Measured Central Management System: Ubitricity

Test date: 30 May 2018

Location: Power Data Associates office. Wrest Park, Silsoe, Bedfordshire MK45 4HR

Facilitator: Kevin Spencer

Witness: Sam Daoudi

Testing: Ubitricity measured Central Management System (mCMS)

Description: The May 2018 testing is a variant of the previously approved Ubitricity solution (in 2017) that includes the metered module within the measured SimpleSocket. The measured SimpleSocket includes the same meter (=measuring device) as in the SmartCable. The measured SimpleSocket includes cellular communication, so that the EV driver can contact a website site or use a smartphone app to scan the barcode of the socket and initiate payment using the ubitricity backend system. Once the backend system has authorised a charge a message is sent to the measured SimpleSocket to enable the socket to charge the vehicle using a conventional (unmetered / "dumb") EV charging cable. ELEXON only witnessed Scenario 1, 2 and 6. The rest of the test was already approved as part of the SmartCable witness test.

1 System Requirements

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test Group 1	**Configuration Control**			
Test 1.1	CMS software version	Non-functional	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 1.2	CMS operating platform and version	Non-functional	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 1.3	The technical details of the measurement device to be used	Non-functional	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test Group 2	**Synchronisation to UTC**	4.6.3.3(i)		Pass

2   Data Input and Storage Requirements

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test Group 3a	**Detailed Inventory information**			
Test 3.1	Add, delete, modify manually or electronically:	Functional	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 3.1.1	Road Reference	Functional		Pass
Test 3.1.2	Town, Parish, District	Functional		Pass
Test 3.1.3	Road Name	Functional	See above.	Pass
Test 3.1.4	Location	Functional		Pass
Test 3.1.5	Unit Type	Functional	See above.	Pass
Test 3.1.6	Unit Identity	Functional		Pass
Test 3.1.7	CMS Unit Reference	Functional	See above.	Pass
Test 3.1.8	Charge Code	Functional	See above.	Pass
Test 3.1.9	Number of Items	Functional	See above.	Pass
Test 3.1.10	Switch Regime	Functional		Pass
Test 3.1.11	Number of Controls	Functional		Pass
Test 3.1.12	Control Charge Code	Functional		Pass
Test 3.1.13	Ordinance Survey Grid ref 'East' or Latitude	Functional		Pass

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test 3.1.14	Ordinance Survey Grid ref 'North' or Longitude	Functional	See above.	Pass
Test 3.1.15	Exit Point	Functional		Pass
Test 3.2	Audit Trail	Functional		Pass
Test Group 3b	**Inventory control information**			
Test 3.3	Add, delete, modify manually or electronically:	Functional	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 3.3.1	Sub-Meter ID	Functional	See above.	Pass
Test 3.3.2	Effective From Date	Functional	See above.	Pass
Test 3.3.3	CMS Unit Reference	Functional	See above.	Pass
Test 3.3.4	Number of Items	Functional		Pass
Test 3.3.5	Switch Regime	Functional	See above.	Pass
Test 3.3.6	Charge Code	Functional	See above.	Pass
Test 3.4	Audit Trail	Functional		Pass
Test Group 4	**Equipment control information**		This test group refers to the control device	
Test 4.1	Add, delete, modify manually or electronically	Functional	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	N/A

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test 4.1.1	CMS Unit Reference	Functional		N/A
Test 4.1.2	Sum of CMS Controller devices	Functional		N/A
Test 4.1.3	Switch Regime	Functional		N/A
Test 4.1.4	Charge Code	Functional		N/A
Test 4.2	Audit Trail	Functional		N/A

3   Process Requirements

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test Group 5	**CMS Event Driven Measurement**			
Test 5.1	Scenario 1	4.5.2.3	Based on the dimming levels, the system recorded 2.49 kWh of unit usage. The power analyser recorded 2.51 kWh of unit usage. The difference between the two values give an error margin of 1.00%. The calculations are shown in the attached excel workbook.	Pass
Test 5.2	Scenario 2	4.5.2.3		Pass
Test 5.3	Scenario 3	4.5.2.3	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 5.4	Scenario 4	4.5.2.3	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 5.5	Scenario 5	4.5.2.3	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test 5.6	Scenario 6	4.5.2.3	Communication failure The objective was to disconnect the unit to the mCMS. The device was not able to communicate any data to the server but was still recording the consumption, using its internal memory. When the driver went back online, it re-connected to the mCMS and updated any information collected while offline.	Pass
Test Group 6	**Record operational switching times and power levels**			
Test 6.1	Record operational switching times for Scenarios 1 to 6	4.6.3.3(b) 4.6.3.3(c)		Pass
Test 6.2	Audit Trail	4.6.3.3(h)		Pass
Test Group 7	**Generate Operational Event Log**		Generate events for each scenario	
Test 7.1	Scenario 1	4.5.2.3	The version 1 of the event log can be found in the relevant folder for test group 5. The calculations to prove the times and power levels are accurate the same as for test group 5 because there isn't a meter with a display to give us a separate set of readings to test against.	Pass
Test 7.2	Scenario 2	4.5.2.3	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test 7.3	Scenario 3	4.5.2.3	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 7.4	Scenario 4	4.5.2.3	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 7.5	Scenario 5	4.5.2.3		Pass
Test 7.6	Scenario 6	4.5.2.3	The version 1 of the event log shows the earlier charges (scenario 1 and 2), but doesn't show the final 1 hour charge when communication was blocked. However, the revised version 2 includes the 1 hour charge.	Pass
Test 7.7	Available daily and on request	4.6.6.3(b) 4.6.6.3(c)	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass
Test 7.8	Audit Trail	4.6.6.3(h)	Witnessed.	Pass
Test Group 8	**Volume and Performance**			
Test 8.1	Compliance with operational timescales	Functional	Not part of the witness test – demonstrated in the test evidence provided by the applicant. Witnessed as part of the SmartCable witness test.	Pass

4 Data Output Requirements

Test Ref	Requirement / Details	Requirement Reference	Comment	Complies
Test Group 9	**Operational Event Log**		Testing that the event log is in the correct format	
Test 10.1	File Format	4.6.6.3(c)		Pass
Test 10.2	Filename	4.6.6.3(c)		Pass
Test 10.3	Header identifier	4.6.6.3(c)		Pass
Test 10.4	Sub-Meter ID	4.6.6.3(c)		Pass
Test 10.5	Date	4.6.6.3(c)		Pass
Test 10.6	Version	4.6.6.3(c)		Pass
Test 10.7	CMS Unit reference	4.6.6.3(c)		Pass
Test 10.8	Time	4.6.6.3(c)		Pass
Test 10.10	Percentage of base power	4.6.6.3(c)		Pass
Test 10.10	Information Flag	4.6.6.3(c)		Pass
Test 10.11	Trailer	4.6.6.3(c)		Pass