

DLR-HR Compact Test Range Facility

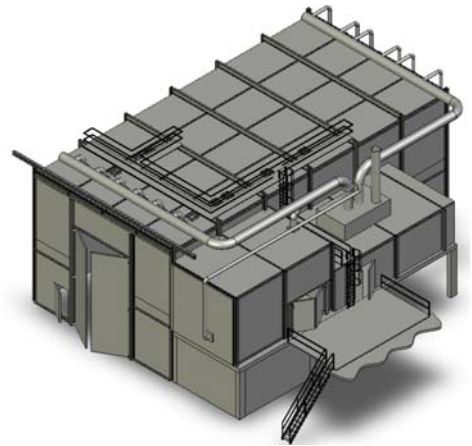
Microwaves and Radar Institute, German Aerospace Center

M. Limbach, B. Gabler, R. Horn, A. Reigber

CTR Facility

The **Compact Test Range** facility at German Aerospace Center in Oberpfaffenhofen contains three RF-measurement systems:

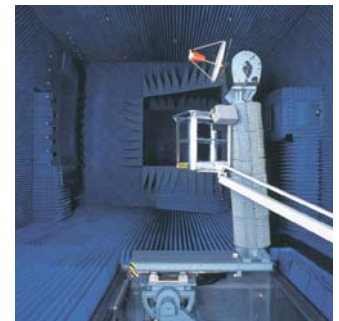
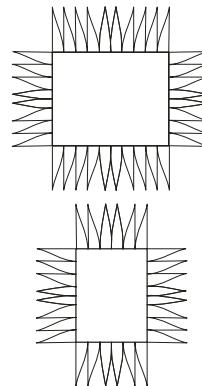
- Compact Test Range 24 x 11.7 x 9.7 meters,
- quite zone diameter up to 3.8 meters,
- W-Band bi-static chamber 8.5 x 5.7 x 5.0 meters,
- additional measurement chamber 12 x 6 x 3.5 meters.
- all chambers are shielded from RF-interferences,
- The whole facility is equipped with an own air conditioning unit,
- a common control room will be used for the large CTR and the smaller W-band bi-static measurement system,
- W-band chamber, control room and CTR-feed-system are arranged on the level of the first floor, directly connected to the laboratories at the main building part.
- additional room for measurement systems is located underneath the W-band chamber; like conditioning cabinet, shielded chamber, workshop, ...



Perspective view of the CTR facility

Compact Test Range

- dual reflector system from March Microwave Systems B.V.
focal length of main reflector 10.5 meters
focal length of sub reflector 9 meters
- cylindrical (5 meter) and spherical near field scanner,
- two model towers are available:
6- axis model tower; Orbit/FR,
RCS- tower on a Franke & Heydrich turn table.
- both model towers mounted on a 19m long linear slide
- fast DUT access with man lift,
- all these devices housed in a pit to minimise reflections
pit dimensions 20 x 4 x 2.5 meters
- absorbers provided and installed by Emerson & Cuming
specified frequency range 300 MHz (NF) up to 100 GHz



View into CTR chamber

Reflectors:	main	(w x h)	4.8 x 3.8 meters
	sub	(w x h)	2.9 x 3.8 meters
Serrations:	horizontal		1.6 meters
	vertical		1.8 meters

HF-TechLab Building to house Laboratories and CTR Facility

The Microwaves and Radar Institute of the German Aerospace Center in Oberpfaffenhofen builds up a new complex contending all laboratories and measurement chambers operated by the Institute today. Additional functionality will be given by the CTR system.

The Institutes history in antenna characterisation starts in 1937 with very impressive measurement methods for in-flight characterisation of airborne communication and navigation antennas. An outdoor antenna test range was operated from the 1960's on and will be replaced by the indoor Compact Test Range. The scope of measurement methods will be enhanced:

- antenna pattern characterisation in far field,
- antenna near field measurements,
- RCS Measurements,
- Radar system characterisation (Pulse delay unite)

The Institute is planning to certify the CTR facility and integrate the system into the QM-system, at the same time accreditation will be done to offer a wide spectrum of official acceptance control. The building as well as the CTR facility will be finished and start operations at the end of 2009.



Architects view of the TechLab building