

**Procurement Plan of FOPD under several ongoing projects for next 3-5 years**

Sl. no	Item Category	Sub-category		Item Names
1	IT and computational product	Equipment	1.(1)	Workstation
			1.(2)	Desktop computer
			1.(3)	Laptop / Notebook
			1.(4)	Colour and black and white printer
			1.(5)	Industrial PC
			1.(6)	Network adaptors, hub and switches
			1.(7)	Monitors
			1.(8)	UPS
2	Optics, Optical instruments, Equipments and Laser system	Equipment	2.(1)	Optical Spectrum Analyzer
			2.(2)	Wavelength Monitoring System CCD based as well as tunable laser based
			2.(3)	Four channel high speed OFDR system, 4 Channels, 60 Hz, operation in C-Band, 4/8 Channel FBG Interrogation System
			2.(4)	Power Sensor Head , Optical Power and energy meters for continuous and pulsed laser
			2.(5)	Laser beam profiler
			2.(6)	Femto-second pulsed laser for FBG inscription system
			2.(7)	Broad band light source for FBG inscription system
			2.(8)	Microscope objective
			2.(9)	Fused silica Lens, prisms, beam splitters, dichroic mirror, polariser, wave plates
			2.(10)	CMOS camera, area scan camera and vision software
			2.(11)	LED light module and drivers for FBG inscription
			2.(12)	Distributed fiber optic sensor interrogator
			2.(13)	Wavelength Monitoring System ( Custom built ) C band with analog voltage and 4-20 mA output (16 channel)
			2.(14)	Optical fiber translation system of FBG inscription
			2.(15)	Erbium doped fiber amplifier
			2.(16)	High power narrow bandwidth laser for distributed sensing, Tunable sensor for distributed sensing
			2.(17)	Polarization controller
			2.(18)	High speed detector and data recorder
			2.(19)	UV laser for sensor inscription
			2.(20)	Electronic Hardware module for tunable laser based FBG interrogation system
			2.(21)	Driver module for tunable laser
3	Electrical and electronic Instruments and Equipment	Equipment	3.(1)	Hot Plate
			3.(2)	Oven Up to 300°C
			3.(3)	Thermocouple calibrator Multiple bath (-60°C - 1800°C)

			3.(4)	Oscilloscope 4 Channel 1 GHz
			3.(5)	Impedance Analyzer
			3.(6)	Coil Winding Machine
			3.(7)	Soldering work station
			3.(8)	High speed bipolar amplifier
			3.(9)	Hand held Multimeter
			3.(10)	FPGA evaluation board
			3.(11)	DAC/ADC daughter boards
			3.(12)	LCR meter
			3.(13)	Benchtop Digital Multimeter
			3.(14)	Arbitrary Function Generator
			3.(15)	DC power Supply
			3.(16)	Compact DAQ cards, PCIe DAQ card with AI/DIO/ AO , systems, BNC connector Block , Twisted pair cable
			3.(17)	DAQ (PXI) 8-Channel with PXI Controller and Chassis
			3.(18)	Dew point meter
			3.(19)	Bench-top Materials Printer
			3.(20)	Screen printer
4	Vibration testing bed , controller and Equipments	Equipment	4.(1)	Shake table (closed loop system) 70g, 6 kHz mini-shaker with controller
			4.(2)	low frequency long stroke electrodynamic air bearing shaker with power amplifier controller
			4.(3)	DC to high frequency electrodynamic Shaker
			4.(4)	Close loop controller for shaker unit
5	Optical sensor test bed and controller	Equipment	5.(1)	Climate Chamber
			5.(2)	Manual tip-tilt stages, goniometers
			5.(3)	Manual Translation stages, motorised translation stages, XM series motorised linear stage , ILS series motorised linear Stage ,test beds including optical bread board, mounts for SHM sensor evaluation, Motorized Actuator, TRA, TRB , LTA and NSA12 series Motorized Actuator
			5.(4)	Manual Rotation stages, motorised rotation stages, test beds including optical bread board, mounts for SHM sensor evaluation
			5.(5)	Stepper motors, DC motors and drivers
			5.(6)	Vibration isolated Working tables with granite top or Stainless Steel top
			5.(7)	Oven Tubular high temperature furnace up to 1800°C
			5.(8)	Newport Universal Motion Controller, High Performance, 4-axis, Ethernet
			5.(9)	Custom built fixtures with motorized translation stages
6	Piezo electric devices	Consumable	6.(1)	Piezo accelerometers
			6.(2)	Piezo positioners
7	Sensor Calibration	Equipment	7.(1)	Pneumatic pressure comparator 20 bar max

	setup		7.(2)	Hydraulic dead weight pressure calibrator 700 bar max
			7.(3)	Reference piezo pressure sensors Range 10 Bar - 150 Bar
			7.(4)	Fixtures for UTM, environmental chamber Environmental chamber (500 <sup>0</sup> C), grips, pull rods, Load cells
			7.(5)	Thermocouple calibrator
			7.(6)	Sine Table (0° - 45°)
			7.(7)	Standard Sensors with Dataloggers : Displacement
			7.(8)	Standard Sensors with Dataloggers: Temperature
			7.(9)	Standard Sensors with Dataloggers: Piezometer
			7.(10)	Standard Sensors with Dataloggers: Strain Gauge Embeddable and weldable
			7.(11)	Standard Sensors with Dataloggers: Multipoint extensometer
			7.(12)	Standard Sensors with Dataloggers: Borehole extensometer
			7.(13)	Standard Sensors with Dataloggers: Bidirectional tilt meter
			7.(14)	Universal data logger
			7.(15)	Test beds for SHM sensor evaluation
8	Portable test equipment	Equipment	8.(1)	Standard Sensors and data logger for field trials in buildings, bridges as reference
			8.(2)	Standard Sensors and data logger for field trials in Mines as reference
9	Coating equipment	Equipment	9.(1)	Dip Coater
10	Equipment for Stoichiometric measurement	Equipment	10.(1)	Karl Fischer titration Unit
11	Furnace	Equipment	11.(1)	Furnace
12	Utility support	Equipment	12.(1)	Support facilities for equipment installation e.g. Chiller plant, power supply distribution including UPS, Compressor, Equipment platforms, Equipment enclosures, Dust protection enclosures, clean room etc.
13	Software License	Consumable	13.(1)	Abaqus/Ansys - Design software
			13.(2)	Solidworks
			13.(3)	Autocad
			13.(4)	Labview
			13.(5)	Vision Development Module

+++++++ End of document ++++++