

Application Notes Affected: AN2005-004 Rev 1.6  
AN2005-006 Rev 1.7

**and affects:**

**WITS PSA Test Specification**

**Bulletin Reference: TB0061 Iss 4**

**Bulletin Type: Clarification**

**Status: ~~Circulated for comment / Rejected~~ / Accepted**

**Date Issued: 06-06-2017**

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# 1 Overview

A question has been raised within Thames Water about the calculation of extended data points when there are no valid values from the source point. The current Application Notes discuss the use of the quality flags of the source point but do not explicitly state what happens when there are no valid values of the source point during the whole of the calculation period.

Technical Committee discussions have agreed that when there are no valid values of a source point then:

1. The extended point's "online" flag should be set to 0
2. The minimum, maximum or mean extended points value should be set to the last valid value of the source point
3. The integral, rate of change, state counter and state runtime extended points value should be set to 0
4. The no-change extended point value should be set to 1
5. When using "associated values" for minimum, maximum and mean then items 1 and 2 above should be applied to the associated values in the WITS log file

This Technical Bulletin adds these notes to the Application Notes and tests to the WITS PSA Test Specification..

**NB.** In section 2 onwards, text that is shown in **red** represents words to be removed from the application notes and text in **blue** represents words to be inserted into the notes. Table boxes highlighted in red are showing formatting details and have no relevance for text changes.

## 2 Changes to the Application Notes

### 2.1 AN2005-004

Make the following changes to AN2005-004.

Note that changes are only adding comment so there is no version number change of the WITS-DNP3 protocol.

#### 2.1.1 Change the “Title Page” as shown:

**Revision 1.67**

**March 2016 June 2017**

#### 2.1.2 Add to the “Change History” as shown:

Date	Revision	WITS-DNP3 Version	Details
June 2017	1.7	all	Added notes about associated values when the source point is invalid for the whole calculation period.

#### 2.1.3 Make the following change in section 2.4.7

DNP3 flags indicate that the data is invalid.

Associated values will always have the ONLINE flag set unless the source point was invalid for the entire sampling period. When the source point is invalid for the entire sampling period the associated values should be set to the last known valid value of the source point. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

## 2.2 AN2005-006

Make the following changes to AN2005-006.

Note that changes are only adding comment so there is no version number change of the WITS-DNP3 protocol.

Note that section numbers in version 3 of this Application Notes are corrupt in section 2.1.2. The following sections refer to the “corrected” section numbers.

### 2.2.1 Change the “Title Page” as shown:

## Revision 1.78

March 2016 June 2017

### 2.2.2 Add to the “Change History” as shown:

Date	Revision	WITS-DNP3 Version	Details
June 2017	1.8	all	Added notes about extended data points when the source point is invalid for the whole calculation period.

### 2.2.3 Add the following note to the end of section 2.1.2.9

- When there have been no valid values of the source point for the whole of the ROC Period then the ROC value should be set to 0 and its ONLINE flag cleared. Similarly, with no valid values seen in the period the No Change value should be set to 1 and its ONLINE flag cleared. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

### 2.2.4 Add the following note to the end of section 2.1.2.11

- When there have been no valid values of the source point for the whole of the Period the minimum value should be set to the last known valid value of the source point and its ONLINE flag should be cleared. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

### 2.2.5 Add the following note to the end of section 2.1.2.12

- When there have been no valid values of the source point for the whole of the Period the maximum value should be set to the last known valid value of the source point and its ONLINE flag should be cleared. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

### 2.2.6 Add the following note to the end of section 2.1.2.13

- When there have been no valid values of the source point for the whole of the Period the mean value should be set to the last known valid value of the source point and its ONLINE flag should be cleared. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

**2.2.7 Add the following note to the end of section 2.1.2.15**

- When there have been no valid values of the source point for the whole of the Period the integral value should be set to 0 and its ONLINE flag should be cleared. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

**2.2.8 Add the following note to the end of section 2.1.2.15**

- When there have been no valid values of the source point for the whole of the Period the state counter value should be set to 0 and its ONLINE flag should be cleared. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

**2.2.9 Add the following note to the end of section 2.1.2.16**

- When there have been no valid values of the source point for the whole of the Period the state runtime value should be set to 0 and its ONLINE flag should be cleared. These are recommendations for protocol versions up to and including version 3.0 and mandatory for all higher versions.

### 3 Changes to the WITS PSA Test Specification

Make the following changes to version 3.1 of the Test Specification

#### 3.1.1 Change the “Title Page” as shown:

## Revision 3.12

June 2016 June 2017

#### 3.1.2 Change the revision history as shown:

June 2016	3.1	All	Incorporate details from TB#56 (the expected behaviour of a Master Station using the optimised protocol) and TB#57 (incident logging and significant changes of analogue point values).
June 2017	3.2	All	Added more details of expected results to extended data points for the case when there are no valid source point values.

#### 3.1.3 Change the expected results of 2.7.4.1 as shown:

Expected result
The virtual point has the ONLINE flag cleared to indicate that the source point was invalid for the entire sampling period. If using WITS-DNP3 version 3.1 or higher the virtual point value is set to the last valid value of the source point. For earlier versions of the protocol record the virtual point value.

#### 3.1.4 Change the expected results of 2.7.5.1 as shown:

Expected result
The associated value has the ONLINE flag cleared to indicate that the source point was invalid for the entire sampling period. If using WITS-DNP3 version 3.1 or higher the associated value is set to the last valid value of the source point. For earlier versions of the protocol record the associated value.

#### 3.1.5 Change the expected results of 2.7.6.3 as shown:

Expected result
No data set events are generated from the virtual ROC point. The static (class 0) value of the virtual ROC point is set to 0 and has the ONLINE flag cleared. (The Field Device should clear the ONLINE flag if the source point was invalid at either the start or end of the sampling period).

**3.1.6 Change the expected results of 2.7.8.5 as shown:**

Expected result
No data set events are generated for the virtual point. The static (class 0) value of the virtual point has the ONLINE flag cleared. (The Field Device should clear the ONLINE flag if the source point was invalid for the entire sampling period).
The virtual point's value should have been reset to zero at the start of the new period and should stay at zero.