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SPECIFICATIONS

SUBJECT: 300 CHANNEL FREQUENCY MEMORIES VHF/UHF PROGRAMMABLE WITH SIGNAL STALKER AND SKYWARN AM/FM SCANNING RECEIVER PRO-2054 CAT. NO. 20-427

1. GENERAL

1.1 Programmable channel : 300 channels (30 channels x 10 banks)
5 pre-programmed band for one touch search
1 Priority channel
7 WX frequencies
WX alert
153 preprogrammed frequencies

1.2 Receiving mode : AM, FM

1.3 Receiving system : Triple conversion PLL superheterodyne

1st IF 380.8 MHz: The 1st Local OSC frequency for VHF and UHF Low/T band employs upper side of receiving frequency range.

: The 1st Local OSC frequency for UHF High band employs lower side of receiving frequency range

2nd IF 21.4 MHz : The 2nd Local OSC frequency employs lower side of 1st IF

3rd IF 455 kHz : The 3rd Local OSC frequency employs lower side of 2nd IF.

– Continued –

1.4	Frequency range	:	VHF Low	28 – 54 MHz
			VHF Aircraft	108 – 136.9916 MHz
			VHF High	137 – 174 MHz
			UHF Low	406 – 512 MHz
			UHF High	806 – 960 MHz

Except cellular band: 824.000 – 848.9875 MHz and 869.000 – 893.9875 MHz

1.5	One touch search	:	MAR (Marine band) FD/PD/FRS (Fire, Police department and FRS) AIR (AIR band) HAM (HAM band) WX (Weather Frequency)
1.6	WX frequencies	:	162.400, 162.425, 162.450, 162.475, 162.500, 162.525, 162.550 MHz
1.7	Scanning rate	:	60 channels/sec.
1.8	Search rate	:	75 steps/sec.
1.9	Display	:	LED back-light LCD
1.10	Zeromatic	:	Activates during search mode
1.11	Audio output	:	1.8 Watts
1.12	Signal Stalker band	:	Police/Fire band All frequencies range divided to 8 groups Group 1 (28 – 54 MHz) Group 2 (108 – 137 MHz) Group 3 (137 – 174 MHz) Group 4 (406 – 470 MHz) Group 5 (470 – 512 MHz) Group 6 (806 – 869 MHz) Group 7 (894 – 960 MHz)
1.13	Speaker	:	Built-in 77 mm 8 Ohms dynamic speaker
1.14	Operating voltage	:	DC 13.8 Volts
1.15	Dimension	:	Approx. 185 (W) x 135 (D) x 55 (H) mm
1.16	Weight	:	Approx. 790 g without antenna and batteries
1.17	Accessory	:	Telescopic antenna, Owner's manual, Sleeve, Handle bracket, AC adapter and Other cabinet

1.18 Memory backup : No battery back-up required, EEPROM used

1.19 Drop test : In Gift-Box, Height 76 cm

2. ELECTRICAL

Standard Test Condition

(1)	Power source voltage	:	13.8 Volts DC
(2)	Antenna impedance	:	50 Ohms
(3)	Test temperature	:	25 degrees C
(4)	Standard signal level	:	100 μV
(5)	Modulation frequency	:	1 kHz
(6)	Reference FM deviation	:	3.0 kHz
(7)	Reference AM modulation	:	60%
(8)	Reference audio output	:	75 mWatts
(9)	Audio output load	:	8 Ohm resistive load

2.1 Frequency range :

Freq.	Step	Mode
28.000 – 54.000 MHz	5 kHz	FM
108.000 – 136.9916 MHz	8.33 kHz	AM
137.000 – 137.995 MHz	5 kHz	FM
138.000 – 143.9875 MHz	12.5 kHz	FM
144.000 – 148.000 MHz	5 kHz	FM
148.0125 – 150.775 MHz	12.5 MHz	FM
150.7825 – 150.8125 MHz	7.5 kHz	FM
150.8150 – 154.4525 MHz	7.5 kHz	FM
154.45625 – 154.47875 MHz	7.5 kHz	FM
154.4825 – 154.5050 MHz	7.5 kHz	FM
154.5100 – 154.5250 MHz	5 kHz	FM
154.52750 – 154.54625 MHz	6.25 kHz	FM
154.5475 – 154.6075 MHz	7.5 kHz	FM
154.610 – 154.655 MHz	5 kHz	FM
154.6575 – 156.2475 MHz	7.5 kHz	FM
156.250 – 157.475 MHz	5 kHz	FM
157.4775 – 161.5650 MHz	7.5 kHz	FM
161.570 – 162.020 MHz	5 kHz	FM
162.025 – 173.200 MHz	12.5 kHz	FM
173.20375 – 173.22250 MHz	6.25 kHz	FM
173.22500 – 173.38750 MHz	6.25 kHz	FM
173.39000 – 173.40875 MHz	6.25 kHz	FM
173.4125 – 174.000 MHz	12.5 kHz	FM
406.000 – 512.000 MHz	6.25 kHz	FM
806.000 – 960.000 MHz	6.25 kHz	FM

Except cellular band: 824 – 848.9875 MHz and 869 – 893.9875 MHz

				Nominal	Limit
2.2	Sensitivity	:	VHF Low	0.3 μV	1 μV
	FM: (S+N)/N = 20 dB		VHF High	0.5 μV	2 μV
	Dev.: 3 kHz at 1 kHz		UHF Low/T	0.5 μV	2 μV
			UHF High 806 – 960 MHz	0.7 μV	3 μV
	AM: (S+N)/N = 20 dB	:	VHF Aircraft	1 μV	3 μV
	Mod.: 60% at 1 kHz				
2.3	Signal stalker sensitivity	:	450 MHz	-60 dBm	-50 dBm
2.4	WX Alert 1050 Hz tone	:		0.3 μV	1 μV
	3 kHz Dev. at 162.4 MHz				
2.5	WX alert tone decode range	:		1050 ±25 Hz	±40 Hz
	4 kHz Dev. 2 μV at 162.400 MHz				
2.6	WX alert tone checking time	:		2.2 sec.	2 – 5 sec.
	4 kHz Dev. 2 μV at 162.400 MHz				

Note: When receiving WX alert in priority operation, the priority sampling time up to 2 sec. is added to this depending on Alert tone transmission timing.

2.7	WX alert sound level at 1 ft.	:		80 dB	70 dB
2.8	Image ratio 1st IF image	:	VHF Low at 41 MHz	55 dB	40 dB
			VHF Aircraft at 124 MHz	45 dB	35 dB
			VHF High at 154.1 MHz	40 dB	30 dB
			UHF Low/T at 450 MHz	50 dB	40 dB
			UHF High at 860 MHz	55 dB	45 dB
	2nd IF image	:	VHF High at 154.1 MHz	50 dB	40 dB
2.9	Attenuator	:	VHF Low	20 dB	17 – 24 dB
			VHF Aircraft	20 dB	17 – 24 dB
			VHF High	20 dB	17 – 24 dB
			UHF Low	15 dB	10 – 20 dB
			UHF High	13 dB	8 – 18 dB
2.10	Squelch sensitivity (Band center)				
	Threshold	:	AM/FM	0.5 μV	2 μV
	Tight: (S+N)/N	:	AM	20 dB	10 dB
			FM	25 dB	15 dB
2.11	Selectivity	:	-6 dB	±10 kHz	±14 kHz
			-50 dB	±18 kHz	±25 kHz

			Nominal	Limit
2.12	Spurious rejection (Except Primary image) :	VHF High at 154.1 MHz	40 dB	30 dB
2.13	IF rejection ratio :	380.8 MHz at 154.1 MHz	60 dB	40 dB
		21.4 MHz at 154.1 MHz	100 dB	80 dB
2.14	Acceptable radio frequency displacement at EIA RS-204D :		±6 kHz	±3 kHz
2.15	Signal to noise ratio :	28 – 54 MHz	40 dB	30 dB
	AM/FM	108 – 136.9916 MHz	40 dB	30 dB
	RF: 100 μV	137 – 174 MHz	40 dB	30 dB
	Dev.: 3 kHz at 1 kHz	406 – 512 MHz	35 dB	25 dB
	Mod. 60% at 1 kHz	806 – 960 MHz	35 dB	25 dB
2.16	Residual noise : Vol. min. and Squelched		2 mV	5 mV
2.17	Scanning rate without trunking:	450 – 451.86875 MHz (in 6.25 kHz: Intervals)	60 ch/sec.	33 – 66 ch/sec.
2.18	Search rate :	at 162.25 – 167.25 MHz	75 steps/sec.	60 – 85 steps/sec.
2.19	Signal Stalker Time :	Police/Fire band	0.75 sec.	0.825 sec.
	One active signal the Other no signal	All band	4.0 sec.	5.0 sec.
2.20	Scan and Search delay time :		2 sec.	1 – 3 sec.
2.21	Audio output (T.H.D. 10 %) :	RF input: 100 μV at 154.1 MHz		
	8 Ohms R Load, 1 kHz		1.5 Watts	1.0 Watts
2.22	T.H.D. at 50 mWatt :	RF input: 100 μV at 154.1 MHz	1 %	5 %
2.23	Audio max. power :	RF input: 100 μV at 154.1 MHz		
	8 Ohm internal speaker		1.8 Watts	1.3 Watts
	32 Ohm at headphone mono/stereo (each phone)		19/14 mWatts	28/28 mWatts
2.24	Audio frequency response at -6 dB :	RF input: 100 μV at 154.1 MHz	300 Hz	200 – 400 Hz
			2.0 kHz	1.5 – 3.0 kHz
2.25	Intermediate frequency :	1st 380.8 MHz 2nd 21.4 MHz 3rd 455 kHz		

				Nominal	Limit
2.26	Current drain at 13.8 Volts 8 Ohm internal speaker at 154.1 MHz	:	Vol. Max. Squelch	360 mA 110 mA	450 mA 180 mA
2.27	Current drain AC adapter GA-04D-1100 8 Ohm internal speaker at 154.1 MHz	:	Vol. Max. Squelch	100 mA AC 60 mA AC	120 mA AC 70 mA AC
2.28	Birdies and step frequency when search	:	Under discussion		
2.29	Filter	:	Saw filter for 380.8 MHz, Monolithic crystal filter for 21.4 MHz and ceramic filter for 455 kHz		
2.30	Antenna impedance	:	50 Ohms		
2.31	Temperature range	:	Test to specification between: +18°C – +35°C Operate (Need not meet spec.): -20°C – +60°C		

3. OPERATING CONTROLS AND CONNECTIONS

3.1 Volume control with power switch

3.2 Squelch control

3.3 Keyboard (30 keys): FUNCtion, PGM, WX/Skywarn, MANUAL, PRI, TUNE, ATT, PAUSE, ▲, ▼, DIM, SCAN/Signal stalker, L/OUT, ENTER, CLEAR, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, • /DELAY, MAR, FD/PD, AIR and HAM

3.4 LCD display

3.5 BNC type antenna connector

3.6 Earphone jack (D = 3.5 mm stereo)

3.7 External power jack

3.8 PC Interface and Clone jack (D = 3.5 mm mono)

3.9 Reset switch

4. FEATURES

4.1 5 pre-programmed bands (MAR, FD/PD/FRS, AIR, HAM, WX) for one touch search

4.2 Signal stalker function (Total 200 lock out frequencies in signal stalker, All Band 150, Police/Fire Band 50)

4.3 10 bank and 300 channel memories

4.4 Clone the memory to other unit

4.5 WX alert

4.6 Skywarn function

4.7 Attenuator control (Normal attenuator and Global attenuator)

4.8 Frequency tune mode (Frequency ▲ or ▼)

4.9 "Zeromatic" tuning system

4.10 Change the direction at the searching by ▲ (up) or ▼ (down)

4.11 60 channels/sec. scanning rate and 75 steps/sec. searching rate

4.12 2 second scan and search delay

4.13 Manual selection for channel

4.14 Scan mode [Cleared channels (000.000 freq.) are not scan.]

4.15 Deleting a frequency from a channel

4.16 Key tone and alert tone

4.17 LCD and keyboard backlighting with dimmer switch

4.18 Crystal filter for 2nd IF and Ceramic filter for 3rd IF section

4.19 50 lock out frequencies per search bank, Fire/Police, Aircraft, Ham (Totaling 150 frequencies)

4.20 Frequency lock-out review and Channel lock-out review

4.21 153 preprogrammed frequencies