Mini Mobile Transceiver

Radioddity
www.radioddity.com

Radioddity *DB20-G*

GMRS-Transceiver and NOAA-Receiver

USER'S MANUAL

About Radioddity

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Nothing is more important than your time, and your money. When buying radios online, you face a dilemma: Save time and purchase from a reputable website at a high price, or try to save money by purchasing from an unreputable dealer at the cost of your time spent dealing with quality and service issues. At Radioddity.com, you don’t have to choose between low prices and a safe shopping experience. Whether you’re a first time buyer or a seasoned HAM, we hope you’ll find our products, prices, content and resources to be just what you need.

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That is our promise: to improve your buying experience.

Through strong partnerships which allow us to bring you the latest technology from our own brand Radioddity and on behalf of our caring and responsive Customer Support team, we strive to fulfill that promise and better meet your needs every day.

Along with this promise, we hope to give you more value. Be that by offering you the latest and greatest in DMR and analog radios, accessories and related products, by providing superior technical support, or by working with thought leaders in the Amateur Radio Industry to develop enriching content to entertain and assist you in your buying process including our Blog, FAQ, and Newsletter. Your concerns are our concerns.

We do all of this to help you find the highest quality of radios, for low prices, with as little headache to the consumer as possible. If we are failing you in this promise in any way, let us know via email: **support@radioddity.com**

CONTENTS

■ 1. QUICK GUIDING

1.1 Prepare Work

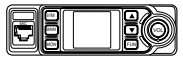
1. DC power supply: 12-14V, ≥10A
2. Car antenna: 136-174, 400-490MHz, ≥20w, SL16 connector
3. Magestic sucker

1.2 Quick Use

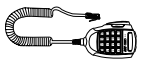
1. Open package , take out DB20-G radio and spares.
2. Connect power supply, microphone and antenna.
3. Turn on power supply, then turn DB20-G volume knob to power on DB20-G.
4. Choose wanted GMRS channel by DB20-G or its microphone to start communication.

■ 2. ACCESSORIES

2.1 3Standard Accessories



Transceiver



Microphone

Mobile Bracket

Adjusting screws

non-slip mat

Fuse (10A 250V)

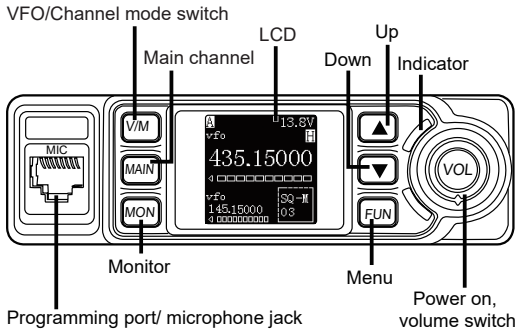
Screws

Pads

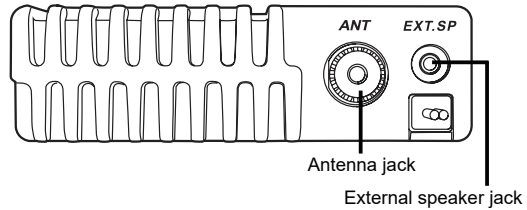
manual

■ 3. GETTING ACQUAINTED

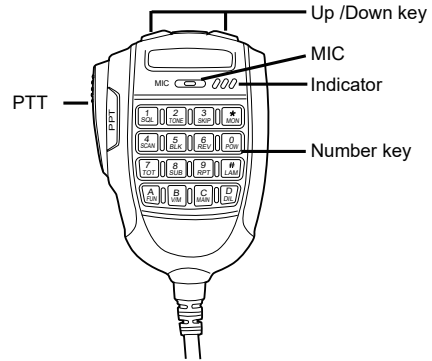
3.1 Front panel



3.2 Rear panel



3.3 Microphone



■ 4. BASIC OPERATIONS

4.1 Power On/Off

1. Turn the Volume knob clockwise to turn on the radio, the radio LCD will display programmed text and emit a beep sound.

2. Power Off:Turn volume knob anti-clockwise until you hear "click" to turn off the radio.

4.2 Adjusting the Volume

Turn volume knob clockwise to increase the “audio level” and anti-clockwise to reduce it.

4.3 Switch between Main Channel and Sub Channel

In standby status, press the microphone [C MAIN] key or front panel [MAIN] key to switch between main channel and sub channel. The top left corner of LCD will display current main channel.

4.4 Adjust Channel

1. Press microphone [B V/M] key or front panel [V/M] key to switch the radio to channel mode, press microphone 【UP】/【DN】key or front panel [▲]/[▼] key to select a channel upward or downward.

2. In channel mode, input three numbers by number key for its direct selection (eg: 001 for channel 1).

4.5 Store channel

In standby status, press the microphone [A/FUN] key, the top left corner will display “Func”, then press【UP】KEY, the LCD bottom left corner will display Save to XXX, now press【UP】/【DN】key to select a channel number, hold [*/MON] key to store the new frequency and return to standby.

⚠ XXX reflects for the channel number, if LCD displays “Null” under “Save TO XXX”, means that the current channel is empty.

4.6 Channel Delete

In channel mode, press microphone [A/FUN] key, then press【DN】key, the LCD displays “Delete XXX” and frequency, presss【UP】/【DN】key to select the channel to be deleted, then hold [#/LAM] key for deleting the current channel.

⚠ “XXX” reflects for the channel number, the LCD displays “Null” after the channel is deleted.

4.7 Receiving

Select a receiving channel or frequency for receiving call, if the RX signal is week, hold front panel [MON] key or microphone [*/MON] key to monitor weak signals.
RX frequency range.

1. GMRS channel: GMRS frequency
2. UHF/VHF Full band: 136-174/400-490MHz
3. FM radio 65-108Mhz: available in freuqency mode only. user can input frequency by microphone number key like 8,8,,0,0,0,0,0, is 88Mhz.

⚠ When the RX icon and field strength flashes, but can not hear the calling, it means current channel receive a matching carrier but unmatching signaling. Refer to CTCSS/ DCS CODE or Optional Signaling setup)

4.8 Transmitting

Hold [PTT] and speak into microphone. the radio start transmit, the screen shows red TX and field strength. Hold the microphone approximately 2.5-5.0cm from your lips and speak into the microphone at your normal voice level: it will help to transfer best audio signal.

Note:

1. According to FCC Part 95E standard, CH8-CH14 are for 0.5W FRS channels, DB20-G minimum power 5W, maximum power 20W, so CH8-CH14 not allow transmiting.
2. Follow Part 95E rule, DB20-G only allow transmitting on GMRS frequencies.

4.9 Squelch Off

In standby, press microphone [*/MON] key or front panel [MON] key to turn off squelch, the radio will monitor weak signal.

4.10 Emergency Alarm

In standby, hold [MAIN] key, release it until the LCD displays ALARM, the alarm function turns on. Program emergency alarm rule shall be programmed by PC software.

4.11 Keypad Lockout

In standby, hold [FUN] key or [A/FUN] key, the radio emit Du sound, the LCD displays LOCK.

Now release the key, the keypad is locked. To turn off key lock, hold [FUN] key or [A/FUN] key until a “Du Du” tone signal is heard, the LOCK icon disappears, now you may release the key.

4.12 Transmit Tone Pulse Frequency

Hold PTT and [DN] key will transmit selected Pre-programmed tone pulse frequency

4.13 VFO Scan and Channel Scan

1. VFO scan: In VFO mode, press microphone [A/FUN] key or [4/SCAN] key to start VFO scan. If the radio has program PL1, PH1, PL2, PH2, frequency (in the bottom of channel list), VFO scan will between PL1-PH1 and PL2-PH2.

Note:
PL and PH is valid when current working frequency is within PL1-PH1 or PL2-PH2.

2. Channel Scan: In channel mode press microphone [A/FUN] key and then press [4/SCAN] key to start channel scan. Channel scan setting shall be programmed by PC software.

4.14 VOX On/Off contro

In standby, hold【V/M】key until LCD displays VOX icon, repeater this step or repower on radio to turn off VOX function.

⚠ Before turn on VOX, please set VOX level in 26th menu.

4.15 How to Install Driver and Start Programming

1. After install PC software, click "Start "menu in computer, under “ALL PROGRAMS” menu, choose and click “USB To Com port” in DB20-G program, install “USB To Com port” driver by indication.

2. Connect the optional USB Programming cable.

3. Click "DB20-G" programm under "ALL PROGRAMS" menu. click "OK" to start programming software.

■ 5. SHORTCUT OPERATION

Press microphone [A FUN] key and then press number key to fast enter following functions, then press【UP】/【DN】key to select the value. Presss【PTT】key or [D DIL] key for storing.

Function list

No.	Function name	Combination Key
1	Squelch level setting	[A FUN] + [1 SQL]
2	Optional signaling setting	[A FUN] + [2 TONE]
3	Scan Skip	[A FUN] + [3 SKIP]
4	Scan	[A FUN] + [4 SCAN]
5	Busy channel lockout	[A FUN] + [5 BLK]
6	Time out timer	[A FUN] + [7 TOT]
7	Sub channel on/off switch	[A FUN] + [8 SUB]
8	Function Menu	[A FUN] + [* MON]
9	LCD brightless	[A FUN] + [# LAM]
10	DTMF Code check	[A FUN] + [D DIL]

⚠ In DTMF check mode

When check DTMF code, press PTT will send current DTMF code.

To revise DTMF code, press [A FUN] key and then press [0 POW] key to enter edit mode.

Input DTMF code by number keys , then press PTT to transmit the code and store.

■ 6. FUNCTION SETTING

6.1 By Front Panel Key

1. Press [FUN] key to enter main menu.
2. Press [V/M] key or [MAIN] key to choose function.
3. Press [▲] / [▼] key to choose value.
4. Press [FUN] key or [MON] key to store and exit.

⚠ When setting DCS code, [MON] key is for switch between positive and inverse code

6.2 By Microphone Key

1. Press [A FUN] key and then press [* MON] key to enter menu.
2. Press [B V/M] key or [C MAIN] key to choose function.
3. Press【UP】/【DN】key to choose value.
4. Press [D DIL] key to store and exit.

⚠ When setting DCS code, [1 SQL] key is for switch between Positive and inverse code. [3 SKIP] key is for choose special DCS.

Function list

No.	Function name	Setting value
1	TX/RX CTC/DCS	67Hz~254.1Hz, 000N~777I
2	RX CTC/DCS	67Hz~254.1Hz, 000N~777I
3	TX/RX CTC/DCS	67Hz~254.1Hz, 000N~777I
4	Optional signaling	OFF, DTMF, 2Tone, 5Tone
5	Squelch mode	SQ, CT/DCS, Tone, C&T, C/T
6	Step size	2.5K~50K
7	Band width	WIDE (25K), NARROW (12.5K)
10	Busy channel Lock	OFF, REPEATER, BUSY
11	Channel name	0~z
12	TX OFF	ON,OFF
15	Compander	ON,OFF
16	NC(Noise reduction)	ON、OFF

No.	Function name	Setting value
17	5 Tone	1~100, Press PTT to transmit
18	2 Tone	1~32, Press PTT to transmit
19	Sub channel display	FREQ、VOLT、OFF
20	Key beep	ON、OFF
21	Time out timer	1~30Min、OFF
22	DMTF transmit time	50ms~500ms
23	Squelch level	OFF、1~9
24	Scan pause time	5ST、10ST、15ST、2SP
25	LCD brightness	1~5
26	VOX level	OFF, 1-9
27	VOX delay	0.5-5 Second
28	Tone burst frequency	1750Hz, 2100Hz 1000Hz, 1450Hz
29	Channel display	FREQ, CH, NAME
30	Reset	FACTORY？ INITIALIZE？

6.3 Reset Factory Default

If your radio seems to be malfunctioning because of wrong operation or setup, this function will resume all setup and channels to factory default.

1. Press front panel [MAIN] key to enter main MENU list.
2. Press [V/M] or [MAIN] key to chooe 30th function, the LCD display reset options.
3. Press [▲] / [▼] key to chooe “FACTORY？”
4. Hold [FUN] key, until the radio re-power on.

After reset, all channel and fucntion setting will resume default value.

⚠ If choose“INITIALIZE？”, only function setting value will resume to default setting.

■ 7. SPECIFICAITONS

GENERAL		
Frequency Range	TX1: 462.5625-462.7125MHz (5W)	
	TX2: 462.550-467.725MHz	
	RX: 136-174MHz, 400-480MHz 65-108MHz	
Channel Spacing	12.5K/25K	
Channel Number	500 channels	
Operating Voltage	DC 13.8V±15%	
Squelch	Carrier/ CTCSS/DCS/5Tone/2Tone/DTMF	
Frequency Stability	±2.5ppm	
Operating Temperature	-20℃ ~ +60℃	
Dimensions(mm)	124x101x36m	
Weight	0.45kg (main unit)	
RECEIVER		
	Wide band	Narrow band
Sensitivity (12dB Sinad)	≤ 0.25μV	≤ 0.35μV
Adjacent Channel Selectivity	≥ 70dB	≥ 60dB
Audio Response	+1~-3dB(0.3~3KHz)	+1~-3dB(0.3~2.55KHz)
Hum & Noise	≥ 45dB	≥ 40dB
Audio distortion	<3%	
Audio power output	>2W@10%	

TRANSMITTER		
	Wide band	Narrow band
Power - USA version	462.5625-462.7125MHz (5W) ; 462.550-467.725MHz (18W)	
Modulation	16KΦF3E	11KΦF3E
Adjacent Channel Powe	≥ 70dB	≥ 60dB
Hum & Noise	≥ 40dB	≥ 36dB
Spurious Emission	≥ 60dB	≥ 60dB
Audio Response	+1~-3dB (0.3~3KHz)	+1~-3dB (0.3~2.55KHz)
Audio Distortion	≤ 5%	

■ 8. ATTACHED CHART

51 groups CTCSS Tone Frequency(Hz)

No.	Freq.(Hz)	No.	Freq.(Hz)	No.	Freq.(Hz)	No.	Freq.(Hz)	No.	Freq.(Hz)	No.	Freq.(Hz)	No.	Freq.(Hz)
1	62.5	9	85.4	17	110.9	25	146.2	33	173.8	41	199.5	49	241.8
2	67.0	10	88.5	18	114.8	26	151.4	34	177.3	42	203.5	50	250.3
3	69.3	11	91.5	19	118.8	27	156.7	35	179.9	43	206.5	51	254.1
4	71.9	12	94.8	20	123.0	28	159.8	36	183.5	44	210.7		
5	74.4	13	97.4	21	127.3	29	162.2	37	196.2	45	218.1		
6	77.0	14	100.0	22	131.8	30	165.5	38	189.9	46	225.7		
7	79.7	15	103.5	23	136.5	31	167.9	39	192.8	47	229.1		
8	82.5	16	107.2	24	141.3	32	171.3	40	196.6	48	233.6		

1024 groups DCS Code

Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)
1.	000	2.	001	3.	002	4.	003	5.	004	6.	005	7.	006	8.	007
9.	010	10.	011	11.	012	12.	013	13.	014	14.	015	15.	016	16.	017
17.	020	18.	021	19.	022	20.	023	21.	024	22.	025	23.	026	24.	027
25.	030	26.	031	27.	032	28.	033	29.	034	30.	035	31.	036	32.	037
33.	040	34.	041	35.	042	36.	043	37.	044	38.	045	39.	046	40.	047
41.	050	42.	051	43.	052	44.	053	45.	054	46.	055	47.	056	48.	057
49.	060	50.	061	51.	062	52.	063	53.	064	54.	065	55.	066	56.	067
57.	070	58.	071	59.	072	60.	073	61.	074	62.	075	63.	076	64.	077
65.	100	66.	101	67.	102	68.	103	69.	104	70.	105	71.	106	72.	107
73.	110	74.	111	75.	112	76.	113	77.	114	78.	115	79.	116	80.	117
81.	120	82.	121	83.	122	84.	123	85.	124	86.	125	87.	126	88.	127
89.	130	90.	131	91.	132	92.	133	93.	134	94.	135	95.	136	96.	137
97.	140	98.	141	99.	142	100.	143	101.	144	102.	145	103.	146	104.	147
105.	150	106.	151	107.	152	108.	153	109.	154	110.	155	111.	156	112.	157
113.	160	114.	161	115.	162	116.	163	117.	164	118.	165	119.	166	120.	167
121.	170	122.	171	123.	172	124.	173	125.	174	126.	175	127.	176	128.	177
129.	200	130.	201	131.	202	132.	203	133.	204	134.	205	135.	206	136.	207

Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)
137.	210	138.	211	139.	212	140.	213	141.	214	142.	215	143.	216	144.	217
145.	220	146.	221	147.	222	148.	223	149.	224	150.	225	151.	226	152.	227
153.	230	154.	231	155.	232	156.	233	157.	234	158.	235	159.	236	160.	237
161.	240	162.	241	163.	242	164.	243	165.	244	166.	245	167.	246	168.	247
169.	250	170.	251	171.	252	172.	253	173.	254	174.	255	175.	256	176.	257
177.	260	178.	261	179.	262	180.	263	181.	264	182.	265	183.	266	184.	267
185.	270	186.	271	187.	272	188.	273	189.	274	190.	275	191.	276	192.	277
193.	300	194.	301	195.	302	196.	303	197.	304	198.	305	199.	306	200.	307
201.	310	202.	311	203.	312	204.	313	205.	314	206.	315	207.	316	208.	317
209.	320	210.	321	211.	322	212.	323	213.	324	214.	325	215.	326	216.	327
217.	330	218.	331	219.	332	220.	333	221.	334	222.	335	223.	336	224.	337
225.	340	226.	341	227.	342	228.	343	229.	344	230.	345	231.	346	232.	347
233.	350	234.	351	235.	352	236.	353	237.	354	238.	355	239.	356	240.	357
241.	360	242.	361	243.	362	244.	363	245.	364	246.	365	247.	366	248.	367
249.	370	250.	371	251.	372	252.	373	253.	374	254.	375	255.	376	256.	377
257.	400	258.	401	259.	402	260.	403	261.	404	262.	405	263.	406	264.	407
265.	410	266.	411	267.	412	268.	413	269.	414	270.	415	271.	416	272.	417
273.	420	274.	421	275.	422	276.	423	277.	424	278.	425	279.	426	280.	427

Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)
281.	430	282.	431	283.	432	284.	433	285.	434	286.	435	287.	436	288.	437
289.	440	290.	441	291.	442	292.	443	293.	444	294.	445	295.	446	296.	447
297.	450	298.	451	299.	452	300.	453	301.	454	302.	455	303.	456	304.	457
305.	460	306.	461	307.	462	308.	463	309.	464	310.	465	311.	466	312.	467
313.	470	314.	471	315.	472	316.	473	317.	474	318.	475	319.	476	320.	477
321.	500	322.	501	323.	502	324.	503	325.	504	326.	505	327.	506	328.	507
329.	510	330.	511	331.	512	332.	513	333.	514	334.	515	335.	516	336.	517
337.	520	338.	521	339.	522	340.	523	341.	524	342.	525	343.	526	344.	527
345.	530	346.	531	347.	532	348.	533	349.	534	350.	535	351.	536	352.	537
353.	540	354.	541	355.	542	356.	543	357.	544	358.	545	359.	546	360.	547
361.	550	362.	551	363.	552	364.	553	365.	554	366.	555	367.	556	368.	557
369.	560	370.	561	371.	562	372.	563	373.	564	374.	565	375.	566	376.	567
377.	570	378.	571	379.	572	380.	573	381.	574	382.	575	383.	576	384.	577
385.	600	386.	601	387.	602	388.	603	389.	604	390.	605	391.	606	392.	607
393.	610	394.	611	395.	612	396.	613	397.	614	398.	615	399.	616	400.	617
401.	620	402.	621	403.	622	404.	623	405.	624	406.	625	407.	626	408.	627
409.	630	410.	631	411.	632	412.	633	413.	634	414.	635	415.	636	416.	637
417.	640	418.	641	419.	642	420.	643	421.	644	422.	645	423.	646	424.	647

Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)
425.	650	426.	651	427.	652	428.	653	429.	654	430.	430.	431.	656	432.	657
433.	660	434.	661	435.	662	436.	663	437.	664	438.	438.	439.	666	440.	667
441.	670	442.	671	443.	672	444.	673	445.	674	446.	446.	447.	676	448.	677
449.	700	450.	701	451.	702	452.	703	453.	704	454.	454.	455.	706	456.	707
457.	710	458.	711	459.	712	460.	713	461.	714	462.	462.	463.	716	464.	717
465.	720	466.	721	467.	722	468.	723	469.	724	470.	470.	471.	726	472.	727
473.	730	474.	731	475.	732	476.	733	477.	734	478.	478.	479.	736	480.	737
481.	740	482.	741	483.	742	484.	743	485.	744	486.	486.	487.	746	488.	747
489.	750	490.	751	491.	752	492.	753	493.	754	494.	494.	495.	756	496.	757
497.	760	498.	761	499.	762	500.	763	501.	764	502.	502.	503.	766	504.	767
505.	770	506.	771	507.	772	508.	773	509.	774	510.	510.	511.	776	512.	777

Menu List

Menu No.	Menu	Selection	Description & Default settings
01	T-CDC	OFF 67Hz-254.1Hz 000N-777I	Default: OFF CTCSS/DCS codes are privacy codes, Only when the code of the transmit frequency and receive frequency is matching you can transmit or receive the signal on the same channel. The setting is for turning off or activating CTCSS/DCS code in transmit frequency. Press [1] on the mic to select the type of CTCSS/DCS: 67Hz-254.1Hz, 000N-777I. Press [DN] or [UP] on the mic to select CTCSS/DCS code.
02	R-CDC	OFF 67Hz-254.1Hz 000N-777I	Default: OFF CTCSS/DCS codes are privacy codes, Only when the code of the transmit frequency and receive frequency is matching you can transmit or receive the signal on the same channel. The setting is for turning off or activating CTCSS/DCS code in receive frequency. Press [1] on the mic to select the type of CTCSS/DCS: 67Hz-254.1Hz, 000N-777I. Press [DN] or [UP] on the mic to select CTCSS/DCS code.

Menu No.	Menu	Selection	Description & Default settings
03	RT-CDC	OFF 67Hz-254.1Hz 000N-777I	Default: OFF CTCSS/DCS codes are privacy codes, Only when the code of the transmit frequency and receive frequency is matching you can transmit or receive the signal on the same channel. The setting is for turning off or activating same CTCSS/DCS codes in transmit and receive frequencies. Press [1] on the mic to select the type of CTCSS/DCS: 67Hz-254.1Hz, 000N-777I. Press [DN] or [UP] on the mic to select CTCSS/DCS code.
04	TONEDEC	DTMF 5Tone 2Tone OFF	Default: OFF It is an Optional Signaling, this feature is similar to CTCSS/DCS. When the receiver adds optional signaling, the caller shall transmit matching signaling. DTMF and 5Tone signaling can be applied for other advanced features such as ANI, PTT ID, group call, select call, remotely stun, remotely kill waken etc.. ***Note:** Only available in Channel Mode

Menu No.	Menu	Selection	Description & Default settings
05	SIGNAL	SQ CTSS/DCS	Default: SQ This transceiver has 5 squelch modes available. Squelch function is used for increasing the level of filtering unwanted signal, and free from disturb. SQ: You can hear the calling once receives matching carrier. CTSS/DCS: You can hear the calling when receives matching carrier and CTCSS/DCS code. TONE: You can hear the calling when receives matching carrier +optional signaling. CT*TO: You can hear the calling when receives matching carrier + CTCSS/DCS + optional signaling. CT/TO: You can hear the calling when receives any matching carrier or CTCSS/DCS or optional signaling.
06	STEP	2.5/5.0/6.25/10.0 /12.5/20.0/25.0 /30.0/50.0 KHz	Default: 2.5K You can select the desired frequency step. ***Note:** Only available in Frequency Mode
07	W/N	Wide: 25KHz, Narrow: 12.5KHz	Default: Wide (25KHz) This function is used to set the working bandwidth of the radio.

Menu No.	Menu	Selection	Description & Default settings
11	RPLOCK	CTCSSS /DCS	Default: OFF CTCSSS /DCS: Channel Busy and lock. When the radio receives a matched carrier, transmission is prohibited. OFF: Always allow transmitting no matter what status of receiving REPEATER: Signaling Busy and lock. When the radio receives a matching carrier, but CTCSS/DCS does not match, the transmission is prohibited. BUSY: Channel Busy and lock. When the radio receives a matched carrier, transmission is prohibited.
		OFF	
		REPEATER	
		BUSY	
12	CHANNEL NAME	--------	Default: Current channel name You can edit the name for the current channel. When you in the CHANNEL NAME menu, press [1] on the mic to select the place of the character in sequence, then press [DN] or [UP] on the mic to select the letter or number. The max characters are 8.(a-z, A-Z, 0-9) ***Note:** Only available in Channel Mode
		a-z	
		A-Z	
		0-9	
13	TX INHIBIT		Default: OFF Prohibit the current channel to transmit

Menu No.	Menu	Selection	Description & Default settings
15	COMP	ON	Default: OFF TX Noise Compander Compander function will filter the background noise to enhance audio clarity, especially in long range communication. Recommend turn on this function when the signal is weak.
		OFF	
16	NC	ON	Default: OFF RX Noise Compander Block some background noise while receiving, it is obvious when the signal is weak. Recommend turn on this function when the signal is weak.
		OFF	
17	5TONE	1-100	See the Menu 04 Enable to select the group you pre-programmed.
18	2TONE	1-32	See the Menu 04 Enable to select the group you pre-programmed.
19	DSPSUB	OFF	Default: FREQ The content display at the place of sub-channel OFF: The sub-channel is empty. VOLT: Display the current volt FREQ: Display the current frequency
		VOLT	
		FREQ	

Menu No.	Menu	Selection	Description & Default settings
20	BEEP	ON OFF	Default: OFF Turn on or turn off the Key beep.
21	TOT	OFF 1Min-30Min	Default: OFF The TOT function is used to prevent a long transmission and limits the transmit time, TOT is ability to temporarily stops the transmission if the radio has been used beyond the max pre-set time. OFF: The TOT function is off.
22	DTMF	50ms~500ms	The time lag of DTMF transmit time
23	SQL	0-9	Default: 3 SQL means Squelch, the ability to receive weak signal. Level 0: Squelch off Level 1-9: Level 1 is the lowest squelch level, level 9 is the highest squelch level. If the squelch is set to the 9, the radio will receive the strongest signals only.
24	SCAN	2SP 5ST 10ST 15ST	Default: 5ST Scan pause time 2SP: The time lag from the active signal end to the next signal start. 5ST, 10ST, 15ST: The time lag from the active signal start to the selected time end.

Menu No.	Menu	Selection	Description & Default settings
25	LIGHT	1-5	Default: 3 You can adjust the LCD screen backlit brightness from 1 to 5.
26	VOX	OFF, 1-9	Default: OFF This function allows hands-free conversations, just speak to the microphone closely and the communication will be automatically activated. You can choose among 11 levels: Off, 1-9. 1 is the highest level, 9 is the lowest level. If this option is set to Off, the VOX function is turned off. **Note:** the higher level, the more eminent sensitivity of the microphone. The VOX function is disabled in SCAN and FM radio mode.
27	VOX-DELAY	0.5-5s	The time lag between the moment of the sound detected to the sound play.
28	TBST	1000Hz, 1450Hz 1750Hz, 2100Hz	Default: 1750Hz TBST means Repeater tone. You can select different repeater tone to connect the GMRS repeater.
29	DSP-CHANNEL	Name FREQ CH	Default: FREQ Channel display settings Name: Display channel name FREQ: Display frequency CH: Display channel number

Menu No.	Menu	Selection	Description & Default settings
30	RESTORE	FACTORY	Set back to the factory default settings. FACTORY： Reset back to the factory settings of menu
		INITIALIZE	INITIALIZE： Reset back to the factory settings of menu and channel.

01: T-CDC

The setting is for turning off or activating CTCSS/DCS code in transmit frequency.

Press [1] on the mic to select the type of CTCSS/DCS: 67Hz-254.1Hz, 000N-777I.

02: R-CDC

The setting is for turning off or activating CTCSS/DCS code in receive frequency.

Press [1] on the mic to select the type of CTCSS/DCS: 67Hz-254.1Hz, 000N-777I.

Press [DN] or [UP] on the mic to select CTCSS/DCS code.

03: RT-CDC

CTCSS/DCS codes are privacy codes, Only when the code of the transmit frequency and receive frequency is matching you can transmit or receive the signal on the same channel.

The setting is for turning off or activating same CTCSS/DCS codes in transmit and receive frequencies.

04: TONEDEC (Optional Signaling)

It is an Optional Signaling, this feature is similar to CTCSS/DCS. When the receiver adds optional signaling, the caller shall transmit matching signaling. DTMF and 5Tone signaling can be applied for other advanced features such as ANI, PTT ID, group call, select call, remotely stun, remotely kill waken etc..

***Note:** Only available in Channel Mode

05: SINGAL

This transceiver has 5 squelch modes available. Squelch function is used for increase the level of filtering unwanted signal, and free from disturb.

SQ: You can hear the calling once receives matching carrier.

CTSS/DCS: You can hear the calling when receives matching carrier and CTCSS/DCS code.

TONE: You can hear the calling when receives matching carrier +optional signaling.

CT*TO: You can hear the calling when receives matching carrier +

CTCSS/DCS + optional signaling.

CT/TO: You can hear the calling when receives any matching carrier or CTCSS/DCS or optional signaling.

06: STEP

You can select the desired frequency step.

The selectable steps are the following: 2.5/5.0/6.25/10.0/12.5/20.0/25.0/30.0/50.0 KHz

***Note:** Only available in Frequency Mode

07: W/N

This function is used to set the working bandwidth of the radio.

You can choose between wide or narrow bandwidth.

Wide: 25KHz， Narrow: 12.5KHz

11: RPLOCK

CTCSSS /DCS: Channel Busy and lock. When the radio receives a matched carrier, transmission is prohibited.

OFF: Always allow transmitting no matter what status of receiving.

REPEATER: Signaling Busy and lock. When the radio receives a matching carrier, but CTCSS/DCS does not match,

the transmission is prohibited.

BUSY: Channel Busy and lock. When the radio receives a matched carrier, transmission is prohibited.

12: CHANNEL NAME

***Note:** Only available in Channel Mode

You can edit the name for the current channel.

13:TX INHIBIT

Prohibit the current channel to transmit

15: COMP (Compander)

Compander function will decrease the background noise and enhance audio clarity, especially in long range communication.

TX Noise Compander:

Compander function will filter the background noise to enhance audio clarity, especially in long range communication.

Recommend turn on this function when the signal is weak.

16: NC (RX noise compander setting)

RX Noise Compander

Block some background noise while receiving, it is obvious when the signal is weak.

Recommend turn on this function when the signal is weak.

17: 5TONE / 18: 2TONE

Those signaling function similar to CTCSS/DCS signaling. When the receiver adds an optional signaling, the caller

smit matching signaling. DTMF and 5Tone signaling can be applied for other advanced features such as ANI, PTT ID, group call, select call, remotely stun, remotely kill waken etc..

It is an Optional Signaling, this feature is similar to CTCSS/DCS. When the receiver adds optional signaling, the caller shall transmit matching signaling. DTMF and 5Tone signaling can be applied for other advanced features such as ANI, PTT ID, group call, select call, remotely stun, remotely kill waken etc..

***Note:** Only available in Channel Mode

19: DSPSUB

The content display at the place of sub-channel

OFF: The sub-channel is empty.

VOLT: Display the current volt

FREQ: Display the current frequency

20: BEEP

Turn on or turn off the Key beep.

21: TOT

The TOT function is used to prevent a too long transmission and limits the tx time: TOT temporarily stops the transmission if the radio has been used beyond the max pre-set time (for example 15s, 30s, 45s, etc).

22: DTMF

It is an Optional Signaling, this feature is similar to CTCSS/DCS. When the receiver adds optional signaling, the caller shall transmit matching signaling. DTMF and 5Tone signaling can be applied for other advanced features such as ANI, PTT ID, group call, select call, remotely stun, remotely kill waken etc..

***Note:** Only available in Channel Mode

23: SQL

SQL means Squelch, the ability to receive weak signal.

Level 0: Squelch off

Level 1-9: Level 1 is the lowest squelch level, level 9 is the highest squelch level.

If the squelch is set to the 9, the radio will receive the strongest signals only.

24: SCAN (Scan pause time)

2SP: The time lag from the active signal end to the next signal start.

5ST, 10ST, 15ST: The time lag from the active signal start to the selected time end.

25: LIGHT

You can adjust the LCD screen backlit brightness from 1 to 5.

26: VOX

This function allows hands-free conversations, just speak to the microphone closely and the communication will be automatically activated.

You can choose among 11 levels: Off, 1-9. 1 is the highest level, 9 is the lowest level.

If this option is set to OFF, the VOX function is turned off.

***Note:** the higher level, the more eminent sensitivity of the microphone. The VOX function is disabled in SCAN and FM radio mode.

27: **VOXDELAY**

The time lag between the moment of the sound detected to the sound play.

28: **TBST**

TBST means Repeater tone.

You can select different repeater tone to connect the GMRS repeater.

With this function you can select 1000Hz, 1450Hz, 1750Hz, 2100Hz repeater tone.

29: **DSPCHANNEL (Channel display settings)**

Name: Display channel name

FREQ: Display frequency

CH: Display channel number

30: **RESTORE**

Set back to the factory default settings.

FACTORY : Reset back to the factory settings of menu

INITIALIZE: Reset back to the factory settings of menu and channel.

Appendix A. - GMRS Frequency Chart (MHz)

CH.No	CH.Freq.(MHz)	Name	CH.No	CH.Freq.(MHz)	Name
1	462.5625	GMRS-1	12	467.6625	GMRS-12
2	462.5875	GMRS-2	13	467.6875	GMRS-13
3	462.6125	GMRS-3	14	467.7125	GMRS-14
4	462.6375	GMRS-4	15	462.5500	GMRS-15
5	462.6625	GMRS-5	16	462.5750	GMRS-16
6	462.6875	GMRS-6	17	462.6000	GMRS-17
7	462.7125	GMRS-7	18	462.6250	GMRS-18
8	467.5625	GMRS-8	19	462.6500	GMRS-19
9	467.5875	GMRS-9	20	462.6750	GMRS-20
10	467.6125	GMRS-10	21	462.7000	GMRS-21
11	467.6375	GMRS-11	22	462.7250	GMRS-22

* Channels 8~14 are FRS license free RX only channels.

CH.No	CH.Freq.(MHz)	Name	CH.No	CH.Freq.(MHz)	Name
23	462.5500 / 467.5500	RPT-1	27	462.6500 / 467.6500	RPT-5
24	462.5750 / 467.5750	RPT-2	28	462.6750 / 467.6750	RPT-6
25	462.6000 / 467.6000	RPT-3	29	462.7000 / 467.7000	RPT-7
26	462.6250 / 467.6250	RPT-4	30	462.7250 / 467.7250	RPT-8