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Technology Sales Group

## Thunderbolt, ACE II, Lassen LP and SKII Extended Week Number.

### Overview

A problem has been identified with the Extended GPS Week Number in the 0x41 message and the Week Number in the 0x8F-20 message on certain legacy Trimble products. The week numbers will be incorrect after February 13<sup>th</sup> 2016.

The values in these two fields will be limited to between 860 and 1883.

This bulletin covers the following products.

Part number	Description	Firmware version	WNRO cutoff in 0x41 and 0x8F-20	WNRO cutoff in 0x8F-AB	WNRO cutoff in TAIP and NMEA
38116-20	SK8 II	v8.06	14th Feb 2016	Not applicable	28 <sup>th</sup> July 2019
38116-25	SK8 II	v8.06	14th Feb 2016	Not applicable	28 <sup>th</sup> July 2019
39263-00	Lassen LP	v7.82	14th Feb 2016	Not applicable	4 <sup>th</sup> June 2019
39263-10	Lassen LP	v7.86	14th Feb 2016	Not applicable	8 <sup>th</sup> May 2020
39263-15	Lassen LP	v7.86	14th Feb 2016	Not applicable	8 <sup>th</sup> May 2020
36916-00	ACE II	v7.68	14th Feb 2016	Not applicable	28 <sup>th</sup> July 2016
38223-61	Thunderbolt	v2.10	14th Feb 2016	29 <sup>th</sup> July 2019	Not applicable
38223-61	Thunderbolt	v2.12	14th Feb 2016	29 <sup>th</sup> July 2019*	Not applicable
39448-61	Thunderbolt	v2.22	14th Feb 2016	7 <sup>th</sup> April 2019	Not applicable
48050-61	Thunderbolt II	v3.00	14th Feb 2016	7 <sup>th</sup> April 2019*	Not applicable

\*estimated

### Background

The GPS week number runs from 0 to 1023 and then cycles back to week #0. Week #0 began on January 6<sup>th</sup>, 1980. The first cycle back to week #0 was on August 22<sup>nd</sup>, 1999.

The extended GPS week number however does not cycle back to 0. For example the extended week # for August 22<sup>nd</sup>, 1999 is 1024. The extended week # for 7<sup>th</sup> January 2016 is 1878.

### Problem Description

On the products listed in the table above the extended week number in the 0x41 message and the week number in the 0x8F-20 message will be incorrect after 13<sup>th</sup> February 2016. The week number will roll back to 860 and then increment weekly from that value. Below is an example of the 0x41 output.

```

10 41 45 E1 2C 52 07 5C 41 80 00 00 10 03 ## Correct extended week number
10 46 08 10 10 03
10 4B 5E 00 01 10 03
10 6D 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 03
10 41 45 E1 34 71 07 5C 41 80 00 00 10 03
10 46 08 10 10 03

```

```

10 4B 5E 00 01 10 03
10 6D 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 03
10 41 45 E1 3C 87 03 5C 41 80 00 00 10 03 ##Incorrect extended week number
10 46 08 10 10 03

```

```

10 4B 5E 00 01 10 03
10 6D 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 03
10 41 45 E1 44 A6 03 5C 41 80 00 00 10 03
10 46 08 10 10 03
10 4B 5E 00 01 10 03
10 6D 03 00 00 00 00 00 00 00 00 00 00 00 00 00 00 10 03
10 41 45 E1 4C C9 03 5C 41 80 00 00 10 03

```

In addition the user should note that after the rollover to WN# 860 the GPS module will lose GPS tracking for a period of approximately 2 hours. The modules will not output their position for this period. This is due the Ephemeris data on the GPS receiver being incorrect for the new 860 week number. The module will restore GPS tracking when a new Ephemeris is received 2 hours after the rollover.

The TAIP and NMEA output will still contain the correct Day Month and Year information, however due to the Ephemeris issue mentioned above the module will not output position data for the first 2 hours after the rollover.

A cold start would allow the receiver to restart tracking sooner by forcing the download of fresh data.

## Workaround

The modules identified in the table above cannot be re-flashed with new firmware. Any check for the TSIP week number will need to be carried out by the host program.

The user should check the extended week number value and IF < 1800, ADD 1024.

There are no direct replacements for the hardware available from Trimble.

Please discuss SKII and Lassen LP replacements with your local Trimble representative.