EXPRESSION OF INTEREST (EOI) FOR EMPANELMENT OF GPON ONT (with Wi-Fi) SINGLE BAND AND DUAL BAND PROVIDERS FOR ANDHRA PRADESH FIBERNET LIMITED

EOI NO. APSFL / EOI/GPON ONT/2023, Dt: 23.02.2023

Andhra Pradesh Fibernet Limited A 3rd Floor, NTR Administrative Block, Pandit Nehru Bus Station, NH 65, Vijayawada-520001, Andhra Pradesh, India.

Andhra Pradesh State Fiber Net Limited (APSFL, a fully-owned entity of the Government of Andhra Pradesh) invites Expression of Interest (EoI) for Empanelment of Suitable OEM/Distributor for GPON ONT.

1	EOI Number & Date	APSFL / EOI/GPON ONT/2023, Dt: 23.02.2023	
2	EOI Document Availability	EOI document can be downloaded from website <u>www.apsfl.in</u> from date: 23-02-2023 onwards till last date of submission of the EOI.	
3	Last date and time of submission of response to EOI	3:00 PM Dt 09.03.2023	
4	Last date and time for submission of sample GPON ONT.	3:00 PM Dt 09.03.2023	
5	Address for Communication and submission of proposal	3rd Floor, NTR Administrative Block, APSFL corporate office, Vijayawada - 520010	
6	Contact Person	V G Shashank Reddy AGM (OCC, IPTV & OTT), APSFL. Ph: 8790107108 Email: <u>agm@apsfl.co.in</u>	
7.	Any proposal received by Andhra Pradesh State Fibernet Limited after the deadline for submission of EoI will not be accepted.		
8.	Andhra Pradesh State Fibernet Limited reserve the right to reject or accept or withdraw the EOI without assigning the reasons thereof.		
9.	The sealed envelope containing the Proposal documents / the sealed box containing GPON ONT's must be submitted at Andhra Pradesh State Fibernet Limited 3rd Floor, NTR Administrative Block, Pandit Nehru Bus Station, NH 65, Vijayawada-520001, Andhra Pradesh, India before closure of submission dated & time. The proposal may also be sent through post / speed post/Courier. A copy of the proposal shall also be emailed to <u>agm@apsfl.co.in</u> . APSFL will not be responsible for any postal delay.		

Objective of the EOI:

Andhra Pradesh State FiberNet Limited intends to provide the services through the AP Fiber Network to the households and the government offices (Departments/schools/hospitals etc.). APSFL has finalized the standards & specifications for the Customer Premise Equipment (CPE) to enable the intended services.

APSFL through this EOI intends to empanel OEMs/Distributors of GPON ONT which are capable of providing High Speed Internet with FTTH.

Scope of Work:

The Empaneled vendor shall be able to supply GPON ONT with Wi-fi Single band/ Dual band for enhancing the APSFL broadband connections.

The scope of work covers as follows:

1. Sample Testing & Acceptance

The Empaneled Vendor/OEM have to submit the Prototypes of GPON Single Band/ Dual Band CPE box for testing and the CPE has to comply for all the standards & specifications given in this EOI and any other compliance that are deemed necessary for delivery of quality services to the end users adhering to the SLA.

Empaneled Vendor/OEM shall submit and offer **5 nos**. of Prototypes of the entire kit (including but not limited to CPE box and other required accessories like interconnection cables) to APSFL, for testing, which will be tested in a lab as well as on the field as per requirements by APSFL. Bidder should submit Prototypes of CPE as proposed with their feature test reports along with the Proposal. In case bidder fails to submit the Prototypes on the request of APSFL (or) fails to submit successful test reports withinthe stipulated time, such Proposals will be rejected.

The Empaneled Vendor/OEM shall ensure to meet the following during Sample testing / Acceptance Phase:

- The make/model of the CPE box is fully interoperable (full functionality) with existing APSFL Network, including and not limited to BSS, ZTP etc.
- The make/model of the CPE box is fully interoperable with M/s Altice Labs OLT, M/s Dasan OLT and M/s ZTE OLT

APSFL will provide the required details and approve the input devices. Bidders to note that the test lab is already ready and available for testing and certification of new CPE products. New OEMs to get their product certified at the available test facility by APSFLin their own interest at any time prior to submission of Proposal or within time as stipulated above post submission of Proposals.

Eligibility Criteria:

- Bidder/OEM should possess an experience of having delivered 100,000 GPON ONTs or having a manufacturing capacity of 100,000 GPON ONTs per annum. Self-declaration of the same shall be provided by the bidder along with the proposal.
- Non-fulfilment of the above said criteria shall result in rejection.
- In case, if the bidder has TEC certification, the same shall be submitted along with the proposal

Submission of Technical Proposal:

S. No	Description	Accessories
1	GPON ONT	- RJ 45 Ethernet (Internet)- 2/4 Ports - RJ 11(Telephone)- 1 Ports
		- Feature for Wi-Fi Functionality - USB – 1 Port

1. Common Specifications

S.No	Parameter	Requirement/Standards	
1		ONT with WIFI (Single Band 802.11 a/b/g/n/ac)	
2		ONT with min 4 LAN ports	
3	Basic Features	ONT with min 1 Voice Port	
4		ONT with min 1 USB Port	
5		TR069 and zero touch	
6		ONT CPU must be at least dual core 1GHz	
7		ONT shall support at least 2x2 for 2.4 Ghz	
8		Specify WIFI chipset for 2.4 / 5.8	
9		ONT RAM/Flash must be at least 64MB/64MB	
10		With Indian standard Power Supply (output at least 12V 1.0A)	
11		Data Port should support 10/100/1000 Base-T interface with RJ-45	
12		Voice Port should support RJ11 FXS Interface	
13		ONT should support 1490nm wavelength downstream,	
		1310nm	
		wavelength upstream	
14	Physical	ONT ideal power consumption should be <15W	
15	Parameters	ONT should support small form-factor type laser, SC/APC	
		connector	
16		ONT should support different LEDs for Power, PON,	
		LOS, Internet,Lan(1-4), Phone(1), Wi-Fi, WPS, USB	

11 ON 1 should support Safety and electronic magnetic interface 18 (EM) is_protection of over voltage/current 18 The device Serial No., manufacturing month & year & MAC Id 19 One RESTF button of over voltage/current 19 One RESTF button should be present placed in a suitable 20 One RESTF button should be present placed in a suitable 21 ONT should have Wi-Fi button and WPS button. 22 ONT should have wi-Fi button and WPS button. 23 ONT should have wi-Fi button and WPS button. 24 ONT should have wi-Fi button and WPS button. 25 Specifications 26 Specifications 27 TU-T G.984.3-compliant davanced Encryption Standard (AES) in a downstream 110-T G.984.3-compliant dynamic bandwidth reporting (DBR) 27 GPON Encapsulation Method (GEM) mode support for IP/fithernet service traffic support 28 Z.488Gb/s line rate downstream, 1.244Gb/s line rate upstream 29 Dying gasp support on ONT 31 ONT should support SC/APC for PON interface 32 WAN UP LINK 33 The receive optical power budget ranges from 0.5 dBm to 5 dBm. 34 ONT should support config	47			
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39 Class of Service (CoS) based on VLAN-ID, IEEE 802.1p bit 40 Vendor to specify the maximum number of VLan support on a particular port of ONT	38		(ToS/DSCP) to IEEE802.1p mapping for untagged frames	
40 Vendor to specify the maximum number of VLan support on a particular port of ONT	39	Class of Service (CoS) based on VLAN-ID. IEEE 802.1p bit		
40 particular port of ONT	-		Vendor to specify the maximum number of VI an support on a	
	40		particular port of ONT	

		Vandar to chastify the maximum number of MAC supported on	
41		a particular port of ONT	
42		ONT should support Wire-Speed rate	
43	1	ONT should detected duplicate MAC on a particular Data port	
44		QOS interface of Strict priority should be supported for 4 or 8	
45	Software function	queues QOS interface of Weight fair Queue should be supported for 4 or 8	
46		Ethernet ports comply with IEEE 802.3u .8023ab. 802.3i	
47		Supports the configurations of rates and duplex modes for Ethernetports. Auto-negotiation on rates and duplex modes is supported by default	
48		Ethernet ports support automatic MDI/MDI-x.	
49		Supports a maximum of 2000-byte Ethernet frames.	
50		ONT should support PPPoE, DHCP and Static IP configuration for WAN Interface	
51		ONT should support NAT functionality	
52		ONT should support Dual Stack for IPv6:IPv4 configuration on WANInterface, ONT should be able to operate with some LAN ports in	
	-	routed and some in bridge mode with IPv4/IPv6 dual stack support.	
53		ONT should support SNTP slave mode	
54		ONT should support Firewall Functionality in routed mode	
55		ONT should support Port forwarding in routed mode	
56		ONT should support Demilitarized Zone (DMZ) in routed mode	
57		ONT should support dynamic domain name system (DNS) in routed mode	
58		TR-69, TR098, support on ONT for ACS accessibility, configuration andperformance management (Data, Voice, Video)	
59		Shall support provisioning, diagnosis & performance monitoring fortriple play services through TR069	
60		Shall support customization of DM tree as per ACS solution	
		operator network	
61	1	ONT should support IP, MAC filtering in routed mode	
62	1	ONT should be able to deliver High Speed Internet Service	
63	1	ONT should be able to deliver Voice service	
64	1	ONT should be able to deliver IPTV service (IGMPv2)	
65	1	ONT should be able to deliver Triple play service concurrently	
66	+	ONT should support Wi-Fi Standard of 802.11 b/g/n (256 QAM support)	
67	•	ONT should support Wi-Fi standard of 802.11 ac (256 QAM support)	
68	•	ONT should support Wi-Fi band steering function	
	1		

	1		
69		All ports should be switched ports i.e., traffic from one port	
		should not be received at second port	
70	-	OoS support on wireless interface	
70		Bandwidth management canabilities	
72		Security > 64 -bit/128-bit/256-bit WEP	
72			
73		Support for MAC filter	
74		Support for hiding Producet SCID	
75		Output nower EIRP at antenna port, 26 dBm for 2.4 Gbz	
76			
77		Support WPA, WPA2	
78		Option for feeding 4 different manual/random keys for each 64/128 bit	
		Hardware priority queues on the downstream direction in	
79		support of	
0.0		CoS	
80		Priority and rate-controlled scheduling	
81		Channel bandwidth should be configurable for 20MHz/ 40MHz/80 Mhz	
82		Certificate of Wi-Fi alliance	
83		Implicit/Explicit Beamforming for 2.4Ghz	
84		Maximum DL speed over WIFI in Vendor HQ	
85		Maximum UL speed over WIFI in Vendor HQ	
86		Maximum number of clients supported - Single a/b/g/n/ac	
87		Maximum number of clients supported - Mix a/b/g/n/ac	
88		Maximum Range in meters for 2.4Ghz	
		WIFI for 2.4 GHz	
89			
90		Shall support proportionate fair scheduling of the traffic for the Wi-Ficlient in a mix of 802.11b/g/n/ac devices connected concurrently to	
		Auto mode for Client re-connection (when an already latched	
91		client	
		comes within WIFI range again)	
92		External RADIUS Authentication	
93		AES and TKIP Encryption	
94		Wi-Fi multimedia support: WMM and WMM-PS	
95		WPS (Pushbutton and PIN entry)	
96		ONT should support GPON OMCI protocol for remote	
	-	management.	
97		ONT should be visible on Vendor EMS(OMCI)	
98		ONT should be configurable for Port configuration via Vendor	
		EMS ONT alarm should be available on Vander 5045 avables duits -	
99		gash PON	
		Loss	
L	1	1	

101 In the fiber network 102 Fiber network 103 Creation & Deletion of ONT should be possible via EMS 104 Support of remote software upgrade via EMS on ONT 105 ONT should support TR-069 in case of RGW ONT 106 Support of remote software upgrade via EMS on ONT 106 ONT should be able to interoperate with at least one of current network's OLT existing in APSFL Network 108 The gold plating thickness on R11 & R45 jacks will be 1.27 microns. Vendor to submit the certificate of compliance from third party. 109 The PGB used shall be FR4 only. 110 The CPE should have WI-FI Certification 111 The CPE should have adequate cooling arrangements. The holes used forthis purpose should not be available on the Cabinet Top cover. 112 General Engineering & operational requirements 113 General Engineering & the responsibility of supplier to supply IAD's with an indect firmware with effect from the date of reporting firmware with effect from the date of reporting firmware bug, it shallbe applicable for all supplies in warehouse/ in transit & in production. 114 CPE should work satisfactorily for continuous operation of tripleplay services (Voice + video+ Data) for min. 120 hours. 114 CDC Solud work satisfactorily for continuous operation of tripleplay services (Voice+	100		ONT should be automatically detected via EMS once plugged		
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112In the event of a bug found (IAD going to factory default, Loss of wi fi configuration, frequent PPP down, multicast performance issue etc.) inthe software, the manufacturer shall provide patches and firmware replacement if involved, free of cost. Compatibility of the existing hardware shall be maintained with future software/firmware.113It will be the responsibility of supplier to supply IAD's with a mended firmware with effect from the date of reporting firmware bug. It shallbe applicable for all supplies in warehouse/ in transit & in production. Vendor to submit an undertaking. • It has to support IPOE • It has to support and the MTTR (Mean Time to Restore) should be less than 30 minutes.115The CPE should work satisfactorily for continuous operation of tripleplay services (Voice+ video+ Data) for min. 120 hours.116The CPE should work satisfactorily for continuous operation of tripleplay services (Voice+ video+ Data) for min. 120 hours.117Electrostatic discharge - EN 61000-4-2118RF Immunity - EN 61000-4-3120Surge lines to earth coupling & line to line coupling - EN 61000- 4-5121Electrostatic discharge - EN 61000-4-2122Call control: SIPv1/v2.	111		The CPE shall have adequate cooling arrangements. The holes used forthis purpose should not be available on the Cabinet Top cover.		
A operational requirementshardware shall be maintained with future software/irmware.113It will be the responsibility of supplier to supply IAD's with amended firmware with effect from the date of reporting firmware bug. It shallbe applicable for all supplies in warehouse/ in transit & in production. Vendor to submit an undertaking. • It has to support IPDE • It has to support multicast mdt114The MTBF (Mean Time Between Failure) should be higher than 500,000 hours and the MTTR (Mean Time to Restore) should be less than 30 minutes.115The CPE should work satisfactorily for continuous operation of tripleplay services (Voice+ video+ Data) for min. 120 hours.116The CPE & Adaptor shall have protection mechanism for Over voltage, Over Current & reverse current on the following interfaces as per ITU T K.21.117Electrostatic discharge - EN 61000-4-2118Fast transients' common mode - EN 61000-4-4119RF Immunity - EN 61000-4-3120Surge lines to earth coupling & line to line coupling - EN 61000- 4-5121Call control: SIPv1/v2.	112	General Engineering	In the event of a bug found (IAD going to factory default, Loss of wi fi configuration, frequent PPP down, multicast performance issue etc.) in the software, the manufacturer shall provide patches and firmware replacement if involved, free of cost. Compatibility of the existing		
114The MTBF (Mean Time Between Failure) should be higher than 500,000 hours and the MTTR (Mean Time to Restore) should be less than 30 minutes.115The CPE should work satisfactorily for continuous operation of tripleplay services (Voice+ video+ Data) for min. 120 hours.116The CPE & Adaptor shall have protection mechanism for Over voltage, Over Current & reverse current on the following interfaces as per ITU T K.21.117Electrostatic discharge - EN 61000-4-2118Fast transients' common mode - EN 61000-4-4119Surge lines to earth coupling & line to line coupling - EN 61000- 4-5121Electrostatic discharge - EN 61000-4-2122Call control: SIPv1/v2.	113	requirements	It will be the responsibility of supplier to supply IAD's with amended firmware with effect from the date of reporting firmware bug. It shallbe applicable for all supplies in warehouse/ in transit & in production. Vendor to submit an undertaking. It has to support IPOE		
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118Fast transients' common mode - EN 61000-4-4119RF Immunity - EN 61000-4-3120Surge lines to earth coupling & line to line coupling - EN 61000- 4-5121Electrostatic discharge - EN 61000-4-2122Call control: SIPv1/v2.	117		Electrostatic discharge - EN 61000-4-2		
119RF Immunity - EN 61000-4-3120Surge lines to earth coupling & line to line coupling - EN 61000- 4-5121Electrostatic discharge - EN 61000-4-2122Call control: SIPv1/v2.	118		Fast transients' common mode - EN 61000-4-4		
120Surge lines to earth coupling & line to line coupling - EN 61000- 4-5121Electrostatic discharge - EN 61000-4-2122Call control: SIPv1/v2.	119		RF Immunity - EN 61000-4-3		
121Electrostatic discharge - EN 61000-4-2122Call control: SIPv1/v2.	120		Surge lines to earth coupling & line to line coupling - EN 61000- 4-5		
122 Call control: SIPv1/v2.	121		Electrostatic discharge - EN 61000-4-2		
	122		Call control: SIPv1/v2.		
123 T.38 Fax relay	123		T.38 Fax relay		

124	Fax/Data bypass			
125	VoIP	Echo canceller (G.168)		
126	specifications	Echo canceller length(32ms)		
127		Jitter buffer		
120	Caller ID, Call Waiting, Call Forwarding, Call Transfer, T			
128		WayCalling/Conferencing, Distinctive Ringing, Call hold		
129		G.711 PCMU, G.711 PCMA, G.723.1, G.726, G.729		
130		G.729; VAD and CNG; Caller ID and call waiting		
131		ONT should support FXS Port for VOIP service		
132		ONT should support SIP protocol to deliver voice service (SIP		
101		client		
122		allocation & Registration)		
133				
134		RFC 2833 Support		
135		n-band signaling detection and generation (DTMF, call		
		tones)		
126		Automatic Tone generation (dial, busy, ring back, stutter,		
136		distinctive		
		ring)		
137		3-Way Conferencing		
138	Power Saving	IEEE Energy Efficient Ethernet mode (EEE)		
139		Web-based with GUI		
140		Remote management over the OMCI, PLOAM OMCC versions:		
		0xA0 to		
1/1		UXA3		
141	Management	Must expose all its interfaces via HTTP_REST_API only when		
	Support	connected directly via USB or RI45, and over Wi-Fi with		
142		password access, which is visible in a menu in the CPE. All		
		messages (both send and receive) must		
		be in JSON-LD format		
1/13		CPE should provide an interface to publish VOIP status		
140		messages (Ex:VOIP Calls Status, CLIP, Ringing, etc.,)		
144	Power	Comply with CoC V3 or latest version		
	Requirement			
145	Power Supply	150V to 250V AC 50Hz, Indian Socket Plug, BIS standards		
146	Environment	-0ºC to +50ºC,		

Pricing proposal Template

S.N o	ltem (Box type)	Model ID	Proposed MRP (INR) excluding taxes
1			
2			
3			
4			
5			

At any time prior to the last date for receipt of offer, APSFL may for any reason, whether at its own initiatives or in response to a clarification requested by a prospective bidder, modify the EOI document and all formats including annexure by issuing clarification(s) and or amendment(s). In order to provide prospective bidders reasonable time to take the amendment into account in preparing their offers, APSFL may, at its sole discretion, extend the last date for receipt of offers and/or make other changes in the requirements set out in the invitation for EOI.

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