek Pneumatic RF shielding box control are as shown in the following table. The Carriage return is necessary to send a remote command. All response also need to send Carriage return in the end of response.

Lid/door open	open
Lid/door close	close
Fixture out	out
Fixture in	in
Fixture up	up
Fixture down	down
Pass LED On+ Open	pass
Fail LED ON	fail

4. Dimensions

Roottek Pneumatic RF Test Enclosure basically has the same internal dimensions as each corresponding manual RF test enclosure and the external dimension is also very similar, but increases around 15cm in height for the swing door type shield box.

mmwave (5G) shielding box



RF TEST ENCLOSURE

RT-5330



1. Main features

RT-5330 RF Test Enclosure supports all testing frequency for 5G and provides optimal testing condition to test 5G mobile device.

- Outstanding durability and simple structure.
- Convenient use and maintenance.
- Supports 2x I/O interface panel(IA-series)
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Support fixture mounting holes
- Provide 5G Antenna assembly (optional)

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	456	514	399
Outer Size (Opened)	480	818	399
Inner Size	350	370	320
Weight	Approx. 33 Kgf		
Packing Size	555	770	570
Packing Weight	Approx. 38 Kgf		
Interface	I/O Panel : IA-Series		

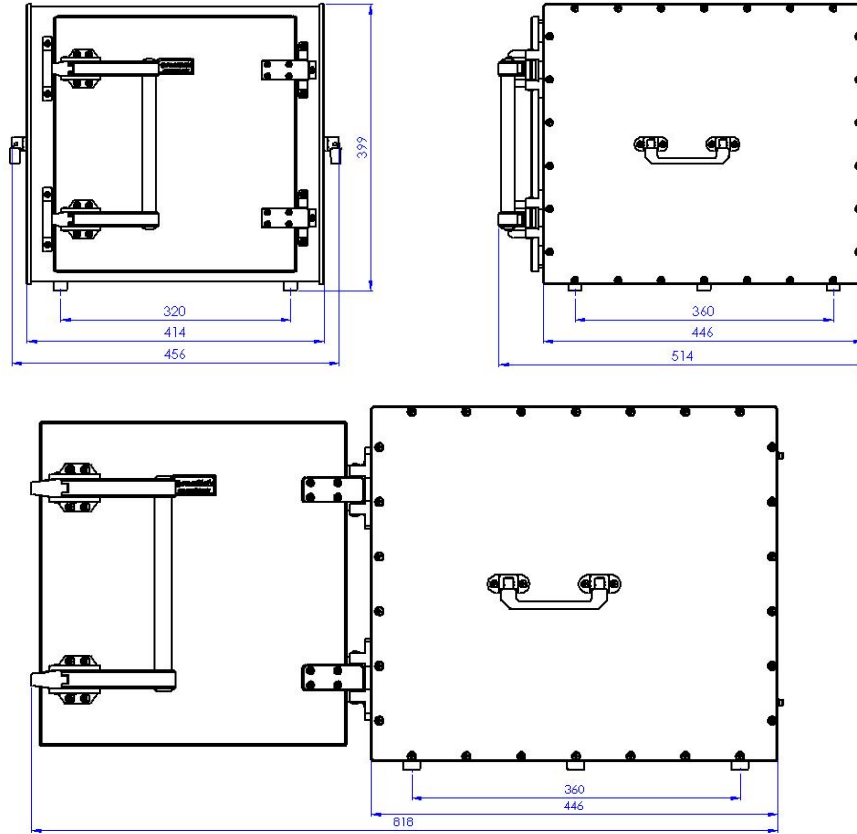
Shielding effectiveness

Frequency – Unit : GHz	Shielding effectiveness – Unit : dB
0.5 - 6	>80
6 - 40	>70
40~67 (optional)	>60

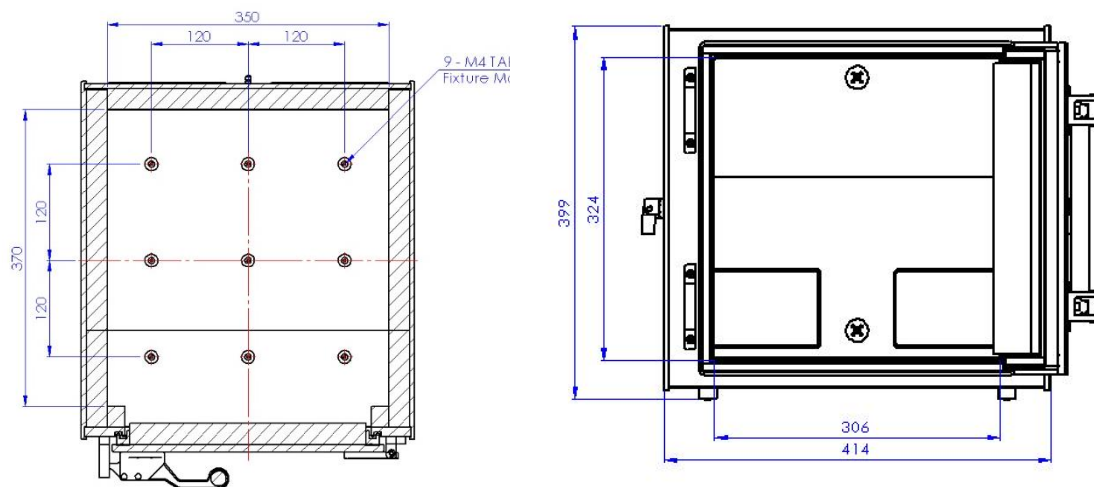
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions



Inside Dimensions



RF TEST ENCLOSURE

RT-5331



1. Main features

RT-5331 RF Test Enclosure supports all testing frequency for 5G and provides optimal testing condition to test 5G mobile device.

- Outstanding durability and simple structure.
- Convenient use and maintenance.
- Supports 2x I/O interface panel(IA-series)
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Support fixture mounting holes
- Provide 5G Antenna assembly (optional)

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	476	444	294
Outer Size (Opened)	522	767	294
Inner Size	366	317	211
Weight	Approx. 18.5 Kgf		
Packing Size	585	530	385
Packing Weight	Approx. 22.5 Kgf		
Interface	I/O Panel : IA-Series		

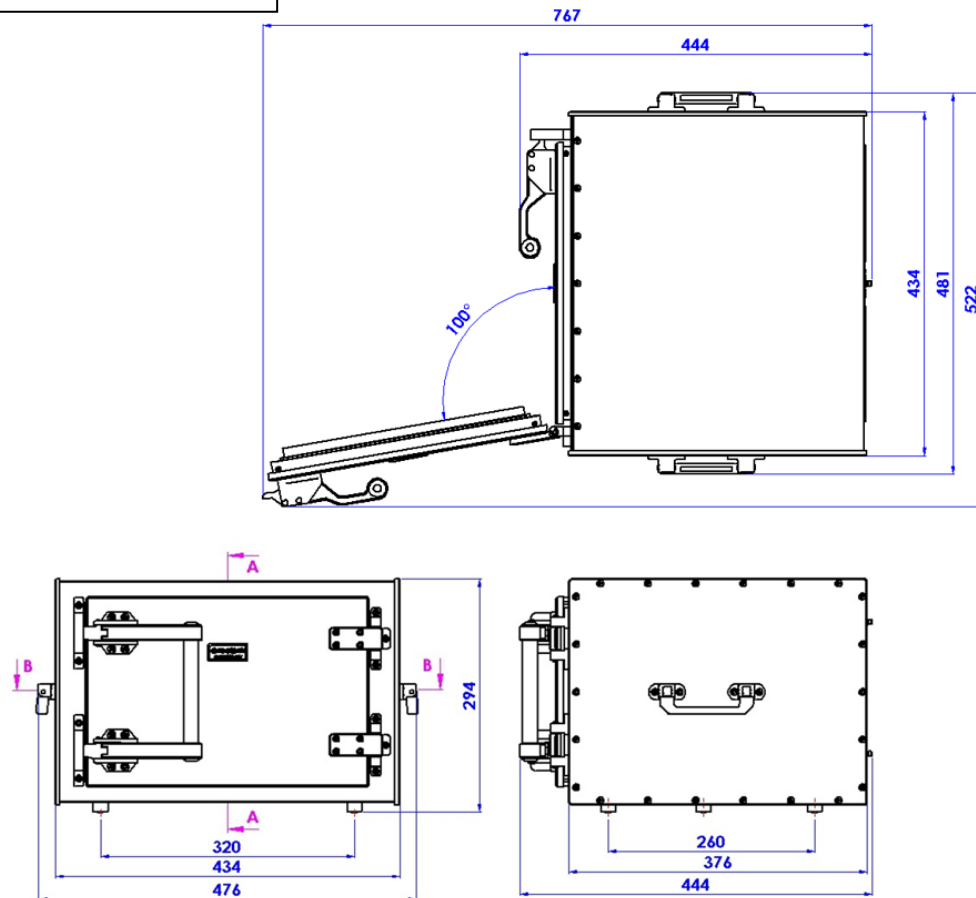
Shielding effectiveness

Frequency – Unit : GHz	Shielding effectiveness – Unit : dB
0.5 - 6	> 80
6 - 40	> 70
40 – 67 (optional)	> 60

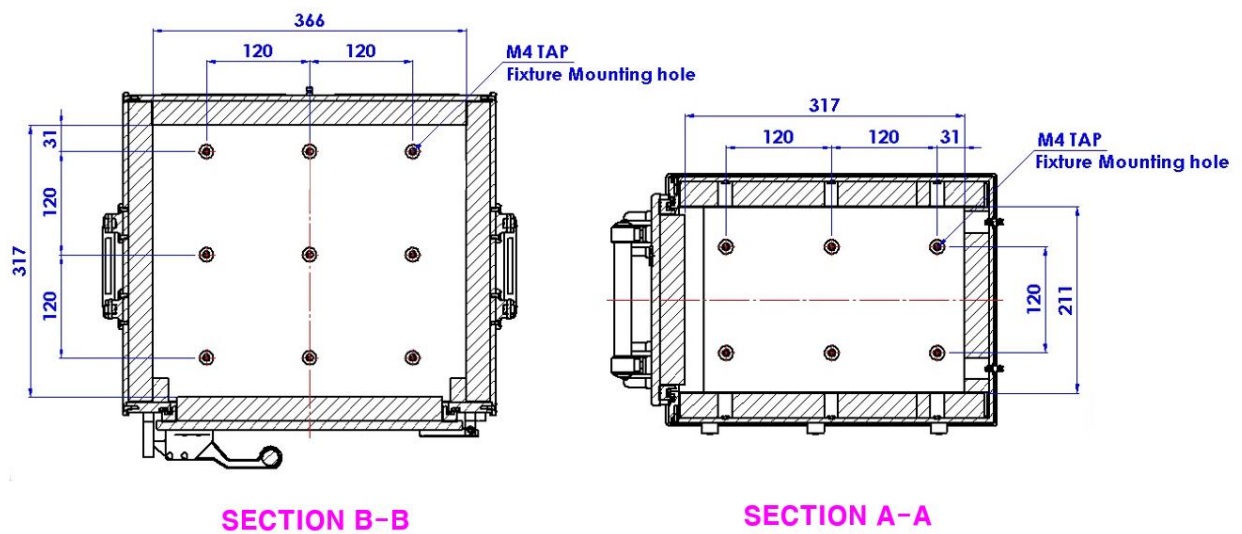
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions



Inside Dimensions



RF TEST ENCLOSURE

RT-5340



1. Main features

RT-5340 RF Test Enclosure supports all testing frequency for 5G and provides optimal testing condition to test 5G mobile device.

- Outstanding durability and simple structure.
- Convenient use and maintenance.
- Supports 2x I/O interface panel(IA-series) and 1x top antenna interface panel
- High performance RF absorber
- High shielding effectiveness using double layer gasket structure.
- Support fixture mounting holes
- Provide 5G Antenna assembly (optional)

2 . Product specification

	W (mm)	D (mm)	H (mm)
Outer Size (Closed)	874	905	715
Outer Size (Opened)	1482	905	715
Inner Size	760	761	670
Weight	Approx. 60 Kgf		
Packing Size	1020	1150	915
Packing Weight	Approx. 75 Kgf		
Interface	I/O Panel : IA-Series		

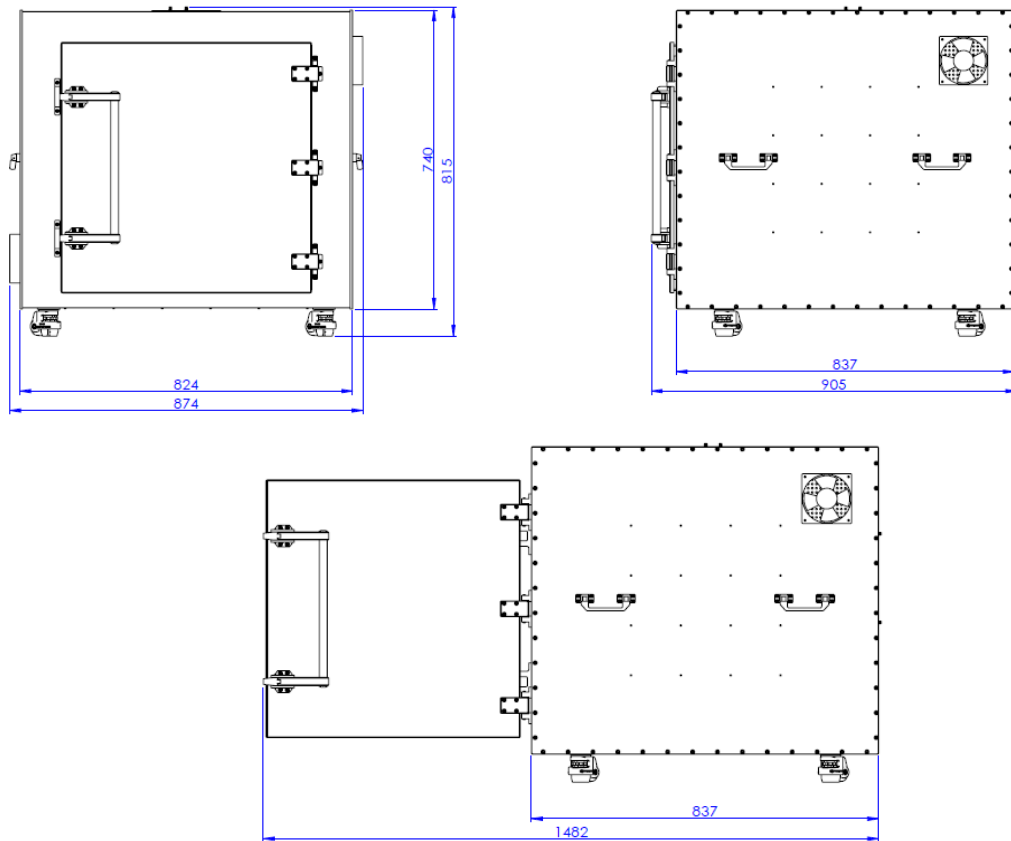
Shielding effectiveness

Frequency – Unit : GHz	Shielding effectiveness – Unit : dB
0.5 - 6	> 80
6 - 40	> 70
40~67 (optional)	> 60

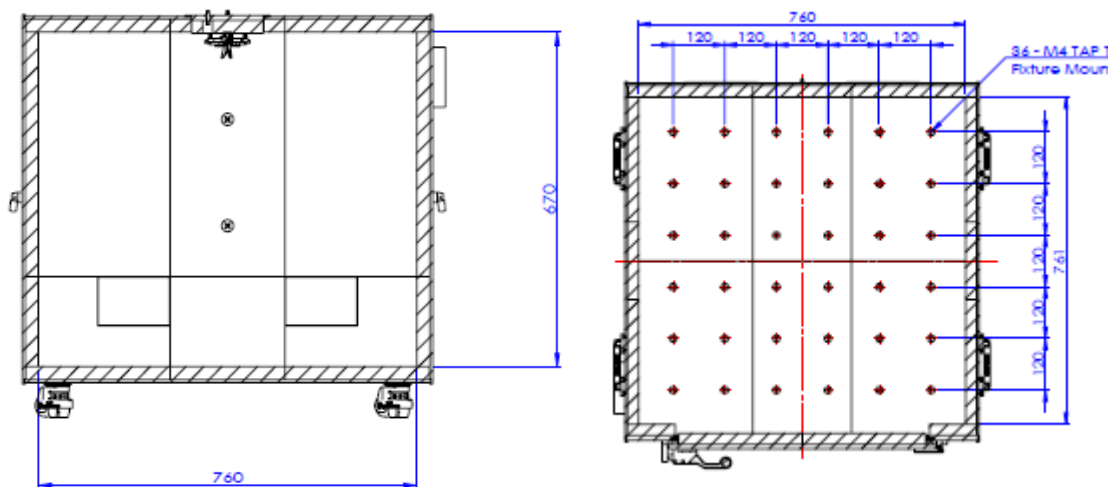
The shielding effectiveness in the above is measured when the blank I/O panel is attached.

3. Dimensions

Outside Dimensions



Inside Dimensions

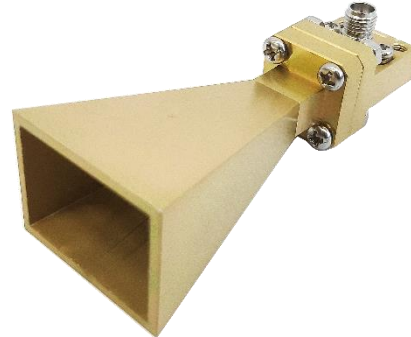


4-1 . Optional antenna

Product Feature

- Rectangular Waveguide Interface
- 26.5GHz to 40 GHz
- Minimum 16dBi Gain

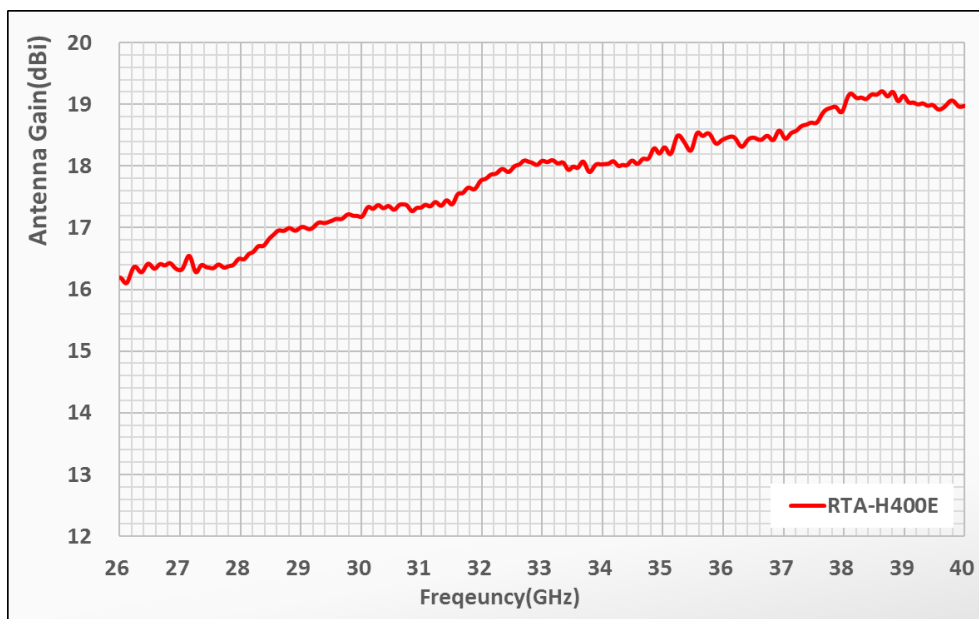
RTA-H400K



Specification

Parameter	Value	Unit	Description
Frequency	26.5 ~ 40.0	GHz	
Dimension	32.0mm(W) X 58.0mm(D) X 24.0mm (H)	mm	
Interface	WR-28, UG-599/U Square Cover Flange	-	
HPBW	E - Plane: 27.7° H - Plane: 26.0°	degree	Simulated results @ 28GHz

Measurement Data



4-2 . Optional antenna #2

Product Feature

- Wide band Antenna
- Dual Polarization
- Directional Antenna

RTA-Q400K

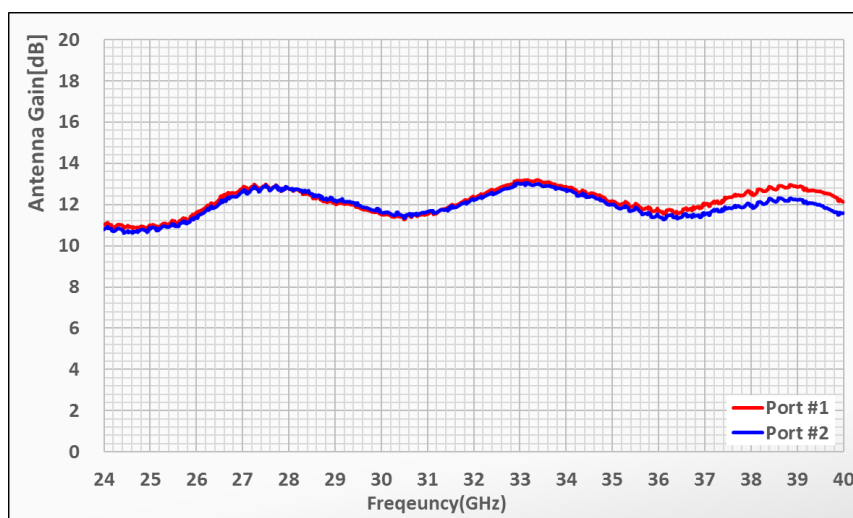


Specification

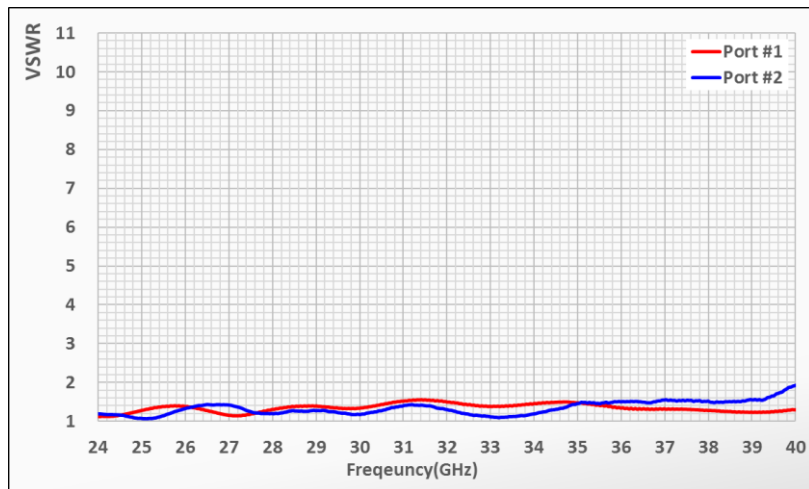
Parameter	Value	Unit	Description
Frequency	24 ~ 40	GHz	
Gain	12	dB	Typical
VSWR	< 2.2 @ 24 ~ 40 GHz	-	
Cross Pol. Isolation	> 20dB		
Cross Port Isolation	> 20dB		
Dimension	49.6(W) X 49.6(D) X 52.3mm (H)	mm	Included connector
Interface	2.92mm(K-Type) Connector	-	Female

Measurement Data

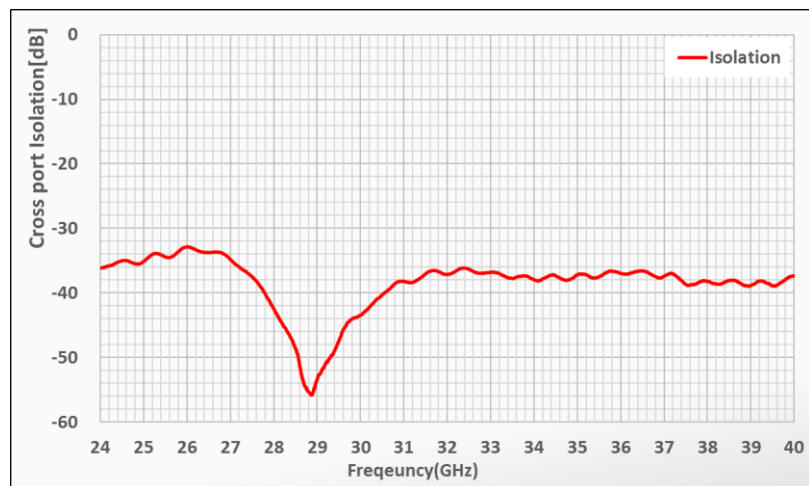
1. Antenna Gain



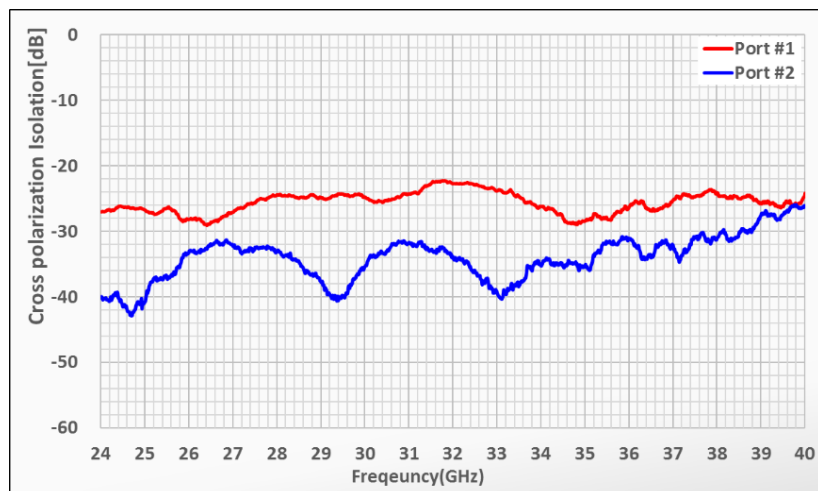
2. Antenna VSWR



3. Cross Port Isolation



4. Cross Polarization Isolation



4-3 . Optional antenna #3

Product Feature

- 1.85mm(V) Connector Interface
- 50GHz to 65GHz
- Minimum 17dBi Gain

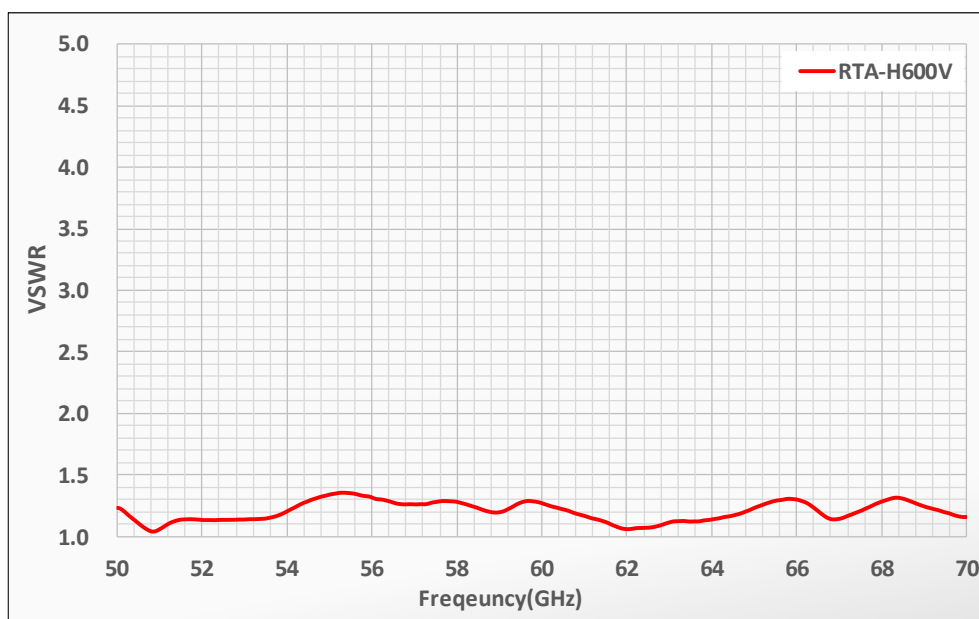
RTA-H600V

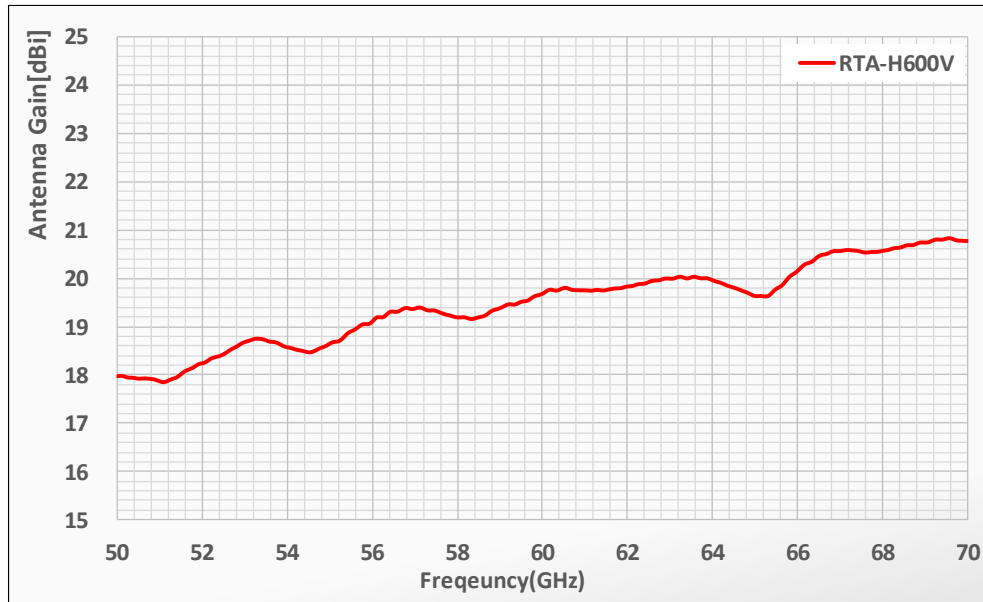


Specification

Parameter	Value	Unit	Description
Frequency	50 ~ 65	GHz	
Dimension	23.0mm(W) X 52.0mm(D) X 22.6mm (H)	mm	Included connector
Interface	1.85mm(V) Connector	-	Female
HPBW	E - Plane: 18.7° H - Plane: 17.3°	degree	Simulated results @ 60GHz

Measurement Data

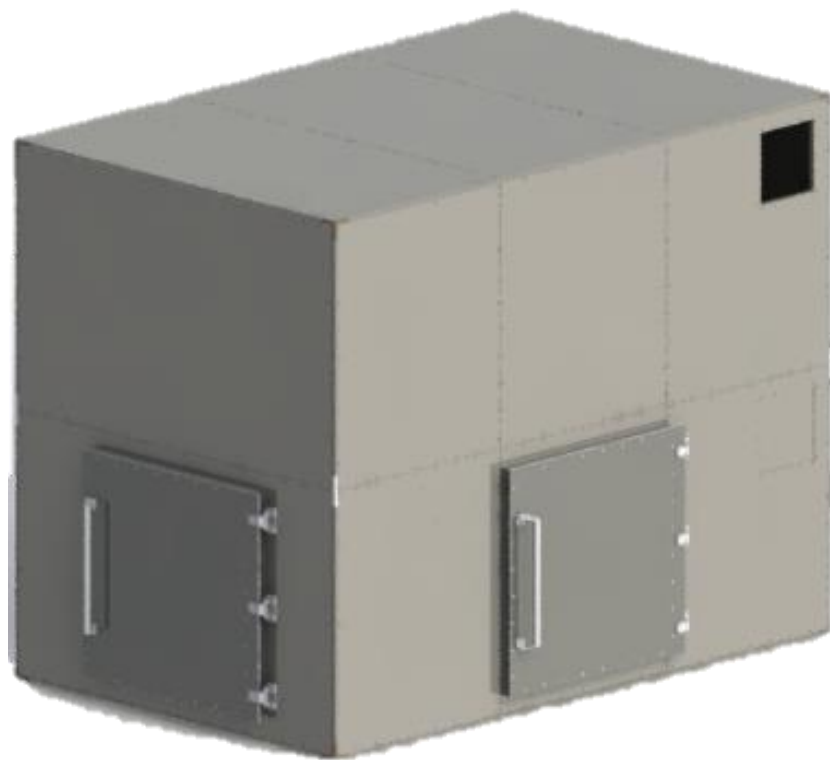




Customizable & Movable

OTA chamber

DATA SHEET



Contents

1. Product Features_____	p.03
2. Product Specifications_____	p.03
3. Product Photos_____	p.04
4. Optional 3D positioner_____	p.05
5. Antenna testing program _____	p.06
6. optional antennas _____	p.07

1. Product Features

The OTA chamber is configured to provide an optimal environment for measuring wireless antenna performance, and has the following characteristics:

- Customer-specific movable chamber
 - ⇒ Can be customized in various sizes based on customer needs
 - ⇒ Optional operating frequency (0.5~6GHz, optional 6~40GHz/70GHz)
- Excellent durability, convenient use and easy maintenance
- Various I/O interface panels and Antenna interface panels
 - ⇒ Optional antenna (RTA-H400K, RTA-H600V)
- High-performance RF Absorber applied to all internal walls
 - ⇒ EPP type pyramid absorber + flat layered absorber
- Optional 3D positioner (rotator) & Antenna testing program

2. Product Specifications

	Width	Depth	Height
Chamber Outer Size	Max 2m	Max 2.5m	Max 2m
3D positioner size	516	476	557 (can be modified)
3D positioner weight/DC	Approx. 20 Kg / DC 24V		
3D positioner control	RS-232C		
Basic IO Interface	1xRF for measurement antenna, 1xUSB3.0 for positioner control, 1xDC to supply power, 1x DB9 for data interface		

Shielding Effectiveness

Frequency – Unit : GHz	Shielding effectiveness – Unit : dB
0.5 - 8	>80
8 - 40(optional)	>70
40~67 (optional)	>60

The shielding effectiveness measured above is tested with blank I/O panel

3. Product Photos

1) Horizontal products



2) Vertical products

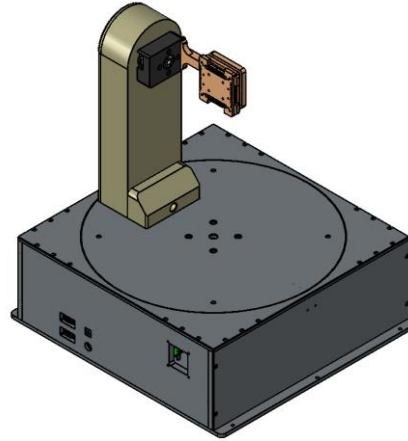


4. 3D positioner

Product Features

- 2 axis rotation (Elevation, Azimuth)
- Flexible frequency (optional)
 - a. 500MHz to 40GHz - basic
 - b. 500MHz to 67GHz
 - option RTR-9000-a
- 2x RF Rotary joint
- movable DUT holder

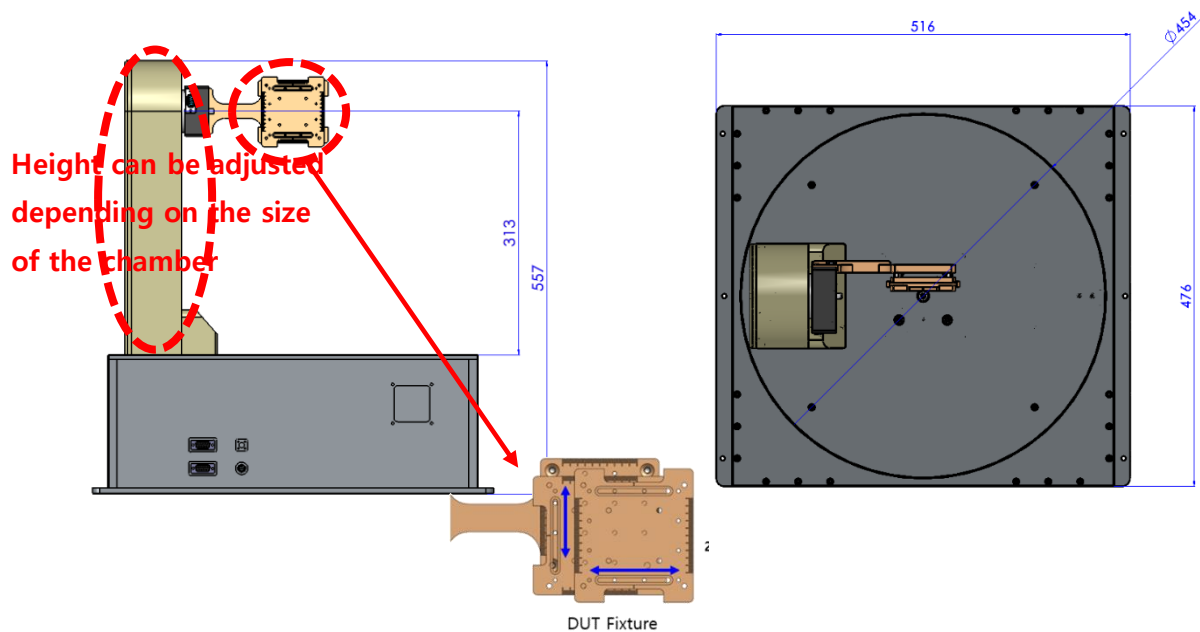
RTR-9000



Specification

Parameter	Value	Parameter	Description
Frequency	Dependant on RF rotary joint	Wight	Approx. 20Kg
Dimension	516mm(W) X 476mm(D) X 557mm (H)	DUT fixture	Optional 2 axis guide
Control	RS-232C	Data interface	D-sub 9
Power	DC 24V	Resolution	1°

Photos (dimension)

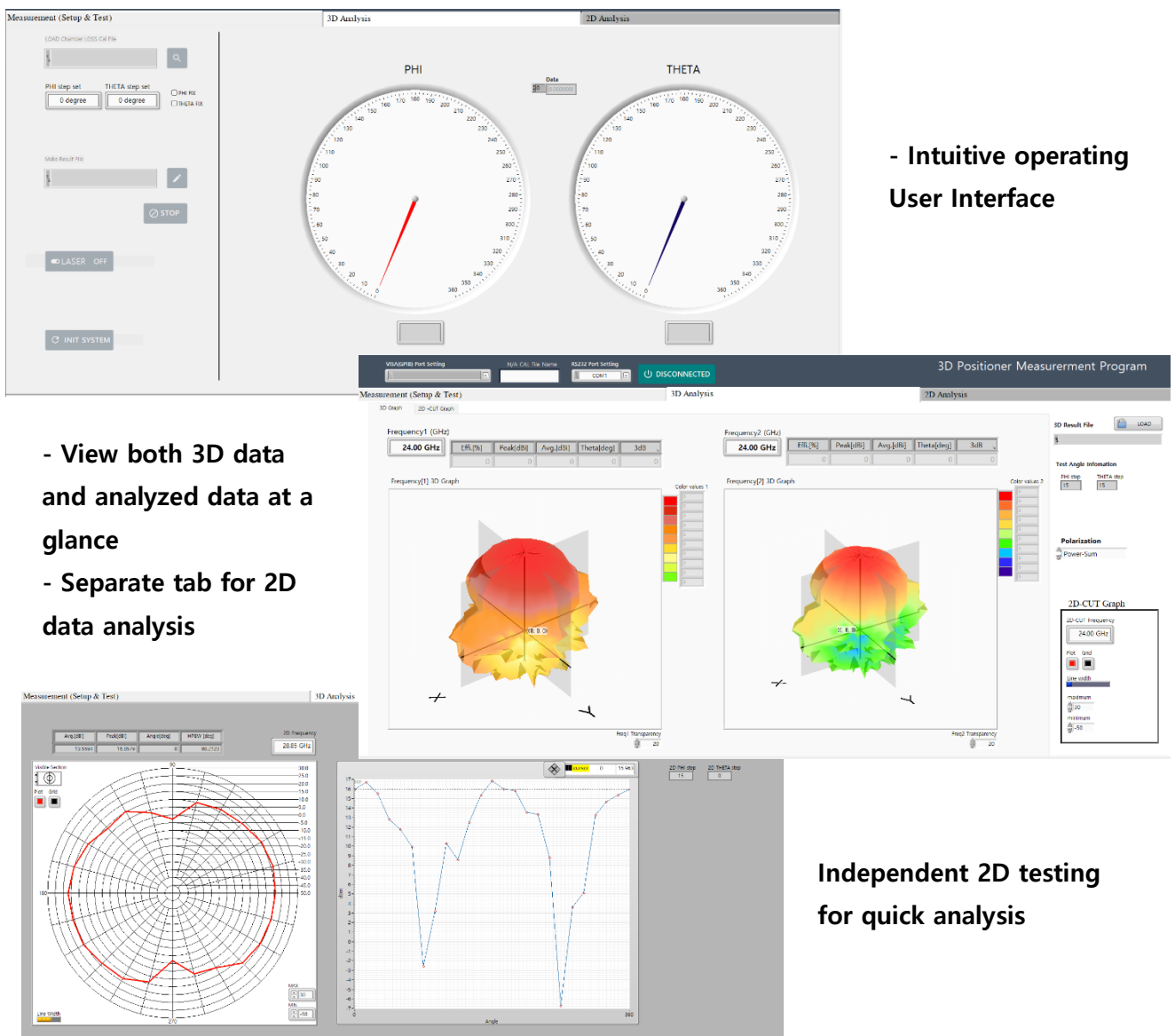


5. Antenna testing program

Product Features

- Supports full 3D antenna pattern testing
- Quick results derived from independent 2D pattern test
- Provides following data analysis:
 - a. Antenna efficiency
 - b. Peak power, AVG power, 3dB BW
- Analysis tool with existing data (operates without connecting to the OTA chamber)

Photos

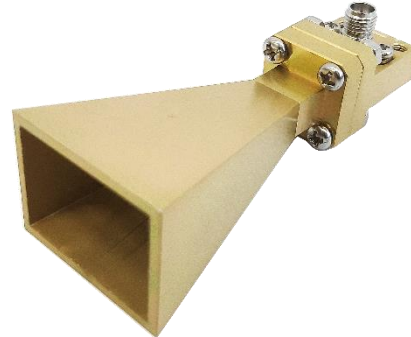


6-1 . Optional antenna

Product Features

- Rectangular Waveguide Interface
- 26.5GHz to 40 GHz
- Minimum 16dBi Gain

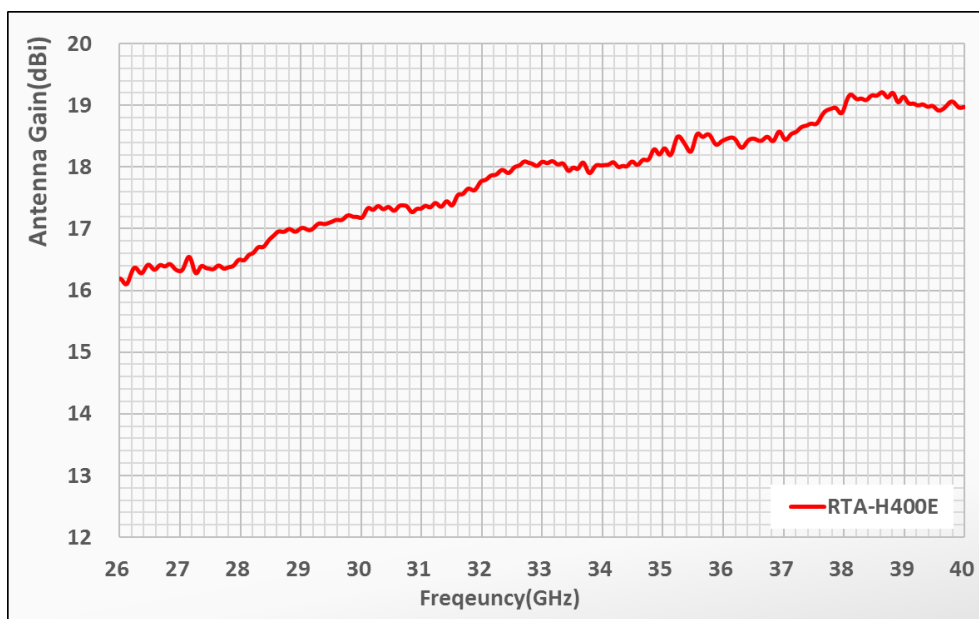
RTA-H400K



Specification

Parameter	Value	Unit	Description
Frequency	26.5 ~ 40.0	GHz	
Dimension	32.0mm(W) X 58.0mm(D) X 24.0mm (H)	mm	
Interface	WR-28, UG-599/U Square Cover Flange	-	
HPBW	E - Plane: 27.7° H - Plane: 26.0°	degree	Simulated results @ 28GHz

Measurement Data



6-2 . Optional antenna #2

Product Features

- 1.85mm(V) Connector Interface
- 50GHz to 65GHz
- Minimum 17dBi Gain

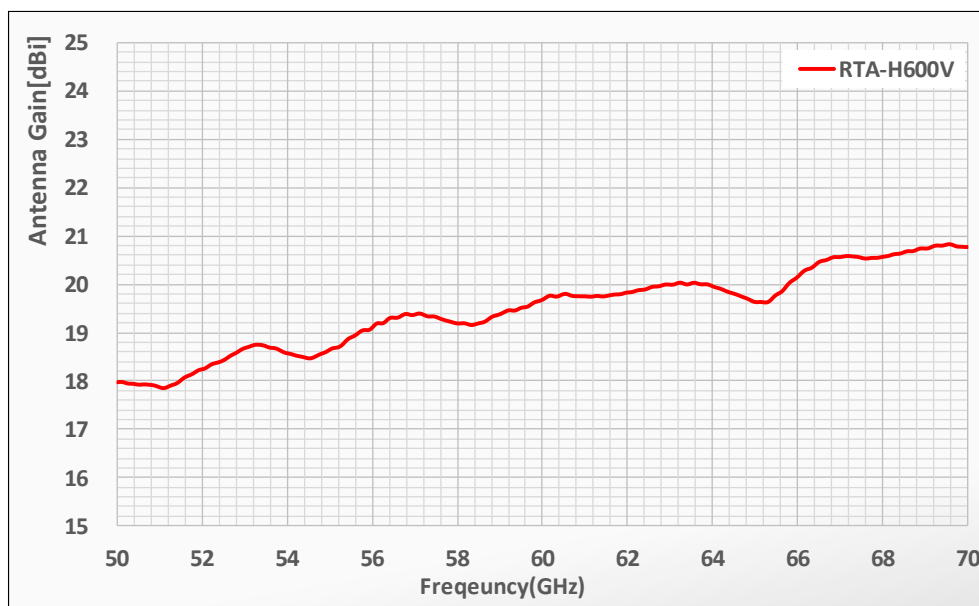
RTA-H600V



Specification

Parameter	Value	Unit	Description
Frequency	50 ~ 65	GHz	
Dimension	23.0mm(W) X 52.0mm(D) X 22.6mm (H)	mm	Included connector
Interface	1.85mm(V) Connector	-	Female
HPBW	E - Plane: 18.7° H - Plane: 17.3°	degree	Simulated results @ 60GHz

Measurement Data



one box W-BMS

Test Equipment

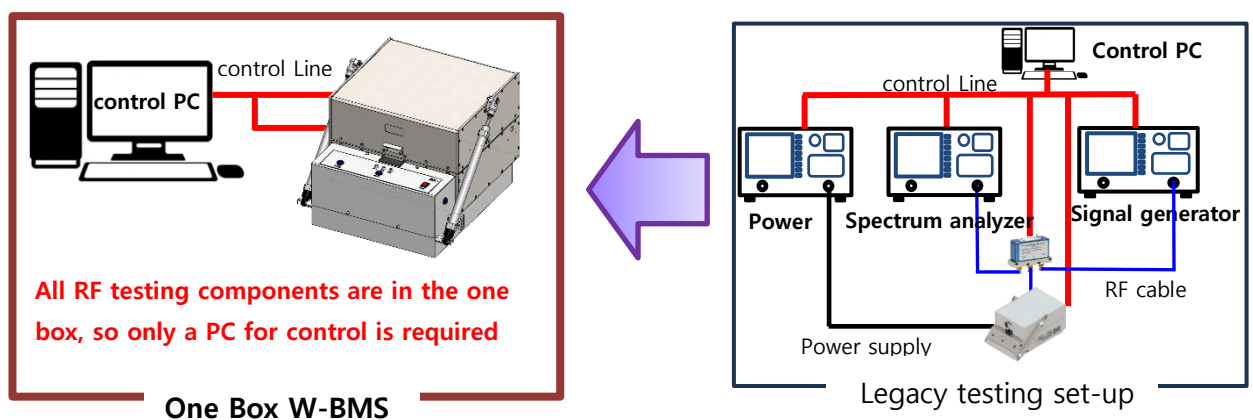
Data sheet



1. Product feature

One Box - W-BMS test equipment from BIP Roottek is **a total solution consists of a single box with all the equipment necessary for W-BMS testing**, and it provides with an auto test program, allowing test without any additional equipment and program. This product not only simplifies the production line and maximizes space efficiency, but is also **highly price competitive**.

- Built-in RF spectrum analyzer and signal generator
 - ⇒ Built-in RF spectrum Analyzer allows DUT Tx measurements without connecting any other equipment.
 - ⇒ By transmitting PER testing Packet from the built-in RF signal generator, DUT RX testing is possible without additional configuration.
- A very compact design and simple HW configuration
- Only power and USB connection is required to test W-BMS.
- Very easy to customize to meets customer's requirements.
- Supports an auto test program
- Supports a customized internal fixture and a measurement antenna
- Additional IO interface panel for various test scenarios
- Excellent test repeatability and RF shielding effectiveness



2. Product Key Specification

a. Standard Product size

- 410x410x320mm

→ The size can be modified depending on DUT testing concept

b. Inside Spectrum analyzer Key Feature

- Wide dynamic range: -115dBm to 0dBm
- Resolution bandwidths of 0.1Hz to 250KHz and 5MHz
- I/Q data up to a 240KHz bandwidth
- Frequency sweeps up to 140MHz up to per second
- Compatible with Windows 7/8/10 32-bit and 64-bit operating system
- (HW option) support Harmonic test

c. Inside Signal generator key feature

- Support W-BMS packet and modulation
- 40MHz of real time streaming bandwidth
- Frequency Resolution: <1Hz
- Arbitrary I/Q sample rates form 12.5KSPS to 51.2MSPS
- Amplitude range and accuracy: -90 to -30dBm ± 1 dBm
- Compatible with Windows x64-86 architecture

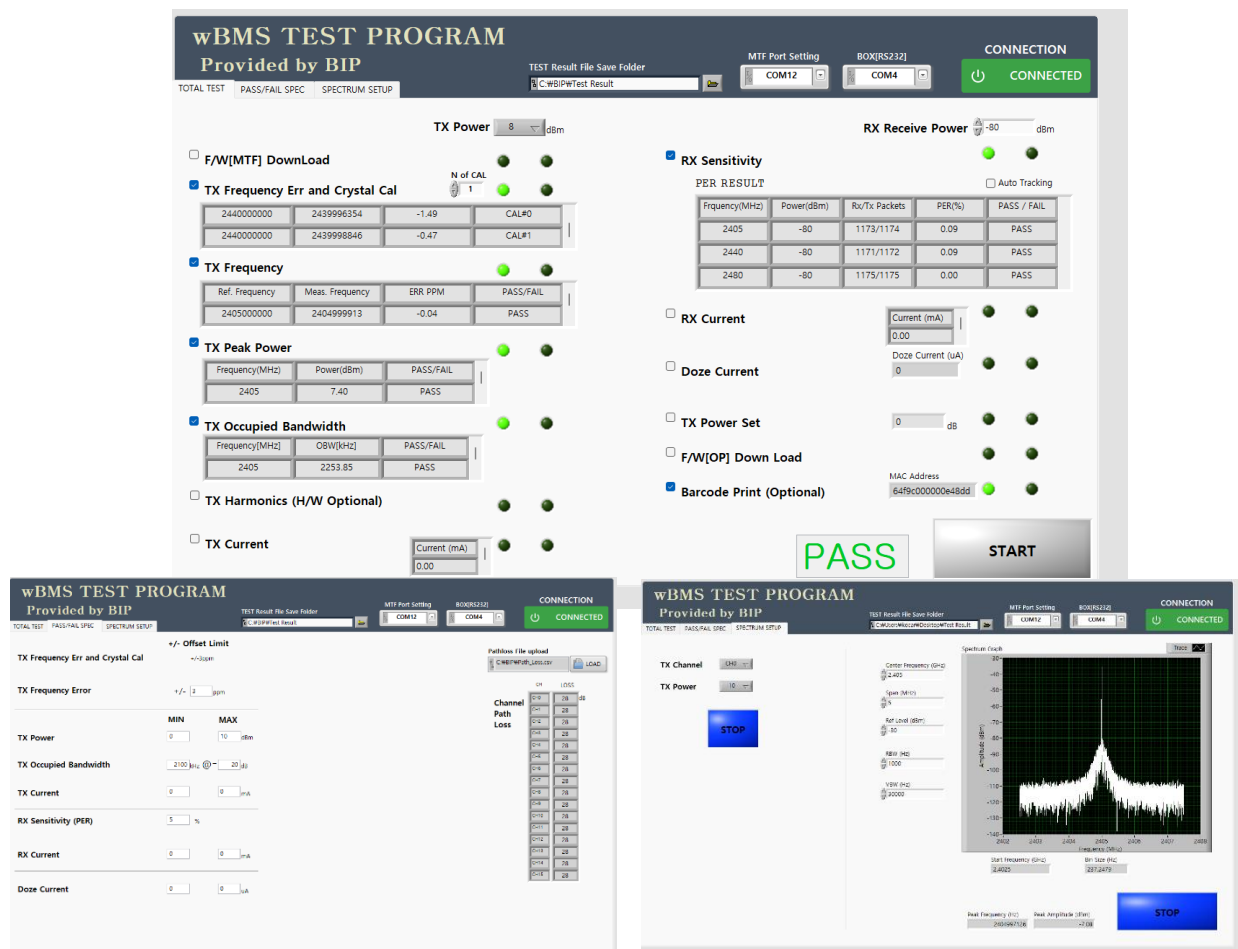
d. RF shielding box key feature

- RF shielding effectiveness: >70dB at 0.5 to 3GHz
- Support Auto testing using Pneumatic operation
- Customizable RF shielding box size depending on DUT size
- Customizable type of lid or door operation
- built-in RF and DC connection
- option) Manual or Auto antenna testing fixture

3. Auto Testing Program

- Very Simple UI and customizable program according to user request.
- Support DUT Auto control
- Definable test frequency and specification
- Supports all W-BMS RF test cases (Except Receiver blocking)
- Supports saving testing result in a folder.
- Support Mac address Read/write and Auto calibration
- Supports RX sensitivity level search function.
- Supports current measurement below 5V input

- Example of Auto test program UI



The screenshot displays the wBMS TEST PROGRAM interface, which is divided into several sections for configuring and executing tests.

Top Bar: Includes the program title "wBMS TEST PROGRAM Provided by BIP", a "TEST Result File Save Folder" field, "MTF Port Setting" (COM12), "BOX[RS232]" (COM4), and a "CONNECTION" status indicator showing "CONNECTED".

Main Test Configuration Area:

- TX Power:** Set to 8 dBm.
- TX Frequency Err and Crystal Cal:** Includes a table for calibration data.

Ref. Frequency	Meas. Frequency	ERR PPM	PASS/FAIL
2440000000	2439996354	-1.49	CAL#0
2440000000	2439998846	-0.47	CAL#1
- TX Frequency:** Includes a table for frequency test results.

Ref. Frequency	Meas. Frequency	ERR PPM	PASS/FAIL
2405000000	2404999913	-0.04	PASS
- TX Peak Power:** Includes a table for peak power test results.

Frequency(MHz)	Power(dBm)	PASS/FAIL
2405	7.40	PASS
- TX Occupied Bandwidth:** Includes a table for occupied bandwidth test results.

Frequency(MHz)	OBW(KHz)	PASS/FAIL
2405	2253.85	PASS
- TX Harmonics (H/W Optional):** Includes a table for harmonic test results.
- TX Current:** Includes a table for current test results.

RX Sensitivity Section:

- PER RESULT Table:**

Frequency(MHz)	Power(dBm)	Rx/Tx Packets	PER(%)	PASS / FAIL
2405	-80	1173/1174	0.09	PASS
2440	-80	1171/1172	0.09	PASS
2480	-80	1175/1175	0.00	PASS
- RX Current:** Includes a table for current test results.
- Doze Current:** Includes a table for doze current test results.
- TX Power Set:** Includes a table for power set test results.
- F/W[OP] Down Load:** Includes a table for down load test results.
- Barcode Print (Optional):** Includes a field for MAC Address (E49c000000e48dd).

Bottom Section:

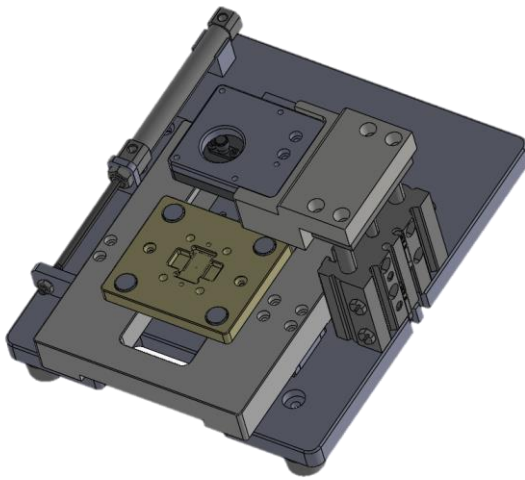
- TX Frequency Err and Crystal Cal:** Includes a table for frequency error test results.
- TX Power:** Includes a table for power test results.
- TX Occupied Bandwidth:** Includes a table for occupied bandwidth test results.
- TX Current:** Includes a table for current test results.
- RX Sensitivity (PER):** Includes a table for sensitivity test results.
- RX Current:** Includes a table for current test results.
- Doze Current:** Includes a table for doze current test results.

Results and Controls:

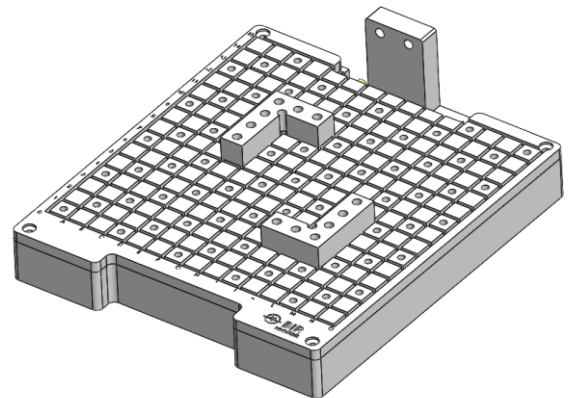
- A large green "PASS" indicator is displayed.
- A "START" button is visible.
- A "STOP" button is visible.
- A "Spectrum Graph" is shown, displaying a frequency spectrum plot.

4. Optional RF test fixture

1. Provide various types of RF test fixture depending on test configuration.
2. Supports Auto fixture
 - Sliding In/Out, Up/Down movement
 - Auto pogo pin connection
3. Supports radiation testing fixtures suitable for testing purpose using various antenna options
4. Supports universal type of fixture
 - example of RF test fixture

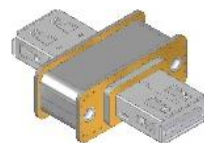
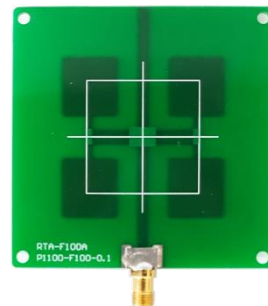
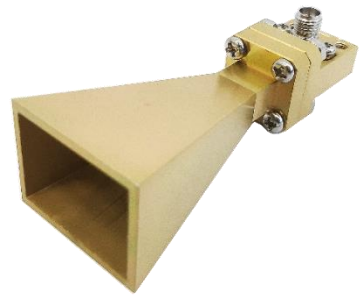


< Auto test fixture example>

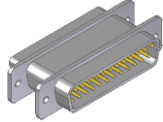
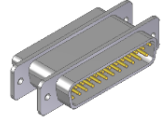
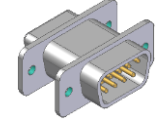
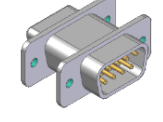
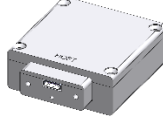


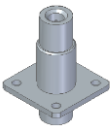
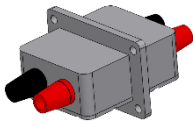
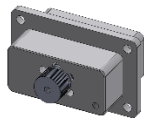
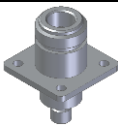
< manual test fixture example>

I/O Components & Accessory



1. I/O Components 특성

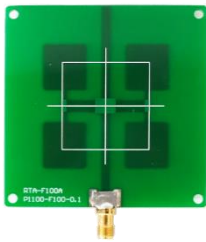
I/O COMPONENT			
Part	SHAPE & ORDER NO.	SHIELDING SPEC.	SPEC.
DB-25 FILTER	 C-DB25 1000	0.5-2GHz : >70dB 2- 3GHz : >70dB 3- 6GHz : >70dB 6~67GHz: >60dB	Working Voltage: 100V Data Rate : 3Mbps Max 5A EMI Filter: 1000 pF Pi
	 C-DB25 100	0.5-2GHz : >60dB 2- 3GHz : >60dB 3- 7.5GHz : >50dB	Working Voltage: 100V Data Rate : 10Mbps Max 5A EMI Filter: 100 pF Pi
DB-9 FILTER	 C-DB9 1000	0.5-2GHz : >70dB 2- 3GHz : >70dB 3- 6GHz : >70dB 6~67GHz: >60dB	Working Voltage: 100V Data Rate : 3Mbps Max 5A EMI Filter: 1000 pF Pi
	 C-DB9 100	0.5-2GHz : >60dB 2- 3GHz : >60dB 3- 7.5GHz : >50dB	Working Voltage: 100V Data Rate : 10Mbps Max 5A EMI Filter: 100 pF Pi
USB 2.0 FILTER	 C-USB 2.0-0-1.0	0.5-2GHz : >70dB 2- 3GHz : >70dB 3- 6GHz : >60dB 6~67GHz: >60dB	Data Rate : 480Mbps Max 2A
USB 3.0 FILTER	 C-USB 3.0-0-1.0	0.5-2GHz : >60dB 2- 3GHz : >60dB 3- 6GHz : >55dB 6~67GHz: >55dB	Max Data Rate : 5Gbps Max 1.5A Connector: A type
USB 3.1 GEN2 FILTER	 C-USB 3.1-gen2-1.0	0.5-2GHz : >60dB 2- 3GHz : >60dB 3- 6GHz : >60dB 6~67GHz: >55dB	Max Data Rate : 10Gbps Max 3A Connector: C type
ETHERNET FILTER	 C-EN-0-1.0	0.5-2GHz : >60dB 2- 3GHz : >60dB 3- 6GHz : >55dB 6~67GHz: >55dB	1 Gbit/s Copper-Line

DC FILTER	 C-DC 2.1	0.5-2GHz : >80dB 2- 3GHz : >70dB 3- 6GHz : >70dB 6~67GHz: >60dB	100VDC Max 5A
BANANA JACK FILTER	 C-Banana 1.0	0.5-2GHz : >70dB 2- 3GHz : >70dB 3- 6GHz : >70dB 6~67GHz: >60dB	100VDC Max 5A
AC FILTER	 C-AC 1.0	0.5-2GHz : >70dB 2- 3GHz : >70dB 3- 6GHz : >60dB 6~67GHz: >60dB	Universal type Max 10A
AC TERMINAL FILTER	 C-AC TEM 1.0	0.5-2GHz : >70dB 2- 3GHz : >70dB 3- 6GHz : >60dB 6~67GHz: >60dB	Universal type Max 10A
WAVEGUIDE	 C-WAV 1.0	0.5-2GHz : >70dB 2- 3GHz : >70dB 3- 6GHz : >60dB 6~67GHz: >60dB	
RF CONNECTOR	 C-N-SMA 4H	0.5-2GHz : >80dB 2- 3GHz : >70dB 3- 7.5GHz : >70dB	Impedance: 50 ohm
	 C-SMA-SMA	0.5-2GHz : >80dB 2- 3GHz : >70dB 3- 12GHz : >70dB	Impedance: 50 ohm
	 C-2.92mm-2.92mm	0.5-2GHz : >80dB 2- 3GHz : >70dB 3- 40GHz : >70dB	Impedance: 50 ohm
	 C-2.4mm-2.4mm	0.5-2GHz : >80dB 2- 3GHz : >70dB 3~50GHz: >70dB	Impedance: 50 ohm

	 C-1.85mm-1.85mm	0.5-2GHz : >80dB 2- 3GHz : >70dB 3- 67GHz : >70dB	Impedance: 50 ohm
* NEW COMPONENTS CAN BE DEVELOPED AND ADDED UPON CUSTOMER REQUEST. * THE ABOVE ISOLATION RESULT WAS MEASURED WHEN THE CABLE IS NOT CONNECTED. * DEPENDING ON I / O COMPONENTS, THE SHIELDING EFFECTIVENESS MAY VARY.			

2. Antenna

ANTENNA			
Model	FEATURE	ORDER NO	SPEC
		DIMENSION (MM)	
Standard horn (WR28) Antenna		RTA-H400E	- Freq: 26.5~40GHz - WR28, UG-599/U Square cover Flange - Min Gain 16dBi - HPBW E - Plane: 27.7° H - Plane: 26.0°
		32.0 (W) X 58.0 (D) X 24.0 (H)	
RTA-H400E with RTW-RE00K		RTA-H400E WITH RTW-RE00K	- Freq: 26.5~40GHz - 2.92mm connector - Min Gain 16dBi - HPBW E - Plane: 27.7° H - Plane: 26.0

Dual Polarization horn (2.92mm, K-type) Antenna		RTA-Q400K	- Freq: 24~40GHz - 2.92mm connector - Min Gain 16dBi - HPBW E - Plane: 27.7° H - Plane: 26.0
		49.6 (W) X 49.6 (D) X 52.3 (H)	
Standard horn (1.85mm, V-type) Antenna		RTA-H600V	- Freq: 50~65GHz - 1.85mm connector - Typical Gain 18dBi - HPBW E - Plane: 18.7° H - Plane: 17.3
		23.0 (W) X 52.0 (D) X 22.6 (H)	
Wideband Spiral Antenna		RTA-S101A	- Freq: 0.8~6GHz - VSWR <2.0 @ 0.8~6.0GHz
		120 (W) X 140 (D) X 14.7 (H)	
Wideband Spiral Antenna		RA-S100	- Freq: 0.8~6GHz - VSWR <3.0 @ 0.8~1.7GHz <2.2 @ 1.7~6GHz, - Max Gain 3.4 @ 0.9GHz 4.2 @ 2.4GHz 4.7 @ 5.0GHz
		100 (W) X 129.5 (D) X 5.7 (H)	
Wideband Dipole array Antenna		RTA-F100A	- Freq: 2.0~6GHz - VSWR <2.5 @ 2~6GHz - Max Gain 3.4 @ 2.4GHz 3.6 @ 3.7GHz 3.4 @ 5.0GHz
		100 (W) X 129.5 (D) X 5.7 (H)	

Wideband Vivaldi Antenna		RTA-V100A	Freq: 0.7~6GHz VSWR <3.0 @ 0.7~2.0GHz <2.0 @ 2.0~6GHz, Max Gain 2.0 @ 0.9GHz 4.1 @ 2.4GHz 5.6 @ 5.0GHz
		98.0 (W) X 76.4 (D) X 6.5 (H)	
Small Vivaldi Antenna		RA-S100	Freq: 2.4~6GHz VSWR <2.2 @ 2.4~6GHz, Max Gain 2.9 @ 0.9GHz 4.1 @ 2.4GHz 5.3 @ 5.0GHz
		74.4 (W) X 66.0 (D) X 6.5 (H)	

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** Specification of chamber can be updated without prior notice **