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WASHINGTON, D.C.

OFFICERS 1994 - 1995

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March 29, 1995

Mr. William F. Caton, Secretary
Federal Communications Commission
Washington, D.C. 20554

In re: Docket 95-17

DOCKET FILE COPY ORIGINAL

Dear Mr. Caton:

On behalf of the Association of Federal Communications Consulting Engineers transmitted herewith are an original and ten copies of comments in the above Docket which is captioned "Amendment of Parts 73 and 74 of the Commission's Rules to More Effectively Protect Radio Astronomy Activity on Channel 37."

Sincerely,

John F.X. Browne, P.E.
President

No. of Copies rec'd 0+9
List A B C D E

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ASSOCIATION OF

FEDERAL COMMUNICATIONS CONSULTING ENGINEERS

WASHINGTON, D. C.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

DOCKET FILE COPY ORIGINAL

In the Matter of

Amendment of Parts 73 and 74 of	)	MM Docket No. 95-17
the Commission's Rules to More	)	RM-8109
Effectively Protect Radio	)	
Astronomy Activity on Channel 37	)	

COMMENTS OF THE ASSOCIATION OF FEDERAL COMMUNICATIONS CONSULTING ENGINEERS

The Association of Federal Communications Consulting Engineers (AFCCE) is an organization that includes members who are registered professional engineers engaged in the practice of consulting engineering, or are communications company engineering executives. The AFCCE was organized in 1948 and has for more than 46 years been pleased and honored to share its professional experience and insight with the Federal Communications Commission.

In the Notice of Proposed Rule Making (NPRM) in MM Docket 95-17, the Commission basically proposes changes in parts 73 and 74 of its rules to protect 13 radio astronomy sites from interference by television channel 36 and 38 operations. The Commission proposes to permit the one existing TV station which does not comply with the proposed rules (WJWN-TV on channel 38 at San Sebastian, Puerto Rico) to continue operating with its authorized facilities, but will not permit an increase in the station's field strength toward the affected radio astronomy site. The Commission also proposes to delete the vacant channel 38 allotment at Hilo, Hawaii.

The Commission's NPRM stems from a petition filed by the National Academy of Sciences' Committee on Radio Frequencies (CORF). The CORF petition requested amendment of the Commission rules to include the location of 13 radio astronomy sites; adoption of an 87.7 kilometers minimum adjacent channel separation requirement between the 13 radio astronomy sites and channel 36/38 operations; and deletion of channel 38 at Hilo, Hawaii from the Commission's TV Table of Allotments.

In paragraph 4 of the NPRM, the Commission indicates that while radio astronomy facilities will be authorized to exclusively use channel 37, no protection from adjacent channel TV transmissions will be provided, other than what results from regulatory limitations on TV station facilities and out-of-band emissions. The Commission then proposes to impose a predicted field strength limitation on channel 36/38 operations which is more restrictive than the existing regulatory limits. The current Commission rules require a minimum separation of 87.7 kilometers between adjacent channel UHF television stations. This is the same distance cited by CORF. The Commission rules permit UHF television stations to have maximum transmitting facilities consisting of a visual effective radiated power (ERP) of 5000 kilowatts (kW) and an antenna height above average terrain (HAAT) of 610 meters. At a distance of 87.7 kilometers with a visual ERP of 5000 kW and antenna HAAT of 610 meters, a field strength of approximately 72 dBu is predicted using the normal method of calculation based on the F50,50 curves.

The AFCCE concurs with the Commission proposal to use a field strength limit at the radio astronomy locations instead of a minimum distance of separation. However, the Commission proposes to impose a field strength limit of 64 dBu on channel 36/38 at the radio astronomy site. The Commission claims this 8 dB reduction in limit better reflects typical UHF television facilities, and allows for differences in the performance of directional antennas on the adjacent channel. The AFCCE finds no basis for this claim, and supports use of a 72 dBu predicted signal level from channel 36 and 38 television operations at the radio astronomy site. This level conforms to current regulations on full service UHF television operations.

The AFCCE supports the Commission's proposal to use the standard methodology in predicting the distance to the designated field strength contour. However, it encourages the Commission to permit TV applicants to submit alternate showings based on more accurate propagation models on a case-by-case basis. Such alternative methods of calculation are permitted by 73.684(f) to consider terrain variations not adequately characterized by the standard 3 to 16 kilometer analysis.

The Commission proposes to permit adjacent channel operations (on channel 36, 38) at a distance of 87.7 km[1]. Since the Commission's Rules specify out-of-band energy[2] to be at least 60 dB below peak carrier level (73.687e), it is possible then, given the above scenario, that spurious components in the radio astronomy band could have a field strength (F50,50) of 12 dBu. If this is an acceptable condition, then it appears that the preclusion of broadcast use of Channel 37 needs to be re-evaluated. Even if one used the Commission's F(50,10) curves to establish the 12 dBu field (a distance of approximately 500 km in the maximum power scenario), it is obvious that there are large areas of the country where Channel 37 could be allotted if this is the required level of protection. Given the pressure being brought on the UHF spectrum by the proposed ATV service, LPTV services and expanding full service operations, AFCCE believes that the Commission and CORF must re-evaluate the nationwide preclusion of the use of this channel based on 13 protected sites; in other words, CORF should be required to demonstrate its continuing need for protection of this band beyond that which is afforded from adjacent channel facilities operating in accordance with the out-of-band requirements of the Commission's Rules. This should include the derivation of the maximum acceptable power flux density in the band 608-614 MHz at the protected sites.

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[1] Computed distance to 72 dBu contour assuming 5,000 kW @ 610 meters.

[2] Beyond 3 MHz of channel edges.

With the modifications proposed herein, the AFCCE believes the radio astronomy interests can be adequately protected and more efficient use of the television spectrum can be made.

Respectfully submitted,

The Association of Federal Communications Consulting Engineers

John F.X. Browne
President

March 30, 1995