

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Travelers’ Information Stations;)	PS Docket No. 09-19
)	
American Association of Information Radio Operators Petition for Ruling on Travelers’ Information Station Rules;)	
)	
Highway Information Systems, Inc. Petition for Rulemaking;)	RM-11514
)	
American Association of State Highway and Transportation Officials Petition for Rulemaking)	RM-11531

To: The Commission

**COMMENTS OF THE SOCIETY OF BROADCAST ENGINEERS,
INCORPORATED**

The Society of Broadcast Engineers, Incorporated (“SBE”)¹ respectfully submits these Comments² in response to the Commission’s *Further Notice Of Proposed Rulemaking* (the Further Notice) in the above-captioned Docket proceeding, addressing modifications to the Part 90 rules regarding Traveler’s Information Stations (TIS). The Further Notice³ seeks comments on a single proposal relative to the technical operation of TIS stations, which operate in the AM broadcast band. Specifically, the Commission now proposes to remove from the Part 90 rules

¹ SBE is the national association of broadcast engineers and technical communications professionals, with more than 5,000 members worldwide.

² See, the *Report and Order and Further Notice of Proposed Rule Making*, FCC 13-98 (rel. July 23, 2013), 28 FCC Rcd. 11276.

³ The Notice was published in the Federal Register on August 19, 2013 and it specified a comment date thirty (30) days thereafter. Therefore, these comments are timely filed.

governing TIS stations the requirement that TIS audio frequencies above 3 kHz be filtered.⁴ The deletion of this filtering requirement was not proposed by the Commission in earlier stages of this proceeding. It is discussed in the Further Notice because, in the earlier stages of this proceeding, commenters raised the issue, contending that that the required filtering decreases the audibility of TIS broadcasts, especially at night and over difficult terrain. One commenter suggested that this restriction could be removed with little or no increased interference with adjacent channel AM broadcasters. For the reasons set forth herein, SBE urges the Commission to protect licensed AM broadcasters and to retain the filtering requirement for TIS stations as it now reads. To do otherwise will contribute to the inability of AM broadcasters to compete in the radio marketplace, where it is already hampered substantially by increasing levels of man-made noise in the AM broadcast band. For its comments in the proceedings captioned above, SBE states as follows:

I. Introduction.

1. The Further Notice in this proceeding states that, when the Commission adopted the TIS filtering requirement in 1977, it provided no explanation for the requirement in the *TIS Report and Order* but merely included it in the rules appendix.⁵ Because of this, and because commenters asked for the additional relief not proposed by the Commission, it now seeks comment in the Further Notice in order to establish a record and consider any issues that may not

⁴ Section 90.242(b)(8) specifies that each transmitter in a Travelers Information Station shall be equipped with an audio low-pass filter. Such filter shall be installed between the modulation limiter and the modulated stage. At audio frequencies between 3 kHz and 20 kHz this filter shall have an attenuation greater than the attenuation at 1 kHz by at least:

$$60 \log_{10} (f/3) \text{ decibels.}$$

where "f" is the audio frequency in kHz. At audio frequencies above 20kHz, the attenuation shall be at least 50 decibels greater than the attenuation at 1 kHz.

⁵ See Amendment of Parts 2 and 89 of the Rules to Provide for the Use of Frequencies 530, 1606, and 1612 kHz by Stations in the Local Government Radio Services for the Transmission of Certain Kinds of Information to the Traveling Public, Docket No. 20509, *Report and Order*, 67 F.C.C.2d 917 (1977)

have been raised in docket prior to this time. The Commission asks whether there is any reason this restriction should not be removed, and whether there is a potential for increased interference to broadcasters.

2. SBE suggests that there is a significant potential for increased interference to AM broadcast stations from this proposal. SBE urges the Commission to be cognizant of the ambient noise levels in the AM broadcast band now, and the effect that these ever-worsening noise levels have on the ability of AM broadcasters to provide service to their communities. With respect, it is suggested that the Commission does not have a good grasp of ambient RF noise levels and trends over time, in the AM broadcast band and elsewhere. There are uneven regulations governing noise-generating licensed facilities, and unlicensed intentional, incidental and unintentional radiators that can operate in the AM band. The Commission does not have the wherewithal to conduct effective and efficient enforcement in this area and its enforcement efforts in this context are impractical and insufficient. TIS stations operate on a secondary basis to AM broadcast stations authorized on a primary basis in the band 535-1705 kHz. However, the secondary status of TIS stations in the AM Broadcast Band is effectively meaningless if there is no enforcement in interference cases, and if the rules are not sufficient to prevent interference before it occurs.

3. AM broadcast listeners have media options. Radio Frequency (RF) or other noise in receivers, especially mobile receivers, will make them exercise those options. When an AM listener receives interference, he or she will not suffer it; they will simply utilize different media. The Commission's interference resolution methodologies are premised on complaints, so AM broadcast band interference is not well-documented. Even if AM interference complaints were to be lodged, the FCC's Enforcement Bureau is not equipped to deal with them. Since much

interference from TIS stations would be to AM mobile receivers, the interference would be transient and very unlikely to be reported by an AM listener. Given these factors, RF or other noise to AM broadcast reception is a large and - in the field - an unmanageable problem. Any interference management plan for the AM broadcast band has to be based on rules which limit RF noise *ex ante*, before it becomes an issue, not *post hoc*.

II. Interference would Result from Elimination of the TIS Filtering Requirement.

4. Deletion of audio filters prior to the modulator of the AM transmitter will allow modulation of the AM carrier to extend into adjacent channels, thus interfering with adjacent channel broadcasts in populated areas, and especially along major highway and roadways, where mobile AM receivers will be in close proximity to the transmitter and therefore subject to substantial adjacent channel interference. TIS systems are only required to protect co- channel stations from interference according to the present TIS rules. With respect to adjacent channel interference, Section 90.242 (a) (2) (ii) of the Commission's rules governing TIS stations states: "In consideration of possible cross modulation and inter-modulation interference effects which may result from the operation of a Travelers' Information Station in the vicinity of an AM broadcast station on the second or third adjacent channel, the applicant shall certify that it has considered these possible effects and, to the best of its knowledge, does not foresee interference occurring to broadcast stations operating on second or third adjacent channels." This is, as a practical matter, a *meaningless* provision. It provides no guidelines for such certification and the entire showing requirement calls for conjecture and subjectivity. Elimination of audio filters would exacerbate interference to first, second and third adjacent channels of stations located adjacent to the TIS station, and the TIS station operator has no obligation to remedy adjacent channel interference.

5. Nor is the call for elimination of the filtering requirement technically supportable. At Footnote 119 of the Further Notice, one commenter stated that “current requirements to filter our TIS signal renders it useless in areas that would otherwise be easily served by the station.” SBE is *unaware of any technical justification for this claim* and notes that it is unsubstantiated by the commenter making the allegation. No other commenter in this proceeding to date has made a similar claim.

6. At footnote 120 of the Further Notice, a commenter reportedly had conducted an experiment removing the “3 kHz filter opening the transmitted response to that of the 8 kHz program line” resulting in considerable improvement of the transmitted signal “with no audible interference presented to the reception of the first adjacent.” While it is correct that removal of the filtering required by §90.242(b)(8) would improve the audio quality of a TIS transmission, this would be accomplished by a secondary spectrum user at the cost of harmful interference to adjacent channel AM Broadcast station reception, especially in mobile receivers. The commenter’s anecdotal experiment lacked any demonstration of technical validity or proper scientific methodology. The reason for the placement of the filter in the first place is to eliminate interference to adjacent channels. With proper test equipment, interference would have been observable in the alleged experiment.

7. The same commenter, one Mr. Burden, further noted that “AM broadcast bandwidth specified by the NRSC-2 Spectrum Mask adopted by the FCC some time ago to resolve interference issues, limits the audio frequency response of AM broadcast transmission to 10 kHz. Limiting the bandwidth of TIS transmission to the same bandwidth as the NRSC mask should be logical. A recent study into acceptable audio bandwidths conducted by NPR Labs in an AM-DAB study for the NRSC, concluded that limitations to an audio bandwidth less than 7 kHz was

not advisable for AM broadcast facilities.” Mr. Burden further notes that with “use of TIS facilities as a means of communication in emergencies, intelligibility becomes important” and “it only follows that the audio quality of the emergency message needs to be offered with the same intelligibility as that from AM radio broadcast facilities.” What those allegations fail to mention was that all the standards and studies cited were relative to AM full power broadcast stations. Then findings of those studies were not intended to be applied to TIS stations, which are licensed under very different standards and with a very different allocation status. TIS stations need not give consideration to adjacent channel AM Broadcast interference in the same manner as does an AM broadcast station. Thus, Burden has misapplied the cited standards in his comments.

8. Unfortunately, many TIS stations fail to adhere to generally accepted modulation standards employed by AM broadcasters. Section 90.242 (a) (7) strictly limits TIS broadcasts to voice. Broadcast engineers have observed that some TIS broadcasts contain musical content in the form of segues and other enhancements. While most voice content is below 3 KHz, music expands that bandwidth. TIS stations were never meant to broadcast wide bandwidth content. In addition, TIS stations have no requirement to monitor their broadcasts. SBE members have observed and reported that many TIS stations grossly over- or undermodulate their carriers resulting in poor audio quality and / or poor listenability. This is a problem that is independent of TIS advocates’ proposals to eliminate the filtering requirement for TIS stations, but it is a supervening contributor to the poor audio quality that they attribute incorrectly to the audio filters.

In summary, the need for the filtering requirement was not specifically justified in 1977 when it was adopted because the justification was self-evident: it was imposed in order to protect AM broadcast stations, a primary service, against out-of-band emissions from TIS stations, a

secondary service. Elimination of the requirement would subject AM Broadcast listeners to increased interference, at least while mobile, and those listeners will not report the interference to the Commission. They will instead continue to migrate to the FM broadcast band or to other media and leave AM Broadcast Stations to fail. The Commission will not receive complaints, but that does not mean that the noise levels in the AM band will not continue to increase. There is no compelling reason why the filter requirement should be eliminated and every reason to retain it. If there are audio quality issues with TIS, those should be dealt with in ways other than by eliminating a key component, if not the only component, of an effort to protect adjacent channel AM broadcasters and their listeners from increased interference.

Therefore, the foregoing considered, Accordingly, for good cause shown, SBE urges the Commission to not adopt the single proposal in the Further Notice and to retain the filtering requirement of Section 90.242(b)(8) as it now reads.

Respectfully submitted,

**THE SOCIETY OF BROADCAST ENGINEERS,
INCORPORATED**

Ralph Hogan

Ralph Hogan, CPBE, DRB, CBNE
SBE President

Ched Keiler

Ched Keiler, CPBE, CBNT, 8-VSB
Chairman, SBE Government Relations Committee

Christopher D. Imlay

Christopher D. Imlay, CBT
General Counsel

Booth, Freret, Imlay & Tepper, P.C.
14356 Cape May Road
Silver Spring, Maryland 20904-6011
(301) 384-5525 telephone
(301) 384 6384 facsimile
cimlay@sbe.org

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