Exhibit B: Explanation of Necessary Bandwidths

The following table shows the terminal, data rate, modulation type, baud (modulation rate), and corresponding necessary bandwidth for each type of terminal to be used in the MT demonstrations. All data transmitted in these demonstrations will be digital. BPSK modulation is used for the 600-bps data rate transmissions and QPSK or offset-QPSK (OQPSK) is used for all other transmissions. As can be found in numerous references on the topic, the bandwidth efficiency for BPSK-modulated emissions is 1 bit/s/Hz, while that for QPSK-modulated emissions is 2 bits/s/Hz.

Transmissions from the AERO/H, WorldPhone Marine, and Saturn-B terminals will use concatenated (220,200) Reed-Solomon and 7/8-rateViterbi FEC codes that will increase the coded data rate. The baud will be half the coded data rate, due to QPSK bandwidth efficiency. The HPA will be driven into saturation during transmission, expanding the necessary emission bandwidth approximately 20% above the baud.

Terminal Type	Data Rate (bps)	Coding Rate (chips/s)	Digital Modulation	Baud	Necessary Bandwidth (Hz)
AERO/I	600	Uncoded	Aviation BPSK	600	600
AERO/I	10500	Uncoded	Aviation QPSK	5250	5250
AERO/H	256000	322000	OQPSK	161000	193000
Saturn-Bm/Bt2	512000	644000	OQPSK	322000	386000
WorldPhone Marine w/TPU	16000	20100	OQPSK	10100	12100