March 9th, 2017

SP80 V3.30 Firmware Release

Introduction
This document is the firmware release note of the SP80 V3.30.
This version is a minor release with new feature, improvement and bug fixing.

Upgrade Procedure
The customer can upgrade the receiver with the version V3.30 by following this procedure:
1- Copy the file sp80_upgrade_v3.30.tar to a SD Card (its size must be at least 256Mbytes, and it is preferable to use an empty and recently formatted SD Card)
2- Switch off the SP80
3- Plug the SP80 into an external power and make sure that there is also an internal battery
4- Insert SD Card to the SP80
5- Turn on the SP80 while keeping pressed the button 'Scroll' (during about 5 seconds)
6- Wait for the complete upgrade (it should take about 10 minutes)

Note that receiver has to be under warranty period to be upgraded.

Firmware list and versions
General version number: V3.30 – 03/09/2017

OS: 2.6.37 #796
U-Boot: 1.32
PVT: LP73V10
DSP: LC73V10
SL: LS73V14
WEB Service: LW73V05
HTML Pages: LH73V07
BT: 7.2.31
PMU: 3.W
GSM: 02.003
XDL: V01.14(2)

The software compatible with SP80 V3.30 are:

- FAST Survey: 5.0.3
- Survey Pro: 6.0.1
- Trimble Access: 2017.0
- RINEX Converter: 4.6.11
- Survey Office (64-bits): 3.81
- USB Serial Emulation: 1.1
- Spectra Precision Loader: 5.5.0
- Spectra Precision File Manager: 1.2.0

New Features

1. **DCOL support**: The DCOL protocol is now supported in the receiver. This allows using Trimble Access with the receiver. Only the DCOL commands and GSOF messages used by Trimble Access are supported. Some commands are only partially supported and their impact on the receiver may be different from the Trimble receivers. More details can be found here: http://trl.trimble.com/docushare/dsweb/Get/Document-843603/Geospatial_Bulletin_Support_SP60SP80TrimbleAccess.pdf

2. **Web**: The Web user interface is now available in Chinese language.
3. **Default configuration**: It is now possible to install a script in the receiver which contains a list of $PASHS commands which are executed each time the receiver is reset. It allows defining your own default configuration for the receiver.
4. **DUN**: The Bluetooth DUN protocol is now supported.
5. **ADL Vantage 35**: this UHF transmitter is now supported.

Improvements (since the version 3.10)

1. **Web**: Anonymous access is now possible. When anonymous access is enable, it is possible to connect the Web UI without login/password and then it is not possible to change the receiver configuration.
2. **Web**: The default login/password is now admin/password.
3. **$PASHS,OPTION**: It now possible to omit the option ID in the command and to put only the code. The option ID is automatically recognized.
4. **ATOM STA**: The message ATOM STA RSP contains now a flag which indicates if this is a physical or virtual base station, and in case of virtual base station a new message ATOM STS PSP is created to output the coordinates of the respective (usually closest) physical station.
5. **CMR/CMR+**: The antenna type in CMR/CMR+ messages generated by the receiver is now ADVNULLANTENNA and the measurements are reduced to ADVNULLANTENNA. The reference position transmitted in the CMR/CMR+ messages is the position of SP80 ARP.

Resolved Problems (since the version 3.10)

1. **Web**: Tt was not possible to set the base position if the minutes in the coordinates were less than 10. This problem is now resolved.
2. **G-File**: The size of the G-File was abnormally huge with the version 2.12 because useless data coming from the e-bubble was recorded. The useless data are now removed from the G-File. (FNC-120)
3. **Base mode**: It was not possible to set the base mode without the option [J] RTKROVER while the option [K] RTKBASE. This problem is resolved, the base mode is allowed as soon as option [K] is valid. (FNC-128)
4. **Modem**: When there is no SIM card and the modem in on, the receiver raises permanently alarms. Now it raises only once the alarm "No SIM card detected". (FNC-156)

Know issues

1. **Firmware Upgrade**: It is not recommended to upgrade the firmware with SP Loader using the serial cable. You must use the SD Card or the USB cable.
2. **Trimble Access**: To power up the SP80 modem, you will need to try the Internet setup wizard twice. The first attempts will probably time out.

Recommendations

1. **Beta version**: The official version contains 2 numbers (ex: 1.2). If the receiver contains a version with 3 digits (ex: 1.2.5), it means that it is a beta release and this beta release can be used only 90 days after the release date. After 90 days, the receiver will not answer to any command, and the only thing to do is to upgrade the receiver with an official version.
2. **SD Card**: The receiver supports the standard SD Card and the SDHC card up to 32Gb. It does not support SDXC.
3. **Ionosphere activity**: Today we at the peak of ionosphere activity which can affect/degrade receiver performance. User must realize that often 3rd party reference data provider is equally responsible for performance degradation because of generating much less correcting data compared to quiet ionosphere conditions. User is recommended also contacting Network data provider in case of RTK problems.
4. **ATL log**: We recommend end user in case of receiver performance problem to record atl.log and share it with Tech Support. W/o atl.log file, the ability to help end user will be much less.
5. **6 GNSS**: While SP80 can work with different subsets of GNSS (e.g. GLO only, BDS only, GLO+BDS), user must realize that exclusion of any available GNSS system may result in degraded positioning performance
6. **6 GNSS**: While SP80 can track, and use the observables from all 6 GNSS, for differential (RTK rover) operation it can be possible only if base provides respective reference data. Today with RTCM-3.1 protocols these reference data can be available only for L1/L2 GPS and GLONASS, so SP80 cannot take a benefit of other signals. Only the following 2 cases can allow effective RTK usage of all tracking signals:
   - Using own SP80 base generating either ATOM or RTCM-3.2 (MSM) differential data
   - Using 3rd party services supporting RTCM-3.2 (MSM) data generation
7. **NTRIP:** When working with Ntrip service, user is recommended to select VRS mount point over MAC and FKP. In general, with wide variety of different mount points, always try select GNSS points.

8. **RINEX:** When converting receiver raw data to RINEX it is desirably to generate RINEX-3.2 (latest released version) data as legacy RINEX-2.11 does not support many of GNSS signals SP80 tracks.