CBRS Alliance:
OnGo™ Certification Overview Webinar

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OnGo™ Certification Program Manager
OnGo™ Certification Process: Outline

• Basics
• Scope
• Testing
• Process
• Numbers
• Roadmap
OnGo™ Certification Basics: WInnForum vs. CBRSA

**WInnForum**

- Official SDO with multiple committees
- Spectrum Sharing Committee (SSC) handles FCC Part 96 rules (CBRS) & working closely with US Government
- Technology Neutral (many members support LTE, but other members including WISPA support proprietary technology use in the band)
- Developing SAS, CBSD & ESC requirements; Security methods; SAS-CBSD & SAS-SAS protocols; Certification tests for: CBSD & SAS
- Specific tools and messages enabling coexistence across multiple technologies in WInnForum Release 2

**CBRS Alliance**

- Focus on LTE and NR technology in the CBRS Band. Builds upon and compliant with WInnForum Standards
- Developing technical specs to support LTE and NR deployments of Private Networks, NHN, Multi-Service Operator Networks, etc.
- Focus on LTE and NR coexistence
- Addressing LTE and NR (5G) commercialization, business and marketing issues
- Broad range of members: manufacturers, operators, verticals and more
- NR functionality standardized in Release 3
# OnGo™ Certification Basics: Eco-System

| CBRS Alliance          | • Owns OnGo cert mark  
|                        | • E2E Cert Program Management  
|                        | • Defines OnGo Cert process  
| WInn Forum             | • Test Plan  
|                        | • Test Harness  
|                        | • Authorized by FCC  
| FCC                    | • Setting Part 96 Rules  
|                        | • Providing FCC IDs  
| Vendor                 | • Develops CBSD or CBSD/DP  
|                        | • Selects ATL  
| ATL                    | • Conducts testing  
|                        | • Provides test report  
| CTIA                   | • Certification Database Administrator  

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OnGo™ Certification Scope: What is Certified?

1. Standalone CBSD

CBSD: Citizens Broadband Radio Service Device
EPC: Evolved Packet Core
EUD: End-User Device
SAS: Spectrum Access System
2. CBSD + DP

OnGo™ Certification Scope: What is Certified?

DP: Domain Proxy
OnGo™ Certification Scope: What Interfaces?

1. CBSD $\rightarrow$ SAS Protocol

2. Air Interface

- CBSD
- SAS
- EPC
- $EUD_1$
- $EUD_n$
OnGo™ Certification Scope: Currently not in Scope

We will expand the scope of certification in future Releases.
OnGo™ Certification Testing: Test Strategy

- **Functional Testing**
  - Test Harness (SAS)
  - Protocol Conformance Testing
  - Unit under Test (CBSD)

- **Performance Testing**
  - Unit under Test (CBSD)
  - Power Measurement (radiated or conducted)
  - Spectrum Analyzer
OnGo™ Certification Testing: Test Plan

1. WInnForum Test Plan (Release ≥ 1)
2. CBRSA specific Test Plan (Release ≥ 2)

<table>
<thead>
<tr>
<th>Section</th>
<th>CBS D</th>
<th>DP</th>
<th>Required for Cert.</th>
<th>Test Case ID</th>
<th>Test Case Title</th>
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| 7.1.4.1.1 | X     | X  | M                  | WINNF.FT.C.HBT | UUT RF Transmit Power Measurement                     |

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# Test Cases

<table>
<thead>
<tr>
<th>Test Group</th>
<th># Test Cases</th>
<th>CBSD</th>
<th>CBSD/DP</th>
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<td>Registration</td>
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<td>Grant</td>
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<td>Heartbeat</td>
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<tr>
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<td>Relinquishment</td>
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<td>Deregistration</td>
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<td>Performance</td>
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<td><strong>Summary</strong></td>
<td><strong>55</strong></td>
<td><strong>37</strong></td>
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### OnGo™ Certification Testing: Conditional Test Cases

<table>
<thead>
<tr>
<th>C1</th>
<th>Mandatory for UUT which supports multi-step registration message</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>Mandatory for UUT which supports single-step registration with no CPI-signed data in the registration message. By definition, this is a subset of Category A devices which determine all registration information, including location, without CPI intervention.</td>
</tr>
<tr>
<td>C3</td>
<td>Mandatory for UUT which supports single-step registration containing CPI-signed data in the registration message.</td>
</tr>
<tr>
<td>C4</td>
<td>Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type.</td>
</tr>
<tr>
<td>C5</td>
<td>Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type.</td>
</tr>
<tr>
<td>C6</td>
<td>Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration.</td>
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</table>
OnGo™ Certification Testing: Optional Test Cases

<table>
<thead>
<tr>
<th>Test Group</th>
<th># Test Cases</th>
<th>CBSD</th>
<th>CBSD/DP</th>
</tr>
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<tbody>
<tr>
<td>Heartbeat</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Relinquishment</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Deregistration</td>
<td>3</td>
<td>2</td>
<td>2</td>
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<tr>
<td><strong>Summary</strong></td>
<td><strong>8</strong></td>
<td><strong>5</strong></td>
<td></td>
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OnGo™ Certification Process: Basic Steps

1. Vendor submits certification request
   – Vendor needs to be a CBRS Alliance member

2. Vendor/ATL uploads necessary documentation
   – ATL performs testing & obtains FCC ID
   – Use Part 96 test report from FCC Authorization possible

3. CBRS Alliance Certification Board reviews test results.
   – CCB determines OnGoGo certification.

4. CBRS Alliance publishes certification.
OnGo™ Certification Process: Certification Types

Initial Certification
- First certification of a new product
- Similarity to FCC Original Equipment
- Full testing

Engineering Change Order (ECO)
- Update to an already certified device
- Similarity to FCC Permissive Changes Class II / III
- (Full) retesting

Rebranding
- Vendor resells already certified device under different brand
- Similarity to FCC Change in Identification
- Paper documentation;
- No retesting
OnGo™ Certification Process: Required Documentation

- Product details
  - Model name
  - version information
- Product Description
- License Agreement
- FCC ID verified
- Test Report + Logfiles
- Declaration of Compliance Form

- CBRS Alliance Certification Board (CCB) reviews Test Report.
- Iterate with Vendor or ATL if additional information or clarification is needed.
OnGo™ Certification Process: Authorized Test Laboratories

• Authorized Test Labs (11) @ Country Locations
  – Bureau Veritas Consumer Products Services          United States, Taiwan
  – Dekra                                            United States
  – Kyrio Inc.                                        United States
  – MRT Technology                                    China
  – Nemko                                            United States, Canada
  – Nokia Global Product Compliance Laboratory        United States
  – PCTEST Engineering Laboratory, LLC.                United States
  – Sporton International                             United States, Taiwan
  – SGS-CSTC Standards Technical Services Co., Ltd.    China
  – TUV Sud Canada                                    Canada
  – UL Verification Services Inc.                      United States

• ATLs are ISO/IEC 17025 accredited.
• More to come…
OnGo™ Certification Process: Declaration Form

• Instead of LTE air interface testing, vendors declare compliance with relevant 3GPP/CBRS Alliance specifications.
  – 3GPP E-UTRA TDD operation for Band 48
  – 3GPP E-UTRA TDD configurations:
    • Uplink-Downlink Configuration 1 and 2
    • Special Subframe (SSF) Configuration 7
  – E-UTRA CBRS Network Synchronization

• Declaration of Compliance form is signed by vendor.
OnGo™ Certification Process: Support for 5G/NR

- OnGo™ Release 1 certification allows E-UTRA (LTE) air interfaces.
  - OnGo™ Certification of 5G/NR Coexistence will become available only with Release 3.
- Under Release 1, we will allow for an OnGo™ 5G Ready Statement.
  - Requires a separate Declaration of Compliance Statement.
- To be available soon.
OnGo™ Certification Process: Publication

- Certified OnGo™ CBSD device are published on the CBRS Alliance website:
  - Optional
  - [https://www.cbrsalliance.org/certification/](https://www.cbrsalliance.org/certification/)

- We also list End-User Devices, which achieved FCC Authorization:
  - Best effort
  - Open for vendor input
OnGo™ Certification Process: Certification Fee

- CBRSA certification fees are processed from the OnGo database administrator
- Certification testing fees are separate from these fees and are determined independently by each ATL

<table>
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<tr>
<th>Request Type</th>
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<td>ECO Request</td>
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<td>Rebranding Request</td>
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OnGo™ Certification Numbers: Certifications over Time
OnGo™ Certification Numbers: Device Categories

OnGo™ Certified: Device Categories

- 18 (49%) Cat A
- 14 (38%) Cat B
- 5 (13%) CPE
- Unknown

Cat A
Cat B
CPE
Unknown
OnGo™ Certification Numbers: Certification Time

65% of OnGo Certification Requests are submitted before receiving FCC Authorization.

44% of OnGo Certifications take less than 1 month after receiving FCC Authorization.
End-User Device Eco-System: FCC Authorizations

Listed entries with unique FCC IDs.

Trendlines:

a) Linear trendline

b) 6 months moving average
OnGo™ Certification Roadmap

- **OnGo™ Release 2 Certification (Ongoing):**
  - Update to CBRSA Coexistence Release 2 requirements
  - Add CBRSA Coexistence Manager (CxM) Interface
  - Scope expansion to possibly test/certify the CxM
  - Declaration statements for CBRSA Network Services use cases
  - Plan to start begin of 2021.

- **OnGo™ Release 3 Certification (Plan):**
  - Include CBRSA 5G/NR coexistence requirements
Thank You!

Questions can be sent to admin@cbrsalliance.org