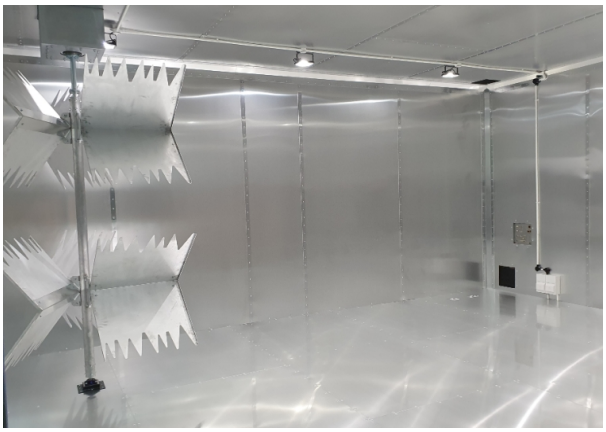
Radiated Immunity Testing in Reverberation Chambers (PSA B21 7110, MIL-STD 461G and RTCA/DO-160)

At Applus+ Laboratories, manufacturers can test electrical/electronic components using the reverberation method, a requirement of certain ASD and automotive standards.



Reverberation chambers are specialized EMC testing facilities for conducting immunity tests on electrical and electronic devices. While most common semi-anechoic chambers have absorbent walls and ceilings with conductive floors, reverb chambers are completely covered by highly conductive walls, ceilings and floors and have metal stirrers, which radiate over the whole device under test.

IEC/EN 61000-4-21 is the general standard for this test method, but the ASD industry and various automotive OEMs have adapted this method to their own specific requirements.

The **aerospace and defense** industry adopted the reverberation method as, via statistics, it provides a more realistic scenario for simulating an ideal cavity-like environment like an avionics bay, with lower and more predictable uncertainty levels.

- RTCA/DO-160 (Section 20.6)
- DEF STAN 59-411 (DRS02.B)
- MIL-STD-461 (RS103)

Automotive standards, such as those of the PSA group, now part of Stellantis, require their suppliers to test component-radiated immunity using the reverberation method.

Other manufacturers like Ford or General Motors also accept this method because it offers better reproducibility of immunity issues. In this way, it avoids the uncertainty that high gain antennas produce when testing in automotive semi-anechoic chambers.

- PSA B21 7110 (EQ/IR 06)
- FMC 1278 (RI 114)
- GMW3097 (3.4.3)