



Centre for Development of Advanced Computing (C-DAC)

**A Scientific Society of Ministry of Electronics & Information Technology,
Government of India**

Vellayambalam, Thiruvananthapuram

Kerala - 695033

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www.cdac.in

Request for Proposal (RFP)

for

Transfer of Technology (ToT) & Licensing

of products from

C-DAC TETRA NETWORK (CTN) Portfolio

RFP No: DRP CT 000 0001

April 2022

Rev 01

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2. REQUEST FOR PROPOSALS FOR TOT/LICENSING

C-DAC Thiruvananthapuram a Scientific Society under the Ministry of Electronics and Information Technology, Govt. of India, invites proposals from reputed firms/companies, incorporated in India, with relevant experience/insights in the field of professional electronics for Transfer of Technology (ToT) and Licensing of products/technologies developed by C-DAC under the C-DAC TETRA Network portfolio, including those listed for ToT/Licensing in Phase-1 of this process.

- **Issue of RFP** : **01/04/2022**
- **Last date for receipt of Proposals** : **31/03/2023**

1. Details of products and technologies offered for ToT/Licensing are detailed in Annexure-I to this RFP.
2. Details of information to be furnished by respondents, along with Expression of Interest (Eoi) are given in Annexure-II.
3. Interested parties can submit their proposals, along with information solicited in Annexure-II in the given pro forma and relevant supporting documents. [Note: Those firms who are already shortlisted by C-DAC for Phase 1 ToT/Licensing of TETRA based products, are **automatically shortlisted** for this phase also, and hence need not furnish details as per Annexure-II. Those firms who have already submitted the details along with their Eoi against invitations for the same floated by C-DAC in August 2020 also need not furnish details as per formats 2 to 5 in Annexure-II. However, all firms including those come under the above-mentioned categories are expected to submit their proposals for ToT/Licensing of products that are of interest to them as per Format 1 in Annexure II.

Note:

C-DAC shall not be responsible for non-receipt / non-delivery or late receipt of the proposals and/or supporting documents due to any reason whatsoever.

The Eoi document may be downloaded from the website www.cdac.in

For any technical clarification, please approach the following person(s):-

Head, Technology Promotion Centre

Centre for Development of Advanced Computing (C-DAC)

Vellayambalam, Thiruvananthapuram, Kerala, India, 695033

Phone: 0471 2727508 Fax: 0471 2723456, Mob: 9847069184

Email: tpc@cdac.in Website: www.cdac.in

3. DISCLAIMER

1. Centre for Development of Advanced Computing, Thiruvananthapuram (herein after called C-DAC (T)) has prepared this Request for Proposal (RFP) solely to invite prospective organizations for collaboration. While C-DAC (T) has taken due care in the preparation of information contained herein and believes it to be accurate, neither C-DAC or any of its Authorities or Agencies nor any of their respective officers, employees, agents or advisors give any warranty or make any representations, express or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in association with it.
2. This information is not intended to be exhaustive and interested parties are required to make their own inquiries in order to submit their proposals against this RFP. The information is provided on the basis that it is non-binding on C-DAC, any of its authorities or agencies or any of their respective officers, employees, agents or advisors.
3. C-DAC reserves the right not to proceed with the ToT/Licensing process at any stage without assigning any reasons thereof, or to alter the time table reflected in this document or to change the process or procedure to be applied.
4. C-DAC will not be liable to pay/reimburse any cost/losses/expenses/penalties/damages of whatsoever nature to any person (s)/entity (ties) submitting the proposals.
5. This RFP Document is neither an agreement nor an offer and is only an invitation by C-DAC (T) to the entities that are qualified to submit their Proposal as stated in the Request for Proposal.
6. The purpose of this RFP is to provide interested applicants with information to assist the formulation of their Proposal.
7. The issue of this RFP does not imply that C-DAC (T) is bound to select an agency for ToT/Licensing.

4. INTRODUCTION

About C-DAC

Centre for Development of Advanced Computing (C-DAC) is a premier R&D organization under the Ministry of Electronics and Information Technology (MeitY), Government of India that carries out R&D in IT, Electronics and associated areas. The Thiruvananthapuram Centre of C-DAC has been working in application-oriented research, design and development for various industrial and customer requirements. During these years, the Centre has acquired competency, expertise and extensive experience in the areas of Broadcast & Communications, Control & Instrumentation, Networking, Power Electronics, ASIC Design and Underwater Electronics.

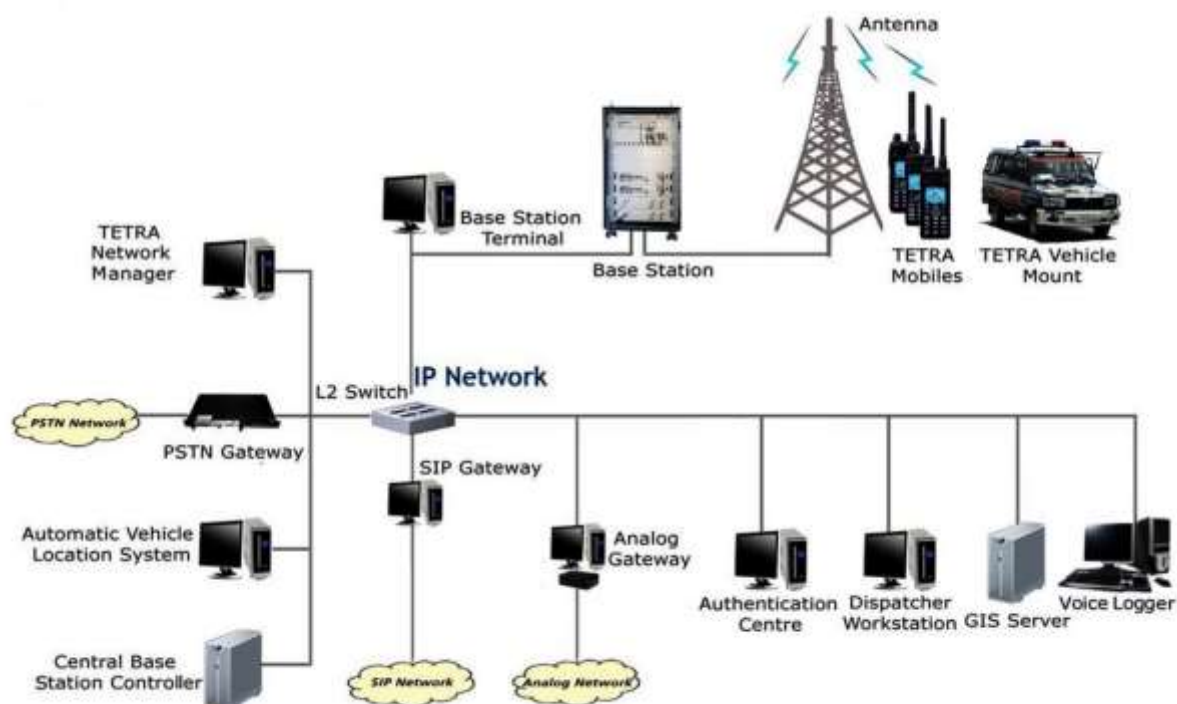
Communications & Software Technology Group of C-DAC, Thiruvananthapuram has been working in technology development in the domain of wireless communication for over two decades and has been successful in developing radios as well as infrastructure elements that enable secure digital wireless communication solutions for the Professional Mobile Radio (PMR) segment and defense communication systems.

C-DAC TETRA NETWORK (CTN)

TETRA (Terrestrial Trunked Radio) is an open standard developed by the European Telecommunications Standards Institute (ETSI) for critical communication. It is an established and proven standard that has achieved worldwide acceptance among public safety as well as commercial user organizations. An important feature of the TETRA standard is that it has a number of open interface specifications that can be used by application developers to further enhance the capabilities. TETRA communication system is more secure and powerful when compared with other commercial wireless communication technologies. Its air interface encryption feature provides the highest level of security for voice calls and data transfer. The facility provided by TETRA standard to put proprietary encryption logic gives user total control over the data being exchanged during communication.

TETRA's market broadly comprises user segments such as: (a) Military and Para-military forces (b) public safety organizations such as the police, fire brigade, coast guard and rescue and emergency services, (c) transportation sectors such as railways, seaports, airports and urban transport operators and (d) industrial segment - where the reliable low-data rate data communication along with the professional voice services makes TETRA a perfect choice for doing automation in various needs and thereby increasing the business efficiency and productivity.

C-DAC's TETRA portfolio includes three major categories of indigenously developed technology components: (a) TETRA base stations (three variants viz. Xtreme, Portable and Micro), (b) TETRA radios (Handheld, Vehicle-mounted and Desktop) and (c) core network elements (including Dispatchers, Line Stations and various gateways) for interconnecting multiple TETRA Base Stations through an Internet Protocol (IP) based network for the transport of digital speech, short data, circuit mode data, status messages, mobility management and network management information. Collectively, this is referred to as the **C-DAC TETRA Network (CTN)**. The CTN is a secure, digital, wireless, communication network that provides efficient and cost-effective technology for mission critical applications working in the most demanding environments. It uses a flexible soft-switching technology with distributed database, thus eliminating the need to employ expensive MSCs (Main Switching Centre). This makes the system highly scalable and easy to install, configure and maintain. The various gateways in CTN provide user the option to connect to external networks such as PSTN, VoIP and Analog. The optional components: Authentication Centre, Voice Logger, Geographical Information System, Line Stations, Dispatchers, etc. are also included in the portfolio to enable the users to customize the network exactly as per their requirement.



The CTN supports two modes of operation: (a) the Network mode and (b) the Standalone mode.

In the Network mode, the system can have multiple Base Stations interconnected through IP network. In this mode the full set of functions, features and facilities are enabled. Network mode system is ideal for large coverage area deployment where the multiple cells interconnected through IP forms a complete network.

In Standalone mode, the system will have minimal set of components required for establishing basic TETRA communication. In this mode the system can have only one Base Station and have only limited features. The Standalone mode provides an option for establishing basic TETRA communication with a single TETRA Base Station and a minimal set of supporting components. This mode is highly suitable for isolated operations where only single cell coverage is envisaged, for example, for disaster relief operations. Table 1 lists the features common to both modes and Table 2 lists the additional features that are supported in the Network mode.

Table 1: Features in Standalone mode of operation

Sl. No.	Features
1	Emergency Call
2	User Defined Short Data Services (Individual, Group & Broadcast)
3	User to user Direct Mode Operation
4	Authentication *
5	Mutual Authentication# *

Sl. No.	Features
6	Air Interface Encryption (Class 3)# *
7	End-to-end Encryption# *
8	Circuit Mode data#
9	Pre-emption, priority call, emergency call
10	Enhanced Coverage with Dual Diversity *
11	Simplex, Duplex and Group voice calls
12	Listener presence check
13	Group call late entry
14	Customisation of call setup parameters
15	ISDN/PSTN Gateway interface *
16	VoIP (SIP) Gateway interface *
17	Analog Gateway interface *
18	Voice Logging *
19	Radio Location Tracking *
20	Online Remote Health Monitoring
21	Dispatcher User Terminal *
22	Radio Location Tracking# *
<p>Note:</p> <p>#Feature support in radio may vary from manufacturer to manufacturer</p> <p>*Optional features</p>	

Table 2: Additional Features in Network mode of operation

Sl. No.	Features
1	SDS store and forward
2	Ambience Listening # *
3	Discrete Listening *
4	Dynamic Group Number Assignment (DGNA) *
5	Call Authorisation by dispatcher # *
6	Air Interface Encryption (Class 1&3)# *
7	Distributed Database
8	Distributed Soft Switching
9	Priority Overriding
10	Call barring
11	Broadcast call# *
12	Group priority scanning

13	Scalability from 1 to maximum 999 Base Stations/Dispatcher in a network
14	Built-in resilience of the IP network
15	Remote Health Monitoring (online/offline)
16	Subscriber administration
17	Call group administration
18	Event history
19	Registration Data Record, Call Data Record and Message Data Record
20	Organisational architecture of subscribers
21	Enabling/Disabling of subscriber/radio
22	Dispatcher Workstation*
23	Full IP networking
<p>Note:</p> <p>#Feature support in radio may vary from manufacturer to manufacturer</p> <p>*Optional features</p>	

Advantages of C-DAC's TETRA Solution

- Fully indigenous technology based on the open standard.
- Cost-effective solution.
- Highly customizable.
- Supports 3-level security viz. Authentication, Air Interface Encryption and End-to-end Encryption with additional option for porting indigenous encryption algorithm.
- Maintenance and support.
- Infrastructure fully interoperable with multi-vendor radios.

Application Areas for C-DAC's TETRA Solution

- Emergency services like disaster management centres, fire departments, ambulance etc.
- Public safety network
- Defence and Para-military services
- On-board communication system for Naval platforms
- Railway Signalling and Communication, including Metro rails
- Industrial Automation
- Coast Guard and Border Security
- Seaports and airports

- Mobile Communication System for VIP security
- Communication system for Prison Administration
- Smart City communication based on private network

Information on Products listed for ToT/Licensing

Details of Products listed for ToT/Licensing may be found in Annexure-I to this RFP document.

5. INSTRUCTION TO APPLICANTS

5.1 WHO CAN APPLY?

Companies (including Private Limited Companies, PSUs, MSMEs and start-ups) and partnership firms, registered under the Companies Act, 2013/the Partnership Act, 1932, Limited Liability Partnership Act, 2008, having requisite expertise in manufacturing, supply, deployment and product support in the domain of professional electronics may submit their proposals against this RFP.

5.2 SCHEDULE FOR INVITATION OF PROPOSALS

Table 3: Schedule for invitation of proposals

1	Name and Address	Head, Technology Promotion Centre Centre for Development of Advanced Computing (CDAC) Vellayambalam, Thiruvananthapuram, Kerala, India, 695033 Phone: 0471 2727508 Fax: 0471 2723456 Email: tpc@cdac.in Website: www.cdac.in
2	Email for soft copy submission	tpc@cdac.in
3	Closing Date	31/03/2023

3	Name of the Contact Person for any clarification	Head, Technology Promotion Centre Centre for Development of Advanced Computing (CDAC) Vellayambalam, Thiruvananthapuram, Kerala, India, 695033 Phone: 0471 2727508 Fax: 0471 2723456 Mob: 9847069184 Email: tpc@cdac.in Website: www.cdac.in
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The proposal is to be submitted in the manner prescribed below. All information as detailed below is to be submitted in hard copy in sealed envelope and soft copy through mail.

1. Proposal for ToT/Licensing of CTN products (Format - 1)
2. Organizational Contact Details (Format - 2)
3. Experience of the Organization (Format - 3)
4. Financial Strength of the Organization (Format - 4)
5. Declaration (Format - 5)
6. Queries, if any, may be referred in writing to tpc@cdac.in which will be addressed via email/ through online meeting.
7. Modification in Request for Proposal document: At any time prior to the deadline for submission of proposals, C-DAC may modify any part of this document. Such change(s) if any may be in the form of an addendum/corrigendum and will be uploaded in C-DAC website <https://www.cdac.in>. All such change(s) will automatically become part of this RFP and shall be binding on all applicants. Applicants are advised to regularly refer the C-DAC's URLs referred above.
8. Pre-submission Meeting: No formal Pre-submission meeting has been planned for this EOI. However in case of any clarifications needed, they may send their clarifications by email.
9. C-DAC may ask applicants for clarifications or additional documents/ credentials at its discretion anytime during the process. Clarifications (if required) will be sought through e-mail to the applicants.
10. Every applicant shall be communicated the acceptance of their proposal or otherwise, within 30 days of receiving the proposal subject to closing out of queries/clarifications, if any, pending on part of the applicant.
11. In case of acceptance of the proposal, the communication shall include the Fee Structure for the proposed ToT/Licensing process and a template for ToT Agreement.
12. ToT Agreements shall be signed with qualified firms on formal acceptance of the Agreement template and clauses therein by respective firms and the ToT process shall commence.

5.3 QUALIFICATION CRITERIA

Table 4: Qualification Criteria

Sl. No.	Pre- qualification criteria	Supporting Documents
1	Applicant shall be a firm/company/partnership firm/trust/society/autonomous body registered under the Companies Act, 2013/the partnership Act, 1932, Limited Liability Partnership Act, 200 8 or any other relevant Law, and who have their registered offices in India.	Copy of certificate of incorporation, registration, partnership deed, if any.
2	The applicant must have experience in Manufacturing, Deployment & Support of professional electronics products.	Format– 3 Certificate by Authorized Signatory of the applicant or Company Secretary of the firm/organization and other similar documents.
3	Applicant has to be profitable and should not have incurred losses in any of the last three (03) consecutive financial years *	Format - 4 to be certified & validated by Chartered Accountant (CA) of the applicant with audited annual accounts.
4	Applicant should not be blacklisted by any Central Govt. /State Govt./ PSU/Municipal Corporations/ other Govt. Bodies or anywhere else.	Certificate signed by the Authorized Signatory.
5	PAN, TAN, GST Registration Certificate.	Copy of Certificate to be enclosed.

* Start-ups recognized by DIPP will be given waiver

5.4 MINIMUM ELIGIBILITY CRITERIA

1. The applicant shall be a firm/company/partnership firm registered under the Companies Act, 2013/the partnership Act, 1932, Limited Liability Partnership Act, 2008 and Autonomous body, Education/Research institution, duly approved trust registered under Trusts Act, and society registered under Societies Registration Act, or any other relevant laws and who have

their registered offices in India.

2. The applicant must not be blacklisted or debarred by any Central Govt./State Govt./PSU/Municipal Corporations/other Govt. Bodies, as on date of submission of proposals.
3. The applicant should have the necessary credentials and be suitably equipped to execute the activities envisaged in the indicative roles and responsibilities listed out.
4. The prime responsibility lies with applicant associating with C-DAC as the work/activities can't be fully or partially sub-let to any other entity without prior approval and written consent of C-DAC.

Note: The applicants should provide sufficient documentary evidence to support the eligibility criteria. C-DAC reserves the right to reject any proposal not fulfilling the eligibility criteria. If in the view of applicant, any exemption/relaxation is applicable to them from any of the eligibility requirements, under any rules/process/guidelines/directives of Government of India, applicant may submit their claim for the applicable exemption/relaxation, quoting the valid rule/process/guidelines/directives. In this case the applicant must submit necessary and sufficient documents along with the technical bid, in support of their claim. The decision about granting the exemption/relaxation will be taken by the evaluation committee which is empowered to grant exemption/relaxation. The relevant and valid certificates in support of claim of exemption must be submitted as hard and soft copy.

6. STANDARD TERMS AND CONDITIONS

I. General Terms and Conditions

1. There are two types of products in C-DAC TETRA portfolio. The first category includes products consisting of proprietary software, intended for running on COTS platforms, hereafter referred to as **Category S** products. The other category included products consisting of proprietary hardware and/or proprietary embedded software, hereafter referred to as **Category H** products.
2. **Category H** products are further divided into two sub-categories. Some products are offered for ToT in “as is” form, in which case the know-how covers every aspect of the manufacturing, including packaging. These are referred to as **Category HA** products. Other products that are “to be modified” for production and deployment are also offered for ToT. For these products, the ToT partner shall take the responsibility for product engineering, ruggedizing and packaging. These are referred to as **Category HM** products.

The categories are depicted in the Figure given below.

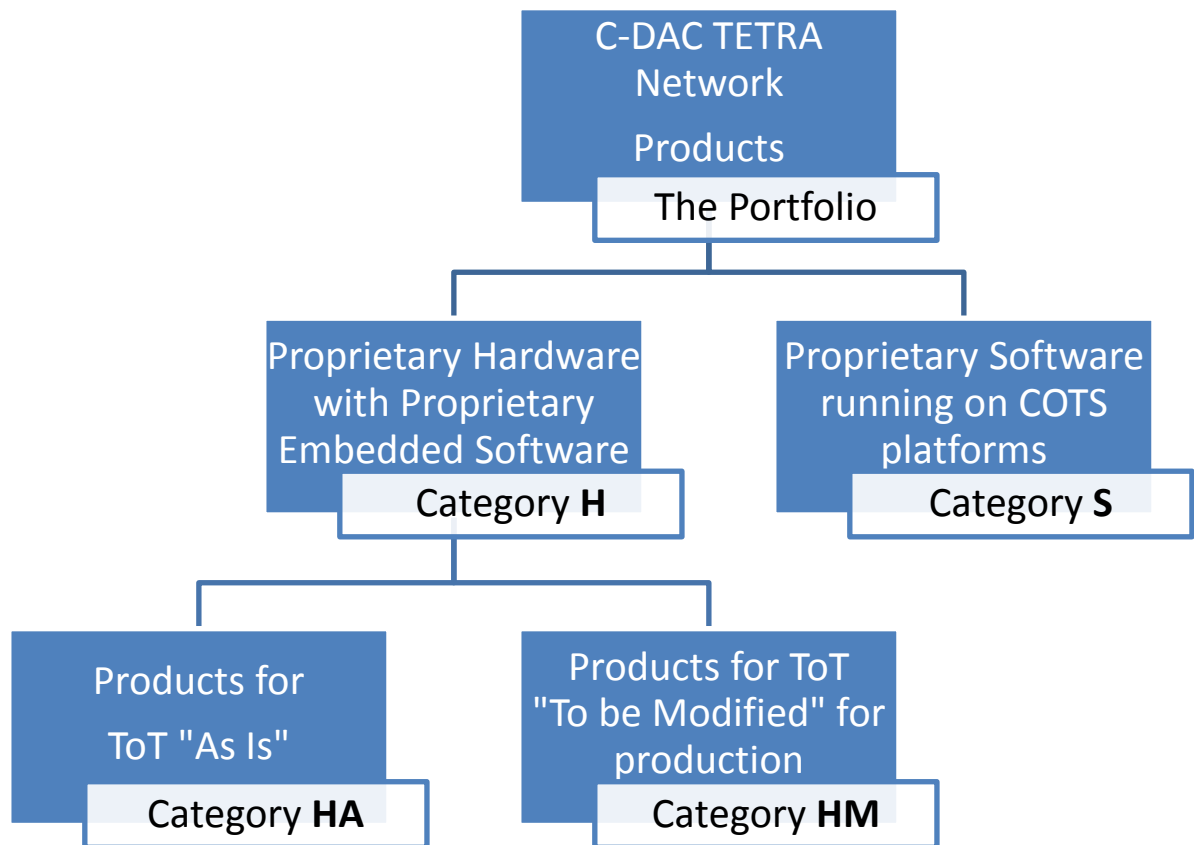


Figure: C-DAC TETRA Network Product Categories

3. The ToT and Licensing shall be **NON-EXCLUSIVE, NON-TRANSFERABLE and limited to sales and/or deployments in INDIA only.**
4. This ToT/Licensing offer is, in principle, open for any firm who qualifies as per terms and conditions and possesses the necessary credentials and competence, at par with the industry standard, to handle the know-how of product(s) that are being licensed as per RFP. C-DAC reserves the exclusive right to judge the capability and credentials of the applicant firms. C-DAC may solicit documents and other information from the applicants from time-to-time for conducting such capability evaluation and may even carry out visits to the office/plant of the applicant firms as deemed necessary. The authority for shortlisting a firm shall rest with Executive Director, C-DAC (T) or an officer duly authorised by the ED expressly for this purpose.
5. A firm that qualifies the evaluation as described in Clause 4 above shall be included in the shortlist for ToT/Licensing of CTN products. The shortlist is likely to be updated periodically. C-DAC reserves the right to decide the timings of such updates as well as the criteria for inclusion/exclusion of firms into/from the shortlist. It may be noted that this clause applies only to the shortlisting process and is no way binding on the ToT/License Agreements already in force at the time of such updates. Firms that are already in legal agreement with C-DAC for the subject ToT/Licensing shall continue to be in the shortlist until the expiry of the prevailing agreement(s) in this regard.

6. ToT/Licensing would be done separately for each individual Category-H product. All products available for ToT and/or Licensing would be listed in C-DAC website and the list would be periodically updated.
7. Separate Terms and Conditions shall be applicable (as detailed in later part of this document) for ToT/Licensing of Category S products, Category HA products and Category HM products. ToT Agreements have to be separately signed for each of the Category H product. Such agreements are not required for Category S products.
8. C-DAC reserves the right to include new ToT/Licensing partners from time-to-time, through open calls for EoI and subsequent procedures. The financial terms and conditions are likely to be revised based on the prevailing market situations from time-to-time. However, these changes shall not be binding on existing ToT/Licensing partners, except by way of explicit clauses in upcoming sections pertaining to the revision of ToT/License fees.
9. C-DAC is likely to include new products in the TETRA portfolio for ToT/Licensing from time to time. The complete ToT/Licensing process life cycle shall normally be applicable for awarding ToT/Licensing of products in the upgraded portfolio. However, existing ToT/Licensing partners are exempted from submission of EoI, though all the remaining procedures would be applicable to them as well.
10. C-DAC reserves the right to use its TETRA based technologies, IPs, products and solutions, existing and those realized in future, for any purpose and in any manner for its current and future design and development activities. Further, C-DAC reserves the right to accept and undertake projects/works for delivery of products, systems, solutions and/or services based on C-DAC TETRA technology, which are awarded to C-DAC on nomination basis through tenders.
11. C-DAC reserves the right to use its TETRA based technologies, products and solutions for honouring existing contractual obligations (initiated prior to the commencement of ToT) and their natural extensions.

II. ToT/Licensing for Category H products

Terms and Conditions common to Category H products

1. For each of the Category H products, the “MANUFACTURING KNOW-HOW” would be licensed to the ToT partner against a one-time payment of “MANUFACTURING LICENSE FEE”. The firmware (embedded software executable) would be distributed against payment of per unit “FIRMWARE LICENSE FEE”. However, diagnostic software would be provided as part of the hardware technology know-how to enable testing, debugging and validation of the assembled units.
2. For Category H products MANUFACTURING LICENSE FEE and FIRMWARE LICENSE FEE structure would be decided by C-DAC, from time-to-time, through due process and shall be available to any of the shortlisted firms against formal request.

3. Any of the short-listed firms can acquire the MANUFACTURING KNOW-HOW, for each of the Category H products, by signing respective ToT Agreements with C-DAC and paying the “MANUFACTURING LICENSE FEE, as applicable, as per the procedure given in Clause 4 below. Firms that sign such ToT agreement shall become ToT partners of C-DAC for that product. Such firms would be free to offer the said Category H product in their proposals and bids within the entire period for which the ToT Agreement is valid.
4. The MANUFACTURING LICENSE FEE for a product shall be revised at least every FIVE YEARS. The FIRMWARE LICENSE FEE for a product shall be revised at least every THREE YEARS, and would be promptly intimated to the existing ToT partners for that product. (These revisions DO NOT COVER PRODUCT UPGRADES. The MANUFACTURING LICENSE FEE and FIRMWARE LICENSE FEE for product upgrades will be decided afresh and would also be intimated to existing ToT partners for that product.)
5. The MANUFACTURING LICENSE FEE shall be payable as follows. For products with MANUFACTURING LICENSE FEES less than Rs. 25,00,000.00 (Rupees Twenty-five Lakhs), the first instalment of 25% (Twenty-Five percent) shall be payable at the time of signing of the ToT Agreement (template to be provided later as indicated in Section 5.2 of this RFP). The second instalment of 50% (Fifty percent) shall be payable at the time of transfer of documentation and material as outlined in Schedule I (Annexure – III) of the ToT Agreement. The third instalment of 25% (Twenty-five percent) shall be payable at the time of transfer of documentation and material as outlined in Schedule II (Annexure – III) of the ToT Agreement. For products with MANUFACTURING LICENSE FEES of Rs. 25,00,000.00 (Rupees Twenty-Five Lakhs) or more, the first instalment of 15% (Fifteen percent) shall be payable at the time of signing of the ToT Agreement. The second instalment of 60% (Sixty percent) shall be payable at the time of transfer of documentation and material as outlined in Schedule I (Annexure – III) of the ToT Agreement. The third instalment of 25% (Twenty-five percent) shall be payable at the time of transfer of documentation and material as outlined in Schedule II (Annexure – III) of the ToT Agreement. Firms signing the ToT Agreements within 3 months from the date of announcement of the offer for ToT for the said product would be considered as “early birds” and would be offered a 10% discount on the MANUFACTURING LICENSE FEE. In such cases, the deduction would be carried out in the first instalment of the MANUFACTURING LICENSE FEE.
6. In case, any of the shortlisted firms wants to formally propose a Category H product against tenders or RFPs, prior to signing a formal ToT Agreement, they would be permitted to do so on the following conditions: (a) a formal written consent to be obtained from C-DAC expressly for the purpose and (b) against furnishing a Bank Guarantee for an amount equal to the first instalment of the MANUFACTURING LICENSE FEE for that product, as described in the above Clause. If the firm fails to sign the ToT Agreement and pay the first instalment of the MANUFACTURING LICENSE FEE for that product as described above within SIX MONTHS, the Bank Guarantee would be encashed by C-DAC and the amount shall be adjusted against the first instalment of MANUFACTURING LICENSE FEE at the time of signing the ToT Agreement. However, if the firm fails to sign a ToT Agreement within TWO YEARS, the amount realised through the Bank Guarantee shall be unconditionally forfeited by the firm.

7. The terms and conditions listed herein as well as stated in the ToT Agreements together constitute the complete set of terms and conditions for ToT process. If there are any contradictions between the documents on any specific points, the ToT Agreements shall take precedence.
8. After having entered into ToT Agreement for one or more of the product(s) as described in the previous clause, a firm can acquire the required number of FIRMWARE LICENSES for the same product(s) by following the prescribed procedure, which includes payment of FIRMWARE LICENSE FEE, as applicable. The FIRMWARE LICENSE FEE structure for the relevant product(s) would be intimated to the ToT partners for that product.
9. The ToT partner can obtain required firmware from C-DAC and get them activated on payment of the FIRMWARE LICENSE FEE as applicable.
10. C-DAC, at its sole discretion, may offer suitable volume discounts on FIRMWARE LICENSE FEES in the interest of proliferation of CTN technology. However, this would be based on the nature, complexity & deployment potential of the specific product and also based on the market situation & external factors.
11. A single session training programme, with duration up to a maximum of 5 days, will be offered within ONE YEAR from the commencement of the ToT, to a group of up to ten authorized employees, of the ToT partner or their representatives, possessing the requisite qualification and experience. The training fee is included in the MANUFACTURING LICENSE FEE. However, the ToT partner shall arrange for the travel and accommodation of their personnel at their own expenses. Additional training, limited to two training sessions (each of duration up to a maximum of 5 days) per year, can be offered based on request from ToT partners on payment of separate training fees. The ToT partner shall arrange for the travel accommodation of their personnel at their own expenses. Requests for trainings outside C-DAC premises shall not generally be entertained and would be at the discretion of C-DAC. In such cases the ToT partner, at their expenses, shall arrange for the travel and accommodation and other related expenses of C-DAC personnel, in addition to the training fees.
12. C-DAC shall support the ToT partner for a period of TWO years from commencement of the ToT in production related activities by way of answering technical queries through e-mails or phone calls. In exceptional cases, modules or subsystems may be brought to C-DAC for inspection and trouble shooting. This would, however, be only with prior appointment and on payment basis (lab usage charges). The support period can be extended on yearly basis through separate agreements.
13. Maintenance and customer support for the products, in general, shall be the responsibility of the ToT partner. However, C-DAC shall give support to the ToT partner, by way of answering technical queries, during the specified support period defined by Clause 10 of this section.
14. Obsolescence management shall be the responsibility of C-DAC during the support period and shall be free of cost. Beyond the support period C-DAC support for obsolescence management may be extendable on yearly basis, on mutually agreed terms, throughout the product life cycle.

15. Product upgrades, involving major revision of the hardware, would be offered as part of revised portfolio, by initiating fresh ToT cycles. However, existing ToT partners possessing the know-how for a previous version of the product would be offered a discount on the MANUFACTURING LICENSE FEE applicable for the fresh ToT cycle. FIRMWARE LICENSE FEE shall also be revised for product upgrades, which will be applicable uniformly for all ToT partners.
16. No separate ToT/Licensing cycle would be initiated for upgrades in firmware alone. However, upgrades may generally be accompanied by a revision of the FIRMWARE LICENSE FEE applicable for the particular product. The licensing partner may procure the license for the upgrade or previous version of the firmware by paying the respective license fees. Bug fixes and patches would not be considered as upgrades and would be made available free of cost.
17. If C-DAC decides to withdraw from further development and/or support of any product in this category, all source files (including those of hardware and firmware), shall be made available to the existing ToT partners for the given product at that point of time against a one-time payment. The payment structure will be intimated to all ToT partners for that product.

Terms and Conditions specific to Category HA products

18. The ToT partner is permitted to customize the design for improving the usability/ruggedness or to impart product/brand individuality. However, any such modification shall be done only with prior written approval of C-DAC. Any such modification (a) shall not degrade the performance, reliability or usability of the system, and C-DAC shall not be responsible for any resultant degradation that may happen (b) shall not obliterate C-DAC's credits on the body of the product(s) and (c) shall not change C-DAC's right over the technology licensed.
19. C-DAC shall provide User Manual for each product. However, the ToT partner would be responsible for modifications in the User Manual necessitated by modifications as listed in Clause 18 above. The User Manual, if modified, shall be distributed only with prior written approval from C-DAC.

Terms and Conditions specific to Category HM products

20. The ToT partner shall take the responsibility of ruggedizing and packaging (including EMI/EMC, environmental and any other consideration) as required. This work shall be carried out in consultation or in partnership with C-DAC. Extra effort required from C-DAC for incorporating modifications would be chargeable based on mutually agreed terms.
21. C-DAC shall provide a reference User Manual for each product. However, the ToT partner would be responsible for preparation of the User Manual for distribution, taking into account modifications during product engineering, packaging and so on. This User Manual shall be distributed only with prior written approval from C-DAC.

III. Licensing for Category S products

1. Software products (running on COTS platforms) would be available for distribution/deployment against per node "SOFTWARE LICENSE FEE", as applicable.
2. SOFTWARE LICENSE FEE structure for each Category S product would be decided by C-DAC and would be intimated to all ToT partners of C-DAC (as defined in Clause 3 of Section II).
3. These amounts are likely to be revised every financial year. Such revisions in SOFTWARE LICENSE FEE, if any, shall be intimated to the ToT partners in writing.
4. Any other firm shortlisted as per clause 4 in Section I, may also acquire the required number of licenses for selected Category S products against payment of SOFTWARE LICENSE FEE. However, the SOFTWARE LICENSE FEE in such case would be intimated only against a formal request and the same would be charged at least 20% above the prevailing SOFTWARE LICENSE FEES applicable to the ToT partners. Firms that procure such License(s) shall be deemed as Licensees of C-DAC for that product.
5. ToT partner and Licensees can obtain required software from C-DAC and get them activated on payment of the License fee as applicable.
6. C-DAC, at its sole discretion, may offer suitable volume discounts on SOFTWARE LICENSE FEES in the interest of proliferation of CTN technology. However, this would be based on the nature, complexity & deployment potential of the specific product and also based on the market situation & external factors.
7. Upgrades of the software would generally be accompanied by a revision of the license fee applicable for the particular software product. No fresh Licensing cycle would be initiated for upgrades. The licensing partner may procure the license for the upgrade or for the previous versions of the software by paying the respective license fees. However, updates of the software (bug fixes, patches etc.) would be made available free of cost.
8. C-DAC shall support the ToT Partner / Licensee for a period of ONE year from procurement of each license by way of answering technical queries through e-mails or phone calls. The support period can be extended on yearly basis through separate agreements and on payment basis.
9. Training programmes (on products for which partner has taken License for), limited to two training sessions (each of duration up to a maximum of 5 days) per year, can be offered based on request from ToT Partner / Licensee on payment of separate training fees. However, the ToT Partner / Licensee shall arrange for the travel accommodation of their personnel at their own expenses. Requests for trainings outside C-DAC premises shall not generally be entertained and would be at the discretion of C-DAC. In such cases the ToT Partner / Licensee shall arrange for the travel, accommodation and other related expenses of C-DAC personnel at their expenses, in addition to the training fees.

10. Maintenance and customer support for the products, in general, shall be the responsibility of the Licensing partner. However, C-DAC shall give support to the ToT Partner / Licensee, by way of answering technical queries, during the specified support period defined by Clause 8 of this section.
11. C-DAC shall provide User Manual for each product.
12. If C-DAC decides to withdraw from further development and/or support of any product in this category, all source files for software shall be made available to the existing ToT Partners / Licensees for the given product at that point of time against a one-time payment of a SOURCE CODE FEE, which will be intimated to all existing ToT Partner / Licensee Licensees for that product.
13. Penalty for Use of Undue Influence: The applicants undertakes that they have not given, offered or promised to give, directly or indirectly, any gift, consideration, reward, commission, fees, brokerage or inducement to any person in service of C-DAC or otherwise in procuring the Contract/Agreement or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the Contract/Agreement or any other contract/agreement with the Government of India for showing or forbearing to show favour or disfavour to any person in relation to the Contract/Agreement or any other contract/agreement with the Government of India. Any breach of the aforesaid undertaking by the applicant or anyone employed by him or acting on his behalf (whether with or without the Knowledge of the applicant) or the commission of any offence by the applicant or anyone employed by him or acting on his behalf, as defined in Chapter 9 of the Indian Penal Code, 1860 or the Prevention of Corruption Act 1986 or any other Act enacted for the prevention of corruption shall entitle C-DAC to cancel the contract/agreement and all or other contract/agreements with the applicant and recover from the applicant the amount of any loss arising from such cancellation. A decision of C-DAC to the effect that a breach of the undertaking had been committed shall be final and binding on the applicant, giving or offering of any gift, bribe or inducement or any attempt at any such act behalf of the applicant towards any officer/employee of C-DAC or to any other person in a position to influence any officer/employee of C-DAC for showing any favour in relation to this or any other contract/agreement, shall render the applicant to such liability/penalty as C-DAC may deem proper, including but not limited to termination of the contract/agreement, imposition of penal damages, and refund of the amount paid by C-DAC.
14. Avoidance of Corrupt or Fraudulent Practices
 - a. It is expected that the applicants who wish to propose for this project have highest standards of ethics.
 - b. C-DAC will reject proposal if it encounters that the applicant recommended for award of contract has engaged in corrupt or fraudulent practices while competing for this contract;
 - c. C-DAC may declare the applicant ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the applicant has engaged in corrupt and fraudulent practices during the award/execution of contract.

ANNEXURE I

Information on Products listed for ToT/Licensing

I. Xtreme TETRA Base Station [Category – HA]

Xtreme TETRA Base Station is a high capacity, scalable base station which can be configured up to 8 carriers. The base station is capable of transmitting up to 40W per carrier. It can be powered from AC mains as well as from 48V DC. Its diversity reception feature enhances area of coverage. The modular design provides flexibility and cost saving without compromising the performance. The base station is available in two different models which supports up to maximum four carriers and eight carriers respectively.

Features

- High power, high capacity
- Enhanced coverage with Dual Diversity
- Fast call setup
- All type of calls - Simplex, Duplex, Group, Broadcast and Circuit Mode Data
- Late Entry, Priority Group Scanning
- Call pre-emption, priority calls, emergency calls
- Individual/Group messaging services like SDS-TL, SDS Type1/Type2/Type3, and Predefined/User-defined Status messages etc.
- Supplementary services like Late Entry, Call Authorized by Dispatcher, Ambience Listening, Discreet Listening, Dynamic Grouping (DGNA) etc.
- Mutual Authentication
- Air Interface Encryption (AIE) – Class 3 with fallback option to Class 1
- Standard TEA1 air interface encryption algorithm with option for porting proprietary encryption algorithms
- Fast and easy configuration and installation
- Scalability from 1 to 999 base stations in a network
- Support for both standalone and network mode operation
- Simple IP interface to connect to other infrastructure elements in C-DAC TETRA Network
- Distributed database with flexible soft switching
- Intelligent fallback modes
- Built-in resilience for IP connectivity
- Remote Monitoring – Efficient performance/health monitoring from remote station

Specifications

Standard	TETRA V+D Air Interface ETS 300 392 – 2
Frequency Band	380 to 390 MHz / 410 to 420 MHz (Reception)
	390 to 400 MHz / 420 to 430 MHz

	(Transmission)
Duplex Spacing	10 MHz
Carrier Separation	25 kHz
Channel Data Rate	36 kbps
Speech Code Rate	4.8 kbps
Modulation	Pi/4 DQPSK
Access Method	TDMA with 4 time slots
User Data Rate	7.2 kbps per time slot
Protected Data Rate	2.4 kbps and 4.8 kbps
Tx. Power	Power Class 1 (Configurable up to 40 W per carrier)
Carrier Support	Configurable from 1 to 8 carriers
Receiver Sensitivity	-115 dBm
Trunking	Message Trunking
Power Supply	48V DC, 85 - 264 V AC, 50/60 Hz
Power Consumption	2.6 KW (4 carriers)
Dimension in mm (WxDxH)*	600x800x1375 (4 carriers)
Weight (without combiner rack)	~ 130 kg (4 carriers)
Operating Temperature	-20 to 55 °C

* - Actual size may vary

II. Portable TETRA Base Station [Category – HA]

Portable TETRA Base Station (PTBS) is the portable version of TETRA Base Station. As it can be mounted on a vehicle and can be operated from a battery, PTBS is very much suitable for quick deployment at an emergency/disaster site. It accommodates all the features of XTBS except that it supports lesser number of carriers and can radiate up to a maximum power of only 15 W when run in single carrier mode. The most important feature of PTBS is that it incorporates the state of the art Multi-Carrier Power Amplifier (MCPA) technology.

Features

- Can be placed inside a vehicle
- Fast call setup
- All type of calls - Simplex, Duplex, Group, Broadcast and Circuit Mode Data
- Late Entry, Priority Group Scanning
- Call pre-emption, priority calls, emergency calls
- Individual/Group messaging services like SDS-TL, SDS Type1/Type2/Type3, Pre-defined/User-defined Status messages etc.
- Supplementary services like Late Entry, Call Authorized by Dispatcher, Ambience Listening, Discreet Listening, Dynamic Grouping (DGNA) etc.
- Mutual Authentication
- Air Interface Encryption (AIE) – Class 3 with fallback option to Class 1

- Standard TEA1 air interface encryption algorithm with option for porting proprietary encryption algorithms
- Fast and easy configuration and installation
- Support for both standalone and network mode operation
- Simple IP interface to connect to other infrastructure elements in C-DAC TETRA Network
- Distributed database with flexible soft switching
- Intelligent fallback modes
- Built-in resilience for IP connectivity
- Remote Monitoring – Efficient performance/health monitoring from remote station

Specifications

Standard	TETRA V+D Air Interface ETS 300 392 – 2
Frequency Band	380 to 390 MHz / 410 to 420 MHz (Reception)
	390 to 400 MHz / 420 to 430 MHz (Transmission)
Duplex Spacing	10 MHz
Carrier Separation	25 kHz
Channel Data Rate	36 kbps
Speech Code Rate	4.8 kbps
Modulation	Pi/4 DQPSK
Access Method	TDMA with 4 time slots
User Data Rate	7.2 kbps per time slot
Protected Data Rate	2.4 kbps and 4.8 kbps
Tx. Power	Single carrier mode - Configurable up to 15 W
	2 carrier mode - Configurable up to 5 W per carrier
Carrier Support	Configurable up to 4 carriers, with reduced power
Receiver Sensitivity	-115 dBm
Trunking	Message Trunking
Power Supply	Default 24 V DC. 85 - 264 V AC, 50/60 Hz available with external power converter.
Power Consumption	280 W
Dimension in mm (WxDxH) *	553x500x420
Weight	~ 20 kg
Operating Temperature	-20 to 55 °C

* Actual size may vary

III. Micro TETRA Base Station [Category – HA]

The Micro TETRA Base Station (MTBS) is the smallest among the three variants of C-DAC TETRA Base Stations. It uses Multi-Carrier Power Amplifier (MCPA) technology and has maximum transmission power capability of 6.3 W when run in single carrier mode. The base station is designed for both indoor

and outdoor deployment. It can also be mounted on a vehicle and can be used for mission critical operations.

Features

- Micro form factor
- IP65 rated
- Suitable for indoor and outdoor deployment
- Fast call setup
- All type of calls - Simplex, Duplex, Group, Broadcast and Circuit Mode Data
- Late Entry, Priority Group Scanning
- Call pre-emption, priority calls, emergency calls
- Individual/Group messaging services like SDS-TL, SDS Type1/Type2/Type3, Pre-defined/User-defined Status messages etc.
- Supplementary services like Late Entry, Call Authorized by Dispatcher, Ambience Listening, Discreet Listening, Dynamic Grouping (DGNA) etc.
- Mutual Authentication
- Air Interface Encryption (AIE) – Class 3 with fallback option to Class 1
- Standard TEA1 air interface encryption algorithm with option for porting proprietary encryption algorithms
- Fast and easy configuration and installation
- Support for both standalone and network mode operation
- Simple IP interface to connect to other infrastructure elements in C-DAC TETRA Network
- Distributed database with flexible soft switching
- Intelligent fallback modes
- Built-in resilience for IP connectivity
- Remote Monitoring – Efficient performance/health monitoring from remote station

Specifications

Standard	TETRA V+D Air Interface ETS 300 392 – 2
Frequency Band	380 to 390 MHz / 410 to 420 MHz (Reception)
	390 to 400 MHz / 420 to 430 MHz (Transmission)
Duplex Spacing	10 MHz
Carrier Separation	25 kHz
Channel Data Rate	36 kbps
Speech Code Rate	4.8 kbps
Modulation	Pi/4 DQPSK
Access Method	TDMA with 4 time slots
User Data Rate	7.2 kbps per time slot
Protected Data Rate	2.4 kbps and 4.8 kbps
Tx. Power	Single carrier mode - Configurable up to 6.3 W 2 carrier mode - Configurable up to 2.5 W per carrier

Carrier Support	Configurable up to 4 carriers, with reduced power
Receiver Sensitivity	-115 dBm
Trunking	Message Trunking
Power Supply	24V DC (default). 85 - 264 V AC, 50/60 Hz and 48V DC option available with external power converter.
Power Consumption	200 W
Dimension in mm (WxDxH)	550x340x130 (approx.)
Weight	~ 15 Kg
Operating Temperature	-20 to 55 °C

IV. ISDN/PSTN Gateway [Category – HA]

The ISDN-PSTN Gateway (IPGT) facilitates voice communication between the TETRA network subscribers and external network (ISDN, PSTN, PABX, GSM etc.) subscribers. The gateway performs the signalling conversion, protocol conversion and transcoding necessary for interconnecting the analog PSTN and digital ISDN networks with TETRA network. The Gateway can be interfaced with the PSTN exchange through E1 Interface as well as FXO interface. Gateway also provides FXS interfaces to connect to a PABX or a telephone. IPGT can be configured for up to 4 E1 lines giving a total of 120 voice channels. It also supports 8 FXO lines and 8 FXS lines. The gateway, being IP enabled, can be connected at any point in the network. The gateway allows direct dialing from TETRA subscriber to PSTN/GSM/PABX subscriber and two-stage dialing the other way.

Features

- Configurable up to 120 simultaneous calls between TETRA network & PSTN network
- 4 Standard E1 ISDN PRI interface
- 8 Telephone interface (FXS)
- 8 PSTN interface (FXO)
- 19", 2U form factor, rack mountable
- Conforms to ETSI standard
- CAD and Discreet Listening enabled
- IP enabled
- Can be connected at any point in the network
- Can have multiple IPGTs in the TETRA network
- Support for both standalone and network mode operation

Specifications

Interface	E1 ISDN PRI Q931 Protocol, FXO (PSTN Exchange)
	FXS interface (PABX/ Telephone)
	Ethernet 10/100 Mbps (Network)

Power Supply	230V AC
Power Consumption	110 W
Form Factor	2U
Weight (Approx.)	5 Kg
Operating Temperature	0 to 50°C

V. TETRA Handheld Radio [Category – HM]

C-DAC TETRA Handheld Radio (THR) is a high performance digital mobile radio designed as per the ETSI standard for professional mobile radio users. The radio design is based on high performance cutting edge devices meeting the specifications of TETRA. The design is “to be modified” in terms of packaging and ruggedizing, with due attention to EMI/EMC and environmental considerations.

Features

Basic Services

- Registration - New ITSI location update, Roaming location update, BS initiated location update, Call restoration roaming location update
- Voice Call - Duplex Call, Half-duplex Call, Group Call, Broadcast Call
- Circuit Mode Data Communication - Unprotected (7.2 kbps), Medium protected (4.8 kbps), Protected (2.4 kbps)
- Messaging - Individual SDS, Group SDS, Broadcast SDS, Pre-defined Status messages
- Authentication - MS Initiated, Mutual Authentication
- Encryption - Air Interface Encryption, End-to-end Encryption
- Security Class - Class 1, Class 3, Class 1&3
- Direct Mode Operation (DMO)
- GPS Support

Supplementary Services

- Call Identification
- Talking Party Identification
- Call Authorized by Dispatcher
- Priority Call
- Late Entry
- Pre-emptive Priority Call
- Barring of Outgoing Calls
- Barring of Incoming Calls
- Discreet Listening

- Ambience Listening
- Dynamic Group Number Assignment

Specifications

Radio Mode	TETRA TMO or DMO
Frequency range	410 - 430 MHz / 380 - 400 MHz
Power class	4 (1 Watt)
Rx Static Sensitivity	-112 dBm (min)
Rx Dynamic Sensitivity	-103 dBm (min)
Audio power	1 W
External audio in/out	3.5 mm audio jack
Microphone	Built-in electret type
Data communication	Single slot data call with data rates 2.4 kbps, 4.8 kbps and 7.2 kbps
Data interface	USB 2.0 (Virtual UART)
Human interface	Through keypad and display
Battery	3.7 V, Lithium Ion 6 Ah
Power save mode	User configurable auto sleep
Battery voltage indication	Graphical display of remaining charge
Signal level indication	-110 dBm to -48 dBm with an accuracy of +/- 4 dBm
Antenna	Detachable whip antenna
Display type	TFT LCD colour display, 240 x 320 with 8-bit resolution
Display viewing area	37 mm x 49 mm
Dimension (HxWxD)	136 mm x 54 mm x 42 mm
Weight (approx.)	350 grams (radio only) and 500 grams (with battery)
Battery charging	5 V DC @ 2A
Battery life	12 hours with 5/5/90 standard duty cycle
Talk time	more than 4 hours
Battery life time	1000 recharge cycles with capacity reduce to 60%
Operating temperature	-30 to 60 °C (targeted after final packaging)
GPS	5-10 m accuracy
Display/Language	Alphanumeric, English
Contacts list	200
Inbox size	50
Talk groups	100
Talk group scan list	100
Software upgradation	Yes
Security	Both Air Interface and End-to-End encryption

VI. TETRA Vehicle Mount/Desktop Radio [Category – HM]

C-DAC TETRA Vehicle Mount / Desktop Radio (TVMR/TDR) is a high performance digital mobile radio designed as per the ETSI standard with a maximum transmission power capability of 10W. The radio can be fitted inside a vehicle for mobile application or can be mounted on a table for stationary operations. The design is “to be modified” in terms of packaging and ruggedizing, with due attention to EMI/EMC and environmental considerations.

Features

Basic Services

- Registration - New ITSI location update, Roaming location update, BS initiated location update, Call restoration roaming location update
- Voice Call - Duplex Call, Half-duplex Call, Group Call, Broadcast Call
- Circuit Mode Data Communication - Unprotected (7.2 kbps), Medium protected (4.8 kbps), Protected (2.4 kbps)
- Messaging - Individual SDS, Group SDS, Broadcast SDS, Pre-defined Status messages
- Authentication - MS Initiated, Mutual Authentication
- Encryption - Air Interface Encryption, End-to-end Encryption
- Security Class - Class 1, Class 3, Class 1&3
- Direct Mode Operation (DMO)
- GPS Support

Supplementary Services

- Call Identification
- Talking Party Identification
- Call Authorized by Dispatcher
- Priority Call
- Late Entry
- Pre-emptive Priority Call
- Barring of Outgoing Calls
- Barring of Incoming Calls
- Discreet Listening
- Ambience Listening
- Dynamic Group Number Assignment

Specifications

Radio Mode	TETRA TMO or DMO
Frequency range	410 - 430 MHz / 380 - 400 MHz
Power class	2 (10 Watt)
Rx Static Sensitivity	-112 dBm (min)
Rx Dynamic Sensitivity	-103 dBm (min)
External audio in/out	Fist Mic / 3.5 mm audio jack
Audio power	2W (external speaker), 1.5W (fist mic speaker)
Microphone	Built-in electret type (Fist Mic), Condenser type (through 3.5 mm audio jack)
Data communication	Single slot data call with data rates 2.4 kbps, 4.8 kbps and 7.2 kbps
Data interface	USB 2.0 (Virtual UART)
Human interface	Through keypad and display
Power Source	12 V DC for vehicle mount, 230 V AC Adapter for desktop
Signal level indication	-110 dBm to -48 dBm with an accuracy of +/- 4 dBm
Antenna	Magnetic Mount
Display type	TFT LCD colour display, 240 x 320 with 8-bit resolution
Display viewing area	49 x 37 mm
Dimension (HxWxD)	60 mm x 190 mm x 142 mm
Weight (approx.)	2 kg
Operating temperature	-30 to 60 °C (targeted after final packaging)
GPS	5-10 m accuracy
Display/Language	Alphanumeric, English
Contacts list	200
Inbox size	50
Talk groups	100
Talk group scan list	100
Software upgradation	Yes
Security	Both Air Interface and End-to-End encryption

VII. TETRA Key Loader [Category – HM]

TETRA Key Loader (TKL) is a hardware device used for distributing Authentication/Encryption keys generated at Authentication Centre to all C-DAC TETRA radios in the network. The Key Loader interfaces with both C-DAC TETRA radio and Authentication Centre. It has user friendly HMI which helps operator to perform key distribution efficiently. The design is “to be modified” in terms of packaging and ruggedizing, with due attention to EMI/EMC and environmental considerations.

Features

- HMI provides simple and efficient key distribution facility.
- Store/transfer keys for both End-to-end and Air Interface Encryption.

- Multi-level security for the operator prevents unauthorized access to the device.
- Dead Battery operation.
- Reliable data backup and retrieval.

Specifications

Data interface protocol	USB 2.0
Data interface connector	USB Type A
Human interface	Through keypad and display
Display type	TFT LCD colour display, 240 x 320 with 8-bit resolution.
Battery	3.7 V, Lithium Ion 6 Ah
Power save mode	User configurable auto sleep
Battery voltage indication	Graphical display of remaining charge
Dimension (HxWxD)	135 mm x 54 mm x 42 mm
Weight	400 grams (with battery)

VIII. Radio Charging Station [Category – HA]

Radio Charging Station (RCS) is a proprietary hardware device used for charging multiple C-DAC TETRA handheld devices and batteries simultaneously. It provides six independent ports that allow fast charging of either handheld devices or batteries.

Features

- Universal input voltage (85 - 264VAC)
- Desktop design with standard charging ports and cables
- Type-C ports and cables are reversible; no longer need to flip the connector.
- LED indication for active ports
- LED indication for charging status

Specifications

AC input	85 - 264V, 2A@230VAC
Charging Ports connector	USB Type C
Charging port specification	5V DC at 2A (Max)
Number of ports	6
LED Indications	Port Active, Charging Status, System ON
Dimension (HxWxD)	47 mm x331 mm x220mm
Weight	2.3 Kg

IX. TETRA Line Station [Category – HA]

C-DAC TETRA Line Station (TLS) is a line connected user equipment in C-DAC TETRA Network that provides both voice and messaging services to the user. The device has all functionalities similar to that of a TETRA radio. Its form factor is comparable to a normal telephone and can be mounted on a wall or kept on a desktop. The device is having Ethernet interface and can be connected anywhere in the C-DAC TETRA Network. It operates from conventional AC/DC power supply. It supports both standalone and network mode of operation.

Features

Basic Services

- Voice call - Duplex call, Half-duplex call, Group call
- Messaging - Individual SDS, Group SDS, Pre-defined and User-defined Status messages
- Emergency call and messaging
- Individual calls to other external networks like PSTN, VoIP etc.
- Group calling facility with Analog Radio Network through Analog Gateway
- End-to-End Encryption support
- Support for both standalone and network mode operation
- Fast and easy configuration and installation

Supplementary Services

- Call Identification
- Talking Party Identification
- Priority Call
- Late Entry
- Pre-emptive Priority Call
- Barring of Outgoing Calls
- Barring of Incoming Calls
- Discreet Listening

Specifications

Audio power	2 W
Audio input	In-built mic, external mic, handset and headset
Audio output	In-built speaker, external speaker, handset and headset
Power consumption	5 W
Human interface	Through keypad and display
Network	Ethernet 10/100 Mbps
Power source	24 V AC/DC adapter
Display type	TFT LCD colour display, 240 x 320 with 8-bit resolution
Display viewing area (HxW)	65 mm x 48 mm

Dimension (HxWxD)	210 mm x 150 mm x 70 mm (approx.)
Weight (approx.)	2.0 kg
Operating temperature	0 to 60 °C
Display/Language	Alphanumeric, English
Ringtone	User selectable
Contacts list	200
Inbox size	50
Talk groups	100 (in network mode) 50 (in standalone mode)
Talk group scan list	100 (in network mode) 50 (in standalone mode)
Software upgradation	Yes
Security	End-to-End Encryption

X. Data Acquisition Unit [Category – HA]

The Data Acquisition Unit is an accessory hardware device which can be connected to the TETRA Mobile Station through a USB interface and can be used for acquiring data from multiple sources simultaneously. The DAU is having up to eight data acquisition ports through which it can acquire data from four or eight sources simultaneously. The data acquisition ports are full duplex RS-232 interface with standard DB-9 connector. The DAU can be configured for required baud rate, ports in use and other standard serial communication protocol parameters. Separate LED indicators are provided for showing each channel status. DAU operates on a 12 V DC.

Features

- Operates on standard 12 VDC.
- Up to 8 independent channels.
- Each channel can be configured separately.
- Separate LED indicators for each channel
- USB 2.0 interface for radio connection

Specifications

Power input	12 V DC
Radio connectivity	USB Type A Receptacle
Data acquisition	DB9 connector, RS-232
Number of ports	Up to 8
Aggregate throughput	Up to 7.2 Kbps
Dimension (HxWxD)	50 mm x 400 mm x 150 mm
Weight	1 Kg

XI. Base Station Terminal [Category – S] (Free of cost with XTBS/PTBS/MTBS in Network Mode)

Base Station Terminal (BST) is the graphical user interface for C-DAC TETRA Base Station when run in network mode. The software, which runs on a desktop PC, monitors the functioning of the base station from a remote location. It has a user-friendly, interactive graphical interface that helps the base station operator to monitor the call proceedings, subscriber registrations, channel status, health of different modules within the base station etc. It is also used to configure the different hardware modules within the base station. It has two mode of operation viz. Normal User and Administrative User.

Features

- Does the configuration of TETRA base station
- Real-time display of all radio registrations and calls happening in the base station
- History of all registrations, calls and messages happened in the base station
- Search facility on the history of registrations, calls and messages
- Monitors and displays health parameters of various hardware modules of base station
- Live graphical display of signal strength of all channels in base station
- Facility to test various modules of the base station
- Reporting of errors and emergency messages
- Two types of operator modes viz. Normal User and Administrative User

System Requirements

Computer Type	Desktop PC / Laptop
Operating System	Microsoft Windows 7 or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB or above
Hard Disk	500 GB or above
Network	Ethernet 10/100 Mbps

XII. Standalone System Manager [Category – S]

Standalone System Manager (SSM) is the integrated graphical user interface for C-DAC TETRA infrastructure elements viz. Base Station, ISDN-PSTN Gateway, VoIP Gateway, Voice Logger, Desktop User Terminals and TETRA Line Stations when run in standalone mode. It allows user to configure all the above elements and also shows their running status in real-time. It also configures Dispatcher User Terminals in Standalone mode. It also shows live subscriber registrations, calls, channel status and health status of different modules of standalone components.

Features

- Does the configuration of TETRA Base Station, ISDN-PSTN Gateway, VoIP Gateway and Voice Logger in standalone mode
- Configures Dispatcher User Terminals in Standalone mode
- Real-time display of all subscriber registrations and calls

- Monitors and displays health parameters of various hardware modules
- Reporting of errors and emergency messages

System Requirements

Computer Type	Desktop PC / Laptop
Operating System	Microsoft Windows 7 or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB or above
Hard Disk	500 GB or above
Network	Ethernet 10/100 Mbps

XIII. Central Base Station Controller [Category – S]

The Central Base Station Controller (CBSC) acts as the network management server of C-DAC TETRA Network. It holds the entire database of the network and does the administration and maintenance of all components as well as subscribers in the network. However the network is not at all dependent on the CBSC for its functioning. In the event of an unlikely failure of CBSC, the TETRA network will continue to work using the distributed database available with different Base Stations and Gateways. TETRA Network Manager (TNM) software is the front-end Graphical User Interface for CBSC. It provides user the facility to efficiently manage, monitor and maintain each component/subscriber in the network. It also provides the user multiple search facility for easy retrieval of historical data. Using this application, the administrator can log in to the network directly from the CBSC server or from a remote PC where TNM is installed. CBSC is not required when CTN is configured in standalone mode.

Features

Configuration Management

- Configures Base Stations, Gateways, Dispatchers etc. from remote location
- Central Database Repository
- Database Management
- Report Generation
- Offline and Online monitoring of network events
- Exporting/importing of database

Subscriber Management

- Addition and Deletion of Subscribers
- Hierarchical distribution of subscribers
- Supports a maximum of 16 organizations, each with a maximum of 1024 departments
- Inter-organizational and intra-organizational privileges
- Modification of user attributes/profiles

- Call Group management
- Enabling/Disabling of TETRA radios
- Provide, modify or withdraw services
- Offline and online monitoring of subscriber activities
- Registration Data Record, Call Data Record and Message Data Record
- Multiple search facility on historical data
- Backup and retrieval of history data

System Requirements

Central Base Station Controller (CBSC)

Computer Type	Server
Operating System	Microsoft Windows 2016 or above
CPU	Intel/AMD Quad-core Processor, 2 GHz or above
Memory	8 GB
Hard Disk	500 GB or above
Network	Ethernet 10/100 Mbps

TETRA Network Manager (TNM)

Computer Type	Desktop PC*
Operating System	Microsoft Windows 7 professional or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500 GB or above
Network	Ethernet 10/100 Mbps

* Separate computer is required only if TNM is run from a machine other than CBSC

XIV. Dispatcher Workstation [Category – S]

TETRA Dispatcher Workstation (DWS) is a software application that provides Dispatcher users the facility to manage, supervise and control the TETRA radio subscribers of an organization. In addition to the subscriber management capability, it also possesses all the communication features that of a normal TETRA radio. Being the only element in the TETRA network, capable of executing certain unique supplementary services like Dynamic Group Number Assignment (DGNA), Ambience Listening, Discreet Listening and Call Authorized by Dispatcher (CAD), Dispatcher is one of the most powerful components in the network. It could be the nodal point at the time of emergency and could act as the first contact point during emergency situations.

A Dispatcher has three levels of users, viz. Normal User, Administrative User and Super User. A TETRA network can have multiple Dispatchers at different locations as per the requirement.

Features

- Simplex Call, Duplex Call, Group Call, Broadcast Call, Priority Call, Emergency Call

- Individual calls to other external networks like PSTN/PABX, VoIP etc.
- Group calling facility to legacy analog networks through Analog Gateway
- Individual and Group messaging
- Live subscriber registration monitoring, call monitoring and message monitoring
- Live voice interception (Discreet Listening) of all calls in TETRA network
- Ambience Listening
- Dynamic grouping and ungrouping of subscribers
- Call Authorized by Dispatcher (CAD)
- Calling Party and Cell identification
- Talking Party and Cell identification
- Live location tracking of each TETRA subscriber
- TETRA subscriber management
- Call group management
- TETRA subscriber kill/stun facility
- Multi-level dispatcher users
- Automated distress call support
- User friendly GUI for easy operation
- Can have multiple dispatchers in TETRA network
- Support for both standalone and network mode operation

System Requirements

Computer Type	Desktop PC
Operating System	Microsoft Windows 7 professional or above
CPU	Intel/AMD Dual-core Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500 GB or above
Audio	Headset or external speaker and mic
Network	Ethernet 10/100 Mbps

XV. Desktop User Terminal [Category – S]

TETRA Desktop User Terminal (DUT) is also a GUI based application software which does all the functionalities similar to TETRA Line Station but runs on a desktop PC or laptop. It possesses all the communication features that of a normal TETRA radio. A TETRA network can have multiple Dispatcher User Terminals at different locations as per the requirement.

Features

- Simplex Call, Duplex Call, Group Call, Broadcast Call, Priority Call, Emergency Call
- Individual calls to other external networks like PSTN/PABX, VoIP etc.
- Group calling facility to legacy analog networks through Analog Gateway
- Individual and Group messaging
- Calling Party identification
- Talking Party identification
- Live geographical location tracking of each TETRA subscriber
- User friendly GUI for easy operation
- Can have multiple Dispatcher User Terminals in TETRA network
- Support for both standalone and network mode operation

System Requirements

Computer Type	Desktop PC / Laptop
Operating System	Microsoft Windows 7 professional or above
CPU	Intel/AMD Dual-core Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500 GB or above
Audio	Headset or external speaker and mic
Network	Ethernet 10/100 Mbps

XVI. SIP Gateway [Category – S]

The SIP Gateway (SIPGT) is a Voice over IP gateway based on SIP protocol which interfaces the SIP telephone network with TETRA network. It does the conversion of TETRA protocol data to SIP and vice versa.

Features

- Supports SIP version 2.0 and TETRA ETS 300 392 -2
- IP enabled
- Can be connected at any point in the network
- Provides communication between TETRA and VoIP phones using SIP Protocol
- Does the conversion of speech data from G711/G729 to ACELP and vice versa.
- Authentication support
- Handles simultaneous calls
- CAD and Discreet Listening enabled
- Support for both standalone and network mode operation

System Requirements

Computer Type	Server/Industrial PC
Operating System	CentOS 7.4 or above
CPU	Intel/AMD Dual-core Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500 GB or above
Network	Ethernet 10/100 Mbps

XVII. Analog Gateway [Category – HA]

Analog Gateway (AGT) facilitates communication between radios in Analog network with TETRA radios in C-DAC TETRA Network. The gateway consists of a server, with Analog Gateway software running, connected to Analog radio through the Analog Radio Interface Unit (ARIU). ARIU is a wired device that interconnects the third-party analog radios with server and works on the DC supply provided by Analog Radio. The device handles the exchange of audio (Analog) between the Analog Radio and the Analog Gateway server. This device accepts commands and controls from Analog Gateway server through a USB interface via a conventional micro USB cable.

Features

- Group calls initiated from TETRA network are propagated to Analog network by controlling PTT signal to Analog radio
- Call activity on analog network is detected through Carrier Sense signal from Analog radio and establishes group call in TETRA network.
- Does the conversion of speech data from PCM to ACELP and vice versa.
- Being IP enabled, can be connected at any point in the network.
- Support for both standalone and network mode operation

System Requirements

Computer Type	Server/Industrial PC
Operating System	Microsoft Windows 2016/Windows 7 professional or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500 GB or above
Audio	Line in and Line out
USB	USB 2.0 or above
Network	Ethernet 10/100 Mbps

ARIU Specification

Audio Power (3.5mm Jack)	100 mW
Audio Output (Analog Radio)	200 mW (Typical)

Audio Input (Analog Gateway Server)	3.5 mm Audio Jack
Audio Output (Analog Gateway Server)	3.5 mm Audio Jack
Control Interface	Micro USB
Power Source	12 VDC through DB-15 Connector
Status Indicators	LED Green, 4 Numbers
LED Indications	<ol style="list-style-type: none"> 1. Power On 2. USB Connected 3. Analog Carrier Detection 4. PTT Actuation
Dimension (HxWxD)	28 mm x 74 mm x 90 mm
Weight (Excluding cables)	200 grams
Operating Temperature	0 to 60 degrees
Radio Interface	DB-15 Connector

XVIII. Voice Logger [Category – S]

TETRA Voice Logger (VL) is a multi-channel voice-logging tool that allows user to automatically record all calls routed from analog, digital and VoIP lines in the TETRA Network. It has a graphical user interface (GUI) through which the administrator can configure the required parameters. Features of the GUI include advanced search features, backup/restore features, voice format conversion and multimedia operations.

Features

- Access Control/Data Security
- Blind Recording
- Multi-Channel Support
- Advanced Search
- Multimedia features
- Backup & Restore
- Remote Access
- Support for both standalone and network mode operation

System Requirements

Computer Type	Server
Operating System	CentOS 7.4 or above
CPU	Intel/AMD Dual-core Processor, 2 GHz or above
Memory	4 GB
Hard Disk	1TB or above
Audio	Speaker, Headset
Network	Ethernet 10/100 Mbps

XIX. Voice Logger Remote Client [Category – S]

Voice Logger Remote Client (VLRC) is an authorized client software that can access the Voice Logger database remotely and do multimedia operations, voice format conversion, stored voice data playback etc. As the communication between Voice Logger server and remote client is through IP it can be connected anywhere in the network.

Features

- Access Control/Data Security
- Advanced Search
- Multimedia features
- Backup & Restore

System Requirements

Computer Type	Desktop PC
Operating System	Microsoft Windows 7 professional or above (Windows version), CentOS 7.4 or above(Linux version)
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500GB or above
Audio	Speaker, Headset
Network	Ethernet 10/100 Mbps

XX. Geographical Information System [Category – S]

Geographical Information System (GIS) is a server application that stores the geographical map information of locations where the TETRA radios are deployed. This server provides necessary information to Dispatcher Workstations and Dispatcher User Terminals to perform real-time location monitoring of all TETRA subscribers in the network.

Features

- Multi-layer
- Digital vector map
- Higher zoom levels
- Advanced search facility
- AJAX enabled
- Support for both standalone and network mode operation

System Requirements

Computer Type	Server
Operating System	CentOS7.4 or above
CPU	Intel/AMD Quad-core Processor, 2 GHz or above
Memory	8 GB
Hard Disk	1 TB or above
Network	Ethernet 10/100 Mbps

XXI. Authentication Centre [Category – S]

The main function of the Authentication Centre (AC) is to ensure secure communication within the TETRA network. It generates and stores the keys of all subscribers in the network. It does the authentication of all subscribers in the network during registration. It also enables base station to carry out air interface encryption when the base station run in encrypted mode. It has a Key Loading Device interface through which C-DAC TETRA Key Loader can be connected and keys can be downloaded for distribution to radio terminals. It also supports import and export of subscriber keys as per TETRA SFPG Recommendation 01.

Features

- Being IP enabled, can be connected at any point in the TETRA network
- Support for both standalone and network mode operation
- Supports Class 3 Security with Authentication
- Used to ensure that terminal is genuine and allowed in the network.
- Supports Mutual Authentication, which ensures that in addition to verifying the terminal, the network can be trusted.
- Authentication requires both network and terminals have proof of secret key
- Import/export of subscriber keys (radios of other vendors) as per TETRA SFPG Recommendation 01.

System Requirements

Computer Type	Server/Industrial PC
Operating System	Microsoft Windows 2016/Windows 7 professional or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500 GB or above
USB	USB 2.0 or above
Network	Ethernet 10/100 Mbps

XXII. Data Terminal [Category – S]

Data Terminal (DT) is a software application that is used for transferring data from one C-DAC TETRA radio to another. It has a very friendly graphical user interface that provides user the facility to transfer data reliably and easy. It runs on a desktop/laptop having Windows 7 / Windows 10 operating system and it interfaces with the radio through the radio programming cable. The user can make/receive voice calls as well as do live chat in addition to the data transfer facility.

Features

- Reliable data transfer between C-DAC TETRA radios.
- Supports unprotected, semi protected and fully protected data transfer
- Can make/receive voice calls
- Live chatting facility even during data transfer

System Requirements

Computer Type	Desktop PC / Laptop
Operating System	Microsoft Windows 7 professional or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500GB or above

XXIII. Radio Programming Software [Category – S](Free of cost with Handheld/Vehicle Mount/Desktop Radio)

Radio Programming Software (RPS) is used for programming both handheld and vehicle mount / desktop TETRA radio. Using this software, radio user data as well as radio firmware can be programmed.

Features

- Radio firmware programming
- User data configuration
- Contact list, Call groups import/export

System Requirements

Computer Type	Desktop PC / Laptop
Operating System	Microsoft Windows 7 professional or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500GB or above

XXIV. TETRA Radio Encryption Algorithm Programmer [Category – S]

TETRA Radio Encryption Algorithm Programmer (TREAP) is an application software used for programming both Air Interface and End-to-end Encryption algorithm on C-DAC TETRA radios. The software allows radios to be

programmed with both standard as well as proprietary encryption algorithms.

Features

- Radio encryption algorithm programming
- Supports both standard and proprietary algorithms

System Requirements

Computer Type	Desktop PC / Laptop
Operating System	Microsoft Windows 7 professional or above
CPU	Intel/AMD Processor, 2 GHz or above
Memory	4 GB
Hard Disk	500GB or above

XXV. Data Dispatching Server [Category – S]

The Data Dispatching Server (DDS) is an application software running on a server machine which collects data sourced from various data acquisition units connected in C-DAC TETRA Network. The data received from each source is aggregated and send to a central Data Analyser (an entity external to CTN) as a User Datagram Packet (UDP) over IP network.

Features

- Receives data from multiple sources in CTN.
- Aggregates the data and dispatches to a central server.
- Interim storage of received data during connectivity error and automatic update to server on connection re-establishment.

System Requirements

Computer Type	Server
Operating System	CentOS 7.4 or above
CPU	Intel/AMD Quad-core Processor, 2 GHz or above
Memory	8 GB
Hard Disk	1 TB or above
Network	Ethernet 10/100 Mbps

Consolidated List of Products for ToT/Licensing

Sl. No.	Product	Category	ToT	Licensing
1	Xtreme TETRA Base Station	HA	Yes	Yes
2	Portable TETRA Base Station	HA	Yes	Yes
3	Micro Tetra Base Station	HA	Yes	Yes
4	ISDN/PSTN Gateway	HA	Yes	Yes
5	Radio Charging Station	HA	Yes	No
6	TETRA Line Station	HA	Yes	Yes
7	Data Acquisition Unit	HA	Yes	Yes
8	TETRA Handheld Radio	HM	Yes	Yes
9	TETRA Vehicle Mount/Desktop Radio	HM	Yes	Yes
10	TETRA Key Loader	HM	Yes	Yes
11	Central Base Station Controller	S	No	Yes
12	Standalone System Manager	S	No	Yes
13	Dispatcher Workstation	S	No	Yes
14	Dispatcher User Terminal	S	No	Yes
15	SIP Gateway	S	No	Yes
16	Analog Gateway	S	No	Yes
17	Voice Logger	S	No	Yes
18	Voice Logger Remote Client	S	No	Yes
19	Geographical Information System	S	No	Yes
20	Authentication Centre	S	No	Yes
21	Data Terminal	S	No	Yes
22	TETRA Radio Encryption Algorithm Programmer	S	No	Yes
23	Data Dispatching Server	S	No	Yes
24	Base Station Terminal*	S	No	No
25	Radio Programming Software**	S	No	No
* Free of cost with XTBS/PTBS/MTBS in Network Mode				
** Free of cost with Handheld/Vehicle Mount/Desktop Radio				

ANNEXURE II

FORMATS FOR SUBMISSION APPLICANT'S RFP (FORMAT – 1)

To
Executive Director
C-DAC, Vellayambalam
Trivandrum – 695033

**Subject: Submission of Proposal against RFP for ToT/Licensing of products under the C-DAC
TETRA Network (CTN) portfolio**

Dear Sir,

In response to the Request for Proposal for ToT/Licensing of products under the C-DAC TETRA Network (CTN) portfolio, published on C-DAC website for the above purpose, we would like to express our interest in the ToT/Licensing of the following products:

1. Name of Product #1
2. Name of Product #2
3. Name of Product #3
- ..
- n. Name of Product #n

As instructed, we attach one set of the following documents in a sealed envelope and soft copy through mail:

1. Organizational details (Format - 2)
2. Experience in related fields (Format - 3)
3. Financial strength of the organization (Format - 4)
4. Declaration (Format - 5)

Sincerely Yours,

Signature of the Competent Authority (with date)

(full name)

(designation)

Stamp & Date

Encl.: As above.

Note: This is to be furnished on the letter head of the organization.

ORGANIZATIONAL DETAILS (FORMAT - 2)

Sl. no.	Organizational Contact Details	
1.	Name of the organization/year of establishment	
2.	Main areas of work	
3.	Type of organization firm/company/partnership firm registered under the Indian Companies Act, 1956/the partnership Act, 1932 etc.	
4.	Whether the Applicant has been blacklisted by any Central Govt./State Govt./PSU/ Govt. Bodies/Autonomous/Anywhere else? If yes, details thereof.	
5.	Address of registered office with telephone no. & fax	
6.	Name of the Contact Person with Telephone No. Mobile No. Email Id	
7.	Organization chart	
8.	Registration copy with any Govt/Govt undertaking Companies (if any)	
9.	Accreditation Details ISO/CMM	

Enclose:

1. Copy of Certificate of Incorporation.
2. Copy of Article of Association in respect of #3 above.
3. Undertaking in respect of #4 above.

Signature of the Applicant / Authorized Signatory

(Full name of the Applicant / Authorized Signatory)

Stamp & Date

EXPERIENCE OF THE ORGANIZATION (FORMAT – 3)

Experience in manufacturing, deployment & support of similar products/solutions	
1.	Turnover of the firm/company over the last 3 years to be furnished. (To be supported with financial statements of accounts/Annual reports duly certified by a Chartered accountant/Balance sheet of last 3 years/Income tax returns for the last 3 years.)
2.	Company profile, giving details of current activities and management/ personnel structure including evidence of incorporation and certification (ISO or equivalent), if any.
3.	Details of absorption of technology for a product/knowhow that has been taken up on production scale in the past may also be given.
4.	Human resources available at various levels Technical: a. B.E./ B.TECH/PhD b. Diploma c. Skilled Technicians d. Unskilled Non-technical:
5.	The list of machine tools/equipment/software/facilities available with the respondent, related to the domain of this RFP
6.	The in-house technological expertise available
8.	Available space for undertaking the proposed work- covered & open, preferably with location details.
9.	List of products/technologies worked with, as regular activity in last three years. Give the list of products/technologies with general specifications and the customers' information.
10.	List of PSUs/Govt. customers – With contact details (Address, Telephone no., Contact Person).
11.	The details of sales, marketing and maintenance network.
12.	The list of technical collaborators for various ongoing products may be furnished.

Signature of the Applicant / Authorized Signatory

(Full name of the Applicant / Authorized Signatory)

Stamp & Date

FINANCIAL STRENGTH OF THE ORGANIZATION (FORMAT – 4)

Sl.No.	Financial Year	Whether profitable Yes/No	Annual net profit	Overall annual turnover
1.				
2.				
3.				

Note: Please enclose auditor's certificate in support of your claim for last three years.

Signature of the Applicant / Authorized Signatory

(Full name of the Applicant / Authorized Signatory)

Stamp & Date

DECLARATION (FORMAT – 5)

Declaration

We hereby confirm that we are interested in ToT/Licensing of products from the C-DAC TETRA Network Portfolio as per your RFP. All the information provided herewith is genuine and accurate.

Authorized Person's Signature

Name: _____

Designation: _____

Date of Signature: _____

Stamp

Note: The declaration is to be furnished on the letter head of the organization.