N° 1-6736
Scope available
on www.cofrac.fr

CERTIFICATE #3478.01

# TEST REPORT

| | |
|---|---|
| EUT Description | **Notebook** |
| Brand Name | **HP Inc.** |
| Model Name | **TPN-Q248** |
| FCC/IC ID | **FCC ID: B94HNC05C4PD; IC ID: 21374-L850GL** |
| Date of Test Start/End | **2020-06-29 / 2020-07-03** |
| Features | **WWAN (LTE, UMTS)**<br>**(see section 5)** |

| | |
|---|---|
| Applicant | **HP Inc.** |
| Address | **1501 Page Mill Road, Palo Alto CA 94304 USA** |
| Contact Person | **Sam Lin** |
| Telephone/Fax/ Email | **(TEL) +886 2 37896331/ (Email) sam.lin2@hp.com** |

| | |
|---|---|
| Reference Standards | **FCC CFR Title 47 Part 2, 22, 24, 27,90**<br>**RSS-Gen issue 5-A1, RSS 130 issue 2, RSS 132 issue 3, RSS 133 issue 6, RSS 139 issue 3, RSS-195 issue 2, RSS 199 issue 3**<br>(see section 1) |

| | |
|---|---|
| Test Report identification | **200430-01.TR05** |
| Revision Control | **Rev. 00**<br>**This test report revision replaces any previous test report revision**<br>(see section 8) |

The test results relate only to the samples tested.
The test report shall not be reproduced in full, without written approval of the laboratory.
Reference to accreditation shall be used only by full reproduction of test report.

| Issued by | Reviewed by |
|---|---|
| Digitally signed by Ines Kharrat<br>Date: 2020.07.13 10:55:33 +02'00' | Digitally signed by cheiel.in@intel.com<br>Date: 2020-07-13 10: 57:03 |
| Ines KHARRAT<br>(RF Test Lead) | Cheiel IN<br>(Technical Manager) |

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# Table of Contents





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## 1. Standards, reference documents and applicable test methods

1. FCC 47 CFR part 2 - Subpart J - Equipment Authorization Procedures.
2. FCC 47 CFR part 22 - Subpart H - Cellular Radiotelephone Service.
3. FCC 47 CFR part 24 – Subpart E - Broadband PCS.
4. FCC 47 CFR part 27 – Subpart C - Technical Standards.
5. FCC 47 CFR part 27 – Subpart L - 1695-1710, 1710-1755 MHz, 1755-1780 MHz, 2110-2155 MHz, 2155-2180 MHz, 2180-2200 MHz Bands.
6. FCC 47 CFR part 90 – Subpart S - 806-824, 851-869, 896-901, and 935-940 MHz Bands.
7. FCC OET KDB 971168 D01 v03r01 Measurement guidance for certification of licensed digital transmitters.
8. RSS-Gen issue 5 Amendment 1 - General Requirements for Compliance of Radio Apparatus.
9. RSS 130 issue 2 - Equipment Operating in the Frequency Bands 617 – 652 MHz, 663 – 698 MHz, 698-756 MHz and 777-787 MHz.
10. RSS 132 issue 3 - Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz.
11. RSS 133 issue 6 - 2 GHz Personal Communications Services.
12. RSS 139 issue 3 - Advanced Wireless Services Equipment Operating in the Bands 1710–1755 MHz and 2110–2155 MHz.
13. RSS-195 issue 2 - Wireless Communication Service (WCS) Equipment Operating in the Bands 2305-2320 MHz and 2345-2360 MHz.
14. RSS-199 issue 3 - Broadband Radio Services (BRS) Equipment Operating in the Bands 2500-2690 MHz
15. C63.26-2015 - IEEE/ANSI Standard for Compliance Testing of Transmitters Used in Licensed Radio Services.

## 2. General conditions, competences and guarantees

- ✓ Tests performed under FCC standards identified on section 1 are covered by A2LA accreditation.
- ✓ Tests performed under ISED standards identified on section 1 are covered by Cofrac accreditation.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2017 laboratory accredited by the American Association for Laboratory Accreditation (A2LA) with the certificate number 3478.01.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an Accredited Test Firm recognized by the FCC, with Designation Number FR0011.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is an ISO/IEC 17025:2017 testing laboratory accredited by the French Committee for Accreditation (Cofrac) with the certificate number 1-6736.
- ✓ Intel Corporation SAS Wireless RF Lab (Intel WRF Lab) is a Registered Test Site listed by ISED, with ISED #1000Y.
- ✓ Intel WRF Lab declines any responsibility with respect to the identified information provided by the customer and that may affect the validity of results.
- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- ✓ This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.
- ✓ Complete or partial reproduction of the report cannot be made without written permission of Intel WRF Lab.

## 3. Environmental Conditions

- ✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

| | |
|---|---|
| Temperature | 22ºC ± 3ºC |
| Humidity | 50% ± 5% |



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## 4. Test samples

| Sample | Control # | Description | Model | Serial # | Date of receipt | Note |
|---|---|---|---|---|---|---|
| #01 | 200430-01.S03 | LAPTOP | HP | A5CD0126V0F | 2020-04-05 | N/A |

## 5. EUT Features

| | |
|---|---|
| Brand Name | HP Inc. |
| Model Name | TPN-Q248 |
| FCC ID | FCC ID: B94HNC05C4PD; IC ID: 21374-L850GL |
| Prototype / Production | Production |
| Supported Radios | The Fibocom M2 L850 GL module supports only UMTS and LTE, without carrier aggregation. The applicable frequency bands and operating modes are identified in the following table, where North America bands are shown in bold. **WWAN:** |

| Mode | Bands | Supported Tx Mode | | | |
|---|---|---|---|---|---|
| | | WCDMA | HSDPA | HSUPA | DC-HSDPA |
| WCDMA / HSPA+ | **FDD II (1850.0 – 1910.0 MHz)** | ✓ | ✓ | ✓ | ✓ |
| | **FDD IV (1710.0 – 1755.0 MHz)** | ✓ | ✓ | ✓ | ✓ |
| | **FDD V (824.0 – 849.0 MHz)** | ✓ | ✓ | ✓ | ✓ |
| | FDD VIII (880.0 – 915.0 MHz) | ✓ | ✓ | ✓ | ✓ |

| Mode | Bands | Supported Channel Bandwidth (MHz) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1.4 | 3 | 5 | 10 | 15 | 20 |
| LTE FDD | **Band 2 (1850.0 – 1910.0 MHz)** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | **Band 4 (1710.0 – 1755.0 MHz)** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | **Band 5 (824.0 – 849.0 MHz)** | ✓ | ✓ | ✓ | ✓ | | |
| | **Band 7 (2500.0 – 2570.0 MHz)** | | | ✓ | ✓ | ✓ | ✓ |
| | **Band 12 (699.0 – 716.0 MHz)** | ✓ | ✓ | ✓ | ✓ | | |
| | **Band 13 (777.0 – 787.0 MHz)** | | | ✓ | ✓ | | |
| | **Band 17 (704.0 – 716.0 MHz)** | | | ✓ | ✓ | | |
| | Band 18 (815.0 – 830.0 MHz) | | | ✓ | ✓ | ✓ | |
| | Band 19 (830.0 – 845.0 MHz) | | | ✓ | ✓ | ✓ | |
| | **Band 26 (814.0 – 849.0 MHz)** | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | Band 28 (703.0 – 748.0 MHz) | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | **Band 30 (2305.0 – 2315.0 MHz)** | | | ✓ | ✓ | | |
| | **Band 66 (1710.0 – 1780.0 MHz)** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LTE TDD | Band 38 (2570.0 – 2620.0 MHz) | | | ✓ | ✓ | ✓ | ✓ |
| | Band 40 (2300.0 – 2400.0 MHz) | | | ✓ | ✓ | ✓ | ✓ |
| | **Band 41 (2496.0 – 2690.0 MHz)** | | | ✓ | ✓ | ✓ | ✓ |

| | |
|---|---|
| Antenna Information | Main: PIFA antenna – WNC P/N : DN3411KF011 (81ELAV15.G05)<br>Aux : PIFA antenna – WNC P/N : DN3411KF011 (81ELAV15.G06) |

## 6. Remarks and comments

The tested configurations were selected based on the worst case spurious emissions per frequency band from modular type approval report.
The smallest bandwidth and RB were selected in order to guarantee the worst case in terms of power density.


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## 7. Test Verdicts summary

The statement of conformity to applicable standards in the table below are based on the measured values, without taking into account the measurement uncertainties.

| Band | FCC part | Test name | Verdict |
|---|---|---|---|
| WCDMA II | 24.238, 2.1053 | Radiated spurious emission | P |
| WCDMA IV | 27.53 (h), 2.1053 | Radiated spurious emission | P |
| WCDMA V | 22.917, 2.1053 | Radiated spurious emission | P |
| LTE 2 | 24.238, 2.1053 | Radiated spurious emission | P |
| LTE 13 | 27.53 (g)(f), 2.1053 | Radiated spurious emission | P |
| LTE 26 | 90.691, 22.917, 2.1053 | Radiated spurious emission | P |
| LTE 30 | 27.53 (a)(4), 2.1053 | Radiated spurious emission | P |
| LTE 41 | 27.53 (m), 2.1053 | Radiated spurious emission | P |

P: Pass
F: Fail
NM: Not Measured
NA: Not Applicable

## 8. Document Revision History

| Revision # | Date | Modified by | Revision Details |
|---|---|---|---|
| Rev. 00 | 2020-07-03 | AL | First Issue |


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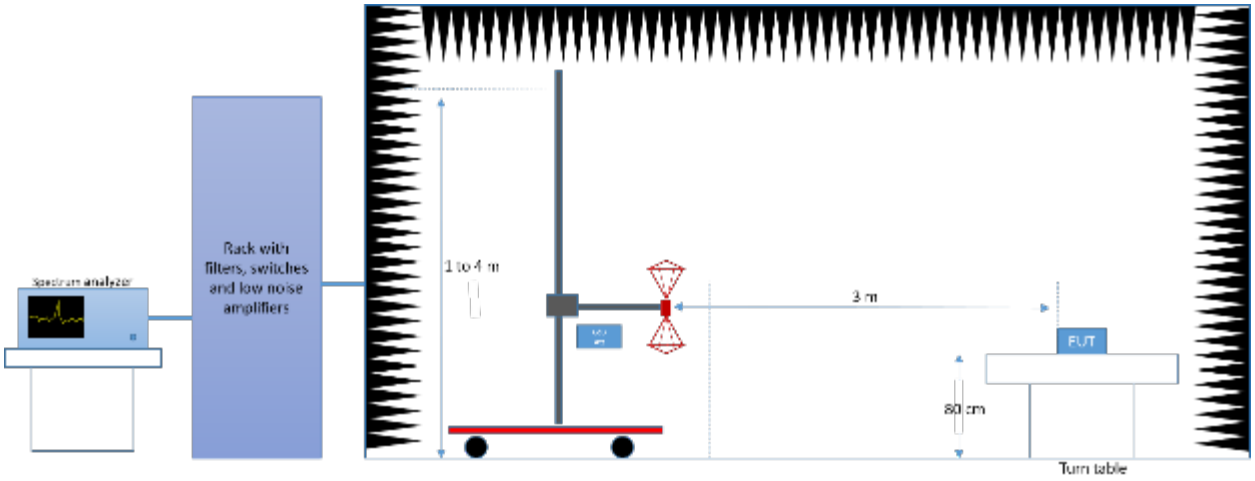
# Annex A. Test & System Description

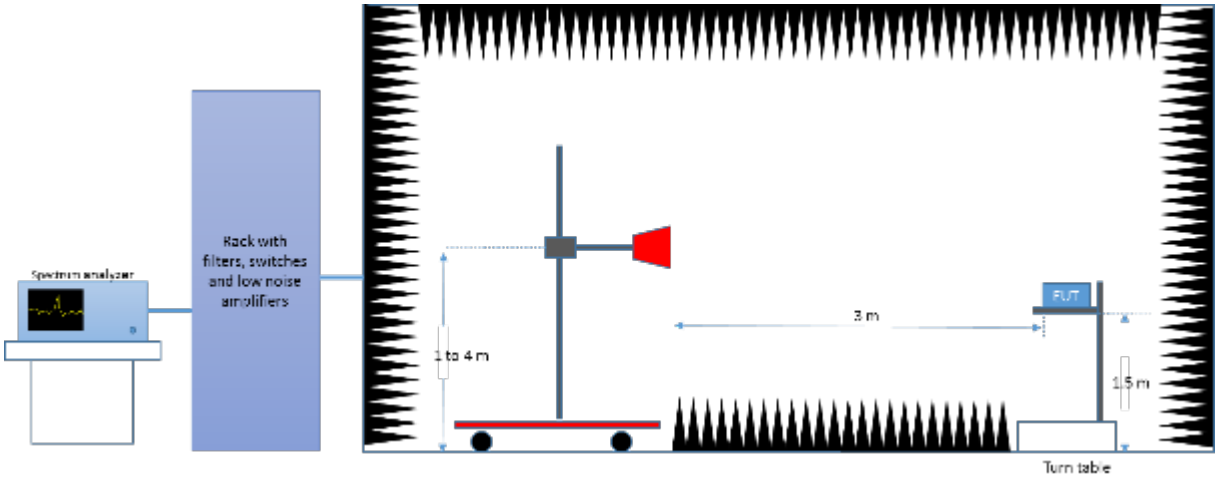
## A.1 Measurement System

Radiated measurements were performed using the following setups. A communication tester was used to establish a communication link with the EUT, and the communication tester parameters were set to get the maximum output power from the EUT.

*Radiated Setup 30MHz- 1GHz*




*Radiated Setup Frequency range 1 GHz to 18 GHz*



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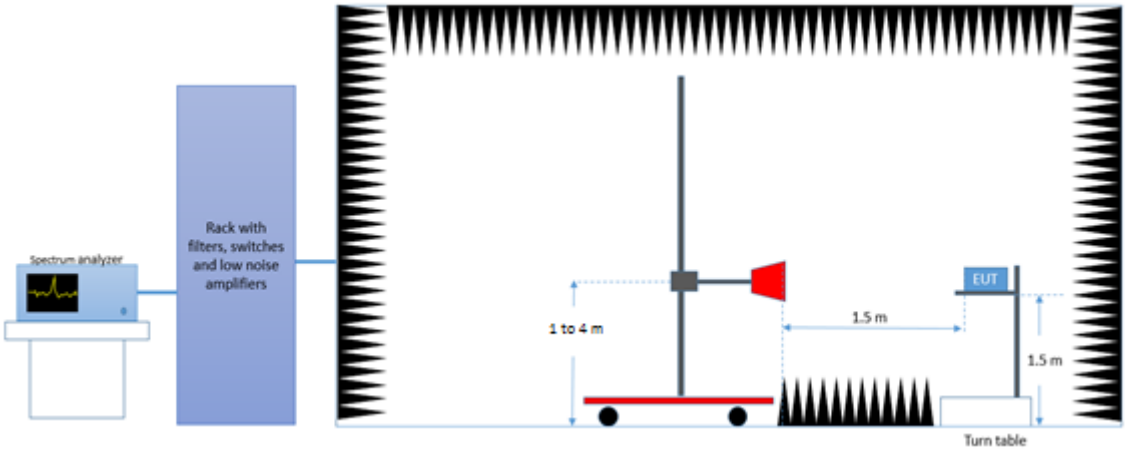
*Radiated Setup Frequency range 18 GHz to 26.5 GHz*




Sample Calculation

The spurious received power P at the spectrum Analyzer is converted to EIRP the equivalent isotropically radiated power, in dBm using the transducer factor F corresponding to the Rx path Loss:

F (dB) = Free Space Attenuation (dB) + Cable losses (dB) – Amplifiers Gain (dB) - Rx Antenna Gain (dBi)
EIRP (dBm) = P(dBm) + F (dB)



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## A.2 Test Equipment List

### A.2.1 Radiated Setup #1

| ID# | Device | Type/Model | Serial # | Manufacturer | Cal. Date | Cal. Due Date |
|---|---|---|---|---|---|---|
| 0420 | Spectrum analyzer | FSV40 | 101358 | Rohde & Schwarz | 2020-05-25 | 2022-05-25 |
| 0993 | BiConical antenna 25 MHz – 1 GHz | UBAA9115+BBVU9135+DGA9552N | 0286+CH 9044 | Schwarzbeck | 2019-11-22 | 2021-11-21 |
| 0141 | Double Ridged Horn Antenna 1 GHz – 18 GHz | 3117 | 00157736 | ETS Lindgren | 2020-04-01 | 2022-04-01 |
| 0325 | Double Ridged Horn Antenna 1 GHz – 18 GHz | 3117 | 00157734 | ETS Lindgren | 2019-08-12 | 2021-08-12 |
| 0139 | Horn Antenna 3116+ Amplifier 18GHz – 26.5GHz | 3116 | 00167100 | ETS Lindgren | 2020-03-19 | 2022-03-19 |
| 0140 | Horn Antenna 3116+ Amplifier 26.5GHz – 40GHz | 3116 | 00169638 | ETS Lindgren | 2020-04-06 | 2022-04-06 |
| 0135 | Semi Anechoic chamber | FACT 3 | 5720 | ETS Lindgren | 2020-05-22 | 2022-05-22 |
| 0135 | Full Anechoic chamber | FACT 3 | 5720 | ETS Lindgren | 2020-01-07 | 2022-01-07 |
| 0530 | Measurement Software | EMC32 V10.40.10 | 100401 | Rohde & Schwarz | N/A | N/A |
| 0210 | Communication tester | CMW500 | 147712 | Rohde & Schwarz | N/A | N/A |
| 0622 | Communication tester | CMW500 | 163186 | Rohde & Schwarz | 2019-05-02 | 2021-05-02 |
| 0797 | Temperature & Humidity logger | RA12E-TH1-RAS | RA12-B0EB1A | AVTECH | 2019-04-07 | 2021-04-07 |

## A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

| Measurement type | Uncertainty [±dB] |
|---|---|
| Radiated test < 1GHz | ± 2.95 |
| Radiated test 1GHz – 26.5 GHz | ± 5.02 |



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# Annex B. Test Results

## B.1 Radiated spurious emission

### B.1.1 Standard references

<table>
<tr><th>Band</th><th>FCC part</th><th>RSS Part</th><th>FCC Limit</th><th>IC Limit</th></tr>
<tr><td>WCDMA II<br>LTE 2</td><td>24.238<br>2.1053</td><td>133-ch 6.5.1</td><td>The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB</td><td>(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1 MHz is required.</td></tr>
<tr><td>WCDMA IV</td><td>27.53 (h)<br>2.1053</td><td>139-ch.6.5</td><td>The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB</td><td>(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.</td></tr>
<tr><td>WCDMA V<br>LTE 5<br>LTE 26</td><td>22.917<br>2.1053<br>90.691</td><td>132-ch.5.5</td><td>The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB</td><td>(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.</td></tr>
<tr><td>LTE 13</td><td>27.53 (g)(f)<br>2.1053</td><td>130-ch.4.7</td><td>The power of any emission outside a licensee's frequency block shall be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.</td><td>The power of any emission outside a licensee's frequency block shall be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.<br>In addition, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:<br>a) The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:<br>(i) 76 + 10 log10 p (watts), dB, for base and fixed equipment, and<br>(ii) 65 + 10 log10 p (watts), dB, for mobile and portable equipment.<br>b) The e.i.r.p. in the band 1559-1610 MHz shall not exceed -70 dBW/MHz for wideband signal and -80 dBW for discrete emission with bandwidth less than 700 Hz.</td></tr>
<tr><td>LTE 30</td><td>27.53 (a)(4),<br>2.1053</td><td>195-ch.5.6.2</td><td>By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;<br>(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;<br>(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.</td><td>
<table>
<tr><th>Frequency (MHz)</th><th>Attenuation (dB)</th></tr>
<tr><td><2200</td><td>43 + 10 log10(p)</td></tr>
<tr><td>2200 - 2288</td><td>70 + 10 log10(p)</td></tr>
<tr><td>2288 - 2292</td><td>67 + 10 log10(p)</td></tr>
<tr><td>2292 - 2296</td><td>61 + 10 log10(p)</td></tr>
<tr><td>2296 - 2300</td><td>55 + 10 log10(p)</td></tr>
<tr><td>2300 - 2305</td><td>43 + 10 log10(p)</td></tr>
<tr><td>2305 - 2320</td><td>43 + 10 log10(p)</td></tr>
<tr><td>2320 - 2324</td><td>55 + 10 log10(p)</td></tr>
<tr><td>2324 - 2328</td><td>61 + 10 log10(p)</td></tr>
<tr><td>2328 - 2337</td><td>67 + 10 log10(p)</td></tr>
<tr><td>2337 - 2341</td><td>61 + 10 log10(p)</td></tr>
<tr><td>2341 - 2345</td><td>55 + 10 log10(p)</td></tr>
<tr><td>2345 - 2360</td><td>43 + 10 log10(p)</td></tr>
<tr><td>2360 - 2365</td><td>43 + 10 log10(p)</td></tr>
<tr><td>2365 - 2395</td><td>70 + 10 log10(p)</td></tr>
<tr><td>>2395</td><td>43 + 10 log10(p)</td></tr>
</table>
</td></tr>
</table>



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| Band | FCC part | RSS Part | FCC Limit | IC Limit |
|---|---|---|---|---|
| LTE 41 | 27.53 (m), 2.1053 | 199-ch.4.5 | For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. | for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:<br><br>(i) 40 + 10 log10 p from the channel edges to 5 MHz away<br>(ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and<br>(iii) 55 + 10 log10 p at X MHz and beyond from the channel edges<br>In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz. |

### B.1.2 Test procedure

The setups described in section A.1 were used to measure the radiated spurious emissions.
Depending of the frequency range and bands being tested, different antennas and filters were used.
The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360º and for both Vertical and Horizontal polarizations.


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### B.1.3 Test Results

**WCDMA 2**

**30MHz to 26.5GHz - Radiated Spurious**
**WCDMA 2- QPSK - Low channel – 1850 MHz**
**BW 5 MHz**

| Frequency | RMS | Limit | Margin |
|---|---|---|---|
| MHz | dBm | dBm | dB |
| 955.6 | -57.1 | -13.0 | 44.1 |
| 958.0 | -56.2 | -13.0 | 43.2 |
| 2996.5 | -48.4 | -13.0 | 35.4 |
| 17795.6 | -55.7 | -13.0 | 42.7 |
| 25894.6 | -63.5 | -13.0 | 50.5 |
| 26189.3 | -63.7 | -13.0 | 50.7 |

**WCDMA 4**

**30MHz to 18GHz - Radiated Spurious**
**WCDMA 4- QPSK - Mid channel – 1732.5 MHz**
**BW 5 MHz**

| Frequency | RMS | Limit | Margin |
|---|---|---|---|
| MHz | dBm | dBm | dB |
| 899.6 | -58.3 | -13.0 | 45.3 |
| 957.1 | -56.0 | -13.0 | 43.0 |
| 3000.0 | -48.7 | -13.0 | 35.7 |
| 17795.6 | -55.9 | -13.0 | 42.9 |
| 17724.5 | -57.7 | -13.0 | 44.7 |
| 17795.6 | -55.9 | -13.0 | 42.9 |


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**WCDMA 5**

**30MHz to 18GHz - Radiated Spurious**
**WCDMA 5- QPSK - Mid channel – 836.5 MHz**
**BW 5 MHz**

| Frequency | RMS | Limit | Margin |
|---|---|---|---|
| MHz | dBm | dBm | dB |
| 937.3 | -70.5 | -13.0 | 57.5 |
| 960.0 | -69.4 | -13.0 | 56.4 |
| 990.7 | -69.1 | -13.0 | 56.1 |
| 8015.3 | -50.3 | -13.0 | 37.3 |
| 8400.7 | -50.4 | -13.0 | 37.4 |
| 8842.2 | -50.4 | -13.0 | 37.4 |

**LTE 2**

**30MHz to 26.5GHz - Radiated Spurious**
**LTE 2- QPSK – High channel – 1910 MHz**
**BW 1.4 MHz– RB 1**

| Frequency | RMS | Limit | Margin |
|---|---|---|---|
| MHz | dBm | dBm | dB |
| 951.8 | -57.1 | -13.0 | 44.1 |
| 959.2 | -55.6 | -13.0 | 42.6 |
| 2999.5 | -48.5 | -13.0 | 35.5 |
| 17786.4 | -55.6 | -13.0 | 42.6 |
| 25926.3 | -63.1 | -13.0 | 50.1 |
| 26233.2 | -63.2 | -13.0 | 50.2 |


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**LTE 13**

**30MHz to 9.5GHz - Radiated Spurious**
**LTE 13 - QPSK - Mid channel – 782 MHz**
**BW 5 MHz– RB 1**

| Frequency | RMS | Limit | Margin |
|---|---|---|---|
| MHz | dBm | dBm | dB |
| 935.9 | -38.0 | -13.0 | 25.0 |
| 956.0 | -37.0 | -13.0 | 24.0 |
| 976.6 | -37.0 | -13.0 | 24.0 |
| 8507.4 | -50.8 | -13.0 | 37.8 |
| 8841.7 | -50.3 | -13.0 | 37.3 |
| 9118.9 | -50.1 | -13.0 | 37.1 |


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**LTE 26**

**30MHz to 9.5GHz - Radiated Spurious**
**LTE 26 - QPSK - Mid channel - 831.5 MHz**
**BW 1.4 MHz– RB 1**

| Frequency | RMS | Limit | Margin |
|---|---|---|---|
| MHz | dBm | dBm | dB |
| 935.0 | -38.0 | -13.0 | 25.0 |
| 958.8 | -36.7 | -13.0 | 23.7 |
| 986.1 | -36.7 | -13.0 | 23.7 |
| 8672.2 | -50.8 | -13.0 | 37.8 |
| 8883.8 | -50.3 | -13.0 | 37.3 |
| 9173.2 | -49.9 | -13.0 | 36.9 |

**LTE 30**

**30MHz to 26.5GHz - Radiated Spurious**
**LTE 30 - QPSK - Mid channel - 2310 MHz**
**BW 5 MHz– RB 1**

| Frequency | RMS | FCC Limit | FCC Margin | IC Limit | IC Margin |
|---|---|---|---|---|---|
| MHz | dBm | dBm | dB | dBm | dB |
| 862.9 | -59.0 | -40.0 | 19.0 | -13.0 | 46.0 |
| 903.7 | -58.3 | -40.0 | 18.3 | -13.0 | 45.3 |
| 2994.5 | -48.6 | -40.0 | 8.6 | -13.0 | 35.6 |
| 13847.0 | -54.3 | -40.0 | 14.3 | -13.0 | 41.3 |
| 25905.5 | -63.2 | -40.0 | 23.2 | -13.0 | 50.2 |
| 26228.9 | -63.1 | -40.0 | 23.1 | -13.0 | 50.1 |


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**LTE 41**

**30MHz to 26.5GHz – Radiated Spurious**
**LTE 41 – QPSK – High channel 2690**
**BW 5 MHz– RB 1**

| Frequency | RMS | Limit | Margin |
|---|---|---|---|
| MHz | dBm | dBm | dB |
| 958.1 | -59.7 | -25.0 | 34.7 |
| 964.7 | -60.4 | -25.0 | 35.4 |
| 2998.5 | -38.9 | -25.0 | 13.9 |
| 17492.5 | -55.5 | -25.0 | 30.5 |
| 26801.8 | -56.9 | -25.0 | 31.9 |
| 26822.5 | -57.0 | -25.0 | 32.0 |


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