

Amateur radio in India



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Amateur radio or ham radio is practised by more than 16,000 licensed users in India.^[1] The first amateur radio operator was licensed in 1921, and by the mid-1930s, there were around 20 amateur radio operators in India. Amateur radio operators played an important part in the Indian independence movement with the establishment of illegal pro-independence radio stations in the 1940s. The three decades after India's independence saw only slow growth in the numbers of operators until the then Prime Minister of India and amateur radio operator, Rajiv Gandhi (VU2RG), waived the import duty on wireless equipment in 1984. Since then, numbers have picked up, and as of 2007, there were more than 16,000 operators in the country. Amateur radio operators have played a vital role during disasters and national emergencies such as earthquakes, tsunamis, cyclones, floods, and bomb blasts, by providing voluntary emergency communications in the affected areas.

The Wireless and Planning and Coordination Wing (WPC)—a division of the Ministry of Communications and Information Technology—regulates amateur radio in India. The WPC assigns call signs, issues amateur radio licences, conducts exams, allots frequency spectrum, and monitors the radio waves. In India, the Amateur Radio Society of India (ARSI) represents amateur radio interests at various forums, and represents India at the International Amateur Radio Union. Popular amateur radio events include daily ham nets, the annual Hamfest India, and regular DX contests.

Public figures in India who are licensed ham operators include Indian National Congress president Sonia Gandhi (VU2SON), Bollywood actor Amitabh Bachchan (VU2AMY), and former Minister for Information Technology Dayanidhi Maran (VU2DMK).^{[2][3][4]}

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India



Amateur radio operators at a foxhunt in Mumbai

Licensed holders 16,000

Call sign blocks VUA to VWZ
ATA to AWZ
8TA to 8YZ

Zones

ITU Region Region 3

ITU Zone 41
49

CQ Zone 22
26

Representation

ITU WPC

IARU ARSI

History

The first amateur radio operator in India was Amarendra Chandra Gooptu (callsign 2JK), licensed in 1921.^{[5][6]} Later that year, Mukul Bose (2HQ) became the second ham operator, thereby introducing the first two-way ham radio communication in the country.^[5] By 1923, there were twenty British hams operating in India. In 1929, the call sign prefix *VU* came into effect in India,^[7] replacing three-letter call signs. The first short-wave entertainment and public broadcasting station, "VU6AH", was set up in 1935 by E P Metcalfe, vice-chancellor of Mysore University.^{[5][6]} However, there were fewer than fifty licence holders in the mid-1930s, most of them British officers in the Indian army.^[8]

With the outbreak of World War II in 1939, the British cancelled the issue of new licences.^[9] All amateur radio operators were sent written orders to surrender their transmitting equipment to the police, both for possible use in the war effort and to prevent the clandestine use of the stations by Axis collaborators and spies. With the gaining momentum of the Indian independence movement, ham operator Nariman Abarbad Printer (VU2FU) set up the Azad Hind Radio to broadcast Gandhian protest music and uncensored news; he was immediately arrested and his equipment seized. In August 1942, after Mahatma Gandhi launched the Quit India Movement, the British began clamping down on the activities of Indian independence activists and censoring the media. To circumvent media restrictions, Indian National Congress activists, led by Usha Mehta, contacted Mumbai-based amateur radio operators, "Bob" Tanna (VU2LK) and Nariman Printer to help broadcast messages to grass-roots party workers across the country.^[10] The radio service was called the "Congress Radio", and began broadcasting from 2 September, 1942 on 7.12 MHz. The station could be received as far as Japanese-occupied Myanmar. By November 1942, Tanna was betrayed by an unknown radio officer and was forced to shut down the station.^[9]

Temporary amateur radio licences were issued from 1946, after the end of World War II. By 1948, there were 50 amateur radio operators in India, although only a dozen were active.^[5] Following India's independence in 1947, the first amateur radio organization, the Amateur Radio Club of India was inaugurated on 15 May 1948 at the School of Signals at Mhow in Madhya Pradesh.^[5] The club headquarters was later moved to New Delhi, where it was renamed the Amateur Radio Society of India (ARSI) on 15 May, 1954.^[5] As India's oldest amateur radio organization, ARSI became its representative at the International Amateur Radio Union.^[11]

Partly due to low awareness among the general population and prohibitive equipment costs, the number of licensed amateur radio operators did not increase significantly over the next two decades, numbering fewer than a thousand by 1970.^[12] CW (Morse code) and AM were the predominant modes at that time. The electronic equipment was mostly valve-based, obtained from Indian army surpluses.^[12] During the mid-1960s, the modes of operation saw a change from Amplitude Modulation to Single Side Band (SSB) as the preferred communication mode. By 1980, the number of amateur radio operators had risen to 1,500. Godfather of AndhraPradesh HAM's Mr. Rammohan Rao whose call sign is VU2RM QTH Kakinada Andhrapradesh designed most popular CKT RM96 suitable for 7MHz, In 1996 at low cost of Rs/- 3,000. After that HAM radio activity increased in andhra and south India. Now in India most of the HAM's were using RM96 CKT. In 1984, then Indian Prime Minister, Rajiv Gandhi, waived the import



Sonia Gandhi's (VU2SON) intervention in allowing a DX-pedition in the Andamans in December proved crucial in establishing amateur radio communication after the devastating tsunami in 2004.^[4]

duty for wireless equipment. After this, the number of operators rose steadily, and by 2000 there were 10,000 licensed ham operators.^[12] As of 2007, there are more than 16,000 ham radio operators in India.^[1]

Amateur radio operators have played a significant part in disaster management and emergencies. In 1991, during the Gulf War, a lone Indian ham operator in Kuwait, provided the only means of communication between stranded Indian nationals in that country and their relatives in India.^[13] Amateur radio operators have also played a helpful part in disaster management. Shortly after the 1993 Latur and 2001 Gujarat earthquakes,^[14] the central government rushed teams of ham radio operators to the epicentre to provide vital communication links. In December 2004, a group of amateur radio operators on DX-pedition on the Andaman Islands witnessed the 2004 Indian Ocean Tsunami. With communication lines between the islands severed, the group provided the only way of relaying live updates and messages to stations across the world.^[3]

In 2005, India became one of few countries to launch an amateur radio satellite, the HAMSAT. The Indian Space Research Organisation (ISRO) launched the microsatellite as an auxiliary payload on the PSLV-6.^[15]

Licence categories

Main article: Amateur radio licence categories in India

The Indian Wireless Telegraph (Amateur Service) Rules, 1978 lists five licence categories:^[16]

1. Advanced Amateur Wireless Telegraph Station Licence
2. Amateur Wireless Telegraph Station Licence, Grade-I
3. Amateur Wireless Telegraph Station Licence, Grade-II
4. Restricted Amateur Wireless Telegraph Station Licence
5. Short Wave Listener's Amateur Wireless Telegraph Station Licence (SWL)



An operator monitoring the air

To obtain a licence in the first four categories, candidates must pass the Amateur Station Operator's Certificate examination.^[17] This examination is held monthly in Delhi, Mumbai, Kolkata and Chennai), every two months in Ahmedabad, Nagpur and Hyderabad, and every four months in some smaller cities.^[18] The examination consists of two 50-mark written sections: Radio theory and practice, Regulations; and a practical test consisting of a demonstration of Morse code proficiency in both sending and receiving.^[19] After passing the examination, the candidate must then clear a police interview. After clearance, the WPC grants the licence along with the user-chosen call sign.^[20] This procedure can take up to 12 months.^[20]

Licence category	Age ^[21]	Power ^[22]	Examination ^[23]	Privileges
Short Wave Listener's Amateur Wireless Telegraph Station Licence	12	—	Obtained without appearing for the examination.	A user can monitor the airwaves on short wave frequencies.
				Terrestrial

Restricted Amateur Wireless Telegraph Station Licence	12	10 W	Minimum score of 40% in each section of the written examination, and 50% overall.	radiotelephony transmission in two VHF frequency bands.
Amateur Wireless Telegraph Station Licence, Grade–II	12	50 W	Minimum score of 40% in each section of the written examination, and 50% overall. In addition, a demonstration of proficiency in sending and receiving Morse code at five words a minute.	Radiotelegraphy and radiotelephony transmission in 11 frequency bands.
Amateur Wireless Telegraph Station Licence, Grade–I	14	150 W	A minimum of 50% in each section of the written examination, and 55% overall, and a demonstration of proficiency in sending and receiving Morse code at 12 words a minute.	Radiotelegraphy and radiotelephony transmission in 14 frequency bands. In addition, satellite communication, facsimile, and television modes are permitted.
Advanced Amateur Wireless Telegraph Station Licence	18	400 W	A candidate must pass an advanced electronics examination, in addition to the passing the Rules and Regulations section, and a Morse code proficiency at 12 words per minute.	The maximum power permitted is 400 W in selected sub-bands.

In a 2005 notification, the WPC proposed an amendment to the 1978 Amateur Service Rules in the rationalization of the licence categories to only two: the Amateur Wireless Telegraph Station Licence (General) and the Amateur Wireless Telegraph Station Licence (Restricted). As of January 2009, amendment has yet to be passed by the Parliament of India.^[24]

Call-signs

Main article: Amateur radio call-signs of India

The International Telecommunication Union (ITU) has divided all countries into three regions; India is located in ITU Region 3. These regions are further divided into two competing zones, the ITU and the CQ. Mainland India and the Lakshadweep Islands come under ITU Zone 41 and CQ Zone 22, and the Andaman and Nicobar Islands under ITU Zone 49 and CQ Zone 26. The ITU has assigned to India call-sign blocks 8TA to 8YZ, VUA to VWZ, and ATA to AWZ.^{[25][26]}

The WPC allots individual call-signs. Indian amateur radio operators are allotted only the *VU* call-sign prefix. The *V* or Viceroy, series prefix was allotted to British colonies.^[27] at the 1912 London International Radiotelegraphic Convention.^[28]

VU call-signs are listed according to licence grade: for Advanced Grade and Grade–I licence holders,

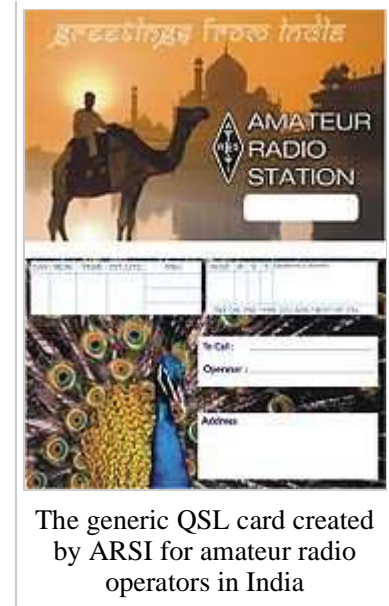
the call-sign prefix is VU2; for Grade-II and Grade-II Restricted licence holders, the prefix is VU3. As of 2009, call-signs consist of only letters, not numerals, and can be either two or three characters long. Examples of Indian amateur radio call-signs are "VU2XY" and "VU2XYZ".^[29]

In addition to individual and club call-signs, the WPC allots temporary call-signs for contests and special events. For example, in November 2007, the WPC temporarily allotted the prefixes *AT* and *AU* to selected ham operators to mark the anniversary of the birth of radio scientist Jagadish Chandra Bose.^[30] The Indian Union territory (UT) of Andaman and Nicobar Islands are given the call-sign VU4 (VU4AN)^[31] and VU5;^[32] and the UT of Lakshadweep is given VU7 (VU7LD).^[33] The WPC had temporarily allotted these call-signs to hamfests and DX-peditions held at those locations.

Defunct call-signs include CR8 (for Portuguese India), FN8 (for French India), and AC3 (for the former kingdom of Sikkim, which merged with India in 1975).^[34]

Organizations

The WPC is responsible for regulating amateur radio in India. The WPC has its headquarters in New Delhi with divisional offices in Mumbai (Bombay), Kolkata (Calcutta), and Chennai (Madras). It also has monitoring stations in Ahmedabad, Nagpur, Hyderabad, Ajmer, Bangalore, Darjeeling, Gorakhpur, Jalandhar, Goa (Betim), Mangalore, Shillong, Ranchi, Srinagar, Dibrugarh, Vishakapatnam, and Thiruvananthapuram.^[18] Set up in 1952, the organization is responsible for conducting exams, issuing licences, allotting frequency spectrum, and monitoring the airwaves. It is also responsible for maintaining the rules and regulations on amateur radio. In India, amateur radio is governed by the Indian Wireless Telegraphs (Amateur Service) Rules,



The generic QSL card created by ARSI for amateur radio operators in India



WPC monitoring stations

1978, the Indian Wireless Telegraph Rules, and the Indian Telegraph Act, 1885. The WPC is also responsible for coordinating with the Ministry of Internal Affairs and the Intelligence Bureau in running background checks before issuing amateur radio licences.^[35]

The Amateur Radio Society of India (ARSI), based in Chennai, is a non-profit organization founded in 1954 that represents the interests of amateur radio operators before the India government, provides technical advice and assistance to amateur radio enthusiasts, and supports a number of educational programs throughout the country. ARSI is India's representative at the International Amateur Radio

Union.^[11]

Another notable organization is the non-governmental National Institute of Amateur Radio (NIAR), based in Hyderabad. NIAR was established by the Ministry of Communications in 1983 to promote amateur radio in India. NIAR is also involved in amateur radio educational programs in the country and sponsors several DX-peditions.

Allotted spectrum

Main article: Amateur radio frequency bands in India

The following 14 frequency bands are permitted by the WPC for use by amateur radio operators in India.^[22]

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	7.000–7.100	40 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	144–146	2 m
9	434–438	70 cm
9	1260–1300	23 cm
10	3300–3400	9 cm
10	5725–5840	5 cm



Antennas at the location of ham operator VU2GMN in Chennai.

Awareness drives

Indian amateur radio operators number just 16,000 for a population of 1.2 billion, or less than 0.002 percent of the population. Factors for the low numbers include low awareness, high equipment cost, and bureaucratic procedures in obtaining a licence where obtaining a licence can take over a year.^[36] After decades of lobbying to include ham radio in school syllabi, efforts paid off in 2006 after the Central Board of Secondary Education (CBSE) included ham radio in the chapter of Emergency communications on the subject of Disaster Management.^[37] The CBSE is one of the two national education boards. The President of India APJ Abdul Kalam, in a speech to the International Union of Radio Science held in New Delhi in 2005,



Indian amateur radio operator, Bharathi VU2RBI, demonstrates Amateur Radio to local students in Port Blair,

stressed on the promotion of the hobby and setting up of ham stations in local panchayat offices, schools and hospitals. They would also act as early warning systems for the village communities in cases of emergencies.^[38]

Andaman Islands, a few days before the 2004 Indian Ocean earthquake.

Amateur radio clubs across the country many join the hobby by organizing courses in preparation for the Amateur Station Operator's Certificate. The government-funded NIAR is one such organization that actively promotes the hobby by holding regular classes. The Vigyan Parishad, an apex body for science popularization under the Department of Science and Technology of the Government of India coordinates simulated disaster communication exercises and also organizes trainings to help people getting ham radio licenses in areas vulnerable to natural calamities.^[39]

Activities and events

Popular events and activities include Amateur Radio Direction Finding, DX-peditions, hamfests, JOTA, QRP operations, Contesting, DX communications, Light House operation, and Islands on Air. One of the most popular activities is Amateur Radio Direction Finding commonly known as a "foxhunt".^[20] Several clubs across India regularly organize foxhunts in which participants search for a hidden transmitter around the city.^[40] A foxhunt carried out in Matheran near Mumbai in 2005 by the Mumbai Amateur Radio Society was listed in the 2006 Limca Book of Records under the entry "most ham operators on horseback on a foxhunt."^[41] Despite being a popular recreational activity among hams, no organization has yet participated in an international event.^[11]

Hamfest India is an annual event that serves for social gathering and comparison and sales of radio equipment. Most hamfests feature a flea market, where the attendees buy and sell equipment, generally from and for their personal stations. The event also seeks to raise amateur radio awareness in the host city. In 2008, Gandhinagar hosted the annual hamfest. Bangalore is scheduled to host the next hamfest in November 2009. Two special international hamfests were organized in the Andaman and Nicobar Islands (VU4) in 2006, and Lakshadweep (VU7) in January 2007.^[42] As amateur radio activity is not permitted on the two union territories due to security restrictions, special permissions were needed to be secured to host the event.^[43] The two events received widespread international participation through contests, DXing, and DX-peditions.

Ham nets, where amateur radio operators "check into" are regularly conducted across India. Airtel India, Charminar Net, Belgaum Net, and Nite Owl's Net are some of the well-known ham nets in India. Some amateur radio operators have also provided a service of downloading and decoding satellite signals of the weather over India and publishing them on the internet as a public service.^[36] In Mumbai, ham operators also help in disaster management during the monsoon season when heavy rain disrupts general life there. In 2008, the Municipal Corporation of Greater Mumbai, for the first time, formally included ham operators as part of the disaster management plan.^[44] Hams in Mumbai also help out at the annual *Ganpati Visarjan* by providing emergency radio services to civic organizations at the immersion points.^[45] The "Island on the Air" is another activity where ham enthusiasts visit remote islands and report on the conditions there, similar to DX-peditions.^[20]



Live satellite images such as this are decoded by amateur radio operators to provide accurate weather reports during heavy rains in cities prone to flooding such as Mumbai.

See also

- Amateur radio frequency bands in India
- Amateur Station Operator's Certificate
- Citizens Band radio in India

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External links

- Ham Radio India (http://www.hamradioindia.org/amateur_radio/)
- Vigyan Prasar - HAM radio (<http://www.vigyanprasar.gov.in/ham/ham.asp>)
- HAM RADIO CallSign Directory of India (<http://qrz.vu2ukr.com/>)

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