4921

RF Shield

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, Electromagmetic 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

Customized rear panels with individual RF and data connectors (e.g. DB-9, Bluetooth antenna connector) are available on request. Please contact your local Aeroflex Sales office or representative.

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.

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