



ACTIVEHAMS AMATEUR RADIO SOCIETY

**Activehams Amateur Radio Society India**

AARS- INDIA ( <http://www.aars.in>)

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# Amateur Radio

# HAM Radio

July 3rd, 2017

Activehams Amateur Radio Society of India

AARS- INDIA ( <http://www.aars.in>)

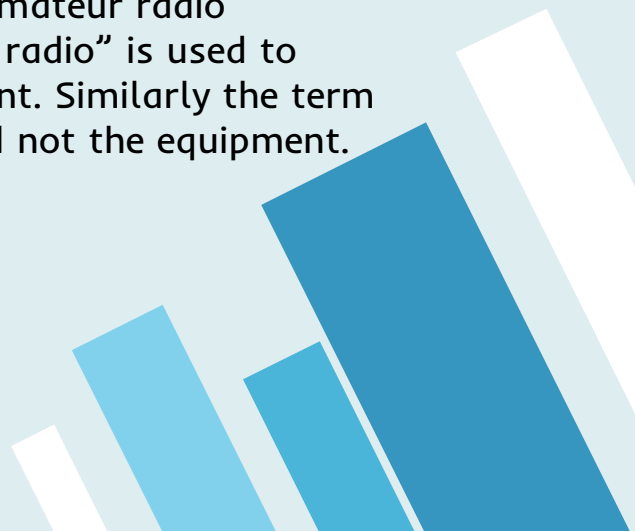
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## WHAT IS AMATEUR RADIO / HAM RADIO?

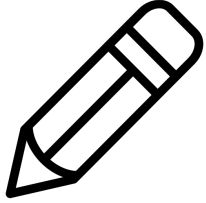
Amateur radio (commonly known as Ham Radio) is a non-commercial radio communication service. Amateur radio aims to provide emergency public service communication; technical training and experimentation. Amateur radio operators are commonly known as hams. The term “Ham radio” is used to describe the hobby of Amateur radio and not the equipment. Similarly the term “Ham” is used to describe a radio amateur enthusiast and not the equipment.





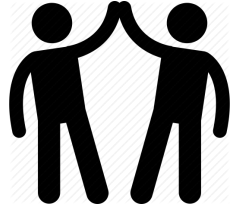
# HELLO!

Discover the Exciting  
World  
of Amateur Radio!



## Education

Ham Radio is a fantastic educational tool. Kids learn about electronics, engineering, physics, geography, other cultures, and much more.



## Make Friends

We have made lots of new friends through Ham Radio. These new friends come from many different countries and cultures and we are learning about the world!



## Travel the World

We talk to Hams all from countries all over the world on the radio, without telephone or Internet. We have even gone to other countries to put those countries on the air! Ham Radio opens up the world!



## Emergency

Ham Radio operators around the world help out in times of emergency and in disasters by providing communications. Cyclone Ockhi Kerala recently came to our town and we helped out with emergency communications.

## What is Ham Radio?

"Ham is another name for an amateur radio set. It is actually a simple radio transmitter and receiver which can be built and setup using simple and low cost equipment. The ham radio receives radio signals just like your home radio set.

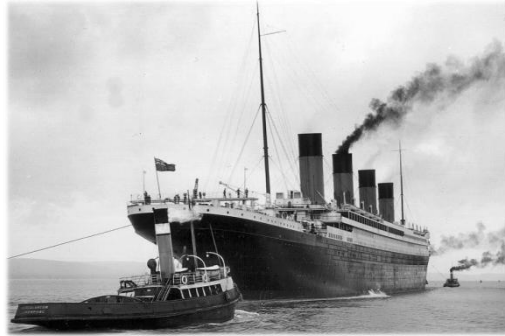
The only difference is that your home radio set receives signals only from a radio station. A ham radio receives signals from another ham radio. So, each ham radio is like a radio-station-cum-radio-receiver built into one. It is actually like operating a radio station from your home."



## History of Ham Radio

Well, it goes like this: The word "HAM" as applied to 1908 was the station CALL of the first amateur wireless stations operated by some amateurs of the **Harvard Radio Club**. They were **ALBERT S. HYMAN, BOB ALMY** and **POOGIE MURRAY**. At first they called their station "**HYMAN-ALMY-MURRAY**". *"Help All Mankind is the Policy of all HAMs"*

Amateur radio came into being after radio waves (proved to exist by Heinrich Rudolf Hertz in 1888) were adapted into a communication system in the 1890s by the Italian inventor Guglielmo Marconi.





## What you can do with a ham radio?

Once you have your ham radio set operational, you can simply tune into a channel, or tune frequencies (like the radio stations you tune into) and send and receive radio messages to all those who are currently on that channel. It is like an online chat except that it is on a radio set.

With a ham radio, you can connect to other people using ham radios across the globe. Several astronauts carry ham radio sets on their space voyages. If you are lucky, you can actually contact them. You can also contact trekkers or even explorers.

However, you have to write exams to get a ham radio license. This license enables you to setup and operate a ham radio station. Anyone can take these exams and they are very simple to clear. Try your hand at it this summer.."



Different Type of Wireless Equipments



# HAM enthusiasts help in relief operations in Chennai

M Rafi Ahmed

Chennai, Dec 7:  
At times of crisis, the role of Ham radio operators is indispensable as they help in communicating where there is no connectivity through any mode with the outside world. And in Chennai, the HAM radio operators came to the rescue of people involved in extending relief operations in several parts of across the city where residents are



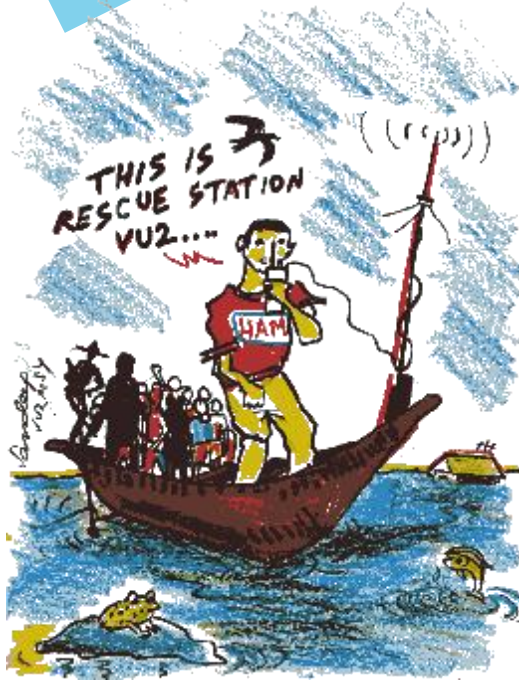
## HAMs in Disaster Management

26 th December, 2004 Indian Ocean

**Tsunami hits the land** An undersea earthquake occurred at 00:58:53 UTC At a magnitude of 8.9 , the earthquake generated a tsunami that was among the deadliest disasters in modern history.

**On 10 April 2016 at approximately 03:30 AM IST,** the Puttingal Temple in Paravur, Kollam, India, experienced an explosion and fire after firework celebrations went awry.

**On November 29, 2017 Cyclone Ockhi** threatened the Gujarat coast on Tuesday, more than 5,000 people were shifted to safer locations and National Disaster Response Force (NDRF) teams deployed in vulnerable places



- On 26 th January, 2001 8:43 A.M. 8. At 08:46 AM.....
- The Kachh District of Gujarat was hit by an earthquake of intensity 6.9 on Richter scale according to IMD.
- One of the worst earthquake occurred in the country during the last 180 years .
- And the re was Telecommunication black-out...
- The earthquake had destroyed or severely damaged 147 Telephone Exchanges.
- The STD circuits, fibber cables and STD services were disrupted.
- Total 1 lakh telephone connections in exchanges were not functioning.
- Optical fibber cable and copper cables were broken at innumerable places due to building collapse and falling debris.



Cyclone Ockhi Disaster Control centre, Kollam Dist Collectorate







# Different Wireless Communication Equipments and Antennas

Activehams Amateur Radio Society of India AARS- INDIA ( <http://www.aars.in> )



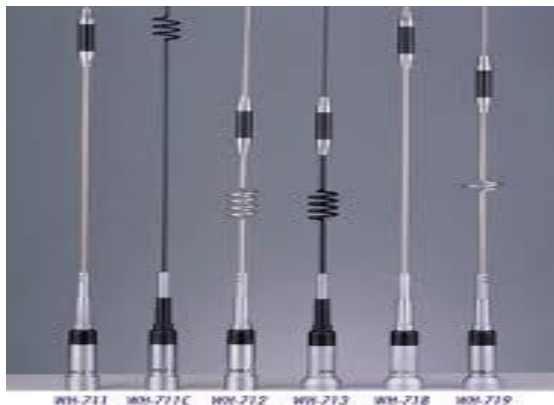
Hand-held (Handy)  
Satellite Antenna



VHF Base Station &  
Mobile Car Antenna



HF Base Station  
HF Antenna





# GALLERY







# How to Become a HAM



## How to Become a Radio Amateur

**Eligibility:** Any individual **above the age of 12** is permitted to appear for Amateur Station Operator Licence Examination and No Educational qualification is prescribed. It takes just two months (say two hours a day training) to become eligible for the examination.

**Syllabus:** One should qualify a simple test conducted in three subjects namely i) Morse Code (Transmission & Reception) ii) Communication Procedure iii) Basic Electronics.

**Examination :** The Officer-In-Charge, Wireless Monitoring Station, Dept. of Telecommunication under Ministry of Communication, Govt. of India is the authority for conducting these tests in their own town provided there are sufficient number of applicants. The licences are issued by Wireless Planning & Co-ordination Wing of DOT, Govt. of India after passing the test in any of the following grades:

### Type of Licence

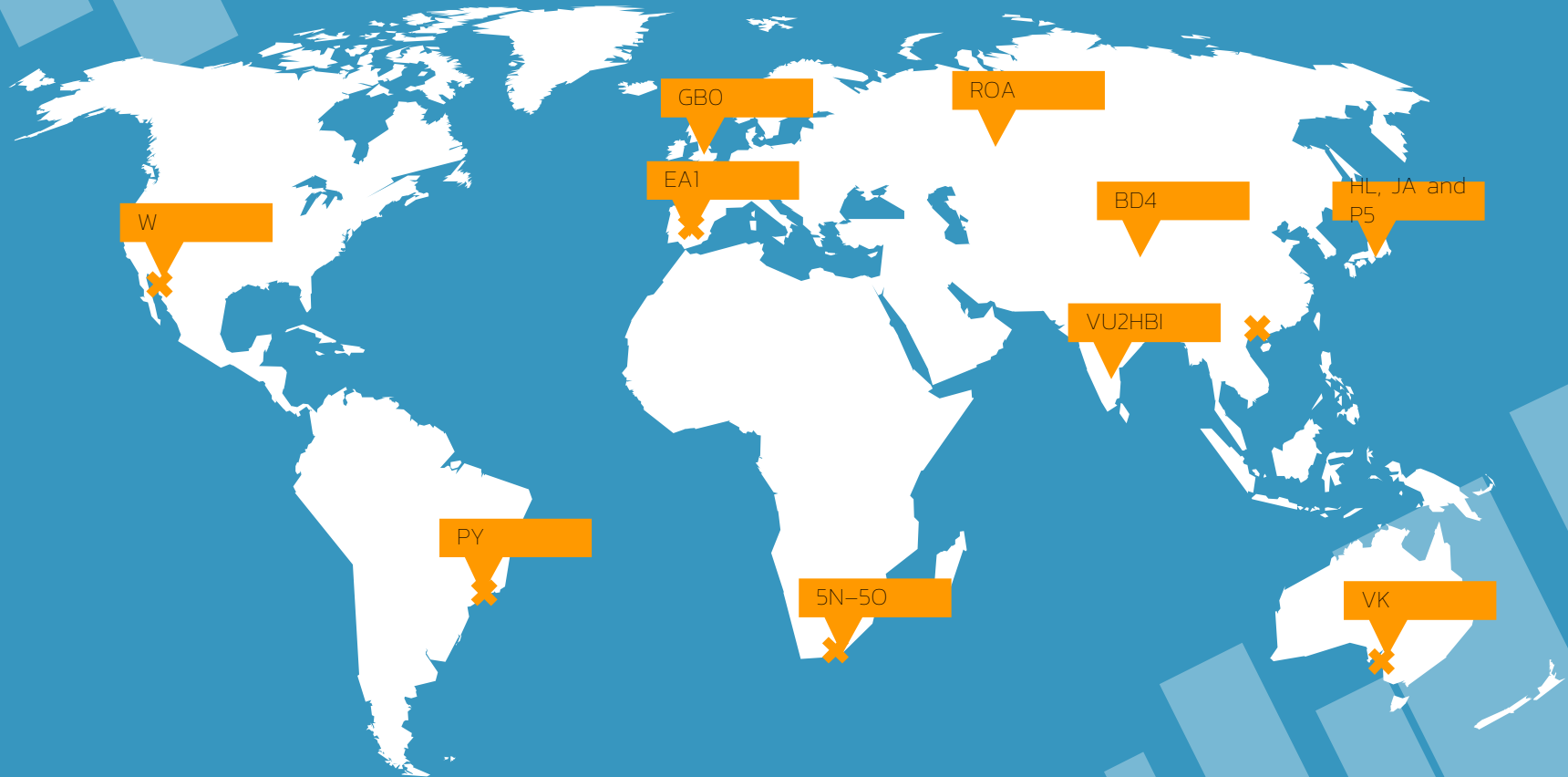
- Restricted Grade (Formerly Grade II) (VU3XXX)
- General Grade (Formerly Grade I and Advanced) (VU2XXX)

The Morse Code of 8 words per minutes sending-receiving will make eligible to get General grade licence and no Morse code test for Restricted grade licence, see the differences between these licences in detail.

**Study Materials:** Basic knowledge can be obtained by purchasing/downloading study manuals, books, and Morse Code training software or CDs from any of the amateur radio clubs or Societies.

- Local clubs - For those that like a structured approach, many clubs organize meetings and classes to teach the basic skills of radio operation and prepare people for their ham radio licence test. At the end of the classes, a test is given. If you pass, you're a ham!
- You can do it by yourself. Many books for beginners are available

# AMATEUR RADIO CQ ZONE MAP

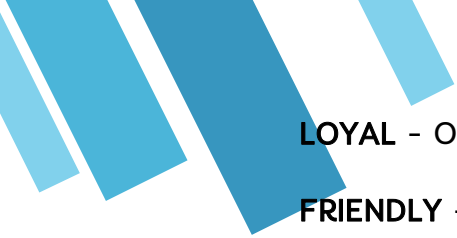




# Ethics & Code

Basic Rules & Regulations





**LOYAL** - Offers loyalty, encouragement and support to fellow amateur HAMS

**FRIENDLY** - Extends Assistance, Friendly Advice and Consult to all Hams

**CONSIDERATE** - Always ready to help and promote Ham hobby and causing least disturbance to anyone

**DEPENDABLE** - One can count on the services of Ham amateurs for the needy at all times

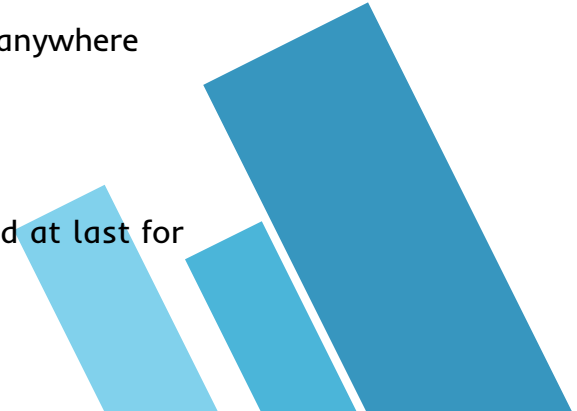
**MODERN** - Hams are always in step with the development and progress of the day to day activities that goes around the world

**BALANCED** - Remains calm and undisturbed at all times

**DUTIFUL** - Hams are prepared to work at any place at any time and anywhere foregoing their personal pleasure and comfort

**PATRIOTIC** - Ready towards the service, community and comfort

**SELFLESS** - Ham are first for their Country, Second for the Service and at last for themselves






## WHAT CAN I DO WITH A LICENSE?

You can:

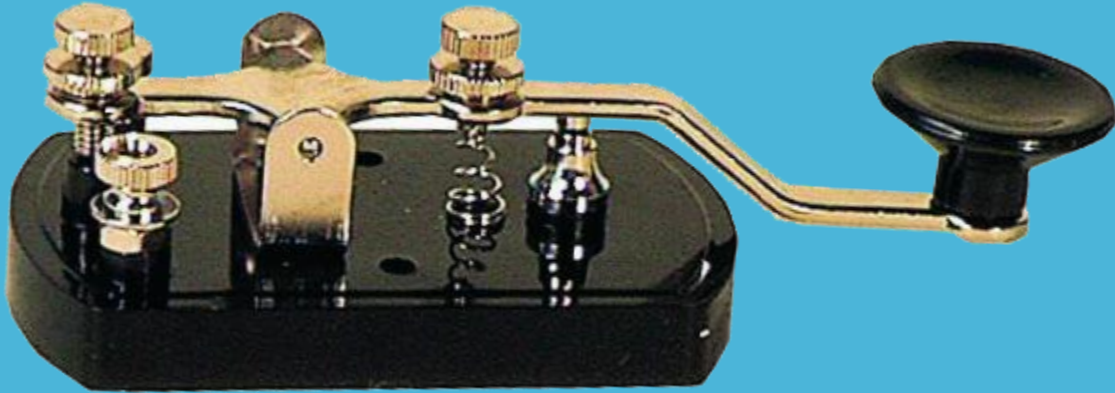
- Talk to other hams using voice, Morse code or computers.
- Build radios, antennas and learn electronics.
- Help in emergencies by providing communications.
- Help others become hams.
- Participate in contests and field days events.
- Participate in transmitter (fox) hunt games.
- Transmit and receive pictures.
- Experiment with satellite communications.

## WHAT CAN'T I DO?

You can't:

- Use it for transacting business.
  - Cause interference to other hams or radio services.
  - Use indecent language or profanities.
  - Broadcast music.
  - Send messages to or on behalf of non hams.
- 

# Morse Key & Codes





# Morse Code

Morse Code is a method of transmitting text information as a series of on-off tones, lights, or clicks that can be directly understood by a skilled listener or observer without special equipment. It is named for **Samuel F. B. Morse**, an inventor of the telegraph.



## International Morse Code

1. A dash is equal to three dots.
2. The space between parts of the same letter is equal to one dot.
3. The space between two letters is equal to three dots.
4. The space between two words is equal to seven dots.

A • —  
B — • • •  
C — • — •  
D — • •  
E •  
F • • — •  
G — — •  
H • • • •  
I • •  
J • — — —  
K — • —  
L • — • •  
M — —  
N — •  
O — — —  
P • — — •  
Q — — • —  
R • — • •  
S • • •  
T —

U • • —  
V • • • —  
W • — —  
X — • • —  
Y — • — —  
Z — — • •

1 • — — — —  
2 • • — — —  
3 • • • — —  
4 • • • • —  
5 • • • • •  
6 — • • • •  
7 — — • • •  
8 — — — • •  
9 — — — — •  
0 — — — — —



# Morse Code Phonetics Alphabet

Morse code is a method of transmitting text information as a series of on-off tones, lights, or clicks that can be directly understood by a skilled listener or observer without special equipment. It is named for **Samuel F. B. Morse**, an inventor of the telegraph. Click Here to listen Morse code aA to Z



## phonetic alphabet

|                      |                     |                     |
|----------------------|---------------------|---------------------|
| <b>A</b><br>alpha    | <b>B</b><br>bravo   | <b>C</b><br>charlie |
| <b>D</b><br>delta    | <b>E</b><br>echo    | <b>F</b><br>foxtrot |
| <b>G</b><br>golf     | <b>H</b><br>hotel   |                     |
| <b>I</b><br>india    | <b>J</b><br>juliett | <b>K</b><br>kilo    |
| <b>L</b><br>lima     | <b>M</b><br>mike    |                     |
| <b>N</b><br>november | <b>O</b><br>oscar   | <b>P</b><br>papa    |
| <b>Q</b><br>quebec   | <b>R</b><br>romeo   |                     |
| <b>S</b><br>sierra   | <b>T</b><br>tango   | <b>U</b><br>uniform |
| <b>V</b><br>victor   | <b>W</b><br>whiskey |                     |
| <b>X</b><br>xray     | <b>Y</b><br>yankee  | <b>Z</b><br>zulu    |

With this NATO alphabet chart you will no longer use "M as in Mancy" during a support call with your mom, or while defusing a bomb.



**semaphore**  
Pre-electronic flag letter signals for naval communication represented in a circle. The peace sign was created by combining the letters N (Nuclear) and D (Disarmament).

OUTSIDE OPEN



**international morse code**  
The world's first digital code. The length of each letter's code corresponds to the frequency of that letter's usage in Morristown, New Jersey's newspaper in 1857.

Download this poster at [outsideopen.com/alphabets](https://outsideopen.com/alphabets)



**international code of signals**  
These maritime flags are used to visually communicate letters and messages while maintaining radio silence.

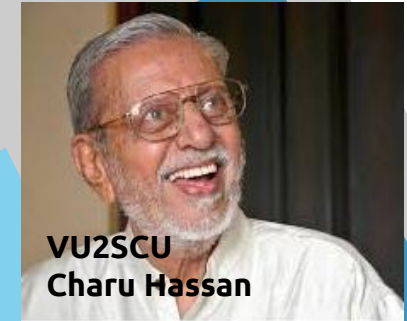
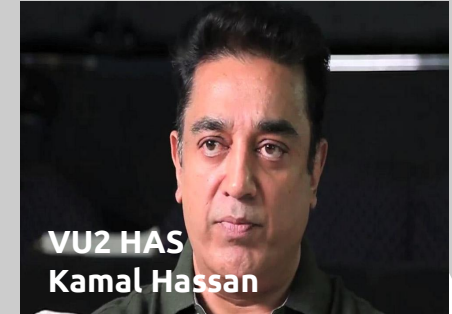
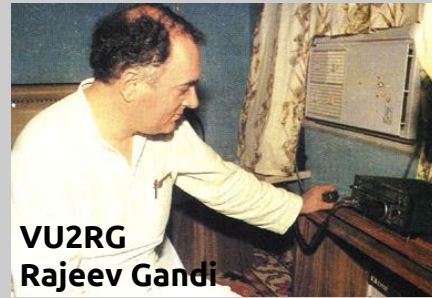
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# **FAMOUS RADIO AMATEURS**




Among the **famous hams** in India are Amitabh Bachchan (VU2AMY), late Prime Minister Rajiv Gandhi (VU2RG) and Kamal Hassan (VU2HAS). Legendary Soviet cosmonaut Yuri Gagarin (UA1LO), late NASA astronaut Kalpana Chawla (KD5ESI), and Hollywood actor Marlon Brando (FO5GJ) were also part of the global club of ham operators.





The following **frequency bands** are permitted by the WPC for use by amateur radio operators in India.

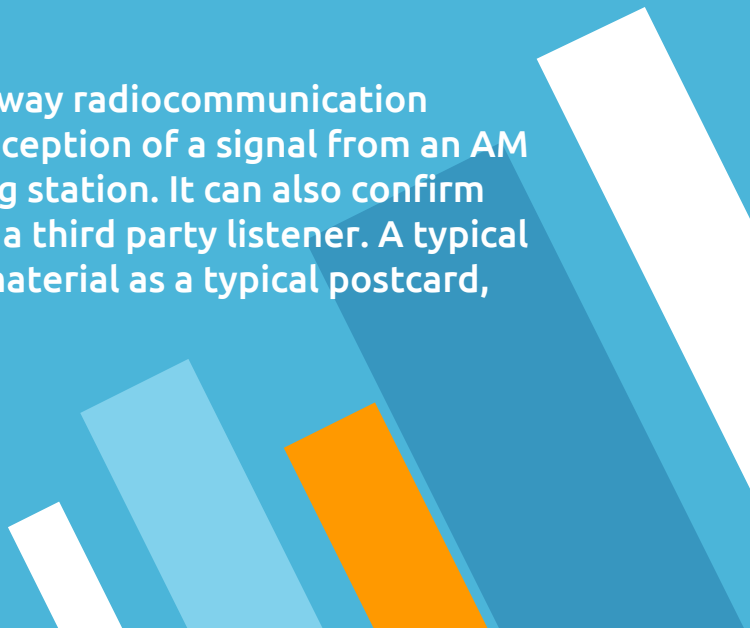
| Band | Frequency in MHz | Wavelength |
|------|------------------|------------|
| 6    | 1.820–1.860      | 160 m      |
| 7    | 3.500–3.700      | 80 m       |
| 7    | 3.890–3.900      | 80 m       |
| 7    | 7.000–7.200      | 40 m       |
| 7    | 10.100–10.150    | 30 m       |
| 7    | 14.000–14.350    | 20 m       |
| 7    | 18.068–18.168    | 17 m       |
| 7    | 21.000–21.450    | 15 m       |
| 7    | 24.890–24.990    | 12 m       |
| 7    | 28.000–29.700    | 10 m       |
| 8    | 50–54            | 6 m        |
| 8    | 144–146          | 2 m        |
| 9    | 434–438          | 70 cm      |
| 9    | 1260–1300        | 23 cm      |
| 10   | 3300–3400        | 9 cm       |
| 10   | 5725–5840        | 5 cm       |





# QSL CARDS

A QSL card is a written confirmation of either a two-way radiocommunication between two amateur radio stations or a one-way reception of a signal from an AM radio, FM radio, television or shortwave broadcasting station. It can also confirm the reception of a two-way radiocommunications by a third party listener. A typical QSL card is the same size and made from the same material as a typical postcard, and most are sent through the mail







**POST CARD**

Dear Sir,

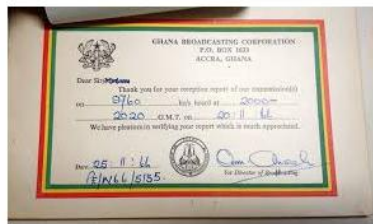
Your report on reception dated 24th. 1967 has been examined. This confirms that you were listening to **W9AC** on 2100-2135 WAT 1967 at 2100-2135 WAT 1967. This transmitter is located at Warnerwood and operates on 9510 KHz. 31.22 meters. Power 50,000 (approx).

Thank you for your interest in reporting on our transmission.

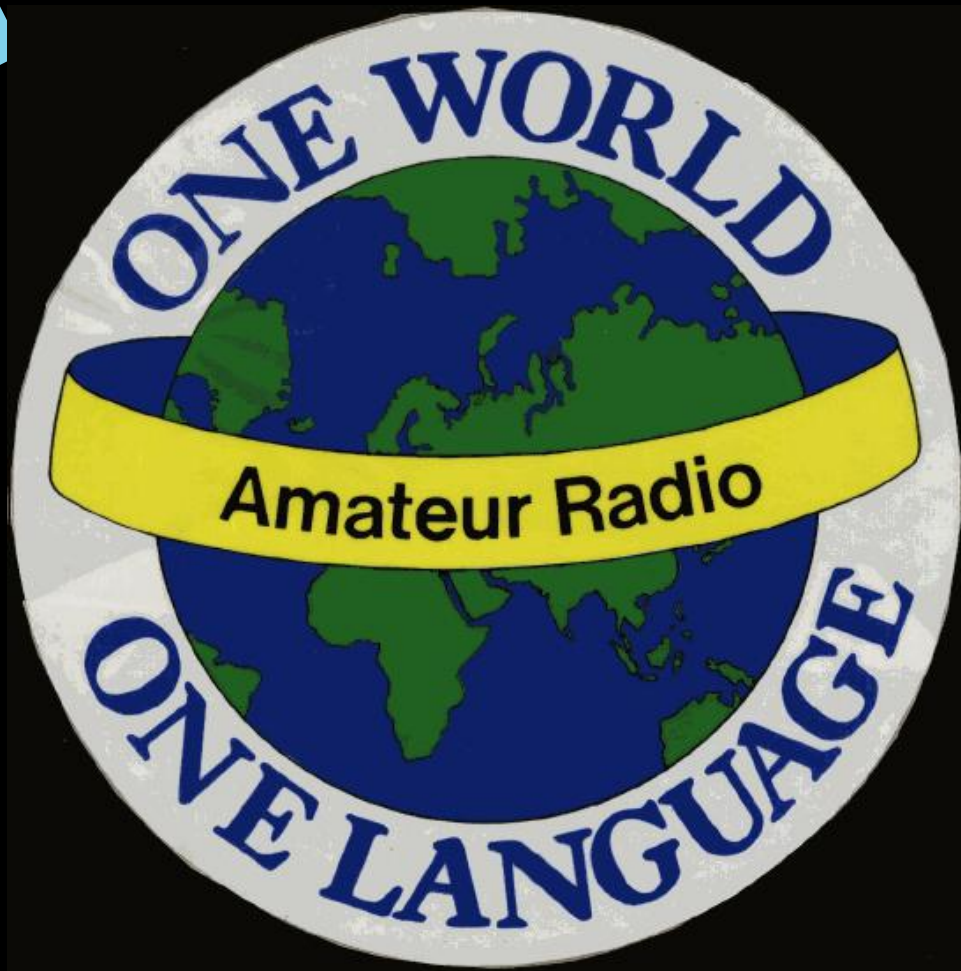
The AUSTRALIAN BROADCASTING COMMISSION

Address only

Mr. Paul Greenawald,  
P.O. Box 34606,  
Bob Jones University,  
Greenville, South Carolina,  
U. S. A. 29614.







# Contact AARS

|        |                   |                    |
|--------|-------------------|--------------------|
| VU2RJR | Rajasekharan Nair | +91 999 528 6660   |
| VU3MOE | Nishanth AK       | +91 904 884 8068   |
| VU3ROO | Roy George        | +91 999 583 1052   |
| VU2HBI | Biju Gopi Thilaka | root@linuxclub.org |

## FOLLOW ME ON SOCIAL MEDIA



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# Thank You

A presentation prepared by

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