Preamble

The National Physical Laboratory is one of the earliest national laboratories set up under the Council of Scientific & Industrial Research. Late Shri Jawaharlal Nehru laid the foundation stone of NPL on the 4th January 1947. Late Dr. K. S. Krishnan, FRS, was the first Director of the laboratory. The main building of the laboratory was formally opened by Late Deputy Prime Minister, Sardar Vallabhbhai Patel on the 21st January 1950. The Silver Jubilee Celebration of the Laboratory was inaugurated by Late Prime Minister, Shrimati Indira Gandhi, on 23rd December 1975.

CHARTER

The main aim of the laboratory is to strengthen and advance physics-based research and development for the overall development of science and technology in the country. In particular its objectives are:

- To establish, maintain and improve continuously by research, for the benefit of the nation, National Standards of Measurements and to realize the Units based on International System (Under the subordinate Legislations of Weights and Measures Act 1956, reissued in 1988 under the 1976 Act).

- To identify and conduct after due consideration, research in areas of physics which are most appropriate to the needs of the nation and for advancement of field

- To assist industries, national and other agencies in their developmental tasks by precision measurements, calibration, development of devices, processes, and other allied problems related to physics.

- To keep itself informed of and study critically the status of physics.

CUSTODIAN OF NATIONAL STANDARDS OF MEASUREMENT

National Physical Laboratory has the responsibility of realizing the units of physical measurements based on the International System (SI units) under the subordinate legislations of Weights & Measures Act 1956 (reissued in 1988 under the 1976 Act). NPL also has the statutory obligation to establish, maintain and update the national standards of measurement & calibration facilities for different parameters. The Seven SI base units are metre, kilogramme, second, kelvin, ampere, candelas, mole (mol) and the SI supplementary units are radian (rad) & steradian (sr). The other derived units for physical measurement that the laboratory currently maintains are: force, pressure, vacuum, luminous flux, sound pressure, ultrasonic power & pressure and the units for electrical and electronic parameters viz., dc voltage; resistance; current and power; ac voltage; current and power; low frequency voltage; impedance and power; high frequency voltage; power; impedance; attenuation and noise; microwave power; frequency; impedance; and attenuation and noise.

NATIONAL APEX BODY FOR CALIBRATION

The laboratory provides apex level calibration services in the country; offering National Accreditation Board for Testing and Calibration Laboratories (NABL), the national accreditation body in the country (i) its qualified assessors
as needed for establishing best measurement capability of the applicant laboratory; in particular its scientific, (ii) its technical input to enable NABL to decide the suitability of the applicant laboratory for accreditation, and (iii) its faculty to train testing laboratories for estimation of uncertainty in their measurements.

Besides, the laboratory is engaged in developing Certified Reference Materials to ensure high quality measurement and traceability of analytical measurements to national/international measurement system (SI unit) in order to fulfill the mandatory requirement of quality systems (ISO/IEC guide 17025) and of the NABL.

**R&D ACTIVITIES**

In the pursuit of its chartered objectives, the laboratory undertakes sponsored projects, consultancy assignments, and in-house research projects in areas such as physical measurement standards, engineering materials, electronic materials, soft and polymer materials, materials characterization, radio and atmospheric sciences, and cryogenics and superconductivity.

**ORGANIZATION AND MANAGEMENT**

The laboratory has structured its total activities under seven scientific decision units. These are: (i) Physico-mechanical standards, (ii) Electrical and electronic standards, (iii) Engineering materials, (iv) Electronic materials, (v) Materials characterization, (vi) Radio and atmospheric sciences, and (vii) Cryogenics and superconductivity.

In addition, it has set up nine support units for its organization and management. These are: (i) Director’s office, (ii) Administration & house keeping, (iii) Finance & accounts, (iv) Store & Purchase, (v) Library, (vi) Scientific support service, (vii) Technical support service, (viii) Workshop, (ix) Computer centre.