

ISED CABid: ES1909

Test report No:  
 NIE: 70437RRF.004

**Partial Test Report**  
 Reference Standard:  
 USA FCC Part 22 & Part 90  
 CANADA RSS-132, RSS-Gen

|   |  |
|---|--|
| (*) Identification of item tested         | AirCurve 11  |
| (*) Trademark                             | ResMed   |
| (*) Model and /or type reference          | 39428  |
| (*) Derived test models not tested        | For USA: 39491, 39492, 39493, 39494, 51400.<br>For Canada: 39495, 39496, 39497, 39498, 51400.  |
| Other identification of the product       | HW version: 1.0<br>SW version: SW04600<br>FCC ID: 2ACHL-AIR11M1B<br>IC: 9103A-AIR11M1B   |
| (*) Features                              | LTE Cat-M1, BLE  |
| Applicant                                 | ResMed Pty Ltd.<br>1 Elizabeth Macarthur Drive<br>Bella Vista, NSW 2153<br>Australia   |
| Test method requested, standard           | USA FCC Part 22 (10-1-20 Edition): Public Mobile Services.<br>USA FCC Part 90 (10-1-20 Edition): Private Land Mobile Radio Services.<br>CANADA IC RSS-132 Issue 3, Jan. 2013.<br>CANADA IC RSS-Gen Issue 5 (March 2019).<br>ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services. |
| Approved by (name / position & signature) | Rafael López<br>EMC Consumer & RF Lab. Manager   |
| Date of issue                             | 2022-05-06   |
| Report template No                        | FDT08_24<br>(*) "Data provided by the client"  |

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## Competences and guarantees

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DEKRA Testing and Certification S.A.U. is an FCC-recognized accredited testing laboratory with the appropriate scope of accreditation that covers the performed test in this report.

DEKRA Testing and Certification S.A.U. is an ISED-recognized accredited testing laboratory, CABid: ES1909, with the appropriate scope of accreditation that covers the performed tests in this report.

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## General conditions

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1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

## Uncertainty

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

## Data provided by the client

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The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample of the model 39428 is a bilevel device with integrated cellular and Bluetooth connectivity.
3. Derived models of 39428 are not tested: 39491, 39492, 39493, 39494, 39495, 39496, 39497, 39498 and 51400.



Date: 01 Dec 2021

### DECLARATION OF EQUIVALENCE

This document declares that the following designated products are equivalent to the unit under test **39428**.

For USA:

| Model Name / Product Code | Marketing Name        |
|---------------------------|-----------------------|
| 39491                     | AIRCURVE 11 ASV USA   |
| 39492                     | AIRCURVE 11 S USA     |
| 39493                     | AIRCURVE 11 ST USA    |
| 39494                     | AIRCURVE 11 VAUTO USA |

For Canada:

| Model Name / Product Code | Marketing Name        |
|---------------------------|-----------------------|
| 39495                     | AIRCURVE 11 VAUTO CAN |
| 39496                     | AIRCURVE 11 S CAN     |
| 39497                     | AIRCURVE 11 ST CAN    |
| 39498                     | AIRCURVE 11 ASV CAN   |

For USA & Canada:

| Model Name / Product Code | Marketing Name               |
|---------------------------|------------------------------|
| 51400                     | AIRCURVE 11 ST NORTH AMERICA |

All the above stated products have the same hardware, cellular firmware and Bluetooth firmware.

**Applicant:**

Company Name: ResMed Pty Ltd  
Address: 1 Elizabeth Macarthur Drive,  
Bella Vista NSW 2153  
Australia

By,



**Christopher Jenkins**  
Title: Associate Manager – Systems Engineering  
Company: ResMed Pty Ltd  
Telephone: +61 2 8884 1517  
e-mail: Christopher.jenkins@resmed.com.au

## Usage of samples

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Samples undergoing test have been selected by: the client.

Sample S/01 is composed of the following elements:

| Control No. | Description                                       | Model | Serial No.  | Date of reception |
|-------------|---|-------|-------------|-------------------|
| 68649/005   | Continuous Positive Airway Pressure (CPAP) Device | 39001 | 22201142551 | 2021/07/29        |
| 68649/009   | AC/DC Adapter                                     | --    | 00003D00    | 2021/07/29        |

Sample S/01 has undergone the following test(s): All tests indicated in Appendix A.

## Test sample description

|   |                                     |                                     |                                     |                          |                                     |                                     |                          |
|---|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|
| Ports..... :                                  | Port name and description           | Cable                               |                                     |                          |                                     |                                     |                          |
|   |                                     | Specified max length [m]            | Attached during test                | Shielded                 | Coupled to patient <sup>(3)</sup>   |                                     |                          |
|   | Power                               |                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |                          |
| Supplementary information to the ports..... : | ---                                 |                                     |                                     |                          |                                     |                                     |                          |
| Rated power supply .....                      | Voltage and Frequency               |                                     | Reference poles                     |                          |                                     |                                     |                          |
|   |                                     |                                     | L1                                  | L2                       | L3                                  | N                                   | PE                       |
|   | <input checked="" type="checkbox"/> | AC:<br>100-240V~50-60 Hz 1.0-1.5A   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <input checked="" type="checkbox"/>           | AC:<br>115V~400Hz 1.5A              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                          |
| Rated Power .....                             | 24 VDC, 3.75A                       |                                     |                                     |                          |                                     |                                     |                          |
| Clock frequencies..... :                      | N/A                                 |                                     |                                     |                          |                                     |                                     |                          |
| Other parameters .....                        | 390001 (PSU Model Number)           |                                     |                                     |                          |                                     |                                     |                          |
| Software version .....                        | SW04600 (DUT)                       |                                     |                                     |                          |                                     |                                     |                          |
| Hardware version .....                        | 1.0 (DUT)                           |                                     |                                     |                          |                                     |                                     |                          |
| Dimensions in cm (W x H x D) .....            | 13.85 cm x 25.94 cm x 9.45 cm       |                                     |                                     |                          |                                     |                                     |                          |
| Mounting position .....                       | <input checked="" type="checkbox"/> | Table top equipment                 |                                     |                          |                                     |                                     |                          |
| Modules/parts..... :                          | Module/parts of test item           |                                     | Type                                | Manufacturer             |                                     |                                     |                          |
|   | Wireless Module                     |                                     | EXS62-W                             | Thales                   |                                     |                                     |                          |
|   | Bluetooth LE                        |                                     | EFR32BG1                            | SiLabs                   |                                     |                                     |                          |
| Accessories (not part of the test item) ..... | Description                         |                                     | Type                                | Manufacturer             |                                     |                                     |                          |
|   | Power Supply Unit 390001            |                                     | N/A                                 | ResMed                   |                                     |                                     |                          |
| Documents as provided by the applicant .....  | Description                         |                                     | File name                           | Issue date               |                                     |                                     |                          |
|   | ---                                 |                                     |                                     |                          |                                     |                                     |                          |

<sup>(3)</sup> Only for Medical Equipment

## Identification of the client

ResMed Pty Ltd.  
1 Elizabeth Macarthur Drive  
Bella Vista, NSW 2153  
Australia

## Testing period and place

|                      |  |
|----------------------|--|
| <b>Test Location</b> | DEKRA Testing and Certification S.A.U. |
| <b>Date (start)</b>  | 2021-10-22                             |
| <b>Date (finish)</b> | 2021-10-26                             |

## Document history

| Report number | Date       | Description    |
|---------------|------------|----------------|
| 70437RRF.004  | 2022-03-16 | First release. |

## Environmental conditions

In the chamber for conducted measurements, the following limits were not exceeded during the test.

|                          |                              |
|--------------------------|------------------------------|
| <b>Temperature</b>       | Min. = 15 °C<br>Max. = 35 °C |
| <b>Relative humidity</b> | Min. = 20 %<br>Max. = 35 %   |

## Remarks and comments

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The tests have been performed by the technical personnel: José Manuel Jiménez and Javier Nadales.

Used instrumentation:

|  | Last Cal. date | Cal. due date |
|--|----------------|---------------|
| 1. EMI Test Receiver 9kHz-7GHz ROHDE AND SCHWARZ ESR7              | 2019/10        | 2021/10       |
| 2. Signal and spectrum analyzer 10Hz-40GHz Rhode and Schwarz FSV40 | 2021/02        | 2023/02       |
| 3. Wideband Radio Communication Tester CMW500 ROHDE AND SCHWARZ    | 2021/06        | 2022/06       |
| 4. Wideband Radio Communication Tester CMW500 ROHDE AND SCHWARZ    | 2021/08        | 2023/08       |
| 5. AC Power Supply 135/270 V, 5/10/20/40 A ELGAR CS-AC35(351SL)    | 2019/09        | 2022/09       |
| 6. Digital Multimeter FLUKE 175                                    | 2020/11        | 2021/11       |



## Testing verdicts

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

## Summary

### LTE Cat M1 Band FDD 26

| FCC PART 90 PARAGRAPH   |         |        |
|---|---------|--------|
| Requirement – Test case   | Verdict | Remark |
| FCC 90.635 (b): RF output power   | P       | (2)    |
| FCC 2.1047: Modulation characteristics  | N/M     | (1)    |
| FCC 90.213: Frequency stability   | N/M     | (1)    |
| FCC 2.1049: Occupied Bandwidth  | N/M     | (1)    |
| FCC 90.691: Spurious emissions at antenna terminals   | P       | (2)    |
| FCC 90.691: Radiated emissions  | N/M     | (1)    |
| <u>Supplementary information and remarks:</u>   |         |        |
| (1) Test not requested.<br>(2) Conducted measurement performed at Cross-rule channel (824MHz) inherited from 39001 model due to Cellular module is the same for 39001 and 39428 models. |         |        |

## **Appendix A: Test results for FCC Part 22 & 90 / IC RSS-132.**

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## TEST CONDITIONS

### POWER SUPPLY (V):

Vn: 115 Vac  
 Type of Power Supply: AC Voltage mains.

The subscript 'n' indicates nominal voltage test conditions.

### ANTENNA:

Declared Gain for antennas:

| Band        | Gain (dBi) | Antenna type |
|-------------|------------|--------------|
| LTE Band 26 | +2.2       | External     |

### TEST FREQUENCIES:

#### LTE Band 26. QPSK AND 16QAM MODULATIONS:

- 814-824 MHz

|         | Channel per Nominal Bandwidth (Frequency, MHz) |                  |                  |                  |
|---------|--|------------------|------------------|------------------|
|         | BW = 1.4 MHz                                   | BW = 3 MHz       | BW=5 MHz         | BW=10 MHz        |
| Lowest  | 26697<br>(814.7)                               | 26705<br>(815.5) | 26715<br>(816.5) | N/A              |
| Middle  | 26740<br>(819.0)                               | 26740<br>(819.0) | 26740<br>(819.0) | 26740<br>(819.0) |
| Highest | 26783<br>(823.3)                               | 26775<br>(822.5) | 26765<br>(821.5) | N/A              |

- Cross-rule channel (824MHz):

| Channel (Frequency, MHz) |             |             |             |             |
|--------------------------|-------------|-------------|-------------|-------------|
| BW = 1.4 MHz             | BW = 3 MHz  | BW = 5 MHz  | BW = 10 MHz | BW = 15 MHz |
| 26790 (824)              | 26790 (824) | 26790 (824) | 26790 (824) | 26790 (824) |

## RF Output Power

### SPECIFICATION

FCC §2.1046 and §22.913. The Effective Radiated Power (E.R.P.) of mobile transmitter and auxiliary test transmitter must not exceed 7 Watts (38.45 dBm E.R.P.).

RSS-132. Clause 5.4. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts (38.45 dBm E.R.P.).

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

FCC §90.635. The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

### METHOD

The conducted RF output power measurements were made at the RF output terminals of the EUT using the power meter of the Universal Radio Communication tester R&S CMU200 and CMW500, selecting maximum transmission power of the EUT and different modes of modulation.

The peak-to-average power ratio (PAPR) is measured using an attenuator, power splitter and spectrum analyser with a Complementary Cumulative Distribution Function implemented.

The maximum equivalent isotropically radiated power (e.i.r.p.) is calculated by adding the declared maximum antenna gain (dBi).

The maximum effective radiated power e.r.p. is calculated from the maximum equivalent isotropically radiated power (e.i.r.p.) by subtracting 2.15 dB:

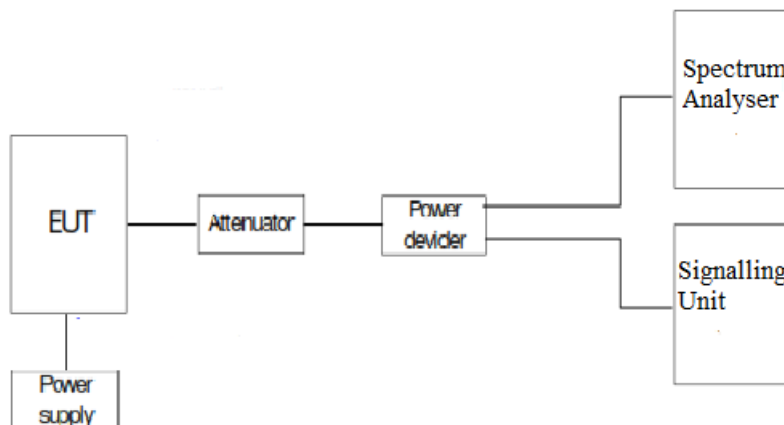
$$E.R.P. = E.I.R.P. - 2.15 \text{ dB}$$

### TEST SETUP

Conducted average power.



### Peak-to-average power ratio (PAPR)



**RESULTS**

**MAXIMUM OUTPUT POWER (CONDUCTED).**

**Cross-rule channel (824MHz):**

Preliminary measurements determined the narrow band = 1 and nominal bandwidth of 3 MHz as the worst case. The results in the next tables shows the results for this configuration.

| BANDWIDTH (MHz) | CHANNEL | FREQUENCY (MHz) | MODULATION | RB SIZE | RB OFFSET | AVERAGE POWER (dBm) |
|-----------------|---------|-----------------|------------|---------|-----------|---------------------|
| 3               | 26790   | 824             | QPSK       | 1       | 0         | 19.92               |
|                 |         |                 |            | 6       | 0         | 19.33               |
|                 |         |                 | 16-QAM     | 1       | 0         | 19.35               |
|                 |         |                 |            | 5       | 0         | 19.29               |

| Channel                      | Measured maximum average power (dBm) at antenna port | Maximum declared antenna gain (dBi) | Maximum equivalent isotropically radiated power (E.I.R.P.) (dBm) | Maximum effective radiated power E.R.P. (dBm) |
|------------------------------|--|-------------------------------------|--|---|
| 26790 (824)                  | 19.92  | +2.2                                | 22.12  | 19.97   |
| Measurement uncertainty (dB) | <±1.11   |                                     |  |   |

Verdict: PASS

## Spurious emissions at antenna terminals

### SPECIFICATION

FCC §2.1051 and §22.917

RSS-132. Clause 5.5.

The power of emissions shall be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. P in watts.

### METHOD

The EUT RF output connector was connected to a spectrum analyser and to the Universal Radio Communication tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using a 50 ohm attenuator and a power divider.

The spectrum was investigated from 9 kHz to 10<sup>th</sup> harmonic for LTE Band 5 and 26.

The reading of the spectrum analyser is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyser.

The configuration of Resource Blocks and modulation which is the worst case for conducted power was used.

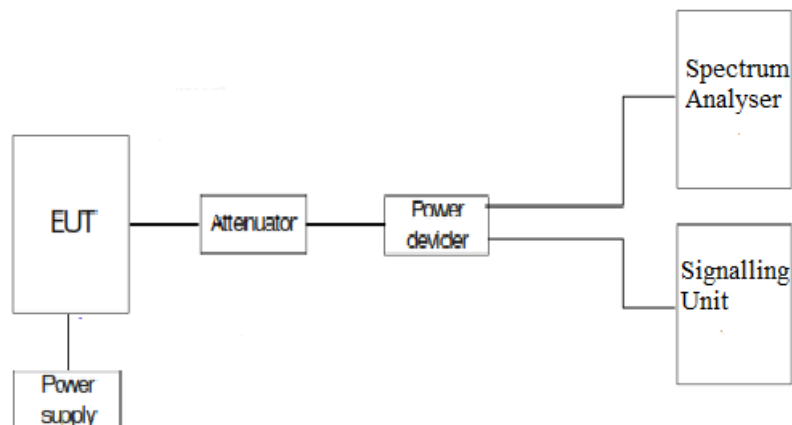
Measurement Limit:

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. P in watts.

At  $P_o$  transmitting power, the specified minimum attenuation becomes  $43 + 10 \log (P_o)$ , and the level in dBm relative  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in mwatts}) - 30] = - 13 \text{ dBm}$$

### TEST SETUP



RESULTS (see plots in next pages)

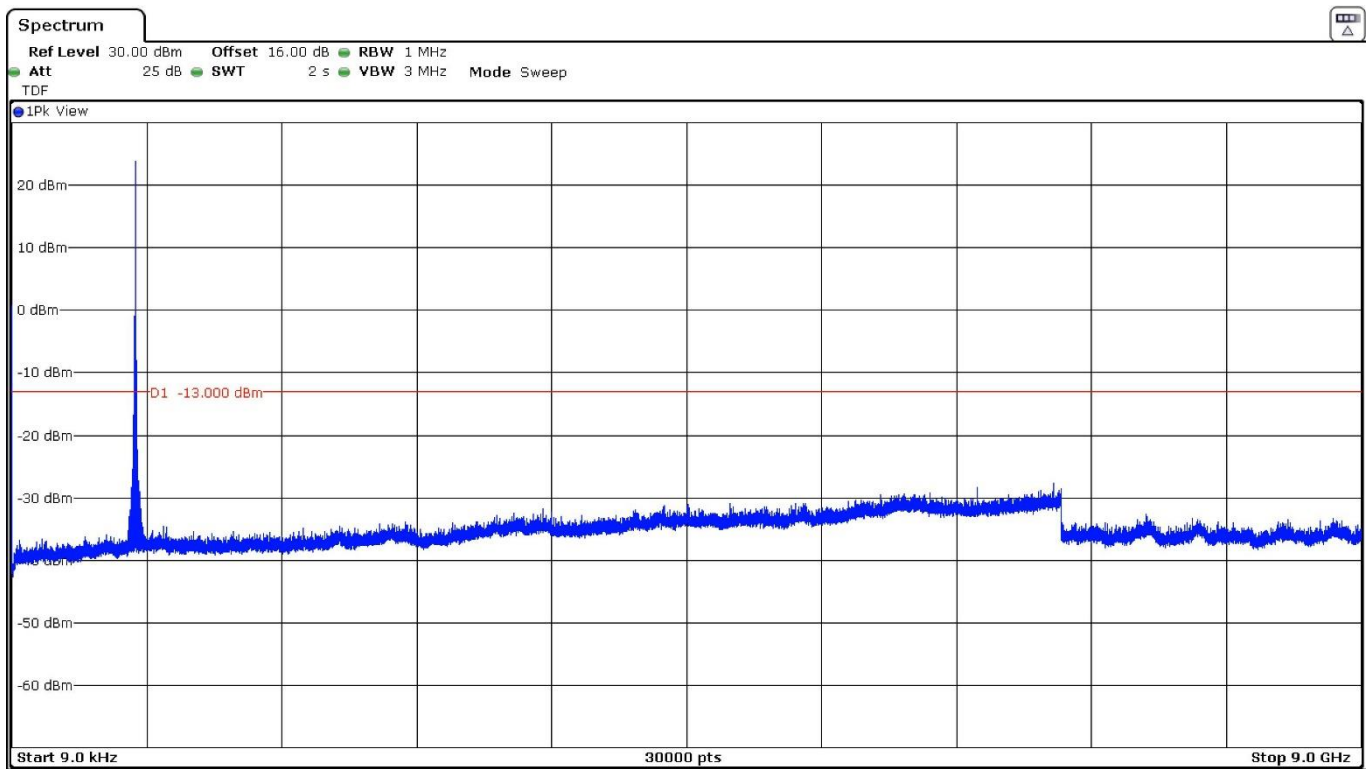
**Cross-rule channel (824MHz):**

LTE Band 26 (QPSK MODULATION. BW = 3 MHz)

1. CHANNEL (26790) 824MHz:

No spurious signals were found at less than 20dB respect to the limit in all the range.

Frequency Range 9 kHz – 9 GHz



Note: The peak above the limit is the carrier frequency.

Verdict: PASS



## Spurious emissions at antenna terminals at Block Edges

### SPECIFICATION

FCC §2.1051 and §22.917  
RSS-132. Clause 5.5.

The power of emissions shall be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. P in watts.

FCC §90.691. Emission mask requirements for EA-based systems. Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{Log}_{10}(f/6.1)$  decibels or  $50 + 10 \text{Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10\text{Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

### METHOD

The EUT RF output connector was connected to a spectrum analyser and to the Universal Radio Communication tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using a 50 ohm attenuator and a power splitter.

The reading of the spectrum analyser is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyser.

The configuration of modulation which is the worst case for conducted power was used.

As indicated in FCC part 22, in the 1 MHz bands immediately outside and adjacent to the frequency block or band a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

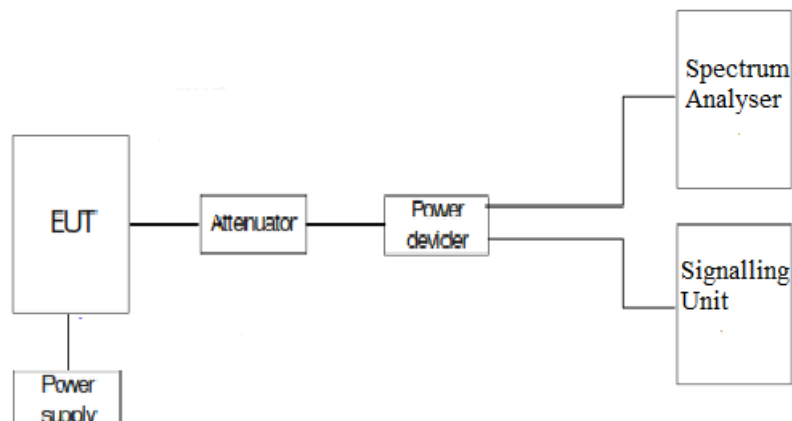
Measurement Limit:

According to specification. the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. P in watts.

At  $P_o$  transmitting power. the specified minimum attenuation becomes  $43+10\log (P_o)$ . and the level in dBm relative  $P_o$  becomes:

$$P_o \text{ (dBm)} - [43 + 10 \log (P_o \text{ in mwatts}) - 30] = - 13 \text{ dBm}$$

### TEST SETUP

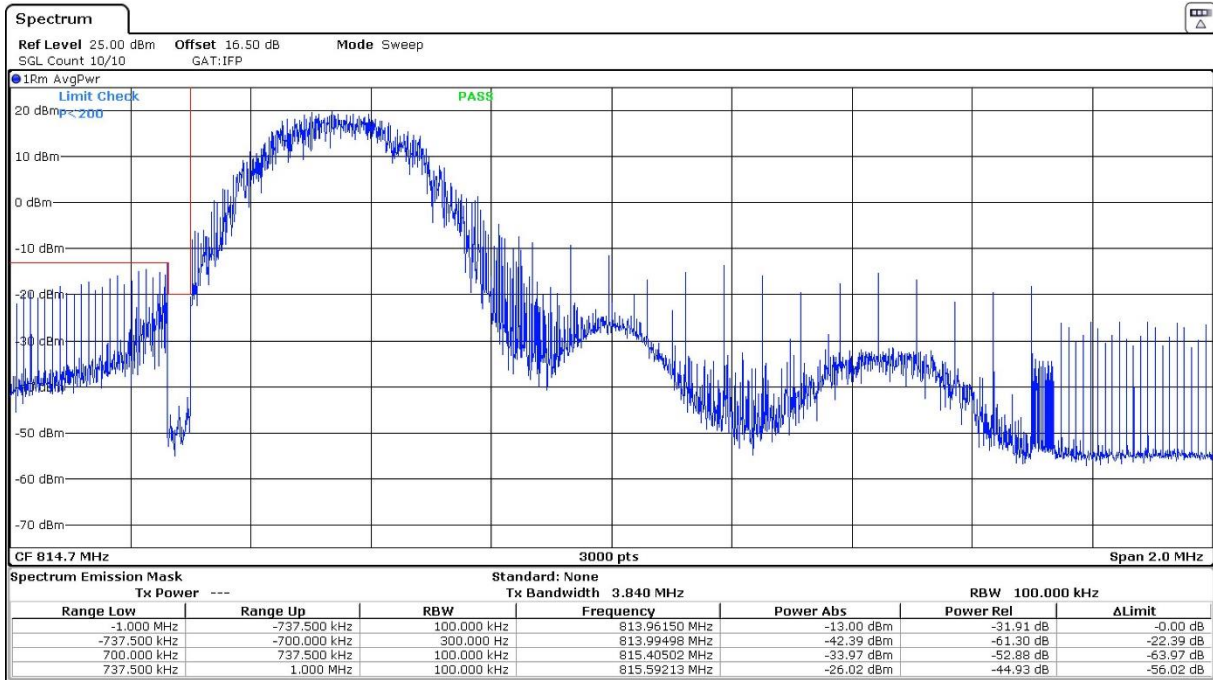


RESULTS (see plots in next pages)

**814-824MHz Band “EA MASK”:**

Narrow band = 1. RB = 1. Offset = 0. BW = 1.4 MHz

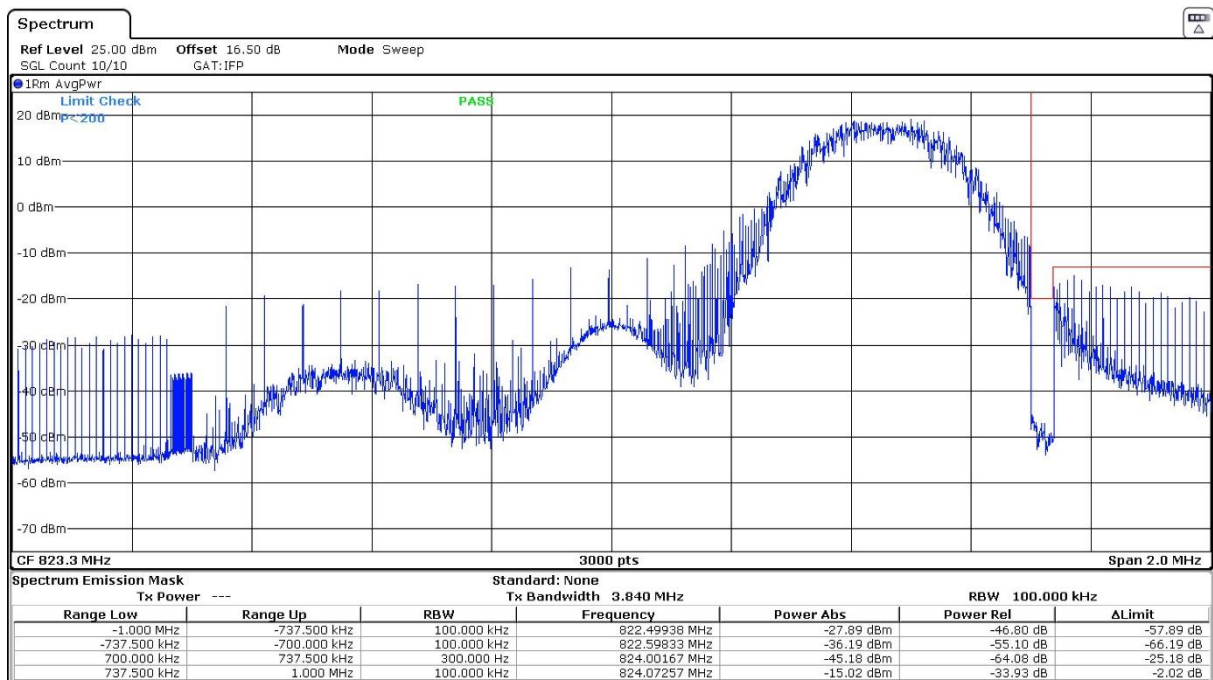
CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

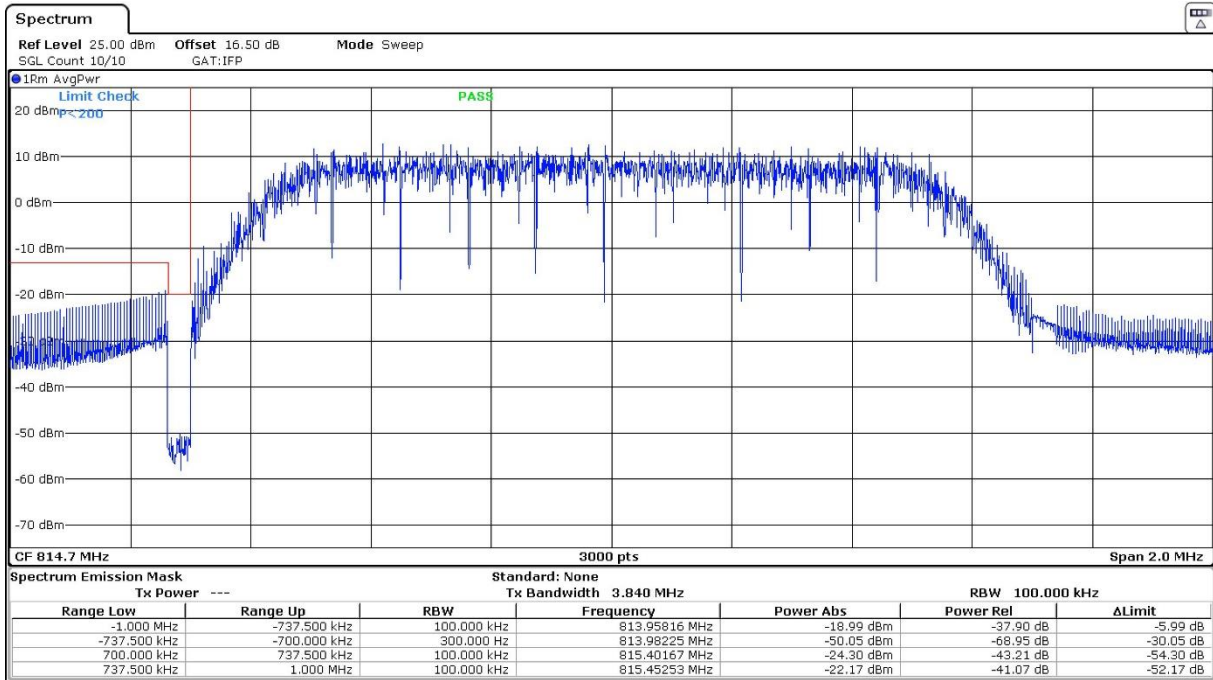
Narrow band = 1. RB = 1. Offset = Max. BW = 1.4 MHz

CHANNEL HIGHEST



Narrow band = 1. RB = All. Offset = 0. BW = 1.4 MHz

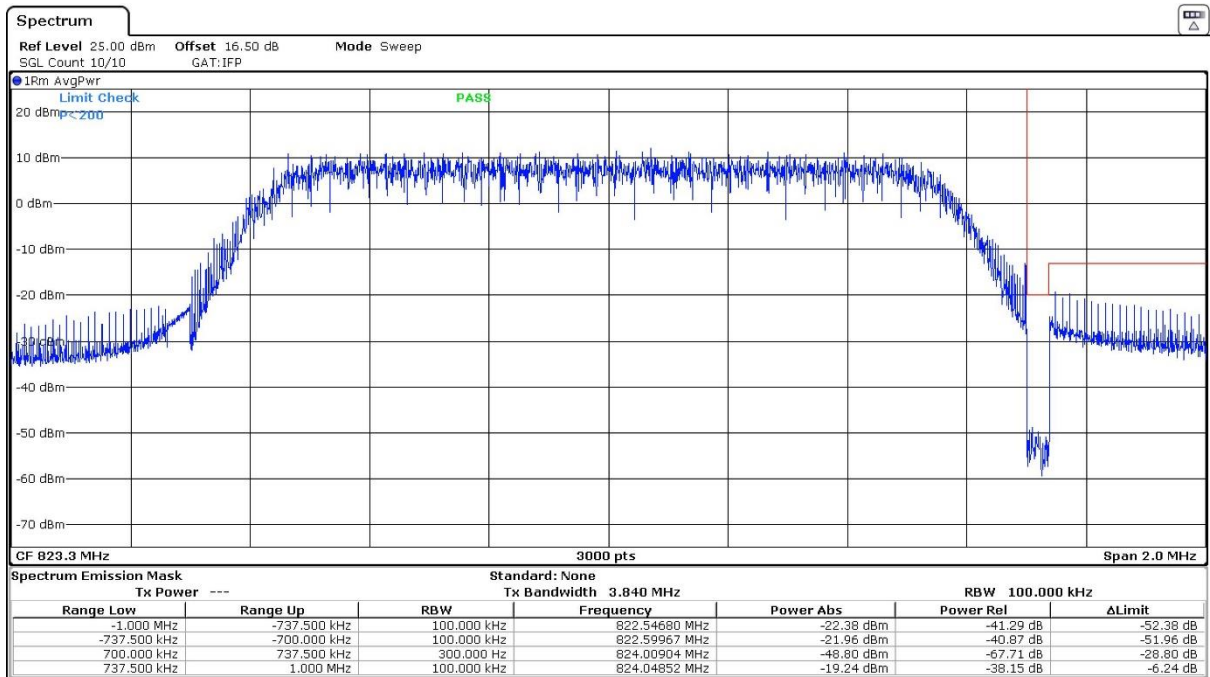
CHANNEL LOWEST



NOTE: The equipment transmits at the maximum output power

Narrow band = 1. RB = All. Offset = 0. BW = 1.4 MHz

CHANNEL HIGHEST



NOTE: The equipment transmits at the maximum output power

Verdict: PASS