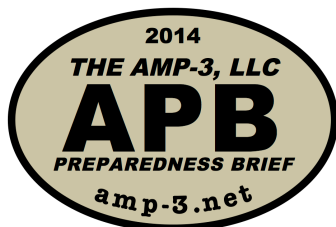


NON-HAM RADIO RESOURCES

FRS • GMRS • MURS • CB • DOT FREQUENCIES

LICENSE, FREQUENCIES, EQUIPMENT, OPERATIONAL SUMMARY, AND RESOURCES



AN AMP-3 PREPAREDNESS PRIMER

Resources Compiled and Printed by Amp-3, LLC • V2.0 • rev April 2014

LICENSE, FREQUENCIES, EQUIPMENT, OPERATIONAL SUMMARY, AND RESOURCES

The range of radio communications depends greatly upon the local terrain, the flatter the terrain the greater your communications range. In general, radio waves in the VHF and UHF bands tend to propagate by "line of sight". This means that they will travel in a straight line until obstructed by an obstacle.

VHF (MURS and 2 meter ham band) propagates better outdoors. UHF (FRS/GMRS and 70 cm ham band) propagates better in buildings and urban areas. The shorter wavelength of UHF transmissions allow for better penetration into buildings while the longer wavelength of VHF provides better propagation over small hills and through forests. As an example, police and fire departments tend to use UHF radios while forestry services tend to use VHF radios.

FRS - FAMILY RADIO SERVICE

Unlicensed UHF very low-power, short-range, 14 channel radio service (460 MHz band)

LICENSE	No license required
FREQUENCIES	14 UHF frequencies for SIMPLEX operation FRS frequencies are interstitial between the GMRS frequencies CTCS may be used
EQUIPMENT & OPERATION	Type-certified for FRS Hand-held • ½ watt max • 2.5 KHz Deviation Permanently attached antenna

GMRS - GENERAL MOBILE RADIO SERVICE

Licensed UHF radio service with 8 frequency pairs & 7 non-paired frequencies (462 MHz & 467 MHz bands)

LICENSE	FCC license required (\$80)
FREQUENCIES	15 UHF frequencies 7 interstitial channels shared with FRS 8 exclusive GMRS channels for simplex and repeater use
EQUIPMENT & OPERATION	Type-certified for GMRS use 50 watts max on 8 GMRS frequencies 5 watts max on first 7 FRS interstitial frequencies Detachable antenna permitted Valid GMRS licensee & immediate unlicensed family members (47 CFR 95.179) Transmit GMRS call sign every 15 minutes GMRS users may talk with unlicensed FRS users Hybrid FRS/GMRS Consumer Radios 22 channels: 7 FRS channels • 7 shared FRS/GMRS channels • 8 GMRS channels Only channels 8-14 are strictly license-free FRS channels Transmitting on channels above channel 14 requires a GMRS license Transmitting on the shared FRS/GMRS channels 1-7 requires a license if the effective radiated power of the radio is greater than 500 mW (1/2 watt)
REPEATERS	Input & output frequencies typically paired 5 MHz apart However, any input and output frequency pairing is legal CTCS (Control Tone Coded Squelch) is usual on repeaters

MURS – MULTIPLE USE RADIO SERVICE

Unlicensed VHF low-power, short-range, five-channel personal radio service (151-154 MHz)

LICENSE	No license required
FREQUENCIES	5 VHF frequencies
EQUIPMENT & OPERATION	Type-certified for MURS use 2 watts max Detachable antenna permitted Store-forward and repeaters not permitted

CB – CITIZENS BAND

Unlicensed VHF low-power, short-range, forty-channel personal radio service (27 MHz / 11 meter band)

Unlike the Amateur Radio Service, CB radio can be used for business or personal communications

LICENSE	No license required
FREQUENCIES	40 frequencies
EQUIPMENT & OPERATION	Type-certified for CB use / FCC Part 95 4 watts for AM 12 watts SSB (Single Side Band) Detachable antenna permitted Store-forward operations and repeaters not permitted

USEFUL RADIO RESOURCES FOR PREPAREDNESS

AmRRON <i>American Redoubt Radio Operators Network</i> AmRRON Channel 3 Project (CB • FRS • GMRS • MURS) AmRRON Communications SOI (\$2 Donation Download)	http://amrron.com/
Radio Free Redoubt <i>The Voice of The American Redoubt</i>	http://www.radiofreeredoubt.com/
REACT International <i>Providing a wide range of radio related services to the public</i>	http://reactintl.org/
Dakota Alert <i>Supplier of MURS products allow you to communicate and monitor activity over long distances</i>	http://www.dakotaalert.com/
Radio Master Reports <i>Survivalist Communications for the SHTF Prepper</i>	http://radiofreeq.wordpress.com/
CHIRP <i>CHIRP is a free, open-source tool for programming your amateur radio</i>	http://chirp.danplanet.com/projects/chirp/wiki/Home/
MIKLOR <i>Radio software • drivers • guides • FAQs for Baofeng & Wouxon</i>	http://www.miklor.com/
Personal Radio Steering Group, INC (GMRS INFORMATION)	http://home.provide.net/~prsg/home.htm
FCC – GMRS Page	http://www.fcc.gov/encyclopedia/general-mobile-radio-service-gmrs
FCC Universal License System GMRS License (\$80)	http://wireless.fcc.gov/uls/index.htm?job=home

FRS • GMRS FREQUENCY TABLE

CH	FREQ	FRS	FRS MAX OUTPUT	GMRS	GMRS MAX OUTPUT	NOTES
01	462.5625	FRS 01	500mW (½ watt)	GMRS 09	5 watt	FRS 1 unofficial National Calling Frequency
02	462.5875	FRS 02		GMRS 10		FRS 2 frequently used by geocachers
03	462.6125	FRS 03		GMRS 11		FRS 3 - AmRRON Ch 3 Project Frequency
04	462.6375	FRS 04		GMRS 12		
05	462.6625	FRS 05		GMRS 13		
06	462.6875	FRS 06		GMRS 14		
07	462.7125	FRS 07		GMRS 15		
08	467.5625	FRS 08				
09	467.5875	FRS 09				
10	467.6125	FRS 10				
11	467.6375	FRS 11				
12	467.6625	FRS 12				
13	467.6875	FRS 13				
14	467.7125	FRS 14				
15	462.5500			GMRS 01	50 watt	
16	462.5750			GMRS 02		WHITE DOT
17	462.6000			GMRS 03		GMRS 3 - AmRRON Ch 3 Project Frequency
18	462.6250			GMRS 04		BLACK DOT
19	462.6500			GMRS 05		
20	462.6750			GMRS 06		CH 20 / "675" / GMRS 6 Unofficial emergency / traveler assistance Nationally recognized coded squelch for 675 emergency repeater operation is 141.3 Hz ORANGE DOT
21	462.7000			GMRS 07		
22	462.7250			GMRS 08		
	467.5500			GMRS 1 in		GMRS REPEATER INPUT
	467.5750			GMRS 2 in		
	467.6000			GMRS 3 in		
	467.6250			GMRS 4 in		
	467.6500			GMRS 5 in		
	467.6750			GMRS 6 in		
	467.7000			GMRS 7 in		
	467.7250			GMRS 8 in		

MURS FREQUENCY TABLE

CH	FREQ	CH NAME	DEVIATION
1	151.820		2.5 kHz
2	151.880		
3	151.940		
4	154.570	BLUE DOT	20.00 kHz
5	154.600	GREEN DOT	

NOAA WEATHER FREQUENCIES

162.400	162.425	162.450
162.475	162.500	162.525
162.550		

CITIZEN BAND FREQUENCY TABLE

CH	FREQ	NOTES
01	26.965 MHz	
02	26.975 MHz	
03	26.985 MHz	CB 3 - AmRRON Channel 3 Project
04	27.005 MHz	4x4 channel
05	27.015 MHz	
06	27.025 MHz	Many operators using illegal high-power amplifiers on this channel
07	27.035 MHz	
08	27.055 MHz	
09	27.065 MHz	CB 9 - EMERGENCY CHANNEL
10	27.075 MHz	
11	27.085 MHz	
12	27.105 MHz	
13	27.115 MHz	Unofficial RV channel
14	27.125 MHz	Included crystal on many walkie-talkies
15	27.135 MHz	
16	27.155 MHz	
17	27.165 MHz	NORTH-SOUTH FREEWAYS TRUCKERS CHANNEL
18	27.175 MHz	
19	27.185 MHz	EAST-WEST FREEWAYS TRUCKERS CHANNEL Notable as being the center frequency of the band, therefore where antennas are most efficient (SWR)
20	27.205 MHz	
21	27.215 MHz	
22	27.225 MHz	
23	27.255 MHz	
24	27.235 MHz	
25	27.245 MHz	
26	27.265 MHz	
27	27.275 MHz	
28	27.285 MHz	
29	27.295 MHz	
30	27.305 MHz	Depending on local needs, channels numbered above 30 or 35 are generally used for SSB operation
31	27.315 MHz	
32	27.325 MHz	
33	27.335 MHz	
34	27.345 MHz	
35	27.355 MHz	
36	27.365 MHz	
37	27.375 MHz	
38	27.385 MHz	Unofficial SSB calling channel, LSB mode
39	27.395 MHz	
40	27.405 MHz	

DOT / STAR FREQUENCIES

CHANNEL	FREQUENCY
RED DOT	151.6250
PURPLE DOT	151.9550
BLUE DOT	154.5700
GREEN DOT	154.6000
WHITE DOT	462.5750
BLACK DOT	462.6250
ORANGE DOT	462.6750
BROWN DOT	464.5000
YELLOW DOT	464.5500
"J" DOT	467.7625
"K" DOT	467.8125
SILVER STAR	467.8500
GOLD STAR	467.8750
RED STAR	467.9000
BLUE STAR	467.9250




"3-3-3 Radio Plan" for SHTF Communications

Courtesy: Radio Masters Reports - Survivalist Communications for SHTF Preppers
<http://radiofreeq.wordpress.com/2013/07/15/3-3-3-radio-plan-for-shtf-communications/>

"CH3 PROJECT"

Courtesy: Radio Free Redoubt and AmRRON
<http://www.amrron.com/communications-resources/ch3-project/>


CB

FRS

MURS **CH3** **GMRS**

PROJECT

AmRRON **TAPRN**

2m PRIMARY 146.420 SIMPLEX

CH3 PROJECT

WHAT CHANNEL 3 **CHANNEL 3**
HOW LONG 2 **2 MINUTES**
WHEN 1 **ON THE HOUR**

EXAMPLE OF THE CALL

John Schmidt calling to unknown
 "Redoubter XRAY" (unknown)
 "This is Redoubter Juliet Sierra"

RadioFreeRedoubt.com AmRRON.com

RADIO PROGRAMING FILE CHANNEL LIST

AMP-3, LLC • v1.0

NAME:

DATE:

PAGE: ____ / ____

MEMORY SLOT	BANK	CHANNEL DESCRIPTION	FREQ RECEIVE	FREQ TRANSMIT	OFFSET	PL TONE	MODE FM / NFM

PRINT COPIES ON WATER RESISTANT PAPER AND KEEP WITH YOUR COMMUNICATIONS PLAN BOOK

RADIO PROGRAMING FILE

CHANNEL LIST

AMP-3, LLC • v2.0

NAME:

DATE:

PAGE: ____ / ____

MEMORY SLOT	BANK	CHANNEL DESCRIPTION	FREQ RECEIVE	FREQ TRANSMIT	PL TONE	NOTES

EXCERPTS FROM FCC TITLE 47

FCC TITLE 47—TELECOMMUNICATION

<http://www.fcc.gov/encyclopedia/rules-regulations-title-47>

FCC TITLE 47 PART 95—PERSONAL RADIO SERVICES

- **PART 95 – SUBPART A – GENERAL MOBLILE RADIO SERVICE (GMRS)**

95.3 GMRS License Required

Before any station transmits on any channel authorized in the GMRS from any *point* (a geographical location) within or over the territorial limits of any area where radio services are regulated by the FCC, the responsible party must obtain a *license* (a written authorization from the FCC for a GMRS system).

95.129 GMRS Station Equipment

Every station in a **GMRS system must use transmitters the FCC has certificated for use in the GMRS**. Write to any FCC Field Office to find out if a particular transmitter has been certificated for the GMRS. All station equipment in a GMRS system must comply with the technical rules in part 95.

95.639 GMRS Maximum Transmitter Power

(a) No GMRS transmitter, under any condition of modulation, shall exceed:

(1) **50 W Carrier power** (average TP during one unmodulated RF cycle) when transmitting emission type A1D, F1D, G1D, A3E, F3E or G3E.

(2) **50 W peak envelope** TP when transmitting emission type H1D, J1D, R1D, H3E, J3E or R3E.

(b) No R/C transmitter, under any condition of modulation, shall exceed a carrier power or peak envelope TP (single-sideband only) of:

(1) **4 W in the 26-27 MHz frequency band, except on channel frequency 27.255 MHz;**

(2) **25 W on channel frequency 27.255 MHz;**

(3) **0.75 W in the 72-76 MHz frequency band.**

95.603 GMRS Transmitter Certification Required

(a) Each *GMRS transmitter* (a transmitter that operates or is intended to operate at a station authorized in the GMRS) must be certificated.

- **PART 95 – SUBPART B – FAMILY RADIO SERVICE (FRS)**

95.194 (FRS Rule 4) FRS UNITS

(a) **You may only use an FCC certified FRS unit.** (You can identify an FCC certified FRS unit by the label placed on it by the manufacturer.)

(b) You must not make, or have made, any internal modification to an FRS unit. Any internal modification cancels the FCC certification and voids your authority to operate the unit in the FRS.

(c) You may not attach any antenna, power amplifier, or other apparatus to an FRS unit that has not been FCC certified as part of that FRS unit. There are no exceptions to this rule and attaching any such apparatus to a FRS unit cancels the FCC certification and voids everyone's authority to operate the unit in the FRS.

(d) FRS units are prohibited from transmitting data in store-and-forward packet operation mode.

95.135 FRS Maximum Authorized Transmitting Power

(a) No station may transmit with more than 50 watts output power.

(b) [Reserved]

(c) A small control station at a point north of Line A or east of Line C must transmit with no more than 5 watts ERP.

(d) A fixed station must transmit with no more than 15 watts output power.

(e) A small base station must transmit with no more than 5 watts ERP.

95.603 FRS Transmitter Certification Required

(d) Each FRS unit (a transmitter that operates or is intended to operate in the FRS) must be certified for use in the FRS in accordance with subpart J of part 2 of this chapter.

- **PART 95 – SUBPART D – CITIZENS BAND RADIO SERVICE (CB)**

95.404 (CB Rule 4) Do I need a license?

You do not need an individual license to operate a CB station. You are authorized by this rule to operate your CB station in accordance with the rules in this subpart.

95.409 (CB Rule 9) What equipment may I use at my CB station?

You must use an FCC certificated CB transmitter at your CB station. You can identify an FCC certificated transmitter by the certification label placed on it

by the manufacturer. You may examine a list of certificated equipment at any FCC Field Office or at FCC Headquarters. Use of a transmitter which is not FCC certificated voids your authority to operate the station.

You must not make, or have made, any internal modification to a certificated CB transmitter. (See CB Rule 25, §95.425). Any internal modification to a certificated CB transmitter cancels the certification, and use of such a transmitter voids your authority to operate the station.

95.410 (CB Rule 10) How much power may I use?

(a) Your CB station transmitter power output must not exceed the following values under any conditions:

AM (A3)—4 watts (carrier power) SSB—12 watts (peak envelope power)

(b) If you need more information about the power rule, see the technical rules in subpart E of part 95.

(c) Use of a transmitter which has carrier or peak envelope power in excess of that authorized voids your authority to operate the station.

95.603 Transmitter Certification Required

(c) Each *CB transmitter* (a transmitter that operates or is intended to operate at a station authorized in the CB) must be certificated. No CB transmitter certificated pursuant to an application filed prior to September 10, 1976, shall be manufactured or marketed.

- **PART 95 – SUBPART J – MULTI-USE RADIO SERVICE (MURS)**

95.1301 MURS Eligibility

An entity is authorized by rule to operate a MURS transmitter if it is not a foreign government or a representative of a foreign government and if it uses the transmitter in accordance with §95.1309 and otherwise operates in accordance with the rules contained in this subpart. No license will be issued.

95.1305 MURS Station identification.

A MURS station is not required to transmit a station identification announcement.

95.639 MURS Maximum Transmitter Power

(h) No MURS unit, under any condition of modulation, shall exceed 2 Watts transmitter power output.

95.603 Transmitter Certification Required

(g) Each Multi-Use Radio Service transmitter (a transmitter that operates or is intended to operate in the MURS) must be certificated in accordance with subpart J of part 2 of this chapter, Provided however, that those radio units certificated as of November 12, 2002 need not be recertificated.

LEGAL NOTICE

Under FCC Rules, it is illegal to send encrypted messages over Amateur Radio (HAM) Bands, or to otherwise hide the true meaning of messages.

While it is legal to **LISTEN** to the FRS / GMRS / MURS / CB frequencies, it is important to check regulations regulating operations, equipment certification, and personal licensing requirements before **TRANSMITTING**. The fact that a radio can be programmed to monitor and transmit on a particular frequency does not mean that you have the legal authority to proceed.

Following all published regulations and operating in a safe manner is your responsibility.

FCC TITLE 47 - TELECOMMUNICATION

<http://www.fcc.gov/encyclopedia/rules-regulations-title-47>

FCC TITLE 47 PART 95—PERSONAL RADIO SERVICES

- PART 95 – SUBPART A – GENERAL MOBILE RADIO SERVICE (GMRS)
- PART 95 – SUBPART B – FAMILY RADIO SERVICE (FRS)
- PART 95 – SUBPART D – CITIZENS BAND RADIO SERVICE (CB)
- PART 95 – SUBPART J – MULTI-USE RADIO SERVICE (MURS)