

NRSC UPDATE

*Converting to NRSC
is one important route
to AM improvement.
Here's where the issue
stands right now.*

BY STANLEY SALEK

Improved AM sound coupled with protection of station separation is a goal American broadcasters have worked toward since the formation of the NRSC (National Radio Systems Committee) in 1980.

Those goals are now one step closer to reality following a new FCC rulemaking. At the Commission's general meeting July 20, the FCC proposed adoption of standards which include those developed by the NRSC in order to improve the technical quality of AM radio.

The first NRSC audio standard (NRSC 1) limits audio frequency to 10 kHz to help reduce adjacent-channel interference. It also will standardize station use of audio preemphasis (boost) and a corresponding deemphasis curve in consumer AM receivers. The rulemaking follows a petition filed by the NAB in late 1987 asking the FCC to make NRSC 1 mandatory and implemented as of January 1, 1990. The NAB petition states that maximum benefit and reduced interference will only be achieved if all stations comply.

At the same meeting, the FCC also requested comments on the second NRSC standard (NRSC 2, or "RF Mask"), which limits radio frequency emissions. NRSC 2 is designed to facilitate reduction of RF splatter outside the ± 10 kHz limit.

The NRSC standards were developed jointly by the NAB and the EIA (Electronic Industries Association), which represents the interests of

home receiver manufacturers. They undertook development of the standards as a joint project in 1985 and completed a preemphasis standard recommendation in the middle of 1986. This standard provides high-frequency boost to narrow-bandwidth ratios and allows wideband receivers to follow standard deemphasis.

The committee also completed a bandwidth limiting standard (10 kHz) in late 1986. This standard was designed to protect second-adjacent channels from interference and uti-

lized a lowpass filter placed just before the transmitter audio input.

The complete NRSC 1 audio standard was submitted for ANSI standardization and released January 10, 1987 as a voluntary standard. Fully compatible with stereo systems, NRSC 1 is installed via audio processor modification.

Voluntary compliance is underway, and over 800 American AM stations have reported voluntary conversion to NRSC 1 as of July 7, 1988. Stations have also reported improvement with existing radio receivers, including reduced intermodulation distortion, better performance into narrow antenna systems, reduced interference and newly receivable stations.

The final standard for NRSC 2 ("RF Mask") was released June 1, 1988. Allowing measurement of transmitter RF performance, RF Mask sets guidelines for maximum occupied RF bandwidth under program conditions, pulsed noise conditions and stereophonic conditions. Measurement techniques are achieved via spectrum analyzers and "splatter monitor" devices, which are currently being manufactured. NRSC 1 is required for NRSC 2 compliance and measurement; taken together, the NRSC standard acts as a complete system.

Similar improvement is envisioned for FM technical quality, and the next steps may include the formation of an NRSC FM group. ■



Salek is staff engineer for the NAB.

NAB Applies for Experimental AM

As part of the NAB's program to support AM improvement, the association has filed an application with the FCC to operate an experimental AM radio station in Beltsville, MD.

The experimental station will test whether new antenna designs achieve separate control over skywave and groundwave signals. The NAB plans to operate the station for two years. The facility will operate on the 1660 frequency and use power up to 5 kW.