

DOD Comments on Certain Draft Allocation Proposals

The DOD must again reiterate its objection to several of the frequency allocation proposals for additional MSS spectrum below 1 GHz. Specifically, these proposals include the bands: 138-144, 380-387, 387-390, 390-399.9, 400.15-401, 430-440 and 440-450 MHz. These bands are used by the United States and allied military for a variety of functions vital to successful military operations. These functions include communication for air traffic control, close air support to ground maneuvering forces, precise weapons release coordination, real-time intelligence including imagery, emergencies including response to nuclear incidents, security/law enforcement, medical response, tactical intra- and inter-theater communication by terrestrial and satellite means, and air and surface defense by radar detection and control from surface and airborne combatants. The allied militaries have long-standing host nation agreements for these bands which provide barely the total bandwidth and flexibility required for the unified and specified commands, and for the joint forces. Agreements cover virtually the whole globe.

Such agreements are generally based upon operational experience collected over time and operational planning requiring close cooperation and near real-time coordination of a disciplined military to be successful. Spectrum planning is continuous with projects always underway to account for changing forces and their new technology. Introduction of satellite technology into customary terrestrial bands presents a new set of dynamics that cause all users to be negatively affected. This is borne out by the experience of the introduction of mobile-satellite and high altitude aeronautical mobile services in the 225-400 MHz band. Since the early 1970s there have been 3 different projects that have effectively re-ordered spectrum use causing the military to remove certain fixed and mobile services from the band to accommodate these new uses. The need for developing inter-modulation free channel plans for systems competing in the same radio environment precipitated new channeling plans, operations order changes and extensive equipment re-turning. This is accomplished at great expense after years of technical study of the inter- and intra-system electromagnetic environment have been completed.

Technical studies by the MSS community, while extensive in regard to one type of land mobile service, have not been completed for the non-homogeneous environment where highly varying system types will be encountered. For example, according to the draft CPM Report, technical and operational studies have been based upon a single receiver type using a 0 dB antenna gain toward the satellite with the land mobile receiving at least -140 dBW signal power. Operational study results are based upon observations in regard to the band near 148 MHz (recent MSS allocation) where there is almost a uniform type of system employed by the land-mobile and fixed services. A demonstration test indicated that DCAAS (FDMA) could enhance sharing with land mobile by avoiding in-use (high noise) channels. In another DCAAS simulation study it was found that a single non-GSO MSS network could be accommodated in 1 MHz wherein 190,000 terrestrial land mobile stations could exist in the satellite footprint of 12 million km² with the DCAAS system finding 6 clear channels for MES uplinks. The land mobile service was constrained to a 6.25 kHz channel and an activity factor of 0.003 Erlangs. The sharing situation with the spread-spectrum technology (CDMA) seems less defined but it appears that CDMA requires a

least approximately 1 MHz of spectrum that is separate from FDMA in order to avoid a PFD that would interfere with the land mobile service. In another section of the CPM Report it is indicated that ~~there needs to be~~ band segmentation is desired between non-GSO MSS systems using FDMA/DCAAS and CDMA and between competing FDMA systems. No results are seen for non-GSO MSS interaction with GSO except for METSAT near 402 MHz. While there is a chart presented on typical radiolocation service parameters found in the band 420-450 MHz, no study results are presented. Thus the DOD feels adequate technical sharing studies have not been conducted for the above mentioned bands to demonstrate compatibility between non-GEO MSS and US and allied military systems operating throughout the world.

Furthermore, adopting these wide ranging allocations for bandwidth far in excess of a reasonable, projected demand study for MSS, in the hope that spectrum assignment could be achieved, would create regulatory chaos. First, it would set a precedence for other radio services that are currently in need of spectrum to flood the WRC agenda with similar allocation requests. Second, if allocations were made in this manner in short time the allocation table would become meaningless and all assignments would revert to a case-by-case coordination which, because of the possible permutations and combinations of conflicting technical and operational parameters, would be a nightmare to complete. Third, to base allocation proposals on technical analyses and demand studies that remain insufficient or in conjecture places the WRC in a position where allocation decisions could put in jeopardy existing radio service users. This forces administrations to establish more footnotes and take protocols to WRC Final Acts to protect valid, existing services. Again, this complicates the Radio Regulations for spectrum management and will eventually render them of little value in managing and using this valuable and finite resource. We can't at this time favor the MSS on a blanket basis over existing, vital services.