

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

In the Matter of:)	
)	
Office of Engineering and Technology Seeks)	ET Docket No. 17-340
Comment on Technological Advisory Council)	
Spectrum Policy Recommendations)	
)	

**REPLY COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS**

I. INTRODUCTION AND SUMMARY

The National Association of Broadcasters (NAB)¹ hereby replies to comments submitted in response to the Commission’s Public Notice seeking comment on the FCC Technological Advisory Council (TAC) recommendations on spectrum policy.² NAB generally supports the Commission’s efforts to improve spectrum utilization and increase opportunities for sharing. To further these efforts, a policy statement setting forth the Commission’s spectrum management principals could help guide spectrum policy decisions going forward. However, NAB agrees with commenters stating the FCC would need substantial additional information and analysis before endorsing any specific recommendations that could represent a dramatic departure from existing policy. Accordingly, NAB agrees with the TAC’s

¹ The National Association of Broadcasters is a nonprofit trade association that advocates on behalf of free local radio and television stations and broadcast networks before Congress, the Federal Communications Commission and other federal agencies, and the courts.

² *Office of Engineering and Technology Seeks Comment on Technological Advisory Council Spectrum Policy Recommendations*, Public Notice, ET Docket No. 17-340, DA 17-1165 (Dec. 1, 2017) (Public Notice).

recommendation that, in considering any changes, the Commission should “start small and not attempt a major overhaul of its regulatory approach.”³ Further, NAB urges the Commission to look carefully at the track record of mechanisms designed to prevent interference before expanding on them. Certain approaches, such as dynamic frequency selection and database registration, have proven ineffective and subject to abuse. The Commission should reform these mechanisms before endorsing their use in future spectrum proceedings.

II. THE COMMISSION SHOULD EXERCISE CAUTION IN CONSIDERING THE TAC WHITE PAPER’S RECOMMENDATIONS

The Basic Spectrum Principles White Paper identifies nine principles to address perceived challenges regarding the fair and efficient allocation of spectrum in congested bands.⁴ While certain of these principles may have merit, it is in some cases unclear how the FCC would apply them in practice.

For example, NAB agrees with the TAC’s assessment that whether interference constitutes “harmful interference” is subject to interpretation.⁵ The answer will vary depending on specific facts, even within the same service. In theory, it is obvious that an emergency mobile phone call in a life-threatening situation requires a higher degree of reliability and interference protection than a mobile phone call ordering pepperoni pizza. The same level of interference could rationally be considered significantly more harmful in the first instance than in the second. In practice, however, it is wholly unclear how one could account

³ Public Notice at 5.

⁴ *Id.* at 1.

⁵ December 2015 paper, *Basic Principles for Assessing Compatibility of New Spectrum Allocations, A White Paper* at 5, available at: <https://transition.fcc.gov/bureaus/oet/tac/tacdocs/meeting121015/Principles-White-Paper-Release-1.1.pdf> (Basic Spectrum Principles White Paper).

for such content-based risks. The Commission should exercise caution in considering changes to its current rules and approach towards interference.

A. Interference Realities: Principles 1-3

The first three principles in the Basic Spectrum Principles White Paper are grouped under the heading “Interference Realities.” The Paper argues that all services should plan for non-harmful interference from nearby signals, now and in the future, and suggests that “worst case” analysis should not be used to determine protection against interference that is not considered harmful. NAB generally agrees with CTIA that the Commission should take care not to upend settled expectations of current licensees, which could undercut the value of licensees’ sunk investments and discourage future investment.⁶

Further, NAB believes that, in many cases, current spectrum policy already meets this standard, and is not actually based on worst case analysis. Coverage in many radio services regulated by the Commission is already expressed in statistical terms of time, location, and confidence, with median values stipulated. Predictions based on such analysis cannot reasonably be termed “worst case” as suggested by the TAC. Similarly, the FCC frequently limits allowances for interference to the lowest decile – meaning that the Commission ignores predictions that interference will occur only 10 percent of the time. This is far from worst case analysis based on exceptional scenarios.

It is certainly possible that some of the underlying assumptions relating to antenna and receiver performance, many of which are decades old or left completely unspecified, could be updated to allow for improved analysis of potential interference. NAB would support such efforts as long as they are fully transparent and based on input from all stakeholders.

⁶ Comments of CTIA at 6-8, ET Docket No. 17-340 (Jan. 31, 2018).

More broadly, however, the Commission’s spectrum policies should seek to balance perceived increases in efficiency with the values of predictability and stability. The Commission certainly should not proceed with changes based on an erroneous perception that its existing policies are based on worst-case analysis.

B. Responsibility of Services: Principles 4-6

The next three principles in the Basic Spectrum Principles White Paper, grouped as “Responsibility of Services,” set forth proposals that different elements in the spectrum ecosystem, including receivers, systems and transmitters, should all share responsibility to minimize the potential for interference. While NAB supports these principles as a general matter, the Commission must also take specific technical factors into account. NAB agrees with Sirius XM that, in considering adoption of these principles, “sound spectrum management policy requires case-by-case evaluation and analysis, respecting the legitimate rights of incumbents and the reasonable expectations of receiver designers and manufacturers in a rapidly changing spectrum environment.”⁷

For example, principle 4 states that “receivers are responsible for mitigating interference outside their assigned channels,” and principle 5 states that “systems are expected to use techniques at all layers of the stack to mitigate degradation from interference.”⁸ Unlike licensees in some other services, broadcasters do not control or approve the receiving equipment used by their viewers and listeners. Broadcasters thus have a very limited ability to influence receiver performance. Further, certain other mitigation

⁷ Comments of Sirius XM Radio Inc. at 10, ET Docket No. 17-340 (Jan. 31, 2018).

⁸ Public Notice at 2.

techniques mentioned by the TAC, such as power control, are not readily available to broadcasters who are licensed to serve their entire community of viewers.

Principle 6 states that, “transmitters are responsible for minimizing the amount of transmitted energy that appears outside their assigned frequencies and licensed areas.”⁹ In reality, of course, out-of-band suppression is dependent on the technical state of the art and has practical limits. Out-of-band emissions from high power, wide bandwidth transmissions such as from broadcast or radar systems simply cannot be limited to the same extent or as effectively or efficiently as some low power transmissions. Any implementation of this principle must rest on a firm and factual foundation of what is technically possible and economically viable. Accordingly, NAB believes the Commission will continue to need to make judgements regarding out-of-band emissions and guard bands based on specific facts.

C. Responsibility of Services: Principles 7-9

The next three principles in the Basic Spectrum Principles White Paper, grouped as “Regulatory Requirements and Actions,” address the tools needed to make predictions of interference levels. Principle 7 states that radio services should disclose standards and system characteristics in order to receive protection. Principle 8 states that the FCC should quantify interference protection through interference limits. Principle 9 states that the FCC should require a quantitative analysis of interactions between services before making decisions regarding appropriate protections. The Paper goes on to state that the process of analyzing tradeoffs between the benefits of a new service and the risk of interference to

⁹ Public Notice at 2.

incumbents has been “essentially qualitative,” and to recommend that the FCC make more use of quantitative risk assessment in considering these tradeoffs.¹⁰

NAB certainly agrees with the proposition that, in making spectrum policy, the FCC must balance the interests of incumbents, new entrants and the public. However, the Paper’s contention that FCC’s analysis of potential tradeoffs has to date been essentially qualitative is an overstatement. It oversimplifies both existing analysis and the potential benefits of the proposed alternative.

In reality, when developing interference limits, the Commission has always, and will always, need to use both quantitative analysis *and* qualitative judgments. In undertaking quantitative analysis of the interactions between services, the FCC must make qualitative assumptions and judgments regarding the technology used by both incumbents and new entrants. Any risk assessment is only as good as the best guesses with respect to how technology and systems will be deployed. There is no guarantee that a new service will actually deploy in the manner first envisioned by the new service provider. Similarly, there is no guarantee that the existing or incumbent service providers will continue to use the same technology over time. There will always be, however, a strong temptation to analyze specific use cases and combine results in a way that is misleading or has unintended consequences. This can lead to results that are skewed towards an overly optimistic or pessimistic outcome while masking the underlying choices and dependencies that drive to that outcome.

Further, defining as harmful interference that affects X percent of users or occurs Y percent of the time is entirely a matter of qualitative judgment. As noted above, interference that prevents transmission or receipt of an emergency call or an emergency alert is

¹⁰ Public Notice at 5.

significantly more harmful than interference in other contexts. Quantitative analysis that does not acknowledge this, and instead seeks to hide its subjective judgments behind a false numeric exactitude, is misleading and open to outcome-driven gamesmanship.

NAB agrees with CTIA that “any quantitative analysis presented to or used by the Commission should meet both ‘transparency and reproducibility’ requirements for credibility purposes.”¹¹ Accordingly, to the extent the Commission intends to make greater use of quantitative analysis going forward, it is critical that the Commission be fully transparent with respect to any interference analysis it adopts underlying spectrum management decisions. All stakeholders must have a complete understanding of such analysis to ensure it is properly vetted and reproducible.

D. Steps for improving interference resolution and enforcement

The Paper also recommends that the FCC take steps to improve interference resolution. NAB believes that new spectrum management policies must rest on a reliable and effective program of enforcement. Historically, the FCC has deployed equipment and personnel to measure and resolve issues relating to interference. Recently, however, the Commission has experimented with activities to automate enforcement – such as Dynamic Frequency Selection (“DFS”) and database registration. These experiments have proven ineffective in preventing interference. Further, the Commission has not provided adequate oversight to ensure that the hardware and software underlying such techniques are functioning as expected.

For example, the Federal Aviation Administration has reported literally hundreds of cases of DFS interference to terminal doppler weather radars the FAA maintains to measure

¹¹ CTIA Comments at 12.

gust fronts, wind shear, microbursts and similar information critical to flight safety. The FAA reported so many of these cases that the FCC was prompted to release an Enforcement Advisory following enforcement action against several companies operating devices causing such interference.¹² Despite that advisory, interference to airport radars continues to be broadly reported, including interference cases in New Jersey, New York, Florida, Illinois, and Puerto Rico. Eight years of investigation and enforcement by the FCC has not eliminated DFS interference.

Similarly, NAB has repeatedly and conclusively demonstrated the unreliability and laughable inaccuracy of the TV white space database. The lack of any meaningful verification of device locations or user contact information makes it impossible to determine how many TVWS devices are in use, where they are located, and who is responsible for their operation. Before endorsing expanded use of DFS or database registration in the name of more efficient use of spectrum, the Commission should acknowledge the failure of these mechanisms to date and determine how best to ensure they function as intended going forward.

III. CONCLUSION

NAB appreciates the considerable effort and thoughtful contributions the TAC has presented. We urge the Commission to move cautiously in considering implementing changes to its current spectrum policies, and to do so only after carefully considering the unintended consequences of reforms. In particular, we urge the Commission not to adopt new approaches to analysis or enforcement without a fuller understanding of how such approaches will be implemented in practice, and what the ramifications of such changes will be.

¹² *Enforcement Bureau Takes Action to Prevent Interference to FAA-Operated Terminal Doppler Weather Radars Critical to Flight Safety*, Public Notice, DA 12-459 (Sep. 27, 2012).

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Rick Kaplan", with a long horizontal line extending to the right from the end of the signature.

Rick Kaplan
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Bruce Franca
Alison Neplokh
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February 15, 2018