

PRASAR BHARATI
(BROADCASTING CORPORATION OF INDIA)
DIRECTORATE GENERAL: ALL INDIA RADIO
(P&D UNIT)

Technical Specification for SITC of High end servers with centralized storage & Software

1. GENERAL

- 1.1 This specification is for Supply, Installation, Integration, Testing & Commissioning of hardware & software for “Radio Studio and News Room Automation” to be used at studios of 48 All India Radio stations. Out of these 48 stations, Radio Studio & News Room automation is to be provided at 36 stations (list at Annexure-I) and only Studio automation software is to be provided at rest of 12 stations (list at Annexure-II).
- 1.2 The Software should be of modular or sub modular design and based on the field-proven modern technology available in international market. It should be suitable for uninterrupted, Continuous & reliable 24x7x365 operation.
- 1.3 Only professional field proven softwares developed by reputed companies should be offered. The tenderer should provide customer reference certificate and documents in support for the offered product, having been deployed in a reputed broadcasting organization in client server networked environment having around 300 audio work stations at a single site.
- 1.4 The Hardware shall be from OEMs having ISO certifications. Hardware from Hardware Integrators will not be accepted.
- 1.5 The tenderer must submit the following documents along with the tender:
 - (a) A Clause-by-clause compliance statement as per format in Annexure-VIII, highlighting deviations, if any, on all the clauses of specification from the original software developer(s) of the offered software & OEM of the offered hardware duly signed in original. If compliance statement is incomplete or in format other than that in **Annexure-VIII**, the tender may be rejected outrightly.
 - (b) Detailed printed literature of the software & Hardware giving complete details of features and performance data.
 - (c) The quote should either be from the original Software Developer & OEM or from their authorized representative/dealer. In case, the quote is from the authorized representative/dealer, a certificate in original from the original Software Developer/OEM that the tenderer is the authorized representative/dealer for India should be enclosed with the tender.
 - (d) A copy of un-priced Bill of Material (BOM) as per Annexure-IX indicating make, model no. , complete configuration details of offered hardware & make, version no., modules details, License details etc. of offered Studio & Newsroom automation software, system software, RDBMS, Anti-virus software,

CALs etc. shall be quoted clearly. Any tender, showing ambiguity in above terms shall be treated as incomplete and it will be rejected.

- 1.6 The tenderer will be required to demonstrate the functions of the tendered System during technical evaluation in New Delhi. The tenderer will be required to arrange all necessary software & hardware for demonstration during technical evaluation. The demonstration of the system will have to be conducted with-in one month from the date of issue of Call letter which will be faxed/emailed on given telephone number/Email address. Non-compliance of demonstration within the stipulated time, will disqualify the tender.
- 1.7 Incomplete offers will be rejected out rightly.
- 1.8 The SITC work for all the stations will have to be completed within 15 months after the placement of firm order.

2. SCOPE OF THE TENDER

- 2.1 The Scope of this tender is for supply, installation, integration, testing and commissioning of "Radio Studio and News Room Automation System" including requisite hardware consisting of data/content servers, operating system and RDBMS, backup servers, software and drives, storage system, SAN and Ethernet switch etc as may be required for efficiently running all the functionality of the offered software.
- 2.2 Workstations (with specifications as given at Annexure-III & No. of workstations available at each station as given in Annexure-IV) connected in LAN Networking are available at these 48 All India Radio stations. **Any additional Hardware & system software required for efficient functioning of various features of Automation software on these workstations shall be quoted & provided by the tenderer.**
- 2.3 The transition from the existing system already running at these stations to new setup/system has to be seamless. No shutdown shall be permitted for this purpose.
- 2.4 The Bill of Material giving item-wise requirement is given at Annexure-VI.
- 2.5 All the external inputs required for the purpose of news gathering such as through VSAT, Digital receivers, ISDN/PSTN lines will be provided by All India Radio.
- 2.6 Supplied Hardware & already available workstations etc. shall be configured for efficient working of offered Automation software.
- 2.7 The Backup Server along with backup Software shall be supplied, installed and configured suitably for Data backup and Recovery. Backup policies (which may vary from station to station) are to be decided in consultation with AIR.
- 2.8 All the required cables, patch cords, mating connectors etc. required for implementation of system (including 10% extra as spares) at each station will be supplied by the tenderer.
- 2.9 The complete system shall be tested for successful operation of the Automation software.

3. STUDIO & NEWSROOM AUTOMATION SOFTWARE SPECIFICATION

3.1 General Specification:

- 3.1.1 The offered software should be scalable & work equally well in a setup of minimum 4 DAWs as well as in a large setup with 300 DAWs. It should be possible to use only Studio Automation module or only News Automation Module or both together.
- 3.1.2 The software should work in Client-server configuration. Servers shall work on Windows Server 2008/Linux/Unix OS and clients shall work on Windows 7/ Windows XP (professional) OS.
- 3.1.3 The software should be modular in design to meet the requirements of Program Production (Ingest, Audio Recording, Editing, Mixing/Effects, scheduling, Transmission/ON-AIR), News Room Automation (Ingest, Processing/Production & Transmission), Monitoring, Logging, Data Transfer, Categorization, secured storage, Archiving, Billing & Reporting .
- 3.1.4 The News automation software is to be compatible and integrated with the studio automation software package for seamless working from the same DAW.
- 3.1.5 Software shall not have any Hardware lock/Dongle.
- 3.1.6 Software should also be compatible with the following:
- Clustered enabled servers with fault tolerant RAID system.
 - Local caching of configurable duration on On-Air DAW
- 3.1.7 **Supported audio formats:** BWF, Linear Wave (.WAV), MPEG 1 Layer 2, MPEG 1 Layer 3

3.1.8 Default Audio Formats:

- 3.1.8.1 It should have MPEG 1 Layer 2 at 256 kbps as the default format of audio.
- 3.1.8.2 For recording & editing, Linear WAV formats with sampling rates of upto 96 kHz & upto 24 bit resolution should be available. However, format of such files shall be changed to system default i.e. MPEG 1 Layer 2 at 256 kbps while transferring them to content server for transmission purpose.
- 3.1.8.3 It should be possible to save file on the content server in Linear (.WAV) format for archival purpose.

3.1.9 Licensing:

- 3.1.9.1 The requirement for various Studio & Newsroom automation software modules are given in BOM (Annexure-VI) for 48 stations. The rates may be quoted for this requirement.
- 3.1.9.2 Any other module(s) required for meeting the features of specifications may also be indicated station-wise & quoted accordingly. In case, functionality of more than one Modules is met by single module, then corresponding licenses may be adjusted accordingly.
- 3.1.9.3 Tenderer shall have to supply additional licenses for the software modules on pro-rata basis for next three years.
- 3.1.9.4 The complete original software should be provided on suitable media (CD/DVD) for each station separately.
- 3.1.9.5 All the Licenses should be in the name of "ALL INDIA RADIO".

3.1.10 Security:

- 3.1.10.1 The software should offer network level security management for users, groups and folders.
- 3.1.10.2 It should be possible to assign various levels of functionality & Module access rights. User should be able to open a particular module only if he is authorized to do so based on management requirement.

3.1.11 Indian Language Support :

- 3.1.11.1 Software should support Unicode for working in Indian languages.
- 3.1.11.2 Support for third party fonts should also exist.

3.1.12 Database related Functionality:

- 3.1.12.1 A reputed RDBMS like MSSQL, DB2, Sybase, oracle etc. shall be used for storing metadata of Audio, news etc.
- 3.1.12.2 System shall provide predefined Metadata database with customizable fields so as to keep details of various recording & audio ingested. Addition/removal of metadata fields should be possible by system administrator.
- 3.1.12.3 It should be possible to search the audio as well as text on the basis of single or more Metadata field entries stored in database.
- 3.1.12.4 Support for entering Metadata in Indian Languages using UNICODE should exist.
- 3.1.12.5 It should be possible to keep record of Archived material in the database. It should be possible to re-ingest the material from archive.
- 3.1.12.6 It should be possible to keep schedule of programme to be broadcast in the database.
- 3.1.12.7 It should be possible to keep the logging information about the entire ON-AIR program, Ingested Audio, Schedules in the database for preparation of customized reports.
- 3.1.12.8 It should be possible to store all news wires, correspondent stories, fax messages, correspondent Audio reports, finished stories, final News Playout script & images in the database.

3.1.13 Transfer of existing Audio Content & Metadata to New Format

- 3.1.13.1 Presently most of the AIR's Stations are using IRS software & Virtual studio software in which Metadata is being maintained in MS-ACCESS. The tenderer shall be required to transfer the currently available audio content & Metadata to new format for reuse with this automation software. About 10000 audio records with 20-30 Metadata fields shall have to be transferred to new format at each of the station.

3.1.14 Functionality over WAN

- 3.1.14.1 It should be possible to login into software, search database for Audio & news etc and download the same over WAN connectivity using special access rights.

- 3.1.14.2 It should be possible to forward the received messages, wires, finalized scripts and Audio clips over the WAN to other remote station.

3.2 Studio Automation Software

The software should have separate Modules/Sub-Modules for meeting the following requirements:

3.2.1 Audio Ingest Module (Import)

- 3.2.1.1 File Ingest:** It should be possible to ingest audio file from Windows Compatible File system & from CD drive, Networked drive or USB connected removable disk, Secured Digital (SD) card & Web downloads.
- 3.2.1.2 CD Ingest:** Facility to ingest Audio CD Tracks and save a copy in the original as well as after conversion into system default format along with metadata in the database. CD-Extraction facility must have following features:
- Must be faster than real-time
 - Automatic level normalization
 - Creation of database entry during extraction process should be available that can be supplemented later. This entry should also become the base element for music scheduling.
- 3.2.1.3 Supported Audio Formats (as per para 3.1.7) should be ingested after conversion to system default format.
- 3.2.1.4 Module should be able to support and recognize any metadata included in the Audio file and convert it to standard Metadata of AIR.
- 3.2.1.5 User should be able to add and edit metadata at the time of ingest after proper authentication.
- 3.2.1.6 Provision for user definable kill (purging) date of ingested items shall be available.

3.2.2 Recording Module

- 3.2.2.1 It should be possible to record in mono or stereo or multi-track mode. Recording format, bit rate, sampling rate, bit depth (as per para 3.1.8.2) should be user selectable.
- 3.2.2.2 Availability of two or more virtual recorder panels each capable of manual or fully automated operation for unattended recording. Facility to connect any input / output to any of the two virtual recorders should be available.
- 3.2.2.3 Activation of automatic recording by time, Audio level or fader start, phone-in console ringtone.
- 3.2.2.4 It should have facility of PPM meter for input signal level monitoring.
- 3.2.2.5 Visual indication in waveform should be available during recording.
- 3.2.2.6 It should have facility for preview of input level before start of recording.
- 3.2.2.7 It should be possible to enter & alter the metadata when the recording is going on.
- 3.2.2.8 A hot key for metadata window popup should be available.
- 3.2.2.9 Auto trim feature to remove silence from beginning and end of a recording.
- 3.2.2.10 Facility for inserting markers during recording should exist.
- 3.2.2.11 Automatic recording should be placed in pre-designated files, so that these could be used immediately.
- 3.2.2.12 It should be possible to play and edit the file currently being recorded from the same or any other DAW in the LAN. As soon as the audio file is getting recorded, it should be accessible for playing or editing.
- 3.2.2.13 It should have facility to export files to any of the supported audio formats (as per para 3.1.7).

3.2.2.14 It should have facility of automatic saving during recording.

3.2.2.15 The software should give warning if 'Window Close button' is pressed accidentally during recording process.

3.2.3 Editing Module

3.2.3.1 The system should support non-destructive and non-linear editing.

3.2.3.2 It should be possible to drag and drop files from database, windows file manager or another application.

3.2.3.3 All editing controls should be visible on a single screen at the same time.

3.2.3.4 Standard features like Cut, Copy, Paste, Mix, Undo, Redo, Extract, and Fade-in / Fade-outs, Cross-fade, Punch IN / Punch OUT etc. should be supported.

3.2.3.5 Standard facility for conversion of file format with time stretching and pitch shifting, bit depth and sample rate conversion should be available.

3.2.3.6 Various file formats (as per para 3.1.7) should be supported.

3.2.3.7 The editing screen should be in multi-track format and have transport panel, graphic waveform display and Zoom facility for precise locations of edit points.

3.2.3.8 Display for Time indication of in/out and length of marked portion.

3.2.3.9 Monitoring of pre-roll, post-roll and continuous play of marked portion should be possible.

3.2.3.10 The following features should be provided

a. User defined filters for reduction/removal of clicks, pops, crackling general noise reduction, Hum & Hiss.

b. Amplitude Control: level increase, decrease, volume maximization/normalization.

c. Phase: Facility of phase inversion and reversal.

d. Insertion of various effects from other sources/files.

3.2.3.11 Voice-over recording facility with editing level control feature should be available.

3.2.3.12 It should be possible to save edited audio along with metadata into database.

3.2.3.13 It should be possible to play multiple-tracks after mixing, selected audio portion or single track. It should also be possible to Play between & after selection, beginning & end of selection & Play over a selection and play a selection in loop.

3.2.4 Database Audio Explorer/Search Module

3.2.4.1 Module should support intelligent search for browsing, selection, scheduling of audio content on the basis of metadata field(s) attached to the audio content.

3.2.4.2 It should be possible to have instant access to content on the basis of various categories & sub-categories subject to access rights.

3.2.4.3 The software should provide a convenient display, similar to that of windows explorer.

3.2.4.4 It should be possible to view metadata of the audio content.

3.2.4.5 It should be possible to listen to Audio files from explorer module for pre-listening.

3.2.4.6 The fields of the explorer window should be customizable.

3.2.4.7 Audio search facility should be available in Ingest, recording, Scheduling & On-Air modules.

3.2.4.8 It should be possible to explore archived audio material.

3.2.5 Scheduling Module:

- 3.2.5.1 The software should support multiple channels format. The playlist of any channel should be available to a group of users with proper access rights associated with that channel.
- 3.2.5.2 Creation of Playlist by name or date or time should be possible.
- 3.2.5.3 Audio content selected from Database search/ explorer Module should be inserted by drag and drop operation.
- 3.2.5.4 It should be possible to create a block-wise play list. A day's schedule may consist of one or more numbers of blocks.
- 3.2.5.5 It should be possible to create a play list of different audio program for a day, several days, weeks or even months in advance from database, with manual/automated constraint or restrictive program rotation policy.
- 3.2.5.6 Program schedule may contain audio, text or mixed titles.
- 3.2.5.7 Block schedule heading (Program Chunk), Schedule heading and related audio contents should be distinguishable.
- 3.2.5.8 Cross-fade facility between events should be provided in scheduling.
- 3.2.5.9 Schedule should be modifiable right up to moments before execution by the creator/ supervisor with access rights.
- 3.2.5.10 Copying of a schedule or a part thereof should be possible from schedule of any day to another schedule.
- 3.2.5.11 The play schedule should be totally self-contained with icons for type of material, type of transition.
- 3.2.5.12 Text entering & editing should be available.
- 3.2.5.13 Print out facility of play list should exist.
- 3.2.5.14 Facility to chain multiple play schedules should be available. When the first playback list has played and then unloaded, the next item moves up and is loaded ready to play.
- 3.2.5.15 Provision to include part of audio content in the schedule without copying should be possible. Schedule of time offset for music items should be possible both for the beginning and the end without separately copying the item.
- 3.2.5.16 Provision of templates to enable auto creation of block-schedules of playlist.

3.2.6 ON-AIR Module:

- 3.2.6.1 This module should support at least two virtual players, monitoring support for cueing, database search/explorer support, playlist(s) and hotkeys.
- 3.2.6.2 One Virtual player should be dedicated for ON-AIR Play out & other configurable for standby/Cueing purpose.
- 3.2.6.3 With database search/Explorer support, it should be possible to browse server's Database instantaneously and play audio ON-AIR.
- 3.2.6.4 It should be possible to playback the playlist in Manual or automated mode.
- 3.2.6.5 In auto Mode, the items from the Playlist should be played one after other without any manual intervention. While in Manual mode, the On-Air Play out should stop after completion of each playlist item and next item's play should be again started by manual command either from Keyboard or mouse.
- 3.2.6.6 Playlist Audio being played, audio already Played & audio in pipeline should be easily distinguishable in the playlist.
- 3.2.6.7 It should be possible to trigger the start of Play in Auto mode by Time setting.
- 3.2.6.8 It should be possible to incorporate changes in the playlist with proper access rights while the system is in play mode.
- 3.2.6.9 Monitoring of complete audio, beginning & end of any Playlist items on cue Player should be possible.
- 3.2.6.10 It should be possible to monitor (on cue player) end of playlist item currently On-Air.
- 3.2.6.11 Software should provide fader start facility.
- 3.2.6.12 Cross-faded or overlapped play of Playlist Audios should be possible.
- 3.2.6.13 Title & Count down time of ON-AIR item should be displayed prominently.
- 3.2.6.14 Dual channel Bar-graph meter should display level of ON-AIR Play out audio.
- 3.2.6.15 Features like Hotkeys, Priority play buttons should be available for playing frequently used items such as signature tunes, promos etc.
- 3.2.6.16 Details of audios played out On-Air should be properly logged in database for future reference.
- 3.2.6.17 Display of Metadata information of the items in the On-Air Playlist should be available on demand.
- 3.2.6.18 Text editor for entering, editing & reading the script should be available.
- 3.2.6.19 It should be possible to integrate SMS service.

3.2.6.20 Current Date, Day & Time should be displayed prominently on ON-AIR Player.

3.2.6.21 Local caching of 24 hour duration on DAW in On-AIR studio should be available.

3.3 News Automation Software

News flow chart of AIR's News room working is available at annexure-V. The software should support AIR's workflow environment. The software should have separate Modules/Sub-Modules for meeting the following requirements.

3.3.1 News Collection

3.3.1.1 Wire-Services Ingest Module

3.3.1.1.1 The system should support reception of news-wires from News Agencies viz. UNI, PTI, Varta, Bhasha etc. The news feeds are available from V-SAT/Serial lines/Digital receivers and these should be stored in existing separate Workstation available with station. Numbers of News feeds to be received at each station are detailed in BOM.

3.3.1.1.2 The stories so received should be automatically sorted, indexed according to subject classification defined in the news and stored with appropriate metadata.

3.3.1.2 Fax Ingest Module

3.3.1.2.1 The software should have interface for receiving fax text reports and automatic conversion of received fax reports into Electronic format using OCR technique in unattended mode. **Necessary Hardware shall be indicated & quoted by the vendor.**

3.3.1.2.2 The stories so received should be stored appropriately in Database.

3.3.1.2.3 A original copy of fax data received should be kept unchanged for any further reference.

3.3.1.2.4 It should be possible to ingest any other scanned document after OCR.

3.3.1.3 E-mail Ingest Module

3.3.1.3.1 Provision for receiving text stories through E-mail from authorized sources should be available.

3.3.1.4 Unattended Phone- Audio Ingest Module

3.3.1.4.1 Provision should exist for unattended recording of feeds remotely by the authorized correspondent. It should be possible for correspondent to record their reports over the PSTN and ISDN Telephone lines directly into a system using appropriate hardware.

3.3.1.4.2 Reporter in the field should be able to enter his personal ID Code minimum 6 digits (using DTMF). He should be able to listen to the recorded message, erase or save it. He should also be able to select a general subject matter for the recorded news and able to give a priority number to his recording. Files should be automatically indexed and stored on the server.

3.3.1.4.3 Minimum two ISDN Lines and two PSTN Telephone lines should be supported for Phone Audio Ingest. **Necessary Hardware shall be indicated & quoted by the vendor.**

3.3.1.5 SMS News Ingest Module: The software should be able to upload SMS alerts.

3.3.1.6 Image Ingest Module: The software should provide provision for image ingest.

3.3.2 News Processing :

Immediately after receipt of the news item, the system should notify it on active terminals which should have provision for sorting, indexing, classification and filtering based on subject, content, slugline, header etc. The news item processing facility should support multi-level On-line authentication system for broadcast purpose.

3.3.2.1 News Text Editor Module

- 3.3.2.1.1 A Simple text editor with basic editing functionality like MS-Word should be available for editing the news.
- 3.3.2.1.2 Editor should support Unicode font for Indian language support & third party fonts.
- 3.3.2.1.3 It should be possible to take any portion of main story to the script editor.
- 3.3.2.1.4 Raw news (received from wires, correspondent, FAX etc.)/approved news (final story approved by editor/ editor-in-chief) should remain unaltered and edited news should be saved as new story.
- 3.3.2.1.5 It should display approximate time for reading out the script. The timing should be automatically updated as report is being written.
- 3.3.2.1.6 An integrated spell checker should be available for English language.
- 3.3.2.1.7 Split Screen or two editor windows for translation etc. should be available.

3.3.2.2 News Explorer Module

- 3.3.2.2.1 It should be possible for any user with appropriate access rights to have instant access to all the information and files for news wires, correspondent stories, finished stories, correspondent audio reports, archived items etc. stored in database. The authorized user should be able to filter as per subject, content, heading etc.
- 3.3.2.2.2 It should provide a convenient display, similar to that of windows explorer. It should be possible to view title of the stories & first few lines of selected stories. Full stories, script editor & audio editor should be viewable on another pane of the explorer.
- 3.3.2.2.3 New news item, correspondent stories, wires, fax messages & finished stories should be easily distinguishable for immediate recognition in explorer view.
- 3.3.2.2.4 Most recent stories should be at the top of the list in the explorer view.
- 3.3.2.2.5 In case, a story is being selected in explorer view, its display should remain uninterrupted by arrival of fresh stories. Only an indication of arrival of fresh stories should be visible.
- 3.3.2.2.6 It should be possible to listen to ingested Audio.
- 3.3.2.2.7 The access of this module should be available to various modules like News Text Editor, News scheduler & Audio editor.
- 3.3.2.2.8 It should be possible to view the module from a remote terminal with proper authentication.
- 3.3.2.2.9 Status of the story (i.e. status of approval, scheduling, archiving etc.) should be viewable.
- 3.3.2.2.10 It should be possible to view contact directory, special event Directory & Image Directory. It should be possible to update & modify the same with proper access rights.

3.3.2.3 Audio Recording and Editing Module

- 3.3.2.3.1 An Audio Recorder/editor with standard Cut, Copy & Paste, unlimited Undo's and Redo's, Time Stretching, Pitch Shifting, Insertion of Markers, Gain variation, Fade in & Fade out, storing audio segments as clipboards should be available for recording & editing.
- 3.3.2.3.2 Voice-over facility should be available.
- 3.3.2.3.3 It should support non-destructive editing. Original correspondent story should never be affected after editing.
- 3.3.2.3.4 Users should be able to edit the same audio simultaneously.
- 3.3.2.3.5 It should be possible to do editing even when the recording is going on.

3.3.2.4 Communication Module

- 3.3.2.4.1 An internal instant messenger should exist for communication between different users. On-line chat & messaging should be possible between users.
- 3.3.2.4.2 The instant messenger facility should support communication over WAN with Regional News Units (RNU) spread across country.
- 3.3.2.4.3 The software should be able to intimate a user, who is programmed to receive such messages, automatically about a desired news wire etc received/ingested or story completed.

3.3.2.5 News Scheduling Module

- 3.3.2.5.1 Scheduler should support template with fixed contents/blocks so that the items can be dragged and dropped to make a complete schedule.
- 3.3.2.5.2 It should be possible to make various templates for a period of up to one month.
- 3.3.2.5.3 It should be possible to create Schedules for more than one News Channels simultaneously.
- 3.3.2.5.4 It should be possible to line-up a finished story & related audio (sound bite) in a sequence. The line-up should be displayed in real-time.
- 3.3.2.5.5 It should be possible to chain consecutive sound bites and then play these automatically by the system.

- 3.3.2.5.6 Total presentation time of stories (text + audio) should be automatically calculated depending upon the reading speed of presenter and should be viewable on the screen.
- 3.3.2.5.7 A user with proper access rights should be able to change the order of sequences of news, delete a story, add a new story, make changes to the existing stories till last minute before concerned story goes On-Air.
- 3.3.2.5.8 The embedded audio & text should be easily distinguishable.

3.3.3 News Broadcasting & Publishing Module

3.3.3.1 News Broadcast Module

- 3.3.3.1.1 Full stories as per schedule should scroll on the prompter/ monitor of News presenter.
- 3.3.3.1.2 When a news item/Audio is On-Air, it should be possible to make last minute changes in the next story by an authorized user in the news room and transfer the same to on-air module. It should be possible to include last minute stories even while news is being broadcast.
- 3.3.3.1.3 Consecutive sound bites should be played automatically by the system.
- 3.3.3.1.4 Next text News item should start scrolling immediately after completion of sound bite.
- 3.3.3.1.5 Total remaining time out of allotted time & time required for completion of rest of scheduled news (as per the average reading speed of presenter) should be displayed prominently on the presenter monitor so that presenter could speed up or slow down presentation of rest of the news.
- 3.3.3.1.6 It should be possible to skip a news item by presenter depending upon availability of time.
- 3.3.3.1.7 It should be possible to change the order of the Schedule by authorized user.
- 3.3.3.1.8 Local caching of one bulletin duration of upto half hour on DAW on On-Air studio should be provided.
- 3.3.3.1.9 Hotkeys for playing various Jingles, promos & commercials should be provided.

3.3.3.2 Text prompter Module

- 3.3.3.2.1 Prompter should be configurable with the adjustable fonts, font size & colors. The configuration should be savable for future recall.
- 3.3.3.2.2 It should be possible to scroll text items line by line as well as page by page.
- 3.3.3.2.3 Scrolling should be smooth & jerk free. Scrolling speed of text items should be adjustable by user.
- 3.3.3.2.4 It should be possible to stop scrolling or slightly scroll backwards by upto two lines in line by line scrolling mode.
- 3.3.3.2.5 It should reflect any last minute change in subsequent news items while news is being scrolled.
- 3.3.3.2.6 Lined up Audio should be displayed prominently and it should start playing after intervention by presenter.

3.3.3.3 Web Publication Module

- 3.3.3.3.1 It should be possible to publish various finished news stories with proper access rights on AIR website under different headings.
- 3.3.3.3.2 It should be possible to upload images & Audio files from Database source to website.
- 3.3.3.3.3 Live streaming/webcasting should be available.
- 3.3.3.3.4 Facility to publish Auto logged news bulletins on web site should be available for delayed listening for internet users in streaming mode.

3.4 Common Functionalities

The following functionalities should be available both for Studio and News Automation software:

3.4.1 On-Air Logging Module

- 3.4.1.1 It should be possible to keep Low-bit rate audio copies of On-Air audio for upto four channels simultaneously on a DAW. **The requisite hardware interface shall be indicated & quoted by the vendor.**
- 3.4.1.2 It should be possible to keep the logged programme for a pre-defined duration. It should be possible to Auto-purge old data after completion of user defined period.
- 3.4.1.3 Access/retrieval of audio from logger based on date and time stamp for each channel logged should be available.

3.4.2 Transaction logging Module

- 3.4.2.1 The software should keep a complete log of each transaction made by any user so that it can be viewed at any time.

3.4.3 Archiving Module

- 3.4.3.1 Auto archival of the audio material/News should be based on policy to be decided by administrator.

- 3.4.3.2 It should be possible to Archive audio/News data & related metadata in LTO/Tape Library. Details of archived material should be stored in the database so that any query/retrieval of archived material should be possible.
- 3.4.3.3 Automatic interface for Tape-library should exist so that archived material is automatically re-ingested from tape-library when asked for by a user with proper access rights.
- 3.4.3.4 List of archived items should be accessible to authorized users from any workstation.

3.4.4 System Administration Module

- 3.4.4.1 It should be possible to define/ create one or more Super Users (Administrators) for various administrative jobs.
- 3.4.4.2 Administrators should be able to administer the database & application using simple GUIs. Administrator should be able to define various rules/policies using this module.
- 3.4.4.3 Web based remote administration using access rights should be possible.
- 3.4.4.4 Creation, deletion & updating of Users, Groups with different access rights for various functionality of software should be possible.
- 3.4.4.5 Auto-purging of Audio, news, old schedules and database entries as per defined policy should be possible.
- 3.4.4.6 A manual or automatic purging should be possible. It should be possible to mark certain items which should never be purged.
- 3.4.4.7 Updating of Policy Guidelines like period before rotation of Songs separately for each channel etc. should be possible.
- 3.4.4.8 Policy based auto archiving should be possible.
- 3.4.4.9 The software should have facility to define separate storage path for archiving, audio, stories, reports and On-Air logging.
- 3.4.4.10 It should be possible to view the workstation wise logged in users.
- 3.4.4.11 User should be able to access different functionalities of the application modules after proper authentication in form of User Name & Password and access rights allocated.

3.4.5 Traffic, Billing & Reporting Module

- 3.4.5.1 It should be possible to generate various customized reports like:
 - a) Details of programmes, Promos, Jingles, themes, music and commercials played ON- AIR.
 - b) Automatic billing of commercials
 - c) Billing and scheduling related reports.
 - d) Royalty payment reports.
 - e) Daily schedules for various On-Air Channels.
 - f) Booking/trafficking of commercial spots.
- 3.4.5.2 The list of reports is not exhaustive. Certain other reports may also be required.
- 3.4.5.3 Creation & generation of user defined reports should be possible.

3.4.6 System Logging for Health Monitoring Module

- 3.4.6.1 Logging of each and every event about health of the software should be available. Each action or event or error generated should be recorded as a message in the log file.
- 3.4.6.2 In the event of serious errors, software should be able to automatically notify the system administrator by alarm / E-mail /SMS through suitable interface.

4. HARDWARE SPECIFICATION

4.1 Hardware Requirements

- 4.1.1 The hardware as per Bill of Material (Annexure VI) shall be supplied at various stations.
- 4.1.2 The hardware should be able to operate on 230 V +/- 10% V, 48-52 Hz, single phase AC power supply.
- 4.1.3 All the drivers for hardware shall be supplied along with hardware.
- 4.1.4 Operating Environmental conditions: The equipment shall be able to work without any problem in the following conditions:

Operating Temperature: From 10° C to 35° C

Operating Humidity : Up to 80% RH (non-condensing) at 30° C.

- 4.1.5 Storage Environmental conditions: The equipment should be able to withstand the following conditions while being stored:

Storage Temperature : From -10° C to 65° C

Storage Humidity : From 5 to 95% humidity.

- 4.1.6 The system shall be used in the vicinity of high frequency & high Power Radio field. Therefore, the system shall conform to be protection requirements relevant to electromagnetic phenomena as per national/international standards.
- 4.1.7 The tenderer shall indicate & quote any additional hardware (additional to that mentioned in Bill of Material) as may be required for efficiently running all the functionality of the offered Radio Automation & News Room Automation software.
- 4.1.8 42U, 19" Industry standard rack(s) for housing servers, storage, switches, Backup drives, etc. shall be provided by tenderer.
- 4.1.9 All the servers are to be installed in a separate Air-conditioned partition. Therefore, provision of partitioning (area of 3 Mtrx3 Mtr) with Aluminium/Glass partitions and two numbers of 2 TR Split ACs (of

Make Hitachi/O'General/Daikin) with necessary Voltage stabilizers & their installation is to be kept by tenderer. Minor civil modifications, if required, depending on site condition would be carried out by tenderer in consultation with concerned AIR Station.

4.2 Blade System Enclosure/Chassis

- 4.2.1 Blade enclosure shall accommodate the Blade servers supplied at a station with at least two free slots for future use.
- 4.2.2 Backpane of enclosure shall either be active or completely Passive device. If it is active, dual backpane should be provided for redundancy.
- 4.2.3 Enclosure shall be fully populated with hot swappable, load balancing, redundant power supplies.
- 4.2.4 It shall be fully populated with fans for cooling with adequate redundancy built in for entire enclosure & its components.
- 4.2.5 It shall be supplied with Power distribution Units to connect Power cables to the chassis power input terminals.
- 4.2.6 Enclosure shall support PCIe 2.0, SAS 2.0, SATA 3.0 & Gigabit Ethernet I/O interfaces.
- 4.2.7 Enclosure shall support 2x4 Gbps Fibre Channel SAN switch Module & 2 Gigabit Ethernet Switch Modules. Ethernet switch modules shall have ports to connect to all internal servers and 4x1 Gbps external ports for connection to central switch.
- 4.2.8 Enclosure shall have at least one CD-RW/DVD Combo Drive.
- 4.2.9 Enclosure shall have LED/LCD Alerts/Indication related to deteriorating health of major components like Hard disk drives, Processor, Fans, memory & Power supply.
- 4.2.10 Enclosure shall have display console (19" TFT) for local management like trouble shooting, configuration, system status /health display.
- 4.2.11 Enclosure shall have built in KVM switch or virtual KVM feature over IP to provide access to each blade server.
- 4.2.12 It should have Management Module so as to provide a single point of control for intelligent management of all the blade servers. Management Module shall have tools to aid in Blade server configuration & OS Deployment. Module shall have remote management capabilities using Secure Socket Layer (SSL) 128 bit encryption & secure Shell (SSH) Version 2 so that servers can be managed with secure access over internet. Module should report asset & inventory information for all the devices in the enclosure. Module should report Thermal & Power Information about whole enclosure & each server in the enclosure. Module shall have ability to monitor performance of servers over time.
- 4.2.13 Blade enclosure shall include all accessories so that it can be mounted on an industry standard 19" Rack of 42 U size.
- 4.2.14 Enclosure shall comply with all safety regulations & requirements.

4.3 Blade Servers

4.3.1 Servers functioning as Audio-News-cum-database should be configured as 1+1 clustered servers.

4.3.2 All the blade servers mentioned in BOM will have the following Configuration:

A.	Processor	
	(i) Make	Intel
	(ii)Type	Quad Core Intel Xeon 5530 Processor
	(iii)Nos of processors	Two (for Audio-News-cum- Database clustered Servers) One (for Application & Backup servers)
	(iv)Speed	2.4 Ghz or Better
B.	Cache	8 MB L3 Per CPU
C.	RAM	
	(i) Type	Registered ECC DDR3
	(ii)Nos of DIMM Slots	12
	(iii) Capacity	12 GB 1066 Mhz (for Audio-News -cum- Database clustered Servers) 6 GB 1066 Mhz(for Application & backup servers)
	(iv) Expandability	96 GB
D.	Hard Disk	2x300 GB 10 k SAS, Hot Swappable HDD
E.	Graphics	Integrated Graphics controller with 8 MB Graphics RAM
F.	Network Interface	Four Gigabit Ethernet Ports
		(Two Configurable for fail over and Load balancing, One for Clustering Purpose, One for Management)
G.	Expansion Slots	Two Mezzanine 8xPCI Express I/O expansion slots
H.	RAID Controllers	RAID 0,1
I.	Host Bus Adapters (HBA)	4 Gbps Dual Port PCI-X/E Host Bus adapter for Audio-cum-Database & News clustered Servers.
J.	Front Panel I/O	Console & USB Ports

- | | | |
|----|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K. | OS Support | Must support multiple operating system such as Linux and Microsoft windows server |
| L. | Networking Protocols | IPv4 & IPv6 should be supported |
| M. | Management & Diagnostic features | <ul style="list-style-type: none"> i. OS Independent hardware Health status indicator/software should be available. ii. Support for onboard management & monitoring iii. Support for Local & Remote KVM iv. Support for Local & Remote Media (CD, USB) v. DTMF style Command Line support vi. IPMI 2.0 support vii. SNMP v1, v2c, v3 support viii. SSH2.0 & HTTPS support ix. Radius, LDAP & MS Active Directory Support |
| N. | Regulations | Should comply with safety, EMI/RFI, Immunity, ROHS & other regulations. |

4.4 Rack Servers

4.4.1 Servers functioning as Application-News-cum-database servers should be configured as 1+1 clustered servers.

4.4.2 Servers mentioned as Audio-cum-Database Server (Rack), Application server (Rack) & Backup server (Rack) in BOM shall have the following minimum configuration.

- | | | |
|----|------------------------|-------------------------------------|
| A. | Processor | |
| | (i) Make | Intel |
| | (ii)Type | Quad Core Intel Xeon 5530 Processor |
| | (iii)Nos of processors | One |
| | (iv)Speed | 2.4 Ghz or Better |
| B. | Cache | 8 MB L3 per CPU |
| C. | RAM | |
| | (i) Type | Registered ECC DDR3 |
| | (ii)Nos of DIMM Slots | 12 |

(iii) Capacity	12 GB 1066 Mhz(for Audio-News-cum-Database clustered Servers) 6 GB 1066 Mhz(for Application & backup servers)
(iv) Expandability	96 GB
D. Hard Disk	
(i) Capacity	2x300 GB 10 k SAS, Hot swappable HDD
(ii) Nos of bays /Ports for hot swappable Disks	8
E. Graphics	Integrated graphics 8-MB video Memory
F. Network Interface	Six Gigabit Ethernet Ports for Clustered Audio-News-cum-Database (Two Configurable for fail over and Load balancing, One for Clustering Purpose, One for Management, two for connection to iSCSI storage) Two Gigabit Ethernet ports for Application & Backup servers
G. Raid Controllers	RAID 0,1
H. PCI Slots	Four PCI Express
I. Ports:	At least 5 USB ports
J. Optical Drive	with DVD RW Drive
K. Networking Protocols	IPv4 & IPv6 should be supported
L. OS Support	Must support multiple operating system such as Linux operating system and Microsoft windows server.
M. Auto Diagnostic features	Predictive failure warning on processor, memory, Hard disk, power supply and fan
N. Cooling	Server should be equipped with Redundant hot swappable cooling fans
O. Power	The system should have an inbuilt Redundant hot swappable power supply
P. Rack Support	19" Industry Standard Rack Ready.
Q. Chassis	Tool less
R. Management software	
	<ul style="list-style-type: none"> i. OS Independent hardware Health status indicator/software should be available. ii. Support for onboard management & monitoring iii. Support for Local & Remote KVM iv. Support for Local & Remote Media (CD, floppy, USB) v. DTMF style Command Line support vi. IPMI 2.0 support vii. SNMP v1, v2c, v3 support

- viii. SSH2.0 & HTTPS support
- ix. Radius, LDAP & MS Active Directory Support
- x. OEM based management software for health and status monitoring of the server.
- xi. Server should also be provided with remote management software for managing the server by administrator from a centralized remote location.

- S. Regulations Should comply with safety, EMI/RFI, Immunity, ROHS & other regulations.

4.5 Scheduler Workstations

4.5.1 Computer workstations shall have the following minimum configuration.

- | | |
|--------------------|---------------------------------------------------------|
| A. Processor | |
| (i) Make | Intel |
| (ii) Type | Quad Core 2 Duo E8400 or higher Processor |
| (iv) Speed | 2.93 Ghz or Better |
| B. Cache | 6 MB L2 |
| C. RAM | |
| (i) Type | DDR3 |
| (ii) Capacity | 4 GB 1066 Mhz |
| (iv) Expandability | 8 GB |
| D. | Hard Disk 500 GB SATA HDD at 10k RPM |
| E. Graphics | 512 MB NVS420 or equivalent |
| F. | Keyboard Standard |
| G. | Mouse Optical scroll Mouse |
| H. | Ethernet Ports Integrated Gigabit Ethernet Ports |
| I. | Bays 4 Nos (two Internal, two external) |
| J. | PCI Slots 4 PCI & 1 PCI Expressx16 |
| K. | Ports 6 USB 2.0, RJ 45, Audio In, Audio Out |
| L. | Optical Drive 16X DVD RW Drive |
| M. | Monitor 19" Non-wide TFT with Native resolution of |
| | 1280x1024 |

N.	Networking Protocols	IPv4 & IPv6 should be supported
O.	Cabinet	Mini Tower
P.	OS Certification	Windows 7, Red Hat or Suse Linux
Q.	Power Supply	Standard 230 V ± 10% 48-52 Hz Single Phase AC
R.	Safety Certification	FCC for EMI & UL for safety
S.	Health Monitoring Software	Should be provided
T.	Security	Integrated Panel /Pad lock/Chassis intrusion switch

4.6 External SAN Storage (Type-I)

4.6.1 An External SAN storage (Type-I) shall be provided at 4 major stations as per BOM and shall be used for storing the audio & News content of station. Storage may be configured as per the requirement of software solution.

4.6.2 Storage shall have the following hardware configuration.

A.	Storage	Rack mountable fully redundant RAID Array with no single point failure at any level like disc based, power supply, fans, connectivity etc.
B.	Array Controller	Dual Active-Active high performance hot swappable Fiber Channel controller.
C.	SAN Controller Cache	Configured with minimum 4 GB cache across dual controllers with dedicated interconnect paths to mirror the contents of write cache in real time. In case of Power failure, the SAN array must be provided with cache protection mechanism to ensure no loss of data in write cache by de-staging the contents of write cache to disk or battery power the cache. System should support write cache persistence during fault condition to prevent data loss.
D.	Front End connectivity	4 x 4 Gbps FC ports front end Host/FC switch ports across Dual controllers.
E.	Back end Disk Connectivity	2x4 GbPS FC ports.
F.	OS Support	Must support multiple operating system including Linux, Microsoft windows server, Sun Solaris HP-UX, AIX

G.	Disk Capacity	As per BOM. Required capacities are exclusive of all necessary required Global Hot spares & excluding all RAID penalties (RAID-5).
H.	RAID Levels support	0,1, 1/0, 5 & 6
I.	Support Drives	450/300 GB FC Drives at 15000 rpm 1TB/750GB/500 GB SATA /FATA Drives
J.	Drive Scalability	Minimum 90 disks
K.	Management software	Must include GUI/Web Browser based Management Software to centrally manage disk storage subsystem. The Management software should be offered for the full capacity of the storage system.
L.	LUN Migration	It should be supplied with the following functionality (at the LUN granularity level) with application are on line and with continued data access to the same LUN: <ul style="list-style-type: none"> i) to move data within the array between drives of different capacities & types /dynamic segment sizing. ii) to migrate LUNs from one level of RAID protection to another.
M.	Point in Time copies Software	The array should be supplied with point in time copy software licenses for snapshots for entire configurable & maximum scalability of Storage Array. It should have built in pointer based snap shots facility for faster recovery.
N.	Remote Diagnostic	The system should support web based, Email facility for remote service & also support dial-in/dial-out to report errors and warning.
O.	Disk Health Monitoring	Must provide automatic monitoring of disk drive health at disk sector level for bad sectors and initiate a proactive background drive rebuild on failing drives
P.	IPv6 Support	Must be IPv6 ready
Q.	Security	Must have security & auditing capabilities.
R.	Rack Support	19" Industry Standard Rack Ready.

4.7 External SAN Storage (Type-II)

(A.K. Jain)

Superintending Engineer (NBH)

(A.K. Dixit)

Director Engg.(SD)

(R.K. Budhraj)

Director Engg.(MR)

4.7.1 An External SAN storage (Type-II) shall be provided at AIR stations as per BOM and shall be used for storing the audio & News content of station. Storage may be configured as per the requirement of software solution.

4.7.2 Storage shall have the following hardware configuration.

- | | | |
|-----------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A. | Storage | Rack mountable fully redundant RAID Array with no single point failure at any level like disc based, power supply, fans, connectivity etc. |
| B. | Array Controller | The Proposed SAN Array should be configured with Dual Controllers for redundancy. |
| C. | SAN Controller Cache | The Proposed SAN Array should be configured with at least 4GB or more cache across dual controllers. Cache shall be battery backed up for minimum 48hours in case of power failure. |
| D. | Front End connectivity | Each controller should be configured with atleast 2x1Gbps iSCSI ports. |
| E. | OS Support | Must support multiple operating system including Linux, Microsoft windows server |
| F. | Disk Capacity | As per BOM. The capacity should be configured with 300 GB 15K RPM SAS Disks. Required capacities are exclusive of all necessary required Global Hot spares & excluding RAID penalties (for RAID-5). At least one Hot spare disk shall be configured per disk array. |
| G. | RAID Levels support | 0,1, 1/0, 5 & 6 |
| H. | Support Drives | SAN Array should be able to support minimum of 16 disks and upgradeable to 48 seamlessly. |
| I. | Drive Scalability | Minimum 48 disks |
| J. | Management software | The SAN Management software should be array based and provide GUI / web based management with complete Reporting features like LUN Usage, Empty Space etc. for unlimited number of hosts. It should also support performance monitoring. Previous generation arrays as well as the latest arrays should be able to interoperate with support for LUN data striping between old and new arrays with zero downtime during deployment. |
| K. | LUN Migration | It should be supplied with the following functionality (at the LUN granularity level) with application are on line and with continued data access to the same LUN: |

- i) to move data within the array between drives of different capacities.
 - ii) to migrate LUNs from one level of RAID protection to another.
- L.** Point in Time copies Software The SAN Array should be supplied with Snapshot or Point-in-time Copy functionality for snapshot and full copy of the production LUN's / volumes.
- M.** Remote Diagnostic The system should support web based remote service.
- N.** Disk Health Monitoring Must provide automatic monitoring of disk drive health at disk sector level for bad sectors and initiate a proactive background drive rebuild on failing drives
- O.** IPv6 Support Must be IPv6 ready
- P.** Rack Support 19" Industry Standard Rack Ready.

4.8 Ethernet & KVM Switch

- 4.8.1 24 port 10/100/1000 Layer 2 Gigabit Managed Switch Ethernet switch with switch capacity better than 50 Gbps shall be provided at various stations as per BOM.
- 4.8.2 8 port KVM switch with Keyboard, Mouse & 19" Flat TFT monitor shall be provided at various stations as per BOM.

4.9 Backup Drive & Controller for Backup Server

- 4.9.1 Specification of Tape Library shall be as follows:

A.	Form Factor	4U
B.	Drive Type	800/1600 GB LTO-4
C.	Nos of drive	1 (upgradeable to 2 drive)
D.	Host Interface	4 Gbps Fibre Channel Interface (Latest)
E.	Data Cartridge	20 (minimum) Slots fully populated with 800 GB cartridges should be available
F.	Max Storage capacity	14.0 TB (Native) 28.0 TB (Compressed)
G.	Maximum sustained Data Transfer Rate	500GB/Hr
H.	Accessories	Relevant cable and connectors

4.9.2 Specification of LTO Drive shall be as follows:

A.	Drive	LTO Generation-4 Drive
B.	Uncompressed Capacity	800 GB
C.	Compressed Capacity	1.6 TB
D.	Data Transfer rate	120 MBPS (Uncompressed)
E.	Controller	SAS Controller
F.	Cartridges (800 GB)	10 at each station

4.10 Firewall/Internet security

- 4.10.1 Firewall should be appliance/Hardware based.
- 4.10.2 It should support Minimum of users as per BOM.
- 4.10.3 Maximum port throughput while firewalling should be at as per BOM.
- 4.10.4 It should support concurrent sessions as per BOM.
- 4.10.5 It should support new sessions connections per second as per BOM.
- 4.10.6 It should have Ethernet interfaces as per BOM.
- 4.10.7 It should have license per unit.
- 4.10.8 It should protect against network based attacks.
- 4.10.9 It should support Dynamic as well as one-to-one NAT.
- 4.10.10 It should provide stateful packet inspection.
- 4.10.11 It should support IPv6.

4.10.12 It should inspect packets at IP layer, Circuit layer & application layer and provide deep packet inspection and enforce RFC compliance.

4.10.13 It should support intrusion detection by analyzing protocol anomalies, stateful signature analysis and should have intrusion prevention system functionality with following features:

- i) Detects and blocks all known, high risk exploits along with their underlying vulnerabilities.
- ii) Should be able to monitor all the major protocols.
- iii) Should support more than 2000 attack signatures.
- iv) Should protect against worms, Trojans & backdoors.
- v) Should protect against reconnaissance attacks.

4.10.14 It should be able to respond to a particular attack in different ways like dropping packet, roping connection, blacklisting IP for the period of time, Packet log, session summary etc.

4.10.15 It should support VPN with DES (56 bit), 3DES (168 Bit) & AES encryption & MD-5 & SHA-1 authentication. VPN tunneling should also be supported.

4.10.16 It should support SSL VPN.

4.10.17 It should support ISP failover feature.

4.10.18 It should have web filtering functionality with following features:

- i) Should have URL Database of at least 25 Millions URLs and 50 URL categories.
- ii) URL database should be updated regularly.
- iii) Should be able to block different categories/sites based on users.
- iv) should block adware/spyware & other Malware.
- v) should provide DoS & DDoS protection on any/all interfaces.
- vi) Should support text analysis.
- vii) Should support blocking of SPAM URLs.

4.10.19 It should also be manageable from centralized management system using web based (HTTP and HTTPS) GUI interface.

4.10.20 It should provide detailed server logging and support notification through E-mail.

4.11 ON-LINE UPS

4.11.1 A 2x5KVA online (Parallel redundant) UPS shall be provided at each station for providing uninterrupted power supply for the Hardware proposed to be provided under this tender. UPS shall

work in Parallel mode with load sharing(Active/Active mode) to take full load (5 KVA) in case of failure of one UPS. UPS shall have following specification:

- | | | |
|-----------|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A. | Rating | 2x5KVA |
| B. | Backup Time | Minimum 20 minutes on full load on each UPS. |
| C. | Input: | 160V-260V 50Hz \pm 6% single phase |
| D. | Output: | 230V \pm 1% 50Hz \pm 1% |
| E. | Power factor: | 0.7 to unity (lagging) |
| F. | Overall efficiency: | $>$ 80% |
| G. | Wave form: | pure sine wave |
| H. | Crest factor: | $>$ 4:1 |
| I. | Output should be provided with Isolation Transformer | |
| J. | Protection: | <ul style="list-style-type: none"> i) Over voltage, short circuit and over load at UPS output ii) Under voltage at battery terminal . |
| K. | Noise level: | $<$ 55dB at 1 meter distance |
| L. | Indicators/meters: | <ul style="list-style-type: none"> i) Mains presence including measurement of input AC Voltage, output AC voltage, frequency, battery voltage and Current. These measurements should be available either on digital meter or through SNMP. ii) Indication for battery charging and discharging iii) Indication for low battery voltage. |
| M. | Operating temperature: | 0-50 ^o centigrade |
| N. | Certification: | Standard certification for safety, EMC/EMI and ISO 9001 & 14001 |
| O. | Battery specification: | SMF, Standard make battery such as Exide, Panasonic and Hitachi etc. |

5. SYSTEM SOFTWARE

5.1 Broad & Minimum Requirements of System Software

The tenderer will have to supply the necessary system software as may be required for efficiently running all the functionality of the offered Radio Automation & News Room Automation software.

5.1.1 The following Licensed software shall be required at each of the station:

Sno	Item	Quantity at each of the 48 Stations
1	O.S.(s) With sufficient CALs	1
2	DBMS (s) with sufficient CALs	1
3	Anti-Virus with sufficient CALs and one year Virus definition updates	1
4	Backup Software	1

5.1.2 All the licenses shall be in the name of "ALL INDIA RADIO".

5.2 Operating System

5.2.1 The suitable operating system(s) for Servers including clustered servers with necessary Client Access Licenses shall be provided by the tenderer. The number of CALs for each server shall be indicated & quoted by tenderer.

5.2.2 Workstations with WINDOWS XP (Professional) OS are already available at the stations. In case, any other Operating system is required for these workstations, same shall be indicated & quoted by tenderer.

5.2.3 Necessary O.S. Licenses for Workstations being procured under this tender shall be indicated & quoted by tenderer.

5.2.4 All the Operating systems shall be provided with free updates & patches during warrantee period.

5.2.5 Latest version of Operating system in use (as on the date of supply of system) shall be supplied.

5.3 RDBMS

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

- 5.3.1 The necessary DBMS(s) (cluster enabled wherever required) with sufficient client access licenses shall be provided by the tenderer. The number of CALs for each server shall be indicated & quoted by tenderer.
- 5.3.2 Free updates and patches shall be provided for DBMS(s) during warrantee period.
- 5.3.3 Latest version of software in use (as on the date of supply of system) shall be supplied.

5.4 Network Anti-Virus Software

- 5.4.1 The necessary Network Anti-virus software for server (cluster enabled wherever required) & all the workstations (both existing & New) protection shall be provided by the tenderer.
- 5.4.2 Free Virus definition updates & patches for Anti-virus software shall be provided for a period of one year.
- 5.4.3 Latest version of software in use (as on the date of supply of system) shall be supplied.

5.5 Backup Software for backup server with following specifications

- 5.5.1 Software shall support Automated backup and Restore Operations to give an integrated backup & restore from/to servers connected to LAN/External Storage (SAN). Accordingly, the numbers of CALs may be indicated & quoted.
- 5.5.2 Software shall be Scalable, Modular easy-to-configure and easy-to-use with GUI interface. It should be possible to do all backup and recovery operations through the GUI.
- 5.5.3 Software shall be platform independent software.
- 5.5.4 Software shall support DBMS(s) supplied by tenderer.
- 5.5.5 Software shall be capable of safe, reliable and fast recovery for OS applications and data in case of disaster.
- 5.5.6 Software shall support for Autoloader/Automated Tape Library(ATL) on SAN.
- 5.5.7 Software shall support off-line Backup (Cold Backup) with all necessary software components along with licenses required for each server/ cluster of servers.
- 5.5.8 Backup software should support full, differential and incremental backup.
- 5.5.9 Software shall have inbuilt support for Advanced reporting with centralized management features like historical backup success/ failure reports.

5.5.10 Backup software must include encryption of backed up data or archived data.

6. PRE-DISPATCH INSPECTION

- 6.1 All the Softwares & Hardwares would be inspected before dispatch by indenter. Pre-dispatch inspection would comprise complete testing including functional tests and various measurements. The firm has to simulate the test environment in client-server mode with at least 5 workstations (with similar configuration as available at AIR Stations) so that each & every functionality of the software modules could be checked as per specification. The pre-despatch inspection shall be done by authorized representatives of All India Radio at suppliers premises in India before shipment. An Acceptance Test Procedure (ATP) should be prepared by the tenderer and got approved from the indenter after the firm order is placed.
- 6.2 The tenderer will give a notice in writing to the indenter at least 4 weeks before the commencement of inspection. The tenderer shall provide all equipment, materials and manpower as may be required for performing various tests as per ATP. In case of inspection outside Delhi, the expenses on air travel, accommodation and daily allowances for AIR's inspecting officers would be borne by All India Radio.

7. TESTING & COMMISSIONING

- 7.1 After installation at the each of the station, complete system would be tested by representatives of AIR for smooth functioning.
- 7.2 All passwords, operational keys & drivers for software & hardware shall be handed over to station authorities.
- 7.3 Print screen copies of properly filled installation screens shall be generated and handed over to station authorities.
- 7.4 Test report should be submitted for complete system (Hardware & software) installed at each stations, duly signed by the indenter or his authorized representative. Then only the system shall be considered as commissioned.

8. INSTRUCTION MANUAL

- 8.1 Two complete sets of user manuals of software giving complete operational and performance data including detailed instructions for installing, un-installing, Configuring, Repairing and Recovering requirements should be provided to each station, zonal offices, AIR Directorate & staff Training Institute Technical (STI(T)).
- 8.2 Two complete sets of Administration manuals giving complete details of administration activities should be provided to each station, zonal office, AIR Directorate & STI (T).
- 8.3 Two sets of Maintenance/operational manuals of each hardware should be provided to each station, zonal office, AIR Directorate & STI (T).
- 8.4 Two sets of user manuals for Operating system, RDBMS(s), Anti-Virus & Backup system should be provided to each station, zonal office, AIR Directorate & STI (T).

9. TRAINING

- 9.1 The Tenderer shall provide 900 Man-days of training to AIR staff as per details below:-

S. No.	Staff to be trained	Type of Training	No. of Days per course	Total No. of Persons
1	Engineering Officers	Administration + Operation & Maintenance	5 Working Days	60 (5 Courses of 12 Persons each)
2	Programme Staff	Operation of Radio Studio Automation	5 Working Days	---do----
3	News Staff	Operation of News Room Automation	5 Working Days	---do----

- 9.2 The Training Shall be conducted at four/five locations across the country. Exact locations & dates shall be decided in consultation with AIR.
- 9.3 The training modules should be developed & finalized by Tenderer in consultation with AIR.
- 9.4 A complete set of hardcopy and soft copy of training material shall be supplied to each trainee as part of the training module with permission to reproduce and use same for further training of AIR personnel at the AIR's training centre.
- 9.5 A two days hands-on training is also to be imparted to the AIR staff at each of the stations after installation and commissioning of the software.

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

- 9.6 The travel expenses, boarding and lodging for the trainees shall be provided by AIR.
- 9.7 **Cost of training, if any, may be quoted. This cost will be included in the cost for calculation of lowest bid.**

10. AFTER SALES SUPPORT

10.1 Warranty & AMC

- 10.1.1 The software, I.T. hardware & associated equipment like split ACs , stabilizers, UPS etc. shall be warranted for trouble free operation for a minimum period of three years from the date of commissioning.
- 10.1.2 The tenderer should quote the Station-wise cost of comprehensive AMC for a period of 2 years after the date of expiry of the warranty.
- 10.1.3 **Cost of AMC for two years will be included in the cost for calculation of lowest bid.**
- 10.1.4 The bidder shall submit a letter from OEM for confirmation of back to back support commitment for five years from the date of commissioning to All India Radio in respect of all the offered hardware & software.

10.2 Term of Conditions for Warranty & AMC

- 10.2.1 Tenderer shall provide round the clock support for satisfactory working of complete system.
- 10.2.2 Onsite support for Replacement / servicing / labour/ debugging of software/ reinstallation/reconfiguring of software etc. should be provided free of cost.
- 10.2.3 No separate charges will be paid for visit of engineers for attending to faults and repairs or supply of spare parts.
- 10.2.4 After the fault is reported, it is to be got rectified immediately by the tenderer. Critical fault shall be attended within six hours and non – critical fault shall be attended within twelve hours of reporting. The bidder will have to provided 99% of uptime on annualized basis.
- 10.2.5 Tenderer will depute engineers(s) at least once in a month at each station for preventive maintenance. He will also be responsible for analysis of logs in respect of the messages/alerts being generated by the software/hardware.
- 10.2.6 Tenderer will assign a call tracking number for every fault reported. Each case will be considered closed only after it is settled to satisfaction of All India Radio.
- 10.2.7 Tenderer will ensure that the existing data along with associated text, audio, metadata etc. is transferred successfully upon any hardware/software change, loading of software patches as well as upgrade.

- 10.2.8 Tenderer will provide checklists of maintenance actions to be performed on daily, weekly and monthly basis. Tenderer will also extending assistance / help to AIR in issue of Guidelines /application note / procedure etc for administration & maintenance of the system from time to time.
- 10.2.9 It will be the responsibility of tenderer to ensure supply and installation of all upgrades and patches of software as soon as these are released. However the right to upgrade will rest with All India Radio.
- 10.2.10 Tenderer shall provide support for creation of additional customized reports from time to time, if required.
- 10.2.11 Tenderer shall have to provide assistance for making changes / modifications in system database.

10.3 Support Centres:

- 10.3.1 The tenderer should have support centre at suitable places in India including Delhi, Mumbai, Chennai, Kolkata & Guwahati so as to provide adequate support at all the 48 locations of AIR as per clause No. 10.2.4.
- 10.3.2 The tenderer should submit details of locations along with necessary contact details.

10.4 Payment Terms for AMC

- 10.4.1 Payment for AMC will be made in Indian Rupees on post quarterly basis after successful completion of the service.
- 10.4.2 The tenderer shall have to submit performance warrantee equivalent to one quarter charges of AMC.

10.5 Penalty Clause

- 10.5.1 Penalty at double the pro-rata basis rates of AMC will be imposed if a fault persists beyond time period as indicated under clause No. 10.2.4 during AMC.
- 10.5.2 Penalty at double the pro-rata basis rates of AMC will be imposed if a fault persists beyond time period as indicated under clause No. 10.2.4 during Warranty and penalty amount shall be deducted from Performance Guaranty Money.

10.6 Termination of AMC

10.6.1 The contract will be for a period of two years with a provision of review on annual basis. However, AIR reserves the right to terminate the contract, by giving three months advance notice in case the services are not satisfactory or support is no longer required.

11. Payment Terms

11.1 Payment for the tender shall be linked to various milestones of SITC work as detailed below:

S.No.	Milestone	Payment
1	On Delivery of Equipment at respective station (48 stations) (After inspection at Supplier's end)	50% of Hardware cost
2	Satisfactory completion of SITC of System at initial 12 Stations	20% of Balance Amount after Sr. No. 1 (Total Tendered cost- 50% of Hardware Cost)
3	Satisfactory completion of SITC of System at next 12 Stations	20% of Balance Amount after Sr. No. 1 (Total Tendered cost- 50% of Hardware Cost)
4	Satisfactory completion of SITC of System at next 12 Stations	20% of Balance Amount after Sr. No. 1 (Total Tendered cost- 50% of Hardware Cost)
5	Satisfactory completion of SITC of System at Last 12 Stations	20% of Balance Amount after Sr. No. 1 (Total Tendered cost- 50% of Hardware Cost)
6	Final Completion including Training	20% of Balance Amount after Sr. No. 1 (Total Tendered cost- 50% of Hardware Cost)

11.2 Performance Guarantee amount (as Detailed in General terms & conditions of the tender) shall be released only after tenderer enters in individual AMC contract with each of the 48 stations after expiry of Warranty period.

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

Annexure -I**Stations where Studio & News Automation software are required**

S.No.	Zone	Stations
1	EZ	<i>Cuttack</i>
2		<i>Kolkata</i>
3		<i>Kurseong</i>
4		<i>Patna</i>
5		<i>Ranchi</i>
6	NEZ	<i>Aizwal</i>
7		<i>Dibrugarh</i>
8		<i>Guwahati</i>
9		<i>Imphal</i>
10		<i>Kohima</i>
11		<i>Shillong</i>
12	NZ	Delhi BH
13		<i>Gorakhpur</i>
14		<i>Jaipur</i>
15		<i>Jammu</i>
16		<i>Lucknow</i>
17		<i>Shimla</i>
18		<i>Srinagar</i>
19	SZ	<i>Bangalore</i>
20		<i>Chennai</i>
21		<i>Dharwad</i>
22		<i>Hyderabad</i>
23		Portblair
24		<i>Tiruchirapalli</i>
25		Trivandrum
26		Vijayawada
27	WZ	<i>Ahmedabad</i>
28		Aurangabad
29		<i>Bhopal</i>
30		<i>Bhuj</i>
31		<i>Indore</i>
32		Mumbai BH
33		<i>Nagpur</i>
34		<i>Panaji</i>

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

35		<i>Pune</i>
36		<i>Vadodara</i>

Annexure II**Stations where only Studio Automation software is required**

S.No.	Zone	Stations
1	NZ	<i>Allahabad</i>
2		<i>Bikaner</i>
3		<i>Delhi NCH</i>
4		<i>Jalandhar</i>
5		<i>Jodhpur</i>
6		<i>Rohtak</i>
7		<i>Varanasi</i>
8	SZ	<i>Kojikhode</i>
9		<i>Madurai</i>
10	WZ	<i>Mumbai VBS</i>
11		<i>Rajkot</i>
12		<i>Rewa</i>

Specifications of workstations available at 48 stations

564 Work Stations at 48 Stations	
HP Work Station	Model HP DEX 2280
Monitor	HP-TFT SVGA
Processor	P-IV @ 2.8 Ghz
ChipSet	Intel
DD RAM	1 GB
SATA StorageHDD	2x80 GB IDE
VideoMemory	8 MB
Raid	No
USB	2
Serial	2
Parellel	1
Operating System	Windows XP Professional
Sound Card	VX222HR , Digigram 2 No.

Annexure –IV**Numbers of workstations available at 48 stations**

Sno	Name of Station	Desk Top
1	Cuttack	16
2	Kolkatta	30
3	Kurseong	6
4	Patna	15
5	Ranchi	8
6	Aizwal	9
7	Dibrugarh	7
8	Guwahati	14
9	Imphal	9
10	Kohima	8
11	Shillong	12
12	Allahabad	8
13	Bikaner	6
14	Delhi BH	26

Sno	Name of Station	Desk Top
15	Delhi N.C.	7
16	Gorakhpur	9
17	Jaipur	11
18	Jalandhar	14
19	Jammu	12
20	Jodhpur	9
21	Lucknow	14
22	Rohtak	7
23	Shimla	6
24	Srinagar	13
25	Varanasi	8
26	Banglore	13
27	Chennai	29
28	Dharwad	9

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

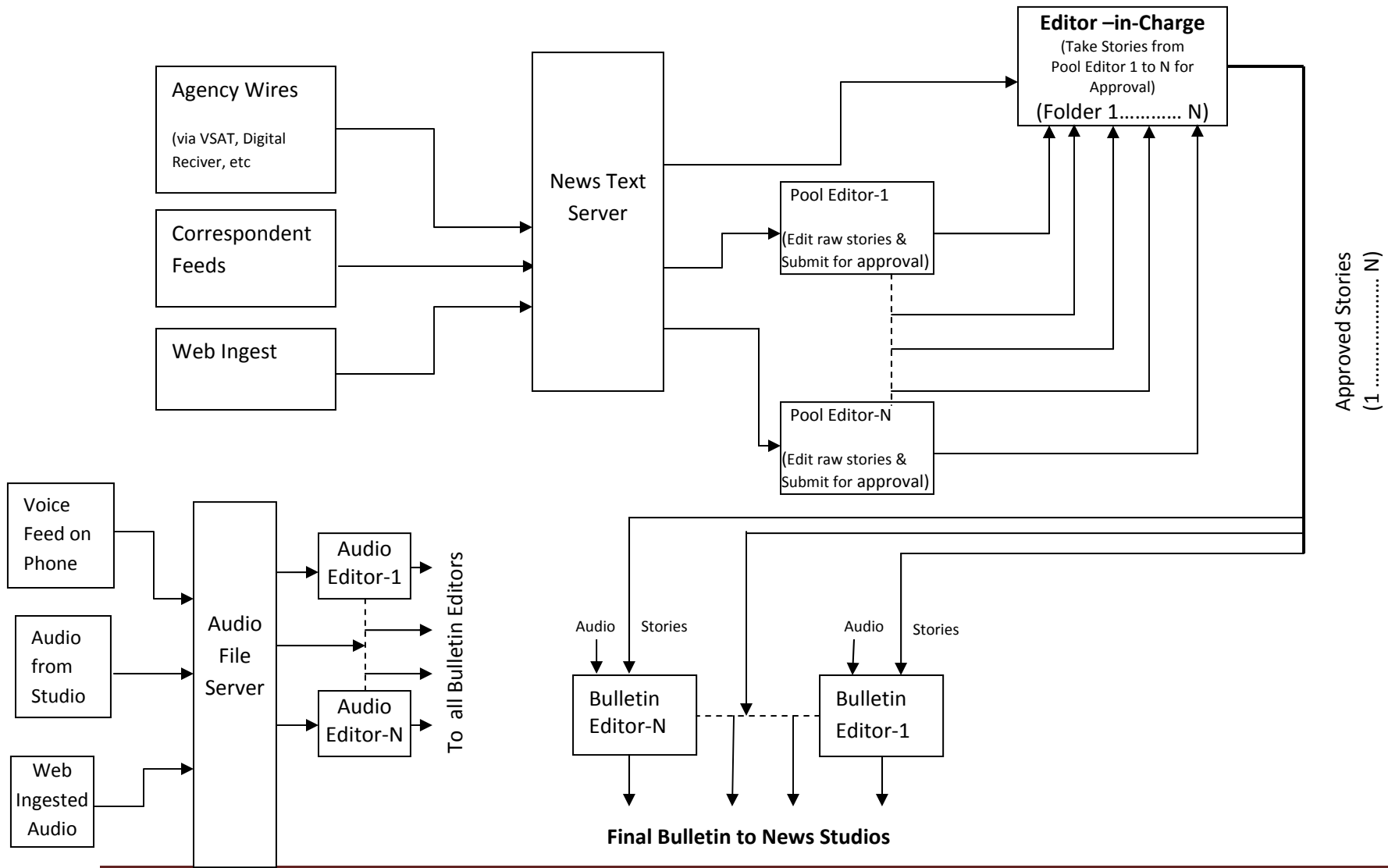
(R.K. Budhraja)
Director Engg.(MR)

Sno	Name of Station	Desk Top
29	Hyderabad	19
30	Kozikhod	9
31	Madurai	6
32	Port Blair	6
33	Triuchirapalli	13
34	Trivendrum	15
35	Vijayawada	9
36	Ahmdabad	12
37	Aurangabad	6
38	Bhopal	11
39	Bhuj	6
40	Indore	10
41	Mumbai BH	39
42	Mumbai VBS	8
43	Nagpur	10
44	Panaji	14
45	Pune	12
46	Rajkot	10
47	Rewa	6
48	Vadodra	8

Note : These stations may have some more workstations available with them of different configuration.

News Flow Chart of AIR News

Annexure –V



(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraja)
Director Engg.(MR)

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

Bill of Material (BOM)

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total
		BH Delhi	Mumbai Kolkata Chennai	Lucknow Jaipur Patna Ahmedabad Pune Indore Nagpur Bhopal Bangalore Hyderabad Thiru'puram	Srinagar Jammu Simla Gorakhpur Cuttack Kurseong Ranchi Shillong Guwahati Imphal Kohima Aizwal Dibrugarh Panaji Bhuj Aurangabad Vadodara Vijaywada Portblair Dharwad Tiruchrapalli	Type-C - 5 Nos Varanasi Rajkot VBS M'bai, Madurai Kozhikod Type-B - 7 Nos Jalandhar Allahabad Jodhpur Rohtak Bikaner N. Ch. Delhi Rewa	
		X 1	X 3	X11	X21	X12	
1	Studio Automation Software- Audio Ingest Module Spec. Ref. : 3.2.1	Station-wise Module details in Annexure-VII-A					487
2	Studio Automation Software- Recording Module Spec. Ref. : 3.2.2	Station-wise Module details in Annexure-VII-A					487
3	Studio Automation Software- Editing Module Spec. Ref. : 3.2.3	Station-wise Module details in Annexure-VII-A					487

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total
		X 1	X 3	X11	X21	X12	
4	Studio Automation Software- Database Audio Explorer/ Search Module Spec. Ref. : 3.2.4	Station-wise Module details in Annexure-VII-A					1005
5	Studio Automation Software- Scheduling Module Spec. Ref. : 3.2.5	Station-wise Module details in Annexure-VII-A					234
6	Studio Automation Software- ON-AIR Module Spec. Ref. : 3.2.6	Station-wise Module details in Annexure-VII-A					474
7	News Automation Software- Wire Service Ingest Module Spec. Ref. : 3.3.1.1	2 (6 News Feed)	1 (6 News Feed)	1 (4 News Feed)	1 (4 News Feed)	0	37
8	News Automation Software- Fax Ingest Module Spec. Ref. : 3.3.1.2	1	1	1	1	0	36
9	News Automation Software- E-mail Ingest Module Spec. Ref. : 3.3.1.3	4	1	1	1	0	39
10	News Automation Software- Unattended Phone Audio Ingest Module Spec. Ref. : 3.3.1.4	3	1	1	1	0	38
11	News Automation Software- SMS Ingest Module Spec. Ref. : 3.3.1.5	1	1	1	1	0	36

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total
		X 1	X 3	X11	X21	X12	
12	News Automation Software- Image Ingest Module Spec. Ref. : 3.3.1.6	1	1	1	1	0	36
13	News Automation Software- News Text Editor Module Spec. Ref. : 3.3.2.1	60	6	4	3	0	185
14	News Automation Software- News Explorer Module Spec. Ref. : 3.3.2.2	Station-wise Module details in Annexure-VII-B					474
15	News Automation Software- Audio Recording & Editing Module Spec. Ref. : 3.3.2.3	20	4	2	2	0	96
16	News Automation Software- Communication Module Spec. Ref. : 3.3.2.4	Station-wise Module details in Annexure-VII-B					474
17	News Automation Software- News Scheduling Module Spec. Ref. : 3.3.2.5	10	2	1	1	0	48
18	News Automation Software- News Broadcast Module Spec. Ref. : 3.3.3.1	Station-wise Module details in Annexure-VII-B					106
19	News Automation Software- Text Prompter Module Spec. Ref. : 3.3.3.2	Station-wise Module details in Annexure-VII-B					106

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total
		X 1	X 3	X11	X21	X12	
20	News Automation Software- Web Publishing Module Spec. Ref. : 3.3.3.3	4	1	1	1	0	39
21	Studio & News Automation Software- On-AIR Logging Module Spec. Ref. : 3.4.1	Station-wise Module details in Annexure-VII-B					56
21	Studio & News Automation Software- Transaction Logging Module Spec. Ref. : 3.4.2	As per requirement. To be decided by Tenderer					
22	Studio & News Automation Software- Archiving Module Spec. Ref. : 3.4.3	5	3	2	2	1	90
23	Studio & News Automation Software- System Administration Module Spec. Ref. : 3.4.4	2	2	2	2	1	84
24	Studio & News Automation Software- Billing, Traffic & Reporting Module Spec. Ref. : 3.4.5	Station-wise Module details in Annexure-VII-B					140
25	Studio & News Automation Software- System Logging for Health Monitoring Module Spec. Ref. : 3.4.6	As per requirement. To be decided by Tenderer					

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhreja)
Director Engg.(MR)

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total
		X 1	X 3	X11	X21	X12	
26	Studio & News Automation Software-WAN Functionality Module Spec. Ref. : 3.1.14	1	1	1	1	1	48
27	Blade Enclosure Spec. Ref. : 4.2	1	1	0	0	0	4
28	Audio-News-cum-Database Clustered Servers (Blade Type) Spec. Ref. : 4.3	1+1	1+1	0	0	0	4X (1+1) =8
29	Application Server (Blade Type) Spec. Ref. : 4.3	Nos to be quoted & Indicated by tenderer for satisfactory operation of software		0	0	0	As per requirement
30	Backup Server (Blade Type) Spec. Ref. : 4.3	1	1	0	0	0	4
31	Audio –News-Cum-Database Clustered Servers (Rack Type) Spec. Ref. : 4.4	0	0	1+1	1+1	1+1	44X (1+1) =88
32	Application Server (Rack Type) Spec. Ref. : 4.4	0	0	Nos to be quoted & Indicated by tenderer for satisfactory operation of software			As per requirement
33	Backup Server (Rack Type) Spec. Ref. : 4.4	0	0	1	1	1	44
34	Scheduler Workstations Spec. Ref. : 4.5	Station-wise details in Annexure-VII-C					140
35	External SAN Storage (Type-1) With FC, SAS & SATA/FATA Disks (with 1/3rd capacity of FC Disks & 2/3rd capacity of SAS/SATA Disks) Spec. Ref. : 4.6	1 (10 TB Capacity)	1 (6TB Capacity)	0	0	0	4

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhreja)
Director Engg.(MR)

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total
		X 1	X 3	X11	X21	X12	
36	External SAN Storage (Type-II) Capacity Spec. Ref. : 4.7	0	0	1	1	1	44
		NA	NA	4 TB	3 TB	VBS, M'bai-6 TB, AIR Jalandhar- 4 TB, Rest of stations- 3 TB	
37	Ethernet switch Spec. Ref. : 4.8	2	2	4	4	4	184
38	KVM Switch Spec. Ref. : 4.8	0	0	1	1	1	44
39	Tape Library for Backup Spec. Ref. : 4.9	1	1	0	0	0	4
40	External LTO-4 Drive for Backup Spec. Ref. : 4.9	0	0	1	1	1	44
41	Fire-wall/Internet security Device Spec. Ref. : 4.10 Users 100 Port Throughput 200 Mbps Concurrent sessions 100000 New Session connections /sec 4000 Ethernet Ports 2 Nos of 10/100/1000 Mbps 4 Nos of 10/100 Mbps	1	1	0	0	0	4

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total	
		X 1	X 3	X11	X21	X12		
42	Fire-wall/Internet security Device Spec. Ref. : 4.10 Users 25 Port Throughput 100 Mbps Concurrent sessions 25000 New Session connections /sec 2000 Ethernet Ports 4 Nos of 10/100 Mbps	0	0	1	1	1	44	
43	UPS 2x5 kVA ONLINE Spec. Ref. : 4.11	1	1	1	1	1	48	
44	Hardware required for client workstations Spec. Ref. : 2.2	As per requirement for efficient & satisfactory functioning of Automation software Modules						
45	All cables, patch cords, mating connectors along with 10% extra as spares Spec. Ref. : 2.8	As per requirement						
46	Hardware for Fax Ingest (If any) Spec. Ref. : 3.3.1.2.1	1	1	1	1	0	36	
47	Hardware for unattended Telephone Ingest (If any) Spec. Ref. : 3.3.1.4.3	1	1	1	1	0	36	
48	Hardware for Auto Logger Spec. Ref. : 3.4.1.1	As per Number of ON-AIR Logging Modules specified in Annexure-VII-B						62
49	42U 19" Industry standard Racks Spec. Ref. : 4.1.8	As per requirement for housing all server components						

(A.K. Jain)
 Superintending Engineer (NBH)

(A.K. Dixit)
 Director Engg.(SD)

(R.K. Budhreja)
 Director Engg.(MR)

S. No	Item	Delhi	Type-E – 3 Nos	Type-D 11 Nos	Type –C with News- 21 Nos	Type C & Type B without News-12 Nos	Total
		X 1	X 3	X11	X21	X12	
50	Aluminium Glass Partition for server Room Spec. Ref. : 4.1.9	1	1	1	1	1	48
51	Split AC -2 TR Spec. Ref. : 4.1.9	2	2	2	2	2	96
52	O.S.(s) With sufficient CALs Spec. Ref. : 5.2	1	1	1	1	1	48
53	RDBMS(s) with sufficient CALs Spec. Ref. : 5.3	1	1	1	1	1	48
54	Network Anti-Virus with sufficient CALs and one year Virus definition updates Spec. Ref. : 5.4	1	1	1	1	1	48
55	Backup Software Spec. Ref. : 5.5	1	1	1	1	1	48

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

Annexure –VII A

Station –Wise Software Modules Requirements

S.No.	Stations	Studio Automation Modules					
		Ingest Module	Recording Module	Editing Module	Search Module	Scheduling Module	ON-AIR Module
1	Delhi BH	44	44	44	150	60	60
2	Kolkata	15	15	15	47	9	21
3	Chennai	19	19	19	47	10	24
4	Mumbai BH	27	27	27	59	10	27
5	Patna	12	12	12	22	3	6
6	Lucknow	8	8	8	23	5	12
7	Jaipur	8	8	8	17	3	6
8	Ahmedabad	9	9	9	18	3	9
9	Pune	12	12	12	18	3	6
10	Indore	9	9	9	15	3	6
11	Nagpur	8	8	8	15	3	6
12	Bhopal	9	9	9	17	3	9
13	Bangalore	12	12	12	27	10	24
14	Hyderabad	14	14	14	30	6	15
15	Thiruvananthapuram	12	12	12	27	8	18
16	Srinagar	10	10	10	22	5	12
17	Jammu	9	9	9	20	5	12
18	Shimla	7	7	7	10	3	6
19	Gorakhpur	7	7	7	13	1	3
20	Cuttack	13	13	13	24	4	12
21	Kurseong	8	8	8	9	1	3
22	Ranchi	7	7	7	14	4	9
23	Shillong	10	10	10	19	4	9

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

24	Guwahati	9	9	9	23	5	12
25	Imphal	8	8	8	14	3	6
26	Kohima	8	8	8	13	3	6
27	Aizwal	8	8	8	14	3	6
28	Dibrugarh	8	8	8	10	1	3
29	Panaji	8	8	8	20	3	9
30	Bhuj	7	7	7	9	1	3
31	Aurangabad	8	8	8	9	1	3
S.No.	Stations	Studio Automation Modules					
		Ingest Module	Recording Module	Editing Module	Search Module	Scheduling Module	ON-AIR Module
32	Vadodra	7	7	7	13	3	6
33	Vijayawada	7	7	7	15	4	9
34	Portblair	8	8	8	12	4	9
35	Dharwad	8	8	8	14	3	6
36	Tiruchirapalli	8	8	8	20	4	9
37	Varanasi	7	7	7	13	3	6
38	Rajkot	8	8	8	17	4	9
39	Mumbai VBS	9	9	9	12	1	3
40	Madurai	8	8	8	9	1	6
41	Kozhikod	8	8	8	14	3	6
42	Jalandhar	10	10	10	24	6	15
43	Allahabad	8	8	8	13	3	6
44	Jodhpur	8	8	8	14	3	6
45	Rohtak	8	8	8	12	3	6
46	Bikaner	7	7	7	9	1	3
47	National Channel	8	8	8	10	1	3
48	Rewa	7	7	7	9	1	3
	Total	487	487	487	1005	234	474

Annexure –VII B

Station –Wise Software Modules Requirements

22	Ranchi	9	2	2	9	1	3
23	Shillong	9	2	2	9	1	3
S.No. 24	Guwahati	News Explorer Module	News Broadcast Module	Text Promptor Module	Communication Modules	ON-AIR Logging Module	Billing, Traffic & Reporting Module
25	Imphal	9	2	2	9	1	3
26	Kohima	9	2	2	9	1	3
27	Aizwal	9	2	2	9	1	3
28	Dibrugarh	9	2	2	9	1	3
		Software Modules					
S.No.	Stations	News Explorer Module	News Broadcast Module	Text Promptor Module	Communication Modules	ON-AIR Logging Module	Billing, Traffic & Reporting Module
29	Ahmedabad	10	3	3	10	1	2
30	Bhopal	10	2	2	10	1	2
30	Aurangabad	10	2	2	10	1	2
32	Vadodra	10	2	2	10	1	2
32	Vijaywada	10	3	3	10	1	2
33	Bangalore	13	5	5	13	2	8
34	Hyderabad	13	3	3	13	2	8
35	Thiruvananthapuram	10	3	3	10	2	8
36	Varanasi	9	0	0	9	1	4
38	Bikaner	10	0	0	10	1	4
38	Mumbai/BS	9	0	0	9	1	2
40	Gwalior	8	0	0	8	1	1
40	Kolkata	11	0	0	11	1	2
42	Kanpur	8	0	0	8	2	5

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhreja)
Director Engg.(MR)

43	Allahabad	0	0	0	0	1	2
44	Jodhpur	0	0	0	0	1	2
45	Rohtak	0	0	0	0	1	2
46	Bikaner	0	0	0	0	1	1
47	National Channel	0	0	0	0	1	1
48	Rewa	0	0	0	0	1	1
	Total	474	106	106	474	56	140

Annexure –VII C

Station –Wise Scheduler Workstation Requirement Requirements

S.No.	Stations	Scheduler Workstation Requirement
1	Delhi BH	8
2	Kolkata	7
3	Chennai	8
4	Mumbai BH	8
5	Patna	2
6	Lucknow	4
7	Jaipur	2
8	Ahmedabad	2
9	Pune	2
10	Indore	2
11	Nagpur	2
12	Bhopal	2
13	Bangalore	8
14	Hyderabad	5
15	Thiruvananthapuram	6
16	Srinagar	4
17	Jammu	4
18	Shimla	2
19	Gorakhpur	1
20	Cuttack	3
21	Kurseong	1
22	Ranchi	3
23	Shillong	3
24	Guwahati	4
25	Imphal	2
26	Kohima	2
27	Aizwal	2
28	Dibrugarh	1
29	Panaji	2

S.No.	Stations	Scheduler Workstation Requirement
31	Aurangabad	1
32	Vadodra	2
33	Vijayawada	3
34	Portblair	3
35	Dharwad	2
36	Tiruchirapalli	3
37	Varanasi	2
38	Rajkot	3
39	Mumbai VBS	1
40	Madurai	1
41	Kozhikod	2
42	Jalandhar	5
43	Allahabad	2
44	Jodhpur	2
45	Rohtak	2
46	Bikaner	1
47	National Channel	1
48	Rewa	1
	Total	140

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraja)
Director Engg.(MR)

(A.K. Jain)
Superintending Engineer (NBH)

(A.K. Dixit)
Director Engg.(SD)

(R.K. Budhraj)
Director Engg.(MR)