[Potential kit in development]

This is a GPS receiver module including patch antenna, with factory pre-soldered RF module, and the rest of the components are all through-hole, to be built as a kit. A plastic case may also be made available.

The RF module uses the MediaTek chipset and it is essentially comparable to the QRP Labs supplied SKM61 GPS module. The board size is relatively large, this is to provide additional patch antenna gain. Most GPS receiver modules with built-in patch antenna are a compromise between small physical size and sensitivity. If we drop the size constraint, it appears that the antenna sensitivity is optimum with a large patch antenna (25 x 25 x 4mm size is the largest available) and a large 7 x 7 xm PCB ground plane. I added a further 3cm to the width of the board, for the other circuits. So the size of this board is 10 x 7cm.

The board also includes supply filtering, 3.3V voltage regulator, and level converters to provide 5V outputs. The connectors are 0.1-inch pitch so they are easy to solder to. The 4-way connector pads section can be connected DIRECTLY to the Ultimate 3/3S QRSS/WSPR TX kit , with no pullups or decoupling capacitors. There are three 3mm LEDs on board, that give a visual indication of what is happening. They are:

Red: Power (always on)
Yellow: Serial data (flashes when the serial data burst is active)
Green: 1pps (flashes on for 0.1s once per second, when the 1pps signal is present)

Advantages of this module, compared to the SKM61 , are:

1) higher sensitivity of built-in patch antenna, due to large ground plane
2) Provices facility for SMA connector and components for external active antenna if you prefer
3) Has onboard power / data / 1pps LEDs for an immediate visual indication of what is going on
4) Proper level conversion for use with 5V systems, not just pull-up resistors like on the SKM61
5) Larger connection pads with 0.1-inch pitch, suitable for easy wire soldering or pin headers

6) all components already on-board, no need for anything other than wire, for U3 connection
7) Probably a bit cheaper, maybe $20 compared to $22.50 for the SKM61
8) A kit - fun to build!

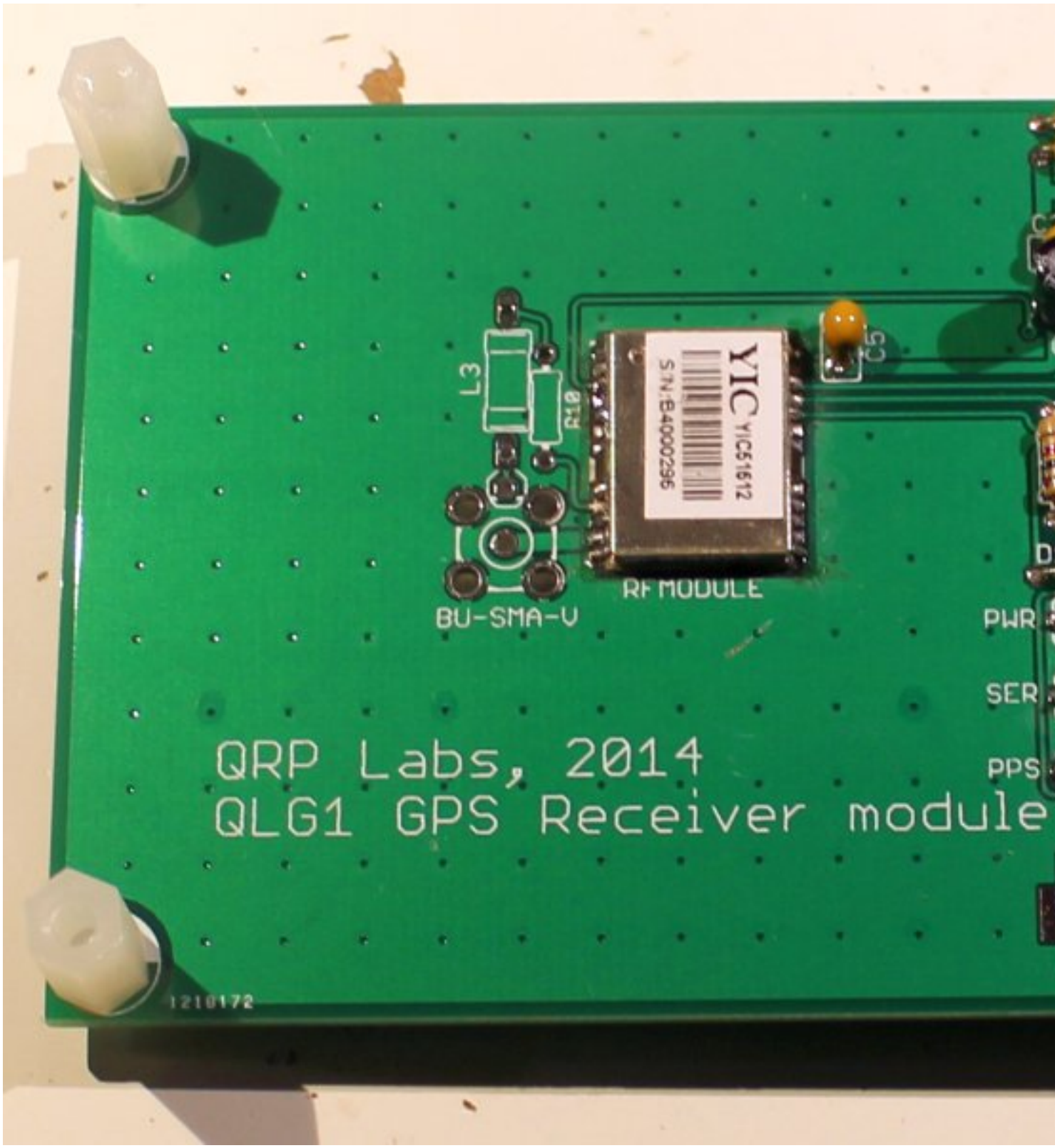
Disadvantages of this module, compared to the SKM61 , are:

1) Larger physical size
2) A kit - maybe people are lazy to build yet another kit and prefer a ready-made module?

Photos of the built GPS receiver module

The first picture is the UNDERSIDE of the module. This has the pre-soldered RF module, and all the other components. I soldered the LED's on the reverse so that they can be visible when the module is the "right" way up.

The second picture is the TOPSIDE of the module. The patch antenna is soldered on here. But it is NOT shown in the photo, I really can't remember why I took this photograph without the antenna. The patch antenna is 25 x 25 x 4mm, similar to the SKM61 antenna.


L3
R10
C5
YIC
YIC51612
S/N:B4000296
RF MODULE
BU-SMA-U
PWR
SER
PPS
QRP Labs, 2014
QLG1 GPS Receiver module
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