

# MARS NEWSLETTER

(STRICTLY FOR PRIVATE CIRCULATION AMONG MEMBERS ONLY)



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## The Editor's note

Hello fellow HAMs.

For many of us who are used to communicating at ionospheric levels, this very ordinary terrestrial method of paper based communication may probably seem very primitive. Be that as it may, our species still relies on maintaining paper based records for many of our activities. Moreover, we can unabashedly admit that we love to see our names and photographs in print. Therein lies the reason for such a reproduction - our MARS newsletter!

It has been an amazing year for us behind the editorial desk. We have managed to form a team - some with a modicum of experience with the print media, others barely so. Nevertheless, we have assimilated articles, conjured write ups, collected amateur radio related trivia and successfully published two editions in the past two quarters and the excitement has only built up. Along the way, we have gathered bouquets and brickbats. Of course, we welcome both - one works to help us continue with our good work, the other kicks us into improving what we do!

In the past two quarters we have had many events that are covered in detail within these pages. Some are reports of routine happenings but others are extraordinary and a testament to the true nature of Amateur Radio.

We hope you enjoy reading this newsletter. Though it is technically meant for circulation among our small HAM club, nonetheless, it would give us immense pleasure if it is spread to other HAM groups. Who knows, someday, if the propagation conditions are just right then we could be heard across the globe!

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## From the President's desk



Dear members and friends,

This quarter saw the country  
conduct one of the largest General  
elections in the world. Being  
mindful of this massive exercise, we  
could not organise any programme  
for the members in April.

However, the next month saw our HAMs back in action. On  
25<sup>th</sup> May, OM Raghav - VU3VWR made an informative  
presentation about "Propagation"; the meeting was held at  
"Vivekananda Hall" P.S. High school, Mylapore. The  
presentation was excellent and well received by members.

22<sup>nd</sup> June saw the execution of a well planned visit to a  
PCB manufacturing unit. About 20 members and SWLs who  
participated had an opportunity to witness the entire  
manufacturing process from the design stage in the PC,  
Epoxy sheet cutting, screen preparation, UV exposing,  
screen printing, etching, drilling, legend marking and  
tinning.

Every quarter has its ups and downs and it was no differnt  
this time. Our fellow HAM, VU2PGM - Ashok became a  
silent key on 22<sup>nd</sup> May 2024. We pray for his soul to attain  
Shanti.

Moving on, in the next quarter, the club is looking forward  
to hosting another Net check-in contest. Additionally, the  
committee is also working on a visit to the Air traffic control  
tower at Meenambakkam Airport. A Field day for the  
members is also on the cards. Till then.....

With best wishes to all,

73s

P.Thiagarajan

VU2PTR

**18**  
**APRIL**



arrl.org

# WORLD AMATEUR RADIO DAY

Every year on April 18, radio amateurs all over the world and their national associations celebrate World Amateur Radio Day (WARD). These associations are organised as member-societies of the International Amateur Radio Union (IARU) and it was on this day in 1925 that the IARU was formed in Paris.

Amateur Radio experimenters were the first to discover that the short wave spectrum could support worldwide propagation. So just two years later, at the International Radiotelegraph Conference, Amateur Radio gained the allocations still recognised today — 160, 80, 40, 20, and 10 meters.

On World Amateur Radio Day, all radio amateurs take to the airwaves to enjoy their global friendship with other amateurs, and to promote their skills and capabilities to the public.



## Members eyeball QSO

The quarter's members' meeting of MARS Amateur Radio Society which was held on Saturday, 25th May, 2024 at 6.15 pm IST (1815hrs) in the "Vivekananda Hall" of the P.S.High School Campus, Mylapore, Chennai.

After the usual formalities and pleasantries, it was now time for the main event. OM Arun Kumar - VU2BBF introduced the speaker of the evening, OM Raghav - VU3WVY.



OM Raghav VU3WVY made a very informative presentation about Propagation. He explained the behaviour of radio waves as they travel through the various parts of the atmosphere. He narrated the factors which affects propagation, viz: reflection, refraction, absorption, diffraction, polarization and scattering. He then explained how radio waves are bent (refracted)

by the ionosphere based on the ionization level of the layer and wavelength of the signal. He also added that signals with smaller wavelength tend to bend less and very high frequency and above almost never bend.

He beautifully elucidated about the various layers such as troposphere, stratosphere, mesosphere, thermosphere and finally the ionosphere which ranges from 10 kilometres to 280 kilometres with a colourful graphical diagram and also the distance of the layers from earth for the "D", "E" and "F" layers. He also clarified how different signals are reflected or absorbed by ionospheric layers at different times of the day.



OM Raghav touched upon the concept of "Greyline" - which is defined as a line

around the world that separates the regions receiving daylight and regions in darkness. He also told us about long and short path for Dxing. There was an explanation about solar indices, solar cycle, solar flux & sunspots and how it affects the communication. Finally, the presentation was concluded with techniques of earth to moon communication. The members, on their part, also raised very interesting questions and returned home with satisfying clarifications.



## Field Visit to a PCB factory

MARS Amateur Radio Society organized a visit to M/S Electropack Electronics, a Commercial PCB manufacturing unit at Guindy on 22nd June, 2024. About 20 members including SWLs participated in the visit.



Upon arrival on the site, OM P.Thyagarajan - VU2PTR, introduced Mr.Vellaichamy - the owner of the unit to all the members and briefed the purpose of the visit. Mr. Vellaichamy welcomed the members and described in brief the kind of activities going on currently and how the scenario was in the past. The factory was enjoying monopoly in the past with regard to PCB manufacturing and almost all the industries dealing with electrical and electronic gadgets were its customers. Even today it had the support of prominent customers. The unit was busy

with double side PCB manufacturing in the past and currently it is concentrating only on single side PCB manufacturing according to customer's requirements.

The whole process of making a PCB starts from cutting the copper cladded Glass Epoxy sheets to the desired size followed by cleaning the surface. Special computer software is used to draw the required circuit tracks and a master film is produced from the software. It is then screen printed to get the tracks on the already cleaned and cut copper cladded Glass sheets thus enabling mass production of the tracks on the Glass Epoxy sheets. The unwanted copper portion of the cladded sheets is then removed by etching with Ferric Chloride ( $\text{FeCl}_3$ ) solution. The process is fully automatic. The sheets are then dried and holes of different sizes are drilled to enable insertion of components such as resistors, capacitors, transistors etc. The PCB is now ready.



Mr. Vellaichamy, the proprietor of the firm was so enthusiastic that he himself led the entire team to each and every section of the unit explaining in detail the processes and the machinery operations. He also patiently answered with a smiling face, all the queries from the visitors. Though the unit takes care of producing bulk quantities of PCBs for commercial firms, Mr.Vellaichamy came forward to prepare and deliver even a single PCB for the ham community thus

showing his interest and involvement in promoting Ham Radio. He was ably assisted by the staff in-charge of each section. The visit came to an end around 12.30 p.m.

On behalf of MARS Amateur Radio Society and the SWLs, the secretary of MARS Amateur Radio Society, OM N.Deepan - VU2DPN, thanked the Proprietor Mr.Vellaichamy and his staff members for taking the pain to explain the complete processes taking place in the factory. The members too felt very happy and expressed their full satisfaction for making that day a fruitful one.



## Know your Rig

"Good morning to all and welcome to the Good morning network of the VHF group of Chennai through the MRR repeater working in 145.775 -ve shift. Inviting callers to the morning net, this is VU2DPN".....

This is how the mornings of most of the Chennai based HAMS starts, listening to the voice of OM Deepan - VU2DPN, who has been behind the mic at the MRR repeater for the past 34 years; the equipment there equally aged. Obviously, it needed some tender love & care.

So it was, that on a fine day OM Rajesh - VU2OW & OM Deepan - VU2DPN decided to take matters into their own hands - as true blue Amateur radio artists - they revamped our good old repeater.

And here its the story of that exercise.

**Repeater:** 145.775 -ve 600 Khz

**Location:** Atop Residency Hotel, Chennai

**Date of visit:** 4th April 2024

**Sweaty hams:** VU2DPN - Deepan & VU2OW - Rajesh

**Mission:**

- To replace the weather beaten metal repeater cabinet with a new cabinet to safeguard our repeater from the elements.
- To replace the old coaxial cable.



Rusted old cabinet and two old HAMS

### Some facts

- ✦ This repeater was commissioned 35+ years back by Deepan. Since that time, he has been maintaining it. That is dedication.
- ✦ The repeater and its duplexer are that much old too and so is the antenna – a double 5X8 diamond.
- ✦ The repeater was installed when the hotel was newly constructed. At that time, it was perhaps one of the tallest buildings in Madras.
- ✦ The repeater is in the terrace of the building. It is under a shade but completely exposed to rain and wind.



Working the antenna with the evening sun unrelenting

## The Toil

We arrive at the hotel at 1630 hrs and get on the job immediately. We go to the terrace, navigate a mesh of wires, cables and water pipes to reach the location.

We try to open the Godrej lock of the old 60 kg rusted cabinet but it doesn't budge a bit. So we painstakingly rip the lock with all our might.



*Living dangerously - carrying the cabinet through a network of pipes and cables*

We take the repeater out, clean all the dust from it, disconnect the duplexer, take it out and test everything with the NanoVNA. It's a bit out of tune but there is no way we can tune it.

We climb further up with a ladder to the tallest area of the building, navigate dangerously through mangled steel rods and parts of a tower which was dismantled and reach our antenna.

We replace the cable with a new cable LMR200.



*The cabinet lying upside down*



*Finally arrived at its designated location*

We replace the cable with a new cable LMR200.

Then we wait for the new cabinet – it was delivered finally, at 1830 hrs. We then move the cabinet painstakingly 11 floors up.

Then we clean everything up, install the repeater and duplexer in the new cabinet, test and finish the work.



Repeater & Duplexer in their new cabinet



Finally, time for a selfie with repeater. It is dark already - 1915 hrs.

*Cabinet - courtesy Deepan (the cost with transportation approx.Rs.9000/-*

**Future plans: (any & all support welcome)**

- Cover the cabinet with plastic cover
- Replace LMR200 with LMR400
- Replace antenna with a good one for VHF like the Diamond F23

# HAM RADIO



— WHERE —  
**DISTANCE**  
 IS JUST A NUMBER

**Over the Radio waves**

**VHF nets**

Frequency:  
145.775 MHz -ve 0.6 MHz shift

Morning net:  
07:00 AM to 07:15 AM

Goodnight net:  
21:00 PM to 21:15 PM

Vandu net:  
145.550 MHz -ve 0.6 MHz shift  
21:15 PM to 21:30 PM

**DMR UHF net**

Activity: Singara Chennai  
Location: Chennai  
Frequency:  
435.800 MHz -ve 1.7 MHz shift  
Time Slot: TS2  
Colour Code: 2  
Channel number on Chennai  
CodePlug: CH-37

Morning net:  
06:45 AM to 06:55 AM



**Website:**

<https://mars-ars.org/>



**Email :**

[info@mars-ars.org](mailto:info@mars-ars.org)



Image sourced from: [newhams.info](http://newhams.info)

**Ragchew -**

MARS newsletter would be happy to publish articles written by Amateur Radio enthusiasts in its forthcoming issues. We invite all HAMs to send in their manuscripts in Word format to the email id mentioned below. Please also send photos if possible in jpeg or png format.

Additionally, we invite your comments and critiques on the new look and feel of the MARS newsletter. We are open to suggestions for improvements.

In keeping with the times, this newsletter shall be available as an e-magazine only. We shall endeavour to provide future issues in a mobile friendly format too.

For sponsorship and advertisements please contact the President.

Any HAM interested in conducting workshops in Amateur Radio technology or communications related matters may contact the Executive committee for assistance.

If you want to demonstrate your homebrew kits or present a technical seminar on your experiments and expertise, you are most welcome.

We welcome HAMs who are interested in volunteering for the various activities that the club intends to conduct in future.



Image sourced from: [spreadshirt](#)