

Ground Conductivity Measurements
In Support of an Application to
Amend a Modification of
Construction Permit to
Change Antenna Location
KLDC, Denver, Colorado
Facility ID 12364
1220 kHz, 1.0 kW-D/0.012 kW-N, ND

The Corporate Engineering Department of the Crawford Broadcasting Company, on behalf of its subsidiary, KLZ Radio, Inc., has prepared the following in support of an Application for Amendment to Modification of Construction Permit to change the antenna site, increase the power and change the antenna system of KLDC, Denver, Colorado.

Because it is a commonly known situation that ground conductivities in the south part of the Denver metro area and extending into the area south of the city are significantly lower than those shown on the M3 maps, a more accurate picture of the contour locations to the south can be obtained by making field intensity measurements along radial paths from the proposed site in that area.

On August 31 and September 1, 2021, such measurements were made on the collocated 1390 kHz KGNU signal on 145, 165 and 185 degrees true out to approximately 30 km. Measurement locations were accurately determined using a handheld Garmin GPSMap 64sx with each radial loaded into the unit as a route and the map screen configured to show exact distance back to the site and exact distance off course. Measurements were made using a Potomac Instruments FIM41 field intensity meter, S/N 1898, last calibrated 10/6/2020.

In the urban environment from the site out to approximately 15 km, measurements were made at approximately 2 km intervals at locations where no overhead power lines or nearby metallic structures would interfere with the field. Once outside the urbanized area, roads were few and access was very limited. As such, there were spans on the two westernmost radials (165 and 185 degrees) where no measurements were possible.

Measurement results were tabulated and plotted on log-log graph paper and a graphical analysis was performed on each to determine the ground conductivity on each radial. Those tabulations and graphs are included herewith below.

Respectfully submitted,



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KGNU
Reference (DA-N) Radial 145

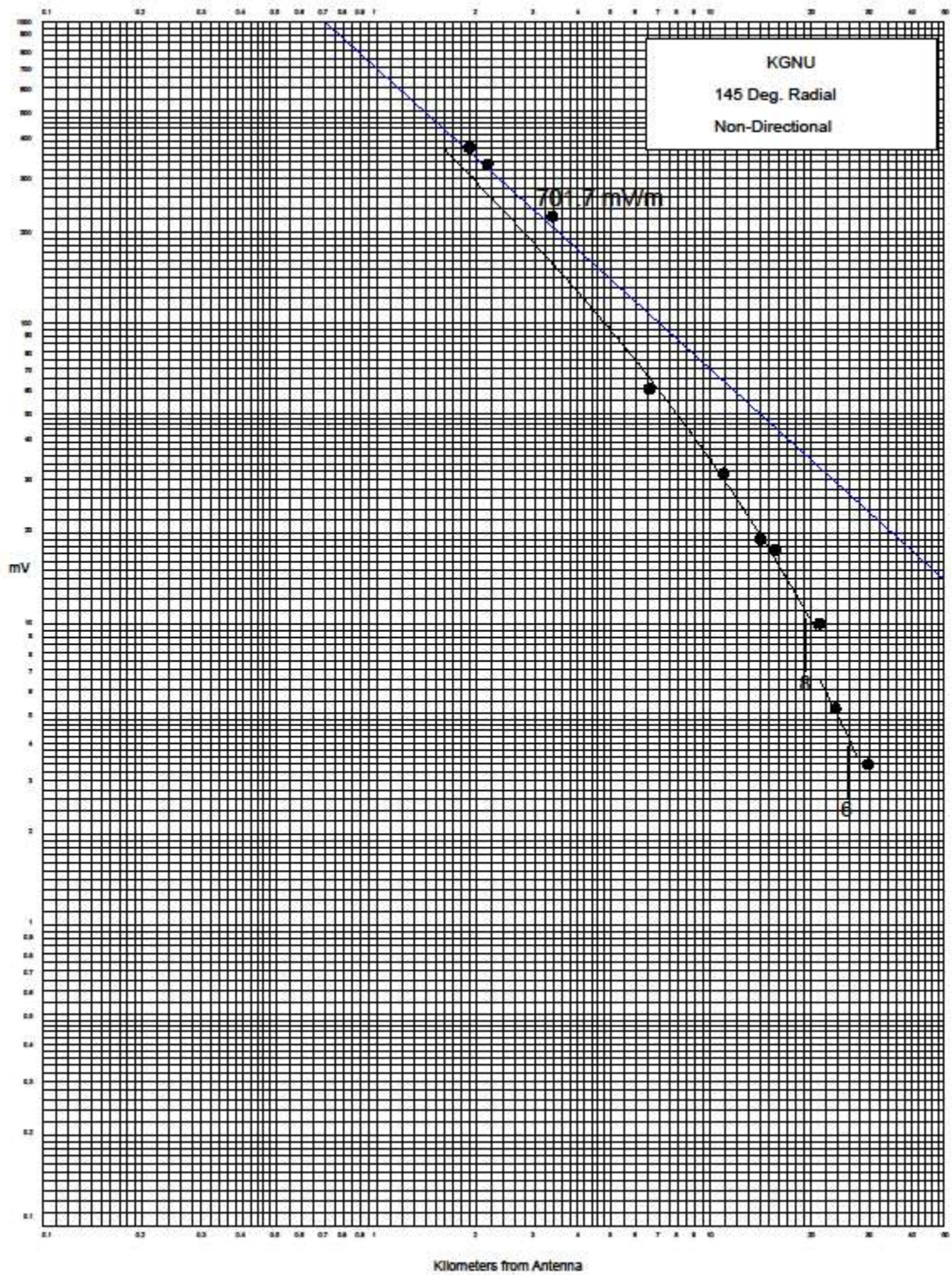
POINT	DIST (km)	DA-N (mV/m)	DATE	TIME
1	1.9	380.0	9/1/2021	0938
2	2.15	335.0	9/1/2021	0935
3	3.37	225.0	8/31/2021	1304
4	6.55	60.0	8/31/2021	1255
5	10.9	31.5	8/31/2021	1245
6	14.1	19.0	8/31/2021	1234
7	15.6	17.5	8/31/2021	1229
8	21.2	10.0	8/31/2021	1205
9	23.6	5.2	8/31/2021	1214
10	29.6	3.4	8/31/2021	1143

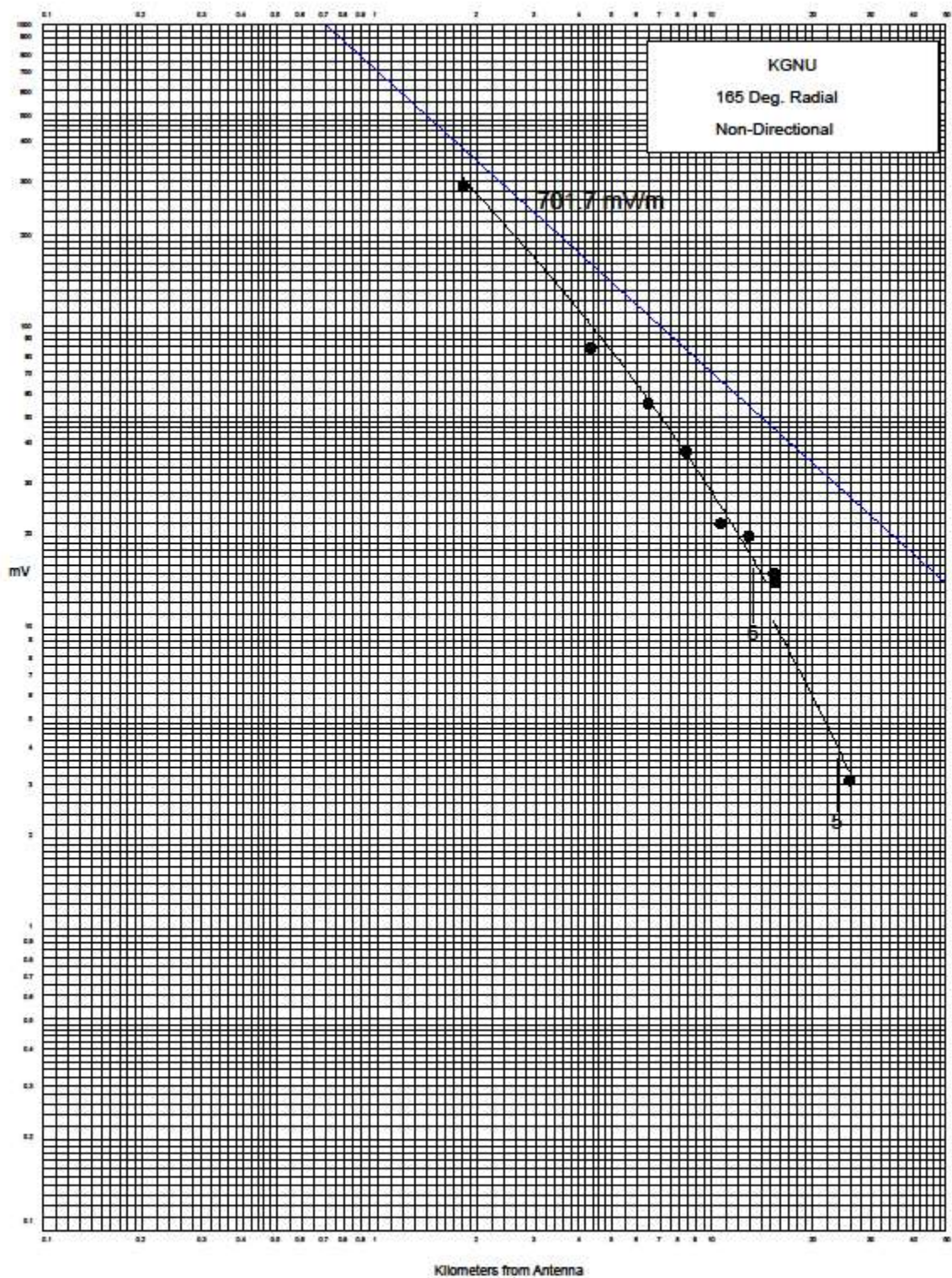
KGNU
Reference (DA-N) Radial 165

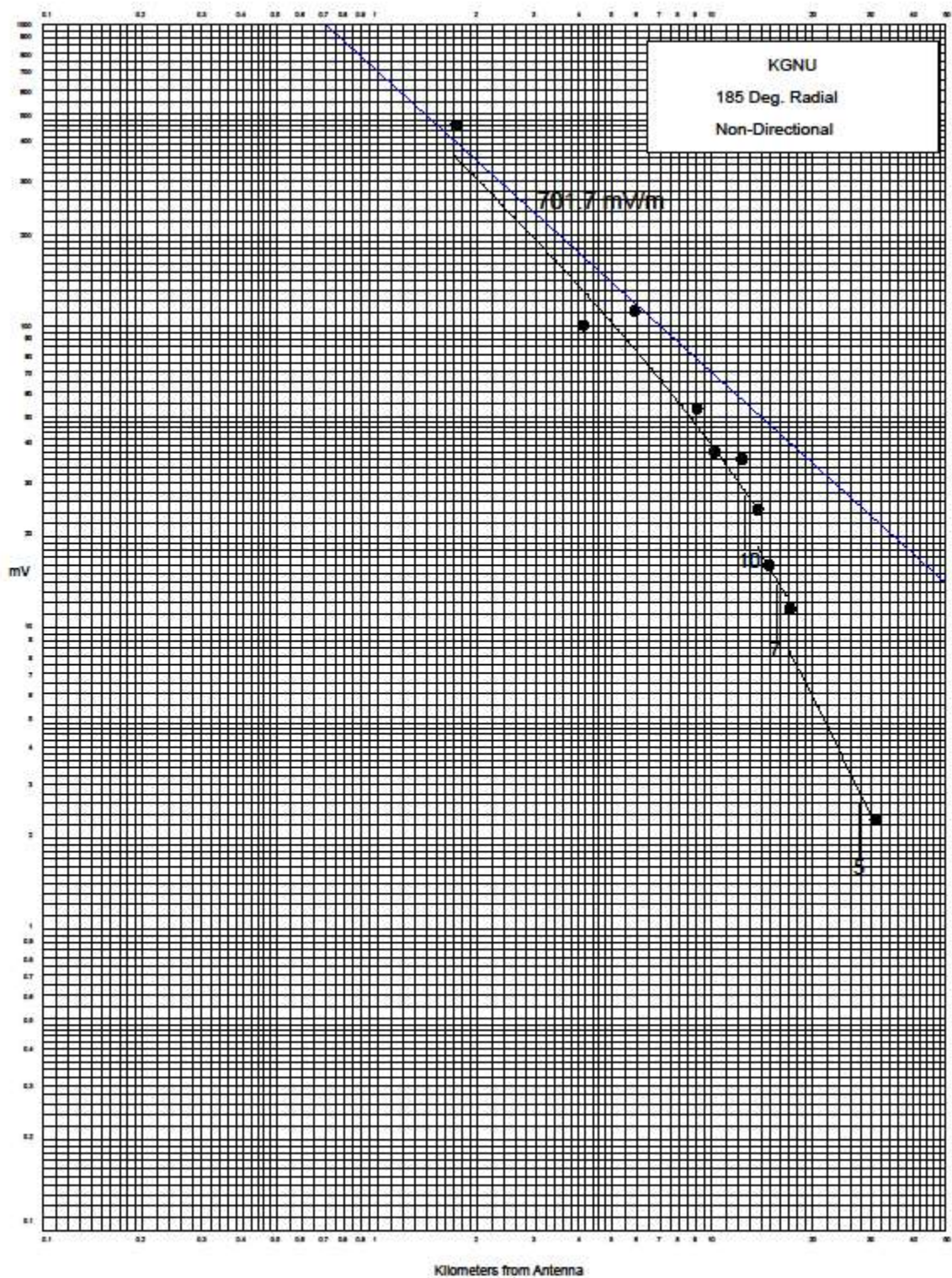
POINT	DIST (km)	DA-N (mV/m)	DATE	TIME
1	1.81	290.0	8/31/2021	0809
2	4.35	84.0	8/31/2021	0818
3	6.45	55.0	8/31/2021	0828
4	8.36	38.0	8/31/2021	0835
5	10.6	22.0	8/31/2021	0842
6	12.9	20.0	8/31/2021	0849
7	15.3	15.0	8/31/2021	0857
8	15.5	14.0	8/31/2021	0949
9	25.8	3.1	8/31/2021	0928

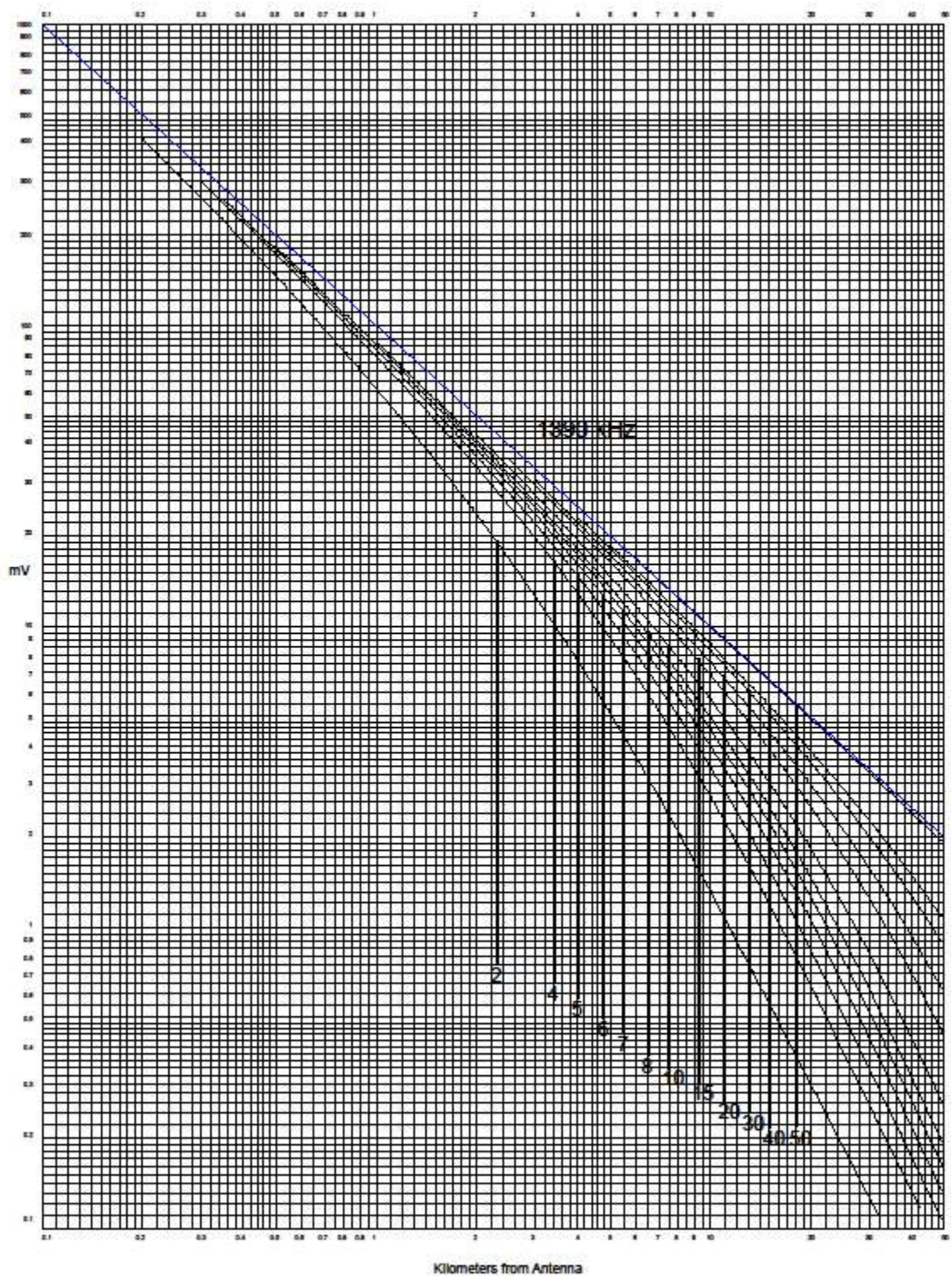
KGNU
Reference (DA-N) Radial 185

POINT	DIST (km)	DA-N (mV/m)	DATE	TIME
1	1.72	460.0	9/1/2021	0815
2	4.14	100.0	9/1/2021	0827
3	5.88	112.0	9/1/2021	0832
4	9.02	53.0	9/1/2021	0842
5	10.2	38.0	9/1/2021	0852
6	12.3	36.0	9/1/2021	0858
7	13.7	24.5	9/1/2021	0904
8	14.8	16.0	9/1/2021	0908
9	17.1	11.5	9/1/2021	0915
10	30.8	2.3	8/31/2021	1042









POTOMAC INSTRUMENTS, Inc.
Frederick, Maryland

CERTIFICATE OF CALIBRATION

Field Intensity Meter Type HM-41

Serial Number 1898

This instrument was calibrated in an induction field of 220.0 millivolts per meter. At each measurement frequency the measured field was recorded and a correction factor K was computed; the indicated field must be multiplied by K to obtain the true field.

<u>kHz</u>	<u>K</u>	<u>kHz</u>	<u>K</u>	<u>MHz</u>	<u>K</u>	<u>MHz</u>	<u>K</u>
540	1.000	1100	1.000	1.6	0.991	3.5	1.000
600	1.000	1200	1.000	1.9	1.000	3.8	1.000
700	1.000	1300	1.000	2.2	1.000	4.1	1.000
800	1.000	1400	0.995	2.5	1.000	4.4	1.000
900	1.000	1500	1.000	2.8	1.000	4.7	0.991
1000	1.000	1600	0.995	3.2	1.000	5.0	0.991

The calibrating field is maintained equal to the National Institute of Standards and Technology (NIST) standard field within an accuracy of 1.0 percent. NIST states that the absolute accuracy of its field is "believed to be within 3.0 percent."

The error at points on the meter scale other than the calibration point is less than 3.0 percent. The attenuator ratios are correct within 2.0 percent. These accuracies apply for battery voltages that are indicated by the instrument's battery check circuit to be usable.

NEXT RECOMMENDED CALIBRATION DATE: October 5, 2022

Calibrated by Zachary Babendreier Date: October 6, 2020
Zachary Babendreier