

## REVERBERATION CHAMBERS



Electromagnetic reverberation chamber is a multifunctional **EMC** (Electromagnetic Compatibility) test facility for commercial, military, automotive testing and other electromagnetic investigations. Also known as reverb chamber (RVC) or mode-stirred chamber (MSC) or, Vibrating intrinsic reverberation chamber (VRC).

A reverberation chamber is a screened room with a minimum of absorption of electromagnetic energy. Due to the low absorption of the walls, very high field strength can be achieved with moderate input power. A reverberation chamber is a cavity resonator with a high Q factor. Thus, the spatial distribution of the electrical and magnetic field strengths is strongly inhomogeneous (standing waves). To reduce this inhomogeneity, different techniques are applied:

- generating reverberation through one or more tuners (stirrers) in movement.
- Vibrating the walls of a shielded tent. (**VRC**)

A tuner is a construction with large metallic reflectors that can be moved to different orientations in order to achieve different boundary conditions.

The **VRC** is basically a tent made with a special metalized shielded flexible fabric assembled as a cavity that provides a periodic electro-magnetic randomly polarized, spatially uniform and isotropic facility. The walls of the tent are inducted in mechanical vibration between 5 and 20Hz able to reflect the electromagnetic waves inside the tent volume with a reverberation effect. The **VRC** find application to create an electromagnetic environment for immunity and emission testing, it offers the advantage faster test throughput times than other test methods, increasing the uniformity levels.

The **VRC** is easy to mount and can be quickly assembled and disassembled directly at the customer's place in a few hours!. It allows testing large systems/installations with a **VRC** and overcome space limitations incorporating also big devices under test.

The Lowest Usable Frequency (**LUF**) of a reverberation chamber depends on the size of the chamber and the design of the tuner. Small chambers have a higher **LUF** than large chambers.

The chambers **RVC** are made by modular 2 mm thickness galvanized steel or 3mm. aluminum panels system. In addition to our standardized models, all chambers are available in customized dimensions according to individual requirements.

All the Gtemcell stirrer systems are compatible with software by Nexio, Teseq and Rohde & Schwarz. The stirrer systems can be controlled using a standard office PC or lab top. Gtemcell can offer the reverberation chamber as a turnkey solution including software, operational verification and after sales service support.

<b>Applicable standards / test methods for the reverberation chambers.</b>	
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- IEC 61000-4-21:2003
- MIL-STD-461-E&F
- RTCA/DO-160-G
- EUROCAE/ED-14F



YouTube

[https://www.youtube.com/watch?v=Mq\\_8F2pd62Q](https://www.youtube.com/watch?v=Mq_8F2pd62Q)



**Reverberation chambers N.9 September 2023**

Model	Lowest useful frequency	External Dimensions	Usable test volume	Stirrer system	Note:	Price €
80RVC	80MHz-18GHz	L12.5xW10.5xH6m	L7,0xW7,0xH4,5m	Z fold 2 rotary stirrers	Hot galvanized steel panels	360.000
100RVC	100MHz-18GHz	L9W7.95xH6m	L4xW4xH4,5m	Z-fold duo-pole rotating vertical stirrer system	Hot galvanized steel panels	270.000
200RVC	200MHz-18GHz	L5.1xW4xH3m	L2.4xW2.2xH1.25m	Z-fold duo-pole rotating vertical stirrer system	Hot galvanized steel panels	160.000
400RVC	400MHz-18GHz	L2.50xW2.1xH2.1m	L0.8xW0.8xH0.8m	Z-fold mono-pole rotating Vert. or H stirrer system	Aluminium panels	55.000
1G-RVC	1GHz-18GHz	L1,1xW1,1xH1.2m	L0.5xW0.5xH0.5m	A-symmetric stirrer system	Aluminium panels. (Rack on trolley)	32.000

**Reverberation Tents**

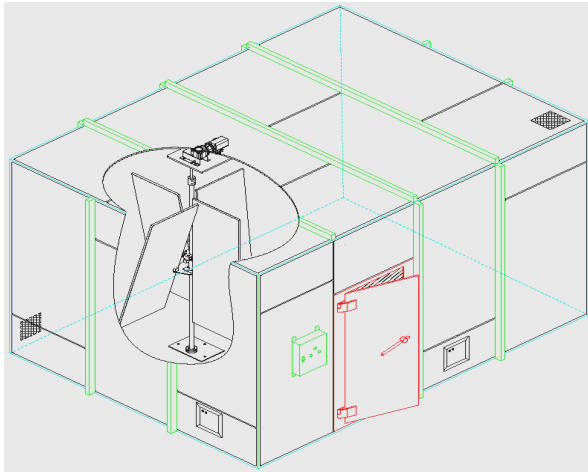
	Lowest frequency usable	External Dimensions	Usable test volume	Vibration system	Note:	
700VRC	700MHz-18GHz	L1.2xW1.2xH1.2m	L0.5xW0.5xH0.5m	VRC, Vibrations of the 5 walls	Metalized fabric	18.000
400VRC -HY	400MHz-18GHz	L3xW2xH2m	L0.8xW0.8xH0.8m	VRC, Vibrations of 4 walls	Hybrid: Metalized fabric + metal base and front door	36.000
XXX-VRC	Custom military solutions	LxWxHx	Any volume	VRC, Vibration of 4/5 walls	CUSTOM SOLUTIONS ON DEMAND	upon request

**OPTIONS:**

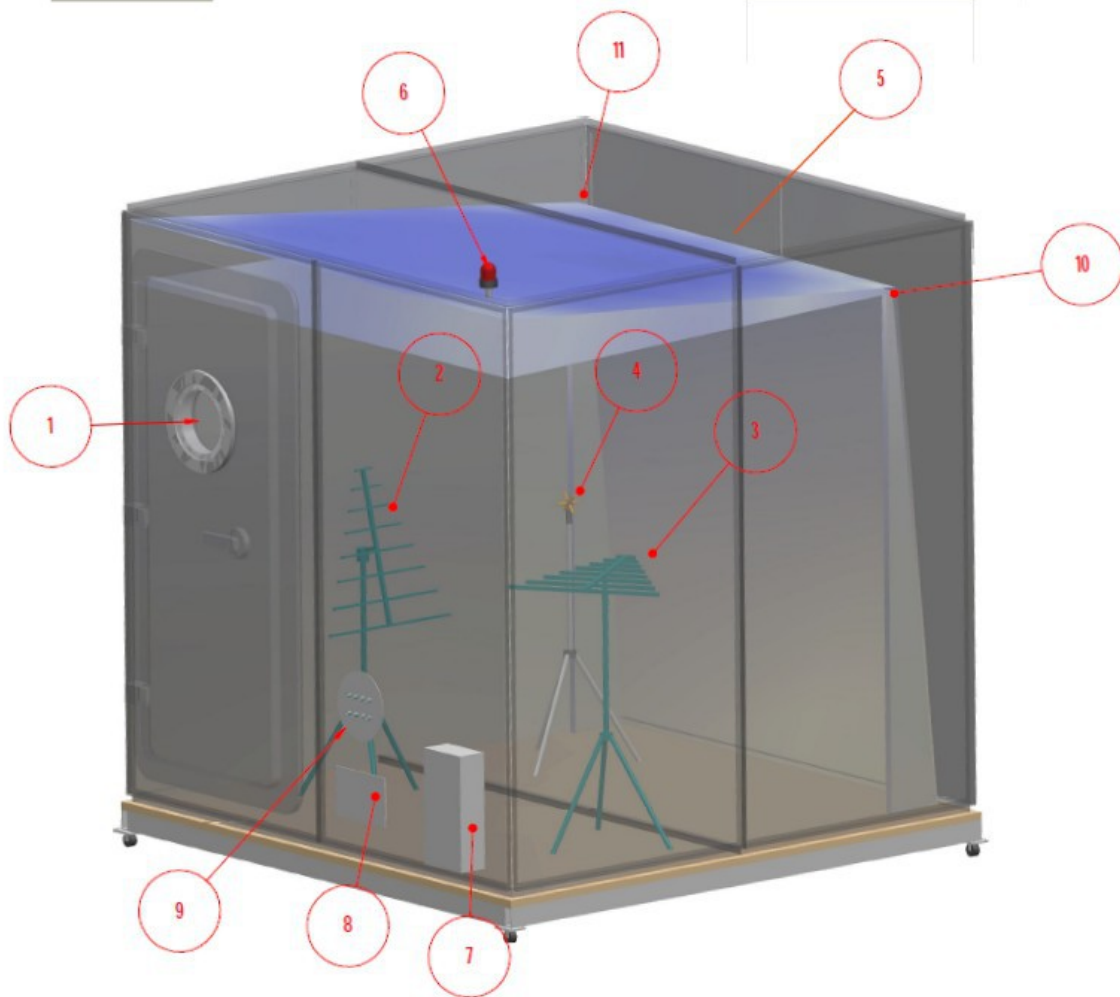
- Additional shielded room (control room ) to house the RF control test instruments
- Additional shielded door with screened window glass.
- Non Conductive test table and standing EUT supports
- Pairs of antennas (BICONIC, LOG, RIDGE HORN, HORN)
- Non conductive Tripods and brackets for antennas
- Connectors and different filters feed-through
- Isotropic field strength sensors 0,1V/m-500V/m up to 40GHz
- Customized size tailored according to customer's specification.

\*\*\* Prices and specifications could change without notice.

**PHOTO GALLERY**



**REVERBERATING HYBRID TENT CHAMBER Mod. 400-VRC-HY**



**Description**

- |   |  |    |   |
|---|--|----|---|
| 1 | 200mm. shielded glass window                                     | 7  | Filter box power supply unit  |
| 2 | Monitor antenna (Biconical, logarithmic, Double ridge Horn)      | 8  | Honeycomb air vent panel  |
| 3 | Transmitting antenna (Biconical, logarithmic, Double ridge Horn) | 9  | Technical panel: N, SMA, fiber optic feed-through connectors, wave guides |
| 4 | Isotropic sensor   | 10 | Vibrating device system   |
| 5 | Metalized vibrating tent   | 11 | Vibrating device system   |
| 6 | ON AIR alarm lamp  |    |   |