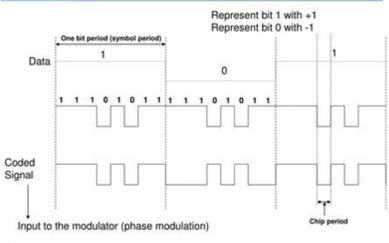


Continue

CDMA Principle



NETFLIX



SDR Repeater
User Manual V0.4

4.4.2 Install- SMR

The SMR Install page allows the user specify the desired frequencies by inputting the Reference Frequency and Bandwidth. The SMR module supports 1 channel on the SMR800 and 1 channel on the SMR900. SMR800 bandwidth selections range from 1.25 to 18 MHz and SMR900 bandwidth selections range from 1.25 to 5 MHz.

4.4.2.1 Install- SMR Band Selection

Channel	Reference Frequency	Bandwidth	Set	Downlink Frequency (MHz)
SMR800	852.000	center	1.00	851.500 - 852.000 - 852.500
SMR900	938.000	center	1.25	937.375 - 938.000 - 938.625

To specify a frequency, input a DL reference frequency and select either start, center, or stop from the dropdown menu. Select the desired bandwidth from the dropdown menu under the Bandwidth column and then click Set.

	GSM	CDMA
Stands for	Global System for Mobile communication	Code Division Multiple Access
Storage Type	SIM (subscriber identity module) Card	Internal Memory
Global market share	75%	25%
Dominance	Dominant standard worldwide except the U.S.	Dominant standard in the U.S.
Data transfer	GPRS/E/3G/4G/LTE	EVDO/3G/4G/LTE
Network	Every cell has a corresponding network tower, which serves the mobile phones in that cellular area.	There is one physical channel and a special code for every device in the coverage network. Using this code, the signal of the device is multiplexed, and the same physical channel is used to send the signal.
International roaming	Most Accessible	Less Accessible
Frequency band	Multiple (850/900/1800/1900 MHz)	Single (850 MHz)
Network service	SIM specific. User has option to select handset of his choice.	Handset specific

Cdma device definition. Cdma definition in hindi. Cdma spread spectrum definition. Cdma gsm definition. Cdma sprinkler definition. Cdma data definition. Dmards definition. Cdma modulation definition.

Code division multiple access (CDMA) is a digital cellular network standard that utilizes spread-spectrum technology. This technology does not constrict bandwidth's digital signals or frequencies but spreads it over a fully-available spectrum or across multiple channels via division. Thus, there is improved voice and data communication capability and a more secure and private line. The CDMA digital standard is a leading communications network standard in North America and parts of Asia. Qualcomm, a US-based wireless communications company, patented CDMA and commercialized this technology. CDMA technology was initially used in World War II military operations to thwart enemy attempts to access radio communication signals. In the early 1990s, Qualcomm introduced the possibility of using the same concept with publicly-available cellular network technology. During this time, an alternative mobile networking arena digital standard gained traction, proving to be a challenge to CDMA proponents. Despite adamant negativity and discouragement from prominent industry figures, CDMA's supporters successfully convinced these leaders to consider, use and eventually accept the newly introduced CDMA standard. Essentially, CDMA offers more airspace capacity than the time division multiple access (TDMA) based Global System for Mobile Communications (GSM) standard. Furthermore, CDMA also uses less power. Another advantage boasted by CDMA technology is its ability for soft handoffs between base stations, i.e., less likelihood of cut-off calls. The usual analogy given in comparing CDMA with other channel access methods like FDMA or TDMA is that of people each carrying out a conversation with a friend in a crowded room. The room, in this case, represents a channel (a.k.a. carrier frequency). TDMA is likened to the method by which communication is carried out by speaking one at a time (hence the name "time division"). FDMA, on the other hand, is likened to the method wherein communication is made by speaking at different pitches (hence, frequency division). Finally, CDMA is likened to people speaking simultaneously but in different languages. Because only those who speak the same language can understand each other, it is possible for multiple conversations to take place in the room at the same time. The basic concept in CDMA is that users who wish to communicate through it are given a shared code. While multiple codes may occupy the same channel, only those users having the same code can communicate with each other. Because CDMA and GSM standards each have unique pros and cons, the preferred technology standard choice is now in the hands of potential subscribers. However, the ultimate choice will depend heavily on the availability of these standards within the localities of subscribers. Share this Term CDMA (Code-Division Multiple Access) refers to any of several protocols used in second-generation (2G) and third-generation (3G) wireless communications. As the term implies, CDMA is a form of multiplexing, which allows numerous signals to occupy a single transmission channel, optimizing the use of available bandwidth. The technology is used in ultra-high-frequency (UHF) cellular phone systems in the 800 megahertz (MHz) and 1.9 gigahertz (GHz) bands. CDMA employs analog-to-digital conversion (ADC) in combination with spread spectrum technology. Audio input is first digitized into binary elements. The frequency of the transmitted signal is then made to vary according to a defined pattern code. This enables the signal to be intercepted only by a receiver whose frequency response is programmed with the same code, following along with the transmitter frequency. There are trillions of possible frequency sequencing codes, which enhances privacy and makes cloning difficult. Cell clusters form the cellular structure of wireless CDMA networks. Each cell in a cell cluster has a transceiver with the necessary transmitting power and mobile units distributed around the cell's coverage area. Every mobile unit runs a transceiver, which consists of a low-power transmitter and a sensitive receiver operating with a wireless cellular environment. The characteristics of the cellular environment include multipath propagation, access interference and fading. The near-far (N-F) effect plays a significant role in the quality of service (QoS) for CDMA systems. It refers to a phenomenon that occurs when a user near the base station sends out a transmission that interferes with and overpowers a weaker transmission signal coming from a user further away. To this end, CDMA network providers use receivers that are resistant to the N-F effect; they also use tight power control schemes. The CDMA channel is nominally 1.23 MHz wide. CDMA networks use a scheme called soft handoff, which minimizes signal breakup as a handset passes from one cell to another. The combination of digital and spread spectrum modes supports several times as many signals per unit of bandwidth as analog modes. CDMA is compatible with other cellular technologies; this enables nationwide roaming. The original CDMA standard, also known as CDMA One, offers a transmission speed of only up to 14.4 kilobits per second in its single channel form and up to 115 Kbps in an eight-channel form. CDMA2000 and Wideband CDMA (W-CDMA) deliver data many times faster. The CDMA2000 family of standards includes single-carrier Radio Transmission Technology (1xRTT), Evolution-Data Optimized Release 0, EV-DO Revision A and EV-DO Rev. B. People often confuse CDMA2000, which is a family of standards supported by Verizon and Sprint, with CDMA, which is the physical layer multiplexing scheme. CDMA technology played an important role in 2G and 3G cellular wireless networks, as they evolved to current 5G standards. Most people often get caught up in the CDMA vs. Global System for Mobile Communication (GSM) divide when trying to transfer their phones from one cellular network provider to another. Some carriers' phones are designed to operate only on their radio network, and they're incompatible with other networks' cellular communications technologies. This was especially rife some years back. In recent years, device manufacturers have been designing phones that users can operate on both CDMA and GSM networks. GSM and CDMA are multiple-access technologies that enable numerous data connections and multiple calls on a single radio channel. CDMA cellular systems use a unique code to encode every call's data and then transmit all those calls at once. On the other end, the receivers divide the combined signal before channeling them to the intended recipient. GSM transforms every call into digital data, transmits it via a shared channel at a specific time and then puts each call back together at the other end of the line for the intended recipient. Which carriers are CDMA? Which are GSM? GSM is available in more than 200 countries. CDMA is most widely used in the U.S. by carriers such as U.S. Cellular and Verizon. GSM carriers in the U.S. include T-Mobile and AT&T. With GSM networks, users can transmit data and make voice calls at the same time, an impossible feat for CDMA networks. But this is hardly the reason behind GSM's popularity. A big driver was Europe's 1987 law that required the use of GSM. Another reason was that GSM resulted from an industry consortium, while CDMA was, for the most part, owned by Qualcomm, making GSM-powered devices cheaper to make and use. CDMA and GSM standards apply only to 2G and 3G connectivity. As the switch to fourth-generation wireless began in earnest in 2010, carriers adopted Long-Term Evolution (LTE), the global standard for 4G networks. Consequently, the distinction between CDMA and GSM is becoming less important as CDMA phones and devices powered by GSM networks

vanish into history. But, for now, 2G and 3G networks still serve as backups for areas with weak 4G LTE signals. CDMA, 2G and 3G networks offer better broadband capacity, reliability and bandwidth, far beyond what's possible on 4G. Primarily, 5G is powered by millimeter wave (MM wave) bands in 26, 28, 38 and 60 GHz. At these frequency bands, data transfer speeds can rise as high as 20 gigabits per second (Gbps). Using massive multiple input, multiple output (MIMO) 64-256 antennas, 5G offers speeds at least 10 times greater than what's currently possible on 4G networks. 5G cellular technologies in the low-band and midband range use frequencies between 600 MHz and 6 GHz, with most occupying the 3.5 to 4.2 GHz range. In the U.S., the 5G wireless frequency bands already in use are 3,100 to 3,550 MHz and 3,700 to 4,200 MHz. Europe is deploying 3,400 to 3,800 MHz frequency bands, while Asia is using 3,300 to 3,600 MHz; 4,400 to 4,500 MHz; and 4,800 to 4,990 MHz bands. (Code Division Multiple Access) A method for transmitting digital signals simultaneously over the same carrier frequency (channel). CDMA's basic principles were developed to secure radio signals at the beginning of World War II; however, the most widely known application of CDMA came much later as a cellular transmission method. Qualcomm is the designer of CDMA chips. In the U.S., Verizon and Sprint are CDMA carriers. However, T-Mobile acquired Sprint in 2020, and although T-Mobile is based on GSM, both CDMA and GSM are being phased out as LTE has become the dominant technology with 5G coming on strong. See LTE, GSM and cellular generations. CDMA and GSM For years, CDMA and GSM have been the two primary cellular, but incompatible, 2G and 3G transmission systems. Old cellphones support either CDMA or GSM, while newer models handle both. Although all current phones support 4G LTE, if they do not have both CDMA and GSM built in, users cannot switch carriers and be guaranteed service. The problem is that in rural or highly congested areas, transmission may throttle down from LTE to 3G. See LTE, GSM and cellular generations. CDMA Was a Major Advance CDMA provides up to 10 times the calling capacity of earlier analog networks (AMPS) and up to five times the capacity of GSM systems. CDMA is also the basis for the WCDMA and HSPA 3G technologies used by GSM carriers (see WCDMA and HSPA). See IS-95 and CDMA2000. Spread Spectrum Unlike GSM, which uses TDMA to divide the channel into time slots, CDMA's spread spectrum assigns a unique code to each conversation and uses the full bandwidth of the channel. An often-used analogy is the ability to detect one's own language in a room full of people speaking multiple languages. Each bit is multiplied into 128 coded bits, giving the receiving circuit an enormous amount of data it can average just to determine the value of a single bit when decoding the signal. See chip rate, BREW, FDMA, TDMA and spread spectrum. The following illustrations were created with the assistance of Klein Gilhousen, co-founder of Qualcomm and co-inventor of CDMA. They show the path of a single bit being transmitted and received. Transmitting the Bit The vocoder compresses the conversation, and the convolutional encoder adds error checking bits. Each bit is replicated 64 times and exclusive OR'd with a Walsh code that uniquely identifies the call. The pseudo-random number generator identifies all calls in one cell sector. Receiving the Bit The analog-to-digital converter (ADC) quantizes the call into bits. The Walsh code and PN sequence correlation receivers recover the original signal. Using the convolutional code, the Viterbi decoder corrects errors every 20 milliseconds. The vocoder decompresses the bits, and the digital-to-analog converter (DAC) turns them back into waveforms.

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