RV COLLEGE OF ENGINEERING®

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

CENTER OF EXCELLENCE IN SMART ANTENNA SYSTEMS AND ITS MEASUREMENTS (SAS)

The center of excellence in smart antenna systems and its measurements specializes in the analysis, design, optimization and measurement of RF and microwave devices for wireless and defense applications.

1. OBJECTIVE

This facility is for characterization of antennas and also doubles as an EMI/EMC test facility. This large Electromagnetics and Microwave facility will be utilized for multiple activities such as

a. R & D activities for funded projects starting with ISRO project in the next two months,
b. Lab facility for Antenna and EMI/EMC measurements that are a part of our PG programs and
c. Consultancy activities for outsourced measuremen

2. RESEARCH FACILITIES @ SAS

A. ELECTROMAGNETIC SIMULATION:

- ADVANCED DESIGN SYSTEM (ADS)
- ANSYS-HFSS

B. ANTENNA MEASUREMENTS:

The SAS faculty has anechoic chamber for antenna measurements and characterization. The electrical specifications are as follows.

Chamber dimensions	7.5m ×5m× 3.3m
Frequency range	700MHz-40GHz
Quiet zone size	$1m^3$
Reflection requirement in the QZ	-40dB below peak
Ripple requirement at the QZ edge	+/- 1.5dB
Test distance	5mt (Approx)
Near field or far field testing	Far Field

ANECHOIC CHAMBER @ SAS FACILITY IN

NETWORK ANALYSER - R&S®ZVL13

C. MICROWAVE TEST EQUIPMENT:

- VECTOR NETWORK ANALYZERS : R&S®ZVL13 with Frequency range 9 KHz to 13 GHz
- POWER SENSORS

3. CURRENT RESEARCH THEMES

The various antenna and sub systems of current reverence in industry and defense are designed, optimized, fabricated and measured in this facility, the key research areas @ SAS FACILITY is

a. Smart antenna systems: research's is on space-time processing, optimization of MIMO networks and evaluation of multiple antenna algorithms etc.
b. Shaped dielectric lens antennas
c. MM-& sub-mm waves/Integrated antennas
d. Circularly-polarized Antennas
e. Dielectric Resonator Antennas

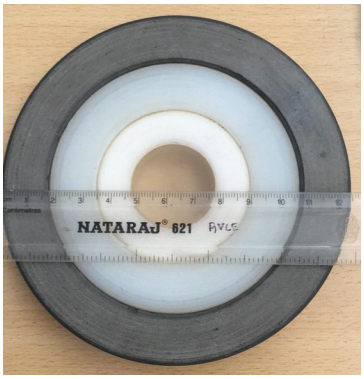
4. ON-GOING FUNDED PROJECTS @ SAS

- Sanctioned AICTE-RPS project "**Development of compact C-Band Dual Shaped Graded Index Lens-Array Antenna**" with Principal Investigator Dr.S.Ravishankar in 2019, Sanctioned Amount Rs. 25,00,000/-.

- Approved ISRO-RESPOND project "**Development of P-Band SAR Antenna with Beam Steering**" with Investigators Dr.S.Ravishankar, Dr. Mahesh A, Dr. Shushrutha K.S. Approved Amount Rs. 34,00,000/-.

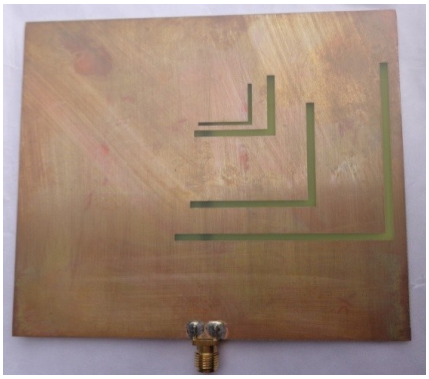
5. ON-GOING CONSULTANCY PROJECTS @ SAS

- Ongoing Consultancy Project titled "**Independent testing and validation for LiveSafe products**" for Securier Technologies Pvt Ltd with Investigators Dr. Geetha.K.S, Dr. K S Shushrutha, Dr. Mahesh A, Mr. B H Raghunandhan, Approved Amount Rs. 57,000/-.
- Ongoing Consultancy Project titled "**Real time measurement of EM signals from Mobile Base Stations**" for Securier Technologies Pvt Ltd with Investigators Dr. Geetha.K.S, Dr. Mahesh A, Dr. K S Shushrutha, Mr. B H Raghunandhan Approved Amount Rs. 60,000/-.
- Upcoming Consultancy Project titled "**A Cost Effective and Low Loss Array – Lens Radome for Ballistic Applications**" for Honeywell Technology Solutions Lab Pvt Ltd. with Investigators Dr.S.Ravishankar, Dr. Shushrutha K.S ,Dr. Mahesh A. Approved Amount Rs.10,00,000/-.
- Upcoming Consultancy Project "**Measurements of Honeywell RF Products**" for Honeywell Technology Solutions Lab Pvt Ltd. with Investigators Dr.S.Ravishankar, Dr. Mahesh A, Dr. Shushrutha K.S. Mr. B H Raghunandhan . Approved Amount Rs.3,00,000/-.
- Many educational institutions have utilized @ SAS FACILITY on payment basis.



MULTI GRADIENT FLAT LENS

SPHERICAL LENS (DIAMETER 20CM)



QUAD BAND PATCH ANTENNA

FEW MODELS DEVELOPED @ SAS FACILITY

6. KEY OUTCOMES OF THE @ SAS

- One patent has been filed based on the results obtained from the anechoic chamber.
- There are about 25 publications by faculty and students related to the results obtained from anechoic chamber in reputed IEEE conferences, which are available in IEEE digital explorer and indexed by Scopus.
- There are 40 designed and working models of various types of antennas related to funded projects which are characterized in the anechoic chamber. These structures are available in the institution.
- Revenue generation

7. MEASUREMENT FACILITIES

The measurements of Microwave devices for refection coefficients and radiation pattern characterization of antenna parameters is available for Research Scholar/Faculty and Industry on payment basis as given below

Duration	**Upto 4hrs**	**Upto 8hrs**
Research Scholar/Faculty	5,000/- + GST	
Industry	6,500/- + GST	13,000/- + GST

Payment is only through DD/NEFT/Online Banking to "The Principal RVCE",
Kotak Mahindra Bank, A/C No: 136010112055,
IFSC: KKBK0008053

CONTACT DETAILS

Dr. K S Geetha, Professor and Head, ECE, RVCE hod.ec@rvce.edu.in 080-67178042/43
Mr. Raghunandan B.H, Foreman, ECE Dept., RVCE raghunandan@rvce.edu.in, 9481426697
Dr. K S Shushrutha, Associate Professor, ECE, RVCE shushruthaks@rvce.edu.in 9964179197
Dr. Mahesh A, Associate Professor, ECE, RVCE mahesha@rvce.edu.in 9886531812