

**Table A.13-4 – Link Budget for Voice-Rate Forward Link to
Personal Accessory User Terminal using TDMA**

| Representative Forward Link Budget | | |
|--|-------------|--------------------|
| UT Type | | Personal Accessory |
| Carrier Type | | TDMA |
| <u>General Parameters</u> | Unit | |
| E/S elevation angle | deg | 28.0 |
| Minimum user elevation angle | deg | 20.0 |
| Uplink range | km | 38792 |
| Downlink range | km | 39554 |
| Uplink frequency | GHz | 29.625 |
| Downlink frequency | GHz | 2.200 |
| Bandwidth/carrier | kHz | 200.0 |
| <u>Uplink</u> | | |
| Uplink E/S antenna diameter | m | 11.0 |
| Uplink E/S antenna peak gain | dBi | 68.1 |
| E/S antenna pointing error | dB | 0.5 |
| Clear-sky uplink EIRP | dBW | 44.3 |
| Rain faded uplink EIRP | dBW | 61.1 |
| Free space loss | dB | 213.7 |
| Rain attenuation | dB | 16.8 |
| Satellite antenna pointing error | dB | 0.3 |
| Satellite antenna receive system noise temp. | dB-K | 30.9 |
| Effective satellite antenna G/T | dB/K | 24.8 |
| Uplink C/N _o | dBHz | 83.5 |
| Uplink C/IM _o | dBHz | 91.7 |
| Uplink C/I _{oASI} | dBHz | 82.4 |
| Uplink C/I _{o Intra-system} | dBHz | 75.1 |
| Aggregate uplink C/I _o | dBHz | 74.4 |
| <u>Downlink</u> | | |
| Satellite EIRP/carrier | dBW | 47.5 |
| Free space loss | dB | 191.2 |
| Atmospheric loss | dB | 0.1 |
| User terminal antenna gain | dB | 3.0 |
| User terminal system noise temperature | dB-K | 25.0 |
| User terminal G/T | dB/K | -22.0 |
| Downlink propagation margin | dB | 5.0 |
| Downlink C/N _o | dBHz | 57.8 |
| Downlink C/IM _o | dBHz | 69.5 |
| Downlink C/I _{o Intra-system} | dBHz | 65.7 |
| Downlink C/I _{o ext} | dBHz | 67.8 |
| Aggregate downlink C/I _o | dBHz | 63.6 |
| <u>End-to-End Performance</u> | | |
| End-to-end C/N _o | dBHz | 57.8 |
| End-to-end aggregate C/I _o | dBHz | 63.3 |
| End-to-end C/IM _o | dBHz | 69.5 |
| Total aggregate C/(N _o +I _o +IM _o) | dBHz | 56.5 |
| Total aggregate C/(N+I+IM) | dB | 3.4 |
| Required C/N | dB | 3.4 |
| System Margin | dB | 0.0 |