



TAMILNADU ARASU CABLE TV CORPORATION LTD
(TACTV)

தமிழ்நாடு அரசு கேபிள் டிவி நிறுவனம்
(A Government of Tamilnadu Undertaking)



GLOBAL TENDER REFERENCE NO. 001/TACTV/Set Top Box/2017

GLOBAL TENDER DOCUMENT

**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**

Date of Release of Tender	06.05.2017
Prebid Meeting	19.05.2017
Last Date for Submission of Bid	29.05.2017
Date of Opening of Bid	29.05.2017
Cost of Bid Document:	Rs.1000/-

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IMPORTANT NOTICE

This tender procedure is governed by the Tamil Nadu Transparency in Tenders Act, 1998 and the Tamil Nadu Transparency in Tender Rules, 2000 as amended from time to time. In case of any conflict between the terms and conditions in the tender document and the Tamil Nadu Transparency in Tenders Act, 1998 and The Tamil Nadu Transparency in Tender Rules, 2000 the Act and Rules shall prevail.

1.	PREAMBLE							
<p>Tamil Nadu Arasu Cable TV Corporation Ltd (TACTV), a Government of Tamil Nadu undertaking, incorporated under the Companies Act, 1956 with an aim to provide high quality cable signals to the public through Local Cable Operators at an affordable cost. The current subscriber base of TACTV is around 70.52 Lakhs connected through 26,246 Local Cable Operators (LCOs). The revenue and net profit (unaudited) of TACTV for the year 2016-17 is Rs. 233.67 crores and Rs.41 crores respectively. TACTV has very good reach throughout Tamilnadu.</p> <p>As per the Cable Television Networks (Regulation) Amendment Act 2011, it is mandatory for all Cable TV providers to switch-over from the existing analogue cable TV networks to Digital Addressable System (DAS) and subsequent to which TACTV has obtained Digital Addressable System (DAS) license from Ministry of Information and Broadcasting, Govt. of India.</p> <p>TACTV is now in the process of rolling out DAS throughout Tamilnadu on fast track basis. To achieve this, TACTV propose to purchase around 60 lakhs SD set top boxes and 10 lakhs HD set top boxes on Suppliers line of credit. Further, TACTV is also interested to get price discovery for Triple Play Set Top Box and Data Over Cable Service Interface Specification (DOCSIS) cable modem. Accordingly, TACTV invites sealed tenders from eligible bidders as single applicant/consortium for the supply of set top boxes on Suppliers line of credit/deferred payment model in “Two Cover System” through transparent bidding process. The Tender notification has been published fixing the date of opening of tender as 29.05.2017.</p>								
2.	SCOPE OF SUPPLY							
<p>The scope of supply would inter-alia involve the following:</p> <p>(a) The successful bidder should supply SD set top boxes, HD set top boxes, Triple play set top boxes and DOCSIS cable modem on rate contract basis for a period of one year as ordered by TACTV. The scope of supply for SD and HD set top boxes shall include Conditional Access System (CAS) and Subscriber Management System (SMS). The detailed specifications for set top boxes is given in the Annexure-I.</p> <p>(b) The set top boxes and its accessories should have a replacement warranty for a period of 5 years from the date of supply. During the warranty period, the bidder should also provide maintenance support for all items covered under the contract free of cost. The supplier should have arrangements in every taluk for extending service support.</p> <p>(c) The items are to be delivered at any location in Tamilnadu as may be specified by TACTV.</p>								
3.	QUALIFICATION CRITERIA							
<table border="1"> <thead> <tr> <th data-bbox="193 1823 320 1861">Clause</th> <th data-bbox="320 1823 879 1861">Qualification Criteria</th> <th data-bbox="879 1823 1401 1861">Supporting Documents/Remarks</th> </tr> </thead> <tbody> <tr> <td data-bbox="193 1861 320 2056">3(a)</td> <td data-bbox="320 1861 879 2056">i. The single bidder should be a registered company in India and should be in the business of manufacturing set top boxes for the past three years as on 31st Mar 2017</td> <td data-bbox="879 1861 1401 2056"> <ul style="list-style-type: none"> • Copy of Incorporation Certificate issued by the Registrar of Companies • Copy of Memorandum and Articles of Association </td> </tr> </tbody> </table>	Clause	Qualification Criteria	Supporting Documents/Remarks	3(a)	i. The single bidder should be a registered company in India and should be in the business of manufacturing set top boxes for the past three years as on 31 st Mar 2017	<ul style="list-style-type: none"> • Copy of Incorporation Certificate issued by the Registrar of Companies • Copy of Memorandum and Articles of Association 		
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	<p>ii. In case of Consortium of Bidders:</p> <p>a) Consortium of Bids are allowed with maximum of three partners</p> <p>b) One of the partners shall be designated as Prime Bidder and such partner shall be a Registered Company in India and should be in existence for the past three years as on 31st Mar 2017.</p> <p>c) Each partner of the Consortium should be a Registered Company and should be in existence for the past three years as on 31st Mar 2017.</p> <p>d) No partner of the Consortium should bid individually or be a partner of another Consortium</p>	<ul style="list-style-type: none"> • The Consortium partners individually should submit the Certificate of Incorporation from the appropriate Authority. • If the Certificate of Incorporation is not in English, then notarized English translation should be submitted. • The original Consortium Agreement should be submitted. The Consortium Agreement shall contain statement that all partners of the consortium shall be liable jointly and severally for the execution of the contract in accordance with the contract terms.
3(b)	<p>The single bidder/ anyone of the consortium partner should have minimum 3 years of experience (as on 31stMar 2017) in the manufacture of Set Top Boxes.</p>	<p>(i) In case of Indian Manufacturer,</p> <ul style="list-style-type: none"> • Copy of Central excise/ VAT/CST registration. <p>(ii) In case of Foreign manufacturer,</p> <ul style="list-style-type: none"> • Official documentation including Tax returns for set top box manufacturing business from Tax Authorities / Statutory Authorities of the country of Incorporation shall be submitted.
3(c)	<p>i. The bidder should have reported an Average Annual Turnover of at least Rs.100 Crores in the last three consecutive financial years i.e. 2013-14, 2014-15 and 2015-16 (or) 2014-15, 2015-16 and 2016-17</p> <p>ii. In case of Consortium of Bidders:</p> <p>a) The prime bidder should have reported an average Annual Turnover of at least of at least Rs.100 Crores i.e. 2013-14, 2014-15 and 2015-16 (or) 2014-15, 2015-16 and 2016-17</p> <p>b) Set top box manufacturing partner should have reported an average Annual Turnover of at least Rs.50 Crores i.e. 2013-14, 2014-15 and 2015-16 (or) 2014-15, 2015-16 and 2016-17.</p>	<p>(i) The average annual turnover statement duly certified by Chartered Accountant as per Annexure VI</p> <p>(ii) The Annual Report/ certified copies of Balance Sheet, Profit & Loss statement for the last 3 consecutive financial years</p>

3(d)	The single bidder/ anyone of the consortium partner should have successfully completed supply of at least 5 Lakh units of set top boxes in any one of the last three financial years i.e. 2013-14, 2014-15 and 2015-16 (or) 2014-15, 2015-16 and 2016-17 of which at least 3 Lakh units should have been supplied and seeded in India.	Purchase Orders / Invoice and Completion certificates from the clients.
3(e)	The single bidder/ anyone of the consortium partner should have credit facilities (Cash credit/Over draft) at least Rs.10 Crores from banks/financial institutions	Letter from banks / FI in support of sanction of credit facility
3(f)	The single bidder / anyone of the consortium partner should have a full-fledged permanent office in Chennai to provide after sales services.	Chennai Office Address (or) the bidder should give an undertaking to setup office at Chennai within 15 days from the date of issue of LoI if selected
3(g)	The single bidder/ anyone of the consortium partner should have full-fledged service centres in Tamilnadu to provide after sales services.	The list of service centres in Tamilnadu as per Annexure VIII should be enclosed (or) the bidder should give an undertaking to setup service centres in all districts of Tamilnadu within 30 days from the date of issue of LoA if selected
3(h)	The single bidder / consortium partners should have firm tie-up with a leading and reputed CAS and SMS providers who are in operation in India for at least 3 years as on 31, March 2017. The CAS and SMS providers should have a minimum of 3 Lakhs active installations (as embedded in STB) each in 3 leading Indian Digital Cable Systems/DTH operators. Upon award of the contract, the CAS and SMS should be provided by the same vendors on whose tie-up the tender got qualified.	Tie-up letter, Purchase/work orders, completion certificate and Certificate from MSO/DTH Operator
3(i)	The single bidder/ all consortium partners should not have been blacklisted as on the date of tender opening for supply of any items or services to TACTV or Central/State Government departments and Quasi Government Organizations	(i) The declaration form as per Annexure IX should be enclosed. In case of consortium, each partner should submit a separate declaration form. (ii) Any adverse/not satisfactory remarks on the performance of previous supplies will entail disqualification (iii) Further, if the bidder is found blacklisted in India before award of contract by any Government agency, the bid will be rejected

4.	LANGUAGE OF THE TENDER
<p>The Tender prepared by the bidder as well as all correspondences and documents relating to the Tender shall be in English language only. If the supporting documents are in a language other than English/Tamil, the notarized translated English version of the documents should also be enclosed. Tender received without such translation copy will be rejected.</p>	
5.	CONSORTIUM AGREEMENT
<p>a) A legally valid agreement shall be executed for the consortium binding all the partners in INR 100 Non-Judicial stamp paper. All partners of the consortium shall be liable jointly and severally for the execution of the contract in accordance to the contract terms and it should be explicitly stated in the consortium agreement. The consortium agreement should indicate precisely the role of each partner of the consortium in respect of the contract.</p> <p>b) Consortium agreement should be registered in Chennai so as to be legally valid and binding on all partners.</p> <p>c) Consortium agreement shall be enclosed with the technical bid. Alternatively, a letter of intent to execute a consortium agreement in the event of a successful bid shall be signed by all the partners and submitted with the bid together with the copy of the proposed agreement.</p> <p>d) The consortium agreement shall authorize one of the partners of the consortium as Prime Bidder. This authorization shall be evidenced by submitting of Power of Attorney signed by the legally authorized signatories of all the partners.</p> <p>e) The Prime Bidder of Consortium shall be authorized to incur liabilities and receive instruction for and on behalf of him and all partners of the consortium and entire execution of the contract including payment shall be done exclusively with the Prime Bidder. All correspondence will only be made with the Prime Bidder.</p>	
6.	PURCHASE OF TENDER DOCUMENT
<p>a) The tender document shall be obtained from Tamil Nadu Arasu Cable TV Corporation Limited (TACTV), 34 /123, 6th Floor, Dugar Towers, Marshalls Road, Egmore, Chennai - 600 008 on payment of Rs.1000/- payable in the form of Demand Draft drawn on any Indian Nationalized/ Scheduled Commercial Bank in favour of “Tamil Nadu Arasu Cable TV Corporation Ltd” payable at Chennai or it can be downloaded from www.tactv.in and www.tenders.tn.gov.in at free of cost. For the downloaded tender document, the bidder need not enclose the tender document cost but should give a declaration for not having tampered the Tender document downloaded (as per Annexure X).</p> <p>b) The tender document can be purchased on all working days from 06.05.2017 to 28.05.2017 between 11.00 AM and 03.00 PM.</p>	
7.	PREBID MEETING
<p>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 which</p>	

the prospective bidders can get clarifications about the tender. The bidders shall send their queries in writing if any so as to reach TACTV at least two days prior to the pre-bid meeting date. The bidders are advised to check www.tactv.in and www.tenders.tn.gov.in for up-to-date information like change in date / venue etc., of pre-bid meeting as TACTV may not be able to identify and communicate with the prospective bidders at this stage. Non attending of pre-bid meeting is not a disqualification.

8.

CLARIFICATION ON THE TENDER DOCUMENT

Any discrepancies, omissions, ambiguities or conflicts in the tender document or any doubts as to their meaning and any request for clarification may be sent in writing to “The Managing Director, Tamil Nadu Arasu Cable TV Corporation Limited (TACTV), 34 /123, 6th Floor, Dugar Towers, Marshalls Road, Egmore, Chennai - 600 008” or through e-mail to tactv@tactv.in as per Annexure-XII. The Managing Director, will review the same and where information sought is not clearly indicated or specified in the tender documents, will issue a clarifying bulletin to all those who have purchased the tender documents and will also upload such clarification on www.tactv.in and www.tenders.tn.gov.in. The Managing Director will neither make nor be responsible for any oral instructions. Request for clarification should be brought to the notice of the Managing Director, in writing, before 48 hours of the opening of the tender.

9.

AMENDMENT OF TENDER DOCUMENT

TACTV whether on its own initiative or as a result of a query, suggestion or comment of an Applicant or a Respondent, may modify the tender document by issuing an addendum or a corrigendum at any time before the opening of the tender. Any such addendum or corrigendum will be communicated through mail to all the bidders who had purchased the tender documents and also will be uploaded on www.tactv.in and www.tenders.tn.gov.in and the same will be binding on all Applicants or Respondents or Bidders, as the case may be.

10.

AUTHORISATION OF THE BIDDER

The Tender should be signed by the person who is authorized for the same by the Single Applicant/ Prime Bidder of the Consortium.

11.

SUBMISSION OF TENDER IN TWO COVER SYSTEM

- (a) Every page of the terms and conditions of the tender document should be signed and enclosed with the tender, in token of having accepted the tender conditions. Failing which the tender will be rejected summarily.
- (b) Tenders should be submitted in two parts:
 - i. Part I will cover technical bid and
 - ii. Part II will cover price bid
- (c) Bidders should ensure submission of all documents along with Part-I and Part II proposal as per the Check list given in Annexure -XV.
- (d) Bidders are requested to submit Part I and Part II in a separate sealed cover superscripting as Part I and Part II respectively. These two Parts namely Part I and Part II must be placed in a separate sealed cover superscripted as “Tender for the supply of Standard Definition (SD), High Definition (HD) Triple Play Set Top Boxes and

DOCSIS cable modem on rate contract basis on suppliers line of credit model” and addressed to “The Managing Director, Tamil Nadu Arasu Cable TV Corporation Limited (TACTV), 34/123, 6th Floor, Dugar Towers, Marshalls Road, Egmore, Chennai - 600 008”, containing the name and address of the Bidder. **Tenders submitted with unsealed cover would summarily be rejected.**

- (e) Tenders should be dropped only in the tender box kept at “Tamil Nadu Arasu Cable TV Corporation Ltd.34/123, 6th Floor, Dugar Towers, Marshalls Road, Egmore, Chennai 600 008” on or before 3.00 PM on 29.05.2017”. Tenders will not be received by hand.
- (f) Alternatively, the tenders can be submitted through registered post so as to reach the above address on or before 3.00 PM on 29.05.2017. Tenders received after the specified time will not be considered and TACTV will not be liable or responsible for any postal delays.
- (g) A tender once submitted shall not be permitted to be altered or amended.

12. EARNEST MONEY DEPOSIT

- (a) The Tender should be accompanied by an Earnest Money Deposit (EMD) to the value of Rs.75,00,000/- (Rupees Seventy Five Lakhs Only) in the form of an Irrevocable Bank Guarantee with a validity period of 12 months.
- (b) The EMD in any other form will not be accepted. The Earnest Money Deposit will be returned to the unsuccessful bidders.
- (c) The Earnest Money Deposit will be retained in the case of successful bidder and it will not earn any interest and will be dealt with, as provided in the terms and conditions of the tender.
- (d) Any request of the bidder, under any circumstances claiming exemption from payment of EMD will be rejected and their Part II price offer will not be opened.
- (e) EMD is liable to be forfeited in case the bidder fails to execute the contract after submission of the tender or after acceptance of the offer by TACTV or fail to sign the Agreement or to remit the Security Deposit.

13. VALIDITY

The rate quoted in the Tender should be valid for the acceptance by TACTV for a minimum period of **90 days** from the date of opening of the Tender. Escalation in the rates will not be entertained under any circumstances.

14. OPENING AND EVALUATION OF THE TENDER

- (a) The tenders received up to 3.00 PM as per the office clock on 29.05.2017 will be taken up for opening. Tenders received after specified date and time will not be accepted. The Tender will be opened by the Managing Director of Tamil Nadu Arasu Cable TV Corporation Limited or by the Person/Committee authorized by him at 03.30 PM on the same day in the presence of the available Bidders/ representatives of the Bidders who choose to be present. The Bidders or their authorized agents are allowed to be present at the time of opening of the tenders.

- (b) The Managing Director of Tamil Nadu Arasu Cable TV Corporation Limited or Person/Committee authorized by him will inform the attested and unattested corrections, before the Bidders and sign all such corrections in the presence of the Bidders. If any of the Bidders or agents not present then, in such cases the Person/Committee will open the tender of the absentee Bidder and take out the unattested corrections and communicate it to them. The absentee Bidder should accept the corrections without any question whatsoever.
- (c) If the date fixed for opening of the tender happens to be a Government holiday, the sealed tenders will be received up to 3.00 PM on the next working day and opened at 03.30 PM on the same day.
- (d) The Technical bid will be evaluated by the committee of TACTV in terms of the qualification criteria. The committee reserves the right to disqualify any of the tender in case the Committee is not satisfied with the documents furnished, including the past performances.
- (e) **Sample Submission and Benchmark Test:**
- The bidder has to submit two samples for each item quoted in the tender. The samples should be submitted indicating the make, model number and brochures / specification of the items for benchmark testing by TACTV as per Annexure-IX. Of the two samples, one sample will be given for testing to NABL accredited testing agency nominated by TACTV. The bidders whose sample passes the test will only be qualified for price bid opening. Bids without submission of samples are liable to be rejected. The parameters to be tested are given in the Annexure-III.
- (f) TACTV may arrange for field inspection to verify their pre-qualifying conditions before opening of Part II cover and in case if any failure to satisfy the requirements, their Tender will be rejected and their Part-II Cover will not be opened.
- (g) Any adverse/not satisfactory remarks on the performance from the clients of previous supplies will entail disqualification of the tender and price bids will not be opened.
- (h) The bidders declared as qualified by the Committee, will be informed the date of opening of Part II (Price bid).

15.

PRICE OFFER

- (a) The Price bid should be kept only in the Part II cover.
- (b) The price bid should be prepared as per Annexure-XIV.
- (c) The rate quoted by the bidder shall include interest/ financial charges for the supplier's line of credit as envisaged in Clause 25 of this document.
- (d) The duties and taxes should be quoted separately as per the price bid format.
- (e) The rate finalized for the award of contract shall be kept firm for a period of one year from the date of issue of Letter of Acceptance.

- (f) Any increase/decrease of duties and taxes due to implementation of GST will be borne by the TACTV.
- (g) The price should be neatly and legibly written both in figures and words.
- (h) In case of discrepancy between the prices quoted in words and figures lower of the two shall be considered.
- (i) Part-II bid should not contain any commercial conditions. Variation in the commercial terms and conditions of the tender will not be accepted.

16.	EVALUATION OF THE PRICE
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The price bid will be evaluated in accordance to the Tamil Nadu Transparency in Tenders Act 1998 read with the Tamil Nadu Transparency in Tenders Rules 2000, as given below:

- (a) The evaluation shall include all Customs Duty, Central Excise Duty and Value Added Tax (VAT) and Service Tax as a part of the price, as detailed below:
 - (i) In evaluation of the price of an imported item, the price shall be determined inclusive of the customs duty.
 - (ii) In the evaluation of the price of the articles which are subject to excise duty, the price will be determined inclusive of such excise duty.
 - (iii) In a Tender where all the bidders are from within the State of Tamil Nadu or where all the bidders are from outside the State of Tamil Nadu, the Sales Tax under the Tamil Nadu Value Added Tax shall be included for the evaluation of the price bid.
 - (iv) In a tender where the bidders are both from the state of Tamil Nadu as well as outside the state of Tamil Nadu the sales tax under the Tamil Nadu Value Added Tax shall be excluded for the evaluation of the price, as per Rule 29(d) (iv) of the Tamil Nadu Transparency in Tenders Act 1998 read with the Tamil Nadu Transparency in Tenders Rules 2000.
- (b) If implementation of GST happens before price bid evaluation, the guidelines issued by Govt. of Tamilnadu in this regard will be applicable for the evaluation of price bids.
- (c) The bidder(s) who have quoted lowest rate in each item i.e. SD (along with CAS & SMS), HD (along with CAS & SMS), Triple Play set top boxes and DOCSIS cable modem will be adjudged as L1 for the respective item.
- (d) The rate for Triple Play set top boxes and DOCSIS cable modem is asked only for the purpose of price discovery and the option of purchasing Triple Play set top boxes and DOCSIS cable modem is solely vested with TACTV based on the need in future.

17.	AWARD OF CONTRACT
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- (a) L1 bidder of each item i.e. SD set top boxes (along with CAS & SMS), HD set top boxes (along with CAS & SMS), Triple Play set top boxes and DOCSIS cable modem will be invited for price negotiations.

- (b) Upon finalization of negotiated rate, TACTV will issue the Letter of Acceptance (LoA) to the successful bidder for each item separately.
- (c) The operating requirements necessitate deployment of CAS and SMS from a single supplier for all the set top boxes (both SD & HD) to be seeded by TACTV. Therefore, CAS & SMS provider of L1 vendor in respect of SD set top box shall supply CAS & SMS to other vendors of SD set top box and HD set top box at the final negotiated rate. In other words, all the set top boxes should be integrated with a single CAS and SMS.
- (d) However, TACTV reserves the right to award the contract to Other Technically Qualified Bidders who are matching the negotiated price of L1 bidder, in accordance with Clause 31(4) of the Tamil Nadu Transparency in Tenders Act, 1998 read with the Tamil Nadu Transparency in Tenders Rules, 2000.
- (e) As per Clause 14(9) of Tamilnadu Transparency in Tender Rules 2000, TACTV reserves the right to increase or decrease the order quantity up to 25% on same terms and conditions.

18. SECURITY DEPOSIT

- (a) On receipt of the Letter of Acceptance from TACTV, the successful bidder should remit a Security Deposit (SD) of 2% of the allotted quantity in the form of an Irrevocable Bank Guarantee with a validity period of 12 months, within 10 (Ten) working days from the date of receipt of letter of acceptance. The EMD shall be adjusted with the Security Deposit.
- (b) Any other amount pending with TACTV will not be adjusted under any circumstances, against the Security Deposit if so requested.
- (c) Security Deposit will be returned only after completion of supply of the entire order quantity.
- (d) In case of non fulfillment of contract, Security Deposit will be forfeited.

19. AGREEMENT

The successful bidder should execute an agreement as may be drawn up to suit the conditions on a non-judicial stamp paper of value, as prescribed in law within 10 working days from the date of issue of LOA and shall pay for all stamps and legal expenses incidental thereto. In the event of failure to execute the agreement, within the time prescribed, the SD amount remitted by the bidder will be forfeited besides cancellation of the Tender. The model draft agreement is enclosed as Annexure –XVI.

20. ISSUE OF PURCHASE ORDER

After execution of the agreement, Purchase order will be released to the items as and when it is required by the TACTV. The bidder should supply ordered items as per the schedule given in clause 21.

21.

SCHEDULE OF SUPPLY

- (a) The timeline for completing the supply of quantity allotted in each purchase order shall be as follows:

S.No.	Project Milestone	Timeline
1.	40% of the ordered quantity	30 days from the date of issue of purchase order
2.	60% of the ordered quantity	60 days from the date of issue of purchase order

Delay beyond this period will attract penalty.

- (b) The supplier shall stick/print TACTV LOGO / HELP DESK LOGO / Holograms/ Serial Number etc. as per the instructions of TACTV on the items delivered.
- (c) The supplier should intimate the readiness of the items to TACTV for benchmark testing at least 7 days in advance before the dispatch.
- (d) Benchmark test will be conducted on all items/samples drawn from the supplies by third party agency nominated by TACTV. The testing will be done at the supplier premises. The testing cost will be borne by TACTV.
- (e) The items which are accepted after testing shall be sealed inside the carton box.
- (f) After successful delivery of the items, the supplier must obtain a certificate in the specified format duly certified by the respective consignee and submit it to TACTV. Based on the certificate given by consignee and the copy of test reports, TACTV will issue acceptance letter to the supplier.
- (g) If the contract is not completed within the stipulated time or extended time, TACTV will hold full authority to cancel the tender or take any such action that will be deemed fit to the occasion at the risk and cost of the successful bidder. Such cancellation will entail forfeiture of Security Deposit.
- (h) In the event of non- performance of the contractual provisions or failure to effect the supply within the stipulated time or during the extended period and if it is found that the contractor, has not fulfilled the contractual obligation with TACTV in any manner during the currency of the contract or also found on later date, TACTV reserves the right to disqualify such supplier to participate in future tenders or black list the firm up to a maximum period of 3 years.

22.

WARRANTY & AFTER SALES SERVICE

- (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.

	<p>(c) The supplier should maintain toll free numbers @ one line for every 5 lakh Set Top Box supplied operating 24x7 to register service complaints. Further a mobile app shall also be deployed for registration of complaints. The complaints shall be rectified 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>23.</p>	<p>TRAINING</p>
	<p>(a) The successful bidder should train Local Cable Operators (LCOs) on installation and maintenance of set top boxes at convenient locations throughout Tamilnadu.</p> <p>(b) The successful bidder should also provide instruction manual on installation and maintenance of set top boxes in Tamil and English for all the LCOs.</p>
<p>24.</p>	<p>OBLIGATION OF TACTV</p>
	<p>(a) Testing cost of all items will be borne by TACTV.</p> <p>(b) The installation of set top boxes will be done by TACTV/ Local Cable Operator (LCO).</p>
<p>25.</p>	<p>PAYMENT TERMS</p>
	<p>(a) No advance is permissible.</p> <p>(b) Payment will be made for each purchase order after supply of entire quantity given in the purchase order on submission of invoice.</p> <p>(c) The payment will be made in 60 equated monthly installments. Only cost of the set top boxes estimated on the basis of negotiated rate will be divided into 60 installments and paid. No interest/financial charge will be paid separately. No interest/financial charge is permissible for the deferred payment under any circumstances.</p> <p>(d) Payment for the first month will commence after 30 days from the date of completion of supplies for the respective purchase order. Penalty if any will be adjusted against equated monthly installment.</p> <p>(e) The, payments will be considered only after submission of proof for payment of duties and taxes to the Govt. as per invoice .</p> <p>(f) All payments under this Contract shall be made to the accounts of the Supplier (Single applicant/ Prime bidder of consortium) as specified in the tender conditions.</p> <p>(g) TACTV also reserves the right to recover any dues from the bidder, which is found on later date, during audit/excess payment, after final settlement is made to them. The bidder is liable to pay such dues to the TACTV immediately on demand, without raising any dispute/protest.</p>

26.	PENALTY																								
<p>(a) Failure to comply with the stipulated timeline will attract a penalty of 0.5% per week, on the unfulfilled portion of the contract up to a maximum of 5%. Delays beyond that period will result in cancellation of the orders.</p>																									
<table border="1" data-bbox="325 421 1268 1281"> <thead> <tr> <th data-bbox="325 421 708 495">Failure to comply with timeline in weeks</th> <th data-bbox="708 421 1268 495">Penalty</th> </tr> </thead> <tbody> <tr> <td data-bbox="325 495 708 568">0-1</td> <td data-bbox="708 495 1268 568">0.5% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 568 708 642">1-2</td> <td data-bbox="708 568 1268 642">1% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 642 708 716">2-3</td> <td data-bbox="708 642 1268 716">1.5% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 716 708 790">3-4</td> <td data-bbox="708 716 1268 790">2% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 790 708 864">4-5</td> <td data-bbox="708 790 1268 864">2.5% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 864 708 938">5-6</td> <td data-bbox="708 864 1268 938">3% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 938 708 1012">6-7</td> <td data-bbox="708 938 1268 1012">3.5% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 1012 708 1086">7-8</td> <td data-bbox="708 1012 1268 1086">4% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 1086 708 1160">8-9</td> <td data-bbox="708 1086 1268 1160">4.5% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 1160 708 1234">9-10</td> <td data-bbox="708 1160 1268 1234">5% per week, on the unfulfilled portion of the contract</td> </tr> <tr> <td data-bbox="325 1234 708 1281">>10</td> <td data-bbox="708 1234 1268 1281">Cancellation of orders</td> </tr> </tbody> </table>		Failure to comply with timeline in weeks	Penalty	0-1	0.5% per week, on the unfulfilled portion of the contract	1-2	1% per week, on the unfulfilled portion of the contract	2-3	1.5% per week, on the unfulfilled portion of the contract	3-4	2% per week, on the unfulfilled portion of the contract	4-5	2.5% per week, on the unfulfilled portion of the contract	5-6	3% per week, on the unfulfilled portion of the contract	6-7	3.5% per week, on the unfulfilled portion of the contract	7-8	4% per week, on the unfulfilled portion of the contract	8-9	4.5% per week, on the unfulfilled portion of the contract	9-10	5% per week, on the unfulfilled portion of the contract	>10	Cancellation of orders
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- (d) The successful bidder shall not off load either full or part of the work to other bidder.
- (e) If delivery performance of the bidder is not as per the schedule, then the TACTV reserves the right to reallocate the quantity to other bidders. Any additional cost incurred by TACTV due to such reallocation should be borne by the bidder.
- (f) TACTV reserves its right to withhold any amount for the deficiency in the services of the supplied items.
- (g) Any notice regarding any problems, to the bidder shall deemed to be sufficiently served, if given in writing at his usual or last known place of business.
- (h) In the course of discussion and instruction TACTV may disclose information of confidential and proprietary nature relating to its business model, subscribers, etc. to the bidder. Such information shall be considered as confidential.

29.

ARBITRATION

- (a) In case of any dispute in the bid, including interpretation if any on the clauses of the bid or the agreement to be executed, the matter shall be referred by TACTV/ bidder to an arbitrator who shall be selected by the bidder from the panel of arbitrators approved by TACTV and communicate the same within 15 days, from the date of receipt of the letter from TACTV along with the panel. If there is no reply from the bidder within 15 days, TACTV shall choose any of the arbitrators from the panel of arbitrators referred to above. The remuneration for the arbitrator and other expenses shall be shared equally by TACTV and the bidder.
- (b) The venue of the Arbitration shall be at the Head office of the TACTV, Chennai. The decision of the Arbitrator shall be final and binding on both the parties to the Arbitration.
- (c) The Arbitrator may with the mutual consent of the parties, extend the time for making the award. The award to be passed by the Arbitrator is enforceable in the Court at Chennai city only.

30.

JURISDICTION OF THE COURT

Any dispute arising out of non-fulfillment of any of the terms and conditions of this Agreement or any other dispute arising out of the arbitration award will be subject to the jurisdiction of the Courts in the City of Chennai only.

We agree to the above terms and conditions.

SIGNATURE OF THE BIDDER:

DATE:

NAME IN BLOCK LETTERS:

DESIGNATION:

ADDRESS:

SCOPE OF SUPPLY & TECHNICAL SPECIFICATIONS

1) Project Details:

i. CAS & SMS Integration at the Digital Cable TV Head end in Chennai

The existing Head end have provisions to receive satellite signals and planned to feed out 500 TV services of Free to Air, Pay TV Channels , HD Channels and 20 FM Radio services . The output from the Head end for all channels / services will be in Digital (QAM) and IP form

ii. The system offered should have the following features:

- The proposed TV services (300 channels to start and to be expanded to 500) will be in MPEG 4 Standard definition and 30 Television services in HD(MPEG4) and 20 FM Audio services with provision to add more SD & HD Channels in the near future.
- The system should be DVB Simulcrypt compliant.
- The system must use industry standard hardware and software conforming to existing International Cable TV Standards.
- The PC's or servers required for the system are to be included along with the configuration.
- All software applications should be latest version at the time of purchase order and software upgrades, if any at a later date, must be provided without any financial implication during the period of warranty.
- All equipment's in the subsystem must have standard control interface so that they can be interfaced with PC and NMS for remote monitoring and control with suitable GUI.
- The proposal shall be for the complete system on SITC basis. Incomplete or part supply will not be considered. The firm will be responsible for installing the system offered by them.
- The proposal should carry complete solution and cost of optional equipment's or features should be quoted separately
- The system design should have provision for future upgradation and expansion.

iii. Delivery Schedule :

The time limit for supply, installation and commissioning of CAS and SMS at Chennai Cable TV Head end with implementation of CAS should be within 3 weeks from the date of issue of Letter of Acceptance.

iv. Deliverables:

The Main system, sub system and its components shall comply with the provided specifications in the Tender document. Necessary resources shall have to be provided by the bidder for carrying out these tests.

Two sets of the following documents should be submitted:

- System Block Diagram
- Equipment product data sheets
- Operation Manual and installation manuals
- Invoice & Delivery Note /order copies.
- Test reports copy conducted during the installation of the system.
- Operational Training for TACTV staff at site.
- Maintenance Manual must contain the parameters for routine checkups, periodic preventive maintenance procedures, fault diagnosis, replacement of defective components etc.

v. Preventive Maintenance :

The successful bidder should perform four periodical inspections in a year at three month intervals during the Five years of warranty period. These inspections will include

- Visual checks, operational test of all the hardware units.
- Diagnostic checks on all equipment's.
- Running the system software and make necessary corrections of the problem diagnosed.
- Resolve , outstanding problems/issues , if any
- Submit a report to TACTV on the above and any other relevant tasks carried out for record purposes.

vi. Annual Maintenance Contract :

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.

- 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 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.
- All clauses and conditions in warranty will hold good during the post warranty AMC.

vii. Training :

The Bidder should impart on-site training to the staff nominated by TACTV in CAS, SMS and STB's including hands on training. The details and no of days training to be given should be furnished.

viii. Operation and Maintenance of Cable TV System :

The bidder or the system Integrator should run the CAS & SMS at the Chennai Digital Head end for a period of Three months from the date of commissioning of the system and train the TACTV staff, besides handling any initial issues that may arise, as the system being new.

- An agreement for the operation and maintenance will be signed with the successful bidder/bidders , if required
- CAS & SMS vendors shall be asked to share their experience in operations and procedures of CAS and SMS for effective operations.
- TACTV expects full cooperation in this regard.

ix. Presentation:

The bidders must be prepared to give a comprehensive presentation on the proposed CAS, SMS and STB to TACTV Committee Members.

2) Scope of Supply:

The System will ultimately aim to Broadcast 500 TV Channels including 50 HD Channels, 20 FM Audio Channels. The initial subscriber base is expected over 7 Million and delivery is over the HFC network with the existing cable operators. The proposed system shall deliver content using DVB-C Standards.

i. Distribution Network:

The distribution network will be based on HFC Architecture with fiber deep nodes. The coaxial infrastructure of the cable operators will deliver to homes.

ii. Architecture:

- TACTV expects to have a centralized authorization and billing system. At the same time, the software architecture should be capable of authorizing the local cable operators to authorize/unauthorize bouquets for their subscribers.
- The content distribution to the end user would be de- centralized through the local cable network operator.
- The content source would be a combination of centralized content and locally generated content.

iii. **Solution Components:**

The various requirements to roll out the Digital video services shall be as follows:

- a) As per “**THE TELECOMMUNICATION (BROADCASTING AND CABLE) SERVICES STANDARDS OF QUALITY OF SERVICE AND CONSUMER PROTECTION (ADDRESSABLE SYSTEMS) REGULATIONS, 2017**” the Set Top Boxes for Cable TV services shall comply with the Bureau of Indian Standard (IS-16128 of 2013), as amended from time to time, or any other standard approved by any agency authorized by the Central Government.
- b) The CAS system and Middleware to work with at least 5 brands of OEMs.
- c) The subscriber management systems with billing interface to work with any CAS
- d) Distribution of set top boxes to LCO’s across Tamilnadu.
- e) The CAS must support at least 5 brands of STB’s which should have been deployed in India and Overseas countries.

This document lists the requirements of the various solution components in the following sections. In order to meet the functional requirement of a specific component, support may be required from one or more other components of the solution (Set Top Box, SMS etc.). To avoid repetition, the function may have been listed in only one component. It goes without saying, that such support is a mandatory requirement, across all relevant components, even if it’s not explicitly stated in this document.

3) **Technical Specifications**

Supply of Conditional Access System, Middleware and distribution of BIS approved Set Top Boxes:

1) Addressable Systems Requirements

I. Conditional Access System (CAS) and Subscriber Management System (SMS):

1. The current version of the CAS, in use, should not have any history of hacking.
Explanation: A written declaration available with the distributor from the CAS vendor, in this regard, shall be construed as compliance of this requirement.
2. The CAS should be DVB compliant with middleware platform and providing the encryption to the value added service.
3. The CAS system should have an uncompromised security features. Bidders must indicate the CAS version and should indicate if there was any security compromise in the last 5 years.
4. The system shall have standards based APIs to transfer purchase information to logistical and billing systems.
5. The CA System shall include an encryption mechanism suitable for DVB-CSA Encryption

6. The CA system shall be capable of encrypting **clear** content provided by various broadcasters to ensure security of content.
7. The CA System shall be capable of providing the above mentioned support for broadcast TV and Video on demand.
8. The offered system shall be the one that has been approved by major content aggregators and major broadcast channels.
9. The system shall have support graphical interface for creating new service offerings.
10. The system shall have a mechanism to test a new service offering before publishing the same.
11. The CA system should generate ECM using the control word supplied by the scrambling control system. The ECM's delivery should support DVB Simulcrypt specifications.
12. The CA System should be capable of delivering authentication EMM and auto refreshing EMMs to the STBs.
13. CAS bidder must also be able to provide solution on VOD, EPG and Middleware.
14. The CA System should have the capability to support at least 1000 bouquets/packages.
15. The software download capability is needed to support STB upgrade, downgrade targeting single and group STB's.
16. It shall not be possible to alter the data and logs recorded in the CAS and the SMS.
17. The CAS, in use, should not have facility to activate and deactivate a Set Top Box (STB) directly from the CAS terminal. All activation and deactivation of STBs shall be done with the commands of the SMS.
18. The SMS and the CAS should be integrated in such a manner that activation and deactivation of STB happen simultaneously in both the systems.
Explanation: Necessary and sufficient methods shall be put in place so that each activation and deactivation of STBs is reflected in the reports generated from the SMS and the CAS terminals.
19. The CAS OEM shall validate that the CAS has the capability of upgrading STBs over-the-air (OTA), so that the connected STBs can be upgraded in the event of hacking.
20. The fingerprinting should not get invalidated by use of any device or software.
21. The CAS and the SMS should be able to activate or deactivate services or STBs of at least 50% of the subscriber base of the distributor within 24 hours.
22. The STB and Viewing Card (VC) shall be paired from the SMS to ensure security of the content.
23. The CAS and SMS should be capable of individually addressing subscribers, for the purpose of generating the reports, on channel by channel and STB by STB basis.
24. The CAS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the CAS including but not limited to activation and deactivation commands issued by the SMS.
25. The CA Company should be capable of upgrading CA software, in case of a known incidence of hacking/piracy within two weeks of reporting during the entire operational life of set top boxes, free of cost.
26. It shall be possible to generate the following reports from the logs of the CAS:
 - i. STB-VC Pairing / De-Pairing
 - ii. STB Activation / De-activation
 - iii. Channels Assignment to STB

- iv. Report of the activations or the deactivations of a particular channel for a given period
- 27. The CAS and SMS vendors must have the technical capability in India to maintain the systems on 24x7 basis throughout the year.
- 28. Upon deactivation of any subscriber from the SMS, all programme/ services shall be denied to that subscriber.
- 29. It should be possible to preserve unedited data of the CAS and the SMS for at least two years.
- 30. Some basic functions of the CA include Open/close account, Entitlement , revoke entitlement , OSD, Fingerprint display, conditional blackout, LOC/Unlock STB, parent control , Distributed CA configuration.
- 31. Additional functions of the CA include program preview control, support pre process scrambling for VOD service, Interface to third party ad insertion services.
- 32. Some Middleware requirements include Boot splash Advertising, EPG advertising, Mini EPG Advertising, Home Page Video etc.
- 33. The CAS OEM must support at least 5 different STB Manufacturers.

2) Subscriber Management Systems:

- 1. The offered system should have been already tested and deployed in at least 5 Big Networks in India.
- 2. The system should be capable of working with several DVB CAS Systems
- 3. The system should support use of set top boxes from multiple bidders with the CAS System.
- 4. The system must have a reporting mechanism to report usage and performance. Shall support definition and creation of new reports
- 5. Shall provide content cataloguing services
- 6. The system shall support multiple system users. It should be possible to assign roles to users and define specific permissions.
- 7. The system shall support XML API for integration with the billing system. The information may include Subscriber purchase records, Subscription information of subscribers, Channel Packages etc.
- 8. The system shall support both pre-paid and postpaid billing system.
- 9. The system shall support real time and bulk updates from external systems. Both synchronous and asynchronous messaging shall be possible.
- 10. The system shall support subscription management of third party applications.
- 11. The SMS system must track the deployment of active and passive set top boxes in the network
- 12. The SMS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the SMS including but not limited to activation and deactivation commands.
- 13. The SMS shall be capable of generating bills for each subscriber with itemized details such as the number of channels subscribed, the network capacity fee for the channels subscribed, the rental amount for the customer premises equipment, charges for pay channel and bouquet of pay channels along with the list and retail price of corresponding pay channels and bouquet of pay channels, taxes etc.

14. The SMS should be computerized and capable of recording the vital information and data concerning the subscribers such as:
- i. Unique customer identification (ID)
 - ii. Subscription contract number
 - iii. Name of the subscriber
 - iv. Billing address
 - v. Installation address
 - vi. Landline telephone number
 - vii. Mobile telephone number
 - viii. E-mail address
 - ix. Channels, bouquets and services subscribed
 - x. Unique STB number
 - xi. Unique VC number
15. The SMS should be capable of:
- i. Viewing and printing of historical data in terms of the activations and the deactivations of STBs
 - ii. Locating each and every STB and VC installed
 - iii. Generating historical data of changes in the subscriptions for each subscriber and the corresponding source of requests made by the subscriber
16. The SMS should be capable of generating reports, at any desired time about:
- i. The total number of registered subscribers
 - ii. The total number of active subscribers
 - iii. The total number of temporary suspended subscribers
 - iv. The total number of deactivated subscribers
 - v. List of blacklisted STBs in the system
 - vi. Channel(s) and bouquet(s) wise monthly subscription report in the prescribed format
 - vii. The names of the channels forming part of each bouquet
 - viii. The total number of active subscribers subscribing to a particular channel or bouquet at a given time
 - ix. The name of a-la carte channel(s) and bouquet(s) subscribed by a subscriber
 - x. The package wise details of the channels in the package
 - xi. The package wise subscriber numbers
 - xii. The ageing report for subscription of a particular channel or bouquet
 - xiii. The history of all the above mentioned data for the period of last 2 years.
17. The solution must be able to address TACTV requirements of
- i. **Subscriber Information:**
Subscriber profiles, region based, entity based and service based etc.
 - ii. **Business Entity Management:**
To manage distribution of services, dealers appointed in different regions, setting up credit limit to dealers/resellers, etc.

iii. Product and package management:

The system should support defining products, groups, packages, etc. The system should be able to add packages to group of customers at a time, approval based assigning packages.

- a) Prepaid plans with an option to process advance bill pay and buy the services for a particular duration or till the usage limit exhausts
- b) Prepaid plans with usage limit and allowed usage limit within the time frame.
- c) Support subscription and value top ups
- d) Should support paper and electronic PIN generation and redemption. etc.

iv. Billing:

The system should support

- a) various pricing schemes
- b) recurring and non-recurring charges
- c) multiple billing cycles
- d) parent account billing
- e) region wise creation
- f) promotion
- g) discounts
- h) pro rate billing
- i) disconnection credit
- j) credit notes
- k) debit notes

The billing should provide ability to create custom batches, schedule bill generation and e mail dispatch summary, presenting bills in multiple modes like email, SMS, OSD and hard copy. Should accept multiple modes of payment.

v. Customer Care related capabilities :

The system should provide customer service representative quickly and should be user friendly. Should be able to generate work order for all connections, disconnections, installations, account transfers and service calls. Should be able to schedule work for the technician visit, time required for the task, customer locations etc.

vi. Inventory Related capabilities :

The SMS System should be able to track the inventory and maintain optimum levels of inventory in the stock locations. The system should support features such as capturing shipment details, tracking consignments, moving stocks between stock locations, tracking customer equipments. The system should also support integrating with external logistics, warehousing and courier systems, inventory returns, trigger alerts on stock depletion etc.

- vii. Finance and Accounting system :**
The solution should track account receivables and payables, settlement of bills, account receivables, collections, adjustments, business entity commissions and any other finance management related requirements. The pricing and rating of services, invoicing and billing are to be taken care in this module. Should support accounting period, account groups, taxation, defaulter management, receivable management, messaging and reminders, deposits and refunds, audit etc.
- viii. Security :**
The system should support role based access control to prevent unauthorized users accessing critical information, disable users at run time, encrypt user name and password etc. The bidder should recommend a secured deployment considering TACTV ecosystem.
- ix. Administration :**
This should support online help , error messaging, defining users , assign logins and passwords, audit trail , data back up and data restore procedures , user wise History .
- x. Reports**
The System should be able to generate a set of standard reports and if TACTV requires additional reports, the system should support definition and creation of new reports. Department wise dashboards must be possible and should be able to export data to generate reports in multiple formats.
- xi. Subscriber Web Interface :**
The system shall encourage subscribers to view/access their account information by remotely logging on to solution. They should be able to view their bills online, pay online and request for a service and shall offer standard features of customer web interface.
- xii. Provisioning and Mediation:**
Provisioning system should handle creation of subscriptions, activation, deactivation, assigning services, deactivating services etc. The system must generate provisioning request for each of the business processes mentioned above. The SMS system must be able to interface external CAS from any bidder.
- xiii. Other Requirements :**
The SMS system must be a. Flexible and configurable workflow management
b. File upload mechanism
c. Graphical representation of MIS info
d. Multilanguage support
e. Empowering filed person using mobile devices to perform activities like printing bills , payment receipts, complaint registrations.
f. Scalability - The system should support millions of subscribers both existing and future.

xiv. Third party Interface :

The System should be capable of interfacing to third party systems such as CAS, VOD, Middleware, SMS Gateway, Online Payment Gateway, Contact centre, Broadband Network elements, financial system etc.

xv. Project Management , Training and support :

The bidder shall propose the best practices to be followed as a part of Project Management. The Training methodology and support models must be included.

xvi. Minimum Requirement of the SMS Vendor :

- a. The bidder should be a Registered Indian Company.
- b. The bidder should have strong understanding of Video and data business, with experience in providing SMS & BILLING System solutions to Video and data service providers.
- c. The bidder should have supplied the SMS system to at least 5 No's of mid /large MSO's /DTH in India.
- d. The system should support large subscriber base.
- e. Should have integration experience with DVB CAS Systems
- f. Experience in integrating with third party systems like Payment Gateways, SMS gateways, contact centre system is preferred.
- g. If needed, shall be capable of supporting multiple CAS in simulcrypt mode in future.
- h. Should support customizations.
- i. Should provide an option for local support
- j. Shall support in handling services like PPV, VOD, and Games etc. in future.
- k. Bidder may provide reference customers, where the system is already installed and operational.

3) Fingerprinting:

1. The systems, processes and controls must be in place to run finger printing at regular intervals.
2. The STB should support both visible and covert types of finger printing.
3. The finger printing should not be removable by pressing any key on the remote of STB.
4. The finger printing should be on the top most layer of the video.
5. The finger printing should be such that it can identify the unique STB number or the unique VC number.
6. The finger printing should appear on the screens in all scenarios, such as menu, Electronic Programme Guide (EPG), Settings, blank screen, and games etc.
7. The location, font colour and background colour of fingerprint should be changeable from head end and should be random on the viewing device.
8. The finger printing should be able to give the numbers of characters as to identify the unique STB and/or the VC.
9. The finger printing should be possible on global as well as on the individual STB basis.

10. The overt finger printing should be displayed by the distributor of television channels without any alteration with regard to the time, location, duration and frequency.
11. Scroll messaging should be only available in the lower part of the screen.
12. The STB should have a provision that finger printing is never disabled.

4) Set Top Box (STB):

I. 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.
2. All STBs should have an **Embedded Conditional Access System**.
3. The STB OEM must support at least 5 leading CAS OEM's.
4. The requirement is for supply of DVB-C front end single tuner broadcast SD STB and Single Tuner HD STB .Both Models should be with PVR functions.
5. The SD MPEG 4 Set Top Box must be capable of decoding MPEG2. MPEG4 H.264 Standard
6. The HD Set top Box must be capable of decoding HDTV /SDTV MPEG2 & MPEG4 H.264 decoding.
7. The STB should be capable of decrypting the Conditional Access messages inserted by the Head-end.
8. The STB should be capable of doing finger printing. The STB should support both Entitlement Control Message (ECM) and Entitlement Management Message (EMM) based fingerprinting.
9. The STB should be individually addressable from the Head-end.
10. The STB should be able to receive messages from the Head-end.
11. The messaging character length should be minimal 120 characters.
12. There should be provision for global messaging, group messaging and the individual STB messaging.
13. The STB should have forced messaging capability including forced finger printing display.
14. The STB must be compliant to the applicable Bureau of Indian Standards namely IS-16128 of 2013, as amended from time to time, or any other standard approved by any agency authorized by the Central Government.
15. The STB OEM must attach the BIS Certification as a documentary evidence.
16. The STBs should be addressable over the air to facilitate OTA software upgrade.
17. There should be a system in place to secure content between decryption and decompression within the STB.
18. The bidder should ensure that there will not be any electrical leakage or electrical shocks.
19. The Bidder should have software support and service centre in India for set top boxes to support customization requirements of TACTV over long term
20. The Bidder shall have authorized service centres in Tamilnadu or shall establish in each district /taluk level.
21. The bidder should indemnify TACTV and its LCOs against any liabilities arising from copyright/intellectual property rights infringement, royalty issues etc.
22. The Bidder should indemnify TACTV or LCOs against any liabilities arising from nonpayment of royalties to any organization or standards committee.
23. STB should support middleware features

24. The fingerprinting should be such that it can identify the unique STB MAC/Sr.No or the unique viewing card (VC) number.
25. The finger printing should appear on all the screens of the STB such as Menu, EPG, etc.
26. The location of the finger printing should be changeable from the head end and should be random on the viewing device.
27. The finger printing should be able to give the numbers of characters as to identify the unique STB and or the VC.
28. The overt finger printing and On Screen Display (OSD) messages of the respective broadcasters should **be** displayed without any alteration with regard to the time, locations, duration and frequency.
29. The STB should have a provision that OSD is never disabled.
30. The finger printing should not get invalidated by use of any device or software.
31. Advance function support ;
 - a. Pay per view
 - b. Program preview control
 - c. Support pre-process scrambling for push VOD service
 - d. Interface for third party ad insertion services
 - e. Support electronics programme guide (Min. 5 days)
 - f. Support Multilanguage subtitle, if present in the video content.
 - g. Support Multiple Audio Tracks , if present in the Video content
 - h. Channel Selection
 - i. Mosaic Function
 - j. Personal Video Recorder (PVR) through USB functionality
 - k. Games
 - l. Box should have diagnostic page to monitor CAS, SI and RF Info.

II. MPEG 4 Basic SD Set Top Box:

Features:

- 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

S.No.	Parameters	SD set top boxes
1)	Technical Requirements	
(i)	BIS Standard	The Digital Set Top Box must comply to BIS Standard IS 16128 “Set Top Box for MPEG 4 Digital Cable TV Services”
(ii)	Demodulation and Forward Error Correction (FEC) decoding	Capability to demodulate and decode digital signals channel coded and modulated in accordance with DVB-C standard (SI No.1 of Annex B)

S.No.	Parameters	SD set top boxes
(iii)	Decompression/decoding video	The STB should be capable of decompressing and decoding Standard Definition Television (SDTV) video signals which are compressed and coded in accordance with SI No.7 of Annex B
(iv)	Decompression/decoding audio	Capability to decompress/decode audio compressed in accordance with SI No. 8 of Annex B.
(v)	Data Services	Capability to receive and process data streams (SI No. 11 and SI No.12 of Annex B)
(vi)	Subtitle streams	Capability to receive and process subtitle streams (SI No. 18 of Annex B)
(vii)	Service de-multiplexing	Capability to receive and process Service Information (SI) (SI No. 16 and SI No.17 of Annex B)
(viii)	Conditional Access/scrambling	a) Capability to descramble services scrambled in accordance with DVB-CSA (SI No. 13 of Annex B) including decryption of signals which have been simulcrypt (SI.No.19 and SI No.20 of Annex B) b) STB may have provision for smart card operation. If smart card is provided, it shall be in accordance with IS 14202 (Parts 1,2 and 3)
(ix)	Upstream Communication	-
(x)	Interfaces/connectors	a) RF Input: 75 Ω Impedance, Female Connector (SI No 22 of Annex B) b) Composite Video - RCA type : Yellow c) Output Audio: ➤ RCA type: Stereo/mono ➤ RCA type: L-White, R-Red
(xi)	Software updation mechanism	(SI No.15 of Annex B)
(xii)	PVR Functionally	This shall be provided for enabling the recording of live A/V programs to the STB hard drive/USB Storage media and the ability to play back video with VCR like Controls.
2)	Performance requirements	
(i)	Electrical Specifications: a) Input voltage range b) Frequency	a) 90-270 V a.c b) 50 Hz \pm 2 percent
(ii)	RF Characteristics to be supported by the receiver: a) System b) Modulation c) RF Carrier signal Level d) Carrier level difference between distributed TV channels (47 -862 MHz range)	a) As per DVB-C standard b) 32 QAM, 64 QAM, 128QAM, 256QAM c) 47 dB μ V Min for 64QAM 67 dB μ V Max for 64 QAM (4.10.3 of IS 13420 (part-1)) d) 3 dB Max for 64 QAM for adjacent channel 13dB Max for 64QAM for adjacent channel to AM VSB channel

S.No.	Parameters	SD set top boxes
	e) Amplitude response within a TV Channel. f) Lowest carrier to interference ratio g) Cross modulation h) Digital video RF characteristics i) Carrier /Noise (C/N) ratio	e) Variation (pp): 8 dB Max Slope of variation : 1.5 dB/MHz Max (4.2 of IS 13420 (part 1)) f) 35 dB Min for 64 QAM g) $>46 + 10 \lg (N-1)$ where N= No.of channels h) Constellation of 16QAM, 64 QAM and 256 QAM are desirable. Other constellations (32QAM and 128QAM) may also be used. The constellation used shall be automatically detected. i) 31 dB Min for 64 QAM
(iii)	Channel tuner performance characteristics: a) RF input level b) Input frequency range c) RF input channel bandwidth d) RF Input impedance e) RF input return loss f) Frequency assignment download	a) Same as mentioned in SI.No.ii b) 47-862 MHz c) 7 MHz for VHF and 8 MHz for UHF d) 75 Ω e) 6 dB Min [4.1.1 of IS 14231 (Part 3)] f) Optional
(iv)	RF Demodulator	-
(v)	Remote control	Mandatory
(vi)	Operating ambient temperature range	5° to 50° C
(vii)	Operating humidity range	5 percent to 95 percent (non-condensing)
(viii)	Finger Printing	Mandatory but service provider free to choose mechanism
3)	Other Requirements	
(i)	General Requirements	a) The STB shall support reception and processing of DVB-C (as laid in SI No. 1 of Annex B) compliant digitally modulated and encrypted signal, as per DVB-CSA (as laid in SI No. 13 of Annex B), received via a cable TV network in accordance with IS 13420 (Part 1). For interactive applications, STB may have the provision of processing signal on the return path, if the return path is provided by the service provider in accordance with IS 14231 (Part 8).The Manufacturer shall declare the capability of the STB and its interoperability, if any, on various cable TV networks in the instruction manual to be supplied with the STB. b) The manufacturer shall ensure compatibility/interfaces with consumer electronic

S.No.	Parameters	SD set top boxes
		equipment(s) such as televisions audio and video systems, VCR's etc in the country.
(ii)	Safety Requirements	The safety requirements of Receiver shall conform to IS 13252
(iii)	Electromagnetic Compatibility (EMC) Requirements	The EMC requirement of the STB shall conform to IS 6873 (Part 3)

III. MPEG 4 HD Digital Set Top Box:

Features:

- 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
- 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
- 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.

S.No.	Parameters	HD set top boxes
1)	Technical Requirements	
(i)	BIS Standard	The Digital Set Top Box must comply to BIS Standard IS 16128 “ Set Top Box for MPEG 4 Digital Cable TV Services”
(ii)	Demodulation and Forward Error Correction (FEC) decoding	Capability to demodulate and decode signals channel coded and modulated in accordance with the DVB-C standard (SI No.1 of Annex B)
(iii)	Decompression/decoding video	The STB should be capable of decompressing and decoding High Definition Television (HDTV) video signals compressed and coded in accordance with SI No.7 of Annex B a) It should be capable of decoding both 1080i and 720p HDTV formats.
(iv)	Decompression/decoding audio	Capability to either: a) Decompress, decode according to metadata and down-mix to stereo for Multichannel audio, all of the following formats: 1) MPEG-1 Layer 2 2) E-AC-3 (SI No. 21 of Annex B) 3) MPEG-4 HE AAC stereo

S.No.	Parameters	HD set top boxes
		b) Pass through all of the following multi - channel formats: <ol style="list-style-type: none"> 1) E-AC-3 (SI No. 21 of Annex B) 2) AC-3 (SI No. 21 of Annex B) 3) MPEG-4 HE AAC 5.1 4) MPEG2 5.1 5) DTS (Digital theatre Sound) c) Transcode all the following input formats to AC-3: <ol style="list-style-type: none"> 1) E-AC-3 (SI No. 21 of Annex B) 2) MPEG-4 HE AAC
(v)	Data Services	Capability to receive and process data streams (SI No. 11 and SI No.12 of Annex B)
(vi)	Subtitle streams	Capability to receive and process subtitle steams (SI No. 18 of Annex B)
(vii)	Service de-multiplexing	Capability to receive and process Service Information (SI) (SI No. 16 and SI No.17 of Annex B)
(viii)	Conditional Access/scrambling	a) Capability to descramble services scrambled in accordance with DVB-CSA (SI No. 13 of Annex B) including decryption of signals which have been simulcrypt (SI.No.19 and SI No.20 of Annex B) b) STB may have provision for smart card operation. If smart card is provided, it shall be in accordance with IS 14202 (Parts 1,2 and 3)
(ix)	Upstream Communication	Bi-directional interactive services may be deployed through the return channel.
(x)	Interfaces/connectors	a) RF Input: 75 Ω Impedance, Female Connector (SI No 22 of Annex B) b) Composite Video - RCA type : Yellow c) Output Audio: d) RCA type: Stereo/mono e) RCA type: L-White, R-Red f) HDMI (SI No.23 of Annex B) g) USB 2.0 Ports h) Digital Audio SPDIF <ol style="list-style-type: none"> 1) Optical i) Connectors: <ol style="list-style-type: none"> 1) HDMI 2) USB
(xi)	Software updation mechanism	(SI No.15 of Annex B)
(xii)	PVR Functionally	This shall be provided for enabling the recording of live A/V programs to the STB hard drive/USB Storage media and the ability to play back video with VCR like Controls.

S.No.	Parameters	HD set top boxes
	Performance requirements	
(i)	Electrical Specifications: a) Input voltage range b) Frequency	a) 90-270 V a.c b) 50 Hz \pm 2 percent
(ii)	RF Characteristics to be supported by the receiver: a) System b) Modulation c) RF Carrier signal Level d) Carrier level difference between distributed TV channels (47 -862 MHz range) e) Amplitude response within a TV Channel. f) Lowest carrier to interference ratio g) Cross modulation h) Digital video RF characteristics i) Carrier /Noise (C/N) ratio	a) As per DVB-C standard. b) 32 QAM, 64 QAM, 128QAM, 256QAM c) 47 dB μ V Min for 64QAM 67 dB μ V Max for 64 QAM (4.10.3 of IS 13420 (part-1)) d) 3 dB Max for 64 QAM for adjacent channel 13dB Max for 64QAM for adjacent channel to AM VSB channel e) Variation (pp): 8 dB Max Slope of variation : 1.5 dB/MHz Max (4.2 of IS 13420 (part 1)) f) 35 dB Min for 64 QAM g) $>46 + 10 \lg (N-1)$ where N= No.of channels h) Constellation of 16QAM, 64 QAM and 256 QAM are desirable. Other constellations (32QAM and 128QAM) may also be used. The constellation used shall be automatically detected. i) 31 dB Min for 64 QAM
(iii)	Channel tuner performance characteristics: a) RF input level b) Input frequency range c) RF input channel bandwidth d) RF Input impedance e) RF input return loss f) Frequency assignment download	a) Same as mentioned in SI.No.ii b) 47-862 MHz c) 7 MHz for VHF and 8 MHz for UHF d) 75 Ω e) 6 dB Min [4.1.1 of IS 14231 (Part 3)] f) Optional
(iv)	Remote control	Mandatory
(v)	Operating ambient temperature range	5° to 50° C
(vi)	Operating humidity range	5 percent to 95 percent (non-condensing)
(vii)	Finger Printing	Mandatory but service provider free to choose mechanism

S.No.	Parameters	HD set top boxes
	Other Requirements	
(i)	General Requirements	<p>a) The STB shall support reception and processing of DVB-C (as laid in SI No. 1 of Annex B) compliant digitally modulated and encrypted signal, as per DVB-CSA (as laid in SI No. 13 of Annex B), received via a cable TV network in accordance with IS 13420 (Part 1). For interactive applications, STB may have the provision of processing signal on the return path, if the return path is provided by the service provider in accordance with IS 14231 (Part 8).The Manufacturer shall declare the capability of the STB and its interoperability, if any, on various cable TV networks in the instruction manual to be supplied with the STB.</p> <p>b) The manufacturer shall ensure compatibility/interfaces with consumer electronic equipment(s) such as televisions audio and video systems, VCR's etc in the country.</p>
(ii)	Safety Requirements	The safety requirements of Receiver shall conform to IS 13252
(iii)	Electromagnetic Compatibility (EMC) Requirements	The EMC requirement of the STB shall conform to IS 6873 (Part 3)

IV. Environmental Tests

The STBs should pass the following tests stipulated by BIS. Any additions/modifications made by BIS in this regard would automatically be made applicable.

i. Bump test

The STB shall be subjected to bump test carried out in accordance with IS 9000 (Part 7/Sec 2), the number of bumps being 500 ± 10 and acceleration being 400m/s^2 . After this test, the receiver shall conform to the performance requirements specified in (vi). This test shall be carried out under packed condition.

ii. Drop Test

The STB shall withstand drop test as given in IS 13252, After this test the STB shall conform to the performance requirements specified in (vi).

iii. Dry Heat Test

The STB shall be subject to dry heat test of severity $+55^\circ\text{C}$ for 16h, carried out in accordance with IS 9000 (Part 3/Sec 5). After recovery, the STB shall conform to the performance requirements specified in (vi). The duration of the recovery shall be 2h.

iv. Damp Heat Test

The STB shall be subjected to damp heat cyclic test in accordance with IS 9000 (Part 3/Sec 1). After recovery, the STB shall conform to the performance requirements specified in (vi). The duration of the recovery shall be 24h.

v. Cold Test

The STB shall withstand a cold test of severity - 10°C for 2h carried out in accordance with IS 9000 (Part 2/Sec 4). After recovery, the recover shall conform to the performance requirements specified in (vi). The duration of the recovery shall be 2h.

vi. Post Measurement after Each Environment Test

After each environment test specified in (i) to (v), the STB shall meet the safety requirements and the performance requirements for the following parameters:

- a) RF output level as mentioned in S1No.4. of performance requirements
- b) Carrier to noise ratio mentioned in S1 No.4.of performance requirements
- c) Reception of service; and
- d) For STBs where the RF output option is not available, tests in a) and b) should replace by the testing of the video output for compliance as laid down in SI No.24 of Annex B.

Note: The List of referred Indian and/ International Standards is given in Annexure-A and Annexure-B respectively.

The above specifications are minimum requirements. The bidders should offer item's strictly meeting the above requirements or with better specifications.

Any material or equipment not specifically stated in the specification but which are necessary for satisfactory operation shall deem to be included in the scope of supply and hence should be supplied.

LIST OF REFERRED INDIAN STANDARDS

S.No.	Title
6873 (Part 3) : 1999	Limits and methods of measurement of radio disturbance characteristics: Part 3 Sound and television broadcast receivers and associated equipment (first revision)
9000	Basic environmental testing procedures for electronic and electrical items
(Part 2/ Sec 4) : 1977	Cold test for heat dissipating items with gradual change of temperature
(Part 3/Sec 5) : 1977	Dry heat test for heat dissipating items with gradual change of temperature
(Part 5/Sec 1) : 1981	Damp heat cyclic test, Section 1 16+8h cycle
(Part 7/Sec 2) : 1979	Bump
13252 : 1992	Safety of information technology equipment including electrical business equipment
13420 (Part 1) : 2002	Cabled distribution systems: Part 1 Methods of measurement and system performance.
14202	Identification cards – Integrated circuits) – Cards with contacts
(Part 1) : 2003	Physical characteristics (first revision)
(Part 2) : 2003	Dimensions and locations of the contacts (first revision)
(Part 3) : 2002	Electronic signals and transmission protocols
14231	Cabled distribution system for television and sound signals
(Part 3) : 1995	Active coaxial wideband distribution components
(Part 8) : 2002	System performance of return path

LIST OF REFERRED INTERNATIONAL STANDARDS

S.No.	Reference No.	Title
1	EN 300 429 Ver. 1.2.1	Framing structure channel coding and modulation for cable systems (DVB-C)
2	EN 302 769 Ver. 1.2.1	Framing structure channel coding and modulations for a second generation digital transmission system for cable systems (DVB-C2)
3	TS 102 991 Ver. 1.2.1	DVB-C2 Implementation guidelines
4	ISO/IEC 13818-1	Information technology – Generic coding of moving pictures and associated audio information Part 1 : System (MPEG 2)
5	ISO/IEC 13818-2 : 2000	Information technology – Generic coding of moving pictures and associated audio information Part 2 Video Coding
6	ISO/IEC 14496-3 : 2005	Information technology – Coding of audio-visual objects: Part 3 Audio
7	ISO/IEC 14496-10 : 2008	Information technology – Coding of audio-visual objects: Part 10 Advanced Video Coding (MPEG-4 Part 10 AVC)
8	ISO/IEC 11172-3 : 1993	Information technology – Coding of moving pictures and associated audio for digital storage media at up to about 1.5 Mbit/s: Part 3 Audio: MPEG-1 Audio Layer II
9	ISO/IEC 7816 (all Parts)	Specifications for smart cards
10	ETSI TS 101 154 Ver. 1.10.1	Digital Video Broadcasting (DVB) Specification for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream.
11	ETSI EN 301 192 Ver. 1.4.2	Digital Video Broadcasting (DVB) DVB specification for data broadcasting
12	TR 101 202 Ver. 1.2.1	Digital Video Broadcasting (DVB) Implementation guidelines for Data Broadcasting
13	EN 50221 Ver. 1	Common Interface Specification for Conditional Access and other Digital Video Broadcasting Decoder Applications and ETR 289 Ver. 1 Support for use of scrambling and Conditional Access (CA) within digital broadcasting systems
14	TS 101 699 Ver. 1.1.1	Digital Video Broadcasting (DVB) Extensions to the Common Interface Specification

S.No.	Reference No.	Title
15	TS 102 006 Ver. 1.3.2	Digital Video Broadcasting (DVB) Specification for System Software Update in DVB Systems.
16	ETSI EN 300 468 Ver. 1.12.1	Specifications for Service Information (SI) in DVB systems.
17	TS 101 211 Ver. 1.10.1	Guidelines on implementation and usage of Service Information (SI) in DVB systems.
18	ETSI EN 300 743 Ver. 1.3.1	Subtitling Systems
19	TS 101 197 Ver. 1.2.1	DVB Simulcrypt: Head-end architecture and synchronization
20	TS 103 197 Ver. 1.5.1	Head-end implementation of DVB Simulcrypt
21	ETSI TS 102 366 Ver. 1.2.1	Digital Audio Compression (AC-3, Enhanced AC-3) Standard
22	IEC 60169-24	Radio-frequency connectors – Part 24: Radio-frequency coaxial connectors with screw coupling, typically for use in 75 ohm cable distribution systems (Type F)
23	ETSI TS 102 201	Interfaces for DVB Integrated Receiver Decoder (DVB-IRD)
24	ITU-R BT 470-7	Conventional analogue television systems.

COMPLIANCE TO THE TECHNICAL SPECIFICATIONS

The bidders should specify the specifications of CAS, SMS & set top boxes to be supplied. The Compliance report should be enclosed along with technical bid. Specification of offered equipment's is to be written clearly in the column of "OFFERED SPECIFICATIONS" in the table given below. Offers without clear specifications on the said column will be treated as non-responsive and rejected.

S.No.	Specifications	OFFERED SPECIFICATIONS (Specify exact specification)
1) Addressable Systems Requirements		
I. Conditional Access System (CAS) and Subscriber Management System (SMS):		
	<ol style="list-style-type: none"> 1. The current version of the CAS, in use, should not have any history of hacking. Explanation: A written declaration available with the distributor from the CAS vendor, in this regard, shall be construed as compliance of this requirement. 2. The CAS should be DVB compliant with middleware platform and providing the encryption to the value added service. 3. The CAS system should have an uncompromised security features. Bidders must indicate the CAS version and should indicate if there was any security compromise in the last 5 years. 4. The system shall have standards based APIs to transfer purchase information to logistical and billing systems. 5. The CA System shall include an encryption mechanism suitable for DVB-CSA Encryption 	

<ol style="list-style-type: none"> 6. The CA system shall be capable of encrypting clear content provided by various broadcasters to ensure security of content. 7. The CA System shall be capable of providing the above mentioned support for broadcast TV and Video on demand. 8. The offered system shall be the one that has been approved by major content aggregators and major broadcast channels. 9. The system shall have support graphical interface for creating new service offerings. 10. The system shall have a mechanism to test a new service offering before publishing the same. 11. The CA system should generate ECM using the control word supplied by the scrambling control system. The ECM's delivery should support DVB Simulcrypt specifications. 12. The CA System should be capable of delivering authentication EMM and auto refreshing EMMs to the STBs. 13. CAS bidder must also be able to provide solution on VOD, EPG and Middleware. 14. The CA System should have the capability to support at least 1000 bouquets/packages. 15. The software download capability is needed to support STB upgrade, downgrade targeting single and group STB's. 16. It shall not be possible to alter the data and logs recorded in the CAS and the SMS. 17. The CAS, in use, should not have facility to activate and deactivate a Set Top Box (STB) directly from the CAS terminal. All activation and deactivation of STBs shall be done with the commands of the SMS. 	
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<p>18. The SMS and the CAS should be integrated in such a manner that activation and deactivation of STB happen simultaneously in both the systems. Explanation: Necessary and sufficient methods shall be put in place so that each activation and deactivation of STBs is reflected in the reports generated from the SMS and the CAS terminals.</p> <p>19. The CAS OEM shall validate that the CAS has the capability of upgrading STBs over-the-air (OTA), so that the connected STBs can be upgraded in the event of hacking.</p> <p>20. The fingerprinting should not get invalidated by use of any device or software.</p> <p>21. The CAS and the SMS should be able to activate or deactivate services or STBs of at least 50% of the subscriber base of the distributor within 24 hours.</p> <p>22. The STB and Viewing Card (VC) shall be paired from the SMS to ensure security of the content.</p> <p>23. The CAS and SMS should be capable of individually addressing subscribers, for the purpose of generating the reports, on channel by channel and STB by STB basis.</p> <p>24. The CAS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the CAS including but not limited to activation and deactivation commands issued by the SMS.</p> <p>25. The CA Company should be capable of upgrading CA software, in case of a known incidence of hacking/piracy within two weeks of reporting during the entire operational life of set top boxes, free of cost.</p> <p>26. It shall be possible to generate the following reports from the logs of the CAS:</p>	
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	<ul style="list-style-type: none"> i. STB-VC Pairing / De-Pairing ii. STB Activation / De-activation iii. Channels Assignment to STB iv. Report of the activations or the deactivations of a particular channel for a given period <p>27. The CAS and SMS vendors must have the technical capability in India to maintain the systems on 24x7 basis throughout the year.</p> <p>28. Upon deactivation of any subscriber from the SMS, all programme/ services shall be denied to that subscriber.</p> <p>29. It should be possible to preserve unedited data of the CAS and the SMS for at least two years.</p> <p>30. Some basic functions of the CA include Open/close account, Entitlement , revoke entitlement , OSD, Fingerprint display, conditional blackout, LOC/Unlock STB, parent control , Distributed CA configuration.</p> <p>31. Additional functions of the CA include program preview control, support preprocess scrambling for VOD service, Interface to third party ad insertion services.</p> <p>32. Some Middleware requirements include Boot splash Advertising, EPG advertising, Mini EPG Advertising, Home Page Video etc.</p> <p>33. The CAS OEM must support at least 5 different STB Manufacturers.</p>	
2) Subscriber Management Systems:		
	<ul style="list-style-type: none"> 1. The offered system should have been already tested and deployed in at least 5 Big Networks in India. 2. The system should be capable of working with several DVB CAS Systems 3. The system should support use of set top boxes from multiple bidders with the CAS System. 	

<ol style="list-style-type: none"> 4. The system must have a reporting mechanism to report usage and performance. Shall support definition and creation of new reports 5. Shall provide content cataloguing services 6. The system shall support multiple system users. It should be possible to assign roles to users and define specific permissions. 7. The system shall support XML API for integration with the billing system. The information may include Subscriber purchase records, Subscription information of subscribers, Channel Packages etc. 8. The system shall support both pre-paid and postpaid billing system. 9. The system shall support real time and bulk updates from external systems. Both synchronous and asynchronous messaging shall be possible. 10. The system shall support subscription management of third party applications. 11. The SMS system must track the deployment of active and passive set top boxes in the network 12. The SMS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the SMS including but not limited to activation and deactivation commands. 13. The SMS shall be capable of generating bills for each subscriber with itemized details such as the number of channels subscribed, the network capacity fee for the channels subscribed, the rental amount for the customer premises equipment, charges for pay channel and bouquet of pay channels along with the list and retail price of 	
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	<p>corresponding pay channels and bouquet of pay channels, taxes etc.</p> <p>14. The SMS should be computerized and capable of recording the vital information and data concerning the subscribers such as:</p> <ol style="list-style-type: none"> i. Unique customer identification (ID) ii. Subscription contract number iii. Name of the subscriber iv. Billing address v. Installation address vi. Landline telephone number vii. Mobile telephone number viii. E-mail address ix. Channels, bouquets and services subscribed x. Unique STB number xi. Unique VC number <p>15. The SMS should be capable of:</p> <ol style="list-style-type: none"> i. Viewing and printing of historical data in terms of the activations and the deactivations of STBs ii. Locating each and every STB and VC installed iii. Generating historical data of changes in the subscriptions for each subscriber and the corresponding source of requests made by the subscriber <p>16. The SMS should be capable of generating reports, at any desired time about:</p> <ol style="list-style-type: none"> i. The total number of registered subscribers ii. The total number of active subscribers iii. The total number of temporary suspended subscribers 	
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	<ul style="list-style-type: none"> iv. The total number of deactivated subscribers v. List of blacklisted STBs in the system vi. Channel(s) and bouquet(s) wise monthly subscription report in the prescribed format vii. The names of the channels forming part of each bouquet viii. The total number of active subscribers subscribing to a particular channel or bouquet at a given time ix. The name of a-la carte channel(s) and bouquet(s) subscribed by a subscriber x. The package wise details of the channels in the package xi. The package wise subscriber numbers xii. The ageing report for subscription of a particular channel or bouquet xiii. The history of all the above mentioned data for the period of last 2 years. <p>17. The solution must be able to address TACTV requirements of</p> <ul style="list-style-type: none"> i. Subscriber Information: Subscriber profiles, region based, entity based and service based etc. ii. Business Entity Management: To manage distribution of services, dealers appointed in different regions, setting up credit limit to dealers/resellers, etc. iii. Product and package management: The system should support defining products, groups, packages, etc. The system should be able to add packages to group of customers at a time, approval based assigning packages. a) Prepaid plans with an option to process 	
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	<p>advance bill pay and buy the services for a particular duration or till the usage limit exhausts</p> <p>b) Prepaid plans with usage limit and allowed usage limit within the time frame.</p> <p>c) Support subscription and value top ups</p> <p>d) should support paper and electronic PIN generation and redemption. etc.</p> <p>iv. Billing:</p> <p>The system should support</p> <p>a) various pricing schemes</p> <p>b) recurring and non-recurring charges</p> <p>c) multiple billing cycles</p> <p>d) parent account billing</p> <p>e) region wise creation</p> <p>f) promotion</p> <p>g) discounts</p> <p>h) pro rate billing</p> <p>i) disconnection credit</p> <p>j) credit notes</p> <p>k) debit notes</p> <p>The billing should provide ability to create custom batches, schedule bill generation and e mail dispatch summary, presenting bills in multiple modes like email, SMS, OSD and hard copy. Should accept multiple modes of payment.</p> <p>v. Customer Care related capabilities :</p> <p>The system should provide customer service representative quickly and should be user friendly. Should be able to generate work order for all connections, disconnections, installations, account transfers and service calls. Should be able to schedule work for the technician visit, time required for the task, customer locations etc.</p>	
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	<p>vi. Inventory Related capabilities : The SMS System should be able to track the inventory and maintain optimum levels of inventory in the stock locations. The system should support features such as capturing shipment details, tracking consignments, moving stocks between stock locations, tracking customer equipments. The system should also support integrating with external logistics, warehousing and courier systems, inventory returns, trigger alerts on stock depletion etc.</p> <p>vii. Finance and Accounting system : The solution should track account receivables and payables, settlement of bills, account receivables, collections, adjustments, business entity commissions and any other finance management related requirements. The pricing and rating of services, invoicing and billing are to be taken care in this module. Should support accounting period, account groups, taxation, defaulter management, receivable management, messaging and reminders, deposits and refunds, audit etc.</p> <p>viii. Security : The system should support role based access control to prevent unauthorized users accessing critical information, disable users at run time, encrypt user name and password etc. The bidder should recommend a secured deployment considering TACTV ecosystem.</p> <p>ix. Administration : This should support online help , error messaging, defining users , assign logins and passwords, audit trail , data back up and data restore procedures , user wise History .</p> <p>x. Reports The System should be able to generate a set of standard reports and if TACTV requires additional reports, the</p>	
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system should support definition and creation of new reports. Department wise dashboards must be possible and should be able to export data to generate reports in multiple formats.

xi. Subscriber Web Interface :

The system shall encourage subscribers to view/access their account information by remotely logging on to solution. They should be able to view their bills online, pay online and request for a service and shall offer standard features of customer web interface.

xii. Provisioning and Mediation:

Provisioning system should handle creation of subscriptions, activation, deactivation, assigning services, deactivating services etc. The system must generate provisioning request for each of the business processes mentioned above. The SMS system must be able to interface external CAS from any bidder.

xiii. Other Requirements :

The SMS system must be a. Flexible and configurable workflow management b. File upload mechanism c. Graphical representation of MIS info d. Multilanguage support e. Empowering filed person using mobile devices to perform activities like printing bills , payment receipts, complaint registrations. f. Scalability - The system should support millions of subscribers both existing and future.

xiv. Third party Interface :

The System should be capable of interfacing to third party systems such as CAS, VOD, Middleware, SMS Gateway, Online Payment Gateway, Contact centre, Broadband Network elements, financial system etc.

	<p>xv. Project Management , Training and support : The bidder shall propose the best practices to be followed as a part of Project Management. The Training methodology and support models must be included.</p>	
<p>3) Fingerprinting:</p>		
	<ol style="list-style-type: none"> 1. The systems, processes and controls must be in place to run finger printing at regular intervals. 2. The STB should support both visible and covert types of finger printing. 3. The finger printing should not be removable by pressing any key on the remote of STB. 4. The finger printing should be on the top most layer of the video. 5. The finger printing should be such that it can identify the unique STB number or the unique VC number. 6. The finger printing should appear on the screens in all scenarios, such as menu, Electronic Programme Guide (EPG), Settings, blank screen, and games etc. 7. The location, font colour and background colour of fingerprint should be changeable from head end and should be random on the viewing device. 8. The finger printing should be able to give the numbers of characters as to identify the unique STB and/or the VC. 9. The finger printing should be possible on global as well as on the individual STB basis. 10. The overt finger printing should be displayed by the distributor of television channels without any alteration with regard to the time, location, duration and frequency. 11. Scroll messaging should be only available in the lower part of the screen. 12. The STB should have a provision that finger printing is never disabled. 	

4) Set Top Box (STB):

I. 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.
2. All STBs should have an Embedded Conditional Access System.
3. The STB OEM must support at least 5 leading CAS OEM's.
4. The requirement is for supply of DVB-C front end single tuner broadcast SD STB and Single Tuner HD STB .Both Models should be with PVR functions.
5. The SD MPEG 4 Set Top Box must be capable of decoding MPEG2. MPEG4 H.264 Standard
6. The HD Set top Box must be capable of decoding HDTV /SDTV MPEG2 & MPEG4 H.264 decoding.
7. The STB should be capable of decrypting the Conditional Access messages inserted by the Head-end.
8. The STB should be capable of doing finger printing. The STB should support both Entitlement Control Message (ECM) and Entitlement Management Message (EMM) based fingerprinting.
9. The STB should be individually addressable from the Head-end.
10. The STB should be able to receive messages from the Head-end.
11. The messaging character length should be minimal 120 characters.
12. There should be provision for global messaging, group messaging and the individual STB messaging.
13. The STB should have forced messaging capability including forced finger printing display.

<ol style="list-style-type: none"> 14. The STB must be compliant to the applicable Bureau of Indian Standards namely IS-16128 of 2013, as amended from time to time, or any other standard approved by any agency authorized by the Central Government. 15. The STB OEM must attach the BIS Certification as a documentary evidence. 16. The STBs should be addressable over the air to facilitate OTA software upgrade. 17. There should be a system in place to secure content between decryption and decompression within the STB. 18. The bidder should ensure that there will not be any electrical leakage or electrical shocks. 19. The Bidder should have software support and service centre in India for set top boxes to support customization requirements of TACTV over long term 20. The Bidder shall have authorized service centres in Tamilnadu or shall establish in each district /taluk level. 21. The bidder should indemnify TACTV and its LCOs against any liabilities arising from copyright/intellectual property rights infringement, royalty issues etc. 22. The Bidder should indemnify TACTV or LCOs against any liabilities arising from nonpayment of royalties to any organization or standards committee. 23. STB should support middleware features 24. The fingerprinting should be such that it can identify the unique STB MAC/Sr.No or the unique viewing card (VC) number. 25. The finger printing should appear on all the screens of the STB such as Menu, EPG, etc. 26. The location of the finger printing should be changeable from the head end and should be random on the viewing device. 	
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	<p>27. The finger printing should be able to give the numbers of characters as to identify the unique STB and or the VC.</p> <p>28. The overt finger printing and On screen display (OSD) messages of the respective broadcasters should be displayed without any alteration with regard to the time, locations, duration and frequency.</p> <p>29. The STB should have a provision that OSD is never disabled.</p> <p>30. The finger printing should not get invalidated by use of any device or software.</p> <p>31. Advance function support ;</p> <ul style="list-style-type: none"> a. Pay per view b. Program preview control c. Support pre-process scrambling for push VOD service d. Interface for third party ad insertion services e. Support electronics programme guide (Min. 5 days) f. Support Multilanguage subtitle, if present in the video content. g. Support Multiple Audio Tracks , if present in the Video content h. Channel Selection i. Mosaic Function j. Personal Video Recorder (PVR) through USB functionality k. Games l. Box should have diagnostic page to monitor CAS, SI and RF Info. 	
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	II. MPEG 4 Basic SD Set Top Box:	
	<p>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 	
	Technical requirements	
	BIS Standard	
	Demodulation and Forward Error Correction (FEC) decoding	
	Decompression/decoding video	
	Decompression/decoding audio	
	Data Services	
	Subtitle streams	
	Service de-multiplexing	
	Conditional Access/scrambling	
	Upstream Communication	
	Interfaces/connectors	
	Software updation mechanism	
	PVR Functionally	
	Performance requirements	
	<p>Electrical Specifications:</p> <ol style="list-style-type: none"> a) Input voltage range b) Frequency 	

	<p>RF Characteristics to be supported by the receiver:</p> <ul style="list-style-type: none"> a) System b) Modulation c) RF Carrier signal Level d) Carrier level difference between distributed TV channels (47 -862 MHz range) e) Amplitude response within a TV Channel. f) Lowest carrier to interference ratio g) Cross modulation h) Digital video RF characteristics i) Carrier /Noise (C/N) ratio 	
	<p>Channel tuner performance characteristics:</p> <ul style="list-style-type: none"> a) RF input level b) Input frequency range c) RF input channel bandwidth d) RF Input impedance e) RF input return loss f) Frequency assignment download 	
	RF Demodulator	
	Remote control	
	Operating ambient temperature range	
	Operating humidity range	
	Finger Printing	
	Other Requirements	
	General Requirements	
	Safety Requirements	
	Electromagnetic Compatibility (EMC) Requirements	
	<p>III. MPEG 4 HD Digital Set Top Box:</p> <p>Features:</p> <ul style="list-style-type: none"> • DVB –C Tuner • HD Set Top Box shall also have all the features of SD Box 	

	<ul style="list-style-type: none"> • 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 • 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 • 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. 	
	Technical Requirements	
	BIS Standard	
	Demodulation and Forward Error Correction (FEC) decoding	
	Decompression/decoding video	
	Decompression/decoding audio	
	Data Services	
	Subtitle streams	
	Service de-multiplexing	
	Conditional Access/scrambling	
	Upstream Communication	
	Interfaces/connectors	
	Software updation mechanism	
	PVR Functionally	
	Performance requirements	
	Electrical Specifications:	

	<ul style="list-style-type: none"> a) Input voltage range b) Frequency 	
	<p>RF Characteristics to be supported by the receiver:</p> <ul style="list-style-type: none"> a) System b) Modulation c) RF Carrier signal Level d) Carrier level difference between distributed TV channels (47 -862 MHz range) e) Amplitude response within a TV Channel. f) Lowest carrier to interference ratio g) Cross modulation h) Digital video RF characteristics i) Carrier /Noise (C/N) ratio 	
	<p>Channel tuner performance characteristics:</p> <ul style="list-style-type: none"> a) RF input level b) Input frequency range c) RF input channel bandwidth d) RF Input impedance e) RF input return loss f) Frequency assignment download 	
	Remote control	
	Operating ambient temperature range	
	Operating humidity range	
	Finger Printing	
	Other Requirements	
	General Requirements	
	Safety Requirements	
	Electromagnetic Compatibility (EMC) Requirements	

Datasheet for the proposed equipment should be enclosed

BENCHMARK TESTS**i. Bump test**

The STB shall be subjected to bump test carried out in accordance with IS 9000 (Part 7/Sec 2), the number of bumps being 500 ± 10 and acceleration being 400m/s^2 . After this test, the receiver shall conform to the performance requirements specified in (vi). This test shall be carried out under packed condition.

ii. Drop Test

The STB shall withstand drop test as given in IS 13252, After this test the STB shall conform to the performance requirements specified in (vi).

iii. Dry Heat Test

The STB shall be subject to dry heat test of severity $+55^{\circ}\text{C}$ for 16h, carried out in accordance with IS 9000 (Part 3/Sec 5). After recovery, the STB shall conform to the performance requirements specified in (vi). The duration of the recovery shall be 2h.

iv. Damp Heat Test

The STB shall be subjected to damp heat cyclic test in accordance with IS 9000 (Part 3/Sec 1). After recovery, the STB shall conform to the performance requirements specified in (vi). The duration of the recovery shall be 24h.

v. Cold Test

The STB shall withstand a cold test of severity -10°C for 2h carried out in accordance with IS 9000 (Part 2/Sec 4). After recovery, the receiver shall conform to the performance requirements specified in (vi). The duration of the recovery shall be 2h.

vi. Post Measurement after Each Environment Test

After each environment test specified in (i) to (v), the STB shall meet the safety requirements and the performance requirements for the following parameters:

- a. RF output level as mentioned in S1No.4. of performance requirements (SD & HD)
- b. Carrier to noise ratio mentioned in S1 No.4.of performance requirements (SD & HD)
- c. Reception of service; and
- d. For STBs where the RF output option is not available, tests in a) and b) should be replaced by the testing of the video output for compliance as laid down in SI No.24 of Annex B.

PART-I (Covering Letter)

Date: _____

From,

Name:

Address:

Ph:

Fax:

E-mail:

To,

The Managing Director,

Tamilnadu Arasu Cable TV Corporation Limited (TACTV),

34 /123, 6th Floor, Dugar Towers,

Marshall's Road, Egmore,

Chennai - 600 008

Sir,

Sub: 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 - Submission of Part I - Reg .

Ref: Your Tender Notice _____ dated _____

With reference to your tender notice, we submit herewith our sealed 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 as specified by TACTV in this tender document.

We enclose the following documents:

- 1) Tender conditions duly signed in each page and enclosed in token of accepting the Tender conditions.
- 2) Bank Guarantee no. _____ for Rs.75,00,000/- (Rupees Seventy Five Lakhs only), towards Earnest Money Deposit.
- 3) Details of the Bidder (as per Annexure-V).
- 4) Authorization letter from the single bidder/prime bidder of consortium partner for the person to sign the tender.
- 5) Copy of certificate of incorporation/registration and copy of Memorandum and Articles of Association in case of single bidder and In case of consortium of bidders,

- Certificate of Incorporation from the appropriate Authority of each consortium partner and
 - Consortium Agreement
- 6) Copy of Central excise/ VAT/CST and PAN registration certificates in case of Indian Manufacturer and official documentation including Tax returns for set top box manufacturing business from Tax Authorities/Statutory Authorities of the country of Incorporation in case of Foreign Manufacturer.
 - 7) Average annual turnover statement duly certified by a Chartered Accountant (as per Annexure-VI). In case of Consortium of bidders the same has to be submitted for each partner separately.
 - 8) The Annual Report / certified copies of Balance Sheet, Profit & Loss statement for the last 3 consecutive financial years i.e. FY 2013-14, 2014-15 and 2015-16 (or) 2014-15, 2015-16 and 2016-17. In case of Consortium of bidders the same has to be submitted for each partner.
 - 9) Purchase Orders and Completion Certificates in support of the following:
 - 3 years of experience in the manufacture of set top boxes
 - Supply of at least 5 Lakh units of set top boxes in any one of the last three financial years of which at least 3 Lakh units should have been supplied in India.
 - 10) Letter from banks/FI in support of sanction of credit facility
 - 11) Address proof document for having a full-fledged permanent office in Chennai.
 - 12) Address proof document for having full-fledged service centres in Tamilnadu.
 - 13) List of service centres in Tamilnadu (as per Annexure – VIII).
 - 14) Tie-up letter, Purchase/work orders, completion certificate and Certificate from MSO/DTH Operator of CAS provider in support of clause 3(h).
 - 15) Tie-up letter, Purchase/work orders, completion certificate and Certificate from MSO/DTH Operator of SMS provider in support of clause 3(h).
 - 16) Copy of Registration certificate under VAT Act & CST Act in case of Indian Company.
 - 17) Copy of PAN allotment Certificate/ PANCARD issued by Income Tax Department in case of Indian Company.
 - 18) Copy of GST Registration certificate in case of Indian Company.
 - 19) Declaration for not having black listed either by TACTV or by any other govt. agencies (as per Annexure-IX).
 - 20) Declaration for not having tampered the Tender documents downloaded from the website www.tenders.tn.gov.in (as per Annexure-X).
 - 21) Sample submission form (as per Annexure-XI).
 - 22) Latest Assessment orders under VAT/CST Act in case of Indian Company.
 - 23) Latest I.T return of single bidder/ prime bidder of consortium.
 - 24) Compliance report to the technical Specifications as per Annexure-II.
 - 25) Data Sheets for all proposed equipments.
 - 26) A written declaration from the CAS vendor, that the current version of CAS in use do not have any history of hacking.

- 27) Copy of BIS certification for the models quoted
- 28) Notarized translated English version of the documents in a language other than English/Tamil, if any.

Yours faithfully,

SIGNATURE OF THE TENDERER

Encl: As stated above

DETAILS OF THE BIDDER

S.No.	Particulars	Description/Details
A	Name of Bidder	
B	Contact Details	
	Registered Office Address	
	Telephone No.	
	Fax	
	Email	
	Website	
C	Incorporation Details	
	Incorporation Number	
	Date of Incorporation	
	Authority	
G	Name of Authorized Signatory	
	Position	
	Telephone	
	Fax	
	Mobile	
	Email	
H	Number & Address of Offices	
	a) In Chennai	
	b) Outside Chennai	

ANNUAL TURN OVER STATEMENT

The Annual turnover of M/s for the past three years are given below and certified that the statement is true and correct.

S.No.	Year	Turnover (Rs. in lakh)
1.	2013-2014	
2.	2014-2015	
3.	2015-2016	
4.	2016-2017	
	Total	
Average annual turnover		

Note: Average Turnover of any three consecutive financial years will be considered i.e. FY 2013-14, 2014-15 and 2015-16 (or) FY 2014-15, 2015-16 and 2016-17.

DATE :

SIGNATURE OF THE BIDDER

SIGNATURE OF CHARTERED ACCOUNTANT
(with seal and Address)

List of works completed in supply of at least 5 Lakh set top boxes in any one of the last three financial years

(Please provide the details for each project in separate sheet along with work order and completion certificate from client)

Financial Year	No. of Set Top Boxes Supplied (in Nos.)
2013-14	
2014-15	
2015-16	
2016-17	
Total	

(Please provide the details of 5 Lakh units supplied in a financial year)

Financial Year: _____

S.No	Name & address of the client	Location of the Work (Town / State)	No. of Set Top Boxes Supplied (in Nos.)	Work Order enclosed (Yes/No)	Work completion certificate enclosed (Yes/No)
1.					
2.					
3.					

LIST OF SERVICE CENTRES IN TAMILNADU

S.No.	Address	Contact Person	Phone/Mobile Number

CERTIFICATE

Date: _____

Certified that M/s...../ the firm /company or its partners / shareholders had not been blacklisted by Tamilnadu Arasu Cable TV Corporation Limited (TACTV), or by any Government Agencies.

SIGNATURE OF THE BIDDER
(with seal and address)

DECLARATION FORM

Date: _____

a) I/We having our office at do declare that I/We have carefully read all the conditions of tender sent to me/us by the Tamilnadu Arasu Cable TV Corporation Limited (TACTV), for the tenders floated vide tender ref.no._____ 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, will complete the contract as per the tender conditions.

b) I/We have downloaded the tender document from the internet site www.tactv.in/ / www.tenders.tn.gov.in and I /We have not tampered / modified the tender document in any manner. In case, if the same is found to be tampered / modified, I/ We understand that my/our tender will be summarily rejected and full Earnest Money Deposit will be forfeited and I /We am/are liable to be banned from doing business with TACTV or prosecuted.

SIGNATURE OF THE BIDDER
(with seal and address)

SAMPLE SUBMISSION FORM

S.No	Item Description	Make	Model	Brochure/ Specification of the product	S.No of the item
1.					
2.					
3.					

SIGNATURE OF THE TENDERER
(with seal and address)

CLARIFICATION ON TENDER DOCUMENT FORMAT

BIDDER'S REQUEST FOR CLARIFICATION			
Name and Address of the Organization submitting request		Name and Position of Person submitting request	Contact Details of the Organization / Authorized Representative
			Tel:
			Fax:
			Email:
S. No.	Reference(s) (Section, Page)	Content of Tender requiring Clarification	Points of clarification required
1			
2			
3			

SIGNATURE OF THE BIDDER
(with seal and address)

PART-II

From,

Name:

Address:

Ph:

Fax:

E-mail:

To,

The Managing Director,

Tamilnadu Arasu Cable TV Corporation Limited (TACTV),

34 /123, 6th Floor, Dugar Towers,

Marshall's Road, Egmore,

Chennai - 600 008

Sir,

Sub: 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 - Submission of Part - II - Price Offer - Reg

Ref:- Our tender (Technical Bid) submitted 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”

In continuation of our above tender, we submit herewith the price offer 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” as specified by TACTV in this tender document. We agree to abide by the terms and conditions stipulated by the TACTV and also agree to complete the entire contract, at the rates quoted by us. The rate quoted and approved by the TACTV in this tender will hold good as per TACTV tender conditions.

Yours faithfully,

SIGNATURE OF THE BIDDER

PRICE BID

A. SD Set Top Box

S.No.	Description	Unit Price	Duties & Taxes			Total (including all duties & taxes) (Rs.)
		(Rs.)	Excise Duty/ Customs Duty (Rs.)	VAT/CST (Rs.)	Service Tax (Rs.)	
1.	SD set top box per unit					
2.	Conditional Access System (CAS) per unit					
3.	Subscriber Management System (SMS) per unit					
Total						

Amount in words _____ only

Note: Duties & Taxes should be quoted separately

B. HD Set Top Box

S.No.	Description	Unit Price	Duties & Taxes			Total (including all duties & taxes) (Rs.)
		(Rs.)	Excise Duty/ Customs Duty (Rs.)	VAT/CST (Rs.)	Service Tax (Rs.)	
1.	HD set top box per unit					
2.	Conditional Access System (CAS) per unit					
3.	Subscriber Management System (SMS) per unit					
		Total				

Amount in words _____ only

Note: Duties & Taxes should be quoted separately

C. Triple Play Set Top Box

S.No.	Description	Unit Price	Duties & Taxes			Total (including all duties & taxes) (Rs.)
		(Rs.)	Excise Duty/ Customs Duty (Rs.)	VAT/CST (Rs.)	Service Tax (Rs.)	
1.	Triple Play set top box per unit					

Amount in words _____ only

Note: Duties & Taxes should be quoted separately

D. DOCSIS Cable Modem

S.No.	Description	Unit Price	Duties & Taxes			Total (including all duties & taxes) (Rs.)
		(Rs.)	Excise Duty/ Customs Duty (Rs.)	VAT/CST (Rs.)	Service Tax (Rs.)	
1.	DOCSIS Cable modem					

Amount in words _____ only

Note: Duties & Taxes should be quoted separately

CHECKLIST OF DOCUMENTS

S.No.	Checklist	Enclosed (Yes/No)	Reference in the Bid (Page no.)
1.	A covering letter on your letter head addressed to the Managing Director, TACTV (as per Annexure-IV)		
2.	Tender conditions duly signed in each page and enclosed in token of accepting the Tender conditions		
3.	Bank Guarantee no. _____ for Rs.75,00,000/- (Rupees Seventy Five Lakhs only), towards Earnest Money Deposit		
4.	Details of the Bidder (as per Annexure-V)		
5.	Authorization letter from the single bidder/prime bidder of consortium partner for the person to sign the tender		
6.	Copy of certificate of incorporation/registration and copy of Memorandum and Articles of Association in case of single bidder and In case of consortium of bidders, <ul style="list-style-type: none"> • Certificate of Incorporation from the appropriate Authority of each consortium partner and • Consortium Agreement 		
7.	Copy of Central excise/ VAT/CST and PAN registration certificates in case of Indian Manufacturer and official documentation including Tax returns for set top box manufacturing business from Tax Authorities/Statutory Authorities of the country of Incorporation in case of Foreign Manufacturer.		
8.	Average annual turnover statement duly certified by a Chartered Accountant (as per Annexure-VI). In case of Consortium of bidders the same has to be submitted for each partner separately.		
9.	The Annual Report / certified copies of Balance Sheet, Profit & Loss statement for the last 3 consecutive financial years i.e. FY 2013-14, 2014-15 and 2015-16 (or) 2014-15, 2015-16 and 2016-17. In case of Consortium of bidders the same has to be submitted for each partner.		
10.	Purchase Orders and Completion Certificates in support of the following: <ul style="list-style-type: none"> • 3 years of experience in the manufacture of set top boxes • Supply of at least 5 Lakh units of set top boxes in any one of the last three financial years of which at least 3 Lakh units should have been supplied and seeded in India 		
11.	Letter from banks/FI in support of sanction of credit facility		
12.	Address proof document for having a full-fledged permanent office in Chennai		
13.	Address proof document for having full-fledged service centres in Tamilnadu		
14.	List of service centres in Tamilnadu (as per Annexure – VIII)		
15.	Tie-up letter, Purchase/work orders, completion certificate and Certificate from MSO/DTH Operator of CAS provider in support of clause 3(h)		
16.	Tie-up letter, Purchase/work orders, completion certificate and Certificate from MSO/DTH Operator of SMS provider in support of clause 3(h)		
17.	Copy of Registration certificate under VAT Act & CST Act in case of Indian Company		
18.	Copy of PAN allotment Certificate/ PANCARD issued by Income Tax Department in case of Indian Company		
19.	Copy of GST Registration certificate in case of Indian Company		
20.	Declaration for not having black listed either by TACTV or by any other govt. agencies (as per Annexure-IX)		

21.	Declaration for not having tampered the Tender documents downloaded from the website www.tenders.tn.gov.in (Annexure-X)		
22.	Sample submission form (as per Annexure-XI)		
23.	Latest Assessment orders under VAT/CST Act in case of Indian Company		
24.	Latest I.T return		
25.	Compliance report to the technical Specifications as per Annexure-II.		
26.	Data Sheets for all proposed equipments		
27.	A written declaration from the CAS vendor, that the current version of the CAS, in use, do not have any history of hacking		
28.	Copy of BIS certification for the models quoted		
29.	Notarized translated English version of the documents in a language other than English/Tamil, if any.		

Note: Tenders submitted in unsealed cover would summarily be rejected.

Two Samples for each item quoted in the tender should also be submitted on the date of submission of tender.

MODEL AGREEMENT FORM

AGREEMENT

This Agreement made this ___th day of _____ 2017 BETWEEN TAMILNADU ARASU CABLE TV CORPORATION LIMITED, 34 /123, 6th Floor, Dugar Towers, Marshall's Road, Egmore, Chennai - 600 008, herein after referred to as "TACTV" on ONE PART and M/s. _____ (led consortium) represented by its _____, Thiru. _____, Son of Thiru. _____ having its registered office at _____ hereinafter called the "SUPPLIER" on the OTHER PART.

2. Whereas TACTV desired to purchase Standard Definition (SD) and High Definition (HD) set top boxes along with Conditional Access System (CAS) and Subscriber Management system (SMS), 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, by calling tenders which were opened on _____.
3. And whereas Supplier, (the prime bidder of consortium comprising of M/s. _____, M/s. _____ and M/s. _____), has made an offer to supply (SD set top boxes along with CAS and SMS/ HD set top boxes along with CAS and SMS /Triple Play set top boxes/DOCSIS cable modem) on _____.
4. And whereas the Supplier has quoted all inclusive rate of Rs. _____/- (Rupees _____ only) for the supply of (SD set top boxes along with CAS and SMS/ HD set top boxes along with CAS and SMS /Triple Play set top boxes/DOCSIS cable modem).
5. And whereas the Supplier after due negotiation agreed to undertake the contract of supplying (SD set top boxes along with CAS and SMS/ HD set top boxes along with CAS and SMS /Triple Play set top boxes/DOCSIS cable modem) at Rs. _____/- (Rupees _____ only) inclusive of all duties & taxes.
6. Whereas TACTV has accepted the negotiated rate of the Supplier vide letter No. _____ dated _____.
7. And whereas both TACTV and the Supplier have agreed to execute an agreement setting out the terms and conditions here under mentioned as agreed to by both the parties to this agreement.

8. NOW THIS DEED OF AGREEMENT WITNESSES:

(i) EMD and Security Deposit

- a. The Supplier has remitted an amount of Rs.75,00,000/- (Rupees Seventy Five Lakhs Only) towards Earnest Money Deposit (EMD) in the form of an Irrevocable Bank Guarantee issued by _____ Bank, _____ Branch (BG No. _____ valid till _____).
- b. The “Supplier” has remitted an amount of Rs. _____ /-(Rupees _____ only) towards Security Deposit (SD) being 2% of the allotted quantity after adjusting the Earnest Money Deposit of Rs.75,00,000/-, in the form of an Irrevocable Bank Guarantee issued by _____ Bank, _____ Branch (BG No. _____ valid till _____).
- c. Security Deposit will be returned only after completion of supply of the entire order quantity.
- d. In case of non fulfillment of contract, Security Deposit will be forfeited.

(ii) Scope of Work and Rates:

- (a) The Supplier should supply (SD set top boxes along with CAS and SMS/ HD set top boxes along with CAS and SMS /Triple Play set top boxes/DOCSIS cable modem) on rate contract basis for a period of one year as ordered by TACTV. The Specifications given in the Annexure-1 should be strictly followed.
- (b) The set top boxes and accessories should have a replacement warranty for a period of 5 years from the date of supply. During the warranty period, the supplier should also provide maintenance support for all items covered under the contract free of cost. The supplier should have arrangements in every taluk for extending service support.
- (c) The items are to be delivered at any location in Tamilnadu as may be specified by TACTV.

(iii)The detailed price schedule is given as under:

S.No.	Item Description	Total Price inclusive of duties & taxes (in Rs)
1		

9. SCHEDULE OF SUPPLY

- (a) The timeline for completing the supply of quantity allotted in each purchase order shall be as follows:

S.No.	Project Milestone	Timeline
1.	40% of the ordered quantity	30 days from the date of issue of purchase order
2.	60% of the ordered quantity	60 days from the date of issue of purchase order

Delay beyond this period will attract penalty.

- (b) The supplier shall stick/print TACTV LOGO / HELP DESK LOGO / Holograms/ Serial Number etc. as per the instructions of TACTV on the items delivered.
- (c) The supplier should intimate the readiness of the items to TACTV for benchmark testing at least 7 days in advance before the dispatch.
- (d) Benchmark test will be conducted on all items/samples drawn from the supplies by third party agency nominated by TACTV. The testing will be done at the supplier premises. The testing cost will be borne by TACTV.
- (e) The items which are accepted after testing shall be sealed inside the carton box.
- (f) After successful delivery of the items, the supplier must obtain a certificate in the specified format duly certified by the respective consignee and submit it to TACTV. Based on the certificate given by consignee and the copy of test reports, TACTV will issue acceptance letter to the supplier.
- (g) If the contract is not completed within the stipulated time or extended time, TACTV will hold full authority to cancel the tender or take any such action that will be deemed fit to the occasion at the risk and cost of the successful bidder. Such cancellation will entail forfeiture of Security Deposit.
- (h) In the event of non- performance of the contractual provisions or failure to effect the supply within the stipulated time or during the extended period and if it is found that the contractor, has not fulfilled the contractual obligation with TACTV in any manner during the currency of the contract or also found on later date, TACTV reserves the

right to disqualify such supplier to participate in future tenders or black list the firm up to a maximum period of 3 years.

10. WARRANTY & AFTER SALES SERVICE

- (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.
- (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 numbers @ one line for every 5 lakh Set Top Box supplied operating 24x7 to register service complaints. Further a mobile app shall also be deployed for registration of complaints. The complaints shall be rectified 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.
- (d) The call center shall be located in Chennai and handle complaints in Tamil & English.

11. TRAINING

- (a) The successful bidder should train Local Cable Operators (LCOs) on installation and maintenance of set top boxes at convenient locations throughout Tamilnadu.
- (b) The successful bidder should also provide instruction manual on installation and maintenance of set top boxes in Tamil and English for all the LCOs.

12. OBLIGATION OF TACTV

- (a) Testing cost of all items will be borne by TACTV.
- (b) The installation of set top boxes will be done by TACTV/ Local Cable Operator (LCO).

13. PAYMENT TERMS

- (a) No advance is permissible.
- (b) Payment will be made for each purchase order after supply of entire quantity given in the purchase order on submission of invoice.
- (c) The payment will be made in 60 equated monthly installments. Only cost of the set top boxes estimated on the basis of negotiated rate will be divided into 60 installments and

paid. No interest/financial charge will be paid separately. No interest/financial charge is permissible for the deferred payment under any circumstances.

- (d) Payment for the first month will commence after 30 days from the date of completion of supplies for the respective purchase order. Penalty if any will be adjusted against equated monthly installment.
- (e) The, payments will be considered only after submission of proof for payment of duties and taxes to the Govt. as per invoice.
- (f) Any increase/decrease of duties and taxes due to implementation of GST will be borne by the TACTV.
- (g) All payments under this Contract shall be made to the accounts of the Supplier (Single applicant/ Prime bidder of consortium) as specified in the tender conditions.
- (h) TACTV also reserves the right to recover any dues from the bidder, which is found on later date, during audit/excess payment, after final settlement is made to them. The bidder is liable to pay such dues to the TACTV immediately on demand, without raising any dispute/protest.

14. PENALTY

- (a) Failure to comply with the stipulated timeline will attract a penalty of 0.5% per day, on the unfulfilled portion of the contract up to a maximum of 5%. Delays beyond that period will result in cancellation of the orders.

Failure to comply with timeline in weeks	Penalty
0-1	0.5% per week, on the unfulfilled portion of the contract
1-2	1% per week, on the unfulfilled portion of the contract
2-3	1.5% per week, on the unfulfilled portion of the contract
3-4	2% per week, on the unfulfilled portion of the contract
4-5	2.5% per week, on the unfulfilled portion of the contract
5-6	3% per week, on the unfulfilled portion of the contract
6-7	3.5% per week, on the unfulfilled portion of the contract
7-8	4% per week, on the unfulfilled portion of the contract
8-9	4.5% per week, on the unfulfilled portion of the contract
9-10	5% per week, on the unfulfilled portion of the contract
>10	Cancellation of orders

- (b) The complaint raised by TACTV/LCO/subscribers has to be rectified 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 from the time of notification. Failure to comply with the above time line will attract a penalty of Rs.25 per unit per day.

15. TERMINATION OF CONTRACT

TACTV reserves the right to terminate the contract at any time during the validity period on account of non-fulfillment of contract or any of the reasons.

16. GENERAL CONDITIONS

- (a) Conditional tender in any form will not be accepted.
- (b) TACTV reserves the right to relax or waive or amend any of the tender conditions.
- (c) The right of final acceptance of the tender is entirely vested with the TACTV and TACTV reserves the right to accept or reject any or all the bidder in part or in totality or to negotiate with any or all the bidders or to withdraw/ cancel/ modify this tender without assigning any reason whatsoever.
- (d) The successful bidder shall not off load either full or part of the work to other bidder.
- (e) If delivery performance of the bidder is not as per the schedule, then the TACTV reserves the right to reallocate the quantity to other bidders. Any additional cost incurred by TACTV due to such reallocation should be borne by the bidder.
- (f) TACTV reserves its right to withhold any amount for the deficiency in the services of the supplied items.
- (g) Any notice regarding any problems, to the bidder shall deemed to be sufficiently served, if given in writing at his usual or last known place of business.
- (h) In the course of discussion and instruction TACTV may disclose information of confidential and proprietary nature relating to its business model, subscribers, etc. to the bidder. Such information shall be considered as confidential.

17. ARBITRATION

- (a) In case of any dispute in the bid, including interpretation if any on the clauses of the bid or the agreement to be executed, the matter shall be referred by TACTV/ bidder to an arbitrator who shall be selected by the bidder from the panel of arbitrators approved

by TACTV and communicate the same within 15 days, from the date of receipt of the letter from TACTV along with the panel. If there is no reply from the bidder within 15 days, TACTV shall choose any of the arbitrators from the panel of arbitrators referred to above. The remuneration for the arbitrator and other expenses shall be shared equally by TACTV and the bidder.

(b) The venue of the Arbitration shall be at the Head office of the TACTV, Chennai. The decision of the Arbitrator shall be final and binding on both the parties to the Arbitration.

(c) The Arbitrator may with the mutual consent of the parties, extend the time for making the award. The award to be passed by the Arbitrator is enforceable in the Court at Chennai city only.

18. JURISDICTION OF THE COURT

Any dispute arising out of non-fulfillment of any of the terms and conditions of this Agreement or any other dispute arising out of the arbitration award will be subject to the jurisdiction of the Courts in the City of Chennai only.

We agree to the above terms and conditions.

In witness whereof, Thiru. _____ on one part and Thiru. (Name), (Designation), M/s. _____ on the other part signed this agreement on the day, month and year first above.

Agreed by both the parties.

SUPPLIER

TACTV

WITNESSES: -

WITNESSES: -

1.

1.

2.

2.