

minimize the potential of harmful interference and simplify the frequency coordination process. In addition, we adopt our proposal to grandfather existing equipment, and will do so for existing equipment and equipment of current production lines authorized, via certification or verification pursuant to the current emission standards, up to two years after the adoption of this *Report and Order*, and for stations authorized to use such equipment pursuant to an application filed up to two years after the adoption of this *Report and Order*. However, any such non-conforming equipment replaced on or after two years after the adoption of this *Report and Order* must be replaced by conforming equipment.

12. We will require Coded Orthogonal Frequency Division Multiplexing (COFDM) systems to meet the emission limitations of the digital mask. We will grandfather existing equipment and equipment of current production lines for two years consistent with our decision. Finally, we clarify that the correct emission type for COFDM is W7D.

13. MRC, the only commenter to address the issue of hybrid digital/analog systems, supports our proposal to apply the digital mask to such systems if the digital traffic is 50% or more of the total peak deviation. We adopted this proposal. For comparison digital/analog systems, similar to hybrid systems, we will apply the appropriate analog or digital emission mask based on the percentage of the channel that carries a digital signal. Specifically, this percentage will be calculated as the system's digital necessary bandwidth divided by the aggregate necessary bandwidth. For purposes of equipment authorization and licensing, the output power and EIRP of a composite system will be its aggregate output power and EIRP. Both composite and hybrid systems will ease the transition to DTV as they provide a migration path for licensees to transition from an analog NTSC signal to a dual analog/digital (NTSC/ATSC) signal, and eventually to only a digital signal. We believe that the procedures we have adopted will simplify and advance the transition to DTV while protecting the ability of coordinators to engineer systems.

14. To determine the emission designator for a composite system, we will use the aggregate necessary bandwidth of the system, which is comprised of the analog necessary bandwidth, any band between the analog and digital signals, and the digital necessary bandwidth. The emission designator will also use the appropriate emission type, such as F9F

or F9W, indicating that the system accommodates at least one analog and at least one digital signal. We note that licensees who modify their equipment from an analog system to a composite analog/digital system, must also modify their station authorization to show the new emission type using ULS. Under the rules, such a change would be considered major and require a new frequency coordination.

15. We did not receive any comments with regard to our proposals for standardized measurement procedures. We continue to believe that our procedures should ensure that all equipment is measured consistently. Therefore, for measuring compliance with the emission mask, for emissions removed from the center frequency by 250% of the emission bandwidth or less, we will permit a reduction of the measurement reference bandwidth below the mask reference bandwidth to a value not less than 1% of the emission bandwidth, or the next higher measurement bandwidth available. This will allow for more accurate emissions measurements just outside the edge of the emission bandwidth, which might otherwise be blurred by the contribution of much greater emissions within the emission bandwidth. For measurements outside this range, we will use the International Telecommunication Union (ITU) guidelines of a 100 kHz resolution bandwidth for systems operating on frequencies below 1 GHz and a 1 MHz resolution bandwidth for systems operating on frequencies above 1 GHz. We realize that this may create a situation where the emissions mask reference bandwidth stated in the rule is less than the measurement resolution bandwidth. If this occurs, there could be some blurring of spectral spikes that might otherwise be detected. We believe that the benefits of simplification and standardization outweigh the potential for such effects to result in interference to adjacent channels. Further, to protect adjacent channel operations, we will require that the emission mask attenuation requirement be corrected to decrease with the ratio of measurement resolution bandwidth to mask reference bandwidth, *i.e.*, by a factor of $10 \log_{10}(B_{\text{res}}/B_{\text{ref}})$, where B_{res} is the measurement resolution bandwidth and B_{ref} is the emissions mask reference bandwidth in the rule. Finally, we note that the analog FM emission mask does not specify a mask reference bandwidth, which, in conjunction with the measurement resolution bandwidth, could be used to calculate the correction. However, it is the policy of the Commission's Laboratory Division,

which approves equipment authorizations, to require the use of a mask reference bandwidth of 100 kHz for this mask. Accordingly, we have amended the analog FM emission mask for part 74 TV and aural BAS to reflect a 100 kHz emission mask reference bandwidth.

Automatic Transmit Power Control

16. Automatic transmit power control (ATPC) is a function that provides for more efficient spectrum use by ensuring that the transmitter only uses the power necessary to maintain reliable communications. Radios that use ATPC operate with certain power levels during normal propagation conditions. When the receiver detects a drop in received signal level, due to multipath or a rain fade, for example, the receiver sends a signal to the transmitter to gradually increase power. When the received signal level begins to rise, the receiver sends a signal to the transmitter to reduce power. By operating in this manner, interference levels into nearby microwave paths are reduced and more frequencies can be coordinated and used in any given geographic area. Additionally, by keeping signal levels low, ATPC reduces power consumption of the radio, which lowers operating costs and increases equipment reliability.

17. As proposed in the *NPRM*, we will permit TV BAS, aural BAS, and CARS licensees to use ATPC, and we encourage using TIA TSB 10-F guidelines. While the benefits of using ATPC for BAS may not be as great in other services because BAS generally uses one-way, rather than two-way, communications, the benefits can still be significant. For those stations using two-way communications, ATPC will permit more systems to be frequency coordinated, thus promoting the maximum utilization of spectrum. With respect to TIA TSB 10-F, we recognize the value of standardized, industry-wide frequency coordination guidelines.

Interference to Geostationary Satellites

18. We have adopted our proposal to consolidate in part 101 any parts 74 and 78 technical rules that pertain to protecting geostationary satellites from interference from terrestrial systems. This action will decrease redundancy in our rules and ensure that future changes to GSO protection requirements are consistent across affected services. In this connection, we have updated the frequencies listed in § 101.145(b) and (c) to encompass the BAS and CARS bands subject to RF radiation limits directed towards satellites. We note that this will result in the addition of the frequency