

AnyTone[®]

Qixiang Electron Science & Technology Co., Ltd

www.anytone.net

AnyTone[®]

AT-500M II

Instruction Manual



FCC Part 15.19 Warning Statement

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

FCC Part 15.21 Warning Statement-

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

FCC Part 15.105(b) Warning Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

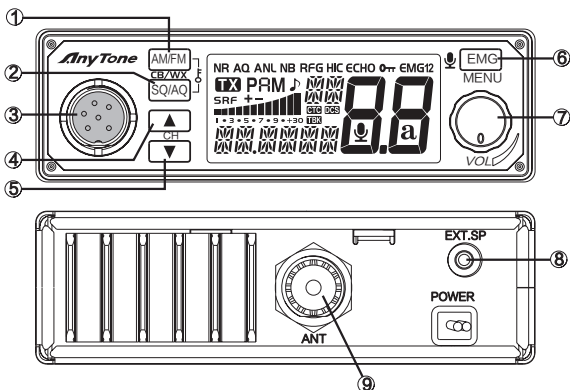
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 65 cm between the radiator & your body.

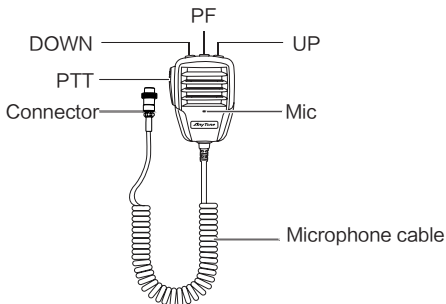
WARNING:

MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

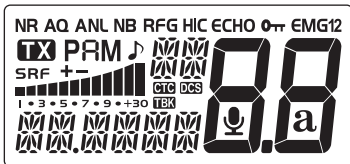
1. GETTING ACQUAINTED



1	AM/FM Mode Select ~ CB/WX ~ [Keypad lock]
2	Squelch Control ~ SQ/ASQ Switch ~ [Keypad lock]
3	Microphone Plug
4	Channel Up Selector ~ Scan On
5	Channel Down Selector ~ Scan On
6	Emergency Channel ~ VOX On/Off ~ Menu
7	Power On/Off ~ Volume Control
8	External Speaker Jack
9	Antenna Jack



2. LCD



- | | | | |
|--------------|--|------------|---|
| NR | NR function is activated | TX | Indicates Transmission |
| AQ | ASQ function is activated | | ROGER BEEP function is activated |
| ANL | ANL filter is activated | + | Repeater Offset (+100kHz) function activated |
| NB | NB filter is activated | - | Repeater Offset (-100kHz) function activated |
| RFG | RF GAIN function activated | CTC | CTCSS is used on the active channel |
| HIC | HI-CUT filter is activated | DCS | DCS is used on the active channel |
| ECHO | ECHO function is activated | TBK | TALKBACK function activated |
| 0TT | Keypad Lock is activated | | VOX function is activated |
| EMG12 | Emergency Channel (1 or 2) | a | Indicates an Alpha channel |
| PR | PA mode selected | | The Channel is stored in the Scan Skip memory |
| AM | AM mode selected | | Indicates the Frequency Band or WX mode |
| FM | FM mode selected | 88 | Indicates the active channel |
| | TX and RX bargraph | | |
| | Alert function activated | | |
| | Indicates Frequency, Menu items or status. | | |

3. HOW TO USE THIS RADIO

3.1 Power ON/OFF the Radio

(1) Turn VOL knob clockwise to power ON the radio, the LCD display illuminates and then displays the selected channel number.



(2) Turn VOL switch fully anti-clockwise, the radio is powered OFF.



Note: The standard version requires a 12V DC power supply. Optional versions can support 12+24V DC. Please check your version type before connecting a power supply.

3.2 Volume Control

(1) Turn clockwise to increase volume, anti-clockwise to decrease volume.




3.3 Channel Control



(1) Short press  /  keys on the unit or **UP/DN** keys on the microphone to change channels by one step.



(2) Hold  /  keys on the unit or **UP/DN** keys on the microphone to change channels quickly.


3.4 Squelch Level Control ~ SQ/AQ Control

※ Squelch Level Control (short press)

(1) Short press  key, LCD shows "  .. XX" for 10 seconds which is the squelch level. There are  squelch levels available. The higher the number, the higher the squelch setting will be.


(2) Short press  /  keys on the unit or **UP/DN** keys on the microphone to change squelch level.




(3) Long press  /  keys on the unit or **UP/DN** keys on the microphone to change the squelch level quickly.







(4) Short press  or wait for 10 seconds to store and exit.

Note: When higher SQ levels are selected, a stronger signal is required to open the radio mute, allowing audio to be heard from the speaker.

※ ASQ Control (long press)

(1) Long press  key, until LCD displays "AQ", the ASQ function is turned on.


(2) Short press  key, LCD shows "  .. XX" for 10 seconds which is the Automatic Squelch level. There are  levels available. The higher the number, the higher the ASQ squelch setting will be.

- (3) Short press  /  keys on the unit or **UP/DN** keys on the microphone to change automatic squelch level.
- (4) Long press  /  keys on the unit or **UP/DN** keys on the microphone to change the automatic squelch level quickly.
- (5) Short press  key or wait for 10 seconds to store and exit.
- (6) Long press  key again to turn on SQL function.




Note: When higher ASQ levels are selected, a stronger signal is required to open the radio mute, allowing audio to be heard from the speaker.

3.5 AM/FM ~ CB/WX ~ PA


※AM/FM (short press)

- (1) Short press  key to switch modulation mode between **AM** or **FM**.
- (2) The LCD displays the selected mode.





※CB/WX (long press)

- (1) Long press  key for over 2 seconds to alternate between CB or WX modes. "WX" appears on the LCD.
- (2) When the WX mode is activated, press  /  keys on the unit or **UP/DN** keys on the microphone to change weather channels.

※PA (PTT + AM/FM)

- (1) Press and hold the **PTT** switch.
- (2) Short press  key to alternate between CB and PA mode.
- (3) When the PA mode is activated, the modulation of the microphone and the received signal are sent to the internal loudspeaker or external optional loudspeaker connected to jack EXT.SP. "PA" blinks on the LCD, alternating with the modulation mode (AM or FM).
- (4) Turn the VOL knob to adjust the PA volume.

3.6 KEY LOCK (AM/FM + SQ/AQ)

- (1) Long press simultaneously  and  keys for over 3 seconds to lock the keys. "LK" appears on the LCD.
- (2) Long press simultaneously  and  keys for over 3 seconds again to unlock the keys. "LK" disappears from the LCD.

Note: In KEY LOCK mode, only the PTT key is valid.

3.7 Emergency Channels ~ MENU ~ VOX

※Emergency Channels (short press)


- (1) First press **[EMG]** key to choose the first programmed emergency channel, " **EMG1** " appears on the LCD.
- (2) Second press **[EMG]** key to choose the second programmed emergency channel, " **EMG 2** " appears on the LCD.
- (3) Third press **[EMG]** key to return to last used normal channel.

Note: The default Emergency Channels are channel 09 and channel 19
See Menu- Emergency Channel Set, page 11 for Emergency Channel configuration.

※MENU (long press)

Long press **[EMG]** key to enter the Menu.

※VOX (PTT + EMG)

- (1) Press and hold the **PTT** switch.
- (2) Short press **[EMG]** key to activate or deactivate the VOX function, "  " appears on the LCD when the VOX function is active.

※Scan Skip (long press - only valid if the SCAN function is activated)

This function allows you to skip a channel found by the SCAN function. When the scan stops on an unwanted channel, press and hold the **[EMG]** key to store this channel in the SCAN SKIP memory. The channel will no longer be scanned.



Note: If you want to memorize/erase the current channel from the SCAN SKIP memory, you can enter the MENU and select the **SCAN SKIP** menu option.

3.8 Scan Function



※CB Channels Scan (very long press)

- (1) In CB mode, press and hold **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone for 7 seconds or until a beep sounds to start CB SCAN function. When the CB SCAN function is active, " **SCAN** " blinks on the LCD.
- (2) Short press **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone to change the scan direction.
- (3) Short press **[AM/FM]** key to change mode, short press **PTT** switch to exit scan.

※WX Channels Scan (very long press)


(1) In WX mode, press and hold  /  keys on the unit or **UP/DN** keys on the microphone for 3 seconds, or until a beep sounds, to start WX Scan function.



When the WX Scan function is active, "  FM " blinks on the LCD.

(2) Short press  /  keys on the unit or **UP/DN** keys on the microphone to change the scan direction.


(3) Long press  key to exit scan.

3.9 Frequency Band Selection

(1) Press and hold  key while powering ON the radio, the current Frequency Band blinks on the LCD.

(2) Short press  /  keys on the unit or **UP/DN** keys on the microphone to choose the desired Frequency Band.

(3) When the Frequency Band is selected, power OFF and power ON again.



Note: This function is valid only when the radio operates in CB mode 1 or CB mode 2. All Citizen Band "Multi-Norms" are available. If operating in HAM mode or HF mode, you can enter the  menu and select the option to change the Frequency Band (see page 9).

3.10 External Speaker Installation



Choose an optional 8Ω external speaker with 3.5 mm mono connector.


3.11 Menu Operations

(1) Long press  key to enter the menu.

(2) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the menu to adjust.



(3) Short press  key to validate, the parameter blinks on the LCD.

(4) Short press  /  keys on the unit or **UP/DN** keys on the microphone to modify the value of the parameter.

(5) Short press  key again to store the chosen value. The parameter stops blinking and if the function has more than one parameter, the next parameter blinks.

(6) Press **PTT** switch, or long press  key, or wait for 10 seconds to store and exit the menu.

NO.	LCD display	Function detail	Setting details
1	COLOR	Backlight color setting	OR (orange/default), GR (green), BL (blue), CY (cyan), YE (yellow), PU (purple), WL (white)
2	BRIGHT	Backlight brightness setting	OF, 1~9 Default : 5
3	KEY BP	Key Beep sound setting	ON : turn on beep sound OF : turn off beep sound Default : ON
4	ROG BP	Roger Beep sound setting	OF : (default) 1~6 : turn on RB sound function.
5	MICGAIN	Microphone Gain control	Level: 1~9 Default : 5
6	MICTYPE	Microphone Type setting	EL : electret (default) DY : dynamic
7	SPPATH	Speaker volume path setting	INT : the VOL knob affects the internal speaker volume. (default) MIC : the VOL knob affects the microphone built-in speaker volume. BOTH : the VOL knob affects both the internal speaker and microphone built-in speaker volume.
8	FMDEV	FM Deviation (Narrow/Wide)	2K : 2KHz FM deviation (default) 4K : 4KHz FM deviation Note: This function is valid only when the radio operates in HF mode or HAM mode.
9	RFPOWER	RF Power setting	LO : low power (default) MI : middle power HI : high power Note: This function is valid only when the radio operates in HF mode, HAM mode or CB2 mode.

NO.	LCD display	Function detail	Setting details
10	SC TYPE	Scan Type setting	59 : squelch scan (default) 61 : time scan
11	SC SKIP	Scan Skip setting	0F : Erase the current channel from the SCAN SKIP memory. The dot between the two channel digits disappears from the LCD (default) 0n : Memorize the current channel into the SCAN SKIP memory. When a channel is stored in the memory, the dot between the two channel digits appears on the LCD.
12	VOX SET	VOX sensitivity level setting	L : 1 ~ 9 Default : 3
		VOX delay time setting	T : 1 ~ 9 Default : 4
13	TALKBACK	Talkback level setting	0F, 1 ~ 9 Note: when the function is activated, press and hold the PTT switch then press  /  keys on the unit to increase / decrease the volume level of the TALKBACK.
14	TO T SET	Time out timer	0F, 1 ~ 10 Min Default : 3
15	RL -5K	Frequency -5kHz function	0F (default): turn off -5kHz function 0n: turn on -5kHz function Note: This function is valid only when the radio operates in HF mode.
16	ANL / NB	ANL/NB filter setting	0F : turn off the filters (default) nL : turn on ANL filter (in AM mode only) nb : turn on NB filter nR : turn on ANL + NB filters

NO.	LCD display	Function detail	Setting details
17	HI-CUT	HI-CUT filter setting	<input type="checkbox"/> F : turn off HI-CUT filter (default) <input type="checkbox"/> N : turn on HI-CUT filter
18	NRSET	RX noise reduction level setting	RX: <input type="checkbox"/> F, 1~5 Default : 1
		TX noise reduction level setting	TX: <input type="checkbox"/> F, 1~5 Default : 1
19	ECHO	ECHO function setting	<input type="checkbox"/> F : turn off ECHO function (default) <input type="checkbox"/> N : turn on ECHO function
20	ECHO	ECHO volume level setting	L: 1~32 Default : 28
		ECHO delay time setting	T: 1~32 Default : 28
21	ALERT	ALERT function setting	<input type="checkbox"/> F : turn off ALERT function <input type="checkbox"/> N(default) : turn on ALERT function
22	RF.GAIN	RF Gain level control	<input type="checkbox"/> F (default) , 0U, 3、6、9~48
23	OFFSET	Offset direction	<input type="checkbox"/> F : No offset; (default) -- : Negative offset, TX frequency is -100kHz lower than the RX frequency; +F : Positive offset, TX frequency is +100kHz higher than the RX frequency; Note: Valid only in HF or HAM mode.
24	BAND	Change the band	Note: Valid only in HF or HAM mode.

3.12 CTCSS/DCS SET

- (1) Long press **[EMG]** key to enter the menu.
- (2) Short press **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone to select the **[] [] []** menu.
- (3) Short press **[EMG]** key to confirm, the operating mode blinks on the LCD (**[] []** or **[] []**).
- (4) Short press **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone to select the operating mode.

[] [] : means that the code used will be identical for transmission (TX) and for reception (RX).















[] [] : means that the user can use different codes (including OFF = no code) for transmission (TX) and reception (RX).

Identical mode: **[] []**













- (5) Short press **[EMG]** key make the code type blink. (**CTC** , **DCS** , or **oF** not set)
- (6) Short press **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone to select the code type.
- (7) Short press **[EMG]** key to confirm the code type. The code value flashes. (unless **oF** has been selected)
- (8) Short press **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone to select the code (from 01 (**[] []**) to 38 (**[] []**) for CTCSS and 01 (**[] []**) to 100 (**[] []**) to 104 (**[] []**) for DCS).
- (9) Short press **[EMG]** key to confirm the selected code.

Different mode: **[] []**

- (5) Short press **[EMG]** key make the type blink. (**[] []** or **[] []**)
- (6) Short press **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone to select the RX or TX type.
- (7) Short press **[EMG]** key to confirm the type. The code type flashes. (**CTC** , **DCS** , or **oF** not set)
- (8) Short press **[▲]** / **[▼]** keys on the unit or **UP/DN** keys on the microphone to select the code type.
- (9) Short press **[EMG]** key to confirm the code type. The code value flashes (unless **oF** has been selected)










- (10) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the code (from 01 ( ) to 38 ( ) for CTCSS and 01 ( ) to 100 ( ) to 104 ( ) for DCS).
- (11) Short press  key to confirm the selected code. Return to point (05) for setting the second code type (RX or TX), as required.
- (12) If you don't need to set other parameters, press **PTT** switch, or long press the  key, or wait for 10 seconds to store and exit the menu.

3.13 Band Name Setting








- (1) Choose a band name to be modified.
- (2) Long press  key to enter the menu.
- (3) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the  menu.
- (4) Short press  key to select the menu, the first digit blinks on the LCD.
- (5) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the desired character of the first digit.
- (6) Short press  key to validate the first digit. The second digit blinks on LCD.
- (7) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the desired character of the second digit.
- (8) Short press  key to validate the second digit and exit setting.
- (9) Press **PTT** switch, or long press  key, or wait for 10 seconds to store and exit the menu.

Note: This function is valid only when the radio is operating in HF mode or HAM mode.







3.14 Emergency Channel Setting

- (1) Long press  key to enter the menu.
- (2) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the  or  menu.
- (3) Short press  key. The Emergency Channel blinks on the LCD.
- (4) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the desired Emergency Channel.
- (5) Short press  key to validate the Emergency Channel. The Emergency Channel stops blinking. The Frequency Band blinks on the LCD.









Note: This Frequency Band selection is valid only when the radio is operating in HF mode or HAM mode.




- (6) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the desired Frequency Band.
- (7) Short press  key to validate the Frequency Band. The Frequency Band stops blinking. The mode blinks on the LCD.
- (8) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the mode: AM or FM.
- (9) Short press  key to validate the mode. The mode stops blinking.
- (10) Press **PTT** switch, or long press  key, or wait for 10 seconds to store and exit the menu.

3.15 Restore Factory Defaults

- (1) Long press  key to enter the menu.
- (2) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the **RESET** menu.
- (3) Short press  key to validate, " **RL** " blinks on the LCD.
- (4) Long press  key until " **RL** " stops blinking.
- (5) Release  key, the unit is automatically reset to Factory Defaults.

3.16 Self Define PF Key Function

- (1) Long press  key to enter the menu.
- (2) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the **PFKEY** menu.
- (3) Short press  key. The current defined function blinks on the LCD.
- (4) Short press  /  keys on the unit or **UP/DN** keys on the microphone to select the Self Define **PF** Key Function.
- (5) Short press  key again to store the chosen value.
- (6) Press **PTT** switch, or long press  key, or wait for 10 seconds to store and exit the menu.

NO.	LCD Display	1 st Function (Short Press)	2 nd Function (Long Press)
1	nr	Activates / deactivates the NR function (when the menu value other than oF has been stored). The LCD will indicate NR SET	Quickly enter the NR menu.
2	EC Ho	Activates / deactivates the ECHO function.	Quickly enter the ECHO menu.
3	RFG	Quickly enter the RFG menu.	
4	CDT	Activates / deactivates the CDT (CTCSS/DCS) function.	Quickly enter the CTCSS/DCS code menu.
5	OFFS	Activate (+ or -) / deactivate the OFFSET function.	
6	bP	Activates / deactivates the KEY BEEP function	
7	rb	Quickly enter the ROGER BEEP menu.	
8	MX CG	Quickly enter the MIC GAIN menu.	
9	FEU	Allows selection of FM Deviation (2kHz or 4kHz).	
10		Activates / deactivates the VOX function.	Quickly enter the VOX menu.
11	Tbt	Activates / deactivates the TALKBACK function. Note : when the function is activated, press and hold the PTT switch then press  /  keys on the unit to increase / decrease the volume level of the TALKBACK.	
12	--5t	Activates / deactivates the frequency -5kHz function.	
13	NB AL	Activates / deactivates the RX filters in this order: ANL → NB → ANL+NB → OFF	
14	HI IC	Activates / deactivates the HI-CUT RX filter function.	
15	SC	Activates / deactivates the SCAN function.	
16	bd	Allows quick changing of the Frequency Band.	

4. CTCSS TONE LIST

No.	Freq. (Hz)	No.	Freq. (Hz)	No.	Freq. (Hz)	No.	Freq. (Hz)
01	67.0	11	97.4	21	136.5	31	192.8
02	71.9	12	100.0	22	141.3	32	203.5
03	74.4	13	103.5	23	146.2	33	210.7
04	77.0	14	107.2	24	151.4	34	218.1
05	79.7	15	110.9	25	156.7	35	225.7
06	82.5	16	114.8	26	162.2	36	233.6
07	85.4	17	118.8	27	167.9	37	241.8
08	88.5	18	123.0	28	173.8	38	250.3
09	91.5	19	127.3	29	179.9		
10	94.8	20	131.8	30	186.2		

5. DCS CODE LIST

Code No.	DCS (Octal)	Code No.	DCS (Octal)	Code No.	DCS (Octal)	Code No.	DCS (Octal)
1	023	27	152	53	311	79	466
2	025	28	155	54	315	80	503
3	026	29	156	55	325	81	506
4	031	30	162	56	331	82	516
5	032	31	165	57	332	83	523
6	036	32	172	58	343	84	526
7	043	33	174	59	346	85	532
8	047	34	205	60	351	86	546
9	051	35	212	61	356	87	565
10	053	36	223	62	364	88	606
11	054	37	225	63	365	89	612
12	065	38	226	64	371	90	624
13	071	39	243	65	411	91	627
14	072	40	244	66	412	92	631
15	073	41	245	67	413	93	632
16	074	42	246	68	423	94	654
17	114	43	251	69	431	95	662
18	115	44	252	70	432	96	664
19	116	45	255	71	445	97	703
20	122	46	261	72	446	98	712
21	125	47	263	73	452	99	723
22	131	48	265	74	454	100	731
23	132	49	266	75	455	101	732
24	134	50	271	76	462	102	734
25	143	51	274	77	464	103	743
26	145	52	306	78	465	104	754

6. SPECIFICATIONS

GENERAL		
Modulation Mode	AM/FM	
Frequency Range	26.965–27.405MHz	
Frequency Tolerance	± 5.0ppm	
Input Voltage	12/24V	
Dimensions	185x124x38mm	
Weight	620g	
Operating Temperature Range	-20°C to +50°C	
Current Drain	Transmit	3A MAX
	Receive	Squelched 0.3A
	VOL Max	0.7A
Antenna Connector	UHF, SO-239	
TRANSMITTER		
Power Output	4 Watts FM/AM	
Transmission interference	inferior to 4nW	
Frequency Response	300–3000Hz	
Modulated signal distortion	inferior to 5%	
Output Impedance	50 ohms	
RECEIVER		
Sensitivity	Less than 1uV for 10dB(S+N)/N	
Image Rejection	70dB	
Adjacent Channel Rejection	60dB	
IF Frequencies	1st 10.695MHz	
	2nd 455KHz	
Automatic Gain Control(AGC)	Less than 10dB change in audio	
	Output for inputs from 10 to 50000uV	
Squelch	less than 1uV	
Audio Output Power	2Watts at 8Ω less than 10% distortion	
Frequency Response	300–3000Hz	

Note: Specifications are subject to change without notice due to advancements in technology.