



Test report No:  
NIE: 02297RCB.004

## Test report

### Citizen Broadband Radio Service Test report as per WINNForum Test Specification WINNF-TS-0122-V1.0.0

|                                           |                                                                                                                                                          |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Identification of item tested             | AirHarmony 4200 3550-3700MHz (B48)                                                                                                                       |
| Trademark                                 | Not Provided                                                                                                                                             |
| Model and /or type reference              | AirHarmony 4200, LTE-TDD Base Station, CBSD                                                                                                              |
| Other identification of the product       | Not Provided                                                                                                                                             |
| Features                                  | CBSD, Domain Proxy, LTE-TDD 48                                                                                                                           |
| Manufacturer                              | AIRSPAN NETWORK INC<br>777 YAMATO ROAD SUIT 310<br>BOCA RATON, FLORIDA – 33431<br>UNITE STATES OF AMERICA                                                |
| CBSD Final HW version                     | C2                                                                                                                                                       |
| CBSD Final SW version                     | SR16.00                                                                                                                                                  |
| Domain Proxy Final SW version             | SR16.50                                                                                                                                                  |
| Domain Proxy Final HW version             | NA                                                                                                                                                       |
| Test method requested, standard           | WinnForum TEST SPECIFICATION WINNF-TS-0122-V1.0.0                                                                                                        |
| Summary                                   | IN COMPLIANCE                                                                                                                                            |
| Approved by (name / position & signature) | Bryan Mikesch, Chief Operating Officer, DEKRA Certification Inc.<br> |
| Date of issue                             | 2019-03-28                                                                                                                                               |
| Report template No                        | FDT08_21                                                                                                                                                 |

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## Competences and guarantees

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DEKRA Certification, Inc. is a WinnForum Approved CBSD test laboratory.

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## General conditions

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## Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Testing and Certification internal document PODT000.

## Data provided by the client

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

## Usage of samples

Samples undergoing test have been selected by: Airspan Network, Inc.

Sample M/01 is composed of the following elements:

| Control N° | Description           | Model              | Serial N°    | Date of reception |
|------------|-----------------------|--------------------|--------------|-------------------|
| 02297.004  | CBSD                  | AirHarmony<br>4200 | D5EF17CE65D4 | 2018-12-10        |
| NA         | Domain Proxy Software | Netspan            | NA           | 2018-12-10        |

1. Sample M/01 has undergone the test(s) specified in subclause "Test method requested".

## Identification of the client

AIRSPAN NETWORK INC  
777 YAMATO ROAD SUIT 310, BOCA RATON, FLORIDA – 33431  
UNITE STATES OF AMERICA

## Testing period and place

|               |                           |
|---------------|---------------------------|
| Test Location | DEKRA Certification, Inc. |
| Date (start)  | 2018-12-10                |
| Date (finish) | 2018-12-12                |

## Document history

| Report number | Date       | Description   |
|---------------|------------|---------------|
| 02297RCB.004  | 2019-03-26 | First release |
|               |            |               |

## Remarks and comments

- 1: The tests have been performed by the technical personnel: Indusha, Chitepu

## Testing verdicts

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|                  |     |
|------------------|-----|
| Not applicable : | N/A |
| Pass :           | P   |
| Fail :           | F   |
| Not measured :   | N/M |

## Summary

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|              |                     |
|--------------|---------------------|
| Standard :   | WINNF-TS-0122       |
| Band :       | TDD 48              |
| <b>Total</b> | <b>PASS VERDICT</b> |
| 32           | 32                  |

## Appendix A: Test Results

| Test Spec            | Ref               | Name                                                                | Condition | Date       | Test sample | Result | SAS version | CBSD SW Version | CBSD HW Version | DP SW Version |
|----------------------|-------------------|---------------------------------------------------------------------|-----------|------------|-------------|--------|-------------|-----------------|-----------------|---------------|
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.2  | Domain Proxy Multi-Step registration                                | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.6  | Domain Proxy Single-Step registration for CBSD with CPI signed data | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.9  | Domain Proxy Missing Required parameters (responseCode 102)         | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.11 | Domain Proxy Pending registration (responseCode 200)                | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.13 | Domain Proxy Invalid parameters (responseCode 103)                  | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.15 | Domain Proxy Blacklisted CBSD (responseCode 101)                    | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.17 | Domain Proxy Unsupported SAS protocol version (responseCode 100)    | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.REG.19 | Domain Proxy Group Error (responseCode 201)                         | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.GRA.1  | Unsuccessful Grant responseCode=400 (INTERFERENCE)                  | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |

| Test Spec            | Ref               | Name                                                                             | Condition | Date       | Test sample | Result | SAS version | CBSD SW Version | CBSD HW Version | DP SW Version |
|----------------------|-------------------|----------------------------------------------------------------------------------|-----------|------------|-------------|--------|-------------|-----------------|-----------------|---------------|
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.GRA.2  | Unsuccessful Grant<br>responseCode=401<br>(GRANT CONFLICT)                       | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.HBT.2  | Domain Proxy Heartbeat Success Case (first Heartbeat Response)                   | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.HBT.3  | Heartbeat responseCode=105<br>(DEREGISTER)                                       | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.HBT.5  | Heartbeat responseCode=501<br>(SUSPENDED_GRANT) in First Heartbeat Response      | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.HBT.6  | Heartbeat responseCode=501<br>(SUSPENDED_GRANT) in Subsequent Heartbeat Response | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.HBT.7  | Heartbeat responseCode=502 (UNSYNC OP PARAM)                                     | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.HBT.8  | Domain Proxy Heartbeat responseCode=500<br>(TERMINATED_GRANT)                    | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.HBT.9  | Heartbeat Response Absent (First Heartbeat)                                      | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.HBT.10 | Heartbeat Response Absent (Subsequent Heartbeat)                                 | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |

| Test Spec            | Ref               | Name                                                         | Condition | Date       | Test sample | Result | SAS version | CBSW SW Version | CBSW HW Version | DP SW Version |
|----------------------|-------------------|--------------------------------------------------------------|-----------|------------|-------------|--------|-------------|-----------------|-----------------|---------------|
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.HBT.11 | Successful Grant Renewal in Heartbeat Test Case              | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.MES.2  | Domain Proxy Registration Response contains measReportConfig | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.RLQ.2  | Domain Proxy Successful Relinquishment                       | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.RLQ.4  | Domain Proxy Unsuccessful Relinquishment, responseCode=102   | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.RLQ.6  | Domain Proxy Unsuccessful Relinquishment, responseCode=103   | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.DRG.2  | Domain Proxy Successful Deregistration                       | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.D.DRG.4  | Domain Proxy Deregistration responseCode=102                 | Normal    | 12/10/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.DRG.5  | Deregistration responseCode=103                              | Normal    | 12/11/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.SCS.1  | Successful TLS connection between UUT and SAS Test Harness   | Normal    | 12/12/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.SCS.2  | TLS failure due to revoked certificate                       | Normal    | 12/12/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |

| Test Spec            | Ref              | Name                                                                 | Condition | Date       | Test sample | Result | SAS version | CBSD SW Version | CBSD HW Version | DP SW Version |
|----------------------|------------------|----------------------------------------------------------------------|-----------|------------|-------------|--------|-------------|-----------------|-----------------|---------------|
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.SCS.3 | TLS failure due to expired server certificate                        | Normal    | 12/12/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.SCS.4 | TLS failure when SAS Test Harness certificate is issue by unknown CA | Normal    | 12/12/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.FT.C.SCS.5 | TLS failure when certificate at the SAS Test Harness is corrupted    | Normal    | 12/12/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |
| WINNF-TS-0122-V1.0.0 | WINNF.PT.C.HBT   | UUT RF Transmit Power Measurement                                    | Normal    | 12/12/2018 | 02297.004   | PASS   | 1.0.0.2     | SR16.00         | C2              | SR16.50       |

## Appendix B: Test Systems

## Test System Used

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| Model                            | Description               | Control Number | Uncertainties |
|----------------------------------|---------------------------|----------------|---------------|
| Dell Latitude, Windows 7, 64-bit | Laptop with SAS harness   | CTC-5233-K     | NA            |
| EXA N9010A                       | Signal Analyzer           | 0018           | NA            |
| MXA N9020A                       | Signal Analyzer           | 0382           | NA            |
| HWg-STE Plain                    | Ethernet SNMP Thermometer | 1107           | NA            |
| DR-4X7S201-LH                    | Shielded Chamber          | 0131           | NA            |

## Appendix C: CBSD/ DP Supported Features

## Supported Features

| Condition | Feature Description                                                                                                                                                                                                                                              | Supported |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| C1        | Mandatory for UUT which supports multi-step registration message.                                                                                                                                                                                                | Y         |
| C2        | 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. | N         |
| C3        | Mandatory for UUT which supports single-step registration containing CPI-signed data in the registration message.                                                                                                                                                | Y         |
| C4        | Mandatory for UUT which supports RECEIVED_POWER_WITHOUT_GRANT measurement report type.                                                                                                                                                                           | Y         |
| C5        | Mandatory for UUT which supports RECEIVED_POWER_WITH_GRANT measurement report type.                                                                                                                                                                              | N         |
| C6        | Mandatory for UUT which supports parameter change being made at the UUT and prior to sending a deregistration.                                                                                                                                                   | N         |

## Appendix D: Reference Standards and Procedures

## Reference Standards

|                                                                                                                                                                                                     |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Test and Certification for Citizens Broadband Radio Service (CBRS);<br>Conformance and Performance Test Technical Specification; CBSD/DP as<br>Unit Under Test (UUT) Working Document WINNF-TS-0122 | V1.0.0 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|

## Test Procedures

|                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------|
| PECB001_00: CBRS Alliance Certification Testing Based On WINN Forum CBRS CBSD<br>Test Specification “WINNF-TS-0122” |
|---------------------------------------------------------------------------------------------------------------------|