DAYTIME SKYWAVE, DOCKET NO. 8333:

Supplemental report and order making further amendments in standard broadcast (AM) rules.

Report and order issued September 22, 1959—modified in part.

Modification of restrictions imposed on radiation by new and certain changed class II facilities during 2 hours following sunrise and 2 hours preceding sunset—adopted.

Restriction on presunrise operation under sec. 3.87 by stations with new class II facilities—adopted.

Modification of restrictions on changes in limited time stations—adopted.

BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON 25, D.C.

In the Matter of	
PROMULGATION OF RULES AND REGULATIONS AND STANDARDS OF GOOD ENGINEERING PRACTICE CONCERNING DAYTIME SKYWAVE TRANSMISSIONS OF STANDARD BROADCAST STATIONS	Docket No. 8333

SUPPLEMENTAL REPORT AND ORDER

(Adopted: October 21, 1959)

BY THE COMMISSION: COMMISSIONERS HYDE, LEE, AND CRAVEN ABSENT.

1. The Commission has under consideration its report and order adopted herein on September 18, 1959 (FCC 59–970, released September 22, 1959; 27 FCC 587; 18 Pike & Fischer R.R. 1845; 24 F.R. 7755), in which we adopted certain amendments to section 3.23(b) and 3.24 of the Commission's rules, added new sections 3.38 and 3.187 to the rules, added new material to section 3.190, and ordered that this proceeding is terminated. The changes in the rules were all made effective October 30, 1959.

2. Upon further consideration of the daytime skywave proceeding and our decision therein, we are of the view that certain additional changes in our rules are necessary and appropriate in order to achieve proper and complete resolution of this matter. These are: (1) Clarification of the language of the new section 3.187(a) so as to define the pertinent vertical angles of radiation which are to be considered in applying the restrictions on operation during the 2 hours after sunrise and the 2 hours before sunset; (2) modification of the same section so as to permit changes in existing class II facilities which, while not conforming to the new restrictions, would not result in daytime skywave interference greater than that from the present facilities; (3) similar modification of the restriction on changes in existing class II limited time facilities (sec. 3.38); and (4) a clarifying amendment to section 3.87 relating to presunrise operation by class II stations. Accordingly, on our own motion, pursuant to section 1.16 of our rules,

we set aside those portions of paragraph 27 of our September 18 report and order, and of the appendix thereto, which: (1) Make all of the changes in the rules effective October 30, 1959; (2) set forth the text of new sections 3.38 and 3.187; (3) order the proceeding terminated. The present supplemental report and order covers these matters; in all other respects our September 18 report and order is affirmed.

3. *The pertinent vertical angles involved.* In our March 1954 proposed report and order herein (FCC 54–333, 10 Pike & Fischer R.R. 1541) we stated (par. 30) that the proposed permissible-radiation curves would permit radiation at or below the values given by these curves in the vertical angles below the pertinent angles during the four transitional hours. In footnote 17 of the same document we indicated that the pertinent angles mentioned were those obtained by application of curve 4 of figure 6a of the standards of good engineering practice (now fig. 6a of sec. 3.190 of the rules). Our report and order issued herein on September 18 did not contain any specific reference to the vertical angles to be considered in applying the permissible-radiation curves.

4. Upon further consideration, we are of the view that the determination reached in 1954 concerning this matter is correct, and that in each case the portion of the vertical radiation pattern to which the daytime skywave restrictions should be applied is that up to and including the pertinent angle as indicated by curve 4 of figure 6a. It appears that this will afford an adequate degree of protection against daytime skywave interference. It might be argued that portions of the vertical angle higher than the pertinent angle indicated by figure 6a should also be considered, and applicants be required to show compliance with the daytime skywave restrictions at such higher angles. But such a rigid requirement we believe to be undesirable, especially because if it should be adopted our rules would present the anomaly of requiring a more complete showing of protection with respect to daytime skywave radiation than with respect to nighttime skywave radiation (which is of course much greater), since the latter is evaluated over the portion of the vertical angle up to the pertinent angle as indicated by figures 6 or 6a (see sec. 3.185 of the rules). Therefore, we adopt herein the decision on this matter announced in our 1954 proposed report and order. Accordingly, we are amending section 3.187(a) by the addition of the words "at or below the pertinent vertical angle determined from curve 4 of figure 6a of section 3.190" immediately after the words "class I station" in subparagraph (1) of that paragraph.

5. *Changes in facilities not resulting in increased daytime skywave interference:* As set forth in the appendix to our September 18 report and order, section 3.187(a) precludes the authorization of any new class II facilities and of any changes in facilities, unless the proposed operation would comply with the new daytime skywave restrictions. Upon further consideration, we conclude that this rule is unduly restrictive as to changes in facilities, in that it would preclude authorizations for changes in class II operations which, while not meeting the new restrictions, would in fact cause daytime skywave interference less than, or no more than, the present mode of the class II station's operation. Therefore we are revising section 3.187(a) so as not to

preclude grants of *changed* facilities where there would be no increase in daytime radiation toward the cochannel class I station, or material decrease in the distance to that station's normally protected contour, even though such changes would not conform to the new daytime radiation restrictions. The rule as amended also provides that where an existing class II station is authorized to make changes which increase daytime radiation toward the cochannel class I station (but do not involve changes in frequency or material reduction in distance to that station), the radiation during the transitional hours may remain the same as that now radiated in such directions, even though higher than the level otherwise permitted under the daytime skywave restrictions.

6. *Restrictions on changes in existing limited time class II facilities:* As set forth in the appendix to our September 18 report and order, new section 3.38 of our rules states in substance that no substantial changes in the facilities of existing class II limited time stations will be authorized. Upon further consideration, the rule as set forth appears unduly restrictive, for reasons similar to those just set out with respect to new section 3.187. Accordingly, we are revising new section 3.38 to permit future changes in the facilities of existing limited time stations which do not involve changes in frequency or a material reduction in distance to the cochannel U.S. class I station, or increases in radiation toward such class I station during the bonus hours after local sunset.

7. *Restriction on presunrise operation by class II stations:* Under section 3.87 of the rules class II stations complying with conditions set out therein may operate prior to local sunrise with their authorized daytime facilities. The amendment to section 3.87 adopted herein merely makes it clear that restrictions applicable under section 3.187 to postsunrise operations apply to presunrise operations under section 3.87.

8. Section 3.23(b) is also amended so as to change the date specified therein.

9. In view of the foregoing, *It is ordered:* (1) That paragraph 27 of the report and order adopted herein on September 18, 1959 (FCC 59–970) *Is set aside*, insofar as it makes the changes in the Commission's rules effective October 30, 1959, insofar as it orders new sections 3.38 and 3.187 added to the rules as set forth in the appendix thereto and amends section 3.23(b), and insofar as it orders this proceeding terminated; and the appendix to said report and order is set aside insofar as it sets forth the text of amended section 3.23(b) and new sections 3.38 and 3.187;

(2) That sections 3.23(b) and 3.87 of the Commission's rules are amended as set forth in the appendix hereto;

(3) That new sections 3.38 and 3.187 are added to the Commission's rules as set forth in the appendix hereto;

(4) That those changes in the Commission's rules set forth in the appendix to the September 18, 1959 report and order herein which have not been set aside in the present supplemental report and order, and the changes in the rules set forth in the appendix hereto, are effective November 30, 1959;

(5) That in all other respects the report and order adopted herein on September 18, 1959 (FCC 59–970) *Is affirmed;* and

(6) That this proceeding *Is terminated.*

APPENDIX

1. § 3.23 (b) is amended to read as follows:

§ 3.23 Time of operation of the several classes of stations.

* * * * * * *

(b) Limited time is applicable to class II (secondary) stations operating on a clear channel with facilities authorized before November 30, 1959. It permits operation of the secondary station during daytime, and until local sunset if located west of the dominant station on the channel, or if located east thereof, until sunset at the dominant station, and in addition during night hours, if any, not used by the dominant station or stations on the channel.

2. The following new § 3.38 is added:

§ 3.38 Limited time operation.

(a) Starting November 30, 1959, no authorization will be granted for:

(1) A new limited time station;

(2) A limited time station operating on a changed frequency;

(3) A limited time station with a new transmitter site materially closer to the 0.1 mv./m. contour of a cochannel U.S. class I station; or

(4) Modification of the operating facilities of a limited time station resulting in increased radiation toward any point on the 0.1 mv./m. contour of a cochannel U.S. class I station, during the hours after local sunset in which the limited time station is permitted to operate by reason of location east of the class I station.

3. § 3.87 is amended by the addition of the following paragraph (e):

§ 3.87 Program transmissions prior to local sunrise.

* * * * * * *

(e) Restrictions imposed by section 3.187 on daytime operations shall apply to presunrise operation under this section.

4. The following new § 3.187 is added:

§ 3.187 Limitation on daytime radiation.

(a) (1) Except as otherwise provided in subparagraphs (2) and (3) of this paragraph, no authorization will be granted for class II facilities if the proposed facilities would radiate, during the 2 hours after local sunrise and the 2 hours before local sunset, toward any point on the 0.1 mv./m. contour of a cochannel U.S. class I station, at or below the pertinent vertical angle determined from curve 4 of figure 6a of § 3.190, values in excess of those obtained as provided in paragraph (b) of this section.

(2) The limitation set forth in subparagraph (1) of this paragraph shall not apply in the following cases:

(i) Any class II facilities authorized before November 30, 1959; or

(ii) For class II stations authorized before November 30, 1959, subsequent changes of facilities which do not involve a change in frequency, an increase in radiation toward any point on the 0.1 mv./m. contour of a cochannel U.S. class I station, or the move of transmitter site materially closer to the 0.1 mv./m. contour of such class I stations.

(3) If a class II station authorized before November 30, 1959, is authorized to increase its daytime radiation in any direction toward the 0.1 mv./m. contour of a cochannel U.S. class I station (without a change in frequency or a move of transmitter site materially closer to such contour), it may not, during the 2 hours after local sunrise or the 2 hours before local sunset, radiate in such directions a value exceeding the higher of:

(i) The value radiated in such directions with facilities last authorized before November 30, 1959, or

(ii) The limitation specified in subparagraph (1) of this paragraph.

(b) To obtain the maximum permissible radiation for a class II station on a given frequency (f_{kc}) from 640 kc. through 990 kc., multiply the radiation value obtained for the given distance and azimuth from the 500 kc. chart (fig. 9 of § 3.190) by the appropriate interpolation factor shown in the K_{500} column of paragraph (c) of this section; and multiply the radiation value obtained for the given distance and azimuth from the 1000 kc. chart (fig. 10 of § 3.190) by the appropriate interpolation factor shown in the K_{1000} column of paragraph (c) of this section. Add the two products thus obtained; the result is the maximum radiation value applicable to the class II station in the pertinent directions. For frequencies from 1010 kc. to 1580 kc., obtain in a similar manner the proper radiation values from the 1000 kc. and 1600 kc. charts (figs. 10 and 11 of § 3.190), multiply each of these values by the appropriate interpolation factor in the K'_{1000} and K'_{1600} columns in paragraph (c) of this section, and add the products.

(c) Interpolation factors.
(1) Frequencies below 1000 kc.

f_{kc}	K_{500}	K_{1000}
640	0.720	0.280
650	0.700	0.300
660	0.680	0.320
670	0.660	0.340
680	0.640	0.360
690	0.620	0.380
700	0.600	0.400
710	0.580	0.420
720	0.560	0.440
730	0.540	0.460
740	0.520	0.480
750	0.500	0.500
760	0.480	0.520
770	0.460	0.540
780	0.440	0.560
800	0.400	0.600
810	0.380	0.620
820	0.360	0.640
830	0.340	0.660
840	0.320	0.680
850	0.300	0.700
860	0.280	0.720
870	0.260	0.740
880	0.240	0.760
890	0.220	0.780
900	0.200	0.800
940	0.120	0.880
990	0.020	0.980

(2) Frequencies above 1000 kc.

f'_{kc}	K'_{1000}	K'_{1500}
1010	0.983	0.017
1020	0.967	0.033
1030	0.950	0.050
1040	0.933	0.067
1050	0.917	0.083
1060	0.900	0.100
1070	0.883	0.117
1080	0.867	0.133
1090	0.850	0.150
1100	0.833	0.167
1110	0.817	0.183
1120	0.800	0.200
1130	0.783	0.217
1140	0.767	0.233
1160	0.733	0.267
1170	0.717	0.283
1180	0.700	0.300
1190	0.683	0.317
1200	0.667	0.333
1210	0.650	0.350
1220	0.633	0.367
1500	0.167	0.833
1510	0.150	0.850
1520	0.133	0.867
1530	0.117	0.883
1540	0.100	0.900
1550	0.083	0.917
1560	0.067	0.933
1570	0.050	0.950
1580	0.033	0.967