Willtek-Aeroflex-Cobham-Viavi

4921 RF Shield Manual Box/Enclosure

Now 4921A
Pneumatic Box

Refitted by
Cantek Technologies Ltd

See Page 4-7 for Datasheet
of 4921A RF Shield Pneumatic Box

What's the Fastest Way to get a Comprehensive Picture?

The 4921 RF Shield meets the needs of production and repair centers in terms of isolation of the under test from adjacent units and other RF equipment such as radio base stations. It surpasses the stringent shielding requirements for 3G mobile phone testing of 80 dB attenuation between the phone under test and other phones and base stations.

The RF absorption inside the 4921 RF Shield leads to low reflection within the box and thus supports high-precision, stable RF measurement results with instruments connected to the RF Shield, such as the 4400 Mobile Phone Tester Series.

For service centers and manufacturing lines, the 4921 RF Shield is the optimum solution not only in terms of shielding and measurement precision but also in terms of longevity, giving the 4921 RF Shield a unique price-performance ratio.

The 4921 RF Shield is easy to use thanks to the solid rocker arm lever and gas springs that allow the operator to smoothly open and close the box, without using much force. When closed, the lid is firmly locked.

A removable plate on the rear can be used to hold customer-specific connectors, e.g. for an interface for remote-controlling the unit under test.

Highlights

- More than 80 dB shielding
- Highly reliable and robust design, guaranteed number of open-close cycles
- Portable thanks to low size and weight
- Complementing the 4916 Antenna Coupler
- Suitable for mobile phones of all sizes

High Shielding for Reliable Testing

The unit under test should be isolated from its environment to prevent radiation from different sources and from affecting each other. This would result in unreliable or even wrong test results, incorrectly adjusted transmitters or failed tests although the equipment performs within specifications.

The 4921 RF Shield solves three problems that occur without proper shielding:

- It eliminates problems with adjacent mobiles (radiation from one mobile phone affecting measurements on the other).
- It eliminates problems with local base stations (signals from real base station affecting the measurement, signals from the phone affecting calls on a real base station).
- It protects the environment from the RF emitted by the device under test (DUT).

4921 RF Shield with transmitting antenna in EMC laboratory

Mechanical life test of the 4921 RF Shield

Most third-generation (3G) mobile phone systems are based on CDMA technology, which puts new demands on test environments compared to TDMA systems. Measurements in CDMA systems require 80 dB of shielding because the mobile will attempt to lock onto the strongest base station. Without the RF Shield, the mobile would hence ignore the test close to the sensitivity level of the mobile receiver and severely affect test results. Testing the receiver via the antenna requires the phone to be isolated from a real base station by 80 dB; without shielding, the mobile could receive the signal from a close-by network transmitter at -25 dBm while trying to detect a test signal at -104 dbm.

Absorption Supports Stable Measurement Results

In a pure metal box, the RF signal inside is reflected many times from the metal walls. Depending on the frequency being used and the exact position of the unit under test, the reflections may attenuate or amplify the signal at the antenna.

Reliable and stable measurement results can only be obtained, if the signal is not reflected but absorbed.

The absorbing material inside the 4921 RF Shield ensures that the receive and transmit signals are properly transmitting from and to the unit under test, allowing stable and correct radio measurements.

Designed For a Long Life

High-volume service centers and production lines require solutions that work reliably over a long period of time.

Aeroflex guarantees a high number of open-close cycles after which all parts are still working and the isolation of the 4921 RF Shield is still as specified.

This has been verified in endurance tests and in line with military standard VG 95737, Electromagnetic Compatibility of Equipment - Part 15 Test Methods for Coupling and Shielding, see figures.

SPECIFICATION

Specifications valid within a period of one year after delivery and a maximum of 50,000 open-close cycles; initial isolation significantly exceeds the values specified.

RF SHIELDING

Measured according to German military standard VG 95737, "Electromagnetic Compatibility of Equipment - Part 15 Test methods for Coupling and Shielding", using a shielded RF cable with at least 100 dB isolation.

Values indicated below are typical values; isolation exceeds 80 dB in all the specified frequency bands:

700 to 1000 MHz	*Typ. 90 dB*
1700 to 2000 MHz	*Typ. 90 dB*
2000 to 2500 MHz	*Typ. 85 dB*
5000 to 6000 MHz	*Typ. 80 dB*

MECHANICAL SPECIFICATIONS

Connector	*N-type*	
Open-Close Cycles	*>50,000 times*	
Dimensions (L x W x H)	*Inside*	*340 x 240 (190[1]) x 160 mm*
		(13.4 x 9.4 x [7.5[1]] x 6.3")
	Outside	*410 x 265 x 220 mm*
		(5.5 x 10.4 x 8.7")
Weight	*4.8 kg (10.5 lbs.)*	

[1] Between the gas springs

ORDERING INFORMATION

4921 RF Shield (N) (including RF cable N - N)	AG 248 346
Rear panel for customization	AG 300 850
Standard shuttle (older blue model)	AG 248 691
4916 Antenna Coupler and 4921 RF Shield package (with XY shuttle)	AG 248 721
Shielding Service Kit (gas springs, finger stocks, cleaning agent, RF gasket)	AG 248 349
Shielded RF cable (N - N), 1.5 m (high performance Sucoflex 104 cable)	AG 382 804

Our Expert worked for Willtek/Aeroflex for many years, so we can:

- Customize interfaces on the rear panel;

(e.g. USB, DB9, SMA, AC, DC, RJ45, Waveguide, HDMI, VGA, 4mm Air Inlet..)

- Convert 4921 box into pneumatic shielding box for automation integration;

- Customize fixtures for this kind of boxes.

Please contact Cantek Technologies for more information.

Now 4921A, RF Shield Pneumatic Box

Refitted by Cantek Technologies

For Test Automatization

From:
Willtek-Aeroflex-Cobham-Viavi
4921 RF Shield Manual Box

Its video is available for watching on any below Social Media by clicking one to open:
Facebook, Instagram, Linkedin, TikTok, Twitter, Youtube, Youku and Weibo

Profile:

Now 4921A, a pneumatic box for test automatization, is refitted by Cantek Technologies from the imported original packaged brand new Willtek-Aeroflex-Cobham-Viavi 4921 RF Shield Manual Box.

Now 4921A, not only retains the original high isolation shielding characteristics of the imported 4921 manual box, but also is transformed into a brand new pneumatic box for easy integration into automated testing systems, greatly improving testing efficiency.

Extra Features after Refitted:

(Other Features of Original 4921 Refer to ***Above Page 1-3***)

- Upgraded to pneumatic control, making tests automatic and efficient.
- Adjustable(5 positions) lid opening angle to 52.74° fits for the vertical moving of the robotic arm
- The safety light curtain prevents pinching the hands of operator or robot
- Removed inside gas spring, replaced by outside air cylinder, more inner space for large UUT or fixture
- Pedestal mounted electronic control box, easy to detach, easy to repair and maintain
- Optional pressure sensor to further protect the robotic arm or operator hands from being pinched
- Adapted mounting strips on both sides for fixing box on test bench to avoid moving or to ***external acrylic protection cover*** (click to open the picture) to avoid pinching hands or objects
- Wide array of customizable interfaces on removable rear plate
- High quality cylinders with positioning sensors support numbers of open-close cycles
- Left-Right buttons simultaneously press required to close lid, avoiding hands pinched
- The definitions of ***I/O Wirings and Control Commands*** for one-chip computer can be customized according to customer's requirements.

Applications:

Used to test and measure for the UUT(Unit Under Test) like Mobile Phones, Tablets, PDAs, Mobile devices, Bluetooth devices, DMB/DAB, RFID or Zigbee Smart Home devices or even PCB boards in services and development as well as production.

Why Shield Box?

Shield Box meets the needs of service center, R&D department and production line in terms of isolation of the under test from adjacent units and other RF equipments such as radio base stations. It surpasses the stringent shielding requirements for the UUTs testing of 80dB attenuation between the UUTs and other RF transmitting terminator like base stations and mobile phones which are outside of shield box.

Thus we use shield box to perform effectively against RF interferences from noisy environments while testing UUTs.

Why Cantek Shield Box?

We have rich experienced experts managing in design and manufacturing for many years in shielding field.

We work closely with customers to find out best customized solutions before making shield boxes.

We focus on production with more meticulous concentrations in every detail of each part of our shield box.

We test the performance of each individual shield box to deliver highest quality to each customer.

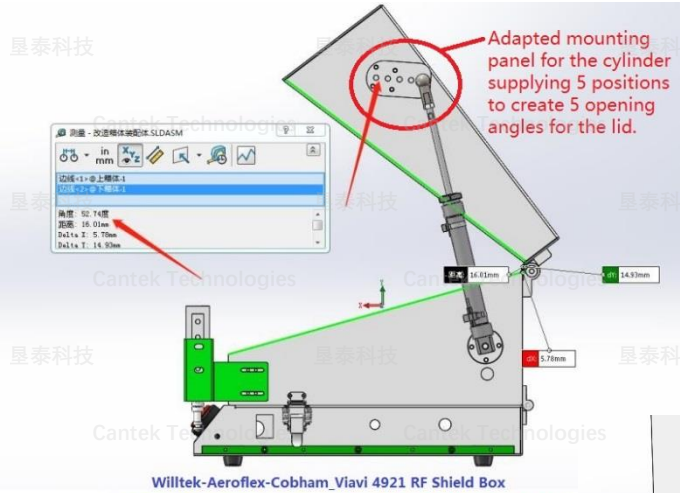
We provide golden service to care our products from the beginning to the end.

Material Object:

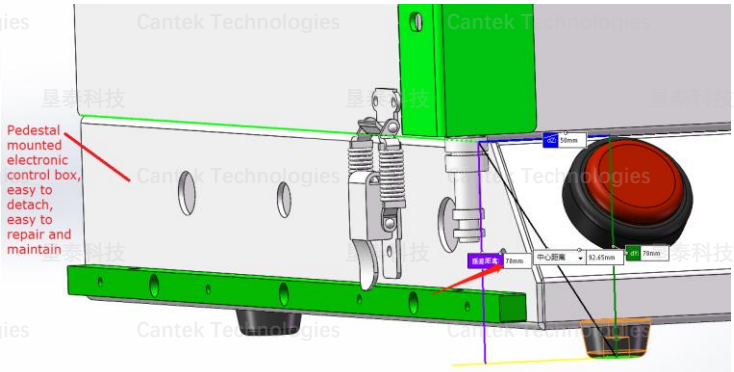
Willtek-Aeroflex-Cobham-Viavi 4921 RF Shield Box

Converted to Pnuematic Box --> Material Object

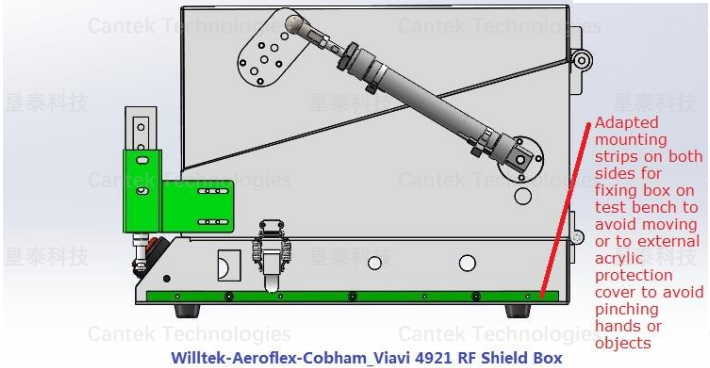
3D Drawings:



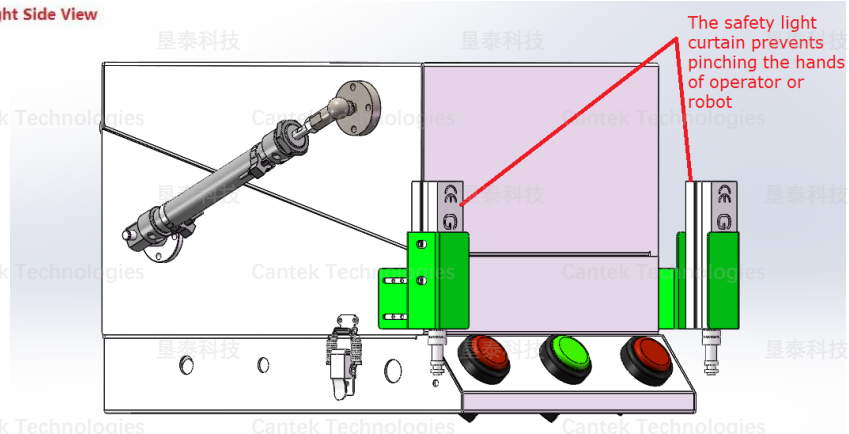
Willtek-Aeroflex-Cobham_Viavi 4921 RF Shield Box
Converted to Pnuematic Box --> 52.74° Adjustable Opening Angle



Willtek-Aeroflex-Cobham-Viavi 4921 RF Shield Box
Converted to Pnuematic Box --> Total Height of Electric Control Box including Footing



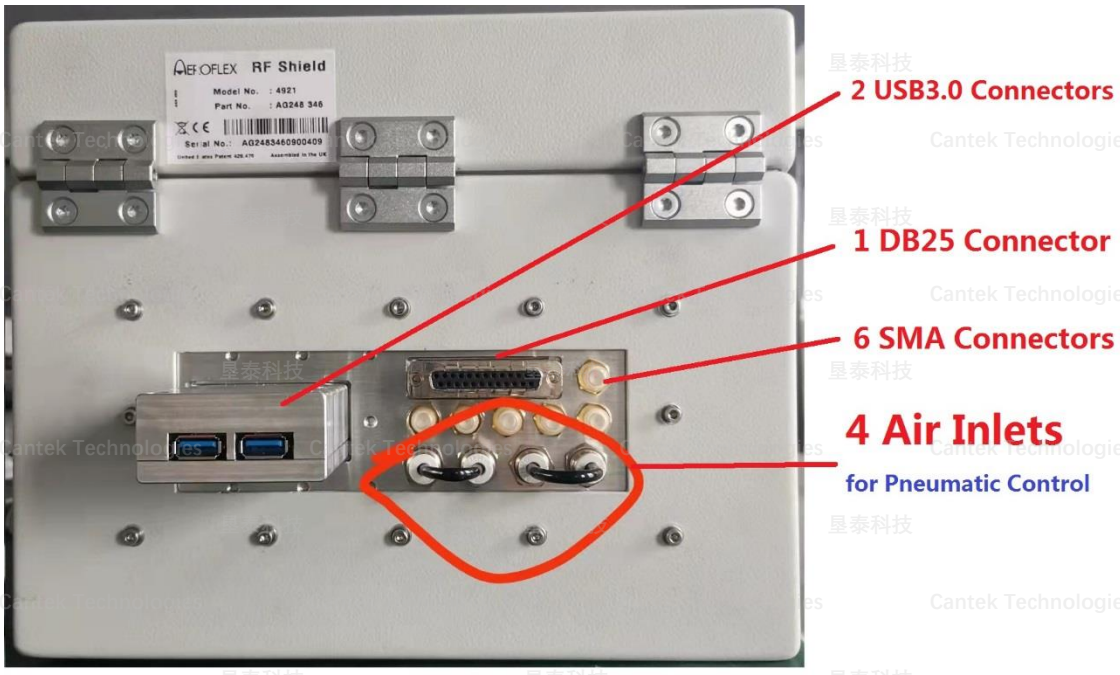
Willtek-Aeroflex-Cobham_Viavi 4921 RF Shield Box
Converted to Pnuematic Box --> Right Side View



Willtek-Aeroflex-Cobham_Viavi 4921 RF Shield Box
Converted to Pnuematic Box --> Left Side View

Options: (Customizable interfaces on removable rear plate)

Ports		
USB3.0,,3A	801.101	With EMI bandpass filter
USB2.0,,5A	801.102	With EMI bandpass filter
RJ45,100Mbps,3A	801.103	With EMI bandpass filter
RJ45,1000Mbps,1A	801.104	With EMI bandpass filter
DC-005,5A	801.105	With EMI bandpass filter
DB9,3A	801.106	With EMI bandpass filter
DB15/VGA,3A	801.107	With EMI bandpass filter
DB25,3A	801.108	With EMI bandpass filter
DB37,3A	801.109	With EMI bandpass filter
HDMI,Standard	801.110	With EMI bandpass filter
AC,10A	801.111	With feedthrough capacitor filter
Common RF Ports:SMA,MCX,BNC,Fakra…	801.112	Conventional products
Others		
Waveguide Tube, 14*100(mm)	801.113	Conventional products
Waveguide Window, 100*100*20(mm)	801.114	With EMI bandpass filter
Outer case for mounting filters	801.115	Standard length
Outer case for mounting filters	801.116	Extended length
Light Curtain	801.117	Conventional products
Pressure Sensor	801.118	Conventional products



Willtek-Aeroflex-Cobham-Viavi 4921 RF Shield Box

Converted to Pneumatic Box --> Customized Interfaces for Pneumatic Control

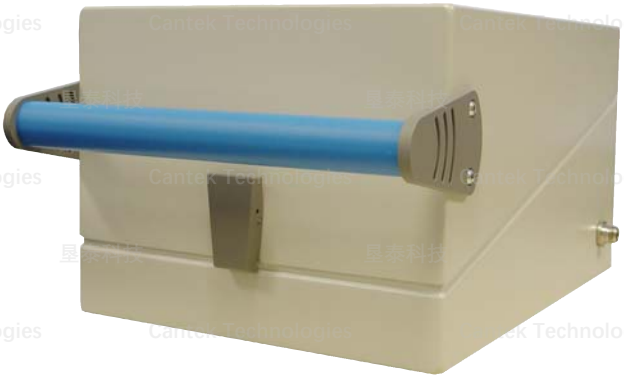
Alternatively, other RF Shield Boxes may be your choice!

Click here to open the Show Window for a quick look.

Willtek-Aeroflex-Cobham-Viavi

4921

RF Shield Box
射频屏蔽盒
屏蔽箱
隔离箱



AEROFLEX
A passion for performance.

亮点

- 屏蔽能力超过80 dB
- 设计高度可靠和坚固，保证足够的开闭循环次数
- 轻便小巧，易于携带
- 与4916天线耦合板互补
- 适用于所有尺寸的手机

4921 射频屏蔽盒

4921射频屏蔽盒可满足生产和维修中心的需要，可以将待测产品与手机或其它待测设备发射的射频信号隔离开。4921屏蔽盒可满足3G手机测试所需要的待测手机和其它手机及基站间80 dB 的苛刻屏蔽要求。

4921内部的射频吸收设计使盒内的反射达到最小，从而可通过连接到屏蔽盒的仪器设备（如4400手机测试仪系列）提供稳定的高精度射频测量结果。

4921屏蔽盒屏蔽能力强和测量精度高，而且使用寿命长，因此具有独特的高性价比。对于维修中心和生产线来说，4921屏蔽盒是最佳的解决方案。

4921屏蔽盒非常易于使用，坚固的摇杆和空气弹簧使操作人员不需要使用太大力量即可方便地打开和关闭屏蔽盒。合上时，屏蔽盒会牢牢锁紧。

屏蔽盒后面的可拆卸固定板可用于安装客户专用连接器（如用于待测设备远程控制的接口）。

强大的屏蔽能力保证可靠的测试

从而避免不同来源的辐射相互干扰。否则，即使待测设备完全符合技术要求，干扰也会导致测试结果不可靠或者出现错误，发射器调整不正确，或者测试失败。

4921射频屏蔽盒解决了与屏蔽不良相关的三大问题

- 避免了邻近手机带来的问题（一部手机的辐射会影响对其它手机的测试）。
- 消除了本地基站带来的问题（实际基站发射的信号会影响测试结果，而手机信号也可能会影响实际基站的呼叫）。
- 保护环境免受待测设备 DUT 射频辐射的影响。

大多数第三代 3G 手机系统都基于CDMA技术，与TDMA系统相比，CDMA系统对测试环境提出了更高的要求。CDMA系统的测试要求80 dB的屏蔽，因为手机总是会尝试锁定到信号最强的基站。不使用射频屏蔽盒时，手机会忽略测试信号，而是尝试锁定到本地手机网络。此外，与手机接收器灵敏度水平接近的接收器测试可能会严重地影响测试结果。进行接收器测试时要求手机与真实基站之间的隔离至少有80 dB。如果不采用屏蔽，那么在试图让手机探测-104 dBm的测试信号时，手机很可能会首先接收到-25 dBm的手机网络信号。

吸收材料保证更稳定的测试结果

4921射频屏蔽盒中的吸收材料保证了测试信号到待测设备之间的正确传输，从而可进行可靠正确的射频测量。

长寿命设计

大型服务中心和生产线需要能够长期可靠工作的解决方案。

Aeroflex保证4921屏蔽盒在经过大量的开合循环后所有部件仍然完好并且可以达到指定的屏蔽隔离标准。

一系列疲劳试验已经验证了这一点。Aeroflex 4921还通过了军用标准VG 95737电磁兼容性设备-第15部分耦合和屏蔽测试方法的测试（参见图）。

在EMC电磁兼容实验室中, 4921射频屏蔽盒与发射天线

4921射频屏蔽盒在进行机械寿命测试

技术规格

技术参数在供货一年内有效，最大开关循环次数不低于5万次，初始屏蔽隔离能力远远超出指标值。

射频屏蔽

采用德国军用标准 VG 95737，"Electromagnetic Compatibility of Equipment - Part 15 Test Methods for Coupling and Shielding"（电磁兼容性设备-第15部分耦合和屏蔽）测试，使用不低于100 dB隔离能力的射频屏蔽电缆。

下面的数值是典型值：屏蔽隔离能力在所有规定频段都超过80 dB。

700 至 1000 MHz	*typ. 90 dB*
1700 至 2000 MHz	*typ. 90 dB*
2000 至 2500 MHz	*typ. 85 dB*
5000 至 6000 MHz	*typ. 80 dB*

机械规格

连接器	N型
开关循环	> 50,000 次
尺寸 (L x W x H)	
内:	340 x 240 (190[1]) x 160 mm
外:	410 x 265 x 220 mm
重量	4.8 kg (10.5 lbs)

[1] 空气弹簧之间

订购信息

4921 RF Shield (N) (including RF cable N - N)	AG 248 346
Rear panel for customization	AG 300 850
Standard shuttle (older blue model)	AG 248 691
4916 Antenna Coupler and 4921 RF Shield package (with XY shuttle)	AG 248 721
Shielding Service Kit (gas springs, finger stocks, cleaning agent, RF gasket)	AG 248 349
Shielded RF cable (N - N), 1.5 m (high performance Sucoflex 104 cable)	AG 382 804

我司专业人士曾于Willtek/Aeroflex工作多年，可以：
- 为客户定制各种后面板接口（如：USB、DB9、SMA、AC、DC、RJ45、波导管、HDMI、VGA、4mm气插头等）；
- 将手动的4921屏蔽箱改成气动的，集成到自动化系统中，从而仍可沿用市场上无可媲美的4921 屏蔽箱的高隔离度屏蔽性能；
- 定制测试夹具。