

FCC REPORT

(5G NR)

Applicant: HMD global Oy
Address of Applicant: Bertel Jungin aukio 9, 02600 Espoo, Finland
Equipment Under Test (EUT)
Product Name: Smart Phone
Model No.: TA-1361
Trade mark: NOKIA
FCC ID: 2AJOTTA-1361
Applicable standards: FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 22 Subpart H
FCC CFR Title 47 Part 24 Subpart E
FCC CFR Title 47 Part 27
Date of sample receipt: 19 Aug., 2021
Date of Test: 20 Aug., to 28 Aug., 2021
Date of report issued: 30 Aug., 2021
Test Result: PASS*

*In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2. Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | 30 Aug., 2021 | Original |
| | | |
| | | |
| | | |

This application for FCC ID: 2AJOTTA-1361 is reusing data from the application for a variant of device 2AJOTTA-1370. The two devices have identical internal printed circuit board layouts, have a common design and components, where 2AJOTTA-1361 differ only in the depopulation of components for the purposes of removing some frequency bands. Therefore in this report only the radiated spurious emissions was spot check.

Tested by: Mike.ou **Date:** 30 Aug., 2021
Test Engineer

Reviewed by: Winner Zhang **Date:** 30 Aug., 2021
Project Engineer

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4. Test Summary

| Test Items | Section in CFR 47 | Result |
|--|---|---|
| RF Output Power Effective Radiated Power and Effective Isotropic Radiated Power | Part 2.1046 Part 22.913 (a)(5) Part 27.50 (h)(2) Part 27.50 (k)(3) | Refer to the report: SRTC2021-9004(F)-21082803(N) |
| Peak-to-Average Ratio | Part 22.913 (d) Part 27.50 (k)(4) | Refer to the report: SRTC2021-9004(F)-21082803(N) |
| Occupied Bandwidth | Part 2.1049 | Refer to the report: SRTC2021-9004(F)-21082803(N) |
| Emission Bandwidth | Part 2.1049 | Refer to the report: SRTC2021-9004(F)-21082803(N) |
| Spurious Emissions at antenna Terminals & Band Edges Compliance | Part 2.1051 Part 22.917(a) Part 27.53(m) Part 27.53(n) | Refer to the report: SRTC2021-9004(F)-21082803(N) |
| Field strength of spurious radiation | Part 2.1053 Part 22.917(a) Part 27.53(m) Part 27.53(n) | Pass |
| Frequency stability | Part 22.355 Part 27.54 Part 2.1055(d)(2) | Refer to the report: SRTC2021-9004(F)-21082803(N) |
| Remark: 1. Pass: The EUT complies with the essential requirements in the standard. 2. The report: SRTC2021-9004(F)-21082803(N), issued by The State Radio_monitoring_center Testing Center. | | |
| Test Method: | ANSI/TIA-603-E-2016 ANSI C63.26-2015 | |

5. General Information

5.1 Client Information

| | |
|---------------|---|
| Applicant: | HMD global Oy |
| Address: | Bertel Jungin aukio 9, 02600 Espoo, Finland |
| Manufacturer: | HMD global Oy |
| Address: | Bertel Jungin aukio 9, 02600 Espoo, Finland |

5.2 General Description of E.U.T.

| | |
|----------------------------|---|
| Product Name: | Smart Phone |
| Model No.: | TA-1361 |
| Operation Frequency range: | FDD n5: TX: 824MHz~849MHz RX: 869MHz~894MHz FDD n7: TX: 2500MHz~2570MHz RX: 2620MHz~2690MHz TDD n38: TX: 2570MHz~2620MHz RX: 2570MHz~2620MHz TDD n41: TX: 2496MHz~2690MHz RX: 2496MHz~2690MHz TDD n78: TX: 3450MHz~3550MHz RX: 3450MHz~3550MHz |
| Modulation type: | DFT_BPSK, DFT_QPSK, DFT_16-QAM, DFT_64QAM, DFT_256-QAM cp_QPSK, cp_16-QAM, cp_64QAM, cp_256-QAM |
| SCS support: | n5, n7: 15KHz n38, n41, n78: 30KHz |
| 5G NR Network mode: | SA: NR n5, n7, n38, n41, n78 NSA(EN-DC): DC_7A_n5A, DC_7A_n78A |
| Channel Bandwidths: | n5: 5MHz, 10MHz, 15MHz, 20MHz n7: 5MHz, 10MHz, 15MHz, 20MHz n38: 20MHz, 30MHz, 40MHz n41: 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 80MHz, 90MHz, 100MHz 100MHz n78: 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz |
| Antenna type: | Internal Antenna |
| Antenna gain: | n5: -3.5 dBi(declare by Applicant) n7: -2.0 dBi(declare by Applicant) n38: -2.0 dBi(declare by Applicant) n41: -2.0 dBi(declare by Applicant) n78: -2.0 dBi(declare by Applicant) |
| Power supply: | Rechargeable Lithium ion Polymer Battery DC3.85V, 4.85Ah |
| AC adapter: | Adapter 1: Model: TN-050200U3, TN-050200E3, TN-050200C3A Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2.0A 10.0W Note: Only the pins are different between different models Adapter 2: Model: TN-050200U3, TN-050200A3, TN-050200C3A Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2.0A 10.0W Note: Only the pins are different between different models Adapter 3: Model: AD-010A, AD-010X |

| | |
|------------------------|--|
| | Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2.0A 10.0W Note: Only the pins are different between different models |
| Test Sample Condition: | The applicant provided engineering samples for staying in continuously transmitting for testing. |

Operation Frequency List:

Test frequencies for NR operating band n5 and SCS 15 kHz

| Band width [MHz] | carrier Bandwidth [PRBs] | Range | | Carrier centre [MHz] | Carrier centre [ARFCN] | point A [MHz] | absolute FrequencyPoint A [ARFCN] | offsetTo Carrier [Carrier PRBs] | SS block SCS [kHz] | GSCN | absolute FrequencySSB [ARFCN] |
|------------------|--------------------------|----------|------|----------------------|------------------------|---------------|-----------------------------------|---------------------------------|--------------------|------|-------------------------------|
| 5 | 25 | Downlink | Low | 871.5 | 174300 | 869.25 | 173850 | 0 | 15 | 2178 | 174270 |
| | | | Mid | 881.5 | 176300 | 860.89 | 172178 | 102 | | 2203 | 176210 |
| | | | High | 891.5 | 178300 | 798.53 | 159706 | 504 | | 2228 | 178330 |
| | | Uplink | Low | 826.5 | 165300 | 824.25 | 164850 | 0 | - | - | - |
| | | | Mid | 836.5 | 167300 | 743.53 | 148706 | 504 | - | - | - |
| | | | High | 846.5 | 169300 | 843.17 | 168634 | 6 | - | - | - |
| 10 | 52 | Downlink | Low | 874 | 174800 | 869.32 | 173864 | 0 | 15 | 2179 | 174290 |
| | | | Mid | 881.5 | 176300 | 858.46 | 171692 | 102 | | 2197 | 175730 |
| | | | High | 889 | 177800 | 793.6 | 158720 | 504 | | 2218 | 177410 |
| | | Uplink | Low | 829 | 165800 | 824.32 | 164864 | 0 | - | - | - |
| | | | Mid | 836.5 | 167300 | 741.1 | 148220 | 504 | - | - | - |
| | | | High | 844 | 168800 | 838.24 | 167648 | 6 | - | - | - |
| 15 | 79 | Downlink | Low | 876.5 | 175300 | 869.39 | 173878 | 0 | 15 | 2177 | 174250 |
| | | | Mid | 881.5 | 176300 | 856.03 | 171206 | 102 | | 2191 | 175250 |
| | | | High | 886.5 | 177300 | 788.67 | 157734 | 504 | | 2205 | 176430 |
| | | Uplink | Low | 831.5 | 166300 | 824.39 | 164878 | 0 | - | - | - |
| | | | Mid | 836.5 | 167300 | 738.67 | 147734 | 504 | - | - | - |
| | | | High | 841.5 | 168300 | 833.31 | 166662 | 6 | - | - | - |
| 20 | 106 | Downlink | Low | 879 | 175800 | 869.46 | 173892 | 0 | 15 | 2178 | 174270 |
| | | | Mid | 881.5 | 176300 | 853.6 | 170720 | 102 | | 2185 | 174770 |
| | | | High | 884 | 176800 | 783.74 | 156748 | 504 | | 2192 | 175450 |
| | | Uplink | Low | 834 | 166800 | 824.46 | 164892 | 0 | - | - | - |
| | | | Mid | 836.5 | 167300 | 736.24 | 147248 | 504 | - | - | - |
| | | | High | 839 | 167800 | 828.38 | 165676 | 6 | - | - | - |

Test frequencies for NR operating band n7 and SCS 15 kHz

| Band width [MHz] | carrier Bandwidth [PRBs] | Range | | Carrier centre [MHz] | Carrier centre [ARFCN] | point A [MHz] | absolute FrequencyPoint A [ARFCN] | offsetTo Carrier [Carrier PRBs] | SS block SCS [kHz] | GSCN | absolute FrequencySSB [ARFCN] |
|------------------|--------------------------|----------|------|----------------------|------------------------|---------------|-----------------------------------|---------------------------------|--------------------|------|-------------------------------|
| 5 | 25 | Downlink | Low | 2622.5 | 524500 | 2620.25 | 524050 | 0 | 15 | 6554 | 524410 |
| | | | Mid | 2655 | 531000 | 2634.39 | 526878 | 102 | | 6636 | 530910 |
| | | | High | 2687.5 | 537500 | 2594.53 | 518906 | 504 | | 6718 | 537410 |
| | | Uplink | Low | 2502.5 | 500500 | 2500.25 | 500050 | 0 | - | - | - |
| | | | Mid | 2535 | 507000 | 2442.03 | 488406 | 504 | - | - | - |
| | | | High | 2567.5 | 513500 | 2564.17 | 512834 | 6 | - | - | - |
| 10 | 52 | Downlink | Low | 2625 | 525000 | 2620.32 | 524064 | 0 | 15 | 6555 | 524430 |
| | | | Mid | 2655 | 531000 | 2631.96 | 526392 | 102 | | 6630 | 530430 |
| | | | High | 2685 | 537000 | 2589.6 | 517920 | 504 | | 6705 | 536430 |
| | | Uplink | Low | 2505 | 501000 | 2500.32 | 500064 | 0 | - | - | - |
| | | | Mid | 2535 | 507000 | 2439.6 | 487920 | 504 | - | - | - |
| | | | High | 2565 | 513000 | 2559.24 | 511848 | 6 | - | - | - |
| 15 | 79 | Downlink | Low | 2627.5 | 525500 | 2620.39 | 524078 | 0 | 15 | 6556 | 524450 |
| | | | Mid | 2655 | 531000 | 2629.53 | 525906 | 102 | | 6624 | 529950 |
| | | | High | 2682.5 | 536500 | 2584.67 | 516934 | 504 | | 6692 | 535450 |
| | | Uplink | Low | 2507.5 | 501500 | 2500.39 | 500078 | 0 | - | - | - |
| | | | Mid | 2535 | 507000 | 2437.17 | 487434 | 504 | - | - | - |
| | | | High | 2562.5 | 512500 | 2554.31 | 510862 | 6 | - | - | - |
| 20 | 106 | Downlink | Low | 2630 | 526000 | 2620.46 | 524092 | 0 | 15 | 6557 | 524650 |
| | | | Mid | 2655 | 531000 | 2627.1 | 525420 | 102 | | 6618 | 529470 |
| | | | High | 2680 | 536000 | 2579.74 | 515948 | 504 | | 6682 | 534530 |
| | | Uplink | Low | 2510 | 502000 | 2500.46 | 500092 | 0 | - | - | - |
| | | | Mid | 2535 | 507000 | 2434.74 | 486948 | 504 | - | - | - |
| | | | High | 2560 | 512000 | 2549.38 | 509876 | 6 | - | - | - |

Test frequencies for NR operating band n38 and SCS 30 kHz

| Band width [MHz] | carrier Bandwidth [PRBs] | Range | | Carrier centre [MHz] | Carrier centre [ARFCN] | point A [MHz] | absolute Frequency Point A [ARFCN] | offsetTo Carrier [PRBs] | SS block SCS [kHz] | GSCN | absolute FrequencySSB [ARFCN] |
|------------------|--------------------------|-------------------|------|----------------------|------------------------|---------------|------------------------------------|-------------------------|--------------------|--------|-------------------------------|
| 20 | 51 | Downlink & Uplink | Low | 2580 | 516000 | 2570.82 | 514164 | 0 | 30 | 6438 | 515070 |
| | | | Mid | 2595 | 519000 | 2549.1 | 509820 | 102 | | 6474 | 517950 |
| | | High | 2610 | 522000 | 2419.38 | 483876 | 504 | 6513 | | 521070 | |
| 30 | 78 | Downlink & Uplink | Low | 2585 | 517000 | 2570.92 | 514184 | 0 | 30 | 6439 | 515090 |
| | | | Mid | 2595 | 519000 | 2539.2 | 507840 | 102 | | 6450 | 516030 |
| | | High | 2605 | 521000 | 2399.48 | 479896 | 504 | 6461 | | 516970 | |
| 40 | 106 | Downlink & Uplink | Low | 2590 | 518000 | 2570.92 | 514184 | 0 | 30 | 6439 | 515090 |
| | | | Mid | 2595 | 519000 | 2539.2 | 507840 | 102 | | 6450 | 516030 |
| | | High | 2600 | 520000 | 2399.48 | 479896 | 504 | 6461 | | 516970 | |

Test frequencies for NR operating band n41 and SCS 30 kHz

| Band width [MHz] | carrier Bandwidth [PRBs] | Range | | Carrier centre [MHz] | Carrier centre [ARFCN] | point A [MHz] | absolute Frequency Point A [ARFCN] | offsetTo Carrier [Carrier PRBs] | SS block SCS [kHz] | GSCN | absolute FrequencySSB [ARFCN] |
|------------------|--------------------------|-------------------|---------|----------------------|------------------------|---------------|------------------------------------|---------------------------------|--------------------|--------|-------------------------------|
| 10 | 24 | Downlink & Uplink | Low | 2501.01 | 500202 | 2496.69 | 499338 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2551.95 | 510390 | 102 | | 6483 | 518670 |
| | | High | 2685 | 537000 | 2499.24 | 499848 | 504 | 6711 | | 536910 | |
| 15 | 38 | Downlink & Uplink | Low | 2503.5 | 500700 | 2496.66 | 499332 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2549.43 | 509886 | 102 | | 6474 | 517950 |
| | | High | 2682.48 | 536496 | 2494.2 | 498840 | 504 | 6699 | | 535950 | |
| 20 | 51 | Downlink & Uplink | Low | 2506.02 | 501204 | 2496.84 | 499368 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2547.09 | 509418 | 102 | | 6471 | 517710 |
| | | High | 2679.99 | 535998 | 2489.37 | 497874 | 504 | 6687 | | 534990 | |
| 40 | 106 | Downlink & Uplink | Low | 2516.01 | 503202 | 2496.93 | 499386 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2537.19 | 507438 | 102 | | 6444 | 515550 |
| | | High | 2670 | 534000 | 2469.48 | 493896 | 504 | 6636 | | 530910 | |
| 50 | 133 | Downlink & Uplink | Low | 2521.02 | 504204 | 2497.08 | 499416 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2532.33 | 506466 | 102 | | 6432 | 514590 |
| | | High | 2664.99 | 532998 | 2459.61 | 491922 | 504 | 6612 | | 528990 | |
| 60 | 162 | Downlink & Uplink | Low | 2526 | 505200 | 2496.84 | 499368 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2527.11 | 505422 | 102 | | 6420 | 513630 |
| | | High | 2659.98 | 531996 | 2449.38 | 489876 | 504 | 6588 | | 527070 | |
| 80 | 217 | Downlink & Uplink | Low | 2536.02 | 507204 | 2496.96 | 499392 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2517.21 | 503442 | 102 | | 6396 | 511710 |
| | | High | 2649.99 | 529998 | 2429.49 | 485898 | 504 | 6537 | | 522990 | |
| 90 | 245 | Downlink & Uplink | Low | 2541 | 508200 | 2496.9 | 499380 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2512.17 | 502434 | 102 | | 6381 | 510510 |
| | | High | 2644.98 | 528996 | 2419.44 | 483888 | 504 | 6513 | | 521070 | |
| 100 | 273 | Downlink & Uplink | Low | 2546.01 | 509202 | 2496.87 | 499374 | 0 | 30 | 6252 | 500190 |
| | | | Mid | 2592.99 | 518598 | 2507.13 | 501426 | 102 | | 6369 | 509550 |
| | | High | 2640 | 528000 | 2409.42 | 481884 | 504 | 6486 | | 518910 | |

Test frequencies for NR operating band n78 and SCS 30 kHz

| Bandwidth [MHz] | Range | | Carrier centre [MHz] | Carrier centre [ARFCN] | SS block SCS [kHz] |
|-----------------|-------------------|------|----------------------|------------------------|--------------------|
| 20 | Downlink & Uplink | Low | 3459.99 | 630666 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3540 | 636000 | |
| 30 | Downlink & Uplink | Low | 3465 | 631000 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3534.99 | 635666 | |
| 40 | Downlink & Uplink | Low | 3470.01 | 631334 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3530.01 | 635334 | |
| 50 | Downlink & Uplink | Low | 3474.99 | 631666 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3525 | 635000 | |
| 60 | Downlink & Uplink | Low | 3480 | 632000 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3519.99 | 634666 | |
| 70 | Downlink & Uplink | Low | 3484.995 | 632333 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3514.995 | 634333 | |
| 80 | Downlink & Uplink | Low | 3489.99 | 632666 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3510 | 634000 | |
| 90 | Downlink & Uplink | Low | 3495 | 633000 | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | 3504.99 | 633666 | |
| 100 | Downlink & Uplink | Low | \ | \ | 30 |
| | | Mid | 3500.01 | 633334 | |
| | | High | \ | \ | |

5.3 Test environment and mode, and test samples plans

| Operating Environment: | |
|--|--|
| Temperature: | Normal: 15°C ~ 35°C, Extreme: -30°C ~ +50°C |
| Humidity: | 20 % ~ 75 % RH |
| Atmospheric Pressure: | 1008 mbar |
| Voltage: | Nominal: 3.85Vdc, Extreme: Low 3.4Vdc, High 4.4Vdc |
| Test mode: | |
| TM1 | DFT-s-Pi/2-BPSK modulation |
| TM2 | DFT-s-QPSK modulation |
| TM3 | DFT-s-16QAM modulation |
| TM4 | DFT-s-64QAM modulation |
| TM5 | DFT-s-256QAM modulation |
| TM6 | CP-QPSK modulation |
| TM7 | CP-16QAM modulation |
| TM8 | CP-64QAM modulation |
| TM9 | CP-256QAM modulation |
| Remark: The EUT has been tested under continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing. The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for these modes. Just the worst case position (H mode) shown in report. | |

5.4 Description of Support Units

| Test Equipment | Manufacturer | Model No. | Serial No. |
|-------------------------------|--------------|-----------|------------|
| UXM 5G Wireless Test Platform | KEYSIGHT | E7515B | MY60192444 |

5.5 Measurement Uncertainty

| Parameter | Expanded Uncertainty (Confidence of 95%(U = 2Uc(y))) |
|---|---|
| Radiated Emission (9kHz ~ 30MHz) (3m SAC) | ±3.13 dB |
| Radiated Emission (30MHz ~ 1000MHz) (3m SAC) | ±4.45 dB |
| Radiated Emission (1GHz ~ 18GHz) (3m SAC) | ±5.34 dB |
| Radiated Emission (18GHz ~ 40GHz) (3m SAC) | ±5.34 dB |
| Note: The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.26-2015. 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 Related Submittal(s) / Grant (s)

| |
|--|
| This is an original grant, no related submittals and grants. |
|--|

5.7 Additions to, deviations, or exclusions from the method

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

5.8 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **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 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.

● **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>

5.9 Laboratory Location

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.

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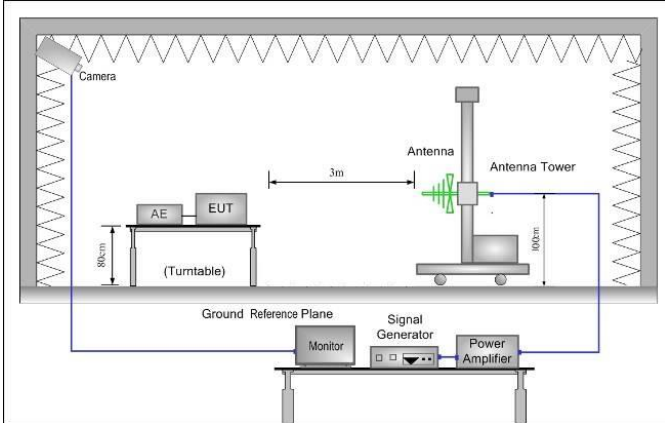
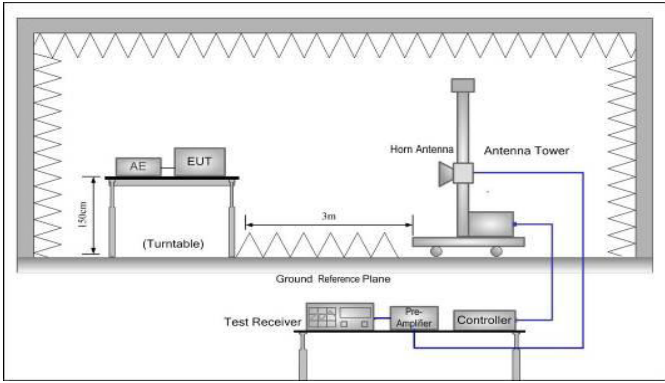
Email: info-JYTee@lets.com, Website: <http://www.ccis-cb.com>

5.10 Test Instruments list

| Radiated Emission: | | | | | |
|-------------------------------|-----------------|-----------------|-------------------|---------------------|--------------------------|
| Test Equipment | Manufacturer | Model No. | Management Number | Cal.Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 3m SAC | SAEMC | 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) | HP | 8447D | WXG001-2 | 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 | Rohde & Schwarz | FSP30 | WXJ004 | 03-03-2021 | 03-02-2022 |
| Spectrum Analyzer | KEYSIGHT | N9010B | WXJ004-2 | 11-27-2020 | 11-26-2021 |
| Signal Generator | Agilent | N5173B | WXJ006-7 | 03-25-2021 | 03-24-2022 |
| UXM 5G Wireless Test Platform | KEYSIGHT | E7515B | MY60192444 | 11-27-2020 | 11-26-2021 |
| 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 (1GHz ~ 18GHz) | JYT | JYT3M-40G-SS-8M | WXG001-7 | 03-07-2021 | 03-06-2022 |
| RF Switch Unit | Tonscend | JS0806-F | WXJ089 | N/A | |
| Test Software | Tonscend | TS+ | Version: 3.0.0.1 | | |

6. Test results

6.1 Field strength of spurious radiation measurement

| | |
|-------------------|--|
| Test Requirement: | Part 2.1053, Part 22.917(a), Part 27.53(m), Part 27.53(n) |
| Limit: | <p>5G NR n5, n78: -13dBm 5G NR n7, n38, n41:</p> <p>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.</p> |
| Test setup: | <p>Below 1GHz</p>  <p>Above 1GHz</p>  |
| Test Procedure: | <ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference |

| | |
|-------------------|--|
| | <p>between radiated power at the fundamental frequency and the spurious emissions frequency.</p> $\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$ |
| Test Instruments: | Refer to section 5.10 for details |
| Test mode: | Refer to section 5.3 for details. |
| Test results: | Passed |
| Remark: | Pre-Scan all modulation and all Bandwidth, And the report only reflects the worst mode |

Measurement Data:

| N5_TM1 | | | | | |
|-----------------------------|---------------|-------------|-------------|-------------|------------|
| Test Channel = High Channel | | | | | |
| Freq. [MHz] | Reading [dBm] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1324.0405 | 20.77 | -50.57 | -13.00 | 37.57 | Horizontal |
| 2738.9674 | 20.95 | -47.01 | -13.00 | 34.01 | Horizontal |
| 4145.3073 | 51.36 | -64.55 | -13.00 | 51.55 | Horizontal |
| 8833.0417 | 48.31 | -53.01 | -13.00 | 40.01 | Horizontal |
| 14543.0772 | 45.56 | -45.34 | -13.00 | 32.34 | Horizontal |
| 16406.9203 | 48.53 | -41.96 | -13.00 | 28.96 | Horizontal |
| 1460.8076 | 20.48 | -50.30 | -13.00 | 37.30 | Vertical |
| 2342.4178 | 20.85 | -47.97 | -13.00 | 34.97 | Vertical |
| 4366.5683 | 52.00 | -63.38 | -13.00 | 50.38 | Vertical |
| 7378.7189 | 49.61 | -55.19 | -13.00 | 42.19 | Vertical |
| 11525.6763 | 46.27 | -49.04 | -13.00 | 36.04 | Vertical |
| 16408.4204 | 48.56 | -41.96 | -13.00 | 28.96 | Vertical |

Remark:

- The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.
- Quoting the FCC ID: 2AJOTTA-1370 report, it is found that this channel is the worst mode, retest the data.

| N7_TM1 | | | | | |
|-------------------------------|---------------|-------------|-------------|-------------|------------|
| Test Channel = Middle Channel | | | | | |
| Freq. [MHz] | Reading [dBm] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1639.0799 | 20.42 | -49.82 | -13.00 | 36.82 | Horizontal |
| 5051.3526 | 56.35 | -56.57 | -13.00 | 43.57 | Horizontal |
| 7576.7288 | 58.83 | -45.10 | -13.00 | 32.10 | Horizontal |
| 10687.8844 | 47.97 | -49.68 | -13.00 | 36.68 | Horizontal |
| 14030.8015 | 46.90 | -44.90 | -13.00 | 31.90 | Horizontal |
| 17997.7499 | 50.31 | -43.19 | -13.00 | 30.19 | Horizontal |
| 1697.0871 | 20.61 | -49.32 | -13.00 | 36.32 | Vertical |
| 4139.3070 | 51.98 | -64.04 | -13.00 | 51.04 | Vertical |
| 7576.7288 | 55.22 | -48.71 | -13.00 | 35.71 | Vertical |
| 10021.8511 | 48.46 | -50.27 | -13.00 | 37.27 | Vertical |
| 15034.3517 | 46.72 | -43.65 | -13.00 | 30.65 | Vertical |
| 17998.4999 | 50.28 | -43.23 | -13.00 | 30.23 | Vertical |

Remark:

- The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.
- Quoting the FCC ID: 2AJOTTA-1370 report, it is found that this channel is the worst mode, retest the data.

| N38_TM1 | | | | | |
|-----------------------------|---------------|-------------|-------------|-------------|------------|
| Test Channel = High Channel | | | | | |
| Freq. [MHz] | Reading [dBm] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1596.5746 | 20.69 | -49.88 | -25.00 | 24.88 | Horizontal |
| 5202.1101 | 52.22 | -59.41 | -25.00 | 34.41 | Horizontal |
| 7802.4901 | 60.05 | -43.32 | -25.00 | 18.32 | Horizontal |
| 10617.3809 | 46.84 | -50.49 | -25.00 | 25.49 | Horizontal |
| 14593.3297 | 44.83 | -46.71 | -25.00 | 21.71 | Horizontal |
| 16419.6710 | 47.45 | -43.28 | -25.00 | 18.28 | Horizontal |
| 1452.0565 | 20.77 | -50.12 | -25.00 | 25.12 | Vertical |
| 4520.3260 | 51.49 | -63.00 | -25.00 | 38.00 | Vertical |
| 7002.9501 | 48.76 | -57.21 | -25.00 | 32.21 | Vertical |
| 10033.1017 | 46.86 | -51.79 | -25.00 | 26.79 | Vertical |
| 13355.7678 | 45.41 | -46.84 | -25.00 | 21.84 | Vertical |
| 16396.4198 | 46.47 | -43.96 | -25.00 | 18.96 | Vertical |

Remark:

- The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.
- Quoting the FCC ID: 2AJOTTA-1370 report, it is found that this channel is the worst mode, retest the data.

| N41_TM1 | | | | | |
|-------------------------------|---------------|-------------|-------------|-------------|------------|
| Test Channel = Middle Channel | | | | | |
| Freq. [MHz] | Reading [dBm] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1676.3345 | 21.08 | -49.08 | -25.00 | 24.08 | Horizontal |
| 4380.8190 | 52.67 | -62.59 | -25.00 | 37.59 | Horizontal |
| 7632.2316 | 55.72 | -48.08 | -25.00 | 23.08 | Horizontal |
| 11822.6911 | 47.16 | -47.35 | -25.00 | 22.35 | Horizontal |
| 16013.1507 | 46.72 | -43.57 | -25.00 | 18.57 | Horizontal |
| 17991.7496 | 50.10 | -43.25 | -25.00 | 18.25 | Horizontal |
| 1526.5658 | 20.62 | -49.76 | -25.00 | 24.76 | Vertical |
| 1526.5658 | 20.62 | -49.76 | -25.00 | 24.76 | Vertical |
| 4215.0608 | 52.01 | -63.67 | -25.00 | 38.67 | Vertical |
| 7632.2316 | 57.06 | -46.74 | -25.00 | 21.74 | Vertical |
| 11314.1657 | 48.16 | -47.72 | -25.00 | 22.72 | Vertical |
| 16424.1712 | 48.57 | -42.24 | -25.00 | 17.24 | Vertical |

Remark:

- The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.
- Quoting the FCC ID: 2AJOTTA-1370 report, it is found that this channel is the worst mode, retest the data.

| N78_TM1 | | | | | |
|-------------------------------|---------------|-------------|-------------|-------------|------------|
| Test Channel = Middle Channel | | | | | |
| Freq. [MHz] | Reading [dBm] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1679.0340 | 21.69 | -48.34 | -13.00 | 35.34 | Horizontal |
| 4809.9405 | 20.12 | -41.99 | -13.00 | 28.99 | Horizontal |
| 7475.7738 | 49.19 | -55.04 | -13.00 | 42.04 | Horizontal |
| 9345.3173 | 47.55 | -52.37 | -13.00 | 39.37 | Horizontal |
| 11930.4465 | 45.62 | -48.39 | -13.00 | 35.39 | Horizontal |
| 16912.0456 | 46.29 | -44.41 | -13.00 | 31.41 | Horizontal |
| 1466.7733 | 21.72 | -48.98 | -13.00 | 35.98 | Vertical |
| 2319.5660 | 21.93 | -46.88 | -13.00 | 33.88 | Vertical |
| 5115.7058 | 21.09 | -40.42 | -13.00 | 27.42 | Vertical |
| 9051.0526 | 47.66 | -52.54 | -13.00 | 39.54 | Vertical |
| 12955.1478 | 45.28 | -46.95 | -13.00 | 33.95 | Vertical |
| 17323.4662 | 47.75 | -44.46 | -13.00 | 31.46 | Vertical |

Remark:

- The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.
- Quoting the FCC ID: 2AJOTTA-1370 report, it is found that this channel is the worst mode, retest the data.

| DC_7A_n5A_TM1 | | | | | |
|----------------------------|---------------|-------------|-------------|-------------|------------|
| Test Channel = Low Channel | | | | | |
| Freq. [MHz] | Reading [dBm] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1556.5696 | 20.83 | -49.84 | -13.00 | 36.84 | Horizontal |
| 4413.0707 | 51.34 | -63.65 | -13.00 | 50.65 | Horizontal |
| 6882.9441 | 49.36 | -57.45 | -13.00 | 44.45 | Horizontal |
| 9376.8188 | 46.80 | -53.07 | -13.00 | 40.07 | Horizontal |
| 13362.5181 | 45.18 | -47.01 | -13.00 | 34.01 | Horizontal |
| 16395.6698 | 46.58 | -43.87 | -13.00 | 30.87 | Horizontal |
| 1528.3160 | 20.37 | -49.94 | -13.00 | 36.94 | Vertical |
| 4240.5620 | 51.26 | -64.33 | -13.00 | 51.33 | Vertical |
| 5622.1311 | 49.92 | -60.05 | -13.00 | 47.05 | Vertical |
| 6966.9483 | 48.50 | -57.59 | -13.00 | 44.59 | Vertical |
| 11909.6955 | 45.10 | -48.43 | -13.00 | 35.43 | Vertical |
| 16383.6692 | 47.27 | -43.43 | -13.00 | 30.43 | Vertical |

Remark:

- The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.
- Quoting the FCC ID: 2AJOTTA-1370 report, it is found that this channel is the worst mode, retest the data.

| DC 7A_n78A_TM1 | | | | | |
|-------------------------------|---------------|-------------|-------------|-------------|------------|
| Test Channel = Middle Channel | | | | | |
| Freq. [MHz] | Reading [dBm] | Level [dBm] | Limit [dBm] | Margin [dB] | Polarity |
| 1523.5262 | 22.16 | -48.34 | -13.00 | 35.34 | Horizontal |
| 4792.6896 | 20.35 | -41.72 | -13.00 | 28.72 | Horizontal |
| 7937.2469 | 48.44 | -54.88 | -13.00 | 41.88 | Horizontal |
| 10020.2010 | 47.67 | -51.18 | -13.00 | 38.18 | Horizontal |
| 15127.2064 | 45.24 | -46.28 | -13.00 | 33.28 | Horizontal |
| 17361.4181 | 47.46 | -44.44 | -13.00 | 31.44 | Horizontal |
| 1371.7686 | 21.55 | -49.45 | -13.00 | 36.45 | Vertical |
| 2137.3069 | 21.61 | -47.49 | -13.00 | 34.49 | Vertical |
| 4408.6704 | 20.27 | -42.94 | -13.00 | 29.94 | Vertical |
| 6866.4433 | 50.36 | -55.27 | -13.00 | 42.27 | Vertical |
| 9032.9016 | 47.66 | -52.84 | -13.00 | 39.84 | Vertical |
| 16398.8699 | 47.11 | -44.29 | -13.00 | 31.29 | Vertical |

Remark:

1. The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.
2. Quoting the FCC ID: 2AJOTTA-1370 report, it is found that this channel is the worst mode, retest the data.

7 Test Setup Photo

Reference to the test setup photos: PCE-Test Setup Photo

8 EUT Constructional Details

Reference to the External photo and Internal photo.

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