

## **EXHIBIT A: COMPLIANCE WITH SECTION 25.212**

Sirius XM Radio Inc. (“Sirius XM”), a satellite digital audio radio service (“SDARS”) licensee, hereby applies for a modification of the license for its Vernon, NJ, Ku-band earth station, Call Sign E040363. The purpose of the modification is to change the antenna and make associated revisions to the satellite arc, power levels, emission designators and other technical specifications.

This station is used to transmit programming to Sirius XM’s network of terrestrial repeaters, and a high level of signal availability is required. To ensure that the signal is strong enough to overcome atmospheric attenuation, the new antenna will be equipped with uplink power control (“UPC”). The UPC functionality will allow Sirius XM to increase the power when rain fade conditions are present, up to a total increase of 20 dB.

At the highest power settings using the UPC function (an increase of 16 dB or more), the maximum input spectral power density into the antenna for emission designator 11M0G7W will exceed the limit specified in Section 25.212 of the rules, -14 dBW/4 kHz.<sup>1</sup> However, these settings will be used only if needed to overcome significant attenuation. Consistent with the requirements of Section 25.204(d), transmissions from the antenna will be “conducted at the lowest power level that will provide the required signal quality.”<sup>2</sup>

Specifically, the UPC system is designed to detect and respond to rain attenuation: for every 1.1 dB of attenuation during rain events, the power is increased by 1 dB to compensate. Thus, the power increase will never exceed the level of rain attenuation experienced. Furthermore, because the signal will be weakened by the attenuation, the received

---

<sup>1</sup> 47 C.F.R. § 25.212(c).

<sup>2</sup> 47 C.F.R. § 25.204(d).

signal strength will never exceed the Commission's power density limits at the space station antenna.

Sirius XM's proposed use of UPC is consistent with Section 25.204(e), which authorizes earth station operators to increase the power above the licensed limits in order to overcome rain fade:

For operations at frequencies above 10 GHz, earth station operators may exceed the uplink e.i.r.p. and e.i.r.p. density limits specified in the station authorization under the conditions of uplink fading due to precipitation by an amount not to exceed 1 dB above the actual amount of monitored excess attenuation over clear sky propagation conditions. The e.i.r.p. levels shall be returned to normal as soon as the attenuating weather pattern subsides. The maximum power level for power control purposes shall be coordinated between and among adjacent satellite operators.<sup>3</sup>

The Commission has also expressly recognized the benefits of UPC in enhancing link performance without causing harmful interference. For example, all earth stations communicating with Ka-band satellites are required to:

employ uplink adaptive power control or other methods of fade compensation such that the earth station transmissions shall be conducted at the power level required to meet the desired link performance while reducing the level of mutual interference between networks.<sup>4</sup>

Thus, Sirius XM believes that its proposed use of UPC as necessary to counteract rain attenuation is consistent with the Commission's rules and with the public interest. Out of an abundance of caution, Sirius XM requests any necessary waiver of Section 25.212. Specifically, Sirius XM seeks authority to operate the new antenna and use its UPC functionality under an

---

<sup>3</sup> 47 C.F.R. § 25.204(e).

<sup>4</sup> 47 C.F.R. § 25.204(g).

ALSAT designation (all U.S.-licensed satellites and all foreign-licensed satellites on the Permitted Space Station List), without the need to individually coordinate operations on a satellite-specific basis with adjacent operators.<sup>5</sup> Grant of such a waiver is consistent with Commission precedent because a waiver would not undermine the purpose of the rule: ensuring that earth station operations are compatible with the two-degree spacing environment for fixed-satellite services.<sup>6</sup>

Here, Sirius XM proposes to use UPC, a method expressly authorized by the Commission's rules, to adjust its power in order to overcome rain attenuation. As discussed above, Sirius XM will use only the uplink power levels necessary to achieve the required signal availability. Furthermore, the planned use of UPC will not result in harmful interference to adjacent satellites. The power will be increased only during rain events, and the input spectral power density into the antenna will exceed the level specified in Section 25.212 only during very heavy rains, which are infrequent and of short duration. The received signal strength at the satellite antenna will comply with Commission limits. Thus, granting Sirius XM authority to

---

<sup>5</sup> See 47 C.F.R. § 25.212(e) (applicant proposing to use transmit power above that specified in § 25.212(c) must comply with the procedures set forth in § 25.220); 47 C.F.R. § 25.220(d) (requiring satellite-specific coordination of proposed non-compliant operations with operators of satellites within six degrees on either side).

<sup>6</sup> See *PanAmSat Licensee Corp.*, 17 FCC Rcd 10483, 10492 (Sat. Div. 2002) (“the Commission may grant a waiver of its rules in a particular case if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest”) (footnotes omitted); see also *2000 Biennial Regulatory Review -- Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations and Space Stations*, Fifth Report and Order, IB Docket No. 00-248, 20 FCC Rcd 5666, 5670 (2005) (earth station rules “are intended primarily to ensure that satellite networks can operate with a minimum of interference with respect to each other and with respect to other telecommunications services”).

employ UPC is consistent with the purpose of the Commission's technical rules and will serve the public interest by facilitating Sirius XM's operations in support of its SDARS network.