

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

N.T.S.: 105 I/5  
105 I/12

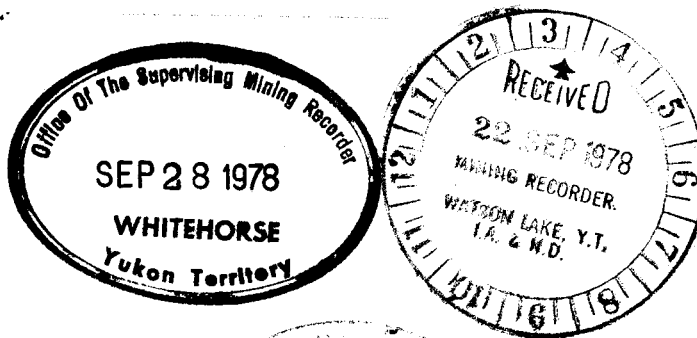
GEOPHYSICAL SURVEYS ON THE  
RITZ CLAIMS

WATSON LAKE M.D.; YUKON TERRITORY

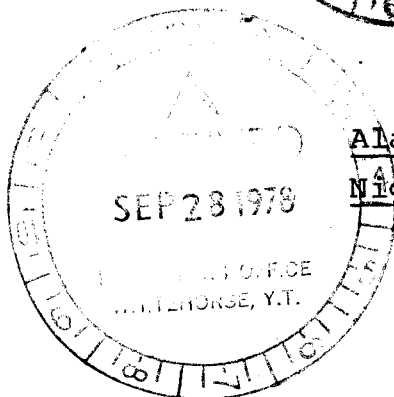
Latitude: 62°30'N; Longitude 129°40'W

Work Performed: July 12 - July 31, 1978

Claims Covered: RITZ 18, 32, 34 - 55, 61 - 67.



August, 1978



Alan Scott  
Nigel Hopkins

090 368

This report has been prepared by the Geological Evaluation Unit and recommended to the Commissioner to be considered as representation work in the amount of

~~\$ 30,600~~ *J. A. Mann*

*J. B. Craig*

Resident Geologist or  
~~Resident Mining Engineer~~

Considered as representation work under Section 53 (1) Yukon Quartz Mining Act.

*E. R. Baxter*  
E. R. BAXTER  
Supervising Mining Recorder

*h*  
Commissioner of Yukon Territory

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& 150M Coil Separation, 444 Hz, 888 Hz, 1777 Hz  
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## INTRODUCTION

During the period July 12 to July 31, 1978 a COMINCO geophysical crew under the direction of COMINCO geophysicist, N.T. Hopkins, conducted magnetic, gravimetric and horizontal loop electromagnetic (EM) geophysical surveys over portions of the RITZ Claims on the RITZ property. In addition a COMINCO geochemical crew conducted a VLF-EM survey concurrent with their geochemical surveys.

The RITZ property is located some 100 miles northeast of the town of Ross River. Access can be gained by road or fixed wing aircraft to the airstrip at MacMillian Pass, thence by helicopter to the claims.

This report describes the geophysical surveys that were done on the claims, and briefly discusses the results obtained.

NOTE: As all Plate references are to those supplied in the ATTACHMENTS section the prefix "140-78-" has been omitted for brevity.

## GEOPHYSICAL SURVEYS

### Magnetics

A SCINTREX MP-2 total field proton precession magnetometer was used for the magnetics survey. Readings were taken at 25 meter intervals along pre-cut grid lines. The data was corrected for diurnal variation by the usual base station and sub base station looping method. Results are presented in contour plan form on Plate 4.

### VLF-Electromagnetics

The VLF survey was conducted by P. LaPlume, simultaneously with a geochemical survey. The results of the geochemical survey are discussed in a separate report. A GEONICS EM-16 electromagnetometer was used on the survey, with station NLK Seattle, Washington at 18.6 KHz, serving as the primary EM field. Dip angle readings were taken facing easterly on the north grid (Plate 5), and westerly on the south grid (Plate 6). Thus, an in-phase "right and left wave crossovers" are obtained when traversing conductors on the north and south grids, respectively.

### Gravity

Gravity measurements were made by N.T. Hopkins, using a TEXAS INSTRUMENTS, WORDEN MASTER, quartz spring gravity meter with a scale constant of 0.0823. The level survey was conducted by D. Saunders and K. Watson; each line being survey independently of the other.

Using available geological and geophysical information, 5 grid lines were selected for detailed (25 meter station interval) gravity. The meter was returned to base stations on each line within two hour time periods to determine instrument drift. The data was reduced to an arbitrary datum for each line, correcting for instrument drift, elevation and Bouguer density of 2.67 gm/cc. The profiles are found on Plates 7 - 11, inclusive.

### Horizontal Loop EM

An APEX MAX-MIN II electromagnetometer was used for the horizontal loop EM survey conducted by N.T. Hopkins and D. Saunders. A 150 meter coil separation and a station interval of 25 meters was used. Three transmitting frequencies, 444 Hz, 888Hz and 1777 Hz were chosen as the operating frequencies.

Three reconnaissance MAX-MIN lines were run to the south of the main grid, lines 20 + 00S, 22 + 50S and 23 + 75S. On these lines a 100 meter coil separation was used. Lines 20 + 00S and 22 + 50S were resurveyed using a 150 meter coil separation.

The maps and profiles for the data are found on Plates 12 - 17 inclusive.

## DESCRIPTION OF RESULTS

### Magnetics

The general character of the magnetic data is very flat. No correlation was found between the magnetic data and the EM conductors. The zones of higher magnetic relief located at Line 0 + 00 4 + 75 W, Line 8 + 00N 3 + 75 W and Line 9+00N 2 + 75 W (Plate 4) exceed background levels by only 20g.

### VLF-EM

The VLF data proves to be very noisy (Plates 5 and 6). The MAX-MIN conductors using the shorter cable (100 meters) are coincident with VLF conductors. Trends are visible in the data

collected on the southern grid (Plate 6) but due to the poor quality of the data and the very wide line spacings on the southerly portions, the data is generally inconclusive.

### Gravity

As no topographic corrections were made to the data and the relief of the area is substantial, the gravity results to a strong degree reflect the local topography. On three lines, 1 + 00N, 11 + 95N and 15 + 00N, at H23W, 3 + 25E and 2 + 75E respectively (Plates 11, 8, 7) weak (0.16 milligal) gravity anomalies are found. Two of these anomalies, Line 1 + 00N 1 + 25 W, and Line 15 + 00N 2 + 75E are coincident with good horizontal loop anomalies, conductor A and E respectively (Plate 12); while the gravity anomaly on Line 11 + 95N 3 + 25E is coincident with a weak horizontal loop conductor.

### Horizontal Loop EM

Three main conductors were located, two on the west side of the baseline, conductors A and B and a third conductor E on the east side of the baseline. Plate 12 shows the plan view of the conductor locations for the lowest frequency, 444Hz. Conductor B lying along strike and to the north (relative to the grid) of conductor A is probably a continuation of A. Both trend at approximately 13° West of the baseline. A has a strike length of about 530 meters and is open to the south. Conductor A responds strongest on line 2 + 00N where the indicated width is some 50 meters. Conductor B, smaller in dimension than A, strikes for about 400 meters. Conductor B is strongest on line 10 + 00N.

North (relative to the grid) of conductor B is a much weaker conductor, C, also striking parallel to A and B. No width is indicated on the lowest frequency though. East (grid orientation) of conductor B, paralleling the baseline at 100E is a second weak conductor, D, striking 300 meters. On line 11 + 00N, the southerly extent of D, it divides into two conductors both showing no width.

Further east of D is a good conductor E. It strikes only for 100 meters but has good conductivity thickness on both lines 14 + 00N and 15 + 00N.

Several other conductors are present which do not have significant strike length. These are also positioned on Plate 12.

The reconnaissance EM to the south of the main grid located several conductors which have been indicated on Plate 13. Due

to the wide line spacing and the difficult geology, no correlation of the conductors was made.

CONCLUSIONS

The horizontal loop EM and the gravity data proved to be the more useful tools in this area. Further detailed horizontal loop EM over the more interesting conductors and extension work to the east on the northern grid would provide useful information. Selected areas in the southern portion of the claims should also have further horizontal loop coverage.

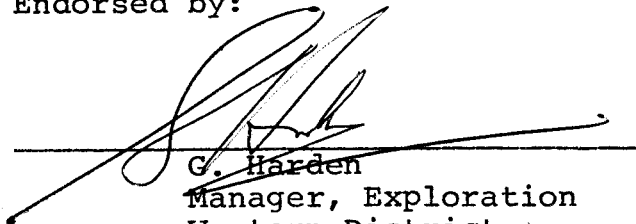
Respectfully submitted:



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Alan Scott,  
Geophysicist

Endorsed by:



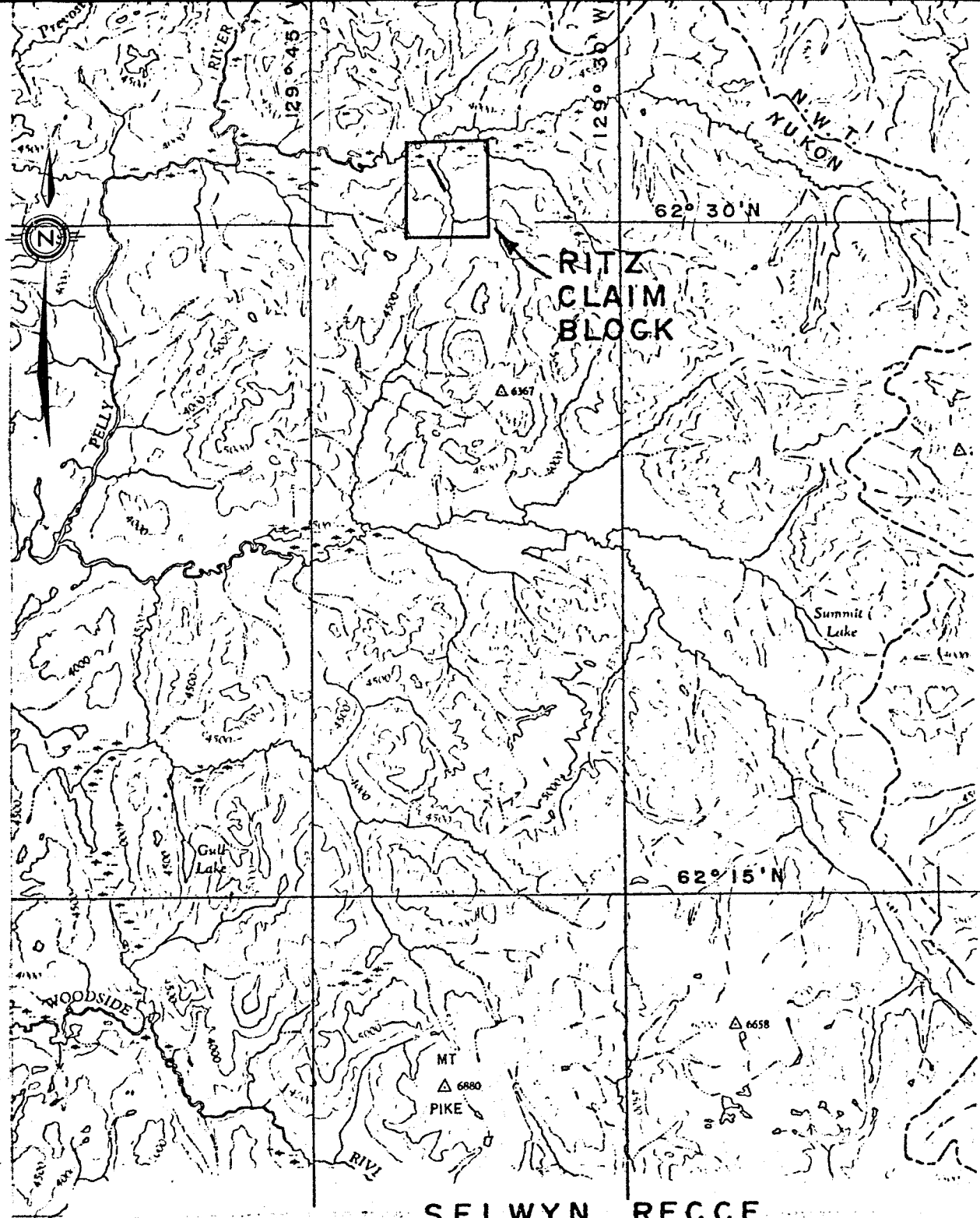
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C. Harden  
Manager, Exploration  
Western District

ARS/mh  
6 September 1978

Distribution

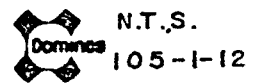
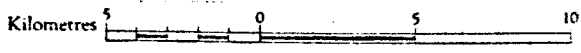
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Western District (1)  
Geophysics file (1)



SELWYN RECCE  
RITZ CLAIMS (R3)

WATSON LAKE M.D., YUKON

Scale 1 : 250,000  
1 Inch to 4 Miles Approximately.



Drawn by:	Traced by:
Revised by: Date	Revised by: Date

LOCATION MAP

Scale: 1 : 250,000      Date:      Plate 140-78-1

Drawn by:	
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Revised by:	Date
Revised by:	Date
Revised by:	Date
Revised by:	Date
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Revised by:	Date

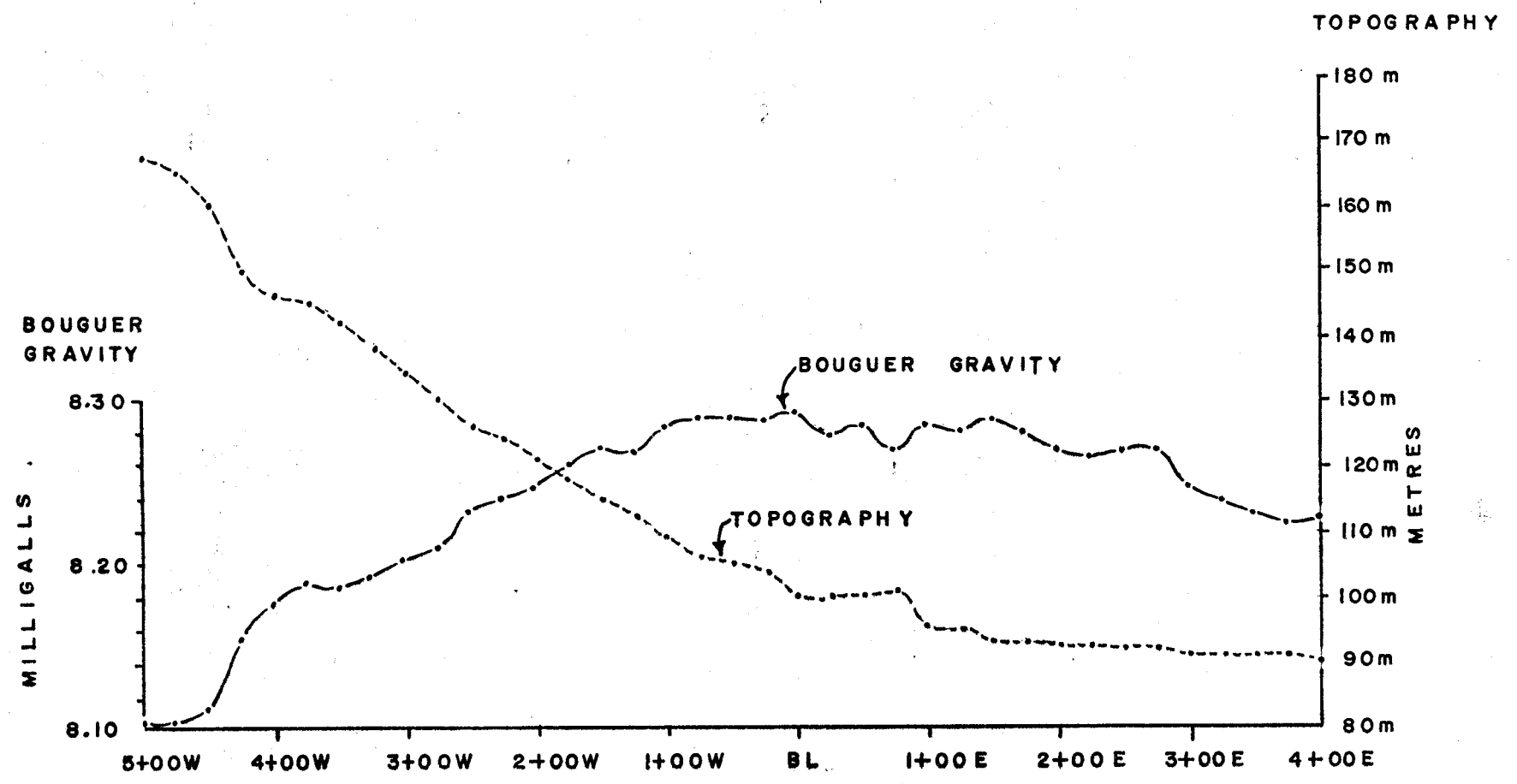
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LINE 15+00 N  
BOUGUER GRAVITY  
WATSON LAKE M.D., YUKON

RITZ CLAIMS

NTS  
105115  
105112

LINE 15+00N



INSTRUMENT: WORDEN MASTER SCALE CONSTANT 0.0823 MILLIGALS /div  
BOUGUER DENSITY 2.67 gm /cc

401-112A-C1

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Revised by:	
Date:	
Revised by:	
Date:	

Traced by:	
Date:	

Scale: AS SHOWN Date: AUG 1978 Plate: 140-78-8

LINE 11+95N  
BOUGUER GRAVITY  
WATSON LAKE M.D., YUKON

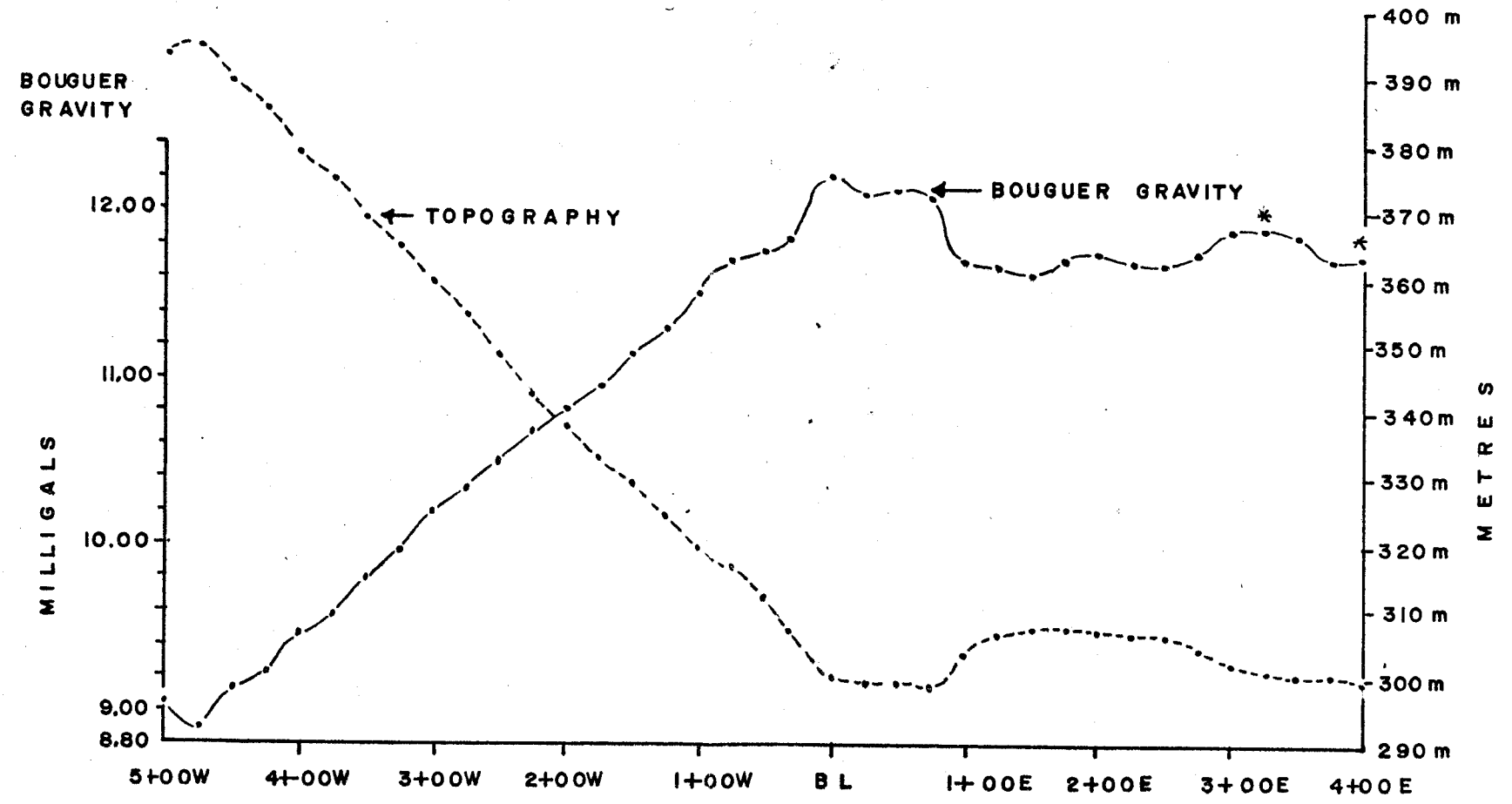
RITZ CLAIMS

NTS  
10515  
105112



LINE 11+95 N

TOPOGRAPHY



INSTRUMENT: WORDEN MASTER SCALE CONSTANT 0,0823 MILLIGALS /div  
 BOUGUER DENSITY 2,67 gm/cc  
 \* READING UNCERTAIN

210-2410

Drawn by:	Traced by:
Revised by:	Revised by:
Date:	Date:

Scale: AS SHOWN

Date: AUG 1978

Plate: 140-78-9

WATSON LAKE M.D., YUKON

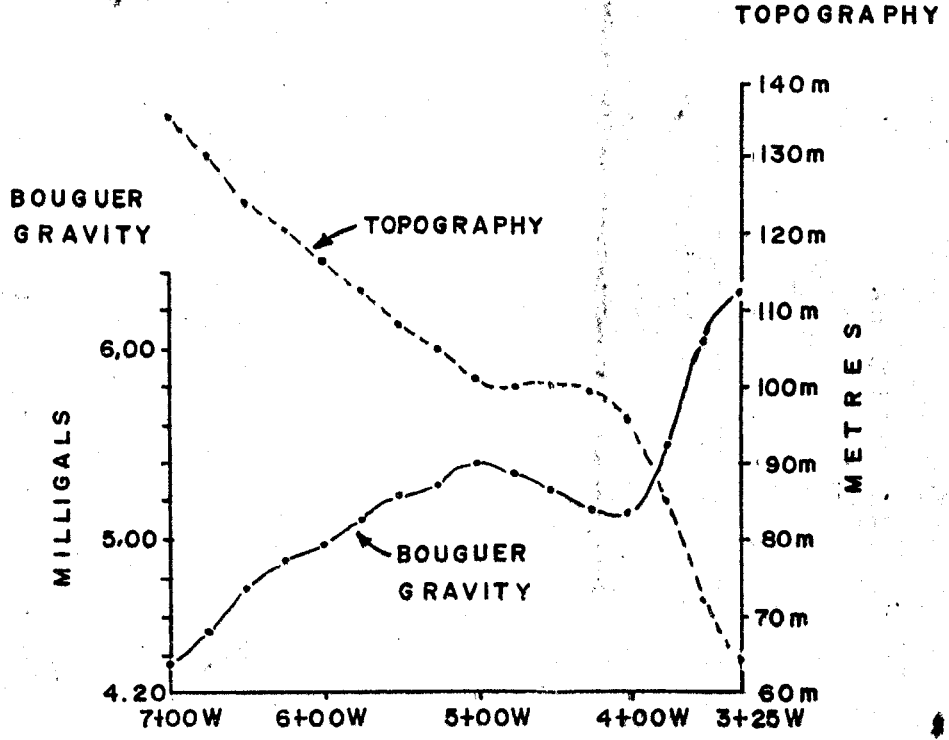
BOUGUER GRAVITY

LINE 4+00N

RITZ CLAIMS

NTS  
10515  
105112

LINE 4+00 N



INSTRUMENT: WORDEN MASTER SCALE CONSTANT 0.0823 MILLIGALS / div  
BOUGUER DENSITY 2.67 gm / cc

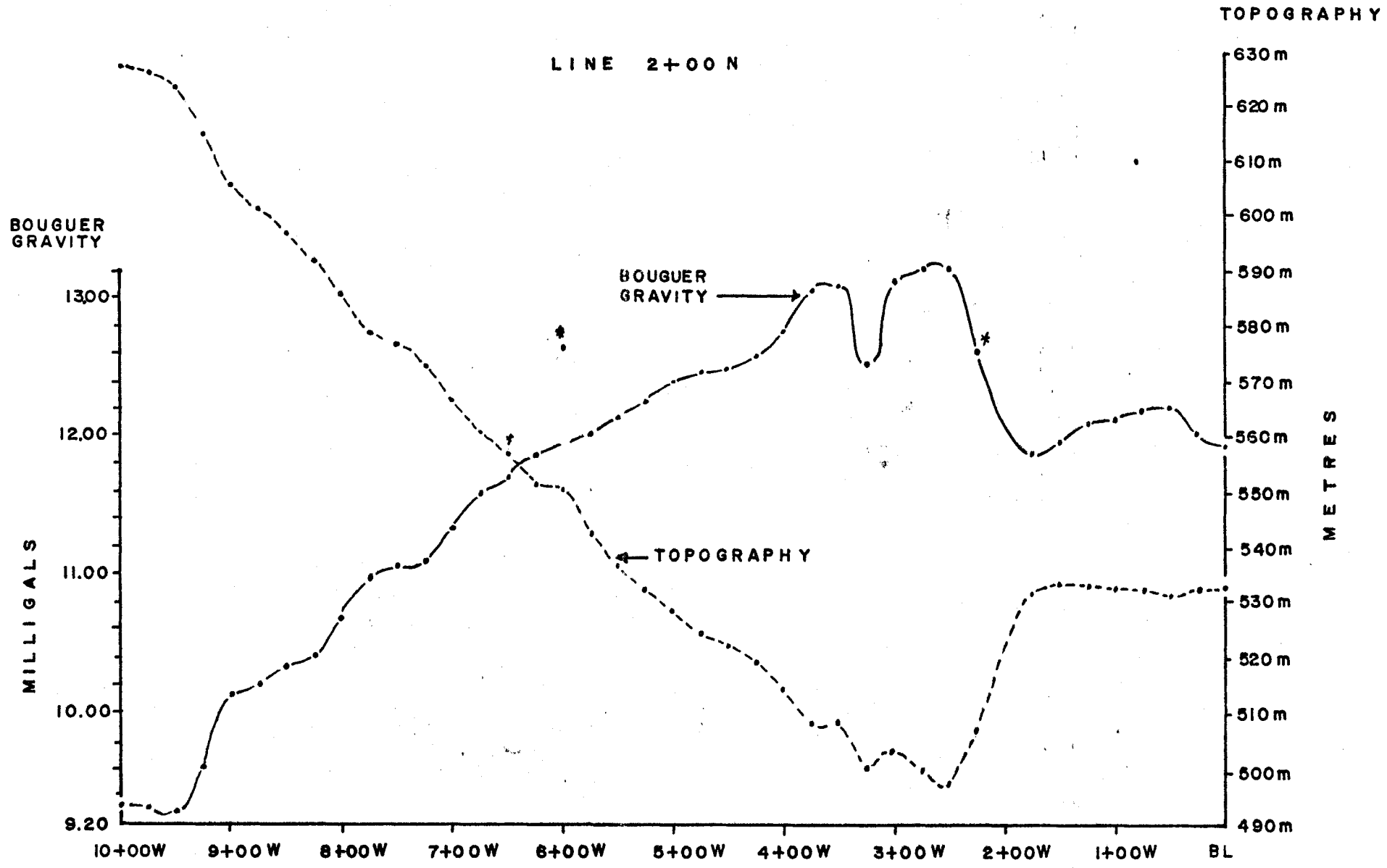
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LINE 2+00N  
BOUGUER GRAVITY  
WATSON LAKE M.D., YUKON

RITZ CLAIMS

NTS  
105115  
105112



INSTRUMENT: WORDEN MASTER SCALE CONSTANT 0.0823 MILLIGALS/DIV  
BOUGUER DENSITY 2.67 gm/cc  
\* READING UNCERTAIN

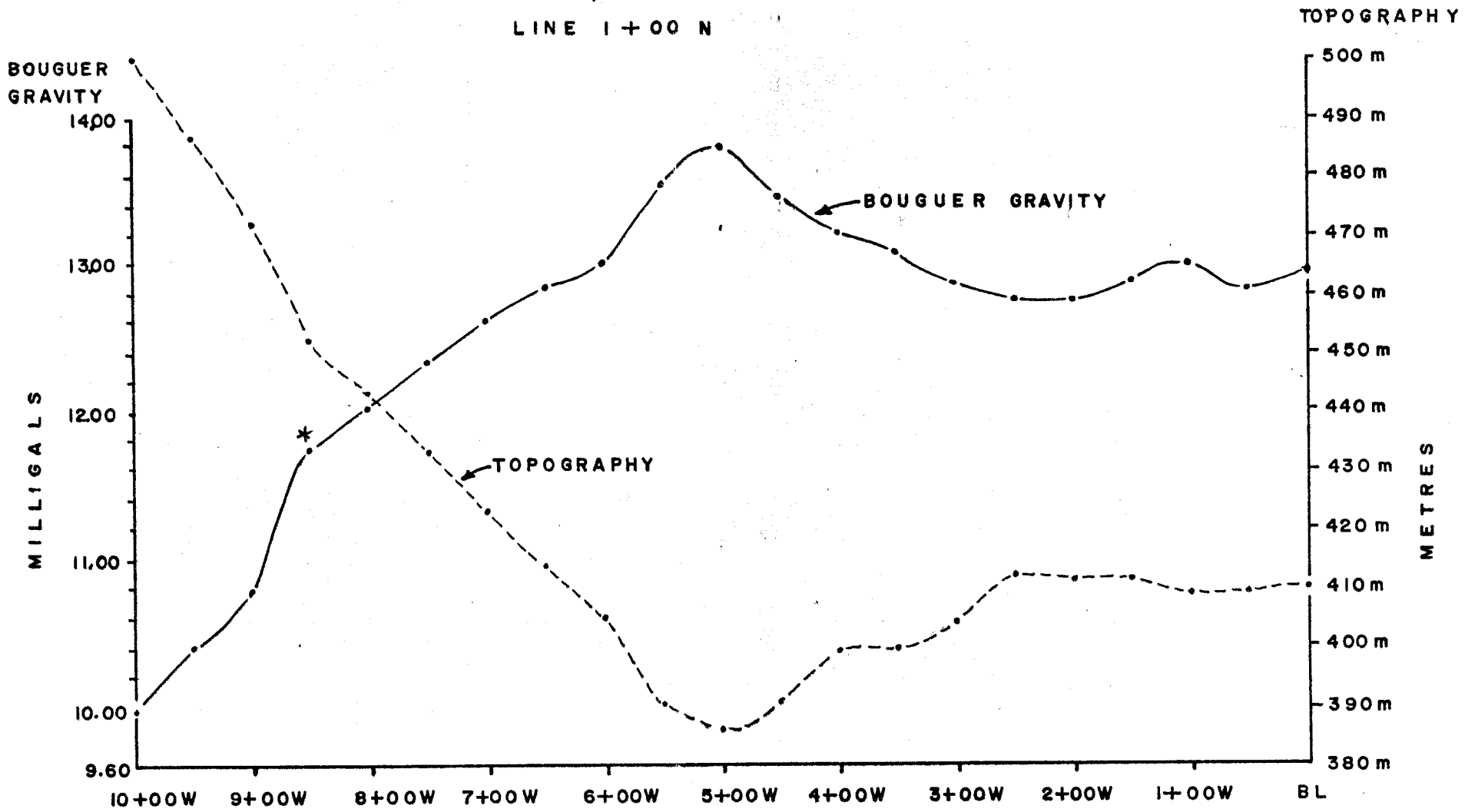
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BOUGUER GRAVITY  
WATSON LAKE M.D., YUKON

LINE 1+00 N

NTS  
10515  
105112

RITZ CLAIMS



INSTRUMENT: WORDEN MASTER SCALE CONSTANT 0.0823 MILLIGALS / DIV

BOUGUER DENSITY 2.67 gm / cc

\* READING UNCERTAIN

Drawn by:

Traced by:

Revised by Date

Revised by Date



RIVER  
CREEK  
1978 GEOPHYSICS GROUND GRID

INSTRUMENT :  
APPROX LOCATION OF CLAIM BOUNDARY



SELWYN RECCE

**RITZ CLAIMS (NORTH GRID)**

Drawn by	Traced by
Revised by	Date
Revised by	Date

**CLAIM MAP**

WATSON LAKE M.D., YUKON

Scale: 1:5000 Date: AUG., 1978 Plate: 140-78-2

NTS  
105 1 5  
105 1 12





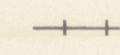
- RIVER
- CREEK
- 1978 GEOPHYSICS GROUND GRID
- APPROX. LOCATION OF CLAIM BOUNDARY

0 100 200 300 400 500  
METRES

SELWYN RECCE


RITZ CLAIMS (SOUTH GRID)		NTS 105 15 105 112
Drawn by	Traced by	
Revised by	Revised by	<b>CLAIM MAP</b> WATSON LAKE M.D., YUKON
Date	Date	
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		Plate: 140-78-3

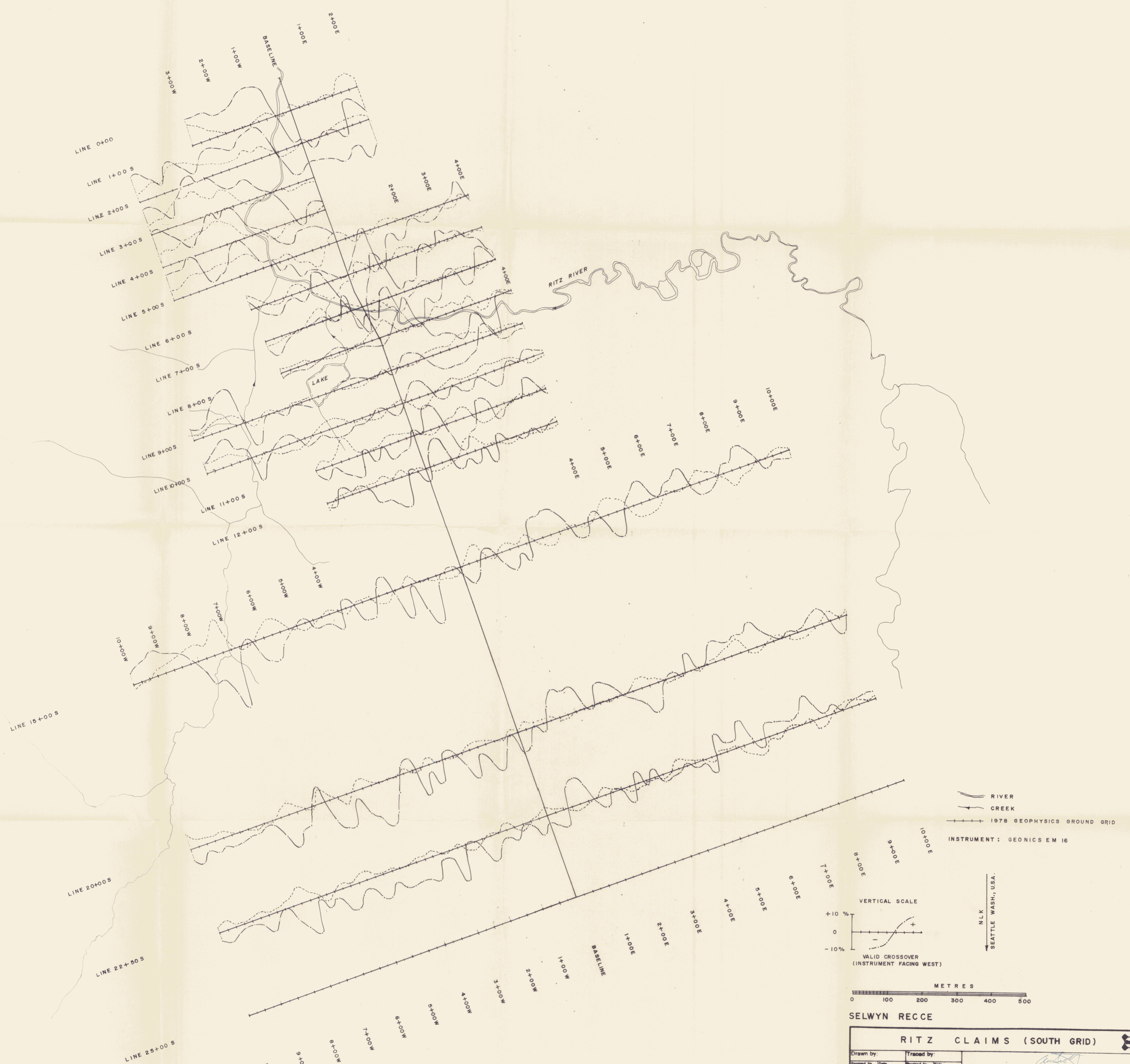
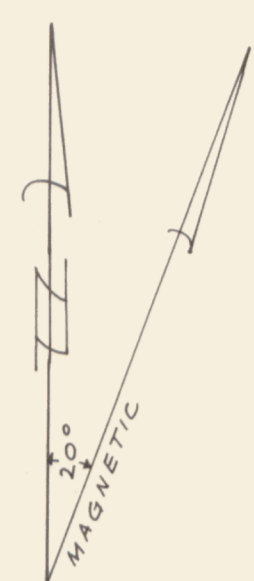


 RIVER  
 CREEK  
 1978 GEOPHYSICS GROUND GRID  
 INSTRUMENT : SCINTREX MP II PROTON PRECISION MAGNETOMETER  
 BASE 59,800 GAMMAS  
 CONTOUR INTERVAL 10 GAMMAS

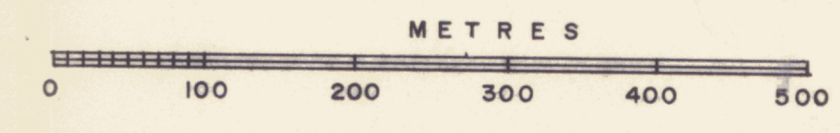
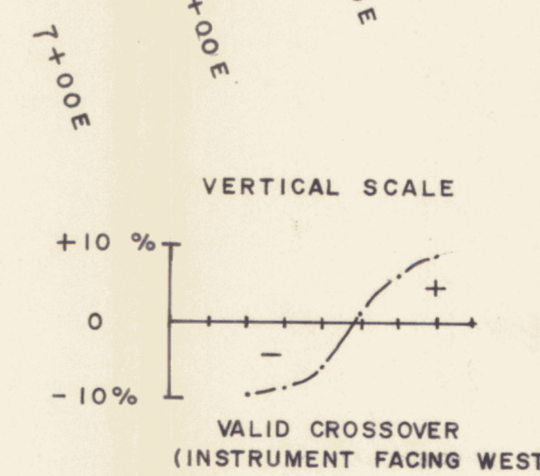


SELWYN RECCE

RITZ CLAIMS (NORTH GRID)			NTS
			105 1 5
			105 1 12
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Revised by	Revised by		
		MAGNETOMETER SURVEY	
Scale	Date	Plate	
1:5000	AUG, 1978	140-78-4	FORM 210 060



RIVER
   
 CREEK
   
 1978 GEOPHYSICS GROUND GRID
   
 INSTRUMENT: GEONICS EM 16



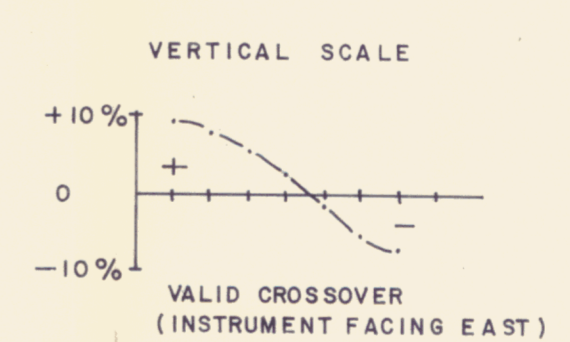
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Revised by	Date	Revised by	Date	
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Scale: HORIZ - 1:5000				



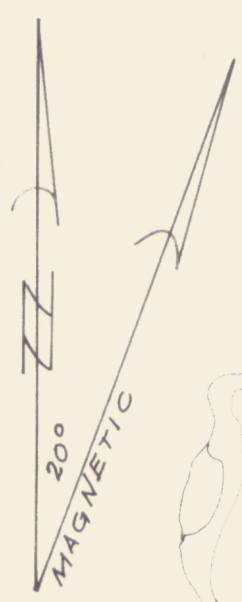
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 CREEK  
 1978 GEOPHYSICS GROUND GRID  
 INSTRUMENT : GEONICS EM 16

N.L.K.  
SEATTLE WASH., USA

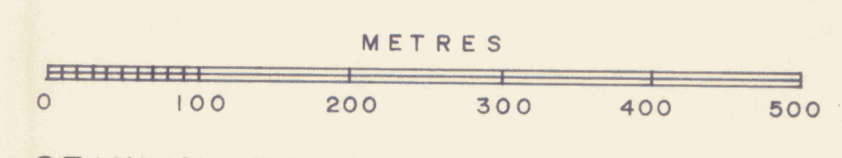


SELWYN RECCE

RITZ CLAIMS (NORTH GRID)				NTS 105   5 105   12
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Revised by	Date	Revised by	Date	
V.L.F. SURVEY				
WATSON LAKE M.D., YUKON				
Scale		Date	Plate	
1:5000		AUG., 1978	140-78-5	



- RIVER
  - CREEK
  - 1978 GEOPHYSICS GROUND GRID
- INSTRUMENT : MAX MIN II  
444 Hz
- CONDUCTOR A**
- CONDUCTOR LOCATION WITH WIDTH INDICATED
  - CONDUCTOR LOCATION NO WIDTH INDICATED

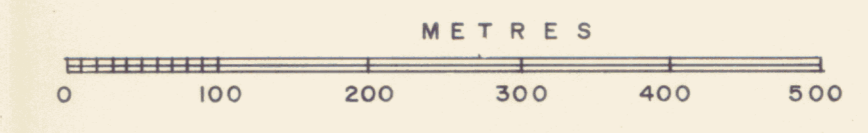


SELWYN RECCE

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				WATSON LAKE M.D., YUKON		
				Scale: 1:5000	Date: AUG, 1978	Plate: 140-78-12



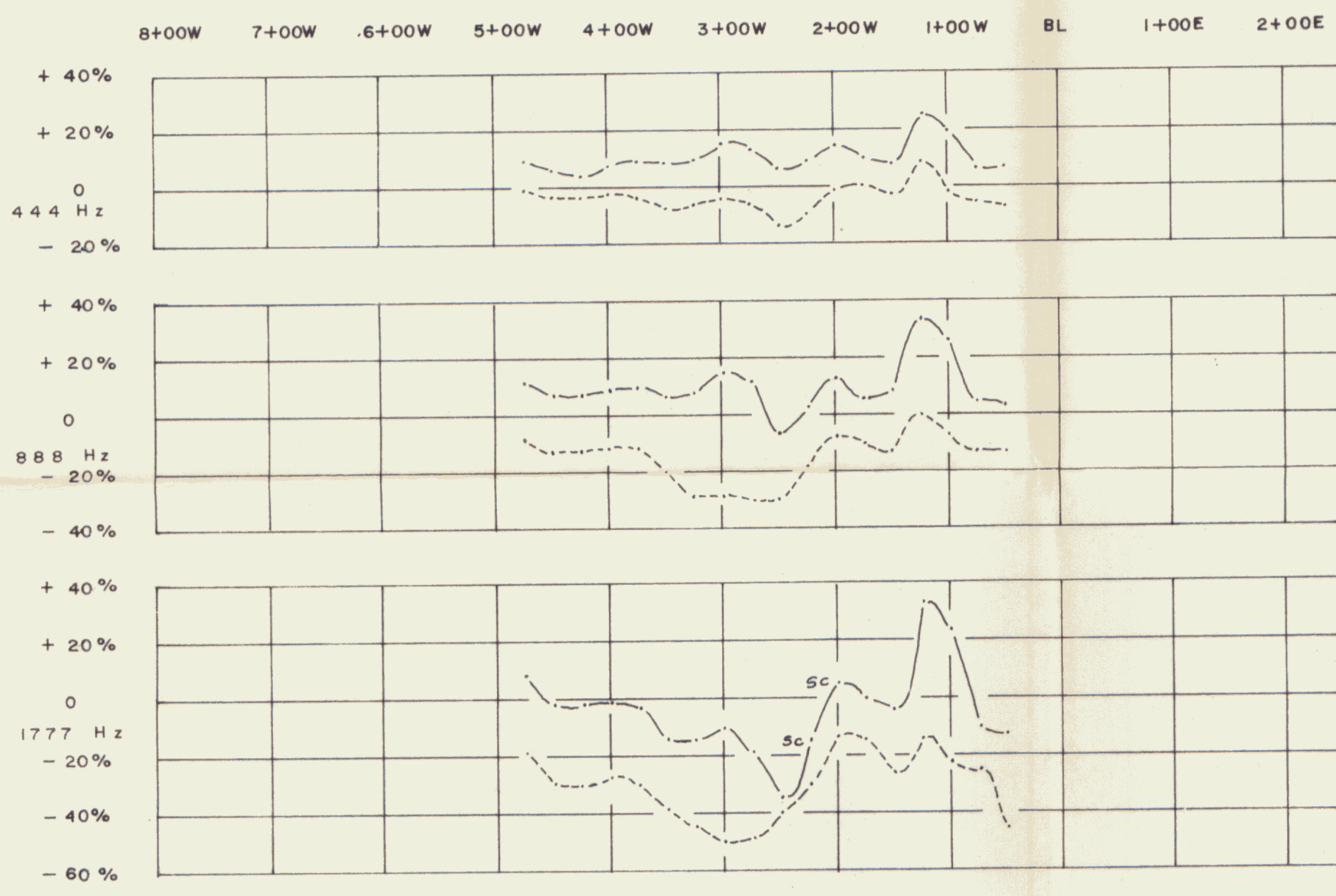
RIVER  
 CREEK  
 1978 GEOPHYSICS GROUND GRID  
 INSTRUMENT: MAX MIN II  
 444 Hz  
**CONDUCTOR**  
 CONDUCTOR LOCATION  
 WITH WIDTH INDICATED  
 100m & 150m C.S. INDICATED  
 CONDUCTOR LOCATION  
 NO WIDTH INDICATED  
 100m & 150m C.S. INDICATED



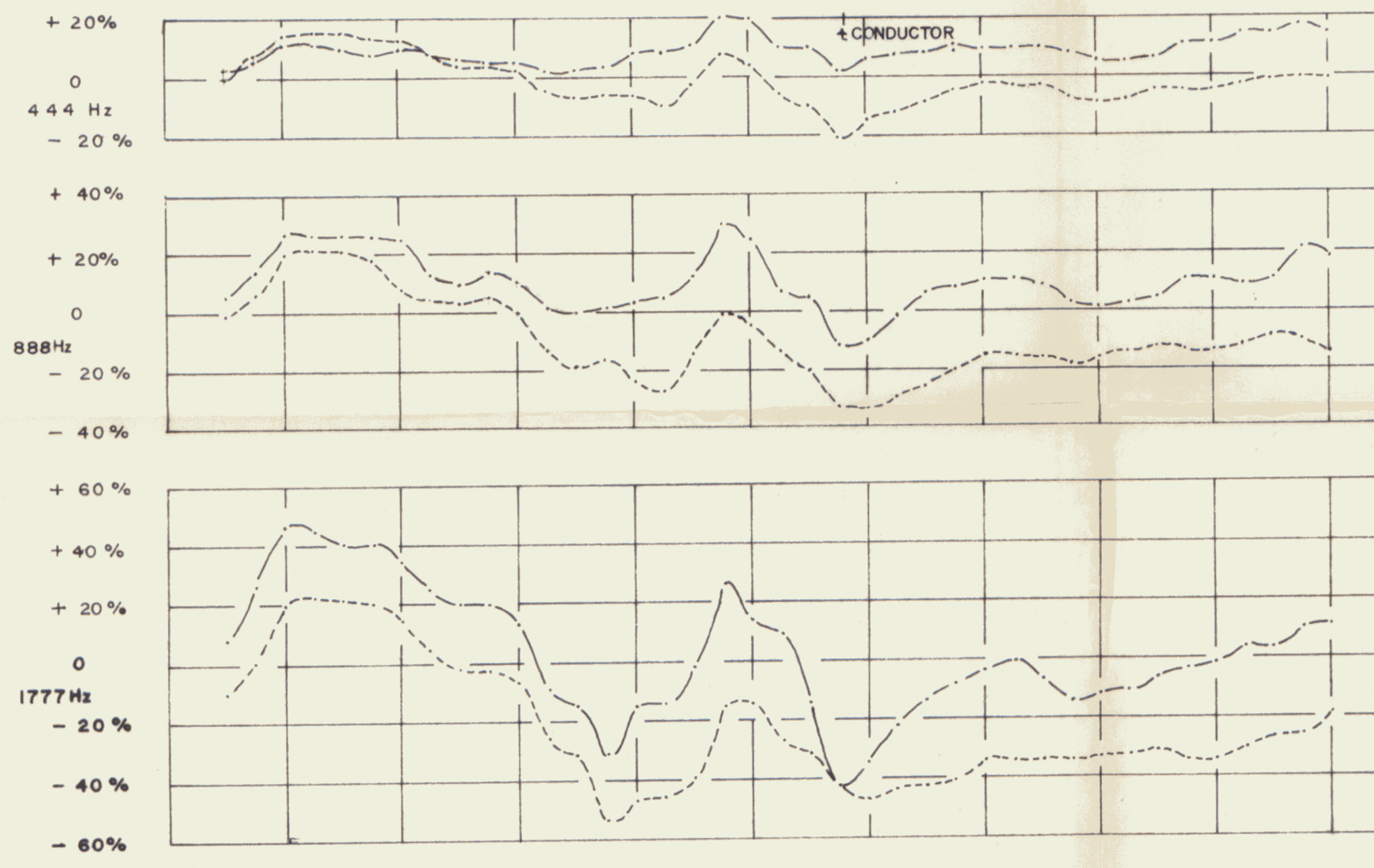
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RITZ CLAIMS (SOUTH GRID)		 NTS 105 15 105 112
Drawn by	Traced by	
Revised by	Revised by	<b>ELECTROMAGNETIC HORIZONTAL LOOP SURVEY</b> 100m & 150m COIL SEPARATION WATSON LAKE M.D., YUKON
Date	Date	
Scale	Date	Plate
1:5000	AUG., 1978	140-78-13

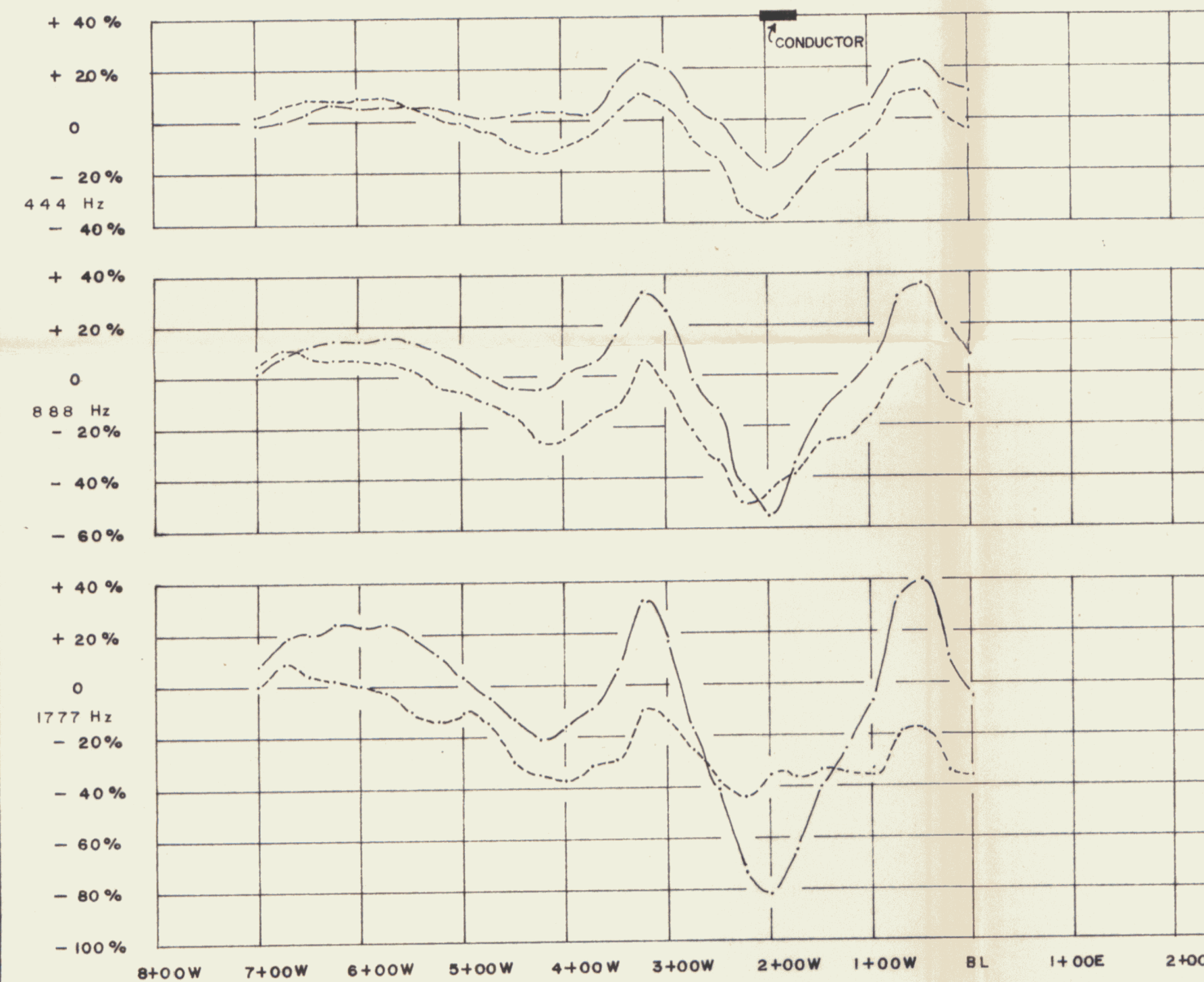
LINE 6+00N



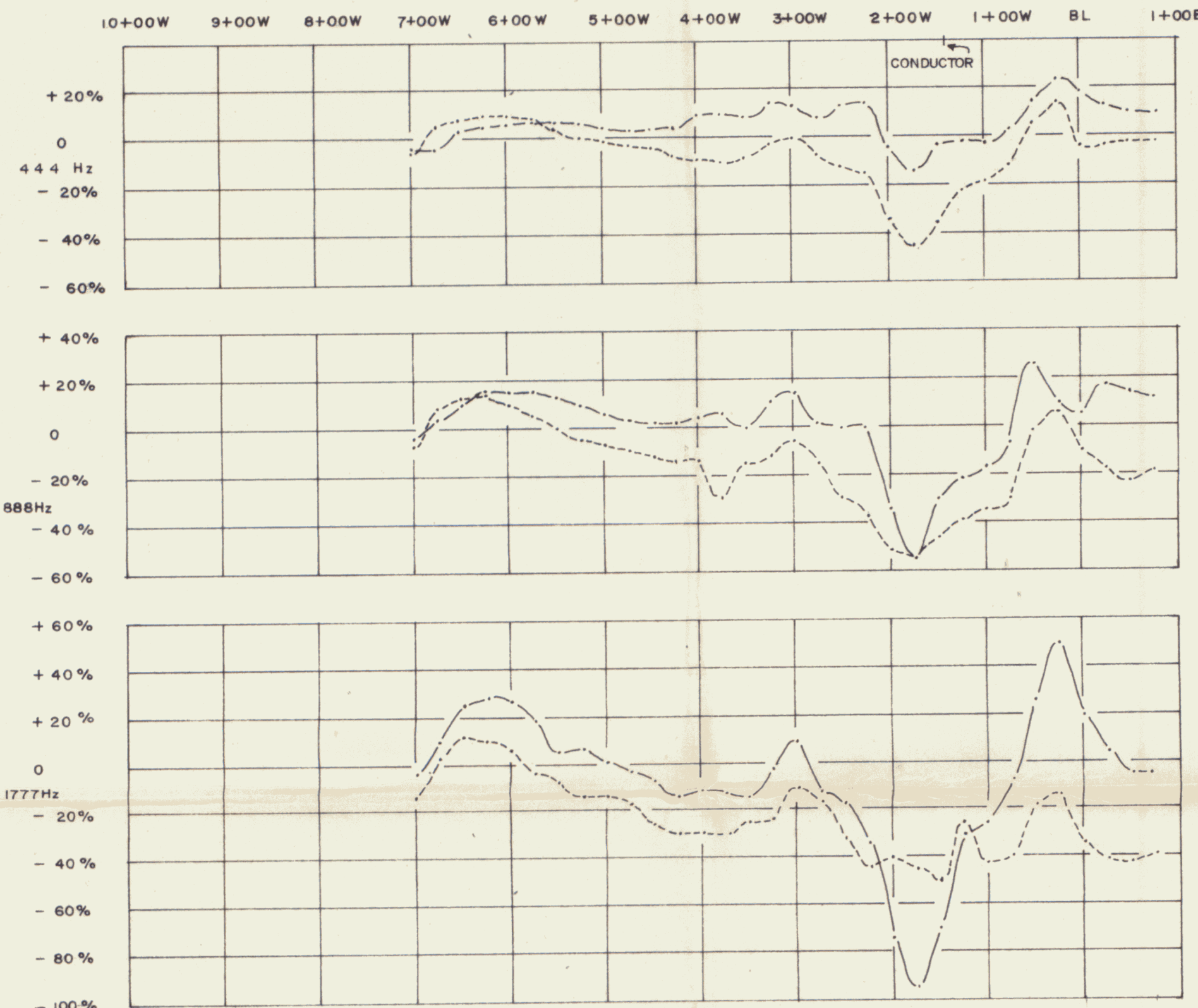
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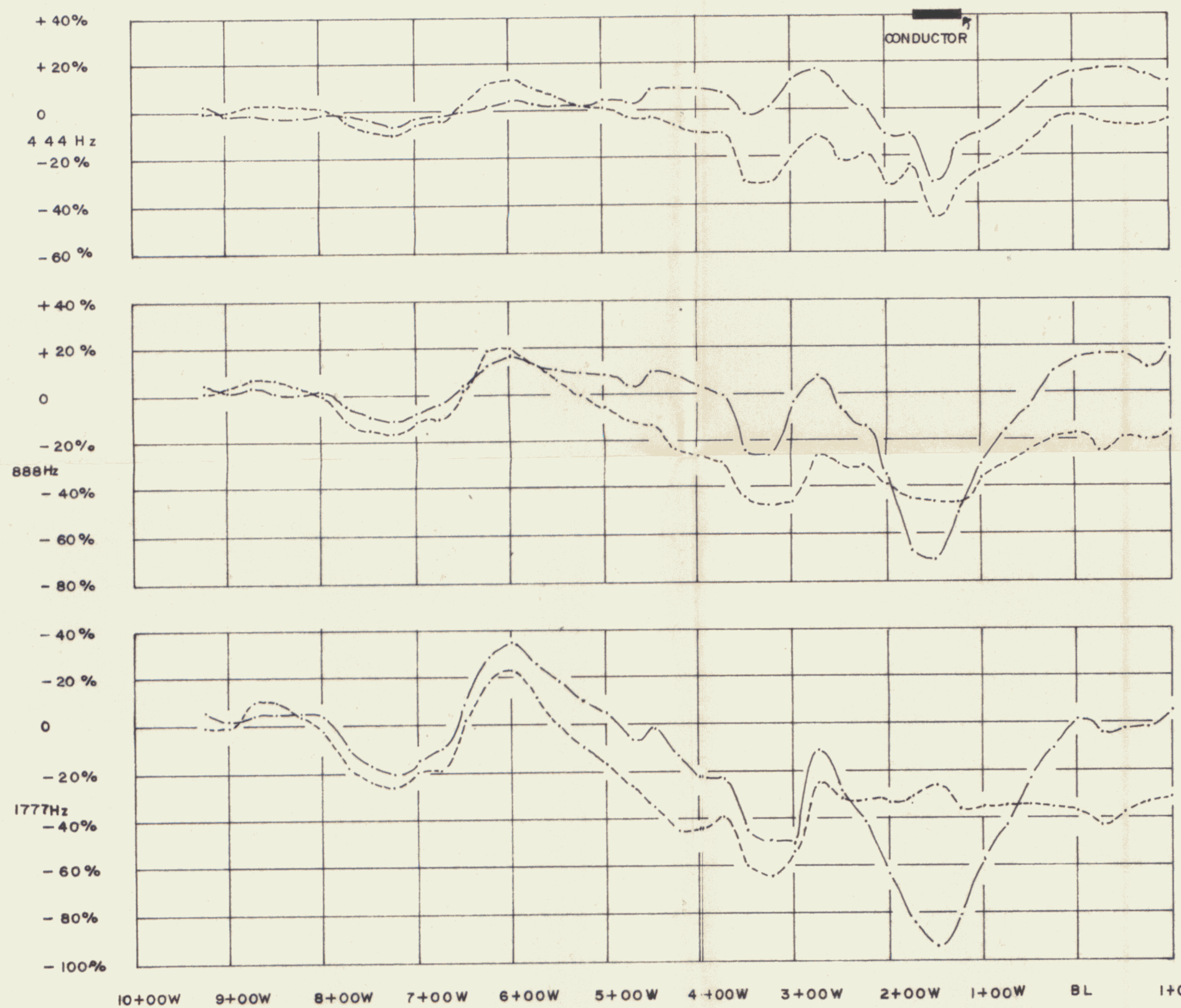
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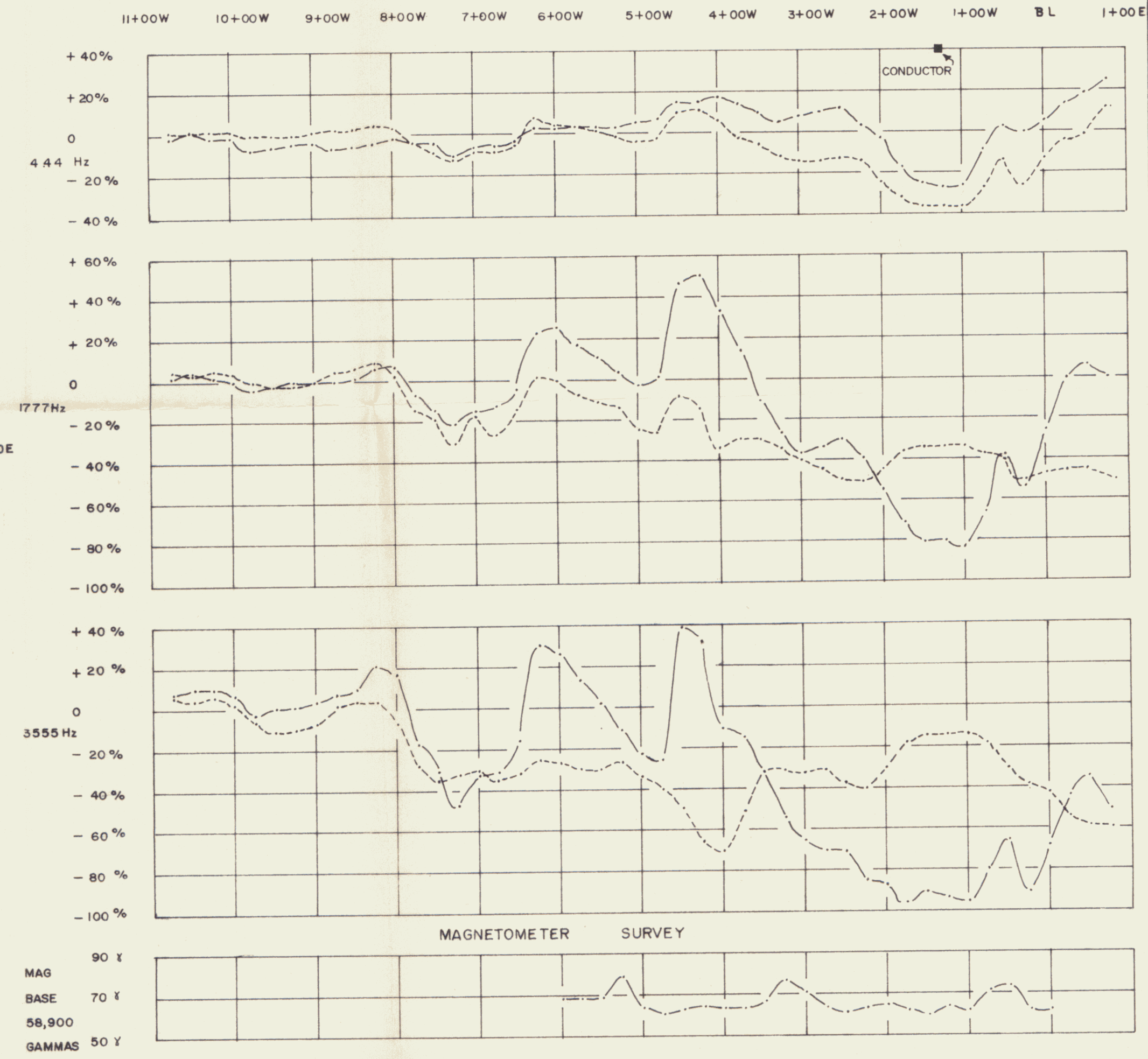
LINE 3+00N



LINE 2+00N



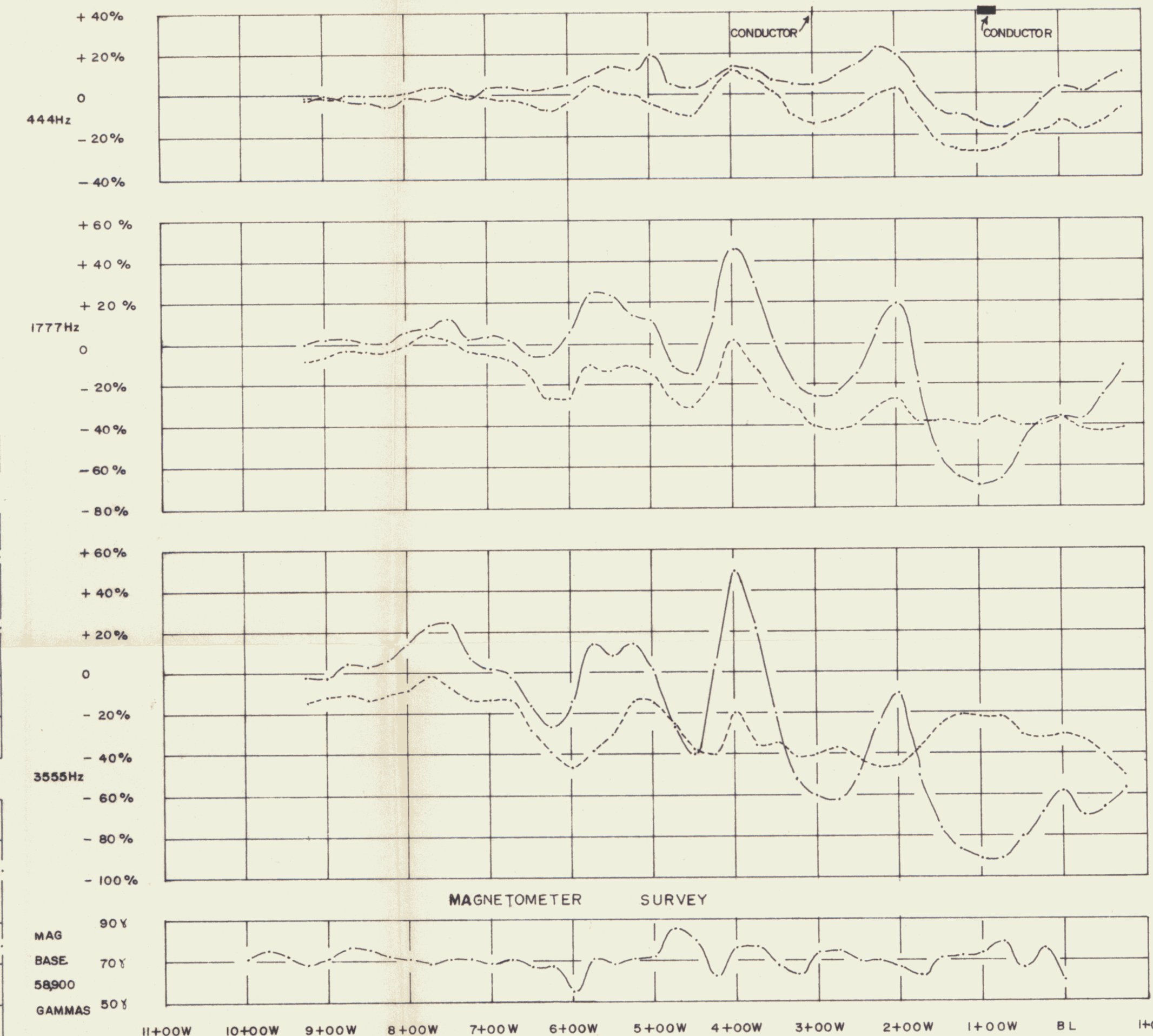
LINE 1+00N



MAGNETOMETER SURVEY

MAG 90 I  
BASE 70 I  
58,900  
GAMMAS 50 Y

LINE 0+00

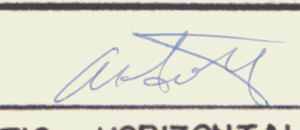
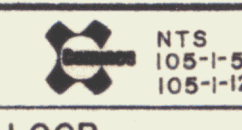


MAGNETOMETER SURVEY

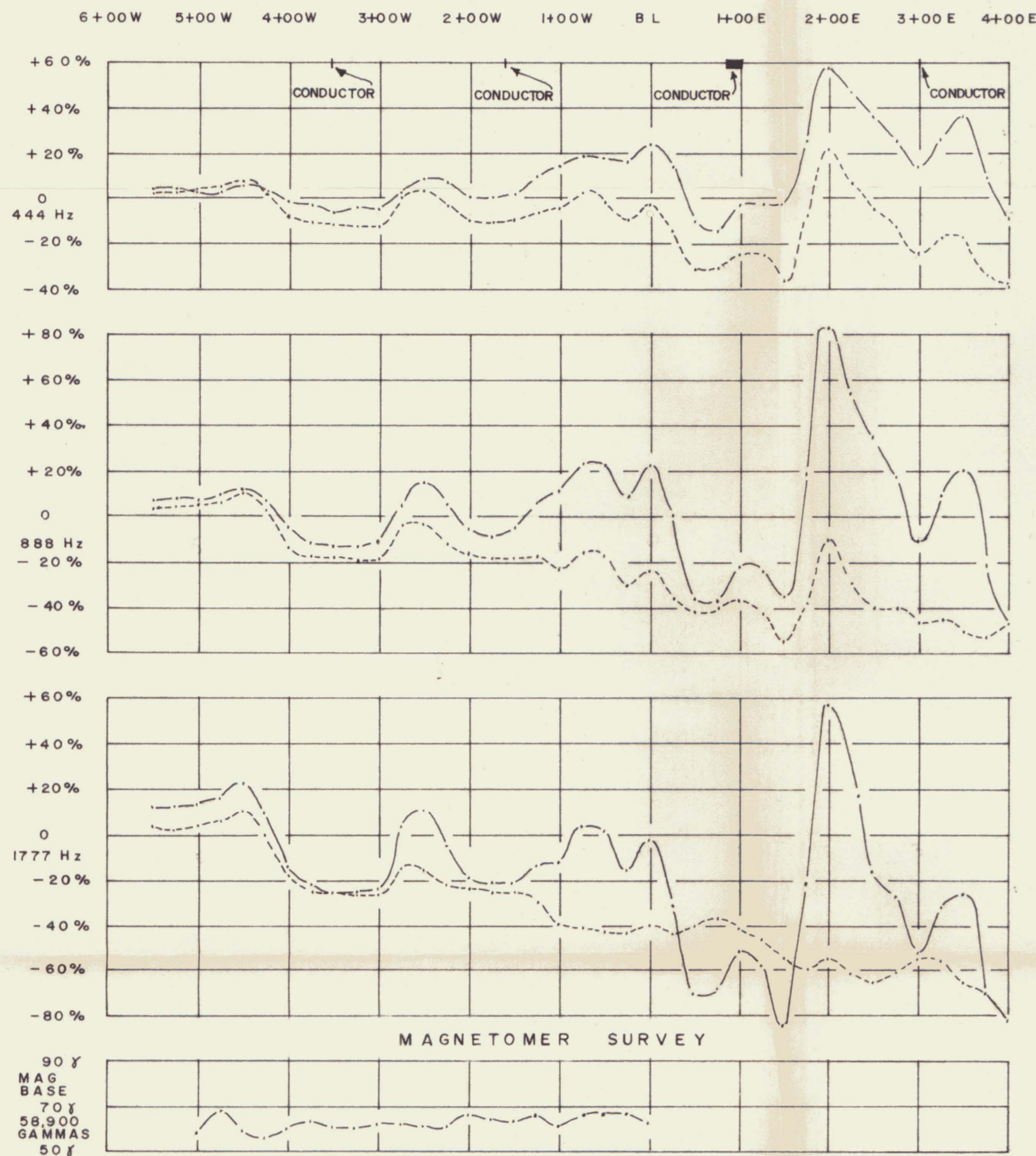
MAG 90 Y  
BASE 70 Y  
58,900  
GAMMAS 50 Y

SELWYN RECCE

- IN PHASE
  - - - OUT OF PHASE
  - CONDUCTOR LOCATION WITH INDICATED WIDTH
  - CONDUCTOR LOCATION NO INDICATED WIDTH
- INSTRUMENT : MAX MIN II

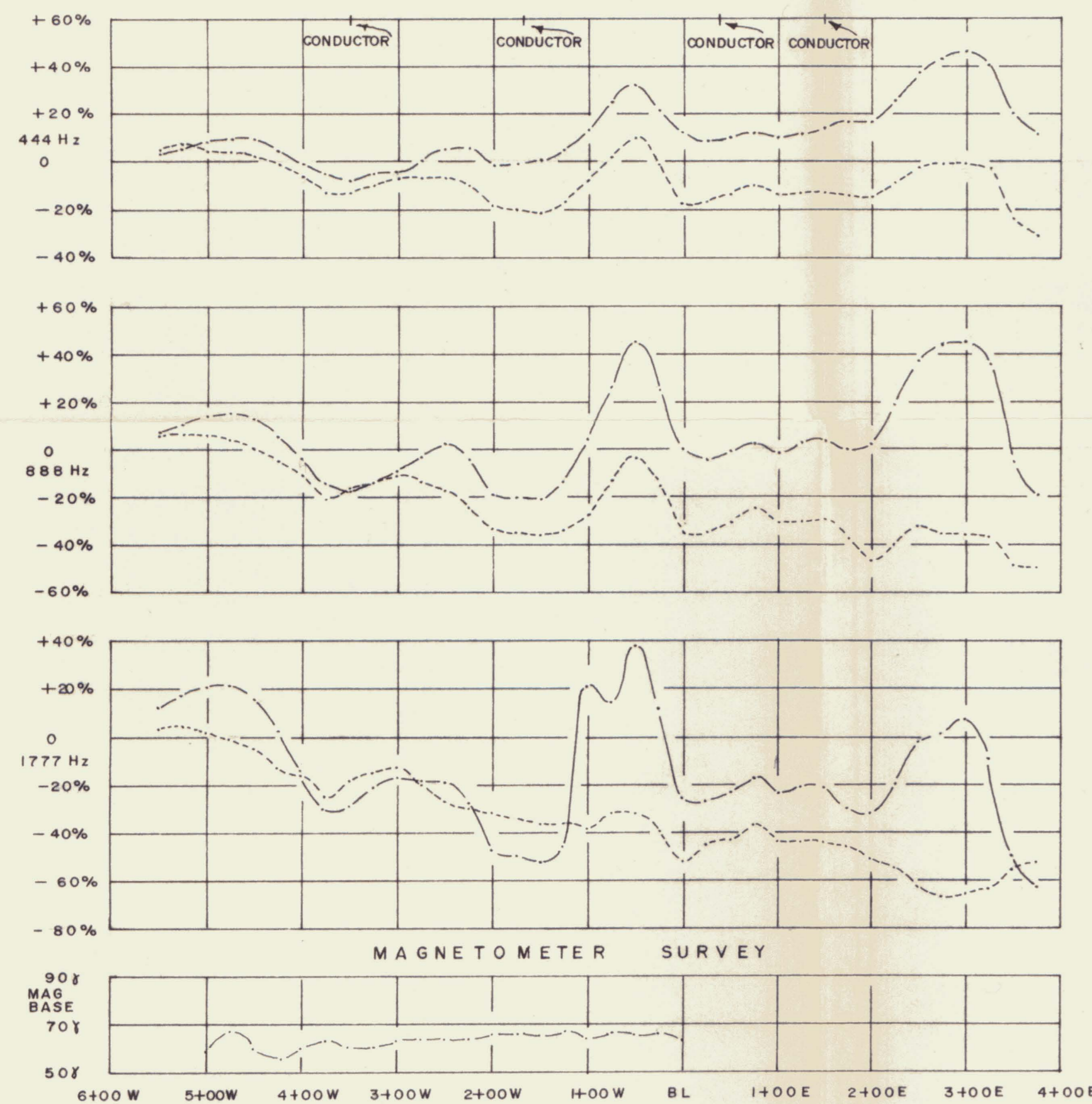
RITZ ( NORTH GRID )			
Drawn by:	Traced by:		
Revised by:	Date:	Revised by:	Date:
ELECTROMAGNETIC HORIZONTAL LOOP PROFILES, 150m COIL SEPARATION		Date: AUG 1978	
444 Hz, 888 Hz, 1777 Hz, 3555 Hz		Plate: 140-78-14	
WATSON LAKE M.D., YUKON		FORM 210 0805	
Scale: HORIZ=1:5000		VERT=20% = 1cm	

LINE 11+95 N



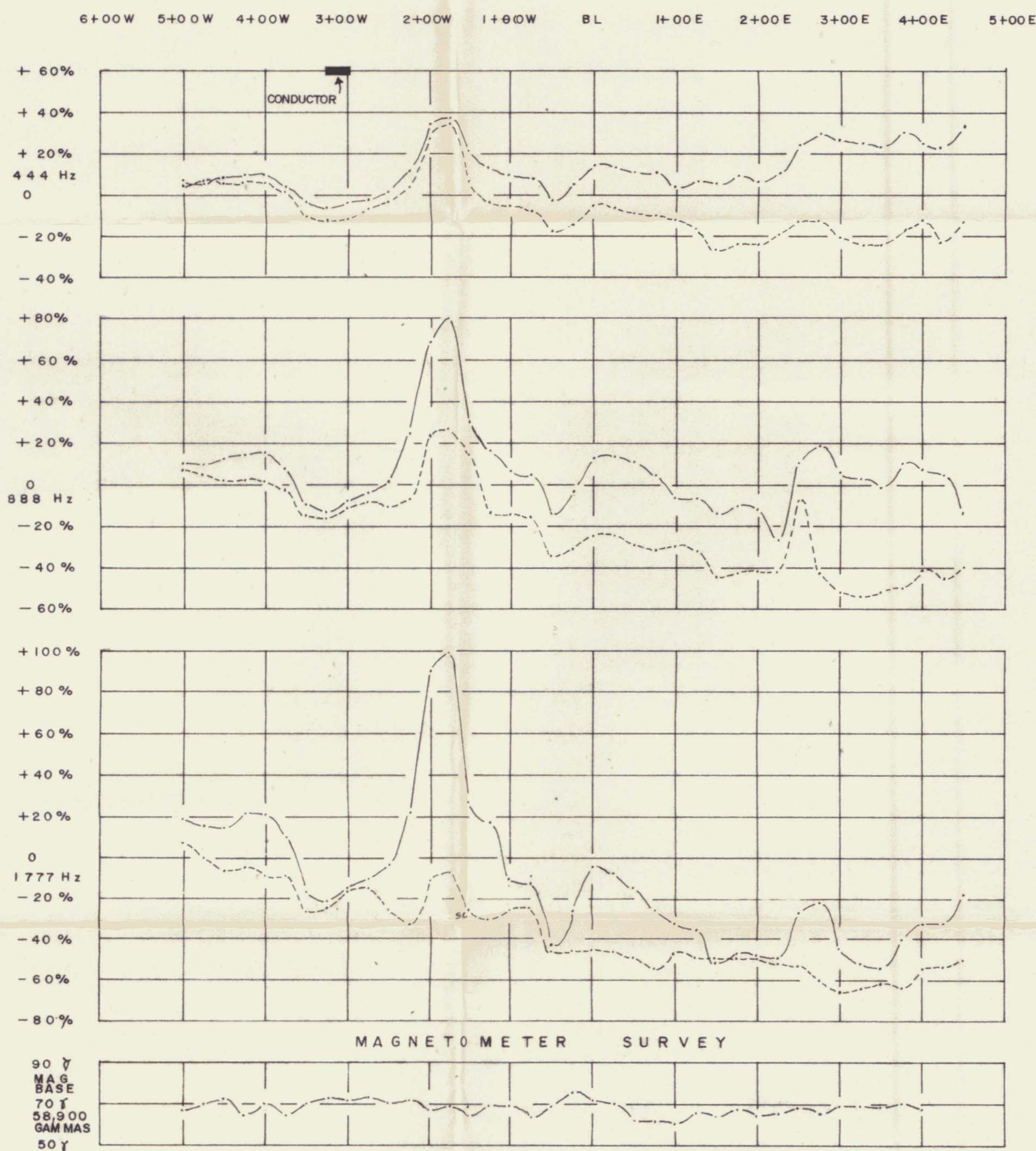
MAGNETOMETER SURVEY

LINE 11+00 N



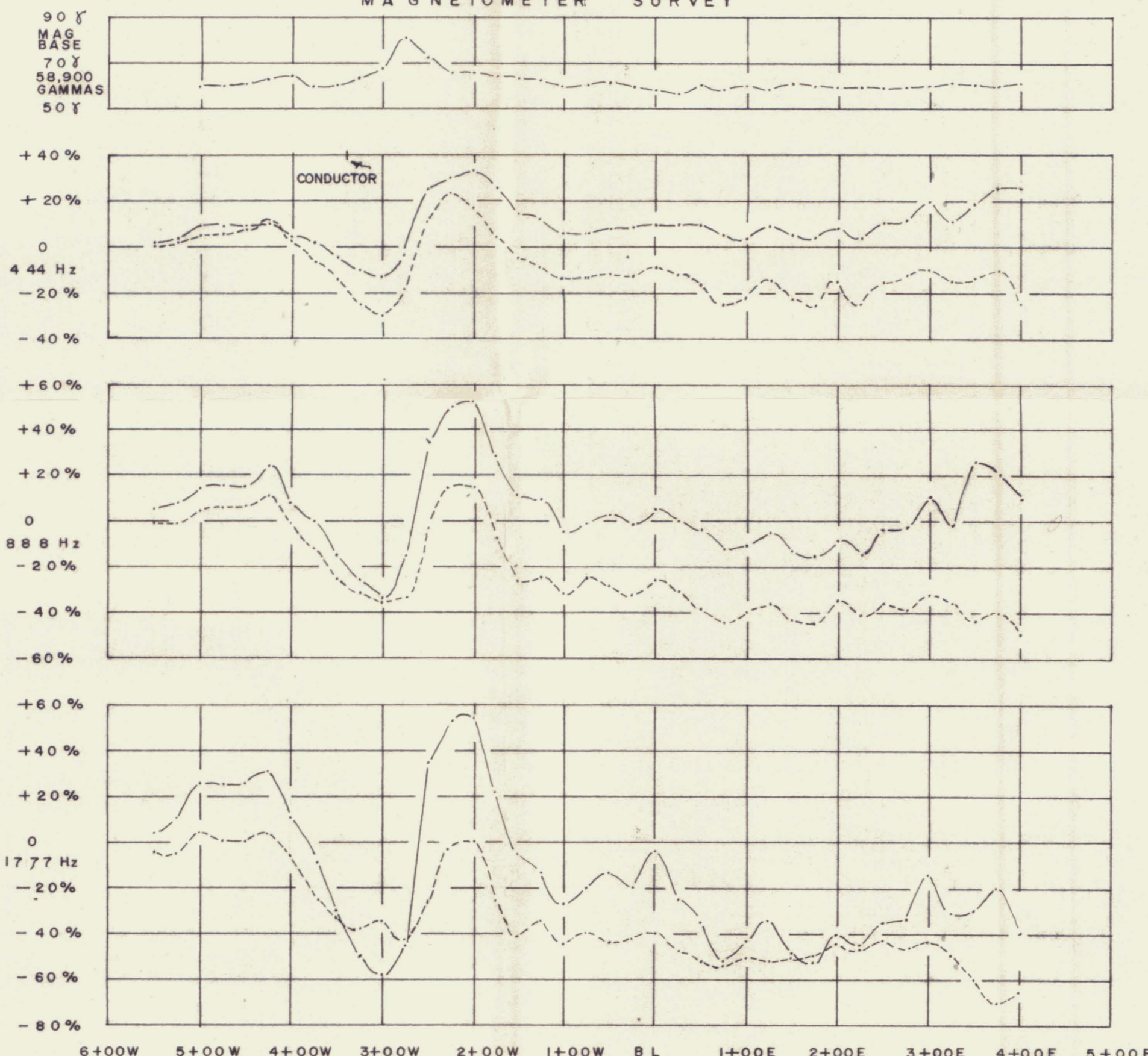
MAGNETOMETER SURVEY

LINE 10+00 N



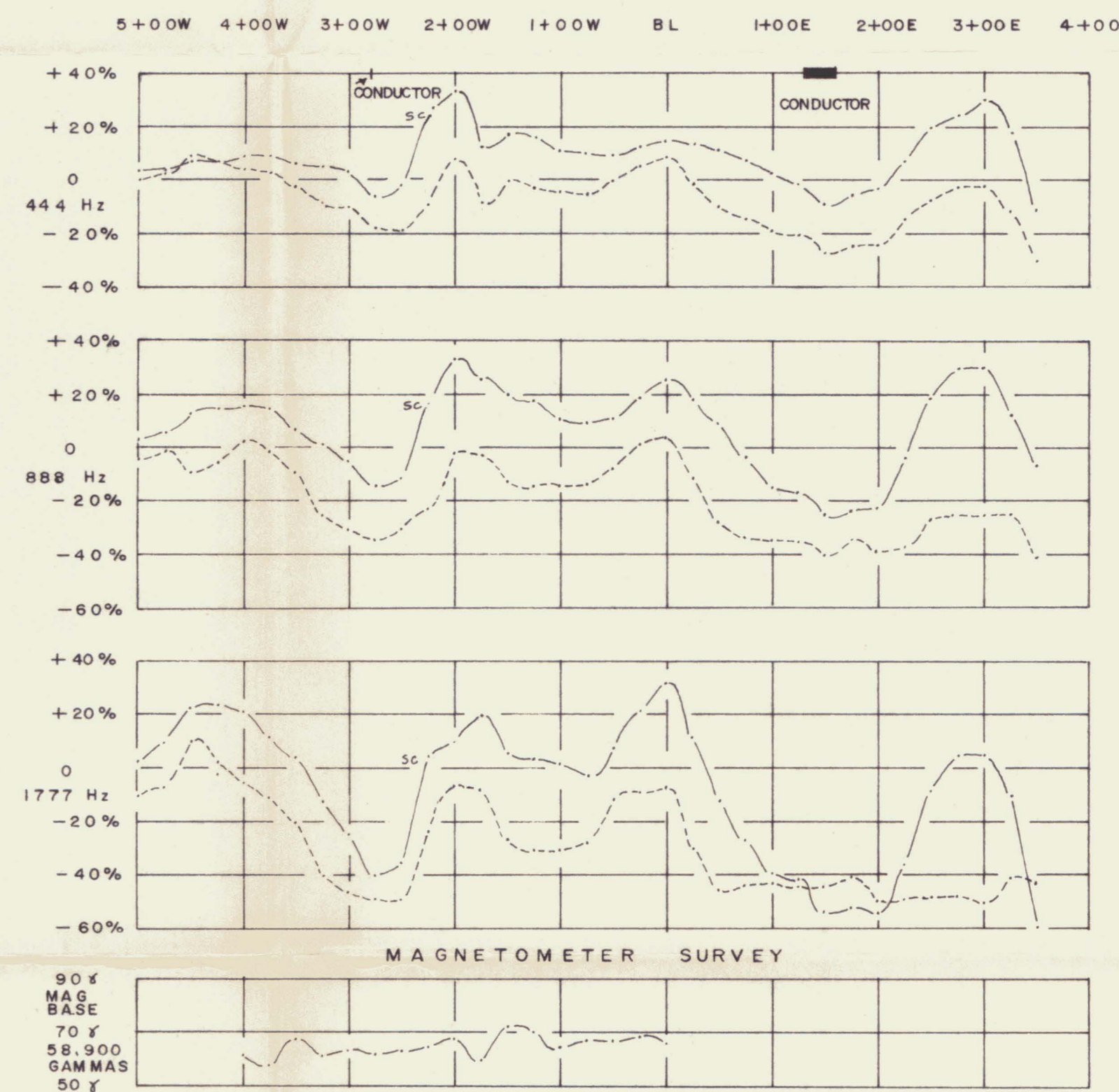
MAGNETOMETER SURVEY

LINE 9+00 N



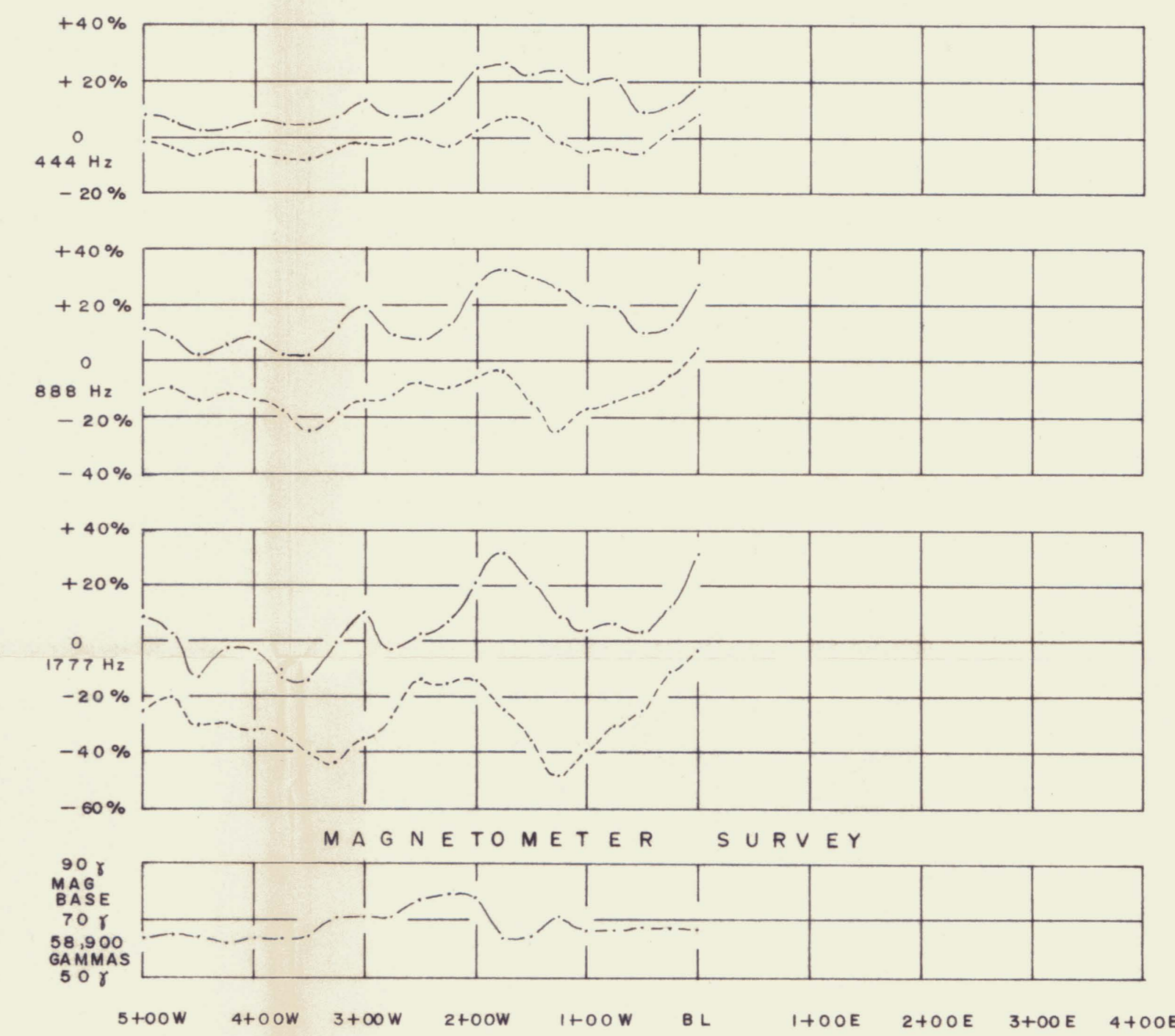
MAGNETOMETER SURVEY

LINE 8+00 N



MAGNETOMETER SURVEY

LINE 7+00 N



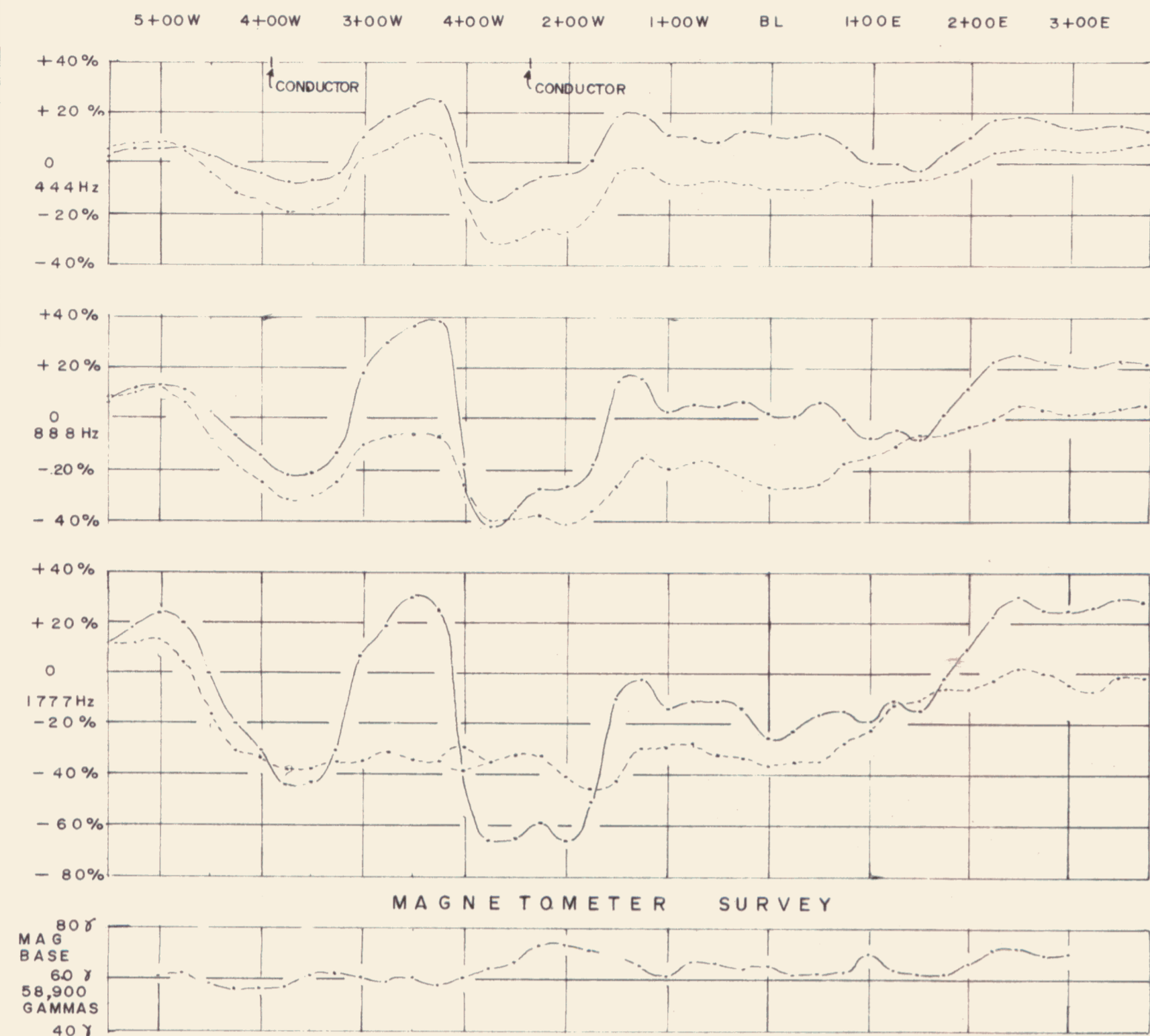
MAGNETOMETER SURVEY

--- IN PHASE  
 - - - OUT OF PHASE  
 ■ CONDUCTOR LOCATION WITH INDICATED WIDTH  
 + CONDUCTOR LOCATION NO INDICATED WIDTH  
 INSTRUMENT: MAX MIN II

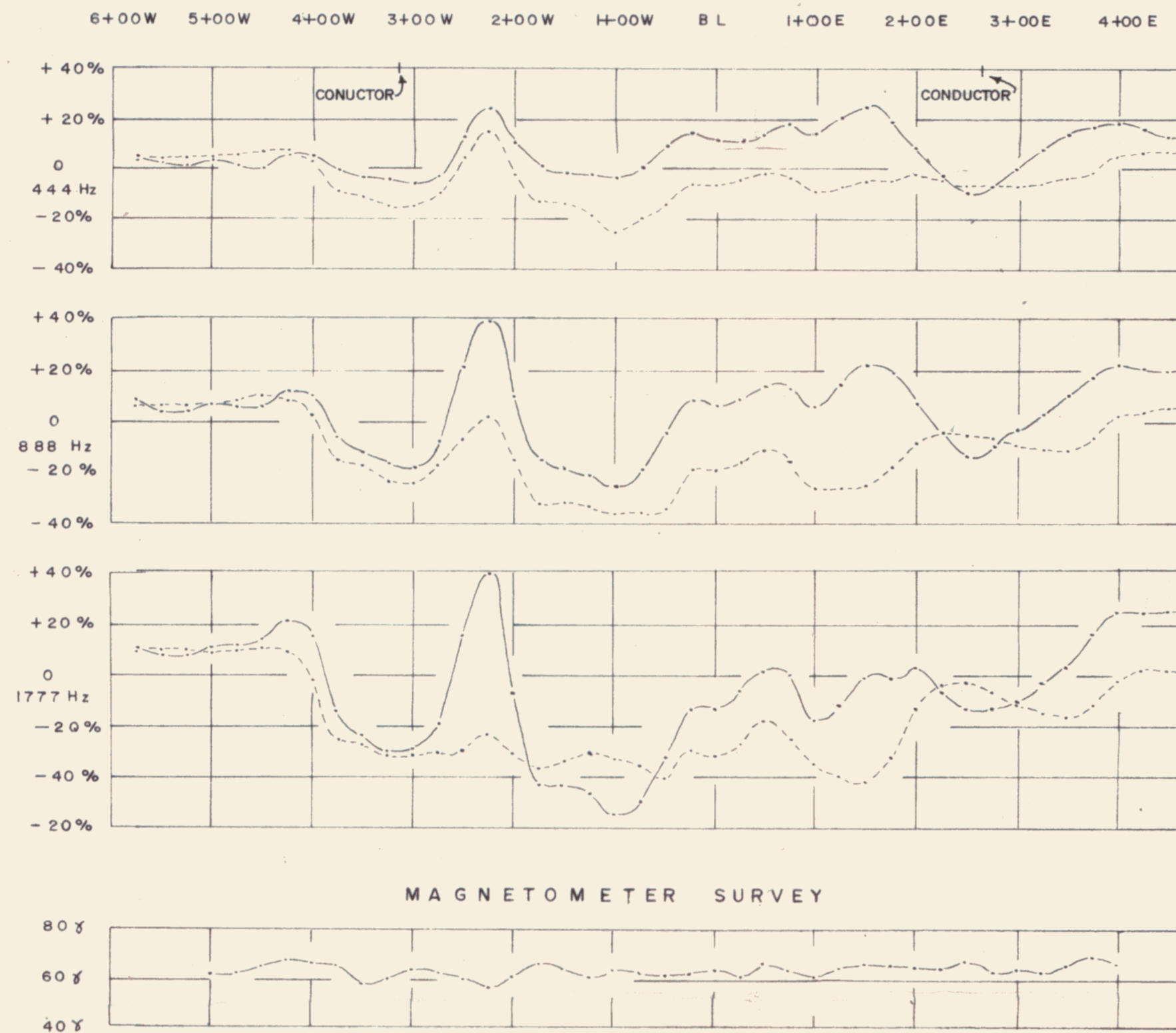
SELWYN RECCE

RITZ (NORTH GRID)			NTS 105 15 105 12
Drawn by:	Traced by:		
Revised by:	Revised by:	ELECTROMAGNETIC HORIZONTAL LOOP PROFILES. 150m COIL SEPARATION 444 Hz, 888 Hz, 1777 Hz WATSON LAKE M.D., YUKON	
Scale: HORIZ - 1:5000		Date: AUG 1978	Plate: 140-78-15
VERT - 20% = 1cm			

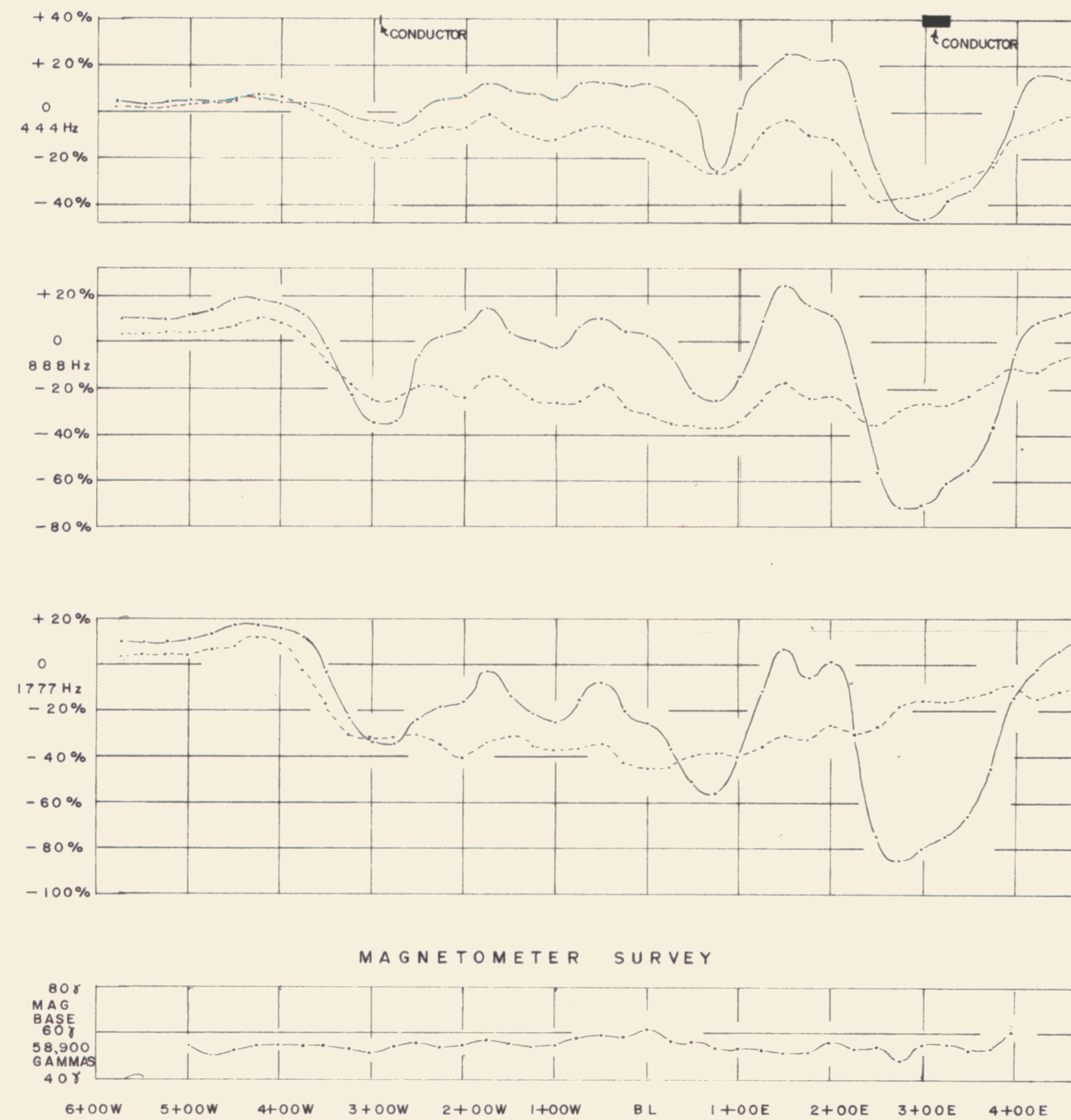
LINE 17+00 N



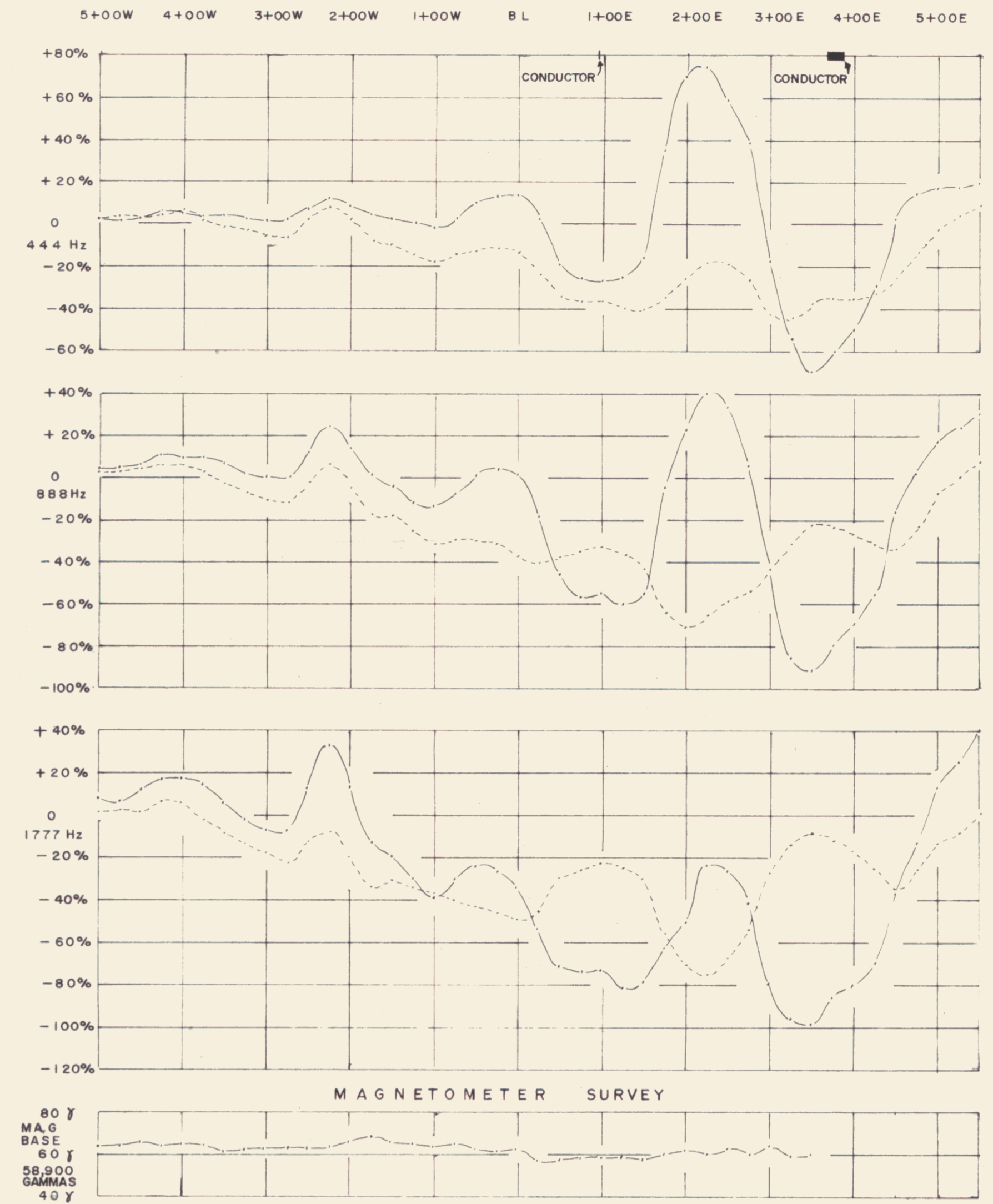
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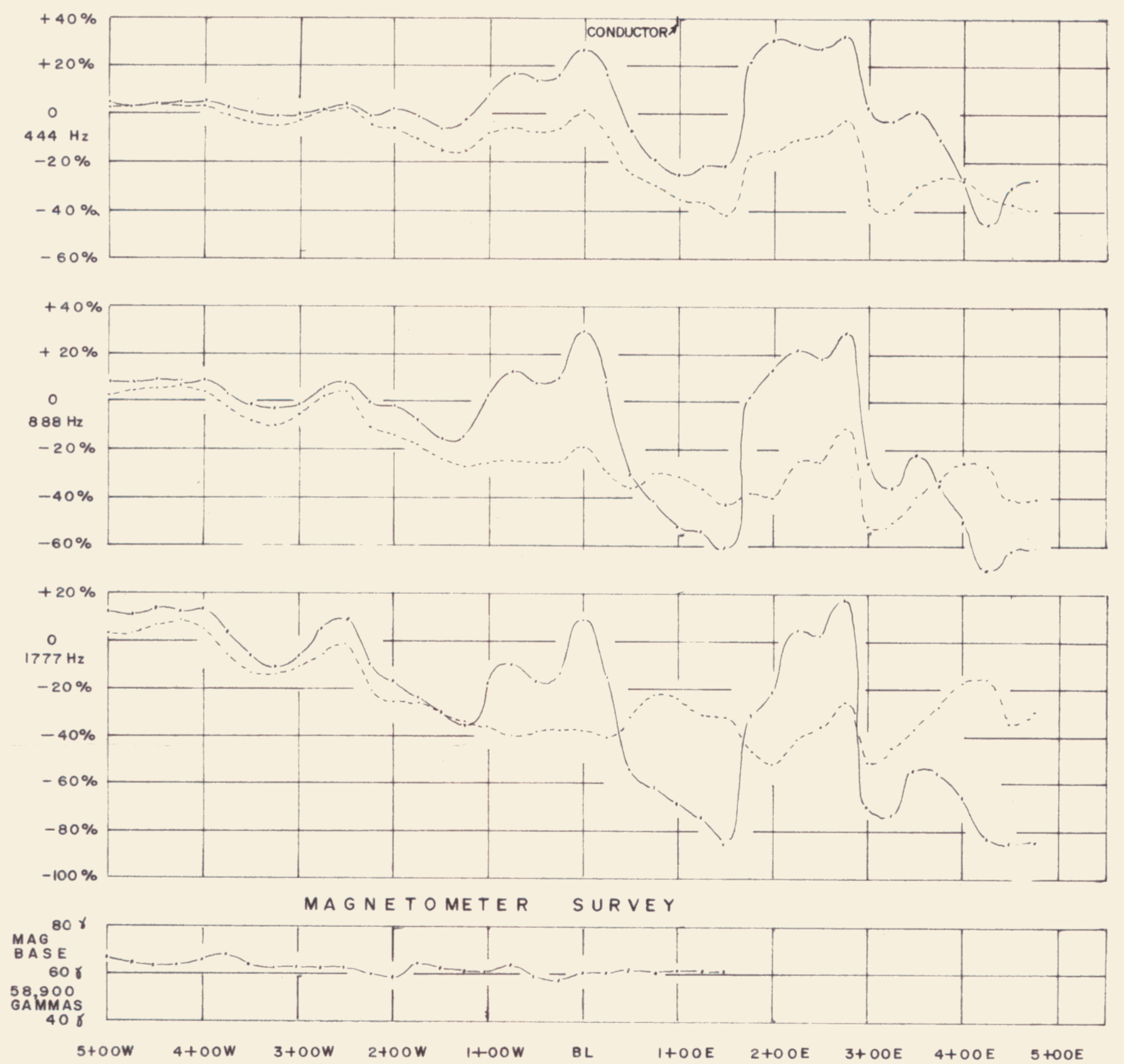
LINE 15+00 N



LINE 14+00 N



LINE 13+00 N

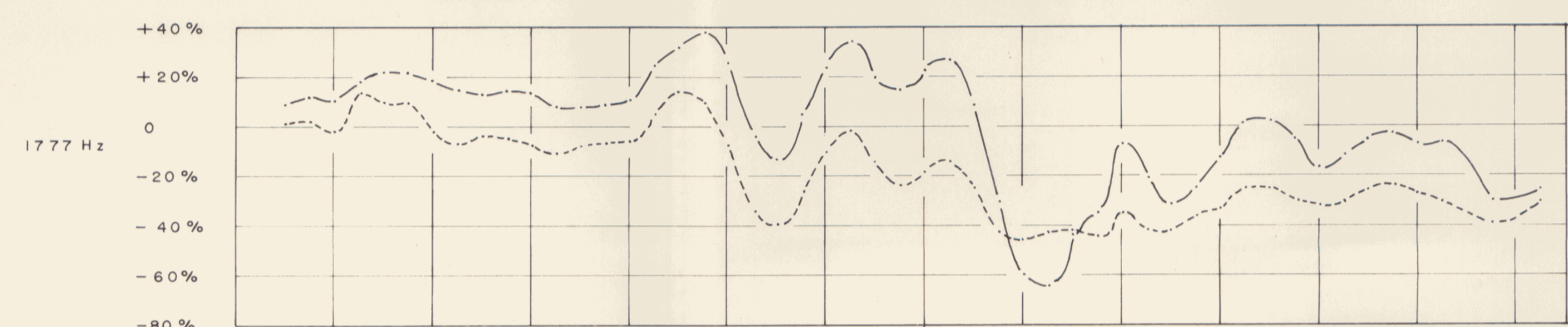
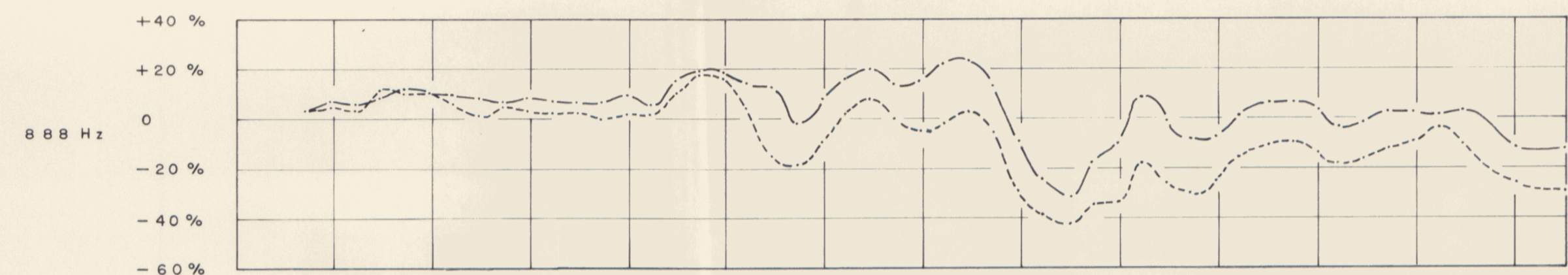
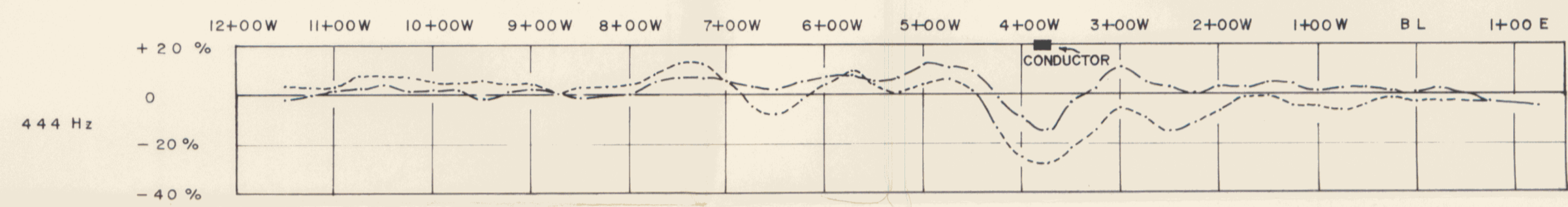


- - - IN PHASE  
 - - - OUT OF PHASE  
 ■ CONDUCTOR LOCATION WITH INDICATED WIDTH  
 + CONDUCTOR LOCATION NO INDICATED WIDTH  
 INSTRUMENT: MAX MIN II

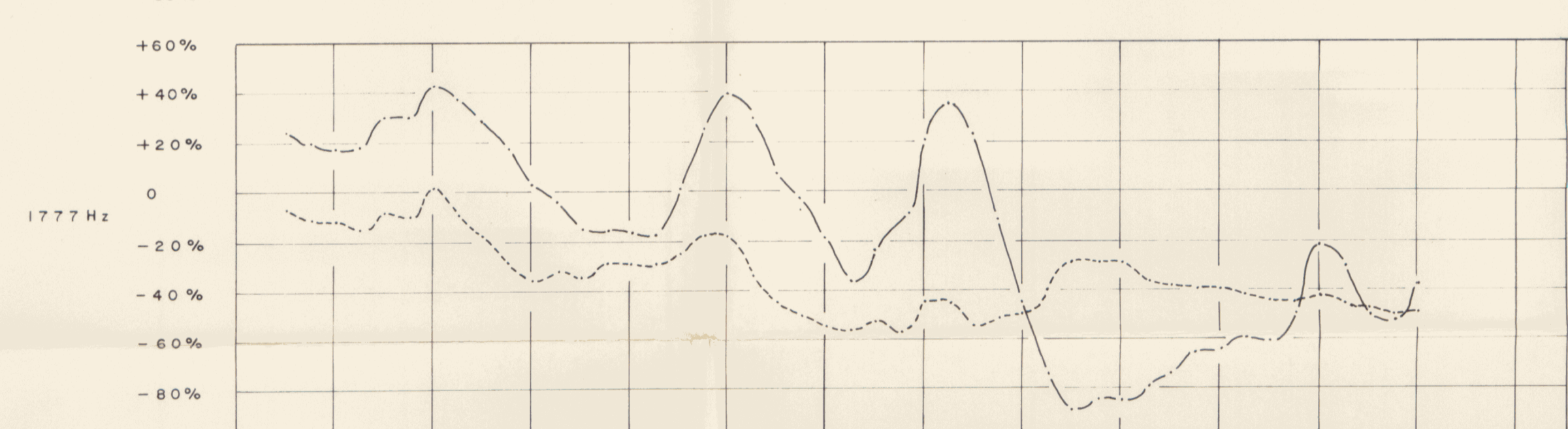
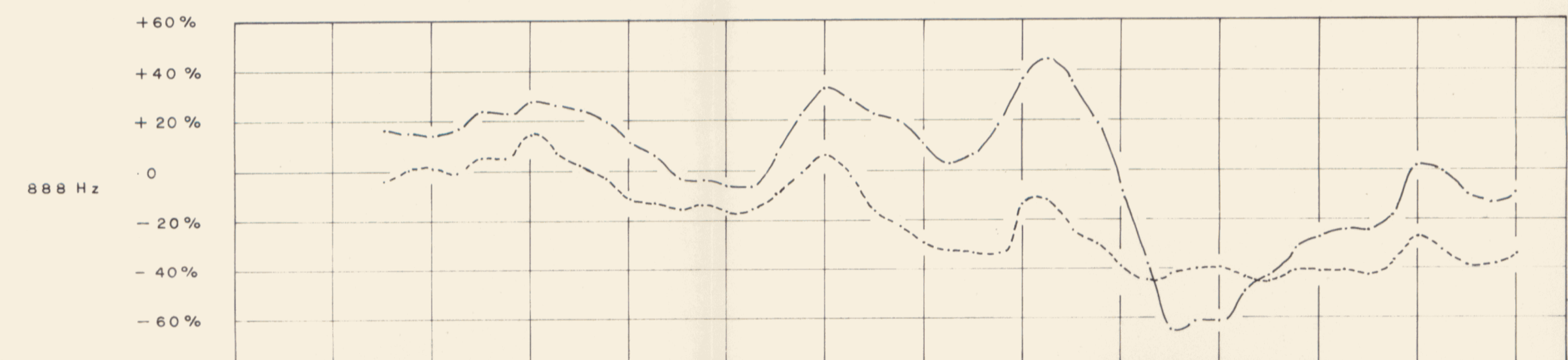
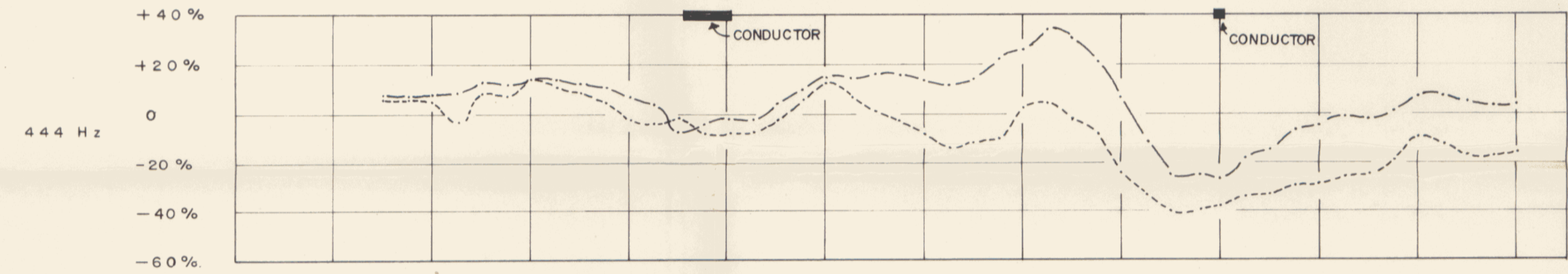
SELWYN RECCE

RITZ CLAIMS (NORTH GRID)			NTS 10515 10512
Drawn by: Revised by:	Traced by: Revised by:		
Scale: AS SHOWN		Date: AUG 1978	Plate: 140-78-16

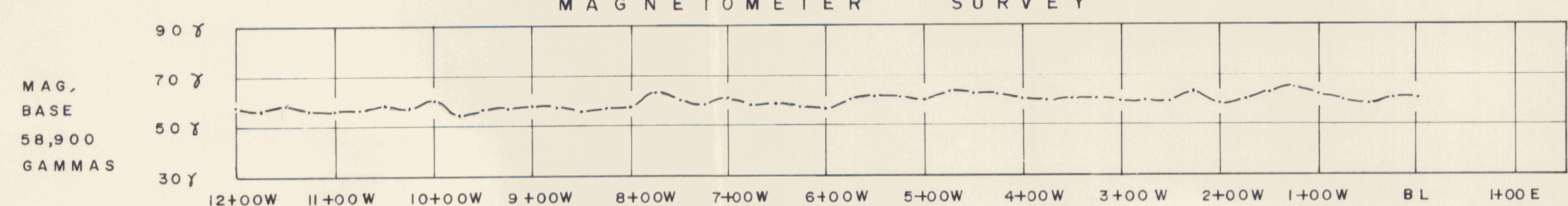
LINE 20+00 S  
100 m COIL SEPARATION



150 m COIL SEPARATION



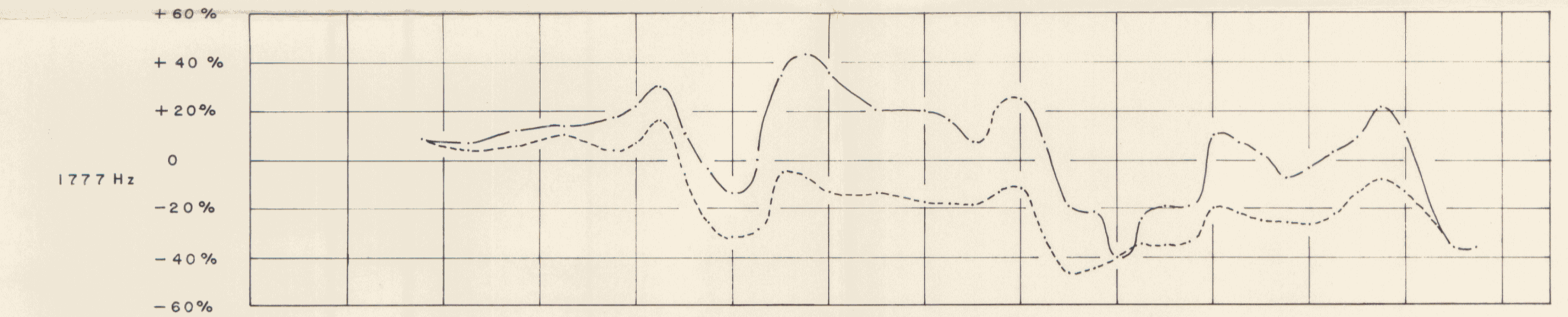
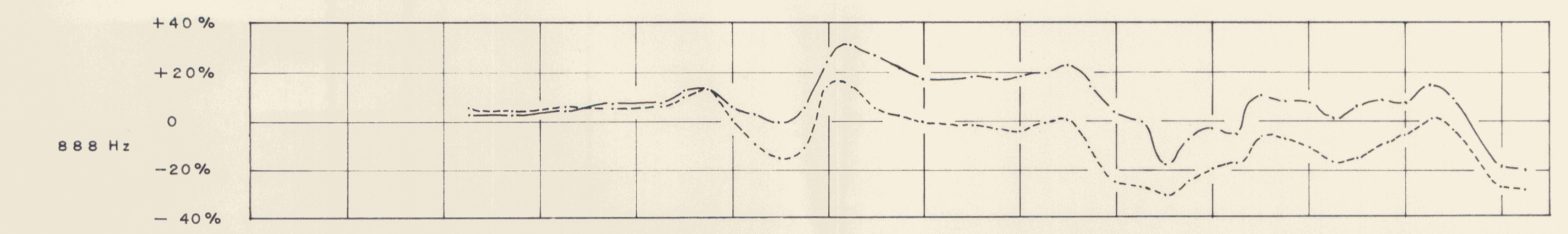
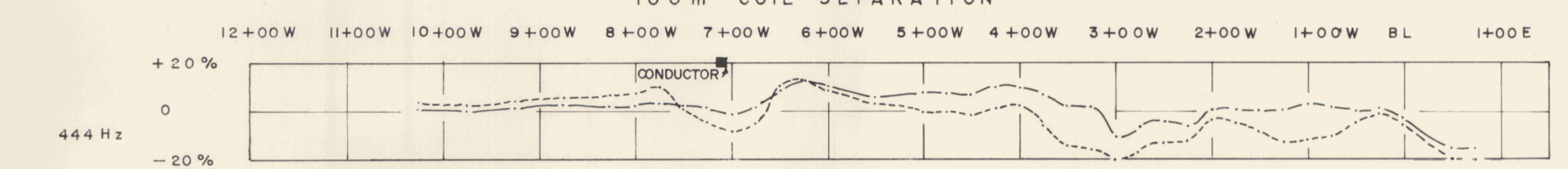
MAGNETOMETER SURVEY



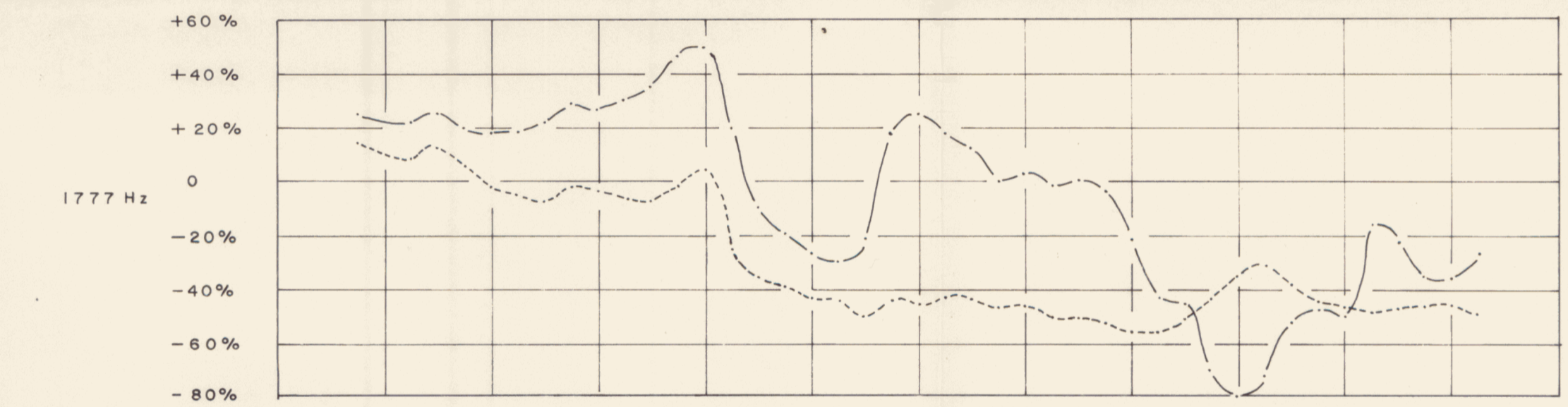
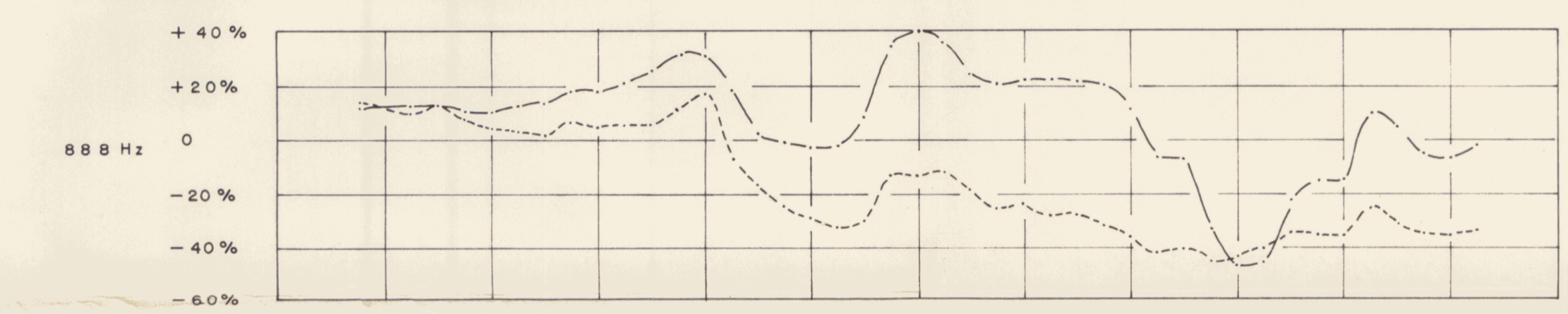
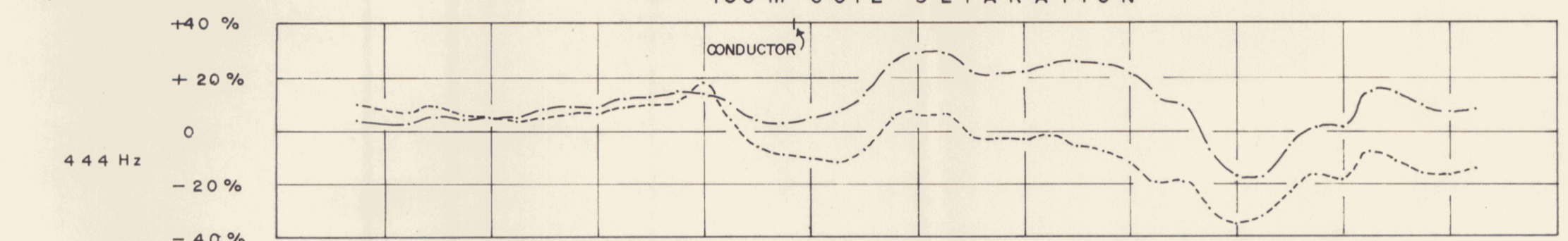
MAG. BASE 58,900 GAMMAS

LINE 22+50 S

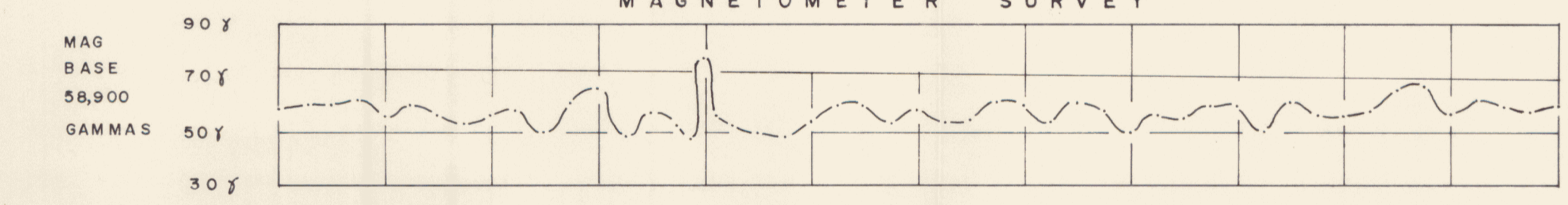
100 m COIL SEPARATION



150 m COIL SEPARATION



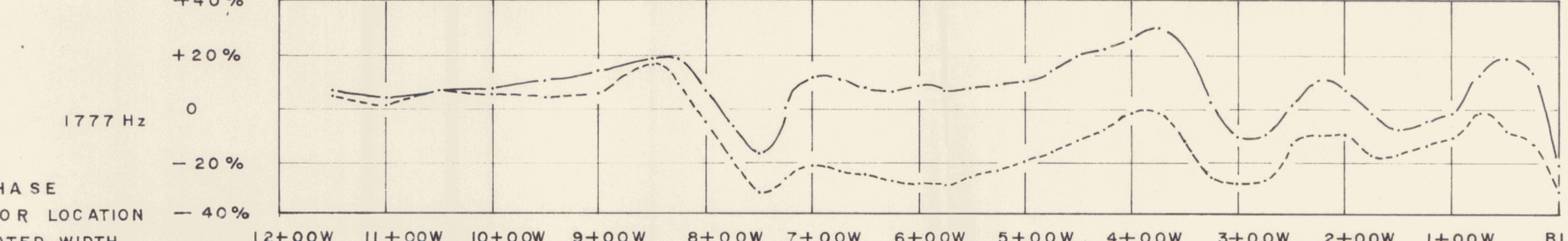
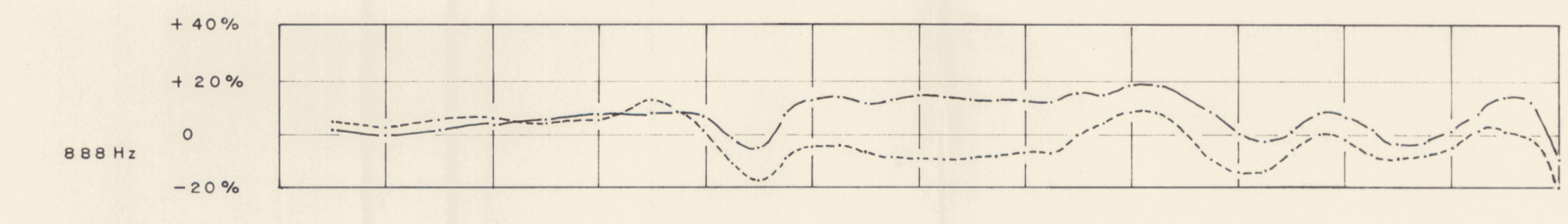
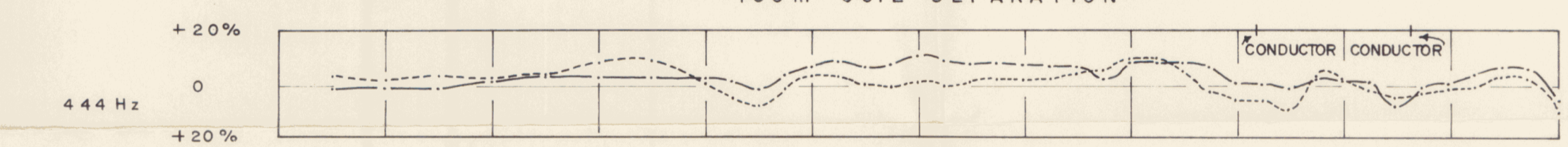
MAGNETOMETER SURVEY



MAG. BASE 58,900 GAMMAS

LINE 23+75 S

100 m COIL SEPARATION



IN PHASE  
OUT OF PHASE  
CONDUCTOR LOCATION WITH INDICATED WIDTH  
CONDUCTOR LOCATION NO INDICATED WIDTH  
INSTRUMENT: MAX MIN II

SELWYN RECCE

RITZ CLAIMS (SOUTH GRID)		NTS 105 15 105 12
Drawn by:	Traced by:	ELECTROMAGNETIC HORIZONTAL LOOP
Revised by:	Revised by:	PROFILES, 100m & 150m COIL SEPARATION, 444Hz 888Hz 1777Hz
WATSON LAKE M.D. YUKON		Plate 140-78-17
Scale: NCRIZ-1:5000 VERT-20% = 1cm	Date: AUG 1978	FORM 216 10-66