

kilohertz of spectrum in the 5000 kHz range it originally asked for or the flexibility to use multiple transmission modes, this appears to be the best compromise available to give the amateur service access to new spectrum while assuring the Federal government agencies that their use is protected. We also concur with NTIA's basic proposals that amateur service operations on these channels be limited to SSB-SC modulation, upper sideband voice transmissions only, with power not to exceed the equivalent of 50 W PEP transmitter output power into an antenna with a gain of 0 dBd, or 50 W effective radiated power ("e.r.p."). These operating rules will decrease the interference potential between amateur stations and Federal government users. We have amended §§ 2.106, and 97.303 of our rules to provide a secondary allocation to the amateur service on the channels 5332 kHz, 5348 kHz, 5368 kHz, 5373 kHz and 5405 kHz as specified by NTIA, and to require that amateur operations be limited to an (e.r.p.) of 50 W and emission type 2K8J3E, upper sideband voice transmissions only centered on each frequency. For the purpose of computing e.r.p., the transmitter peak envelope power will be multiplied with the antenna gain relative to a dipole or the equivalent calculation in decibels. A half wave dipole antenna will be presumed to have a gain of 0 dBd. Licensees using other antennas must maintain in their station records either manufacturer data on the antenna gain or calculations of the antenna gain. In addition, because we have permitted amateur stations to transmit on five discrete frequencies and are limiting the transmission mode to single sideband only, dividing the band into smaller sub-bands to be used for other emission types is not practical or necessary. Lastly, we have permitted these frequencies to be used by amateur service licensees with a General Class, Advanced Class, or Amateur Extra Class operator license. We believe that the limited number of frequencies and the emission restriction will protect against interference to primary service operations.

9. Because the broadband PLCs would be new services operating in new frequency bands and are not yet deployed, we do not have the same concerns as with the incumbent PLC systems in the 160–190 kHz band. Because these new PLC systems are still in development, we expect that they can be designed to be compatible with the other operations in this band, and we deny the United Power Line Council

("UPLC") and Power Line Carrier Association ("PLCA") request to delay action in this proceeding. The power levels we are adopting are 1/30th of the power levels supported by the UPLC and the e.r.p. restriction provides a limit to the antenna height. We believe that the permitted e.r.p. limitation will significantly reduce the possibility of interference to and from broadband PLCs. Because the allowable power level will be very low, we do not believe that we need additional out-of-band emission limits for amateur operations in this band.

10. We deny Homeplug's request for a 10-year safe harbor. Unlicensed devices operated in accordance with the part 15 rules should not cause interference to licensed, allocated services. It is not apparent that there will be significant interference from Homeplug devices, whose signals attenuate quickly, to ARRL operations on these frequencies, which are expected to be sporadic. There is ample alternative spectrum on which Homeplug devices can operate. As a practical matter, we would expect amateur services to take into account the extant Homeplug devices, although they are not required to do so.

#### *2400–2402 MHz Band (RM-9949)*

11. We have upgraded the existing amateur service (except amateur-satellite service) allocation at 2400–2402 MHz from secondary to primary status. This modification will provide additional protection to the amateur service in this band from future licensed operations. The allocation changes we are making will not alter the interference protection rights among the current users of the band. Even under the current secondary allocation, amateur services are entitled to interference protection from part 15 devices, and ISM devices are entitled to protection from both amateur operations and part 15 devices. These relationships will remain the same under the amateur service primary allocation. We observe that the amateur operators have successfully shared this band with part 15 and part 18 operations and we have no reason to believe that this sharing will not continue to be successful. Part 15 devices are limited in power and this interference potential from them is limited to an area very close to their transmit location. We therefore modify rule §§ 2.106, 97.303(j)(2)(iii) and 97.303(j)(2)(iv) to provide a primary allocation for the amateur service (except amateur-satellite service), consistent with our decision.

12. Our analysis regarding an amateur-satellite service allocation at

2400–2402 MHz differs from the case of terrestrial use in this band. The amateur-satellite service currently operates on a non-interference basis ("NIB") to other services under international footnote 5.282, not on a secondary basis as some parties suggest. This means that these operations are on an equal footing with part 15 devices. As both the amateur and unlicensed proponents recognize, the sensitivity of amateur satellite receivers makes them more vulnerable to aggregate interference from other users in this band. The 2400–2402 MHz band is heavily used by both part 15 and part 18 devices, and, unlike terrestrial amateur operations, amateur satellite receivers are at greater risk from aggregate interference. We thus conclude that an allocation for the amateur-satellite service would be impractical and difficult to implement, given the protection status afforded ISM devices and the large number of part 15 devices that operate in the band. Further, maintaining NIB status for the amateur-satellite service in this 2 megahertz band is consistent with the NIB status that an amateur satellite system would operate under in the 2400–2450 MHz band, so amateur satellite use of this 2 megahertz band is not prejudiced by our decision. Because we are maintaining NIB status for the amateur-satellite service, we will not place any restrictions on these operations (e.g., down-link only operation as some parties suggest).

13. Although ARRL is correct that unlicensed users do not have protection rights vis-a-vis licensed users in a band, it is incorrect when it asserts that we need not consider unlicensed use of this band when deciding whether to modify the allocation. The issue here is whether different uses are compatible and promote efficient use of spectrum. This analysis requires that we consider both licensed and unlicensed use. We conclude that, in the 2400–2402 MHz band, the status quo provides the best mix of uses to promote spectrum efficiency. The extensive use of the band to date by parts 15 and 18 and amateur users under the existing rules supports this conclusion. ARRL's suggestion to license those devices that have the potential to cause interference to licensed services does not alter our analysis. Even among licensed services, we consider whether uses are compatible and promote efficient use of spectrum. ARRL's approach would merely have us identify the priority between the amateur service and another licensed service.

14. We also conclude that, because we are maintaining the relative allocation