NRC

Directional Antenna Patterns for NIGHTTIME Medium Wave Radio Stations in the United States & Canada

Foreward

by Wes Boyd & Gordon Nelson

This book represents the realization of several years of planning and dreaming by members of the National Radio Club. Other pattern books have been produced commercially or by government agencies in the past and those of us fortunate enough to have had access to them have long felt that a pattern book produced expressly for DX'ers and station personnel would prove to be of immense value to a wide audience. The combination of the NRC Pattern Books with a copy of the NRC Domestic Log should prove to be the ultimate in reference information for the medium-wave enthusiast in this part of the world.

This volume shows the directional patterns for all nighttime stations in the U.S. and Canada of classes DA-1, DA-2, and DA-N. Nondirectional operations on Clear and Regional channels are indicated by a dot at the transmitter site. Puerto Rican and Alaskan directional patterns are also shown. Not shown in this volume are the numerous nondirectional 20 and 40 watt Canadian relay stations scattered throughout the band. Hawaiians are omitted since there are no directional operations in our 50th state.

Directional patterns for daytime stations and a few limited time operations not shown in this volume will be published in the second volume of this two part set of Pattern Books.

The patterns shown in this book are the actual measured horizontal radiation patterns as licensed by the F.C.C. and D.O.T. Patterns specified for active construction permits are also included. The form of presentation is the polar plot showing measured signal intensity in millivolts per meter at one mile. For the most part the patterns in this book are at the scale of 300 mV/m; a number have been drawn at the scale of 900 mV/m, however, primarily to reduce the "clutter" on some channels. Patterns with an "*" next to the key numbers are drawn at the 900 mV/m scale; simply imagine them drawn three times larger and they will be consistent with the remainder of the patterns. Patterns without an "*" are <u>always</u> drawn at the 300 mV/m scale.

The full 107 broadcast band channels have been reduced to 76 pages by doubling and tripling up on several frequencies and by neglecting the Local channels featuring strictly nondirectional operations. The "multiple channel" pages have been carefully chosen to reduce clutter as much as possible.

A choice example of the use of the different scales used along with the tripling us is shown on the 750-760-770-780 map. At first glance it appears that KFMB in San Diego (5 kw) has similiar coverage to KOB and KCRL (50 kw); note however that the asterisk'ed channels are actually drawn at the 900 mV/m scale and thus should be visualized as 3 times larger.

Since the purpose of this volume is to cover only nighttime directional stations, limited time operations - which are really a special type of daytime station - will be shown in the Day Pattern Book; thus stations such as WHLO-640, WJJD-1160, etc. will appear in the second volume.

Something over 1,400 patterns have been scaled and drawn in this volume. A number of the patterns associated with active construction permits may be altered or even deleted as CP's are frequently subject to alteration and revision. A number of patterns managed to elude our best efforts and we have indicated these as "not available". These few missing patterns, plus corrections, additions, and other updating information will appear as a regular feature in DX NEWS. Thus NRC members will be able to maintain the pattern books in as up-to-date condition as possible.

Several basic articles have been included by way of introduction. Paul Hart's BASICS article presents a rough overview of the subject; this article is a condensation of the original 33 page work published previously in DX NEWS. Copies of the full article - which contains many drawings, graphs, equations, and references - are available as reprints from NRC HQ. Wes Boyd's TREATIES article attempts to untangle the very confusing subject of channel allocations and the relationship between the various signatories of the NARBA protocol. Gordon Nelson's short piece on PATTERNS AND S UNITS gives some data useful for those attempting to use these patterns for quantitative predictions of relative signal strengths.

A few words about the map projection are necessary. Note that the basic background map is not in the ordinary common Mercator projection; instead we have used a modified Lambert projection to minimize distortion to the patterns caused by the map projection. In our projection, great circle paths are close enough to being straight lines to make corrections unnecessary in most cases.

DXers interested in making very careful measurements (for EQP calculations, for example) will have to go the long route of calculating great circle bearings and transferring them to the patterns. Note also that North is not uniformly directed towards the top of the map but varies in apparent direction from place to place. DXers concerned with great circle bearings can easily obtain true North from state boundaries, etc.

Publication of this volume marks the first time that accurate pattern information has been made available to the general DX'er. Unexpected effects may well be observed as the patterns here are compared with actual receptions. We would like to suggest that DXers be cautious and circumspect when discussing patterns with stations in reception reports. In particular, if you happen to log a station with a very deep null in your direction, do <u>not</u> jump to the conclusion that the pattern has fallen out of adjustment. Technical complications associated with factors such as local changes in ground conductivity at the transmitter site, vertical radiation patterns and skywave propagation, and the possibility of tilting in the layers of the ionosphere may perhaps result in "impossible" receptions. A great deal of research remains to be done in these areas, and results will be appearing in DX NEWS on a regular basis.

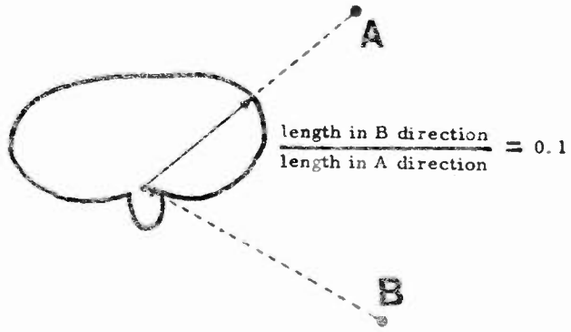
The NRC Publishing Committee believes that this pattern book will become the domestic DXer's most useful adjunct when used with the NRC Domestic Log. Corrections and additions will be most welcome and should be directed to NRC HQ, Box 99, Cambridge, Mass. 02138.

Patterns, Decibels, & S-Units

by Gordon P. Nelson

While a great deal of useful information can be gleaned from this pattern book by simply noting whether a particular station throws a pattern peak or null in your direction, the polar plot patterns in this volume can be used to obtain quantitative data as well. Each of the patterns in this volume has been carefully scaled and drawn to give an accurate portrayal of the actual measured field pattern. The following is one example of the sorts of calculations which are possible with the aid of the patterns in this book.

Consider the following sample pattern. Suppose you wish to know the effect of the pattern on reception in two towns which we'll call "A" and "B". For simplicity assume the towns are the same distance from the transmitter, and that the propagation paths have identical properties. What will be the observed difference in signal strength at A and B due to the shape of the pattern? First measure the distance from the center of the pattern to the curve in the direction of A and then B. Now divide the smaller value by the larger to obtain the field ratio. In the example here the ratio is about 0.1.



Using the following table, we find that a field ratio of 0.1 as measured from the pattern will result in an observed difference of received signal strength of about 3.3 S units (which corresponds to a difference of 20 decibels). The last column shows that this difference in signal strength is the same as would be produced if the station reduced its power to a value that is 0.01 times the original value (e.g., from 50,000 watts to 500 watts).

Another interesting exercise involves the calculation of the EQP or "Equivalent Power" that the station is radiating in your direction. A number of factors must be taken into account in the calculation of the EQP and a full discussion is beyond the scope of this book. Readers interested in a full discussion of the merits and disadvantages of the EQP concept are referred to Paul Hart's full length Pattern article from DX NEWS, available as an NRC reprint from NRC Headquarters.

field ratio	resulting signal drop, S units	resulting signal drop, in decibels	power reduction to produce same drop
1.0	0	0	1.00
0.9	0.1	0.9	0.813
0.8	0.3	1.9	0.65
0.7	0.5	3.0	0.50
0.6	0.7	4.4	0.36
0.5	1.0	6.0	0.25
0.4	1.3	8.0	0.16
0.3	1.8	10.5	0.08
0.2	2.3	14.0	0.04
0.1	3.3	20.0	0.01
0.09	3.5	20.9	0.008
0.08	3.6	21.9	0.006
0.07	3.9	23	0.005
0.06	4.1	24.4	0.0036
0.05	4.3	26.0	0.0025
0.04	4.7	28.0	0.0016
0.03	5.1	30.5	0.0009
0.02	5.7	34.0	0.0004
0.01	6.7	40.0	0.0001
0.005	7.7	46.0	0.000025
0.001	10.0	60.0	0.000001

(NOTE: values in column 2 are based on the assumption of 6 db per S unit)

NRC

1933 - 1973

40 years of DX

Basics of Directional Patterns

by Paul K. Hart*

As the population increases in the United States and Canada, more media services of all types are required. This includes medium wave broadcasting where greater choice of programming material is available and as a consequence more stations can be supported by advertising revenue. All stations legally transmitting in the U.S. and Canada are licensed by the F.C.C. in Washington or the D.O.T. in Ottawa, in keeping with the international treaty obligations contained in the North American Regional Broadcasting Agreement (N.A.R.B.A.). A more detailed discussion of the relationship between channel allocations and the N.A.R.B.A. will be found elsewhere in this book.

With more than 5,000 stations in the U.S. and Canada operating on only 107 channels, many stations have been forced to make use of directional transmitting antennas to reduce interference to an acceptable level. Many stations now operate with highly sophisticated directional antennas in order to meet the strict interference criteria contained in the F.C.C. and D.O.T. rules and regulations.

It is important to realize that the formal interference criteria established by the licensing agencies are based upon the ordinary home-type broadcast receiver. DXers with highly sophisticated receiving equipment are often able to hear distant stations even though the listener is located in a null of the transmitter antenna pattern. When reporting reception to these highly directional stations it is therefore most important to stress in your reception report that you are a DXer and not a regular listener with "ordinary" receiving equipment.

The allocation of frequencies by the F.C.C. and D.O.T. involves specification of a signal intensity contour of the station coverage area which must be protected from objectionable interference from other licensed stations. This contour level varies with the class of the station on the channel (i.e., Clear, Regional, or Local).

The primary service area of a station is the region where the ground-wave signal is free from objectionable interference from other licensed stations. The secondary coverage area is the region covered by the sky-wave signal; while the secondary coverage area may be protected from interference from other stations by F.C.C./D.O.T. rules and regulations, fading and other propagation effects may prove important in actual practice.

During the daylight hours the sky-wave signal is almost totally absorbed in the lower ionosphere at broadcast band frequencies; thus secondary coverage of any particular station exists only at night. There is also an intermittent coverage area located just on the edge of the ground-wave daytime service area; this area is outside the regular primary service area and is often subject to extreme fading and distortion as the result of destructive interference between the station's own sky-wave and ground-wave signals.

Directional antenna systems are used to provide primary and secondary coverage without interference to existing stations on the same and nearby frequencies. The problem of satisfying all of the interference criteria specified by the licensing agency can be very complex in actual practice, often necessitating elaborate engineering studies and costly directional antenna arrays.

Suppose a new station is proposed to operate on 1420 with 1,000 watts day and night. In another town 25 miles away there is a station operating on 1430 with 500 watts non-directional daytime. The new facility must provide protection to the existing coverage of the second station. Since the second station does not operate at night, secondary protection is not required. However, other stations operating on 1420 will suffer interference unless radiation is limited towards them at night. This may require 4, 5, 6 or even more towers in the transmitting array.

In this case the station might require two different patterns, one for daytime and one for night. The exact values for these antenna fields are set forth in the rules and regulations in accordance with the interference criteria. Care must be taken in designing directional patterns so they not only protect the required stations but provide adequate coverage throughout the primary coverage area.

A common tactic near coastlines is to locate the transmitter inland so the peak of the pattern covers the city of interest and then goes out to sea; while fine for foreign DXers, this common approach often results in very weak radiation in the direction of the opposite coast. Similiar tactics are often used by stations close to the borders. Many stations reduce power at night in conjunction with pattern changes to limit the interference to the required level. In recent years more stations have been using separate transmitter sites for day and night operation.

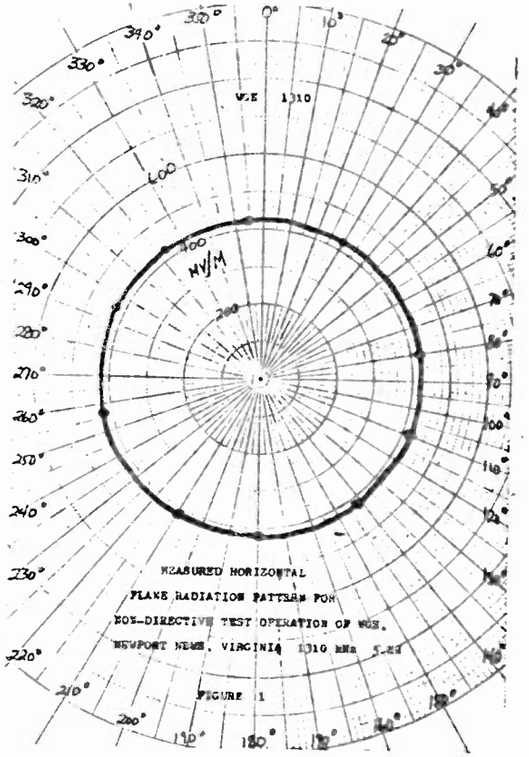
Bear in mind that the pattern is a graphical representation of field intensity generated by the combination of the transmitter and antenna system. All of the patterns shown in this volume are polar plot patterns showing field intensity at one mile from the antenna as measured at ground level (0 degrees elevation). This style of presentation is used because it is the form in which data must be supplied to the licensing agencies; additional discussion of the relationship between pattern size, field strength, and S-units will be found elsewhere in this volume.

Were a station to test with 50,000 watts into a dummy load antenna, the field strength at one mile might well be unmeasurable - this is the extreme case of an inefficient antenna! The same station with identical power loaded properly into an efficient antenna would produce a very high field strength at one mile. The less efficient the antenna, the weaker the field strength produced by a particular transmitter power. This illustrates a basic fact: transmitter output power alone is not the only factor which determines station coverage - antenna efficiency and directionality must also be considered if actual receptions are to make any sense at all.

Figure 1 is the non-directional daytime pattern for WGH, Newport News, Virginia on 1310 kHz. This pattern is unusual because it is almost perfectly non-directional in practice as well as theory. The bearings around the outside indicate the compass heading FROM THE ANTENNA referred to TRUE NORTH corresponding to 0 degrees (or 360 degrees) at the top of the plot. The distance from the center of the pattern to the curve in any direction is proportional to the signal intensity in millivolts per meter (mV/m), the standard measure of field strength, as measured one mile from the antenna. Figure 1 shows that the 5,000 watt WGH transmitter generates a field of 420 mV/m in all directions. Were the transmitter power reduced to 1,000 watts, this field drops to 188 mV/m - or a bit less than half the 5,000 watt coverage (remember that the field strength varies as the <u>square</u> of the power). If WGH wanted to increase the field from 420 mV/m to 840 mV/m (twice the coverage), they would have to increase transmitter power to 20,000 watts.

Another concept essential to any discussion of directional patterns is the <u>RMS field</u>. The RMS field shown on the patterns in this article is the field strength a station would generate

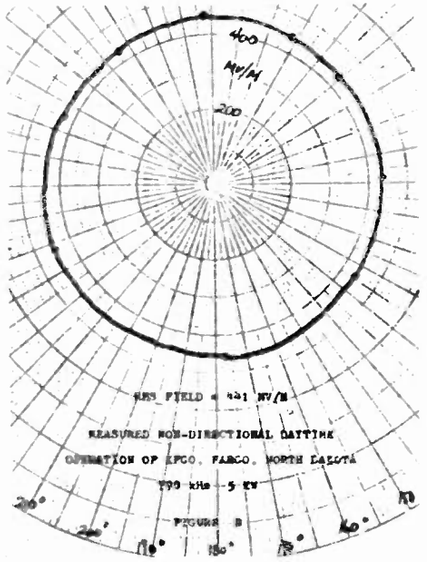
* condensed and abridged from the original article in DX NEWS by permission of the author by Wes Boyd and Gordon Nelson.

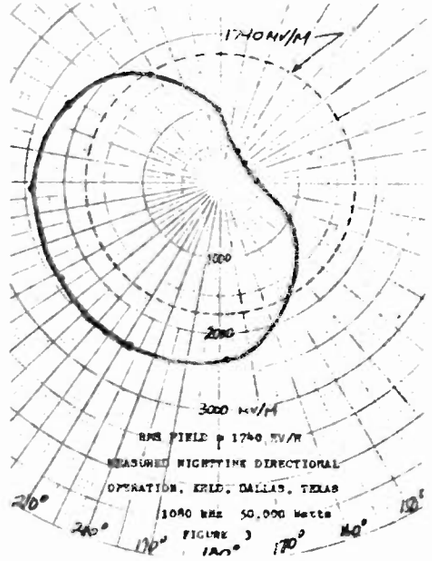


if all of the station's power were radiated in a PERFECT CIRCLE. The non-directional pattern of WGH is almost a perfect circle so the RMS will be very close to 420 mV/m.

Figure 2 is the non-directional daytime pattern of KFGO, Fargo, N.D. on 790 kHz. Note that even tough this station has but a single tower and is therefore supposedly non-directional, the coverage is not actually uniform in all directions. This is caused by factors such as non-uniform ground conductivity and such terrain features as buildings, power lines, and other structures. Since the pattern is not perfectly circular, a separate RMS value is given, 441 mV/m. Notice that WGH's RMS is only 420 mV/m compared with KFGO's 441 mV/m while both use the same transmitter power. This indicates that KFGO is using its transmitter power more effectively and more of it is being translated into field strength. For the most part the RMS is a useful indicator of the efficiency of the transmitter/antenna combination.

The F.C.C. and D.O.T. require that certain minimum values of field strength be generated with assigned powers for all stations. These minimum fields vary with the power and class of the station. The stations which are required to have the most efficient antennas are the Class I (Clear Channel) stations; this explains why these stations have huge antennas and vast coverage areas. The least strict requirements are for Local and daytime stations, although in no case will the F.C.C. permit new construction of an antenna less than 150 feet in height.



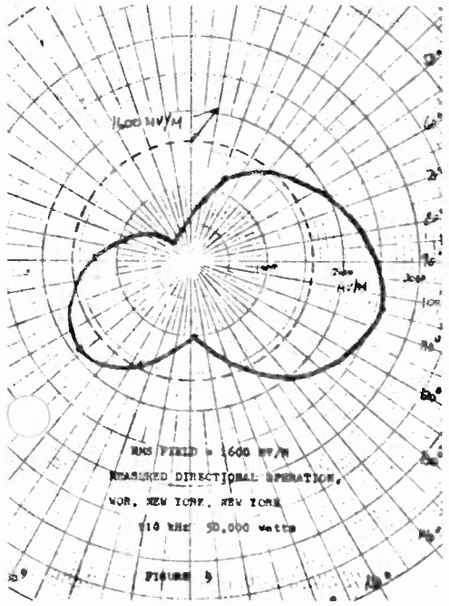


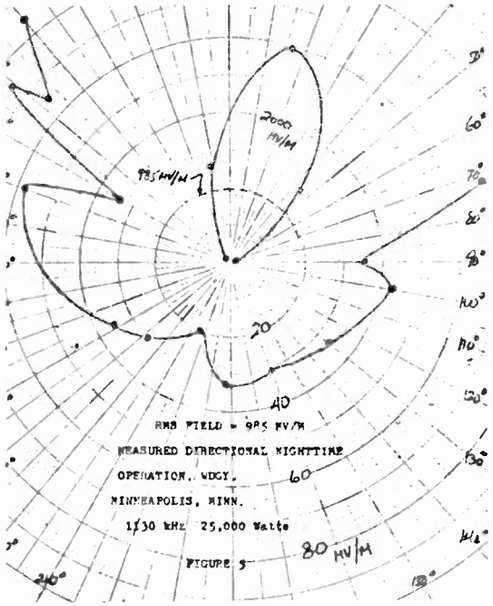
Directional patterns on the broadcast band are produced by employing multiple vertical towers and driving each tower with a definitely established and carefully maintained fraction of the total transmitter output power. As a result of tower spacing and electrical tuning networks, the radiated power is altered in amplitude and phase as required to produce cancellation or reinforcement effects which create the pattern. The design and construction of directional patterns is a very complex business and beyond the scope of this article. One simple rule-of-thumb of value to DXers is that the number of nulls in the pattern is equal to the number of towers in the directional array. This is not always the case but it holds often enough to be useful. In the remainder of this article we will deal with the final measured patterns without going too deeply into the details of the antennas themselves. DXers interested in more details are referred to the numerous articles which have appeared in DX NEWS and which are available as reprints from NRC headquarters.

The polar plot patterns shown here are of some stations selected to illustrate typical situations for discussion. The original sheets have details including tower location, phasing, spacing, height, and orientation which are not included in the interest of simplicity.

Figure 3 shows 50,000 watt KRLD in Dallas on 1080 kHz. This pattern is typical of the simplest types using two towers aligned along a line of peak and null. The RMS value of 1740 mV/m indicates a very good antenna efficiency. This pattern protects WTIC, Hartford, Conn., and WTIC mutually protects KRLD. Notice the direction of the very broad peak in the pattern. All of West and South Texas (along with most of the Southwest) lies in the KRLD secondary coverage area, thus guaranteeing interference-free reception over a wide area at night.

Figure 4 is WOR, New York City, on 710 kHz. This is a non-symmetrical pattern produce produced by a three tower array in a triangular layout. There are many other fulltime stations on 710 but they have patterns which protect WOR and are located a good distance from New York City. The main lobe covers N.Y.C., Long Island, and most of New England. Wor's southwest lobe covers New Jersey and a large portion of Pennsylvania. The RMS value of 1,600 mV/m indicates good antenna efficiency; it is lower than some other 50,000 watt stations however. This is because as antenna arrays become increasingly complex, the RMS produced for the same power input usually drops because of the power losses in the associated power lines and tuning





networks.

Figure 5 is WDGY, Minneapolis, Minn. on 1130 kHz. This pattern was achieved with 25,000 watts and a complex 9 tower system. In this pattern the nulls off the back of the array are so deep that a separate expanded scale is necessary to plot them. It is a safe bet that WDGY's transmitter is located to the south or southwest of Minneapolis-St. Paul area. His signal in these cities and to the north must be fantastic, but the signal must drop off quite rapidly to the south of the transmitter site.

On 1130 the primary stations are KWKH Shreveport, La., WNEW New York City, and CKWX Vancouver, B.C. All 3 stations operate with 50,000 watts full time; however the location of the 3 leaves a "dead spot" on 1130 in the mid-west. In this "dead spot" the trio of WCAR D[illegible]t, Mich., WISN Milwaukee, Wis., and WDGY Minneapolis, Minn. operate with powers ranging from 10,000 to 50,000 watts. All 3 of these "secondary" stations operate under very strict rules so that none of them interfere with each other or any of the primary stations. Due to the relatively close geographical spacing of these "secondary" stations (all with high power) very sophisticated patterns are required. All three stations operate with patterns that are very similar.

Looking back at KRLD's night pattern you will notice that the pattern crosses the RMS field at 150 and 330 degrees. If you lived along either of these bearings the power from KRLD is 50,000 watts whether the pattern is used or not. If you lived in the "back" of the pattern the signal would be less than 50,000 watts. Along the bearing of 60 degrees the power at night is about 3,000 watts. For those in Arizona wondering why KRLD is so powerful for 50,000 watts, the power at a bearing of 260 degrees is almost 100,000 watts.

In the case of the WDGY pattern the power along a bearing of 17 degrees is almost 300,000 watts. At the same time WDGY's power at 180 degrees is less than 50 watts. The peak value of the curve on a bearing of 17 degrees for WDGY is almost 3,000 mV/m. This is more than KRLD achieves (2450 mV/m maximum) and KRLD has a more efficient antenna system! Considering that WDGY's pattern uses 1/4 wavelength towers while KRLD uses 1/2 wavelength towers the power from WDGY's narrow high intensity beam is fantastic.

These examples give a good idea of how radically a station's pattern can affect reception of that station in different directions. With patterns like these in wide use across the U.S. and Canada, it is obvious that many mysteries of strong or poor reception can be explained with the information contained here in the NRC Pattern Book.

The rules and regulations require certain minimum values of antenna efficiency as mentioned earlier. These requirements are stated in millivolts per meter at a mile with one kilowatt. This means that for each 1,000 watts of power the station must generate a certain minimum field at one mile at ground level. These minimum requirements are for both directional and non-directional stations. For directional patterns the efficiency value is obtained from the RMS field, scaling down if necessary to obtain the 1,000 watt value.

These minimum fields are as follows:

Class IV: 150 mV/m at one mile for 1,000 watts.
Class III & II: 175 mV/m at one mile for 1,000 watts.
Class I: 225 mV/m at one mile for 1,000 watts.

Class IV stations are almost exclusively assigned to local channels (1230-1240-1340-1400-1450-1490). The very few on regional channels meet (except in one marginal case) the minimum fields for class II and III stations. Since night patterns are not used in the United States on local channels (at least not yet), the minimum antenna efficiency that will appear in comparative non-directional stations is 175 mV/m.

About the NRC

The National Radio Club is the largest and oldest hobby group dealing exclusively with medium-wave DX'ing (established in 1933). The NRC's magazine-bulletin, DX NEWS, is published weekly during the winter DX season for a total of 32 issues per year and is crammed with information specifically by and for the MW DX'er. In our latest publication year we carried more than 1000 pages of information exclusively for the MW DX'er - feature and technical articles, the latest FCC & DOT station information, plus page upon page of invaluable tips from our membership telling what's actually being heard. The NRC was the first DX club to produce a handy-sized bulletin by commercial printing - not mimeograph.

The NRC is a nonprofit, volunteer-operated club and membership dues go to pay the expenses of printing and mailing DX NEWS for the membership, and for other essential club services. Since each members dues pays for his portion of the NRC's operating costs, and for his share of postage, dues are dependent upon postal rates. At present rates the dues are $ 13.00 yearly for First Class mail delivery; $ 10.75 for Third Class delivery; and $ 14.00 for domestic Air Mail. Special airmail rates can be arranged for overseas members. If you're an active MW DX'er or just getting started, you'll get a wealth of unique information by joining the NRC today!

Through the NRC you will be able to purchase at discount such special items as mechanical filters for super-selectivity, equipment plans, and copies of past NRC publications and articles. The preeminence of the NRC in the field of MW DX'ing is recognized by World Radio Handbook, which has chosen the NRC to prepare the North American list for that world-famous publication.

NRC'ers are among the friendliest people around and informal gatherings and get-togethers take place in many parts of the country. Our annual convention, to be held in Miami this summer, will attract many members from the US, Canada, and foreign countries for a long weekend of DX discussions, station tours, shopcrasting, and general partying...

Treaties & Channel Allocations

by Wes Boyd

Use of the standard broadcast band (535 to 1605 kHz) in the area of North America is regulated by a treaty among the United States, Canada, Cuba (pre-liberation days), the Dominican Republic and the United Kingdom (representing the Bahama Islands and Jamaica). There is a separate treaty between the United States and Mexico. This article is not meant to give full details of these treaties, but only to give a basic understanding of the distribution of frequencies in our part of the world.

First it would be advisable to have a basic understanding of how each set or group of frequencies is to be used. Clear channels are assigned to one or more Class I stations which are protected from interference so they can provide service over a large area by both groundwave and skywave. Regional channels are designed to render service over considerable areas by means of groundwave signal. On these channels little if any protection from interference is given to skywave signals. Local channels have many stations operating at low power and protected from interference over a limited area by groundwave only. There is no protection to speak of from interference to signals by skywave signals.

CLASSES OF BROADCAST STATIONS AS ALLOCATED IN THE NARBA TREATY

Class I — Provides service over a large area by groundwave and skywave.

Class I-A — This is a Class I facility operating on a clear channel with respect to the country which has priority. Power: 50,000 watts or more.

Class I-B — This is a Class I facility operating on a clear channel with respect to the country which has priority. The powers range, in steps, from 10,000 watts, through 25,000 watts, up to 50,000 watts.

Class I-C — This is a Class I facility operating on a clear channel or on a regional channel with priority going mostly to the Dominican Republic and Cuba. Service is provided by groundwave and skywave, and powers are 10 kw, 15 kw, 25 kw, and 50 kw.

Class I-D — This is a Class I facility operating on a clear or regional channel with the priority going totally to Cuba. Powers are 10 kw, 15 kw, or 25 kw.

Class II — This is a facility other than a Class I station operating on a clear channel and rendering service by groundwave and skywave. Powers are 250, 500, 1000, 2500, 5000, 10,000, 15,000, 25,000, and 50,000 watts.

Class III — This is a facility operating on a regional channel which renders service by groundwave signals only. Powers are 500, 1000, 2500, and 5000 watts.

Class IV — This is a facility operating for the most part on local channels and providing service to a limited area by groundwave signals. Powers are 100 and 250 watts, but powers of 500 and 1000 watts are available during daytime hours under other agreements. It should be obvious that the U.S. has very few "true" clear channels. These are: 640-650-660-670-700-720-750-760-770-780-820-830-840-870-880-890-1020-1030-1040-1100-1120-1160-1180-1200 and 1210. Most of these can no longer be considered clear channels due to the assignments of Class I-B facilities or allocations in other countries on most of these frequencies.

CLASSES OF BROADCAST STATIONS AS ALLOCATED BY THE FCC

It should be pointed out that the FCC classification of stations is different from that in NARBA. The FCC definitions are:

Class I — These stations operate on clear channels allocated by NARBA with powers of 10, 25 or 50 kw.

Class II — These are secondary facilities operating on clear channels. They must use directional antennas (or other means) to avoid interference with Class I and other Class II stations.

Class II-A — These are Class II stations that operate with 10,000, 25,000 or 50,000 watts and are to be licensed to specific areas:

Channel: Freq. in kHz.	Location of existing Class I facility.	State (s) where Class II-A may be applied for assignment.
670	Chicago, Ill.	Idaho
720	Chicago, Ill.	Nevada or Idaho
780	Chicago, Ill.	Nevada
880	New York, NY	N. Dakota, S. Dakota or Nebraska
890	Chicago, Ill.	Utah
1020	Pittsburgh, Pa.	New Mexico
1030	Boston, Ma.	Wyoming
1100	Cleveland, Ohio	Colorado
1120	St. Louis, Mo.	Oregon or California
1180	Rochester, NY	Montana
1210	Philadelphia, Pa.	Kansas, Nebraska or Oklahoma

Class II-B — These are Class II stations outside of those in Class II-A. The powers are from 250 watts to 50,000 watts.

It is interesting that the transmitter power licensed in the U.S. is a bit different than that allocated in NARBA. The U.S. will license 250-500-1000-5000-10000-25000 and 50000 watts only.

Our other so called clear channels are in reality Class II frequencies where we license many stations. Powers range from 250 watts up to 50 kw, but there are two or more high-power facilities on most of these frequencies. These frequencies are: 680-710-810-1080-1110-1170-1500-1510-1520 and 1530.

SPECIAL INTERNATIONAL AGREEMENTS

Still another set of "clear channels" are shared as Class II frequencies with other countries. Those shared with Canada are 1070 and 1130. Those shared with Mexico are: 850-1000-1060-1090-1140 and 1190.

There are many other "Gentlemen's Agreements" that allow operations on other frequencies. Such U.S. operations are: New York City on 1010 and 1050 kHz, Cleveland on 1220 kHz, Santurce, P.R. on 730, and Alaska on 800 and 900 kHz. Similar agreements allow Canada to operate on 640-730-800-900-1050-1220 and 1580 kHz. Additional special arrangements permit Mexico to operate on 660-760-830 and 1030 kHz.

Further treaty agreements allow U.S. operations on certain Canadian I-A channels: 740-860-990 and 1580 kHz; these stations must be located a specified distance from the Canadian border and must employ directional antennas to limit radiation to Canada to prespecified levels.

If the preceeding special agreements were not enough to confuse the overall pattern, additional special arrangements allocate 1540 as Class I-A for the Bahama Islands, and 620 as Class I-C to the Dominican Republic. We will not consider the allocations for Cuba since most have not been honored since the Liberation government came to power.

Along with all these agreements as the use of frequencies, each country has its own rules for maximum transmitter power within the NARBA guidelines. While the U.S. and Canada limit power to 50 kw (recall that a NARBA I-A channel can contain a station operating with more than 50 kw), Mexico permits operation in excess of 50 kw. Regional channels in the U.S. are limited to 5,000 watts, but in Canada many stations operate with 10,000 or 50,000 watts on these channels. The regional channel power limit in Mexico is 25,000 watts. Local channels in the U.S. and Canada are very similar - almost all stations operate 1,000 daytime and 250 watts nondirectional at night.

There are some 15 or 20 stations in the U.S. operating with directional antennas in the daytime. Since Class IV stations are licensed for the most part as 250 watts nondirectional, the directional antennas are used to limit interference to adjacent channels at the 500 or 1000 watt level.

The few Canadians operating full-time with directional antennas are not difficult to understand either. These simply limit the power toward the U.S. to levels approaching the field strength they would achieve with 250 watts nondirectional. In all cases they have large lobes directed to the North.

Mexicans operating on local channels seem to have 3 different sets of rules, all dependent upon the location of the station. Those within 62 miles of the border operate with 250 watts nondirectional full-time. Those from 62 to 93 miles operate 1,000 watts day and 250 watts nondirectional at night. All others operate with 1,000 watts day and 500 watts nondirectional at night.

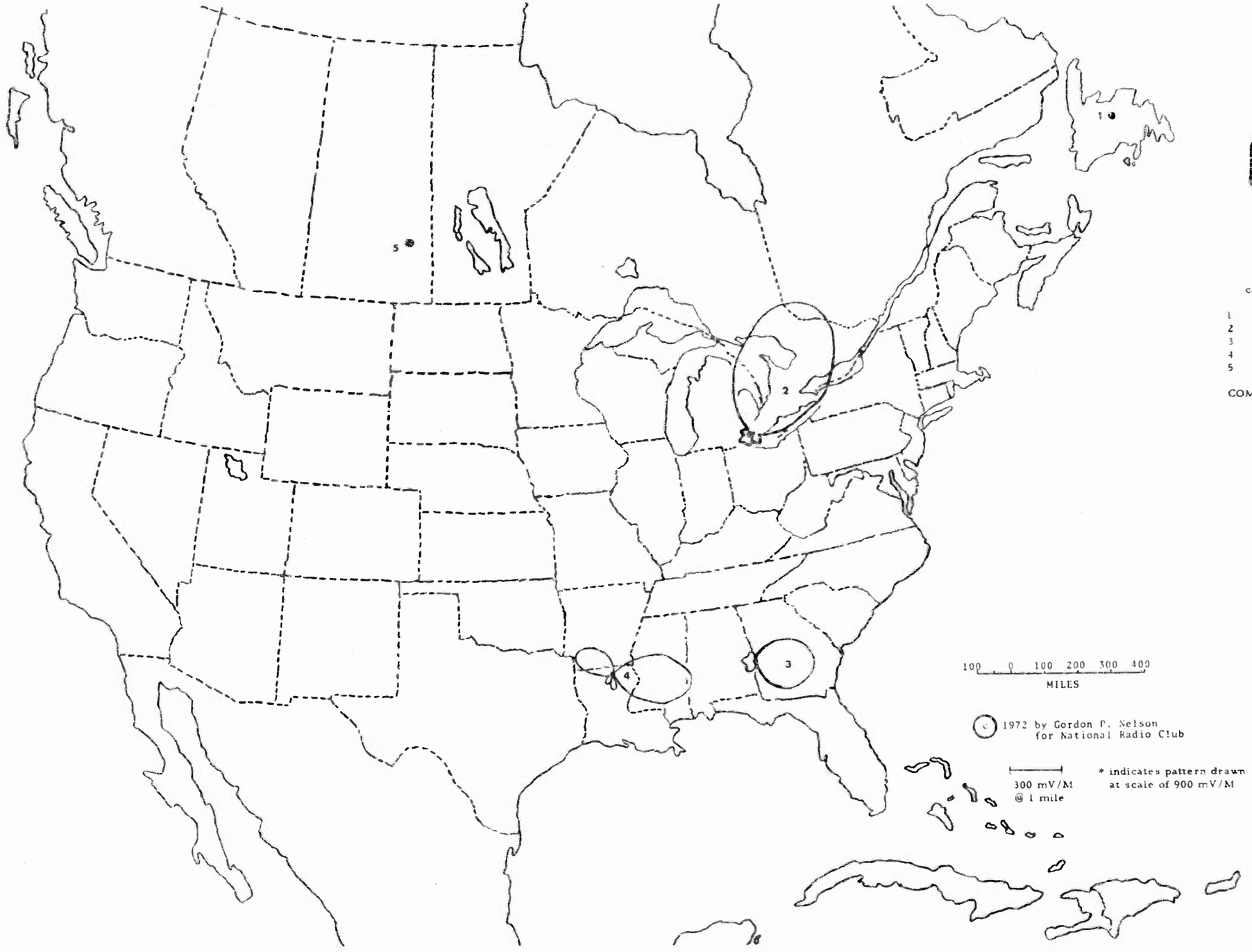
NARBA ALLOCATIONS AND PRIORITY COUNTRIES

Here is a breakdown of the broadcast band frequencies and priorities as set by the N.A.R.B.A. To make this useful as possible we have omitted all regional and local channels.

540	Canada I-A, Mexico I-A	1010	Canada I-A
640	USA I-A, Canada I-B	1020	USA I-A
650	USA I-A	1030	USA I-A
660	USA I-A	1040	USA I-A
670	USA I-A	1050	Mexico I-A
680	USA I-B	1060	Mexico and USA I-B
690	Canada I-A, Mexico I-B	1070	Canada and USA I-B
700	USA I-A	1080	USA I-B
710	USA I-B	1090	Mexico and USA I-B
720	USA I-A	1100	USA I-A
730	Mexico I-A	1110	USA I-B
740	Canada I-A, Mexico I-D	1120	USA I-A
750	USA I-A	1130	USA and Canada I-B
760	USA I-A	1140	Mexico and USA I-B
770	USA I-A	1160	USA I-A
780	USA I-A	1170	USA I-B
800	Mexico I-A	1180	USA I-A
810	USA I-B	1190	Mexico and USA I-B
820	USA I-A	1200	USA I-A
830	USA I-A	1210	USA I-A
840	USA I-A	1220	Mexico I-A
850	USA and Mexico I-B	1500	USA I-B
860	Canada I-A	1510	USA I-B
870	USA I-A	1520	USA I-B
880	USA I-A	1530	USA I-B
890	USA I-A	1540	Bahamas I-A, USA I-B
900	Mexico I-A	1550	Canada and Mexico I-B
940	Canada and Mexico I-B	1560	USA I-B
990	Canada I-A	1570	Mexico I-A
1000	Mexico and USA I-B	1580	Canada I-A

540 KHZ

CLEAR

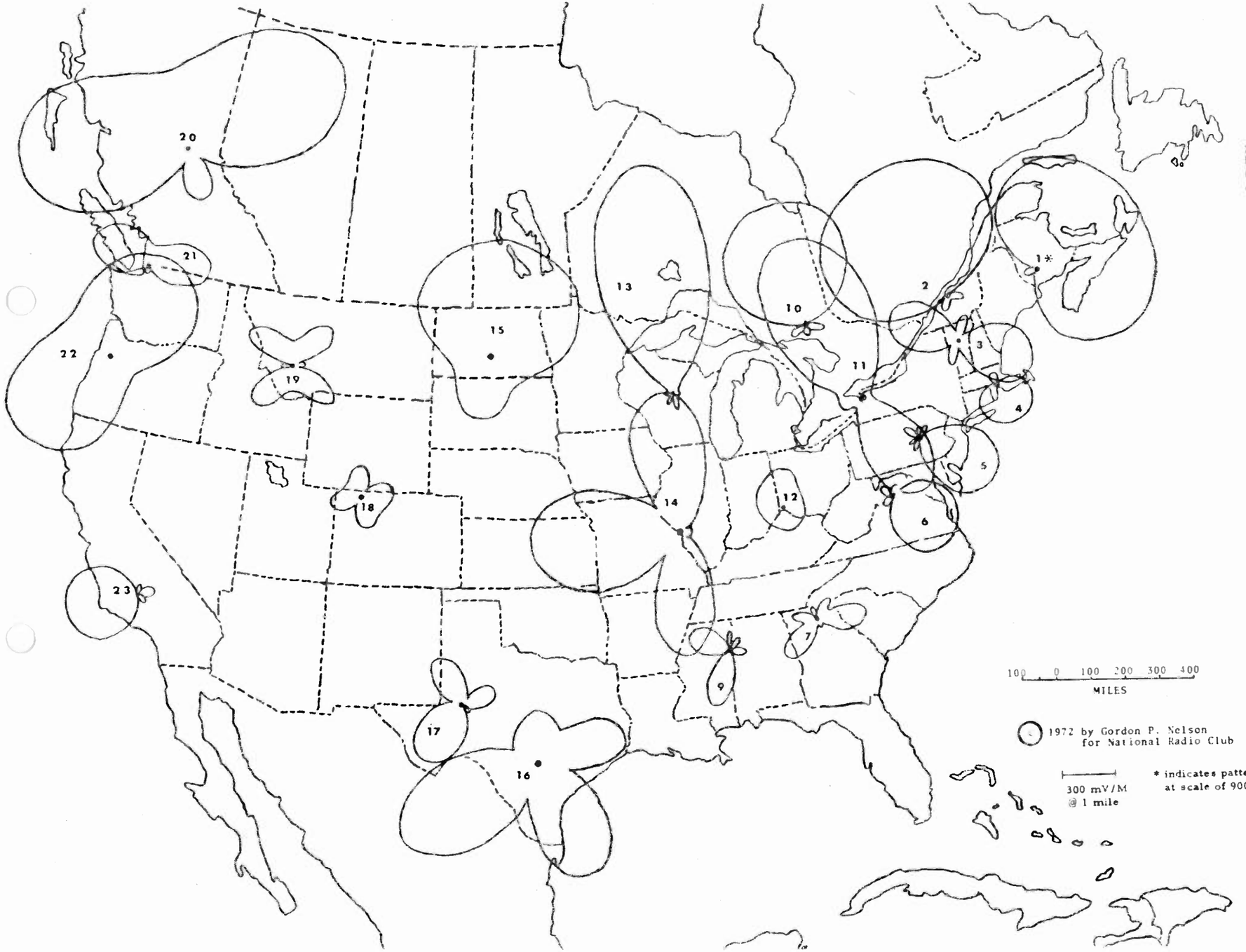


	call	class	location
1	CBT	ND	GRAND FALLS
2	CBEF	DA-1	WINDSOR
3	WDAK	DA-N	COLUMBUS
4	KNOE	DA-2	MONROE
5	CBK	ND	WATROUS

COMMENTS:

550 KHZ

REGIONAL



	call	class	location
1	CFNB	DA-2	FREDERICTON
2	CHLN	DA-2	THREE RIVERS
3	WDEV	DA-2	WATERBURY
4	WGNG	DA-N	PAWTUCKET
5	WHLM	DA-2	BLOOMSBURG
6	WSVA	DA-N	HARRISONBURG
7	WGGA	DA-N	GAINESVILLE
8	WPAB	ND	PONCE
9	WCBI	DA-2	COLUMBUS
10	CFBR	DA-2	SUDBURY
11	WGR	DA-N	BUFFALO
12	WKRC	DA-1	CINCINNATTI
13	WSAU	DA-2	WAUSAU
14	KSD	DA-N	ST. LOUIS
15	KFYR	DA-N	BISMARK
16	KTSA	DA-N	SAN ANTONIO
17	KCRS	DA-2	MIDLAND
18	KRAI	DA-N	CRAIG
19	KBOW	DA-N	BUTTE
20	CKPG	DA-N	PRINCE GEORGE
21	KARI	DA-2	BLAINE
22	KOAC	DA-2	CORVALLIS
23	KAFY	DA-N	BAKERSFIELD

COMMENTS:

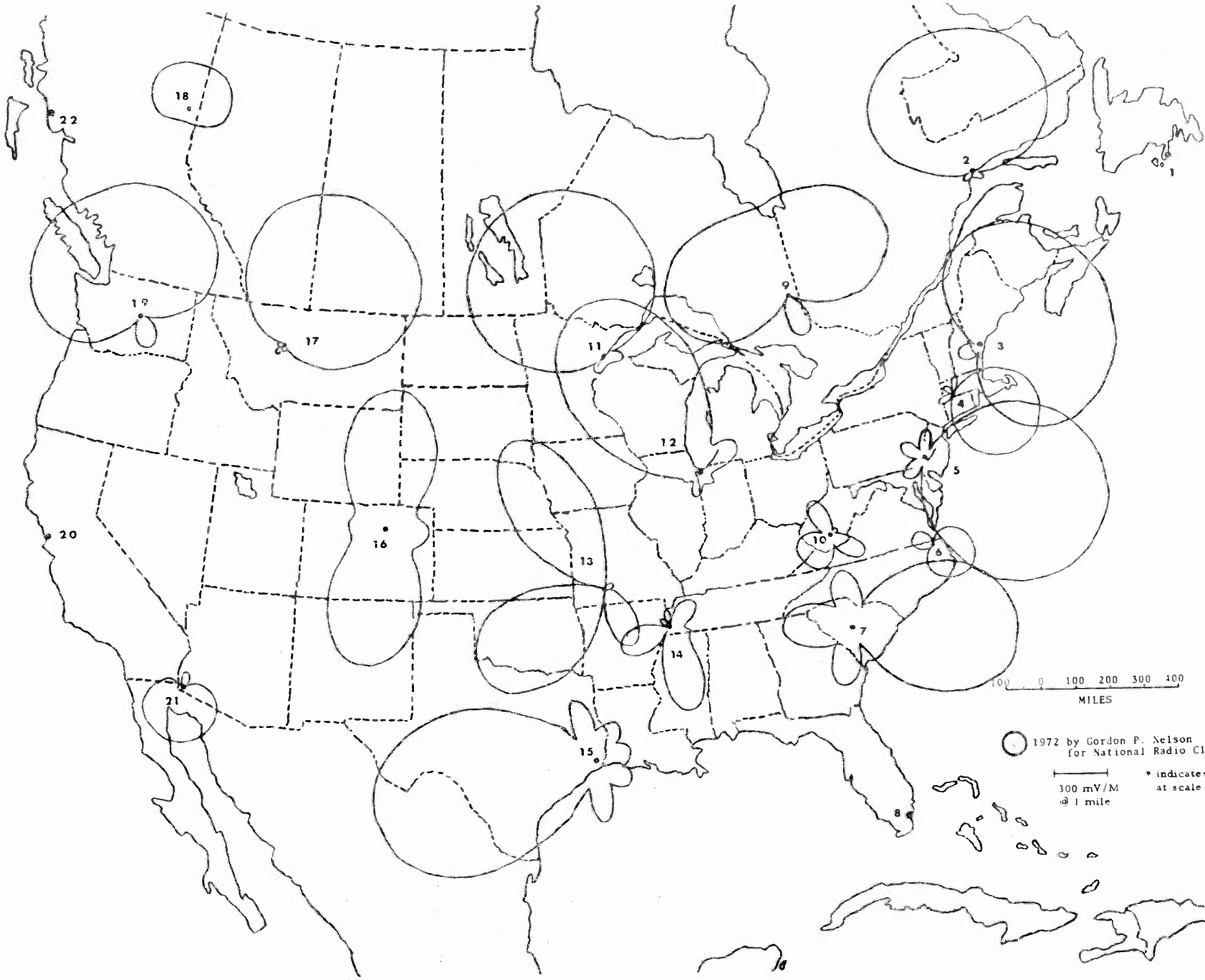
100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M

560 KHZ

REGIONAL

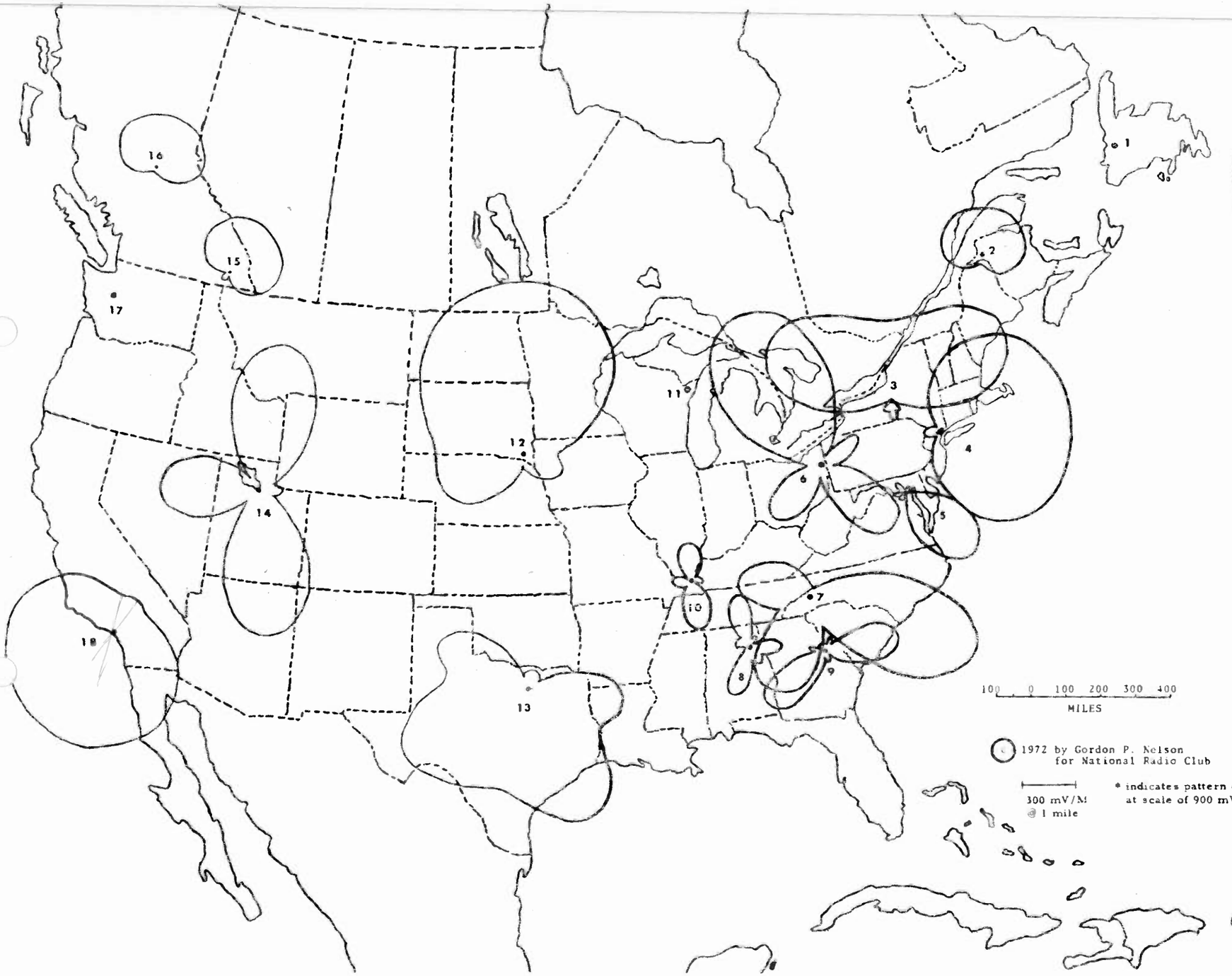


	call	class	location
1	CHCM	ND	MARYSTOWN
2	CKCN	DA-2	SEPT-ILES
3	WGAN	DA-1	PORTLAND
4	WHYN	DA-1	SPRINGFIELD
5	WFIL	DA-2	PHILADELPHIA
6	WGAI	DA-2	ELIZABETH CITY
7	WIS	DA-N	COLUMBIA
8	WQAM	ND	MIAMI
9	CJKL	DA-N	KIRKLAND LAKE
10	WJLS	DA-N	BECKLY
11	WEBC	DA-2	DULUTH
12	WIND	DA-2	CHICAGO
13	KWTO	DA-N	SPRINGFIELD
14	WHBQ	DA-2	MEMPHIS
15	KLVI	DA-N	BEAUMONT
16	KLZ	DA-1	DENVER
17	KMON	DA-N	GREAT FALLS
18	CKNL	DA-N	FORT ST. JOHN
19	KPQ	DA-N	WENATCHEE
20	KSFO	ND	SAN FRANCISCO
21	KYUM	DA-N	YUMA
22	CHTK	ND	PRINCE RUPERT

COMMENTS:

570 KHZ

REGIONAL

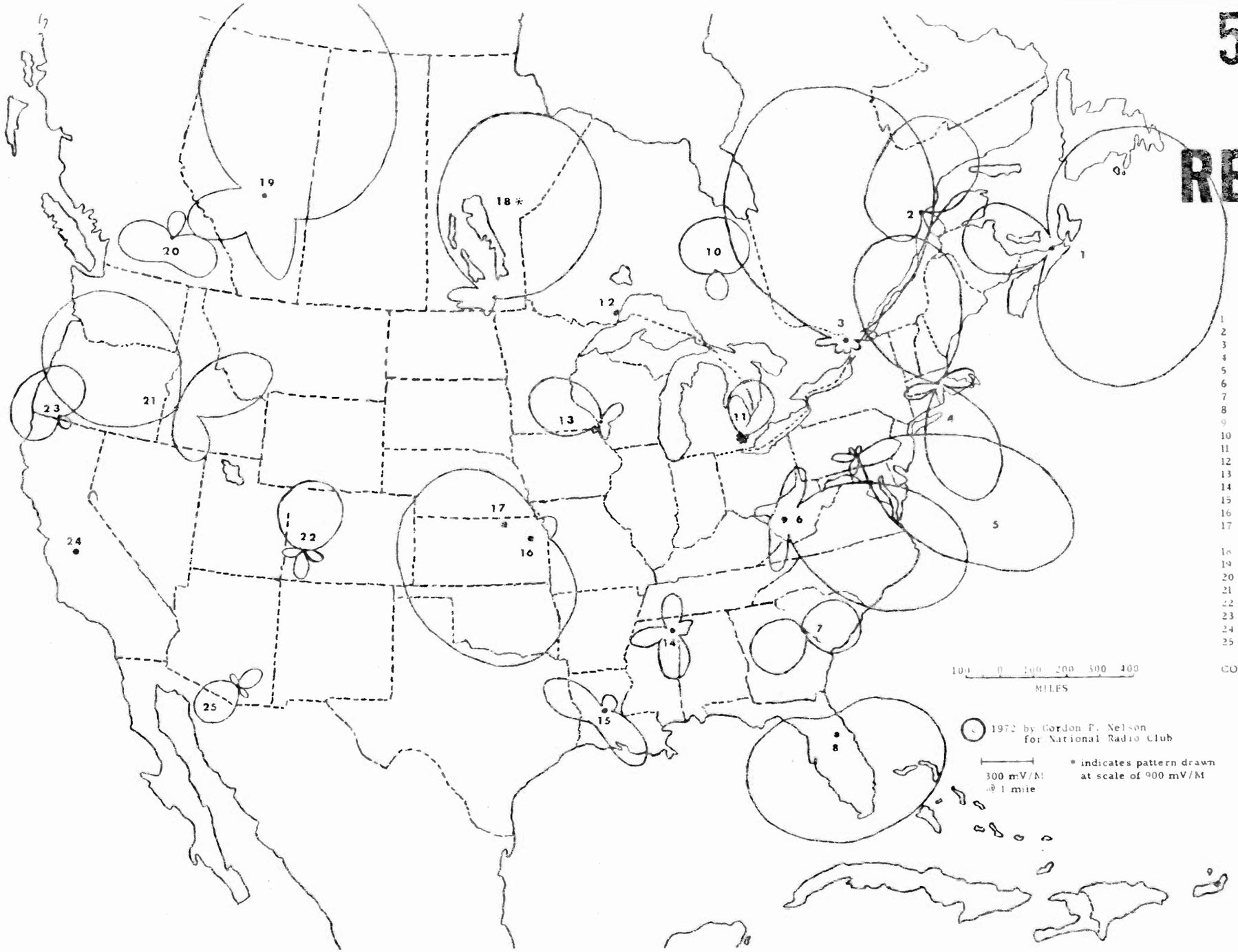


	call	class	location
1	CFCB	ND	CORNER BROOK
2	CJEM	DA-N	EDMUNDSTON
3	WSYR	DA-2	SYRACUSE
4	WMCA	DA-1	NEW YORK
5	WGMS	DA-2	BETHESDA
6	WKBN	DA-N	YOUNGSTOWN
7	WWNC	DA-N	ASHEVILLE
8	WAAX	DA-N	GADSDEN
9	WACL	DA-N	WAYCROSS
10	WKYX	DA-2	PADUCAH
11	WMAM	ND	MARINETTE
12	WNAX	DA-N	YANKTON
13	WFAA	DA-2	DALLAS
14	KLUB	DA-1	SALT LAKE CITY
15	CKEK	DA-1	CRANBROOK
16	CKCQ	DA-2	QUESNEL
17	KVI	ND	SEATTLE
18	KLAC	DA-N	LOS ANGELES

COMMENTS:

580 KHZ

REGIONAL

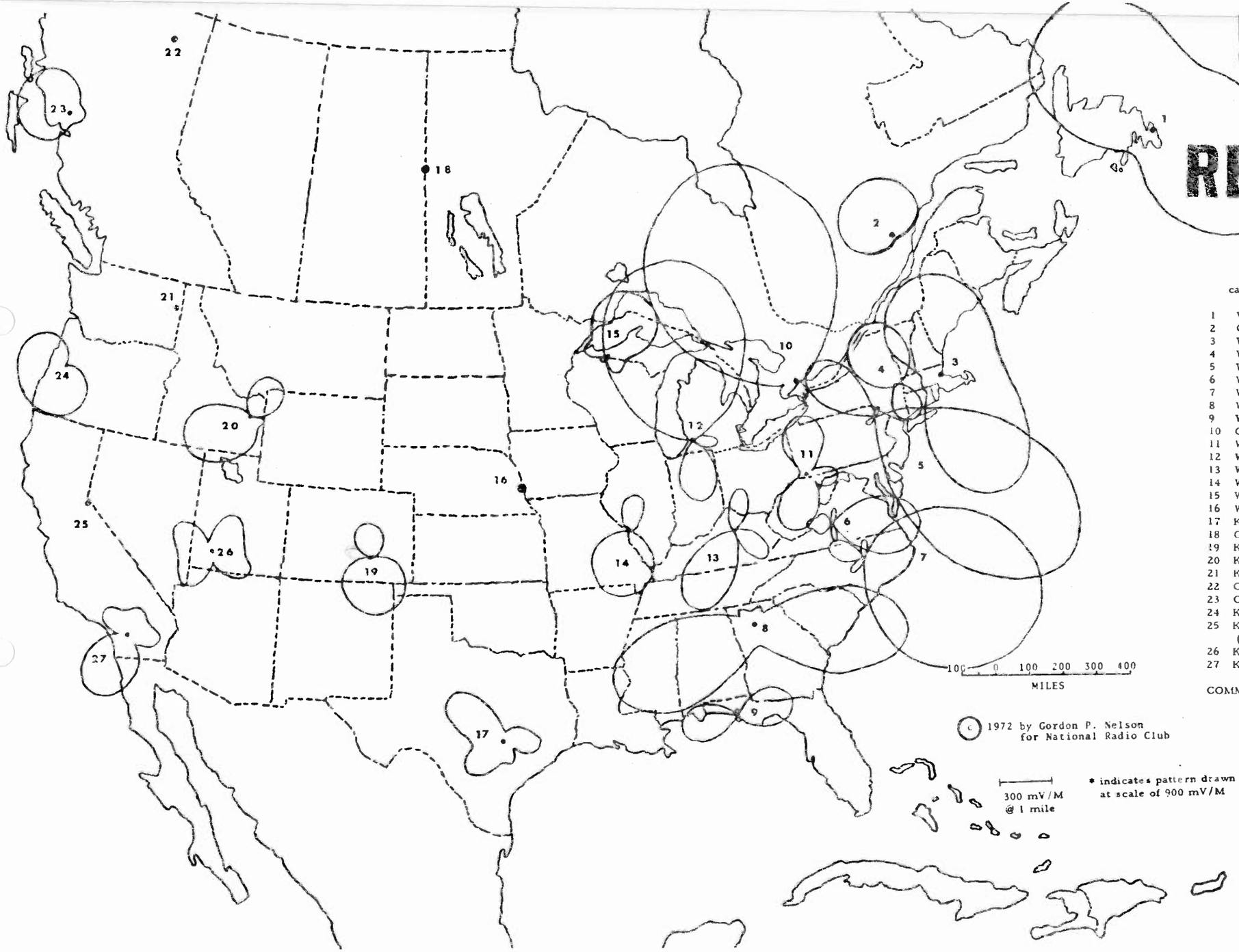


	call	class	location
1	CJFX	DA-1	ANTIGONISH
2	CHLC	DA-2	HAUTERIVE
3	CFRA	DA-N	OTTAWA
4	WTAG	DA-2	WORCESTER
5	WHP	DA-N	HARRISBURG
6	WCHS	DA-N	CHARLESTON
7	WGAC	DA-N	AUGUSTA
8	WDBO	DA-N	ORLANDO
9	WKAQ	ND	SAN JUAN
10	CKAP	DA-1	KAPUSKASING
11	CKWW	DA-1	WINDSOR
12	CKPR	ND	THUNDER BAY
13	WKTY	DA-2	LA CROSSE
14	WELO	DA-2	TUPELO
15	KALB	DA-N	ALEXANDRIA
16	WIBW	DA-N	TOPEKA
17	KSAC	ND	MANHATTAN
	(WIBW & KSAC share time)		
18	CKY	DA-2	WINNIPEG
19	CKUA	DA-2	EDMONTON
20	CKXR	DA-2	SALMON ARM
21	KFXD	DA-N	NAMPA
22	KUBC	DA-N	MONTROSE
23	KWIN	DA-2	ASHLAND
24	KMJ	ND	FRESNO
25	KIKX	DA-N	TUCSON

COMMENTS:

590 KHZ

REGIONAL



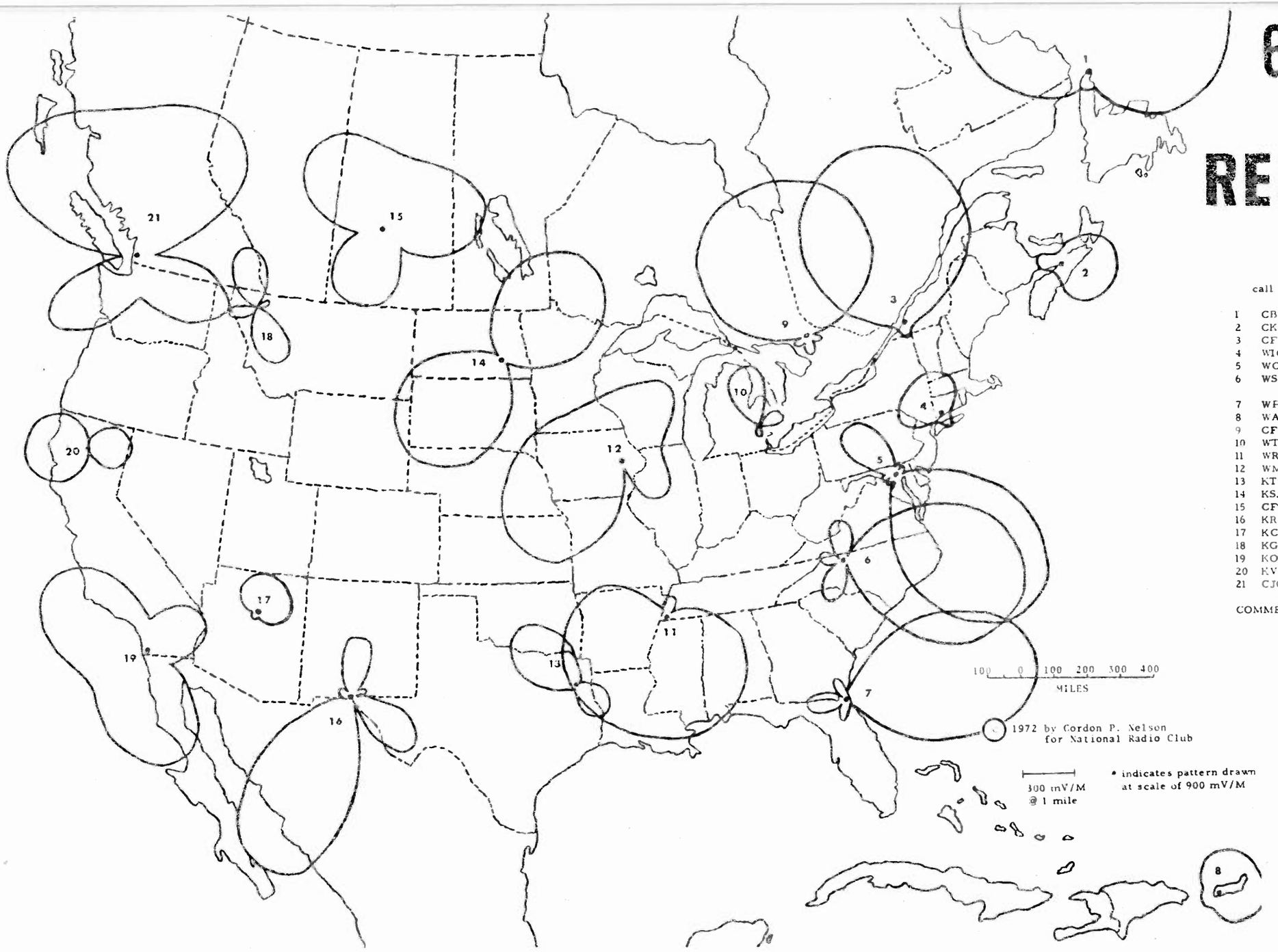
	call	class	location
1	VOCM	DA-N	ST. JOHN'S
2	CKRS	DA-1	JONQUERE
3	WEEI	DA-1	BOSTON
4	WROW	DA-2	ALBANY
5	WARM	DA-2	SCRANTON
6	WLVA	DA-2	LYNCHBURG
7	WGTM	DA-2	WILSON
8	WPLO	DA-N	ATLANTA
9	WDLP	DA-N	PANAMA CITY
10	CKEY	DA-2	TORONTO
11	WMBS	DA-N	UNIONTOWN
12	WKZO	DA-N	KALAMAZOO
13	WVLK	DA-2	LEXINGTON
14	WRTH	DA-2	WOOD RIVER
15	WJMS	DA-N	IRONWOOD
16	WOW	ND	OMAHA
17	KTBC	DA-N	AUSTIN
18	CFAR	ND	FLIN FLON
19	KCSJ	DA-1	PUEBLO
20	KID	DA-N	IDAHO FALLS
21	KHQ	ND	SPOKANE
22	CFNL	ND	FORT NELSON
23	CFTK	DA-1	TERRACE
24	KUGN	DA-N	EUGENE
25	KTHO	DA-N	S. LAKE TAHOE
	(pattern not available)		
26	KSUB	DA-N	CEDAR CITY
27	KFXM	DA-2	SAN BERNADINO

COMMENTS:

* indicates pattern drawn at scale of 900 mV/M

600 KHZ

REGIONAL

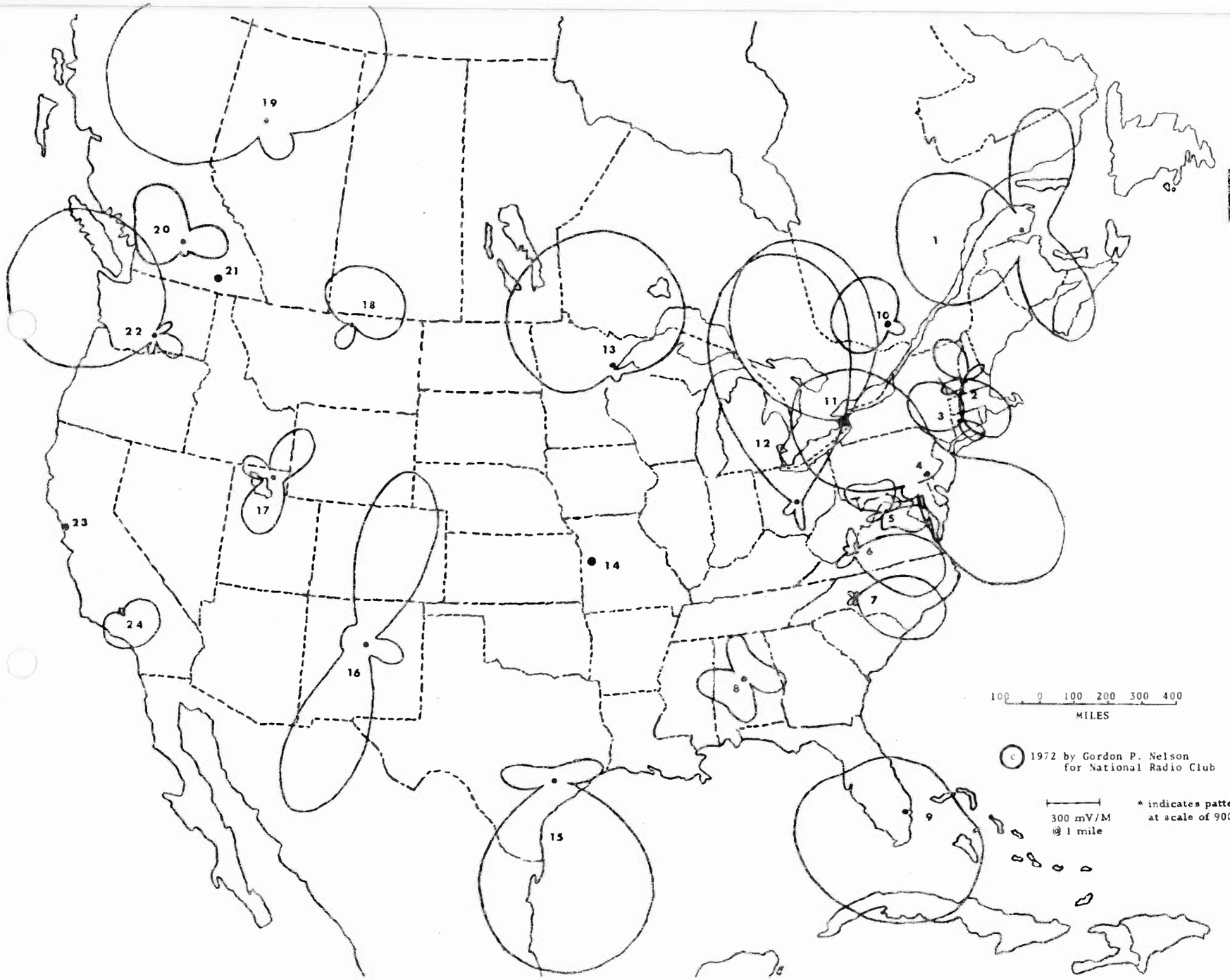


	call	class	location
1	CBNA	DA-2	ST ANTHONY
2	CKCL	DA-1	TRURO
3	CFCF	DA-1	MONTREAL
4	WICC	DA-1	BRIDGEPORT
5	WCAO	DA-1	BALTIMORE
6	WSJS	DA-2	WINSTON-SALEM
7	WPDQ	DA-N	JACKSONVILLE
8	WAEL	DA-1	MAYAGUEZ
9	CFCH	DA-2	NORTH BAY
10	WTAC	DA-2	FLINT
11	WREC	DA-2	MEMPHIS
12	WMT	DA-N	CEDAR RAPIDS
13	KTBB	DA-N	TYLER
14	KSJB	DA-1	JAMESTOWN
15	CFQC	DA-N	SASKATOON
16	KROD	DA-N	EL PASO
17	KCLS	DA-N	FLAGSTAFF
18	KGEZ	DA-2	KALISPELL
19	KOGO	DA-1	SAN DIEGO
20	KVCV	DA-1	REDDING
21	CJOR	DA-1	VANCOUVER

COMMENTS:

610 KHZ

REGIONAL



	call	class	location
1	CHNC	DA-1	NEW CARLISLE
2	WGIR	DA-2	MANCHESTER
3	WTOR	DA-2	TORRINGTON
4	WIP	DA-2	PHILADELPHIA
5	WHPL	DA-2	WINCHESTER
6	WSLS	DA-2	ROANOKE
7	WAYS	DA-2	CHARLOTTE
8	WSGN	DA-N	BIRMINGHAM
9	WIOD	DA-2	MIAMI
10	CKML	DA-N	MONT LAURIER
11	CKTB	DA-1	STE. CATHARINES
12	WTVN	DA-N	COLUMBUS
13	KDAL	DA-N	DULUTH
14	WDAF	ND	KANSAS CITY
15	KILT	DA-2	HOUSTON
16	KGGM	DA-N	ALBUQUERQUE
17	KVNU	DA-N	LOGAN
18	KOJM	DA-2	HAVRE
19	CKYL	DA-N	PEACE RIVER
20	CHNL	DA-1	KAMLOOPS
21	CJAT	ND	TRAIL
22	KEPR	DA-2	KENNEWICK/ RICHLAND/PASCO
23	KFRC	ND	SAN FRANCISCO
24	KAVL	DA-2	LANCASTER

COMMENTS:

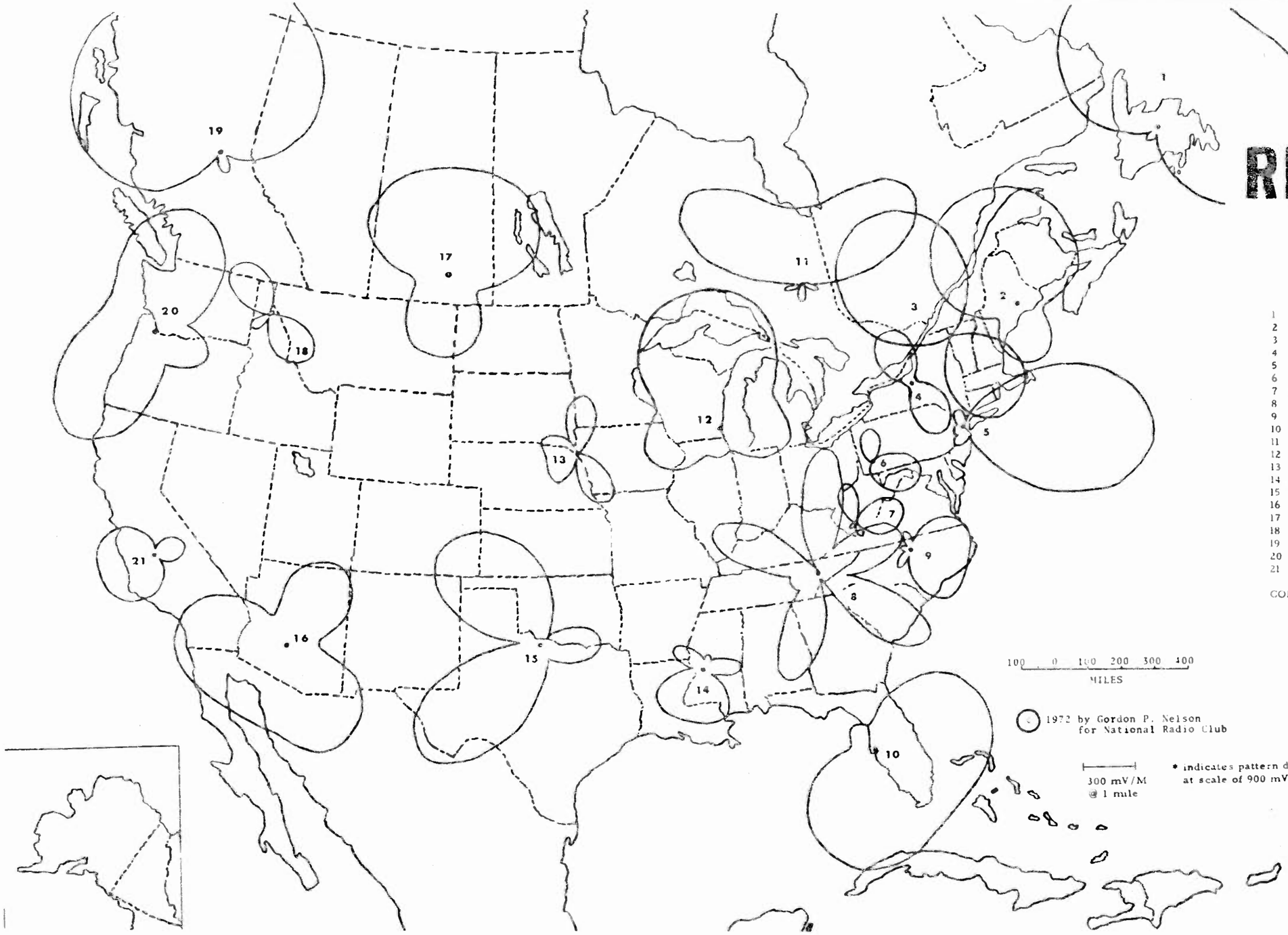
100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn at scale of 900 mV/M

620 KHZ

REGIONAL



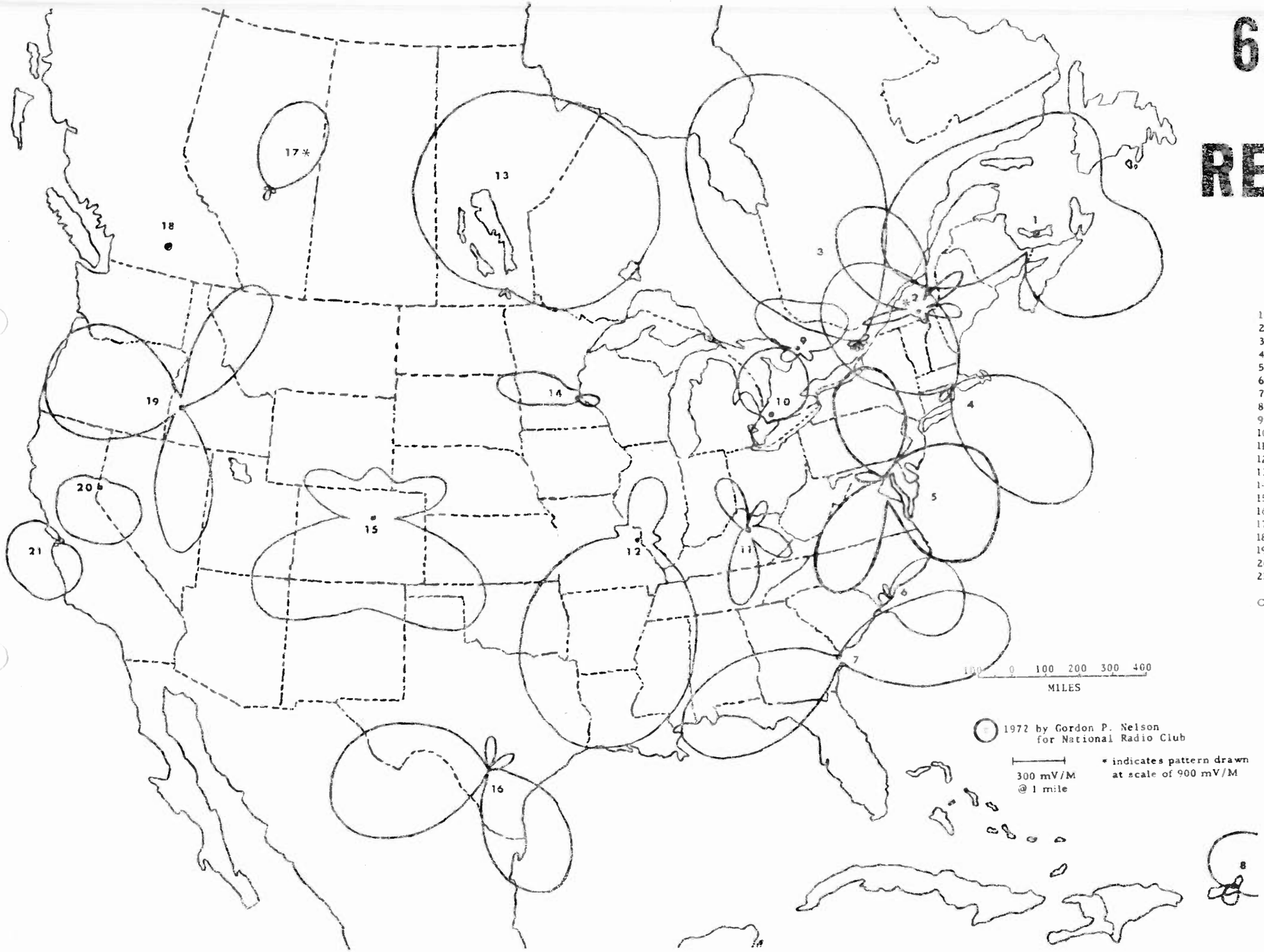
	call	class	location
1	CKGM	DA-1	GRAND FALLS
2	WLBZ	DA-N	BANGOR
3	WVMT	DA-2	BURLINGTON
4	WHEN	DA-N	SYRACUSE
5	WVNJ	DA-2	NEWARK
6	WHJB	DA-2	GREENSBURG
7	WWNR	DA-N	BECKLY
8	WETE	DA-2	KNOXVILLE
9	WDNC	DA-2	DURHAM
10	WSUN	DA-N	ST. PETERSBURG
11	CFCL	DA-2	TIMMINS
12	WTMJ	DA-2	MILWAUKEE
13	KMNS	DA-2	SIOUX CITY
14	WJDX	DA-N	JACKSON
15	KWFT	DA-N	WICHITA FALLS
16	KTAR	DA-N	PHOENIX
17	CKCK	DA-N	REGINA
18	KWAL	DA-N	WALLACE
19	CFCI	DA-N	PRINCE GEORGE
20	KGW	DA-1	PORTLAND
21	KNGS	DA-N	HANFORD

COMMENTS:

* indicates pattern drawn at scale of 900 mV/M

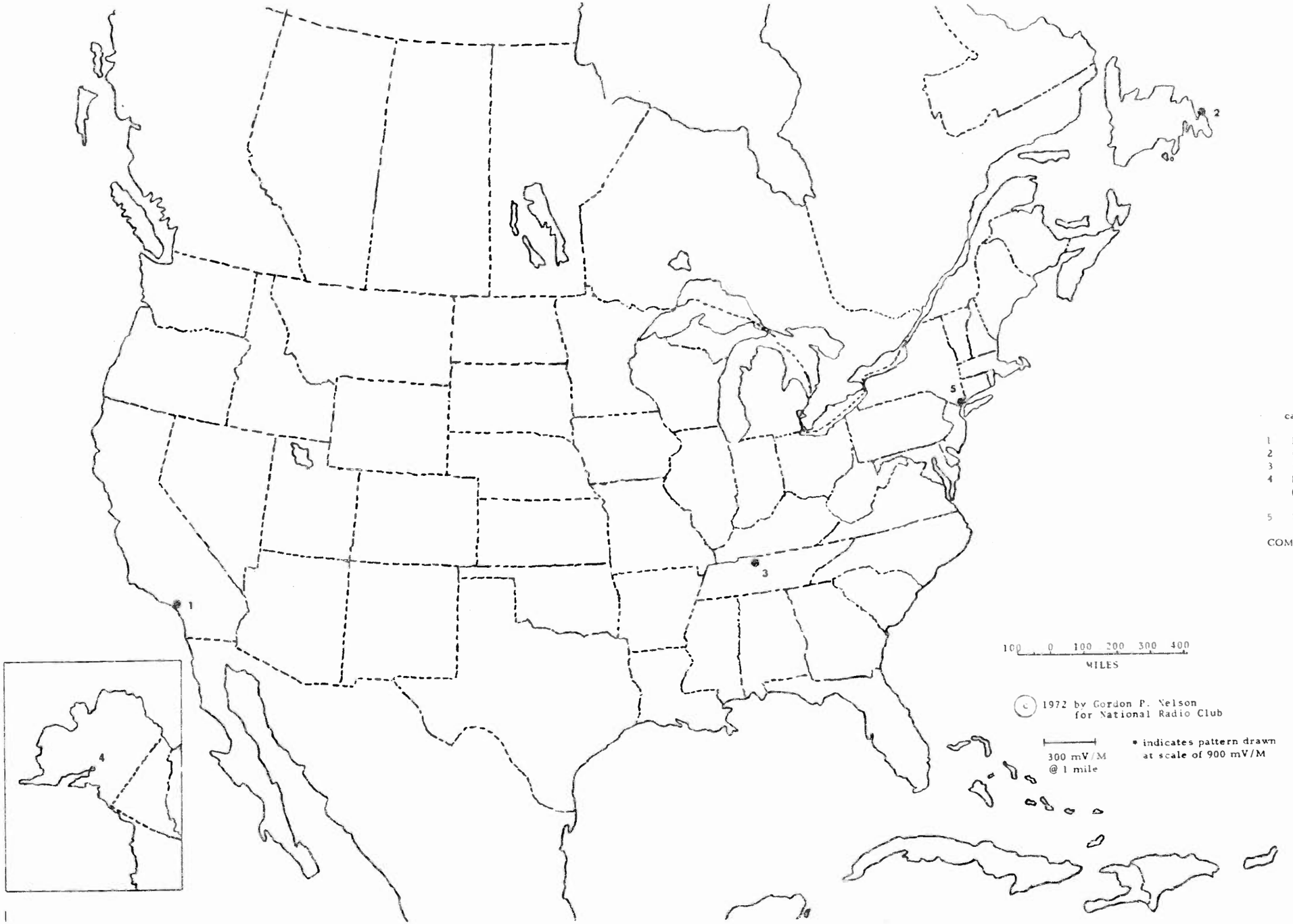
630 KHZ

REGIONAL



	call	class	location
1	CFCY	DA-2	CHARLOTTETOWN
2	CHLT	DA-2	SHERBROOKE
3	CJET	DA-2	SMITH FALLS
4	WPRO	DA-N	PROVIDENCE
5	WMAL	DA-2	WASHINGTON
6	WMFD	DA-2	WILMINGTON
7	WSAV	DA-N	SAVANNAH
8	WQBS	DA-N	SAN JUAN
9	CKAR	DA-N	HUNTSVILLE
10	CFCO	DA-2	CHATHAM
11	WLAP	DA-1	LEXINGTON
12	KXOK	DA-2	ST. LOUIS
13	CKRC	DA-2	WINNIPEG
14	KDWB	DA-2	ST. PAUL
15	KHOW	DA-N	DENVER
16	KMAC	DA-2	SAN ANTONIO
17	CHED	DA-2	EDMONTON
18	CKOV	ND	KELOWNA
19	KIDO	DA-2	BOISE
20	KOH	DA-N	RENO
21	KIDD	DA-2	MONTEREY

COMMENTS:

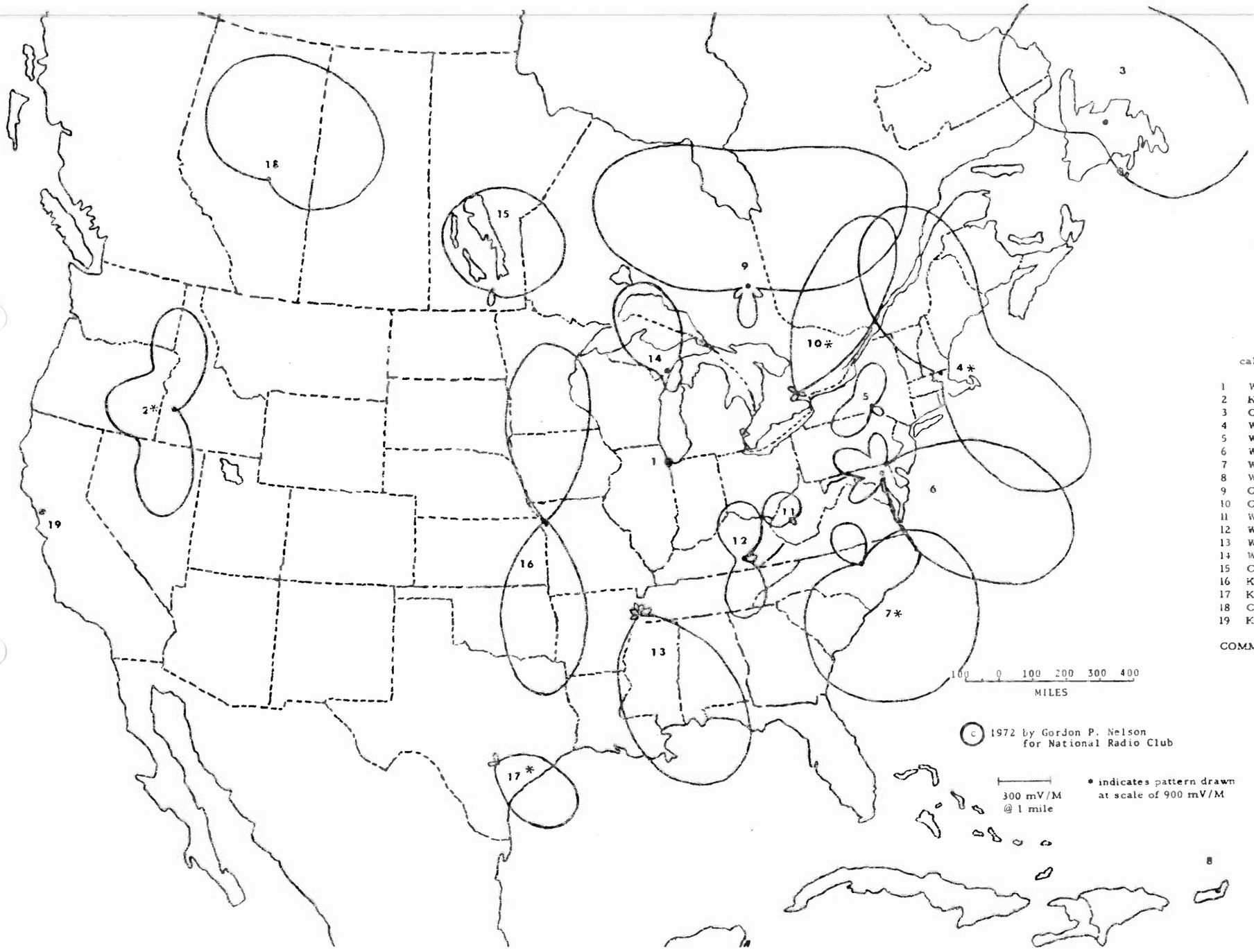


640
650 KHZ
660
CLEAR

	call	class	location
1	KFI	ND	LOS ANGELES
2	CBN	ND	ST. JOHN'S
3	WSM	ND	NASHVILLE
4	KYAK	DA-2	ANCHORAGE
	(pattern not available; most power goes due north)		
5	WNBC	ND	NEW YORK

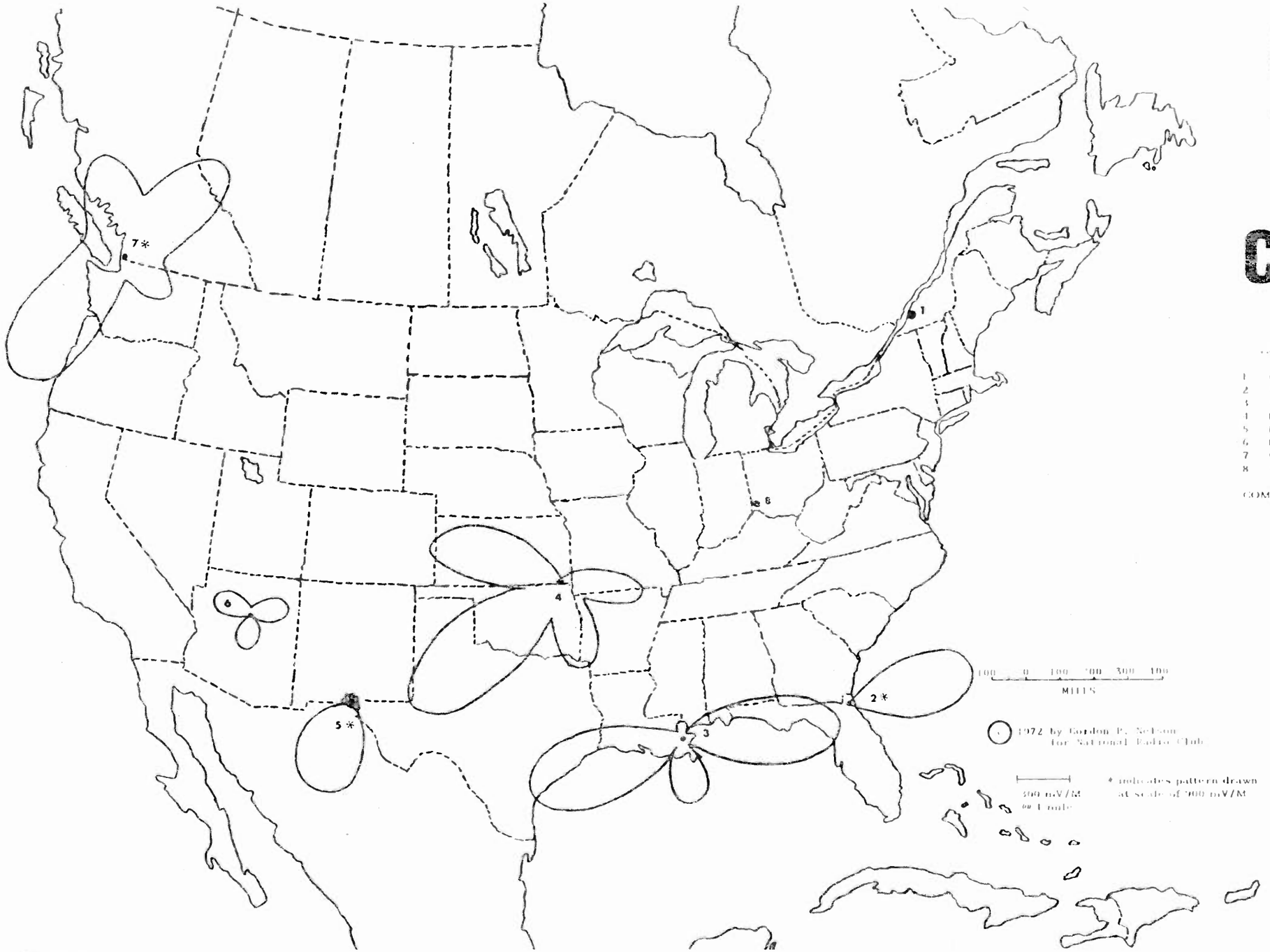
COMMENTS:

670 680 KHZ CLEAR



	call	class	location
1	WMAQ	ND	CHICAGO
2	KBOI	DA-N	BOISE
3	CJCN	DA-2	GRAND FALLS
4	WRKO	DA-2	BOSTON
5	WINR	DA-2	BINGHAMTON
6	WCBM	DA-2	BALTIMORE
7	WPTF	DA-N	RALEIGH
8	WAPA	ND	SAN JUAN
9	CKGB	DA-2	TIMMINS
10	CFTR	DA-2	TORONTO
11	WCAW	DA-N	CHARLESTON
12	WCTT	DA-N	CORBIN
13	WMPS	DA-N	MEMPHIS
14	WDBC	DA-2	ESCANADA
15	CJOB	DA-N	WINNIPEG
16	KFEQ	DA-2	ST. JOSEPH
17	KBAT	DA-N	SAN ANTONIO
18	CHFA	DA-1	EDMONTON
19	KNBR	ND	SAN FRANCISCO

COMMENTS:



690
700 KHZ

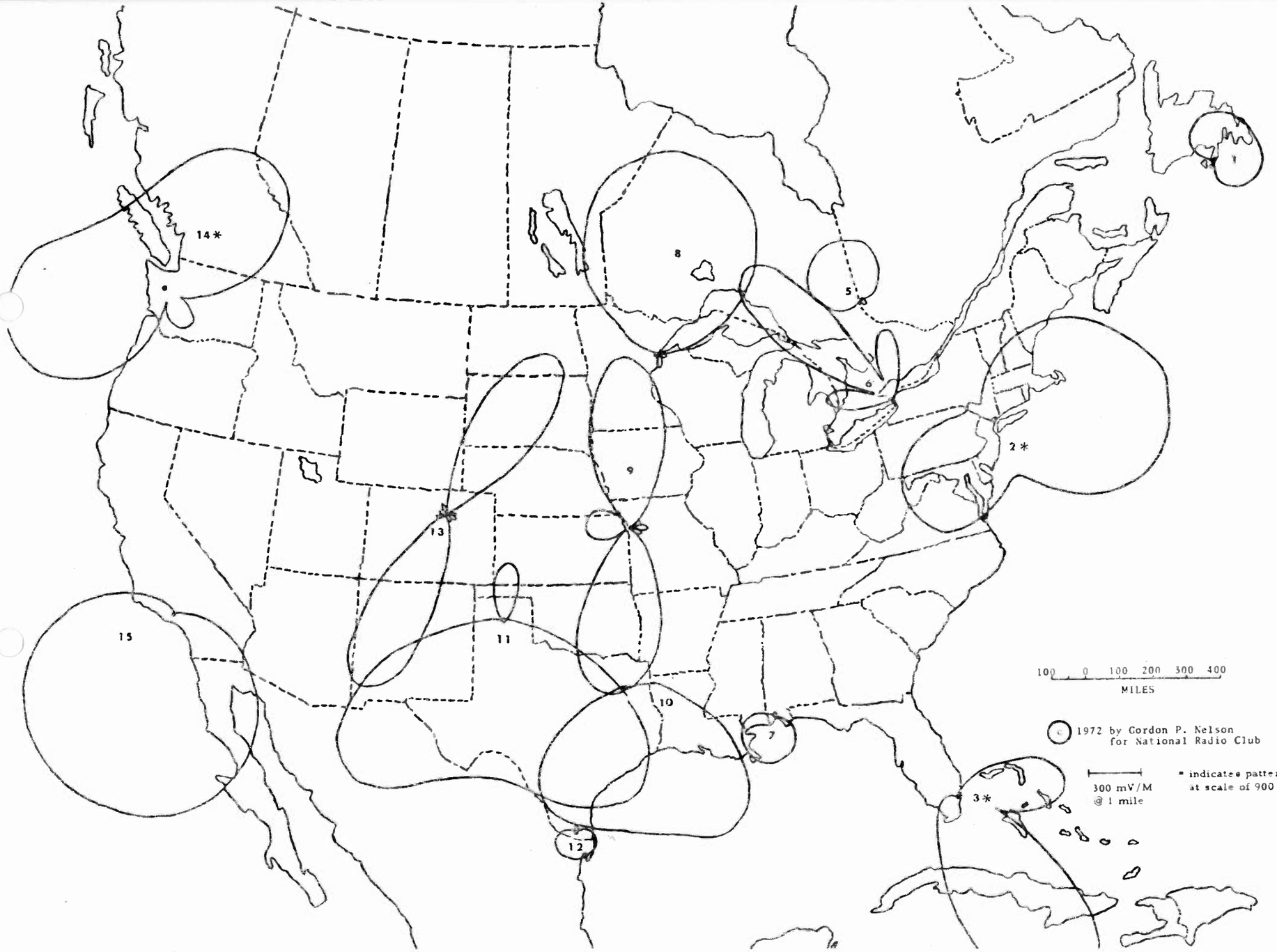
CLEAR

	call	class	location
1	CBF	ND	MONTREAL
2	WAIN	DA-N	JACKSONVILLE
3	WTIX	DA-2	NEW ORLEANS
4	KGGF	DA-2	COFFEYVILLE
5	KHEY	DA-2	EL PASO
6	KEOS	DA-2	FLAGSTAFF
7	CJBU	DA-1	VANCOUVER
8	WLW	ND	CINCINNATTI

COMMENTS:

710 KHZ

CLEAR



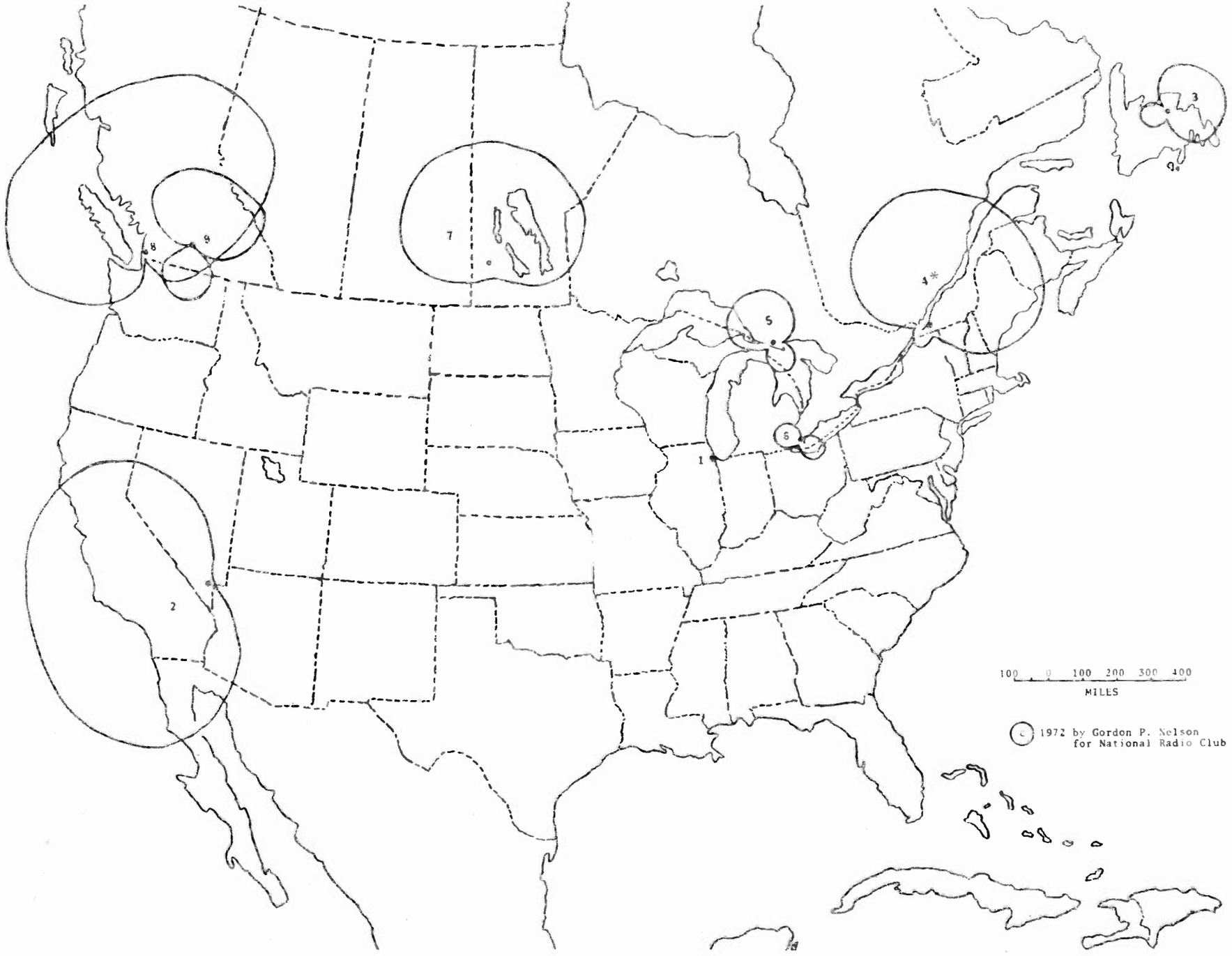
	call	class	location
1	CJOX	DA-1	GRAND BANK
2	WOR	DA-1	NEW YORK
3	WGBS	DA-2	MIAMI
4	WKJB	ND	MAYAGUEZ
5	CKVM	DA-N	VILLE MARIE
	(CP for 10kw DA-N, 1kw DA-N shown)		
6	CJRN	DA-2	NIAGARA FALLS
7	WKRG	DA-N	MOBILE
8	WDSM	DA-N	SUPERIOR
9	WHB	DA-2	KANSAS CITY
10	KEEL	DA-2	SHREVEPORT
11	KGNC	DA-2	AMARILLO
12	KURV	DA-N	EDINBURG
13	KBTR	DA-1	DENVER
14	KIRO	DA-N	SEATTLE
15	KMPC	DA-N	LOS ANGELES

COMMENTS:

100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M



720
730 KHZ

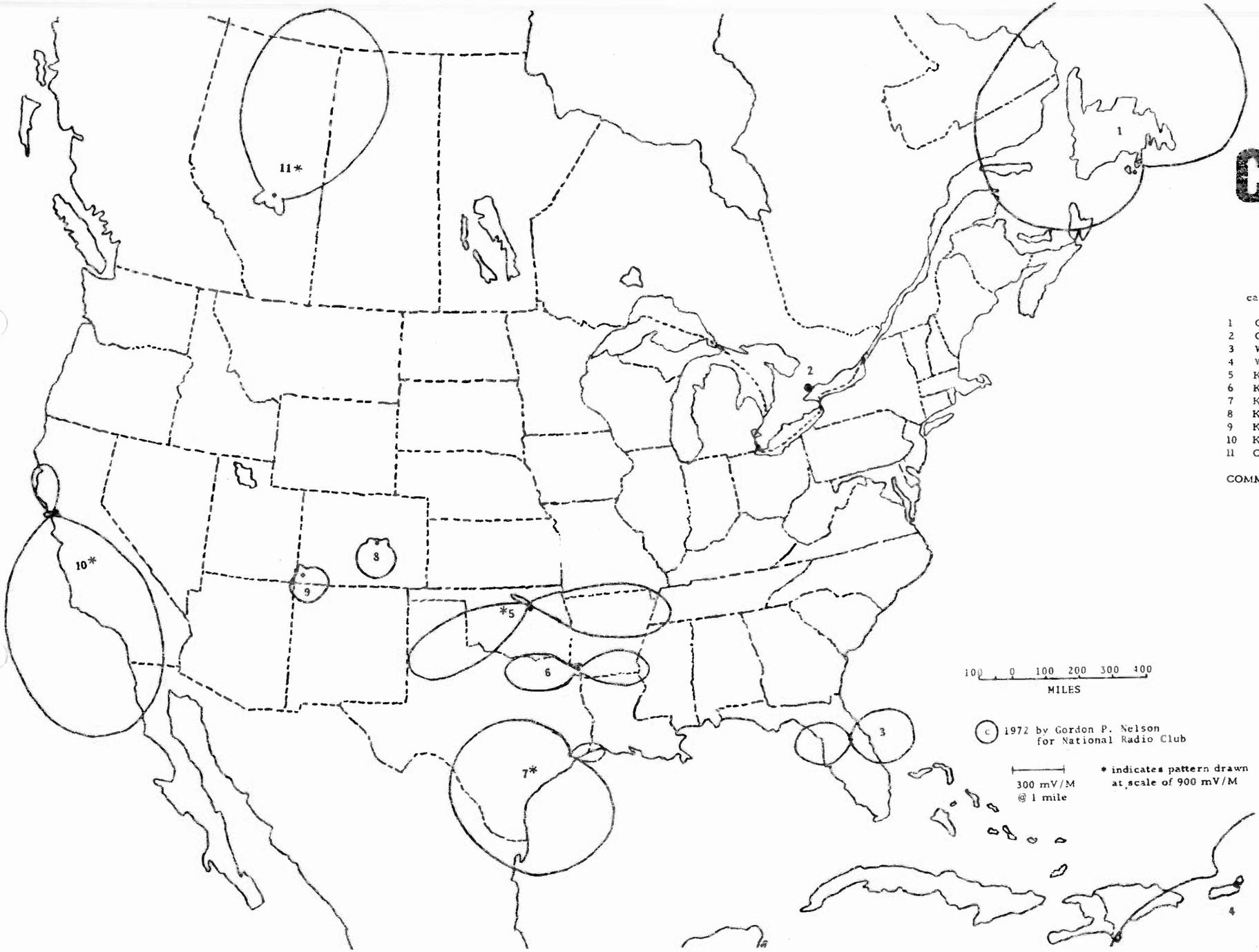
CLEAR

	call	class	location
1	WGN	ND	CHICAGO
2	KIXQ	DA-N	LAS VEGAS
3	CKGA	DA-N	GARDNER
4	CKAC	DA-1	MONTREAL
5	CJNR	DA-N	BLIND RIVER
6	CHR	DA-N	LEAMINGTON
7	CKDN	DA-N	DAUPHIN
8	CKLG	DA-2	VANCOUVER
9	*CP*	DA-1	RUTLAND

100 0 100 200 300 400
MILES

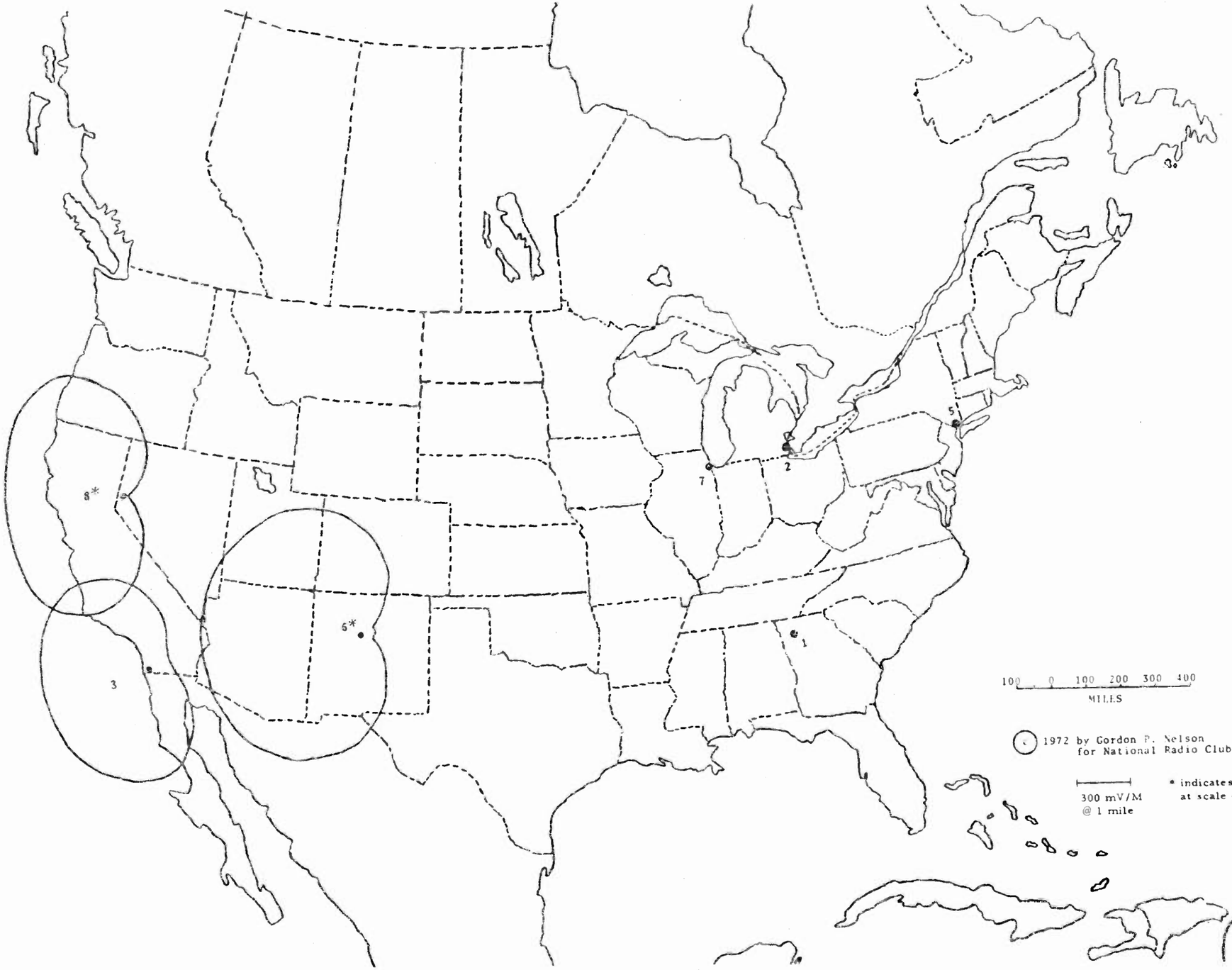
740 KHZ

CLEAR



	call	class	location
1	CBNM	DA-N	MARYSTOWN
2	CBL	ND	TORONTO
3	WKIS	DA-N	ORLANDO
4	WIAC	DA-1	SAN JUAN
5	KRMG	DA-2	TULSA
6	KCMC	DA-1	TEXARKANA
7	KTRH	DA-2	HOUSTON
8	KSSS	DA-N	COLORADO SPRINGS
9	KVFC	DA-N	CORTEZ
10	KCBS	DA-2	SAN FRANCISCO
11	CBX	DA-2	EDMONTON

COMMENTS:



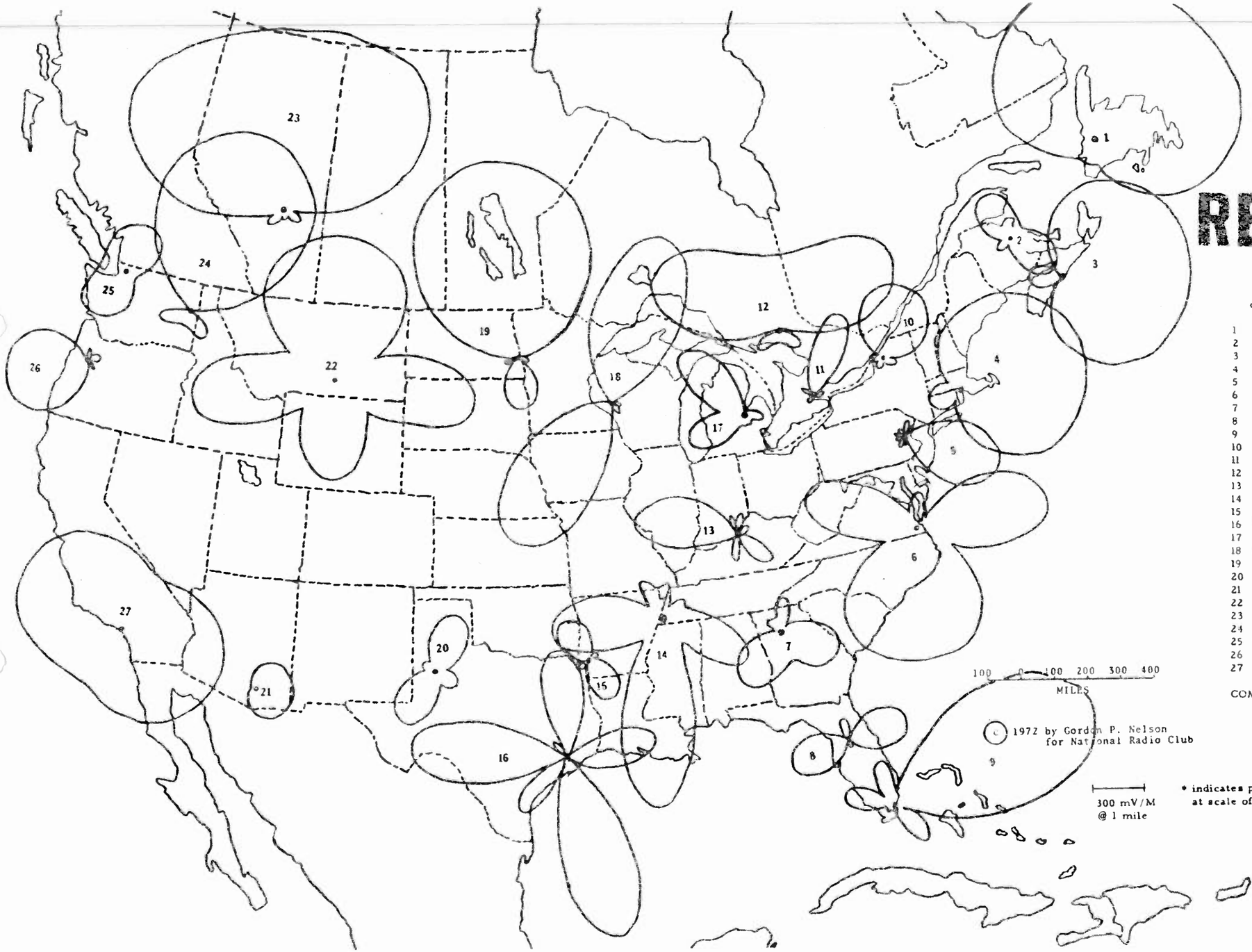
750
760
770
780

KHZ

CLEAR

	call	class	location
1	WSB	ND	ATLANTA
2	WJR	ND	DETROIT
3	KFMB	DA-N	SAN DIEGO
4	WORA	DA-1	MAYAGUEZ
5	WABC	ND	NEW YORK
6	KOB	DA-N	ALBUQUERQUE
7	WBBM	ND	CHICAGO
8	KCRL	DA-N	RENO

COMMENTS:



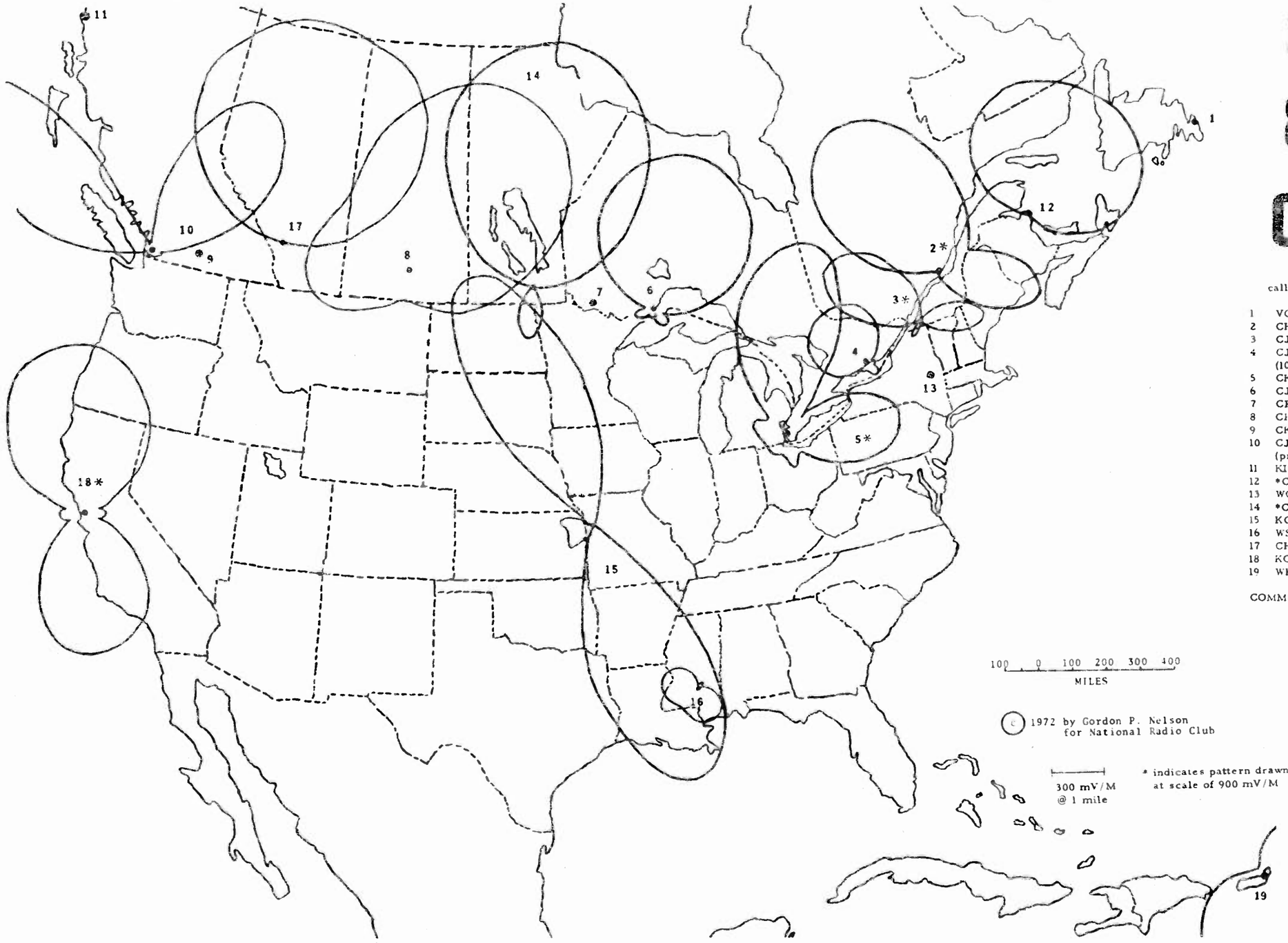
790 KHZ

REGIONAL

	call	class	location
1	*CP*	DA-1	CORNER BROOK
2	CFUN	DA-1	NEWCASTLE
3	CFDR	DA-1	DARTMOUTH
4	WEAN	DA-2	PROVIDENCE
5	WAEB	DA-2	ALLENTOWN
6	WTAR	DA-N	NORFOLK
7	WQXI	DA-N	ATLANTA
8	WLBE	DA-N	LEESBURG-EUSTIS
9	WFUN	DA-2	S. MIAMI-MIAMI
10	WWNY	DA-N	WATERTOWN
11	CHIC	DA-2	BRAMPTON
12	CKSO	DA-2	SUDBURY
13	WAKY	DA-2	LOUISVILLE
14	WMC	DA-N	MEMPHIS
15	KOSY	DA-N	TEXARKANA
16	KULF	DA-2	HOUSTON
17	WSGW	DA-2	SAGINAW
18	WEAQ	DA-N	EAU CLAIRE
19	KFGO	DA-N	FARGO
20	KFYO	DA-2	LUBBOCK
21	KCEE	DA-1	TUCSON
22	KGHL	DA-N	BILLINGS
23	CFCW	DA-2	CAMROSE
24	KJRB	DA-N	SPOKANE
25	KGMI	DA-N	BELLINGHAM
26	KWIL	DA-2	ALBANY
27	KABC	DA-N	LOS ANGELES

COMMENTS:

* indicates pattern drawn at scale of 900 mV/M



800 810 KHZ CLEAR

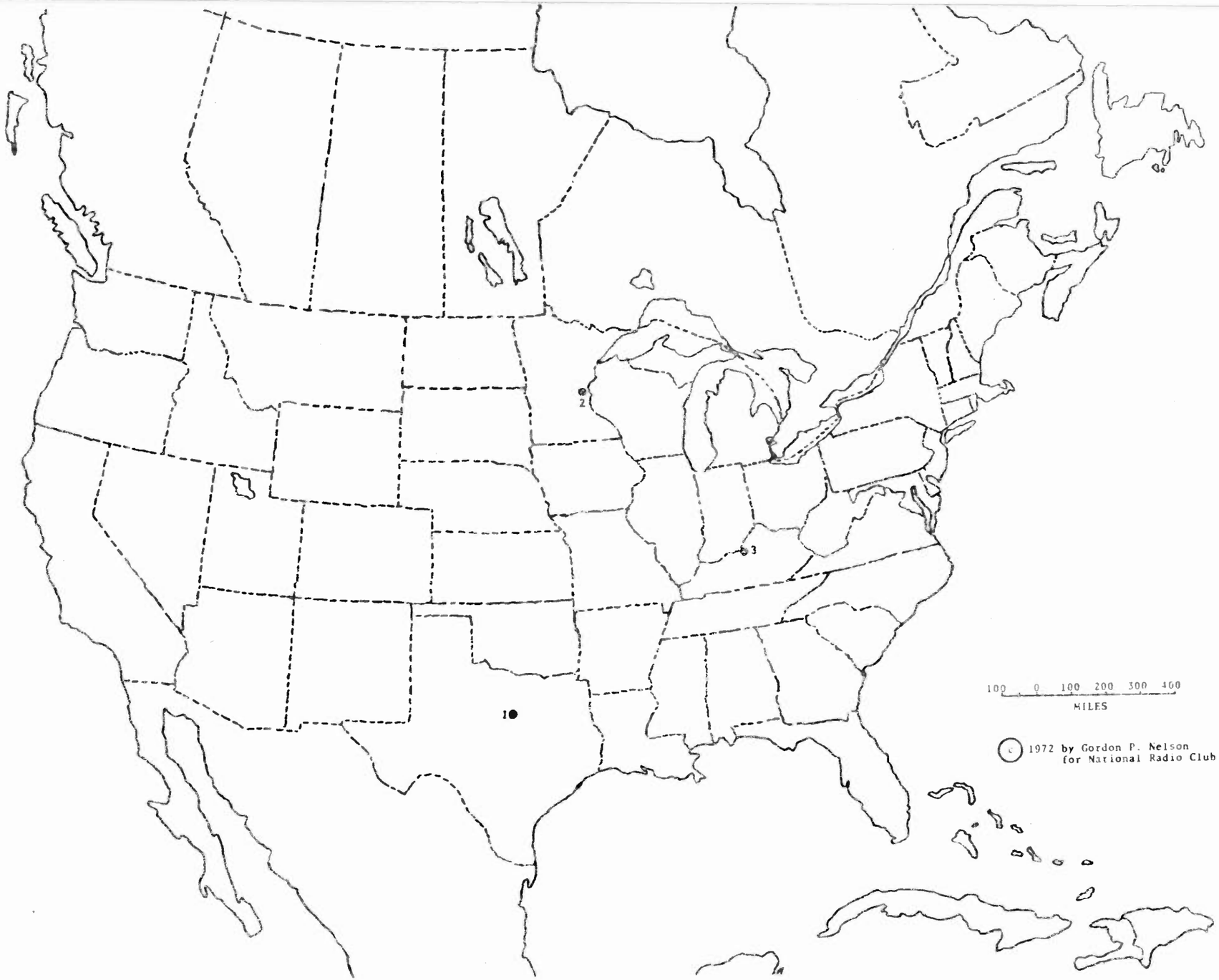
	call	class	location
1	VOWR	ND	ST. JOHN'S
2	CHRC	DA-1	QUEBEC
3	CJAD	DA-2	MONTREAL
4	CJBQ	DA-2	BELLEVILLE
	(10kw DA-2, old 1kw night shown)		
5	CKLW	DA-2	WINDSOR
6	CJLX	DA-1	THUNDER BAY
7	CFOB	ND	FORT FRANCIS
8	CHAB	DA-N	MOOSE JAW
9	CKOK	ND	PENTICTON
10	CJJC	DA-2	LANGLEY
	(presently on 850 kHz)		
11	KINY	ND	JUNEAU
12	*CP*	DA-N	CARAQUET
13	WGY	ND	SCHENECTADY
14	*CP*	DA-1	WINNIPEG
15	KCMO	DA-N	KANSAS CITY
16	WSJC	DA-N	MAGEE
17	CHQR	DA-N	CALGARY
18	KGO	DA-1	SAN FRANCISCO
19	WKVM	DA-1	SAN JUAN

COMMENTS:

100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M



820
830
840
CLEAR

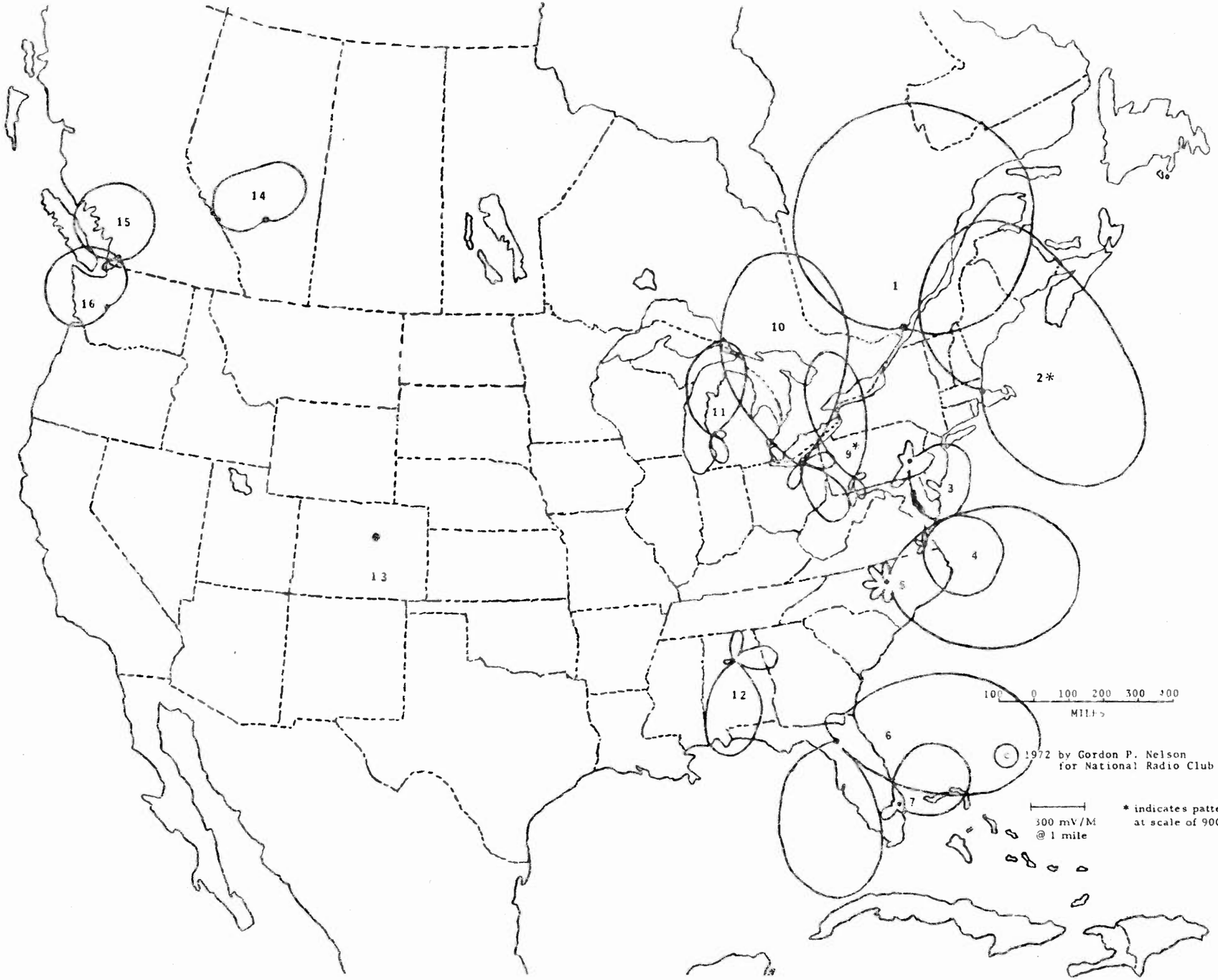
	call	class	location
1	WBAP	ND	FT. WORTH
2	WCCO	ND	MINNEAPOLIS
3	WHAS	ND	LOUISVILLE

COMMENTS:

100 0 100 200 300 400
MILES

850 KHZ

CLEAR

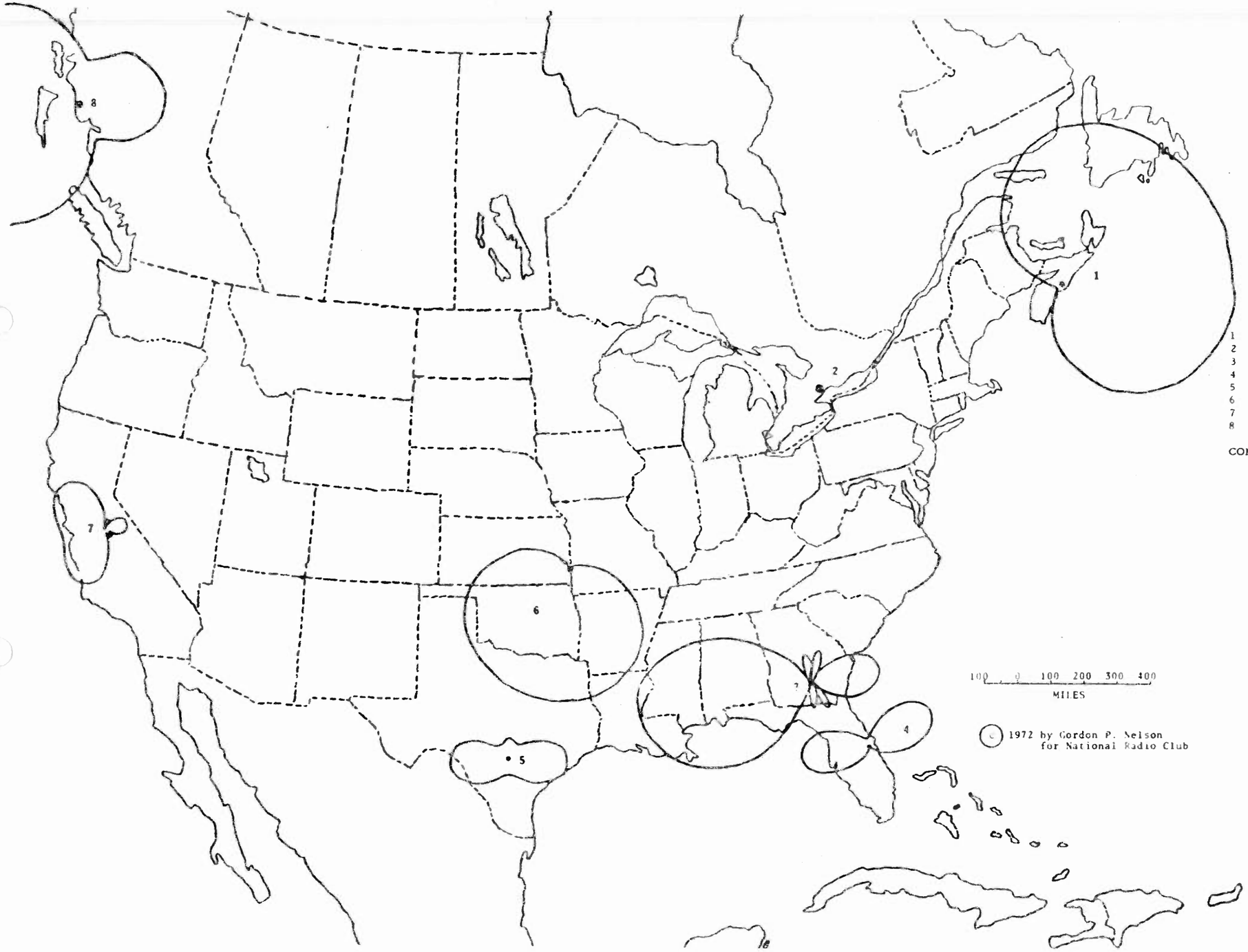


	call	class	location
1	CKVL	DA-2	VERDUN
2	WHDH	DA-2	BOSTON
3	WEEU	DA-N	READING
4	WRAP	DA-2	NORFOLK
5	WKIX	DA-N	RALEIGH
6	WRUF	DA-N	GAINESVILLE
7	WEAT	DA-1	W. PALM BEACH
8	WABA	ND	AGUADILLA
9	WJAC	DA-1	JOHNSTOWN
10	WJW	DA-2	CLEVELAND
11	WKBZ	DA-1	MUSKEGON
12	WYDE	DA-2	BIRMINGHAM
13	KOA	ND	DENVER
14	CKRD	DA-N	RED DEER
15	CJJC	DA-2	LANGLEY
	(CP to move to 800 kHz)		
16	KTAC	DA-2	TACOMA

COMMENTS:

860 KHZ

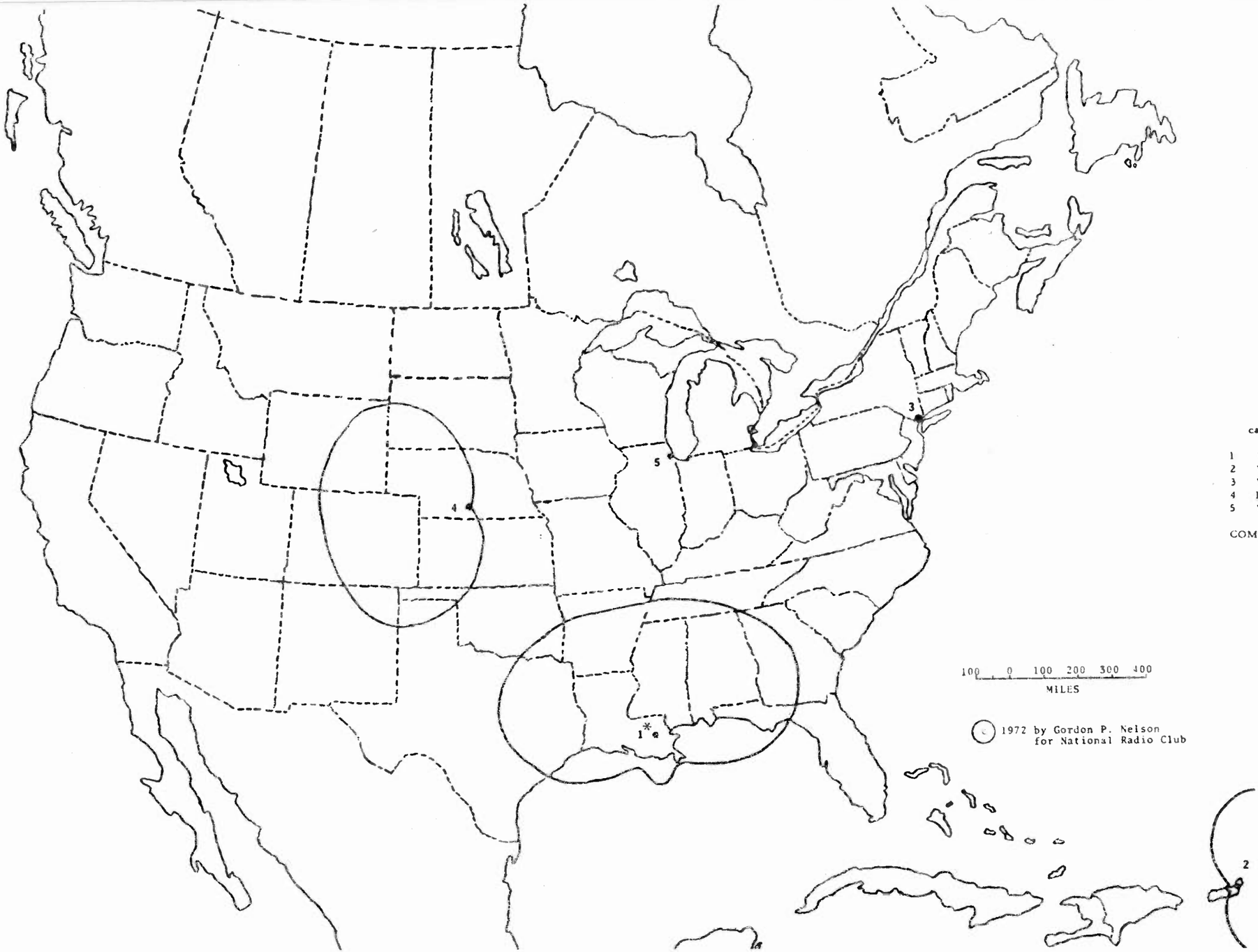
CLEAR



	call	class	location
1	CBH	DA-N	HALIFAX
2	CJBC	ND	TORONTO
3	WDMG	DA-N	DOUGLAS
4	WKKO	DA-N	COCOA
5	KONO	DA-N	SAN ANTONIO
6	KOAM	DA-N	PITTSBURG
7	KTRB	DA-2	MODESTO
8	CFPR	DA-1	PRINCE RUPERT

COMMENTS:

100 0 100 200 300 400
MILES



870
880 KHZ
890

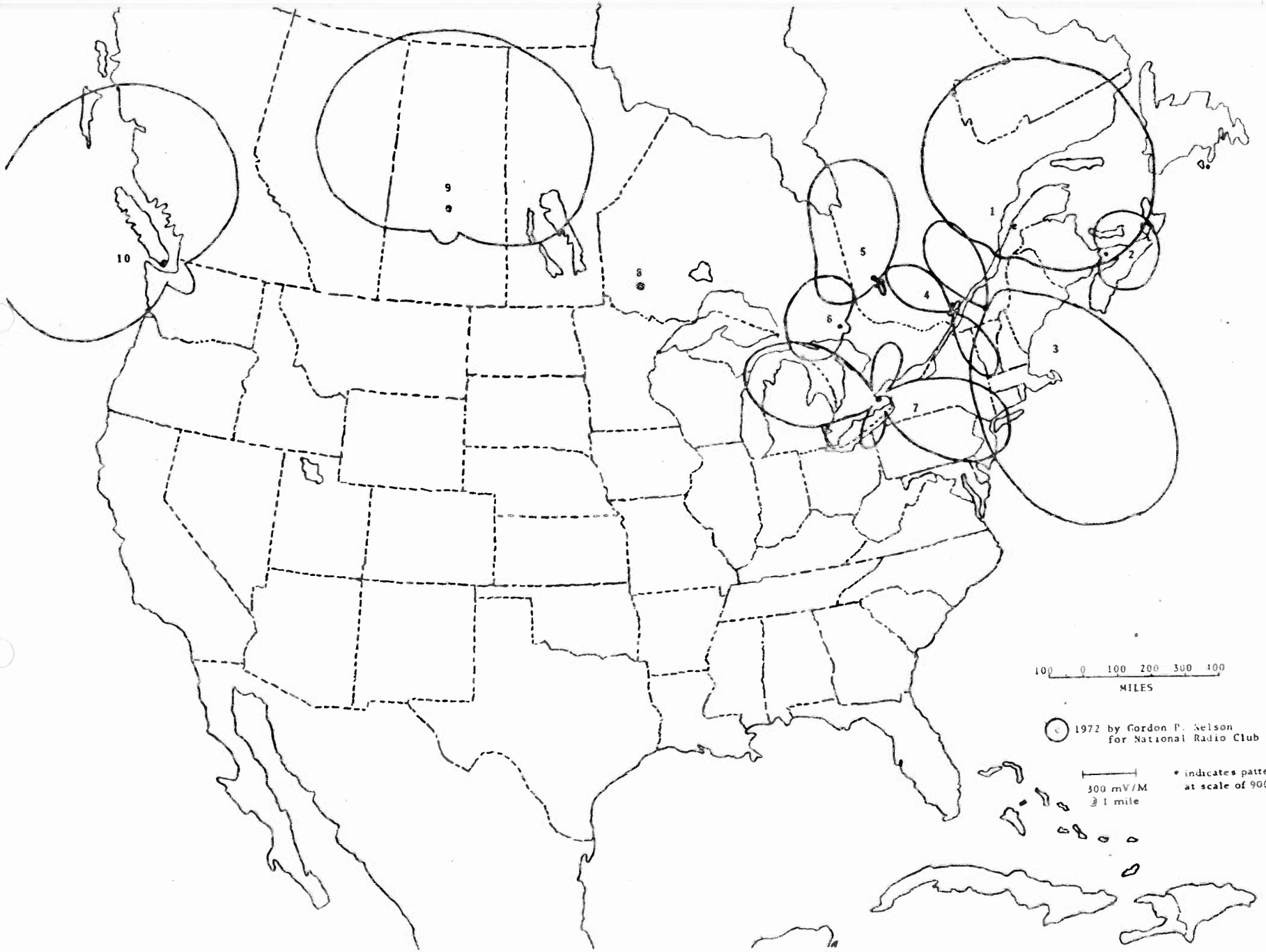
CLEAR

	call	class	location
1	WWL	DA-1	NEW ORLEANS
2	WHOA	DA-1	SAN JUAN
3	WCBS	ND	NEW YORK
4	KRVN	DA-N	LEXINGTON
5	WLS	ND	CHICAGO

COMMENTS:

900 KHZ

CLEAR

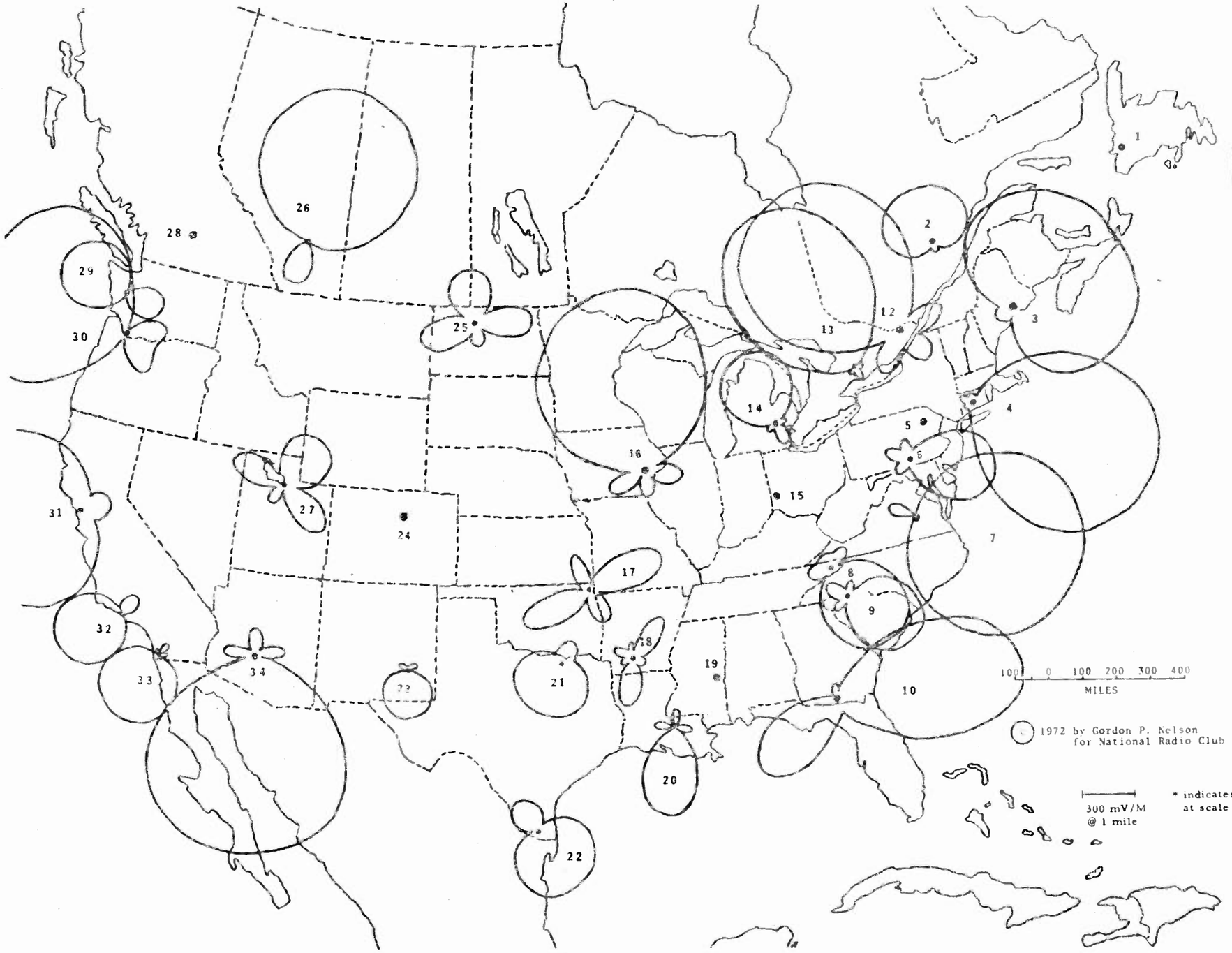


	call	class	location
1	CJBR	DA-N	RIMOUSKI
2	CKDH	DA-2	AMHERST
3	CKTS	DA-2	SHERBROOKE
4	CKJL	DA-1	ST. JEROME
5	CKVD	DA-1	VAL D'OR
6	CFBR	DA-2	SUDBURY
7	CHML	DA-1	HAMILTON
8	CKDR	ND	DRYDEN
9	CKBI	DA-2	PRINCE ALBERT
10	CJVI	DA-1	VICTORIA

COMMENTS:

910 KHZ

REGIONAL

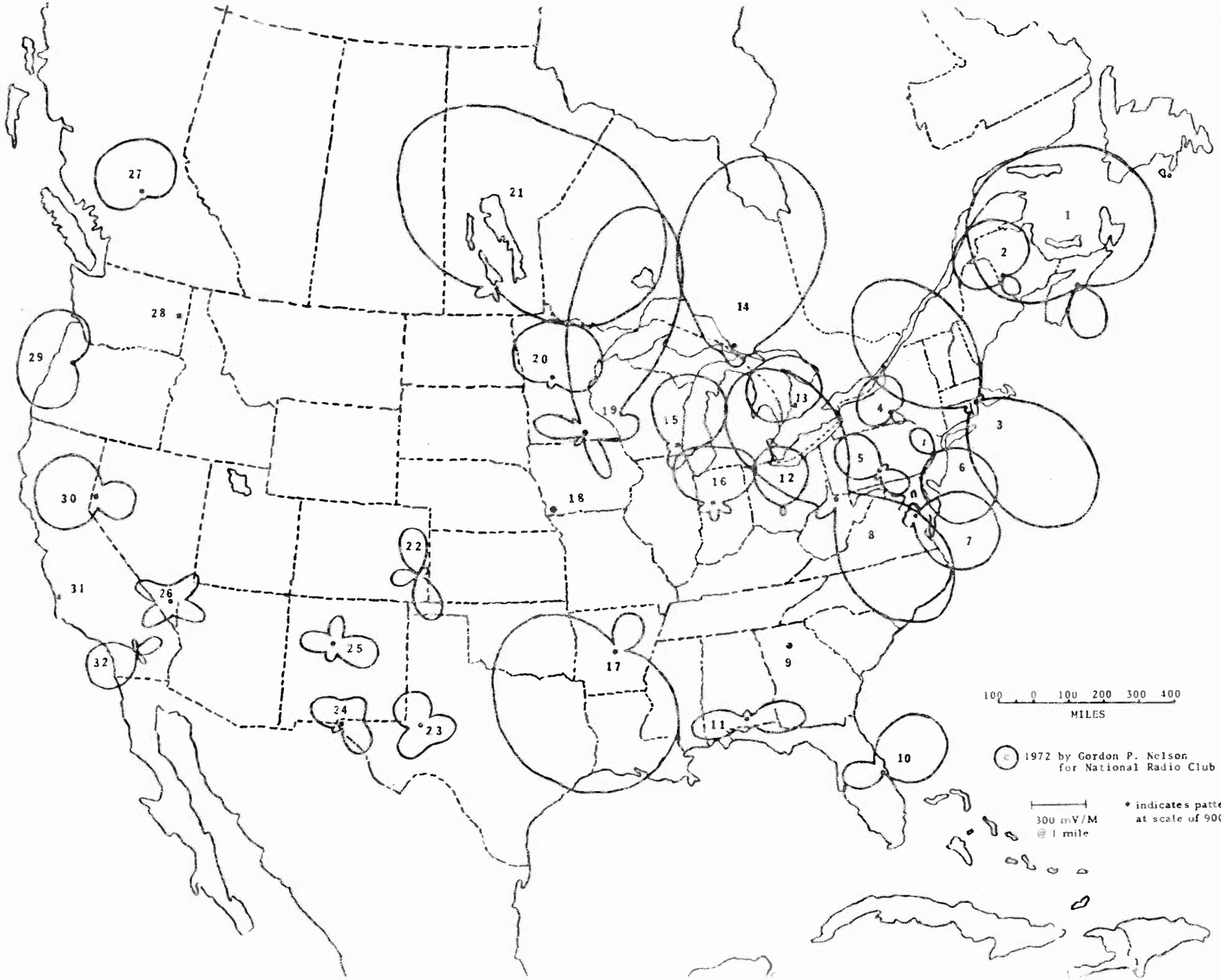


	call	class	location
1	CFSX	ND	STEPHENVILLE
2	CHRL	DA-N	ROBERVAL
3	WABI	DA-N	BANGOR
4	WRCH	DA-2	NEW BRITAIN
5	WGBI	ND	SCRANTON
6	WSBA	DA-2	YORK
7	WRNL	DA-N	RICHMOND
8	WJRC	DA-N	JOHNSON CITY
9	WORD	DA-2	SPARTANBURG
10	WGAF	DA-N	VALDOSTA
11	WPRP	ND	PONCE
12	CBO	DA-1	OTTAWA
13	CKLY	DA-2	LINDSAY
14	WFDF	DA-1	FLINT
15	WPFB	ND	MIDDLETOWN
16	WSUI	DA-2	IOWA CITY
17	KGLC	DA-1	MIAMI
18	KAMD	DA-2	CAMDEN
19	WCOC	ND	MERIDIAN
20	WLCS	DA-1	BATON ROUGE
21	KRRV	DA-1	SHERMAN
22	KRIO	DA-2	McALLEN
23	KBIM	DA-N	ROSWELL
24	KPOF	ND	DENVER
25	KCJB	DA-2	MINOT
26	CJDV	DA-2	DRUMHELLER
27	KALL	DA-N	SALT LAKE CITY
28	CFJC	ND	KAMLOOPS
29	KIXI	DA-1	SEATTLE
30	KISN	DA-2	VANCOUVER
31	KNEW	DA-N	OAKLAND
32	KOXR	DA-2	OXNARD
33	KDEO	DA-2	EL CAJON
34	KPHO	DA-N	PHOENIX

COMMENTS:

920 KHZ

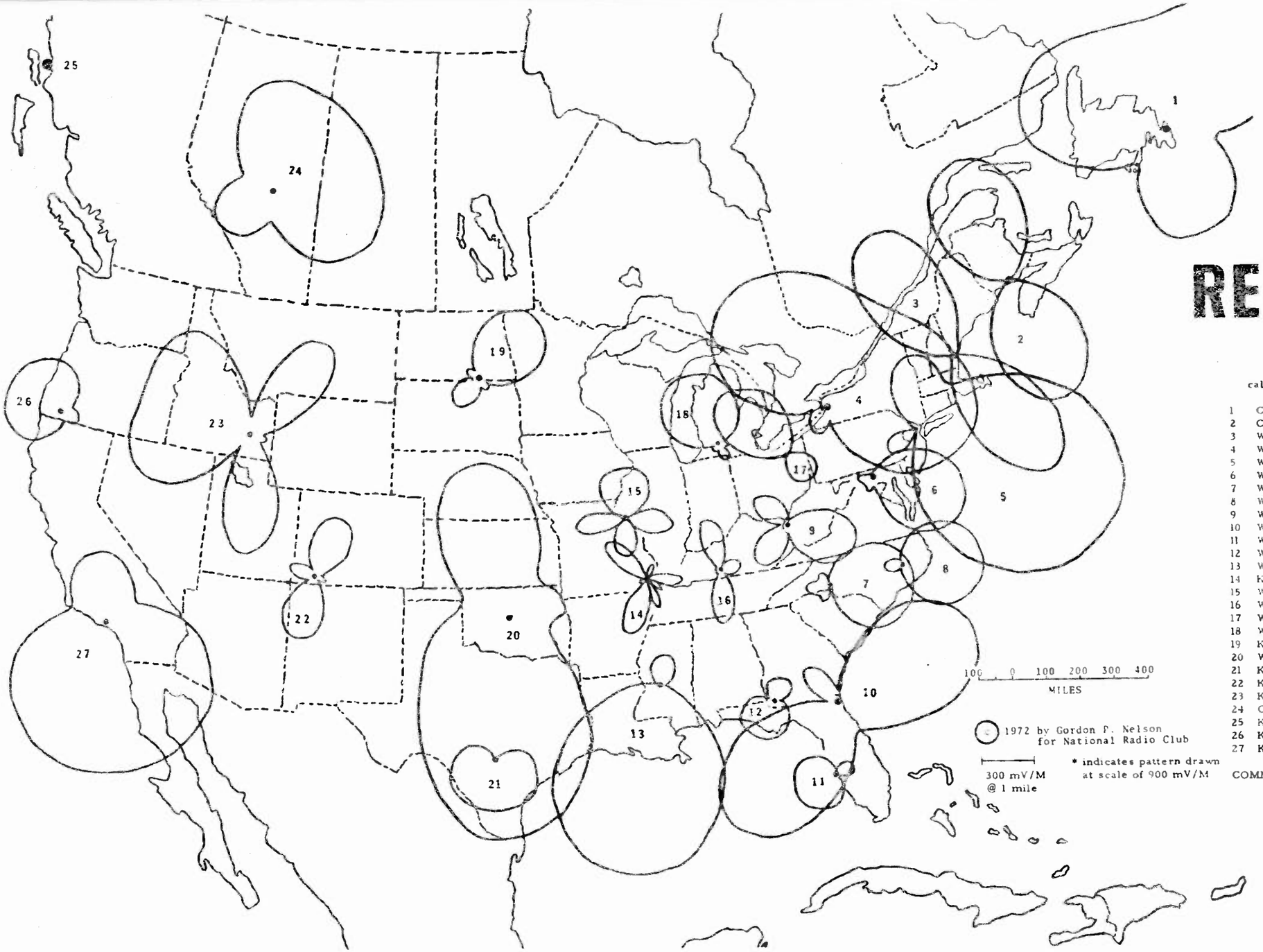
REGIONAL



	call	class	location
1	CJCH	DA-N	HALIFAX
2	CJCJ	DA-1	WOODSTOCK
3	WJAR	DA-N	PROVIDENCE
4	WKRT	DA-N	CORTLAND
5	WKVA	DA-N	LEWISTON
6	WTTM	DA-1	TRENTON
7	WPTX	DA-2	LEXINGTON PARK
8	WMMN	DA-N	FAIRMONT
9	WGST	ND	ATLANTA
10	WMEG	DA-N	MELBOURNE
11	WCTA	DA-N	ANDALUSIA
12	WMNI	DA-2	COLUMBUS
13	CKNX	DA-2	WINGHAM
14	CKCY	DA-2	SAULT STE. MARIE
15	WOKY	DA-2	MILWAUKEE
16	WBAA	DA-N	W. LAFAYETTE
17	KARN	DA-N	LITTLE ROCK
18	KFNF	ND	SHENANDOAH
19	KDHL	DA-2	FAIRBAULT
20	KWAD	DA-N	WADENA
21	CFRY	DA-2	PORTAGE LA PRAIRIE
22	KLMR	DA-N	LAMAR
23	KBZB	DA-N	ODESSA
24	KELP	DA-N	EL PASO
25	KQEO	DA-N	ALBUQUERQUE
26	KORK	DA-2	LAS VEGAS
27	CKWL	DA-N	WILLIAMS LAKE
28	KXLY	ND	SPOKANE
29	KGAL	DA-1	LEBANON
30	KOLO	DA-N	RENO
31	KVEC	ND	SAN LUIS OBISPO
32	KDES	DA-N	PALM SPRINGS

930 KHZ

REGIONAL

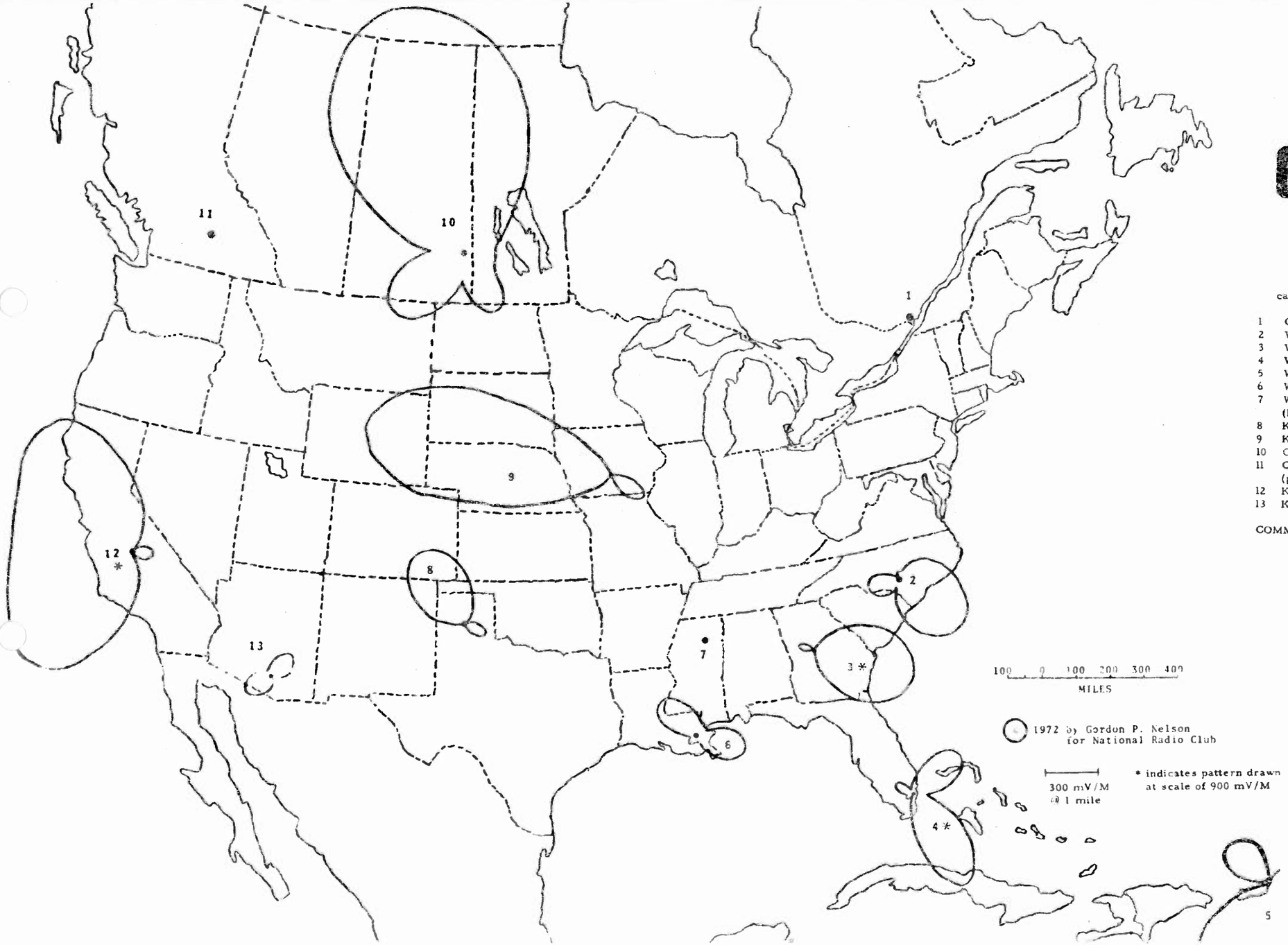


	call	class	location
1	CJON	DA-N	ST. JOHN'S
2	CFBC	DA-2	ST. JOHN
3	WWNH	DA-N	ROCHESTER
4	WBEN	DA-N	BUFFALO
5	WPAT	DA-2	PATERSON
6	WFMD	DA-2	FREDERICK
7	WSOC	DA-N	CHARLOTTE
8	WITN	DA-N	WASHINGTON
9	WGNT	DA-N	HUNTINGTON
10	WJAX	DA-N	JACKSONVILLE
11	WKXY	DA-2	SARASOTA
12	WMGR	DA-N	BAINBRIDGE
13	WSLI	DA-N	JACKSON
14	KWOC	DA-N	POLAR BLUFF
15	WTAD	DA-N	QUINCY
16	WKCT	DA-N	BOWLING GREEN
17	WEOL	DA-2	ELYRIA
18	WBCK	DA-2	BATTLE CREEK
19	KSDN	DA-N	ABERDEEN
20	WKY	DA-N	OKLAHOMA CITY
21	KITE	DA-N	TERRELL HILLS
22	KIUP	DA-N	DURANGO
23	KSEI	DA-N	POCATELLO
24	CJCA	DA-N	EDMONTON
25	KTKN	ND	KETCHIKAN
26	KAGI	DA-N	GRANTS PASS
27	KHJ	DA-N	LOS ANGELES

COMMENTS:

940 KHZ

CLEAR

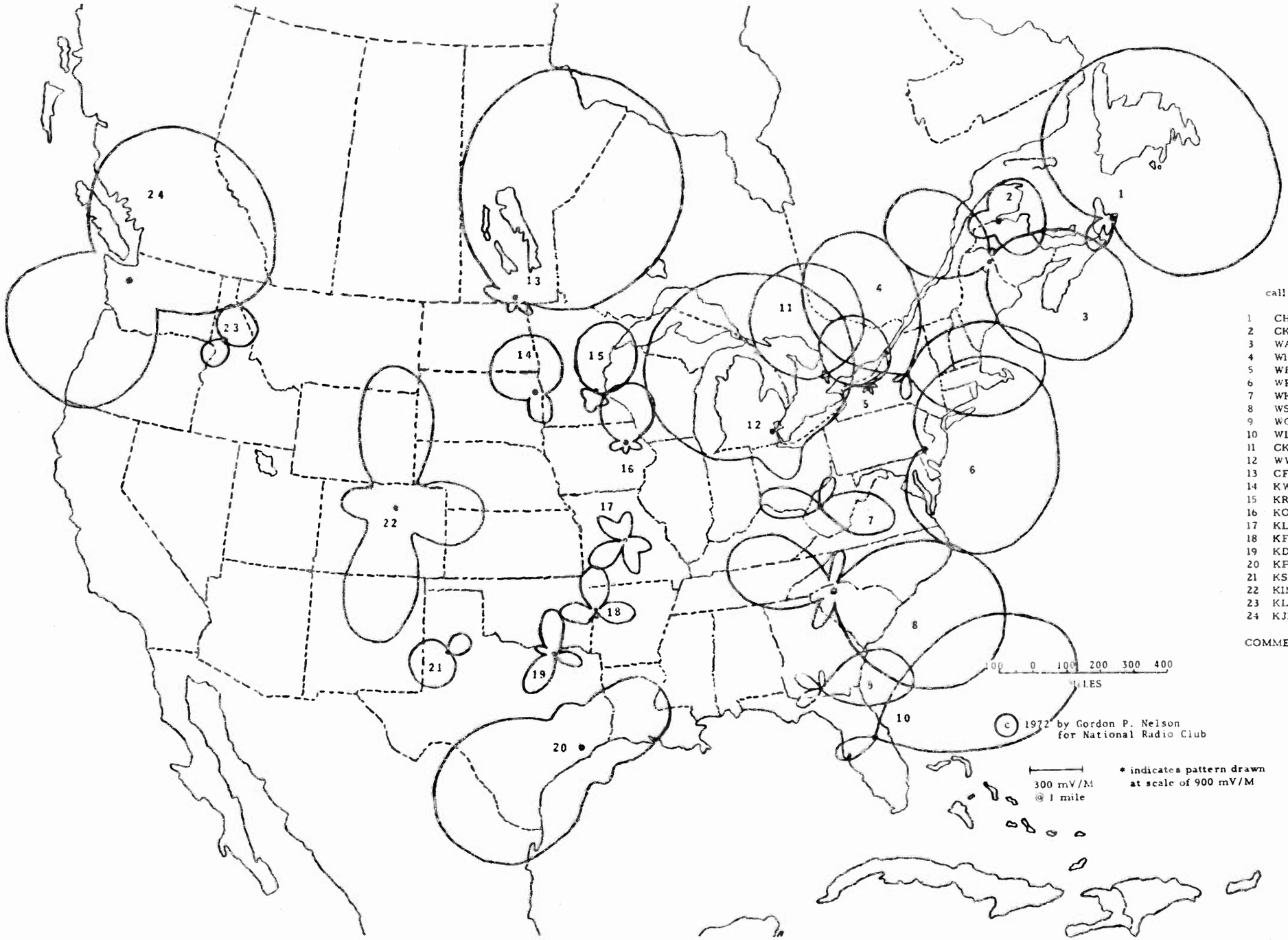


	call	class	location
1	CBM	ND	MONTREAL
2	WFNC	DA-2	FAYETTEVILLE
3	WMAZ	DA-N	MACON
4	WINZ	DA-2	MIAMI
5	WIPR	DA-1	SAN JUAN
6	WYLD	DA-2	NEW ORLEANS
7	WCPC	DA-2	HOUSTON
	(has CP for 250 watts night)		
8	KIXZ	DA-2	AMARILLO
9	KIOA	DA-2	DES MOINES
10	CJGX	DA-N	YORKTON
11	CJIB	DA-N	VERNON
	(pattern not available)		
12	KFRE	DA-2	FRESNO
13	KHOS	DA-2	TUCSON

COMMENTS:

950 KHZ

REGIONAL

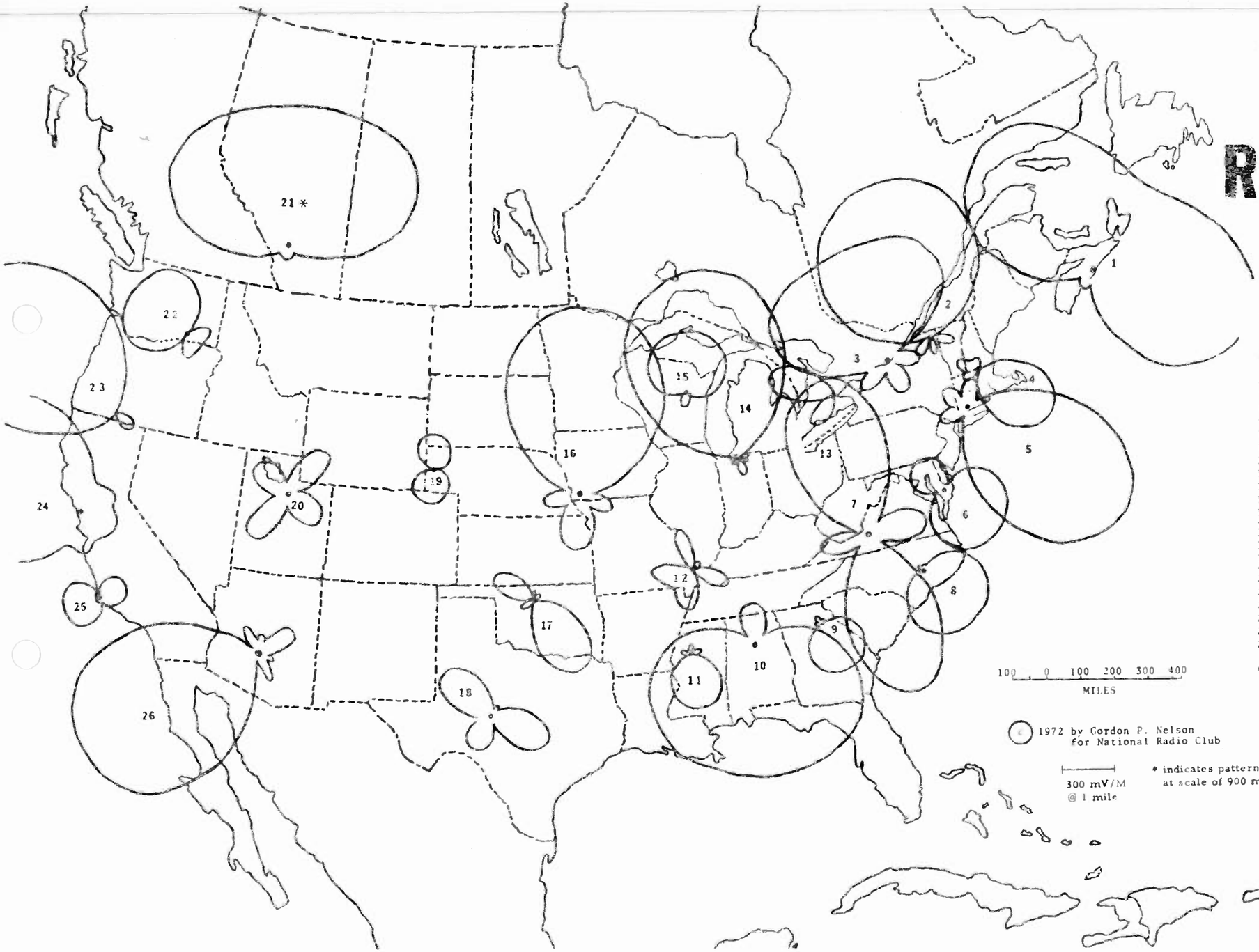


	call	class	location
1	CHER	DA-1	SYDNEY
2	CKNW	DA-2	CAMPBELLTON
3	WAGM	DA-2	PRESQUE ISLE
4	WIBX	DA-1	UTICA
5	WBBF	DA-2	ROCHESTER
6	WPEN	DA-N	PHILADELPHIA
7	WKAZ	DA-N	CHARLESTON
8	WSPA	DA-N	SPARTANBURG
9	WGOV	DA-N	VALDOSTA
10	WLOF	DA-N	ORLANDO
11	CKBB	DA-2	BARRIE
12	WWJ	DA-N	DETROIT
13	CFAM	DA-2	ALTONA
14	KWAT	DA-N	WATERTOWN
15	KRSI	DA-2	ST. LOUIS PARK
16	KOEL	DA-2	OELWEIN
17	KLIK	DA-N	JEFFERSON CITY
18	KFSA	DA-N	FORT SMITH
19	KDSX	DA-2	DENISON-SHERMAN
20	KPRC	DA-N	HOUSTON
21	KSEL	DA-2	LUBBOCK
22	KIMN	DA-1	DENVER
23	KLER	DA-N	OROFINO
24	KJR	DA-N	SEATTLE

COMMENTS:

960 KHZ

REGIONAL



	call	class	location
1	CHNS	DA-N	HALIFAX
2	WEAV	DA-2	PLATTSBURG
3	CKWS	DA-2	KINGSTON
4	WFGL	DA-2	FITCHBURG
5	WELI	DA-N	NEW HAVEN
6	WBOC	DA-2	SALISBURY
7	WFIR	DA-N	ROANOKE
8	WFTC	DA-N	KINSTON
9	WRFC	DA-N	ATHENS
10	WBRC	DA-N	BIRMINGHAM
11	WABG	DA-N	GREENWOOD
12	KFVS	DA-N	CAPE GIRARDEAU
13	*CP*	DA-1	MILTON (500 watts)
14	WSBT	DA-2	SOUTH BEND
15	WTCH	DA-N	SHAWANO
16	KMA	DA-N	SHENANDOAH
17	KGWA	DA-1	ENID
18	KGKL	DA-N	SAN ANGELO
19	KNED	DA-2	SCOTTSBLUFF
20	KOVO	DA-N	PROVO
21	CFAC	DA-N	CALGARY
22	KALE	DA-N	RICHLAND
23	KLAD	DA-N	KLAMATH FALLS
24	KABL	DA-1	OAKLAND
25	KNEZ	DA-N	LOMPOC
26	KOOL	DA-N	PHOENIX

COMMENTS:

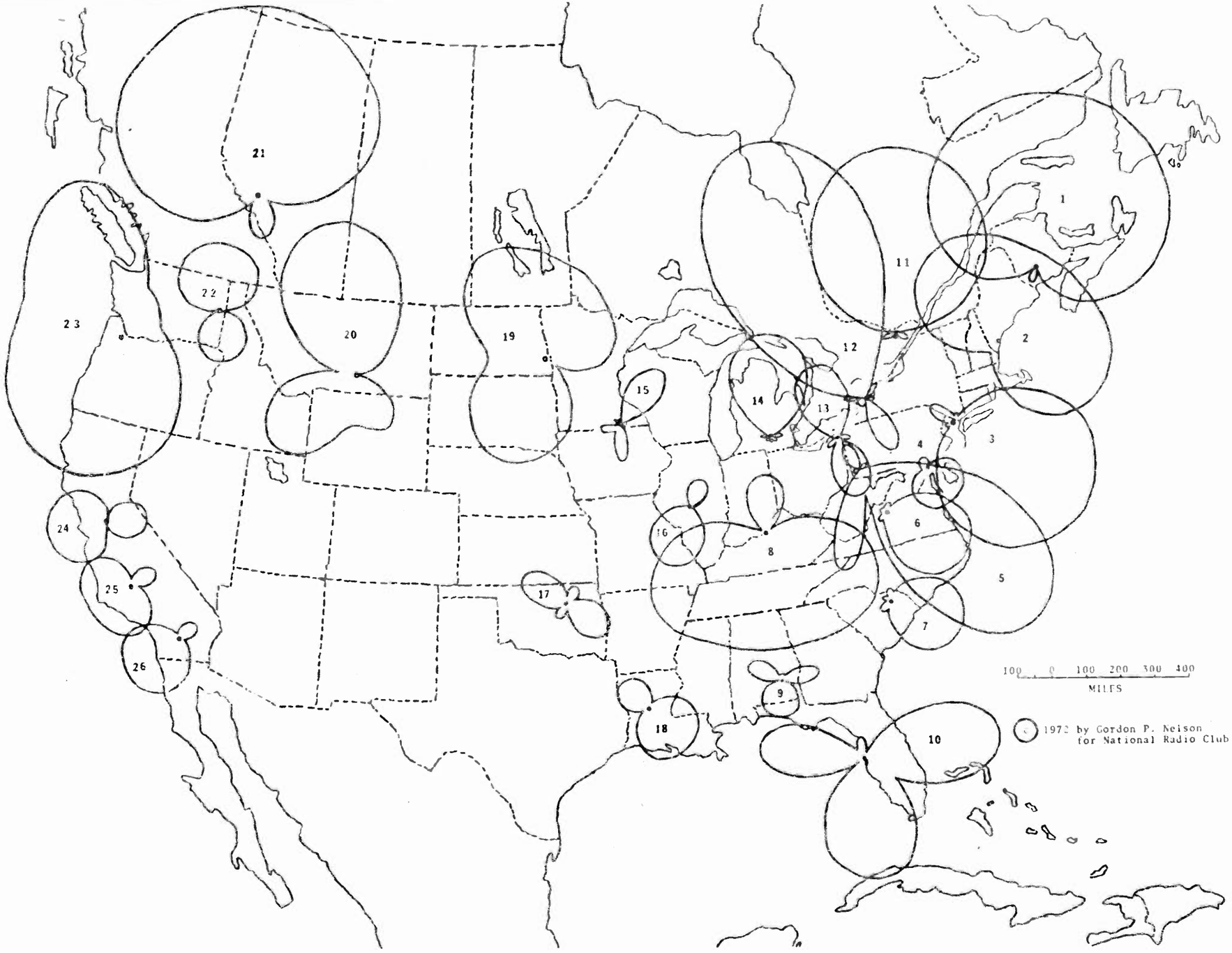
100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M

970 KHZ

REGIONAL

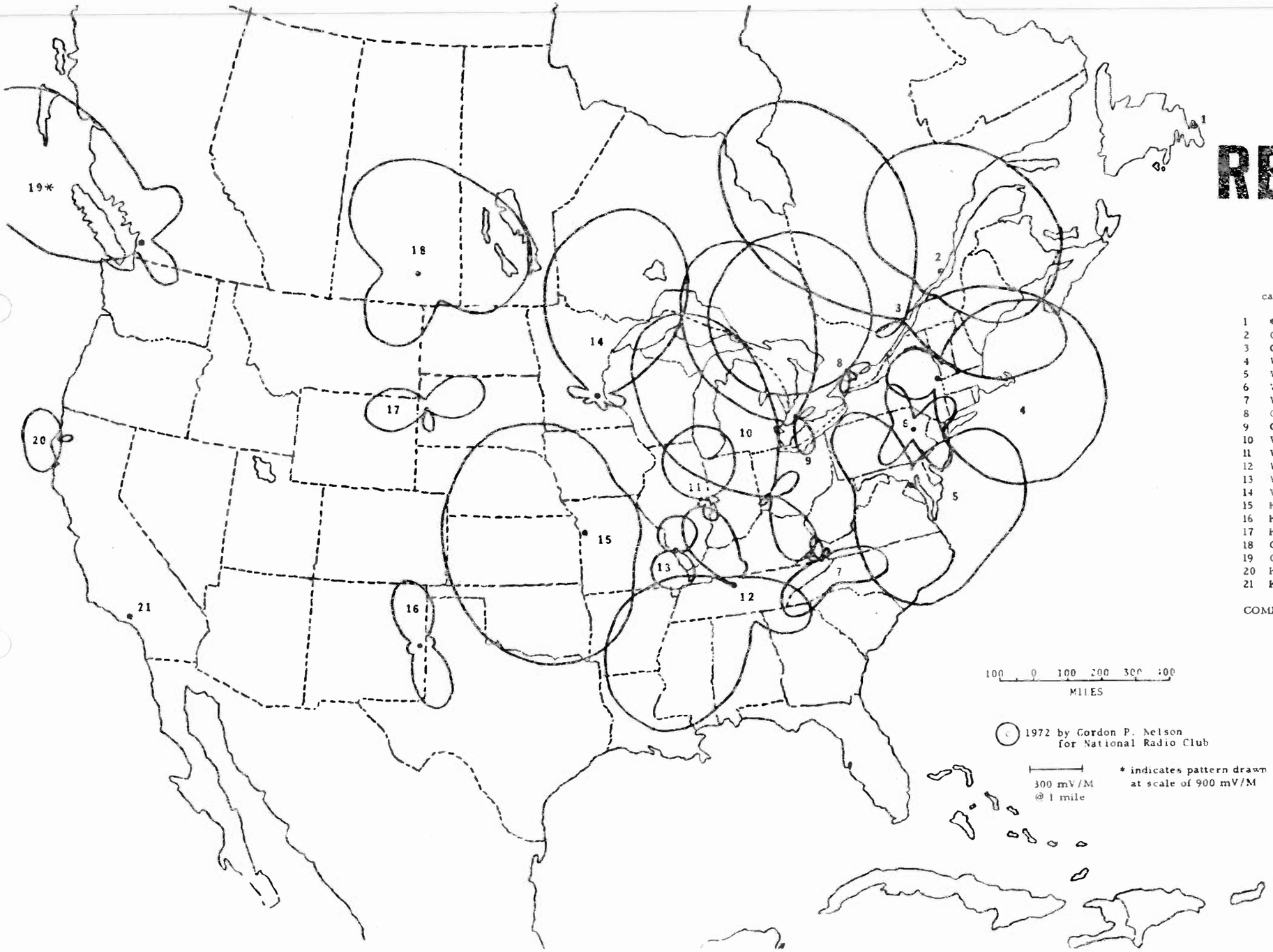


	call	class	location
1	CBZ	DA-N	FREDERICTON
2	WGSH	DA-N	PORTLAND
3	WWDJ	DA-2	HACKENSACK
4	WAMD	DA-2	ABERDEEN
5	WWSW	DA-2	PITTSBURGH
6	WANV	DA-2	WAYNESBORO
7	WJMX	DA-N	FLORENCE
8	WAVE	DA-2	LOUISVILLE
9	WTBF	DA-N	TROY
10	WFLA	DA-N	TAMPA
11	CKCH	DA-1	HULL
12	WEBR	DA-1	BUFFALO
13	WERO	DA-2	ASHTABULA
14	WKHM	DA-2	JACKSON
15	KQAQ	DA-2	AUSTIN
16	WMAY	DA-2	SPRINGFIELD
17	KAKC	DA-2	TULSA
18	KSYL	DA-N	ALEXANDRIA
19	WDAY	DA-N	FARGO
20	KOOK	DA-N	BILLINGS
21	CJYR	DA-1	EDSON
22	KREM	DA-N	SPOKANE
23	KOIN	DA-N	PORTLAND
24	KBEE	DA-2	MODESTO
25	KBIS	DA-2	BAKERSFIELD
26	KGHB	DA-2	COACHELLA

COMMENTS:

980 KHZ

REGIONAL



	call	class	location
1	*CP*	ND	ST. JOHN'S
2	CBV	DA-1	QUEBEC
3	CKGM	DA-1	MONTREAL
4	WTRY	DA-1	TROY
5	WRC	DA-N	WASHINGTON
6	WILK	DA-N	WILKES-BARRE
7	WFHG	DA-N	BRISTOL
8	CHEX	DA-2	PETERBOROUGH
9	CFPL	DA-2	LONDON
10	WONE	DA-N	DAYTON
11	WITY	DA-2	DANVILLE
12	WSIX	DA-N	NASHVILLE
13	WSGM	DA-N	CHESTER
14	WPBC	DA-1	RICHFIELD
15	KMBZ	DA-N	KANSAS CITY
16	KICA	DA-N	CLOVIS
17	KDSJ	DA-N	DEADWOOD
18	CKRM	DA-2	REGINA
19	CKNW	DA-1	NEW WESTMINSTER
20	KINS	DA-N	EUREKA
21	KFWB	ND	LOS ANGELES

COMMENTS:

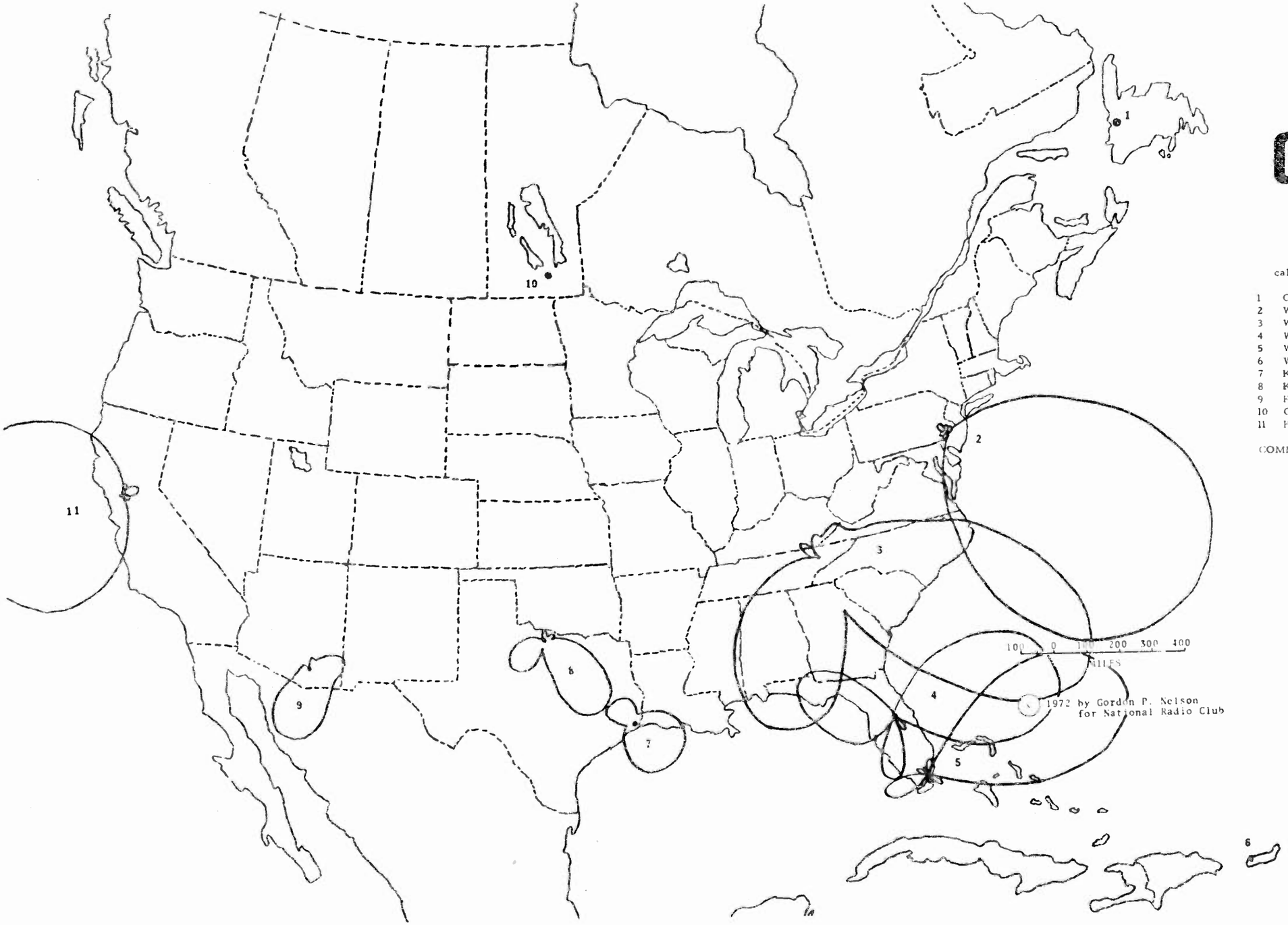
100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M

990 KHZ

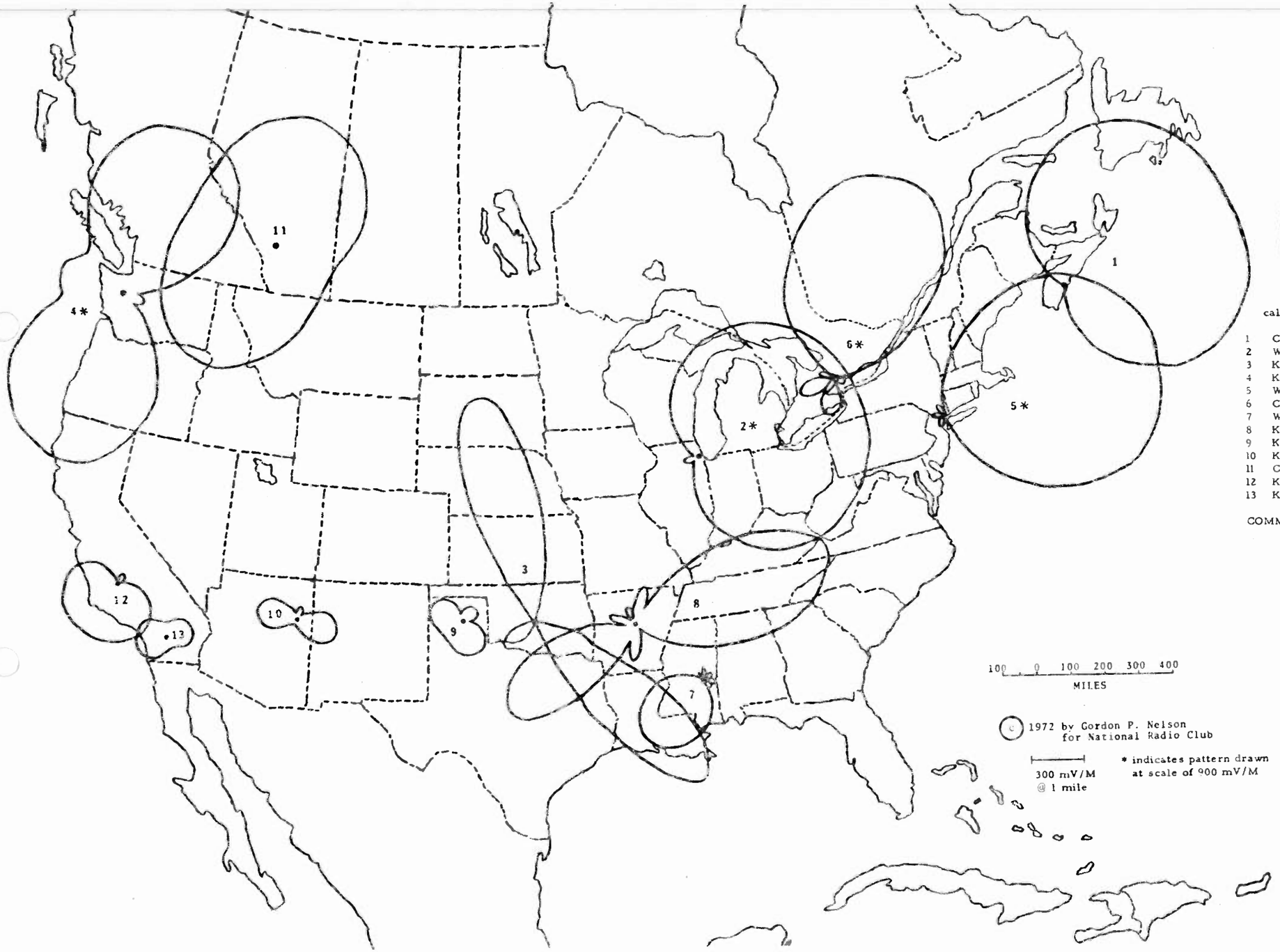
CLEAR



	call	class	location
1	CBY	ND	CORNERBROOK
2	WIBG	DA-2	PHILADELPHIA
3	WNOX	DA-N	KNOXVILLE
4	WHOO	DA-2	ORLANDO
5	WFAB	DA-1	MIAMI
6	WPRA	ND	PONCE
7	KTRM	DA-1	BEAUMONT
8	KNIN	DA-2	WICHITA FALLS
9	KTKT	DA-2	TUCSON
10	CBW	ND	WINNIPEG
11	KDKA	DA-2	PITTSBURG

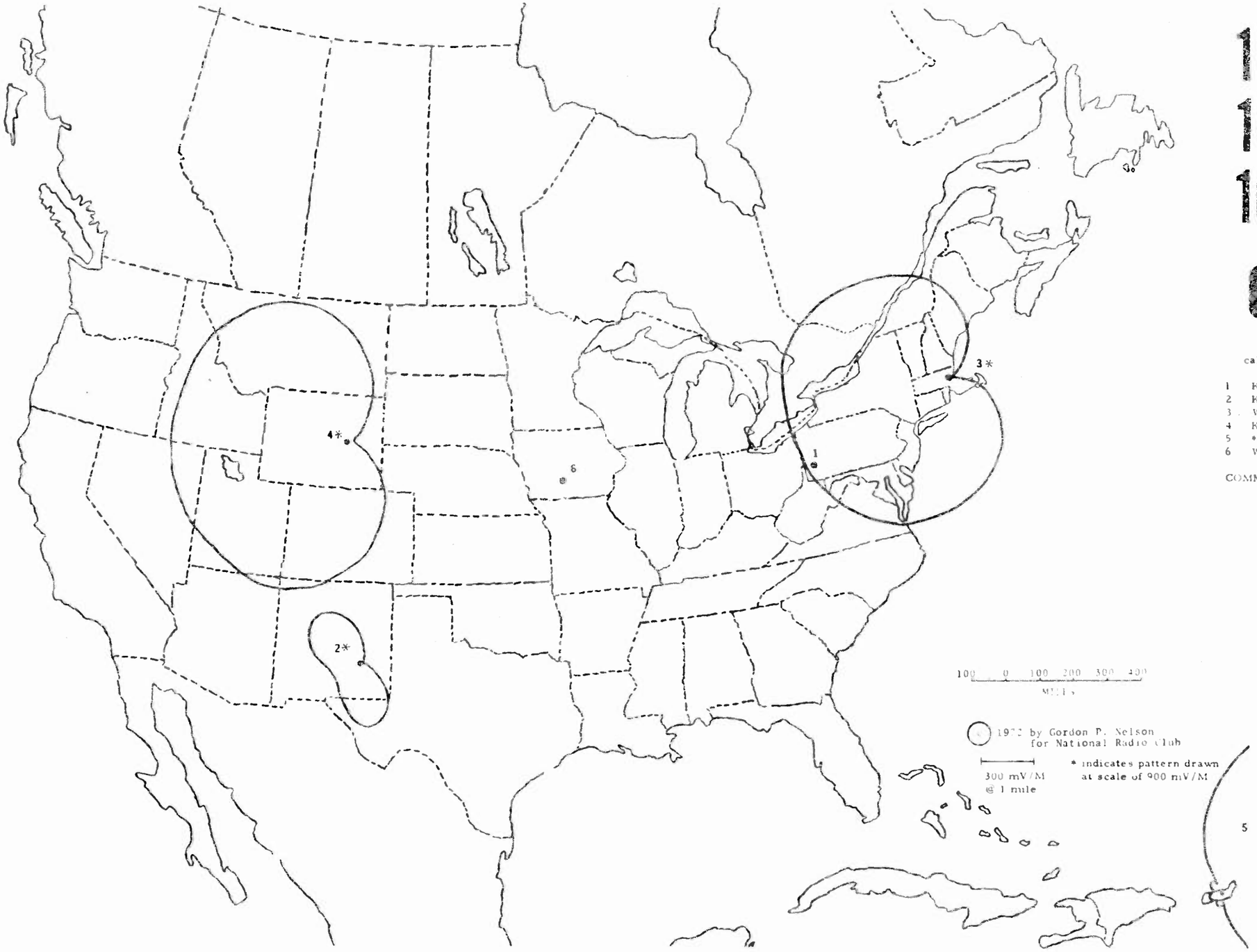
COMMENTS:

1000
1010 KHZ
CLEAR



	call	class	location
1	CKBW	DA-N	BRIDGEWATER
2	WCFL	DA-2	CHICAGO
3	KTOK	DA-2	OKLAHOMA CITY
4	KOMO	DA-N	SEATTLE
5	WINS	DA-1	NEW YORK
6	CFRB	DA-2	TORONTO
7	WMOX	DA-2	MERIDIAN
8	KLRA	DA-N	LITTLE ROCK
9	KDJW	DA-1	AMARILLO
10	KVNC	DA-1	WINSLOW
11	CBR	DA-2	CALGARY
12	KCHJ	DA-2	DELANO
13	KCMJ	DA-2	PALM SPRINGS

COMMENTS:



1020
1030 KHZ
1040

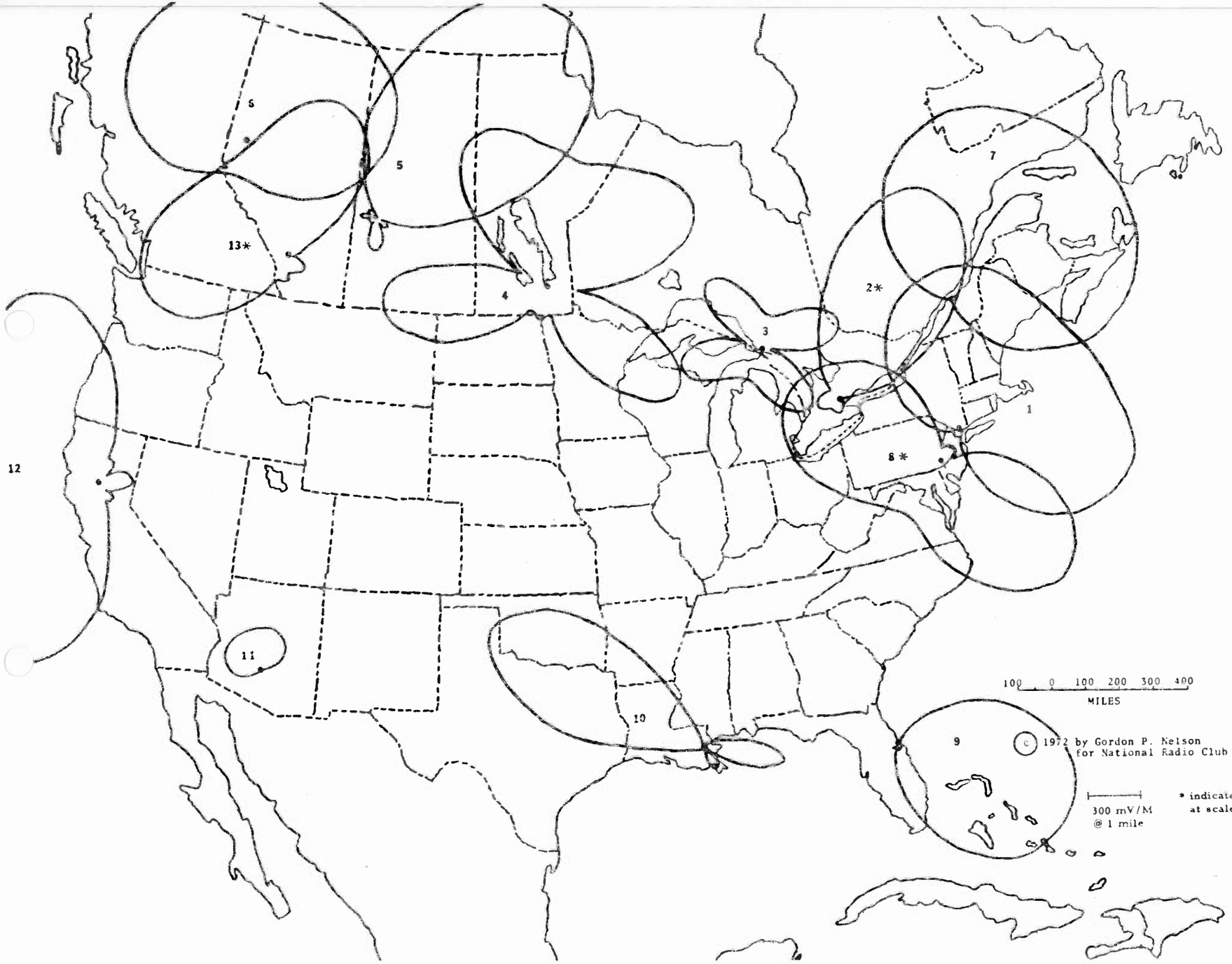
CLEAR

	call	class	location
1	KDKA	ND	PITTSBURGH
2	KSWS	DA-2	ROSWELL
3	WBZ	DA-1	BOSTON
4	KTWO	DA-2	CASPER
5	*CP*	DA-1	SAN JUAN
6	WHO	ND	DES MOINES

COMMENTS:

1050 1060 KHZ

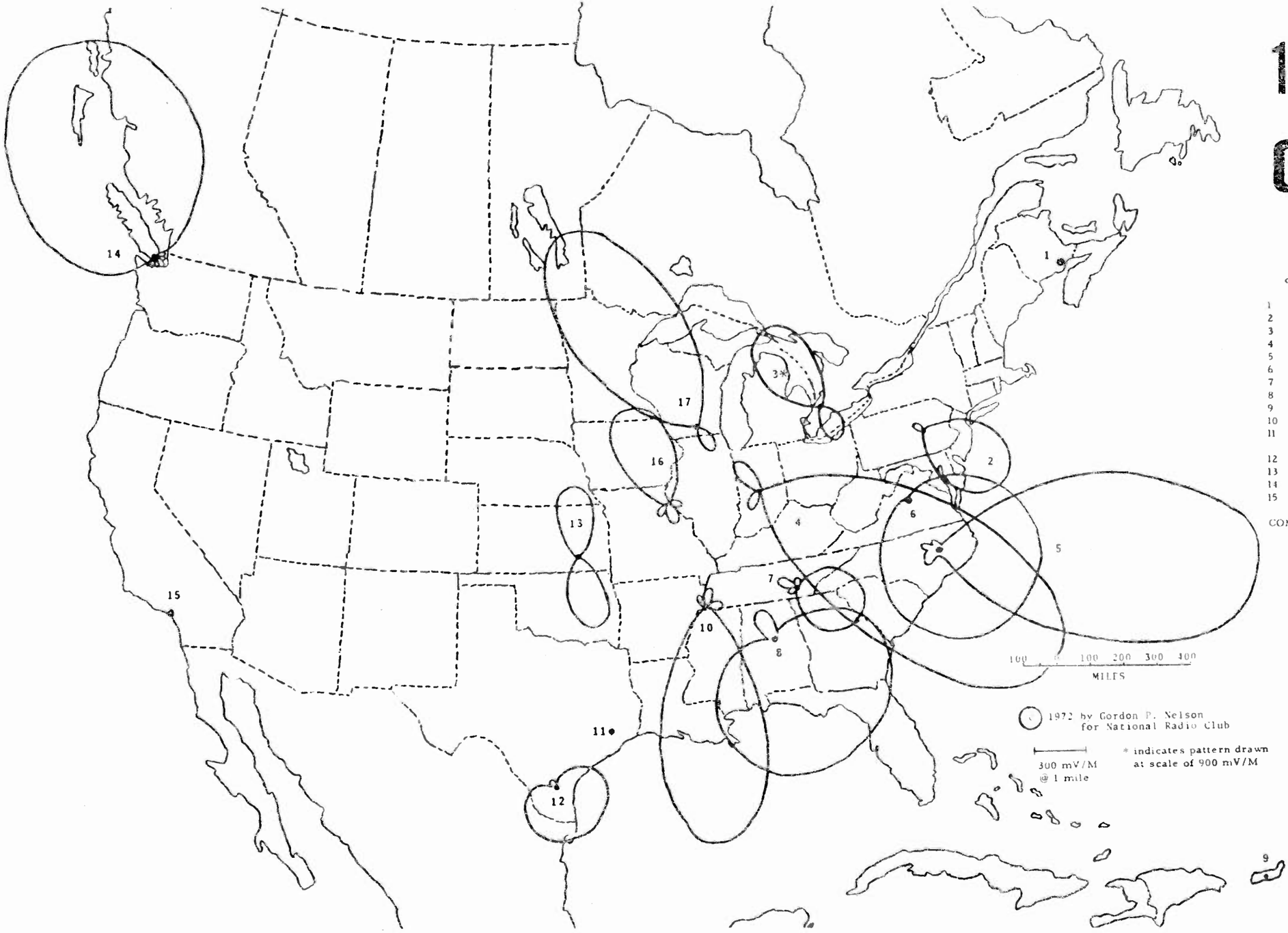
CLEAR



	call	class	location
1	WHN	DA-1	NEW YORK
2	CHUM	DA-2	TORONTO
3	CJIC	DA-N	SAULT STE. MARIE
4	CKSB	DA-N	ST. BONIFACE
5	CJNB	DA-N	N. BATTLEFORD
6	CFGP	DA-1	GRANDE PRAIRIE
7	CJRP	DA-2	QUEBEC
8	KYW	DA-1	PHILADELPHIA
9	WMRF	DA-2	TITUSVILLE
10	WNOE	DA-2	NEW ORLEANS
11	KUPD	DA-1	TEMPE
12	KPAY	DA-N	CHICO
13	CFCN	DA-2	CALGARY

COMMENTS:

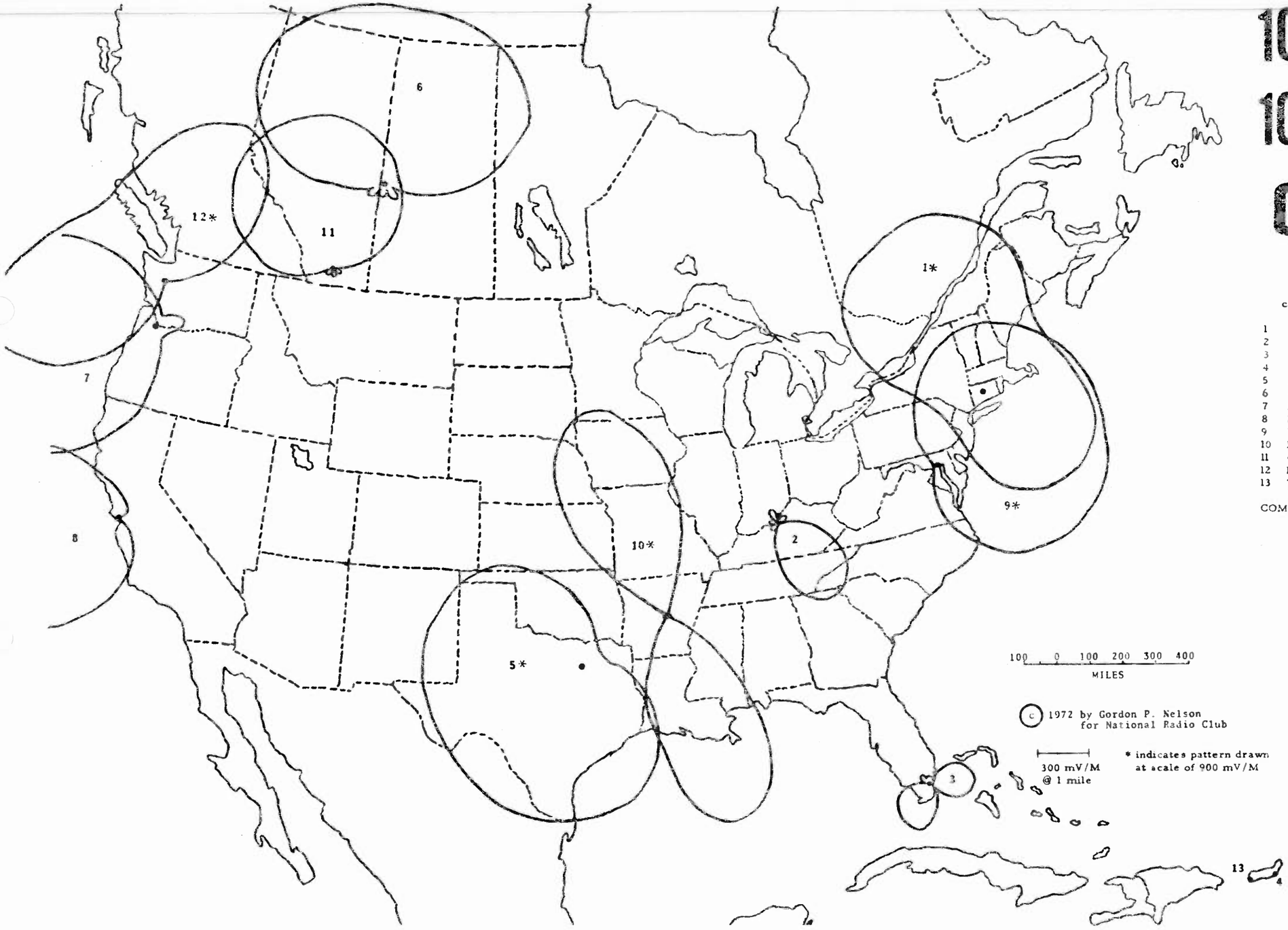
1070 KHZ
CLEAR



	call	class	location
1	CBA	ND	MONCTON
2	WKOK	DA-N	SUNBURY
3	CHOK	DA-2	SARNIA
4	WIBC	DA-2	INDIANAPOLIS
5	WNCT	DA-2	GREENVILLE
6	WINA	DA-N	CHARLOTTESVILLE
7	WFLI	DA-2	LOOKOUT MOUNTAIN
8	WAPI	DA-N	BIRMINGHAM
9	WMIA	ND	ARECIBO
10	WDIA	DA-2	MEMPHIS
11	KENR	DA-2	HOUSTON
	(pattern not available)		
12	KOPY	DA-N	ALICE
13	KFDI	DA-N	WICHITA
14	CFAX	DA-1	VICTORIA
15	KNX	ND	LOS ANGELES

COMMENTS:

1080 KHZ
1090
CLEAR



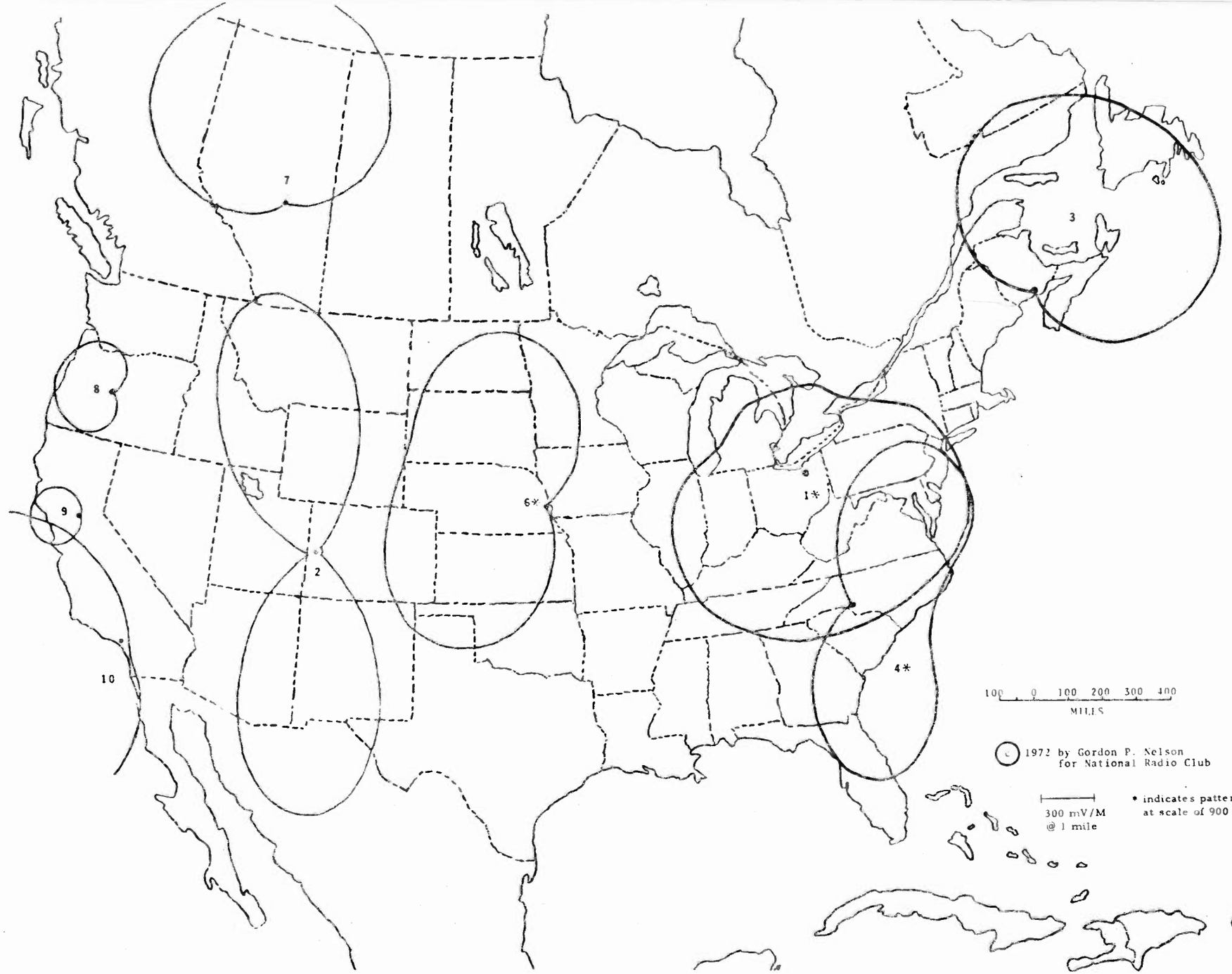
	call	class	location
1	WTIC	DA-N	HARTFORD
2	WKLO	DA-2	LOUISVILLE
3	WVCG	DA-2	CORAL GABLES
4	WLEY	ND	CAYEY
5	KRLD	DA-N	DALLAS
6	CKSA	DA-N	LLOYDMINSTER
7	KWJJ	DA-1	PORTLAND
8	KSCO	DA-N	SANTA CRUZ
9	WBAL	DA-N	BALTIMORE
10	KAAY	DA-N	LITTLE ROCK
11	CHEC	DA-2	LETHBRIDGE
12	KING	DA-2	SEATTLE
13	WRSG	ND	SAN GERMAN

COMMENTS:

100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M



1100
1110 KHZ

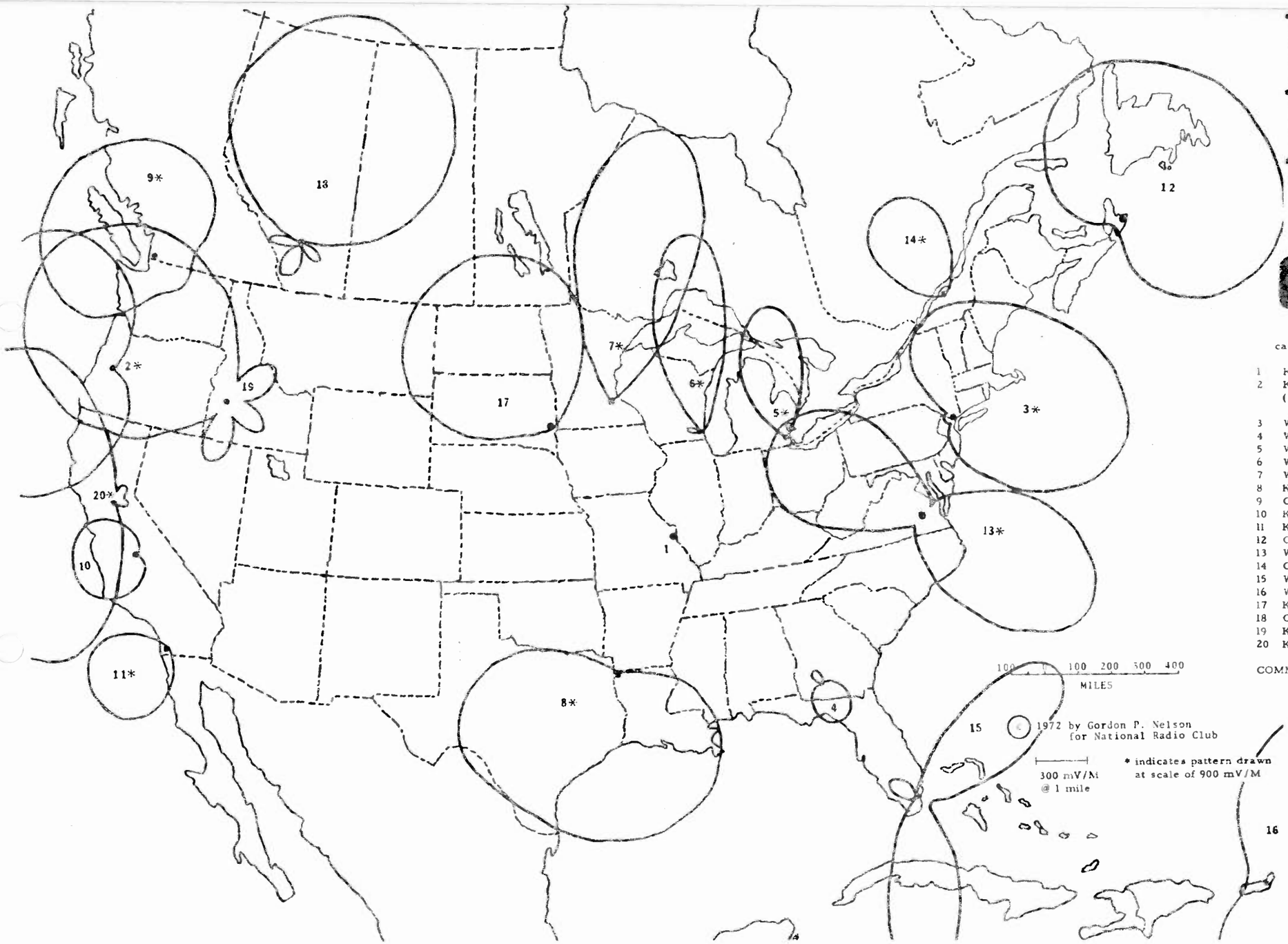
CLEAR

	call	class	location
1	WKYC	DA-1	CLEVELAND
2	KREX	DA-N	GRAND JUNCTION
3	CBD	DA-2	ST. JOHN
4	WBT	DA-N	CHARLOTTE
5	WVJP	ND	CAGUAS
6	KFAB	DA-N	OMAHA
7	CHQT	DA-N	EDMONTON
8	KBND	DA-2	BEND
	(CP 10kw ND DAY-same DA-night		
9	KPOP	DA-N	ROSEVILLE
10	KRLA	DA-2	PASADENA

COMMENTS:

1120
1130 KHZ
1140

CLEAR



	call	class	location
1	KMOX	ND	ST. LOUIS
2	KPNW	DA-1	EUGENE
	(CP: DA-2, different pattern days)		
3	WNEW	DA-N	NEW YORK
4	WMGA	DA-N	MOULTRIE
5	WCAR	DA-2	DETROIT
6	WISN	DA-2	MILWAUKEE
7	WDGY	DA-2	MINNEAPOLIS
8	KWKH	DA-N	SHREVEPORT
9	CKWX	DA-N	VANCOUVER
10	KRDU	DA-1	DINUBA
11	KSDO	DA-2	SAN DIEGO
12	CBI	DA-N	SYDNEY
13	WRVA	DA-1	RICHMOND
14	CJTR	DA-2	THREE RIVERS
15	WQBA	DA-2	MIAMI
16	WJIT	DA-1	SAN JUAN
17	KSOO	DA-N	SIOUX FALLS
18	CKXL	DA-2	CALGARY
19	KGEM	DA-1	BOISE
20	KRAK	DA-1	SACRAMENTO

COMMENTS:

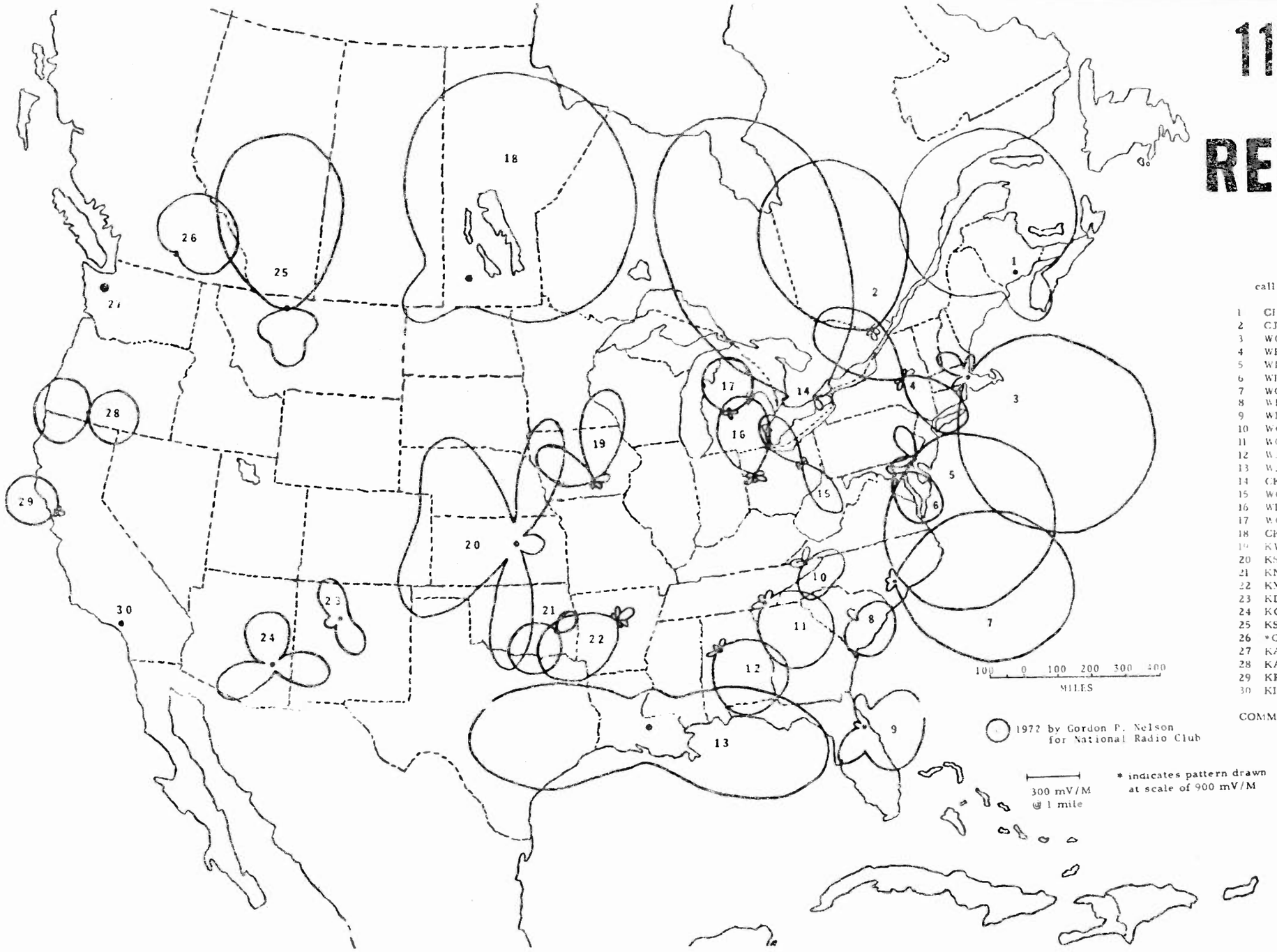
100 100 200 300 400
MILES

300 mV/M @ 1 mile

* indicates pattern drawn at scale of 900 mV/M

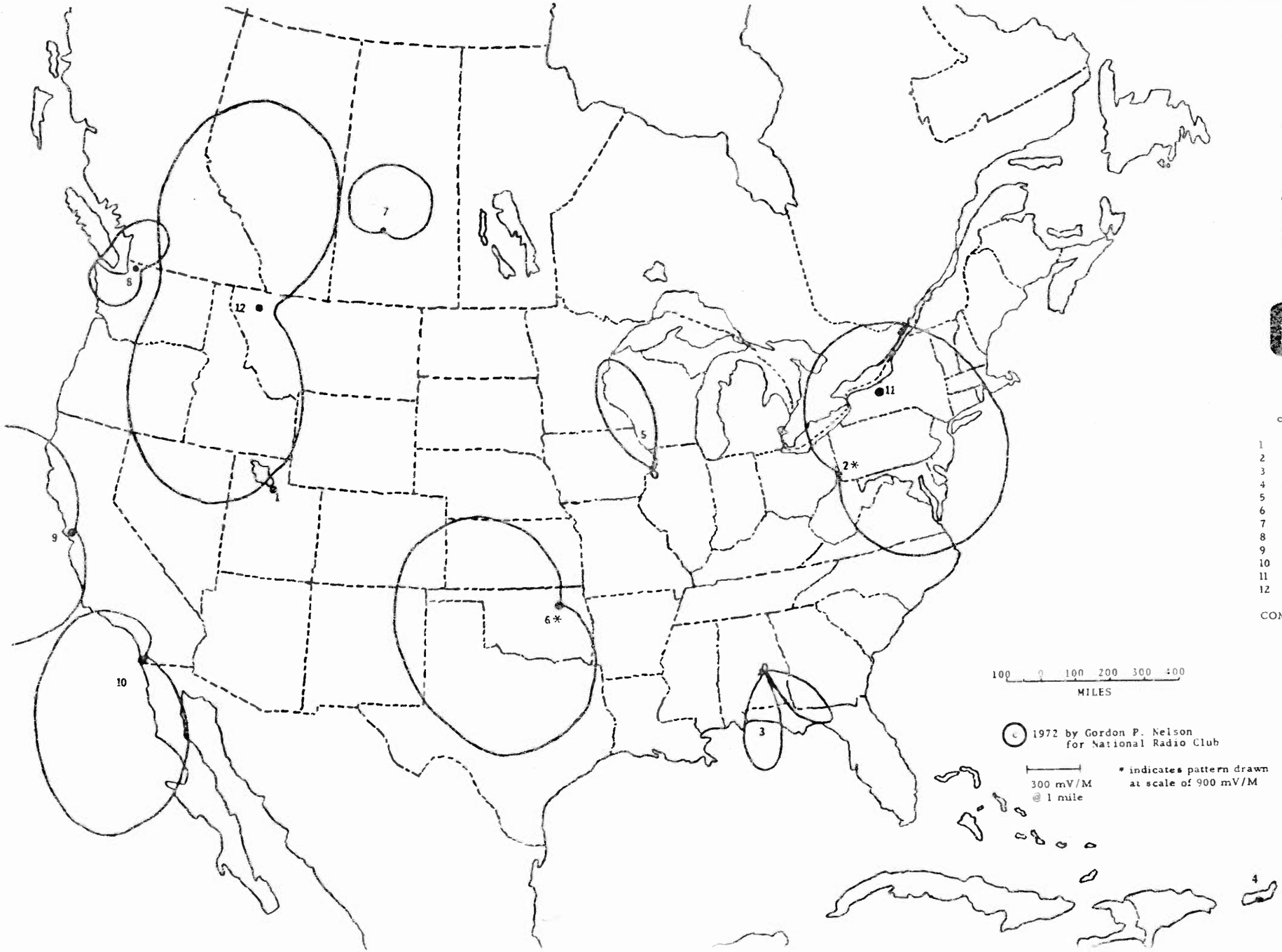
1150 KHZ

REGIONAL



	call	class	location
1	CHSJ	DA-2	ST. JOHN
2	CJRC	DA-2	OTTAWA
3	WCOP	DA-2	BOSTON
4	WRUN	DA-2	UTICA
5	WDEL	DA-2	WILMINGTON
6	WHMC	DA-2	GAITHERSBURG
7	WGBR	DA-2	GOLDSBORO
8	WDIX	DA-2	ORANGEBURG
9	WNDB	DA-N	DAYTONA BEACH
10	WCKR	DA-N	MORRISTOWN
11	WGOW	DA-N	CHATTANOOGA
12	WJRD	DA-N	TUSCALOOSA
13	WJBO	DA-1	BATON ROUGE
14	CKOC	DA-2	HAMILTON
15	WCUE	DA-2	CUYAHOGA FALLS
16	WIMA	DA-N	LIMA
17	WCEN	DA-N	MOUNT PLESANT
18	CKX	DA-N	BRANDON
19	KWKY	DA-2	DES MOINES
20	KSAL	DA-N	SALINA
21	KNED	DA-N	McALESTER
22	KXLR	DA-N	N. LITTLE ROCK
23	KDEF	DA-N	ALBUQUERQUE
24	KCKY	DA-N	COOLIDGE
25	KSEN	DA-2	SHELBY
26	*CP*	DA-1	KELOWNA (1kw)
27	KAYO	ND	SEATTLE
28	KAGO	DA-N	KLAMATH FALLS
29	KPLS	DA-2	SANTA ROSA
30	KHS	ND	LOS ANGELES

COMMENTS:

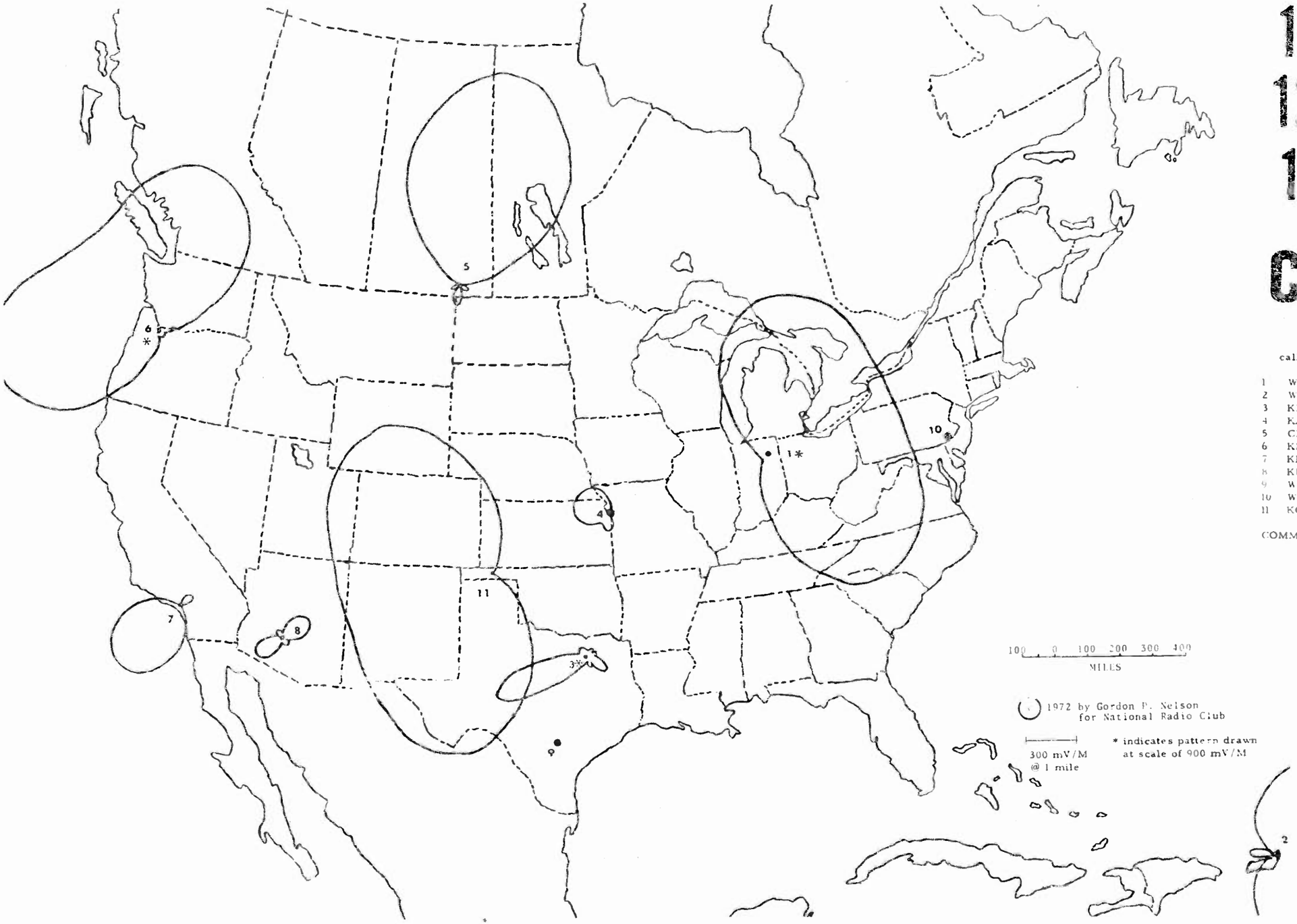


1160
1170 KHZ
1180

CLEAR

	call	class	location
1	KSL	ND	SALT LAKE CITY
2	WWVA	DA-N	WHEELING
3	WCOV	DA-2	MONTGOMERY
4	WLEO	ND	PONCE
5	KSTT	DA-2	DAVENPORT
6	KVOO	DA-N	TULSA
7	CFNS	DA-1	SASKATOON
8	KPUG	DA-2	BELLINGHAM
9	KLOK	DA-2	SAN JOSE
10	KCBQ	DA-2	SAN DIEGO
11	WHAM	ND	ROCHESTER
12	KOFI	DA-N	KALISPELL

COMMENTS:



1190
1200 KHZ
1210

CLEAR

	call	class	location
1	WOWO	DA-N	FT. WAYNE
2	WBMJ	DA-1	SAN JUAN
3	KLIF	DA-2	DALLAS
4	KAYQ	DA-N	KANSAS CITY
5	CFSL	DA-N	WEYBURN
6	KEX	DA-1	PORTLAND
7	KEZY	DA-N	ANAHEIM
8	KRDS	DA-1	TOLLESON
9	WOAI	ND	SAN ANTONIO
10	WCAU	ND	PHILADELPHIA
11	KGYN	DA-N	GUYMON

COMMENTS:

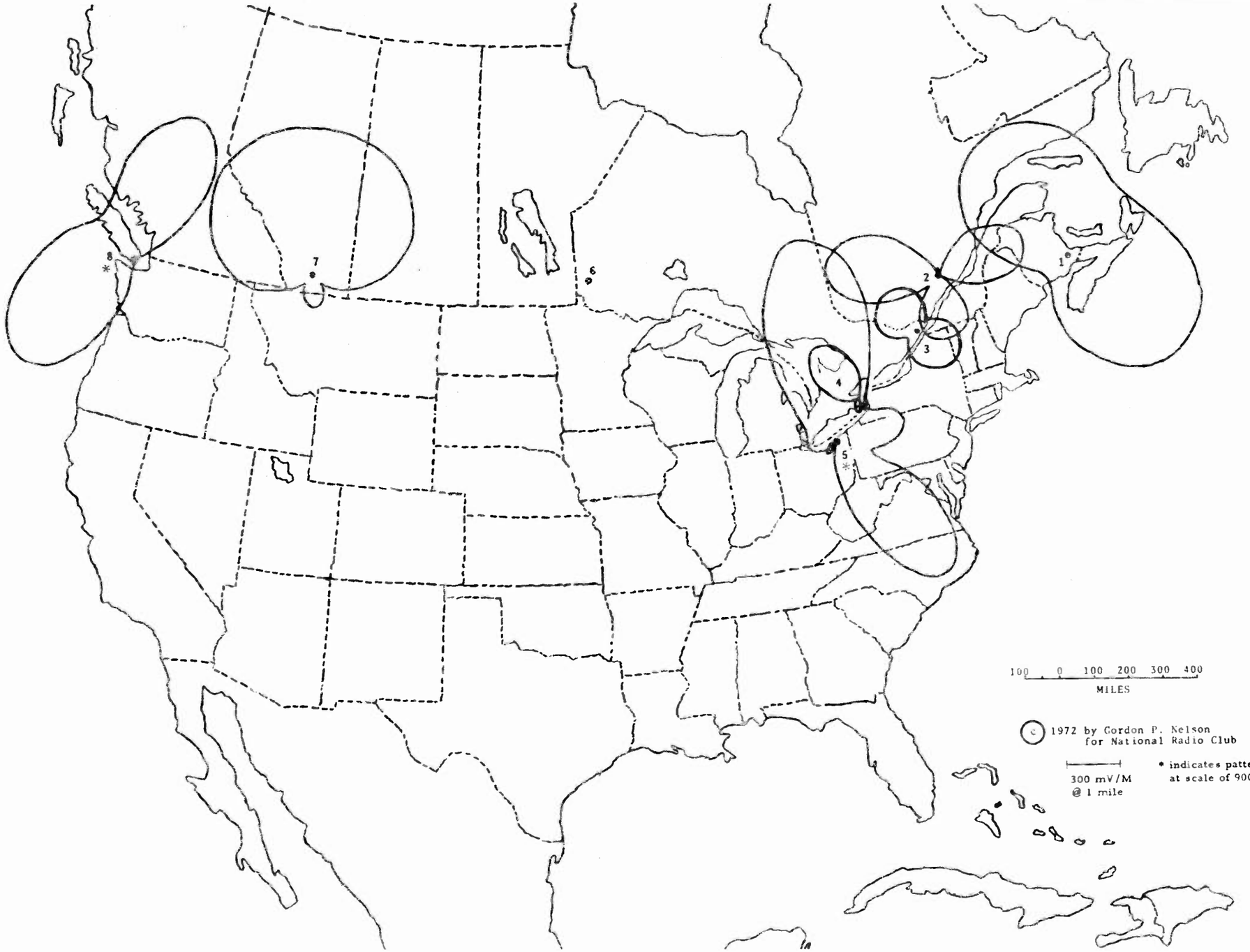
100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M

1220 KHZ

CLEAR



	call	class	location
1	CKCW	DA-N	MONCTON
2	CKSW	DA-2	SHAWINIGAN FALLS
3	CJSS	DA-2	CORNWALL
4	CHSC	DA-1	ST. CATHARINES
5	WGAR	DA-1	CLEVELAND
6	CJRL	ND	KENORA
7	CJOC	DA-N	LETHBRIDGE
8	CKDA	DA-1	VICTORIA

COMMENTS:

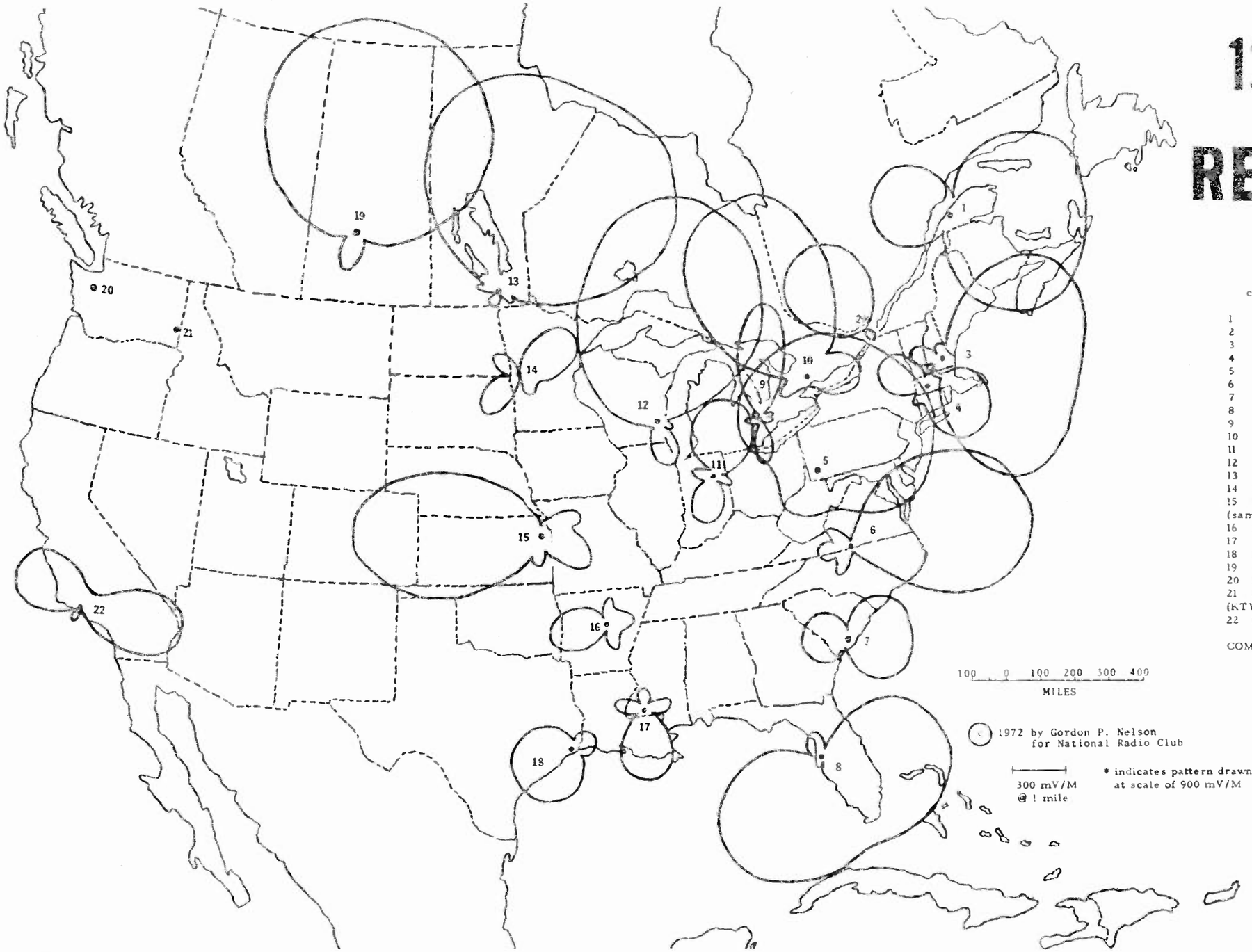
100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M

1250 KHZ

REGIONAL

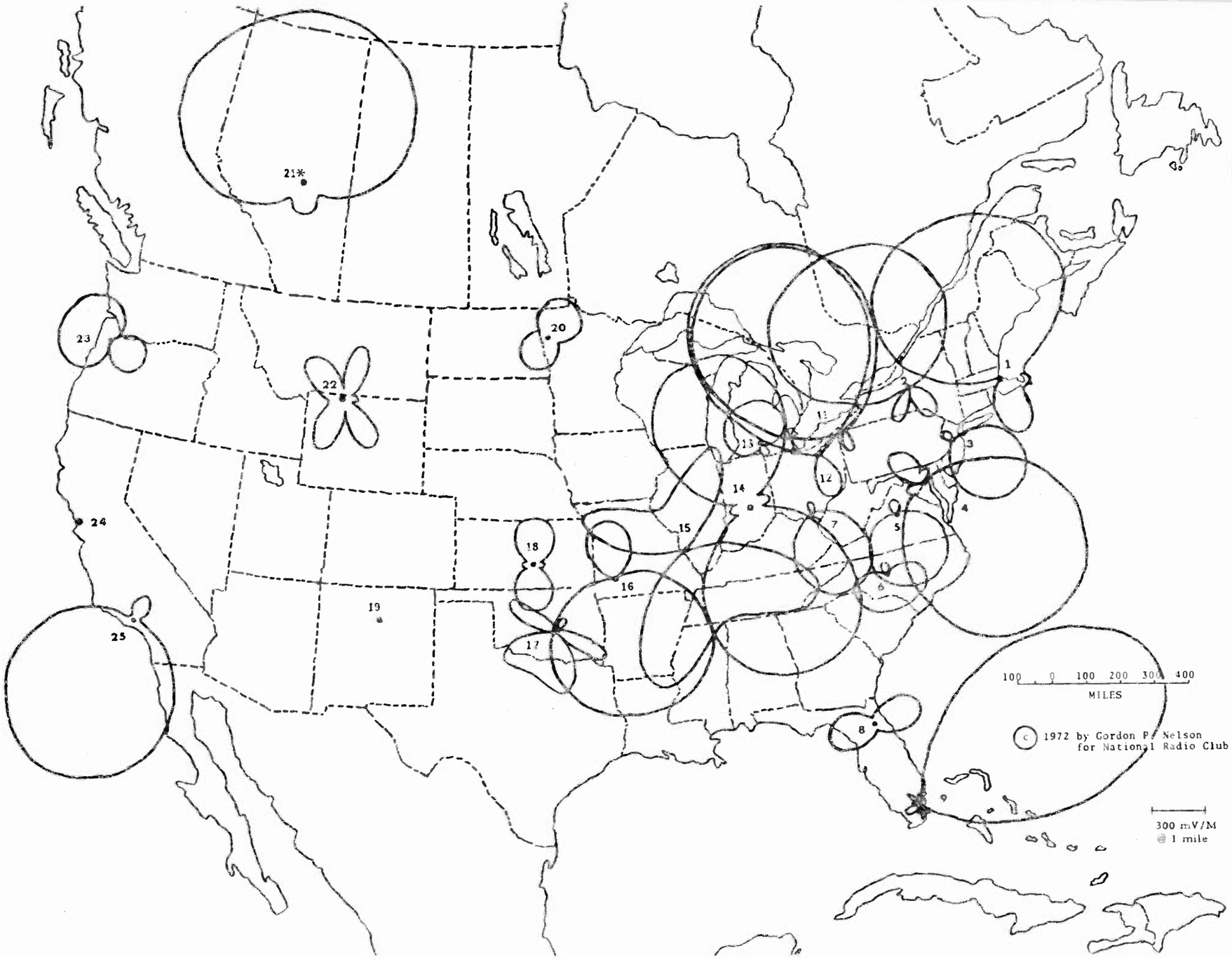


	call	class	location
1	CKBL	DA-N	MATANE
2	CBOF	DA-1	OTTAWA
3	WKBR	DA-2	MANCHESTER
4	WARE	DA-N	WARE
5	WTAE	DA-N	PITTSBURGH
6	WDVA	DA-N	DANVILLE
7	WTMA	DA-N	CHARLESTON
8	WDAE	DA-1	TAMPA
9	CKJD	DA-2	SARNIA
10	CHWO	DA-2	OAKVILLE
11	WGL	DA-2	FORT WAYNE
12	WEMP	DA-2	MILWAUKEE
13	CHSM	DA-2	STEINBACH
14	KBRF	DA-N	FERGUS FALLS
15	WREN	DA-N	TOPEKA
(same facilities as KFKU, Lawrence)			
16	KALO	DA-N	LITTLE ROCK
17	WHNY	DA-N	McCOMB
18	KPAC	DA-N	PORT ARTHUR
19	CFOM	DA-N	SASKATOON
20	KTW	ND	SEATTLE
21	KWSU	ND	PULLMAN
(KTW & KWSU share time.)			
22	KTMS	DA-1	SANTA BARBARA

COMMENTS:

1260 KHZ

REGIONAL



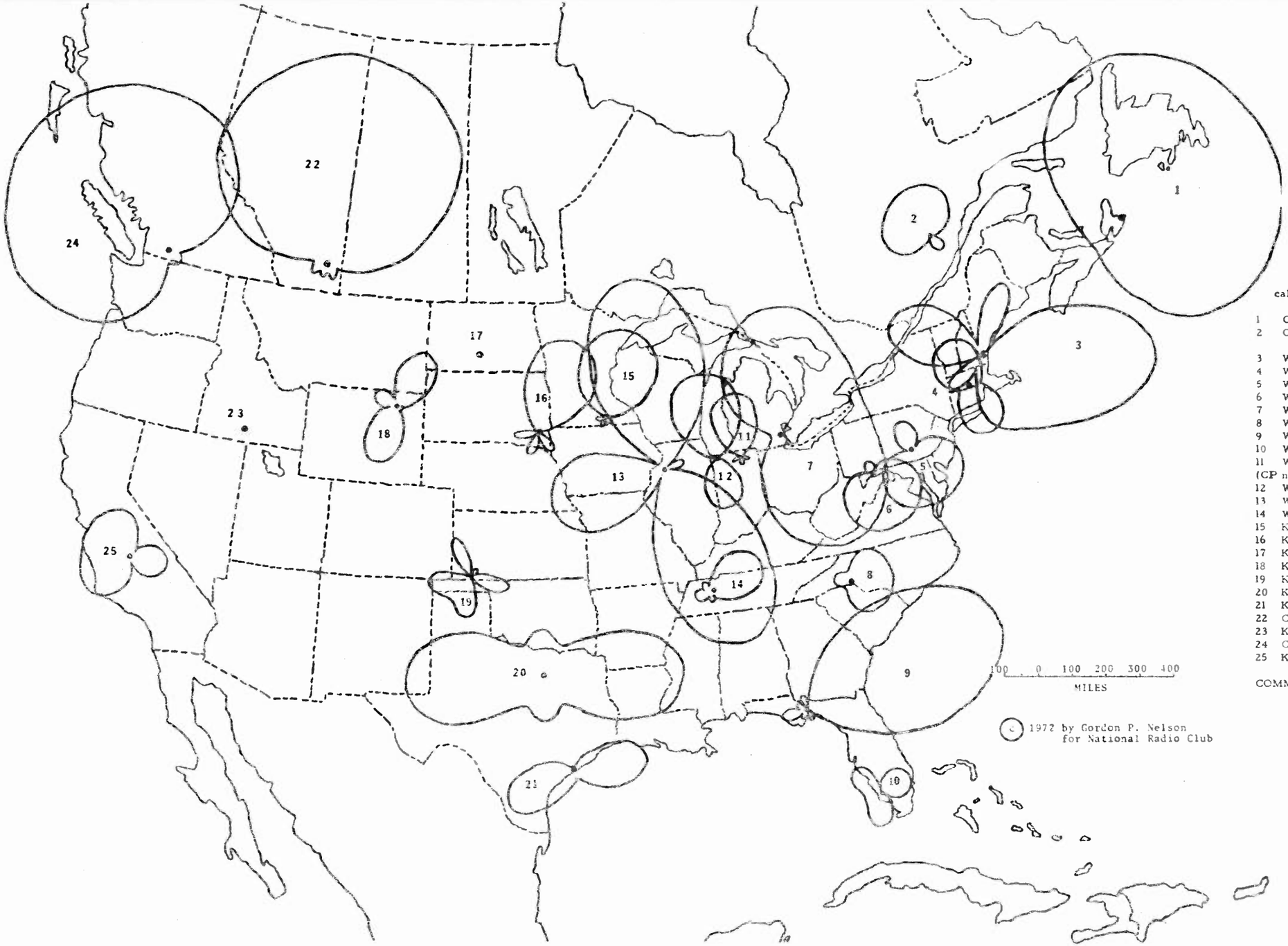
	call	class	location
1	WEZE	DA-N	BOSTON
2	WNDR	DA-N	SYRACUSE
3	WBUD	DA-2	TRENTON
4	WWDC	DA-2	WASHINGTON
5	WCHV	DA-2	CHARLOTTSVILLE
6	WGWR	DA-2	ASHEBORO
7	WNXT	DA-2	PORTSMOUTH
8	WWPF	DA-N	PALATKA
9	WWOK	DA-2	MIAMI
10	WISO	ND	PONCE
11	WWYN	DA-2	ERIE
12	WIXY	DA-2	CLEVELAND
13	WALM	DA-N	ALBION
14	WFBM	DA-N	INDIANAPOLIS
15	WIBV	DA-2	BELLEVILLE
16	KGBX	DA-N	SPRINGFIELD
17	KWSH	DA-N	WEWOKA
18	KWHK	DA-2	HUTCHINSON
19	KVSF	ND	SANTA FE
20	KROX	DA-N	CROOKSTON
21	CFRN	DA-N	EDMONTON
22	KPOW	DA-N	POWELL
23	KMCM	DA-N	McMINNVILLE
24	KYA	ND	SAN FRANCISCO
25	KGIL	DA-2	SAN FERNANDO

COMMENTS:

* indicates pattern drawn at scale of 900 mV/M

1270 KHZ

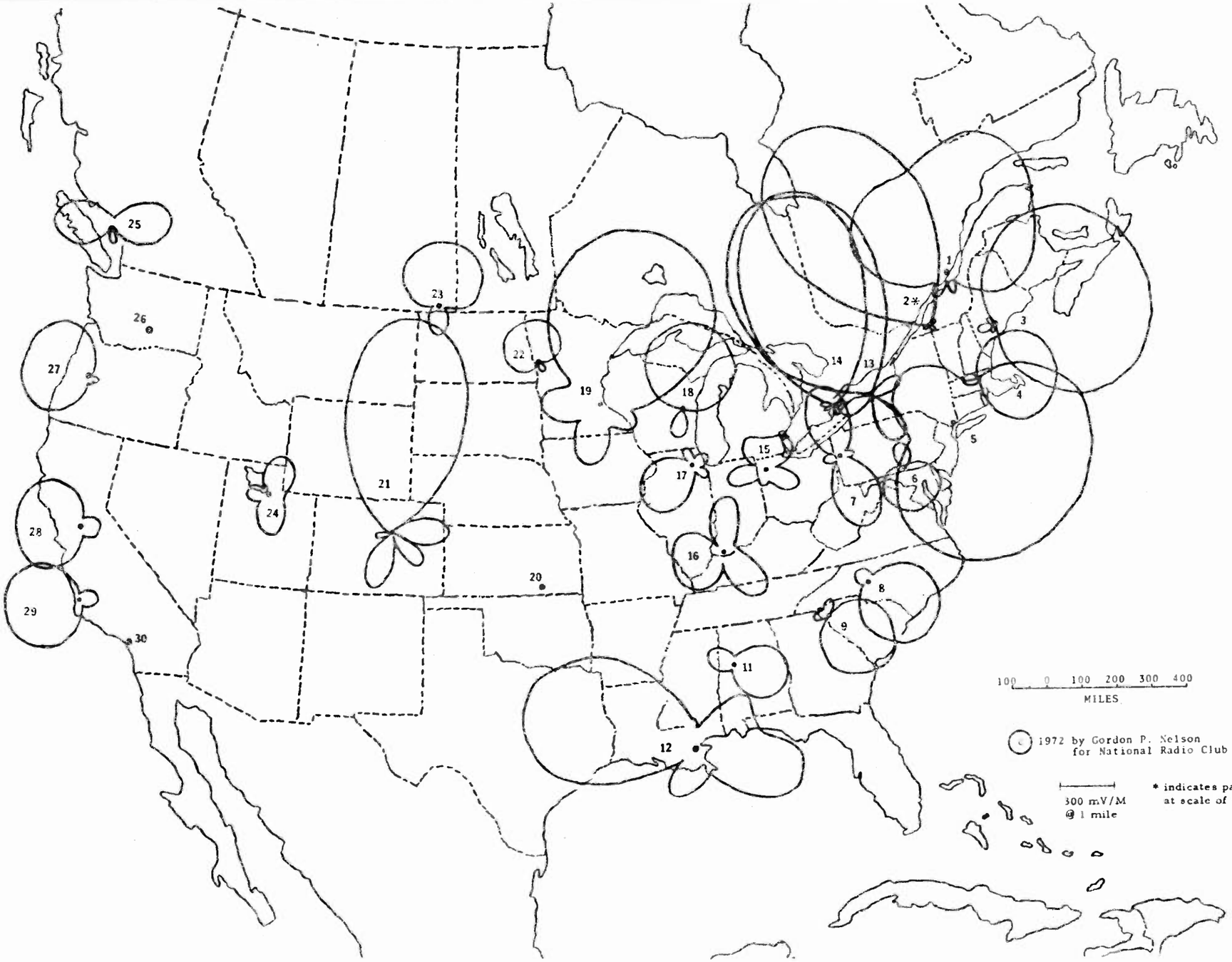
REGIONAL



	call	class	location
1	CJCB	DA-N	SYDNEY
2	CFGT	DA-N	ST. JOSEPH D'ALMA
3	WTSN	DA-2	DOVER
4	WSPR	DA-1	SPRINGFIELD
5	WLBR	DA-2	LEBANON
6	WUOK	DA-2	CUMBERLAND
7	WXYZ	DA-N	DETROIT
8	WCGC	DA-N	BELMONT
9	WTNT	DA-N	TALLAHASSEE
10	WNOG	DA-N	NAPLES
11	WCMR	DA-2	ELKHART
(CP new higher power night)			
12	WWCA	DA-1	GARY
13	WHBF	DA-N	ROCK ISLAND
14	WLIK	DA-N	NEWPORT
15	KWEB	DA-2	ROCHESTER
16	KNWC	DA-N	SIOUX FALLS
17	KBOM	ND	BISMARK-MANDEN
18	KIML	DA-N	GILETTE
19	KSCB	DA-N	LIBERAL
20	KFJZ	DA-1	FT. WORTH
21	KIOX	DA-N	BAY CITY
22	CHAT	DA-N	MEDICINE HAT
23	KTFI	ND	TWIN FALLS
24	CHWK	DA-N	CHILLIWACK
25	KCOK	DA-N	TULARE

COMMENTS:

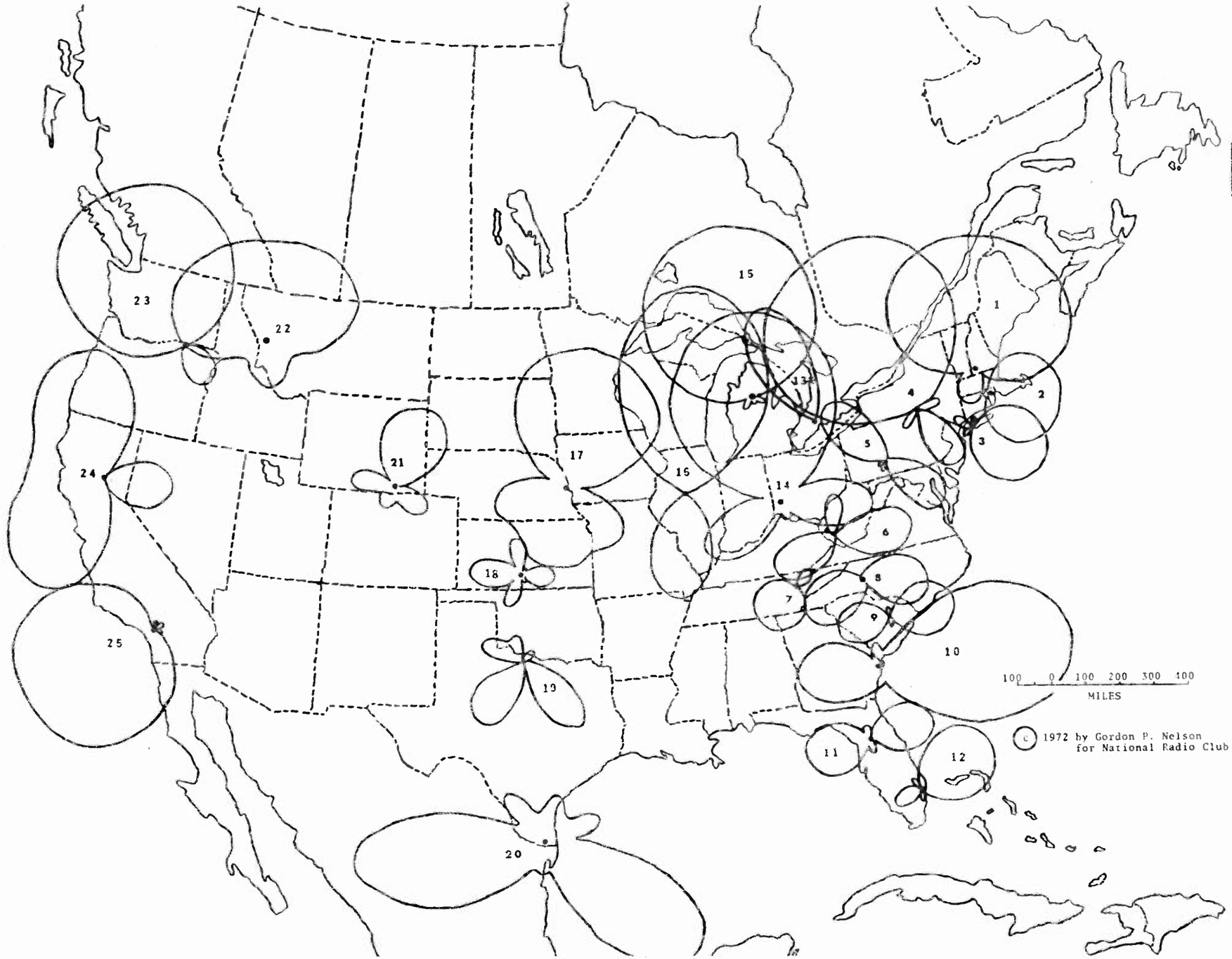
1280 KHZ REGIONAL



	call	class	location
1	CKCV	DA-2	QUEBEC
2	CJMS	DA-2	MONTREAL
3	WABK	DA-N	GARDNER
4	WEIM	DA-2	FITCHBURG
5	WADO	DA-1	NEW YORK
6	WHVR	DA-2	HANOVER
7	WKST	DA-N	NEW CASTLE
8	WSAT	DA-N	SALISBURY
9	WANS	DA-N	ANDERSON
10	WCMN	ND	ARECIBO
11	WNPT	DA-N	TUSCALOOSA
12	WDSU	DA-1	NEW ORLEANS
13	WROC	DA-N	ROCHESTER
14	CHAM	DA-2	HAMILTON
15	WONW	DA-N	DEFIANCE
16	WGBF	DA-N	EVANSVILLE
17	WMRO	DA-2	AURORA
18	WNAM	DA-2	NEENAH-MENASHA
19	WWTC	DA-N	MINNEAPOLIS
20	KSOK	ND	ARKANSAS CITY
21	KTLN	DA-2	DENVER
22	KVOX	DA-N	MOOREHEAD
23	CJSL	DA-1	ESTEVAN
24	KNAK	DA-N	SALT LAKE CITY
25	CHQB	DA-1	POWELL RIVER
26	KIT	ND	YAKIMA
27	KERG	DA-N	EUGENE
28	KJOY	DA-N	STOCKTON
29	KOAG	DA-N	ARROYO GRANDE
30	KFOX	ND	LONG BEACH

COMMENTS:

1290 KHZ REGIONAL

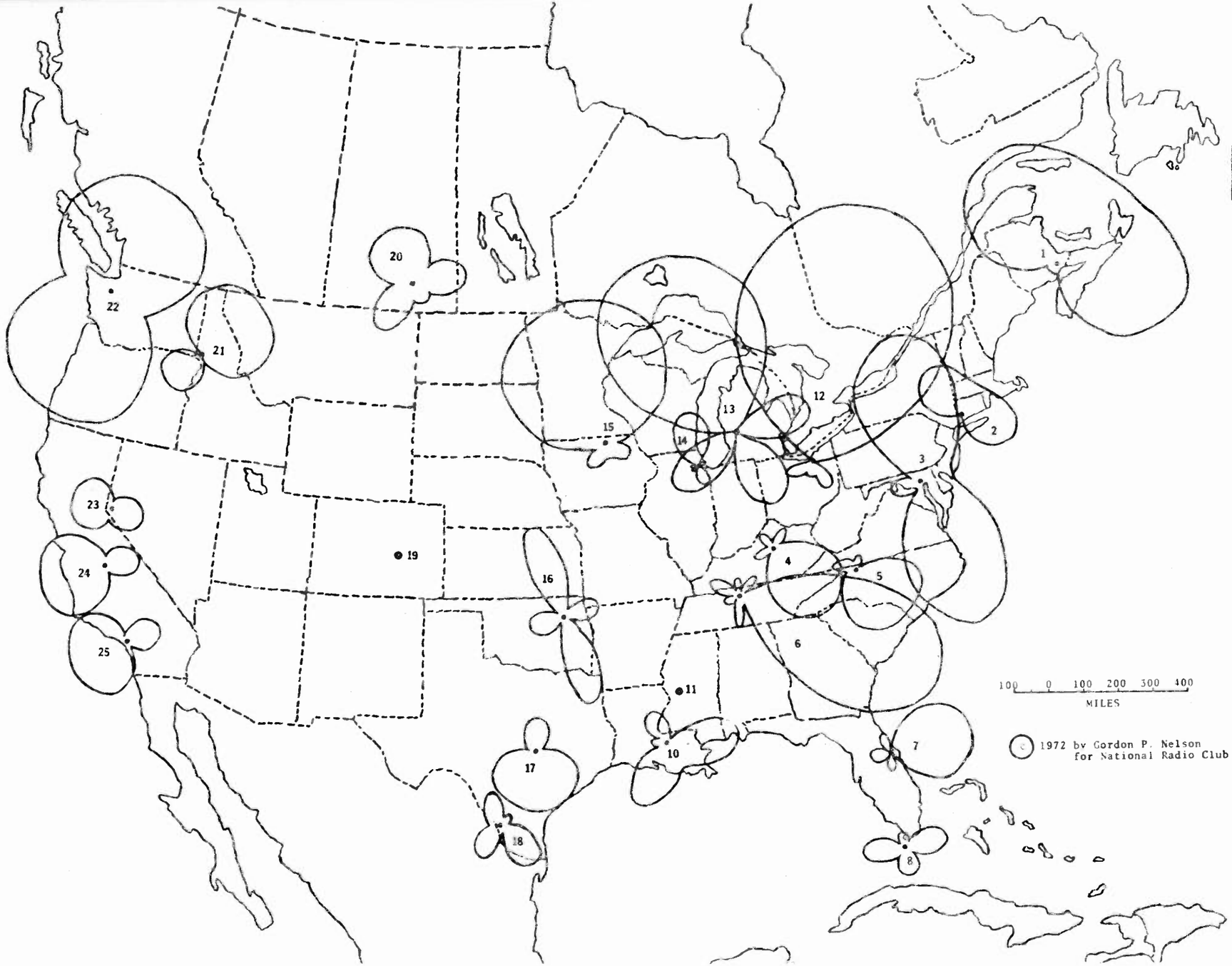


	call	class	location
1	WKNE	DA-1	KEENE
2	WICE	DA-2	PROVIDENCE
3	WGLI	DA-2	BABYLON
4	WNBF	DA-N	BINGHAMTON
5	WFBG	DA-2	ALTOONA
(CP to change to DA-N.)			
6	WVOW	DA-N	LOGAN
7	WATO	DA-2	OAK RIDGE
8	WHKY	DA-N	HICKORY
9	WFIG	DA-N	SUMTER
10	WTOC	DA-N	SAVANNAH
11	WTMC	DA-N	OCALA
12	WIRK	DA-N	WEST PALM BEACH
13	CJOE	DA-1	LONDON
14	WHIO	DA-N	DAYTON
15	WHGR	DA-N	HOUGHTON LAKE
16	WIRL	DA-2	PEORIA
17	KOIL	DA-N	OMAHA
18	KWNS	DA-2	PRATT
19	KTRN	DA-N	WICHITA FALLS
20	KRGV	DA-N	WESLACO
21	KOWB	DA-2	LARAMIE
22	KGVO	DA-1	MISSOULA
23	KLIQ	DA-N	PORTLAND
24	KHSL	DA-N	CHICO
25	KMEM	DA-2	SAN BERNARDINO

COMMENTS:

1300 KHZ

REGIONAL

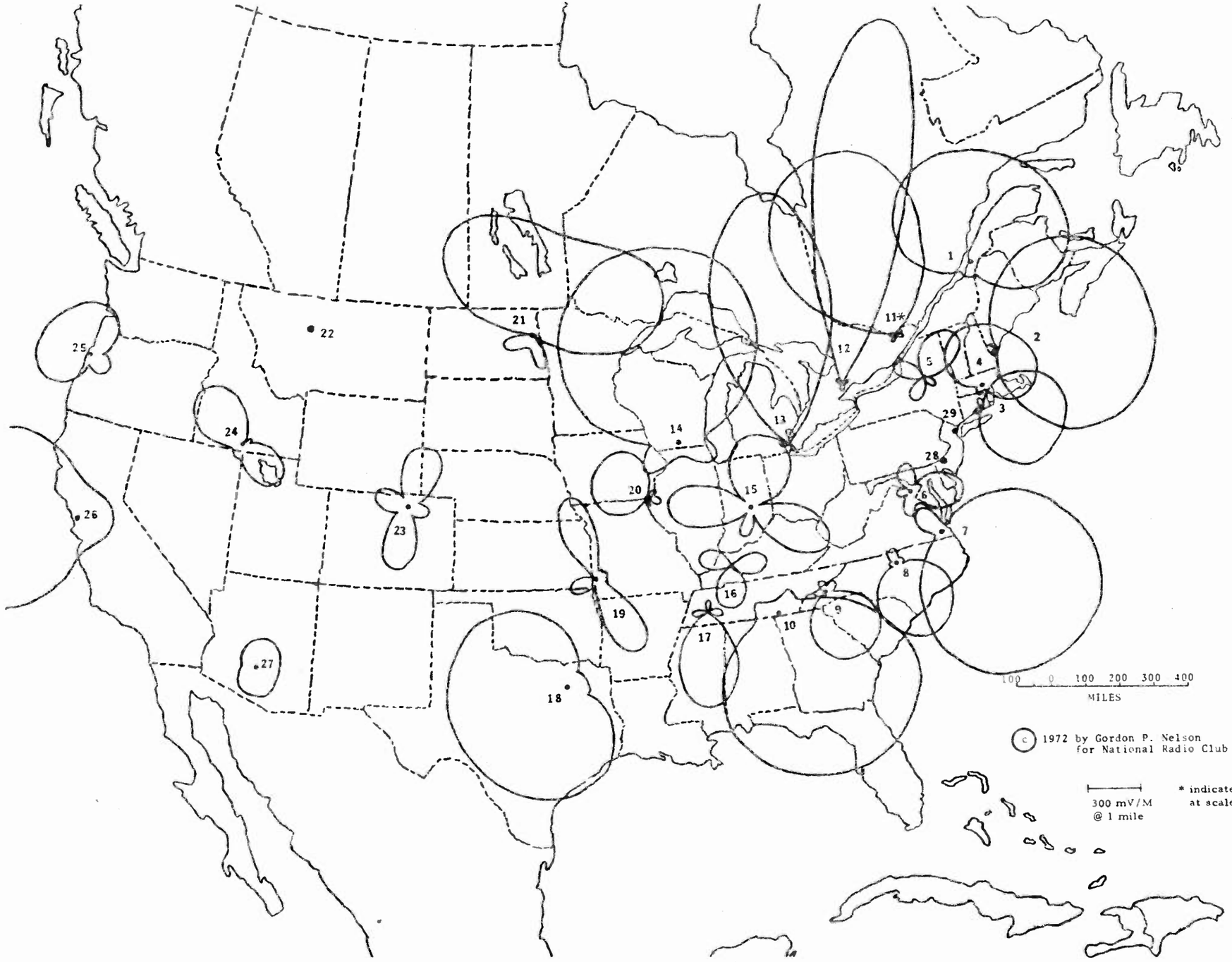


	call	class	location
1	CBAF	DA-1	MONCTON
2	WAVZ	DA-N	NEW HAVEN
3	WFBR	DA-1	BALTIMORE
4	WBLG	DA-N	LEXINGTON
5	WSYD	DA-N	MOUNT AIRY
6	WMAK	DA-N	NASHVILLE
7	WRKT	DA-2	COCOA BEACH
8	WFFG	DA-2	MARATHON
9	WTIL	ND	MAYAGUEZ
10	WIBR	DA-2	BATON ROUGE
11	WRBC	ND	JACKSON
12	WERE	DA-1	CLEVELAND
13	WOOD	DA-N	GRAND RAPIDS
14	WTAQ	DA-2	LA GRANGE
15	KGLO	DA-N	MASON CITY
16	KCNW	DA-2	TULSA
17	KVET	DA-2	AUSTIN
18	KLAR	DA-N	LAREDO
19	KVOR	ND	COLORADO SPRINGS
20	CJME	DA-1	REGINA
21	KOZE	DA-N	LEWISTON
22	KOL	DA-N	SEATTLE
23	KRWL	DA-N	CARSON CITY
24	KYNO	DA-N	FRESNO
25	KWKW	DA-2	PASADENA

COMMENTS:

1310 KHZ

REGIONAL



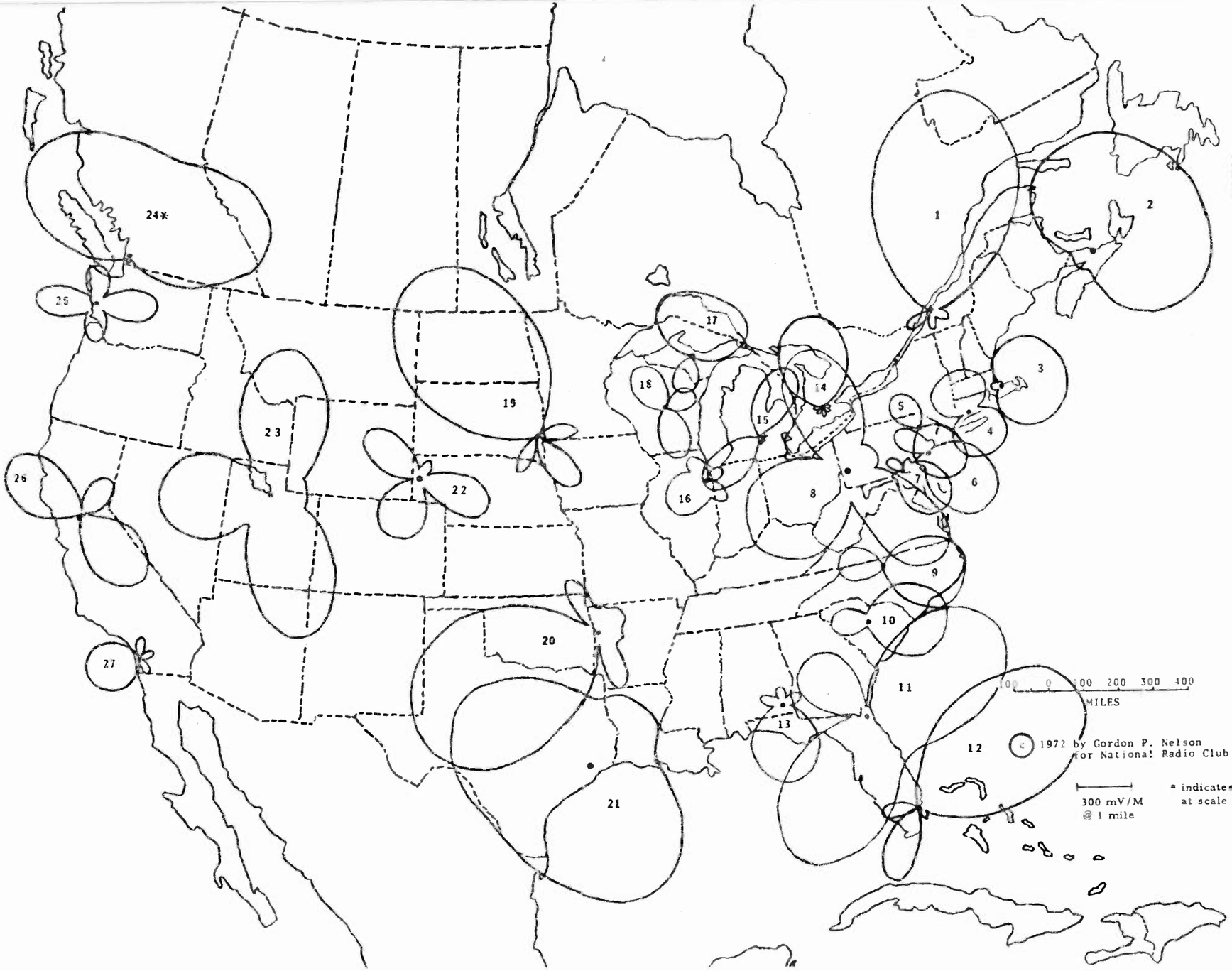
	call	class	location
1	CHGB	DA-N	LA POCATIERE
2	WLOB	DA-2	PORTLAND
3	WICH	DA-2	NORWICH
4	WORC	DA-2	WORCESTER
5	WTLB	DA-N	UTICA
6	WEEL	DA-2	FAIRFAX
7	WGH	DA-N	NEWPORT NEWS
8	WTIK	DA-2	DURHAM
9	WISE	DA-N	ASHVILLE
10	WDOD	DA-N	CHATTANOOGA
11	CKOY	DA-2	OTTAWA
12	CFGM	DA-2	RICHMOND HILL
13	WNIC	DA-2	DEARBORN
14	WIBA	DA-N	MADISON
15	WIFE	DA-N	INDIANAPOLIS
16	WTTL	DA-N	MADISONVILLE
17	WDXI	DA-N	JACKSON
18	WRR	DA-N	DALLAS
19	KFSB	DA-2	JOPLIN
20	KOKX	DA-N	KEOKUK
21	KNOX	DA-N	GRAND FORK
22	KKGF	ND	GRAND FALLS
23	KFKA	DA-N	GREENLEY
24	KLIX	DA-N	TWIN FALLS
25	KNPT	DA-N	NEWPORT
26	KDIA	DA-1	OAKLAND
27	KBUZ	DA-N	MESA
28	WCAM	ND	CAMDEN
29	WJLK	ND	ASBURY PARK

COMMENTS:

300 mV/M
@ 1 mile

* indicates pattern drawn at scale of 900 mV/M

1320 KHZ REGIONAL

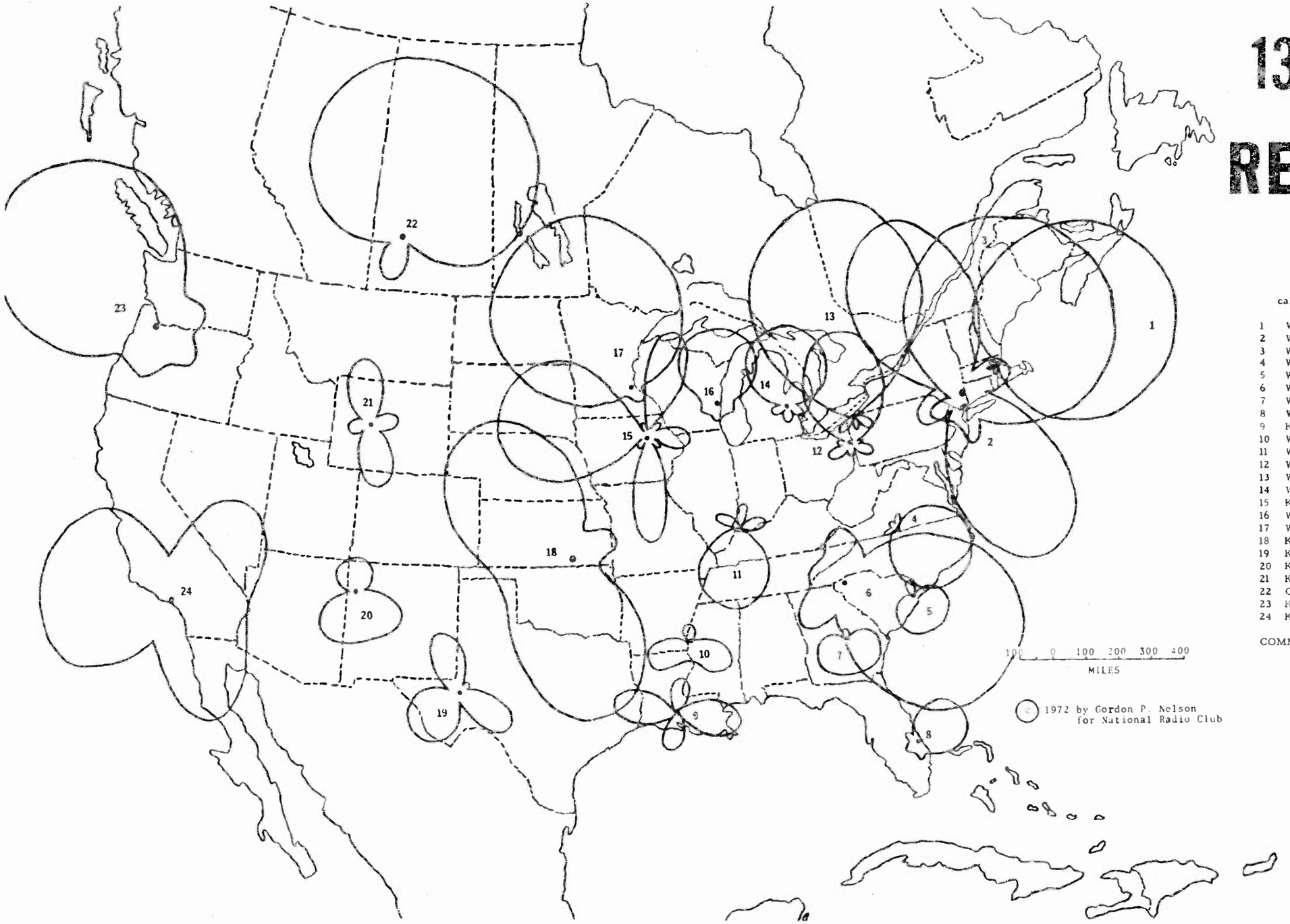


	call	class	location
1	CJSO	DA-2	SOREL
2	CKEC	DA-N	NEW GLASGOW
3	WARA	DA-2	ATTLEBORO
4	WATR	DA-2	WATERBURY
5	WSCR	DA-N	SCRANTON
6	WKAP	DA-2	ALLENTOWN
7	WGET	DA-2	GETTYSBURG
8	WJAS	DA-N	PITTSBURGH
9	WCOG	DA-2	GREENSBORO
10	WOIC	DA-N	COLUMBIA
11	WVOJ	DA-N	JACKSONVILLE
12	WGMA	DA-2	HOLLYWOOD
13	WAGF	DA-N	DOTHAN
14	CKKW	DA-2	KITCHNER-WATERLOO
15	WILS	DA-2	LANCASTER
16	WKAN	DA-N	KANKAKEE
17	WDMJ	DA-N	MARQUETTE
18	WFHR	DA-N	WISCONSIN RAPIDS
19	KELO	DA-N	SIOUX FALLS
20	KWHN	DA-N	FORT SMITH
21	KXYZ	DA-N	HOUSTON
22	KOLT	DA-N	SCOTTSBLUFF
23	KCPX	DA-1	SALT LAKE CITY
24	CHQM	DA-2	VANCOUVER
25	KXRO	DA-N	ABERDEEN
26	KCRA	DA-2	SACRAMENTO
27	KUDE	DA-1	OCEANSIDE
28	WUNO	ND	RIO PIEDRAS

COMMENTS:

* indicates pattern drawn at scale of 900 mV/M

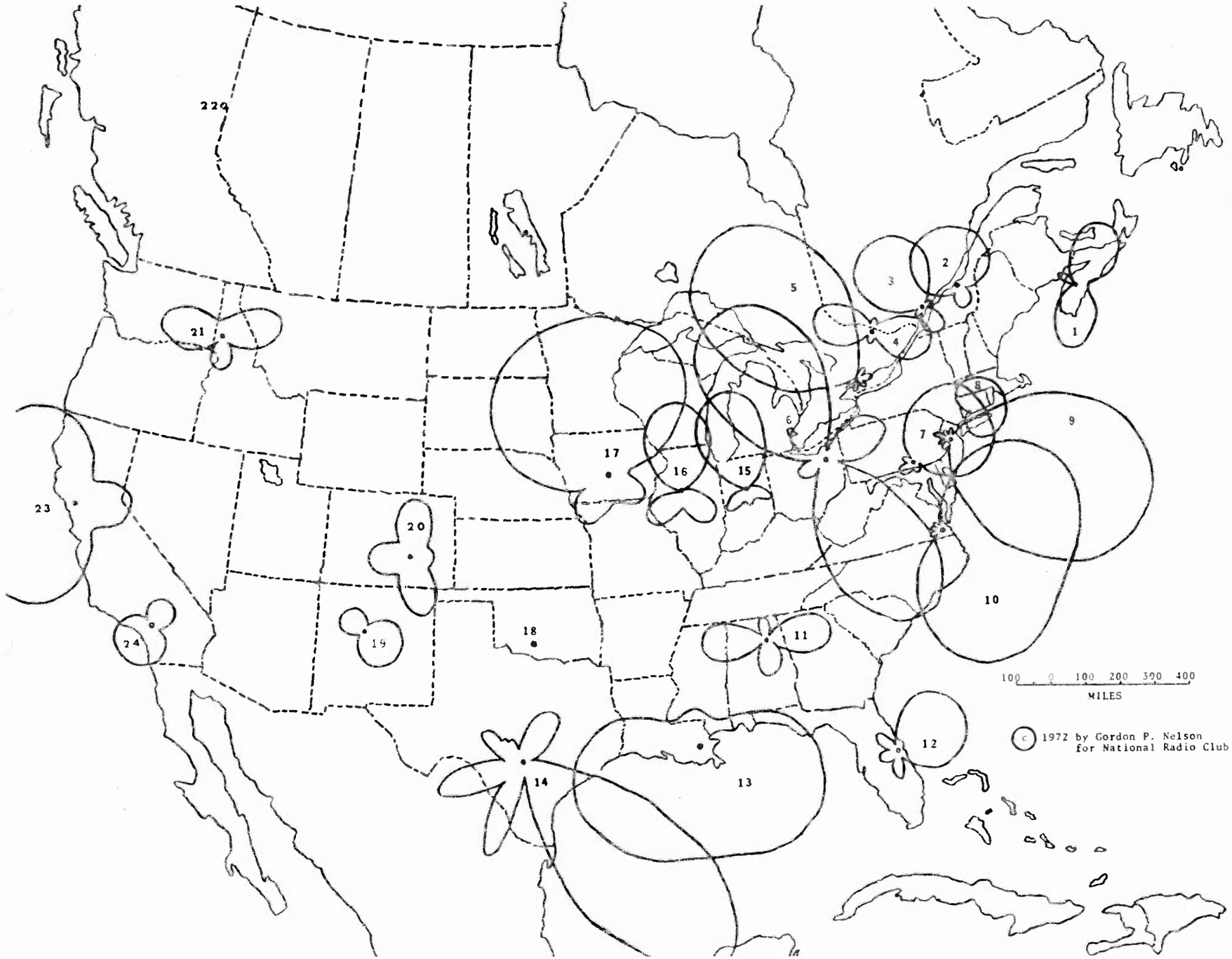
1330 KHZ REGIONAL



	call	class	location
1	WCRB	DA-2	WALTHAM
2	WEVD	DA-2	NEW YORK
3	WPOW	DA-1	NEW YORK
4	WBTM	DA-N	DANVILLE
5	WLAT	DA-N	CONWAY
6	WFBC	DA-N	GREENVILLE
7	WMLT	DA-N	DUBLIN
8	WARN	DA-N	FORT PIERCE
9	KVOL	DA-N	LAFAYETTE
10	WJPR	DA-N	GREENVILLE
11	WJPS	DA-N	EVANSVILLE
12	WHOT	DA-2	CAMBELL
13	WREI	DA-2	ERIE
14	WTRX	DA-2	FLINT
15	KWWL	DA-2	WATERLOO
16	WHBL	DA-2	SHEBOYGAN
17	WLOL	DA-2	MINNEAPOLIS
18	KFH	DA-N	WICHITA
19	KVKM	DA-N	MONAHANS
20	KGAK	DA-N	GALLUP
21	KOVE	DA-N	LANDER
22	CKKR	DA-1	ROSETOWN
23	KPOK	DA-1	PORTLAND
24	KFAC	DA-N	LOS ANGELES

COMMENTS:

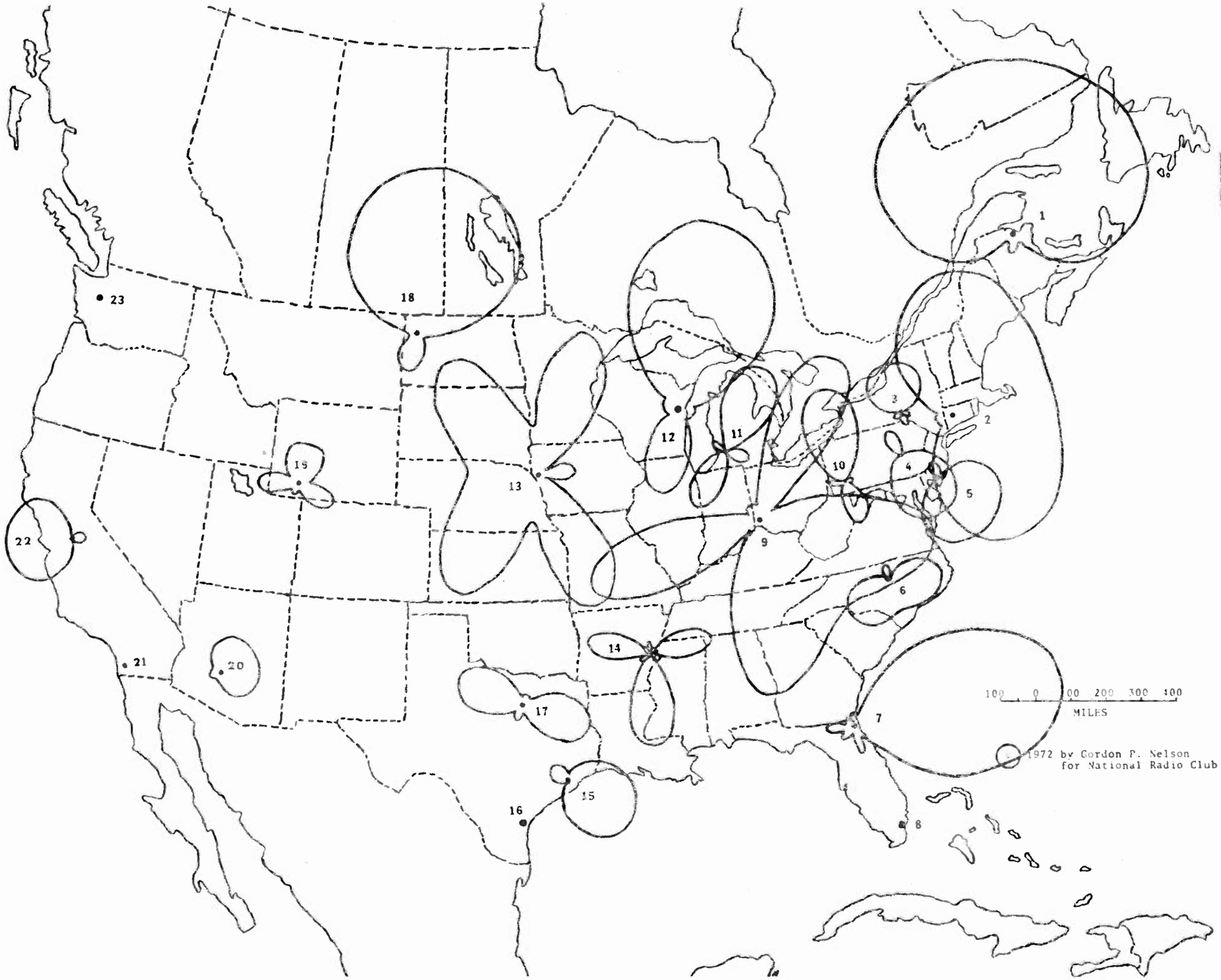
1350 KHZ REGIONAL



	call	class	location
1	CKAD	DA-1	MIDDLETON
2	CFOM	DA-1	QUEBEC
(presently operating on 1340)			
3	CJLM	DA-1	JOLIETTE
4	CHOV	DA-1	PEMBROOKE
5	CKLB	DA-1	OSHAWA
6	WSLR	DA-1	AKRON
7	WORK	DA-N	YORK
8	WNLK	DA-N	NORWALK
9	WHWH	DA-2	PRINCETON
10	WKLX	DA-2	PORTSMOUTH
11	WGAD	DA-N	GADSDEN
12	WEZY	DA-N	COCOA
13	WSMB	DA-N	NEW ORLEANS
14	KCOR	DA-N	SAN ANTONIO
15	WIOU	DA-2	KOKOMO
16	WXCL	DA-2	PEORIA
17	KRNT	DA-N	DES MOINES
18	KRHD	ND	DUNCAN
19	KABQ	DA-N	ALBUQUERQUE
20	KKAM	DA-N	PUEBLO
21	KRLC	DA-N	LEWISTON
22	CJDC	ND	DAWSON CREEK
23	KSRO	DA-N	SANTA ROSA
24	KCKC	DA-2	SAN BERNARDINO

COMMENTS:

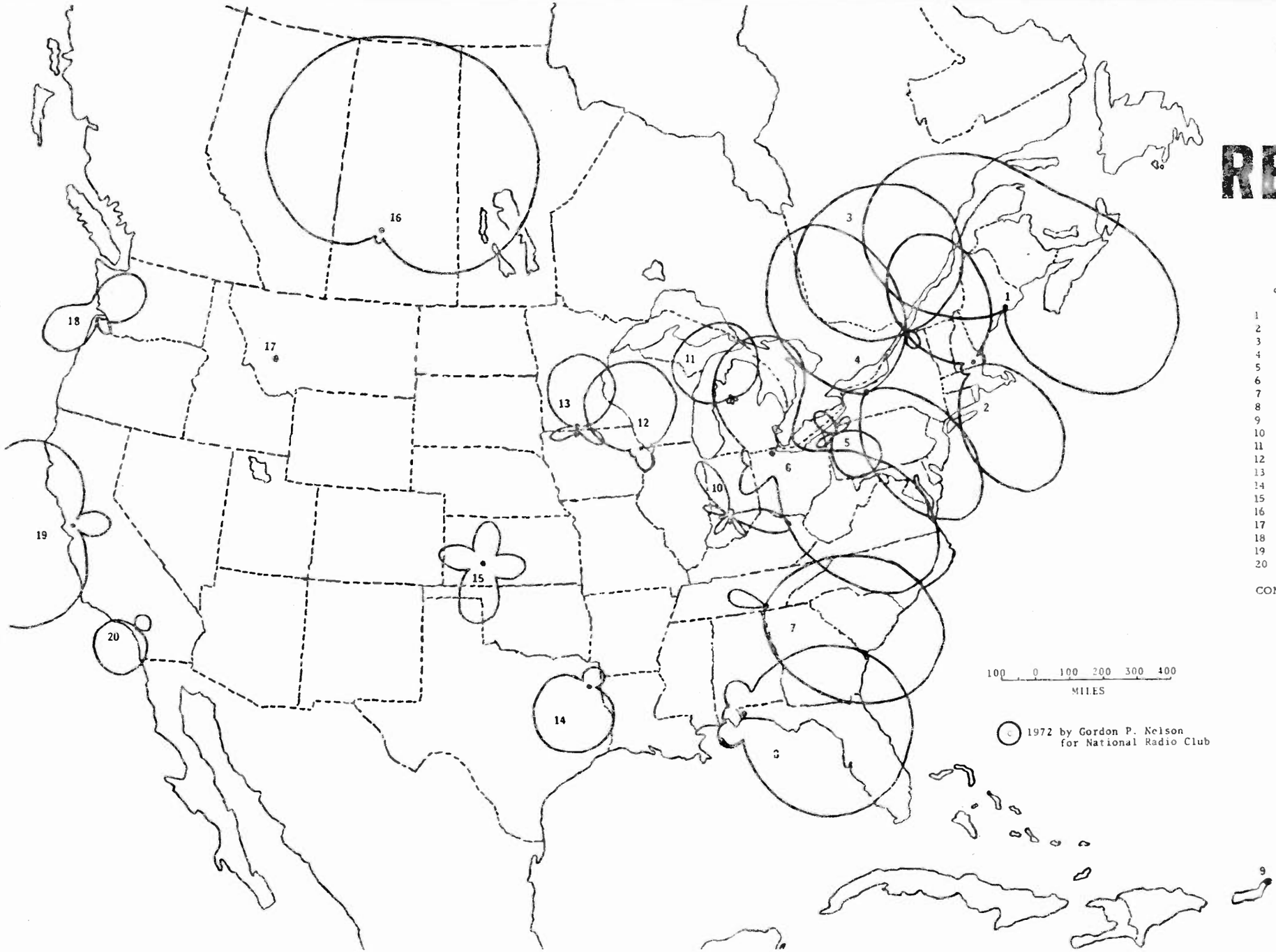
1360 KHZ REGIONAL



	call	class	location
1	CKBC	DA-N	BATHURST
2	WDRC	DA-N	HARTFORD
3	WKOP	DA-2	BINGHAMTON
4	WPPA	DA-2	POTTSVILLE
5	WWBZ	DA-N	VINELAND
6	WCHL	DA-N	CHAPEL HILL
7	WOBS	DA-N	JACKSONVILLE
8	WKAT	ND	MIAMI BEACH
9	WSAI	DA-N	CINCINNATTI
10	WIXZ	DA-N	McKEESPORT
11	WKMI	DA-N	KALAMAZOO
12	WBAY	DA-N	GREEN BAY
13	KSCJ	DA-N	SIOUX CITY
14	KFFA	DA-N	HELENA
15	KWBA	DA-2	BAYTOWN
16	KRYS	ND	CORPUS CHRISTI
17	KXOL	DA-N	FORT WORTH
18	KEZY	DA-N	WILLISTON
19	KVRS	DA-N	ROCK SPRINGS
20	KRUX	DA-N	GLENDALE
21	KGB	ND	SAN DIEGO
22	KFIV	DA-2	MODESTO
23	KMO	ND	TACOMA

COMMENTS:

1370 KHZ REGIONAL

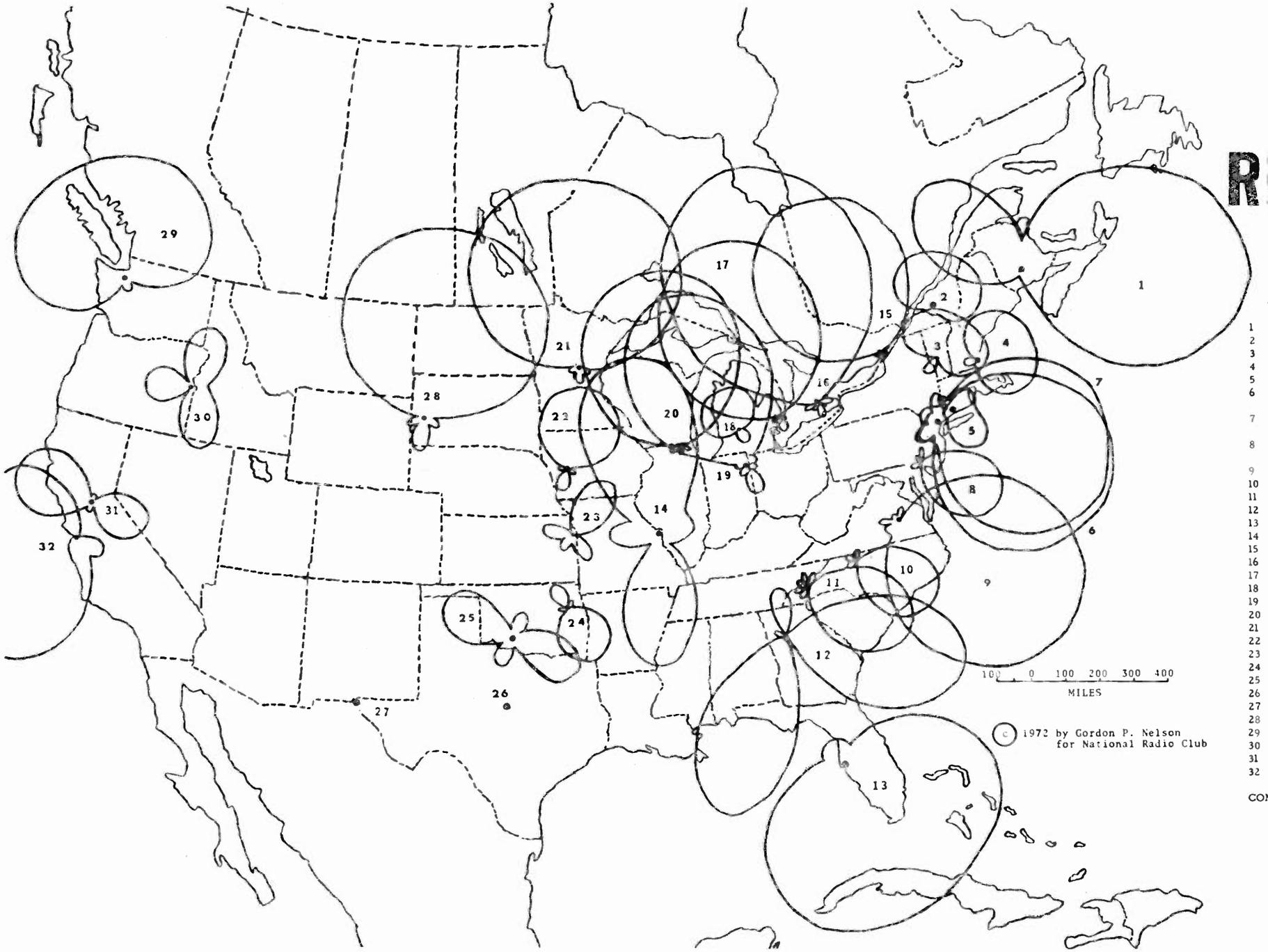


	call	class	location
1	WDEA	DA-2	ELLSWORTH
2	WFEA	DA-1	MANCHESTER
3	CFLV	DA-1	VALLEYFIELD
4	WSAY	DA-N	ROCHESTER
5	WOTR	DA-N	CORRY
6	WSPD	DA-N	TOLEDO
7	WDEF	DA-N	CHATTANOOGA
8	WCOA	DA-N	PENSACOLA
9	WIVV	ND	VIEQUES
10	WTTS	DA-2	BLOOMINGTON
11	WWAM	DA-2	CADILLAC
12	KDTH	DA-N	DUBUQUE
13	KSUM	DA-2	FAIRMOUNT
14	KFRO	DA-N	LONGVIEW
15	KGNO	DA-N	DODGE CITY
16	*CP*	DA-N	SASKATOON
17	KXLF	ND	BUTTE
18	KAST	DA-N	ASTORIA
19	KEEN	DA-2	SAN JOSE
20	KREL	DA-2	CORONA

COMMENTS:

1380 KHZ

REGIONAL

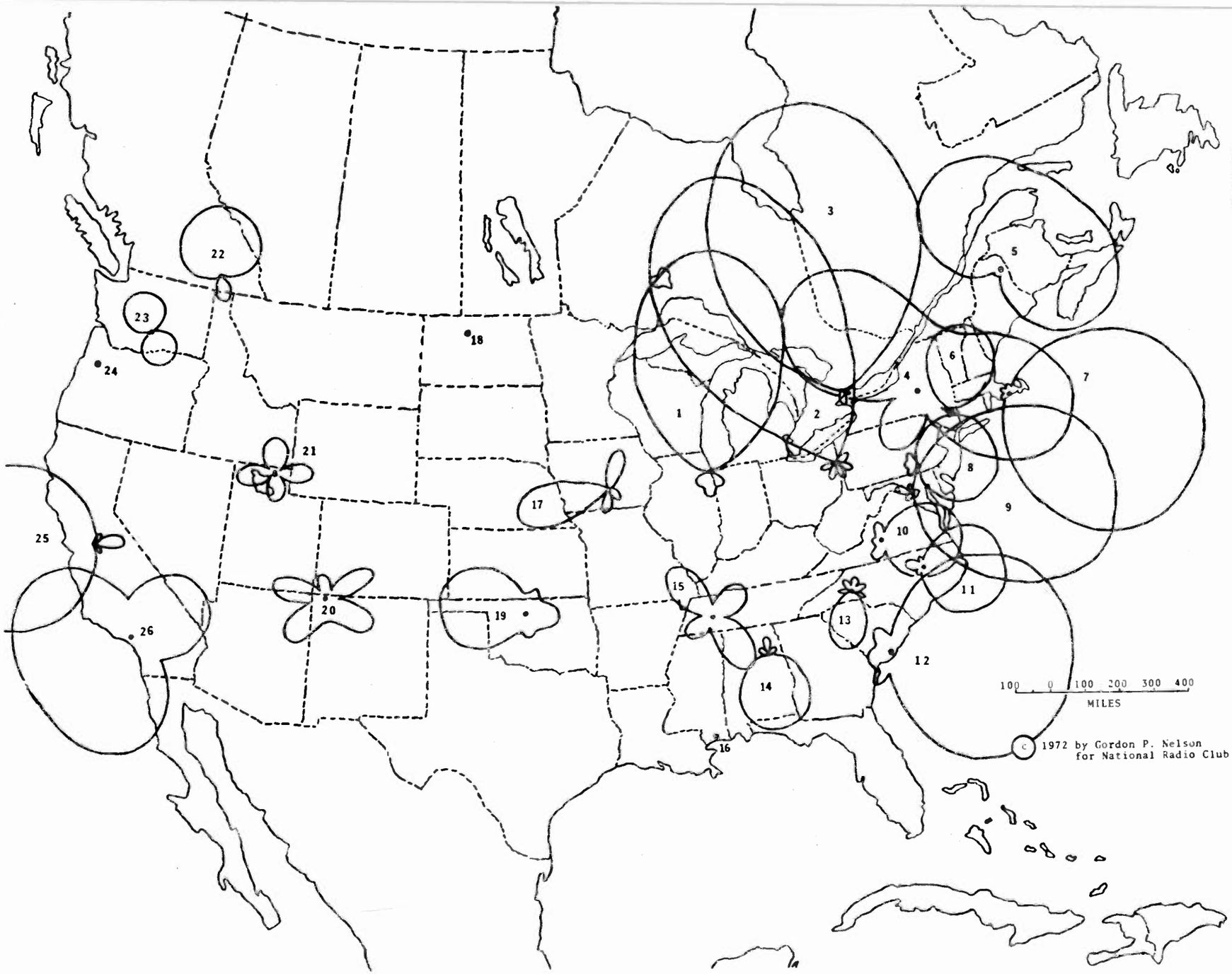


	call	class	location
1	*CP*	DA-1	OROMOCTO
2	CFDA	DA-N	VICTORIAVILLE
3	WSYB	DA-N	RUTLAND
4	WBBW	DA-N	PORTSMOUTH
5	WOWW	DA-2	NAUGATUCK
6	WBNX	DA-1	NEW YORK
7	WAWZ	DA-2	ZARAPHATH
8	WAMS	DA-3	WILMINGTON
	(uses 2 daytime patterns)		
9	WTVR	DA-N	RICHMOND
10	WTOB	DA-N	WINSTON-SALEM
11	WKKE	DA-N	ASHEVILLE
12	WAOK	DA-N	ATLANTA
13	WLCY	DA-N	ST. PETERSBURG
14	KWK	DA-N	ST. LOUIS
15	CKLC	DA-2	KINGSTON
16	CKPC	DA-2	BRANTFORD
17	WPHM	DA-2	PORT HURON
18	WPLB	DA-N	GREENVILLE
19	WMEE	DA-2	FT. WAYNE
20	WBEL	DA-N	SOUTH BELOIT
21	KLIZ	DA-N	BRAINERD
22	KCIM	DA-2	CARROLL
23	KUDL	DA-2	FAIRWAY
24	KMUS	DA-N	MUSKOGEE
25	KSWO	DA-2	LAWTON
26	KBWD	ND	BROWNWOON
27	KTSM	ND	EL PASO
28	KOTA	DA-N	RAPID CITY
29	KRKO	DA-N	EVERETT
30	KSRV	DA-N	ONTARIO
31	KGMS	DA-2	SACRAMENTO
32	KSBW	DA-2	SALINAS

COMMENTS:

1390 KHZ

REGIONAL

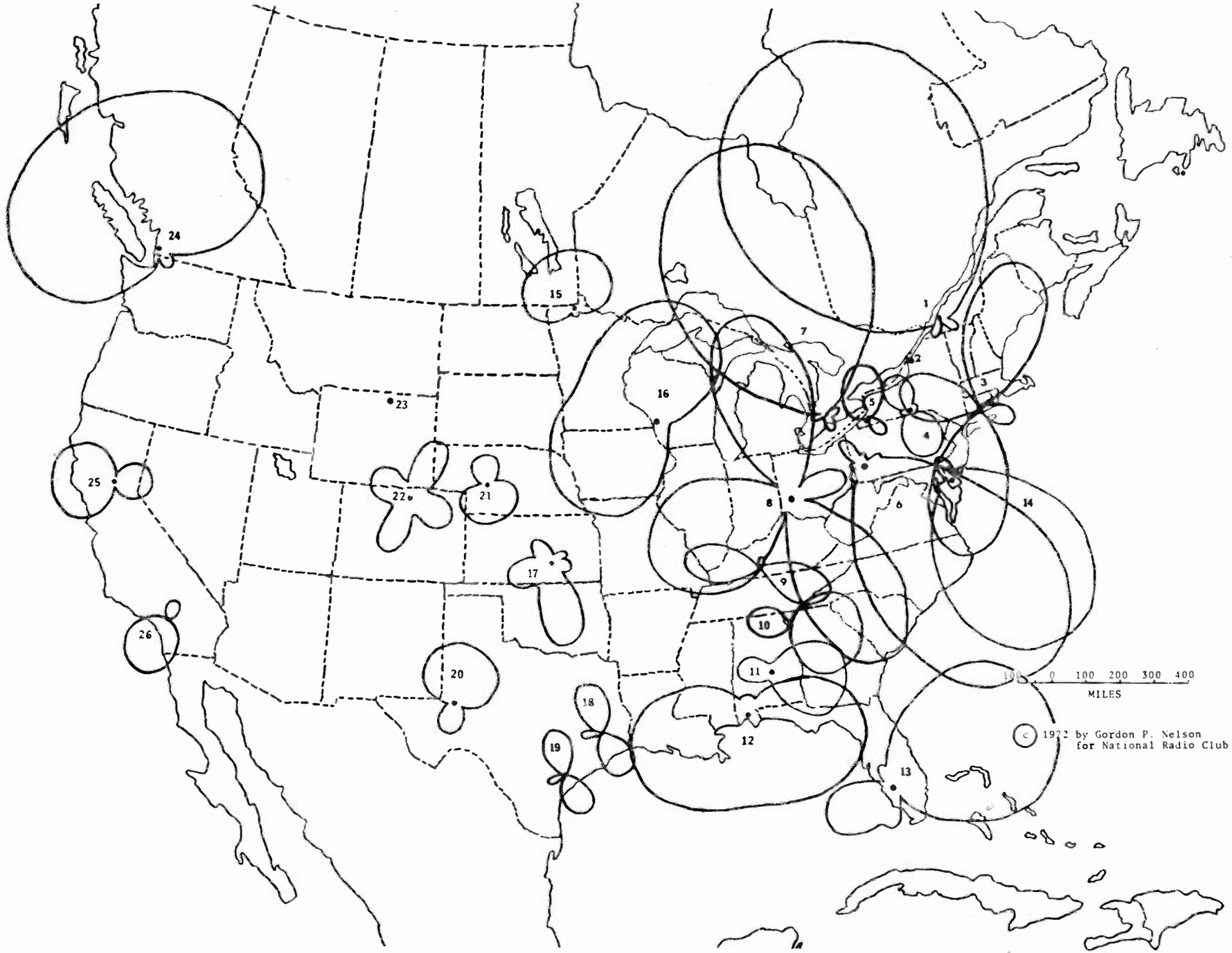


	call	class	location
1	WNUS	DA-2	CHICAGO
2	WFMJ	DA-N	YOUNGSTOWN
3	CHOO	DA-1	AJAX
4	WFBL	DA-N	SYRACUSE
5	WEGP	DA-N	PRESQUE ISLE
6	WEOK	DA-2	POUGHKEEPSIE
7	WPLM	DA-2	PLYMOUTH
8	WLAN	DA-2	LANCASTER
9	WEAM	DA-2	ARLINGTON
10	WWOD	DA-N	LYNCHBURG
11	WEED	DA-N	ROCKY MOUNT
12	WCSC	DA-N	CHARLESTON
13	WADA	DA-N	SHELBY
14	WHMA	DA-N	ANNISTON
15	WTJS	DA-N	JACKSON
16	WROA	DA-N	GULFPORT
	(under construction)		
17	KCBC	DA-1	DES MOINES
18	KLPM	ND	MINOT
19	KCRC	DA-1	ENID
20	KENN	DA-N	FARMINGTON
21	KBLW	DA-N	LOGAN
22	CKKC	DA-1	NELSON
23	KBBO	DA-N	YAKIMA
24	KSLM	ND	SALEM
25	KCEY	DA-2	TURLOCK
26	KGER	DA-N	LONG BEACH
27	WISA	ND	ISABELA

COMMENTS:

1410 KHZ

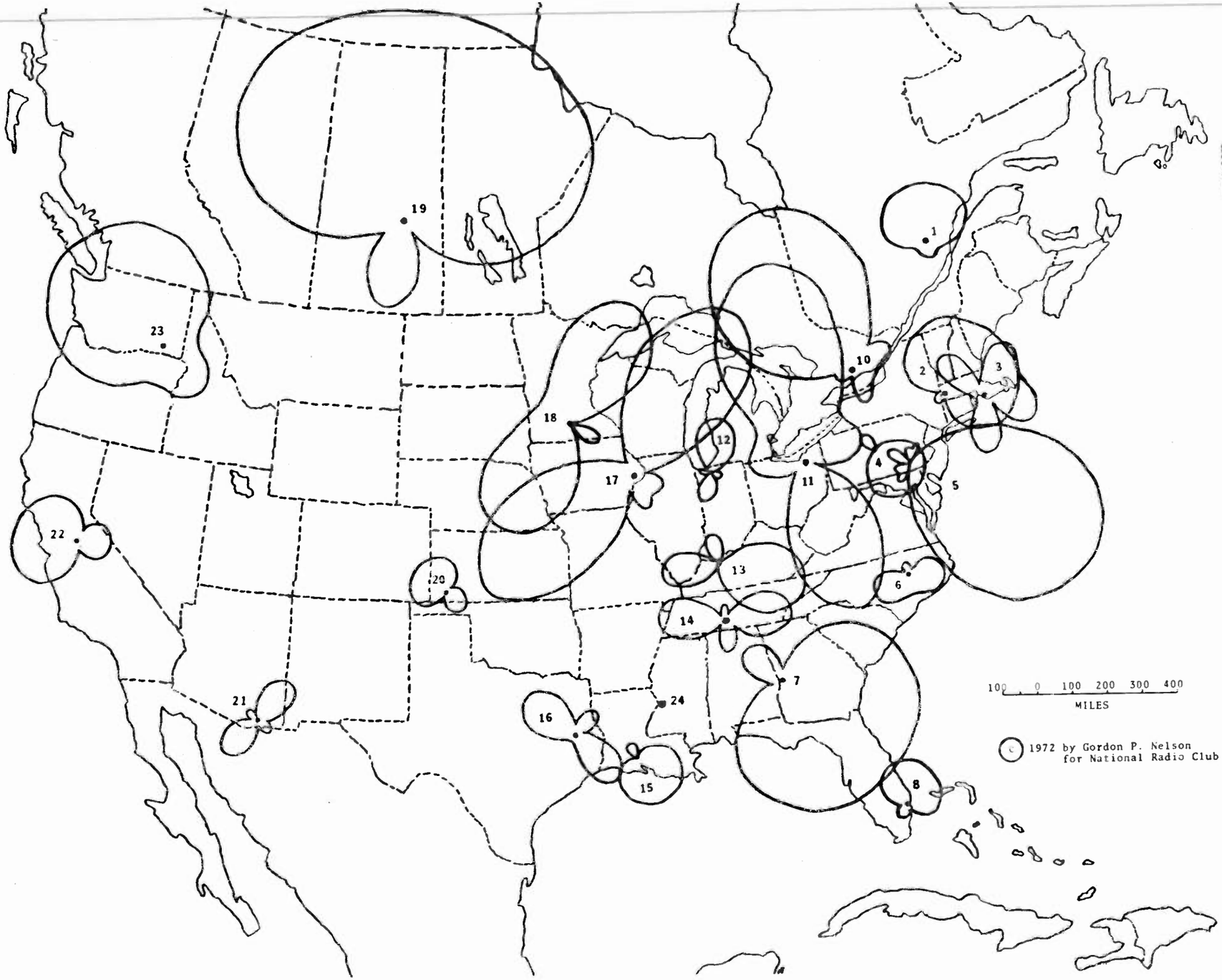
REGIONAL



	call	class	location
1	CFMB	DA-1	MONTREAL
2	WOTT	DA-N	WATERTOWN
	(pattern not available)		
3	WPOP	DA-2	HARTFORD
4	WELM	DA-N	ELMIRA
5	WDOE	DA-N	DUNKIRK
6	KQV	DA-2	PITTSBURGH
7	CKSL	DA-2	LONDON
8	WING	DA-N	DAYTON
9	WLBJ	DA-N	BOWLING GREEN
10	WLAQ	DA-N	ROME
11	WPXC	DA-2	PRATTVILLE
12	WUNI	DA-N	MOBILE
13	WMYR	DA-N	FORT MYERS
14	WDOV	DA-N	DOVER
15	KRWB	DA-N	ROSEAU
16	WKBH	DA-N	LA CROSSE
17	KWBB	DA-2	WICHITA
18	KVLB	DA-2	CLEVELAND
19	KNAL	DA-N	VICTORIA
20	KRIG	DA-N	ODESSA
21	KNOP	DA-N	NORTH PLATTE
22	KCOL	DA-N	FORT COLLINS
23	KWYO	ND	SHERIDAN
24	CKVN	DA-2	VANCOUVER
25	KMYC	DA-2	MARYSVILLE
26	KCAL	DA-N	REDLANDS

COMMENTS:

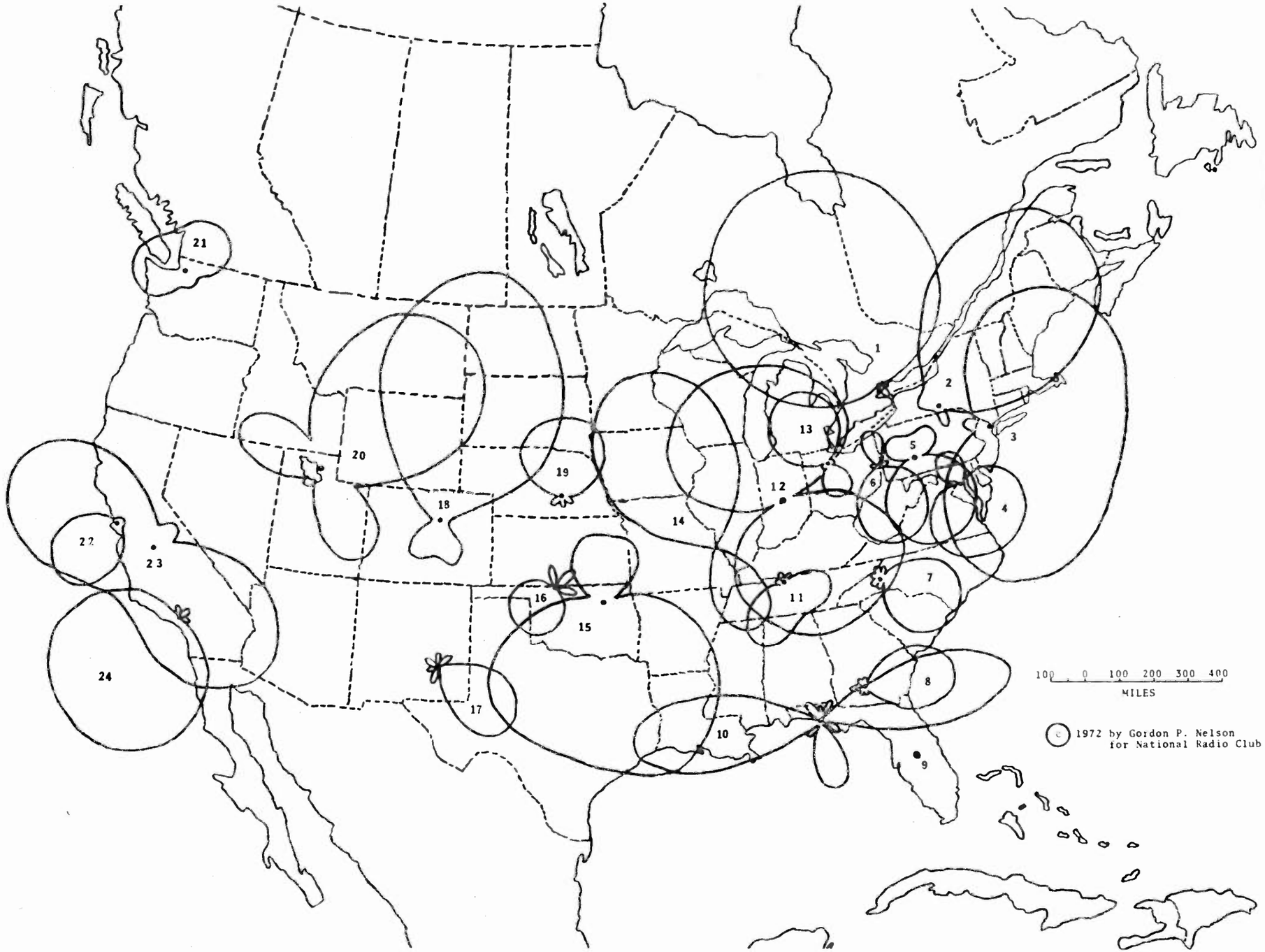
1420 KHZ REGIONAL



	call	class	location
1	CJMT	DA-1	CHICOUTIMI
2	WBEC	DA-N	PITTSFIELD
3	WBSM	DA-1	NEW BEDFORD
4	WCED	DA-N	DUBOIS
5	WCOJ	DA-N	COATESVILLE
6	WVOT	DA-N	WILSON
7	WRBL	DA-N	COLUMBUS
8	WDBF	DA-2	DELRAY BEACH
9	WEUC	ND	PONCE
10	CKPY	DA-2	PETERBOROUGH
11	WHK	DA-N	CLEVELAND
12	WIMS	DA-2	MICHIGAN CITY
13	WVJS	DA-2	OWENSBORO
14	WKSR	DA-N	PULASKI
15	KPEL	DA-N	LAFAYETTE
16	KTRE	DA-N	LUFKIN
17	WOC	DA-2	DAVENPORT
18	KTOE	DA-N	MANKATO
19	CJVR	DA-N	MELFORT
20	KULY	DA-2	ULYSSES
21	KHFH	DA-N	SIERRA VISTA
22	KSTN	DA-2	STOCKTON
23	KUJ	DA-N	WALLA WALLA
24	WQBC	ND	VICKSBURG

COMMENTS:

1430 KHZ REGIONAL

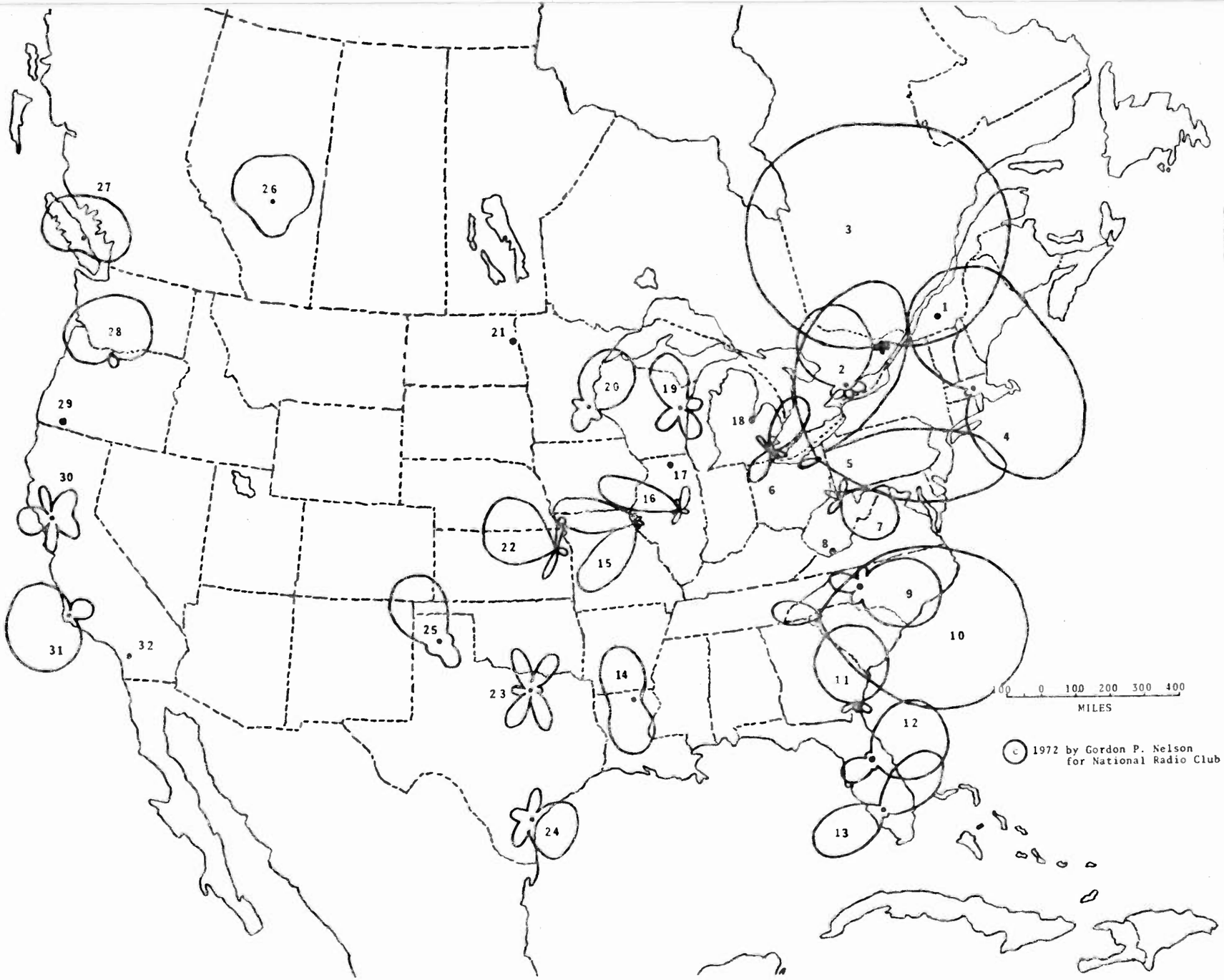


	call	class	location
1	CKFH	DA-2	TORONTO (old 10 kw pattern, 50 kw not available)
2	WENE	DA-N	ENDICOTT
3	WNJR	DA-N	NEWARK
4	WNAV	DA-N	ANNAPOLIS
5	WVAM	DA-N	ALTOONA
6	WEIR	DA-2	WEIRTON
7	WMNC	DA-N	MORGANTOWN
8	WWGS	DA-N	TIFTON
9	WPQD	ND	LAKELAND
10	WPCF	DA-2	PANAMA CITY
11	WENO	DA-N	MADISON
12	WIBE	DA-N	INDIANAPOLIS
13	WFOB	DA-2	FOSTORIA
14	WIL	DA-2	ST. LOUIS
15	KELI	DA-N	TULSA
16	KALV	DA-1	ALVA
17	KKAT	DA-N	ROSWELL
18	KOSI	DA-N	AURORA
19	KGRI	DA-N	GRAND ISLAND
20	KLO	DA-1	OGDEN
21	KBRC	DA-N	MOUNT VERNON
22	KGNU	DA-1	SANTA CLARA
23	KARM	DA-1	FRESNO
24	KALI	DA-2	SAN GABRIEL
25	WNEL	ND	CAGUAS

COMMENTS:

1440
1450

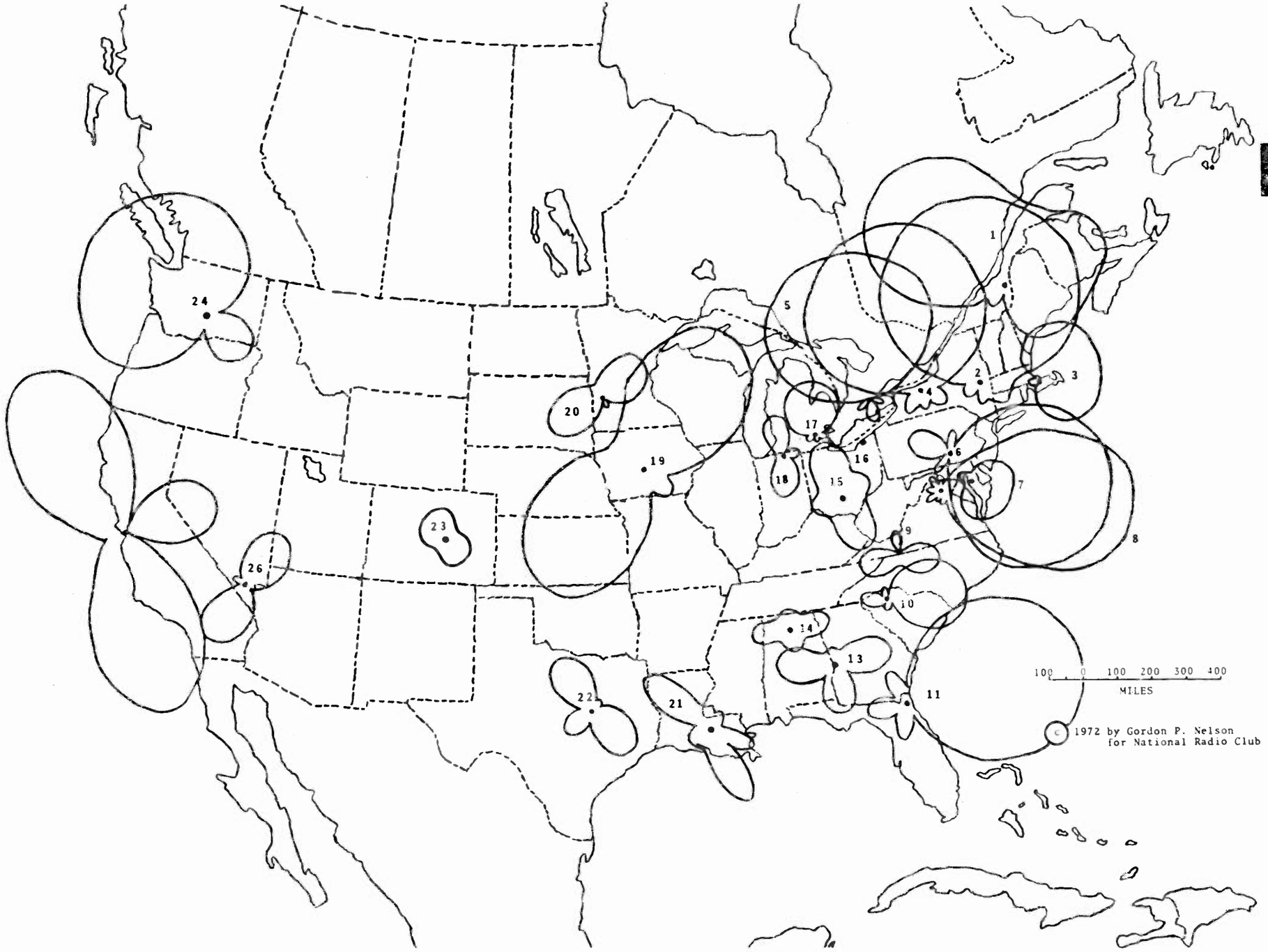
REGIONAL



	call	class	location
1	CHEF	DA-1	GRANBY
2	CHUC	DA-2	PORT HOPE
3	CKPM	DA-1	OTTAWA
4	WAAB	DA-2	WORCESTER
5	WHHH	DA-2	WARREN
6	WCHB	DA-2	INKSTER
7	WAJR	DA-2	MORGANTOWN
8	WHIS	ND	BLUEFIELD
9	WBUY	DA-N	LEXINGTON
10	WQOK	DA-N	GREENVILLE
11	WGIG	DA-N	BRUNSWICK
12	WBJW	DA-N	WINTER PARK
13	WAYK	DA-2	LEHIGH ACRES
14	KMLB	DA-N	MONROE
15	WGEM	DA-2	QUINCY
16	WIOK	DA-2	NORMAL
17	WROK	ND	ROCKFORD
18	WBCM	ND	BAY CITY
19	WNFL	DA-2	GREEN BAY
20	KQRS	DA-N	GOLDEN VALLEY
21	KILO	ND	GRAND FORKS
22	KEWI	DA-1	TOPEKA
23	KDNT	DA-N	DENTON
24	KEYS	DA-N	CORPUS CHRISTI
25	KPUR	DA-N	AMARILLO
26	*CP*	DA-1	WETASKIWIN
27	CFCP	DA-N	COURTENAY-COMOX
28	KODL	DA-N	THE DALLES
29	KMED	ND	MEDFORD
30	KVON	DA-2	NAMPA
31	KCOY	DA-N	SANTA MARIA
32	KPRO	ND	RIVERSIDE

COMMENTS:

1460 KHZ REGIONAL

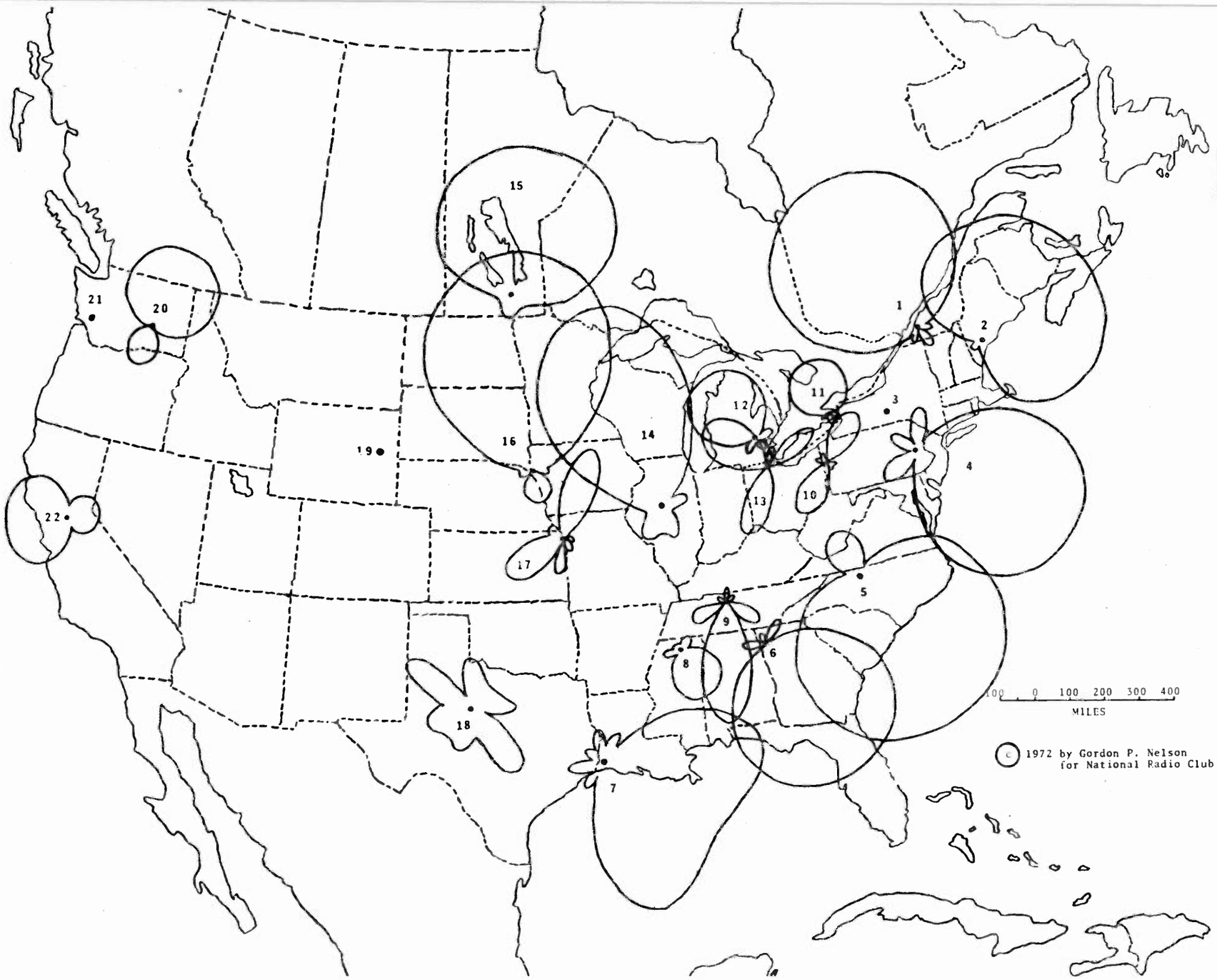


	call	class	location
1	CKRB	DA-N	ST. GEORGES DE BEAUCE
2	WOKO	DA-N	ALBANY
3	WBET	DA-N	BROCKTON
4	WAXC	DA-N	ROCHESTER
5	CJOY	DA-2	GUELPH
6	WCMB	DA-N	HARRISBURG
7	WEMD	DA-2	EASTON
8	WPRW	DA-2	MANASSAS
9	WRAD	DA-N	RADFORD
10	WBCU	DA-N	UNION
11	WMBR	DA-N	JACKSONVILLE
12	WFBA	ND	SAN SEBASTION
13	WPNX	DA-N	PHOENIX CITY
14	WFMH	DA-N	CULLMAN
15	WBNS	DA-1	COLUMBUS
16	WPVL	DA-2	PAINESVILLE
	(pattern not available)		
17	WPON	DA-N	PONTIAC
18	WKAM	DA-N	GOSHEN
19	KSO	DA-N	DES MOINES
20	KDMA	DA-N	MONTEVIDEO
21	WXOK	DA-N	BATON ROUGE
22	WACO	DA-N	WACO
23	KYSN	DA-N	COLORADO SPRINGS
24	KIMA	DA-N	YAKIMA
25	KDON	DA-1	SALINAS
26	KENO	DA-N	LAS VEGAS

COMMENTS:

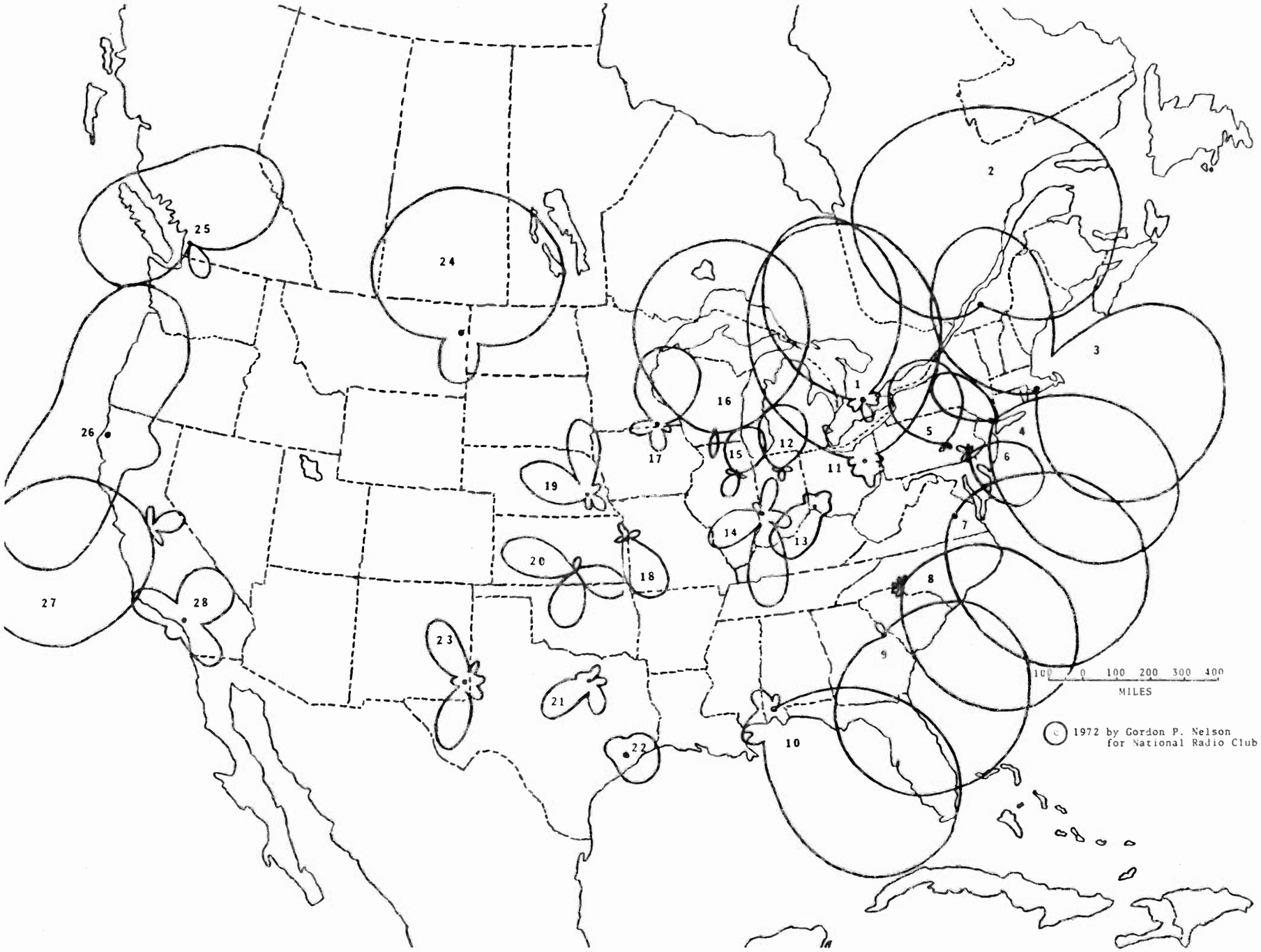
1470 KHZ

REGIONAL



	call	class	location
1	CFOX	DA-2	POINTE CLAIRE
2	WLAM	DA-1	LEWISTOWN
3	WTKO	DA-N	ITHACA
	(pattern not available)		
4	WSAN	DA-N	ALLENTOWN
5	WBIG	DA-N	GREENSBORO
6	WRGA	DA-N	ROME
7	KLCL	DA-N	LAKE CHARLES
8	WNAU	DA-N	NEW ALBANY
9	WVOL	DA-2	BERRY HILL
10	WFAR	DA-N	FARRELL
11	CHOW	DA-2	WELLAND
12	WFMF	DA-2	FLINT
13	WOHO	DA-2	TOLEDO
14	WMBD	DA-2	PEORIA
15	CFRW	DA-1	WINNIPEG
16	KTRI	DA-2	SIOUX CITY
17	KARE	DA-1	ATCHISON
18	KRBC	DA-N	ABILENE
19	KWIV	ND	DOUGLAS
	(presently daytime on 1050)		
20	KSEM	DA-2	MOSES LAKE
21	KELA	ND	CENTRALIA-CHEHALIS
22	KNDE	DA-2	SACRAMENTO

COMMENTS:



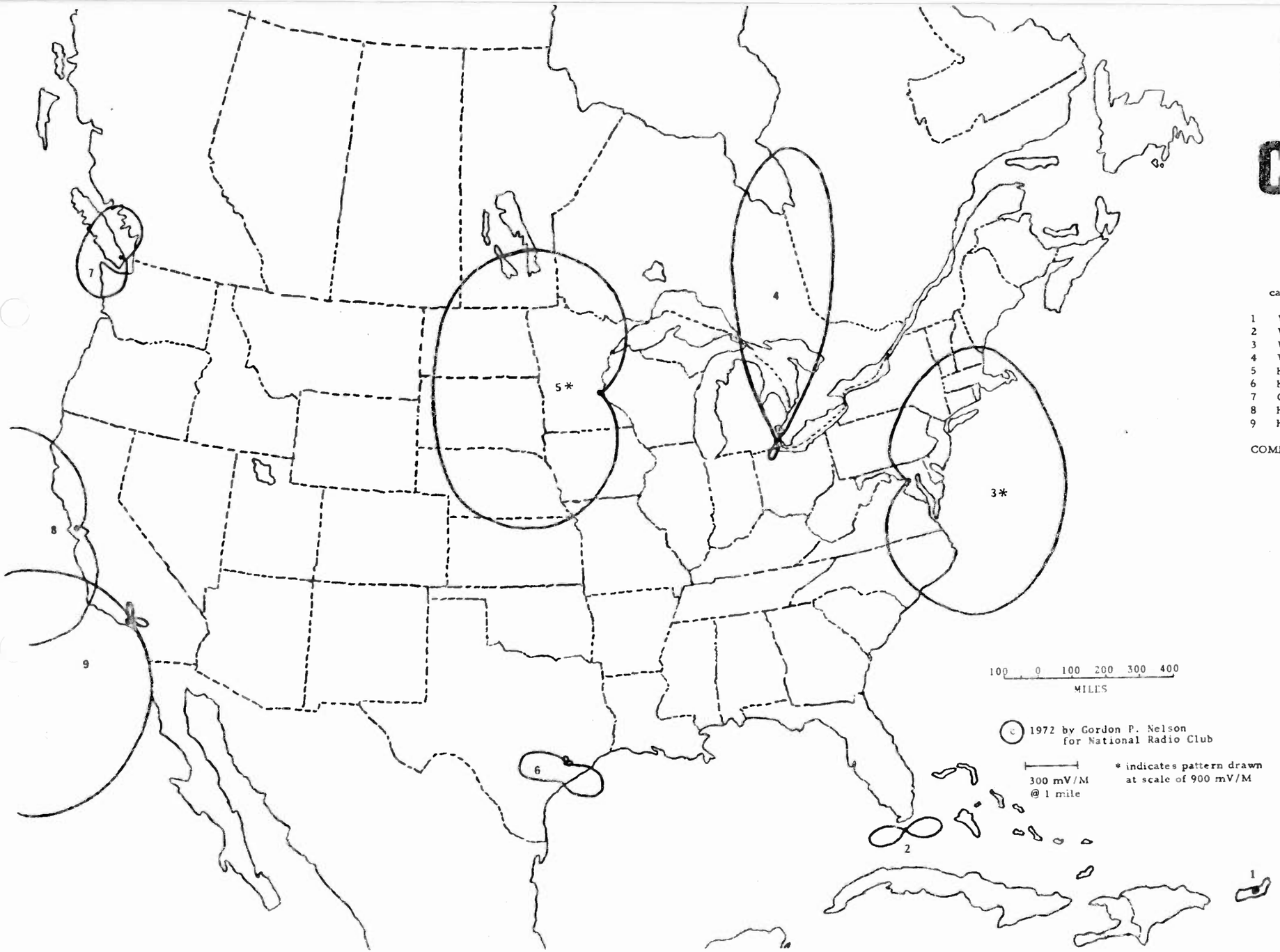
1480
1490
REGIONAL

	call	class	location
1	CHYM	DA-2	KITCHENER
2	CHRD	DA-2	DRUMMONDVILLE
3	WSAR	DA-2	FALL RIVER
4	WHOM	DA-2	NEW YORK
5	WISL	DA-N	SHAMOKIN
6	WDAS	DA-2	PHILADELPHIA
7	WLEE	DA-2	RICHMOND
	(same facilities for WBBL)		
8	WWOK	DA-2	CHARLOTTE
9	WRDW	DA-N	AUGUSTA
10	WABB	DA-N	MOBILE
11	WHBC	DA-N	CANTON
12	WRSW	DA-2	WARSAW
13	WCIN	DA-2	CINCINNATTI
14	WTHI	DA-2	TERRE HAUTE
15	WGSB	DA-2	GENEVA
16	WISM	DA-2	MADISON
17	KAUS	DA-2	AUSTIN
18	KBEA	DA-2	MISSION
19	KLMS	DA-2	LINCOLN
20	KLEO	DA-2	WICHITA
21	KBOX	DA-2	DALLAS
22	KLVL	DA-N	PASADENA
23	KWEW	DA-N	HOBBS
24	KGCX	DA-1	SIDNEY
25	*CP*	DA-1	NEW WESTMINSTER
26	KRED	DA-N	EUREKA
27	KYOS	DA-N	MERCED
28	KWIZ	DA-2	SANTA ANA
29	WMDD	ND	FAJARDO

COMMENTS:

1500 KHZ

CLEAR

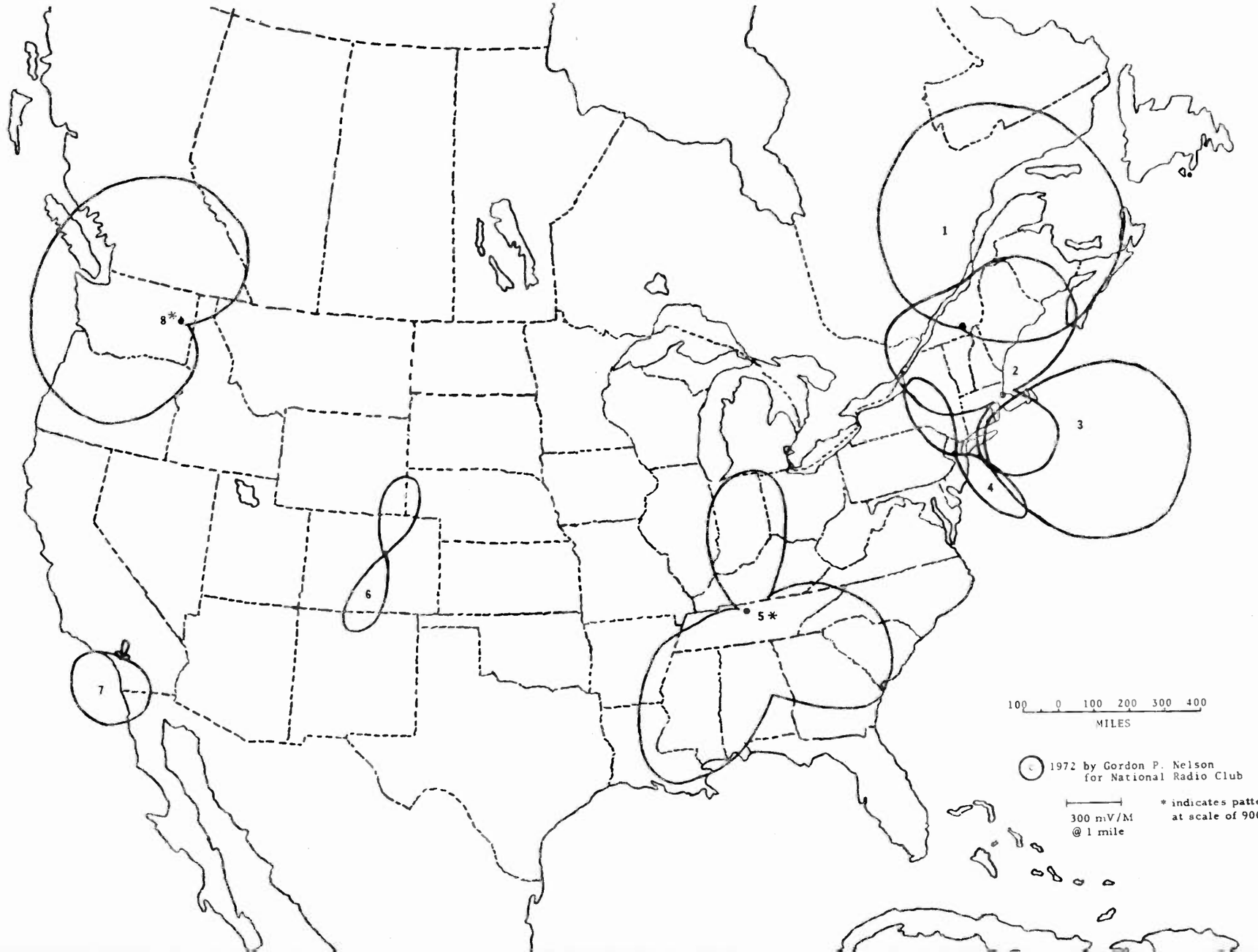


	call	class	location
1	WMNT	ND	MANATI
2	WKIZ	DA-1	KEY WEST
3	WTOP	DA-2	WASHINGTON
4	WDEE	DA-2	DETROIT
5	KSTP	DA-N	ST. PAUL
6	KANI	DA-1	WHARTON
7	CKAY	DA-1	DUNCAN
8	KXRX	DA-2	SAN JOSE
9	KBBQ	DA-2	BURBANK

COMMENTS:

1510 KHZ

CLEAR



	call	class	location
1	CJRS	DA-2	SHERBROOKE
2	WMEX	DA-2	BOSTON
3	WNLC	DA-2	NEW LONDON
4	WRAN	DA-2	DOVER
5	WLAC	DA-N	NASHVILLE
6	KDKO	DA-2	LITTLETON
7	KSOM	DA-2	ONTARIO
8	KGA	DA-N	SPOKANE

COMMENTS:

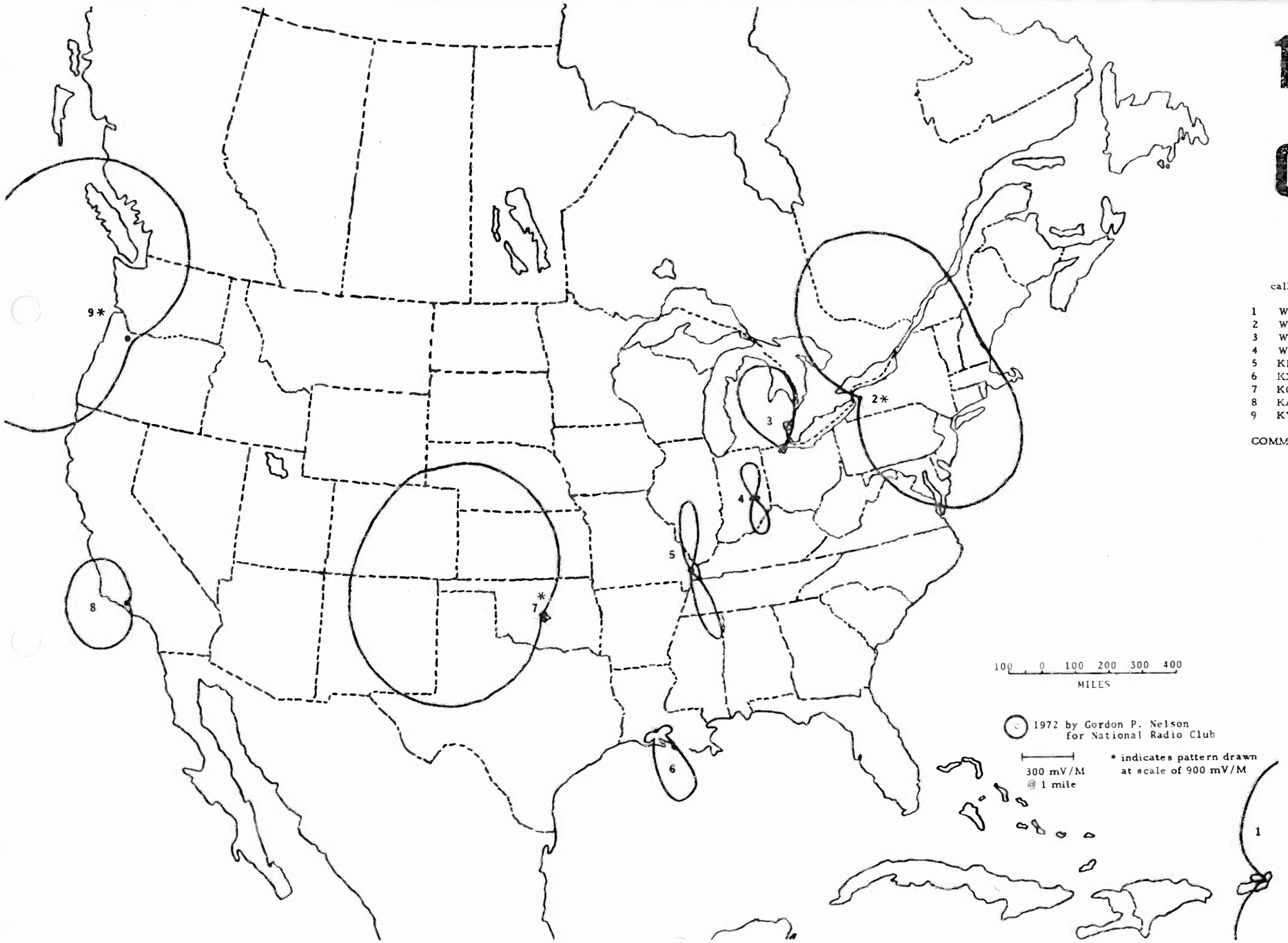
100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M

1520 KHZ

CLEAR

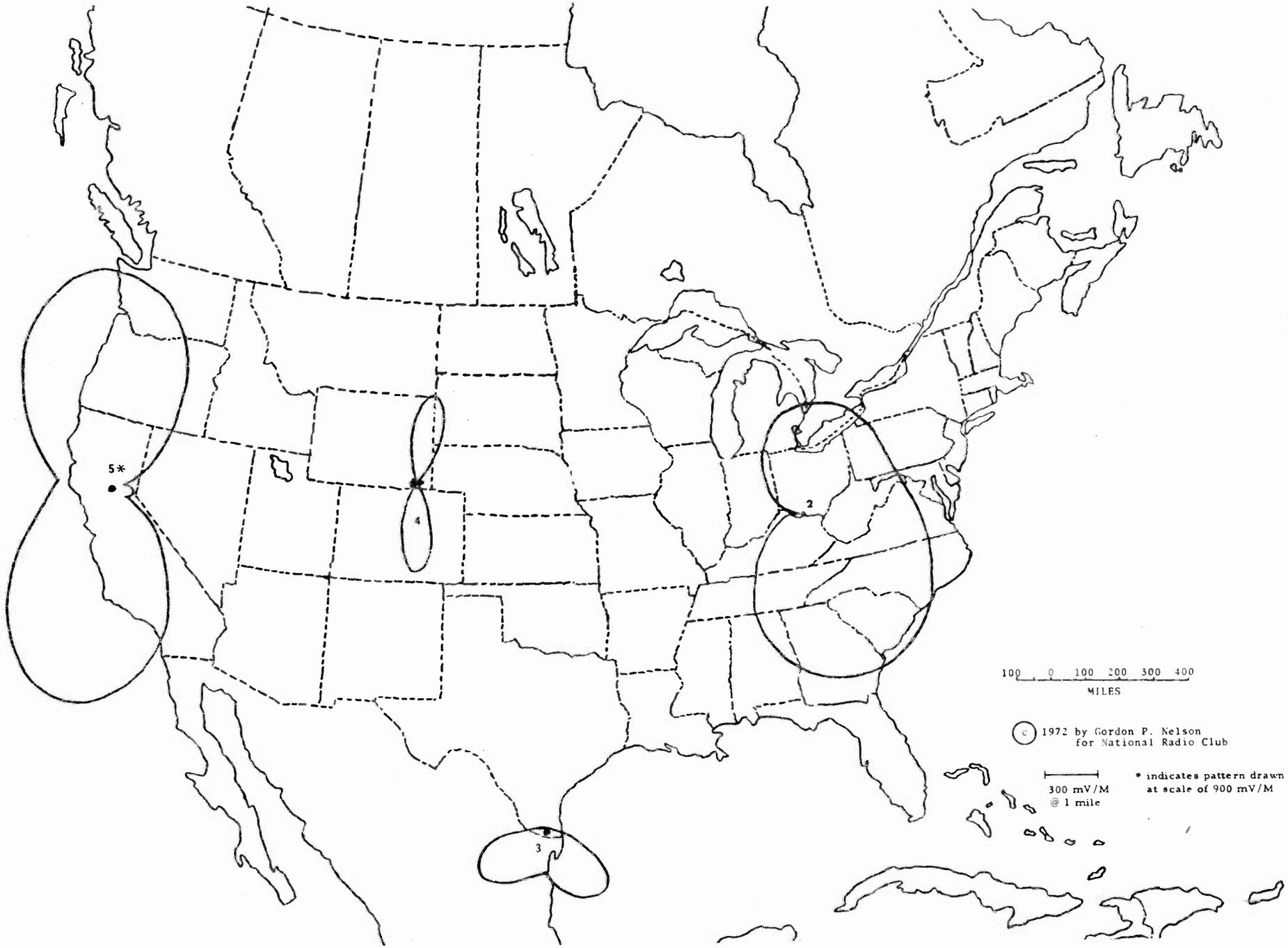


	call	class	location
1	WRAI	DA-1	SAN JUAN
2	WKBW	DA-1	BUFFALO
3	WTTO	DA-2	TOLEDO
4	WSVL	DA-2	SHELBYVILLE
5	KMPL	DA-2	SIKESTON
6	KXKW	DA-N	LAFAYETTE
7	KOMA	DA-N	OKLAHOMA CITY
8	KACY	DA-2	PORT HUENEME
9	KYXI	DA-2	OREGON CITY

COMMENTS:

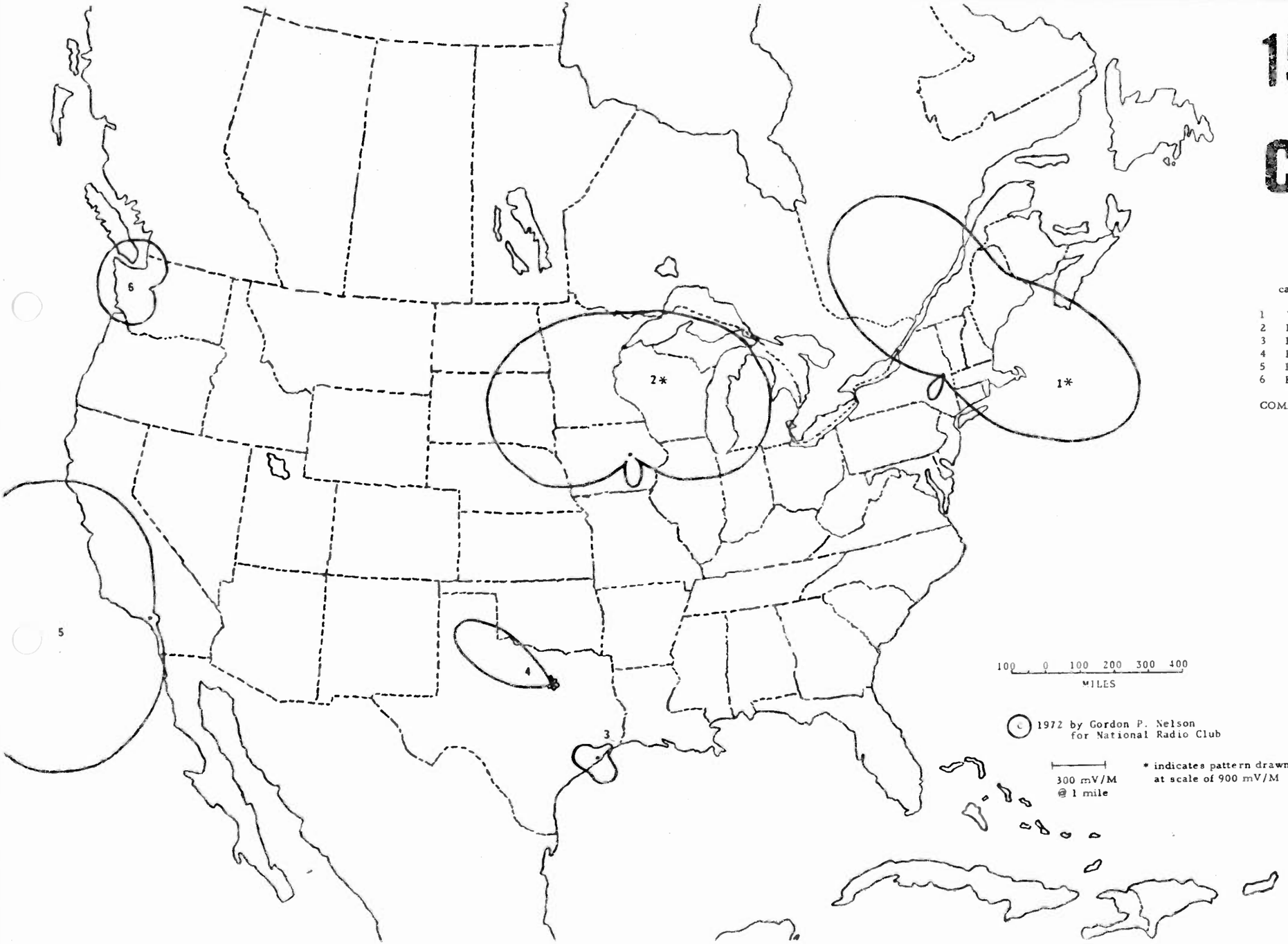
1530 KHZ

CLEAR



	call	class	location
1	WUPR	ND	UTUADO
2	WCKY	DA-N	CINCINNATTI
	(DA after sunset at SACRAMENTO)		
3	KGBT	DA-N	HARLINGEN
4	KCGO	DA-2	CHEYENNE
	(presently daytime on 1590)		
5	KFBK	DA-1	SACRAMENTO

COMMENTS:



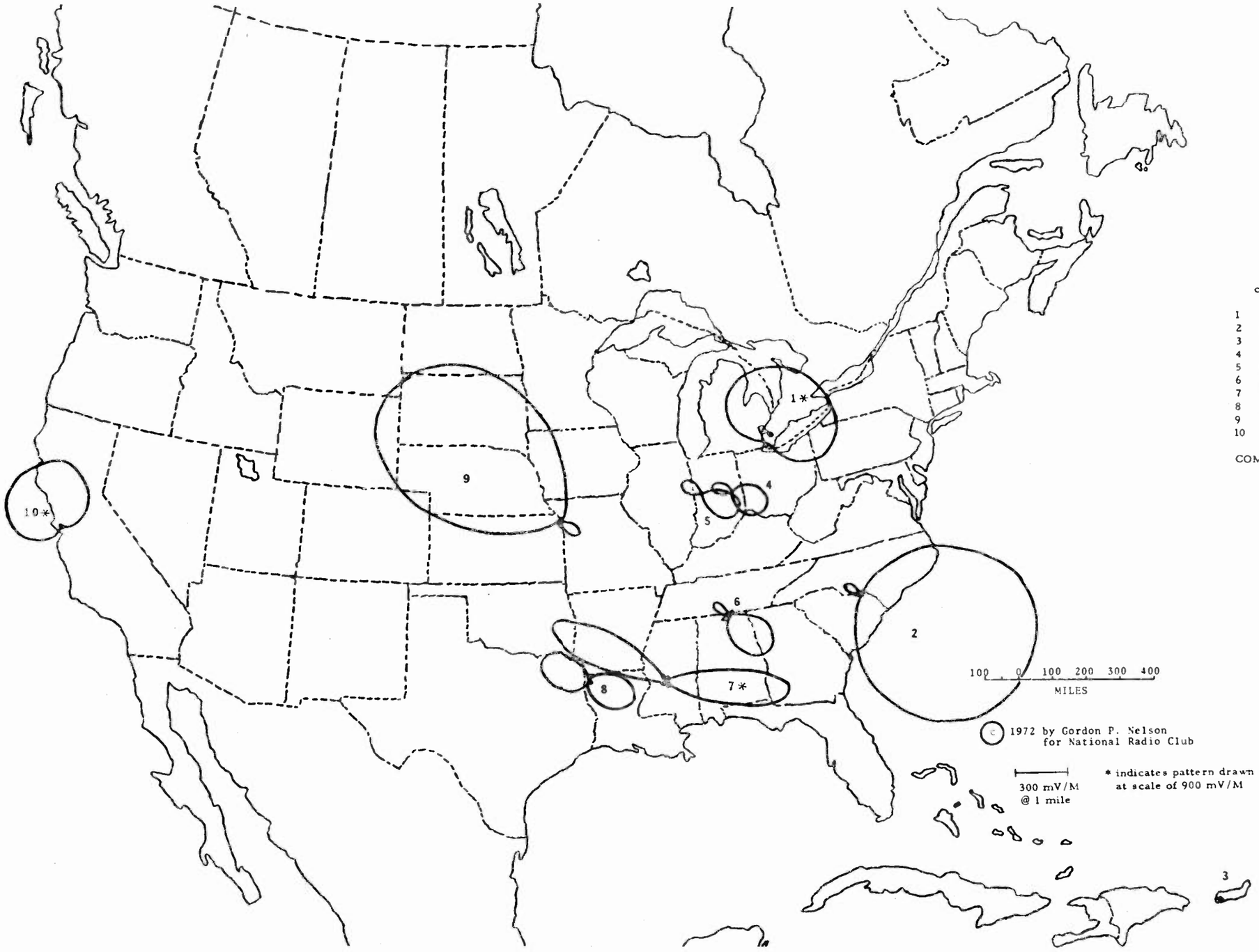
1540 KHZ

CLEAR

	call	class	location
1	WPTR	DA-1	ALBANY
2	KXEL	DA-N	WATERLOO
3	KGBC	DA-N	GALVESTON
4	KBUY	DA-2	FT. WORTH
5	KPOL	DA-2	LOS ANGELES
6	KFKF	DA-1	BELLEVUE

COMMENTS:

1550 KHZ
CLEAR

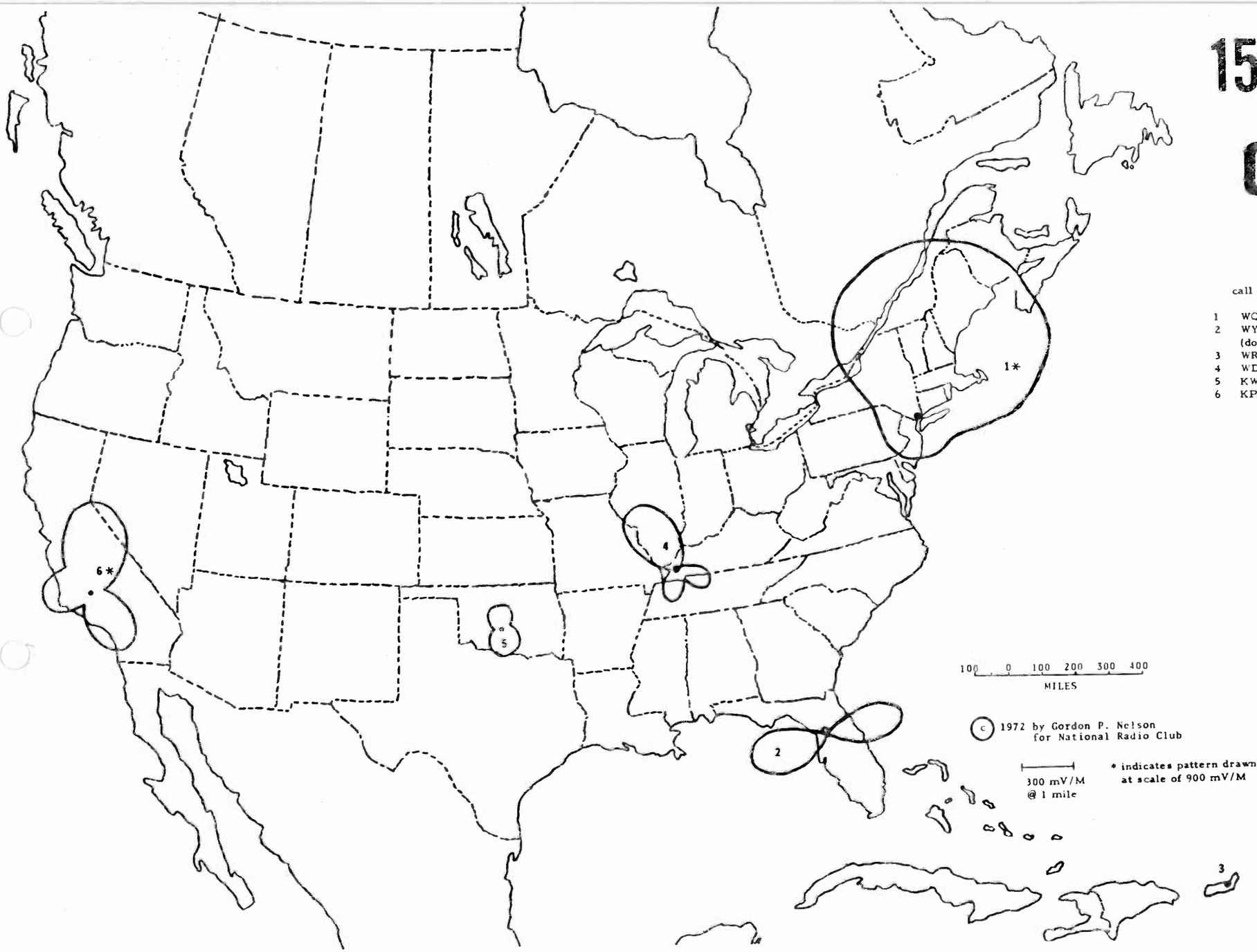


	call	class	location
1	CBE	DA-1	WINDSOR
2	WBSC	DA-N	BENNETTSVILLE
3	WKFE	ND	YAUCO
4	WCTW	DA-2	NEW CASTLE
5	WCVL	DA-N	CRAWFORDSVILLE
6	WAAY	DA-N	HUNTSVILLE
7	WOKJ	DA-2	JACKSON
8	KOKA	DA-N	SHREVEPORT
9	KKJO	DA-N	ST. JOSEPH
10	KKHI	DA-2	SAN FRANCISCO

COMMENTS:

1560 KHZ

CLEAR



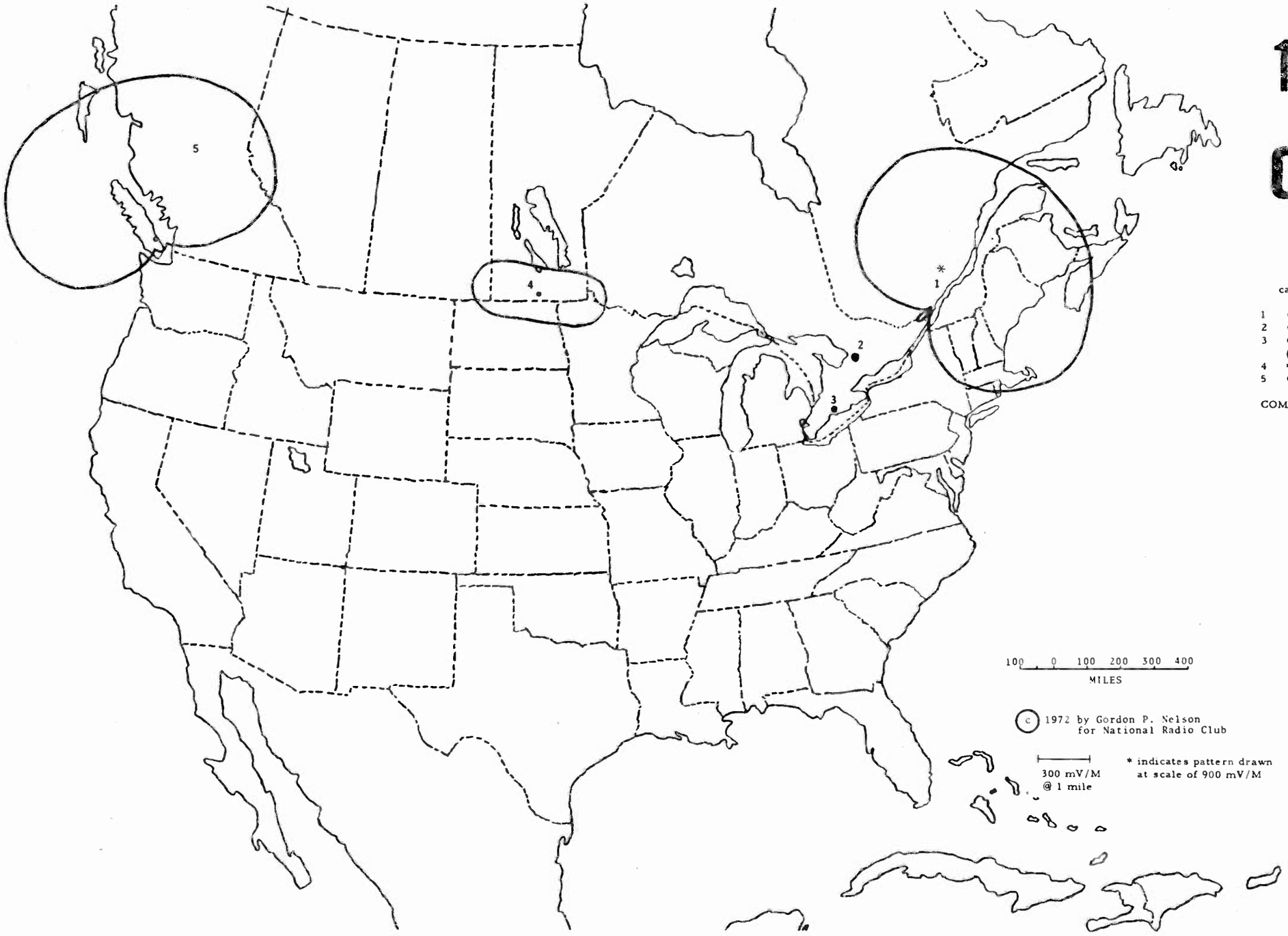
	call	class	location
1	WQXR	DA-2	NEW YORK
2	WYSE	DA-N	INVERNESS
	(does not operate nights)		
3	WRSJ	ND	BAYAMON
4	WDXR	DA-2	PADUCAH
5	KWCO	DA-N	CHICKASHA
6	KPMC	DA-1	BAKERSFIELD

100 0 100 200 300 400
MILES

300 mV/M
@ 1 mile

* indicates pattern drawn
at scale of 900 mV/M

1570 KHZ
CLEAR



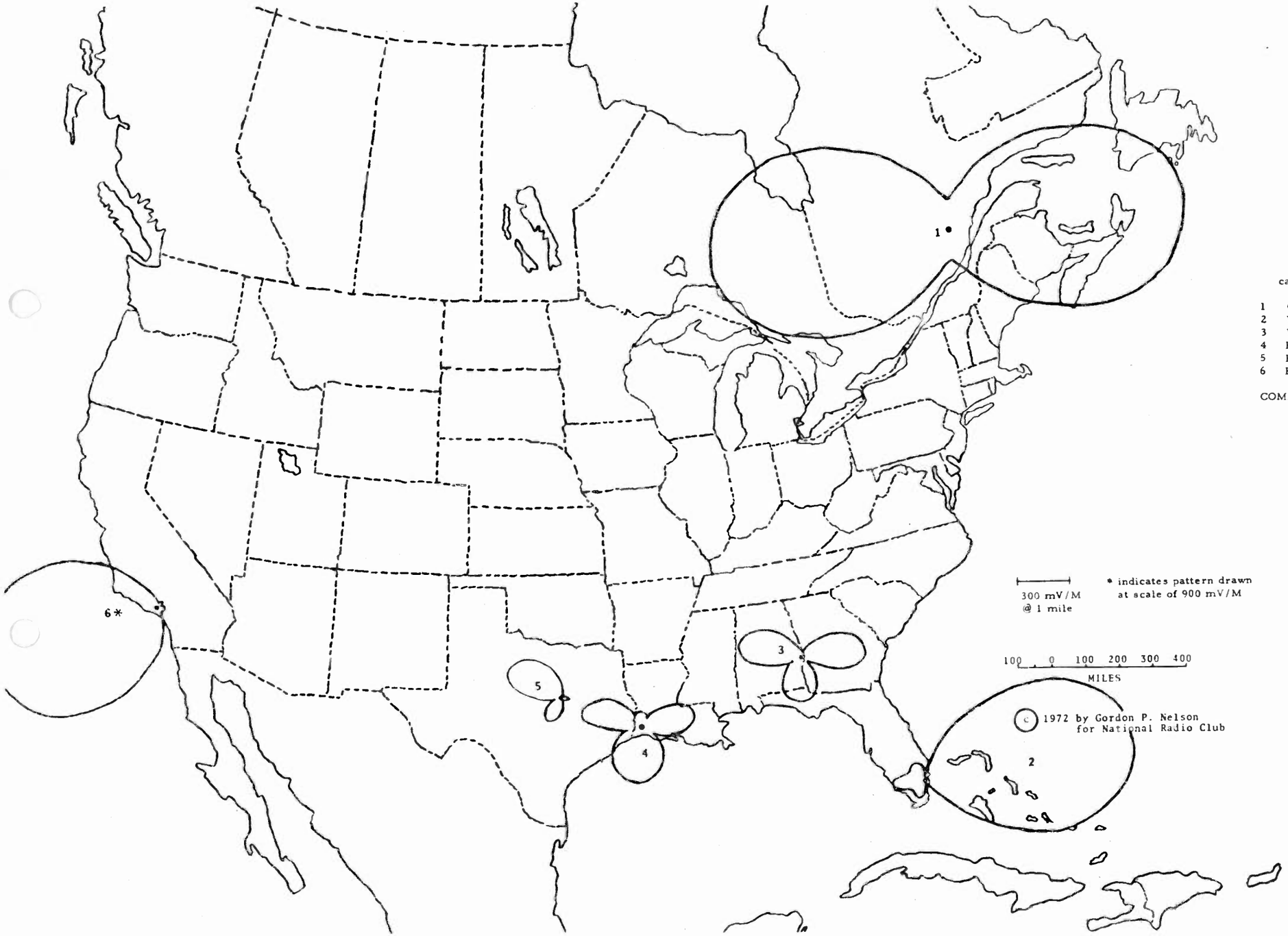
	call	class	location
1	CKLM	DA-2	MONTREAL
2	CFOR	ND	ORILLA
3	CHLO	DA-2	ST. THOMAS
	(pattern not available)		
4	*CP*	DA-1	THORNHILL
5	CHUB	DA-2	NANAIMO

COMMENTS:

* indicates pattern drawn at scale of 900 mV/M

1580 KHZ

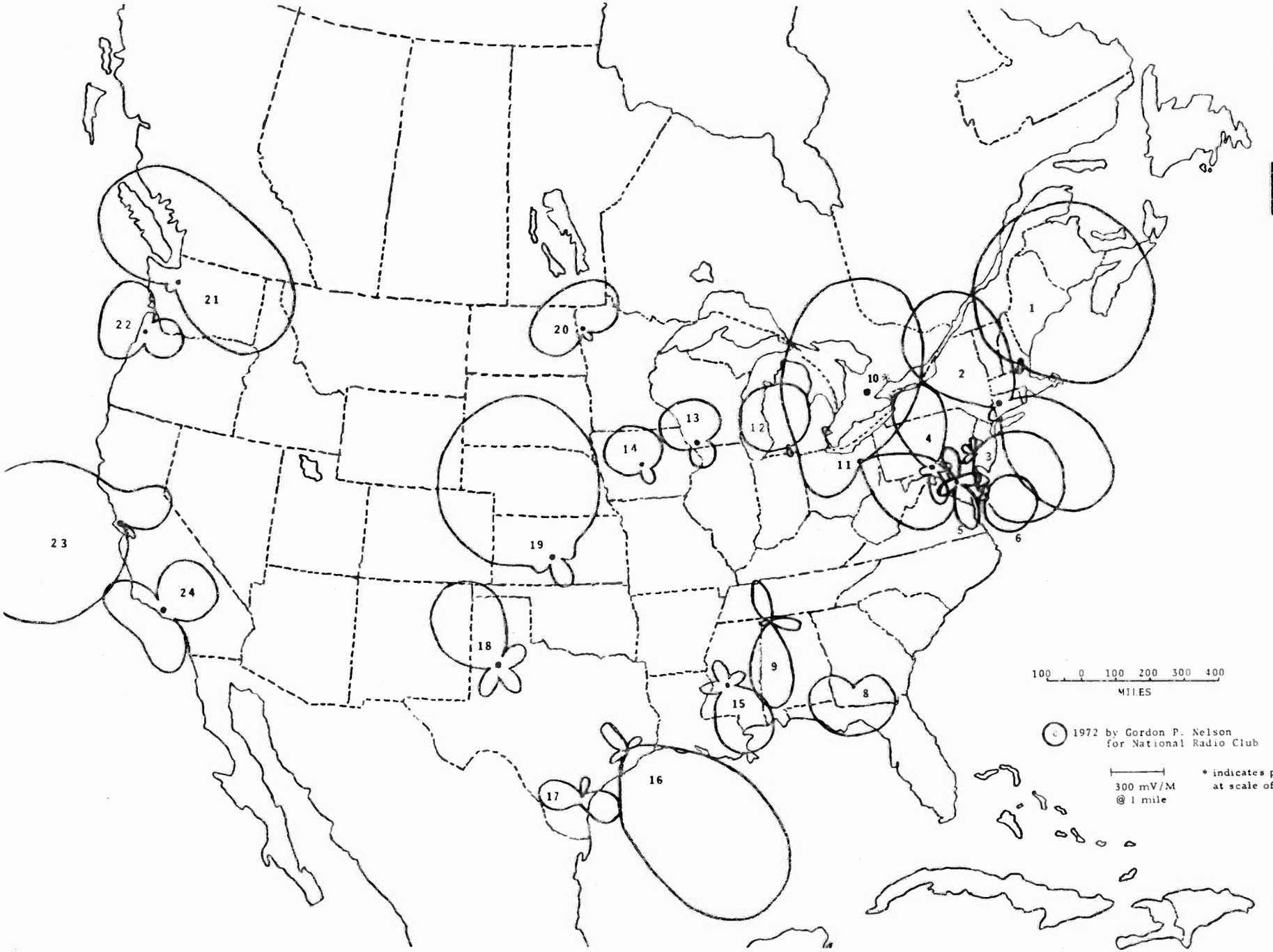
CLEAR



	call	class	location
1	CBJ	DA-1	CHICOUTIMI
2	WSRF	DA-2	FT. LAUDERDALE
3	WCLS	DA-N	COLUMBUS
4	KLOU	DA-N	LAKE CHARLES
5	KBGO	DA-2	WACO
6	KDAY	DA-2	SANTA MONICA

COMMENTS:

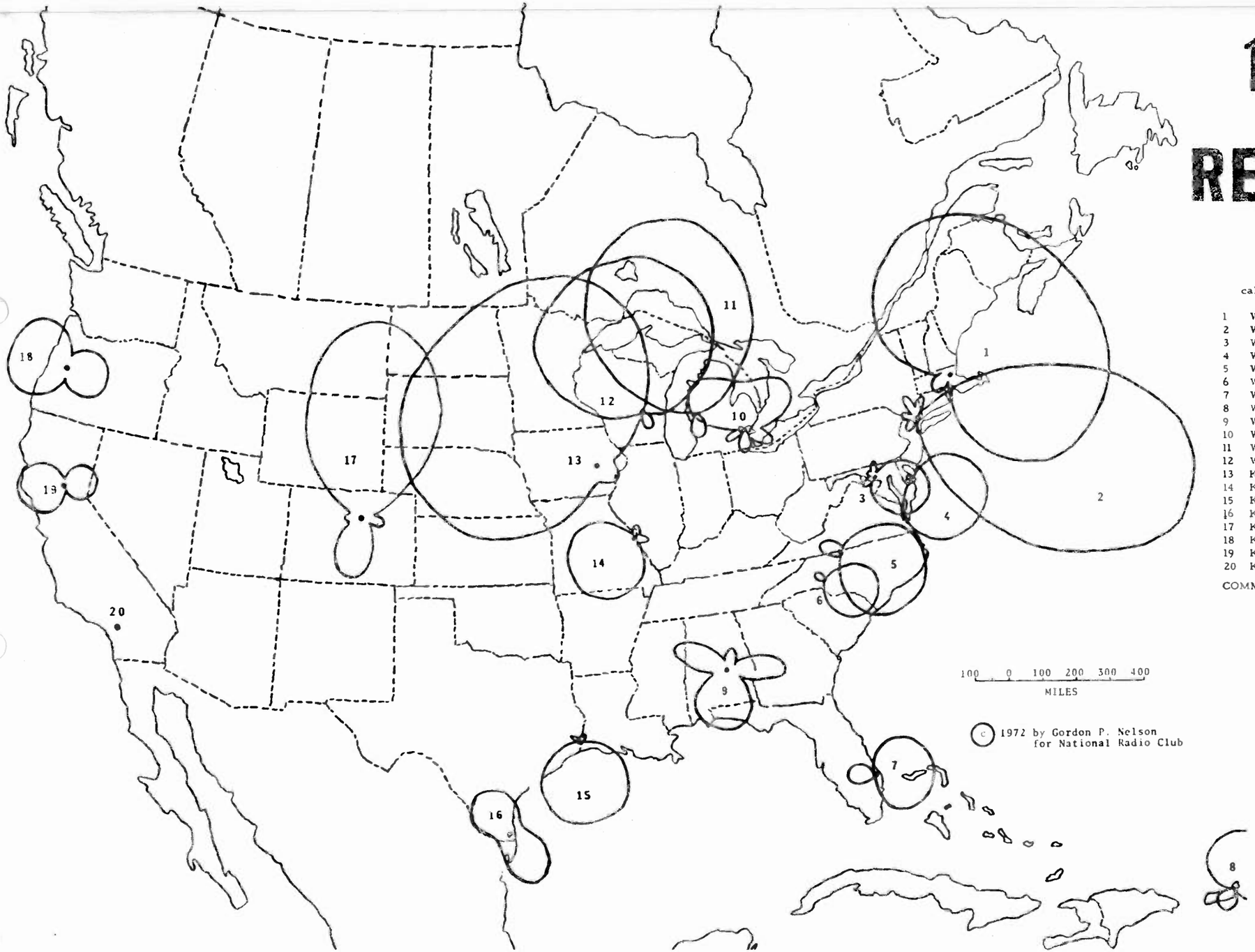
1590 KHZ REGIONAL



	call	class	location
1	WSMN	DA-1	NASHUA
2	WTBY	DA-1	WATERBURY
3	WEEZ	DA-N	CHESTER
4	WCBG	DA-N	CHAMBERSBURG
5	WISZ	DA-2	GLEN BURNIE
6	WETT	DA-2	OCEAN CITY
7	WXRF	ND	GUAYAMA
8	WALG	DA-2	ALBANY
9	WVNA	DA-N	TUSCUMBIA
10	*CP*	DA-1	GUELPH
11	WAKR	DA-N	AKRON
12	WTVB	DA-N	COLDWATER
13	WSWW	DA-N	PLATTEVILLE
14	KWBG	DA-N	BOONE
15	WWUN	DA-N	JACKSON
16	KYOK	DA-N	HOUSTON
17	KTOD	DA-2	SINTON
18	KCBD	DA-2	LUBBOCK
19	KVGB	DA-N	GREAT BEND
20	KRAD	DA-N	E. GRAND FORK
21	KETO	DA-N	SEATTLE
22	KTIL	DA-N	TILLAMOOK
23	KLIV	DA-N	SAN JOSE
24	KUDU	DA-1	VENTURA-OXNARD

COMMENTS:

1600 KHZ REGIONAL



	call	class	location
1	WUNR	DA-1	BROOKLINE
2	WWRL	DA-2	NEW YORK
3	WINX	DA-N	ROCKVILLE
4	WKEN	DA-N	DOVER
5	WFRC	DA-N	REIDSVILLE
6	WGIV	DA-N	CHARLOTTE
7	WXVI	DA-N	RIVERA BEACH
8	WLUZ	DA-1	BAYAMON
9	WAPX	DA-N	MONTGOMERY
10	WAAM	DA-2	ANN ARBOR
11	WTRU	DA-N	MUSKEGON
12	WRIP	DA-2	RIPON
13	KCRG	DA-N	CEDAR RAPIDS
14	KATZ	DA-N	ST. LOUIS
15	KOGT	DA-N	ORANGE
16	KBOR	DA-2	BROWNSVILLE
17	KLAK	DA-N	LAKEWOOD
18	KASH	DA-N	EUGENE
19	KUBA	DA-N	YUBA CITY
20	KWOW	ND	POMONA

COMMENTS: