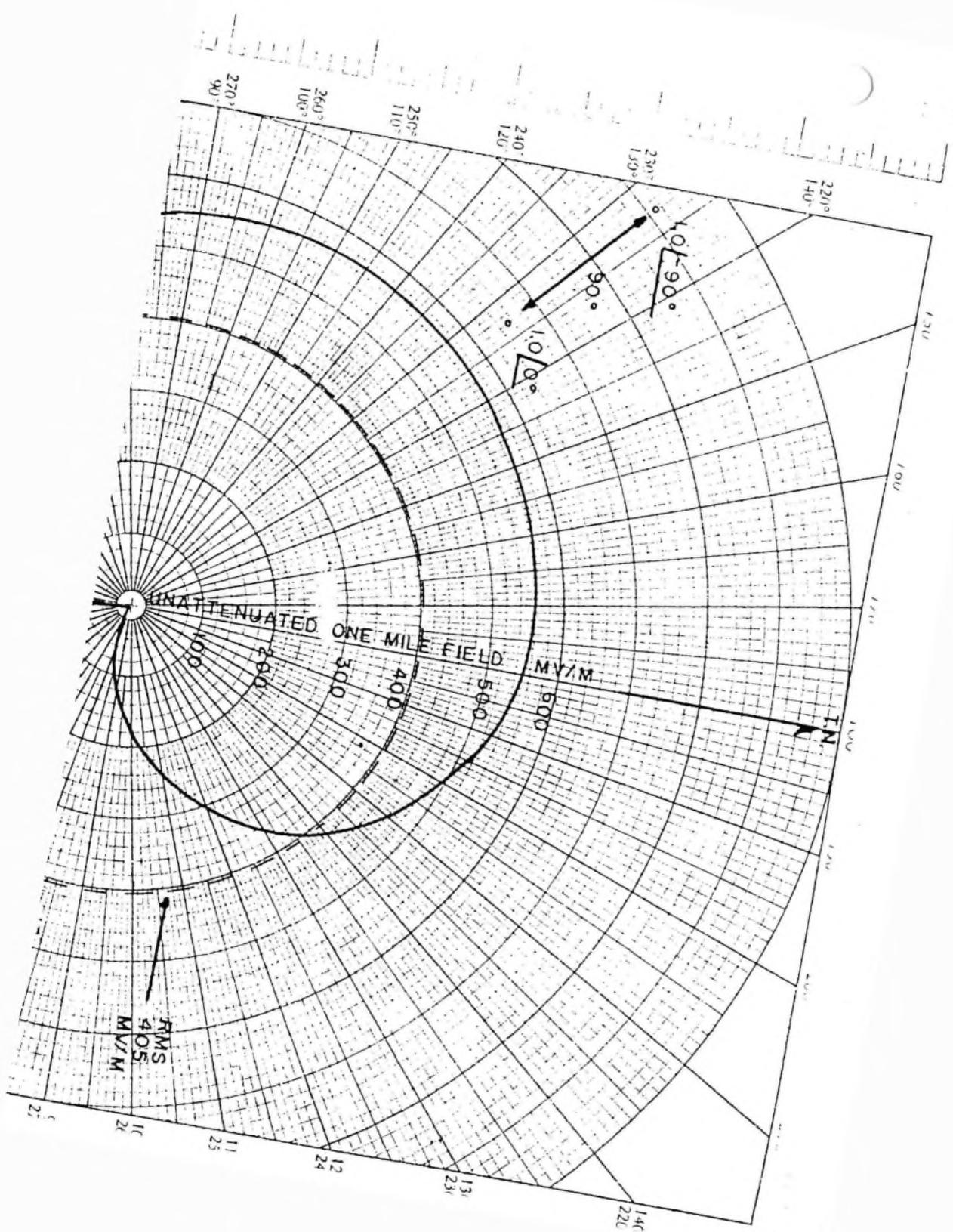


FIGURE 2
DAYTIME HORIZONTAL PATTERN
CREW TORONTO ONTARIO
1430 KGS 5KW DA-2 CLASS III
PROJECT 2660-A-1

REVISED



K&E POLAR CO-ORDINATE 359-31
KEUFFEL & ESSER CO. MADE IN U.S.A.

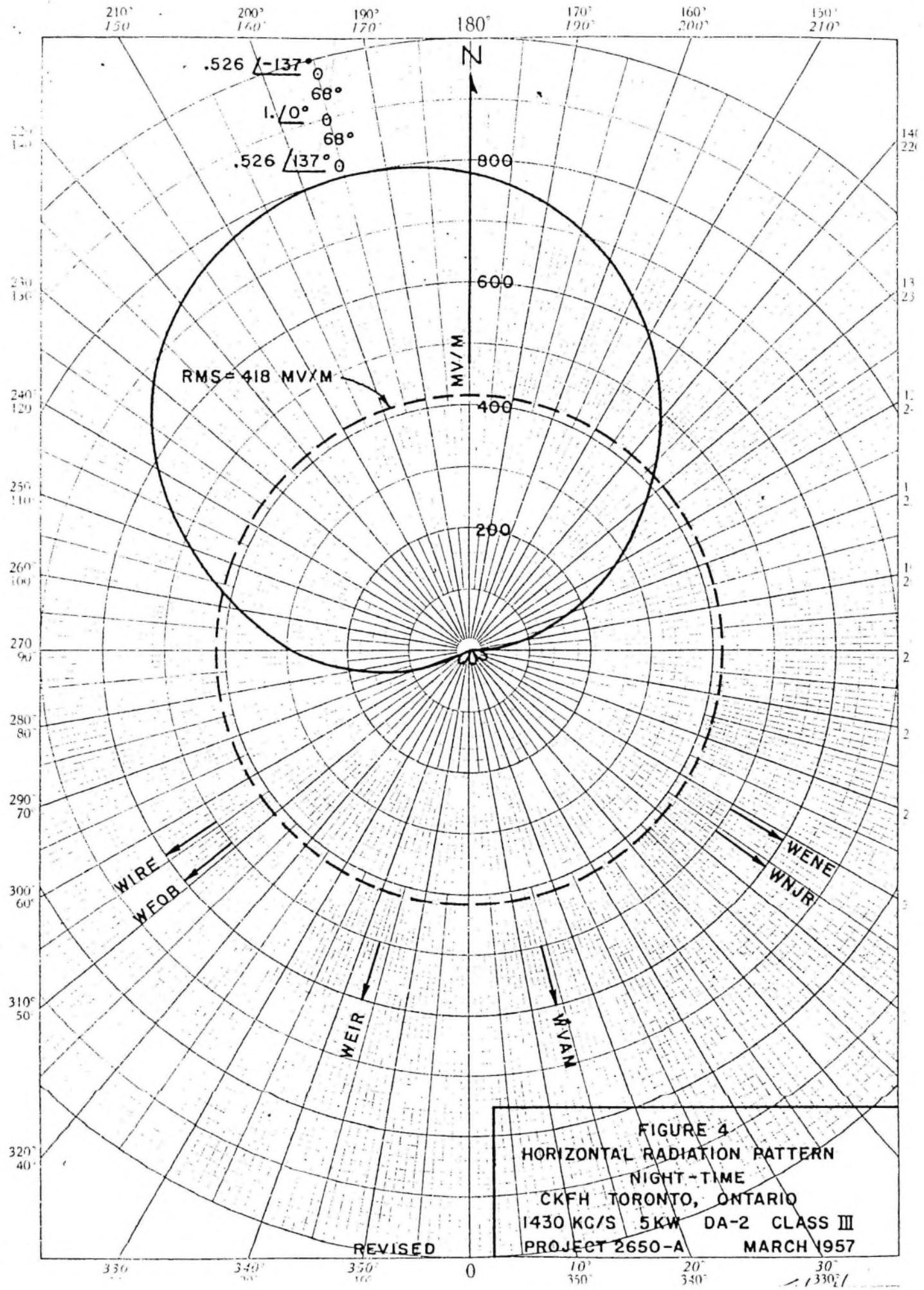


FIGURE 4
HORIZONTAL RADIATION PATTERN
NIGHT-TIME
CKFH TORONTO, ONTARIO
1430 KC/S 5KW DA-2 CLASS III
PROJECT 2650-A MARCH 1957

REVISED

APPROVED

FEB 12 1960

Y.R.H.

PROJECT 2650-C

PROOF OF PERFORMANCE

DIRECTIONAL ANTENNA ARRAY

*See letter
Feb 12/60
6206-300*

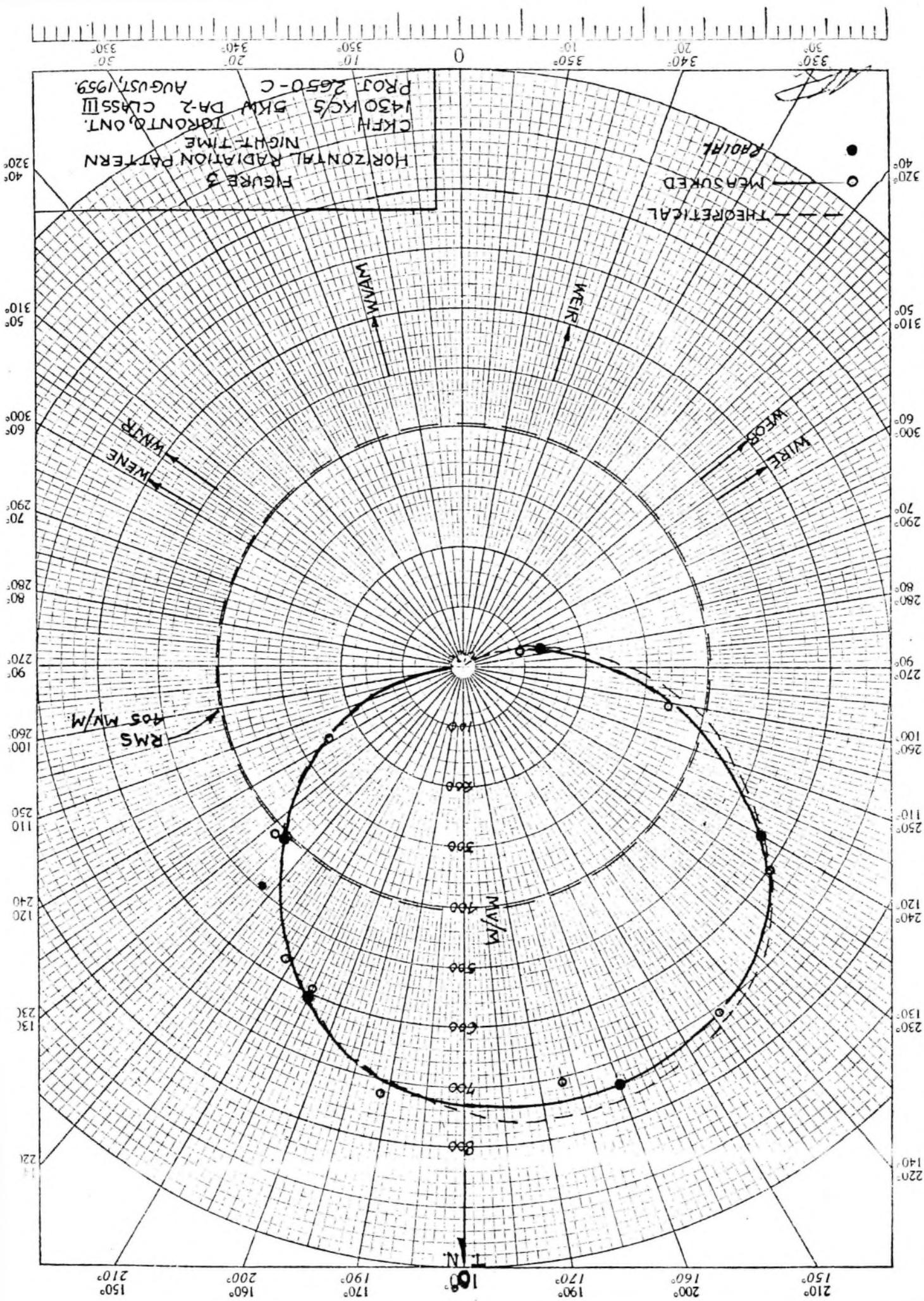
STATION: CREN
LOCATION: TORONTO, ONTARIO
FREQUENCY: 1430 Kc/s
POWER: 5000 WATTS DAY
5000 WATTS NIGHT
CLASS: III
OPERATION: DA-2

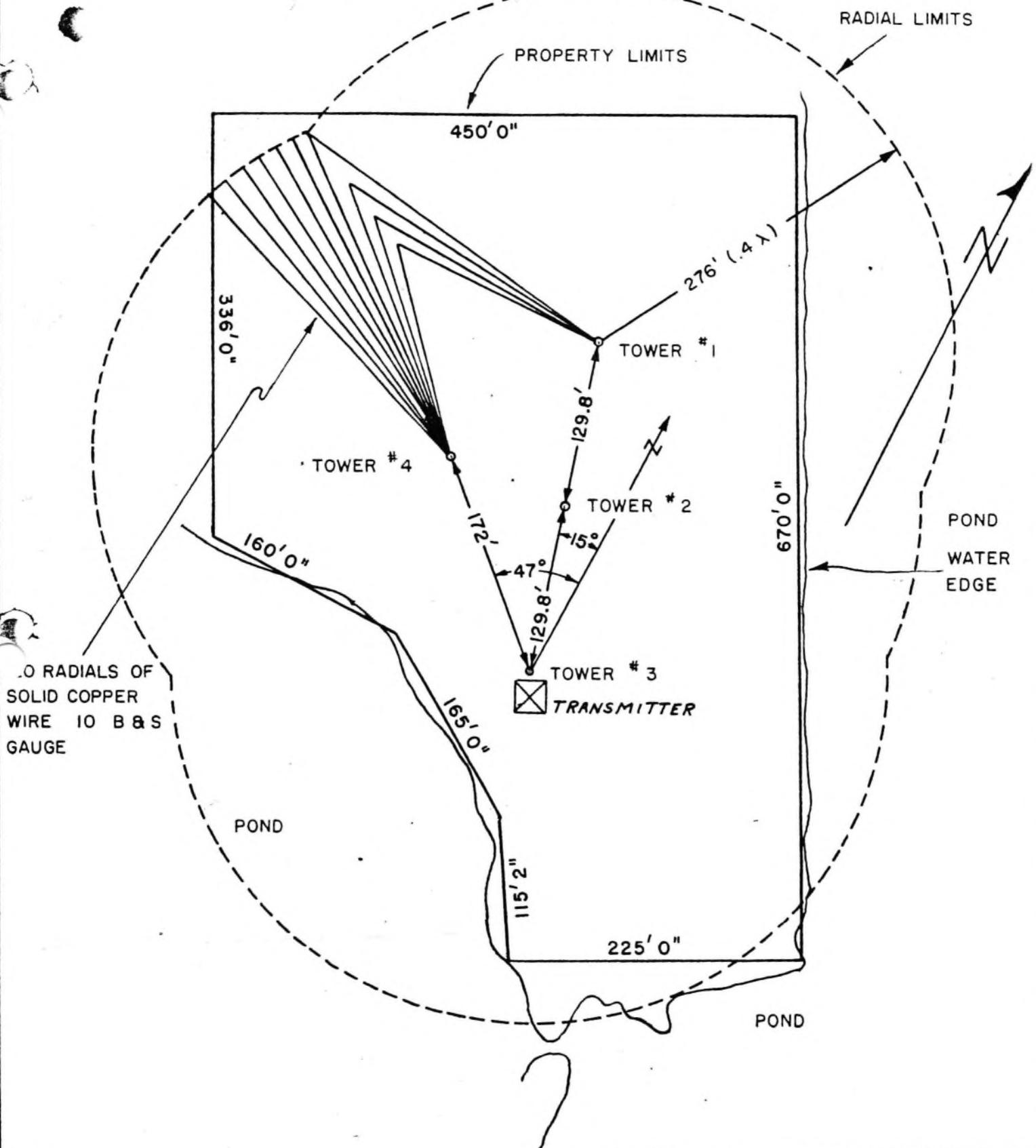
DECEMBER 1959

RCA VICTOR COMPANY, LTD.
MONTREAL, QUEBEC
CANADA

III. COMPLETE DESCRIPTION OF ARRAY

- (a) Number of Elements: Four (4)
- (b) Type of Radiators: Number 3 and 4 Towers, square, uniform cross-section, base insulated, series feed.
 Number 2 and 1 Towers, triangular, uniform cross-section, base insulated, series feed.
- (c) Top Loading Detail: Top loading to 61 degrees by means of 8' square grid.
- (d) Height of Towers above Base Insulators: 100'
- (e) Overall Height Above Ground Level: 105'
- (f) Overall Height Above Sea Level: 250' ± 25'
- (g) Orientation and Spacing: Tower #1, #2, and #3 are on a line bearing 345 degrees true, spacing between adjacent towers is 129.8 ft. (68 degrees). Towers #3 and #4 are on a line bearing 313 degrees true, spacing between tower #3 and #4 is 172 ft. (90 degrees)
- (h) Detail of Ground System: 120 equally spaced radials extend from the base of each tower to a maximum distance of 276 ft. (.4 λ) with the exception of those radials joined along common chords. Wires are continuous or bonded together at junction points. All radials are buried approximately 12 inches deep with the exception of those lying in a pond adjoining the property.
- (i) Location: North latitude 43 degrees 37' 03"
 West Longitude 79 degrees 22' 47"
- (j) Current in each Element: (i) Daytime Operation 5KW Birectional
- | | | | |
|-------|-------|------|---------|
| Tower | | | |
| #3 | South | 12.9 | amperes |
| #4 | West | 13.2 | amperes |
- (ii) Nighttime operation 5 KW Directional
- | | | | |
|----|--------|------|---------|
| #1 | North | 12.1 | amperes |
| #2 | Centre | 20.7 | amperes |
| #3 | South | 10.9 | amperes |





10 RADIALS OF
SOLID COPPER
WIRE 10 B & S
GAUGE

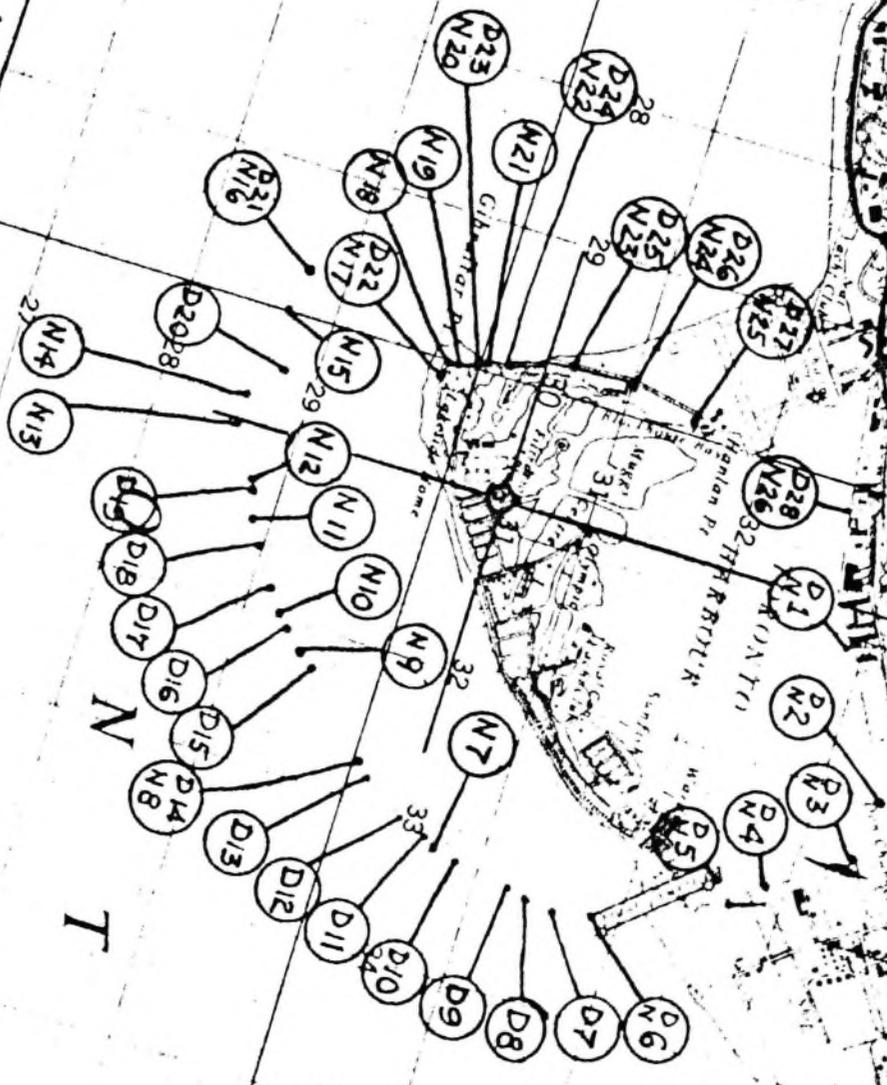
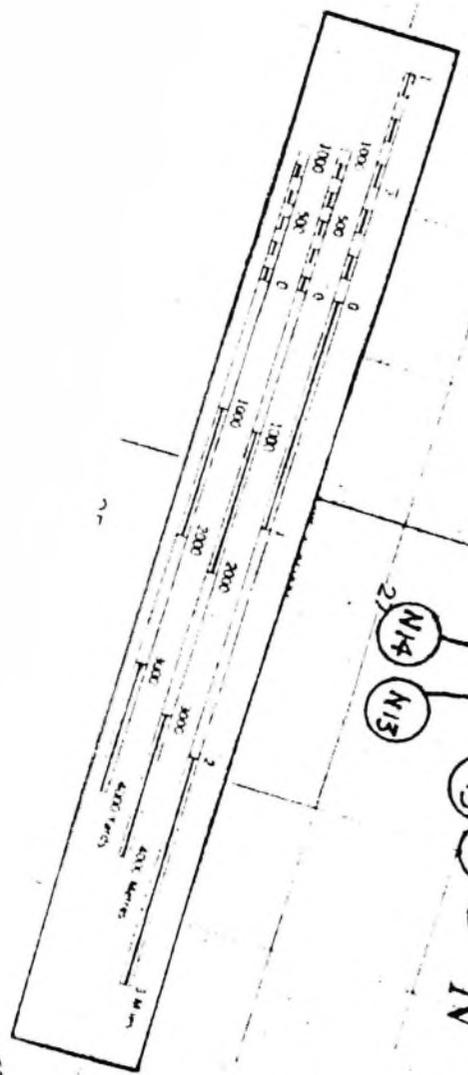
SCALE 1" = 100'

REVISED

FIGURE 2/
LAYOUT OF TOWERS & GROUND SYSTEM
CKFH TORONTO, ONTARIO
1430 KC/S 5 KW DA-2 CLASS III
PROJECT 2650-A

Handwritten marks: 7 7 7

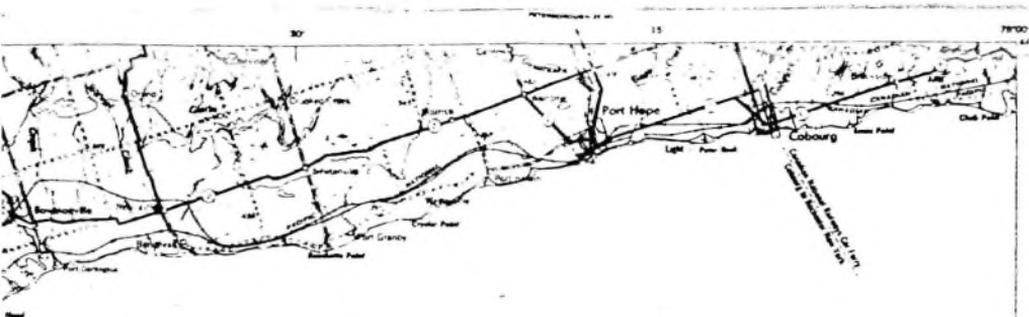
FIGURE 22
FINAL FLOOR OF PERFORMANCE
RATIO MEASUREMENT POINTS
 CENX TORONTO, ONTARIO,
 1130 Kc/s, 5000 W, IM-2
 RCA VICTOR COMPANY, LTD.





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STATION



A R I O

FIGURE 28
FINAL PROOF OF PERFORMANCE
NON-DIRECTIONAL RADIAL MEASUREMENT
LOCATIONS
CKPH TORONTO, ONTARIO
1130 Kc/s 5 Kw DA-2 CLASS III
RCA VICTOR COMPANY, LTD.
PROJECT 2650-C



A Brief by Foster Hewitt
of CKFH, Toronto (250 watts) in support
of the application of CKFH for a change
of frequency from 1400 Kcs. to 1430 Kcs.
and an increase in power to 5,000 watts.

(1)

I wish to present this brief in support of our application for radio station CKFH (Toronto) for a change of frequency from 1400 Kilocycles and 250 watts power to a new frequency of 1430 Kilocycles and 5,000 watts power from the same location on Toronto Island.

CKFH, SINCE ITS INCEPTION IN FEBRUARY, 1951 HAS BEEN OPERATING ON ITS ORIGINAL FREQUENCY OF 1400 KILOCYCLES AND 250 WATTS POWER. CKFH HAS NEVER HAD A POWER INCREASE.

This was not from design but from necessity. It has always been our desire and hope to have the required amount of power to provide the radio service expected of CKFH, but through circumstances beyond our control, no frequency which would allow this necessary increase in power could be found. We have been fully aware of our increasing difficulties in properly servicing the ever growing Toronto area with our low power of 250 watts but we have struggled on through the years doing our best with the limited facilities at our disposal. An intensive search for a new frequency and an increase in power has been our main endeavour for over five years. For this purpose we have employed during that period at least six consultants.

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At long last, over two years ago, the opportunity we had been striving for arrived. We were informed that CHEX (Peterboro) planned to move from 1430 Kcs.

THIS WAS OUR ONE AND ONLY CHANGE TO RELIEVE
A SITUATION THAT WAS BECOMING INTOLERABLE.

This was chiefly due to three factors; first, that stations in our area were successful in their application for increased power; secondly, additional new stations had been granted licenses to operate at higher power than our own and thirdly, the city limits had been expanded to Metro Toronto, AN AREA SIX TIMES LARGER THAN ITS ORIGINAL SIZE. In mileage, Metro Toronto is 13 miles by 24 miles.

May I point out that Metro Toronto had at our inception in 1951 an area of 22,336 acres and a population of 653,000. Now Metro has a vast area of 131,072 acres and a population of 1,429,031 thus still further aggravating our coverage problems.

When CHEX (Peterboro) received the approval of the Board to change frequencies, we sent our application along with a technical brief to the Department of Transport on March 14th, 1957.

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On March 30th, 1957 the following letter was received from the Department of Transport:

"Dear Sirs:

1. This is to advise that we have received from your consultant, R.C.A. Victor Company Ltd., a letter dated March 12, 1957, in which they enclosed forms AR-9-19 concerning the tower site at CKFH, Toronto, Ontario.

2. Your proposal for the erection of two additional towers for station CKFH with an overall height of 105 feet on the position shown in the AR-9-19 forms as $43^{\circ} 37' 3''$ north latitude, $79^{\circ} 22' 47''$ west longitude, at the point represented in the AR-9-19 forms as 250 feet, plus or minus 25 feet, above sea level, is acceptable from an aviation point of view, provided that the towers are painted and lighted in accordance with broadcast specification No.16.

3. You will appreciate, however, that the foregoing statements do not convey authority to you to take any preliminary steps with a view to a change in the operation of your radio station until the following requirements shall have been satisfied:-

- a) Reference of the application to the Board of Governors of the Canadian Broadcasting Corporation.
- b) A favourable recommendation by the said Board to the Minister of Transport.
- c) Approval of the Minister of Transport.

Yours very truly,

G. Brant for F. G. Nixon

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The technical briefs remained with the Department of Transport for four months. Then, on July 16th, 1957, they were returned with the following letter of explanation -

"Reference is made to your application dated March 14th, 1957 for authority to increase the power of Private Commercial Broadcasting Station CKFH (Toronto) to 5,000 watts and to change its frequency to 1430 Kcs.

In this respect, we would point out that we have an established policy which does not permit us to accept an application for authority to use a frequency while that frequency is still occupied. Although the Canadian Broadcasting Corporation recommended the approval of an application from the licensee of Station CHEX (Peterboro) to change the frequency of that station from 1430 Kcs. to 980 Kcs., authority for such a change has not yet been granted. Under the circumstances you will appreciate that your application is unacceptable.

If we were to keep an application which is unacceptable on our files, it could result in delay and embarrassment to the applicant who was under the impression that he had a complete application on file. In order to avoid the occurrence of such a situation we have established a policy which does not permit us to keep your application on file.

Accordingly, three copies of the completed application form and four copies of the technical brief are returned herewith."

Yours faithfully,
F. G. Nixon

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I would like to point out that these letters are included only as evidence our application was in advance of anyone else.

On August 7th, 1957, CHEX received Order in Council authorizing the change from 1430 Kcs. to 980 Kcs. This is a year and a half ago.

From that time on, we have been endeavouring to make application for this desirable frequency. Through no fault of our own, delays occurred in CHEX's switch to the new frequency, so that a period of more than a year has elapsed to delay our application and appearance before the Board. This period is possibly one of the longest on record of any Canadian radio station frequency changes.

Finally, on April 23rd, 1958, we received the following letter dated April 18/58 from the Department of Transport:

1. "As you are aware Station CHEX Peterborough has been authorized to change frequency from 1430 Kcs. to 980 Kcs. and to increase power from 1 to 5 kw with appropriate directional antenna. The station is now operating provisionally on 980 Kcs. and we expect to receive the final proof-of-performance before April 30, 1958, which if found to be satisfactory will enable us to authorize continued operation on 980 Kcs. thereby releasing the 1430 Kcs. channel.

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2. As is our custom, we propose to withhold International Notice of Deletion for a reasonable period to enable applications to be filed for a further use of 1430 Kcs. in Canada in the general area of Peterborough.

3. We are now in a position to accept applications involving 1430 Kcs. in the general area of Peterborough. Such applications will be processed only after the final proof-of-performance for CHEX on 980 Kcs. has been accepted by this Department. As you are aware the next cut-off date is 5 p.m., April 30."

Yours truly,

F. G. Nixon
Director, Telecommunications Branch.

CKFH forwarded the completed four technical briefs to the Department of Transport on the same day this letter was received, namely, April 23rd.

In the interval, our position has become increasingly untenable. With CKFH on a fixed power ceiling of 250 watts on 1400 Kcs., it is quite obvious the detrimental effect the additions of newer stations in the area of higher power have had on our operation. Rightly, or wrongly, advertising agencies and sponsors generally buy on the basis of wattage and CKFH has suffered to the full in this regard.

Another important point is the survey or rating situation.

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I believe it is a fair statement to make that regardless of programming, if listeners have difficulty hearing a station's signal, they will not continue to listen to that station but will turn their dial to a station they can tune to easily. The result is that a station of low power is bound to suffer with low ratings. That means less and less business for survival. This is exactly what has happened to CKFH with business down over 30 per cent from the year previous.

The very fact of our high quality programming (mentioned favourably in the Fowler report) being what it is, has reacted unfavourably on us. More and more listeners try to tune in CKFH for various quality programs but find the signal unsatisfactory and difficult to tune in.

HOCKEY IS CANADA'S NATIONAL GAME.

CKFH is the only radio station broadcasting all amateur and professional hockey games played in Toronto.

CKFH broadcasts exclusively all Junior "A" Ontario Hockey Association games and playoffs up to and including the Memorial Cup finals regardless of locale; all home games of the Toronto Maple Leafs; all N.H.L. playoffs; Sunday night N.H.L. games "live" from either New York, Boston, Detroit or Chicago during the entire season; World Hockey including broadcasts from Krefeld Germany, Cortina Italy, Oslo Norway and this March from Prague, Czecho Slovakia, as well as all other sports in season - - a costly effort for such a limited audience.

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Prominent sponsors have continuously indicated their dissatisfaction with CKFH's signal through reports from city listeners who have difficulty with reception of their program. Nine national advertisers have cancelled out in the past six months, all with the proviso that they will return if, as and when CKFH receives more power. The Toronto Star is another major sponsor to threaten the same action. The Toronto Star Weekly has already dropped CKFH from their advertising list.

Obviously we have no answer or appeal to such action by sponsors but this trend has been more noticeable in the past two years with the addition of new stations of higher power coming into this Toronto market, as well as CHUM's (Toronto) success in receiving an extension of their daylight operation only, to 24 hour service and two increases in power. Each successive move seems to have accentuated our weakening position in the market.

While the sale of radio receivers has set an enviable record over the years, the quality of the receiver has deteriorated considerably. Now, small mantle sets predominate in big cities. These receivers are not powerful or selective in tuning and if the station tuned in hasn't sufficient power, the signal is greatly distorted.

T.V. whistle on low power stations is also more noticeable in this small type of receiver.

With Toronto rapidly growing into an "apartment city" reception difficulties increase.

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A low power signal of 250 watts will not penetrate the steel structures satisfactorily.

A power increase and a change of frequency is vital to the future of CKFH, From exhaustive study by top consultants, 1430 Kcs. is our only hope for improving service.

MOST OF TORONTO'S VAST POPULATION IS A MINIMUM OF FOUR MILES FROM CKFH'S TRANSMITTER. OUR PRESENT NIGHTIME RANGE ON 250 WATTS DOES NOT EXCEED THREE MILES.

CKFH (250 WATTS) IS TRYING TO COMPETE WITH NO LESS THAN 16 RADIO STATIONS AND 7 TELEVISION STATIONS AS WELL AS THREE NATIONAL NEWSPAPERS IN THE TORONTO MARKET.

THERE IS NO ALTERNATIVE CHOICE. NO OTHER FREQUENCY EXISTS FOR TORONTO.

WE ARE THE ONLY 250 WATT STATION IN TORONTO. ALL OTHERS RANGE FROM 5,000 TO 50,000 WATTS.

WE ARE THE ONLY 250 WATT STATION IN CANADA TRYING TO SERVE A LARGE METROPOLITAN AREA.

WE ARE THE ONLY TORONTO STATION THAT HAS NEVER HAD A POWER INCREASE.

WE ARE UNABLE TO COME EVEN CLOSE TO THE MINIMUM 25 MILLIVOLT STANDARD OF METROPOLITAN TORONTO COVERAGE AS DEFINED BY THE DEPARTMENT OF TRANSPORT.

CKFH IS ACKNOWLEDGED THE SPORTS AND GOOD MUSIC STATION IN TORONTO.

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We are competing with three 50,000 watt stations and two 5,000 watt stations in Toronto alone. CHUM (Toronto) has increased from 1,000 watts power and daylight operation only, to 24 hour operation and 5,000 watts power recently. This is the second increase in power for this Toronto station in little more than a year. Sixteen radio stations feed on the Toronto market, most of them using 5,000 watts or better. Here is a list of stations selling in the Toronto market:

CKFH	TORONTO	250 WATTS
CBL	TORONTO	50,000 "
CJBC	TORONTO	50,000 "
CFRB	TORONTO	50,000 "
CKEY	TORONTO	5,000 "
CHUM	TORONTO	5,000 "
CHML	HAMILTON	5,000 "
CKOC	HAMILTON	5,000 "
CKTB	ST. CATHERINES	5,000 "
CHWO	OAKVILLE	1,000 "
CJRH	RICHMOND HILL	1,000 "
CKLB	OSHAWA	5,000 "
WGR	BUFFALO	5,000 "
WBEN	BUFFALO	5,000 "
WKBW	BUFFALO	50,000 "
WJLJ	NIAGARA FALLS, N. Y.	1,000 "

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No less than seven T.V. stations compete for the Toronto market:

CBLT	TORONTO
WBEN-TV	BUFFALO
WGR-TV	BUFFALO
WKEW-TV	BUFFALO
CHCH-TV	HAMILTON
CKVR-TV	BARRIE
CKCO-TV	KITCHENER

THERE IS NO MARKET IN CANADA THAT HAS KEENER COMPETITION FOR THE ADVERTISING DOLLAR THAN TORONTO WITH ITS THREE NATIONAL NEWSPAPERS AND COUNTLESS OTHER PUBLICATIONS AS WELL AS THE SIXTEEN RADIO STATIONS AND SEVEN TELEVISION STATIONS SERVICING THE AREA.

Apart from competition for the advertising dollar, a power increase is the only solution to the major interference problem in a large metropolitan city. But this power increase to all but our own, puts us in anything but an enviable position. It is a question how long we can survive under such a handicap.

LET ME SHOW YOU THE EVIDENCE. PLEASE REFER TO THE COVERAGE MAP SHOWING TWO 25 M/V CONTOURS.

The Map shows our present coverage on 250 watts as well as our proposed coverage if we are successful in obtaining the use of 1430 Kcs. with 5,000 watts. The 25 millivolt line is the accepted "interference clear" coverage in each case. This interpretation is standard Department of Transport procedure.

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Toronto is the fastest growing city in America. However, the rapid and extreme growth of Toronto has boomeranged on us to this extent that we can't claim even partial coverage of the city proper let alone Metro Toronto with its vast new areas and population. I believe it is conceded that a large metropolitan area cannot be serviced satisfactorily or adequately on a high frequency with anything less than 5,000 watts.

Because of our location on Toronto Island, directly south of Toronto proper near the existing island airport, aviation authorities insist on maximum height of antenna towers of no more than 100 feet. This condition alone limits use of most frequencies but is very favourably adapted to the use of 1430 Kcs.

In the event of a national emergency, a power increase from CKFH's present strategic location would give the necessary strength of signal in Metro Toronto to keep the civilian population completely informed and directed at all times and would thus be able to make a major contribution to the welfare and safety of nearly 2,000,000 people.

In a city the size of Toronto with the inevitable overcrowding of the south part of the city for industrial purposes, real estate proves to be a major obstacle both as to availability and cost. While we control enough land for the use of 1430 Kcs., any lower frequencies that might open up sometime in the future, would be useless to us as no more ground on the island is available. (the lower the frequency, the more area required for ground system.)

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In other words, both from a technical, real estate and economic standpoint, the 1430 Kcs. frequency fits the Toronto area perfectly and the resultant pattern towards the city is such that a maximum service is established. This means that the ultimate results in transmission would be achieved by the use of the 1430 Kcs. frequency in the Toronto area. IT IS MY UNDERSTANDING THAT IT HAS ALWAYS BEEN THE POLICY OF THE BOARD TO SEE, THAT ON ANY FREQUENCY CHANGE, THE ALLOCATION DECIDED UPON, WAS BASED ON THAT FREQUENCY BEING USED TO THE BEST ADVANTAGE. ALSO THAT EXISTING STATIONS ENDEAVOURING TO PROVIDE AN IMPROVED SERVICE ARE GIVEN PRECEDENCE OVER NEW STATION APPLICATIONS. I submit that from all points of view, 1430 Kcs. is the frequency for Toronto.

CKFH commenced broadcasting in February, 1951 at a time when Toronto city had a population of 653,000 and an area of 22,336 acres. Almost three years later to the day, the municipality of Metropolitan Toronto was incorporated with an area of 153,408 acres - AN AREA INCREASE OF 131,072 ACRES OR APPROXIMATELY SIX TIMES THAT OF THE ORIGINAL.

Metropolitan Toronto consists of three separate and distinct areas. First of all, is the city itself. Secondly comes the so called "inner nine" municipalities which in turn consist of seven small municipalities with populations of less than 20,000 each (New Toronto, Mimico, Long Branch, Leaside, Forest Hill, Weston and Swansea) and two larger townships - East York and York. These "inner nine",

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Like the city itself, are the older and more settled areas. Thirdly, there are three sprawling, rapidly growing townships which completely surround all the rest of Metropolitan Toronto - - Etobicoke on the west, North York on the North and Scarborough to the East.

METROPOLITAN TORONTO CONSISTS OF THE TORONTO CITY AREA; 9 OLDER SETTLED SUBURBS, MOST OF WHICH ARE ADJACENT TO THE CITY; AND THEN ON THE EXTREME OUTSKIRTS OF METROPOLITAN TORONTO, THREE EVER EXPANDING TOWNSHIPS.

As in other North American urban areas, THE POPULATION TREND IN METROPOLITAN TORONTO IS AWAY FROM THE CENTRE OF THE CITY. And these suburbs which are growing fastest are the furthest away from the centre of the city. Indeed, North York, Scarborough and Etobicoke are growing at a record rate. Thus, the CKFH coverage problem comes clearly into focus.

METRO'S POPULATION IS 1,429,031-JUMP OF 48,256 IN ONE YEAR
(The Globe & Mail Nov. 18-58)

"The population of Metropolitan Toronto now stands at 1,429,031, an increase of 48,256 over last year, according to a Metropolitan Assessment Department survey. In the past 12 months, North York passed the 200,000 population mark, the city gained by 170. The Metro area has added 311,561 new residents since 1951.

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The big three of Metro suburbs - North York, Scarborough and Etobicoke - claimed the lion's share of the population increase within the last year - 17,243 in North York, 16,396 in Scarborough and 11,414 in Etobicoke. Totals now are North York, 200,185; Scarborough, 168,281; Etobicoke, 121,720.

SCARBOROUGH AND ETOBICOKE NOW HAVE INDIVIDUAL POPULATIONS EXCEEDING THOSE IN THE CITIES OF WINDSOR, LONDON OR SUDBURY.

NORTH YORK'S LATEST POPULATION RATING PLACES IT WITHIN 15,113 OF THE POPULATION OF OTTAWA AND WITHIN 37,749 OF THE POPULATION OF HAMILTON.

Of the remaining population increase York Township had the largest gain, increasing by 2,463 for a population of 119,966 compared to 117,503 a year ago.

A population reduction in the inner ring of Metro municipalities - Leaside, East York and Forest Hill - was listed by the assessment department.

A minor population increase of 1,416 was accounted for in the three Lakeshore suburbs of New Toronto, Mimico and Long Branch.

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Population record for the 13 Metro municipalities
is listed as follows:

	<u>1958</u>	<u>1957</u>
Toronto	658,420	658,250
North York	200,185	182,942
Scarborough	168,281	151,885
Etobicoke	121,720	110,306
York Township	119,966	117,503
East York	68,312	69,321
Forest Hill	19,936	20,107
Leaside	16,409	16,418
Mimico	14,401	13,838
New Toronto	11,918	11,559
Long Branch	11,026	10,532
Weston	9,485	9,404
Swansea	<u>8,972</u>	<u>8,710</u>
T o t a l	<u>1,429,031</u>	<u>1,380,775</u>

In other words, CKFH's coverage problem is even becoming more acute. Reference to a study made by the Metro Toronto Planning Board which was issued in 1956, makes this clear. This study projects population estimates in the Metropolitan Toronto area into 1961 and 1980. For purposes of comparison, 1955 is used as a base year. These figures are set forth on the enclosed colour map of Metro Toronto.

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Toronto City's 1955 population of 681,857 will increase 2% by 1961 and 5% by 1980.

The "inner nine's" 1955 population of 270,181 will increase 4% by 1961 and 12% by 1980.

Etobicoke's 1955 population of 93,800 will increase 60% by 1961 and 300% by 1980.

North York's 1955 population of 148,250 will increase 85% by 1961 and 275% by 1980.

Scarborough's 1955 population of 110,300 will increase 75% by 1961 and 300% by 1980.

METROPOLITAN TORONTO EXTENDS NORTH FROM THE ISLAND 13 MILES - EAST TO WEST, THE DISTANCE IS 24 MILES. WITH THIS VAST AREA TO COVER, IT IS OBVIOUS THAT 250 WATTS IS HOPELESSLY INADEQUATE TO DO THE JOB.

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I believe we have ample proof that our need for increased power is greater than any other applicant for this frequency.

We also feel that the 1430 Kcs. frequency would be more effective and desirable in the Toronto area than any other location in Ontario.

We appeal to the Board, not only on the basis of survival, but our duty to perform a satisfactory service to the Greater Toronto area. This we cannot do at the present time.

CKFH'S DESIRE AND NEED FOR GREATER POWER IS NOT TO REACH OUT INTO OTHER MARKETS. IT IS STRICTLY TO BETTER THE SERVICE IN THE GREATER TORONTO AREA. OUR PROPOSED COVERAGE MAP WILL CONFIRM THIS COMPLETELY. FIVE THOUSAND WATTS IS THE ABSOLUTE MINIMUM REQUIRED ON A HIGH FREQUENCY TO SERVICE A LARGE METROPOLITAN AREA SUCH AS TORONTO.

If given the opportunity that increased power and a change of frequency will present, I can assure you that CKFH's effort to provide the necessary local service, vital to the area, will be an accomplished fact.

C K F H

1400 - - Toronto

YOUR BALANCED PROGRAMMING STATION

.....One of the few radio stations
in Canada referred to FAVOURABLY
by the FOWLER COMMISSION in
their recent complete report on
the Radio Industry.....

1400 - C K F H - TORONTO

- - YOUR BALANCED PROGRAMMING STATION

BALANCED PROGRAMMING: What is it?

By BALANCED PROGRAMMING we mean programming that caters to the MAJORITY OF PEOPLE....PROGRAMMING that primarily ENTERTAINS, INFORMS, EDUCATES and provides that type of listening for which radio was originally designed. With this thought in mind, CKFH Toronto, has designed its entire 24 hours on the air each day (except Sunday, when we suspend our operation at 2:00 A. M. for maintenance of our transmitter and equipment).

MUSIC

We sincerely feel that listeners to CKFH, Toronto, have music that meets with the individual need of all tastes. From the fine classics - to the music of Broadway - to Country and Western - to modern jazz - to the music of all nations - CKFH provides THE BEST IN ALL-ROUND MUSICAL ENTERTAINMENT. Such programmes as "THE STAR PROGRAMME OF GOOD MUSIC" which has occupied the 8:00 to 9:00 P. M. daily slot since this station's inception in 1951 is a top-rated favourite with a large majority of Metropolitan Toronto homes. Mail response and telephone calls speak highly of this programme.

"THAT FELLAR MACKELLAR" featured five nights weekly, 10:35 P. M. to 3:00 A. M., supplies GOOD MUSIC - - standard, pop, musical show tunes in a wide variety for all night workers in this area. Each week (Wednesdays and Fridays from 11:30 P. M. to 12:00 midnight) this programme also features LIVE MUSIC from the TOWN RESTAURANT with such well-known Canadian talent as Peter Appleyard, Pat Riccio, Norman Amodeo and other top stars.

"THE BAR B HILLBILLY JAMBOREE" weekdays, 11:30 A. M. to 12:15 P. M., also 12:30 P. M. to 1:00 P. M. on Mondays, Wednesdays, and Fridays appeals to the western and folk music fans.

On Sunday evenings immediately upon conclusion of our EXCLUSIVE NHL hockey broadcasts we bring Torontonians the world's best loved music by the world's most popular artists and conductors to classical music lovers on the programme "AN EVENING WITH THE CLASSICS" (approximately 10:15 P. M. to 11:30 P. M.).

Daily from 1:00 P. M. to 2:00 P. M., and from 7:00 P. M. to 8:00 P. M., CKFH brings Toronto's large Italian population their music and song.

On YOUR BALANCED PROGRAMMING STATION - CKFH - TORONTO - other ethnic groups are assisted with such shows as, "CONTINENTAL KALEIDOSCOPE" with German and European music, "THE GREEK CANADIAN HOUR", "THE LITHUANIAN HOUR", "HUNGARIAN SOUVENIRS", "THE MACEDONIAN HOUR", "FINLANDIA", "THE POLISH PROGRAMME", AND OTHERS. We feel that this community of one and one half million with its myriad groups from all parts of the world should receive their fair share of our BALANCED PROGRAMMING POLICY.

three--

SPORTS

Naturally since sports are part and parcel of our Canadian way of life, CKFH has since its inauguration LED ALL OTHER TORONTO STATION in its sports coverage. From NATIONAL HOCKEY LEAGUE, to JUNIOR OHA HOCKEY to WORLD HOCKEY, from BOXING, WRESTLING, BASKETBALL, SOCCER, FOOTBALL, STOCK CAR RACING, SPORTS CAR RACES, TRACK & FIELD, FASTBALL, BASEBALL to SOAP BOI DERBIES, we have constantly brought sports fans the best in COMPLETE COVERAGE.

This coverage of course is assisted by our many daily sportscasts and by sports bulletins, ski reports, race results and complete information on the sports world no matter when or where it is taking place. CKFH Toronto is known far and wide as THE SPORTSMAN'S STATION IN TORONTO.

NEWS

News occupies one of the top spots on our BALANCED PROGRAMMING SCHEDULE with the finest in NEWS COVERAGE 24 HOURS A DAY. Our newscasts every hour on the hour along with special news commentaries (e.g. Eisenhower Report, Springhill Report, Churchill Report, political reports), all combine to give the METROPOLITAN TORONTO COMMUNITY their opportunity to keep informed by dialing 1400 for local and world wide happenings at all times. Special news features like Royal Visit Reports, Royal Winter Fair coverage, Canadian National Sportsmen's Show coverage, Horse Show, Farm Broadcasts (four times weekly) are also feature parts of our NEWS PICTURE.

RADIO NEWSREEL

This is a five times weekly half hour programme of news, sports, stock market reports, interviews with names in the news, editorial comment, along with music. This programme provides a complete story on ALL the news in a well produced half hour package.

four -

PUBLIC SERVICE

We sincerely feel that our attached PUBLIC SERVICE REPORT for the past six months of our operations speaks volumes on behalf of our PUBLIC SERVICE to this community. This is typical of the type of PUBLIC SERVICE CKFH has offered since its first day on the air.

WOMENS' AND CHILDRENS' FEATURES

Each week-day from 11:01 A. M. to 11:30 A. M., CKFH is pleased to offer the housewives and women of Toronto one of the top women's shows on the air. Miss Mona Gould, well-known to radio listeners in this area for the past decade, brings interesting people from all walks of life to the CKFH microphone for chats about almost everything. Her guests have been from all fields including such personalities as Eleanor Roosevelt, Elsa Maxwell, Mike Wallace, Gordon Sinclair, Barry Morse, Donald McLean, Nelson Eddy, Pierre Berton, John Drainie, Gordie Tapp, members of the National Ballet, Crest Theatre, Royal Alexandra, New Play Society and others.

Ladies rate Mona's show "BE MY GUEST" as their favourite.

For the youngsters, CKFH is proud to bring the kiddies a half-hour show featuring the talented work of young actress Joan Folkins and her mythical rabbit, Mr. Muggins. This show is aired Sunday morning at 10:30 A. M. each week. Other features such as interviews with authorities who have brought theatrical presentations to town for the children and news of the Toronto Art Gallery's childrens' shows etc., have been aired to assist our "citizens of tomorrow".

five -

DEVELOPMENT OF CANADIAN TALENT

Each week CKFH airs a half-hour dramatic presentation, "DRAMA WORKSHOP", directed by well-known C.B.C. actor and free-lance director - Howard Milson. The casts of these shows are gained from open auditions presented by RADIO STATION CKFH and the CENTRAL TALENT AGENCY. There is no charge. These auditions and the actual show are presented to help forward the talents of young Canadian actors and actresses.

ARTIST MEETS THE COLLECTOR

This is a quarter-hour once weekly Sunday noontime programme. Moderated by Saul Field, this show brings well-known Canadian artists, and collectors, together for a general discussion on Canadian art, and its advancement. York Wilson, and many other leading names have appeared on this provocative discussion.

cont.

WHERE DO WE GO FROM HERE?

This is a once weekly half hour educational programme presented by CKFH as a public service with the full co-operation of a special committee of the BOARD OF EDUCATION, who act as advisors and consultants. The detailed content of each of these half hour documentaries presents a different aspect in the education of youth in Canada. Regular school activities such as sciences, math, as well as descriptions of 'special events' i.e. safety programmes, music features, art displays, cadet inspections, will be featured from time to time. WHERE DO WE GO FROM HERE reflects the aims, objectives, and accomplishments of the school system of the City of Toronto.

BOY SCOUTS ON THE AIR

This is a new quarter hour feature programme produced and handled under CKFH PROGRAMME DEPARTMENT supervision, by the various Boy Scout groups of Metropolitan Toronto. This fifteen minute public service feature spotlights the work, and the endeavours of scouting, and its many aspects and by so doing increases interest in the Boy Scout movement to youngsters who might wish to participate, and to their parents who might wish to give guidance and assistance.

To put into words exactly what BALANCED PROGRAMMING means and its presentation to our COMMUNITY OF METROPOLITAN TORONTO is a rather difficult task in such a small space.

We firmly believe that this city, our own community, should receive the kind of programmes that will appeal to every segment of its complex personality and that we endeavour to do.

CKFH, TORONTO, and its BALANCED PROGRAMMING POLICY does definitely ENTERTAIN, INFORM AND EDUCATE and also provides the GOOD LISTENING that is required by our listeners.

1400, CKFH, TORONTO, HAS DONE AND WILL CONTINUE TO DO JUST THAT!

As recognized by the FOWLER COMMISSION in their recent complete report of the RADIO INDUSTRY, CKFH TORONTO offers a variety of music, sports and all round entertainment that is required in BALANCED PROGRAMMING.

S P O R T S P R O G R A M M I N G O N C K F H (T O R O N T O)

H O C K E Y

C A N A D A ' S N A T I O N A L G A M E

The following is a report
on the play-by-play
broadcasts of THE NATIONAL HOCKEY LEAGUE,
 THE ONTARIO HOCKEY ASSOCIATION (Junior "A"),
and the WORLD HOCKEY GAMES

on C K F H

- - - THE SPORTSMAN'S STATION
 IN TORONTO

NATIONAL HOCKEY LEAGUE

1957/58

CKFH makes a major contribution to sport in Toronto by broadcasting all the National Hockey League games played in this city. This means that CKFH broadcasts SIXTY regular season games. Each broadcast lasts over two hours. The regular season games can be broken down into three categories - -

- 1 - The TWENTY-FOUR regular season N.H.L. games carried on the national network.
- 2 -- The ELEVEN exclusive Wednesday N.H.L. mid-week games from Maple Leaf Gardens.
- 3 - The TWENTY-FIVE exclusive N.H.L. Sunday night away from home games in American cities.

All Stanley Cup semi-finals and finals, regardless of the teams or the locale, are also carried by CKFH.

THIS YEAR, THIRTEEN STANLEY CUP GAMES WERE BROADCAST!

In making this service available to Toronto listeners, CKFH has in many cases, been forced to cancel out remunerative commercial programmes in order to give this complete service. Despite the loss in revenue, CKFH has consistently provided these games as a form of public service. During the hockey season, the CKFH Sports Staff travels to the key American National Hockey League cities of New York, Boston, Detroit and Chicago for the Sunday night games.

THESE ARE EXCLUSIVE CKFH ORIGINATIONS.

THE TOTAL NUMBER OF BROADCASTS THIS SEASON FOR MAJOR LEAGUE HOCKEY WAS - - - seventy - three!

ONTARIO HOCKEY ASSOCIATION (JUNIOR "A")

1957/58 SEASON

ANOTHER SPORTS HIGHLIGHT ON CKFH

CKFH broadcasts a play-by-play description of the home games during the regular season of the two local Toronto entries in the Ontario Hockey Association, the Toronto St. Michael's College Majors and Toronto Marlboros. These two teams, during the regular season, play teams from Guelph, St. Catherines, Peterborough, Barrie and Hamilton. Boys playing in the Ontario Hockey Association, (Junior "A") are under twenty-one years of age and are the players most likely to be considered for the National Hockey League. So this Hockey is very closely associated with the National Hockey League and carries national as well as local interest.

CKFH broadcasts these games every Sunday afternoon and week-days when they are scheduled, from the end of October to the beginning of March.

CKFH broadcast TWENTY-EIGHT regular season games for 1957/58.

PLAY-OFF GAMES called the Ontario Hockey Association (Junior "A") play-downs, are covered by CKFH at the home and away games of both the local Toronto entries, this season visiting Barrie, Hamilton and St. Catherines.

At the conclusion of the Ontario Hockey Association (Junior "A")

1957/58 Finals, CKFH had carried THIRTEEN games.

This season, Toronto Marlboros won the Ontario Hockey Association (Junior "A") Championship and earned the right to advance into the Eastern Canada Junior Finals and compete with the Ottawa Hull Junior Canadiens. Five games were played and all were broadcast by CKFH. Originations were from Toronto, Ottawa and Hull.

ONTARIO HOCKEY ASSOCIATION (JUNIOR "A")

1957 / 58 SEASON

ANOTHER SPORTS HIGHLIGHT ON CKFH

CKFH broadcasts all the Eastern Canada Junior Finals and Memorial Cup Finals either from Eastern or Western Canada. Since our inception in 1951, we have followed the Eastern Canada representative in the Memorial Cup competition and broadcast the entire play-off series from Regina, Winnipeg, Brandon, Montreal, Quebec and Ottawa in order to provide a national as well as local coverage. Last season, CKFH broadcast the Allan Cup Finals between Whitby and Spokane. This play-off decided the Senior Amateur Champion of Canada. CKFH extended EXCLUSIVE coverage in Hockey to the World Hockey Tournament in Germany in 1955, sending the Sports Staff to broadcast the World Tournament Final.

We were the O N L Y station in Canada to do the broadcast. C K F H as a national and local service has carried all World Hockey Tournament Finals, since 1955, from Germany, Italy and Norway.

CKFH PIONEERED WORLD HOCKEY BROADCASTS FOR CANADA.

The total number of games broadcast this season including the National Hockey League and the Ontario Hockey Association (Junior "A"), plus the world Hockey was ONE HUNDRED AND TWENTY, which is approximately TWO HUNDRED AND FIFTY HOURS of Hockey broadcasting.

CKFH IS THE ONLY STATION THAT HAS BROADCAST ALL THESE SPORTS EVENTS YEAR IN AND YEAR OUT.

O T H E R S P O R T S

1957/58 SEASON

During the summer months, CKFH runs feature sports programmes such as "Let's Go Fishing", "Let's Talk Golf", "The Sport of Kings" (Horse Racing), baseball bulletins on final scores and stock car racing broadcasts.

CKFH also carries regular sportscasts throughout the day (approximately TWO HOURS AND TEN MINUTES PER WEEK).

The CKFH Sports Staff contributes two other EXCLUSIVE local features.....

the description of professional wrestling which totaled FORTY-TWO this year - - and professional boxing totalling FIVE. This represents approximately FIFTY hours of live action.

THE CKFH SPORTS DEPARTMENT'S ON THE SPOT COVERAGE OF SPORTS EVENTS DURING THE YEAR WOULD TOTAL APPROXIMATELY THREE HUNDRED HOURS,

cont -

THE 1958-59 HOCKEY SEASON IS WELL UNDERWAY AND CKFH IS AGAIN BROADCASTING.....

- A. ALL SATURDAY NIGHT NHL HOME GAMES OF THE TORONTO MAPLE LEAFS. (24)
- B. ALL WEDNESDAY NIGHT NHL HOME GAMES OF THE TORONTO MAPLE LEAFS. (11)
- C. ALL SUNDAY NIGHT AWAY FROM HOME GAMES OF THE TORONTO MAPLE LEAFS IN THE FOLLOWING MAJOR AMERICAN CITIES: DETROIT, NEW YORK, CHICAGO, AND BOSTON. (35)
- D. ALL SUNDAY AFTERNOON OHA JUNIOR "A" DOUBLEHEADERS FROM MAPLE LEAF GARDENS WITH THE REGULAR SEASON GAMES TOTTALLING - - (20)
- E. WORLD HOCKEY TOURNAMENT DIRECT FROM PRAGUE, CZECHOSLOVAKIA WITH THE BELLEVILLE MACFARLANDS REPRESENTING CANADA.
- F. DAILY 15 MINUTE REPORTS ON THE WORLD HOCKEY SERIES DIRECT FROM PRAGUE, MARCH 5TH TO 15TH INCLUSIVE. (10)

CKFH has augmented local live sports broadcasts with four fifteen minute programmes "Chuck's Place" aired Mondays, Wednesdays and Fridays, and "The Motor Show" (a programme about sports cars), being aired Tuesdays.

CKFH is also proud of their contribution to conservation. The Department of Lands and Forests presents fifteen minutes of exceedingly important information on "Conservation Corner", this informative programme has been running continuously for the past six years, once a week.

A brief by Foster Hewitt
of CKFH, Toronto (5,000 watts, Day and Night)
in support of an application of C K F H
(Foster Hewitt Broadcasting Limited)
for an increase in daytime power only, to
10,000 watts. Nighttime power, frequency
and transmitter site to remain the same.

I wish to present this brief on behalf of Radio Station CKFH (Toronto) in support of our application for an increase in daytime power only, from 5,000 watts to 10,000 watts. The present frequency of 1430 Kcs., the nighttime power of 5,000 watts and the transmitter site on Toronto island are to remain the same.

CKFH received an increase in power from 250 watts to 5,000 watts at the first meeting of this Board of Broadcast Governors in January, 1959. At the time, it was our intention to apply for the full standard 10,000 watts power which we felt was necessary for satisfactory daytime coverage of such a large metropolitan city as Toronto. However, because of our desperate plight, brought on by the limitation of low power since our inception in 1951, we could not afford to take the chance of changing our existing technical brief for 5,000 watts because of possible technical difficulties that might arise. We therefore proceeded with the intention of reaching our main objective of 10,000 watts daytime power in two stages, rather than one.

On completion of our proof of performance on 5,000 watts power and 1430 Kcs., our earlier fears of

Cont'd:

(2)

limited improvement in coverage were realized. A letter from the Department of Transport dated Feb. 18th, 1960, confirmed our position.

It reads in part:

Gentlemen:

The submission by your consultant, the RCA Victor Company, Limited, of a final proof of performance for Private Commercial Broadcasting Station CKFH Toronto, Ontario, has been examined by our engineers. Insofar as protection requirements are concerned, they are of the opinion that CKFH's operation, with a power increase to 5 Kw, DA-2, on 1430 kc/s, is in a satisfactory agreement with the technical brief which the Department has approved for this operation.

However, it would appear from this proof of performance that both the metropolitan and rural coverage are considerably less than predicted in the technical brief, on the basis of which you were granted authority for the increase in power. In view of this fact, it is possible that interference may arise in areas for which reception was originally predicted as being free from such interference. Should this occur, then no protective action would be forthcoming from this Department because the interference, in these areas, would be largely the

Cont'd:

(3)

consequence of proven coverage being less than predicted.

Yours truly,

W. Caton (signed)
for F. G. Nixon
Director, Telecommunications
and Electronics Branch.

I might point out that in our previous 5,000 watt brief, theoretically, the 25 mv/m contour encompassed the metropolitan area. However, the final proof of performance showed that it fell short of this mark.

Please refer to the enclosed map showing the 25 mv/m contours. The inner line is the present 25 mv/m measurement contour on 5,000 watts. The outer line is the estimated 25 mv/m contour on the proposed 10 Kw power. This estimated contour is reasonably accurate as it is based on existing measurements. It can be noted that the 10 Kw, 25 mv/m contour, gives a definitely improved service over the entire metropolitan area and also achieves the 25 mv/m contour requirements of the Department of Transport.

Metropolitan Toronto is a vast city extending 24 miles east and west and 13 miles north. The city has an area of 153,408 acres with a population of 1,429,031 persons.

Cont'd:

(4)

Metropolitan Toronto consists of three separate and distinct areas. First of all, is the city itself. Secondly comes the so called "inner nine" municipalities which in turn consist of seven small municipalities with populations of less than 20,000 each (New Toronto, Mimico, Long Branch, Leaside, Forest Hill, Weston and Swansea) and two larger townships - East York and York. These "inner nine", like the city itself, are the older and more settled areas. Thirdly, there are three sprawling, rapidly growing townships which completely surround all the rest of Metropolitan Toronto - Etobicoke on the west, North York on the north and Scarborough to the east.

As in other North American urban areas, THE POPULATION TREND IN METROPOLITAN TORONTO IS AWAY FROM THE CENTRE OF THE CITY. And these suburbs which are growing fastest are the furthest away from the centre of the City. Indeed, North York, Scarborough and Etobicoke are growing at a record rate.

CKFH has two major limiting factors as to coverage - the short 100' towers located at Toronto island and the use of a high frequency such as 1430 Kcs.

Because of our location on Toronto Island, directly south of Toronto proper near the existing island airport, aviation authorities insist on maximum

Cont'd:

height of antenna towers of no more than 100 feet. This condition, along with the use of a high frequency like 1430 Kcs, limits the efficiency of transmission. Only increased power to 10,000 watts can improve the service.

In the event of a national emergency, a power increase from CKFH's strategic location would give the necessary strength of signal in Metro Toronto to keep the civilian population completely informed and directed at all times and would thus be able to make a major contribution to the welfare and safety of nearly 1,500,000 people.

In a city as large as Toronto, the man made noise level is excessively high. Car radios with limited antenna gain, are used extensively in the city under these prevailing conditions. Only radio stations with a powerful enough signal can give an adequate service to this large and important mobile population.

While the sale of radio receivers has increased over the years, the quality of the receiver has deteriorated considerably. Now, small mantle sets predominate in Toronto. These receivers have low gain and are not as selective in tuning. If the station tuned in hasn't sufficient power, the signal is greatly distorted. "T.V. whistle" is also more noticeable in this small type of receiver.

(6)

With Toronto rapidly growing into an "apartment city" reception difficulties increase. The steel construction shields out all but the strong radio signals.

All these various interference problems will be automatically reduced with an increase in power.

CKFH wishes to make full use of the frequency allotted to it. An increase in power is a further protection against American station interference as well as giving the maximum service from this frequency.

We appeal to the Board to assist us in our duty to perform a satisfactory service to the Greater Toronto area with the maximum daytime "interference clear" signal.

CKFH's desire and need for greater daytime power is not to reach out into other markets. It is strictly to better the service in the greater Toronto area. Ten thousand watts is the strength of signal required, on a high frequency, to service a large metropolitan area such as Toronto.

If given the opportunity that this increased daytime power will present, I can assure you that CKFH's effort to provide the necessary local service, vital to the area, will be an accomplished fact.

PROOF OF PERFORMANCE - Week of April 3rd to 9th, 1960

CKFH TORONTO

LOCAL LIVE PROGRAMMES

HOURS

1. LOCAL LIVE TALENT -

Bill Butler from the Studio,
Lord Simcoe Orchestra from the Pump Room

2:00

2. COMMUNITY EVENTS, TALKS, EDUCATIONAL BROADCASTS -

Public Service Announcements, Mayor Reports, Board of
Control, Red Cross Report, Canada at Work, Joe Martin--
--Reporter

2:24

3. RELIGIOUS BROADCASTS -

8:10

4. AGRICULTURAL & FISHERIES -

:30

5. SPORTS BROADCASTS -

(time fluctuates as to season) weekly average

11:58

6. NEWS BROADCASTS -

12:59

7. QUIZ OR CONTEST PROGRAMMES -

-

8. WOMEN'S & CHILDREN'S BROADCASTS -

2:30

TOTAL

40:31

C K F H

1 4 3 0 Toronto

YOUR BALANCED PROGRAMMING STATION

. One of the few radio stations
in Canada referred to FAVOURABLY
by the FOWLER COMMISSION in their
report on the Radio Industry

1 4 3 0 - C K F H - TORONTO

- - - RADIO FOR GROWN-UPS - - -

RADIO FOR GROWN-UPS is a new concept in radio broadcasting that caters to the adult taste in music - the adult acceptance of authoritative, comprehensive news coverage - - the adult appreciation of radio programming that entertains, informs and educates. Our entire 24 hours a day is designed for the listeners in our audience who appreciate such a responsible attitude.

MUSIC

Our music, through its wide acceptance, indicates that good music is on its way back to top prominence and popularity again. CKFH, Toronto feels that it has had no small part in the new and wider appreciation of good music. It is generally conceded that good music is music that has lasted through the years - - standard and semi-classical - - classical and folk music and song - along with the better, more melodic tunes from Broadway and popular music that people find pleasing to the ear. There is no rock and roll music allowed on CKFH. THE TORONTO STAR PROGRAM OF GOOD MUSIC, 7 to 8 p.m. seven nights a week, still enjoys the largest radio audience of any program heard in Southern Ontario.

Cont'd:

Special programs such as "Ireland's Own"; "Piccadilly Rendezvous", spotlighting top stars of Britain, and Scottish Varieties have also created exceptional interest.

In support of "live" musical programming in Toronto, CKFH broadcasts two hours of "live" music each week, utilizing the services of some of Canada's leading musicians.

For the ethnic groups, CKFH still features the highly accepted JOHNNY LOMBARDI SHOW from 8 to 9:30 p.m. Monday thru Friday.

S P O R T S

Since its inception in 1951, CKFH has led the field in Toronto in complete and authentic "live" sports coverage.

The following is a list of play-by-play broadcasts presented over CKFH regularly:

NATIONAL HOCKEY LEAGUE -

All home games of the Toronto Maple Leafs.

All Sunday "away from home" games of the Toronto Maple Leafs direct from Boston, New York, Chicago and Detroit.

All N.H.L. playoffs regardless of team or locale.

Cont'd:

JUNIOR "A" ONTARIO HOCKEY ASSOCIATION:

All regular season home games of Toronto Marlboros and St. Michael's College.

All Junior playoffs up to and including the Memorial Cup finals.

WORLD HOCKEY - From Europe (Germany, Italy, Norway, Czechoslovakia).

OLYMPIC HOCKEY FINAL - From Squaw Valley (Canada vs Russia) March, 1960.

INTERNATIONAL and LOCAL SOCCER.

INTERCOLLEGIATE FOOTBALL:

All home and away games of the University of Toronto.

ONTARIO and CANADIAN OPEN GOLF CHAMPIONSHIPS.

TRACK and FIELD (OLYMPIC TRIALS).

SOFTBALL, BOXING and WRESTLING.

SPORTS CAR RACES.

All play by play broadcasts supplemented by five daily sportscasts, plus ski and curling reports, a fishing and hunting series as well as complete horse racing results.

As a result of this complete sports coverage, CKFH is accepted as the SPORTSMAN'S STATION in Toronto.

Cont'd:

NEWS

To keep our listeners informed and aware of the happenings in their own neighbourhood, or around the world, is the endeavour of the CKFH NEWS DEPARTMENT. Top newscasters and writers are on the air from 6:30 a.m. to 6:00 p.m. daily from the editorial rooms of the Toronto Telegram, thus making the news, as it happens, available to CKFH listeners.

The CKFH SPECIAL EVENTS mobile crew with two radio equipped station wagons, cover on-the-spot events or such items of interest to Southern Ontario as traffic, road, detour obstruction reports, on-the-scene fire reports etc. Coverage of the Royal Winter Fair, the Canadian National Sportsmen's Show and the Canadian National Exhibition are also handled by the special events department.

WOMEN'S AND CHILDREN'S FEATURES

Miss Mona Gould, long established as one of the top women's commentators and interviewers, continues to enjoy a feature spot on our daily program log. Miss Gould brings special guests to her daily show "BE MY GUEST".

For the youngsters in our listening audience, CKFH has provided the half hour "KIDDIES CORNER" show, prepared, produced and announced by Miss Lorna Brown, a talented young Canadian writer. Miss Brown brings the children poems, stories of activities, music and song especially for them. She also announces happenings of interest to youngsters in this area, and comments on these events as they occur.

August 4th, 1959.....to.....April 4th, 1960

PUBLIC SERVICE ANNOUNCEMENT REPORT

FOR

1430-----CKFH-----TORONTO

No. OF ANNOUNCEMENTS: 2,154

.....in the public interest

23-2

The attached sheet describing the growth of audience for Radio Station CKFH since the inception of its present programming policy January 2nd, 1967, and its constant trend upwards is particularly gratifying. Never before has CKFH enjoyed such popularity from all segments of the population in its present limited coverage area.

This truly outstanding growth would seem to indicate that the programming policies of CKFH, the personalities, the features are most acceptable to listeners. You will notice that the attached sheet deals with the Monday thru Friday daily reach of the station. We suggest that the inclusion of Saturdays and Sundays in future survey figures will indicate an even greater increase in listenership, and future indication of the acceptance of our programming.

We are confident that our programming as presently constituted is designed for today's radio listener, and we will endeavour to provide such programming in the future.

REVISED (2)

STANDARD BROADCAST BAND

ENGINEERING BRIEF

FOR

CKFH, TORONTO, ONT.

INCREASE IN DAYTIME POWER AND CHANGE OF DAYTIME PATTERN

(PRESENT OPERATION: 1430 KC/S 5 KW DA-2 CLASS III)

PROJECT 2650-G

<u>FREQUENCY:</u>	1430 KC/S
<u>POWER:</u>	10 KWD/5 KWN
<u>CLASS:</u>	III
<u>OPERATION:</u>	DA-2
<u>APPLICANT:</u>	FOSTER HEWITT BROADCASTING LIMITED, TORONTO, ONTARIO
<u>ENGINEERS:</u>	RCA VICTOR COMPANY, LTD.

AUG. 2, 1960

RCA VICTOR COMPANY, LTD.
MONTREAL, QUEBEC
CANADA

STANDARD BROADCAST BAND

ENGINEERING BRIEF

FOR

CKFH, TORONTO, ONTARIO

I. INTRODUCTION

The Engineering Department of the RCA Victor Company, Ltd., Montreal has been retained by the Foster Hewitt Broadcasting, Limited, to prepare this engineering brief in support of an application to increase the daytime power and change daytime radiation pattern of Radio Station CKFH, Toronto, Ont.

II. PURPOSE

It is the purpose of this engineering brief to show that it is possible to operate CKFH as a class III station on a frequency of 1430 KC/S with a power of 10,000 watts daytime and a directional antenna system and fulfill the requirements of the North American Regional Broadcasting Agreement and the Department of Transport, Ottawa.

III. DISCUSSION

At present the 5 KW daytime operation of radio station CKFH, due to the low ground conductivity through the city of Toronto, does not allow the 25 MV/M contour to enclose the whole of the city. An increase to 10 KW will still not allow the 25 MV/M contour to enclose all Metropolitan Toronto but will greatly improve the present situation.

The protection to CKPT, Peterborough, Ontario 1420 KC/S is based on

III. (Cont'd)

radials at 25° and 46° as found in the Final Proof of Performance for CKFH and also reproduced in Appendix vi. and vii. of this submission.

At bearings 60° and 69° a small overlap of the .25 MV/M contour for CKFH and 0.5 MV/M contour for CKPT presently exist. Over this arc the existing radiation was taken as the limitation. On the proposed pattern the radiation is less or equal to present radiation.

The protection to WBRB, Mt. Clemens, Mich. is based on three measured radials (248°, 255° and 265°). These radials were extended to a point where it was possible to show an accurate slope to the ground conductivity curve.

The estimated contours found in this submission are based on the radials taken for the Final Proof of Performance for CKFH completed in 1959. As a result the contours as shown will be fairly accurate.

IV. POPULATION COUNT

The population enclosed by the estimated 250 MV/M contour is 6,158 which is less than 1 percent (actual .77 percent) of the total enclosed by the estimated 25 MV/M contour, 799,671.

These figures are substantiated by a letter found in Appendix (i) from the City of Toronto, written to Mr. F. Hewitt, April 1960.

1. Geographical locations and other pertinent data were obtained from publications of the Department of Transport, Ottawa, and the F.C.C. U.S.A.

This information was based on data contained in correction lists and change lists up to and including the following:

- i) Official List of Assignments to Standard Broadcast Stations in Canada as of Dec. 31, 1959.
 - ii) List of Changes, proposed changes and corrections in Assignments of U.S. Standard Broadcast Stations U.S. Change List no. 845 dated Jan. 13, 1960.
 - iii) Official List of Information setting forth Notified Assignments of Standard Broadcast Stations of the United States, as of Sept. 1, 1959.
 - iv) List of changes, proposed changes and corrections in Broadcast station Assignments in Canada List #143 dated Feb. 8, 1960.
2. Ground conductivity values used in plotting coverage contours and in carrying out the daytime interference analysis were obtained from - D.O.T. Specification #14.
 - F.C.C. Figure M3 "Estimated Effective Ground Conductivity in the United States", Feb. 1954.
 - Measured 0.5 MV/M daytime contour of CKPT, Peterborough, Ont.
 - Final Proof of Performance of radio station CKFH, Toronto, Ont. dated December 1959.
 3. Wherever feasible, directions were obtained from a Lambert Conformal Conic projection map of the United States, scale 1:5,000,000.

V. (Cont'd)

4. Wherever feasible, distances were obtained from an Albers Equal Area projection map of the United States, scale 1:2,500,000.
5. For calculation of protection requirements for stations within 100 mile radius a sectional Aeronautical chart (designated "Detroit") was used for both bearings and distance (scale 8 mi. = 1 in.).
6. All data sheets, computations, etc., are on file in the offices of RCA Victor Company, Ltd., Montreal, P.Q. and will be forwarded to the Department of Transport, if so required.

VI. DAYTIME INTERFERENCE ANALYSIS

Table I shows a complete co-channel and adjacent channel daytime interference analysis. At the 0.5 MV/M contour of the existing stations or the border the proposed field intensity from CKFH will not exceed the permissible value of 0.025 MV/M for co-channel stations, 0.25 MV/M for 1st adjacent channel, or ratio of 2:1 at the border, and 15 MV/M for 2nd adjacent channel.

Since tight limitations to WBRB, Mt. Clemens, Mich. exist, a total of three radials were measured on the present daytime pattern to prove where the proposed 0.025 MV/M protection contour would be located. The radials were run either to the border or closest land mass on the Canadian side. The measurements close to WBRB were taken early Sunday morning when WBRB and other co-channel stations were off the air. It was found that Sunday morning was the only acceptable time when interference was at a minimum. Through the co-operation of the staff at WBRB several carrier interruptions were pre-arranged so that measurements were possible. Measurements were extended either to the border or a point where it became impracticable to measure farther.

VI. (Cont'd)

The results of the investigation shows that the increase in power of CKFH to 10 KW (utilizing proposed radiation pattern), will not raise the interference level to a value exceeding 0.025 MV/M at any point in the coverage area of WBRB within continental United States.

During the time of the measurements, CKFH was maintained at 5000 watts output power.

The RCA Victor Company, Ltd. brief of May 12, 1960 did not show the radiation limitations to WFRA, Franklin, Pennsylvania, but upon a request from the Federal Communication Commission these limitations are now being included in the revised brief. Figure 2 indicate the permissible radiation towards WFRA based on conductivity values as shown in part (X) of the Appendix. Also on this figure are the calculated 0.5 MV/M contour of WFRA and 0.025 MV/M contour of CKFH. In actual fact the pattern as shown in the RCA Victor Brief of May 12, 1960 does give sufficient protection but the pattern was changed very slightly in order to give at least a 10% margin between the permissible and proposed radiations.

In addition the value of permissible radiation shown on figure 2 towards WJLJ was modified slightly as outlined in detail in Table I.

Copies of radials, and measurement data will be found in the attached Appendix.

Similarly in calculating the limitations to CKPT, Peterborough, Ont. the measured 0.25 MV/M contour as found in the Final Proof for CKFH dated December 1959, and radials at bearings 25° and 46° were used in determining the permissible radiation towards the published daytime 0.5 MV/M contour of CKPT.

VII. SUMMARY OF CALCULATED TOWER IMPEDANCES, CURRENTS AND POWERS

DAYTIME

Tower	#1 (N)	#4 (Centre East)	#3 (S)
Self Impedance (ohms)	17.4 - j35	14.8 - j31.5	14.7 - j38
Mutual Impedance (ohms)		Z14 = 8.37 / <u>-37</u>	Z43 = 10.0 / <u>-34</u>
		Z13 = 5.9 / <u>-86</u>	
Operating Impedances (ohms)	10.0-j22	6.65-j29	3.7-j33
Currents (Amps)	16.17	30.7	17.47
Power (Watts)	2610	6260	1130

VIII. EXPIRY DATE

In the event that this technical brief is not submitted to the Department of Transport for approval within 2 months of the date on the title page of this brief, it should be returned to RCA Victor Company, Ltd., for possible revisions before being submitted.

IX. QUALIFICATIONS OF ENGINEERS

The qualifications of the engineers participating in the preparation of this brief are on file with the Department of Transport, Ottawa, Ontario.

F. H. Holm P. Eng.
RCA VICTOR COMPANY, LTD.

D. Macaulay P. Eng.
RCA VICTOR COMPANY, LTD.

L. R. Ashmead P. Eng.
RCA VICTOR COMPANY, LTD.
for G. B. MacKinnon P. Eng.

KE POLAR CO-ORDINATE 359-31
KEUFFEL & ESSER CO. MADE IN U.S.A.

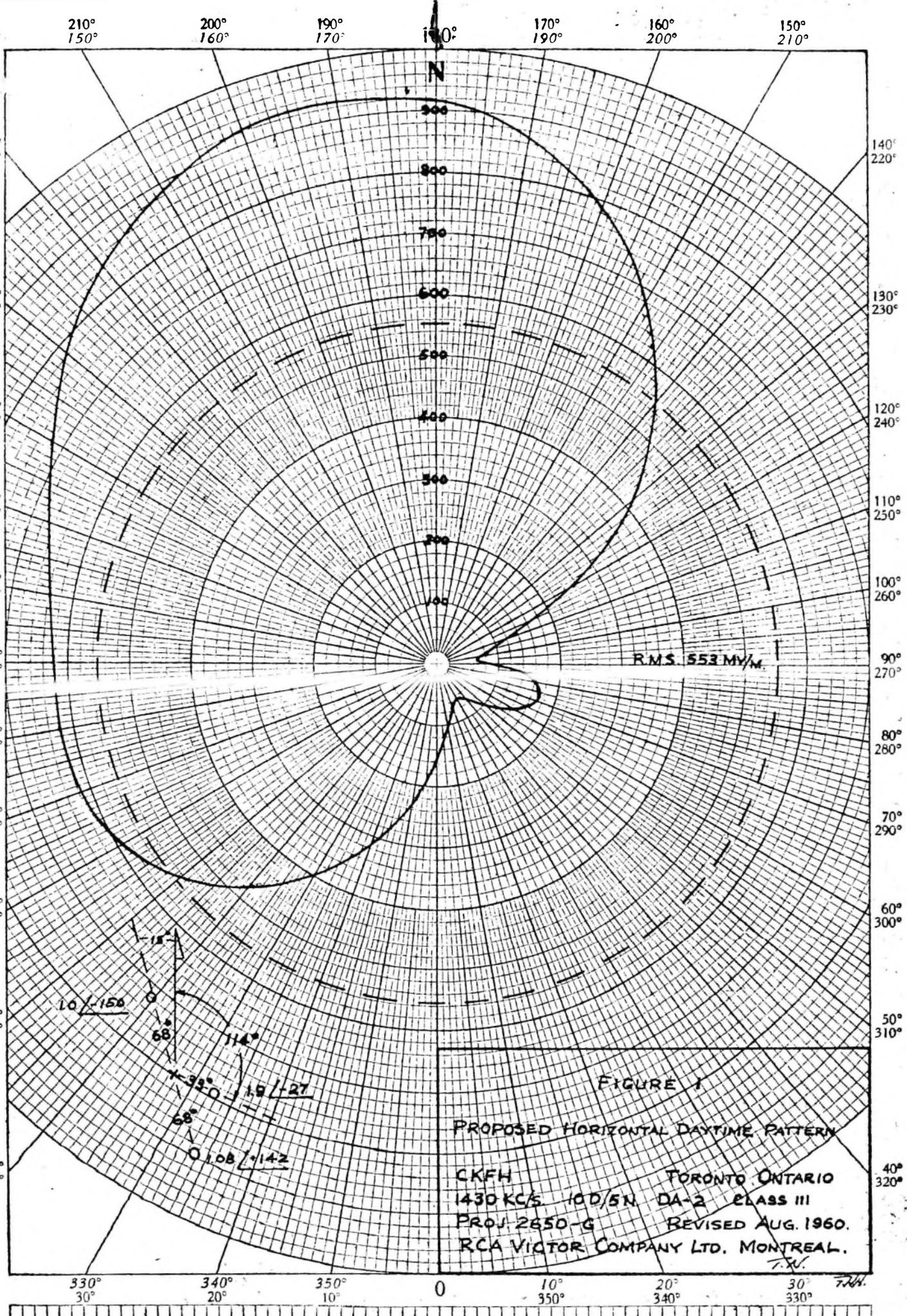
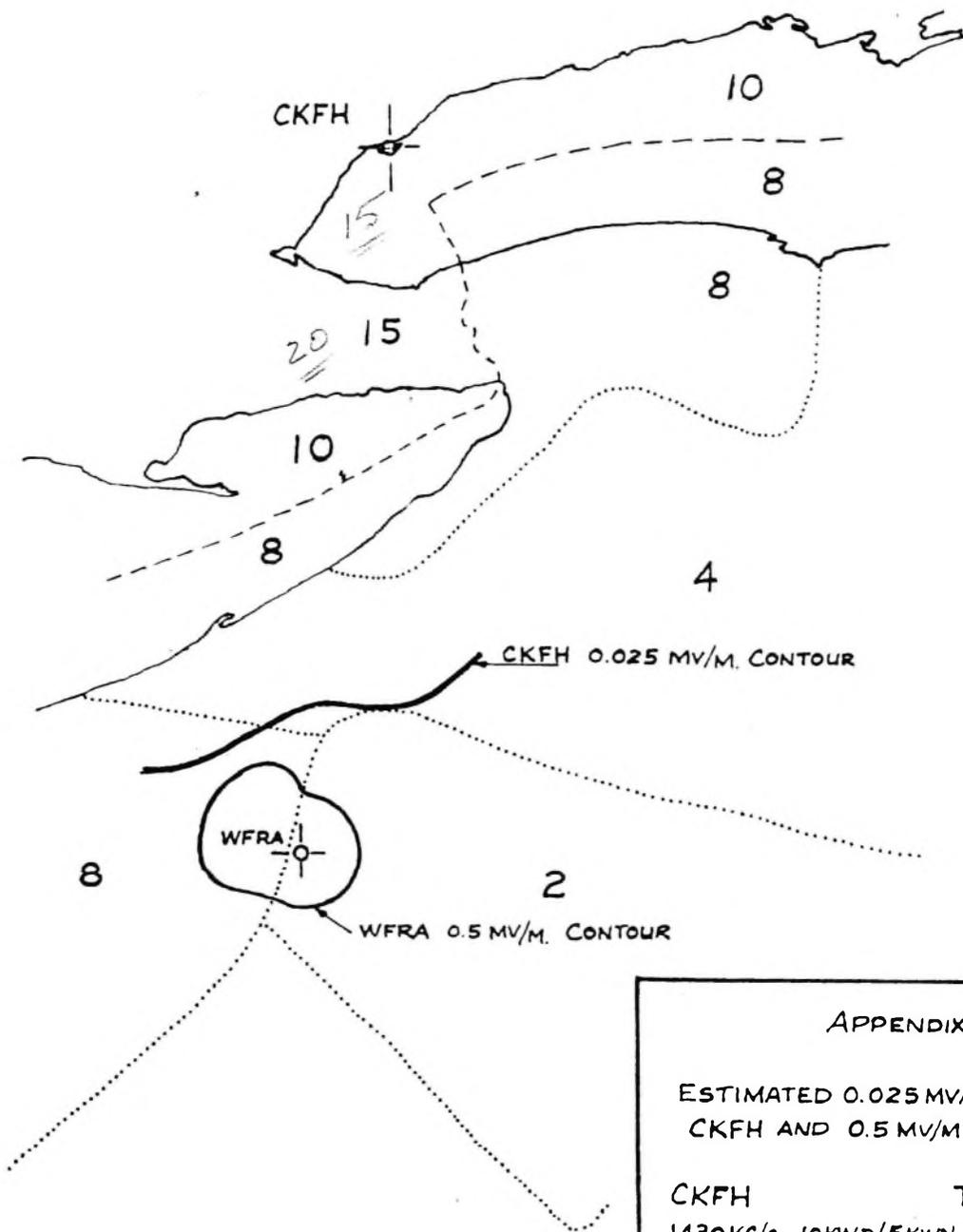


FIGURE 1

PROPOSED HORIZONTAL DAYTIME PATTERN

CKFH TORONTO, ONTARIO
1430 KC/S 100/5N DA-2 CLASS III
PROJ. 2850-G REVISED AUG. 1960.
RCA VICTOR COMPANY LTD. MONTREAL.

T.V.
7/64

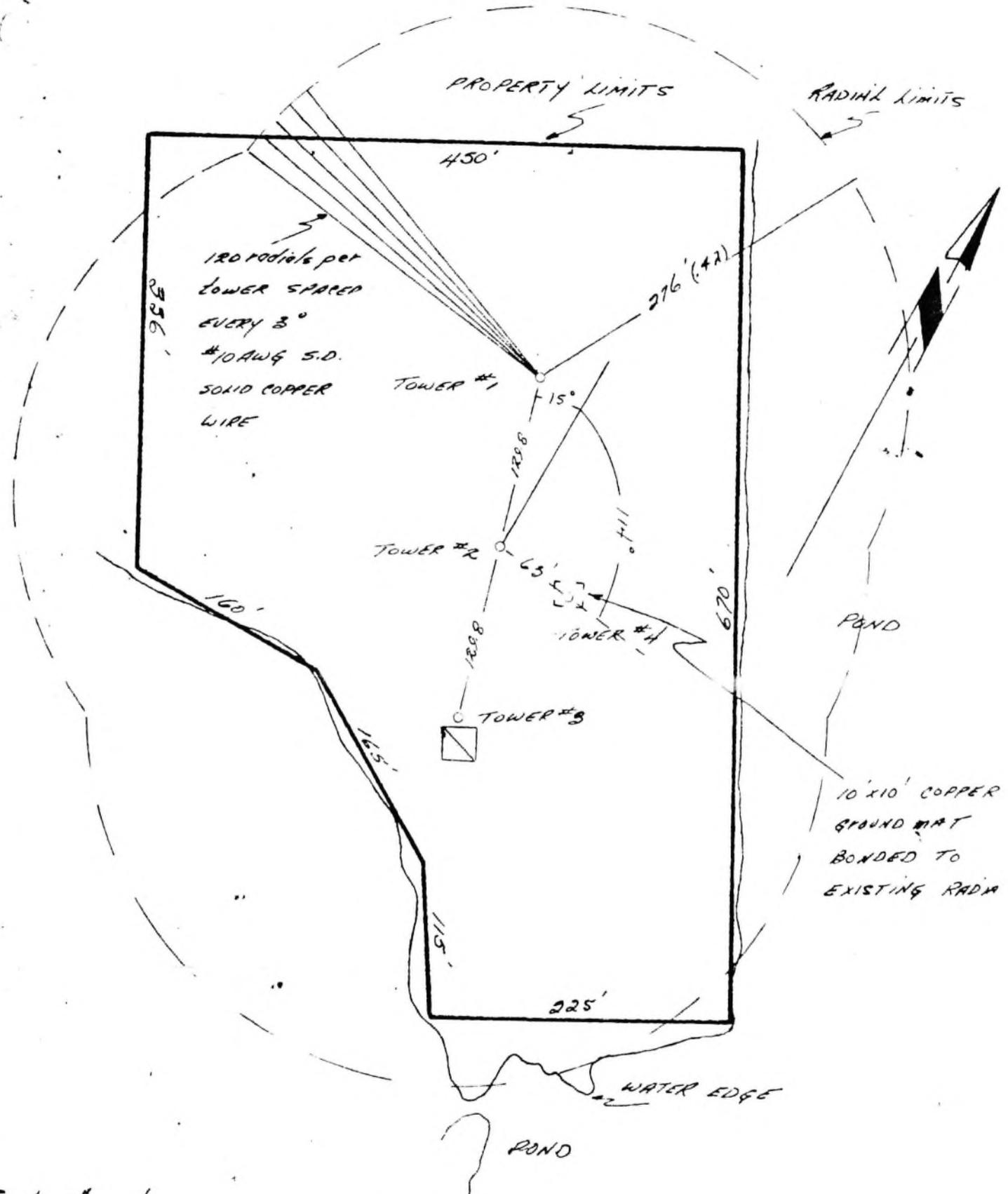


APPENDIX X

ESTIMATED 0.025 MV/M CONTOUR OF
CKFH AND 0.5 MV/M CONTOUR OF WFRA

CKFH TORONTO, ONTARIO
1430 KC/S 10KWD/5KWN. DA-2 CLASS III.
PROJ. 2650-G REVISED AUG. 1960.
RCA VICTOR COMPANY LTD., MONTREAL.

F.H.H.

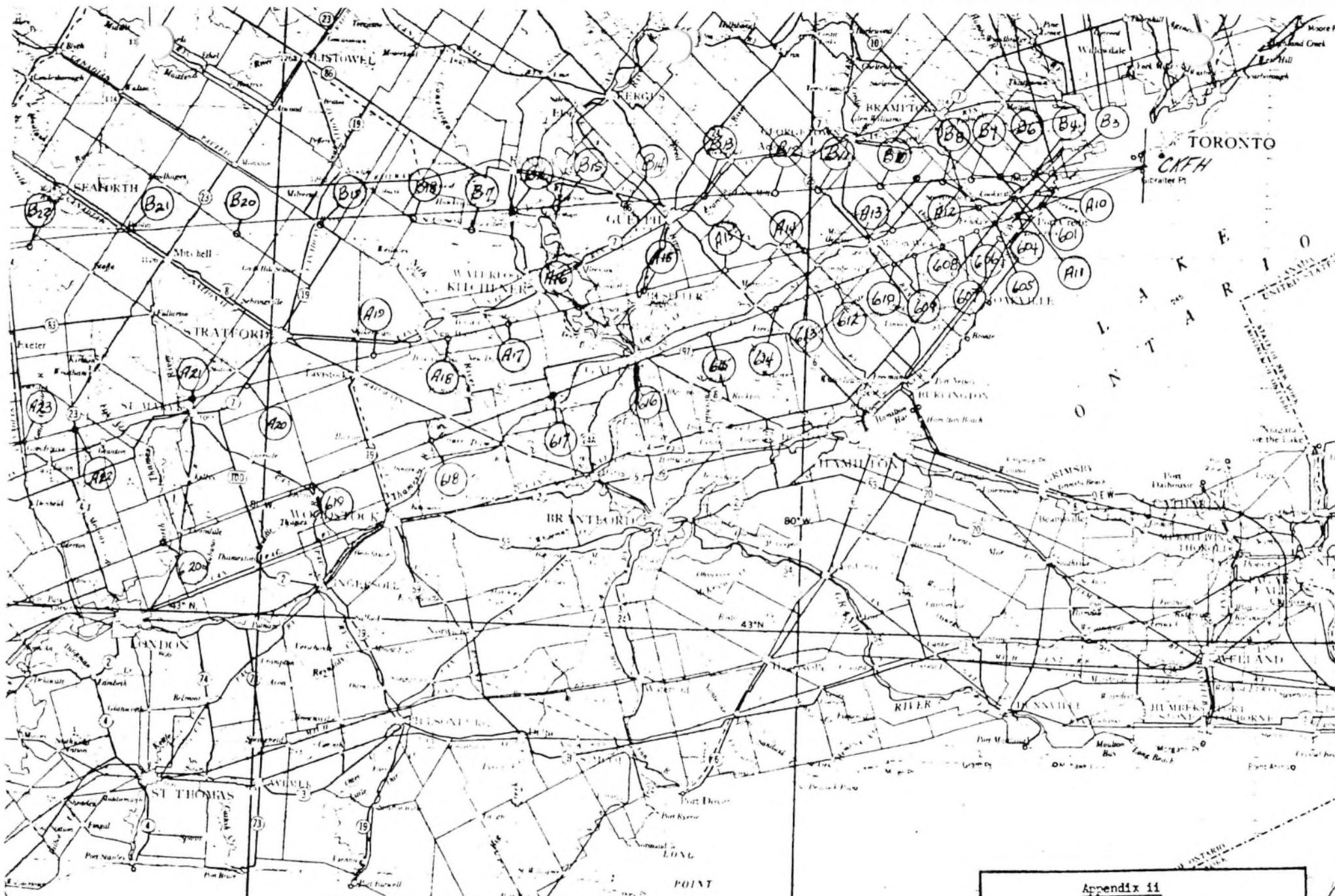


SCALE 1" = 100'

Figure 3

Ground System & Antenna Layout
 CKFH Toronto, Ontario
 1430 KC/S 10D/5N DA-2 Class III
 Proj. 2650-3 RCA Victor Company, Ltd.

H.S.



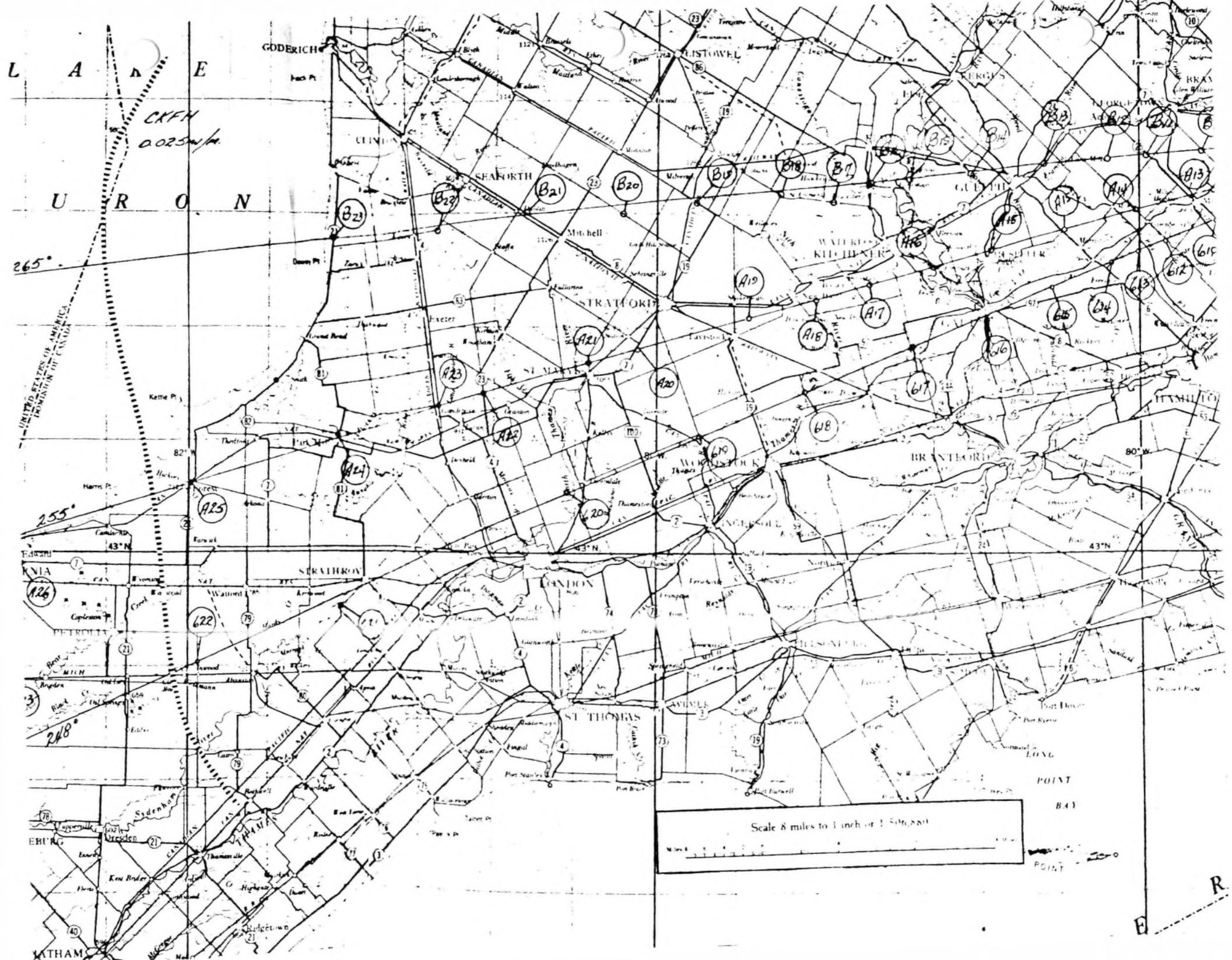
Scale 8 miles to 1 inch or 1:500,000

Appendix II
 Map showing estimated 0.025 MV/M contour
 Measurement Locations

CEFH Toronto, Ont.
 1430 KC/S 10KWD/5KWN DA-2 CLASS III
 RCA VICTOR COMPANY, LTD. MONTREAL
 PROJECT 2650-G

DUNKIRK

1430 Buren Pl.



L A N E
CKFH
0.025 in.

U R O N

265°

255°

43°N

248°

40

KATHAM

GODERICH

CLINTON

SEARORTH

STRAITFORD

LONDON

ST THOMAS

LISTOWEL

WATERLOO

BRANTFORD

BELLEVILLE

AVONDALE

POINT
B41

Scale 8 miles to 1 inch or 1:500,000

POINT
20-0

B R



PROJECT 2650-I

FINAL

PROOF OF PERFORMANCE

DAYTIME

DIRECTIONAL ANTENNA ARRAY

STATION: CKFH
LOCATION: TORONTO, ONT.
FREQUENCY: 1430 KC.
POWER: 10,000 WATTS DAY
5,000 WATTS NIGHT
CLASS: III
OPERATION: DA-2
PRESENT OPERATION: 1430 KC
5000 WATTS
DA-2
CLASS III

FEBRUARY 1, 1961

RCA VICTOR COMPANY, LTD.
MONTREAL, QUEBEC
CANADA.

FINAL PROOF OF PERFORMANCEDAYTIME DIRECTIONAL ANTENNA ARRAYRADIO STATION CKFH, TORONTO, ONTARIOI. PURPOSE

This complete Proof of Performance for Radio Station CKFH, Toronto, Ontario further qualifies the preliminary proof of performance dated December 1960. In addition to the facts and data submitted in the preliminary proof, this report includes data of coverage contours and additional data relating to the horizontal pattern.

II. GENERAL COMMENTS

Some distortion in the pattern shape is evident; most noticeable is a reduction in radiation to the south west. This distortion is believed to be due to the presence of disturbing structures in the vicinity of the transmitter site such as a tall chimney, a lighthouse, a marine beacon and power lines. Although this distortion is undesirable, it does not jeopardize the required ground wave protection to co-channel and adjacent channel stations.

The scale of the radiation pattern is slightly below predicted; however, due to the horizontal and vertical limitations imposed on this array (i.e., land area and tower height limitations) this is not surprising, and does not represent a serious departure from prediction.

II. (Cont'd)

All ratio measurements and the first two radial measurements were made on the water, from the deck of the "Explorer VII". Precise positioning was accomplished by the use of "Radan" equipment, manufactured by Eastern Geophysics Ltd. The azimuths of all ratio points are believed to be within less than one-half degree.

Since no changes were made to the nighttime radiation pattern of the station, no measurements were made in this connection. The only figures included in this report which pertain to nighttime operation are new tower base ammeter readings. Due to the higher currents occurring with ten kilowatt operation, it was necessary to change the tower base ammeters for ones of higher range. The readings given below correspond to the same actual currents as given in the final proof of performance dated December 1959, but due to inaccuracies in the meters are not the same as the readings obtained with the lower range meters.

When taking field intensity measurements to determine coverage, the same locations of the December 1959 proof were used where practicable and the plot of the points were compared. Conductivity curves were in close agreement. Additional radials and extra points were also taken to obtain a complete picture of the coverage.

II. In the north-easterly direction, the contours follow the general shape as in the proof of December 1959. In this region, there is an overlap with the published 0.5MV/M contour of CKPT, Peterborough. Since the magnitude of radiation in that sector of azimuth 55° (cross-over point) to 80° have been reduced below the previous 5KW values, the coverage in this direction is primarily due to an increase in conductivity.

III. COMPLETE DESCRIPTION OF THE ARRAY

- | | |
|--|---|
| a) Number of elements: | Four (4) |
| b) Type of radiators: | Number 3 and 4 towers, square, uniform, cross-section, base insulated series feed.

Number 1 and 2 towers, triangular, uniform cross-section, base insulated, series feed. |
| c) Top loading detail: | Top loading to 61 degrees by means of 8' square grid. |
| d) Height of towers above base insulators: | All towers 100' |
| e) Overall height above ground level: | All towers 105' |
| f) Overall height above sea level: | All towers 250' $\pm 25'$ |
| g) Orientation and spacing of towers: | Towers 1, 2 and 3 are on a line bearing 345° true, spacing between adjacent towers is 129.8 feet (68 degrees).
Towers 2 and 4 are on a line bearing 114° true, spacing between them is 63 feet (33°). |

III. (Cont'd)

h) Detail of Ground System:

120 equiangularly spaced radials extend from the base of towers 1, 2, 3 and from the previous location of tower 4 (as used for presently authorized 5KW day operation) for a distance of 276 feet (0.4 wavelength), with the exception of those joined along the common chords. Wires are continuous or are bonded together at junction points and consist of solid copper wire #10 AWG. The ground wires are buried to a depth of approximately eight inches with the exception of those radials which be in water; these are weighted and lie on the bottom of the pond adjoining the property. At the base of tower 4 an 8' x 14" expand copper ground mat is bonded to the radial system.

i) Location:

North Lat. 43° 37' 03"
West Long. 79° 22' 47"

j) Current in Each Element:

10 KW Directional Daytime

Tower	Current (Ammeter reading)	Theoretical Field Ratio
#1 - N	14.5	1.0
#3 - S	13.5	1.08
#4 - E	27.0	1.9

5 KW Directional Nighttime

#1 - N	11.5	.526
#2 - Centre	20.5	1.0
#3 - S	10.0	.526

k) Painting and Lighting:

All towers are painted and lighted in accordance with Department of Transport Specification #16.

l) Phase monitor indications:

10 KW Directional Daytime

Remote Ammeter Readings:

#1 - N	14.9	
#3 - S	17.5	
#4 - E	11.9	(adjusted to read one half of tower meter reading).

III. (Cont'd)

1) Phase Angle	<u>Monitor Reads</u>	<u>Theoretical</u>
#1 - N	83° leading	68° leading
#3 - S	0° (ref.)	0° (ref.)
#4 - E	164° lagging	169° lagging

IV. IMPEDANCE MEASUREMENTS, OPERATING DATA AND CALCULATIONS

a) Impedance measurements:

1. General

The method of measuring impedance at this installation is generally known as the radio-frequency bridge method. Measurements were made directly using a Radio Frequency Bridge and associated equipment.

2. Test Equipment and its Accuracy

(i) General Radio type 1606-A Radio Frequency Bridge Serial No. 653, T.P.E. #1-12, accuracy $\pm 1\%$.

(ii) R. F. Signal Generator - General Radio Type 1330-A Serial No. 848, T.P.E. #6-74, calibrated at time of use, against existing stations in the broadcast band.

(iii) Detector - Hallcrafter Receiver, Model S-53-A, T.P.E. #9-42.

b) Self, Mutual and Directional Operating Impedances

(i) The following values of mutual and self impedances were used in all relevant calculations. The use of subscripts, 1, 3 and 4 refer to the N, S and E towers respectively.

Self Impedances

$$Z_{11} = 17.4 - j38 \text{ ohms}$$

$$Z_{33} = 14.9 - j40 \text{ ohms}$$

$$Z_{44} = 17.4 - j40 \text{ ohms}$$

IV. b) (i) (Cont'd)

Mutual Impedances

$$Z_{13} = 7.2 \angle -80^\circ$$

$$Z_{14} = 8.25 \angle -47^\circ$$

$$Z_{34} = 10.5 \angle -32^\circ$$

(ii) Using the above values the calculated directional operating impedances are as follows:

$$Z_1 = 14.6 - j27 \text{ ohms}$$

Day $Z_3 = 4.2 - j34.5 \text{ ohms}$

$$Z_4 = 8.5 - j37 \text{ ohms}$$

c) Directional daytime operation - 10KW

Antenna Current (amperes)	Tower Meter Reads (amperes)
------------------------------	--------------------------------

Actual

$I_1 = 14.8 \text{ amps.}$	14.5 amps.
----------------------------	----------------------

$I_3 = 15.0$	13.5
--------------	--------

$I_4 = 26.2$	27.0
--------------	--------

Power (watts)

$P_1 = 14.8^2 \times 14.6$	3200
----------------------------	--------

$P_3 = 15.0^2 \times 4.2$	950
---------------------------	-------

$P_4 = 26.2^2 \times 8.5$	<u>5950</u>
---------------------------	--------------------------

Total Antenna Power -- $10,000 \text{ watts}$

Input to Transmission Line

$$I_L = 14.5 \text{ amps} - \text{meter reads } 14.3 \text{ amps.}$$

$$Z_L = 52 + j0 \text{ ohms}$$

$$P_L = 14.5^2 \times 52 = 10,900 \text{ watts}$$

IV. (c) (Cont'd)

Transmitter meter readings

P. A. Plate voltage = 4900 volts

P. A. Plate Current = 3.0 amps

P. A. Plate Input = 14,700 watts

P. A. Efficiency = 74°

(d) Directional Operation during radial measurement period.

Antenna Current (amperes)	Tower Meter Reads (amperes)	
$I_1 = 10.6$	10.3	
$I_3 = 10.7$	10.0	
$I_4 = 18.7$	18.7	
		Power (watts)
$P_1 = 10.6^2 \times 14.6$	1640	
$P_3 = 10.7^2 \times 4.2$	480	
$P_4 = 18.7^2 \times 8.5$	<u>2980</u>	
Total Antenna Power -	5100 watts	

V. ANTENNA EFFICIENCY AND HORIZONTAL PATTERNS

(a) Antenna Efficiency

The scale of the directional horizontal pattern was determined by means of field strength measurements made on a radial at azimuth 15°, with 5000 watts radiated by the daytime array (see table 3 and Figure 4). The unattenuated field at one mile, factored up to ten kilowatts, in conjunction with the measured ratio at this azimuth, was used to determine the multiplier to

V. (a) (Cont'd)

be used with the ratio measurements. Azimuth 15° was used as the measured pattern agrees well with the theoretical at this azimuth, and also error is minimized since radiation does not change too rapidly with azimuth.

(b) Derivation of Horizontal Pattern

The shape and scale of the horizontal patterns Figures 1 and 2 were determined in the following manner:

Field intensity measurements were taken at various points for both directional and non-directional operation. These measurement points were on bearings at approximately 15° degree intervals, the distance from the array in all cases being at least 20 times the maximum spacing between towers. In each case the ratio of directional/non-directional field intensity was determined directly by adjusting the gain of the F. I. meter to read unity (or 10) for omnidirectional operation; this was done for simplicity and to reduce reading errors.

For each point above the ratio was multiplied by the factor determined in (a) above to obtain the radiation in that direction.

(c) Sample Calculation

1) Azimuth 15° - Radiation from 5 KW = 580 MV/M (Fig. 4)

Radiation from 10 KW = $580 \times \sqrt{2} = 830$ MV/M

Measured Ratio Directional/Non-directional at $15^\circ = 1.20$

Multiplying factor = $830/1.2 = 690$

V. (c) (Cont'd)

2) Azimuth 195°

Measured ratio DA/Oma1 = 0.28

Radiation = 0.28 x 690 = 193 MV/M at 1 mile

All measured ratios have been analyzed in this manner.

VI. FIELD INTENSITY MEASUREMENTS

Field intensity measurements were taken with an RCA WX-2D Field Intensity Meter. All normal precautions were taken in regard to power lines, wire, fences, etc.

VII. NAME AND QUALIFICATIONS OF ENGINEERS

The qualifications of engineers participating in the preparation of this final proof of performance are on file with the Department of Transport, Ottawa, Ontario.


RCA VICTOR COMPANY, LTD.


RCA VICTOR COMPANY, LTD.


for E. B. MUCKINMIE P. Eng.
RCA VICTOR COMPANY, LTD.

K&E POLAR CO-ORDINATE 359-31 KEUFFEL & ESSER CO. MADE IN U.S.A.

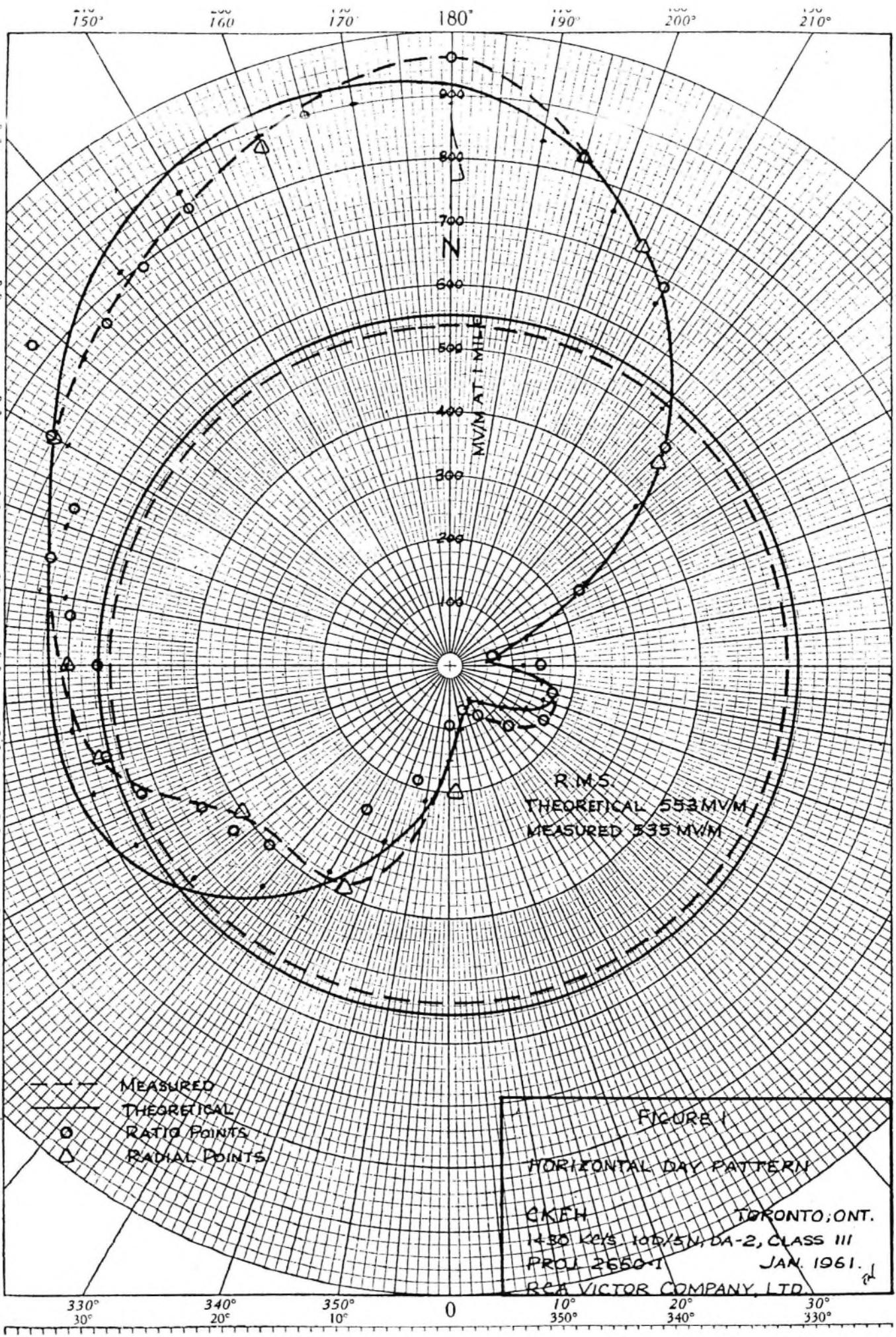


FIGURE 1
HORIZONTAL DAY PATTERN
CKEH TORONTO, ONT.
1430 KEYS 100/5M DA-2, CLASS III
PROJ 2650-1 JAN. 1961.
RCA VICTOR COMPANY, LTD.

ENGINEERING BRIEF

for

CHANGE IN FACILITIES

at

RADIO STATION CKFH

TORONTO, ONTARIO

Present Operation: 1430 Kcs 10/5 KW DA/2

Proposed Operation: 1430 Kcs 10 KW DA/2

Prepared for:

Foster Hewitt Broadcasting Limited

By:

D.B. Williamson, P. Eng.,

Consulting Engineer

July 28, 1966

SECTION 1 - GENERAL

1. (a) PURPOSE OF BRIEF

This engineering brief has been prepared in support of an application by Foster Hewitt Broadcasting Limited to increase the night power output of broadcasting Station CKFH from 10,000/5000 Watts DA/2 on 1430 Kcs to 10,000 Watts DA/2 on 1430 Kcs.

(b) PURPOSE OF POWER INCREASE

This Station at present experiences a high night time limitation over a good portion of its market area. The result increase in nighttime signal will improve reception in the Toronto Metro.

(c) ENGINEERS RESPONSIBLE FOR BRIEF

D. B. Williamson, P. Eng., is the Engineer responsible for the Brief. Qualifications are on file with the Department of Transport, Ottawa.

(d) PROPOSED LOCATION OF THE STATION

It is proposed to locate the Station on the existing site.

43° 37' 03" N

79° 22' 47" W

2. TECHNICAL DETAILS

(a) CHANNEL CONDITIONS

1) Frequency

It is proposed to use the existing frequency of 1430 Kcs.

11) Skywave Interference

The table of co-channel interference conditions is shown in Section 6 (a).

In this table it will be seen that the possibility of interference in the Toronto area was computed for the following Stations:

WIRE, WFOB, WEIR, WVAM, WNJR, WENE.

The 10% skywave co-channel nighttime limitation to CKFH was computed as 14.4 mv/m from WEIR and WERE by the 50% RSS rule.

11) Groundwave Interference

A copy summary of groundwave interference is shown in Section 6(b). Ground conductivities not available were obtained by measurement. All radials measured in this manner are included in section 6(c). It may be seen that negligible interference will be caused co-channel and adjacent channel stations.

(b) PERMISSIBLE RADIATION

1) Skywave

Stations included in the interference calculations are as follows:

WIRE, WFOB, WBRB, WEIR, WVAM, WNJR, WENE. Permissible radiation to the above stations has been determined from calculations by the 50% RSS rule and results are included in 6(a). It is to be noted that the proposed assignment will not increase the night limit of any of the above stations.

1) Groundwave

Stations included in the groundwave analysis include WBRB, CKPT. Interference was computed by the equivalent distance method or by field measurement. Table 6 (b) shows ample groundwave protection to be

(4)

extended to adjacent and co-channel stations.

(c) PATTERN DESIGN

The pattern has been designed to provide an improved nighttime service to Toronto, Ontario and an improved service to the Lake Ontario Area.

The pattern has been designed about two three tower arrays for optimum performance.

d) DESCRIPTION OF ARRAY

STATION CKFH MAIN STUDIO: Toronto, Ontario
FREQUENCY: 1430 KHZ POWER: 10 KW. Class III
GEOGRAPHICAL LOC- 48° 37' 03" North
ATION OF ANTENNA SYSTEM 79° 22' 47" West

ANTENNA CHARACTERISTICS

Mode of Operation: DA / 2
Number of Elements: 4
Type of Elements: Guyed, uniform cross section, base insulated, top loading by folded umbrella . Guy structure to 75° electrical height.

<u>TOWER:</u>	<u>#1(N)</u>	<u>#2(c)</u>	<u>#3(S)</u>	<u>#4(E)</u>
<u>HEIGHT OVER</u>	100'	100'	100'	100'
<u>INSULATORS:</u>				
<u>OVERALL HEIGHT:</u>	105'	105'	105'	105'

SPACING: See Orientation Below

ORIENTATION: Towers #1, 2 & 3 are on a line bearing 345° true, spacing between adjacent towers is 129.8' (68°). Towers 2 & 4 are on a line bearing 114° true, spacing between towers #2 & 4 is 63' (33°).

<u>PHASING:</u>	Day - 150°	not used	+142°	-27°
	Night - 139.30	0°	+139.30	not used

<u>RATIO:</u>	Day 1.000	not used	1.080	1.900
	Night 1.000	1.919	1.000	not used

GROUND SYSTEM: 120 radials per tower #10AWG copper.
0.4 wavelength long to property limits buried to 8" depth or weighted in water surrounding the site.

PREDICTED EFFECTIVE FIELD:

533 mv/m @ 1 mile for 10KW day
(175 mv/m @ 1 mile for 1KW)
592 mv/m @ 1 mile for 10KW night
(187 mv/m @ 1 mile for 1KW)

(6)

(e) IMPEDANCE DATA

1) Self Impedances

$$Z_{11} = 27 + j72.0$$

$$Z_{22} = 23 + j55.9$$

$$Z_{33} = 25 + j69.9$$

2) Operating Impedances

$$Z_1 = 11.1 + j87.6$$

$$Z_2 = 12.1 + j73.0$$

$$Z_3 = 6.4 + j68.0$$

(f) ARRAY STABILITY

The arrays as designed should prove to be very stable.

Conditions are similar to those at present existing in the operation at CKFH. The system has been overhauled to meet specifications and no evidence of instability is present.

(g) INTERMODULATION

The standby transmitter of CHUM is located within the 250 mv/m contour of the proposed pattern. No interaction has existed under similar field intensities present with CKFH operating at 10KW daytime.

(n) INTERFERENCE

The 1430 kc frequency is the IF image of 970 Kcs. No problem exists from this source at 5000W nighttime and none is visualized at 10,000 watts. The proposed 1000 mv/m contour and 250 mv/m contour do not approach the transmitter site of CKEY at Gibraltar Point.

(i) COMMITMENT

The applicant agrees to service all complaints of interference within the saturation contours of the proposed facility.

3. STATION COVERAGE

It is proposed to install the new facility on the existing site. Adequate coverage of the main market is assured with improved signal at night. The population density has been determined from City of Toronto census figures (1961) as follows:

1) Within the 25mv/m	1,418,923
2) Within the 14.4 mv/m	1,824,481
3) Within the 250 mv/m	16,872
4) Within the 1000 mv/m	862.

The conditions are considered acceptable with regard to saturation contours with a 10KW station.

b) Ground Conductivity

Map conductivities as published by D.O.T. & F.C.C. were used except to CKPT PETERBORO where measured values are used. Radials are provided as part of this submission.

c) Area to be served

The main market area is Metro Toronto, Ontario. Service will be improved here. Also an improved signal will be delivered to the Lake Ontario area.

4. SOURCES OF INFORMATION

1) Canadian change lists up to #214 June 20, 1966.

(8)

- 2) U.S. change lists up to #1167 June 8, 1966.
- 3) Groundwave propagation curves NARBA 1950
- 4) Proof of Performance CKFH
- 5) Maps issued by Mapping Branch Department of Mines
and Technical Surveys.

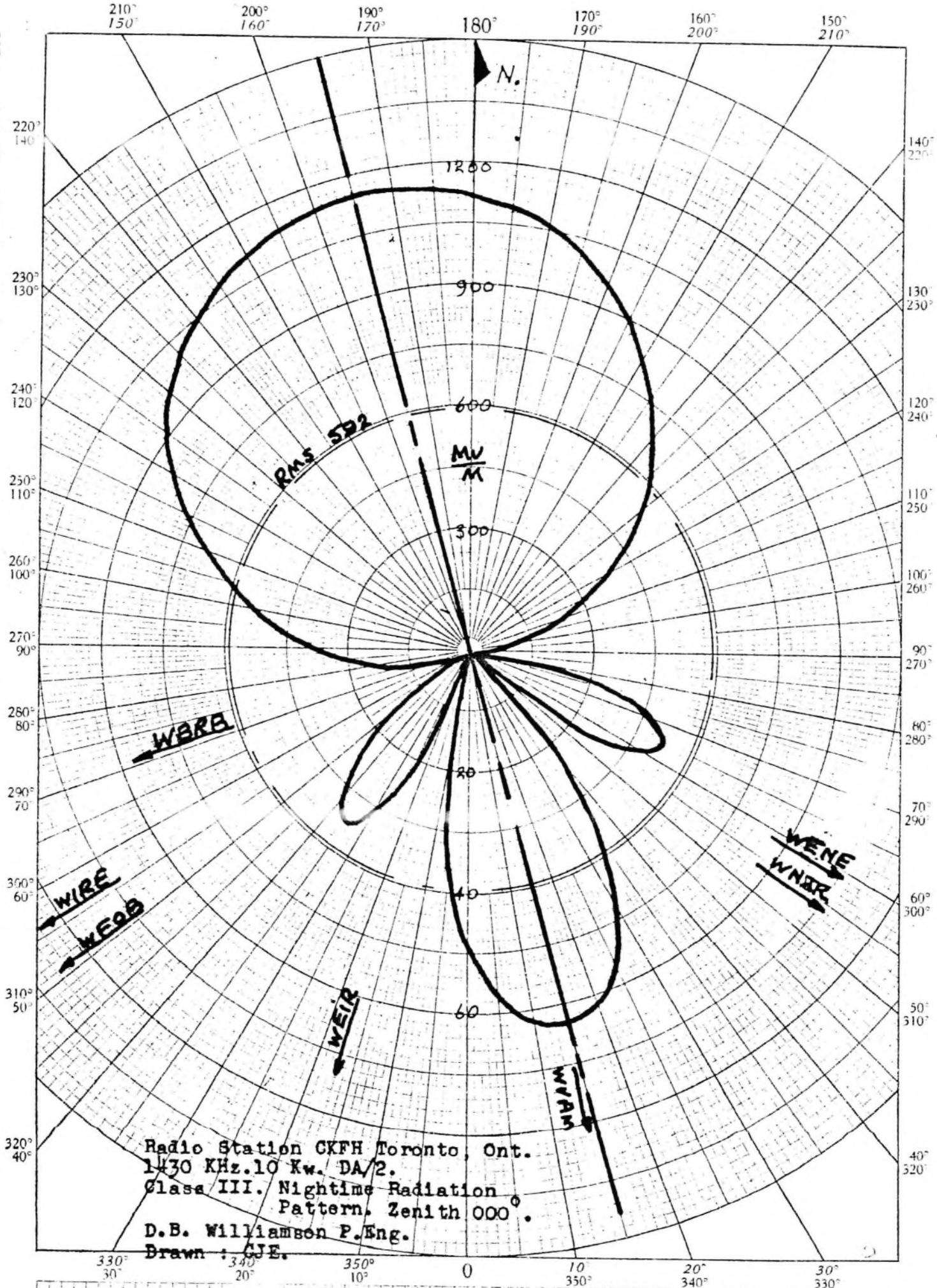
5. ENGINEERING SEAL & SIGNATURE



D. B. Williamson

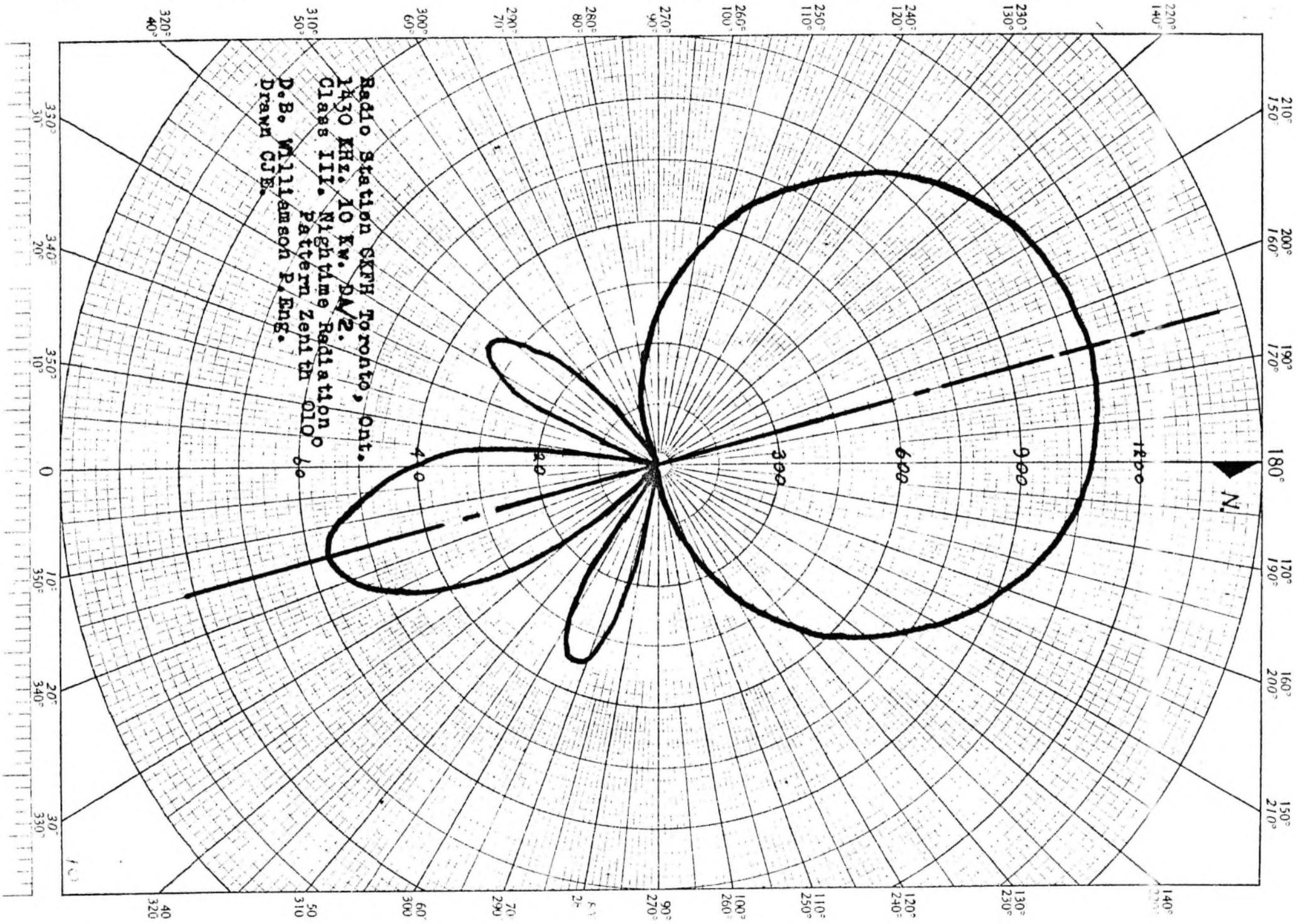
D. B. Williamson, P. Eng.
Consulting Engineer.

POLAR CO-ORDINATE 303-31
KUTIFFEL & ESSER CO. WATSON, ILL. U.S.A.



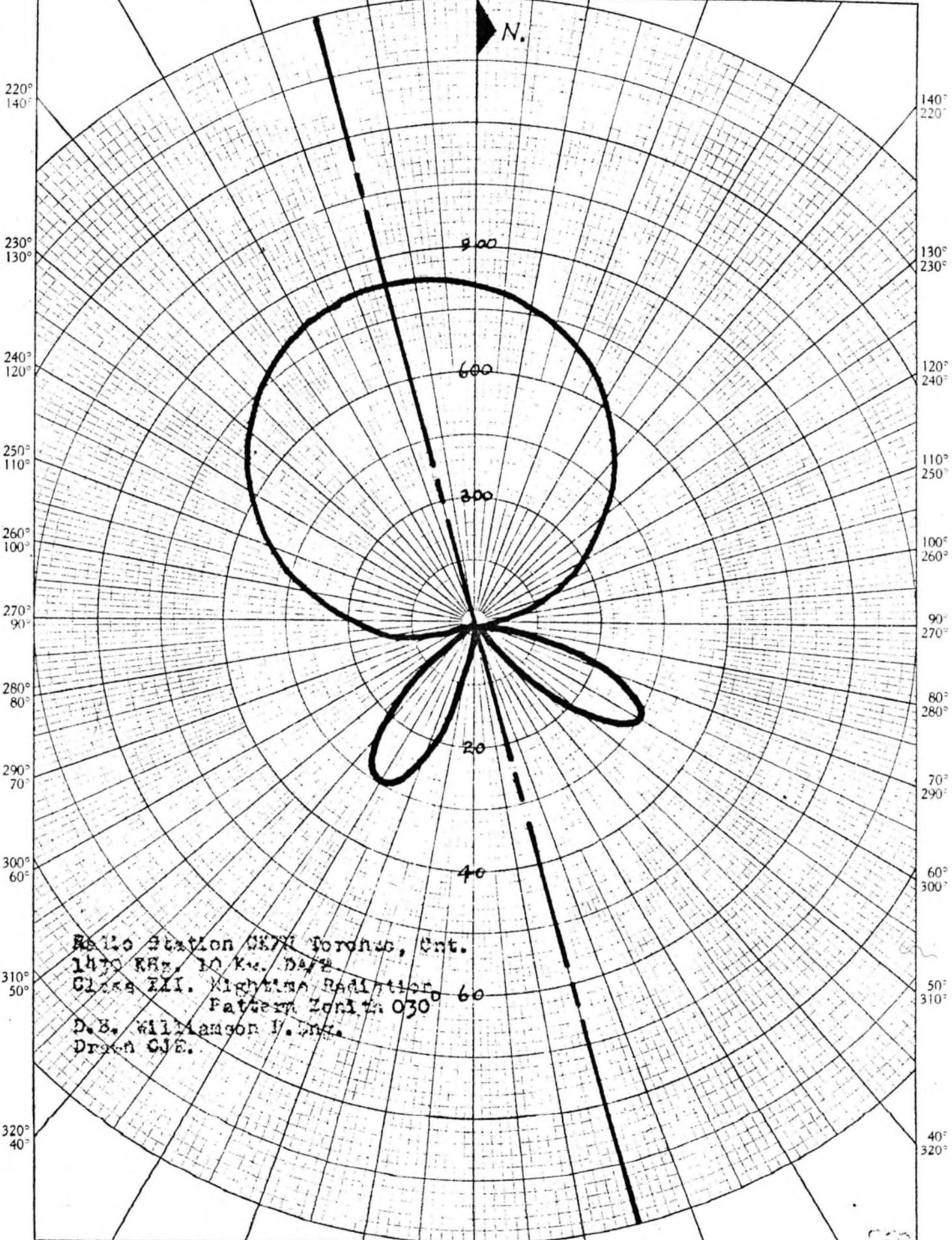
Radio Station CKFH Toronto, Ont.
1430 KHz. 10 Kw. DA/2.
Class III. Nighttime Radiation
Pattern. Zenith 000°.
D. B. Williamson P. Eng.
Drawn: CJE.

330° 30' 340° 20' 350° 10' 0 10° 350' 20° 340' 30° 330'



Radio Station SKFH Toronto, Ont.
1430 KHz. 10 Kw. $DA/2$.
Class III. Nighttime Radiation
Pattern Zenith 010° to
D. B. Williamson P. Eng.
Drawn C.J.E.

210° 150° 200° 160° 190° 170° 180° 190° 170° 160° 200° 150° 210°

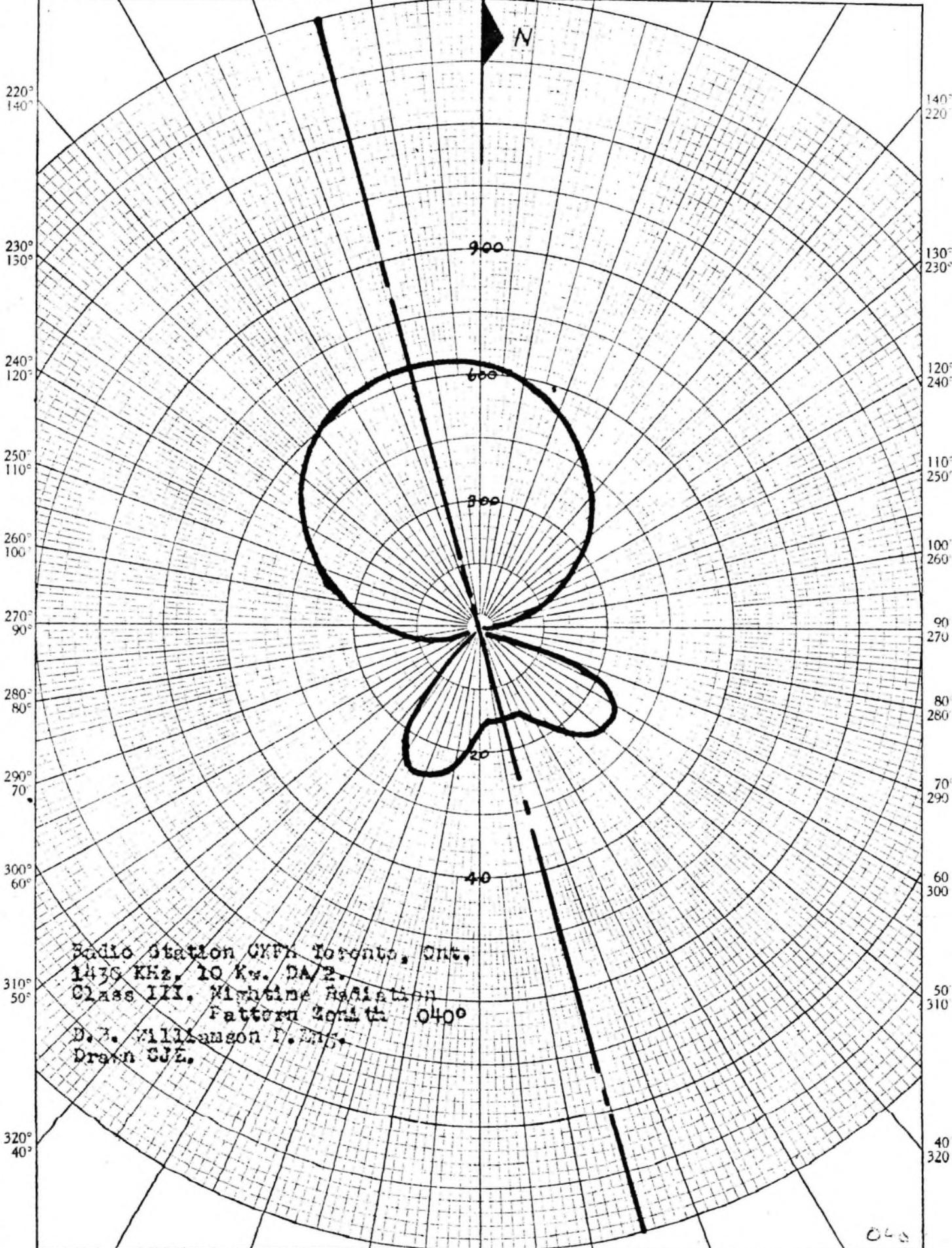


Radio Station CKVI Toronto, Ont.
 1470 KHz. 10 Kw. Day
 Class E11. Nighttime Radiation 60
 Pattern Zenith 030
 D.B. Williamson I. Eng.
 Drawn CJE.

KUFFEL & ESSER CO. PALM BEACH, FLA.

330° 30' 340° 20' 350° 10' 0 10° 350° 20° 340° 30° 330°

210° 150° 200° 160° 190° 170° 180° 160° 150° 210°



Radio Station CKFN Toronto, Ont.
 1430 KHz. 10 Kw. DA/2.
 Class III. Nighttime Radiation
 Pattern Zenith 040°
 D. J. Williamson I. Eng.
 Drawn CJE.

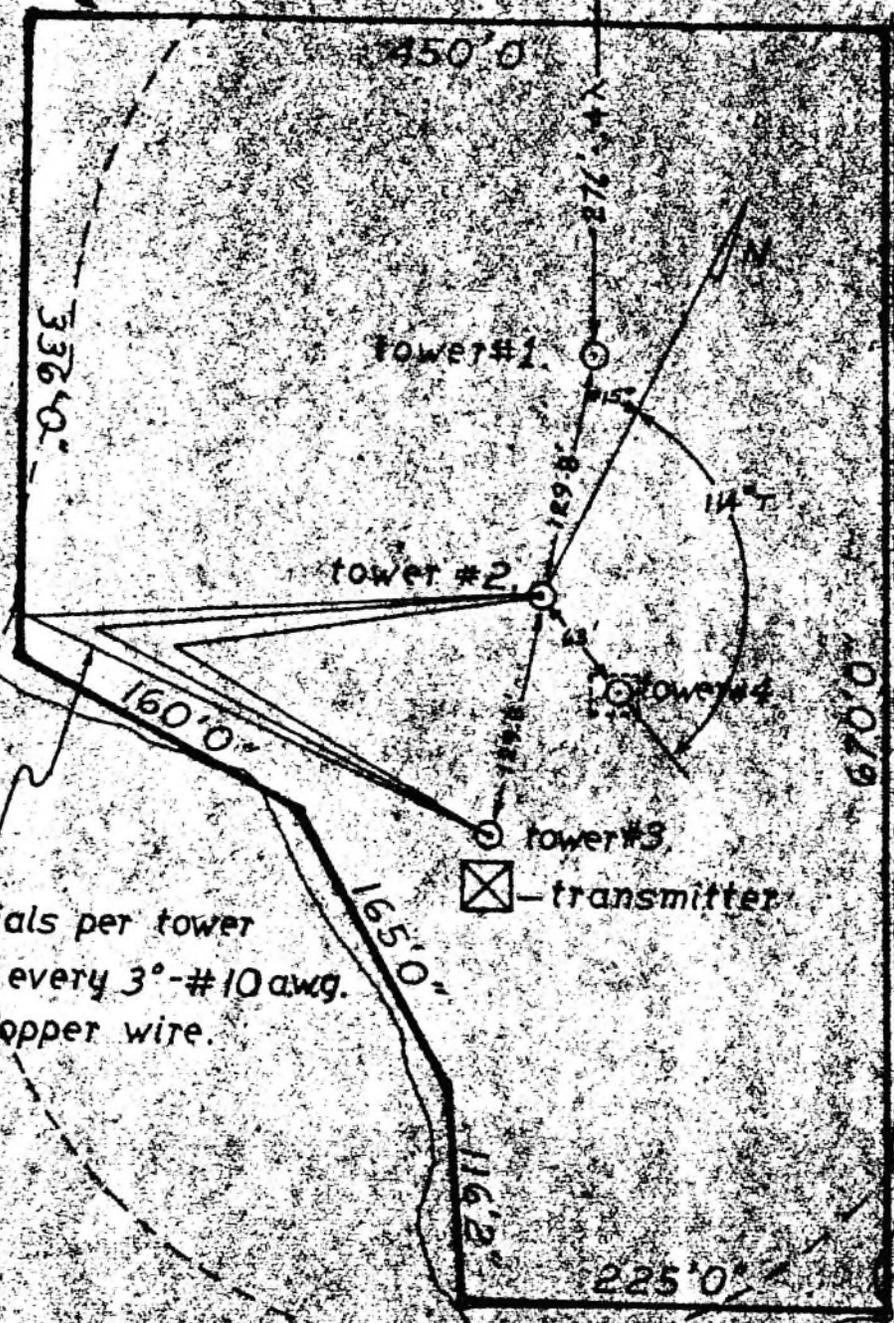
POLAR CO-ORDINATE 359-31
 KEUFFEL & ESSER CO. MADE IN U.S.A.

330° 30° 340° 20° 350° 10° 0 10° 350° -20° 340° 30° 330°

040

property limits

radial limits



120 radials per tower
spaced every 3° - #10 awg.
solid copper wire.

⊗ - transmitter

water edge

scale 1"=100'

LAYOUT OF TOWERS
& GROUND SYSTEM
CKFH TORONTO-ONT.
1430 KHZ 10KW DA-2 CLASS II
drawn - CJE

July 28, 1966

APPENDIX "C" (Schedule 5)

<u>Name</u>	<u>Nationality</u>	<u>Addresses</u>	<u>Office Held</u>
Mr. Foster W. Hewitt	Canadian	412 Rosemary Rd. Toronto	President
Mr. F.W.A. Hewitt	Canadian	235 Cortleigh Blvd. Toronto	Sec'y.-Treasurer
Mr. Wilfred Reese Binch	Canadian	7070 Bayview Ave., R.R.# 1, Thornhill, Ont.	Vice-President

~~23~~
23-1

C K F H

Daily Circulation - i.e. Daily Reach of Station (Mon-Fri Average)

	<u>Total Persons</u>	<u>Adults</u>	<u>Teens</u>
March 1967	49,800	33,800	13,600
July 1967	76,000	27,900	40,500
November 1967	142,400	62,700	65,400
February/March 1968	167,300	72,200	80,000

Source: BBM Bureau of Measurement

DESCRIPTION OF ARRAY

STATION: CFTF

MAIN STUDIO: Toronto, Ontario

FREQUENCY: 1430 Khz

POWER: 50 KW. CLASS: 111

NOTIFICATION LIST #: 265

DATE: January 21, 1970

GEOGRAPHICAL LOCATION OF ANTENNA SYSTEM:

43° - 37' - 03" North Latitude
79° - 22' - 47" West Longitude

ANTENNA CHARACTERISTICS

Mode of operation: DA/2

Number of elements: 6

Type of elements:

Guyed, uniform cross-section base insulated, top loading by folded umbrella guy structure to equivalent of 103 electrical degrees.

<u>POWER:</u>	# 1 (N)	# 2 (NC)	# 3 (C)	# 4 (SC)	# 5 (S)	# 6 (SCE)
<u>HEIGHT OVER INSULATORS:</u>	150'	150'	150'	150'	150'	150'
<u>SPACING:</u>	140° (267.2')	70° (133.6')	0° (Ref.)	70° (133.6')	140° (267.2')	70° (133.6')
<u>ORIENTATION:</u>	333.0°	333.0°	0°	153.0°	153.0°	150.1°
<u>PHASING:</u>	Day: +35.29° Night: +41.499°	-162.31° -158.917°	0° 0°	not used +156.566°	-46.30° -50.101°	+157.11° not used
<u>RATIO:</u>	Day: 0.8000 Night: 0.8000	2.40392 2.72360	3.56839 4.11909	not used 3.12916	1.00000 1.00000	2.80411 not used

GROUND SYSTEM:

120 radials per tower # 10 AWG copper
0.4 wavelength long to property limits buried to 8" depth or weighted in water surrounding the site.

PREDICTED EFFECTIVE FIELD:

194.9 mv/m @ 1 mi. for 1 Kw. Day
1378 mv/m @ 1 mi, for 50 Kw. Day

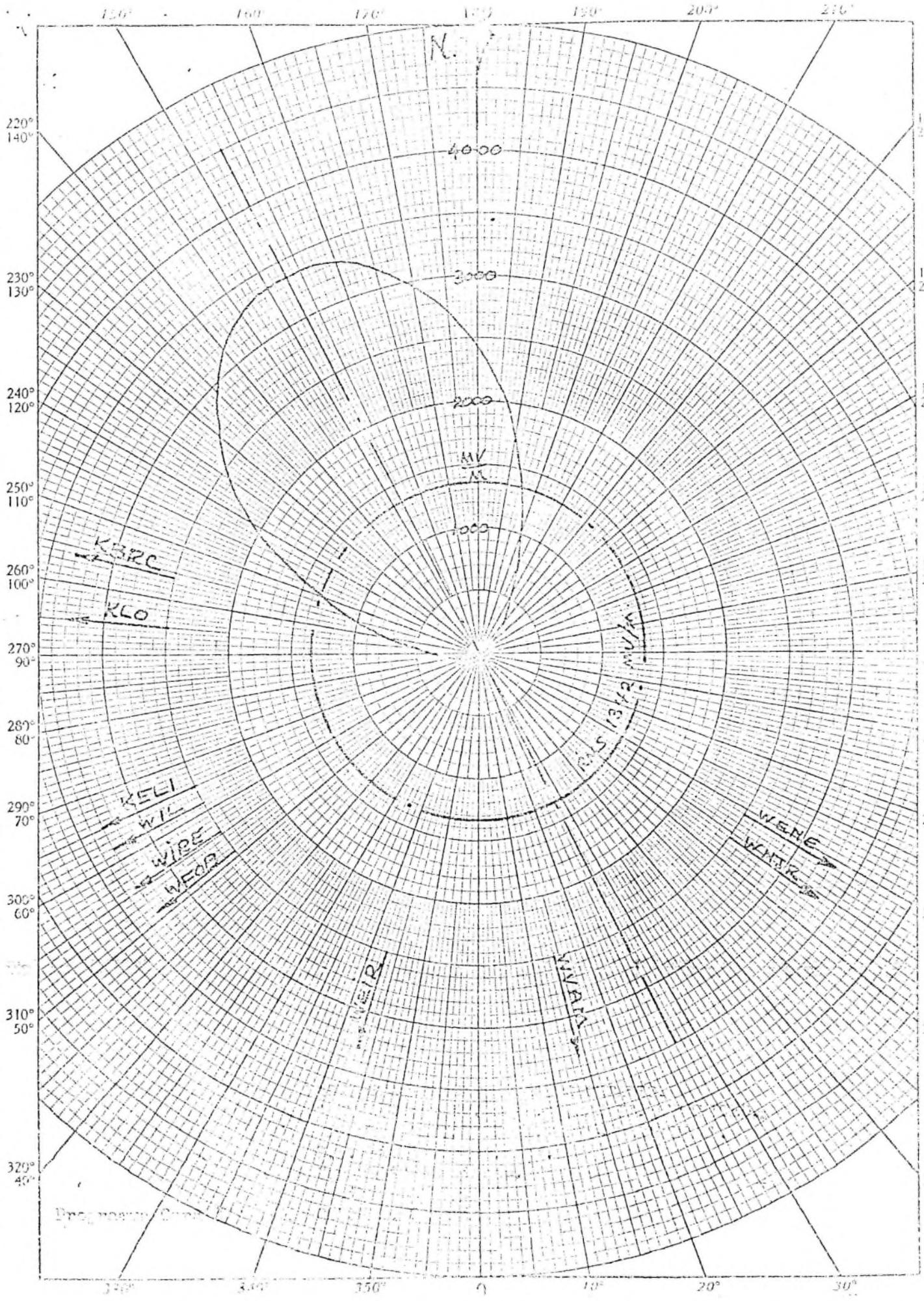
189.8 mv/m @ 1 mi. for 1 Kw. Night
1342 mv/m @ 1 mi. for 50 Kw. Night

CONSULTANT:

D. B. Williamson, P. Eng.,
Consulting Engineer,
Radio CHUC Building,
Cobourg, Ontario.

APPROVED

NOTE: This refers to a change in night-time pattern only. To this description sheet and night-time radiation patterns attach the day-time radiation patterns previously distributed with Canadian Change List # 265, dated January 1, 1970. ACU 10 1978



MADE IN U.S.A.
 KEUFFEL & ESSER CO.
 MODEL 4-413
 POLAR CO-ORDINATE

Engineering Dept.

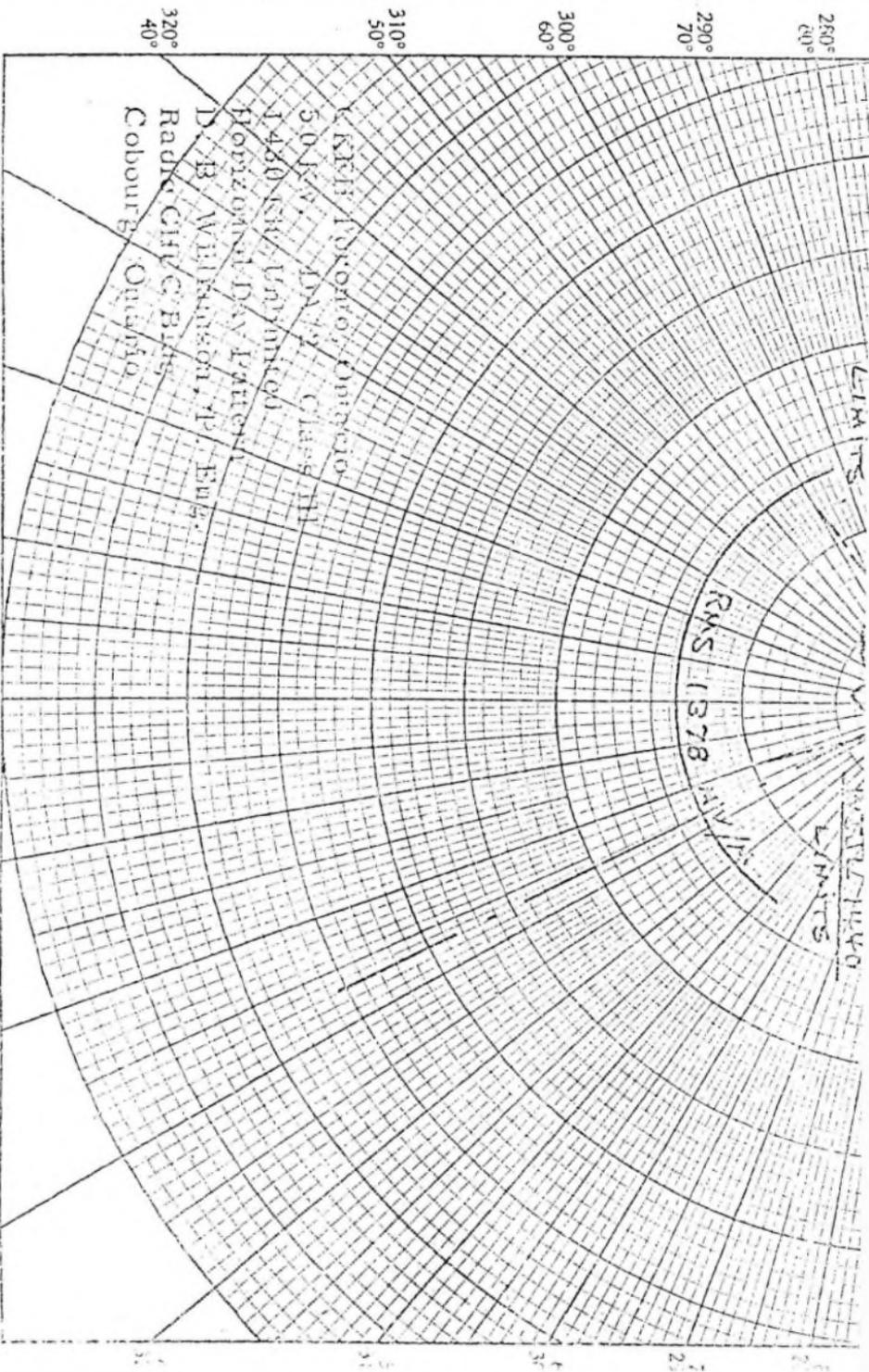
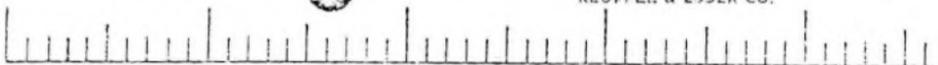


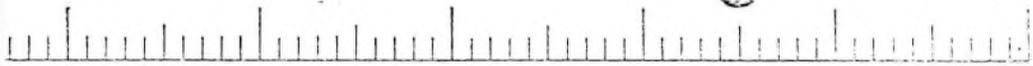
POLAR CO-ORDINATE

46 4413

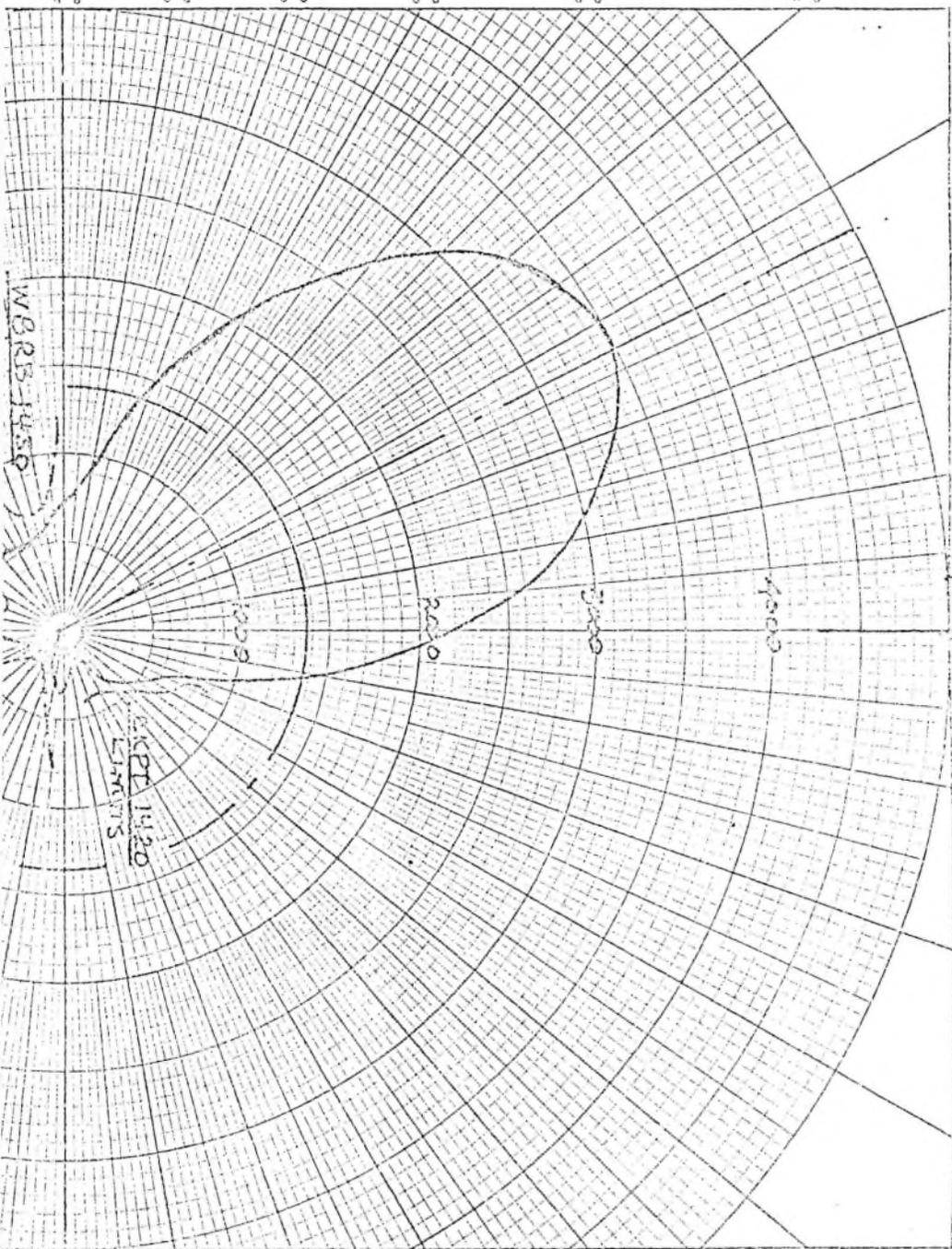
MADE IN U. S. A.

KEUFFEL & ESSER CO.





220°
140°
230°
130°
240°
120°
250°
110°
260°
100°
270°
90°



WBRS-1450

WBRS-1450
LIMITS

14
26
13
23
12
24
11
25
10
26
9
27

Call letters: _____

Date: April 22/79Initialled by applicant: [Signature]

2 - MANAGEMENT AND DIRECTORS

2.1 COMPLETE THE FOLLOWING TABLE CONCERNING THE ACTUAL AND/OR PROPOSED DIRECTORS AND OFFICERS.

DEFINITION: Officers: those persons designated by the company as chairman, president, vice president, general manager, secretary, assistant secretary, comptroller, treasurer, assistant treasurer or any others under similar titles.

- NOTES:**
- I. If any of these persons hold public office, by election or appointment, indicate the office held under the name of the person(s).
 - II. Attach a similar table, as Schedule "2", for each company holding ten percent or more of each class of shares of the applicant company and for any corporation which indirectly controls the applicant.
 - III. Information submitted as Schedule "3" on prospective employees may be treated on a confidential basis as per Section 20 of the CRTC Rules of Procedure.

Name the company to which the following table pertains:

NAME	HOME ADDRESS	CITIZENSHIP	DIRECTORS: DATE OF APPOINTMENT	OFFICERS: POSITION HELD
FOSTER HEWITT	205 LYTTON BLVD., TORONTO	CANADIAN	MAY 1, 1969	CHAIRMAN OF THE BOARD
WILLIAM HEWITT	R.R.#4, SUNDERLAND, ONTARIO	CANADIAN	MAY 1, 1969	VICE CHAIRMAN OF THE BOARD
RONALD HEWAT	7 HUNTHILL COURT, ISLINGTON, ONTARIO	CANADIAN	SEPTEMBER 2, 1972	PRESIDENT
BARRY NESBITT	72 FALLINGBROOK DRIVE, SCARBOROUGH, ONTARIO	CANADIAN	MAY 1, 1969	VICE PRESIDENT
FRED DIXON	2 STONEGLEN DRIVE, ETOBICOKE, ONTARIO	CANADIAN		VICE PRESIDENT

ENGINEERING REPORT
ON
MUTUAL INTERFERENCE
CKFH - CKPT

Prepared by:
D. B. Williamson, P. Eng.,
April 15, 1972

1. General

The following report is a summary of results of a field survey to locate mutual interference contours of CKFH, Toronto and CKPT, Peterboro. CKFH operates at 50,000 watts on 1430 Khz and CKPT at 5000 watts on 1430 Khz. Radials were run from both stations to establish contour locations.

2. Measurements

Three radials were run from the CKFH Transmitter site at bearings 025° , 035° , and 045° . The locations of the proposed and actual 0.25 and 0.5 mv/m contours were plotted on the accompanying map. Measurements on CKPT, Peterboro were taken along bearing 271° , 260° , and 247° . The location of the CKPT 0.25 mv/m contour was plotted along with the Proof of Performance 0.5 and 0.25 mv/m contours. All readings were taken between March 12 and April 3rd 1972.

3. Results

The plots of measurements included as part of this report show some interesting facts. It is shown that the measurements as included in the January 1972 by G. R. Mather appear to be substantially correct. These measurements show an overlap of the 0.25 mv/m contour of CKFH with the 0.5 mv/m contour of CKPT, a fact confirmed by our measurements in March and April of 1972. However, a scaling of these readings to the transmitter site and the resultant detailing of close in measurements, show the one mile field intensities to be within tolerance as proposed on the original pattern plot.

Further to these measurements, an analysis of the three radials on CKPT show a similar overlap of the 0.25 mv/m contour of CKPT with the 0.5 mv/m contour of CKFH in both the 10 Kw case as proved in 1967 and the 50 Kw estimated location 1971. A further investigation shows conductivity values much higher than measured in 1961, 1966 or 1967. The one mile field at CKPT is shown to be within the pattern tolerance as per the assignment data. A study of the mutual overlap areas shows little or no adverse effect on either station.

4. Conclusion

It is concluded that an unusually high conductivity change has occurred along the paths between CKFH and CKPT. An unusual

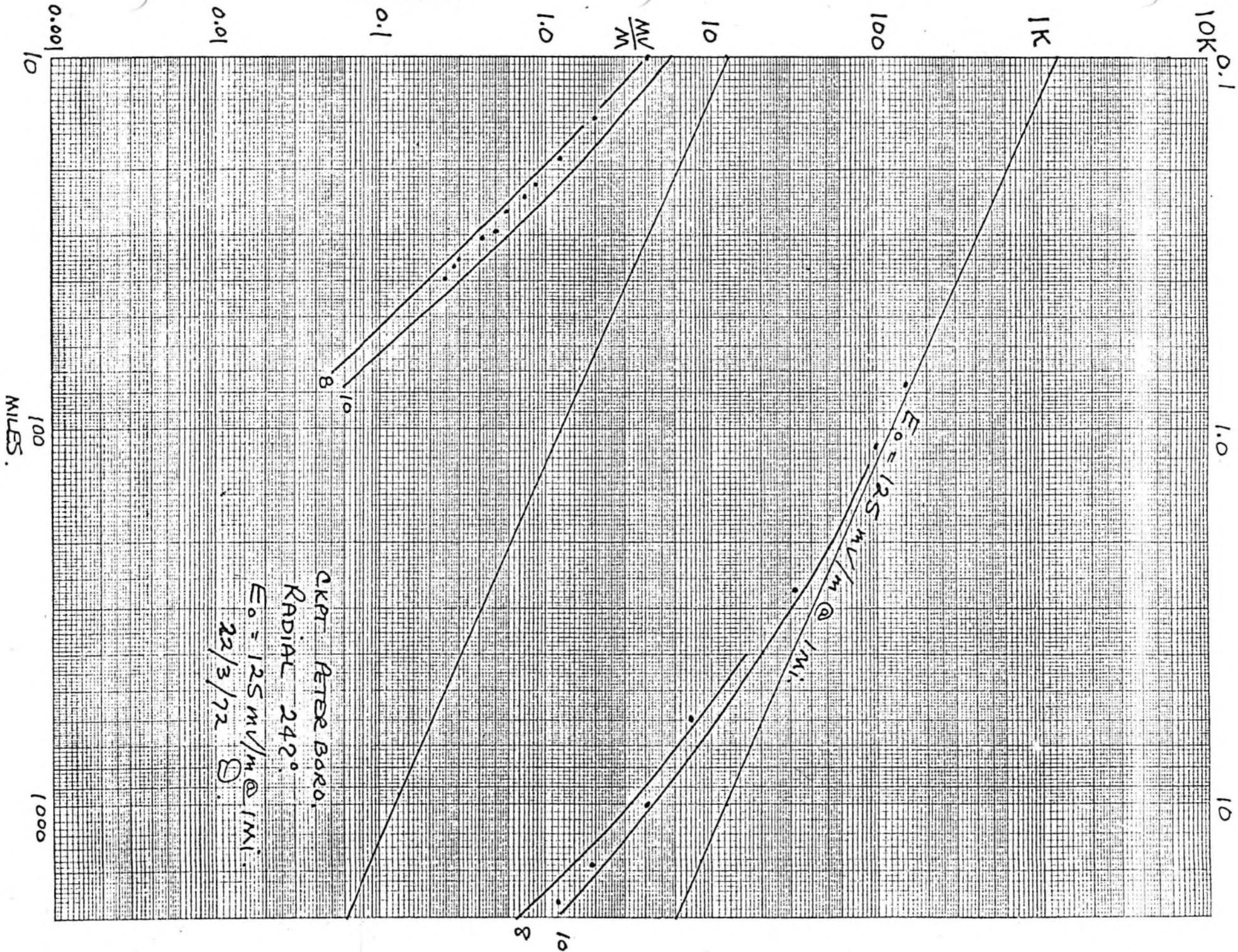
snowfall has occurred in this area over the Winter. It is proposed to examine the conductivity further under dry conditions before deciding on a plan of action with regard to the overlap areas. At the present time the overlap to CKFH by CKPT is judged to be unimportant as far as CKFH is concerned.

Respectfully submitted;
D. B. Williamson, P. Eng.
Consulting Engineer

D. B. Williamson

15/4/72





B.B.M. RADIO STATISTICS

Foster Hewitt Broadcasting Limited
CKFH Toronto, Ontario

	<u>1977</u>	<u>1978</u>
<u>WEEKLY CIRCULATION (7+) *</u>		
- Central Area	183,200	189,600
- Full Coverage Area	235,000	238,700
<u>CUMULATIVE AUDIENCE (7+) **</u>		
- Central Area	90,400	137,500
- Full Coverage Area	121,200	178,500
<u>AVERAGE ¼ HR. AUDIENCE (7+) ***</u>		
- Central Area	6,800	10,000
- Full Coverage Area	9,000	13,000



FINAL

PROOF OF PERFORMANCE

FOR

RADIO STATION CKPH

50,000 Watts 1430 Khz

Class III DA/2

Client: Foster Hewitt
Broadcasting Ltd.

D.B. Williamson, P. Eng
Consulting Engineer

November 6, 1975

1. GENERAL

The following report constitutes the Final Proof of Performance for Radio Station CKFH Toronto, Ontario authorized to operate at 1430 KHZ DA/2 with a power output of 50,000 watts. It is shown that the radiation patterns are within working tolerances in protected directions. There is, however, considerable distortion to the patterns produced by high structures within the high field strength contours. The antenna system has been re-adjusted taking into account extraneous antennae to the rear of the array and new buildings in the main lobe.

The patterns were originally set up by the ratio method, using omni-directional to directional ratios to determine pattern shape. When radials were run during the Fall and Summer of 1972, considerable errors were discovered in the pattern shapes. Measures were taken at that time to correct radiation to protected stations. Changes to the Harbour area in Toronto Harbour in the following two years have produced considerable re-radiation problems and distortion of radiation patterns. In particular, the Harbour Square development - involving high rise developments many times the height of the CKFH towers, has produced side lobe effects not accounted for in original pattern designs. Fortunately, it has been possible to shift operating parameters to maintain protections. The patterns as now operating provide proper protections but a somewhat distorted coverage pattern has resulted. The conclusions supplied at the end of this brief indicate the suggested courses of action for future operation of this facility.

2. MEASUREMENTS PERFORMED

The antenna self impedances were measured directly with a static radio frequency bridge - General Radio 916A.

All transmission lines were balanced for minimum S.W.R. with a dynamic S.W.R. bridge - Delta OIB1.

Antenna pattern adjustments were made by measuring the ratio of omni-directional to directional field intensities at points in a circle about the antenna system.

The antenna efficiency was measured by measuring field intensities along a single radial in the main lobe of the array.

3. RESULTS

(a) Antenna Tower Impedances

The antenna tower impedances were measured directly by means of a General Radio 916A Bridge Serial 897. The results were tabulated in Table I.

(i) Table I - Antenna Self Impedances

Freq. Khz	#1 (N)	#2 (NC)	#3 (C)	#4 & #6 (SC) (SCE)	#5 (S)
1380	112 \neq j 308	111 \neq j 346	130 \neq j 351	138 - j 365	94 \neq j 300
1390	116 \neq j 314	116 \neq j 358	134 \neq j 356	142 - j 370	96 \neq j 307
1400	122 \neq j 320	123 \neq j 366	138 \neq j 367	145 - j 380	102 \neq j 316
1410	129 \neq j 326	131 \neq j 379	145 \neq j 378	152 - j 395	106 \neq j 328
1420	136 \neq j 333	138 \neq j 394	150 \neq j 390	157 - j 406	113 \neq j 339
1430	144 \neq j 346	146 \neq j 415	159 \neq j 405	165 - j 420	120 \neq j 352
1440	153 \neq j 362	154 \neq j 434	167 \neq j 419	173 - j 433	127 \neq j 363
1450	164 \neq j 378	161 \neq j 459	174 \neq j 435	180 - j 446	135 \neq j 380
1460	176 \neq j 392	172 \neq j 466	182 \neq j 444	187 - j 460	143 \neq j 390
1470	191 \neq j 409	183 \neq j 490	188 \neq j 455	192 - j 467	147 \neq j 400
1480	213 \neq j 427	195 \neq j 521	194 \neq j 467	197 - j 479	153 \neq j 401

(b) Antenna Common Point Impedance

The antenna common point impedance for both operating patterns was adjusted to 50 \neq j 0 ohms. For full transmitter output of 50,000 watts, the common point current was adjusted to 31.6 amps.

(c) Transmitter Operating Parameters

Load Impedance	50 + j 0 ohms
Load Current	31.6 amps
Load Power	50,000 watts
Plate Voltage	15.2 Kv
Plate Current	4.2 amps
Plate Power	63,900 watts
Plate Efficiency	78.4%

(d) Antenna Array Parameters

(i) Phase Monitor - Day

Tower	Loop Current Ratio Indication	Phase
1 (N)	0.165	+ 40.0°
2 (NC)	0.665	-152.5°
3 (C)	1.000	0
6 (SCE)	0.608	+143.5°
5 (S)	0.273	- 54.0°

(ii) Phase Monitor - Night

Tower	Loop Current Ratio Indication	Phase
1 (N)	0.155	+ 42.0°
2 (NC)	0.595	-158.0°
3 (C)	1.000	0
4 (SC)	0.739	+156.0°
5 (S)	0.298	- 50.0°

(iii) Tower Current - Amperes

Tower	Day (6 Active)	Night (4 Active)
1 (N)	4.80	6.50
2 (NC)	19.8	25.0
3 (C)	41.5	42.0
4/6 (SCE) (SC)	31.9	31.0
5 (S)	11.5	12.5

(e) Ratio Measurements

Ratio measurements taken at a power of 1000 watts at convenient distances from the antenna are included in the appendix to this brief. Measurements along radials proved these to be inaccurate. They are included for reference only.

(f) Antenna Impedance Characteristics

(i) Self Impedances

Tower	Self Impedances - ohms
1 (N)	144 \neq j 346
2 (NC)	146 \neq j 415
3 (C)	159 \neq j 405
4 (SC)	165 \neq j 420
5 (S)	120 \neq j 352
6 (SCE)	165 \neq j 420

(ii) Operating Impedances - ohms

These Operating Impedances were measured with a Delta Electronics in-line bridge type 01B-1.

	Day	Night
Z ₁	-14.0 + j 388	-11.0 + j 397
Z ₂	17.9 + j 335	11.9 + j 305
Z ₃	17.1 + j 407	14.7 + j 422
Z ₄	∅	12.7 - j 403
Z ₅	31.0 + j 100	33.3 + j 125
Z ₆	10.0 + j 400	∅

(iii) Operating Currents - amperes

(iv) Power Flow - watts

	Day		Night	
I ₁	4.80 amps	-323 watts	6.50 amps	-465 watts
I ₂	19.8 amps	7050 watts	25.0 amps	7440 watts
I ₃	41.5 amps	29040 watts	42.0 amps	26100 watts
I ₄	0	0	31.0 amps	12200 watts
I ₅	11.5 amps	4073 watts	12.5 amps	5200 watts
I ₆	31.9 amps	10019 watts	0	0
		<hr/>		<hr/>
		50182 watts		50475 watts

(g) Radial Measurements

Measurements were taken along 12 Radials over the coverage of the station. Measurements were taken with the customary care to be free from external induction effects with a Clarke WX2E F.I. meter.

TABLE #4

<u>Point</u>	Radial #1 <u>Distance</u>	Brg. 000° Field Intensity	
		<u>Day</u>	<u>Night</u>
201	0.21	7500	-
202	0.40	4000	4800
203	1.32	1500	1980
204	2.35	1000	1300
205	3.19	455	600
206	3.79	220	300
207	4.20	175	225
208	5.35	90.3	120
209	6.69	65.0	85.0
210	7.55	41.2	55.0
211	8.20	37.7	50.0
212	9.10	25.0	33.3
213	11.0	18.0	24.6
214	15.1	9.40	12.5
215	22.5	6.00	8.00
216	27.5	4.05	5.50
217	30.0	1.70	2.20
218	41.0	0.780	1.00
219	48.4	0.650	0.850
220	68.0	0.350	0.455
221	77.5	0.200	0.250

Radial #2

Brg. 024°

<u>Point</u>	<u>Distance</u>	<u>Field Intensity</u>	
		<u>Day</u>	<u>Night</u>
301	0.25	2100	3000
302	0.40	1305	1900
303	1.60	320	465
304	2.00	255	350
305	2.50	195	255
306	3.00	130	180
307	3.35	126	165
308	4.40	90.0	125
309	6.05	48.0	65.0
310	7.30	36.5	51.0
311	8.19	28.0	38.5
312	9.55	17.5	24.5
313	12.8	10.0	13.5
314	16.0	8.50	8.50
315	19.9	4.00	5.00
316	25.0	1.55	2.00
317	30.0	1.00	1.50
318	38.5	0.550	0.800
319	43.0	0.375	0.530
320	53.0	0.250	0.340
321	70.4	0.090	0.125
322	81.0	0.060	0.085
323	87.8	0.050	0.070

Radial #3

Brg. 037°

<u>Point</u>	<u>Distance</u>	<u>Field Intensity</u>	
		<u>Day</u>	<u>Night</u>
401	0.25	1800	700
402	0.40	1100	410
403	1.55	300	100
404	2.05	200	80.5
405	2.80	150	58.0
406	3.79	100	40.0
407	4.30	82.0	30.0
408	5.00	69.0	26.0
409	5.70	55.0	20.0
410	6.79	50.0	20.0
411	8.15	29.5	11.5
412	8.80	18.5	7.15
413	9.90	15.0	6.00
414	10.8	11.0	4.50
415	14.0	6.10	2.50
416	15.5	5.00	2.00
417	23.7	1.65	0.650
418	27.0	1.30	0.500
419	34.1	0.750	0.300
420	43.0	0.350	0.150
421	56.2	0.210	0.084
422	61.0	0.125	0.048
423	65.0	0.200	0.055

Radial #4

Brg. 046^o

<u>Point</u>	<u>Distance</u> /	Field Intensity	
		<u>Day</u>	<u>Night</u>
501	0.22	1650	750
502	0.40	900	410
503	0.55	665	300
504	1.46	250	100
505	1.95	190	70.0
506	2.91	110	48.0
507	3.75	75.5	29.5
508	4.40	58.0	25.0
509	5.10	45.0	23.0
510	5.65	35.0	17.0
511	7.09	25.0	12.0
512	7.75	20.1	10.0
513	9.00	15.0	7.50
514	9.70	10.0	5.50
515	10.7	9.60	3.50
516	11.9	8.00	2.00
517	12.8	6.55	1.55
518	18.0	2.50	1.25
519	22.7	2.00	0.600
520	29.6	1.50	0.500
521	41.6	0.250	0.090
522	50.9	0.100	0.060
523	56.9	0.100	0.050
524	66.0	0.900	0.030

Radial #4A

Brg. 063°

<u>Point</u>	<u>Distance</u>	<u>Field Intensity</u>	
		<u>Day</u>	<u>Night</u>
501A	0.13	2150	503
502A	0.46	600	—
503A	0.65	430	100
504A	1.25	210	49.0
505A	1.40	190	44.5
506A	1.85	130	30.4
507A	2.20	100	23.4
508A	3.10	52.5	12.5
509A	4.20	34.0	7.90
510A	5.50	21.0	4.90
511A	7.00	15.0	3.50
512A	12.0	6.00	1.38
513A	16.0	3.00	0.700
514A	24.0	2.00	0.470
515A	35.0	0.850	0.200
516A	40.0	0.610	0.150
517A	44.0	0.500	0.120
518A	48.0	0.300	0.070
519A	52.0	0.175	0.040
520A	56.0	0.140	0.035

Radial # 5

Brg. 081 deg.

<u>Point</u>	<u>Distance</u>	<u>Field Intensity</u>	
		<u>Day</u>	<u>Night</u>
601	0.15	2400	470
602	0.26	1400	160
603	0.39	950	215
604	0.59	600	166
605	0.70	480	121
606	1.53	210	49.0
607	2.25	135	29.9
608	2.77	110	20.0
609	4.00	60.0	11.7
610	5.10	41.0	8.90
611	6.40	30.0	5.80
612	7.00	28.0	5.00
613	7.75	25.0	4.66
614	8.47	22.1	4.00
615	10.6	13.0	1.99
616	12.8	11.9	1.00

Radial continues in Lake Ontario -
Conductivity constant beyond this point.

Radial # 6

Brg. 143 deg.

<u>Point</u>	<u>Distance</u>	<u>Field Intensity</u>	
		<u>Day</u>	<u>Night</u>
701	0.10	555	120
702	0.18	780	175
703	0.29	190	55.0
704	0.95	180	25.5
705	1.70	56.0	20.0
706	2.42	63.0	13.0
707	4.10	20.0	7.70
708	5.90	10.0	3.50
709	30.0	0.300	0.120
710	32.71	0.277	0.100
711	37.0	0.260	0.090
712	40.0	0.220	0.075
713	45.3	0.150	0.050
714	52.7	0.100	0.040

Radial # 7

Brg. 211 deg.

Field Intensity

<u>Point</u>	<u>Distance</u>	<u>Day</u>	<u>Night</u>
801	0.10	1800	200
802	0.20	1550	140
803	0.30	500	220
804	0.40	660	58.0
805	0.50	680	66.0
806	0.79	425	40.0
807	1.05	330	29.9
808	1.40	220	30.0
810	2.60	105	12.0
811	3.55	66.0	7.00
812	4.50	46.0	6.00
813	6.95	25.5	3.00
814	30.9	0.990	0.250
815	32.0	0.800	0.200
816	26.5	0.550	0.150
817	45.2	0.400	0.075
818	47.1	0.350	0.065
819	57.1	0.250	0.050

Radial # 8

Brg. 247 deg.

Field Intensity

<u>Point</u>	<u>Distance</u>	<u>Day</u>	<u>Night</u>
901	0.20	2800	130
902	0.40	1900	155
903	0.60	- 900	65.5
904	0.95	550	60.0
905	1.30	350	43.0
906	1.61	280	35.0
907	2.00	200	30.0
908	2.40	166	24.0
909	2.80	150	15.0
910	3.40	100	16.0
911	6.30	48.5	6.00
912	11.0	18.0	3.00
913	13.6	15.0	1.80
914	16.0	8.90	1.25
915	24.6	3.30	0.500
916	30.0	1.90	0.180
917	36.8	0.770	0.080
918	42.9	0.280	0.030
919	48.4	0.150	-
920	51.2	0.100	-
921	54.0	0.100	-

Radial # 9

Brg. 254 deg.

Field Intensity

<u>Point</u>	<u>Distance</u>	<u>Day</u>	<u>Night</u>
1001	0.16	2700	800
1002	0.27	1550	500
1003	0.42	1000	300
1004	0.55	800	250
1005	0.90	500	100
1006	1.20	355	90.0
1007	1.40	300	100
1008	1.95	180	66.0
1009	2.35	150	50.0
1010	2.80	130	30.0
1011	3.40	90.0	25.0
1012	5.40	70.5	20.0
1013	9.00	25.0	10.0
1014	12.4	15.0	4.00
1015	15.9	8.00	2.50
1016	24.1	3.00	0.900
1017	27.0	2.50	0.500
1018	31.0	1.50	0.250
1019	35.0	0.99	0.200
1020	40.6	0.400	0.150
1021	45.5	0.350	0.060
1022	49.6	0.250	0.050
1023	54.5	0.200	0.030

Radial # 10

Brg. 300 deg.
Field Intensity

<u>Point</u>	<u>Distance</u>	<u>Day</u>	<u>Night</u>
1101	0.15	-	-
1102	0.56	4000	3200
1103	1.40	1500	1100
1104	1.85	1000	770
1105	2.30	770	600
1106	3.20	500	450
1107	3.80	250	150
1108	4.55	175	100
1109	6.40	75.0	55.0
1110	10.6	20.0	18.0
1111	12.0	15.5	15.0
1112	17.6	9.00	6.00
1113	20.0	7.70	5.00
1114	26.0	3.00	2.50
1115	38.2	1.55	1.00
1116	48.0	1.00	0.820
1117	57.4	0.500	0.500
1118	67.4	0.400	0.300
1119	78.4	0.250	0.400
1120	83.1	0.100	0.150

Radial # 11

Brg. 322 deg.

Field Intensity

<u>Point</u>	<u>Distance</u>	<u>Day</u>	<u>Night</u>
1201	0.26	-	-
1202	0.45	6000	5200
1203	1.30	1900	1500
1204	1.60	1300	1200
1205	1.98	1000	1000
1206	2.85	390	390
1207	3.81	210	200
1208	5.20	130	125
1209	6.10	79.0	75.0
1210	6.60	70.0	60.6
1211	7.90	60.0	50.0
1212	9.10	35.5	30.0
1213	14.0	15.0	15.0
1214	19.8	6.00	6.00
1215	23.8	3.30	4.00
1216	31.9	2.00	2.10
1217	38.1	1.00	1.10
1218	45.0	0.955	1.15
1219	55.0	0.500	0.610
1220	61.5	0.300	0.350
1221	67.0	0.400	0.450
1222	71.7	0.320	0.380
1223	79.0	0.250	0.260

Radial # 12

Brg. 340 deg.

<u>Point</u>	<u>Distance</u>	<u>Field Intensity</u>	
		<u>Day</u>	<u>Night</u>
1301	0.25	-	-
1302	0.58	4800	5000
1303	1.15	2000	2000
1204	1.40	1900	2000
1305	2.28	700	800
1306	3.05	300	400
1307	3.56	150	190
1308	4.87	100	100
1309	6.15	70.0	70.5
1310	7.00	55.0	65.0
1311	7.58	50.0	50.0
1312	8.75	30.5	40.0
1313	9.65	25.0	25.0
1314	11.0	19.5	20.0
1315	13.2	15.0	15.0
1316	17.1	10.0	10.0
1317	22.1	5.50	6.00
1318	30.0	3.50	3.55
1319	35.0	2.55	2.50
1320	41.9	1.50	1.50
1321	50.0	1.00	1.00
1322	54.1	0.850	0.600
1323	60.5	0.500	0.550
1324	67.4	0.700	0.490
1325	73.1	0.450	0.260

4. DISCUSSION OF RESULTS

The antenna system, as presently adjusted, meets all protection requirements.

The Toronto skyline is under rapid development with high rise buildings at the waterfront under various construction phases.

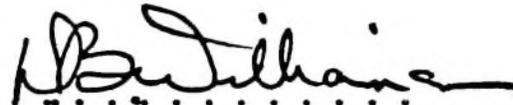
The Harbour Square development, at 1.5 miles from the antenna, has provided considerable re-radiation which has altered the patterns considerably. It has been possible to reduce null radiation to low values but at the expense of main lobe coverage. Some shifting of the pattern Eastward is noted.

5. CONCLUSIONS

D.B. Williamson, P. Eng., is responsible for the design of the system and the proof of performance on the array. The right to make modifications to the design to improve performance or tolerance is hereby reserved.

It is shown by the above report that the system design as specified in the engineering brief is met with required tolerances.

It is suggested that in the future the antenna system be modified to a symmetrical array. It is likely that due to geometric problems with nearby structures, the off-set array will be increasingly difficult to maintain in adjustment.

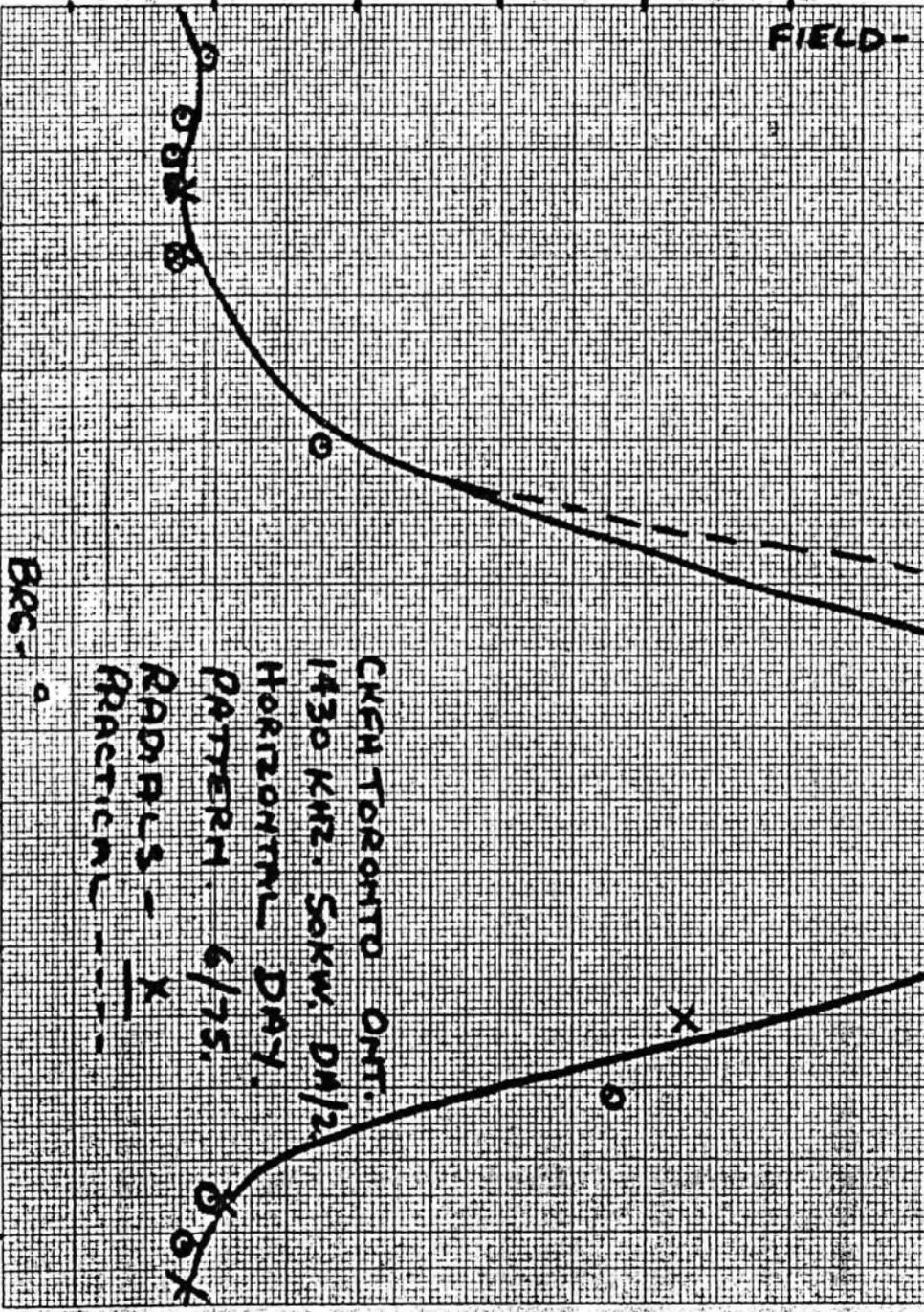


D. B. Williamson, P. Eng.

FIELD -

2000
1800
1600
1400
1000
600
200

230 250 270 290 310 330 350 010 030

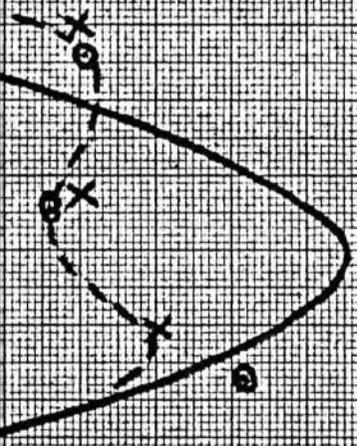


BAC -

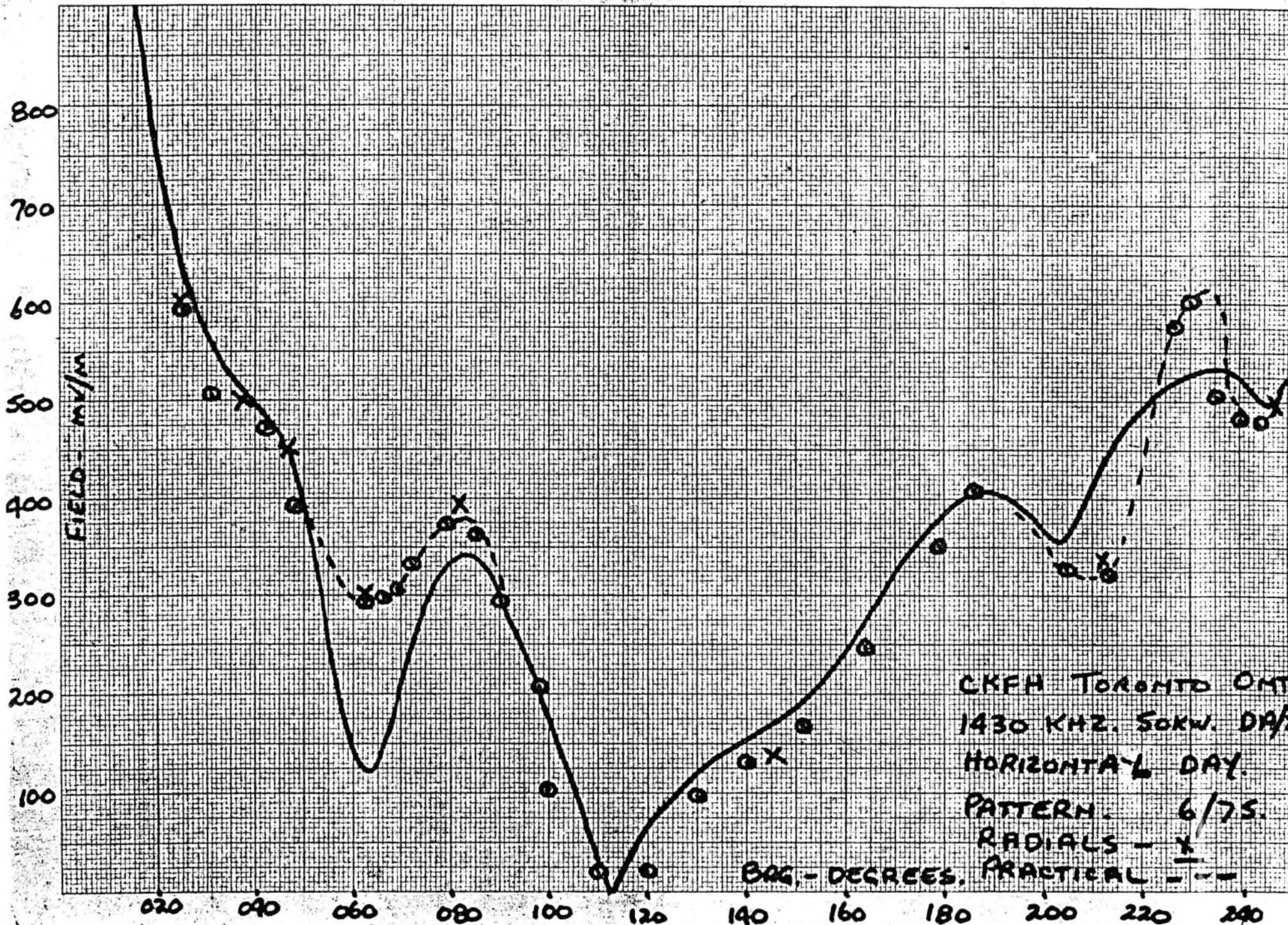
CKRN TORONTO ONT.
1430 KHZ. SOLW. DN/2.
HORIZONTAL DAY.
PATTERN. 6/75.
RADIALS - X
PRACTICAL - - - -

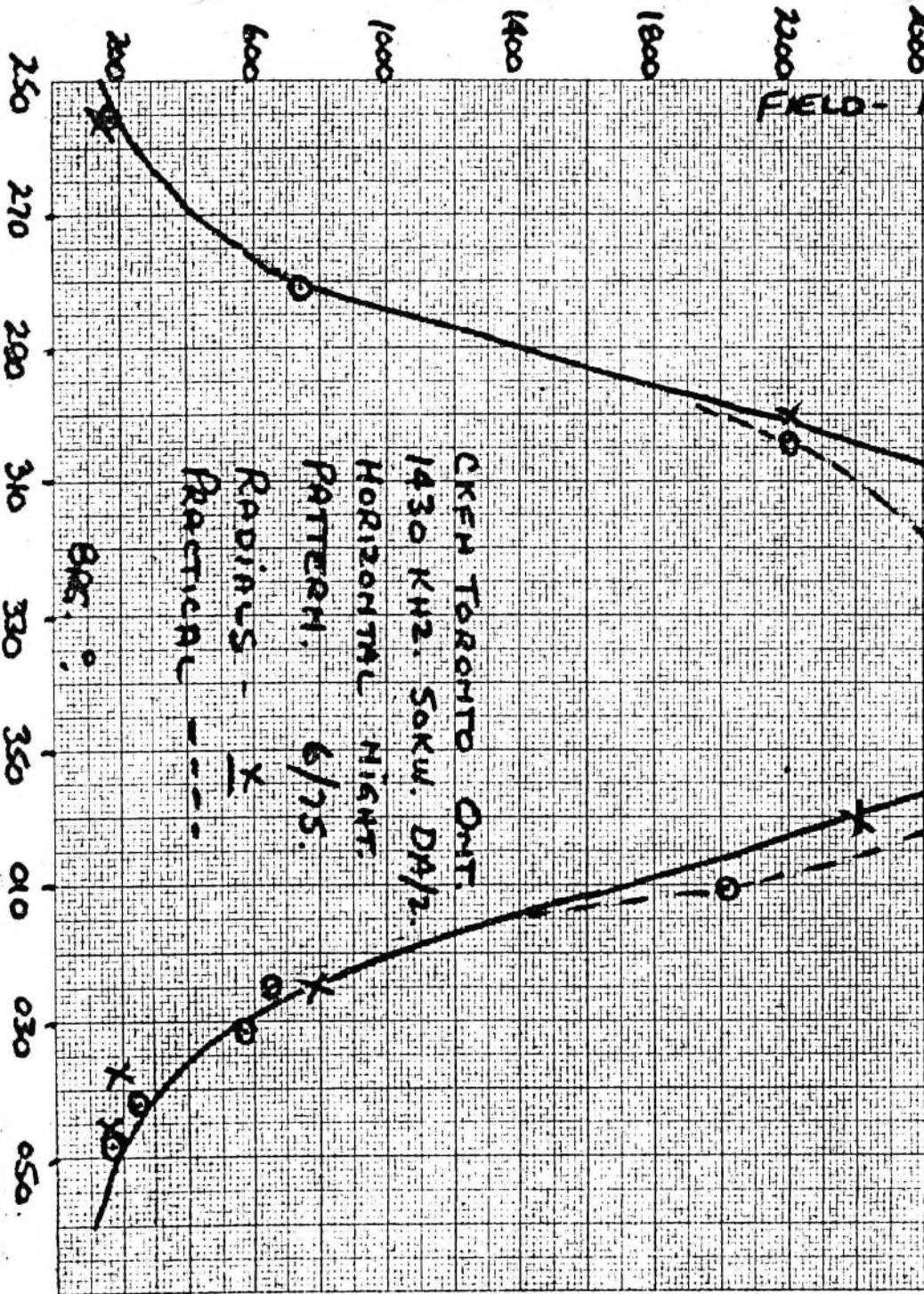
46 1513

5000
4600
4200
3800
3400
3000
2600
mv/m.



DR. J. H. H. H.





5000

4600

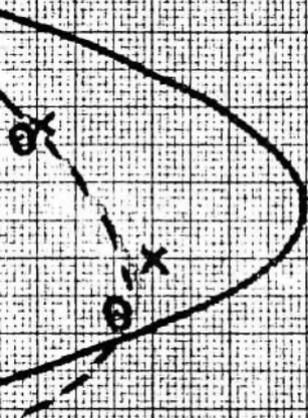
4200

3800

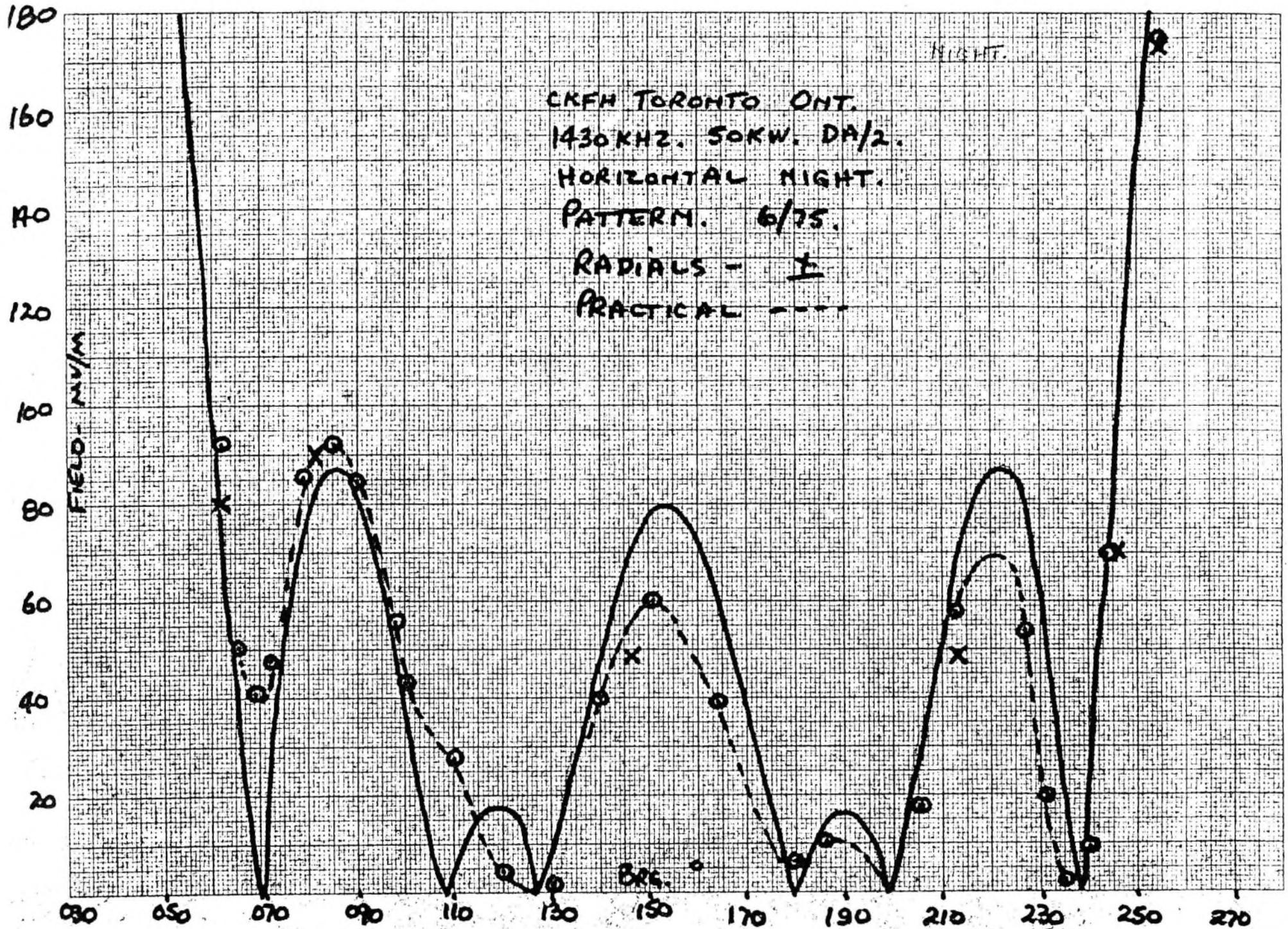
3400

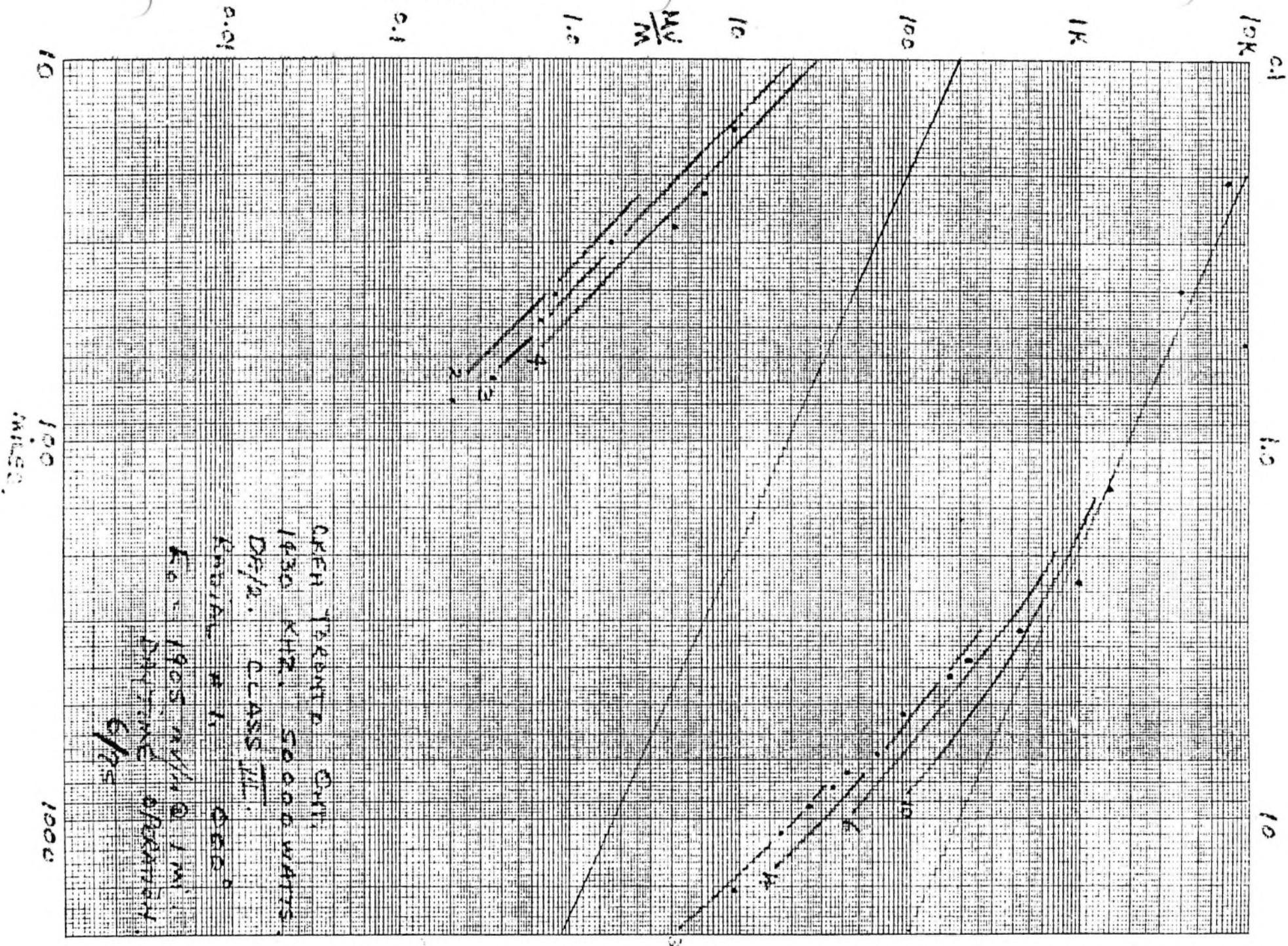
3000

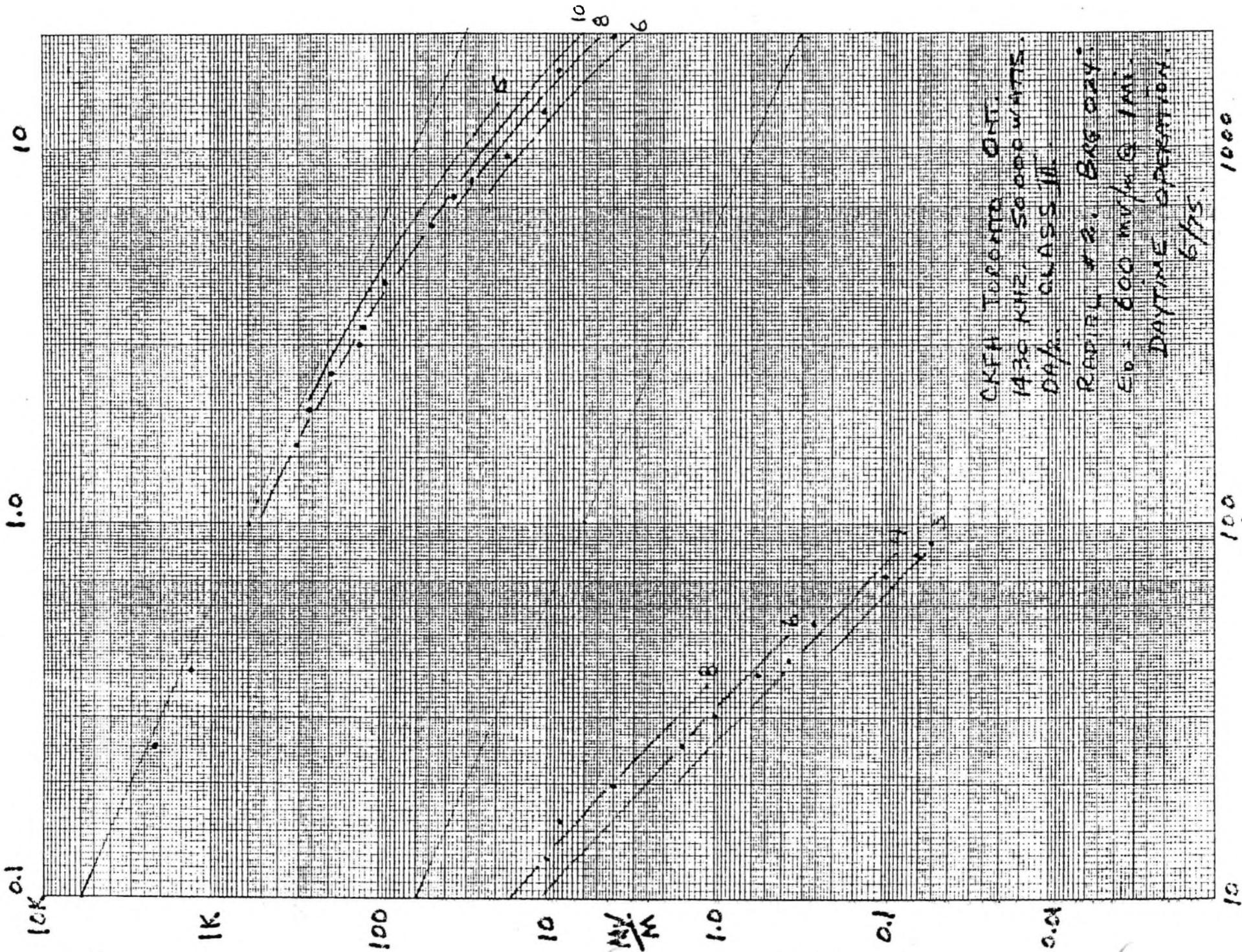
W/W/M



111-11

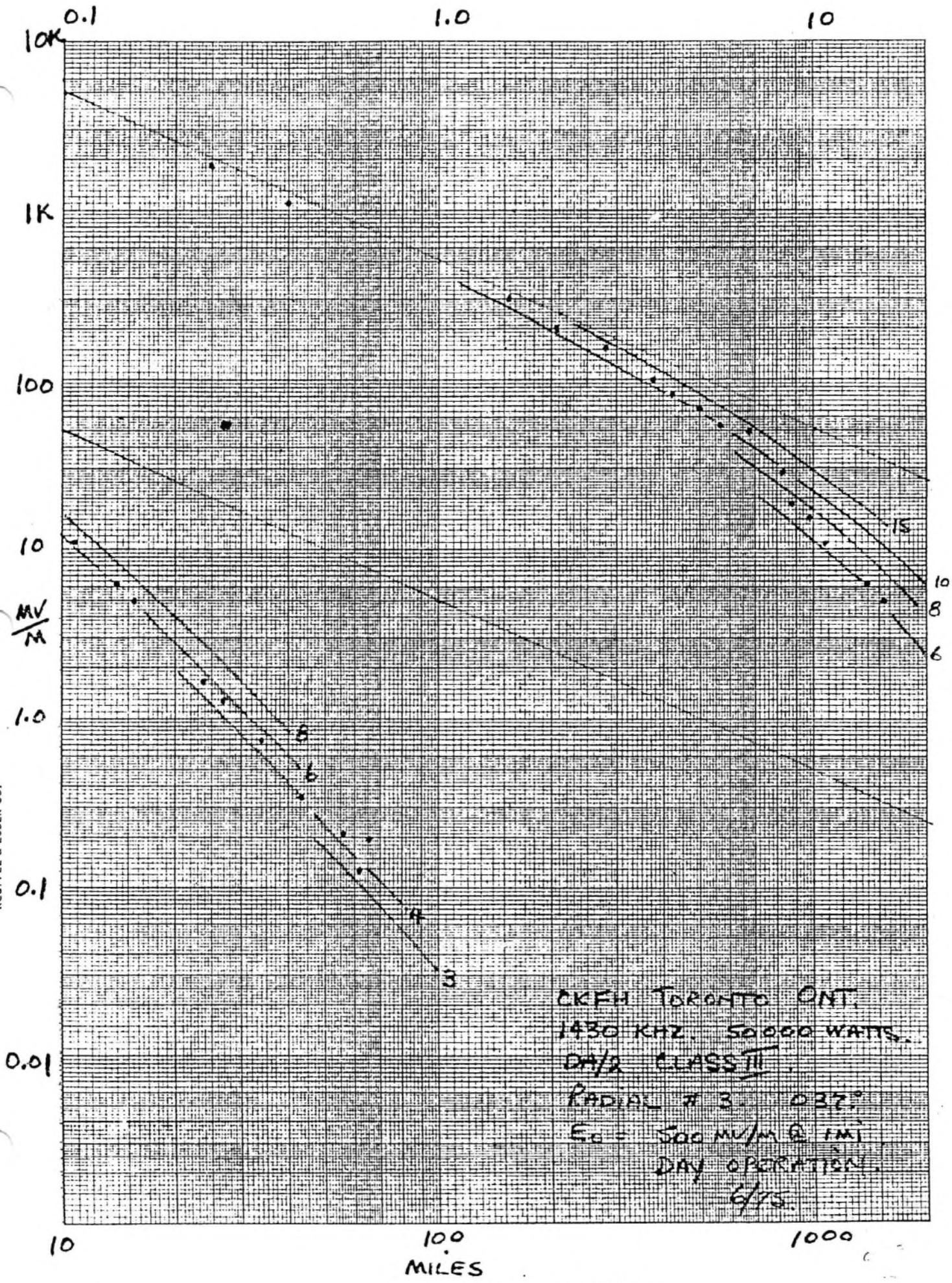




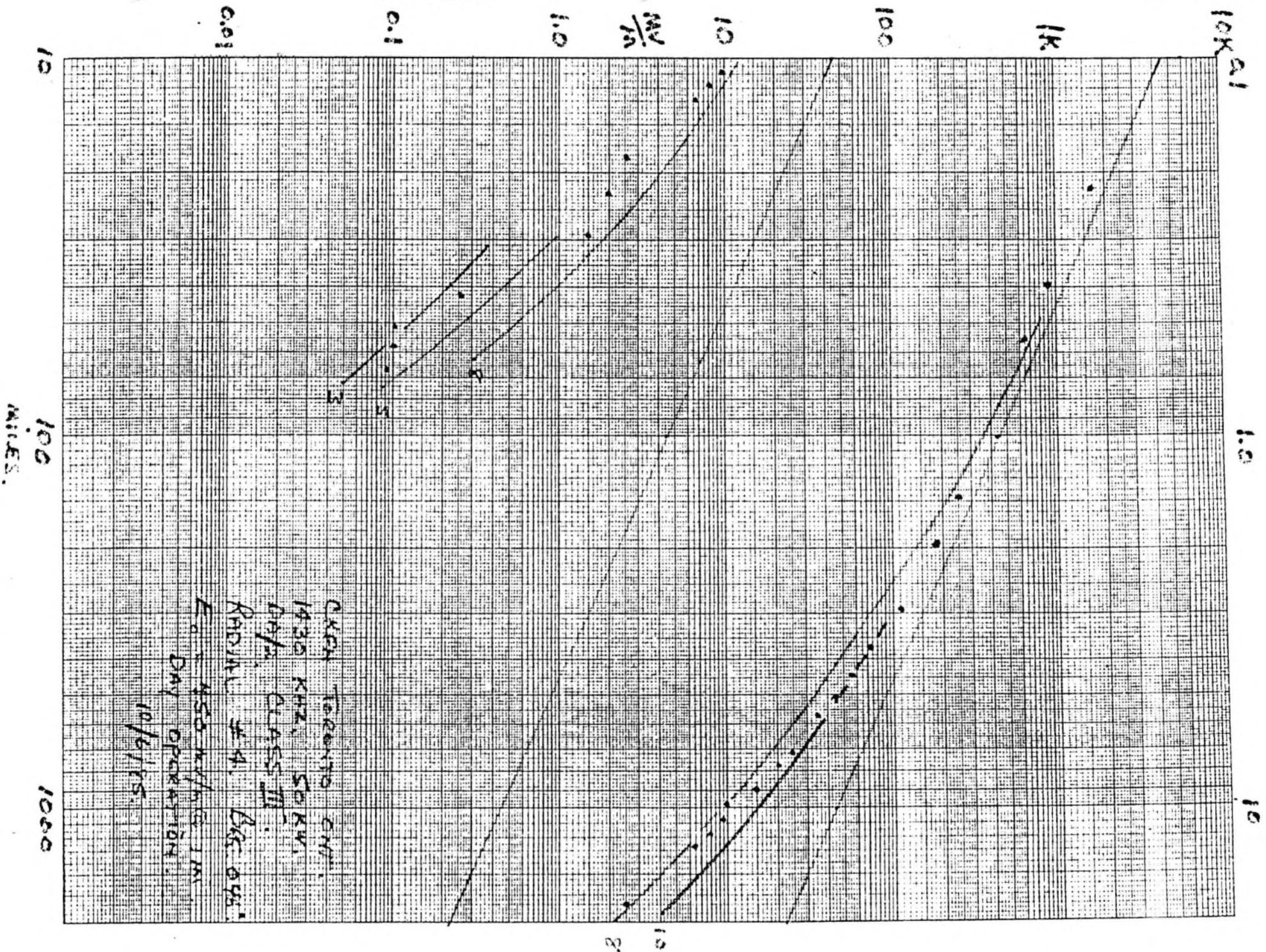


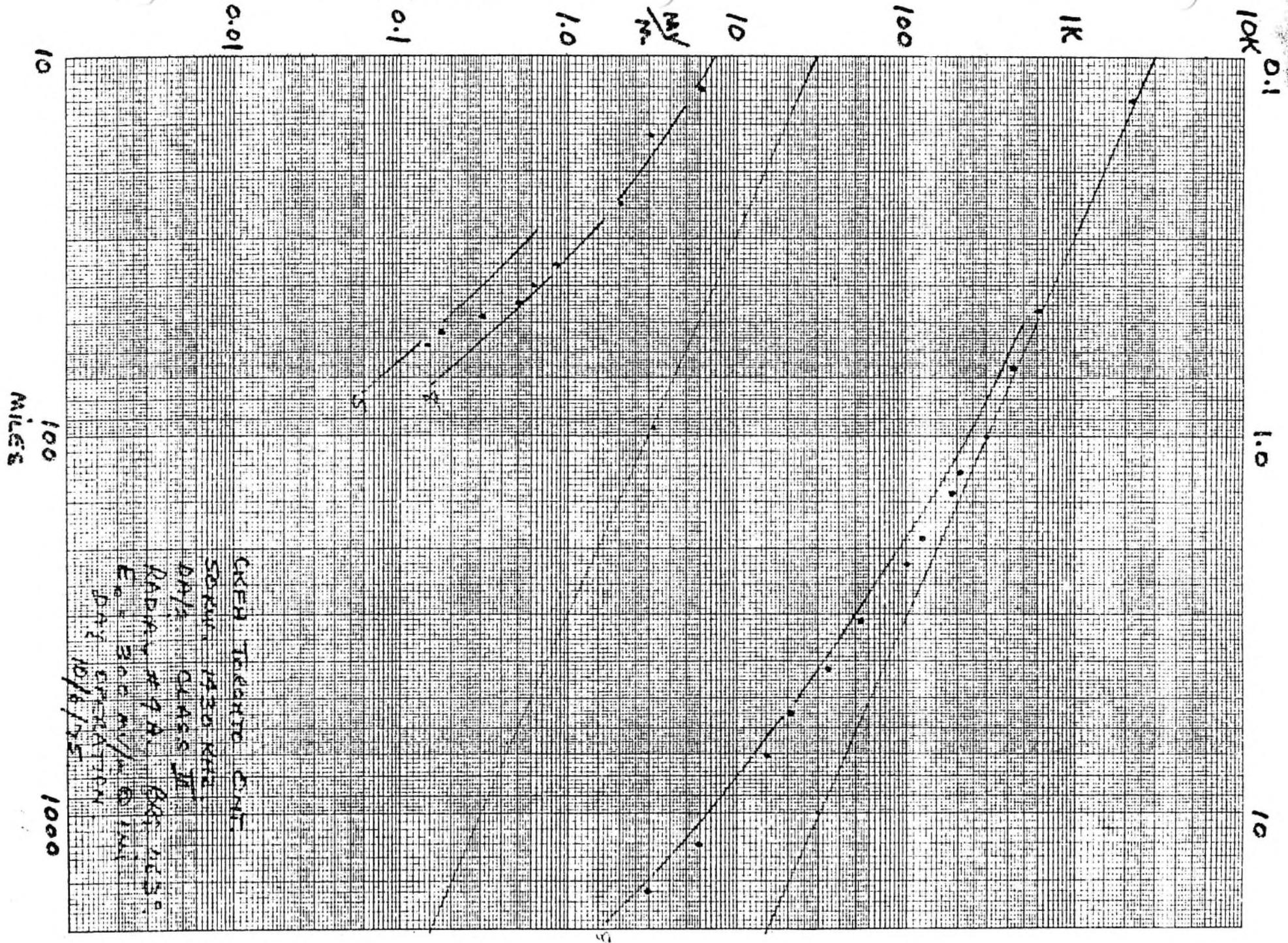
K & M
 LOGARITHMIC
 7 X 2.2 CYCLES
 46 7802
 MADE IN U.S.A.
 KEUFFEL & ESSER CO.

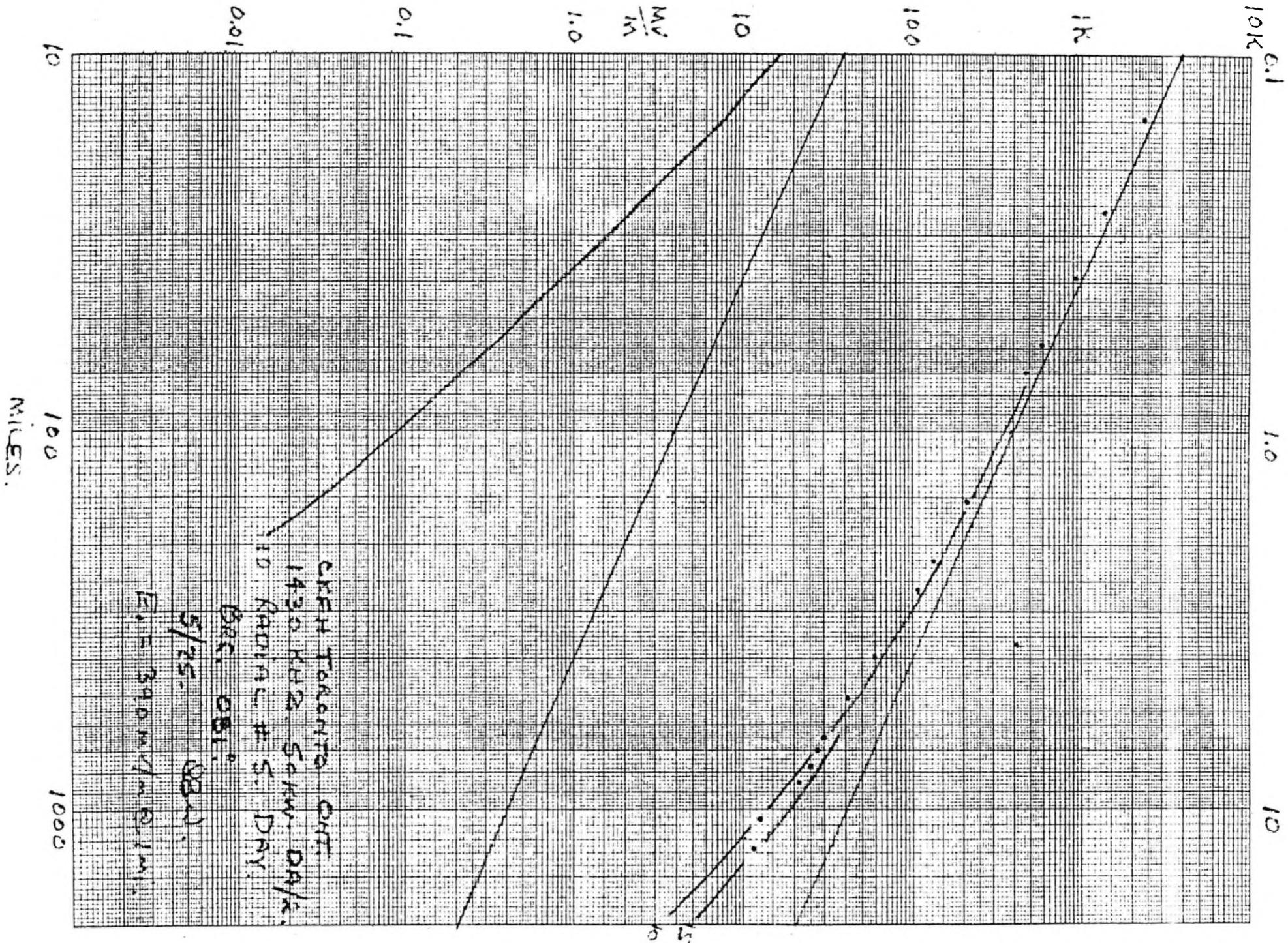
KE LOGARITHMIC
46 7802
7 X 2.2 CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.



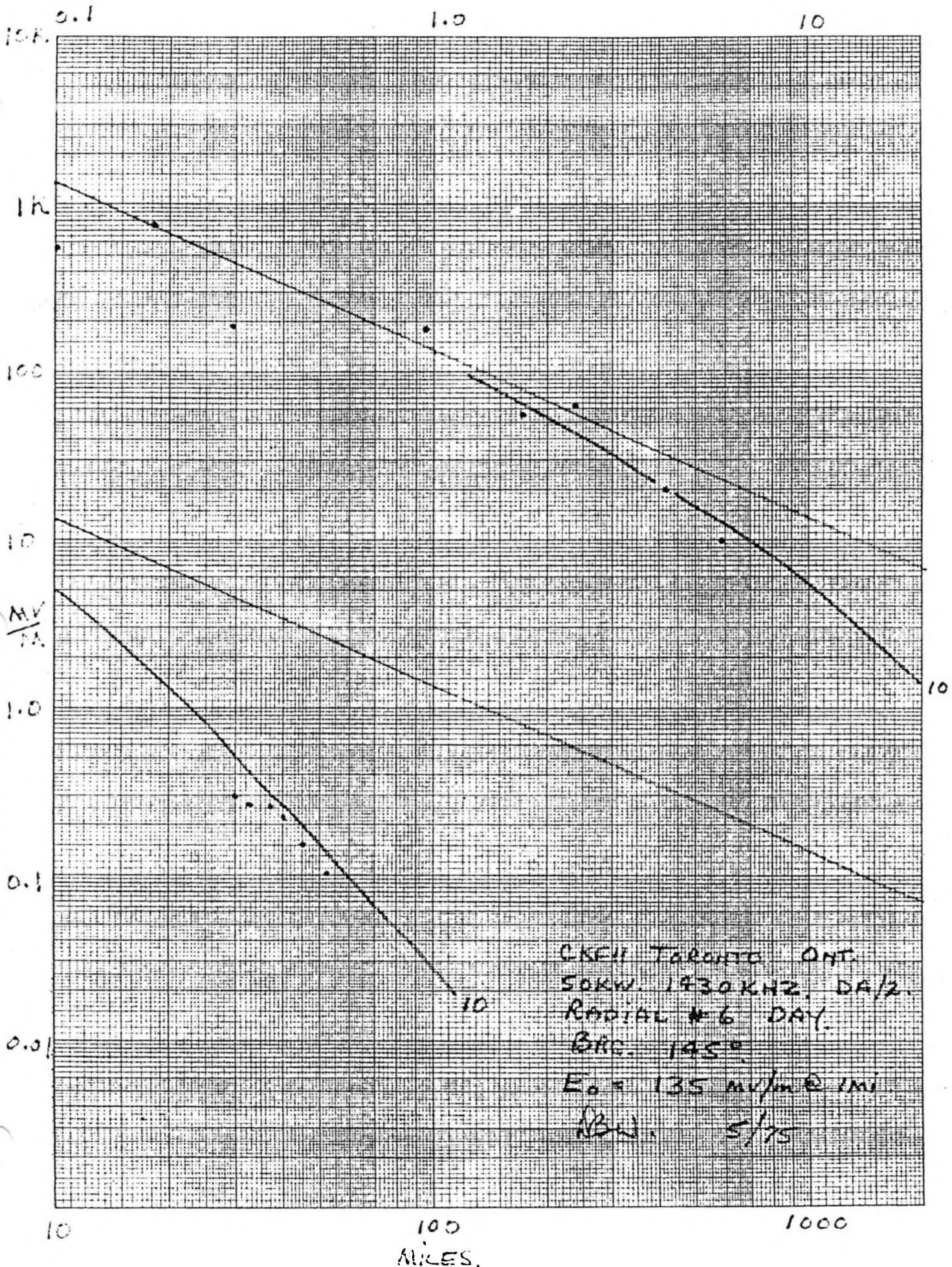
CKFH TORONTO ONT.
1430 KHZ. 50000 WATTS.
DAY CLASS III
RADIAL # 3 037°
E0 = 500 MV/M @ 1MI
DAY OPERATION
6/75.

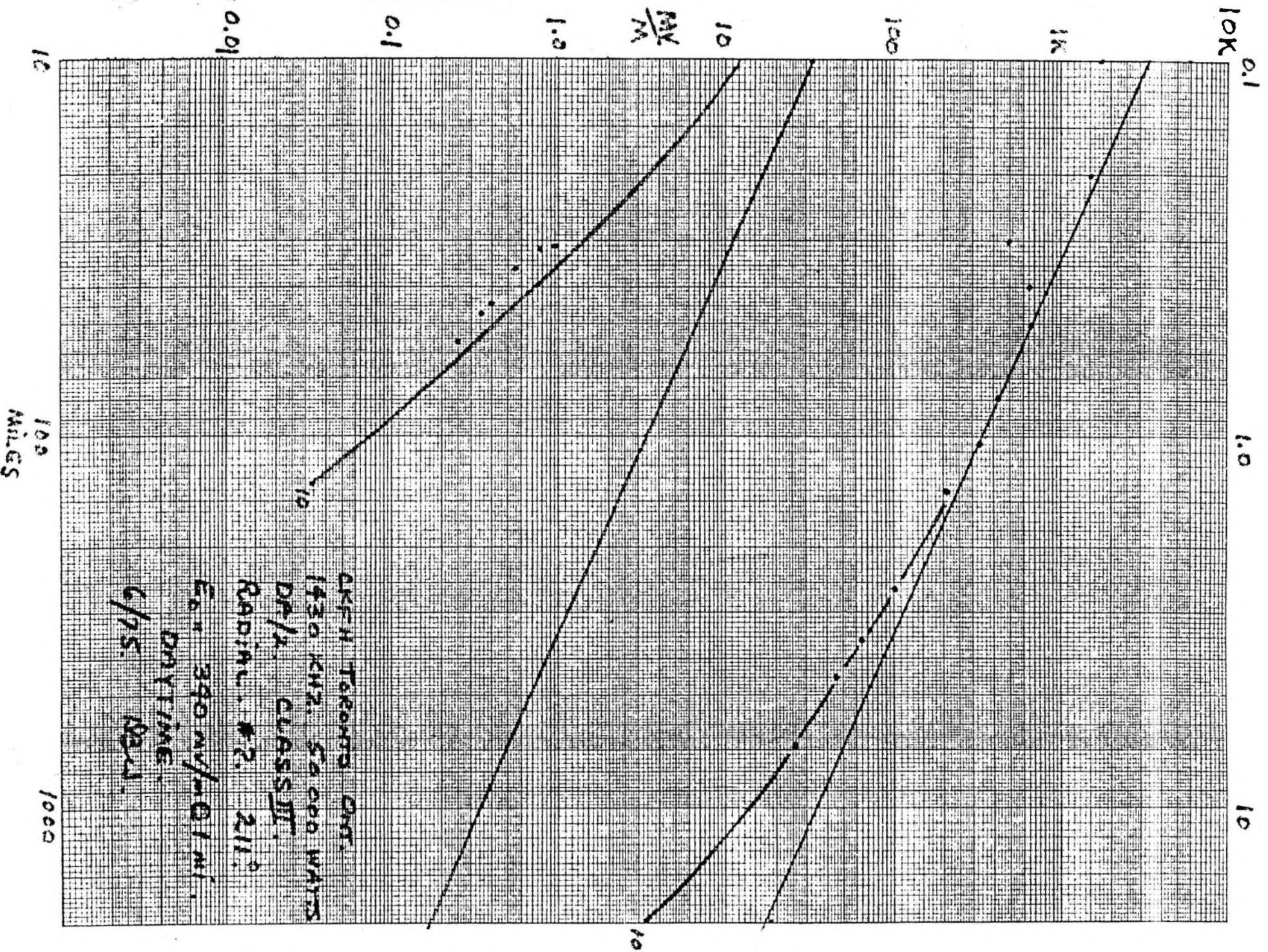


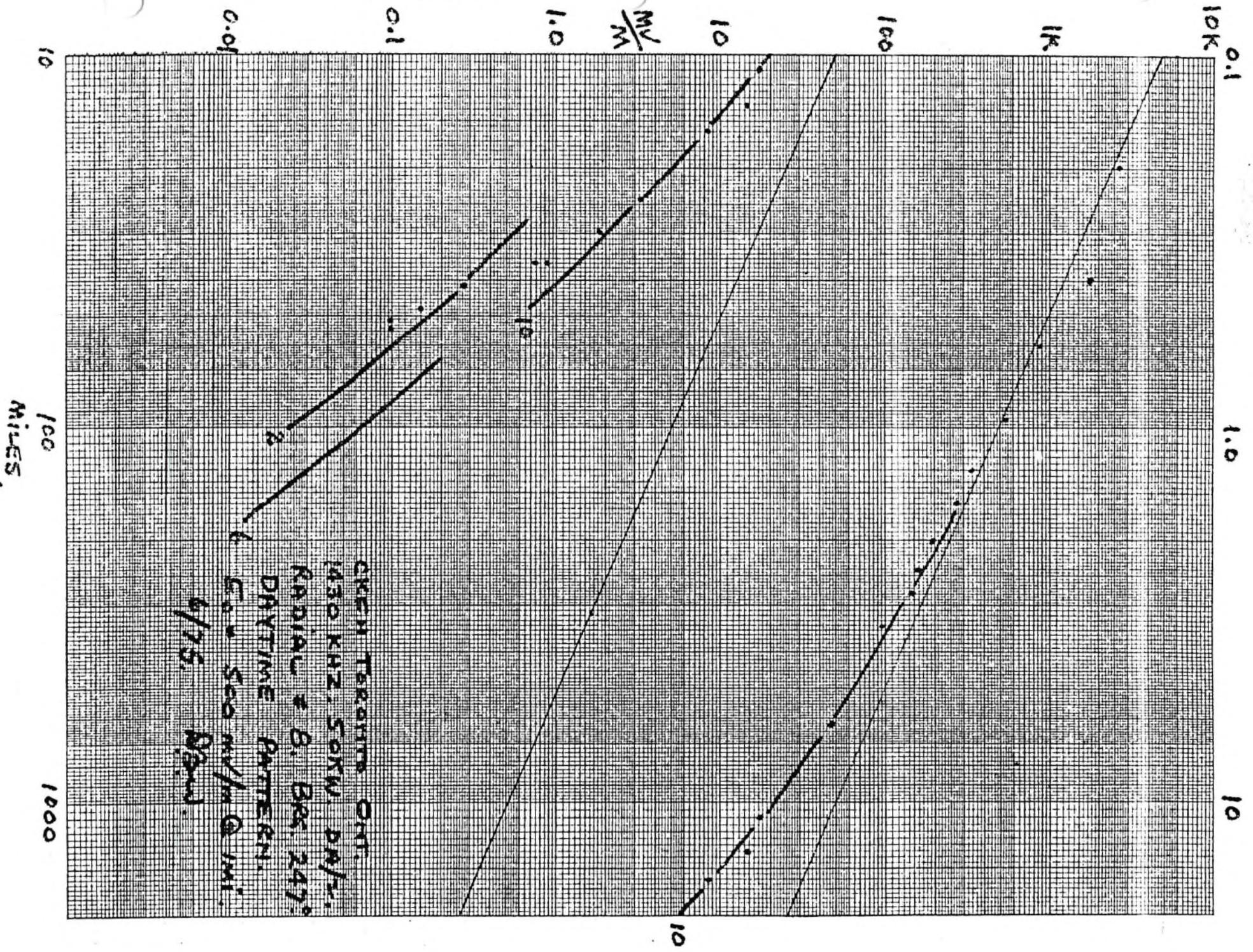




KYOW LOGARITHMIC 359-127G
KEUFFEL & ESSER CO. MADE IN U.S.A.
7 X 7 1/2 CYCLES







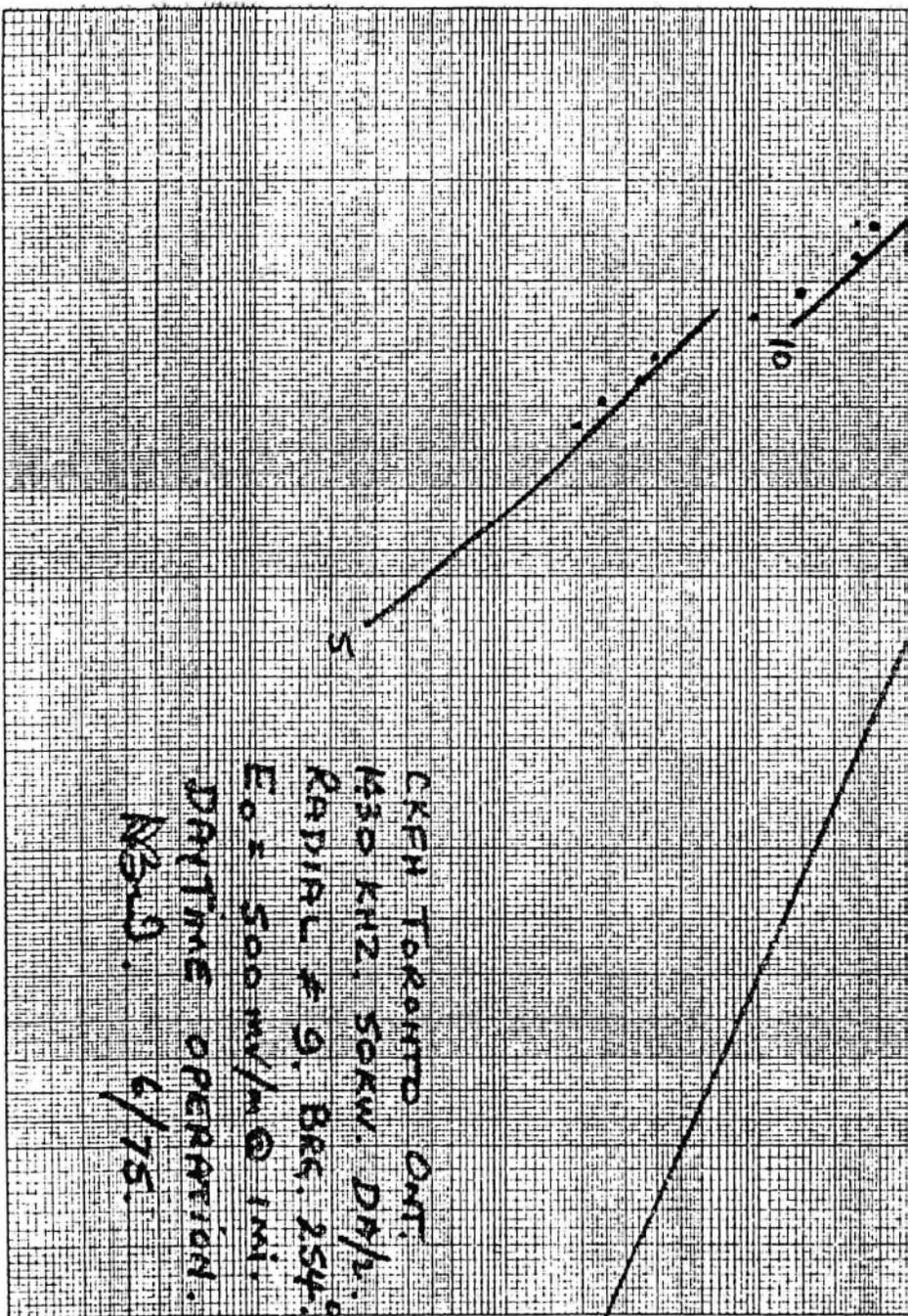
$\frac{M\mu}{M}$

1.0

0.1

0.01

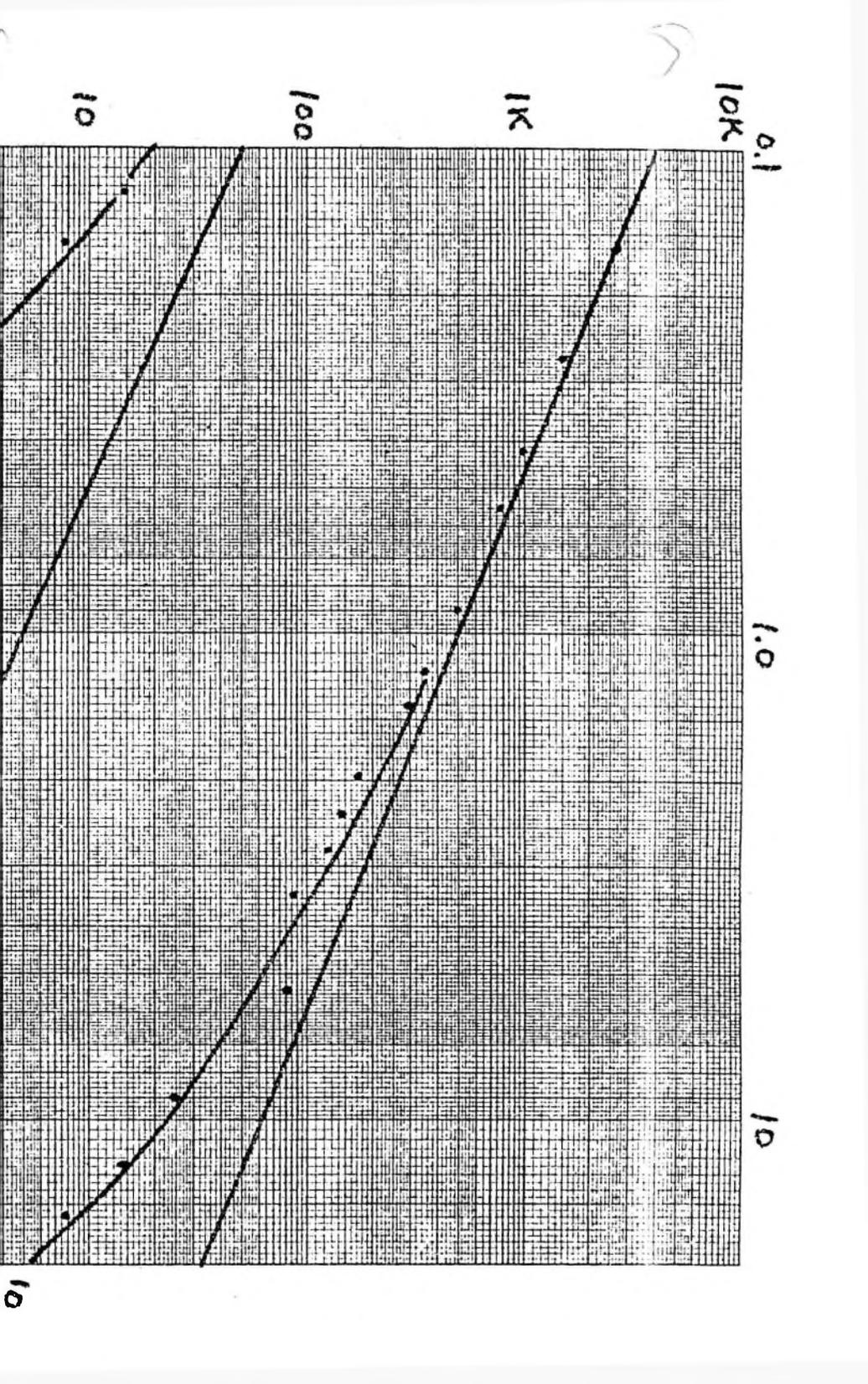
10



100
 MILES.

1000

CKEN TORONTO ONT.
 430 KHZ. 50KW. DR/L.
 RADIAL # 9. BEG. 254.
 Eo = 500 m/m @ 1mi.
 DAYTIME OPERATION.
 NSD. 6/75.



M/M

1.0

0.1

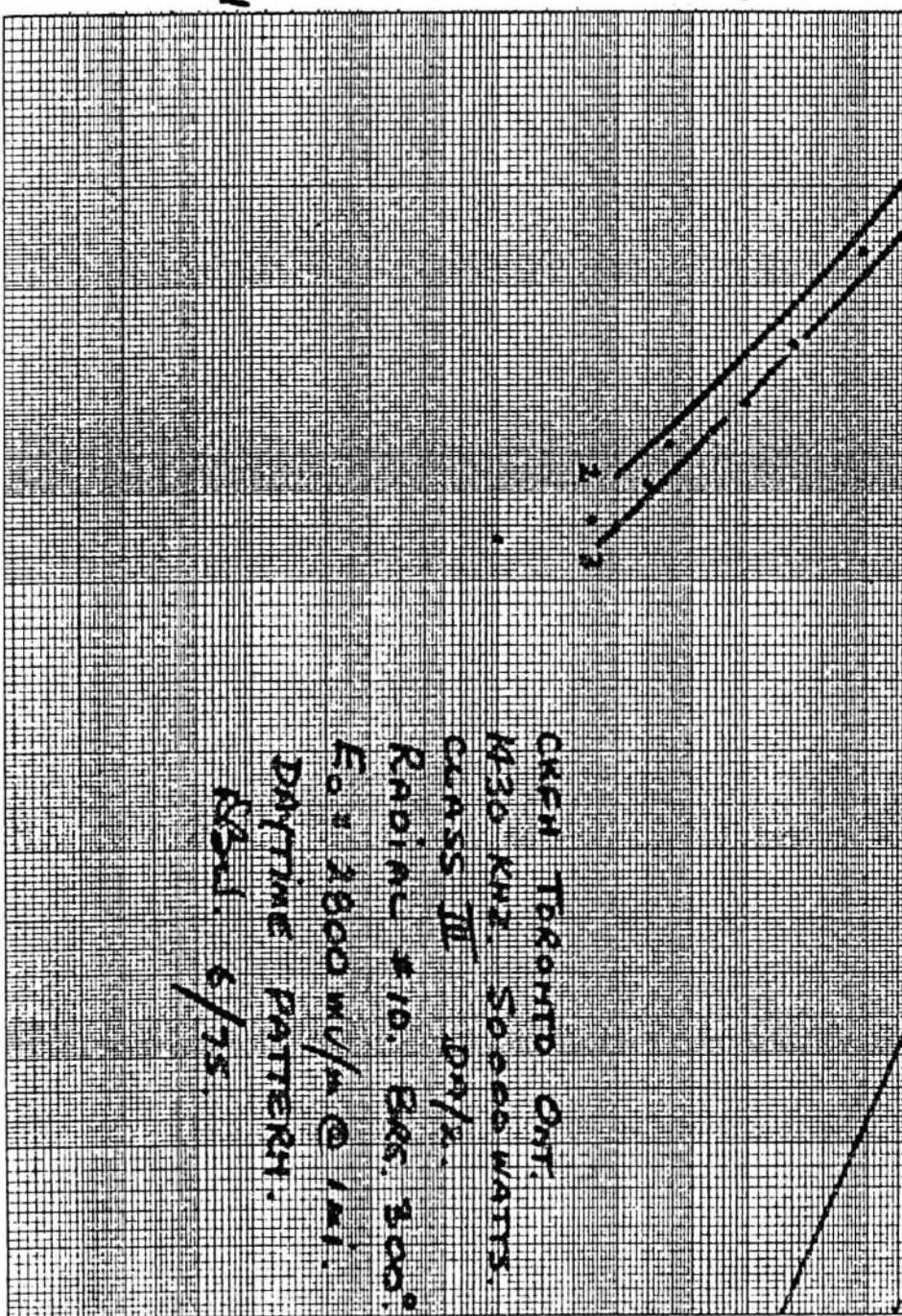
0.01

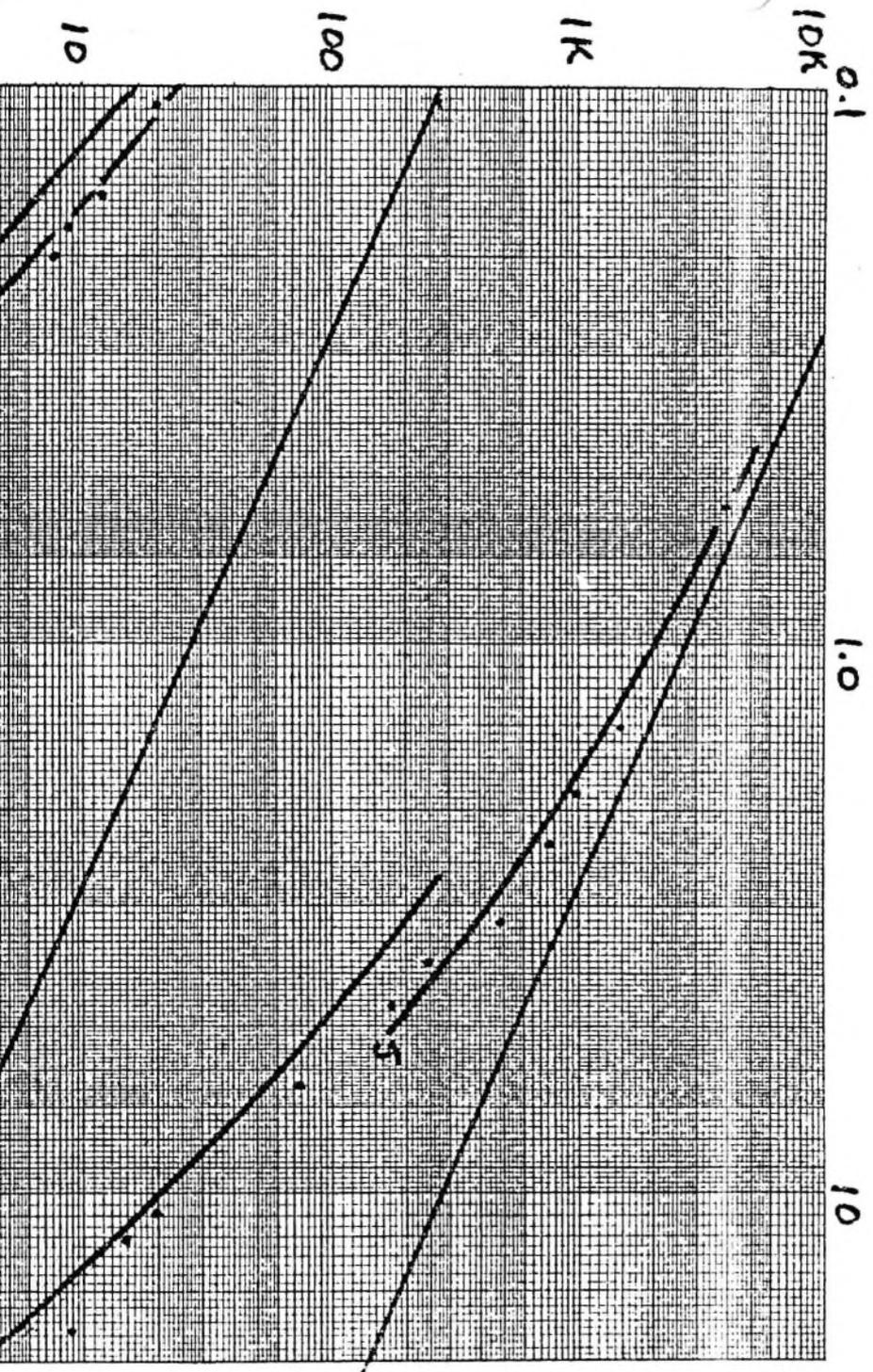
10

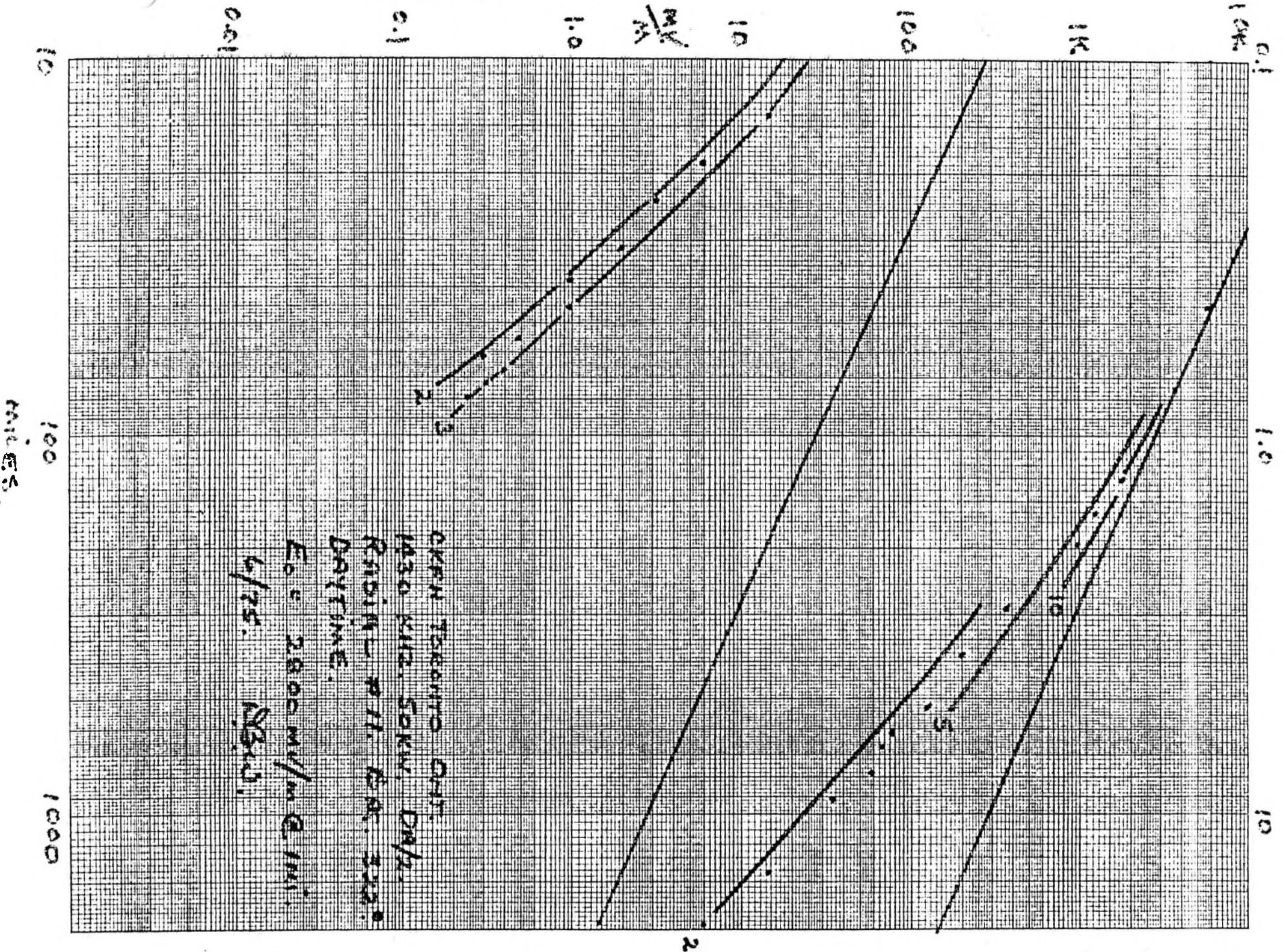
100
MILES

1000

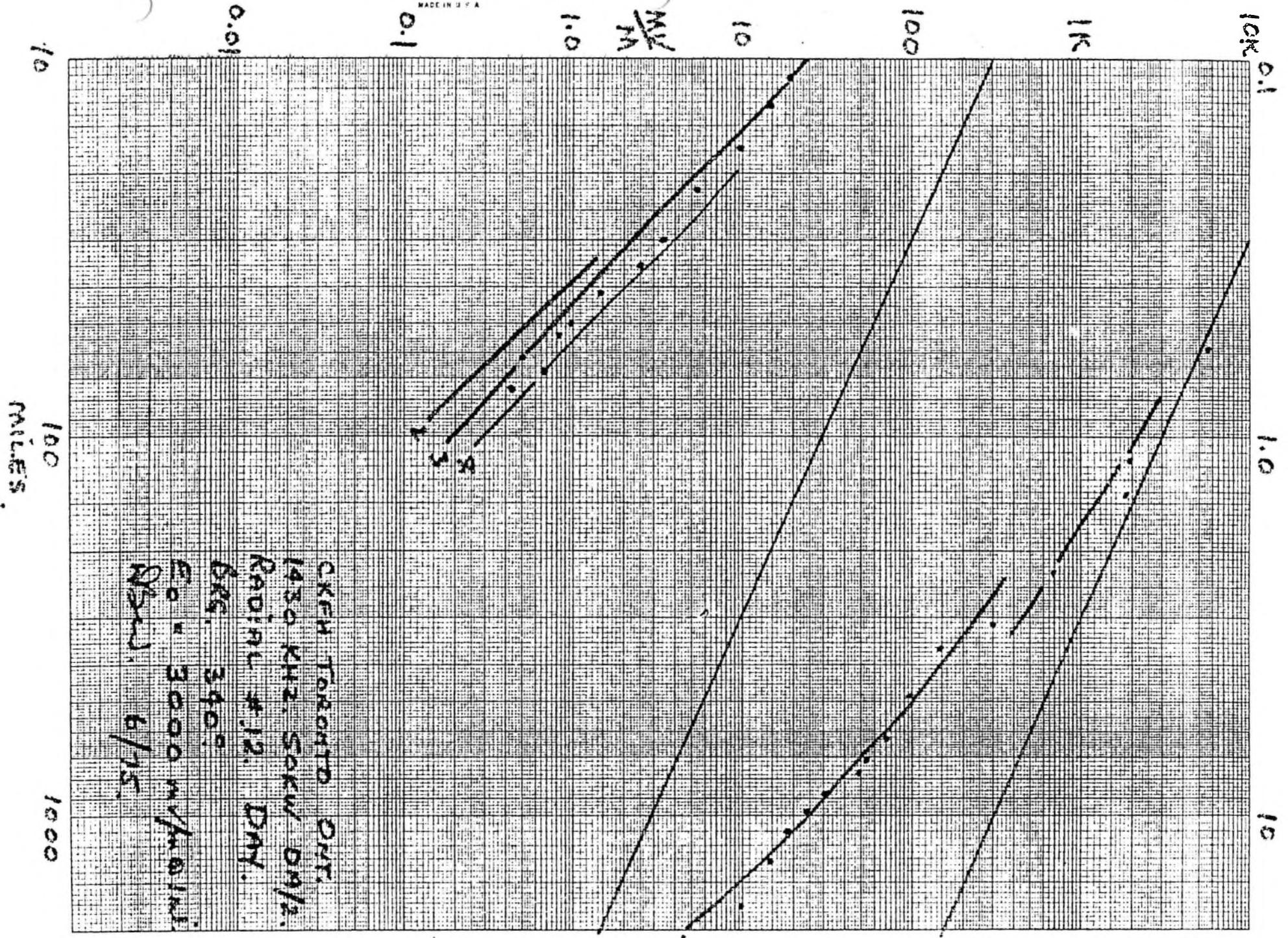
CHEM TORONTO ONT.
W30 KHZ. 50000 WATTS.
CLASS III DAY/2.
RADIAL *10. BRG. 300°
Eo 2800 w/4 @ 1mi.
DAYTIME PATTERN.
ASBL. 6/75.





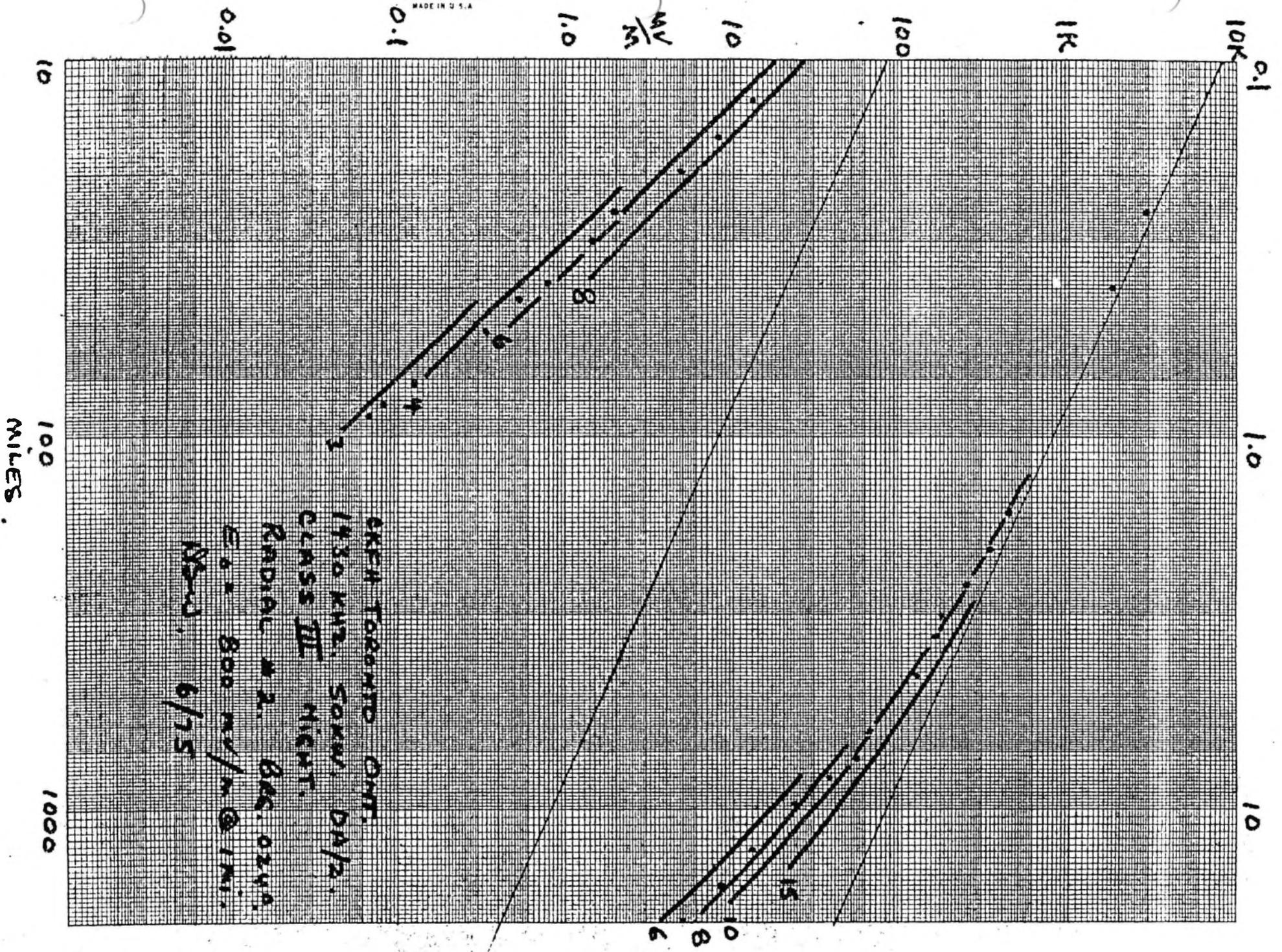


FIELD STRENGTH



CKFH TORONTO DUT.
 1430 KHZ. SAKU DUT.
 RADIAL #12. DUT.
 DEG. 340°
 E0 = 3000 m/μm/μm
 6/15.

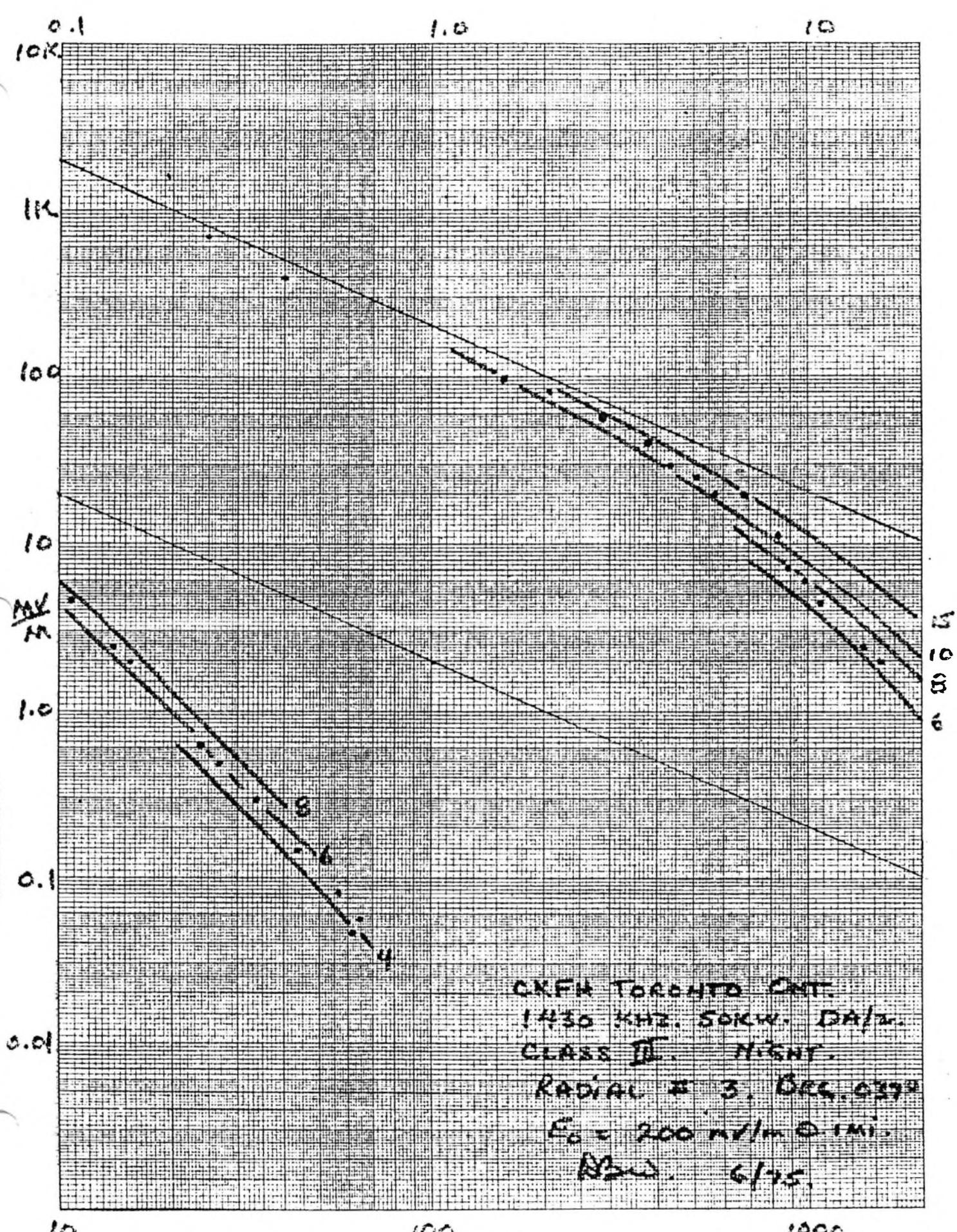
MILES.



OXFORD TORONTO OMT
 1430 kHz. SORRY, DA/2.
 CLASS III NIGHT.
 RADIAL W. 2. 800 mV/m @ 1 mi.
 Nov. 6/75

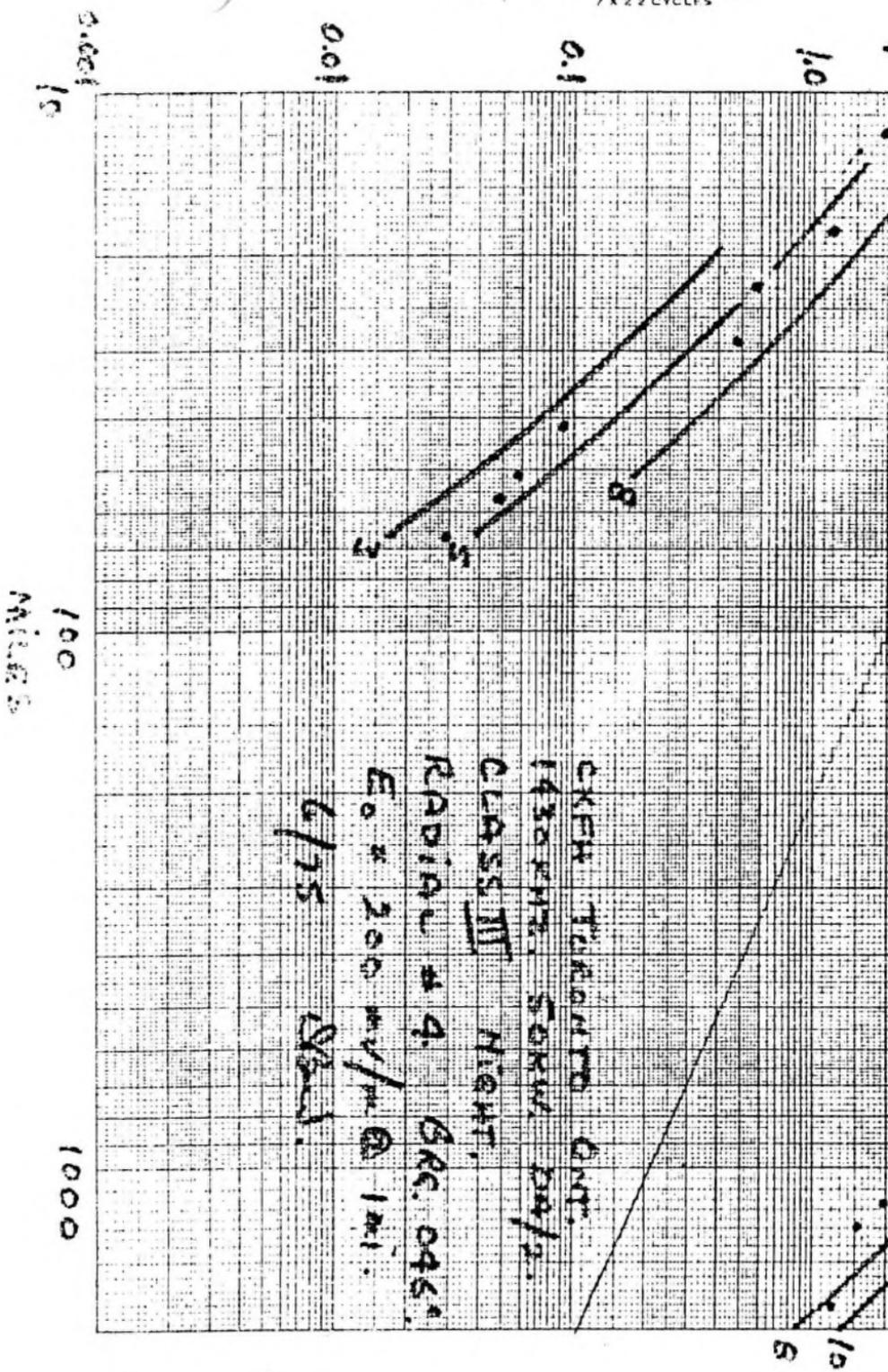
MILES.

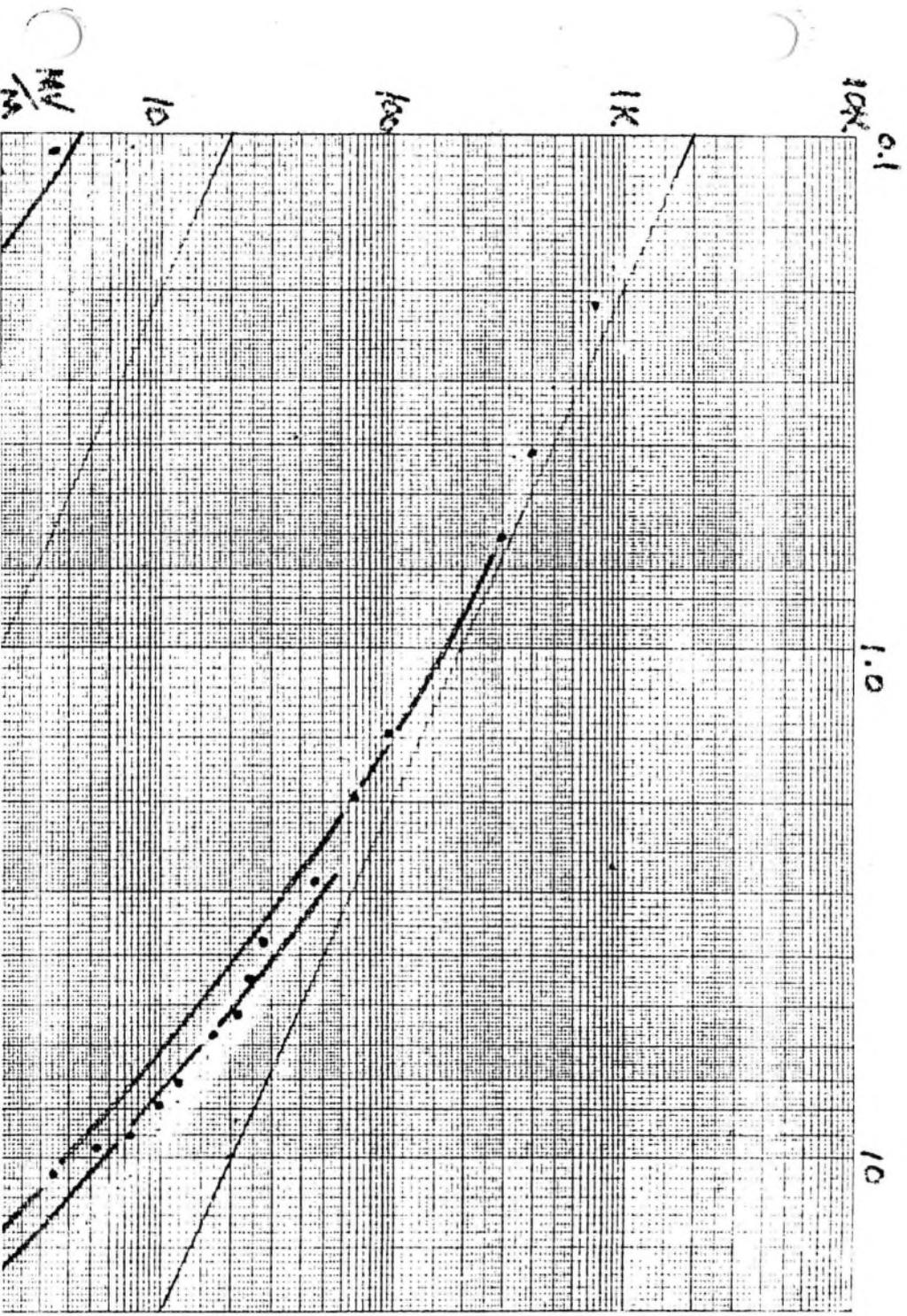
K&E LOGARITHMIC 46 7802
 MADE IN U.S.A.
 KEUFFEL & ESSER CO.



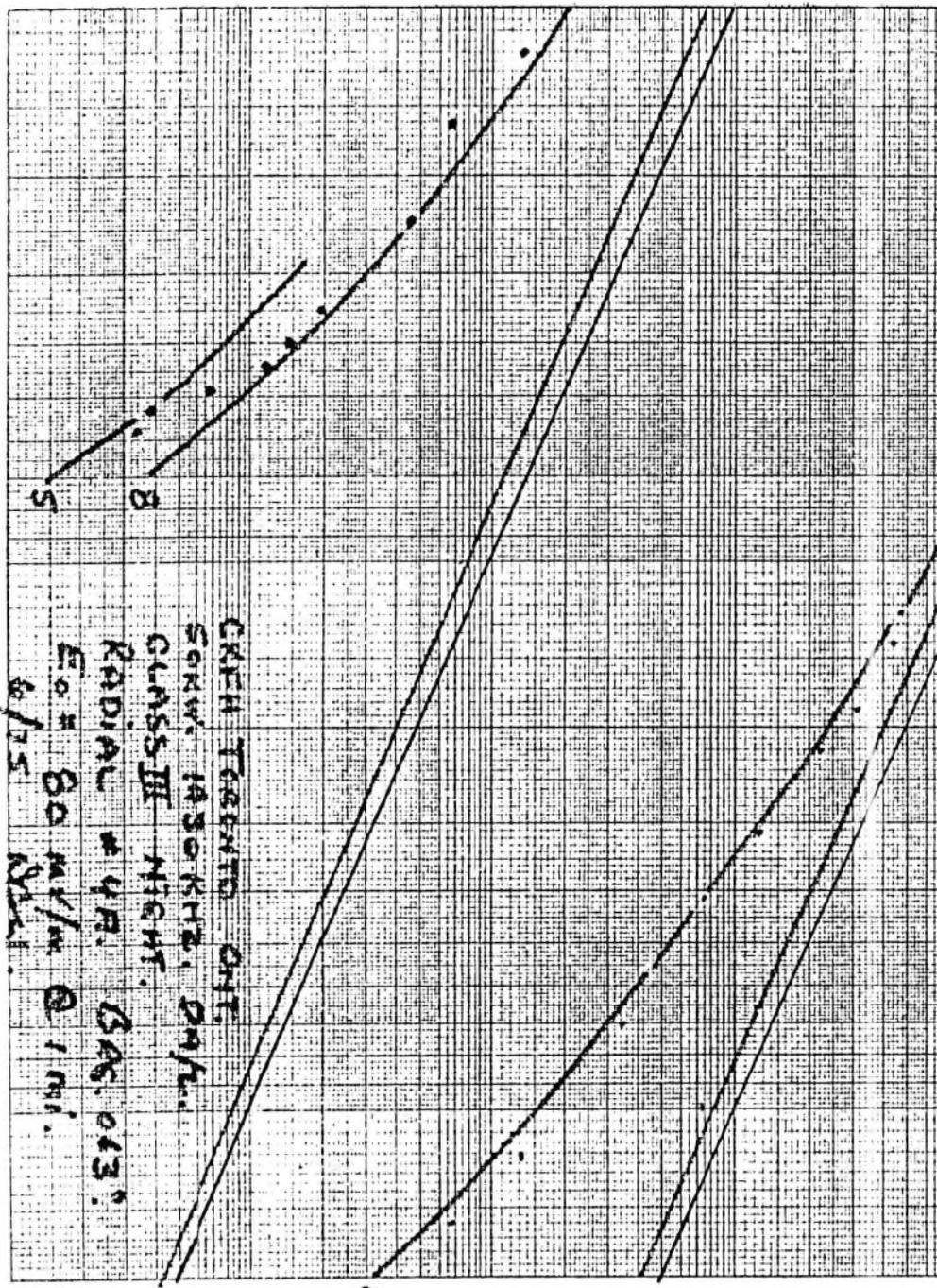
CKFH TORONTO ONT.
 1430 KHZ. 50KW. DA/2.
 CLASS II. NIGHT.
 RADIAL # 3. GRG. 0379
 $E_0 = 200 \text{ mV/m @ 1MI.}$
 MUF. 6/75.

1000 500 100



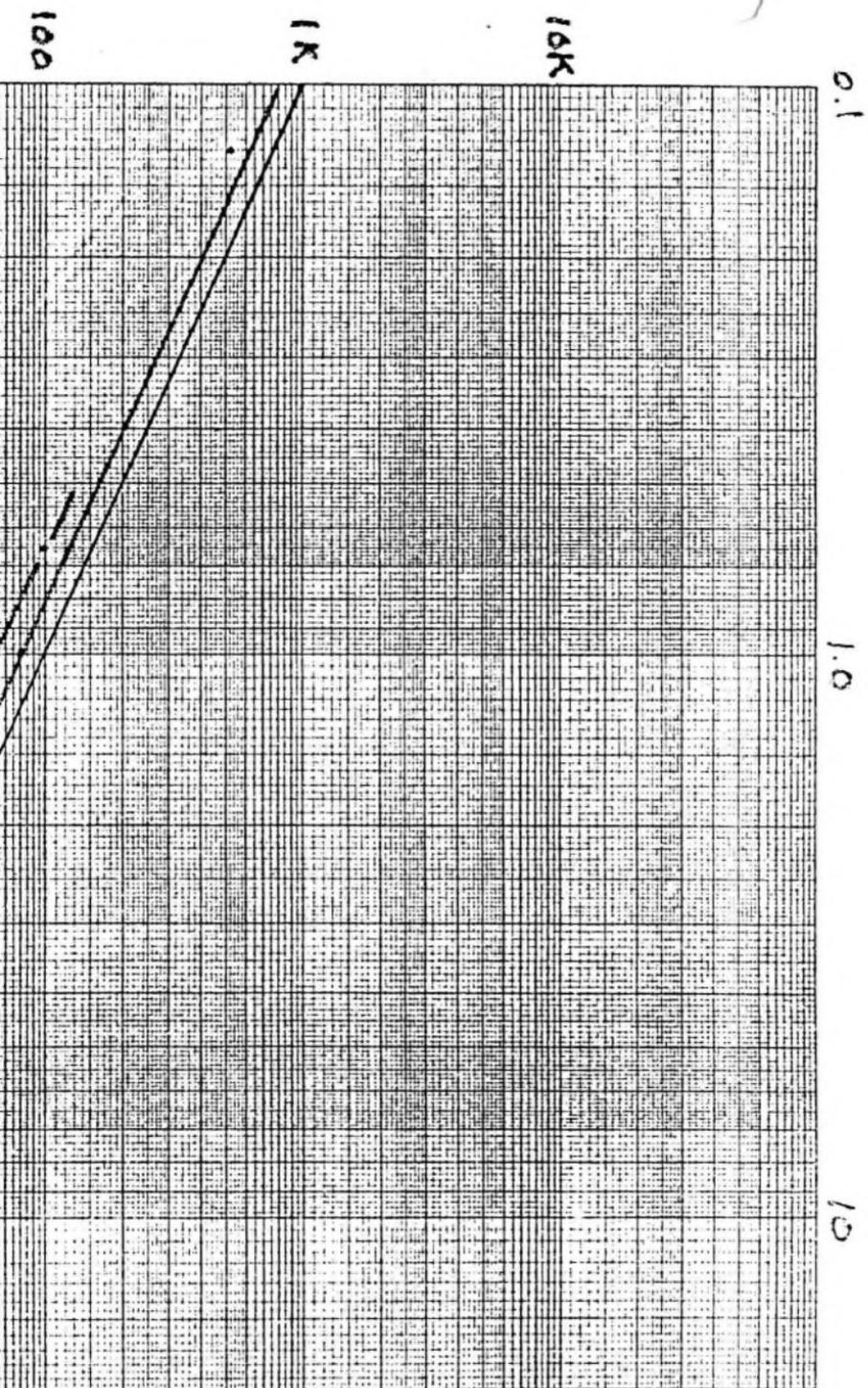


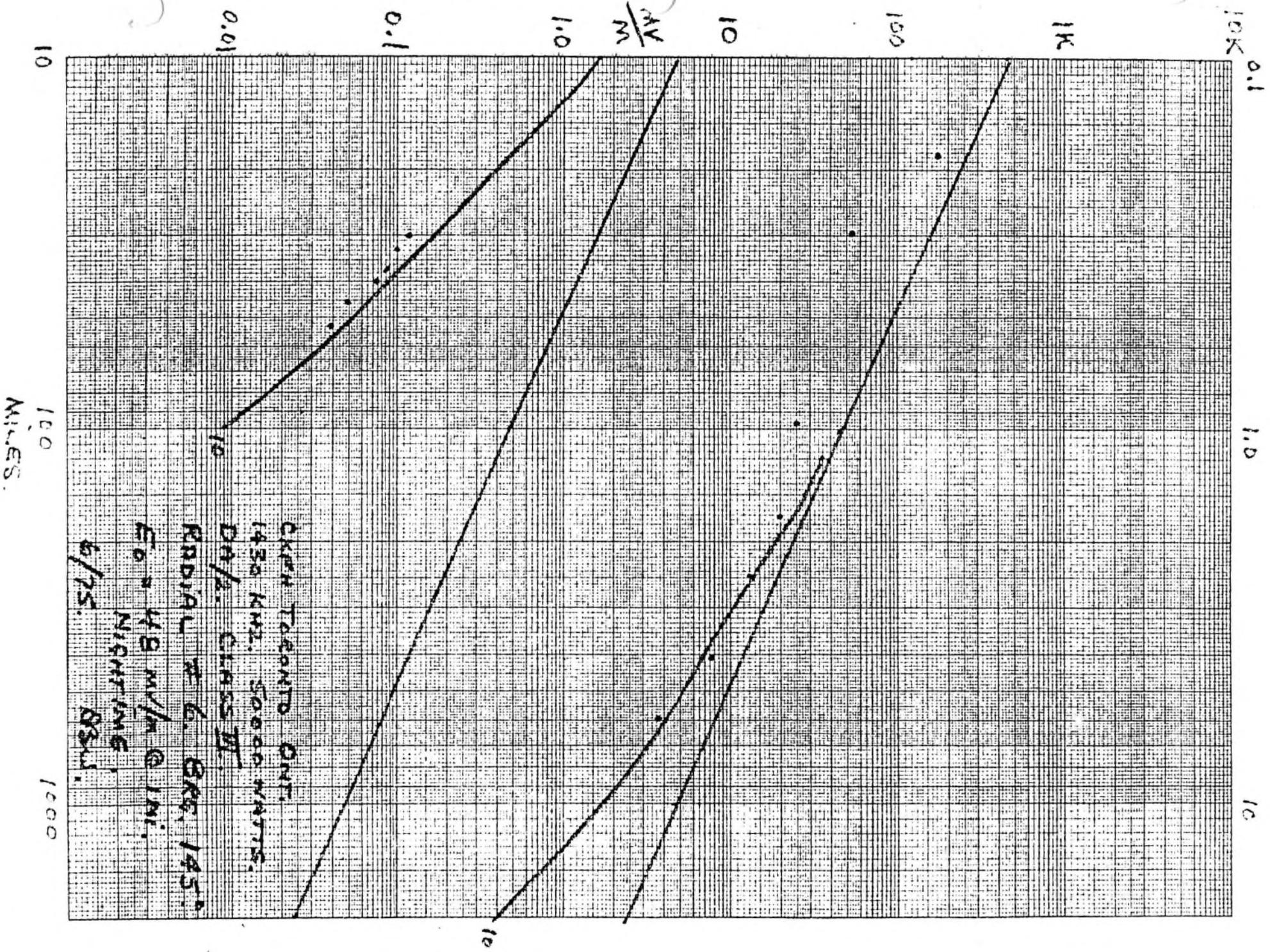
10
 1.0
 0.1
 100
 MILES
 1000

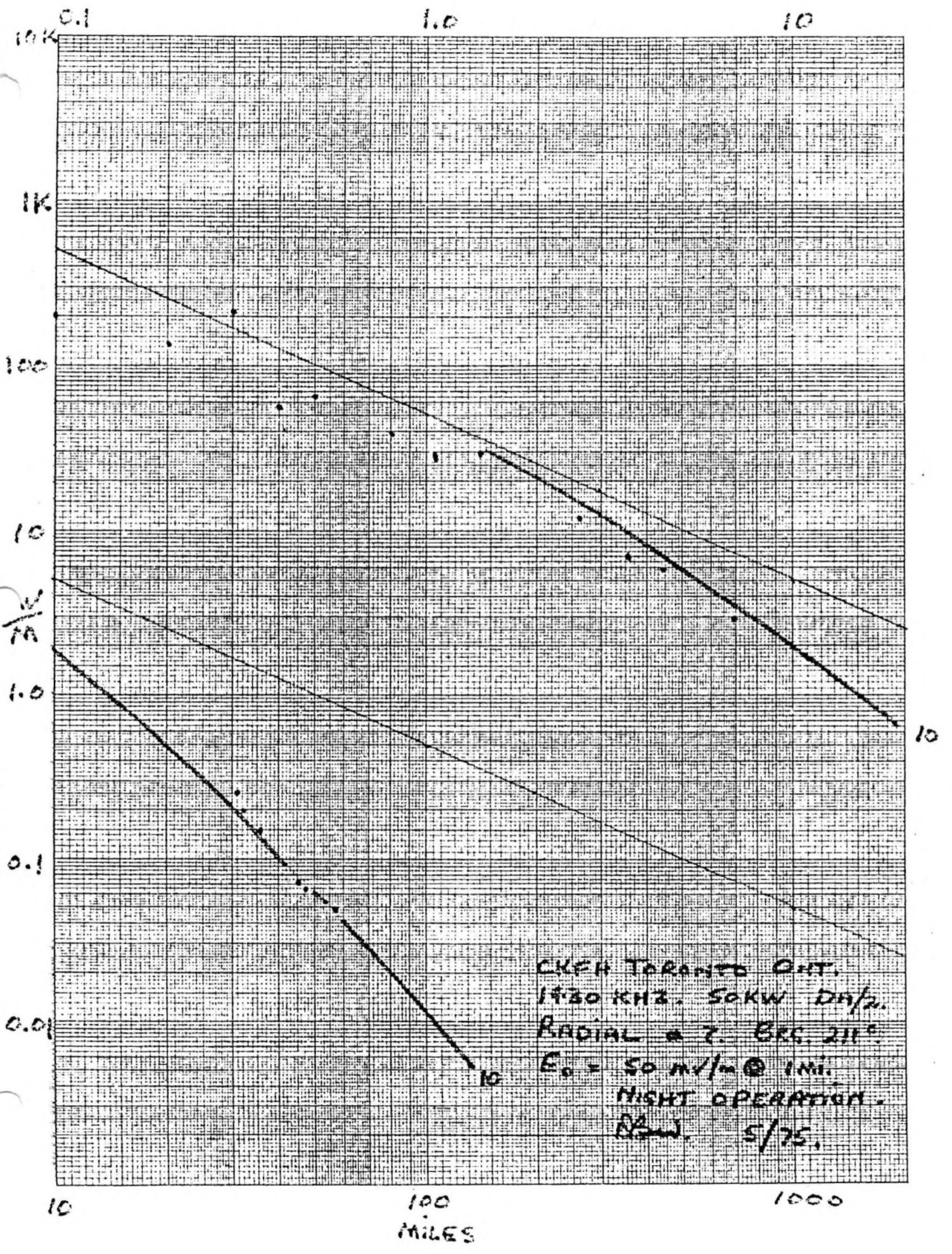


CHEM TRENTO ONT.
 SORW. 1430 KHz. 20 Hz.
 GUNSS III NIGHT.
 RADIAL w 4M. 306.013°
 Eo = 80 mV/m @ 1 mi.
 6/15

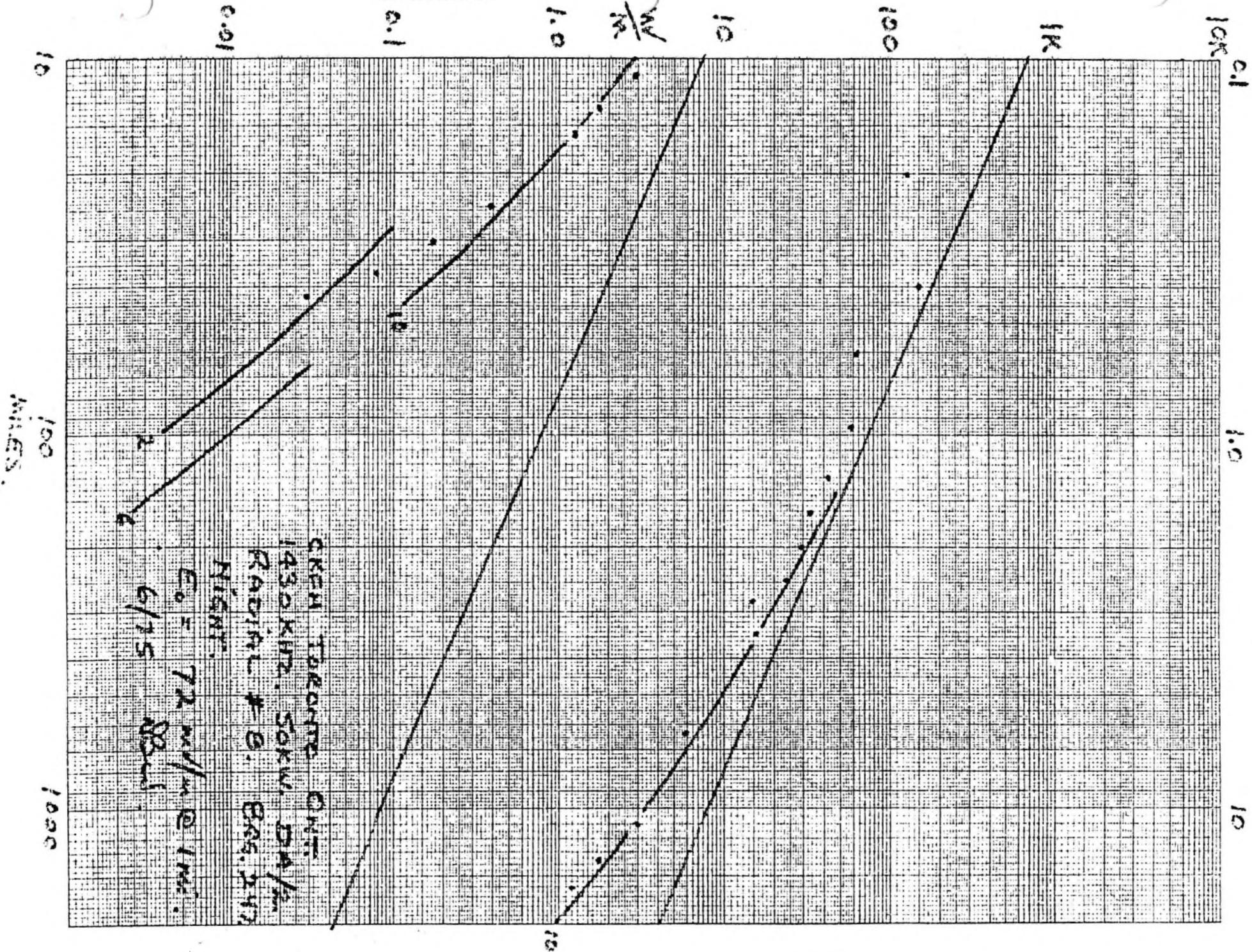
5

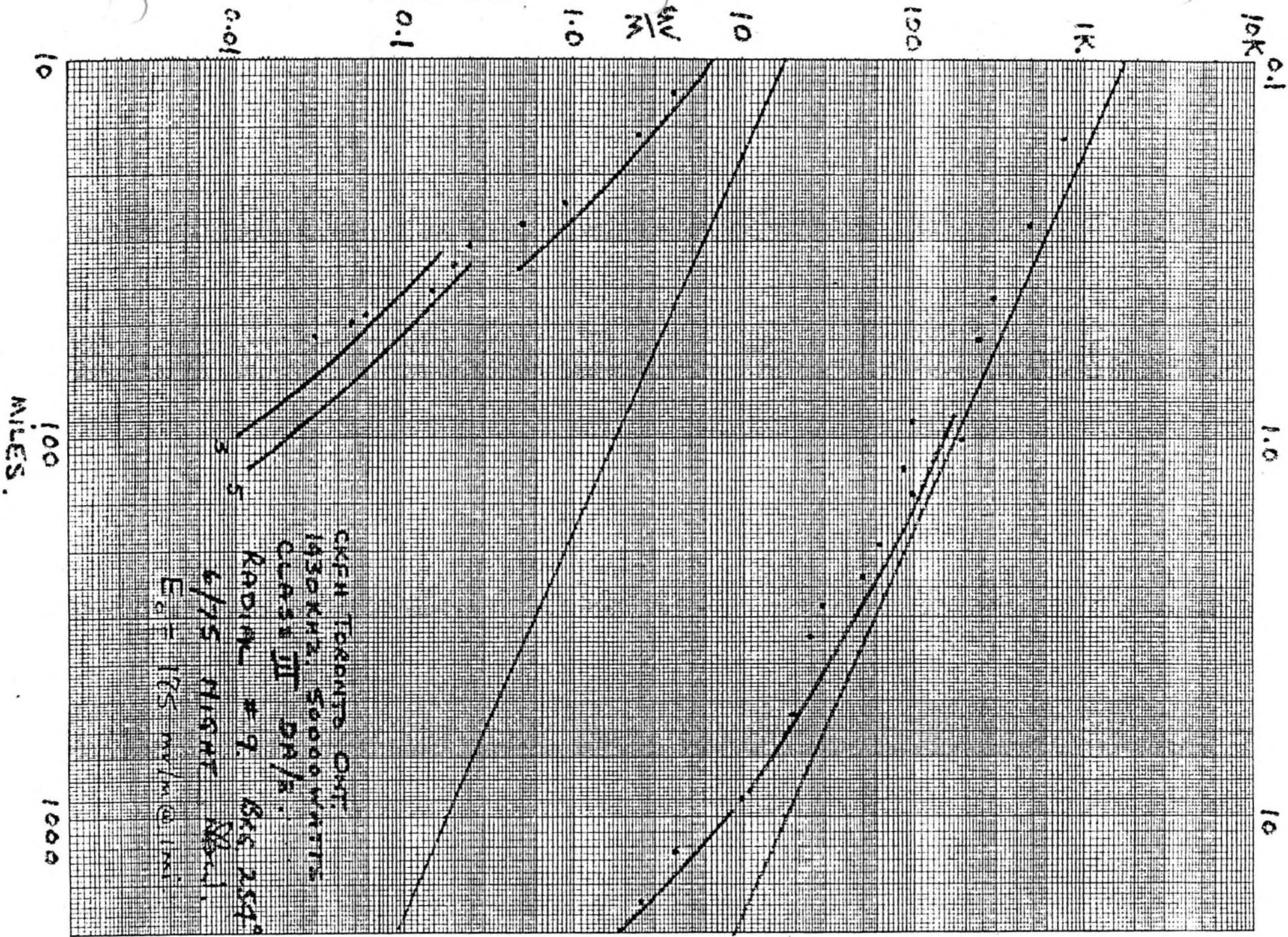


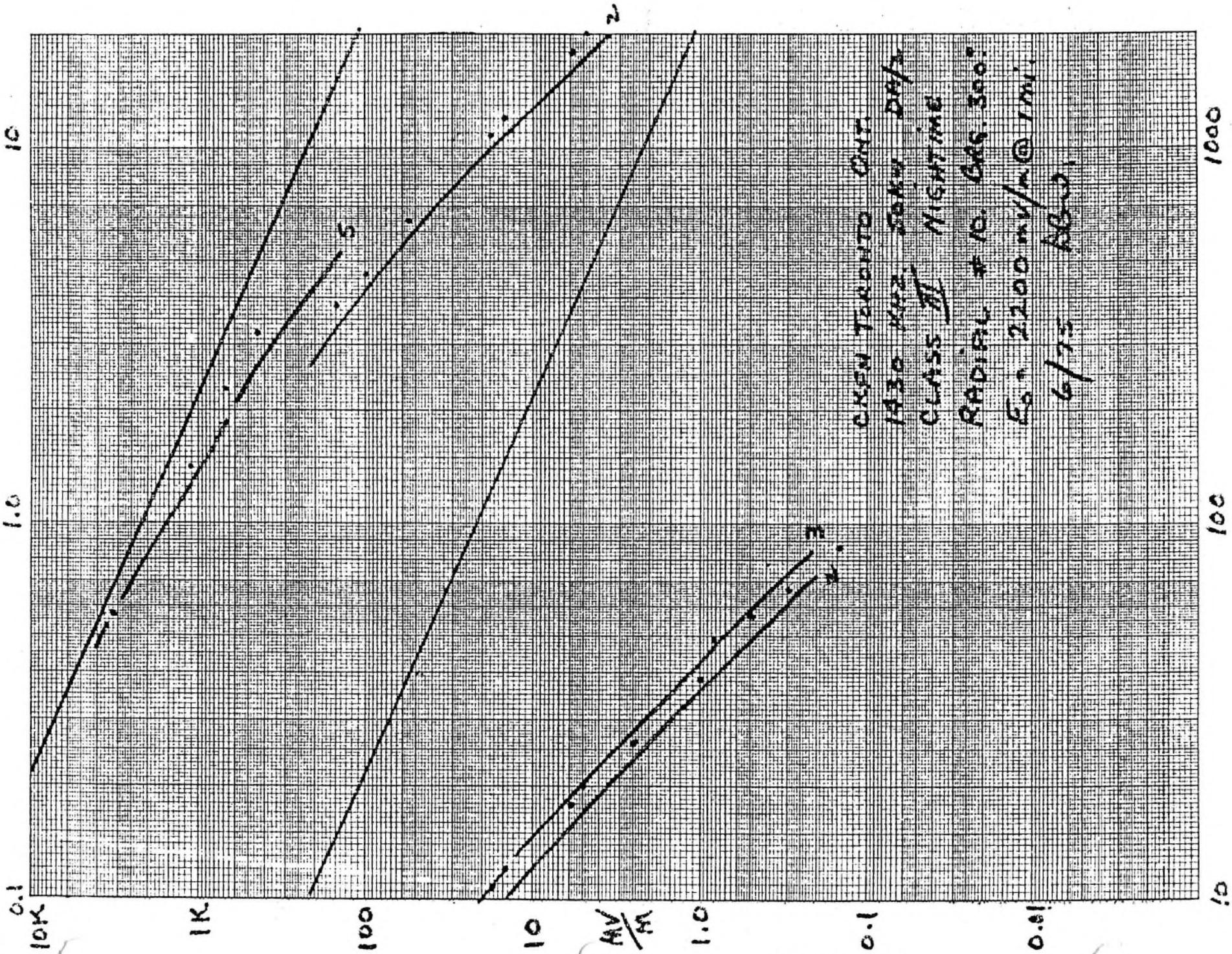




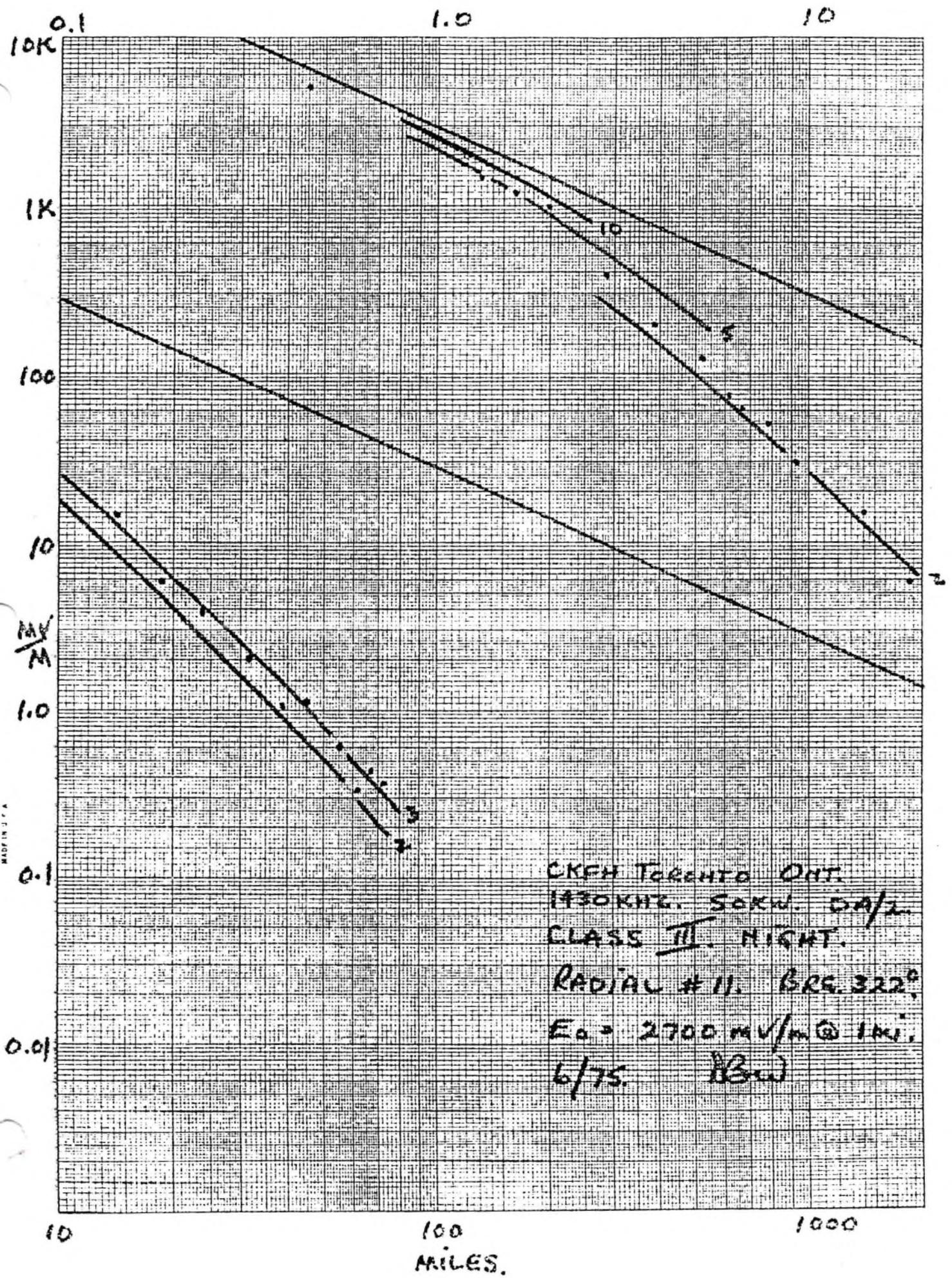
KEUFFEL & ESSER CO.
 7 X 2 CYCLES
 MADE IN U.S.A.







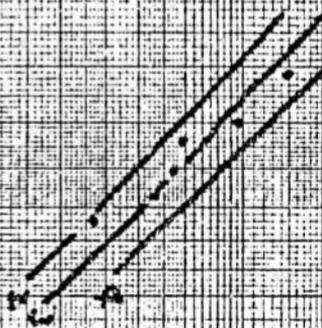
359 1276 KEUFFEL & ESSER CO.
Logarithmic, 7 X 2.2 Cycles.
F. C. C. Sheet.
MADE IN U.S.A.



1.0
0.1
0.01

10

100
MILES
1000



ONE-H TALENTO ONE.

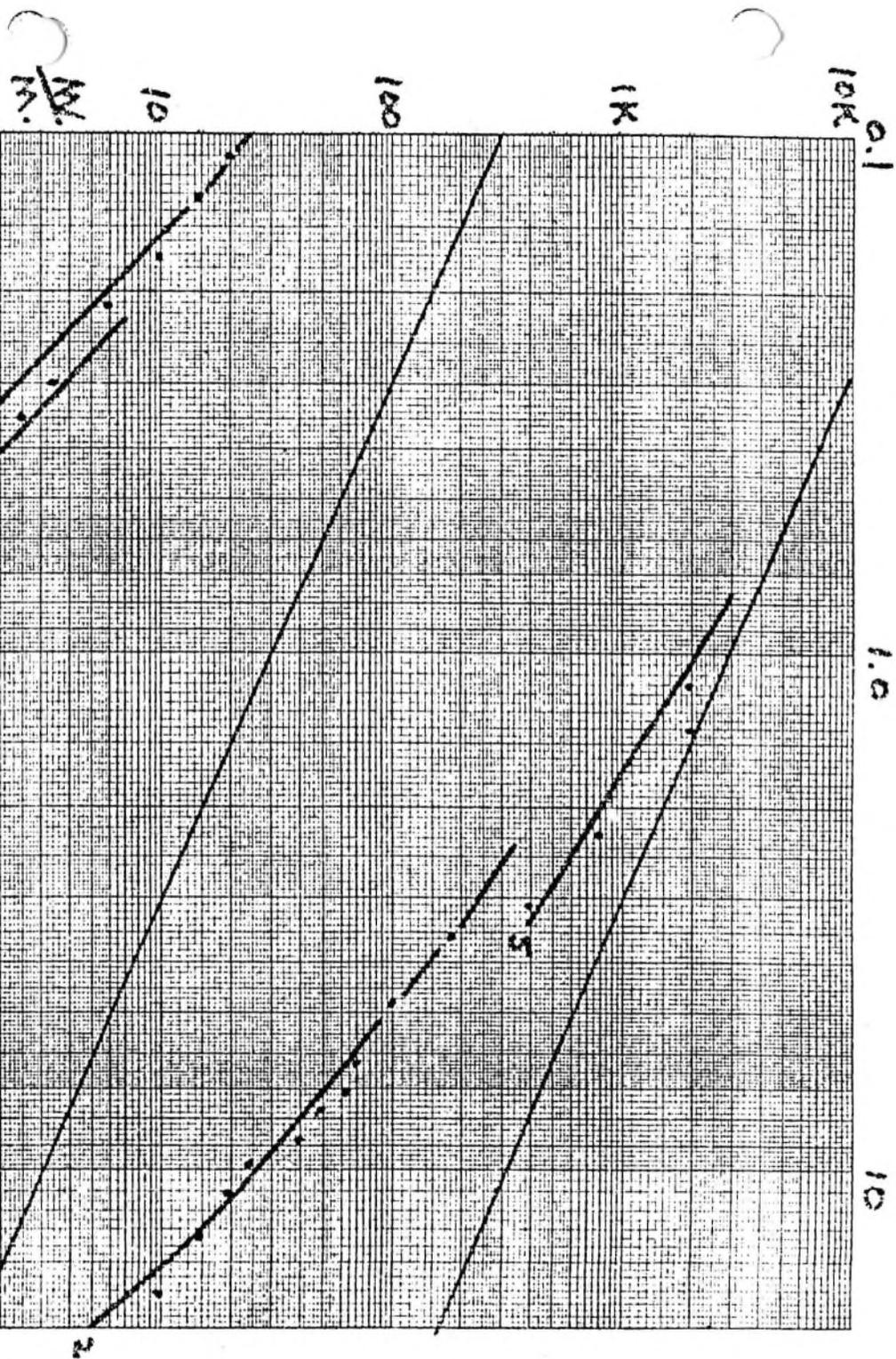
1430 KNE. SORW. DAY.

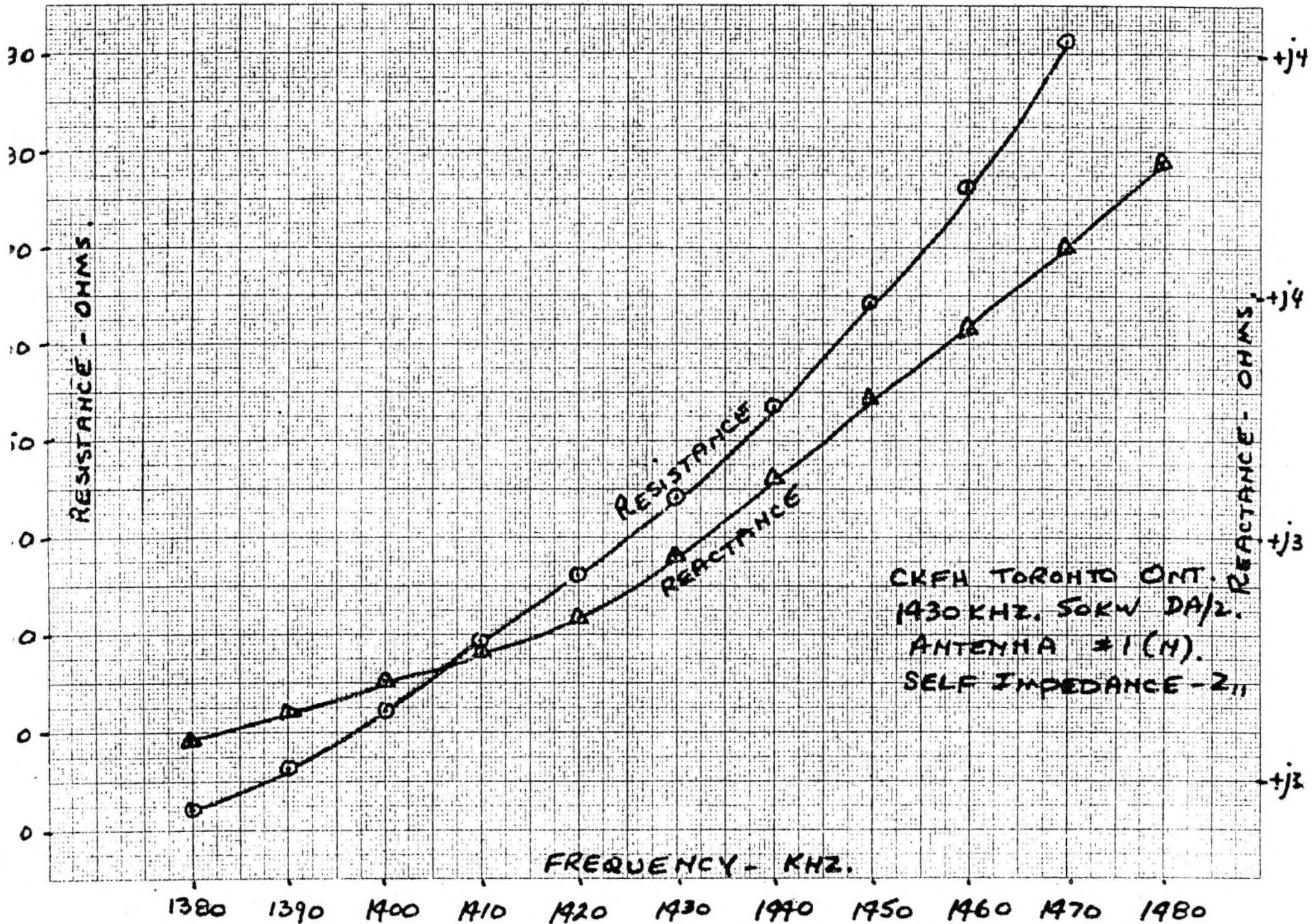
CLASS III NIGHT.

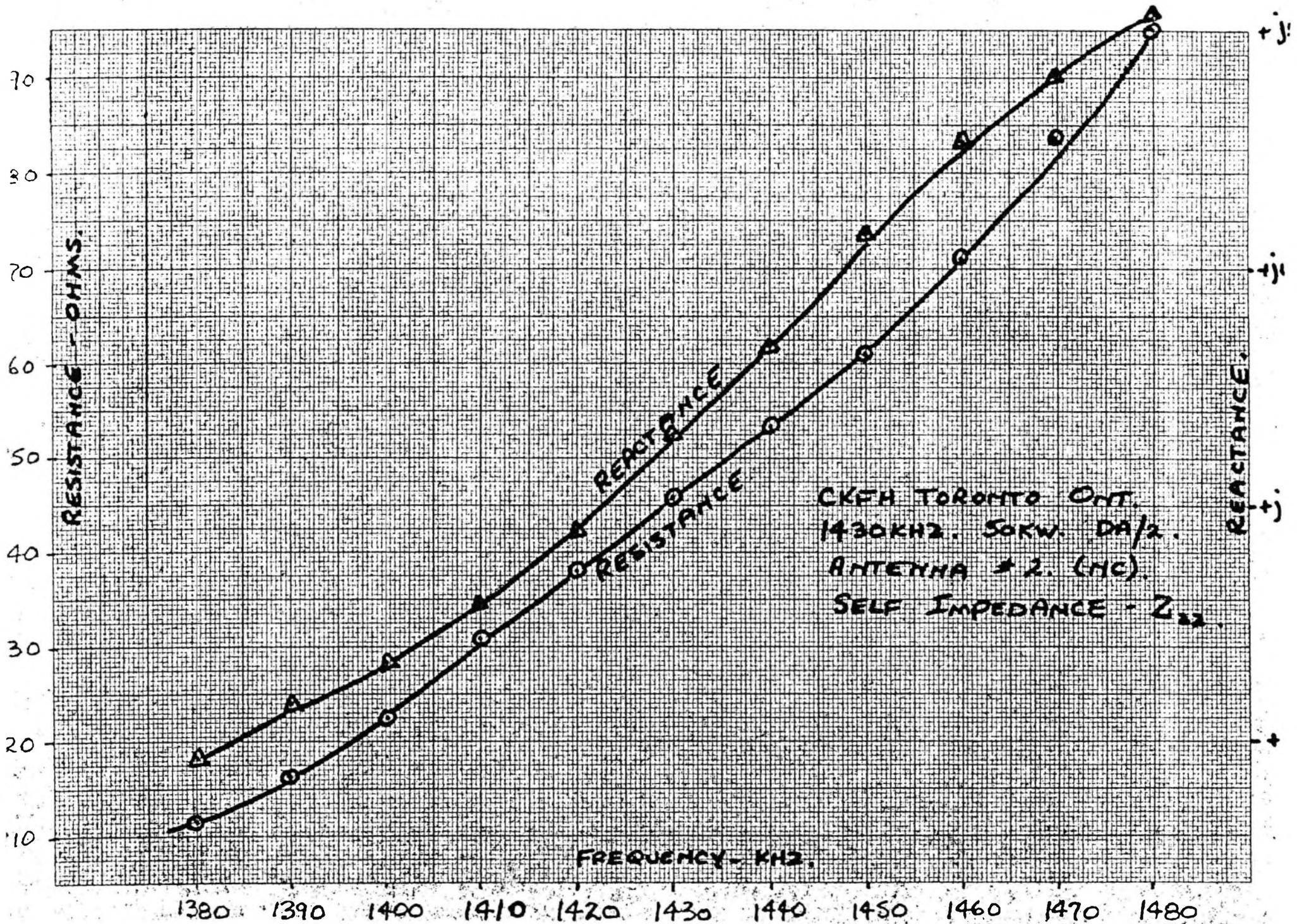
RADIAL # 12. DEG. 340.

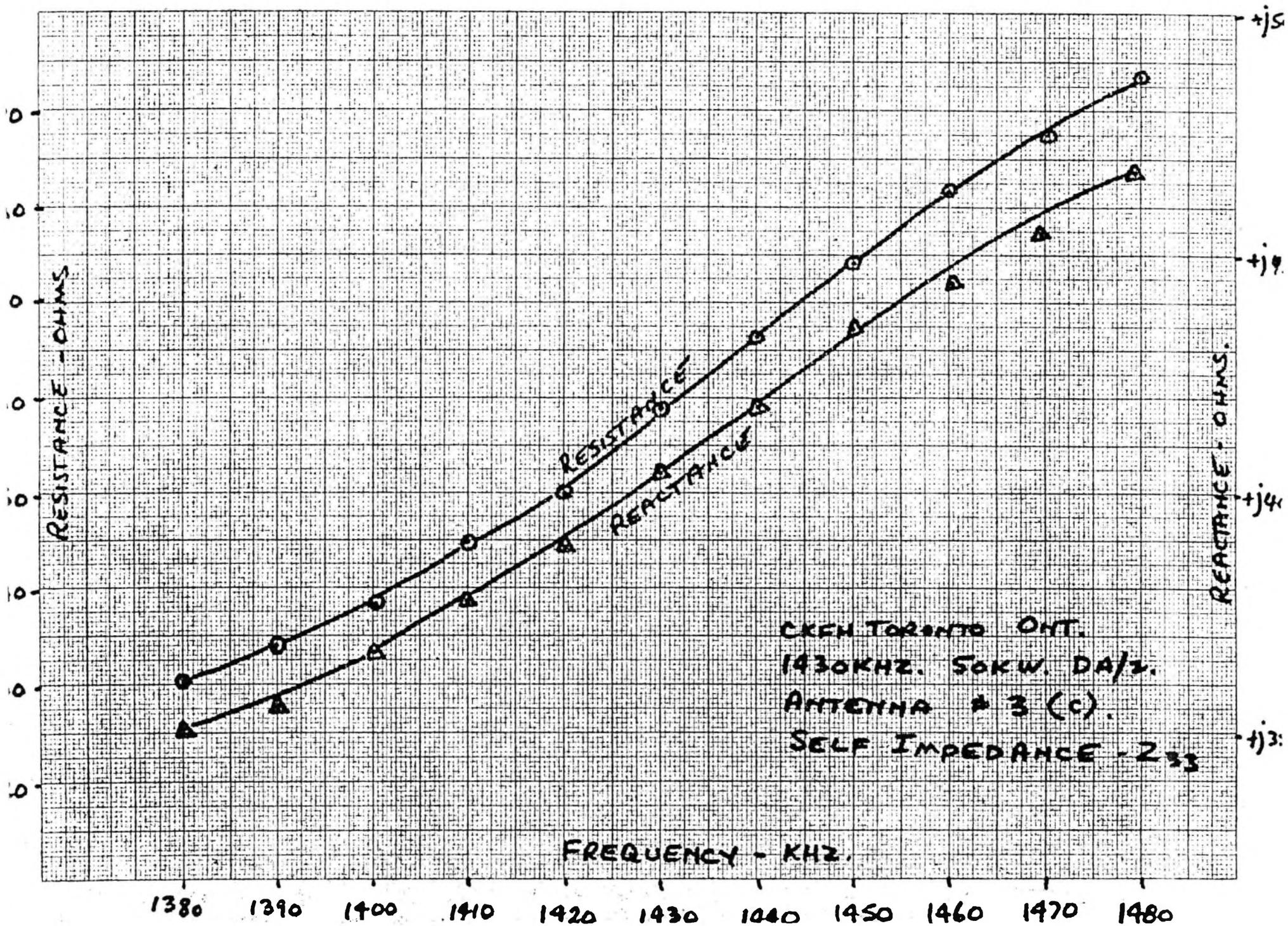
C. 3000 m/100 mi.

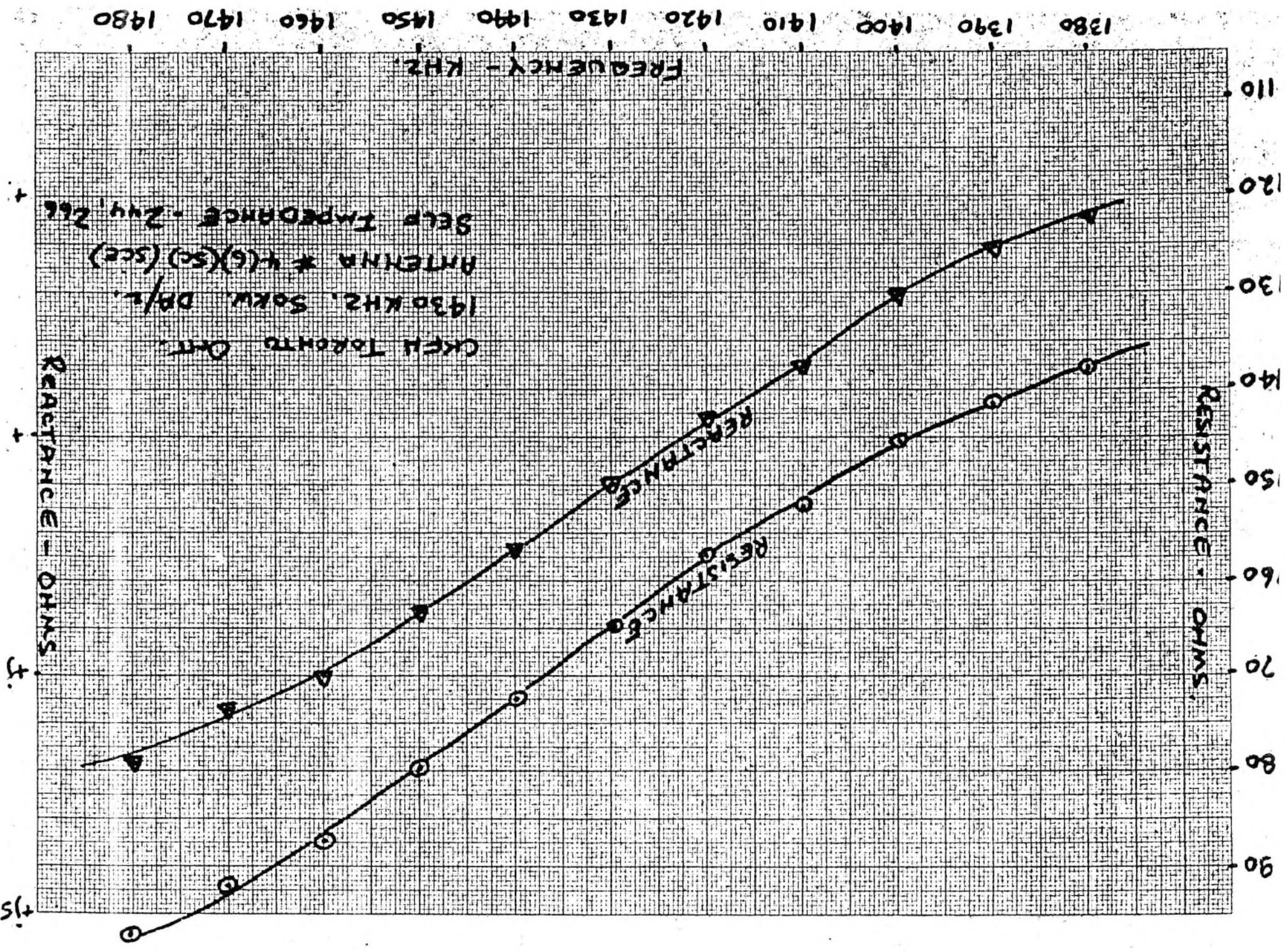
April. 6/75.

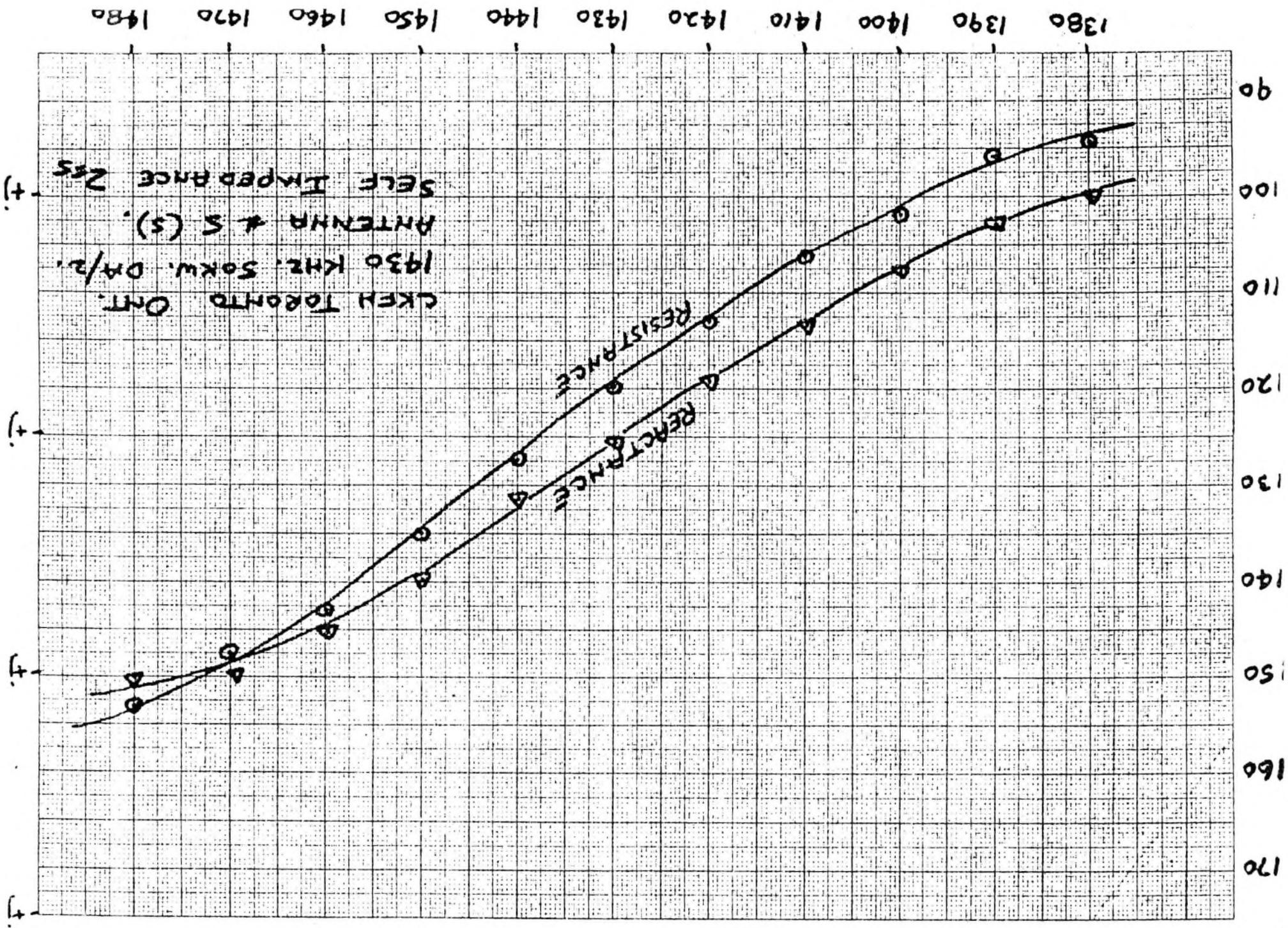












D. B. WILLIAMSON, P.ENG.
Consulting Engineer
BROADCASTING-COMMUNICATIONS

December 12, 1975

Referred to D13C
D13C
DEC 18 1975
File No. 06-307
Chg'd. to 5137

Department of Communications
Journal Building North
300 Slater Street,
OTTAWA, Ontario

Reference:- CKFH Toronto, Ontario

Attention: Mr. J.T. Chrome

Dear Sir:

Further to our conversations of recent weeks relative to the Final Proof of CKFH, Toronto, the following are readings taken on Lake Ontario on bearings 120 deg. and 153 deg.

a) Bearing 120 deg.

b) Bearing 153 deg.

<u>Dist (mi)</u>	<u>Field mv/m</u>	<u>Dist (mi)</u>	<u>Field mv/m</u>
0.1	20.0	0.18	420
0.2	85.0	0.23	340
0.3	20.0	0.26	280
0.4	30.0	0.29	260
0.5	8.0	0.37	210
0.6	22.0	0.41	195
0.7	5.0	0.55	190
0.8	15.0	0.60	180
0.9	13.0	0.65	175
1.0	5.8	0.68	172
1.8	5.0	0.50	145
3.0	4.0	0.70	105
4.0	1.5	0.90	90.0
5.0	1.5	1.0	70.0
6.0	0.7		
7.0	0.6		
8.5	0.7		
10.	0.35		
15.	0.28		

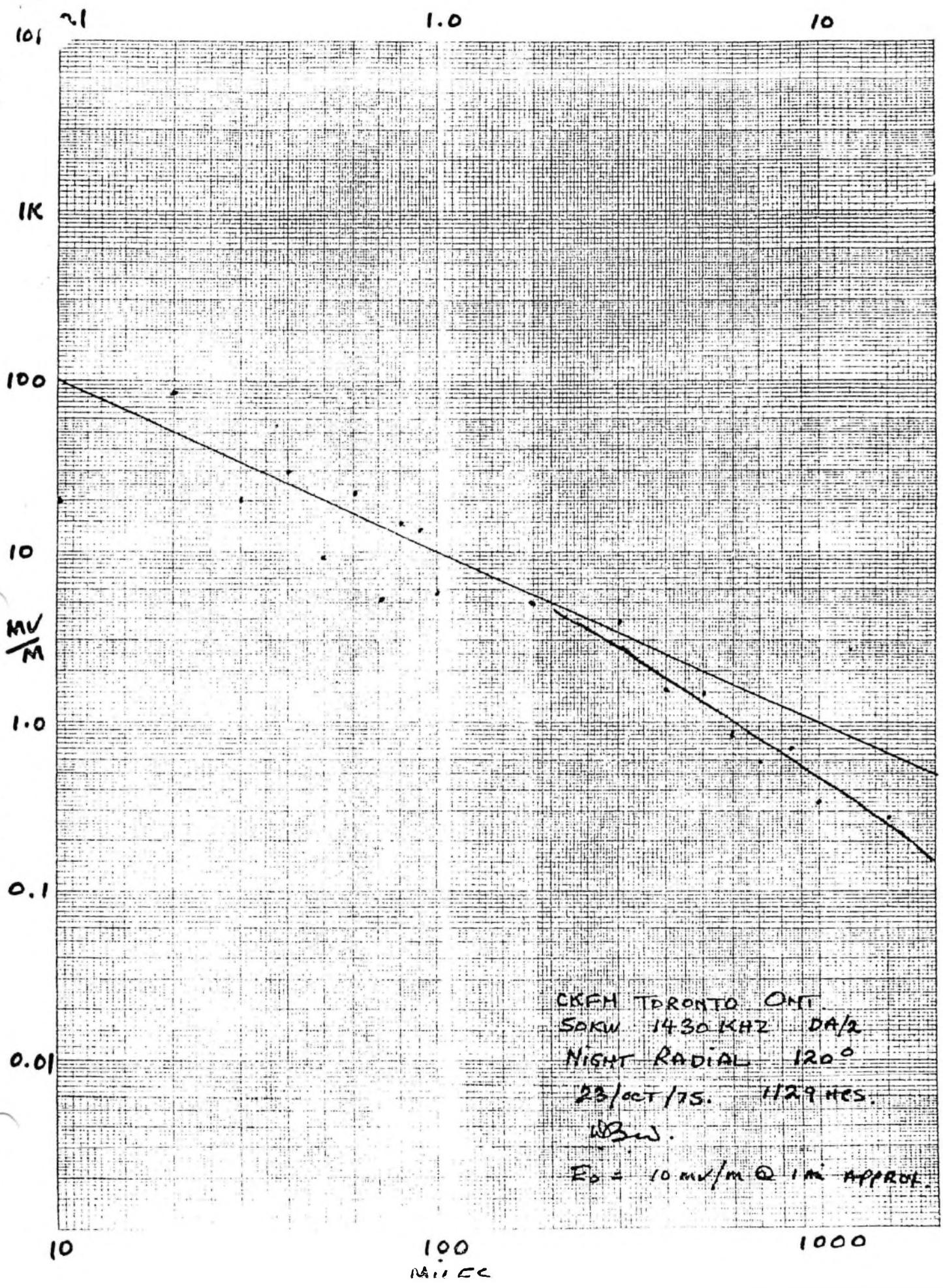
RECEIVED
DEC 19 1975
D13C-C

This completes all work on this project as per our telephone call of Dec 12/75. Please issue appropriate certificates to CKFH.

Yours truly,

D.B. Williamson, P. Eng.
Consulting Engineer

K&E LOGARITHMIC 359-1276
KEUFFEL & ESSER CO. WARREN, N.J.
7 X 7.2 CYCLES



K²M

1.0

0.1

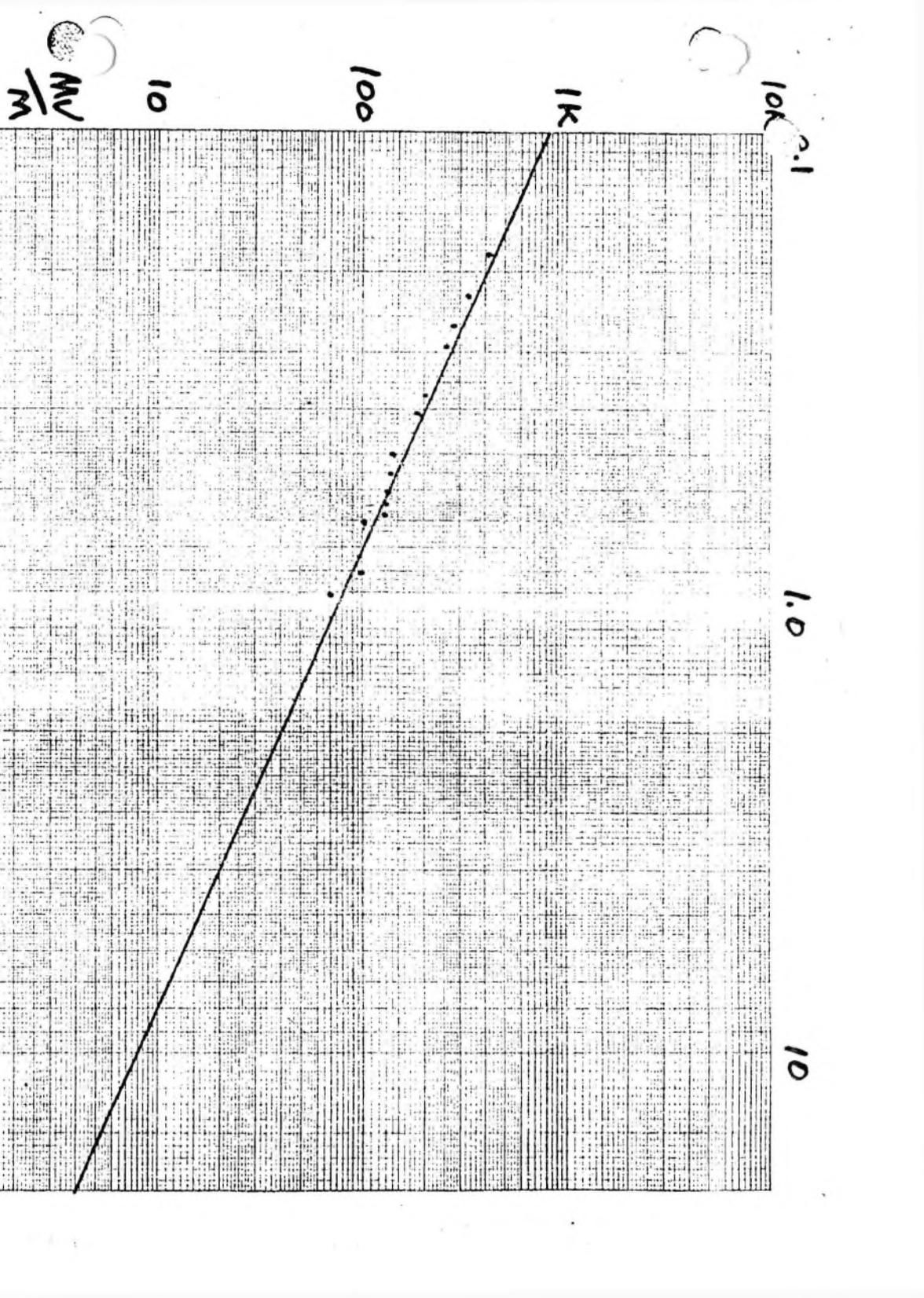
0.01

10

100
Miles

1000

CREST TORONTO, ONT.
 50KW. 1430 KHZ. DAY/IN
 RADIAL 153° TOWERS IN
 LINE
 NIGHT PATTERN
 E₀ = 80 mV/m @ 1MI
 23/OCT/75 1129 HRS



LINE	42.00-TIN	ND FIELD	DAY FIELD mg/m	NIGHT FIELD mg/m	DAY RAT	NIGHT RATIO	DAY FIELD Y1375	NIGHT FIELD K1342
1	011	140	173	200	1.237	1.504	1205	2018
2	025	199	85.9	96.2	0.432	0.484	595	649
3	031	156	57.6	65.2	0.369	0.418	509	561
4	042	190	65.5	36.5	0.345	0.192	475	258
5	048	90.0	25.8	11.9	0.287	0.132	395	177
6	062	106.	22.9	7.28	0.216	0.069	298	92.2
7	066	107.	23.3	4.03	0.218	0.038	300	50.5
8	069	110.	24.7	3.36	0.224	0.031	309	41.0
9	072	90.0	21.9	3.20	0.243	0.036	335	47.7
10	079	86.0	23.4	5.48	0.272	0.064	375	85.5
11	085	125.	33.2	8.62	0.266	0.069	366	92.5
12	090	150.	32.5	9.40	0.217	0.063	299	84.1
13	098	190.	28.7	7.86	0.150	0.041	208	55.5
14	100	190.	14.2	6.13	0.075	0.032	103	43.3
15	110	193	2.80	3.95	0.015	0.020	20.0	22.5
16	120	210.	3.06	0.729	0.015	0.003	20.1	4.66
17	130	200.	14.5	0.230	0.012	0.001	99.6	1.55
18	140	305	28.8	9.09	0.094	0.030	130.	40.0
19	151	290.	35.6	12.9	0.123	0.045	169.	60.1
20	164	305.	55.1	9.04	0.181	0.029	249.	39.8
21	179	305	77.7	1.50	0.255	0.005	351	6.60
22	186	295	84.1	2.22	0.302	0.008	416.	10.1
23	205	260.	61.7	3.43	0.237	0.013	327.	17.7
24	213	248	57.8	10.7	0.233	0.043	321.	57.8
25	227	186	77.9	7.57	0.419	0.041	522.	54.6
26	230	200	87.2	3.14	0.436	0.016	601.	21.1
27	235	205	75.6	0.406	0.366	0.002	504.	2.66

LINT. AC. MONTH	1944		1945		DAY	NIGHT	DAY FIELD	NIGHT FIELD
	in/m	in/m	in/m	in/m	RATIO	RATIO	K1378	K1342
28	200	205	71.6	1.51	0.349	0.007	481	9.90
29	244	207	71.5	10.8	0.345	0.052	541 476	69.8
30	255	200	72.7	26.1	0.364	0.130	900 501	175
31	251	220	144	122	0.653	0.554	900	744
32	304	150	306	246	2.039	1.639	2810	2200
33	324	150	295	297	1.965	1.982	2708	2660
34	347	130	303	281	2.330	2.165	3211	2905

FINAL PROOF OF PERFORMANCE
RATIO MEASUREMENT POINTS
OKPH TORONTO, ONTARIO.
1430 Kc/s, DA-2

