Federal Communications Commission
Washington, D. C. 20554

Approved by OMB
3060-0627
Expires 01/31/98

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.)

FOR COMMISSION USE ONLY

FILE NO.

SECTION I - APPLICANT FEE INFORMATION

1. PAYOR NAME (Last, First, Middle Initial)

LOUGHERY, CHARLES W

MAILING ADDRESS (Line 1) (Maximum 35 characters)

PO BOX 17

MAILING ADDRESS (Line 2) (Maximum 35 characters)

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
HARLEYSVILLE	PA	19438

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
215-721-2141	WNPV	

2. A. Is a fee submitted with this application? ☐ Yes ☑ No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

☐ Governmental Entity ☑ Noncommercial educational licensee ☐ Other (Please explain):

C. If Yes, provide the following information:

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in the "Mass Media Services Fee Filing Guide." Column (B) lists the Fee Multiple applicable for this application. Enter fee amount due in Column (C).

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
	0001	$	

To be used only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

(A)	(B)	(C)	FOR FCC USE ONLY
	0001	$	

ADD ALL AMOUNTS SHOWN IN COLUMN C,
AND ENTER THE TOTAL HERE.
THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.

TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
$ 0	

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SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT Four Rivers Community Broadcasting Corporation		
MAILING ADDRESS PO Box 17		
CITY Harleysville	STATE PA	ZIP CODE 19438

2. This application is for:

☐ Commercial ☑ Noncommercial

☐ AM Directional ☑ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
WNPV	LANSDALE	BP-20210707AAB	N/A	NOVEMBER 23, 2024

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620?

☑ Yes ☐ No

If No, explain in an Exhibit.

Exhibit No. N/A

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met?

☑ Yes ☐ No

If No, state exceptions in an Exhibit.

Exhibit No. ONE

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect?

☐ Yes ☑ No

If Yes, explain in an Exhibit.

Exhibit No. N/A

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)?

☐ Yes ☐ No ☑ Does not apply

If No, explain in an Exhibit.

Exhibit No. N/A

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination?

☐ Yes ☑ No

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter.

Exhibit No. N/A

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8. Does the applicant, or any party to the application, have a petition on file to migrate to the expanded band (1605-1705 kHz) or a permit or license either in the existing band or expanded band that is held in combination (pursuant to the 5 year holding period allowed) with the AM facility proposed to be modified herein?

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No. N/A

The APPLICANT hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because use of the same, whether by license or otherwise, and requests and authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended).

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in

CERTIFICATION

1. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b).

☑ Yes ☐ No

2. I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Name	Signature	
Charles W. Loughery	Charles W. Loughery	
Title	Date	Telephone Number
President	2/28/2022	215-721-2141

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

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SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

Four Rivers Community Broadcasting Corporation

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☑ Station License ☐ Direct Measurement of Power

1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
WNPV	BP-20210707AAB	1440	24	0.023	0.25

2. Station location

State	City or Town
PA	LANSDALE

3. Transmitter location

State	County	City or Town	Street address (or other identification)
PA	MONTGOMERY	LANSDALE (TOWAMENCIN TWP)	1210 SNYDER ROAD

4. Main studio location

State	County	City or Town	Street address (or other identification)
PA	MONTGOMERY	LANSDALE (TOWAMENCIN TWP)	1340 S Valley Forge Rd

5. Remote control point location (specify only if authorized directional antenna)

State	County	City or Town	Street address (or other identification)

6. Has type-approved stereo generating equipment been installed? ☐ Yes ☑ No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68? ☐ Yes ☐ No ☑ Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. N/A

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
0.66 AMPS	2.17 AMPS

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
53 OHMS	53 OHMS	J+28	J+28

Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
N/A - OMNIDIRECTIONAL						

Manufacturer and type of antenna monitor: N/A - OMNIDIRECTIONAL

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9. Description of antenna system ((f directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary.)

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
GUYED TOWER	52	53	53	Exhibit No. N/A

Excitation ☑ Series ☐ Shunt

Geographic coordinates to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

North Latitude	40	o	14	'	18	"	West Longitude	75	o	18	'	57	"

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits. Exhibit No. See Eng. Report

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. Exhibit No. N/A

10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

NO DIFFERENCE - CONSTRUCTED AS DESCRIBED IN CP APPLICATION

11. Give reasons for the change in antenna or common point resistance.

N/A

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name (Please Print or Type)	Signature (check appropriate box below)
Charles A. Hecht	Charles A. Hecht
Address (include ZIP Code) Charles A. Hecht & Associates, Inc. 19 Mackenzie Court Freehold, NJ 07728	Date 2/28/2022 Telephone No. (Include Area Code) 732 577-0711

☐ Technical Director ☐ Registered Professional Engineer

☐ Chief Operator ☑ Technical Consultant

☐ Other (specify)

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ENGINEERING REPORT COVERING

APPLICATION FOR LICENSE

ON BEHALF OF FOUR RIVERS COMMUNITY BROADCASTING CORPORATION

FOR STATION WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

FEBRUARY 2022

ENGINEERING REPORT COVERING

APPLICATION FOR LICENSE

ON BEHALF OF FOUR RIVERS COMMUNITY BROADCASTING CORPORATION

FOR STATION WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

STATEMENT

This engineering statement is submitted on behalf of Four Rivers Community Broadcasting Corporation (hereinafter referred to as "Four Rivers"), licensee of AM station WNPV Lansdale, Pennsylvania, in support of an application for license to cover construction authorized in permit BP-20210707AAB. WNPV is licensed to operate with a dual pattern directional antenna on 1440 kilohertz with power of 2500 watts daytime and 500 watts nighttime. The changes authorized in the permit are as follows: change operation to fulltime non-directional antenna with power of 250 watts day and 23 watts night from the licensed WNPV site.

This report will demonstrate that Four Rivers has constructed WNPV in accordance with the construction permit. The Engineering section of Form 302-AM has been completed and executed and is submitted with this report.

SPECIAL OPERATING CONDITION 5

Special operating condition 5 of the WNPV construction permit requires Four Rivers shall submit a complete non-directional proof of performance to establish that the antenna efficiency is essentially non-directional. The proof shall include at least six approximately equally-spaced radials with sufficient close-in points such that the inverse distance field can be clearly established. (See 47 CFR Section 73.186).

NON-DIRECTIONAL PROOF OF PERFORMANCE

Field strength measurements were made on six cardinal radials during the daytime hours. The radials were particularly selected to define the shape of the radiation pattern and meet the requirements of the construction permit. All measurements were made at intervals conforming as closely to the recommendations of the FCC rules as physical conditions permitted. The measurements were conducted with power of 250 watts using Tower 4 of the WNPV array. For the purpose of determination of power, the base impedance of the tower was measured with a Rig Expert AA-230ZOOM Antenna Analyzer and found to be a resistance of 53 ohms and a reactance of +28 ohms. Based on this value, base current was maintained at 2.17 amps.

Detailed field strength measurement information is tabulated by radial in Tables 1-6. Figures 1-6 are graphs of the measured field strength data. A reference graph for the field strength measurement analysis curves used in this report is provided as Figure 7. A tabulation of measured radial field data is shown below.

SUMMARY OF MEASURED RADIAL FIELD STRENGTH DATA

RADIAL °T	FIELD MV/M
0	154
60	162
120	158
180	151
240	145
300	154

The field strength measurements were performed by Charles W. Loughery, who has over 35 years of experience in the taking of field intensity measurements for Commission filings. Mr. Loughery's affidavit for the measurement work is provided at the rear of this report. The field strength meter utilized for the measurements was an RCA WX2D. This meter was compared to a field strength meter of recent calibration and found to be in substantial agreement on all pertinent operating scales.

FIELD STRENGTH DATA ANALYSIS

Field strength measurements were analyzed in accordance with the best fit method outlined in Section 73.186 of the rules. To aid in data analysis where measurements could not be taken at intervals specified by the rules due to inaccessibility, additional measurements were taken at intervals closer than normally required where possible. The analysis of the measurement data indicates the measured efficiency of the antenna is 154.1 mV/m which is within 1% of the theoretical value of 152.9 mV/m. The anlaysis demonstrates the antenna efficiency is excellent and essentially non-directional. Figure 8 is a plot of the measured non-directional radiation pattern.

OTHER ANTENNAS MOUNTED ON AM TOWER

Three FM translator stations are co-located on the WNPV tower. Two of the stations are W246CN and W253CA which are combined into a two-bay FM antenna mounted on the WNPV tower using a Kintronic Labs FMC-1.5 Isocoupler. The third FM Translator station is W285EW which uses a single bay FM antenna mounted on the WNPV tower using a Kintronic Labs ISO-130-FM-N Isolation coil.

Both pre-existing FM Translator antenna systems were in place and operating when the AM antenna resistance and reactance were measured.

CONCLUSION

The technical information and proof of performance submitted demonstrates the terms of the WNPV construction permit have been met. Therefore, Four Rivers respectfully requests a license for the facilities authorized in the construction permit be granted.

DECLARATION

The foregoing was prepared by or under the immediate supervision of Charles A. Hecht of Charles A. Hecht & Associates, Inc., Freehold, New Jersey, whose qualifications are a matter of record with the Federal Communications Commission. All statements herein are true and correct of his knowledge except such statements made on information and belief, and as to those statements, he believes them to be true and correct under the penalty of perjury.

Respectfully submitted,

Charles A. Hecht

Charles A. Hecht
Charles A. Hecht & Associates, Inc.
19 Mackenzie Court
Freehold, New Jersey 07728
(732) 577-0711
February 28, 2022

DECLARATION

Charles W. Loughery declares and says:

That he has been involved in radio broadcast engineering since 1974.

That he has previously performed AM radio field strength measurements.

That he performed the field strength measurements contained in the attached Proof of Performance Report.

That all measurements performed by him are accurate to the best of his knowledge and belief.

Dated: Jan 13, 2022

Charles W. Loughery
1186 Sumneytown Pike
Harleysville, PA 19438

TABLE 1

FIELD STRENGTH MEASUREMENTS

0.25 KW DAYTIME NON-DIRECTIONAL

WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

FEBRUARY 2022

0 DEGREES TRUE RADIAL

Point Number	Distance km	Date/Time (local)	Field mV/m
		12/29/2021	
1	0.27	1310	585
		1/5/2022	
2	0.70	1423	215
3	1.00	1426	97.0
4	1.20	1429	93.0
5	1.60	1433	62.0
6	2.10	1438	57.0
7	2.50	1442	47.0
8	3.10	1447	38.0
		1/13/2022	
9	4.25	1155	29.0
10	5.65	1149	13.0
11	8.68	1130	11.0
12	9.95	1123	7.20
13	11.80	1118	3.70
14	13.72	1109	2.35
15	15.45	1103	2.80
16	16.05	1100	2.10

TABLE 2

FIELD STRENGTH MEASUREMENTS

0.25 KW DAYTIME NON-DIRECTIONAL

WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

FEBRUARY 2022

60 DEGREES TRUE RADIAL

Point Number	Distance km	Date/Time (local)	Field mV/m
		12/19/2021	
1	0.30	1306	705
		1/5/2022	
2	0.58	1525	280
3	0.75	1521	175
4	1.10	1518	135
5	1.47	1514	101
6	1.85	1509	76.0
7	2.15	1505	38.0
8	2.50	1501	29.0
9	3.05	1458	46.0
		1/13/2022	
10	3.20	1211	41.0
11	4.50	1219	22.5
12	5.68	1224	15.0
13	7.48	1232	10.5
14	8.72	1244	9.00
15	10.20	1252	4.80
16	12.20	1257	4.90
17	13.90	1315	3.35
18	15.90	1323	2.20
19	16.12	1325	2.10

TABLE 3

FIELD STRENGTH MEASUREMENTS

0.25 KW DAYTIME NON-DIRECTIONAL

WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

FEBRUARY 2022

120 DEGREES TRUE RADIAL

Point Number	Distance km	Date/Time (local)	Field mV/m
		12/19/2021	
1	0.27	1238	601
2	0.71	1302	225
		1/6/2022	
3	0.93	1414	145
4	1.21	1418	120
5	1.70	1423	70.0
6	2.40	1427	46.5
7	2.93	1433	34.0
8	3.20	1440	30.0
9	4.65	1444	23.0
10	6.10	1452	12.0
11	7.60	1458	7.90
12	8.92	1509	4.70
		1/13/2022	
13	10.10	1420	3.70
14	11.90	1414	2.80
15	12.90	1427	2.40
16	14.50	1403	1.60
17	16.10	1355	2.50

TABLE 4

FIELD STRENGTH MEASUREMENTS

0.25 KW DAYTIME NON-DIRECTIONAL

WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

FEBRUARY 2022

180 DEGREES TRUE RADIAL

Point Number	Distance km	Date/Time (local)	Field mV/m
		12/29/2021	
1	0.25	1227	620
2	0.50	1232	251
3	0.72	1245	155
4	0.97	1258	141
		1/6/2022	
5	1.38	1342	102
6	1.70	1339	80.0
7	2.15	1336	46.0
8	2.75	1333	46.0
9	3.10	1330	44.0
10	4.45	1323	17.0
11	5.75	1318	11.0
12	8.37	1311	5.20
13	9.81	1306	5.00
14	11.58	1254	3.40
15	13.32	1245	2.75
16	15.10	1236	1.60
17	16.00	1231	1.30

TABLE 5

FIELD STRENGTH MEASUREMENTS

0.25 KW DAYTIME NON-DIRECTIONAL

WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

FEBRUARY 2022

240 DEGREES TRUE RADIAL

Point Number	Distance km	Date/Time (local)	Field mV/m
		12/29/2021	
1	0.26	1249	465
2	0.38	1253	297
3	0.58	1315	227
		1/5/2022	
4	0.73	1348	151
5	1.21	1351	81.0
6	2.00	1354	64.0
7	2.28	1359	49.0
8	2.75	1403	39.0
9	3.15	1407	38.0
		1/6/2022	
10	4.72	1048	13.5
11	6.10	1054	10.0
12	7.23	1057	9.20
13	8.60	1110	6.40
14	9.75	1119	5.40
15	10.50	1125	3.50
16	12.35	1133	3.30
17	14.42	1140	1.70
18	15.45	1147	2.10
19	16.00	1156	2.00

TABLE 6

FIELD STRENGTH MEASUREMENTS

0.25 KW DAYTIME NON-DIRECTIONAL

WNPV(AM) 1440 KILOHERTZ

LANSDALE, PENNSYLVANIA

FEBRUARY 2022

300 DEGREES TRUE RADIAL

Point Number	Distance km	Date/Time (local)	Field mV/m
		1/5/2022	
1	0.21	1417	660
		12/29/2021	
2	0.50	1319	321
3	0.70	1323	221
4	1.15	1327	121
5	1.40	1333	92.0
6	1.67	1338	65.0
7	2.20	1342	60.0
8	2.60	1348	45.0
		1/5/2022	
9	3.20	1335	41.0
10	4.78	1340	23.3
		1/6/2022	
11	6.30	1035	15.0
12	7.70	1030	10.0
13	9.28	1026	7.20
14	10.38	1020	6.20
15	12.40	1015	4.00
16	14.32	1010	2.35
17	16.25	927	1.95

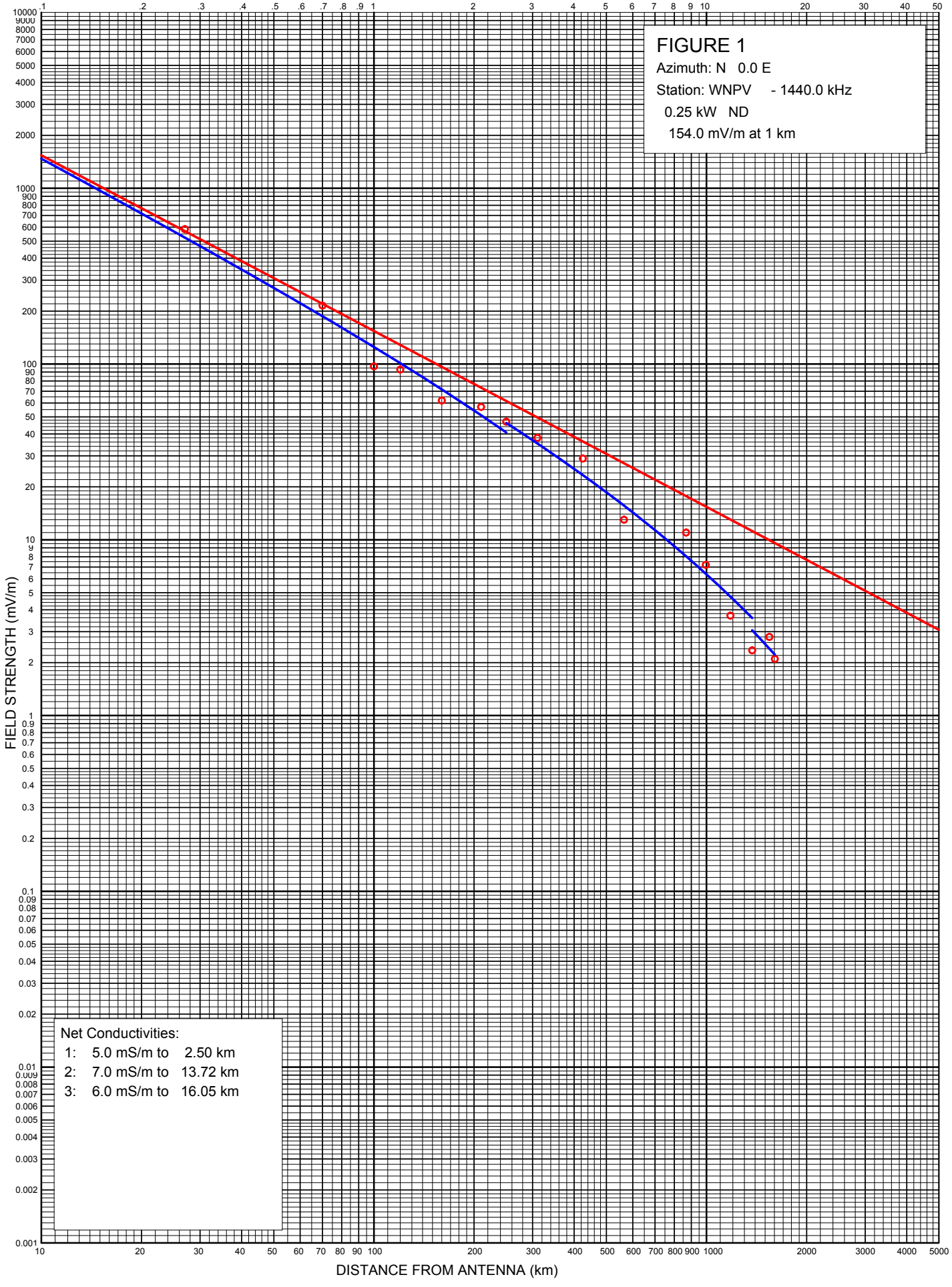


FIGURE 1
Azimuth: N 0.0 E
Station: WNPV - 1440.0 kHz
0.25 kW ND
154.0 mV/m at 1 km
Net Conductivities:
1: 5.0 mS/m to 2.50 km
2: 7.0 mS/m to 13.72 km
3: 6.0 mS/m to 16.05 km
FIELD STRENGTH (mV/m)
DISTANCE FROM ANTENNA (km)

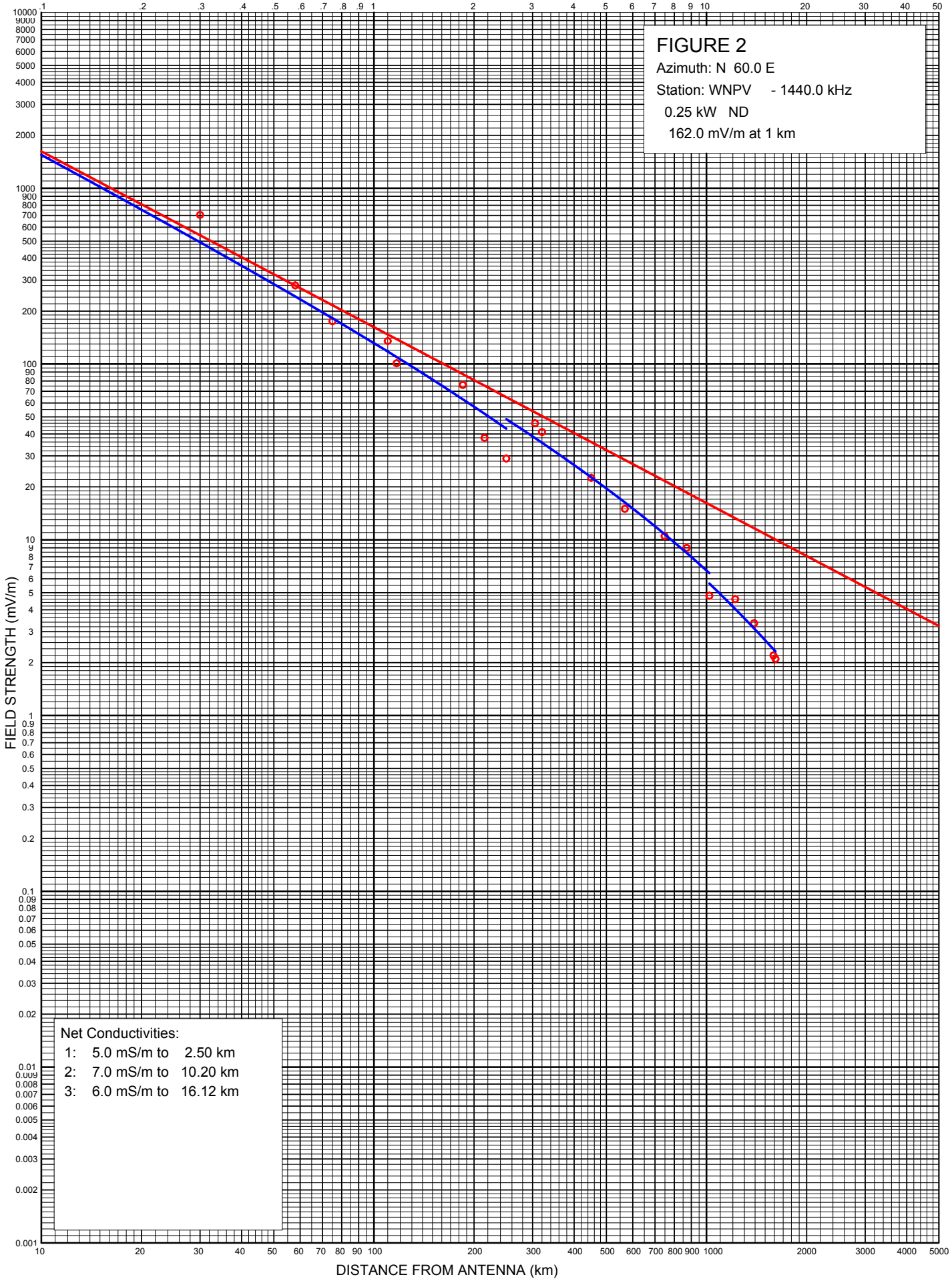


FIGURE 2
Azimuth: N 60.0 E
Station: WNPV - 1440.0 kHz
0.25 kW ND
162.0 mV/m at 1 km
Net Conductivities:
1: 5.0 mS/m to 2.50 km
2: 7.0 mS/m to 10.20 km
3: 6.0 mS/m to 16.12 km
FIELD STRENGTH (mV/m)
DISTANCE FROM ANTENNA (km)

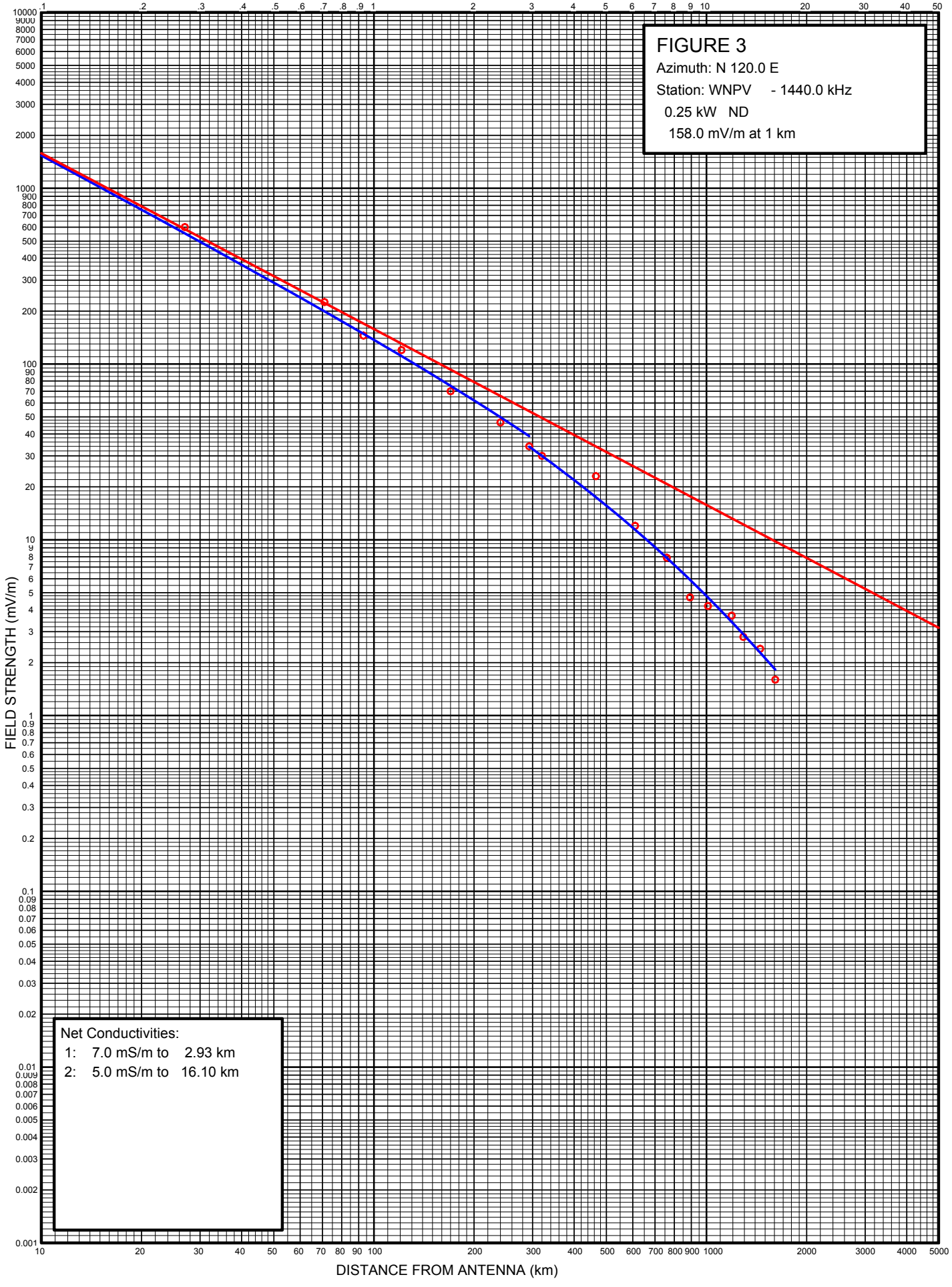


FIGURE 3
Azimuth: N 120.0 E
Station: WNPV - 1440.0 kHz
0.25 kW ND
158.0 mV/m at 1 km
Net Conductivities:
1: 7.0 mS/m to 2.93 km
2: 5.0 mS/m to 16.10 km
FIELD STRENGTH (mV/m)
DISTANCE FROM ANTENNA (km)

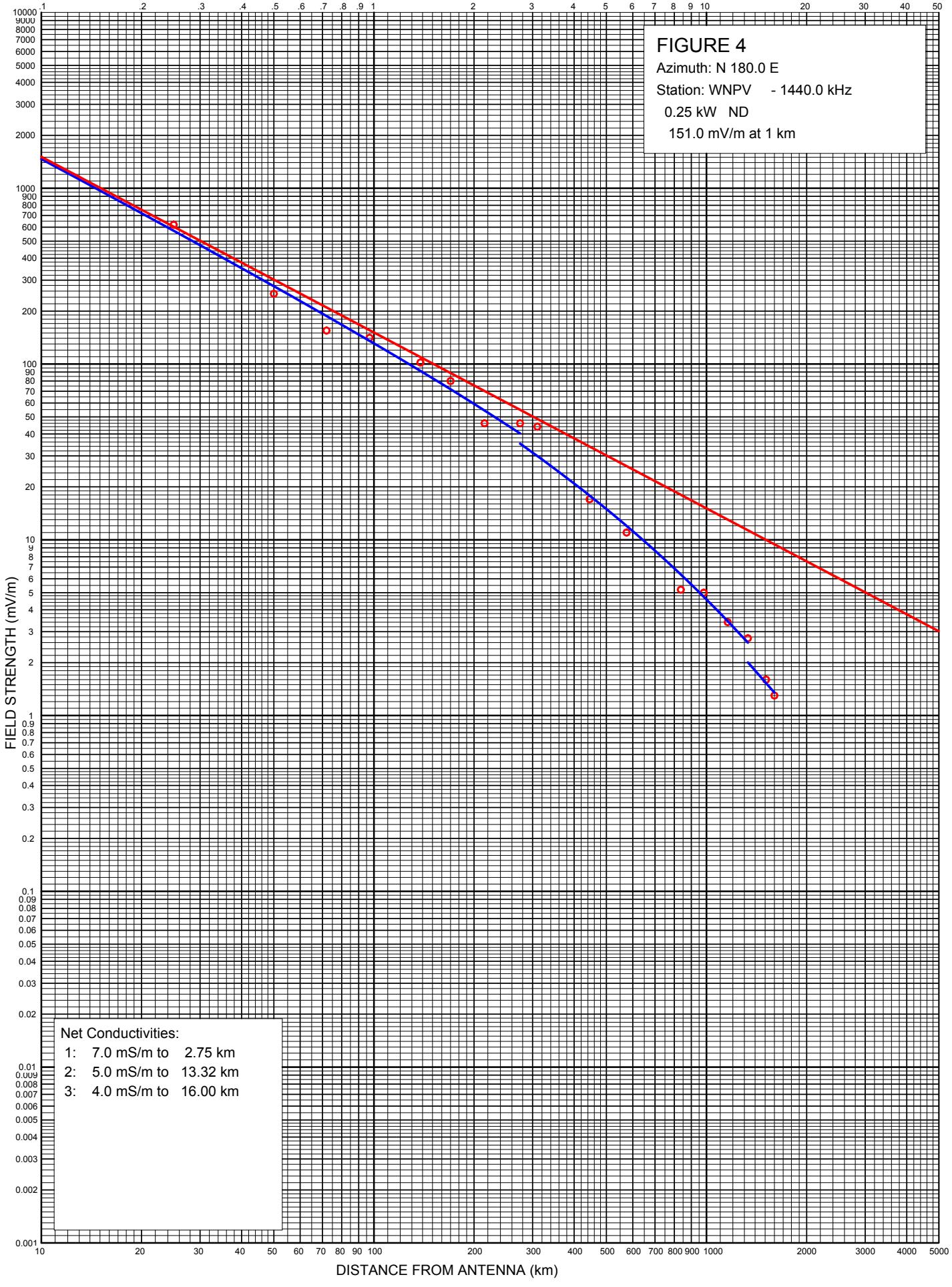


FIGURE 4
Azimuth: N 180.0 E
Station: WNPV - 1440.0 kHz
0.25 kW ND
151.0 mV/m at 1 km
Net Conductivities:
1: 7.0 mS/m to 2.75 km
2: 5.0 mS/m to 13.32 km
3: 4.0 mS/m to 16.00 km
FIELD STRENGTH (mV/m)
DISTANCE FROM ANTENNA (km)

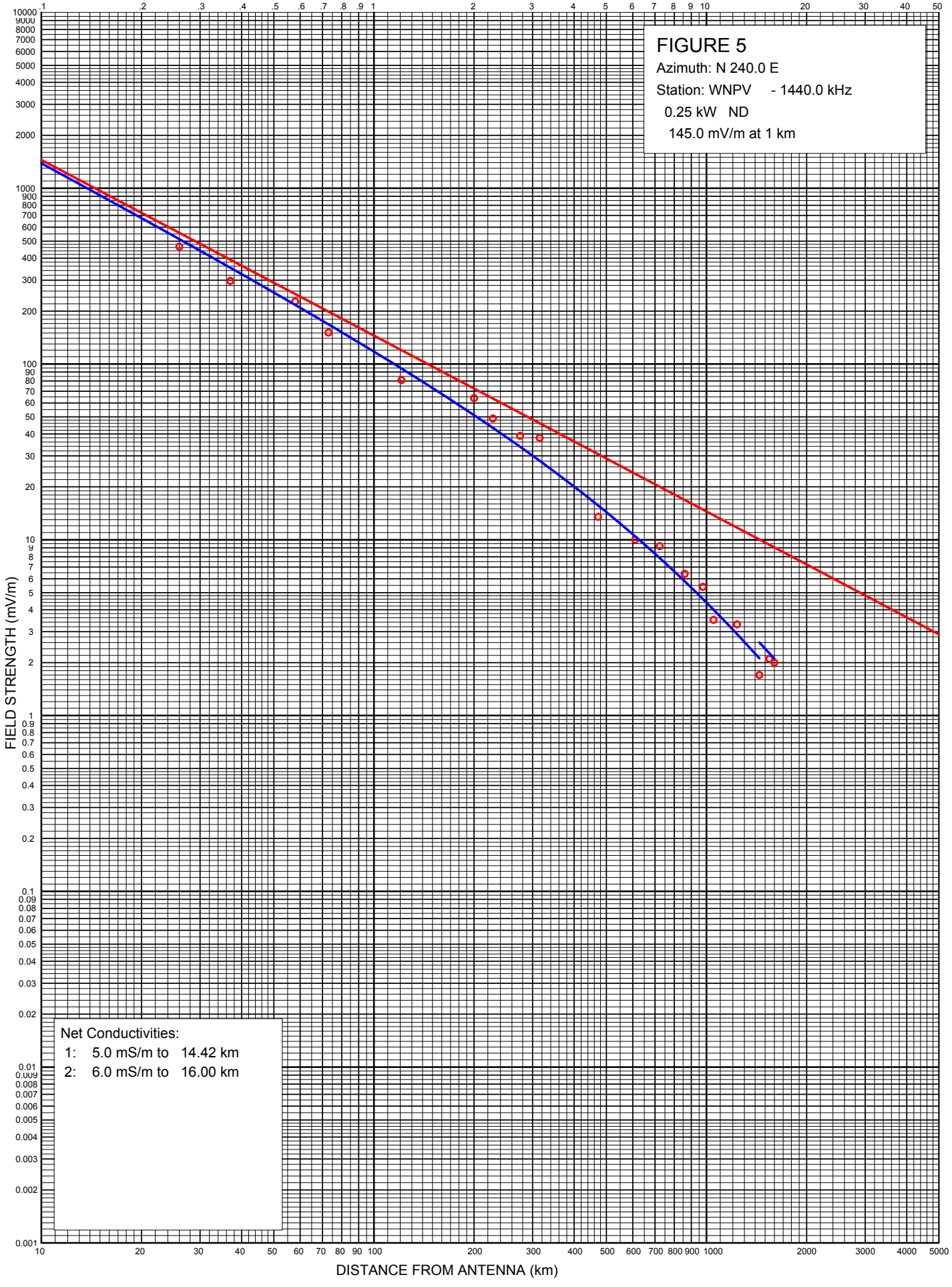


FIGURE 5
Azimuth: N 240.0 E
Station: WNPV - 1440.0 kHz
0.25 kW ND
145.0 mV/m at 1 km
Net Conductivities:
1: 5.0 mS/m to 14.42 km
2: 6.0 mS/m to 16.00 km
FIELD STRENGTH (mV/m)
DISTANCE FROM ANTENNA (km)

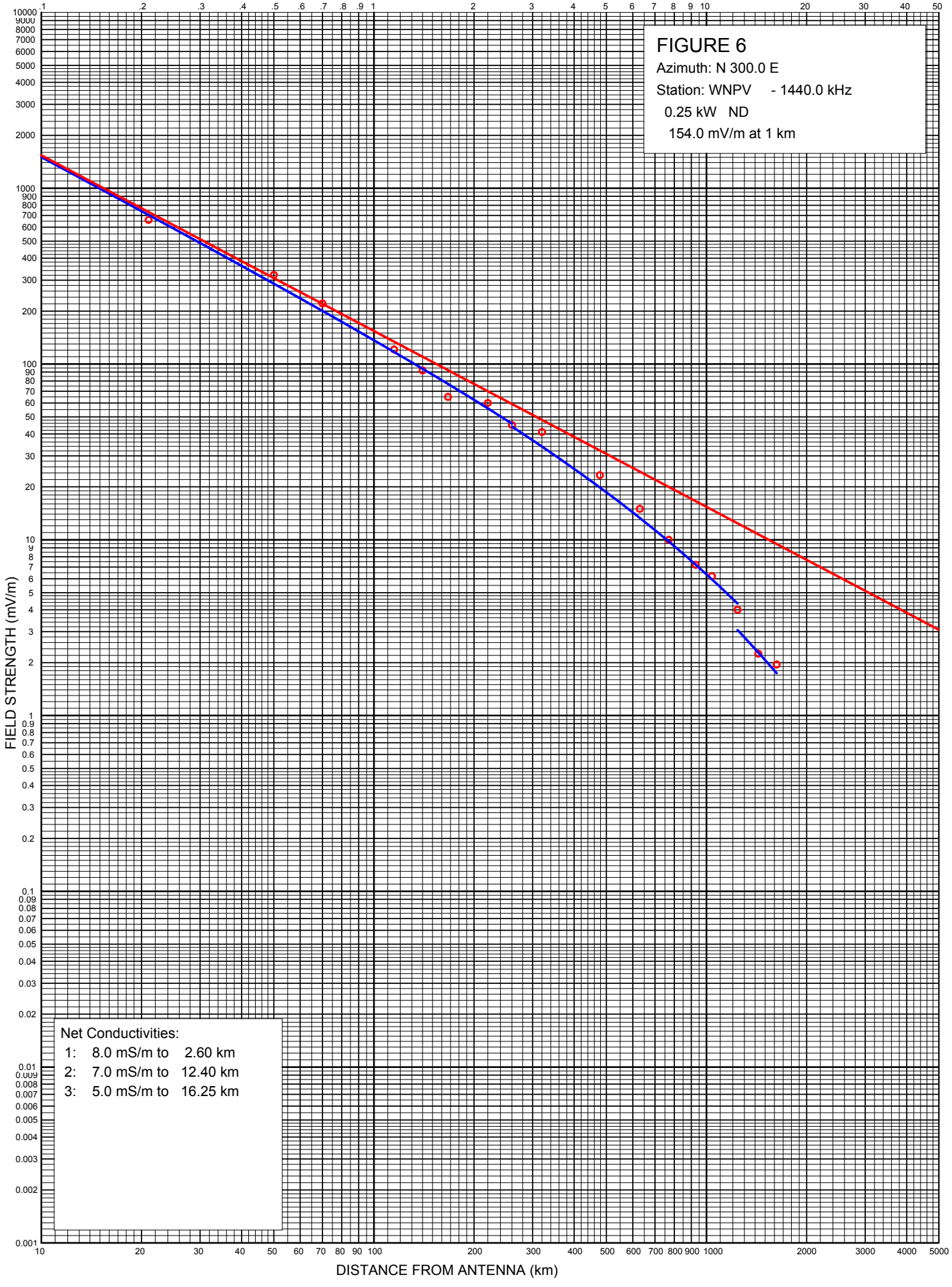


FIGURE 6
Azimuth: N 300.0 E
Station: WNPV - 1440.0 kHz
0.25 kW ND
154.0 mV/m at 1 km
FIELD STRENGTH (mV/m)
DISTANCE FROM ANTENNA (km)
Net Conductivities:
1: 8.0 mS/m to 2.60 km
2: 7.0 mS/m to 12.40 km
3: 5.0 mS/m to 16.25 km

FIGURE 7

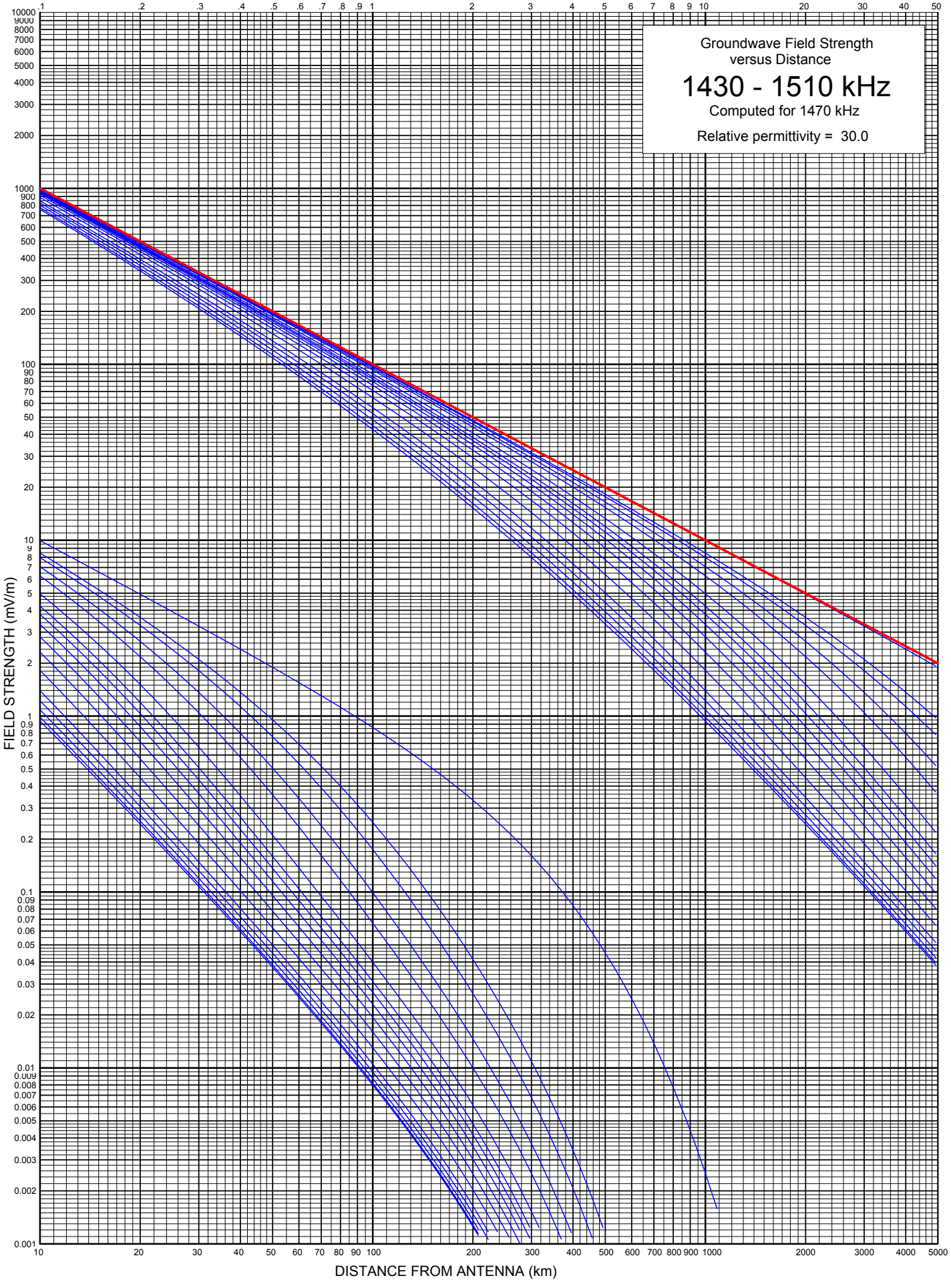
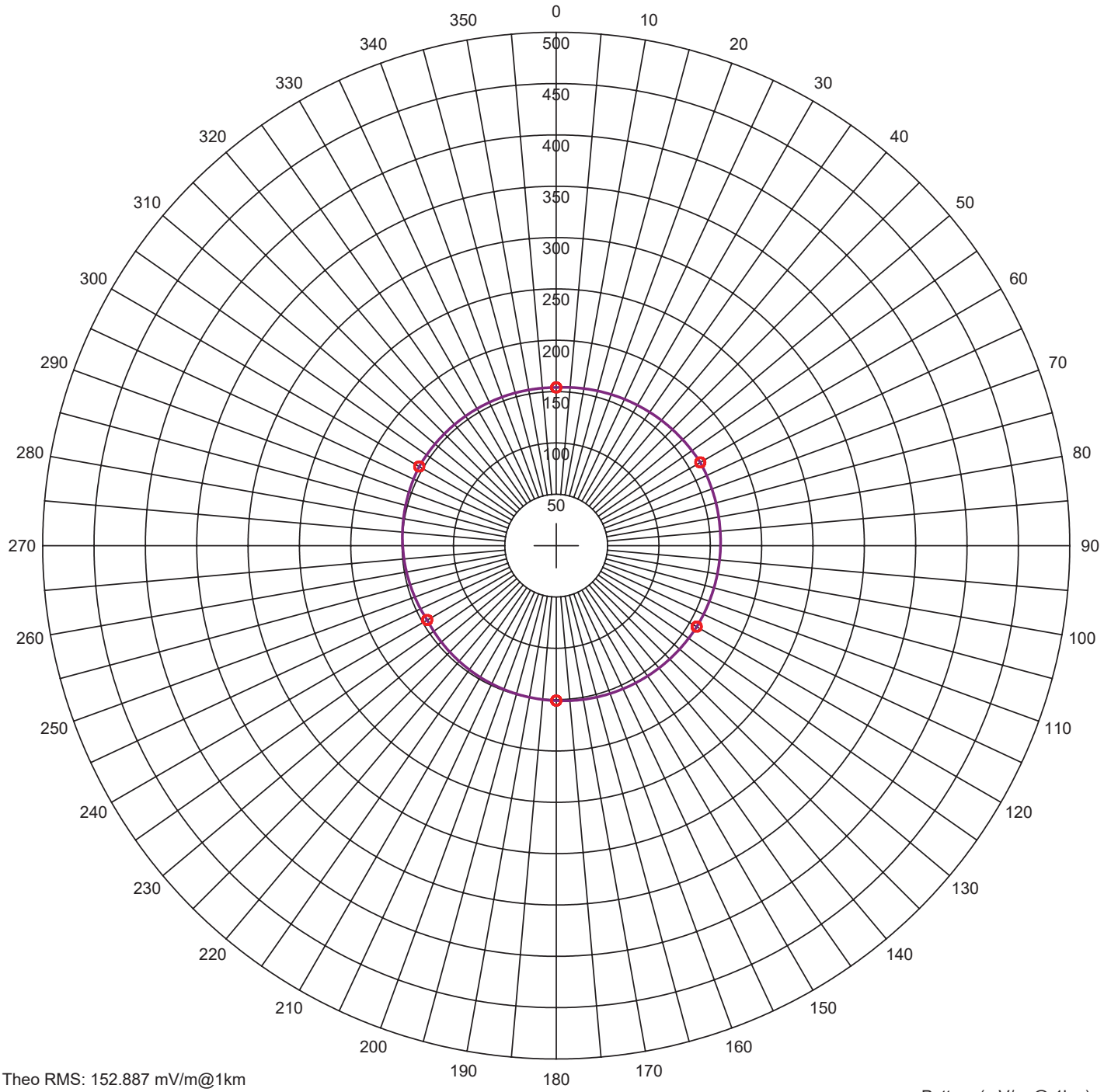

Groundwave Field Strength
versus Distance
1430 - 1510 kHz
Computed for 1470 kHz
Relative permittivity = 30.0
FIELD STRENGTH (mV/m)
DISTANCE FROM ANTENNA (km)

FIGURE 8: MEASURED NON-DIRECTIONAL



Theo RMS: 152.887 mV/m@1km
Std RMS: 152.887 mV/m@1km
Meas RMS: 154.07 mV/m@1km
Q: 15.811 mV/m@1km

Horizontal Plane Standard Pattern

Pattern (mV/m @ 1km)
Meas Pat (mV/m@1km)
Pattern X10
Meas Pat X10

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	90.0	0	0	0.0	0.0	0.0	0.0

Call: WNPV
Freq: 1440 kHz
LANSDALE, PA, US
Lat: 40-14-18 N
Lng: 075-18-57 W
Power: 0.25 kW
Theo RMS: 305.77 mV/m @ 1km

CHARLES A. HECHT & ASSOCIATES

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