Test Report

Report No.: TTA-N-16-0589-TR00	

Test Name	:	**IEEE 2030.5 (Smart Energy Profile 2) Conformance Test**
Report for	:	**Nestfield Co., Ltd**
Tested by	:	**TTA with QualityLogic IEEE 2030.5 (SEP 2) Conformance Test Program**
Product	:	**UNEST2000**
Signature	:	**TTA** **Quality Logic, Inc**
Sign		_Chae_ _Steve KANG_
Signed by		_Sang hoon Chae_
Date		_10 - 26 - 16_ _10-25-16_

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
Address	47, Bundang-ro, Bundang-gu
Postal code	463-824
Country	Republic of Korea
Telephone	+82-31-724-4985
Fax	+82-31-724-0169
URL	www.tta.or.kr
Responsible person	Song-I 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	**Nestfield Co., Ltd**
City	Ansan
Address	55, Hanyangdaehak-ro, Sangrok-gu,
Postal code	15588
Country	Republic of Korea
Telephone	+82-31-400-3875
Contact person	
e-mail	genebe25@gmail.com

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 followed QualityLogic's approach to testing, evaluating and the SEP2 conformance test program using CSEP approved testers before official Certification program.

  Nestfield Co., Ltd provided a sample of the server to be tested. This report contains the results for the following client UNEST2000. 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 UNEST2000 obtained compliant results for all of the IEEE 2030.5 Function Sets that were tested except waived test cases.

  The conformance testing was focused on basic IEEE 2030.5 application protocol(core) and a required optional function set, DRLC. The testing provides confidence that the software tested can communicate correctly with other IEEE 2030.5 devices/software.

1.5.   Device(s) Under Test Identification

1.5.1.   General Information

Product Type	Server
Product Name	UNEST2000
Product Version	V1
IP Version	IPv6/IPv4
Interface	Ethernet
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	Server
Core	CERT	O
	DCAP	O
	DNS	O
	TLS	O
	TM	O
Optional	APPS	-
	COM	-
	DSGN	-
	DRLC	O
	EDEV	-
	RSPS	-
	TP	-
	UPT	-

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 21st Sep and 17th Oct 2016 with QualityLogic Inc. IEEE 2030.5Conformance 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.

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.
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	Unable to Test
	DCAP	Support Device Capabilities	PASS	
	DNS	Support Discovery	PASS	
	TLS	Support Security	PASS	
	TM	Support Time	PASS	
Optional	DRLC	Support Demand Response and Load Control	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.   Server Functional Test cases

CERT

Test Item	Description	Results	Comments
CERT2	Support for Device certificates	Unable to Test	

DCAP(FTS test)

Test Item	Description	Results	Comments
APPS1	Support for HTTP header fields marked "Mandatory" with "SEP2 Use"	Compliant	
APPS36	The Location header SHOULD be used in conjunction with this [301] response code to indicate the new URI of the requested resource.	Compliant	
DSGN2	TCP ports for HTTP and HTTPS provided with xmDNS service advertisement	Compliant	
DSGN3	Content type transferred with one of: application/sep+xml or application/sep-exi	Compliant	
DSGN4	All resources contain links to subordinate resources to support URI flexibility	Compliant	
DSGN7	Query string parameter 's': First ordinal value of '0'	Compliant	
DSGN28	SEP 2.0 devices shall conform to WADL specification and SEP 2.0 WADL definitions	Compliant	
DCAP1	The resources a server exposes MAY be determined by the access rights of the client on this server. Servers MAY hide resources that a client does not have access rights to.	Compliant	

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	
DNS29	Should a service instance name conflict occur, a device SHALL assign itself a new name until conflicts are resolved.	Compliant	
DNS38	A server SHALL register a PTR RR with a subtype name for each function set it advertises for discovery.	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	
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	
TLS37	Self-Signed Certificate Devices pre-authorization using SFDI	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	
APPS36	The Location header SHOULD be used in conjunction with this [301] response code to indicate the new URI of the requested resource.	ENS	
DSGN2	TCP ports for HTTP and HTTPS provided with xmDNS service advertisement	Compliant	
DSGN3	Content type transferred with one of: application/sep+xml or application/sep-exi	Compliant	
DSGN7	Query string parameter 's': First ordinal value of '0'	Compliant	
DSGN28	SEP 2.0 devices shall conform to WADL specification and SEP 2.0 WADL definitions	Compliant	

Test Item	Description	Results	Comments
TM5	SHALL have a quality metric of 7 - time intentionally uncoordinated.	Compliant	
TM10	Time adjustments less than 60 seconds SHALL never be made backwards (e.g., use stall time or long seconds to correct for being ahead on time).	Compliant	
TM19	A HAN device SHOULD generate log event TM_TIME_ADJUSTED when time is adjusted.	Compliant	

DRLC(FTS Test)

Test Item	Description	Results	Comments
APPS1	Support for HTTP header fields marked "Mandatory" with "SEP2 Use"	Compliant	
APPS36	The Location header SHOULD be used in conjunction with this [301] response code to indicate the new URI of the requested resource.	Compliant	
DSGN2	TCP ports for HTTP and HTTPS provided with xmDNS service advertisement	Compliant	
DSGN3	Content type transferred with one of: application/sep+xml or application/sep-exi	Compliant	
DSGN4	All resources contain links to subordinate resources to support URI flexibility	Compliant	
DSGN28	SEP 2.0 devices shall conform to WADL specification and SEP 2.0 WADL definitions	Compliant	
DSGN23	List resources SHALL return subordinate resources in the order defined for the containing list	Compliant	
DSGN7	Query string parameter 's': First ordinal value of '0'	Compliant	
COM37	Each function set server that has a reference to time SHALL also serve its respective time to the HAN.	Compliant	
COM21	Servers SHALL NOT edit the original Event but SHALL maintain all Events in their entirety	Compliant	
COM68	Any device handling events with randomization values and not operating on them SHALL NOT modify or apply them.	Compliant	
DR10	DemandResponseProgram server devices SHALL be capable of internally storing and supporting at least 1 DemandResponseProgram instance.	Compliant	
DR12	Demand Response/Load Control server devices SHALL be capable of internally storing and supporting at least 5 unique EndDeviceControl instances	Compliant	

DR85	When Demand Response/Load Control servers support the LoadShedAvailability resource, they SHALL use either the availabilityUpdateChangePercentThreshold or availabilityUpdateChangePowerThreshold to indicate the threshold for which a client is required to update its current load shed ability.	Compliant	
DR94	An EDC that includes an Offset or Set Point that will cause the device to increase its energy consumption SHALL set the loadShiftForward flag to "True".	Compliant	
RSP2	If a response is desired to an event, then the event SHALL provide, in the replyTo field, a URI indicating the location of where the responses are to be posted.	Compliant	
RSP6	If the server supports the GET method for the response function set it SHALL minimally support 1 response for each function set for which it accepts responses.	Compliant	