



RF Shielded Enclosures - Advanced Solutions for Reliable RF Testing



dmc
Diamond Microwave
Chambers Ltd

RF SHIELDED ENCLOSURES

High performance **RF Shielded Enclosures** designed for accurate testing, secure environments, and reliable results.

- Excellent EMI / RFI Shielding
- Accurate & Repeatable Testing
- Secure & Controlled Environment
- Wide Frequency Range Support
- Custom Designs to Meet Your Needs

Our Solutions Include:

- ✓ RF Shielded Enclosure – OTA Testing Sub 6GHz
- ✓ RF Shielded Enclosure – Dual OTA Testing
- ✓ Custom RF Shielded Enclosure Solutions

EMC Testing 5G / OTA Testing Wireless Device Testing Automotive Testing Aerospace & Defense

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Modern wireless technologies require accurate and repeatable testing environments. From smartphones and IoT devices to automotive electronics and connected products, engineers need controlled conditions to measure radio-frequency performance without interference from external signals. **RF Shielded Enclosures** provide an effective solution by creating an isolated testing environment that helps reduce unwanted electromagnetic interference and improves measurement reliability.

At Diamond Microwave Chambers Ltd, **We provide RF Shielded Enclosures** designed for demanding RF and wireless testing applications. These solutions can support different testing requirements, including OTA measurements, device characterization, antenna evaluation, and other controlled RF test procedures.

What Are RF Shielded Enclosures?

An RF shielded enclosure is a specially designed enclosure that limits the penetration and escape of radio-frequency electromagnetic signals. Its conductive construction creates a controlled environment where engineers can perform measurements with reduced interference from surrounding wireless systems.

In today's testing laboratories, external signals from mobile networks, Wi-Fi devices, Bluetooth systems, broadcast transmitters, and industrial electronics can affect



measurements. A properly designed enclosure helps isolate the device under test from these unwanted signals.

The enclosure can be configured according to the frequency range, device size, testing method, attenuation requirements, and laboratory environment.

Why RF Isolation Matters in Wireless Testing:

Accurate RF testing depends on controlling the testing environment. When external electromagnetic signals enter the test area, they can influence measurements and create inconsistent results.

A controlled RF environment helps engineers:

- Reduce unwanted RF interference
- Improve test repeatability
- Protect sensitive measurements
- Evaluate device performance more accurately
- Support controlled OTA measurements
- Minimize environmental RF noise
- Improve laboratory testing efficiency

For organizations developing next-generation wireless products, environmental control is an important part of the testing process.

RF Shielded Enclosure – OTA Testing Sub 6GHz:

One important application is [RF Shielded Enclosure – OTA Testing Sub 6GHz](#). Sub-6 GHz wireless technologies are widely used in cellular communications, Wi-Fi, IoT, connected devices, and other applications.

OTA testing evaluates the wireless performance of a device without requiring a direct conducted connection between the test equipment and the device's antenna system.

A dedicated enclosure for Sub-6 GHz OTA testing can provide a controlled environment for evaluating parameters such as antenna performance, transmission behavior, reception characteristics, and wireless connectivity.

The enclosure design should consider the operating frequency, device dimensions, antenna configuration, test distance, absorber arrangement, and required shielding performance.

RF Shielded Enclosure – Dual OTA Testing:

For applications requiring more advanced measurement configurations, an [RF Shielded Enclosure – Dual OTA testing](#) solution can provide a practical testing environment.

Dual OTA configurations may be used when testing multiple wireless characteristics or devices within a controlled enclosure. Depending on the application, the setup can accommodate different antenna arrangements, measurement equipment, and device positioning requirements.



A well-designed dual OTA enclosure can help laboratories optimize space while maintaining the RF isolation required for reliable measurements.

Key Features of RF Shielded Enclosures:

The performance of an **RF Shielded Enclosure** depends on several design elements. A professional solution may include:

Conductive Shielding:

The enclosure uses conductive materials to reduce electromagnetic signal transmission through its walls, doors, joints, and access points.

RF Shielded Doors:

Doors are critical because even small gaps can compromise shielding effectiveness. Proper RF contact and sealing mechanisms help maintain enclosure performance.

RF Absorbers:

Absorber materials can reduce internal reflections and help create a more controlled electromagnetic environment. The appropriate absorber type depends on the target frequency range and testing application.

Filtered Power:

Specialized power filtering can help prevent unwanted RF signals from entering through electrical connections.

Signal Interfaces:

Controlled interfaces can allow required RF, data, and power connections while maintaining the enclosure's shielding integrity.

Custom Configurations:

Different products require different test environments. Enclosures can therefore be configured according to equipment dimensions, frequency requirements, access requirements, and testing objectives.

These applications demonstrate why flexible RF isolation solutions are increasingly important for modern product development.

Benefits for Product Development:

Using an RF-controlled enclosure early in the development process can help engineering teams identify wireless performance issues before products reach final certification testing.

Developers can evaluate prototypes, compare design revisions, investigate antenna behavior, and troubleshoot wireless performance in a controlled environment.

This can reduce unnecessary test repetitions and help teams make informed design decisions.

For manufacturers working with multiple wireless technologies, a flexible enclosure can also provide a practical laboratory solution that supports different test configurations.



Choosing the Right RF Shielded Enclosure:

Before selecting an enclosure, organizations should evaluate several technical factors.

Frequency Range: Identify the lowest and highest frequencies that need to be tested.

Device Size: Consider the dimensions and configuration of the device under test.

Testing Method: Determine whether the enclosure will be used for OTA, antenna, wireless connectivity, or other RF measurements.

Shielding Performance: Establish the required isolation level for the intended application.

Absorber Configuration: Select absorber technology according to the frequency range and internal reflection requirements.

Access Requirements: Consider doors, connectors, cable interfaces, and equipment access.

Future Expansion: A modular or flexible design can be valuable when testing requirements are expected to change.

RF Shielded Enclosures for Modern Wireless Testing:

Wireless technology continues to evolve rapidly. Products increasingly combine cellular communication, Wi-Fi, Bluetooth, GNSS, IoT connectivity, and other RF technologies.

This creates greater demand for controlled environments where engineers can isolate individual wireless performance characteristics.

A professional **RF Shielded Enclosure** provides a practical way to establish this controlled environment without necessarily requiring a large-scale chamber for every testing application.

For laboratories with limited space or specific testing requirements, compact RF shielding solutions can be particularly useful.

Why Work With Diamond Microwave Chambers Ltd?

Diamond Microwave Chambers Ltd develops RF testing and shielding solutions for specialized electromagnetic testing requirements. Our approach focuses on providing practical solutions that can be adapted to the intended application.

Whether you are developing wireless devices, testing antennas, evaluating connected products, or building a specialized RF laboratory, choosing the right enclosure can help establish a more controlled and repeatable test environment.

Conclusion:

Reliable RF testing starts with a controlled testing environment. **RF Shielded Enclosures** help reduce unwanted electromagnetic interference and provide engineers with a practical environment for wireless measurements.

From Sub-6 GHz OTA testing to dual OTA configurations, the right enclosure can be customized around the frequency range, device size, testing method, and laboratory requirements.



If you are looking for a professional **RF Shielded Enclosure**, contact **Diamond Microwave Chambers Ltd** to discuss your testing requirements and explore a suitable RF shielding solution.

