

Description of EPFD validation and results of examination

Input parameters

Mask link data

| | Mask Id. | Direction | Minimum frequency, MHz | Maximum frequency, MHz | Linked orbit IDs / Satellite IDs |
|-----|----------|-----------|------------------------|------------------------|--|
| Ka | 1 | ↑ | 27600 | 30000 | All |
| Ku | 1 | ↑ | 12750 | 14500 | All |
| | 2 | ↓ | 10700 | 12750 | All |
| | 3 | ↔ | 10700 | 12750 | All |
| TTC | 1 | ↑ | 27500 | 30000 | All |
| | 3 | ↓ | 19700 | 20200 | 1, 11, 21, 31, 41, 51, 61 (sat IDs: 1, 11, 21, 31, 41, 51, 61, 71) 2, 12, 22, 32, 42, 52, 62 (sat IDs: 8, 18, 28, 38, 48, 58, 68) 3, 13, 23, 33, 43, 53, 63 (sat IDs: 5, 15, 25, 35, 45, 55, 65) 4, 14, 24, 34, 44, 54, 64 (sat IDs: 2, 12, 22, 32, 42, 52, 62, 72) 5, 15, 25, 35, 45, 55 (sat IDs: 9, 19, 29, 39, 49, 59, 69) 6, 16, 26, 36, 46, 56 (sat IDs: 6, 16, 26, 36, 46, 56, 66) 7, 17, 27, 37, 47, 57 (sat IDs: 3, 13, 23, 33, 43, 53, 63) 8, 18, 28, 38, 48, 58 (sat IDs: 10, 20, 30, 40, 50, 60, 70) 9, 19, 29, 39, 49, 59 (sat IDs: 7, 17, 27, 37, 47, 57, 67) 10, 20, 30, 40, 50, 60 (sat IDs: 4, 14, 24, 34, 44, 54, 64) |
| | 11 | ↓ | 19700 | 20200 | 1, 11, 21, 31, 41, 51, 61 (sat IDs: 2 - 10, 12 - 20, 22 - 30, 32 - 40, 42 - 50, 52 - 60, 62 - 70, 72) 2, 12, 22, 32, 42, 52, 62 (sat IDs: 1 - 7, 9 - 17, 19 - 27, 29 - 37, 39 - 47, 49 - 57, 59 - 67, 69 - 72) 3, 13, 23, 33, 43, 53, 63 (sat IDs: 1 - 4, 6 - 14, 16 - 24, 26 - 34, 36 - 44, 46 - 54, 56 - 64, 66 - 72) 4, 14, 24, 34, 44, 54, 64 (sat IDs: 1, 3 - 11, 13 - 21, 23 - 31, 33 - 41, 43 - 51, 53 - 61, 63 - 71) 5, 15, 25, 35, 45, 55 (sat IDs: 1 - 8, 10 - 18, 20 - 28, 30 - 38, 40 - 48, 50 - 58, 60 - 68, 70 - 72) 6, 16, 26, 36, 46, 56 (sat IDs: |

| | | | | | |
|--|--|--|--|--|---|
| | | | | | <p>1 - 5, 7 - 15, 17 - 25, 27 - 35, 37 - 45, 47 - 55, 57 - 65, 67 - 72)</p> <p>7, 17, 27, 37, 47, 57 (sat IDs: 1, 2, 4 - 12, 14 - 22, 24 - 32, 34 - 42, 44 - 52, 54 - 62, 64 - 72)</p> <p>8, 18, 28, 38, 48, 58 (sat IDs: 1 - 9, 11 - 19, 21 - 29, 31 - 39, 41 - 49, 51 - 59, 61 - 69, 71, 72)</p> <p>9, 19, 29, 39, 49, 59 (sat IDs: 1 - 6, 8 - 16, 18 - 26, 28 - 36, 38 - 46, 48 - 56, 58 - 66, 68 - 72)</p> <p>10, 20, 30, 40, 50, 60 (sat IDs: 1 - 3, 5 - 13, 15 - 23, 25 - 33, 35 - 43, 45 - 53, 55 - 63, 65 - 72)</p> |
|--|--|--|--|--|---|

Common SNS Data

Common

| | A.4.b.7.d.1 Exclusion zone type | A.4.b.7.d.1 Exclusion zone size, degrees |
|-----|-------------------------------------|---|
| Ka | Y - topocentric angle (earth based) | 15 |
| Ku | Y - topocentric angle (earth based) | 20 |
| TTC | Y - topocentric angle (earth based) | 30 |

Orbits

| | Apogee/Perigee/Inclination | A.4.b.6.d Uses station keeping | A.4.b.6.e Uses specific precession |
|--|------------------------------|-----------------------------------|---------------------------------------|
| | 1200/1200/55 1200/1200/40 | No keeping | Default |

Uplink

| | A.4.b.7.b Earth station density (1/km ²) | A.4.b.7.c Average distance (km) | A.4.b.7.a number of satellites receiving simultaneously |
|-----|---|------------------------------------|--|
| Ka | 1.9E-06 | 737 | 50 |
| Ku | 3.4E-06 | 540 | 2 |
| TTC | 2.5E-07 | 2000 | 20 |

Downlink

| A.4.b.6.a Number of satellites transmitting to any latitude within corresponding range | | | |
|---|---------------|-------------|--------|
| | From latitude | To latitude | Number |
| Ka | -55 | -40 | 40 |
| | -40 | 40 | 50 |
| | 40 | 55 | 40 |
| Ku | -90 | 90 | 1 |
| TTC | -55 | -31 | 2 |
| | -31 | 31 | 0 |
| | 31 | 55 | 2 |

Group table

| Beam(s) | Direction | Minimum frequency, MHz | Maximum frequency, MHz | A.4.b.7.cbis Minimum elevation angle |
|--------------------|-----------|------------------------|------------------------|---|
| URA, URB, URC, URD | R | 12750 | 14500 | 30 |

| | | | | |
|--------------------|---|-------|-------|----|
| GRA, GRB, GRC, GRD | R | 27500 | 30000 | 10 |
| UTA, UTB, UTC, UTD | E | 10700 | 12750 | 30 |
| GTA, GTB, GTC, GTD | E | 19700 | 20200 | 10 |

Results

| <i>B1A</i> <i>Beam designation</i> | <i>B2</i> <i>Emi-Rcp</i> | <i>BR7a</i> <i>Group id./ Target Group id.</i> | <i>GHz</i> | <i>Orbital planes id. no.</i> | <i>Mask ID</i> | <i>Article 22 Limit</i> | <i>Result</i> | <i>Article 22 Examination</i> |
|---------------------------------------|-----------------------------|---|-------------|-------------------------------|----------------|-------------------------|---------------|-------------------------------|
| GRA | R | 320766633 / 120751874 320766634 / 120751875 320766635 / 120751876 320766636 / 120751877 320766637 / 120751878 | 27.5-28.6 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| GRA | R | 320766638 / 120752014 320766639 / 120752016 320766640 / 120752018 320766641 / 120752020 320766642 / 120752022 | 29.5-30 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| GRB | R | 320766643 / 120751879 320766644 / 120751880 320766645 / 120751881 320766646 / 120751882 320766647 / 120751883 | 27.5-28.6 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| GRB | R | 320766648 / 120752024 320766649 / 120752026 320766650 / 120752028 320766651 / 120752030 320766652 / 120752032 | 29.5-30 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| GRC | R | 320766653 / 120751884 320766654 / 120751885 320766655 / 120751886 320766656 / 120751887 320766657 / 120751888 | 27.5-28.6 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| GRC | R | 320766658 / 120752034 320766659 / 120752036 320766660 / 120752038 320766661 / 120752040 320766662 / 120752042 | 29.5-30 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| GRD | R | 320766663 / 120751889 320766664 / 120751890 320766665 / 120751891 320766666 / 120751892 320766667 / 120751893 | 27.5-28.6 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| GRD | R | 320766668 / 120752044 320766669 / 120752046 320766670 / 120752048 320766671 / 120752050 320766672 / 120752052 | 29.5-30 | 1 - 64 | 1 | TABLE 22-2 | Pass | Favorable |
| URA | R | 320766673 / 120751829 320766674 / 120751830 320766675 / 120751831 320766676 / 120751832 320766677 / 120751833 | 12.75-13.25 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URA | R | 320766678 / 120751953 320766679 / 120751954 320766680 / 120751955 320766681 / 120751956 | 14-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URA | R | 320766682 / 120751957 | 13.75-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URB | R | 320766683 / 120751834 320766684 / 120751835 320766685 / 120751836 320766686 / 120751837 320766687 / 120751838 | 12.75-13.25 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URB | R | 320766688 / 120751958 320766689 / 120751959 320766690 / 120751960 320766691 / 120751961 | 14-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URB | R | 320766692 / 120751962 | 13.75-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |

| | | | | | | | | |
|-----|---|---|-------------|--------|--|--|--------------------------------------|-----------|
| URC | R | 320766693 / 120751839 320766694 / 120751840 320766695 / 120751841 320766696 / 120751842 320766697 / 120751843 | 12.75-13.25 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URC | R | 320766698 / 120751963 320766699 / 120751964 320766700 / 120751965 320766701 / 120751966 | 14-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URC | R | 320766702 / 120751967 | 13.75-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URD | R | 320766703 / 120751918 320766704 / 120751919 320766705 / 120751920 320766706 / 120751921 320766707 / 120751922 | 12.75-13.25 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URD | R | 320766708 / 120752133 320766709 / 120752134 320766710 / 120752135 320766711 / 120752136 | 14-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| URD | R | 320766712 / 120752137 | 13.75-14.5 | 1 - 64 | | TABLE 22-2 | Pass | Favorable |
| GTA | E | 320766493 / 120752056 320766494 / 120752060 320766495 / 120752064 320766496 / 120752068 320766497 / 120752072 | 19.7-20.2 | 1 - 64 | | TABLE 22-1C | Pass | Favorable |
| GTB | E | 320766498 / 120752076 320766499 / 120752080 320766500 / 120752084 320766501 / 120752088 320766502 / 120752092 | 19.7-20.2 | 1 - 64 | | TABLE 22-1C | Pass | Favorable |
| GTC | E | 320766503 / 120752096 320766504 / 120752100 320766505 / 120752104 320766506 / 120752108 320766507 / 120752112 | 19.7-20.2 | 1 - 64 | | TABLE 22-1C | Pass | Favorable |
| GTD | E | 320766508 / 120752116 320766509 / 120752120 320766510 / 120752124 320766511 / 120752128 320766512 / 120752132 | 19.7-20.2 | 1 - 64 | | TABLE 22-1C | Pass | Favorable |
| UTA | E | 320766513 / 120751844 320766515 / 120751846 320766517 / 120751848 320766519 / 120751850 320766521 / 120751852 | 10.7-11.45 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTA | E | 320766514 / 120751845 320766516 / 120751847 320766518 / 120751849 320766520 / 120751851 320766522 / 120751853 | 11.7-12.2 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D | Pass Pass Pass Pass | Favorable |
| UTA | E | 320766523 / 120751933 320766524 / 120751934 320766525 / 120751935 320766526 / 120751936 320766527 / 120751937 | 12.5-12.75 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D TABLE 22-3 | Pass Pass Pass Pass Pass | Favorable |
| UTA | E | 320766528 / 120751968 320766531 / 120751971 320766534 / 120751974 320766537 / 120751977 320766540 / 120751980 | 10.95-11.2 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTA | E | 320766529 / 120751969 320766532 / 120751972 320766535 / 120751975 320766538 / 120751978 320766541 / 120751981 | 11.45-11.7 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTA | E | 320766530 / 120751970 320766533 / 120751973 320766536 / 120751976 320766539 / 120751979 320766542 / 120751982 | 12.2-12.7 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D TABLE 22-3 | Pass Pass Pass Pass Pass | Favorable |

| | | | | | | | | |
|-----|---|---|------------|--------|--|--|--------------------------------------|-----------|
| UTB | E | 320766543 / 120751854 320766545 / 120751856 320766547 / 120751858 320766549 / 120751860 320766551 / 120751862 | 10.7-11.45 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTB | E | 320766544 / 120751855 320766546 / 120751857 320766548 / 120751859 320766550 / 120751861 320766552 / 120751863 | 11.7-12.2 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D | Pass Pass Pass Pass | Favorable |
| UTB | E | 320766553 / 120751938 320766554 / 120751939 320766555 / 120751940 320766556 / 120751941 320766557 / 120751942 | 12.5-12.75 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D TABLE 22-3 | Pass Pass Pass Pass Pass | Favorable |
| UTB | E | 320766558 / 120751983 320766561 / 120751986 320766564 / 120751989 320766567 / 120751992 320766570 / 120751995 | 10.95-11.2 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTB | E | 320766559 / 120751984 320766562 / 120751987 320766565 / 120751990 320766568 / 120751993 320766571 / 120751996 | 11.45-11.7 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTB | E | 320766560 / 120751985 320766563 / 120751988 320766566 / 120751991 320766569 / 120751994 320766572 / 120751997 | 12.2-12.7 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D TABLE 22-3 | Pass Pass Pass Pass Pass | Favorable |
| UTC | E | 320766573 / 120751864 320766575 / 120751866 320766577 / 120751868 320766579 / 120751870 320766581 / 120751872 | 10.7-11.45 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTC | E | 320766574 / 120751865 320766576 / 120751867 320766578 / 120751869 320766580 / 120751871 320766582 / 120751873 | 11.7-12.2 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D | Pass Pass Pass Pass | Favorable |
| UTC | E | 320766583 / 120751943 320766584 / 120751944 320766585 / 120751945 320766586 / 120751946 320766587 / 120751947 | 12.5-12.75 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D TABLE 22-3 | Pass Pass Pass Pass Pass | Favorable |
| UTC | E | 320766588 / 120751998 320766591 / 120752001 320766594 / 120752004 320766597 / 120752007 320766600 / 120752010 | 10.95-11.2 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTC | E | 320766589 / 120751999 320766592 / 120752002 320766595 / 120752005 320766598 / 120752008 320766601 / 120752011 | 11.45-11.7 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTC | E | 320766590 / 120752000 320766593 / 120752003 320766596 / 120752006 320766599 / 120752009 320766602 / 120752012 | 12.2-12.7 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D TABLE 22-3 | Pass Pass Pass Pass Pass | Favorable |
| UTD | E | 320766603 / 120751923 320766605 / 120751925 320766607 / 120751927 320766609 / 120751929 320766611 / 120751931 | 10.7-11.45 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTD | E | 320766604 / 120751924 320766606 / 120751926 320766608 / 120751928 320766610 / 120751930 320766612 / 120751932 | 11.7-12.2 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D | Pass Pass Pass Pass | Favorable |
| UTD | E | 320766613 / 120751948 320766614 / 120751949 320766615 / 120751950 | 12.5-12.75 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A | Pass Pass Pass | Favorable |

| | | | | | | | | |
|-----|---|---|------------|--------|--|--|--------------------------------------|-----------|
| | | 320766616 / 120751951 320766617 / 120751952 | | | | TABLE 22-1D TABLE 22-3 | Pass Pass | |
| UTD | E | 320766618 / 120752138 320766621 / 120752141 320766624 / 120752144 320766627 / 120752147 320766630 / 120752150 | 10.95-11.2 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTD | E | 320766619 / 120752139 320766622 / 120752142 320766625 / 120752145 320766628 / 120752148 320766631 / 120752151 | 11.45-11.7 | 1 - 64 | | RR 22.5C4 TABLE 22-1A TABLE 22-3 | Pass Pass Pass | Favorable |
| UTD | E | 320766620 / 120752140 320766623 / 120752143 320766626 / 120752146 320766629 / 120752149 320766632 / 120752152 | 12.2-12.7 | 1 - 64 | | RR 22.5C4 RR 22.5C8 TABLE 22-1A TABLE 22-1D TABLE 22-3 | Pass Pass Pass Pass Pass | Favorable |

Notes:

1. Findings are promulgated as favorable when all applicable limits in Article 22 are met for given group of frequency assignments in all applicable scenarios.
2. The Result column can be either Pass or Fail (see Rec. ITU-R S.1503-2). N/A (Non Applicable) refers to the case when an applicable Article 22 limit is not examined in the current scenario.
3. Qualified Favorable is established due to continuous application of Resolution 85 (WRC-03) on request by the notifying administration.