



Concentric Technology Solutions Inc

Solutions for the Wireless Industry

TC-5570A

mmWave Shield Box

Data Sheet  **TESCOM**
WIRELESS



Introduction

TC-5570A is a large scale manual operation shield bx optimized to perform 5G tests between 0.1 GHz to 67 GHz on larger devices such as tablets, laptops and desktops. TC-5570A can be expanded to meet current and future device requirements.

Features

Designed for mmWave Testing

Reliable RF shielding from 0.1 GHz to 67 GHz

EMI filters on all data ports and power lines

Convenient manual door operation

Customizable I/O interface



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Mechanical Specifications

Standard RF Connector	One (1), 1.85 mm (f) outside and 1.85 mm (f) inside
Dimensions	
Inside	802 (W) x 762 (D) x 644 (H) mm
Outside	916 (W) x 940 (D) x 856 (H) mm, Door closed.
Door	624 (W) x 624 (H) mm
Weight	Approx. 81 kg
*Packing	
Size	1100 (W) x 1100 (D) x 1030 (H) mm
Weight	Approx. 101 kg

* The size or weight of a package may vary depending on how the product is packed.

RF Specifications

*The shielding effectiveness is measured with blank panels; other I/O interface panel may result in different shielding effectiveness.

Frequency Range	0.1 GHz to 67 GHz
*Shielding Effectiveness	
0.5 GHz to 30 GHz	> 70 dB (meas.)
30 GHz to 50 GHz	> 60 dB (meas.)
50 GHz to 67 GHz	> 60 dB (typ.)

Absorber Reflectivity

Referring to a metal plate (0 dB @ 0.5 GHz to 67 GHz), signal reduction is measured with the RF absorber inserted.

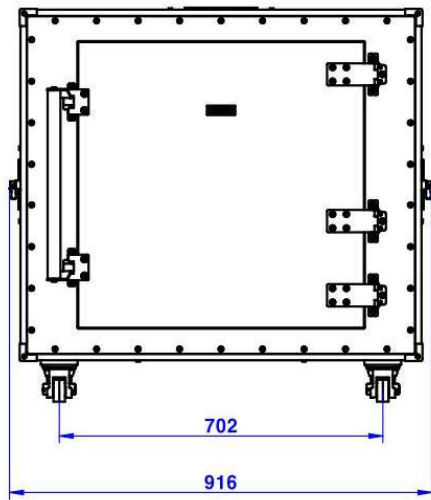
Frequency	Reflectivity (Typ.)
0.5 GHz to 2 GHz	15 dB
2 GHz to 67 GHz	20 dB



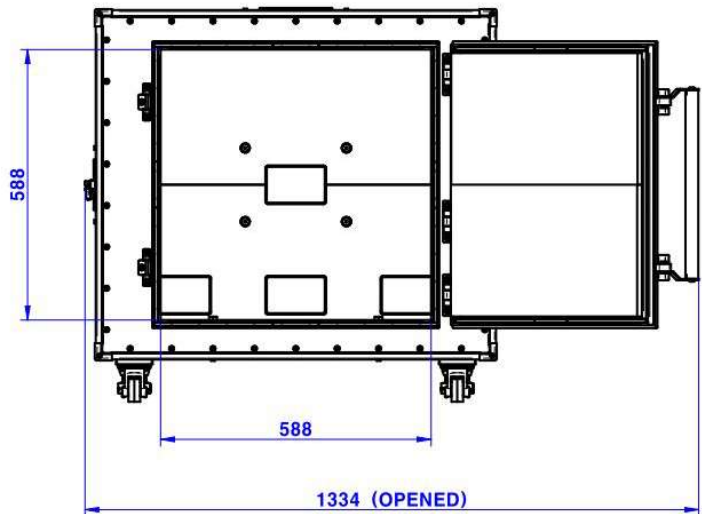
Outer Dimensions

TC-5570A Outer Dimensions (WxDxH): 916 (W) x 940 (D) x 856 (H) mm

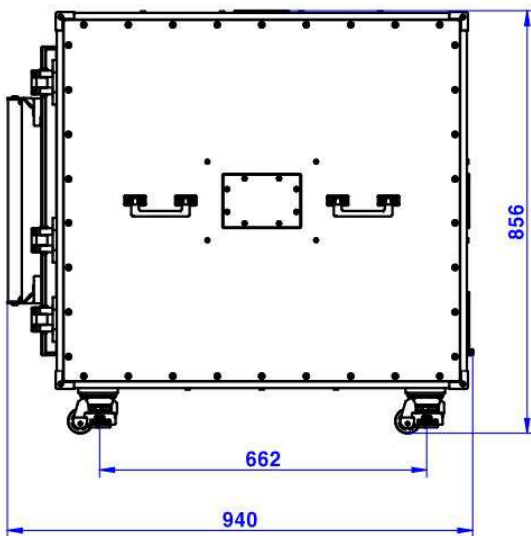
(Internal dimensions may vary by lot.)



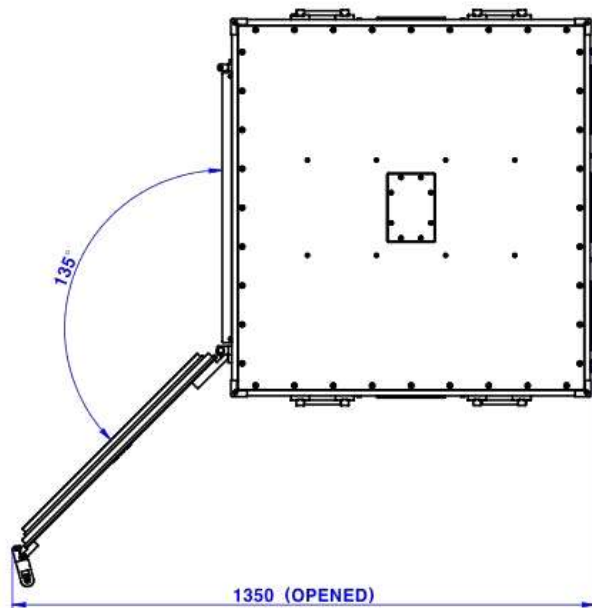
Front View(Closed)



Front View(Door Opened)



Both Side View

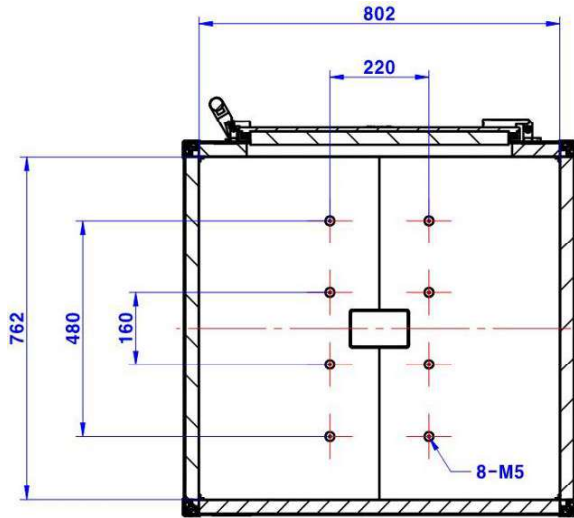


Top View(Door Opened)

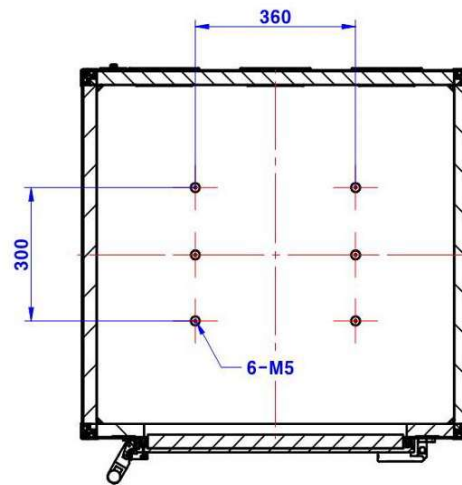


Inner Dimensions

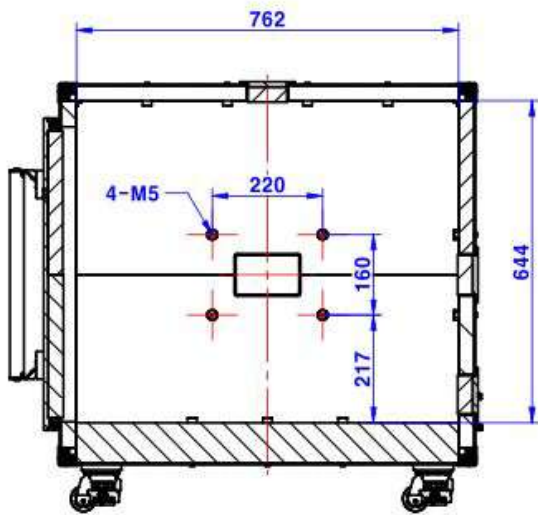
TC-5570A Inner Dimensions: 802 (W) x 762 (D) x 644 (H) mm



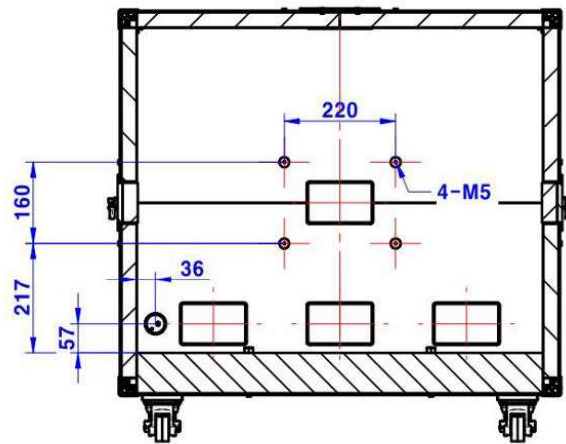
Top View



Bottom View



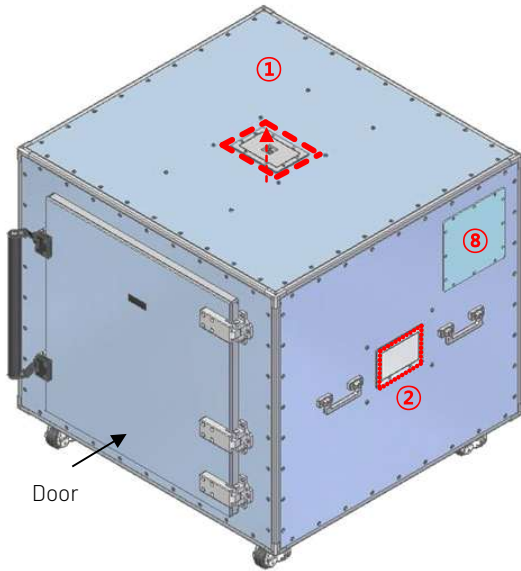
Both Side Inner View



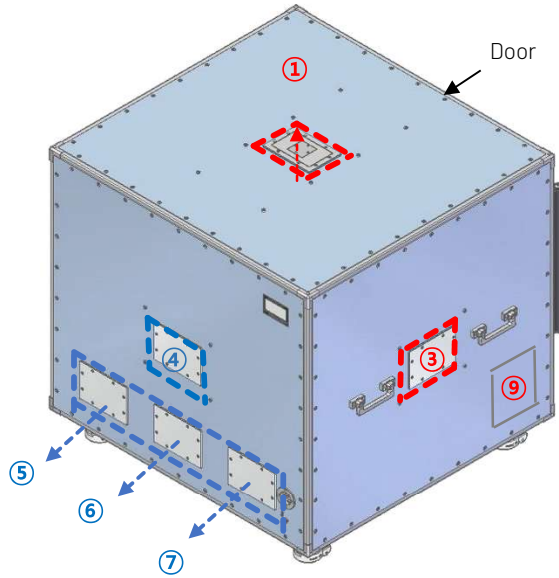
Rear Inner View



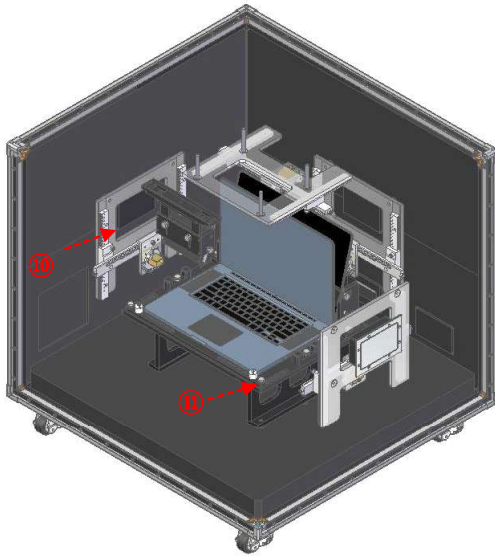
TC-5570A Example Configurations



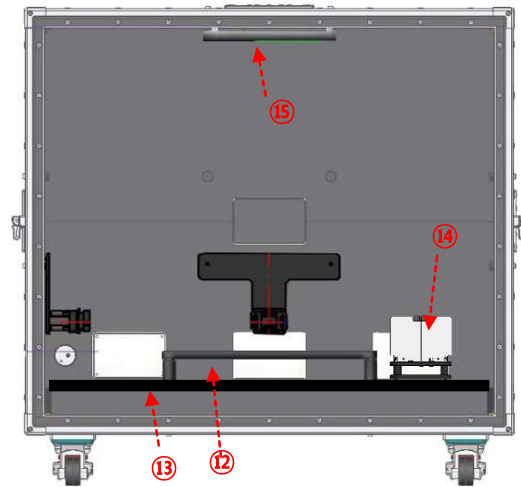
Front ISO View



Rear ISO View



Section ISO View



Front Inner View

Table 1. TC-5570A Optional Components

No.	Description
①	Top I/O Interface Panel
②	Right Side, I/O Interface Panel
③	Left Side, I/O Interface Panel
④, ⑤, ⑥, ⑦	Rear, I/O Interface Panel
⑧	M11002B, Cooling Fan Panel (Right)
⑨	M11002A, Cooling Fan Panel (Left)

No.	Description
⑩	XY Rail Fixture
⑪	F55706B, Laptop Fixture
⑫	Custom Fixture
⑬	F59772B-01, Bottom Grid Fixture
⑭	F59777A, DPV Antenna Fixture
⑮	F55702A-01, Top LED Assembly



Ordering Information

Order Number	Product
TC-5570A	mmWave Shield Box

Standard Accessories

Product	Description
Test Report	

Optional Antenna Fixture

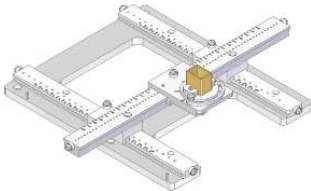
■ Optional Horn Antenna Fixtures

Product	Code	Configuration
	N5570011A	XY-Rail Fixture for TC-93474A/B <ul style="list-style-type: none"> • Mounting Position: Top, Left, Right, Rear, Bottom
	TC-93474A or TC-93474B	Quad Ridged Horn Antenna Options ^(a) <ul style="list-style-type: none"> • Polarization: Dual Pol. • TC-93474A <ul style="list-style-type: none"> Frequency range: 24 ~ 40 GHz Antenna Gain: 10.5 dBi @ 28 GHz, 10.5 dBi @ 36 GHz RF Connector type: two (2), 2.92 mm Female • TC-93474B <ul style="list-style-type: none"> Frequency range: 24 ~ 44 GHz Antenna Gain: 10.5 dBi @ 28 GHz, 9.5 dBi @ 43.5 GHz RF Connector type: two (2), 2.4 mm Female
	RF Cables	RF Cable Options (~40 GHz) <ul style="list-style-type: none"> • 4006-0043: 2.92 mm (m) to 2.92 mm (m), 135 cm • 4006-0033: 2.92 mm (m) to 2.92 mm (m), 80 cm • 4006-0034: 2.92mm (m) to 2.92mm (m), 50 cm RF Cable Options (~50 GHz) <ul style="list-style-type: none"> • 4006-0048: 2.4 mm (m) to 2.4 mm (m), 180 cm • 4006-0046: 2.4 mm (m) to 2.4 mm (m), 90 cm

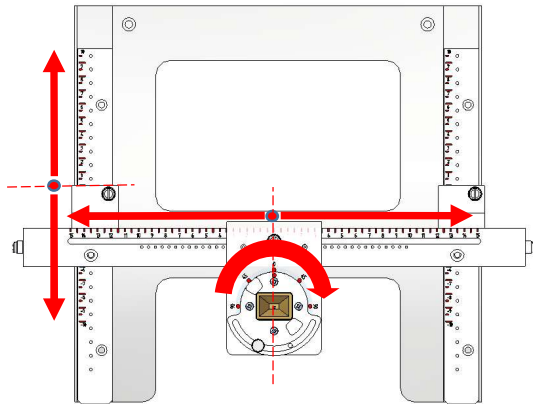


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Product	Code	Configuration
	N55703A	Rear XY-Rail Fixture for TC-93472A or TC-93472B • Mounting Position: Top, Left, Right, Rear, Bottom
	TC-93472A or TC-93472B	Rectangular Horn Antenna Options • Polarization: Single Pol. • TC-93472A Frequency range: 24 ~ 40 GHz Antenna Gain: 14.5 dBi @ 28 GHz, 16.5 dBi @ 36 GHz RF Connector type: one (1), 2.92 mm Female • TC-93472B Frequency range: 24 ~ 44 GHz Antenna Gain: 14.5 dBi @ 28 GHz, 18 dBi @ 43.5 GHz • RF Connector type: one (1), 2.4 mm Female
	RF Cables	RF Cable Options (~40 GHz) • 4006-0043: 2.92 mm (m) to 2.92 mm (m), 135 cm • 4006-0033: 2.92 mm (m) to 2.92 mm (m), 80 cm • 4006-0034: 2.92mm (m) to 2.92mm (m), 50 cm RF Cable Options (~50 GHz) • 4006-0048: 2.4 mm (m) to 2.4 mm (m), 180 cm • 4006-0046: 2.4 mm (m) to 2.4 mm (m), 90 cm

Horn Antenna Fixture Motion



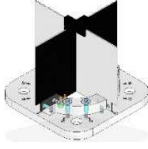
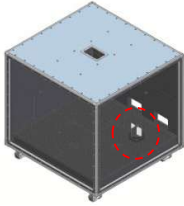
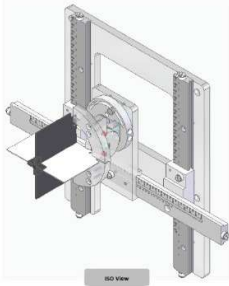
- X-axis Range: ± 150 mm from the center (increment: 5 mm)
- Y-axis Range: ± 100 mm from the center (increment: 5 mm)
- Antenna Rotation Range: $0^\circ \sim 135^\circ$ (increment: 45°)



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■ Optional DPV Antenna Fixtures

Product	Code	Configuration
	F59777A	DPV Bottom Fixture <ul style="list-style-type: none"> • Mounting Position: Bottom (F59772B-01 Bottom grid fixture required)
	TC-93076A or TC-93083A	DPV Antenna Options <ul style="list-style-type: none"> • TC-93076A Dual Polarized Vivaldi Antenna Frequency range: 0.7 GHz ~ 7.5 GHz RF Connector type: two (2), SMA Female • TC-93083A, Dual Polarized Vivaldi Antenna Frequency range: 0.6 GHz ~ 8 GHz RF Connector type: two (2), SMA Female
	RF Cables	RF Cable Options (~18 GHz) <ul style="list-style-type: none"> • 4011-0128: SS-405, SMA (m)-SMA (m) R/A, 50cm (Blue) • 4011-0129: SS-405, SMA (m)-SMA (m) R/A, 50cm (Red]
	N5570010C	XY-Rail Fixture for DPV Antenna (4-Axis) <ul style="list-style-type: none"> • Mounting Position: Top, Left, Right, Rear
	TC-93076A, TC-93083A, TC-93177A	DPV Antenna Options <ul style="list-style-type: none"> • TC-93076A Dual Polarized Vivaldi Antenna Frequency range: 0.7 GHz ~ 7.5 GHz RF Connector type: two (2), SMA Female • TC-93083A, Dual Polarized Vivaldi Antenna Frequency range: 0.6 GHz ~ 8 GHz RF Connector type: two (2), SMA Female • TC-93177A, Dual Polarized Vivaldi Antenna Frequency range: 6 GHz ~ 12 GHz RF Connector type: two (2), SMA Female
	RF Cables	RF Cable Options (~40 GHz) <ul style="list-style-type: none"> • 4011-0123: SS-405, SMA (m)-SMA (m) R/A, 80cm (Blue) • 4011-0124: SS-405, SMA (m)-SMA (m) R/A, 80cm (Red)

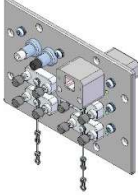
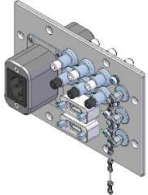
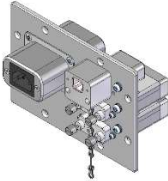


Optional Fixtures

Product	Code	Configuration
	F59771B	<p>Top Antenna Fixture 620 (W) x 130 (D) x 12 (H) mm Fixture Motion</p> <ul style="list-style-type: none">Position adjustment range: ± 190 mm from the center antenna <p>The following DPV antenna options are available</p> <ul style="list-style-type: none">TC-93060A/TC-93061A: 0.8 GHz to 6 GHz
	F59772B-01	<p>Bottom Grid Fixture, 4 divisions 802 (W) x 762 (D) x 10 (H) mm Components:</p> <ul style="list-style-type: none">1 ea, antenna Coupler holding bracket2 ea, guide blocks (L)4 ea, guide blocks (S)4 ea, assembly brackets <p>F59777A DPV Antenna Fixture option selectable</p>
	F59773A	<p>Side Fixture 150 (W) x 44 (D) x 460 (H) mm Fixture Motion:</p> <ul style="list-style-type: none">Position adjustment range: ± 120 mm from the center Antenna <p>The following options are available</p> <ul style="list-style-type: none">Antenna Coupler: TC-93061AF59772B-01 Grid Fixture
	F59775A	<p>Rotator Fixture 600 (W) x 350 (D) x 44 (H) mm F59772B-01 Grid Fixtures required</p>
	F55702A-01	<p>LED Fixture</p> <ul style="list-style-type: none">Power ON/OFF switchPower supplied by USBRequires USB 2.0 or USB 3.2 Gen1 interface
	F59778A	<p>Camera Fixture</p> <ul style="list-style-type: none">Camera: Logitech, C270Power supplied by USBRequires USB 2.0 or USB 3.2 Gen 1 interface



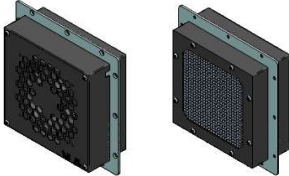
Pre-configured I/O Interface Panels

Product	Code	Configuration
 Data Interface Panel	M07049B	four (4), DB9 (p) outside and DB9 (s) inside, 100 pF Pi filter one (1), RJ-45 outside and inside one (1), Banana Jack type DC power adaptor
 Data Interface Panel	M07100A	three (3), SMA (f) outside and SMA (f) inside two (2), USB 2.0 outside and inside one (1), AC power adaptor three (3), Banana Jack type DC power adaptor
 Data Interface Panel	M07016C	one (1), RJ-45 outside and inside one (1), AC power adaptor two (2), USB 3.2 Gen1 Type-A outside and inside

Customized I/O Interface Panel is available by selecting below I/O Filters and combine.

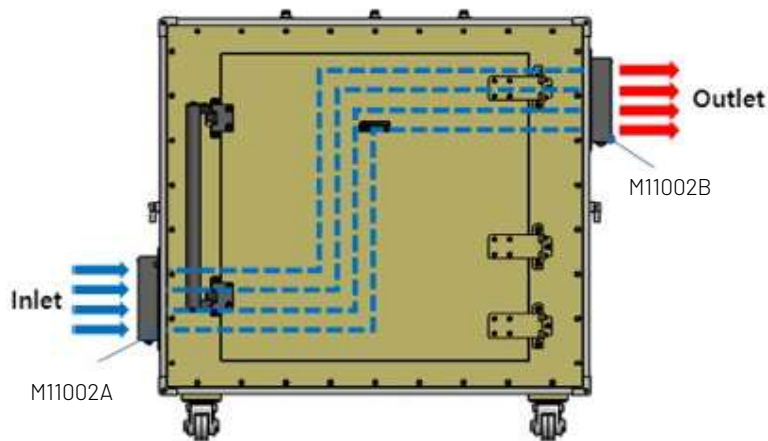


Pre-configured Side I/O Interface Panels

Product	Code	Configuration
 Cooling Fan Panel	M11002A (Inlet) M11002B (Outlet)	M11002A / M11002B are the same parts but the installation direction is different. Including AC Adapter (Switching Mode Power Supply) <ul style="list-style-type: none">• Frequency: 0.5 GHz to 48 GHz• Shielding Effectiveness: >70 dB• Input Voltage: 100 - 240 VAC, 50/60 Hz, 1.8 A• Output Voltage: 24 VDC, 2.5 A

■ Air Flow Mechanism of Shield Box

The location of the inlet cooling panel and the outlet cooling panel should be installed as shown below.





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■ RF Filtered Data & Power I/O

I/O Filters	Code	Description	*Typical Shielding
	3409-0009-1 DB25, 1000pF pi Filter	3 Mbps / 100 VDC 5 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz
	3409-0014-1 DB25, 100pF pi Filter	10 Mbps / 100 VDC 5 Amps max	>50 dB from 0.5 to 2 GHz >60 dB from 2 to 3 GHz >60 dB from 3 to 6 GHz
	3409-0008-1 DB9, 1000pF pi Filter	3 Mbps / 100 VDC 5 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz
	3409-0010-1 DB9, 100pF pi Filter	10 Mbps / 100 VDC 5 Amps max	>50 dB from 0.5 to 2 GHz >60 dB from 2 to 3 GHz >60 dB from 3 to 6 GHz
	3409-0018A-3^(**) USB 2.0 Filter	480 Mbps / 5 V, 500 mA Max Current: 5 A	>60 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3409-0042A-2^(**) USB 3.2 Gen 1, Type A Filter (Active)	5000 Mbps/ 5 V, 600 mA Max Current: 1.5 A	>80 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >75 dB from 3 to 6 GHz >55 dB from 6 to 67 GHz
	3409-0046A USB 3.2 Gen 2, Type C Filter (Active)	10 Gbps / 4 - 22V Max Current: 5 A	>70 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3904-0296A RJ-45 Filter	1 Gbit/s Copper-Line Ethernet (1000 BASE-T)	>60 dB from 0.5 to 2 GHz >70 dB from 2 to 3 GHz >70 dB from 3 to 6 GHz >60 dB from 6 to 67 GHz
	3406-0004A DC Power Adaptor	50 VDC 3 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3406-0005A (Black) 3406-0006A (White) DC Power Adaptor (Banana Jack Type)	50 VDC 10 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz
	3103-0009A AC Power Adaptor	250 VAC 7 Amps max	>70 dB from 0.5 to 2 GHz >80 dB from 2 to 3 GHz >80 dB from 3 to 6 GHz >70 dB from 6 to 67 GHz

*Typical Shielding is an estimated value with I/O interface applied.






** Exclusive cables should be used. (USB Cable, 4008-0079A, 2 M, USB 3.0 A(M) - USB 3.0 A(M), Housing: Aluminum)

The data above were measured by internal standards, and they may be different depending on the measuring method and environment. Each shielding effectiveness is measured without any cable, so it will be likely affected when a cable is connected.

Also, it may vary depending on the type of cable.



■ RF Connectors

I/O Filters	Code	Description	*Typical Shielding
	3407-0029 RF, 2.92 mm Thru Adapter	From DC to 40 GHz 50 Ω / 1.3 max	N/A
	3407-0030 RF, 2.4 mm Thru Adapter	From DC to 50 GHz 50 Ω / 1.3 max	N/A
	3407-0031 RF, 1.85 mm Thru Adapter	From DC to 67 GHz 50 Ω / 1.5 max	N/A
	3408-0100 RF, N-SMA Connector	From DC to 18 GHz 50 Ω / 1.3 max	N/A
	3408-0101 RF, SMA-SMA Connector	From DC to 18 GHz 50 Ω / 1.3 max	N/A

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE