

CE RF Test Report

(BLE)

Applicant: Nebra Ltd

Address of Applicant: Unit 4 Bells Yew Green Business Court, Bells Yew Green,
Tunbridge Wells, East Sussex, TN3 9BJ

Equipment Under Test (EUT)

Product Name: Nebra Indoor LoRa Gateway ROCK Pi 4 Version / Nebra
Indoor Helium Hotspot ROCK Pi 4 Version

Model No.: NEBHNT-HHRK4-433, NEBHNT-HHRK4-470, NEBHNT-
HHRK4-868, NEBHNT-HHRK4-915, NEBHNT-HHRK4-433-2,
NEBHNT-HHRK4-470-2, NEBHNT-HHRK4-868-2, NEBHNT-
HHRK4-915-2, NEBHNT-HHRK4-433-3, NEBHNT-HHRK4-
470-3, NEBHNT-HHRK4-868-3, NEBHNT-HHRK4-915-3,
NEBHNT-HHRK4-433-3, NEBHNT-HHRK4-470-3, NEBHNT-
HHRK4-868-3, NEBHNT-HHRK4-915-3

Applicable standards: ETSI EN 300 328 V2.2.2 (2019-07)

Date of sample receipt: 05 Jan., 2022

Date of Test: 06 Jan., to 14 Feb., 2022

Date of report issue: 15 Feb., 2022

Test Result: PASS

Tested by: _____
Test Engineer

Date: 15 Feb., 2022

Reviewed by: _____
Project Engineer

Date: 15 Feb., 2022

Approved by: _____
Manager

Date: 15 Feb., 2022

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

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2 Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | 15 Feb., 2022 | Original |
| | | |
| | | |
| | | |
| | | |

Draft

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4 Test Summary

| Test Items | Test Requirement | Test method | Limit/Severity | Result |
|--|------------------|--------------------|-------------------|--------|
| Radio Spectrum Matter (RSM) Part of Tx | | | | |
| RF Output Power | Clause 4.3.2.2 | Clause 5.4.2.2.1.2 | Clause 4.3.2.2.3 | PASS* |
| Power Spectral Density | Clause 4.3.2.3 | Clause 5.4.3 | Clause 4.3.2.3.3 | PASS* |
| Duty Cycle, Tx-sequence, Tx-gap | Clause 4.3.2.4 | Clause 5.4.2.2.1.3 | Clause 4.3.2.4.3 | N/A |
| Medium Utilisation (MU) factor | Clause 4.3.2.5 | Clause 5.4.2.2.1.4 | Clause 4.3.4.5.3 | N/A |
| Adaptivity (Adaptive Equipment using Modulations Other Than FHSS) | Clause 4.3.2.6 | Clause 5.4.6.2 | Clause 4.3.2.6 | N/A |
| Occupied Channel Bandwidth | Clause 4.3.2.7 | Clause 5.4.7.2 | Clause 4.3.2.7.3 | PASS* |
| Transmitter unwanted emissions in the out-of-band domain | Clause 4.3.2.8 | Clause 5.4.8.2 | Clause 4.3.2.8.3 | PASS* |
| Transmitter unwanted emissions in the spurious domain | Clause 4.3.2.9 | Clause 5.4.9.2 | Clause 4.3.2.9.3 | PASS |
| Radio Spectrum Matter (RSM) Part of Rx | | | | |
| Receiver spurious emissions | Clause 4.3.2.10 | Clause 5.4.10.2 | Clause 4.3.2.10.3 | PASS |
| Receiver Blocking | Clause 4.3.2.11 | Clause 5.4.11.2 | Clause 4.3.2.11.4 | PASS* |
| Geo-location capability | Clause 4.3.2.12 | Clause 4.3.2.12.2 | Clause 4.3.2.12.3 | PASS |
| Remark: 1. Tx: In this whole report Tx (or tx) means Transmitter. 2. Rx: In this whole report Rx (or rx) means Receiver. 3. Pass: Meet the requirement. 4. Pass*: Please refer to the report No.: BCTC2109795863-4E issue by Shenzhen BCTC Testing Co., Ltd, The module used by EUT in this report is that of Report BCTC2109795863-4E. 5. N/A: Not Applicable for Non-adaptive equipment. | | | | |

5 General Information

5.1 Client Information

| | |
|-----------------------|---|
| Applicant: | Nebra Ltd |
| Address: | Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells, East Sussex, TN3 9BJ |
| Manufacturer/Factory: | Nebra Ltd |
| Address: | Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells, East Sussex, TN3 9BJ |

5.2 General Description of E.U.T.

| | |
|------------------------|--|
| Product Name: | Nebra Indoor LoRa Gateway ROCK Pi 4 Version / Nebra Indoor Helium Hotspot ROCK Pi 4 Version |
| Model No.: | NEBHNT-HHRK4-433, NEBHNT-HHRK4-470, NEBHNT-HHRK4-868, NEBHNT-HHRK4-915, NEBHNT-HHRK4-433-2, NEBHNT-HHRK4-470-2, NEBHNT-HHRK4-868-2, NEBHNT-HHRK4-915-2, NEBHNT-HHRK4-433-3, NEBHNT-HHRK4-470-3, NEBHNT-HHRK4-868-3, NEBHNT-HHRK4-915-3, NEBHNT-HHRK4-433-3, NEBHNT-HHRK4-470-3, NEBHNT-HHRK4-868-3, NEBHNT-HHRK4-915-3 |
| Hardware version: | v1 |
| Software version: | 781099d |
| Operation Frequency: | 2402MHz ~ 2480MHz |
| Channel number: | 40 |
| Channel separation: | 2MHz |
| Modulation type: | other forms of modulation |
| Equipment Type: | Adaptive equipment |
| Modulation Technology: | GFSK |
| Max. E.I.R.P Power: | GFSK: -1.69 dBm |
| Antenna Type: | External Antenna |
| Antenna gain: | 1 dBi (declare by Applicant) |
| AC adapter: | Model No.:R241-1202500I Input: AC100-240V, 50/60Hz 1.5 A Output: DC 12.0V, 2.5A |
| Remark: | Model no.: NEBHNT-HHRK4-433, NEBHNT-HHRK4-470, NEBHNT-HHRK4-868, NEBHNT-HHRK4-915, NEBHNT-HHRK4-433-2, NEBHNT-HHRK4-470-2, NEBHNT-HHRK4-868-2, NEBHNT-HHRK4-915-2, NEBHNT-HHRK4-433-3, NEBHNT-HHRK4-470-3, NEBHNT-HHRK4-868-3, NEBHNT-HHRK4-915-3, NEBHNT-HHRK4-433-3, NEBHNT-HHRK4-470-3, NEBHNT-HHRK4-868-3, NEBHNT-HHRK4-915-3, The difference between the models is that the LoRa Radio module used inside is different for each variant. Along with a respective antenna for each region / frequency. The -2 and -3 flags at the end of the model number relates to the specific chip part number for the main LoRa chip. |

5.3 Test environment and test mode

| Operating Environment: | |
|--|---|
| Temperature: | Normal: 15°C ~ 35°C, Extreme: -20°C ~ +40°C |
| Humidity: | 52 % RH |
| Atmospheric Pressure: | 1008 mbar |
| Voltage: | Nominal: 230Vac, Extreme: Low 207Vac, High 253Vac |
| Test mode: | |
| Transmitting mode: | Keep the EUT in continuously transmitting mode with modulation. |
| Receiving mode: | Keep the EUT in receiving mode. |
| We have verified the construction and function in typical operation. All the test items were carried out with the EUT in above test modes. | |

5.4 Description of Support Units

| |
|---|
| The EUT has been tested as an independent unit. |
|---|

5.5 Measurement Uncertainty

| Parameter | Expanded Uncertainty (Confidence of 95%(U = 2Uc(y))) |
|--|---|
| Radiated Emission (30MHz ~ 1000MHz) (3m SAC) | ±4.45 dB |
| Radiated Emission (1GHz ~ 18GHz) (3m SAC) | ±5.34 dB |
| Note: All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance. | |

5.6 Additions to, deviations, or exclusions from the method

| |
|----|
| No |
|----|

5.7 Laboratory Facility

| |
|--|
| <p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC - Designation No.: CN1211 JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551. ● ISED – CAB identifier.: CN0021 The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1. ● CNAS - Registration No.: CNAS L15527 JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527. ● A2LA - Registration No.: 4346.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf |
|--|

5.8 Laboratory Location

| |
|--|
| <p>JianYan Testing Group Shenzhen Co., Ltd. Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China. Tel: +86-755-23118282, Fax:+86-755-23116366 Email: info-JYTee@lets.com, Website: http://jyt.lets.com</p> |
|--|

5.9 Test Instruments list

| Radiated Emission: | | | | | |
|----------------------------------|-----------------|-----------------|------------------|------------------------|-----------------------------|
| Test Equipment | Manufacturer | Model No. | Manage No. | Cal.Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 3m SAC | ETS | 9m*6m*6m | WXJ001-1 | 01-19-2021 | 01-18-2024 |
| BiConiLog Antenna | Schwarzbeck | VULB9163 | WXJ002 | 03-03-2021 | 03-02-2022 |
| Biconical Antenna | Schwarzbeck | VUBA9117 | WXJ002-1 | 06-20-2021 | 06-19-2022 |
| Horn Antenna | Schwarzbeck | BBHA9120D | WXJ002-2 | 03-03-2021 | 03-02-2022 |
| Horn Antenna | Schwarzbeck | BBHA9120D | WXJ002-3 | 06-18-2021 | 06-17-2022 |
| Loop Antenna | Schwarzbeck | FMZB 1519 B | WXJ002-4 | 03-07-2021 | 03-06-2022 |
| Pre-amplifier (30MHz ~ 1GHz) | Schwarzbeck | BBV9743B | WXG001-7 | 03-07-2021 | 03-06-2022 |
| Pre-amplifier (1GHz ~ 18GHz) | SKET | LNPA_0118G-50 | WXG001-3 | 03-07-2021 | 03-06-2022 |
| Pre-amplifier (18GHz ~ 40GHz) | RF System | TRLA-180400G45B | WXG001-9 | 03-07-2021 | 03-06-2022 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | WXJ003-1 | 03-03-2021 | 03-02-2022 |
| Spectrum Analyzer | KEYSIGHT | N9010B | 10-27-2022 | 10-26-2022 | 10-27-2022 |
| Signal Generator | Agilent | N5173B | WXJ006-7 | 03-25-2021 | 03-24-2022 |
| Simulated Station | Rohde & Schwarz | CMW500 | WXJ008-3 | 06-17-2021 | 06-16-2022 |
| Coaxial Cable (30MHz ~ 1GHz) | JYT | JYT3M-1G-NN-8M | WXG001-4 | 03-07-2021 | 03-06-2022 |
| Coaxial Cable (1GHz ~ 18GHz) | JYT | JYT3M-18G-NN-8M | WXG001-5 | 03-07-2021 | 03-06-2022 |
| Coaxial Cable (9kHz ~ 30MHz) | JYT | JYT3M-1G-BB-5M | WXG001-6 | 03-07-2021 | 03-06-2022 |
| Coaxial Cable (18GHz ~ 40GHz) | JYT | JYT3M-40G-SS-8M | WXG001-7 | 03-07-2021 | 03-06-2022 |
| Band Reject Filter Group | Tonscend | JS0806-F | WXJ089 | N/A | |
| Test Software | Tonscend | TS+ | Version: 3.0.0.1 | | |

6 Technical requirements specification

6.1 Justification

The EUT and test equipment were configured for testing according to ETSI EN 300 328 V2.2.2 (2019-07).
The EUT was tested in the normal operating mode to represent worst-case results during the final qualification test.

6.2 Test Configuration of EUT

| Operation Frequency each of channel | | | | | | | |
|-------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 0 | 2402MHz | 10 | 2422MHz | 20 | 2442MHz | 30 | 2462MHz |
| 1 | 2404MHz | 11 | 2424MHz | 21 | 2444MHz | 31 | 2464MHz |
| 2 | 2406MHz | 12 | 2426MHz | 22 | 2446MHz | 32 | 2466MHz |
| 3 | 2408MHz | 13 | 2428MHz | 23 | 2448MHz | 33 | 2468MHz |
| 4 | 2410MHz | 14 | 2430MHz | 24 | 2450MHz | 34 | 2470MHz |
| 5 | 2412MHz | 15 | 2432MHz | 25 | 2452MHz | 35 | 2472MHz |
| 6 | 2414MHz | 16 | 2434MHz | 26 | 2454MHz | 36 | 2474MHz |
| 7 | 2416MHz | 17 | 2436MHz | 27 | 2456MHz | 37 | 2476MHz |
| 8 | 2418MHz | 18 | 2438MHz | 28 | 2458MHz | 38 | 2478MHz |
| 9 | 2420MHz | 19 | 2440MHz | 29 | 2460MHz | 39 | 2480MHz |

Remark:

1. Selected channel No.0(lowest channel), 20(middle channel) and 39(highest channel) to perform the test.

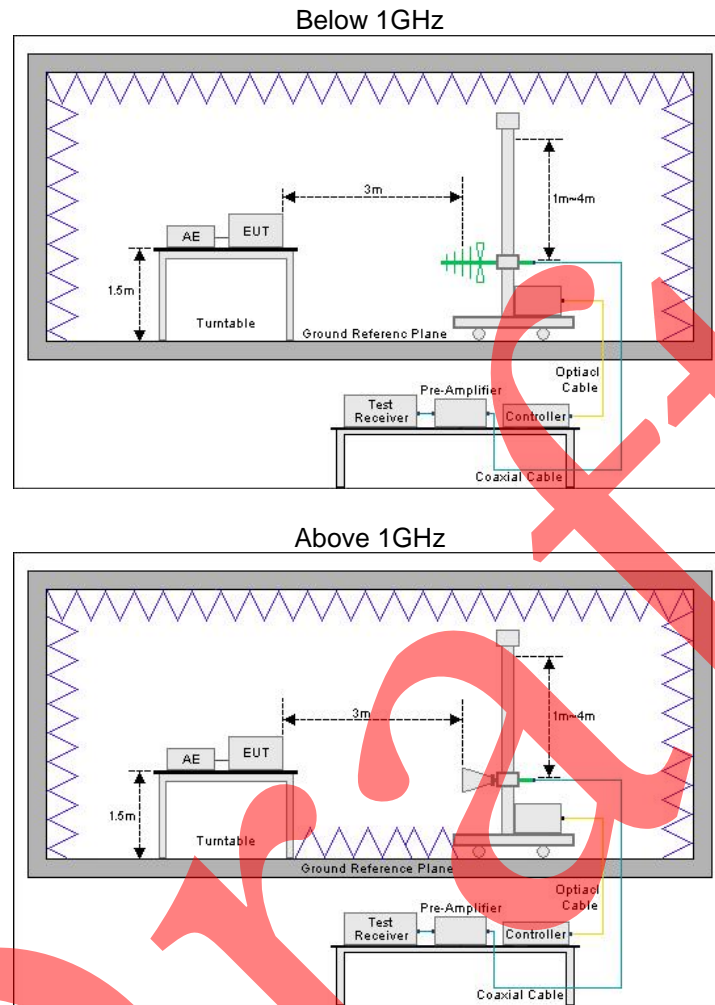
| Clause No. | Test Conditions | | | Test Channel | | | Modulated Mode | Test mode | | |
|------------|-----------------|------|------|--------------|--------|---------|----------------|-----------|----|--------|
| | NVNT | NVLT | NVHT | Lowest | Middle | Highest | GFSK | Tx | Rx | Normal |
| 4.3.2.9 | √ | | | √ | | √ | √ | √ | | |
| 4.3.2.10 | √ | | | √ | | √ | √ | | √ | |

Note:

1. "√" means that this configuration is chosen for test.
2. "NVNT" means Normal Voltage Normal Temperature, "NVLT" means Normal Voltage Low Temperature, "NVHT" means Normal Voltage High Temperature.

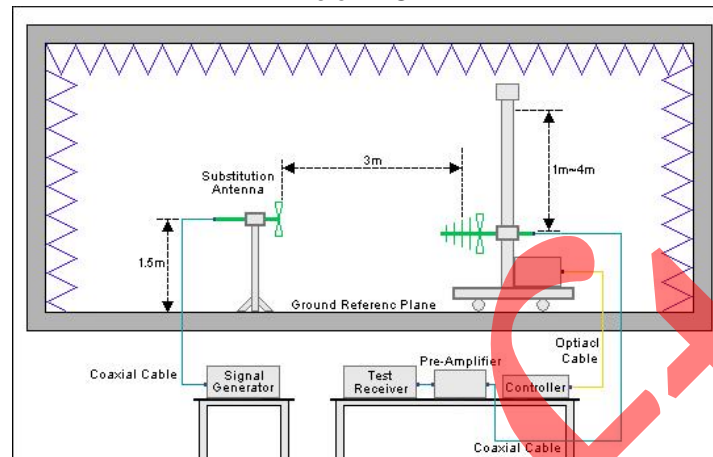
6.3 Test Setup Block

1) Radiated test method:

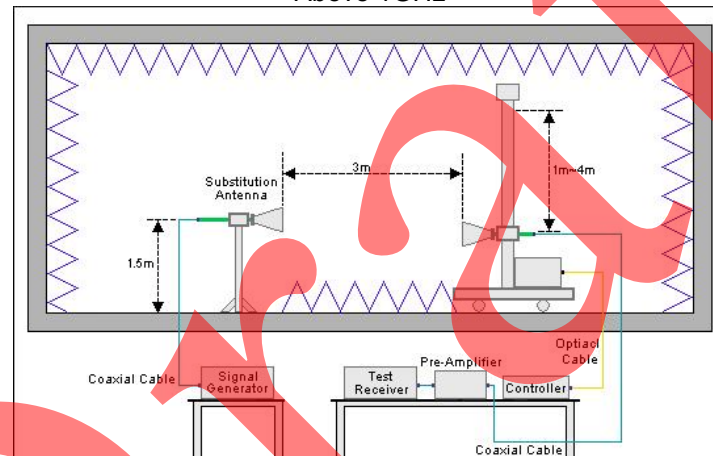


2) Substitution measurement

Below 1GHz



Above 1GHz



6.4 Test Results

6.4.1 Test Result Summary

| Clause No. | Modulation | Test Condition | Test Data | Verdict |
|---|------------|----------------|--|---------|
| 4.3.2.2 | GFSK | NVNT | Refer to the report.: BCTC2109795863-4E | Pass |
| | | NVLT | | |
| | | NVHT | | |
| 4.3.2.3 | GFSK | NVNT | Refer to the report.: BCTC2109795863-4E | Pass |
| 4.3.2.4 | N/A | N/A | N/A | N/A |
| 4.3.2.5 | N/A | N/A | N/A | N/A |
| 4.3.2.6 | N/A | N/A | N/A | N/A |
| 4.3.2.7 | GFSK | NVNT | Refer to the report.: BCTC2109795863-4E | Pass |
| 4.3.2.8 | GFSK | NVNT | Refer to the report.: BCTC2109795863-4E | Pass |
| 4.3.2.9 | GFSK | NVNT | See Section 6.4.2 | Pass |
| 4.3.2.10 | GFSK | NVNT | See Section 6.4.3 | Pass |
| 4.3.2.11 | GFSK | NVNT | Refer to the report.: BCTC2109795863-4E | Pass |
| 4.3.2.12 | / | / | See Section 6.4.4 | Pass |
| Remark: 1. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer). | | | | |

6.4.2 Transmitter unwanted emissions in the spurious domain

| The lowest channel | | | | |
|---------------------|-------------------|-------------|-------------|-------------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Test Result |
| | Polarization | Level (dBm) | | |
| 105.42 | Vertical | -85.20 | -54.00 | Pass |
| 201.81 | V | -81.48 | | |
| 381.38 | V | -80.90 | -36.00 | |
| 944.71 | V | -72.22 | | |
| 4804.00 | V | -53.65 | -30.00 | |
| 50.13 | Horizontal | -81.59 | -54.00 | |
| 221.21 | H | -82.42 | | |
| 345.74 | H | -82.86 | -36.00 | |
| 807.46 | H | -72.68 | | |
| 4804.00 | H | -55.87 | -30.00 | |
| The highest channel | | | | |
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Test Result |
| | Polarization | Level (dBm) | | |
| 105.42 | Vertical | -84.77 | -54.00 | Pass |
| 201.81 | V | -81.93 | | |
| 381.38 | V | -81.36 | -36.00 | |
| 944.71 | V | -71.83 | | |
| 4960.00 | V | -53.88 | -30.00 | |
| 50.13 | Horizontal | -81.79 | -54.00 | |
| 221.21 | H | -82.89 | | |
| 345.74 | H | -82.69 | -36.00 | |
| 807.46 | H | -72.39 | | |
| 4960.00 | H | -55.51 | -30.00 | |

6.4.3 Receiver spurious emissions

| The lowest channel | | | | |
|---------------------|-------------------|------------|-------------|-------------|
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Test Result |
| | Polarization | Level(dBm) | | |
| 344.64 | Vertical | -81.18 | -57.00 | Pass |
| 675.29 | V | -75.98 | | |
| 4804.00 | V | -61.56 | -47.00 | |
| 310.57 | Horizontal | -83.88 | -57.00 | |
| 656.14 | H | -76.61 | -47.00 | |
| 4804.00 | H | -63.68 | -47.00 | |
| The highest channel | | | | |
| Frequency (MHz) | Spurious Emission | | Limit (dBm) | Test Result |
| | Polarization | Level(dBm) | | |
| 344.64 | Vertical | -80.98 | -57.00 | Pass |
| 675.29 | V | -76.41 | -47.00 | |
| 4960.00 | V | -61.75 | -57.00 | |
| 310.57 | Horizontal | -83.48 | -47.00 | |
| 656.14 | H | -76.21 | -47.00 | |
| 4960.00 | H | -63.88 | -47.00 | |

6.4.4 Geo-location capability

The equipment configure of according to the regulatory requirements applicable at the geographical location where operates, and shall not be accessible to the user in a way that would allow the user to alter it.

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7 Test setup photo

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



8 EUT Constructional Details

Reference to the test report No. JYTSZ-R01-2200022.

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ANNEX Application form for testing

In accordance with EN 300 328 V2.2.2, clause 5.4.1, the following information is provided by the supplier.

a) The type of modulation used by the equipment:

- ☐ FHSS
- ☒ Other forms of modulation

b) In case of FHSS modulation:

- In case of non-Adaptive Frequency Hopping equipment:
The number of Hopping Frequencies: ...
- In case of Adaptive Frequency Hopping Equipment:
The maximum number of Hopping Frequencies: ...
The minimum number of Hopping Frequencies: ...
- The Dwell Time: ...
- The Minimum Channel Occupation Time: ...

c) Adaptive / non-adaptive equipment:

- ☐ Non-adaptive Equipment
- ☒ Adaptive Equipment without the possibility to switch to a non-adaptive mode
- ☐ Adaptive Equipment which can also operate in a non-adaptive mode

d) In case of adaptive equipment:

- The Channel Occupancy Time implemented by the equipment: ____ ms
- ☐ The equipment has implemented an LBT based DAA mechanism
- In case of equipment using modulation different from FHSS:
- ☐ The equipment is Frame Based equipment
- ☒ The equipment is Load Based equipment
- ☐ The equipment can switch dynamically between Frame Based and Load Based equipment
- The CCA time implemented by the equipment: ____ μ s
- The value q as referred to in clause 4.3.2.5.2.2.2:
- ☐ The equipment has implemented an non-LBT based DAA mechanism
- ☐ The equipment can operate in more than one adaptive mode

e) In case of non-adaptive Equipment:

- The maximum RF Output Power (e.i.r.p.): ____ dBm
- The maximum (corresponding) Duty Cycle: ____ %
- Equipment with dynamic behaviour, that behaviour is described here. (e.g. the different combinations of duty cycle and corresponding power levels to be declared):

f) The worst case operational mode for each of the following tests:

- RF Output Power GFSK
- Power Spectral Density GFSK
- Duty cycle, Tx-Sequence, Tx-gap ...
- Dwell time, Minimum Frequency Occupation & Hopping Sequence (only for FHSS equipment)
- ...
- Hopping Frequency Separation (only for FHSS equipment) ...
- Medium Utilisation ...
- Adaptivity & Receiver Blocking GFSK
- Occupied Channel Bandwidth GFSK
- Transmitter unwanted emissions in the OOB domain GFSK
- Transmitter unwanted emissions in the spurious domain GFSK
- Receiver spurious emissions GFSK

g) The different transmit operating modes (tick all that apply):

- ☒ Operating mode 1: Single Antenna Equipment
- ☒ Equipment with only 1 antenna
- ☐ Equipment with 2 diversity antennas but only 1 antenna active at any moment in time

☐ Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)

☐ Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming

☐ Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)

☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1

☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.

☐ Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming

☐ Single spatial stream / Standard throughput (e.g. IEEE 802.11™ [i.3] legacy mode)

☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1

☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.

h) In case of Smart Antenna Systems:

• The number of Receive chains:

• The number of Transmit chains:

☐ Symmetrical power distribution

☐ asymmetrical power distribution

In case of beam forming, the maximum beam forming gain:

NOTE: Beam forming gain does not include the basic gain of a single antenna.

i) Operating Frequency Range(s) of the equipment:

• Operating Frequency Range 1: 2402 MHz to 2480 MHz

• Operating Frequency Range 2: MHz to MHz

NOTE: Add more lines if more Frequency Ranges are supported.

j) Occupied Channel Bandwidth(s):

• Occupied Channel Bandwidth 1: 1.067 MHz

• Occupied Channel Bandwidth 2: MHz

NOTE: Add more lines if more channel bandwidths are supported.

k) Type of Equipment (stand-alone, combined, plug-in radio device, etc.):

☒ Stand-alone

☐ Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)

☐ Plug-in radio device (Equipment intended for a variety of host systems)

☐ Other.....

l) The extreme operating conditions that apply to the equipment:

Operating temperature range: -20 ° C to +40° C

Operating voltage range: 207 V to 253 V ☒ AC ☐ DC

Details provided are for the: ☒ stand-alone equipment

☐ combined (or host) equipment

☐ test jig

m) The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels:

• Antenna Type:

☒ Integral Antenna

☒ Antenna Gain: 1 dBi

If applicable, additional beamforming gain (excluding basic antenna gain): ____dB

☐ Temporary RF connector provided

☐ No temporary RF connector provided

☐ Dedicated Antennas (equipment with antenna connector)

☐ Single power level with corresponding antenna(s)

☐ Multiple power settings and corresponding antenna(s) Number of different

Power Levels: ...

Power Level 1: ____dBm

Power Level 2: ____dBm

Power Level 3: ____dBm

NOTE 1: Add more lines in case the equipment has more power levels.

NOTE 2: These power levels are conducted power levels (at antenna connector).

- For each of the Power Levels, provide the intended antenna assemblies, their corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable

Power Level 1: ____dBm

Number of antenna assemblies provided for this power level:

| Assembly # | Gain (dBi) | e.i.r.p. (dBm) | Part number or model name |
|------------|------------|----------------|---------------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

Power Level 2: ____dBm

Number of antenna assemblies provided for this power level:

| Assembly # | Gain (dBi) | e.i.r.p. (dBm) | Part number or model name |
|------------|------------|----------------|---------------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

Power Level 3: ____dBm

Number of antenna assemblies provided for this power level:

| Assembly # | Gain (dBi) | e.i.r.p. (dBm) | Part number or model name |
|------------|------------|----------------|---------------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

n) The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host) equipment or test jig in case of plug-in devices:

Details provided are for the: ☒ stand-alone equipment
☐ combined (or host) equipment
☐ test jig

Supply Voltage ☒ AC mains State AC voltage 230 V
☐ DC State DC voltage V

In case of DC, indicate the type of power source

- ☐ Internal Power Supply
☒ External Power Supply or AC/DC adapter
☐ Battery
☐ Other:

o) Describe the test modes available which can facilitate testing:

Continuous transmitting mode control in engineer mode.

p) The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], proprietary, etc.): Bluetooth

Configuration for testing

From all combinations of conducted power settings and intended antenna assembly(ies) specified in clause 5.4.1 m), specify the combination resulting in the highest e.i.r.p. for the radio equipment.

Unless otherwise specified in EN 300 328, this power setting is to be used for testing against the requirements of EN 300 328. In case there is more than one such conducted power setting resulting in the same (highest) e.i.r.p. level, the highest power setting is to be used for testing. See also EN 300 328, clause 5.3.2.3.

Highest overall e.i.r.p. value: -1.69 dBm

Corresponding Antenna assembly gain: 1 dBi

Antenna Assembly #: 1

Corresponding conducted power setting: -2.69 dBm
(also the power level to be used for testing)

Listed as Power Setting #: 7

Additional information provided by the applicant

Modulation:

ITU Class(es) of emission: DSSS

Can the transmitter operate unmodulated? ☐ yes ☒ no

Duty Cycle

The transmitter is intended for:

☐ Continuous duty

☐ Intermittent duty

☒ Continuous operation possible for testing purposes

About the UUT

☒ The equipment submitted are representative production models

☐ If not, the equipment submitted are pre-production models?

☐ If pre-production equipment are submitted, the final production equipment will be identical in all respects with the equipment tested

☐ If not, supply full details

☐ The equipment submitted is CE marked

☐ In addition to the CE mark, the Class-II identifier (Alert Sign) is affixed.

Additional items and/or supporting equipment provided

☐ Spare batteries (e.g. for portable equipment)

☐ Battery charging device

☒ External Power Supply or AC/DC adapter

☐ Test Jig or interface box

☐ RF test fixture (for equipment with integrated antennas)

☐ Host System Manufacturer:

Model #:

Model name:

☐ Combined equipment Manufacturer:

Model #:

Model name:

☒ User Manual

☒ Technical documentation (Handbook and circuit diagrams)

-----End of report-----