

REQUEST FOR TECHNICAL AND COMMERCIAL INFORMATION
FOR A WiMAX SYSTEM FOR INDIAN NAVY

1. Indian Navy solicits information for implementing a Mobile Worldwide Interoperability for Microwave Access (WiMAX) with an aim to develop, ripen and deploy broadband wireless data services using WiMAX which supports real-time services such as voice and multimedia. Indian Navy intends to deploy an end to end wireless broadband WiMAX solution which provides scalable, high-quality data services that includes both real-time services. If you have more than one the solution, then you are welcome to submit information on the product(s).

2. This document solicits Mobile WiMAX vendor information regarding compliance with critical features for a WiMAX deployment. A detailed response is essential so as to analyze the proposed solution of the vendor with regards to WiMAX deployment vis-à-vis naval requirements. The purpose of this Request for Information ("RFI") is to obtain information on the following:-

- (a) Solutions that provide broadband WiMAX to subscribers for their data, voice and multimedia services and are suitable for Sea conditions.
- (b) Detailed cost information and models, recital models, detailed architecture spec and product fruition plans.
- (c) Customisation and adaptations required for ensuring effectiveness of COTS equipment for WiMAX, in the 'Low Bandwidth and Mobile environment'.
- (d) Scrutiny of problems in building and sustaining 'Communication on the Move' information structure in varied Sea conditions.
- (e) Overall Network architecture for WiMAX Forum at 698-806 MHz.
- (f) Detailed System Design including Traffic estimates and Bandwidth requirements to support the given subscribers.
- (g) Specifications of sub systems.
- (h) Design and Specification of WiMAX Network Security implementation.
- (j) Details of Military adaption such as ruggedisation and containerization if any.
- (k) Indicative approximate costing of the system taking into account all aspects of integration, ruggedisation, containerization, as also costing of equipment proposed in the solution.

3. The basic requirements are the inputs for implementing at least a WiMAX forum compliant radio access and core architecture **that also satisfies all the relevant local regulatory requirements**. Other requirements include:-

- (a) The standards on which your system is based.

- (b) Capability to support Point to Point, Point to Multi Point and Mesh (Peer to Peer) architecture.
 - (c) Capability to support Non Line of Sight (NLOS) operation.
 - (d) Capability to provide quality of service for all applications including VoIP.
 - (e) Capability to incorporate indigenously customized Communications Security (COMSEC) modules.
 - (f) Capability to support communications on the move.
 - (g) Capability for base stations.
 - (h) Capability of subscriber stations to support fixed, vehicular and portable operating modes.
 - (j) Ruggedisation.
4. Your solution must clearly bring out the following:-
- (a) **Analysis**.
 - (i) New paradigms and problems identified in establishing and maintaining a secure WiMAX solution.
 - (ii) Major technical issues that have been identified while addressing integration of such networks.
 - (iii) Adaptations required for integration of IP PBXs, Combat Net Radio equipment etc and security equipment like IP Encryptors.
 - (b) Maximum PA power for each of your BS solutions.
 - (c) Support of fractional frequency reuse at the BS.
 - (d) List all the frequencies, band-widths and FFT at which your BS solutions can operate in.
 - (e) If your solution has features such as AAS and MIMO in your first release of the BS, please describe the implementation details behind each.
 - (f) Link adaptation at the BS.
 - (g) Power saving modes.
 - (h) **Training**.
 - (i) Training Implementation Plan.
 - (ii) Training Methodology.

(j) **Sustenance.**

(i) Lifecycle management plan for hardware and software including three years warranty, covering hardware, software and system performance. The In service life of the systems should be for ten years.

(ii) Requirement and methodology of technology refresh every four to five years during the envisaged lifetime.

(iii) Modalities of Annual Maintenance Contract with spares for Seven years post three years warranty period.

(k) **Indicative Costing.** Indicative costing of the project including setting up of the system and thereafter taking into account all aspects of integration, training, life cycle support, technology refreshes, software development and other aspects may be mentioned separately.

(l) **Time.** The overall time frame of implementation with stage wise break-up of the entire project. **A PERT chart is required in which you are required to give the complete breakdown of the timelines for completion of the entire project.**

5. You are also required to provide the following details:-

(a) Your track record in implementing a WiMAX network.

(b) Your financial capabilities.

(c) Will you be amenable to undertake trials on 'No Cost No Commitment' basis?

(d) Any queries/clarifications to this RFI may be sent, in writing , to following address within 15 days of issue of this RFI:-

Joint Director of Naval Signals (Networking)
Directorate of Naval Signals
IHQ MoD (Navy)
Room No. 33, 'C' wing Sena Bhawan
New Delhi – 110 010
Fax No. 23793056
Email ID – dnsnw-navy@nic.in

(e) The proposals should be submitted in sealed envelopes (the envelope should clearly state response to **RFI for (WiMAX)** and submitted at the address given at para 5 above by **1200 hrs on 06 Feb 12.**

(f) The solution should be given for the 700MHz band.

(g) A presentation on the subject may be sought in case it is felt that certain parameters mentioned in your RFI need further clarification.

Conditions under which this RFI is issued

6. **Government Regulations.** You are required to confirm that there are no Government restrictions or limitations in the country of the supplier or countries from which sub-components may be procured later and/or for the export of any part of the system/sub-system to India.

7. **Patent Rights/Transfer of IPRs.** You are required to confirm that there are no infringements of any Patent Rights/the Transfer of IPRs is in accordance with the laws prevailing in India/any other country from which hardware/software for the project may be required to be procured at a later date.

8. **Procurement Procedures.** Your attention is also invited to the Indian MoD procurement procedures as given in DPP 2011 (or its latest Publication). The same is available at <http://www.mod.nic.in>. Your response to this RFI should take into account relevant aspects mentioned in the DPP 2011.

9. This RFI is being issued without any financial commitment, and the Indian Navy reserves the right to change or vary any part thereof at any stage. The Indian Navy also reserves the right to withdraw the RFI should it be so necessary at any stage. Your response to this RFI will be considered to imply your agreement with all the terms and conditions stated in this RFI.

10. Indian Navy is open to suggestions of alternative implementation methodologies if found logical, technically acceptable, proven technology and proposed with all details.

11. You are at liberty to make suitable and logical technical deviations from the suggested guidelines as long as the requirements given in this RFI are satisfied. Any deviation/suggestion made should be fully justified in your response to this RFI.