



Data Sheet

4921
RF Shield



Boosting wireless efficiency

What's the fastest way to get a comprehensive picture?

The 4921 RF Shield meets the needs of production and repair centres in terms of isolation of the unit 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 centres 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 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 a 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).

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 signal and try to lock onto a local network. Also, a receiver test close to the sensitivity level of the mobile receiver could 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 transmitted from and to the unit under test, allowing stable and correct radio measurements.



4921 RF Shield with transmitting antenna in EMC laboratory

Designed for a long life

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

Willtek 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.



Mechanical life test of the 4921 RF Shield

Specifications

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
Outside:	410 x 265 x 220 mm
Weight	4.8 kg (10.5 lbs)

¹ Between the gas springs

Ordering Information

4921 RF Shield (N)	M 248 346
(including RF cable N – N)	
Rear panel for customisation	M 300 850
4921 RF Shield and 4916 Antenna	M 248 348
Coupler package (standard shuttle)	
4916 Antenna Coupler and	M 248 721
4921 RF Shield package (with XY Shuttle)	
Shielding Service Kit (gas springs, finger stocks, cleaning agent, RF gasket)	M 248 349
Shielded RF cable (N – N), 1.5 m	M 382 804
(high-performance Sucoflex 104 cable)	

Customised rear panels with individual RF and data connectors (e.g. DB-9, Bluetooth antenna connector) are available on request. Please contact your local Wireless Telecom Group sales office or representative.



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