

TAMIL NADU ARASU CABLE TV CORPORATION LTD, CHENNAI-8.

GLOBAL TENDER NO. 001/TACTV/Set Top Box/2017 dt.06.05.2017.

TENDER FOR THE SUPPLY OF STANDARD DEFINITION (SD), HIGH DEFINITION (HD), TRIPLE PLAY SET TOP BOXES AND DATA OVER CABLE SERVICE INTERFACE SPECIFICATION (DOCSIS) CABLE MODEM ON RATE CONTRACT BASIS ON SUPPLIERS LINE OF CREDIT MODEL

CORRIGENDUM-1 dt.16.05.2017.

1. The following amendments are issued to the Tender:

Sl. No	Page. No.	Clause No.	Existing	To be read as
1	4	7	There will be a pre-bid meeting on 19.05.2017 at 3.30 P.M. in the Head Office of TACTV, 34/123, 6th Floor, Dugar Towers, Marshalls Road, Egmore, Chennai - 600 008 during	There will be a pre-bid meeting on 19.05.2017 at 3.30 P.M in: Hotel Ramada Meeting Hall –First Floor, Gandhi Irwin Bridge Road, Next to CMDA Building, Egmore, Chennai-8.
2	10	22	(a) All items should have a replacement warranty for a period of 5 years from the date of issue of acceptance letter by TACTV against manufacturing defects. During the warranty period, the bidder should also provide maintenance support for all items covered under the contract free of cost (b) The supplier shall maintain a stock of 5% of the quantity supplied in each district on pro-	(a) All items should have a replacement warranty for a period of 5 years from the date of issue of acceptance letter by TACTV against manufacturing defects. During the warranty period, the bidder should also provide maintenance support for all items covered under the contract free of cost (b) The supplier shall maintain a stock of 5% of the quantity supplied in each district on pro-rata basis to facilitate hassle free replacement. (c) The supplier should maintain toll free

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			<p>rata basis to facilitate hassle free replacement.</p> <p>(c)The supplier should maintain toll free numbers @ one line for every 5 lakh Set Top Box suppliedoperating 24x7 to register service complaints. Further a mobile app shall also be deployed for registration of complaints. The complaintsshall berectified within 24 hours from the time of notification and for difficult locations such as hill areas, the timeline for rectification of complaints shall be 48 hours. The services should be done at free of cost.</p> <p>(d) The call center shall be located in Chennai and handle complaints in Tamil & English</p>	<p>numbers @ one line for every 5 lakh Set Top Box suppliedoperating 24x7 to register service complaints. Further a mobile app shall also be deployed for registration of complaints. The complaintsshall berectified within 24 hours from the time of notification and for difficult locations such as hill areas, the timeline for rectification of complaints shall be 48 hours. The services should be done at free of cost.</p> <p>(d) The call center shall be located in Chennai and handle complaints in Tamil & English</p> <p>(e) The STB OEM shall submit a blue print of Service Network, alongwith the tender submission that shall be established at Taluk Level of Tamil Nadu to support 70 Lakh STB's post warranty period</p>
3	15	Vi	<p>Annual Maintenance Contract :</p> <p>The Bidder must agree to maintain the supplied equipments to ensure the continuous usage during the AMC period after the completion of Five years warranty period.</p> <ul style="list-style-type: none"> • TACTV will have sole discretion to enter in to AMC. • AMC will include cost of defective equipment's /parts etc. replaced during the AMC Period. • The Bidder must agree to provide 	<p>Annual Maintenance Contract</p> <ul style="list-style-type: none"> • The Annual Maintenance Contract on expiry of the Warranty period shall be for CAS & SMS servers that shall be installed at Chennai Digital Headend for supporting the services of TACTV through CAS & SMS Servers. • The OEM's shall be responsible for the AMC of CAS & SMS through their office in India. However, TACTV has the sole discretion to enter in to AMC. • A proposal may be submitted along with the

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			<p>comprehensive maintenance of the installed systems including preventive and corrective maintenance on site.</p> <ul style="list-style-type: none"> • TACTV reserves the right to terminate the AMC, in the event of unsatisfactory maintenance and claim damages for non-fulfillment of contract. • All clauses and conditions in warranty will hold good during the post warranty AMC. 	<p>tender containing the details of support that shall be extended during the AMC Period for CAS& SMS and approximate Cost implications to TACTV for such proposal for budgeting considerations.</p> <ul style="list-style-type: none"> • The Bidder must agree to maintain the supplied equipments to ensure the continuous usage during the AMC period after the completion of Five years warranty period. • AMC will include cost of defective equipment's /parts etc. replaced during the AMC Period. • The Bidder must agree to provide comprehensive maintenance of the installed systems including preventive and corrective maintenance on site. • TACTV reserves the right to terminate the AMC, in the event of unsatisfactory maintenance and claim damages for non-fulfillment of contract. <ul style="list-style-type: none"> • All clauses and conditions in warranty will hold good during the post warranty AMC.
4	19	3(1)	Newly Added after point.33	34. The CAS must be capable to scramble the channels in the remote location through ECM & EMM from the Digital Headend and ensure the availability of the channels only for the Set Top Boxes seeded in a particular area in coordination with SMS.
5	24	4(I) (1)	Set Top Box (STB)-General 1. The Set Top Box must support at least any one of 5 leading Chipset Manufacturers of International repute with high end memory and graphics processing capability.	4(I) Set Top Box (STB)-General 1. The Set top Box must support anyone of 5 leading chipset manufacturers of international repute such as ST ,Broadcom or similar in terms of performance ,with advanced security

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.				<p>features , having highend Flash, DDR Memory and graphics processing capability .</p> <p>The Set Top box should have the photo of the Hon'ble Chief Minister of Tamil Nadu embossed in Glow in Dark lumuniscence.</p>
6	25	31	<p>1. Advance function support ;</p> <p>a. Pay per view</p> <p>b. Program preview control</p> <p>c. Support pre-process scrambling for push VOD service</p> <p>d. Interface for third party ad insertion services</p> <p>e. Support electronics programme guide (Min. 5 days)</p> <p>f. Support Multilanguage subtitle, if present in the video content.</p> <p>g. Support Multiple Audio Tracks , if present in the Video content</p> <p>h. Channel Selection</p> <p>i. Mosaic Function</p> <p>j. Personal Video Recorder (PVR) through USB functionality</p> <p>k. Games</p> <p>l. Box should have diagnostic page to monitor CAS, SI and RF Info.</p>	<p>1. Advance function support ;</p> <p>a. Pay per view</p> <p>b. Program preview control</p> <p>c. Support pre-process scrambling for push VOD service</p> <p>d. Interface for third party ad insertion services</p> <p>e. Support electronics programme guide (Min. 7 days)</p> <p>f. Support Multilanguage subtitle, if present in the video content.</p> <p>g. Support Multiple Audio Tracks , if present in the Video content</p> <p>h. Channel Selection</p> <p>i. Mosaic Function</p> <p>j. Personal Video Recorder (PVR) through USB functionality</p> <p>k. Games</p> <p>l. Box should have diagnostic page to monitor CAS, SI and RF Info.</p> <p>m. Support various Channel Edit functions such as favourite, move, parental lock etc.,</p>
7	25	31	Newly Added	Now Added the following after Sl.No:31

Sl. No	Page. No.	Clause No.	Existing	To be read as
				<p>32. Each STB shall be legibly and indelibly marked with atleast the following information :</p> <ul style="list-style-type: none"> a. Manufacturers name b. Model and Serial No. c. Country of Manufacture d. Input Voltage e. Power Consumption f. Labels for all Input and output (RF, VIDEO, AUDIO, USB, HDMI etc.) <p>33. The STB should include frequency scanning function to detect the availability of DVB-C Signals and be capable of programme memory , in case of cut off.</p> <p>34. The scanning function should display the number of channels currently being scanned , display number of services located , name, network ID, signal strength and quality.</p> <p>35. The STB software's , EPG, CA features must be upgradable over the air. The instant and personalized message prompt must include display & withdrawal of titles , be able to display current software and hardware version stored in the decoders, able to indicate updates are available or not, able to indicate</p>

Sl. No	Page No.	Clause No.	Existing	To be read as
				<p>unique serial number and state of STB decoder , able to indicate type of middleware and other resident application version numbers.</p> <p>36.The Set Top Box shall also be tested as per BIS 13252:2010 (Audio, Video and similar Electronic Apparatus –Safety Requirements) as per “The Gazette of India ” notification Part II-Section 3-Sub section (ii) dated October 3,2012 Vide “Ministry of Communications and Information Technology ”order dated 7 th September 2012.</p>
8	25	II	<p>I. MPEG 4 Basic SD Set Top Box: Features:</p> <ul style="list-style-type: none"> • Fully compliant with DVB –C digital TV reception standards • Comply with MPEG 2, MPEG 4 and H .264 Standard. • Channel List, EPG • Should also support quoted CAS • Should be able to support 500 Channels • Favorite Creation • User friendly STB Remote control with ease of navigation • Parent Controls • Bouquet based tuning and quick boot up 	<p>II. MPEG 4 Basic SD Set Top Box Features:</p> <ul style="list-style-type: none"> • Fully compliant with DVB –C digital TV reception standards • Comply with MPEG 2, MPEG 4 and H .264 Standard. • Channel List, EPG, teletext& subtitles • Should also support quoted CAS • Should be able to support 500 Channels • Favorite Creation • User friendly STB Remote control with ease of navigation • Parent Controls • Software upgrade through USB & OTA • Support USB 2.0 PVR, MPEG2, MPEG4, VC-1, MP3, AAC, Digital Photos JPEG, GIF, TIF/TIFF, BMP, PNG etc.

Sl. No	Page No.	Clause No.	Existing	To be read as
				<ul style="list-style-type: none"> • Variable aspect ratio 4:3 /16:9 ,pan & scan or Letter Box Modes. • Bouquet based tuning and quick boot up • Video Graphics :on screen display graphics plane. • Remote Control : IR (38 K.Hz) , 2 x 1.5 V AAA • Power Consumption in St.by mode < 1 W <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Chip Processor & Memory</p> </div> <ul style="list-style-type: none"> • Flash Memory 8 MB • System Memory 64 MB DDR3 • With Advanced Security Features
9	28	III	<p>III. MPEG 4 HD Digital Set Top Box: Features:</p> <ul style="list-style-type: none"> • DVB –C Tuner • HD Set Top Box shall also have all the features of SD Box • Multiformat video decoder capable of HD MPEG2/ MPEG AVC/H.264 decoding • Should support all profiles and levels of video decoding as per ISO/IEC 14496-10 • Should be able to decode MPEG 1, MPEG 4 Stereo, 5.1 , Dolby Digital Audio • Should be capable of supporting both 1080 I and 720 P formats • Should support PVR Control • Shall support real time scrambling of VOD Services 	<p>III. MPEG 4 HD Digital Set Top Box: Features:</p> <ul style="list-style-type: none"> • DVB –C Tuner • HD Set Top Box shall also have all the features of SD Box • Multi format video decoder capable of HD MPEG2/ MPEG AVC/H.264 decoding • Should support all profiles and levels of video decoding as per ISO/IEC 14496-10 • Support USB 2.0 PVR, MPEG2, MPEG4, VC-1, MP3, AAC, Digital Photos JPEG, GIF, TIF/TIFF, BMP, PNG etc • Should be able to decode MPEG 1, MPEG 4 Stereo, 5.1 , Dolby Digital Audio • Should be capable of supporting 576 i, 576 p . 1080 I and 720 P formats to allow optimum picture performance with standard TV's and HDTV's. • Should support PVR Control

Sl. No	Page. No.	Clause No.	Existing	To be read as
			<ul style="list-style-type: none"> • HDMI connector for connecting High Definition Television • Digital Audio Output to connect to high end audio equipment's • USB 2.0 port connectivity for external mass storage devices such as USB. 	<ul style="list-style-type: none"> • Software upgrade through USB & OTA • 10/100 Ethernet Interface option to provide access to service provider network capable of supporting interactive services. • Shall support real time scrambling of VOD Services • HDMI connector for connecting High Definition Television • Digital Audio Output to connect to high end audio equipment's • USB 2.0 port connectivity for external mass storage devices such as USB • Remote Control : IR (38 K.Hz) , 2 x 1.5 V AAA • Power Consumption in St.by mode < 1 W <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Chip Processor & Memory</p> </div> <ul style="list-style-type: none"> • Flash Memory : 128 MB NAND Flash • System Memory 256 MB DDR3 • With Advanced Security Features

2. The Technical Specifications for the Triple Play STB and DOCSIS are newly added as follows:

(a) TRIPLE PLAY SET TOP BOX SPECIFICATIONS

Features :

- Compliant with ITU-T G.984 X GPON Standards & TEC-GR
- Low Power Consumption
- Wall & Table Mount Models
- Plug-n-Play implementation

- Remote Configuration and Management
- Class B+ GPON Port

Common Specifications :

Sl.NO	Parameter	Requirements
1.	GPON	
a.		Standard : ITU -T G 984.1/G 984.2/G 984.3/G 984.4/G 984.5/G988
b.		Encapsulation should support Ethernet
c.		Downstream : 2488 Gbps / 1244 Gbps (upstream)
2.	WAN Uplink interface	G.984 GPON B+
3.a.	L2/L3 Layer	Transparent VLAN
b.		Routing : Network Access Translation(NAT) and Network
c.		Firewall
d.		VPN
e.		DHCP Client and Server
f.		PPPoE Client
g.		Performance : 1000 Mbps bidirectional
4.	VoIP Specifications	Call Control S1Pv1/v2
		G.711 PCMU, G.711 PCMA , G.723.1 , G.726
		G.729, VAD and CNG. Caller ID and Call waiting
		RFC 2833 Support
		Automatic Tone generation (dial, busy , ring back , stutter , distinctive ring), 3 way conferencing .
5.	Services	Cotent Sharing, Metadata Support, OSGI, E1,N X 64 Kbps, Plug and Play .
6.	POTS	RJ 11 Port
7.	IPTV	IGMP v1/v2/v3 Snooping and proxy
		Interactive Services (VOD)
		IPTV Streams forwarding simultaneous 128
		Prioritization using QoS 802.1P
8.	LAN Ethernet Interface	RJ 45 10/100/1000 BASE-T
		Support Auto Negotiation
9.	Management Support	Web based with GUI

		The OLT shall not require the use of vendor specific managed entities and the ONU shall not be forced to provide them.
		OAM and TR 069, TR 104, TR 111, TR 142
		All the interfaces must be connectable through HTTP and REST API when connected through USB or RJ 45 and Over WI-FI with password access and must be visible in a menu in the Equipment.
10	Upgrading Firmware	Must be free of cost
11.	Power Supply	90-270 V AC
12.	Operating Temperature	0 to 50 deg C
13.	Operating Humidity Range	5 to 95% (Non Condensing)

IPTV SPECIFICATIONS

Sl.No	IPTV Specifications	
1.	OS	Android latest
2.	CPU	Quad Core
3.	CPU Operating Frequency	1000 M.Hz or More
4.	Video	MPEG 2/H.264/HEVC/VC-1/MPEG4 Part2/Flash
5.	Audio	MPEG -1 (Layer I/II) , MP3, E-AC3, AC-3, Dolby Digital, MPEG 4 HE AAC 5.1, DTS .
5.	RAM (DDR3)	Minimum 2 GB
6.	FLASH	Minimum 8 GB
7.	Video Interface	HDMI 1.4
8.	Digital Audio	SPDIF
9.	Analog Audio /Video	AV Out and Stereo Audio Out
10.	Bluetooth	2.1 and BLE 4
12.	USB Ports	2
13.	SD Card	Micro SD Card
14.	Camera and MIC	Through USB
15.	Streaming	Should support MPTS & SPTS.
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CATV RF Overlay Specifications :

Sl.No	RF OVER GPON	
1.		F Connector 1 Port
2.		75 Ohms Impedance
3.		TV Overlay 1550 nm -17 dbm to +2 dbm
4.		Bandwidth 47 – 890 M.Hz.

Wireless LAN Specifications :

Sl.No	WI-FI	
1.		IEEE 802.11 n and 802.11 ac(Opt)
		802.1 x Authentication
		RADIUS Authentication
		WPA/WPA2 Protected Access
		64/128 bits WEP Encryptions
		AES and TKIP Encryption
		WI-FI Multimedia Support
		Multiple SSID Profiles
		MAC Address filtering integrated
		WPS (Pushbutton and PIN Entry)

The Rates for the following variants of Triple Play Boxes may be quoted :

- (i) Triple Play IPTV Box with FTTH Input for Telephone ,Internet & IPTV
- (ii) Triple Play IPTV Box with FTTH Input features of (a) plus Wi-Fi functionality.
- (iii) Triple Play IPTV Box with FTTH Input for Telephone , Internet and Cable TV services for connecting to DVB C STB.
- (iv) Triple Play IPTV Box with FTTH Input features of (c) plus Wi-Fi functionality.

(b) DOCSIS 3.0 CABLE MODEM SPECIFICATIONS

SI.NO	Parameter	Requirements
1.	DOCSIS TYPE	DOCSIS 3.0
2.	Standard	ETSI Standards on Integrated Broadband Cable and Television Networks .
3.	Downstream Channels	8 bonding channels with 400 Mbps
4.	Upstream Channels	4 bonding channels with 120 Mbps
5.	Modem Antenna	Internal
6.	Modem Connectors	1 USB 2.0 , 2 RJ 45, 1 F Type
7.	Connectivity	2 x 2 IEEE 802.11/a/b/g/n/2.4 G.HZ/5 G.Hz.
8.	Software for Modem Routing	As per ETSI DOCSIS 3.0 Standard
9.	Modem Software features	As per ETSI DOCSIS 3.0 Standard
10.	Remote Control	Mandatory
11.	Operating Temperature	0 deg C to 50 deg C.
12.	Operating Humidity Range	5 to 95 percent (Non condensing)
13.	Power Supply	90-270 V AC
14.	Frequency	50 Hz plus or minus 5%

All other terms and conditions of the Tender remain unaltered.

Managing Director