

October 18, 1999

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

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Satellite and  
Radiocommunications Division  
International Bureau

HAND DELIVERY

Magalie Roman Salas  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

Re: Application of Satellite CD Radio, Inc. to Modify Authorization, dated December 11, 1998 (49/50-DSS-P/L-90; 58/59-DSS-AMEND-90; 44/45-DSS-AMEND-92).

Dear Ms. Salas:

In the above-referenced Application of Satellite CD Radio, Inc. to Modify Authorization ("Modification Application"), Satellite CD Radio, Inc. ("CD Radio") requested the Commission's approval to use 6/4 GHz for on-orbit Tracking, Telemetry and Command ("TT&C") for its geosynchronous satellite system. CD Radio's original authorization for its geostationary satellite system permitted use of 6/4 GHz for transfer orbit TT&C, and the use of 7/2 GHz for normal on-orbit TT&C plus emergency use of 6/4 GHz on-orbit. CD Radio's request in the Modification Application to use 6/4 GHz exclusively for on-orbit TT&C of its geosynchronous satellites was made on a non-interference basis to operations of geostationary satellites, as detailed on Page 7 of the Modification Application (copy attached). The present letter is to explain further the need to use 6/4 GHz for on-orbit TT&C on a non-interference basis.

The geosynchronous orbit described in the Modification Application is not the Non-Geostationary Orbit ("NGO") typically addressed in the ITU, because the three CD Radio satellites each cross the geostationary arc at the same two nodal locations (65.6°

and 126.4° W. Longitude) once daily and, thus, only have the potential to interfere with 6/4 GHz geostationary satellite TT&C at these relatively infrequent crossings and only for nominally five minutes per crossing. Almost all commands -- especially critical commands -- occur well away from such nodes.

In addition, the use of 7/2 GHz for broadcast transmissions is terminated whenever the satellites are lower than 20° elevation angle from New York City to avoid interference with co-frequency terrestrial facilities in the Southern Hemisphere. The possible use of 2 GHz for TT&C throughout the Southern Hemispheric portion of the satellites' orbits at the high EIRPs required cannot be coordinated due to interference with co-frequency light-haul radio relay systems in many Central and South American countries. Likewise, coordination of 7/2 GHz at CD Radio's TT&C earth stations in Quito, Ecuador and Utiwe, Panama is not possible; no other appropriate frequencies for TT&C are currently known to be available in the Southern Hemisphere. These two stations are CD Radio's only TT&C stations, and both operate at 6/4 GHz. The power flux density of the 4 GHz transmissions fully comply with Section 25.208 of the Commission's rules.

The foregoing were the main reasons that CD Radio designed its satellite system so that operation of its on-orbit 6/4 GHz TT&C would be possible on a non-interference basis with geostationary 6/4 GHz TT&C systems. CD Radio hereby requests a waiver of Section 25.202(g) of the Commission's rules. However, CD Radio also believes it can coordinate with geostationary satellite operators. CD Radio's Ex Parte filing to the

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Commission dated August 16, 1999, showed that coordination should be achievable with U.S. operators. Additionally, ITU submissions for 6/4 GHz TT&C international coordination were filed several months ago. Besides the technical means for coordination shown in the Modification Application, operational means for coordination (e.g., delay of CD Radio non-critical commands for an orbit if a particular geostationary satellite is being commanded; adjustment of CD Radio satellites' orbital nodal crossings, use of ascending rather than descending node) are also available. However, if coordination is not achieved, the CD Radio satellites can be satisfactorily operated without 6/4 GHz TT&C during the short periods of nodal crossings. Various means for terminating and recommencing 4 GHz transmissions during such periods without harm to the satellite transmitters have been incorporated in the spacecraft TT&C design.

Sincerely,



Robert D. Briskman  
Executive Vice President  
Engineering  
Satellite CD Radio, Inc.

#### Attachments

cc Ari Fitzgerald / Office of Chairman Kennard  
Mark Schneider / Office of Commissioner Ness  
Bryan Tramont / Office of Commissioner Furchtgott-Roth  
Peter Tenhula / Office of Commissioner Powell  
Adam Krinsky / Office of Commissioner Tristani  
Ronald Repasi / International Bureau

interference to countries to the south of the United States, including Mexico. Overall, adjacent countries will experience no greater interference from CD Radio's operation of three non-geostationary satellites than would be expected from two geostationary satellites.

*No Interference From Use of 6/4 GHz for TT&C.* CD Radio's additional use of the 6/4 GHz frequency band for on-orbit TT&C will be on a non-interference basis to operators of geostationary satellites at the equator crossings used by CD Radio's non-geostationary satellites. The 6/4 GHz frequency band is allocated to fixed satellite service. Under ITU Radio Regulations, non-geostationary satellites such as those proposed herein may not cause interference to geostationary satellites operating in-band. CD Radio agrees that its proposed use of the 6/4 GHz band for TT&C will be secondary to use of that band by fixed satellite service providers. Further, CD Radio agrees to accept any interference from fixed satellite services provided in the 6/4 GHz band.

CD Radio can and will operate the non-geostationary satellites' on-orbit TT&C on a non-interfering basis. First, CD Radio's TT&C link has a low data requirement in normal operation. Second, only transmissions near the equator could interfere with geostationary fixed systems. To ensure operation of its satellites on a non-interfering basis, CD Radio will either stop transmitting when the non-geostationary satellites operate near the equator or will fully coordinate with the potentially effected geostationary satellite operators. Thus, the Commission can be assured that CD Radio's use of the 6/4 GHz frequency band for its three non-geostationary satellites' on-orbit TT&C will not interfere with geostationary satellites' priority use of the same band.

*No Other Interference Issues.* CD Radio's operation of a satellite DARS system using three non-geostationary satellites also will not increase interference with the other satellite DARS