

## **COMPANY PROFILE**

### **1. Design, Simulation, Prototype Development and Manufacture of precision EMC microwave antenna 10Hz-40GHz**

The company manufactures several types of EMC antennae. Some of these are as listed below:-

- Log Periodic Dipole Array (20MHz-18GHz), several configurations and bands
- Biconical (20MHz -18 GHz), several configurations and Bands
- Horn, Standard Gain/Ridged (1GHz-40GHz)
- Hybrid (LPDA and Biconical)
- Magnetic Loop (Rectangular and Circular) 4 cm to 0.6m Dia for Mil Std and EMC applications

Manufacturing is undertaken through inhouse/associate **M/s Scientific Microwave** ([www.smwave.com](http://www.smwave.com))

### **2. Government of India(DoT) licensed Antenna Testing Facility at Village Mehmoodpur, Ghaziabad**

The company has a license from the Department of Telecom to operate and run an Antenna Measurement site in an open area (at Village Mehmoodpur, Ghaziabad) from 9KHz-40GHz. BNN has set up a state of the art Open Area Test Site with a steel ground plane measuring 30mX20m.

The test site is being continuously used for commercial and military antenna measurements and testing.

### **3. Design Simulation, Prototype and Development and Manufacture of RF Pre-amplifiers**

The company is manufacturing several types of RF pre-amplifiers used in EMC and Interference hunting applications. Some of these are listed below:-

- Pre Amp (1-20GHz)
- Pre Amp (20MHz-3GHz)
- Pre Amp (10 MHz-1GHz)
- Pre Amp (100MHz to 18GHz)
- HF Pre-Amplifier (5KHz-10MHz)
- Pre Amp (100KHz-500MHz)

The gain of the above devices vary from 20-40 db and noise figure from 2.5 to 3.5.

### **4. EMC Chamber Certification**

The company provides NABL accredited onsite chamber certification (Up to 40 GHz). Some of the included tests and associated standards are as below: -

- Shielding Effectiveness Mil Std 188-125-1, IEEE 299, EN50147-1, IEC 61000-5-7, IEEE 299.1, Mil Std 188-125-2 (Onsite/In Lab: for testing samples like honeycombs, screens, glass windows etc.)
- EMC Gaskets Shielding Effectiveness, Mil Std 83528G \*(In Lab)

- Ambient Noise Mil Std 461G\*, CISPR \*(Onsite)
- Free-space voltage standing wave ratio IEEE 149\*(Onsite)
- Normalized Site Attenuation (NSA) CISPR 16-1-4, ANSI 63.4, ANSI 63.25.2\*(Onsite)
- Site Voltage Standing Wave Ratio (SVSWR), CISPR 16-1-4(Onsite)
- Time Domain Site Voltage Standing Wave Ratio (TDSVSWR), ANSI 63.25.1 \*(Onsite)
- Setup Table Influences CISPR 16-1-4(Onsite)
- Field Uniformity IEC 61000-4-3, IEC 61000-4-21 \*(Onsite)
- ALSE Long Wire Method CISPR 25(Onsite)
- Normalized Site Insertion Loss CISPR 16-1-4(Onsite)
- Reverberation Chamber Validation ISO 11452-11, IEC 61000-4-21 \*(Onsite)
- Absorber Reflectivity RCS Measurement Method, IEEE AMTA, 2016 \*(Onsite)
- Absorber Reflectivity NRL Arch Method, IEEE 1128-1998 \*(In Lab)
- Free Space Transmission Loss (FSTL), 18-40GHz \*(Onsite)

## 5. TESTING/CALIBRATION OF RF INSTRUMENTS

The laboratory undertakes NABL/17025 accredited testing/calibration of several type of instruments. Some of them are as below:-

- Electric field calibration up-to 18 GHz (V/m) , 18-40 GHz, IEEE 1309, IEC 61000-4-3, 18-40 GHz accreditation expected shortly
  - EMC Probes & Sensors (In Lab)
  - EM Hazard meters (In Lab)
- Antenna calibration up-to 18 GHz (AF, 1/m) , ANSI 63.5, CISPR 16-1-6, 18-40 GHz accreditation expected shortly
  - EMC Antennae (In Lab)
  - Monopole, loop, bi-conical, LPDA, hybrid, horn (In Lab)
- RF Equipment Calibration, 1-18GHz, 18-40 GHz accreditation expected shortly
  - EMC Receivers (CISPR 16-1-1), Spectrum Analyzers Multi-Band scanners, receivers (On Site/ In Lab)
  - Signal Generators, power sensors, LISN. (On Site/ In Lab)
  - Passive devices (Couplers, attenuators, cables, splitters etc.) (On Site/ In Lab)
- EM Near Field Measurements\*
  - From electronic/electrical equipment (In Lab)
  - DASY8 NEO Robot scanning system, measurements up to 110 GHz (In Lab)
  - Dielectric properties measurements up-to 40 GHz (In Lab)
- SAR Measurements
  - Head and Body SAR Measurements for Mobile Phones, PDA's, Laptops, Body Worn Devices, IEEE 62209-1528, TEC 47722108 : 2021, TEC 28982110 : 2021, TEC 13016:2020
  - Equipped with DASY8 and cSAR3D Fast SAR system (In Lab)

## 5. TELECOM MEASUREMENTS, SOURCE HUNTING AND INTERFERENCE LOCALISATION

- Radio Interference Detection and Source Hunting up to 18GHz using latest spectrum hunting instruments
- Frequency Band clearing services for an existing as well as Green Field assignment.
- RF and Transmission planning for Mobile networks including CW testing.
- EMF measurement for Mobile Towers as per TEC standards.

### Future Plans

1. The company plans to Geographically expand its operations to South East Asia, Gulf and Europe in respect of Chamber Certification and Antenna Supplies.

### Advantages of Working with BNN

2. Well established and unmatched Quality of service for all its activities
3. Qualified, Skilled and experienced team of engineers with latest and updated knowledge base.
4. Fast and timely delivery of all services as per customer schedule.