Test Report

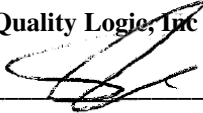| Report No.: TTA-N-16-0280-TR00 |
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Test Name	:	**IEEE 2030.5 (Smart Energy Profile 2) Conformance Test**
Report for	:	**KETI(Korea Electronics Technology Institute)**
Tested by	:	**TTA with QualityLogic IEEE 2030.5 (SEP 2) Conformance Test Program**
Product	:	**In Home Display(Home Energy Management System)**
Signature	:	**TTA** **Quality Logic, Inc**
Sign		_____ _____
Signed by		JUNHO SHIN STEVE KANG
Date		7-29-16 7-28-16

Contents

1.   Report Information

This section contains information on the apparatus around the test.

1.1.   Testing Laboratory

Company Name	TTA
City	Seongnam-City, Gyeonggi-do
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Country	Republic of Korea
Telephone	+82-31-724-4620
Fax	+82-31-724-0169
URL	www.tta.or.kr
Responsible person	SongE Kim
e-mail	sikim@tta.or.kr

1.2.   Conformance Test Program Supplier

Company Name	QualityLogic
City	Simi Valley, CA
Address	2245 First St. #103
Postal code	93065
Country	USA
Telephone	+1-805-531-9030
Fax	+1-805-531-9045
URL	www.qualitylogic.com

1.3.   Product Vendor

Company Name	KETI
City	Seongnam-si
Address	Saenari-ro, Bundang-gu,
Postal code	13509
Country	Republic of Korea
Telephone	+82-31-789-7528
Contact person	Lee Sanghak
e-mail	shlee@keti.re.kr

1.4.   Test Summary

The test was conducted using the test tool approved by CSEP(Consortium for Smart Energy Profile) who established standard test specification of SEP2(IEEE 2030.5). CSEP approved the 'SEP2 Functional Test Suite' and 'Ad Hoc Tester' of Qualitylogic Inc. as certification testers in February 2015. TTA runs and follows the SEP2 conformance test program using CSEP approved testers before official Certification program.

KETI required software to be tested using the tests described in the "Development of Home Energy Management Platform based Energy-Efficient Smart PCS - Government project". This report is for part 1 of a planned conformance tests covering the core and EDEV function set only. This test project followed QualityLogic's approach to testing and evaluating IEEE 2030.5 as defined by the QualityLogic Inc. IEEE 2030.5Conformance Test Program.

KETI provided 1 sample of the client to be tested. This report contains the results for the following client In Home Display(Home Energy Management System). Testing was conducted to determine the software's ability to comply with the requirements and its ability to communicate with IEEE 2030.5. No certification mark or certificate of compliance was issued as a result of this testing. The In Home Display(Home Energy Management System) obtained compliant results for all of the IEEE 2030.5 Function Sets that were tested.

Normally an In Home Display would be expected to include DRLC, Messaging and Pricing Function Sets. Our customer in this test only required that the conformance testing focused on the basic IEEE 2030.5 application protocol and optional function set, EDEV. The testing provides confidence that the software tested can communicate correctly with other IEEE 2030.5 software.

1.5.　Device Under Test Identification

1.5.1.　General Information

Product Type	Client
Product Name	In Home Display(Home Energy Management System)
Product Version	v1.0
IP Version	IPv6/IPv4
Interface	Ethernet/WiFi
Encoding	XML
Picture	

2. Test Configuration

2.1. Test Scope

The test have been run only checked below between server and client. The list must be filled and submitted to TTA before the test begins.

Segment	Function Set	Client
Core	CERT	Yes
	DCAP	None
	DNS	Yes
	TLS	Yes
	TM	Yes
Optional	APPS	No
	COM	No
	DSGN	No
	DRLC	No
	EDEV	Yes
	RSPS	No
	TP	No
	UPT	No

2.2. Test Environment

The test has been run with the following external conditions throughout the session.

Nominal	
Temperature in the range 15ºC to 35 ºC	Yes
Relative humidity in the range 20% to 75 %	Yes

2.3. Test Procedures

The test has been run on 20th July in 2016 with QualityLogic Inc. IEEE 2030.5 Conformance Test Program. The CSEP approved QualityLogic Test Tools used were the Version V1.11 Release of the Functional Test Suite (FTS) Client Tester and Ad Hoc Client Tester.

QualityLogic

TTA

3.   Test Results

3.1.   Summary Convention

The following "Result" convention is used in this summary

Result Items	Description
PASS	All test cases that have been executed have passed.
FAIL	At least one test case has failed.
WARN	At least one test case generated a WARN result, while all others have passed.
ABORT	The test suite execution has been aborted. The abort may be caused by the user, or by an internal error.
VOID	At least one test case generated a VOID result, while all others have passed.
WAIVED	Not supported by test tool yet.

3.2.   Summary of Test Results

Type	Test Code	Description	Results	Comment
Core	CERT	Support Certificate	WAIVED	
	DNS	Support Discovery	PASS	
	TLS	Support Security	PASS	
	TM	Support Time	PASS	
Optional	EDEV	Support End Device	PASS	

Detailed testing and results are contained below.

3.3.   Test Items Results

3.3.1.   Results Items convention

The following convention is used in this test report.

Result Items	Description
Compliant	The DUT met the requirements of the corresponding criteria
Non-compliant	The DUT did not meet the requirements of the corresponding criteria
NA	The criteria were Not Applicable to Equipment Under Test {Explanation Required}
ENS	The specific feature was Not Supported by the customer
Unable to Test	The test case could not be completed due to a QualityLogic Test Tool issue

3.3.2. Client Functional Test cases

CERT

Test Item	Description	Results	Comments
CERT2	Support for Device certificates	Unable to Test	
CERT4	Additional certs for SEP 2.0 devices tests	Unable to Test	

DNS

Test Item	Description	Results	Comments
DNS01	xmDNS requests and multicast responses SHALL be transmitted (and received) on site-local multicast address FF05::FB (if IPv6) or 239.255.255.251 (if IPv4), using destination port 5353 and domain name ".site."	Compliant	

TLS

Test Item	Description	Results	Comments
TLS14	SFDI is the SHA256 of the entire certificate truncated from the left to 36 bits	Compliant	
TLS18	Support 6 Digit PIN [5 decimal digits + checksum]	Compliant	
TLS28	Authentication of TLS Server Device Certificate is done using the inherent PKI RFC5246-Section7	Compliant	
TLS30	If client has a device certificate, authentication of TLS client Device Certificate is done using the inherent PKI RFC5246-Section7	Compliant	
TLS32	If client has a self signed certificate, server checks for correctness.	Unable to Test	
TLS38	CipherSuite : TLS_ECDHE_ECDSA_WITH_AES_128_CCM_8	Compliant	

TM(FTS Test)

Test Item	Description	Results	Comments
APPS1	Support for HTTP header fields marked "Mandatory" with "SEP2 Use"	Compliant	
DSGN17	Clients must ignore query strings in hrefs but must not remove them	Compliant	
TM2	Devices with user displays SHALL support local time and daylight savings time offsets.	Compliant	

EDEV(FTS Test)

Test Item	Description	Results	Comments
EDEV15	Clients SHALL NOT POST a new EndDevice instance to a server's EndDeviceList if that EndDeviceList already contains an EndDevice instance for the client.	Compliant	