



**TAMILNADU ARASU CABLE TV CORPORATION LTD
(TACTV)**

**தமிழ் நாடுஅரசு கேபிள் டிவி நிறுவனம்
(A Government of Tamil Nadu Undertaking)**



GLOBAL TENDER REFERENCE NO. 002/TACTV/Set Top Box/2019

**TENDER FOR THE SUPPLY OF STANDARD DEFINITION (SD),
HIGH DEFINITION (HD) SET TOP BOX
ON RATE CONTRACT BASIS**

Date of Release of Tender	12.3.2020
Prebid Meeting	23.3.2020
Last Date for Submission of Bid	13.4.2020
Date of Opening of Bid	13.4.2020
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), is 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. TACTV is providing high quality Digital Cable TV Services throughout Tamil Nadu and has already seeded about 36.40 lakh MPEG4 Set Top Boxes through 17230 Local Cable Operators (LCOs).. TACTV has very good reach throughout Tamil Nadu and there is very good response to TACTV’s digital cable TV services from the public and additional Set Top Boxes are required to expand the services.</p> <p>Accordingly, TACTV invites sealed tenders from eligible bidders as single applicant/consortium for the supply of 10 lakhs standard definition (SD) set top boxes and 50000 High Definition (HD) set top boxes in “Two Cover System” through transparent bidding process. The Tender notification has been published fixing the date of opening of tender as _____..</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 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) . The detailed specifications for set top boxes is given in the Annexure-I.</p> <p>(b) The successful Bidder should integrate the Set Top Box, CAS with the existing SMS and the Head End equipment of TACTV at no extra cost.</p> <p>(c) The set top boxes and its accessories other than remote control should have a replacement warranty for a period of 3 years from the date of supply of STBs and acceptance by TACTV. The remote control should have a replacement warranty for a period of 6 months from the date of supply of STBs and acceptance by TACTV. 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 for extending service support.</p> <p>(d) The items are to be delivered at the District Offices of TACTV in 32 places.</p>	

3.	QUALIFICATION CRITERIA	
Clause	Qualification Criteria	Supporting Documents/Remarks
3(a)	<p>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 Dec 2019.</p> <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 should be in existence for the past three years as on 31.12.2019. and shall also be Registered in India with existence in India for minimum two years as on 31st December 2019.</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 December 2019..</p> <p>d) No partner of the should bid individually or be a partner of Consortium another Consortium</p> <p>e) The STB and CAS manufacturer should not be the same.</p>	<ul style="list-style-type: none"> • Copy of Incorporation Certificate issued by the Registrar of Companies • Copy of Memorandum and Articles of Association • 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 31st December 2019) in the manufacture of Set Top Boxes.</p>	<ul style="list-style-type: none"> • For Indian operations -Copy of Tax Registration/Factory Licence/GST registration. • In case of foreign manufacture experience – Official documentation including Tax returns for Set Top box manufacturing business from Tax authorities/Statutory Authorities of the Country of incorporation.
3(c)	<p>i. The Prime bidder should have reported an Average Annual Turnover of at least Rs.25 Crores in the last three consecutive financial years 2016-17, 2017-18, 2018-19.</p> <p>ii. In case of Consortium of Bidders:</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</p>

	<p>a) The prime bidder should have reported an average Annual Turnover of at least of at least Rs.25 Crores i.e. 2016-17, 2017-18, 2018-19</p> <p>b) Consortium partner should have reported an average Annual Turnover of at least Rs.12.5 Crores i.e. 2016-17, 2017-18, 2018-19</p>	of Balance Sheet, Profit & Loss statement for the last 3 consecutive financial years
3(d)	The single bidder/ anyone of the consortium partner should have successfully completed supply of at least 2 Lakh units of set top boxes in any one of the last three financial years i.e. 2016-17, 2017-18, 2018-19 of which at least One 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 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(f)	The single bidder/anyone of the consortium partner should have full-fledged service centres in Tamil Nadu 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 5 places in Tamil Nadu within 30 days from the date of issue of LoA if selected
3(g)	The single bidder/consortium partners should have firm tie-up with a leading and reputed CAS provider who are in operation in India for at least 3 years as on 31 st December 2019. The CAS provider 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 should be provided by the same vendor on whose tie-up the tender got qualified.	Tie-up letter, Purchase/work orders, completion certificate and Certificate from MSO/DTH Operator.
3(h)	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	<p>(i) The declaration form as per Annexure IX should be enclosed. In case of consortium, each partner should submit a separate declaration form.</p> <p>(ii) Any adverse/not satisfactory remarks on the performance of previous supplies will entail disqualification</p> <p>(iii)Further, if the bidder is found blacklisted in India before award of contract by any Government agency, the bid will be rejected</p>

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 12.3.2020 to 13.4.2020 between 11.00 AM and 03.00 PM.</p>	
7.	PREBID MEETING
<p>There will be a pre-bid meeting on 23.3.2020 at 3.30 P.M. in Tamil Nadu Arasu Cable TV Corporation Ltd, 34/123, Marshalls Road, Dugar Towars 6th Floor, Egmore, Chennai 600 008 during which the prospective bidders can get clarifications about the tender. The bidders shall send their queries in</p>	

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) on rate contract basis 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 13.4.2020”. 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 13.4.2020. 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.
- (h) A soft copy of the technical bid in the form of CD should also be submitted along with Part-I of the tender document.

12. EARNEST MONEY DEPOSIT

- (a) The Tender should be accompanied by an Earnest Money Deposit (EMD) to the value of Rs.25,00,000/- (Rupees Twenty Five Lakhs Only) in the form of an Irrevocable Bank Guarantee with a validity period of 6 months from the date of publication of tender (i.e.) 12.3.2020 or later date, from any Indian Nationalized/Scheduled Commercial Bank.
- (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 13.4.2020 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 Tender Scrutiny Committee constituted by 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) 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.
- (g) The bidders declared as qualified in the Technical Bid by the Tender Scrutiny 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 taxes should be quoted separately as per the price bid format.
- (d) 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.
- (e) Any increase of GST will be borne by the TACTV. Any decrease in GST should be passed on to TACTV.
- (f) The price should be neatly and legibly written both in figures and words.
- (g) In case of discrepancy between the prices quoted in words and figures lower of the two shall be considered.
- (h) 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
<p>The price bid will be evaluated inclusive of GST and in accordance to the Tamil Nadu Transparency in Tenders Act 1998 read with the Tamil Nadu Transparency in Tenders Rules 2000,</p> <p>(a) The L1 price will be declared for each item separately and the same would be done as given below:</p> <p>i. For SD Set top box: Price of SD set top box per unit + Licence fee for CAS per unit including server cost (as per annexure XIV-A (i))</p> <p>ii. For HD Set top box: Price of HD set top box per unit + Licence fee for CAS per unit including server cost as per annexure XIV-B (i)</p>	
17.	AWARD OF CONTRACT
<p>(a) L1 bidder of each item i.e. SD set top boxes (along with CAS), HD set top boxes (along with CAS) will be invited for price negotiations.</p> <p>(b) Upon finalization of negotiated rate, TACTV will issue the Letter of Acceptance (LoA) to the successful bidder for each item separately.</p> <p>(c) 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.</p> <p>(d) As per Clause 14(9) of Tamil Nadu Transparency in Tender Rules 2000, TACTV reserves the right to increase or decrease the order quantity up to 25% on same terms and conditions.</p>	
18.	SECURITY DEPOSIT
<p>(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 from any Indian Nationalized/Scheduled Commercial Bank, within 10 (Ten) working days from the date of receipt of letter of acceptance. The EMD shall be adjusted with the Security Deposit.</p> <p>(b) Any other amount pending with TACTV will not be adjusted under any circumstances, against the Security Deposit if so requested.</p> <p>(c) Security Deposit will be returned only after completion of supply of the entire order quantity.</p>	

(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 7 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	Within 45 days from the date of issue of purchase order
2.	60% of the ordered quantity	Within 60days 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/ 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) The testing will be done at the supplier premises. The testing cost will be borne by TACTV.
- (e) The Set Top boxes will be accepted after confirming Benchmark tests based on random samples conducted by third party agency nominated by TACTV.
- (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.

(i) The tentative schedule of each purchase order will be as follows:

1 st Purchase Order	T	40% of allotted quantity
2 nd Purchase Order	T+30	60% of allotted quantity

22. WARRANTY & AFTER SALES SERVICE

(a) All items other than remote control should have a replacement warranty for a period of 3 years from the date of supply of STBs and acceptance by TACTV against manufacturing defects. Remote control should have a replacement warranty for a period of 6 months from the date of supply of STBs and acceptance by TACTV. During the warranty period, the bidder should also provide maintenance support for all items covered under the contract free of cost.

However the warranty will not extend to failures due to non-manufacturing defects such as water-log, tampered by unauthorized person, failure due to high voltage or lightning, provided the same is proved beyond doubt.

(b) For each purchase order, the supplier shall supply 2% additional quantity as reserve for replacement, which will be kept at the designated warehouses of TACTV.

(c) The supplier should maintain toll free numbers (one line for every 5 lakh STB supplied) operating 24x7 to register service complaints. The complaints shall be rectified as per clause 25(b).

(d) The call center shall be located in Chennai and handle complaints in Tamil & English.

(e) The STB OEM shall submit a blue print of Service Network, along with the tender submission that shall be established at 5 places in Tamil Nadu to support 10 Lakh STB's post warranty period.

(f) The successful bidder should also provide instruction manual on installation and maintenance of set top boxes in Tamil and English for all the LCOs.

23. 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).

24. PAYMENT TERMS

(a) 90% Payment will be made for each purchase order within 30 days after supply of entire quantity given in the purchase order on submission of invoice and acceptance by TACTV. The balance 10% will be paid after submission of irrevocable Bank Guarantee equivalent to the above amount valid for the Warranty period towards performance guarantee

(b) If required, TACTV shall make 10% payment as mobilisation advance against each order value secured against irrevocable Bank Guarantee of the supplier and the advance payment shall be recovered in subsequent Bills payable.

- (c) The, payments will be considered only after submission of necessary proof for payment of taxes to the Govt. as per invoice .
- (d) 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.
- (e) 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.

25. PENALTY

- (a) Failure to comply with the stipulated schedule of supply 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.
- (b) The complaint raised by TACTV/LCO/subscribers has to be rectified as follows:
 - i. LCOs will handle, if the fault is due to software installation and upgradation, troubleshooting like signal connection not proper, power adaptor not working, AV cable faulty.
 - ii. For other faults, Set top boxes will be brought to the service centres by LCOs. It has to be resolved within 24 hours by the supplier. If it is not possible to resolve within 24 hours the subscriber will be given spare set top boxes from the 2% reserve.
 - iii. The supplier has to rectify the faults within 10 days from the time of receipt of the box from the LCO.Failure to comply with the above time lines will attract a penalty of Rs.25 per unit per day.
- (c) **If the set top boxes malfunction due to any common technical problems in CAS/STB, it should be resolved within 4 hours failing which, the business loss of TACTV for each of such malfunctioning STB shall be recovered from the supplier.**

26. 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.

27. 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) 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.
- (g) 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.

28.

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.

29.

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 Headend also shall have to facilitate scrambling of local channels (1100 Nos) at remote sites through ECM& EMM sent by CAS from Digital Headend. 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 56 Television services in HD(MPEG4) and 20 FM Audio services with provision to add more SD & HD Channels in the near future.
- The proposed CAS System must be designed to handle a customer base of 10 Million subscribers over a period of time. The database servers of CAS must take this factor into consideration, while offering the System to TACTV, with adequate capacity.
- The CA System offered must be designed to scramble 500 TV Channels (356 Channels to start with and to be expanded to 500 later) and 1100 Local Channels at remote Site.
- The CAS database servers design should take care of redundancy.
- 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 or Monitor with suitable GUI for Monitoring purpose.
- 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 SITC includes Supply, installation, Testing & commissioning of CAS servers , Third Party products like, Monitoring & control Interface for CAS & SMS (

Monitor or workstation), Technical Racks for mounting CAS servers , Switches (as required based on design) etc., at the Chennai Digital Headend as a part of the project.

- The CAS Servers must be integrated with the Ericsson Multiplexers that are already installed in the Headend and also with the existing SMS.(ITP software India Pvt.Ltd) at No Extra Cost. Hence the CAS OEM must work closely with Ericsson OEM and SMS OEM (ITP Software India Pvt.Ltd) to implement the proposed CAS Solution by the vendor.
- The CAS Solution provider will also offer Solution for scrambling remote local channels (about 1100 Nos) through ECM & EMM data from the Digital Headend.
- The CAS Solution provider must clearly explain if the ECM & EMM data for scrambling the remote channels (1100 Nos) can be sent over the same 1 Gig. IP pipe that will be leased for transporting the TACTV Channels. The solution for addressing the above issue must be clearly explained through a solution document (to be submitted along with the tender document). Scrambling through client server at remote locations is not acceptable due to the large number of locations where local channel insertion will take place.
- The proposal should carry complete solution.
- The system design should have provision for future upgradation and expansion.

iii. Delivery Schedule :

The time limit for supply, installation and commissioning of CAS 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 and Network 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 for CAS at TACTV's Digital Head End at Chennai in a year at three month intervals during the *Three years of warranty period*. These inspections will include

- Visual/**Physical** 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 **with the monitoring tools**.
- 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 Annual Maintenance Contract on expiry of the Warranty period shall be for CAS servers that shall be installed at Chennai Digital Headend for supporting the services of TACTV through CAS Servers.
- Post Warranty, the OEM's shall be responsible for the AMC of CAS through their office in India. However, TACTV has the sole discretion to enter in to AMC.
- A proposal may be submitted along with the tender containing the details of support that shall be extended during the AMC Period for CAS and approximate Cost implications to TACTV for such proposal for budgeting considerations.
- The Bidder must agree to maintain the supplied equipment to ensure the continuous usage during the AMC period after the completion of Three years warranty period.
- AMC will include cost of defective equipment's /parts etc. replaced during the AMC Period.
- The Bidder must agree to provide comprehensive maintenance of the installed systems including preventive and corrective maintenance on site.
- TACTV reserves the right to terminate the AMC, in the event of unsatisfactory maintenance and claim damages for non-fulfillment of contract.
- 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, 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 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 vendors shall be asked to share their experience in operations and procedures of CAS 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 and STB to TACTV Committee Members. In addition, the CAS Solution components, , should be explained to the committee, with particular reference to

- a) Proposed scrambling method from the headend for remote channel addition
- b) Ability to handle the large customer base of 7 million subscribers from a single Headend
- c) Redundancy system proposed, for CAS to meet any eventualities.

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) Distribution of set top boxes to LCO’s across Tamilnadu.
- c) 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, CAS 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):

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 that may be introduced in the future.
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(V1, V2 version with provision for V3 upgrade in future)
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 Audited by BECIL or any other approved agency of TRAI & major content aggregators and major broadcast channels. (Documentary proof required)
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 support solutions for VOD and Middleware in future.
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.
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 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 should be capable of individually addressing subscribers, for the purpose of generating the reports, on all channels, packages 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/packages Assignment to STB
 - iv. Report of the activations or the deactivations of particular channels/packages for a given period
27. The CAS vendor must have the technical capability in India to maintain the systems on 24x7 basis throughout the year. (Documentary proof is required containing details of office address in India , phone numbers for 24 x 7 helpline etc)
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 for at least two years.
30. Some basic functions of the CA include Open/close account, Entitlement , D-Entitlement , revoke entitlement , OSD, Fingerprint display, conditional blackout, LOC/Unlock STB, parent control , Black listing. Additional functions of the CA include program preview control, support pre process scrambling for VOD service (Future requirement), Interface to third party ad insertion services.
31. The CAS OEM must support at least 5 different STB Manufacturers. (Documentary proof is to be attached identifying the tie up with STB Vendors).
32. The CAS must be capable to scramble the channels in the remote location through ECM & EMM from the Digital Head end and ensure the availability of the channels only for the Set Top Boxes seeded in a particular area in coordination with SMS.
33. The CAS Vendors should be Simulcrypt DVBCA Compliant
34. TACTV has an option to go with Simulcrypt mode. In case, TACTV goes with Simulcrypt option, the CSA version of all the CAS that are part of the Simulcrypt shall be on the same version. Hence, all the CAS vendors shall be prepared to offer any version (V1, V2 , V3 etc) as per TACTV's requirement to achieve the objective of Simulcrypt
35. CA System design should be capable to support more than 10 million subscribers
36. As on date, active and deactive STB/VC wise subscriber count and a report containing details of such STB/VC.
37. As on date, channel composition of package /A –la-carte.
38. Historical month and active and de-active STB/VC wise subscriber count and a report containing details of such STB/VC.
39. Historical channel composition of packages /A-la-carte and product edit logs of channel composition of packages.
40. CAS certificate from the vendor (certificate to contain capacity to support atleast Ten million subscribers, CA ID& Version Number).
41. Once Commands are triggered from SMS, CAS should be capable of handling all commands lasting for 3 days, even though the STB's may be in the OFF status.

42. The CA must have advanced security features such as Encrypted Control Words, Secure Booting, Chip-VC pairing, Secure Chip, Online upgrades etc.

2) Fingerprinting:

1. The systems, processes and controls must be in place to run finger printing at regular intervals.
2. The STB should support both *overt 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.

3) 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, advanced security features 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 documentary evidence.
16. The STBs should be addressable over the air to facilitate OTA software upgrade or through USB interface.
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 5 places.
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 standard middleware features, by default, such as installation service management, favourite list management, configuration, parental control, language support, software upgrade through OTA, PVR features, Playback functions, EPG functions etc. Subsequently, TACTV shall have an option to add any Middleware in future. Hence, the Chipset proposed must take care of this requirement.
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.
 - m. Support various Channel Edit functions such as favourite, move, parental lock etc.,
32. Each STB shall be legibly and indelibly marked with atleast the following information :
 - a. Manufacturers name
 - b. Model and Serial No.
 - c. Country of Manufacture
 - d. Input Voltage
 - e. Power Consumption
 - f. Labels for all Input and output (RF, VIDEO, AUDIO, USB, HDMI etc.)
33. The STB should include frequency scanning function to detect the availability of DVB-C Signals and be capable of programme memory, in case of cut off.
34. The scanning function should display the number of channels currently being scanned, display number of services located, name, network ID, signal strength and quality.
35. The STB software's, EPG, CA features must be upgradable over the air. The instant and personalized message prompt must include display & withdrawl of titles , be able to display current software and hardware version stored in the decoders, able to indicate updates are available or not, able to indicate unique serial number and state of STB decoder, able to indicate type of middleware and other resident application version numbers.
36. The Set Top Box shall also be tested as per BIS 13252:2010 (Audio, Video and similar Electronic Apparatus –Safety Requirements) as per “The Gazette of India “notification Part II-Section 3-Sub section (ii) dated October 3, 2012 Vide “Ministry of Communications and Information Technology “order dated 7th September 2012.
37. The time out play for the STB should be minimum of 8 hours (even if the CAS is shut down, the signal should last for 8 hours in the STB)
38. The power supply design of STB may include Transient voltage suppressors as a protection mechanism to minimize damages due to voltage fluctuations.

39. The Power Supply adaptor provided must be of good and durable quality.
40. The Remote Control Unit of the set top box must be able to execute the following functions
- a. Power (on/off)
 - b. Fav (Favorite Channel List)
 - c. Mute (Turns on/off the sound temporarily)
 - d. Numeric Buttons (inputs numerical value)
 - e. TV/Radio
 - f. Recall (recalls previous service)
 - g. Menu
 - h. EPG
 - i. Info (displays additional channel information)
 - j. Exit (Exits the current menu)
 - k. Navigation Button (up, down, right , left)
 - l. OK
 - m. Volume UP /Volume Down
 - n. Appl (Displays the Mutimedia Menu)
 - o. GOTO (Sets media play time)
 - p. Play (Plays a media file)
 - q. Rec (begins to record the program)
 - r. Stop (Stops media play)
 - s. FF (Fast forward media play)
 - t. REW (Rewind a portion during media play)
 - u. Audio (Selecting Audio Language)
 - v. PVR List (go to PVR Menu directly)
 - w. Red, green, yellow, blue buttons to add/delete favorite, Genre, to go to Message menu, Audio Selection language.
41. The following parameters for the Set Top Box shall be given during the time of installation
- a. Starting Frequency
 - b. Network ID
 - c. Symbol Rate
 - d. Boot up Logo
 - e. Watermark (along with the Location)
 - f. Background Channel Updation
 - g. Which LCN Number should come first after boot up.
42. The Forced Message sent to STB must stay when the Box is on and also when the Box is switched Off and on again with in a particular time duration.
43. The Finger Print sent to the STB must stay when the Box is on and also when the Box is Switched off and on again with in a particular time duration.

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, Genre Wise bouquet , EPG
- Should also support quoted CAS
- Should be able to store and support 1000 Channels
- It should be possible to choose LCN from 0 to 9999.
- The chipset (System on a Chip) must be High Performance , Programmable ,High speed , Central Processing Unit Cores for Audio/Video and Application Systems , fully compliant with DVB-C & ITU J83 /AC Specifications supporting from 16 to 256 QAM , Multistandard Video decoding, Multistandard Audio Decoding , Programmable Output , Peripheral Interfaces , Advanced security system, Low Power consumption with standby control modes.
- Favorite Creation
- User friendly STB Remote control with ease of navigation
- Parent Controls
- Software upgrade through USB & OTA
- Support USB 2.0 PVR, MPEG2, MPEG4, VC-1, MP3, AAC, Digital Photos JPEG, GIF, TIF/TIFF, BMP, PNG etc.
- Variable aspect ratio 4:3 /16:9, pan & scan or Letter Box Modes.
- Bouquet based tuning and quick boot up
- Video Graphics: on screen display graphics plane.
- Remote Control : IR (38 K.Hz) , 2 x 1.5 V AAA
- Power Consumption in St.by mode < 1 W

Chip Processor & Memory

- Flash Memory 8 MB
- System Memory 64 MB DDR1
With Advanced Security Features
- Quick boot up
- USB 2.0 port connectivity for external mass storage devices through USB

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)
(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

S.No.	Parameters	SD set top boxes
(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 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	-
(x)	Interfaces/connectors	a) RF Input: 75 Ω Impedance, Female Connector (SI No 22 of Annex B) b) Loop Out: IEC female. c) Composite Video - RCA type : Yellow d) 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) e) Amplitude response within a TV Channel.	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

S.No.	Parameters	SD set top boxes
	f) Lowest carrier to interference ratio g) Cross modulation h) Digital video RF characteristics i) Carrier /Noise (C/N) ratio	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

S.No.	Parameters	SD set top boxes
		supplied with the STB. 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.
(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
- Multiformat video decoder capable of HD MPEG2/ MPEG AVC/H.264 decoding
- Should support all profiles and levels of video decoding as per ISO/IEC 14496-10
- Support USB 2.0 PVR, MPEG2, MPEG4, VC-1, MP3, AAC, Digital Photos JPEG, GIF, TIF/TIFF, BMP, PNG etc
- Should be able to decode MPEG 1, MPEG 4 Stereo, 5.1 , Dolby Digital Audio
- Should be capable of supporting 576 i, 576 p, 1080 I and 720 P formats to allow optimum picture performance with standard TV's and HDTV's
- Should be able to store and support 1000 Channels
- It should be possible to choose LCN from 0 to 9999.
- The chipset (System on a Chip) must be High Performance, Programmable, High speed, Central Processing Unit Cores for Audio/Video and Application Systems, fully compliant with DVB-C & ITU J83 /AC Specifications supporting from 16 to 256 QAM, Multistandard Video decoding, Multistandard Audio Decoding, Programmable Output, Peripheral Interfaces, Advanced security system, Low Power consumption with standby control modes.
- Should support PVR Control
- Software upgrade through USB & OTA
- 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 through USB.
- Remote Control : IR (38 K.Hz) , 2 x 1.5 V AAA
- Power Consumption in St.by mode < 1 W

Chip Processor& Memory

- Flash Memory : 128 MB NAND Flash

- System Memory 256 MB DDR3
- With Advanced Security Features

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 b) Pass through all of the following multi - channel formats: 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: 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

S.No.	Parameters	HD set top boxes
		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) <i>Loop Out : IEC Female</i> c) Composite Video - RCA type : Yellow d) Output Audio: e) RCA type: Stereo/mono f) RCA type: L-White, R-Red g) HDMI (SI No.23 of Annex B) h) USB 2.0 Ports i) Digital Audio SPDIF 1) Optical j) Connectors: 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.
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	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))

S.No.	Parameters	HD set top boxes
	h) Digital video RF characteristics i) Carrier /Noise (C/N) ratio	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
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

S.No.	Parameters	HD set top boxes
		compatibility/interfacing with consumer electronic 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)

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, &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)		
	<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 that may be introduced in the future. 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(V1, V2 version with provision for V3 upgrade in future) 	

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 Audited by BECIL or any other approved agency of TRAI & major content aggregators and major broadcast channels. (Documentary proof required)
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 support solutions for VOD and Middleware in future.
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.
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.

<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 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 should be capable of individually addressing subscribers, for the purpose of generating the reports, on all channels, packages 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/packages Assignment to STB iv. Report of the activations or the deactivations of particular channels/packages for a given period <p>27. The CAS vendor must have the technical capability in India to maintain the systems on 24x7 basis throughout the year. (Documentary proof is required containing details of office address in India , phone numbers for 24 x 7 helpline etc)</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 for at least two years.</p> <p>30. Some basic functions of the CA include Open/close account, Entitlement , D- Entitlement , revoke entitlement , OSD, Fingerprint display, conditional blackout, LOC/Unlock STB, parent control , Black listing. Additional functions of the CA include program preview control, support pre process scrambling for VOD service (Future requirement), Interface to third party ad insertion services.</p> <p>31. The CAS OEM must support at least 5 different STB Manufacturers. (Documentary proof is to be attached identifying the tie up with STB Vendors).</p> <p>32. The CAS must be capable to scramble the channels in the remote location through ECM & EMM from the Digital Headend and ensure the availability of the channels only for the Set Top Boxes seeded in a particular area in coordination with SMS.</p> <p>33. The CAS Vendors should be Simulcrypt DVBCA Compliant</p> <p>34. TACTV has an option to go with Simulcrypt mode. In case, TACTV goes with Simulcrypt option, the CSA version of all</p>	
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	<p>the CAS that are part of the Simulcrypt shall be on the same version. Hence, all the CAS vendors shall be prepared to offer any version (V1, V2 , V3 etc) as per TACTV's requirement to achieve the objective of Simulcrypt</p> <ol style="list-style-type: none"> 35. CA System design should be capable to support more than 10 million subscribers 36. As on date, active and deactive STB/VC wise subscriber count and a report containing details of such STB/VC. 37. As on date, channel composition of package /A –la-carte. 38. Historical month and active and de-active STB/VC wise subscriber count and a report containing details of such STB/VC. 39. Historical channel composition of packages /A-la-carte and product edit logs of channel composition of packages. 40. CAS certificate from the vendor (certificate to contain capacity to support atleast Ten million subscribers, CA ID& Version Number). 41. Once Commands are triggered from SMS, CAS should be capable of handling all commands lasting for 3 days, even though the STB's may be in the OFF status. 42. The CA must have advanced security features such as Encrypted Control Words, Secure Booting, Chip-VC pairing, Secure Chip, Online upgrades etc. 	
2) Fingerprinting:		
	<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 <i>overt and covert types of finger printing</i>. 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. 	

	<ol style="list-style-type: none"> 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. 	
3) Set Top Box (STB):		
I. General		
	<ol style="list-style-type: none"> 1. The Set Top Box must support at least any one of 5 leading Chipset Manufacturers of International repute with high end memory, advanced security features and graphics processing capability 2. The Set Top box should have the photo of the Hon'ble Chief Minister of Tamil Nadu embossed in Glow in Dark lumuniscence 3. All STBs should have an Embedded Conditional Access System. 4. The STB OEM must support at least5 leading CAS OEM's. 	

<ol style="list-style-type: none"> 5. 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. 6. The SD MPEG 4 Set Top Box must be capable of decoding MPEG2. MPEG4 H.264 Standard 7. The HD Set top Box must be capable of decoding HDTV /SDTV MPEG2 & MPEG4 H.264 decoding. 8. The STB should be capable of decrypting the Conditional Access messages inserted by the Head-end. 9. 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. 10. The STB should be individually addressable from the Head-end. 11. The STB should be able to receive messages from the Head-end. 12. The messaging character length should be minimal 120 characters. 13. There should be provision for global messaging, group messaging and the individual STB messaging. 14. The STB should have forced messaging capability including forced finger printing display. 15. 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. 16. The STB OEM must attach the BIS 	
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	<p>Certification as documentary evidence.</p> <p>17. The STBs should be addressable over the air to facilitate OTA software upgrade or through USB interface.</p> <p>18. There should be a system in place to secure content between decryption and decompression within the STB.</p> <p>19. The bidder should ensure that there will not be any electrical leakage or electrical shocks.</p> <p>20. The Bidder should have software support and service centre in India for set top boxes to support customization requirements of TACTV over long term</p> <p>21. The Bidder shall have authorized service centres in Tamilnadu in five places.</p> <p>22. The bidder should indemnify TACTV and its LCOs against any liabilities arising from copyright/intellectual property rights infringement, royalty issues etc.</p> <p>23. The Bidder should indemnify TACTV or LCOs against any liabilities arising from nonpayment of royalties to any organization or standards committee.</p> <p>24. STB should support standard middleware features, by default, such as installation service management, favourite list management, configuration, parental control, language support, software upgrade through OTA, PVR features, Playback functions, EPG functions etc. Subsequently, TACTV shall have an option to add any Middleware in future. Hence, the Chipset proposed must take care of this requirement.</p> <p>25. The fingerprinting should be such that it can identify the unique STB MAC/Sr.No or the unique viewing card (VC) number.</p>	
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<p>26. The finger printing should appear on all the screens of the STB such as Menu, EPG, etc.</p> <p>27. The location of the finger printing should be changeable from the head end and should be random on the viewing device.</p> <p>28. The finger printing should be able to give the numbers of characters as to identify the unique STB and or the VC.</p> <p>29. 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>30. The STB should have a provision that OSD is never disabled.</p> <p>31. The finger printing should not get invalidated by use of any device or software.</p> <p>32. 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 	
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	<p>USB functionality</p> <ul style="list-style-type: none"> k. Games l. Box should have diagnostic page to monitor CAS, SI and RF Info. m. Support various Channel Edit functions such as favourite, move, parental lock etc., <p>33. Each STB shall be legibly and indelibly marked with atleast the following information :</p> <ul style="list-style-type: none"> a. Manufacturers name b. Model and Serial No. c. Country of Manufacture d. Input Voltage e. Power Consumption f. Labels for all Input and output (RF, VIDEO, AUDIO, USB, HDMI etc.) <p>34. The STB should include frequency scanning function to detect the availability of DVB-C Signals and be capable of programme memory, in case of cut off.</p> <p>35. The scanning function should display the number of channels currently being scanned, display number of services located, name, network ID, signal strength and quality.</p> <p>36. The STB software's, EPG, CA features must be upgradable over the air. The instant and personalized message prompt must include display & withdrawl of titles , be able to display current software and hardware version stored in the decoders, able to indicate updates are available or not, able to indicate unique serial number and state of STB decoder, able to indicate type of middleware and other resident application version numbers.</p>	
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<p>37. The Set Top Box shall also be tested as per BIS 13252:2010 (Audio, Video and similar Electronic Apparatus –Safety Requirements) as per “The Gazette of India “notification Part II-Section 3-Sub section (ii) dated October 3, 2012 Vide “Ministry of Communications and Information Technology “order dated 7th September 2012.</p> <p>38. The time out play for the STB should be minimum of 8 hours (even if the CAS is shut down, the signal should last for 8 hours in the STB)</p> <p>39. The power supply design of STB may include Transient voltage suppressors as a protection mechanism to minimize damages due to voltage fluctuations.</p> <p>40. The Power Supply adaptor provided must be of good and durable quality.</p> <p>41. The Remote Control Unit of the set top box must be able to execute the following functions</p> <ol style="list-style-type: none"> a. Power (on/off) b. Fav (Favorite Channel List) c. Mute (Turns on/off the sound temporarily) d. Numeric Buttons (inputs numerical value) e. TV/Radio f. Recall (recalls previous service) g. Menu h. EPG i. Info (displays additional channel information) j. Exit (Exits the current menu) k. Navigation Button (up, down, right , left) l. OK m. Volume UP /Volume Down n. Appl (Displays the Mutimedia Menu) 	
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	<p>o. GOTO (Sets media play time)</p> <p>p. Play (Plays a media file)</p> <p>q. Rec (begins to record the program)</p> <p>r. Stop (Stops media play)</p> <p>s. FF (Fast forward media play)</p> <p>t. REW (Rewind a portion during media play)</p> <p>u. Audio (Selecting Audio Language)</p> <p>v. PVR List (go to PVR Menu directly)</p> <p>w. Red, green, yellow, blue buttons to add/delete favorite, Genre, to go to Message menu, Audio Selection language.</p> <p>42. The following parameters for the Set Top Box shall be given during the time of installation</p> <p>a. Starting Frequency</p> <p>b. Network ID</p> <p>c. Symbol Rate</p> <p>d. Boot up Logo</p> <p>e. Watermark (along with the Location)</p> <p>f. Background Channel Updation</p> <p>g. Which LCN Number should come first after boot up.</p> <p>43. The Forced Message sent to STB must stay when the Box is on and also when the Box is switched Off and on again with in a particular time duration.</p> <p>44. The Finger Print sent to the STB must stay when the Box is on and also when the Box is Switched off and on again with in a particular time duration.</p>	
	<p>II. MPEG 4 Basic SD Set Top Box:</p>	
	<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, Genre Wise bouquet , EPG
- Should also support quoted CAS
- Should be able to store and support 1000 Channels
- It should be possible to choose LCN from 0 to 9999.
- The chipset (System on a Chip) must be High Performance , Programmable ,High speed , Central Processing Unit Cores for Audio/Video and Application Systems , fully compliant with DVB-C & ITU J83 /AC Specifications supporting from 16 to 256 QAM , Multistandard Video decoding, Multistandard Audio Decoding , Programmable Output , Peripheral Interfaces , Advanced security system, Low Power consumption with standby control modes.
- Favorite Creation
- User friendly STB Remote control with ease of navigation
- Parent Controls
- Software upgrade through USB & OTA
- Support USB 2.0 PVR, MPEG2, MPEG4, VC-1, MP3, AAC, Digital Photos JPEG, GIF, TIF/TIFF, BMP, PNG etc.
- Variable aspect ratio 4:3 /16:9, pan & scan or Letter Box Modes.
- Bouquet based tuning and quick boot up
- Video Graphics: on screen display graphics plane.
- Remote Control : IR (38 K.Hz) , 2 x 1.5 V AAA
- Power Consumption in St.by mode < 1 W

Chip Processor & Memory

	<ul style="list-style-type: none"> • Flash Memory 8 MB • System Memory 64 MB DDR1 • With Advanced Security Features • Quick boot up • USB 2.0 port connectivity for external mass storage devices through 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 	
	RF Characteristics to be supported by the receiver: <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	
	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	
	RF Demodulator	
	Remote control	
	Operating ambient temperature range	
	Operating humidity range	
	Finger Printing	
	Other Requirements	
	General Requirements	
	Safety Requirements	
	Electromagnetic Compatibility (EMC) Requirements	
	III. MPEG 4 HD Digital Set Top Box: Features: <ul style="list-style-type: none"> • DVB –C Tuner • HD Set Top Box shall also have all the features of SD Box • Multiformat video decoder capable of HD MPEG2/ MPEG AVC/H.264 decoding • Should support all profiles and levels of video decoding as per ISO/IEC 14496-10 • Support USB 2.0 PVR, MPEG2, MPEG4, VC-1, MP3, AAC, Digital Photos JPEG, GIF, TIF/TIFF, BMP, PNG etc • Should be able to decode MPEG 1, MPEG 4 Stereo, 5.1 , 	

	<p>Dolby Digital Audio</p> <ul style="list-style-type: none"> • Should be capable of supporting 576 i, 576 p. 1080 I and 720 P formats to allow optimum picture performance with standard TV's and HDTV's • Should be able to store and support 1000 Channels • It should be possible to choose LCN from 0 to 9999. • The chipset (System on a Chip) must be High Performance, Programmable, High speed, Central Processing Unit Cores for Audio/Video and Application Systems, fully compliant with DVB-C & ITU J83 /AC Specifications supporting from 16 to 256 QAM, Multistandard Video decoding, Multistandard Audio Decoding, Programmable Output, Peripheral Interfaces, Advanced security system, Low Power consumption with standby control modes. • Should support PVR Control • Software upgrade through USB & OTA • 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 through USB. • Remote Control : IR (38 K.Hz) , 2 x 1.5 V AAA • Power Consumption in St.by mode < 1 W • <li style="border: 1px solid black; padding: 2px;">• Chip Processor& Memory • Flash Memory : 128 MB NAND Flash • System Memory 256 MB DDR3 • With Advanced Security Features 	
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: a) Input voltage range b) Frequency	
	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	
	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	
	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), set top boxes on rate contract basis - 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) set top boxes on rate contract 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.25,00,000/- (Rupees Twenty 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 GST 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 2016-17, 2017-18, 2018-19. 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 out of which 2 years should be in India.
 - 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) Address proof document for having a full-fledged permanent office in Chennai.
- 11) Address proof document for having full-fledged service centres in Tamilnadu.
- 12) List of service centres in Tamilnadu (as per Annexure – VIII).
- 13) Tie-up letter, Purchase/work orders, completion certificate and Certificate from MSO/DTH Operator of CAS provider in support of clause 3(h).
- 14) Copy of PAN allotment Certificate/ PANCARD issued by Income Tax Department in case of Indian Company.
- 15) Copy of GST Registration certificate in case of Indian Company.
- 16) Declaration for not having black listed either by TACTV or by any other govt. agencies (as per Annexure-IX).
- 17) Declaration for not having tampered the Tender documents downloaded from the website www.tenders.tn.gov.in (as per Annexure-X).
- 18) Sample submission form (as per Annexure-XI).
- 19) Latest Assessment orders under GST Act in case of Indian Company.
- 20) Latest I.T return of single bidder/ prime bidder of consortium.
- 21) Compliance report to the technical Specifications as per Annexure-II.
- 22) Data Sheets for all proposed equipments.
- 23) A written declaration from the CAS vendor, that the current version of CAS in use do not have any history of hacking.
- 24) Copy of BIS certification for the models quoted
- 25) 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.	2016-17	
2.	2017-18	
3.	2018-19	
	Total	
Average annual turnover		

Note: Average Turnover of any three consecutive financial years will be considered i.e. FY 2016-17, 2017-18 and 2018-19.

DATE :

SIGNATURE OF THE BIDDER

SIGNATURE OF CHARTERED ACCOUNTANT
(with seal and Address)

List of works completed in supply of at least 2 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.)
2016-17	
2017-18	
2018-19	
Total	

(Please provide the details of 2 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), on rate contract basis 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) set top boxes on rate contract - Submission of Part - II - Price Offer - Reg

Ref:- Our tender (Technical Bid) submitted for “the supply of Standard Definition (SD), High Definition (HD) set top boxes on rate contract basis

In continuation of our above tender, we submit herewith the price offer for “the supply of Standard Definition (SD), High Definition (HD) set top boxes on rate contract basis 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

i. SD Set Top Box

S.No.	Description	Basic Price per unit (A)	GST % (B)	Total inclusive of GST C=A+B
		(Rs.)	(Rs.)	(Rs.)
1.	SD set top box per unit			
2.	License fee for Conditional Access System (CAS) per unit including server cost			
	TOTAL			

Amount in words _____ only

Total inclusive of GST

ii. HD Set Top Box

S.No.	Description	Basic Price per unit (A)	GST % (B)	Total Inclusive of GST C=A+B
		(Rs.)	(Rs.)	(Rs.)
1	SD set top box per unit			
2	License fee for Conditional Access System (CAS) per unit including server cost			
	TOTAL			

Amount in words _____ only

Total inclusive of GST

Signature of the bidder with seal and address

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.25,00,000/- (Rupees Twenty 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/ GST 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 2016-17, 2017-18, 2018-19. 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 and 2 years In India • Supply of at least 2 Lakh units of set top boxes in any one of the last three financial years of which at least 1 Lakh units should have been supplied and seeded in India 		
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.	Copy of PAN allotment Certificate/ PANCARD issued by Income Tax Department in case of Indian Company		
16.	Copy of GST Registration certificate in case of Indian Company		
17.	Declaration for not having black listed either by TACTV or by any other govt. agencies (as per Annexure-IX)		

18.	Declaration for not having tampered the Tender documents downloaded from the website www.tenders.tn.gov.in (Annexure-X)		
19.	Sample submission form (as per Annexure-XI)		
20.	Latest Assessment orders under GST Act in case of Indian Company		
21.	Latest I.T return		
22.	Compliance report to the technical Specifications as per Annexure-II.		
23.	Data Sheets for all proposed equipments		
24.	A written declaration from the CAS vendor, that the current version of the CAS, in use, do not have any history of hacking		
25.	Copy of BIS certification for the models quoted		
26.	Notarized translated English version of the documents in a language other than English/Tamil, if any.		
27.	Documentary proof from the CAS vendor that the proposed system has been audited and approved by BECIL or any other approved agency of TRAI & Major content aggregators & broadcast channels.		
28.	Documentary proof for 24 x7 helpline for CAS in India with contact details for support services during warranty & post warranty		
29.	Documentary proof by CAS OEM of supporting 5 different STB Manufacturers.		
30.	CAS certificate from the vendor (certificate to contain capacity of atleast Ten million subscribers , CA ID, Version Number)		
31.	Solution Document for Scrambling the remote Channels (1100 Nos) from the Digital Headend		
32.	Solution Document for the Conditional Access System containing the details of servers , client base supported etc.		
33.	Document outlining the details of support that shall be extended during the AMC period for CAS equipments with approximate cost implications to TACTV.		

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) 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 / HD set top boxes along with CAS) 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 HD set top boxes along with CAS).
5. And whereas the Supplier after due negotiation agreed to undertake the contract of supplying of (SD set top boxes along with CAS/ HD set top boxes along with CAS) inclusive of all 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

Signature of the bidder with seal

- a. The Supplier has remitted an amount of Rs.25,00,000/- (Rupees Twenty 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.25,00,000/-, 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:

9. The Supplier should supply of (SD set top boxes along with CAS HD set top boxes along with CAS). 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.

(a) The set top boxes and its accessories other than remote control should have a replacement warranty for a period of 3 years from the date of supply of STBs at warehouse and acceptance by TACTV. The remote control should have a replacement warranty for a period of 6 months from the date of supply of STBs at warehouse and acceptance by TACTV. 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.

(b) The items are to be delivered at District Offices of TACTV in 32 places all over Tamil Nadu.

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

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

10. 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	Within 45 days from the date of issue of purchase order
2.	60% of the ordered quantity	Within 60days 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) The testing will be done at the supplier premises. The testing cost will be borne by TACTV.
- (e) The Set Top boxes will be accepted after confirming Benchmark tests based on random samples conducted by third party agency nominated by TACTV.
- (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.
- (i) The tentative schedule of each purchase order will be as follows:

1 st Purchase Order	T	40% of allotted quantity
2 nd Purchase Order	T+30	60% of allotted quantity

11. WARRANTY & AFTER SALES SERVICE

- (a) All items other than remote control should have a replacement warranty for a period of 3 years from the date of supply of STBs and acceptance by TACTV against manufacturing defects. Remote control should have a replacement warranty for a period of 6 months from the date of supply of STBs and acceptance by TACTV. During the warranty period, the bidder should also provide maintenance support for all items covered under the contract free of cost.

However the warranty will not extend to failures due to non-manufacturing defects such as water-log, tampered by unauthorized person, failure due to high voltage or lightning, provided the same is proved beyond doubt.

- (b) For each purchase order, the supplier shall supply 2% additional quantity as reserve for replacement, which will be kept at the designated warehouses of TACTV.
- (c) The supplier should maintain toll free numbers (one line for every 5 lakh STB supplied) operating 24x7 to register service complaints. The complaints shall be rectified as per clause 25(b).
- (d) The call center shall be located in Chennai and handle complaints in Tamil & English.
- (e) The STB OEM shall submit a blue print of Service Network, along with the tender submission that shall be established at 5 places in Tamil Nadu to support 10 Lakh STB's post warranty period.
- (f) 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) 90% Payment will be made for each purchase order within 30 days after supply of entire quantity given in the purchase order on submission of invoice and acceptance by TACTV. The balance 10% will be paid after submission of irrevocable Bank Guarantee equivalent to the above amount valid for the Warranty period towards performance guarantee
- (b) If required, TACTV shall make 10% payment as mobilisation advance against each order value secured against irrevocable Bank Guarantee of the supplier and the advance payment shall be recovered in subsequent Bills payable.

- (c) The, payments will be considered only after submission of necessary proof for payment of taxes to the Govt. as per invoice .
- (d) 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.
- (e) 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 schedule of supply 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.
- (b) The complaint raised by TACTV/LCO/subscribers has to be rectified as follows:
 - i.LCOs will handle, if the fault is due to software installation and upgradation, troubleshooting like signal connection not proper, power adaptor not working, AV cable faulty.
 - ii.For other faults, Set top boxes will be brought to the service centres by LCOs. It has to be resolved within 24 hours by the supplier. If it is not possible to resolve within 24 hours the subscriber will be given spare set top boxes from the 2% reserve.
 - iii. The supplier has to rectify the faults within 10 days from the time of receipt of the box from the LCO.Failure to comply with the above time lines will attract a penalty of Rs.25 per unit per day.
 - iv. **If the set top boxes malfunction due to any common technical problems in CAS/STB, it should be resolved within 4 hours failing which, the business loss of TACTV for each of such malfunctioning STB shall be recovered from the supplier**

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) 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.
- (g) 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.

**Bank Guarantee Format for Earnest Money Deposit
(To be executed in Rs.100/- Stamp Paper)**

To
The Managing Director,
Tamilnadu Arasu Cable TV Corporation Limited (TACTV),
34 /123, 6th Floor, Dugar Towers,
Marshall's Road, Egmore,
Chennai - 600 008

Bank Guarantee No:

Amount of Guarantee: Rs.25,00,000/- (Rupees Twenty Five Lakhs Only)

Guarantee covers from:

Last date for lodgement of claim:

WHEREAS Managing Director, Tamilnadu Arasu Cable TV Corporation, No.34 /123, 6th Floor, Dugar Towers, Marshall's Road, Egmore, Chennai - 600 008, Tamilnadu, India (herein after called "TACTV") has floated tender for the Supply of Standard Definition (SD), High Definition (HD), on rate contract basis (herein after called "Tender") vide tender reference number 002/TACTV/Set Top Box/2019 dated 12.3.2020.

AND WHEREAS Consortium led by M/s (Name and Registered Office Address of the Prime Bidder) / M/s. (Name and Registered Office Address of the individual entity, in case of single bidder) (herein after called "Bidder") is interested in participating in the tender.

AND WHEREAS as per the tender conditions, the bidder has to submit an irrevocable unconditional bank guarantee to the value of Rs.25,00,000/- (Rupees Twenty Five Lakhs Only) form any Indian Nationalized/Scheduled Commercial Bank valid for a period of six months towards Earnest Money Deposit along with the bid.

We (Bank Name), having branch at (Branch Address) (hereinafter referred as the "Bank") at the request of the bidder have agreed to give the bidder such a Bank Guarantee and we hereby absolutely, irrevocably and unconditionally undertake to guarantee you and keep you guaranteed to the extent of the sum of Rs.25,00,000/- (Rupees Twenty Five Lakhs Only) and we undertake

Signature of the bidder with seal

to pay TACTV upon your first written demand and without cavil or argument, any sum or sums within the limit of Rs.25,00,000/- (Rupees Twenty Five Lakhs Only) as aforesaid without TACTV needing to prove or to show grounds or reasons for TACTV's demand for the sum specified therein.

We, the Bank, further agree that change or addition to or other modification of the terms of the Tender or of the works to be performed there under or of any of the Contract documents which may be made between TACTV and the bidder shall not in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition and modification.

NOTWITHSTANDING ANYTHING CONTAINED HEREINABOVE:

Our liability under this guarantee is limited to Rs.25,00,000/- (Rupees Twenty Five Lakhs Only)

This Bank guarantee will be valid up to _____.2020.

Unless a demand is made on the Bank at (Bank Name), Branch at (Branch Address) in writing on or before _____.2020 all your rights under the Guarantee will be forfeited and we shall be relieved and discharged from all liabilities there under.

In witness whereof the Bank, through its authorized officer, has set its, hand and stamp on this at _____.

Witness:

(Signature)

(Name in Block Letters)