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CONNECTIVITY STANDARDS ALLIANCE CERTIFICATION POLICY

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1 INTRODUCTION

This document defines policies related to ZigBee Certified, the certification and testing program of the Zigbee® Alliance. It describes:

- The Zigbee Certified Program
- Types of certification
- Levels of certification
- Certification Programs
- Testing programs and authorized test service providers
- Golden Units and processes for selection and revision
- Certification by similarity and guidelines for retesting

1.1 Scope and Purpose

This document defines the Certification Programs supported by Connectivity Standards Alliance. This includes the process and rules for the entire life cycle of a program including specification validation, testing, grace period, etc. It is not the intent of this document to define the organizational entities responsible for managing any part of this process, except those required to be visible outside the Connectivity Standards Alliance, such as the authority to certify and resolve conflict.

1.2 Structure of this Document

This document first defines processes and rules that are common to many programs. Even in the common process there are levels and dependencies. After the common Sections, this document then defines each active program (legacy and current), in terms of requirements and additions to the common process.

1.3 References

This document refers to several other documents related to details of the certification policy.

- [R1] Zigbee document 13-0625: Technical Structure, Process and Procedures
- [R2] Zigbee document 08-0123: Test Event Rules of Engagement
- [R3] Zigbee document 05-3739: Zigbee Certified Logo and Trademark Policy
- [R4] Zigbee document 08-5185: Qualification and Validation of Test Service Providers
- [R5] Zigbee document 11-5456: Master Cluster List
- [R6] Zigbee document 05-3874: Zigbee Manufacturer Code Database
- [R7] Zigbee document 12-0114: Zigbee Green Power SrcID database

1.4 Abbreviations and Terminology

Table 1 – Abbreviations and Terminology

Certification Program	A well-defined process, that approves interpretation, validates conformance and interoperability to a set of specifications, and when successfully completed, allows the certification authority to issue a certificate
Certified Product	A Product that has been certified under the Product Certification Program
Compliant Platform	A Platform that has been certified under the Compliant Platform Certification Program
Compliant Platform Certification Program	A Certification Program that validates a Platform for purposes of certification

DUT	Device Under Test
Golden Unit	A Compliant Platform or Certified Product chosen to be used as part of a Program to test interoperability.
GU	Golden Unit
MAC	Media Access Control
ODM	Original Design Manufacturer
OEM	Original Equipment Manufacturer
PHY	Physical Layer
PICS	Protocol Implementation Conformity Statement (list of supported functions)
Platform	An implementation of a Stack
Product	An implementation of a Standard
Product Certification Program	A Certification Program validating a Product for purposes of certification
Program	See Certification Program
RF	Radio Frequency
SKU	Stock Keeping Unit (unique model identifier)
Stack	An approved set of base specifications upon which a Standard is built (e.g. Zigbee PRO, RF4CE, etc.).
Standard	A approved set (or vertical Stack) of specifications, built upon a Stack, defining interoperable behavior, on which interoperable applications can be built (e.g. ZSE, Zigbee 3.0, ZRC, etc.).
Test Event	Organized event to test and validate specification implementations
Test Harness	Test harness that is developed by an authorized test service provider for use in executing testing and approved by the Connectivity Standards Alliance
Zigbee Product	Product
Zigbee Standard	Standard

145

146 2 ZIGBEE CERTIFIED PROGRAM

147 This Section describes the general process and rules that are common for all Certification Programs.

148 2.1 Description

149 Zigbee Certified is the overall program which enables certification of Products and Compliant Platforms that
 150 conform to Connectivity Standards Alliance Standards. The program defines various types of certifications and
 151 related policies including requirements for certification and testing programs and leverages the expertise of
 152 hundreds of engineers and business people to ensure only quality Products earn Zigbee Certified Product status.

153 Zigbee Certified generally follows international Standards for the definition and operation of a Certification
154 Program. In particular, Zigbee Certified is designed as a Type 1b Certification Program as defined in ISO/IEC
155 Guide 67: 2004. Type 1b systems consist of several types of activities:

- 156 • Determination of Product characteristics: This is achieved through testing of submitted
157 samples performed by independent authorized test service providers,
- 158 • Evaluation: This is achieved by formally evaluating the results of testing,
- 159 • Decision: This is the stage that controls granting, maintaining and extending suspending or
160 withdrawing certification, and
- 161 • Licensing: Licensing refers to granting, suspending, or withdrawing the rights to use
162 certificates or marks such as logos.

163 2.2 Testing Versus Certification

164 The Zigbee Certified program maintains a strict distinction between testing and certification. Testing is the
165 process verifying conformance to Zigbee Standards. Certification is granting official recognition that a Product
166 conforms to a Zigbee Standards and that a Product manufacturer conforms to all the relevant policies of the
167 Zigbee Certified program.

168 Only Connectivity Standards Alliance may grant certification.

169 2.3 Zigbee Responsibilities

170 The Test and Certification Oversight Committee (TCOC) of the Zigbee Board of Directors shall be responsible
171 for development of policies related to certification (including this document) and working with the Zigbee
172 Certification Advisory working group and other technical working groups on certification related issues. The
173 TCOC is made up of volunteers from members of the Zigbee Board of Directors.

174 2.4 Director of Zigbee Certified

175 The Director of Zigbee Certified shall be named by Alliance management and will be responsible for a variety
176 of functions related to administering the Zigbee certified program including processing of certification
177 applications, issuing of certificates, consulting with the TCOC on certification and testing policy matters, and
178 interpreting certification policies on a day-to-day basis.

179 In accordance with ISO/IEC Guide 65, the Director of Zigbee Certified has decision making authority in regard
180 to granting certifications and other related tasks.

181 2.5 Expert Review Panel

182 The Expert Review Panel is a team of volunteers from member companies nominated by the Certification
183 Advisory working group and approved by the TCOC. The Panel provides expert technical advice to the Zigbee
184 Certified program. The function of the Panel is defined in document 08-5185 “Qualification and Validation of
185 Test Service Providers”. An up-to-date list of the current Panel members is maintained at the front of the
186 Certification Advisory working group meeting minutes document.

187 Aside from their role in validation of test service providers, the Expert Review Panel may be called on from
188 time to time to provide other expert advice in regard to other matters such as review of test plans, review of
189 interoperability concerns discovered in the field or to assist the Director of Zigbee Certified in resolution of
190 disputes.

191 2.6 Appeals

192 The Connectivity Standards Alliance has a procedure for the resolution of issues regarding the granting of
193 certification.

194 Certification applicants may appeal a decision regarding certification if they believe this certification policy was
195 applied in error. The basis of the appeal shall be (1) a specific concern about the misapplication of the policy, or
196 (2) an error on the part of an authorized test service provider or the Director of Zigbee Certified.

197 2.6.1 Appeals Process

198 The process for appeals shall be:

- 199 • Applicant shall send an appeal request to certification@csa-iot.org. The request shall
200 document the issue, the specific basis of the appeal and the corrective action requested.
201
- 202 • Acknowledgement of receipt of the appeal by either the Director of Zigbee Certified or the
203 President and Chief Executive Officer of Connectivity Standards Alliance shall be provided.
204
- 205 • The Director of Zigbee Certified and the President and Chief Executive Officer of
206 Connectivity Standards Alliance shall consider the appeal.
207
- 208 • A preliminary decision shall be made either to have Connectivity Standards Alliance take
209 corrective action or to reject the appeal.
210
- 211 • If corrective action by Connectivity Standards Alliance is to be taken, the Director of Zigbee
212 Certified or the President and Chief Executive Officer of Connectivity Standards Alliance
213 shall implement the corrective action.
214
- 215 • If the appeal is proposed for rejection, the appeal shall be forwarded to the Appeals
216 Committee for consideration.
217
- 218 • A report on the status of the appeal shall be given to the applicant.
219
- 220 • The Appeals Committee shall consider the appeal.
221
- 222 • A decision shall be made either to have Connectivity Standards Alliance take corrective action
223 or to reject the appeal.
224
- 225 • If corrective action by Connectivity Standards Alliance is to be taken, the Director of Zigbee
226 Certified or the President and Chief Executive Officer of the Connectivity Standards Alliance
227 shall implement the corrective action.
228
- 229 • If the appeal is rejected, the specific basis for rejection shall be documented.
230
- 231 • A report on the final disposition of the appeal shall be given to the applicant by either the
232 Director of Zigbee Certified or the President and Chief Executive Officer of Connectivity
233 Standards Alliance.

234 All parties shall treat any information related to an appeal as confidential information during the process.

235 2.6.2 Appeals Committee

236 The Connectivity Standards Alliance shall have a committee to address appeals. The Appeals Committee shall
237 consist of the Chief Executive Officer of the Alliance, the chairperson of the TCOC and a representative of each
238 authorized test service provider. The Chief Executive Officer of the Alliance shall act as chairperson of the
239 Appeals Committee.

240 In order to insure the impartiality of the appeals process, any member of the Committee who may have any
241 conflict of interest with the party making the appeal shall disclose the conflict. The member will not be allowed
242 to vote or participate in Committee activities regarding the appeal. Conflicts of interest are defined as, at a
243 minimum, a financial or competitive relationship with the appealing party. The Committee members themselves
244 shall decide if other issues are conflicts of interest.

245 2.7 Levels of Certification

246 The Connectivity Standards Alliance offers two levels of Standards compliance –Compliant Platform and
247 Certified Product.

248 2.7.1 Compliant Platform

249 The Zigbee Compliant Platform program defines a rigorous evaluation and certification process for a Platform
250 before it can be certified as a Compliant Platform and engineered into a Product. Each Platform is comprised of
251 a radio and a microprocessor with storage running Zigbee firmware. The Platform is tested for compliance to a
252 set of Zigbee specifications (See Section 6 (Certification Programs)).

253 This program ensures the supply chain has a solid foundation for Products destined for personal or commercial
254 use. Successfully completing this testing allows the member to have its Platform recognized by the Alliance as a
255 Compliant Platform.

256 2.7.2 Certified Product

257 A Certified Product program defines the testing requirements and a process to validate a Product's conformance
258 to a Standard (See Section 6 (Certification Programs)). The Product must be fully compliant to the Standard(s)
259 and successfully execute all mandatory and implemented optional commands. Successful certification allows
260 the Product to be recognized by the Alliance as a Certified Product and use a Certified Product logo. A
261 Compliant Platform is a fundamental building block of a Certified Product. With few exceptions (defined in this
262 document), the use of a certified Compliant Platform is a mandatory prerequisite to assessment as a Certified
263 Product.

264 2.8 Requirements for Certification

265 Certification may be awarded based on a Product's successful completion of the process defined in a Certified
266 program (See Section 6 (Certification Programs)).

267 2.8.1 Membership

268 To submit a Product for certification or compliance testing and to be granted certification, a company must be a
269 member in good standing of the Connectivity Standards Alliance. The Alliance has several different types of
270 membership which are documented on its web site: <http://www.csa-iot.org>.

271 2.8.2 Conformance to Standard

272 Conformance is verified by testing performed by an authorized test service provider and demonstrated by a test
273 report documenting successful completion of the entire test plan including all test cases for mandatory features
274 and test cases for any implemented optional features as identified by the PICS. The test service providers shall
275 report any information relevant regarding the Product's conformance to a Standard in the test report.

276 2.8.3 Documentation of Product

277 The Connectivity Standards Alliance shall require information sufficient to identify a Product before granting
278 certification including:

- 279 1) Declaration of Conformity (DoC or DOC):
 - 280 a) Version numbers of Product hardware, software, and firmware
 - 281 b) For a Product, a Stock Keeping Unit (SKU) and/or Universal Product Code
 - 282 c) For a Product, the Compliant Platform upon which the Product is based
 - 283 d) Signature of a representative of the Product manufacturer
 - 284 e) Signature of a representative of the authorized test service provider performing Product testing
 - 285
- 286 2) Protocol Implementation Conformance Statements (PICS):

- 287 a) including mandatory and optional features supported by the Product
288
289 3) Non-declaratory information that is also requested:
290 a) Product description
291 b) Product photo

292 2.9 Process for Certification

293 The certification process begins after the manufacturer completes development of the Product to be certified.

294 **Testing:** Testing for conformance to a Standard is performed by Alliance authorized test service
295 providers using test plans developed by the Alliance. The Alliance maintains a list of authorized test
296 service providers on its web site at <http://www.csa-iot.org>. Each test service provider has a process for
297 Product submission and will provide details on how to submit Products. All test service providers will
298 require submission of a Declaration of Conformity and a Protocol Implementation Conformance
299 Statement for the submitted Product. In order to successfully pass test plans, a Product must pass all
300 mandatory test cases and any optional test cases that are applicable to the Product based on the
301 functionality it supports. In addition to the explicit functionality being checked by the test cases, the
302 submitted Product must not exhibit any behavior which is contrary to the behavior detailed in the
303 underlying specifications, in order to be considered to have passed a test plan.
304

305 **Reporting:** Test service providers will submit test results directly to the Alliance.
306

307 **Application:** The Alliance grants certifications based on an application. The application is web based
308 and is available in the Member's Area of <http://www.csa-iot.org> and consists of the information
309 described in Section 2.8.3 above.
310

311 **Processing:** The Alliance staff processes applications under the direction of the Director of Zigbee
312 Certified. Applications are processed for completeness to all requirements as described in Alliance
313 policies including:

- 314 • Submission of all required documentation
- 315 • Membership in the Alliance
- 316 • Completion of testing
- 317 • Payment of applicable fees
318

319 **Certification:** Only Connectivity Standards Alliance may grant certification and a Product is only
320 certified when the Alliance issues certification. The Alliance will issue certificates as evidence of
321 successful certification.

322 A test service provider may occasionally submit non-compliant results to the Director of Zigbee Certified for
323 him/her to make a decision on the issue of certification.

324 2.10 Certificates

325 The Connectivity Standards Alliance shall provide a certificate which will serve as evidence that a particular
326 Product is Zigbee Certified.

327 2.11 Logo Usage

328 The Connectivity Standards Alliance owns the trademarks and logos that may be used to identify various
329 Products that are Zigbee Certified.

330 Use of any Connectivity Standards Alliance trademarks and logos, including for labelling Products as certified
331 by Connectivity Standards Alliance is limited to Zigbee members and is subject to the Connectivity Standards
332 Alliance Trademark and Logo Usage Guidelines and Terms available at www.csa-iot.org.

333 2.12 Length of Certification

334 Once a Product is certified, it remains certified for the lifetime of the Product unless Connectivity Standards
335 Alliance revokes the certification or the Product is modified.

336 Modifications include any changes to the Product. However, not all modifications will require retesting of a
337 Product in order to be certified. The Alliance maintains guidelines about modifications that require retesting and
338 will determine whether retesting is required for any particular modification.

339 For complete information, refer to Section 3.6 (Certification by Similarity).

340 2.13 Revocation of Certification

341 The Connectivity Standards Alliance may also revoke certification or participation in the certification process if
342 one or more of the following occurs:

- 343 • A Product is found to be hazardous as defined in ISO Guide 27-1983.
344
- 345 • The manufacturer has made any material misstatement of fact, or omission of fact, to the
346 Alliance or its authorized test service providers.
347
- 348 • The manufacturer fails to follow all Alliance certification requirements.
349
- 350 • The manufacturer fails to use Connectivity Standards Alliance trademarks and logos in
351 accordance with the Connectivity Standards Alliance Trademark and Logo Usage Guidelines
352 and Terms available at www.csa-iot.org. Examples of failure to use in accordance with the
353 Connectivity Standards Alliance Trademark and Logo Usage Guidelines and Terms include
354 (but are not limited to) misapplying logos/icons, and using logos with Products that have not
355 been certified.
356
- 357 • The manufacturer has engaged in any form of misconduct which compromises the integrity of
358 Connectivity Standards Alliance or the Zigbee Certified program.
359
- 360 • The manufacturer leaves Connectivity Standards Alliance and continues using logos,
361 trademarks or any other Connectivity Standards Alliance branding.
362
- 363 • The member is in violation of the member agreement, other agreement with Connectivity
364 Standards Alliance, or a Connectivity Standards Alliance policy or procedure.

365 Prior to revoking any certification, the Alliance shall notify the manufacturer with details and steps needed to
366 resolve issues and take corrective action. After revocation, and the manufacturer made corrective action and
367 successfully resolve all issues, the Alliance may, at its discretion, restore the certification or issue a new
368 certification.

369 Corrective action shall follow ISO Guide 27-1983 “Guidelines for corrective action to be taken by a certification
370 body in the event of misuse of its mark of conformity”.

371 2.14 Testing and Certification Fees

372 There are two fees associated with the Zigbee Certified program: testing and certification.

373 Testing fees are set by the individual authorized test service providers.

374 Certification fees are set by Connectivity Standards Alliance and vary based on the type of membership in the
375 Alliance. The current fee schedule is available at <http://www.csa-iot.org> or by contacting the Alliance.

376 2.15 Manufacturer-specific identification and information usage

377 Upon request, the Connectivity Standards Alliance assigns to a Member a manufacturer-specific identification
378 which is maintained by the Alliance. An example of such a manufacturer-specific identification is a unique
379 Manufacturer Code, maintained in the “Zigbee Manufacturer Code Database“ [R6] or a unique pool of GPD
380 SourceIDs, maintained in the “Zigbee Green Power SrcID database” [R7].

381 Member companies are responsible for obtaining the applicable manufacturer-specific identification prior to
382 certifying a product with the Alliance, and for using it correctly.

383 Members are responsible for correctly identifying manufacturer-specific functionality, if any, following the
384 Alliance technical specifications.

385 A company SHALL only use their own manufacturer-specific identification to identify their own devices and
386 their functionality. Usage of another party’s manufacturer-specific identification is only permitted with a proof
387 of consent of that party.

388 This usage policy also applies to the Certification Transfer Program. A company certifying a product via the
389 Certification Transfer Program SHALL obtain its own manufacturer-specific identification to use within their
390 newly certified product. Usage of the manufacturer-specific identification of the previously Certified Product is
391 only permitted with a proof of consent of the manufacturer of that Product.

392 3 TESTING

393 This Section defines the process for testing that is common to Certification Programs and the final development
394 of Certification Programs. Testing for conformance to Zigbee Standard or Stack is performed by Alliance
395 authorized test service providers using test plans developed by the Alliance.

396 3.1 Test Plans

397 The test plan must, at a minimum, cover all PICS related items. This must be confirmed by means of a PICS-to-
398 Test-Case mapping. The test plan will undergo standard approval as part of the process detailed in Policies &
399 Procedures (document 13-0625) before formal release. In order to be finalized, and approved, a test plan must
400 undergo validation at a Specification Validation Event (SVE). More details regarding the SVE can be found in
401 document 08-123 Test Event Rules of Engagement. Features that are certifiable are listed in document 11-5456
402 Master Cluster List.

403 The Connectivity Standards Alliance will maintain the list of current test plans, associated PICS, any errata on
404 the Connectivity Standards Alliance website.

405 3.2 Authorized Test Service Providers

406 The Connectivity Standards Alliance authorizes independent test service providers to administer the testing
407 associated with the Zigbee Certified program. The process for selecting and qualifying test service providers is
408 maintained in document 08-5185.

409 The current list of authorized test service providers is maintained at the Alliance web site: [http://www.csa-
410 iot.org](http://www.csa-
410 iot.org).

411 3.3 Test Harness

412 A Test Harness is an automated test tool that is designed to execute a defined test procedure and deliver
413 Pass/Fail decision based on the observed behavior of a Device Under Test based on well-defined criteria. Test
414 harnesses could be in use in the various Zigbee Certified test programs.

415 3.3.1 Connectivity Standards Alliance Test Harness

416 The Connectivity Standards Alliance may have a Test Harness developed for use in one or more of its
417 Certification Programs defined in this document. Where the Alliance has its own Test Harness, this harness
418 shall be the one official Test Harness used by all authorized test service providers in the execution of testing
419 activities for the given Certification Program.

420 Maintenance of a Connectivity Standards Alliance Test Harness and associated test scripts is managed, updated
421 and validated through existing Connectivity Standards Alliance processes (supported by member efforts).

422 3.3.2 Test House Test Harness

423 Where there is no applicable Connectivity Standards Alliance Test Harness available for a given Certification
424 Program, Authorized Test Service Providers may (at their own discretion) create Test Harnesses (or other test
425 tools) for the execution of the testing procedures associated with the given program. The Connectivity
426 Standards Alliance shall have access to these Authorized Test Service Provider developed testing tool(s) for the
427 sole purpose of auditing the service provider's conformance to the test validation procedures (See document 08-
428 5185).

429 3.4 Requirements for Testing

430 3.4.1 Compliant Platform Testing

431 The guidelines for Compliant Platform testing are as follows:

- 432 • Platforms submitted for testing must be built on compliant IEEE 802.15.4 PHY/MAC layers,
433 Compliance to IEEE 802.15.4 shall be determined by successful completion of the testing requirements
434 described on document 14-0332 (Zigbee IEEE 802.15.4 Level Test Specification) at one of the Zigbee
435 authorized test service providers,
- 436 • Manufacturers must provide any technical support structure required to assist in the implementation of
437 their Product into the test environment,
- 438 • The test is non-destructive and will be applied using the functionalities given by the specific Platform
439 tested, and
- 440 • Test service providers can provide more information.

441

442 3.4.2 Certified Product Testing

443 The guidelines for Certified Product testing are:

- 444 • A Product submitted for testing must be built on a certified Compliant Platform,
- 445 • Manufacturers must provide any technical support structure required to assist in the implementation of
446 their Product into the test environment,
- 447 • The test is non-destructive and will be applied using the functionalities given by the Product tested,
- 448 • Test service providers can provide more information, and
- 449 • For the purposes of testing test (security) certificates are to be used.

450 3.4.3 Testing Samples

451 Manufacturer applying for certification must leave at least one sample of the Device Under Test (DUT), if
452 required by the test service provider to satisfy ISO17025. These samples will be used for traceability and
453 reference in case of future contention of results or when deemed necessary. A sample consists of:

- 454 • Exact hardware that the device will be certified on,
455 • Same firmware as the one the DUT passed the certification testing on, and
456 • Any software/tools pertaining to the device and its certification necessary to reproduce the test plan
457 testing.

458 In the case where the test service provider in question already has the hardware configuration (from previous
459 certification or otherwise), and if the test service provider has the tools (both hardware and software) needed to
460 flash new firmware onto the devices, a manufacturer may simply send the test service provider a copy of the
461 new firmware as the sample for the DUT.

462 3.5 Reporting of Test Results

463 Authorized test service provider shall report results of successful tests directly to Connectivity Standards
464 Alliance. Unsuccessful test results are not reported to the Alliance unless an application for certification has
465 been made and the Alliance requests reporting of test results.

466 The test reports shall conform to reporting as defined by ISO/IEC 17025:2005 Section 5.10 and at a minimum
467 shall include:

- 468 • Test Information: Location and dates of testing, any tracking or other information necessary to
469 trace results such as test project numbers, responsible testing engineer,
470
- 471 • Tested Device: Company, address, contact information, Product name, hardware and software
472 Product versions, serial number, Zigbee device type, and other information necessary to
473 identify the device,
474
- 475 • Type of Test: Compliant Platform, or Certified Product,
476
- 477 • Standards: Name and version information,
478
- 479 • Test Plan: documentation of Test Plan and version numbers used or a list of test cases if a
480 complete test plan is not used,
481
- 482 • Test Equipment: Documentation of any equipment used in the test including Test Harness,
483 script, sniffers, GUs, and other information necessary to identify the testing equipment
484 including version information,
485
- 486 • Test Results: List of individual tests conducted with individual test results,
487
- 488 • Test Results Summary: Overall Pass / Fail,
489
- 490 • Test Results Observations: Observations outside the scope of the test cases, and
491
- 492 • Signatures: Test engineer, any reviewer or quality engineers.

493 3.6 Certification by Similarity

494 The Connectivity Standards Alliance offers a Certification by Similarity program. The program allows a Product
495 that is derived from a previously tested and certified Product to be considered for certification based on its
496 similarity to the tested certified Product depending on the differences between the two. The purpose of the
497 program is to speed time-to-market and to minimize costs.

498 For complete information on this process See Section 7 (Certification by Similarity).

499 3.7 Testing Events

500 A Connectivity Standards Alliance Test Event is defined in document 08-0123 Test Event Rules of
501 Engagement.

502 3.8 Features Not Previously Certified

503 A feature that has not been previously tested during an official specification Test Event cannot be certified. A
504 feature is defined as an attribute of an implementation such as support for a particular cluster in a Connectivity
505 Standards Alliance Standard. A feature becomes validated (and therefore testable and certifiable) only when the
506 following condition(s) are satisfied:

507 Three separate implementations of the feature must be tested against three separate implementations of the
508 complementary side of that feature (e.g. server against client) through Connectivity Standards Alliance:

- 509 • One of the implementations, but no more than one, may be a Test Harness from an authorized test
510 service provider.
- 511 • A “separate implementation” is defined as an implementation developed independently from other
512 implementations by a different member of Connectivity Standards Alliance.
- 513 • When a test case is testing the handling of illegal or non-standard behaviour the requirement to test
514 against three implementations is relaxed and testing against a single implementation (Test Harness or
515 Golden Unit) that exhibits the non-standard behaviour is acceptable. Otherwise the requirement is to
516 test against three implementations.
- 517 • The testing described above will be subject to the same rules and requirements as Specification
518 Validation Events, defined in document 08-0123 Test Event Rules of Engagement.
- 519 • Once all testing is complete, the specifications for which the testing has been done shall be updated to
520 reflect the change.
- 521 • In order for a device using a previously non-certifiable feature to become certified, all requirements for
522 certification must be met including successful completion of the entire test plan as described in this
523 policy.
- 524 • If three separate implementations are not available for testing, the feature cannot be validated. A device
525 implementing that feature may not be certified and the manufacturer has a choice to either:
 - 526 • Wait for the other implementations to become available
 - 527
 - 528 • Certify the rest of the Product and identify the non-certifiable feature(s) as Manufacturer Specific
529 (i.e., cluster ID, profile ID, command ID, or other Connectivity Standards Alliance approved
530 method)

531

532

533 4 GOLDEN UNIT

534 A Golden Unit (GU) is a Compliant Platform or a Certified Product that is designated as reference instantiation
535 of the specification(s) it implements. A GU is a specific combination of hardware, software, firmware and/or
536 errata including revision numbers for each. GUs represent an important infrastructure for Zigbee Certification
537 Programs.

538 GUs are used to test against Platforms and Products during the testing leading towards certification.
539 Specifically, they are used for:

- 540 • Evaluating the expected behavior of the device under test (DUT)
- 541 • Testing the DUT for interoperability and conformance to the test specification

542 When the specification is silent or ambiguous, the behavior of the GUs will be used as the reference for
543 evaluating the expected behavior of the device under test.

544 GU providers are Connectivity Standards Alliance members and are likely to have been actively involved in
545 creation of the relevant specification and have been actively participating in the interoperability testing series in
546 vendor-neutral environments. This represents a significant commitment by the GU manufacturers.

547 4.1 Golden Unit Selection

548 For each release of a specification, the following procedure will be used to establish GUs for that release.

549 The Connectivity Standards Alliance will announce a specification release interoperability testing series
550 associated with the development of a new standard specification or the revision of an existing one. This
551 interoperability testing series will constitute the GU selection round. During the development process for new
552 (or revised) specifications there are three phases of testing:

553 Phase 1. Proof of Concept & Interoperability Test Events – These events are held while the test
554 plan is being developed and implemented to proof concepts being considered for
555 inclusion in the specification and to begin testing and validation of early
556 implementations.

557 Phase 2. Gating Test Events – These events mark the end of the Proof of Concept &
558 Interoperability Test Events. Participation at all prior Gating Test Events is required to
559 continue participating in subsequent Gating Test Events. A variety of Gating Test
560 Events may be scheduled.

561 Phase 3. Specification Validation Event(s) (SVEs) – This is the final Gating Test Event where
562 participants must test all mandatory features. Attendance at each Gating Test Event is
563 required to participate in the SVE. Participation in a SVE implies a desire to become a
564 Golden Unit.
565
566

567 Upon completion of the three phase testing series, implementations which have successfully completed the
568 series will be eligible for certification provided that all testing requirements have been met at the final SVE.

569 Participation in the Specification Validation Event does not guarantee being selected as a GU. Implementations
570 become GUs after completing certification and the Director of Zigbee Certified confirms in writing the GU
571 candidate provider's conformance to Section 4.2 Manufacturer Commitments as a Golden Unit Provider.

572 The Director of Zigbee Certified shall select the GU candidates. The selection will be made from
573 implementations that participated in the SVE with preference given to those that tested against the most
574 implementations.

575 An additional requirement in becoming a GU provider is that the test service provider provides the GU test logs
576 to Connectivity Standards Alliance which will post them to the document server. The Director of Zigbee
577 Certified will work with the manufacturer in making the test log files anonymous.

578 During the GU selection process, GU candidates will be notified by the Director of Zigbee Certified with
579 regards to any outstanding items required regarding their implementation in order to finalize its certification and
580 complete its selection as a GU. GU candidate providers will be provided with a timeframe by which all
581 outstanding items must be completed by in order for their GU candidacy to remain valid. The timeframe for
582 outstanding item completion will be the same for all GU candidates.

583 Upon the conclusion of the timeframe allowed for completion of outstanding items, the Director of Zigbee
584 Certified will make final GU selections from those candidates that successfully completed all outstanding items.
585 If there is an insufficient number of candidates within the prescribed timeframe, the Director of Zigbee Certified
586 may extend the timeframe, which extension shall be applicable to all GU candidates. For purposes of
587 determining an appropriate number of candidates, the Director of Zigbee Certified will make such determination
588 based on the guidelines set forth in this policy.

589 Once the timeframe has expired (including any extensions), provided there are a sufficient number of GUs
590 selected, the Director of Zigbee Certified will provide written notice to GU candidates that the GU selection
591 process is closed. Any GU candidate who failed to complete its outstanding items by the date of the notice will
592 not be eligible for selection as a GU. The Connectivity Standards Alliance member that proposed such failed
593 GU candidate is eligible to participate in future specification revisions in accordance with the terms and
594 conditions in this policy.

595 GUs must be established and provided to the test service providers before a Certification Program can be open
596 to the Connectivity Standards Alliance general membership. The approved test service providers will then be in
597 a position to commence testing of additional implementations as part of the certification process. A test program
598 may not begin until GUs have been selected and provided to the test service providers.

599 4.2 Manufacturer Commitments as a Golden Unit Provider

600 4.2.1 Requirements for Compliant Platforms Golden Units

601 Manufacturers of GUs used for Compliant Platform testing shall:

- 602 • Implement all mandatory and optional functions;
- 603
- 604 • Act as a Zigbee Coordinator, Router and End Device;
- 605
- 606 • Support all device operations (*e.g.*, Zigbee Trust Centers, Network Managers, etc.);
- 607
- 608 • Allow for negative testing (*i.e.*, be able to produce stimulus that is incorrect, or in error, with
609 respect to the Platform specification) as required by the test specification;
- 610
- 611 • Provide a clearly documented interface, including descriptive operational documentation,
612 which enables the running of all test cases and the test specification;
- 613
- 614 • Maintain Compliant Platform status for that device, so long as the specification to which that
615 device applies to is in effect, See Section 4.3;
- 616
- 617 • Provide technical support to the Zigbee authorized test service providers for its ongoing use as
618 a GU;
- 619
- 620 • Provide to each Zigbee authorized test service provider, free of charge, as many units as
621 specified by the Director of Zigbee Certified. The Zigbee authorized test service providers
622 may unpack, power on and test (*e.g.*, smoke test) each of the units prior to confirming to the
623 Director of Zigbee Certified that the units have been delivered; and
- 624
- 625 • Make available additional GUs (to Zigbee authorized test service providers) for the purposes
626 of breakage replacement (free of charge) and for additional purchase.

627 **Written Confirmation of the Director of Zigbee Certified Required to Become GU** – Implementations
628 become GUs only after the Director of Zigbee Certified confirms in writing to the applicable manufacturer that

629 such implementation has completed certification, has successfully completed all the items in Sections 4.1 and
630 4.2 and is a GU. No GU applicant may publicize, represent, reference, state or otherwise claim to have a GU or
631 be the manufacturer of a GU except with respect to the specific GU implementation for which the Director of
632 Zigbee Certified has delivered a written confirmation as set forth above.

633 4.3 Updating Golden Units

634 4.3.1 Conditions for Updating Platform Golden Units

635 Updating of the GUs shall be determined by the Director of Zigbee Certified. Circumstances warranting
636 updating a GU include:

- 637 • Approval of Change Control Board comments (CCB) that affect the behavior of the GUs
- 638 • Revision to the specification, test specifications or PICS document that affect the behavior of
639 the GUs
- 640 • Errors or bugs are found in the GU
- 641 • A GUs is not available anymore (discontinued, etc.)

642 4.3.2 Process of Updating Platform Golden Units

643 If an update is deemed necessary, Connectivity Standards Alliance shall send an official note to the GU
644 manufacturer as well as test service providers detailing the following:

- 645 • Reasons for the need to update
- 646 • Timeline to update
- 647 • All supporting information/documentation to update (example: new specification revision,
648 CCB references, specific bugs to fix, etc.)

649 Once the manufacturer implements the needed changes, the new revision(s) of the GUs need to be revalidated.
650 Revalidation of a Golden Unit requires successful testing completion according to the retest requirements for
651 Compliant Platform as described in Section 7 (Certification by Similarity). To the end of revalidating Golden
652 Units, there are two possibilities:

- 653 • Set a Test Event for the manufacturers and test service providers to attend and verify the
654 changes. This Test Event shall be only open to those GU manufacturers and the test service
655 providers. At least one test service provider shall attend that event.
- 656
- 657 • Send the new revision(s) of the GUs to all test service providers who will then test them
658 internally and submit the results to Connectivity Standards Alliance.

659 If the result of the testing is considered a pass the new revisions will then be officially accepted as the new GUs
660 and the official list of GUs pertaining to that specification must be modified to reflect the changes.

661 The manufacturers shall then send the new GUs to all test service providers (in case of a firmware upgrade,
662 sending the revised firmware would be sufficient as long as test service providers have the tools to upgrade the
663 firmware on their units). At that point, the new GUs shall replace the old ones in official testing at the test
664 service providers.

665 Note that in case that new hardware is needed, the number of GUs to be sent to test service providers shall be
666 determined by the Director of Zigbee Certified.

667 If a GU manufacturer cannot update their units within the timeline specified by the Director of Zigbee Certified,
668 the Director of Zigbee Certified can then decide to make a new request for a GU to replace that specific
669 Platform/device.

670 Any Golden Unit going through the revalidation process, shall be removed from the active rosters of Golden
671 Units until the revalidation process is successfully completed and all necessary updates (HW and/or SW) have
672 been completed at all test service providers and shall not be used in the testing of units for the applicable
673 Standard.

674 5 MODIFICATIONS AND REVISIONS

675 This Section described the process and requirements for certification when a Product has already been certified.

676 5.1 Modification of Products

677 Certification is awarded to particular version of a Product. Any modification to that Product will result in a new
678 version and that version may not claim certification without going through the Zigbee Certified program.

679 The new version of the Product may not require testing in order to be certified. Changes that affect conformance
680 to the Standard (hardware, firmware or software changes) will usually require testing. The Alliance maintains
681 requirements for testing of changes to Products. For complete information, See Section 7 (Certification by
682 Similarity).

683 The original version of the Product retains certification for the life of the Product, unless revoked by action of
684 the Alliance.

685 5.2 Revisions to Specifications

686 In the interests of continuous improvement in the quality of the compliance program, Connectivity Standards
687 Alliance may, from time to time, change the compliance testing procedures through a change to a test plan.
688 Because a Product's certification is good for the life of the Product, there will be no requirements for
689 manufacturers to go through certification again. However, Connectivity Standards Alliance encourages
690 manufacturers to resubmit their devices to test service providers for verification of compliance to those changes.

691 The Connectivity Standards Alliance will maintain records sufficient to identify the version of a test plan under
692 which certified Products were tested.

693 5.2.1 Grace Period for Testing

694 When a test plan or specification is revised, Connectivity Standards Alliance will declare a grace period during
695 which manufacturers in their development cycles can still certify to an old test plan and specification. However,
696 after the grace period is over, all devices going through certification must be tested against latest test plan and
697 specification.

698 The work group creating the Standard will recommend a grace period for revisions affecting Products to be
699 approved by the appropriate Technical Sub-Committee, the Marketing work group and the Board Stratcom
700 when the specification has reached 1.0 status. This grace period will be based on the amount of changes
701 introduced by the new specification and the current state of deployment of devices based on the previous version
702 of the specification or similar considerations. The default grace period if the work group does not recommend a
703 change is 6 months.

704 5.2.2 Major Revisions Affecting Interoperability

705 In exceptional circumstances, Connectivity Standards Alliance reserves the right to mandate resubmission of
706 Compliant Platforms for testing against a revised Compliant Platform test plan. This may occur, for instance,
707 where a serious deficiency in the test plan or process is uncovered, leading to Platform interoperability issues. In
708 the event that the Alliance mandates such resubmission and the manufacturer fails to successfully complete such
709 testing within the time specified by the Director of Zigbee Certified, the Alliance may move to revoke
710 certification of the Compliant Platform.

711

712

713

714 6 CERTIFICATION PROGRAMS

715 This Section describes existing Certification Programs, in terms of requirements and additions to the common
716 process. Except where noted, each Product or Compliant Platform Certification Program uses the common rules
717 and process described in the previous Sections. When there is a choice of options (i.e. Golden Units or no
718 Golden Units), or dependencies (e.g. Platform vs. Product) then this is described here.

719 6.1 Zigbee PRO Stack

720 The Zigbee PRO Stack may be used under a number of Standards. Each Standard specifies the Stack revisions
721 that it requires, or at least the minimum required.

722 6.1.1 Zigbee PRO Compliant Platform Certification Program

723 The Platform implementation SHALL conform to these Stack specifications as appropriate to the declared
724 PICS:

- 725 • 802.15.4 2011 or later as required by the Zigbee PRO specification
- 726 • Zigbee PRO specification
- 727 • Zigbee Green Power Proxy Basic and all other Zigbee Green Power components remain as optional
728 features of the Zigbee PRO specification.
 - 729 ○ Any Platform which implements any of the Zigbee Green Power features (including Proxy
730 Basic) will be subject to ALL applicable testing.
 - 731 ○ Upon successful completion of the certification process, Platforms implementing any Zigbee
732 Green Power feature will be identified as such in the Compliant Platform listing on the
733 Alliance's public website.

734
735 The program SHALL be defined by the following Sections, and specific Sections that pertain to a Compliant
736 Platform (not a Product):

- 737 1) Section 2 Zigbee Certified Program
- 738 2) Section 3 Testing
 - 739 a. Including Section 3.3.2 Test House Test Harness, but not 3.3.1 Connectivity Standards
740 Alliance Test Harness
- 741 3) Section 4 Golden Unit
- 742 4) Section 5.2 Revisions to Specifications
 - 743 a. The grace period SHALL be recommended by the work group as part of the 1.0 approval.

744 6.1.2 Legacy Profile Product Certification Program

745 A legacy Profile Standard is built upon the Zigbee PRO Stack. A Product implementation SHALL be built upon
746 a Zigbee PRO Compliant Platform and conform to the Zigbee PRO Stack specification revision as required by
747 the Profile Standard:

748 The Product implementation SHALL conform to these Standard specifications as appropriate to the declared
749 PICS:

- 750 • Zigbee Cluster Library
- 751 • A legacy Profile Standard, such as ZHA, ZSE, ZLL, ZBA, etc.

752 The program SHALL be defined by the following Sections that pertain to a Certified Product (not a Platform):

- 753 5) Section 2 Zigbee Certified Program
- 754 6) Section 3 Testing
 - 755 a. Including Section 3.3.2 Test House Test Harness, but not 3.3.1 Connectivity Standards
756 Alliance Test Harness
- 757 7) Section 4 Golden Unit

- 758 8) Section 5.2 Revisions to Specifications
759 a. The grace period SHALL be recommended by the work group as part of the 1.0 approval.

760 *Note: After the grace period following the release of Zigbee 3.0 Standard, there will only be a Legacy Profile*
761 *Product Certification Program for Zigbee Smart Energy (ZSE).*

762 6.1.3 Zigbee 3.0 Product Certification Program

763 The Zigbee 3.0 Standard is built upon the Zigbee PRO Stack. A Product implementation SHALL be built upon a
764 Zigbee PRO Compliant Platform and conform to the Zigbee PRO Stack revision as required by the Zigbee 3.0
765 Standard:

766 The Product implementation SHALL conform to these Standard specifications as appropriate to the declared
767 PICS:

- 768 • Application Architecture
 - 769 • Base Device Behavior specification
 - 770 • Green Power specification requirements for a Zigbee Router (Green Power Basic Proxy)
- 771 a. Zigbee Green Power Proxy Basic is a mandatory feature for all Zigbee 3.0 routing capable
772 devices. However,
- 773 i. If the Zigbee 3.0 routing capable Product was built using a Zigbee Pro Compliant
774 Platform which implements (and was properly certified for) the Zigbee Green Power
775 Proxy Basic feature and it has not been modified, the Zigbee 3 Product will only be
776 subject to a SINGLE Zigbee Green Power Proxy Basic test case as follows:
 - 777 1. Test Case 5.3.1.4 if the Compliant Platform used was certified before
778 August 1, 2017
 - 779 2. Test Case 5.4.1.23 if the Compliant Platform used was certified on or after
780 August 1, 2017
 - 781 ii. If the Zigbee 3 routing capable Product was built on a Zigbee PRO Compliant
782 Platforms which DOES NOT implement the Zigbee Green Power Proxy Basic
783 feature or HAS NOT been properly certified for it (or it has been modified), then the
784 Product is subject to ALL applicable Zigbee Green Power Proxy Basic test cases.
- 785 • Zigbee Cluster Library
 - 786 • One or more application device specifications

787 The program SHALL be defined by the following Sections that pertain to a Certified Product (not a Platform):

- 788 9) Section 2 Zigbee Certified Program
789 10) Section 3 Testing
- 790 a. Including Section 3.3.1 Connectivity Standards Alliance Test Harness, but not 3.3.2 Test
791 House Test Harness
- 792 11) Section 5.2 Revisions to Specifications
793 a. The grace period SHALL be recommended by the work group as part of the 1.0 approval.

794 6.2 Green Power Device Stack

795 The Green Power Device Stack supports a single Green Power Device Standard. There is no Complaint
796 Platform Program.

797 6.2.1 Green Power Device Product Certification Program

798 The Product implementation SHALL conform to these Standard specifications as appropriate to the declared
799 PICS:

- 800 • 802.15.4 2011 or later as required by the Green Power specification
- 801 • Green Power specification requirements for a Green Power Device

- 802 The program SHALL be defined by the following Sections that pertain to a Certified Product (not a Platform):
- 803 12) Section 2 Zigbee Certified Program
- 804 13) Section 3 Testing
- 805 a. Including Section 3.3.1 Connectivity Standards Alliance Test Harness, but not 3.3.2 Test
- 806 House Test Harness
- 807 14) Section 5.2 Revisions to Specifications
- 808 a. The grace period SHALL be recommended by the work group as part of the 1.0 approval.

809 6.3 RF4CE Stack

810 The RF4CE Stack supports a single Remote Control Standard.

811 6.3.1 RF4CE Compliant Platform Program

812 The Platform implementation SHALL conform to these Stack specifications as appropriate to the declared

813 PICS:

- 814 • 802.15.4 2006 or later as specified by RF4CE specification
- 815 • RF4CE specification

816 6.3.2 Remote Control Product Certification Program

817 The Remote Control Standard is built upon the RF4CE Stack. A Product implementation SHALL be built upon

818 a Zigbee RF4CE Compliant Platform and conform to the RF4CE Standard revision as required by the Remote

819 Control Standard.

820 The Product implementation SHALL conform to the Standard specifications as appropriate to the declared

821 PICS:

- 822 • ZRC specification

823 The program SHALL be defined by the following Sections that pertain to a Certified Product (not a Platform):

- 824 15) Section 2 Zigbee Certified Program
- 825 16) Section 3 Testing
- 826 a. Including Section 3.3.2 Test House Test Harness, but not 3.3.1 Connectivity Standards
- 827 Alliance Test Harness
- 828 17) Section 4 Golden Unit
- 829 18) Section 5.2 Revisions to Specifications
- 830 a. The grace period SHALL be recommended by the work group as part of 1.0 approval.

831

832 7 CERTIFICATION BY SIMILARITY

833 The Connectivity Standards Alliance offers a Certification by Similarity program to member companies. The
834 Certification by Similarity (CbS) program allows a Zigbee Product that is derived from a previously tested and
835 certified Zigbee Product to be granted certification based on its similarity to a previously tested certified
836 Product. The purpose of the CbS program is to speed time-to-market and to minimize certification costs. It is
837 not intended to eliminate the requirement that a Product actually passes Zigbee compliance tests.

838 7.1 Policy

839 The only authority to grant Certification by Similarity to a Product is Connectivity Standards Alliance. No test
840 service provider or any other entity is authorized to grant or pursue Certification by Similarity requests on behalf
841 of Connectivity Standards Alliance.

842 The new Product must be derived from and be substantially similar to a Zigbee certified Product that has
843 successfully undergone full and complete compliance testing. CbS addresses changes such as color, enclosures,
844 language, etc. that do not affect the conformance of the Product to Zigbee Standards. The new Product cannot be
845 compared to another Product that itself has been granted Certification by Similarity without additional testing
846 having been performed. More details on the guidelines that govern the CbS, and thus the need (or lack of) for
847 testing, can be found in [Section 8.6](#) of this document.

848 If the original certified Product on which the Certification by Similarity is based is older than three years, then
849 complete testing is required of the new Product.

850 CbS does not waive or change the requirement for certifiers of Products to be members of the Alliance, to
851 follow the Connectivity Standards Alliance Trademark and Logo Usage Guidelines and Terms, or to comply
852 with any policies of Connectivity Standards Alliance.

853 7.2 Certification by Similarity Guidelines

854 When Products are very similar, testing of one Product may allow the other similar Products to be added to the
855 Integrators List (Approved List) without re-testing. Furthermore, some changes to certain Products may be
856 deemed harmless to the existing certification for that specific Product, in which case the newer revision will
857 automatically be certified by similarity.

858 The decision on whether or not a Product will qualify for Certification by Similarity (CbS) will be the
859 responsibility of Zigbee's Certification body according to the procedure highlighted above. The ultimate
860 responsibility for making sure that all Product variations and models are certified (whether through actual
861 certification and/or via CbS), ultimately lies with each manufacturer.

862 Audits by Connectivity Standards Alliance that reveal discrepancies between shipping Product and samples
863 tested may be cause for required re-test, revocation of certification, and/or legal action. Only Connectivity
864 Standards Alliance members have the right to use the Connectivity Standards Alliance trademarks and logo, and
865 such usage is subject to the Connectivity Standards Alliance Trademark and Logo Usage Guidelines and Terms.

866 7.3 Certification by Similarity Guidelines Procedure

- 867 19) An applicant (Product developer) submits a Testing Exemption Request Form (found below) at
868 certification@csa-iot.org in lieu of testing.
- 869 20) When applicable, Connectivity Standards Alliance will obtain specification sheets/drawings of both the
870 originally certified and new Products.
- 871 21) A review of the Testing Exemption Request Form and specification sheets/drawings will be performed
872 by the Director of Zigbee Certified. One or more of the authorized test service providers and/or other
873 experts (e.g. Connectivity Standards Alliance Expert Review Panel) may be consulted by Connectivity
874 Standards Alliance, keeping in mind the confidential sensitivities that come with an unreleased
875 Product.

- 876 22) The Connectivity Standards Alliance will issue its assessment to the applicant within one (1) calendar
877 week. One of two outcomes is possible:
- 878 23) Certification by Similarity is granted. The applicant must complete a standard application for
879 certification in the www.csa-iot.org Member's Area and the Alliance will process the application as
880 any other certification.
- 881 24) Certification by Similarity is denied. The Product is required to go through testing at one of the
882 authorized test service providers.

883 When testing is required the Product developer will follow standard procedures for testing and certification.

884 7.4 Guidelines for "Retest"

885 The guidelines for retests can be found in Section 8.6 of this document.

886 If you think retest is not required, your company can submit a Testing Exemption Request Form (provided
887 below) for consideration by Connectivity Standards Alliance.

888 7.5 Testing Exemption Request Form

889 Companies must submit a Testing Exemption Request Form to certification@csa-iot.org for their
890 Product/Platform/HW to be considered to be exempt from a spot check or full testing.

891 The form can be found in Section 8 (Testing Exemption Request Form).

892 7.6 Retest Requirements for Compliant Platform Certification

893 7.6.1 Retest not required

894 I/O additions on the dev board

895 7.6.2 Full retest required

896 Bug fixes that substantively affect the Platform functionality require a full retest.

897 7.6.3 Spot check required

898 A spot check tests specific areas affected plus random spot check of other areas against Golden Units.

- 899
- 900 • Porting of the Stack (with no changes) to a new hardware
 - 901 • Bug fixes that do not substantively affect the functionality
 - 902 • Update to the Stack (including non-Zigbee related code update)
 - 903 • Microcontroller change (with the PHY/MAC staying the same)

904 7.6.4 IEEE 802.15.4 retesting required

905 See Retest requirements for 802.15.4 compliant radios

906 7.7 Retest Requirements for Certified Products

907 7.7.1 Retest not required

- 908
- Product packaging changes (color, shape, etc.)

- 909 • Changes in interface that do not affect Zigbee or Radio functionality (color display v/s B&W, push
910 button light switch v/s paddle switch, etc.)
911 • HW configuration changes that do not affect ZB (changing location of a read switch, change of
912 metrology, change of button location, etc)

913 7.7.2 Full retest required

- 914 • Addition/exposure of a new feature and/or cluster to the Zigbee firmware
915 • HW, SW or FW changes for the device(s) that the Stack and app are running on (with the exception of
916 those items called out above in Retest not required)
917 • Layout change of the module used

918 7.7.3 Spot check required

919 Note: Considering that the level of effort and price to certify Products are relatively small, it would be cheaper
920 and faster to retest fully if needed than deal with the procedures and maintenance of spot check requests and
921 upkeep.

922 7.7.4 IEEE 802.15.4 retesting required

923 See 7.8 Retest Requirements for 802.15.4 Compliant Radios

924 Note: The exact nature of the IEEE 802.15.4 retesting needs to be defined. As part of regulatory Radio testing,
925 Products have to be supplied with a number of test modes. It is intended that the IEEE 802.15.4 retesting would
926 only use these existing test modes (to reduce the development burden on the Product manufacturer)

927 7.8 Retest Requirements for 802.15.4 Compliant Radios

928 7.8.1 Full retest required

- 929 • Change in Radio IC
930 • Changes in SW, FW affecting Radio functionality
931 • Changes requiring retest by regulatory authorities

932 7.8.2 Spot check required

- 933 • Change/Addition of a PA (All Tx tests shall be run, Rx tests shall be spot checked)
934 • Change/Addition of LNA (All Rx tests shall be run, Tx tests shall be spot checked)
935 • Change of all other components connected externally to the Radio IC
936 • Change in RF/EMI/EMR enclosures
937 • Change in packaging affecting RF/EMI/EMR characteristics
938 • Change in board layout

939 7.8.3 Retest not required

940 Change in I/O interface to the board

941 7.8.4 Spot check rules (Firmware/Platform)

- 942 • Full retest of functionality that has been changed or where bugs were fixed
943 • Full coverage of the all the other areas through spot check (one test case per function)

- 944 • In case of any failure on the spot check areas, the Product is considered as a fail and a full retest is
945 needed

946 7.8.5 Spot check rules (PHY)

- 947 • Full test (all test cases) of the first and last channel in the band
948 (Channel 11 and 26 for 2.4GHz)
- 949 • Spot check for the rest of the channels (2 channels per test case)
- 950 • In case of any failure during the spot check, the Product is considered as a fail and a full retest is
951 needed

952 8 CERTIFICATION TRANSFER PROGRAM

953 The Connectivity Standards Alliance certification transfer program supports the use of a previously Certified
 954 Product from a Participant or Promoter member company as part of a new Product (from a member company).
 955 Participation in the Connectivity Standards Alliance certification transfer program is subject to the terms and
 956 conditions of the Connectivity Standards Alliance Certification Transfer Program Agreement.

957 8.1 Certification Transfer Program details

958 The Connectivity Standards Alliance certification transfer program supports the embedding of a previously
 959 Certified Product (from a Participant or Promoter member company) into a new Product enclosure from any
 960 member company. The previously Certified Product SHALL NOT be changed from its certified configuration
 961 (Read: No **hardware** changes other than a new Product enclosure and no **software** changes.) The only
 962 permitted **firmware** changes SHALL relate to manufacturer and device specific descriptions. The manufacturer
 963 of the previously Certified Product, registered for the Certification Transfer Program, MUST make provision to
 964 configure the manufacturer and device specific data without modifying (incl. recompiling) the firmware.

965 The originally Certified Product implementation SHALL conform to the following Standard specifications as
 966 appropriate to the declared PICS:

- 967 • Zigbee 3.0 Specification & requirements as defined in Section [6.1.3](#)
- 968 • Zigbee Smart Energy Specification & requirements as defined in Section [6.1.2](#)
- 969 • Green Power end devices as defined in Section 6.2.1.

970 The original Certified Product implementation SHALL have obtained its certification by one of the following
 971 methods:

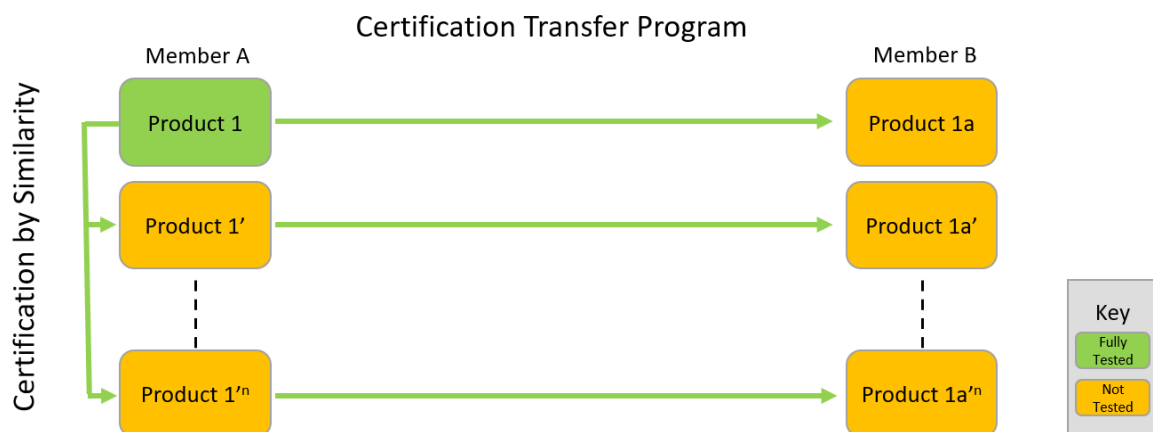
- 972 • Full testing in accordance with Section 2
- 973 • Certification by Similarity as per Section 7.7

974

975 Products certified under this program SHALL conform with all additional requirements below:

- 976 • Certifying Product SHALL seek certification under the same program, device type and device
 977 capabilities as the originally Certified Product.
 - 978 ○ Availability of certification is subject to the same timelines and grace period as the original
 979 programs.
- 980 • Certifying companies shall submit a Certification Transfer Application via the Alliance web tool, agree
 981 to the Connectivity Standards Alliance Certification Transfer Program Agreement and remit all
 982 appropriate fees as designated by the Connectivity Standards Alliance Board of Directors.

983 8.2 Graphical Representation of the Permitted Certifications



985

9 TESTING EXEMPTION REQUEST FORM

Product Developer Information	
Company Name:	
Contact Name: (First, Last)	
Contact Email:	
Work Phone:	
Original Certified Product Information	
Product Name	
Software Revision:	
Hardware Revision:	
Zigbee Certificate ID	
Product Submitted for Testing Exemption	
Product Name	
Zigbee Specification(s) Rev.#(s) and any Errata at Time of Request	
Software Revision:	
Hardware Revision:	
Note: Revision number is the number used to distinguish this specific build of the Product from a subsequent or prior one.	

<p>Detailed Differences:</p> <p>Note: Please explain in detail the differences between the Product currently on the Integrators List / Approved List and the item you are submitting for certification by similarity. (Please do not use terms that only your company or your specific industry understands.)</p>	
<p>Has the schematic changed?</p>	<p>Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
<p>If YES, Please Explain:</p>	
<p>Have any components changed (including RF hardware):</p>	<p>Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
<p>If YES, Please Explain:</p>	

<p>Has the Zigbee Component Enclosure Changed? (Structural, Material or Density)</p>	<p>Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
<p>If YES, Please Explain:</p>	
<p>Does the change expose new functionality?</p>	<p>Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
<p>If YES, Please Explain:</p>	
<p>Has the firmware changed?</p>	<p>Yes: <input type="checkbox"/> No: <input type="checkbox"/></p>
<p>If YES, Please Explain:</p>	

Has the Product driver changed (if applicable)?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
If YES, Please Explain:	

986

987

988 Signature: _____

989

990 Name (Print): _____

991

992 Date: _____

993

994

995