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Reason document for the final draft of TI/STR/028 (Rev.2) of SCADA system

SN	Clause No.	Description	Comments Received from	RDSO's remark
1.	1.1	SCADA Vendor should have complete control over the design, modification/alteration of basic structure of RCC Software and RTU such as CPU, its programming, communication protocol, bus configuration, input/output modules and analog modules. Detail circuitry of all such module should be available with the vendor.	M/s SYNERGY SCADA Vendor should have complete control over the design, modification/alteration of basic structure of RCC Software and RTU such as CPU, its programming, communication protocol, bus configuration, input/output modules and analog modules. Detail circuitry of all such module should be available with the vendor. 1. SCADA vendor must be OEM of SCADA software as well as RTU. 2. Declaration regarding / proof of availability of source code for this purpose should be mandatory 3. In addition, the SCADA Vendor should have at least 5000 sq.ft of A/C office space for seating technical staff , and 10000sq.ft of factory space with factory license for panel wiring/inspection (sheds not allowed). 4. The SCADA vendor should have minimum 5 software developers and 3 electronic hardware designers, all with minimum 5 years of experience.	Not accepted as existing para is appropriate. Further, these comments are not the technical requirement to manufacture SCADA system, it will restrict qualifying criteria for vendors and may be resulted adverse effect on increasing vendor base. Most of the SCADA manufacturers are not complete OEM of SCADA software as well as RTU.
			M/s GOVIK It should be relaxed as cost effective and good quality RTUs can be sourced out from Companies having their domain expertise. Control on Complete Design, software and drawing must be there and system can be modified as per requirement by the SCADA vendor.	Not accepted as RTU needs to be developed as per design features given in the SCADA specification. Hence, SCADA manufacturer must have expertise to design and manufacture RTU as per features given in SCADA specification. The outsourcing of PCB assembly and panel fabrication is already permitted in the STR.

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2.	1.2	SCADA vendor should have commissioned at least 3 complete SCADA systems for reputed organisation like Indian Railway, SEBs, NTPC, ONGC & other reputed Pvt. & PSU organisations in the last three financial years.	M/s SYNERGY SCADA vendor should have commissioned at least 3 complete SCADA systems for reputed organisation like Indian Railway, SEBs, NTPC, ONGC & other reputed Pvt. & PSU organisations in the last three financial years. Vendor should have provided the same make/model of SCADA software and RTU in these projects in the field of power distribution monitoring and control. The projects should consist of a Master Station and involving minimum 10 Nos. of RTUs with each RTU remotely located and in unmanned condition. The RTUs should have remote control facilities from master station enabled.	Not accepted as narrow experience criteria may be resulted adverse effect to increase vendor base.
			M/s GOVIK With due respect we are requesting you to relax this clause, as after knowing the EOI, vendor who is under development or newly developed system for the purpose/ specification of railways cannot have these credentials. Due to these reasons there is no vendor is registered/developed in this category since last 13 years and only 02 companies are dealing this product till date (who did not face this requirement when they were developing the system and got registration) . Because of this condition, no supplier is able to get any approval under this STR. Instead, there could be stringent checking of the system as per specification. Once those companies will get chance will have the experience of Railway Projects.	Not accepted as, 1. Desired credentials of SCADA system is not of railway only, the credentials of SEBs, NTPC, ONGC & other reputed Pvt. & PSU organisation is also permitted. 2. The statement that since last 13 years, only 2 companies dealing this product till date is not correct. At present, 3 vendors are approved for SCADA system and in last 13 years there were 6 approved registered for supply of SCADA system. Some vendors have been delisted due to non-development of SCADA system as per revised SCADA specification and poor field performance. 3. SCADA is a vital equipment to monitor and control traction power supply. The

				failure of SCADA system, impacts train movements and also compromise passenger safety. The experience criteria can not be removed completely. However, as there are only three approved vendors of SCADA system, the experience criteria is relaxed to open the space for many new players. The experience criteria is revised as *" SCADA vendor should have commissioned at least 1 complete SCADA systems for reputed organisation like Indian Railway, SEBs, NTPC, ONGC & other reputed Pvt. & PSU organisations in the last seven financial years"*
3.	1.4	SCADA Vendor should have adequate setup for providing service support over Indian Railways.	M/s SYNERGY SCADA Vendor should have adequate setup for providing service support over Indian Railways. To start with, a minimum 5 nos service support personnel should be already employed with SCADA vendor at the time of filing application	Not accepted, existing para is appropriate.
4.	2.1	Wave soldering machine, de-soldering machine.	M/s GOVIK Now days maximum electronics items are bought out through sub vendor. So requesting to give relaxation on this clause.	Accepted The activity of PCB assembly is already permitted. However, Some more relaxation is permitted as PCB assembly/complete PCB fabrication can be outsourced subject to stringent design and quality control over the outsourcing agencies for the activity/process.

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5.	2.4	UPS of ~~3~~ 10 kVA rating or higher	M/s V-Bro This is broughtout item and to be supplied to the customer alongwith SCADA system. We had installed 5KVA UPS and generator set for uninterrupted power at our factory in case their is a power cut from state utility. This is no way connected the functional testing of SCADA system consisting of RCC & RTU. If further RDSO insist to keep 10 KVA UPS at factory under STR, we request to give us time after approval of SCADA system as like other SCADA approved vendor.	Accepted as the firm clarification is justified. The UPS of 3 KVA capacity or higher is implemented in the final draft.
6.	1.5	SCADA vendor should have adequate covered accommodation for the purpose of effective storage of inward raw material, and the finished product awaiting dispatch and prototype/ routine inspection.	M/s SYNERGY SCADA Vendor should have adequate covered accommodation for the purpose of effective storage of inward raw material, and the finished product awaiting dispatch and prototype / routine inspection. Repair and testing facilities for all hardware shall be available within India. Vendor must give an undertaking to maintain sufficient number of spares in India, to service the installations made as per these specifications. Minimum 1000 sq. ft. of space should be already reserved for this purpose	Not accepted as existing para is appropriate.
7.	2.5	Diesel generating set having capacity to meet the load requirement	M/s SYNERGY Diesel generating set having capacity of min. 50kVA to meet the load requirement.	Not accepted as the capacity of generator depends on electrical load of the factory. The vendor shall decide the capacity of generator as per their requirement.
8.	2.6	Availability of PCs for software program development/ testing and execution. PC installed with CAD software and color printer. Availability of IT hardware along with licensed development software such as compilers and linkers, debugging tools, etc. to maintain and modify the source code of SCADA as well as RTU firmware.	M/s SYNERGY Availability of PCs for software program development/ testing and execution. PC installed with CAD software and color printer. Availability of IT hardware along with licensed development software such as compilers and linkers, debugging tools, etc. to maintain and modify the source code of SCADA as well as RTU firmware. The Vendor must have at least 10 Nos PCs, 2 Nos Servers for Development/ Project Execution. M/s V-Bro	Not accepted as requirements of PCs, servers in terms of numbers should be the view of particular vendors.

			OK facility available in our system	
			M/s GOVIK Now days all Software's are available online so specific software is not needed.	Not accepted as IT hardware and software is essential to maintain and modify source code of SCADA and RTU firmware. SCADA manufacturer must have these license software whether online or offline.
9.	2.7	Other facilities such as license software, simulation software etc. required for developing SCADA RCC software, RTU firmware and its real time operating system.	M/s SYNERGY Other facilities such as license software, simulation software etc. required for developing SCADA RCC software, RTU firmware and its real time operating system. Licensed copies of development platform, simulation software, RTU Realtime OS, RTU development system should be available	Not accepted as existing entry is appropriate.
10.	2.8	ROM/Flash Programmer (programmer & eraser as required for embedded software)	M/s V-Bro Flash magic software used for flash programming all the modules from PC(ISP)	This is not terms as comment, hence, no change is required.
			M/s GOVIK Now days all programming is done (like firmware or configuration) through IP port. So this programmer is not needed.	Not accepted as flash programmer is required for programming of flash memory.
11.	New clause	-	M/s SYNERGY Specialised test stations for testing electronic sub-assemblies/PCBs.	Not accepted as PCB testing facility is already included in para 5.0.
12.	3.1	SCADA Vendor should have dedicated group of professionals for SCADA development and support especially software development personals.	M/s SYNERGY SCADA Vendor should have dedicated group of professionals for SCADA development and support especially software development personals. SCADA Vendor should have minimum 5 programmers, each with at least 5 years of experience.	Not accepted as numbers of engineers employed should be the view of particular vendors.
13.	3.2	SCADA vendor should have adequate number of software and hardware engineers conversant with SCADA system communication technique and	M/s SYNERGY SCADA Vendor should have adequate number of software and hardware engineers conversant with SCADA system communication technique and	Not accepted as numbers of engineers employed should be the view of particular vendors. Further, in the existing entry,

		knowledge of communication protocol preferably on IEC-60870 series.	knowledge of communication protocol preferably on IEC-60870 series. Minimum 3 hardware engineers, each with 5 years of experience	protocol IEC 61850, MODBUS etc. are also included as MODBUS protocol is the feature of existing SCADA spc. And 61850 protocol is being incorporated in revised SCADA specification.
14.	4.1	SCADA Vendor should have acquired ISO-9001-~~2008~~ 2015 or latest certification for the product broadly, for which approval is being sought.	M/s SYNERGY SCADA Vendor should have acquired IS0-9001-2015 and ISO14001:2015 certification for the product broadly, for which approval is being sought. M/s V-Bro Ok	Not accepted
15.	4.4	SCADA Vendor should have an effective quality control system to monitor quality control i) Inward Raw Material ii) Stage inspection at various assembly stages such as PCB inspection before and after soldering inspection, IC functionality check, Transducer testing, modem functionality test etc. iii) Inspection of the final assembled product to confirm adherence to the requirement/ specification iv) Test equipment to test designed feature of SCADA system, ~~Line Driver / MODEM~~ LAN Extender, Router, media convertor and simulators to simulate field signals, Current injection set, Variable and stabilized ac voltage source, Variable PF source of	M/s SYNERGY SCADA Vendor should have an effective quality control system to monitor quality control. i. Inward Raw Material ii. Raw material for electronics manufacturing must be sourced from reputed OEMs only either directly or via their authorized distributors. iii. Stage inspection at various assembly stages such as PCB inspection before and after soldering inspection, IC functionality check, Transducer testing, modem functionality test etc. iv. Inspection of the final assembled product to confirm adherence to the requirement /specification v. Test equipment to test designed feature of SCADA system, LAN extender, Router, media converter and simulators to simulate field signals, Current injection set, Variable and stabilized ac voltage source, Variable PF source of adequate range. M/s V-Bro (iv) OK facility available in our system	Not accepted as development of reliable product is the responsibility of SCADA manufacturer, they must be free to choose suitable raw materials as per their requirement and experience.

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		adequate range.		
16.	5.1	Voltage (variable between 0 to 300V in steps of at least 1 V) and current (Variable between 0 to 20 A in steps of at least 0.1 A) injection test bench fitted with output meters.	M/s SYNERGY Voltage (variable between 0 to 230V in steps of at least 1 V) and current (Variable between 0 to 5 A in steps of at least 0.1 A) injection test bench fitted with output meters. M/s V-Bro OK facility available in our system	1. M/s SYNERGY comment on range of variable voltage is accepted. 2. The comments about variable current is not accepted as higher range of variable current is required to check the linearity of transducers on higher current and over flow of measurand buffer. However, the range is reduced to 10 A as generally traction transformer shall be overloaded up to 2 times of rated capacity, hence two times of rated CT current can flow through the transducers .
17.	5.2	Storage type oscilloscope, Multi-meters (Measurement Accuracy at least 0.1% for DC/AC voltage and current measurement) , waveform generators, Tong Testers	M/s V-Bro OK facility available in our system	This is not terms as comment, hence, no change is required.
18.	5.13	High Current injection Set of ~~10~~ upto 100 Amp.	M/s SYNERGY ~~High~~ Current injection Set of 5 Amp M/s V-Bro For regular checking of SCADA system and RTU there is a requirement of 0-5 A input current injection set and this is available with us. 100 A current injection set is only required to test one time testing of multi function transducers for 20 times rated value for 1 sec.. This can be teted on test labs under type test as like other type test performed. More ever MFD's are brought out itemcomes with certification for 20 times rated value for 1 sec.	Accepted and this clause is deleted as there is no need of additional current source in SCADA testing.

			M/s GOVIK Clause no. 5.1 and 5.13 are suggesting the current injection kit. While 5.13 suggested to use high current kit of 100 amp. This kit does not not require while testing of SCADA.	
19.	5.16	~~Testing facilities for software functionality in an RTU , its real-time operating system (RTOS), drivers for communication system, device drivers and diagnostics.~~	M/s SYNERGY Testing facilities for software functionality in an RTU, its real time operating system (RTOS), drivers for communication system, device drivers and diagnostics. Facility to update / diagnose firmware of all RTU components.	Accepted as existing para wrongly strike out in draft STR.
20.	5.18	Facilities to conduct functional tests on complete SCADA system to validate/demonstrate compliance in line with the specifications.	M/s SYNERGY Facilities to conduct routine / functional tests on all manufactured RTUs to validate/demonstrate compliance in line with the specifications M/s V-Bro OK facility available in our system	Accepted
21.	5.19	LAN cabling tester, Fiber optic OTDR tester	M/s V-Bro Fiber optic cable is not in the scope of SCADA vendor. So testing facility of Fiber cable is not required to be included. M/s Govik End to end connectivity will be provided by S&T department so there is not requirement of OTDR tenster which is use to check the distance of OFC cable and condition of OFC cable.	Accepted and existing clause modified by deleting Fiber optic OTDR Tester.
22.	new	-	M/s SYNERGY Electronic load for testing power supplies	Accepted as its required for load testing of power supply module.
23.		-	M/s GOVIK Clause no. 4.4 (iv) and Clause no. 5.1 both are same for LAN Extender and Routers.	Para 4.4 (iv) and para 5.1 are not same. Hence no change is required.
24.		-	M/s GOVIK Clause No. 5.1 and 5.12 are suggesting the same AC Source.	Para 5.1 and para 5.12 are not same. Hence no change is required.