SPRINT CORPORATION
CINGULAR WIRELESS LLC

October 1, 2002

Mr. Donald Abelson, Chief
International Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Mr. Thomas J. Sugrue, Chief
Wireless Telecommunications Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Mr. Edmond J. Thomas, Chief
Office of Engineering and Technology
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: ***Written Ex Parte Communication***
Mobile Satellite Systems – Terrestrial Services
Response to MSV's Critique of the Telcordia Analysis
IB Docket No. 01-185; ET Docket No. 95-18

Dear Messrs. Abelson, Sugrue and Thomas:

Cingular Wireless, LLC and Sprint Corporation below respond to the criticisms that Mobile Satellite Ventures Subsidiary LLC ("MSV") made on July 29, 2002,[1] concerning the Telcordia Analysis submitted by Cingular and Sprint on May 13, 2002.[2] Nowhere in its Technical Analysis does MSV either identify a single error in the Telcordia Analysis or challenge Telcordia's analysis of spectrum efficiency. There is no basis to MSV's assertion that its "Technical Analysis demonstrates the errors in the Inmarsat and Telcordia analyses."[3]

---

[1] *See* MSV Ex Parte (July 29, 2002), attaching "Further Technical Analysis" (hereafter, "MSV Technical Analysis"). MSV's criticism of the Telcordia Analysis is limited to only two paragraphs (comprising less than a single page). Most of this 10-page Analysis responds to points made by Inmarsat.

[2] *See* Cingular/Sprint Ex Parte (May 13, 2002), Attachment A, Dr. Jay Padgett, Senior Research Scientist, Telcordia Technologies, "Analysis of Spectrum Sharing Between MSS and Terrestrial Wireless Services" (May 10, 2002) ("Telcordia Analysis").

[3] MSV Technical Analysis at 2.

MSV also asserts that the Telcordia Analysis can "not be applied to MSV's system because the parameters and system model that it uses in its mathematical analysis do not in any way relate to MSV."[4] But the four points that MSV makes do not support this assertion.

♦ *MSV Point No. 1:*

"[T]he systems analyzed by Telcordia are non-geostationary, which makes intra-system sharing more difficult."[5]

Response: Telcordia did focus on non-geostationary satellite systems because it was responding to technical analyses submitted by Globalstar and ICO, each of which proposes such systems. However, the Telcordia Analysis quantified interference effects for ATC deployments within the footprint of a given MSS beam, and the results apply whether the beam is stationary or not. One of the central points that Telcordia demonstrated is that the size of any terrestrial ATC network would have to be severely limited to avoid capacity reductions to MSS. This scientific fact does not change whether the satellite architecture utilized is geostationary or non-geostationary. Indeed, MSV has acknowledged that without limits on the total emissions of ATC networks, such networks would cause "debilitating interference" to its geostationary satellite system.[6]

♦ *MSV Point No. 2:*

"[T]he Telcordia analysis ignores the use of satellite antenna discrimination to promote reuse."[7]

Response: This MSV assertion is not accurate because the Telcordia Analysis did, in fact, account for antenna beam discrimination. Telcordia assumed that each satellite antenna beam defined a footprint on the earth's surface, and the Analysis focused on the effects of interference between MSS transmissions and signals from ATC cells within that footprint.[8] Both the ICO and Globalstar systems use antenna beam discrimination to achieve frequency reuse, as does MSV.

♦ *MSV Point No. 3:*

"[T]he Telcordia analysis assumes that the system will use CDMA technology and postulates intra-cell sharing."[9]

---

[4]. MSV Technical Analysis at 7.

[5] *Id* at 7.

[6] MSV Comments at 6 (March 22, 2002). In addition, there appears to be less to the geostationary/non-geostationary distinction than MSV would have the Commission believe, since MSV states that the frequency plan used by its geostationary system will "not, in general, be static" and that frequencies will change in "real time" – very similar to non-geostationary systems. *See* MSV Ex Parte at 2 and 3 (March 28, 2002).

[7] MSV Technical Analysis at 7.

[8] *See, e.g.,* Telcordia Analysis at 6, Figure 1.

[9] MSV Technical Analysis at 7.

Response: In fact, the Telcordia Analysis included an evaluation of TDMA/FDMA technology in addition to CDMA, specifically pointing out major differences between the two sets of technologies.[10] The Telcordia Analysis closed its TDMA/FDMA discussion by concluding: "As in the CDMA case, a sufficiently large terrestrial deployment of ATC terminals could significantly impact the capacity of the MSS system."[11] As noted above, MSV concedes that ATC networks could cause "debilitating interference" to MSS systems.

♦ *MSV Point No. 4:*

> "[T]elcordia assumes that terrestrial operations will necessarily reduce satellite capacity, instead of (as is the case for MSV's system) requiring the use of a modest amount of satellite link margin to accommodate the effect of the ATC."[12]

Response: In fact, MSV is proposing to reduce the capacity of its satellite system to accommodate the provision of terrestrial services. MSV states that it would provide ATC service by reducing its MSS link margin (so as to accommodate a rise in the noise floor caused by the provision of ATC service). It is common practice in engineering wireless networks (both terrestrial and satellite) to use an average signal to noise ratio ("SNR") that is somewhat higher than necessary to accommodate variations in signal strength due to fading and blockage. However, if this satellite link margin is reduced, MSS terminals that would have received service in marginal coverage areas without ATC will now be blocked because the MSS SNR will be too low. MSV's implication that there is a "free lunch" – ATC can be supported without any impact on satellite capacity – is without basis in fact. It is noteworthy that ICO, which uses a TDMA MSS air interface, also proposes to reduce its MSS uplink margin to accommodate a small terrestrial deployment, and Telcordia addressed this ICO analysis, for both the cases of co-channel sharing and dynamic frequency assignment.[13]

In summary, MSV has not supported its claims and has not identified errors in the Telcordia Analysis. MSV has not demonstrated that the Telcordia Analysis cannot be applied to MSV's proposed system. MSV has also not attempted to show that the Telcordia analysis of spectrum efficiency is inaccurate in any way.

Finally, the Telcordia Analysis concluded that, with shared spectrum, "terrestrial capacity will be extremely limited, if degradation to the MSS uplink is to be avoided"[14] and that having

---

[10] *See* Telcordia Analysis at 61-69. Telcordia did focus on CDMA because it was responding to technical analyses submitted by Globalstar and ICO, each of which proposes to use CDMA for any ATC network – although Globalstar is inexplicably using GSM with its ATC tests. *See* Globalstar Experimental License, File No. 0104-EX-PL-2002, Call Sign WC2XXD (July 9, 2002).

[11] Telcordia Analysis at 69.

[12] MSV Technical Analysis at 7.

[13] *See* Telcordia Analysis at 72.

[14] Telcordia Analysis at 12.

separate ATC and MSS operators would be "quite feasible."[15] MSV chose not to challenge either of these major Telcordia conclusions.

Pursuant to Section 1.1206(b)(1) of the Commission's rules, one copy of this letter is being filed electronically with the Secretary's office for filing in IB Docket No. 01-185 and ET Docket No. 95-18.

Respectfully submitted,

Brian Fontes
Vice President, Federal Relations
Cingular Wireless LLC
1818 N Street, N.W., Suite 800
Washington, D.C. 20036
202-419-3010

Luisa L. Lancetti
Vice President, PCS Regulatory Affairs
Sprint Corporation
401 9th Street, N.W., Suite 400
Washington, D.C. 20004
202-585-1923

cc: Marlene H. Dortch, Secretary, FCC

[15] *Id.* at 2. *See also id.* at 12 ("[E]ither cochannel sharing or dynamic frequency assignment could be implemented with either integrated or separate operators."); *id.* at 77-79 (describing several ways that separate operators could implement dynamic frequency assignment).