

Radio Wave Spectrum Allocations and Dial Markings on Old Radios – page 1

When you look at the dial of an old radio you may be confused by the numbers and letters written on the dial. In Australia and New Zealand the dials of Medium Wave radios (often called the Broadcast Band) were usually marked with the station call signs. In Australia, if the dial scale was quite small, a radio would only have the stations in that state marked on the dial. Some radios also had the Frequency and/or the Wave Length marked but this was not common throughout period from 1936 to the end of the Australian made radios.

Medium Wave Broadcast Band

This is the band we tune to when we listen to an AM radio and most countries use frequency allocations between 526.5KHz and 1705KHz. Not all countries use all this allocation.

Stereo transmission is possible and has been offered by some stations in the U.S., Canada, Mexico, the Dominican Republic, Paraguay, Australia, The Philippines, Japan, South Korea, South Africa, and France. However, there are multiple standards for AM stereo with C-QUAM being the most common in the United States as well as other countries, and receivers that implement the technologies are relatively rare.

The FM Broadcast Band

This is the range of frequencies we tune to when we tune a modern FM radio receiver. The international frequency allocation for this band is now 87.5MHz to 108MHz. This is often referred to as the CCIR Band. Over the years some countries have used other frequencies for this band and you will see these on the dials of some old FM radios you may find from time to time.

- The original FM broadcasts started in the USA with frequency allocations between 42 and 50MHz.
- Japan uses 76 to 90MHz
- England used 87.5 to 100MHz for many years and it is not uncommon to find radios with these frequencies marked on the dial.
- Former Soviet Republics and Eastern Block countries used 65 to 74MHz (the OIRT Band) but some are now changing to the international allocations.

Short Wave

Shortwave bands are frequency allocations for use within the high frequency radio spectrum. They are the primary medium for applications such as marine communication, international broadcasting, and worldwide amateur radio activity because they take advantage of ionospheric skip propagation to send data around the world. The bands are conventionally stated in wavelength as measured by meters. Many bands, most notably the VHF 6 meters band, are notable for their behaviour that depends on the season and the level of solar activity.

The "11-meter" (27 MHz) band is the most significant location allocated by most countries for Citizens' Band service (as well as some early cordless phones), though due to the band's propagation characteristics, which allow long-distance interference with local signals, most land mobile radio activity has moved to VHF or UHF, and most cordless phone activity is also in UHF or higher.

Radio Wave Spectrum Allocations and Dial Markings on Old Radios – page 2

International Short Wave Broadcasting Bands

The band frequencies below are derived from multiple sources, and different radios can have different numbers. Most international broadcasters use amplitude modulation with a spacing of 5 kHz between channels; a few use single sideband modulation. Different radios may define the bands differently.

- 11 meters – 25.67–26.10 MHz – This band is seldom used. Day reception tends to be poor and night reception is nonexistent. Digital Radio Mondiale has proposed that this band be used for local digital shortwave broadcasts and conducted an extensive test of the concept in Mexico City in 2005. Not to be confused with the Citizens' Band 11-meter allocation, which in most countries is from 26.965 MHz to 27.405 MHz. See notes below.
- 13 meters – 21.45–21.85 MHz – Somewhat shaky day reception, very little night reception. Similar case to 11 metres, but long distance daytime broadcasting keeps this band active in the Asia-Pacific region.
- 15 meters – 18.90–19.02 MHz – Seldom used.
- 16 meters – 17.48–17.90 MHz – Day reception good, night reception varies seasonally, with summer being the best.
- 19 meters – 15.00–15.825 MHz – Day reception good, night reception variable, best during summer. Time stations such as WWV are clustered around 15 MHz.
- 22 meters – 13.57–13.87 MHz – Similar to 19 meters; best in summer.
- 25 meters – 11.50–12.16 MHz – Generally best during summer; said to be ideal during the period before and after sunset.
- 31 meters – 9250–9995 kHz – Good year-round night band; seasonal during the day, with best reception in winter. Time stations are clustered around 10 MHz.
- 41 meters – 7100–7500 kHz – Reception varies by region – reasonably good night reception, but few transmitters in this band are targeted to North America. According to the WRC-03 Decisions on HF broadcasting, in Region 1 and 3, the portion of 7100 khz to 7200 kHz is reserved for amateur radio use and there are no new broadcasting allocations in this portion of the band. 7350 to 7400 kHz is newly allocated; in Regions 1 and 3,
- 7400 to 7450 kHz is also allocated. This decision is effective from March 29, 2009.
- 49 meters – 5800–6300 kHz – Good year-round night band; daytime reception is poor. 60 meters – 4400–5100 kHz – Mostly used locally in tropical regions (near the equator), though usable at night. Time standard stations are clustered around 5000 kHz.
- 75 meters – 3900–4050 kHz – Mostly used in Eastern Hemisphere, not widely received in North and South America.
- 90 meters – 3200–3400 kHz – Mostly used locally in tropical regions (near the equator), with limited long-distance reception at night.
- 120 meters – 2300–2495 kHz – Mostly used locally in tropical regions, with time standard stations clustered around 2500 kHz.

Long Wave Band

This was the original broadcasting band and is still in use in the UK and parts of Europe. The official frequency range is 145KHz to 90KHz. Frequencies below 145KHz are used for broadcasting time signals. Radio controlled clocks receive their time calibrations signal with built-in longwave receivers. They use longwave, rather than shortwave or mediumwave, because the

Radio Wave Spectrum Allocations and Dial Markings on Old Radios – page 3

accuracy of the clocks is not affected by the time signal's travel from the transmitter to the ionosphere and to the receiver; as longwave travels by groundwave, rather than skywave. There are stations between 40–80 kHz that transmit time signals to radio clocks. For example:

- WWVB in Colorado, USA on 60 kHz.
- DCF77 in Frankfurt Germany on 77.5 kHz.
- HBG in Prangins, Switzerland on 75 kHz.
- JJY in Japan on 40 & 60 kHz.
- 66.6 kHz in Taldom, Russia.
- 50 kHz in Irkutsk, Russia.
- MSF time and 60 kHz frequency standard transmitted from Anthorn in the UK

The United Kingdom, Russian Federation, United States, Germany, and Sweden use wavelengths below 50 kHz to communicate with their submarines.

Nowadays parts of the 160–190 kHz range is available for amateur and experimental stations in some countries

Aircraft navigational beacons NDBs, use frequencies in the range of 190–435 kHz.

[List of many of the worlds Time and Frequency Standard Stations](#)

The Aircraft Radio Band

The air band is the band of frequencies used for radio communication in aviation. Airband is used to mean the VHF band between 108 MHz and 137 MHz, which covers its use for commercial and general aviation, radio navigational aids, air traffic control and other uses. In common use among aviation professionals, the band of frequencies is sometimes referred to as VHF or Victor. Military aircraft also operate using additional frequencies from 225 to 400 MHz which are not part of the airband.

The lower part of the band, from 108 to 117.975 MHz, is reserved for navigational aids such as VOR beacons, Automatic Terminal Information Service (ATIS) and Automated Surface Observing System (ASOS) messages, and precision approach systems such as ILS or LAAS. Some types of aviation-related stations, such as NDBs and DMEs, do not operate on these frequencies; in the case of NDBs the longwave frequency band is used. The rest of the airband is allocated to voice communications using amplitude modulation.

International Distress Frequencies

Since early in the 20th century, the radio frequency of 500 kilohertz (500 kHz) has been an international calling and distress frequency for Morse code maritime communication. The unit kHz was not introduced until 1960. For most of its history, the international distress frequency was referred to by its equivalent wavelength, 600 meters, or, using the earlier frequency unit name, 500 kilocycles [per second] or 500 kc. Beginning in the late 1990s, most nations ended monitoring of transmissions on 500 kHz, and China, the last official user.

The radio frequency of 2182 kHz (kilohertz) is the international calling and distress frequency for maritime radiotelephone communications on the Marine MF bands.

The Aircraft Emergency Frequency (also known as guard) is a frequency used on the aircraft radio band reserved for emergency communications for aircraft in distress. The frequencies are 121.5

Radio Wave Spectrum Allocations and Dial Markings on Old Radios – page 4

MHz for civilian, also known as International Air Distress (IAD) and 243.0 MHz for military use, also known as Military Air Distress (MAD). Both are in use at the international level.

Emergency Position-Indicating Radio Beacon (EPIRB) uses a frequency of 406MHz and is monitored by a satellites. The original COSPAS / SARSAT satellites could calculate EPIRB position to within about 3 nautical miles by using Doppler techniques

Marine VHF radio is installed on all large ships and most seagoing small craft. It is used for a wide variety of purposes, including summoning rescue services and communicating with harbours, locks, bridges and marinas, and operates in the VHF frequency range, between 156 to 174 MHz. Actual emergency frequencies used depend on where in the world you are.

[Amateur Radio Band Allocations from the WIA web site](#)

[Satellite Radio from Wikipedia](#)

[DAB Digital Radio from Wikipedia](#)

[The VKS-737 Radio Network, HF-Tel and the Australian National 4WD Radio Network Inc](#)

[Jaycar has provided a PDF file of useful radio channel frequencies including marine allocations](#)

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