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January 28, 2005

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: ET Docket No. 04-373, SafeView Waiver

Dear Ms. Dortch:

Hughes Network Systems, Inc. ("HNS") submits this letter to address the additional information contained in the November 8, 2004 Reply to Oppositions that SafeView, Inc. ("SafeView") filed in this proceeding.[1] SafeView underestimates the threat of interference its security screening device poses to licensed microwave equipment and inaccurately characterizes data presented in HNS' Opposition.[2]

I. HNS' ANALYSIS REFLECTS REALISTIC INTERFERENCE SCENARIOS

SafeView disputes the results of HNS' interference analysis in its Opposition, claiming that the interference scenarios HNS poses are improbable. As HNS' interference analysis demonstrates, the SafeView system is likely to cause harmful interference to licensed microwave equipment in three distinct scenarios. The first scenario, which assumes no obstructions between the SafeView system and the AB9000 series equipment, represents free space conditions. The second setting in which the SafeView device presents an interference threat to microwave communications equipment assumes a path loss of 5 dB, which is consistent with an off-axis antenna alignment or occurs when the antenna of the interference source and the recipient of the interference are not aligned. This level of attenuation can occur due to radiofrequency ("RF") energy reflecting off of metal structures, such as water towers, or a body of water. The third interference scenario contemplates a path loss of 10 dB, consistent with partial obstructions in the signal path. Such attenuation is likely to occur where foliage, structural plastics or wood materials obscure the propagation path or in open buildings where there are smooth floors, walls,

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1 SafeView Reply to Oppositions (filed in ET Docket No. 04-373 on Nov. 8, 2004) ("Reply Comments").

2 Opposition of Hughes Network Systems, Inc. (filed in ET Docket No. 04-373 on Oct. 22, 2004) ("Opposition")

or ceiling materials that are reflective partially. All three scenarios posed by HNS are realistic, given the way microwave equipment is deployed by Commission licensees.

SafeView's claim that a zero attenuation case requires the SafeView device and the fixed wireless access equipment both to be installed in the same room is wrong. HNS' interference analysis makes clear that free space propagation can be achieved if, for example, the microwave equipment were located outdoors and the SafeView transmitter were installed in a building atrium with a large glass expanse. Unless the glass is tinted with metallized film, glass will not significantly attenuate the RF energy emitting at the device's operating frequencies. Although tinted glass would reduce microwave radiation, building contractors do not always use metallized film. SafeView easily could reduce interference into microwave equipment by installing large metallic shields near *its* device, but it has declined to do so.[3]

SafeView maintains that the high antenna gains of microwave equipment reduce the likelihood of interference from a SafeView device. Although HNS' remote antenna has a narrower beam-width than the hub sector antenna, the distance over which the interference occurs is greater than with the hub sector antenna. Assuming zero dB attenuation, the interference zone is 2,184,191 square meters for the narrow-beam remote terminal antenna and 261,481 square meters for the wide-beam hub sector antenna. These zones of interference are significant and warrant denial of SafeView's waiver request.

Finally, SafeView attempts to minimize the device's interference threat by committing to install all units indoors.[4] This commitment is meaningless because Safe View, as the manufacturer, does not control where the equipment owner and operator actually uses the device. Furthermore, HNS already has demonstrated that, even if the end-user commits to operating the SafeView device indoors only, the transmitter nevertheless presents an interference threat to microwave communications equipment regardless of whether the microwave equipment is located indoors or outdoors.

II. THIS IS NOT A MATTER OF CHOICE

Instead of taking measures to mitigate interference, SafeView argues that end-users have the right to choose between using the SafeView device and the microwave network.[5] SafeView erroneously assumes, however, that the end-user controls the operation and use of both devices. This is not true in all cases. For example, a government agency may install a SafeView device in the entrance of a building but likely has no control over its neighbor's decision to install microwave equipment on the roof of the building across the street.

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3 *See infra* Section V.

4 Reply Comments at 6.

5 *Id.* at 7.

SafeView also ignores the fact that an end-user may want to use both devices simultaneously. In fact, the end-user would be able to use both devices simultaneously if the SafeView apparatus complied with the Commission's Part 15 rules.

III. THE SAFEVIEW DUTY CYCLE DEMONSTRATES HARMFUL INTERFERENCE TO MICROWAVE EQUIPMENT

SafeView's use of the term duty cycle is misleading. Duty cycle refers to the percentage of time that a device that operates intermittently is actually transmitting.[6] The term does not refer to field strength, as SafeView asserts.

In addition, SafeView's use of the 20*LOG factor defies standard engineering practices. Based on the 10*LOG factor, HNS calculated the duty cycle of the SafeView device to be 5.3% of a complete equipment cycle.[7] Using the Commission's 100 mSec standard, the duty cycle would be 35.9% of a complete equipment cycle. No matter which standard is used, the SafeView duty cycle far exceeds SafeView's calculations of 1/200,000,000.

IV. SAFEVIEW UNDERESTIMATES THE INTERFERENCE THREAT OF ITS DEVICE

Signal Level

HNS stands by its statement that the SafeView device would exceed the average radiated emissions limits in the Part 15 rules by a factor of 12,600 if the Commission grants SafeView's waiver request. SafeView attempts to disguise the significant threat its device poses to microwave communications equipment by assuming first that the Commission will grant its waiver request and then, based on that waiver, calculating the amount by which its transmitter exceeds the field strength permitted under the Commission's rules. This approach does not reflect the intent of the Commission's rules and should be rejected outright.

Symbol Time

HNS acknowledges that interference from the SafeView device into microwave communications equipment operating in the 24 and 28 GHz frequency bands does not last for the entire duration of the symbol time. That the interference lasts only for a fraction of the symbol time, however, does not render the interference insignificant. The interference from the SafeView device inappropriately would raise the noise level of the microwave equipment.

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6 *See* Newton's Telecom Dictionary at 232 (17th Edition).

7 Table 3 of Exhibit A of HNS' Opposition.

Building Attenuation

Contrary to SafeView's suggestion, HNS' interference analysis fully takes into consideration building attenuation.[8] For testing purposes, HNS replicated a point-to-multipoint environment. It first mounted the antenna and radio system on a wall indoors to provide reliable building-to-building link performance, and then measured the attenuation of microwave signals through window apertures. Although building losses may have been greater than HNS projected if the SafeView device had been located in an enclosed room in the building, HNS correctly assumed that the device would be located near the building entrance in order to screen people seeking to enter the building. Based on this reasonable assumption, the projected losses are in line with HNS' measurements.

Without providing any "data specifically on building attenuation at 24-30 GHz," SafeView asserts that building and free-space attenuation inside and outside the building will account for the 21 dB by which its device exceeds the Commission's peak emissions.[9] Rather than accept SafeView's assertion, the Commission should require SafeView, as the petitioner for a waiver request, to substantiate its claim that building attenuation will compensate for the device's excessive power emissions.

Aggregation of SafeView Units

SafeView continues to underestimate the impact of multiple SafeView transmitters operating simultaneously and in close proximity to one another. The potential interference duration must be multiplied by the number of transmitters; therefore, if ten SafeView devices were operating simultaneously and in close proximity, the interference would increase tenfold. Given the likelihood of multiple transmitters operating in places such as airport security checkpoints, the Commission must consider the impact of aggregated SafeView units.

V. THE COMMISSION SHOULD REQUIRE SAFEVIEW TO MITIGATE INTERFERENCE OR DENY THE WAIVER REQUEST

SafeView categorically dismisses any suggestion that it be required to mitigate interference from its device into microwave communications equipment operating in the 24 and 28 GHz frequency bands. On the one hand, SafeView maintains that mitigation measures are infeasible at this time,[10] while, on the other hand, asserting that the owner of the SafeView device could mitigate interference by constructing a shielded partition.[11] If an end user can construct a shielded partition that constrains RF emissions, so can the manufacturer. Requiring the manufacturer to implement shielding is precisely what HNS has advocated. The Commission

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8 Reply Comments at 10.

9 *Id.*

10 *Id.* at 13.

11 *Id.* at 7.

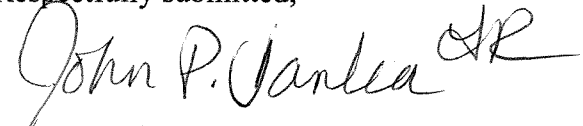
should not allow the manufacturer of a non-compliant Part 15 device to discharge to the end-user the responsibility of installing appropriate shielding. As HNS explained in its Opposition, in order to avoid harmful interference to microwave equipment, shielding is a necessary part of the SafeView apparatus, an obligation that the manufacturer of the device should bear -- not the end-user.

SafeView claims that it cannot reduce the device's power at this time. It also states that its device possesses low receiving antenna gain and poor transmit sidelobe performance. Consumers should not bear the responsibility of "fixing" a poorly designed apparatus. As HNS stated in its Opposition, a smaller shield that rotates with the antenna assembly should be an acceptable solution to the interference problem the SafeView device poses. Although the effectiveness of a rotating shield would depend on the angle over which it provides shielding, SafeView could design a shield with an angle that would provide more than 1 or 2 dB of protection. Finally, in order to maintain full transparency and visibility in the chamber, SafeView could install a video camera that would allow for large viewing angles of the chamber's contents.

VI. CONCLUSION

HNS urges the Commission to dismiss or deny SafeView's waiver request because the security screening device does not comply with the Commission's Part 15 rules, and because it would cause harmful interference to microwave equipment operating in the 24 and 28 GHz frequency bands.

Respectfully submitted,



John P. Janka

Technical Certificate

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in the foregoing *ex parte*, that I am familiar with Part 15 of the Commission's Rules, that I have either prepared or reviewed the engineering information submitted in the *ex parte*, and that it is complete and accurate to the best of my knowledge.

Harry M. Johnson
Senior Director, Technical Hardware
Hughes Network Systems