

## UNAVCO POLAR GPS SYSTEM TEST PROCEDURE APPENDIX 4: HOW TO QC GPS DATA FILES

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1) Make sure you have the latest versions of the teqc.exe and runpkr00.exe programs. They can be downloaded from the UNAVCO website at:

<http://facility.unavco.org/software/teqc/teqc.html>

<http://facility.unavco.org/kb/> (search for “runpkr00”)

2) Download one 24-hour GPS data file (or 24 1-hour files) from the receiver. Place runpkr00.exe and teqc.exe in the same directory as these files.

3) Convert these files to Trimble uncompressed format (.dat or .tgd). First open a DOS prompt and change to the directory where the files are located.

A) If you have one 24-hour file, execute the following command:

```
runpkr00 -d -g FILE.T00 (or FILE.T01 or FILE.T02)
```

This will create a new file named FILE.dat if RT17 format was logged, or FILE.tgd if RT27 format was logged.

B) If you have 24 hourly files, runpkr00 can concatenate them into one 24-hour file simultaneously during conversion. Note: if one or more of your hourly files is corrupted, runpkr00 will fail. In this case see step 6.

To do this, first create a plain text file (for example, with Notepad) containing 25 lines. The first 24 lines each contain the complete filename of one hourly file, in chronological order, with a carriage return <cr> at the end. Since the 24<sup>th</sup> line has a carriage return, a blank 25<sup>th</sup> line will also be created. Save this file in the same directory, with a filename such as “SITE.txt”.

Then execute the following command to generate a 24-hour .dat file:

```
runpkr00 -d -g @SITE.txt
```

This 24-hour file (.dat or .tgd) will have the same file prefix as the first line in your SITE.txt file.

For example, to convert and concatenate data from site DUPT for March 1 2012, the file DUPT.txt would consist of the following 25 lines:

```
DUPT201203010000a.T00 <cr>  
DUPT201203010100a.T00 <cr>  
DUPT201203010200a.T00 <cr>  
DUPT201203010300a.T00 <cr>  
DUPT201203010400a.T00 <cr>  
DUPT201203010500a.T00 <cr>  
DUPT201203010600a.T00 <cr>  
DUPT201203010700a.T00 <cr>  
DUPT201203010800a.T00 <cr>  
DUPT201203010900a.T00 <cr>
```

```
DUPT201203011000a.T00 <cr>
DUPT201203011100a.T00 <cr>
DUPT201203011200a.T00 <cr>
DUPT201203011300a.T00 <cr>
DUPT201203011400a.T00 <cr>
DUPT201203011500a.T00 <cr>
DUPT201203011600a.T00 <cr>
DUPT201203011700a.T00 <cr>
DUPT201203011800a.T00 <cr>
DUPT201203011900a.T00 <cr>
DUPT201203012000a.T00 <cr>
DUPT201203012100a.T00 <cr>
DUPT201203012200a.T00 <cr>
DUPT201203012300a.T00 <cr>
<note this line exists but is blank>
```

The `runpkr00` command would then create one 24-hour long file named `DUPT201203010000a.dat` (or `.tgd`).

4) Convert the 24-hour file to RINEX format by executing:

```
teqc -tr d +nav FILE.YYN FILE.dat > FILE.YYO
OR
teqc -tr d +nav FILE.YYN FILE.tgd > FILE.YYO
```

where `YY` is the 2-digit year. Note that `teqc` may return a message regarding GPS week. If so, follow its advice and re-run the command with the “-week” option included. For week `XXXX` the command would be:

```
teqc -tr d -week XXXX +nav FILE.YYN FILE.dat > FILE.YYO
OR
teqc -tr d -week XXXX +nav FILE.YYN FILE.tgd > FILE.YYO
```

5) QC the RINEX observation file by executing

```
teqc +qc FILE.YYO
```

The resulting plain-text QC file will be named `FILE.YYS`.

6. If you have one or more corrupted hourly files, the conversion / concatenation process with `runpkr00` in step 2 will fail. In this case, convert each individual hourly T00 (or T01 or T02) file to `.dat` / `.tgd` format as in step 3A. Next, convert each individual hourly `.dat` / `.tgd` file to RINEX format as in step 4. Then execute the following commands to concatenate the hourly RINEX obs and nav files into 24-hour RINEX files:

```
teqc HOURLYFILE0.YYO HOURLYFILE1.YYO ... HOURLYFILE23.YYO > DAILYFILE.YYO
```

```
teqc HOURLYFILE0.YYN HOURLYFILE1.YYN ... HOURLYFILE23.YYN > DAILYFILE.YYN
```

Then QC the resulting 24-hour RINEX files as in step 5.