

NGU Report 2000.065

Magnetic, VLF and Slingram measurements in
the Storskarven area, Røros, Norway, 2000

Report no.: 2000.065		ISSN 0800-3416	Grading: <i>Åpen</i>	
Title: Magnetic, VLF and Slingram measurements in Storskarven area, Røros, Norway, 2000				
Authors: Einar Dalsegg and Harald Elvebakk		Client: CREW DEVELOPMENT CORPORATION		
County: Sør-Trøndelag		Commune: Røros		
Map-sheet name (M=1:250.000) Røros		Map-sheet no. and -name (M=1:50.000) Ålen 1720 IV		
Deposit name and grid-reference: Storskarven 32V 63100 696160		Number of pages: 23	Price (NOK): <i>Kr. 200,-</i>	
		Map enclosures: 4		
Fieldwork carried out: April 2000	Date of report: 19.05 2000	Project no. 2850.01	Person responsible: <i>Jens S. Koenig</i>	
Summary: <p>On behalf of Crew Development Corporation the Geological Survey of Norway have executed a Magnetic, VLF and Slingram survey over Storskarven area. Storskarven is located north of the lake Aursunden at Røros in Sør-Trøndelag county.</p> <p>The purpose of the survey was to follow up the Helicopter EM survey done over the same area in 1999.</p>				
Keywords: Geofysikk	Elektromagnetisk måling	Magnetometri		
Sulfid				
		Fagrapport		

CONTENTS

1	INTRODUCTION.....	4
2	MEASUREMENTS.....	4
3	RESULTS	5

FIGURES

Figure 1a – 18a:	Slingram MaxMin profile 10000 E – 11700 E
Figure 1b – 18b:	Magnetic total field and VLF profile 10000 E – 11700 E

MAPS

2000.065-01	Overview map of the investigated area
-02	Magnetic total field
-03	VLF Fraser-filtered tilt angle
-04	VLF Fraser-filtered quadrature

1. INTRODUCTION

On behalf of CREW DEVELOPMENT CORPORATION the Geological Survey of Norway have executed a Magnetic, VLF and Slingram survey over Storskarven area. Storskarven is located north of the lake Aursunden at Røros in Sør-Trøndelag county. The investigated area are shown in the overview map 2000.065-01.

The purpose of the survey was to follow up the Helicopter EM survey done over the same area in 1999.

The survey was executed in April 2000. According to the agreements, no interpretation should be done within the project.

2. MEASUREMENTS

The VLF-measurements were carried out using NGUs homemade instrument. The transmitter used was NAA (USA) with the frequency 17.8 kHz. The direction of the magnetic field from the transmitter was 20°. Both tilt angle and quadrature were measured. The sampling interval was 12.5 meters.

The magnetic survey was carried out using the Scintrex ENVI-MAG magnetometer (accuracy 1nT). The sampling interval was 12.5 meters. During the measurement the diurnal variation were measured in a base station using Scintrex MP3 magnetometer (accuracy 1nT). The location of the base station were 15 km from the area.

The Slingram measurements were carried out using an APEX MAXMIN II Portable EM. All five frequencies (222, 444, 888, 1777 and 3555Hz) were used, and the coil separation was 100 meters. The sampling interval was normally 50 meters, but was 25 meters over anomalous areas.

To fix the profiles, all ends of the profiles in the grid were measured with differential GPS with accuracy better than +/- 1m. The UTM co-ordinates (WGS-84) are presented in the data-files.

3. RESULTS

The results of the Slingram measurements are presented as curves in figures 1a – 18a. The magnetic measurements (total field) are presented as curves in figures 1b – 18b, and as contoured colour-shaded map in scale 1: 5000 in map 2000.065-02. The VLF measurements are presented as curves in figures 1b – 18b, and as Fraser-filtered maps in scale 1 : 5000 in maps 2000-065 – 03 and –04.

Colour maps were produced using Geosoft Montaj software version 4.1. The Grid cell size was 10 meter.

Digital data are available from NGU. The file format is Geosoft xyz-format, with the following content:

magdata.xyz	X	Y	UTM_E	UTM_N	MAG_TOT	GRADIENT
vlfdata.xyz	X	Y	UTM_E	UTM_N	REAL_K.	IMAG_K.
sldata.xyz	X	Y	UTM_E	UTM_N	RE_222	IM_222
			RE_444	IM_444	RE_888	IM_888
			RE_1777	IM_1777	RE_3555	IM_3555

STORSKARVEN
Slingram MaxMin
Profile 10000 E

Tx ----- Rx 100m

—●— Reell komp.
- - - * - - Imag. komp.

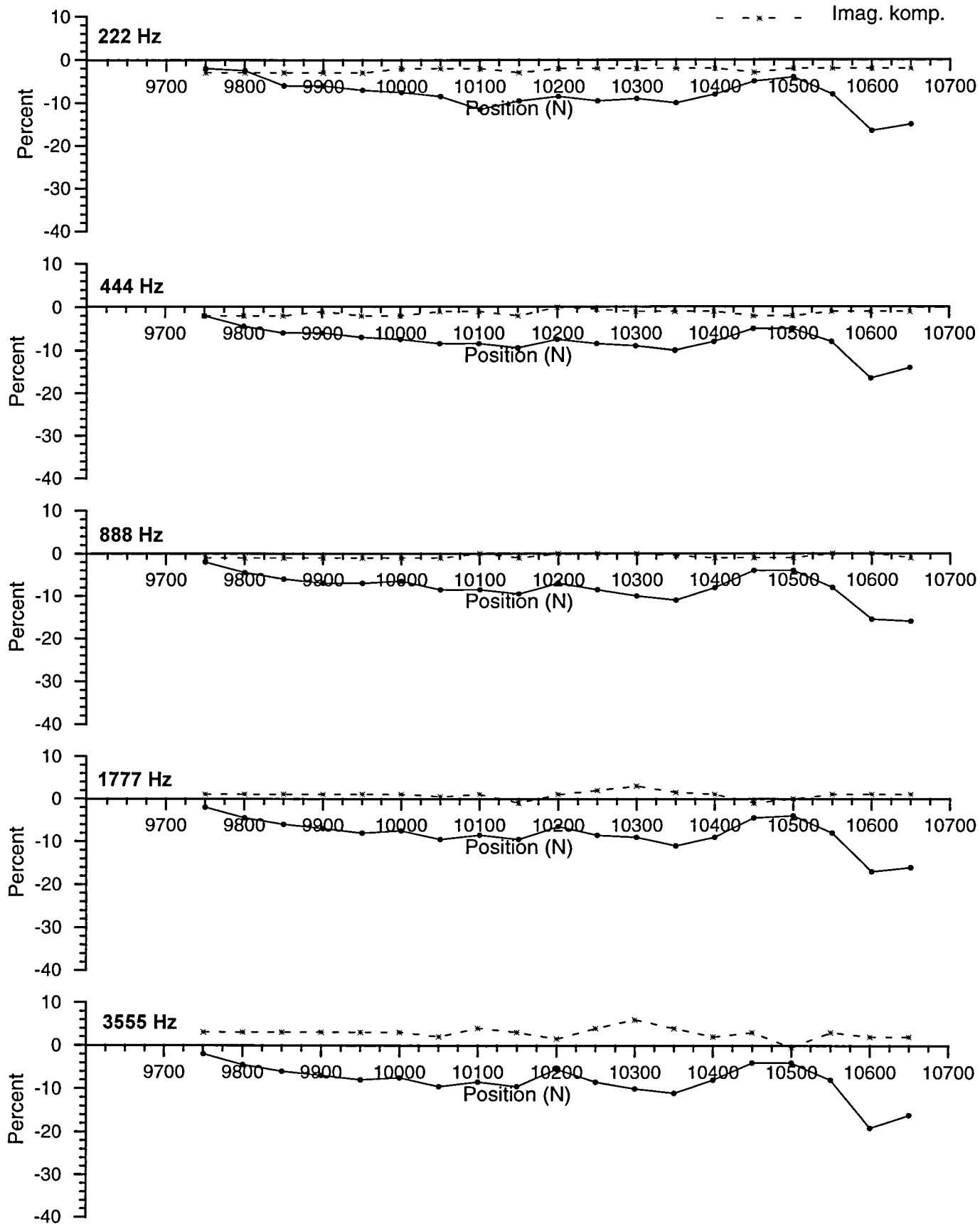
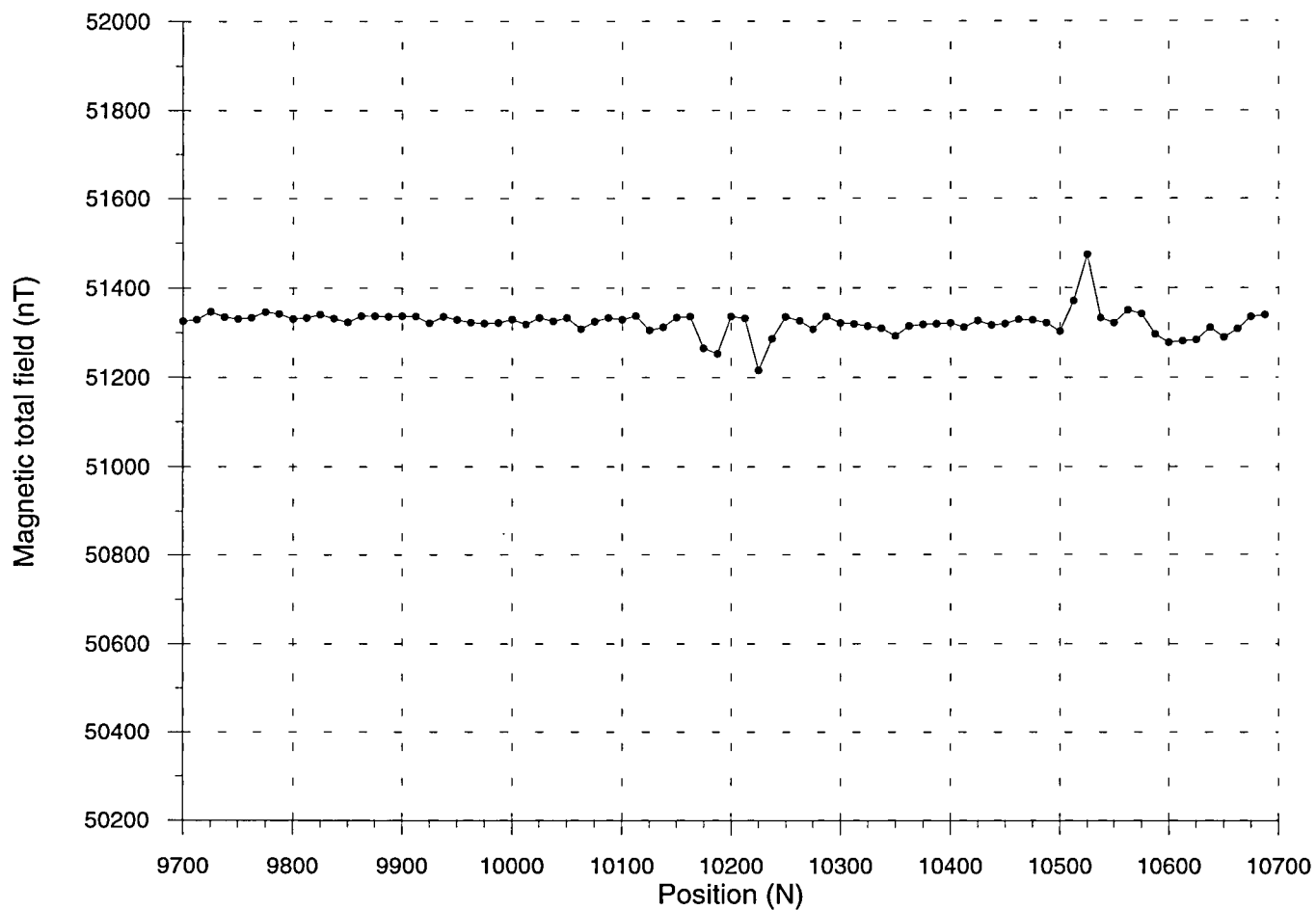


Figure 1a. Slingram MaxMin profile 10000 E.

STORSKARVEN
Magnetic total field
Profile 10000 E



STORSKARVEN
VLF
Profile 10000 E

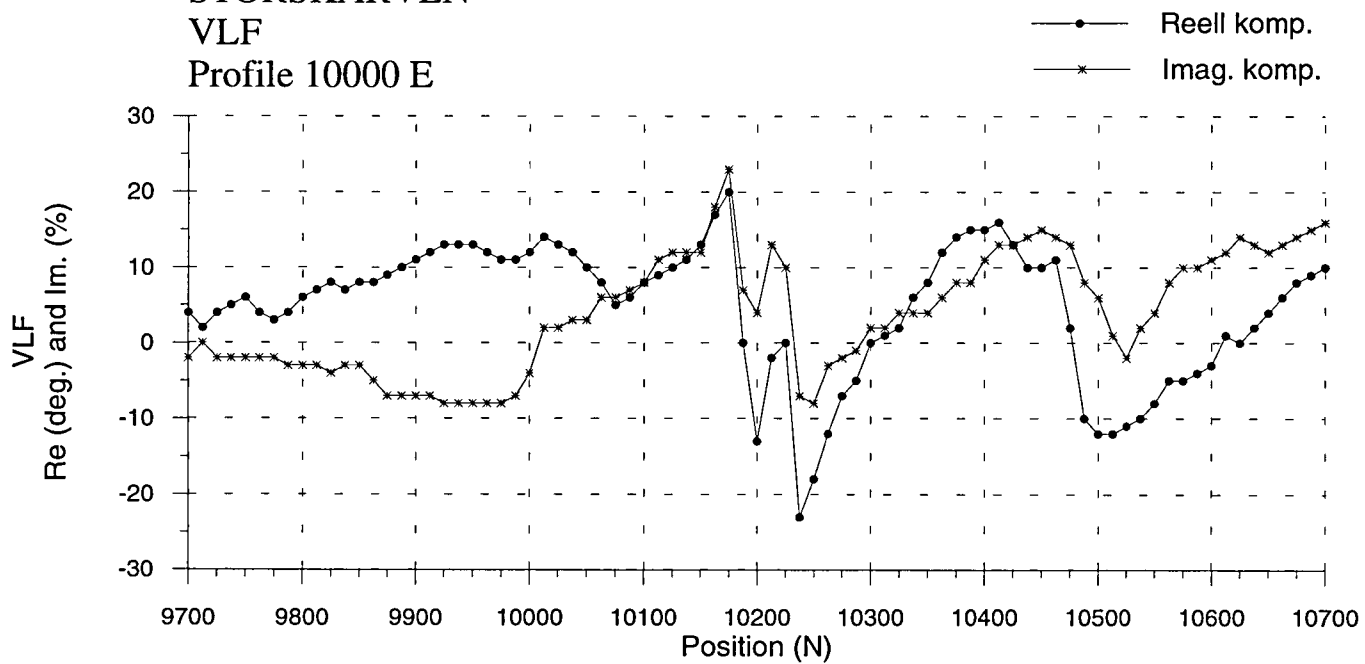


Figure 1b. Magnetic total field and VLF profile 10000 E.

STORSKARVEN
Slingram MaxMin
Profile 10100 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

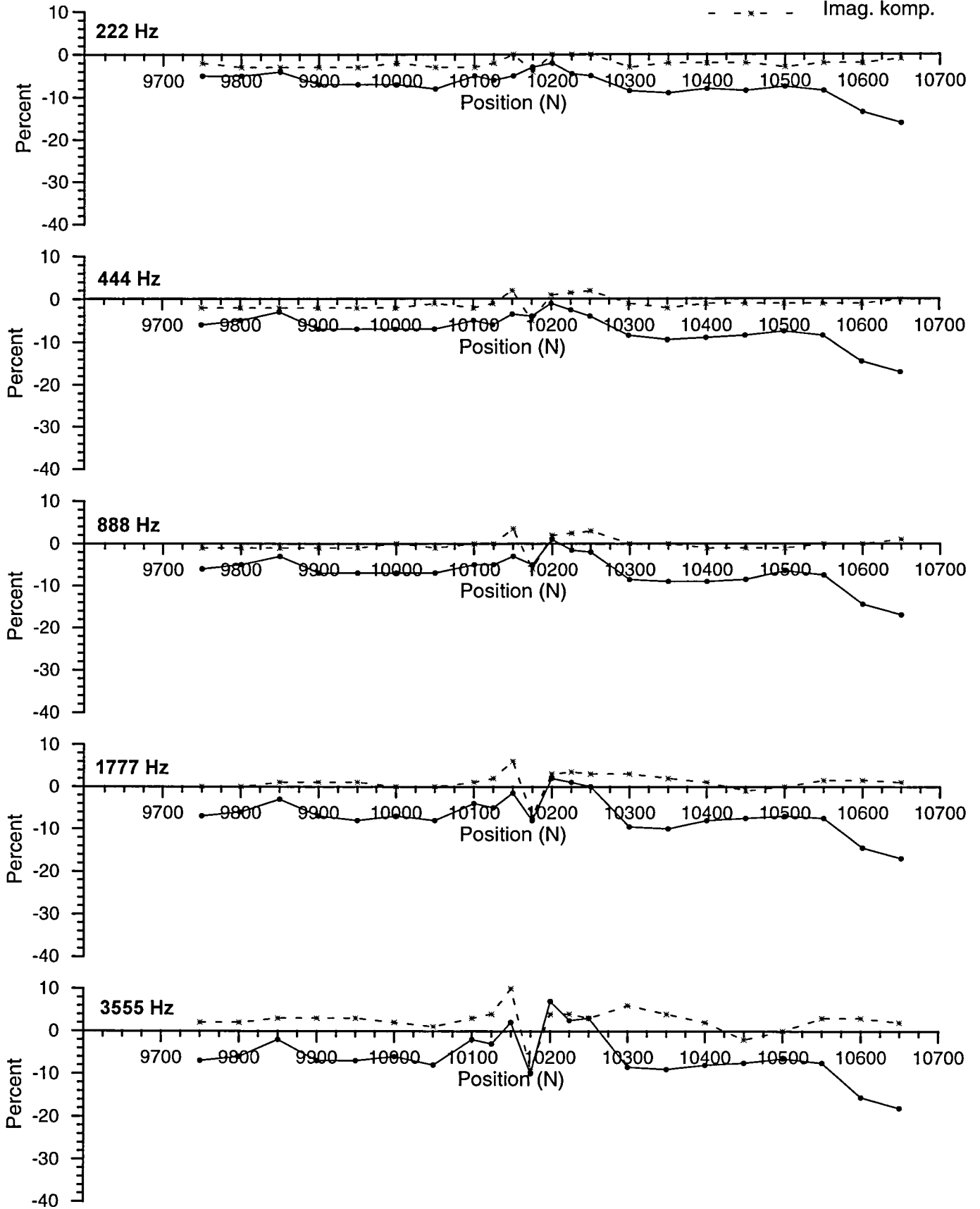
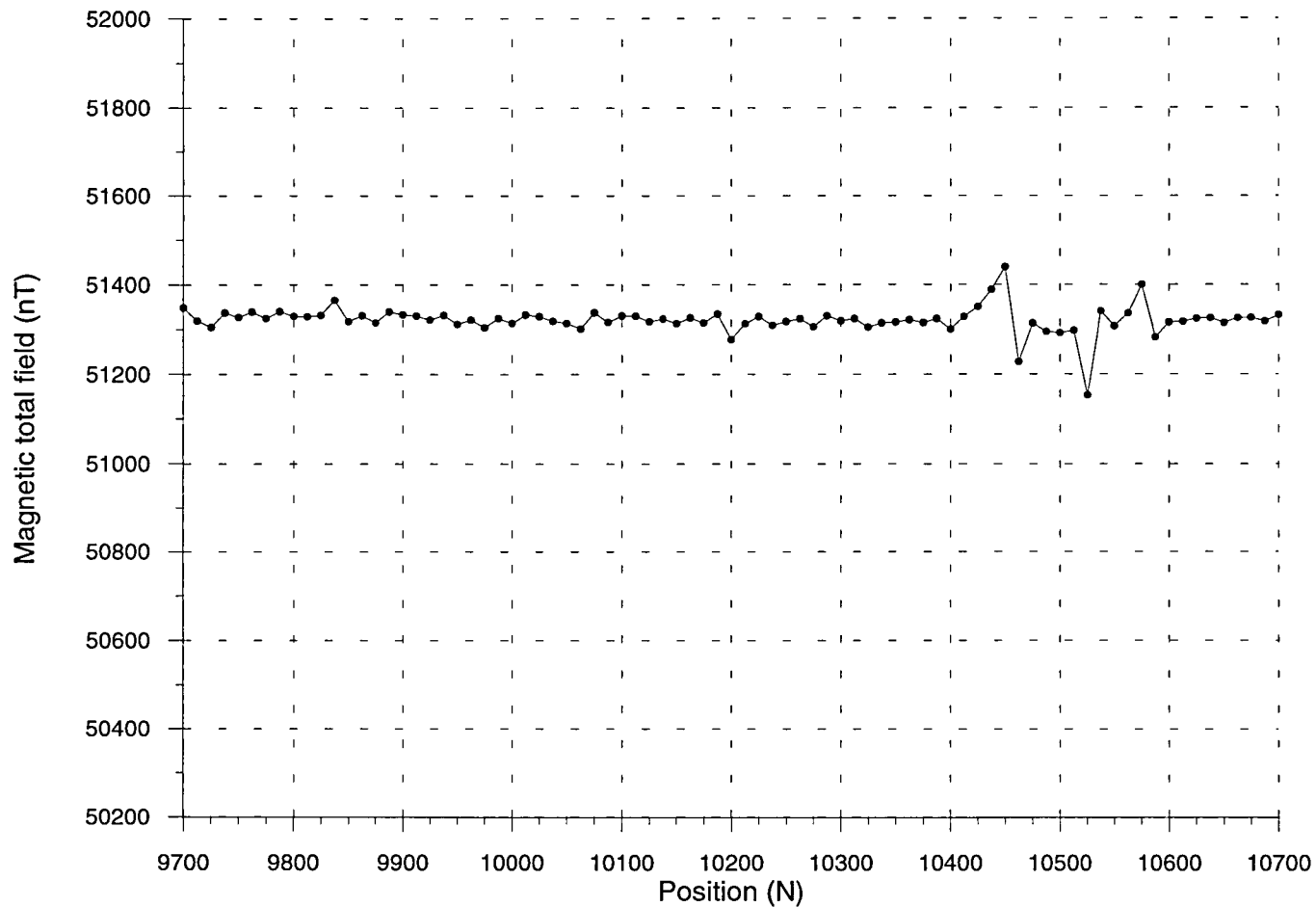


Figure 2a. Slingram MaxMin profile 10100 E.

STORSKARVEN
Magnetic total field
Profile 10100 E



STORSKARVEN
VLF
Profile 10100 E

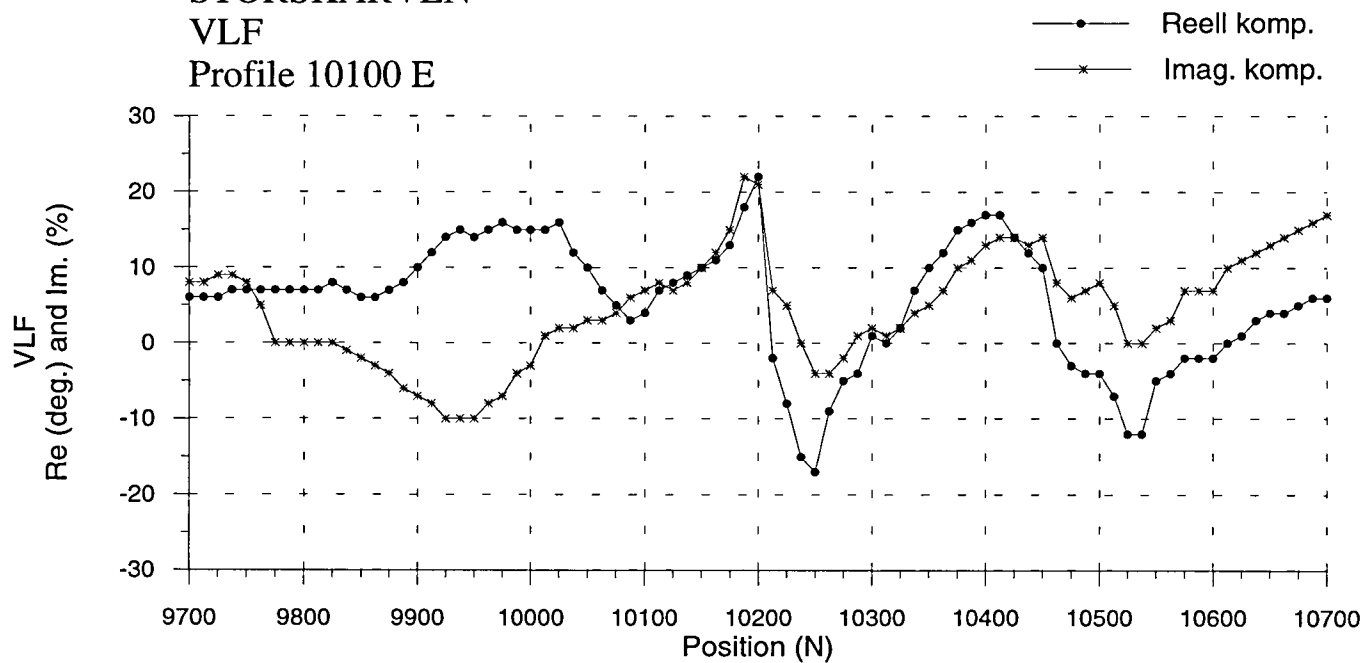


Figure 2b. Magnetic total field and VLF profile 10100 E.

STORSKARVEN
Slingram MaxMin
Profile 10200 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

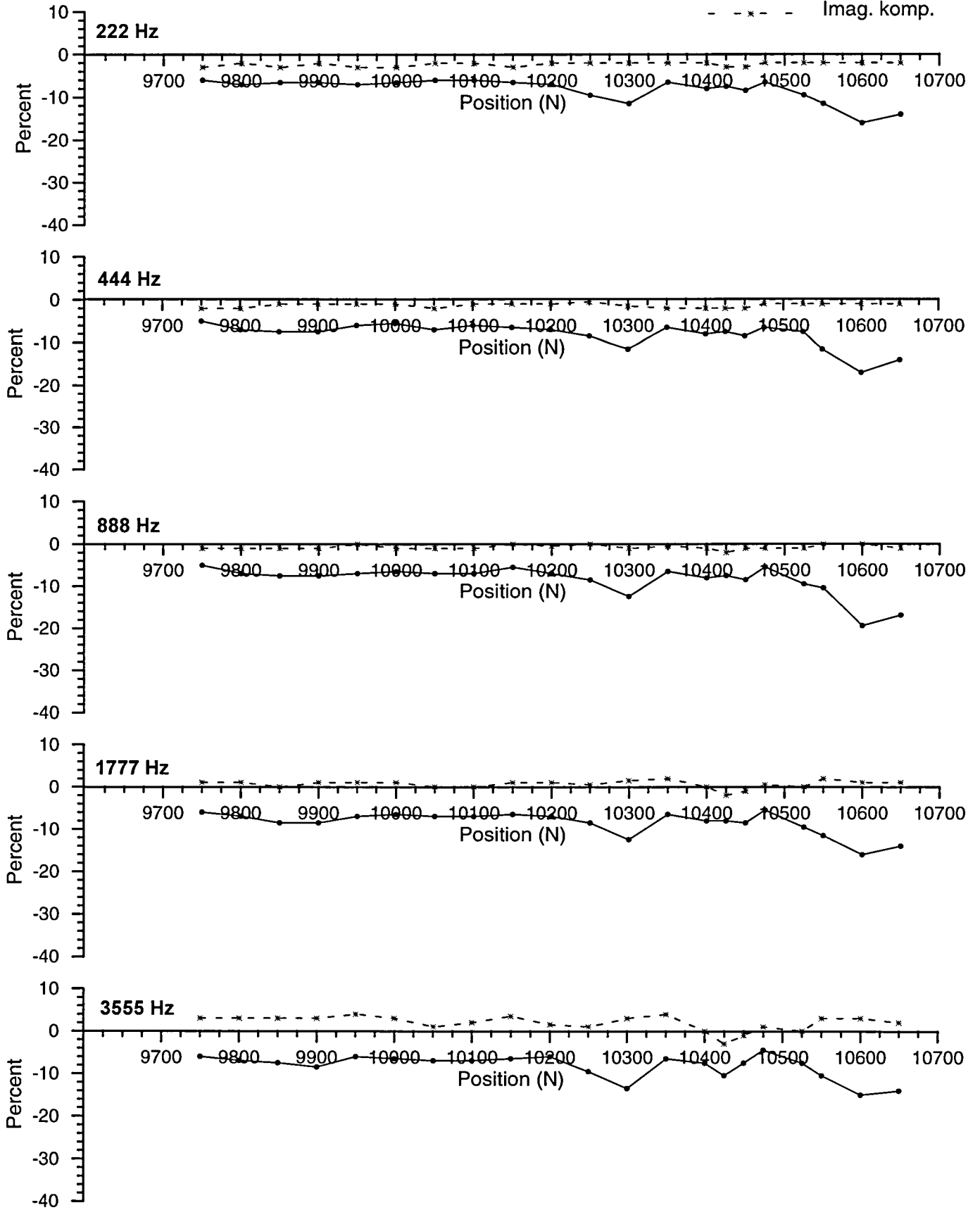
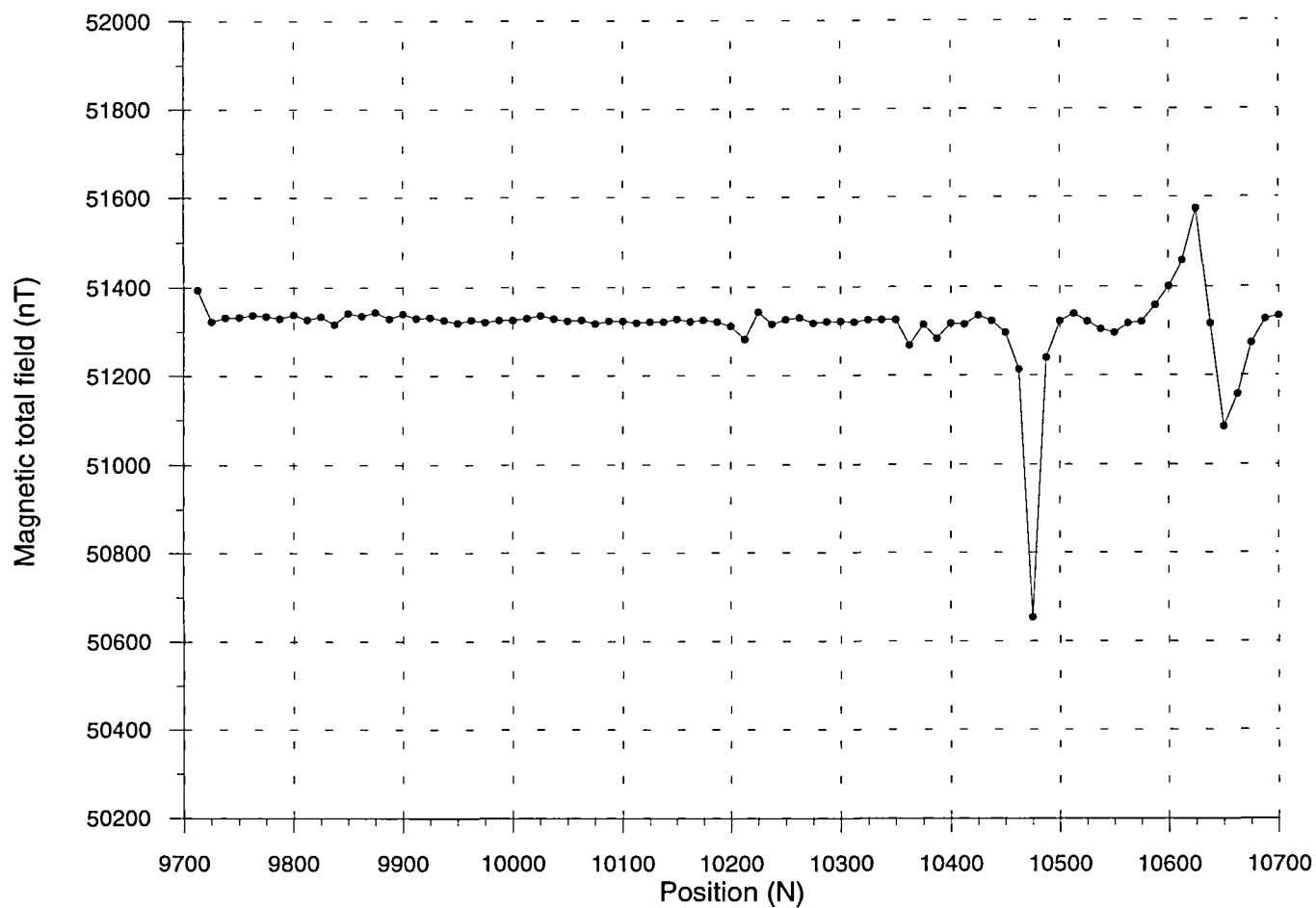


Figure 3a. Slingram MaxMin profile 10200 E.

STORSKARVEN
Magnetic total field
Profile 10200 E



STORSKARVEN
VLF
Profile 10200 E

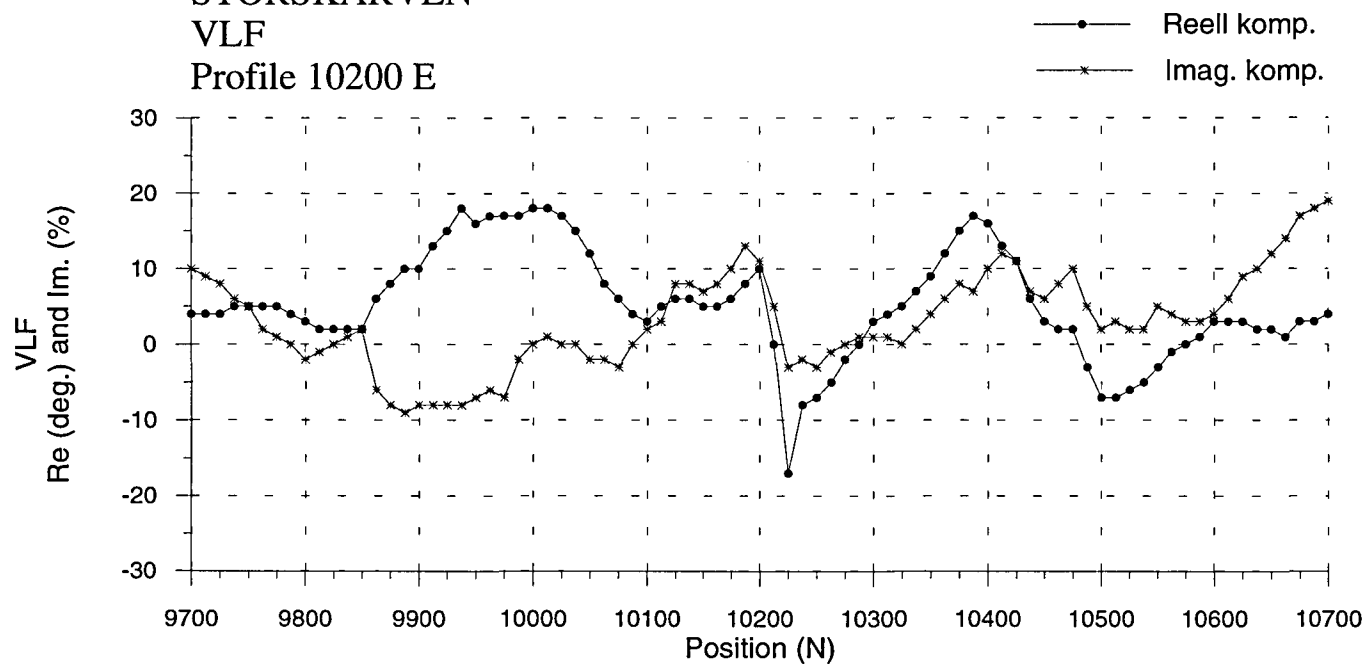


Figure 3b. Magnetic total field and VLF profile 10200 E.

STORSKARVEN
Slingram MaxMin
Profile 10300 E

Tx ----- Rx 100m

—●— Reell komp.
- - - * - - - Imag. komp.

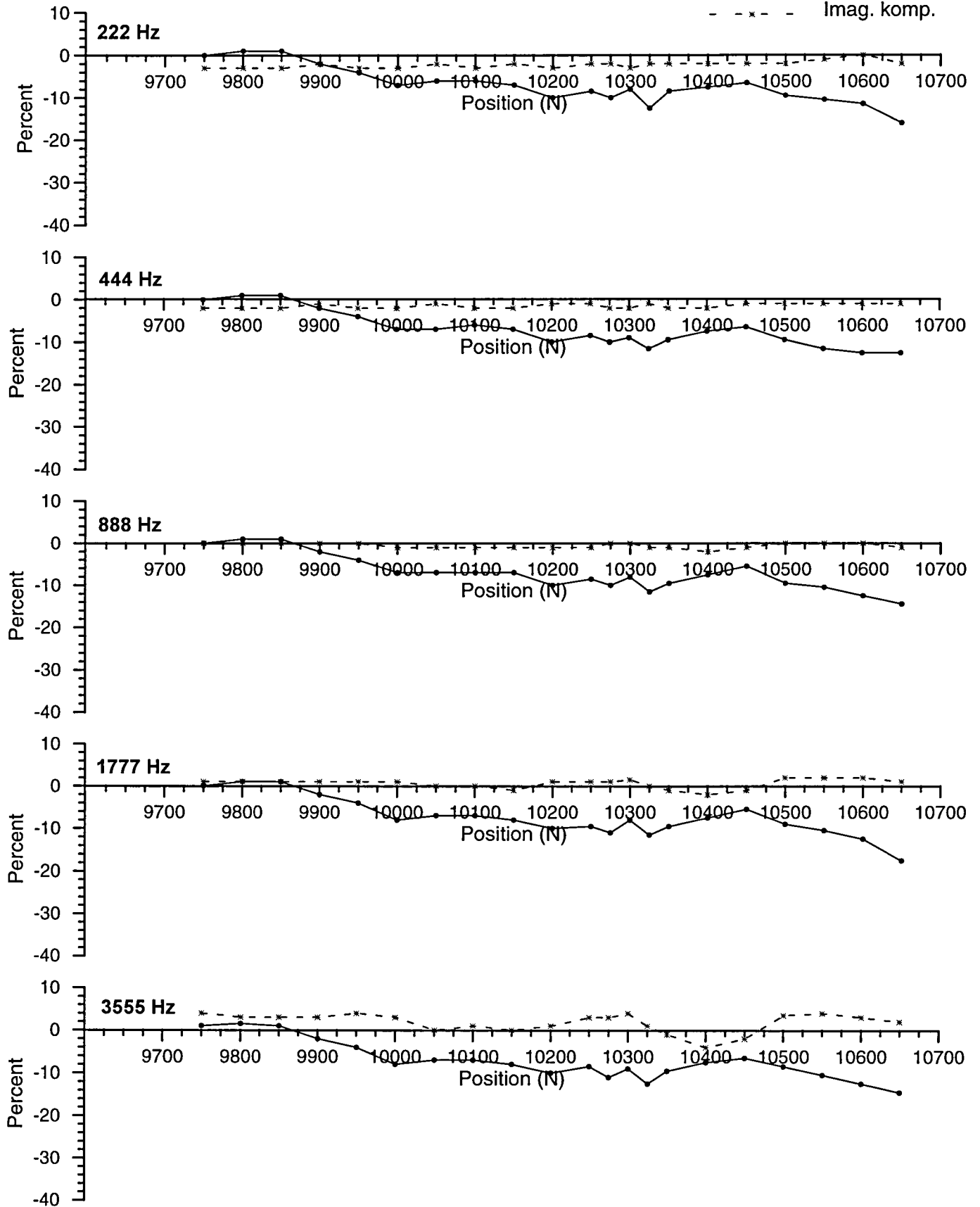
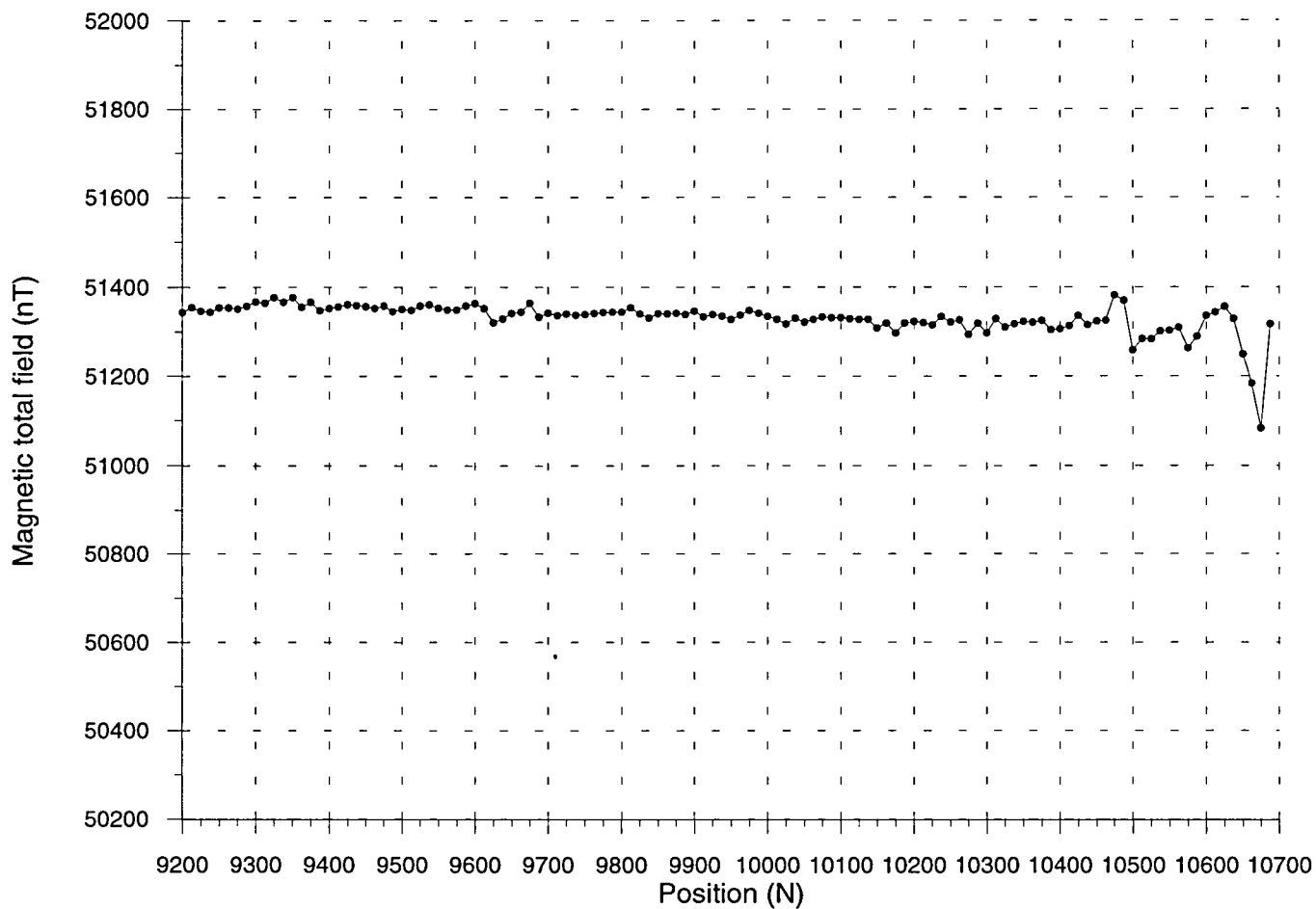


Figure 4a. Slingram MaxMin profile 10300 E.

STORSKARVEN
Magnetic total field
Profile 10300 E



STORSKARVEN
VLF
Profile 10300 E

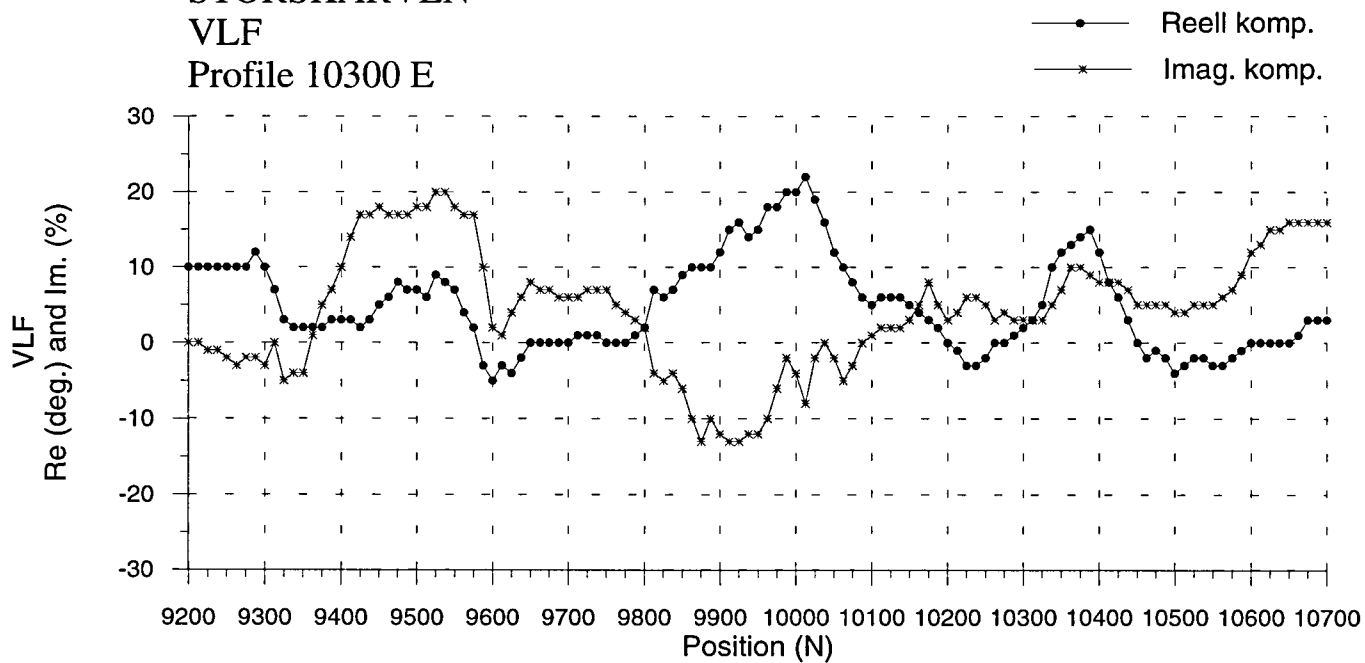


Figure 4b. Magnetic total field and VLF profile 10300 E.

STORSKARVEN
Slingram MaxMin
Profile 10400 E

Tx ----- Rx 100m

—●— Reell komp.
- - - * - - - Imag. komp.

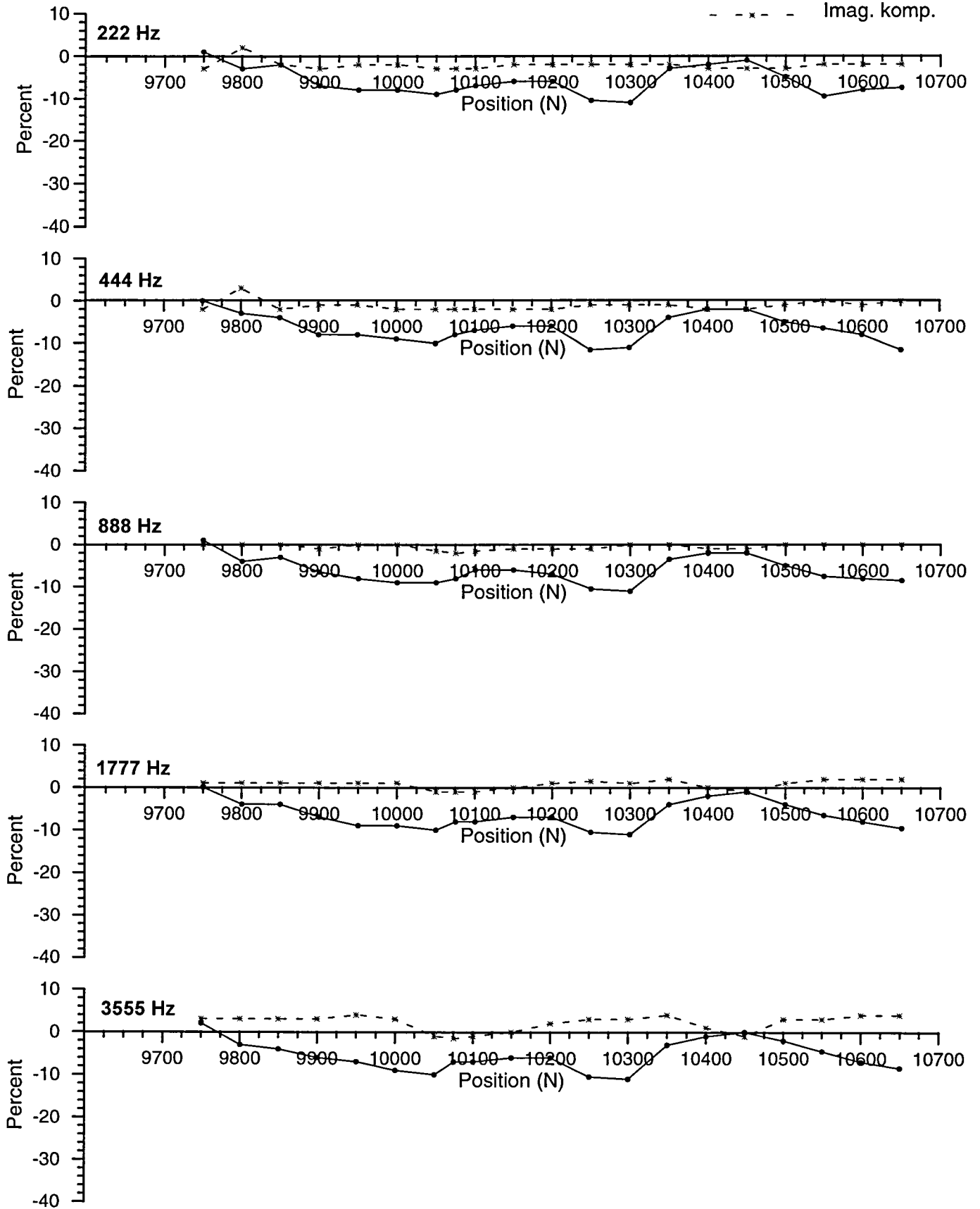


Figure 5a. Slingram MaxMin profile 10400 E.

STORSKARVEN
Magnetic total field
Profile 10400 E

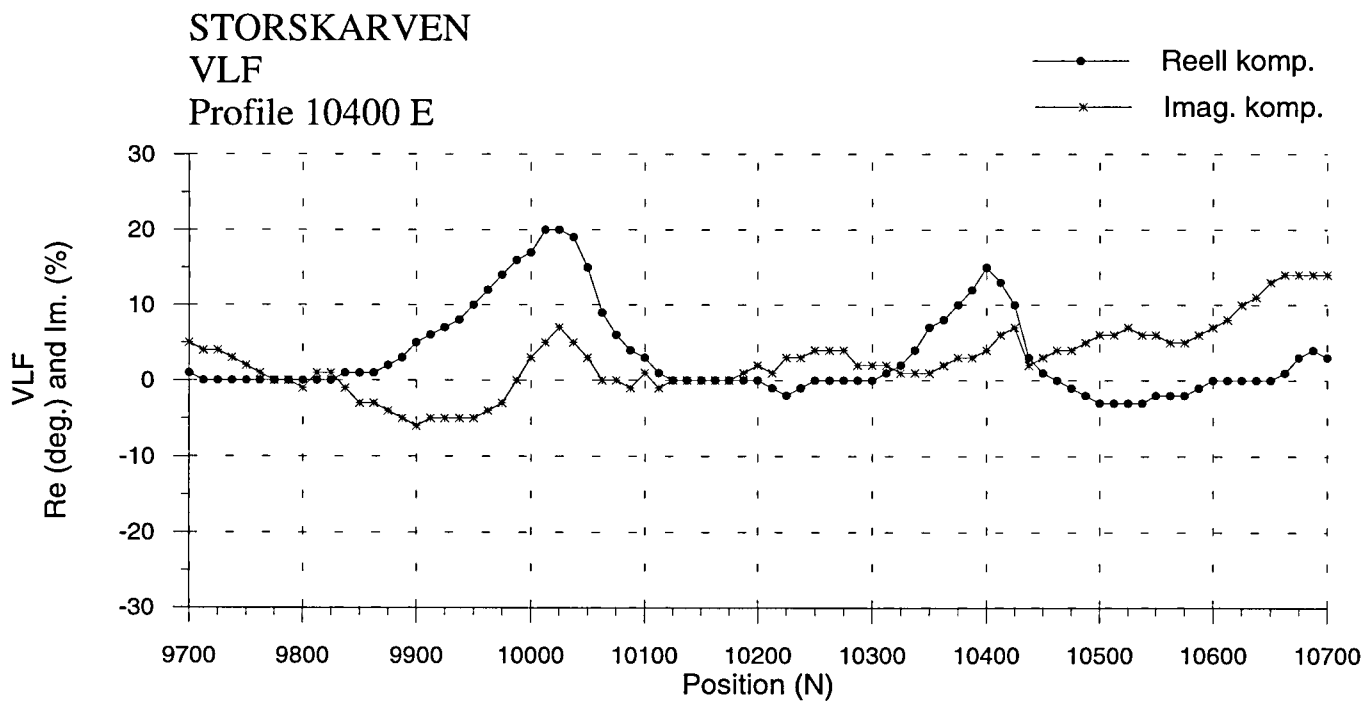
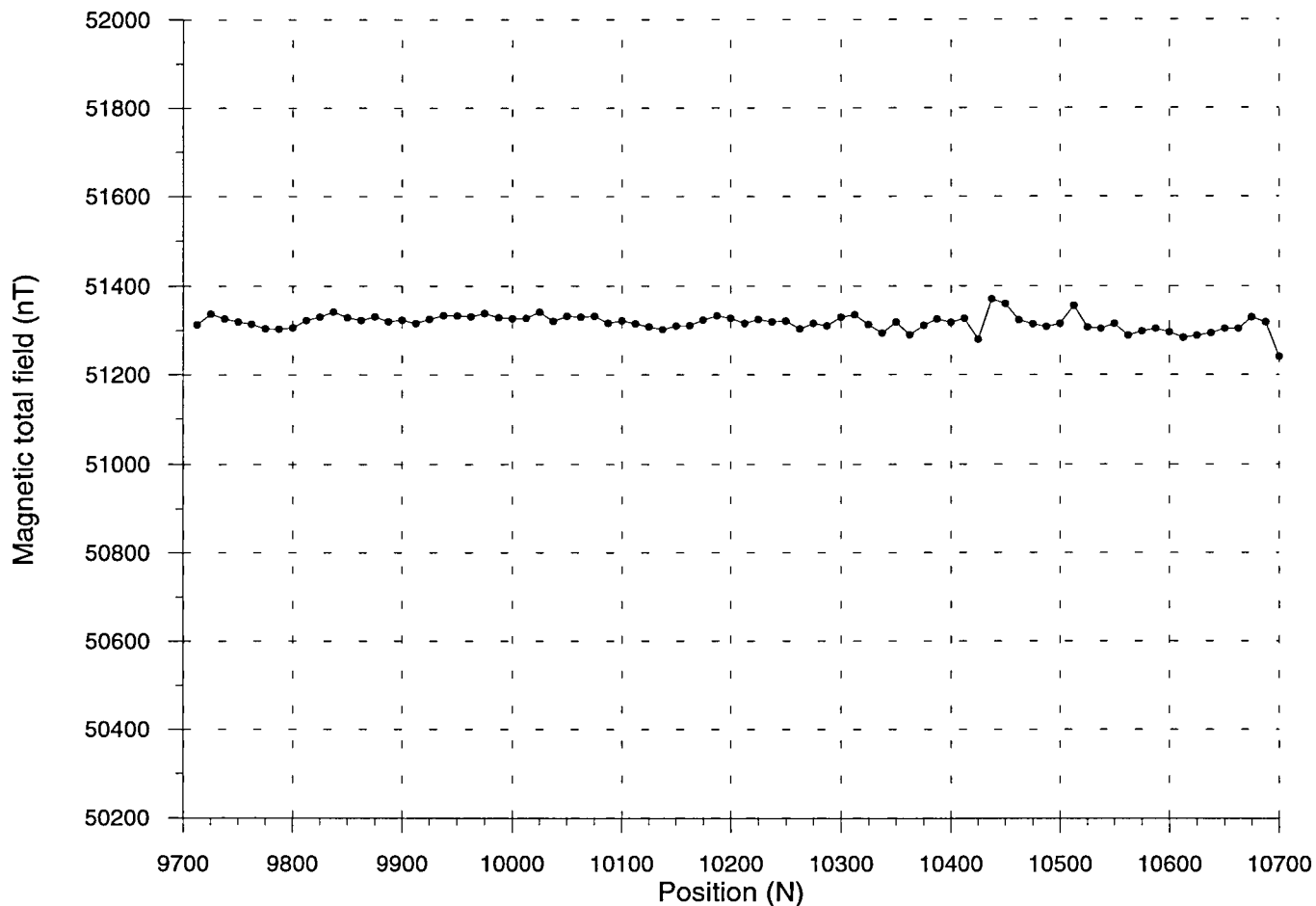


Figure 5b. Magnetic total field and VLF profile 10400 E.

STORSKARVEN
Slingram MaxMin
Profile 10500 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

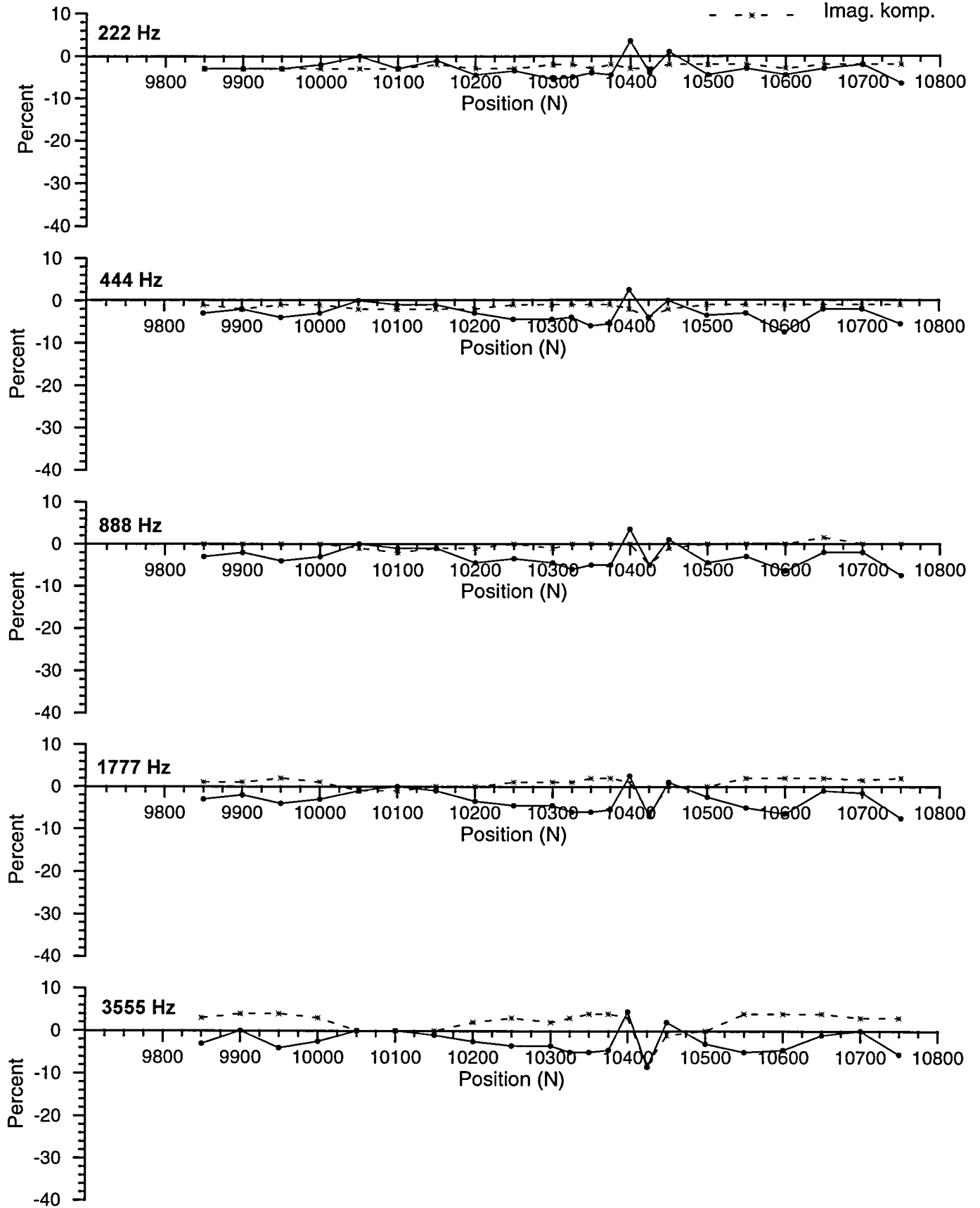
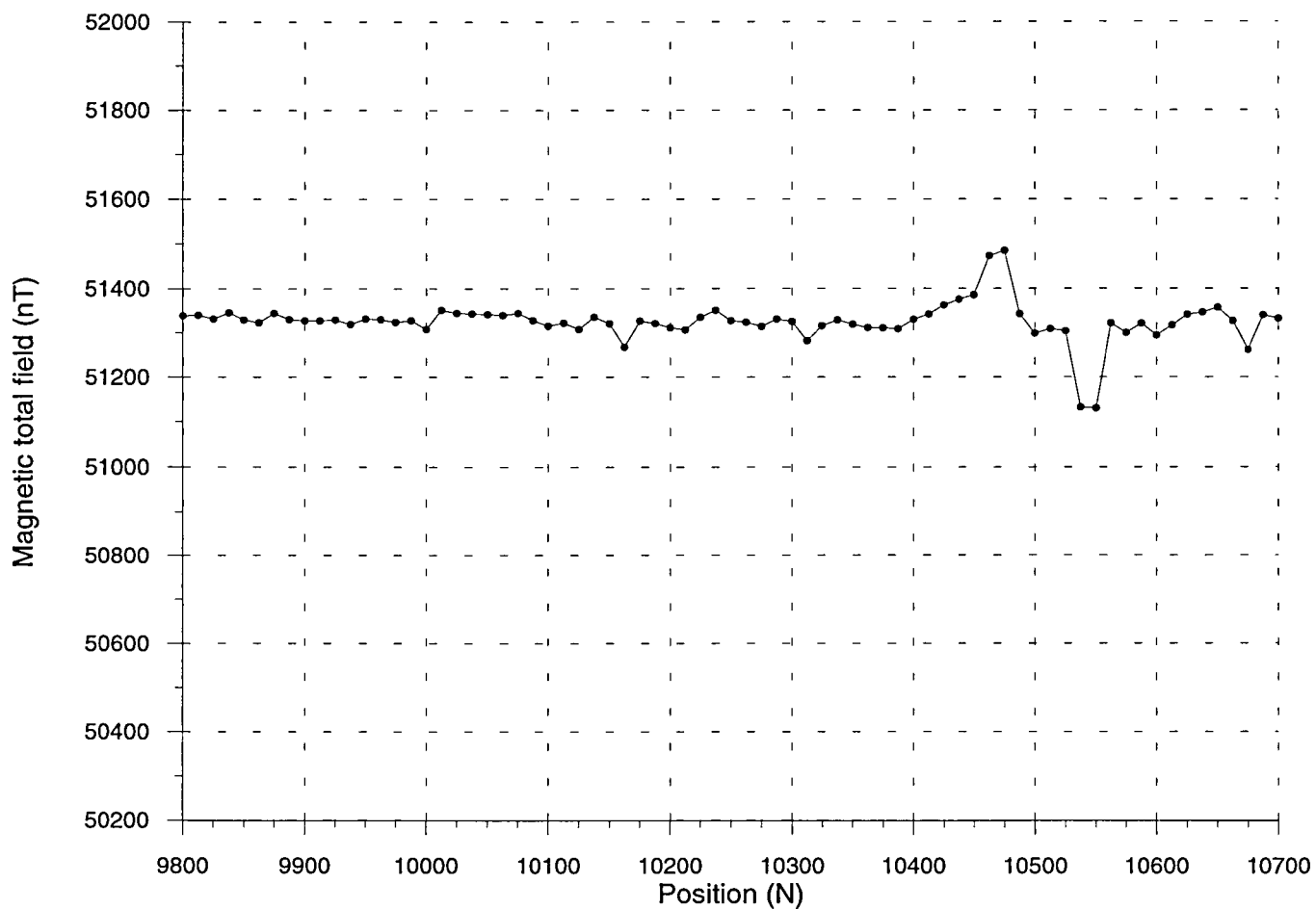


Figure 6a. Slingram MaxMin profile 10500 E.

STORSKARVEN
Magnetic total field
Profile 10500 E



STORSKARVEN
VLF
Profile 10500 E

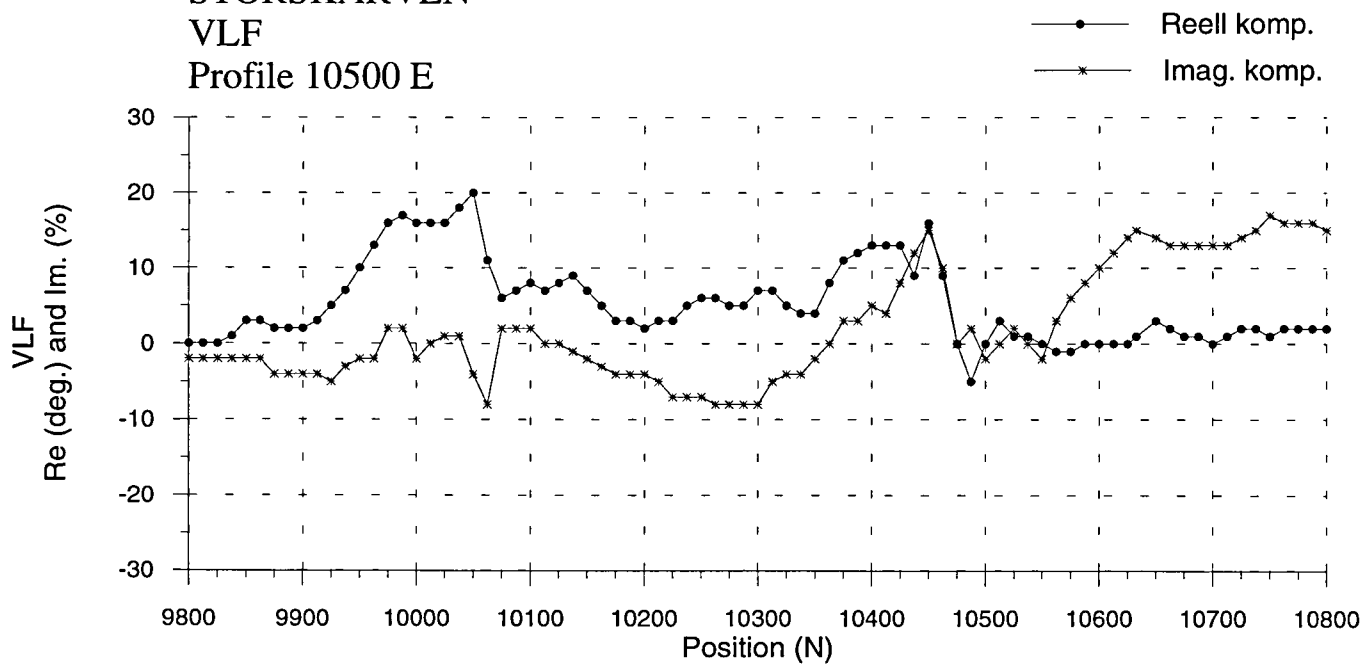


Figure 6b. Magnetic total field and VLF profile 10500 E.

STORSKARVEN
Slingram MaxMin
Profile 10600 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

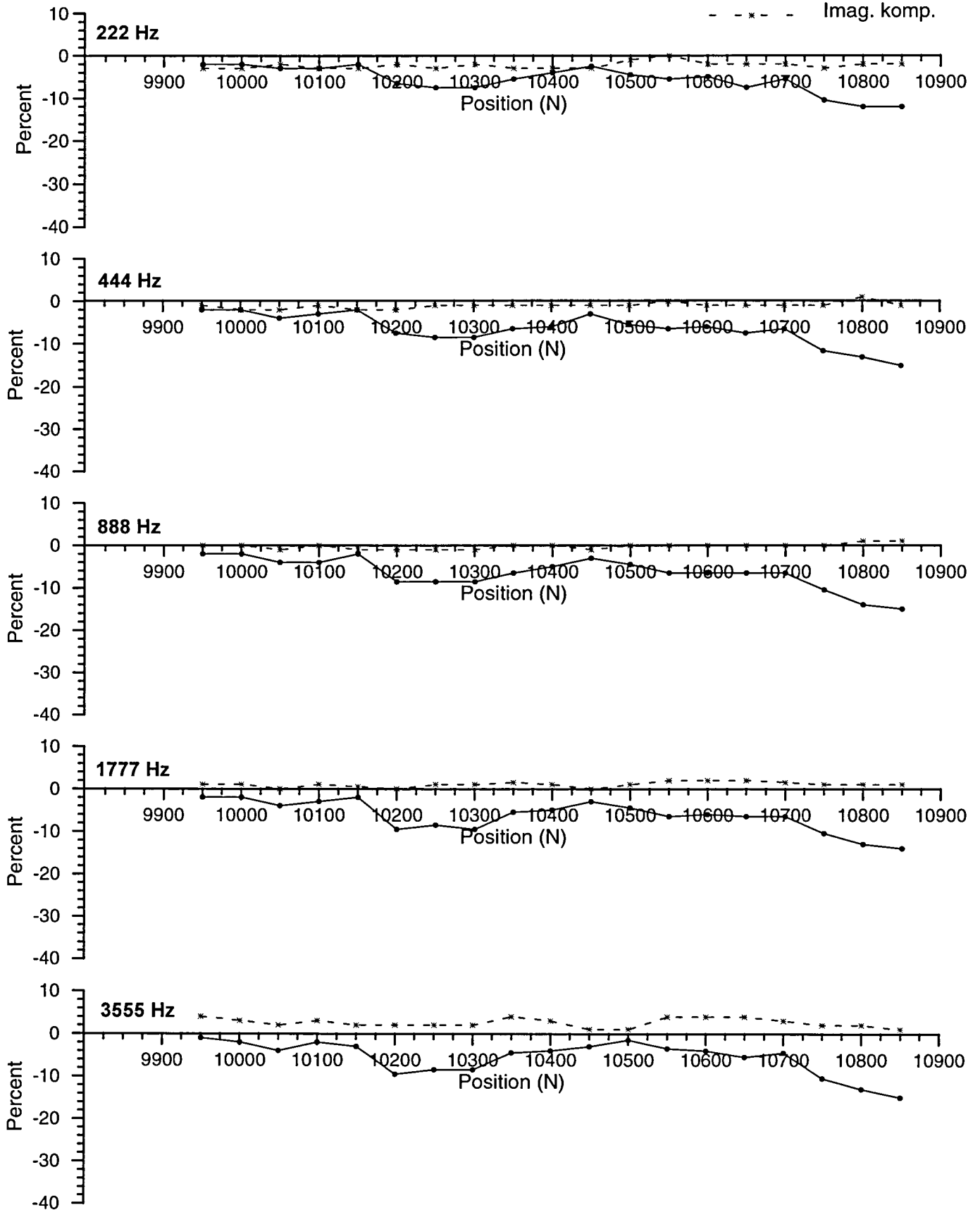
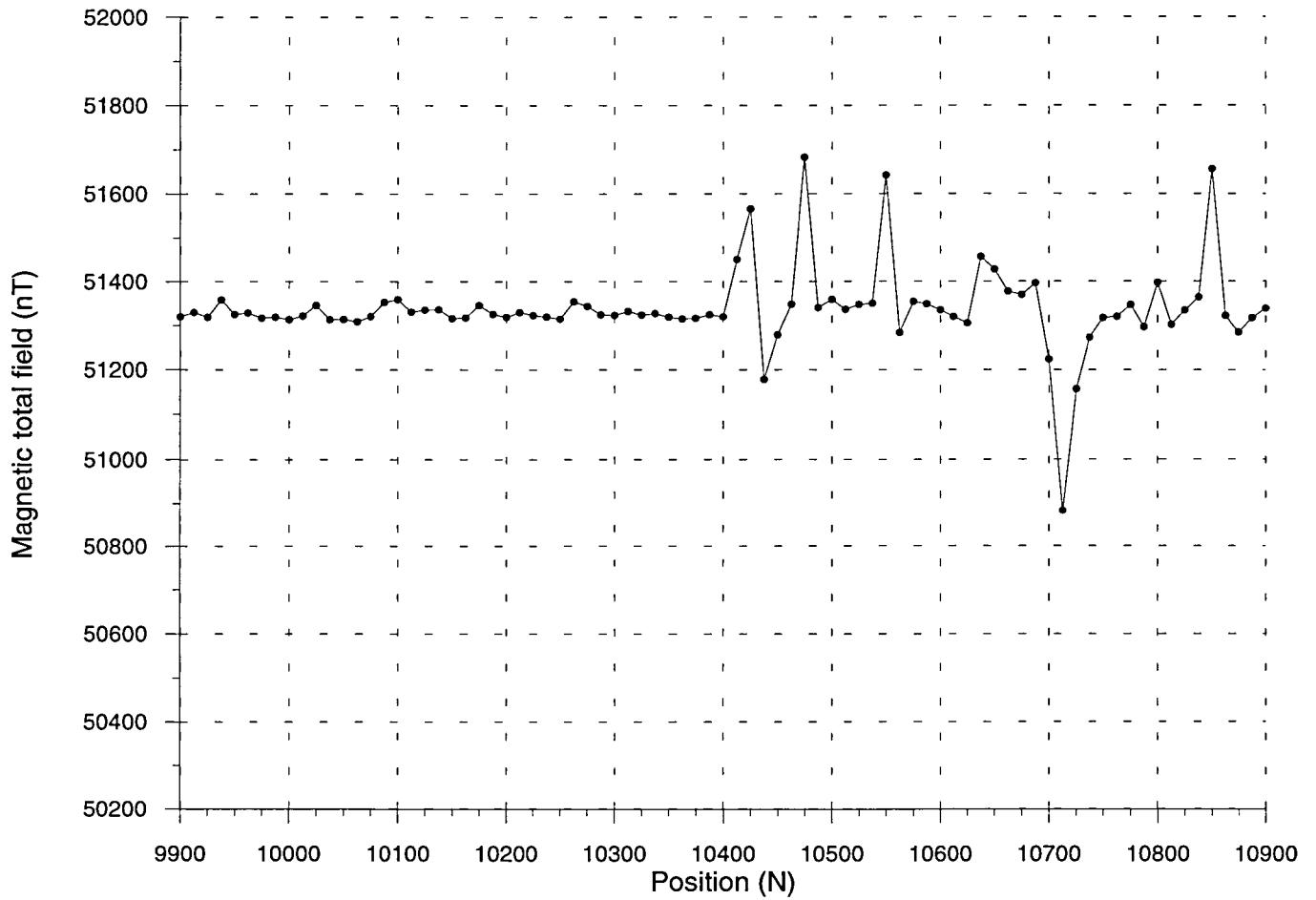


Figure 7a. Slingram MaxMin profile 10600 E.

STORSKARVEN
Magnetic total field
Profile 10600 E



STORSKARVEN
VLF
Profile 10600 E

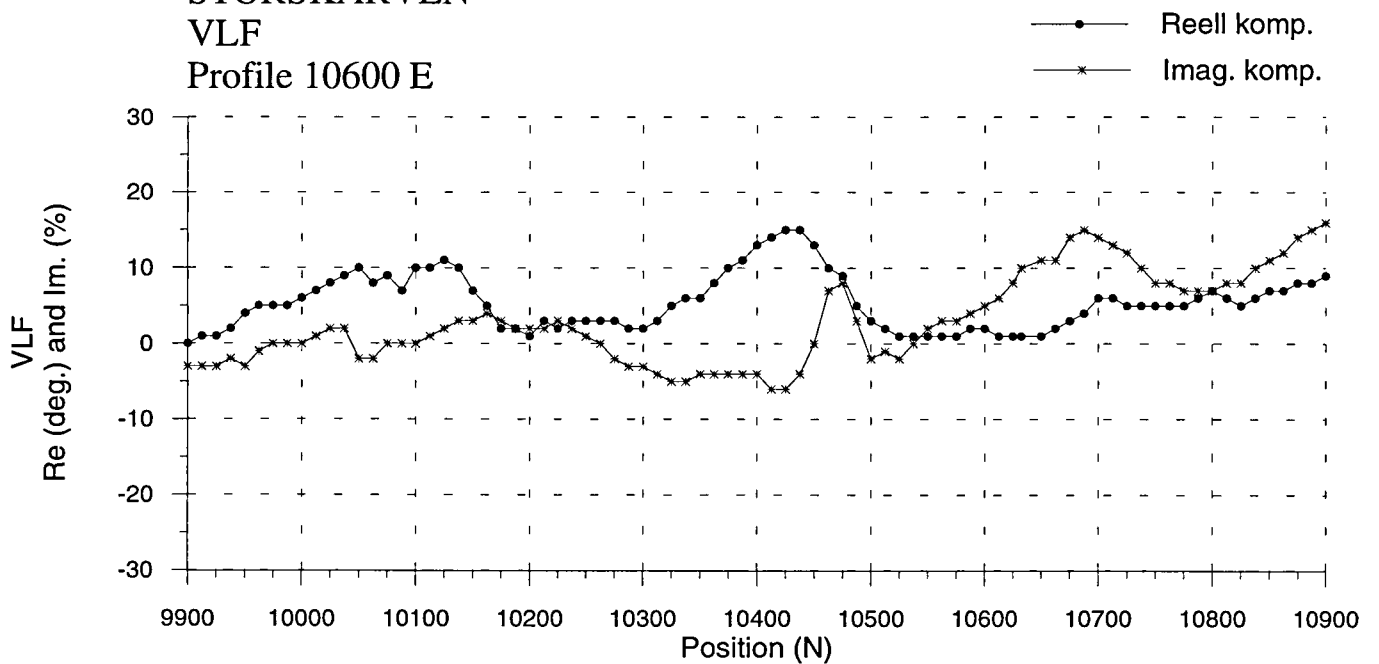


Figure 7b. Magnetic total field and VLF profile 10600 E.

STORSKARVEN
Slingram MaxMin
Profile 10700 E

Tx ----- Rx 100m

—●— Reell komp.
- - - * - - - Imag. komp.

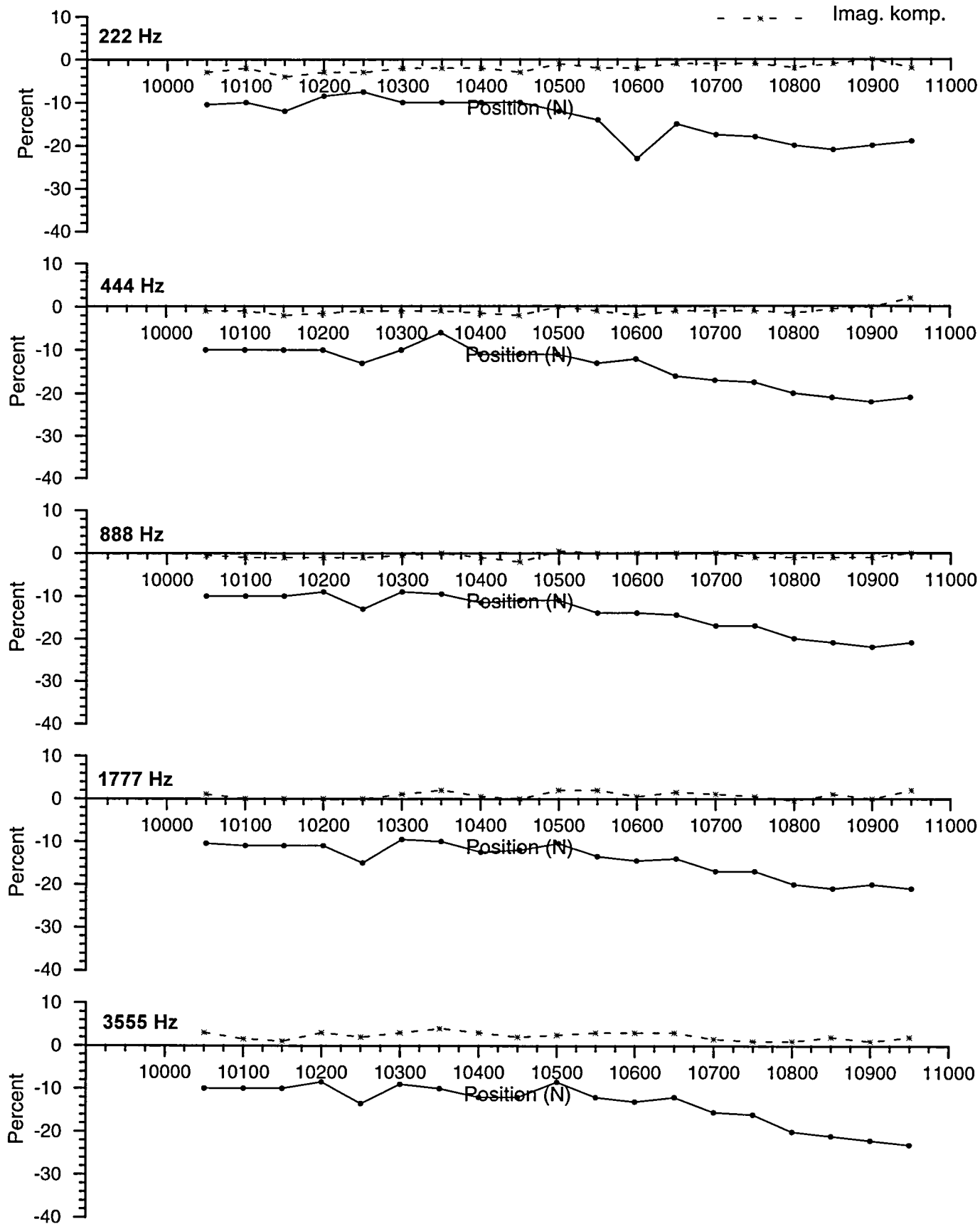
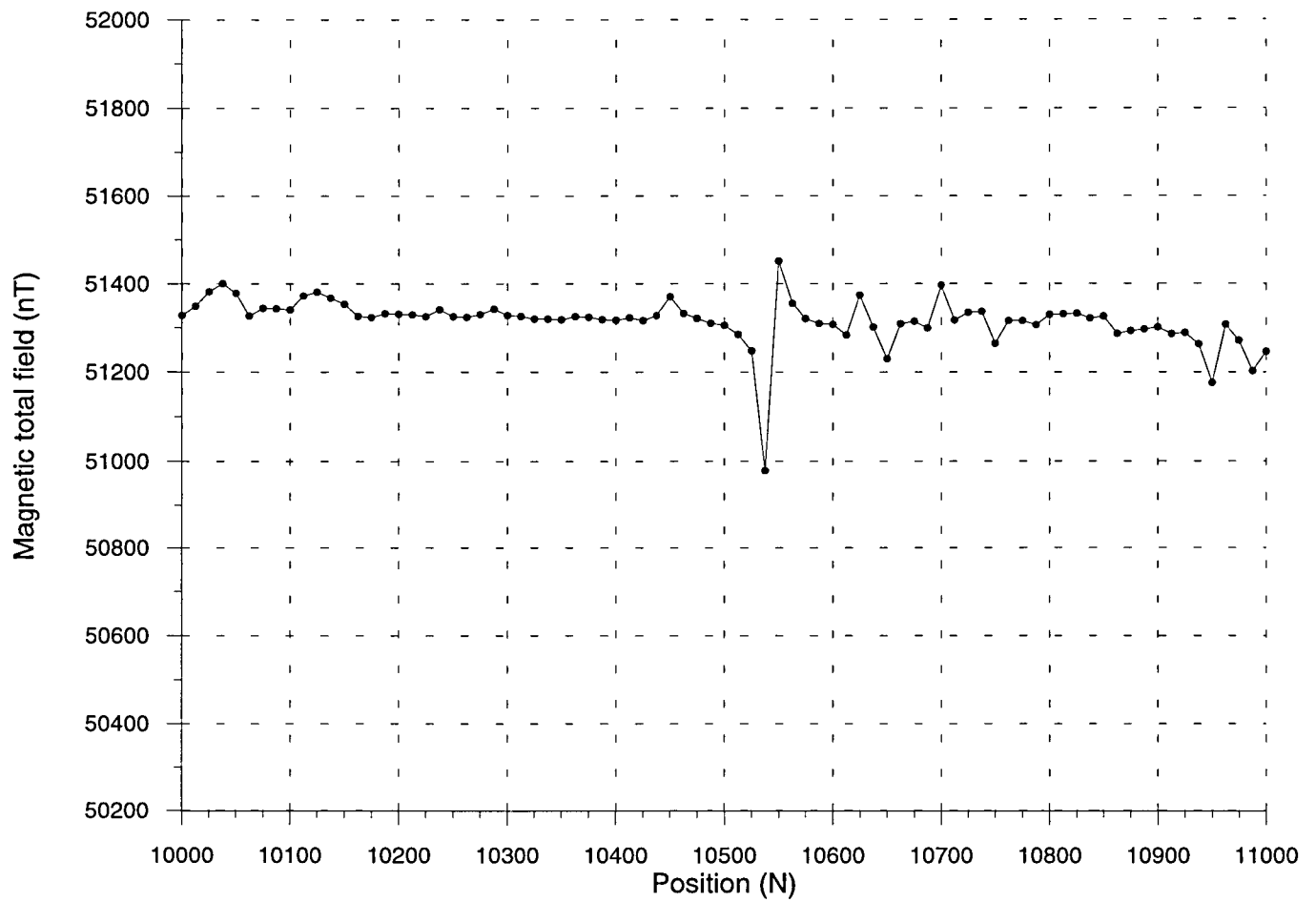


Figure 8a. Slingram MaxMin profile 10700 E.

STORSKARVEN
Magnetic total field
Profile 10700 E



STORSKARVEN
VLF
Profile 10700 E

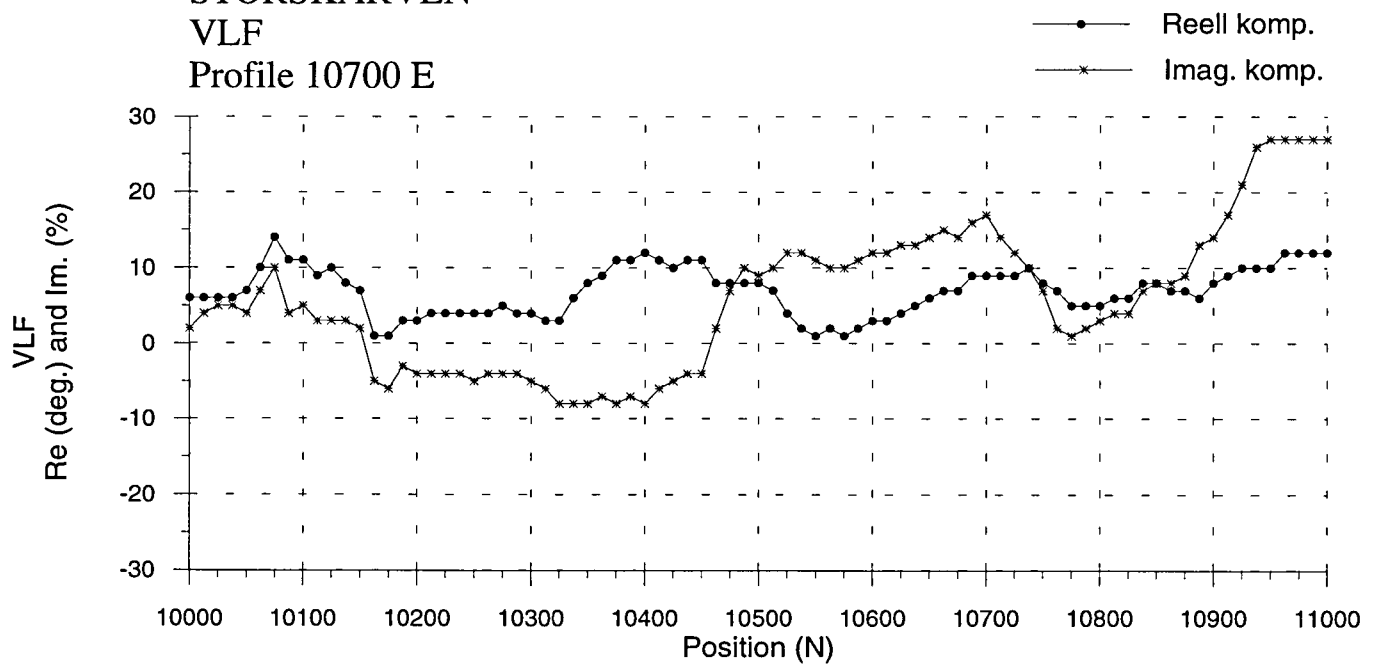


Figure 8b. Magnetic total field and VLF profile 10700 E.

STORSKARVEN
Slingram MaxMin
Profile 10800 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

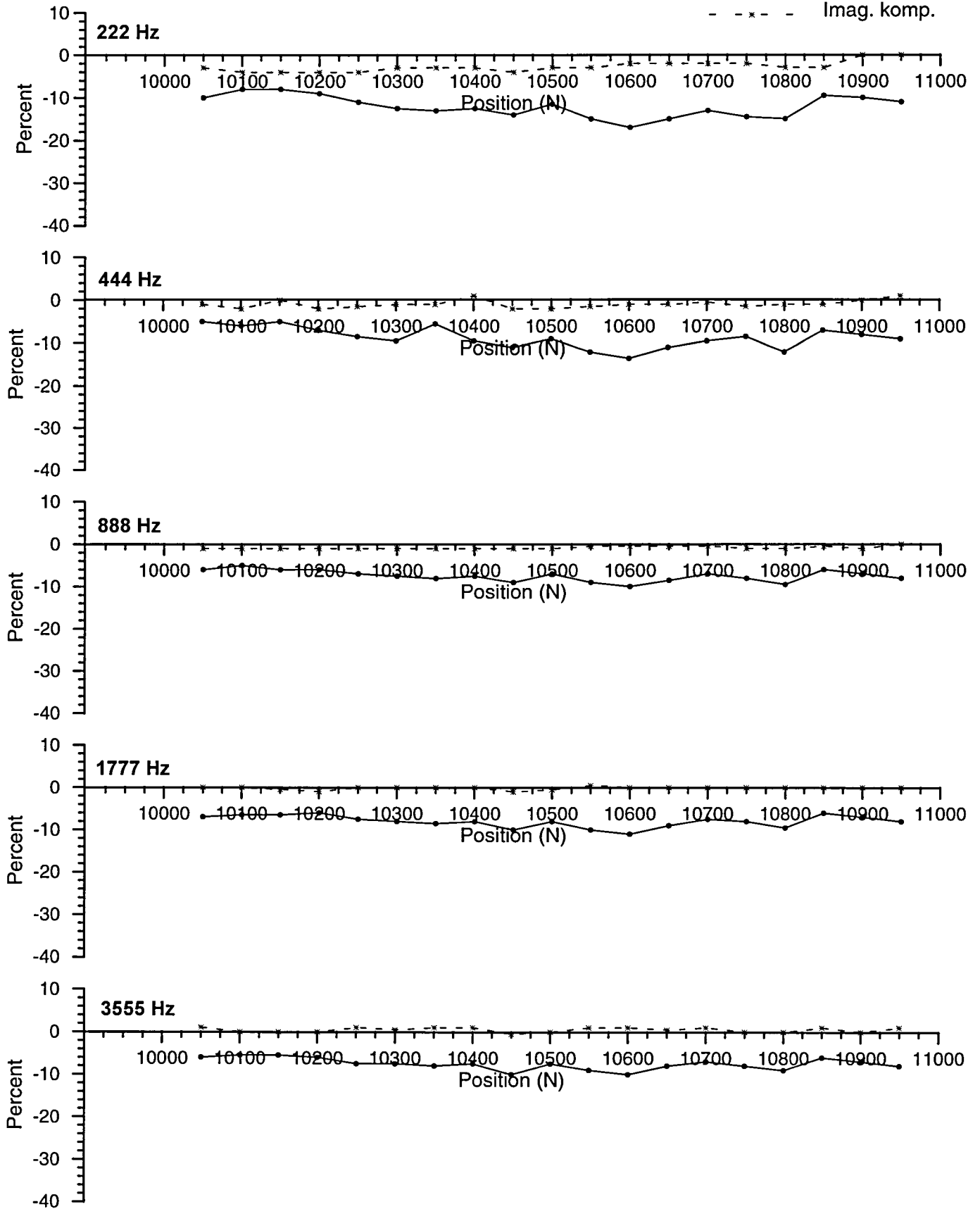
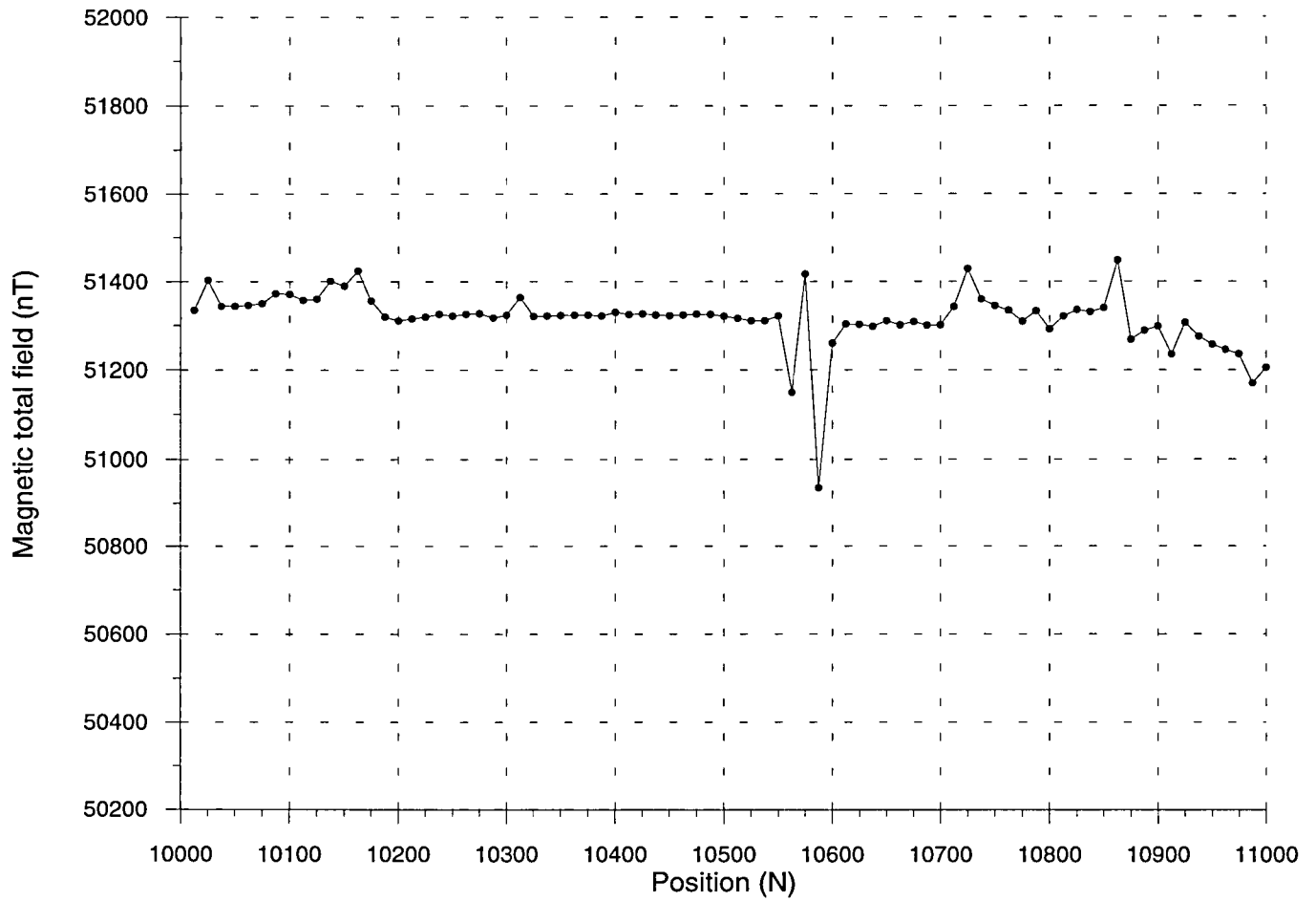


Figure 9a. Slingram MaxMin profile 10800 E.

STORSKARVEN
Magnetic total field
Profile 10800 E



STORSKARVEN
VLF
Profile 10800 E

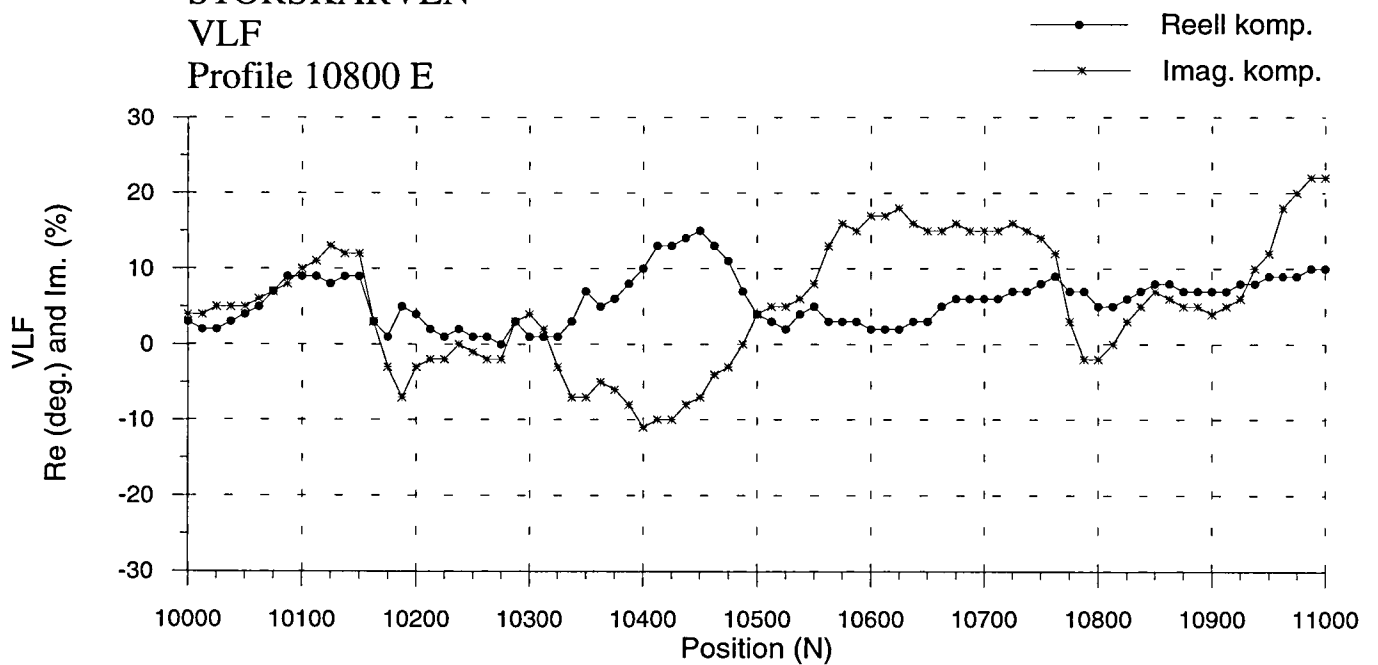


Figure 9b. Magnetic total field and VLF profile 10800 E.

STORSKARVEN
Slingram MaxMin
Profile 10900 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

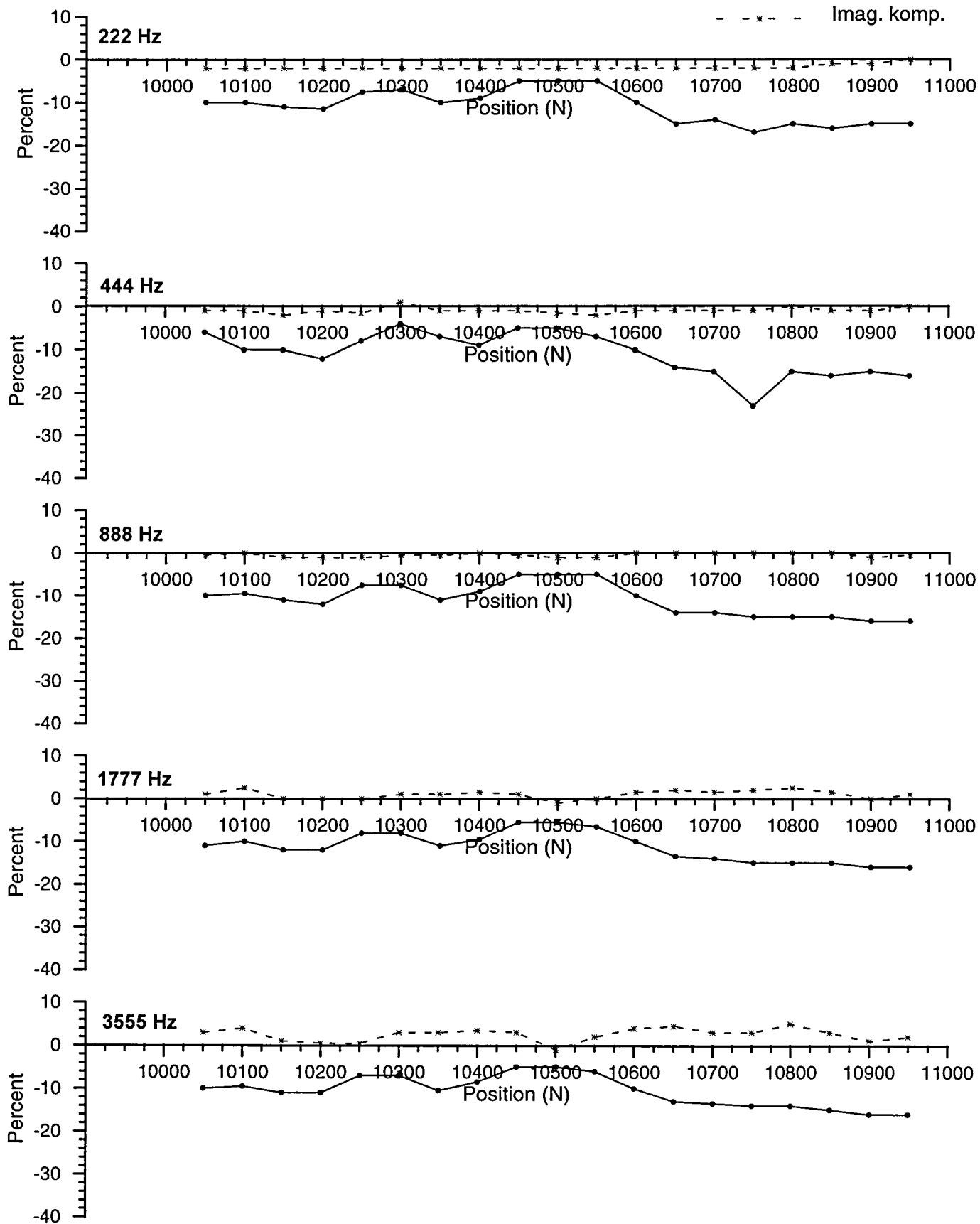
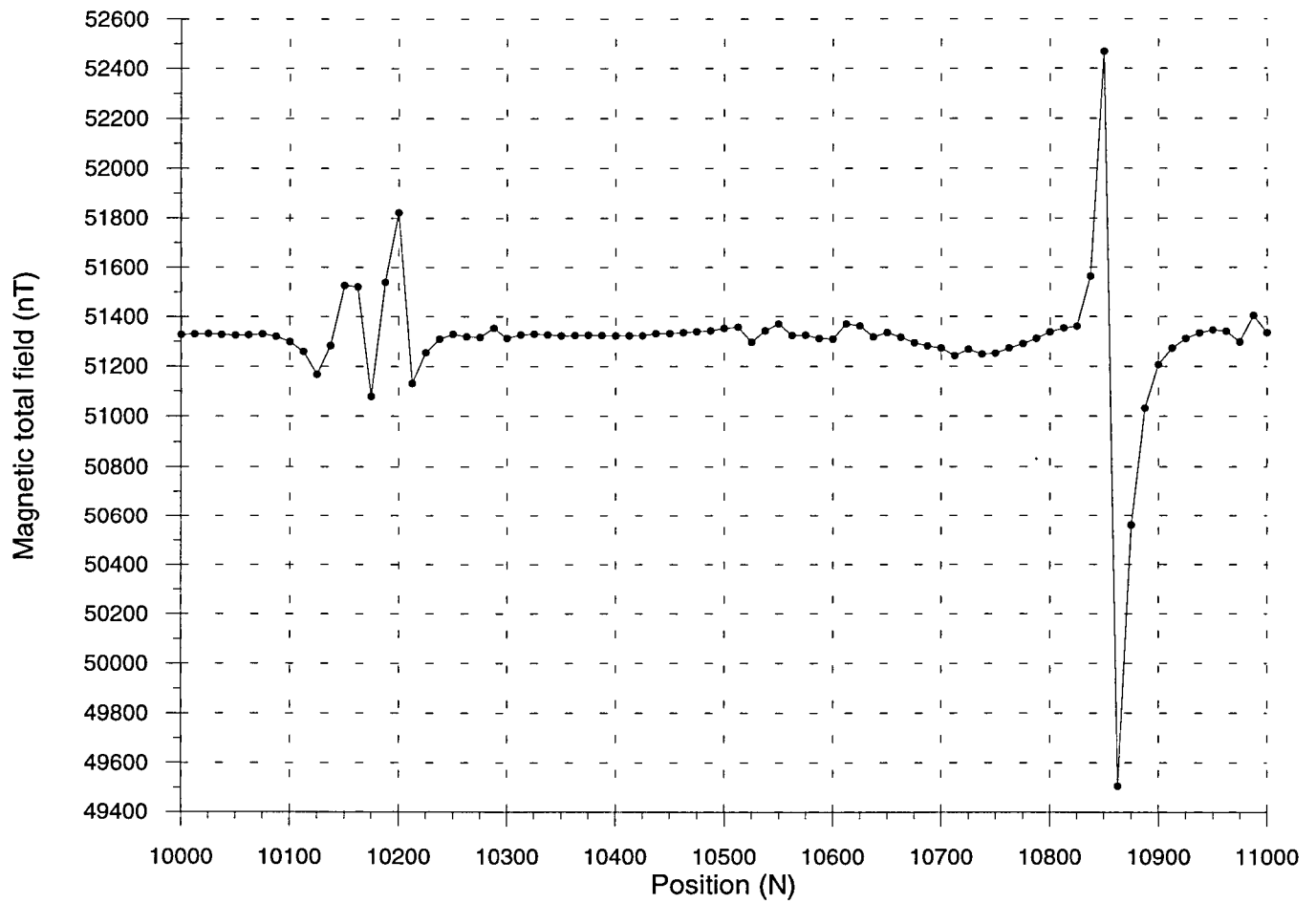


Figure 10a. Slingram MaxMin profile 10900 E.

STORSKARVEN
Magnetic total field
Profile 10900 E



STORSKARVEN
VLF
Profile 10900 E

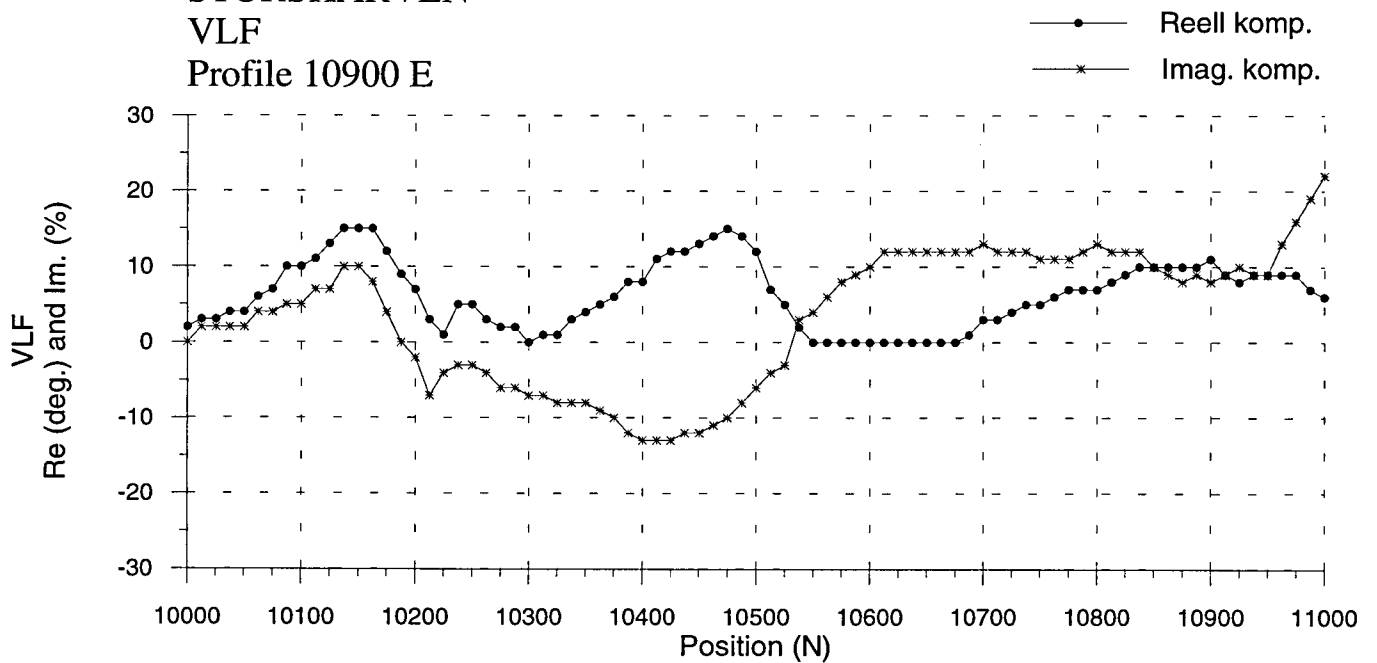


Figure 10b. Magnetic total field and VLF profile 10900 E.

STORSKARVEN
Slingram MaxMin
Profile 11000 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

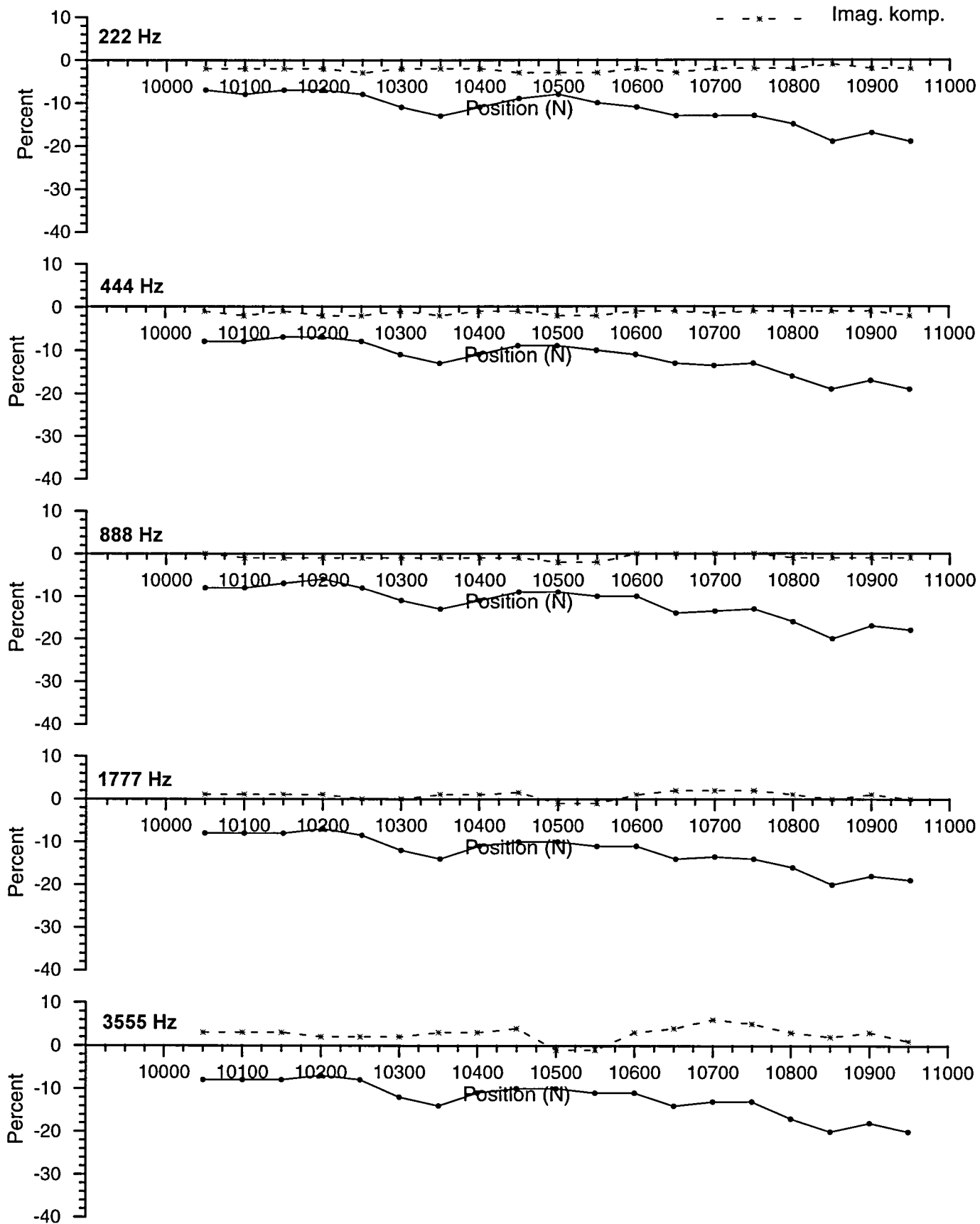
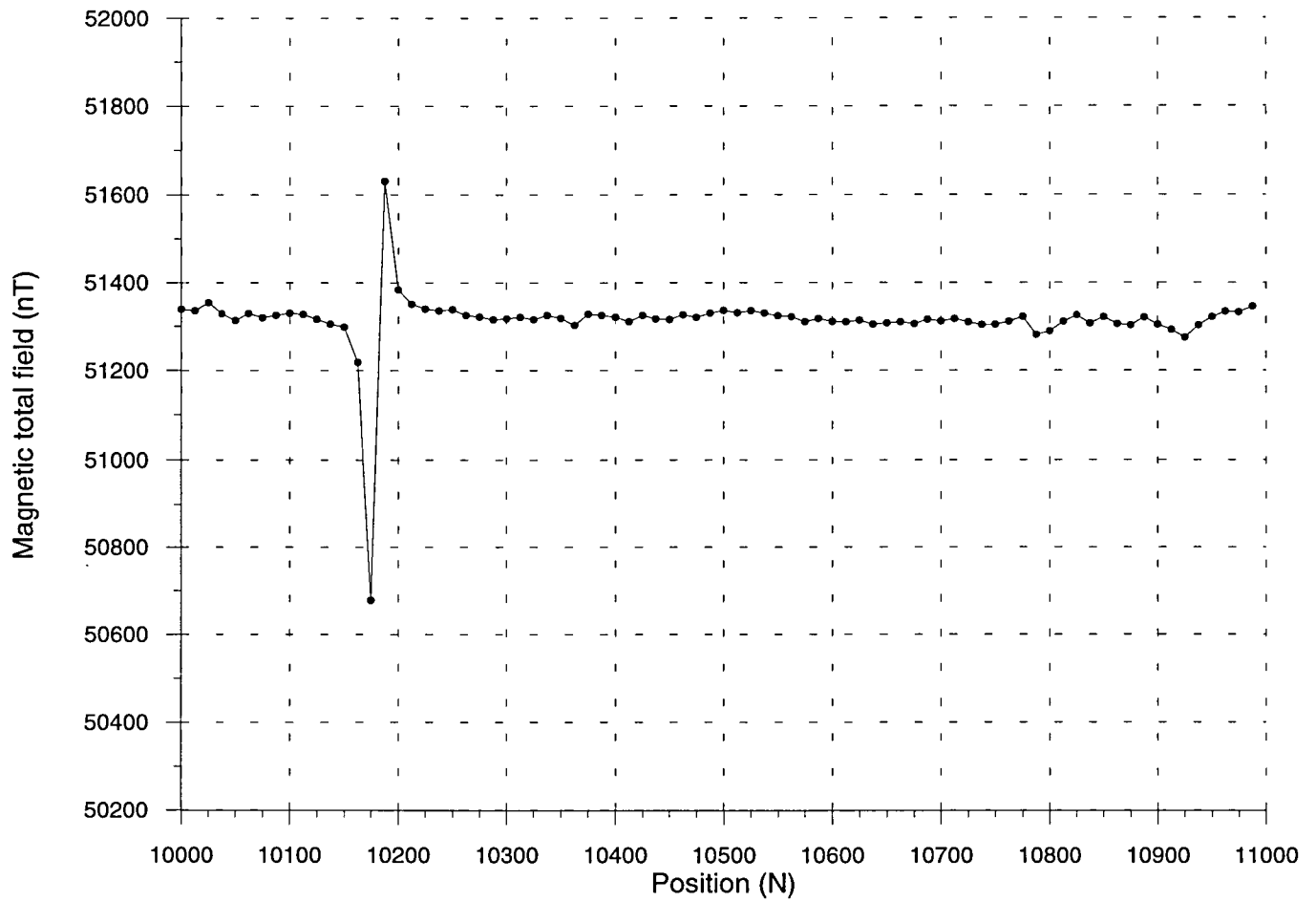


Figure 11a. Slingram MaxMin profile 11000 E.

STORSKARVEN
Magnetic total field
Profile 11000 E



STORSKARVEN
VLF
Profile 11000 E

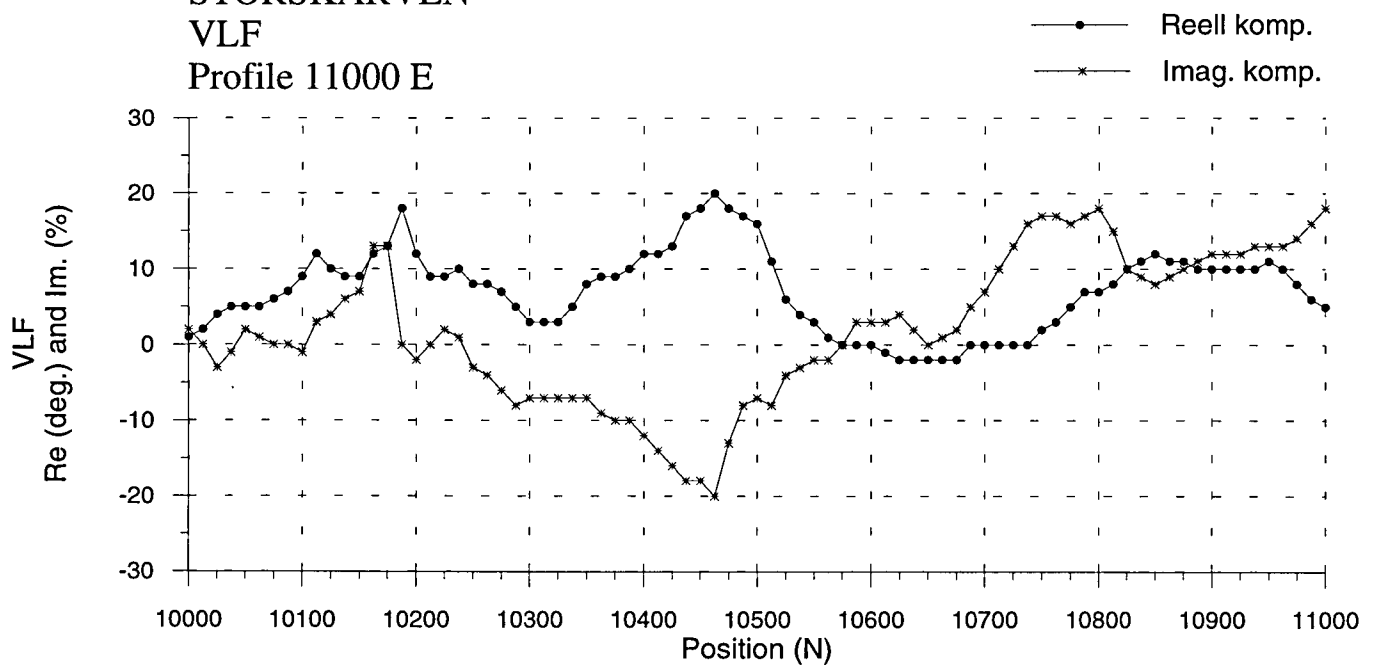


Figure 11b. Magnetic total field and VLF profile 11000 E.

STORSKARVEN
Slingram MaxMin
Profile 11100 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

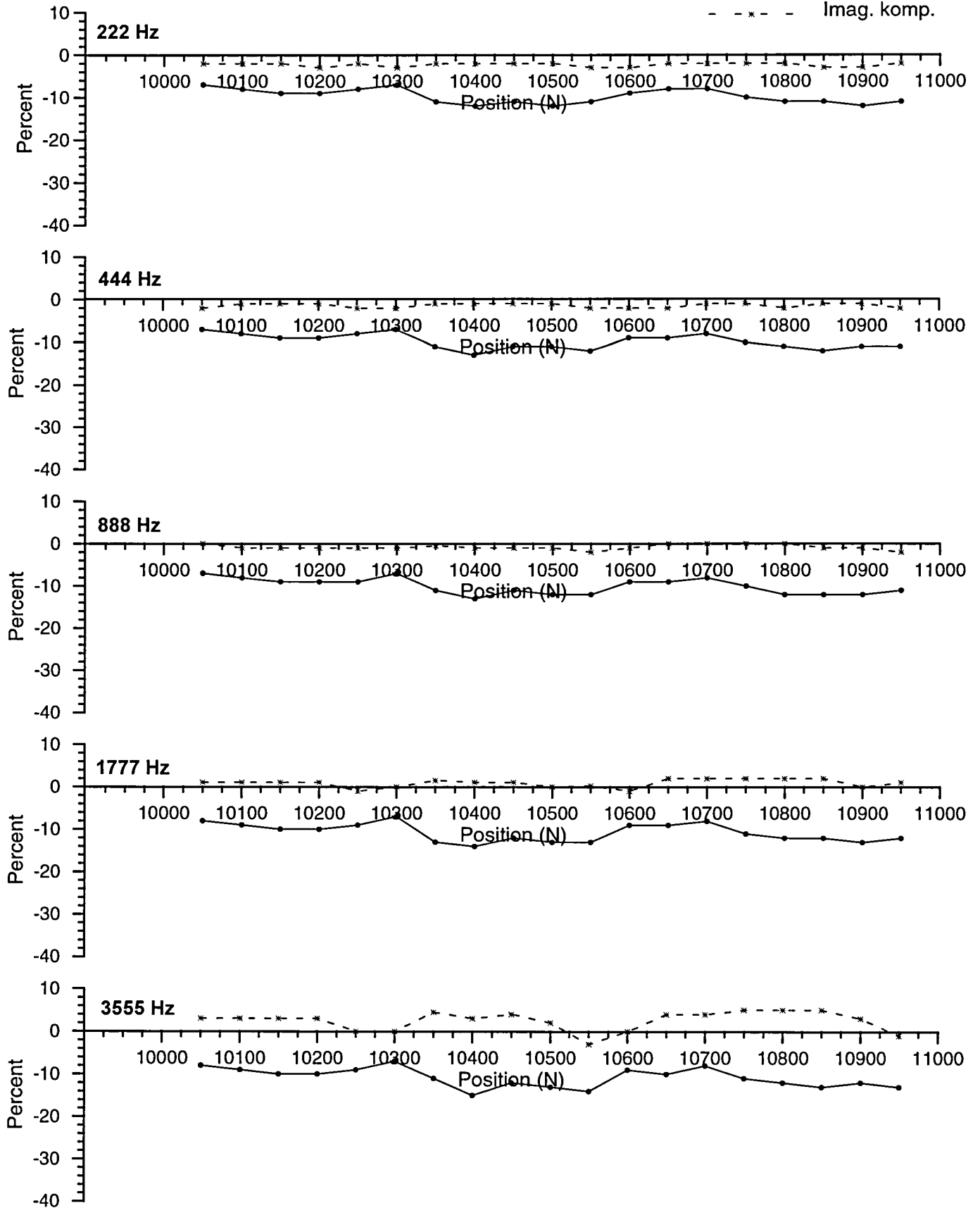
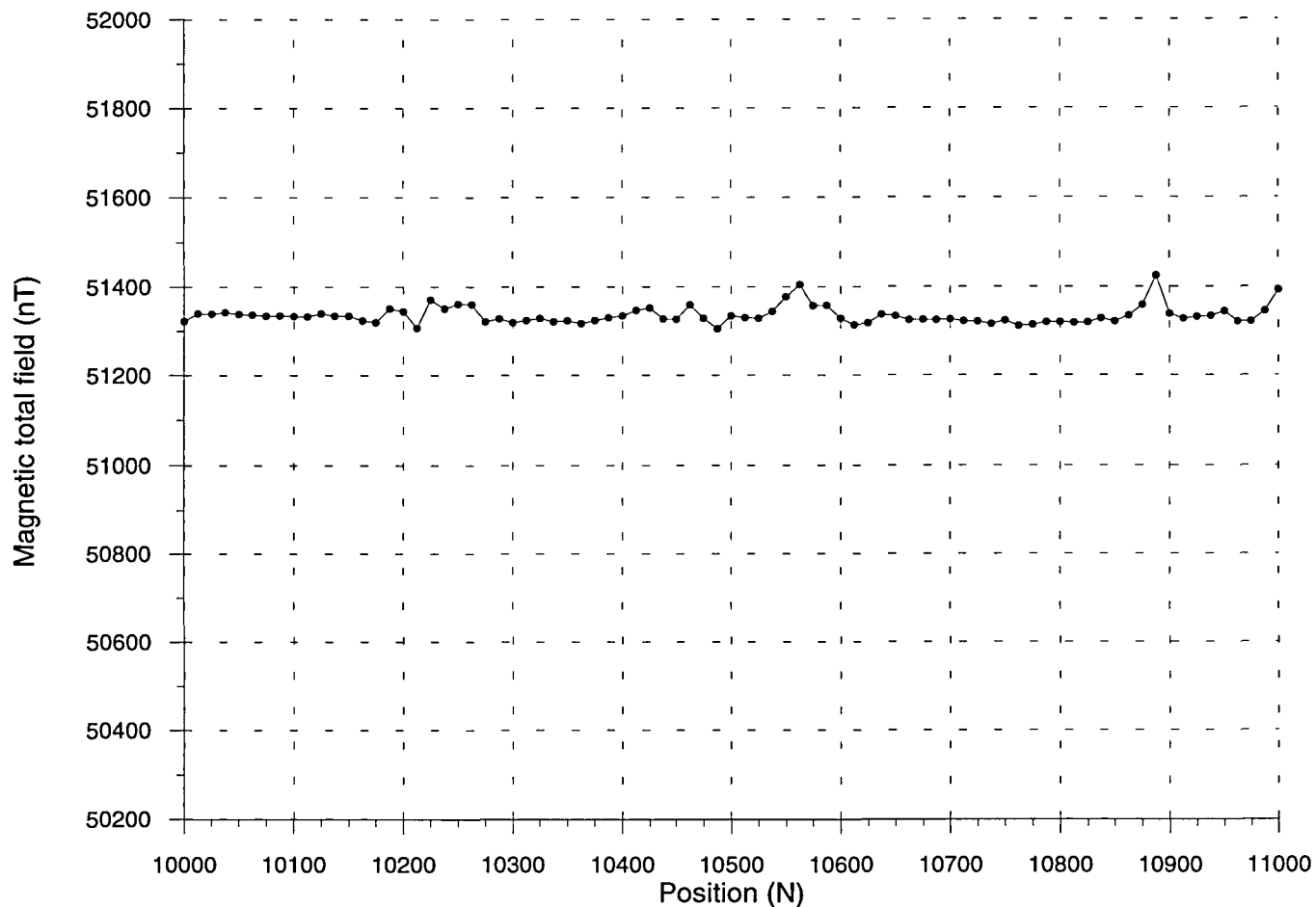


Figure 12a. Slingram MaxMin profile 11100 E.

STORSKARVEN
Magnetic total field
Profile 11100 E



STORSKARVEN
VLF
Profile 11100 E

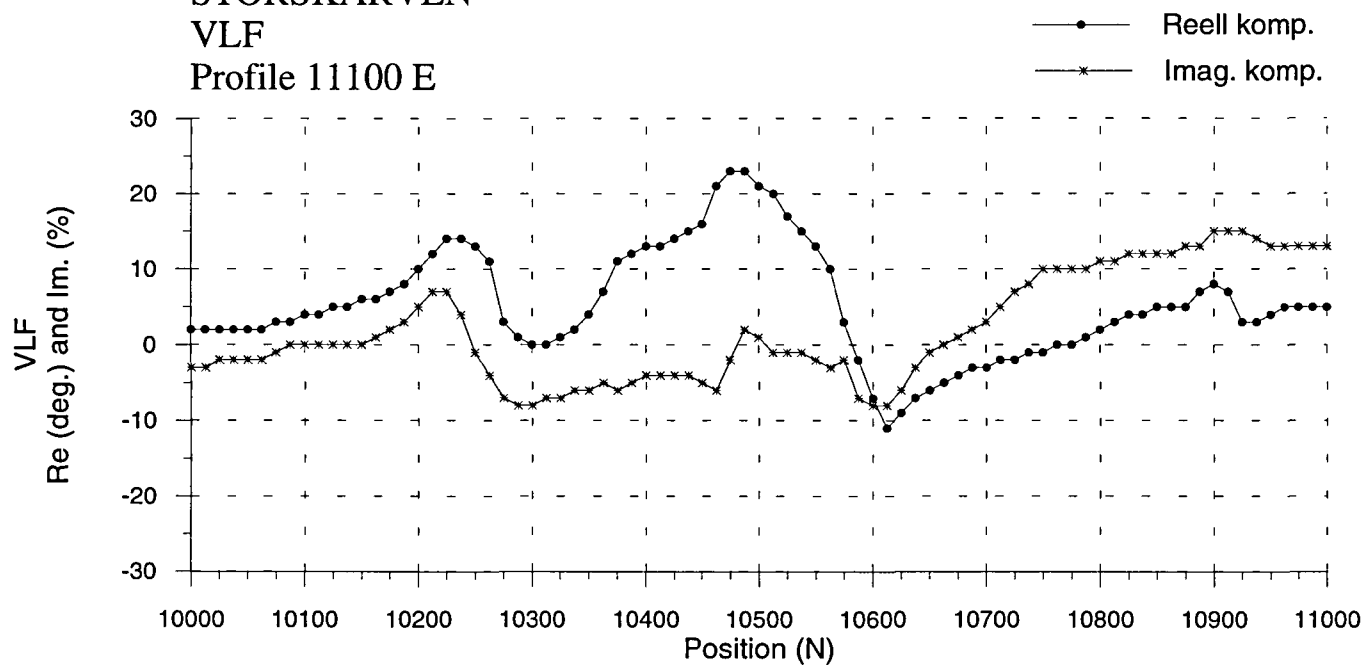


Figure 12b. Magnetic total field and VLF profile 11100 E.

STORSKARVEN
Slingram MaxMin
Profile 11200 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

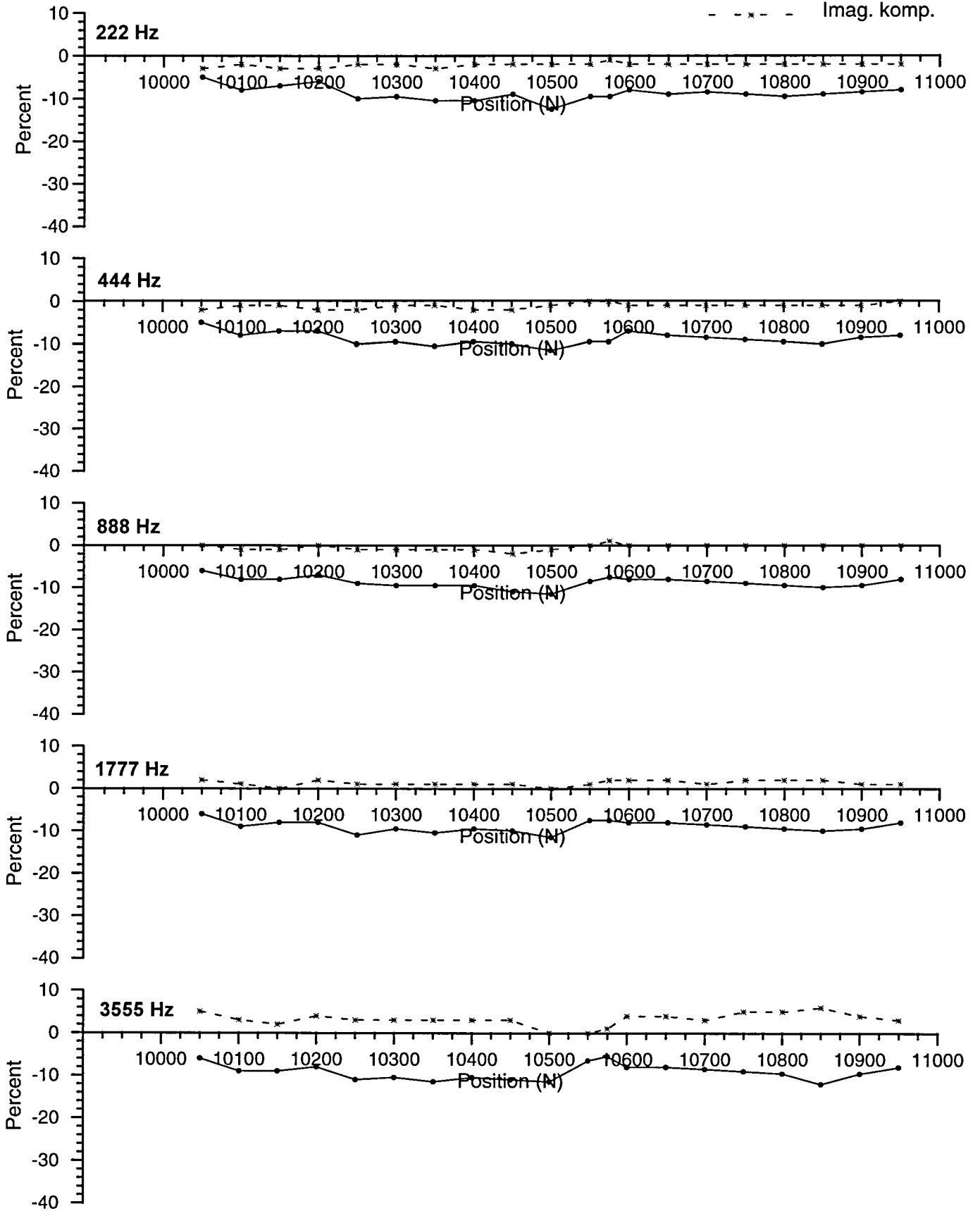
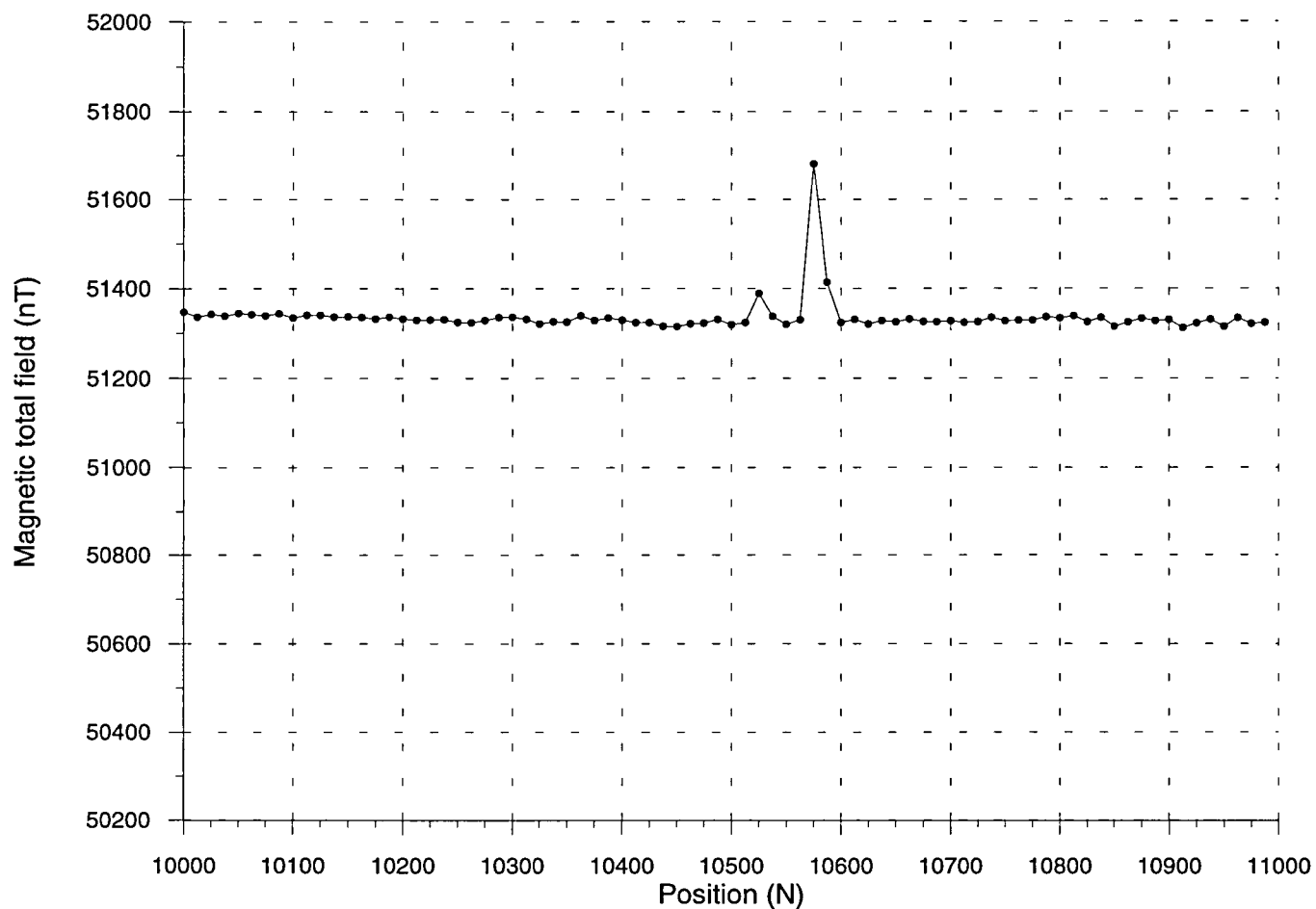


Figure 13a. Slingram MaxMin profile 11200 E.

STORSKARVEN
Magnetic total field
Profile 11200 E



STORSKARVEN
VLF
Profile 11200 E

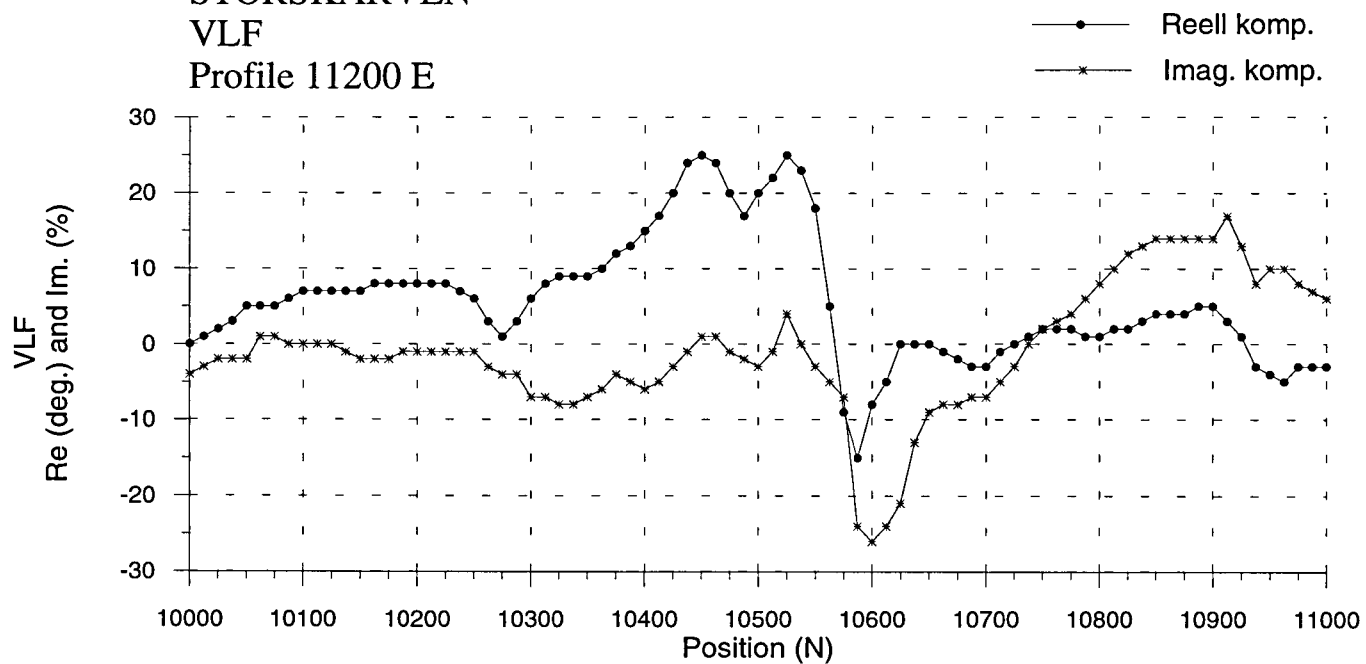


Figure 13b. Magnetic total field and VLF profile 11200 E.

STORSKARVEN
Slingram MaxMin
Profile 11300 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

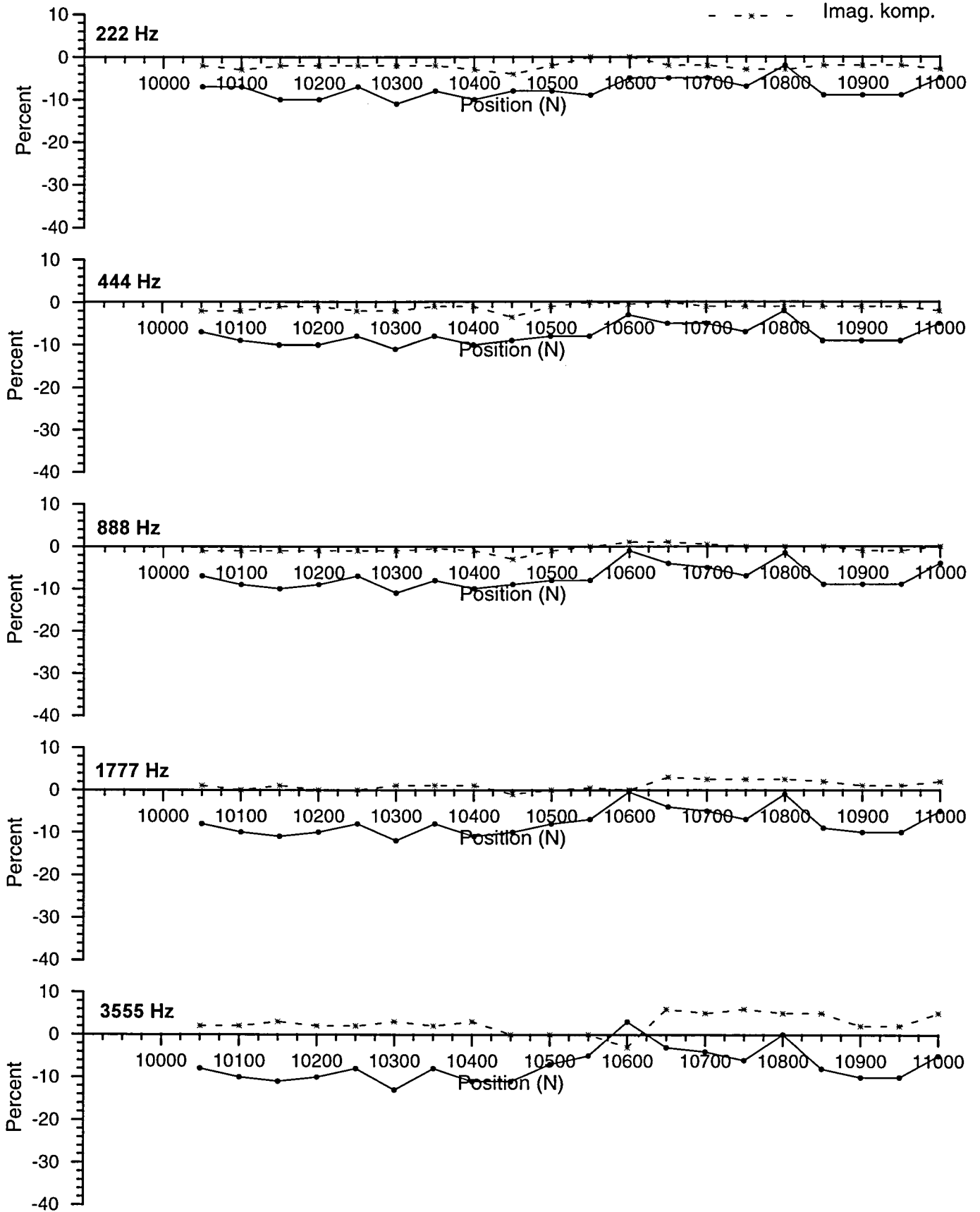


Figure 14a. Slingram MaxMin profile 11300 E.

STORSKARVEN
Magnetic total field
Profile 11300 E

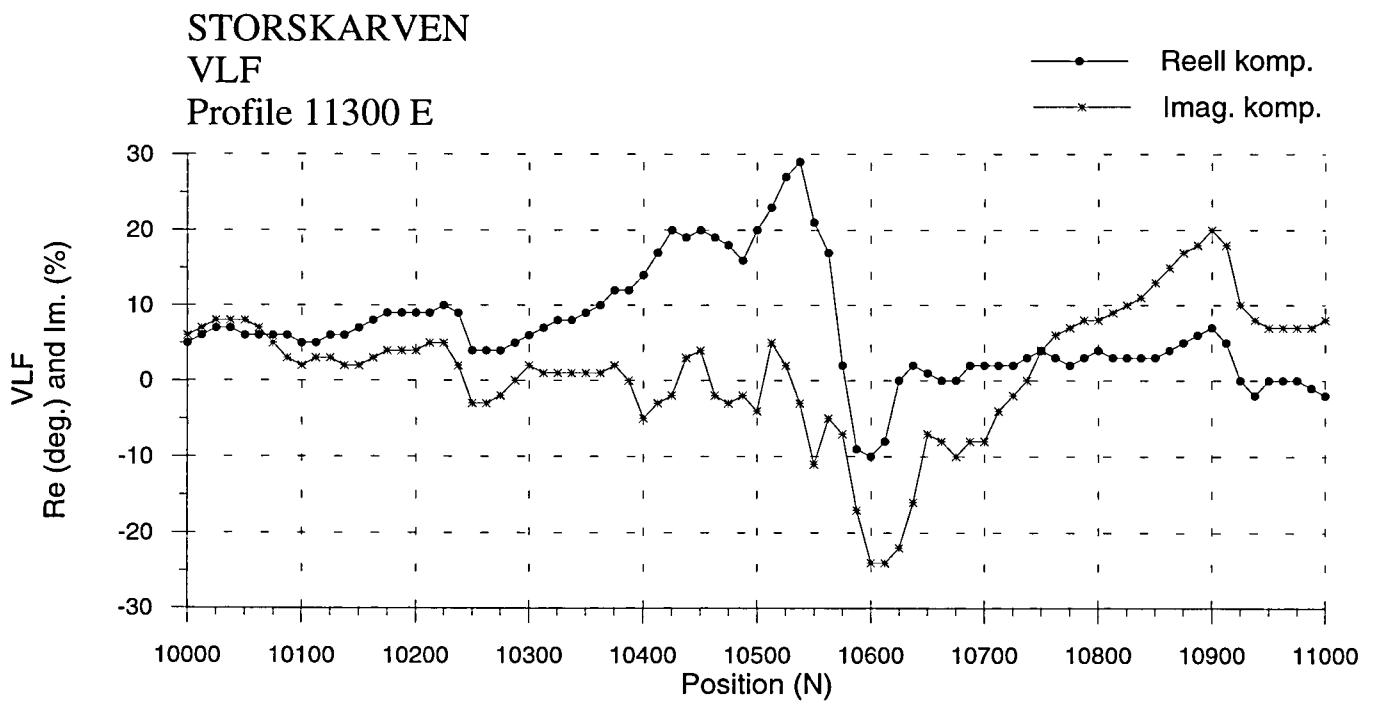
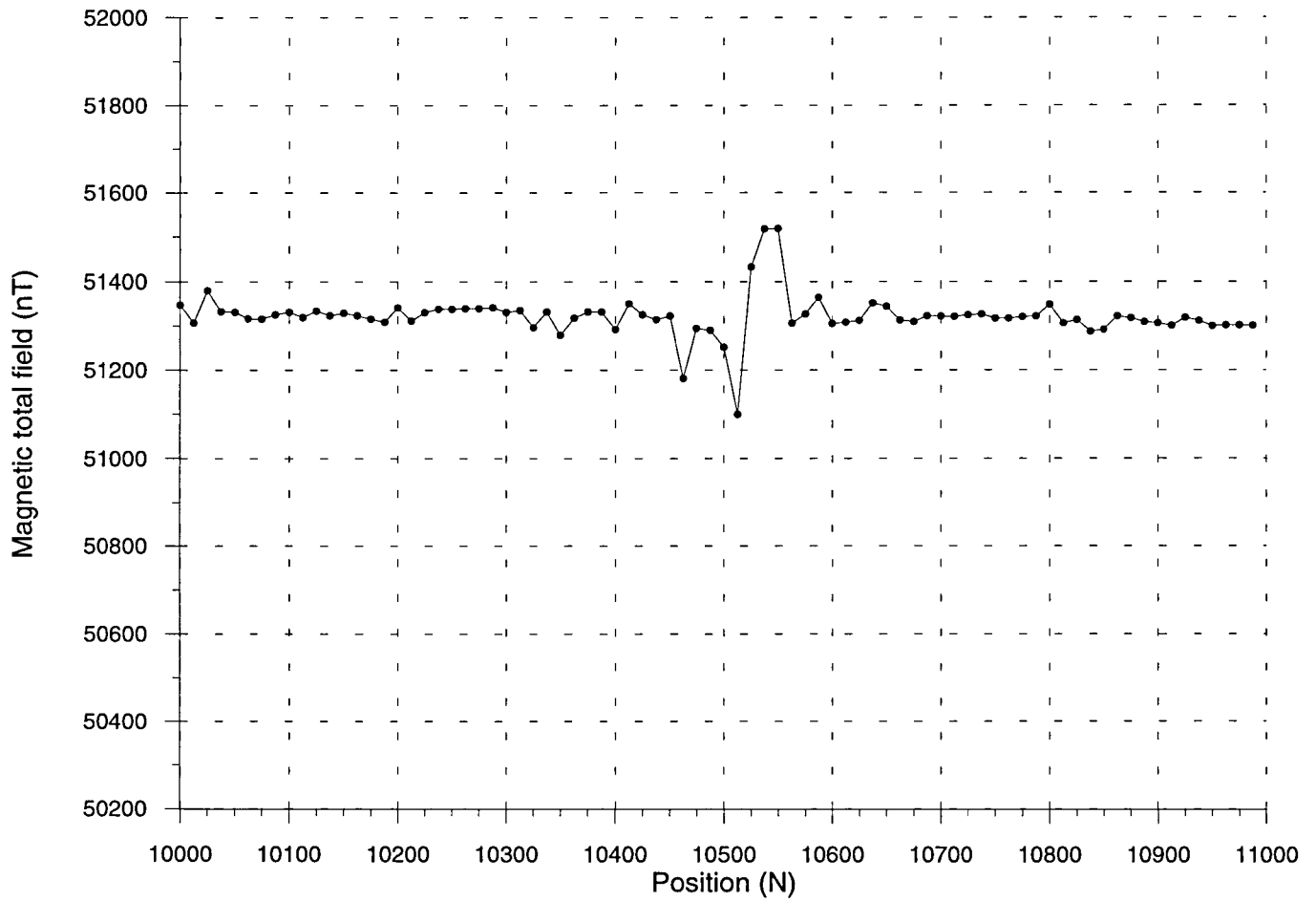


Figure 14b. Magnetic total field and VLF profile 11300 E.

STORSKARVEN
Slingram MaxMin
Profile 11400 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

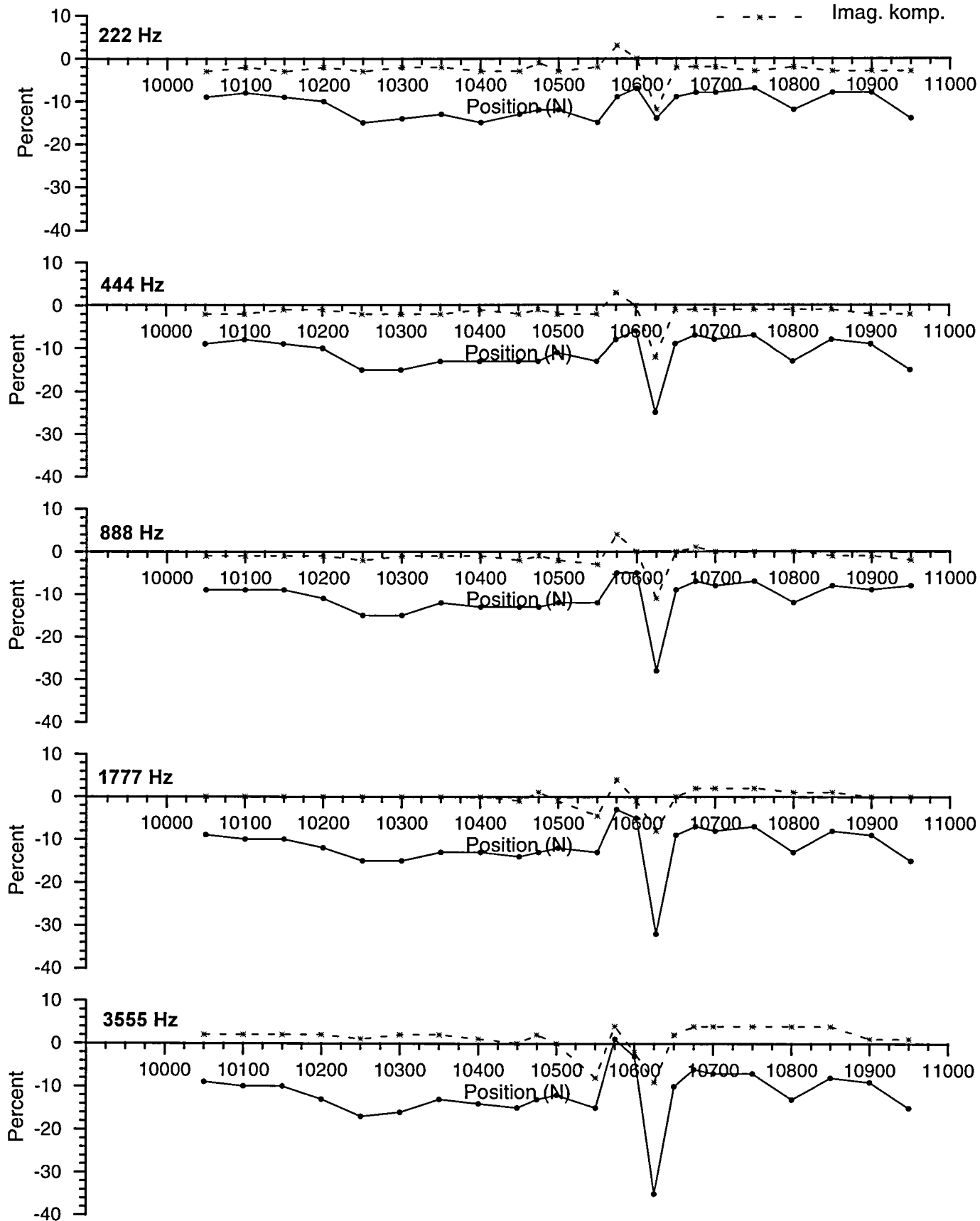
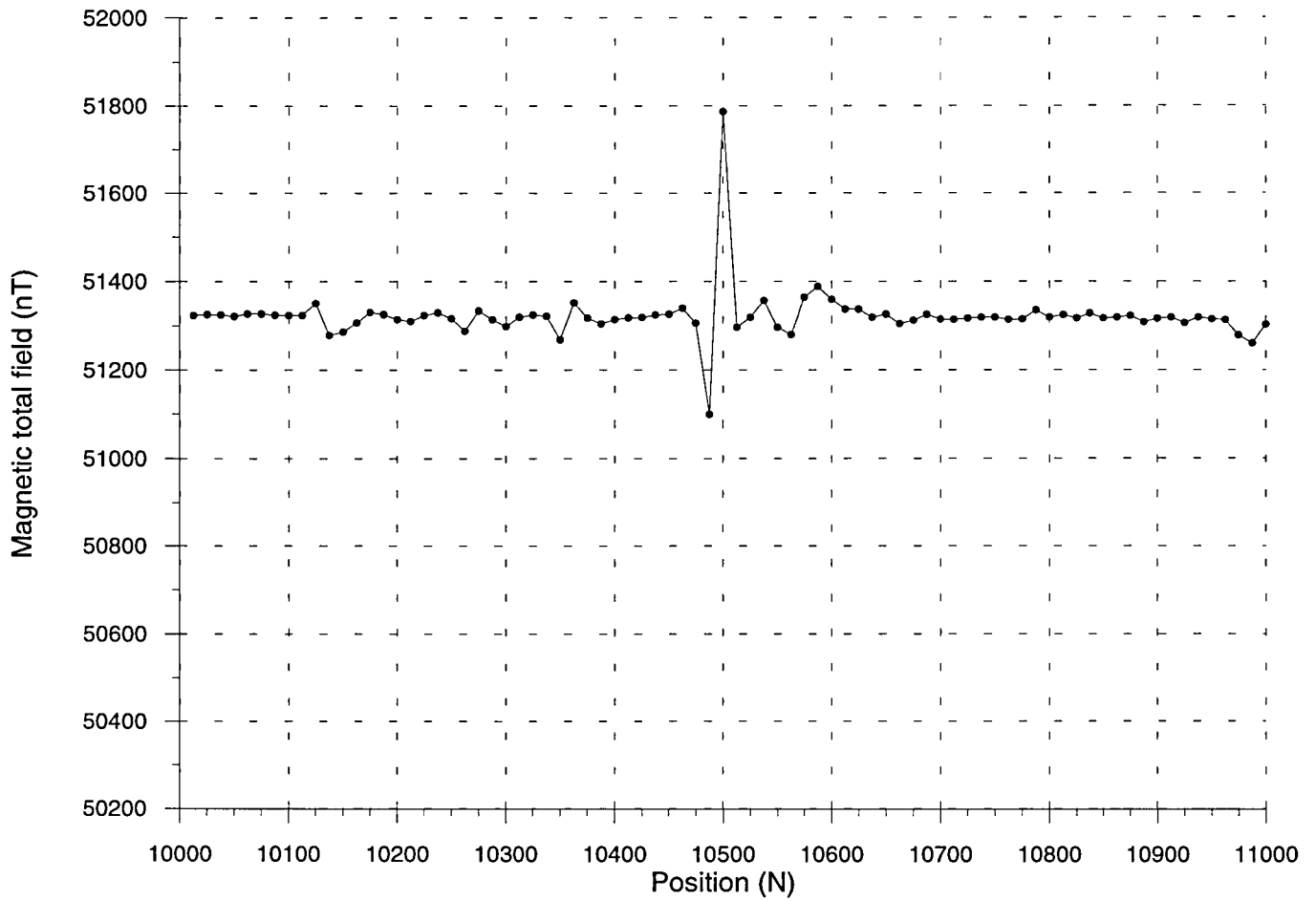


Figure 15a. Slingram MaxMin profile 11400 E.

STORSKARVEN
Magnetic total field
Profile 11400 E



STORSKARVEN
VLF
Profile 11400 E

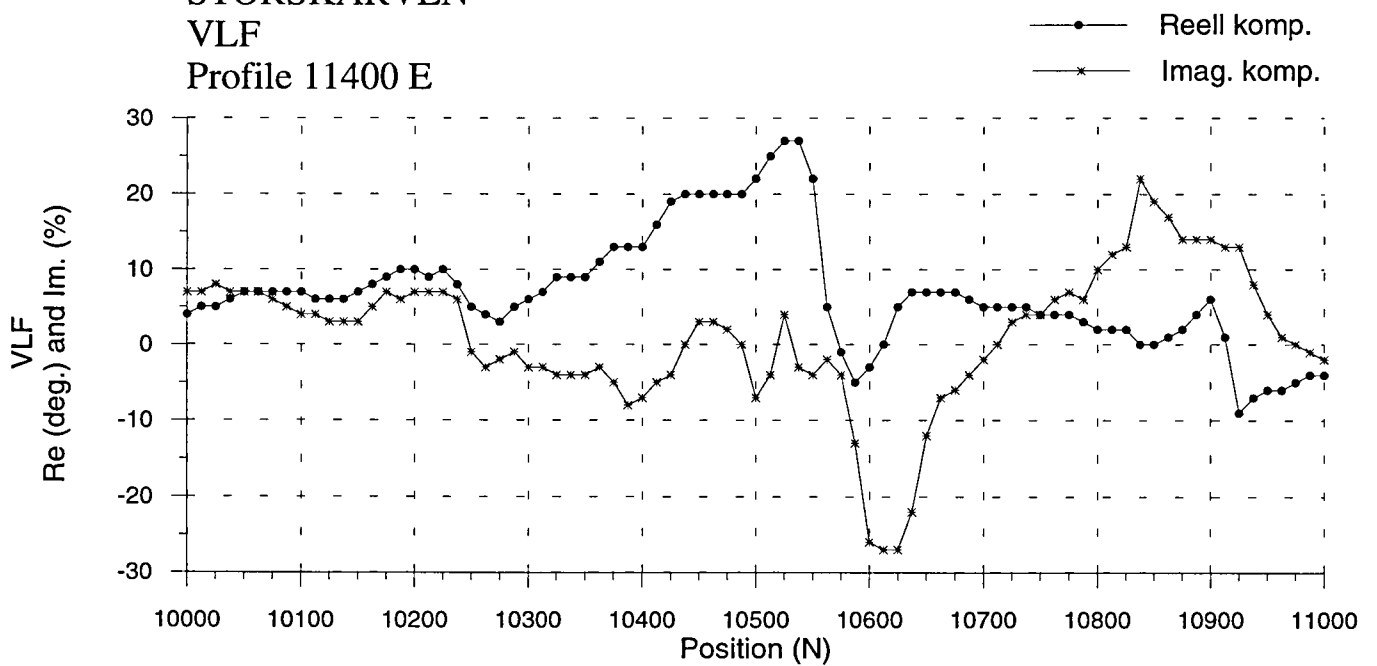


Figure 15b. Magnetic total field and VLF profile 11400 E.

STORSKARVEN
Slingram MaxMin
Profile 11500 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

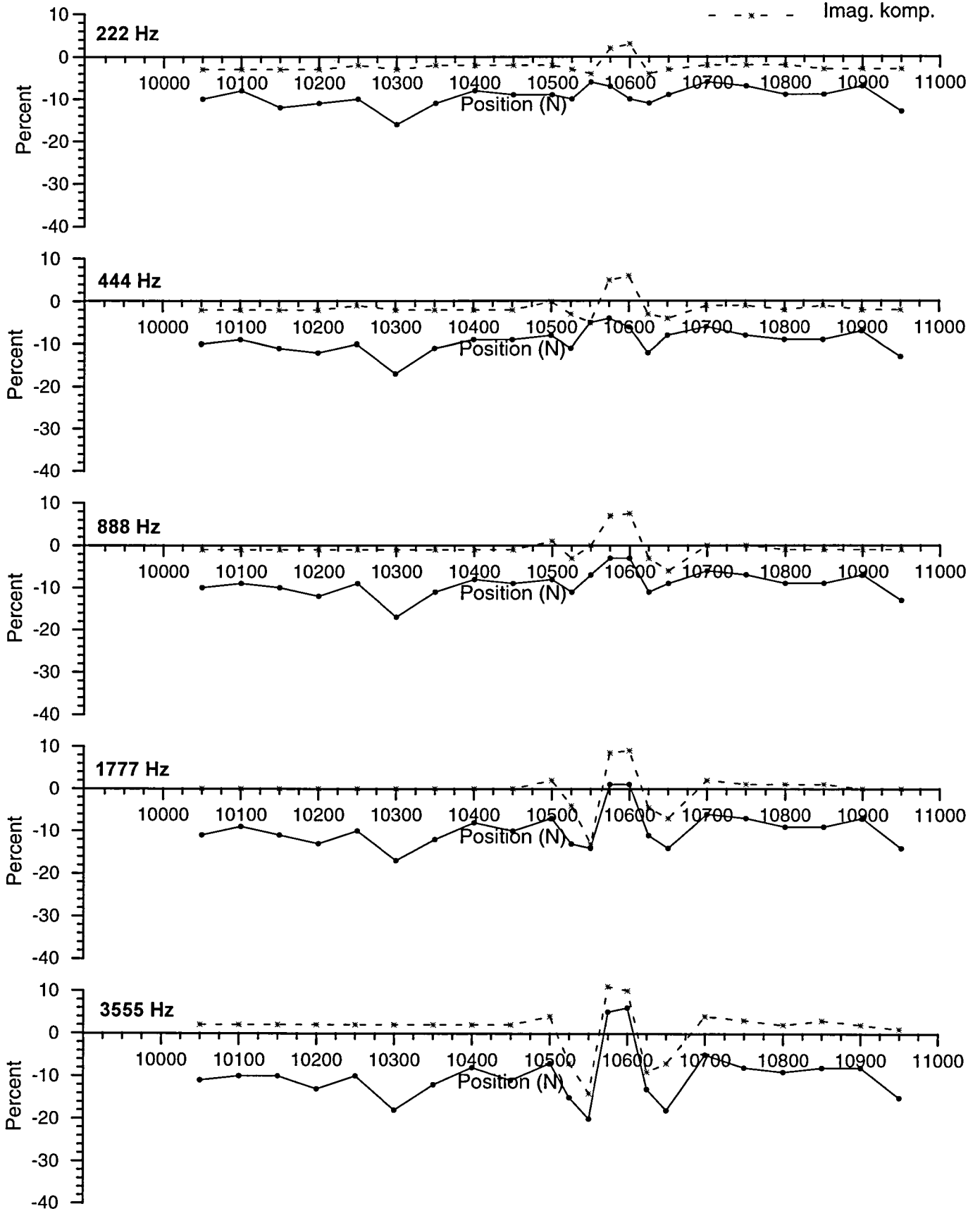
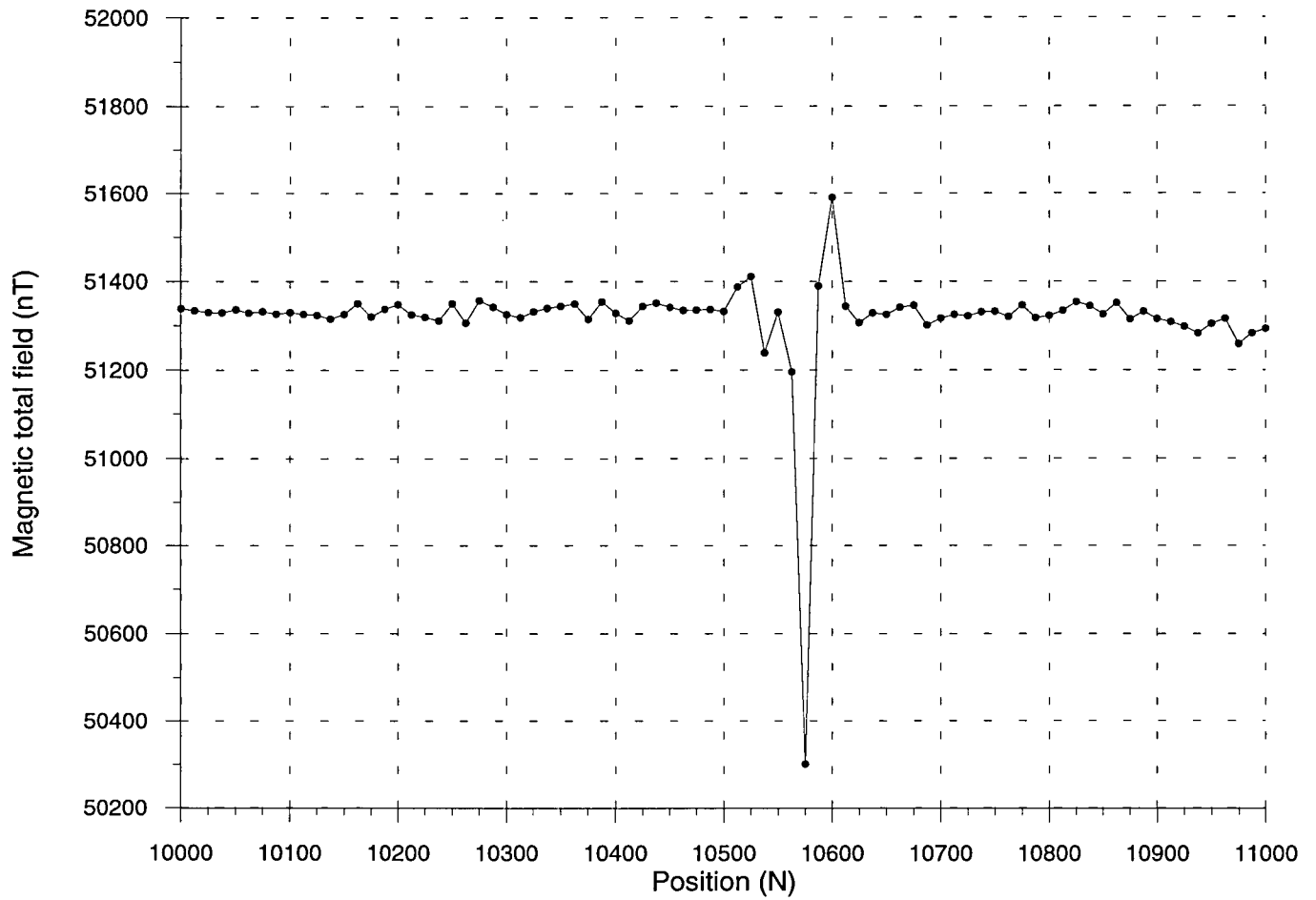


Figure 16a. Slingram MaxMin profile 11500 E.

STORSKARVEN
Magnetic total field
Profile 11500 E



STORSKARVEN
VLF
Profile 11500 E

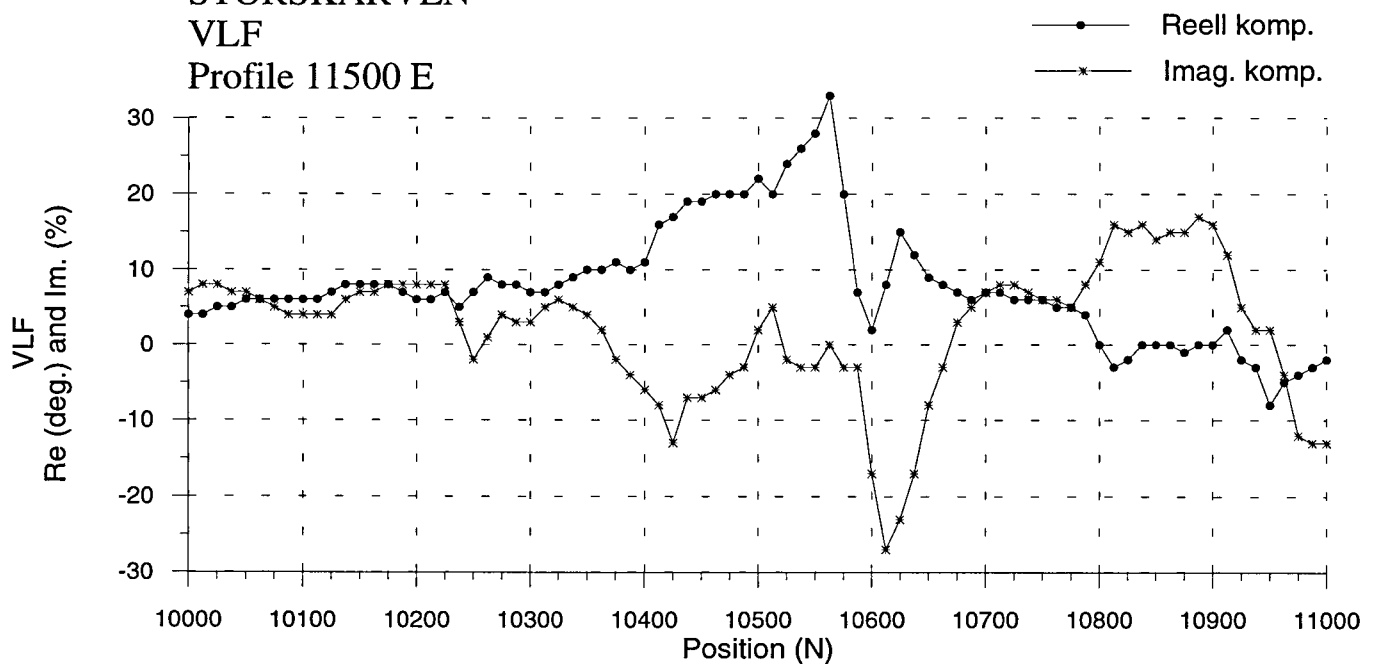


Figure 16b. Magnetic total field and VLF profile 11500 E.

STORSKARVEN
Slingram MaxMin
Profile 11600 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

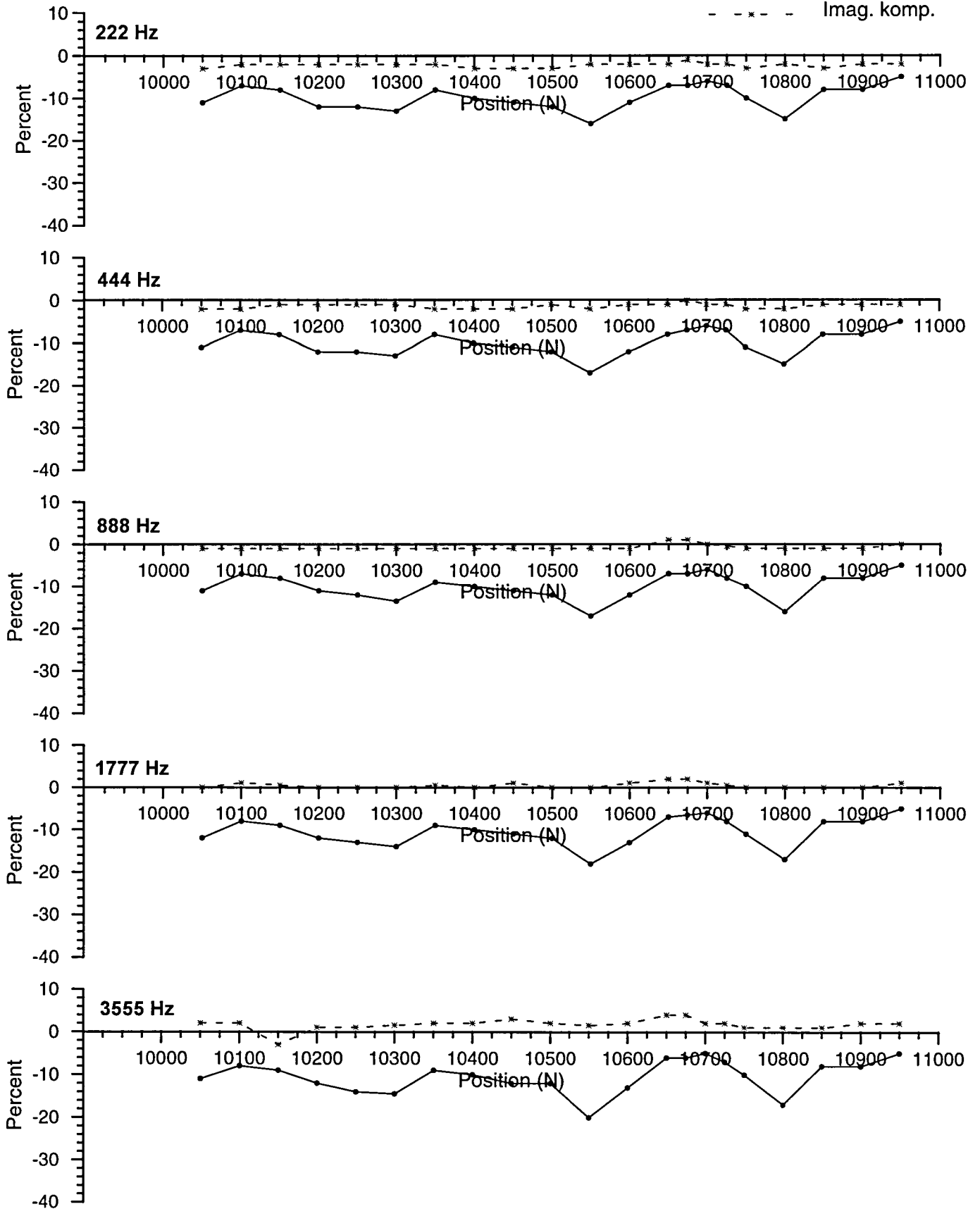
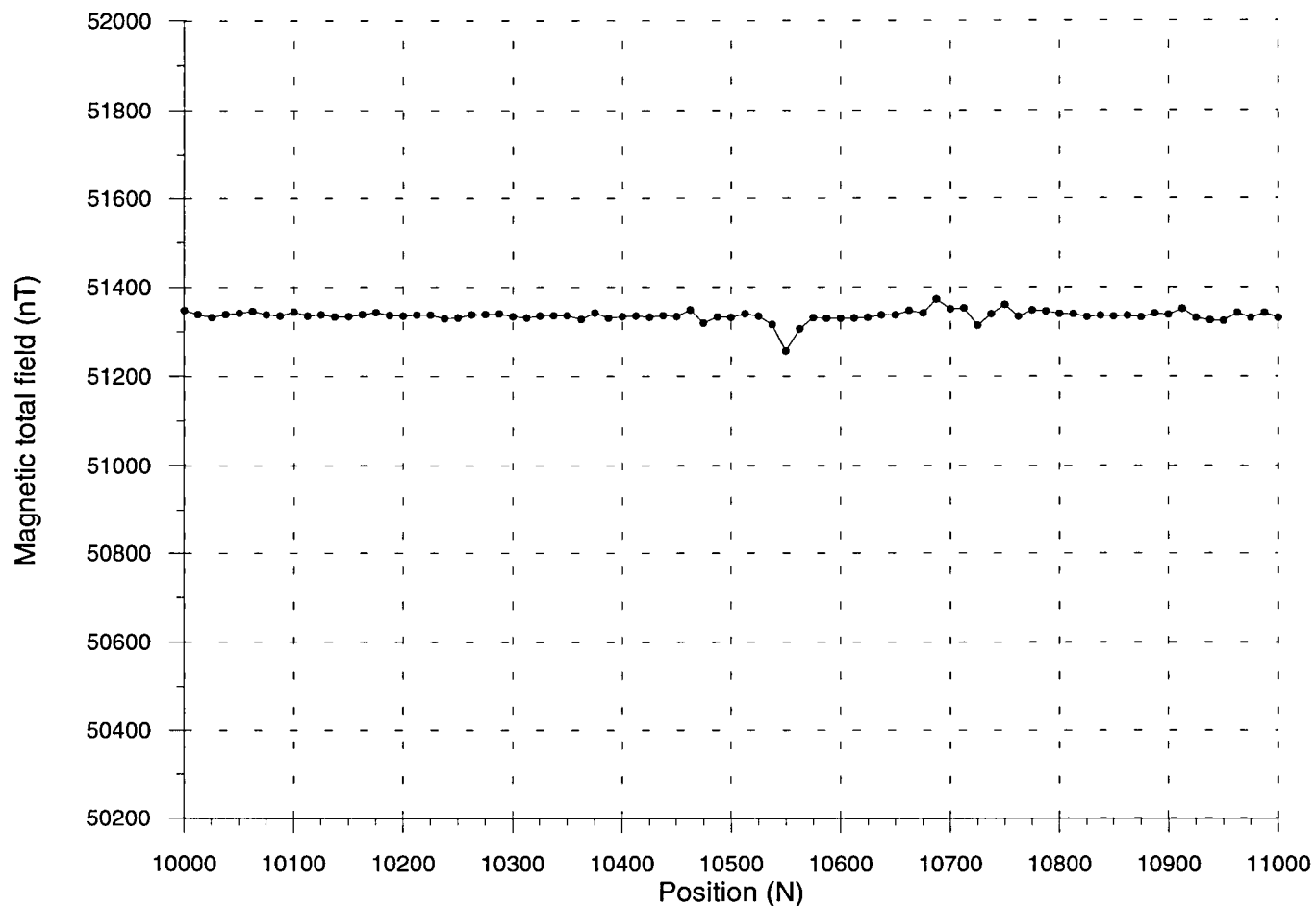


Figure 17a. Slingram MaxMin profile 11600 E.

STORSKARVEN
Magnetic total field
Profile 11600 E



STORSKARVEN
VLF
Profile 11600 E

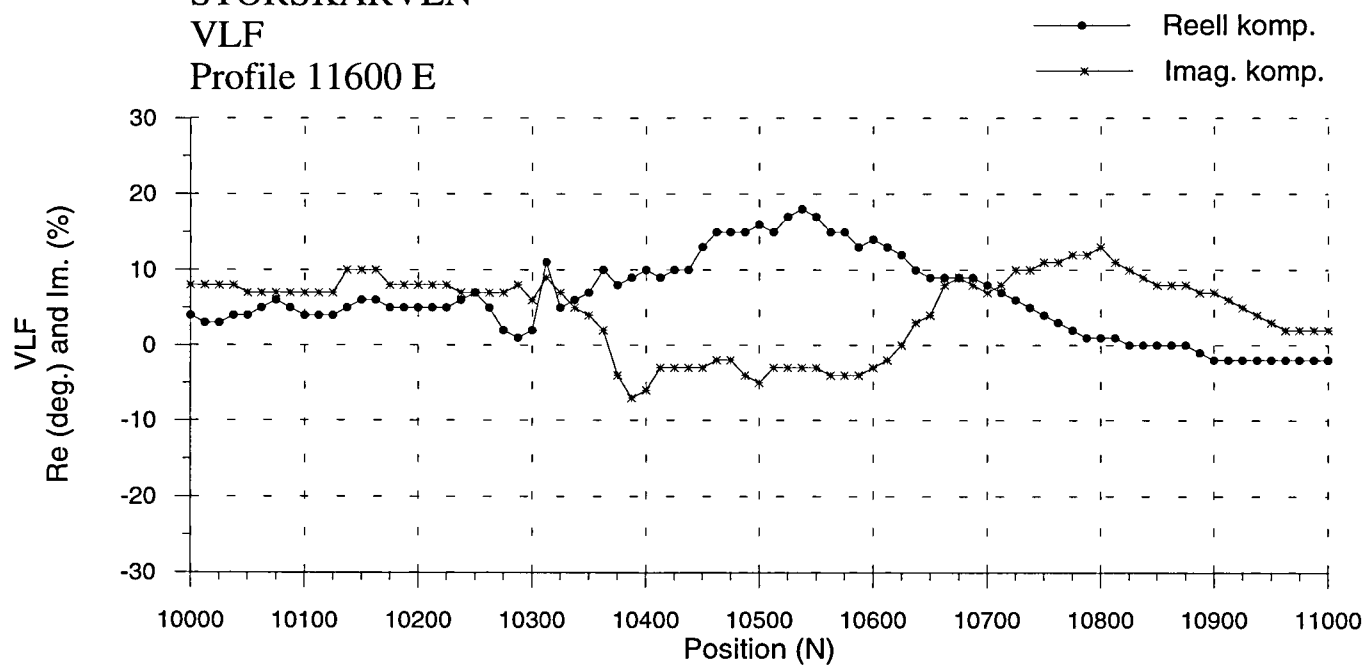


Figure 17b. Magnetic total field and VLF profile 11600 E.

STORSKARVEN
Slingram MaxMin
Profile 11700 E

Tx ----- Rx 100m

—●— Reell komp.
- - * - - Imag. komp.

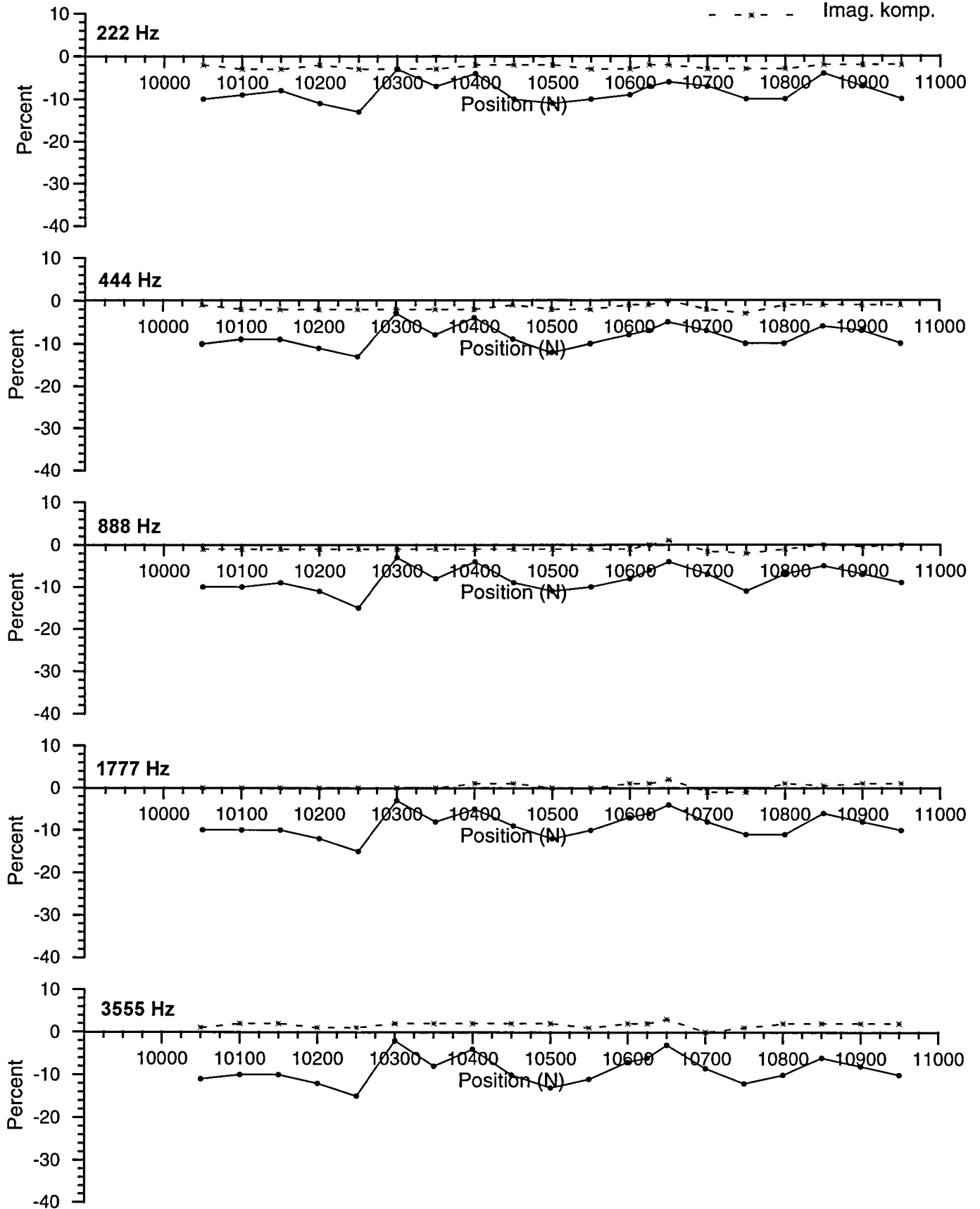
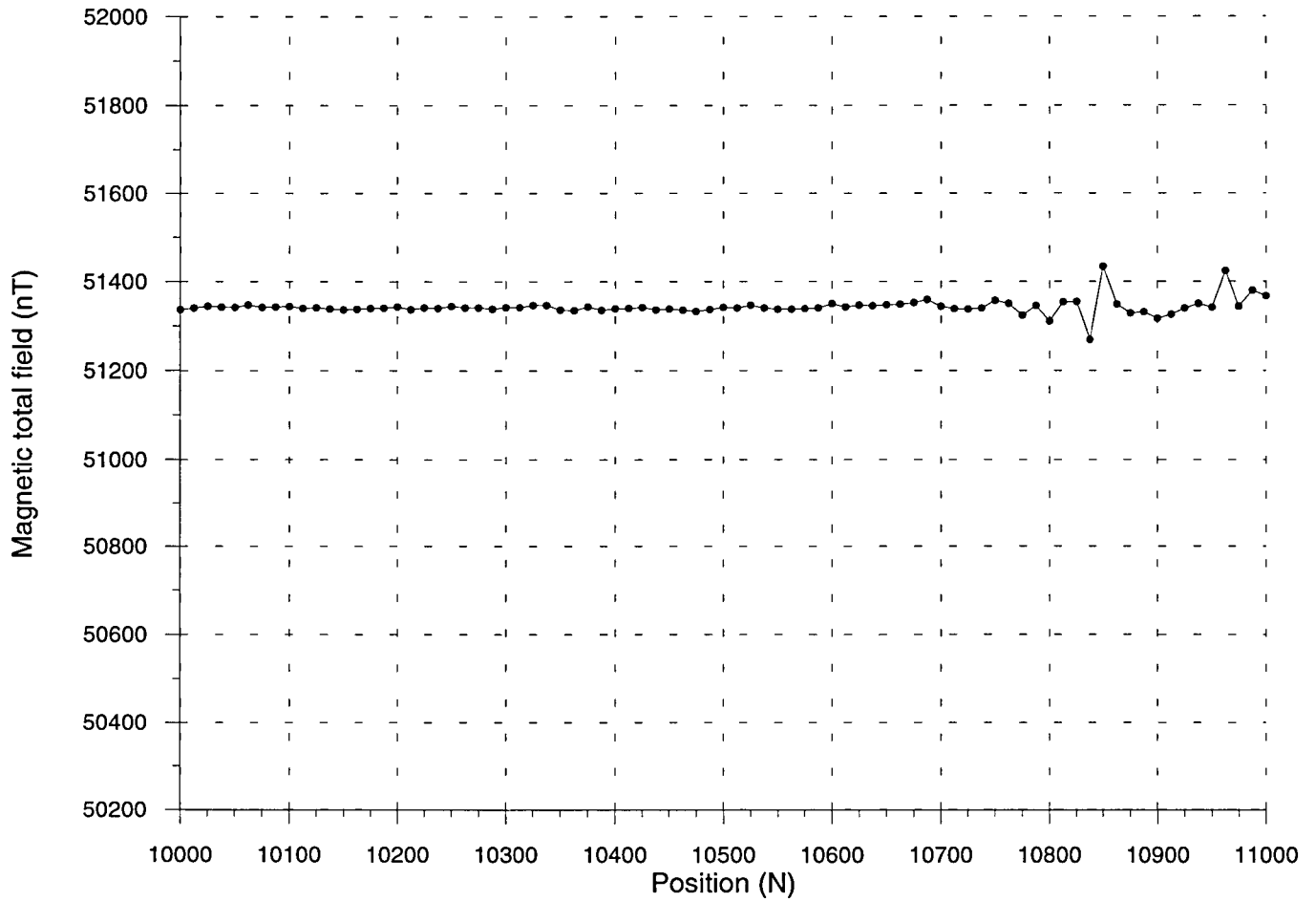


Figure 18a. Slingram MaxMin profile 11700 E.

STORSKARVEN
Magnetic total field
Profile 11700 E



STORSKARVEN
VLF
Profile 11700 E

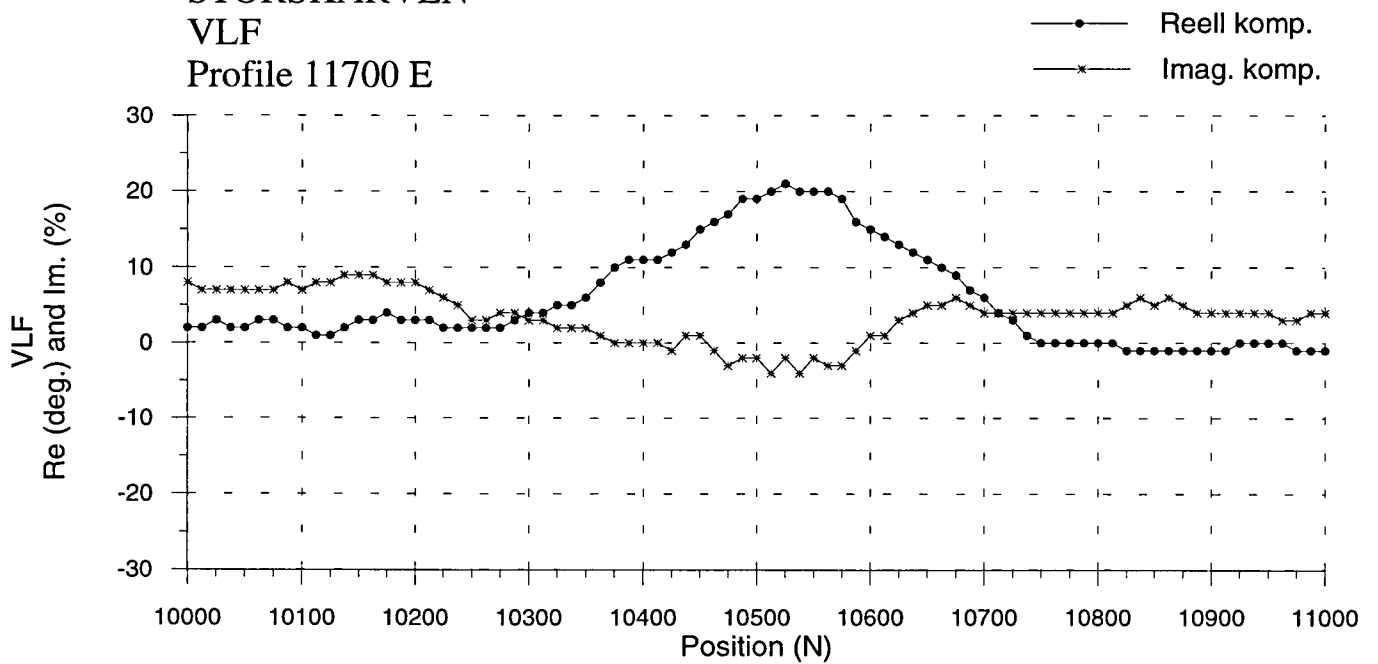
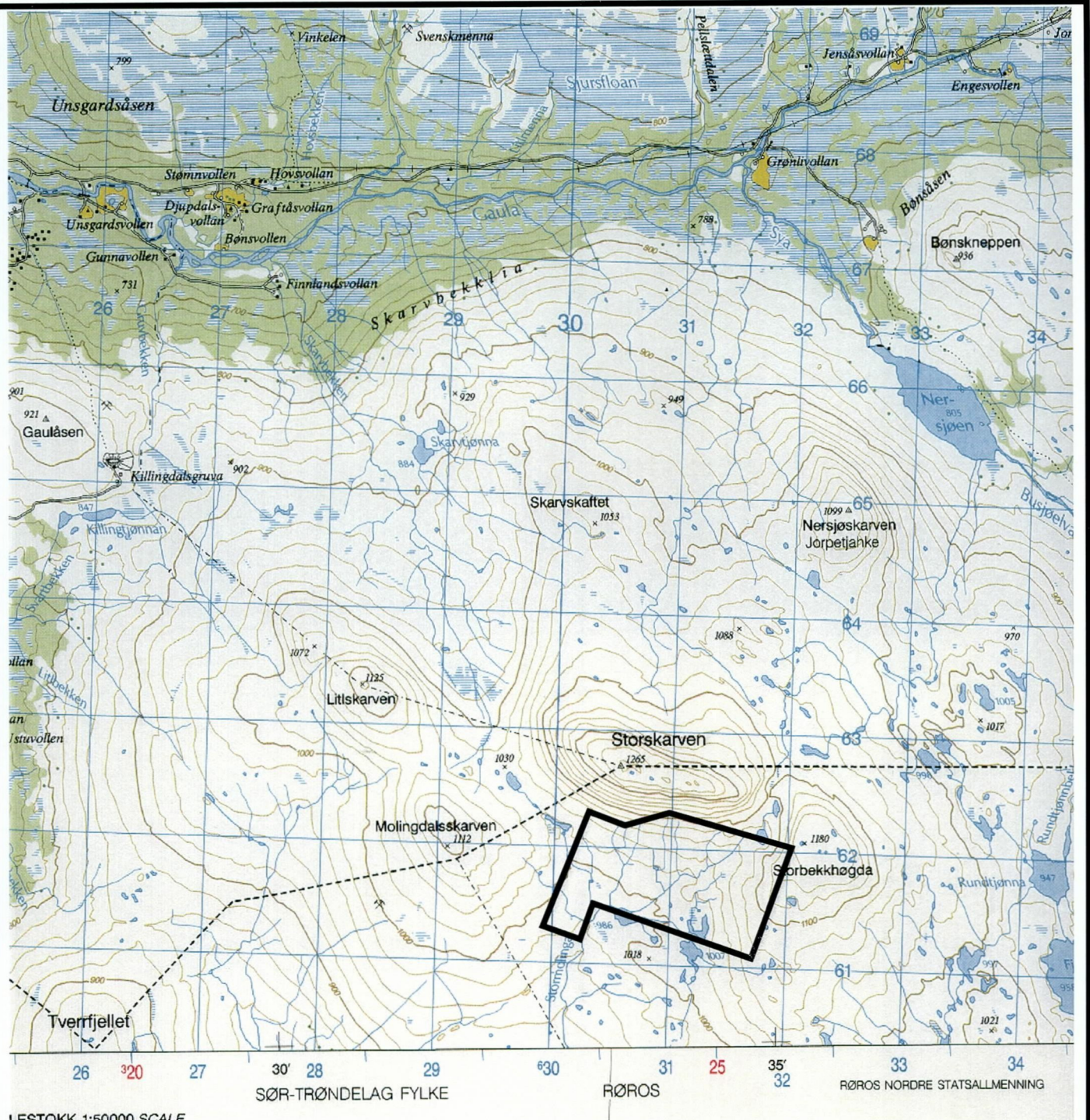
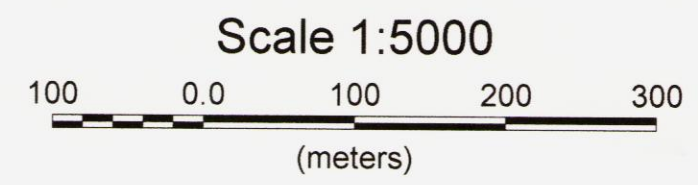
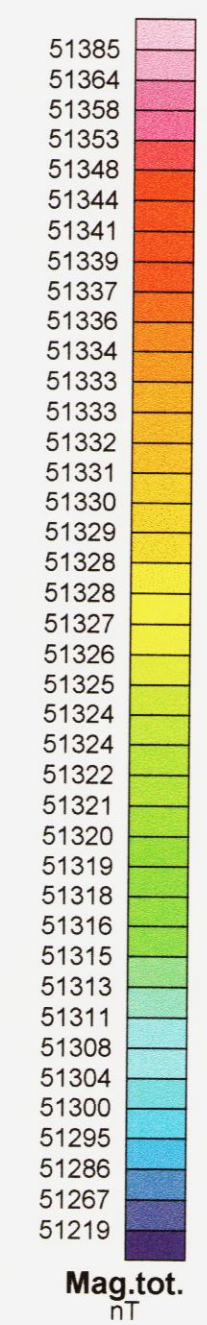
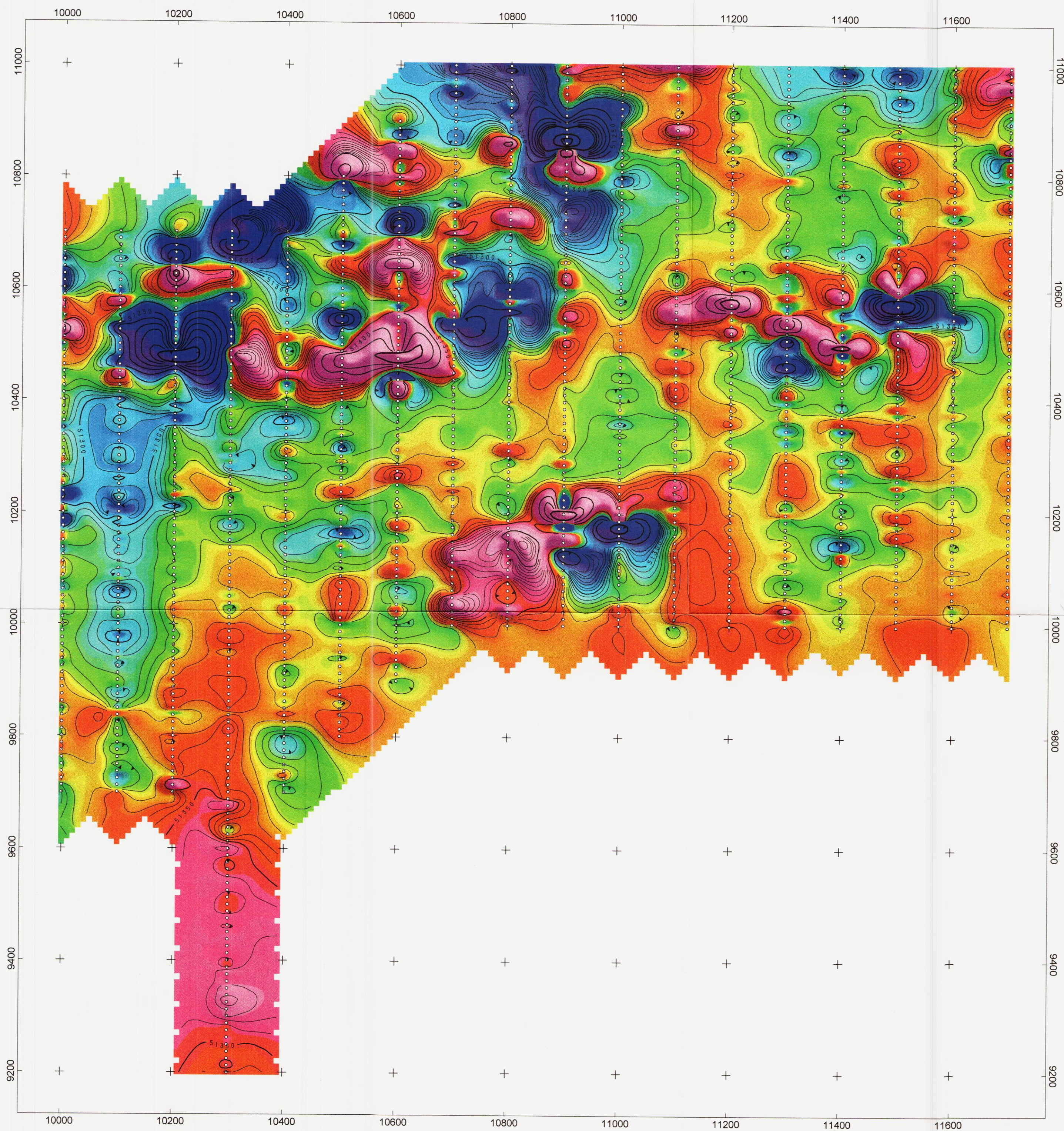


Figure 18b. Magnetic total field and VLF profile 11700 E.



INVESTIGATED AREA

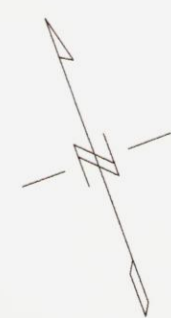
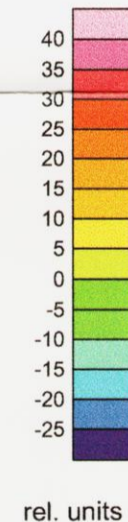
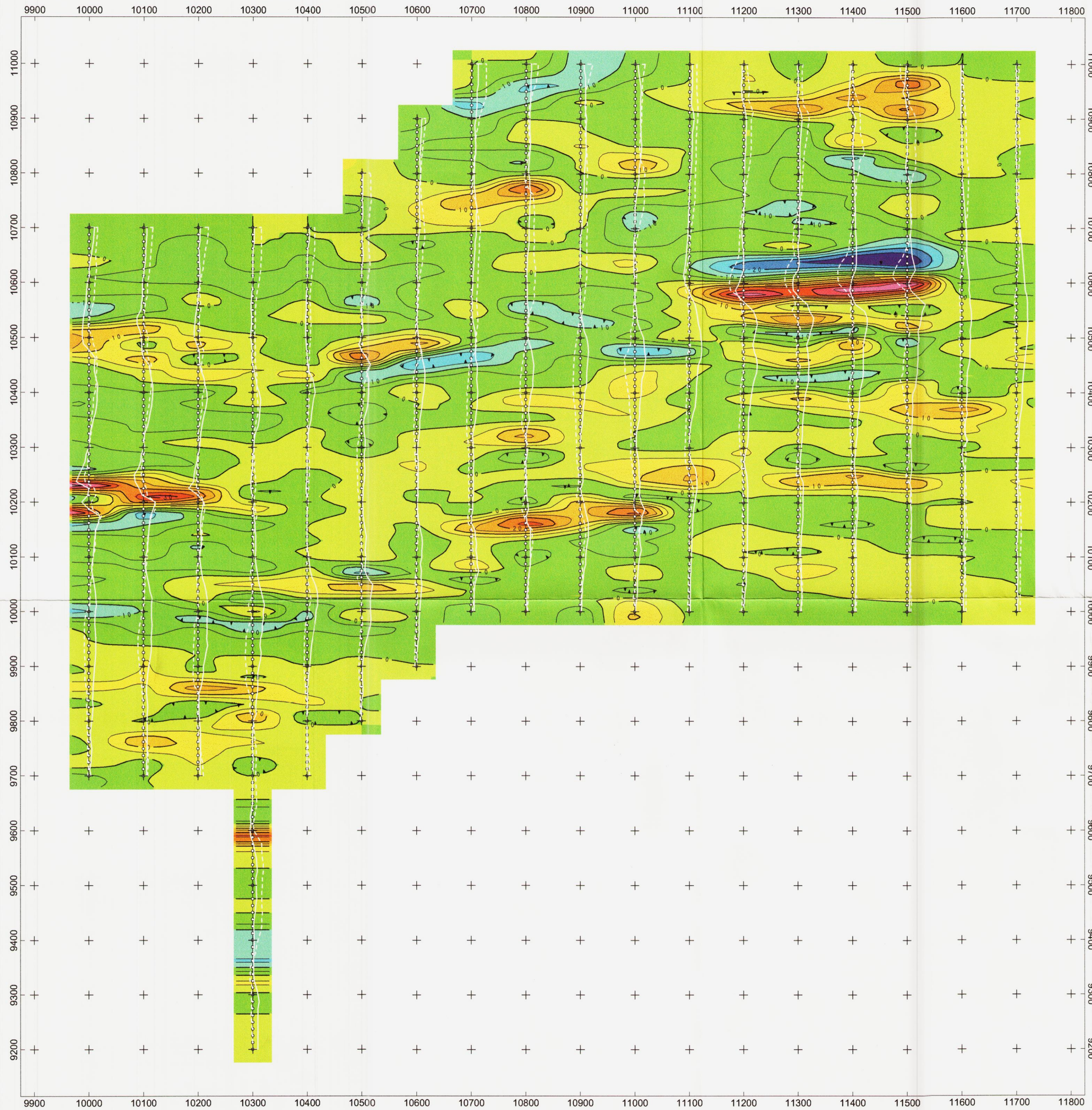
CREW DEVELOPMENT CORPORATION INVESTIGATED AREA STORSKARVEN RØROS, SØR-TRØNDELAG	SCALE	OPER. E.D.	1999 - 2000
	1:50 000	DRAW E.D.	MAY 2000
		TRAC	
GEOLOGICAL SURVEY OF NORWAY TRONDHEIM	MAP NO. 2000.065-01	MAP 1:50 000 1720 IV	



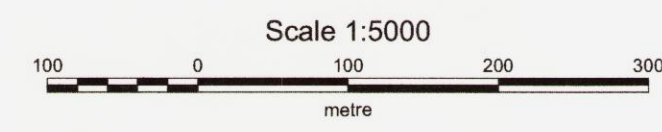
CREW
 DEVELOPMENT CORPORATION
 Magnetic total field
 STORSKARVEN

2000.065-02

VLF Fraser-filtered quadrature

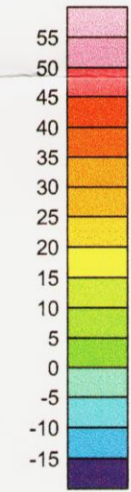
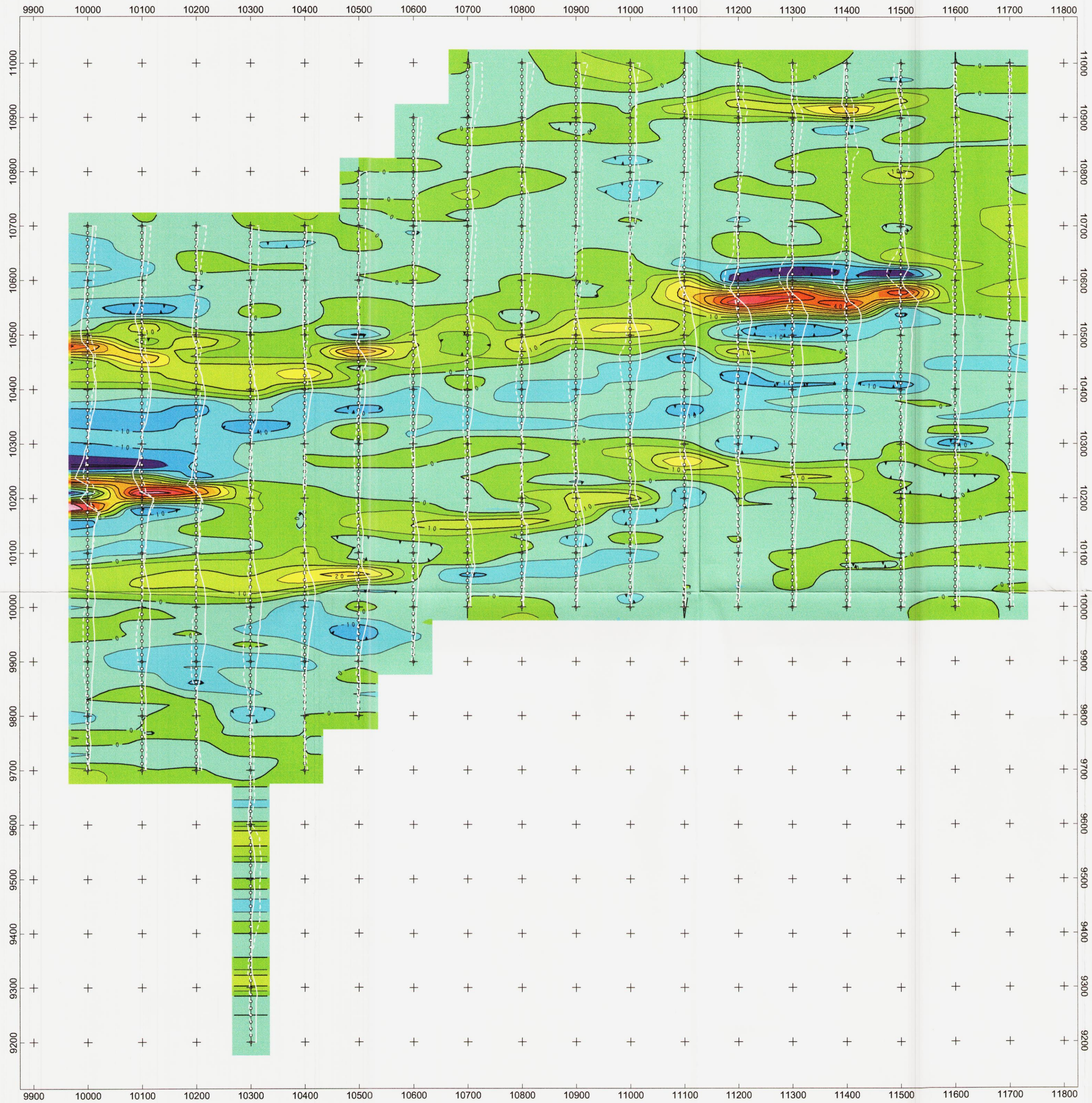


VLF profile curves
 Positive to the right
 Tilt angle: solid white, 5 degr./mm
 Quadrature: white dashes, 5 % /mm

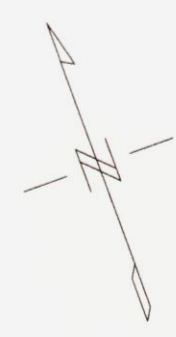


CREW
 DEVELOPMENT CORPORATION
VLF Fraser-filtered quadrature
STORSKARVEN
 2000.065-04

VLF Fraser-filtered tilt angle

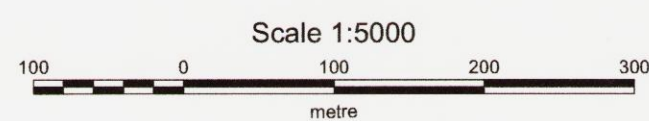


rel. units



VLF profile curves

Positive to the right
 Tilt angle: solid white, 5 degr./mm
 Quadrature: white dashes, 5 %/mm



CREW
 DEVELOPMENT CORPORATION
VLF Fraser-filtered tilt angle
STORSKARVEN

2000.065-03