FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

JAN 10 1986

IN REPLY REFER TO:

8900-DW

RECEIVED BY

JAN 10 1986

MAIL BRANCH

Donald G. Everist
Cohen and Dippell, P.C.
Consulting Engineers
1015 15th Street, N.W.
Suite 703
Washington, D.C. 20005

Dear Mr. Everist:

This is in response to your letter of December 6, 1985 addressed to the Secretary seeking clarification of the Commission's policy with respect to meter orientation when taking AM field strength measurements.

Normally, when taking field strength measurements, a maximum reading will be obtained when the meter is orientated so that the pickup loop lies in a plane passing through the antenna. As the meter is rotated so that its loop lies in a plane perpendicular to the direction of the antenna, a null or minimum reading will be observed. As pointed out in your letter, however, there are instances where maximum readings occur with meter orientation other than in the plane of the antenna. This generally indicates the presence of a second source of radiation, usually a reflection or reradiation of the transmitted signal off of some nearby metallic object. This phenomenon is also observed when measuring in the null areas of highly suppressed directional antennas.

In these cases, it is our view that the field strength values used in analyzing measurement data should be those obtained with the meter loop oriented in the plane of the antenna, not in the direction of the maximum reading. As a matter of good engineering practice, however, the observer should make note of the fact that a higher reading was obtainable utilizing another orientation and record both the value of that reading and the approximate angle between that orientation and direction of the antenna. While our policy does not preclude the use of maximum values obtained by off-radial meter orientation, we have found that, particularly in the case of highly suppressed arrays, it is often impossible to establish that proper antenna adjustment has been attained unless maximum readings are disregarded and readings obtained with the meter oriented directly toward the antenna system are utilized. Obviously, measurements taken using this technique should not be compared (as in a partial proof) to previous measurements taken at the same location unless the original measurements were also obtained using the same technique.

Notwithstanding contrary views that may have been influenced by advice from other sources, I can assure you that this Division, which has the responsibility of analyzing measurement data submitted by AM braodcast stations, has for many years followed the policy outlined above with respect to meter orientation.

Sincerely,

Larry D. Eads

Larry D. Eads, Chief
Audio Services Division
Mass Media Bureau

/DWilliams/

bcc: John Sadler (AM Branch, ASD, MMB)
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December 6, 1985

Mr. William J. Tricarico
Secretary
Federal Communications Commission
1919 "M" Street, N.W. Room 302
Washington, D.C. 20554

Re: Clarification of FCC Measurement Policy

Dear Mr. Tricarico:

This letter seeks written clarification of the FCC policy regarding field set orientation when measuring directional antenna systems. As you know, the maximum field set indication can have an orientation away from the antenna source. This phenomenon can be prompted by many factors and is a function of the null depth. These factors vary from local effects surrounding or adjacent to the measuring point, non-uniform conditions inherent in the propagation path, and can be affected by the relationship of the observation point to a rapidly expanding portion of the directional pattern.

Of particular concern, is Pacific Gas & Electric, who is trying to determine the impact, if any, of its newly installed Lakeville-Sobrante transmission line on a radio station in the vicinity. One item of uncertainty is that station technical personnel believe that based upon prior discussions with FCC field office staff that it is a FCC policy requirement to measure and record for analysis the maximum AM signal regardless of field set orientation. This value is deemed that to be utilized as the basis of the analysis along the radial for the radiated field. Measurements have been taken by this office in the null areas of the directional pattern under scrutiny and many of the measuring points out to and beyond 10 miles do exhibit a maximum value in a direction other than the transmitting system. Pacific Gas & Electric through this office has made and recorded measurements at these locations based upon the observations in the direction of the transmitting facility notwithstanding the value read in any

other direction. The analysis is based on comparison of these field strength values with the station's reference proof-of-performance vlaues.

Therefore, Pacific Gas & Electric, before it continues its further evaluation desires clarification by the FCC on this item.

If there should be any questions, please do not hesitate to contact this office.

Sincerely,

Donald G. Everist
Consulting Engineer for
Pacific Gas & Electric Co.

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