

## Firmware history

As this is a "Software Defined Radio" many things can be changed with just a firmware upgrade. New features can be added and the operational processes can be changed.

However, we advise all users to follow the golden rule '**Don't fix it, if it isn't broken**'. So, if there is no need for you to update your G90 firmware, leave your G90 as it is and continue enjoying your hobby.

Revision	Changes
V1.77b 2021-03-21	<ul style="list-style-type: none"> <li>Improved the AGC algorithm.</li> <li>Improved the isolation of close to channels (increased by about 30dB).</li> <li>Eliminated the impact noise of the speaker when switching between receiving and transmitting.</li> <li>When connected to GSOC, all sounds in CW mode will be played by G90 speakers. If the modem function is turned on, the sound still will be played via the GSOC.</li> </ul> <p><b>Compatible with GD MCU and ST MCU</b></p> <p><b>Note:</b> G90 after the product serial number X04G211600001 must use the firmware version after V1.77 (including 1.77V), if it is updated to the firmware version before 1.77V, it may not work normally.</p>
v1.7.7 2021-03-21 this version has never been officially released	<ul style="list-style-type: none"> <li>Improved AGC algorithm</li> <li>Improved the isolation of close to channels (increased by about 30dB).</li> <li>Eliminated the impact noise of the speaker when switching between receiving and transmitting.</li> <li>When connected to GSOC, all sounds in CW mode will be played by the G90 speakers. If the modem function is turned on, the sounds will be played via the GSOC.</li> </ul>
v1.7.5 2020-09-05	<ul style="list-style-type: none"> <li>New system menu operation logic, change system menu item by pressing BAND Up/Down key (Equivalent to press PREV/NEXT)</li> <li>New Multi-function adjustment knob operation logic</li> <li>Press and hold Multi-function adjustment knob to enter menu</li> <li>Rotate Multi-function adjustment knob to choose desired function</li> <li>Press Multi-function adjustment knob to save and exit menu</li> <li>New filter Center/BW operation logic</li> <li>Narrow FM mode is available but just for testing</li> <li>Add RF GAIN to the Multi-function adjustment knob function list</li> <li>Lower CW Tone volume (-15dB lower than the original level)</li> <li>Set Narrow FM modulation frequency deviation to about +/- 3.5kHz</li> <li>Add Narrow FM SQL</li> </ul>

v1.7.4 2020-06-11	<ul style="list-style-type: none"> <li>• Fixed the problem that MIC Gain is relatively high</li> <li>• Added auto FFT scale</li> <li>• Added background VFO frequency display function under channel mode</li> <li>• Widened the maximum bandwidth of CW filter</li> <li>• Optimized the filter bandwidth/center frequency point adjustment and CW Tone adjustment range under CW mode               <ul style="list-style-type: none"> <li>– If CW Tone is adjusted under CW or CWR mode, the range of CW Tone is the upper and lower limits of filter under current mode</li> <li>– If CW Tone is not adjusted under CW or CWR mode, the range of CW Tone shall be within the upper and lower limits of filter under CW and CWR mode</li> </ul> </li> <li>• Changed RF GAIN to directly act on receiving channel gain Adjustment range: 1~100% (default: 50%), corresponding gain (on the basis of receiving channel gain): -19.6~+20dB, step=0.4dB               <ul style="list-style-type: none"> <li>– Note: RF GAIN will influence the value of Table S and FFT</li> </ul> </li> <li>• Added microphone filter of SSB mode to attenuate partial low frequency component of microphone signal and improve emission efficiency</li> <li>• Changed the color of lines in frequency spectrum picture into green and fill color into semitransparent green</li> <li>• Optimized the encoder to prevent it from interference or impulse as the first one</li> <li>• Optimized stack and enhanced the stability</li> <li>• Optimized the control characteristics of AGC and ALC</li> <li>• Fixed the bug of channel storage function</li> <li>• Fixed the spectrum display bug during emission</li> <li>• Fixed the bug of standing wave detection threshold</li> <li>• Fixed the problem of interrupted voice during low power emission Updated version number can be checked in 10th item of system menu. It takes about 3s to read version information once entering this item)</li> </ul>
v1.7.3 2019-11-27	<ul style="list-style-type: none"> <li>• Rotate encoder driver is optimized, smoother and less loss of step</li> <li>• Total RF GAIN=1/4 RF GAIN setting when AGC is off, prevent sudden volume increase</li> <li>• Rx volume step is optimized</li> <li>• Lower the MIC GAIN, prevent picking up too much background noise</li> </ul>
V1.7.2	<ul style="list-style-type: none"> <li>• CW timing is optimized, solved the issue of randomly losing DOT/DASH.</li> <li>• T/R switch timing is optimized, faster switching time (<math>t \leq 53\text{ms}</math>).</li> <li>• Add ALC meter, display below the TX power meter when TXing. It is mainly for digital mode, to get the good linearity. adjust driving level or Line IN volume to make the ALC meter value within</li> </ul>

	<p>30~90. Max level of Line IN should not be more than 600mVp-p, or it will overload the input amplifier.</p> <ul style="list-style-type: none"><li>• PO meter is optimized, more accurate.</li><li>• Rotate encoder driver is optimized, less losing of steps.</li><li>• ACC LINE OUT is optimized, main volume will not affect its output level anymore.</li><li>• ACC Band Voltage switching output is optimized, solved the issue of wrong voltage for 12m band.</li><li>• TS max digit change from 10k to 100k when pushing the main tuning knob.</li><li>• RIT function added: Press and hold main tuning knob to activate.</li></ul>
v1.7.1	<ul style="list-style-type: none"><li>• RF Gain Control: After a long press of the AGC button. Rotate the main VFO knob to change the RF gain (this does not affect the S meter or FFT scales).</li><li>• DSP Filter: A momentary press of the Multi-function adjustment knob allows setting of the DSP center frequency and the bandwidth of the filter.</li><li>• FFT Averaging: Pressing the FUNC button and then the LOCK button opens the setting of the averaging function. Adjust it to your personal preference.</li></ul>

**Warning:** As for normal operation, only after turning on your Xiegu G90, connect the USB-cable to any of the two IO-ports. Never do it the other way round as that might prevent your G90 to startup and might even corrupt your firmware, requiring to upload the firmware again in order to get it back to normal operation. When you shut down your Xiegu G90 do not forget to disconnect any cables connected to the IO-ports.



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