# RF Exposure Evaluation

# (Mobile Condition)

| | | |
|---|---|---|
| **FCC ID** | : | **A4RGVU6C** |
| **Equipment** | : | **Phone** |
| **Applicant** | : | **Google LLC**<br>**1600 Amphitheatre Parkway,**<br>**Mountain View, California, 94043 USA** |
| **Standard** | : | **47 CFR Part 2.1091** |

**We, SPORTON INTERNATIONAL INC has been evaluated in accordance with 47 CFR Part 2.1091 for the device and pass the limit.**

**The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.**

**Approved by: Cona Huang / Deputy Manager**

***SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory***

*No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan*

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# History of this test report

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| FA1O2843-06A | Rev. 01 | Initial issue of report | Jul. 17, 2022 |
| FA1O2843-06A | Rev. 02 | Added WIFI6E 11a output power | Jul. 27, 2022 |
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# 1. Description of Equipment Under Test (EUT)

| Product Feature & Specification | |
|---|---|
| **Equipment Name** | Phone |
| **FCC ID** | A4RGVU6C |
| **Wireless Technology and Frequency Range** | GSM850: 824.2 MHz ~ 848.8 MHz<br>GSM1900: 1850.2 MHz ~ 1909.8 MHz<br>WCDMA Band II: 1850 MHz ~ 1910 MHz<br>WCDMA Band IV: 1710 MHz ~ 1755 MHz<br>WCDMA Band V: 824 MHz ~ 849 MHz<br>LTE Band 2: 1850 MHz ~ 1910 MHz<br>LTE Band 4: 1710 MHz ~ 1755 MHz<br>LTE Band 5: 824 MHz ~ 849 MHz<br>LTE Band 7: 2500 MHz ~ 2570 MHz<br>LTE Band 12: 699 MHz ~ 716 MHz<br>LTE Band 13: 777 MHz ~ 787 MHz<br>LTE Band 14: 788 MHz ~ 798 MHz<br>LTE Band 17: 704 MHz ~ 716 MHz<br>LTE Band 25: 1850 MHz ~ 1915 MHz<br>LTE Band 26: 814 MHz ~ 849 MHz<br>LTE Band 30: 2305 MHz ~ 2315 MHz<br>LTE Band 38: 2570 MHz ~ 2620 MHz<br>LTE Band 41: 2496 MHz ~ 2690 MHz<br>LTE Band 48: 3550 MHz ~ 3700 MHz<br>LTE Band 66: 1710 MHz ~ 1780 MHz<br>LTE Band 71: 663 MHz ~ 698 MHz<br>5G NR n2 : 1850 MHz ~ 1910 MHz<br>5G NR n5 : 824 MHz ~ 849 MHz<br>5G NR n7 : 2500 MHz ~ 2570 MHz<br>5G NR n12 : 699 MHz ~ 716 MHz<br>5G NR n14 : 788 MHz ~ 798 MHz<br>5G NR n25 : 1850 MHz ~ 1915 MHz<br>5G NR n30 : 2305 MHz ~ 2315 MHz<br>5G NR n38 : 2570 MHz ~ 2620 MHz<br>5G NR n41 : 2496 MHz ~ 2690 MHz<br>5G NR n48 : 3550 MHz ~ 3700 MHz<br>5G NR n66 : 1710 MHz ~ 1780 MHz<br>5G NR n71 : 663 MHz ~ 698 MHz<br>5G NR n77: 3450MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz<br>WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz<br>WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz<br>WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz<br>WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz<br>WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz<br>WLAN 5.8G UNII4 Band: 5850 MHz ~ 5895 MHz<br>WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz<br>Bluetooth: 2400 MHz ~ 2483.5 MHz<br>NFC : 13.56 MHz<br>WPT: 110KHz ~ 148.5KHz |
| **Mode** | GSM/GPRS/EGPRS<br>RMC/AMR 12.2Kbps<br>HSDPA<br>HSUPA<br>LTE: QPSK, 16QAM, 64QAM, 256QAM<br>5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM<br>WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160<br>Bluetooth BR/EDR/LE<br>NFC : ASK<br>WPT: ASK |

**Reviewed by: Jason Wang**

**Report Producer: Paula Chen**

# 2. Maximum Tune-up Limit (unit: dBm)

**General Note:**

1. The maximum power of the WWAN antenna will be selected to evaluate the power density
2. For MPE calculation is using the highest output among 2Tx switching antennas for each frequency band.
3. In n41 PC1.5, the device only supports UL MIMO mode.

**<WWAN Maximum Power>**

| Maximum Transmit Burst Average Power (dBm) | | | |
|---|---|---|---|
| Band | Antenna | Duty cycle | Mobile Condition |
| | | | Index 1 |
| GSM850 GSM/GPRS 1TX | 0 | 12.50% | 33.50 |
| GSM850 GPRS 2TX | 0 | 25.00% | 32.50 |
| GSM850 GPRS 3TX | 0 | 37.50% | 31.50 |
| GSM850 GPRS 4TX | 0 | 50.00% | 30.50 |
| GSM850 EDGE 1TX | 0 | 12.50% | 28.00 |
| GSM850 EDGE 2TX | 0 | 25.00% | 27.50 |
| GSM850 EDGE 3TX | 0 | 37.50% | 27.50 |
| GSM850 EDGE 4TX | 0 | 50.00% | 25.50 |
| GSM1900 GSM/GPRS 1TX | 2 | 12.50% | 31.00 |
| GSM1900 GPRS 2TX | 2 | 25.00% | 29.50 |
| GSM1900 GPRS 3TX | 2 | 37.50% | 29.00 |
| GSM1900 GPRS 4TX | 2 | 50.00% | 28.00 |
| GSM1900 EDGE 1TX | 2 | 12.50% | 26.00 |
| GSM1900 EDGE 2TX | 2 | 25.00% | 25.00 |
| GSM1900 EDGE 3TX | 2 | 37.50% | 25.00 |
| GSM1900 EDGE 4TX | 2 | 50.00% | 24.00 |
| WCDMA B2 | 2 | 100.00% | 25.40 |
| WCDMA B4 | 2 | 100.00% | 25.40 |
| WCDMA B5 | 0 | 100.00% | 25.40 |
| LTE B7 | 2 | 100.00% | 25.40 |
| LTE B12/B17 | 0 | 100.00% | 25.40 |
| LTE B13 | 0 | 100.00% | 25.40 |
| LTE B14 | 0 | 100.00% | 25.40 |
| LTE B25/B2 | 2 | 100.00% | 25.40 |
| LTE B26/B5 | 0 | 100.00% | 25.40 |
| LTE B30 | 2 | 100.00% | 24.30 |
| LTE-B38 PC3 | 2 | 63.30% | 25.40 |
| LTE-B38 PC2 | 2 | 43.30% | 26.90 |
| LTE B41 PC3 | 2 | 63.30% | 25.40 |
| LTE B41 PC2 | 2 | 43.30% | 26.90 |
| LTE B48 PC3 | 6 | 63.30% | 25.40 |
| LTE B66/B4 | 2 | 100.00% | 25.40 |
| LTE B71 | 0 | 100.00% | 25.40 |
| FR1 n5 | 0 | 100.00% | 25.40 |
| FR1 n7 | 2 | 100.00% | 25.40 |
| FR1 n12 | 0 | 100.00% | 25.40 |
| FR1 n14 | 0 | 100.00% | 25.40 |
| FR1 n25/n2 | 2 | 100.00% | 25.40 |
| FR1 n30 | 2 | 100.00% | 24.30 |
| FR1 n38 PC3 | 2 | 100.00% | 25.40 |
| FR1 n41 PC3 | 2 | 100.00% | 25.40 |
| FR1 n41 PC2 | 2 | 50.00% | 26.90 |

| | | | |
|---|---|---|---|
| FR1 n41 PC1.5 MIMO | 2 | 25.00% | 25.90 |
| FR1 n48 PC3 | 6 | 100.00% | 25.40 |
| FR1 n66 | 2 | 100.00% | 25.40 |
| FR1 n71 | 0 | 100.00% | 25.40 |
| FR1 n77 PC3 | 6 | 100.00% | 24.10 |
| FR1 n77 PC2 | 6 | 50.00% | 27.10 |
| LTE B2 Sub | 1 | 100.00% | 25.40 |
| LTE B66/B4 Sub | 1 | 100.00% | 25.40 |
| FR1 n2 Sub | 1 | 100.00% | 25.40 |
| FR1 n38 PC3 Sub | 1 | 100.00% | 25.40 |
| FR1 n41 PC3 Sub | 1 | 100.00% | 25.40 |
| FR1 n41 PC2 Sub | 1 | 50.00% | 26.90 |
| FR1 n41 PC1.5 Sub MIMO | 1 | 25.00% | 25.90 |
| FR1 n48 PC3 Sub MIMO | 1 | 100.00% | 20.50 |
| FR1 n66 Sub | 1 | 100.00% | 25.40 |
| FR1 n77 Sub | 1 | 100.00% | 25.40 |

| Maximum Transmit Burst Average Power (dBm) | | | |
|---|---|---|---|
| Band | Antenna | Duty cycle | Mobile Condition |
| | | | Index 1 |
| GSM850 GSM/GPRS 1TX | 1 | 12.50% | 33.50 |
| GSM850 GPRS 2TX | 1 | 25.00% | 32.50 |
| GSM850 GPRS 3TX | 1 | 37.50% | 31.50 |
| GSM850 GPRS 4TX | 1 | 50.00% | 30.50 |
| GSM850 EDGE 1TX | 1 | 12.50% | 28.00 |
| GSM850 EDGE 2TX | 1 | 25.00% | 27.50 |
| GSM850 EDGE 3TX | 1 | 37.50% | 27.50 |
| GSM850 EDGE 4TX | 1 | 50.00% | 25.50 |
| GSM1900 GSM/GPRS 1TX | 0 | 12.50% | 30.80 |
| GSM1900 GPRS 2TX | 0 | 25.00% | 29.30 |
| GSM1900 GPRS 3TX | 0 | 37.50% | 28.80 |
| GSM1900 GPRS 4TX | 0 | 50.00% | 27.80 |
| GSM1900 EDGE 1TX | 0 | 12.50% | 25.80 |
| GSM1900 EDGE 2TX | 0 | 25.00% | 24.80 |
| GSM1900 EDGE 3TX | 0 | 37.50% | 24.80 |
| GSM1900 EDGE 4TX | 0 | 50.00% | 23.80 |
| WCDMA B2 | 0 | 100.00% | 25.20 |
| WCDMA B4 | 0 | 100.00% | 25.20 |
| WCDMA B5 | 1 | 100.00% | 25.40 |
| LTE B7 | 0 | 100.00% | 25.00 |
| LTE B12/B17 | 1 | 100.00% | 25.40 |
| LTE B13 | 1 | 100.00% | 25.40 |
| LTE B14 | 1 | 100.00% | 25.40 |
| LTE B25/B2 | 0 | 100.00% | 25.20 |
| LTE B26/B5 | 1 | 100.00% | 25.40 |
| LTE B30 | 0 | 100.00% | 24.50 |
| LTE-B38 PC3 | 0 | 63.30% | 25.40 |
| LTE-B38 PC2 | 0 | 43.30% | 26.90 |
| LTE B41 PC3 | 0 | 63.30% | 25.40 |
| LTE B41 PC2 | 0 | 43.30% | 26.90 |
| LTE B48 PC3 | 7 | 63.30% | 24.80 |
| LTE B66/B4 | 0 | 100.00% | 25.20 |
| LTE B71 | 1 | 100.00% | 25.40 |
| FR1 n5 | 1 | 100.00% | 25.40 |

| | | | |
|---|---|---|---|
| FR1 n7 | 0 | 100.00% | 25.00 |
| FR1 n12 | 1 | 100.00% | 25.40 |
| FR1 n14 | 1 | 100.00% | 25.40 |
| FR1 n25/n2 | 0 | 100.00% | 25.20 |
| FR1 n30 | 0 | 100.00% | 24.50 |
| FR1 n38 PC3 | 0 | 100.00% | 25.40 |
| FR1 n41 PC3 | 0 | 100.00% | 25.40 |
| FR1 n41 PC2 | 0 | 50.00% | 26.90 |
| FR1 n41 PC1.5 MIMO | 0 | 25.00% | 25.90 |
| FR1 n48 PC3 | 7 | 100.00% | 24.80 |
| FR1 n66 | 0 | 100.00% | 25.20 |
| FR1 n71 | 1 | 100.00% | 25.40 |
| FR1 n77 PC3 | 7 | 100.00% | 23.50 |
| FR1 n77 PC2 | 7 | 50.00% | 26.50 |
| LTE B2 Sub | 5 | 100.00% | 25.20 |
| LTE B66/B4 Sub | 5 | 100.00% | 25.20 |
| FR1 n2 Sub | 5 | 100.00% | 25.20 |
| FR1 n38 PC3 Sub | 5 | 100.00% | 24.40 |
| FR1 n41 PC3 Sub | 5 | 100.00% | 24.40 |
| FR1 n41 PC2 Sub | 5 | 50.00% | 25.90 |
| FR1 n41 PC1.5 Sub MIMO | 5 | 25.00% | 25.90 |
| FR1 n48 PC3 Sub MIMO | 5 | 100.00% | 19.20 |
| FR1 n66 Sub | 5 | 100.00% | 25.20 |
| FR1 n77 Sub | 5 | 100.00% | 24.80 |

## <WLAN Maximum Power>

## <2.4GHz WLAN>

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | SISO | | |
| | Mode | Channel | Frequency (MHz) | Ant 4 Tune-Up Limit | Ant 3 Tune-Up Limit | Ant 4+3 Tune-Up Limit |
| 2.4GHz WLAN | 802.11b 1Mbps | 1 | 2412 | 23.00 | 22.00 | - |
| | | 6 | 2437 | 23.00 | 23.00 | - |
| | | 11 | 2462 | 23.00 | 23.00 | - |
| | | 12 | 2467 | 23.00 | 23.00 | - |
| | | 13 | 2472 | 23.00 | 21.00 | - |

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | MIMO | | |
| | Mode | Channel | Frequency (MHz) | Ant 4+3(4) Tune-Up Limit | Ant 4+3(3) Tune-Up Limit | Ant 4+3 Tune-Up Limit |
| 2.4GHz WLAN | 802.11g 6Mbps | 1 | 2412 | 21.00 | 21.00 | 24.00 |
| | | 6 | 2437 | 23.00 | 23.00 | 26.00 |
| | | 11 | 2462 | 22.00 | 22.00 | 25.00 |
| | | 12 | 2467 | 20.00 | 20.00 | 23.00 |
| | | 13 | 2472 | 18.50 | 18.50 | 21.50 |
| | 802.11n-HT20 MCS0 | 1 | 2412 | 20.50 | 20.50 | 23.50 |
| | | 6 | 2437 | 23.00 | 23.00 | 26.00 |
| | | 11 | 2462 | 20.50 | 20.50 | 23.50 |
| | | 12 | 2467 | 20.00 | 20.00 | 23.00 |
| | | 13 | 2472 | 18.50 | 18.50 | 21.50 |
| | 802.11ac-VHT20 MCS0 | 1 | 2412 | 20.50 | 20.50 | 23.50 |
| | | 6 | 2437 | 23.00 | 23.00 | 26.00 |
| | | 11 | 2462 | 20.50 | 20.50 | 23.50 |
| | | 12 | 2467 | 20.00 | 20.00 | 23.00 |
| | | 13 | 2472 | 18.50 | 18.50 | 21.50 |
| | 802.11ax-HE20 MCS0 | 1 | 2412 | 20.50 | 20.50 | 23.50 |
| | | 6 | 2437 | 23.00 | 23.00 | 26.00 |
| | | 11 | 2462 | 20.50 | 20.50 | 23.50 |
| | | 12 | 2467 | 20.00 | 20.00 | 23.00 |
| | | 13 | 2472 | 18.50 | 18.50 | 21.50 |

**<5GHz WLAN>**

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | MIMO Ant 4+3 | | |
| | Mode | Channel | Frequency (MHz) | Tune-Up Limit | Tune-Up Limit | Tune-Up Limit |
| 5.2GHz WLAN | 802.11a 6Mbps | 36 | 5180 | 18.00 | 18.00 | 21.00 |
| | | 40 | 5200 | 20.00 | 20.00 | 23.00 |
| | | 44 | 5220 | 20.00 | 20.00 | 23.00 |
| | | 48 | 5240 | 20.00 | 20.00 | 23.00 |
| | 802.11n-HT20 MCS0 | 36 | 5180 | 17.00 | 17.00 | 20.00 |
| | | 40 | 5200 | 21.00 | 21.00 | 24.00 |
| | | 44 | 5220 | 21.00 | 21.00 | 24.00 |
| | | 48 | 5240 | 21.00 | 21.00 | 24.00 |
| | 802.11n-HT40 MCS0 | 38 | 5190 | 15.00 | 15.00 | 18.00 |
| | | 46 | 5230 | 20.50 | 20.50 | 23.50 |
| | 802.11ac-VHT20 MCS0 | 36 | 5180 | 17.00 | 17.00 | 20.00 |
| | | 40 | 5200 | 21.00 | 21.00 | 24.00 |
| | | 44 | 5220 | 21.00 | 21.00 | 24.00 |
| | | 48 | 5240 | 21.00 | 21.00 | 24.00 |
| | 802.11ac-VHT40 MCS0 | 38 | 5190 | 15.00 | 15.00 | 18.00 |
| | | 46 | 5230 | 20.50 | 20.50 | 23.50 |
| | 802.11ac-VHT80 MCS0 | 42 | 5210 | 15.50 | 15.50 | 18.50 |
| | 802.11ax-HE20 MCS0 | 36 | 5180 | 17.00 | 17.00 | 20.00 |
| | | 40 | 5200 | 21.00 | 21.00 | 24.00 |
| | | 44 | 5220 | 21.00 | 21.00 | 24.00 |
| | | 48 | 5240 | 21.00 | 21.00 | 24.00 |
| | 802.11ax-HE40 MCS0 | 38 | 5190 | 15.00 | 15.00 | 18.00 |
| | | 46 | 5230 | 20.50 | 20.50 | 23.50 |
| | 802.11ax-HE80 MCS0 | 42 | 5210 | 15.50 | 15.50 | 18.50 |

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | MIMO Ant 4+3 | | |
| | Mode | Channel | Frequency (MHz) | Tune-Up Limit | Tune-Up Limit | Tune-Up Limit |
| 5.3GHz WLAN | 802.11a 6Mbps | 52 | 5260 | 20.00 | 20.00 | 23.00 |
| | | 56 | 5280 | 20.00 | 20.00 | 23.00 |
| | | 60 | 5300 | 20.00 | 20.00 | 23.00 |
| | | 64 | 5320 | 18.50 | 18.50 | 21.50 |
| | 802.11n-HT20 MCS0 | 52 | 5260 | 21.00 | 21.00 | 24.00 |
| | | 56 | 5280 | 21.00 | 21.00 | 24.00 |
| | | 60 | 5300 | 21.00 | 21.00 | 24.00 |
| | | 64 | 5320 | 17.50 | 17.50 | 20.50 |
| | 802.11n-HT40 MCS0 | 54 | 5270 | 21.00 | 21.00 | 24.00 |
| | | 62 | 5310 | 16.50 | 16.50 | 19.50 |
| | 802.11ac-VHT20 MCS0 | 52 | 5260 | 21.00 | 21.00 | 24.00 |
| | | 56 | 5280 | 21.00 | 21.00 | 24.00 |
| | | 60 | 5300 | 21.00 | 21.00 | 24.00 |
| | | 64 | 5320 | 17.50 | 17.50 | 20.50 |
| | 802.11ac-VHT40 MCS0 | 54 | 5270 | 21.00 | 21.00 | 24.00 |
| | | 62 | 5310 | 16.50 | 16.50 | 19.50 |
| | 802.11ac-VHT80 MCS0 | 58 | 5290 | 15.50 | 15.50 | 18.50 |
| | 802.11ac-VHT160 MCS0 | 50 | 5250 | 14.5 | 14.5 | 17.5 |
| | 802.11ax-HE20 MCS0 | 52 | 5260 | 21.00 | 21.00 | 24.00 |
| | | 56 | 5280 | 21.00 | 21.00 | 24.00 |
| | | 60 | 5300 | 21.00 | 21.00 | 24.00 |
| | | 64 | 5320 | 17.50 | 17.50 | 20.50 |
| | 802.11ax-HE40 MCS0 | 54 | 5270 | 21.00 | 21.00 | 24.00 |
| | | 62 | 5310 | 16.50 | 16.50 | 19.50 |
| | 802.11ax-HE80 MCS0 | 58 | 5290 | 15.50 | 15.50 | 18.50 |
| | 802.11ax-HE160 MCS0 | 50 | 5250 | 14.5 | 14.5 | 17.5 |

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | MIMO Ant 4+3 | | |
| | Mode | Channel | Frequency (MHz) | Tune-Up Limit | Tune-Up Limit | Tune-Up Limit |
| 5.5GHz WLAN | 802.11a 6Mbps | 100 | 5500 | 20.00 | 20.00 | 23.00 |
| | | 116 | 5580 | 20.00 | 20.00 | 23.00 |
| | | 124 | 5620 | 20.00 | 20.00 | 23.00 |
| | | 132 | 5660 | 20.00 | 20.00 | 23.00 |
| | | 140 | 5700 | 19.50 | 19.50 | 22.50 |
| | | 144 | 5720 | 20.00 | 20.00 | 23.00 |
| | 802.11n-HT20 MCS0 | 100 | 5500 | 20.00 | 20.00 | 23.00 |
| | | 116 | 5580 | 20.50 | 20.50 | 23.50 |
| | | 124 | 5620 | 20.50 | 20.50 | 23.50 |
| | | 132 | 5660 | 20.50 | 20.50 | 23.50 |
| | | 140 | 5700 | 18.50 | 18.50 | 21.50 |
| | | 144 | 5720 | 20.50 | 20.50 | 23.50 |
| | 802.11n-HT40 MCS0 | 102 | 5510 | 17.50 | 17.50 | 20.50 |
| | | 110 | 5550 | 21.00 | 21.00 | 24.00 |
| | | 126 | 5630 | 21.00 | 21.00 | 24.00 |
| | | 134 | 5670 | 20.50 | 20.50 | 23.50 |
| | | 142 | 5710 | 21.00 | 21.00 | 24.00 |
| | 802.11ac-VHT20 MCS0 | 100 | 5500 | 20.00 | 20.00 | 23.00 |
| | | 116 | 5580 | 20.50 | 20.50 | 23.50 |
| | | 124 | 5620 | 20.50 | 20.50 | 23.50 |
| | | 132 | 5660 | 20.50 | 20.50 | 23.50 |
| | | 140 | 5700 | 18.50 | 18.50 | 21.50 |
| | | 144 | 5720 | 20.50 | 20.50 | 23.50 |
| | 802.11ac-VHT40 MCS0 | 102 | 5510 | 17.50 | 17.50 | 20.50 |
| | | 110 | 5550 | 21.00 | 21.00 | 24.00 |
| | | 126 | 5630 | 21.00 | 21.00 | 24.00 |
| | | 134 | 5670 | 20.50 | 20.50 | 23.50 |
| | | 142 | 5710 | 21.00 | 21.00 | 24.00 |
| | 802.11ac-VHT80 MCS0 | 106 | 5530 | 15.50 | 15.50 | 18.50 |
| | | 122 | 5610 | 21.00 | 21.00 | 24.00 |
| | | 138 | 5690 | 21.00 | 21.00 | 24.00 |
| | 802.11ac-VHT160 MCS0 | 114 | 5570 | 16.00 | 16.00 | 19.00 |
| | 802.11ax-HE20 MCS0 | 100 | 5500 | 20.00 | 20.00 | 23.00 |
| | | 116 | 5580 | 20.50 | 20.50 | 23.50 |
| | | 124 | 5620 | 20.50 | 20.50 | 23.50 |
| | | 132 | 5660 | 20.50 | 20.50 | 23.50 |
| | | 140 | 5700 | 18.50 | 18.50 | 21.50 |
| | | 144 | 5720 | 20.50 | 20.50 | 23.50 |
| | 802.11ax-HE40 MCS0 | 102 | 5510 | 17.50 | 17.50 | 20.50 |
| | | 110 | 5550 | 21.00 | 21.00 | 24.00 |
| | | 126 | 5630 | 21.00 | 21.00 | 24.00 |
| | | 134 | 5670 | 20.50 | 20.50 | 23.50 |
| | | 142 | 5710 | 21.00 | 21.00 | 24.00 |
| | 802.11ax-HE80 MCS0 | 106 | 5530 | 15.50 | 15.50 | 18.50 |
| | | 122 | 5610 | 21.00 | 21.00 | 24.00 |
| | | 138 | 5690 | 21.00 | 21.00 | 24.00 |
| | 802.11ax-HE160 MCS0 | 114 | 5570 | 16.00 | 16.00 | 19.00 |

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | MIMO Ant 4+3 | | |
| | Mode | Channel | Frequency (MHz) | Tune-Up Limit | Tune-Up Limit | Tune-Up Limit |
| 5.8GHz WLAN | 802.11a 6Mbps | 149 | 5745 | 23.00 | 23.00 | 26.00 |
| | | 157 | 5785 | 23.00 | 23.00 | 26.00 |
| | | 165 | 5825 | 23.00 | 23.00 | 26.00 |
| | 802.11n-HT20 MCS0 | 149 | 5745 | 23.00 | 23.00 | 26.00 |
| | | 157 | 5785 | 23.00 | 23.00 | 26.00 |
| | | 165 | 5825 | 23.00 | 23.00 | 26.00 |
| | 802.11n-HT40 MCS0 | 151 | 5755 | 22.00 | 22.00 | 25.00 |
| | | 159 | 5795 | 22.00 | 22.00 | 25.00 |
| | 802.11ac-VHT20 MCS0 | 149 | 5745 | 23.00 | 23.00 | 26.00 |
| | | 157 | 5785 | 23.00 | 23.00 | 26.00 |
| | | 165 | 5825 | 23.00 | 23.00 | 26.00 |
| | 802.11ac-VHT40 MCS0 | 151 | 5755 | 22.00 | 22.00 | 25.00 |
| | | 159 | 5795 | 22.00 | 22.00 | 25.00 |
| | 802.11ac-VHT80 MCS0 | 155 | 5775 | 22.00 | 22.00 | 25.00 |
| | 802.11ax-HE20 MCS0 | 149 | 5745 | 23.00 | 23.00 | 26.00 |
| | | 157 | 5785 | 23.00 | 23.00 | 26.00 |
| | | 165 | 5825 | 23.00 | 23.00 | 26.00 |
| | 802.11ax-HE40 MCS0 | 151 | 5755 | 22.00 | 22.00 | 25.00 |
| | | 159 | 5795 | 22.00 | 22.00 | 25.00 |
| | 802.11ax-HE80 MCS0 | 155 | 5775 | 22.00 | 22.00 | 25.00 |

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | MIMO Ant 4+3 | | |
| | Mode | Channel | Frequency (MHz) | Tune-Up Limit | Tune-Up Limit | Tune-Up Limit |
| 5.8GHz WLAN UNII4 | 802.11a 6Mbps | 169 | 5845 | 22.00 | 22.00 | 25.00 |
| | | 173 | 5865 | 22.00 | 22.00 | 25.00 |
| | | 177 | 5885 | 22.00 | 22.00 | 25.00 |
| | 802.11n-HT20 MCS0 | 169 | 5845 | 22.00 | 22.00 | 25.00 |
| | | 173 | 5865 | 22.00 | 22.00 | 25.00 |
| | | 177 | 5885 | 22.00 | 22.00 | 25.00 |
| | 802.11n-HT40 MCS0 | 167 | 5835 | 22.00 | 22.00 | 25.00 |
| | | 175 | 5875 | 22.00 | 22.00 | 25.00 |
| | 802.11ac-VHT20 MCS0 | 169 | 5845 | 22.00 | 22.00 | 25.00 |
| | | 173 | 5865 | 22.00 | 22.00 | 25.00 |
| | | 177 | 5885 | 22.00 | 22.00 | 25.00 |
| | 802.11ac-VHT40 MCS0 | 167 | 5835 | 22.00 | 22.00 | 25.00 |
| | | 175 | 5875 | 22.00 | 22.00 | 25.00 |
| | 802.11ac-VHT80 MCS0 | 171 | 5855 | 20.50 | 20.50 | 23.50 |
| | 802.11ac-VHT160 MCS0 | 163 | 5815 | 19.50 | 19.50 | 22.50 |
| | 802.11ax-HE20 MCS0 | 169 | 5845 | 22.00 | 22.00 | 25.00 |
| | | 173 | 5865 | 22.00 | 22.00 | 25.00 |
| | | 177 | 5885 | 22.00 | 22.00 | 25.00 |
| | 802.11ax-HE40 MCS0 | 167 | 5835 | 22.00 | 22.00 | 25.00 |
| | | 175 | 5875 | 22.00 | 22.00 | 25.00 |
| | 802.11ax-HE80 MCS0 | 171 | 5855 | 20.50 | 20.50 | 23.50 |
| | 02.11ax-HE160 MCS0 | 163 | 5815 | 19.50 | 19.50 | 22.50 |

## <6E WLAN>

| Burst Average Power (dBm) | | | | | | |
|---|---|---|---|---|---|---|
| Transmit Antenna | | | | MIMO | | |
| | Mode | Channel | Frequency (MHz) | Ant 4+3(4) Tune-Up Limit | Ant 4+3(3) Tune-Up Limit | Ant 4+3 Tune-Up Limit |
| WiFi 6E | 802.11a 6Mbps | 1 | 5955 | 6.50 | 6.50 | 9.50 |
| | | 57 | 6235 | 6.50 | 6.50 | 9.50 |
| | | 113 | 6515 | 6.00 | 6.00 | 9.00 |
| | | 173 | 6815 | 6.00 | 6.00 | 9.00 |
| | 802.11ax-HE20 MCS0 | 1 | 5955 | 7.00 | 7.00 | 10.00 |
| | | 57 | 6235 | 6.50 | 6.50 | 9.50 |
| | | 113 | 6515 | 6.50 | 6.50 | 9.50 |
| | | 173 | 6815 | 8.50 | 8.50 | 11.50 |
| | 802.11ax-HE40 MCS0 | 3 | 5965 | 10.00 | 10.00 | 13.00 |
| | | 59 | 6245 | 10.00 | 10.00 | 13.00 |
| | | 107 | 6485 | 10.00 | 10.00 | 13.00 |
| | | 171 | 6805 | 10.50 | 10.50 | 13.50 |
| | | 227 | 7085 | 12.00 | 12.00 | 15.00 |
| | 802.11ax-HE80 MCS0 | 7 | 5985 | 12.50 | 12.50 | 15.50 |
| | | 71 | 6305 | 12.00 | 12.00 | 15.00 |
| | | 119 | 6545 | 13.00 | 13.00 | 16.00 |
| | | 167 | 6785 | 14.00 | 14.00 | 17.00 |
| | | 215 | 7025 | 14.00 | 14.00 | 17.00 |
| | 802.11ax-HE160 MCS0 | 15 | 6025 | 15.50 | 15.50 | 18.50 |
| | | 47 | 6185 | 15.50 | 15.50 | 18.50 |
| | | 111 | 6505 | 15.50 | 15.50 | 18.50 |
| | | 175 | 6825 | 16.50 | 16.50 | 19.50 |
| | | 207 | 6985 | 16.50 | 16.50 | 19.50 |

## <Bluetooth Maximum Power>

| Mode | Burst Average Power (dBm) | | | | |
|---|---|---|---|---|---|
| | Ant 4 | | | Ant 4 | |
| | BR / EDR | | | LE | |
| | 1Mbps | 2Mbps | 3Mbps | 1Mbps | 2Mbps |
| Tune-up Limit | 19.5 | 18.5 | 18.5 | 19.5 | 19.5 |

| Mode | Burst Average Power (dBm) | | | | |
|---|---|---|---|---|---|
| | Ant 3 | | | Ant 3 | |
| | BR / EDR | | | LE | |
| | 1Mbps | 2Mbps | 3Mbps | 1Mbps | 2Mbps |
| Tune-up Limit | 19.5 | 18.5 | 18.5 | 19.5 | 19.5 |

| Mode | BR / EDR | Burst Average Power (dBm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1Mbps | | | 2Mbps | | | 3Mbps | | |
| | | Ant 4+3(4) | Ant 4+3(3) | Ant 4+3 | Ant 4+3(4) | Ant 4+3(3) | Ant 4+3 | Ant 4+3(4) | Ant 4+3(3) | Ant 4+3 |
| Tune-up Limit | | 18 | 18 | 21 | 15 | 15 | 18 | 15 | 15 | 18 |

| Mode | LE | Burst Average Power (dBm) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1Mbps | | | 2Mbps | | |
| | | Ant 4+3(4) | Ant 4+3(3) | Ant 4+3 | Ant 4+3(4) | Ant 4+3(3) | Ant 4+3 |
| Tune-up Limit | | 18 | 18 | 21 | 18 | 18 | 21 |

# 3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f2) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | | | f/300 | 6 |
| 1500-100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f2) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

# 4. Radio Frequency Radiation Exposure Evaluation

## 4.1. Power Density Calculation

| Band | Antenna | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (W) | Average EIRP (mW) | Power Density at 20cm (mW/cm^2) | Limit (mW/cm^2) | Power Density / Limit |
|---|---|---|---|---|---|---|---|---|---|
| GSM850 GSM/GPRS 1TX | 0 | -3.60 | 33.50 | 29.9 | 0.98 | 123.03 | 0.024 | 0.549 | 0.045 |
| GSM850 GPRS 2TX | 0 | -3.60 | 32.50 | 28.9 | 0.78 | 194.06 | 0.039 | 0.549 | 0.070 |
| GSM850 GPRS 3TX | 0 | -3.60 | 31.50 | 27.9 | 0.62 | 231.21 | 0.046 | 0.549 | 0.084 |
| GSM850 GPRS 4TX | 0 | -3.60 | 30.50 | 26.9 | 0.49 | 245.47 | 0.049 | 0.549 | 0.089 |
| GSM850 EDGE 1TX | 0 | -3.60 | 28.00 | 24.4 | 0.28 | 34.67 | 0.007 | 0.549 | 0.013 |
| GSM850 EDGE 2TX | 0 | -3.60 | 27.50 | 23.9 | 0.25 | 61.37 | 0.012 | 0.549 | 0.022 |
| GSM850 EDGE 3TX | 0 | -3.60 | 27.50 | 23.9 | 0.25 | 92.05 | 0.018 | 0.549 | 0.033 |
| GSM850 EDGE 4TX | 0 | -3.60 | 25.50 | 21.9 | 0.15 | 77.44 | 0.015 | 0.549 | 0.028 |
| GSM1900 GSM/GPRS 1TX | 2 | 0.40 | 31.00 | 31.4 | 1.38 | 173.78 | 0.035 | 1.000 | 0.035 |
| GSM1900 GPRS 2TX | 2 | 0.40 | 29.50 | 29.9 | 0.98 | 244.31 | 0.049 | 1.000 | 0.049 |
| GSM1900 GPRS 3TX | 2 | 0.40 | 29.00 | 29.4 | 0.87 | 326.59 | 0.065 | 1.000 | 0.065 |
| GSM1900 GPRS 4TX | 2 | 0.40 | 28.00 | 28.4 | 0.69 | 346.74 | 0.069 | 1.000 | 0.069 |
| GSM1900 EDGE 1TX | 2 | 0.40 | 26.00 | 26.4 | 0.44 | 54.95 | 0.011 | 1.000 | 0.011 |
| GSM1900 EDGE 2TX | 2 | 0.40 | 25.00 | 25.4 | 0.35 | 86.68 | 0.017 | 1.000 | 0.017 |
| GSM1900 EDGE 3TX | 2 | 0.40 | 25.00 | 25.4 | 0.35 | 130.03 | 0.026 | 1.000 | 0.026 |
| GSM1900 EDGE 4TX | 2 | 0.40 | 24.00 | 24.4 | 0.28 | 137.71 | 0.027 | 1.000 | 0.027 |
| WCDMA B2 | 2 | 0.40 | 25.40 | 25.8 | 0.38 | 380.19 | 0.076 | 1.000 | 0.076 |
| WCDMA B4 | 2 | -0.40 | 25.40 | 25.0 | 0.32 | 316.23 | 0.063 | 1.000 | 0.063 |
| WCDMA B5 | 0 | -3.60 | 25.40 | 21.8 | 0.15 | 151.36 | 0.030 | 0.549 | 0.055 |
| LTE B7 | 2 | -2.10 | 25.40 | 23.3 | 0.21 | 213.80 | 0.043 | 1.000 | 0.043 |
| LTE B12/B17 | 0 | -4.30 | 25.40 | 21.1 | 0.13 | 128.82 | 0.026 | 0.466 | 0.055 |
| LTE B13 | 0 | -2.90 | 25.40 | 22.5 | 0.18 | 177.83 | 0.035 | 0.518 | 0.068 |
| LTE B14 | 0 | -3.10 | 25.40 | 22.3 | 0.17 | 169.82 | 0.034 | 0.525 | 0.064 |
| LTE B25/B2 | 2 | 0.40 | 25.40 | 25.8 | 0.38 | 380.19 | 0.076 | 1.000 | 0.076 |
| LTE B26/B5 | 0 | -3.50 | 25.40 | 21.9 | 0.15 | 154.88 | 0.031 | 0.543 | 0.057 |
| LTE B30 | 2 | -0.30 | 24.30 | 24.0 | 0.25 | 251.19 | 0.050 | 1.000 | 0.050 |
| LTE-B38 PC3 | 2 | -1.80 | 25.40 | 23.6 | 0.23 | 229.09 | 0.046 | 1.000 | 0.046 |
| LTE-B38 PC2 | 2 | -1.80 | 26.90 | 25.1 | 0.32 | 323.59 | 0.064 | 1.000 | 0.064 |
| LTE B41 PC3 | 2 | -1.80 | 25.40 | 23.6 | 0.23 | 229.09 | 0.046 | 1.000 | 0.046 |
| LTE B41 PC2 | 2 | -1.80 | 26.90 | 25.1 | 0.32 | 323.59 | 0.064 | 1.000 | 0.064 |
| LTE B48 PC3 | 6 | -3.90 | 25.40 | 21.5 | 0.14 | 141.25 | 0.028 | 1.000 | 0.028 |
| LTE B66/B4 | 2 | -0.40 | 25.40 | 25.0 | 0.32 | 316.23 | 0.063 | 1.000 | 0.063 |
| LTE B71 | 0 | -5.10 | 25.40 | 20.3 | 0.11 | 107.15 | 0.021 | 0.442 | 0.048 |
| FR1 n5 | 0 | -3.60 | 25.40 | 21.8 | 0.15 | 151.36 | 0.030 | 0.549 | 0.055 |
| FR1 n7 | 2 | -2.10 | 25.40 | 23.3 | 0.21 | 213.80 | 0.043 | 1.000 | 0.043 |
| FR1 n12 | 0 | -4.30 | 25.40 | 21.1 | 0.13 | 128.82 | 0.026 | 0.466 | 0.055 |
| FR1 n14 | 0 | -3.10 | 25.40 | 22.3 | 0.17 | 169.82 | 0.034 | 0.525 | 0.064 |
| FR1 n25/n2 | 2 | 0.40 | 25.40 | 25.8 | 0.38 | 380.19 | 0.076 | 1.000 | 0.076 |
| FR1 n30 | 2 | -0.30 | 24.30 | 24.0 | 0.25 | 251.19 | 0.050 | 1.000 | 0.050 |
| FR1 n38 PC3 | 2 | -3.60 | 25.40 | 21.8 | 0.15 | 151.36 | 0.030 | 1.000 | 0.030 |
| FR1 n41 PC3 | 2 | -1.80 | 25.40 | 23.6 | 0.23 | 229.09 | 0.046 | 1.000 | 0.046 |
| FR1 n41 PC2 | 2 | -1.80 | 26.90 | 25.1 | 0.32 | 323.59 | 0.064 | 1.000 | 0.064 |
| FR1 n41 PC1.5 UL MIMO | 2 | -1.80 | 25.90 | 24.1 | 0.26 | 257.04 | 0.051 | 1.000 | 0.051 |
| FR1 n48 PC3 | 6 | -3.90 | 25.40 | 21.5 | 0.14 | 141.25 | 0.028 | 1.000 | 0.028 |
| FR1 n66 | 2 | -0.40 | 25.40 | 25.0 | 0.32 | 316.23 | 0.063 | 1.000 | 0.063 |
| FR1 n71 | 0 | -5.10 | 25.40 | 20.3 | 0.11 | 107.15 | 0.021 | 0.442 | 0.048 |
| FR1 n77 PC3 | 6 | -4.70 | 24.10 | 19.4 | 0.09 | 87.10 | 0.017 | 1.000 | 0.017 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FR1 n77 PC2 | 6 | -4.70 | 27.10 | 22.4 | 0.17 | 173.78 | 0.035 | 1.000 | 0.035 |
| LTE B2 Sub | 1 | -3.10 | 25.40 | 22.3 | 0.17 | 169.82 | 0.034 | 1.000 | 0.034 |
| LTE B66/B4 Sub | 1 | -8.10 | 25.40 | 17.3 | 0.05 | 53.70 | 0.011 | 1.000 | 0.011 |
| FR1 n2 Sub | 1 | -3.10 | 25.40 | 22.3 | 0.17 | 169.82 | 0.034 | 1.000 | 0.034 |
| FR1 n38 PC3 Sub | 1 | -4.40 | 25.40 | 21.0 | 0.13 | 125.89 | 0.025 | 1.000 | 0.025 |
| FR1 n41 PC3 Sub | 1 | -5.00 | 25.40 | 20.4 | 0.11 | 109.65 | 0.022 | 1.000 | 0.022 |
| FR1 n41 PC2 Sub | 1 | -5.00 | 26.90 | 21.9 | 0.15 | 154.88 | 0.031 | 1.000 | 0.031 |
| FR1 n41 PC1.5 Sub UL MIMO | 1 | -5.00 | 25.90 | 20.9 | 0.12 | 123.03 | 0.024 | 1.000 | 0.024 |
| FR1 n48 PC3 Sub UL MIMO | 1 | -6.20 | 20.50 | 14.3 | 0.03 | 26.92 | 0.005 | 1.000 | 0.005 |
| FR1 n66 Sub | 1 | -8.10 | 25.40 | 17.3 | 0.05 | 53.70 | 0.011 | 1.000 | 0.011 |
| FR1 n77 Sub | 1 | -8.60 | 25.40 | 16.8 | 0.05 | 47.86 | 0.010 | 1.000 | 0.010 |

| Band | Antenna | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (W) | Average EIRP (mW) | Power Density at 20cm (mW/cm^2) | Limit (mW/cm^2) | Power Density / Limit |
|---|---|---|---|---|---|---|---|---|---|
| GSM850 GSM/GPRS 1TX | 1 | -4.50 | 33.50 | 29.0 | 0.79 | 100.00 | 0.020 | 0.549 | 0.036 |
| GSM850 GPRS 2TX | 1 | -4.50 | 32.50 | 28.0 | 0.63 | 157.74 | 0.031 | 0.549 | 0.057 |
| GSM850 GPRS 3TX | 1 | -4.50 | 31.50 | 27.0 | 0.50 | 187.93 | 0.037 | 0.549 | 0.068 |
| GSM850 GPRS 4TX | 1 | -4.50 | 30.50 | 26.0 | 0.40 | 199.53 | 0.040 | 0.549 | 0.072 |
| GSM850 EDGE 1TX | 1 | -4.50 | 28.00 | 23.5 | 0.22 | 28.18 | 0.006 | 0.549 | 0.010 |
| GSM850 EDGE 2TX | 1 | -4.50 | 27.50 | 23.0 | 0.20 | 49.88 | 0.010 | 0.549 | 0.018 |
| GSM850 EDGE 3TX | 1 | -4.50 | 27.50 | 23.0 | 0.20 | 74.82 | 0.015 | 0.549 | 0.027 |
| GSM850 EDGE 4TX | 1 | -4.50 | 25.50 | 21.0 | 0.13 | 62.95 | 0.013 | 0.549 | 0.023 |
| GSM1900 GSM/GPRS 1TX | 0 | -1.30 | 30.80 | 29.5 | 0.89 | 112.20 | 0.022 | 1.000 | 0.022 |
| GSM1900 GPRS 2TX | 0 | -1.30 | 29.30 | 28.0 | 0.63 | 157.74 | 0.031 | 1.000 | 0.031 |
| GSM1900 GPRS 3TX | 0 | -1.30 | 28.80 | 27.5 | 0.56 | 210.86 | 0.042 | 1.000 | 0.042 |
| GSM1900 GPRS 4TX | 0 | -1.30 | 27.80 | 26.5 | 0.45 | 223.87 | 0.045 | 1.000 | 0.045 |
| GSM1900 EDGE 1TX | 0 | -1.30 | 25.80 | 24.5 | 0.28 | 35.48 | 0.007 | 1.000 | 0.007 |
| GSM1900 EDGE 2TX | 0 | -1.30 | 24.80 | 23.5 | 0.22 | 55.97 | 0.011 | 1.000 | 0.011 |
| GSM1900 EDGE 3TX | 0 | -1.30 | 24.80 | 23.5 | 0.22 | 83.95 | 0.017 | 1.000 | 0.017 |
| GSM1900 EDGE 4TX | 0 | -1.30 | 23.80 | 22.5 | 0.18 | 88.91 | 0.018 | 1.000 | 0.018 |
| WCDMA B2 | 0 | -1.30 | 25.20 | 23.9 | 0.25 | 245.47 | 0.049 | 1.000 | 0.049 |
| WCDMA B4 | 0 | -0.50 | 25.20 | 24.7 | 0.30 | 295.12 | 0.059 | 1.000 | 0.059 |
| WCDMA B5 | 1 | -4.50 | 25.40 | 20.9 | 0.12 | 123.03 | 0.024 | 0.549 | 0.045 |
| LTE B7 | 0 | -0.60 | 25.00 | 24.4 | 0.28 | 275.42 | 0.055 | 1.000 | 0.055 |
| LTE B12/B17 | 1 | -4.30 | 25.40 | 21.1 | 0.13 | 128.82 | 0.026 | 0.466 | 0.055 |
| LTE B13 | 1 | -2.90 | 25.40 | 22.5 | 0.18 | 177.83 | 0.035 | 0.518 | 0.068 |
| LTE B14 | 1 | -3.10 | 25.40 | 22.3 | 0.17 | 169.82 | 0.034 | 0.525 | 0.064 |
| LTE B25/B2 | 0 | -1.30 | 25.20 | 23.9 | 0.25 | 245.47 | 0.049 | 1.000 | 0.049 |
| LTE B26/B5 | 1 | -4.50 | 25.40 | 20.9 | 0.12 | 123.03 | 0.024 | 0.543 | 0.045 |
| LTE B30 | 0 | -0.50 | 24.50 | 24.0 | 0.25 | 251.19 | 0.050 | 1.000 | 0.050 |
| LTE-B38 PC3 | 0 | -0.80 | 25.40 | 24.6 | 0.29 | 288.40 | 0.057 | 1.000 | 0.057 |
| LTE-B38 PC2 | 0 | -0.80 | 26.90 | 26.1 | 0.41 | 407.38 | 0.081 | 1.000 | 0.081 |
| LTE B41 PC3 | 0 | -1.10 | 25.40 | 24.3 | 0.27 | 269.15 | 0.054 | 1.000 | 0.054 |
| LTE B41 PC2 | 0 | -1.10 | 26.90 | 25.8 | 0.38 | 380.19 | 0.076 | 1.000 | 0.076 |
| LTE B48 PC3 | 7 | -4.70 | 24.80 | 20.1 | 0.10 | 102.33 | 0.020 | 1.000 | 0.020 |
| LTE B66/B4 | 0 | -0.10 | 25.20 | 25.1 | 0.32 | 323.59 | 0.064 | 1.000 | 0.064 |
| LTE B71 | 1 | -7.80 | 25.40 | 17.6 | 0.06 | 57.54 | 0.011 | 0.442 | 0.026 |
| FR1 n5 | 1 | -4.50 | 25.40 | 20.9 | 0.12 | 123.03 | 0.024 | 0.549 | 0.045 |
| FR1 n7 | 0 | -0.60 | 25.00 | 24.4 | 0.28 | 275.42 | 0.055 | 1.000 | 0.055 |
| FR1 n12 | 1 | -5.40 | 25.40 | 20.0 | 0.10 | 100.00 | 0.020 | 0.466 | 0.043 |
| FR1 n14 | 1 | -4.20 | 25.40 | 21.2 | 0.13 | 131.83 | 0.026 | 0.525 | 0.050 |
| FR1 n25/n2 | 0 | -1.30 | 25.20 | 23.9 | 0.25 | 245.47 | 0.049 | 1.000 | 0.049 |
| FR1 n30 | 0 | -0.50 | 24.50 | 24.0 | 0.25 | 251.19 | 0.050 | 1.000 | 0.050 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| FR1 n38 PC3 | 0 | -0.80 | 25.40 | 24.6 | 0.29 | 288.40 | 0.057 | 1.000 | 0.057 |
| FR1 n41 PC3 | 0 | -1.10 | 25.40 | 24.3 | 0.27 | 269.15 | 0.054 | 1.000 | 0.054 |
| FR1 n41 PC2 | 0 | -1.10 | 26.90 | 25.8 | 0.38 | 380.19 | 0.076 | 1.000 | 0.076 |
| FR1 n41 PC1.5 UL MIMO | 0 | -1.10 | 25.90 | 24.8 | 0.30 | 302.00 | 0.060 | 1.000 | 0.060 |
| FR1 n48 PC3 | 7 | -4.70 | 24.80 | 20.1 | 0.10 | 102.33 | 0.020 | 1.000 | 0.020 |
| FR1 n66 | 0 | -0.10 | 25.20 | 25.1 | 0.32 | 323.59 | 0.064 | 1.000 | 0.064 |
| FR1 n71 | 1 | -7.80 | 25.40 | 17.6 | 0.06 | 57.54 | 0.011 | 0.442 | 0.026 |
| FR1 n77 PC3 | 7 | -5.30 | 23.50 | 18.2 | 0.07 | 66.07 | 0.013 | 1.000 | 0.013 |
| FR1 n77 PC2 | 7 | -5.30 | 26.50 | 21.2 | 0.13 | 131.83 | 0.026 | 1.000 | 0.026 |
| LTE B2 Sub | 5 | -4.40 | 25.20 | 20.8 | 0.12 | 120.23 | 0.024 | 1.000 | 0.024 |
| LTE B66/B4 Sub | 5 | -5.20 | 25.20 | 20.0 | 0.10 | 100.00 | 0.020 | 1.000 | 0.020 |
| FR1 n2 Sub | 5 | -4.40 | 25.20 | 20.8 | 0.12 | 120.23 | 0.024 | 1.000 | 0.024 |
| FR1 n38 PC3 Sub | 5 | -3.60 | 24.40 | 20.8 | 0.12 | 120.23 | 0.024 | 1.000 | 0.024 |
| FR1 n41 PC3 Sub | 5 | -3.90 | 24.40 | 20.5 | 0.11 | 112.20 | 0.022 | 1.000 | 0.022 |
| FR1 n41 PC2 Sub | 5 | -3.90 | 25.90 | 22.0 | 0.16 | 158.49 | 0.032 | 1.000 | 0.032 |
| FR1 n41 PC1.5 Sub UL MIMO | 5 | -3.90 | 25.90 | 22.0 | 0.16 | 158.49 | 0.032 | 1.000 | 0.032 |
| FR1 n48 PC3 Sub UL MIMO | 5 | -1.80 | 19.20 | 17.4 | 0.05 | 54.95 | 0.011 | 1.000 | 0.011 |
| FR1 n66 Sub | 5 | -5.20 | 25.20 | 20.0 | 0.10 | 100.00 | 0.020 | 1.000 | 0.020 |
| FR1 n77 Sub | 5 | -4.40 | 24.80 | 20.4 | 0.11 | 109.65 | 0.022 | 1.000 | 0.022 |

## WLAN / BT

| Band | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (W) | Average EIRP (mW) | Power Density at 20cm (mW/cm^2) | Limit (mW/cm^2) | Power Density / Limit |
|---|---|---|---|---|---|---|---|---|
| WLAN2.4GHz Band | 1.6 | 26.0 | 27.6 | 0.58 | 575.44 | 0.115 | 1.000 | 0.115 |
| WLAN5GHz/6GHz Band | -0.4 | 26.0 | 25.6 | 0.36 | 363.08 | 0.072 | 1.000 | 0.072 |
| Bluetooth | 1.6 | 19.5 | 21.1 | 0.13 | 128.82 | 0.026 | 1.000 | 0.026 |

| WWAN Power Density / Limit | 2.4GHz WLAN Power Density / Limit | 5GHz/6GHz WLAN Power Density / Limit | WPT | ∑(Power Density / Limit) |
|---|---|---|---|---|
| 0.089 | 0.115 | 0.072 | 0.01 | 0.286 |
| **WWAN Power Density / Limit** | **5GHz/6GHz WLAN Power Density / Limit** | **Bluetooth Power Density / Limit** | **WPT** | **∑(Power Density / Limit)** |
| 0.089 | 0.072 | 0.026 | 0.01 | 0.197 |

**Note:**

1. Above power density calculation was selected highest output power and antenna from all transmit antenna to be evaluation.
2. In simultaneous transmission for this device, 5G NR including uplink MIMO and LTE transmission are managed and controlled by Samsung S.LSI TAS, while the RF exposure from WLAN,WPT, BT radios are managed using legacy approach, therefore simultaneous transmission compliance can be assessed on LTE+WLAN+WPT+BT or NR+WLAN+WPT+BT, above power density calcualtation selected highest power density between LTE and 5G NR for simultaneous transmission analysis with other tranmitters.
3. The uplink MIMO only operate in 5G FR1 n41/48/77
4. WPT ratio is, from Sporton WPT evaluation report (FCC ID: A4RGVU6C, Report No.: FA1O2843-06B), Ratio of 0.01 = 0.0152 / 1.63 for calculation.
5. For colocation analysis, the highest (power density/limit) among all WWAN wireless modes is chosen for summation.
6. ∑(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)], for all transmission configuration was consider and list above table.
7. Considering the all the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of collocated transmitters is compliant.

## Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.