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From : Director, CSIR-National Physical Laboratory

No. 14-VI/MD(1085)2021PB/T-151

Dated : 09.03.2022

CORRIGENDUM

With reference to NPL's Global Tender No. 14-VI/MD(1085)2021PB/T-151 for the procurement of "PTP/NTP/SyneE Tester". Kindly note the following extension in **date** of submission & date of opening of the said tender :-

For : Due date & Time of tender submission
Read as : 30.03.2022 up to 03.00 PM (IST)

For : Date & Time of Tender Opening
Read as : 31.03.2022 from 3.00 PM (IST) onward

Apart from above, it is hereby informed that there are some change in Technical Specification of said Tender also. Hence revised broad based Technical Specification after PBC is ATTACHED with this Corrigendum. Accordingly, all the interested bidders may submit their offer accordingly.

Please also note that bids submitted without taking these changes into consideration will be rejected summarily.

All other terms & conditions will remain the same. The Corrigendum is also available on CSIR-NPL official website <http://www.nplindia.org> under Tender link.

Sd/-

(Controller of Stores & Purchase)

Revised specifications of PTP/NTP/SyncE Tester

Item no. in the BOM (Capital)	33	
Item	PTP/NTP/SyncE tester	
Quantity	1	
Whether a PAC item (Yes/No)	No	
Name of Manufacturer (if PAC item)	NA	
Warranty (standard + Extended)	3 years	
Point of Delivery	CSIR- NPL, New Delhi	
Sr. No.	Parameter	Requirements
1.	Network speed handling capability	1Gb/s
2.	Input ports	
	a. Measurement port for 1PPS and 10 MHz BNC(F)/SMB (F)	<p>Either x1port (configurable for 1PPS and 10 MHz) or x2 port (one for 1PPS and the other for 10 MHz)</p> <p>-should carry out measurement for -1 PPS -10 MHz and the measurements need not be simultaneous</p>
	b. Ethernet port for PTP, NTP and SyncE:	<p>x1 port The ports should be able to measure PTP, NTP and SyncE signals -should have capability to measure SyncE wander and PTP or NTP Time Error -Auto signal detection at input port for easy signal identification -Optical SFP received signal power level and status,</p> <p>Port type: RJ45/SFP; If SFP port then please provide -x1 1Gbps copper SFP T/Rx and x2 1Gbit optical SFP modules for short & long range</p> <p>-Please provide x2 1G optical 50:50 TAP/splitters and x2 50:50 1 G electrical TAP/Splitters</p>
	c. GNSS	x1 port
	d. Remote Management port for device configuration and results analysis	x1 port Ethernet port along with Remote Management Software
	e. Reference 1 PPS	x1 port
3.	Output port	x1 port; 1PPS (derived from internal oscillator locked to either GNSS or ref. input 1 PPS)

4.	Oscillator	
	a. Oscillator	Should be a best grade Rubidium oscillator with below specs
	b. Free run-Frequency stability (20 mins. warm up)	$\leq 2 \times 10^{-9}$
	c. Frequency stability Free run-Ageing	$< 3 \times 10^{-11}$ (after 24 hours); $< 3 \times 10^{-9}$ (after 1 year)
	d. Battery	Should at least support Battery backup for Rubidium to hold GNSS reference during transport mode.
5.	GNSS	
	Constellations, Parameters, Accessories	Support for multi constellation – GPS, GLONAS, Galileo Should be able to show available Satellites along with Signal Strength and SNR Antenna, related Cables and accessories should be included
	Time Accuracy (GNSS locked, 24 hour)	± 20 ns at 1σ
	Frequency Stability (GNSS locked, 24 hour)	$\leq 3 \times 10^{-12}$ (averaged over 24 hours)
6.	External Reference	Either GNSS or ref. input 1 PPS
7.	PTP test capability	Emulate 1588v2 PTP Slaves Up to 128 packets per second for Sync ,Del_req, Del_response. Support PTP default, G.8265.1, G.8275.1 and G.8275.2 telecom profiles IEEE 1588v2 packet by packet PDV capture, measurement and analysis IEEE 1588v2 Time Error (TE), max TE , dTE and cTE measurement for phase synchronization Support the packet selected metrics for APTS and PTS network Support for Time Error measurement for FTS network Support VLAN encapsulation Support VLAN and DSCP priority bits configuration Support both forwardable and non-forwardable multicast MAC address Multi-cast and Unicast PTP Support

		<p>Constant TE measurement accuracy should be $\pm 80\text{ns}$ with reference to GSS</p>
		<p>Capturing PTP messages to aim troubleshooting Capture single type of PTP messages: signalling, sync, follow-up, delay request, delay response, signalling, announce Capture single packet for multiple types of PTP messages Capture multiple packets for multiple types of PTP messages</p> <p>Provide detailed decoding and display of PTP messages Decode each field Option to set filters on display</p> <p>Statistics report of PTP messages</p> <p>Capable of saving the captured data into a file for offline analysis Conformance to the ITU-T profile being used. Pass/Fail analysis of PTP message fields to the ITU-T PTP profile</p> <p>File format compatible with software's like Wireshark or other packet checker SW for offline analysis</p>
8.	NTP test capability	<p>Up to 1 messages per second NTP version 3, 4 support Measure network Time Error based on NTP event message Timestamps Both $\max \text{TE}$ and $d\text{TE}$ are analyzed and compared with custom specs for Pass/Fail Packet by packet PDV capture using NTP Client emulation mode Packet by packet Server PDV capture using NTP monitoring mode (with TAP or Splitter) Constant TE measurement accuracy should be $< \pm 80\text{ns}$ with reference to GNSS</p>
9.	SyncE test capability	<p>Measurement Accuracy should be 1 ns or better Sync-E wander measurements to ITU-T G.8261 and G.8262 Sync-E ESMC (SSM) generation, analysis and graphic display of QL to ITU-T G.8264 Sync-E and PTP Hybrid network measurement</p> <p>Wander measurement and analysis</p>

		Real-time TIE measurement and graphic display Metrics calculation and graphic display including MTIE/TDEV Support ITU-T, ANSI standard and industry metrics masks according to G.8261, G.8261.1, G.8262, G.823, G.824, G.811, G.812, G.813 Support user-defined masks Offline post-test metrics analysis
10.	1PPS test capability	1PPS phase accuracy (Time Error) measurement -Accuracy should be $< \pm 80\text{ns}$ with reference to GNSS -User defined and configurable Pass/Fail limits -Compensate antenna cable delay -Support trigger on positive or negative edge
11.	10 MHz Test capability	-Measurement capability for 10 MHz -Should be able to auto detect the signal -Real-time metrics calculation and display of MTIE/TDEV
12.	Measurement report generation	<ul style="list-style-type: none"> - Printable, custom designed measurement report in .pdf format - Automatic log file generation - Log file should track system major events such as power down, clock hold over. <p>Please provide all necessary software/tools for running the data captured in the tester on a desktop/laptop.</p>
13.	Internal and External storage	<ul style="list-style-type: none"> - Should be sufficient to store test results of at least 2 days - Compatibility for external storage e.g. USB /SD card
14.	Instrument Display	Built-in touch color screen. Should be large (> 8 inch.) to be able to analyze MTIE/TDEV, PDV and Time Error graphs clearly
15.	Portability	Instrument should be small, light and portable
16.	Power Supply	<ul style="list-style-type: none"> - Line Voltage: 220V; 50Hz; - Battery: ≥ 2.5 hours power for Rubidium clock in transport mode
17.	A bag for the item should be provided to transport it safely and securely	
18.	The equipment should have been used at any National metrology institute of a country for measurement purposes	