

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)
)
Interference Immunity Performance Standards) ET Docket No. 03-65
for Receivers,)
)
Review of Commission Rules and Policies) MM Docket No. 00-39
affecting Transition to Digital Television)
)
)
To: The Commission)

REPLY COMMENTS
OF THE
NEW YORK STATE OFFICE FOR TECHNOLOGY
STATEWIDE WIRELESS NETWORK OFFICE

August 21, 2003

I. INTRODUCTION

1. The New York State Office for Technology, Statewide Wireless Network (SWN), hereby submits the following Reply to Comments in response to the Commission's *Notice of Inquiry* ("Notice"), ET Docket No. 03-65, MM Docket No. 00-39, FCC 03-54 (released March 13, 2003), in the above-captioned proceeding. This Notice has generated a number of insightful comments on the role of receiver performance standards for wireless communications. The State feels this is a critical proceeding, one that could have far reaching ramifications in regard to future spectrum management policies. Since the State

is in the process of procuring a statewide Public Safety radio network our interests are primarily in areas that affect Public Safety users and their communications needs.

II. RECEIVER PERFORMANCE STANDARDS FOR PUBLIC SAFETY

2. We agree with the general consensus of the filed comments that the development of receiver performance standards should not be the responsibility of the Commission.¹ A vast majority of commentors instead believe that industry and standards committees should jointly develop receiver performance standards. We concur with these comments, and agree that the development of receiver performance standards and the interests of Public Safety would best be served through joint cooperation between the wireless industry and standards developing committees. This joint development will best serve the interest of each service, and should prevent the potential shortcomings that could arise from a "cookie cutter" approach towards the development of performance specifications. Joint standards development also provides industry with the ability to gauge the feasibility of requirements and weigh them against market realities. This almost always puts innovation and performance quickly into the hands of the consumer - within competitive market constraints.
3. We also believe the Commission should be encouraged to participate in the standards development process. We agree with the IEEE 802.18 Radio Regulatory Technical

¹ See comments of Advanced Television Systems Committee, Inc., BellSouth Corporation and Cingular Wireless LLC, Cellular Telecommunications & Internet Association, Cohen, Dippell and Everist, P.C., Consumer Electronics Association, E.F. Johnson Co., Ericsson Inc, FuturePace Solutions, Harris Corporation, iBiquity Digital Corporation, Intersil Corporation, Itron, Metrocall Holdings, Inc., et al., Mobile Satellite Ventures Subsidiary LLC, MSTV and NAB, National Public Radio, Nickolaus E. Leggett, Nokia Inc., Nortel Networks, PanAmSat Corporation, Satellite Industry Association, Starz Encore Group LLC, Telecommunications Industry Association, Wi-Fi Alliance, Zenith Electronics Corporation, IEEE 802.18 RR-TAG.

Advisory Group (RR-TAG)² that Commission involvement could aid in the development of standards that would meet their expectations and promote efficient spectrum utilization.

4. Unlike other services, Public Safety's tolerance for interference is very low. The American Radio Relay League (ARRL) articulated the need for Public Safety to require a higher degree of interference rejection³. The ARRL states the necessity for higher performance stems from "the need to protect Public Safety communications and maximize reliability⁴." The ARRL notes that, as a consequence, there is a potential for increased cost in procuring such equipment. As the "state of the art" advances receiver technology, price should become less of a factor over time. In the short term however, high performance receiver equipment will likely come at a premium cost.
5. Another concern with mandating receiver performance is the unwanted potential for delaying technical progress and/or affecting trade. Adoption of standards must be formulated in a prudent manner, so that they will not lead to undesirable consequences. Certain receiver immunity performance standards can lead to the mandatory need of an interference design philosophy and technical stagnation. By voluntary adoption of standards, innovation will not be stifled. A delicate balance however must be struck - especially to meet the needs of Public Safety where the imposition of an interference-limited design philosophy will result in a significantly higher system cost and significantly higher environmental impacts. The NCC has recommended that receiver standards be required for radio equipment that will operate on the FCC designated 700

² IEEE 802.18 RR -TAG comments filed 7/30/03, item 21, page 9.

³ ARRL comments filed 7/21/03, page 14.

⁴ Ibid, page 15.

MHz Public Safety Interoperability channels and we fully support this recommendation because the common air interface is a required standard, and interference protection for operation in a noise limited environment is required by Public Safety.

III. INTERFERENCE TEMPERATURE THEORY

6. The State believes the concept of "interference temperature" does not reside within the domain of sound spectral policy. We equate increased "interference temperature" with increased pollution of the radio frequency spectrum. In this regard we concur with the filings of BellSouth Corporation and Cingular Wireless⁵, AT&T Wireless Services⁶, Harris Corporation⁷, and Nokia⁸. We also feel that the concept of a noise temperature without the support of empirical data should remain merely a "theoretical opinion" and should not be further included in the Commission's spectrum policies.
7. The joint filing of BellSouth and Cingular very eloquently describes the consequences of embracing the concept of noise temperature. They cite the findings of the Technical Advisory Committee ("TAC") relating to the regulatory environment that results: "*it would be impossible for the FCC to engage in effective spectral management without first conducting a thorough and complete analysis of the noise floor*"⁹.
8. The noise temperature concept should not be further considered until it has passed the scrutiny of basic scientific method and sound engineering analysis, as well as the repeatability of measured data verification. To ignore the scientific process and include

⁵ Joint Comments from BellSouth Corporation and Cingular Wireless LLC, filed July 21, 2003, page 4-7.

⁶ AT&T Wireless Services Comments filed 7/21/03, page 12, and 18.

⁷ Harris Corporation Comments filed 7/21/03, page 5.

⁸ Nokia Comments filed 7/21/03, page 3.

⁹ Ibid, page 4.

such a concept into the regulatory realm is flirting with chaos. We challenge the Commission to either conduct a comprehensive study of the noise floor or to abandon the concept all together.

IV. SHARING OF SPECTRUM WITH UNLICENSED DEVICES

9. A number of comments voiced opposition to the idea of permitting sharing of spectrum with unlicensed devices. We agree with the comments presented by ARRL¹⁰, AT&T Wireless Services¹¹, Motorola¹², the joint filing of the Association for Maximum Service Television (AMST) and the National Association of Broadcasters (NAB)¹³, which clearly articulate the danger to protected services from unlicensed devices.
10. AMST and the NAB considered the impact that unlicensed devices could have on Digital Television (DTV) receiver performance¹⁴. The State is very concerned that unlicensed devices could negatively impact DTV performance and thereby adversely affect the DTV transition. Any further delay in vacating the spectrum in the 700 MHz band that is allocated to Public Safety would be counter-productive.
11. The joint filing of BellSouth and Cingular considered the consequences of permitting the use of unlicensed spectrum underlays¹⁵. If these devices cannot be strictly controlled

¹⁰ ARRL comments filed 7/21/03, page 18.

¹¹ AT&T Wireless Services Comments filed 7/21/03, page 18.

¹² Motorola Comments filed 7/21/03, page 4-5.

¹³ Joint Comments of Association for Maximum Service Television and National Association of Broadcasters, filed 6/21/03, page 10 ARRL comments filed 7/21/03, page 18, consequences of incompatible devices sharing spectrum, and page 20, the consequences of the explosive growth of unlicensed devices has had on the Amateur radio service.

¹⁴ Ibid, page 10-11.

¹⁵ Underlay is defined in the Spectrum Policy Task Force Report, ET Docket No. 02-135, November 2002, DOC-228542A1, under Spectrum Rights Models, on page 5.

then licensed incumbents will not be able to effectively utilize their available spectrum¹⁶. Interference problems resulting from underlays would not be unique to the cellular industry. Any service that would share spectrum with these devices would be at risk, and Public Safety would not be immune. As many commenters suggest, Public Safety users cannot tolerate interference due to the nature of the communications. It is a certainty that unlicensed devices would create interference that would not exist under otherwise normal circumstances.

V. A SYSTEMIC APPROACH IS REQUIRED THAT ADDRESSES BOTH TRANSMITTERS AND RECEIVERS, AND INCLUDES BEST PRACTICES

12. ARRL¹⁷, AT&T Wireless Services¹⁸, and our previous comments address the need to consider the interference contributions from transmitters in addition to receiver performance. The two are inter-related since they may combine to create interference impacts.
13. Another approach that should be considered when addressing receiver specifications is to apply a "best practices" philosophy toward mitigating interference. Best practices should be the first step employed in addressing and resolving any interference issues that result in less than optimal system performance. The State agrees with the comments of Mobile Satellite Ventures Services LLC¹⁹, ARRL²⁰, and Nortel Networks²¹ that favor a best

¹⁶ BellSouth and Cingular submission, page 15.

¹⁷ ARRL comments filed 7/21/03, page 18, "the maximization of use of the spectrum depends on the efficient performance of both transmitters and receivers."

¹⁸ AT&T Wireless Services comments filed 7/21/03, page 12, "Any discussion of receiver performance standards has to be considered in the context of specific transmitter emissions or standards."

¹⁹ Mobile Satellite Ventures Services, LLC, comments filed 7/21/03, page 7.

²⁰ Ibid, page 18.

practices approach as part of the overall means to mitigate interference and ensure system performance.

14. The State agrees with the need for a consistent methodology when determining receiver performance, as commented by the Mobile Satellite Ventures Services LLC²². As stated in our initial comments, we believe accurate reporting and traceability of receiver performance specifications are necessary for ensuring a properly designed Public Safety radio wireless communications system.

VI. CONCLUSIONS

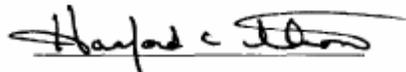
15. The State of New York has a large stake in the outcome of any spectrum policy decisions, especially where these affect the performance, capability, capacity, cost, or impact upon the construction timeline of the SWN system. This Notice has provided many starting points for discussion. We thank the Commission for the opportunity to include our comments on the needs of Public Safety - with very unique requirements and limited resources available for system development.
16. In summary, the Commission should:
 - Rely on industry and standards developing organizations for the generation and application of receiver performance standards for Public Safety,
 - Participate in the standards development process,
 - Consider transmitter and receiver specifications in combination when addressing interference issues,

²¹ Nortel Comments filed 7/21/03, page 1 response to paragraph 4.

²² Mobile Satellite Ventures Services LLC comments filed 7/21/03, page 8, "For these reasons, the Commission should require an entity that presents the Commission with a receiver performance specification, such as overload threshold, to provide meaningful and completed testing data substantiating the specification."

- Absent a thorough evaluation, abandon the concept of “spectrum noise temperature”,
- Prohibit underlays and spectrum sharing between licensed and unlicensed devices, and
- Consider a "best practices" approach.

Respectfully Submitted,



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