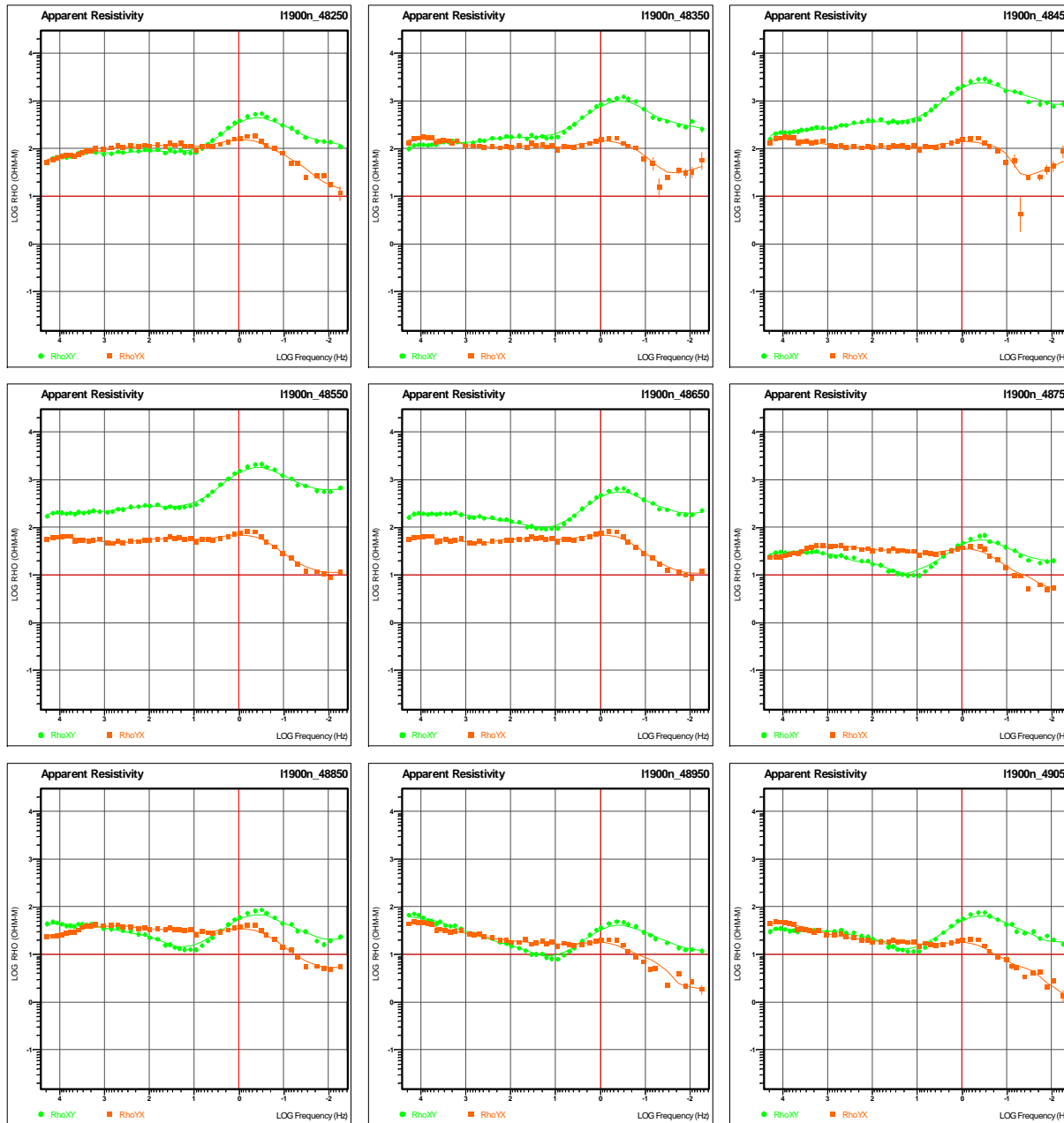


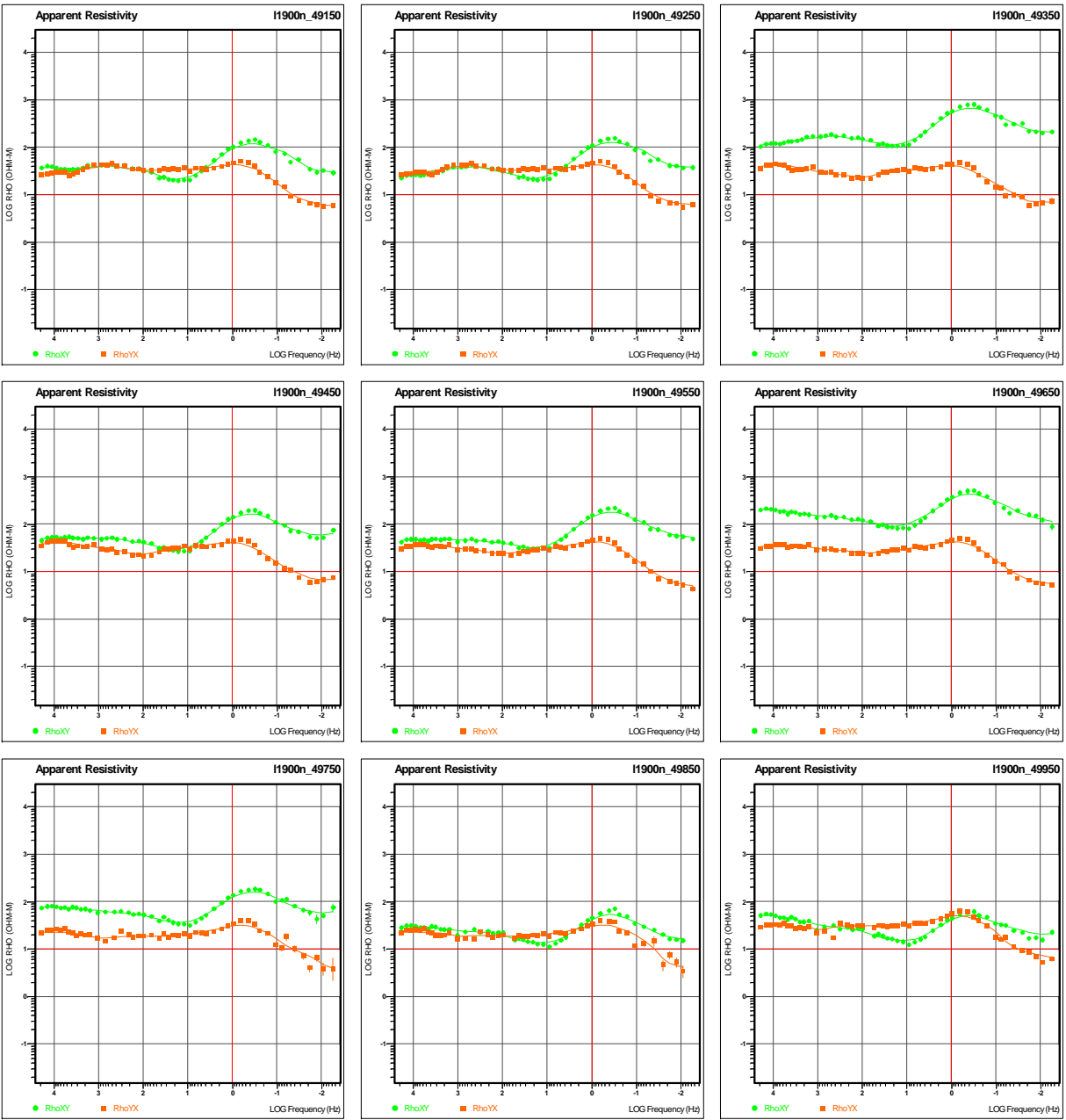
D MT SOUNDINGS CURVES OF FINAL PROCESSED DATA

D.1 LINE 1900N



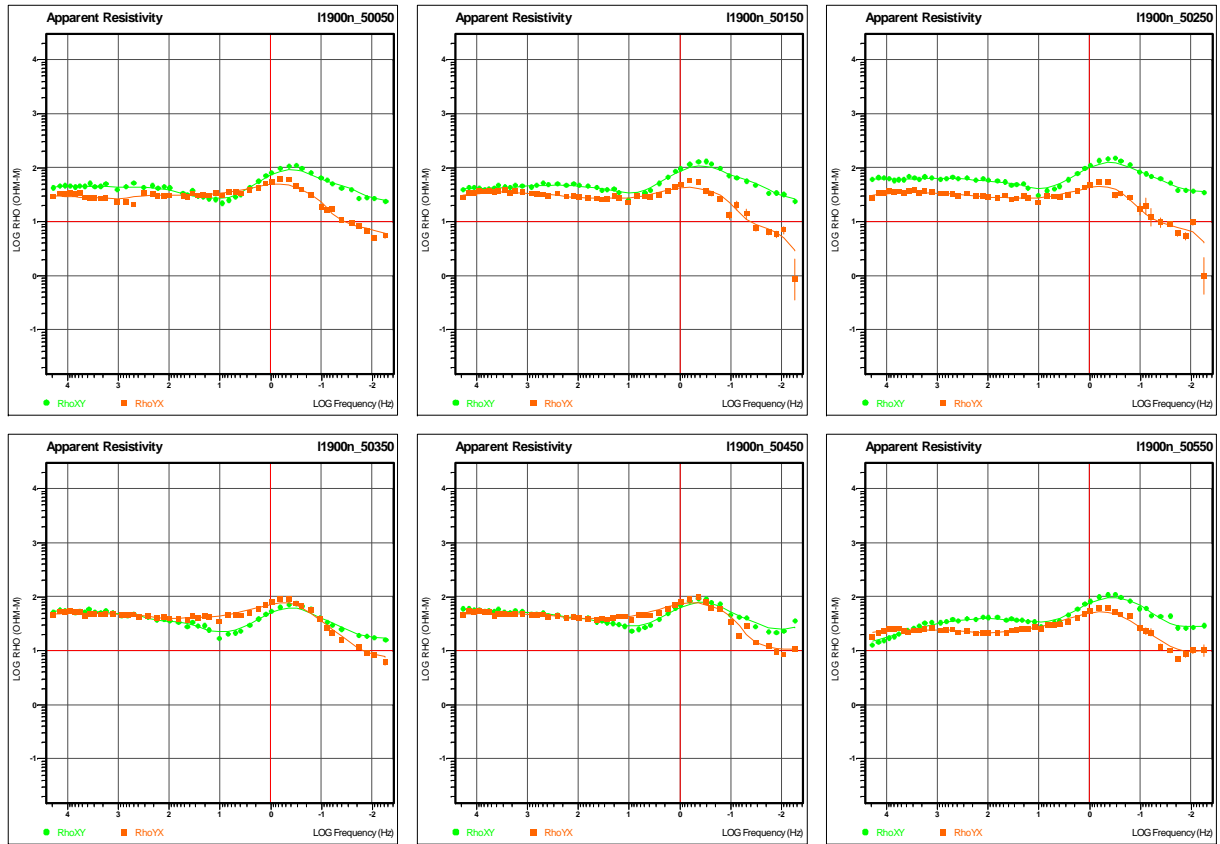
Line 1900N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



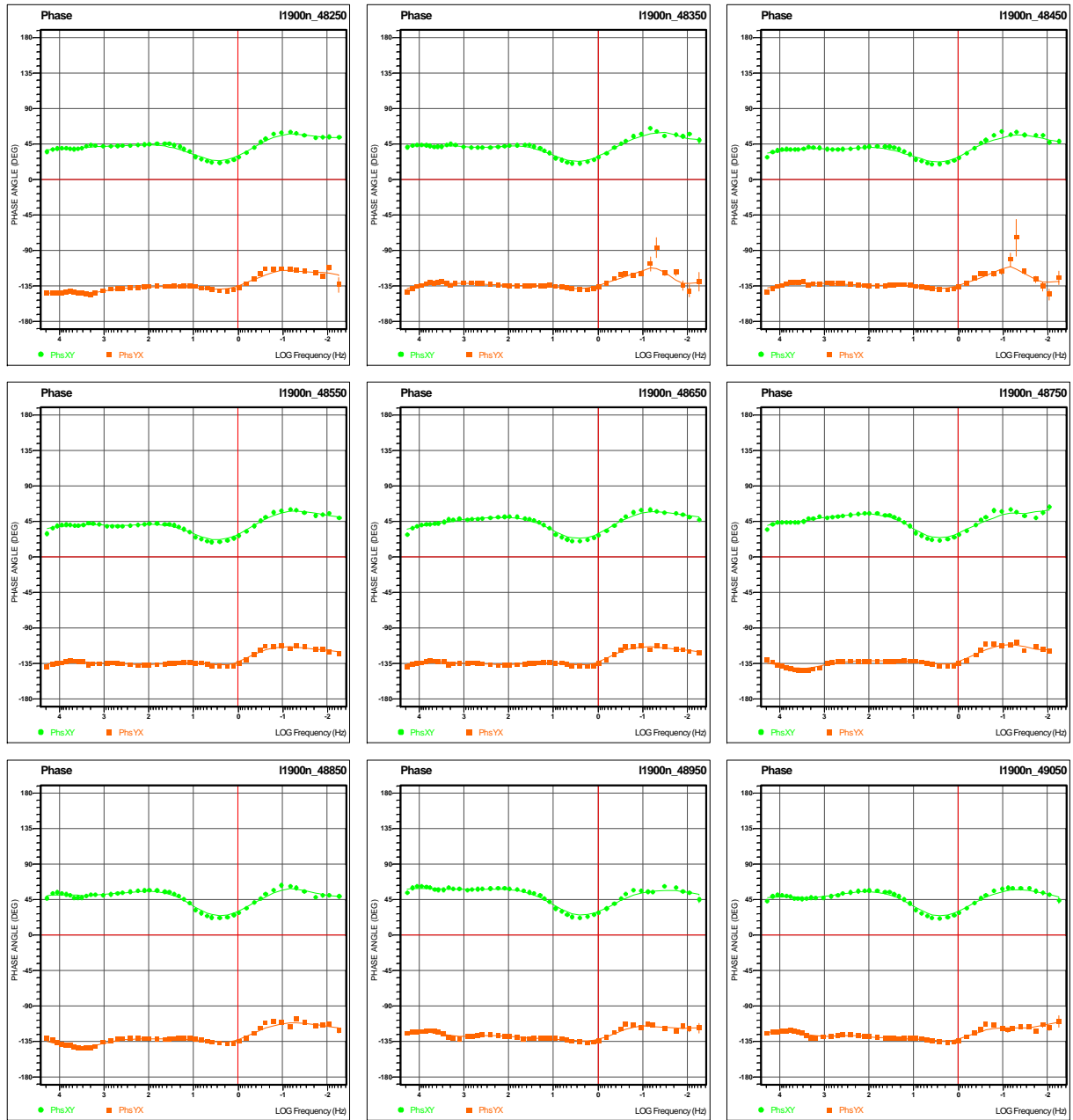
Line 1900N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



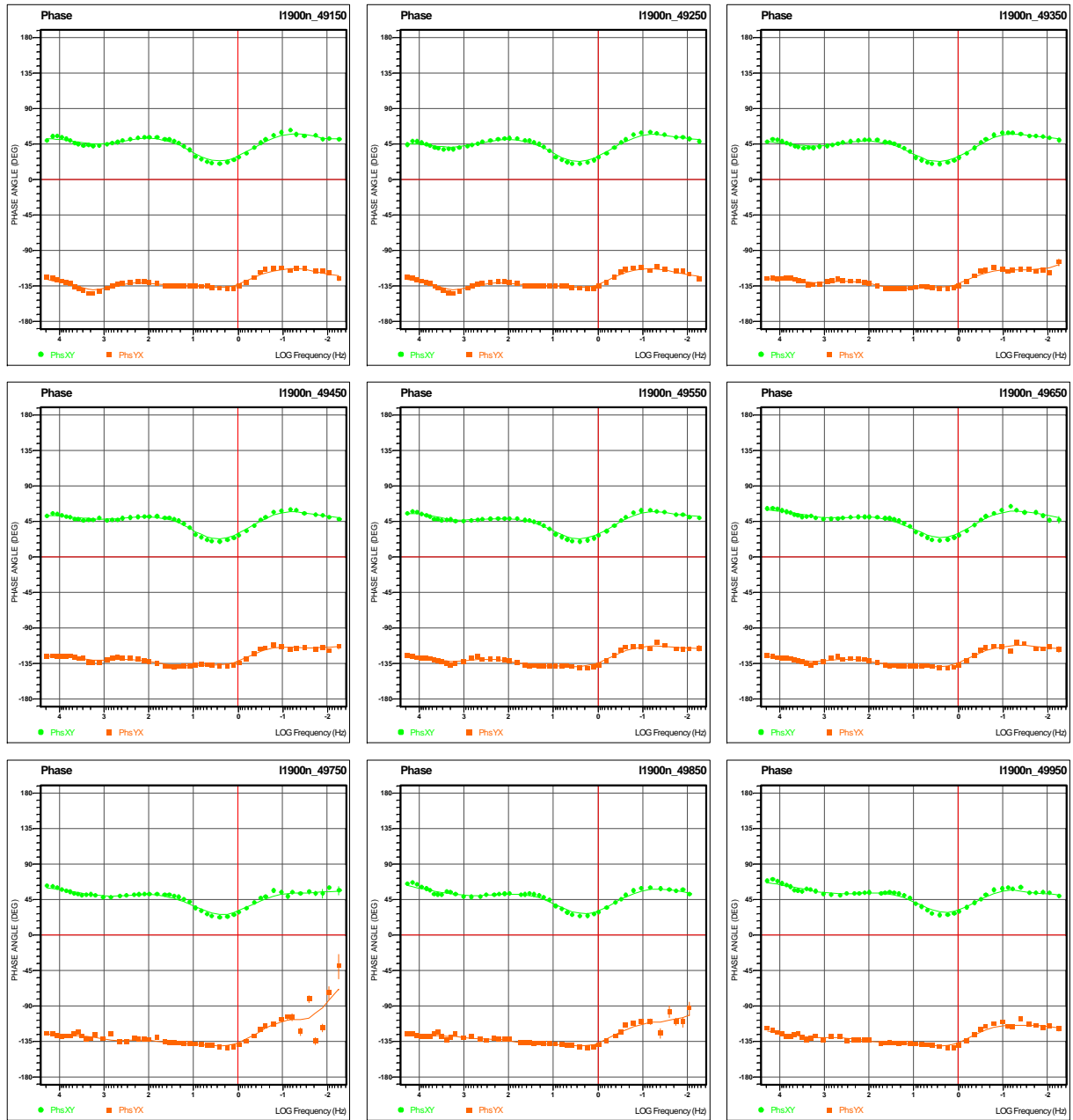
Line 1900N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)



Line 1900N – Phase Sounding Curves vs Frequency (1 of 3).

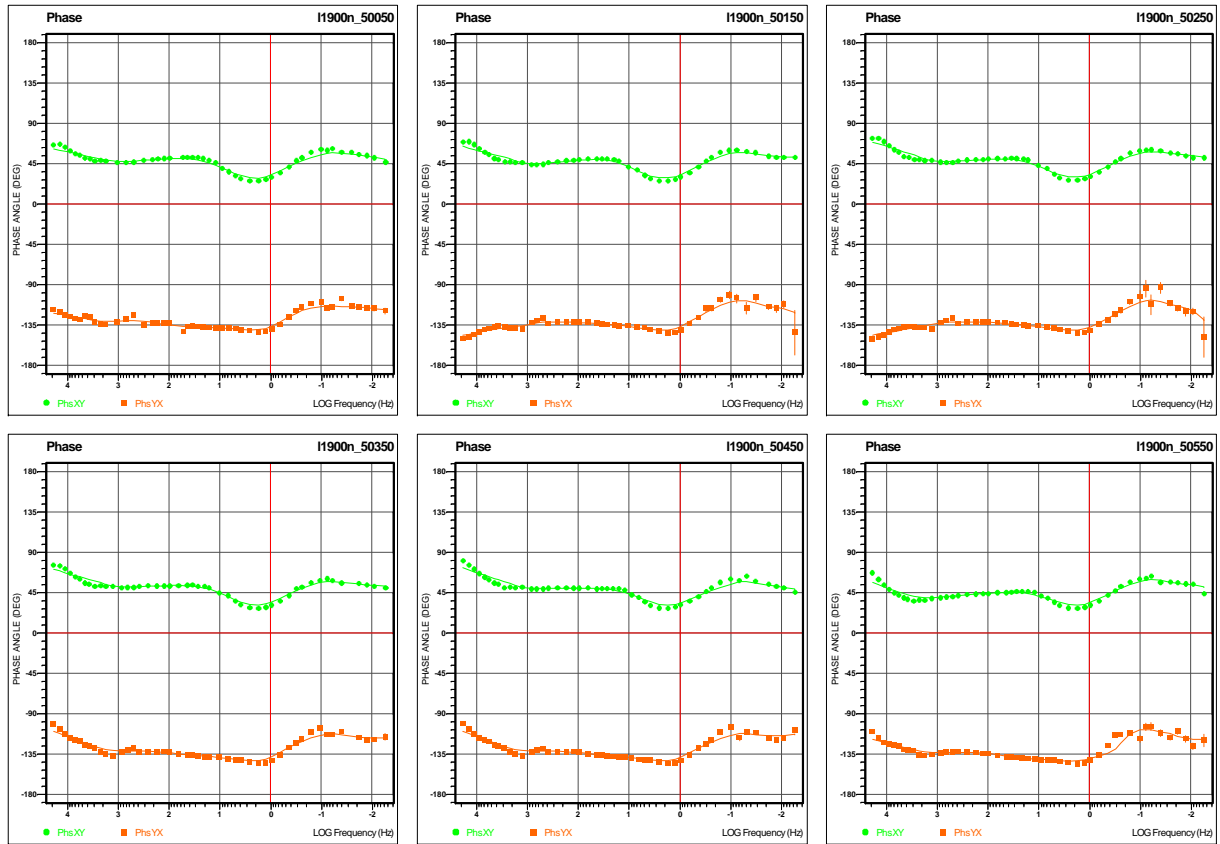
MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 1900N – Phase Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)

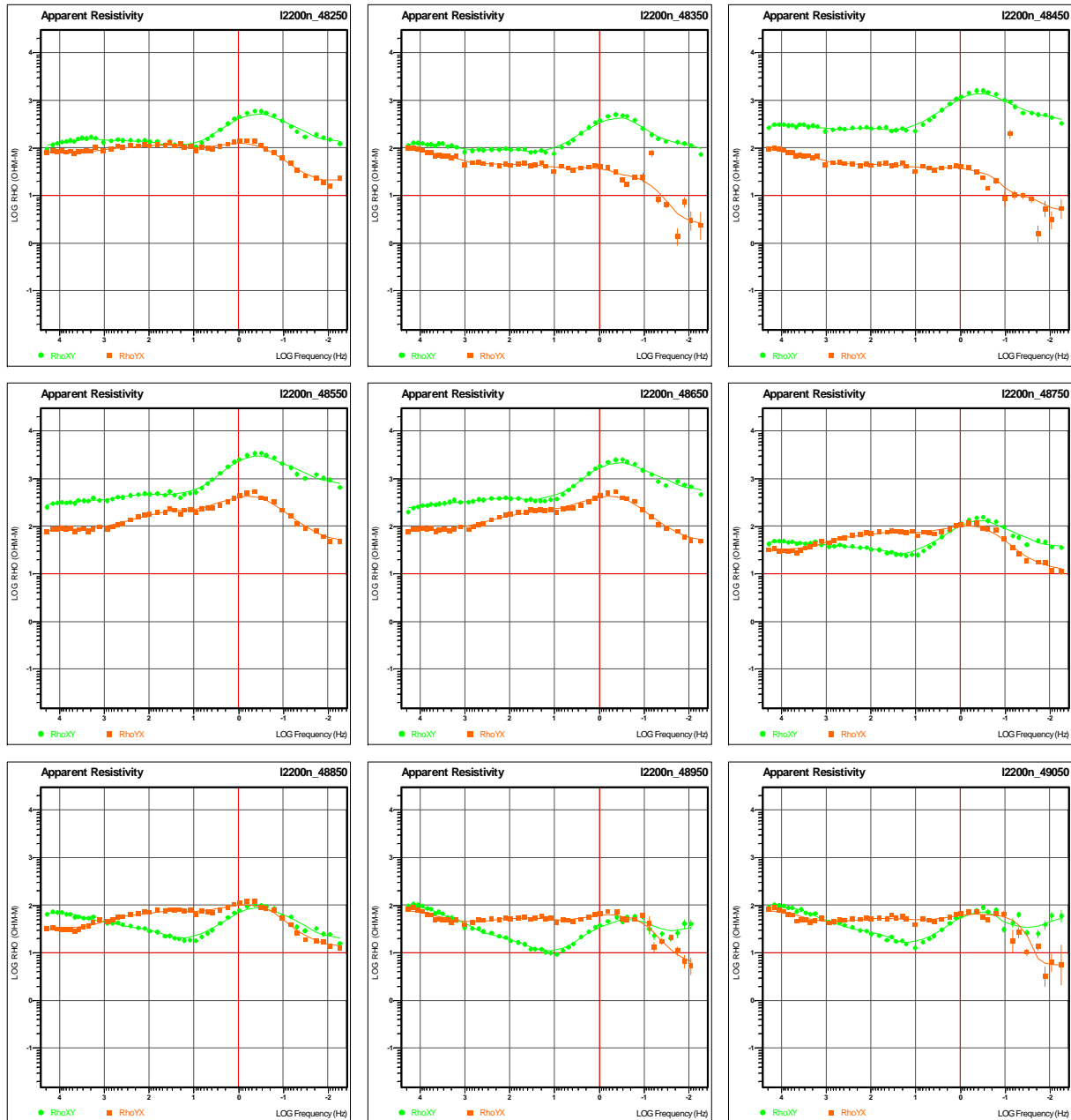


Line 1900N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

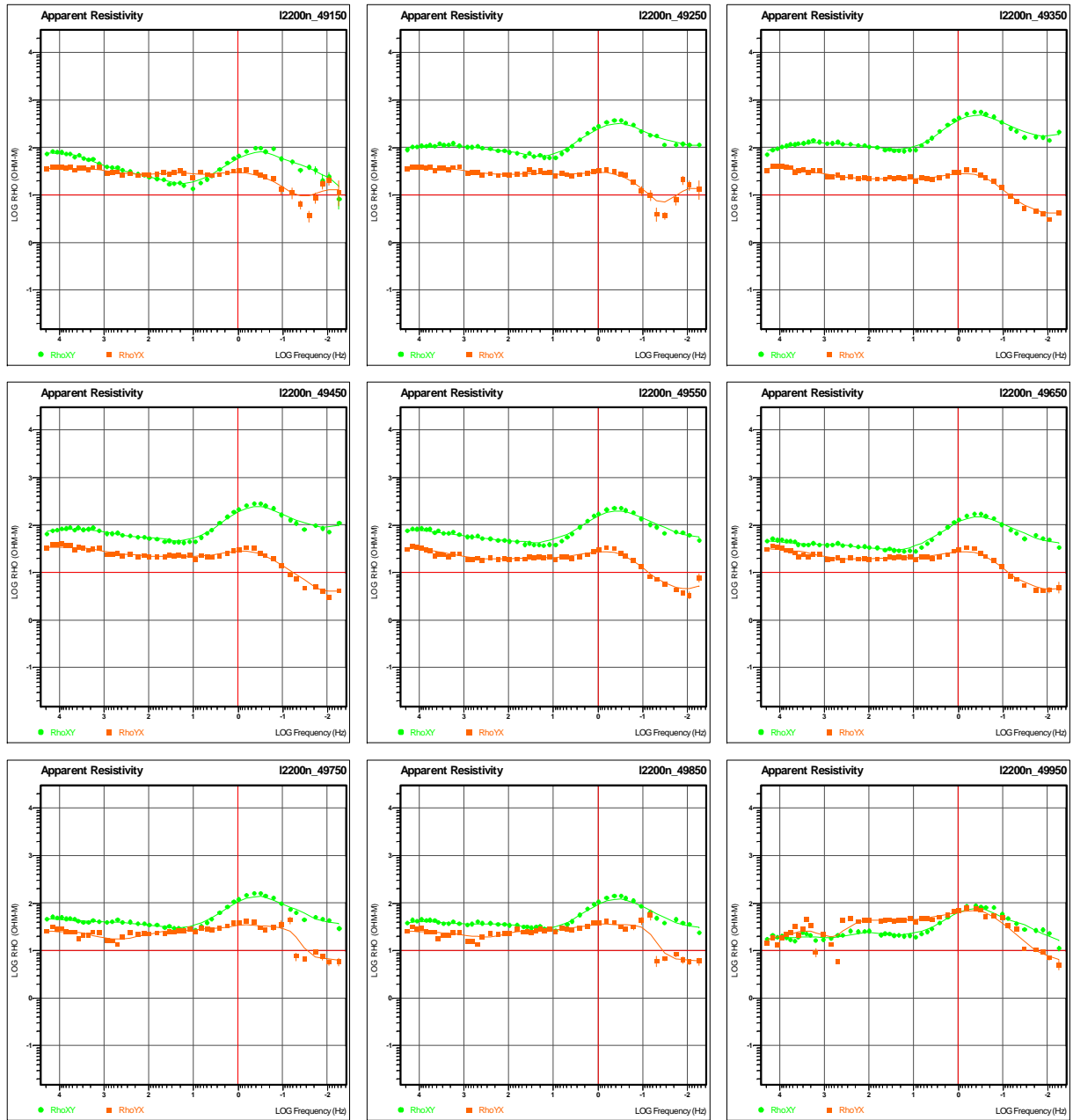
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

D.2 LINE 2200N



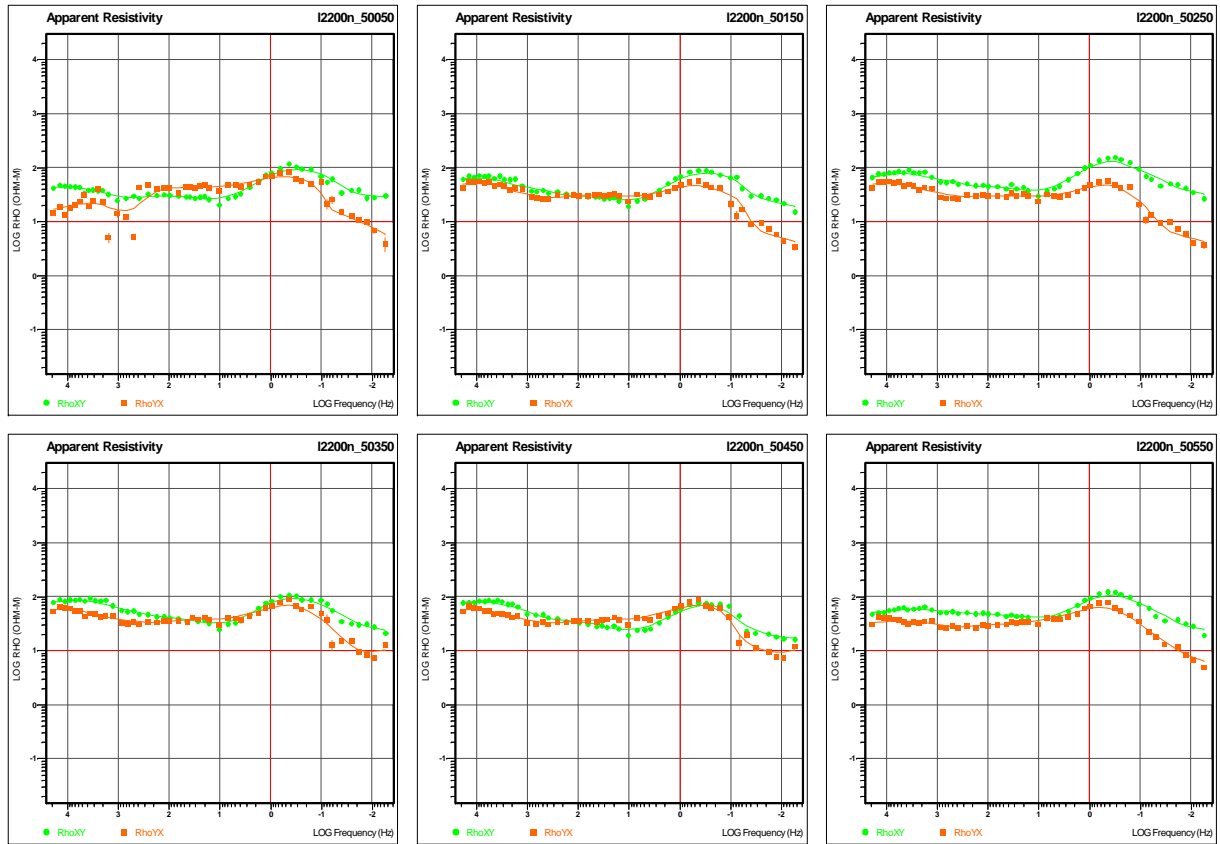
Line 2200N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



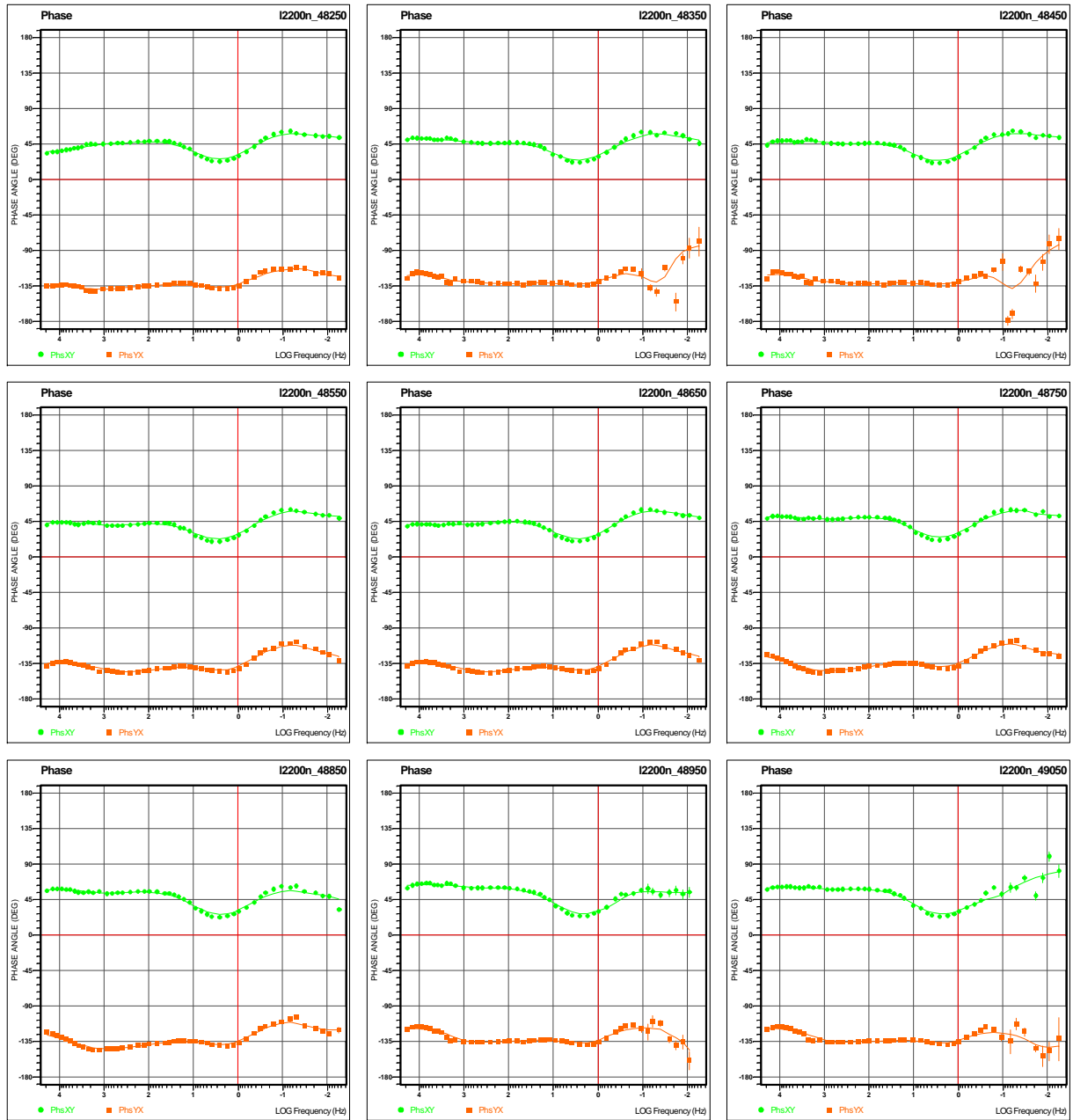
Line 2200N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 2200N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

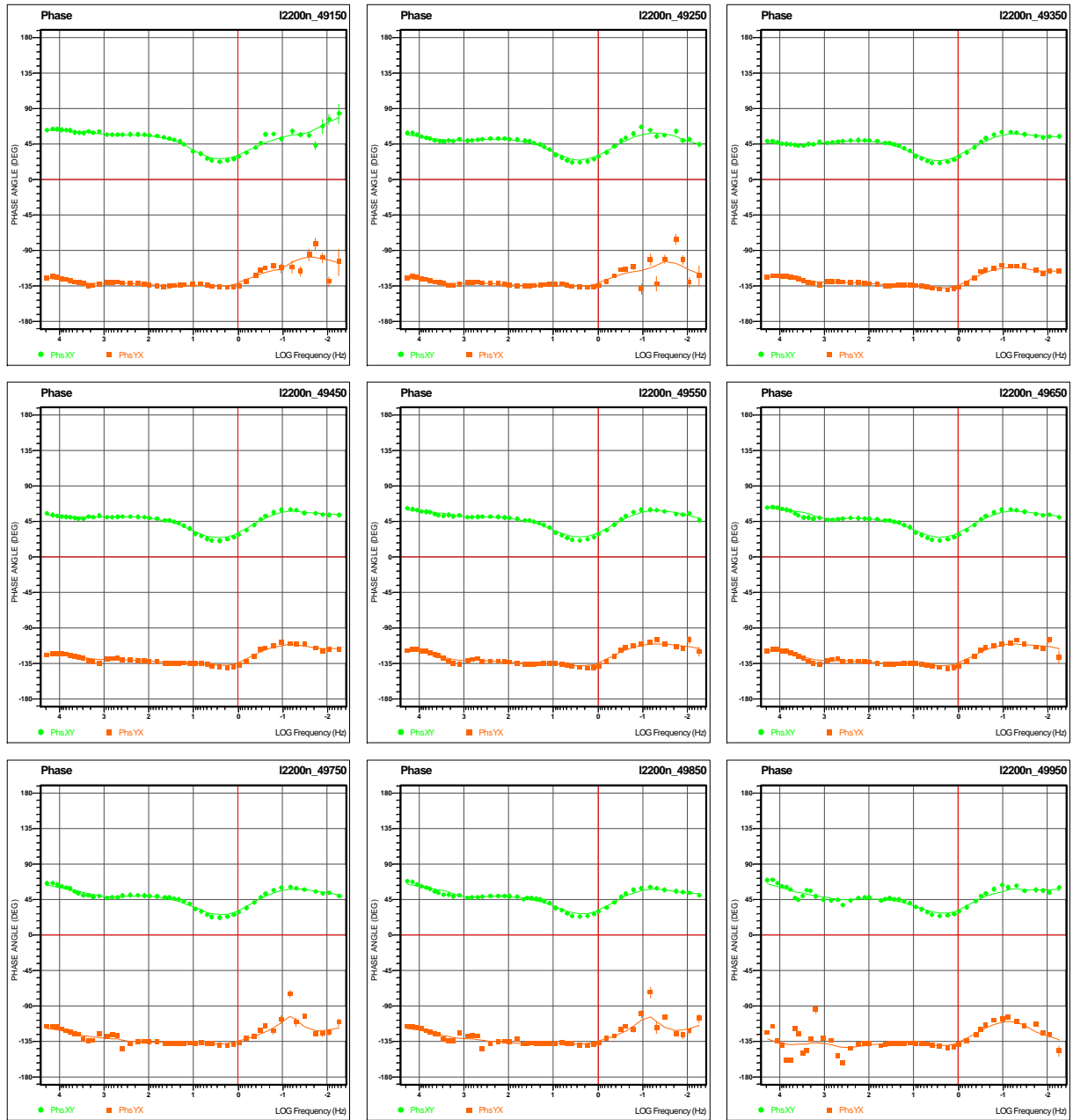
MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)



Line 2200N – Phase Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

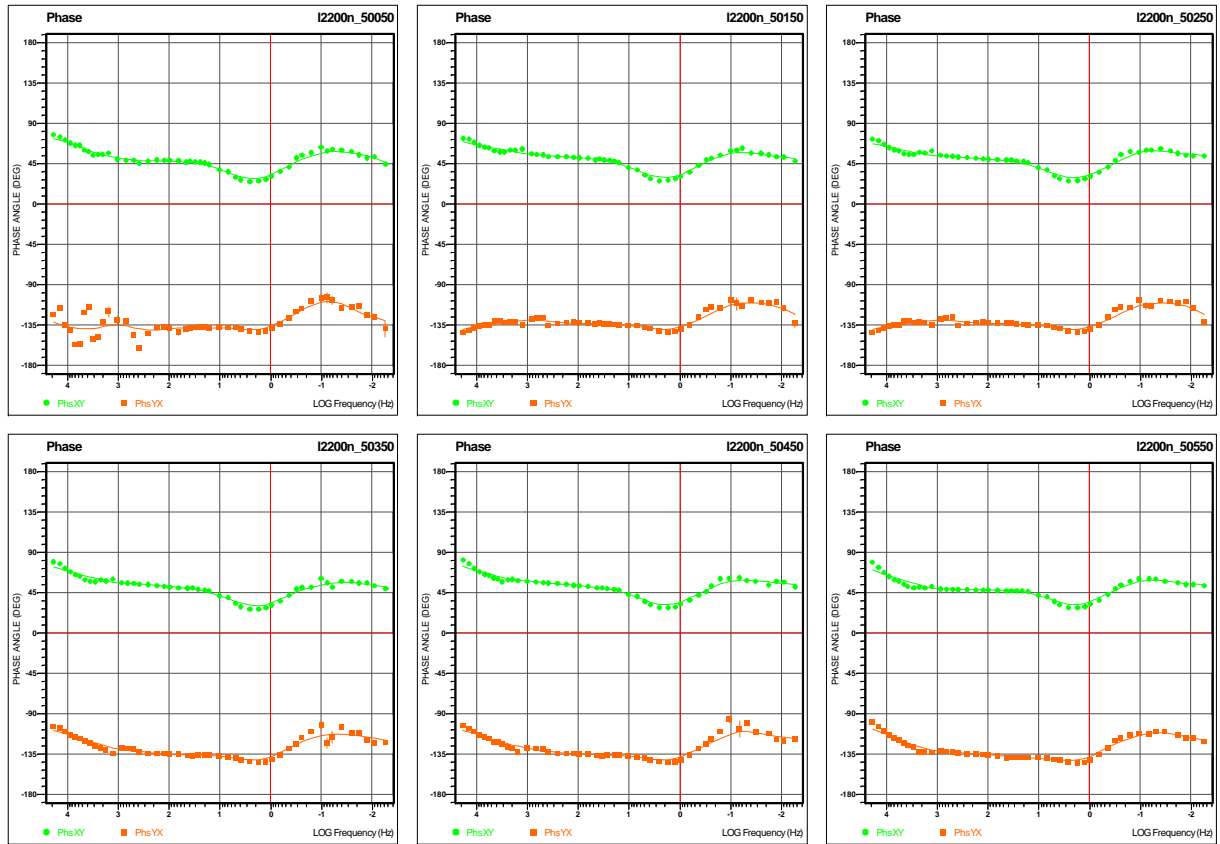
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)



Line 2200N – Phase Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

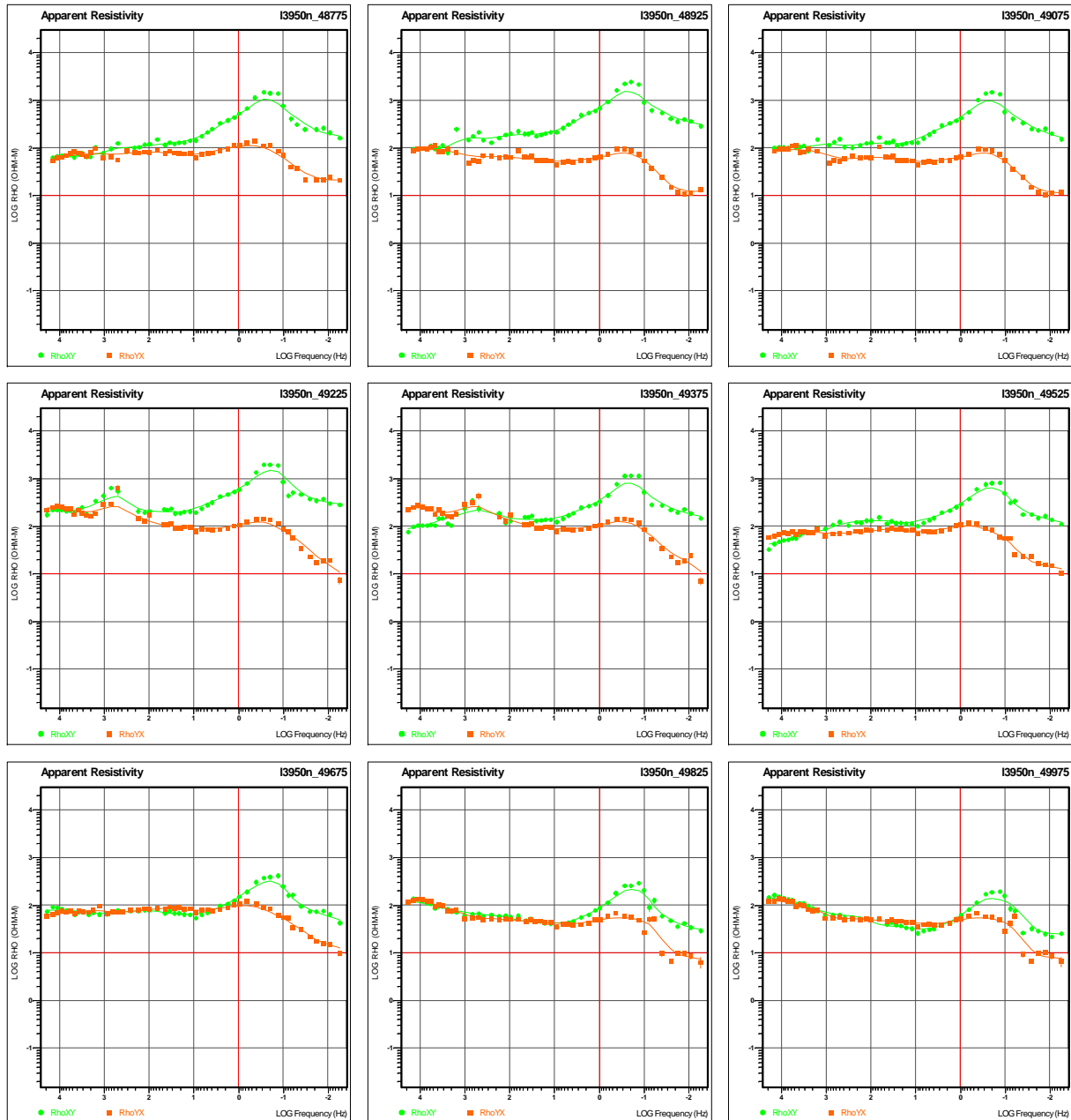


Line 2200N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

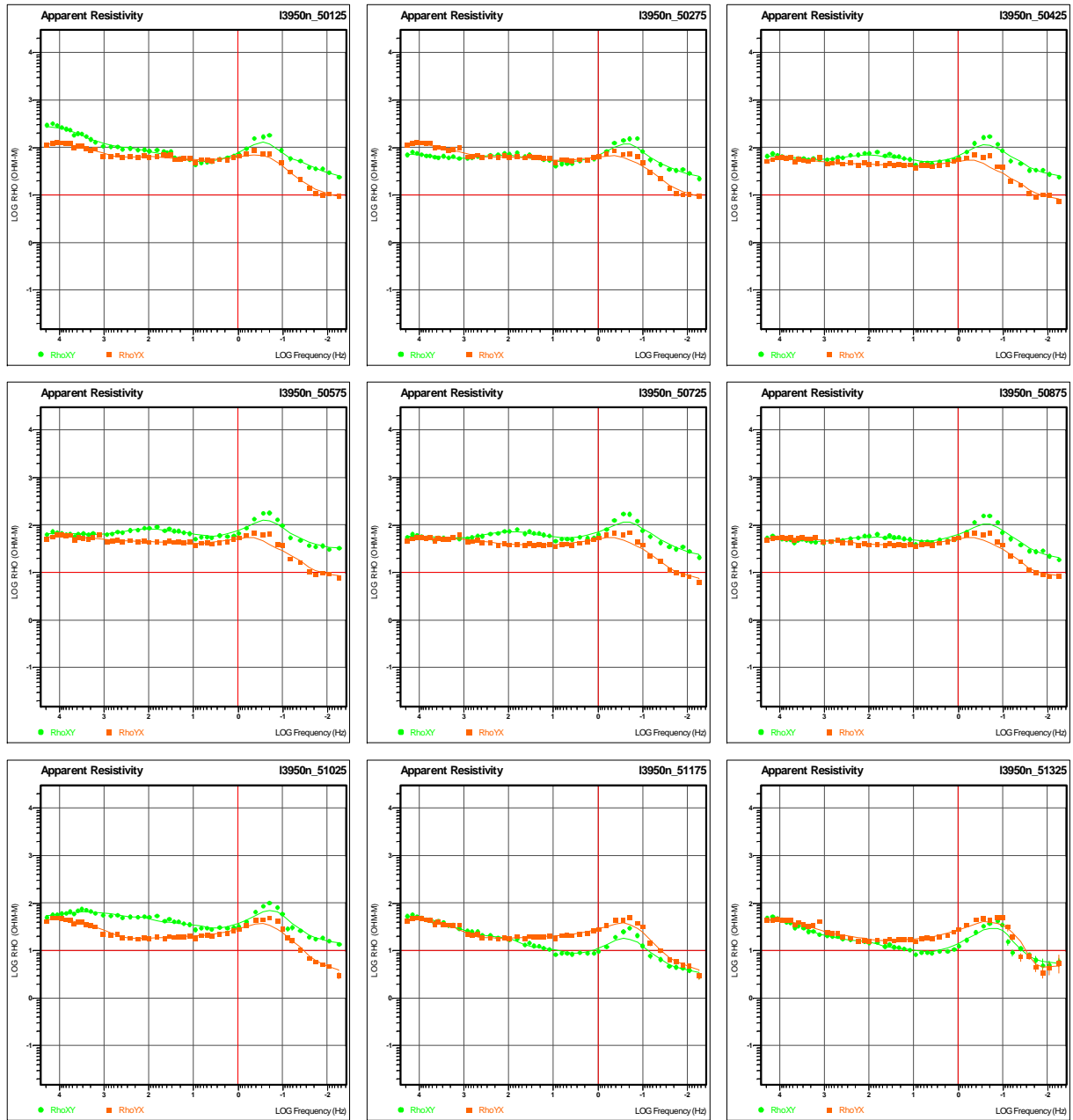
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

D.3 LINE 3950N



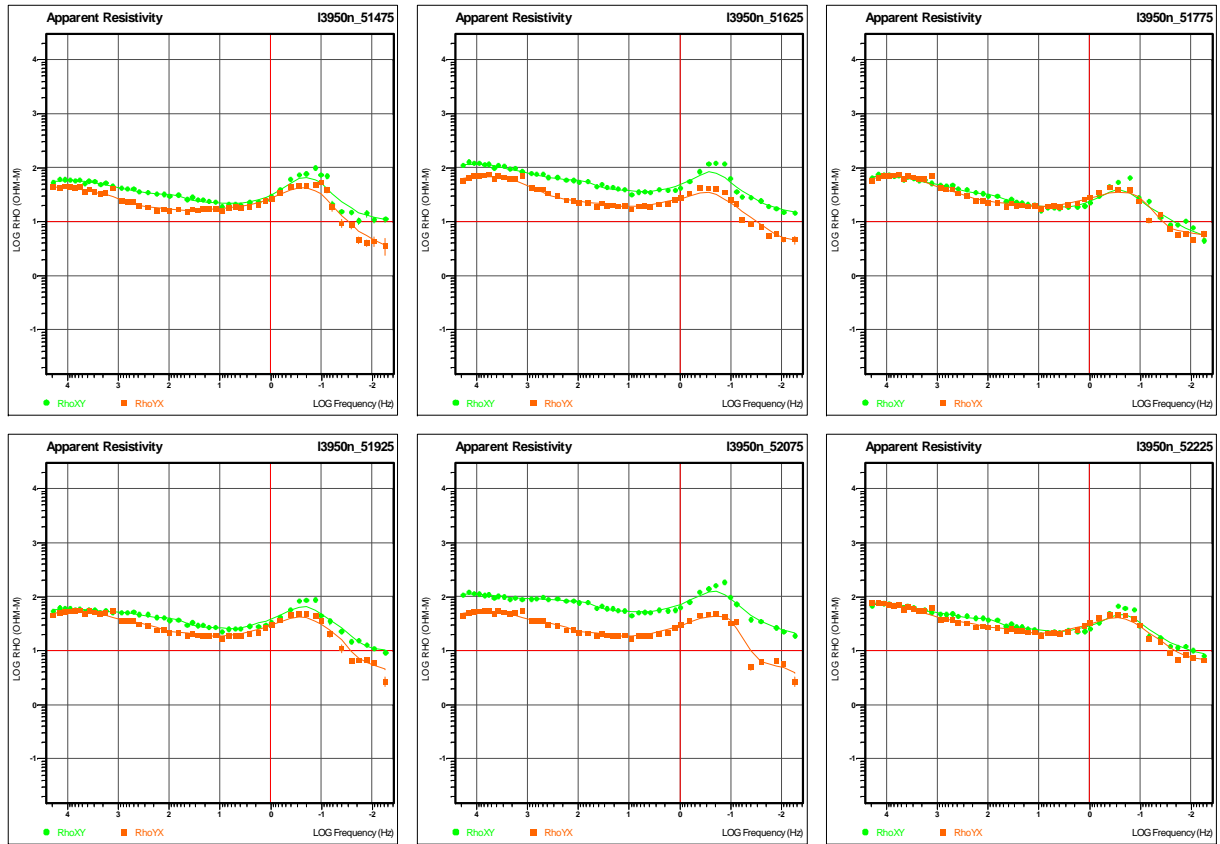
Line 3950N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



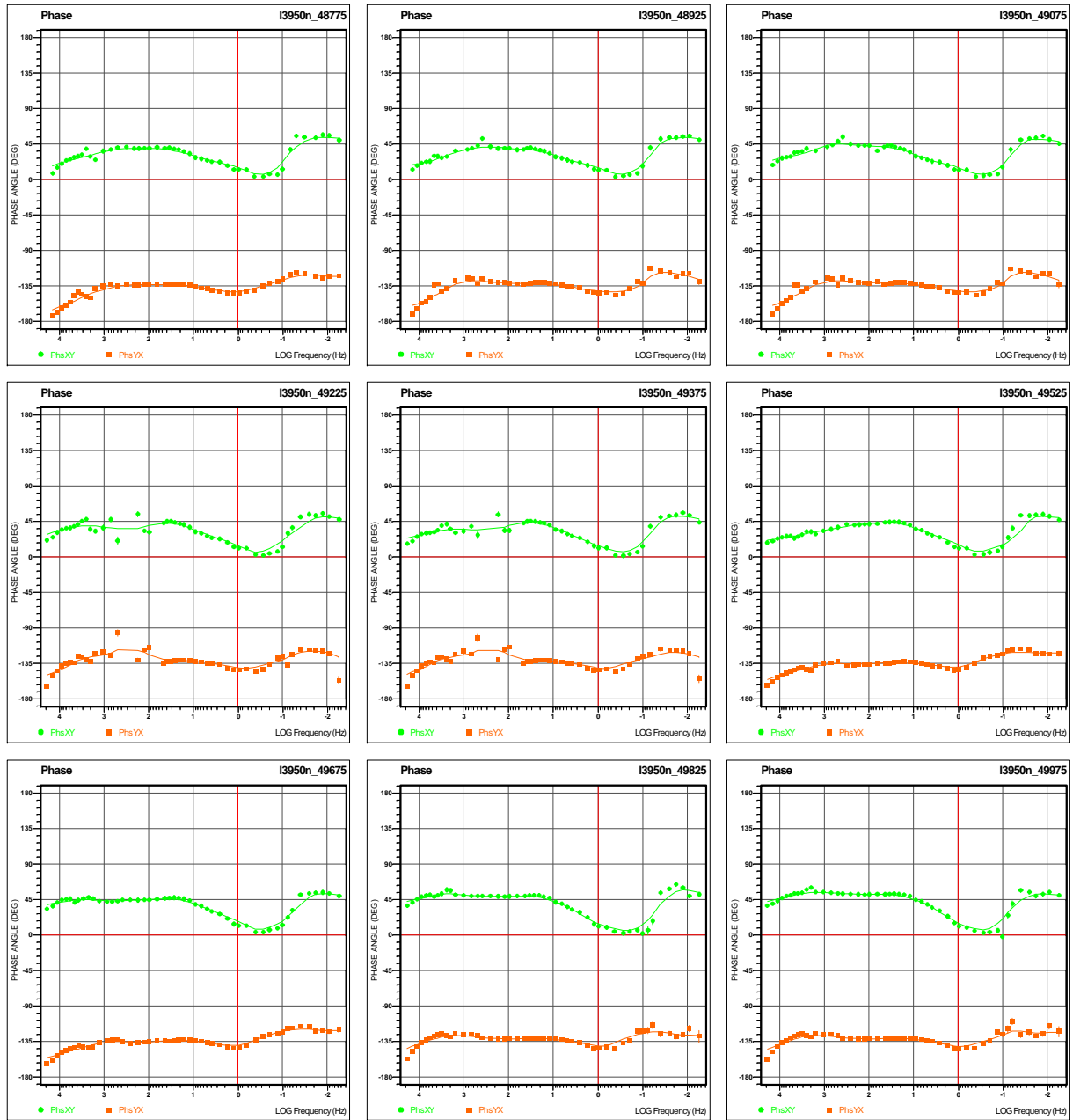
Line 3950N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 3950N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

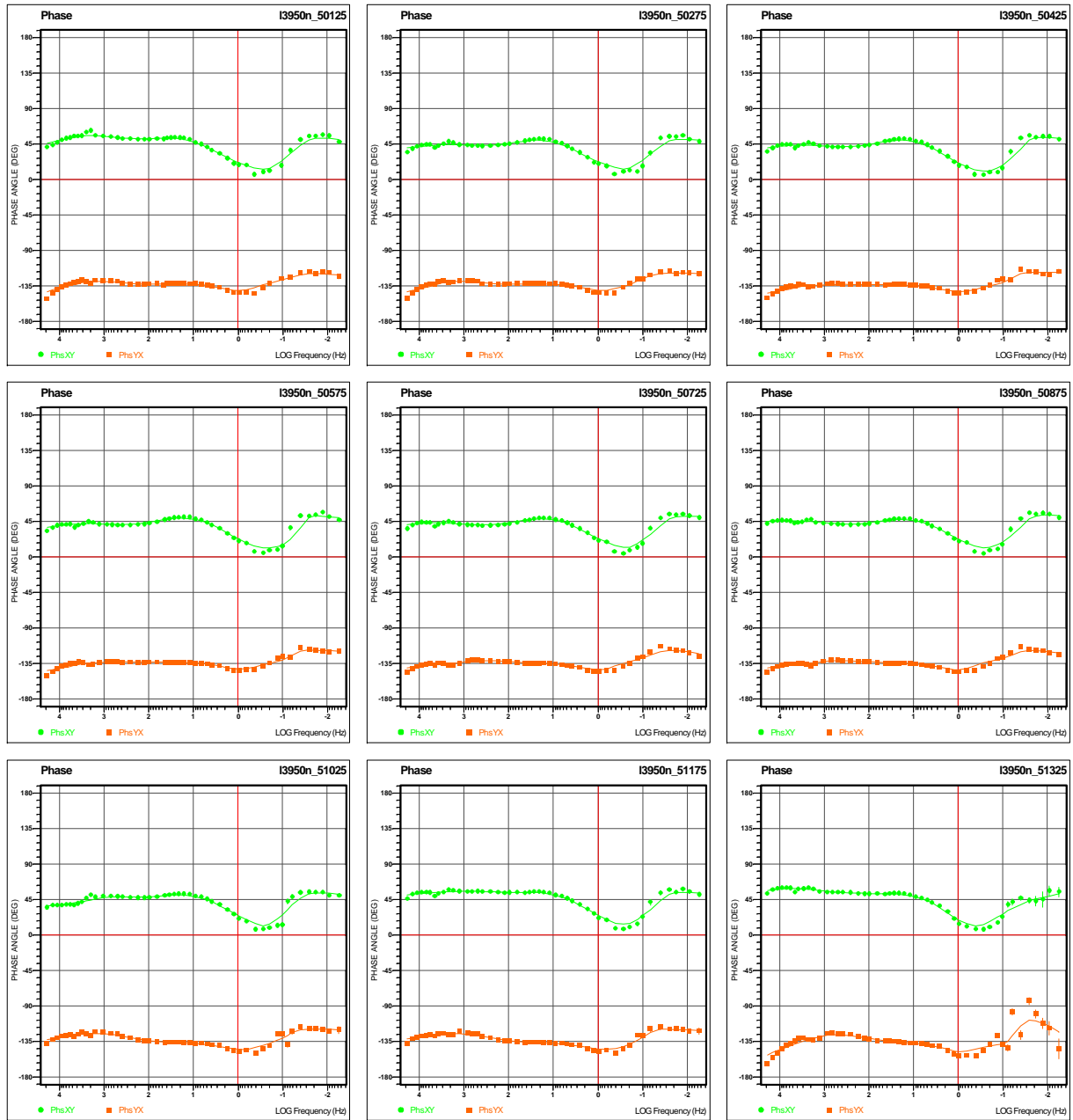
MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 3950N – Phase Sounding Curves vs Frequency (1 of 3).

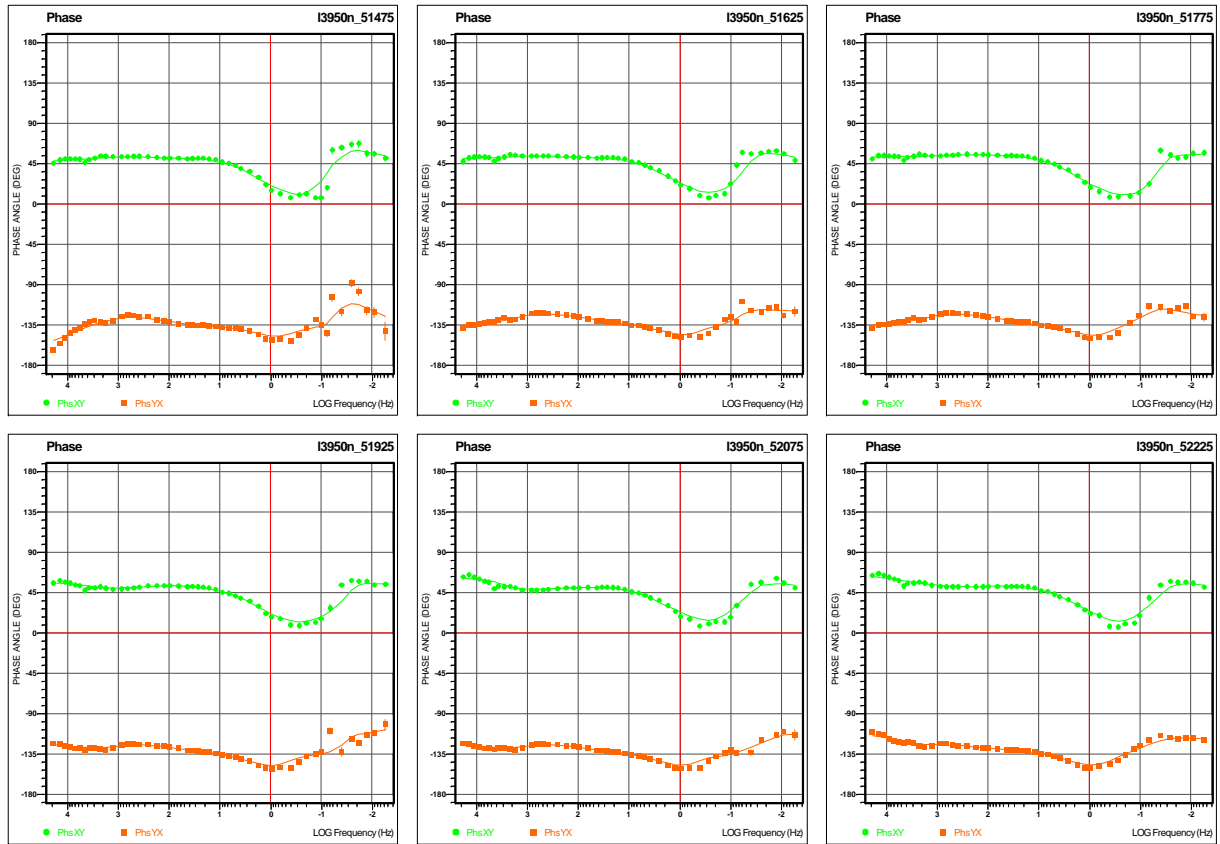
MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 3950N – Phase Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

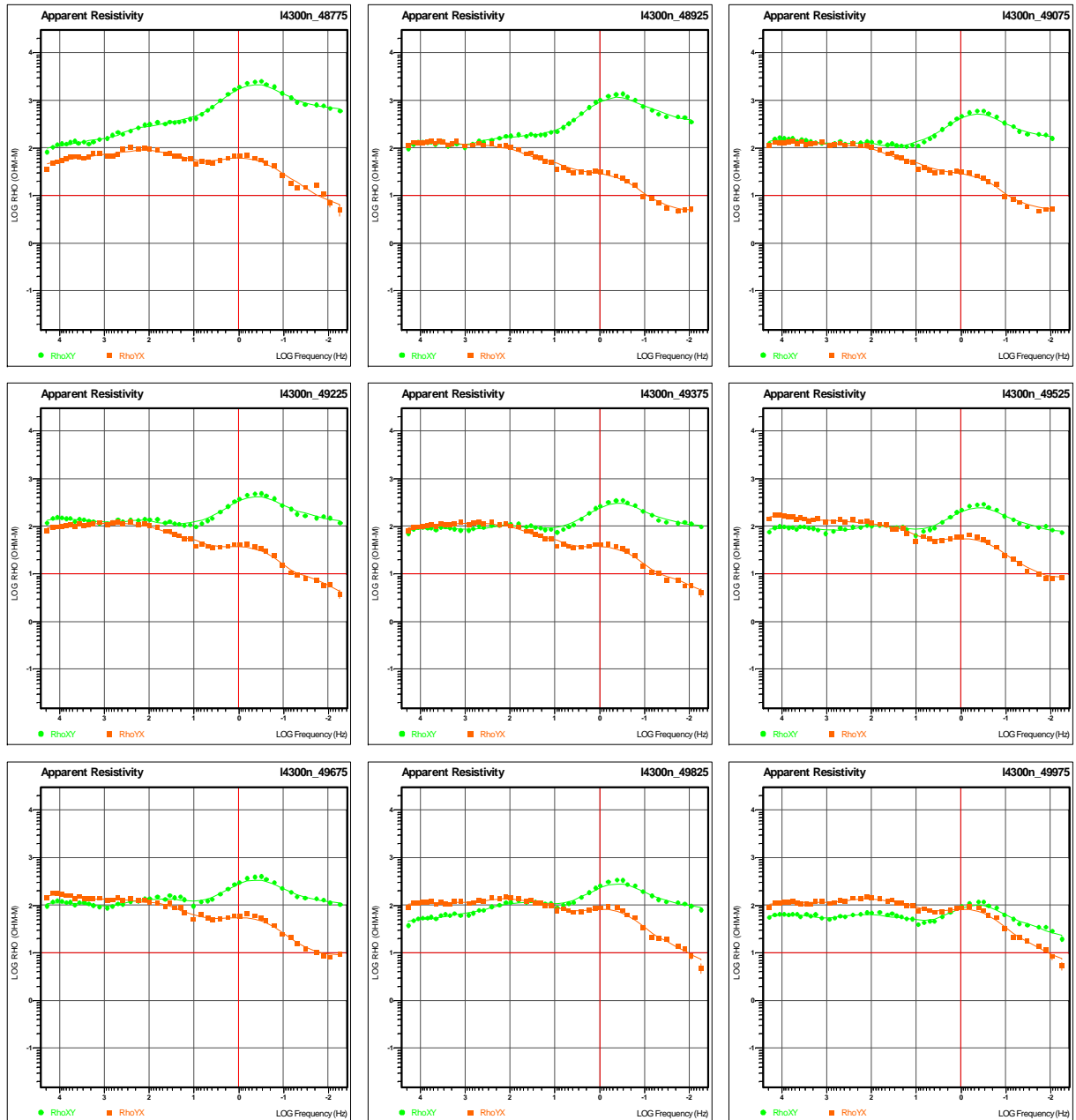


Line 3950N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

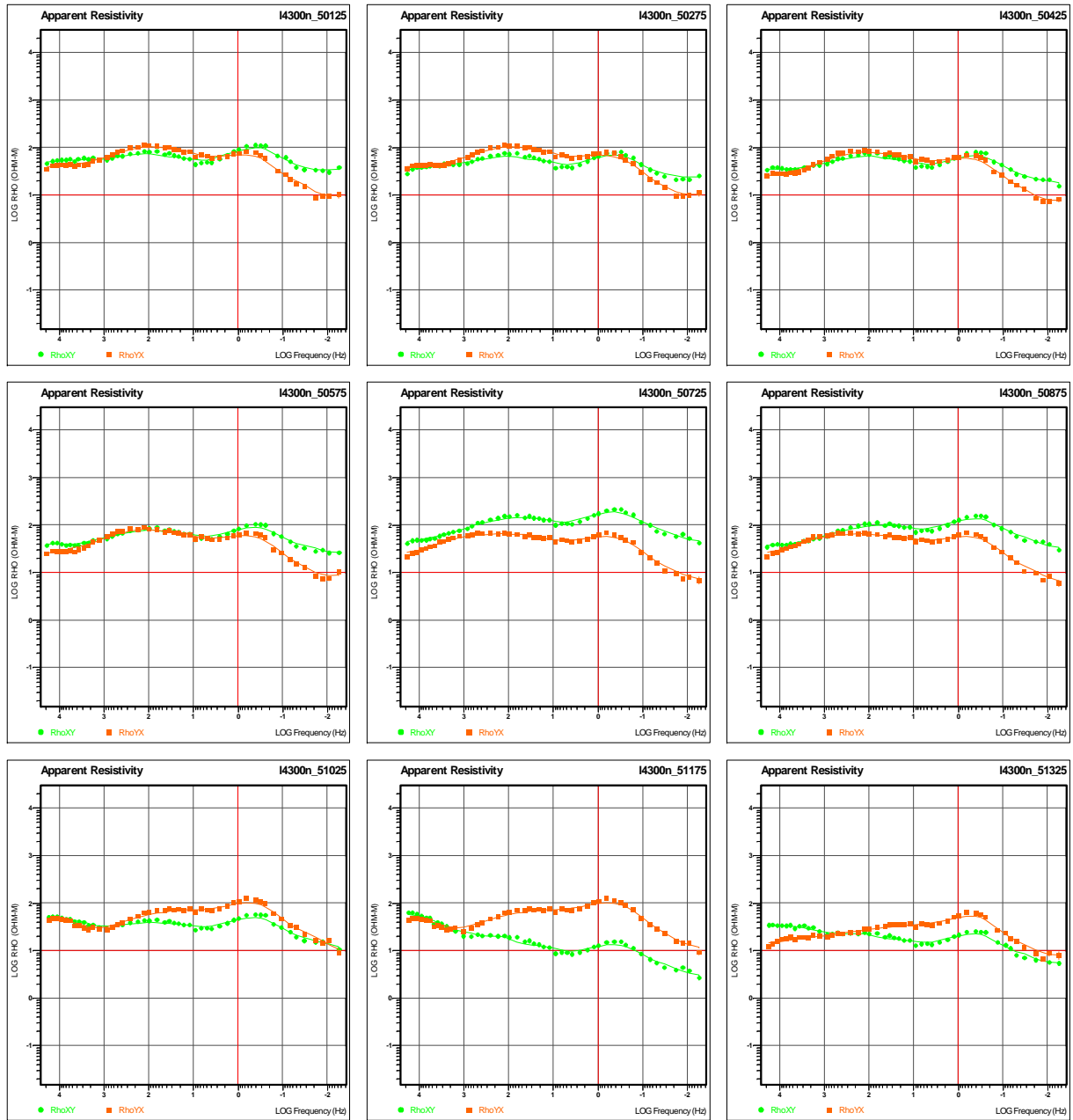
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

D.4 LINE 4300N



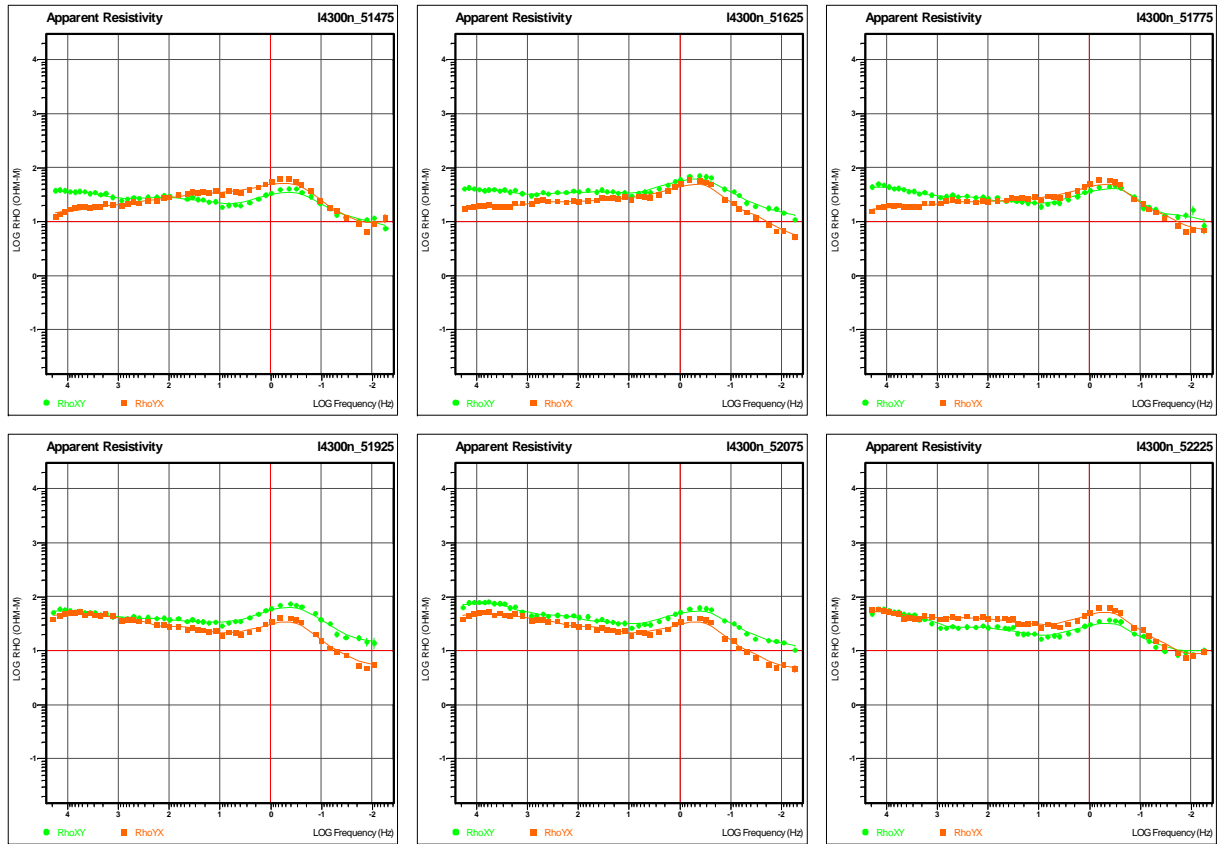
Line 4300N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)



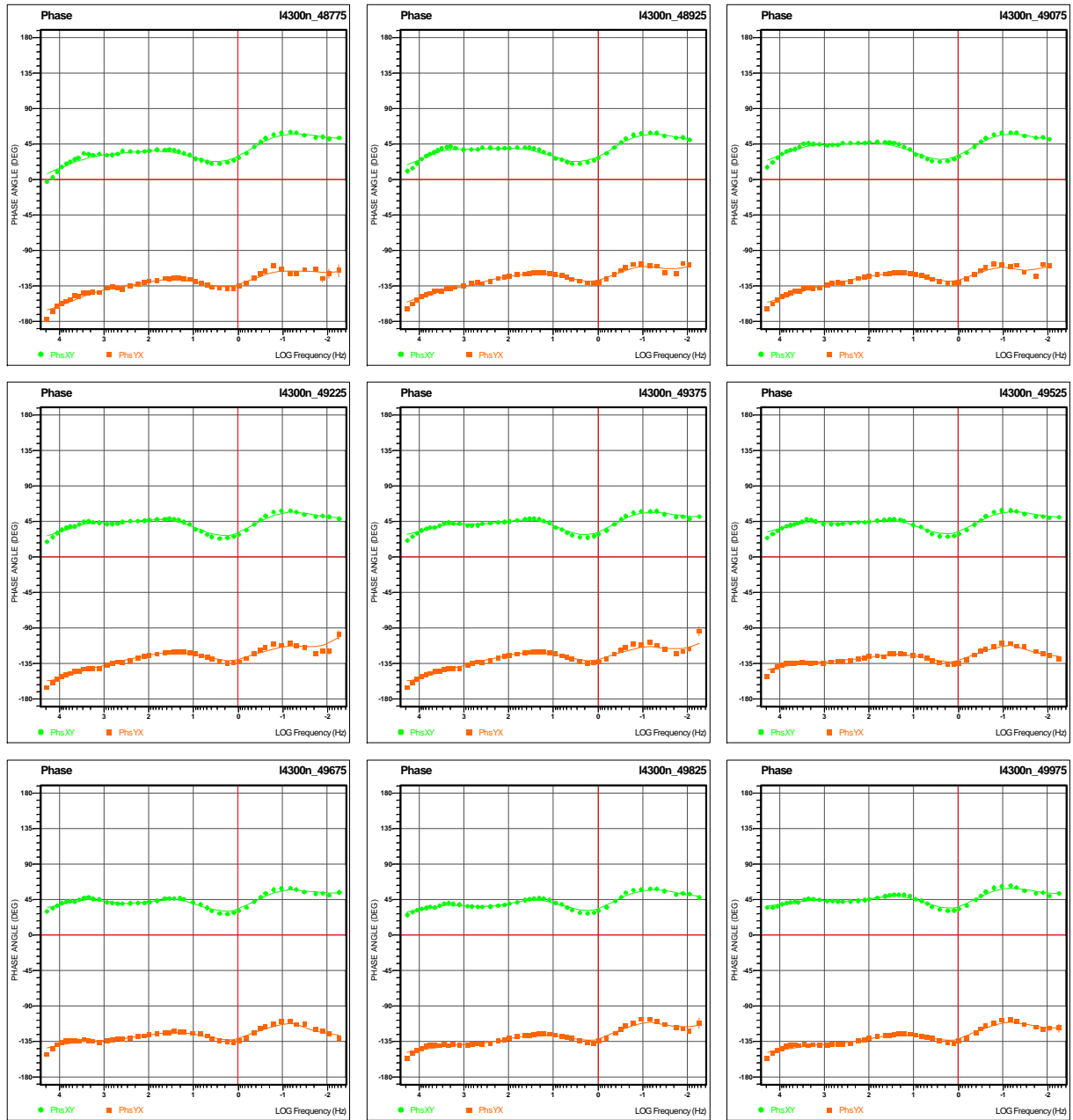
Line 4300N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



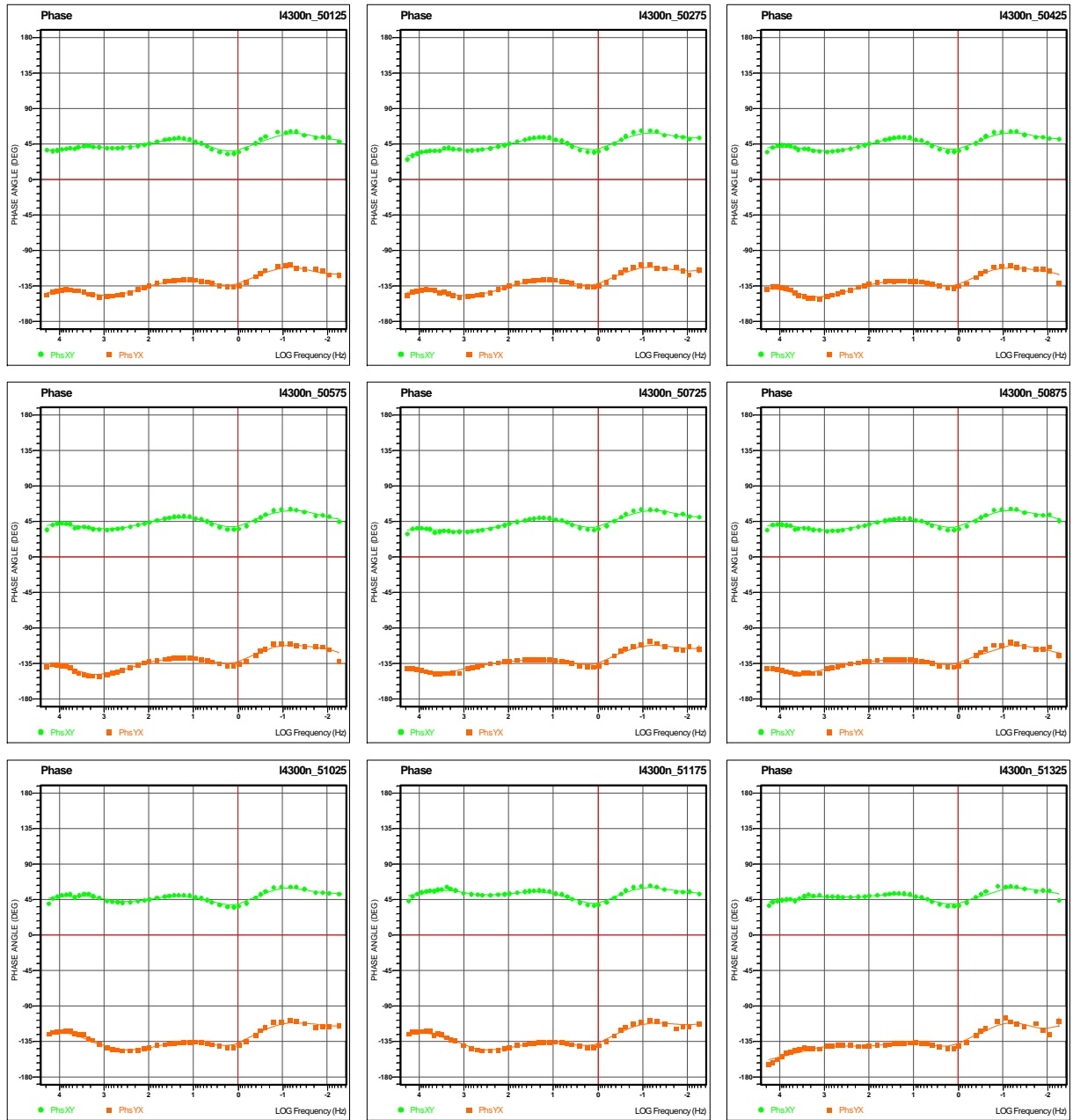
Line 4300N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)



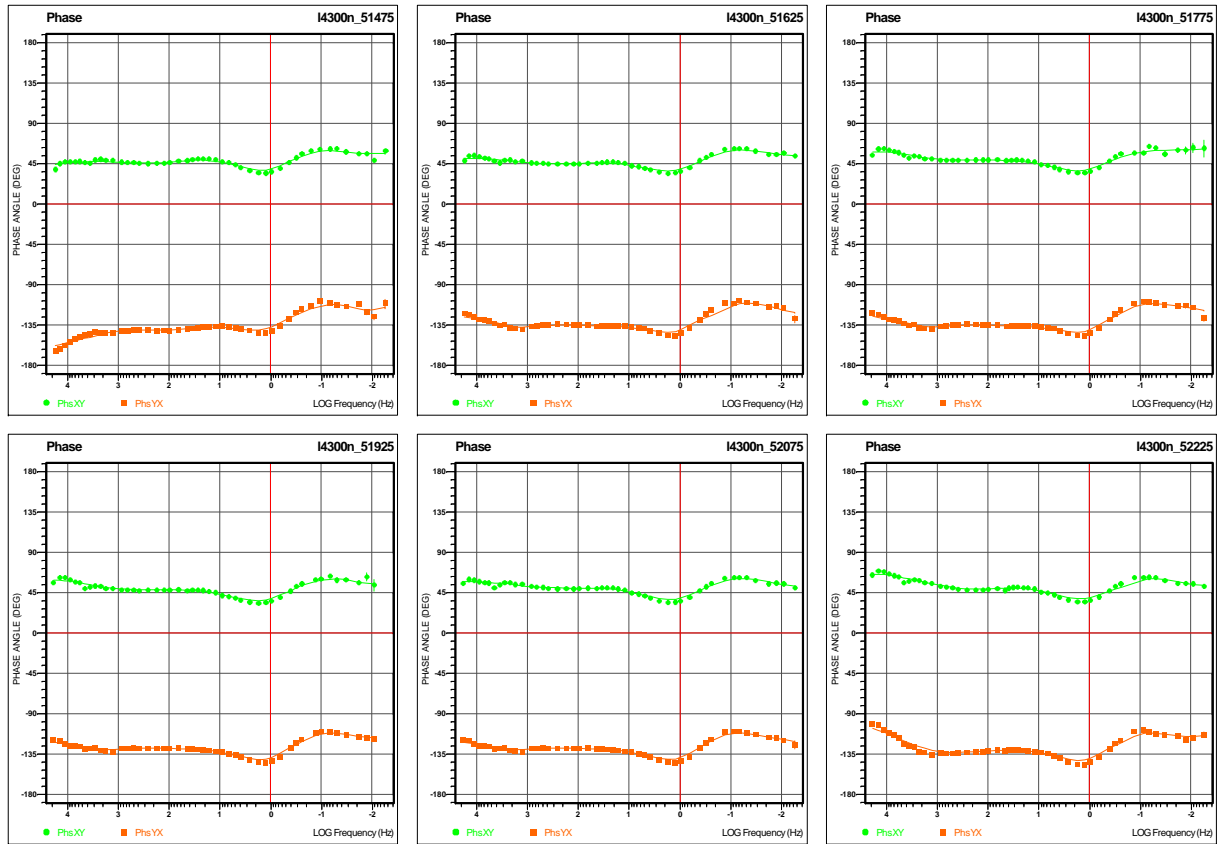
Line 4300N – Phase Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 4300N – Phase Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)

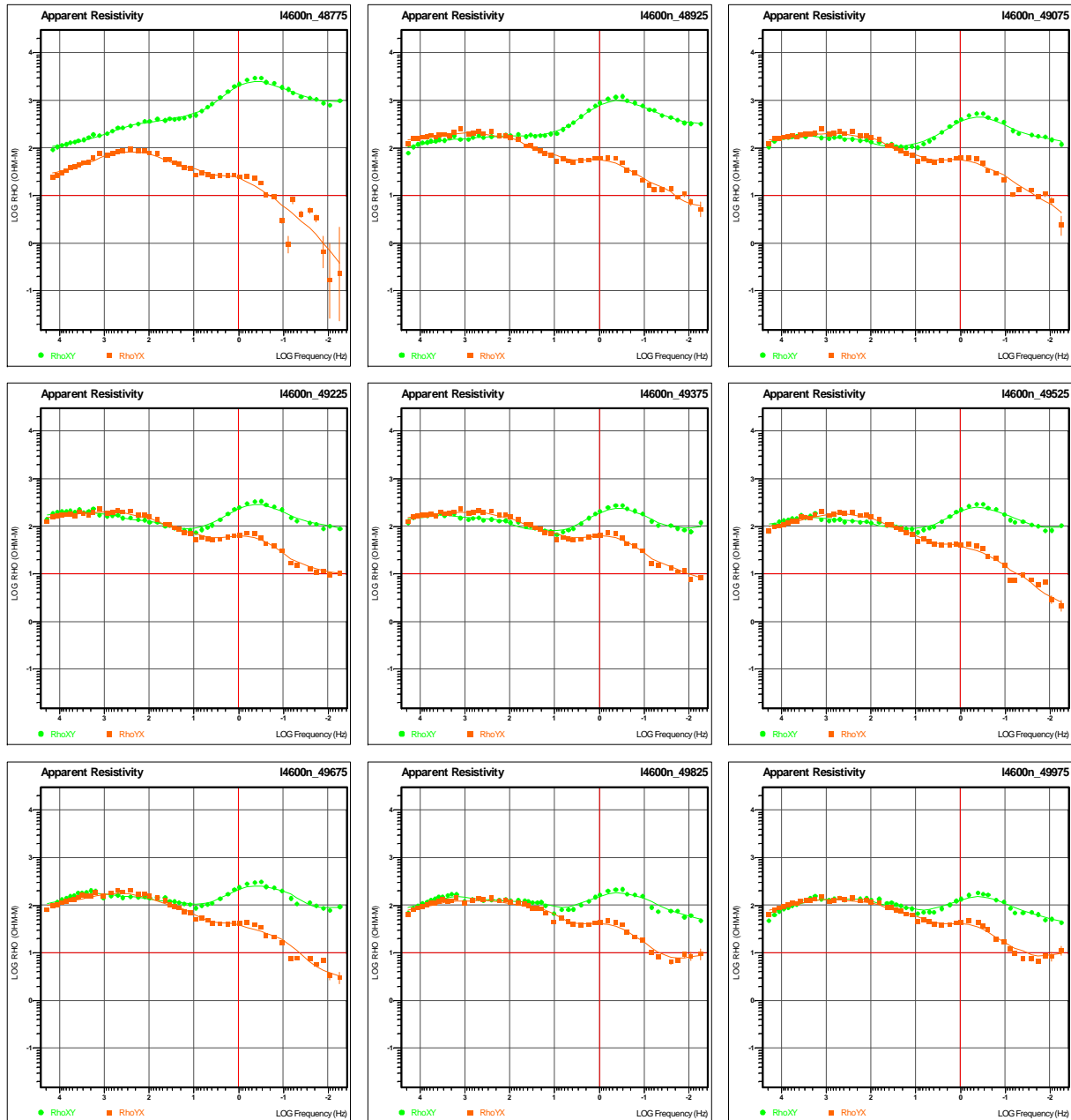


Line 4300N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

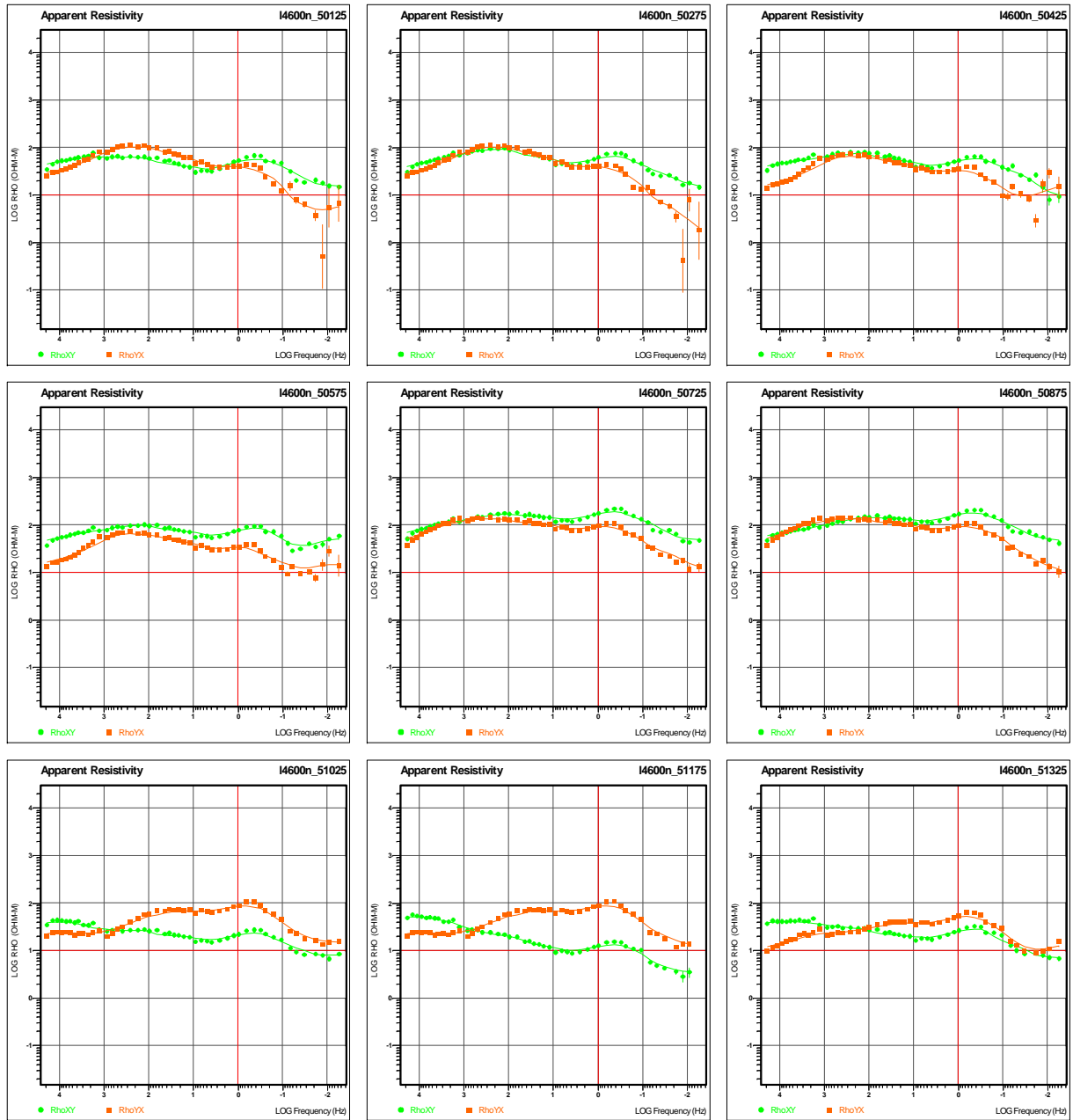
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

D.5 LINE 4600N



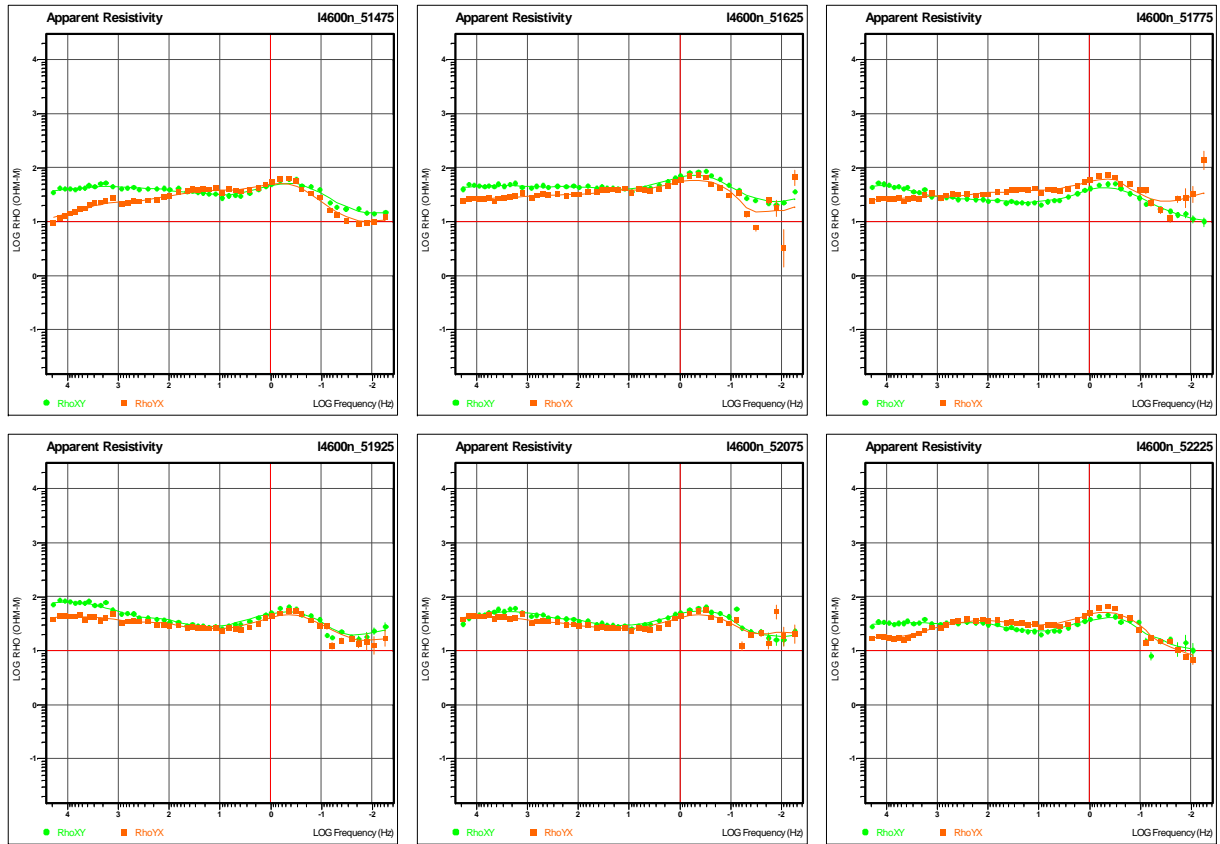
Line 4600N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



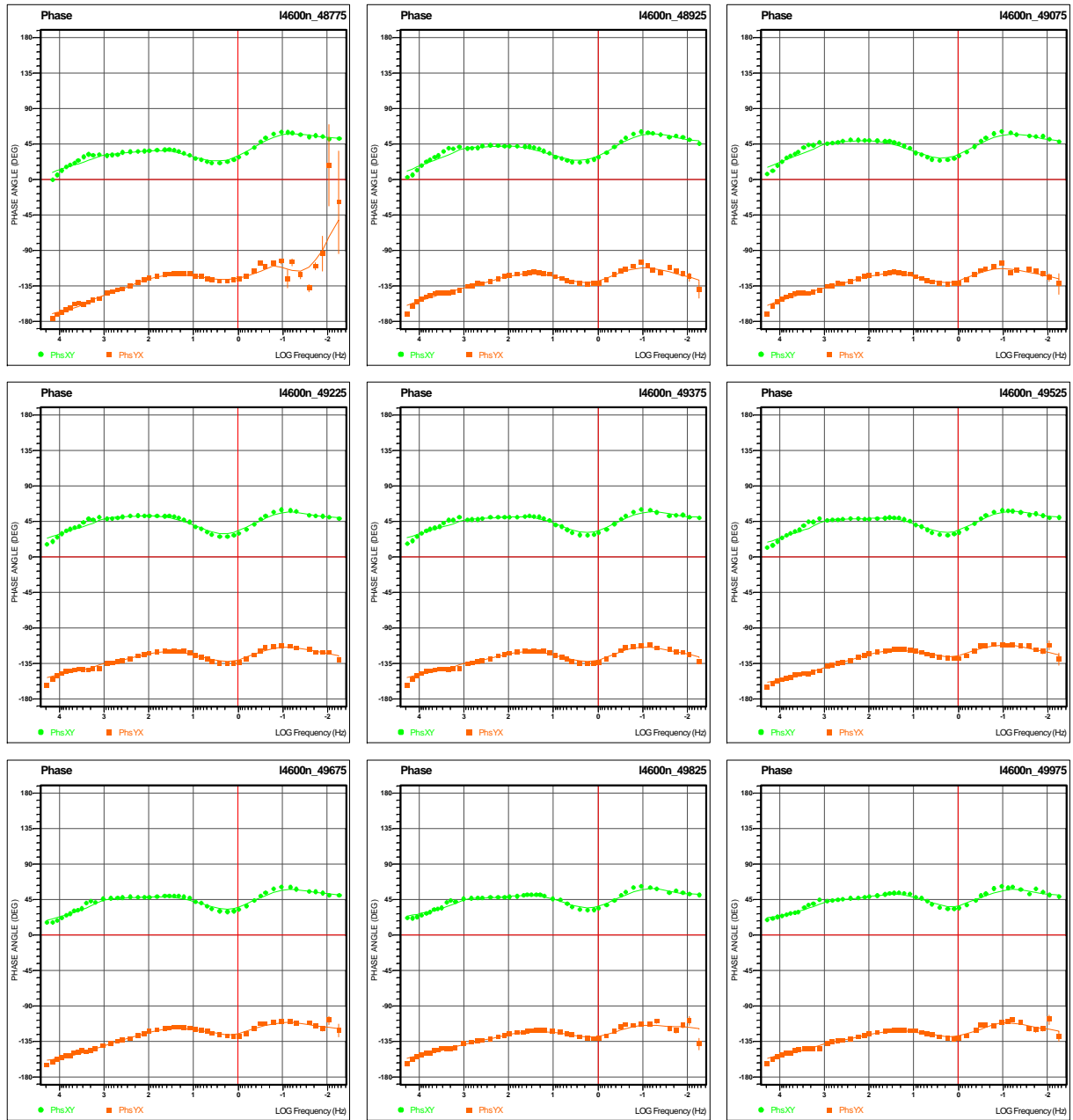
Line 4600N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)



Line 4600N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

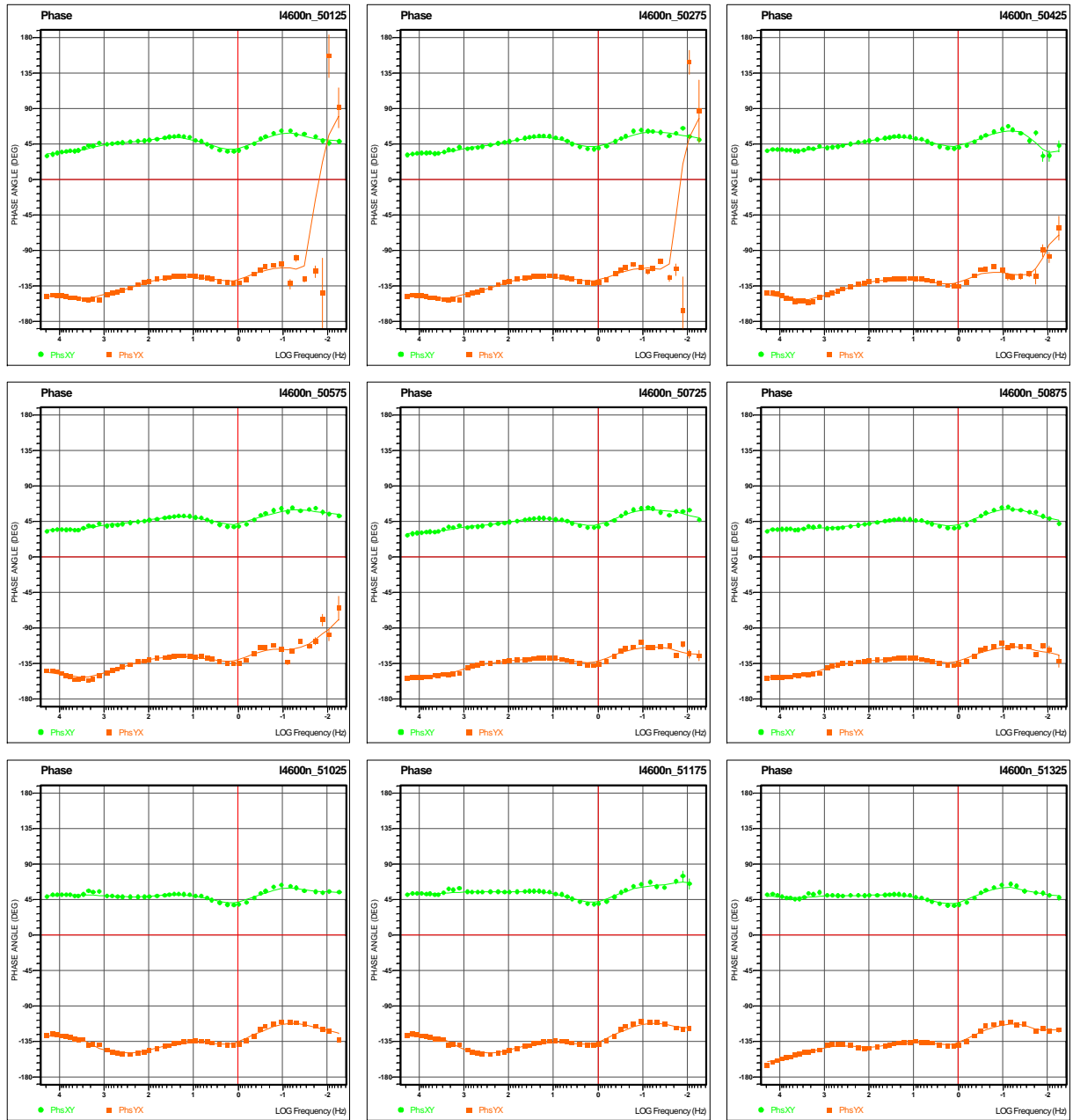
MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)



Line 4600N – Phase Sounding Curves vs Frequency (1 of 3).

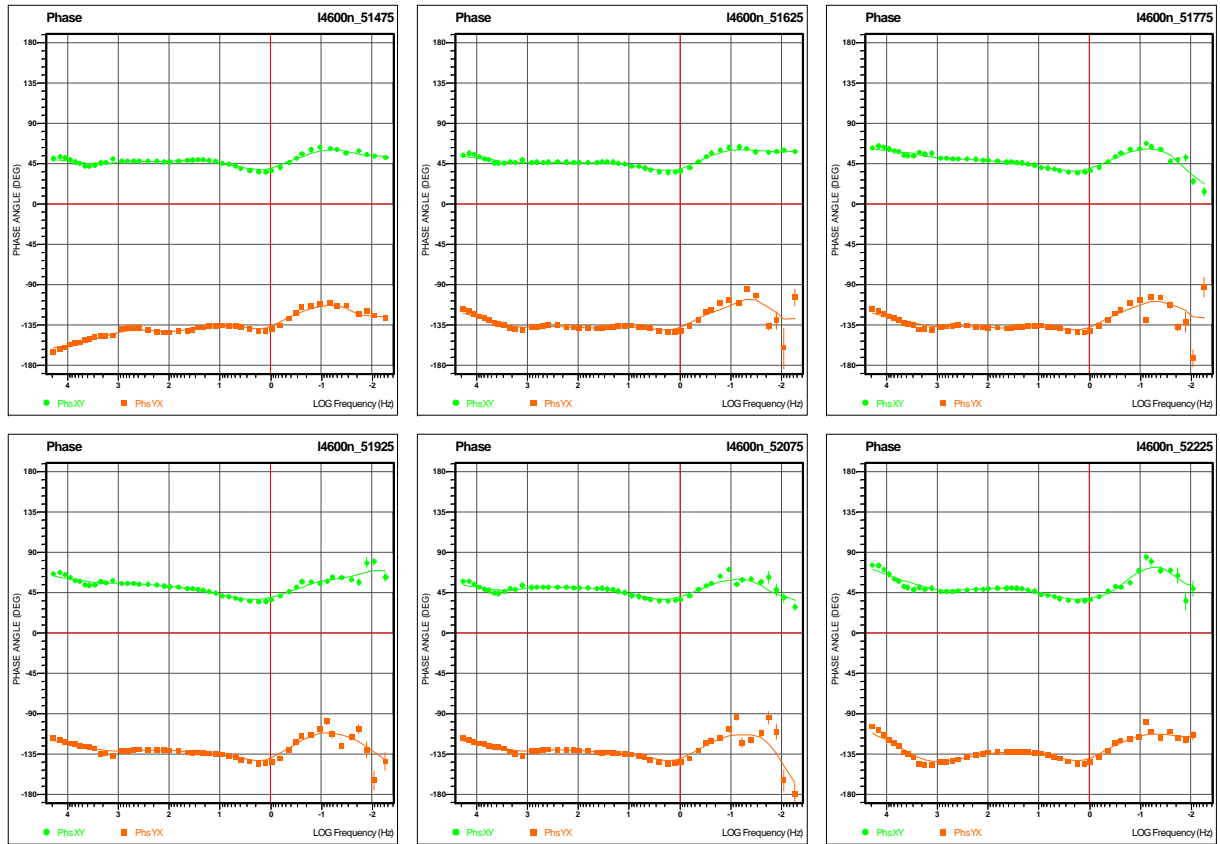
MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 4600N – Phase Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

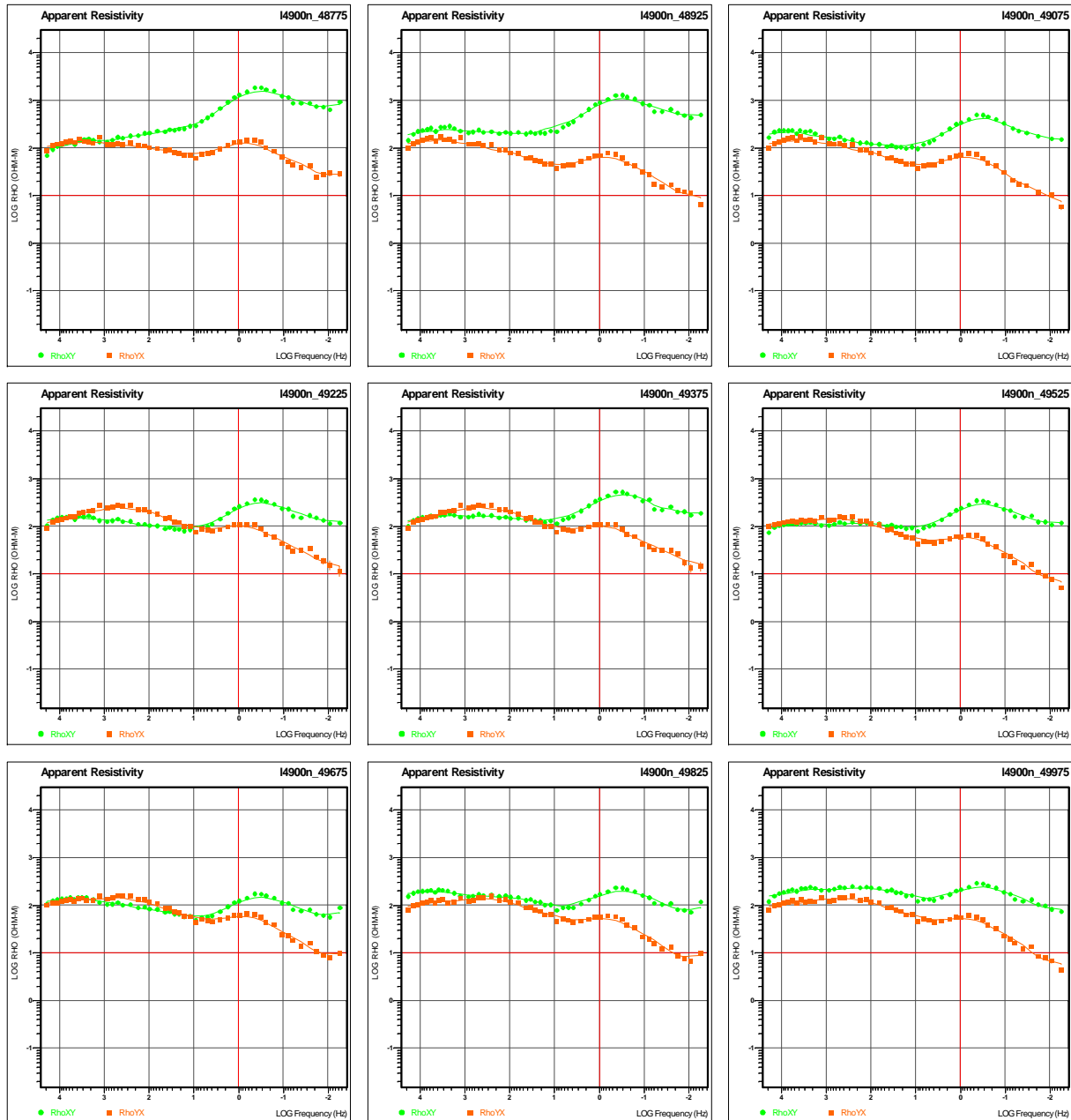


Line 4600N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

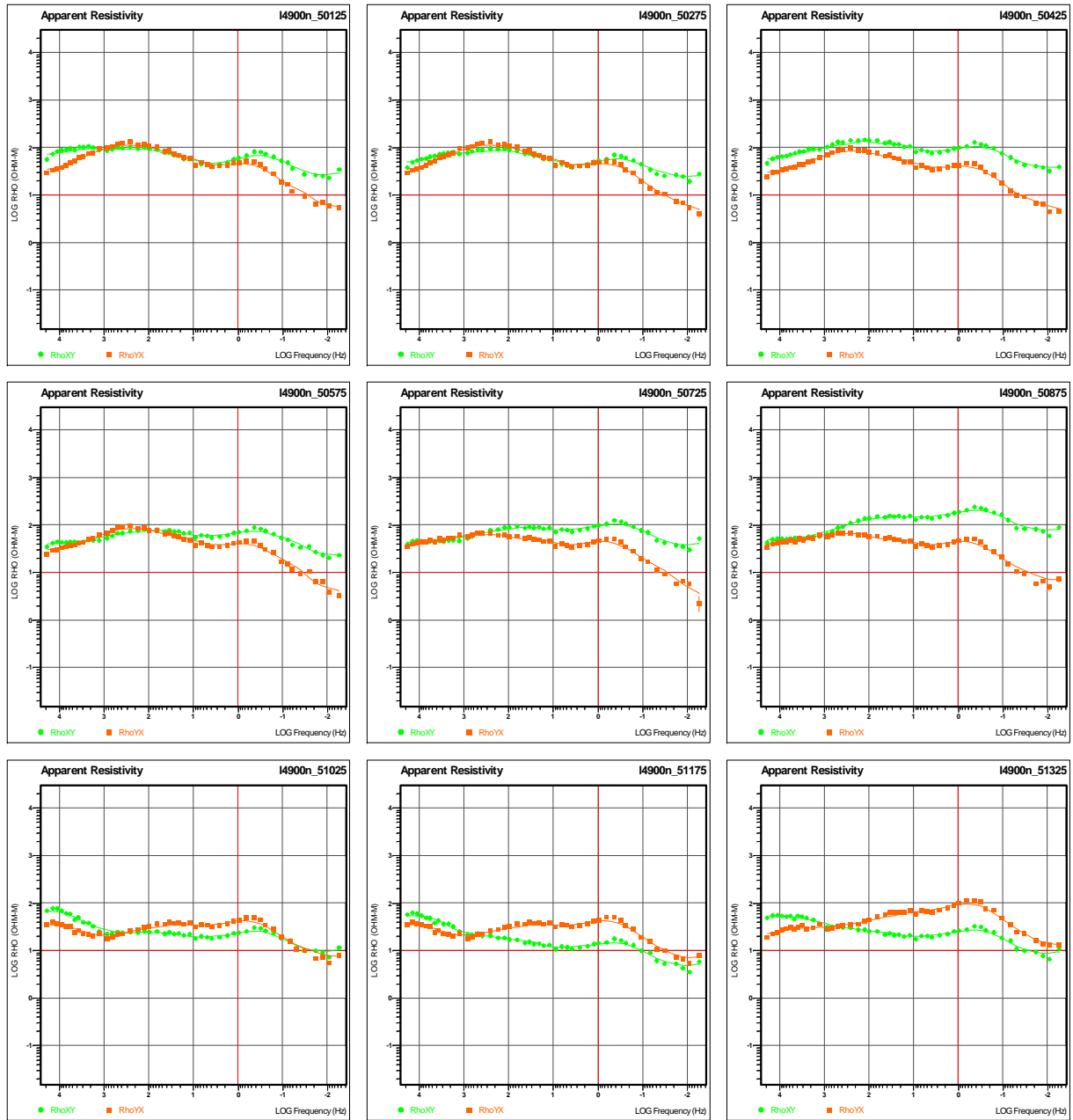
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

D.6 LINE 4900N



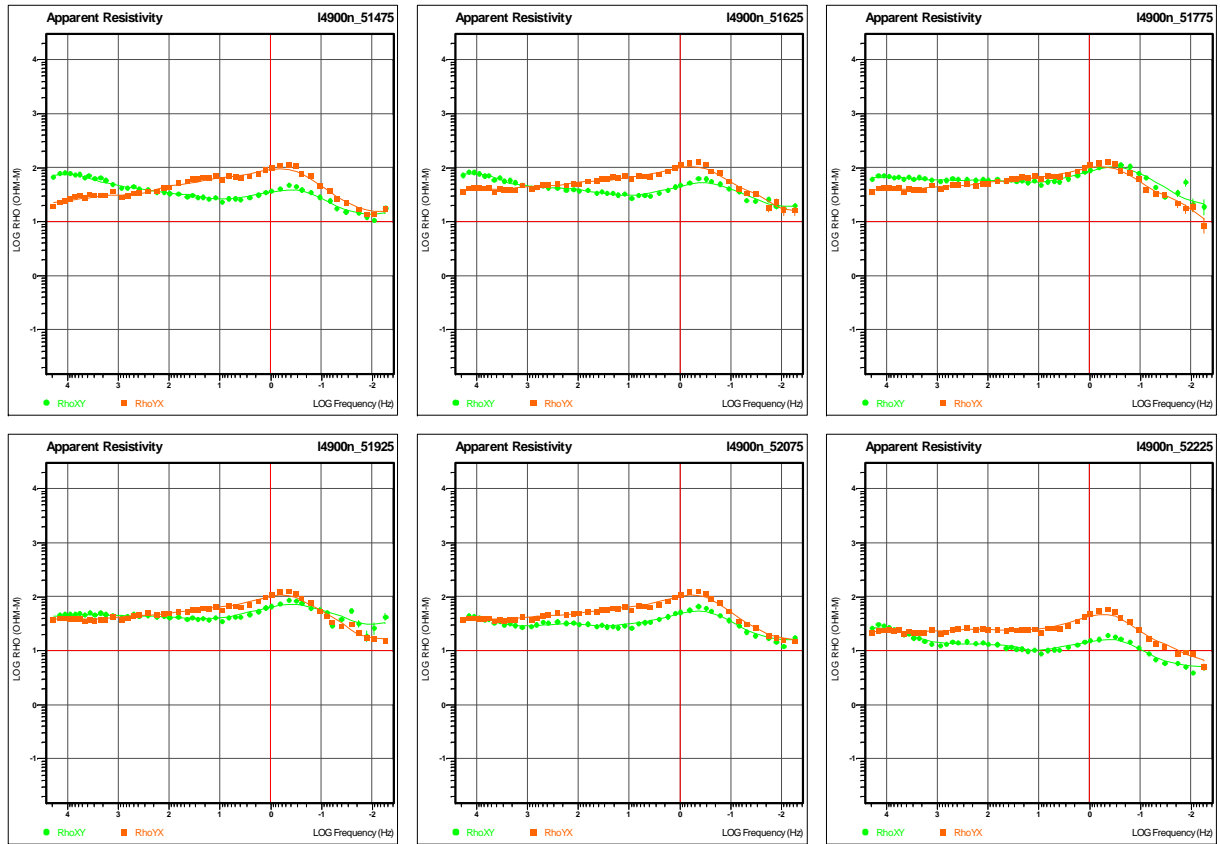
Line 4900N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



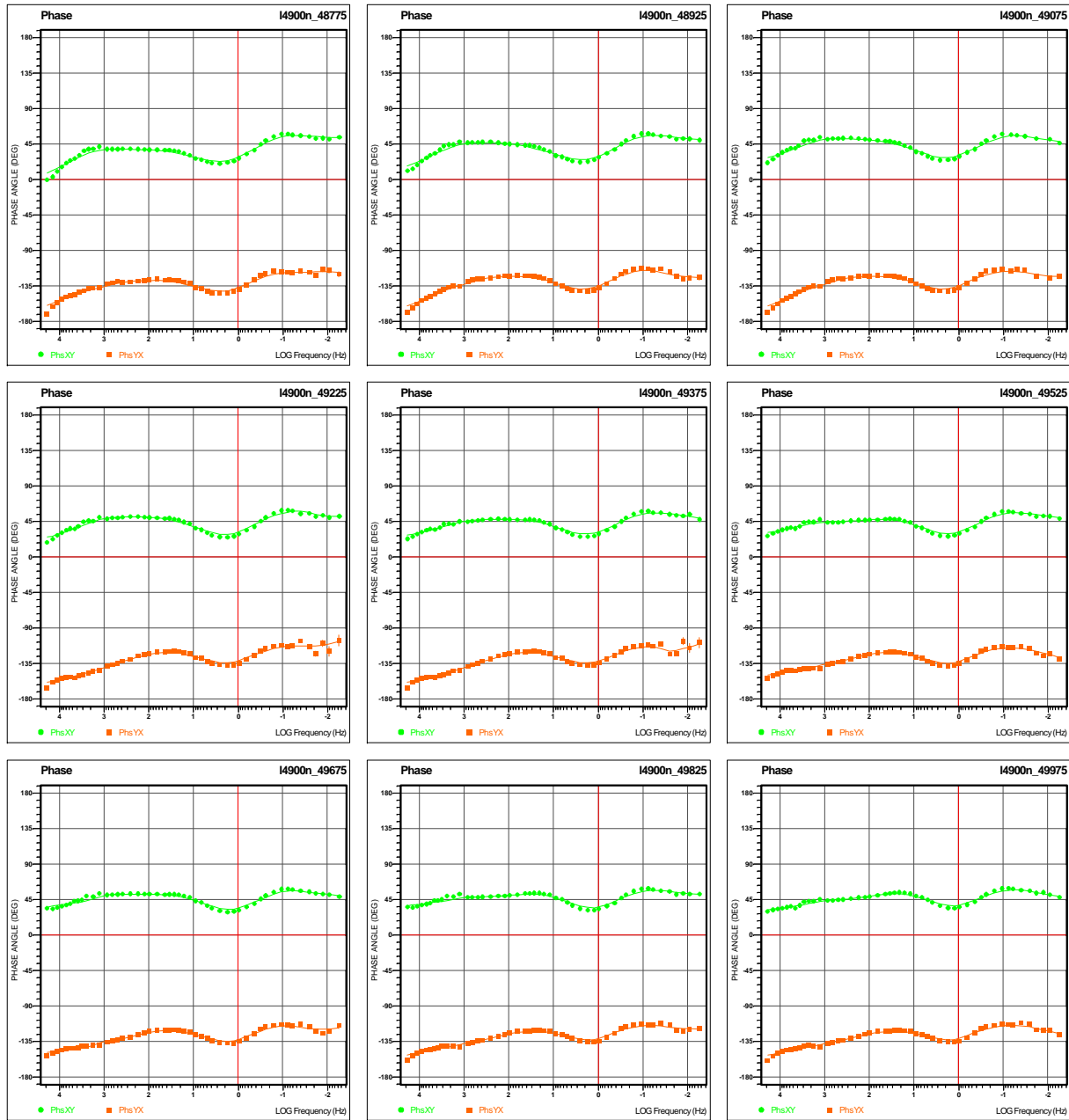
Line 4900N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 4900N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

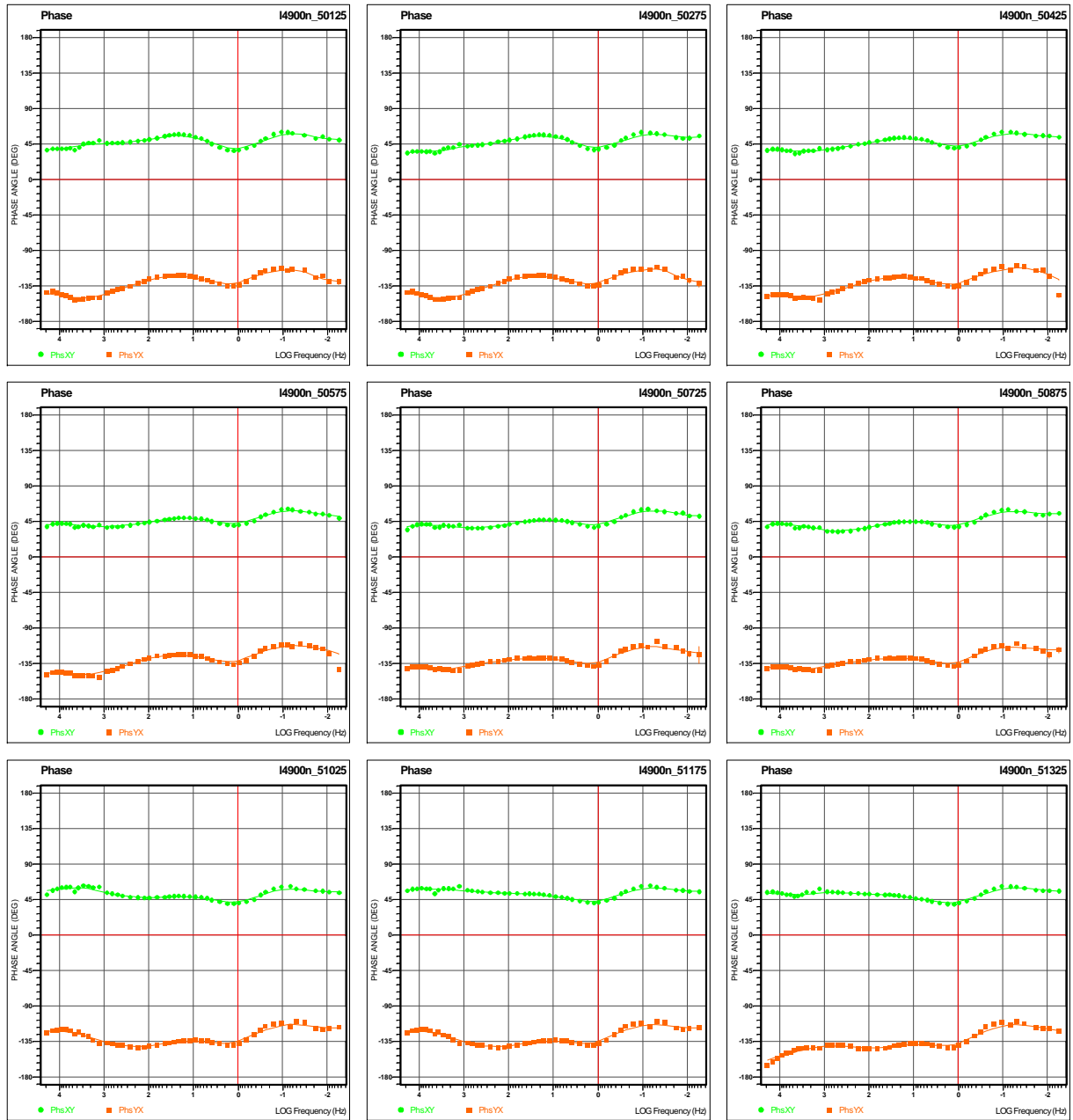
MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)



Line 4900N – Phase Sounding Curves vs Frequency (1 of 3).

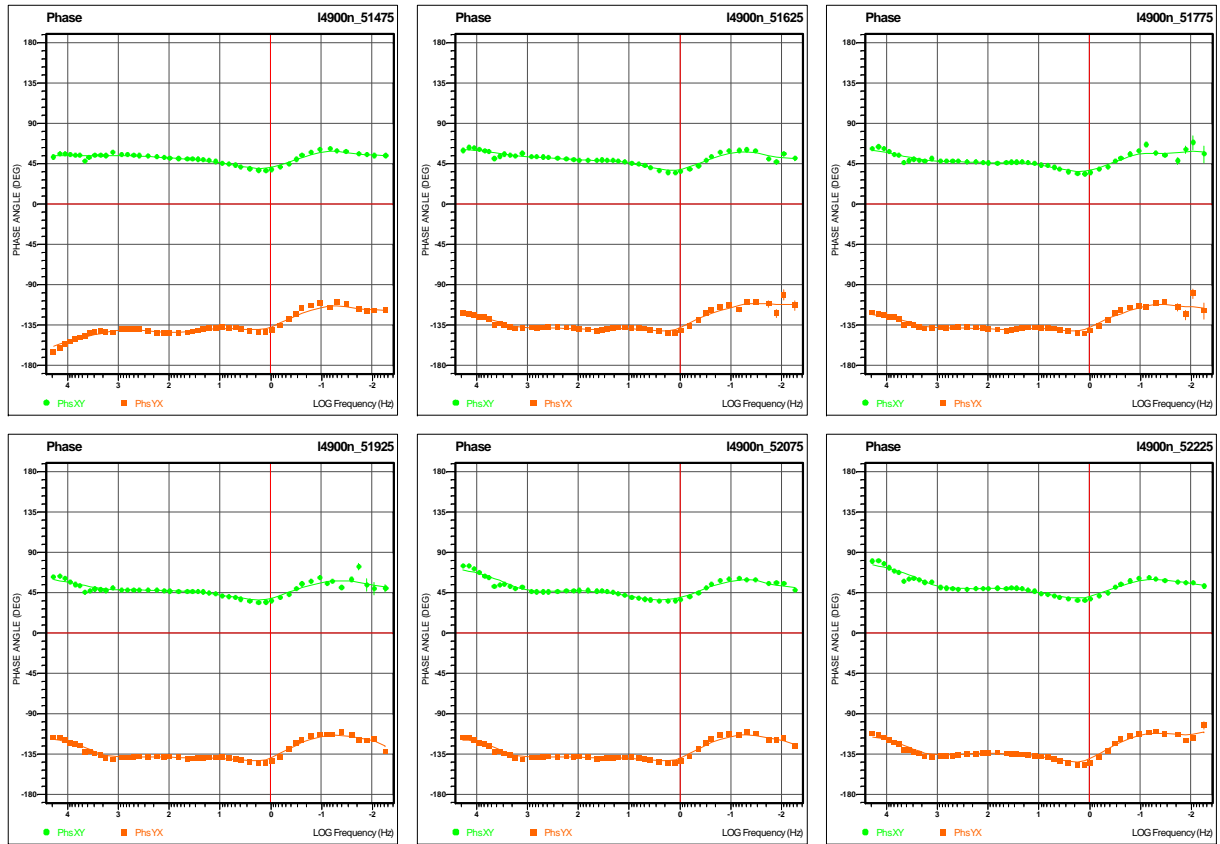
MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)



Line 4900N – Phase Sounding Curves vs Frequency (2 of 3).

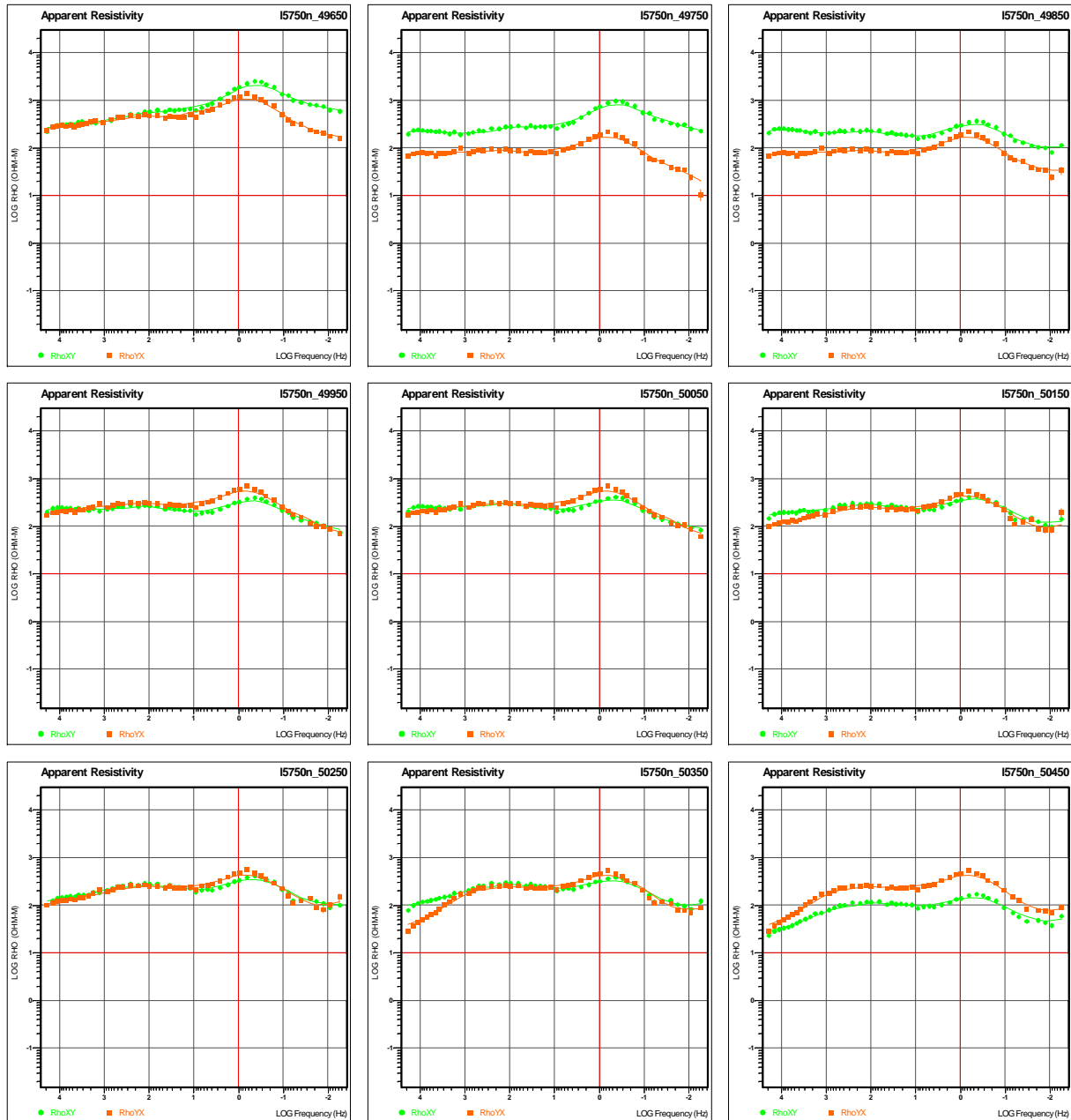
MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)



Line 4900N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

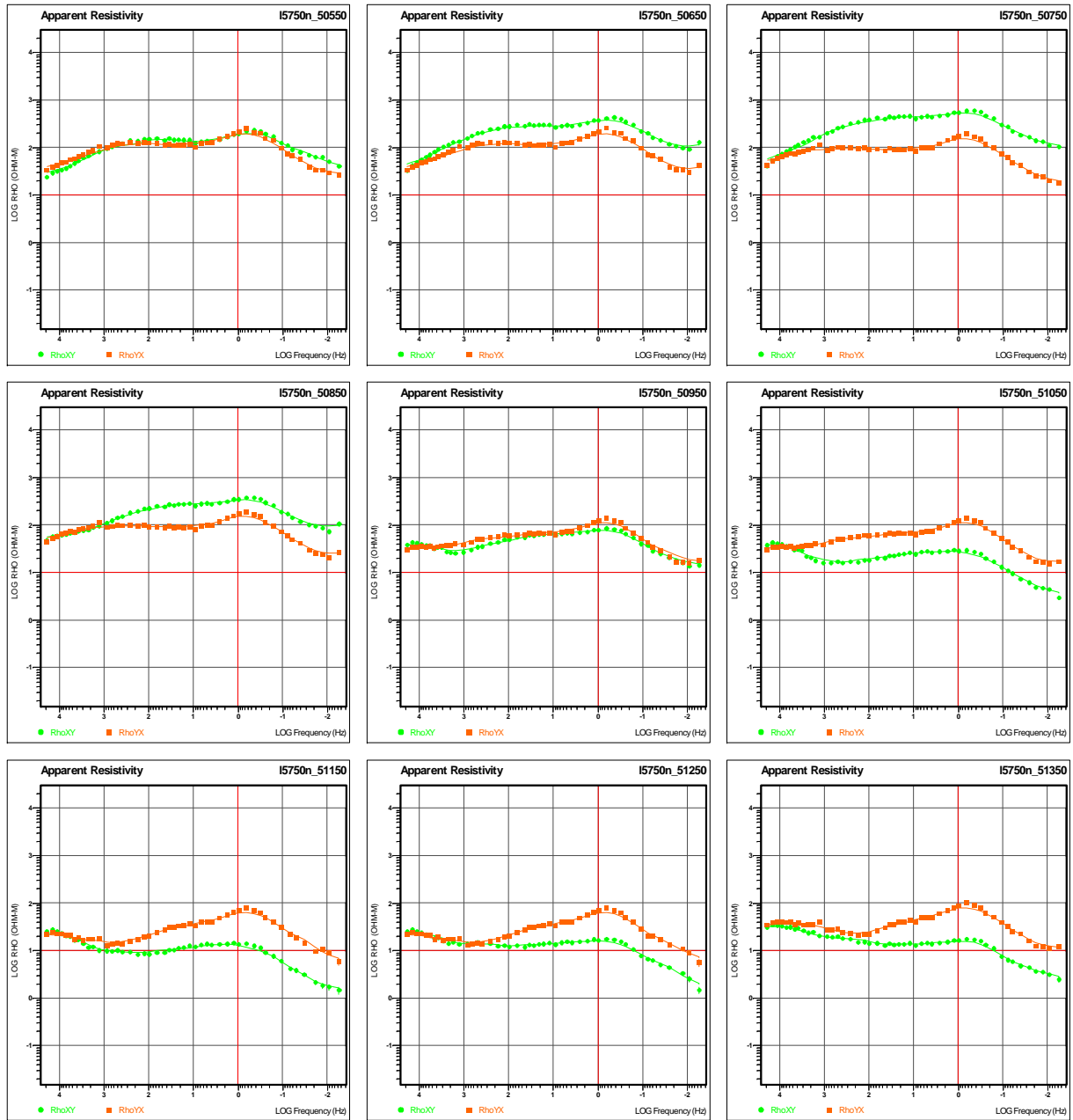
D.7 LINE 5750N



Line 5750N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

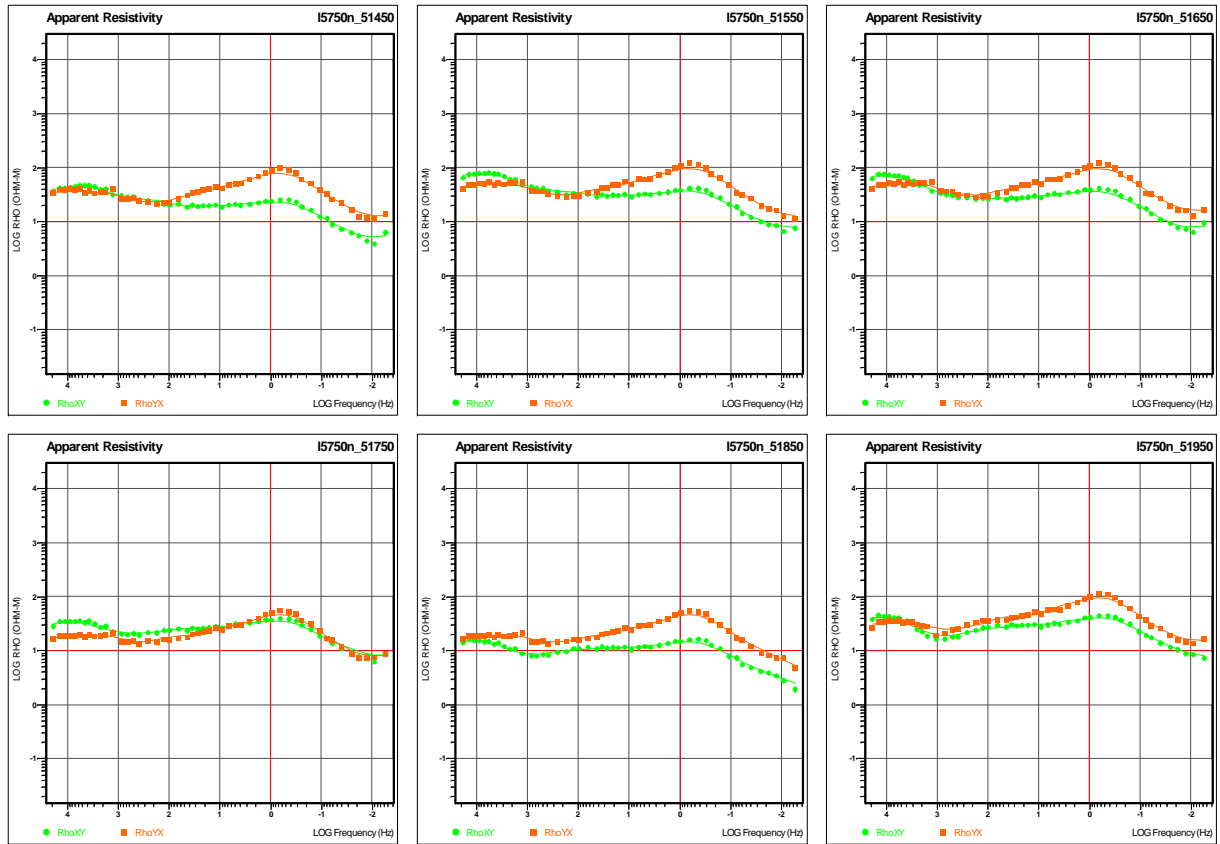
MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



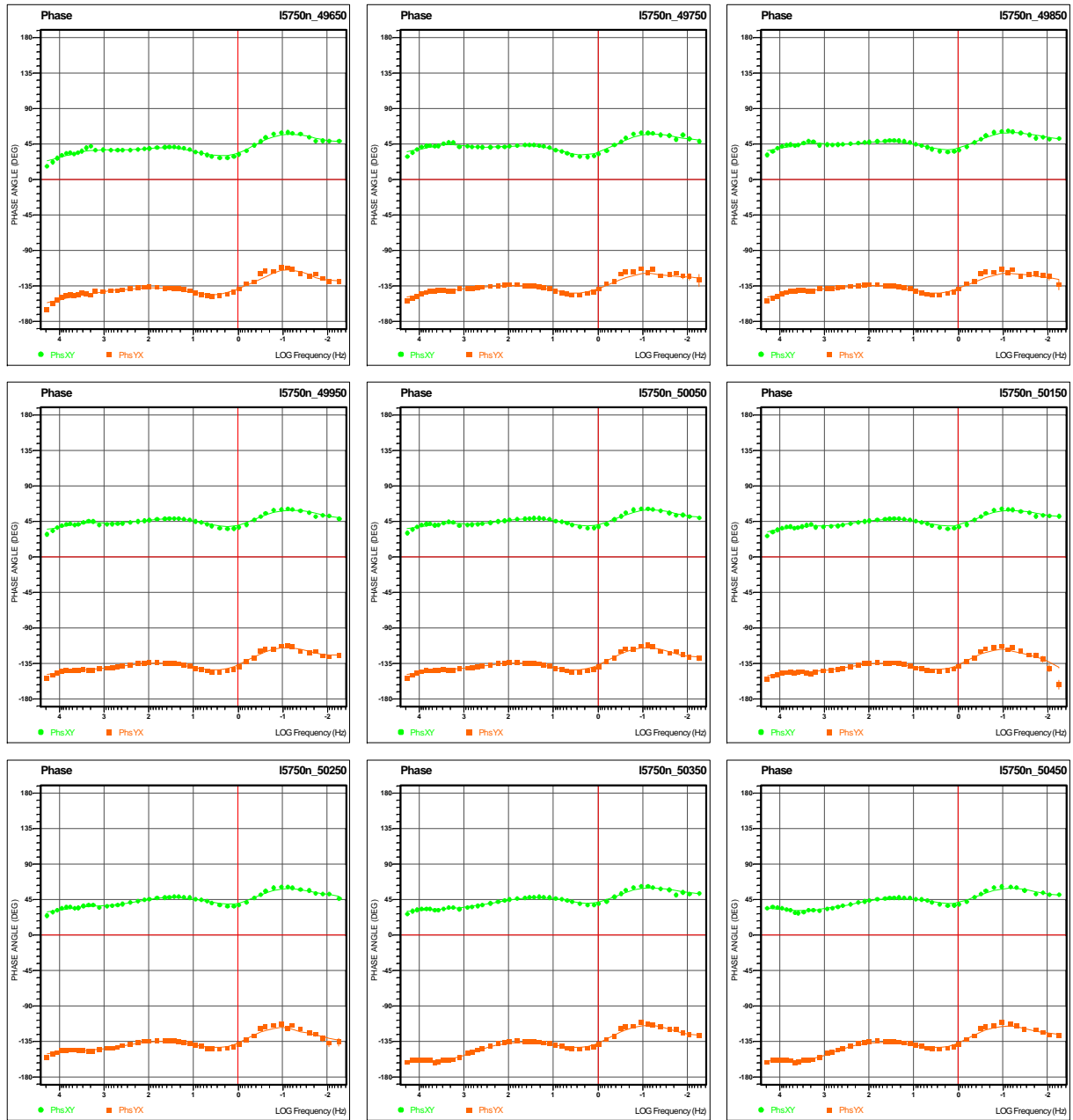
Line 5750N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)



Line 5750N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

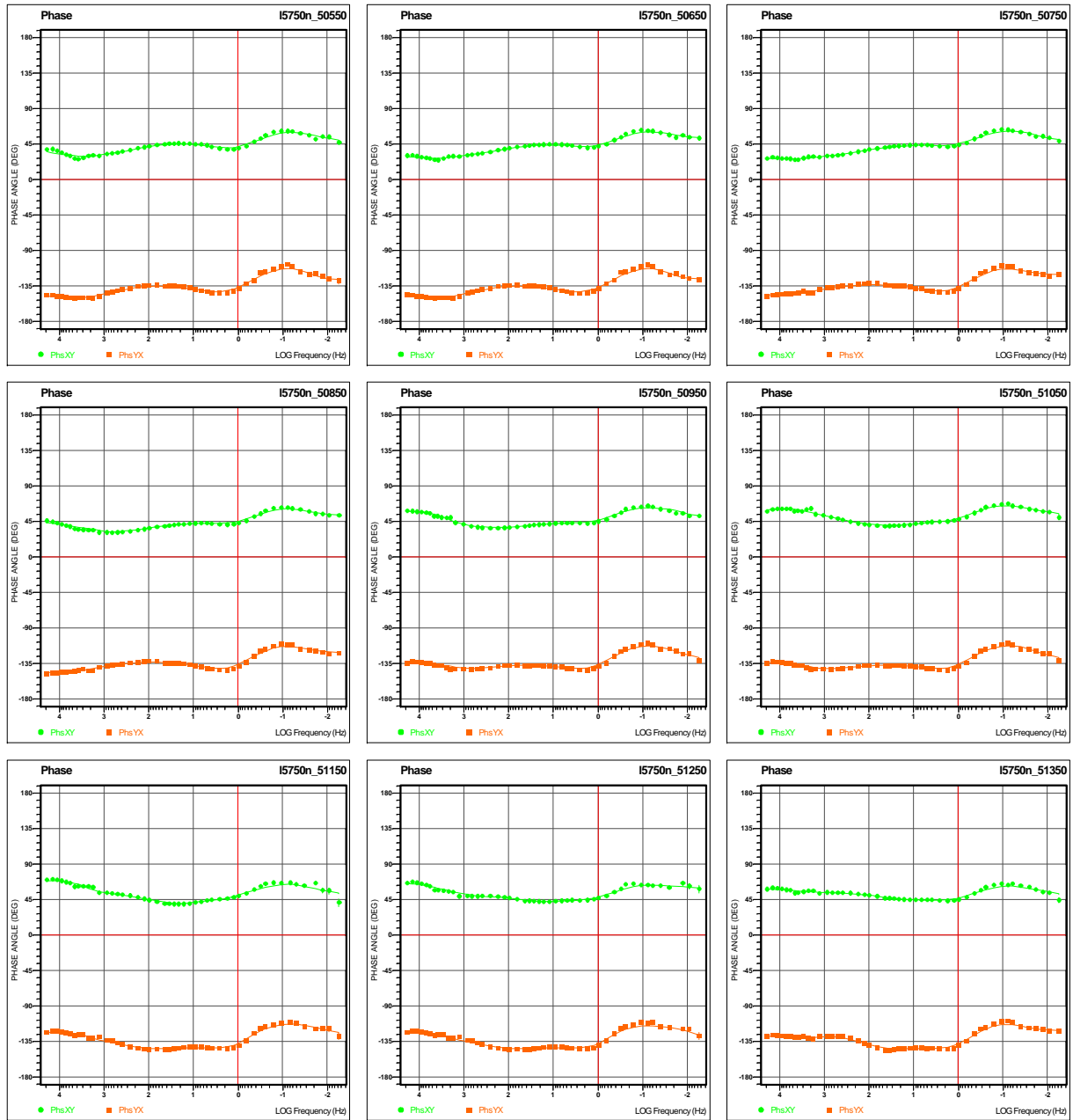
MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)



Line 5750N – Phase Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

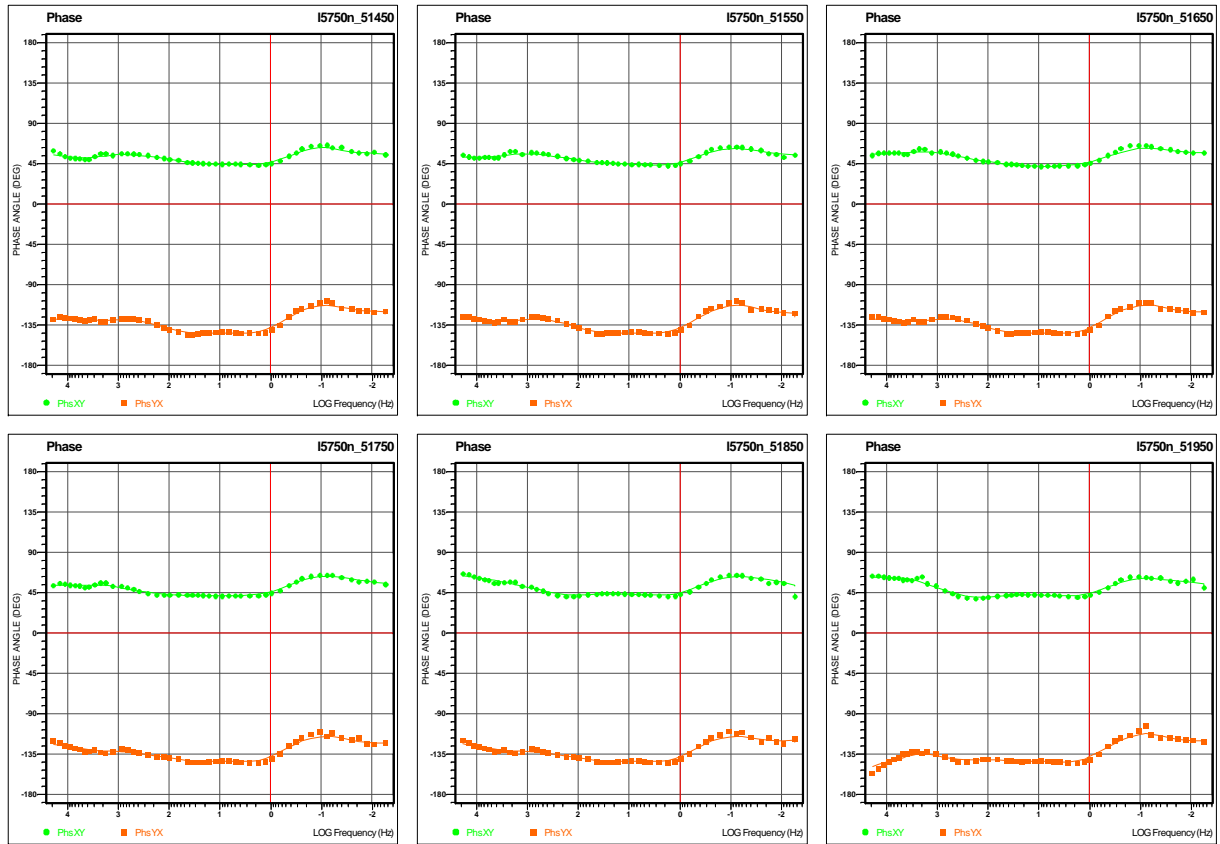
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)



Line 5750N – Phase Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

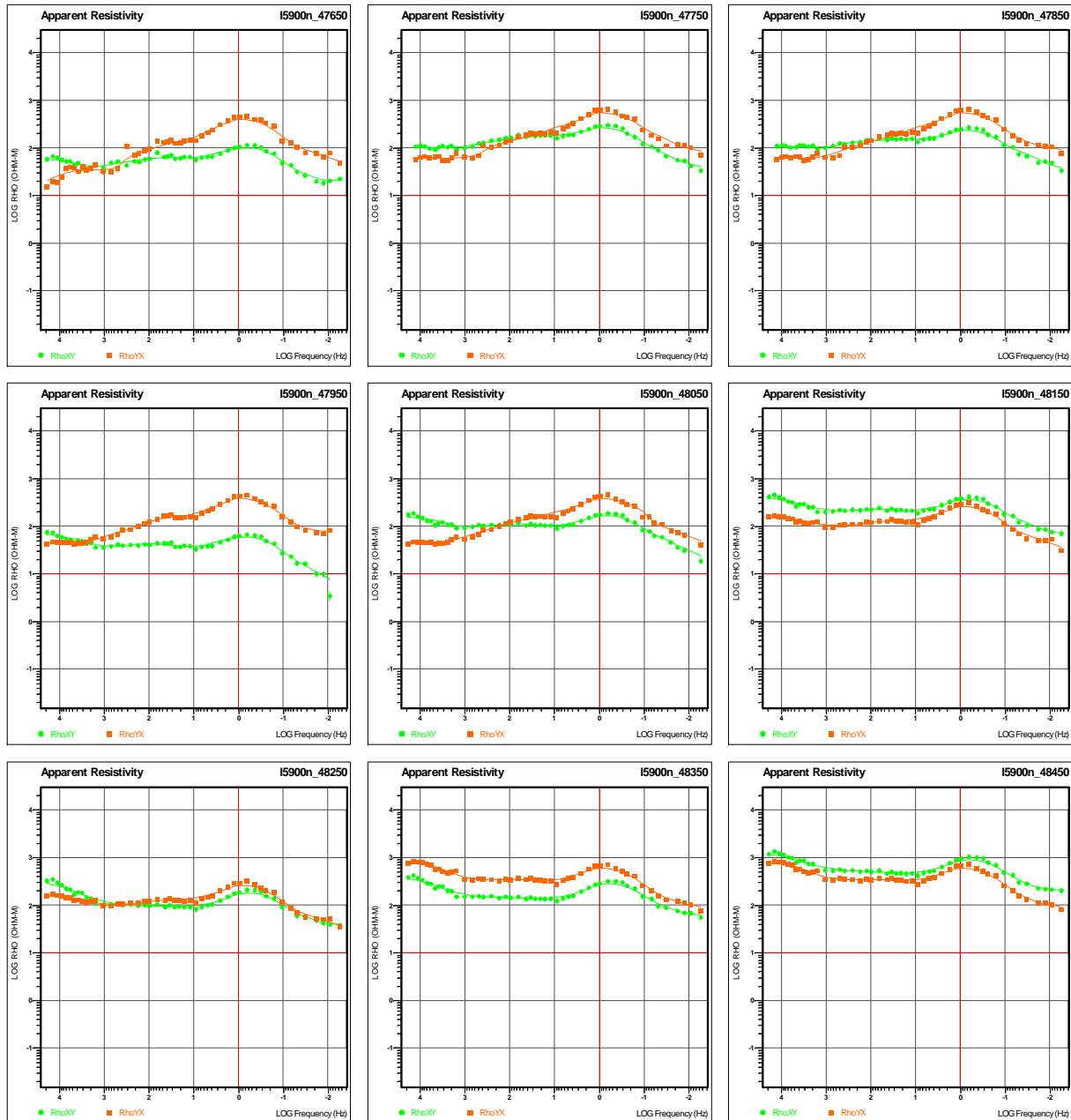


Line 5750N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

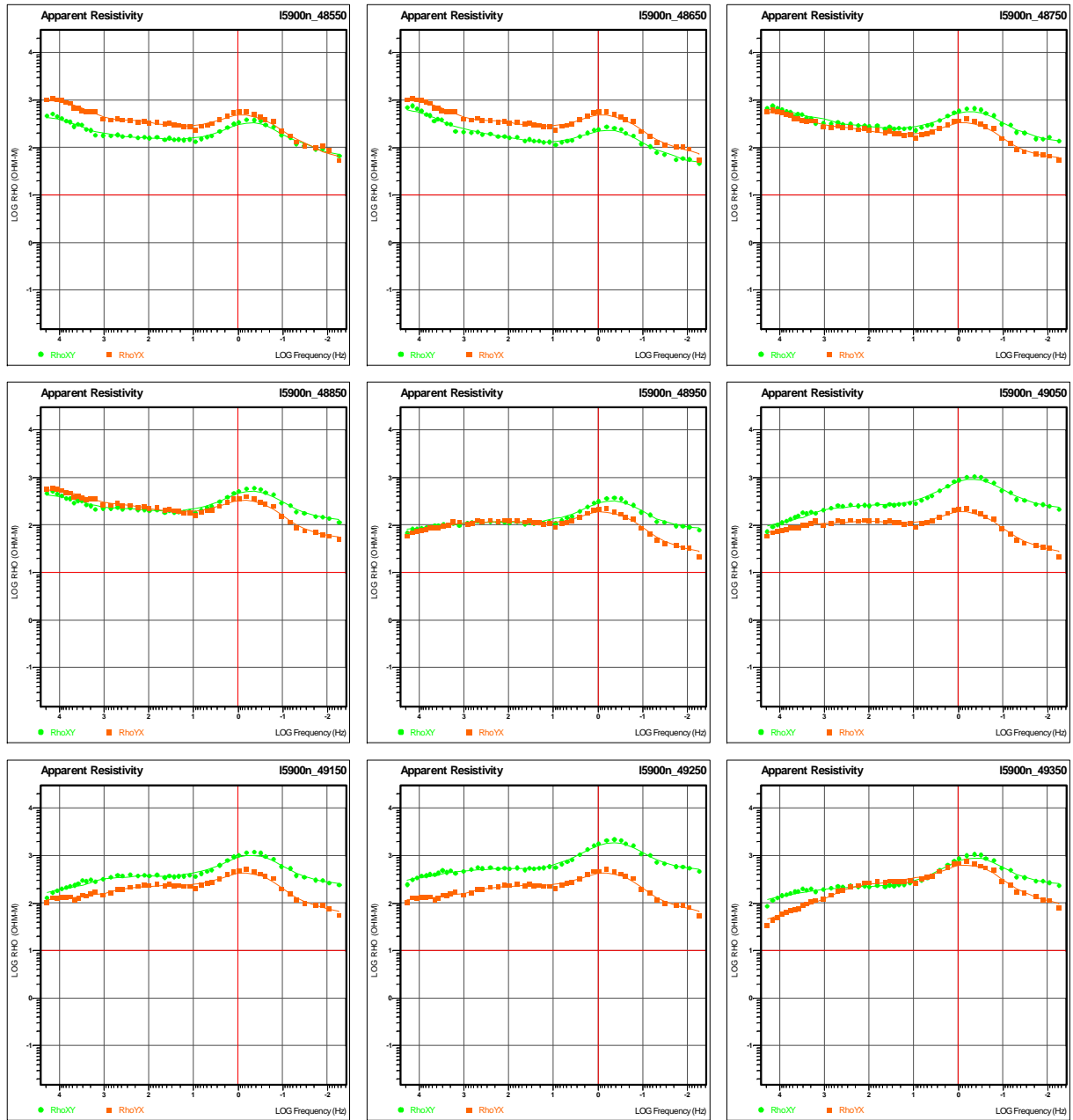
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

D.8 LINE 5900N



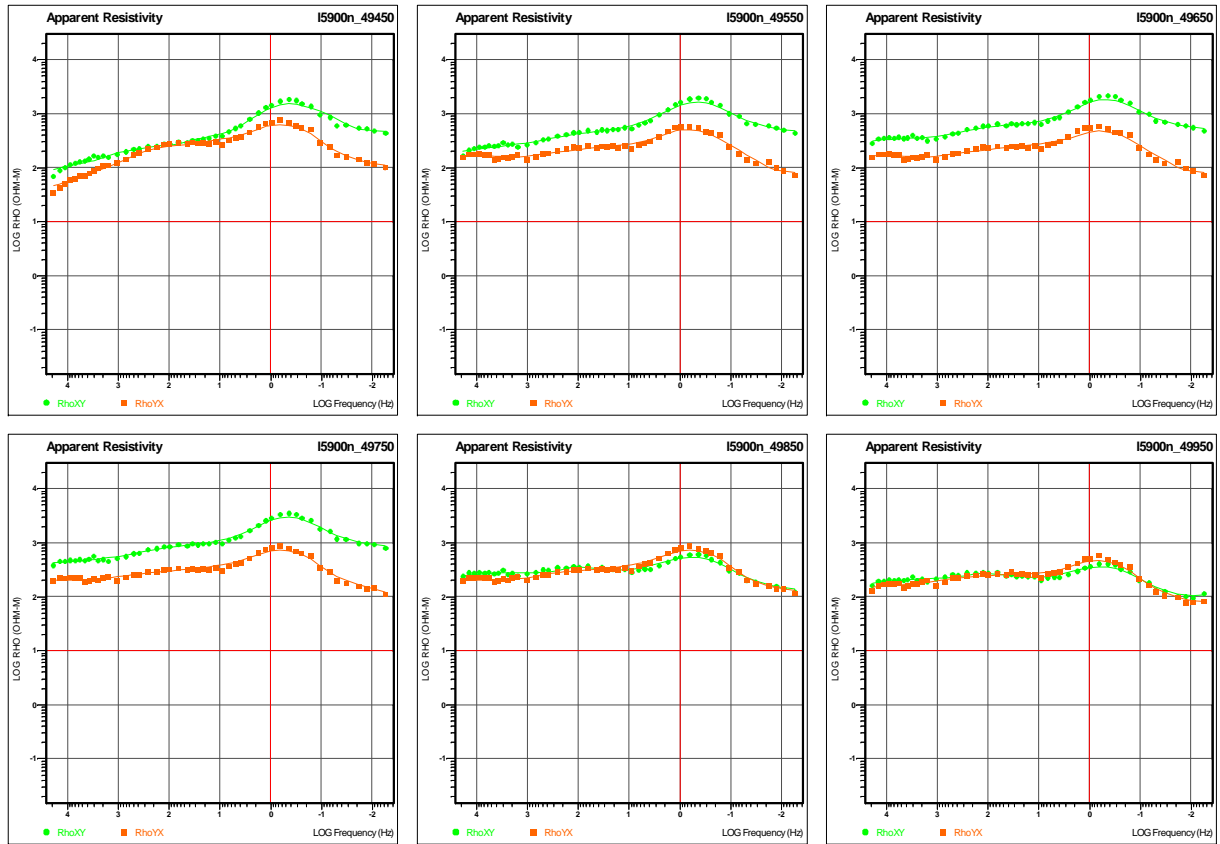
Line 5900N – Apparent Resistivity Sounding Curves vs Frequency (1 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



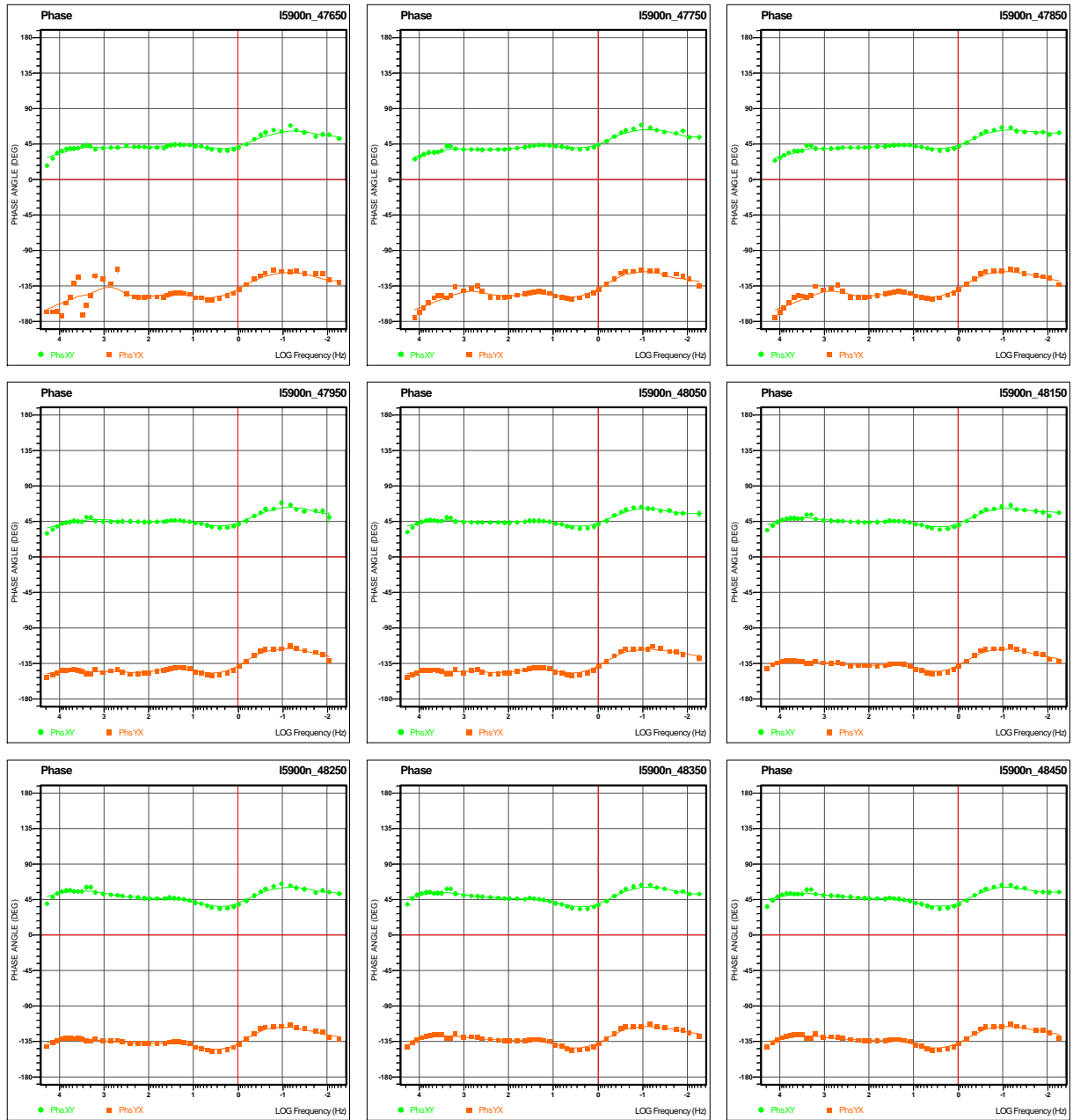
Line 5900N – Apparent Resistivity Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



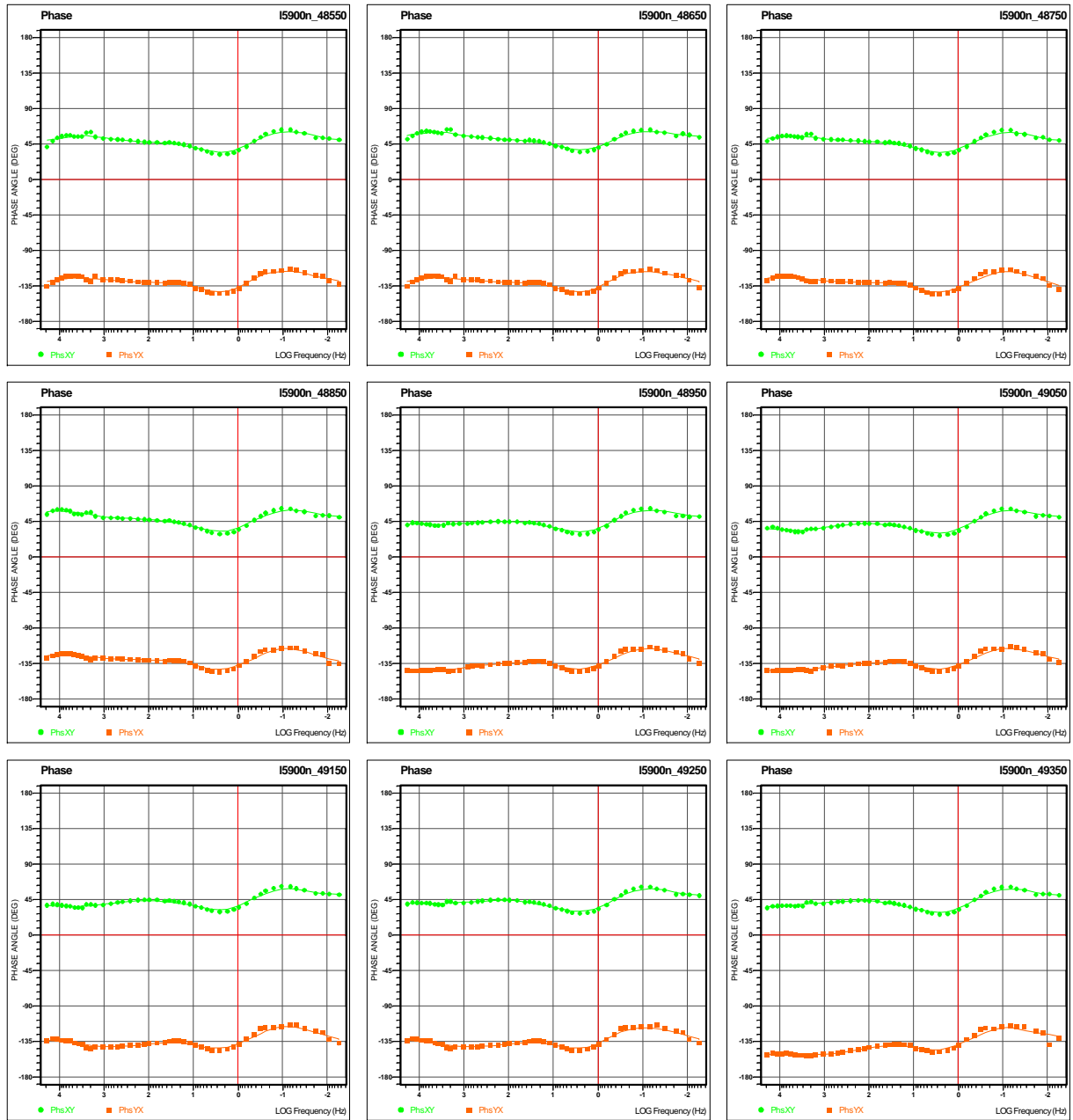
Line 5900N – Apparent Resistivity Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**EX**) FIELD AND ORTHOGONAL MAGNETIC (**HY**) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (**EY**) FIELD AND ORTHOGONAL MAGNETIC (**HX**) FIELD (=EY/HX)



Line 5900N – Phase Sounding Curves vs Frequency (1 of 3).

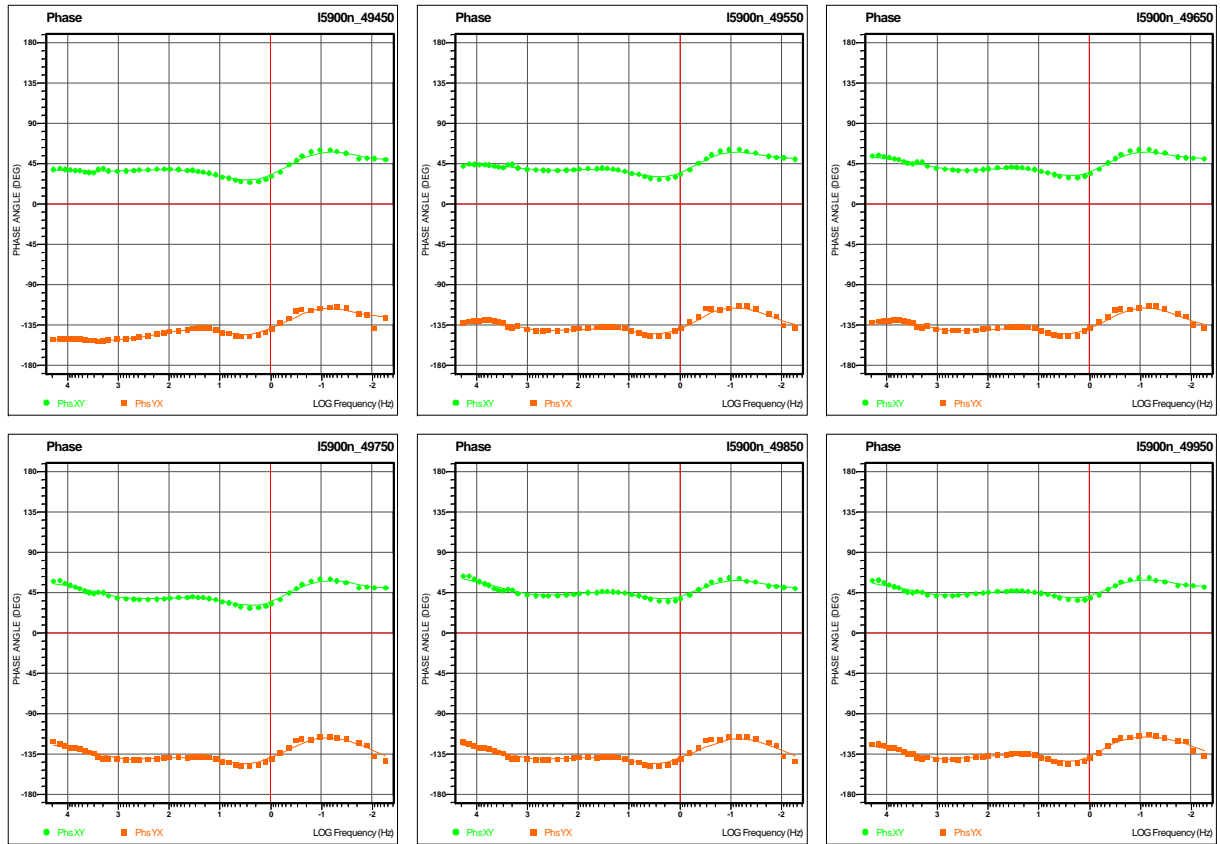
MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)



Line 5900N – Phase Sounding Curves vs Frequency (2 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)

MODE YX (ORANGE) DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

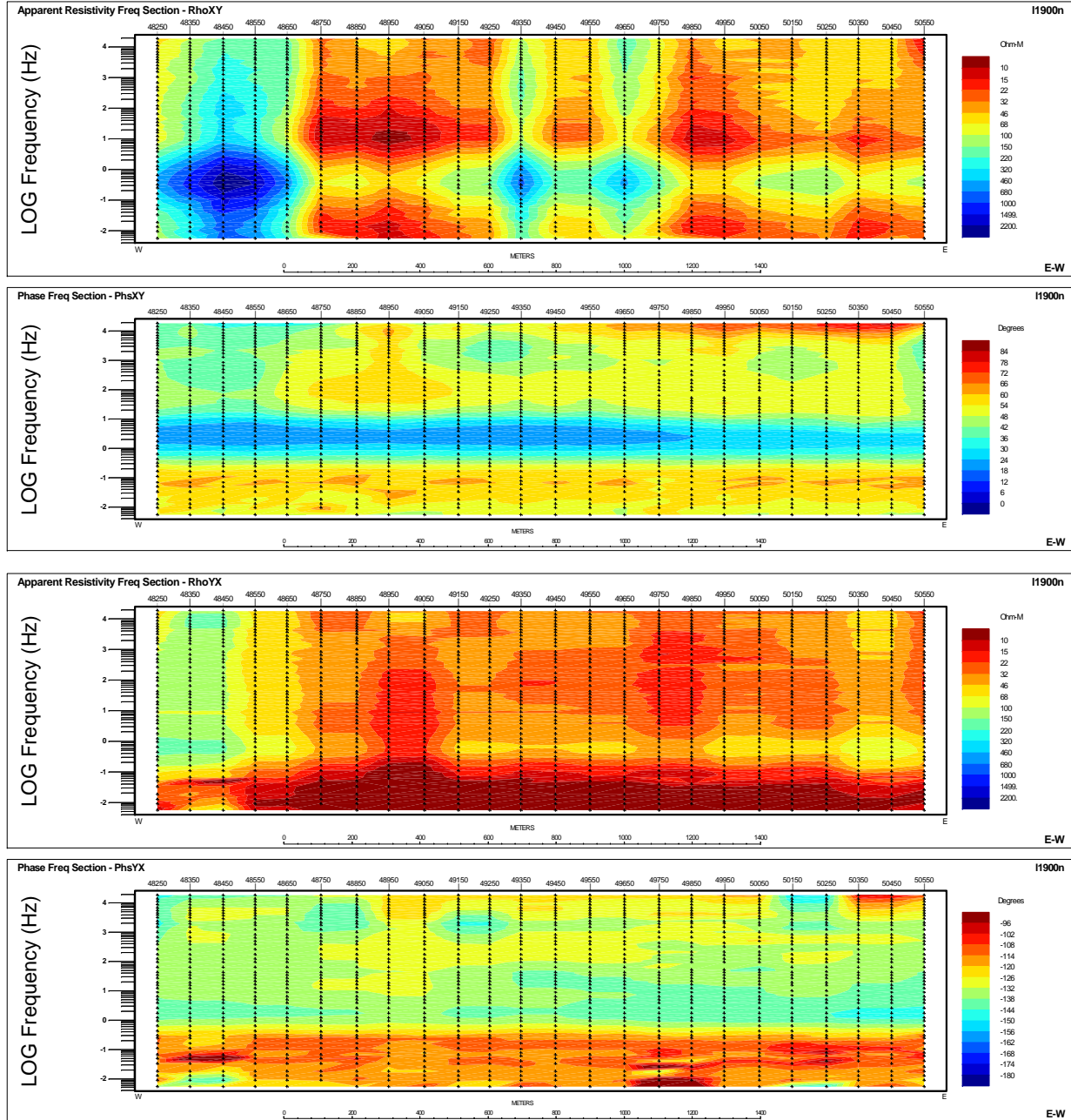


Line 5900N – Phase Sounding Curves vs Frequency (3 of 3).

MODE XY (GREEN) DENOTES ELECTRICAL (**Ex**) FIELD AND ORTHOGONAL MAGNETIC (**Hy**) FIELD (=Ex/Hy)
MODE YX (ORANGE) DENOTES ELECTRICAL (**Ey**) FIELD AND ORTHOGONAL MAGNETIC (**Hx**) FIELD (=Ey/Hx)

E MT PSEUDO-SECTIONS OF FINAL PROCESSED DATA

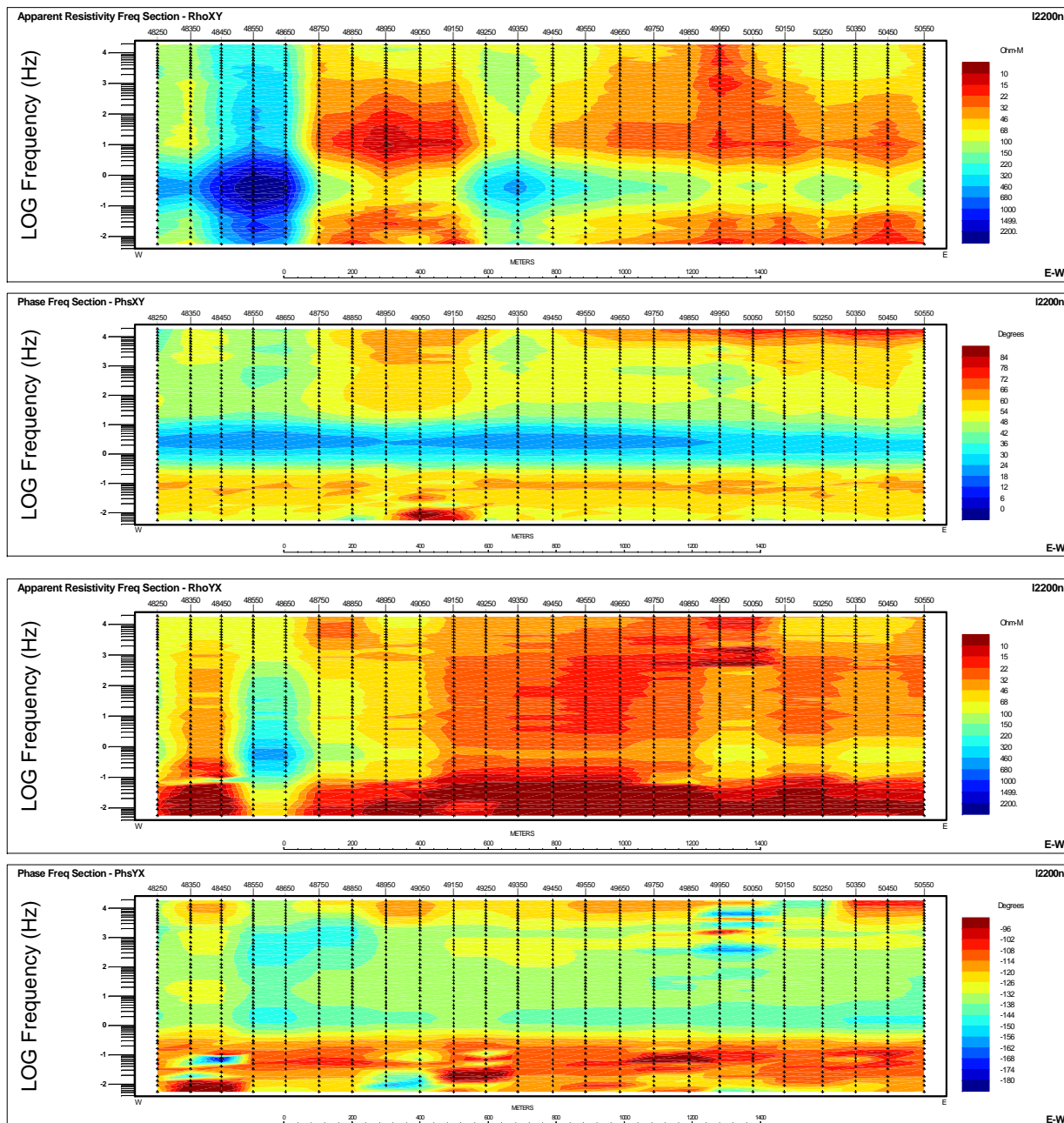
E.1 LINE 1900N



Line 1900N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

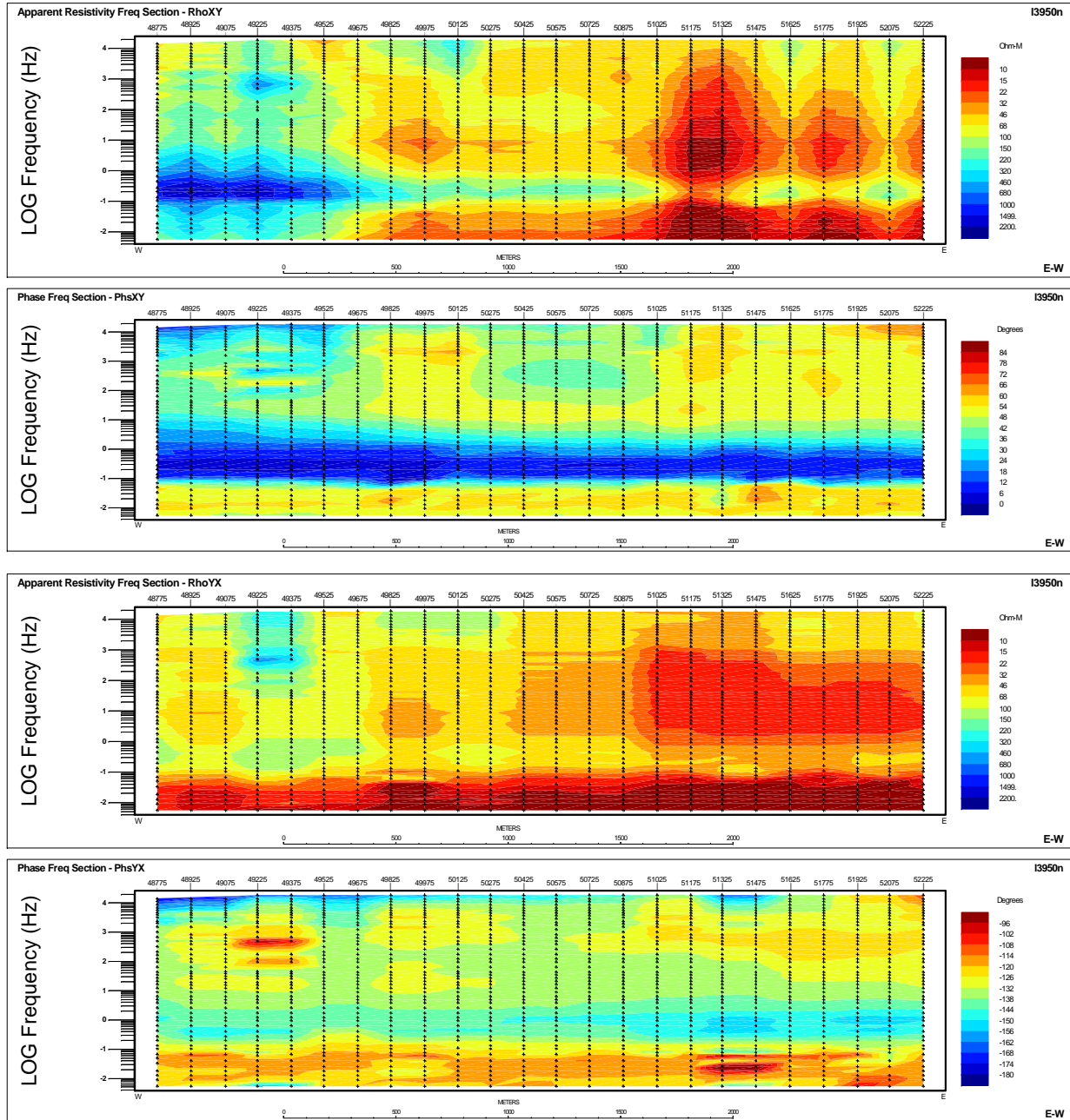
E.2 LINE 2200N



Line 2200N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

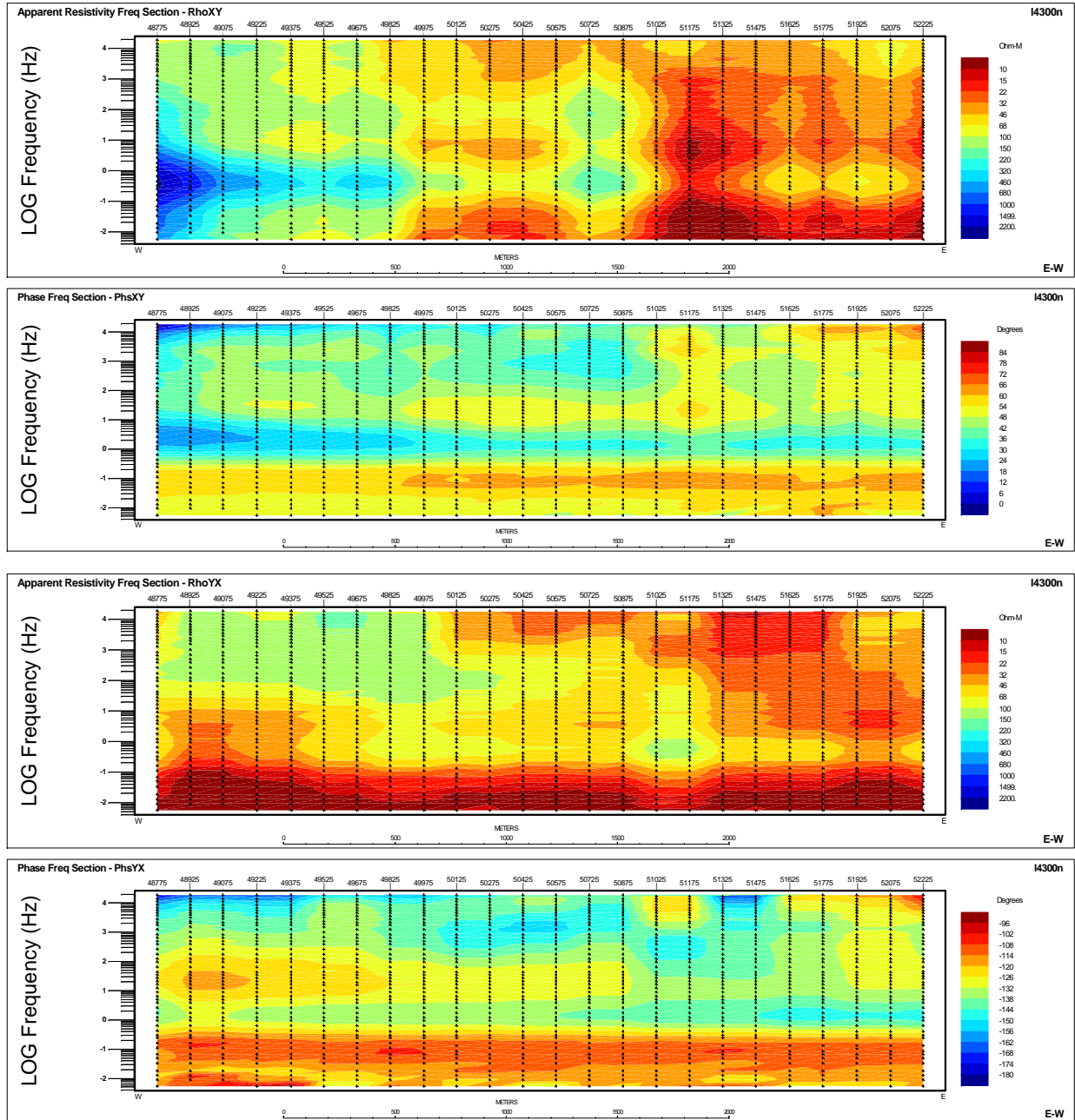
E.3 LINE 3950N



Line 3950N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

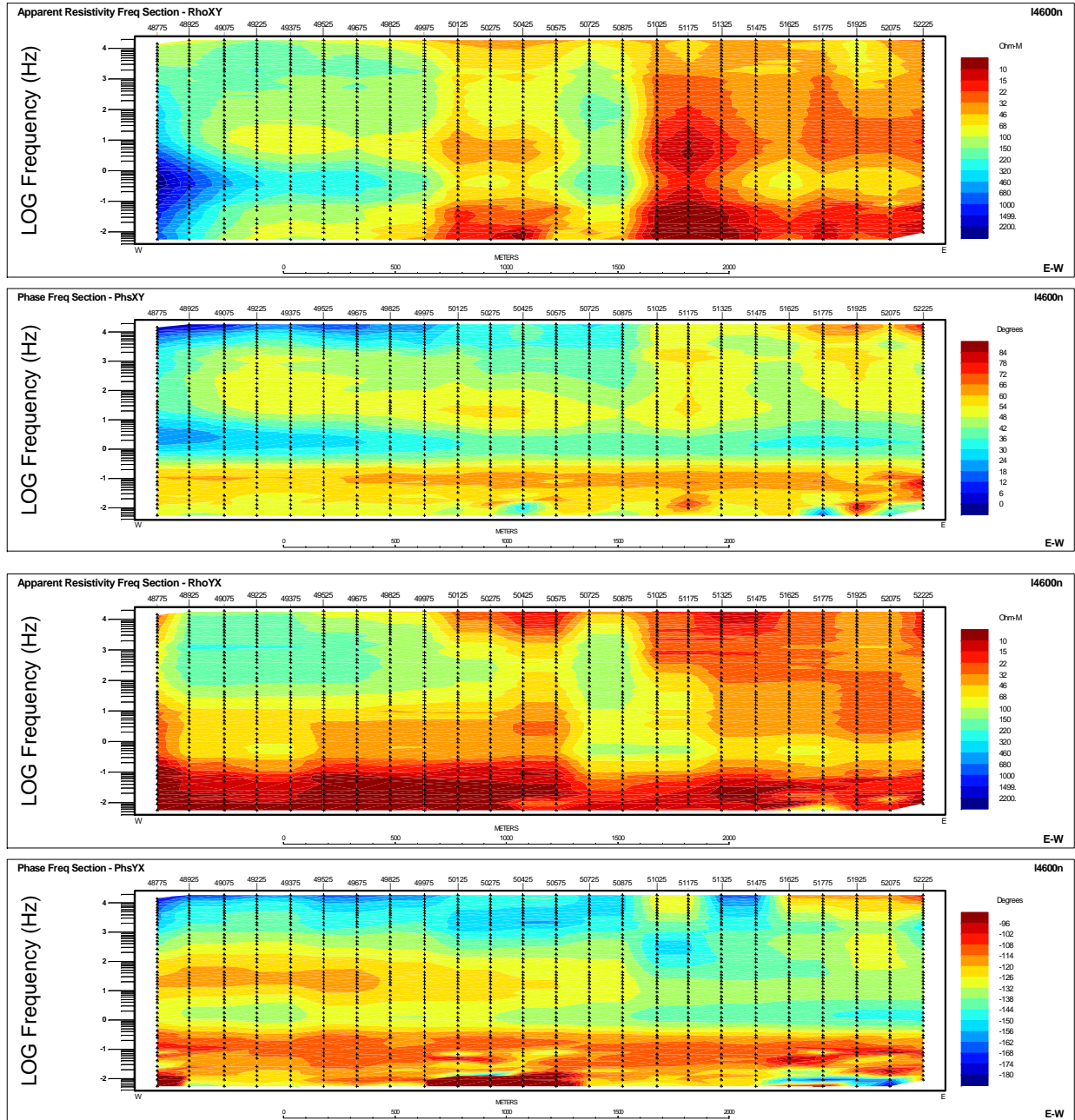
E.4 LINE 4300N



Line 4300N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

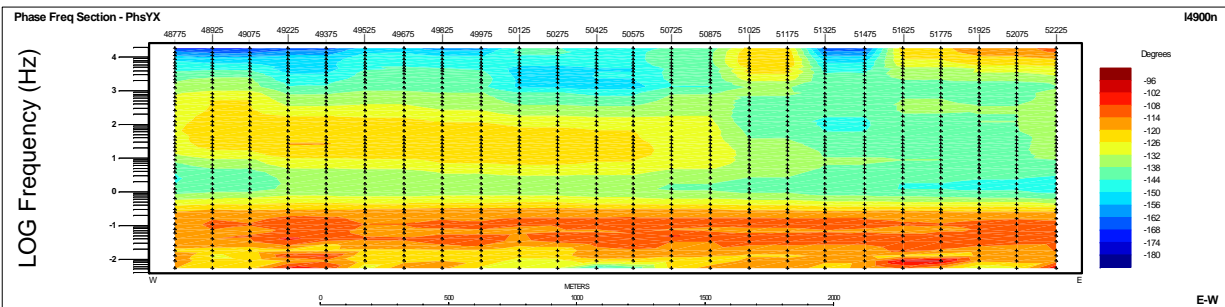
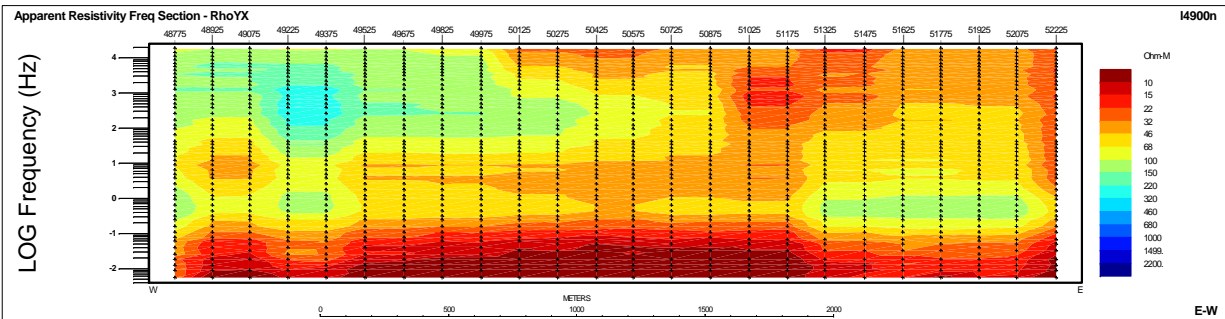
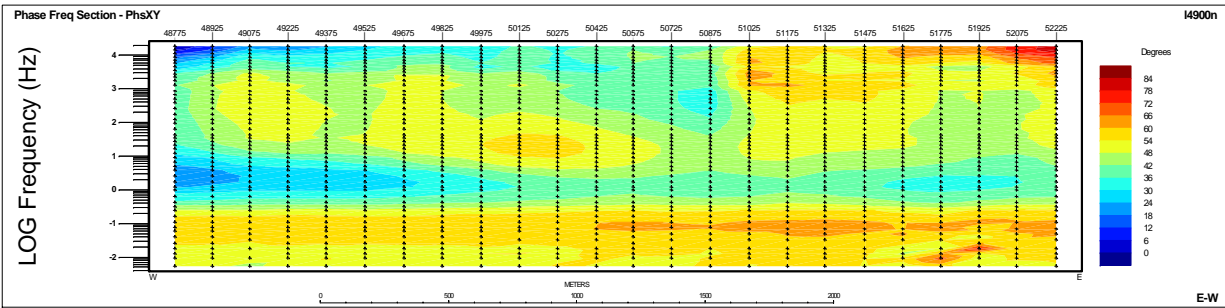
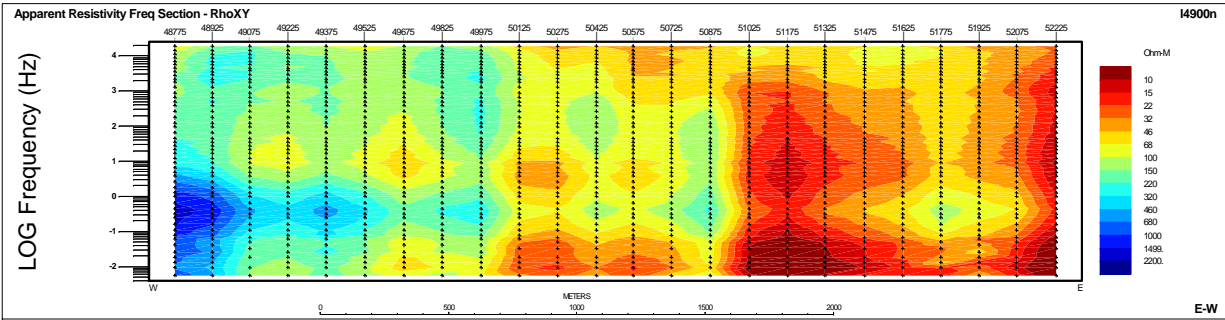
E.5 LINE 4600N



Line 4600N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

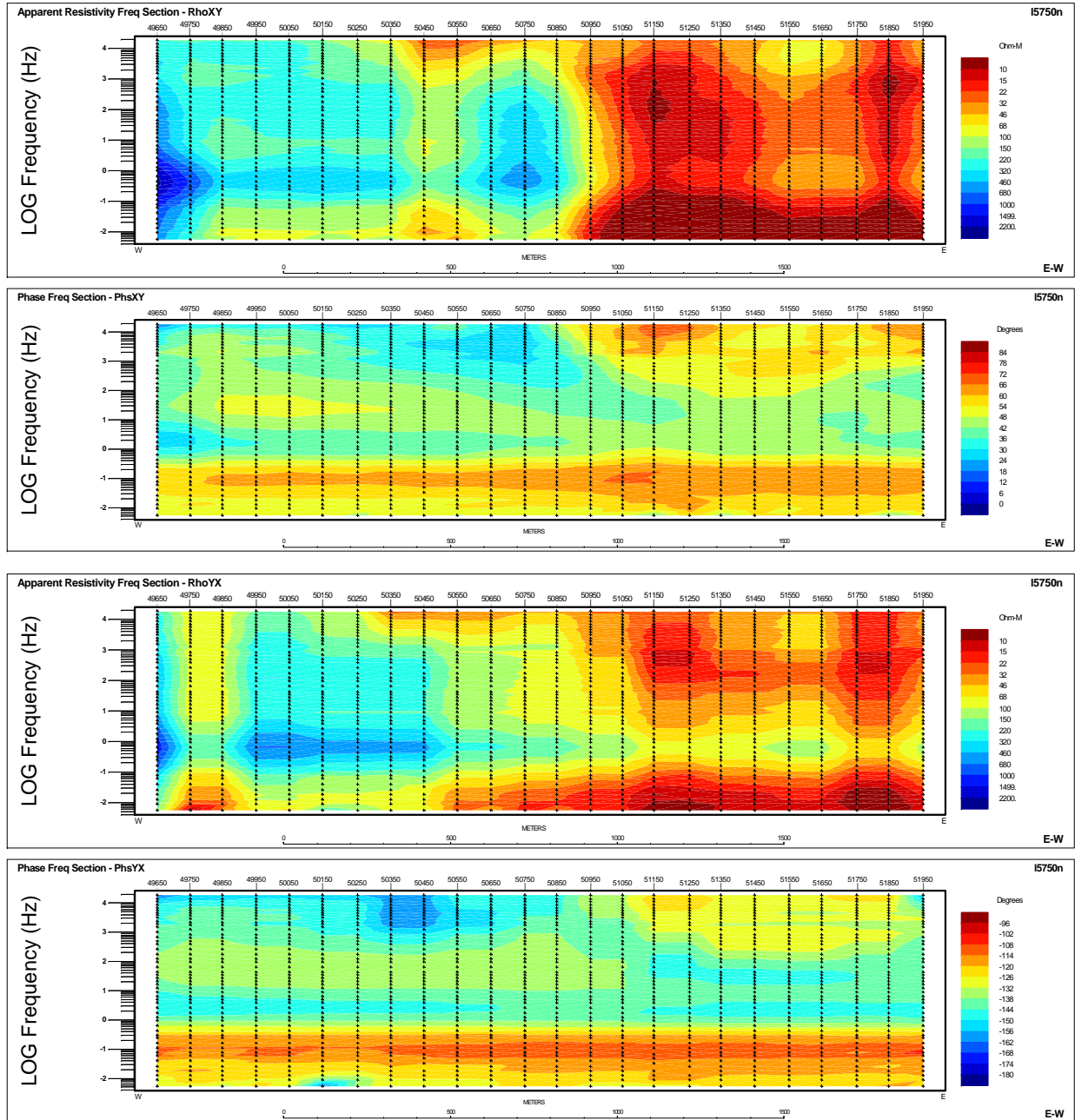
E.6 LINE 4900N



Line 4900N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

**STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
 WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
 AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)**

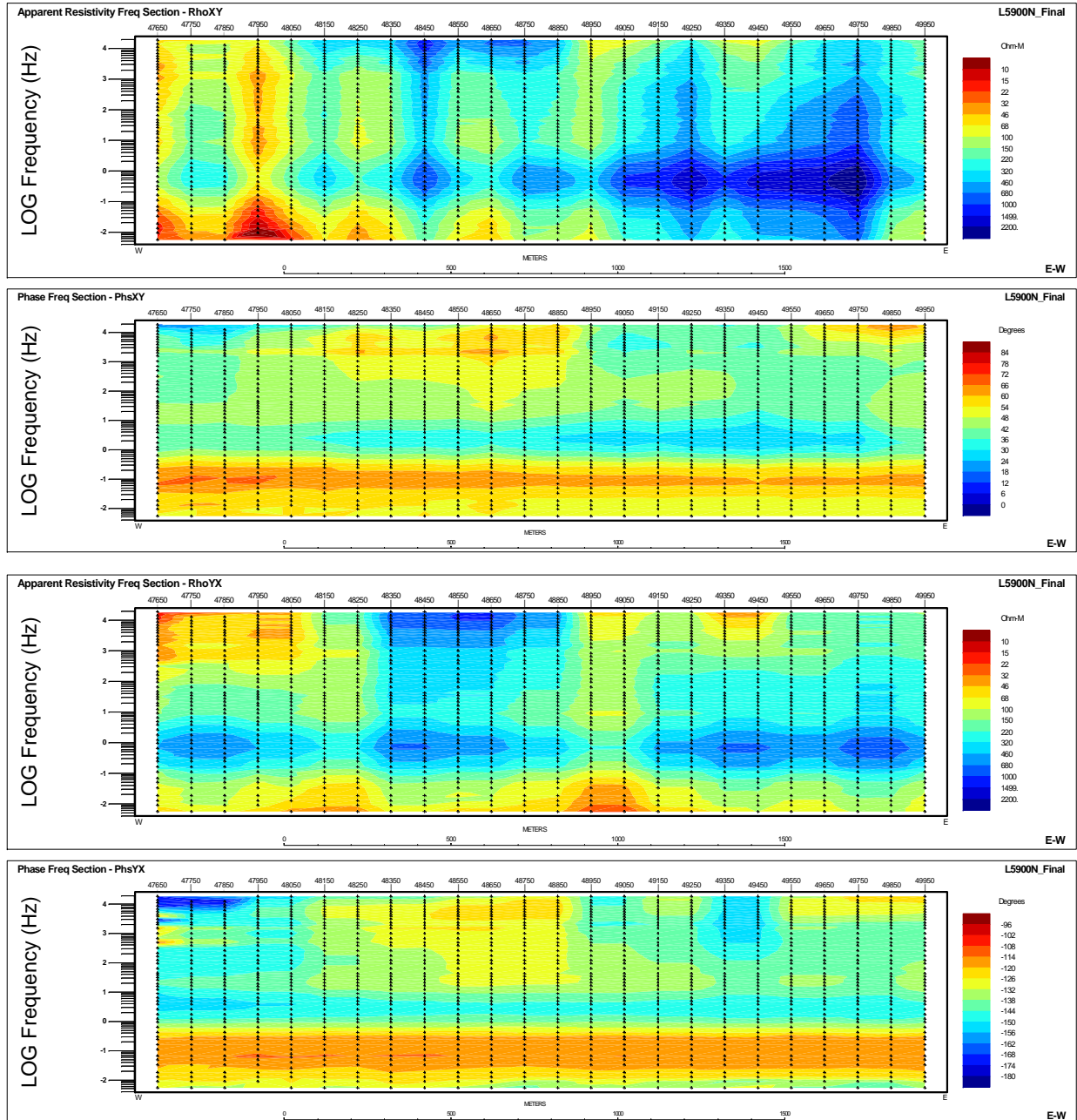
E.7 LINE 5750N



Line 5750N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

E.8 LINE 5900N



Line 5900N – Apparent Resistivity and Phase (XY & YX) Pseudo-Section.

STRIP 1 (TOP): RHO XY – STRIP 2: PHASE XY – STRIP 3: RHO YX – STRIP 4 (BOTTOM): PHASE YX
WHERE XY DENOTES ELECTRICAL (EX) FIELD AND ORTHOGONAL MAGNETIC (HY) FIELD (=EX/HY)
AND YX DENOTES ELECTRICAL (EY) FIELD AND ORTHOGONAL MAGNETIC (HX) FIELD (=EY/HX)

F PARALLEL SENSOR TEST I

Project CA00857T
Date: July 9TH, 2011
Report by: Shelley Julio & Joanne Cowburn
Staff: Warren Gregory
Taylor Reeme

QuickLay Version 4.00.010
Common folder V1.50
Datum: UTM WGS 84 / Zone 9U
Station: 621372 m E, 5948930 m N
Coil Azimuth: 90°
Declination 22.5°E

Results:

All low frequency coils are tracking well and have high coherencies up to ~50Hz, where P50-1963 & P50-1969 deviate from all other coils.

High frequency coils BF6-5008 & BF6-6176 are coherent with each other, while the other high frequency coils are coherent with each other.

F.1 LOW FREQUENCY COILS

Available Coils:

TS Strip	Manufacture	Serial #	Task for
1	Phoenix	P50-1963	Remote RmHx
2	Phoenix	P50-1969	Remote RmHy
3	Phoenix	P50-2114	Line LnHx
4	Phoenix	P50-2130	Line LnHy
5	Phoenix	P50-2131	Spare
6	Phoenix	P50-2203	Spare

Processing Parameters:

Parameters	Values
PSD Method	Welch
Window	Hanning
Window Length	2048
Segment Overlap	50%

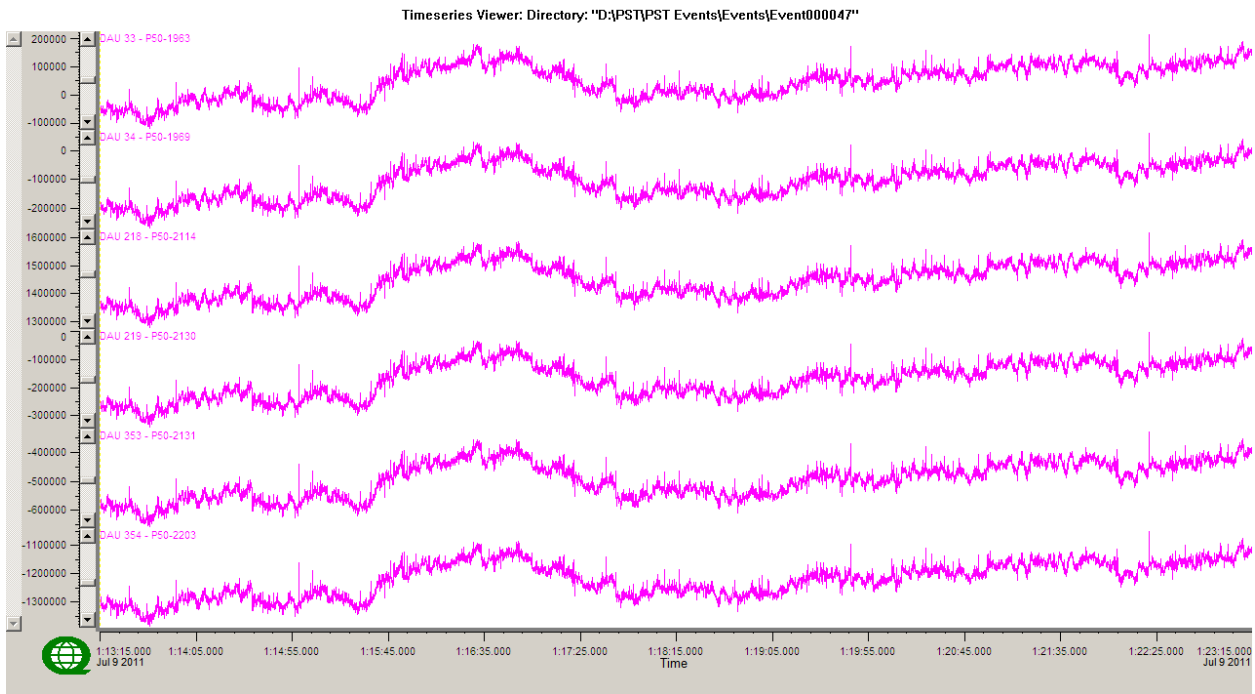
F.1.1 TEST RESULTS: 120SPS

Titan NetEvent: 9015.000047
 Sample Rate: 120sps
 TS Length: 72,000 samples (~5min)

Results:

All low frequency coils are tracking well and have high coherencies up to ~50Hz, where P50-1963 & P50-1969 deviate from all other coils.

Time Series

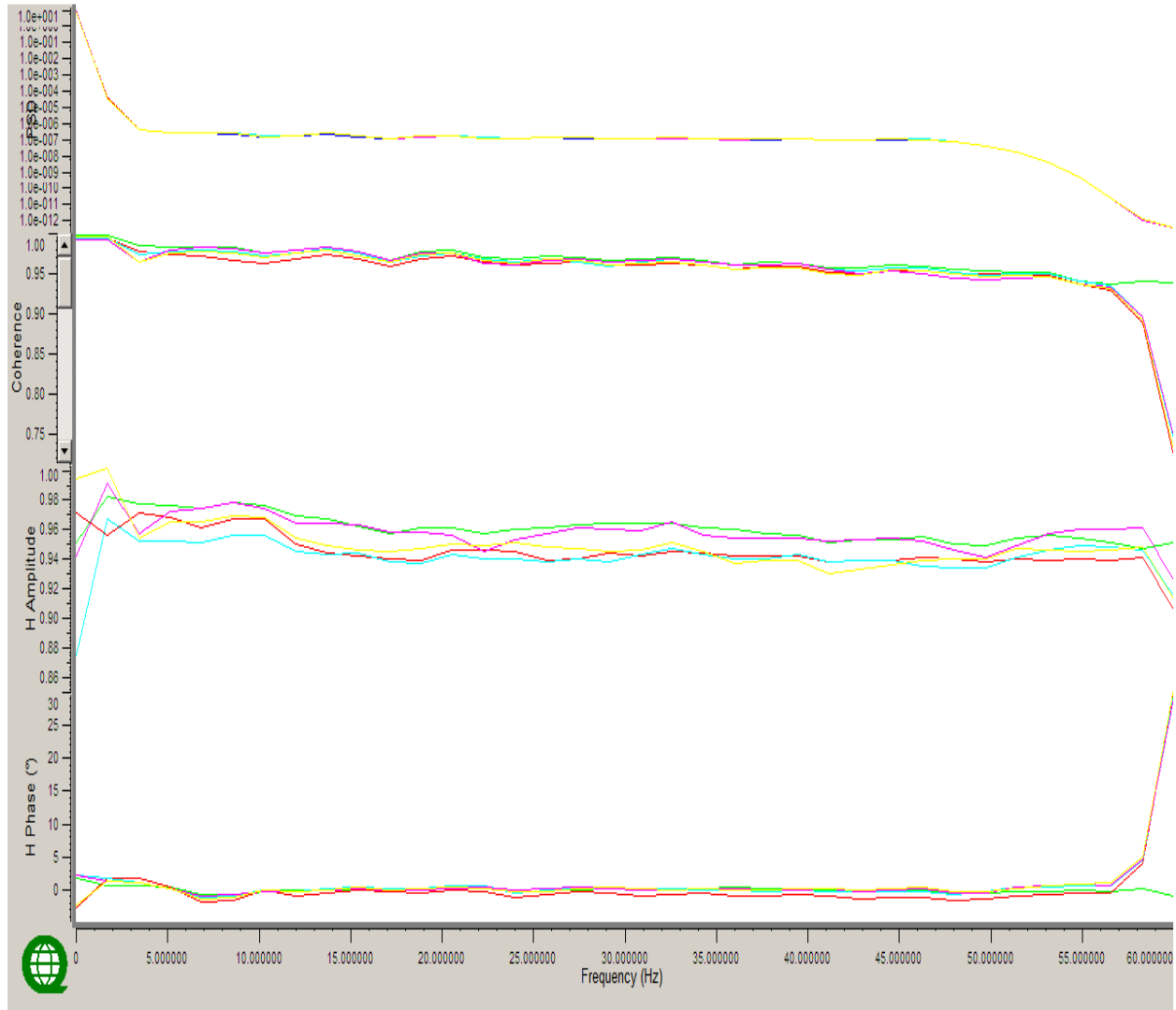


Complete time series @ 120sps

Low Frequency Coil Results

Coherency to P50-1963(Blue)

TS Coherency: DAU 33 - P50-1963 to Many



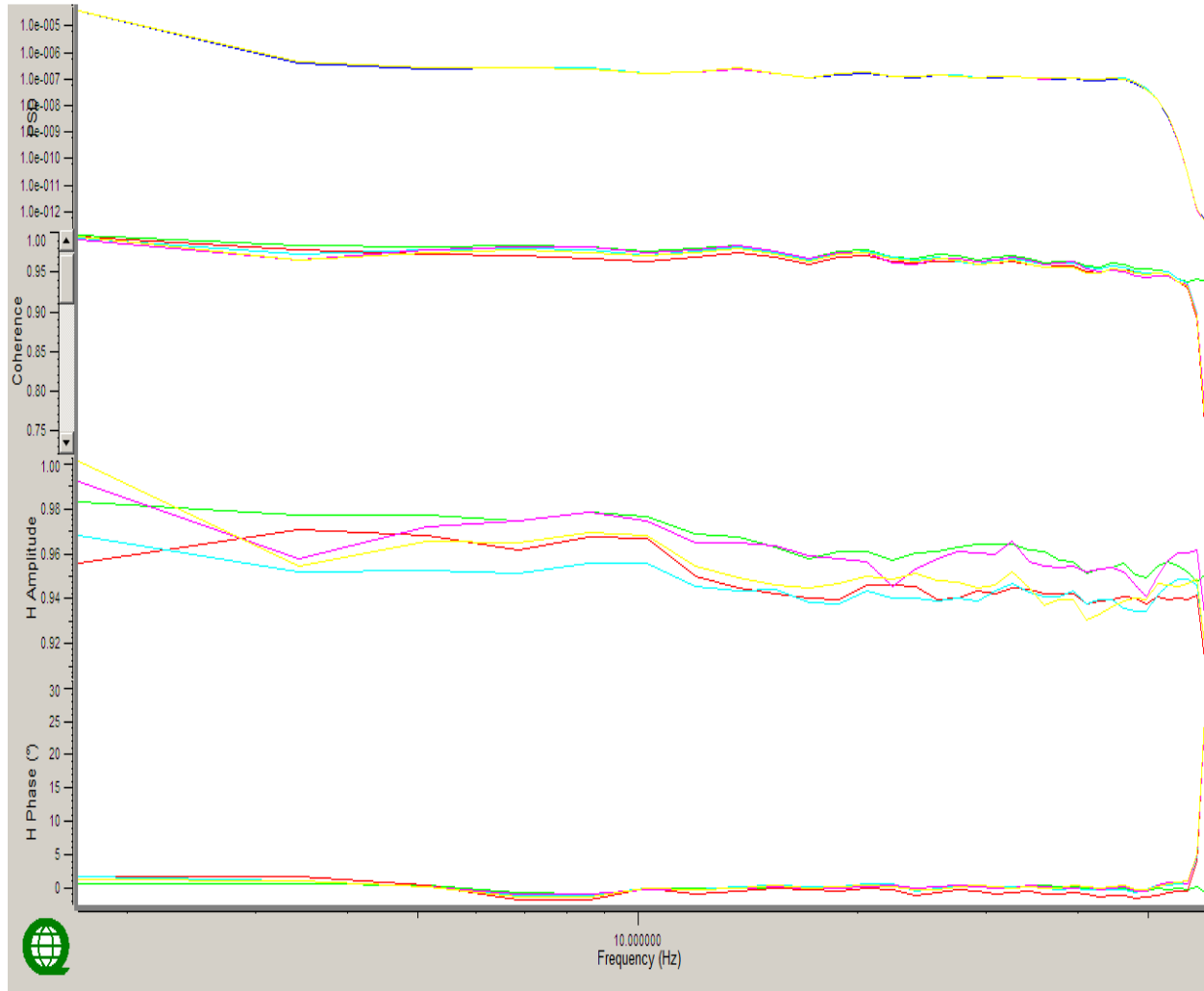
From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Linear frequency scale

Colour	Channel	Notes
Blue	P50-1963	Deviates in coherency at 50 Hz – where coherent with P50-1969
Green	P50-1969	Deviates in coherency at 50 Hz – where coherent with P50-1963
Red	P50-2114	
Cyan	P50-2130	
Magenta	P50-2131	
Yellow	P50-2203	

Low Frequency Coil Results (continued)

Coherency to P50-1963(Blue)

TS Coherency: DAU 33 - P50-1963 to Many



From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Logarithmic frequency scale

Colour	Channel	Notes
Blue	P50-1963	
Green	P50-1969	Deviates in coherency at 50 Hz
Red	P50-2114	
Cyan	P50-2130	
Magenta	P50-2131	
Yellow	P50-2203	

A.2 HIGH FREQUENCY COILS

Available Coils:

TS Strip	Manufacture	Serial #	Task for
1	EMI	BF6-5007	Remote RmHx
2	EMI	BF6-5008	Spare
3	EMI	BF6-5009	Remote RmHy
4	EMI	BF6-6176	Spare
5	EMI	BF6-6179	Line LnHx
6	EMI	BF6-6277	Line LnHy

Processing Parameters:

Parameters	Values
PSD Method	Welch
Window	Hanning
Window Length	2048
Segment Overlap	50%

F.1.2 TEST RESULTS: 48KSPS

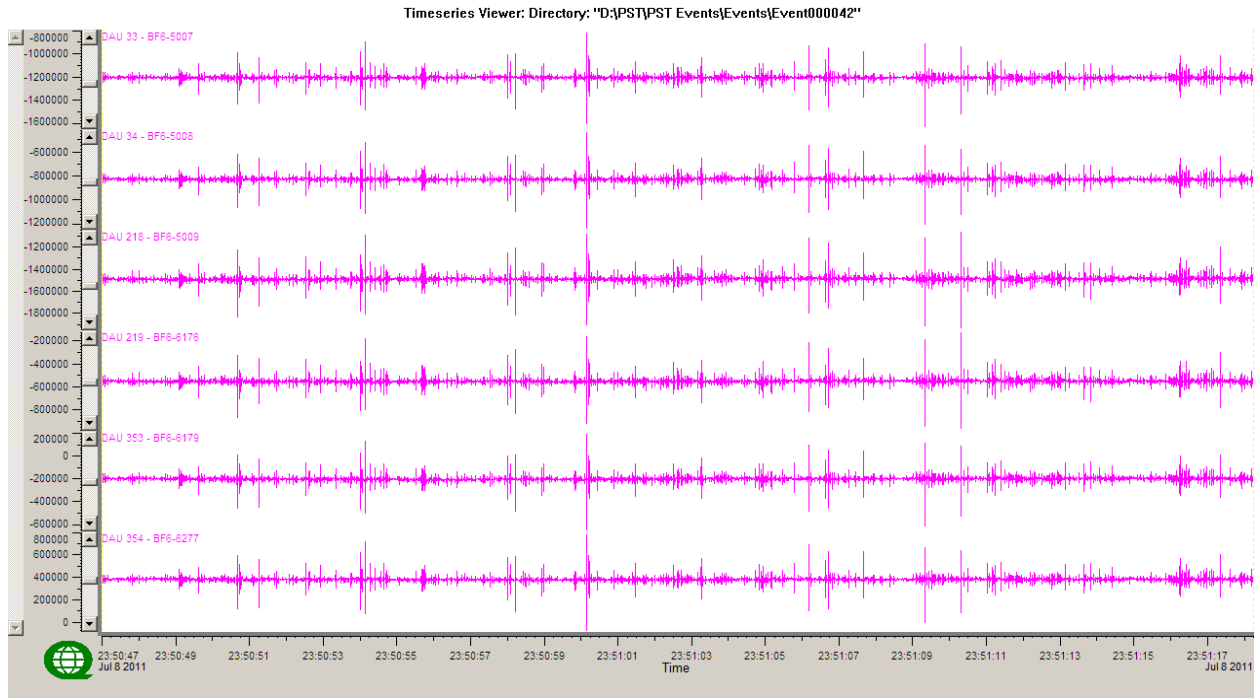
Titan NetEvent:	9015.000042
Sample Rate:	48ksps
TS Length:	1,500,000 samples (~31s)

Results:

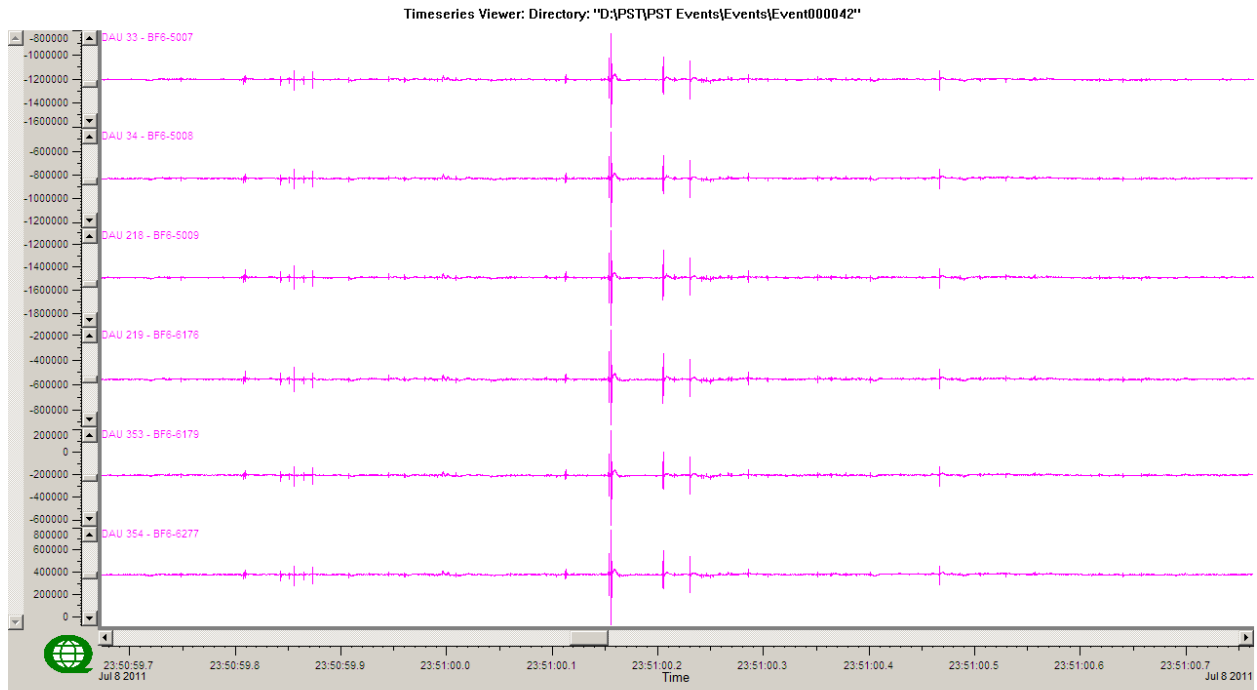
High frequency coils BF6-5008 & BF6-6176 are coherent with each other, while the other high frequency coils are coherent with each other.

Increase in deviation in H amplitude between 1900 Hz and 2300 Hz.

Time Series



Complete time series at 48kps.

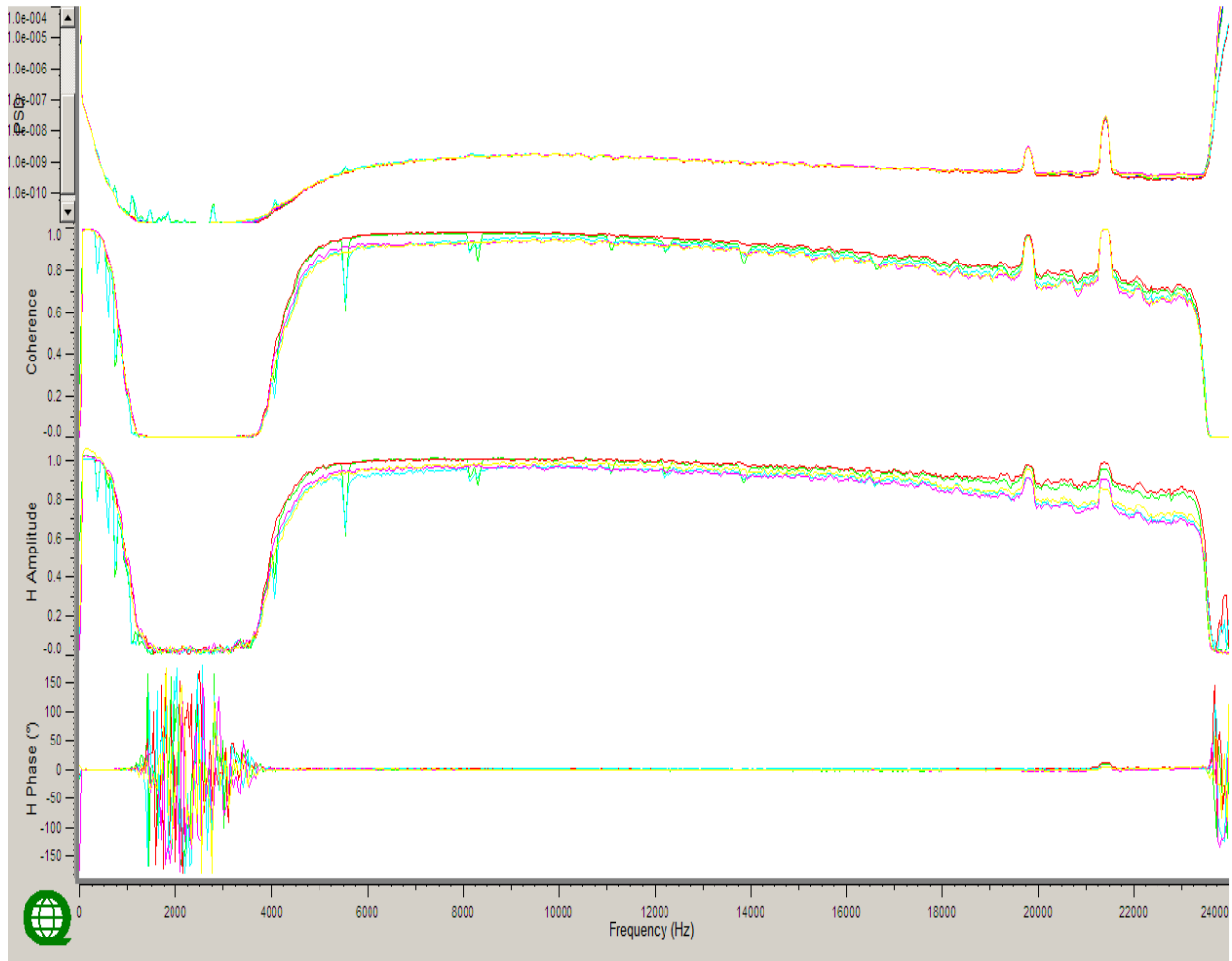


Time series focused in on ~1s at 48kps.

High Frequency (48k) Coil Results

Coherency to BF6-5007 (Blue)

TS Coherency: DAU 33 - BF6-5007 to Many

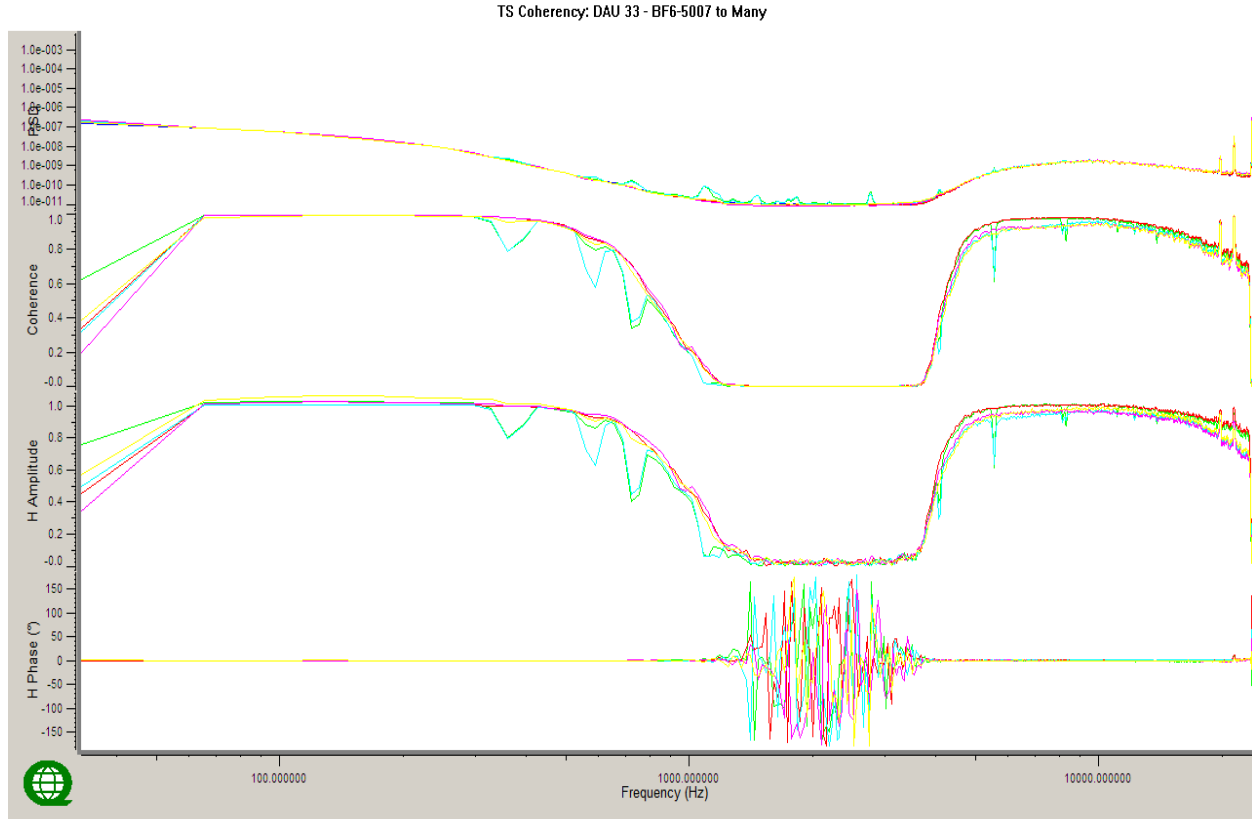


From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Linear frequency scale.

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	Coherent with BF6-6176
Red	BF6-5009	
Cyan	BF6-6176	Coherent with BF6-5008
Magenta	BF6-6179	
Yellow	BF6-6277	

High Frequency (48k) Coil Results (Continued)

Coherency to BF6-5007 (Blue)



From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Logarithmic frequency scale.

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	Coherent with BF6-6176
Red	BF6-5009	
Cyan	BF6-6176	Coherent with BF6-5008
Magenta	BF6-6179	
Yellow	BF6-6277	

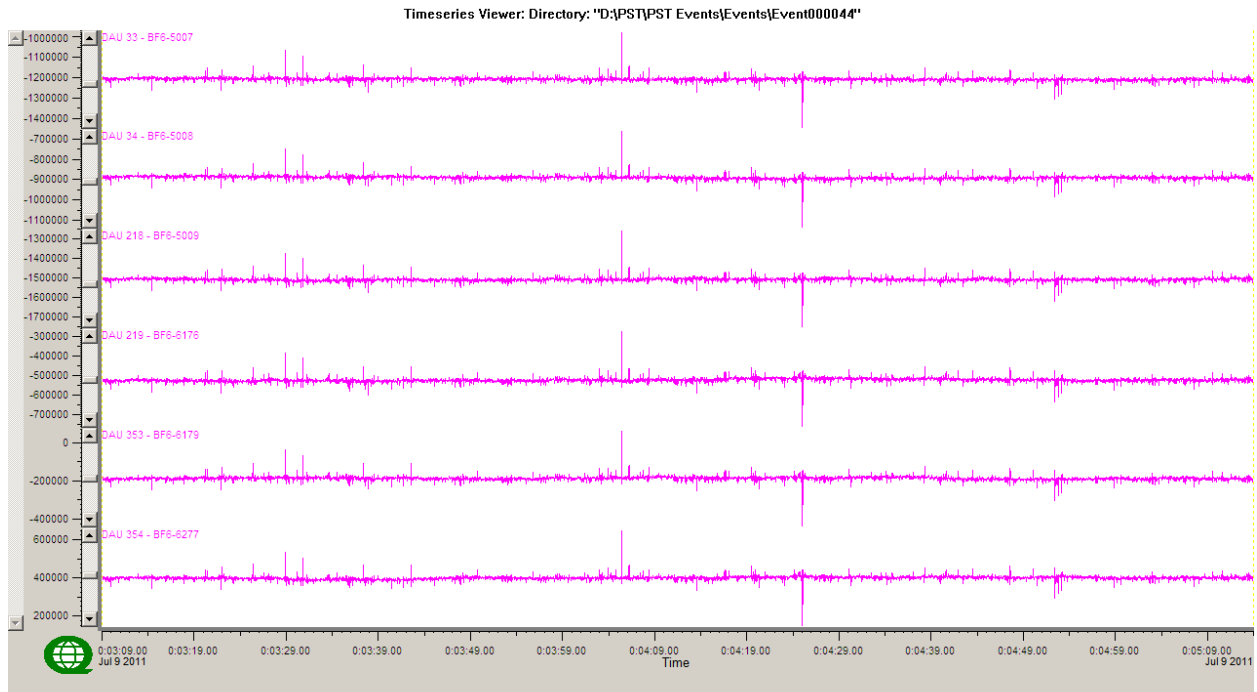
F.1.3 TEST RESULTS: 12KSPS

Titan NetEvent:	9015.000044
Sample Rate:	12ksps
TS Length:	1,500,000 samples (~2min)

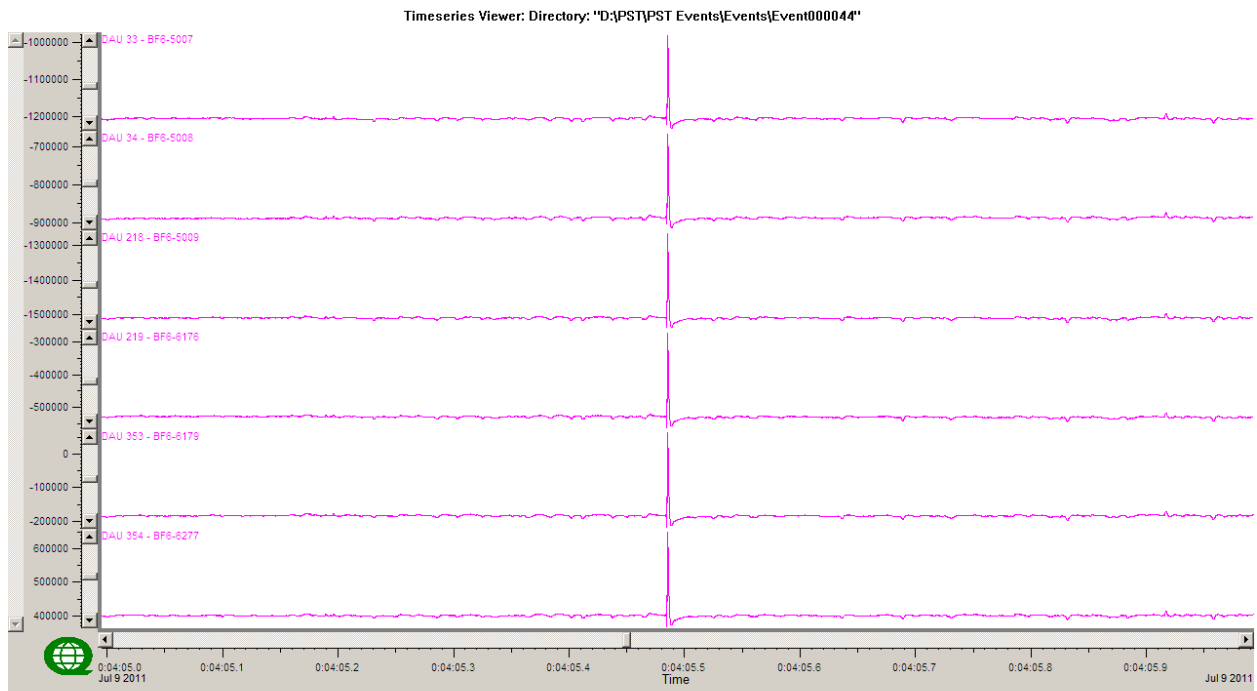
Results:

High frequency coils BF6-5008 & BF6-6176 are coherent with each other, while the other high frequency coils are coherent with each other.

Time Series



Complete time series 12ksp/s

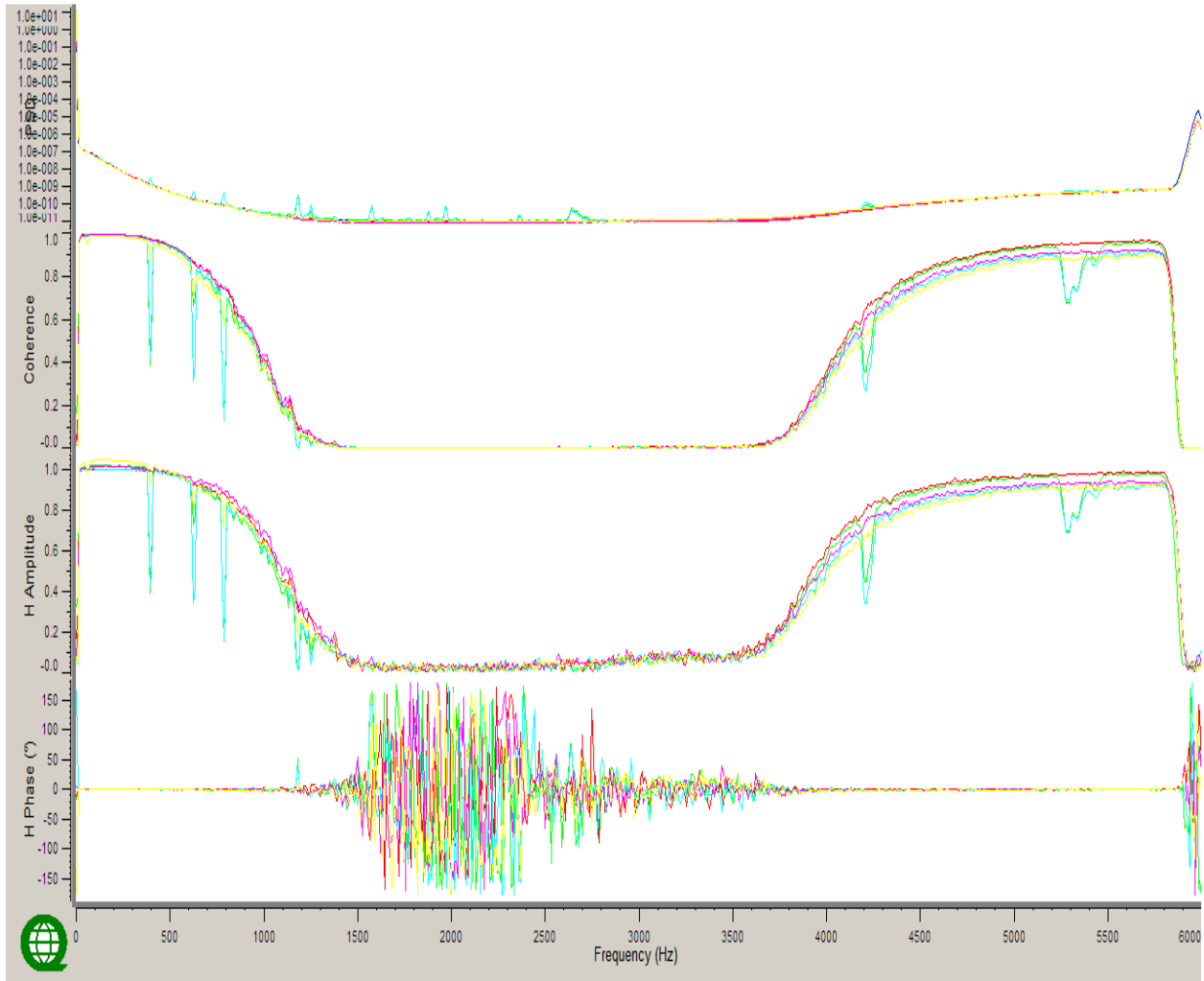


Focus on 1s of the time series 12ksp/s

High Frequency (12k) Coil Results

Coherency to BF6-5007 (Blue)

TS Coherency: DAU 33 - BF6-5007 to Many



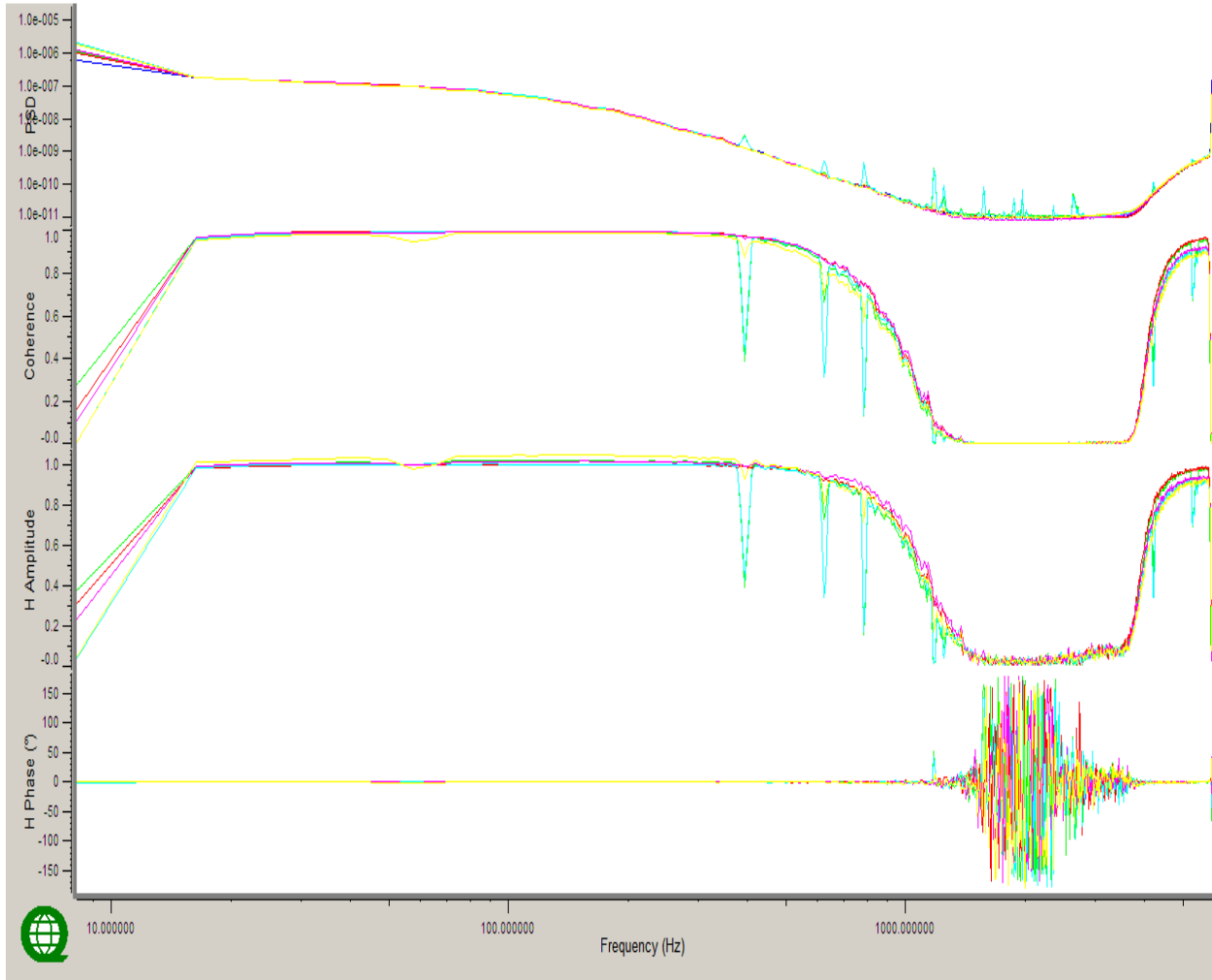
From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Linear frequency scale

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	Coherent with BF6-6176
Red	BF6-5009	
Cyan	BF6-6176	Coherent with BF6-5008
Magenta	BF6-6179	
Yellow	BF6-6277	

High Frequency (12k) Coil Results (Continued)

Coherency to BF6-5007 (Blue)

TS Coherency: DAU 33 - BF6-5007 to Many



From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Logarithmic frequency scale.

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	Coherent with BF6-6176
Red	BF6-5009	
Cyan	BF6-6176	Coherent with BF6-5008
Magenta	BF6-6179	
Yellow	BF6-6277	

G PARALLEL SENSOR TEST II

Project	CA00857T
Date:	July 10 TH , 2011
Report by:	Joanne Cowburn
Staff:	Shelley Julio Warren Gregory Taylor Reeme
QuickLay Version	4.00.010
Common folder	V1.50
Datum:	UTM WGS 84 / Zone 9U
Station:	621372 m E, 5948930 m N
Coil Azimuth:	90°
Declination	22.5°E

Results:

The coherency and H-amplitude of BF6-6176 deviate away from the other coils at frequencies greater than 4000Hz and dip at 400Hz.

To remedy this problem the coil cable was first connected to a different port on the spider then ultimately replaced twice– this coil’s coherency did not improve.

A.2 HIGH FREQUENCY COILS

Available Coils:

TS Strip	Manufacture	Serial #	Task for
1	EMI	BF6-5007	Remote RmHx
2	EMI	BF6-5008	Spare
3	EMI	BF6-5009	Remote RmHy
4	EMI	BF6-6176	Spare

Processing Parameters:

Parameters	Values
PSD Method	Welch
Window	Hanning
Window Length	2048
Segment Overlap	50%

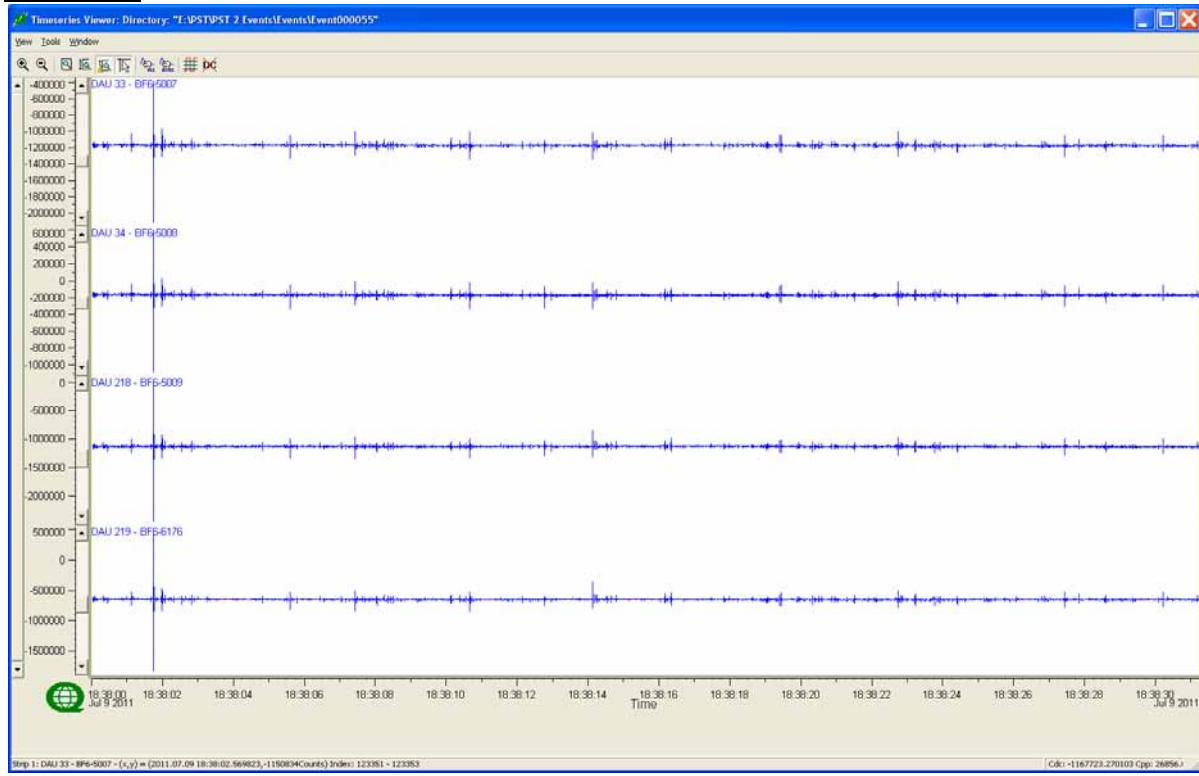
G.1.1 TEST RESULTS: 48KSPS

Titan NetEvent:	9015.000055
Sample Rate:	48ksps
TS Length:	1,500,000 samples (~31s)

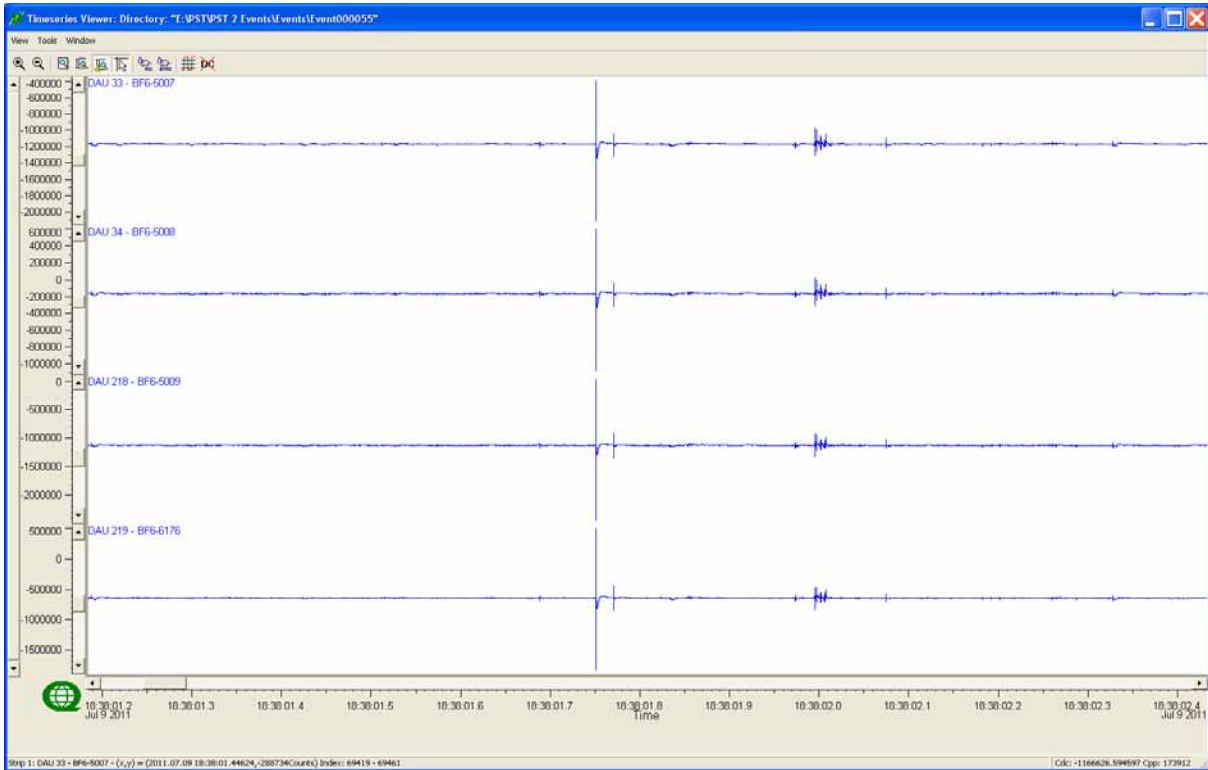
Results:

The coherency and H-amplitude of BF6-6176 are low in comparison with the other coils at frequencies greater than 4000Hz. There is also a dip in these vales at 400Hz for this coil.

Time Series



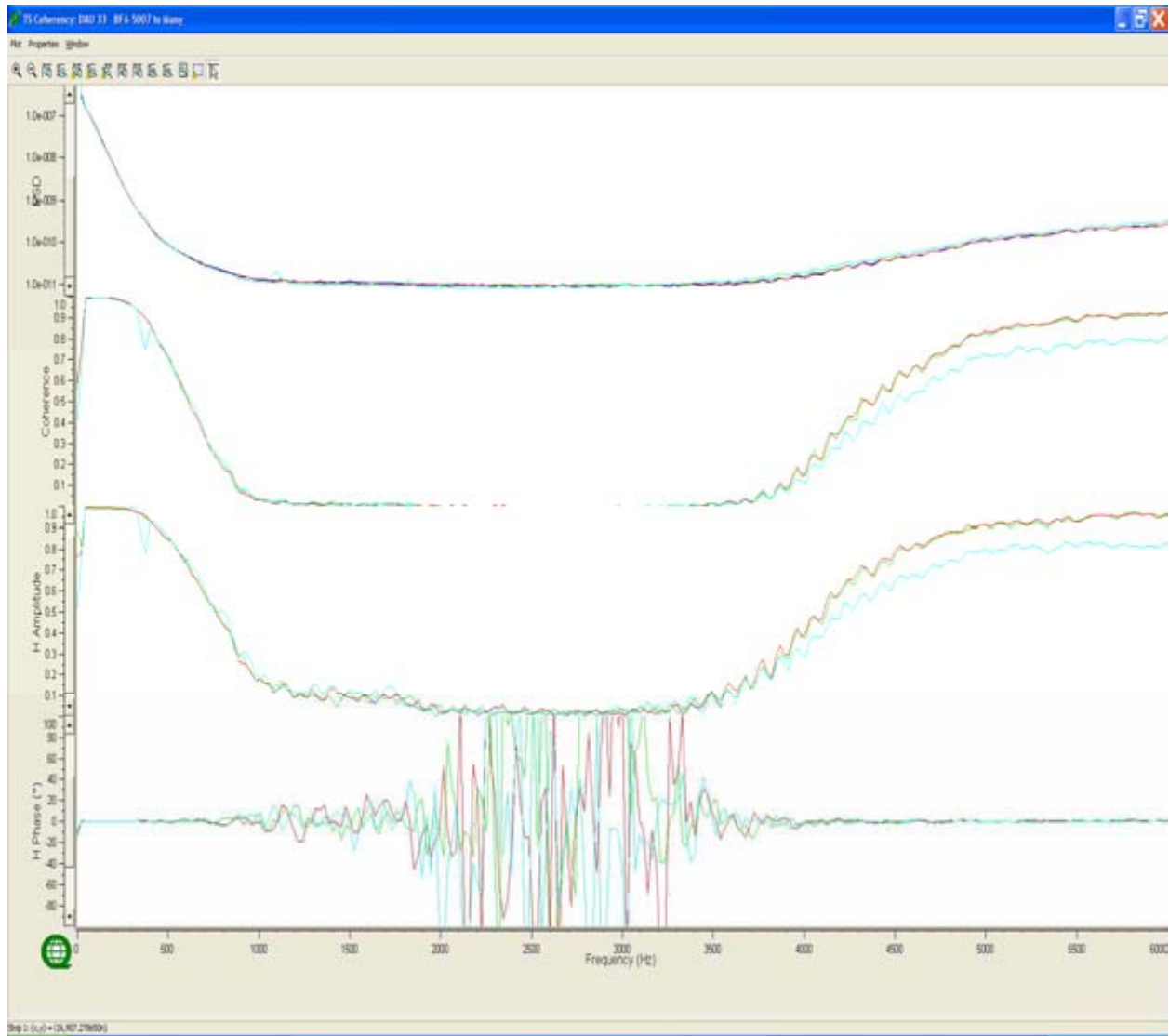
Complete time series at 48kps.



Time series focused in on ~1s at 48kps.

High Frequency (48k) Coil Results

Coherency to BF6-5007 (Blue)

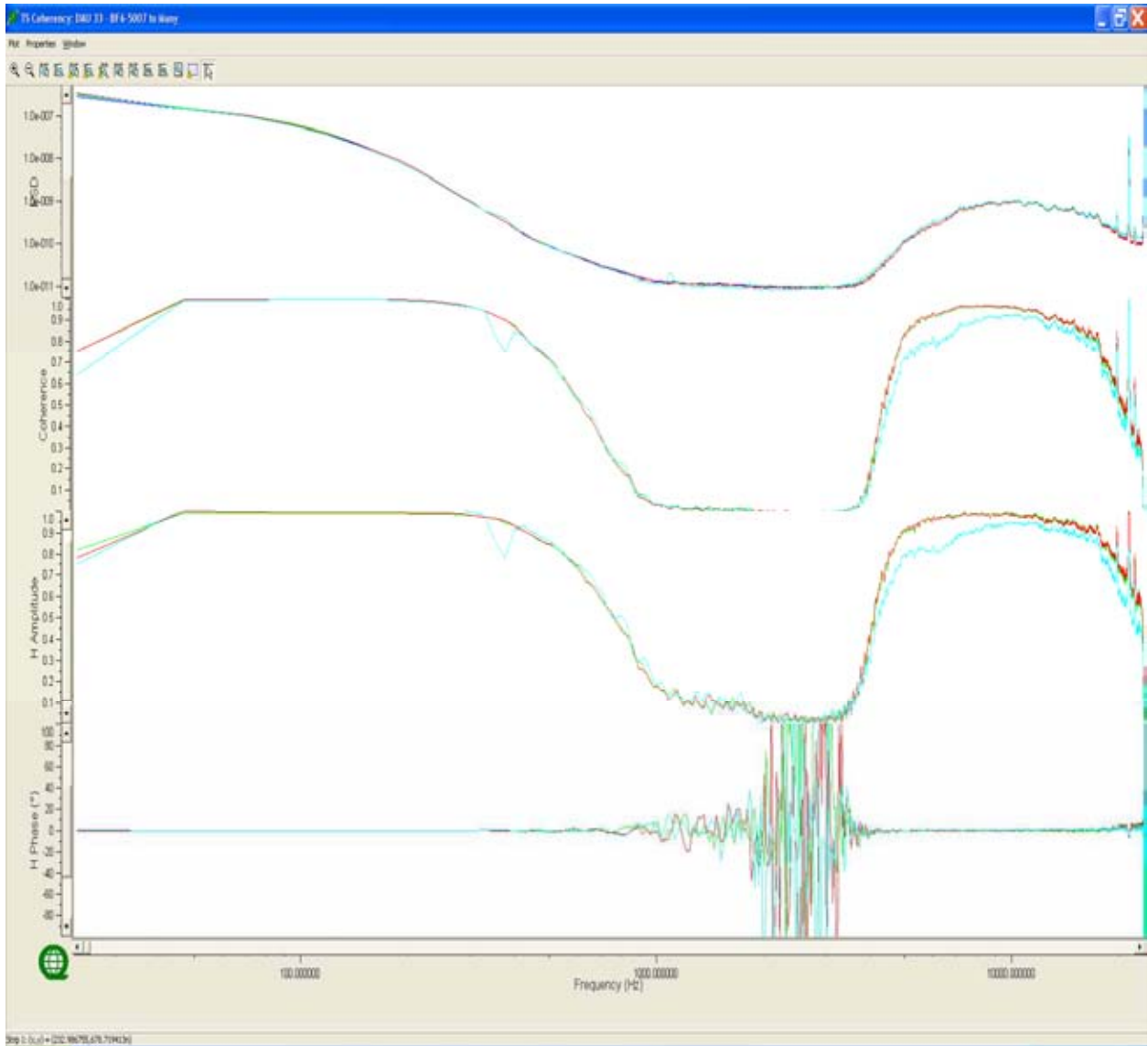


From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Linear frequency scale.

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	
Red	BF6-5009	
Cyan	BF6-6176	The coherency and H-amplitude deviate away from the other coils at 4000Hz and dip at 400Hz.

High Frequency (48k) Coil Results (Continued)

Coherency to BF6-5007 (Blue)



From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Logarithmic frequency scale.

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	
Red	BF6-5009	
Cyan	BF6-6176	The coherency and H-amplitude deviate away from the other coils at 4000Hz and dip at 400Hz.

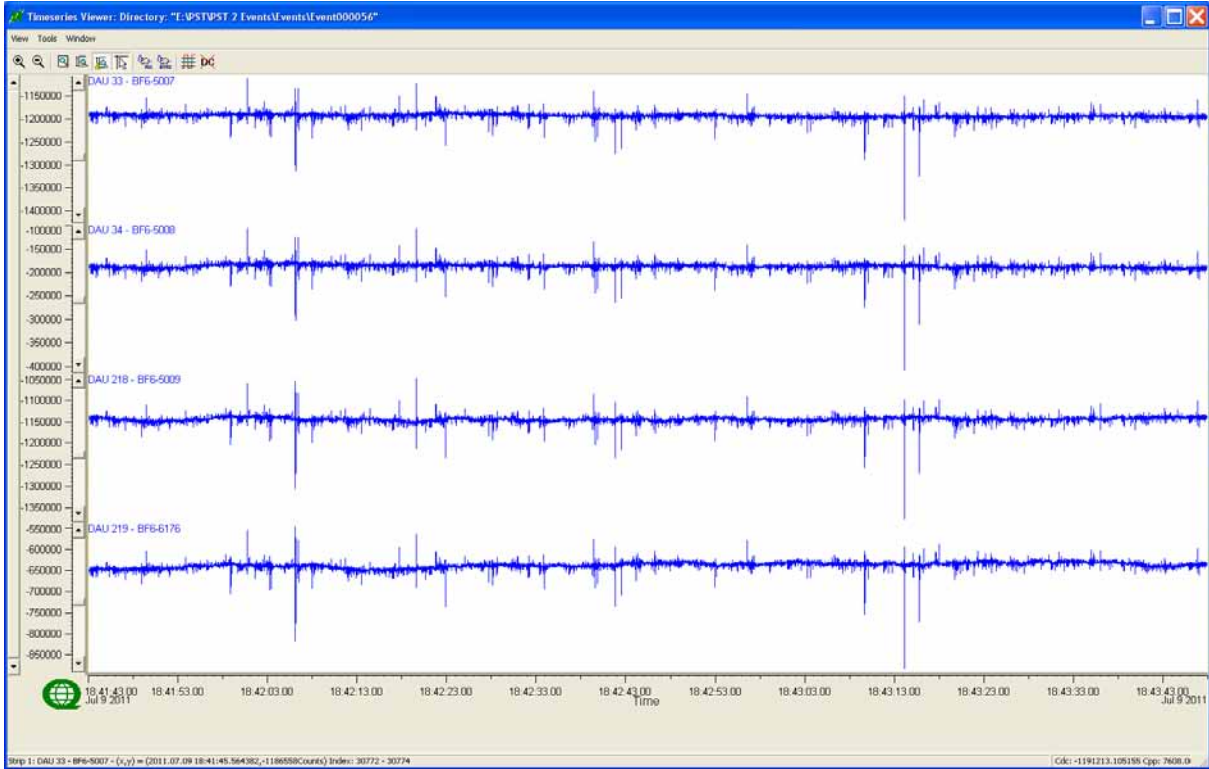
G.1.2 TEST RESULTS: 12KSPS

Titan NetEvent:	9015.000056
Sample Rate:	12ksps
TS Length:	1,500,000 samples (~2min)

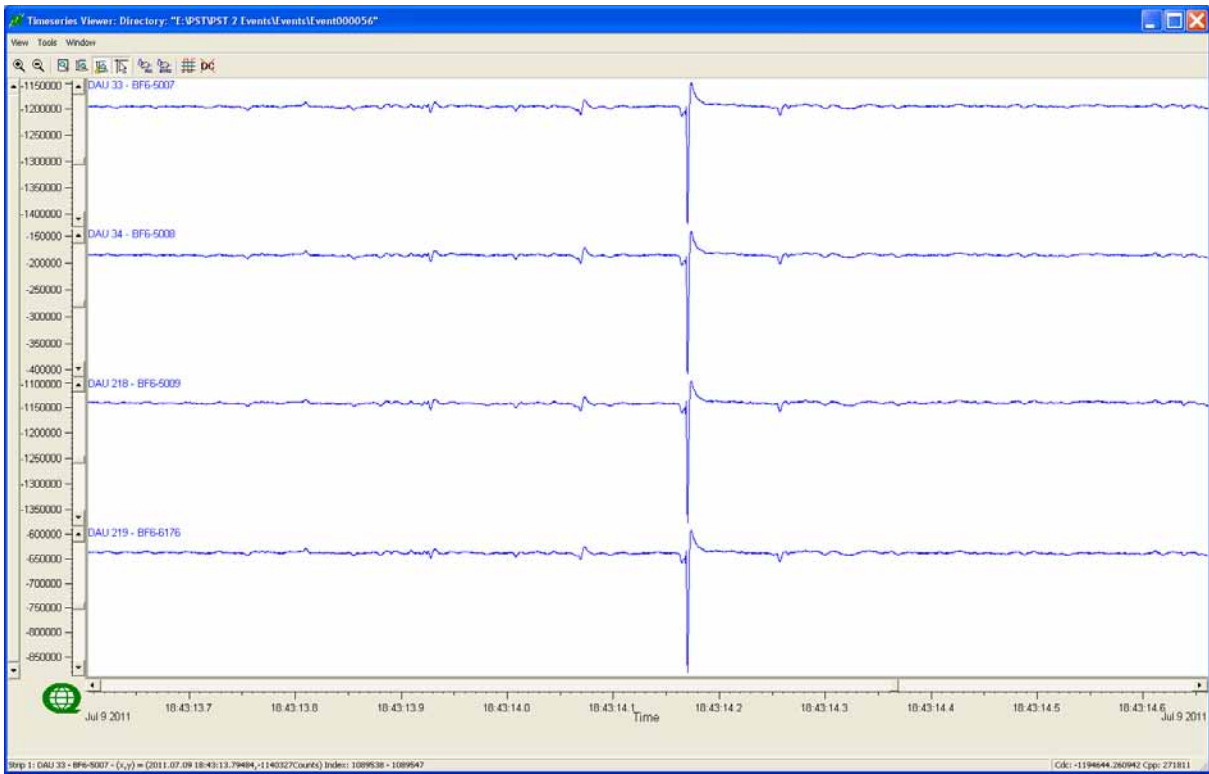
Results:

The coherency and H-amplitude of BF6-6176 are low in comparison with the other coils at frequencies greater than 4000Hz. There is also a dip in these vales at 400Hz for this coil.

Time Series



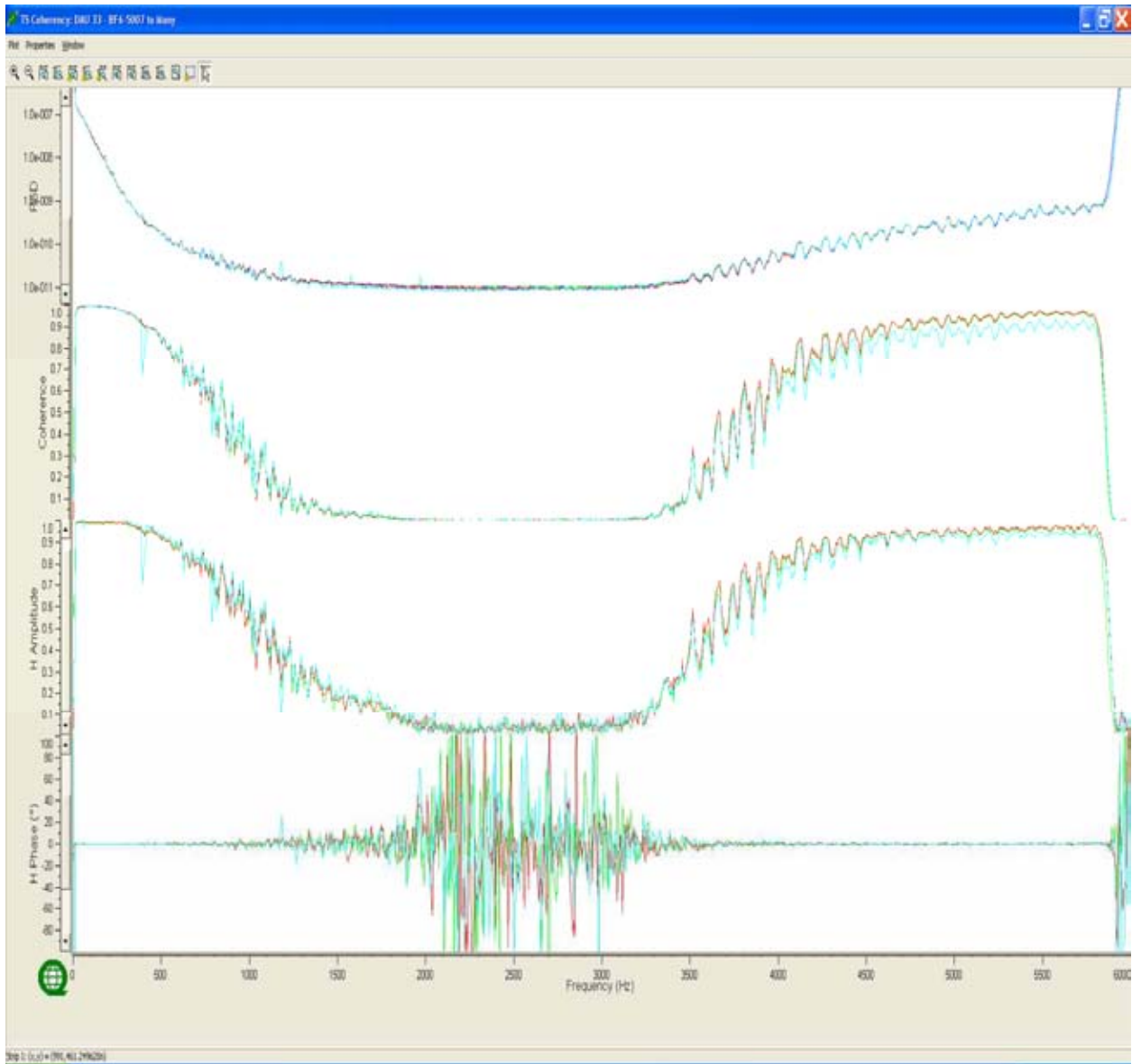
Complete time series 12kspS



Focus on 1s of the time series 12kspS

High Frequency (12k) Coil Results

Coherency to BF6-5007 (Blue)

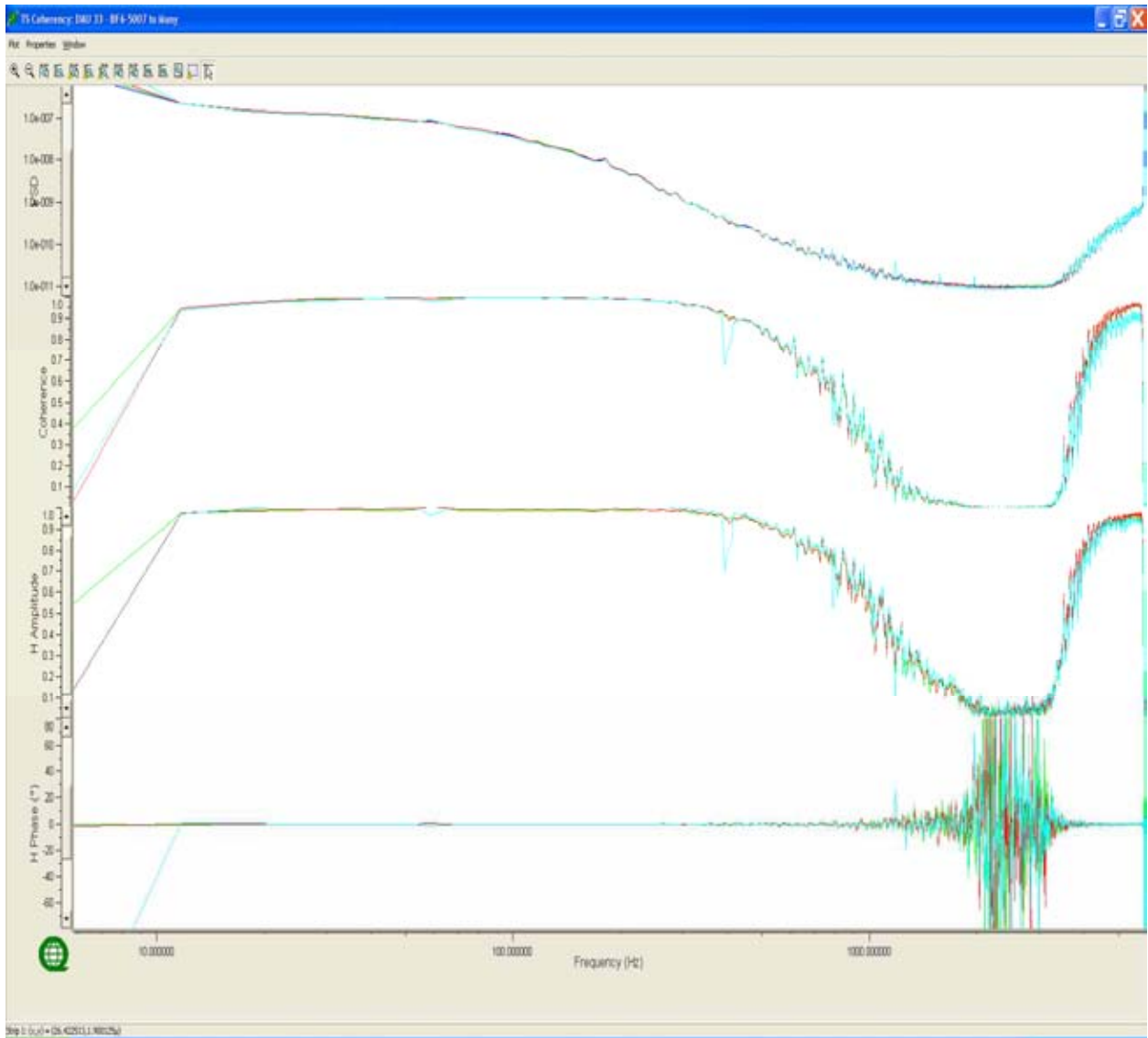


From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Linear frequency scale

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	
Red	BF6-5009	
Cyan	BF6-6176	The coherency and H-amplitude deviate away from the other coils at 4000Hz and dip at 400Hz.

High Frequency (12k) Coil Results (Continued)

Coherency to BF6-5007 (Blue)



From top to bottom: PSD of channels and Coherency and Response Function (Amplitude and Phase) compared to Reference Channel – Logarithmic frequency scale.

Colour	Channel	Notes
Blue	BF6-5007	
Green	BF6-5008	
Red	BF6-5009	
Cyan	BF6-6176	The coherency and H-amplitude deviate away from the other coils at 4000Hz and dip at 400Hz.

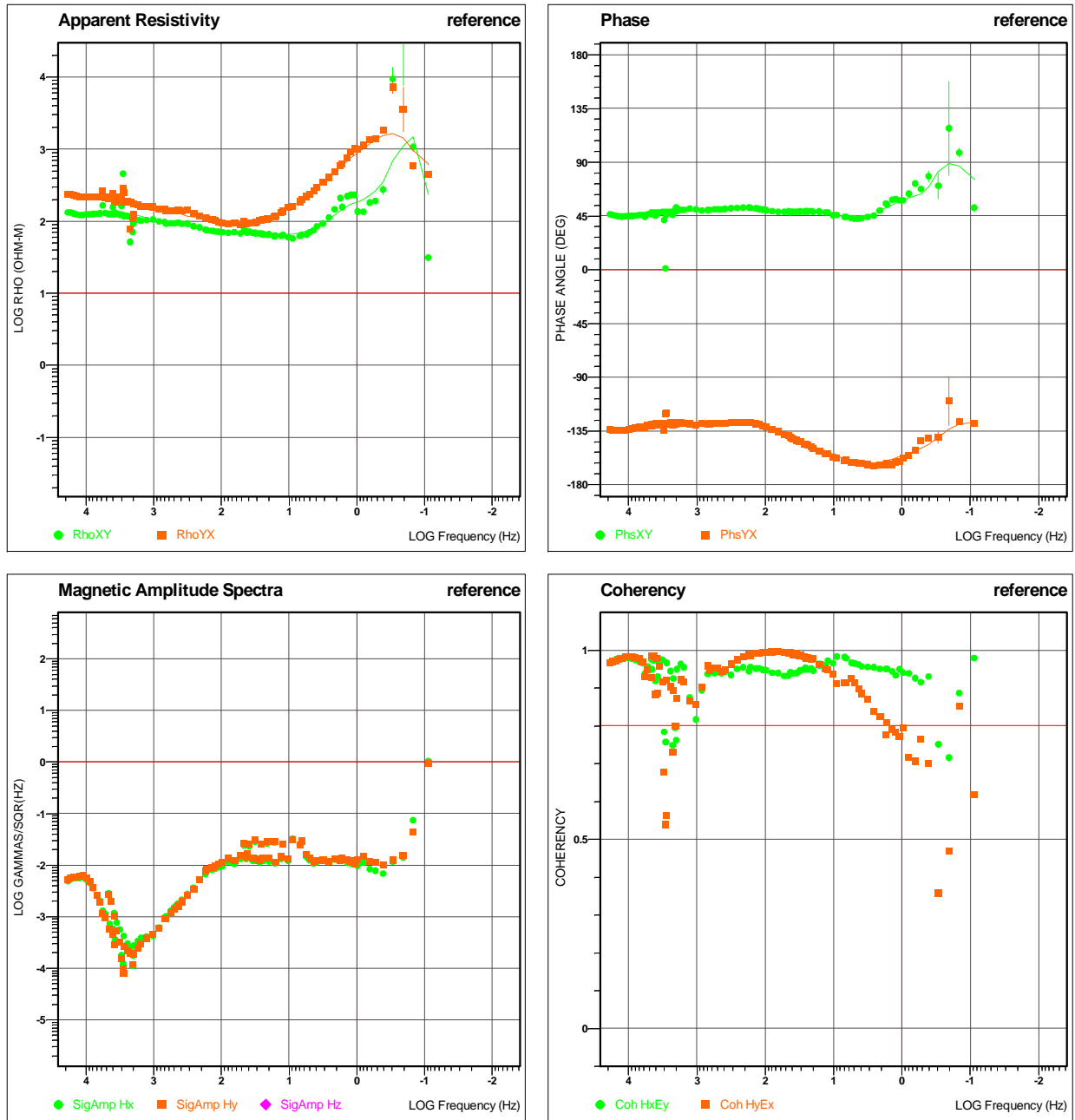
H MT REMOTE – UNREFERENCED DATA

Project CA00857T
Date: July 10th, 2011
Report by: Joanne Cowburn
QuickLay Version 4.00.010
Common folder V1.50
Remote Location: 621372mE / 5948930mN (WGS 84 / Zone 9U)
 (approx. 30 km SW from Breakwater Project)
Magnetic Declination: 22.5° East
Sensor Azimuth: **Ex** 90° North dipole = 100m
Ey 0° West dipole = 100m
Hx 90° North
Hy 0° West
Culture: N/A

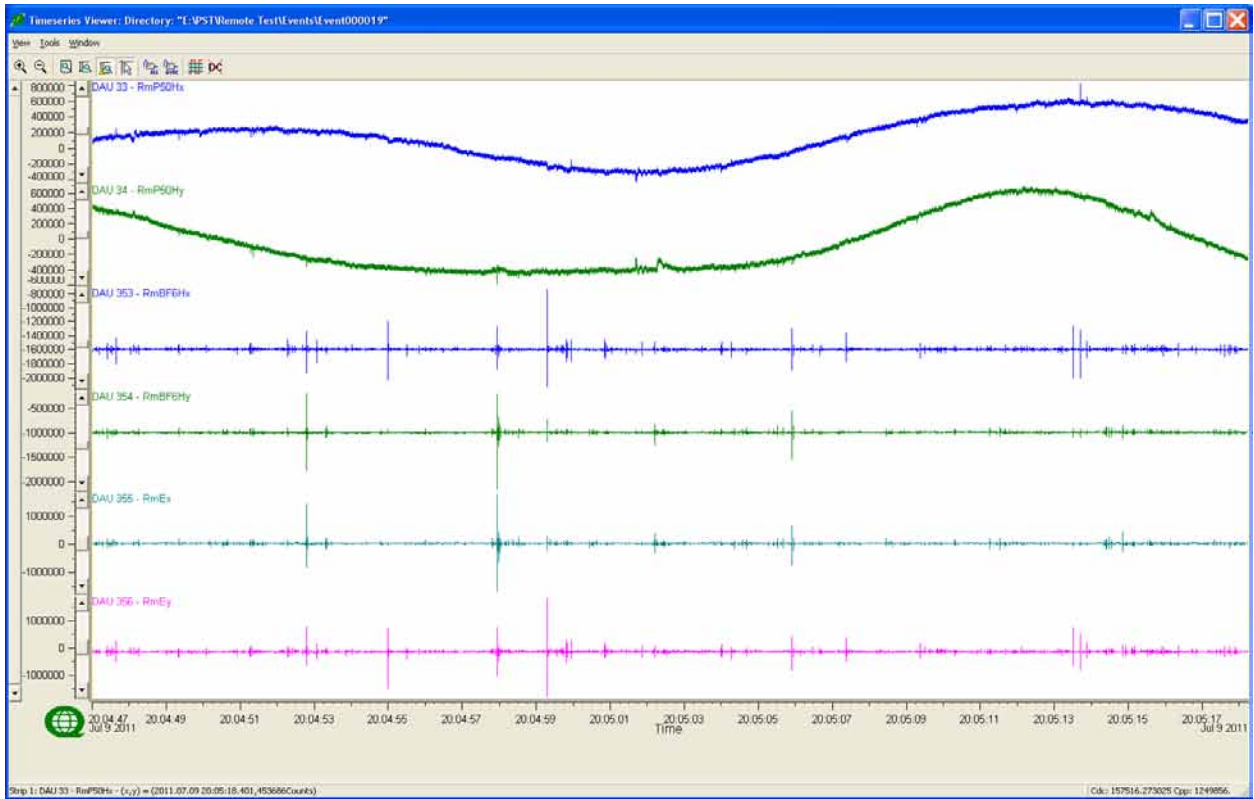
Details below ALL the data used and processed for the test

TITAN DATA

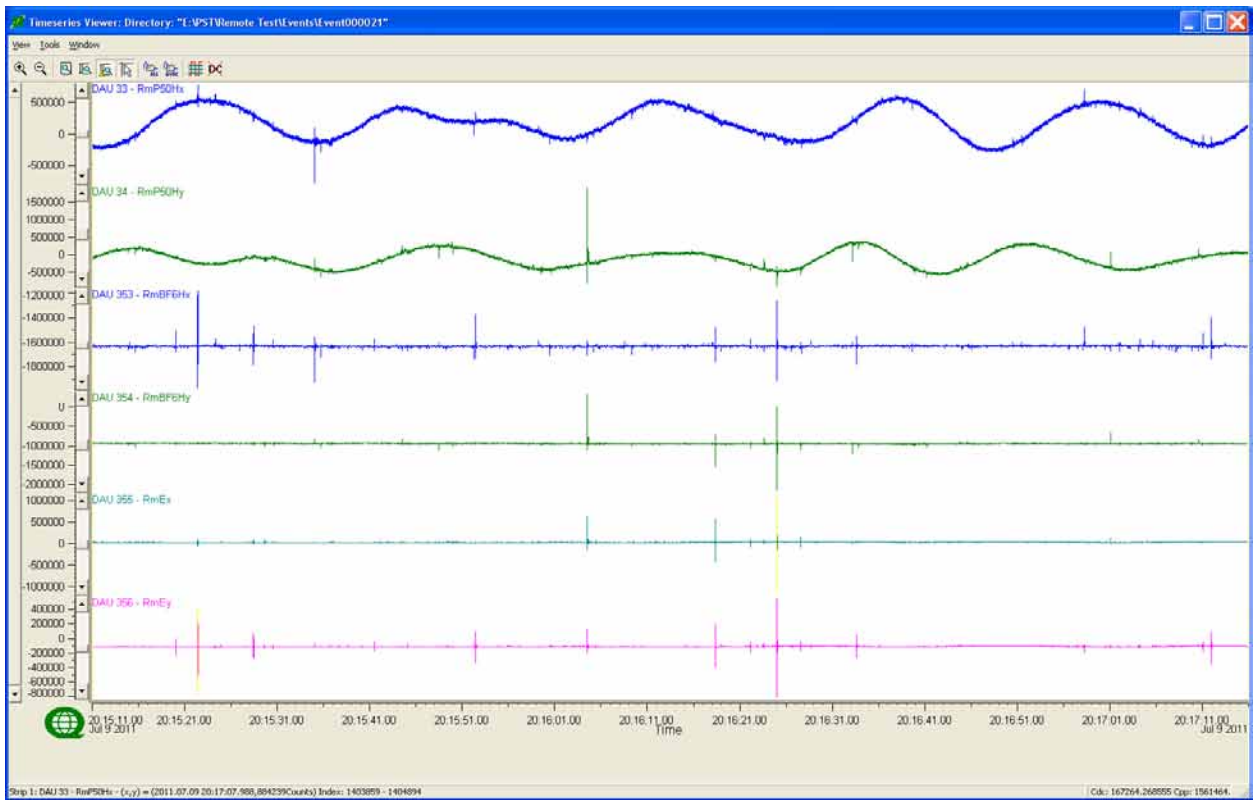
Sample Rate	Net Events	TS Length	Observations
48kps	9015.000019	32s	N/A
12kps	9015.000021	2m05s	Overscales on electrics
120sps	9015.000023	10m00s	Low signal



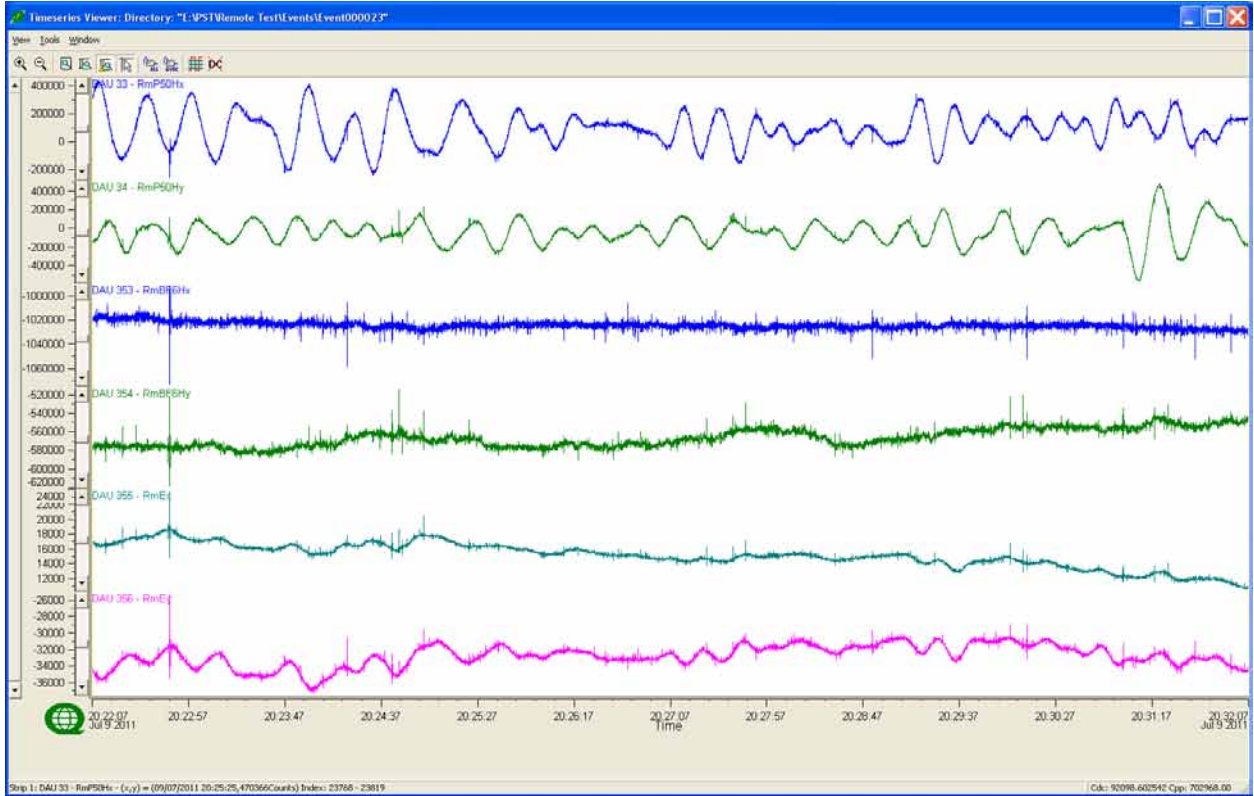
Apparent resistivity, phases, magnetic signal amplitude and off-diagonal coherences of the MT remote, data processed unreferenced.



Screen Capture of MT time series, sample rate at 48kps.



Screen Capture of MT time series, sample rate at 12kps.



Screen Capture of MT time series, sample rate at 120ksp.

I INSTRUMENTS SPECIFICATIONS

I.1 REF TEK – 120 DATA ACQUISITION SYSTEM

Refraction Technology Inc. – Plano, Texas

Specifications:

Specification	Description
Physical	
Size:	267 x 248 x 184 mm 10.5 x 9.75 x 7.25 in.
Weight:	3.7kg 305 g 8 lbs (2-Channels maximum weight))
Temperature:	-40°C to 60°C operating range.
Environmental:	Operates in 1m of water without leaking for 48 hours. Airtight to 1.0 psi.
Shock:	Remains operational after 1m drop (any corner) onto cement floor.
Connectors	
Line A & Line B:	A pair of identical 10 pin U77/U style connectors. Each connector provides 3 pairs of lines (+): A (+)/B (-) Receive telemetry data and/or commands C (+)/D (-) Transmit telemetry data and/or commands E (+)/F (-) Sync
Power:	PTO7A12-8S style connector. Provides input +12 VDC supplied from battery.
Sensor:	PU283/U style connector. Provides for a direct connection from the AM to the sensor.
Power Requirements	
Battery:	Two 12 volt lead acid battery (7 Ah).
Signal Input	
Input Impedance:	10 megohms, 330pF, differential
Broadband Dynamic Range:	130dB (noise power ratio test @ 125 sample per second [sps])
ADC Type:	Delta-sigma modulation
Sample Rate:	Multiple 50 to 48,000
Gain Settings:	Four – programmable for 1, 4, 16 and 64.

Specification	Description				
Sensor Input Signal Range:		24-Bit High Speed A/D		24-Bit Low Speed A/D	
	Gain	Actual	Reported	Actual	Reported
	1	1.192µV	78.12mV	1.907µV	125.0mV
	4	298.0nV	19.53mV	476.8nV	31.25mV
	16	74.51nV	4.883mV	119.2nV	7.812mV
	64	18.63nV	1.221mV	29.80nV	1.953mV
Data Storage					
Data Size:	32-bit two's compliment.				
Base Memory:	128K EPROM 6.5Mb SRAM				
Base Capacity:	Better than 1.5 million samples or approximately 3 hours 10 minutes continuous data @ 125 sps.				
AM Telemetry					
Protocol:	Full duplex synchronous data link control (SDLC).				
Error Correction:	Packet acknowledge with modulo 8 sliding window.				
Speed	3.072Mb/second				
Encoding:	Bi-phase pulse = 1, missing pulse = 0				
Line Impedance:	100 Ohm				
Synchronization					
Timing:	Each AM on-line is timed and synchronized for simultaneous sampling within + 1.50 µsecond.				
Protection					
Electrical Protection:	Line A and Line B signals circuits are protect by: - A surge arrestor located on the RT514 board (SS1-14). - A line isolation transformer located on the RT514 board (T1-6) with over-voltage diodes (D1-4) on both sides of each secondary windings				
State-of-Health					
Information Provided:	The AM reports information on battery status, clock setting, gain setting, calibration mode and the communications link.				

Acquisition Parameters

Acquisition parameters include the sample rate, transmitter frequency and number of samples desired. The operator can also determine whether the AMs calibration signal is activated during data collection.

In typical use, the acquisition parameters are set according to the specific application configuration and event type. For each event type, several recording sessions are made, each at a different transmitter frequency and sample rate. The recording period is set based on event type and transmitter frequency.

The listing below shows several examples of event type, typical transmitter frequency (Hz), sample rates (with applicable ADC resolution) and the corresponding number of samples (record period).

Event Type	Transmit Frequency	Sample Rate	ADC Resolution	Number of Sample
Geophysical Response	375 Hz	48,000	24	124,032
Gain Test	375	48,000	24	65,536
Geophysical Response	75	9,600	24	130,176
Gain Test	75	9,600	24	65,536
Geophysical Response	25/8	3,200	24	139,264
Gain Test	25/8	3,200	24	32,768
Sensor Impedance	N/A	1,600	24	8,704
Ambient Noise	N/A	1,600	24	8,192
Geophysical Response	25/128	800	24	147,456
Gain Test	25/128	800	24	16,384
Geophysical Response	25/2048	100	24	212,992
Gain Test	25/256	100	24	4,096
Gain Test	N/A	50	24	4,096
Geophysical Response	N/A	50	24	65,536

Sensor Calibration

The AM can source a 12.5Hz, 50µA signal to the sensor input for measuring the source impedance of the attached sensor. The user can also specify frequency in amplitude of calibration signal.

Telemetry Cable

The telemetry cable is a *Category V* specification cable and is supplied by the customer.

Sample Rates

The following table shows all available sample rates, based on a 12.288 Mhz oscillator. A 24-bit resolution ADC is used for sample rates 48000 through 4800 and a 24-bit resolution ADC is used for

sample rates 3200 and below. The correct ADC is selected automatically by the AM, based on the sample rate.

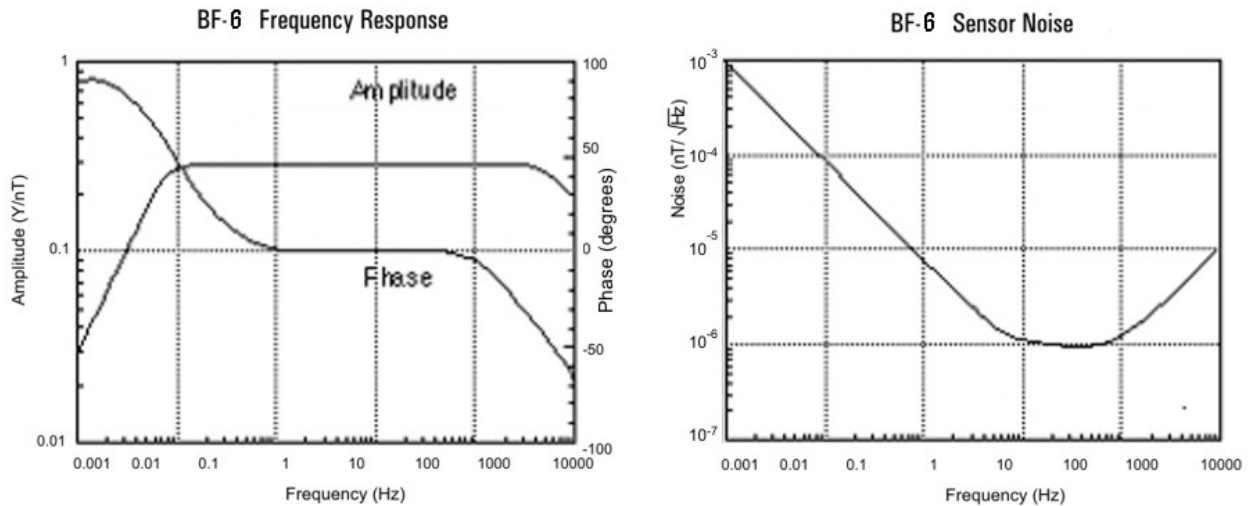
Typically, different sample rates and transmitter frequencies are used in 50 Hz and 60 Hz power environments to minimize AC power effects on the data. In the table, the shaded areas indicate the sample rates typically used in a 60 Hz power environment. A few rates are typically used in both environments.

Sample Rate	Power Line
48000	50 & 60
24000	50 & 60
19200	60
16000	50
12000	50 & 60
9600	50 & 60
6400	50
4800	60
3200	50
1920	60
1600	50
960	60
800	50
480	60
400	50
240	60
200	50
120	60
100	50
60	60
50	50
60/2	60
50/2	50
60/4	60
50/4	50
60/8	60
50/8	50
60/16	60
50/16	50
60/32	60
50/32	50

I.2 BF-6 MAGNETIC FIELD INDUCTION SENSOR

Schlumberger –EMI (Electromagnetic Instruments Inc.)Technology Center

The BF-6 sensor utilizes a magnetic feedback design to provide a stable flat response over several decades of frequency. The sensors respond as a B field detector over the flat band regions. Both the amplitude and phase responses are highly stable with variations of less than 0.1dB in amplitude and +/- one degree in phase between sensors. For the frequencies below the flat response region, the sensor response is proportional to signal frequency so that the sensor acts as a dB/dt detector. The coil is potted with epoxy and housed inside a rugged impact-resistant ABS tube. A matched low noise preamplifier is connected to the coil in a waterproof case and powered by an external +/- 12V power supply.



Features

- High sensitivity
- Very low noise
- Magnetic feedback design
- Ruggedized and waterproof
- Light weight and compact
- Low power consumption (210 mW)
- Stable phase response

Performance

- Frequency Range: 1 Hz to -100 kHz or 1 Hz to 25 kHz
- 3 dB frequency corners: 10 Hz, 25 kHz or 10 Hz, 100 kHz
- Sensitivity (flat region): 0.3 V/nT (standard)
- Power consumption: 9mA at +/-12V

Applications

- Magnetotellurics
- Audiomagnetotellurics
- Controlled-source electromagnetics
- Magnetometric resistivity
- Time domain electromagnetics

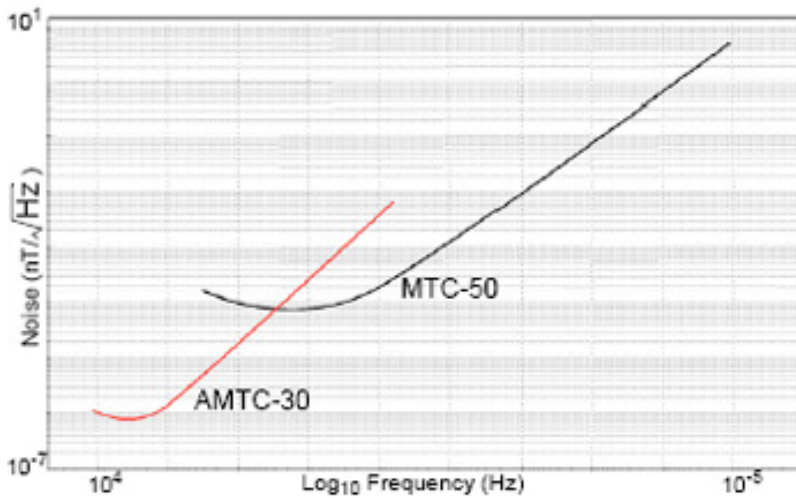
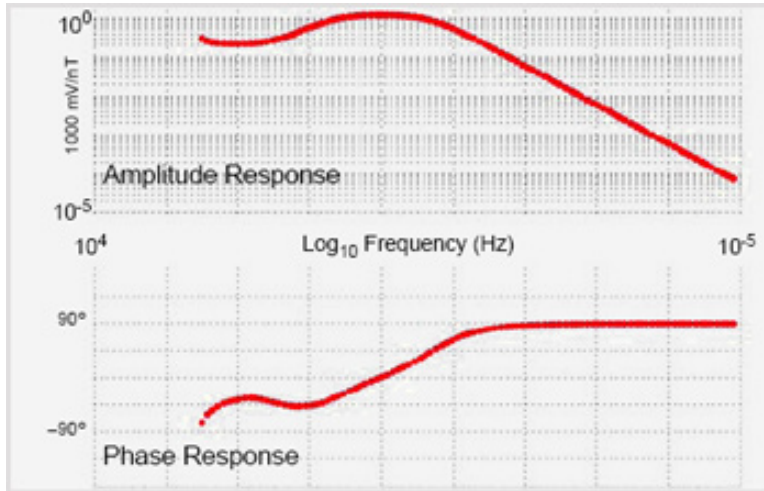
Physical

- Housing: High Impact ABS Straight Tube
- Length: 73 cm (29 inches)
- Diameter: 5 cm (2 inches)
- Weight: 1.7 kg (3.7 lbs)
- Connector: 8-pin Tajimi

I.3 MTC 50 (P50) SERIES MAGNETIC SENSORS

Phoenix Geophysics Ltd

MTC-50 magnetic sensor coils weigh just over 10 kg, and measure only 141 cm. They provide magnetotelluric data at frequencies between 400 Hz to 0.00002 Hz.

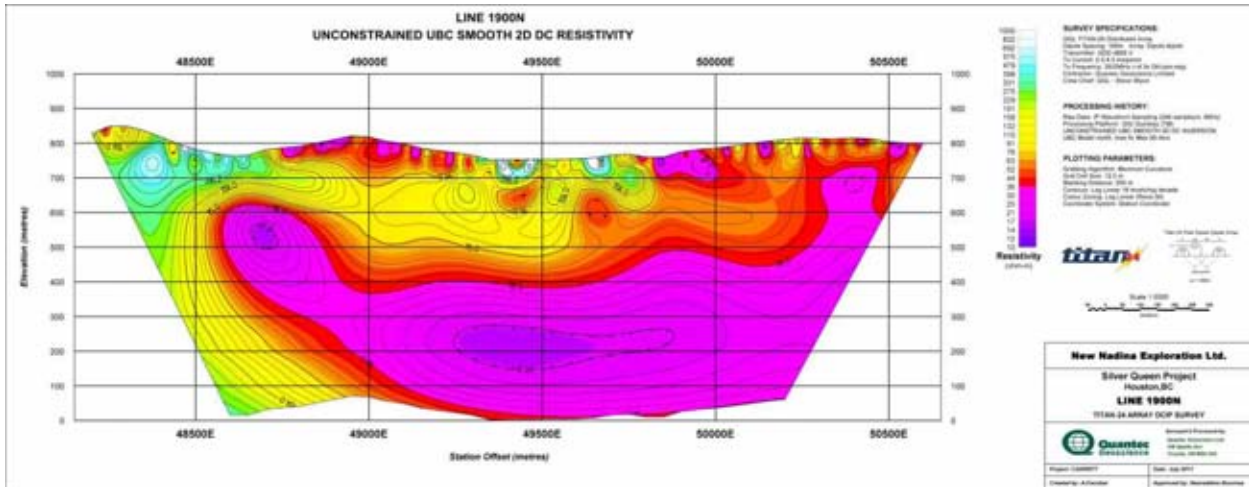


Technical Specifications

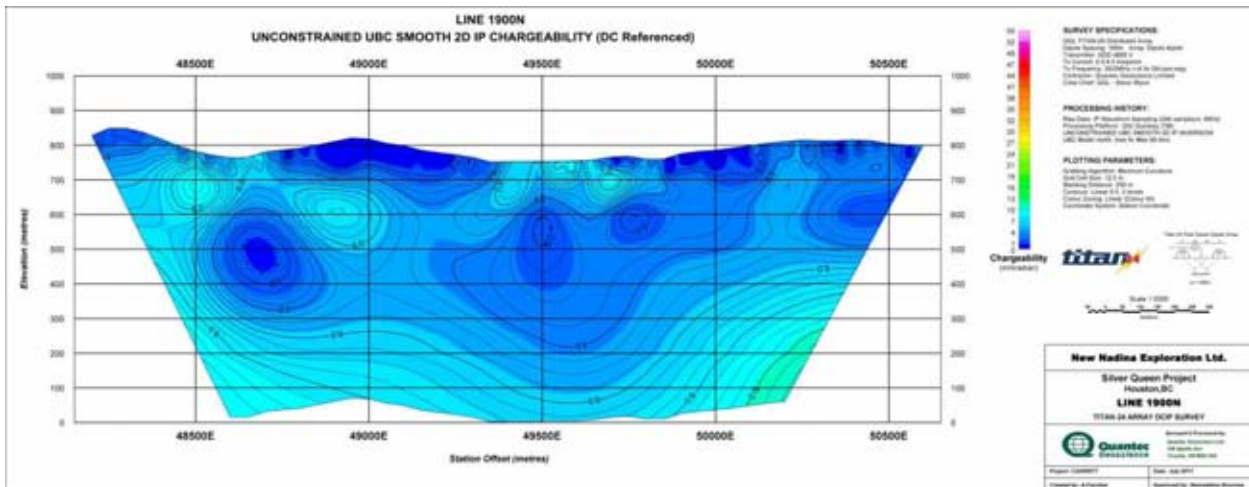
- Overall Length : 141 cm
- Outside Diameter : 6.0 cm
- Weight : 10.5 kg
- Frequency Range (for MT) : 400 Hz to 0.00002 Hz

J GEOSOFT SECTIONS OF THE 2D MODELS

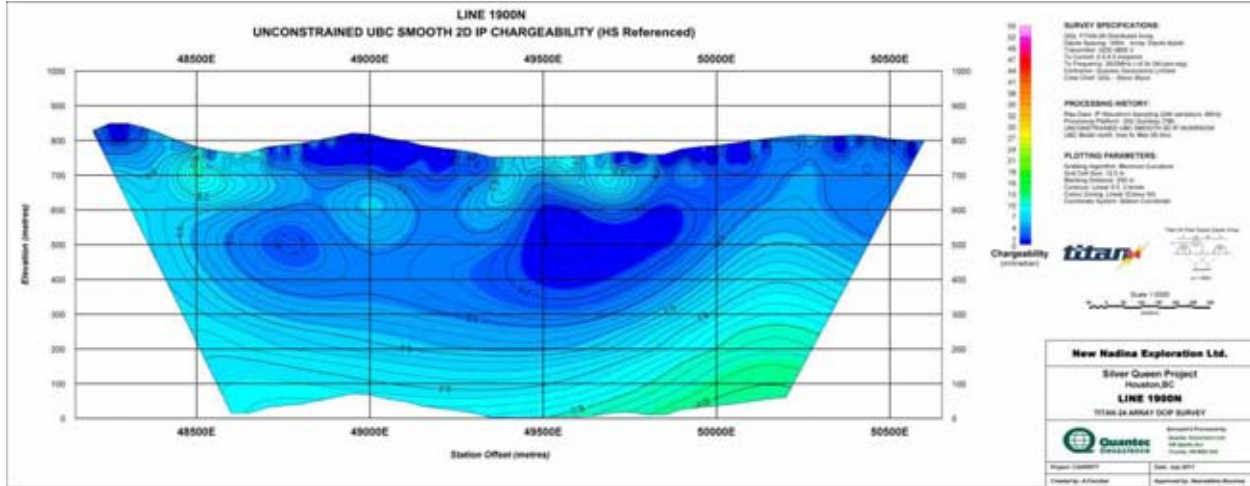
J.1 LINE 1900N



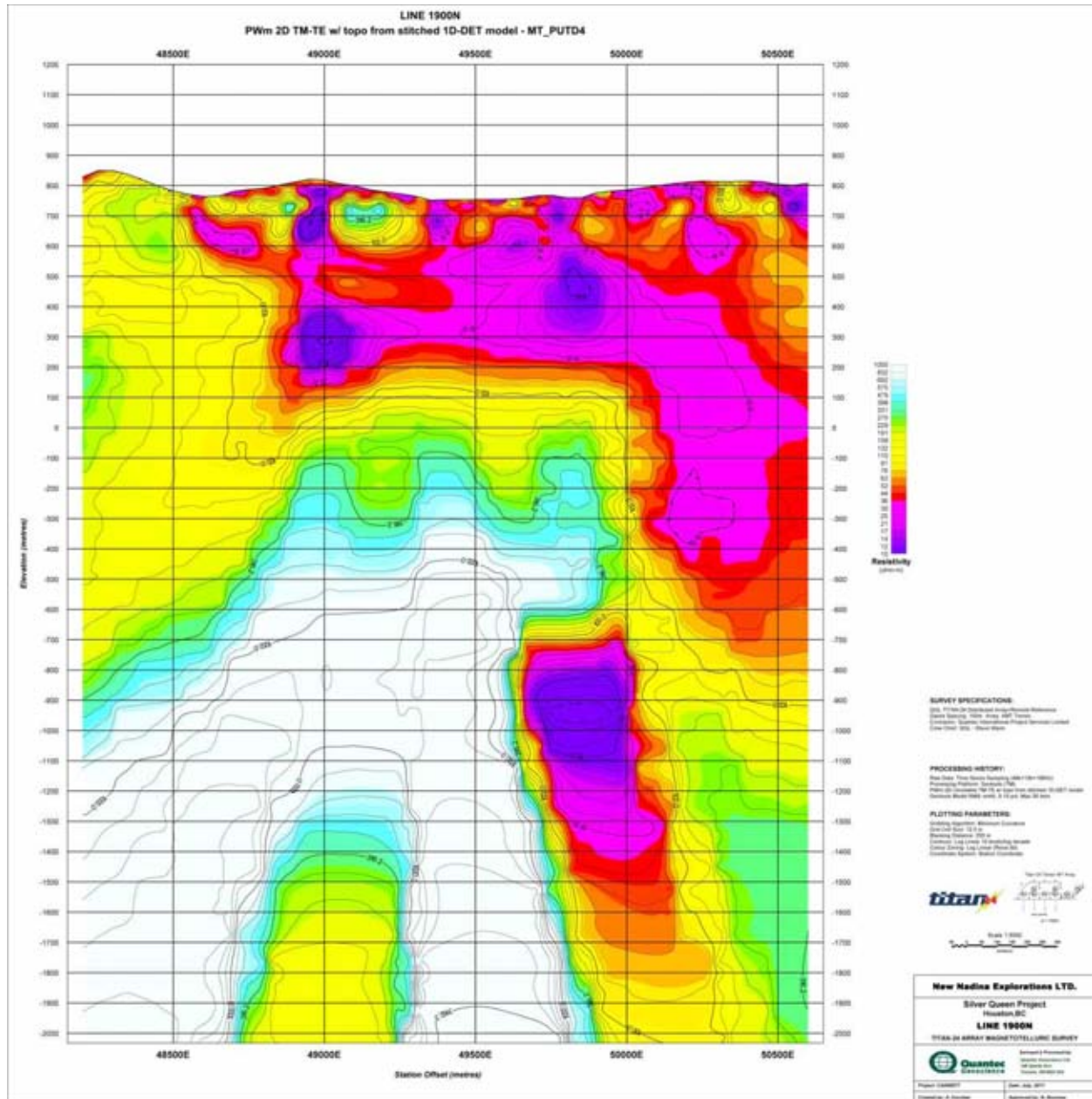
Line 1900N –DC Resistivity 2D Model



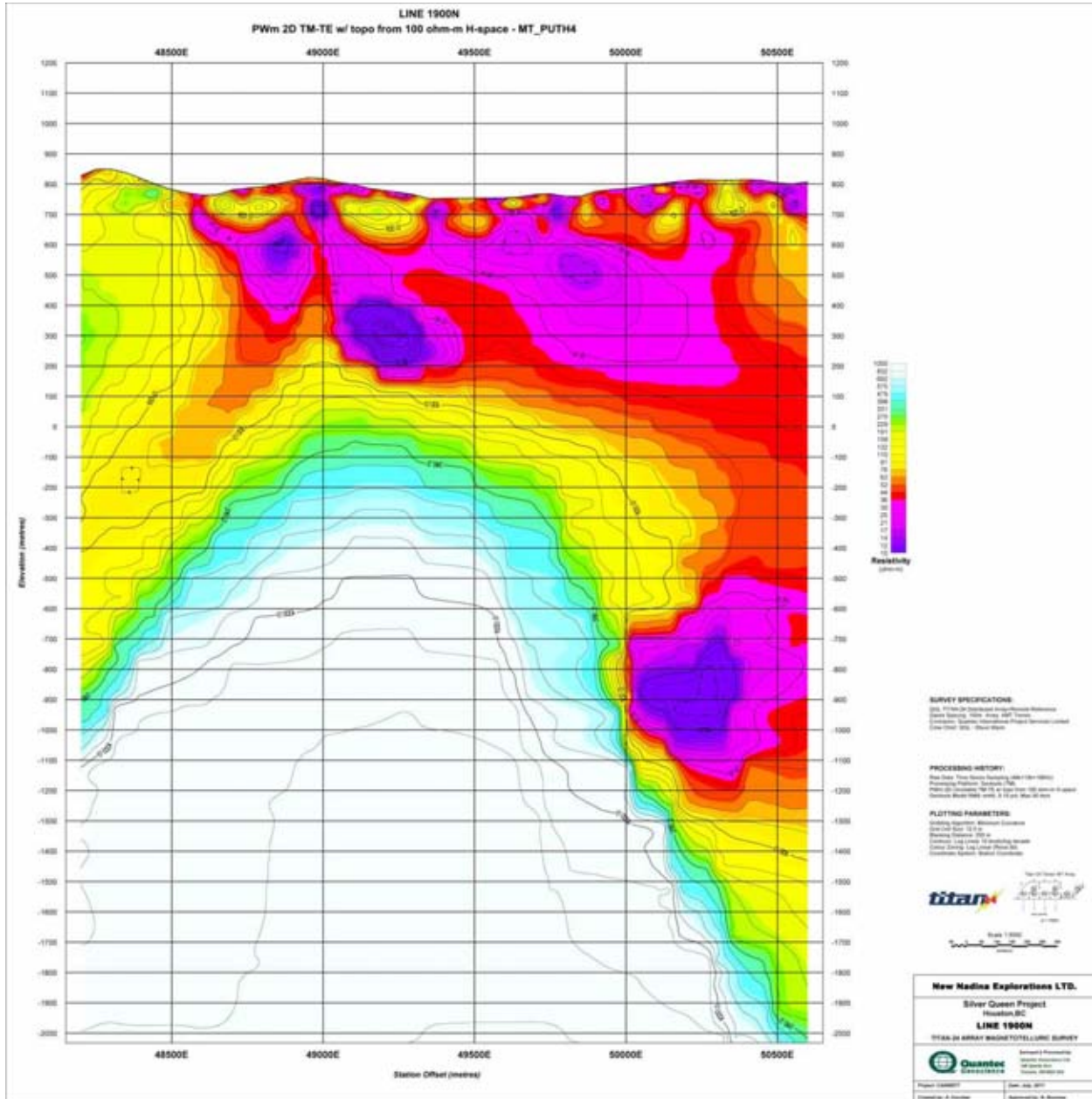
Line 1900N –IP Chargeability 2D Model



Line 1900N –IP Chargeability 2D Model

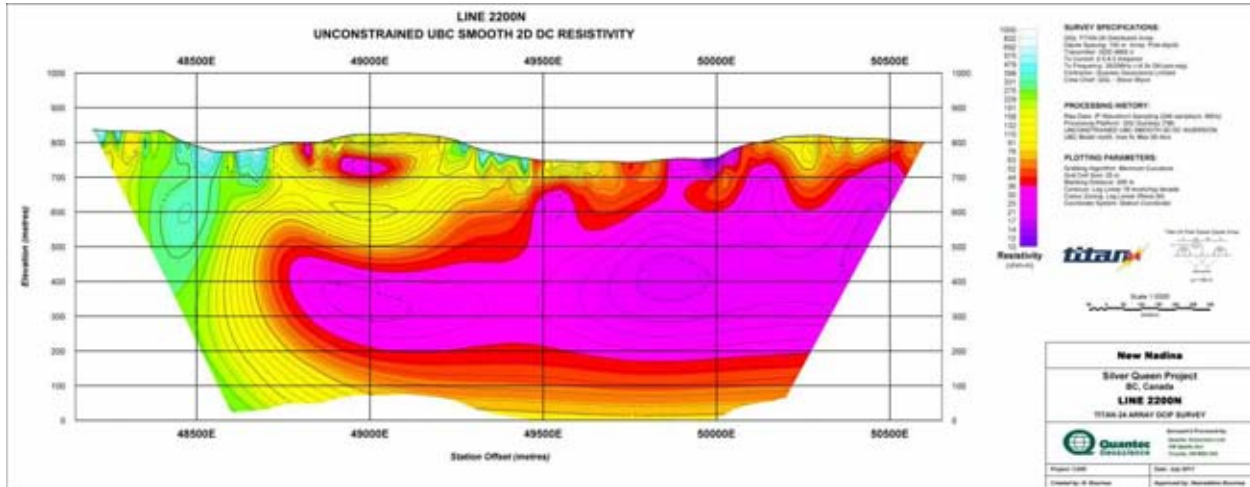


Line 1900N –MT- PWM Resistivity 2D Model

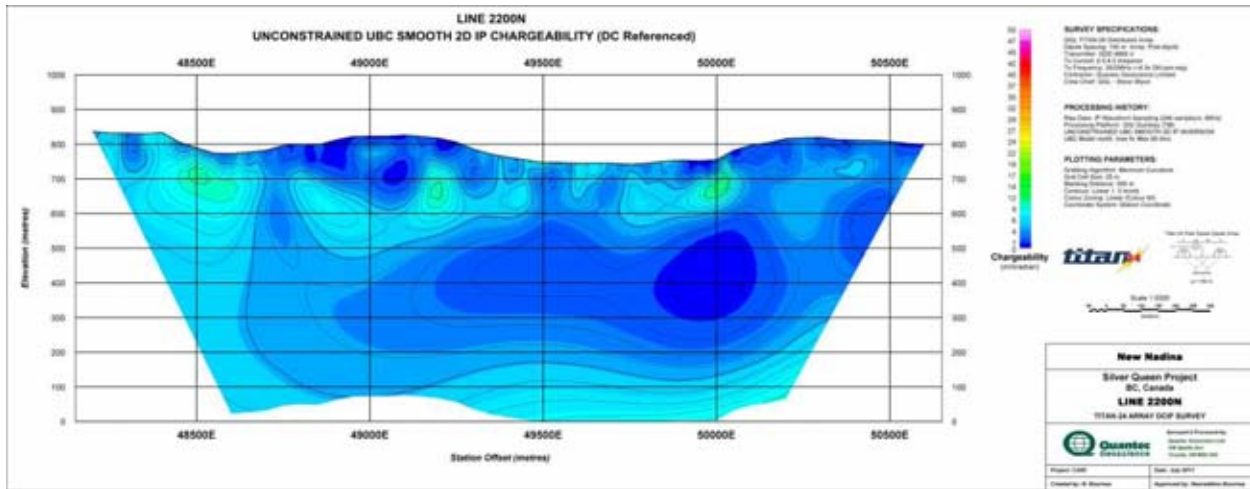


Line 1900N –MT- PWM Resistivity 2D Model

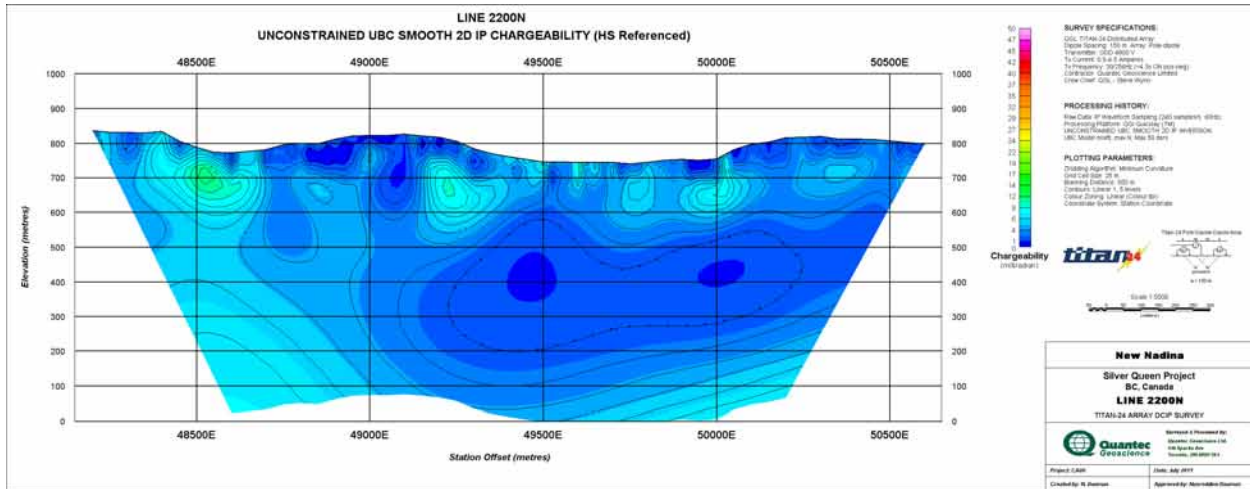
J.2 LINE 2200N



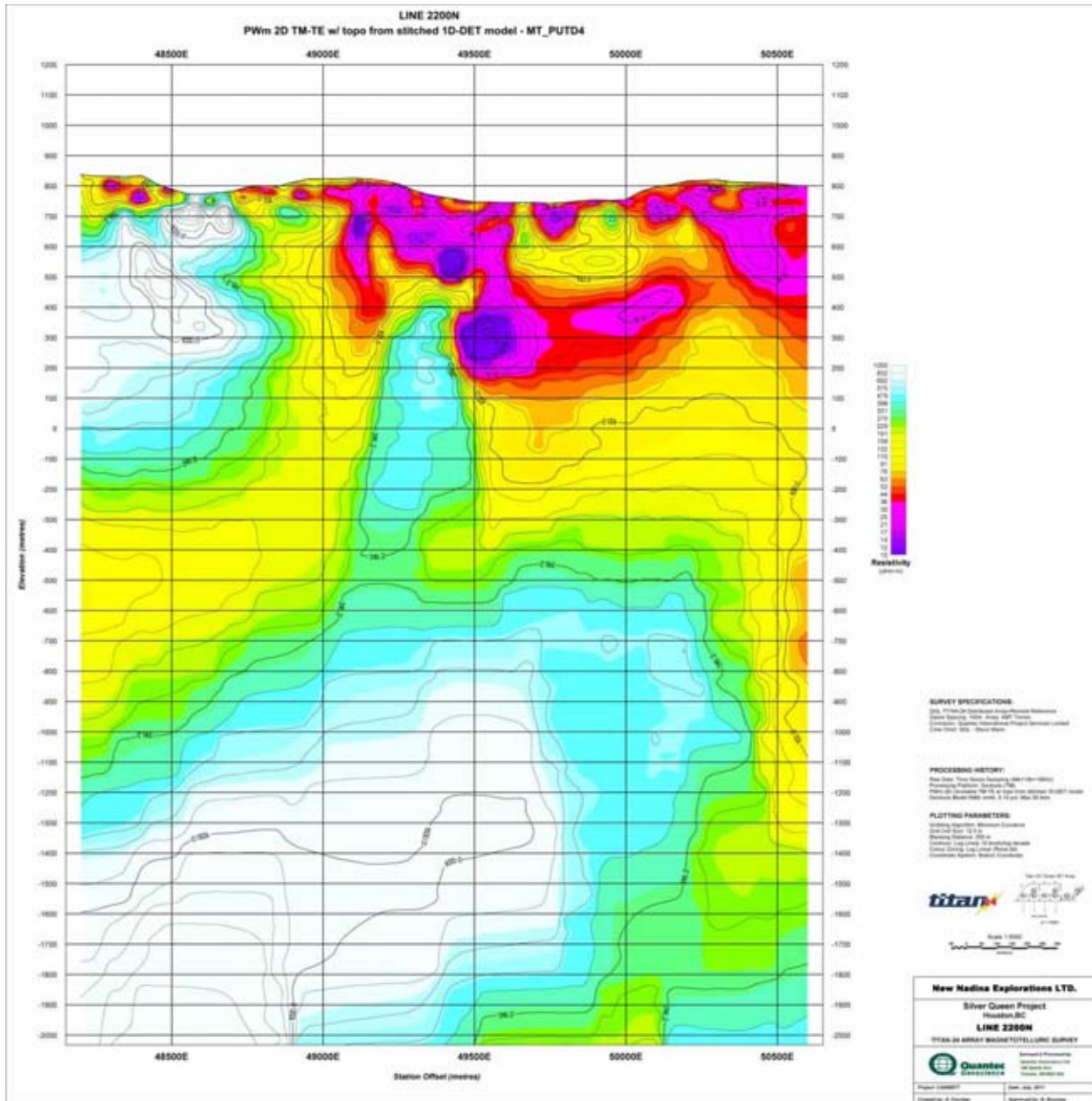
Line 2200N –DC Resistivity 2D Model



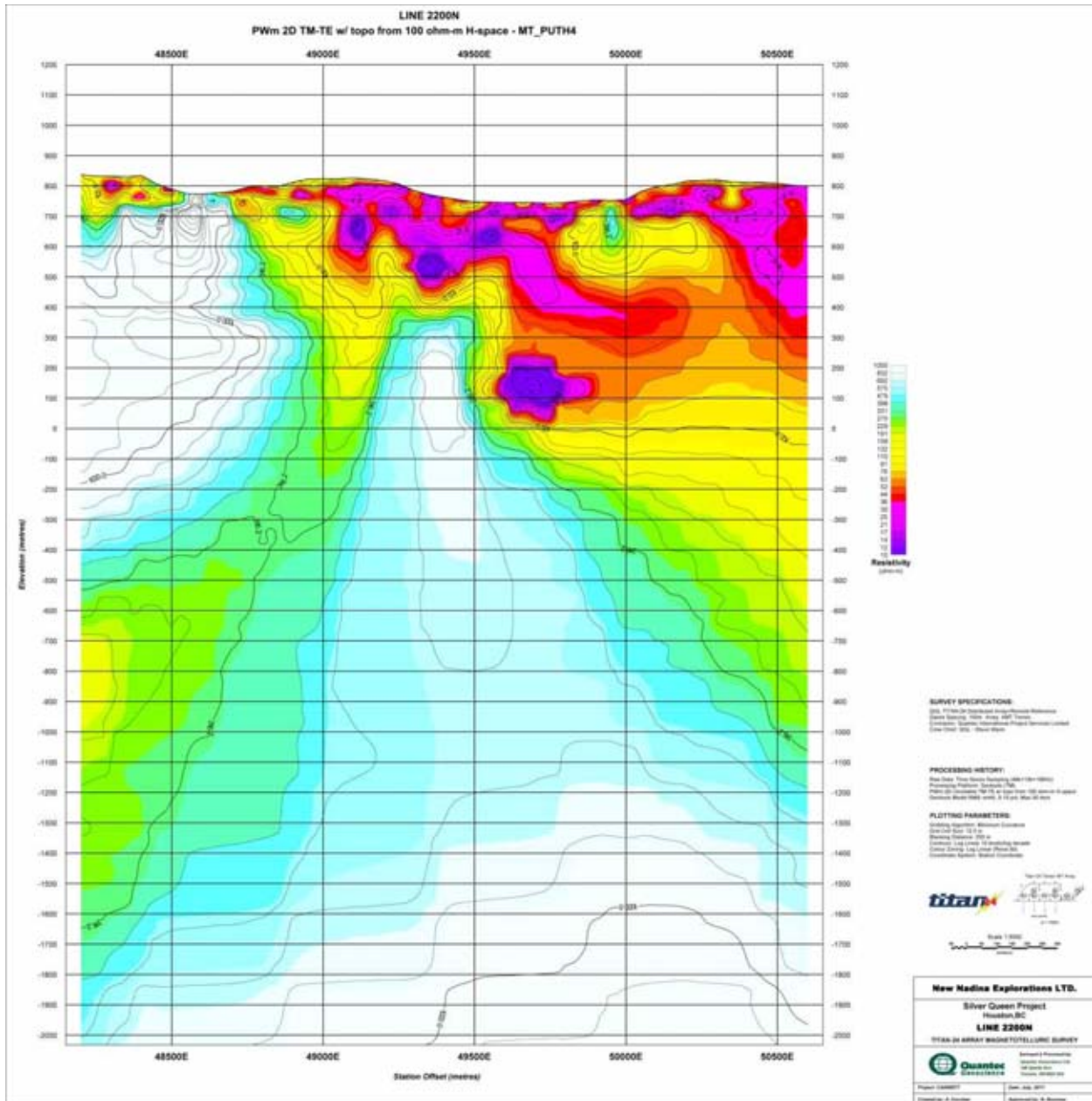
Line 2200N –IP Chargeability 2D Model



Line 2200N –IP Chargeability 2D Model

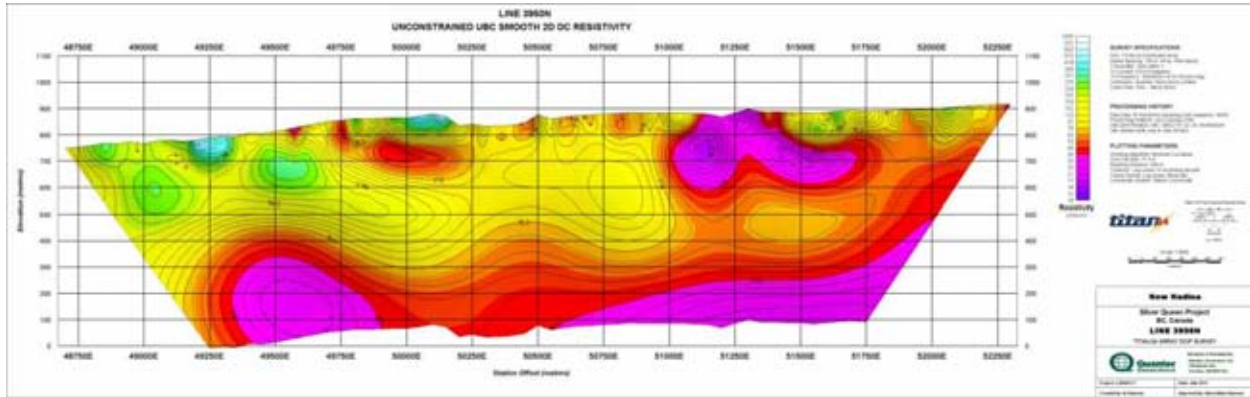


Line 2200N –MT- PWM Resistivity 2D Model

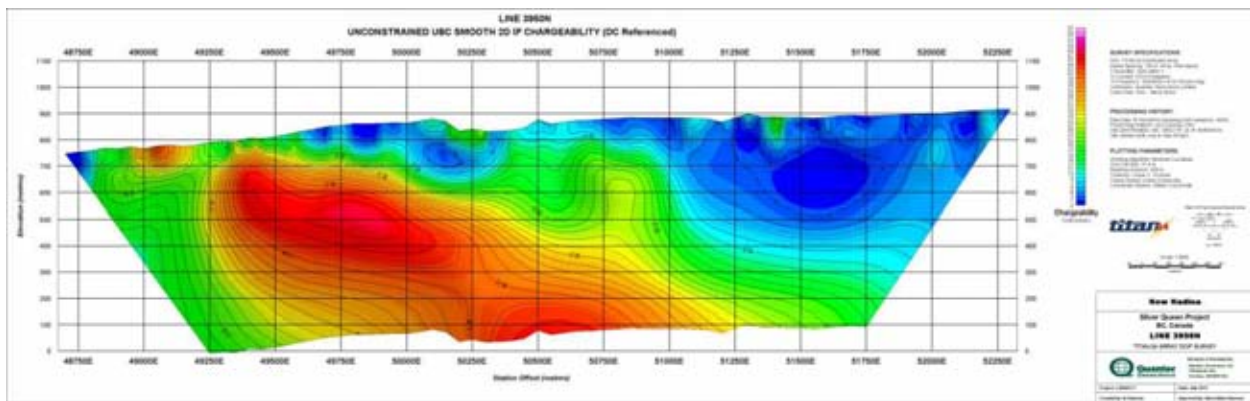


Line 0E –MT- PWM Resistivity 2D Model

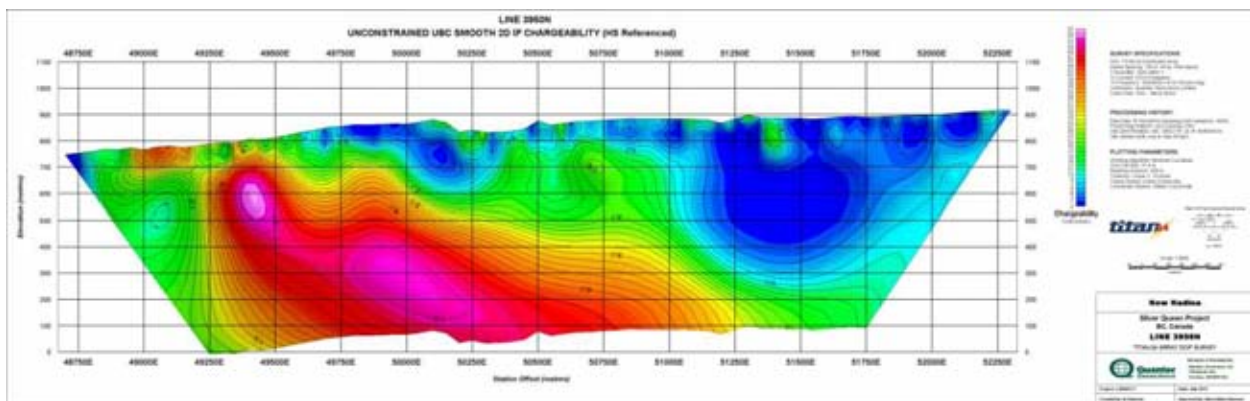
J.3 LINE 3950N



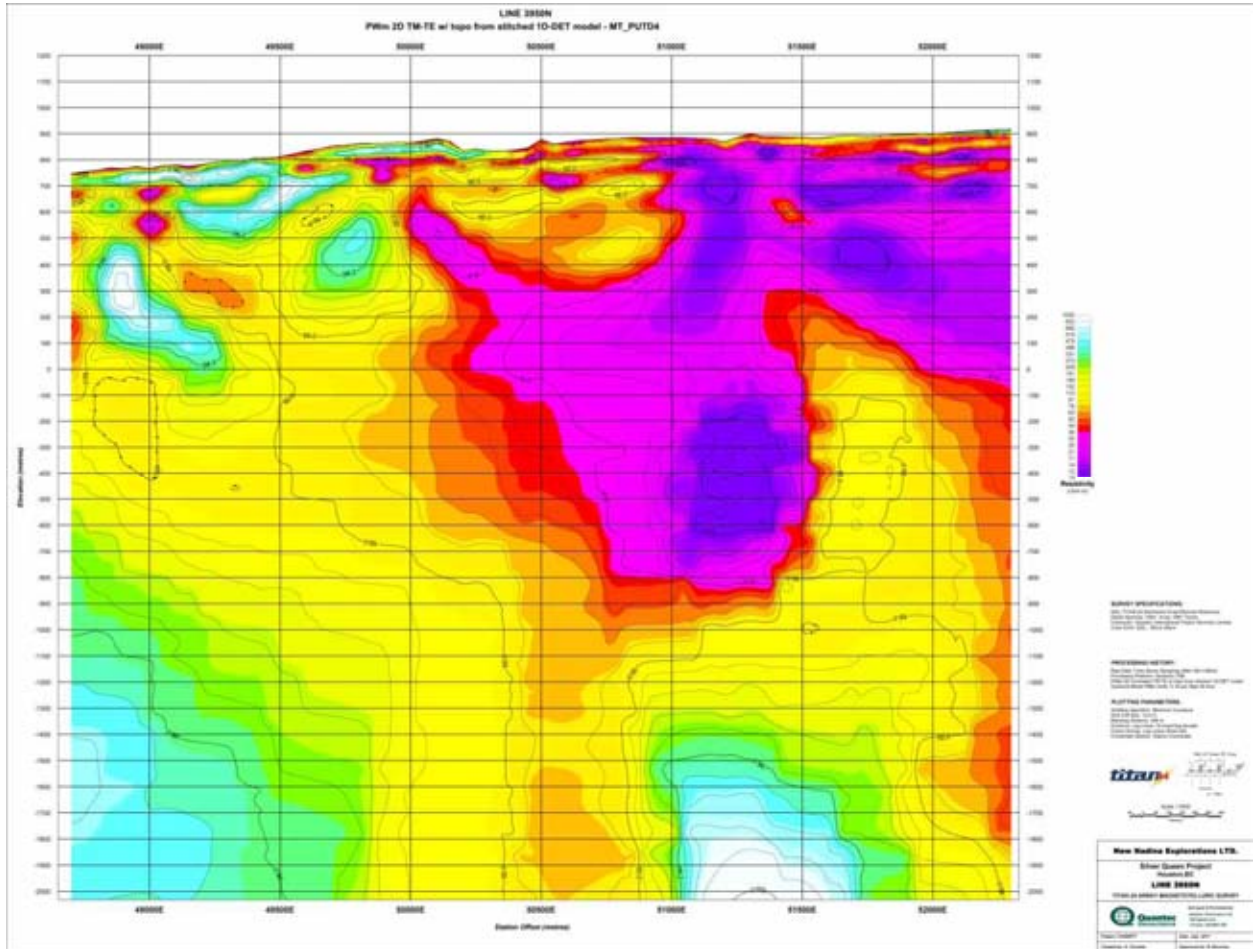
Line 3950N –DC Resistivity 2D Model



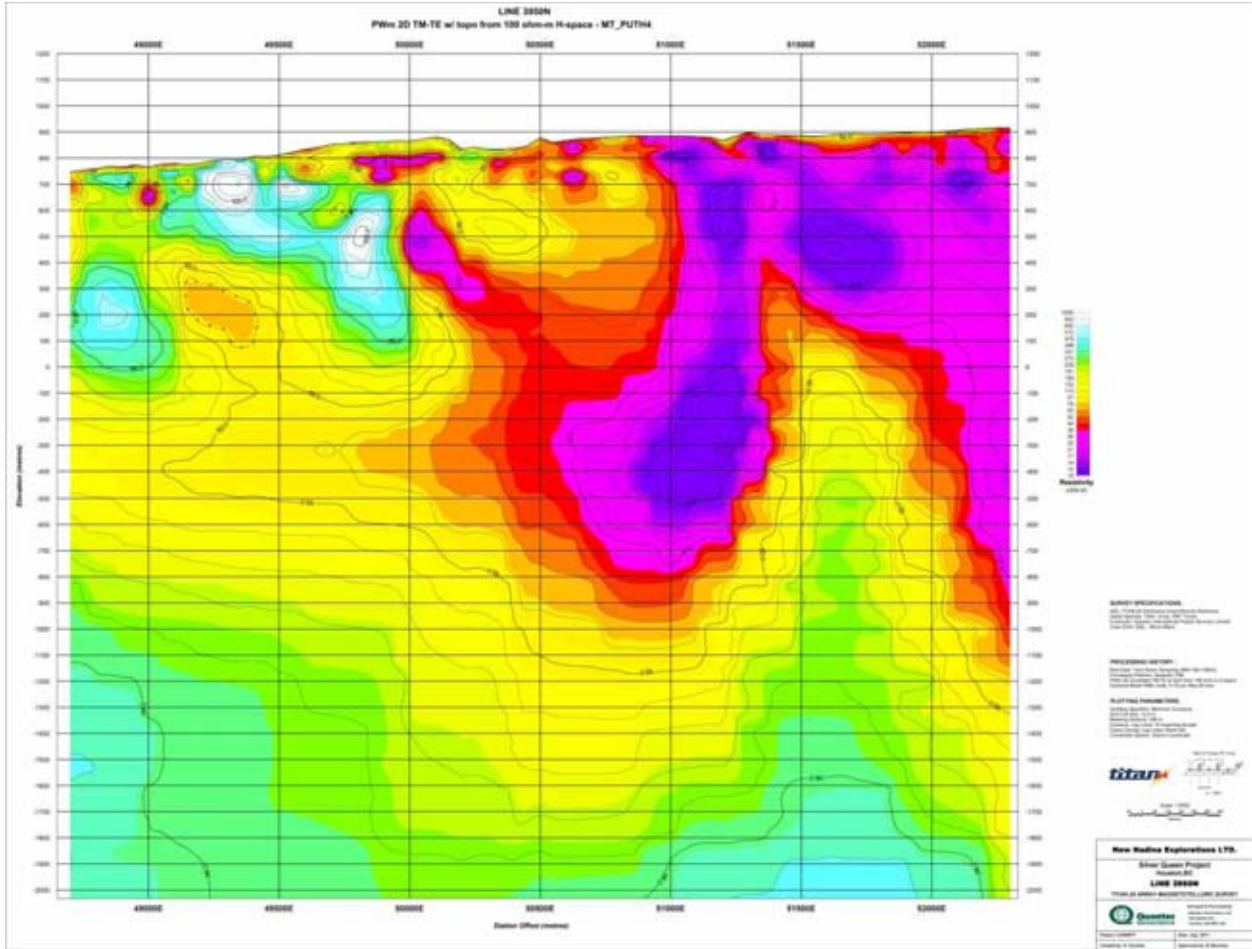
Line 3950N –IP Chargeability 2D Model



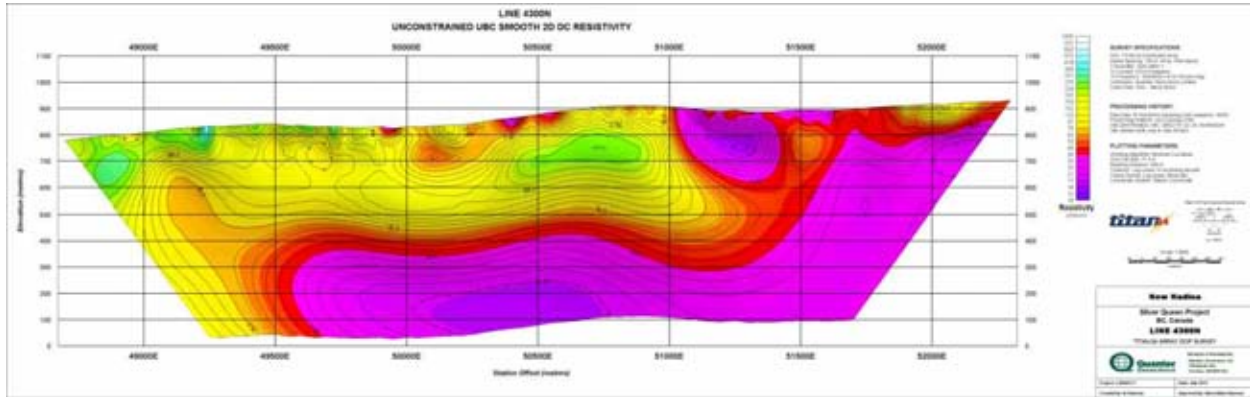
Line 3950N –IP Chargeability 2D Model



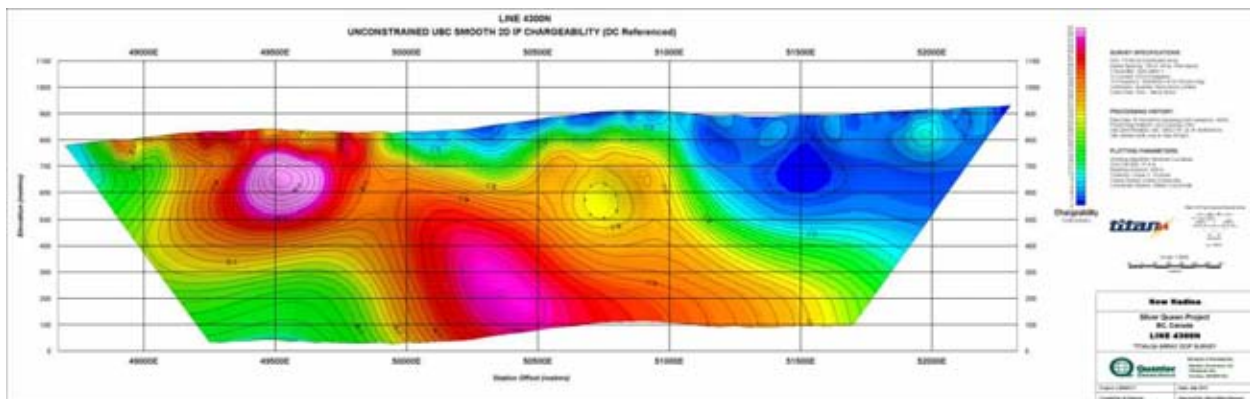
Line 3950N –MT- PWM Resistivity 2D Model



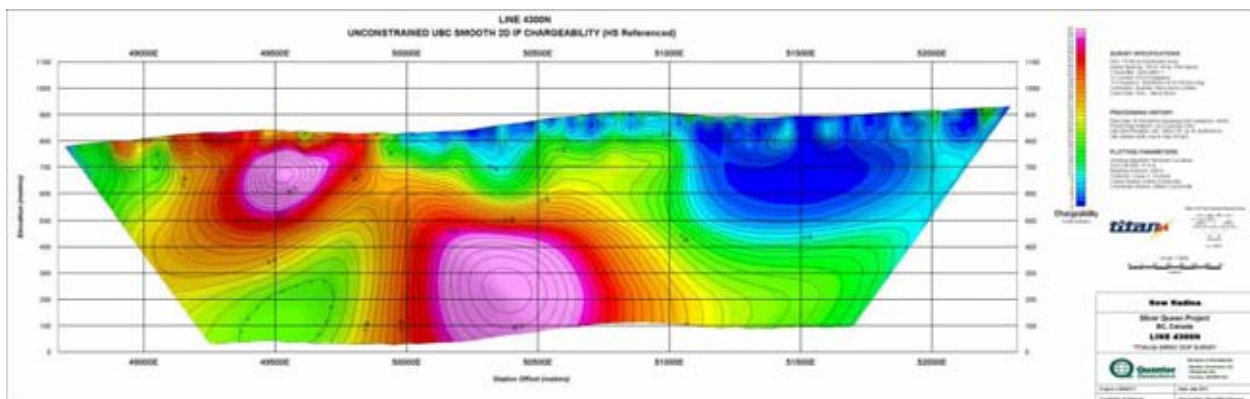
J.4 LINE 4300N



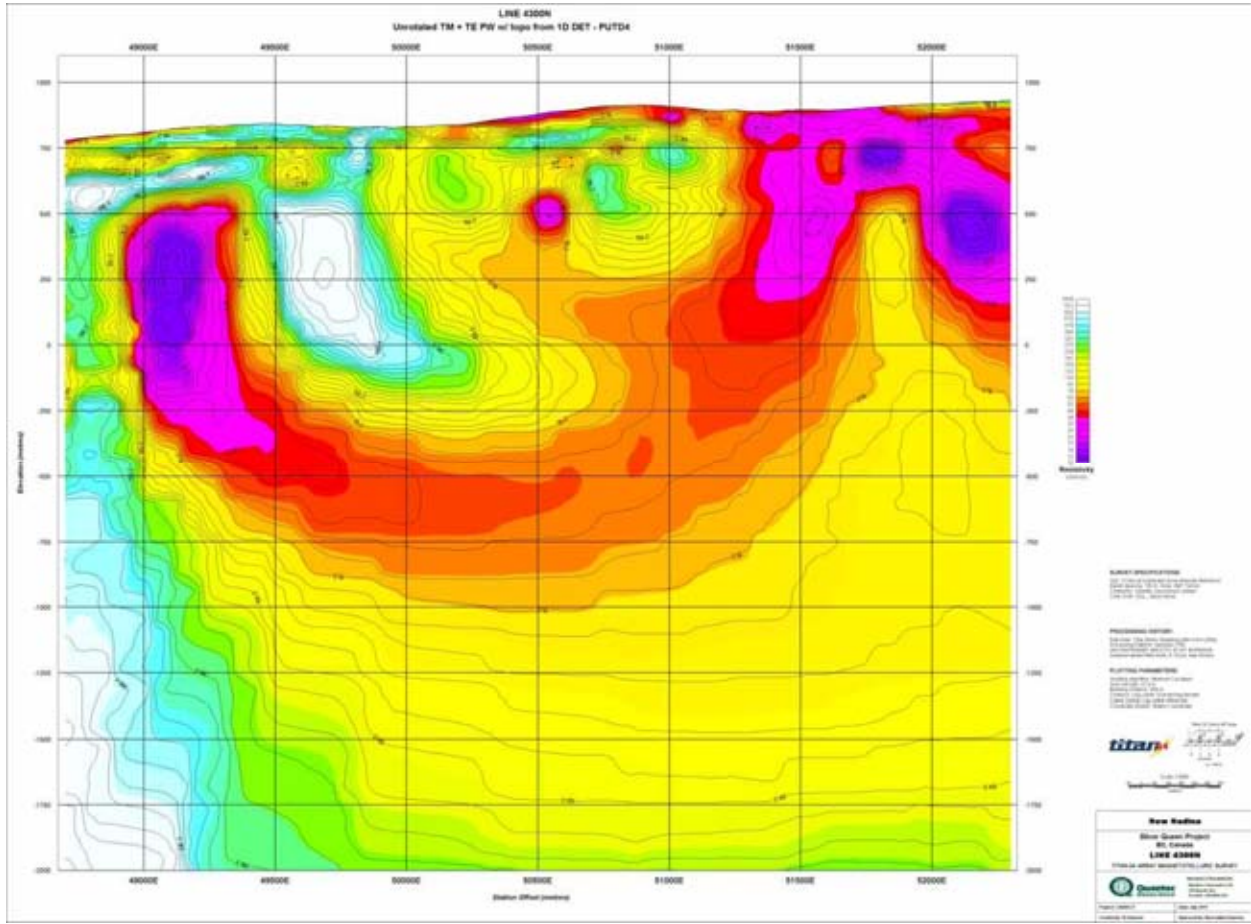
Line 4300N –DC Resistivity 2D Model



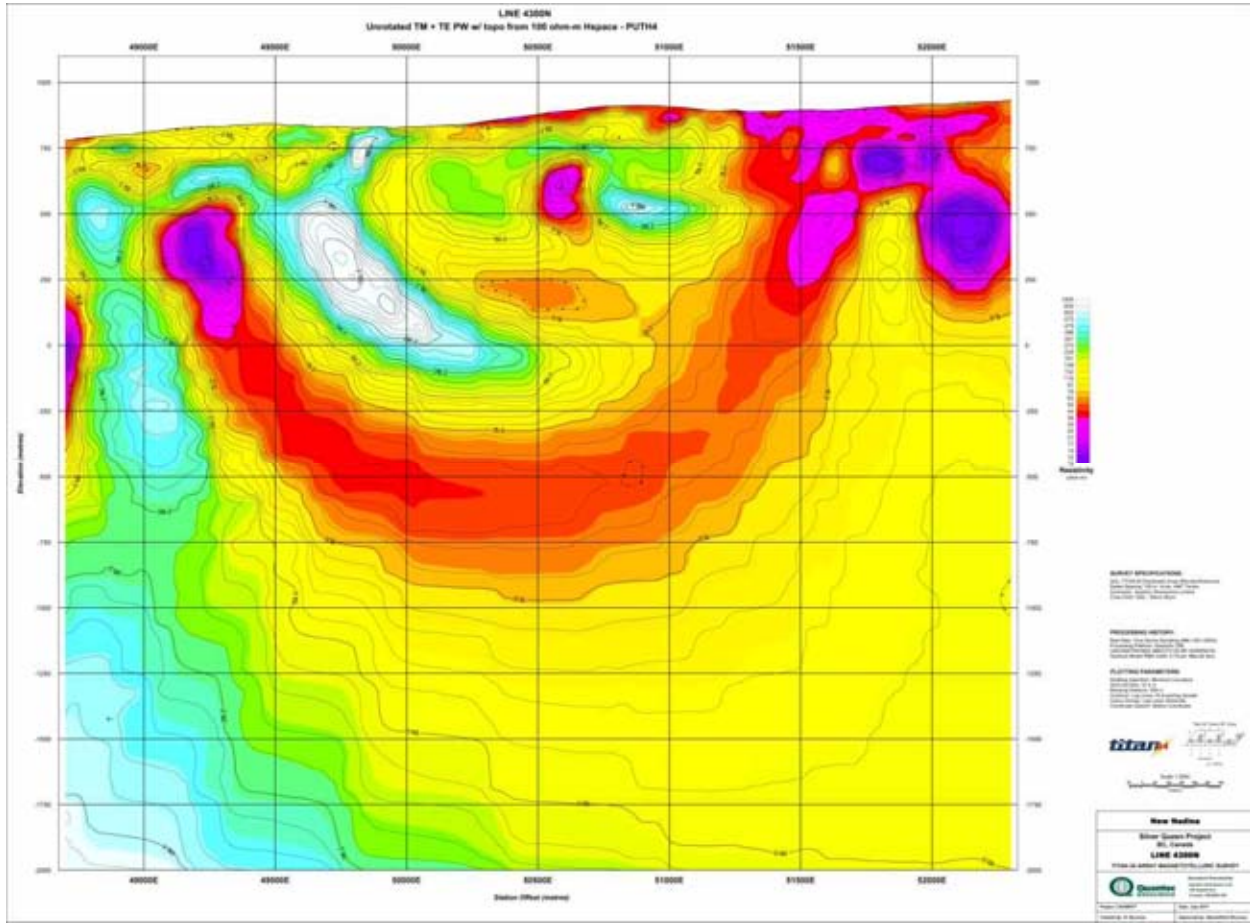
Line 4300N –IP Chargeability 2D Model



Line 4300N –IP Chargeability 2D Model

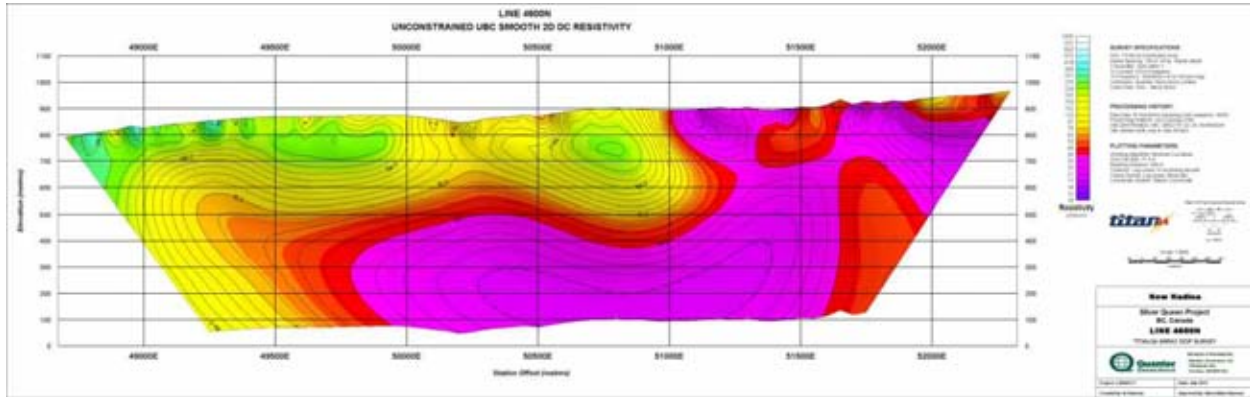


Line 4300N –MT- PWM Resistivity 2D Model

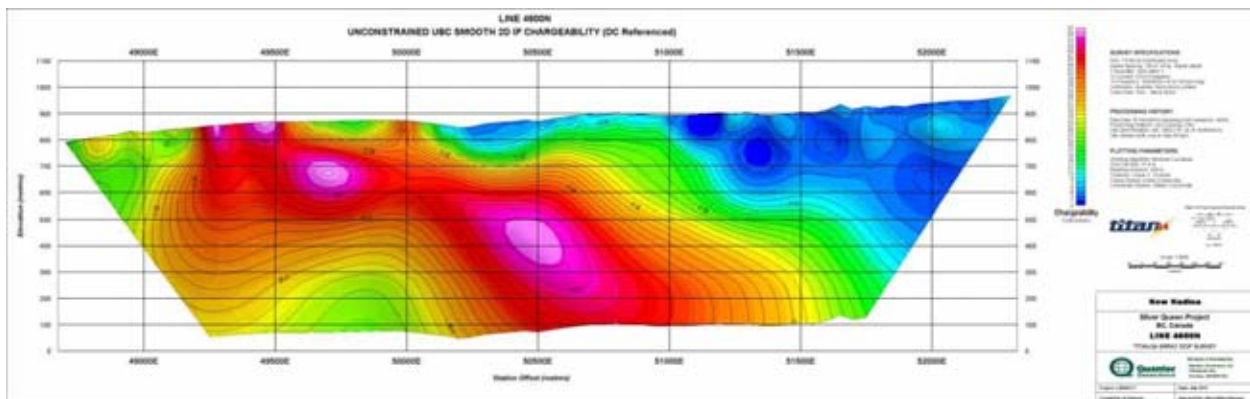


Line 4300N –MT- PWM Resistivity 2D Model

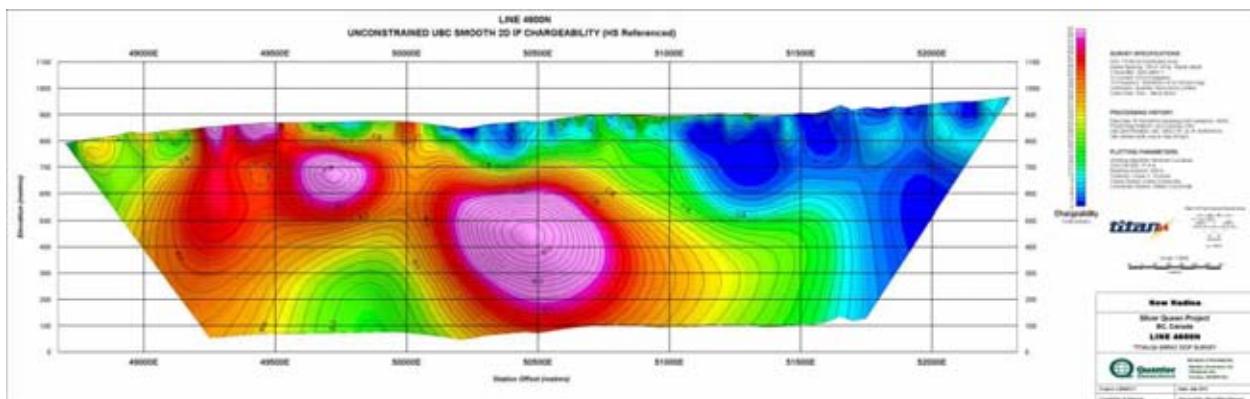
J.5 LINE 4600N



Line 4600N –DC Resistivity 2D Model



Line 4600N –IP Chargeability 2D Model



Line 4600N –IP Chargeability 2D Model