



ATHARVA EDUCATIONAL TRUST'S
ATHARVA COLLEGE OF ENGINEERING
(Approved by AICTE, Recognized by Government of Maharashtra
& Affiliated to University of Mumbai - Estd. 1999 - 2000)
Department of Electronics and Telecommunication

Report on Academic Industrial visit to ALL INDIA RADIO TRANSMITTER MALAD(WEST).

Topics covered :-

1. Signal Transmission Techniques
 - a. Analog Signal Transmission Methods
 - b. Digital Signal Transmission Methods



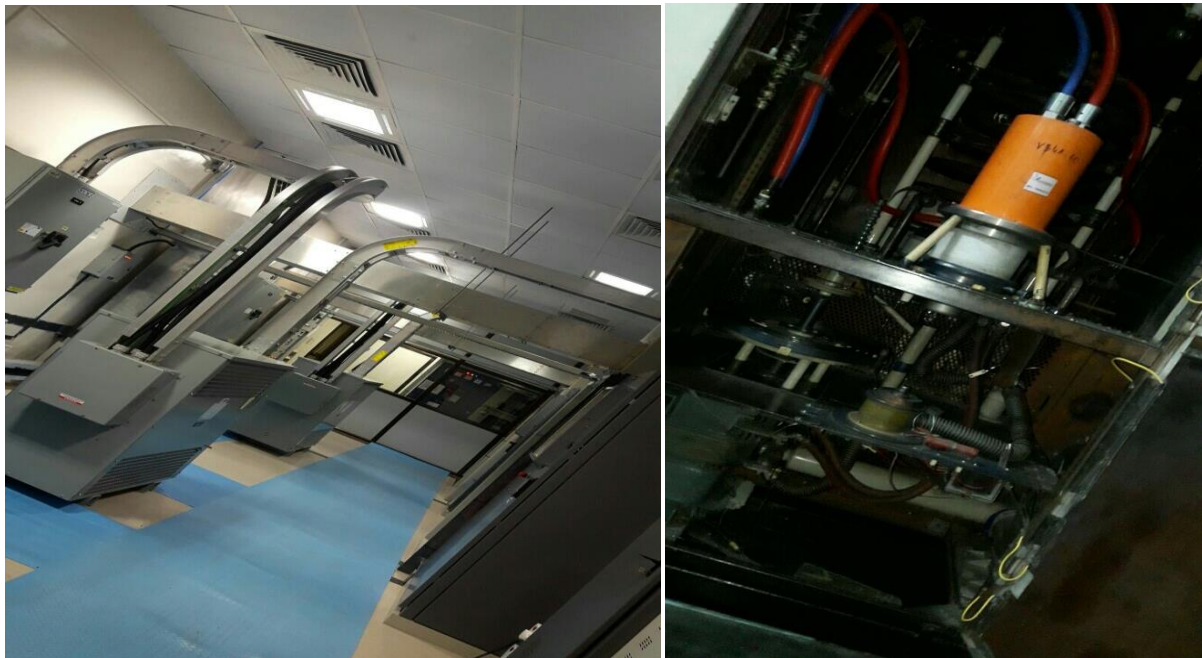
1. . Analog Signal Transmission Methods

We were shown an analog modulating device which was imported by India in 1980's, there were 2 of them .These were used to transmit various contents in different languages like Hindi, Urdu, Marathi etc.

In morning the frequency used to be nearly 7000 Hz and in evening around 11 kHz there were different valves and components which facilitated the transfer. There are precisely two devices for analog modulation;1 for carrier wave and other for the modulating signal, though the machines are nearly 30 years old ,they are quite sufficient in their working and efficient that they could be relied now a day's too.

These machines use the old school coils, capacitors, diodes, Conductors, Insulators, Wires, Load and cooling agents to do their job.These devices draw power from the transformers which are connected in the station. It is a 3 phase line via which the devices as well as the station run.

Some of the pictures of short wave Analog Modulation Techniques





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2. Digital Signal Transmission Methods

Digital transmission is the sending of information over a physical communications media in the form of digital signals. Analogue signals must therefore be digitized first before being transmitted.

According to definition its truly satisfies its meaning when we have seen digital transmission and receiving machines and their operations. We understand the basic contents that lie behind them and how they work.

Data transmission also data communication or digital communications is the transfer of data (a digital bit stream or a digitized analog signal[1]) over a point-to-point or point-to-multipoint communication channel. Examples of such channels are copper wires, optical fibers, wireless communication channels, storage media and computer buses. The data are represented as an electromagnetic signal, such as an electrical voltage, radio wave, microwave, or infrared signal.

We have also seen that how the digital signals are received,

And what are the problems that are faced by them while receiving the signal.

In communications, sources of interference are usually present, and noise is frequently a significant problem. The effects of interference are typically minimized by filtering off interfering signals as much as possible and by using data redundancy.

The main advantages of digital signals for communications are often considered to be the immunity to noise that it may be possible to provide, and the ability, in many cases such as with audio and video data, to use data compression to greatly decrease the bandwidth that is required on the communication media.

- a. We have also seen the various services that are offered by them like,
Sharing of Prasar Bharati Infrastructure such as Tower, (STL Tower, self supporting SW tower, integrated TV/FM tower) building, land on licence fee basis, on most competitive rates to Broadcast Service Providers. Towers and space to Mobile operators on rental : Very affordable Rate Card, upto 70 mtr. Tower, covered space and Open space for Pvt. FM Broadcasters on very affordable rates to have minimum gestation period in all 91 cities proposed by Ministry of I&B under Phase-II Scheme Consultancy services including feasibility studies, turn-key jobs and operations & maintenance in the specialized fields of
- b. Terrestrial Broadcasting for Radio and Television : This includes the frequency planning, coverage planning, system design, installation, testing and commissioning, operation and maintenance of terrestrial broadcast FM/MW/SW transmitter networks.
- c. Satellite Broadcasting: This includes planning and system design, execution and operation of fixed and mobile (SNG) uplink and down-link systems using both analog and digital technologies.



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- d. Studio systems including interior design, acoustics, state-of-the-art Radio & TV studios and post production equipment.
 - e. Data Broadcasting & Internet Broadcasting. Acoustics and audio video system for theatres, auditoriums and conference halls. Turnkey solutions for establishment of 50 Watt FM Community Radio Station for Universities/Colleges/Residential Schools.
 - f. Selling of Air time on MW/FM/SW Broadcast transmitter network of AIR to educational/agricultural institutes.
 - g. Providing on site and institutional training in various disciplines of broadcasting. Project Implementation and co-ordination. Software development, Non-linear Editing and Animation.
 - h. Operation and Maintenance of broadcast Transmitter and Studio Equipment. Network Planning and Management. Software development and content packaging.
 - i. Civil & Electrical construction work specially for broadcasting setups, Auditoriums and conference halls etc.
1. Transfer of Technology.
 2. Remote Telemetry system for FM Broadcast Transmitter
 3. Satellite based Telemetry system for remotely located, unmanned TV transmitter.
 4. FM Broadcast Transmitter & Antenna
 5. Digital News gathering for Radio PSTN/ Cellular/ SAT Phone/ ISDN.
 6. Radio News room Automation system RDS & DARC on FM transmitters
 7. Performance Measurement and Field Strength Survey Analysis of Broadcast System after completing Project.
 8. Test facilities for Acoustic material testing

Acoustical measurements and Electro Acoustic Transducer Testing. Key objectives in every project undertaken are:

- Flexible, state-of-the-art and cost effective solution to every customer's specific requirement.
- Emphasis on total professional approach, on schedule completion of projects and customer satisfaction.
- High quality and cost effective operation and maintenance support.
- Consultancy and advice in selection of appropriate equipment in customer's best interest.
- Technical Expert Services Groups

Acoustics Engg., Antenna Engg., Audio Engineering, Automation, Telemetry, FM Data Broadcasting, DRM, Digital Video, Internet, Networking, Propagation and Frequency Planning, Satellite & Microwave, Video Systems.



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Some of the pictures taken during industrial visit





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