| 10528 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc dc) | WLAN | 8.36 | ± 9.6 % |
|---|---|---|---|---|---|
| 10529 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc dc) | WLAN | 8.36 | ± 9.6 % |
| 10531 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc dc) | WLAN | 8.43 | ± 9.6 % |
| 10532 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc dc) | WLAN | 8.29 | ± 9.6 % |
| 10533 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc dc) | WLAN | 8.38 | ± 9.6 % |
| 10534 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc dc) | WLAN | 8.45 | ± 9.6 % |
| 10535 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc dc) | WLAN | 8.45 | ± 9.6 % |
| 10536 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc dc) | WLAN | 8.32 | ± 9.6 % |
| 10537 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc dc) | WLAN | 8.44 | ± 9.6 % |
| 10538 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc dc) | WLAN | 8.54 | ± 9.6 % |
| 10540 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc dc) | WLAN | 8.39 | ± 9.6 % |
| 10541 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc dc) | WLAN | 8.46 | ± 9.6 % |
| 10542 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc dc) | WLAN | 8.65 | ± 9.6 % |
| 10543 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc dc) | WLAN | 8.65 | ± 9.6 % |
| 10544 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc dc) | WLAN | 8.47 | ± 9.6 % |
| 10545 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc dc) | WLAN | 8.55 | ± 9.6 % |
| 10546 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc dc) | WLAN | 8.35 | ± 9.6 % |
| 10547 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc dc) | WLAN | 8.49 | ± 9.6 % |
| 10548 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc dc) | WLAN | 8.37 | ± 9.6 % |
| 10550 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc dc) | WLAN | 8.38 | ± 9.6 % |
| 10551 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc dc) | WLAN | 8.50 | ± 9.6 % |
| 10552 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc dc) | WLAN | 8.42 | ± 9.6 % |
| 10553 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc dc) | WLAN | 8.45 | ± 9.6 % |
| 10554 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc dc) | WLAN | 8.48 | ± 9.6 % |
| 10555 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc dc) | WLAN | 8.47 | ± 9.6 % |
| 10556 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc dc) | WLAN | 8.50 | ± 9.6 % |
| 10557 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc dc) | WLAN | 8.52 | ± 9.6 % |
| 10558 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc dc) | WLAN | 8.61 | ± 9.6 % |
| 10560 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc dc) | WLAN | 8.73 | ± 9.6 % |
| 10561 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc dc) | WLAN | 8.56 | ± 9.6 % |
| 10562 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc dc) | WLAN | 8.69 | ± 9.6 % |
| 10563 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc dc) | WLAN | 8.77 | ± 9.6 % |
| 10564 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc dc) | WLAN | 8.25 | ± 9.6 % |
| 10565 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc dc) | WLAN | 8.45 | ± 9.6 % |
| 10566 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc dc) | WLAN | 8.13 | ± 9.6 % |
| 10567 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc dc) | WLAN | 8.00 | ± 9.6 % |
| 10568 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc dc) | WLAN | 8.37 | ± 9.6 % |
| 10569 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc dc) | WLAN | 8.10 | ± 9.6 % |
| 10570 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc dc) | WLAN | 8.30 | ± 9.6 % |
| 10571 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc dc) | WLAN | 1.99 | ± 9.6 % |
| 10572 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc dc) | WLAN | 1.99 | ± 9.6 % |
| 10573 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc dc) | WLAN | 1.98 | ± 9.6 % |
| 10574 | AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc dc) | WLAN | 1.98 | ± 9.6 % |
| 10575 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc dc) | WLAN | 8.59 | ± 9.6 % |
| 10576 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc dc) | WLAN | 8.60 | ± 9.6 % |
| 10577 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc dc) | WLAN | 8.70 | ± 9.6 % |
| 10578 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc dc) | WLAN | 8.49 | ± 9.6 % |
| 10579 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc dc) | WLAN | 8.36 | ± 9.6 % |
| 10580 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc dc) | WLAN | 8.76 | ± 9.6 % |
| 10581 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc dc) | WLAN | 8.35 | ± 9.6 % |
| 10582 | AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc dc) | WLAN | 8.67 | ± 9.6 % |
| 10583 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc dc) | WLAN | 8.59 | ± 9.6 % |
| 10584 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc dc) | WLAN | 8.60 | ± 9.6 % |
| 10585 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc dc) | WLAN | 8.70 | ± 9.6 % |
| 10586 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc dc) | WLAN | 8.49 | ± 9.6 % |
| 10587 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc dc) | WLAN | 8.36 | ± 9.6 % |
| 10588 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc dc) | WLAN | 8.76 | ± 9.6 % |
| 10589 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc dc) | WLAN | 8.35 | ± 9.6 % |
| 10590 | AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc dc) | WLAN | 8.67 | ± 9.6 % |
| 10591 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc dc) | WLAN | 8.63 | ± 9.6 % |
| 10592 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc dc) | WLAN | 8.79 | ± 9.6 % |
| 10593 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc dc) | WLAN | 8.64 | ± 9.6 % |
| 10594 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc dc) | WLAN | 8.74 | ± 9.6 % |
| 10595 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc dc) | WLAN | 8.74 | ± 9.6 % |

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| 10596 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc dc) | WLAN | 8.71 | ± 9.6 % |
|---|---|---|---|---|---|
| 10597 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc dc) | WLAN | 8.72 | ± 9.6 % |
| 10598 | AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc dc) | WLAN | 8.50 | ± 9.6 % |
| 10599 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc dc) | WLAN | 8.79 | ± 9.6 % |
| 10600 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc dc) | WLAN | 8.88 | ± 9.6 % |
| 10601 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10602 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc dc) | WLAN | 8.94 | ± 9.6 % |
| 10603 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc dc) | WLAN | 9.03 | ± 9.6 % |
| 10604 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc dc) | WLAN | 8.76 | ± 9.6 % |
| 10605 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc dc) | WLAN | 8.97 | ± 9.6 % |
| 10606 | AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10607 | AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc dc) | WLAN | 8.64 | ± 9.6 % |
| 10608 | AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc dc) | WLAN | 8.77 | ± 9.6 % |
| 10609 | AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc dc) | WLAN | 8.57 | ± 9.6 % |
| 10610 | AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc dc) | WLAN | 8.78 | ± 9.6 % |
| 10611 | AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc dc) | WLAN | 8.70 | ± 9.6 % |
| 10612 | AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc dc) | WLAN | 8.77 | ± 9.6 % |
| 10613 | AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc dc) | WLAN | 8.94 | ± 9.6 % |
| 10614 | AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc dc) | WLAN | 8.59 | ± 9.6 % |
| 10615 | AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10616 | AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10617 | AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc dc) | WLAN | 8.81 | ± 9.6 % |
| 10618 | AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc dc) | WLAN | 8.58 | ± 9.6 % |
| 10619 | AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc dc) | WLAN | 8.86 | ± 9.6 % |
| 10620 | AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc dc) | WLAN | 8.87 | ± 9.6 % |
| 10621 | AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc dc) | WLAN | 8.77 | ± 9.6 % |
| 10622 | AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc dc) | WLAN | 8.68 | ± 9.6 % |
| 10623 | AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10624 | AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc dc) | WLAN | 8.96 | ± 9.6 % |
| 10625 | AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc dc) | WLAN | 8.96 | ± 9.6 % |
| 10626 | AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc dc) | WLAN | 8.83 | ± 9.6 % |
| 10627 | AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc dc) | WLAN | 8.88 | ± 9.6 % |
| 10628 | AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc dc) | WLAN | 8.71 | ± 9.6 % |
| 10629 | AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc dc) | WLAN | 8.85 | ± 9.6 % |
| 10630 | AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc dc) | WLAN | 8.72 | ± 9.6 % |
| 10631 | AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc dc) | WLAN | 8.81 | ± 9.6 % |
| 10632 | AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc dc) | WLAN | 8.74 | ± 9.6 % |
| 10633 | AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc dc) | WLAN | 8.83 | ± 9.6 % |
| 10634 | AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc dc) | WLAN | 8.80 | ± 9.6 % |
| 10635 | AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc dc) | WLAN | 8.81 | ± 9.6 % |
| 10636 | AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc dc) | WLAN | 8.83 | ± 9.6 % |
| 10637 | AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc dc) | WLAN | 8.79 | ± 9.6 % |
| 10638 | AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc dc) | WLAN | 8.86 | ± 9.6 % |
| 10639 | AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc dc) | WLAN | 8.85 | ± 9.6 % |
| 10640 | AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc dc) | WLAN | 8.98 | ± 9.6 % |
| 10641 | AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc dc) | WLAN | 9.06 | ± 9.6 % |
| 10642 | AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc dc) | WLAN | 9.06 | ± 9.6 % |
| 10643 | AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc dc) | WLAN | 8.89 | ± 9.6 % |
| 10644 | AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc dc) | WLAN | 9.05 | ± 9.6 % |
| 10645 | AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc dc) | WLAN | 9.11 | ± 9.6 % |
| 10646 | AAG | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Sub=2,7) | LTE-TDD | 11.96 | ± 9.6 % |
| 10647 | AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Sub=2,7) | LTE-TDD | 11.96 | ± 9.6 % |
| 10648 | AAA | CDMA2000 (1x Advanced) | CDMA2000 | 3.45 | ± 9.6 % |
| 10652 | AAE | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 6.91 | ± 9.6 % |
| 10653 | AAE | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 7.42 | ± 9.6 % |
| 10654 | AAD | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 6.96 | ± 9.6 % |
| 10655 | AAE | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | LTE-TDD | 7.21 | ± 9.6 % |
| 10658 | AAA | Pulse Waveform (200Hz, 10%) | Test | 10.00 | ± 9.6 % |
| 10659 | AAA | Pulse Waveform (200Hz, 20%) | Test | 6.99 | ± 9.6 % |
| 10660 | AAA | Pulse Waveform (200Hz, 40%) | Test | 3.98 | ± 9.6 % |
| 10661 | AAA | Pulse Waveform (200Hz, 60%) | Test | 2.22 | ± 9.6 % |
| 10662 | AAA | Pulse Waveform (200Hz, 80%) | Test | 0.97 | ± 9.6 % |
| 10670 | AAA | Bluetooth Low Energy | Bluetooth | 2.19 | ± 9.6 % |
| 10671 | AAA | IEEE 802.11ax (20MHz, MCS0, 90pc dc) | WLAN | 9.09 | ± 9.6 % |

| 10672 | AAA | IEEE 802.11ax (20MHz, MCS1, 90pc dc) | WLAN | 8.57 | ± 9.6 % |
|---|---|---|---|---|---|
| 10673 | AAA | IEEE 802.11ax (20MHz, MCS2, 90pc dc) | WLAN | 8.78 | ± 9.6 % |
| 10674 | AAA | IEEE 802.11ax (20MHz, MCS3, 90pc dc) | WLAN | 8.74 | ± 9.6 % |
| 10675 | AAA | IEEE 802.11ax (20MHz, MCS4, 90pc dc) | WLAN | 8.90 | ± 9.6 % |
| 10676 | AAA | IEEE 802.11ax (20MHz, MCS5, 90pc dc) | WLAN | 8.77 | ± 9.6 % |
| 10677 | AAA | IEEE 802.11ax (20MHz, MCS6, 90pc dc) | WLAN | 8.73 | ± 9.6 % |
| 10678 | AAA | IEEE 802.11ax (20MHz, MCS7, 90pc dc) | WLAN | 8.78 | ± 9.6 % |
| 10679 | AAA | IEEE 802.11ax (20MHz, MCS8, 90pc dc) | WLAN | 8.89 | ± 9.6 % |
| 10680 | AAA | IEEE 802.11ax (20MHz, MCS9, 90pc dc) | WLAN | 8.80 | ± 9.6 % |
| 10681 | AAA | IEEE 802.11ax (20MHz, MCS10, 90pc dc) | WLAN | 8.62 | ± 9.6 % |
| 10682 | AAA | IEEE 802.11ax (20MHz, MCS11, 90pc dc) | WLAN | 8.83 | ± 9.6 % |
| 10683 | AAA | IEEE 802.11ax (20MHz, MCS0, 99pc dc) | WLAN | 8.42 | ± 9.6 % |
| 10684 | AAA | IEEE 802.11ax (20MHz, MCS1, 99pc dc) | WLAN | 8.26 | ± 9.6 % |
| 10685 | AAA | IEEE 802.11ax (20MHz, MCS2, 99pc dc) | WLAN | 8.33 | ± 9.6 % |
| 10686 | AAA | IEEE 802.11ax (20MHz, MCS3, 99pc dc) | WLAN | 8.28 | ± 9.6 % |
| 10687 | AAA | IEEE 802.11ax (20MHz, MCS4, 99pc dc) | WLAN | 8.45 | ± 9.6 % |
| 10688 | AAA | IEEE 802.11ax (20MHz, MCS5, 99pc dc) | WLAN | 8.29 | ± 9.6 % |
| 10689 | AAA | IEEE 802.11ax (20MHz, MCS6, 99pc dc) | WLAN | 8.55 | ± 9.6 % |
| 10690 | AAA | IEEE 802.11ax (20MHz, MCS7, 99pc dc) | WLAN | 8.29 | ± 9.6 % |
| 10691 | AAA | IEEE 802.11ax (20MHz, MCS8, 99pc dc) | WLAN | 8.25 | ± 9.6 % |
| 10692 | AAA | IEEE 802.11ax (20MHz, MCS9, 99pc dc) | WLAN | 8.29 | ± 9.6 % |
| 10693 | AAA | IEEE 802.11ax (20MHz, MCS10, 99pc dc) | WLAN | 8.25 | ± 9.6 % |
| 10694 | AAA | IEEE 802.11ax (20MHz, MCS11, 99pc dc) | WLAN | 8.57 | ± 9.6 % |
| 10695 | AAA | IEEE 802.11ax (40MHz, MCS0, 90pc dc) | WLAN | 8.78 | ± 9.6 % |
| 10696 | AAA | IEEE 802.11ax (40MHz, MCS1, 90pc dc) | WLAN | 8.91 | ± 9.6 % |
| 10697 | AAA | IEEE 802.11ax (40MHz, MCS2, 90pc dc) | WLAN | 8.61 | ± 9.6 % |
| 10698 | AAA | IEEE 802.11ax (40MHz, MCS3, 90pc dc) | WLAN | 8.89 | ± 9.6 % |
| 10699 | AAA | IEEE 802.11ax (40MHz, MCS4, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10700 | AAA | IEEE 802.11ax (40MHz, MCS5, 90pc dc) | WLAN | 8.73 | ± 9.6 % |
| 10701 | AAA | IEEE 802.11ax (40MHz, MCS6, 90pc dc) | WLAN | 8.86 | ± 9.6 % |
| 10702 | AAA | IEEE 802.11ax (40MHz, MCS7, 90pc dc) | WLAN | 8.70 | ± 9.6 % |
| 10703 | AAA | IEEE 802.11ax (40MHz, MCS8, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10704 | AAA | IEEE 802.11ax (40MHz, MCS9, 90pc dc) | WLAN | 8.56 | ± 9.6 % |
| 10705 | AAA | IEEE 802.11ax (40MHz, MCS10, 90pc dc) | WLAN | 8.69 | ± 9.6 % |
| 10706 | AAA | IEEE 802.11ax (40MHz, MCS11, 90pc dc) | WLAN | 8.66 | ± 9.6 % |
| 10707 | AAA | IEEE 802.11ax (40MHz, MCS0, 99pc dc) | WLAN | 8.32 | ± 9.6 % |
| 10708 | AAA | IEEE 802.11ax (40MHz, MCS1, 99pc dc) | WLAN | 8.55 | ± 9.6 % |
| 10709 | AAA | IEEE 802.11ax (40MHz, MCS2, 99pc dc) | WLAN | 8.33 | ± 9.6 % |
| 10710 | AAA | IEEE 802.11ax (40MHz, MCS3, 99pc dc) | WLAN | 8.29 | ± 9.6 % |
| 10711 | AAA | IEEE 802.11ax (40MHz, MCS4, 99pc dc) | WLAN | 8.39 | ± 9.6 % |
| 10712 | AAA | IEEE 802.11ax (40MHz, MCS5, 99pc dc) | WLAN | 8.67 | ± 9.6 % |
| 10713 | AAA | IEEE 802.11ax (40MHz, MCS6, 99pc dc) | WLAN | 8.33 | ± 9.6 % |
| 10714 | AAA | IEEE 802.11ax (40MHz, MCS7, 99pc dc) | WLAN | 8.26 | ± 9.6 % |
| 10715 | AAA | IEEE 802.11ax (40MHz, MCS8, 99pc dc) | WLAN | 8.45 | ± 9.6 % |
| 10716 | AAA | IEEE 802.11ax (40MHz, MCS9, 99pc dc) | WLAN | 8.30 | ± 9.6 % |
| 10717 | AAA | IEEE 802.11ax (40MHz, MCS10, 99pc dc) | WLAN | 8.48 | ± 9.6 % |
| 10718 | AAA | IEEE 802.11ax (40MHz, MCS11, 99pc dc) | WLAN | 8.24 | ± 9.6 % |
| 10719 | AAA | IEEE 802.11ax (80MHz, MCS0, 90pc dc) | WLAN | 8.81 | ± 9.6 % |
| 10720 | AAA | IEEE 802.11ax (80MHz, MCS1, 90pc dc) | WLAN | 8.87 | ± 9.6 % |
| 10721 | AAA | IEEE 802.11ax (80MHz, MCS2, 90pc dc) | WLAN | 8.76 | ± 9.6 % |
| 10722 | AAA | IEEE 802.11ax (80MHz, MCS3, 90pc dc) | WLAN | 8.55 | ± 9.6 % |
| 10723 | AAA | IEEE 802.11ax (80MHz, MCS4, 90pc dc) | WLAN | 8.70 | ± 9.6 % |
| 10724 | AAA | IEEE 802.11ax (80MHz, MCS5, 90pc dc) | WLAN | 8.90 | ± 9.6 % |
| 10725 | AAA | IEEE 802.11ax (80MHz, MCS6, 90pc dc) | WLAN | 8.74 | ± 9.6 % |
| 10726 | AAA | IEEE 802.11ax (80MHz, MCS7, 90pc dc) | WLAN | 8.72 | ± 9.6 % |
| 10727 | AAA | IEEE 802.11ax (80MHz, MCS8, 90pc dc) | WLAN | 8.66 | ± 9.6 % |
| 10728 | AAA | IEEE 802.11ax (80MHz, MCS9, 90pc dc) | WLAN | 8.65 | ± 9.6 % |
| 10729 | AAA | IEEE 802.11ax (80MHz, MCS10, 90pc dc) | WLAN | 8.64 | ± 9.6 % |
| 10730 | AAA | IEEE 802.11ax (80MHz, MCS11, 90pc dc) | WLAN | 8.67 | ± 9.6 % |
| 10731 | AAA | IEEE 802.11ax (80MHz, MCS0, 99pc dc) | WLAN | 8.42 | ± 9.6 % |
| 10732 | AAA | IEEE 802.11ax (80MHz, MCS1, 99pc dc) | WLAN | 8.46 | ± 9.6 % |
| 10733 | AAA | IEEE 802.11ax (80MHz, MCS2, 99pc dc) | WLAN | 8.40 | ± 9.6 % |
| 10734 | AAA | IEEE 802.11ax (80MHz, MCS3, 99pc dc) | WLAN | 8.25 | ± 9.6 % |
| 10735 | AAA | IEEE 802.11ax (80MHz, MCS4, 99pc dc) | WLAN | 8.33 | ± 9.6 % |

| 10736 | AAA | IEEE 802.11ax (80MHz, MCS5, 99pc dc) | WLAN | 8.27 | ± 9.6 % |
|---|---|---|---|---|---|
| 10737 | AAA | IEEE 802.11ax (80MHz, MCS6, 99pc dc) | WLAN | 8.36 | ± 9.6 % |
| 10738 | AAA | IEEE 802.11ax (80MHz, MCS7, 99pc dc) | WLAN | 8.42 | ± 9.6 % |
| 10739 | AAA | IEEE 802.11ax (80MHz, MCS8, 99pc dc) | WLAN | 8.29 | ± 9.6 % |
| 10740 | AAA | IEEE 802.11ax (80MHz, MCS9, 99pc dc) | WLAN | 8.48 | ± 9.6 % |
| 10741 | AAA | IEEE 802.11ax (80MHz, MCS10, 99pc dc) | WLAN | 8.40 | ± 9.6 % |
| 10742 | AAA | IEEE 802.11ax (80MHz, MCS11, 99pc dc) | WLAN | 8.43 | ± 9.6 % |
| 10743 | AAA | IEEE 802.11ax (160MHz, MCS0, 90pc dc) | WLAN | 8.94 | ± 9.6 % |
| 10744 | AAA | IEEE 802.11ax (160MHz, MCS1, 90pc dc) | WLAN | 9.16 | ± 9.6 % |
| 10745 | AAA | IEEE 802.11ax (160MHz, MCS2, 90pc dc) | WLAN | 8.93 | ± 9.6 % |
| 10746 | AAA | IEEE 802.11ax (160MHz, MCS3, 90pc dc) | WLAN | 9.11 | ± 9.6 % |
| 10747 | AAA | IEEE 802.11ax (160MHz, MCS4, 90pc dc) | WLAN | 9.04 | ± 9.6 % |
| 10748 | AAA | IEEE 802.11ax (160MHz, MCS5, 90pc dc) | WLAN | 8.93 | ± 9.6 % |
| 10749 | AAA | IEEE 802.11ax (160MHz, MCS6, 90pc dc) | WLAN | 8.90 | ± 9.6 % |
| 10750 | AAA | IEEE 802.11ax (160MHz, MCS7, 90pc dc) | WLAN | 8.79 | ± 9.6 % |
| 10751 | AAA | IEEE 802.11ax (160MHz, MCS8, 90pc dc) | WLAN | 8.82 | ± 9.6 % |
| 10752 | AAA | IEEE 802.11ax (160MHz, MCS9, 90pc dc) | WLAN | 8.81 | ± 9.6 % |
| 10753 | AAA | IEEE 802.11ax (160MHz, MCS10, 90pc dc) | WLAN | 9.00 | ± 9.6 % |
| 10754 | AAA | IEEE 802.11ax (160MHz, MCS11, 90pc dc) | WLAN | 8.94 | ± 9.6 % |
| 10755 | AAA | IEEE 802.11ax (160MHz, MCS0, 99pc dc) | WLAN | 8.64 | ± 9.6 % |
| 10756 | AAA | IEEE 802.11ax (160MHz, MCS1, 99pc dc) | WLAN | 8.77 | ± 9.6 % |
| 10757 | AAA | IEEE 802.11ax (160MHz, MCS2, 99pc dc) | WLAN | 8.77 | ± 9.6 % |
| 10758 | AAA | IEEE 802.11ax (160MHz, MCS3, 99pc dc) | WLAN | 8.69 | ± 9.6 % |
| 10759 | AAA | IEEE 802.11ax (160MHz, MCS4, 99pc dc) | WLAN | 8.58 | ± 9.6 % |
| 10760 | AAA | IEEE 802.11ax (160MHz, MCS5, 99pc dc) | WLAN | 8.49 | ± 9.6 % |
| 10761 | AAA | IEEE 802.11ax (160MHz, MCS6, 99pc dc) | WLAN | 8.58 | ± 9.6 % |
| 10762 | AAA | IEEE 802.11ax (160MHz, MCS7, 99pc dc) | WLAN | 8.49 | ± 9.6 % |
| 10763 | AAA | IEEE 802.11ax (160MHz, MCS8, 99pc dc) | WLAN | 8.53 | ± 9.6 % |
| 10764 | AAA | IEEE 802.11ax (160MHz, MCS9, 99pc dc) | WLAN | 8.54 | ± 9.6 % |
| 10765 | AAA | IEEE 802.11ax (160MHz, MCS10, 99pc dc) | WLAN | 8.54 | ± 9.6 % |
| 10766 | AAA | IEEE 802.11ax (160MHz, MCS11, 99pc dc) | WLAN | 8.51 | ± 9.6 % |
| 10767 | AAC | 5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 7.99 | ± 9.6 % |
| 10768 | AAC | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.01 | ± 9.6 % |
| 10769 | AAC | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.01 | ± 9.6 % |
| 10770 | AAC | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.02 | ± 9.6 % |
| 10771 | AAC | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.02 | ± 9.6 % |
| 10772 | AAC | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.23 | ± 9.6 % |
| 10773 | AAC | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.03 | ± 9.6 % |
| 10774 | AAC | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.02 | ± 9.6 % |
| 10775 | AAB | 5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.31 | ± 9.6 % |
| 10776 | AAC | 5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.30 | ± 9.6 % |
| 10777 | AAB | 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.30 | ± 9.6 % |
| 10778 | AAC | 5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10779 | AAB | 5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.42 | ± 9.6 % |
| 10780 | AAC | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.38 | ± 9.6 % |
| 10781 | AAC | 5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.38 | ± 9.6 % |
| 10782 | AAC | 5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.43 | ± 9.6 % |
| 10783 | AAC | 5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.31 | ± 9.6 % |
| 10784 | AAC | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.29 | ± 9.6 % |
| 10785 | AAC | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10786 | AAC | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10787 | AAC | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.44 | ± 9.6 % |
| 10788 | AAC | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10789 | AAC | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10790 | AAC | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10791 | AAC | 5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.83 | ± 9.6 % |
| 10792 | AAC | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.92 | ± 9.6 % |
| 10793 | AAC | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.95 | ± 9.6 % |
| 10794 | AAC | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.82 | ± 9.6 % |
| 10795 | AAC | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.84 | ± 9.6 % |
| 10796 | AAC | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.82 | ± 9.6 % |
| 10797 | AAC | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.01 | ± 9.6 % |
| 10798 | AAC | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.89 | ± 9.6 % |
| 10799 | AAC | 5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.93 | ± 9.6 % |

| 10801 | AAC | 5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.89 | ± 9.6 % |
|---|---|---|---|---|---|
| 10802 | AAC | 5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.87 | ± 9.6 % |
| 10803 | AAC | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 7.93 | ± 9.6 % |
| 10805 | AAC | 5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10806 | AAC | 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10809 | AAC | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10810 | AAC | 5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10812 | AAC | 5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10817 | AAC | 5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10818 | AAC | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10819 | AAC | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.33 | ± 9.6 % |
| 10820 | AAC | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.30 | ± 9.6 % |
| 10821 | AAC | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10822 | AAC | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10823 | AAC | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10824 | AAC | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.39 | ± 9.6 % |
| 10825 | AAC | 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10827 | AAC | 5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.42 | ± 9.6 % |
| 10828 | AAC | 5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.43 | ± 9.6 % |
| 10829 | AAC | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10830 | AAC | 5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.63 | ± 9.6 % |
| 10831 | AAC | 5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.73 | ± 9.6 % |
| 10832 | AAC | 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.74 | ± 9.6 % |
| 10833 | AAC | 5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10834 | AAC | 5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.75 | ± 9.6 % |
| 10835 | AAC | 5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10836 | AAC | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.66 | ± 9.6 % |
| 10837 | AAC | 5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.68 | ± 9.6 % |
| 10839 | AAC | 5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.70 | ± 9.6 % |
| 10840 | AAC | 5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.67 | ± 9.6 % |
| 10841 | AAC | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 7.71 | ± 9.6 % |
| 10843 | AAC | 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.49 | ± 9.6 % |
| 10844 | AAC | 5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10846 | AAC | 5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10854 | AAC | 5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10855 | AAC | 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10856 | AAC | 5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10857 | AAC | 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.35 | ± 9.6 % |
| 10858 | AAC | 5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.36 | ± 9.6 % |
| 10859 | AAC | 5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.34 | ± 9.6 % |
| 10860 | AAC | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10861 | AAC | 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.40 | ± 9.6 % |
| 10863 | AAC | 5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10864 | AAC | 5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.37 | ± 9.6 % |
| 10865 | AAC | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz) | 5G NR FR1 TDD | 8.41 | ± 9.6 % |
| 10866 | AAC | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10868 | AAC | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.89 | ± 9.6 % |
| 10869 | AAD | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10870 | AAD | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.86 | ± 9.6 % |
| 10871 | AAD | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10872 | AAD | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.52 | ± 9.6 % |
| 10873 | AAD | 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.61 | ± 9.6 % |
| 10874 | AAD | 5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.65 | ± 9.6 % |
| 10875 | AAD | 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 7.78 | ± 9.6 % |
| 10876 | AAD | 5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 8.39 | ± 9.6 % |
| 10877 | AAD | 5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 7.95 | ± 9.6 % |
| 10878 | AAD | 5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.41 | ± 9.6 % |
| 10879 | AAD | 5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.12 | ± 9.6 % |
| 10880 | AAD | 5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.38 | ± 9.6 % |
| 10881 | AAD | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.75 | ± 9.6 % |
| 10882 | AAD | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 5.96 | ± 9.6 % |
| 10883 | AAD | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.57 | ± 9.6 % |
| 10884 | AAD | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 6.53 | ± 9.6 % |
| 10885 | AAD | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.61 | ± 9.6 % |

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| 10886 | AAD | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 6.65 | ± 9.6 % |
|---|---|---|---|---|---|
| 10887 | AAD | 5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 7.78 | ± 9.6 % |
| 10888 | AAD | 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz) | 5G NR FR2 TDD | 8.35 | ± 9.6 % |
| 10889 | AAD | 5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.02 | ± 9.6 % |
| 10890 | AAD | 5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz) | 5G NR FR2 TDD | 8.40 | ± 9.6 % |
| 10891 | AAD | 5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.13 | ± 9.6 % |
| 10892 | AAD | 5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz) | 5G NR FR2 TDD | 8.41 | ± 9.6 % |
| 10897 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.66 | ± 9.6 % |
| 10898 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.67 | ± 9.6 % |
| 10899 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.67 | ± 9.6 % |
| 10900 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10901 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10902 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10903 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10904 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10905 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10906 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.68 | ± 9.6 % |
| 10907 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.78 | ± 9.6 % |
| 10908 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.93 | ± 9.6 % |
| 10909 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.96 | ± 9.6 % |
| 10910 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.83 | ± 9.6 % |
| 10911 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.93 | ± 9.6 % |
| 10912 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.84 | ± 9.6 % |
| 10913 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.84 | ± 9.6 % |
| 10914 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.85 | ± 9.6 % |
| 10915 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.83 | ± 9.6 % |
| 10916 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.87 | ± 9.6 % |
| 10917 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.94 | ± 9.6 % |
| 10918 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.86 | ± 9.6 % |
| 10919 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.86 | ± 9.6 % |
| 10920 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.87 | ± 9.6 % |
| 10921 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.84 | ± 9.6 % |
| 10922 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.82 | ± 9.6 % |
| 10923 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.84 | ± 9.6 % |
| 10924 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.84 | ± 9.6 % |
| 10925 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.95 | ± 9.6 % |
| 10926 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.84 | ± 9.6 % |
| 10927 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz) | 5G NR FR1 TDD | 5.94 | ± 9.6 % |
| 10928 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.52 | ± 9.6 % |
| 10929 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.52 | ± 9.6 % |
| 10930 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.52 | ± 9.6 % |
| 10931 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.51 | ± 9.6 % |
| 10932 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.51 | ± 9.6 % |
| 10933 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.51 | ± 9.6 % |
| 10934 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.51 | ± 9.6 % |
| 10935 | AAA | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.51 | ± 9.6 % |
| 10936 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.90 | ± 9.6 % |
| 10937 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.77 | ± 9.6 % |
| 10938 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.90 | ± 9.6 % |
| 10939 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.82 | ± 9.6 % |
| 10940 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.89 | ± 9.6 % |
| 10941 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.83 | ± 9.6 % |
| 10942 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.85 | ± 9.6 % |
| 10943 | AAA | 5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.95 | ± 9.6 % |
| 10944 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz) | 5G NR FR2 FDD | 5.81 | ± 9.6 % |
| 10945 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.85 | ± 9.6 % |
| 10946 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.83 | ± 9.6 % |
| 10947 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.87 | ± 9.6 % |
| 10948 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.94 | ± 9.6 % |
| 10949 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.87 | ± 9.6 % |
| 10950 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.94 | ± 9.6 % |
| 10951 | AAA | 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz) | 5G NR FR1 FDD | 5.92 | ± 9.6 % |
| 10952 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) | 5G NR FR1 FDD | 8.25 | ± 9.6 % |
| 10953 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) | 5G NR FR1 FDD | 8.15 | ± 9.6 % |

| 10954 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) | 5G NR FR1 FDD | 8.23 | ± 9.6 % |
|---|---|---|---|---|---|
| 10955 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) | 5G NR FR1 FDD | 8.42 | ± 9.6 % |
| 10956 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) | 5G NR FR1 FDD | 8.14 | ± 9.6 % |
| 10957 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) | 5G NR FR1 FDD | 8.31 | ± 9.6 % |
| 10958 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) | 5G NR FR1 FDD | 8.61 | ± 9.6 % |
| 10959 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) | 5G NR FR1 FDD | 8.33 | ± 9.6 % |
| 10960 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) | 5G NR FR1 TDD | 9.32 | ± 9.6 % |
| 10961 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) | 5G NR FR1 TDD | 9.36 | ± 9.6 % |
| 10962 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) | 5G NR FR1 TDD | 9.40 | ± 9.6 % |
| 10963 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) | 5G NR FR1 TDD | 9.55 | ± 9.6 % |
| 10964 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) | 5G NR FR1 TDD | 9.29 | ± 9.6 % |
| 10965 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) | 5G NR FR1 TDD | 9.37 | ± 9.6 % |
| 10966 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) | 5G NR FR1 TDD | 9.55 | ± 9.6 % |
| 10967 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) | 5G NR FR1 TDD | 9.42 | ± 9.6 % |
| 10968 | AAA | 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) | 5G NR FR1 TDD | 9.49 | ± 9.6 % |

[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

**ANNEX B**

**DIPOLE CALIBRATION REPORT**

**Calibration Laboratory of**
**Schmid & Partner**
  **Engineering AG**
**Zeughausstrasse 43, 8004 Zurich, Switzerland**

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**Multilateral Agreement for the recognition of calibration certificates**

Accreditation No.: **SCS 0108**

Client     **TüV SÜD UK**                                 Certificate No: **D2450V2-1026_Jun20**

## CALIBRATION CERTIFICATE

| | |
|---|---|
| Object | D2450V2 - SN:1026 |
| Calibration procedure(s) | QA CAL-05.v11<br>Calibration Procedure for SAR Validation Sources between 0.7-3 GHz |
| Calibration date: | June 24, 2020 |

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter NRP | SN: 104778 | 01-Apr-20 (No. 217-03100/03101) | Apr-21 |
| Power sensor NRP-Z91 | SN: 103244 | 01-Apr-20 (No. 217-03100) | Apr-21 |
| Power sensor NRP-Z91 | SN: 103245 | 01-Apr-20 (No. 217-03101) | Apr-21 |
| Reference 20 dB Attenuator | SN: BH9394 (20k) | 31-Mar-20 (No. 217-03106) | Apr-21 |
| Type-N mismatch combination | SN: 310982 / 06327 | 31-Mar-20 (No. 217-03104) | Apr-21 |
| Reference Probe EX3DV4 | SN: 7405 | 31-Dec-19 (No. EX3-7405_Dec19) | Dec-20 |
| DAE4 | SN: 601 | 27-Dec-19 (No. DAE4-601_Dec19) | Dec-20 |

| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
|---|---|---|---|
| Power meter E4419B | SN: GB39512475 | 30-Oct-14 (in house check Feb-19) | In house check: Oct-20 |
| Power sensor HP 8481A | SN: US37292783 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A | SN: MY41092317 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| RF generator R&S SMT-06 | SN: 100972 | 15-Jun-15 (in house check Oct-18) | In house check: Oct-20 |
| Network Analyzer Agilent E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-19) | In house check: Oct-20 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Jeton Kastrati | Laboratory Technician | |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: June 24, 2020

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D2450V2-1026_Jun20          Page 1 of 8

**Calibration Laboratory of**
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  **Engineering AG**
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| | | Servizio svizzero di taratura |
| | S | Swiss Calibration Service |

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**The Swiss Accreditation Service is one of the signatories to the EA**
**Multilateral Agreement for the recognition of calibration certificates**

**Accreditation No.: SCS 0108**

## Glossary:

| | |
|---|---|
| TSL | tissue simulating liquid |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A | not applicable or not measured |

## Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016

c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

## Additional Documentation:

e) DASY4/5 System Handbook

## Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: D2450V2-1026_Jun20          Page 2 of 8

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

| DASY Version | DASY5 | V52.10.4 |
|---|---|---|
| Extrapolation | Advanced Extrapolation | |
| Phantom | Modular Flat Phantom | |
| Distance Dipole Center - TSL | 10 mm | with Spacer |
| Zoom Scan Resolution | dx, dy, dz = 5 mm | |
| Frequency | 2450 MHz ± 1 MHz | |

## Head TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Head TSL parameters | 22.0 °C | 39.2 | 1.80 mho/m |
| Measured Head TSL parameters | (22.0 ± 0.2) °C | 38.2 ± 6 % | 1.86 mho/m ± 6 % |
| Head TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Head TSL

| SAR averaged over 1 cm³ (1 g) of Head TSL | Condition | |
|---|---|---|
| SAR measured | 250 mW input power | 13.6 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 53.2 W/kg ± 17.0 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Head TSL | condition | |
|---|---|---|
| SAR measured | 250 mW input power | 6.24 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 24.6 W/kg ± 16.5 % (k=2) |

## Body TSL parameters

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Body TSL parameters | 22.0 °C | 52.7 | 1.95 mho/m |
| Measured Body TSL parameters | (22.0 ± 0.2) °C | 51.2 ± 6 % | 2.04 mho/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Body TSL

| SAR averaged over 1 cm³ (1 g) of Body TSL | Condition | |
|---|---|---|
| SAR measured | 250 mW input power | 13.2 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 51.3 W/kg ± 17.0 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Body TSL | condition | |
|---|---|---|
| SAR measured | 250 mW input power | 6.11 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 24.0 W/kg ± 16.5 % (k=2) |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL

| | |
|---|---|
| Impedance, transformed to feed point | 52.1 Ω + 3.8 jΩ |
| Return Loss | - 27.5 dB |

### Antenna Parameters with Body TSL

| | |
|---|---|
| Impedance, transformed to feed point | 49.2 Ω + 5.3 jΩ |
| Return Loss | - 25.4 dB |

### General Antenna Parameters and Design

| | |
|---|---|
| Electrical Delay (one direction) | 1.163 ns |

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

### Additional EUT Data

| | |
|---|---|
| Manufactured by | SPEAG |

**DASY5 Validation Report for Head TSL**

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:1026**

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.86 S/m; $\varepsilon_r$ = 38.2; ρ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7405; ConvF(7.81, 7.81, 7.81) @ 2450 MHz; Calibrated: 31.12.2019

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn601; Calibrated: 27.12.2019

- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001

- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:**
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.2 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 27.9 W/kg
**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.24 W/kg**
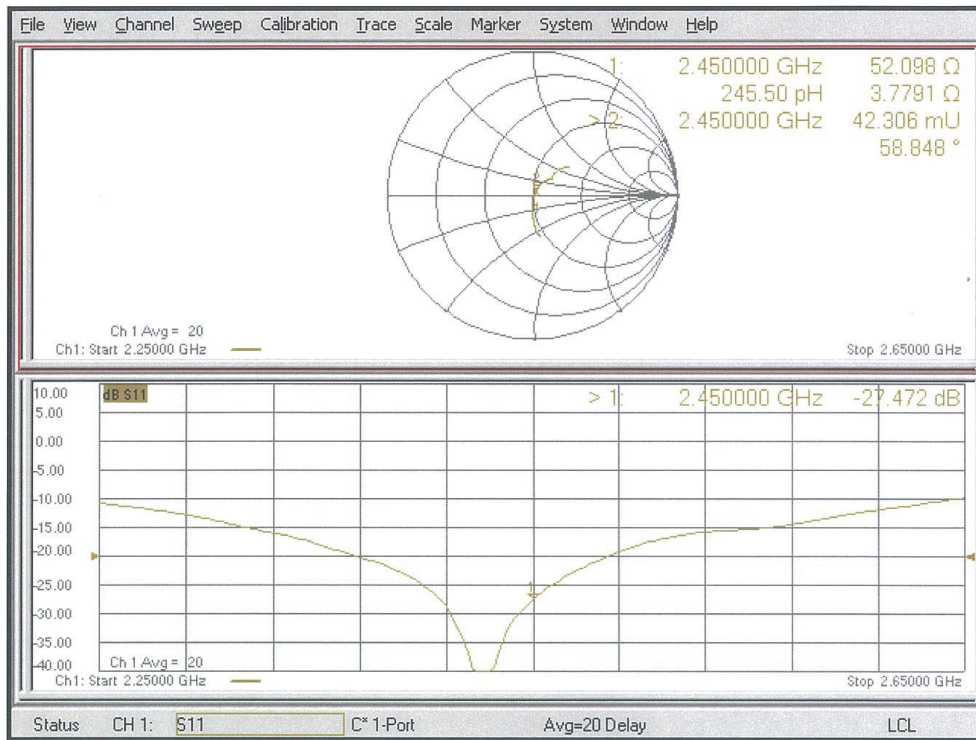Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 48.7%
Maximum value of SAR (measured) = 22.7 W/kg



0 dB = 22.7 W/kg = 13.56 dBW/kg

**Impedance Measurement Plot for Head TSL**

**Calibration Laboratory of**
**Schmid & Partner**
   **Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland

ilac-MRA

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client    **TüV SÜD UK**

Certificate No: **D5GHzV2-1291_Feb20**

# CALIBRATION CERTIFICATE

| | |
|---|---|
| Object | D5GHzV2 - SN:1291 |
| Calibration procedure(s) | QA CAL-22.v4<br>Calibration Procedure for SAR Validation Sources between 3-6 GHz |
| Calibration date: | February 27, 2020 |

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID # | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter NRP | SN: 104778 | 03-Apr-19 (No. 217-02892/02893) | Apr-20 |
| Power sensor NRP-Z91 | SN: 103244 | 03-Apr-19 (No. 217-02892) | Apr-20 |
| Power sensor NRP-Z91 | SN: 103245 | 03-Apr-19 (No. 217-02893) | Apr-20 |
| Reference 20 dB Attenuator | SN: 5058 (20k) | 04-Apr-19 (No. 217-02894) | Apr-20 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 04-Apr-19 (No. 217-02895) | Apr-20 |
| Reference Probe EX3DV4 | SN: 3503 | 31-Dec-19 (No. EX3-3503_Dec19) | Dec-20 |
| DAE4 | SN: 601 | 27-Dec-19 (No. DAE4-601_Dec19) | Dec-20 |

| Secondary Standards | ID # | Check Date (in house) | Scheduled Check |
|---|---|---|---|
| Power meter E4419B | SN: GB39512475 | 30-Oct-14 (in house check Feb-19) | In house check: Oct-20 |
| Power sensor HP 8481A | SN: US37292783 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| Power sensor HP 8481A | SN: MY41092317 | 07-Oct-15 (in house check Oct-18) | In house check: Oct-20 |
| RF generator R&S SMT-06 | SN: 100972 | 15-Jun-15 (in house check Oct-18) | In house check: Oct-20 |
| Network Analyzer Agilent E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-19) | In house check: Oct-20 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Michael Weber | Laboratory Technician | M.Weber |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: February 27, 2020

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Certificate No: D5GHzV2-1291_Feb20          Page 1 of 16

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Glossary:**
| | |
|---|---|
| TSL | tissue simulating liquid |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A | not applicable or not measured |

**Calibration is Performed According to the Following Standards:**
a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

**Additional Documentation:**
e) DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**
- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: D5GHzV2-1291_Feb20          Page 2 of 16

## Measurement Conditions

DASY system configuration, as far as not given on page 1.

| DASY Version | DASY5 | V52.10.4 |
|---|---|---|
| Extrapolation | Advanced Extrapolation | |
| Phantom | Modular Flat Phantom V5.0 | |
| Distance Dipole Center - TSL | 10 mm | with Spacer |
| Zoom Scan Resolution | dx, dy = 4.0 mm, dz = 1.4 mm | Graded Ratio = 1.4 (Z direction) |
| Frequency | 5200 MHz ± 1 MHz<br>5300 MHz ± 1 MHz<br>5500 MHz ± 1 MHz<br>5600 MHz ± 1 MHz<br>5800 MHz ± 1 MHz | |

## Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Head TSL parameters | 22.0 °C | 36.0 | 4.66 mho/m |
| Measured Head TSL parameters | (22.0 ± 0.2) °C | 35.1 ± 6 % | 4.48 mho/m ± 6 % |
| Head TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Head TSL at 5200 MHz

| SAR averaged over 1 cm³ (1 g) of Head TSL | Condition | |
|---|---|---|
| SAR measured | 100 mW input power | 7.95 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 79.0 W/kg ± 19.9 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Head TSL | condition | |
|---|---|---|
| SAR measured | 100 mW input power | 2.27 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 22.5 W/kg ± 19.5 % (k=2) |

## Head TSL parameters at 5300 MHz
The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Head TSL parameters | 22.0 °C | 35.9 | 4.76 mho/m |
| Measured Head TSL parameters | (22.0 ± 0.2) °C | 34.9 ± 6 % | 4.57 mho/m ± 6 % |
| Head TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Head TSL at 5300 MHz

| SAR averaged over 1 cm³ (1 g) of Head TSL | Condition | |
|---|---|---|
| SAR measured | 100 mW input power | 8.24 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 81.8 W/kg ± 19.9 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Head TSL | condition | |
|---|---|---|
| SAR measured | 100 mW input power | 2.33 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 23.1 W/kg ± 19.5 % (k=2) |

## Head TSL parameters at 5500 MHz
The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Head TSL parameters | 22.0 °C | 35.6 | 4.96 mho/m |
| Measured Head TSL parameters | (22.0 ± 0.2) °C | 34.6 ± 6 % | 4.78 mho/m ± 6 % |
| Head TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Head TSL at 5500 MHz

| SAR averaged over 1 cm³ (1 g) of Head TSL | Condition | |
|---|---|---|
| SAR measured | 100 mW input power | 8.53 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 84.6 W/kg ± 19.9 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Head TSL | condition | |
|---|---|---|
| SAR measured | 100 mW input power | 2.38 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 23.6 W/kg ± 19.5 % (k=2) |

## Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Head TSL parameters | 22.0 °C | 35.5 | 5.07 mho/m |
| Measured Head TSL parameters | (22.0 ± 0.2) °C | 34.5 ± 6 % | 4.88 mho/m ± 6 % |
| Head TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Head TSL at 5600 MHz

| SAR averaged over 1 cm³ (1 g) of Head TSL | Condition | |
|---|---|---|
| SAR measured | 100 mW input power | 8.46 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 83.9 W/kg ± 19.9 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Head TSL | condition | |
|---|---|---|
| SAR measured | 100 mW input power | 2.39 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 23.7 W/kg ± 19.5 % (k=2) |

## Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

| | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Head TSL parameters | 22.0 °C | 35.3 | 5.27 mho/m |
| Measured Head TSL parameters | (22.0 ± 0.2) °C | 34.2 ± 6 % | 5.08 mho/m ± 6 % |
| Head TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Head TSL at 5800 MHz

| SAR averaged over 1 cm³ (1 g) of Head TSL | Condition | |
|---|---|---|
| SAR measured | 100 mW input power | 8.09 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 80.2 W/kg ± 19.9 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Head TSL | condition | |
|---|---|---|
| SAR measured | 100 mW input power | 2.27 W/kg |
| SAR for nominal Head TSL parameters | normalized to 1W | 22.5 W/kg ± 19.5 % (k=2) |

## Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

|  | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Body TSL parameters | 22.0 °C | 49.0 | 5.30 mho/m |
| Measured Body TSL parameters | (22.0 ± 0.2) °C | 47.4 ± 6 % | 5.45 mho/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C | ----- | ---- |

## SAR result with Body TSL at 5200 MHz

| SAR averaged over 1 cm³ (1 g) of Body TSL | Condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 7.42 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | **73.7 W/kg ± 19.9 % (k=2)** |

| SAR averaged over 10 cm³ (10 g) of Body TSL | condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 2.08 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | **20.7 W/kg ± 19.5 % (k=2)** |

## Body TSL parameters at 5300 MHz

The following parameters and calculations were applied.

|  | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Body TSL parameters | 22.0 °C | 48.9 | 5.42 mho/m |
| Measured Body TSL parameters | (22.0 ± 0.2) °C | 47.2 ± 6 % | 5.59 mho/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Body TSL at 5300 MHz

| SAR averaged over 1 cm³ (1 g) of Body TSL | Condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 7.31 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | **72.7 W/kg ± 19.9 % (k=2)** |

| SAR averaged over 10 cm³ (10 g) of Body TSL | condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 2.03 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | **20.1 W/kg ± 19.5 % (k=2)** |

## Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

|  | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Body TSL parameters | 22.0 °C | 48.6 | 5.65 mho/m |
| Measured Body TSL parameters | (22.0 ± 0.2) °C | 46.9 ± 6 % | 5.86 mho/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Body TSL at 5500 MHz

| SAR averaged over 1 cm³ (1 g) of Body TSL | Condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 7.84 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 77.9 W/kg ± 19.9 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Body TSL | condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 2.16 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 21.4 W/kg ± 19.5 % (k=2) |

## Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

|  | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Body TSL parameters | 22.0 °C | 48.5 | 5.77 mho/m |
| Measured Body TSL parameters | (22.0 ± 0.2) °C | 46.7 ± 6 % | 5.99 mho/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Body TSL at 5600 MHz

| SAR averaged over 1 cm³ (1 g) of Body TSL | Condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 7.71 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 76.6 W/kg ± 19.9 % (k=2) |

| SAR averaged over 10 cm³ (10 g) of Body TSL | condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 2.14 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | 21.2 W/kg ± 19.5 % (k=2) |

## Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

|  | Temperature | Permittivity | Conductivity |
|---|---|---|---|
| Nominal Body TSL parameters | 22.0 °C | 48.2 | 6.00 mho/m |
| Measured Body TSL parameters | (22.0 ± 0.2) °C | 46.3 ± 6 % | 6.27 mho/m ± 6 % |
| Body TSL temperature change during test | < 0.5 °C | ---- | ---- |

## SAR result with Body TSL at 5800 MHz

| SAR averaged over 1 cm³ (1 g) of Body TSL | Condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 7.37 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | **73.2 W/kg ± 19.9 % (k=2)** |

| SAR averaged over 10 cm³ (10 g) of Body TSL | condition |  |
|---|---|---|
| SAR measured | 100 mW input power | 2.03 W/kg |
| SAR for nominal Body TSL parameters | normalized to 1W | **20.1 W/kg ± 19.5 % (k=2)** |

## Appendix (Additional assessments outside the scope of SCS 0108)

### Antenna Parameters with Head TSL at 5200 MHz

| | |
|---|---|
| Impedance, transformed to feed point | 47.0 Ω - 5.1 jΩ |
| Return Loss | - 24.4 dB |

### Antenna Parameters with Head TSL at 5300 MHz

| | |
|---|---|
| Impedance, transformed to feed point | 46.3 Ω - 0.5 jΩ |
| Return Loss | - 28.2 dB |

### Antenna Parameters with Head TSL at 5500 MHz

| | |
|---|---|
| Impedance, transformed to feed point | 45.2 Ω + 0.8 jΩ |
| Return Loss | - 25.8 dB |

### Antenna Parameters with Head TSL at 5600 MHz

| | |
|---|---|
| Impedance, transformed to feed point | 49.7 Ω + 1.8 jΩ |
| Return Loss | - 34.9 dB |

### Antenna Parameters with Head TSL at 5800 MHz

| | |
|---|---|
| Impedance, transformed to feed point | 50.3 Ω + 3.2 jΩ |
| Return Loss | - 30.0 dB |

## Antenna Parameters with Body TSL at 5200 MHz

| Impedance, transformed to feed point | 46.0 Ω - 3.3 jΩ |
|---|---|
| Return Loss | - 25.4 dB |

## Antenna Parameters with Body TSL at 5300 MHz

| Impedance, transformed to feed point | 45.7 Ω + 0.4 jΩ |
|---|---|
| Return Loss | - 26.9 dB |

## Antenna Parameters with Body TSL at 5500 MHz

| Impedance, transformed to feed point | 44.8 Ω + 2.2 jΩ |
|---|---|
| Return Loss | - 24.5 dB |

## Antenna Parameters with Body TSL at 5600 MHz

| Impedance, transformed to feed point | 49.2 Ω + 2.4 jΩ |
|---|---|
| Return Loss | - 32.0 dB |

## Antenna Parameters with Body TSL at 5800 MHz

| Impedance, transformed to feed point | 49.0 Ω + 3.3 jΩ |
|---|---|
| Return Loss | - 29.1 dB |

## General Antenna Parameters and Design

| Electrical Delay (one direction) | 1.188 ns |
|---|---|

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

## Additional EUT Data

| Manufactured by | SPEAG |
|---|---|

## DASY5 Validation Report for Head TSL

Date: 26.02.2020

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1291**

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz

Medium parameters used: f = 5200 MHz; $\sigma$ = 4.48 S/m; $\varepsilon_r$ = 35.1; $\rho$ = 1000 kg/m$^3$ ,

Medium parameters used: f = 5300 MHz; $\sigma$ = 4.57 S/m; $\varepsilon_r$ = 34.9; $\rho$ = 1000 kg/m$^3$ ,

Medium parameters used: f = 5500 MHz; $\sigma$ = 4.78 S/m; $\varepsilon_r$ = 34.6; $\rho$ = 1000 kg/m$^3$ ,

Medium parameters used: f = 5600 MHz; $\sigma$ = 4.88 S/m; $\varepsilon_r$ = 34.5; $\rho$ = 1000 kg/m$^3$ ,

Medium parameters used: f = 5800 MHz; $\sigma$ = 5.08 S/m; $\varepsilon_r$ = 34.2; $\rho$ = 1000 kg/m$^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.8, 5.8, 5.8) @ 5200 MHz, ConvF(5.49, 5.49, 5.49) @ 5300 MHz, ConvF(5.25, 5.25, 5.25) @ 5500 MHz, ConvF(5.1, 5.1, 5.1) @ 5600 MHz, ConvF(5.01, 5.01, 5.01) @ 5800 MHz; Calibrated: 31.12.2019

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn601; Calibrated: 27.12.2019

- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001

- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 77.28 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 28.6 W/kg

**SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.27 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 68.6%

Maximum value of SAR (measured) = 18.3 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 78.08 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 29.9 W/kg

**SAR(1 g) = 8.24 W/kg; SAR(10 g) = 2.33 W/kg**

Smallest distance from peaks to all points 3 dB below = 7.2 mm

Ratio of SAR at M2 to SAR at M1 = 68.5%

Maximum value of SAR (measured) = 19.1 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 77.95 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 33.6 W/kg
**SAR(1 g) = 8.53 W/kg; SAR(10 g) = 2.38 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 66%
Maximum value of SAR (measured) = 20.4 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 78.50 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 31.9 W/kg
**SAR(1 g) = 8.46 W/kg; SAR(10 g) = 2.39 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 66.7%
Maximum value of SAR (measured) = 20.2 W/kg

**Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
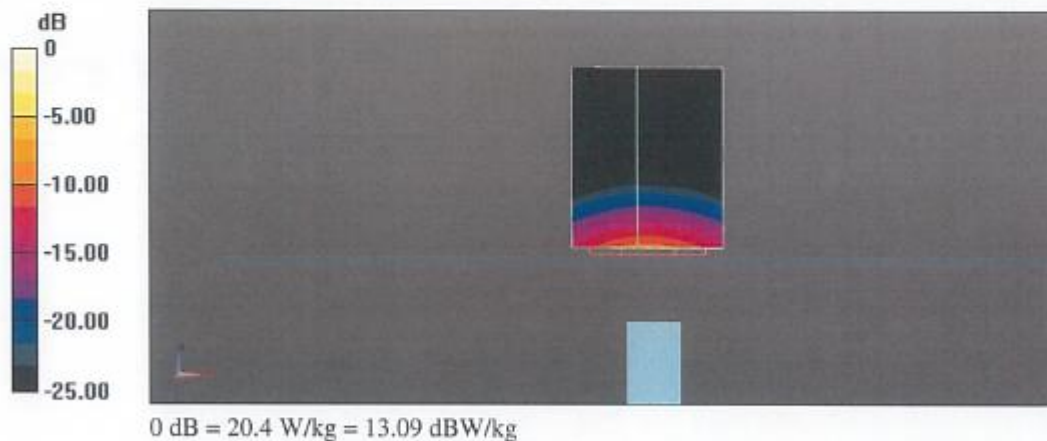Reference Value = 76.11 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 32.7 W/kg
**SAR(1 g) = 8.09 W/kg; SAR(10 g) = 2.27 W/kg**
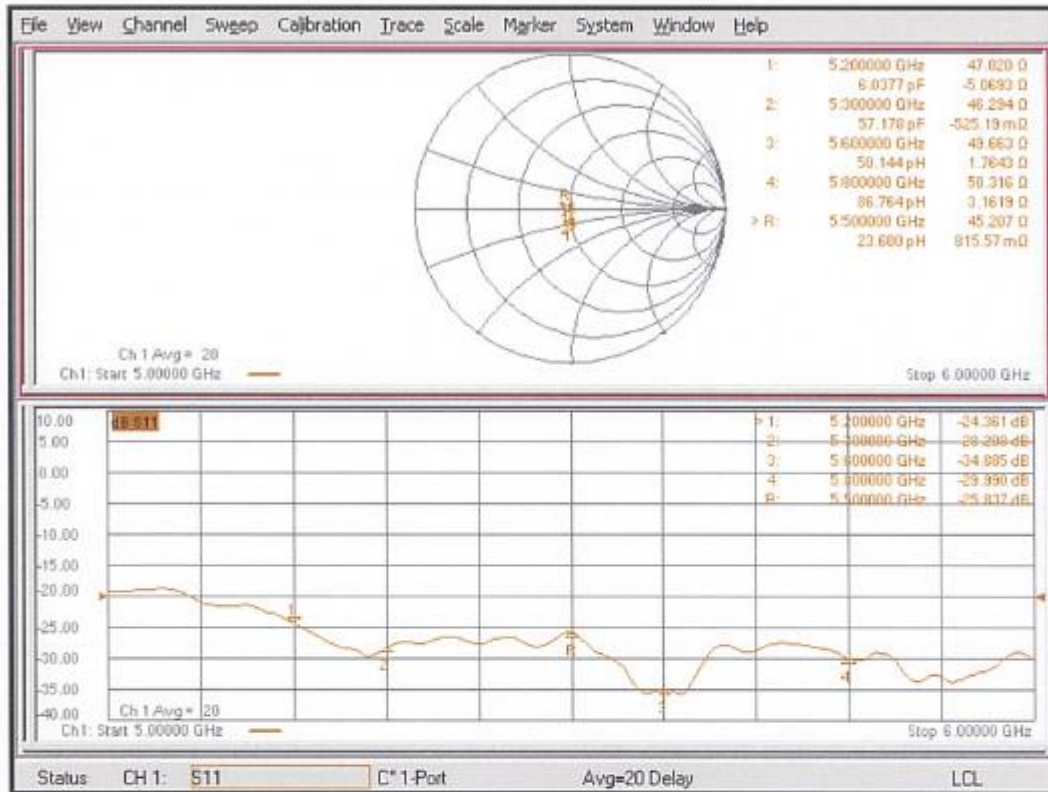Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 64.9%
Maximum value of SAR (measured) = 19.6 W/kg



0 dB = 20.4 W/kg = 13.09 dBW/kg

## Impedance Measurement Plot for Head TSL

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## DASY5 Validation Report for Body TSL

Date: 27.02.2020

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1291**

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5500 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; $\sigma$ = 5.45 S/m; $\varepsilon_r$ = 47.4; $\rho$ = 1000 kg/m$^3$ ,
Medium parameters used: f = 5300 MHz; $\sigma$ = 5.59 S/m; $\varepsilon_r$ = 47.2; $\rho$ = 1000 kg/m$^3$ ,
Medium parameters used: f = 5500 MHz; $\sigma$ = 5.86 S/m; $\varepsilon_r$ = 46.9; $\rho$ = 1000 kg/m$^3$ ,
Medium parameters used: f = 5600 MHz; $\sigma$ = 5.99 S/m; $\varepsilon_r$ = 46.7; $\rho$ = 1000 kg/m$^3$ ,
Medium parameters used: f = 5800 MHz; $\sigma$ = 6.27 S/m; $\varepsilon_r$ = 46.3; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.29, 5.29, 5.29) @ 5200 MHz, ConvF(5.23, 5.23, 5.23) @ 5300 MHz, ConvF(4.84, 4.84, 4.84) @ 5500 MHz, ConvF(4.79, 4.79, 4.79) @ 5600 MHz, ConvF(4.62, 4.62, 4.62) @ 5800 MHz; Calibrated: 31.12.2019

- Sensor-Surface: 1.4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn601; Calibrated: 27.12.2019

- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002

- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.22 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 27.8 W/kg
**SAR(1 g) = 7.42 W/kg; SAR(10 g) = 2.08 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 67.7%
Maximum value of SAR (measured) = 17.0 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.39 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.9 W/kg
**SAR(1 g) = 7.31 W/kg; SAR(10 g) = 2.03 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 66.2%
Maximum value of SAR (measured) = 17.1 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.19 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 32.6 W/kg
**SAR(1 g) = 7.84 W/kg; SAR(10 g) = 2.16 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.2 mm
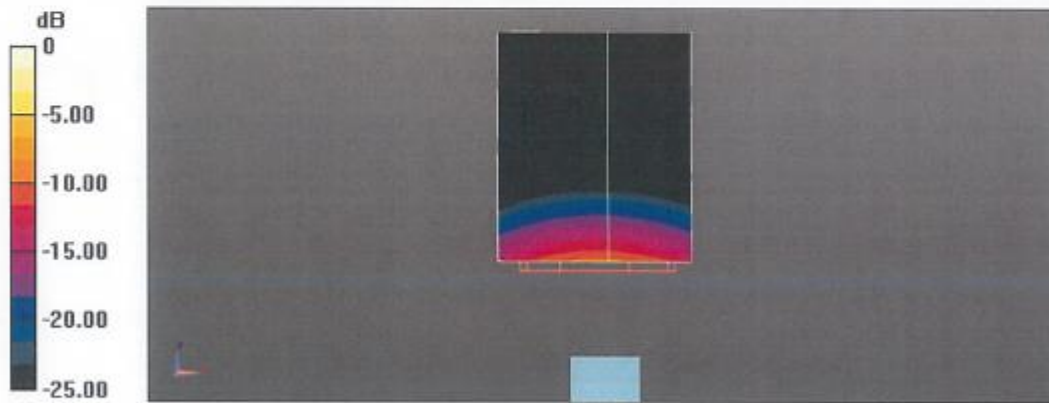Ratio of SAR at M2 to SAR at M1 = 64.4%
Maximum value of SAR (measured) = 18.8 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.12 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 33.1 W/kg
**SAR(1 g) = 7.71 W/kg; SAR(10 g) = 2.14 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 63.2%
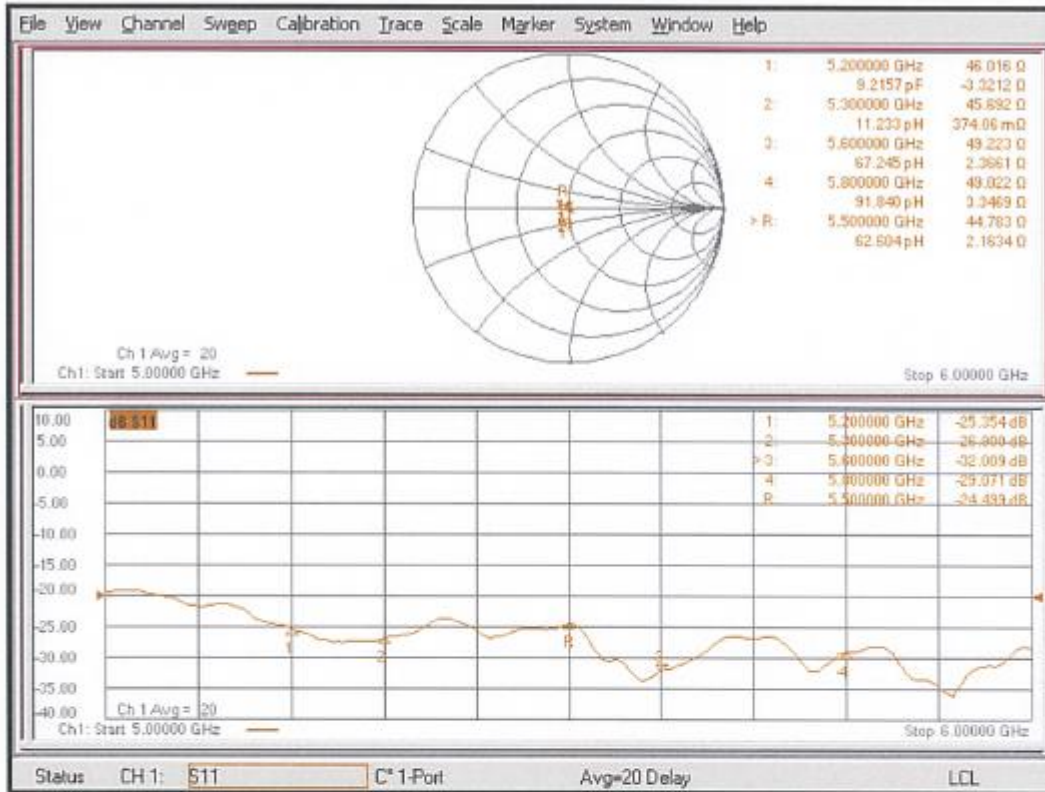Maximum value of SAR (measured) = 18.7 W/kg

**Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.87 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 32.3 W/kg
**SAR(1 g) = 7.37 W/kg; SAR(10 g) = 2.03 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 62.5%
Maximum value of SAR (measured) = 18.2 W/kg



0 dB = 17.0 W/kg = 12.31 dBW/kg

## Impedance Measurement Plot for Body TSL

| | | |
|---|---|---|
| File | View | Channel | Sweep | Calibration | Trace | Scale | Marker | System | Window | Help |



| | | |
|---|---|---|
| 1: | 5.200000 GHz | 46.016 Ω |
| | 9.2157 pF | -3.3212 Ω |
| 2: | 5.300000 GHz | 45.692 Ω |
| | 11.233 pH | 374.06 mΩ |
| 3: | 5.600000 GHz | 49.223 Ω |
| | 67.245 pH | 2.3661 Ω |
| 4 | 5.800000 GHz | 49.022 Ω |
| | 91.840 pH | 0.3469 Ω |
| > R: | 5.500000 GHz | 44.783 Ω |
| | 62.604 pH | 2.1634 Ω |

Ch 1 Avg = 20
Ch1: Start 5.00000 GHz — Stop 6.00000 GHz

| | | |
|---|---|---|
| 1 | 5.200000 GHz | -25.354 dB |
| 2 | 5.300000 GHz | -26.900 dB |
| > 3 | 5.600000 GHz | -32.009 dB |
| 4 | 5.800000 GHz | -29.071 dB |
| R | 5.500000 GHz | -24.499 dB |

Ch 1 Avg = 20
Ch1: Start 5.00000 GHz — Stop 6.00000 GHz

Status | CH 1: | S11 | C* 1-Port | Avg=20 Delay | LCL

**ANNEX C**

**PHOTOGRAPHS**

## TEST POSITIONAL PHOTOGRAPHS



Bottom – 0 mm separation distance.



Rear of Display – 0 mm separation distance.

**PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)**



Top



Bottom

Top - Open