

NOAA Evaluation of NPOESS L-Band Frequency Overlap

This document is in response to CGMS action 31.40.

NPOESS has filed its Advanced Publication with the ITU. NPOESS is anxious to avoid RF interference with other METSATs such as METOP Earth stations receiving around 1.7 and 7.8 GHz. NPOESS is in the process of performing interference into main Earth stations and interference into user stations performing METOP and NPOESS reception.

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NPOESS has filed both with the US NTIA and ITU for spectrum allocations to support the NPOESS Low rate Data (LRD) and High Rate Data (HRD) users. An interference assessment from the meteorological satellite system NPOESS into METOP Earth stations receiving around 1.7 and 7.8 GHz is being developed.

One METOP satellite with an orbital altitude of 825 km and an ascending equator crossing time of 21:30 hrs has been assumed. Three NPOESS satellites with orbital heights of 828 km and ascending equator crossing times of 13:30 hrs, 17:30 hrs and 21:30 hrs have been considered. All satellites transmit both in the band 1698-1710 MHz (LRD) and 7750-7850 MHz (HRD). There is a potential for RF interference when the orbital positions of the METOP and NPOESS satellites overlap.

NPOESS is 15 months away from Preliminary Design Review (PDR) and therefore has modest design flexibility to mitigate RF interference such as polarization selection and orbit mean anomaly selection to maximize the separation between the two systems.

When completed, NPOESS will provide the interference analysis to the CGMS.