

GRUNDIG



THE BEGINNING OF A NEW EXPERIENCE

SHORTWAVE LISTENING GUIDE

GRUNDIG

SHORTWAVE HOTLINE

UNITED STATES

1-800-872-2228

CANADA

1-800-637-1648

MON. – FRI. 9:00 AM - 4:00 PM PST

We invite you to call the experts at Grundig and get help with any and all of your questions.



German engineering and quality represent the excellence in world standards by which all else is measured. Grundig of Germany has been synonymous with shortwave radio since the late fifties. Consistent high quality, advanced product development, the most modern manufacturing techniques and product offering the greatest possible value for the money have established Grundig's reputation as one of the leaders in the shortwave radio field.

Today's Grundig shortwave portables represent the pinnacle of this product's evolution. With a full line of over ten shortwave radios, from five-band analog to all-band digital, Grundig makes shortwave available and affordable to everyone.

Grundig North America operates the only toll-free shortwave hotlines in the industry, staffed with live technicians. These numbers, 1-800-872-2228 in the U.S.A. and 1-800-637-1648 in Canada, allow both consumers and dealers to call with questions of all kinds. In customer service and support, Grundig is second to none!

GRUNDIG

SHORTWAVE LISTENING GUIDE FOR NORTH AMERICA

TAKE A TRIP AROUND THE WORLD TODAY
ON SHORTWAVE RADIO



C O N T E N T S

Beginner's Guide to Shortwave Listening	7
Answers to the Most Asked Questions About Shortwave Radio	9
Time - As Used in Shortwave Broadcasting	12
Recommended Shortwave Literature	15
Companies specializing in Shortwave Radios, Accessories, Antennas, Magazines, Books, Etc.	16
<i>Pour obtenir notre aide, appeler notre numéro d'urgence ondes courtes</i>	19
<i>Que peut-on écouter sur les postes à ondes courtes</i>	22
<i>Quels sont les pays que l'on peut écouter sur ondes courtes ?</i>	22
<i>Guides et magazines pour ondes courtes disponibles en librairie</i>	27
<i>Sociétés spécialisées pour ondes courtes :</i> <i>Postes de radio, accessoires, antennes, magazines, livres, etc.</i>	28

LISTEN TO THE WORLD

You have the world at your finger tips with your Grundig Shortwave Radio! Grundig's high-tech radio designs make international listening easier and better than ever. As dramatic scenes unfold, you will hear news reports live from the scene! Countries around the globe broadcast in English: Russia, BBC World Service, China Radio International, Deutsche Welle (from Germany), Radio Japan, Radio Canada International, Radio Australia, Radio Netherlands (Holland), Voice of America, KOL Israel, World Wide Christian Radio are just some of the stations you'll get!

HOW DOES SHORTWAVE WORK?

Shortwave technology, known as radio wave reflection, allows the broadcast to travel thousands of miles without being hindered by oceans or mountains. You can tune into world broadcasts whether you are at home, work or traveling. While regular AM/FM radios limit your listening to the actual geographical area you are in, shortwave technology lets you hear news from BBC, world cup soccer from Italy; Salsa music from Brazil!

Your shortwave radio will introduce you to many cultures. You can access news and entertainment from faraway places, study foreign languages in the comfort of your own home, keep up to date with news from your home country, cheer on your favorite international sports team and more!

Get News When It Counts

With your shortwave radio, you will always be prepared for power outages and harsh storms. Even when cable and local radio antennas won't work, you can rely on your battery-operated shortwave. Wherever you are, you can hear the voices of the Global Village with your Grundig Radio. You are about to begin a fantastic journey!

BEGINNER'S GUIDE TO THE SHORTWAVE BANDS

Listed below are the characteristics of the major shortwave bands. Follow these guidelines for best listening results. Because shortwave signals depend on such factors as the sun, the ionosphere and the earth itself, signals cannot be heard on all bands throughout the day. Some bands are best during the daylight hours, and some are best at night. If the term "band" is new to you, please read the section titled WHAT ARE BANDS?



Daytime Listening

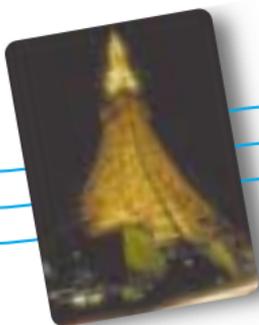
Shortwave listening is generally at its poorest during the daylight hours of about 10 a.m. to 3 p.m. The major reason for this is that the broadcasters are not transmitting to North America at this time. They assume that we are all either at work or at school and are not able to listen during the day. If you want to try daytime listening, use the guidelines below. You will have some success, but not nearly as good as during the evening hours.

	Band	Characteristics
	11m	A seldom used band
	13m	Best in winter; good other seasons
good	16m	EXCELLENT YEAR ROUND (often exceptionally
		three hours before sunset until sunset)
	19m	THE BEST DAYTIME BAND YEAR ROUND (often
sunset)		exceptionally good three hours before sunset until
	22m	New band; should be good year round
	25m	Best two hours before/after sunrise/sunset

Evening/Night Listening

This is the best time to listen, because the broadcasters are deliberately transmitting to North America.

Band	Characteristics
19m	Often good at night during the summer
22m	Summer months
25m	BEST TWO HOURS BEFORE/AFTER
SUNRISE/SUNSET	
31m	THE BEST YEAR ROUND ALL NIGHT BAND,
from about	two hours before sunset into the night.
41m	After dark. Good all year for night listening



49m After dark. **EXCELLENT YEAR ROUND FOR ALL NIGHT LISTENING**

NOTE: The construction materials of some buildings simply do not let signals in very well. Signals penetrate wood frame buildings easiest, while concrete and brick buildings usually block signals. If you are in a building with one or more stories above you, signals can also be impaired in strength. In such a situation, position yourself, and especially the radio's antenna, as close to a window as possible while listening.

HOW DO I CHOOSE THE RIGHT SHORTWAVE RADIO FOR MY NEEDS?

Ask a specialist! We will help you select the radio which truly meets your needs. Call our toll free **SHORTWAVE HOTLINE** for help:

U.S. 1-800-872-2228

CN 1-800-637-1648

Outside of North America, call **650-361-1611**

WHAT ABOUT AFTER-SALE SUPPORT FROM GRUNDIG?

As a Grundig owner you receive unlimited support on our toll free hotline

shown above. Call us. **We will help you learn how to operate your radio.**

WHAT ARE BANDS?

If you have ever listened to AM or FM radio, then you already know what a band is. The AM band is 530-1600 kHz, the FM band is 88-108 MHz. A band is simply a frequency range where stations are located. When you look for stations in these "bands", you simply tune around until you find a station you like. Shortwave is similar, and the shortwave bands have names like 25 meters, 31 meters, 49 meters, etc. These are abbreviated 25m, 31m and 49m. Just like in AM and FM radio, one simply gets into the shortwave band and tunes around, looking for stations. For example, the 19 meter shortwave band encompasses the frequency range of 15100 to 15600 kilohertz. Here is a list of the shortwave bands used for international



broadcasts and their corresponding frequencies. Since some radios show frequency in megahertz and some in kilohertz, both are shown here.

BAND	MEGAHERTZ	KILOHERTZ
11m	25.60 - 26.10 MHz	25600 - 26100 kHz
13m	21.45 - 21.850 MHz	21450 - 21850 kHz
16m	17.48 - 17.90 MHz	17480 - 17900 kHz
19m	15.10 - 15.80 MHz	15100 - 15800 kHz
22m	13.570 - 13.870 MHz	13570 - 13870 kHz
25m	11.60 - 12.10 MHz	11600 - 12100 kHz
31m	9.500 - 9.900 MHz	9500 - 9900 kHz
41m	7.100 - 7.60 MHz	7100 - 7600 kHz
49m	5.80 - 6.200 MHz	5800 - 6200 kHz
60m	4.750 - 5.060 MHz	4750 - 5060 kHz
75m	3.900 - 4.000 MHz	3900 - 4000 kHz
90m	3.200 - 3.400 MHz	3200 - 3400 kHz
120m	2.300 - 2.490 MHz	2300 - 2490 kHz



WHAT IS HEARD ON SHORTWAVE RADIO?

International foreign broadcasts intended for listening in your area, e.g., North America. Long distance two-way amateur radio, maritime and aeronautical communications.

WHAT COUNTRIES ARE HEARD ON SHORTWAVE RADIO?

The chart below shows some of the countries targeting North America with their broadcasts. Unless otherwise noted, frequencies are for evening listening in North America. Other countries do not deliberately target North America but can be heard anyway. Whether or not a country can be heard depends on many factors, including signal strength, your geographic location and the condition of the earth's ionosphere.

Frequencies in **BOLD** are mainly used for the country's native language broadcast. The complete schedules of all shortwave broadcast stations, showing language, time and target area, are available in the major frequency directories shown on the other side of this sheet.

Australia (Radio Australia):	9580, 9860, 15365, 17795
Austria (Radio Austria International):	6015, 9655
Canada (Radio Canada International):	5960, 6120, 9755
China (China Radio International):	9690, 9780, 11680, 11715, 11840
Cuba (Radio Habana):	6060, 6080, 6180, 9510, 9820
Ecuador (HCJB-Voice of the Andes):	9745, 11925, 12005, 15140
France (Radio France International):	5920, 5945, 9790, 9800
Germany (Deutsche Welle):	5960, 6040, 6045, 6075 , 6085, 6100, 6120, 6145, 6185, 9515, 9565, 9535, 9640, 9545 , 9650, 9670, 9700, 9730, 9735 , 11705, 11740, 11750, 11810 , 11865, 13780, 15275, 15410 , 17810, 17860
Holland (Radio Nederland) Bold :	6020, 6025 , 6165, 9590, 9715 , 9840, 9895 , 11655
Japan (Radio Japan/NHK):	5960, 6025, 9610, 9680, 9725, 11885, 11895, 15230
Russia (Radio Moscow International):	7105, 7115, 7150, 7270, 9750, 9765, 11805, 11840, 12050, 15410, 15425
Taiwan (Voice of Free China),	5950, 9680, 11740, 11855,

15440

United Kingdom (BBC World Service)

MORNING: 5965, 6195, 9515, 9740,
11750, 17840

EVENING: 5975, 6175, 7325, 9590,
9640, 15260

IS THERE ENGLISH LANGUAGE PROGRAMMING?

Yes! Since English is such an important world language, most major international broadcasters incorporate English programming.

WHAT IS THE PROGRAM CONTENT LIKE?

This can vary considerably from country to country; however, programming usually consists of world news, local news from the country of origin, news commentary, interview programs, culturally oriented programs, music oriented programs and even political propaganda.

ARE THE SIGNALS CLEAR?

Often, but not always. With today's technology such annoyances as fading, static and interference have been greatly minimized, yet are best understood as a natural aspect of international broadcast listening.

CAN I HEAR A SPECIFIC COUNTRY?

Yes, if that country is transmitting its signal specifically for listening in your part of the world. Otherwise, it may range from good to impossible.

IF A COUNTRY IS NOT TRANSMITTING ITS SIGNAL SPECIFICALLY FOR RECEPTION IN NORTH AMERICA, IS THERE ANY CHANCE OF RECEIVING IT?

Yes, with detailed research into broadcast time and frequency and patience, it is possible, but never guaranteed. A professionally engineered outdoor antenna can make a major difference.

WHAT ELSE CAN AND CANNOT BE HEARD ON SHORTWAVE?

You can hear long distance two-way marine, aviation and amateur radio (ham). To receive such communications, an advanced shortwave receiver with single sideband (SSB) capability must be used. The more advanced Grundig radios can do this. Local VHF/UHF air traffic, police, fire, ambulance and weather services cannot be heard. For these, use a VHF/UHF scanner.

CAN DISTANT AM/FM BROADCAST STATIONS BE RECEIVED?

FM is strictly for local stations. Daytime AM stations usually have a maximum distance of 50-100 miles. At night, AM broadcast band signals can sometimes be heard over much greater distances, hundreds of miles away.

HOW IS IT THAT BROADCASTS FROM AROUND THE WORLD CAN BE HEARD ON A SHORTWAVE RADIO?

Shortwave radio can be heard around the world because of the earth's ionosphere. Think of the ionosphere as a cloud-like layer enshrouding the earth at an altitude of 140-250 kilometers (90-160 miles). It consists of electrons and ions, the density of which are governed by the sun and the earth's geomagnetic forces. Radio waves virtually bounce their way around the earth, bouncing off the ionosphere, back down to earth, and repeating



this process often several times. The low angles at which this takes place enable the radio waves to travel great distances with each bounce. This whole process is called radio wave deflection and ionospheric propagation.

HOW CAN I DETERMINE IF AN OUTDOOR ANTENNA WILL HELP?

While inside your normal listening environment, tune in a relatively weak shortwave signal. Staying tuned to this signal, step outside and away from your building. If the signal strength increases significantly, an outdoor antenna will help considerably. If there is little or no improvement in signal strength, an outdoor antenna will help; however, the amount of improvement will depend on the type of antenna used. If you have questions about outdoor antennas, call our toll-free hotline shown below.

WHAT TIME STANDARD IS USED IN SHORTWAVE BROADCAST SCHEDULES?

Since there are many different time zones around the world, it would

be impractical for shortwave broadcasters to give broadcast times for each separate time zone. To simplify matters, they list their broadcast schedules in Coordinated Universal Time (UTC), also known as Greenwich Mean Time (GMT), World Time and Zulu Time.

Just what is UTC? It is the time in Greenwich England, with no correction for daylight savings time, and is always stated in 24 hour format.

In North America, UTC is ahead of our local time, five hours EST, six hours CST, seven hours MST, eight hours PST; one hour less during the months of daylight savings time. So, if a broadcast starts at 20:00 hours UTC, this correlates to 15:00 hours (or 3PM) Eastern Standard Time, and 12:00 hours (NOON) Pacific Standard Time.

To determine Coordinated Universal Time, tune-in to a major station, such as BBC London, on the hour. If your shortwave radio tunes to the following frequencies, UTC can be heard each minute on station WWV in Fort Collins Colorado: 20000kHz, 15000kHz, 10000kHz, 5000kHz and 2500kHz. Usually, during any time of the day, one or more of these frequencies can be received in North America. UTC can also be heard at night on the Canadian station CHU, at 3330kHz, 7335kHz and 14670kHz.

WHAT IS SINGLE SIDEBAND (SSB)?

High end shortwave radios such as the Grundig Satellit series or the Yacht Boy 400 and Yacht Boy 500 have a feature called SSB. With SSB you can listen to shortwave long distance two-way communication. Examples of these are amateur radio (hams), maritime and aeronautical communication. What is SSB? It is simply a highly efficient way of electronically processing transmitted and received signals for two-way communication. Either upper side band (USB) or lower side band (LSB) can be used.

Receiving SSB signals is not always easy. Since these are two-way communications, transmissions are often very short and sporadic. Also, most two-way communications use relatively low power, 50 to 1000 watts. The amateur radio operators are easiest to find; the others can be very difficult. Signals are also affected by the eleven year sunspot cycle. Signals will peak in 2002 when reception will be excellent. Overall, very good reception can be expected from about 1998-2005. Finding SSB signals can be like seeking a "needle in a haystack", so be patient! The easiest place to find SSB communications is at night in the amateur band shown below at 3700-4000 kHz.

Follow your radio's instructions on how to engage its SSB feature.

Below are some selected frequency ranges on which SSB communications can be found. All frequencies are shown in kilohertz.

AMATEUR RADIO:	3700 - 4000, LSB, night.	
	7150 - 7300, LSB, day.	
	14150 - 14350, USB, day.	
	21150 - 21450, USB, day.	
AERO-NAUTICAL, USB	2850 - 3155	
	3400 - 3500	
	4650 - 4750	5480 - 5730
	6525 - 6765	
	8815 - 9040	
	10005 - 10100	
	11175 - 11400	
	13200 - 13360	
	15010 - 15100	
	17900 - 18030	
21870 - 22000		
23200 - 23350		
MARITIME (USB)	4063 - 4438	
	6200 - 6525	
	8195 - 8815	
	12230 - 13200	
	16360 - 17410	
	18780 - 18900	
	19680 - 19800	
	22000 - 22720	
25070 - 25110		

SHORTWAVE GUIDES AND MAGAZINES.

PASSPORT TO WORLD BAND RADIO

International Broadcasting Services, Ltd.,
Box 300, Penn's Park,
Pennsylvania 18943.

(EASIEST TO USE FOR BEGINNERS).

WORLD RADIO TV HANDBOOK

Billboard Publications, Inc.,
1515 Broadway, New York,
N.Y. 10036.

MONITORING TIMES

Grove Enterprises, Inc.,
140 Dog Branch Road, Brasstown,
North Carolina 28902.
Phone: (704) 837-9200.

POPULAR COMMUNICATIONS

CQ Communications, Inc.,
76 North Broadway, Hicksville,
New York 11801-2953.
Phone: (516) 681-2922.