

GM 71363

Logistics report for Spartan MT survey over the Raglan exploration, 2017 MT survey

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LOGISTICS REPORT FOR

SPARTAN MT SURVEY

OVER THE

RAGLAN EXPLORATION – 2017 MT SURVEY

(RAGLAN MINE, NUNAVIK, QUÉBEC)

ON BEHALF OF

GLENCORE CANADA CORPORATION



March 1, 2018
CA01113S

Provided by:

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QUANTEC
Geoscience

EXECUTIVE SUMMARY

This report presents the logistics of the Spartan MT survey completed September 7 – October 1, 2017 over the Raglan Exploration – 2017 MT Survey by Quantec Geoscience Ltd on behalf of Glencore Canada Corporation.

The report describes the instrumentation, data acquisition and processing procedures, as well as the final processed data and digital archive formats.

A total of 232 MT sites were surveyed. Data were processed and inspected for quality assurance on site, and reviewed daily by the geophysicist in charge of the project.

The final processed survey results delivered with the report include:

- Differential GPS (DGPS) Survey
 - Compilation of the measured points (excel file).

- Magnetotelluric (MT) Survey
 - Grid Z3_Z2: 168 sites (178 EDI including repeats)
 - Grid Z58_ZT: 64 sites (75 EDI including repeats)

 - For each surveyed MT site, we provide:
 - Single ASCII GPS Survey file that includes location (Latitude/Longitude, projected UTM and GRID coordinates) and elevation details of MT sites;
 - EDI files:
 1. Single Site EDI file of the final processed data (raw) containing Complex Spectral Matrices at each frequency;
 - File name as "MT0000.edi"
 2. Single Site EDI file of the edited processed data containing Impedances at each frequency (edition from CGG-Geotools);
 - File name as "MT0000ed.edi"
 - The EDI file stores MT sounding data as:
 - Raw data saved as Impedances blocks
 - Edited data saved as Resistivity and Phases blocks

3. Single Site EDI files of the interpolated data of the edited data
(interpolation output from CGG-Geotools);
 - File name as *“MT0000int.edi”*
 - The EDI file stores the MT (interpolated) sounding data as:
Impedances and Resistivity and Phases blocks

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1. INTRODUCTION

This report presents the logistics of the Spartan MT survey completed September 7 – October 1, 2017 over the Raglan Exploration – 2017 MT Survey by Quantec Geoscience Ltd on behalf of Glencore Canada Corporation.

1.1. CLIENT INFORMATION

Name: Glencore Canada Corporation

Address: 120, Ave de l'Aéroport
Rouyn-Noranda, QC
J9Y 0G1

Representative: Mathieu Landry
Phone: +1-819-762-7800
Email: mathieu.landry@glencore-ca.com

Daryl Ball
Email: Daryl.Ball@glencore.ca

1.2. PROJECT GENERAL INFORMATION

Quantec Project Manager: Mark Morrison

Quantec Project Number: CA01113S

Report prepared by: Benoît Tournerie, P.Geo (OGQ#1322)

Project Name: Raglan Exploration – 2017 MT Survey

Survey Type: Spartan MT

General Location: Approximately 1600 km northeast of Rouyn-Noranda, see Figure 1-1.

Long/Lat: 73°38'55.3" W, 61°41'11.4" N

UTM: 571500 E, 6840000 N

Datum: NAD83 – 18NH

NTS Numbers: 35H11 (Lac Rinfret),
35H12 (Lac Fleury)

Claim name: Glencore Canada Corporation (92528)

Survey Period: September 7 – October 1, 2017



Figure 1-1: General Location Map.

2. SURVEY LOGISTICS

2.1. ACCESS

Base of Operations:	Raglan Mine
Mode of Access:	Grid: 4x4 Trucks Site: On foot

2.2. GRID AREA

Established by:	Client prior to survey execution
Coordinate Reference System:	UTM Coordinates
Datum & Projection:	NAD83 (CSRS98) (1m) Canada – 18NH
Magnetic Declination:	23°W
Site Location:	Handheld GPS

2.3. PRODUCTION SUMMARY

Details of Survey Production:	see APPENDIX A-Production Summary
Survey Period (total):	September 7 – October 1, 2017 25 days
Survey Days (read time):	17 days
Safety Induction:	1 day
Standby:	1 day
Weather days:	1.5 days

2.4. SURVEY COVERAGE SUMMARY

Details of Survey Coverage: see APPENDIX B-Survey Coverage.
see Figure 2-1

Number of Site Surveyed: 232 sites surveyed

Zones Z3 Z2: 168 sites (178 EDI with repeats)
see Figure 2-2

Zones Z58 ZT: 64 sites (75 EDI with repeats)
see Figure 2-3

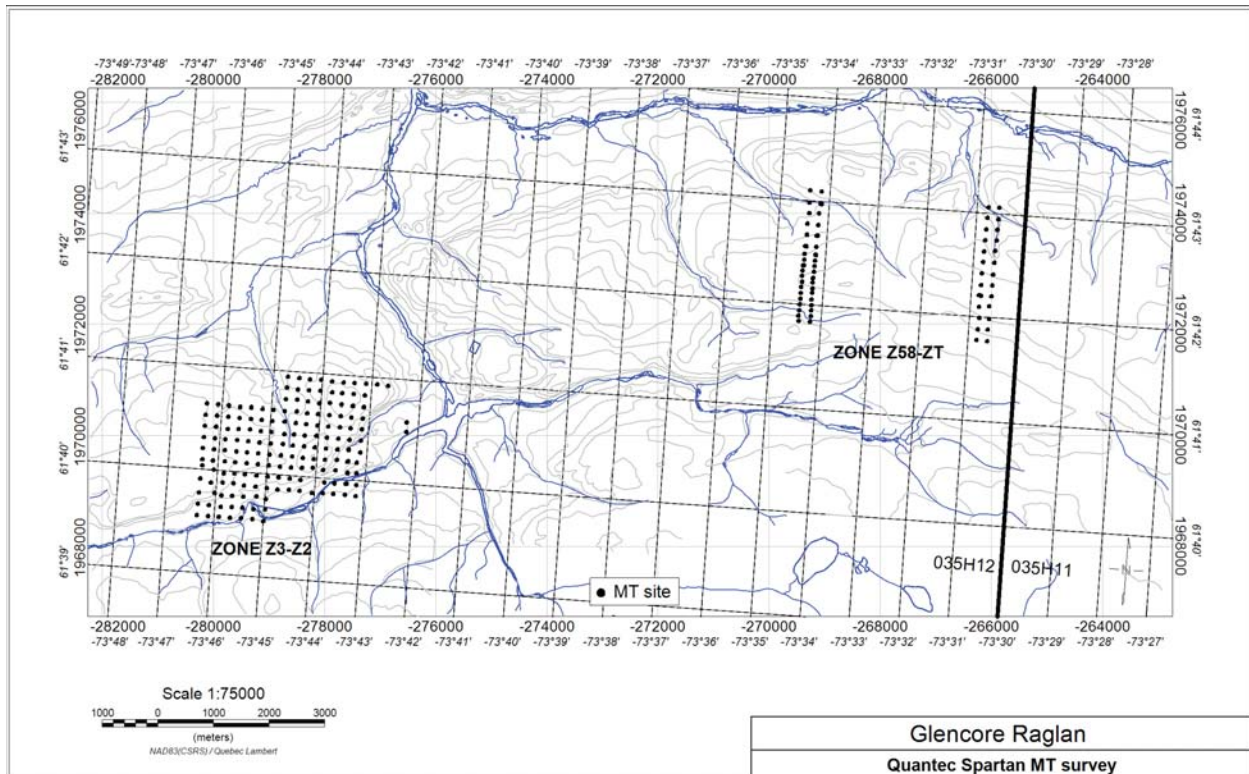


Figure 2-1: MT Survey Coverage Map (NAD83 – Quebec Lambert).

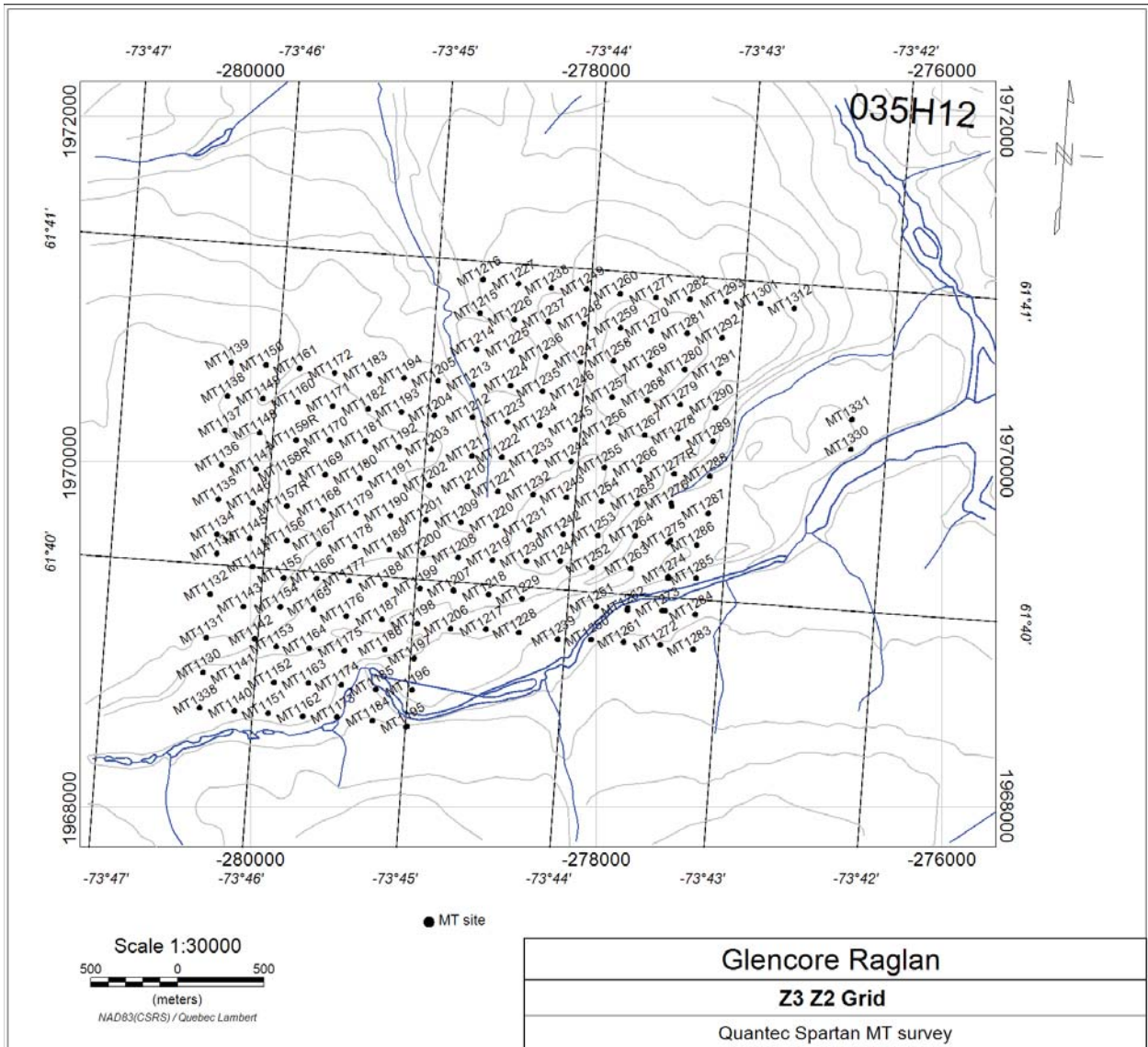


Figure 2-2: MT Survey Coverage Map (NAD83 – Quebec Lambert) – grids Z3 Z2.

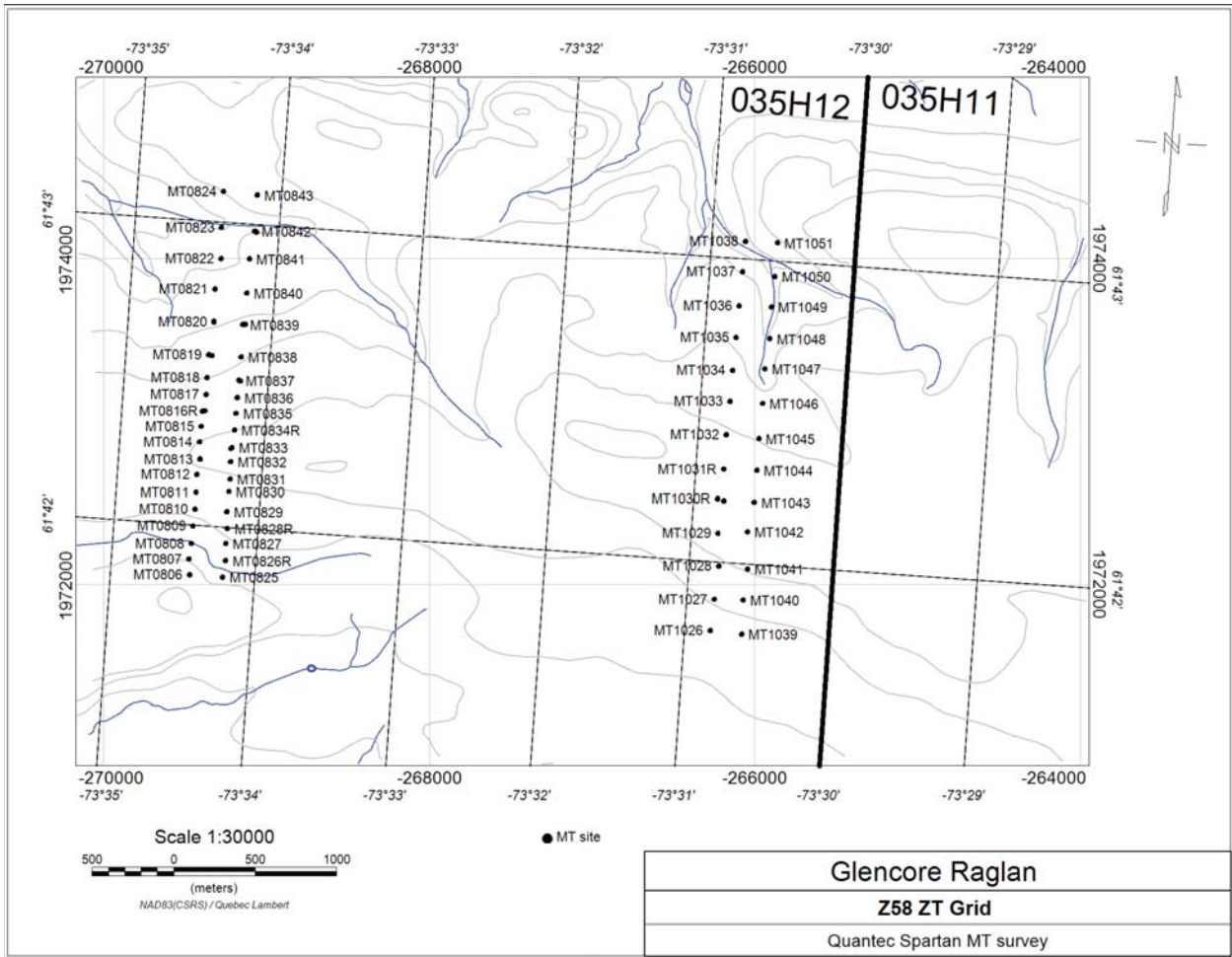


Figure 2-3: MT Survey Coverage Map (NAD83 – Quebec Lambert) – grids Z58 ZT.

2.5. QUANTEC PERSONNEL

Project Manager:	Mark Morrison
Field/Operations Manager:	Jesse Rondeau
Project Geophysicist:	Benoît Tournerie, P.Geo (OGQ#1322)
Data Processor(s):	Emily Data Kristian Koschany
Field HSE Coordinator:	Jesse Rondeau
MT Operator(s):	Jesse Rondeau Richard Bates Alex Jelenic Martin Kratochvil Sashy Premaratne
Field Technicians:	Richard Chasse Eric Hotvedt Joe Hurlbert Marcel Leduc Devin Tompkins
DGPS Operator:	Joel Black

2.6. HEALTH AND SAFETY ENVIRONMENT (HSE)

Quantec Geoscience is committed to conducting its activities in a manner that will safeguard and protect the health and safety of all Quantec personnel, colleagues, co-workers, clients, the public and the environment.

2.6.1. Hazard Assessment and Control

Prior to mobilization, Quantec HSE compiled a hazard inventory for the project and risk assessments were completed for the tasks involved in conducting the work. On the basis of the risk assessments, corresponding Job Safety Analyses (JSA) were prepared defining safe work procedures.

2.6.2. Systems and Procedures

All personnel were equipped with any personal protective equipment (PPE) required for the work.

One Quantec crew member was assigned as an HSE coordinator to assist the Field Manager with implementation of HSE procedures and reporting.

Daily safety meetings of Quantec personnel were conducted each morning prior to commencement of work to review safe work procedures and discuss any prior incidents, daily plans and potential hazards.

Vehicle circle checks were completed by drivers before departure.

3. SURVEY SPECIFICATION

3.1. INSTRUMENTATION

Digital GPS specific:

Receiver System: Trimble R8 with
Trimble TSC-3 data collector

MT specific:

Receiver System(s): RT160Q Quantec Data Logger

Synchronisation: GPS clock (10 nsec precision)

Receiver Electrodes: Ground contacts using steel plates.

Magnetic Sensors [HF]: Geometrics G100K Magnetic Field Sensors

Magnetic Sensors [LF]: Phoenix MTC50 Magnetic Field Sensors

See APPENDIX I - Instrument Specifications for more detailed information.

3.2. SURVEY LAYOUT

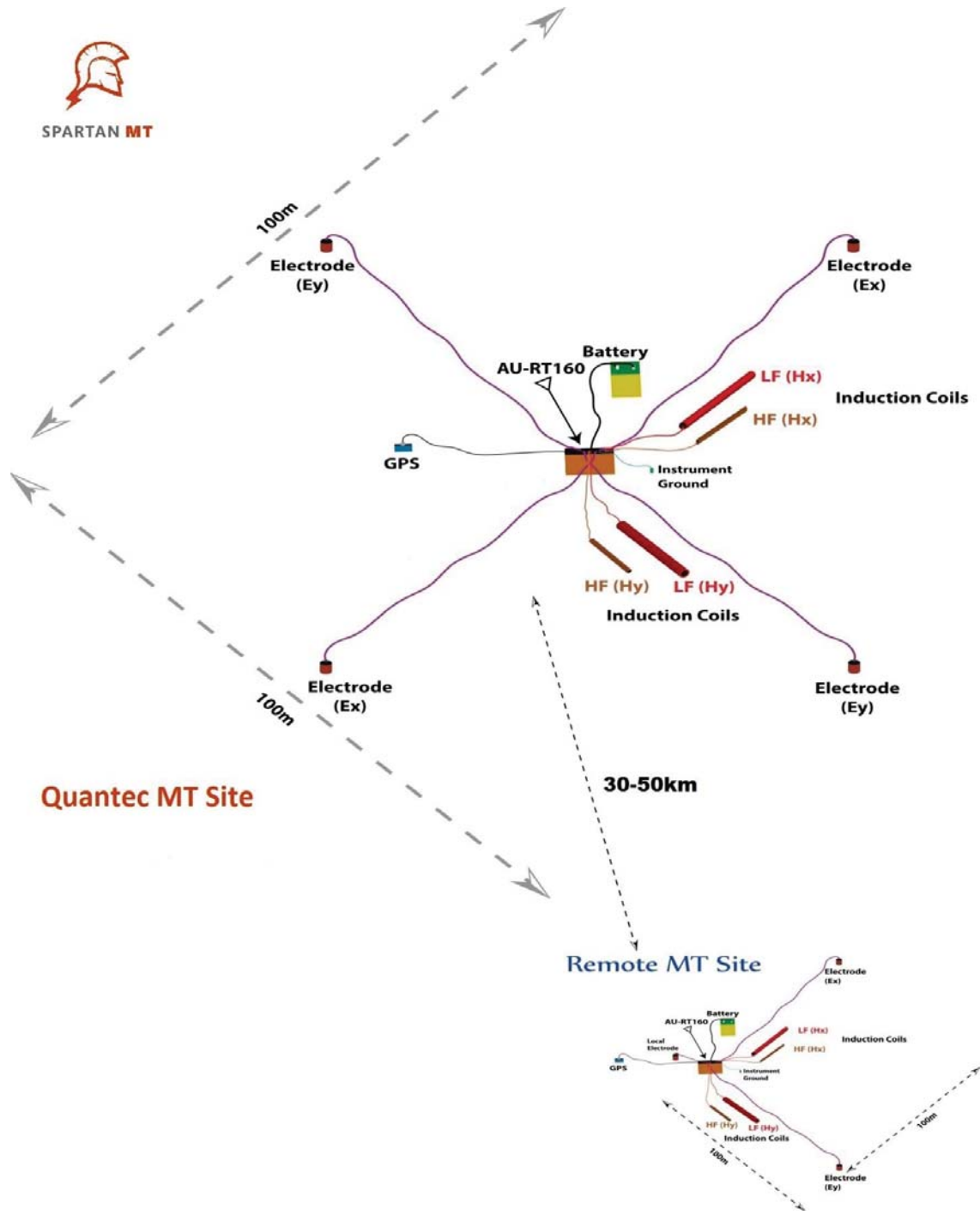


Figure 3-1: Survey Acquisition Layout.

3.3. DIFFERENTIAL GPS SURVEY PARAMETERS

The purpose of differential positioning is to correct bias errors at one location with measured bias errors at a known position. A reference receiver, or base station, computes corrections for each satellite signal. The base receiver is located over a known control point for the duration of the survey. The mobile receiver is used to survey in the station locations. The grid survey was conducted primarily in “stop & go” mode.

The base station signal was broadcast by the Raglan mine DGPS base station.

The objective of the differential GPS for this project was to locate the electrodes of the dipoles (start-end positions) as also the location of the magnetic sensors and site (data logger) for each surveyed site. Measurements were completed using a Trimble R8 as the mobile and a Trimble TSC-3 data collector. The system allows for measurements with centimeter accuracies.

Specification

Coordinate Reference System:	NAD 27 Canada Mean (Molodensky)
Projection:	Universal Transverse Mercator – zone 18 North
Accuracy (DGPS):	sub centimeter (X,Y), +/- 3cm (Z)

3.4. MAGNETOTELLURIC SURVEY PARAMETERS

3.4.1. Geometry

Technique:	Tensor Magneto-telluric (MT) soundings processed with remote-reference
Site Configuration:	L-shaped, Cross-shaped, and T-shaped E-field configurations were deployed accordingly to access. HF and LF magnetic sensors were located at each site.
E-field (dipole) total length:	Ex: 100m Ey: 100m ¹
Site orientation:	Acquisition layout with X pointing at 00° True .

¹ See also “Site set up” in §3.4.2: Acquisition and Processing Parameters.

Remote MT Configuration: L-shaped E-field with HF and LF magnetic sensors located at the site; the sensors are oriented in the same direction as the local sites.

Remote Reference Position: UTM: 550803 E, 6863541 N (NAD83 – 18NH)

Synchronization to Remote: GPS clock (10nsec precision)

3.4.2.Acquisition and Processing Parameters

Data Acquisition: Time-series acquisition and recording.

Time-Series Sampling: HF1: 48,000 samples/sec
 HF2: 12,000 samples/sec
 LF1: 1,000 samples/sec
 LF2: 40 samples/sec (resampled from LF1)

Time-Series Record Time: HF: minimum of 1.5 hours to maximum of storage capacity or until pick up
 LF: minimum of 1.5 hours to maximum of storage capacity or until pick up
 HF and LF recording schedule is fixed and defined as follows:

Band	Sampling	Start	Duration
HF1	48k Hz	16, 36, 56 after the hour	30 sec each run
HF2	12k Hz	0, 8, 20, 28, 40, 48 after the hour	4 minutes each run
LF	1000 sps	At logger deployment	Continuous until pickup

Frequency Bandwidth: 10,000 Hz to 0.001 Hz

Calibration Folder: Version: 1.8 {released: 2017/06/06}

Processing: Final processing of the data was completed using the location of the site electrodes and coils measured using DGPS survey. As per agreement with client, nominal values (as reported by the crew) were however used when the DGPS points were missing.

Quantec proprietary QuickLay software (ver.5.1.8.2) coupled with Egbert MT processing code²:

- 1) Coherent noise rejection using remote-reference
- 2) Proprietary digital filtering (scrubbing)
- 3) Coherency sorting
- 4) Impedance estimate stacking

Default configuration set to output 12pts per decade;

Data processed to output X at **00° True**

Processed Data: Auto and Cross-power Spectral estimates for individual stations and sampling band archived as SDM (Spectral Density Matrix: Egbert output) files;
Results are band-merged, edited, and saved as SEG-EDI³ (Electronic Data Interchange) files.

3.4.3.Field Test

Parallel Sensor Test: A Parallel sensor test of the equipment was completed at the beginning of the survey. The test results are presented in APPENDIX D-Parallel Sensor Test

Remote Test: MT data was collected at the remote site before and during the survey. The pre-survey test results are presented in APPENDIX E-MT Remote Test.

² Egbert, G.D., Robust multiple station magnetotelluric data processing, Geophys. J. Int., 130, 475-496, 1997.

³ EDI is a format conforming to SEG standard for the storage of magnetotelluric (MT) data (Wight, D. E., 1987).

3.4.4. Data Presentation

Sounding Curves: Observed (edited) XY and YX Apparent Resistivity's and Phases

See APPENDIX C-MT Measured data

3.4.4.1. *Ap Index*

Magnetic signal as reported by the Ap⁴ index varies from 3 to a maximum of 96, with an average near 18 during the acquisition phase of the data (September 7 – October 1, 2017).

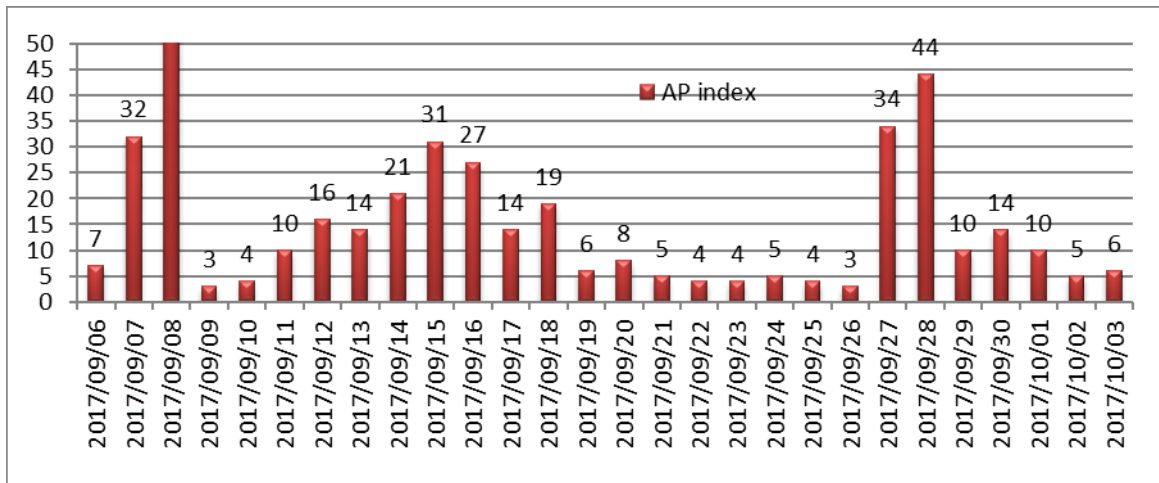


Figure 3-2: Magnetic signal Ap index (magnetic signal strength) during the project.

⁴ Ap Index reported on the processing notes were uploaded from
URL: <http://www.gfz-potsdam.de/en/section/earths-magnetic-field/data-products-services/kp-index/>

4. COMMENTS ON MEASURED DATA

The magnetotelluric survey was planned so data can be measured during the day and overnight. Each team tried whenever possible to measure with each data logger two AMT sites during the day (~2hrs reading; processing output from 10kHz to 1Hz) and one MT site overnight (~10-12 hrs reading; processing output from 10kHz to 0.001Hz). The distribution of the sites with Day-time and Night-time acquisition is illustrated on Figure 4-1 for grids Z3-Z2 and on Figure 4-2 for grids Z58-ZT.

The first Spartan-MT sites surveyed were located over pre-existing MT-TITAN24 lines on the grids Z58-ZT so a comparison of data can be completed. A site to site comparison of the sounding plots was presented to Glencore representative, and a copy of the document is provided in APPENDIX F – *Comparison of Spartan and Titan24 MT data*. From the review, it was clear that the 2017 MT data are presenting similar characteristics to those measured previously with the TITAN24 system.

Some extra processing was completed following the loss of some time series data from the remote site (data recorded on September 15th). The objective was to demonstrate to Glencore representatives that a local site can be used as a remote site in the processing. This could be helpful in case other issues arise at the remote site. Results of the processing was presented to Glencore representatives on September the 21st. A copy of the document is presented in APPENDIX G – *Memo #1 (2017/09/21): Comparison of data processed using the remote and Cross-Reference (i.e., site as remote)*. The result of the test shows that effectively a MT site could be used as the remote site if necessary.

A few important notes regarding the overall data quality:

High Frequency (HF) Dead Band

MT sites measured during the day-time are generally presenting strong noise in the HF-dead band due to weak signal for those frequencies during day-time. Review of the data was completed and most of the observed noise has been removed on the 'edited' EDI files.

Contact Impedance:

We noticed after the deployment of the first sites (especially on the Z3-Z2 area) that it will be difficult to obtain good contact for the electrodes as the ground is very rocky with little or no soil to bury the plates (i.e., electrodes). The crew were carrying extra mud and water for the electrodes for use in these situations. This did help to reduce the impedance contact for most of the sites; however, for some sites, the contact impedance remained extremely high (over 100,000 ohms; maximum measured is 900,000 ohms). Such high (extreme) contact impedances impact the data by presenting an artificial 'pull-up' on the sounding curve at high frequency (see example on Figure 4-5). To better characterise this 'noise', and to provide a future reference on the quality of the measured data, maps of the contact impedance

at these sites have then been created. Figure 4-3 and Figure 4-4 present the maximum measured contact impedance for each site classified into one of four groups; two groups (dark grey and black) are mapping measured values greater than 50,000 ohms over the survey area. The group represented by the black dots is mapping the extreme values (>100,000 ohms) and should map 'critical' sites.

HF/LF Band shift

The critical point over the acquisition and processing of the data is the band shift between the high-frequency and the low-frequency measured data. This band shift appears occasionally on the apparent resistivity XY or YX data (see example on Figure 4-6), but may occur only on the XX and YY data (see example on Figure 4-7). The later may then introduce a band shift on the XY and YX sounding after rotation of the data (see example on Figure 4-7). This will occur because the data of the two modes XX and YY are of the same 'amplitude' as the XY and YX modes, that are observed for 3D geology and/or potentially strong distortion of the MT data. The band shift in the XX and YY modes will be then transferred to the XY-YX sounding curves after rotation of the data. This band shift (either in the XY-YX or in the XX-YY modes) may introduce a 'false' variation on the sounding curves that could or will impact the result of a 2D or 3D inversion by potentially introducing 'false' anomalies.

The following comments are related to this band shift. Quantec uses two sets of coils for the MT acquisition, one set for the HF and one for the LF. As the electric fields for the HF and LF are measured using the same dipoles, the band shift is assumed to be from the magnetic coil data, possibly due to misalignment or 'local' distortion (see below) of the coils. The field crew did everything possible to align the sensors correctly, however:

1. There was some high-wind during the survey acquisition; the coils couldn't be dug into the ground as normal due to the very rocky/no soil conditions. This could result in some motion or disturbance of the magnetic sensors after site was set up;
2. The amplitude of the magnetic field in the survey area is very high and that had an un-expected impact on the field acquisition. The compasses were strongly affected, and the crew reported difficulties to obtain a proper measurement of the azimuth for the sensors ("north arrow of the compasses spinning").
3. The crew also noticed some magnetic rocks on the ground and one cannot remove the possibility that the measurements from one coil at a site (either the HF or LF, X or Y) can be 'locally' affected by one high-magnetic rock located below or just next of the coil (i.e. acting like a magnet distorting of the magnetic field on that coil).

The MT data have been reviewed and editing was focused to minimize the aforementioned effects. Unfortunately, this resulted in only the HF part of the sounding at the MT sites being kept, i.e. data from 10k to 10hz (HF frequencies processed – limit of 10Hz is from the magnetic sensors).

Following the observation at several sites of the band shift and therefore the loss of LF data for these sites (i.e. the data of the site is edited to keep only the HF part of the frequencies), we have evaluated the impact on the data and on the depth of resolution for a 10kHz-10Hz limited frequency band at sites. The analysis has been presented to Glencore and copy of the document is provided as APPENDIX H – *Memo #2 (2017/09/24): Frequency of the MT sites: 10Hz versus 1hz.*

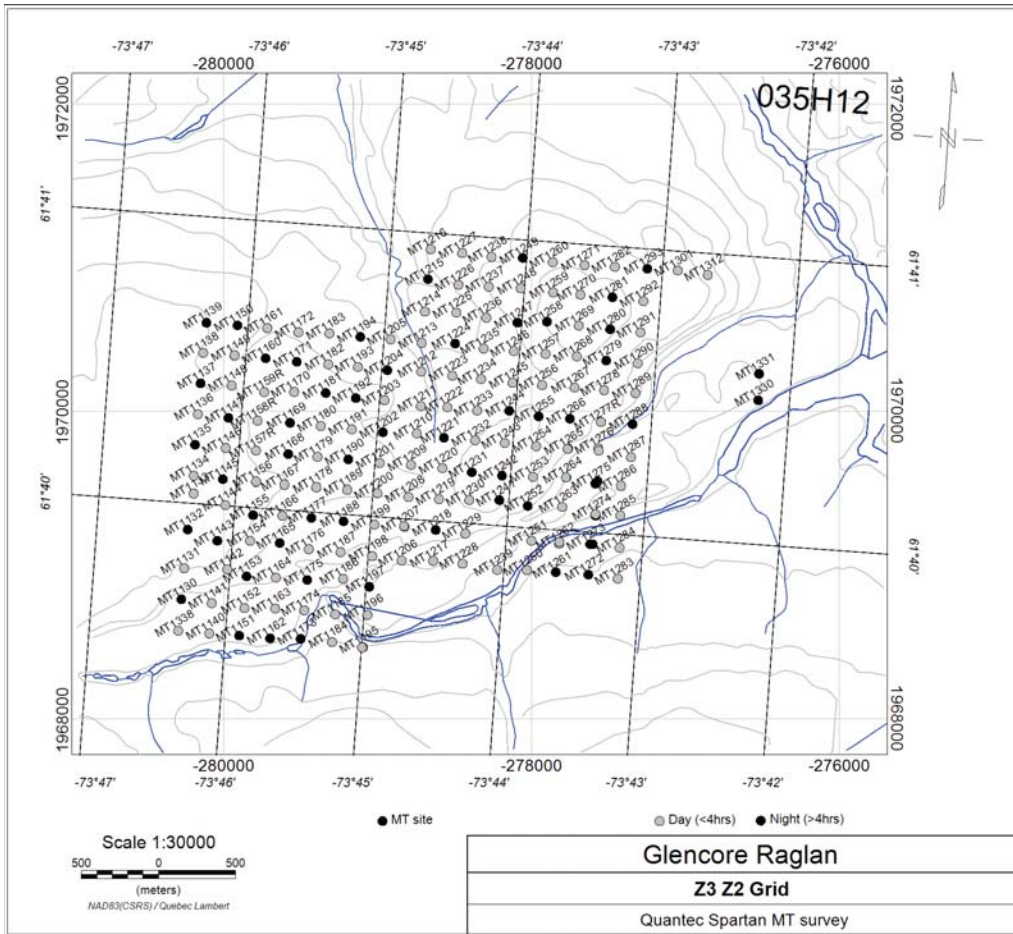


Figure 4-1: Distribution of the Day-time and Night-time MT sites for grids Z3-Z2.

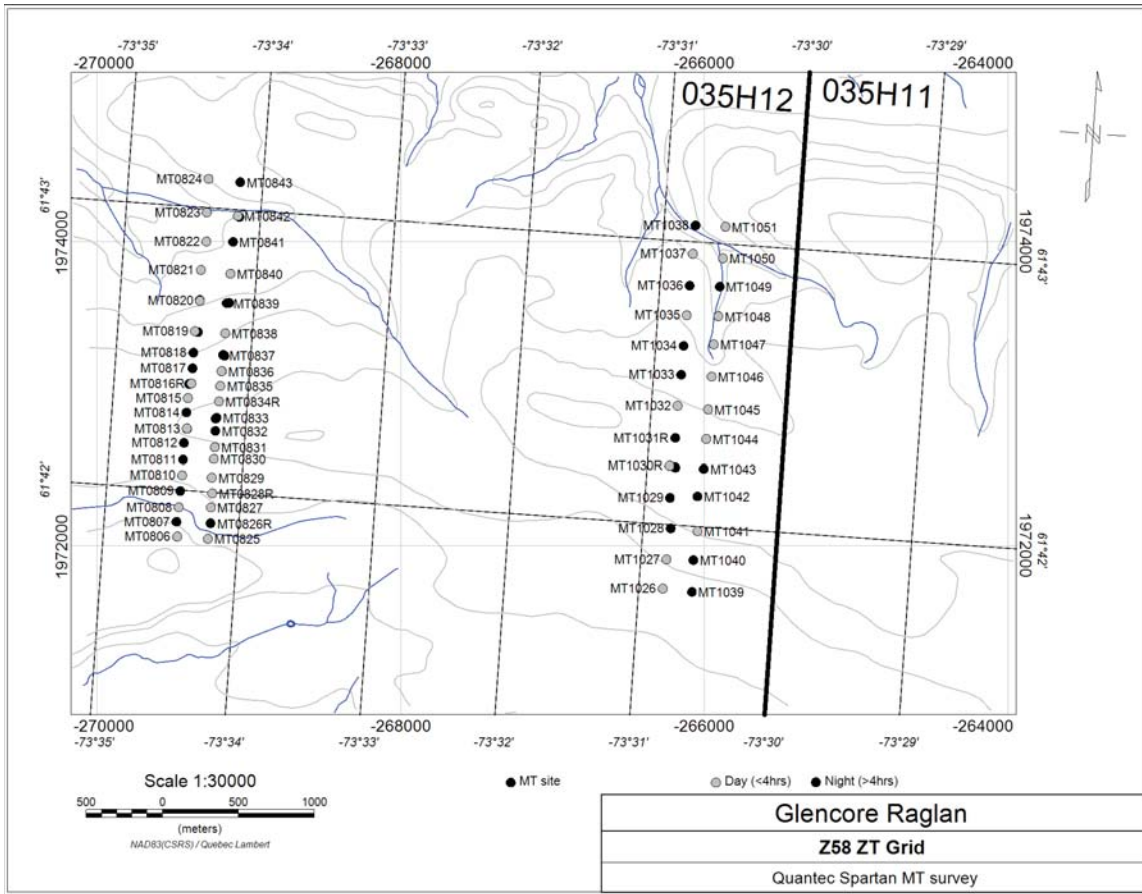


Figure 4-2: Distribution of the Day-time and Night-time MT sites for grids Z58-ZT.

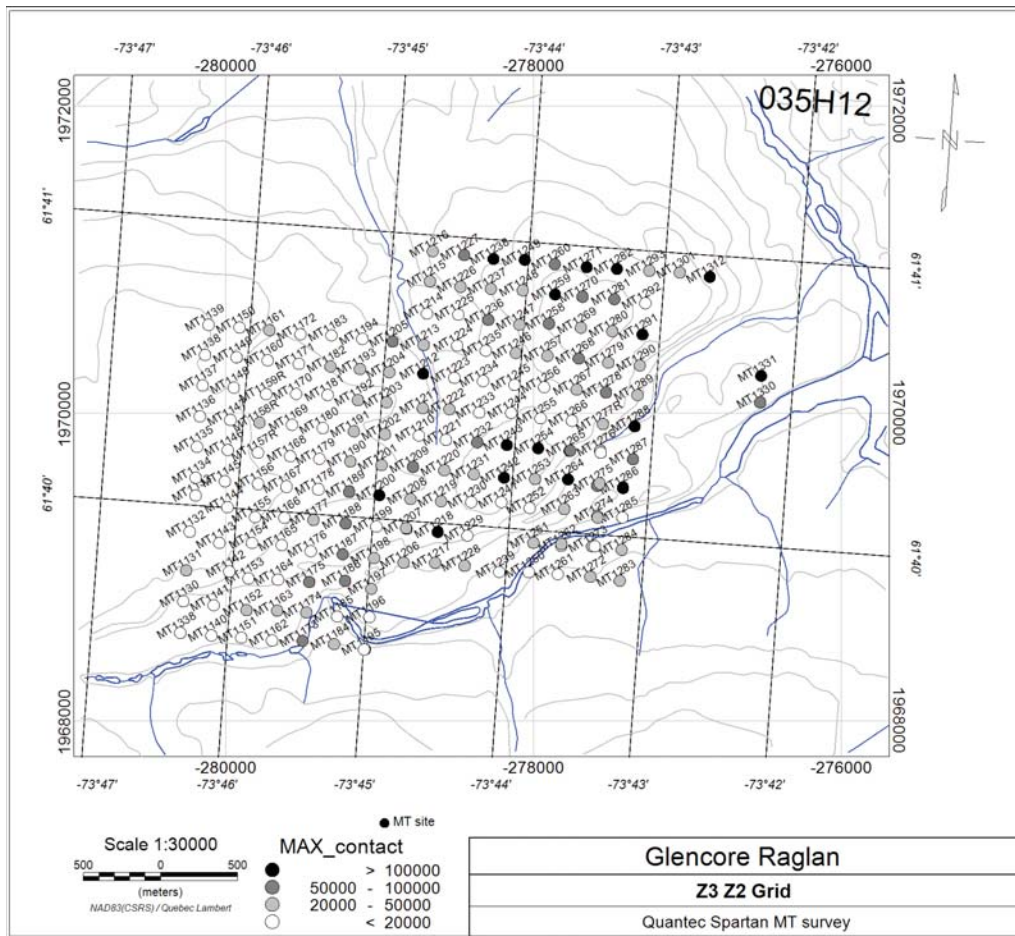


Figure 4-3: Distribution of the maximum (one value per site) of the contact impedance measured for sites on grids Z3-Z2.

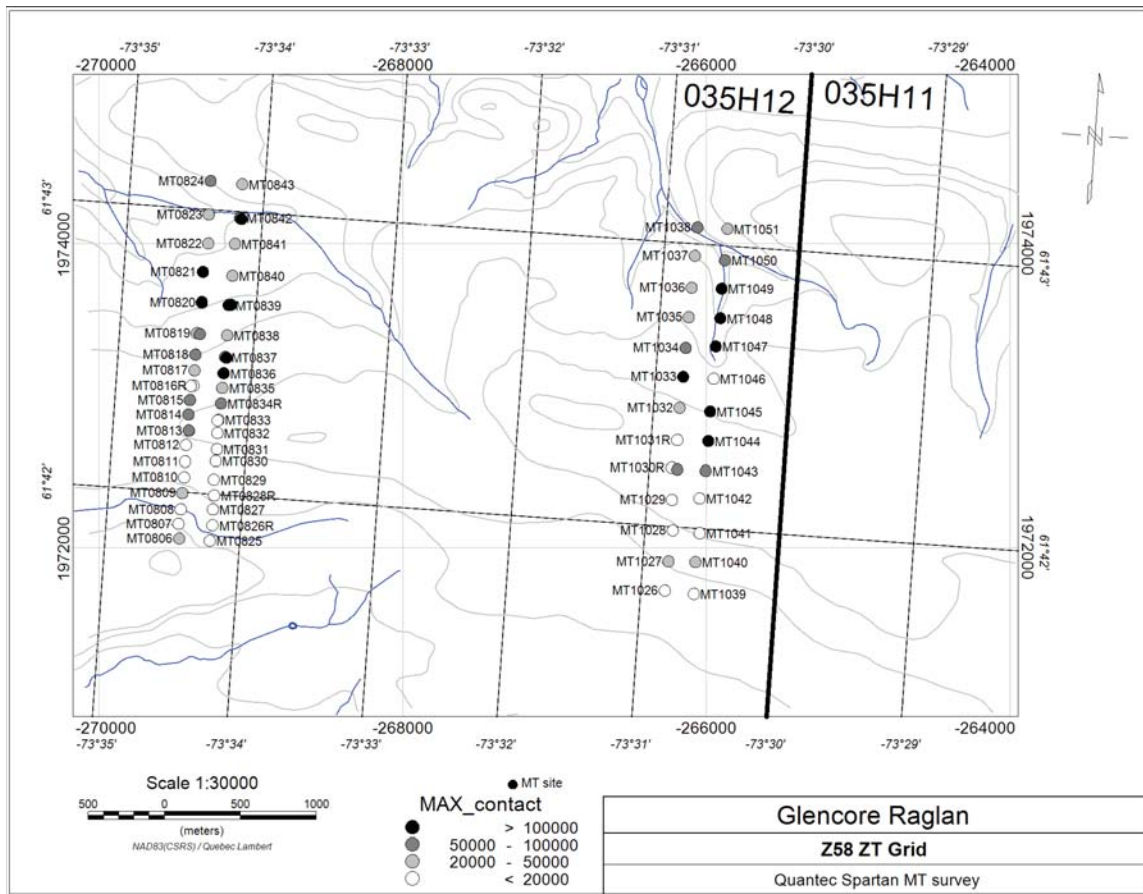


Figure 4-4: Distribution of the maximum (one value per site) of the contact impedance measured for sites on grids Z58-ZT.

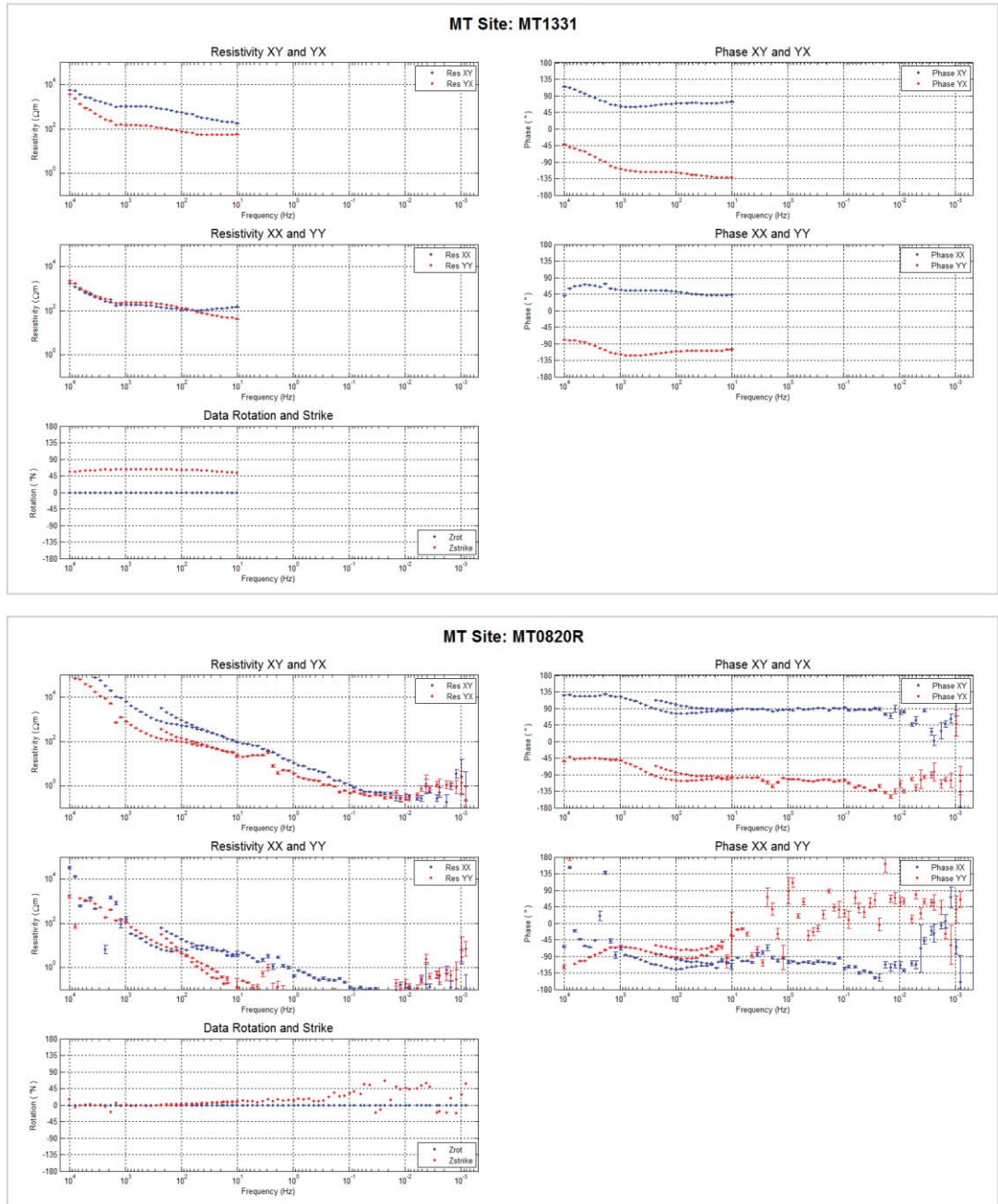


Figure 4-5: Example of pull-up on the MT sounding curves due to high impedance contact (sites 1331 and 0820R).

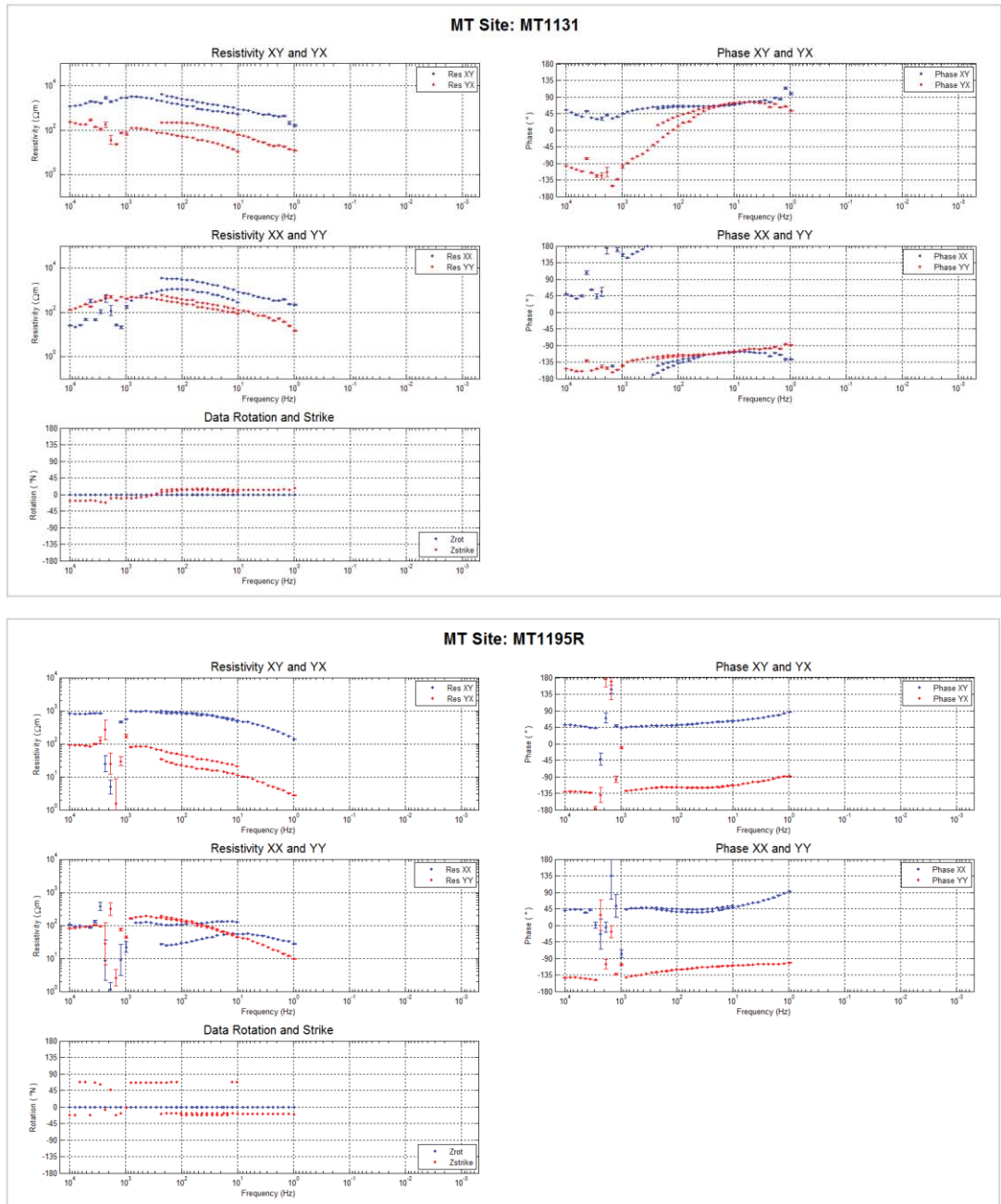


Figure 4-6: Example of HF/LF band shift on MT sounding curves (sites 1131 and 1195R).

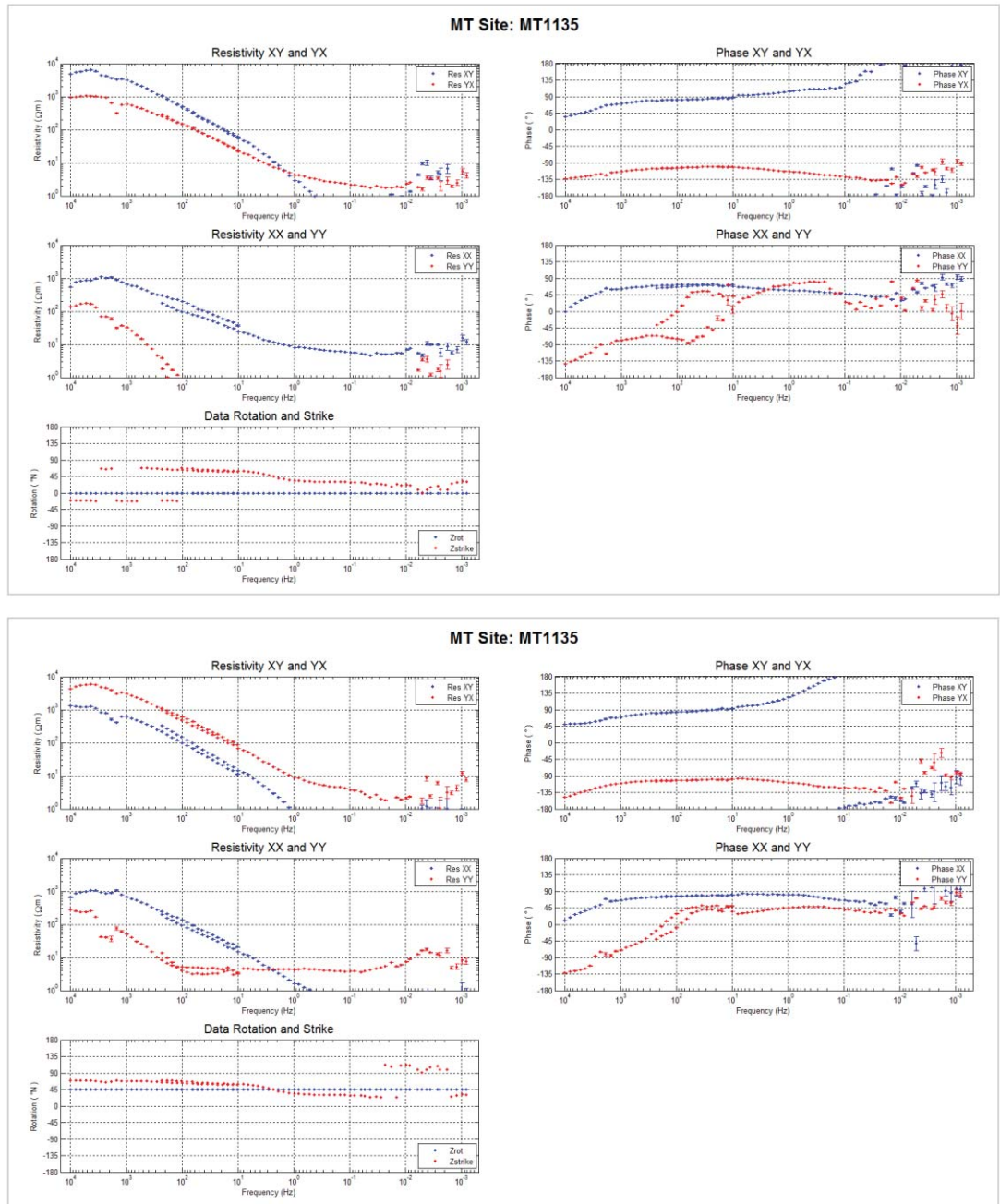


Figure 4-7: Example of HF/LF band shift on MT sounding curves (site 1135; XX shift is transferred onto XY data after 45degrees rotation).

5. DELIVERABLES

The final deliverables include the following:

- Differential GPS (DGPS) Survey
 - Compilation of the measured points (excel file).

- Magnetotelluric (MT) Survey
 - Grid Z3_Z2: 168 sites (178 EDI including repeats)
 - Grid Z58_ZT: 64 sites (75 EDI including repeats)

 - For each surveyed MT site, we provide:
 - Single ASCII GPS Survey file that includes location (Latitude/Longitude, projected UTM and GRID coordinates) and elevation details of MT sites;
 - EDI files:
 1. Single Site EDI file of the final processed data (raw) containing Complex Spectral Matrices at each frequency;
 - File name as “MT0000.edi”
 2. Single Site EDI file of the edited processed data containing Impedances at each frequency (edition from CGG-Geotools);
 - File name as “MT0000ed.edi”
 - The EDI file stores MT sounding data as:
Raw data saved as Impedances blocks
Edited data saved as Resistivity and Phases blocks
 3. Single Site EDI files of the interpolated data of the edited data (interpolation output from CGG-Geotools);
 - File name as “MT0000int.edi”
 - The EDI file stores the MT (interpolated) sounding data as:
Impedances and Resistivity and Phases blocks

5.1. DIGITAL ARCHIVE

5.1.1. Field Data Archive

The raw field data are delivered on a hard disk drive and comprise the following:

Time Series:	Raw Event Log File Folders (eg. Eventxxxx.dat). Also contains AU.txt and Event.log files which contain information on the location and time of the event in QuickLay digital format;
MT processed Data:	Daily Processing runs in QuickLay digital format saved as '.MT' files linked with '#SDM' folder with .SDM files containing Auto and Cross-power Spectral estimates for each sampling band and site; Spectra are in Right Hand positive down co-ordinate system.

Processed –SDM formatted– data are band-merged into geo-referenced EDI file containing Auto and Cross-Power Spectral estimates for individual stations;

EDI format:

single site format = one site per EDI file

EDI files have X at **00° True** (i.e., ROTSPEC=0)

EDI is a format conforming to SEG standard for the storage of magnetotelluric (MT) data (Wight, D. E., 1987).

5.1.2. Digital Archive attached to the Report

The digital archive accompanying this report contains the final processed data, including survey files, processing notes and a copy of this report. The digital archive is delivered on a DVD archive. Copy of that DVD is also provided on the hard disk drive.

Table 5-1: Contents of the digital archive attached to the report.

Directory	Contents
\Report	Logistics report (.PDF)
\Field Results\EDI_Z3_Z2	Final processed MT data (.EDI) for grid Z3-Z2; include raw, edited and interpolate EDI files screen capture of the edited data and site survey file
\Field Results\EDI_Z58T_ZT	Final processed MT data (.EDI) for grid Z58T-ZT include raw, edited and interpolate EDI files screen capture of the edited data and site survey file
\Field Results\EDI_Remote	Daily process data at the remote site
\Field Results\Geotools	CGG-Geotools database with the 'edited & interpolated' results.
\Field Results\DGPS_records	Compilation of the DGPS measurements
\Field Results\Reports	Field Processing and Progress reports (with data QAQC comments) Ap Index tables
\Geosoft\Databases	Geosoft Survey location databases
\Geosoft\QuebecLambert	Geosoft location maps in NAD83-QuebecLambert projection
\Geosoft\otherMaps	Geosoft location maps in NAD83-UTM projection (used for tracking)

Respectfully submitted by Benoît Tournerie, P.Geo, (OGQ#1322), March 1, 2018



STATEMENT OF QUALIFICATION

I, Benoît Tournerie, declare that:

I am a Senior Geophysicist with residence in Toronto, Ontario and I am presently employed in this capacity with Quantec Geoscience Ltd., Toronto, Ontario;

I obtained a License (equivalent to B.Sc.) in 1989, a DEA (equivalent to M.Sc.) in 1991, and a Doctorate with Honours (equivalent to Ph.D.) in December 1995, in Earth Sciences, option geophysics, from the University of Rennes 1, Rennes, France;

I am a registered geophysicist and a member in good standing with a license to practice in the Province of Ontario (APGO member #1609), and in the Province of Québec (OGQ member #1322);

I am also a member of the Society of Exploration Geophysicists (SEG), the European Association of Geoscientist and Engineers (EAGE), and the Canadian Exploration Geophysical Society (KEGS);

I oversaw the final Quality Control (QC) of the acquired data and have compiled the final processed data presented in this report;

I have no interest, nor do I expect to receive any interest in the properties or securities of Glencore Canada Corporation, its subsidiaries or its joint-venture partners.

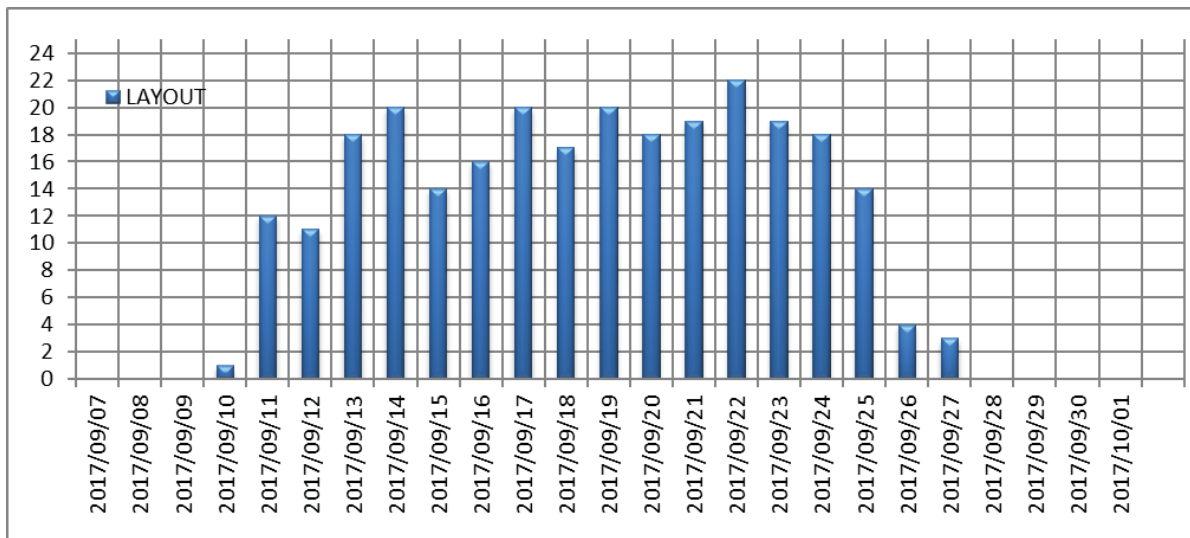
Toronto, Ontario, March 1, 2018



Benoît Tournerie, P. Geo. D.Sc.,
Quantec Geoscience Ltd.

APPENDIX A. PRODUCTION SUMMARY

	ALL	LAYOUT	restart	to repeat	repeated
2017/09/07	MOB DAY	0	0	0	0
2017/09/08	SAFETY DAY	0	0	0	0
2017/09/09	WEATHER DAY	0	0	0	0
2017/09/10	PST/RM DAY	1	0	0	0
2017/09/11	ACQ DAY	12	0	0	0
2017/09/12	ACQ DAY	11	0	8	1
2017/09/13	ACQ DAY	18	0	3	2
2017/09/14	ACQ DAY	20	0	5	1
2017/09/15	ACQ DAY	14	0	3	3
2017/09/16	ACQ DAY	16	0	3	0
2017/09/17	ACQ DAY	20	0	2	0
2017/09/18	ACQ DAY	17	0	0	2
2017/09/19	ACQ DAY	20	0	0	0
2017/09/20	ACQ DAY	18	0	1	0
2017/09/21	ACQ DAY	19	0	0	1
2017/09/22	ACQ DAY	22	0	3	0
2017/09/23	ACQ DAY	19	0	0	3
2017/09/24	ACQ DAY	18	0	1	0
2017/09/25	ACQ DAY	14	0	1	0
2017/09/26	ACQ-WEA DAY	4	0	0	14
2017/09/27	ACQ DAY	3	0	0	4
2017/09/28	PICKUP/PACK	0	0	0	3
2017/09/29	PICKUP/PACK	0	0	0	0
2017/09/30	STANDBY DAY	0	0	0	0
2017/10/01	DEMOB DAY	0	0	0	0



PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/07		ALL			MOB DAY			
2017/09/08		ALL			SAFETY DAY			
2017/09/09		ALL			WEATHER DAY			
2017/09/10		ALL			PST/RM DAY			
2017/09/11	2017/09/10	T01	MT0811		final		Group setup - practice site. Pots were used	Pots used. Charging station 100m E of site. 2 DDH in vicinity of site. Road ~50-60km N of site. "T" configuration used to avoid road.
2017/09/11		ALL			ACQ DAY			
2017/09/12	2017/09/11	T01	MT0806		final			Drill casing, 25m SW of site. Drillholes everywhere
2017/09/12	2017/09/11	T01	MT0807		final			Drill 40m north of north Ex plate
2017/09/12	2017/09/11	T01	MT0811	R	final		Repeated with plates	Charging station 100m E of site. 2 DDH in vicinity of site. Road ~50-60km N of site. "T" configuration used to avoid road.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/12	2017/09/11	T02	MT0818		final		Operator harvested after 3 hours, but it was too late to move the logger, so he restarted it to run overnight.	Drill casings NW and SE of logger
2017/09/12	2017/09/11	T01	MT0825		to repeat	Quantec QC	site with band shift on YX; consider to repeat or to keep only data to 10Hz (since HF dead band is of good quality- low noise); If the site is not repeat; data will be edited to remove the LF range.	Drill holes/casings 35m west and east of site
2017/09/12	2017/09/11	T02	MT0837		to repeat	Band shift	data noisy for F<0.01hz; band shift in XX and YY; impact on the data after rotation to 45deg; would need repeat or agree to save only to 10Hz;	None noted
2017/09/12	2017/09/11	T03	MT1030		to repeat	Equipment		Road 250m north of site. Power source 25m east.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/12	2017/09/11	T03	MT1031		to repeat	Equipment		Road 20m north of site, so site was set in L configuration.
2017/09/12	2017/09/11	T04	MT1032		to repeat	Equipment	Bad startup. Config was set up correctly, but no LF data was acquired, HF had no GPS lock for all netEvents	Very rocky
2017/09/12	2017/09/11	T04	MT1033		to repeat	Quantec QC	app-res and phase pull on the HF due to very large contact impedance- valid data here is may be only for f<1khz; I would recommend to repeat the site;	Extremely rocky
2017/09/12	2017/09/11	T04	MT1045		to repeat	Quantec QC	app-res and phase pull on the HF (10k-1k Hz) due to very large contact impedance- valid data here is may be only for f<1khz; I would recommend to repeat the site;	Very rocky

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/12	2017/09/11	T04	MT1046		to repeat	Band shift	noisy HF-dead band; noise also for F<3hz; band shift on the data after rotation by 45deg - may be value to do a second reading here;	
2017/09/12		ALL			ACQ DAY			
2017/09/13	2017/09/12	T01	MT0808		to repeat	Band shift	noise in the HF-dead band; band shift after rotation -	Drill 75m south of site, drill 110m southwest of site
2017/09/13	2017/09/12	T01	MT0809		final			Drill hole 100m west of site
2017/09/13	2017/09/12	T02	MT0817		final		Acquired LF at 2kHz instead of 1kHz	None noted
2017/09/13	2017/09/12	T01	MT0826		to repeat	Operator		Drill 100m south of site. Operator could hear running water below rocks, suspect a stream/river bed running below coils.
2017/09/13	2017/09/12	T01	MT0827		final			Drill 75m north of site, drill 100m southeast of site

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/13	2017/09/12	T02	MT0836		to repeat	Band shift	noisy in the HF-dead band and for F<3Hz; small band shift in XX and YY; Large impact on data after rotation to 45deg; need repeat or agree to save only to 10Hz;	None noted
2017/09/13	2017/09/12	T03	MT1029		final			E-W drill road 10m south of site. DH 10m SW of logger
2017/09/13	2017/09/12	T03	MT1031	R	final			Road 20m north of site, so site was set in L configuration.
2017/09/13	2017/09/12	T04	MT1032	R	final			None noted
2017/09/13	2017/09/12	T04	MT1034		final			None noted
2017/09/13	2017/09/12	T04	MT1047		final			Very rocky, old EM wire northwest of site, creek bed west of site
2017/09/13		ALL			ACQ DAY			
2017/09/14	2017/09/13	T01	MT0810		final			5 DH within 100m of sites
2017/09/14	2017/09/13	T01	MT0812		final			Drill 40m NW of logger

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/14	2017/09/13	T02	MT0816		to repeat	Operator	Bad configuration file. No HF events	N-S road west of site. West Ey crosses road. DH just west of logger
2017/09/14	2017/09/13	T05	MT0819		final			Drill 800m E of site
2017/09/14	2017/09/13	T05	MT0820		to repeat	Quantec QC	noisy HF-dead band; as also F<10Hz - app-res and phase pull up on XY also observed on the next site; - may be consider repeat for data quality	None noted
2017/09/14	2017/09/13	T01	MT0828		to repeat	Operator	Seems like HFHx was used for LF events, and LFHy was used for HF events?? Investigate more.	2 DH's 35m west of site
2017/09/14	2017/09/13	T01	MT0829		final			2DHs noted 75m W and 60m SW
2017/09/14	2017/09/13	T01	MT0830		final			None noted
2017/09/14	2017/09/13	T02	MT0834		to repeat	Operator	Bad configuration file. No LF events	None noted

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/14	2017/09/13	T02	MT0835		final			None noted
2017/09/14	2017/09/13	T05	MT0838		final			None noted
2017/09/14	2017/09/13	T05	MT0839		to repeat	Quantec QC	small noise in the Hf-dead band; scatters in YX near 1Hz and more noise for F<0.01hz; pull up on the app-res and phase due to high impedance contact; Results is then only 'valid' data for F<1khz, so may be value to repeat;	None noted
2017/09/14	2017/09/13	T03	MT1028		final		Operator harvested after 3 hours, but it was too late to move the logger, so he restarted it to run overnight.	None noted

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/14	2017/09/13	T03	MT1030	R	final			Site moved due to power boxes and flooding. Two power boxes within 50m of site.
2017/09/14	2017/09/13	T04	MT1035		final			Flat rock
2017/09/14	2017/09/13	T04	MT1036		final			Small flat rocks
2017/09/14	2017/09/13	T04	MT1048		final			Underground creek just west of logger. Site is on big rocks
2017/09/14	2017/09/13	T04	MT1049		final			"T" shaped setup to avoid water. Underground creek running N-S just beside logger.
2017/09/14		ALL			ACQ DAY			
2017/09/15	2017/09/14	T01	MT0813		final			4 DH within 75m
2017/09/15	2017/09/14	T02	MT0814		final			5 DCs within 50m
2017/09/15	2017/09/14	T02	MT0815		final		Possible Logger Issue. Overnight acquisition, but LF events only started acquiring	DH within 50m NW of logger

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
							after 12h. Only 3H of LF events available.	
2017/09/15	2017/09/14	T02	MT0816	R				Road W of site
2017/09/15	2017/09/14	T05	MT0821		final			Water running 75m N of site. DH E of site
2017/09/15	2017/09/14	T05	MT0822		final			Site moved 25m SW due to running and open water at site
2017/09/15	2017/09/14	T01	MT0828	R	final			2 DH 40m W of site. DH 70m SE of site
2017/09/15	2017/09/14	T01	MT0831		final			Road 30m N of site. DH 75m SW of site
2017/09/15	2017/09/14	T01	MT0832		final			2 DH NW of site. Road 100m S of site
2017/09/15	2017/09/14	T02	MT0833		final			None noted
2017/09/15	2017/09/14	T02	MT0834	R	final			None noted
2017/09/15	2017/09/14	T05	MT0840		final			Creeks running across site
2017/09/15	2017/09/14	T05	MT0841		final			Running water/stream through +Ey dipole

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/15	2017/09/14	T03	MT1026		final			None noted
2017/09/15	2017/09/14	T03	MT1027		final			Battery dead on pickup
2017/09/15	2017/09/14	T04	MT1037		to repeat	Band shift	noise in the HF-dead band; band shift in the YY mode; it has impact the data after rotaton by 45deg; would recoment to repeat of to keep data only to 10hz;	Flat and rocky
2017/09/15	2017/09/14	T04	MT1038		final			Steep valley, so site set up in L shape. Underground creek to west of site. Site is on rocky ledge
2017/09/15	2017/09/14	T03	MT1039		to repeat	Equipment	has only HF data - good - but has been flag to repeat (LF issue) unless approved as is	Main road runs diagonally through -Ey
2017/09/15	2017/09/14	T03	MT1040		final			Main road 10m E of logger. Site was set up as a sideways "T". All plates are in water.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/15	2017/09/14	T04	MT1050		to repeat	Band shift	data ok but large band shift in the YY; shift remain in XX and YY, but no impact on XY-YX	Underground creek running below -Ey dipole.
2017/09/15		ALL			ACQ DAY			
2017/09/16	2017/09/15	T05	MT0823		final			Station moved 25m SE due to river on site
2017/09/16	2017/09/15	T05	MT0824		final			None noted
2017/09/16	2017/09/15	T03	MT0842		final			Station moved 25m S due to river at site
2017/09/16	2017/09/15	T03	MT0843		final			None noted
2017/09/16	2017/09/15	T03	MT1041		final			T-shape due to road 20m E of site
2017/09/16	2017/09/15	T03	MT1042		to repeat	Equipment	Coils seem open in both HF and LF	T-shape due to road 20m E of site
2017/09/16	2017/09/15	T03	MT1043		final			Site moved due to road. Major road 150m north and another 25m East. Site set up as a sideways "T" to avoid roads
2017/09/16	2017/09/15	T04	MT1051		to repeat	Band shift	noisy HF dead band; large band shift in XX; impact the YX data	Flat and rocky

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
							after rotation by 45deg; - redo	
2017/09/16	2017/09/15	T01	MT1130				Z2-Z3	Power line curves around site around W and S of site. Pit to the east with pump/generator
2017/09/16	2017/09/15	T01	MT1140				Z2-Z3	Power wire and road 100m N. Drill 150m SE
2017/09/16	2017/09/15	T02	MT1175				Z2-Z3	Power cable just south of site. L shape setup to avoid cable.
2017/09/16	2017/09/15	T02	MT1176		to repeat		Z2-Z3	Road and culvert crossing Ex. Culvert N of site
2017/09/16	2017/09/15	T02	MT1187				Z2-Z3	Road just north of site. DH SW of logger.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/16	2017/09/15	T01	MT1338				Z2-Z3	Power line just north of site. Drill 50m SE.
2017/09/16		ALL			ACQ DAY			
2017/09/17	2017/09/16	T03	MT1044		to repeat	Equipment	Coils seem open in both HF and LF	High contact res to N. T-shape due to road 20m S of site
2017/09/17	2017/09/16	T01	MT1131					DH 5m NW of site. Pit 50m SE of site
2017/09/17	2017/09/16	T01	MT1132					Stock piles/stones south of site. 4DH SW of logger. Water tube running E-W just N of site. Pond to the north.
2017/09/17	2017/09/16	T01	MT1141					
2017/09/17	2017/09/16	T01	MT1142					Pit 5m SW of site. Metal stand S of site

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/17	2017/09/16	T01	MT1143					Water pipe running diagonally from NW to SE of site. Roads to the east and south of site.
2017/09/17	2017/09/16	T02	MT1173					Site moved 22m due to creek which curves around SE of site. L shaped configuration was used.
2017/09/17	2017/09/16	T02	MT1174					Creek N and E of site
2017/09/17	2017/09/16	T02	MT1185					
2017/09/17	2017/09/16	T02	MT1186					
2017/09/17	2017/09/16	T04	MT1217					Haul road 30m north of site , so +Ex is shortened. South of logger site is a large cliff.
2017/09/17	2017/09/16	T04	MT1218					Piles of loose waste rock in the SW quadrant. Roads to the N and E of site. DH in the SE quadrant. Very rocky

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/17	2017/09/16	T04	MT1228					Steep cliff, haul road, pipeline, and boulders N of site. Electric cable 10m S of site. Building 150m E of site
2017/09/17	2017/09/16	T05	MT1261					Building 500m NW of site. Vent 500m north and windmill 900m north of site.
2017/09/17	2017/09/16	T05	MT1272					Vent 550m north of site. Wind mill 900m north. Gains lowered to 4.
2017/09/17	2017/09/16	T03	MT1331		to repeat	Equipment	Bad LF Hx? PSD is lower by 2-3 decades when compared to other coils.	Wire setup was wonky due to splices. Ey is actually 150m and Ex is 50m long. Road is 40m N of site. Windmill is 200m NW. Impedances are high despite bringing in mud for plates.
2017/09/17	2017/09/16	ALL			ACQ DAY			
2017/09/18	2017/09/17	T03	MT1042	R	final			Road 20m E of site.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/18	2017/09/17	T03	MT1044	R	final			Road 20m south of site. Contacts went down to 300k and 70k.
2017/09/18	2017/09/17	T01	MT1133					Ey crosses a road. Stockpile of stones W of site
2017/09/18	2017/09/17	T01	MT1134					Road 15m W of site
2017/09/18	2017/09/17	T01	MT1135					None notes
2017/09/18	2017/09/17	T01	MT1144					Drill 10m E of site. Drill 25m W of site. Road 65m W of site
2017/09/18	2017/09/17	T01	MT1145					Road 210m W of site.
2017/09/18	2017/09/17	T02	MT1184					None noted
2017/09/18	2017/09/17	T02	MT1195					None noted
2017/09/18	2017/09/17	T02	MT1196					None noted
2017/09/18	2017/09/17	T02	MT1197					Powerline just N of site

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/18	2017/09/17	T04	MT1219					Flat and rocky. Piles of pebbles around site. Tower 300m E of site. Wind turbine 900m NE of site
2017/09/18	2017/09/17	T04	MT1229					Pit directly NE of site. Old fuel pump building W of site. Mine portal and building E of site. Steep downward slope S of site. Tower 500m NE of site
2017/09/18	2017/09/17	T04	MT1230					Main road 25m S of site. Crusher N of site. Open flat parking lot NW of site. Tower 150m E of site. Wind turbine 900m NE of site
2017/09/18	2017/09/17	T04	MT1231					Big ditch just north of logger, going through both -Ey and +Ex wires. Windmill 700m NE and DH just NW of site. Tower ~150m SE

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/18	2017/09/17	T05	MT1262					Gains adjusted to 4. Station moved 12m SE due to river. W Ey in water. Vent 350m N of site
2017/09/18	2017/09/17	T05	MT1273					Windmill 900m N of site. Vent 550m NW
2017/09/18	2017/09/17	T05	MT1283					Gains adjusted to 4. Wind turbine 400m N of site. Vent 600m N of site
2017/09/18	2017/09/17	T05	MT1284					Gains adjusted to 4. Vent 600m NW of site. Wind turbine 900m N of site
2017/09/18	2017/09/17	T03	MT1330					None noted
2017/09/18	2017/09/17	ALL			ACQ DAY			
2017/09/19	2017/09/18	T01	MT1136					
2017/09/19	2017/09/18	T01	MT1137					None noted.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/19	2017/09/18	T01	MT1146					
2017/09/19	2017/09/18	T01	MT1147					None noted.
2017/09/19	2017/09/18	T02	MT1198					Road N of site
2017/09/19	2017/09/18	T02	MT1199					Plastic pipeline S of site
2017/09/19	2017/09/18	T02	MT1206					Road N of site
2017/09/19	2017/09/18	T02	MT1207					Plastic pipe crosses Ex
2017/09/19	2017/09/18	T04	MT1220					T-setup due to big cliff W of site. Rocky flat ground
2017/09/19	2017/09/18	T04	MT1221					Slope/cliff meanders around logger, crosses +Ex and +Ey wires.
2017/09/19	2017/09/18	T04	MT1232					Flat and very rocky ground
2017/09/19	2017/09/18	T04	MT1233					Flat. "Best spot yet!"

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/19	2017/09/18	T05	MT1263					Gains adjusted to 4. Station moved 25m. T-setup due to Power wire N and W of site. Road SE of site
2017/09/19	2017/09/18	T05	MT1274					Site moved 50m for safety. Site is on a hill, up N
2017/09/19	2017/09/18	T05	MT1275					Power wire 150m NW of logger. Road 80m SE of logger
2017/09/19	2017/09/18	T05	MT1285					Site moved 15m N due to river
2017/09/19	2017/09/18	T05	MT1286					Gains adjusted to 4. Road 90m N of site. Vent 600m NW of site
2017/09/19	2017/09/18	ALL			ACQ DAY			
2017/09/20	2017/09/19	T01	MT1138					
2017/09/20	2017/09/19	T01	MT1139					
2017/09/20	2017/09/19	T01	MT1148					
2017/09/20	2017/09/19	T01	MT1149					

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/20	2017/09/19	T01	MT1150					
2017/09/20	2017/09/19	T02	MT1200					
2017/09/20	2017/09/19	T02	MT1201					
2017/09/20	2017/09/19	T02	MT1202					
2017/09/20	2017/09/19	T02	MT1208					
2017/09/20	2017/09/19	T02	MT1209					
2017/09/20	2017/09/19	T04	MT1222					Rocky
2017/09/20	2017/09/19	T04	MT1223					Flat, mainly rocky. Wind turbine 800m NE
2017/09/20	2017/09/19	T04	MT1224					Site offset by ~15m NE due to big rocks and cliff. Winmill ~900m NE of site.
2017/09/20	2017/09/19	T04	MT1234					Boulder field, flat and very rocky. Wind turbine 800m NE
2017/09/20	2017/09/19	T04	MT1235					Rocky, flat. Wind turbine 700m NE, not turning

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/20	2017/09/19	T05	MT1264					Gains reduced to 4. Electrical cable 20m E of site. Road 200m S of site
2017/09/20	2017/09/19	T05	MT1265					Gains reduced to 4. On N-ward slope. Wind turbine 800m NE, not turning
2017/09/20	2017/09/19	T05	MT1266					Windmill 600m N of site.
2017/09/20	2017/09/19	T05	MT1276					Gains reduced to 4. Site moved 25m N to avoid power lines
2017/09/20	2017/09/19	T05	MT1277		to repeat	Equipment		Gains reduced to 4. Wind turbine not turning. On N-ward slope
2017/09/20	2017/09/19	ALL			ACQ DAY			
2017/09/21	2017/09/20	T01	MT1160					
2017/09/21	2017/09/20	T01	MT1161					
2017/09/21	2017/09/20	T01	MT1171					
2017/09/21	2017/09/20	T01	MT1172					

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/21	2017/09/20	T02	MT1203					None noted
2017/09/21	2017/09/20	T02	MT1204					
2017/09/21	2017/09/20	T02	MT1210					None noted
2017/09/21	2017/09/20	T02	MT1211					None noted
2017/09/21	2017/09/20	T04	MT1214					Big rocks all around site
2017/09/21	2017/09/20	T04	MT1215					Very rocky, on a ledge
2017/09/21	2017/09/20	T04	MT1225					Big rock piles NE of site. Wind turbine not turning
2017/09/21	2017/09/20	T04	MT1226					Flat small rocks
2017/09/21	2017/09/20	T04	MT1236					Very rocky. Small hill NE of site
2017/09/21	2017/09/20	T05	MT1267					Gains reduced to 4. Road 30m W of site. Power cable E of site. Wind turbine not turning
2017/09/21	2017/09/20	T05	MT1268					Gains reduced to 4. Mining road W of site.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
								Wind turbine not turning
2017/09/21	2017/09/20	T05	MT1277	R				Gains reduced to 4. Wind turbine not turning. On N-ward slope
2017/09/21	2017/09/20	T05	MT1278					Gains reduced to 4. Ey set to 270. Wind turbine not turning
2017/09/21	2017/09/20	T05	MT1279					Windmill in vicinity (not turning)
2017/09/21	2017/09/20	ALL			ACQ DAY			
2017/09/22	2017/09/21	T01	MT1157		to repeat	Equipment		None noted
2017/09/22	2017/09/21	T01	MT1158		to repeat	Equipment		None noted
2017/09/22	2017/09/21	T01	MT1159		to repeat	Equipment		None noted
2017/09/22	2017/09/21	T01	MT1169					None noted
2017/09/22	2017/09/21	T01	MT1170					None noted
2017/09/22	2017/09/21	T02	MT1194					None noted
2017/09/22	2017/09/21	T02	MT1205					None noted
2017/09/22	2017/09/21	T02	MT1212					None noted
2017/09/22	2017/09/21	T02	MT1213					None noted
2017/09/22	2017/09/21	T04	MT1216					Flat and rocky

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/22	2017/09/21	T04	MT1227					Flat and rocky. Wind turbine SE of site
2017/09/22	2017/09/21	T04	MT1237					Very very rocky
2017/09/22	2017/09/21	T04	MT1249					Cliff on -Ey wire. Very rocky. Windmill turning ~500m SE of site.
2017/09/22	2017/09/21	T05	MT1269					Road 100m E. Wind turbine 200m NE
2017/09/22	2017/09/21	T05	MT1270					Wind turbine 150m NE
2017/09/22	2017/09/21	T04	MT1280					Road runs through site (through both dipoles). Turning windmill ~75m NE of logger and ~25m east of +Ex wire. Powerline on the ground running to windmill ~15m from coils. Gains dropped to 4
2017/09/22	2017/09/21	T05	MT1281					Windmill turning ~200m S of site
2017/09/22	2017/09/21	T05	MT1291					Wind turbine 200m NW

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/22	2017/09/21	T05	MT1292					Wind turbine 175m SW
2017/09/22	2017/09/21	ALL			ACQ DAY			
2017/09/23	2017/09/22	T01	MT1155					None noted
2017/09/23	2017/09/22	T01	MT1156					None noted
2017/09/23	2017/09/22	T01	MT1157	R				None noted
2017/09/23	2017/09/22	T01	MT1158	R				None noted
2017/09/23	2017/09/22	T01	MT1159	R				None noted
2017/09/23	2017/09/22	T01	MT1168					None noted
2017/09/23	2017/09/22	T02	MT1181					None noted
2017/09/23	2017/09/22	T02	MT1182					None noted
2017/09/23	2017/09/22	T02	MT1183					None noted
2017/09/23	2017/09/22	T02	MT1192					None noted
2017/09/23	2017/09/22	T02	MT1193					None noted
2017/09/23	2017/09/22	T04	MT1238					On outcrop. Very rocky surrounding
2017/09/23	2017/09/22	T04	MT1247					Very rocky, gentle downhill. Windmill

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
								turning ~600m E of site
2017/09/23	2017/09/22	T04	MT1248					Flat and rocky. Wind turbine 500m NE
2017/09/23	2017/09/22	T04	MT1258					Windmill turning 200m E of site.
2017/09/23	2017/09/22	T04	MT1259					Very very rocky. Windmill ~500m SE of site
2017/09/23	2017/09/22	T04	MT1260					Almost flat, rocky. Wind turbine 400m SE
2017/09/23	2017/09/22	T05	MT1271					None noted
2017/09/23	2017/09/22	T05	MT1282					Wind turbine 200m S
2017/09/23	2017/09/22	T05	MT1293					Heavy machines at work 75m S of Ey plate. Dipole length increased to 106m for better contact.
2017/09/23	2017/09/22	T05	MT1301					Trucks and construction zone 100m S. Wind turbine 500m SW

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/23	2017/09/22	T05	MT1312					Heavy machines 100m SW. Wind turbine SW
2017/09/23	2017/09/22	ALL			ACQ DAY			
2017/09/24	2017/09/23	T01	MT1153					Pit 80m W of site.
2017/09/24	2017/09/23	T01	MT1154					Road 15m S
2017/09/24	2017/09/23	T01	MT1165					Road 10m S of site
2017/09/24	2017/09/23	T01	MT1166					Road 100m S
2017/09/24	2017/09/23	T01	MT1167					Plate was pulled out before end of event
2017/09/24	2017/09/23	T02	MT1179					None noted
2017/09/24	2017/09/23	T02	MT1180					None noted
2017/09/24	2017/09/23	T02	MT1190					None noted
2017/09/24	2017/09/23	T02	MT1191		to repeat		Coils swapped so HF collected LF events and vice versa	Low coils were reversed
2017/09/24	2017/09/23	T04	MT1244					Logger site in open, wet area. Piles of

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
								rubble SE of logger. Road ~200 SE.
2017/09/24	2017/09/23	T04	MT1245					Flat, rocky, and swampy. Road 300m E. Wind turbine 700m NE
2017/09/24	2017/09/23	T04	MT1246					Rocky, flat, frozen ground. Wind turbine 700m E
2017/09/24	2017/09/23	T04	MT1255					Puddle midway through Ex wire. Road 20m E and powerline 50m E of site. Area is soggy.
2017/09/24	2017/09/23	T04	MT1256					DHs all around site. Piles of loose rock NE. Road 40m SE. Wind turbine 600m NE
2017/09/24	2017/09/23	T04	MT1257					Flat and rocky. Road 200m E. Wind turbine 500m E
2017/09/24	2017/09/23	T05	MT1287					Gains set to 4
2017/09/24	2017/09/23	T05	MT1288					Road 200m SE of site.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/24	2017/09/23	T05	MT1289					Gains set to 4
2017/09/24	2017/09/23	T05	MT1290					Gains set to 4. On a S-sloping hill. Wind turbine 400m NW
2017/09/24	2017/09/23	ALL			ACQ DAY			
2017/09/25	2017/09/24	T01	MT1151					None Noted
2017/09/25	2017/09/24	T01	MT1152					Power line 15m N. Pit/depression W
2017/09/25	2017/09/24	T01	MT1162		to repeat			None noted
2017/09/25	2017/09/24	T01	MT1163					Power line 50m N
2017/09/25	2017/09/24	T01	MT1164					W plate in pit/depression W of site
2017/09/25	2017/09/24	T02	MT1177					None noted
2017/09/25	2017/09/24	T02	MT1178					None noted
2017/09/25	2017/09/24	T02	MT1188					None noted

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/25	2017/09/24	T02	MT1189					None noted
2017/09/25	2017/09/24	T05	MT1239					Power line 50m W. Mine portal 150m N
2017/09/25	2017/09/24	T05	MT1241					Main road 10m south of site. Radio antenna 60m W.
2017/09/25	2017/09/24	T04	MT1242					Site if offset ~15m due to large ditch. Site is on a big parking lot. Tower ~80m SW of site.
2017/09/25	2017/09/24	T04	MT1243					Very rock drill pad. DH 10m NW. Tower 400m SW
2017/09/25	2017/09/24	T05	MT1250					N plate in water. Mine portal 200m SW
2017/09/25	2017/09/24	T05	MT1251					Site moved 25m due to mine portal 100m NE
2017/09/25	2017/09/24	T05	MT1252					Road just NW of site. Electrical cable 5m N of Ex plate. Main road is 10m south of site.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/25	2017/09/24	T04	MT1253					Power line 40m SE. DH 25m NW. Tower 175m W
2017/09/25	2017/09/24	T04	MT1254					Road 30m W. Power line 40m E. 3 DHs around site. Tower 600m SW. Wind turbine 900m NE
2017/09/25	2017/09/24	ALL			ACQ DAY			
2017/09/26	2017/09/25	T05	MT0813	R				Road 25m W. Main road 100m S. Reused all plate locations
2017/09/26	2017/09/25	T05	MT0816R	R				Road 5m E. Used 4L of mud to reduce plate impedances by 100k ohms
2017/09/26	2017/09/25	T05	MT0836	R				None noted
2017/09/26	2017/09/25	T05	MT0837	R				Road 280m W

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/26	2017/09/25	T04	MT1187	R				Main road 45m N. Side road 30m W. Power line 75m S. DH 30m E. Loose rocks surrounding little flat spot at site
2017/09/26	2017/09/25	T04	MT1195	R				Cliffs and creek N. Wet moss SE. Site on flat plateau
2017/09/26	2017/09/25	T04	MT1207	R				Site offset 13m N because of body of water. Plastic pipeline W, N, and E of site. Main road 40m S
2017/09/26	2017/09/25	T02	MT1262	R				Creek N. Lots of buildings NW. Road N
2017/09/26	2017/09/25	T02	MT1264	R				Power cable W. Power cable E. DC NE
2017/09/26	2017/09/25	T01	MT1265	R				Power cable running NE through +Ex wire. 2DH near logger

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/26	2017/09/25	T01	MT1273	R				River 80m E. River 100m N
2017/09/26	2017/09/25	T01	MT1274	R				River 100m south of logger
2017/09/26	2017/09/25	T01	MT1275	R				Road 20m S. Power cable 100m W
2017/09/26	2017/09/25	T01	MT1276	R				Power cable 10m S
2017/09/26	2017/09/25	ALL			ACQ-WEA DAY			
2017/09/27	2017/09/26	T04	MT0820	R				Frozen, very rocky
2017/09/27	2017/09/26	T04	MT0826	R				None noted
2017/09/27	2017/09/26	T05	MT0839	R				Drill 700m E of +Ey plate.

PROCESS / PICKUP DAY	LAYOUT DAY	TEAM	SITE	R?	ACTIVITY/ Process Result	Repeat Log	Comments Field Manager/[Geo]	Cultures Notes from Field Notes
2017/09/27	2017/09/26	T05	MT0842	R				Used 4 L of water to try to improve impedances. Ground is frozen
2017/09/27	2017/09/26	ALL			ACQ DAY		One crew continued to acquire data while the rest were packing and organizing	
2017/09/28	2017/09/27	T01	MT0819	R				None noted
2017/09/28	2017/09/27	T01	MT0833	R				2 DH within 75m NW of logger. Road 200m S.
2017/09/28	2017/09/27	T01	MT1030R	R				Power box 20m NE of logger and 50m SE of logger.
2017/09/28	2017/09/27	ALL			PICKUP/PACK			
2017/09/29		ALL			PICKUP/PACK			
2017/09/30		ALL			STANDBY DAY			
2017/10/01		ALL			DEMOB DAY			

APPENDIX B. SURVEY COVERAGE

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
Z2 Z3					
MT1338	565011	6836829	W 73:46:20.770	N 61:39:33.140	557
MT1130	565012	6837034	W 73:46:20.410	N 61:39:39.750	563
MT1131	565012	6837236	W 73:46:20.190	N 61:39:46.270	598
MT1132	565011	6837488	W 73:46:19.920	N 61:39:54.420	607
MT1133	565028	6837724	W 73:46:18.480	N 61:40:02.040	611
MT1134	565018	6837835	W 73:46:18.960	N 61:40:05.640	604
MT1135	565008	6838036	W 73:46:19.440	N 61:40:12.120	602
MT1136	565009	6838234	W 73:46:19.120	N 61:40:18.530	603
MT1137	565007	6838435	W 73:46:18.960	N 61:40:25.040	602
MT1138	565005	6838634	W 73:46:18.850	N 61:40:31.460	601
MT1139	565009	6838830	W 73:46:18.320	N 61:40:37.790	600
MT1140	565213	6836830	W 73:46:07.040	N 61:39:33.050	557
MT1141	565210	6837027	W 73:46:06.970	N 61:39:39.420	558
MT1142	565289	6837255	W 73:46:01.280	N 61:39:46.730	595
MT1143	565209	6837433	W 73:46:06.510	N 61:39:52.520	601
MT1144	565240	6837668	W 73:46:04.140	N 61:40:00.100	604
MT1145	565208	6837830	W 73:46:06.070	N 61:40:05.360	601
MT1146	565209	6838033	W 73:46:05.780	N 61:40:11.910	600
MT1147	565207	6838229	W 73:46:05.620	N 61:40:18.260	600
MT1148	565209	6838440	W 73:46:05.230	N 61:40:25.060	597
MT1149	565209	6838637	W 73:46:04.980	N 61:40:31.430	595
MT1150	565210	6838832	W 73:46:04.670	N 61:40:37.740	593
MT1151	565407	6836834	W 73:45:53.830	N 61:39:33.050	556
MT1152	565424	6837015	W 73:45:52.460	N 61:39:38.890	553
MT1153	565418	6837221	W 73:45:52.610	N 61:39:45.540	580
MT1154	565420	6837452	W 73:45:52.180	N 61:39:53.020	588
MT1155	565424	6837620	W 73:45:51.700	N 61:39:58.430	594
MT1156	565423	6837835	W 73:45:51.440	N 61:40:05.390	598
MT1157	565404	6838035	W 73:45:52.460	N 61:40:11.860	597
MT1158	565396	6838229	W 73:45:52.780	N 61:40:18.120	598
MT1159	565422	6838417	W 73:45:50.780	N 61:40:24.200	593

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
MT1159R	565422	6838417	W 73:45:50.790	N 61:40:24.200	593
MT1160	565411	6838636	W 73:45:51.230	N 61:40:31.270	590
MT1161	565404	6838832	W 73:45:51.460	N 61:40:37.610	588
MT1162	565607	6836835	W 73:45:40.240	N 61:39:32.950	552
MT1163	565622	6837030	W 73:45:38.950	N 61:39:39.250	552
MT1164	565608	6837231	W 73:45:39.640	N 61:39:45.740	572
MT1165	565612	6837456	W 73:45:39.080	N 61:39:53.030	581
MT1166	565613	6837634	W 73:45:38.790	N 61:39:58.780	590
MT1167	565608	6837834	W 73:45:38.870	N 61:40:05.250	596
MT1168	565614	6838031	W 73:45:38.250	N 61:40:11.610	595
MT1169	565607	6838234	W 73:45:38.400	N 61:40:18.170	596
MT1170	565615	6838436	W 73:45:37.660	N 61:40:24.680	592
MT1171	565614	6838632	W 73:45:37.470	N 61:40:31.010	587
MT1172	565607	6838824	W 73:45:37.680	N 61:40:37.240	581
MT1173	565803	6836850	W 73:45:26.870	N 61:39:33.340	542
MT1174	565811	6837036	W 73:45:26.130	N 61:39:39.340	542
MT1175	565811	6837234	W 73:45:25.890	N 61:39:45.740	566
MT1176	565803	6837434	W 73:45:26.170	N 61:39:52.200	578
MT1177	565801	6837637	W 73:45:26.000	N 61:39:58.760	583
MT1178	565815	6837836	W 73:45:24.840	N 61:40:05.160	597
MT1179	565804	6838031	W 73:45:25.290	N 61:40:11.470	595
MT1180	565807	6838232	W 73:45:24.860	N 61:40:17.990	593
MT1181	565819	6838448	W 73:45:23.760	N 61:40:24.950	586
MT1182	565819	6838634	W 73:45:23.510	N 61:40:30.960	583
MT1183	565807	6838834	W 73:45:24.060	N 61:40:37.440	579
MT1184	566009	6836848	W 73:45:12.880	N 61:39:33.120	555
MT1185	566012	6837028	W 73:45:12.470	N 61:39:38.950	541
MT1186	566042	6837263	W 73:45:10.150	N 61:39:46.530	542
MT1187	566010	6837433	W 73:45:12.090	N 61:39:52.020	573
MT1187R	566010	6837433	W 73:45:12.100	N 61:39:52.020	573
MT1188	566010	6837633	W 73:45:11.830	N 61:39:58.510	580
MT1189	566015	6837839	W 73:45:11.230	N 61:40:05.140	593
MT1190	566004	6838034	W 73:45:11.700	N 61:40:11.440	594
MT1191	566009	6838229	W 73:45:11.100	N 61:40:17.750	586
MT1192	566016	6838433	W 73:45:10.400	N 61:40:24.340	589
MT1193	566011	6838634	W 73:45:10.450	N 61:40:30.850	581
MT1194	566008	6838832	W 73:45:10.370	N 61:40:37.220	579

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
MT1195	566211	6836833	W 73:44:59.220	N 61:39:32.520	561
MT1195R	566205	6836831	W 73:44:59.600	N 61:39:32.460	561
MT1196	566220	6837044	W 73:44:58.320	N 61:39:39.350	541
MT1197	566215	6837227	W 73:44:58.430	N 61:39:45.240	554
MT1198	566215	6837427	W 73:44:58.150	N 61:39:51.710	569
MT1199	566211	6837632	W 73:44:58.170	N 61:39:58.340	577
MT1200	566211	6837836	W 73:44:57.880	N 61:40:04.930	588
MT1201	566208	6838028	W 73:44:57.820	N 61:40:11.130	593
MT1202	566210	6838229	W 73:44:57.430	N 61:40:17.630	586
MT1203	566202	6838436	W 73:44:57.690	N 61:40:24.320	587
MT1204	566202	6838632	W 73:44:57.470	N 61:40:30.640	583
MT1205	566205	6838833	W 73:44:57.000	N 61:40:37.130	574
MT1206	566408	6837416	W 73:44:45.040	N 61:39:51.250	563
MT1207	566407	6837635	W 73:44:44.840	N 61:39:58.300	575
MT1207R	566403	6837640	W 73:44:45.100	N 61:39:58.470	575
MT1208	566414	6837830	W 73:44:44.080	N 61:40:04.600	577
MT1209	566411	6838035	W 73:44:44.030	N 61:40:11.240	582
MT1210	566430	6838241	W 73:44:42.500	N 61:40:17.880	572
MT1211	566439	6838420	W 73:44:41.600	N 61:40:23.660	571
MT1212	566421	6838643	W 73:44:42.590	N 61:40:30.880	561
MT1213	566407	6838829	W 73:44:43.260	N 61:40:36.890	573
MT1214	566409	6839033	W 73:44:42.880	N 61:40:43.490	567
MT1215	566409	6839244	W 73:44:42.600	N 61:40:50.290	567
MT1216	566409	6839439	W 73:44:42.330	N 61:40:56.590	565
MT1217	566611	6837433	W 73:44:31.230	N 61:39:51.670	566
MT1218	566609	6837634	W 73:44:31.130	N 61:39:58.170	581
MT1219	566612	6837834	W 73:44:30.610	N 61:40:04.620	587
MT1220	566615	6838032	W 73:44:30.150	N 61:40:11.020	588
MT1221	566607	6838231	W 73:44:30.470	N 61:40:17.430	576
MT1222	566611	6838429	W 73:44:29.930	N 61:40:23.840	573
MT1223	566624	6838635	W 73:44:28.790	N 61:40:30.490	574
MT1224	566623	6838844	W 73:44:28.570	N 61:40:37.230	569
MT1225	566612	6839045	W 73:44:29.050	N 61:40:43.730	566
MT1226	566609	6839226	W 73:44:29.000	N 61:40:49.600	574
MT1227	566614	6839433	W 73:44:28.410	N 61:40:56.290	576
MT1228	566802	6837432	W 73:44:18.220	N 61:39:51.510	545
MT1229	566802	6837628	W 73:44:17.990	N 61:39:57.850	578

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
MT1230	566807	6837847	W 73:44:17.360	N 61:40:04.910	592
MT1231	566808	6838024	W 73:44:17.090	N 61:40:10.630	596
MT1232	566810	6838232	W 73:44:16.620	N 61:40:17.360	585
MT1233	566805	6838426	W 73:44:16.720	N 61:40:23.620	578
MT1234	566811	6838631	W 73:44:16.080	N 61:40:30.230	575
MT1235	566810	6838829	W 73:44:15.890	N 61:40:36.630	574
MT1236	566807	6839030	W 73:44:15.770	N 61:40:43.140	579
MT1237	566806	6839231	W 73:44:15.610	N 61:40:49.630	585
MT1238	566804	6839426	W 73:44:15.450	N 61:40:55.930	584
MT1239	567029	6837413	W 73:44:02.820	N 61:39:50.740	534
MT1241	567001	6837865	W 73:44:04.170	N 61:40:05.360	588
MT1242	567004	6838020	W 73:44:03.720	N 61:40:10.390	596
MT1243	567002	6838232	W 73:44:03.600	N 61:40:17.240	590
MT1244	567011	6838443	W 73:44:02.720	N 61:40:24.030	582
MT1245	567016	6838626	W 73:44:02.130	N 61:40:29.940	580
MT1246	567005	6838832	W 73:44:02.600	N 61:40:36.620	583
MT1247	567012	6839017	W 73:44:01.890	N 61:40:42.590	590
MT1248	567012	6839241	W 73:44:01.600	N 61:40:49.830	592
MT1249	567007	6839438	W 73:44:01.640	N 61:40:56.190	591
MT1250	567220	6837429	W 73:43:49.870	N 61:39:51.140	539
MT1251	567232	6837621	W 73:43:48.800	N 61:39:57.360	532
MT1252	567187	6837844	W 73:43:51.560	N 61:40:04.580	571
MT1253	567204	6838030	W 73:43:50.100	N 61:40:10.570	587
MT1254	567206	6838230	W 73:43:49.740	N 61:40:17.040	589
MT1255	567204	6838425	W 73:43:49.610	N 61:40:23.340	583
MT1256	567208	6838628	W 73:43:49.080	N 61:40:29.910	583
MT1257	567211	6838832	W 73:43:48.610	N 61:40:36.480	591
MT1258	567201	6839041	W 73:43:49.000	N 61:40:43.230	598
MT1259	567223	6839233	W 73:43:47.230	N 61:40:49.430	597
MT1260	567203	6839428	W 73:43:48.340	N 61:40:55.760	593
MT1261	567408	6837433	W 73:43:37.050	N 61:39:51.170	544
MT1262	567413	6837619	W 73:43:36.480	N 61:39:57.150	532
MT1262R	567413	6837630	W 73:43:36.460	N 61:39:57.520	529
MT1263	567410	6837858	W 73:43:36.330	N 61:40:04.890	551
MT1264	567418	6838047	W 73:43:35.560	N 61:40:10.990	549
MT1264R	567417	6838047	W 73:43:35.640	N 61:40:10.980	549
MT1265	567410	6838232	W 73:43:35.860	N 61:40:16.980	567

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
MT1265R	567414	6838234	W 73:43:35.580	N 61:40:17.040	575
MT1266	567407	6838427	W 73:43:35.800	N 61:40:23.290	581
MT1267	567419	6838632	W 73:43:34.740	N 61:40:29.880	587
MT1268	567414	6838834	W 73:43:34.790	N 61:40:36.430	595
MT1269	567409	6839034	W 73:43:34.840	N 61:40:42.890	598
MT1270	567401	6839235	W 73:43:35.120	N 61:40:49.390	599
MT1271	567410	6839428	W 73:43:34.260	N 61:40:55.610	593
MT1272	567619	6837436	W 73:43:22.680	N 61:39:51.120	540
MT1273	567612	6837634	W 73:43:22.920	N 61:39:57.530	535
MT1273R	567629	6837635	W 73:43:21.780	N 61:39:57.540	538
MT1274	567628	6837832	W 73:43:21.570	N 61:40:03.910	539
MT1274R	567630	6837822	W 73:43:21.420	N 61:40:03.600	539
MT1275	567609	6838028	W 73:43:22.630	N 61:40:10.270	555
MT1275R	567623	6838041	W 73:43:21.660	N 61:40:10.680	557
MT1276	567607	6838254	W 73:43:22.440	N 61:40:17.560	546
MT1276R	567612	6838239	W 73:43:22.100	N 61:40:17.060	546
MT1277	567609	6838425	W 73:43:22.080	N 61:40:23.080	569
MT1278	567610	6838632	W 73:43:21.700	N 61:40:29.760	584
MT1279	567606	6838825	W 73:43:21.730	N 61:40:36.010	587
MT1280	567613	6839030	W 73:43:20.990	N 61:40:42.620	597
MT1281	567608	6839238	W 73:43:21.090	N 61:40:49.340	597
MT1282	567606	6839435	W 73:43:20.900	N 61:40:55.720	591
MT1283	567811	6837428	W 73:43:09.690	N 61:39:50.730	546
MT1284	567804	6837629	W 73:43:09.910	N 61:39:57.250	541
MT1285	567790	6837838	W 73:43:10.540	N 61:40:03.990	526
MT1286	567776	6838028	W 73:43:11.240	N 61:40:10.150	561
MT1287	567824	6838216	W 73:43:07.710	N 61:40:16.190	551
MT1288	567814	6838430	W 73:43:08.160	N 61:40:23.100	542
MT1289	567814	6838633	W 73:43:07.840	N 61:40:29.680	556
MT1290	567811	6838826	W 73:43:07.770	N 61:40:35.900	567
MT1291	567810	6839027	W 73:43:07.600	N 61:40:42.390	589
MT1292	567810	6839231	W 73:43:07.350	N 61:40:49.000	589
MT1293	567816	6839444	W 73:43:06.650	N 61:40:55.860	584
MT1301	568013	6839449	W 73:42:53.220	N 61:40:55.920	584
MT1312	568209	6839439	W 73:42:39.930	N 61:40:55.450	570
MT1330	568609	6838659	W 73:42:13.750	N 61:40:30.020	531
MT1331	568599	6838831	W 73:42:14.200	N 61:40:35.580	534

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
Z58 ZT					
MT0806	575420	6841280	W 73:34:26.830	N 61:41:50.080	623
MT0807	575405	6841376	W 73:34:27.650	N 61:41:53.200	621
MT0808	575411	6841472	W 73:34:27.140	N 61:41:56.280	613
MT0809	575411	6841579	W 73:34:26.960	N 61:41:59.740	622
MT0810	575414	6841682	W 73:34:26.630	N 61:42:03.070	623
MT0811	575411	6841782	W 73:34:26.670	N 61:42:06.320	623
MT0812	575406	6841892	W 73:34:26.830	N 61:42:09.860	623
MT0813	575417	6841986	W 73:34:25.950	N 61:42:12.900	627
MT0813R	575416	6841988	W 73:34:26.040	N 61:42:12.960	623
MT0814	575404	6842092	W 73:34:26.700	N 61:42:16.320	622
MT0815	575405	6842187	W 73:34:26.440	N 61:42:19.390	618
MT0816	575419	6842284	W 73:34:25.360	N 61:42:22.520	615
MT0816R	575403	6842280	W 73:34:26.490	N 61:42:22.400	615
MT0817	575417	6842384	W 73:34:25.370	N 61:42:25.760	613
MT0818	575413	6842487	W 73:34:25.450	N 61:42:29.080	610
MT0819	575410	6842628	W 73:34:25.500	N 61:42:33.640	605
MT0819R	575410	6842628	W 73:34:25.500	N 61:42:33.640	605
MT0820	575424	6842830	W 73:34:24.210	N 61:42:40.150	596
MT0820R	575411	6842832	W 73:34:25.110	N 61:42:40.220	596
MT0821	575412	6843032	W 73:34:24.700	N 61:42:46.700	587
MT0822	575430	6843221	W 73:34:23.190	N 61:42:52.790	584
MT0823	575415	6843411	W 73:34:23.970	N 61:42:58.920	575
MT0824	575406	6843631	W 73:34:24.210	N 61:43:06.030	588
MT0825	575620	6841284	W 73:34:13.160	N 61:41:50.070	617
MT0826	575623	6841386	W 73:34:12.800	N 61:41:53.370	615
MT0826R	575619	6841386	W 73:34:13.080	N 61:41:53.360	615
MT0827	575622	6841491	W 73:34:12.770	N 61:41:56.740	618
MT0828	575621	6841583	W 73:34:12.700	N 61:41:59.730	623
MT0829	575609	6841685	W 73:34:13.310	N 61:42:03.020	623
MT0830	575610	6841806	W 73:34:13.050	N 61:42:06.940	624
MT0831	575611	6841883	W 73:34:12.880	N 61:42:09.430	625
MT0832	575604	6841989	W 73:34:13.200	N 61:42:12.850	624
MT0833	575604	6842076	W 73:34:13.080	N 61:42:15.660	622
MT0833R	575598	6842070	W 73:34:13.530	N 61:42:15.480	622
MT0834	575610	6842184	W 73:34:12.520	N 61:42:19.160	618
MT0835	575609	6842286	W 73:34:12.440	N 61:42:22.440	615

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
MT0836	575610	6842383	W 73:34:12.220	N 61:42:25.570	613
MT0836R	575608	6842383	W 73:34:12.340	N 61:42:25.590	613
MT0837	575608	6842490	W 73:34:12.170	N 61:42:29.030	610
MT0837R	575618	6842485	W 73:34:11.520	N 61:42:28.860	607
MT0838	575609	6842633	W 73:34:11.890	N 61:42:33.670	605
MT0839	575600	6842832	W 73:34:12.220	N 61:42:40.080	599
MT0839R	575600	6842832	W 73:34:12.210	N 61:42:40.080	599
MT0840	575607	6843025	W 73:34:11.480	N 61:42:46.330	591
MT0841	575603	6843235	W 73:34:11.390	N 61:42:53.120	588
MT0842	575620	6843407	W 73:34:10.010	N 61:42:58.670	581
MT0842R	575631	6843401	W 73:34:09.240	N 61:42:58.440	568
MT0843	575614	6843629	W 73:34:10.050	N 61:43:05.840	594
MT1026	578619	6841235	W 73:30:49.220	N 61:41:46.320	626
MT1027	578625	6841428	W 73:30:48.510	N 61:41:52.540	632
MT1028	578634	6841633	W 73:30:47.580	N 61:41:59.160	643
MT1029	578610	6841832	W 73:30:48.900	N 61:42:05.610	643
MT1030	578589	6842040	W 73:30:50.010	N 61:42:12.340	647
MT1030RR	578627	6842032	W 73:30:47.460	N 61:42:12.060	648
MT1031	578610	6842223	W 73:30:48.330	N 61:42:18.250	648
MT1032	578605	6842434	W 73:30:48.330	N 61:42:25.060	646
MT1033	578609	6842639	W 73:30:47.750	N 61:42:31.670	639
MT1034	578607	6842829	W 73:30:47.540	N 61:42:37.830	632
MT1035	578609	6843031	W 73:30:47.080	N 61:42:44.330	629
MT1036	578610	6843226	W 73:30:46.710	N 61:42:50.630	619
MT1037	578613	6843436	W 73:30:46.240	N 61:42:57.410	611
MT1038	578612	6843623	W 73:30:45.980	N 61:43:03.480	605
MT1039	578811	6841231	W 73:30:36.180	N 61:41:46.050	625
MT1040	578801	6841440	W 73:30:36.550	N 61:41:52.800	637
MT1041	578811	6841631	W 73:30:35.520	N 61:41:58.980	640
MT1042	578789	6841858	W 73:30:36.680	N 61:42:06.310	644
MT1043	578813	6842041	W 73:30:34.740	N 61:42:12.210	647
MT1044	578812	6842235	W 73:30:34.530	N 61:42:18.490	649
MT1045	578806	6842429	W 73:30:34.650	N 61:42:24.760	645
MT1046	578809	6842645	W 73:30:34.100	N 61:42:31.710	636
MT1047	578803	6842857	W 73:30:34.190	N 61:42:38.580	628
MT1048	578816	6843044	W 73:30:33.000	N 61:42:44.610	625
MT1049	578807	6843238	W 73:30:33.310	N 61:42:50.870	613

Site ID (edi)	UTM [NAD83/18NH]		Longitude	Latitude	Elevation
	Easting	Northing	(W dd:mm:ss.ss)	(N dd:mm:ss.ss)	
MT1050	578811	6843425	W 73:30:32.750	N 61:42:56.910	608
MT1051	578808	6843633	W 73:30:32.620	N 61:43:03.640	618

APPENDIX C. MT MEASURED DATA

This section presents the Soundings of Final Processed – edited – MT Data on a line per line basis as:

1. Sounding curves
 - a. Observed XY and YX Apparent Resistivity (Ohm-m)
 - b. Observed XY and YX Phase

Notice:

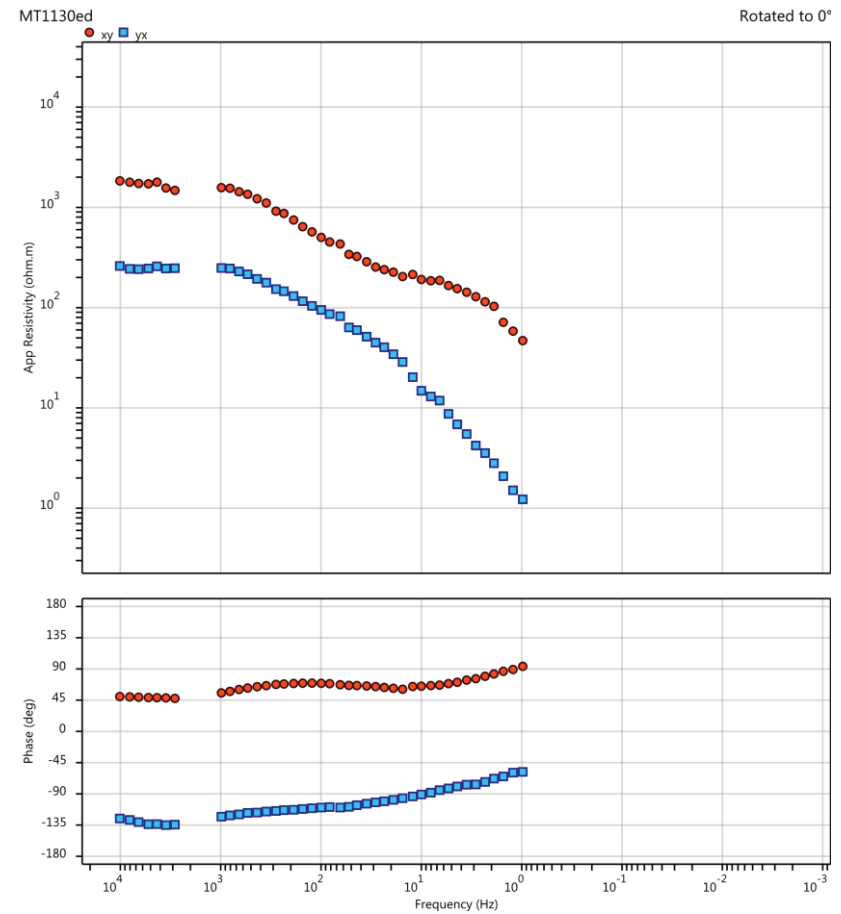
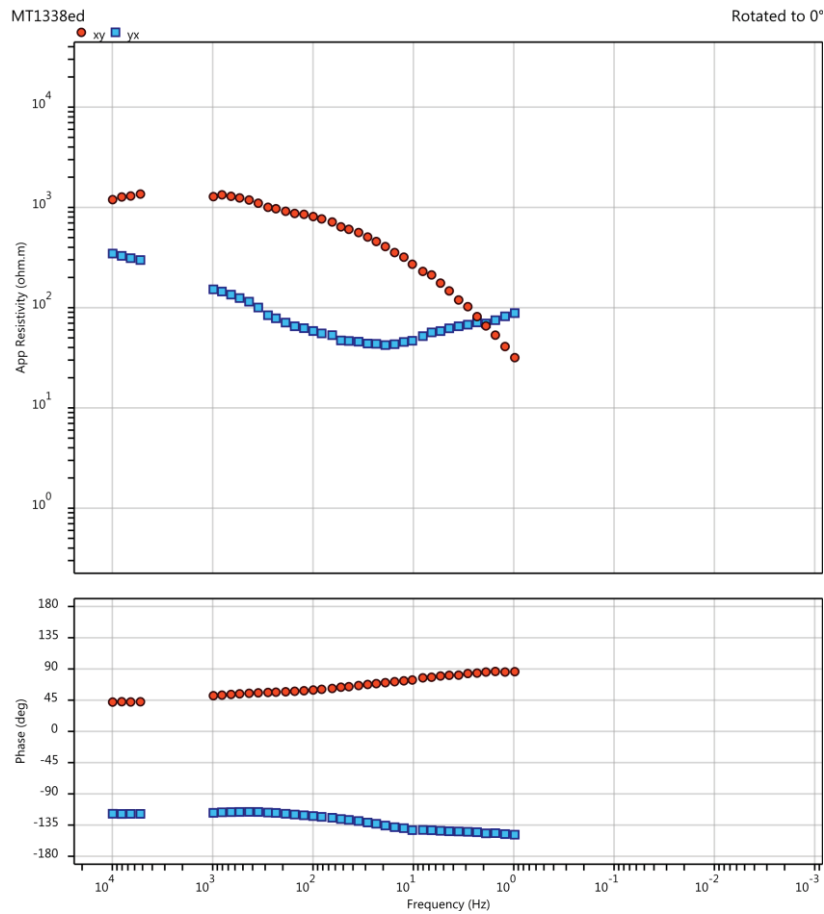
Mode **XY** is defined by Electrical (**Ex**) field and orthogonal Magnetic (**Hy**) field (=Ex/Hy);

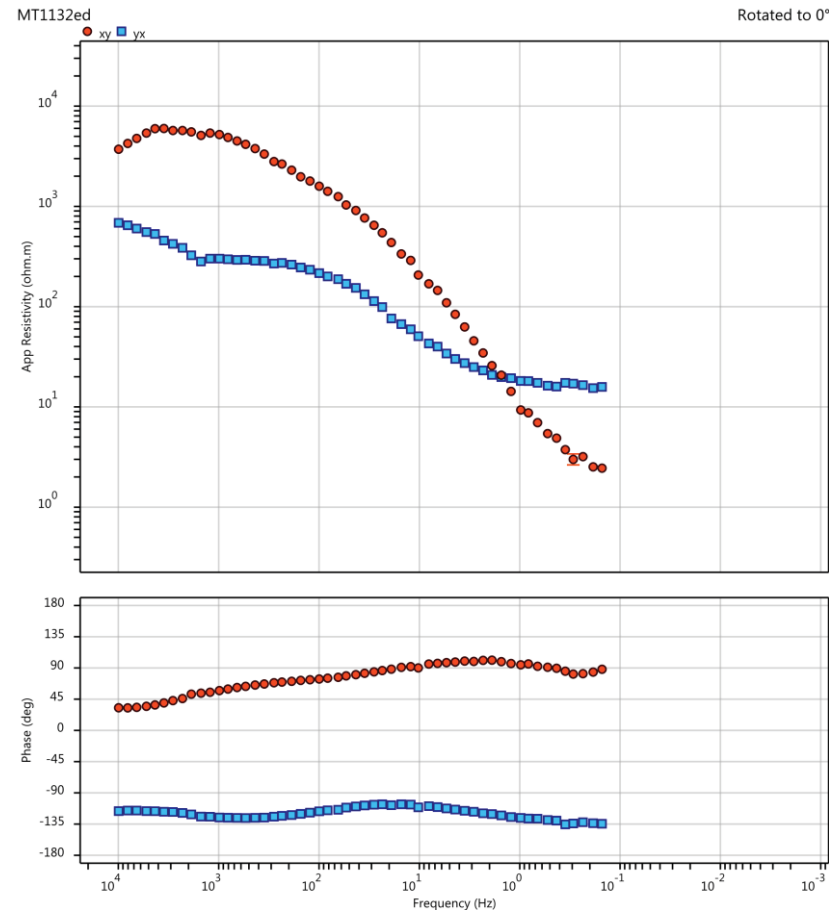
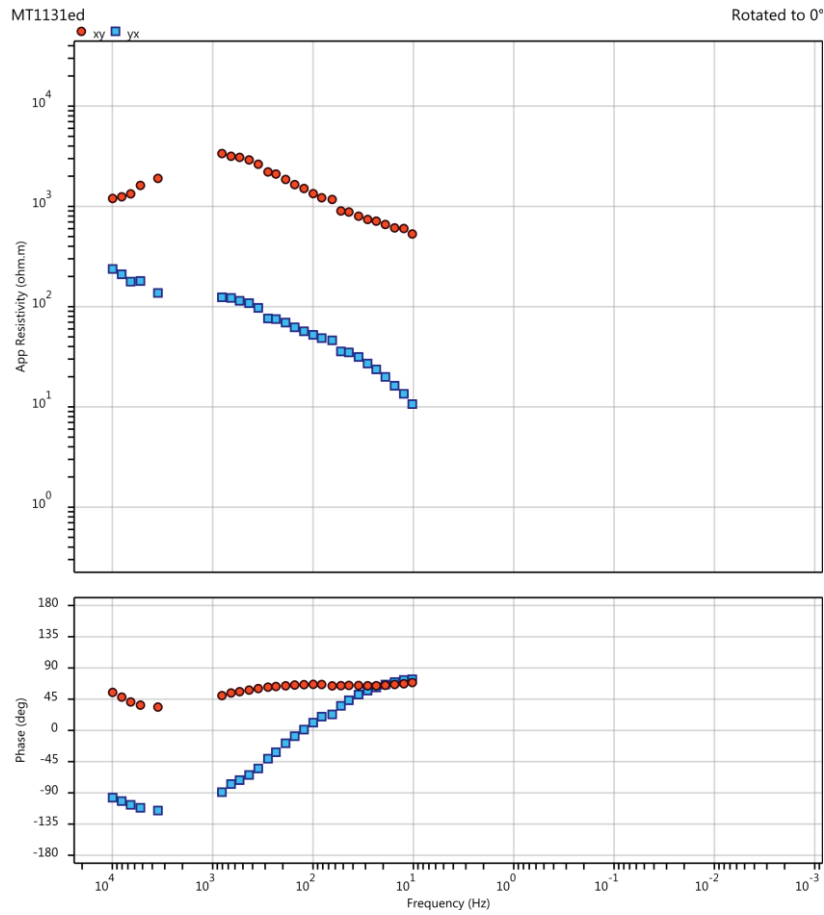
Mode **YX** is defined by Electrical (**Ey**) field and orthogonal Magnetic (**Hx**) field (=Ey/Hx);

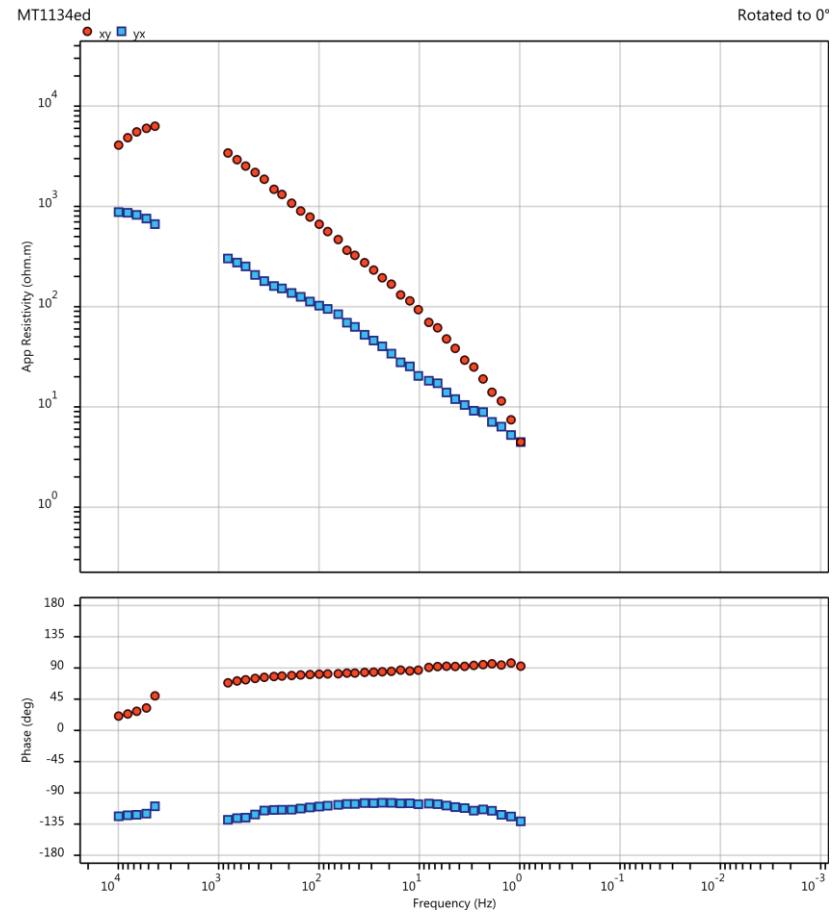
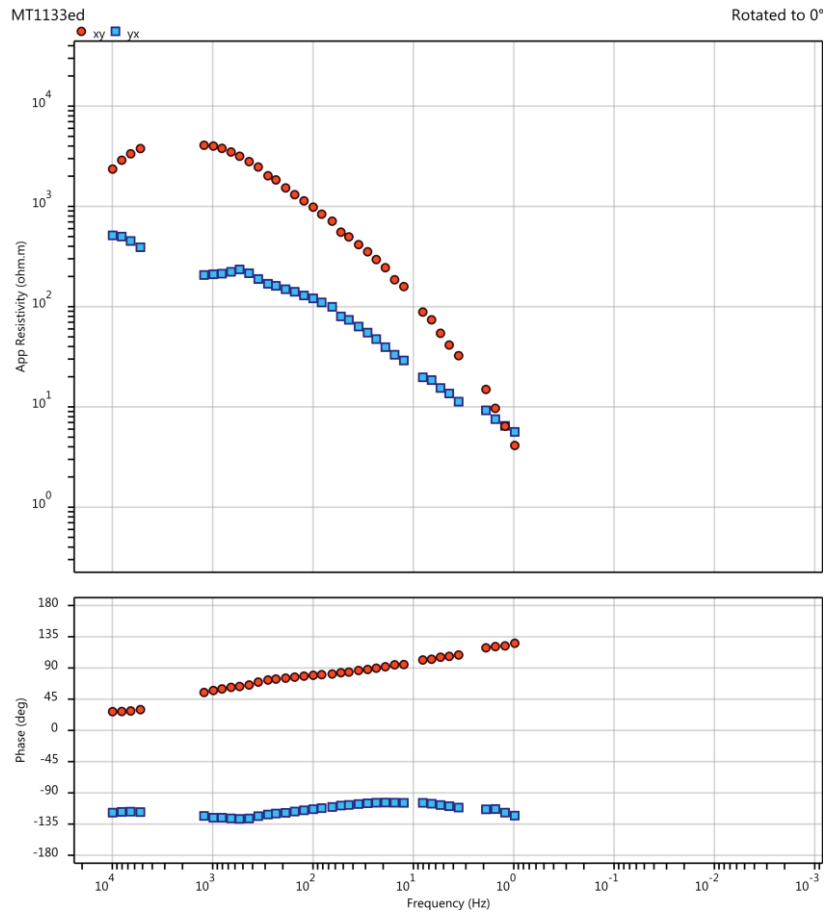
X-axis pointing to **0° True** and Y is perpendicular to X

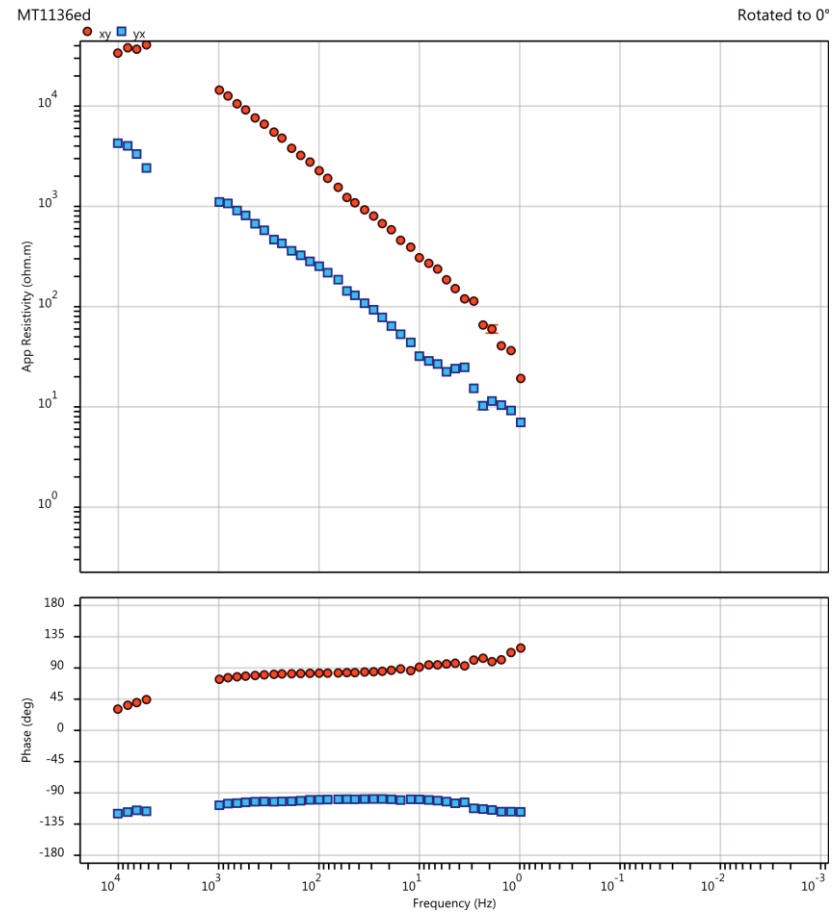
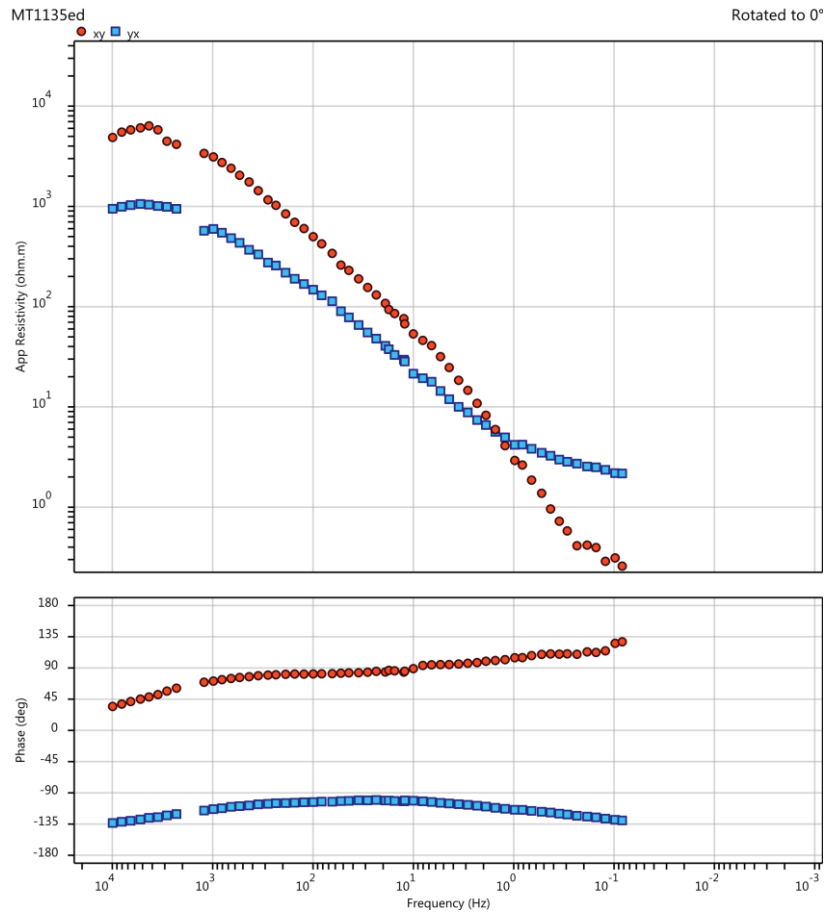
(right hand positive down coordinate system)

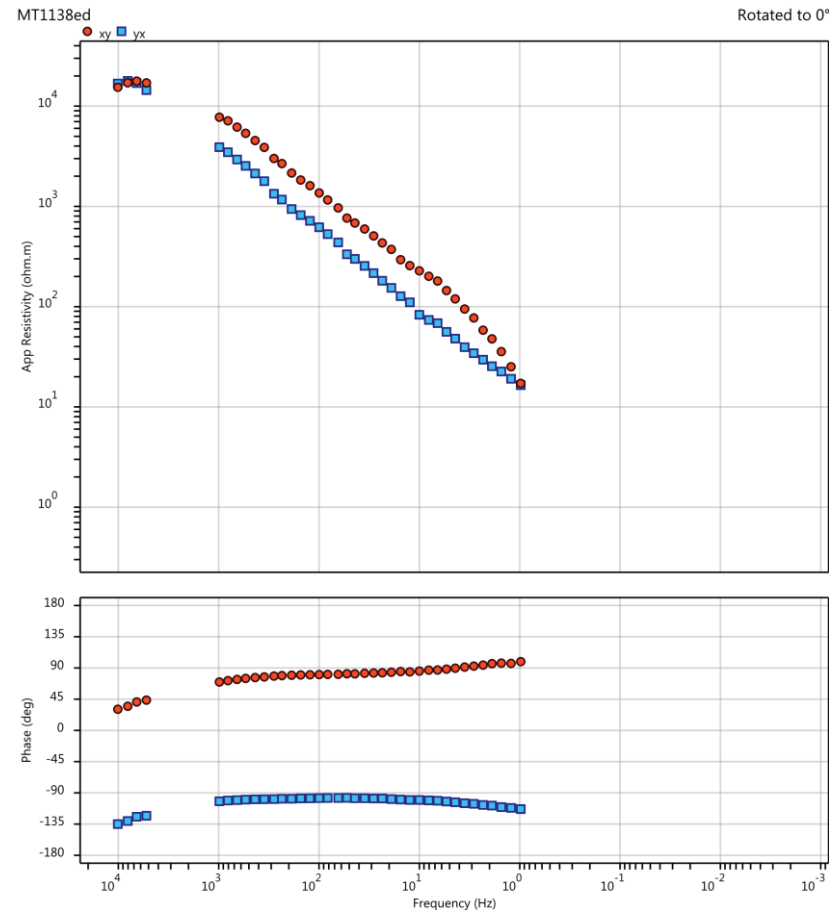
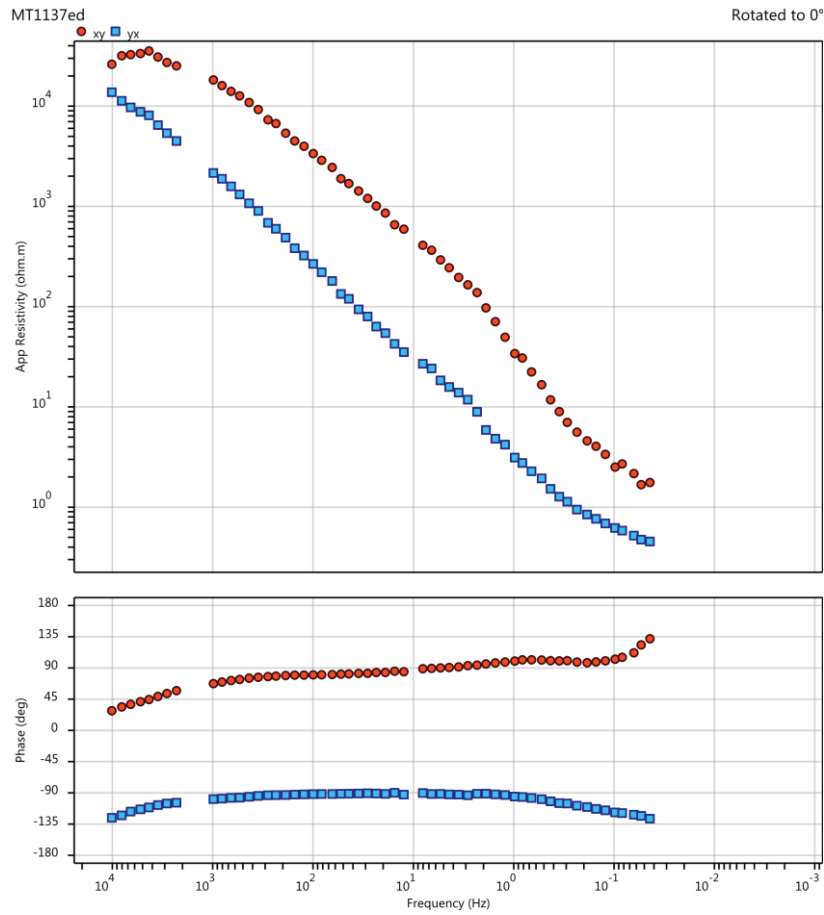
C.1. GRID Z3 Z2

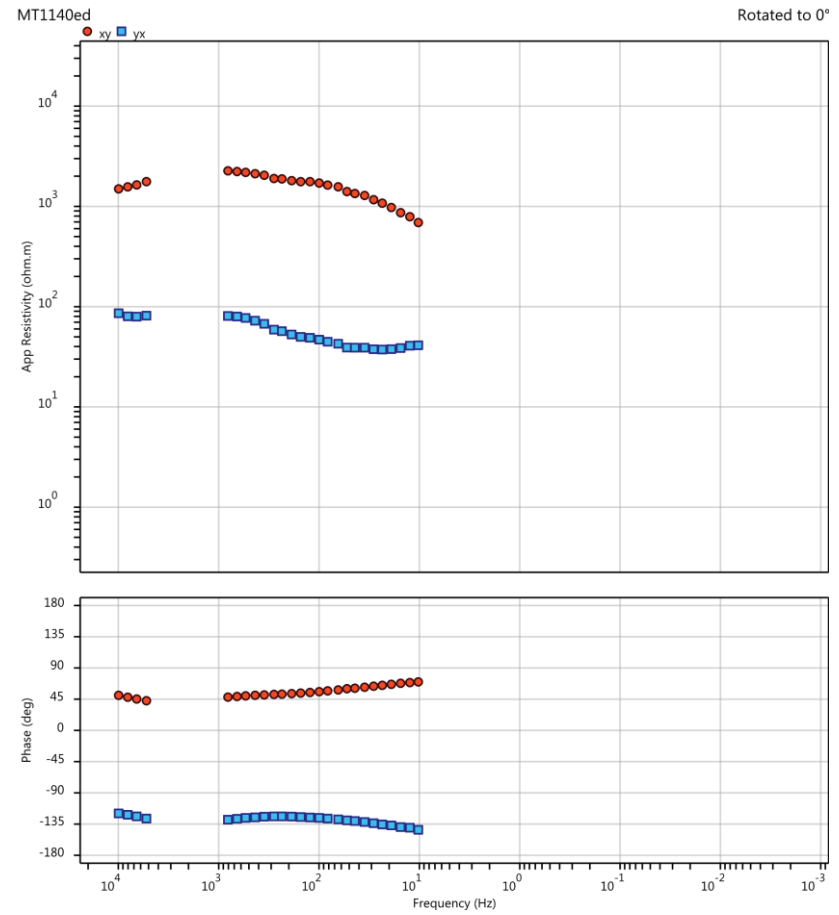
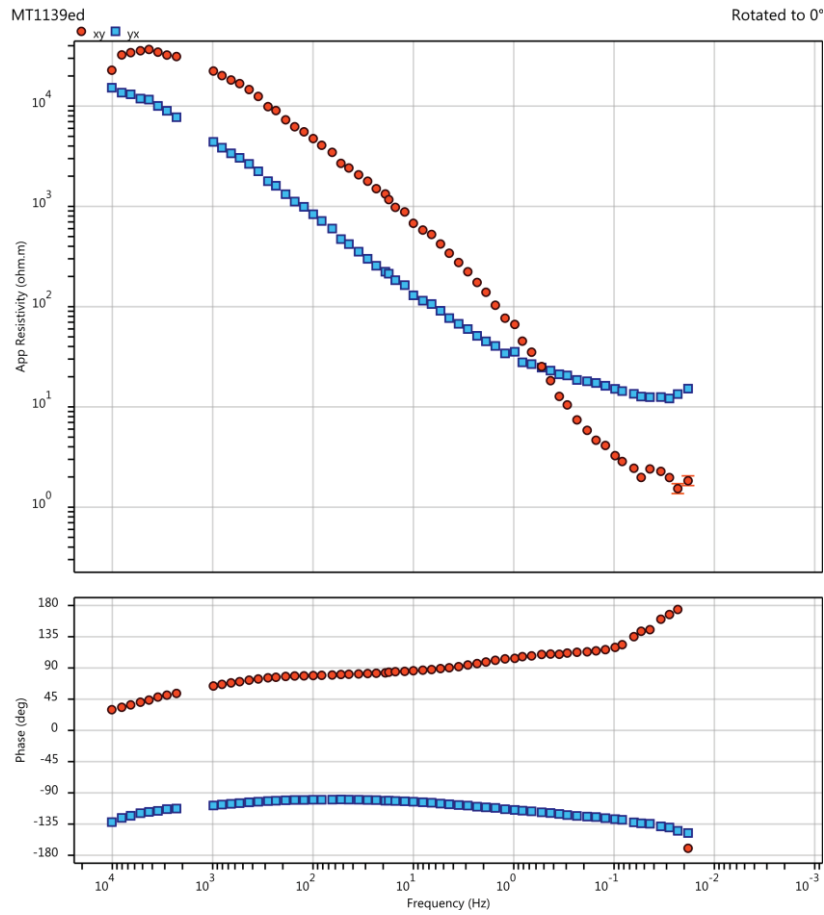


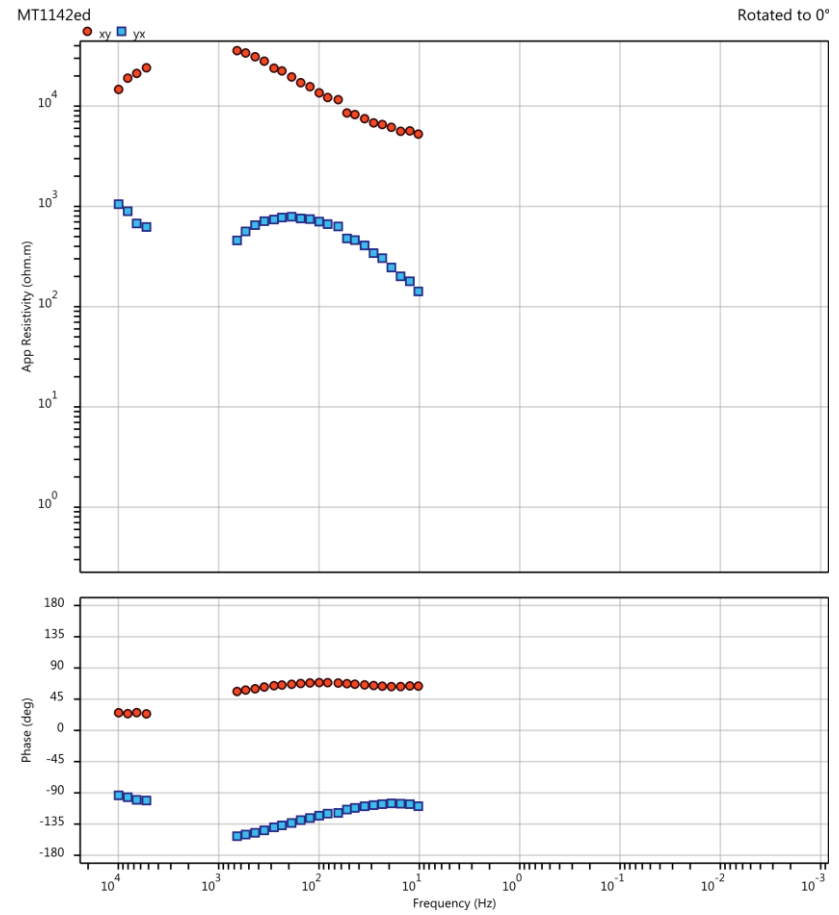
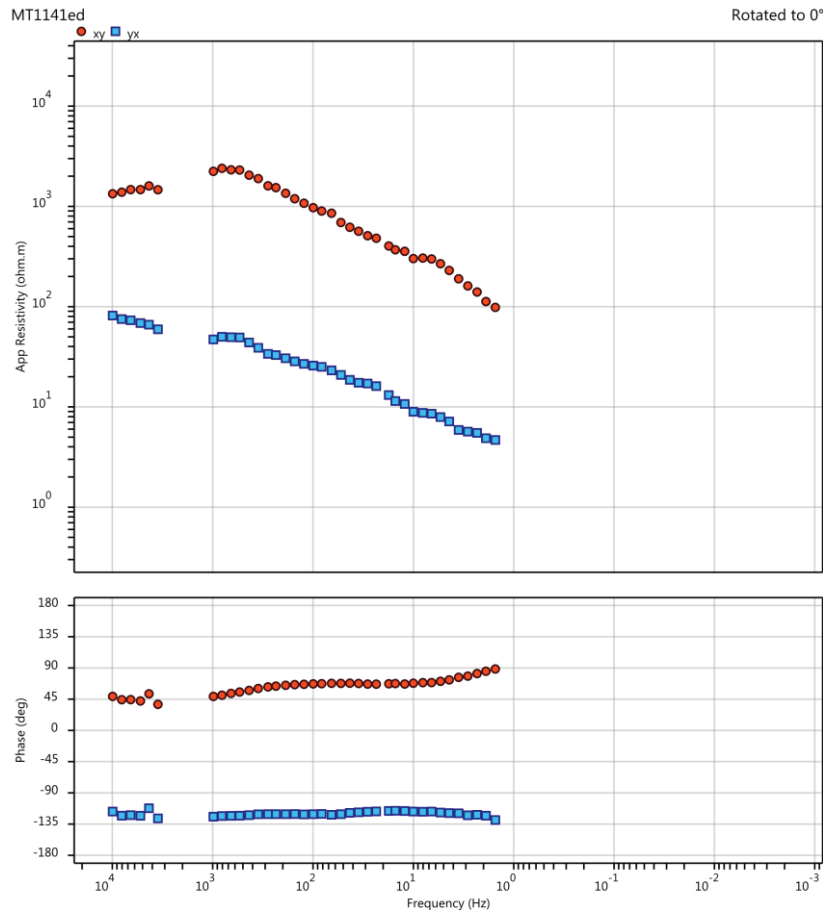


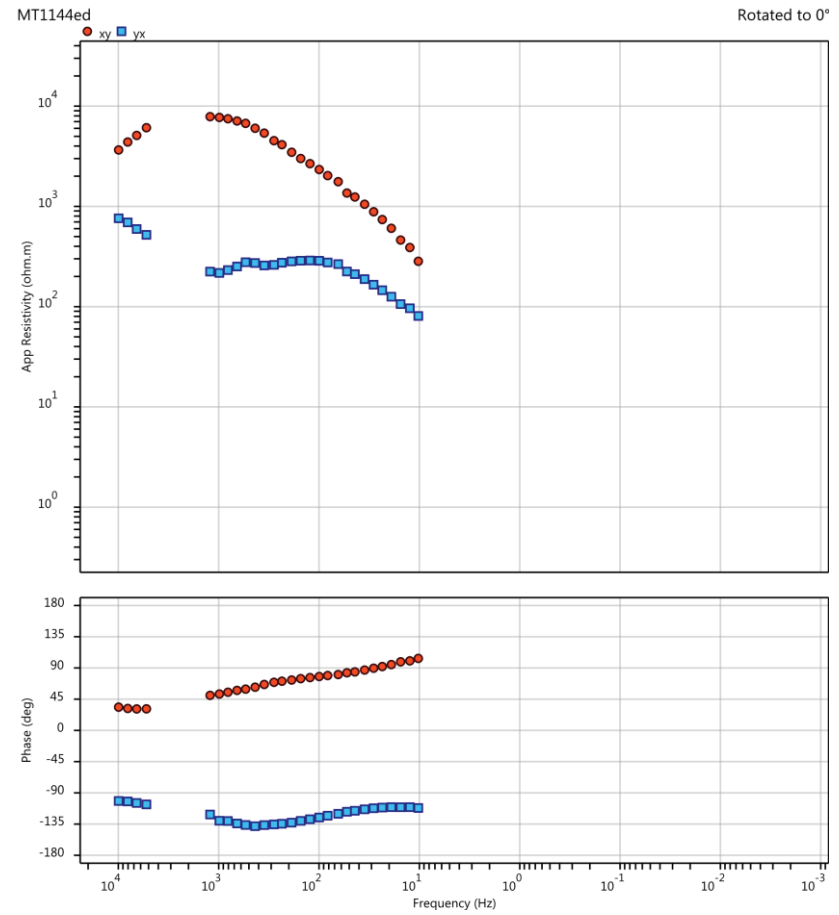
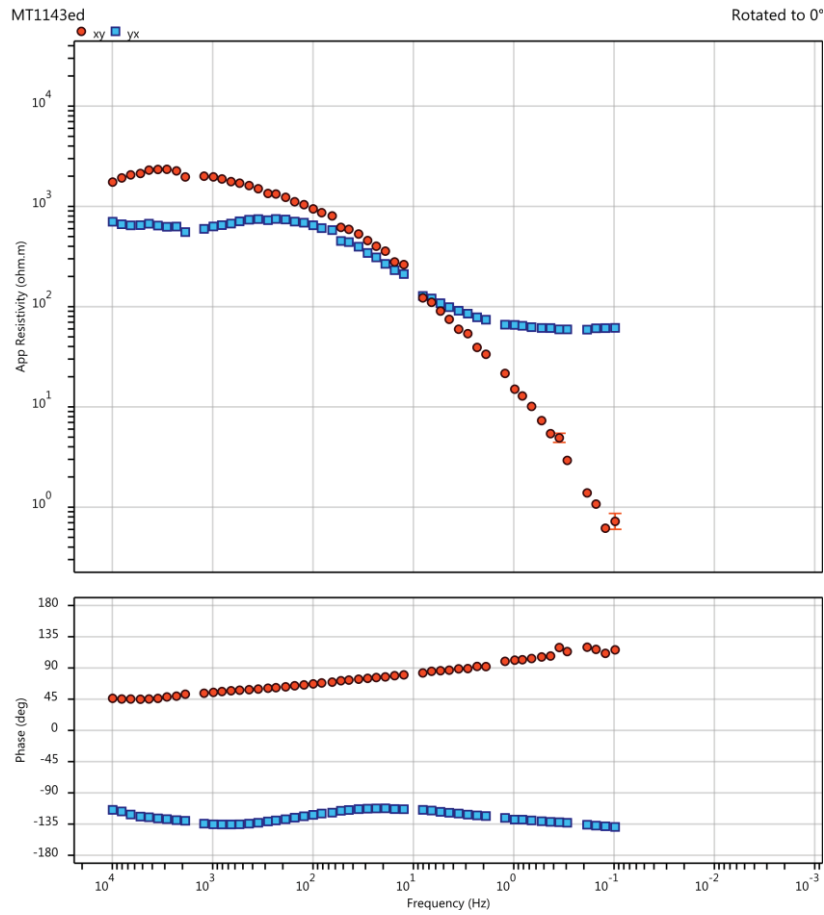


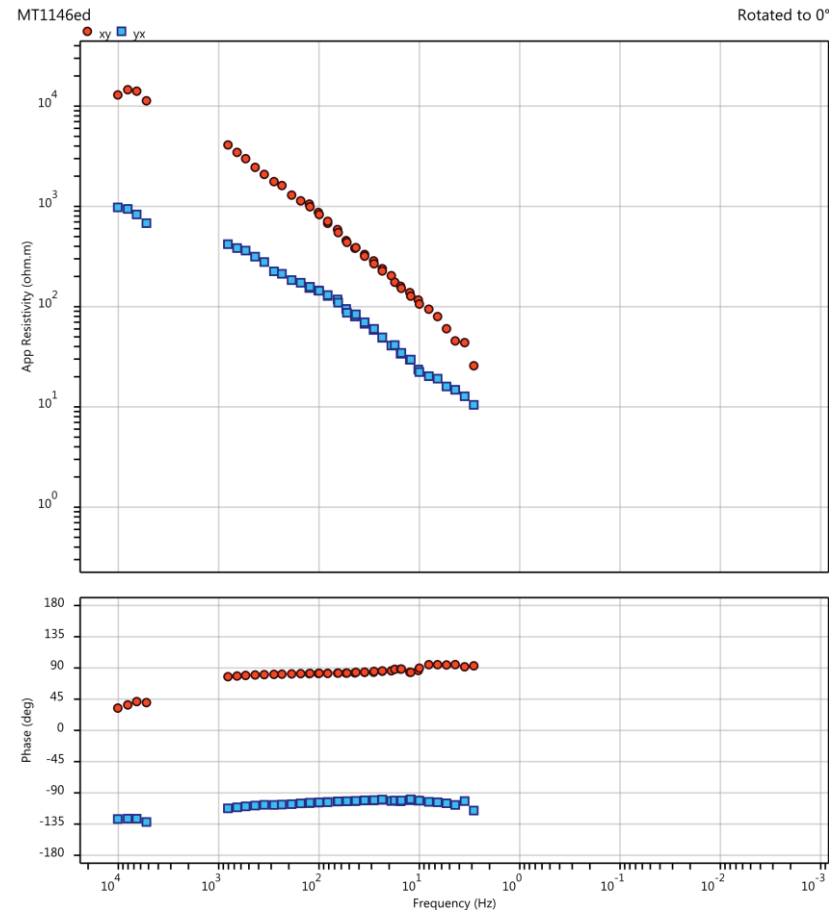
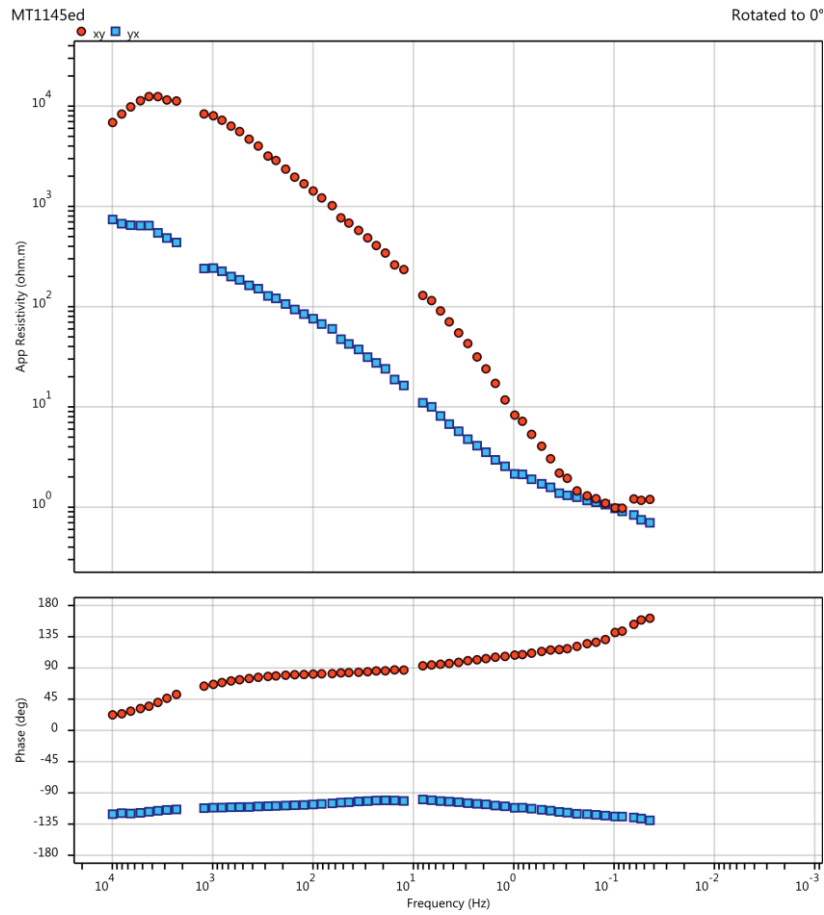


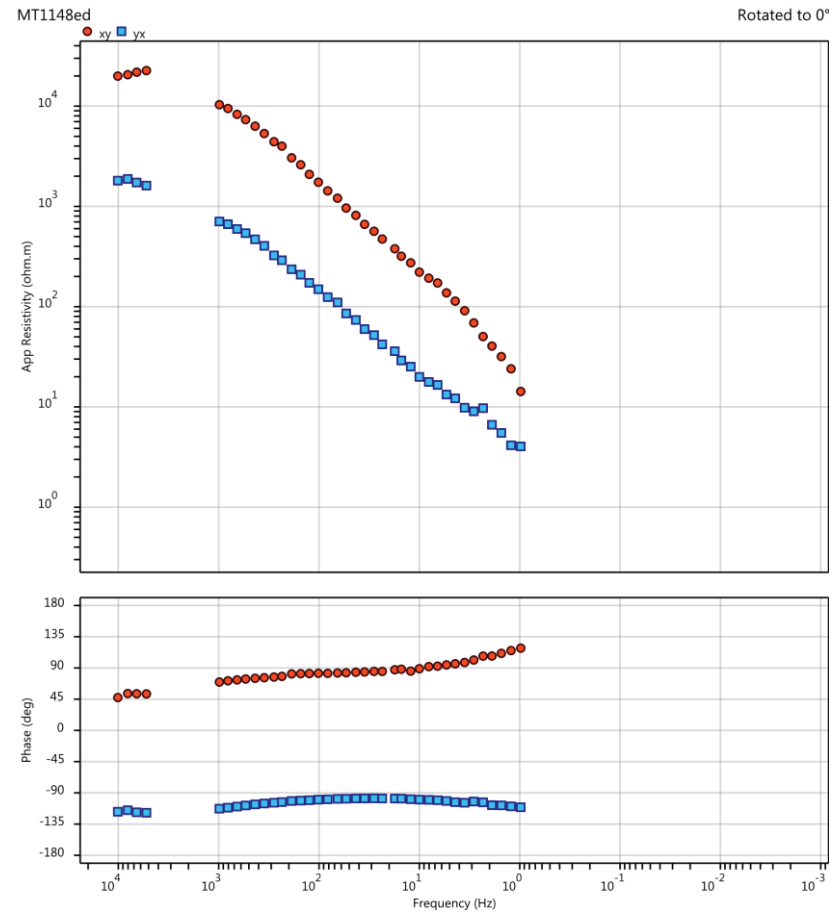
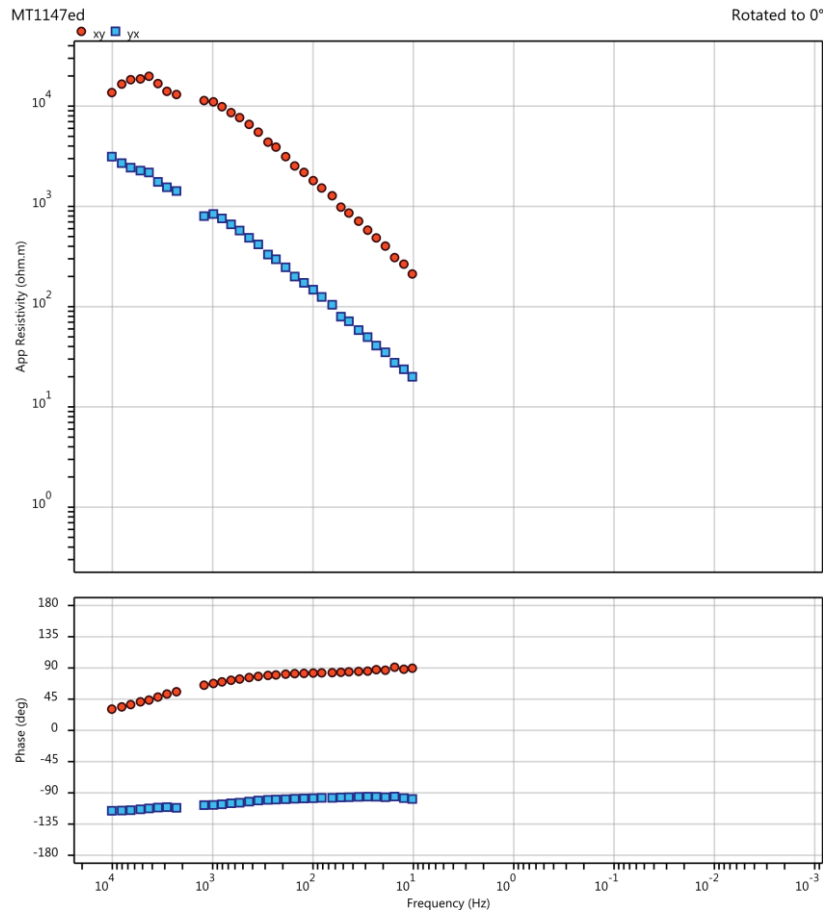


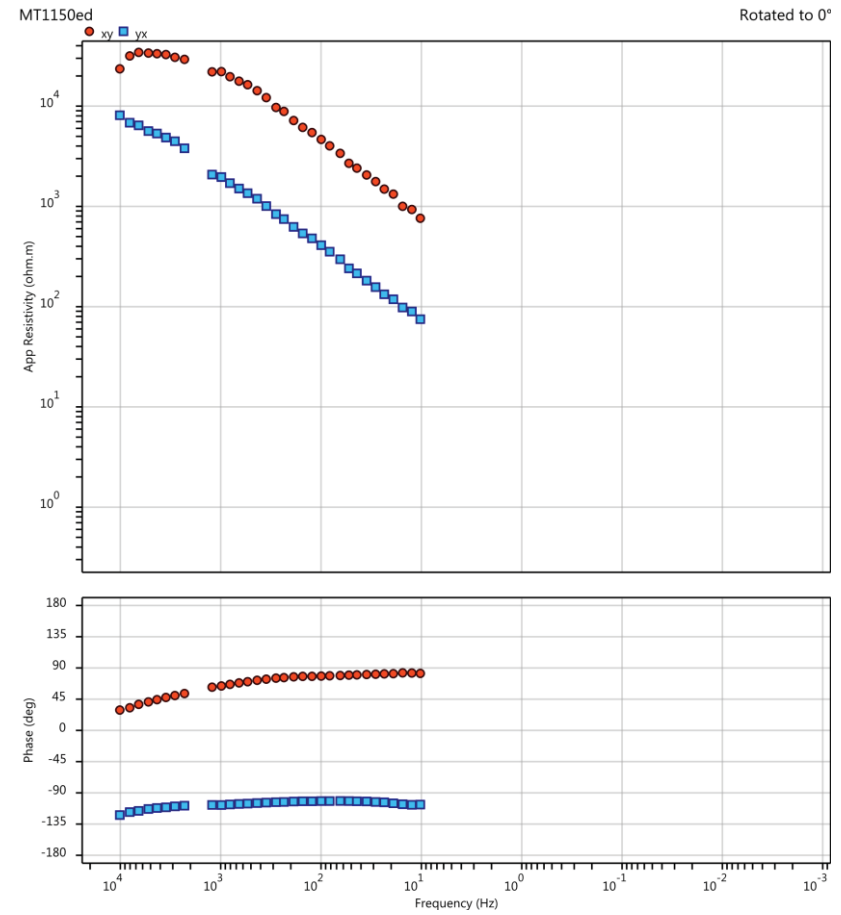
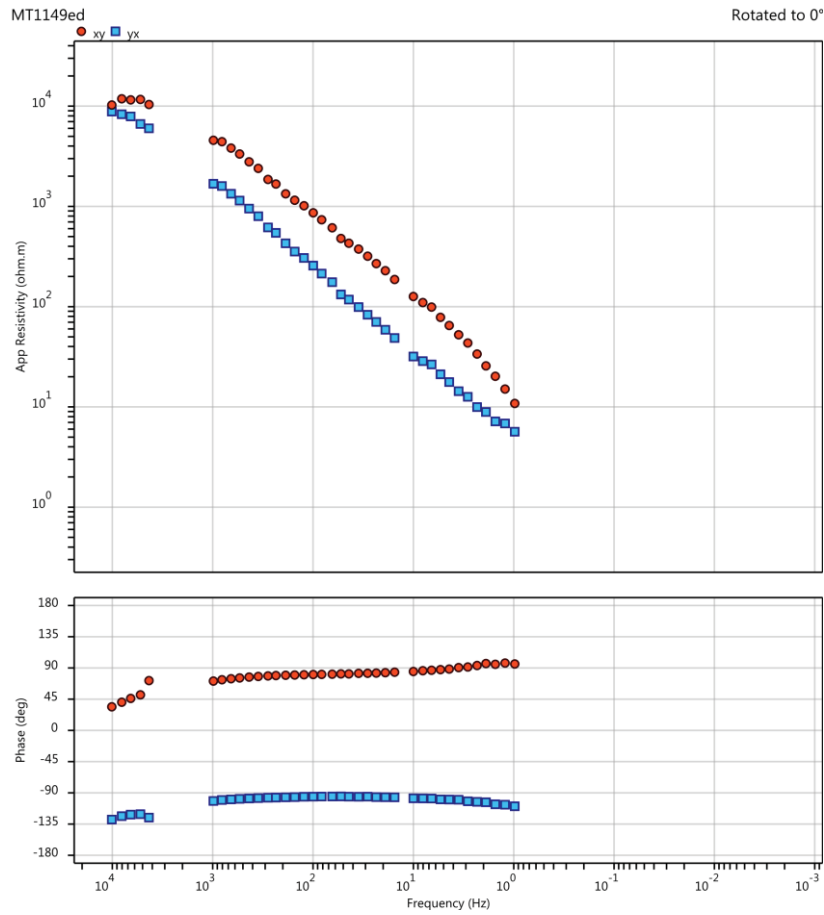


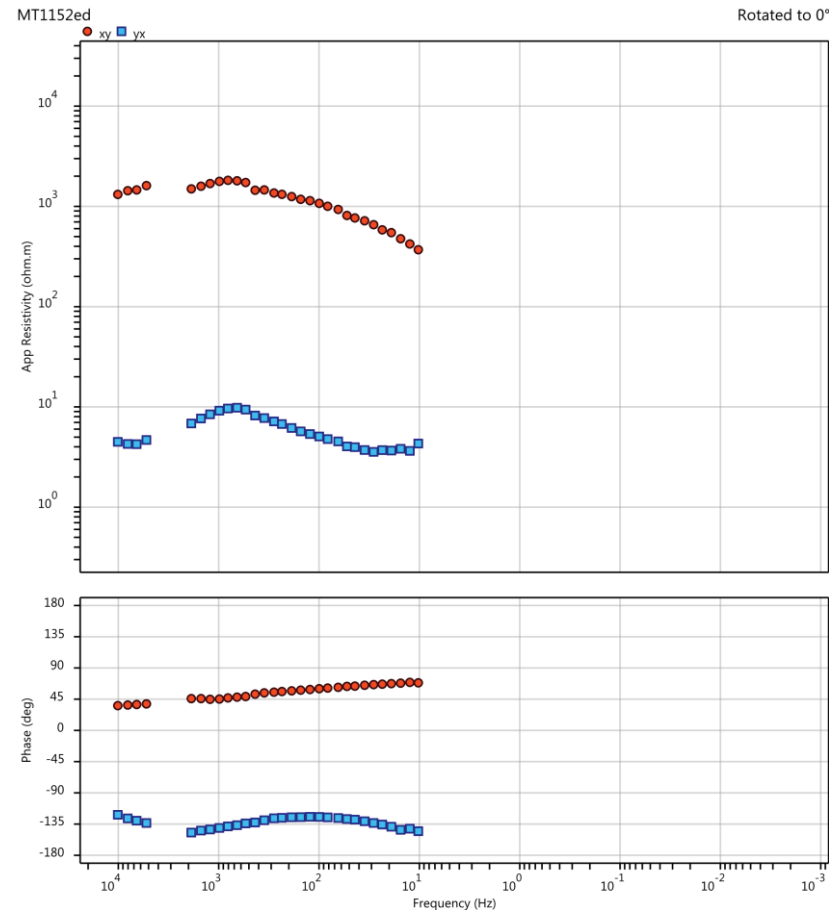
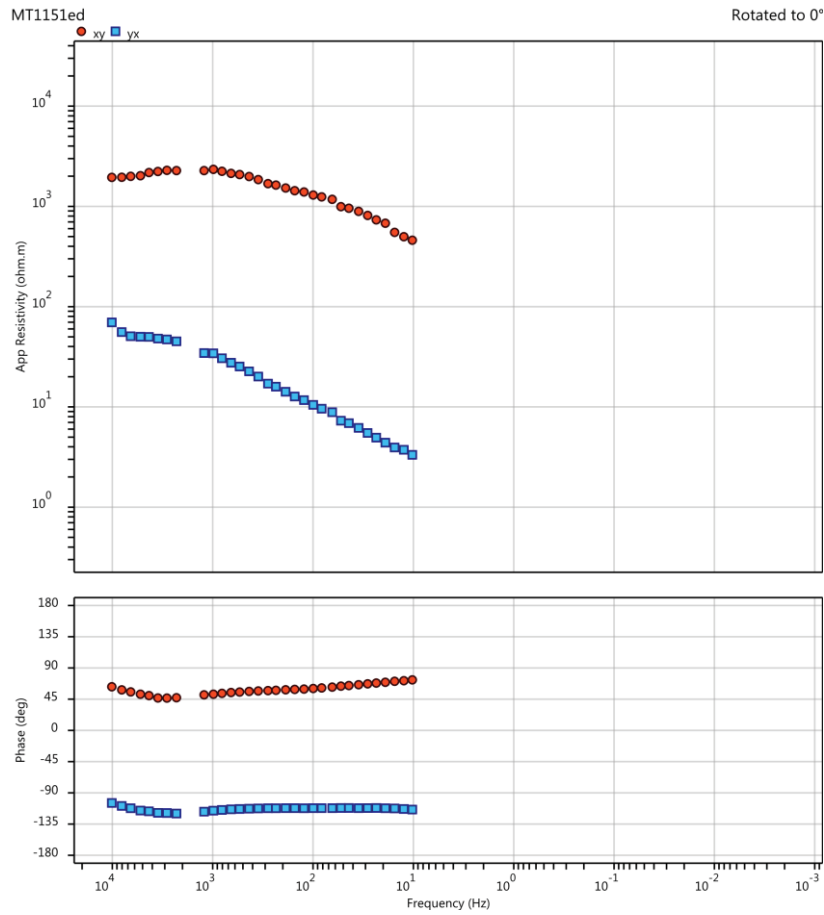


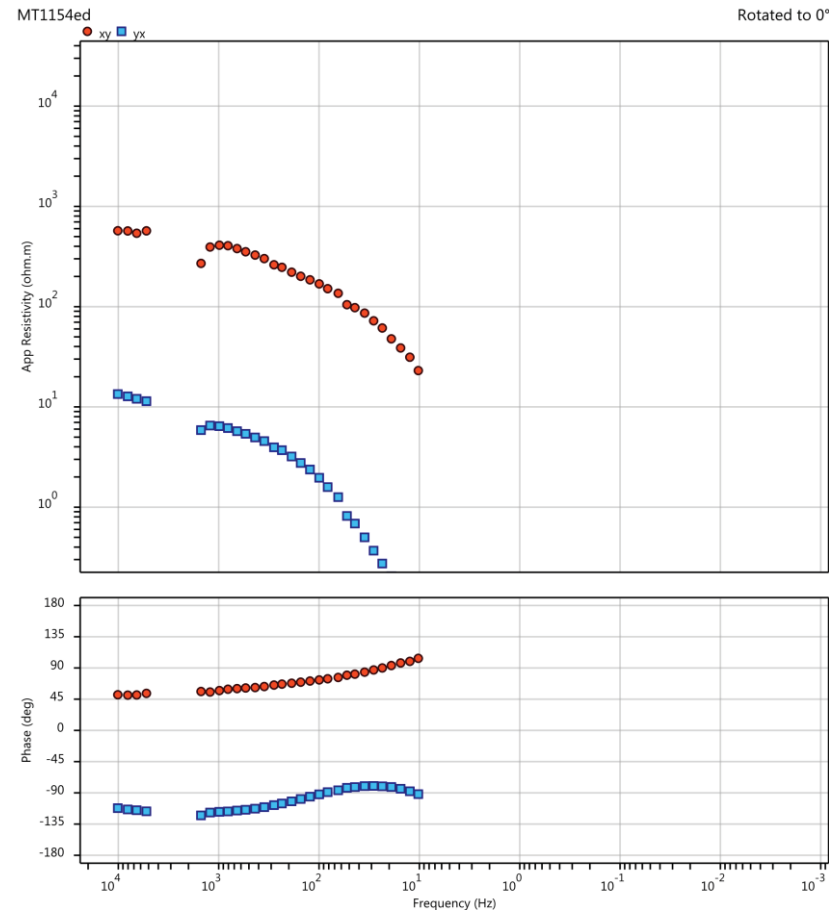
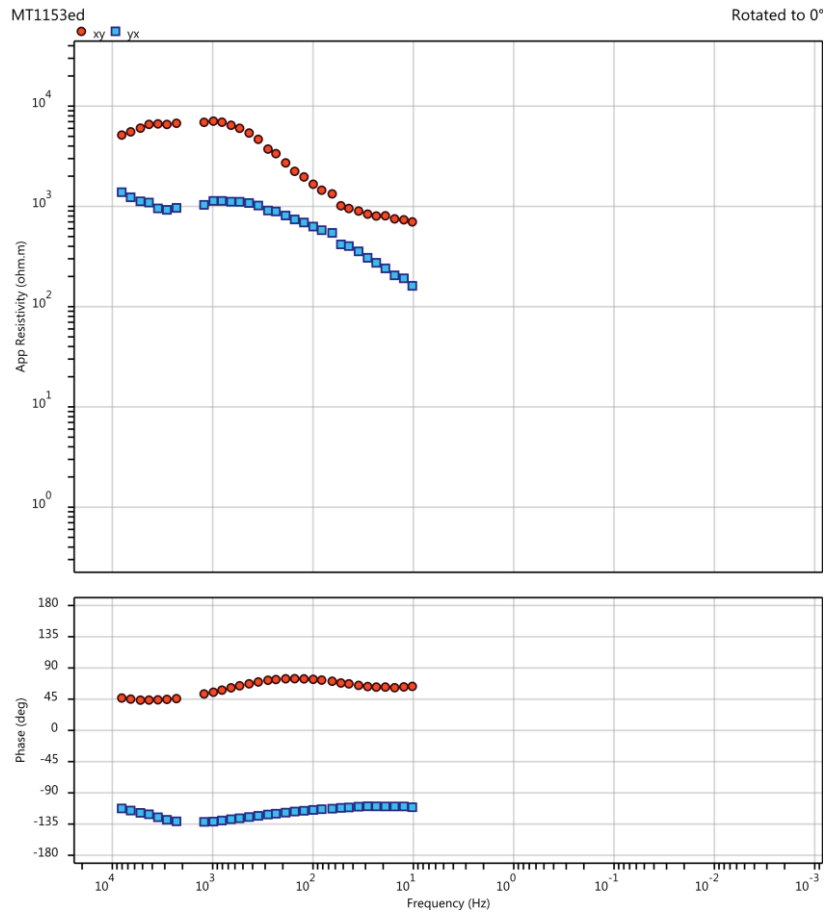


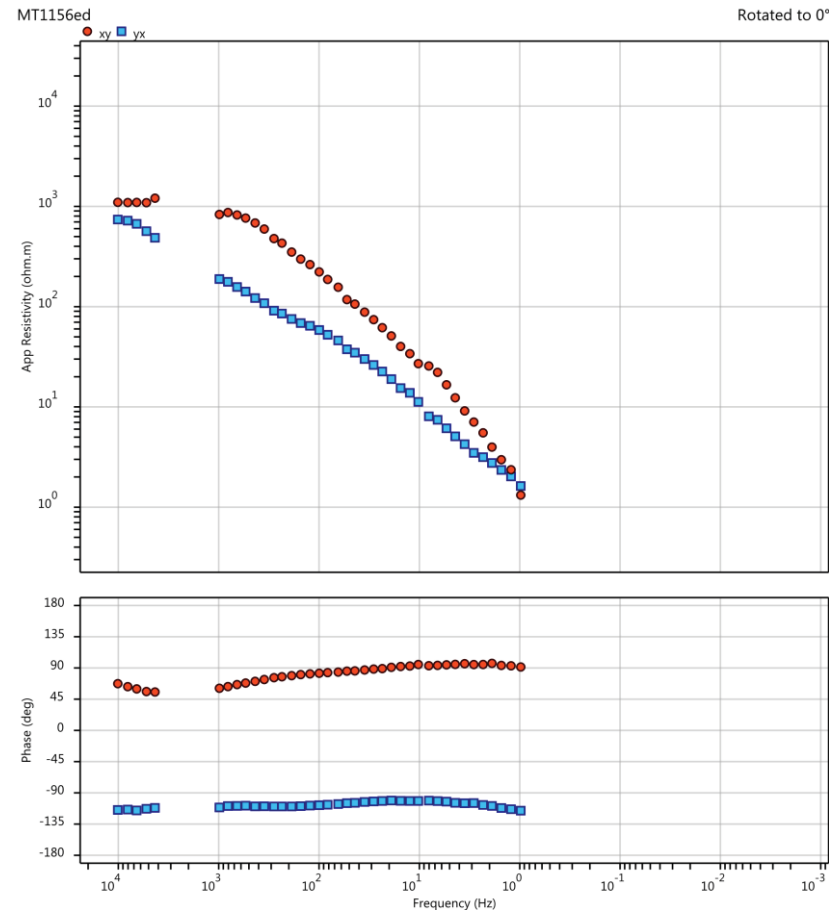
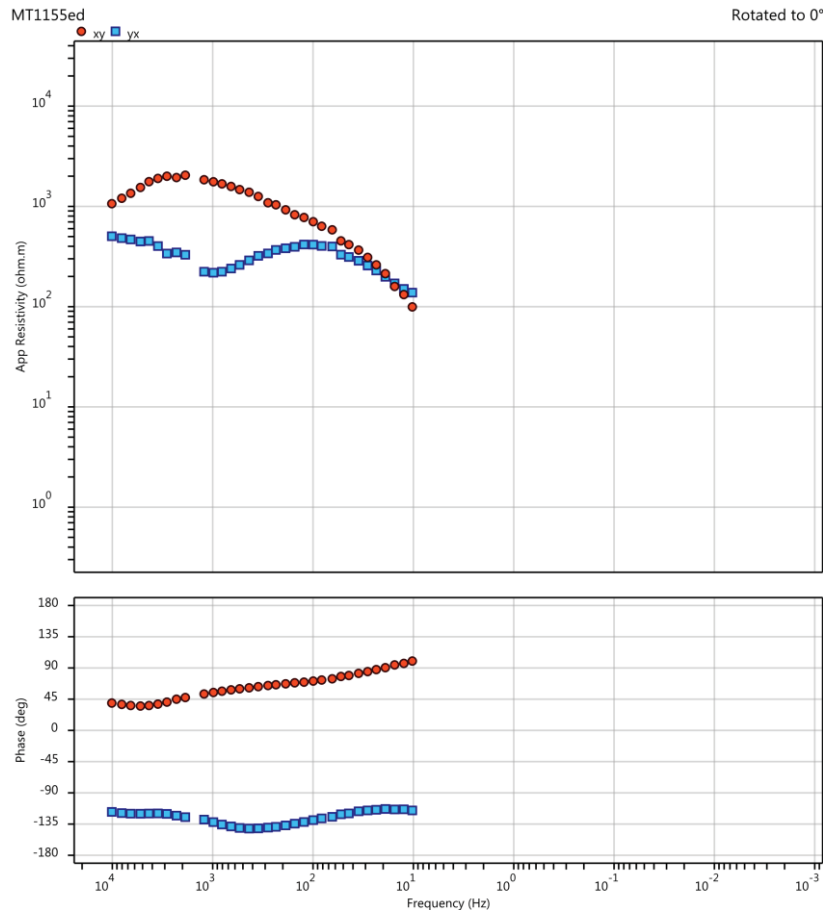


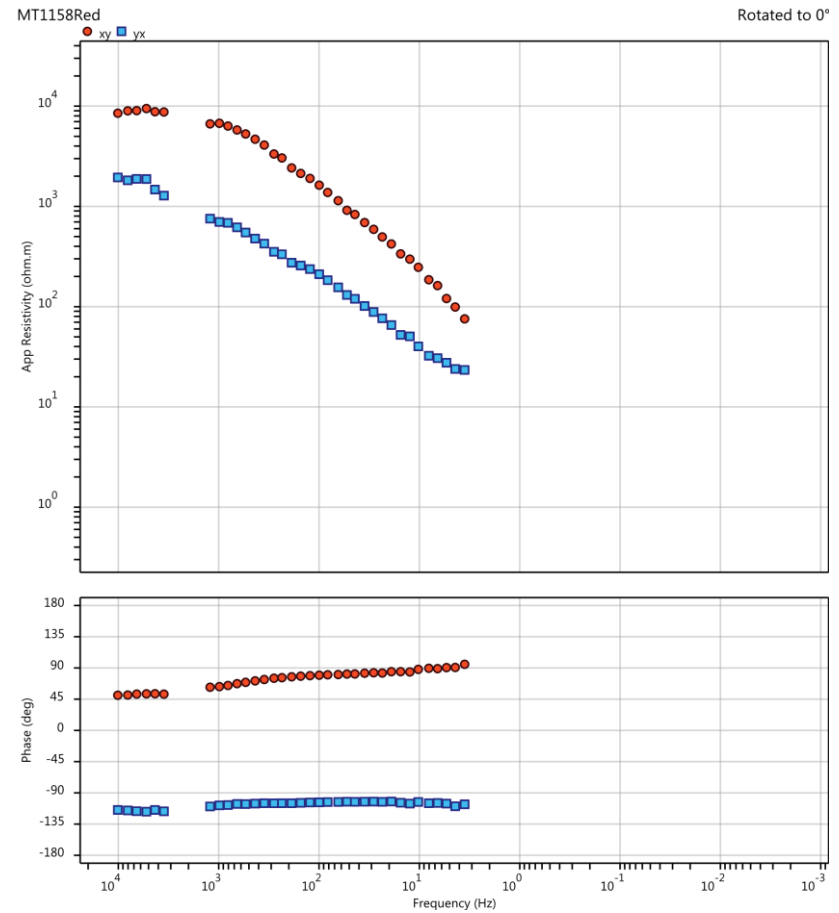
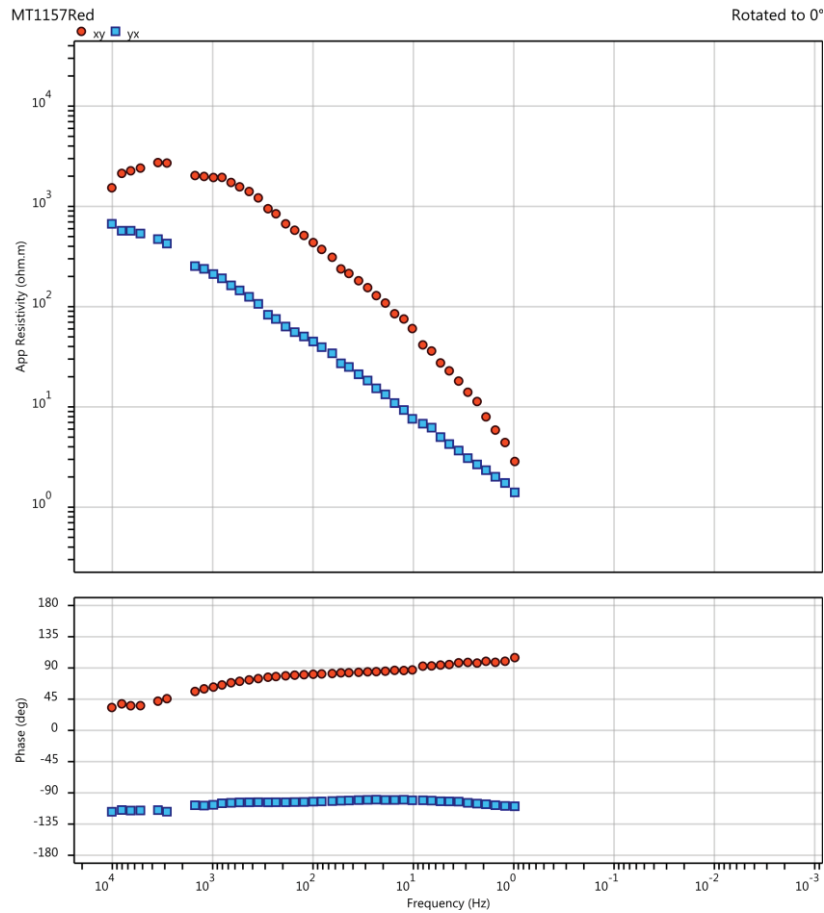


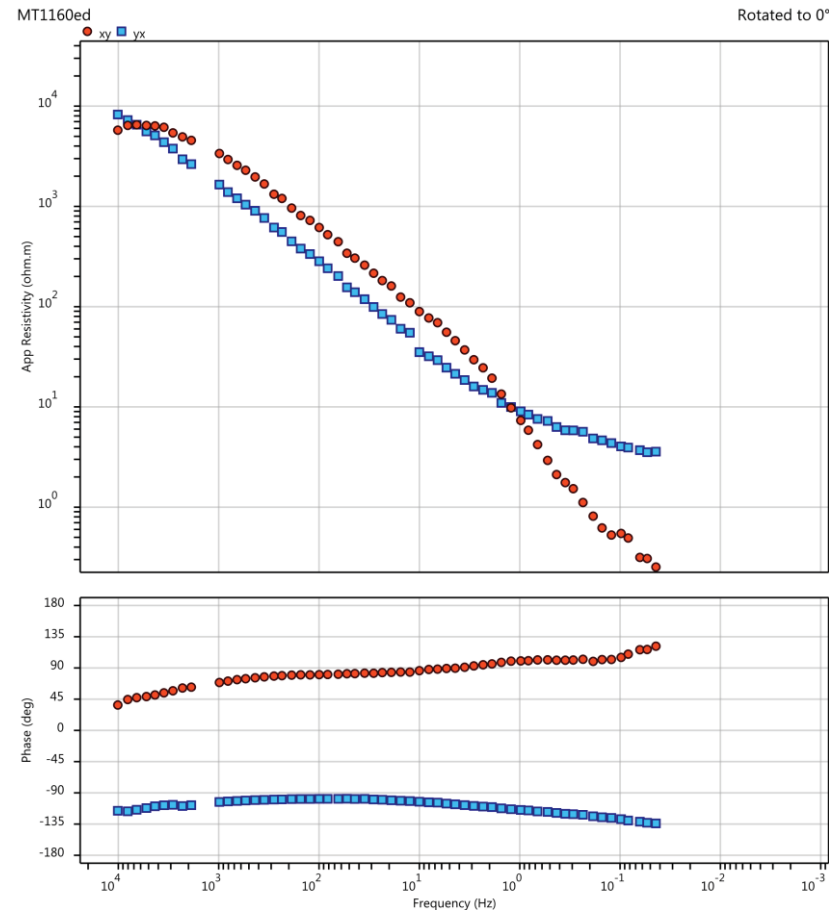
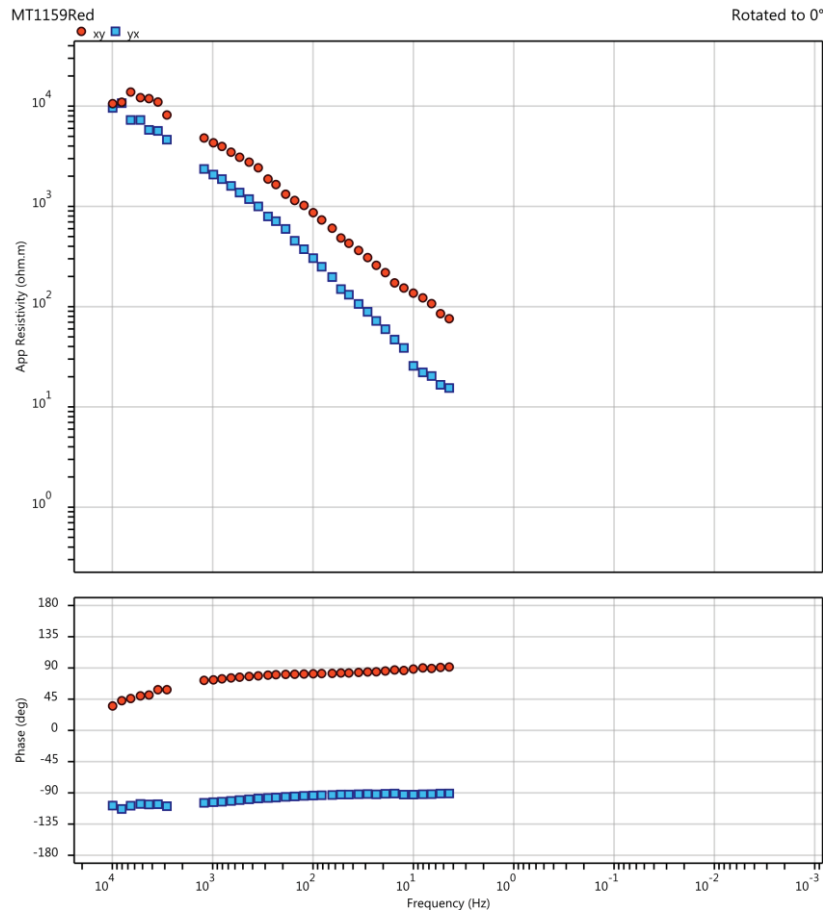


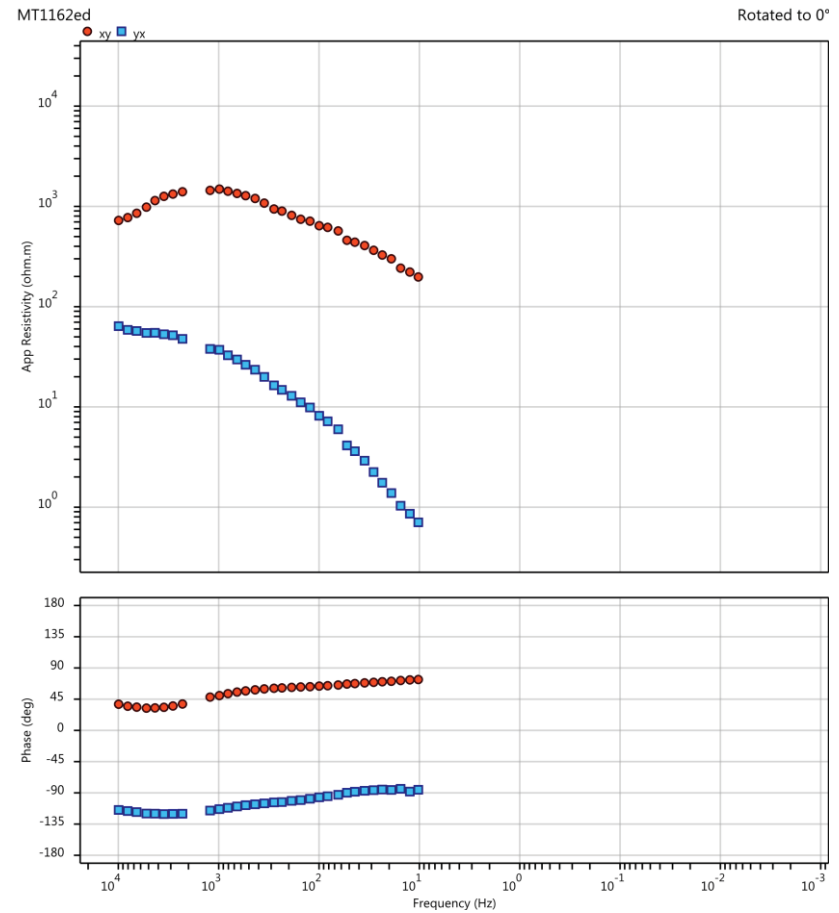
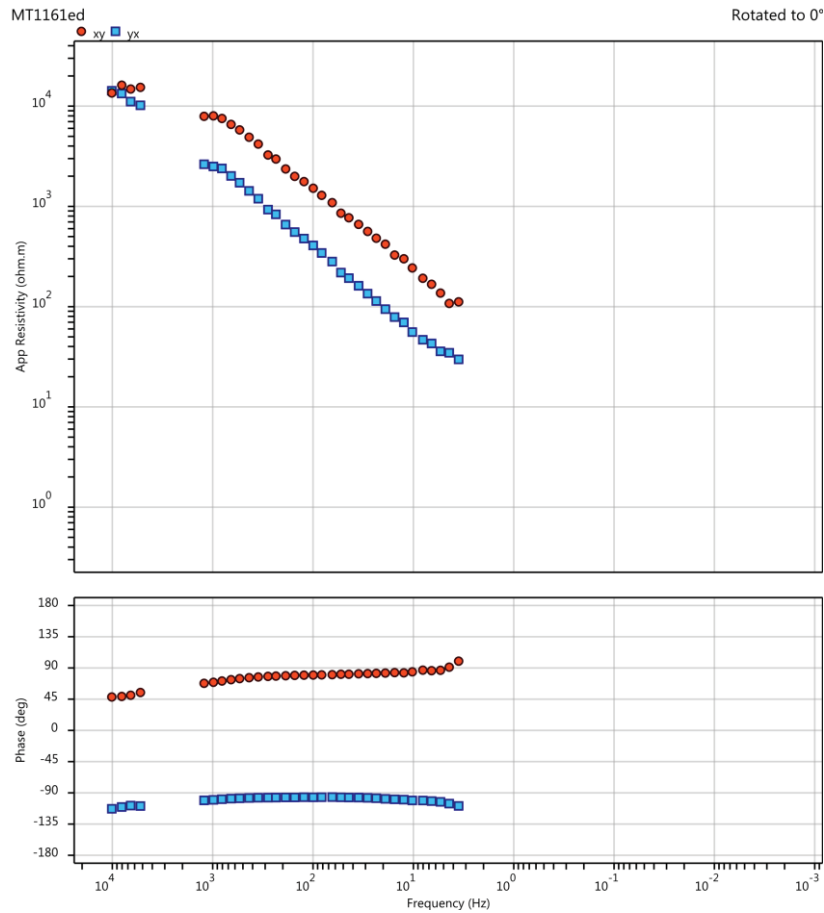


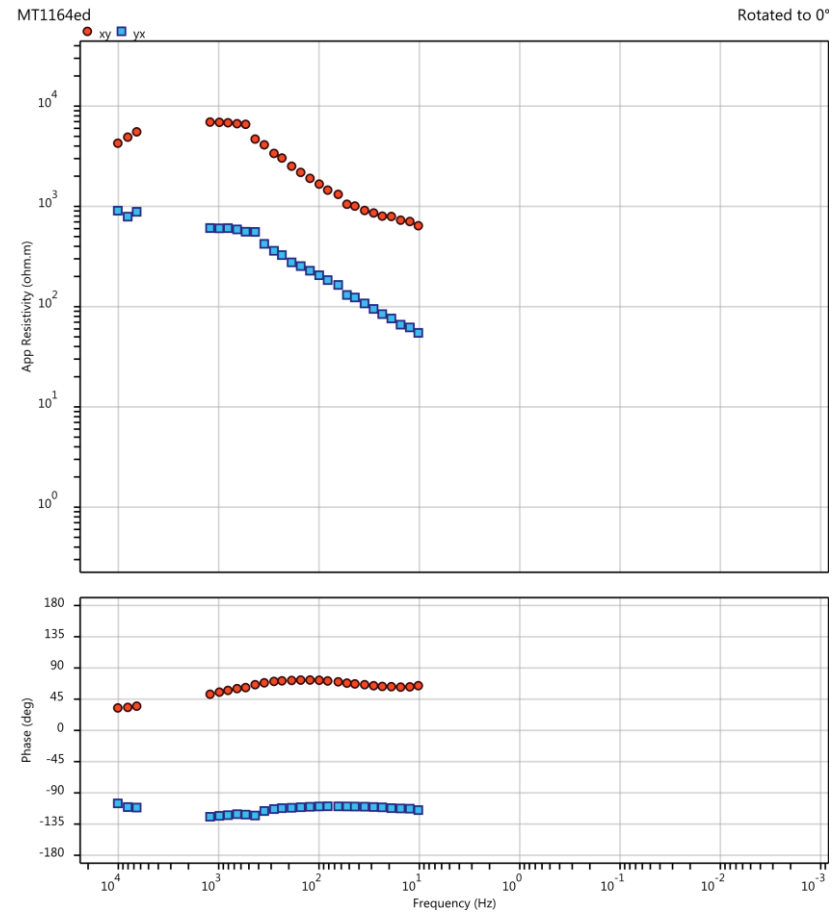
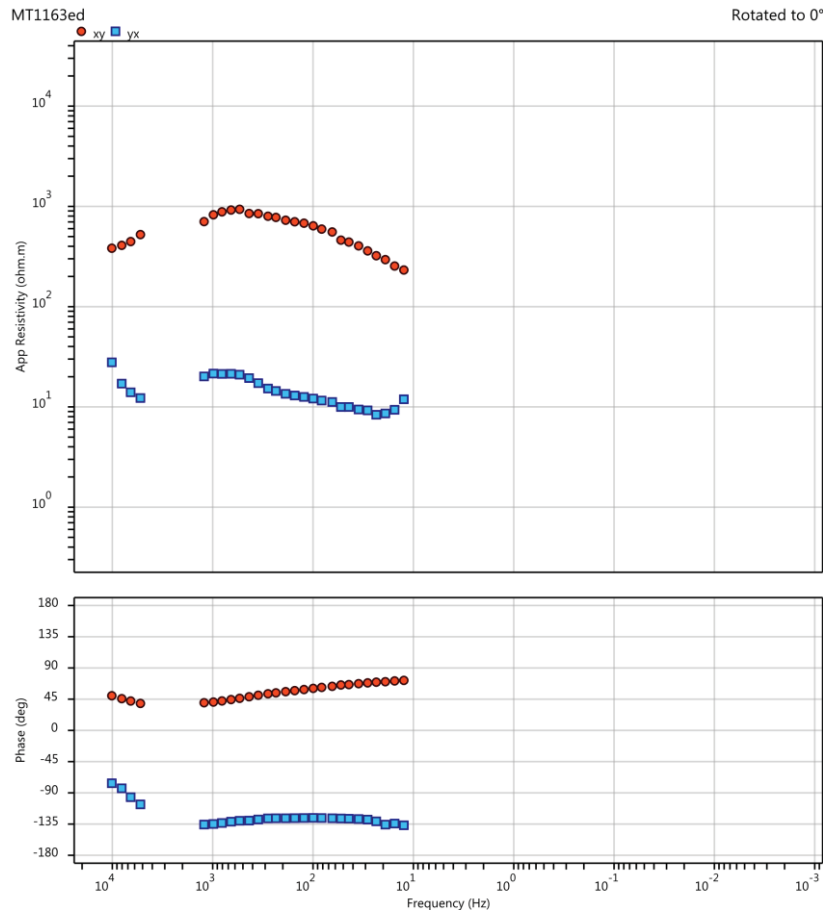


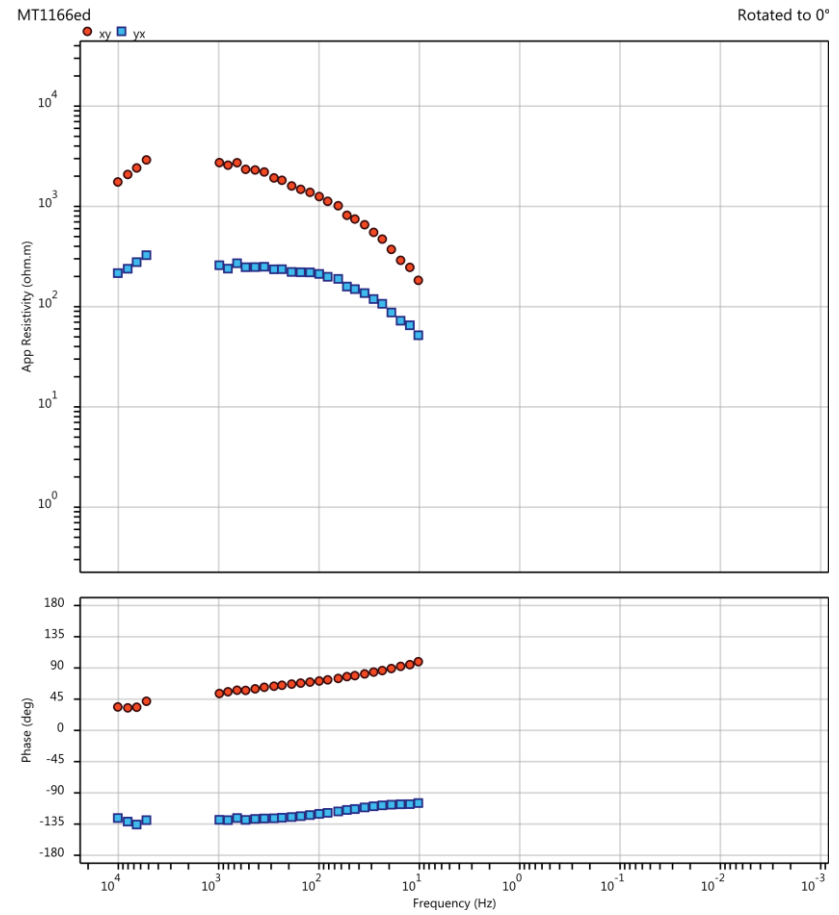
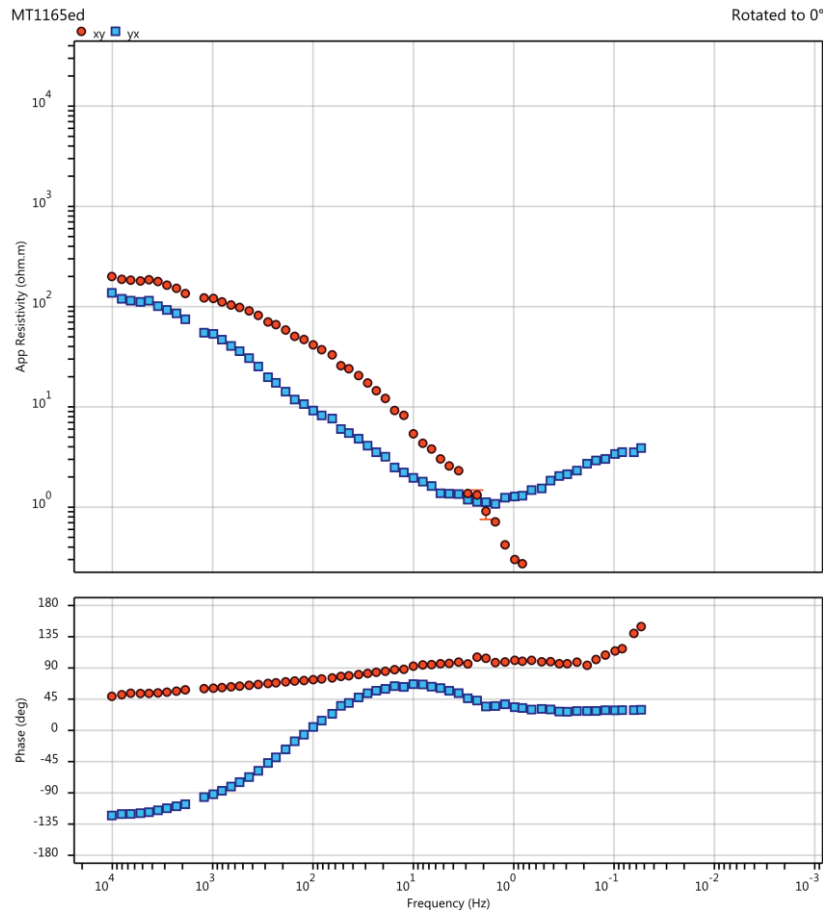


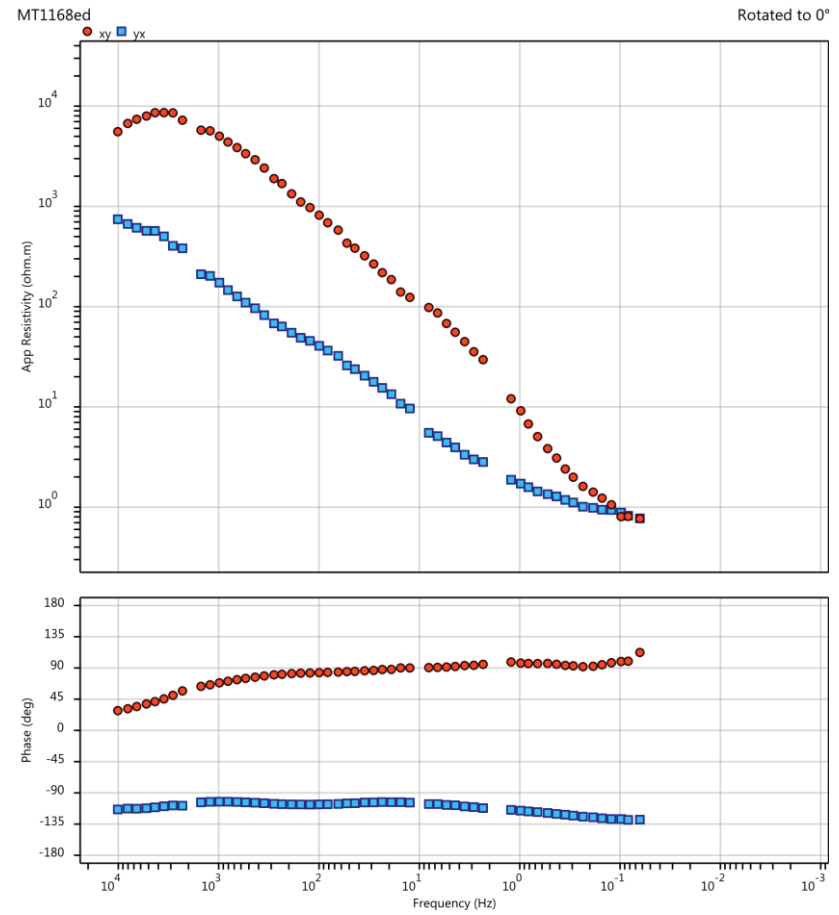
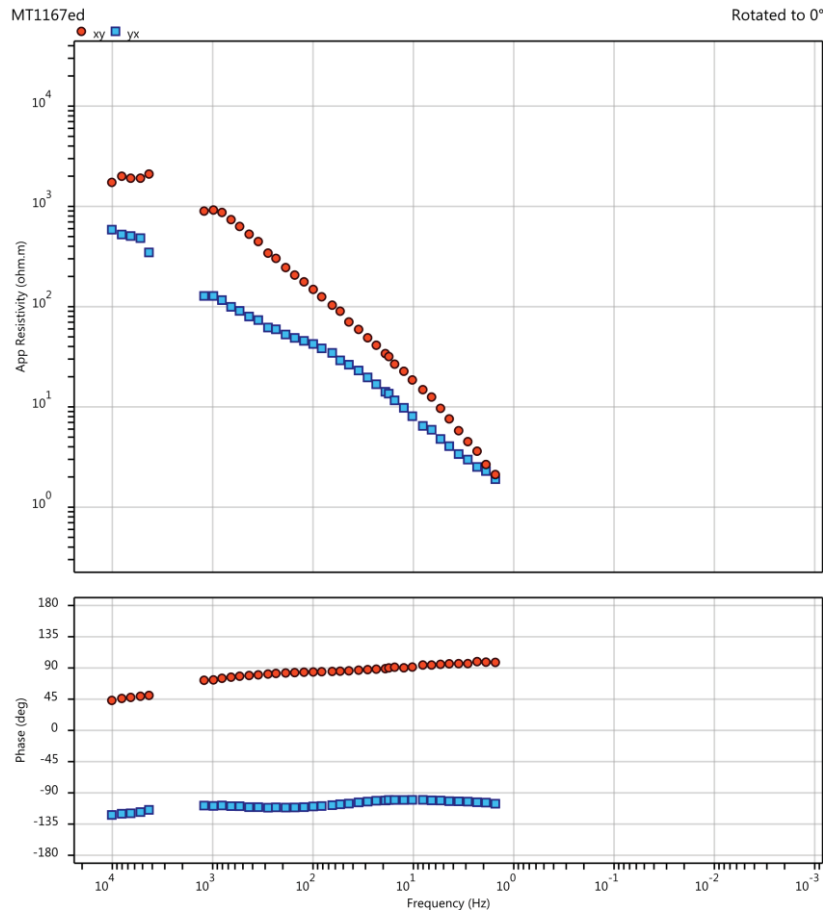


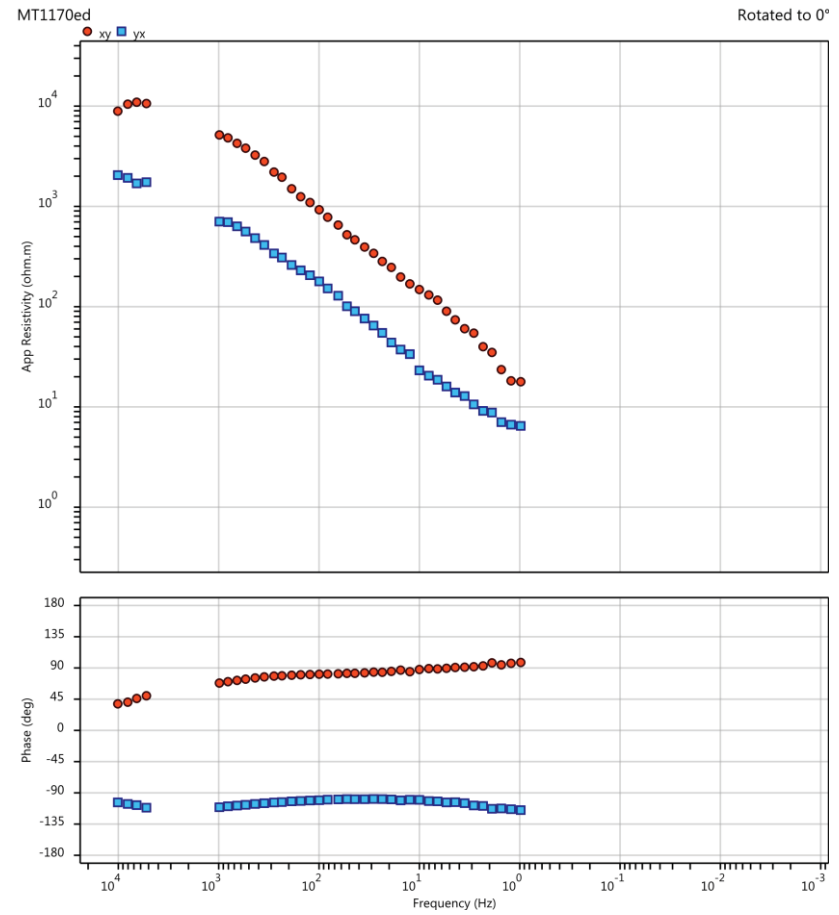
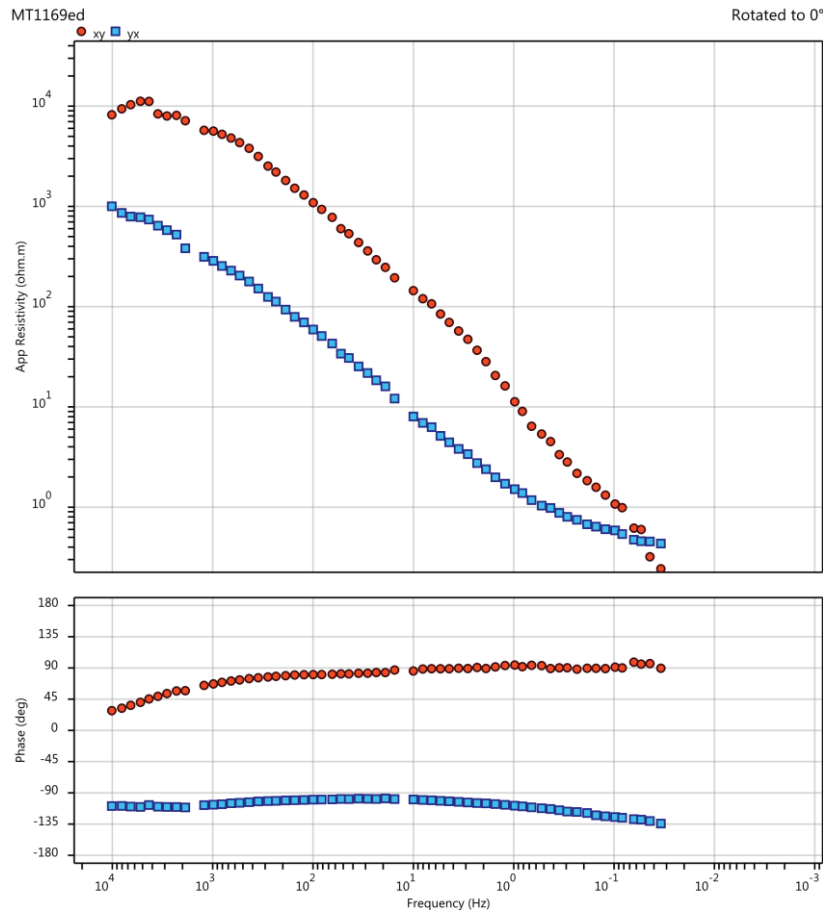


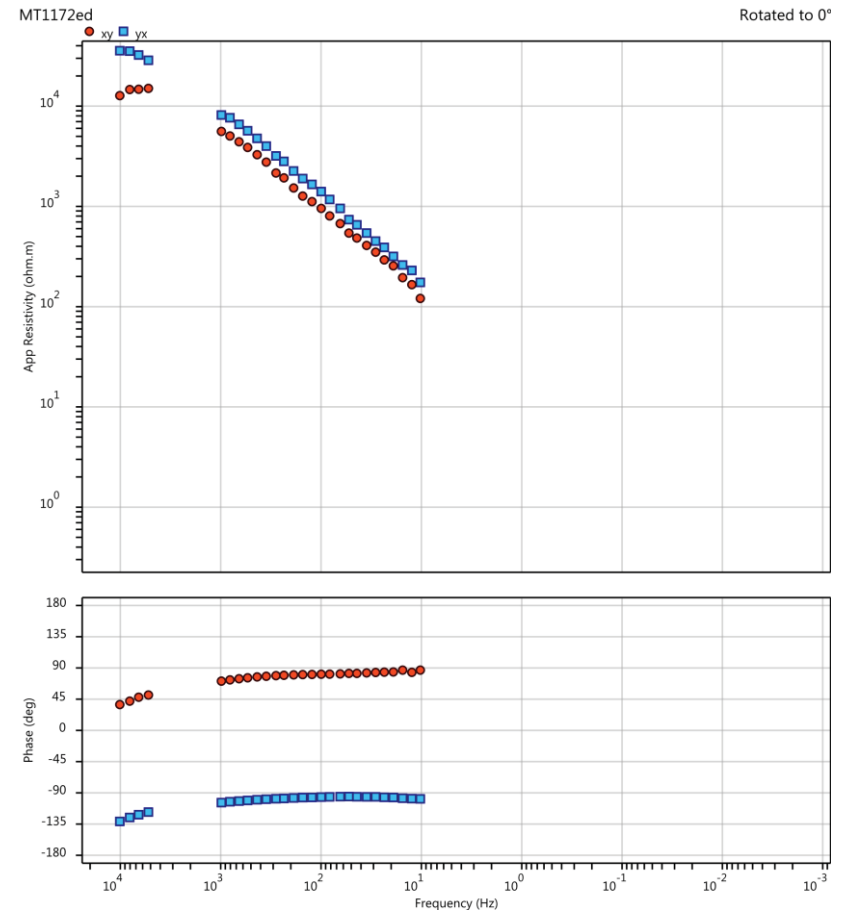
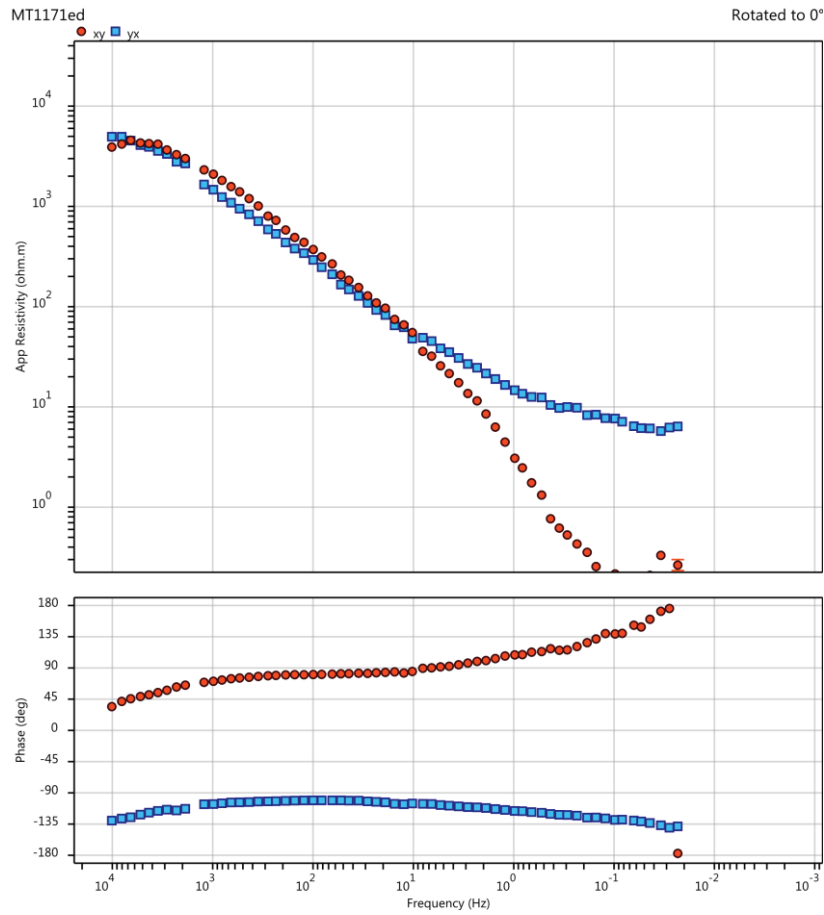


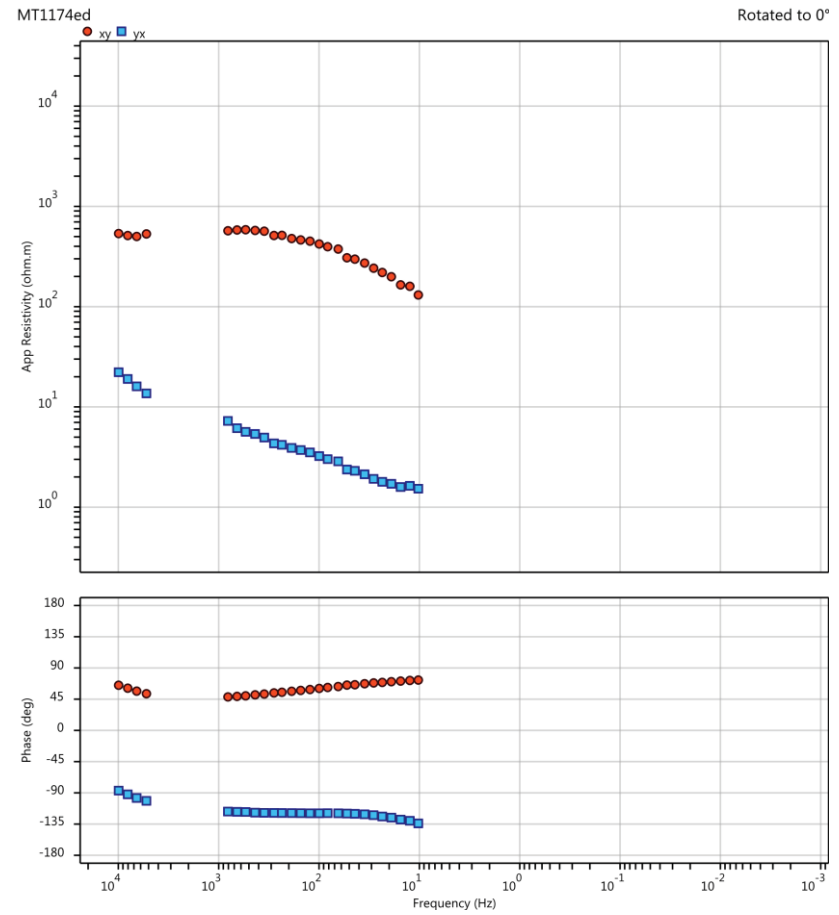
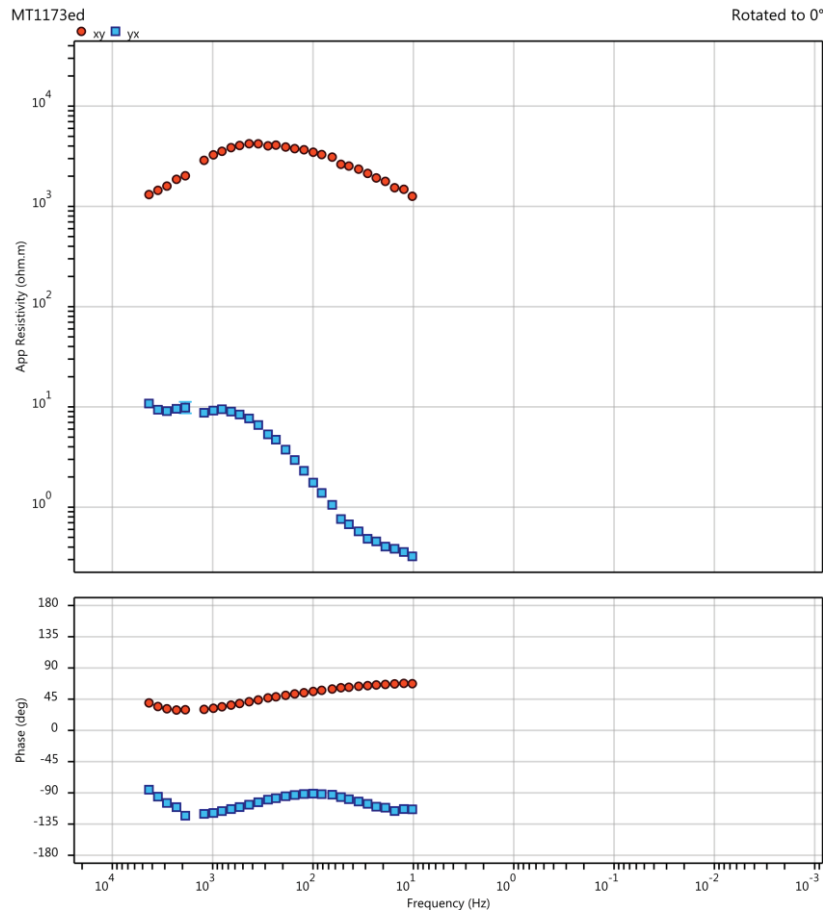


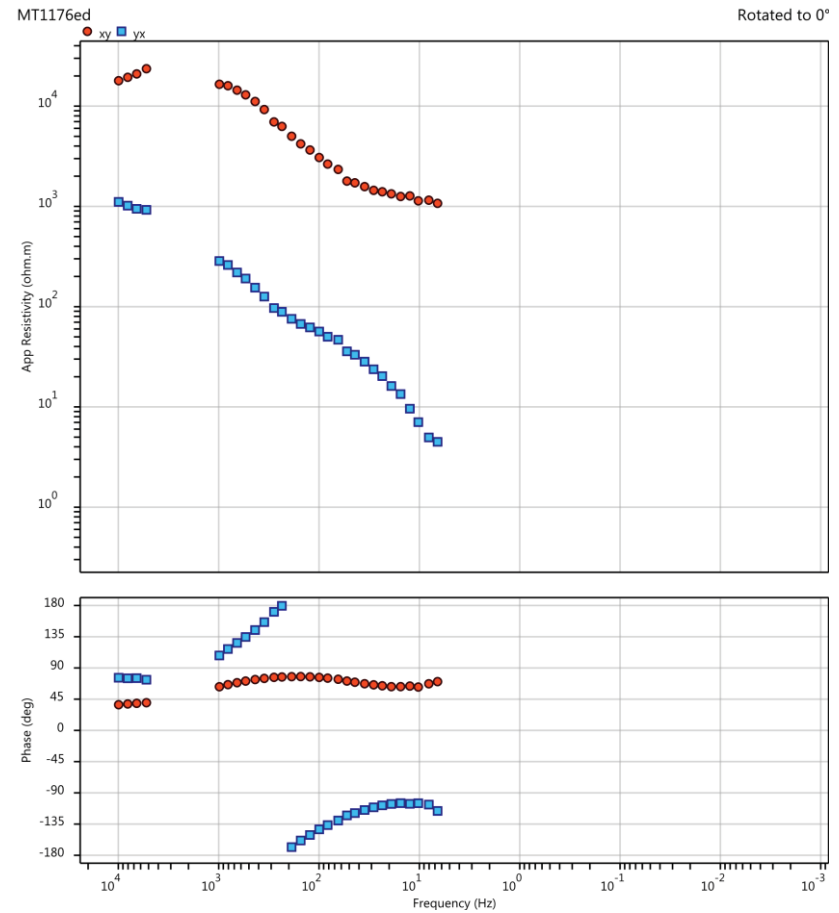
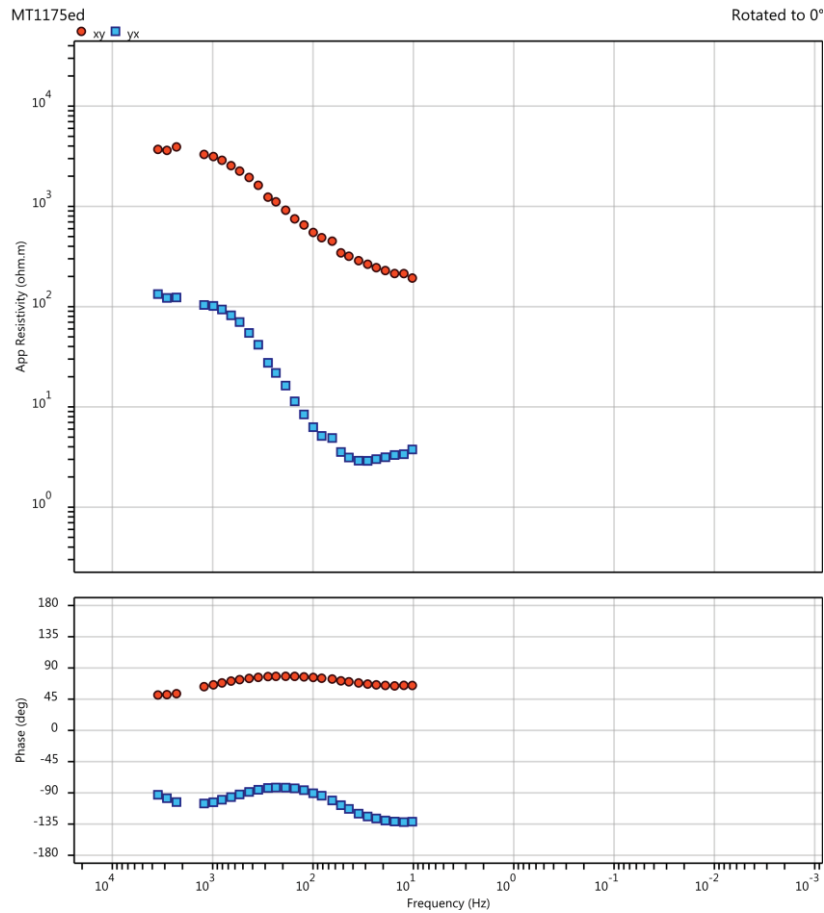


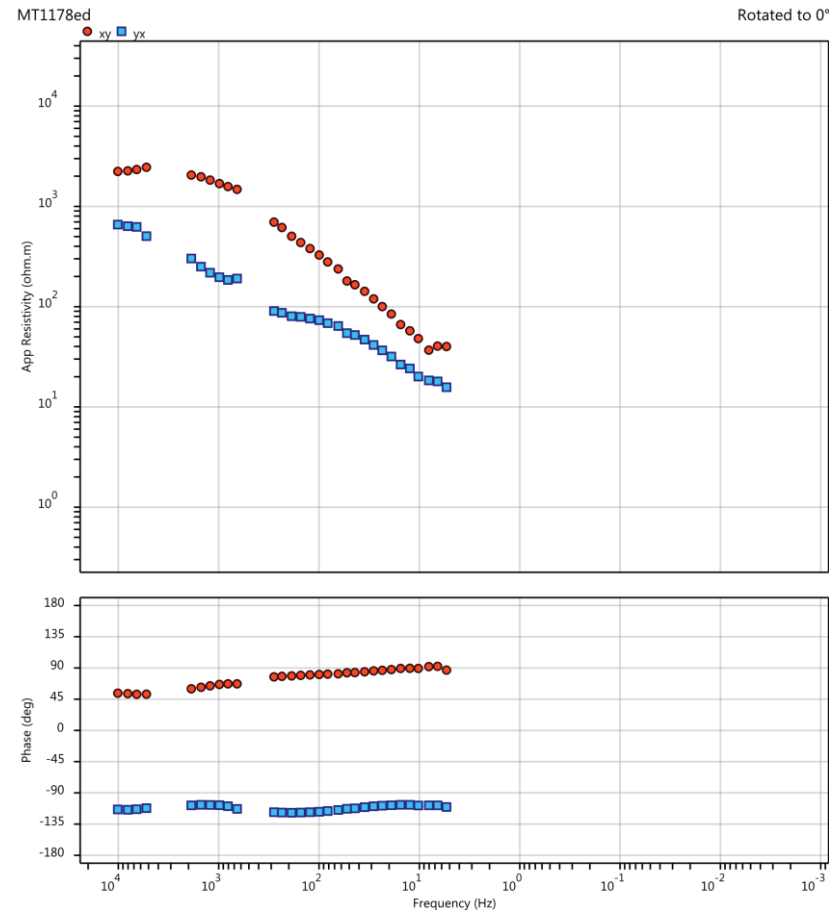
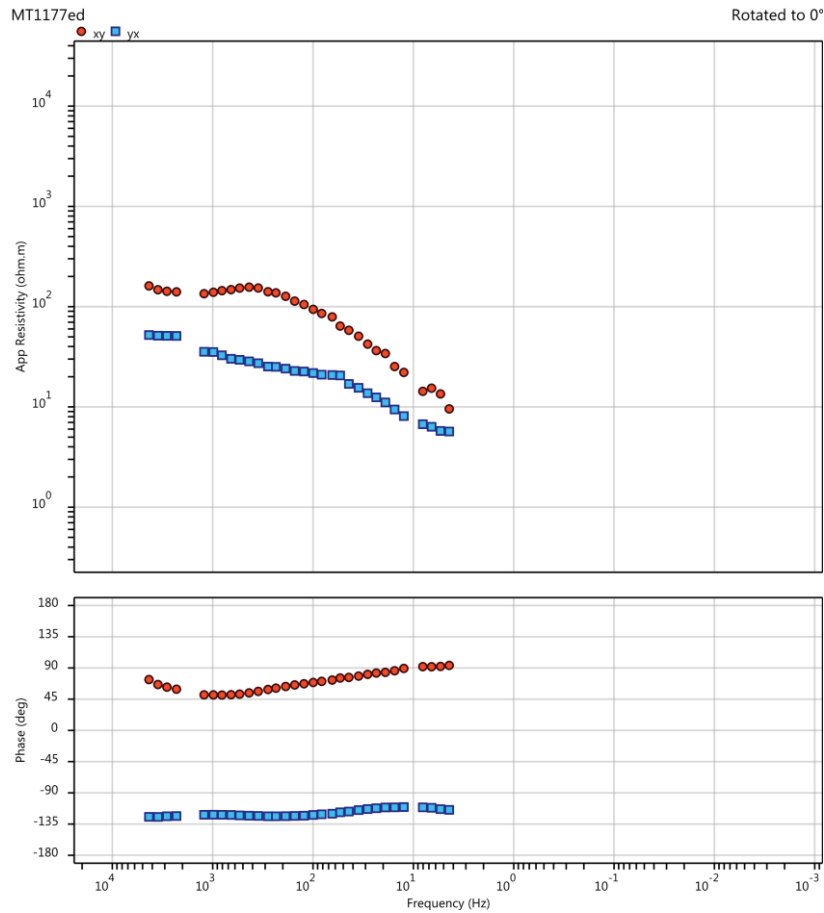


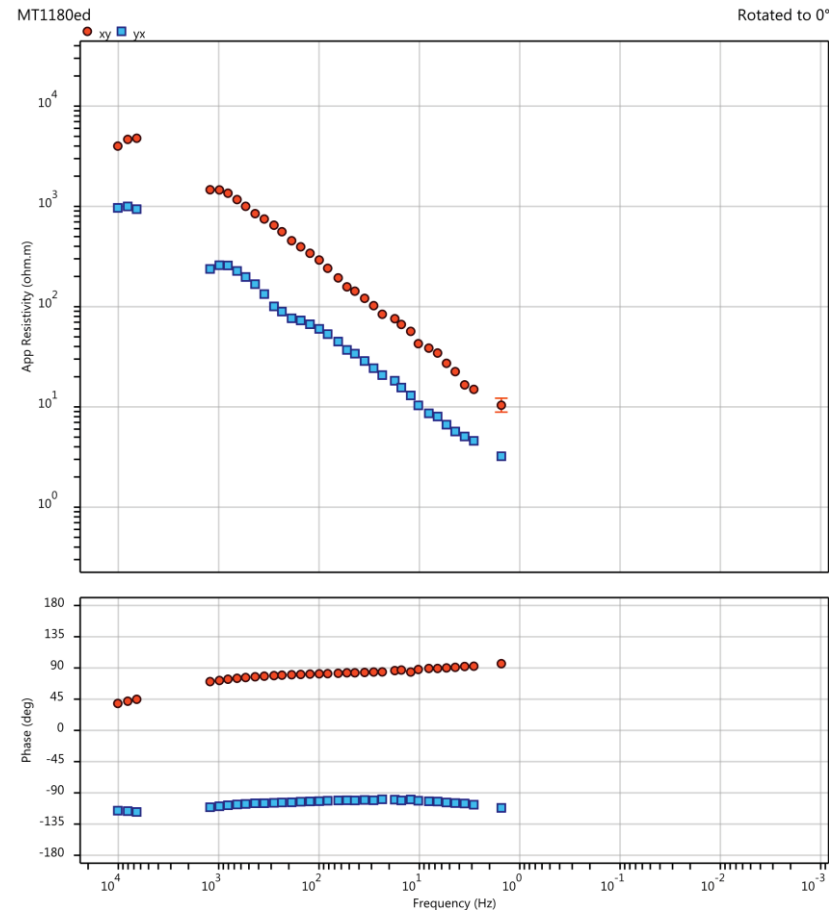
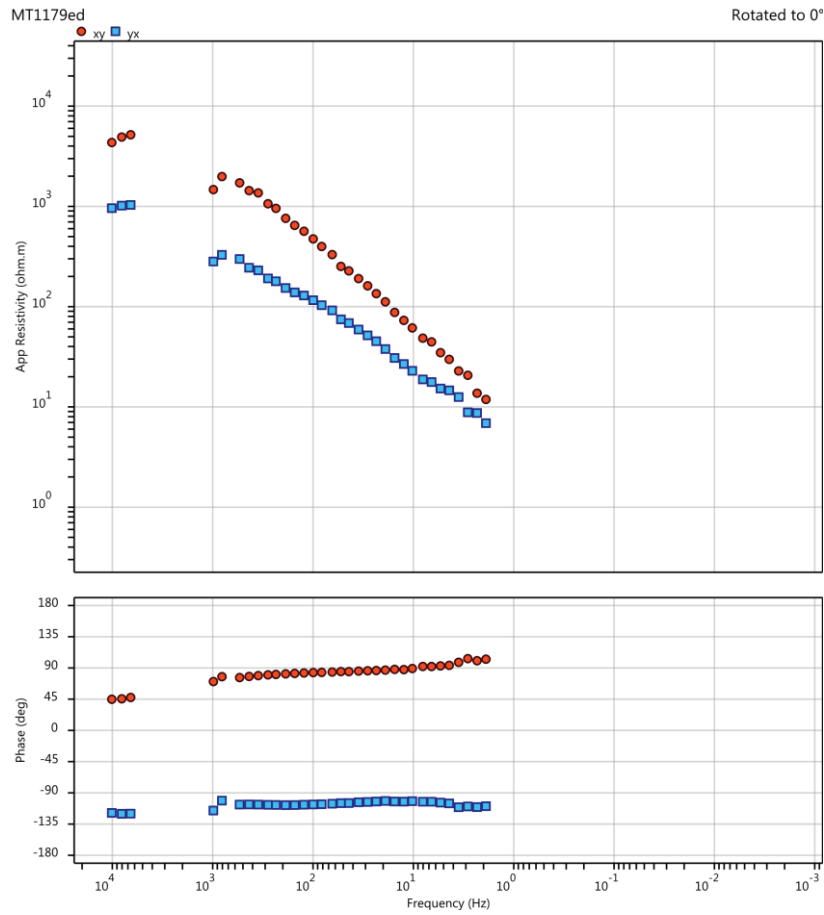


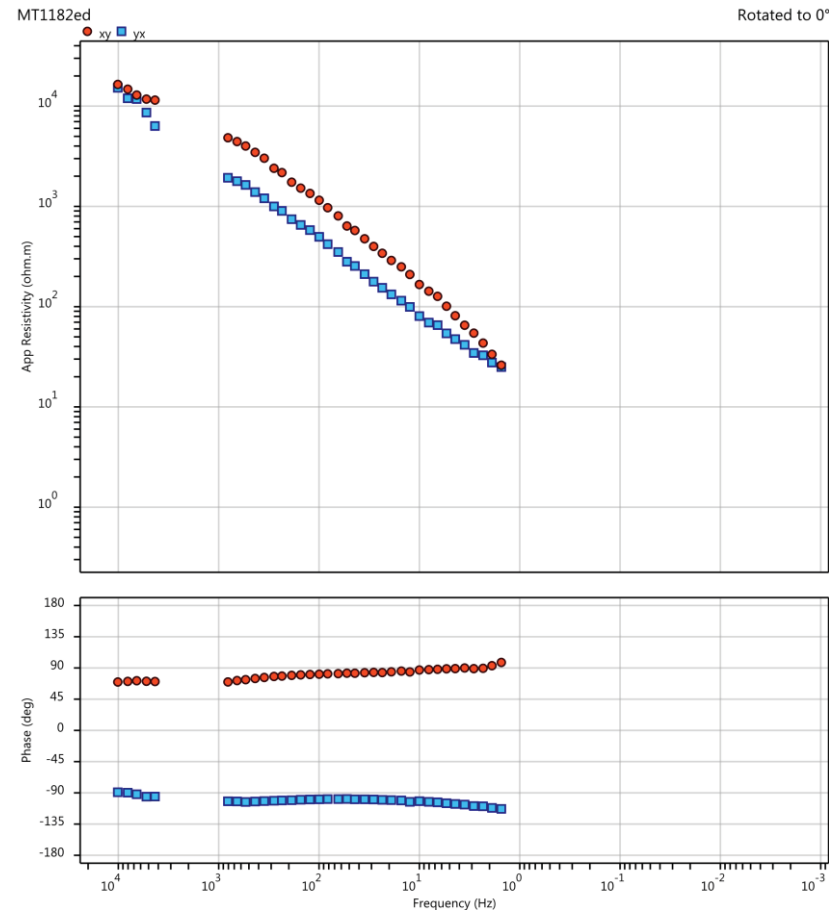
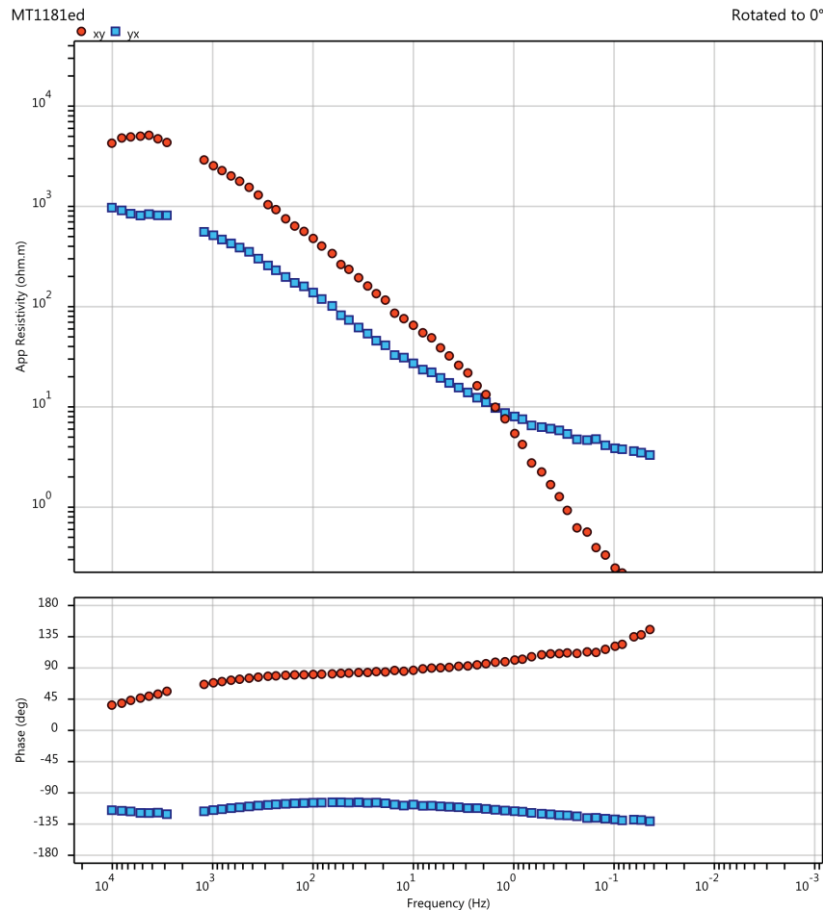


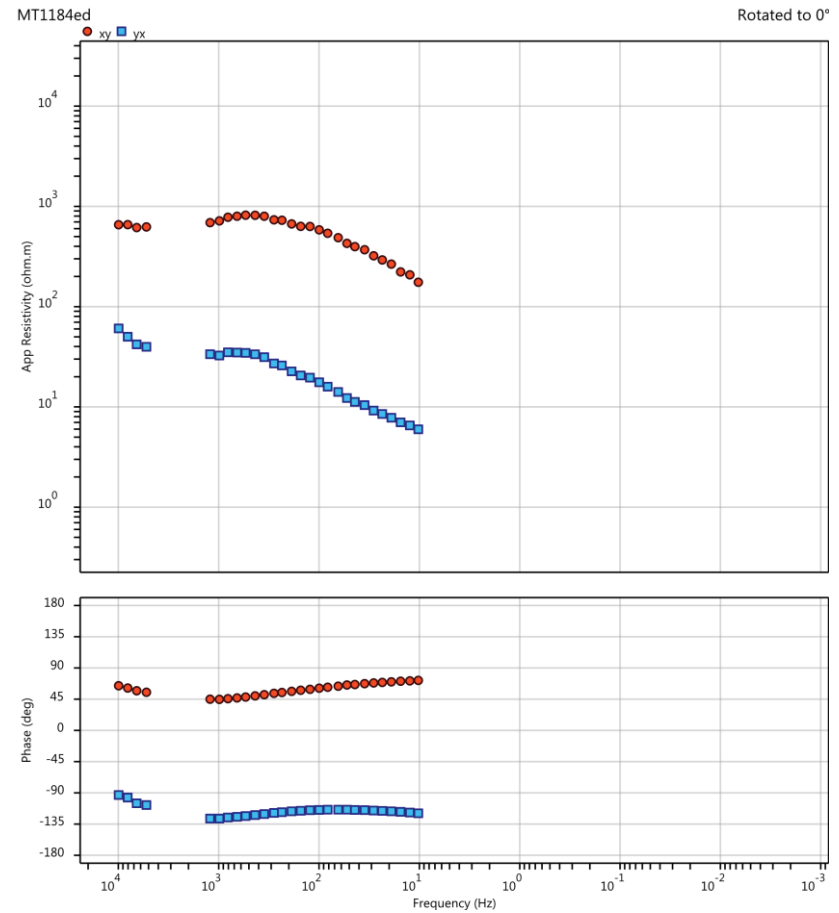
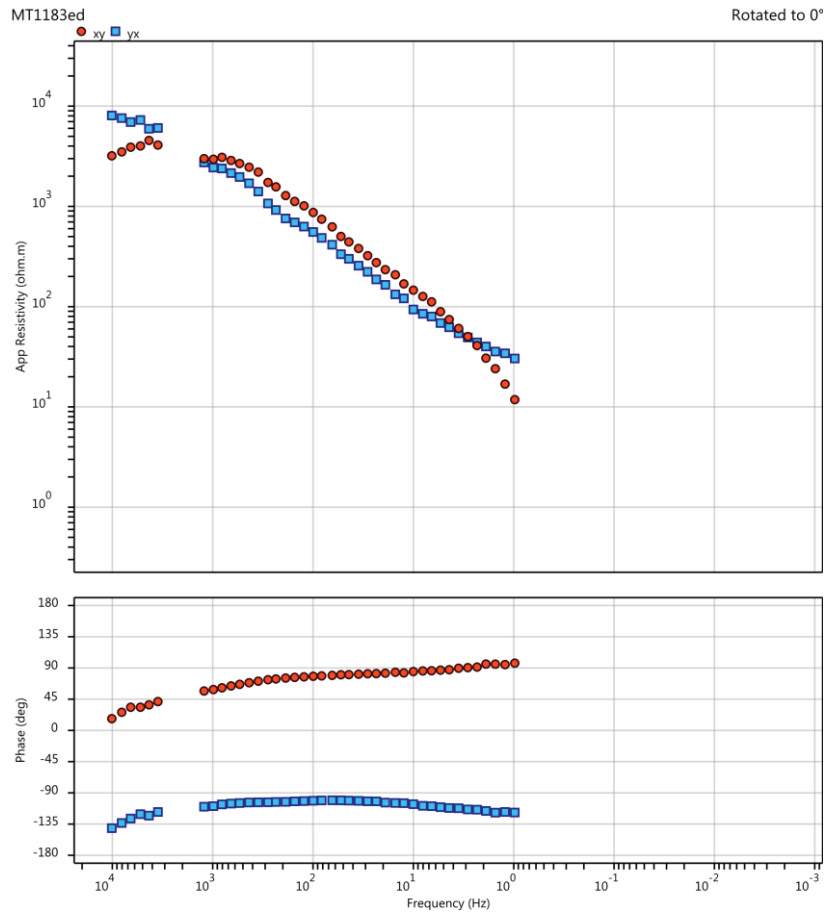


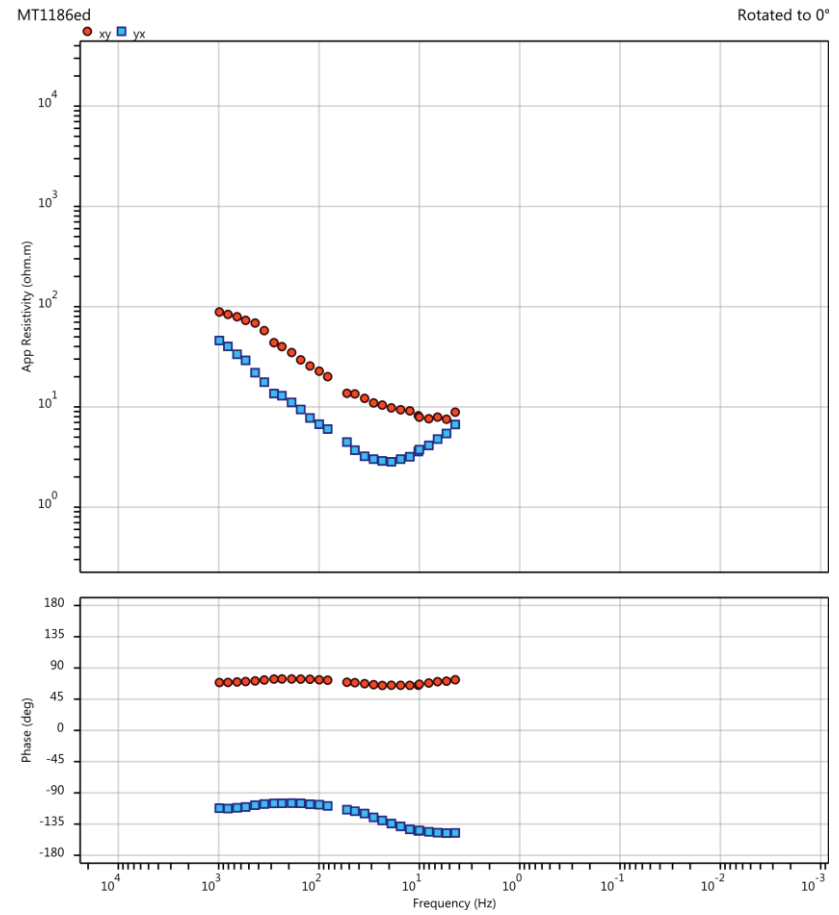
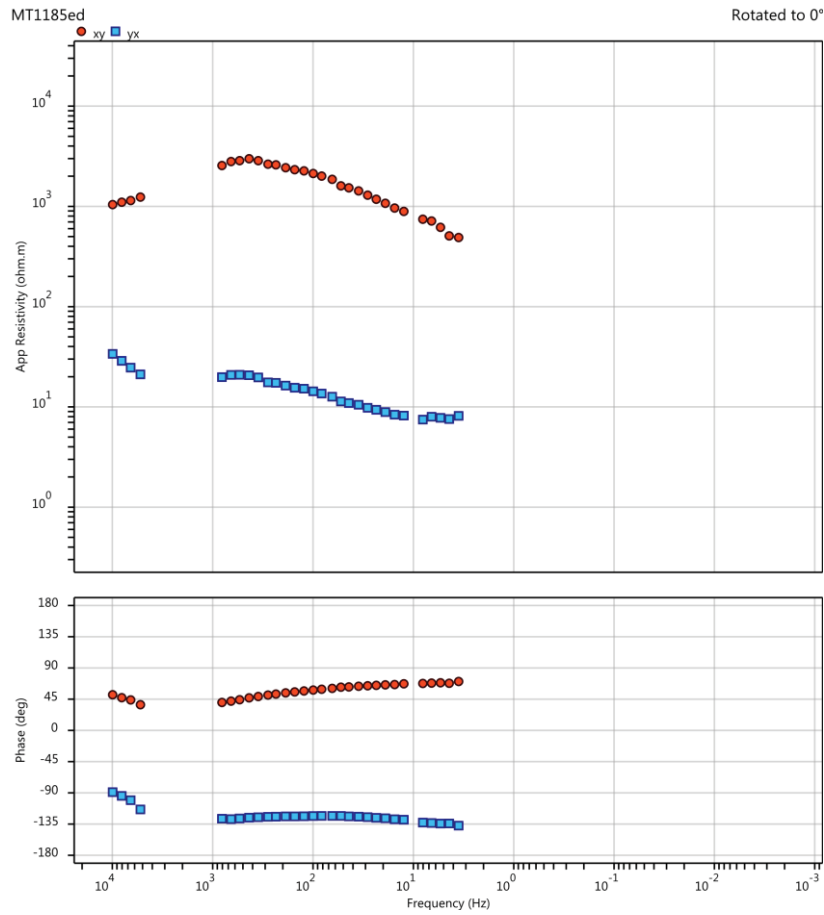


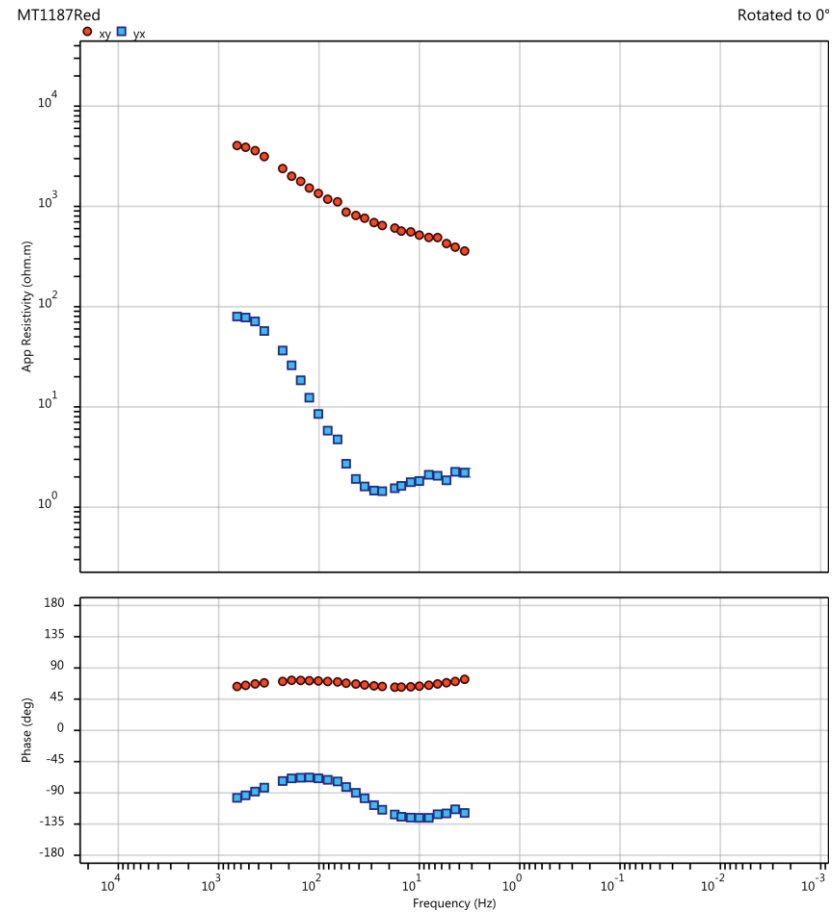
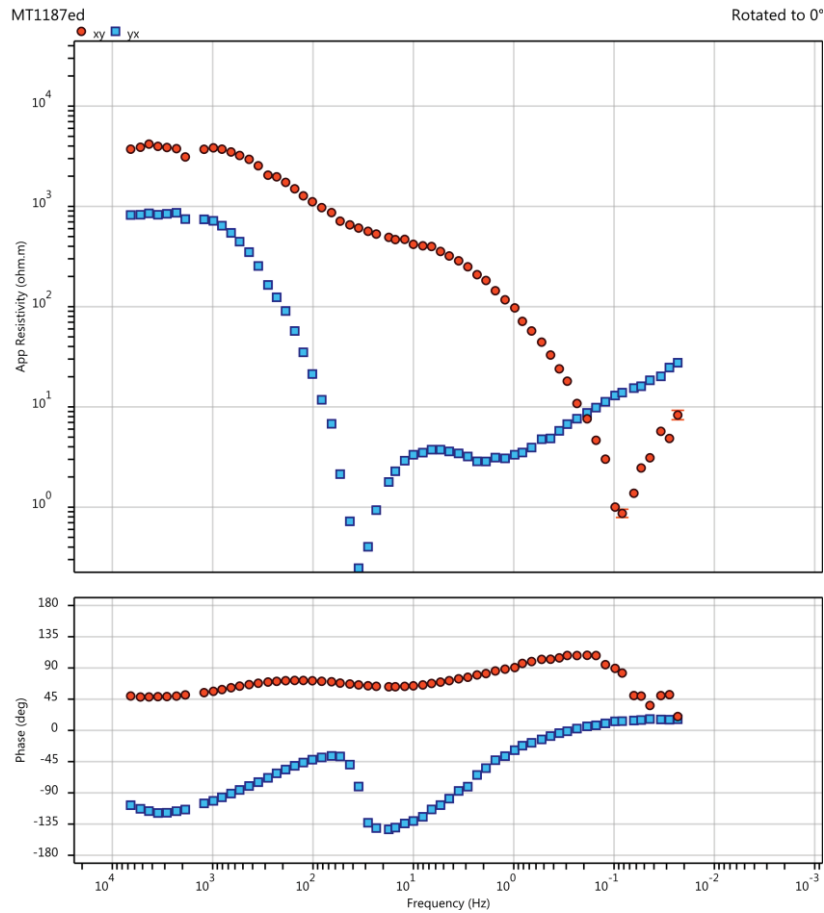


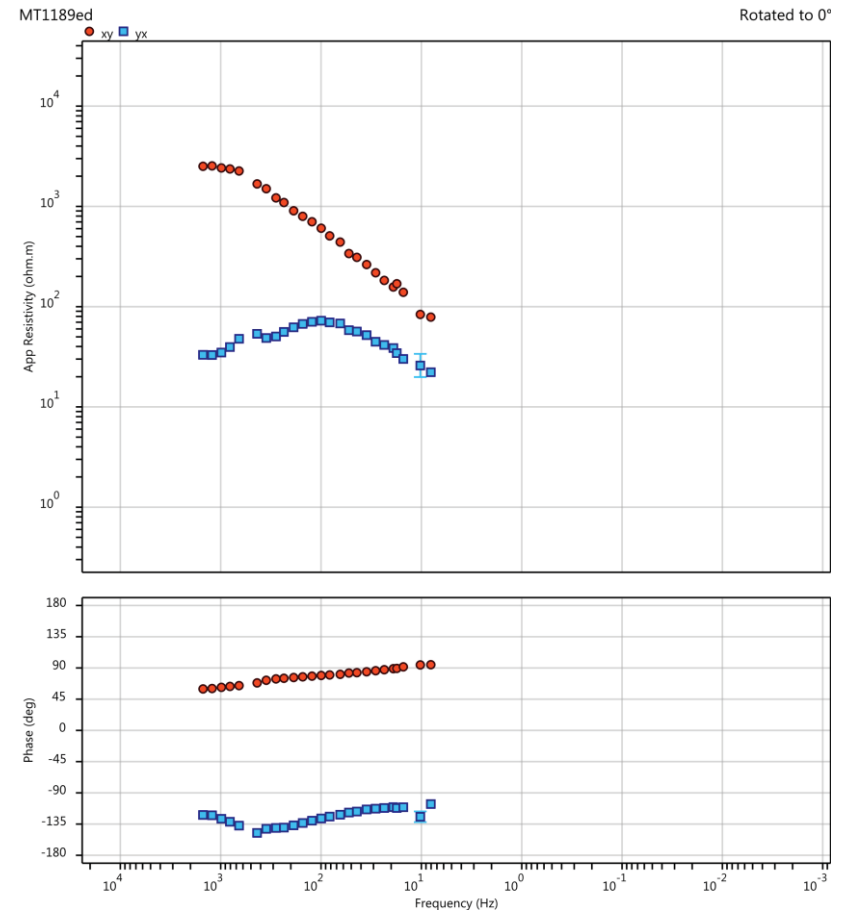
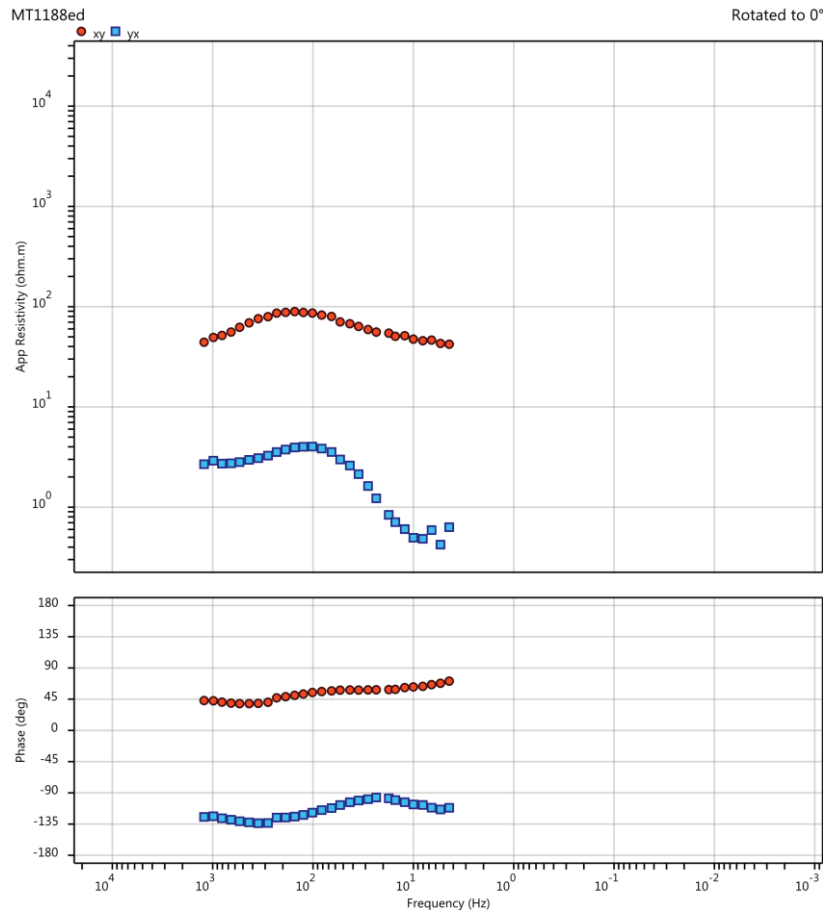


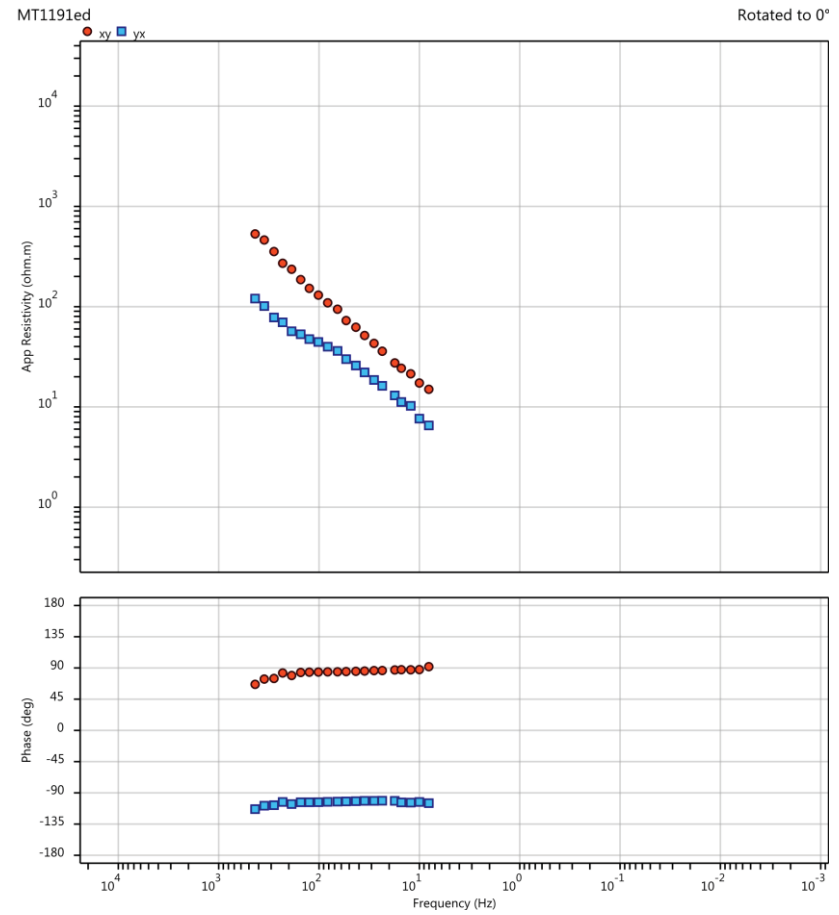
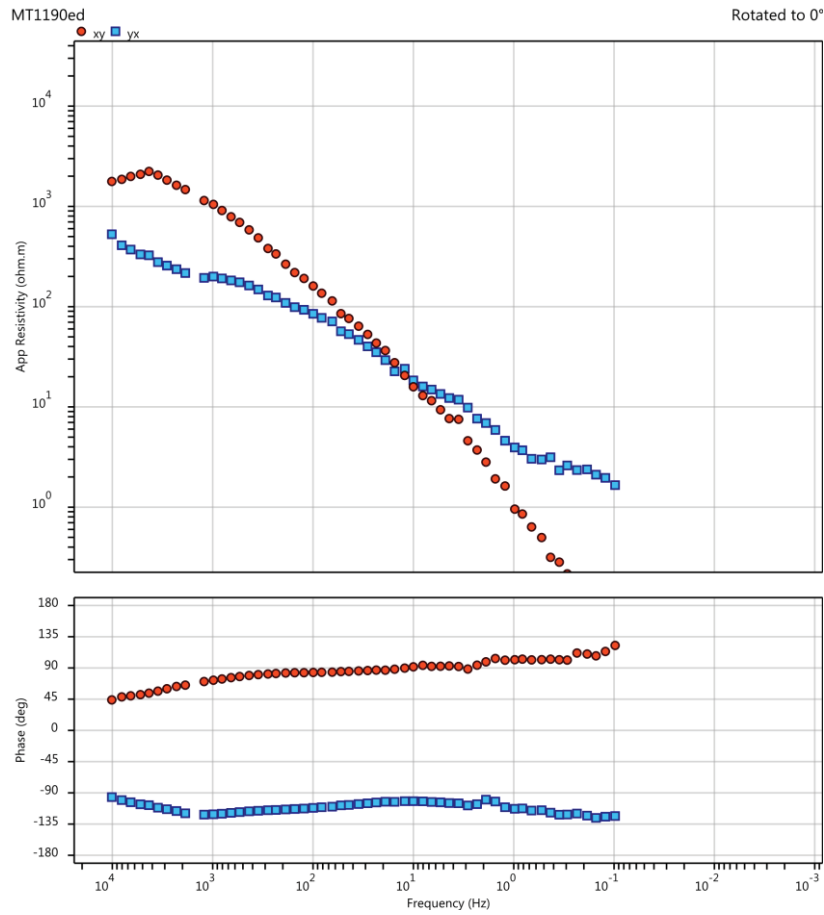


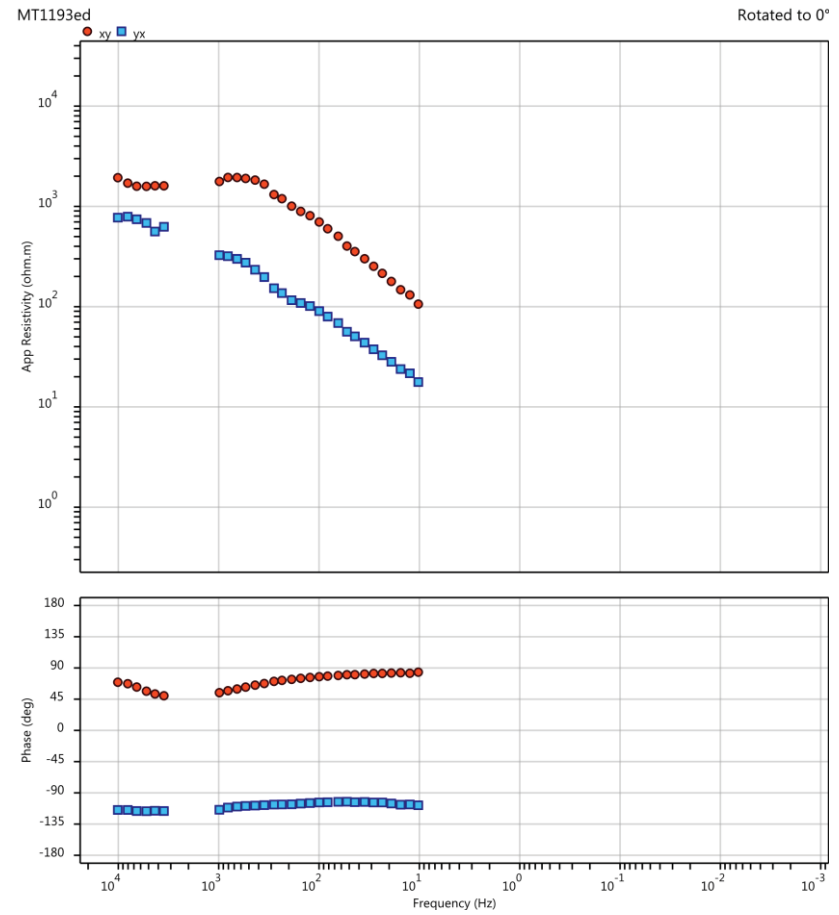
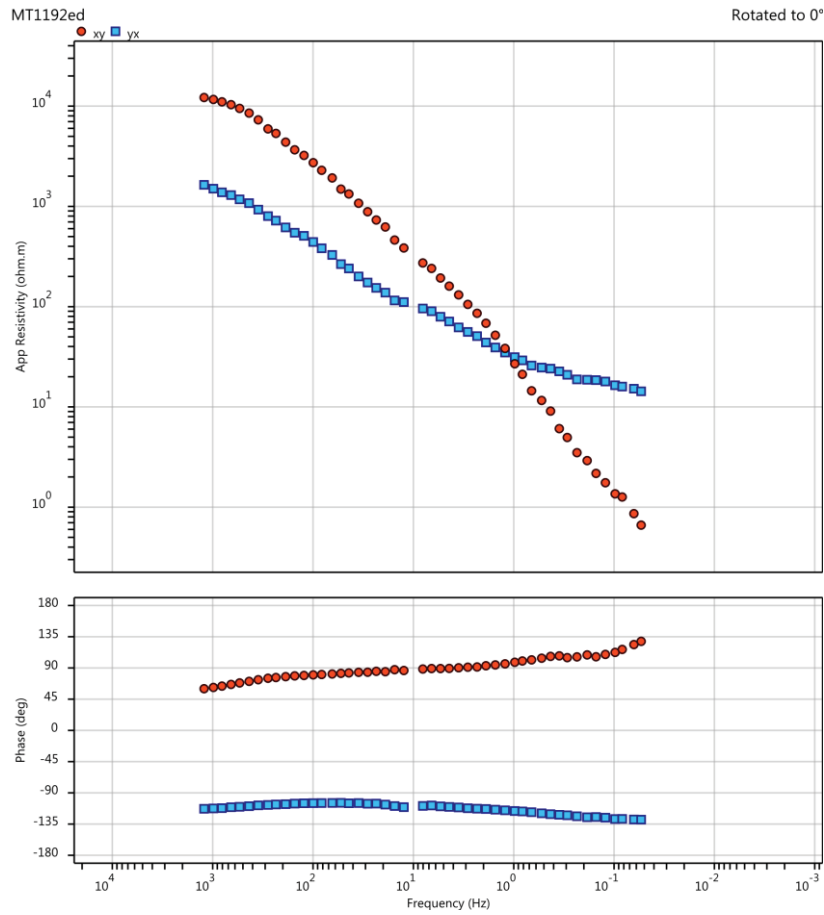


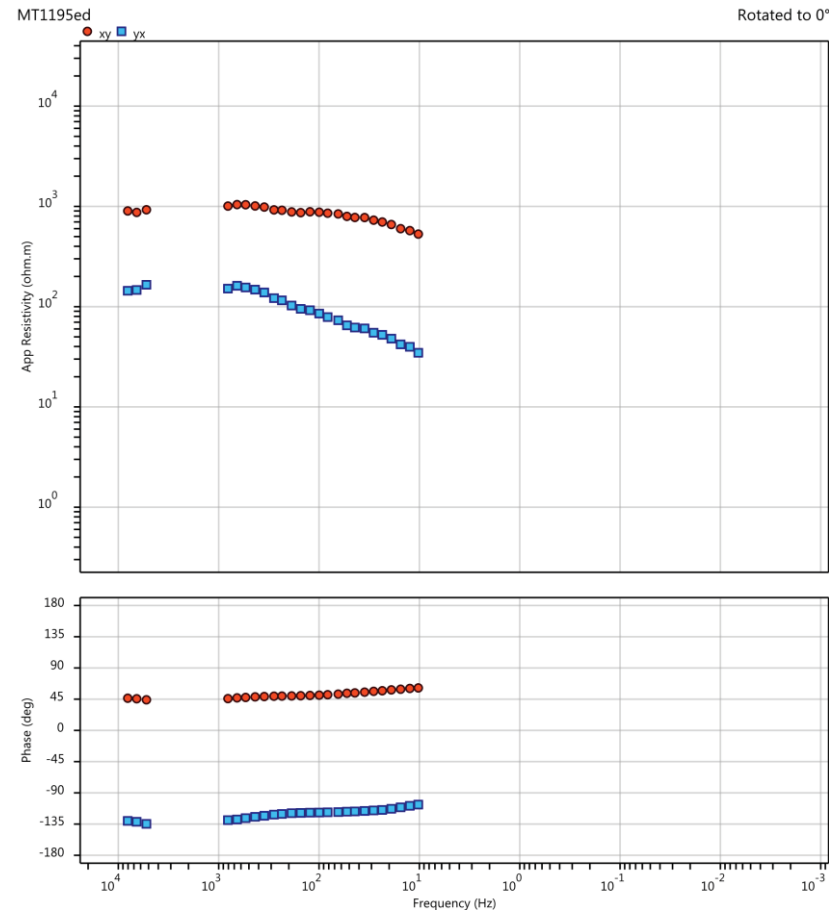
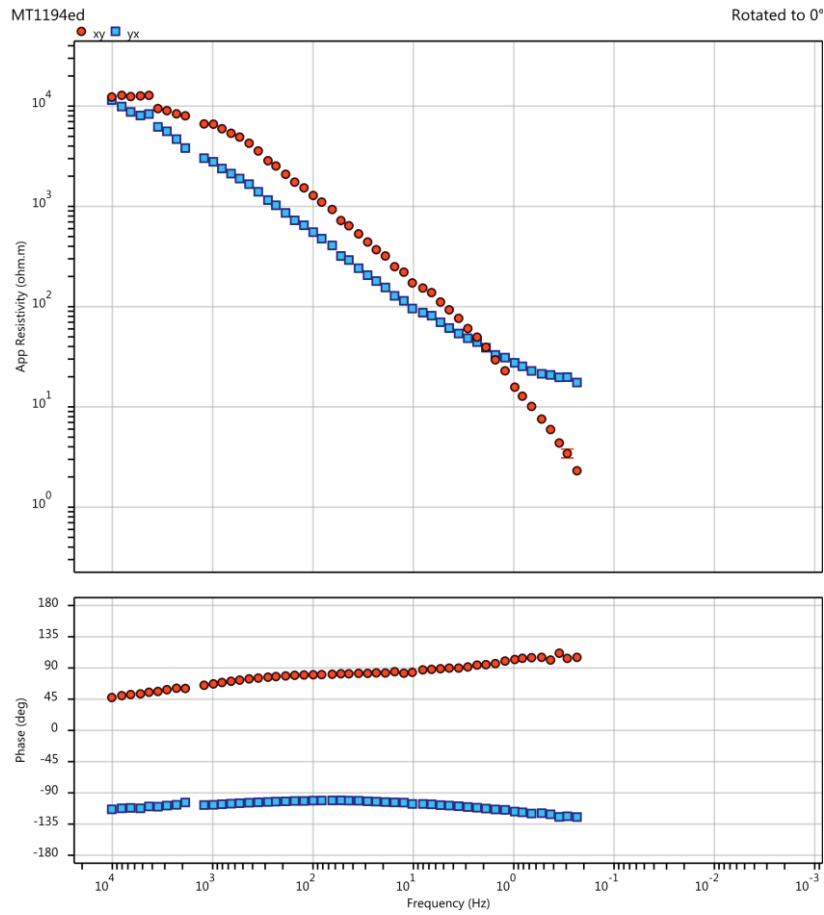


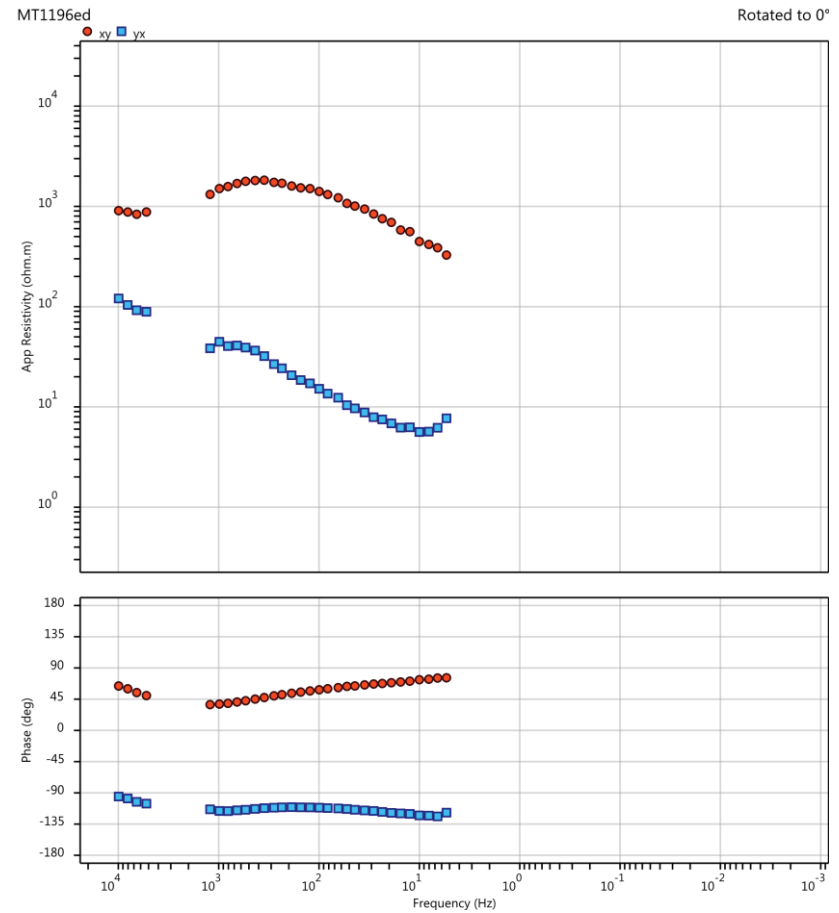
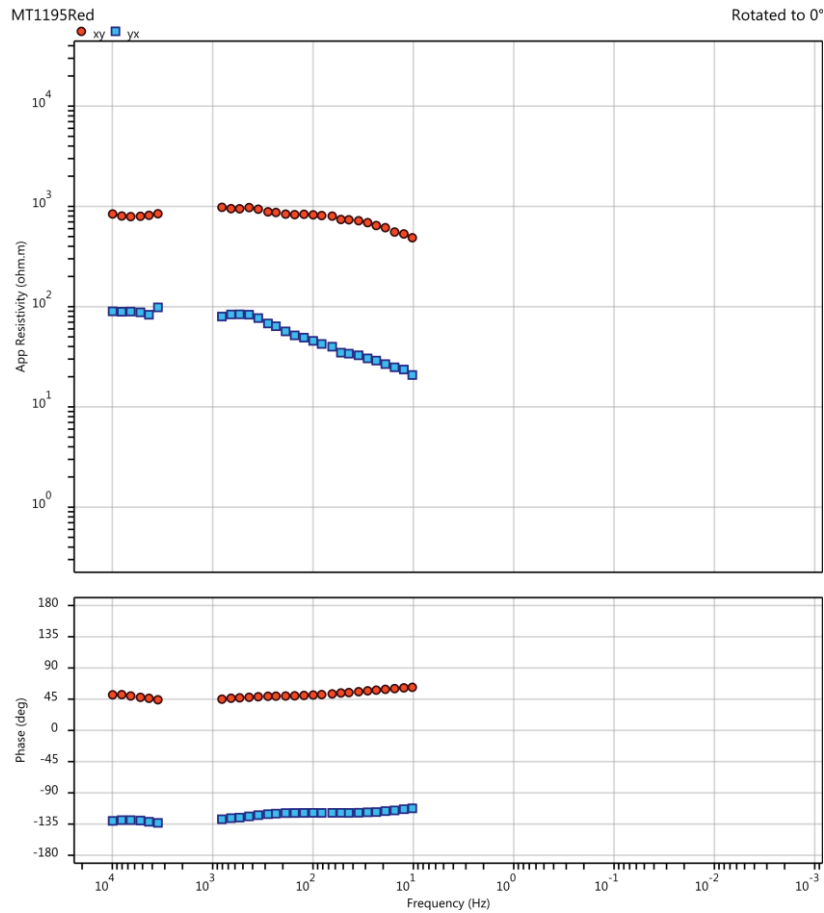


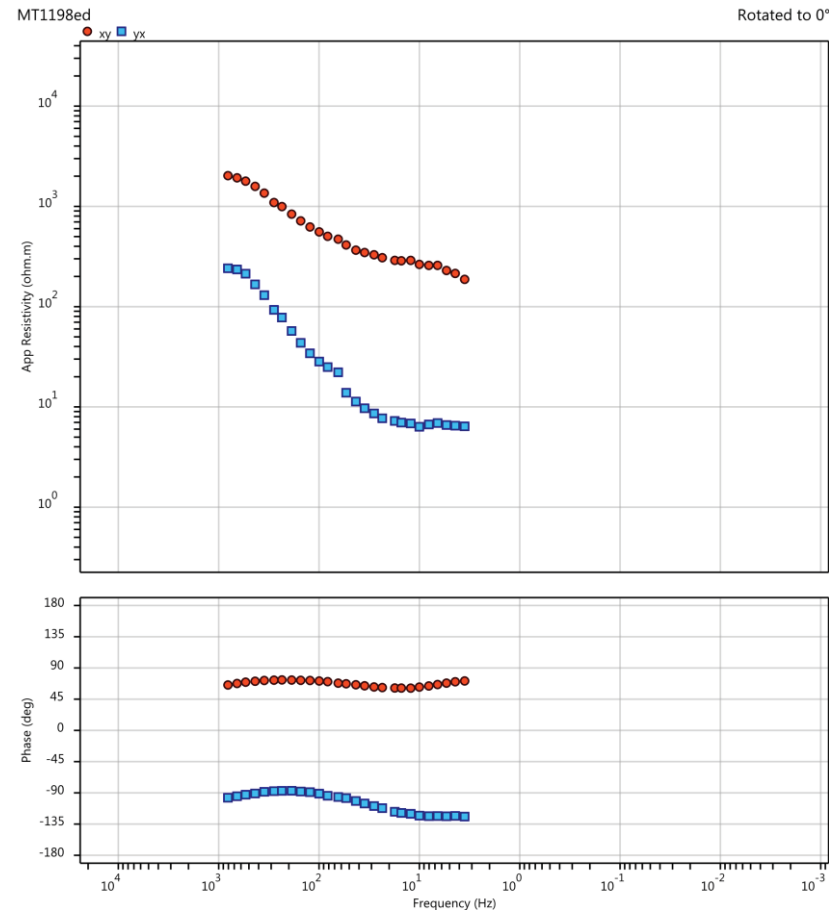
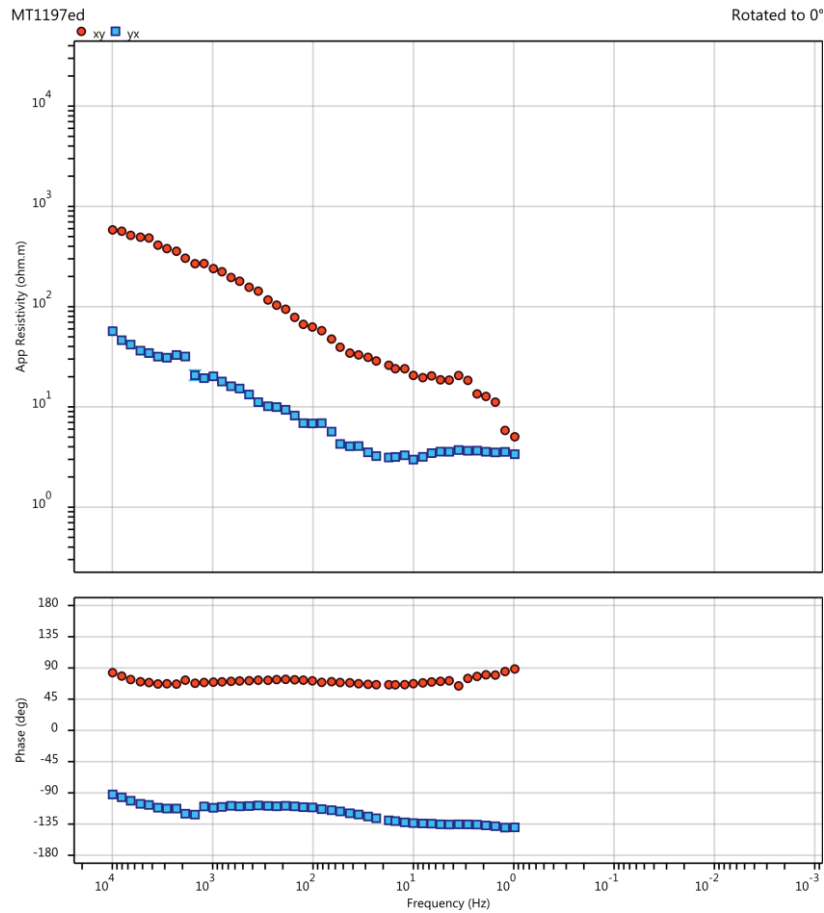


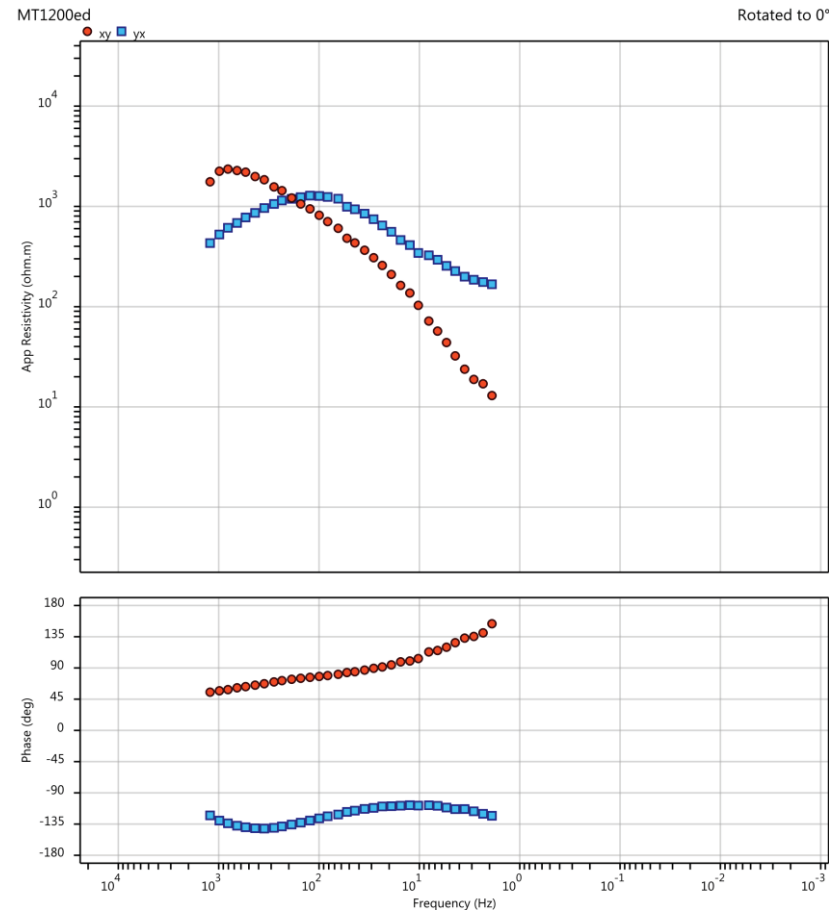
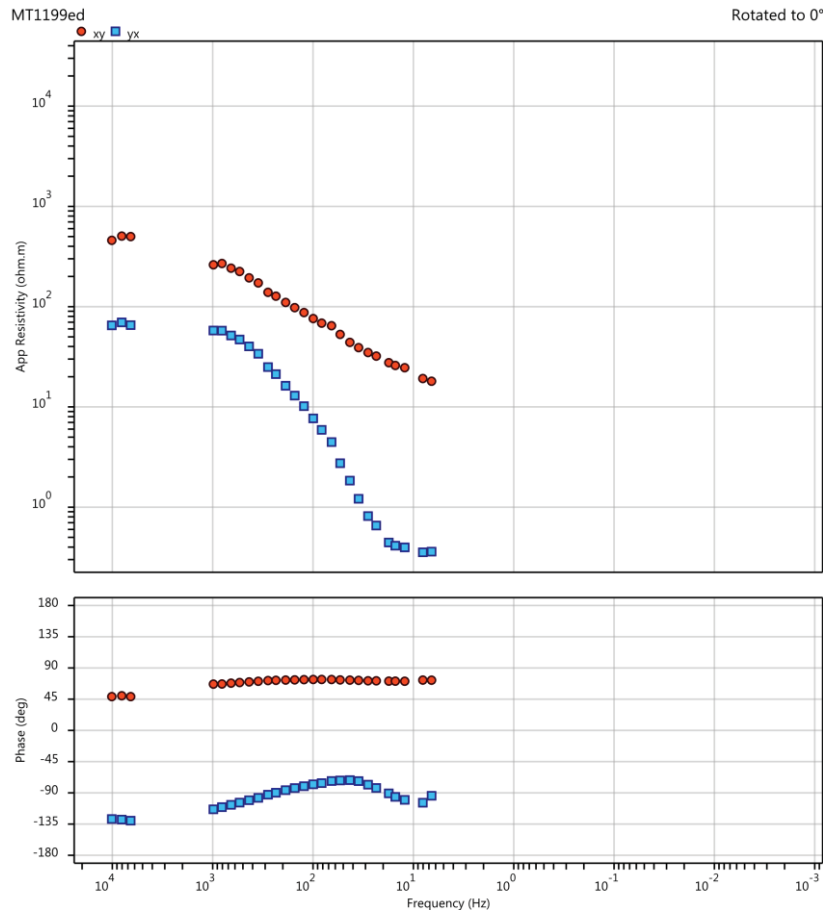


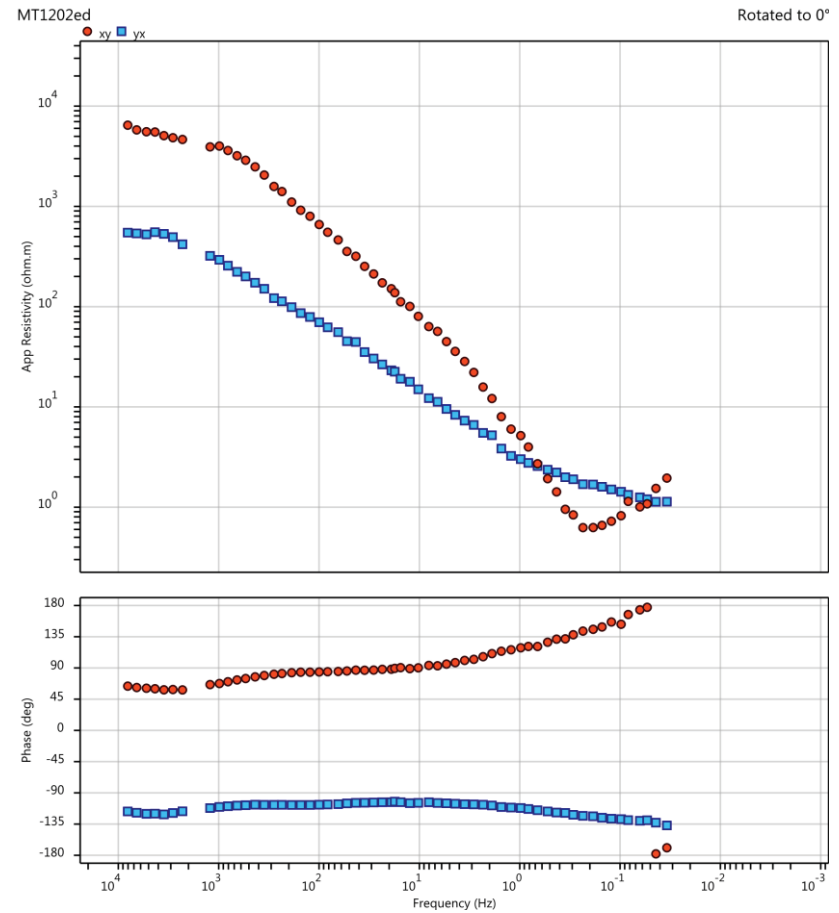
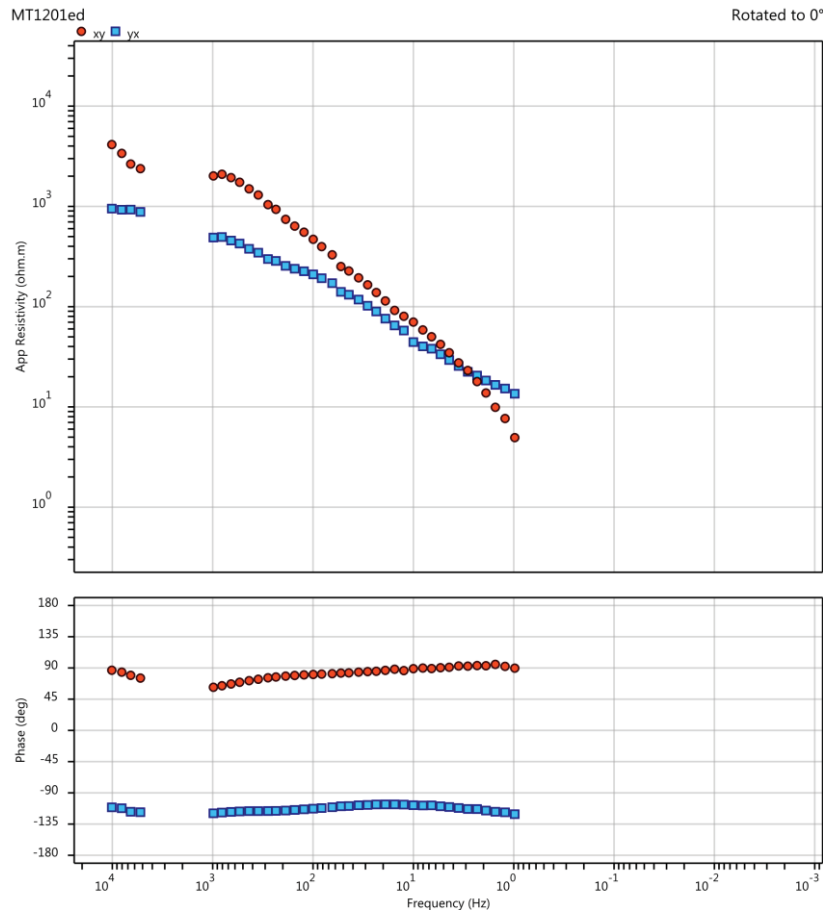


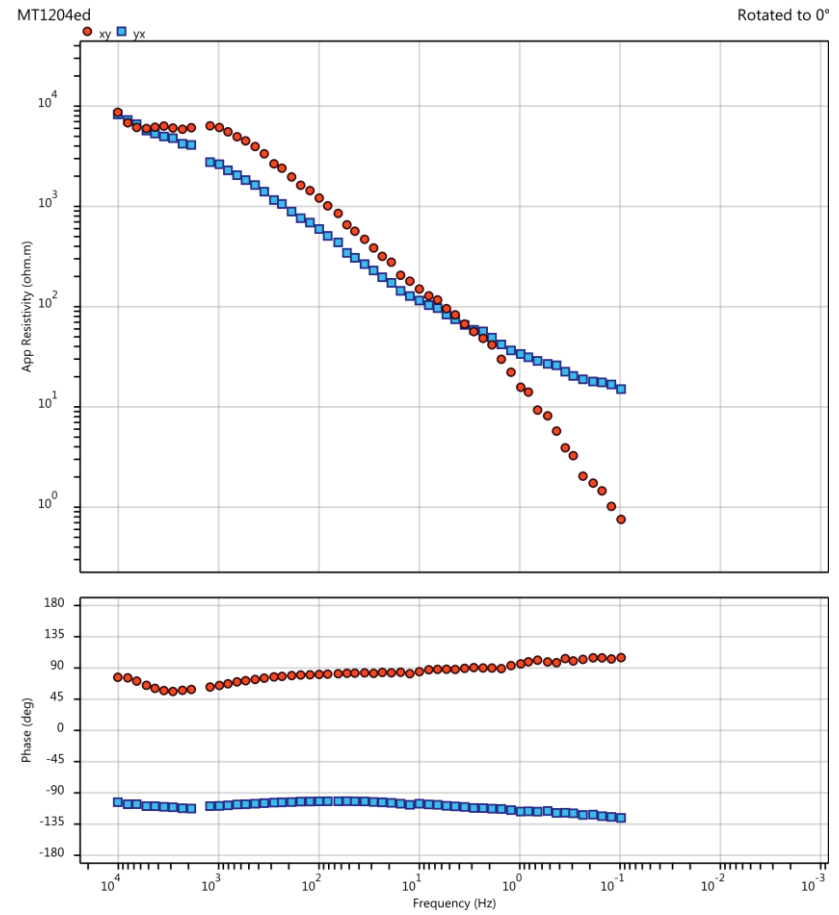
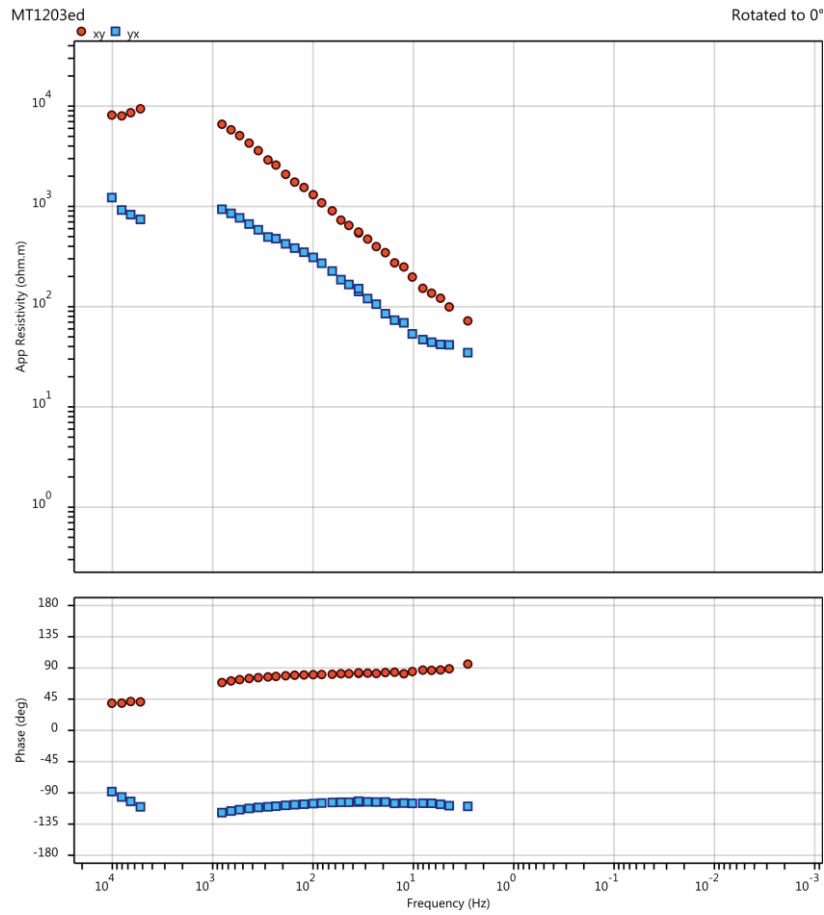


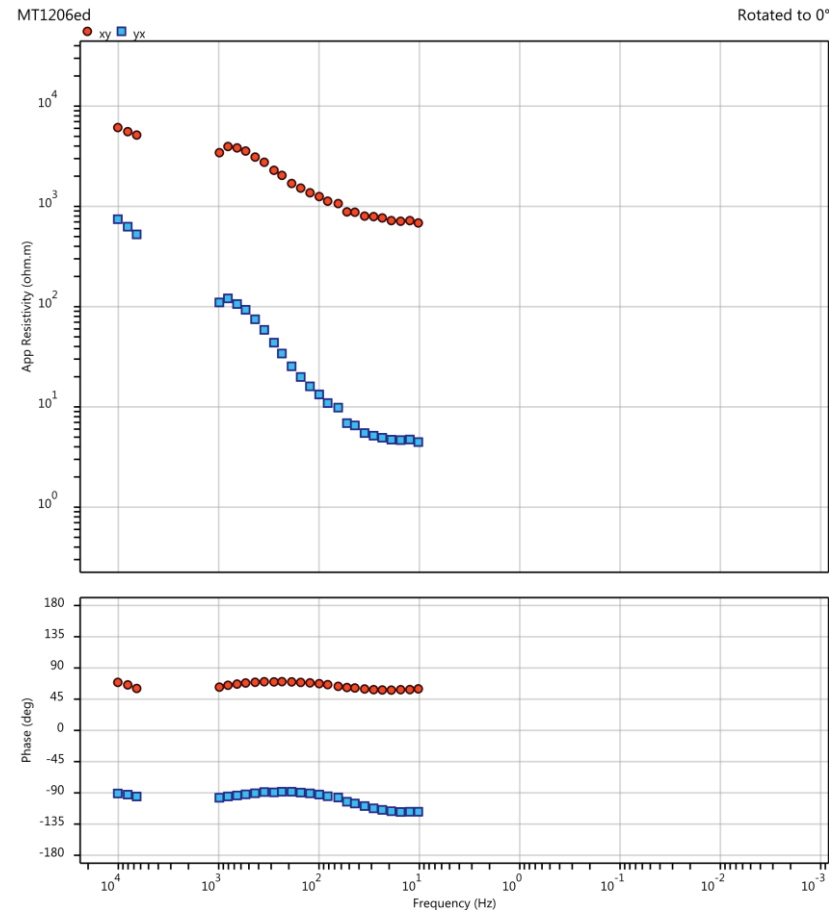
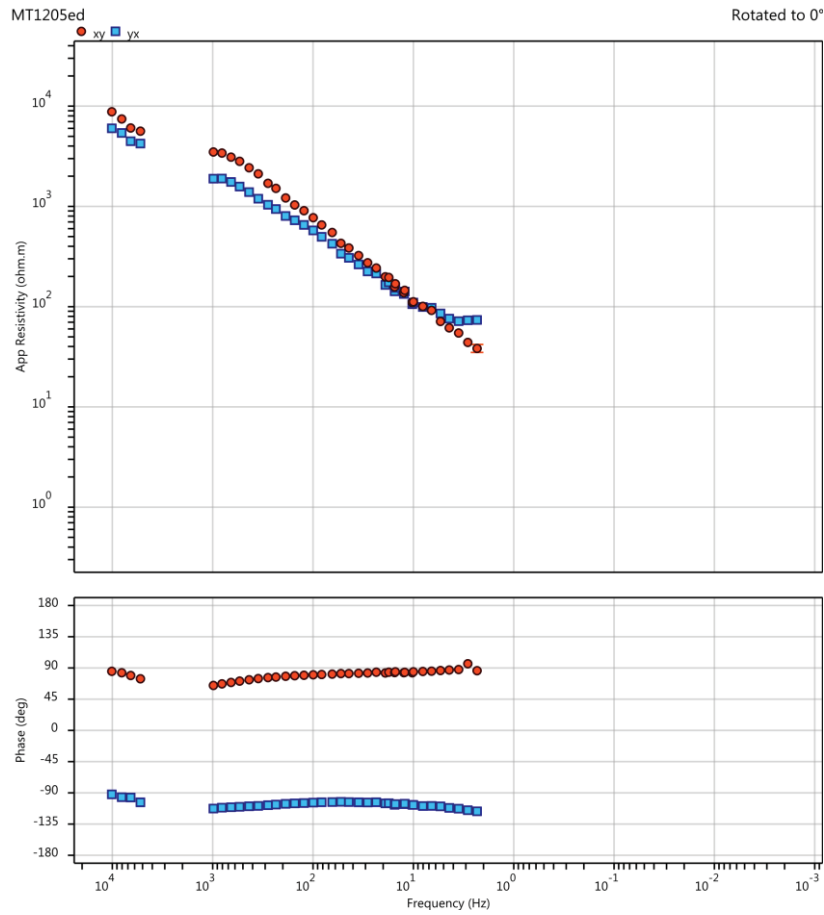


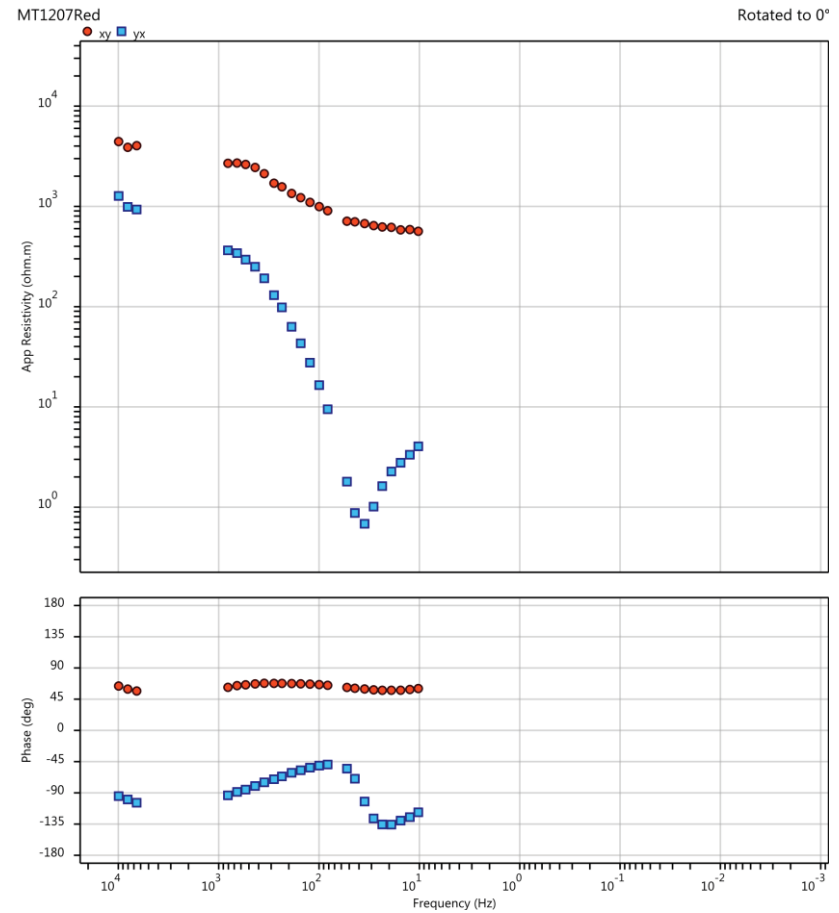
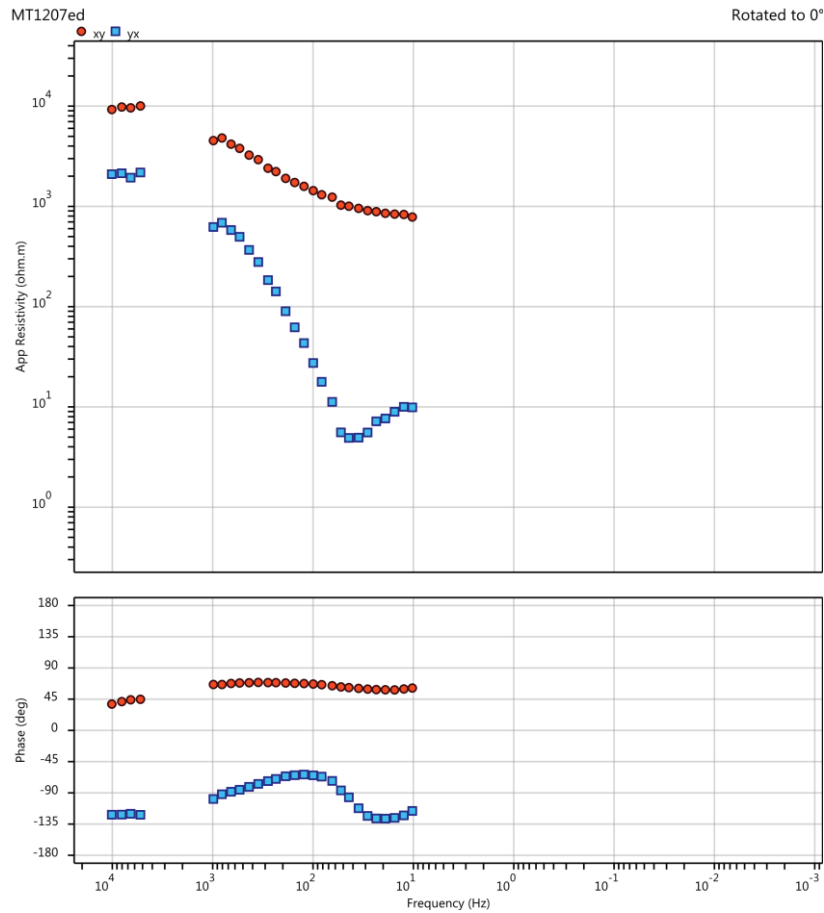


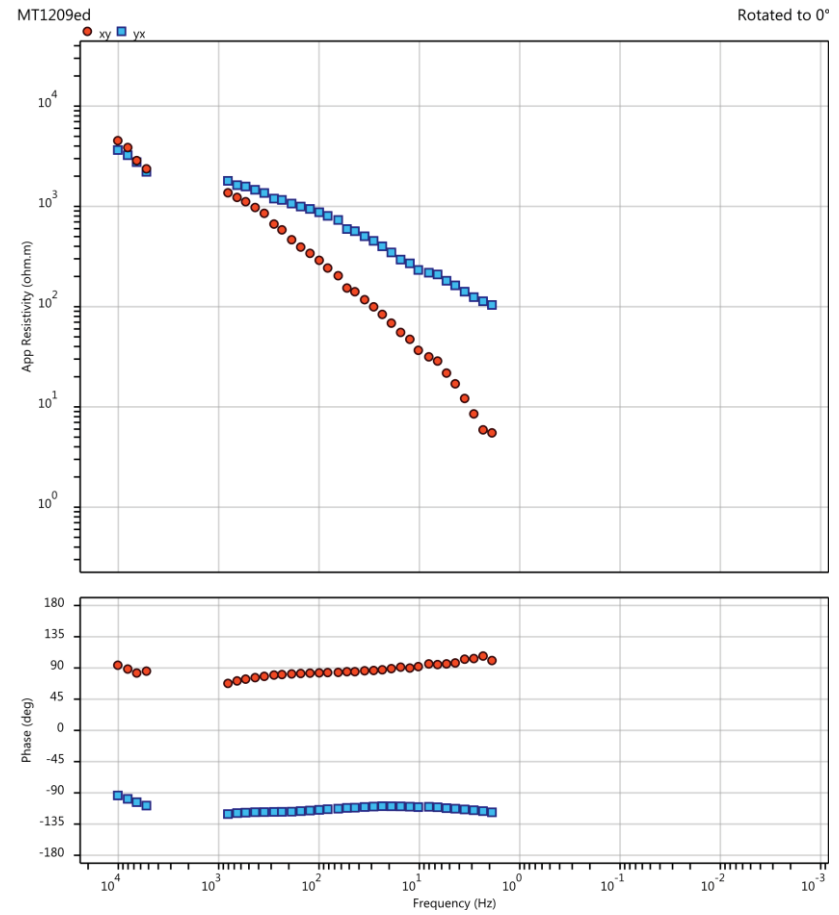
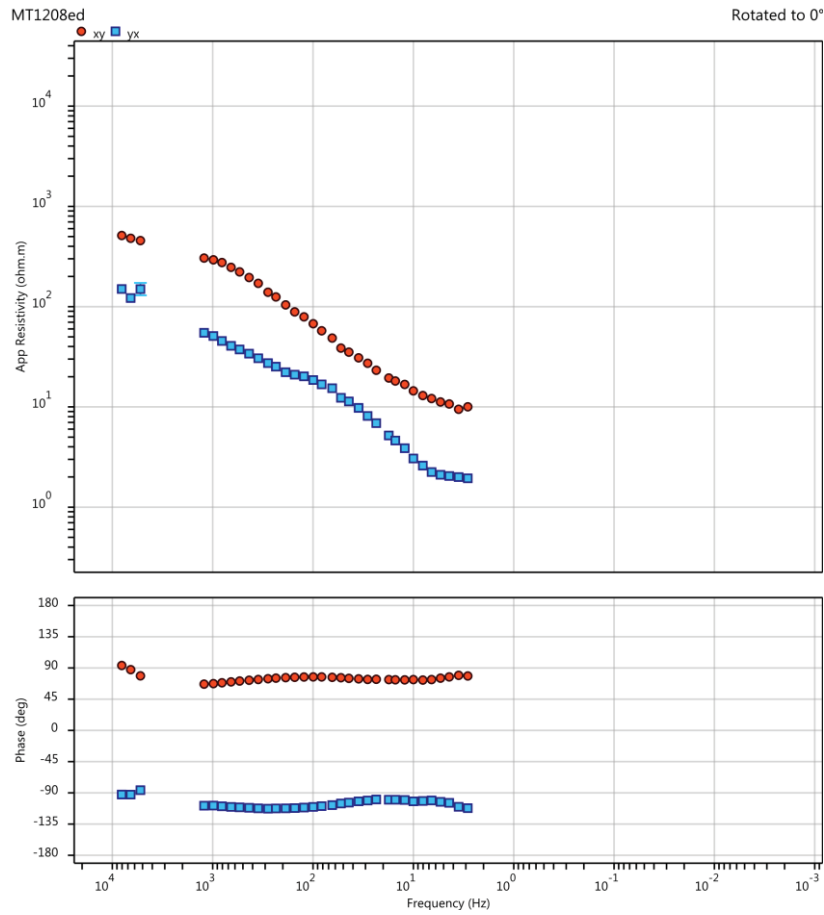


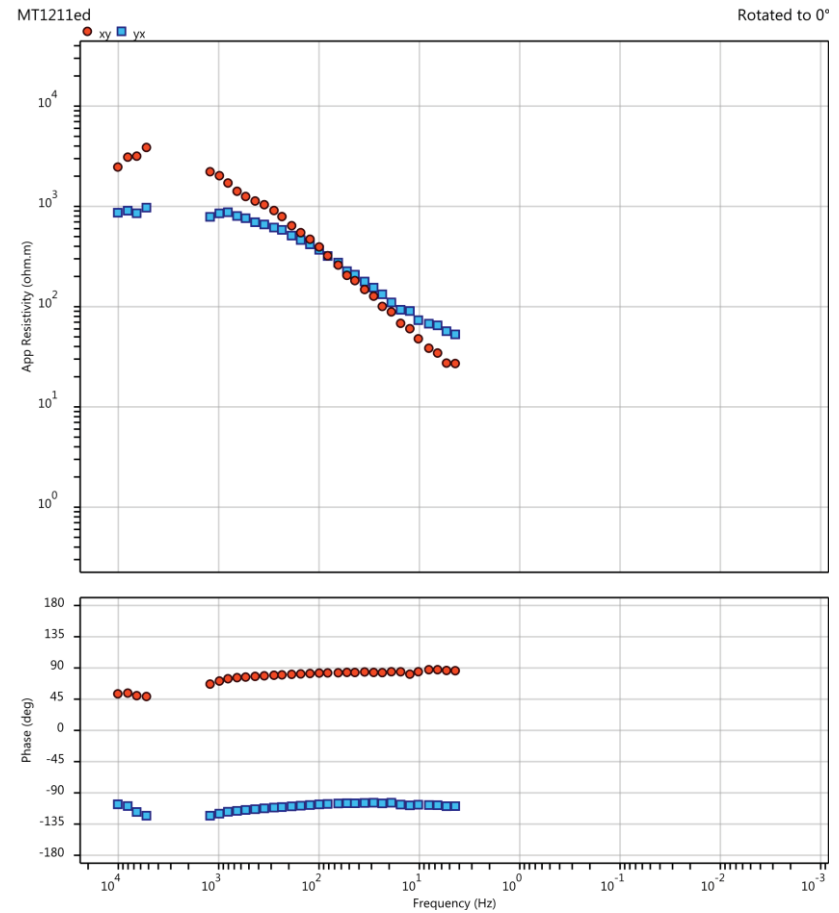
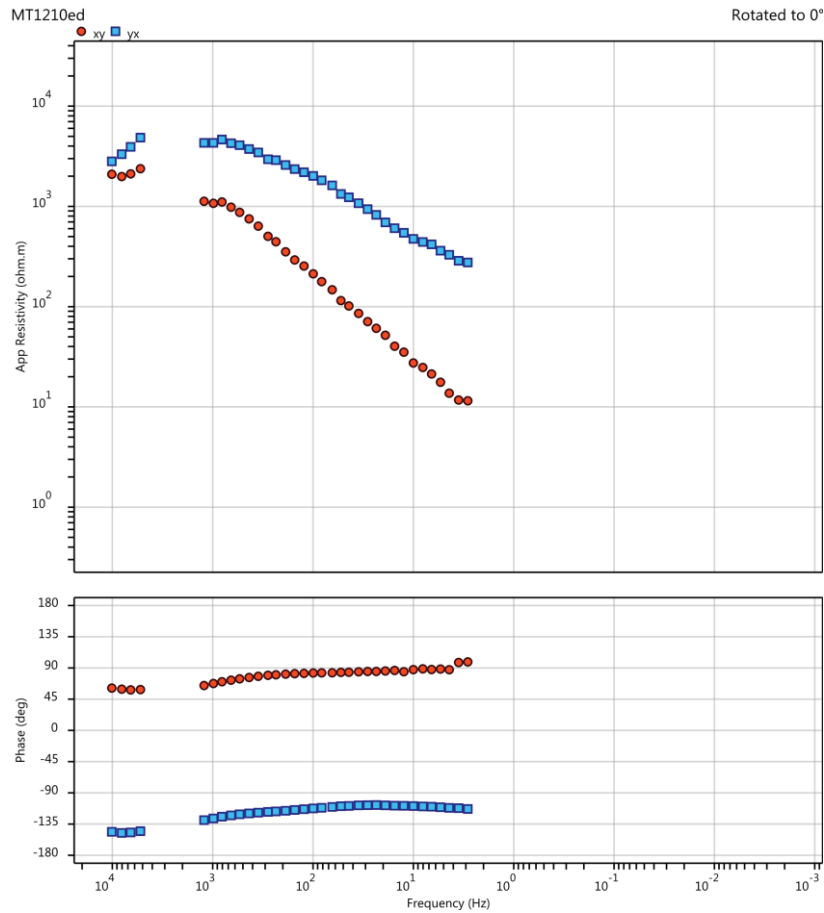


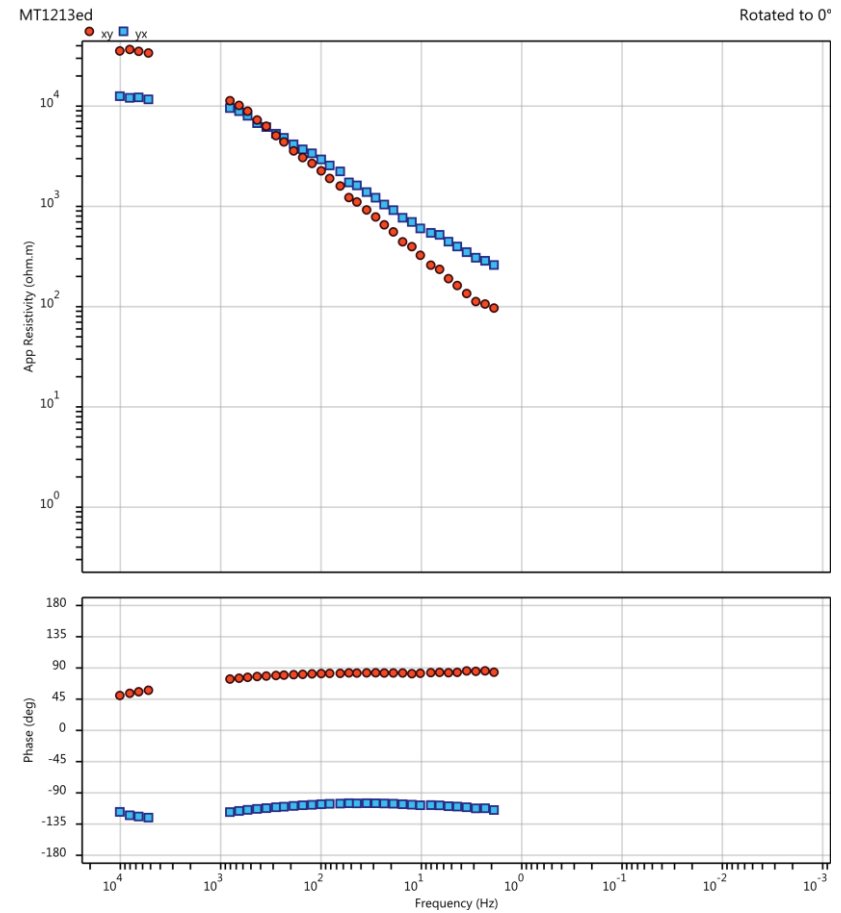
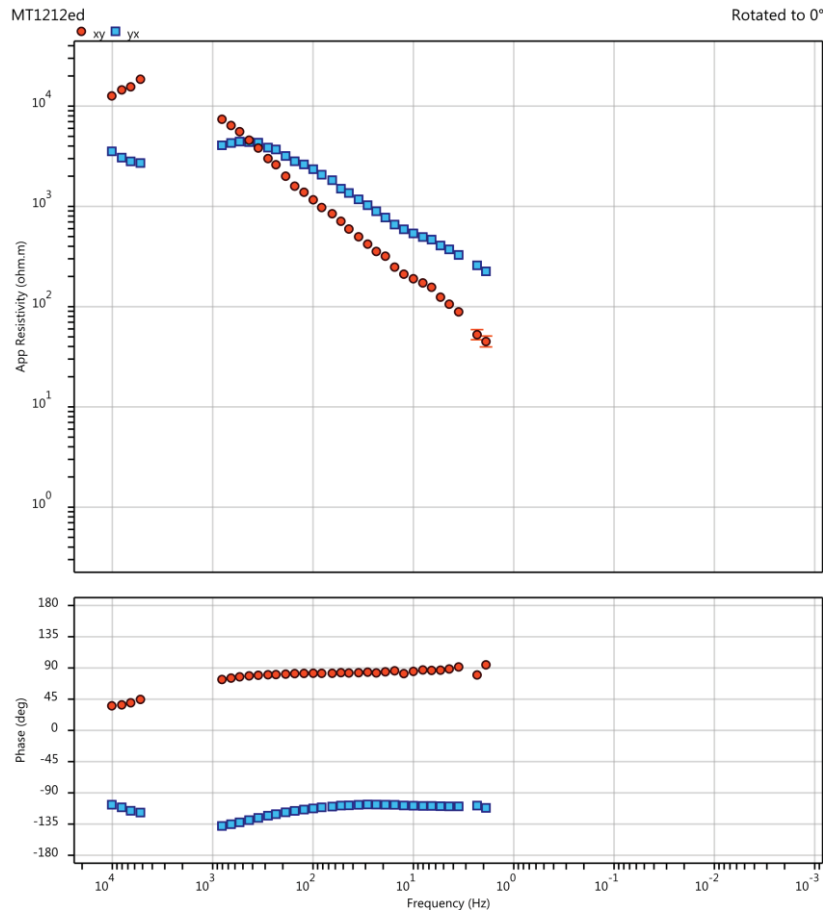


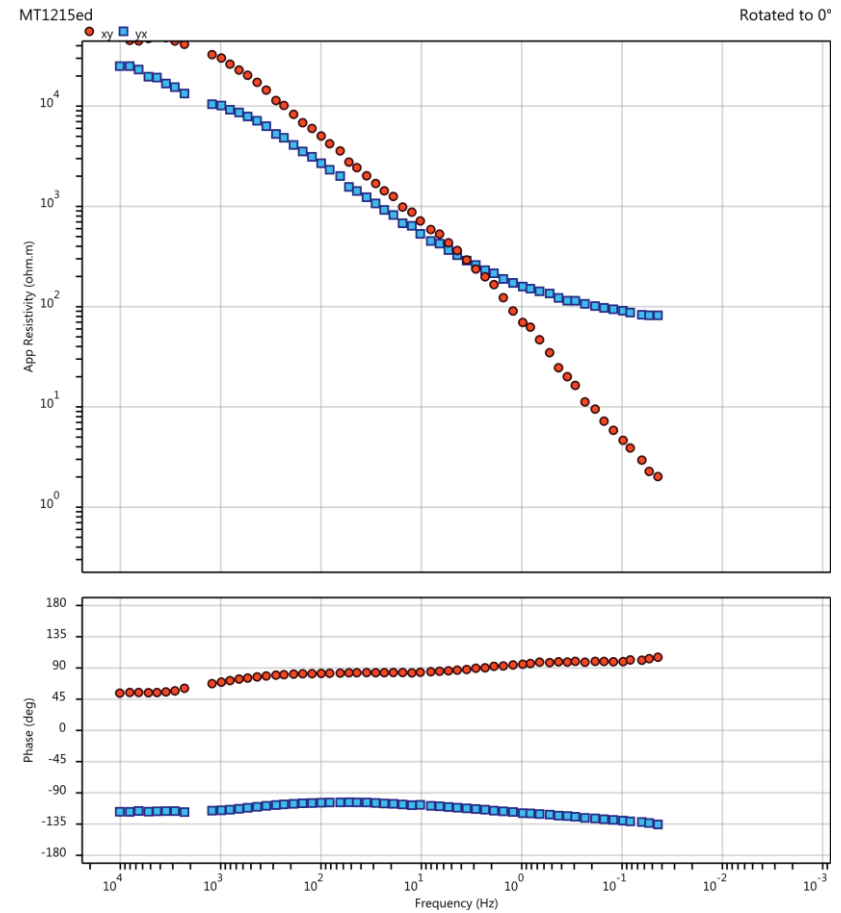
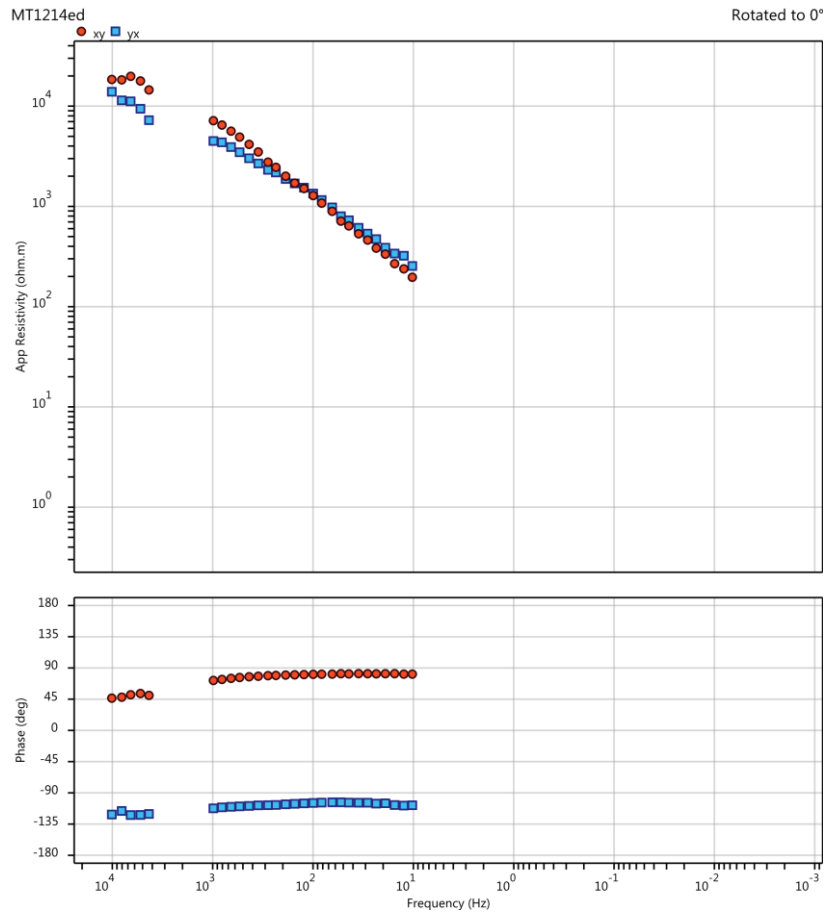


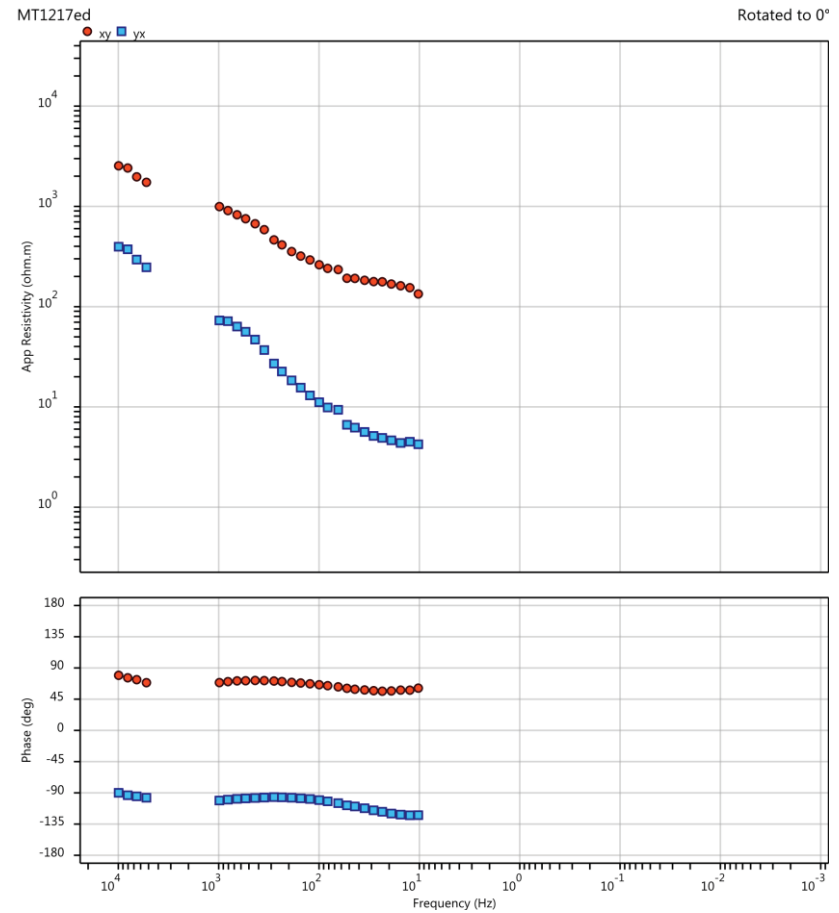
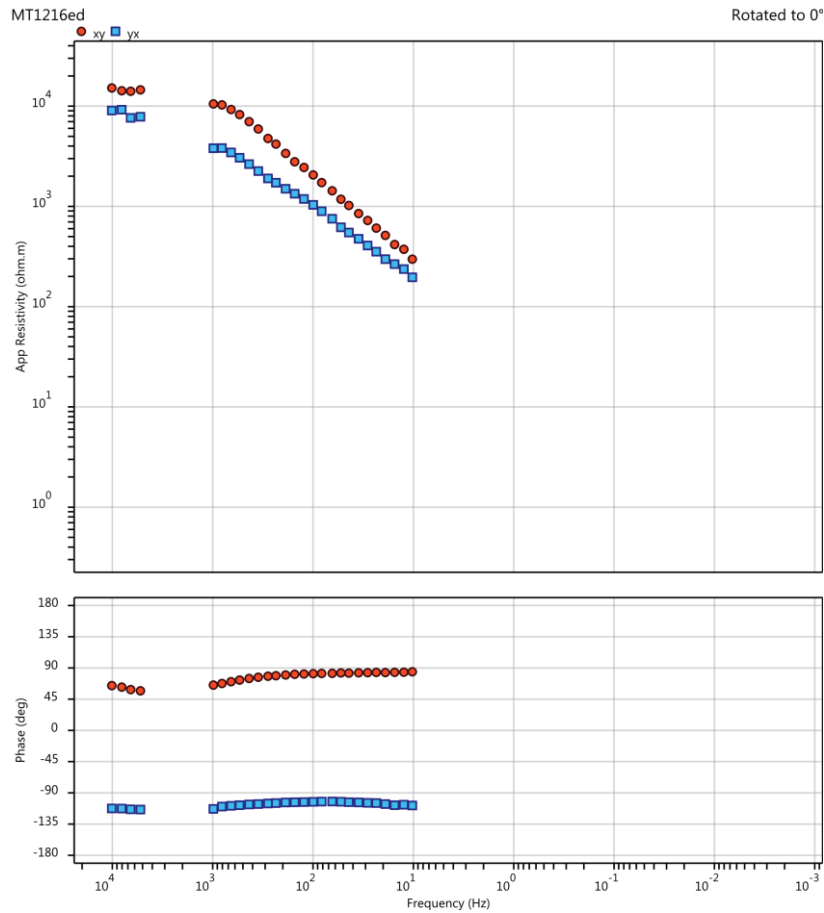


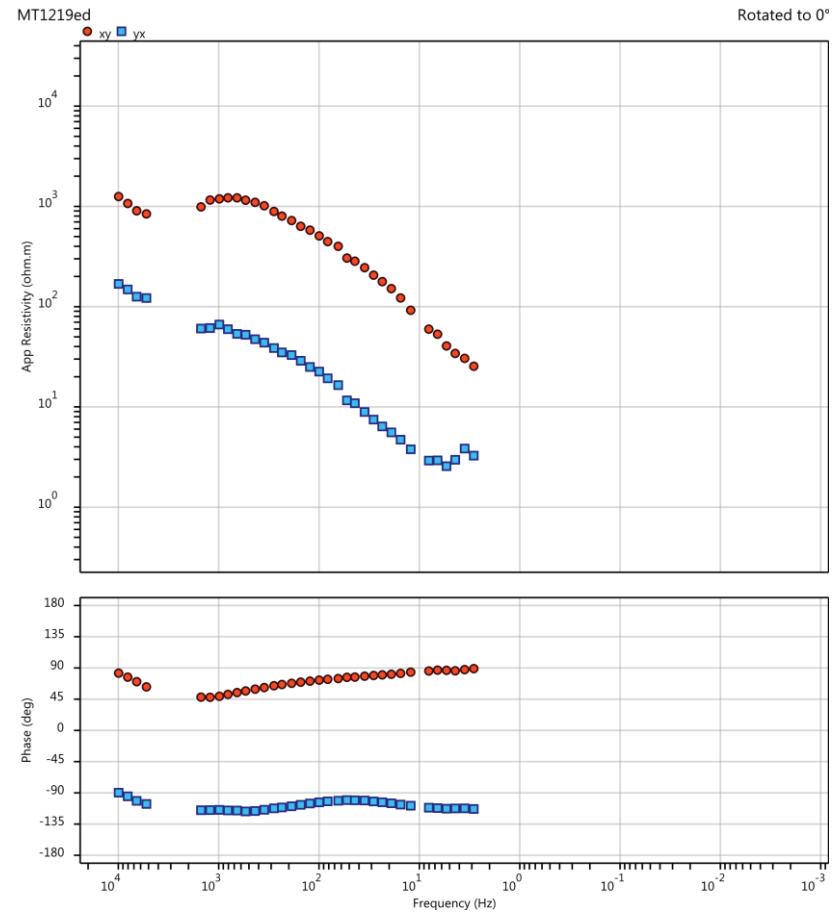
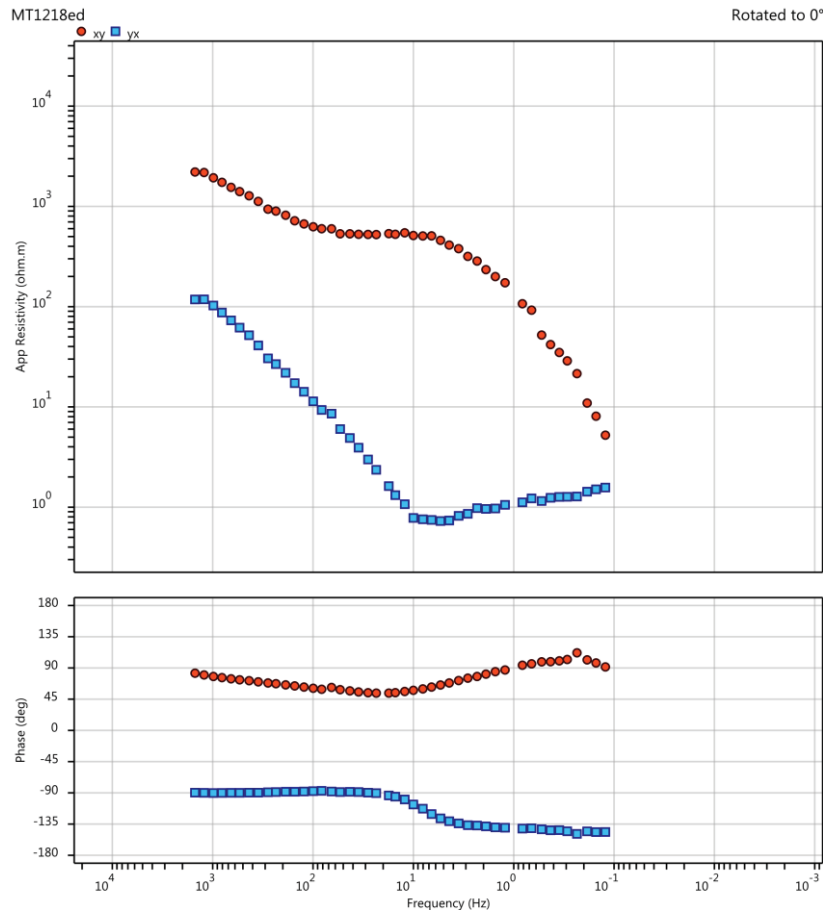


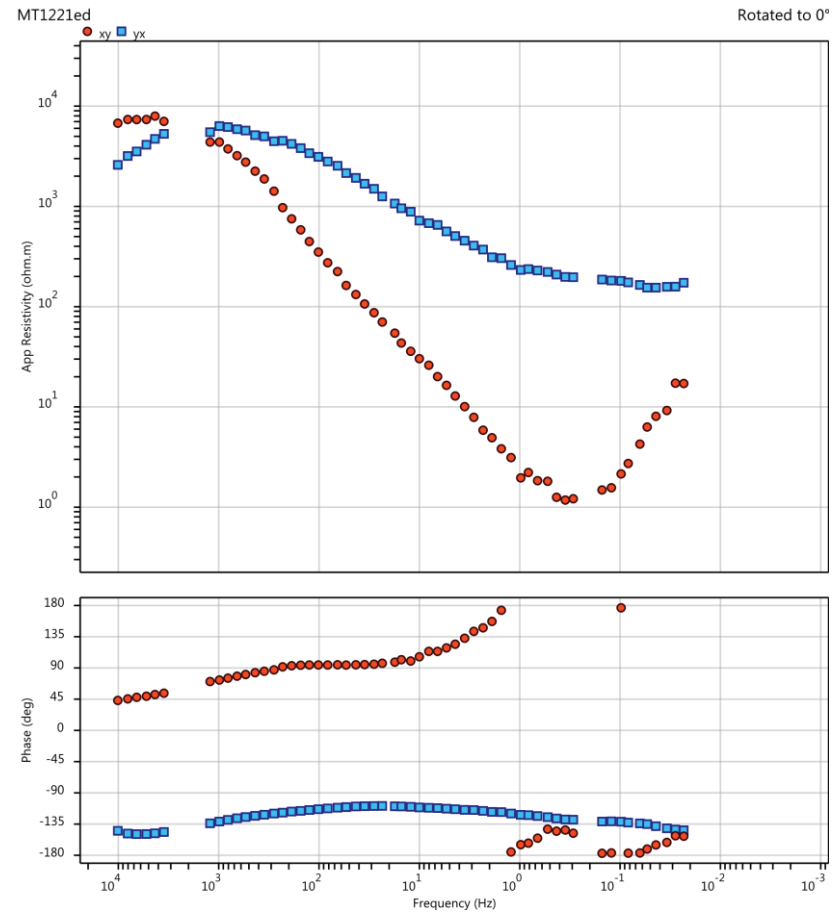
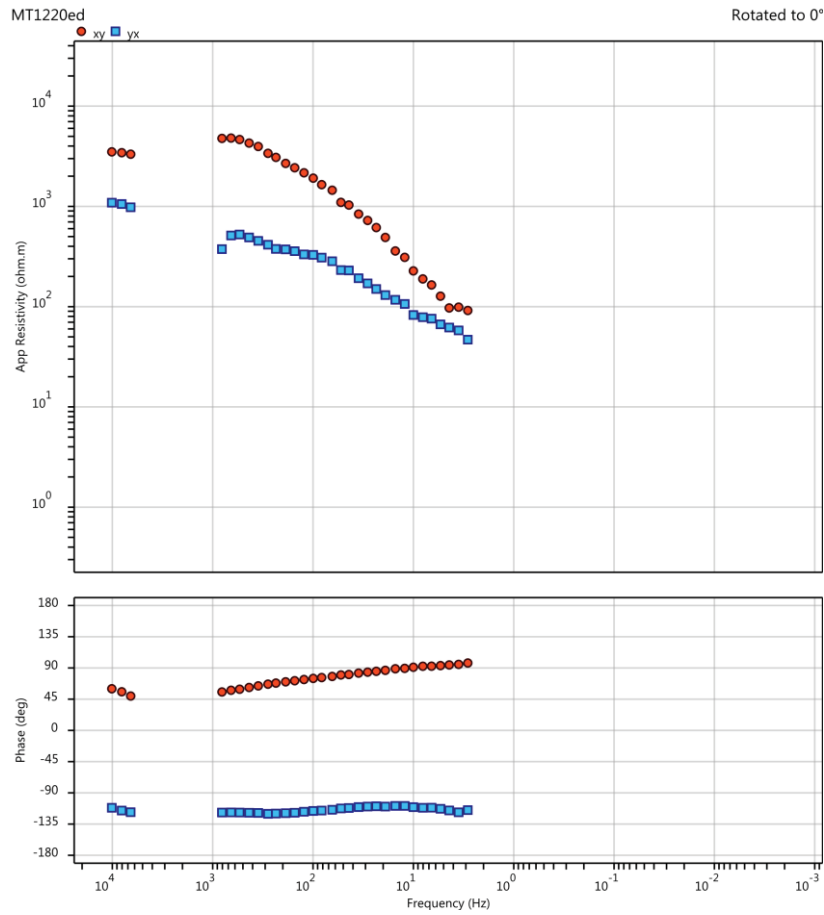


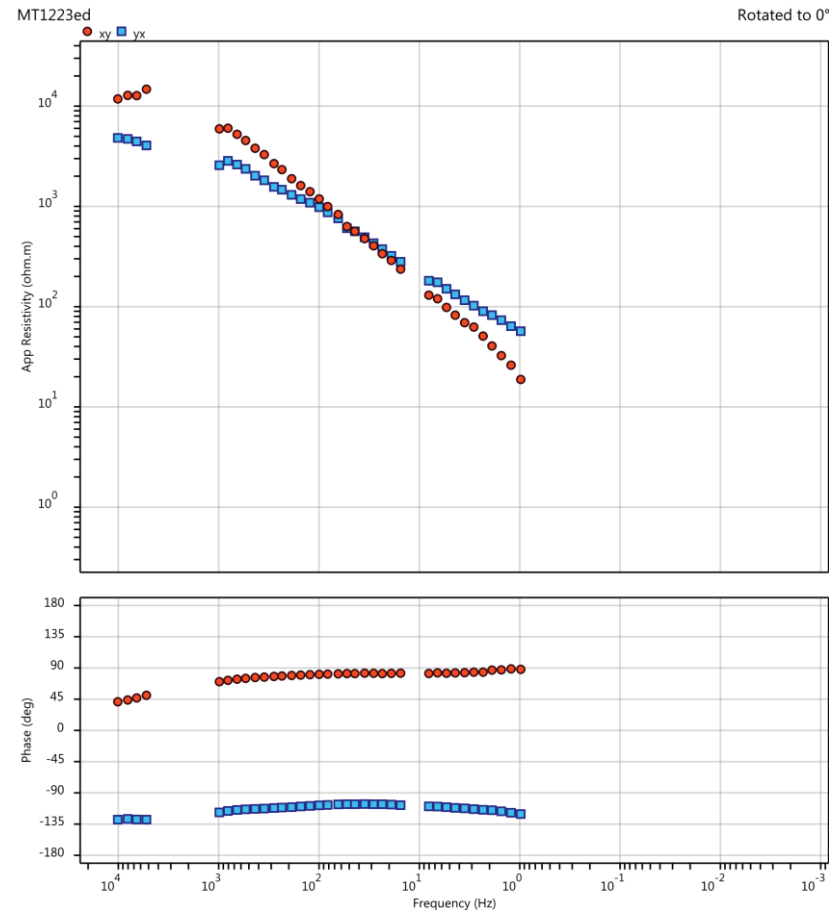
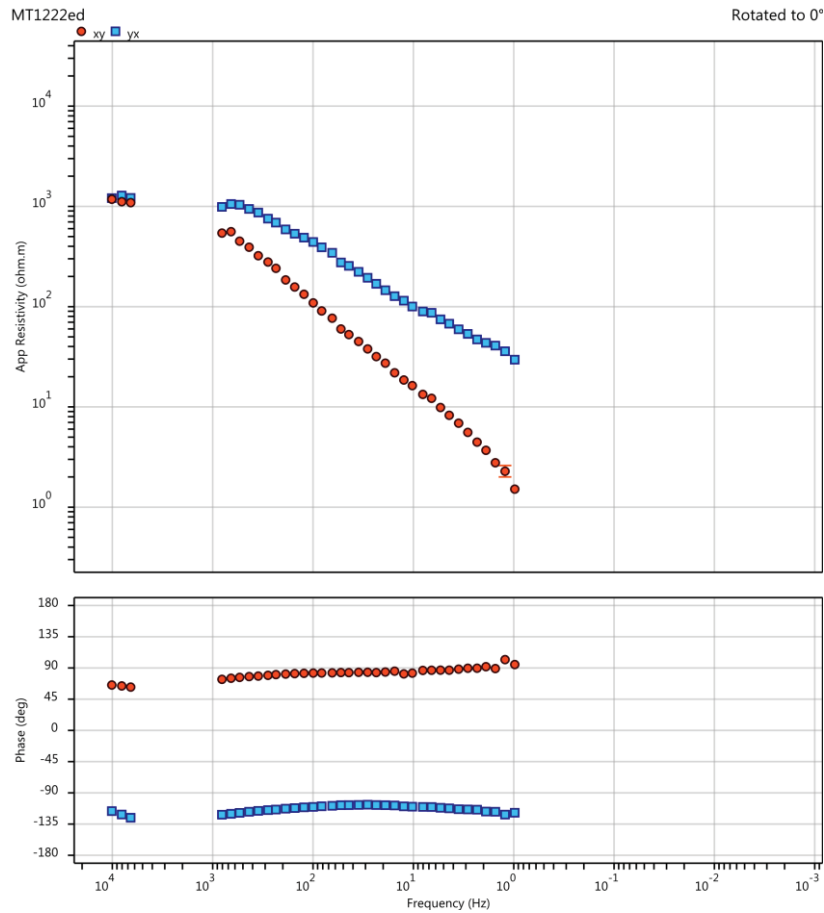


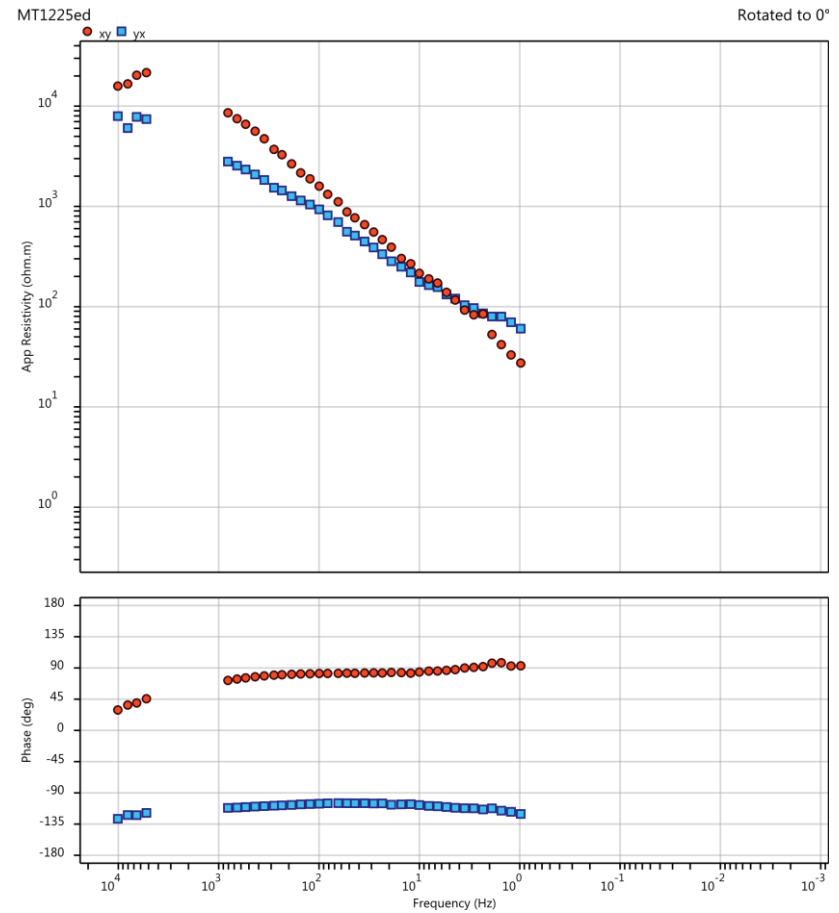
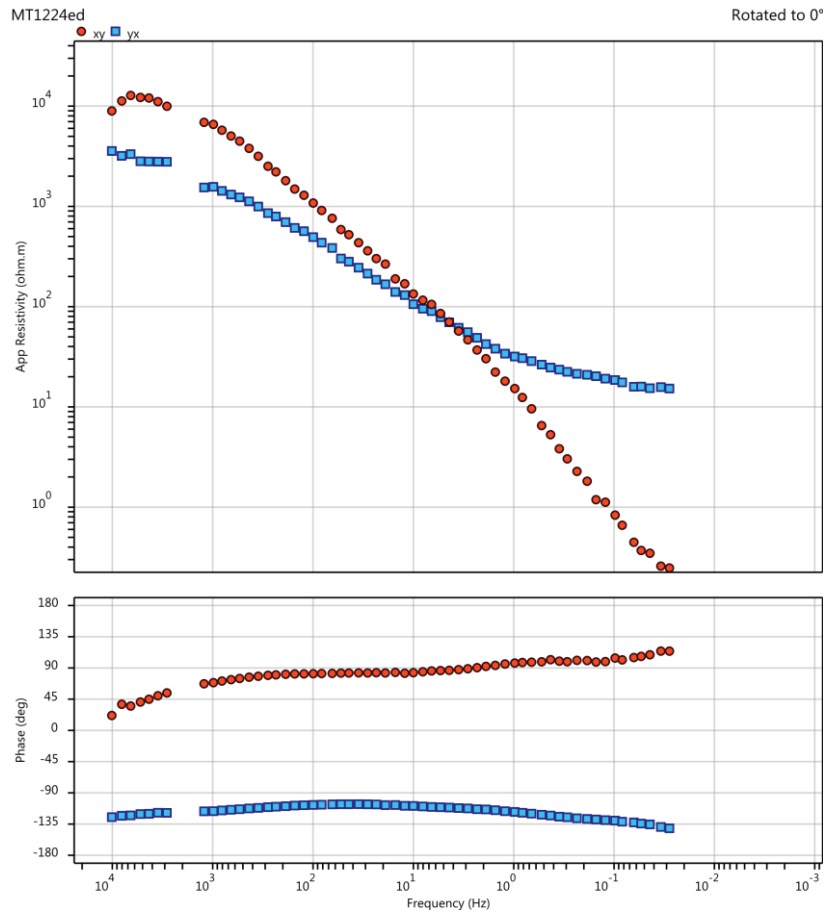


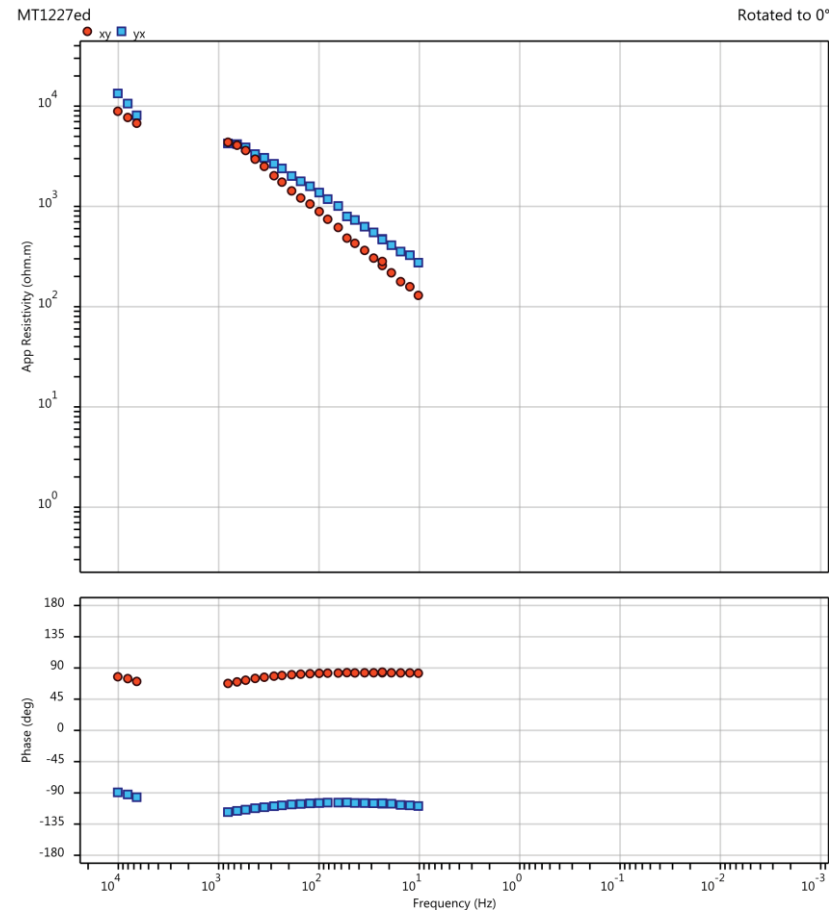
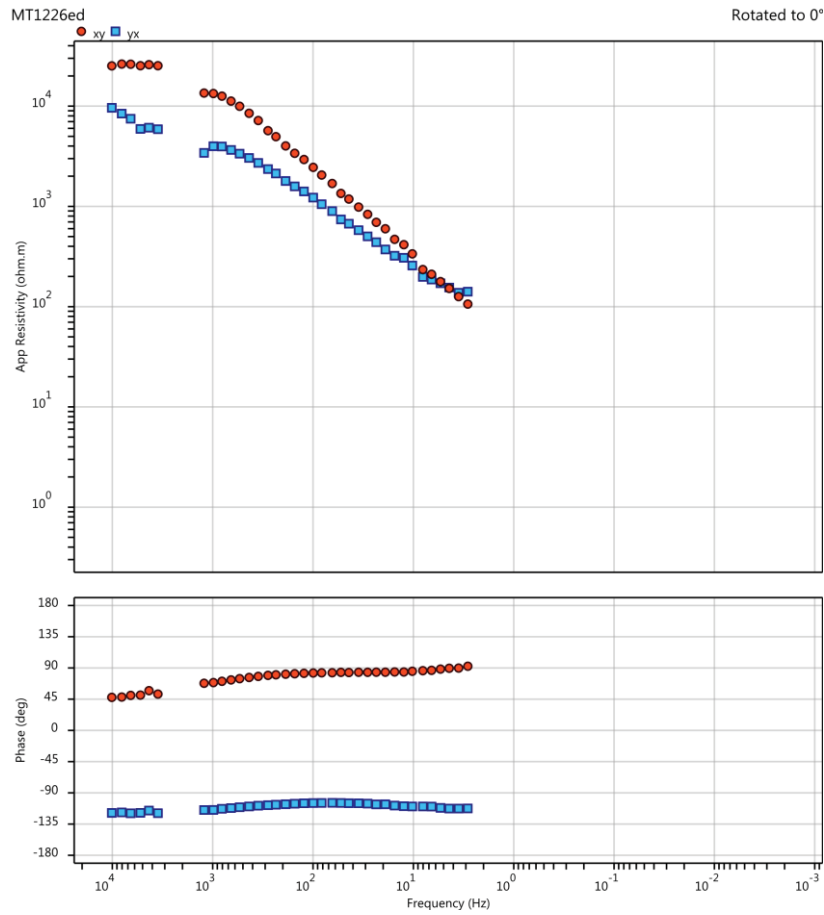


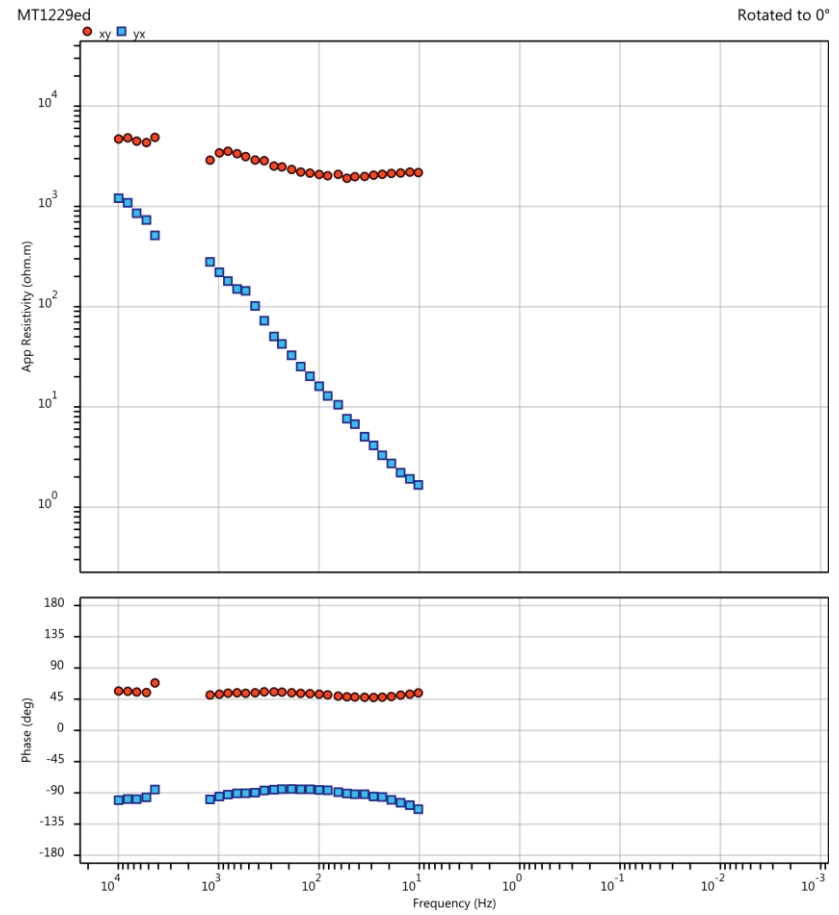
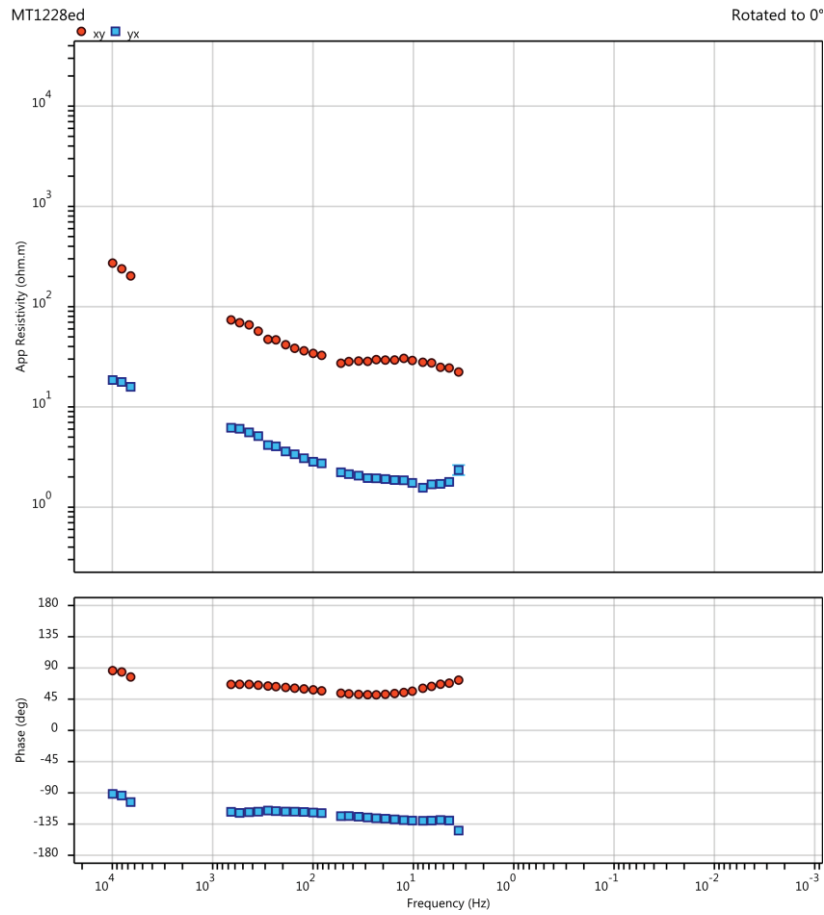


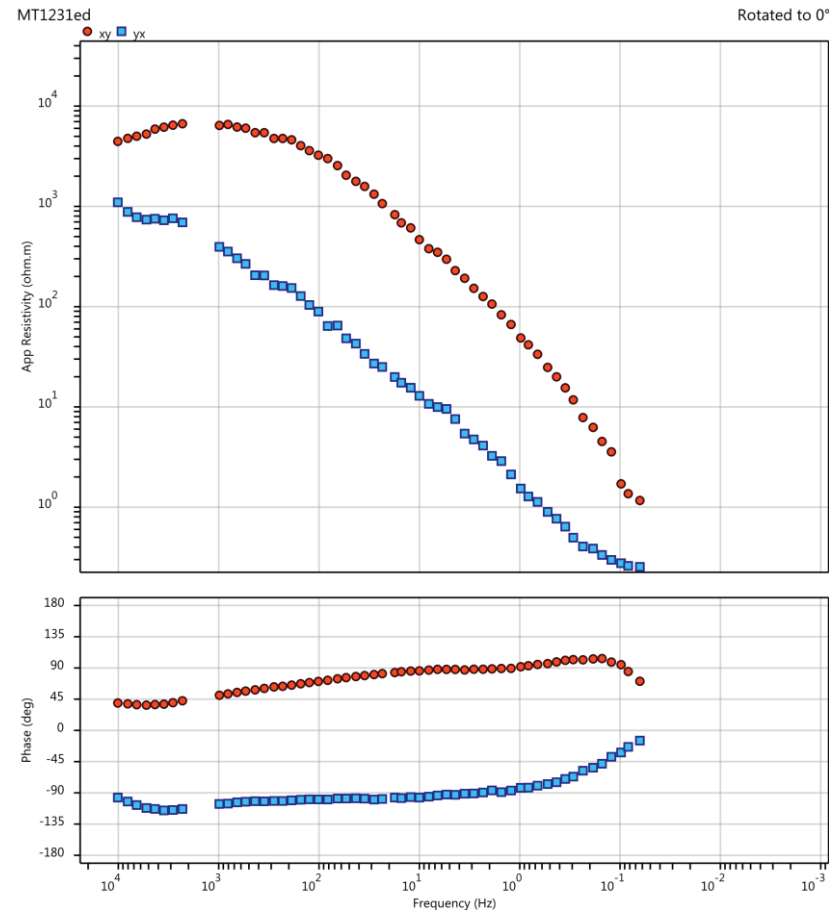
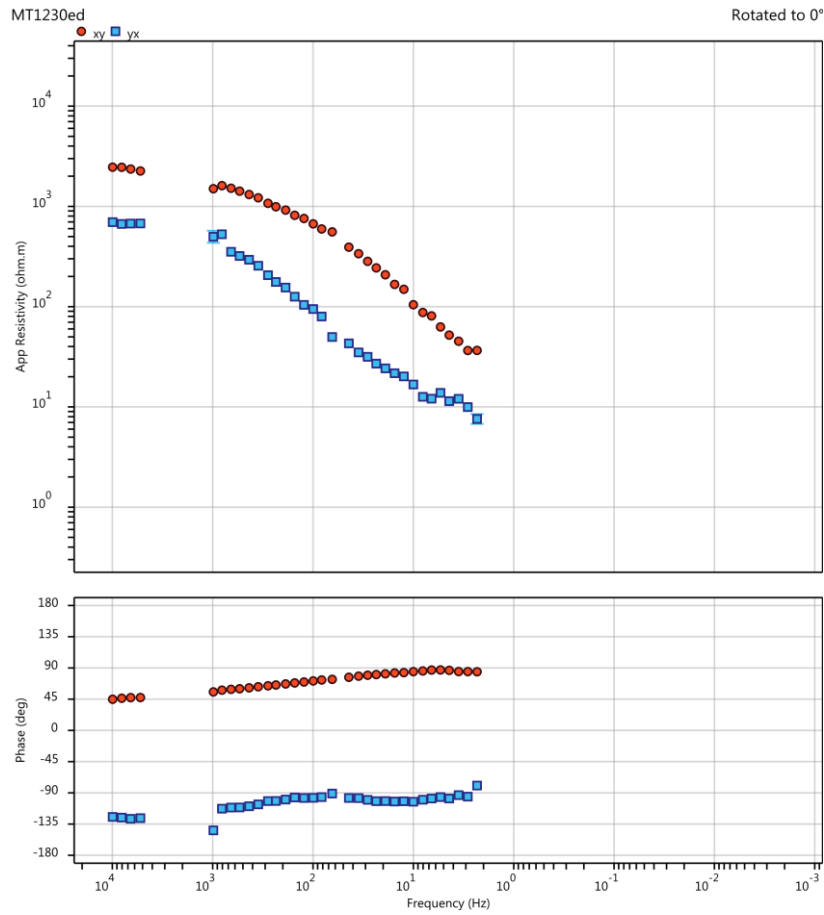


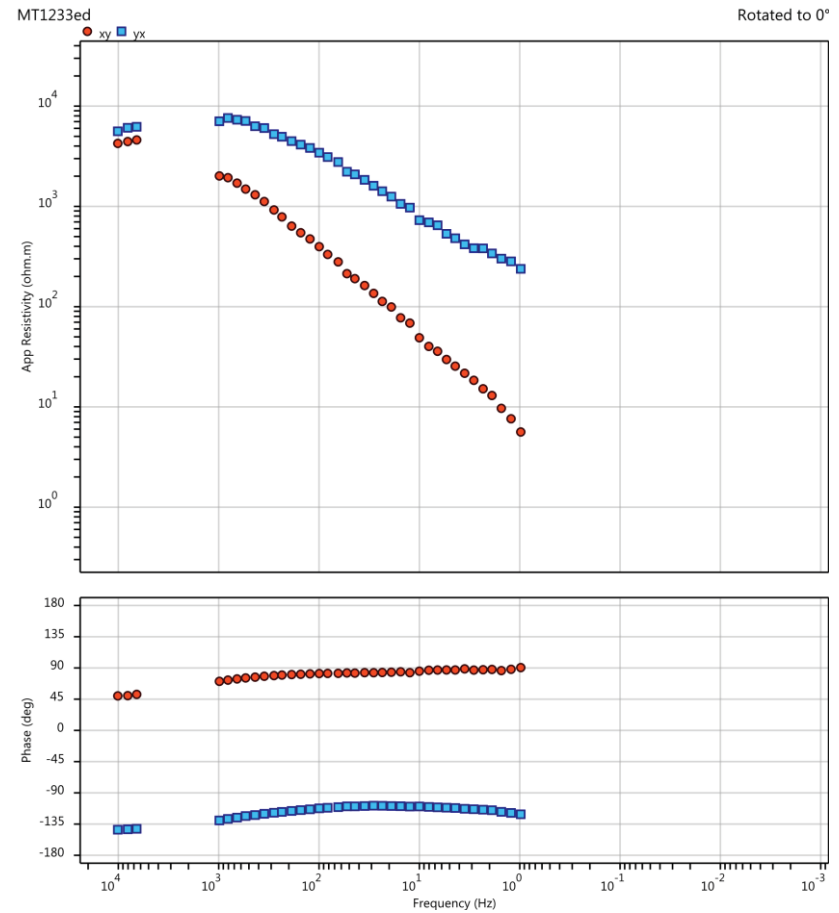
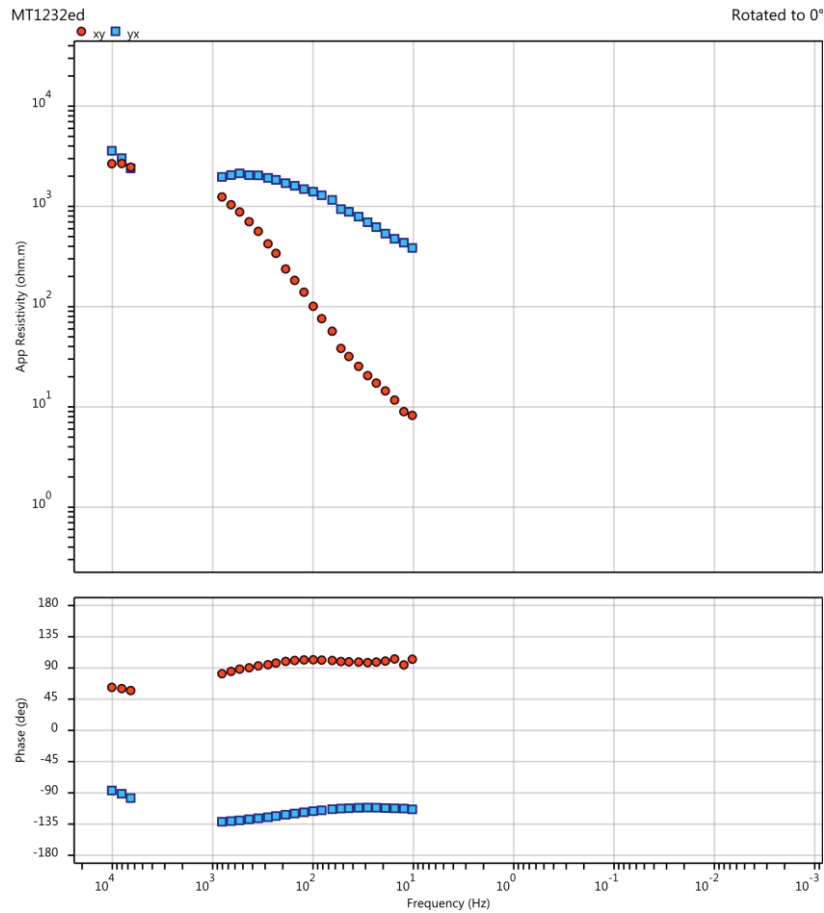


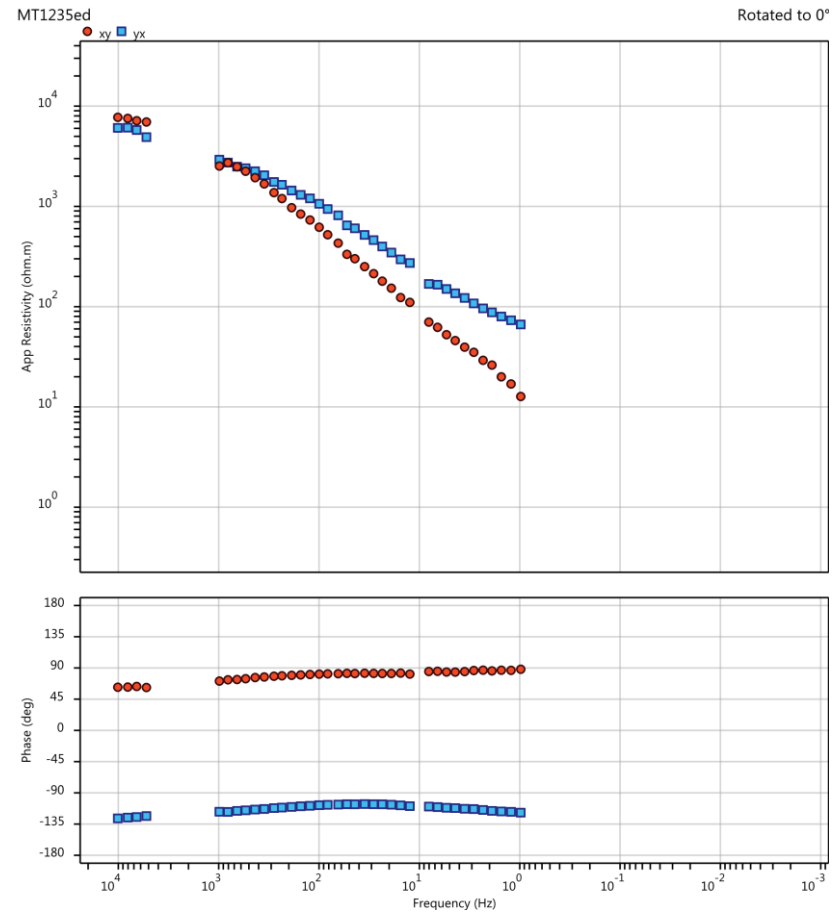
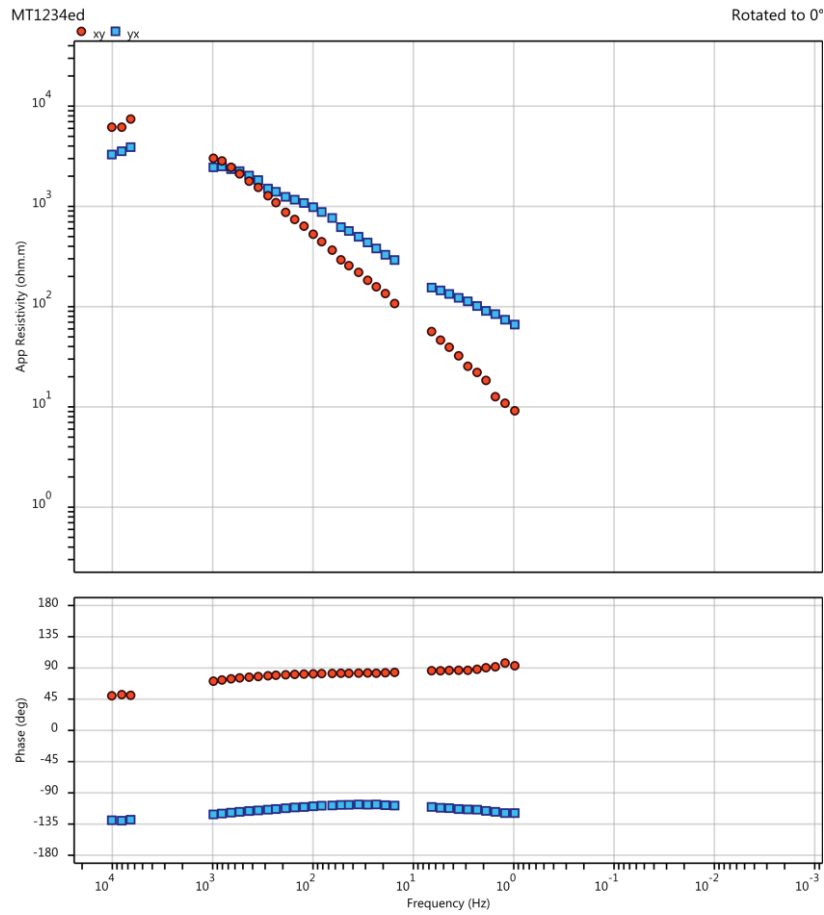


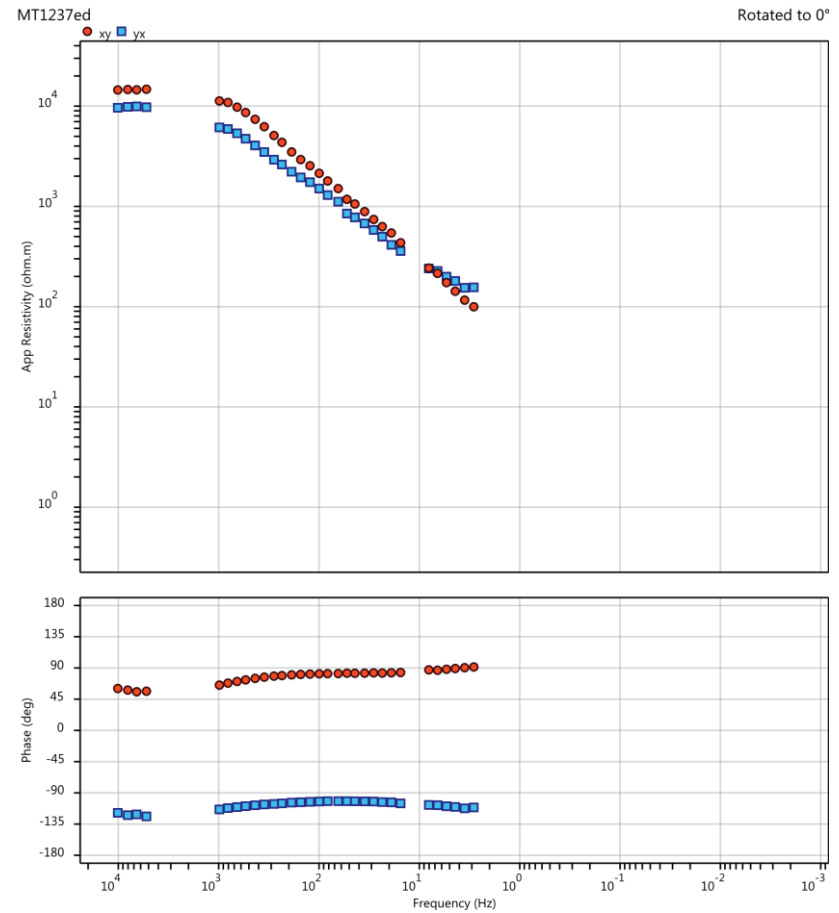
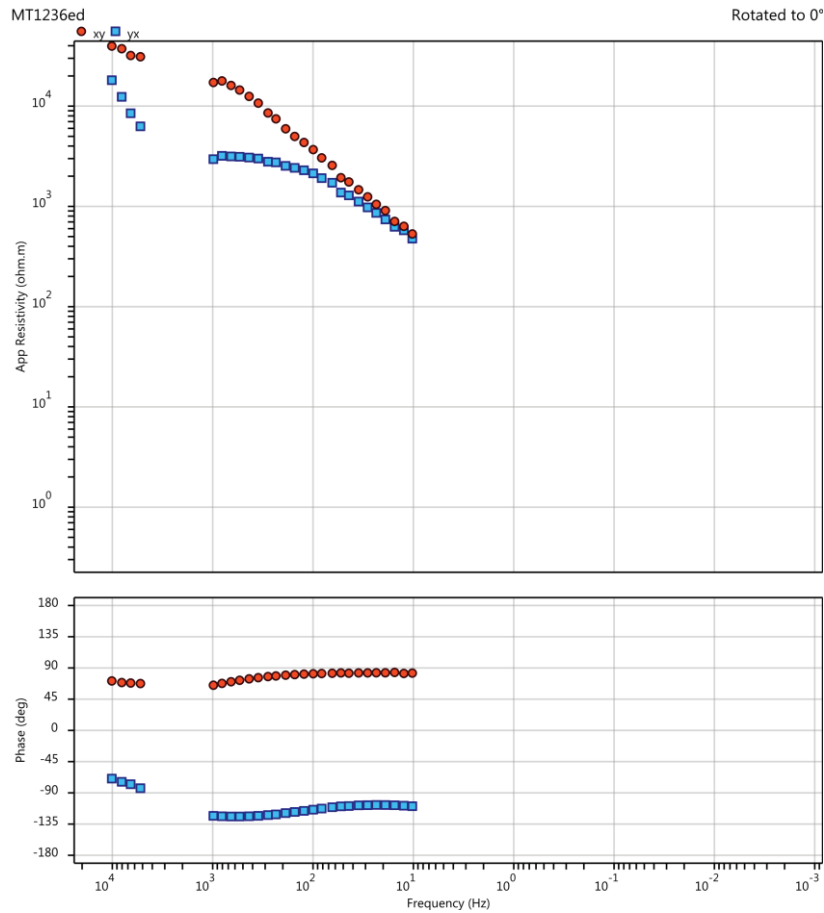


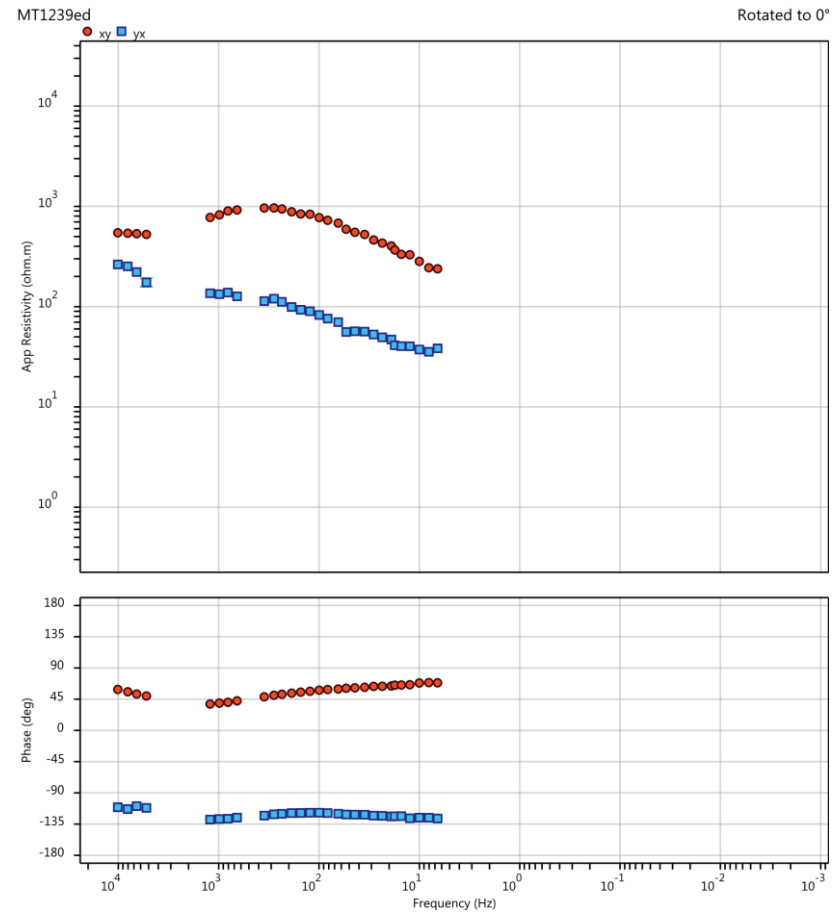
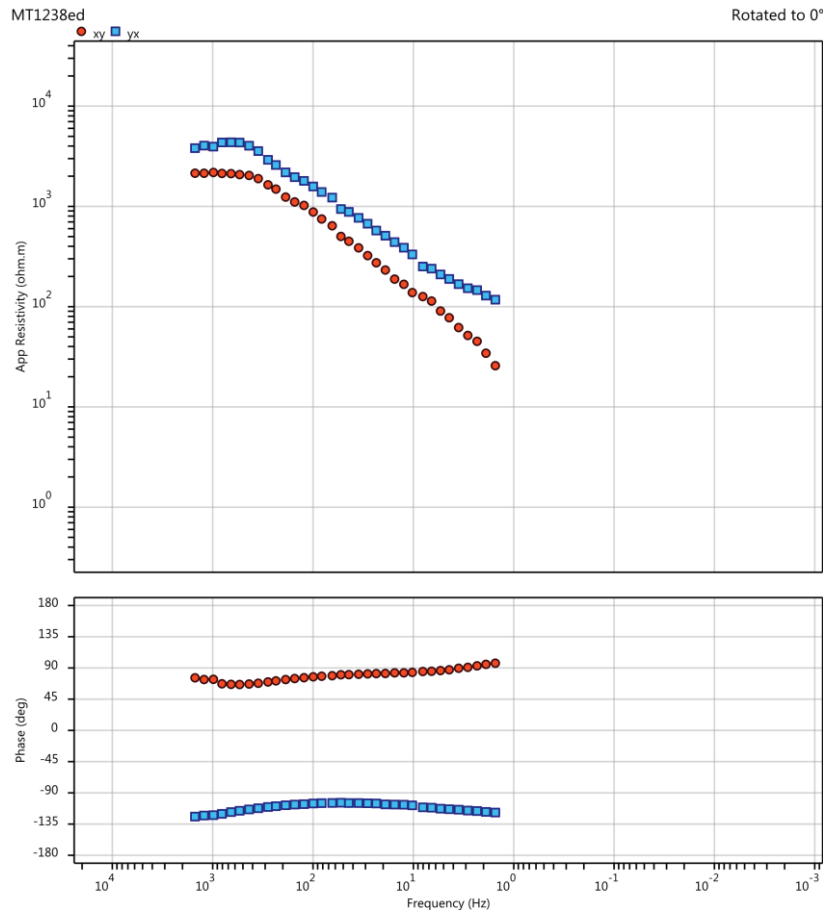


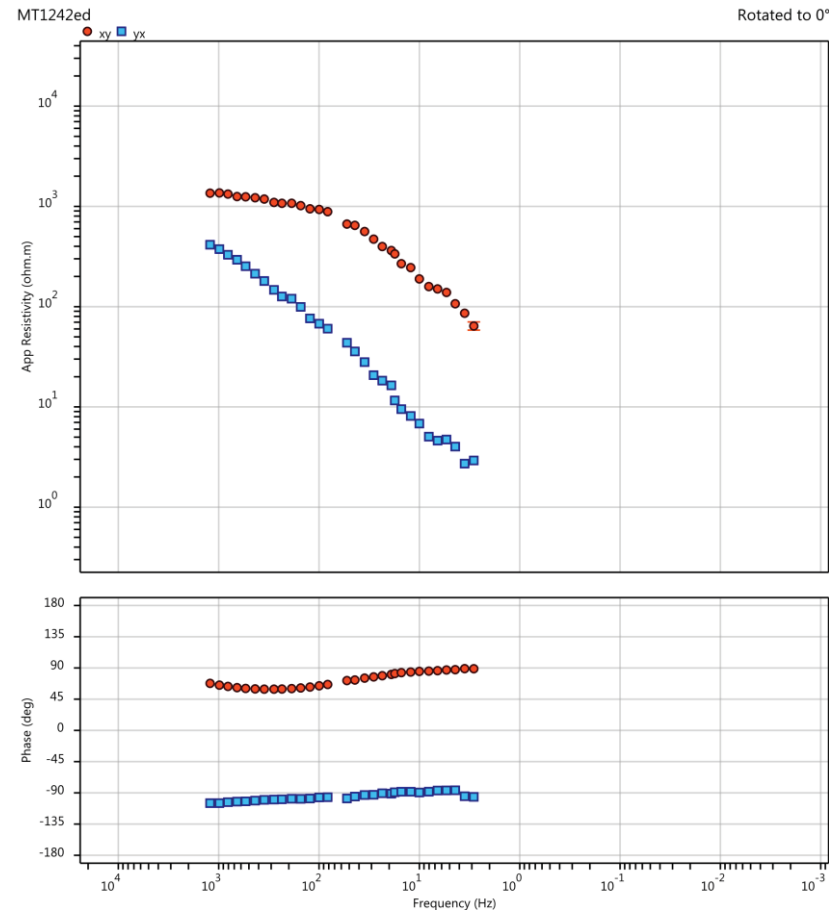
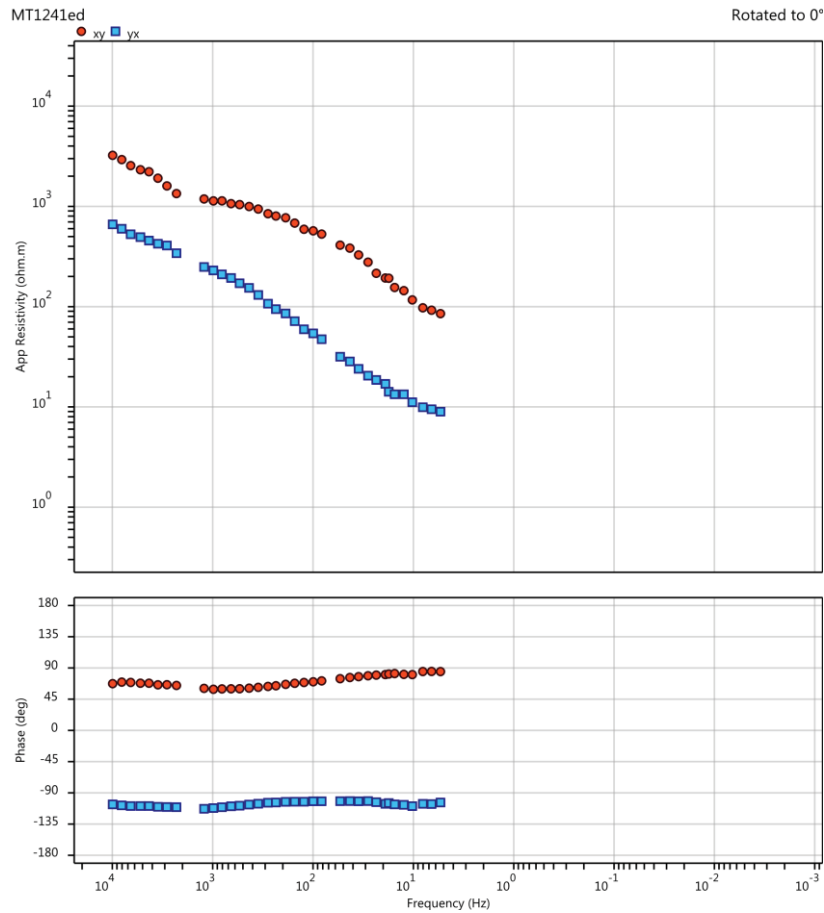


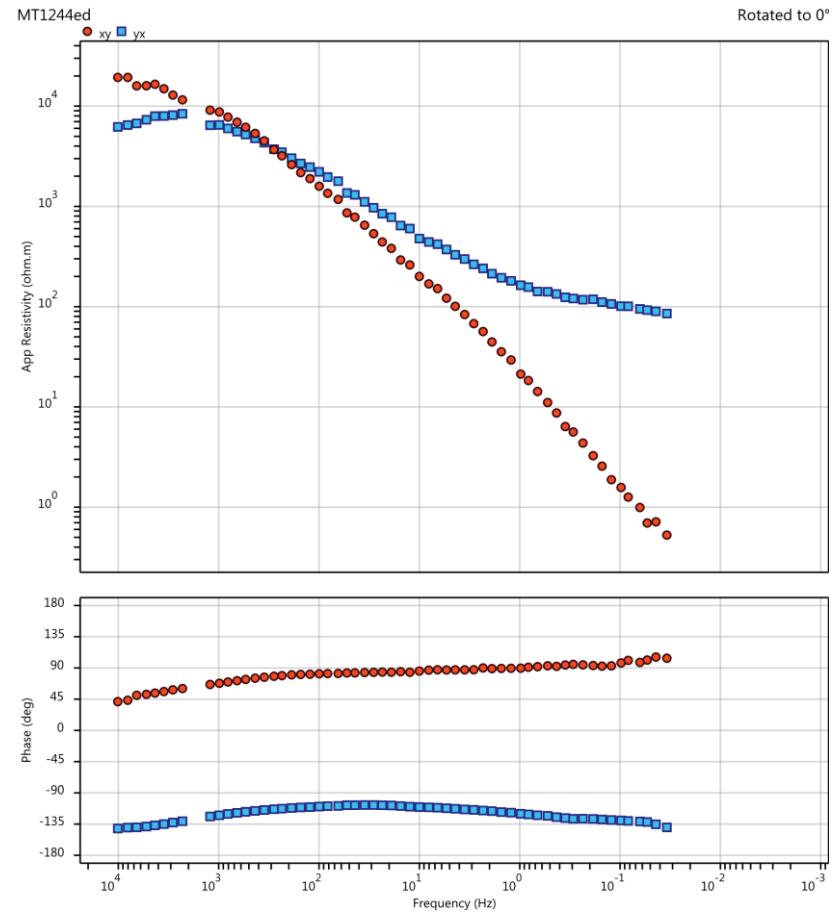
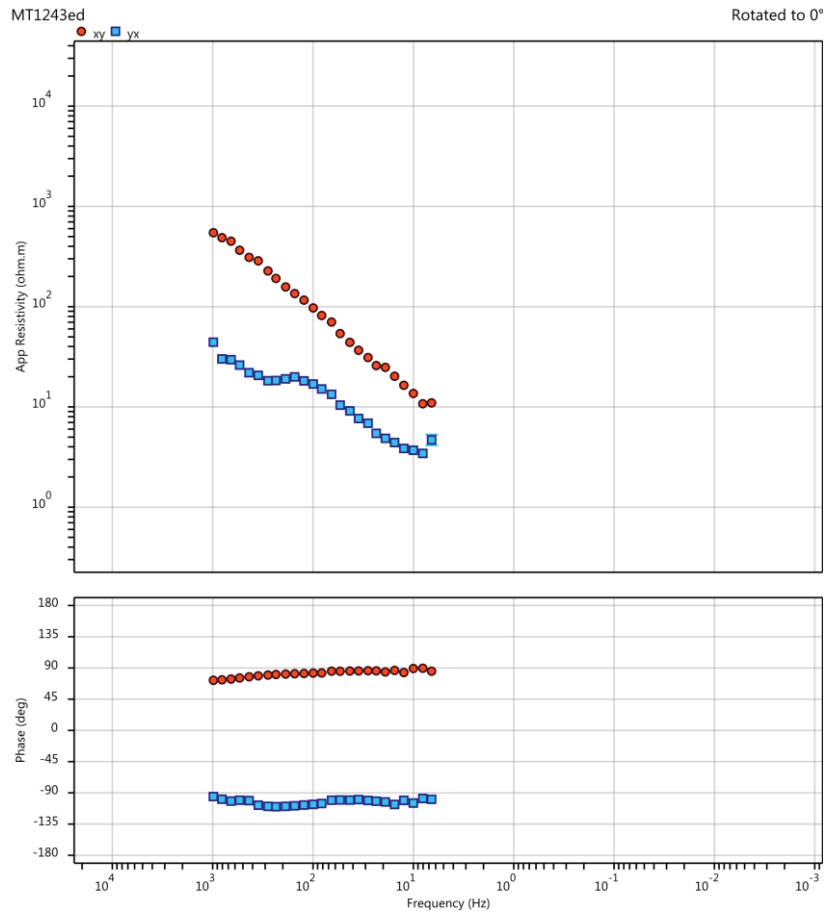


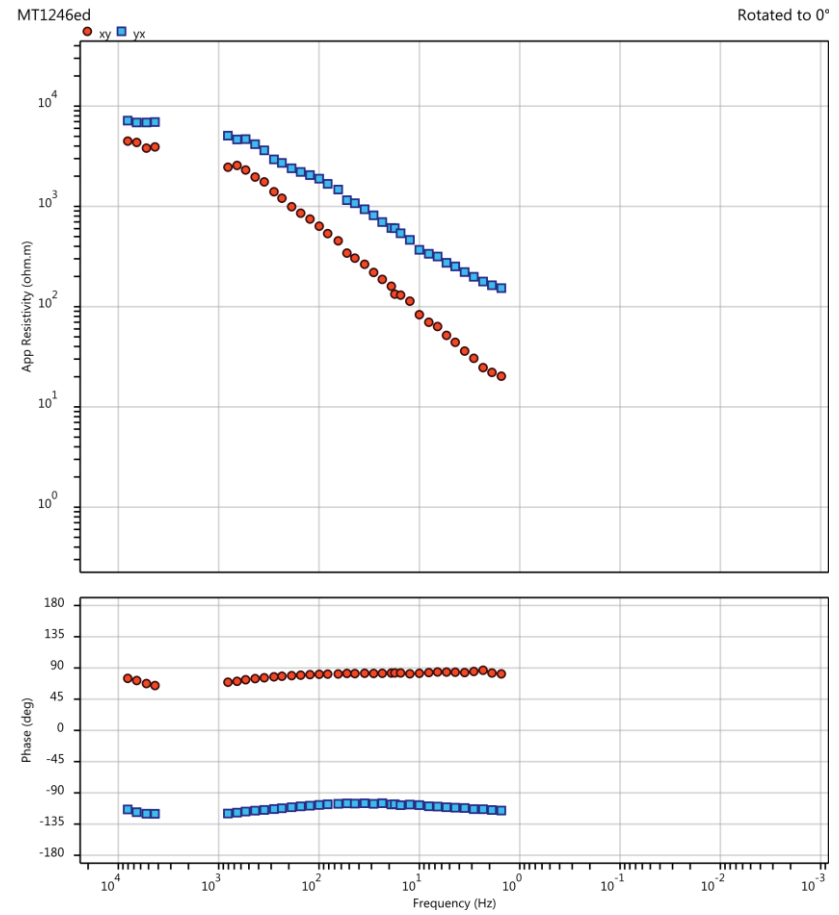
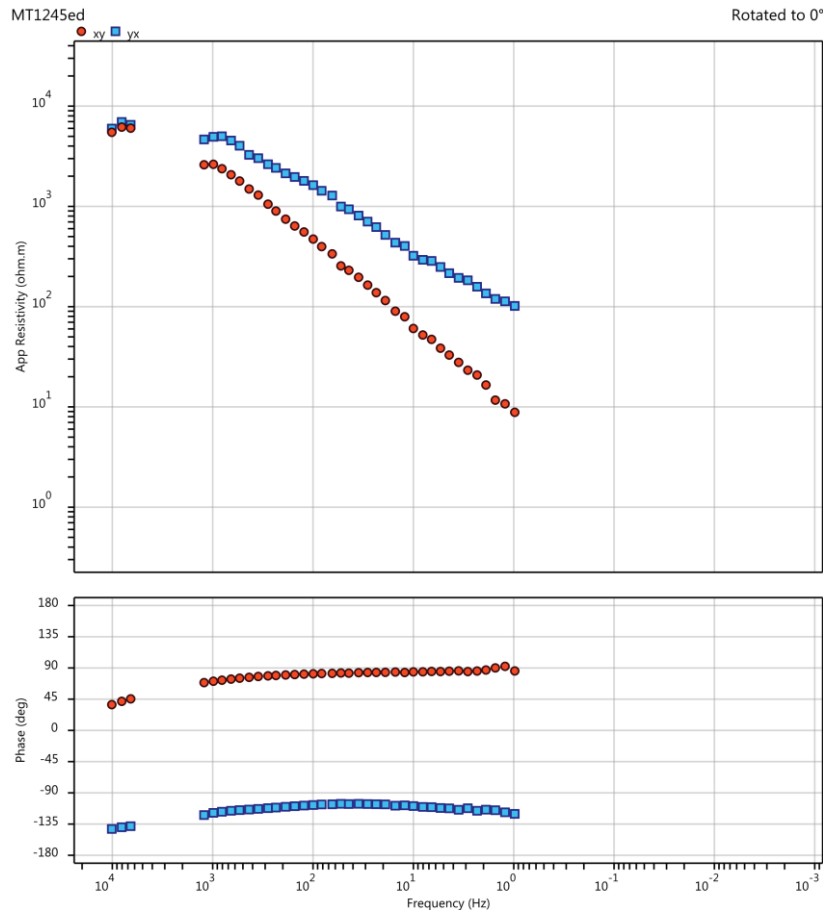


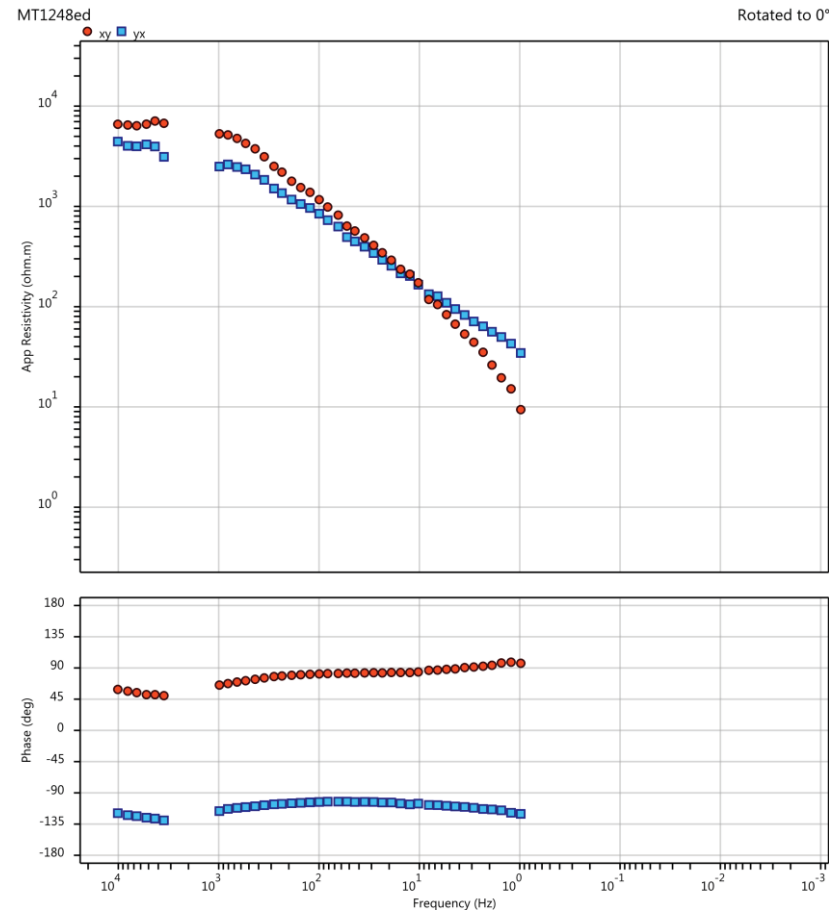
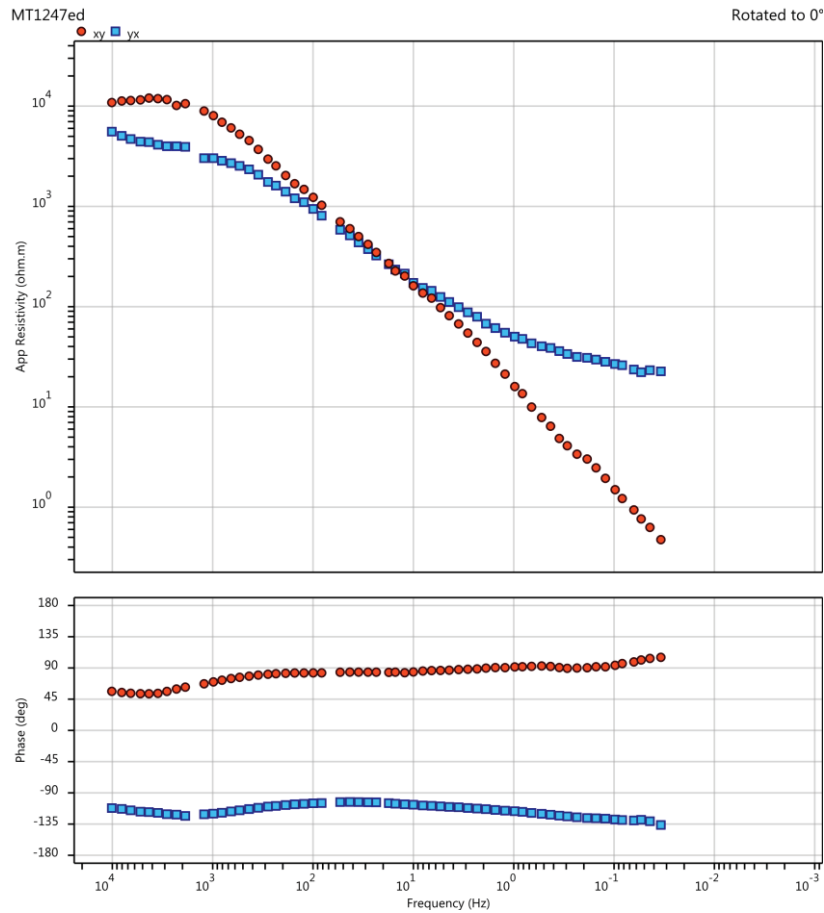


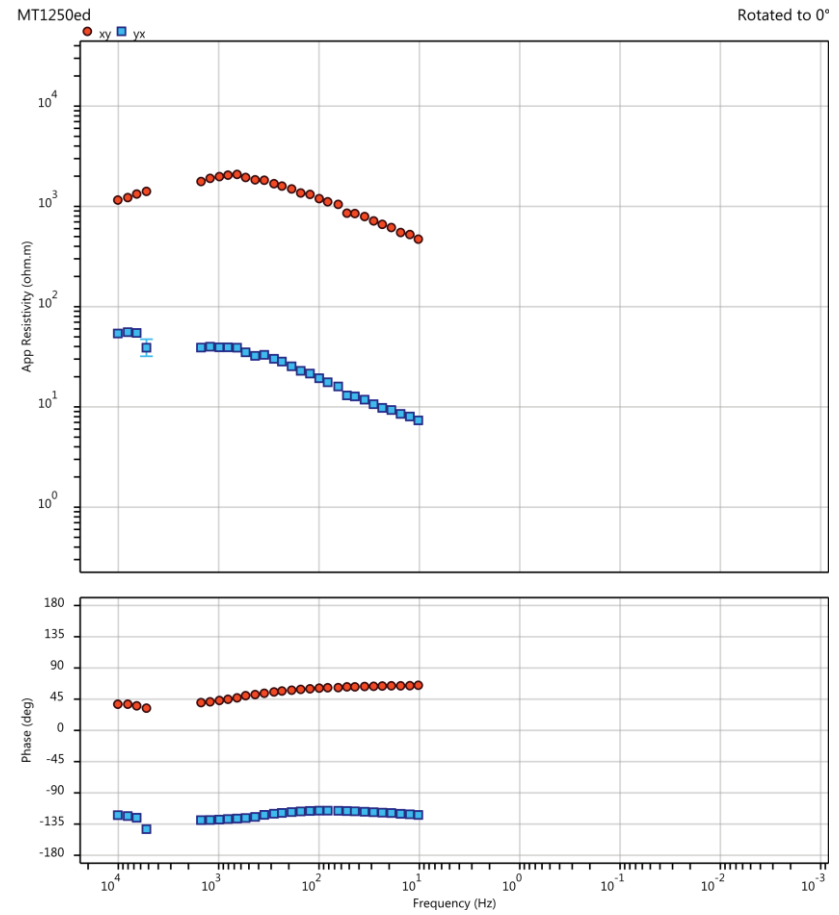
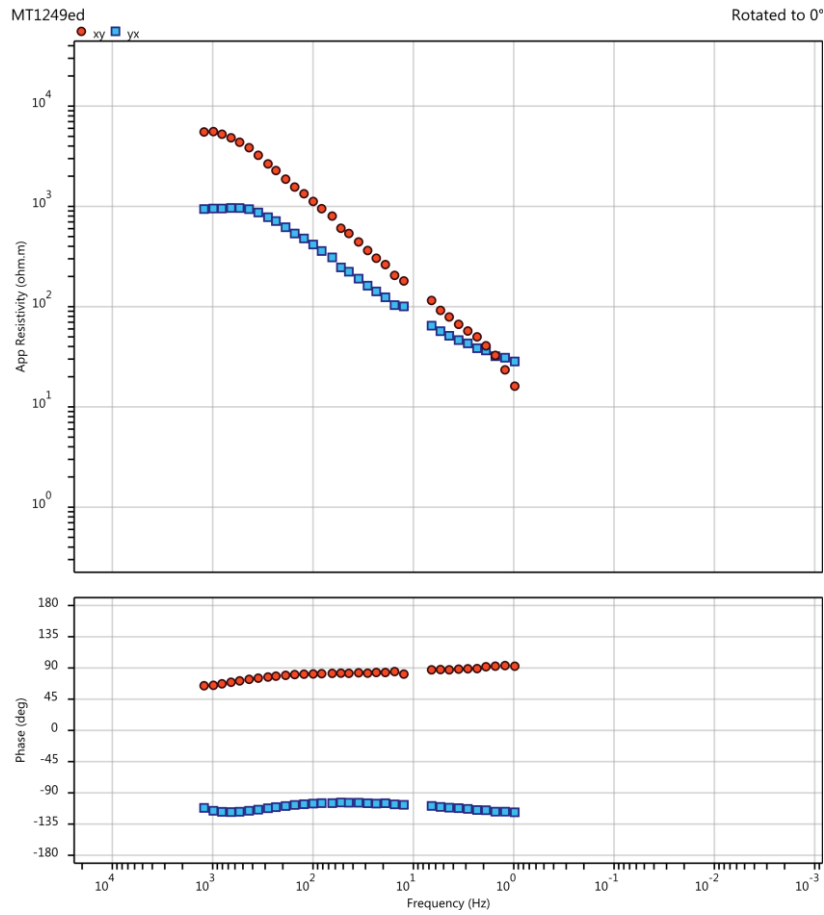


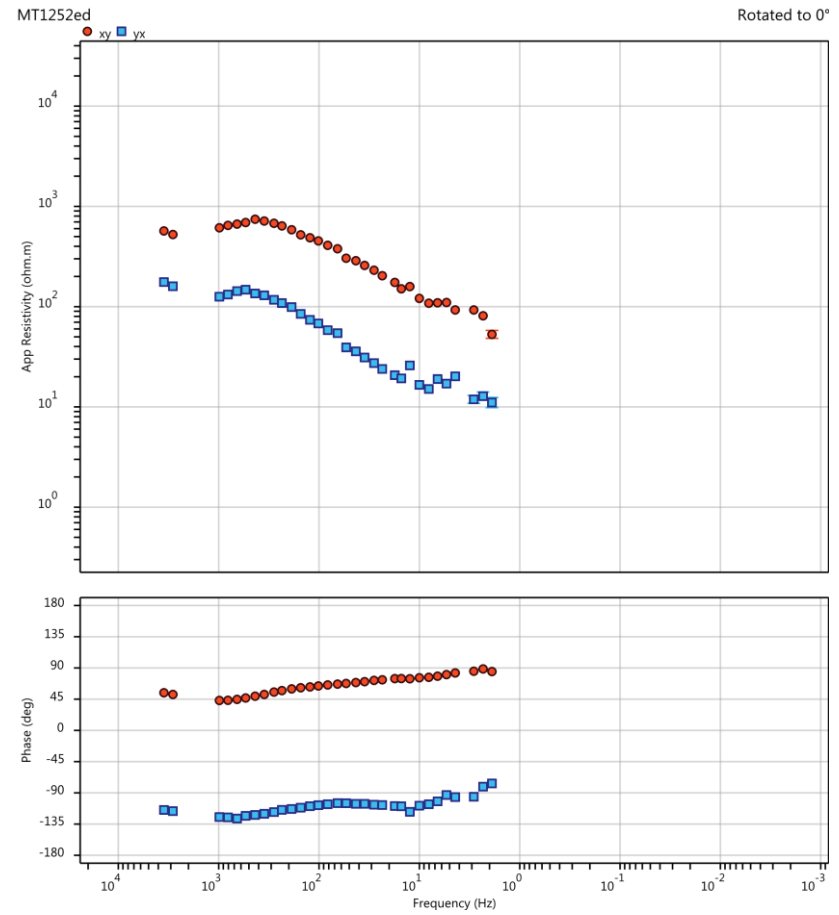
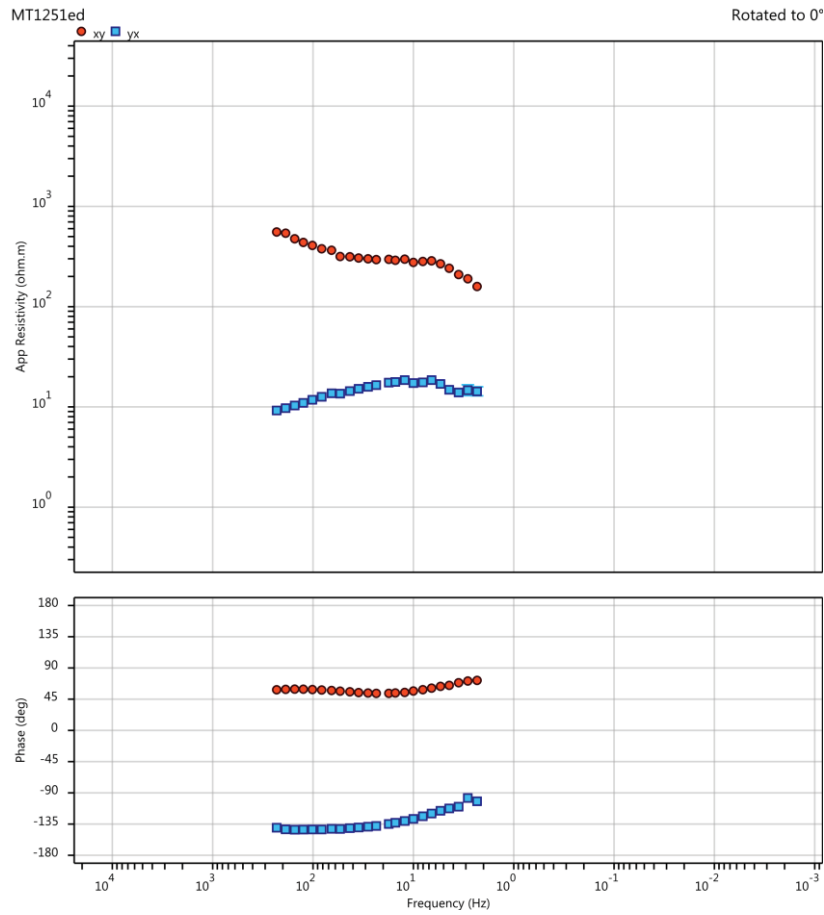


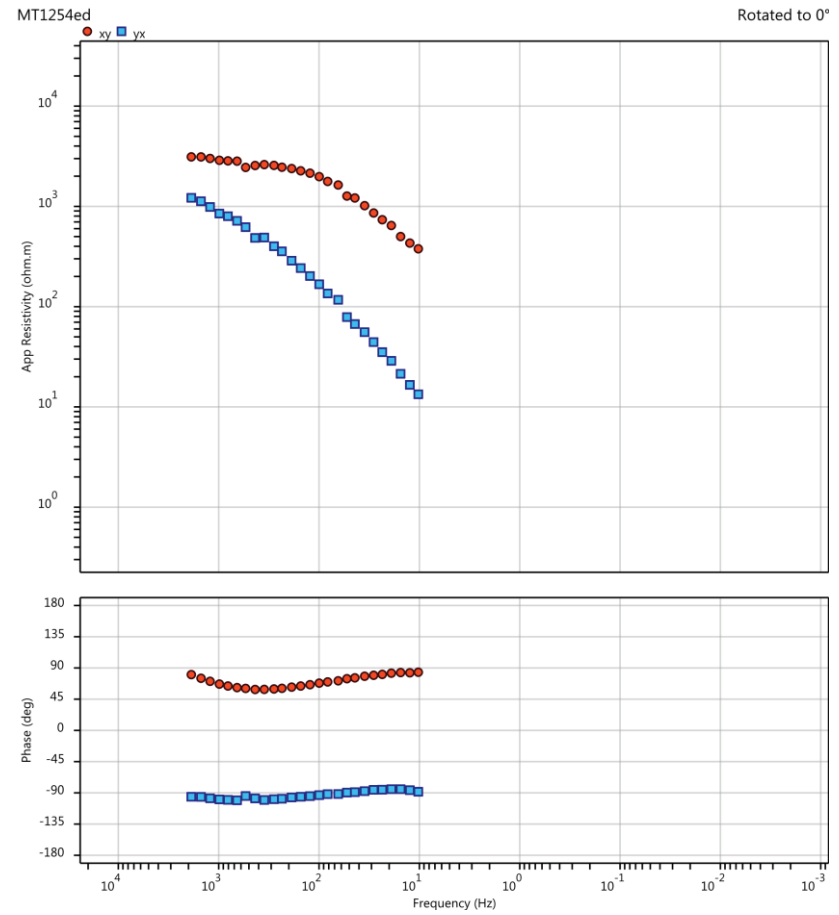
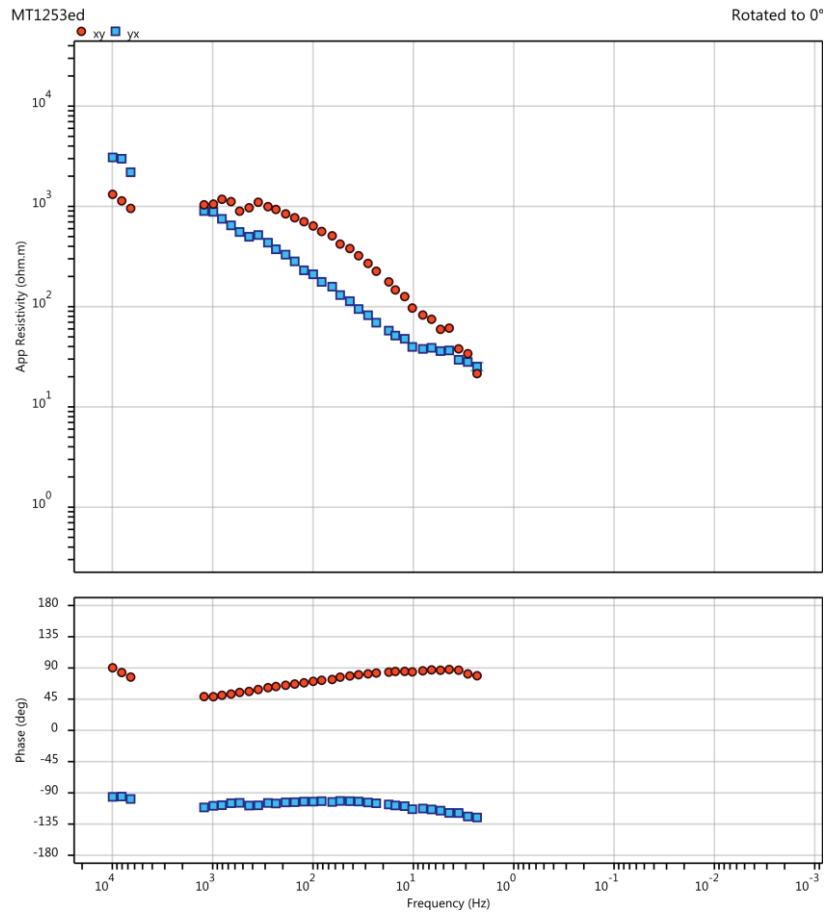


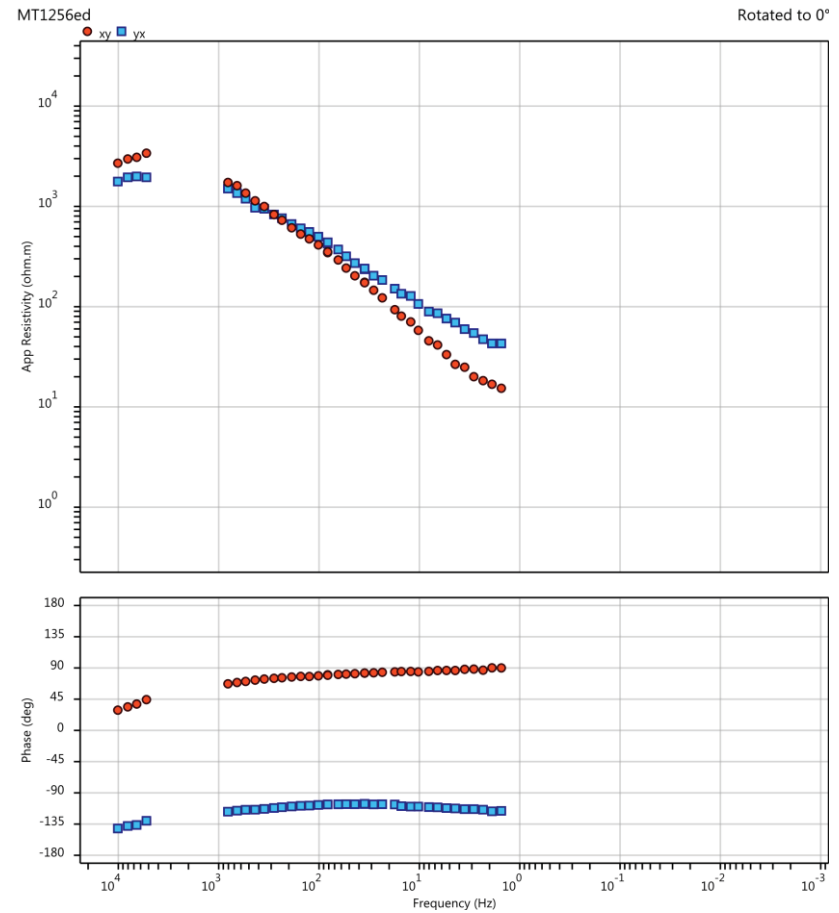
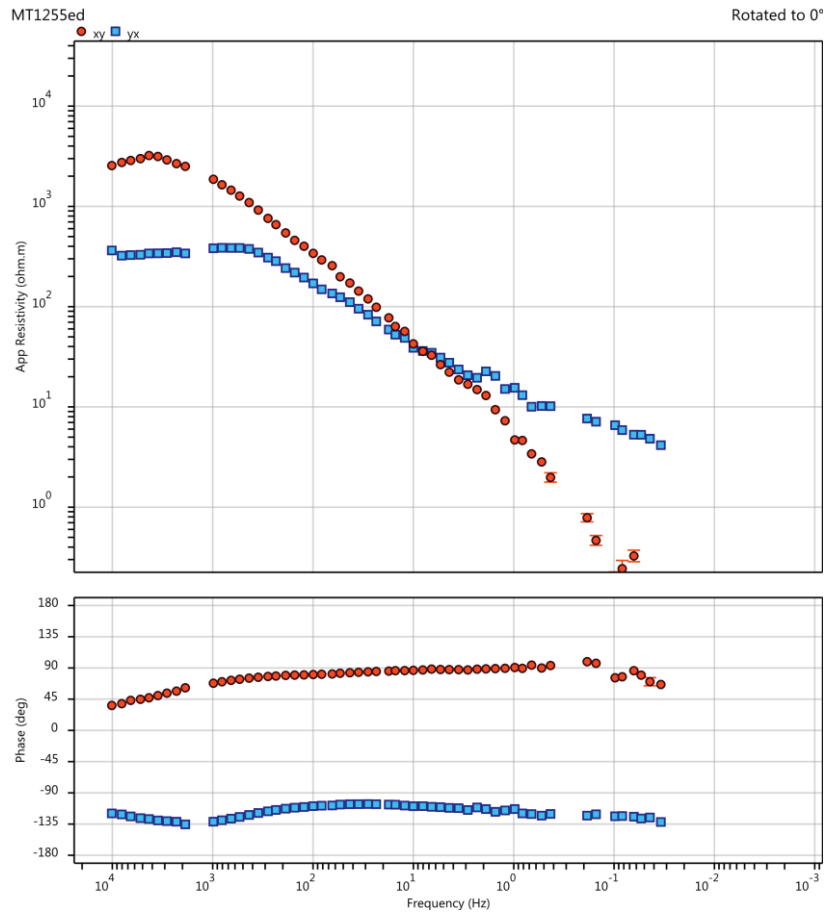


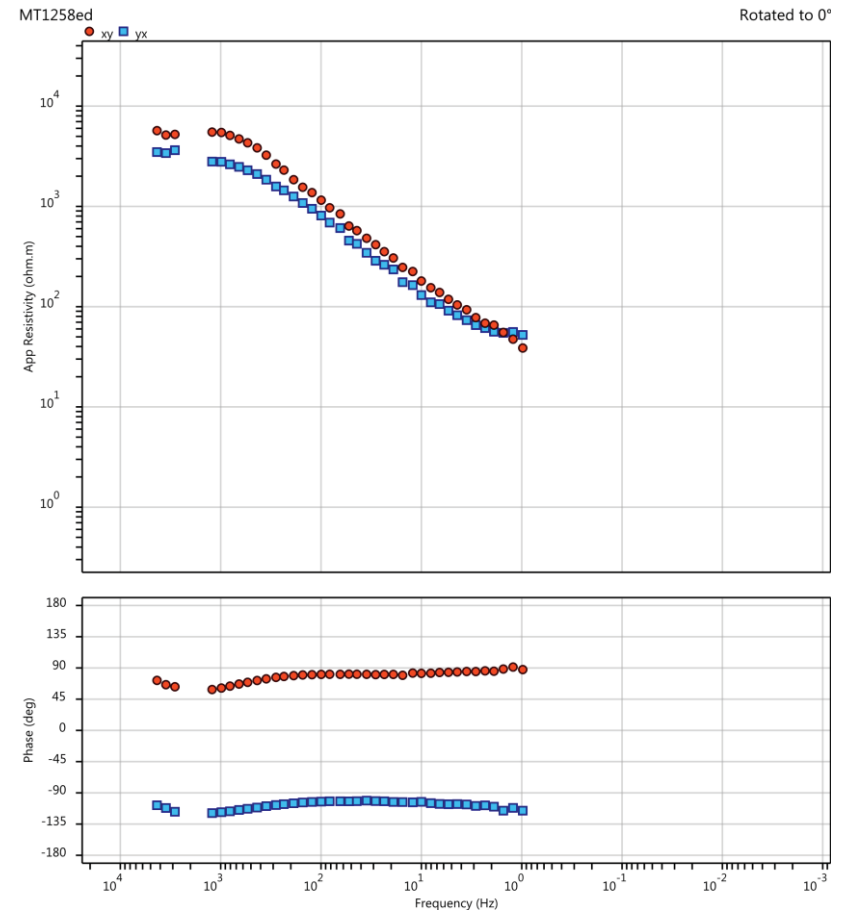
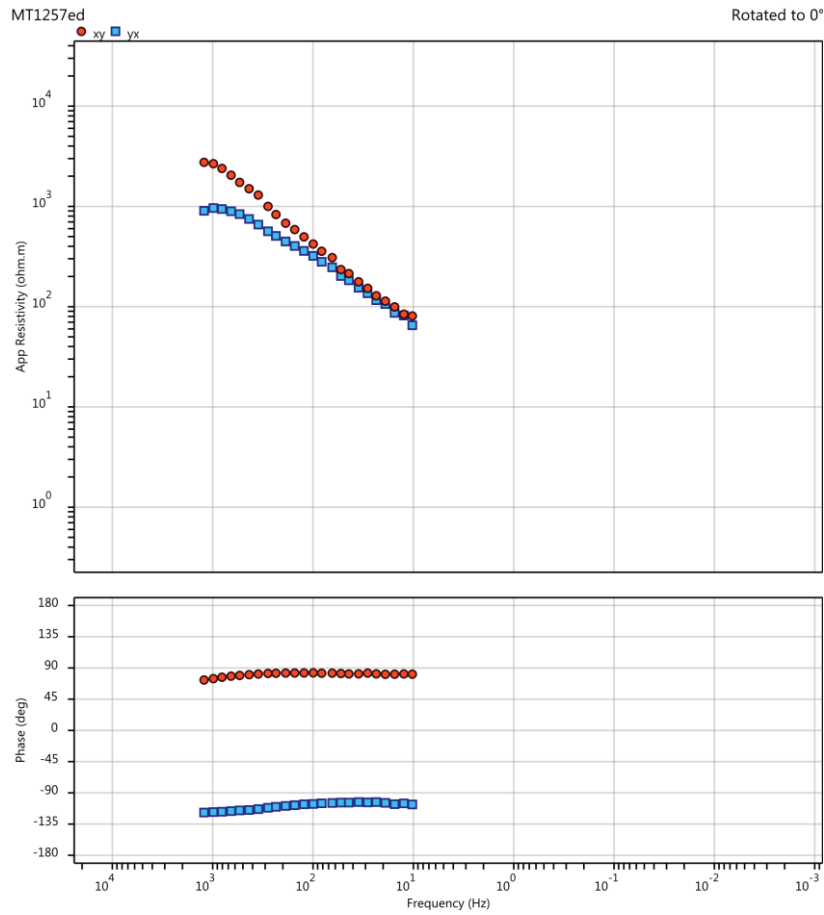


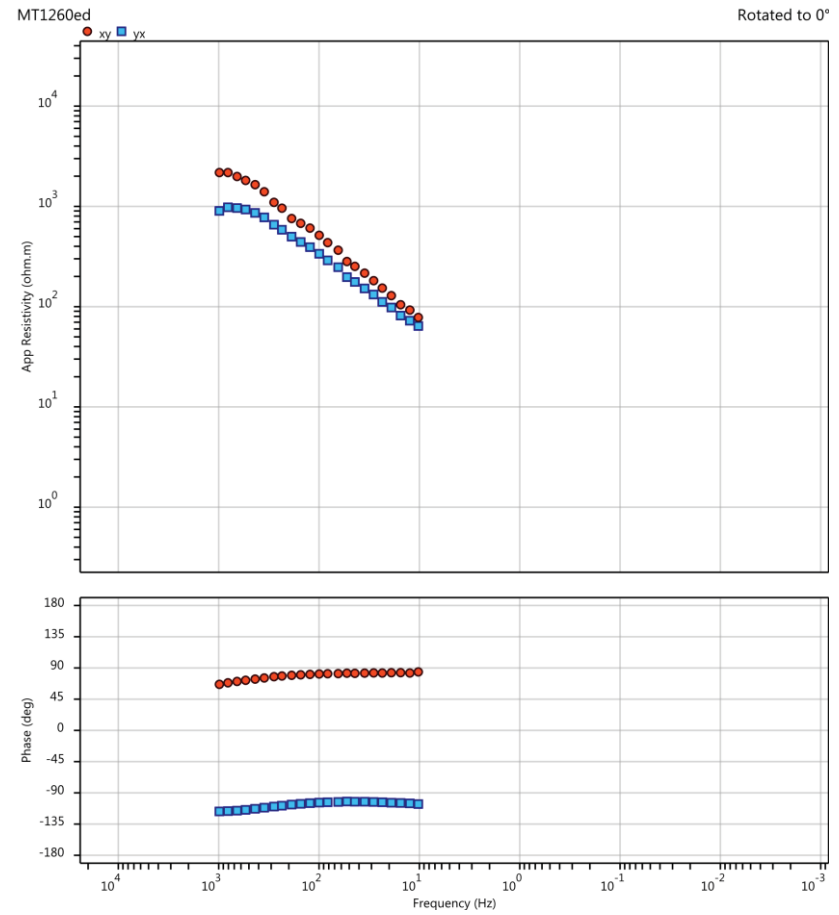
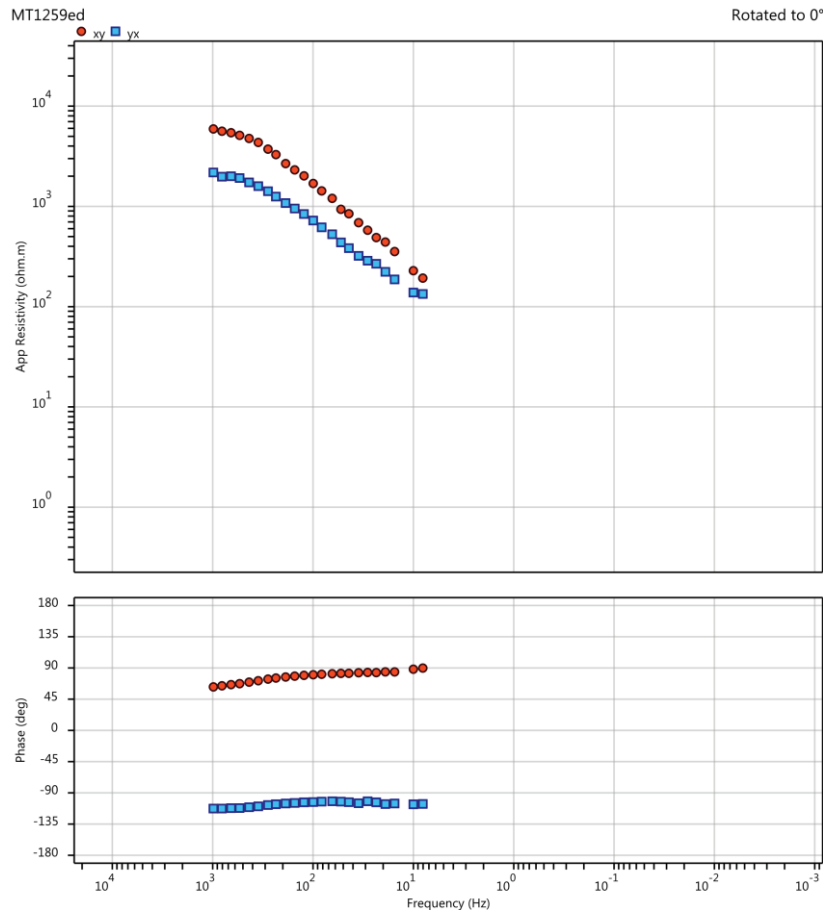


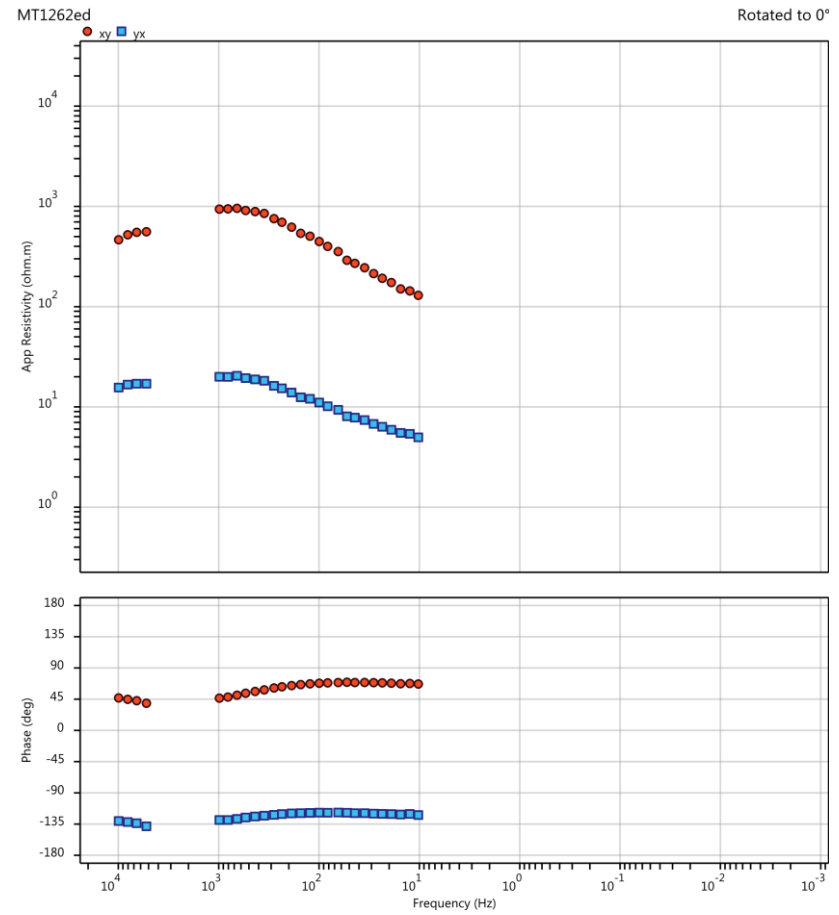
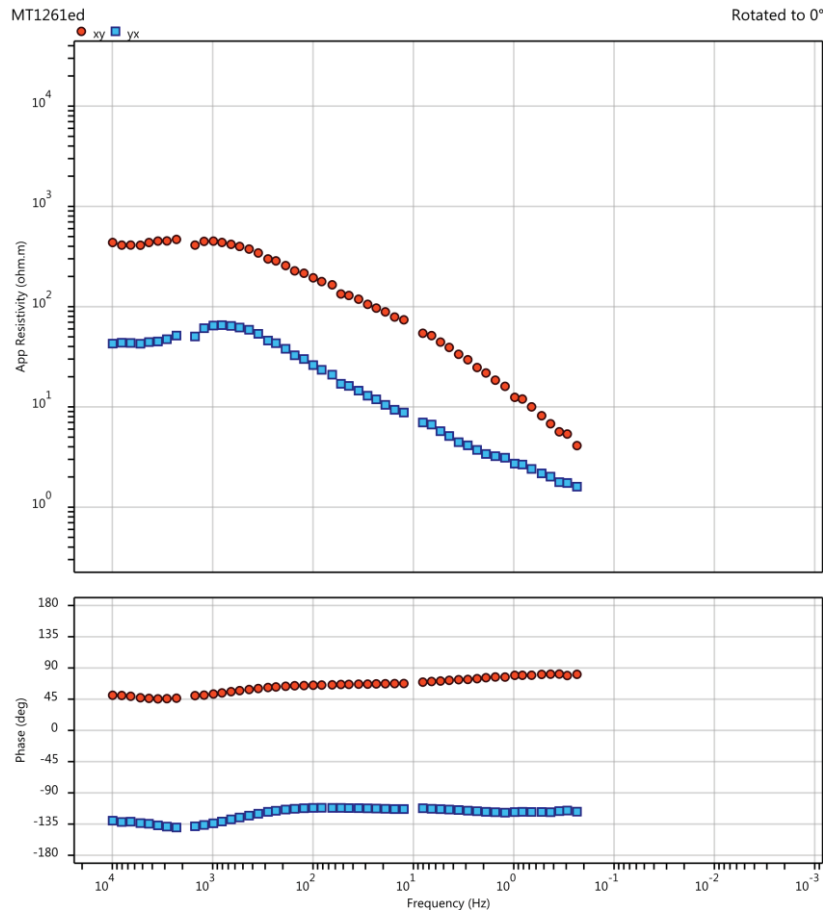


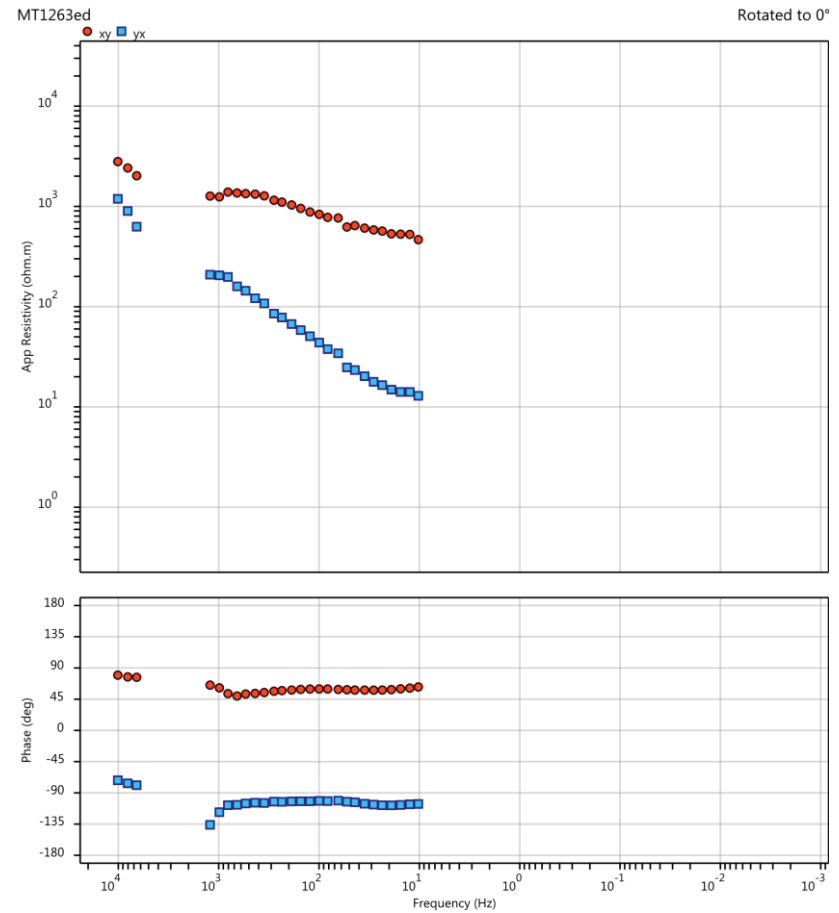
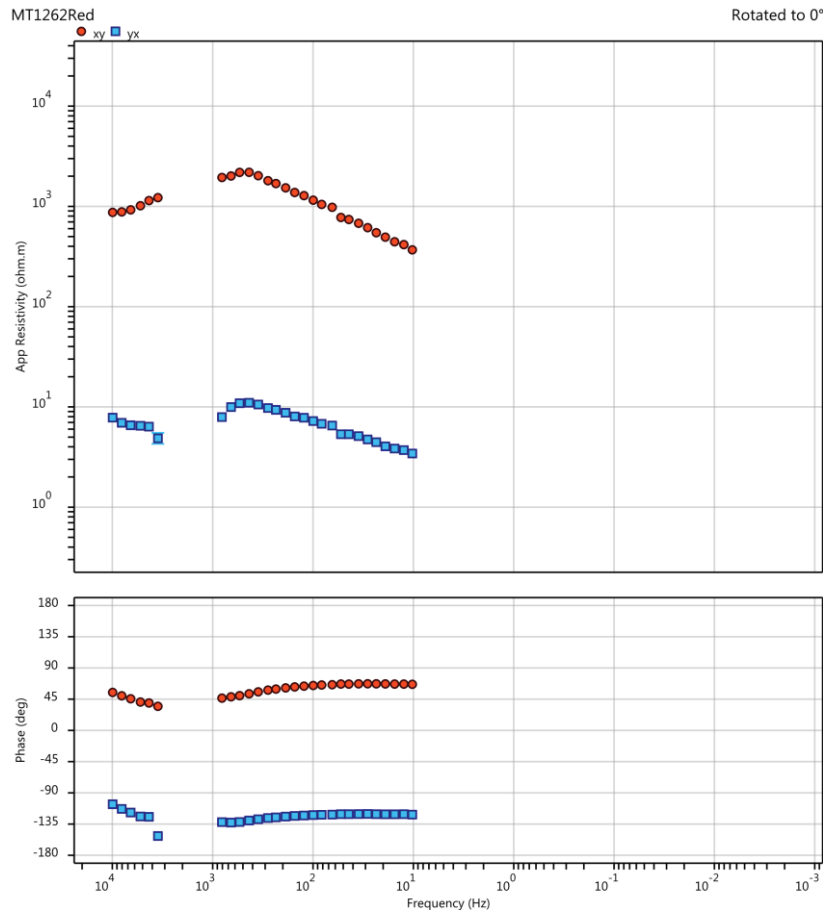


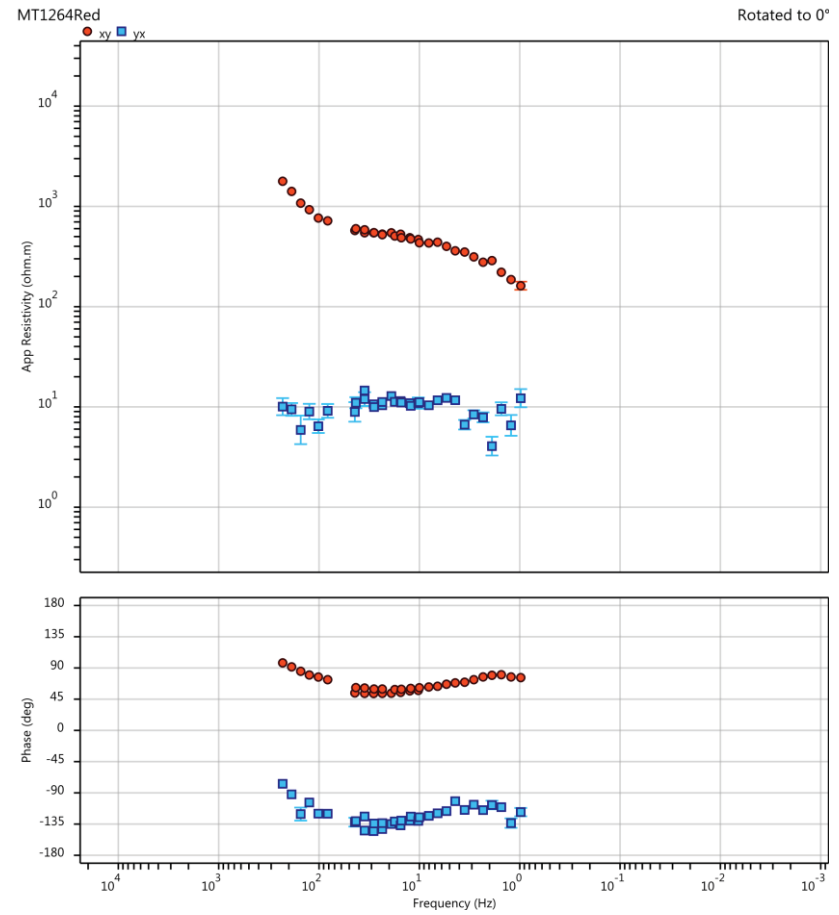
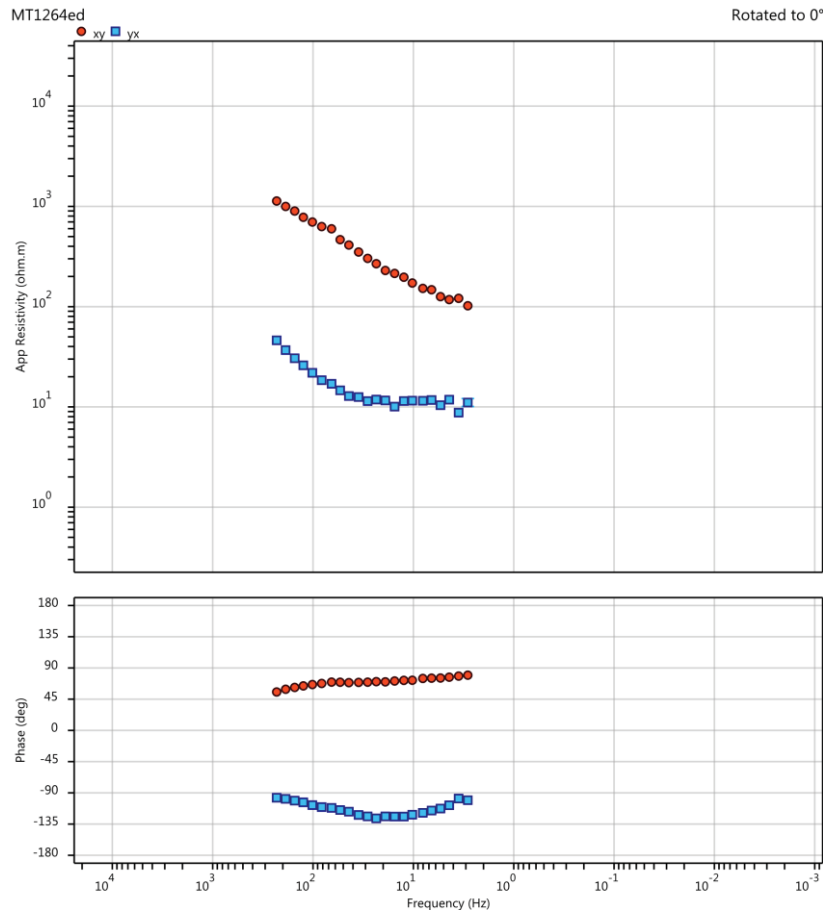


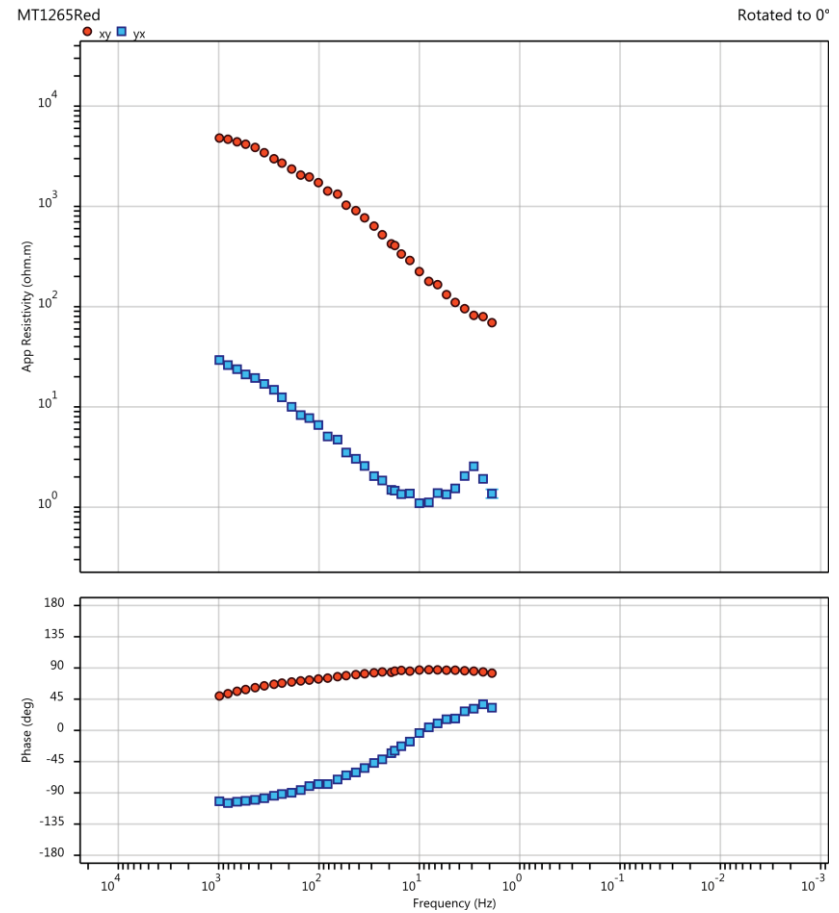
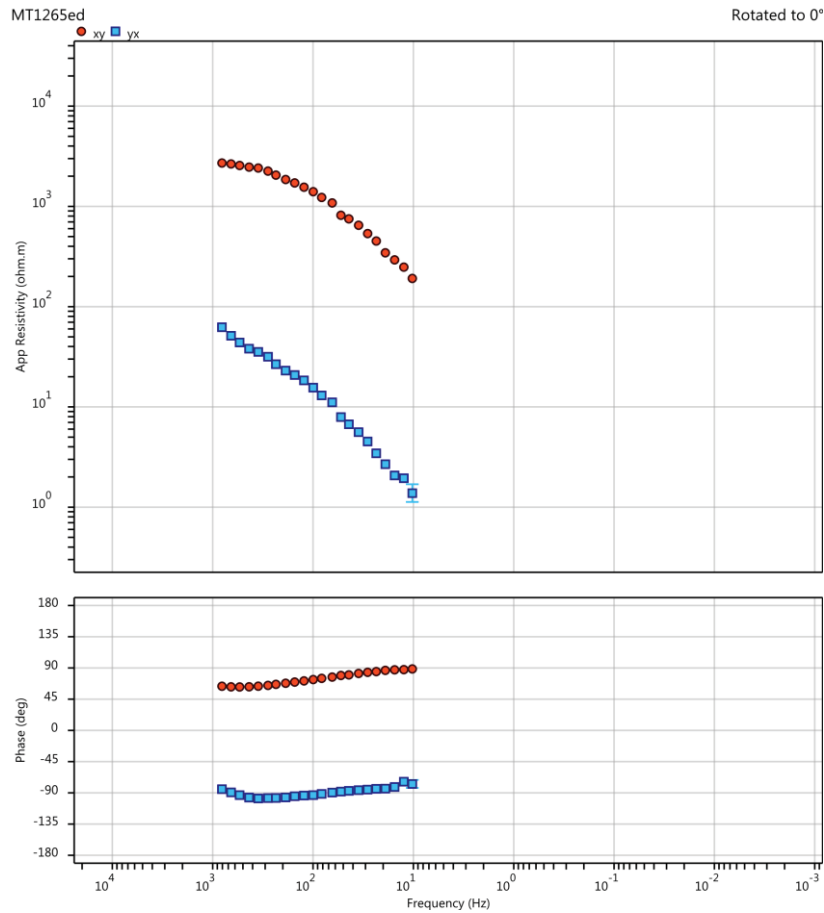


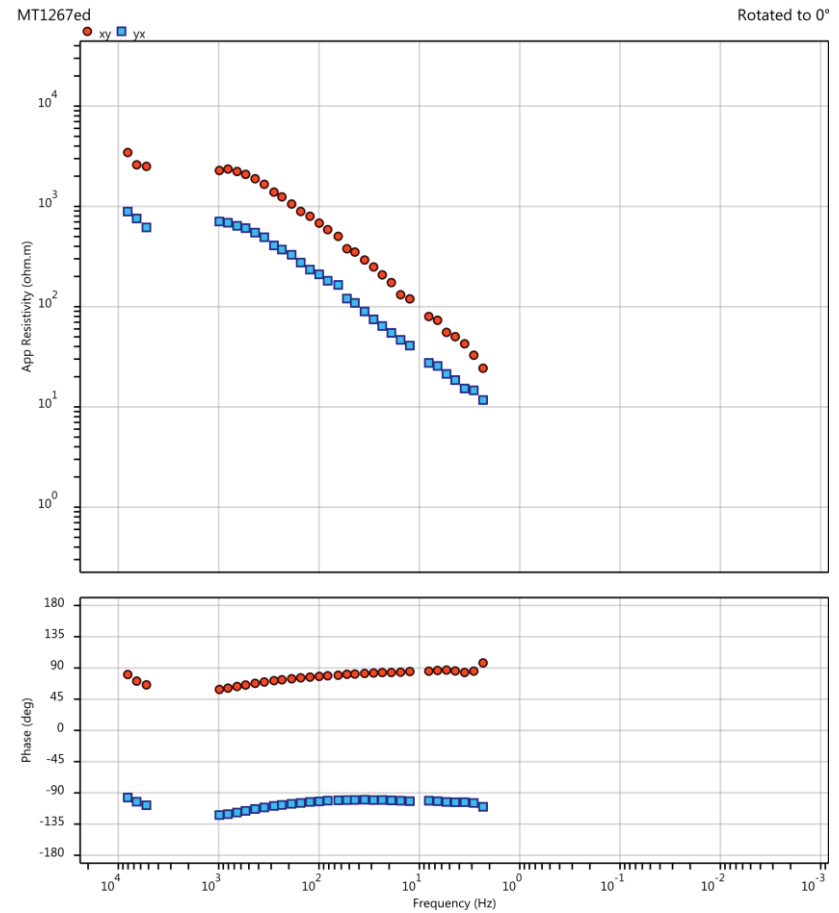
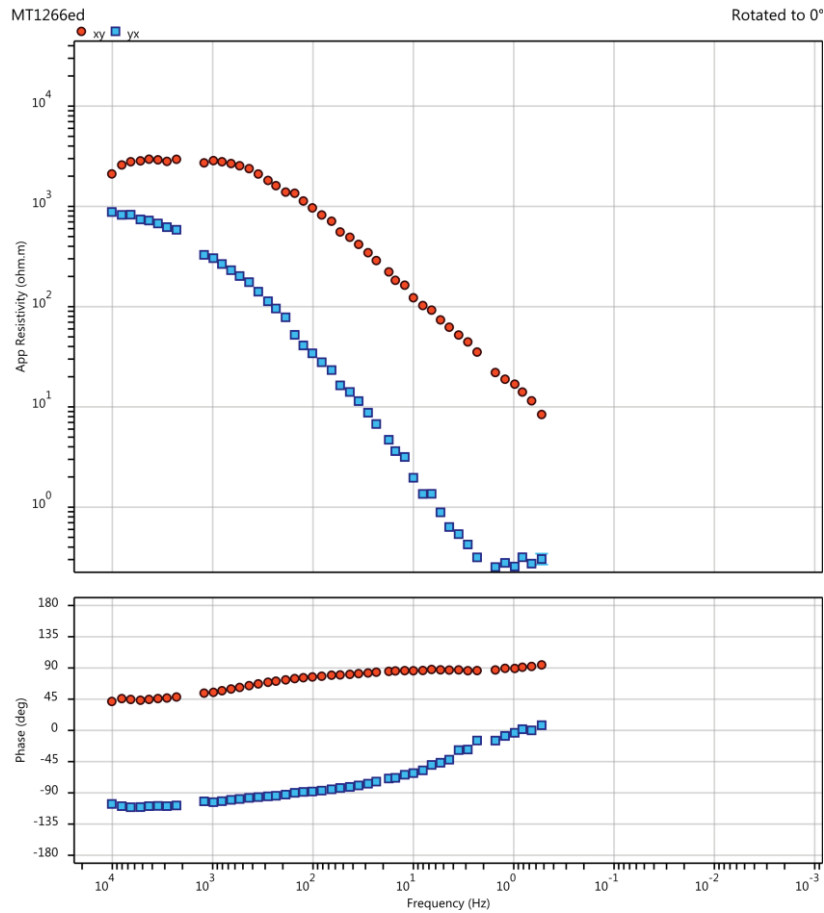


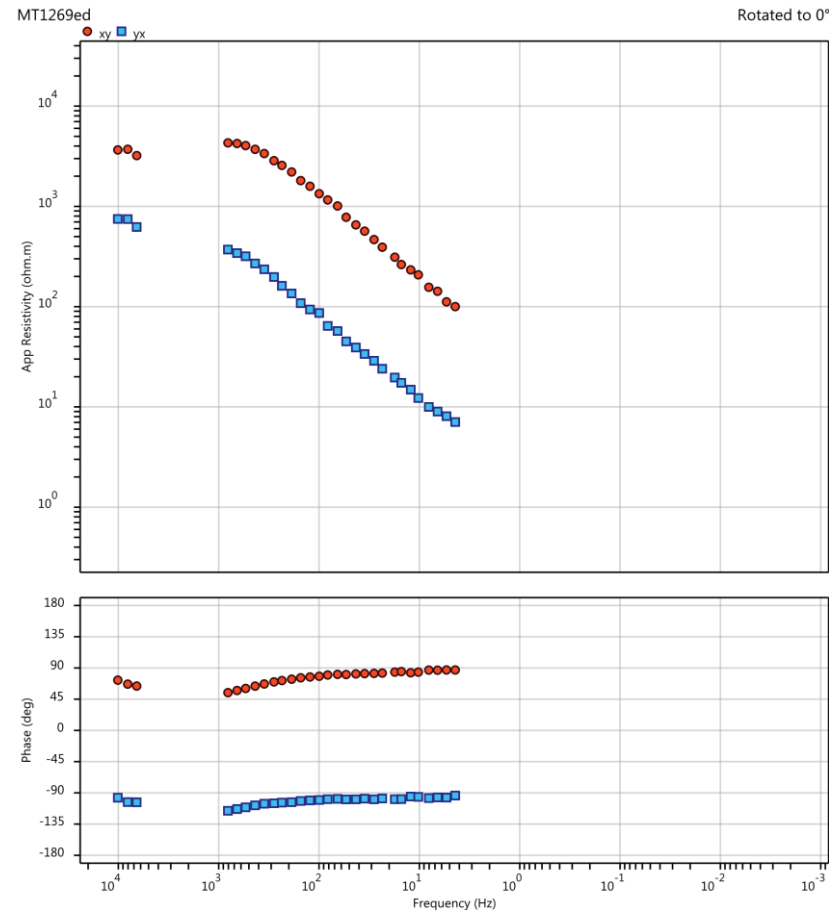
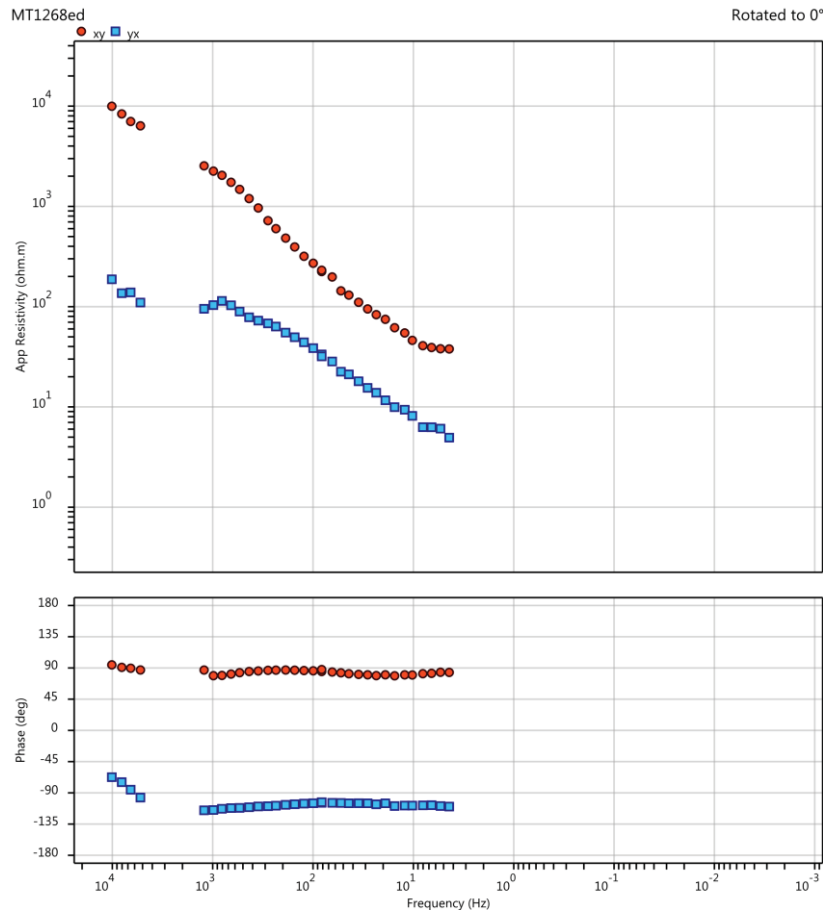


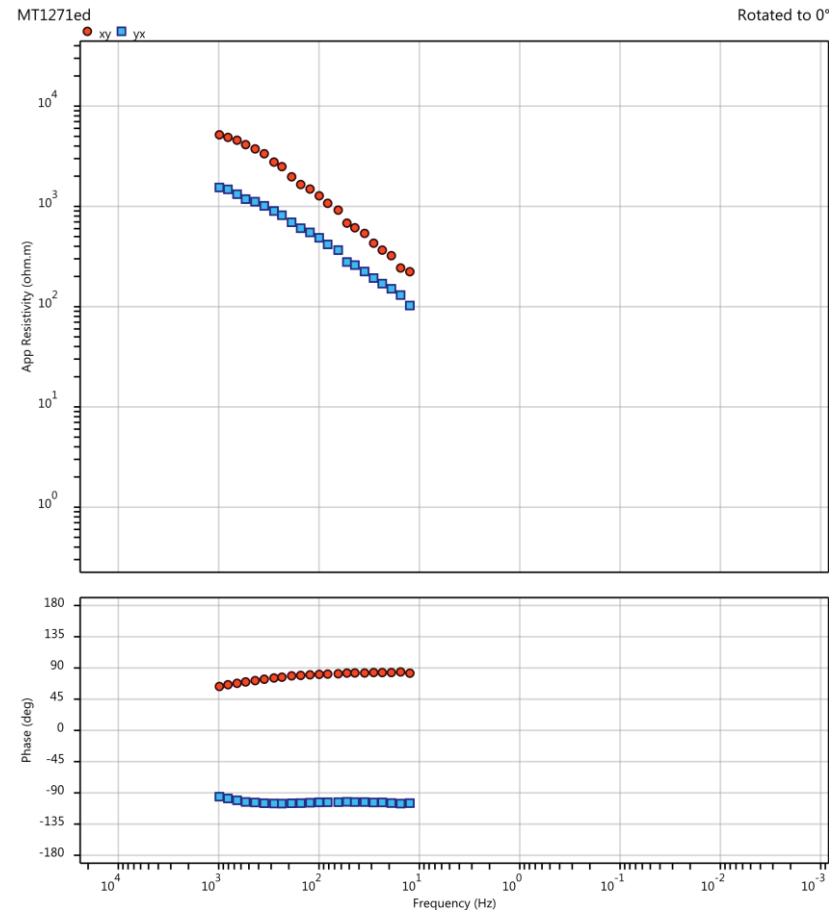
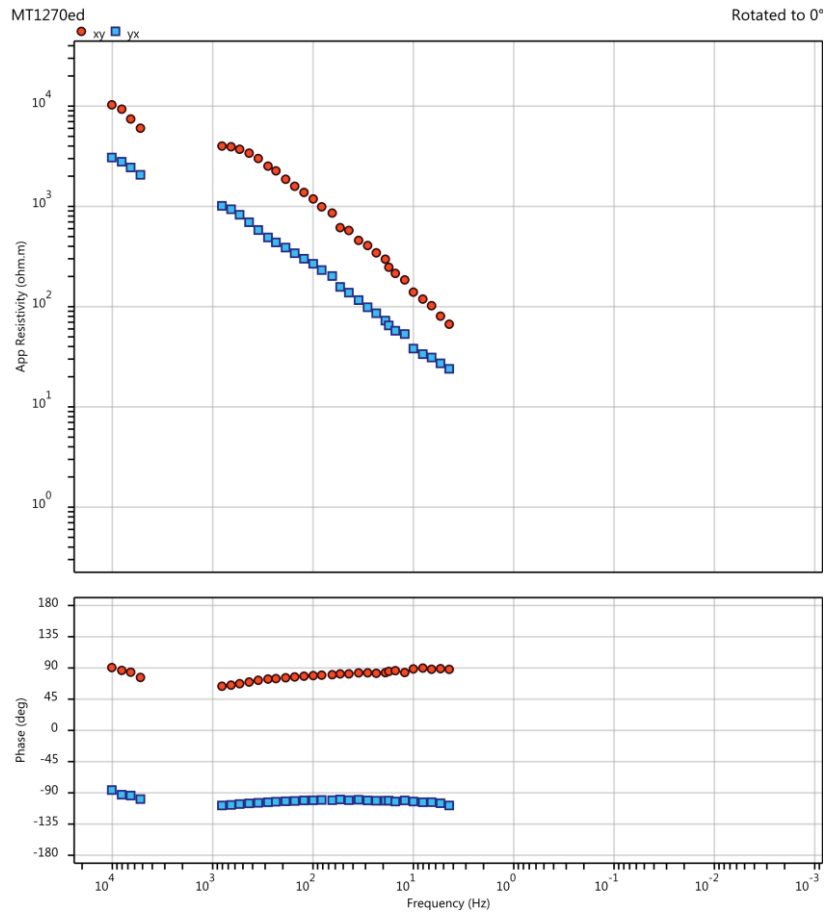


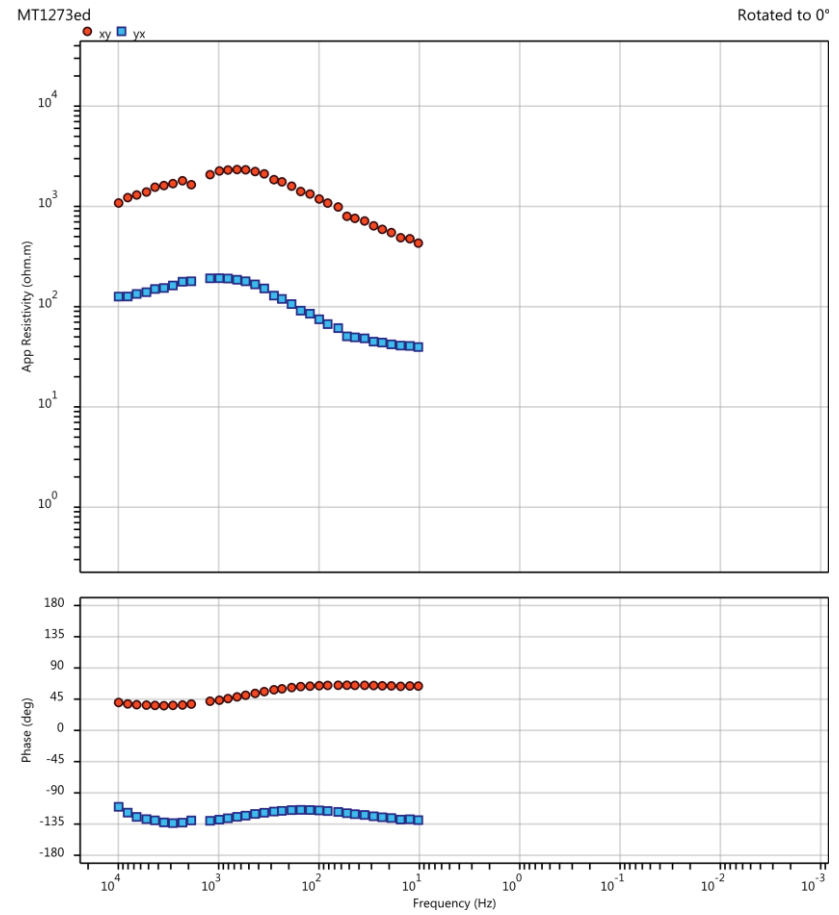
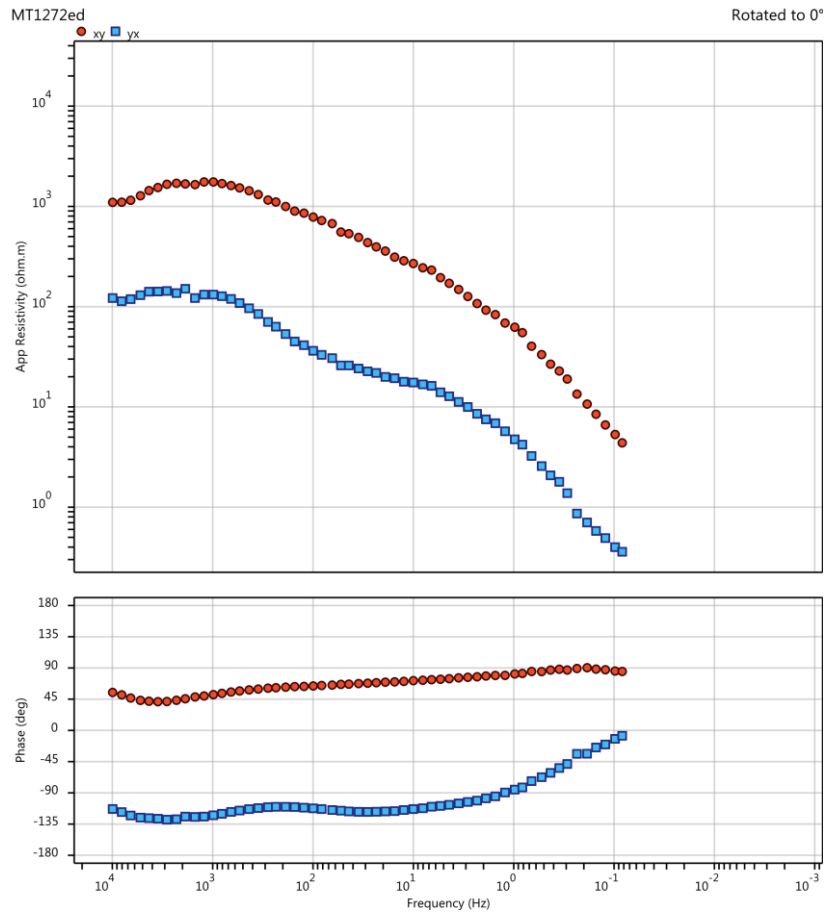


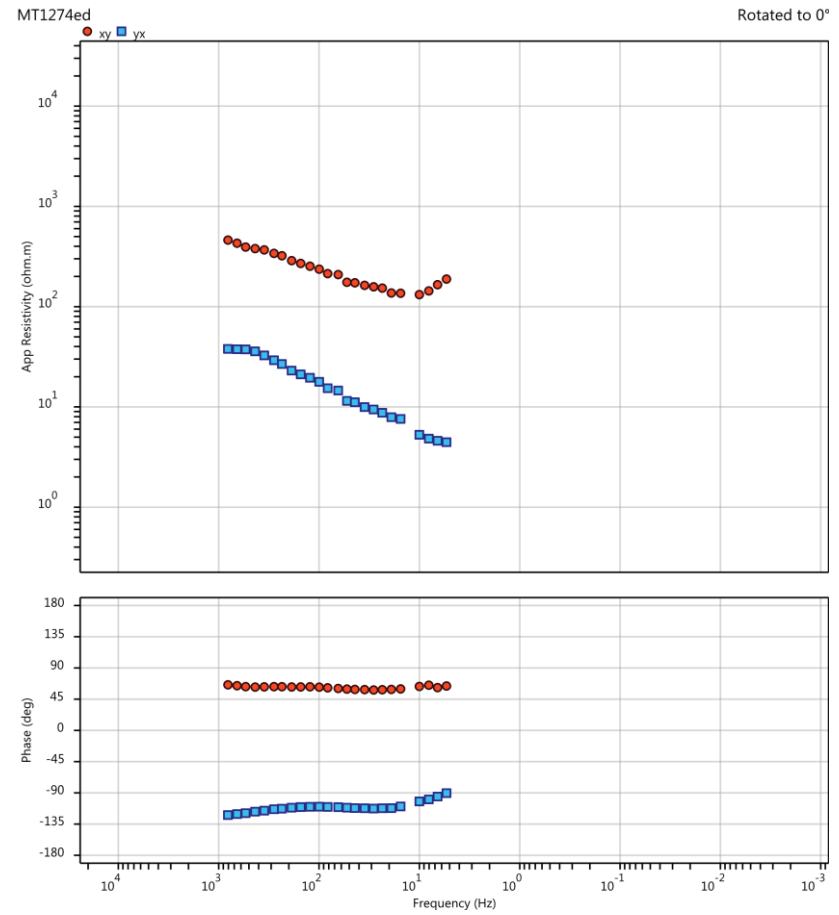
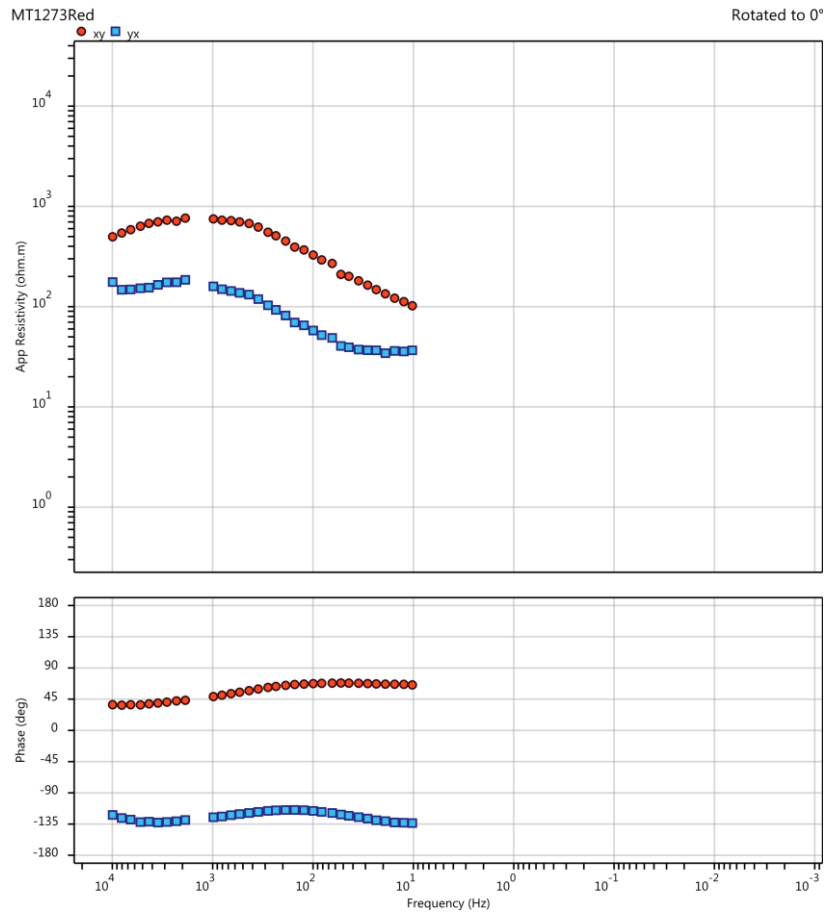


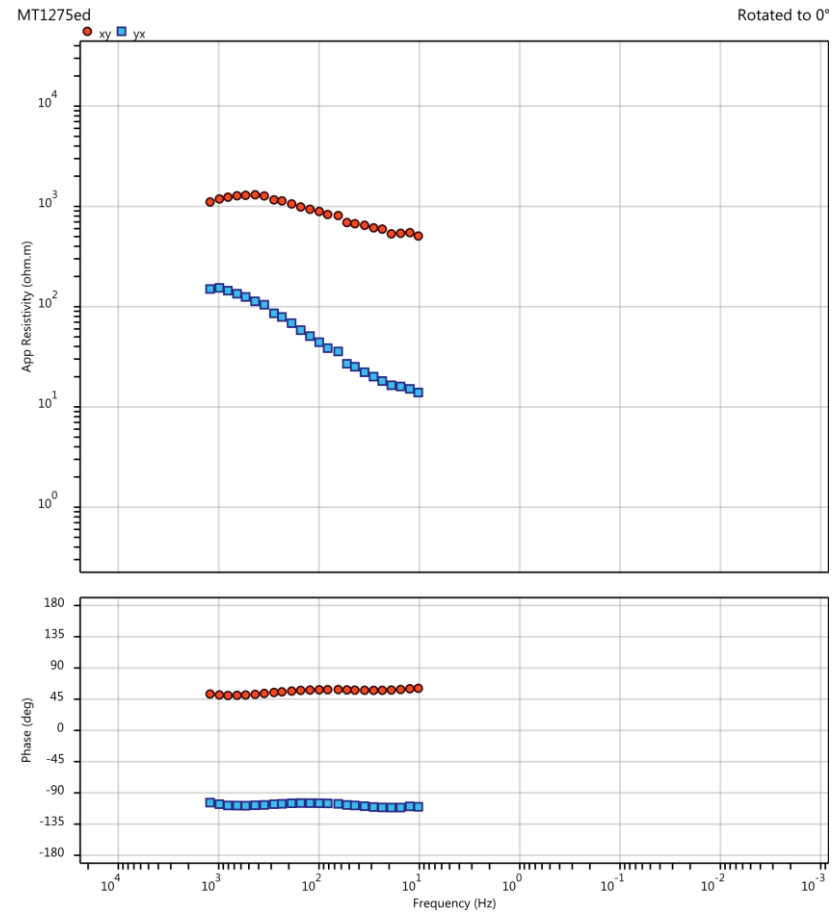
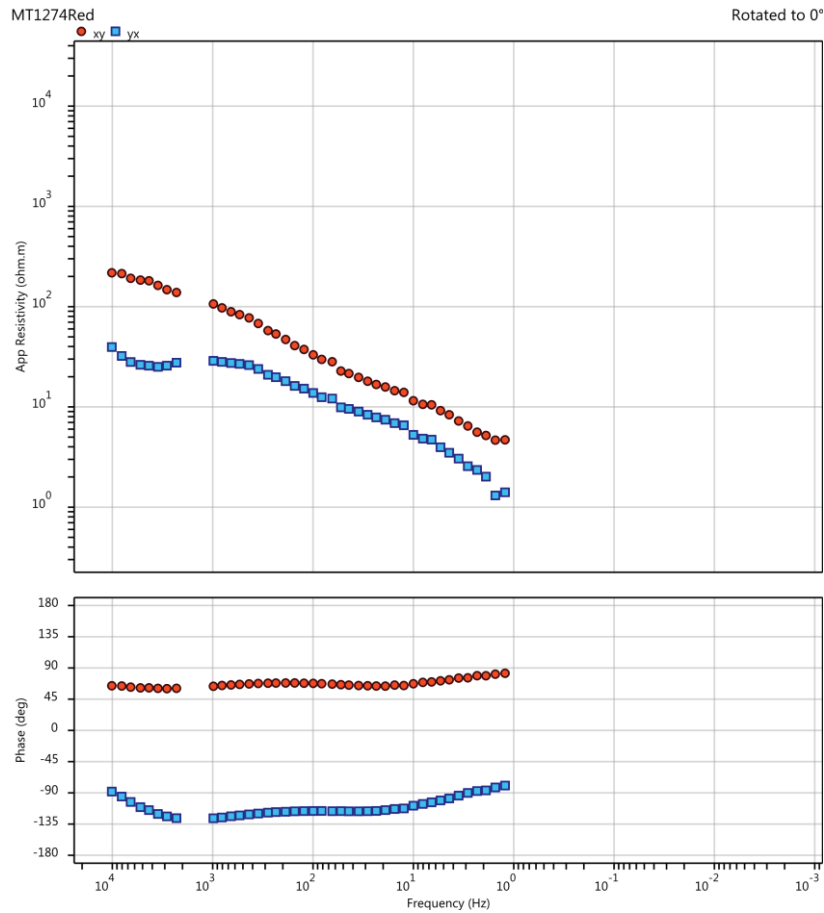


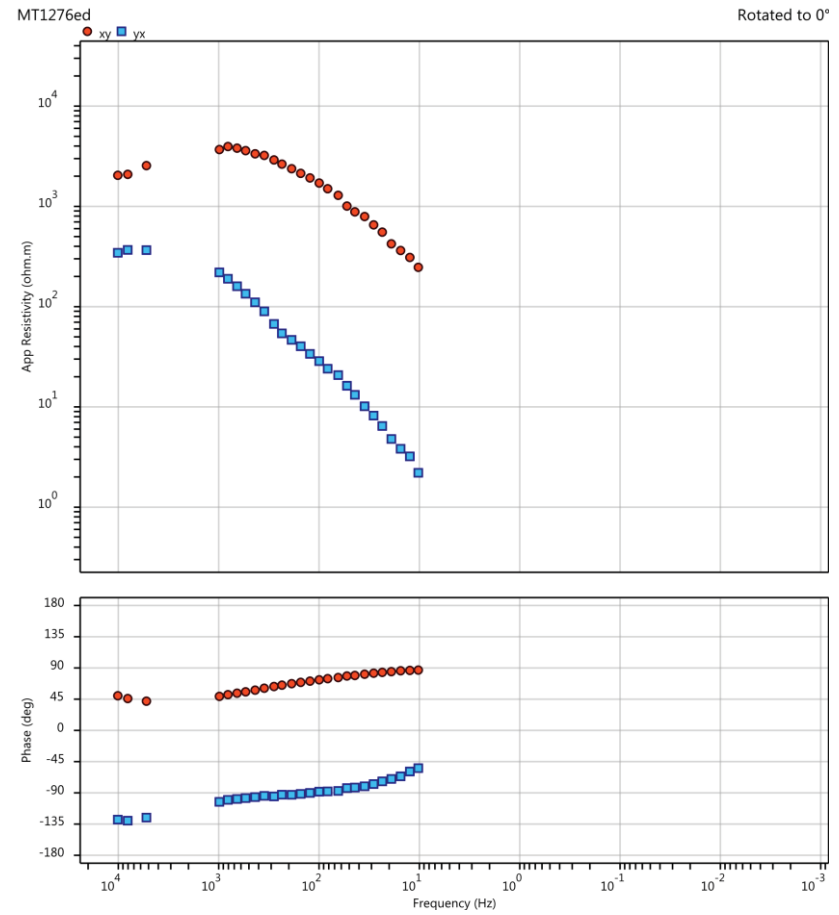
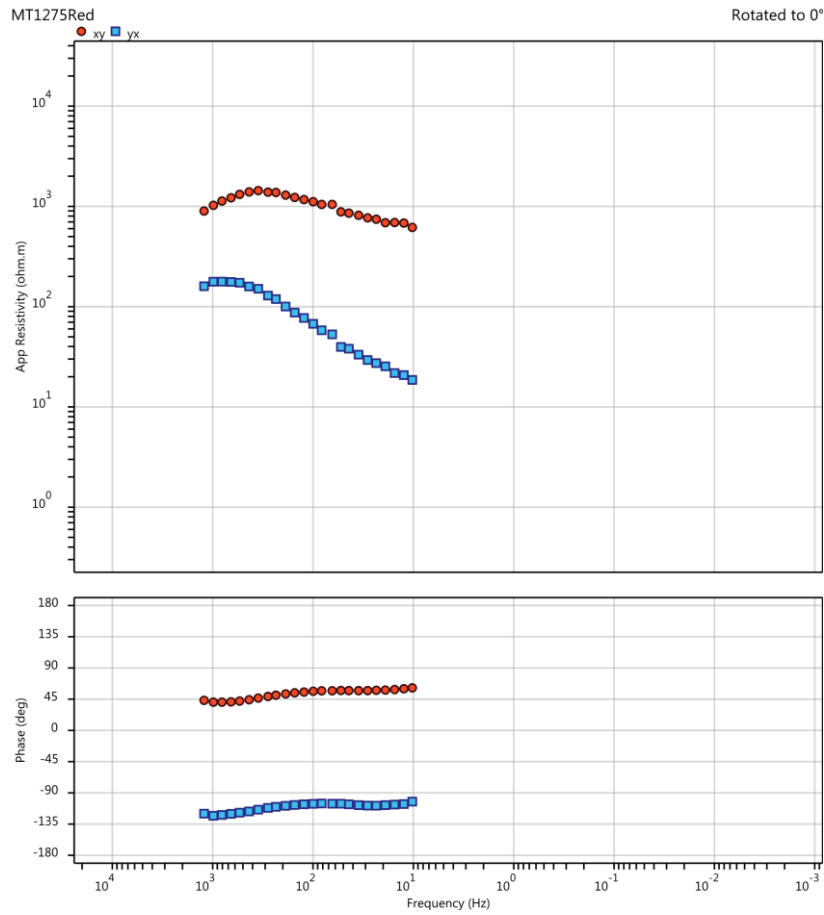


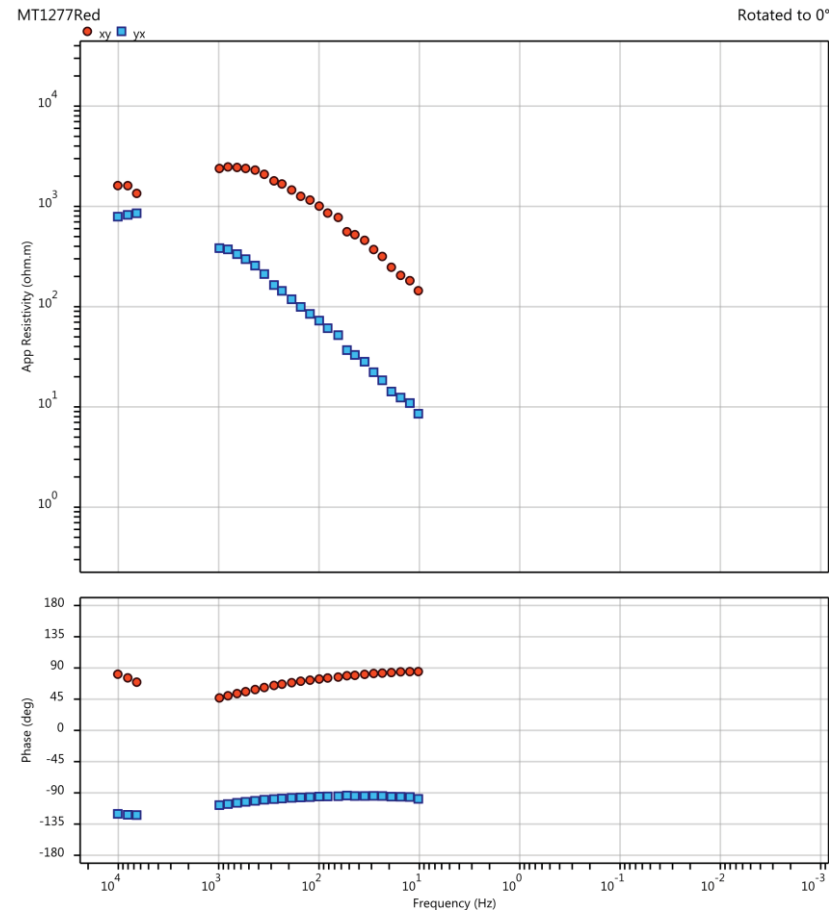
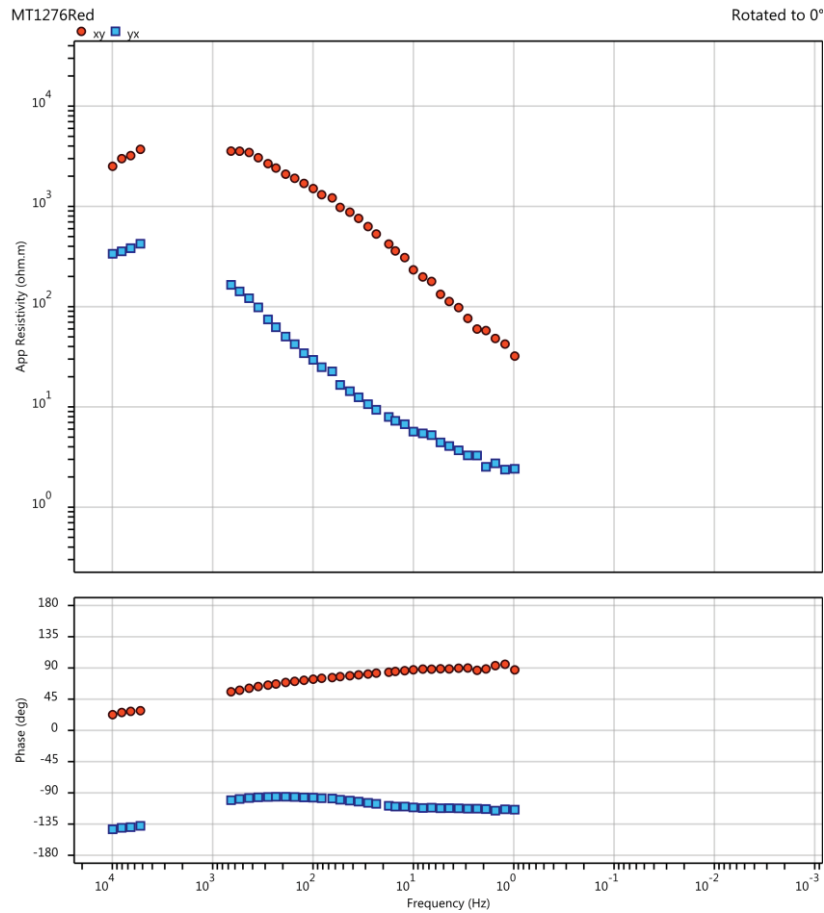


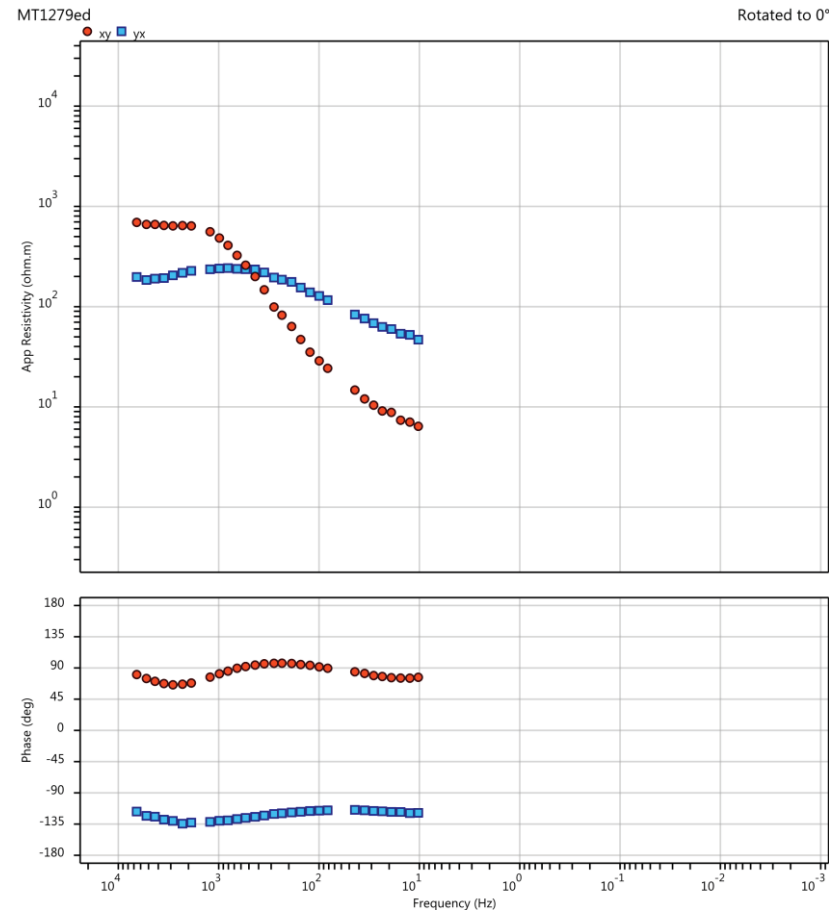
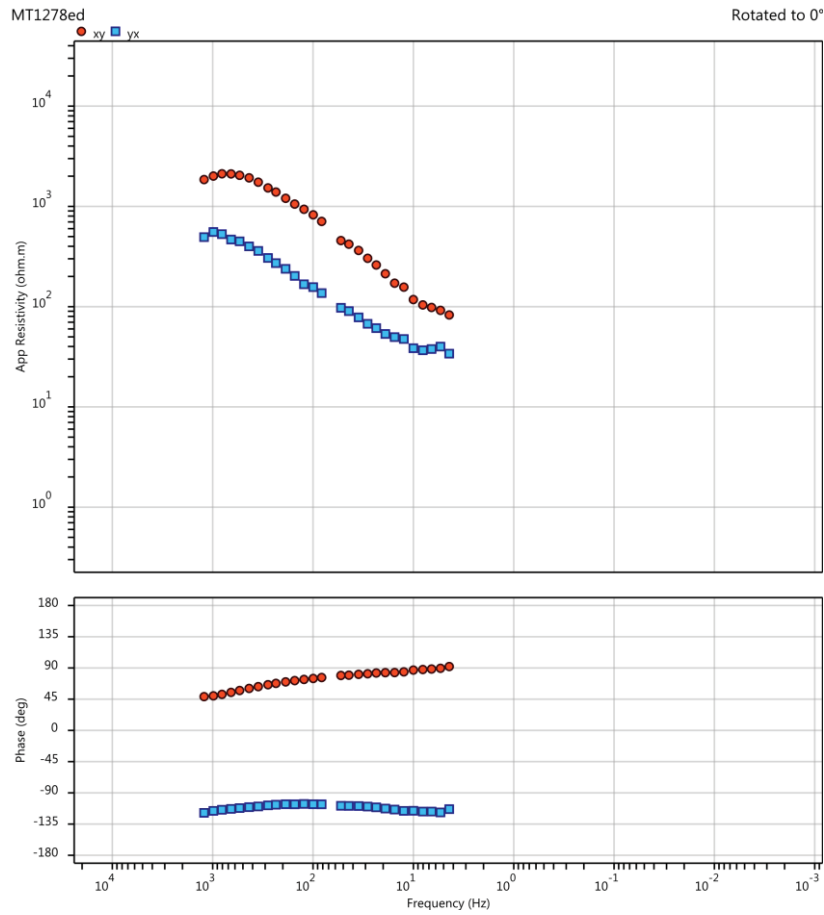


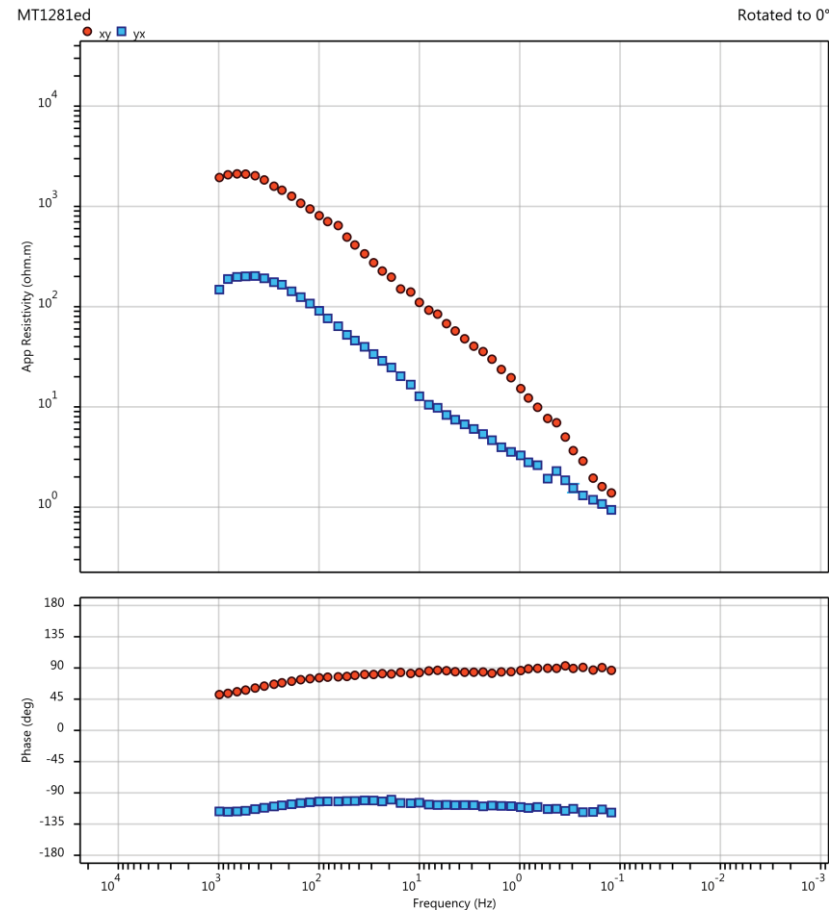
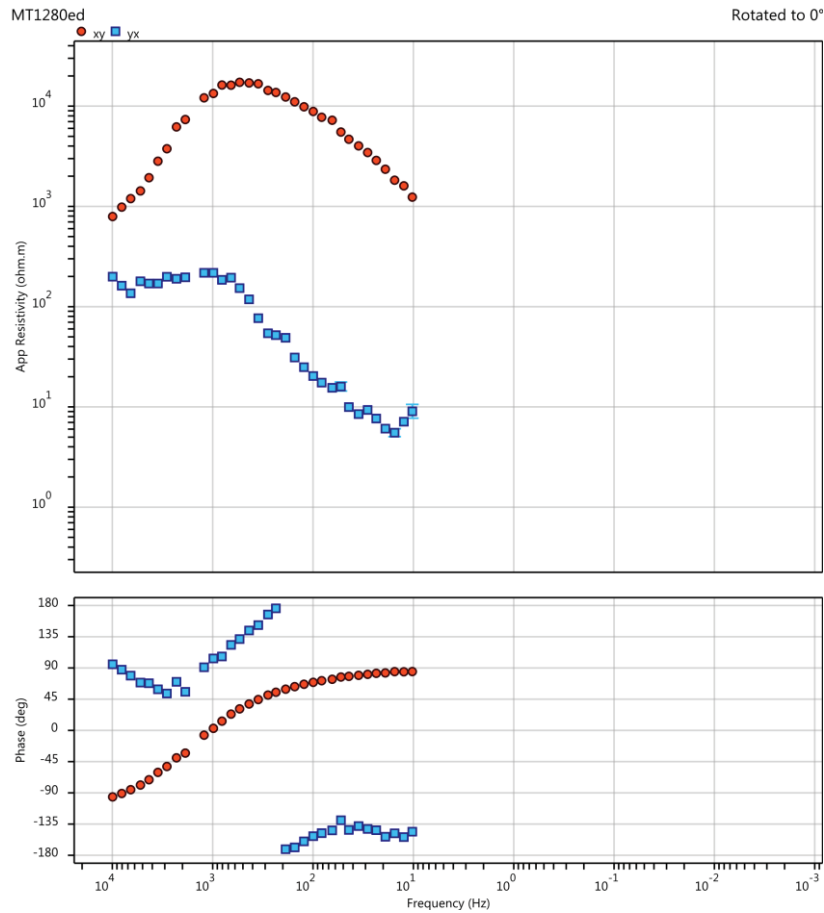


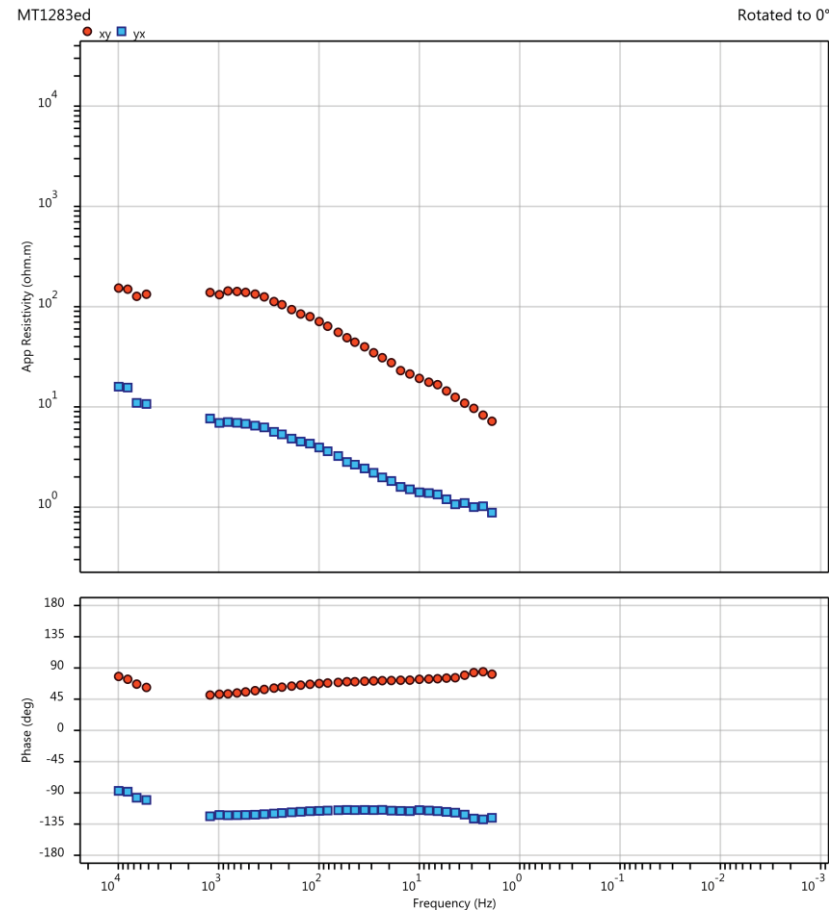
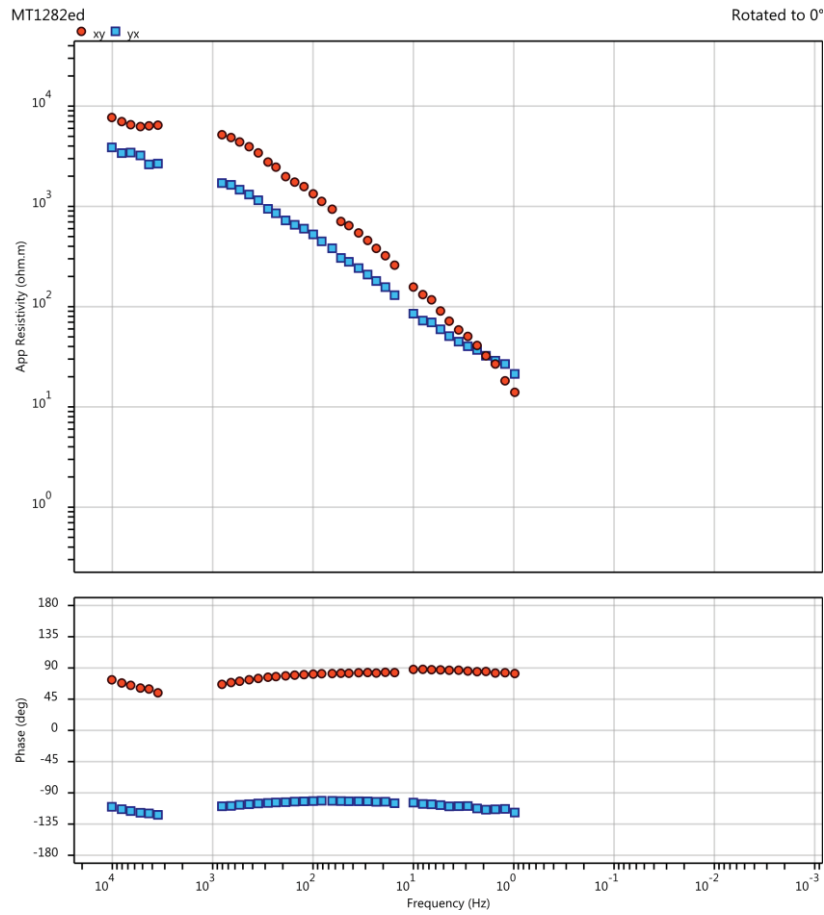


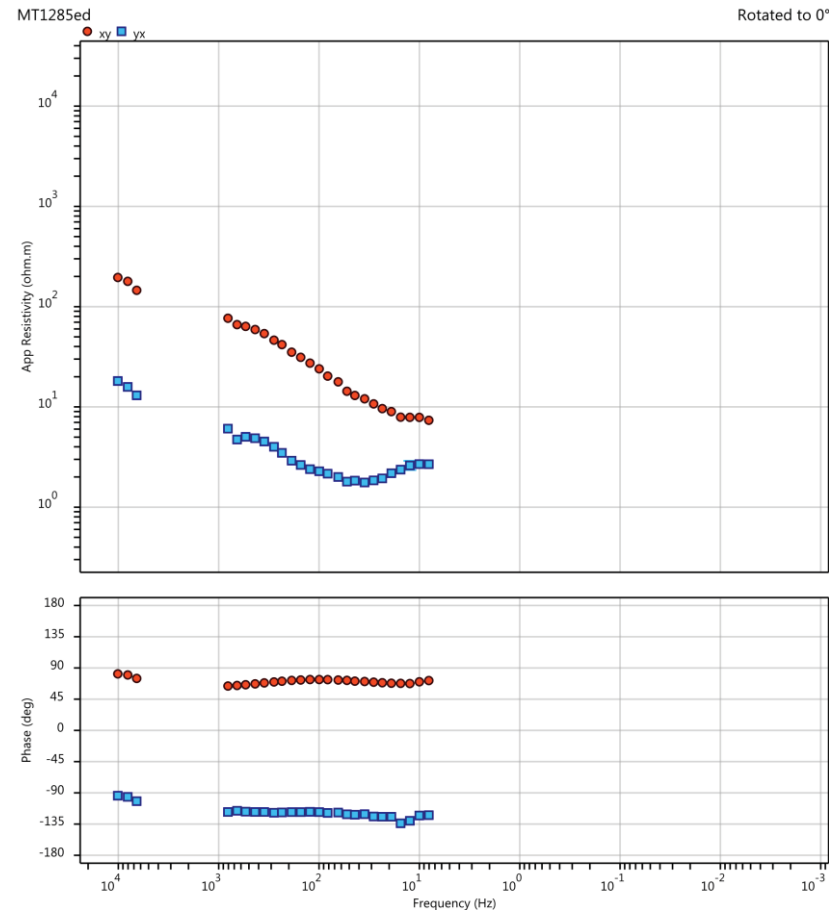
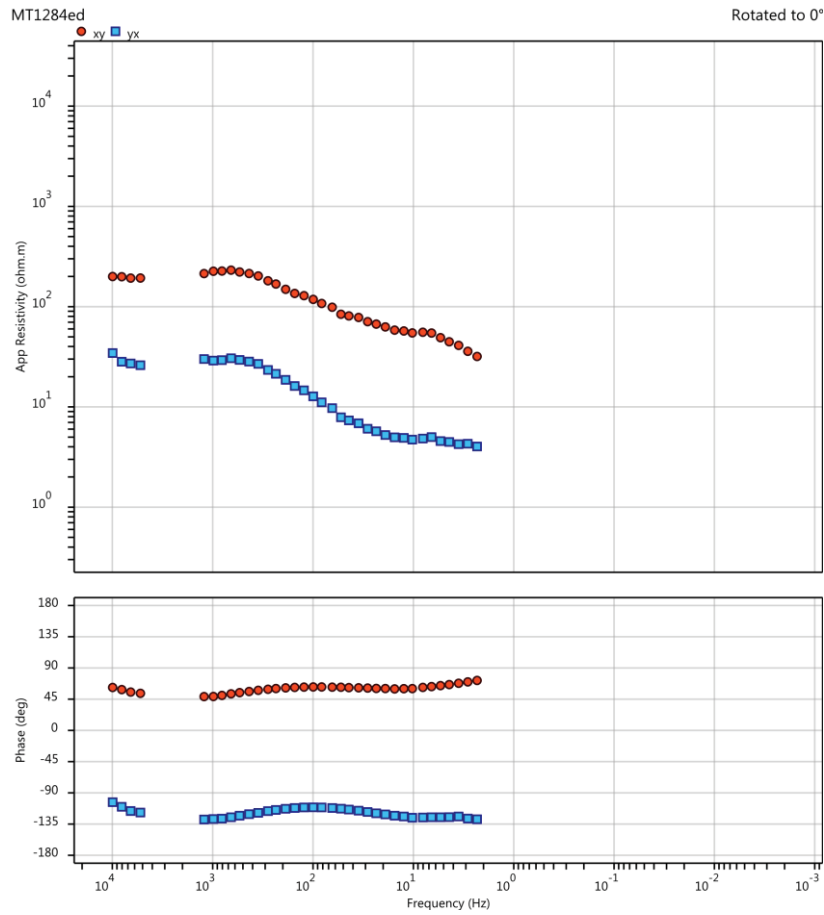


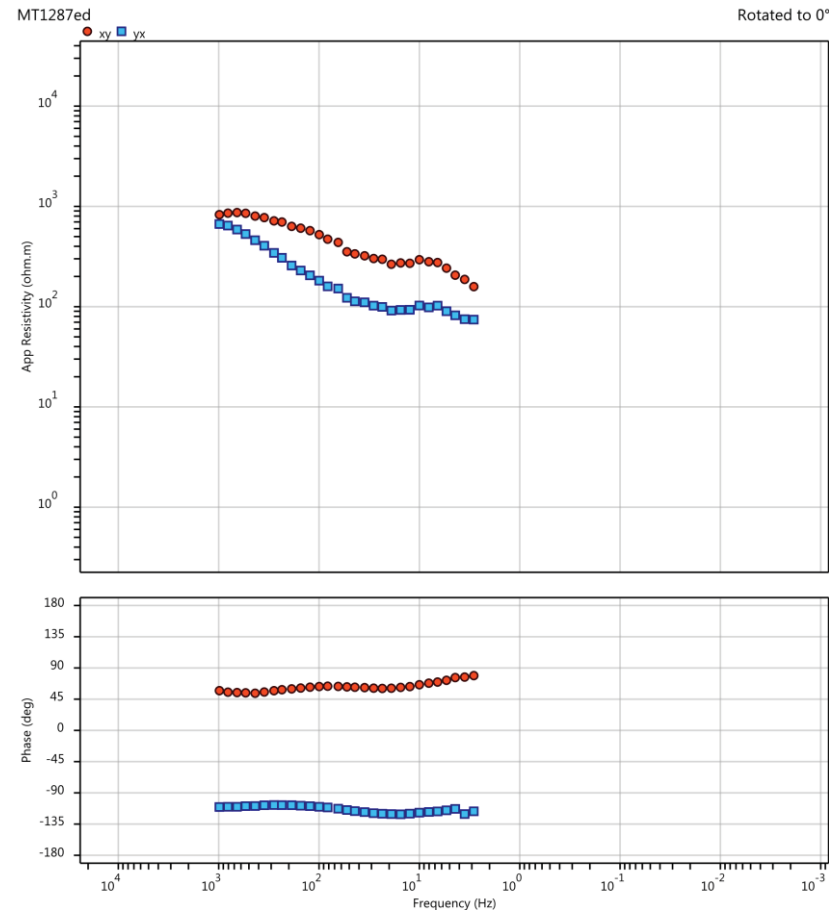
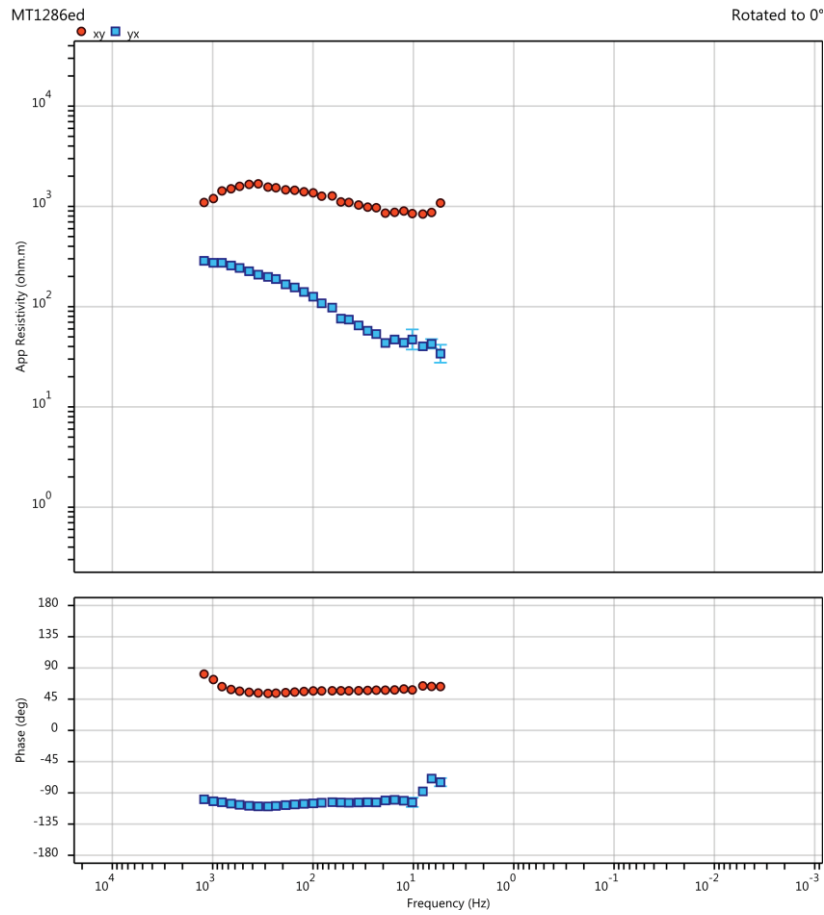


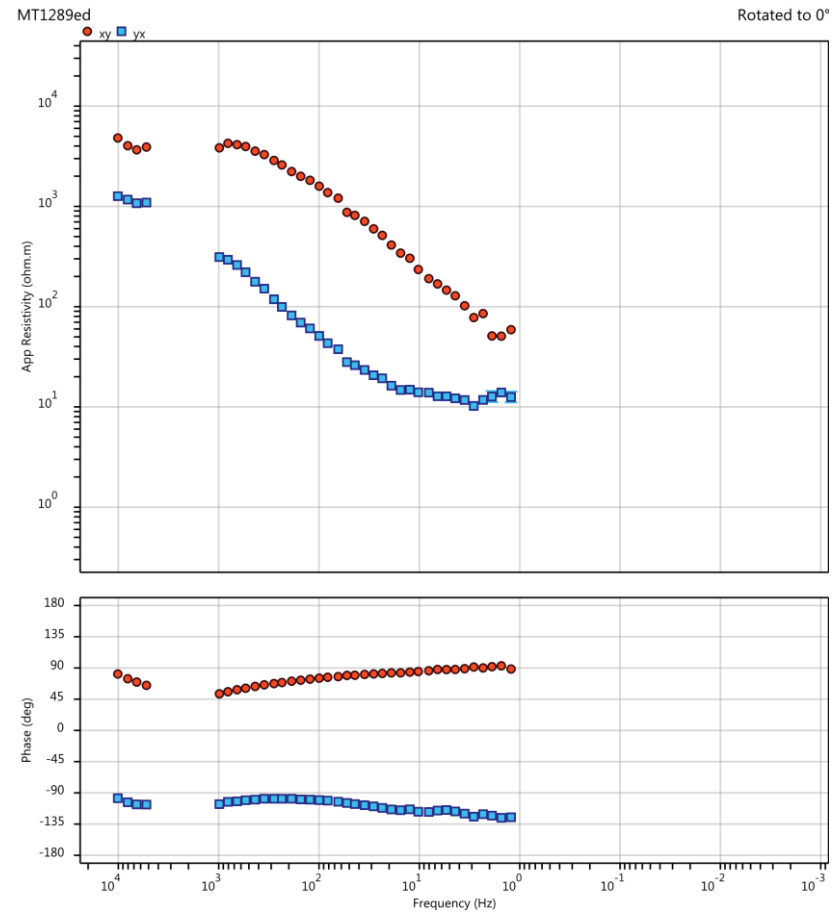
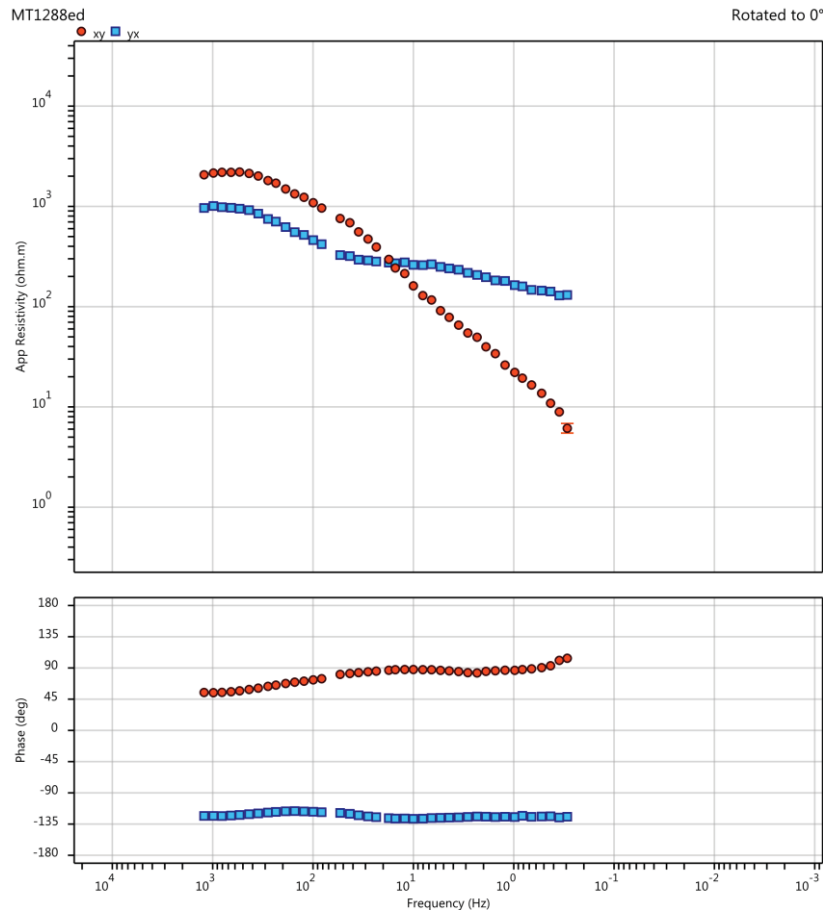


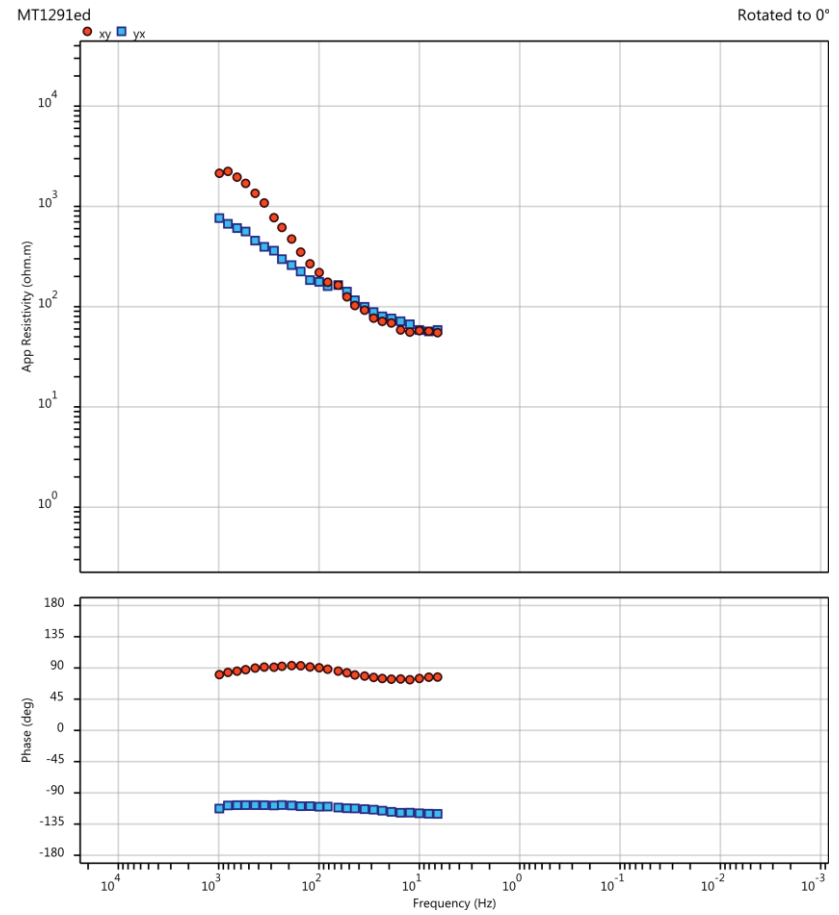
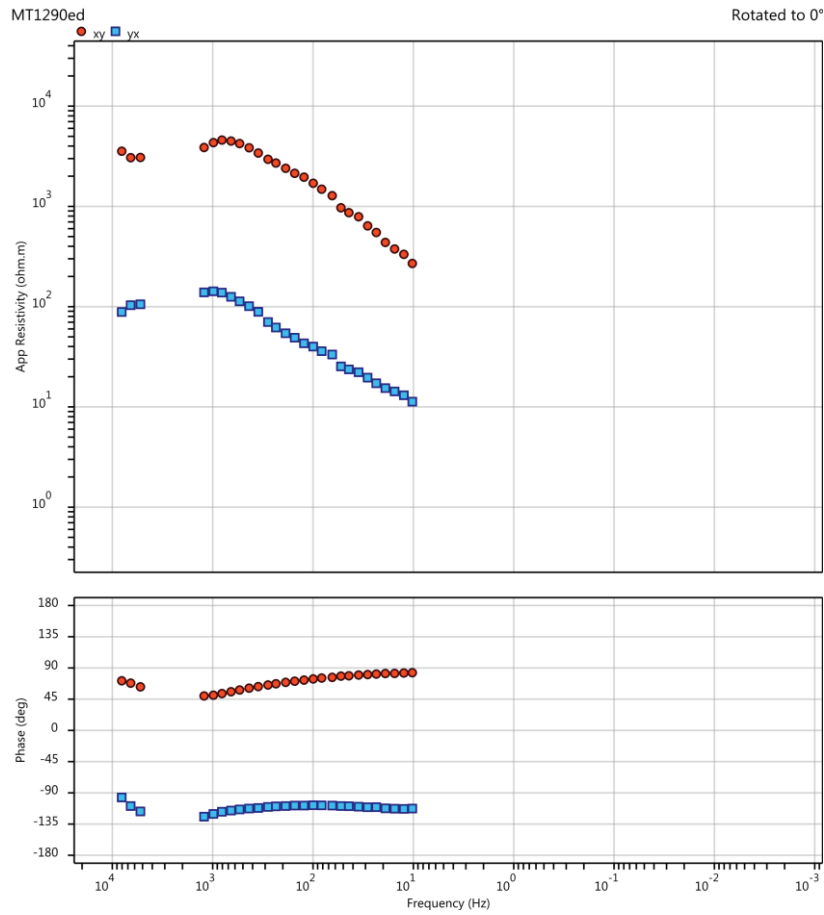


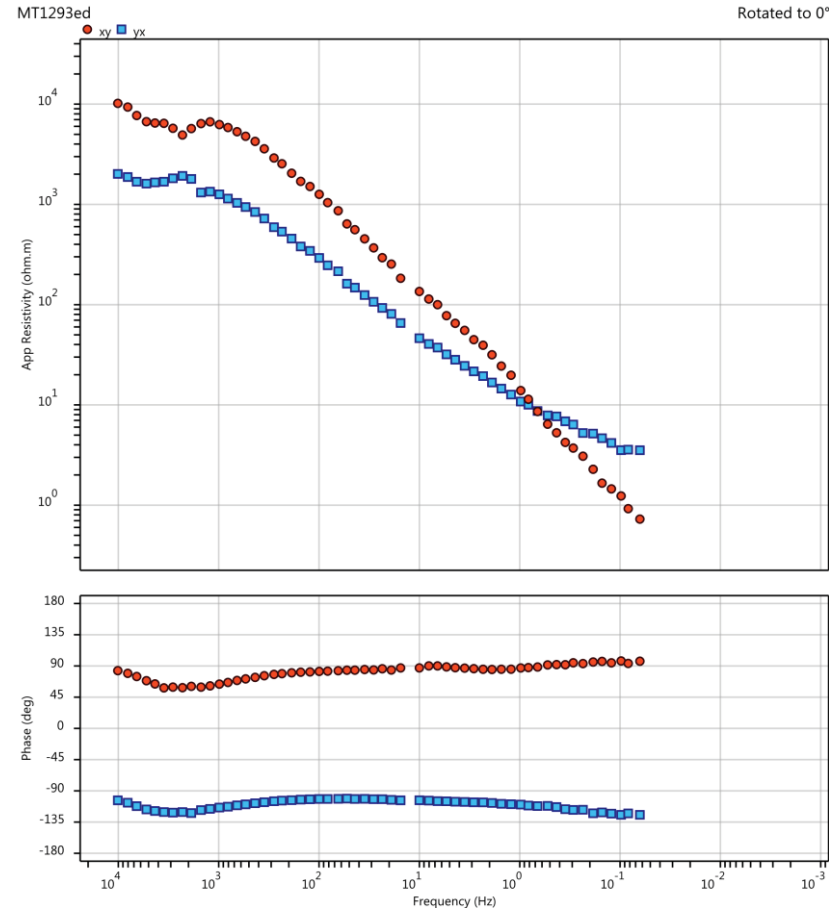
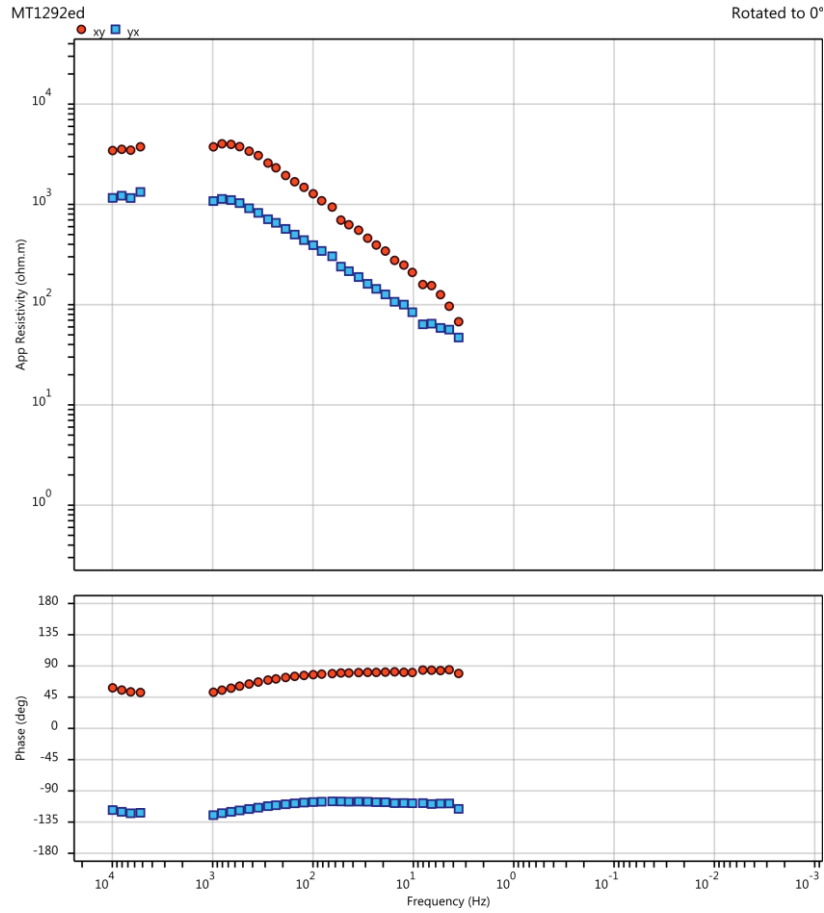


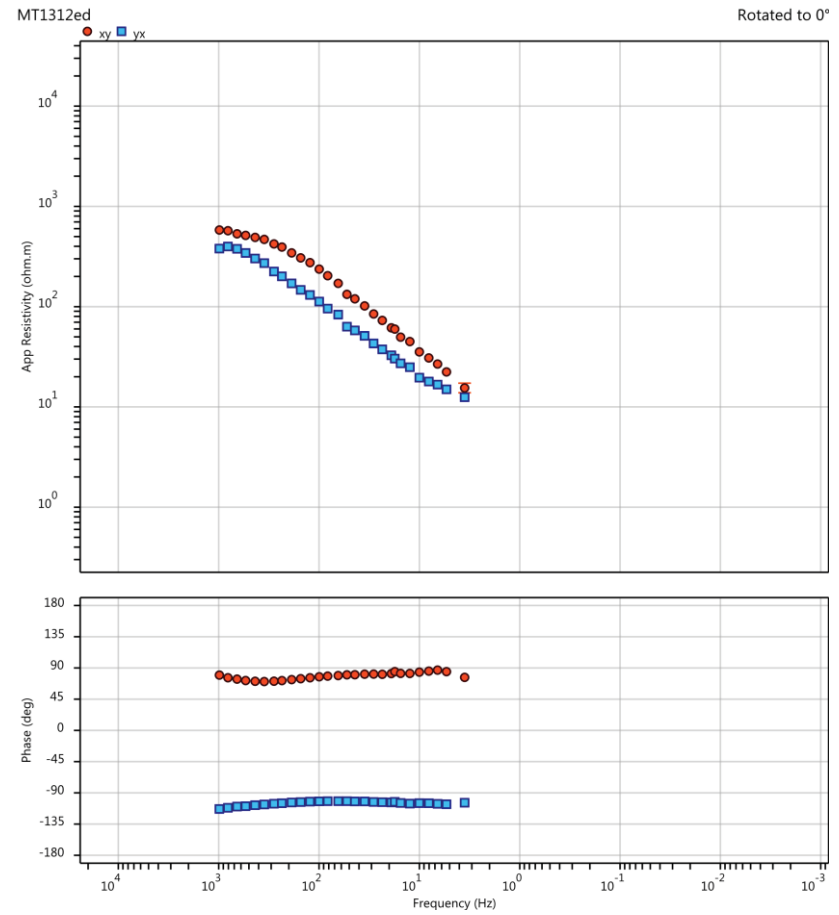
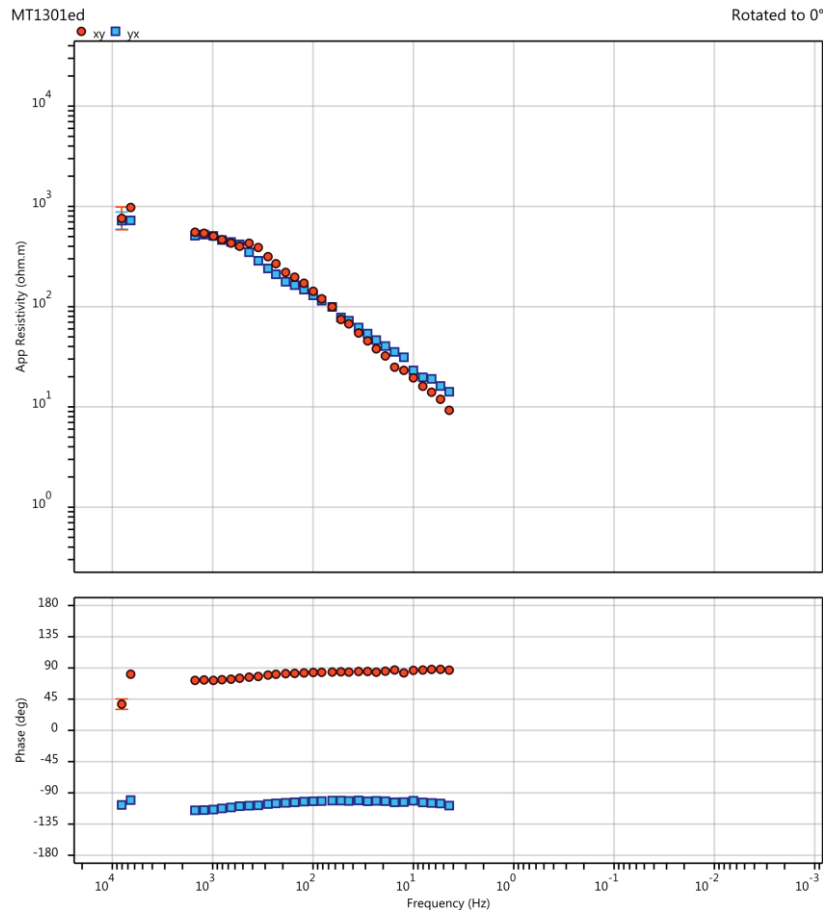


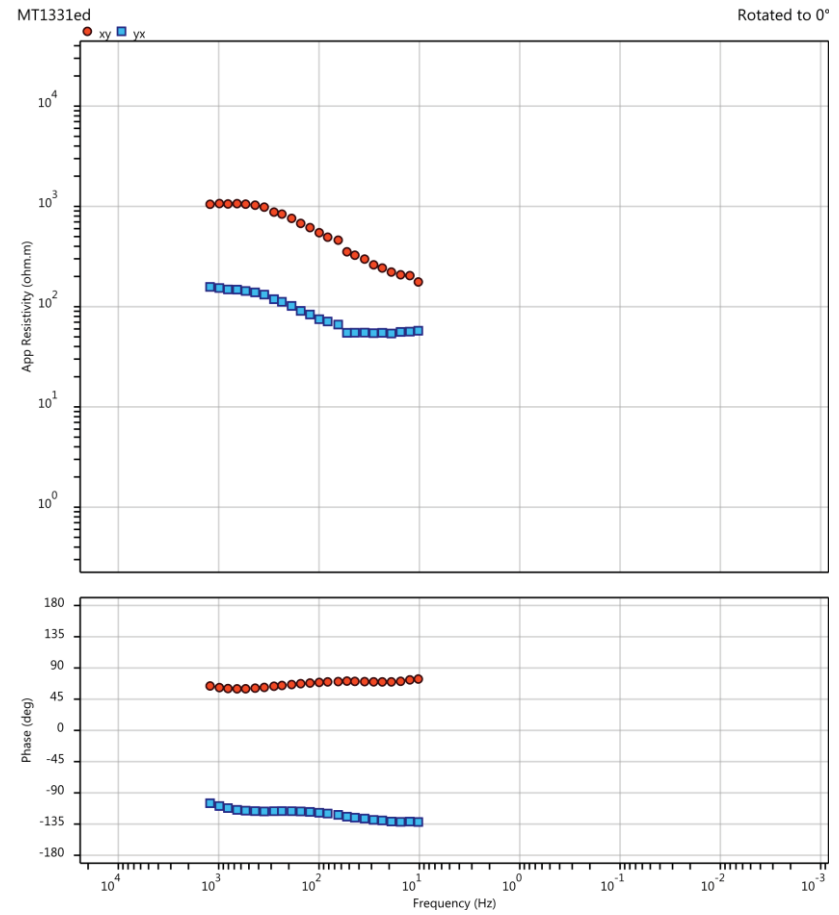
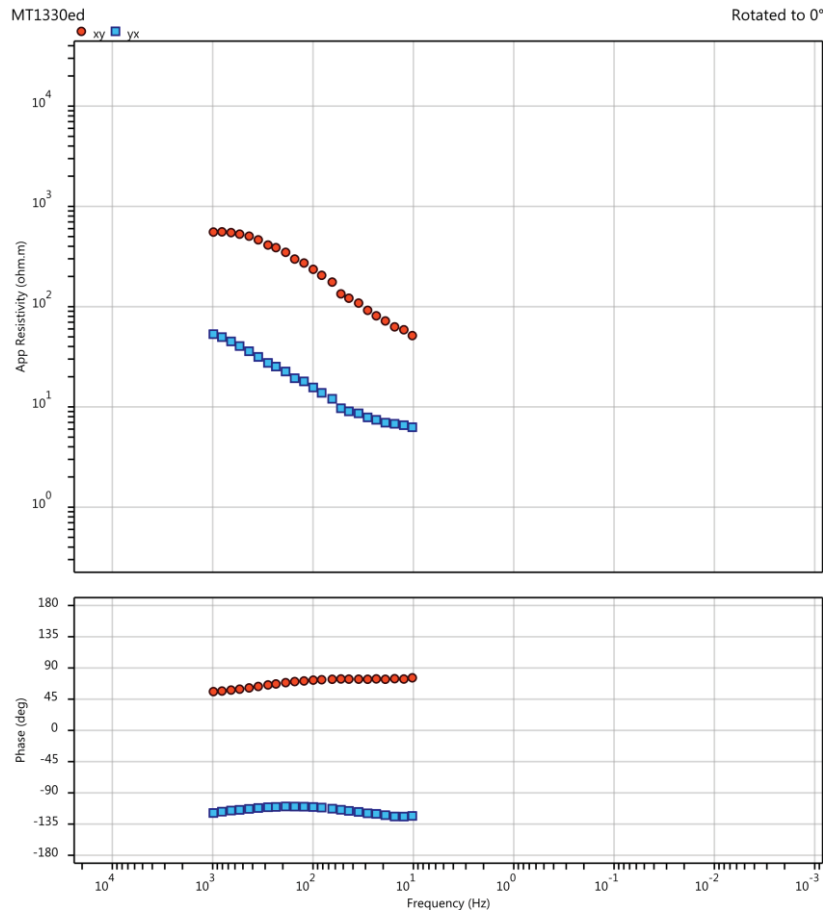




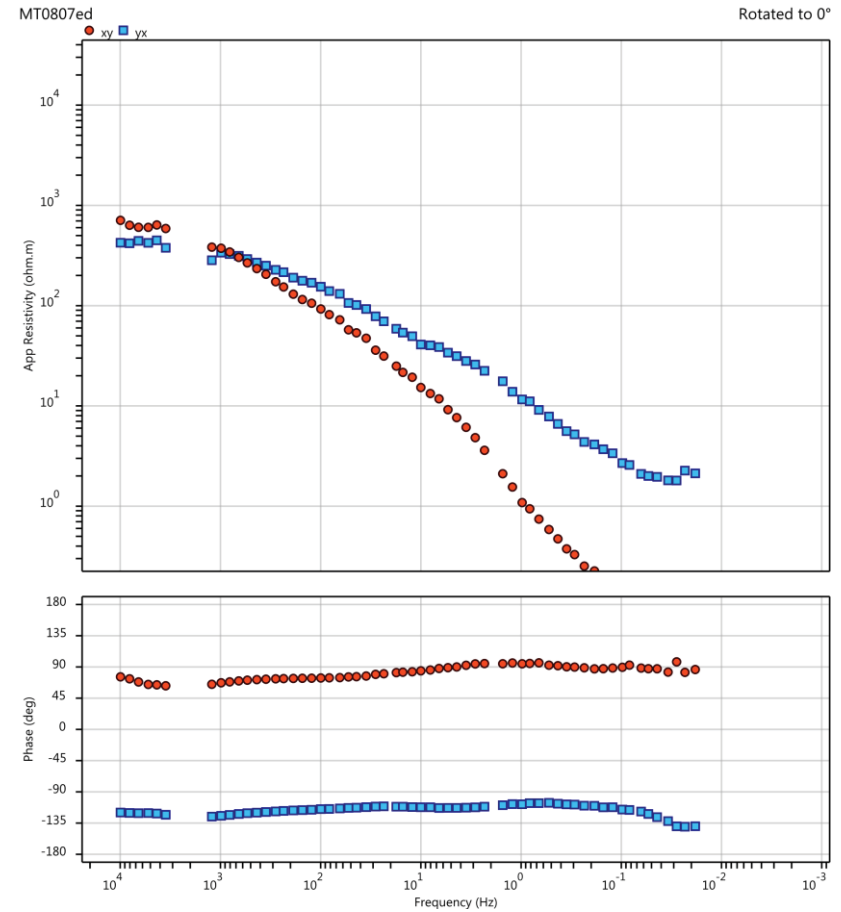
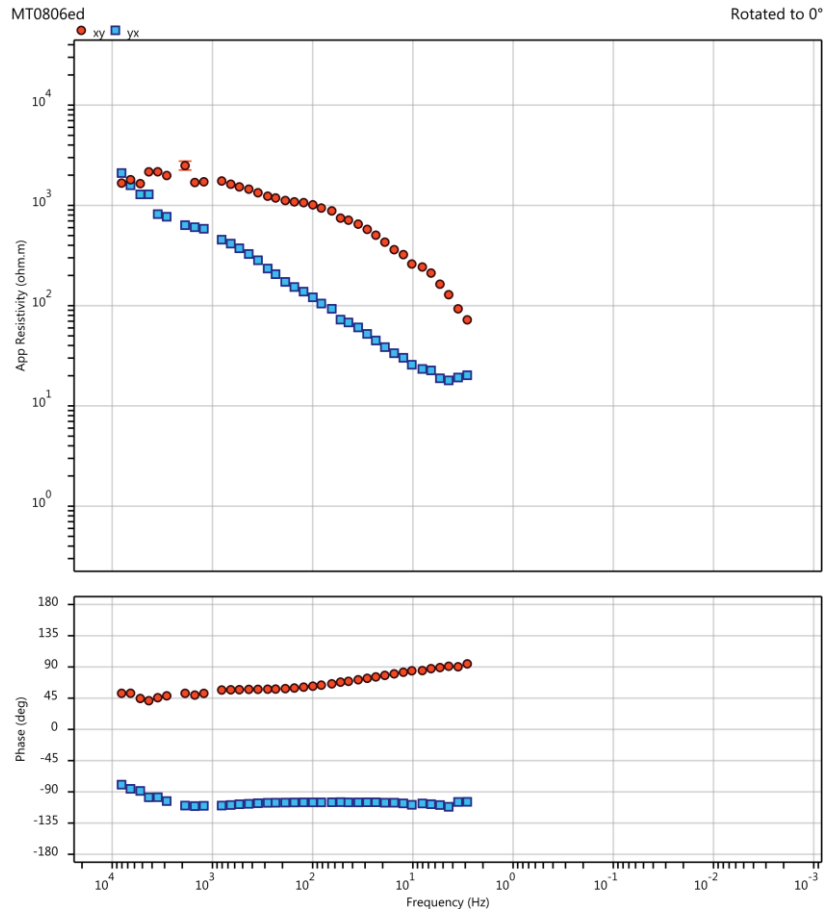


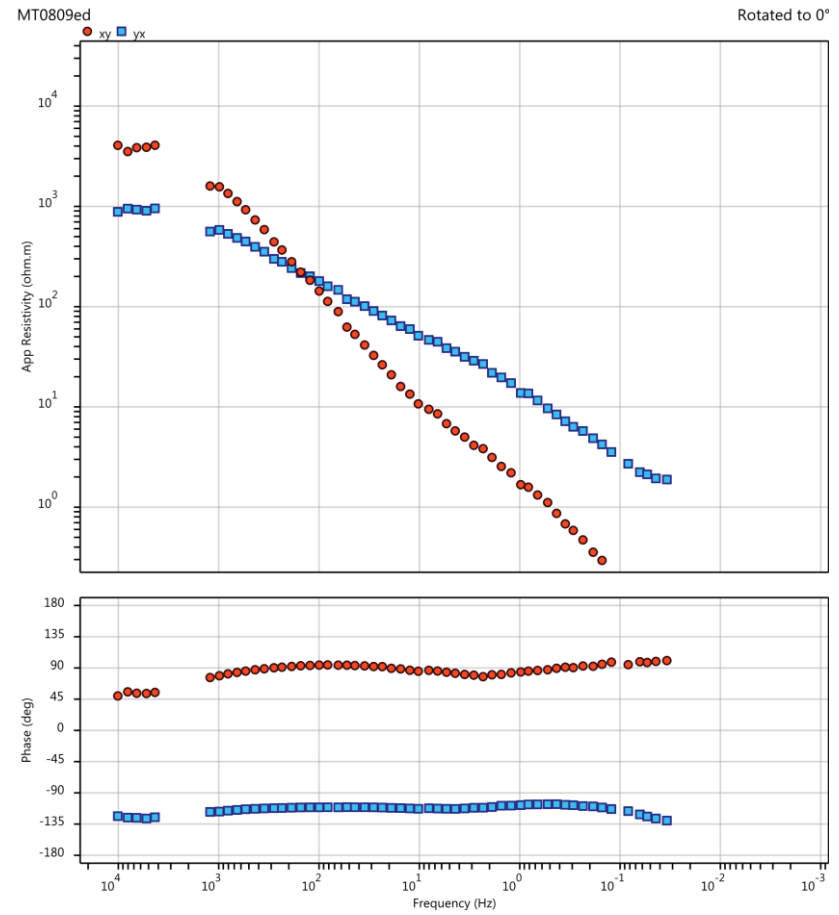
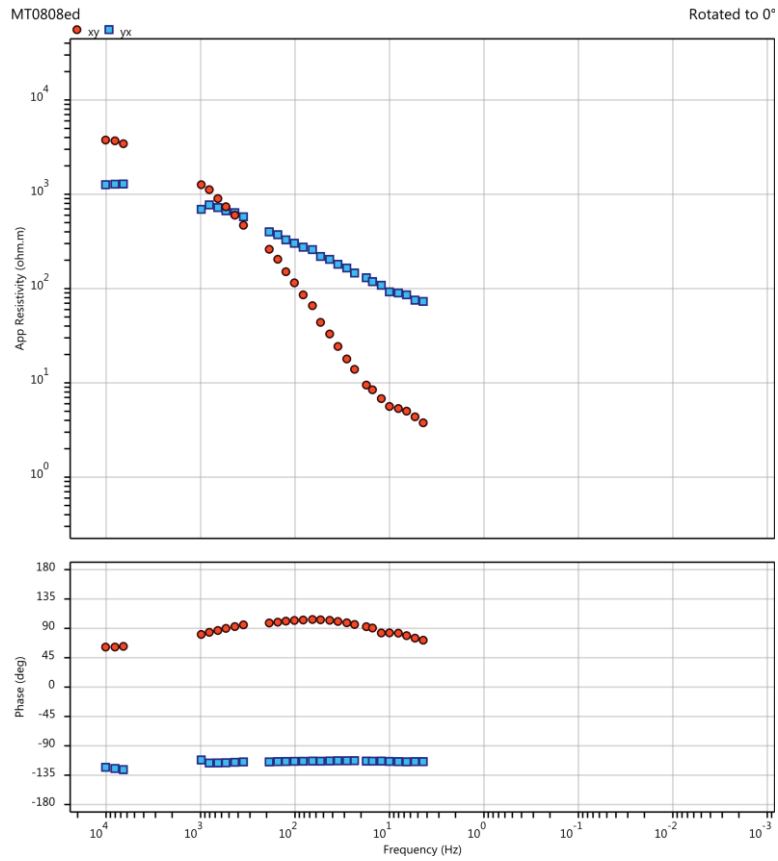


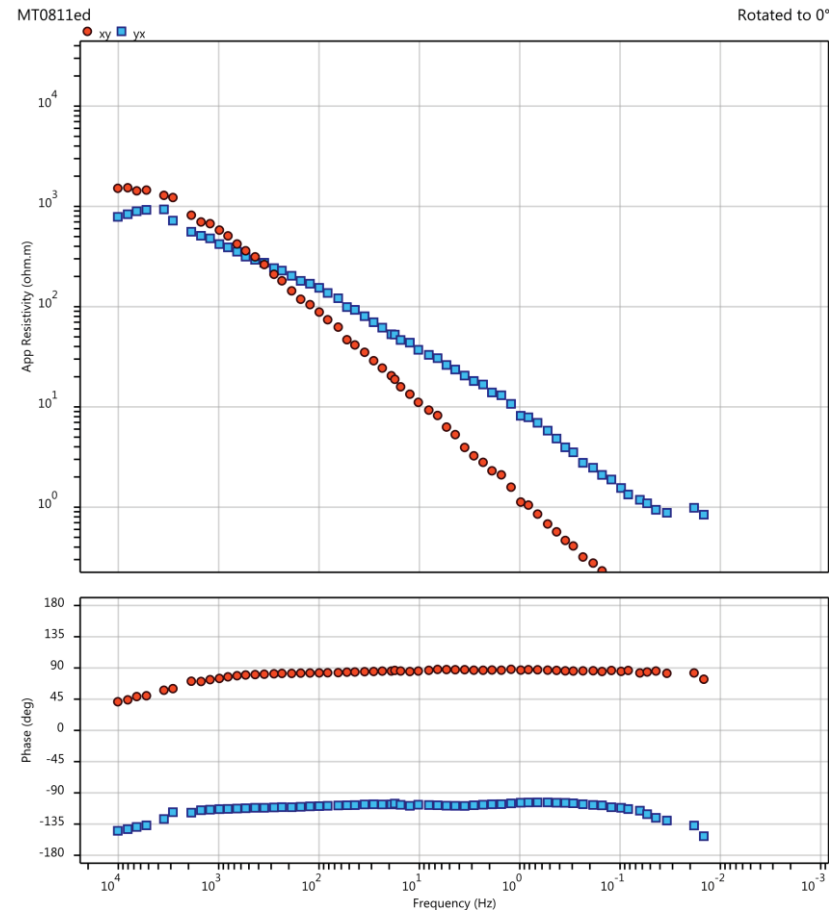
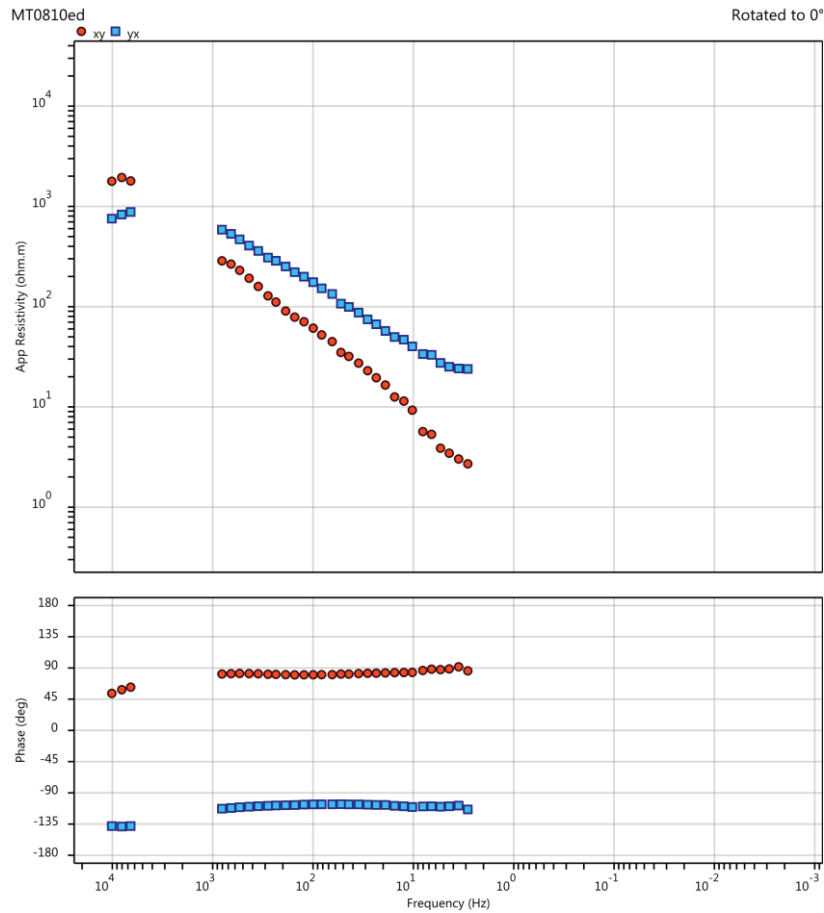


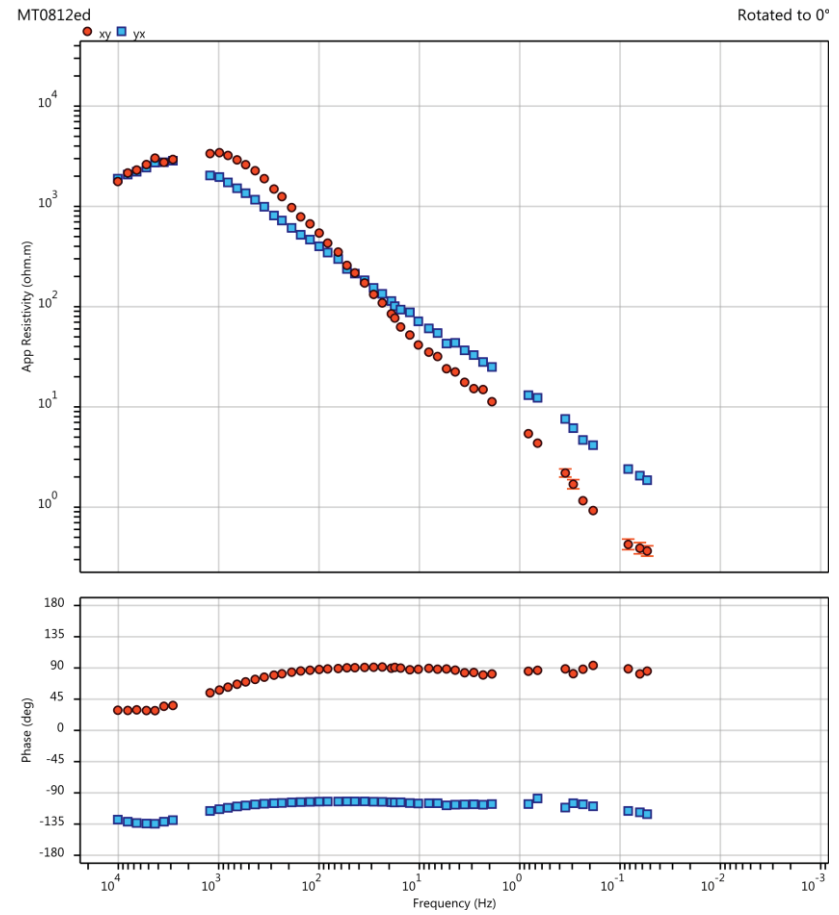
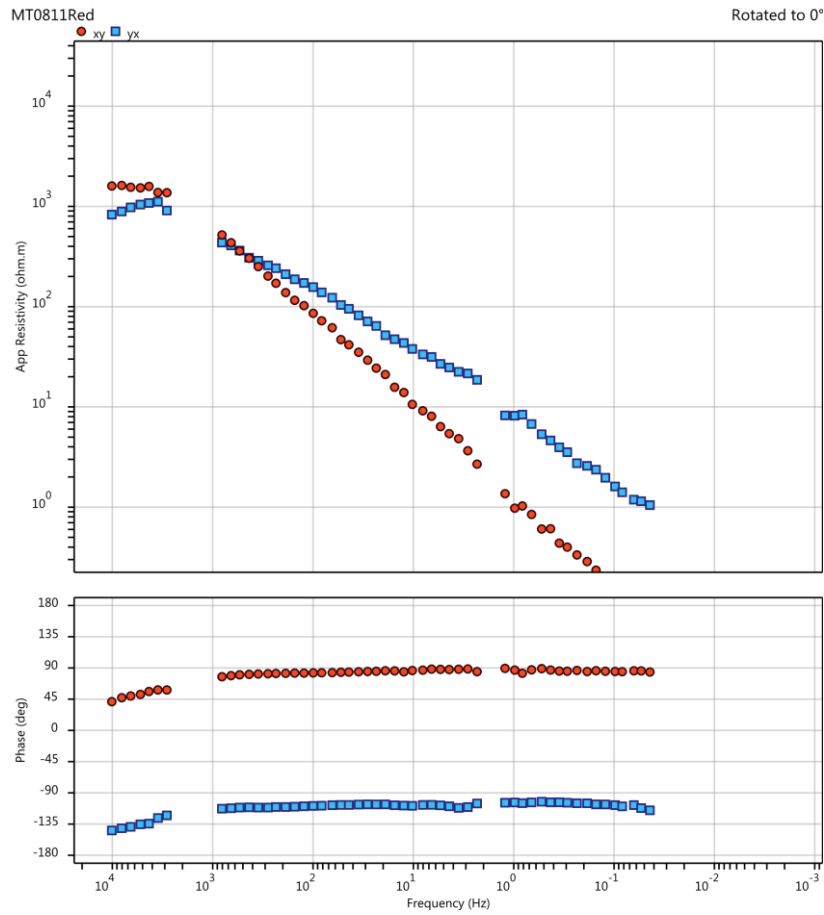


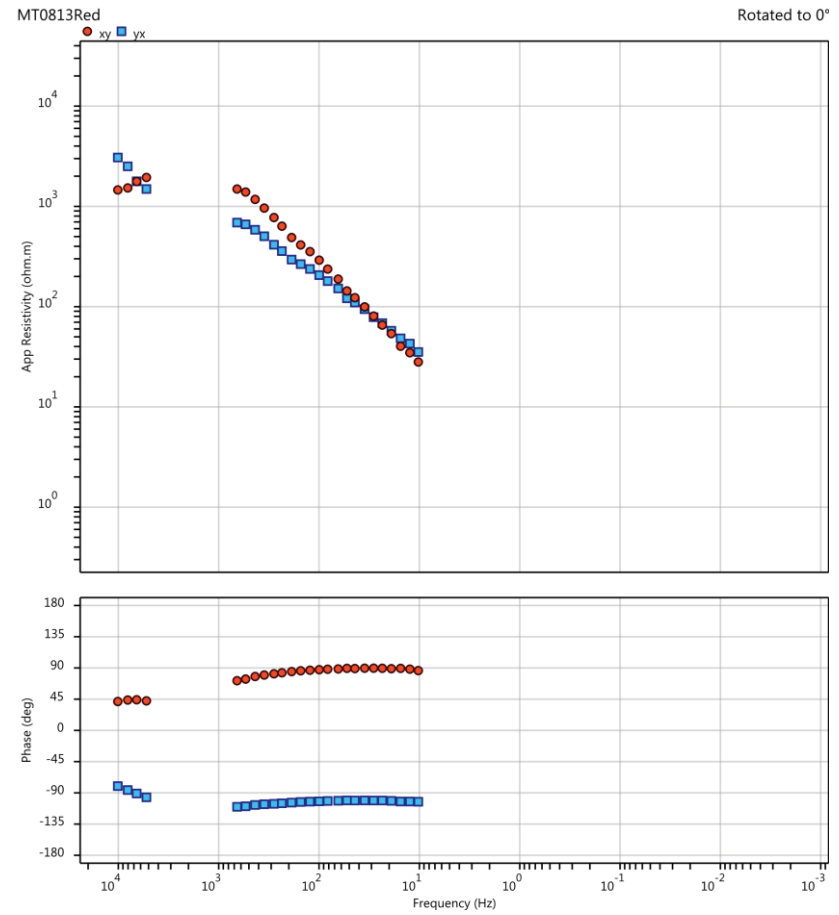
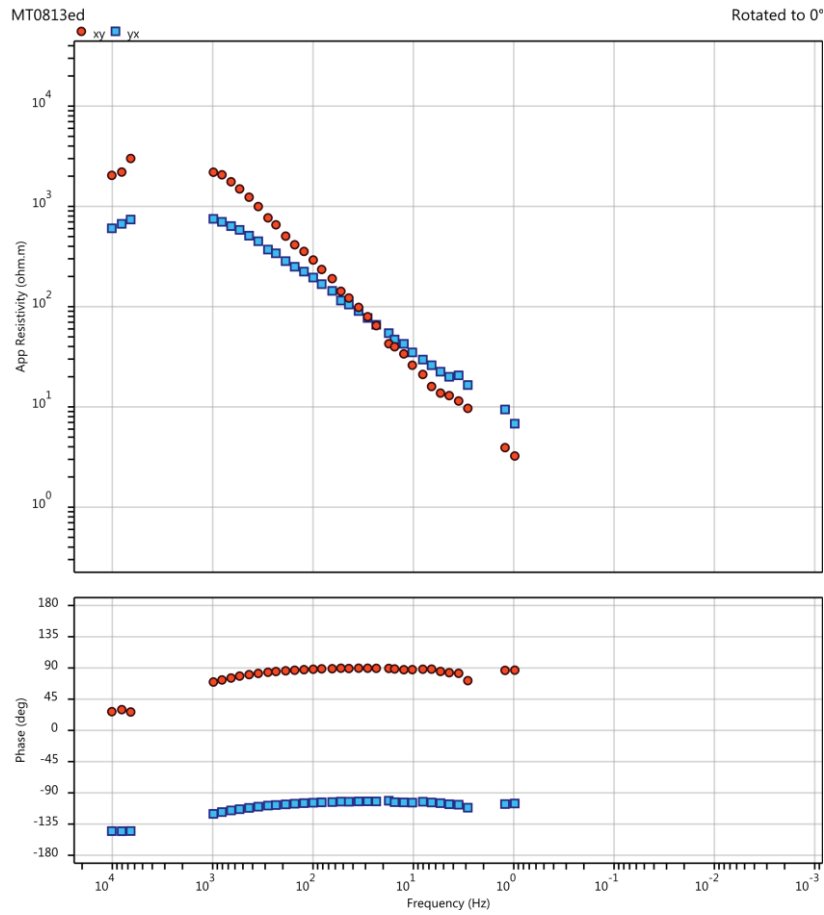
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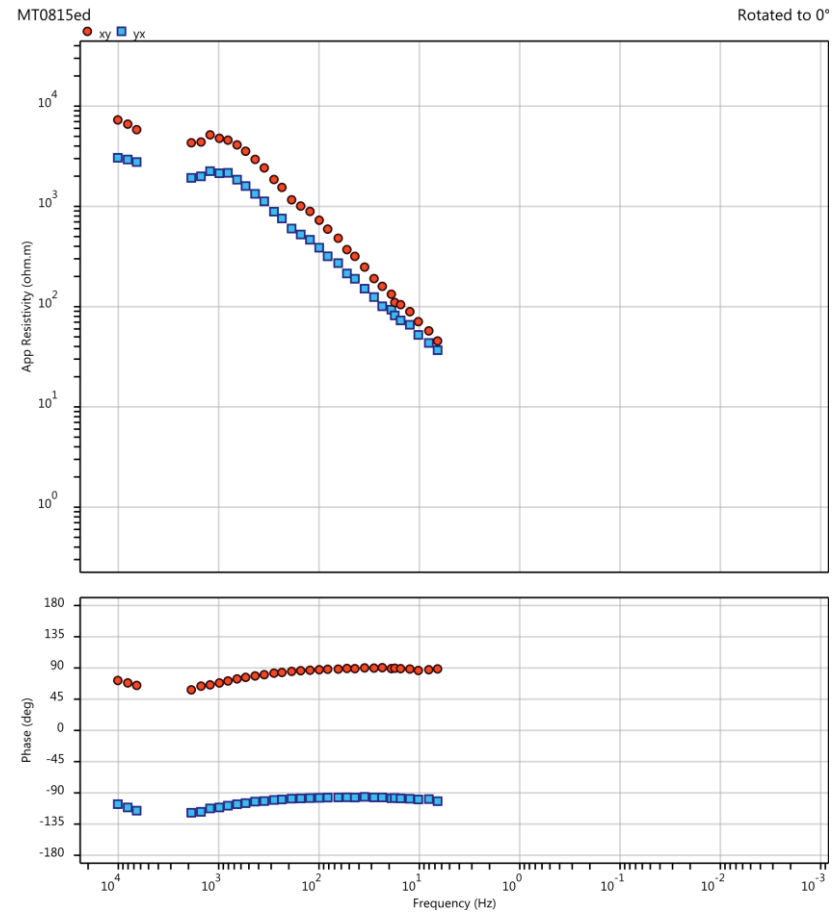
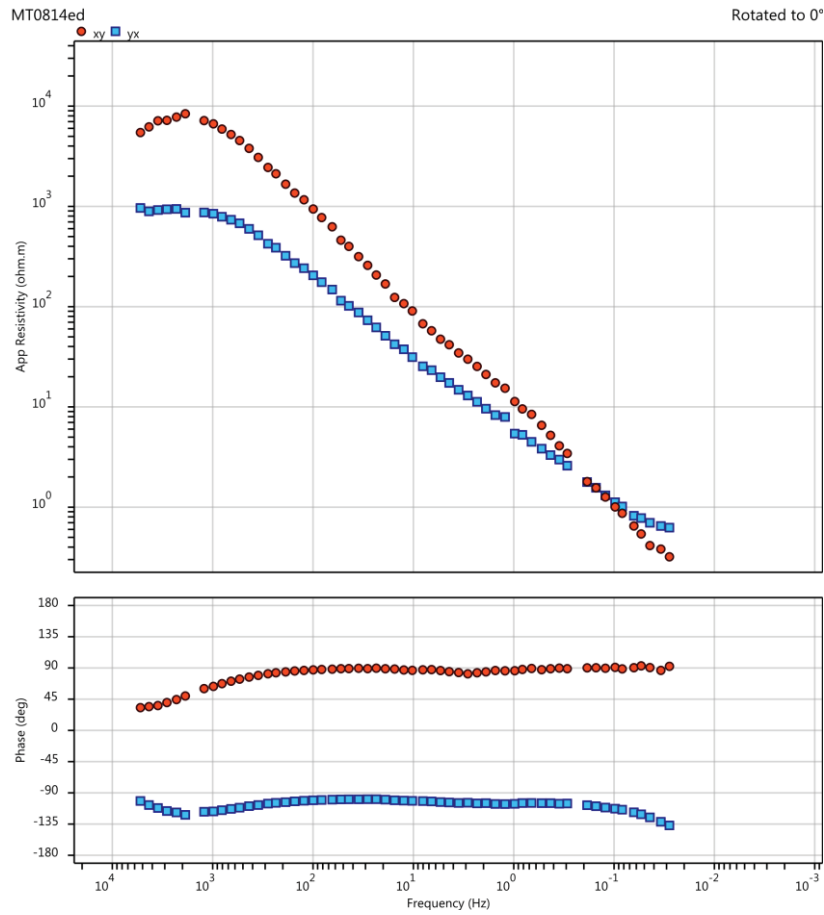


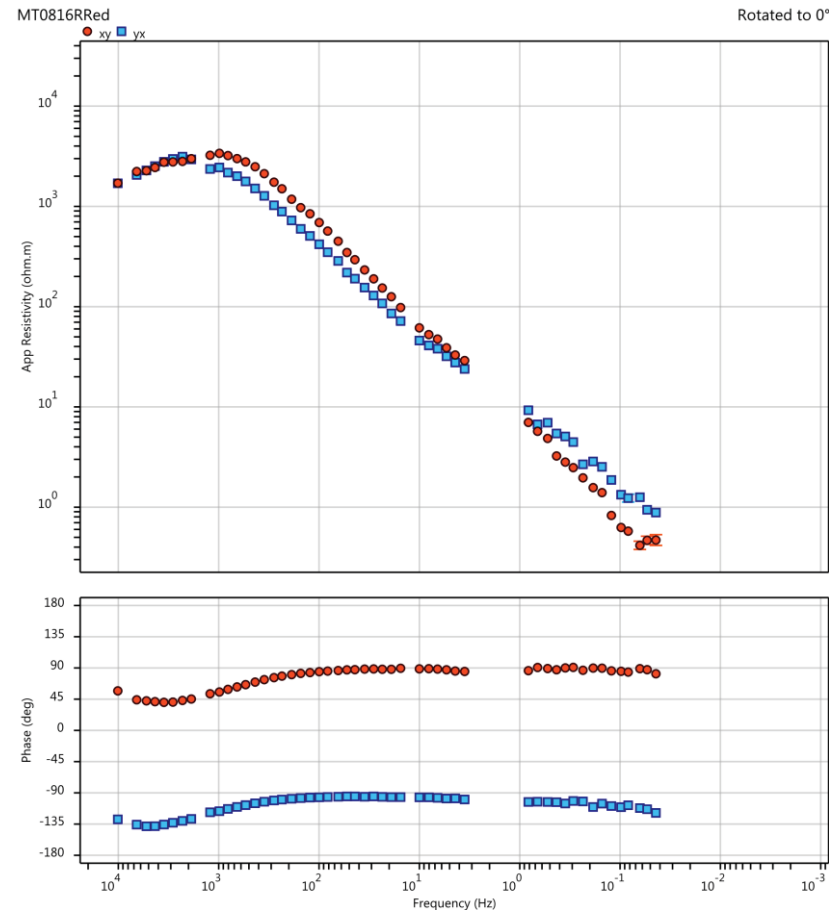
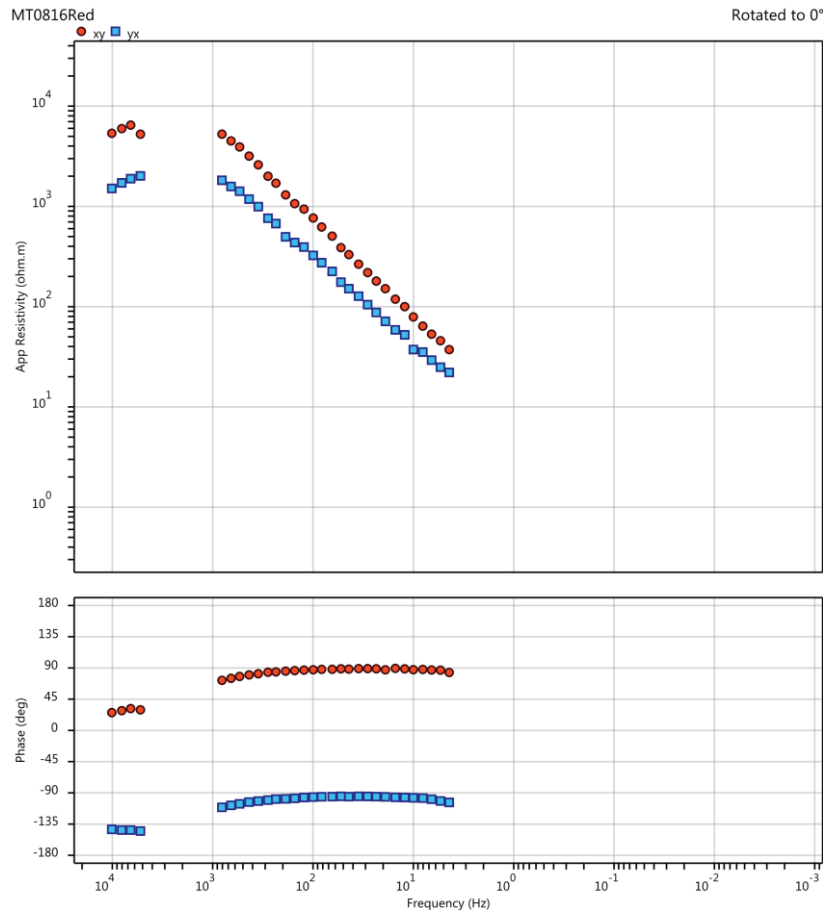


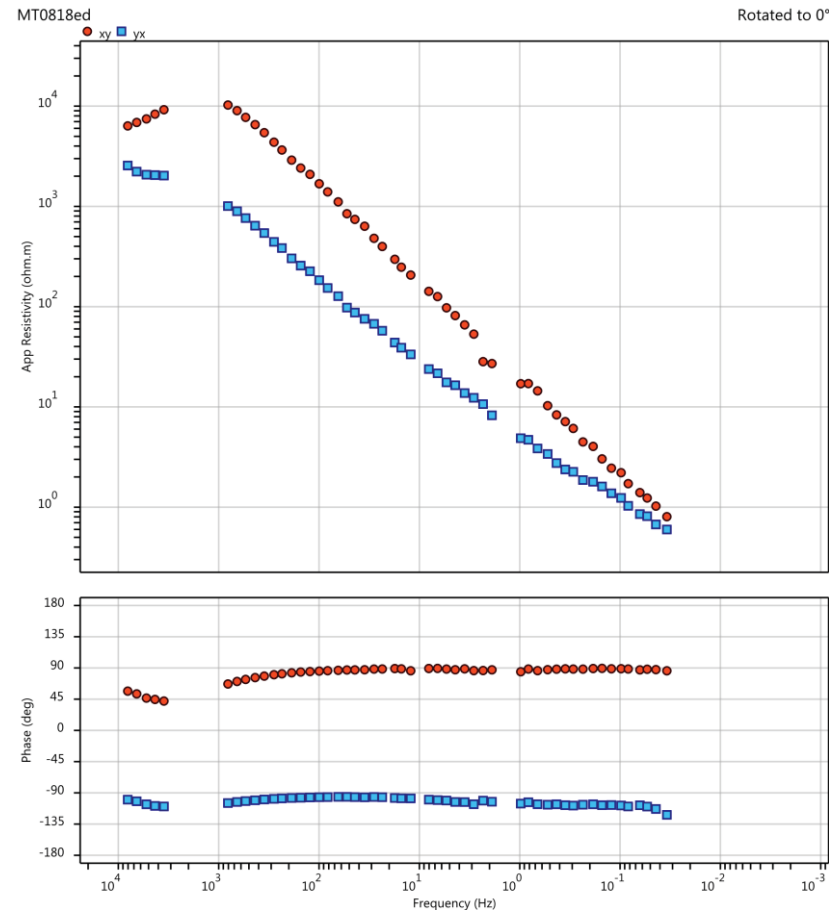
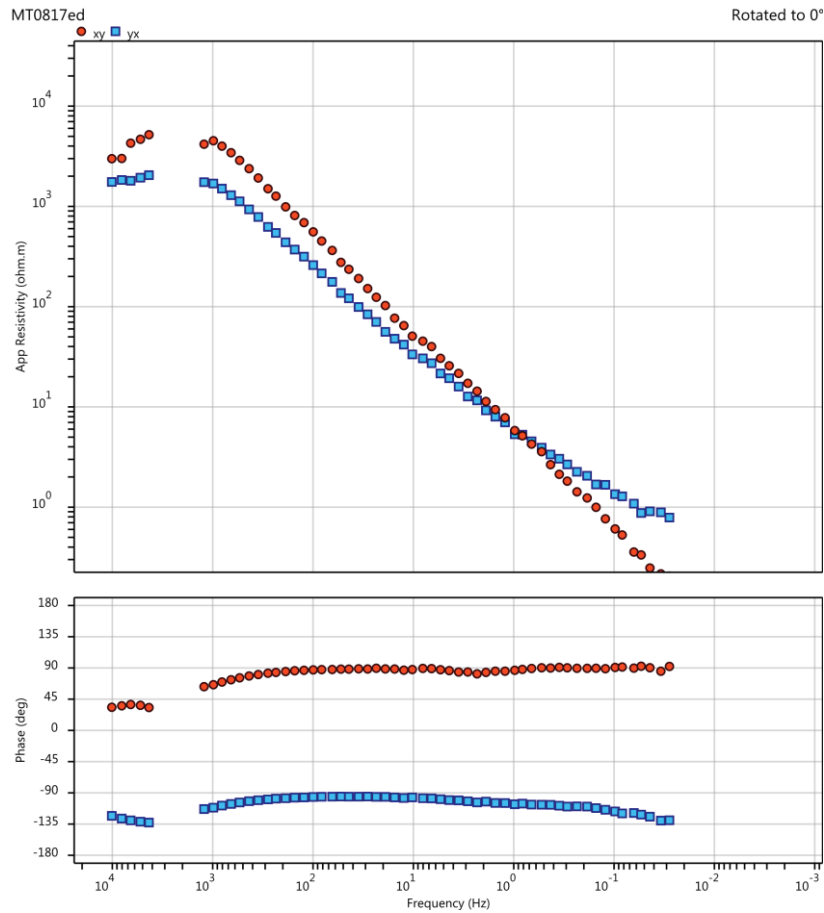


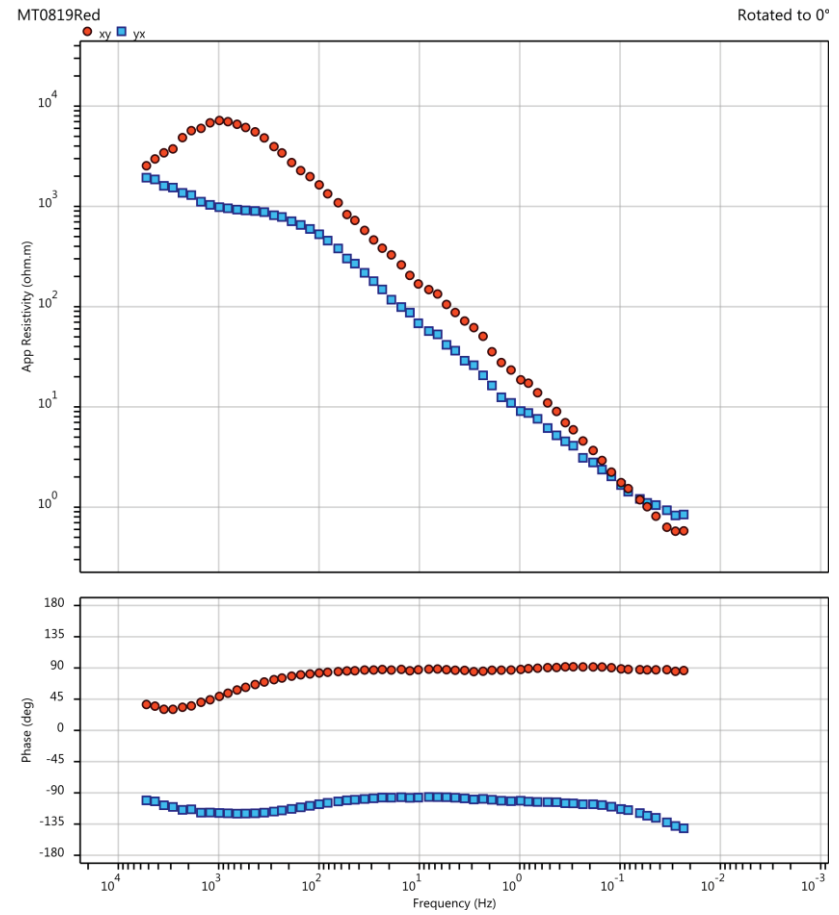
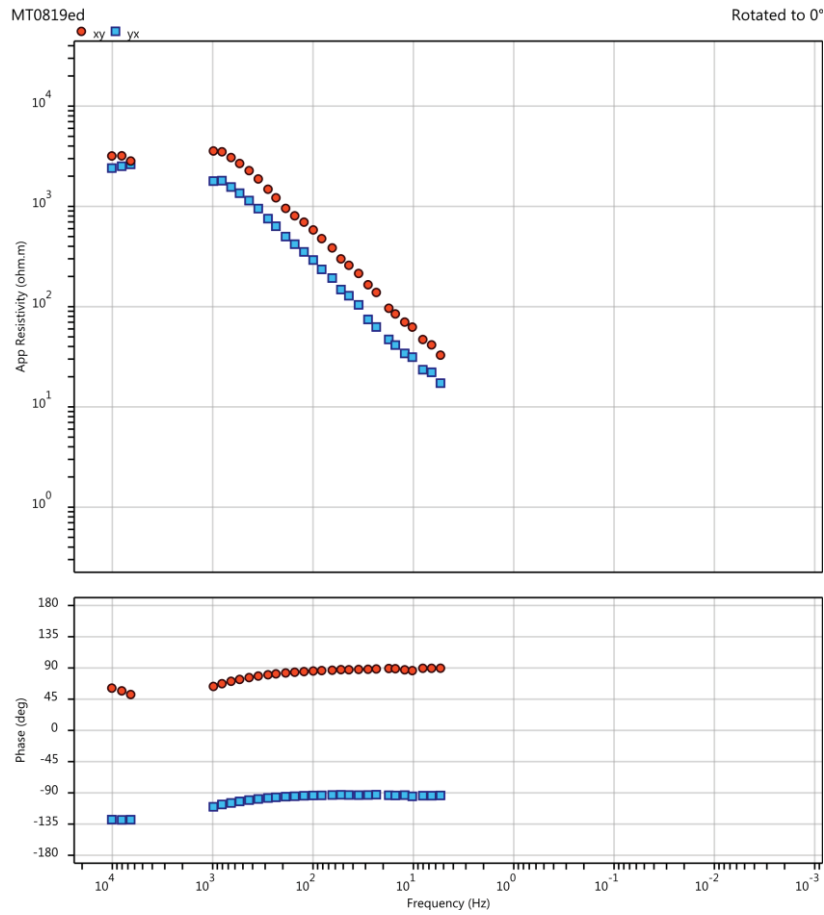


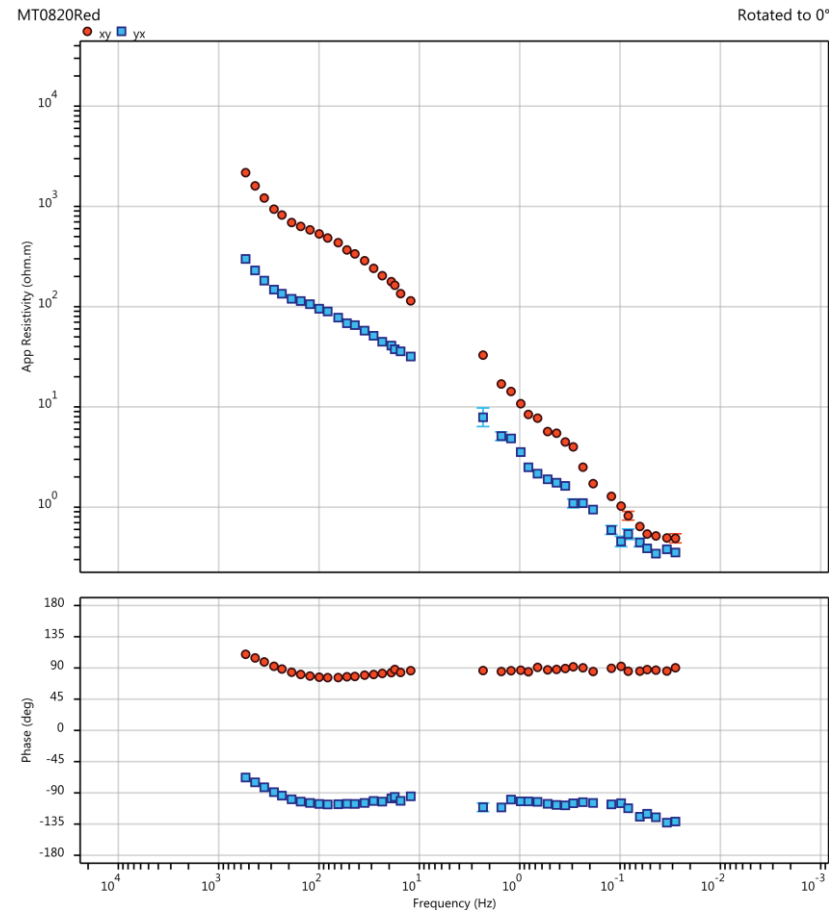
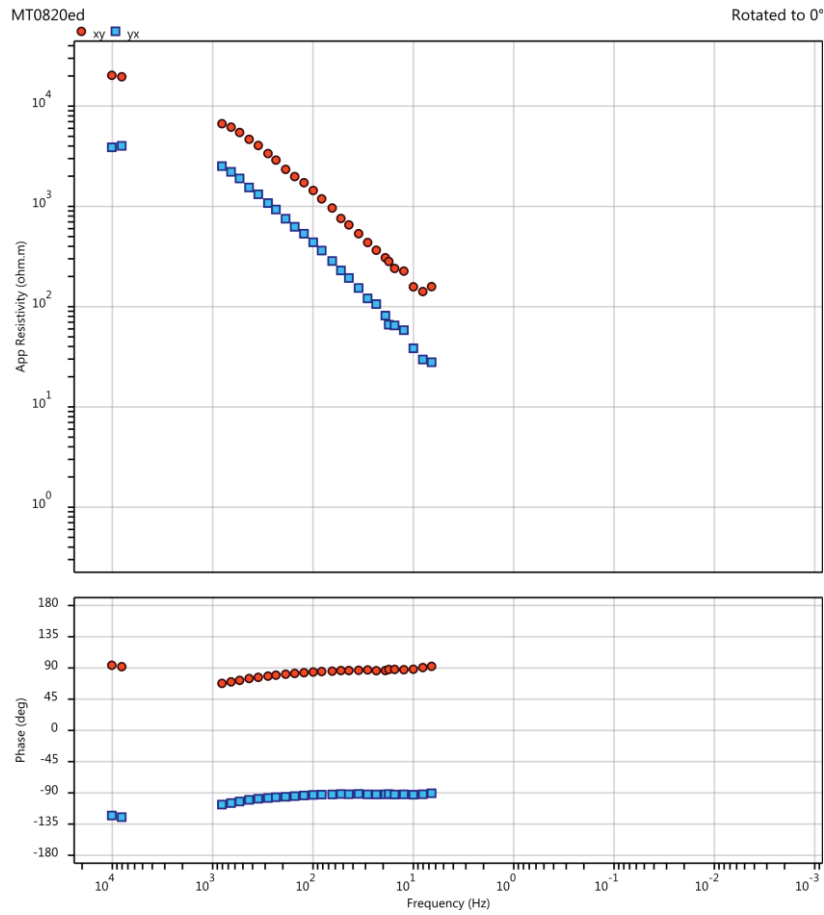


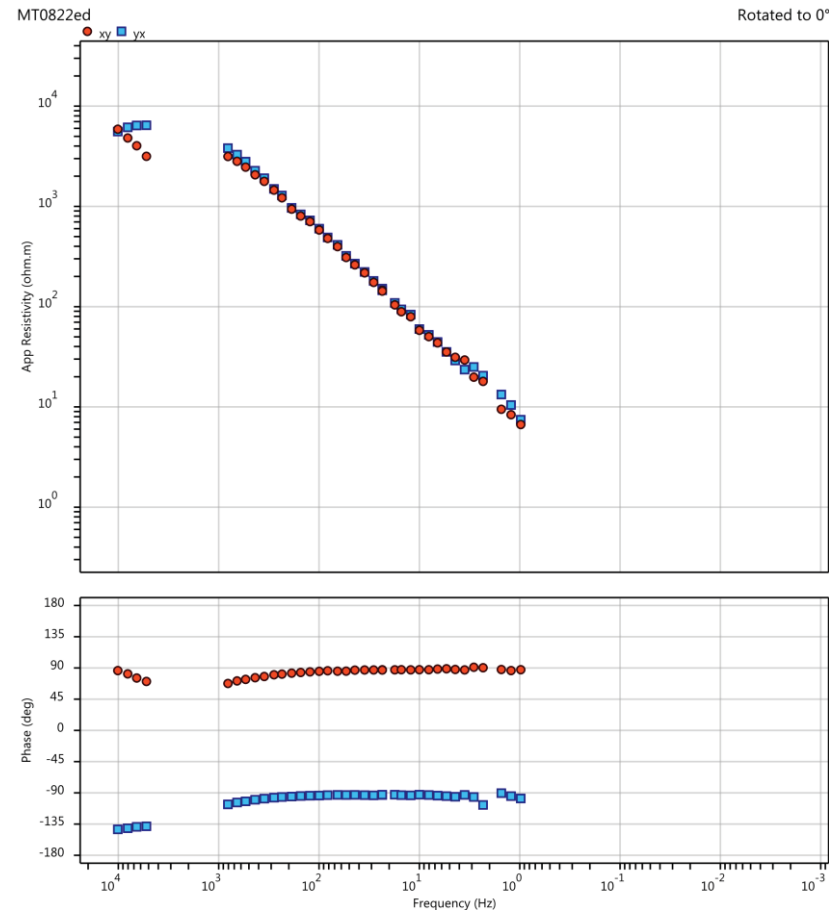
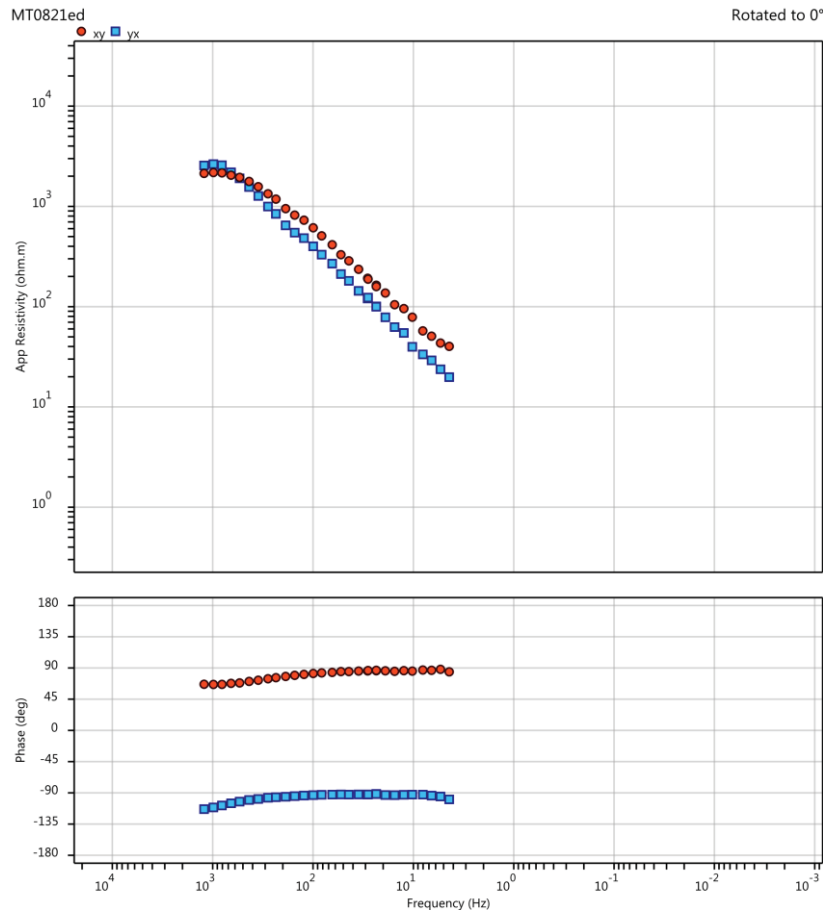


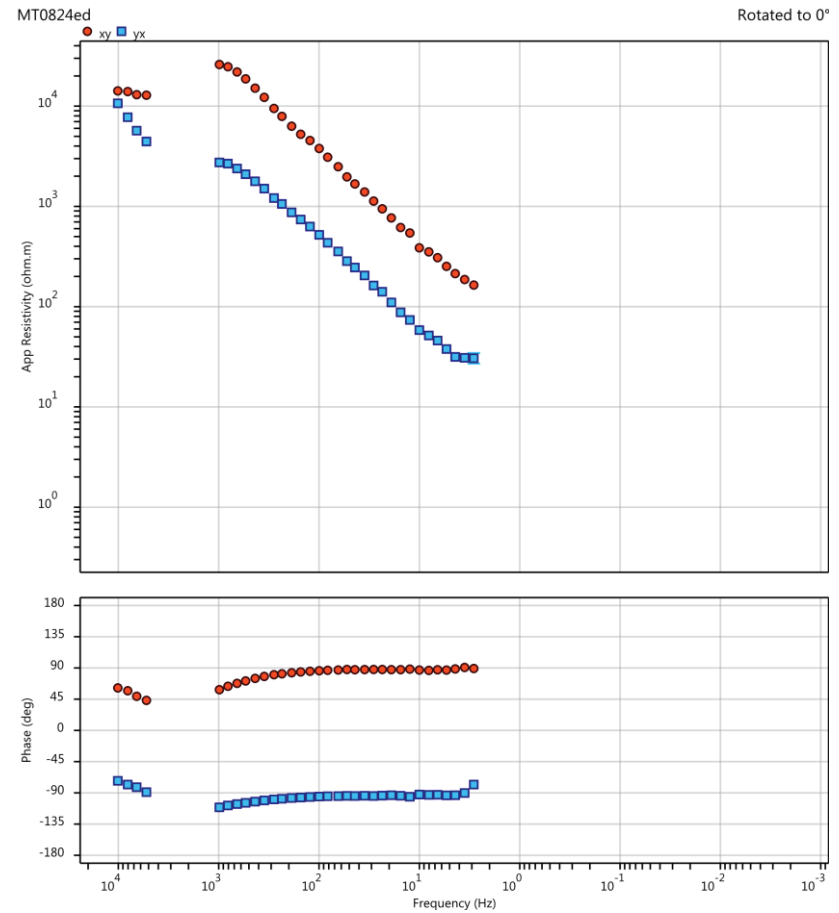
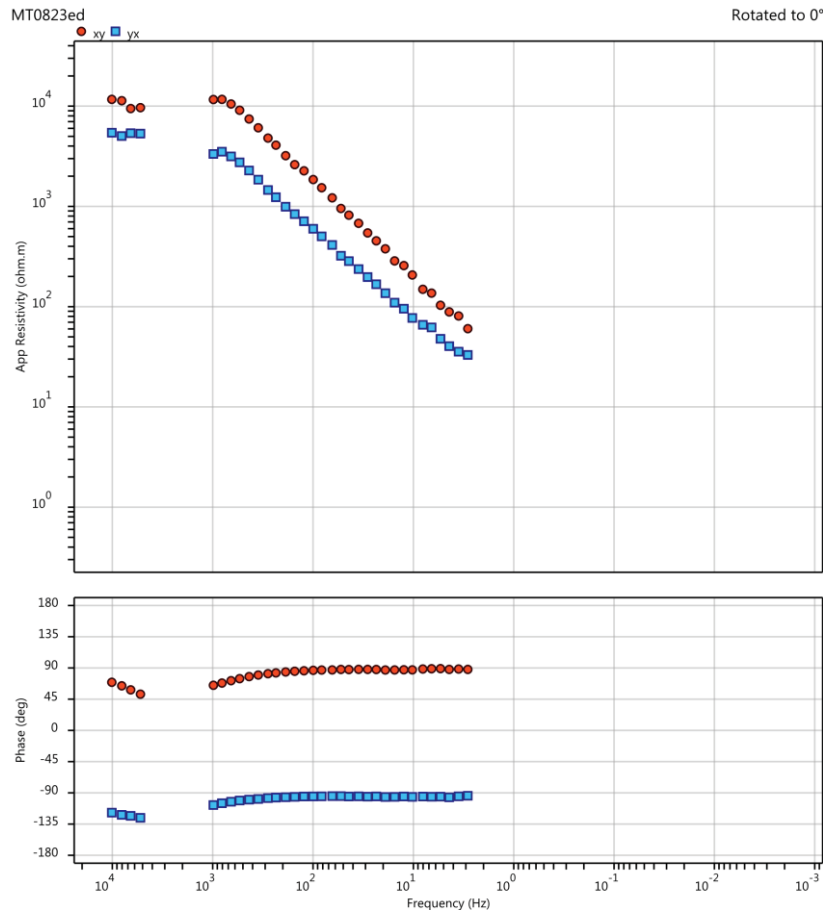


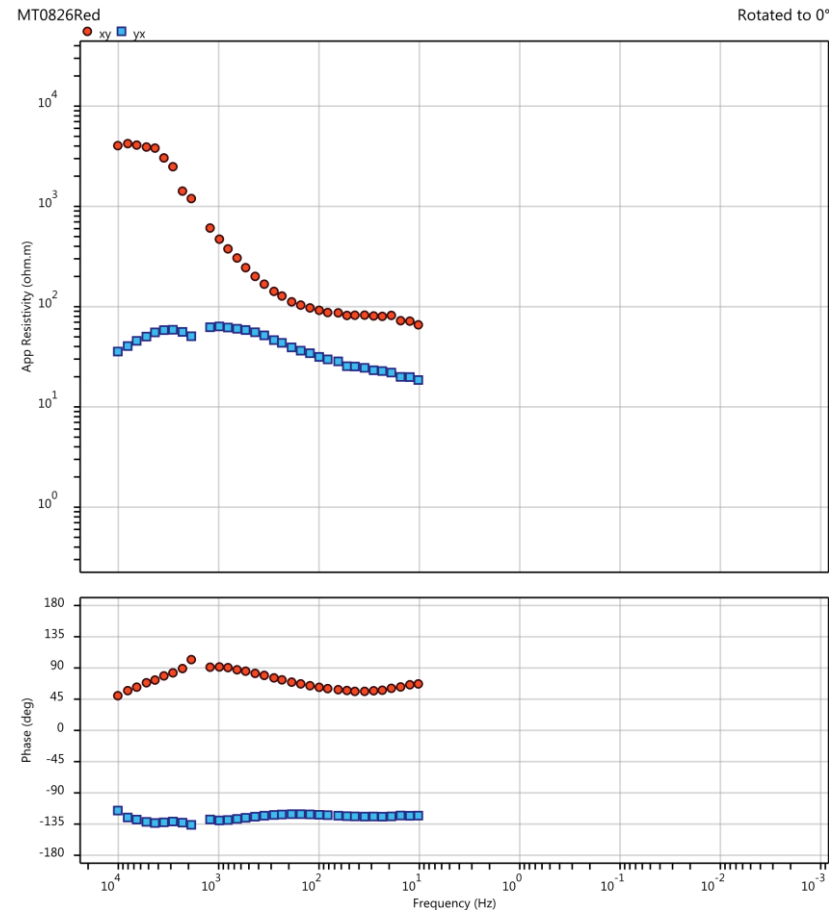
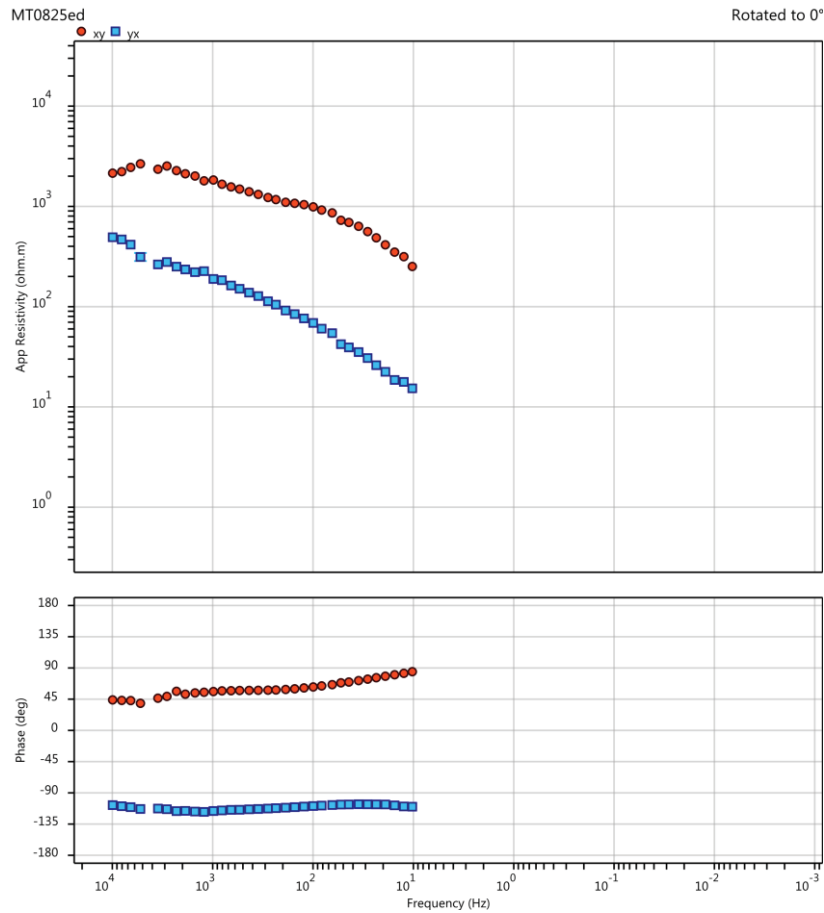


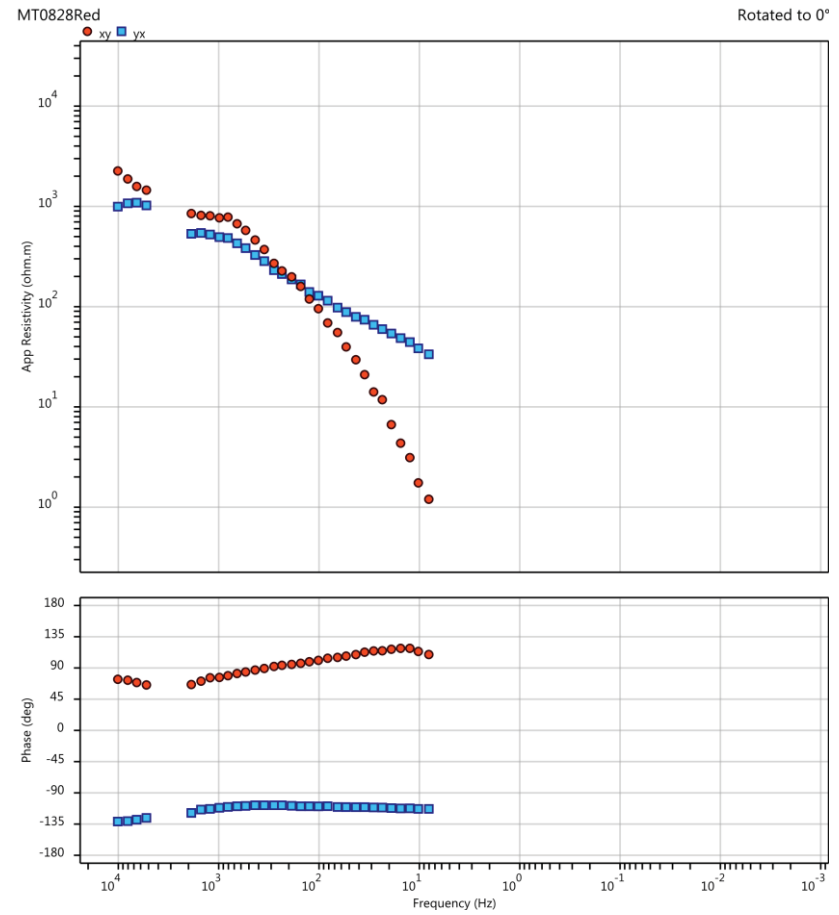
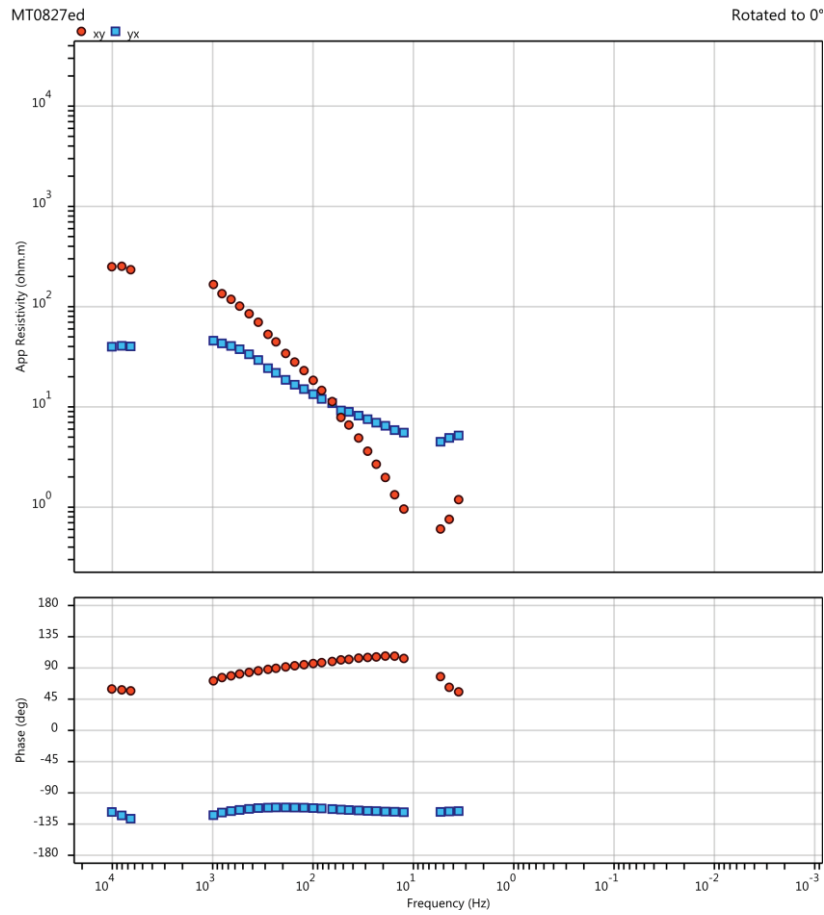


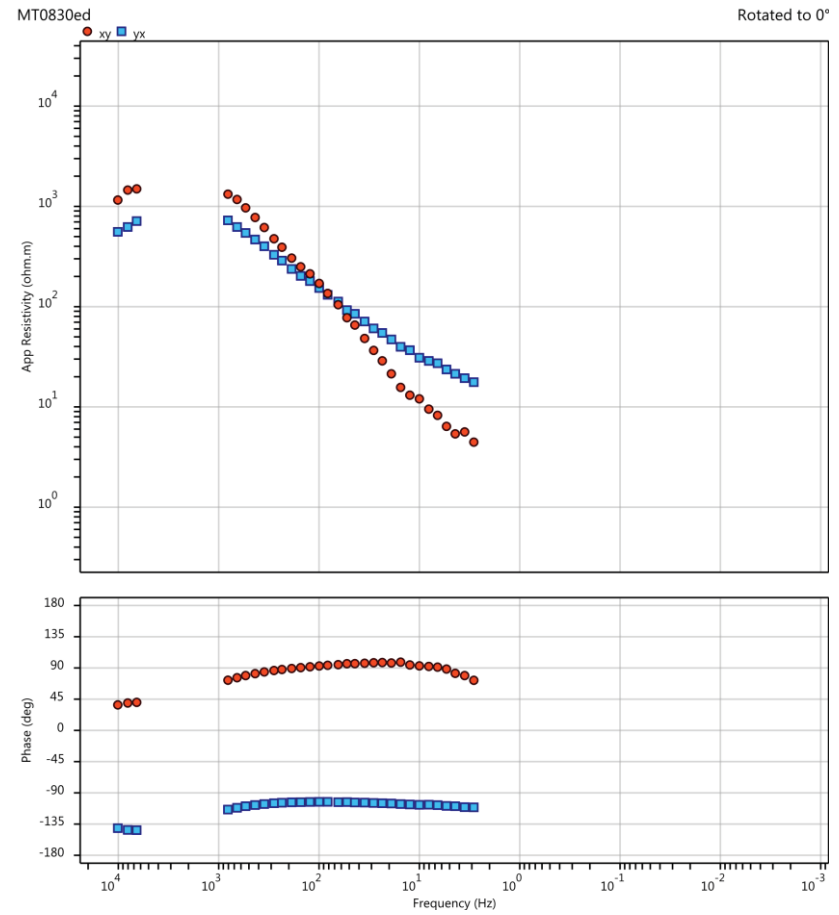
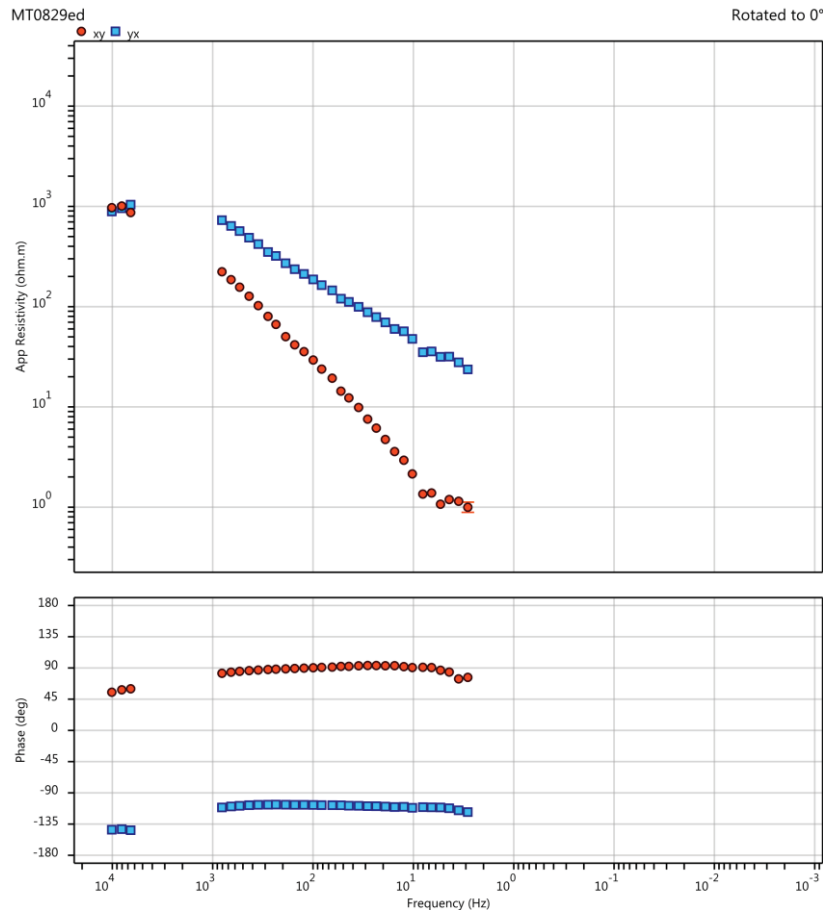


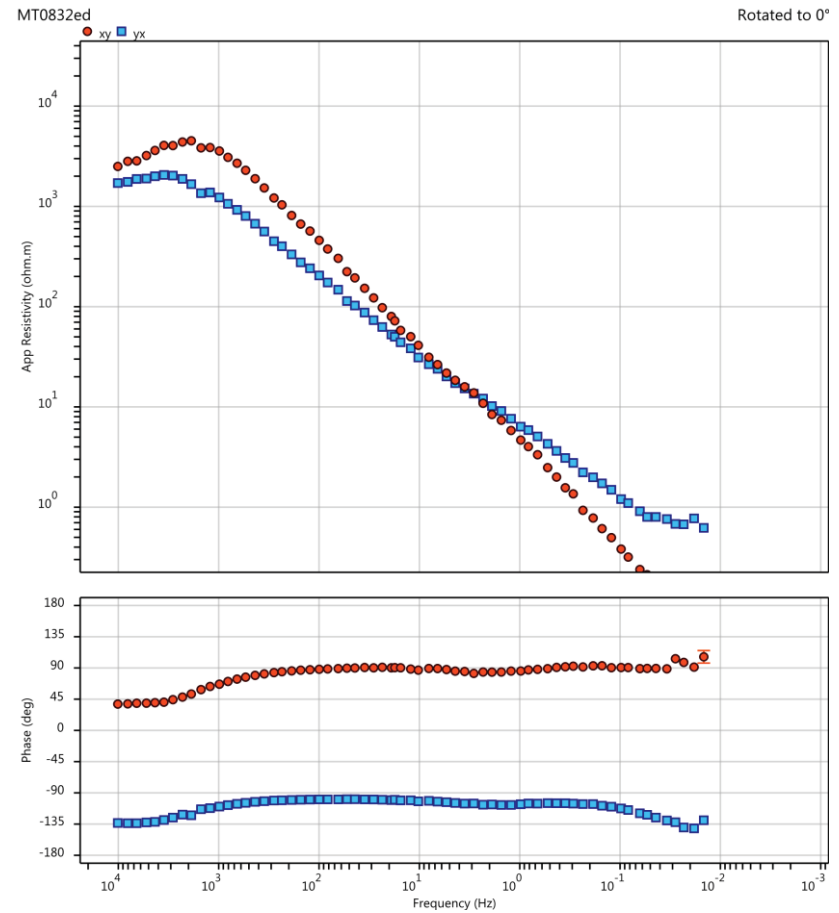
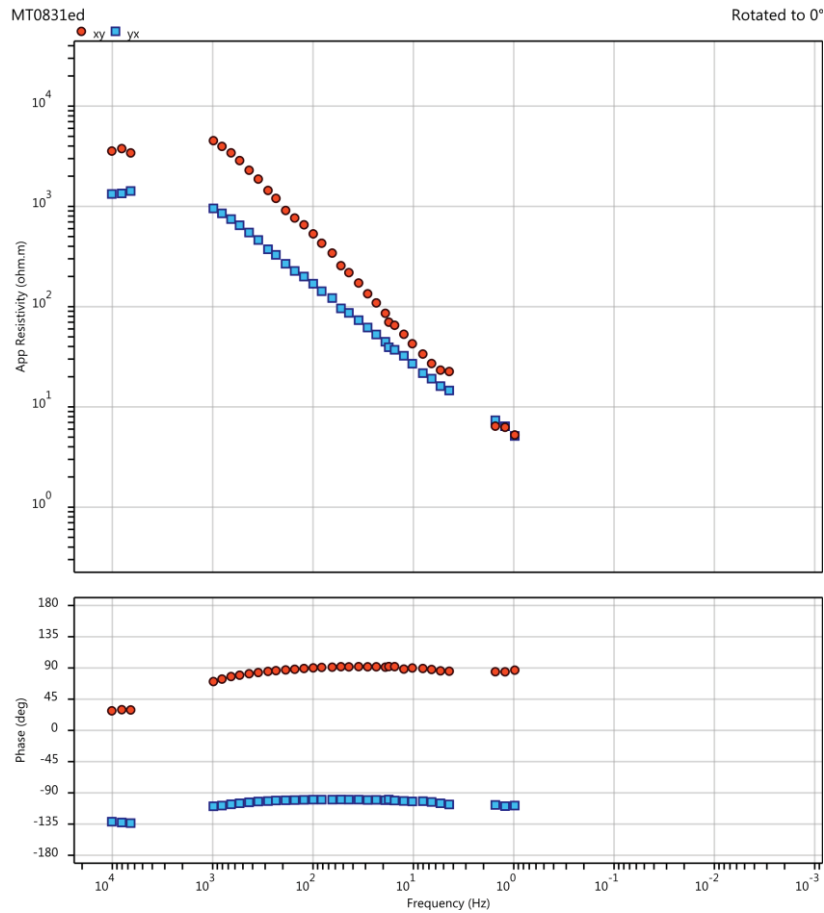


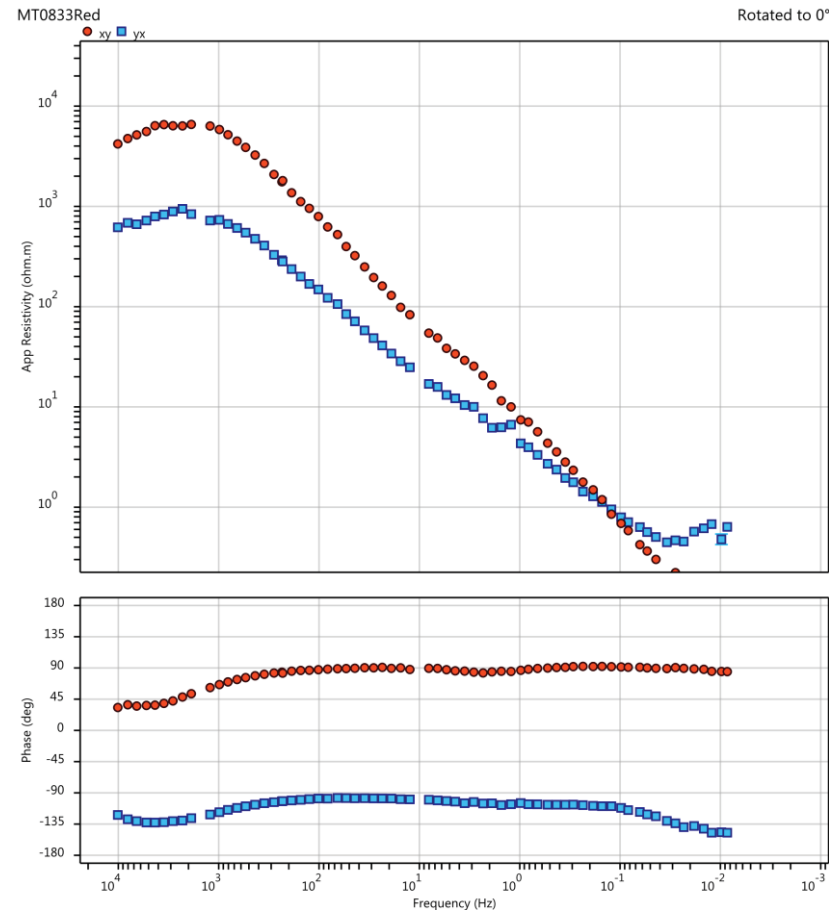
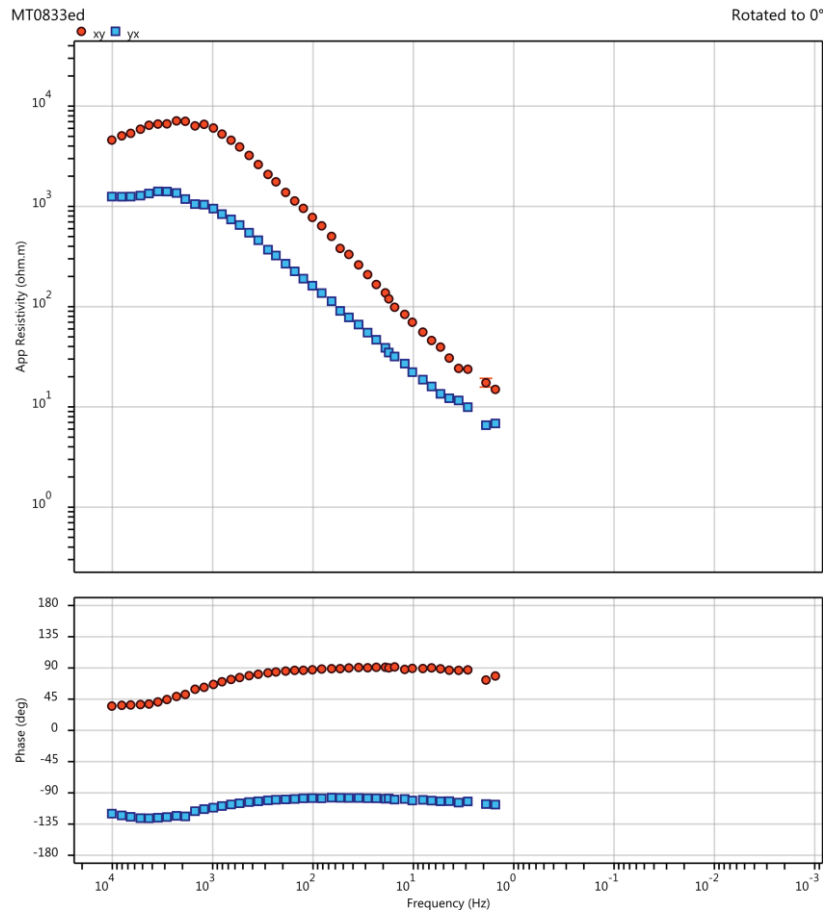


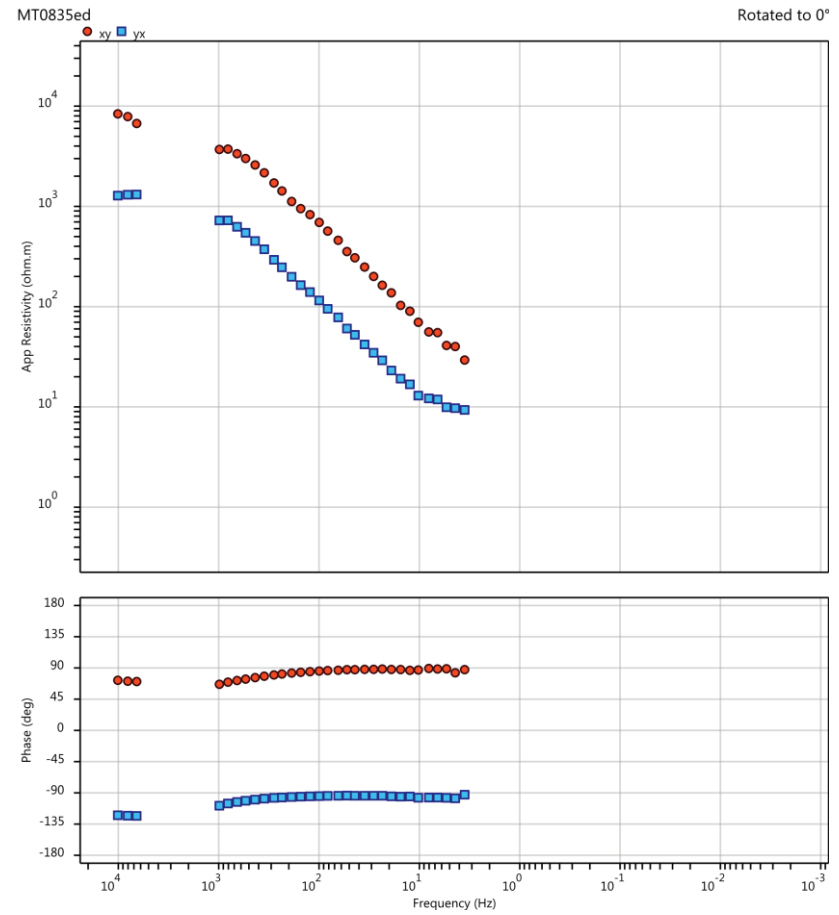
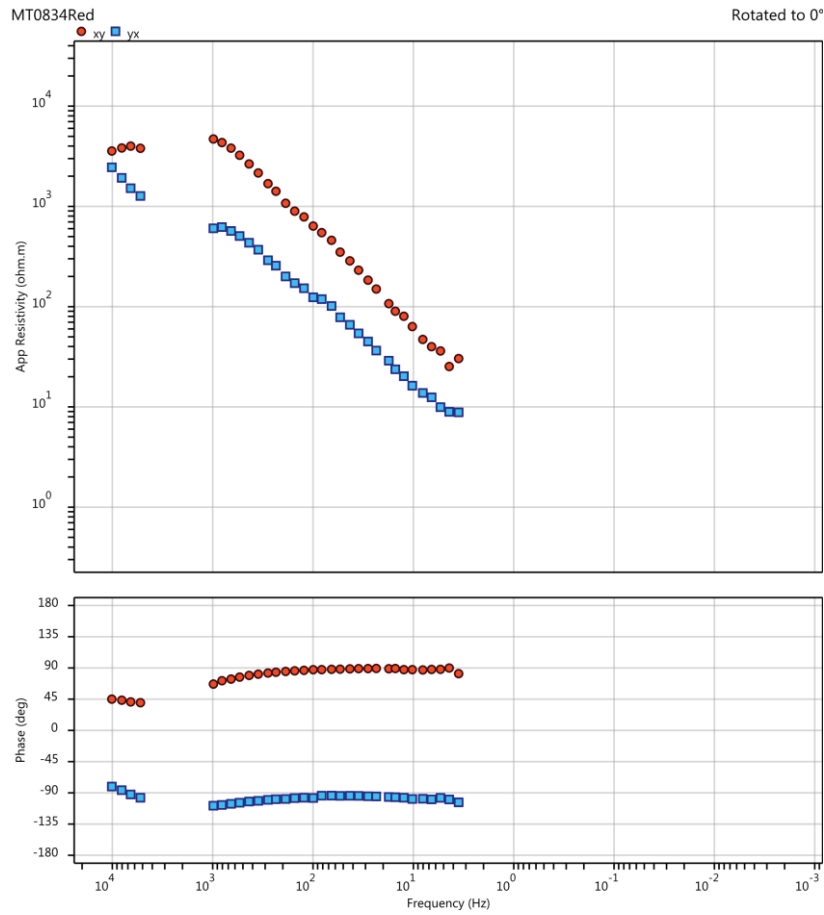


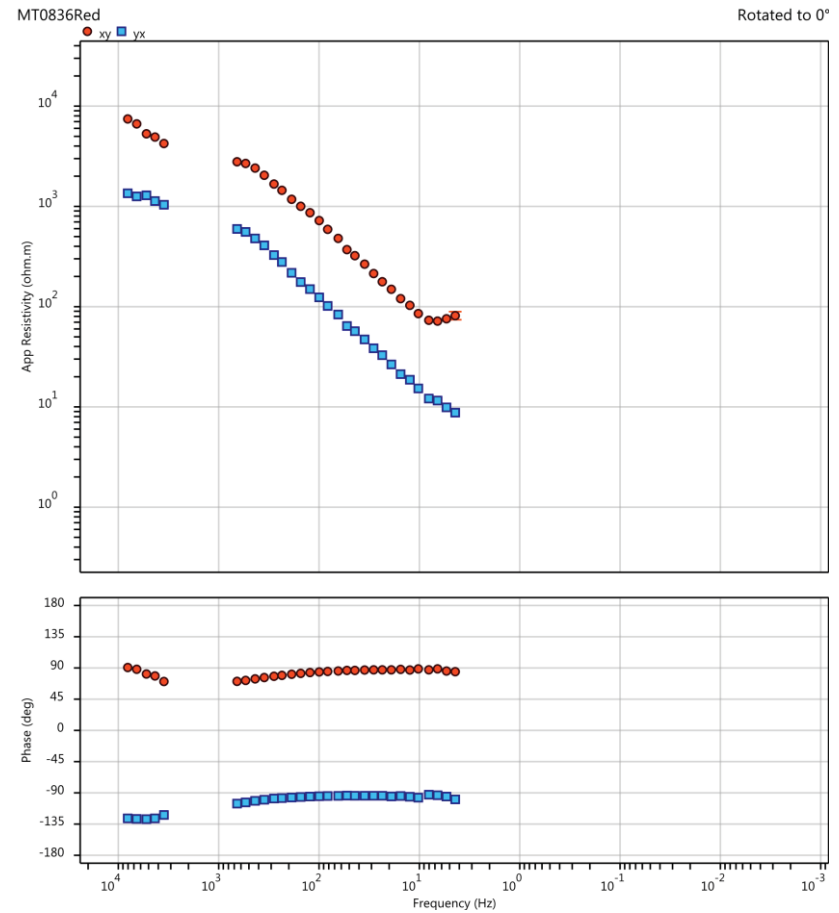
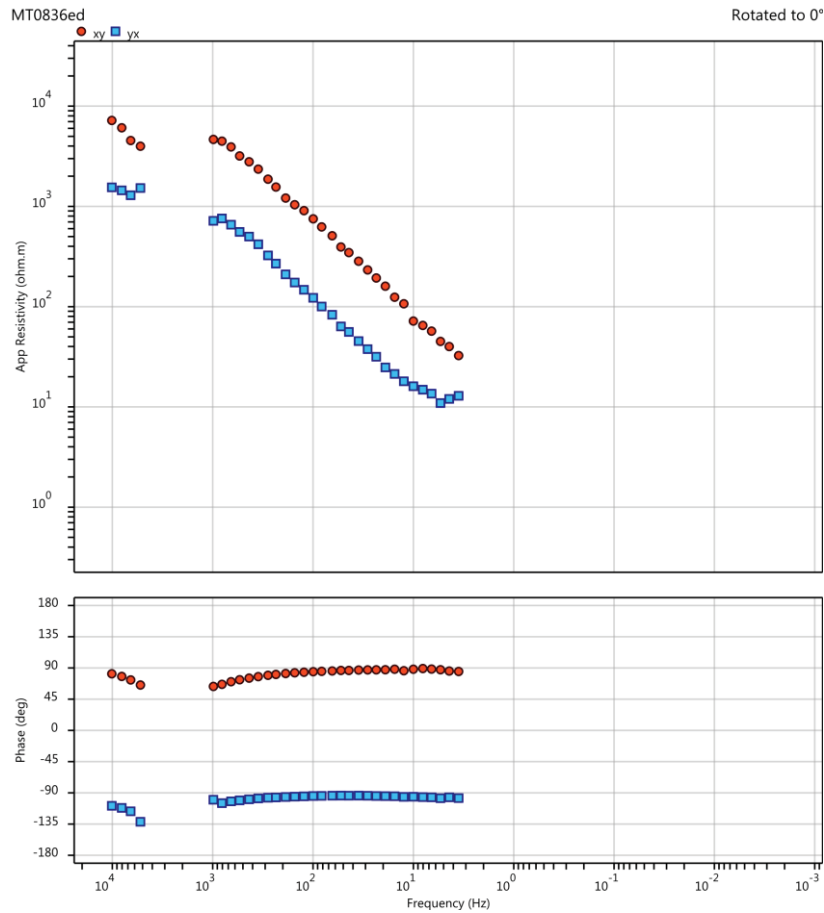


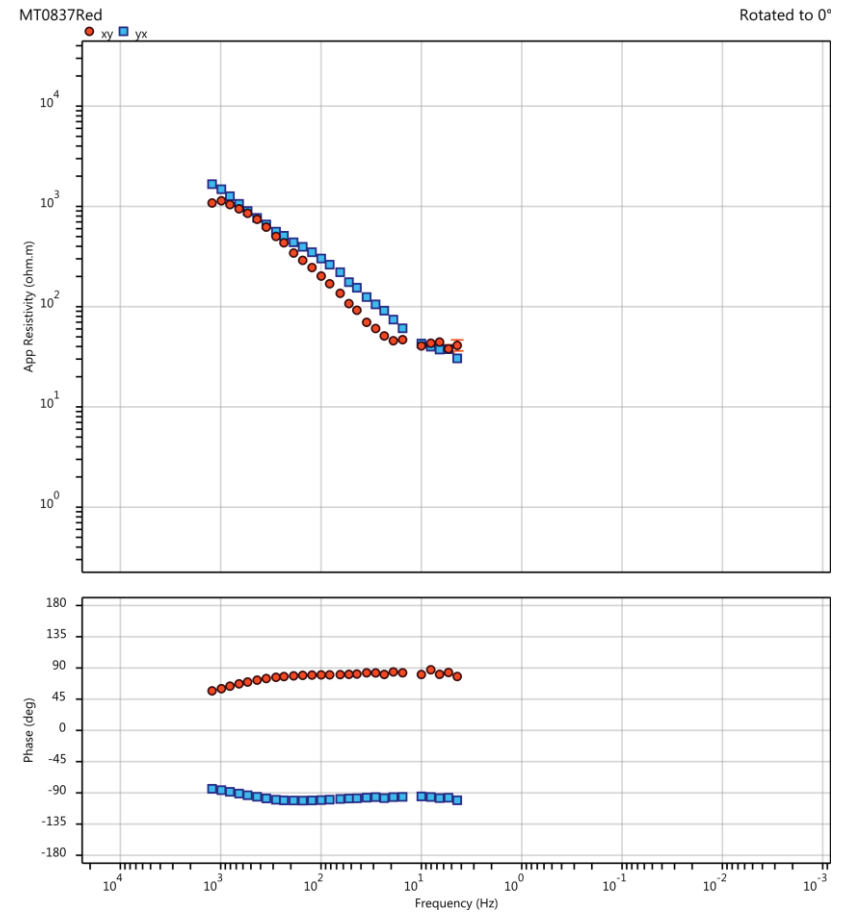
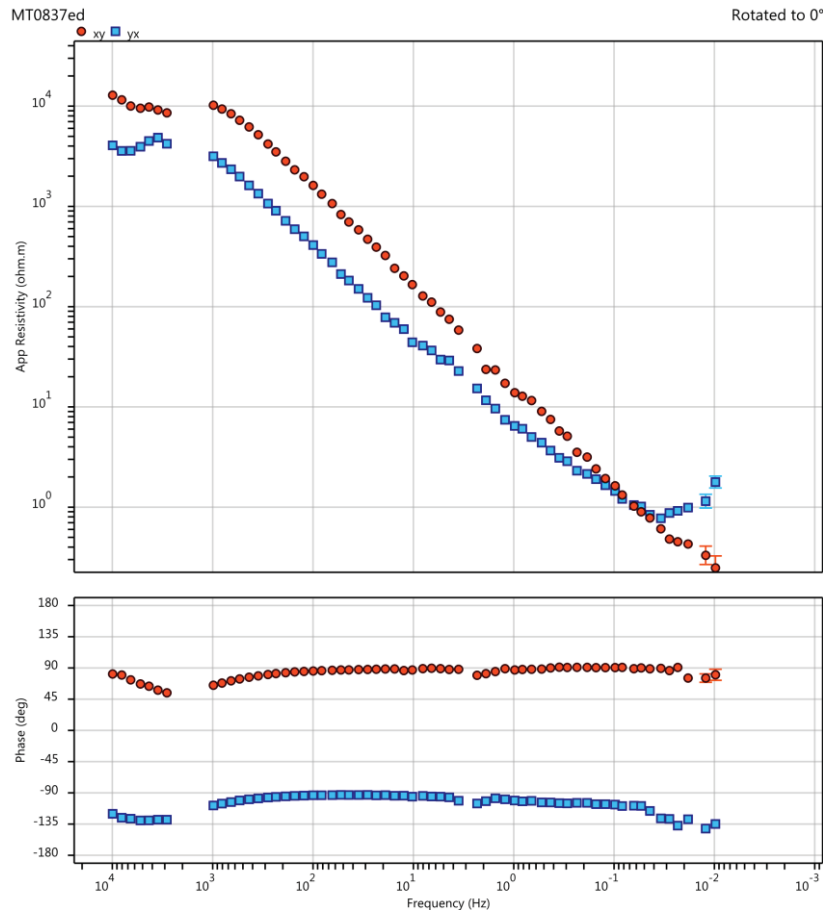


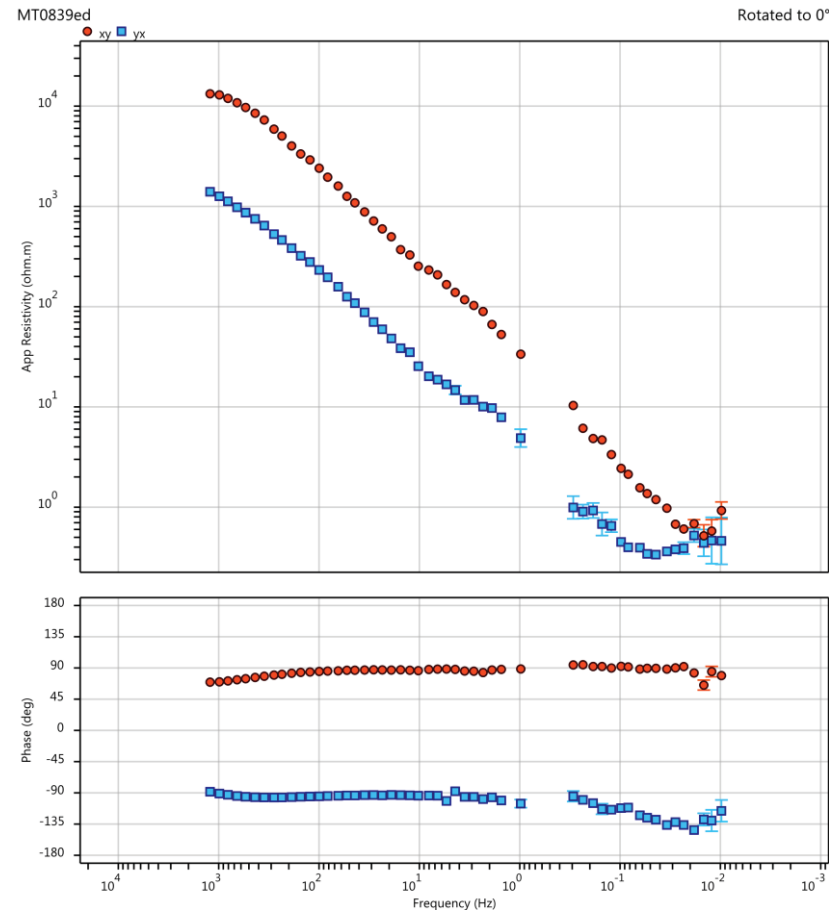
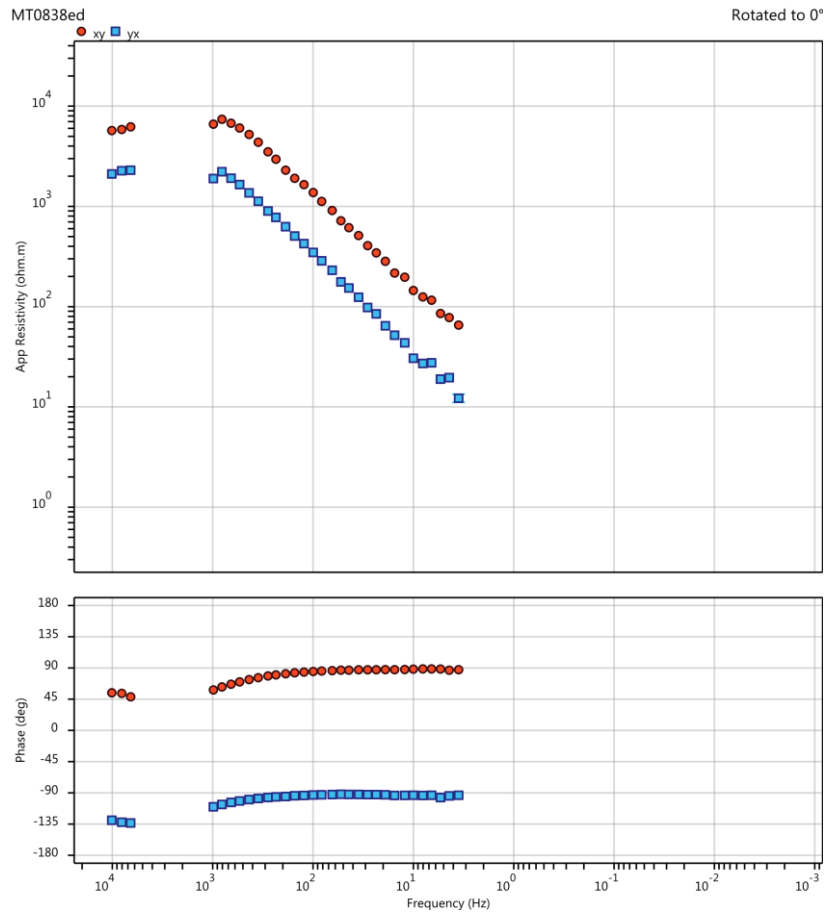


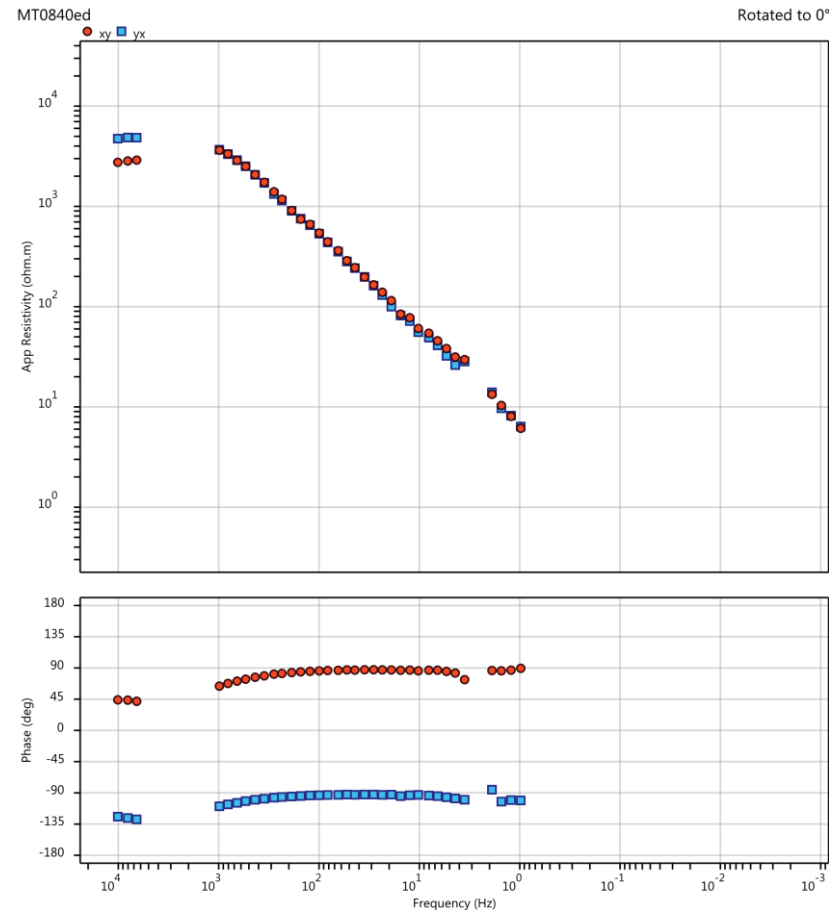
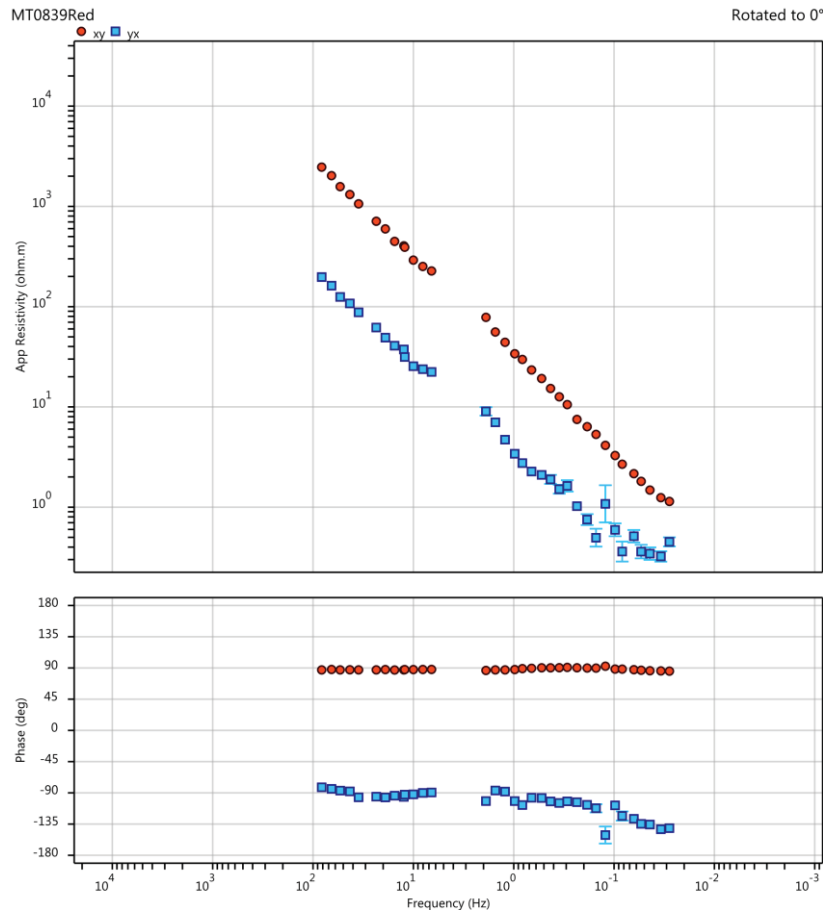


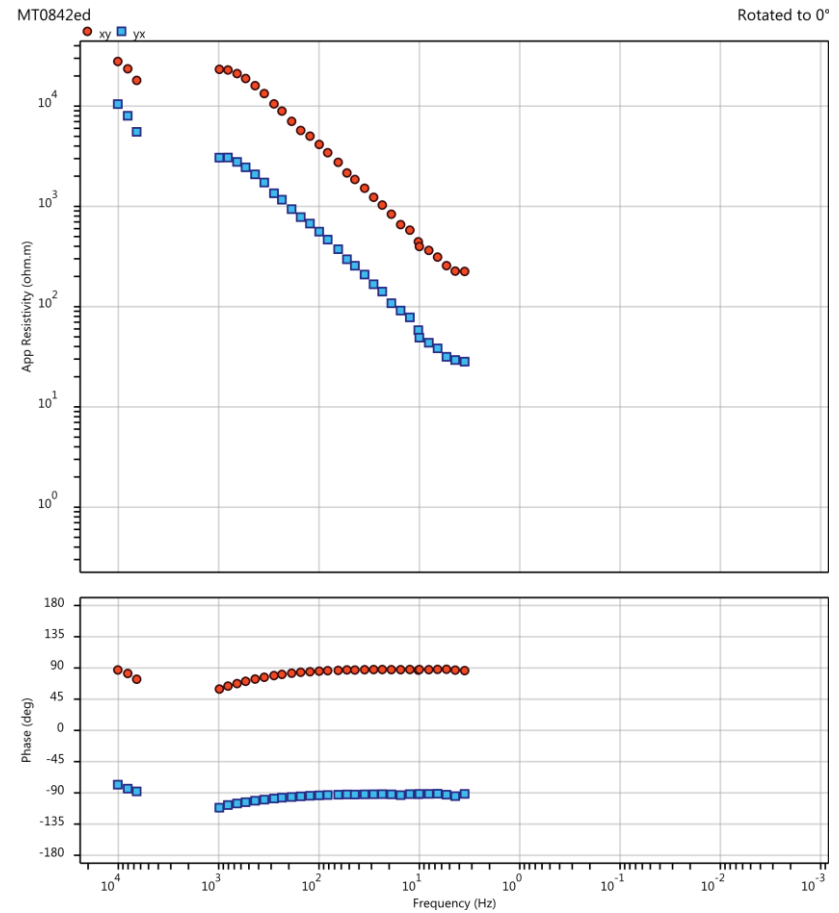
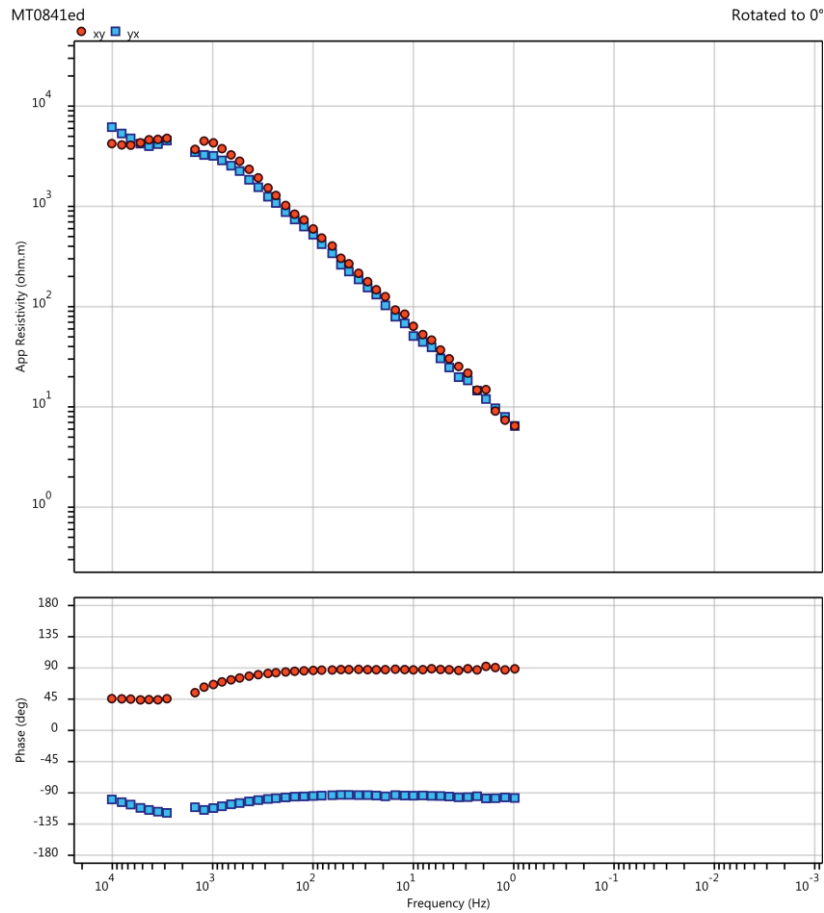


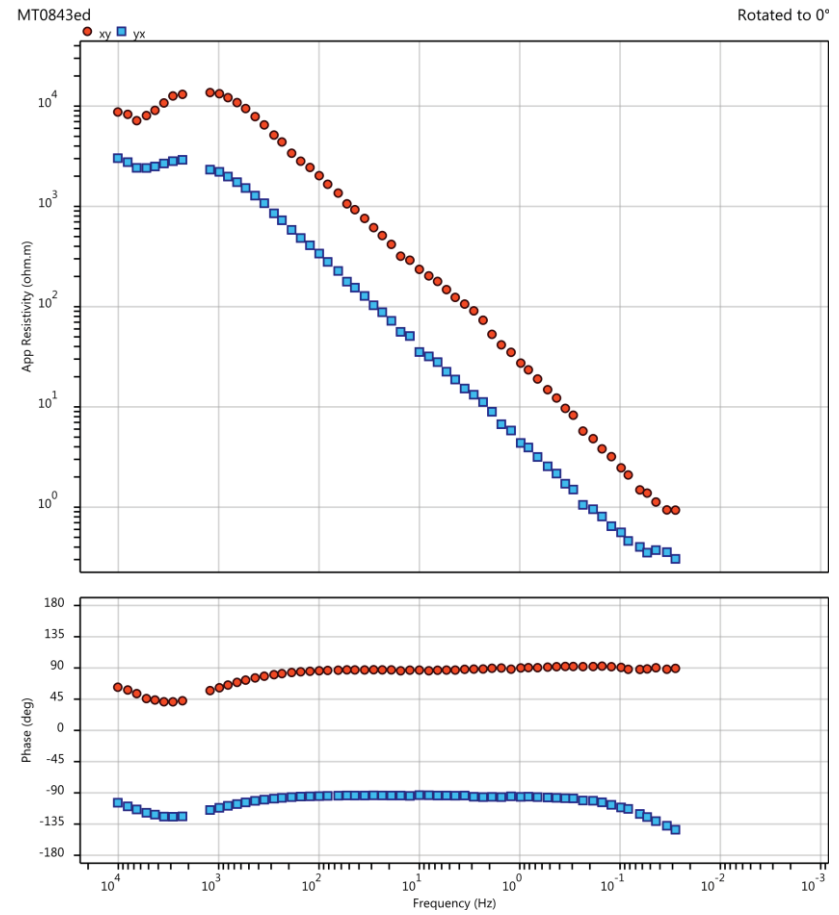
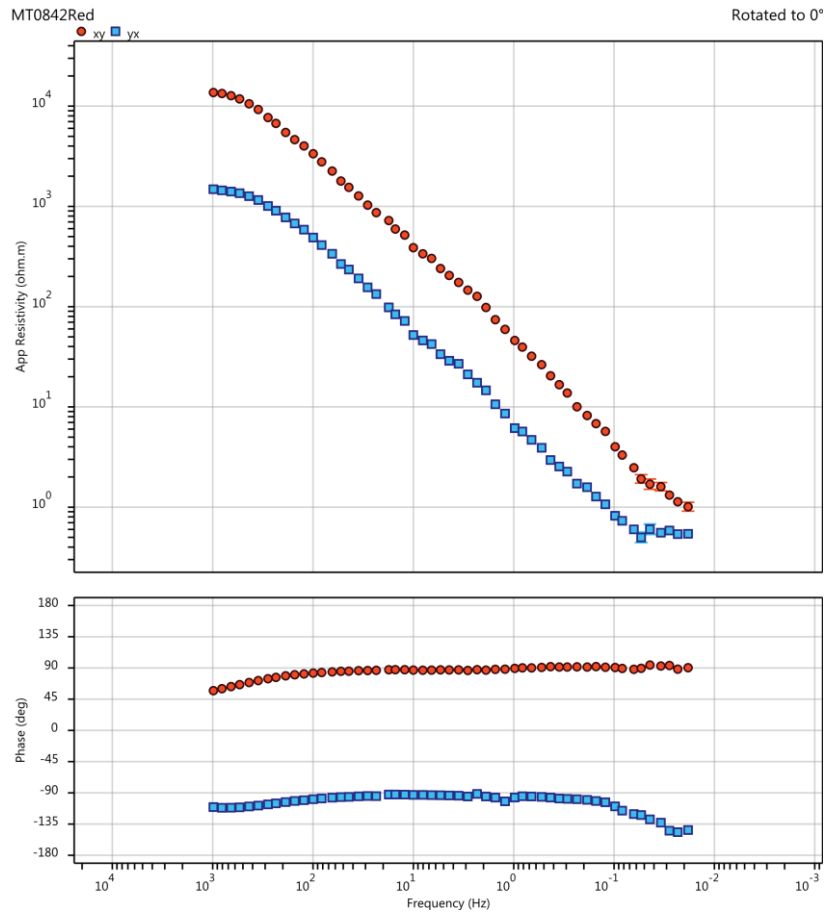


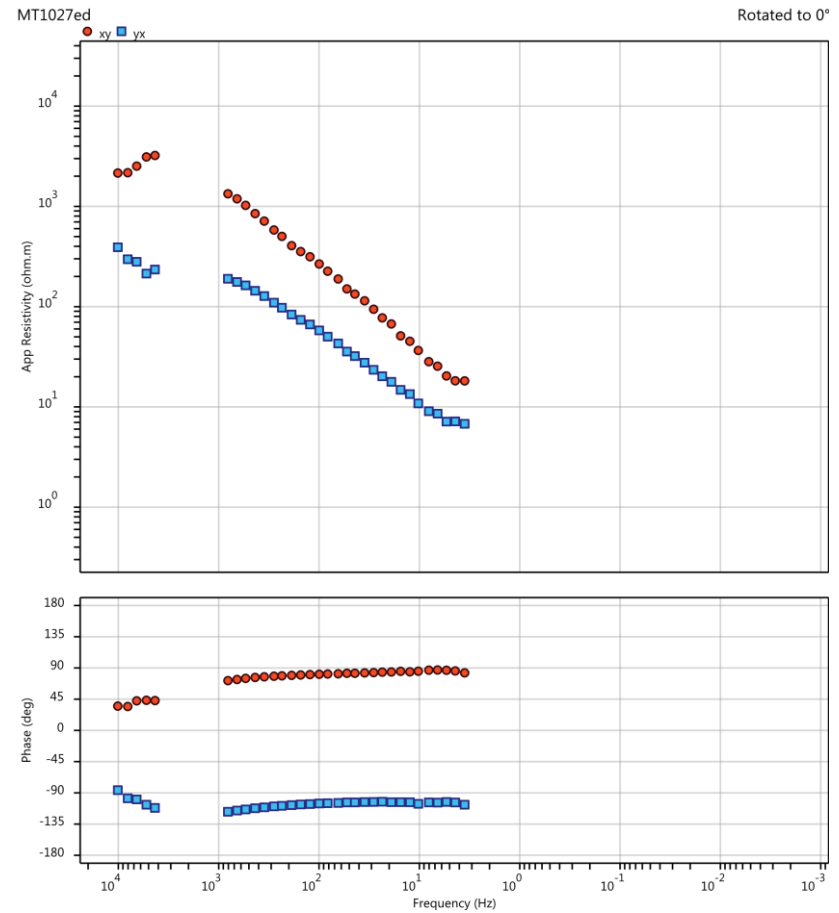
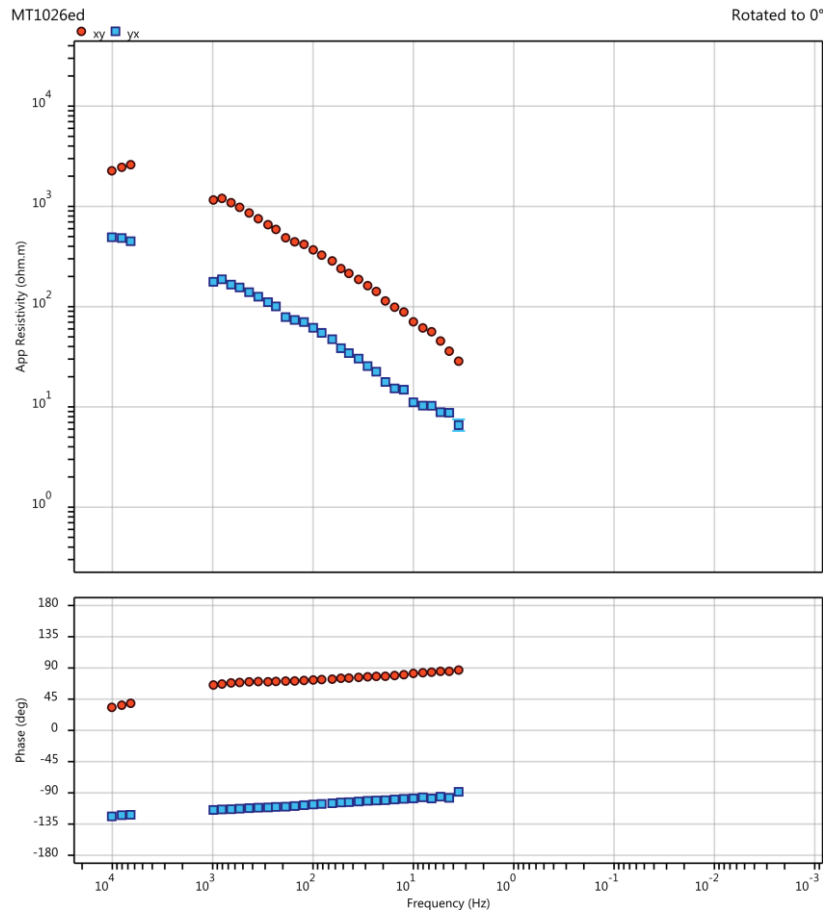


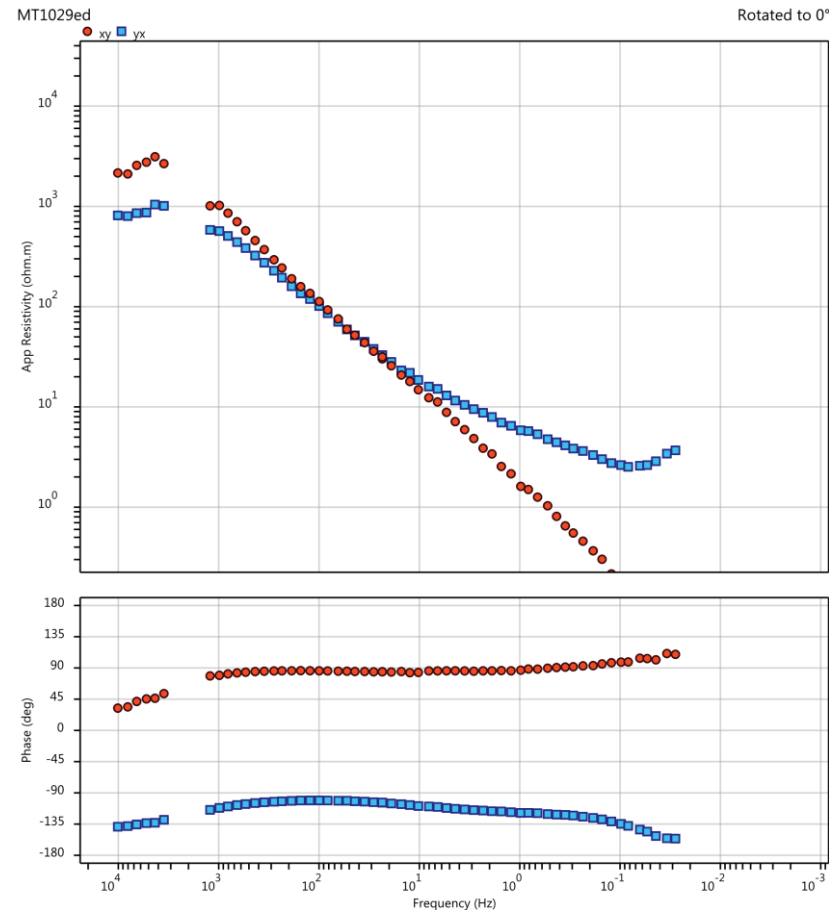
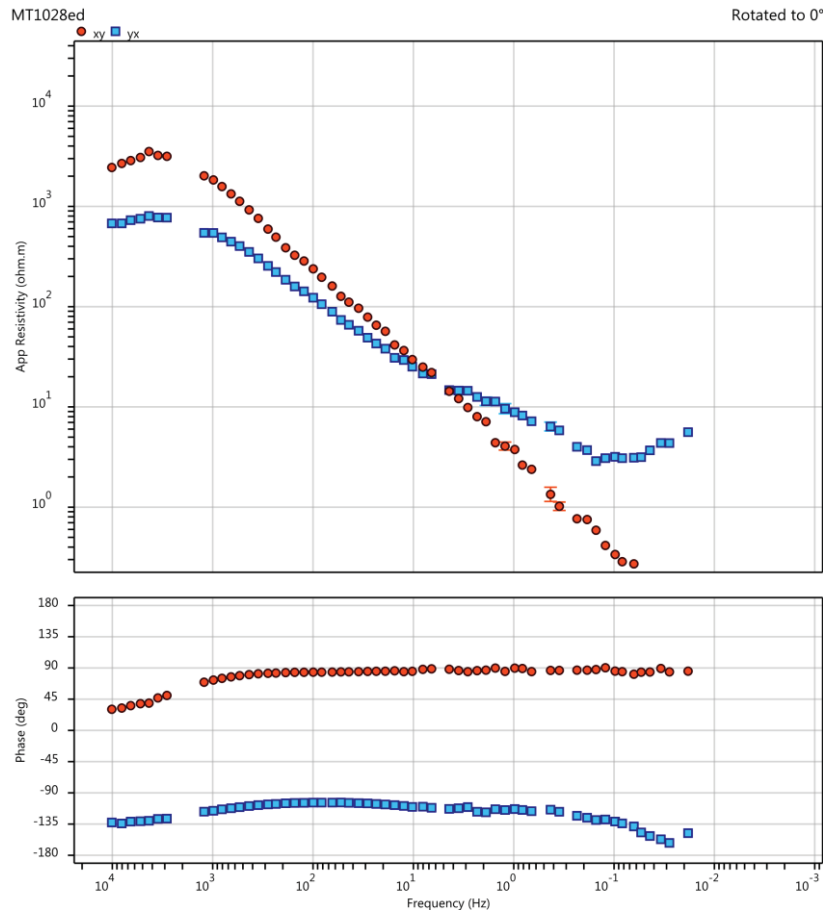


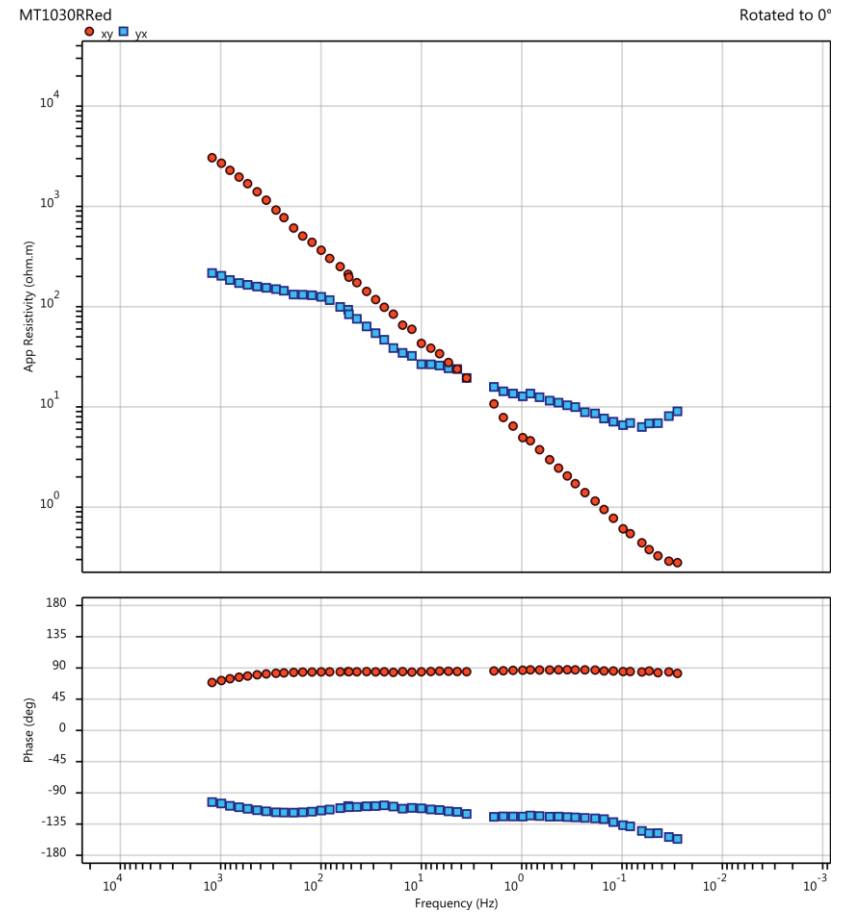
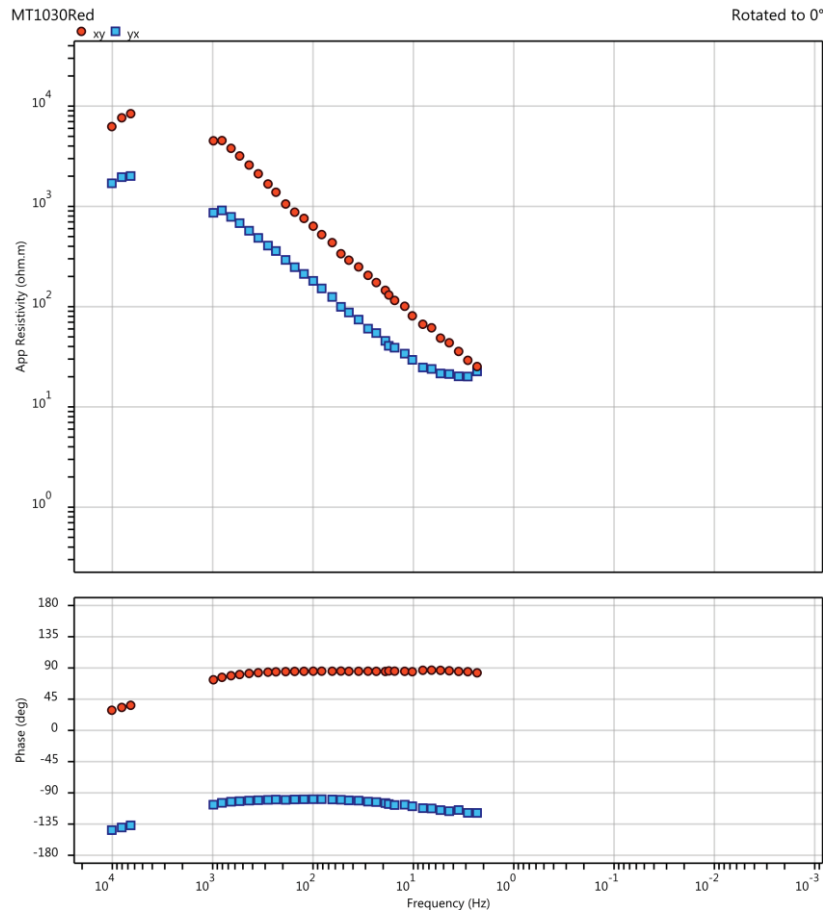


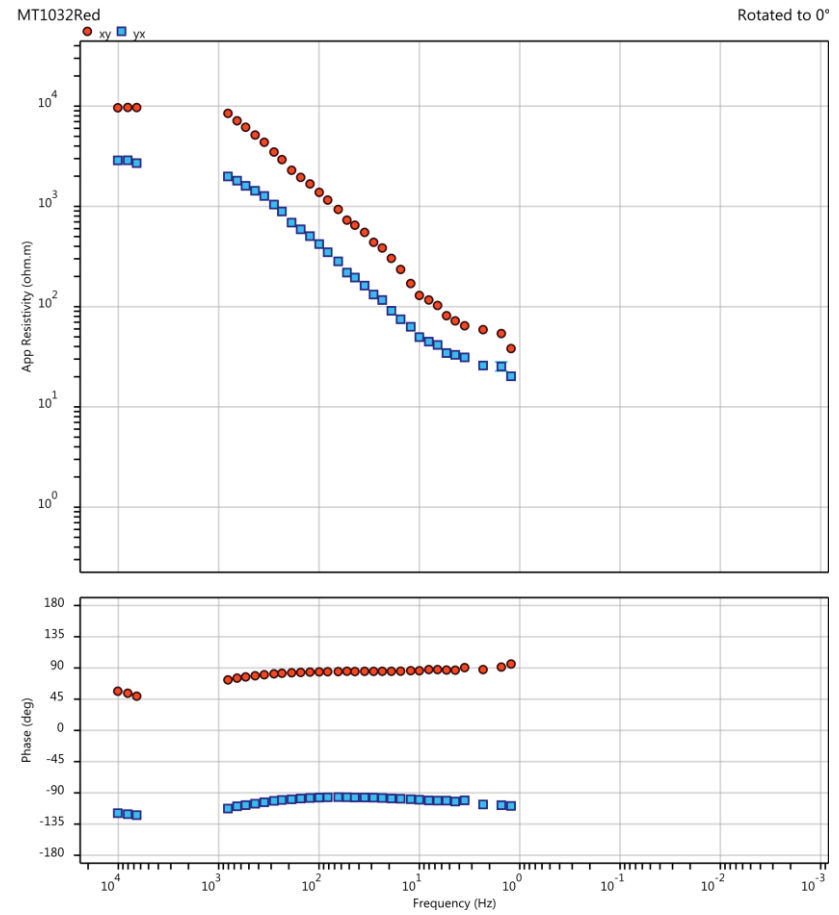
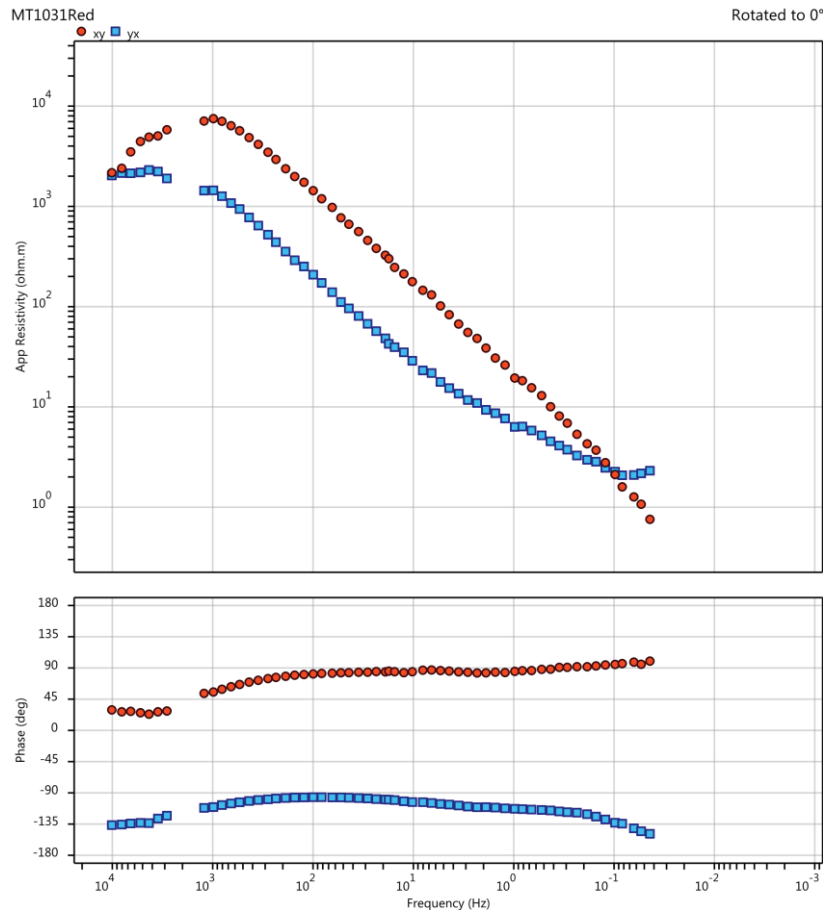


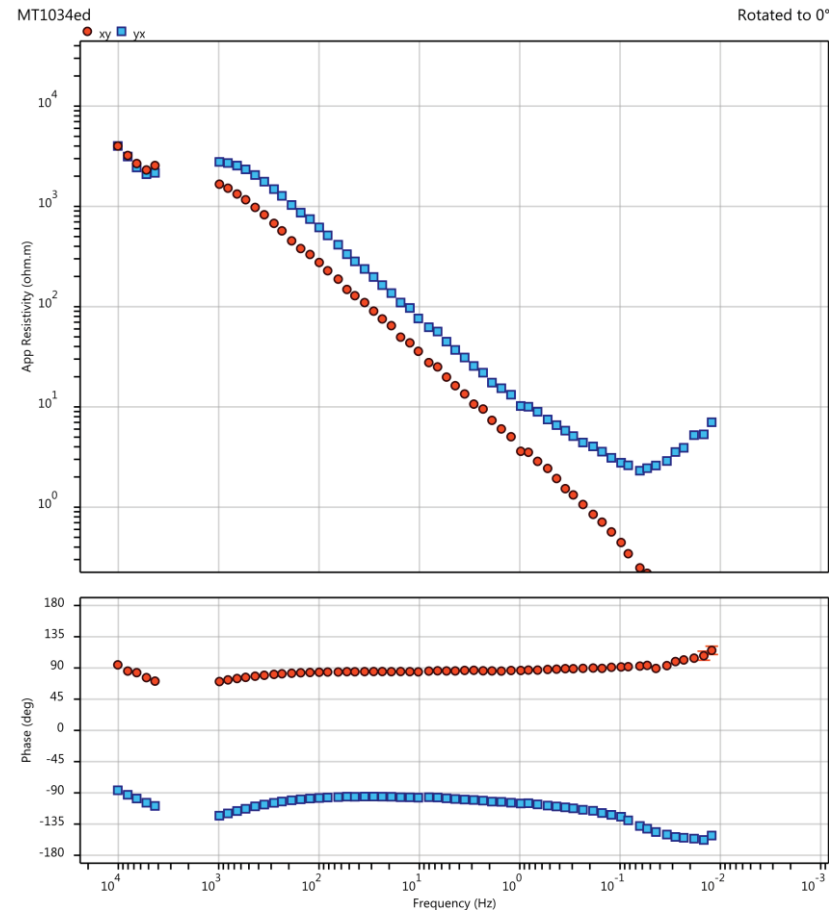
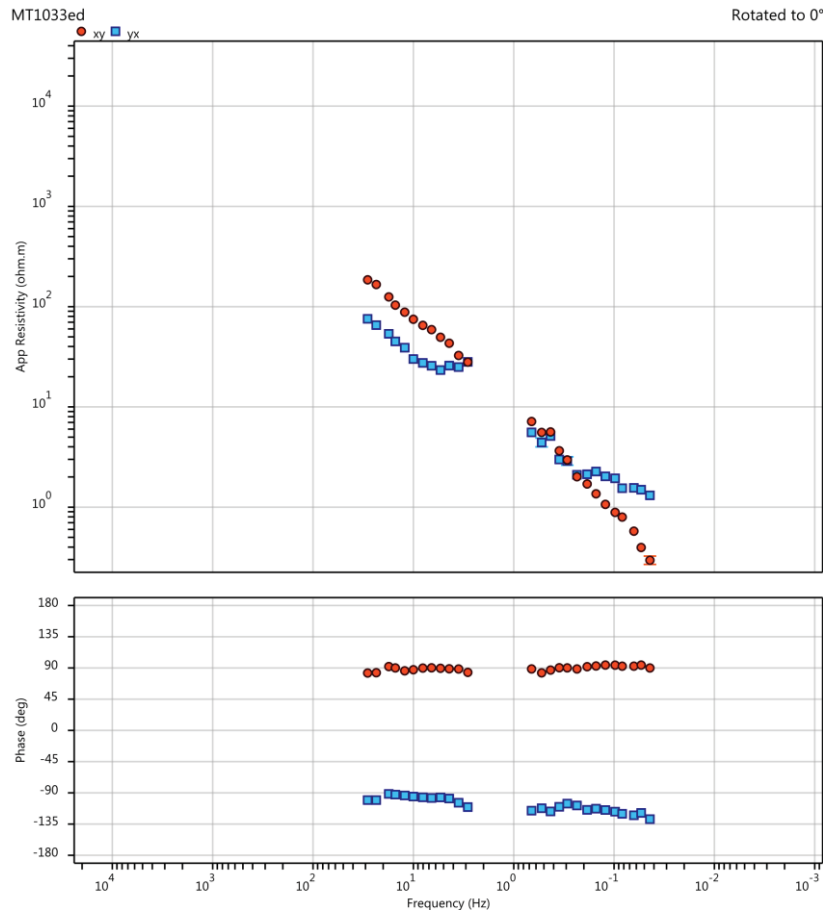


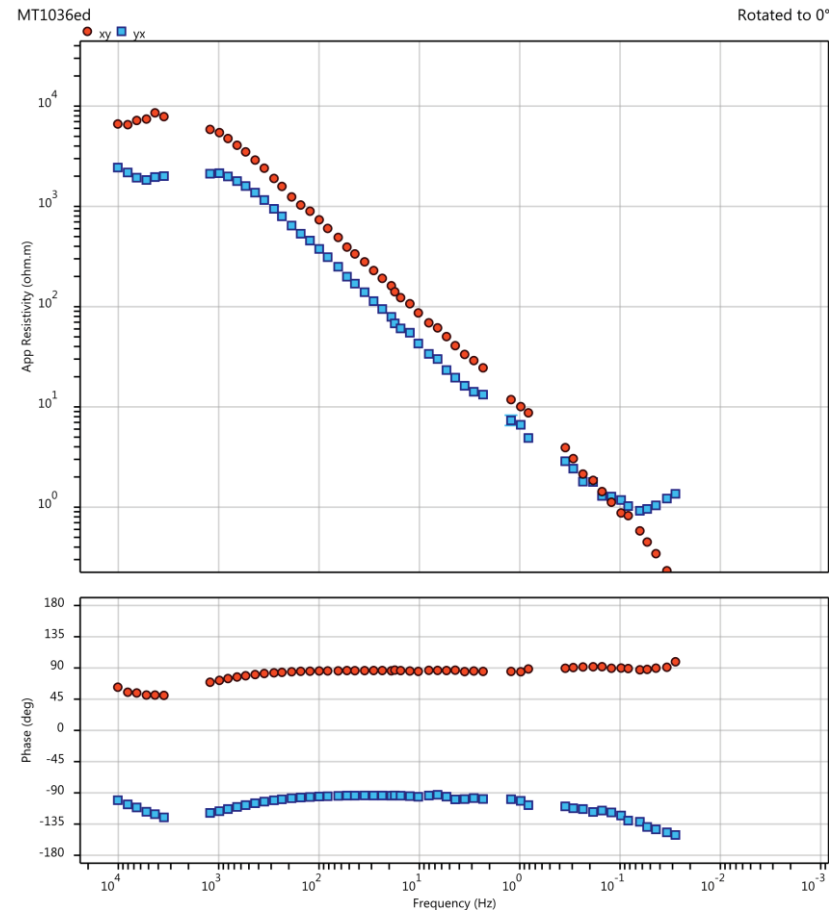
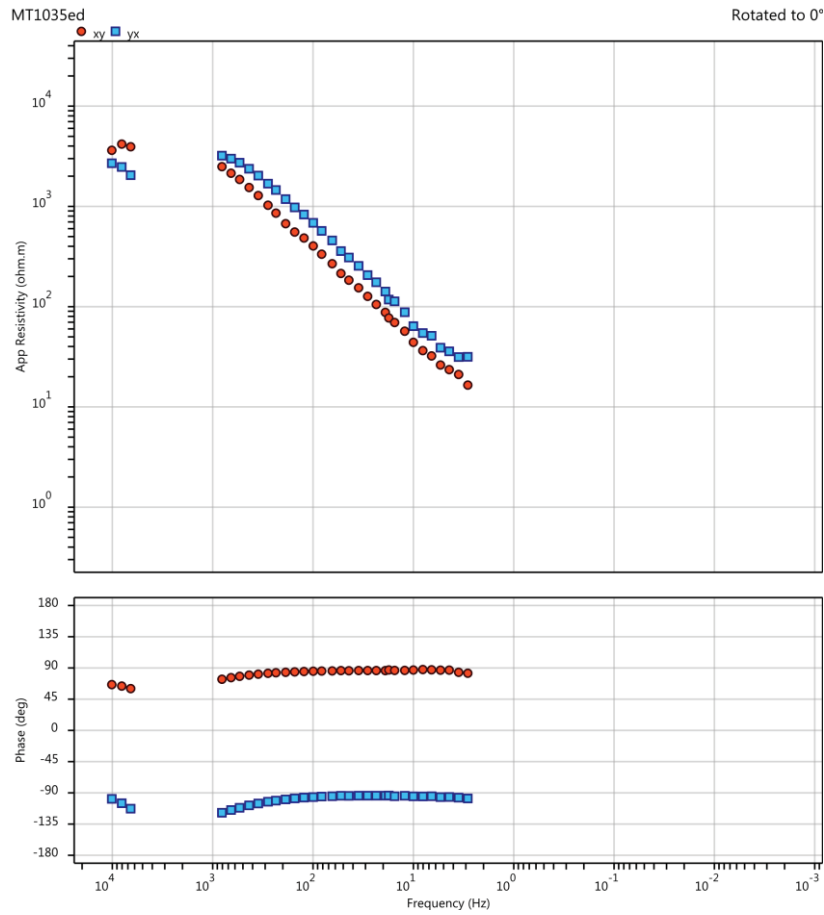


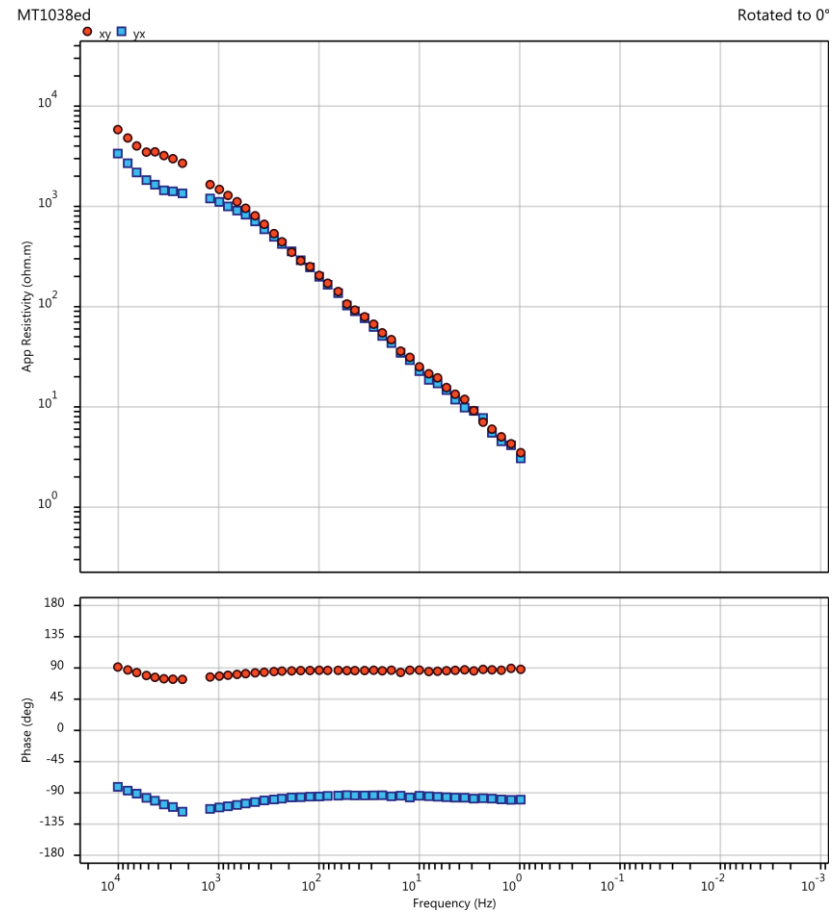
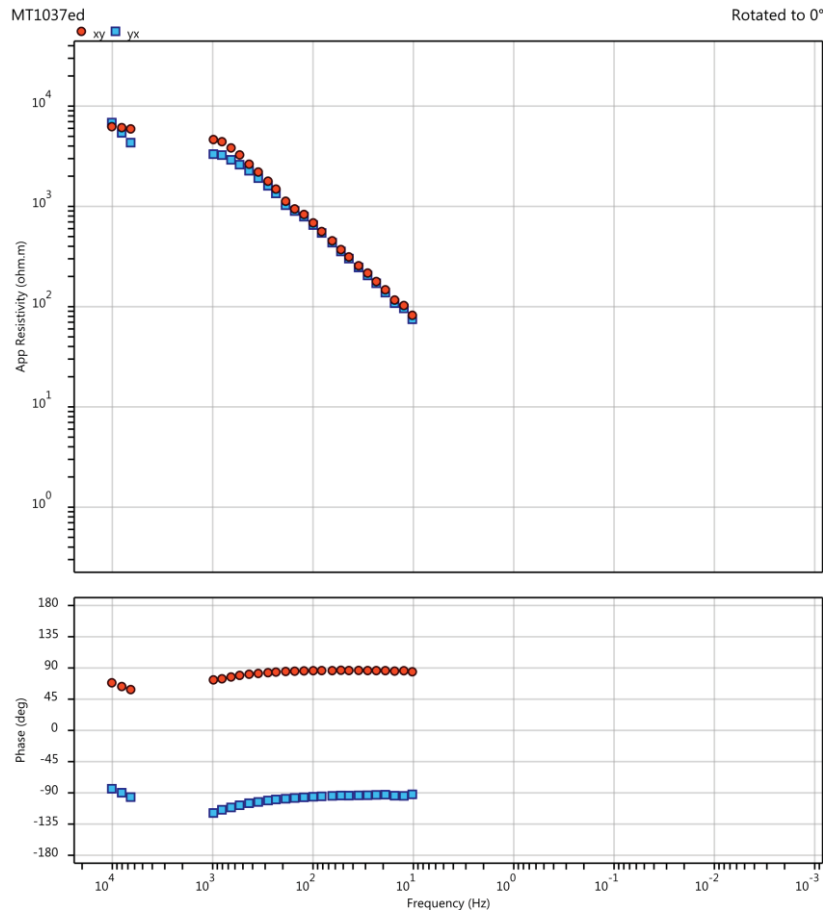


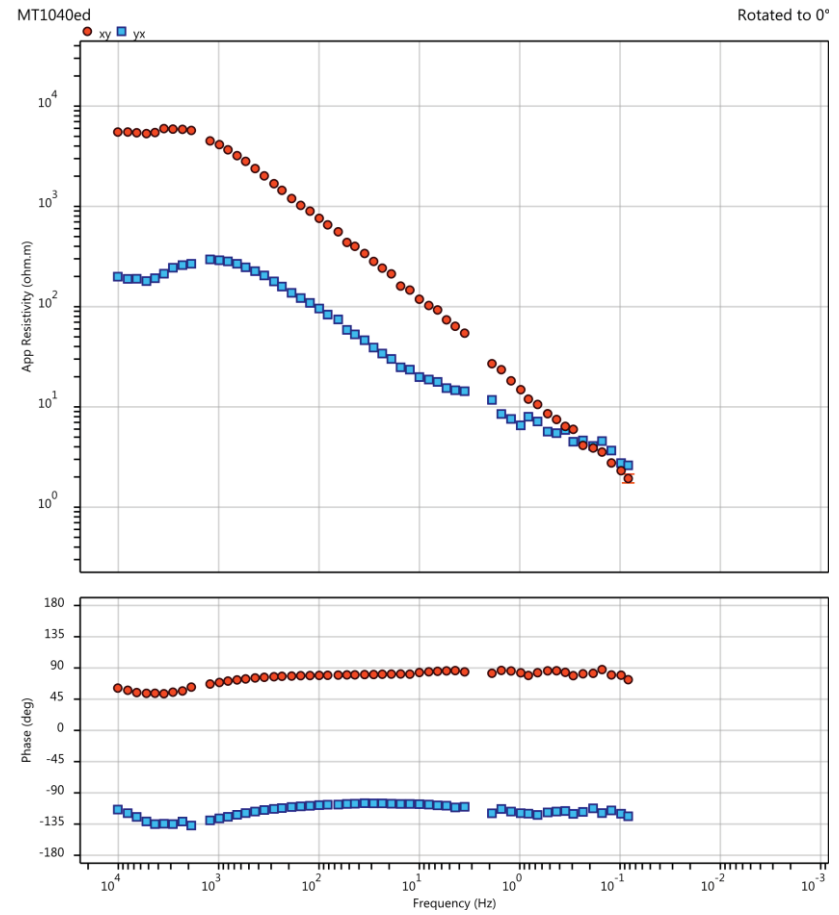
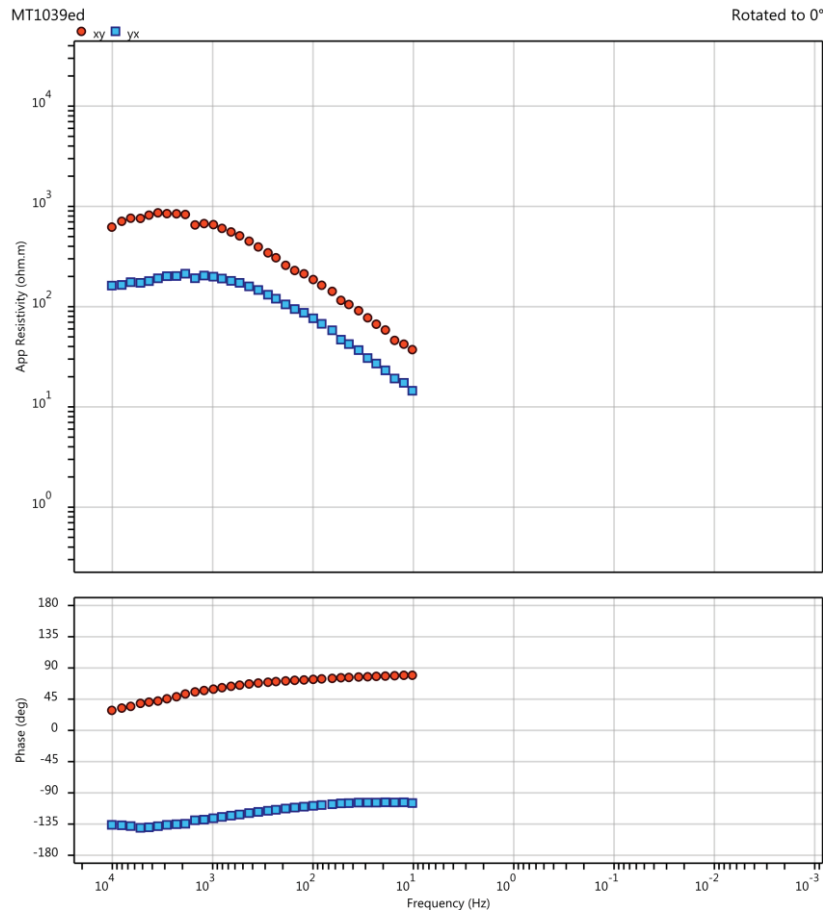


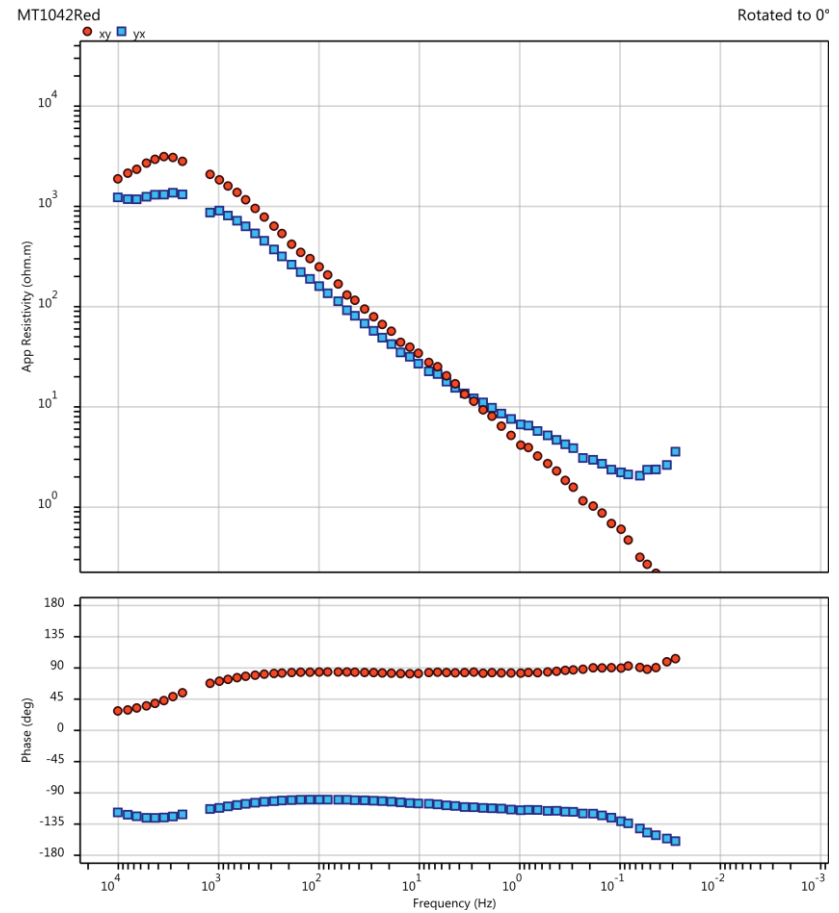
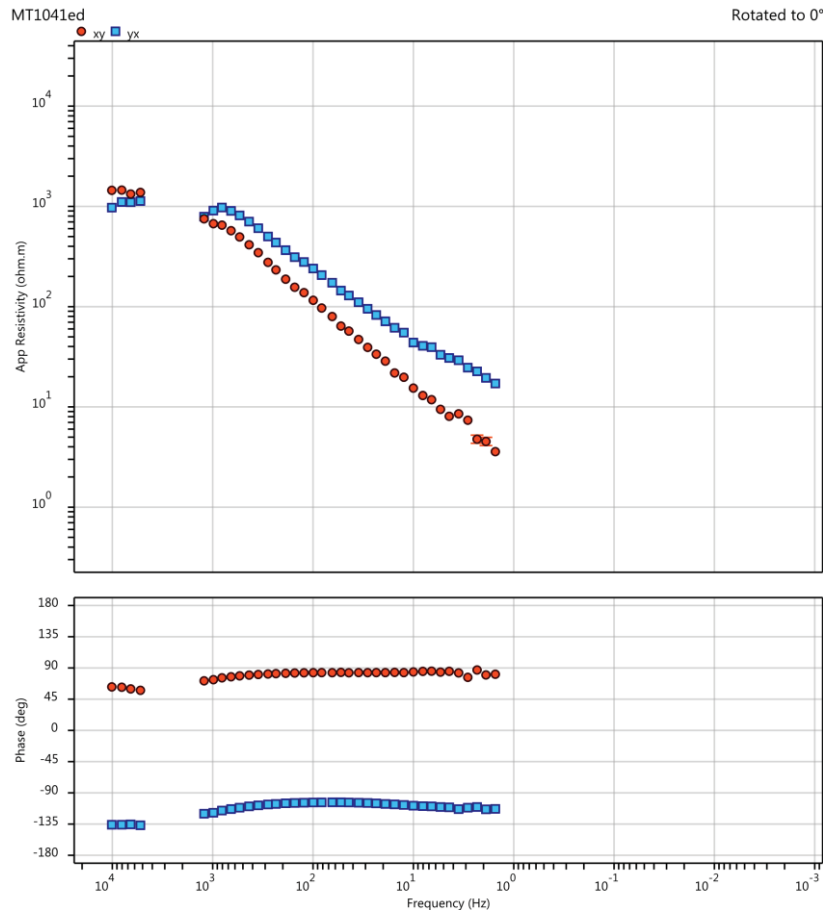


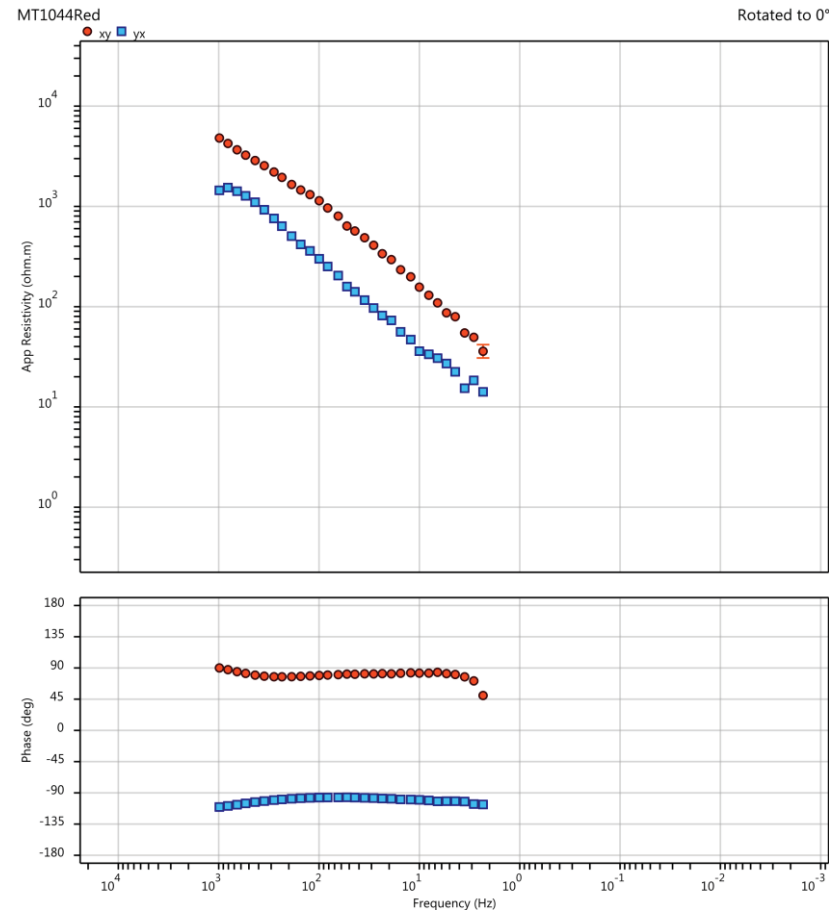
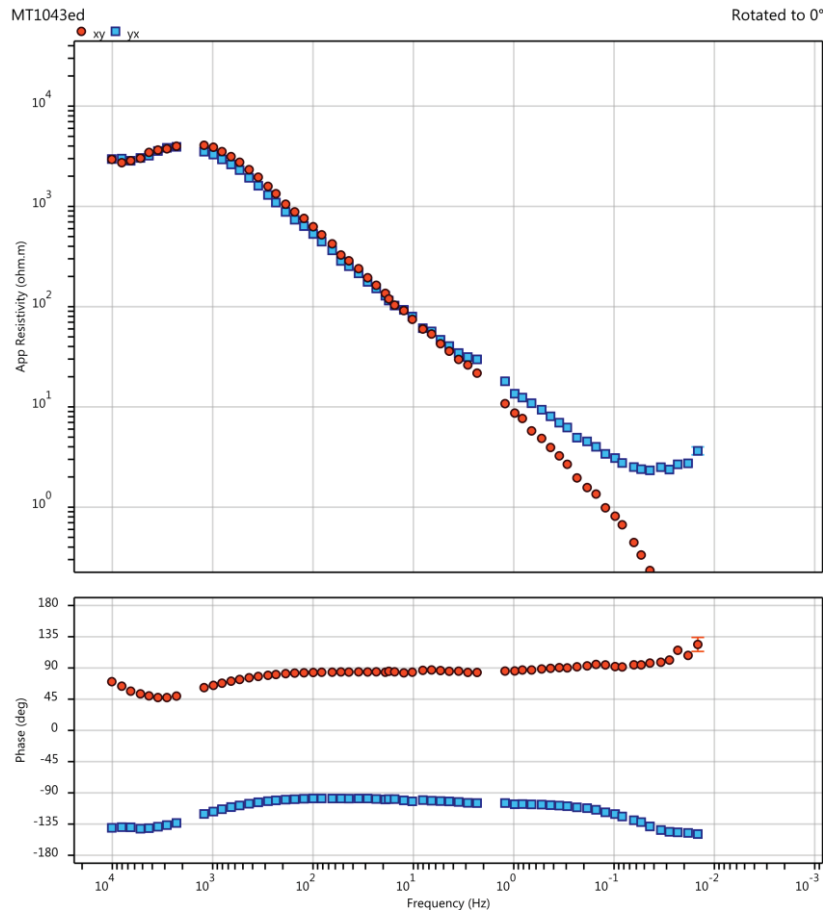


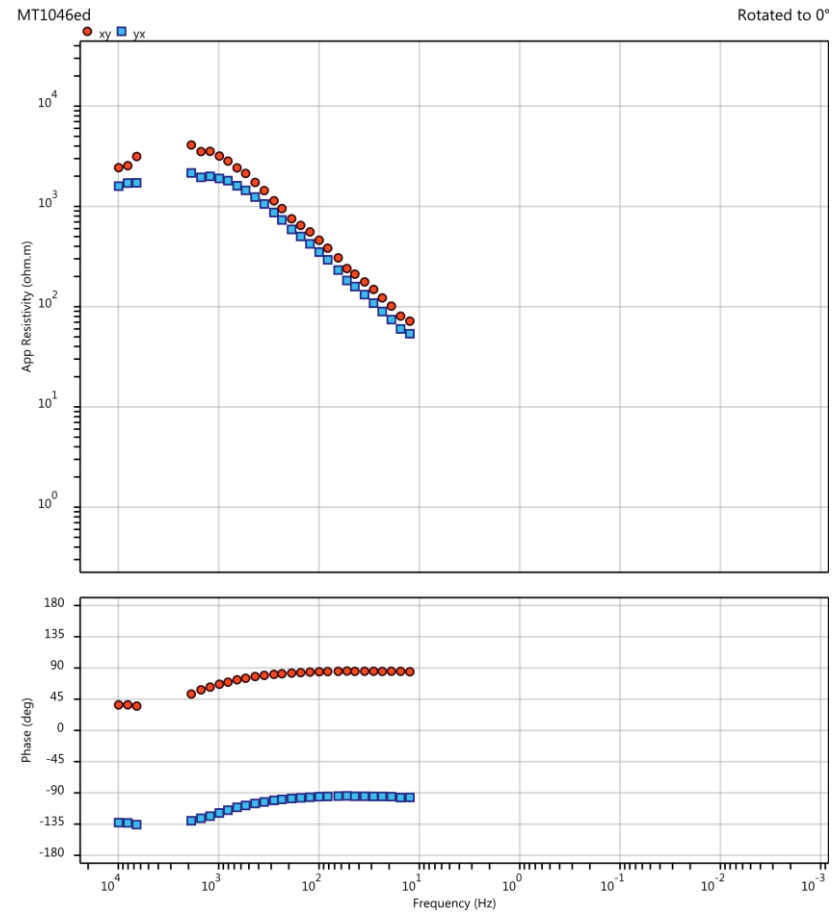
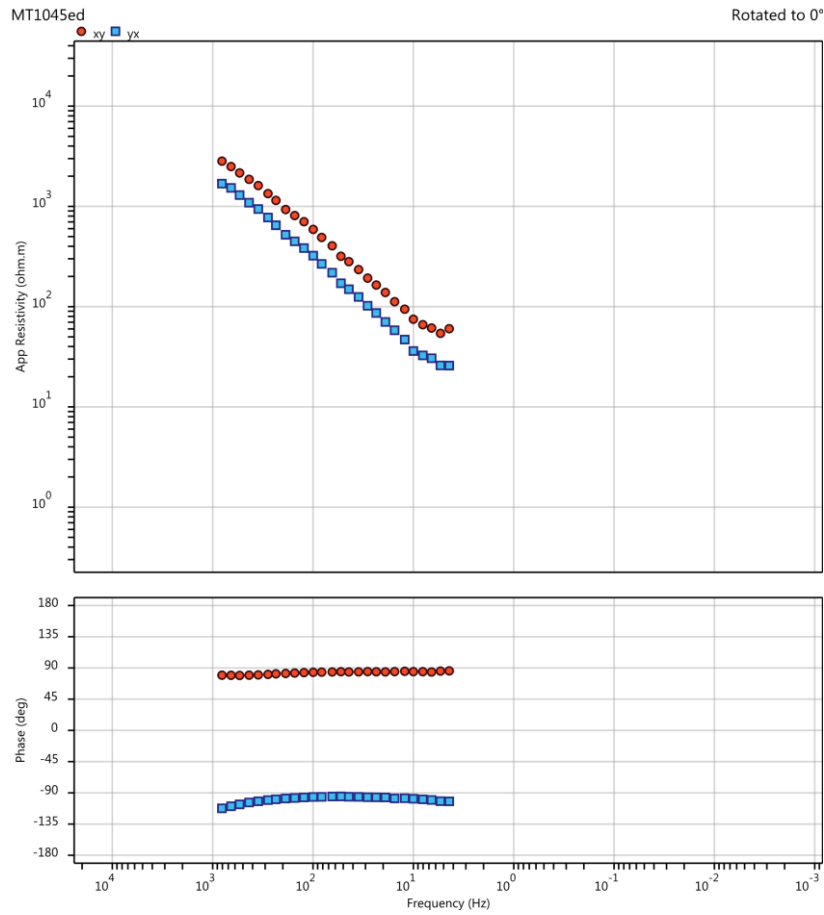


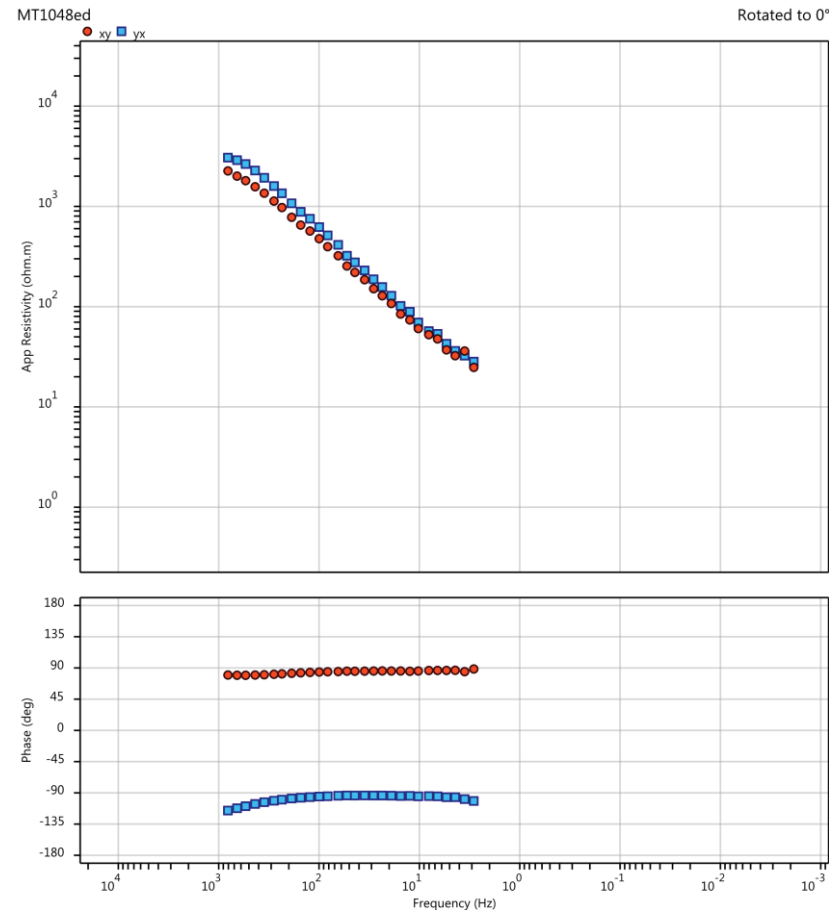
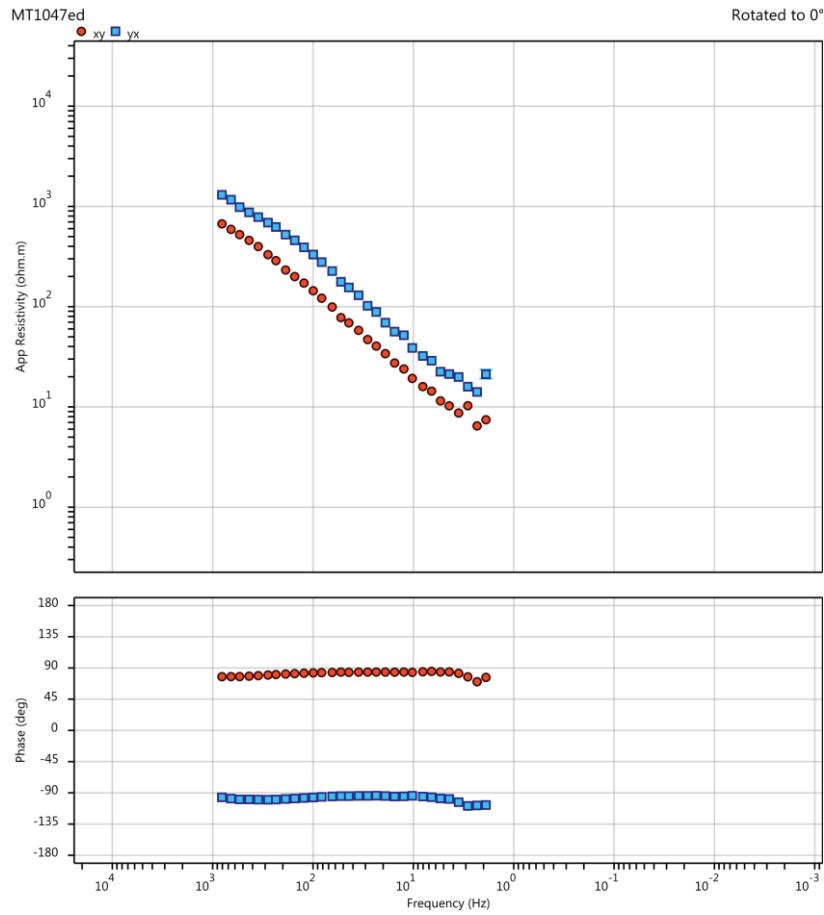


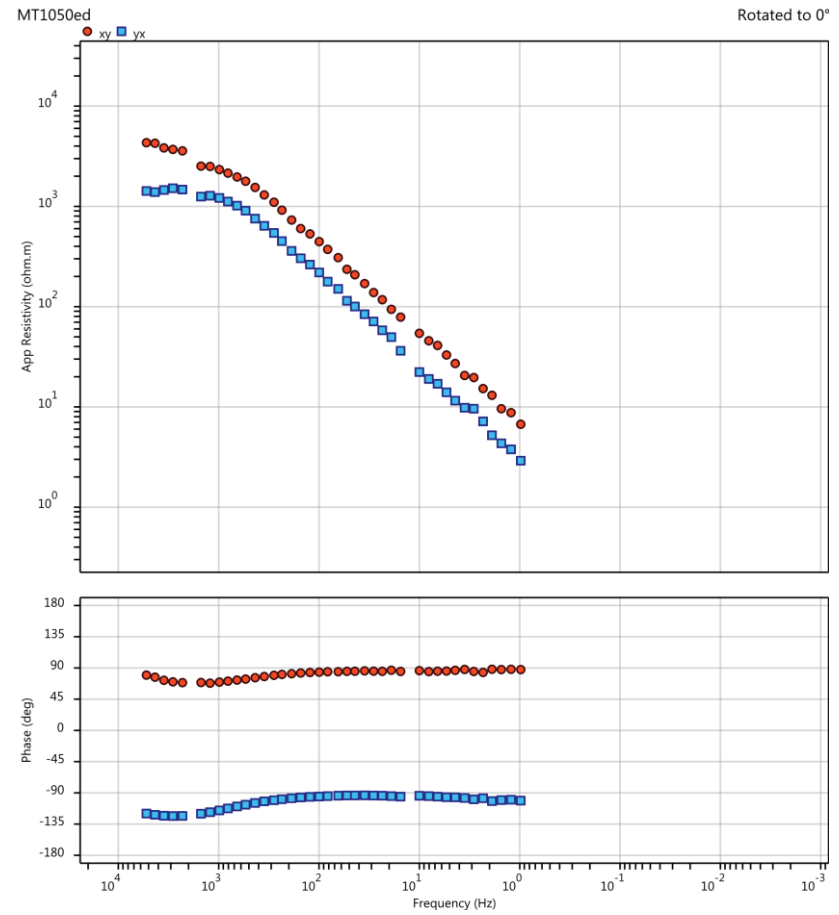
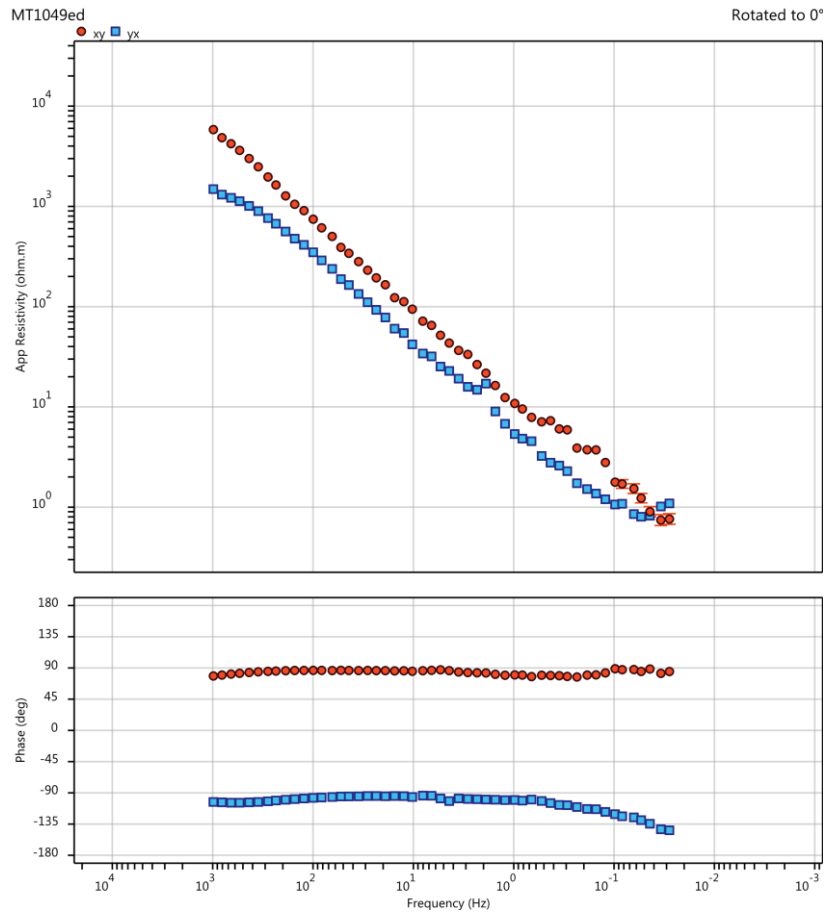


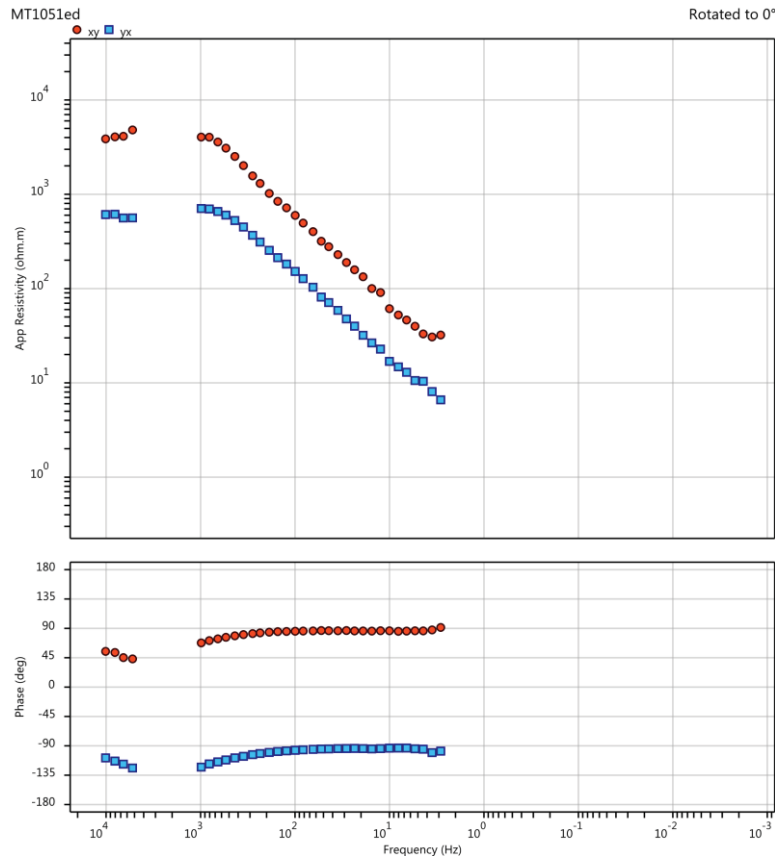












APPENDIX D. PARALLEL SENSOR TEST**D.1. GENERAL INFORMATION**

Project:	CA01113S
Date:	September 9-10, 12, 2017
Prepared by:	Emily Data
Field Staff:	Jesse Rondeau Richard Bates Joel Black Joe Hurlbert Eric Hotvedt Alex Jelenic Marty Kratchovil Marcel Leduc Devin Tompkins Kristian Koschany
QuickLay version:	ver.5.1.8.2
Common folder:	ver.1.801 (released: 2017/08/03)
Datum & Projection:	WGS 84 / UTM 18 North
Site Location:	550825mE / 6863549mN
Coil Orientation:	00° True
Magnetic Declination:	23° W

D.2. SUMMARY OF COILS TESTED AND RESULTS

Serial ID	Test Passed (ID)	Notes
P50-2121	Test 4	
P50-2133	Test 4	
P50-2239	Test 4	
P50-2240	Test 4	
P50-2243	Test 4	
P50-2387	Test 4	
P50-2444	Test 4	
P50-2456	Test 4	
P50-2461		Fail?
P50-3002	Test 4	
P50-3090	Test 4	
P50-3091	Test 4	
P50-3098	Test 4	
P50-3100	Test 4	
P50-3101	Test 4	
P50-3104	Test 4	
P50-3105	Test 6	
P50-3110	Test 4	
P50-3112	Test 4	
P50-3117	Test 4	
P50-3126	Test 4	
P50-3128	Test 4	
P50-3130	Test 4	
P50-3136	Test 4	
GHF-1045	Test 3	
GHF-1050	Test 3	
GHF-1051	Test 3	
GHF-1053	Test 3	

Serial ID	Test Passed (ID)	Notes
GHF-1054	Test 3	
GHF-1055	Test 3	
GHF-1061	Test 3	
GHF-1063	Test 3	
GHF-1065	Test 3	
GHF-1083	Test 3	
GHF-1089	Test 3	
GHF-1099	Test 3	
GHF-1103	Test 3	
GHF-1106	Test 3	
GHF-1107	Test 3	
GHF-1109	Test 3	
GHF-1113	Test 3	
GHF-1120	Test 2(b)	
GHF-1121	Test 3	
GHF-1122	Test 2(b)	
GHF-1125	Test 3	
GHF-1126	Test 3	
GHF-1127		To be retested?
GHF-1136		To be retested?

D.2.1. Comments on test conditions (culture, noise, etc)

Sept 9: Very windy conditions, cloudy with scattered rain. Wind is steady at ~55km/h, with frequent gusts to 80km/h.

Sept 10: Sunny with calm winds.

Sept 12: Cloudy and foggy with calm winds.

Test was conducted at a rock quarry.

D.2.2. Comments on test results

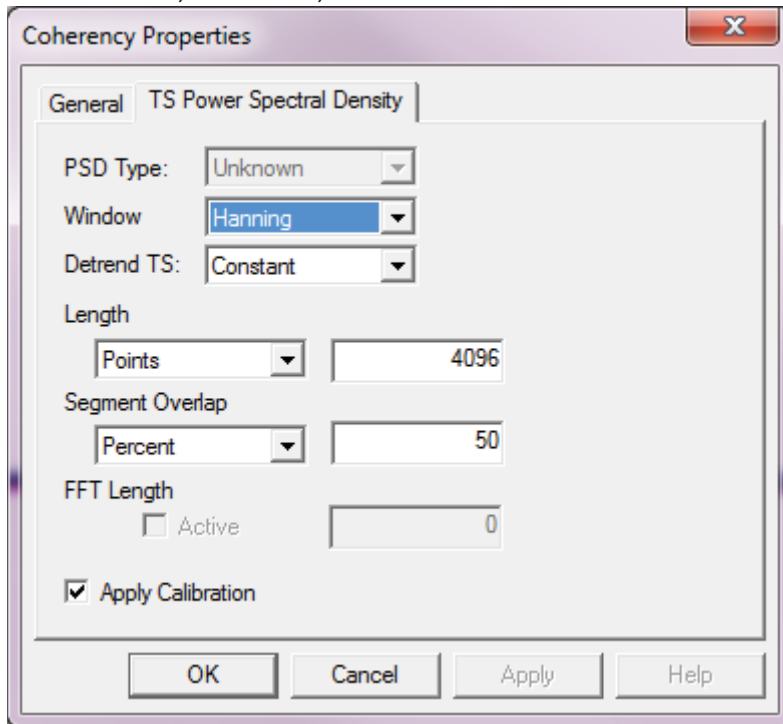
Day 1 tests for both HF and LF coils were done in very windy conditions. Time series are noisy and coherencies are poor.

P50-2461: Coil was moved to a different logger, then different spider, then different coil cable. It always has lower coherency than the rest after all the tests.

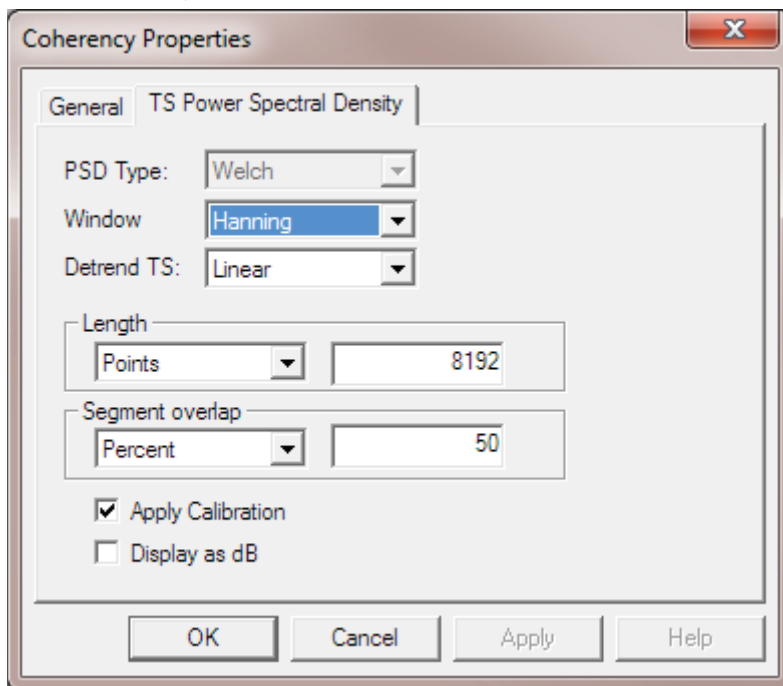
GHF-1127 and GHF-1136: These coils were on 2 different loggers, buried at the eastern-most position. PSD and coherencies deviate around the deadband. This can be retested at the remote later.

D.3. PST PROCESSING PARAMETERS (SET IN THE COHERENCY VIEWER PROPERTIES>OPTIONS)

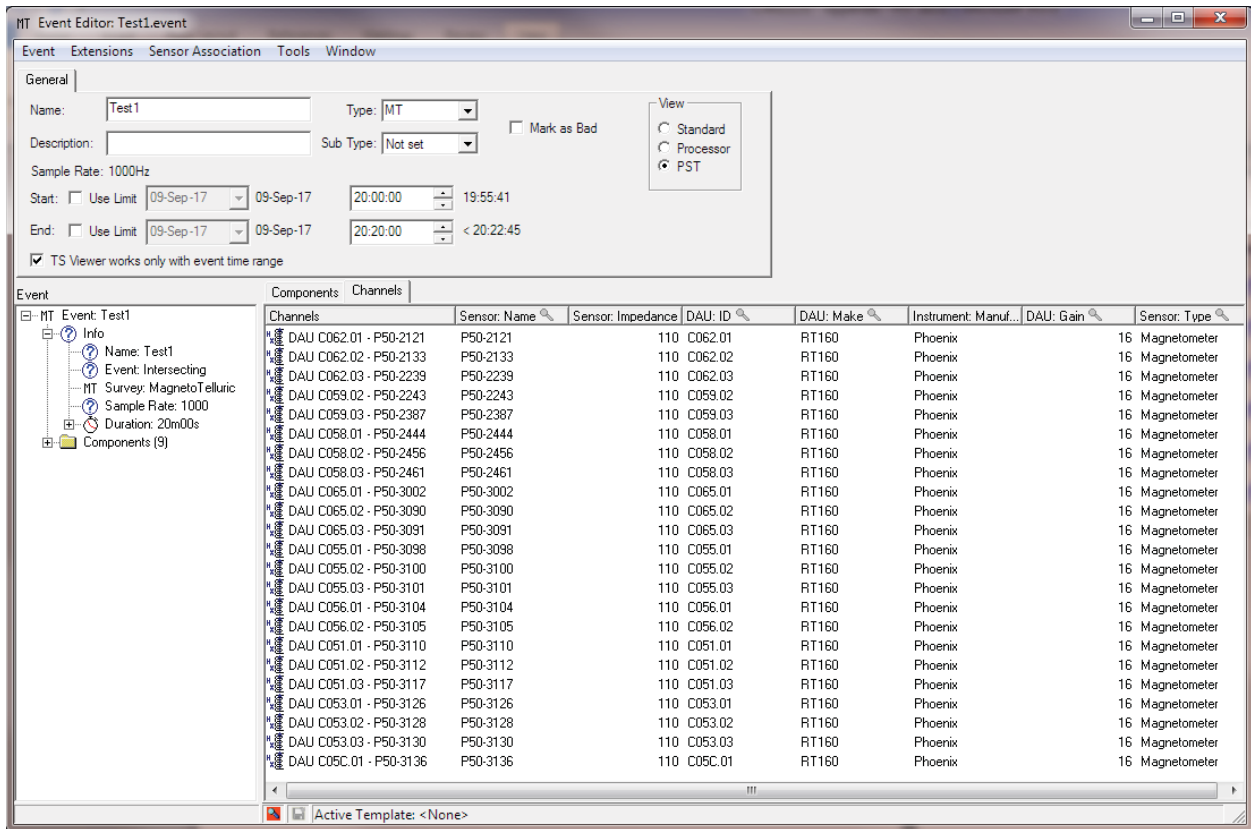
For Test 1 – LF, Test 4 – LF, Test 5– LF:



For Test 2 – HF, Test 3 – HF



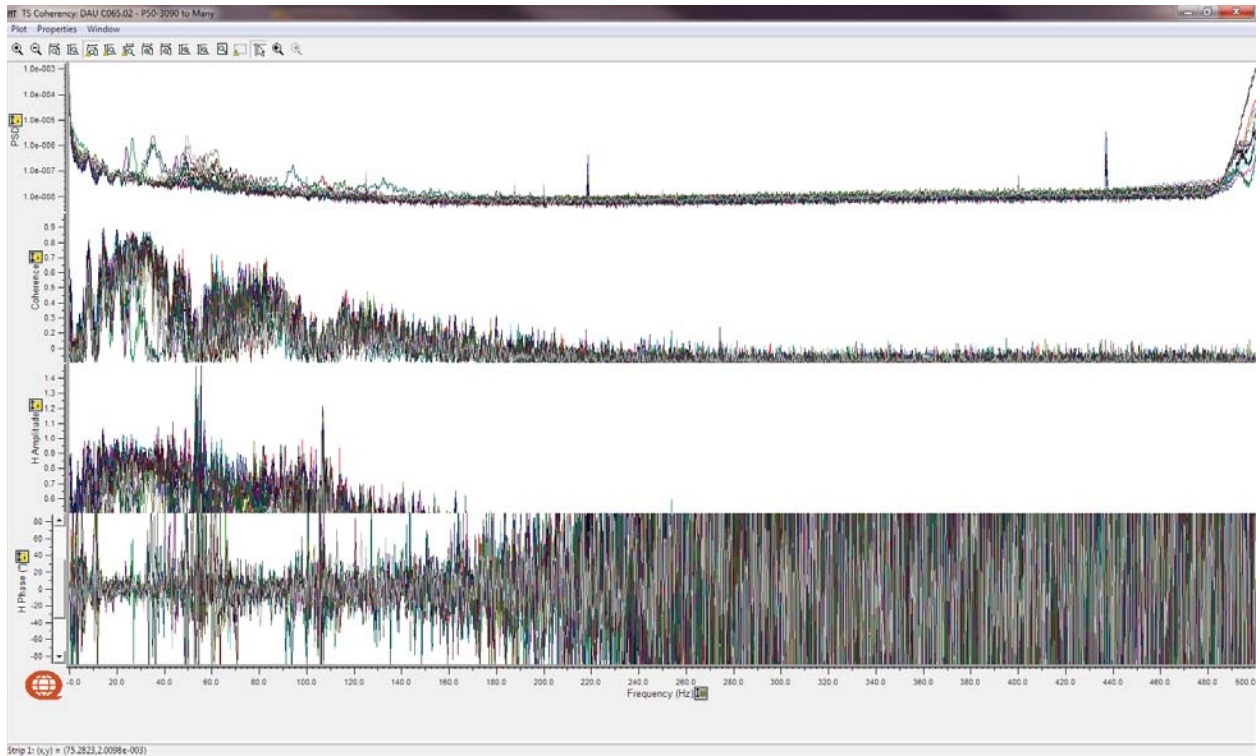
D.4. RESULTS TEST 1



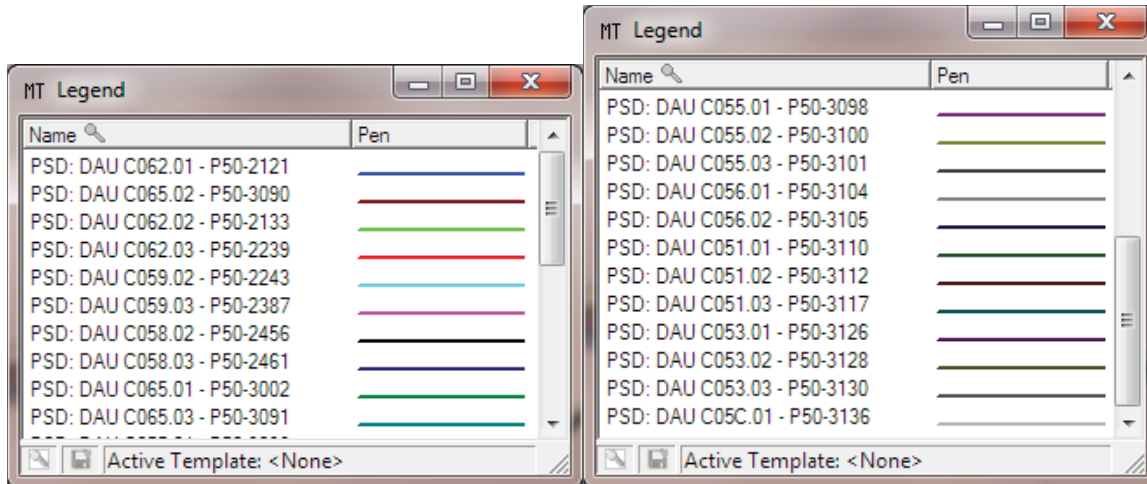
D.4.1. Problem notes

Serial ID	Pass / Fail	Notes
	All to be retested	

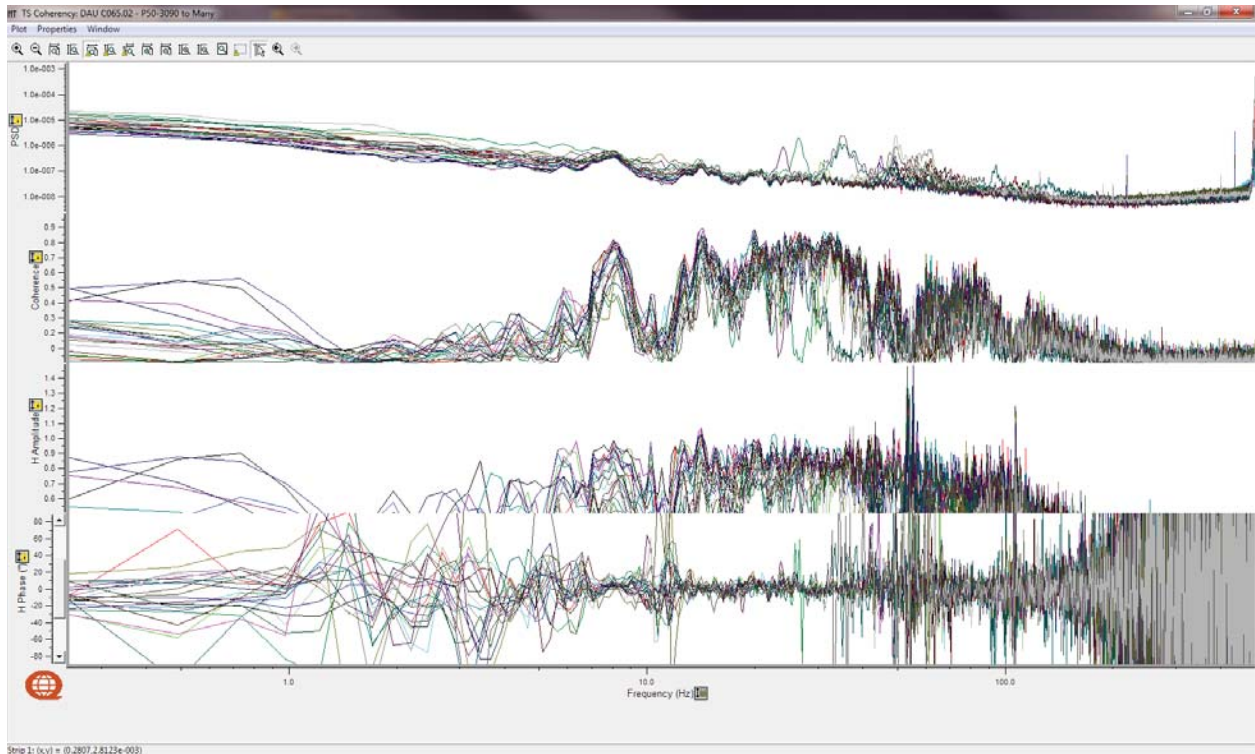
Test 1@ 1000sps



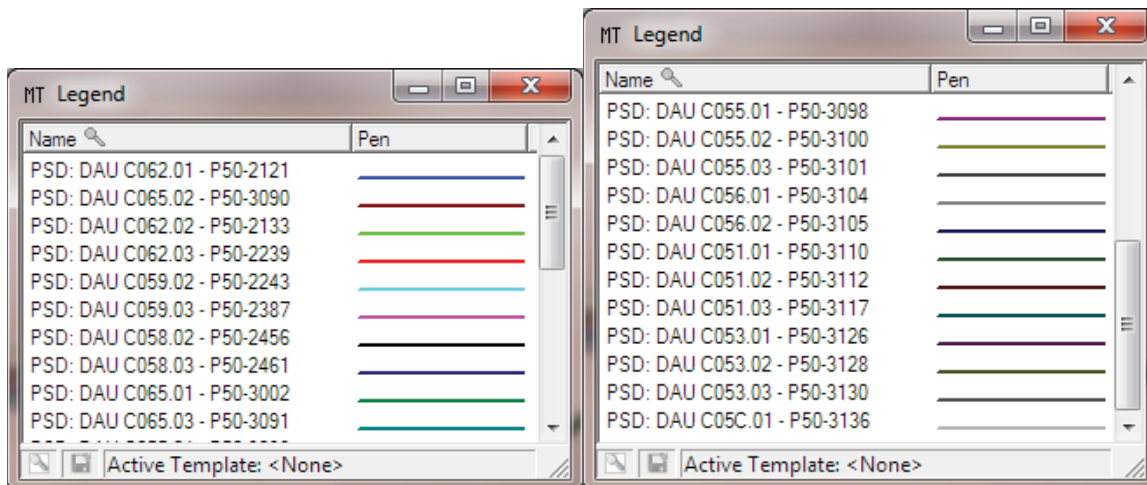
Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Linear frequency scale*



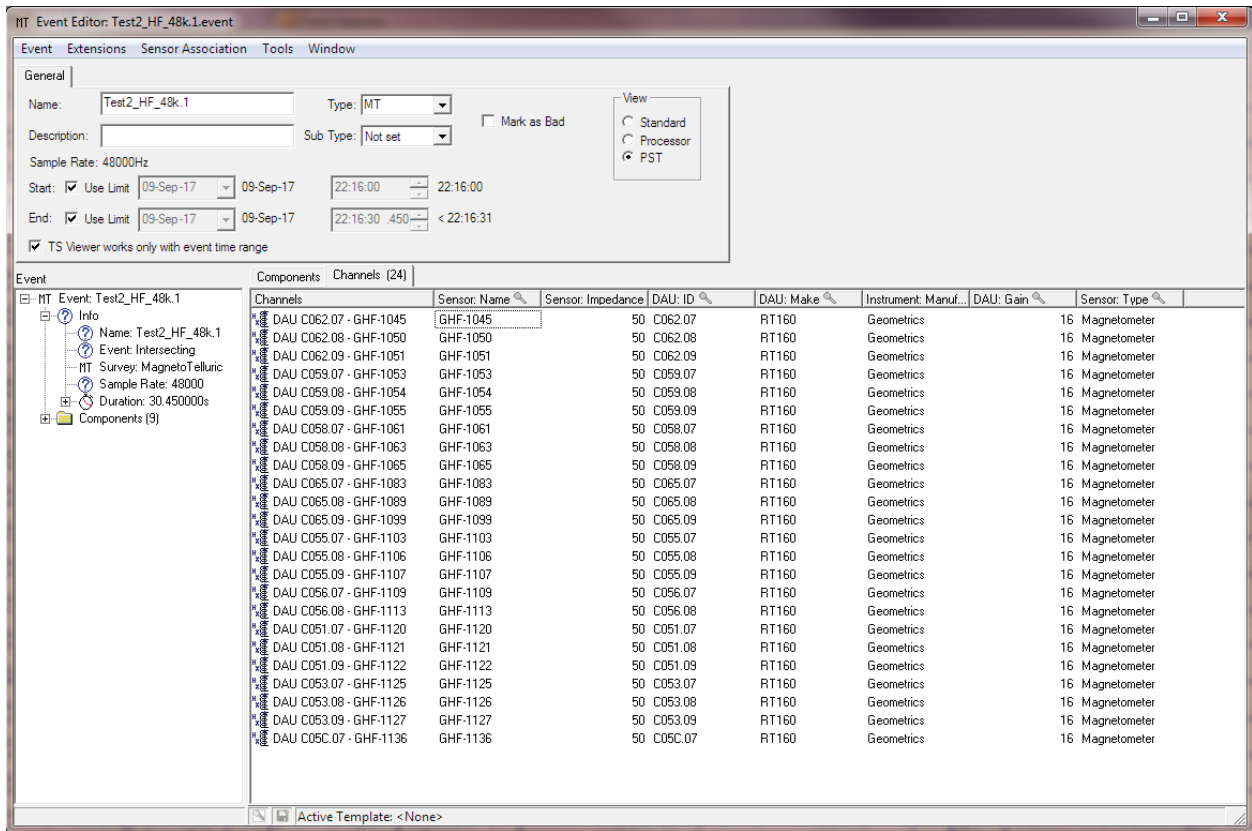
Test 1 @ 1000sps



Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – Logarithmic frequency scale



D.5. RESULTS TEST 2



MT Event Editor: Test2_HF_48k.1.Event

Event Extensions Sensor Association Tools Window

General

Name: Test2_HF_48k.1 Type: MT Mark as Bad

Description: Sub Type: Not set

Sample Rate: 48000Hz

Start: Use Limit 09-Sep-17 09-Sep-17 22:16:00 22:16:00

End: Use Limit 09-Sep-17 09-Sep-17 22:16:30 .450 < 22:16:31

TS Viewer works only with event time range

View: Standard Processor PST

Event Components Channels (24)

Channels	Sensor Name	Sensor Impedance	DAU ID	DAU Make	Instrument Manuf...	DAU Gain	Sensor Type
DAU C062.07 - GHF-1045	GHF-1045	50	C062.07	RT160	Geometrics		16 Magnetometer
DAU C062.08 - GHF-1050	GHF-1050	50	C062.08	RT160	Geometrics		16 Magnetometer
DAU C062.09 - GHF-1051	GHF-1051	50	C062.09	RT160	Geometrics		16 Magnetometer
DAU C059.07 - GHF-1053	GHF-1053	50	C059.07	RT160	Geometrics		16 Magnetometer
DAU C059.08 - GHF-1054	GHF-1054	50	C059.08	RT160	Geometrics		16 Magnetometer
DAU C059.09 - GHF-1055	GHF-1055	50	C059.09	RT160	Geometrics		16 Magnetometer
DAU C058.07 - GHF-1061	GHF-1061	50	C058.07	RT160	Geometrics		16 Magnetometer
DAU C058.08 - GHF-1063	GHF-1063	50	C058.08	RT160	Geometrics		16 Magnetometer
DAU C058.09 - GHF-1065	GHF-1065	50	C058.09	RT160	Geometrics		16 Magnetometer
DAU C065.07 - GHF-1083	GHF-1083	50	C065.07	RT160	Geometrics		16 Magnetometer
DAU C065.08 - GHF-1089	GHF-1089	50	C065.08	RT160	Geometrics		16 Magnetometer
DAU C065.09 - GHF-1099	GHF-1099	50	C065.09	RT160	Geometrics		16 Magnetometer
DAU C065.07 - GHF-1103	GHF-1103	50	C065.07	RT160	Geometrics		16 Magnetometer
DAU C055.08 - GHF-1106	GHF-1106	50	C055.08	RT160	Geometrics		16 Magnetometer
DAU C055.09 - GHF-1107	GHF-1107	50	C055.09	RT160	Geometrics		16 Magnetometer
DAU C056.07 - GHF-1109	GHF-1109	50	C056.07	RT160	Geometrics		16 Magnetometer
DAU C056.08 - GHF-1113	GHF-1113	50	C056.08	RT160	Geometrics		16 Magnetometer
DAU C051.07 - GHF-1120	GHF-1120	50	C051.07	RT160	Geometrics		16 Magnetometer
DAU C051.08 - GHF-1121	GHF-1121	50	C051.08	RT160	Geometrics		16 Magnetometer
DAU C051.09 - GHF-1122	GHF-1122	50	C051.09	RT160	Geometrics		16 Magnetometer
DAU C053.07 - GHF-1125	GHF-1125	50	C053.07	RT160	Geometrics		16 Magnetometer
DAU C053.08 - GHF-1126	GHF-1126	50	C053.08	RT160	Geometrics		16 Magnetometer
DAU C053.09 - GHF-1127	GHF-1127	50	C053.09	RT160	Geometrics		16 Magnetometer
DAU C05C.07 - GHF-1136	GHF-1136	50	C05C.07	RT160	Geometrics		16 Magnetometer

Active Template: <None>

D.5.1. Problem notes

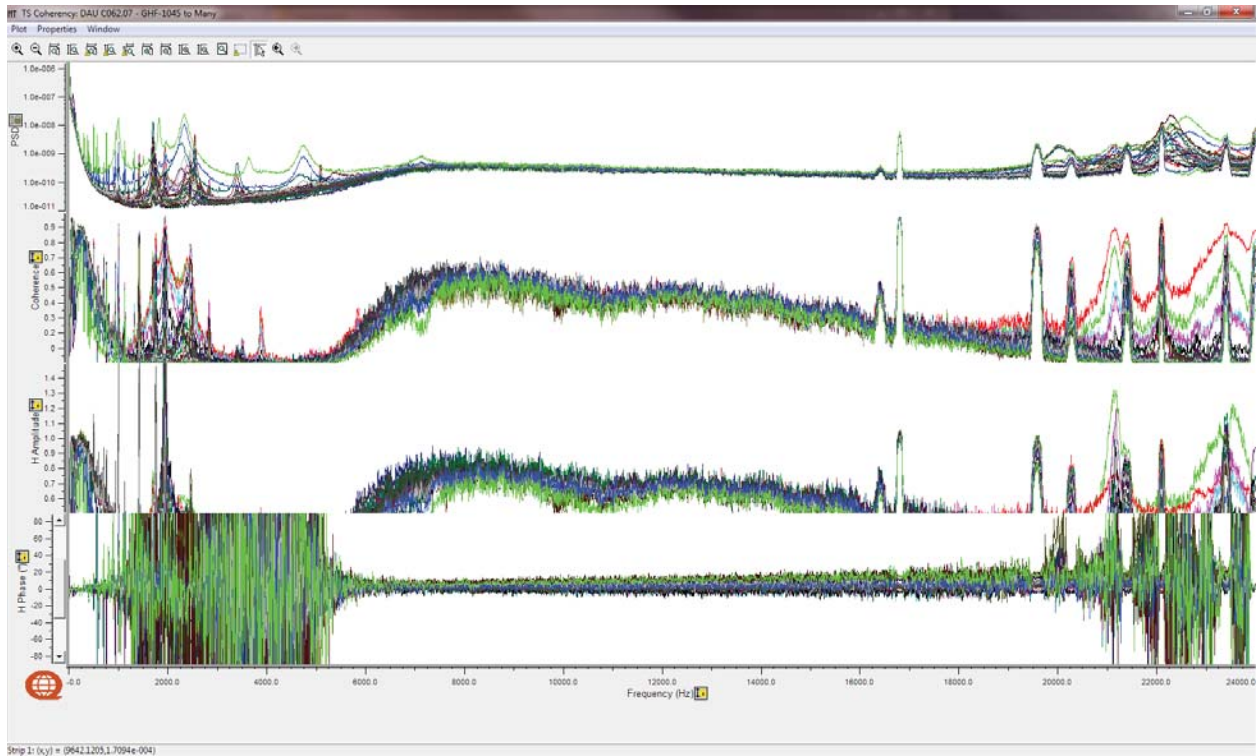
Serial ID	Pass / Fail	Notes
	Most will be retested.	
GHF-1120		See Test 2(b) for subset coherency plots
GHF-1122		See Test 2(b) for subset coherency plots

Time Series:

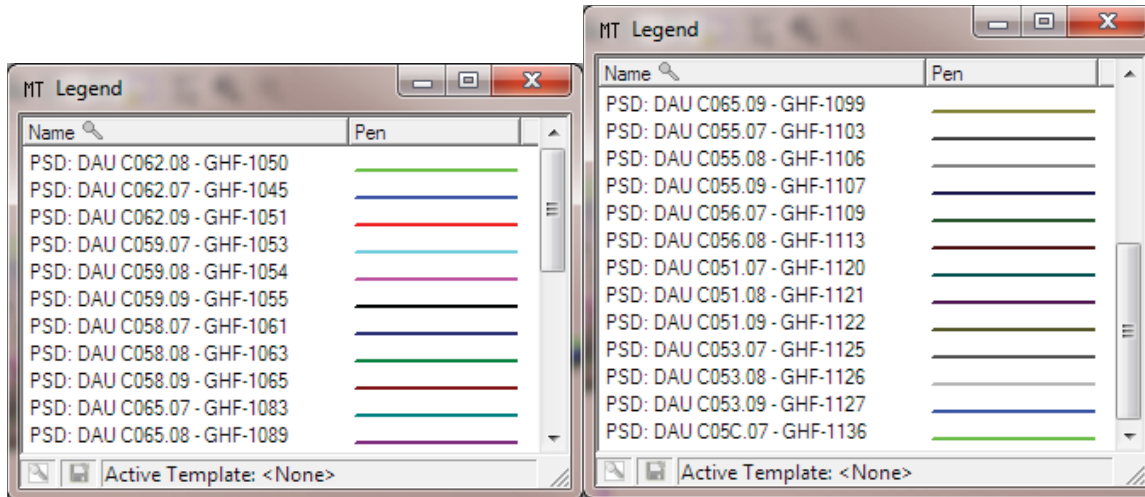
@48000 samples per second



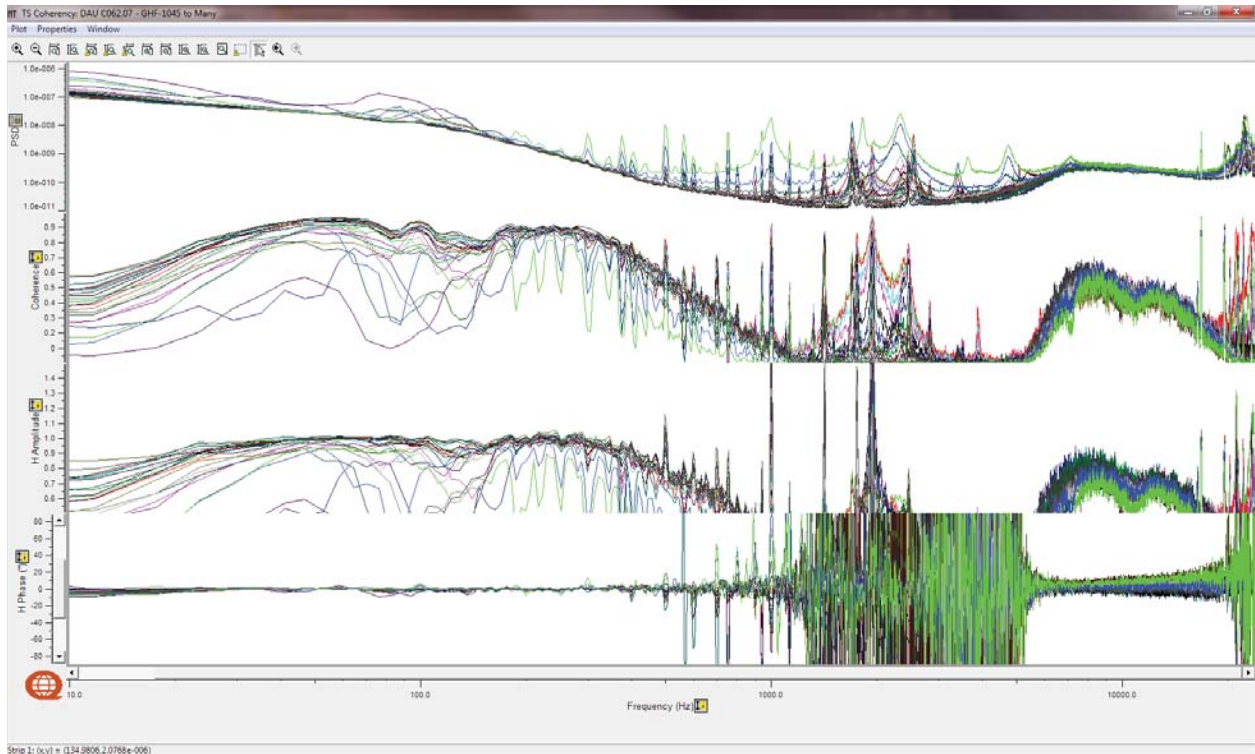
Test 2@ 48000 sps



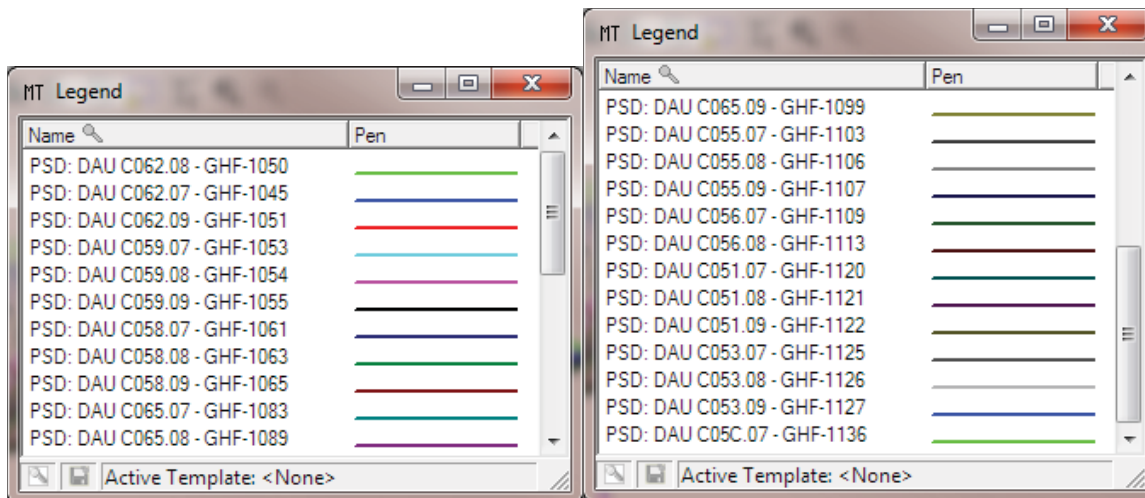
Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Linear frequency scale*



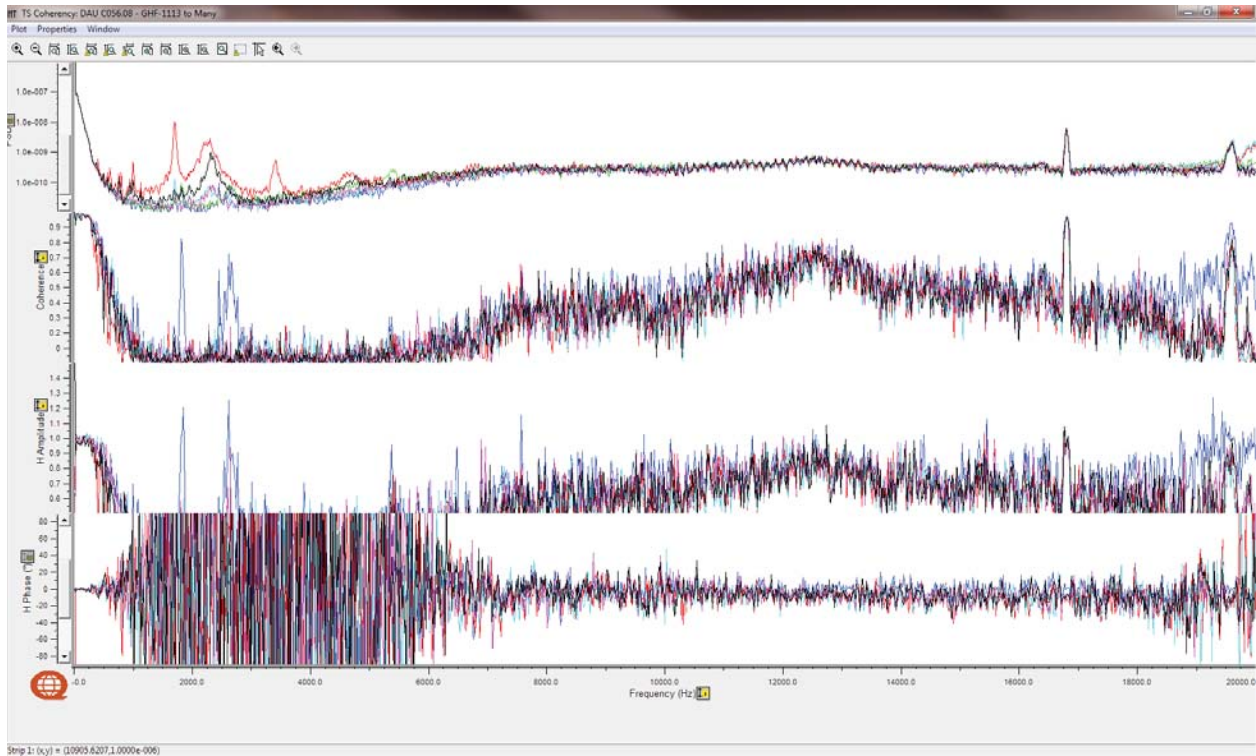
Test 2 @ 48000 sps



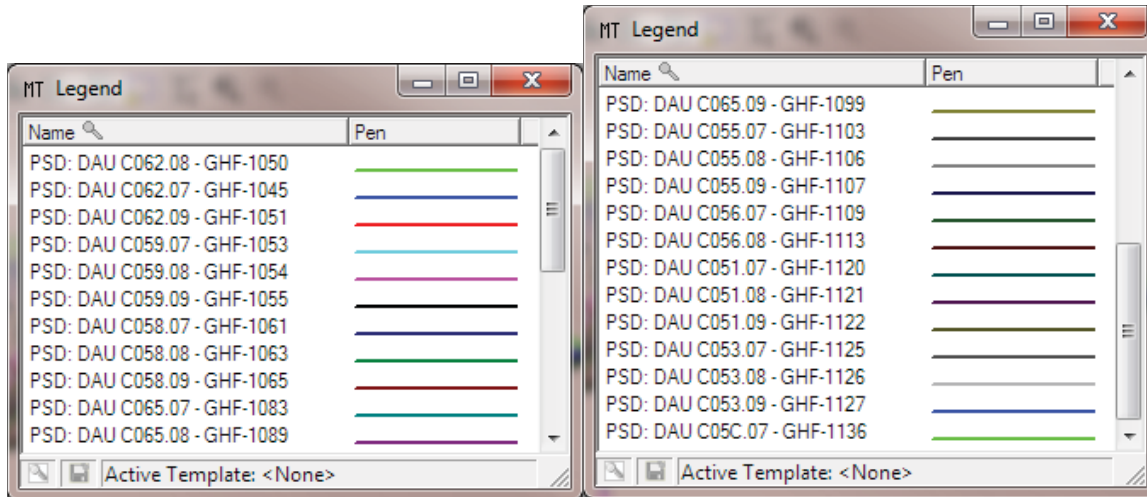
Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Logarithmic frequency scale*



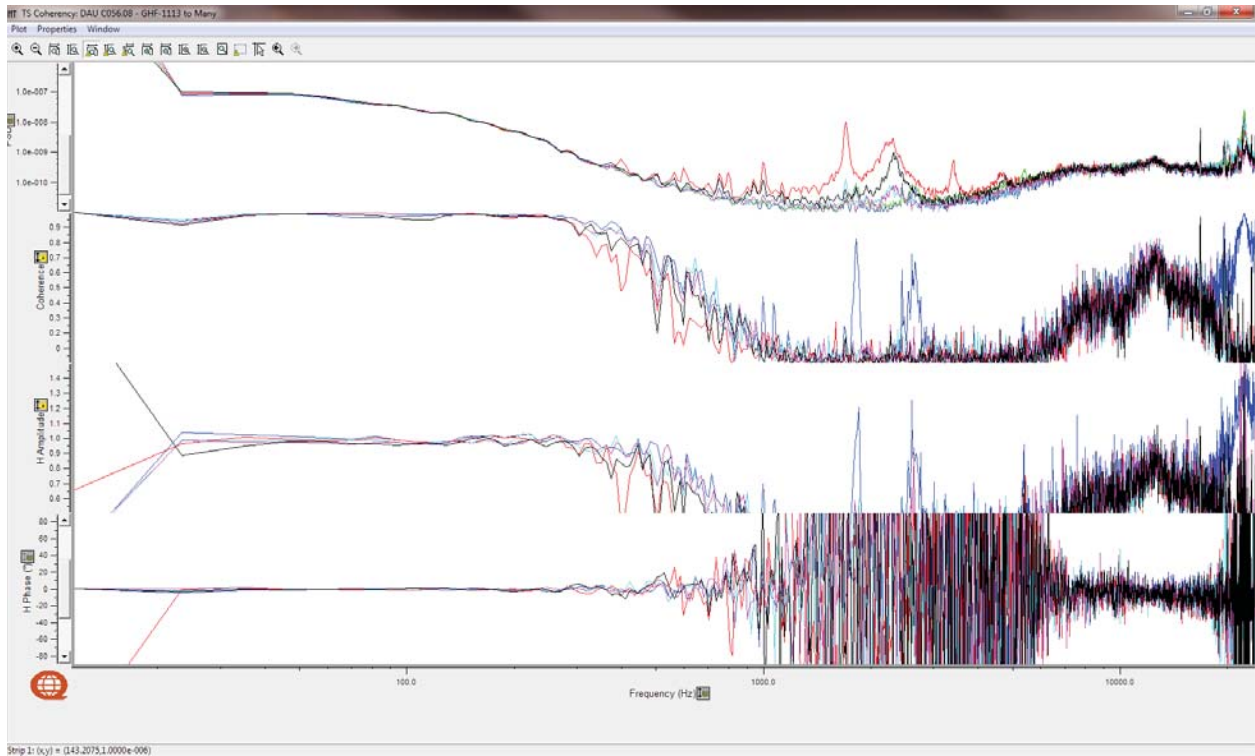
Test 2 (b)@ 48000 sps



Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Linear frequency scale*



Test 2 @ 48000 sps



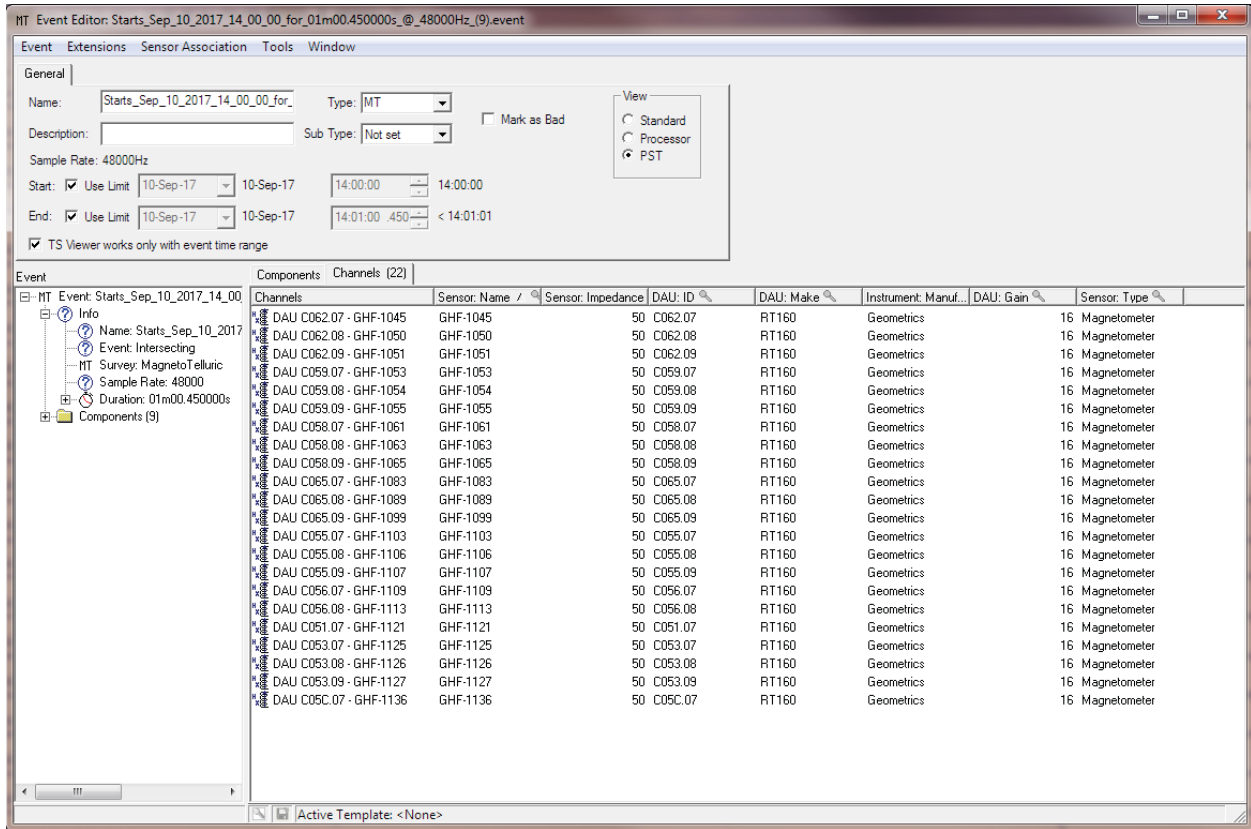
Step 1: (x,y) = (242,2075,1.0000e-006)

Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – Logarithmic frequency scale

Name	Pen
PSD: DAU C056.07 - GHF-1109	
PSD: DAU C056.08 - GHF-1113	
PSD: DAU C051.07 - GHF-1120	
PSD: DAU C051.09 - GHF-1122	
PSD: DAU C053.07 - GHF-1125	
PSD: DAU C053.08 - GHF-1126	

Active Template: <None>

D.6. RESULTS TEST 3

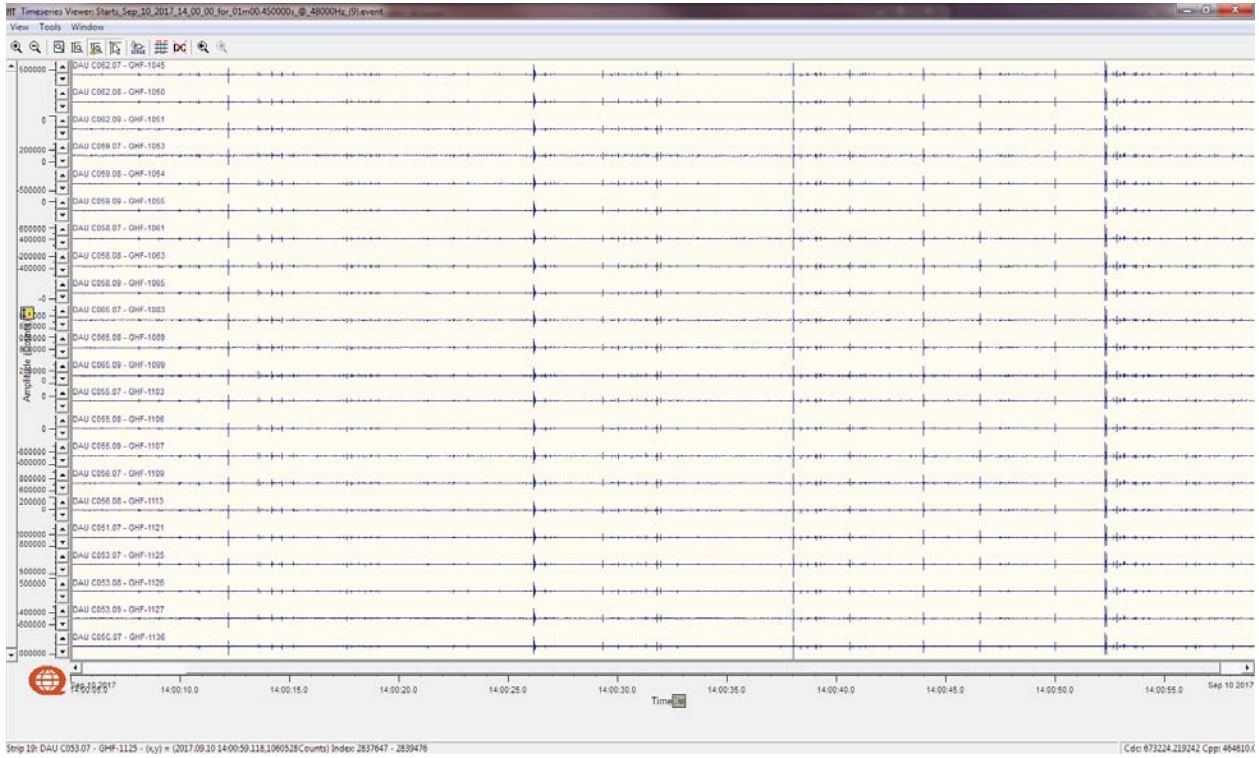


D.6.1. Problem notes

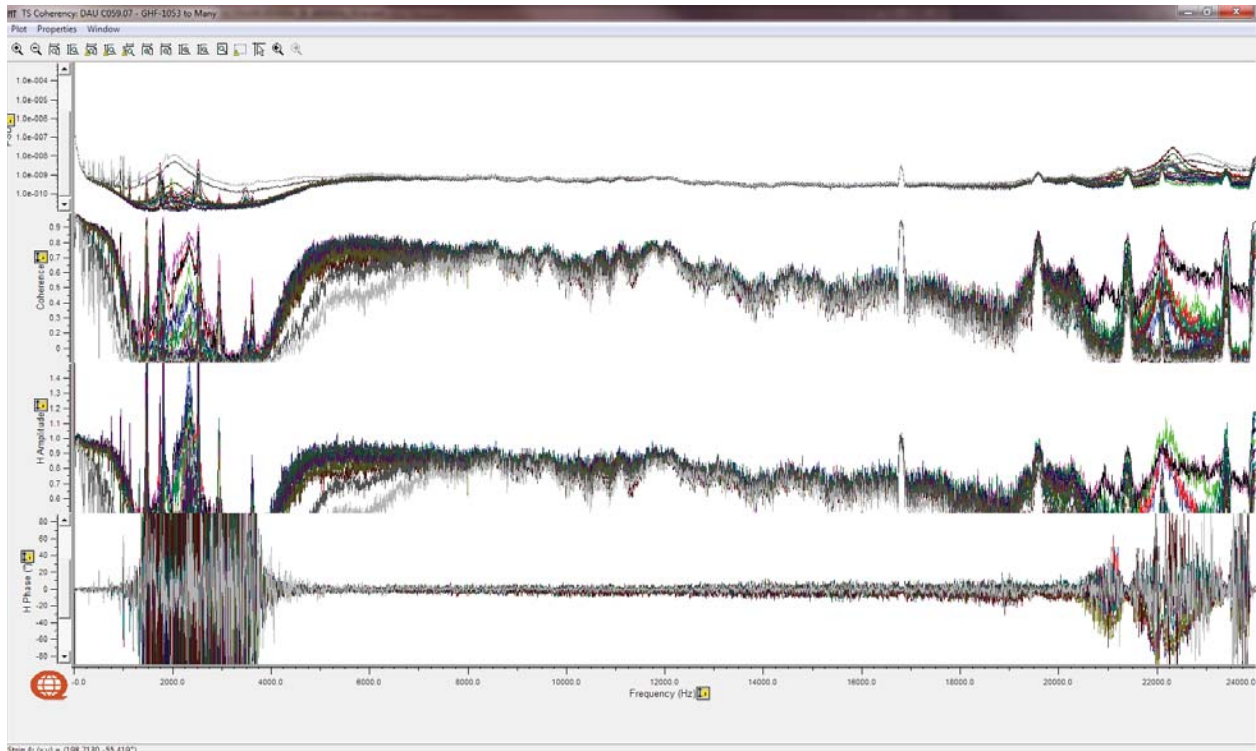
Serial ID	Pass / Fail	Notes
GHF-1127	Retest?	Higher PSD and lower coherencies than the rest. Will separate these and possibly retest.
GHF-1136	Retest?	

Time Series:

@48000 samples per second

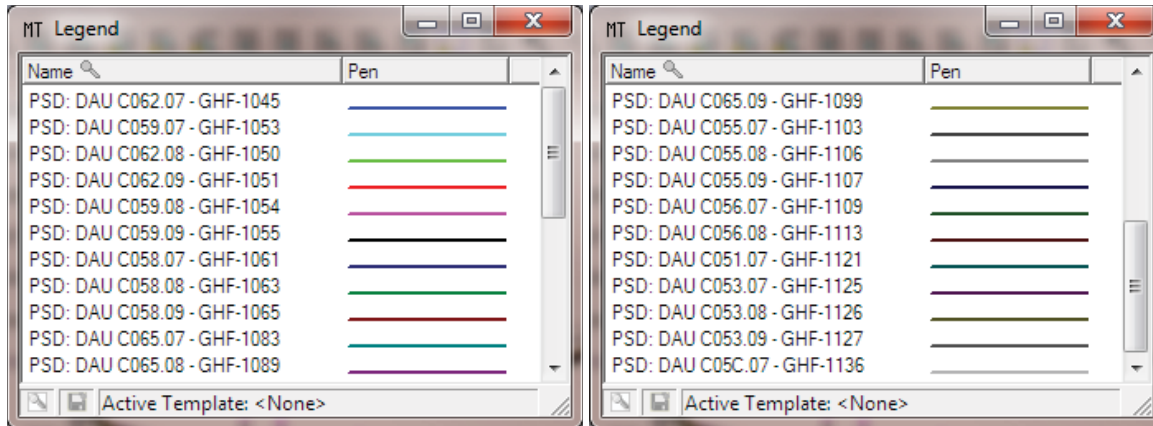


Test 2@ 48000 sps

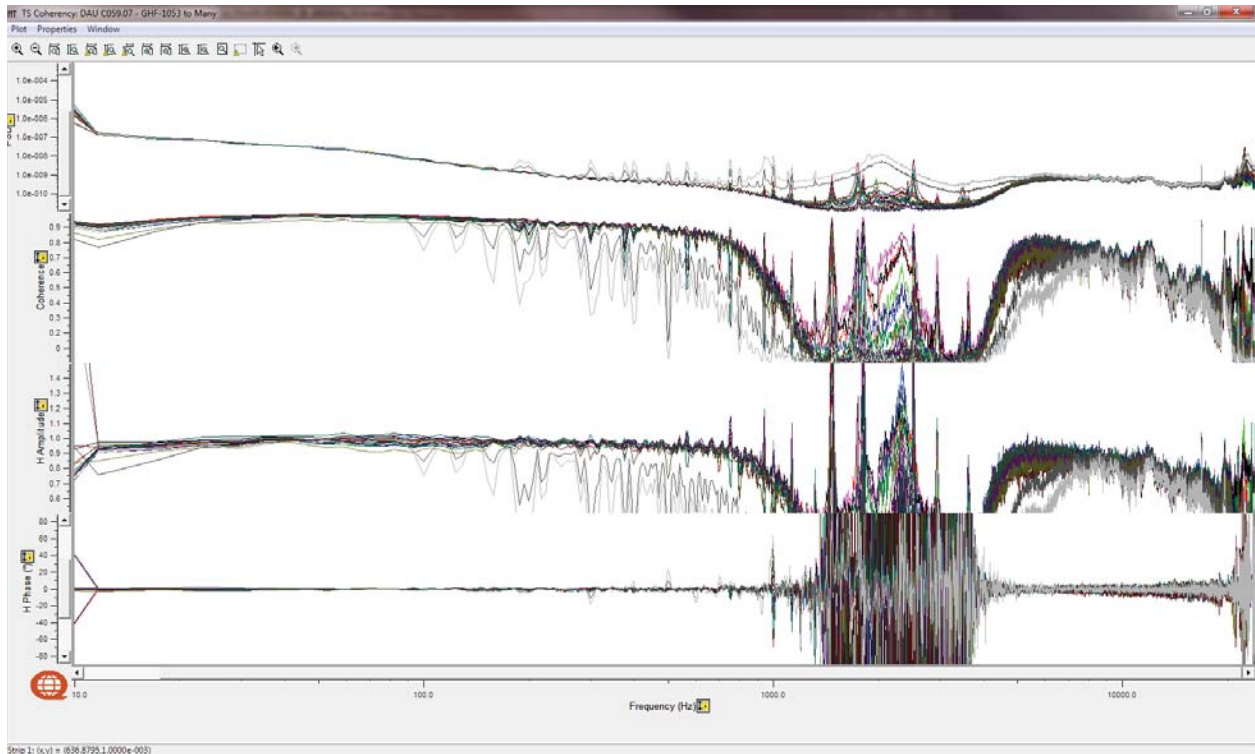


Step 4: (x,y) = (298.2130, 55.419°)

Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Linear frequency scale*



Test 3 @ 48000 sps



Step 1: (x,y) = (838.8795, 1.0000e-003)

Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Logarithmic frequency scale*

Name	Pen
PSD: DAU C062.07 - GHF-1045	Blue
PSD: DAU C059.07 - GHF-1053	Light Blue
PSD: DAU C062.08 - GHF-1050	Green
PSD: DAU C062.09 - GHF-1051	Red
PSD: DAU C059.08 - GHF-1054	Purple
PSD: DAU C059.09 - GHF-1055	Black
PSD: DAU C058.07 - GHF-1061	Dark Blue
PSD: DAU C058.08 - GHF-1063	Green
PSD: DAU C058.09 - GHF-1065	Red
PSD: DAU C065.07 - GHF-1083	Teal
PSD: DAU C065.08 - GHF-1089	Purple

Name	Pen
PSD: DAU C065.09 - GHF-1099	Yellow-Green
PSD: DAU C055.07 - GHF-1103	Black
PSD: DAU C055.08 - GHF-1106	Black
PSD: DAU C055.09 - GHF-1107	Black
PSD: DAU C056.07 - GHF-1109	Green
PSD: DAU C056.08 - GHF-1113	Red
PSD: DAU C051.07 - GHF-1121	Teal
PSD: DAU C053.07 - GHF-1125	Purple
PSD: DAU C053.08 - GHF-1126	Black
PSD: DAU C053.09 - GHF-1127	Black
PSD: DAU C05C.07 - GHF-1136	Black

D.7. RESULTS TEST 4 - LF

The screenshot shows the 'MT Event Editor: Test2_LF.event' window. The 'General' tab is active, displaying event details: Name: Test2_LF, Type: MT, Sub Type: Not set, Sample Rate: 1000Hz, Start: 10-Sep-17 15:41:00, End: 10-Sep-17 16:05:00. A tree view on the left shows the event structure, including 'Info', 'Event: Intersecting', 'HT Survey: Magnetotelluric', 'Sample Rate: 1000', 'Duration: 24m00s', and 'Components (8)'. The main table lists 24 channels with columns for Channels, Sensor Name, Instrument Name, Sensor Impedance, Sensor Azimuth, and Sensor Start coordinates (x, y, z).

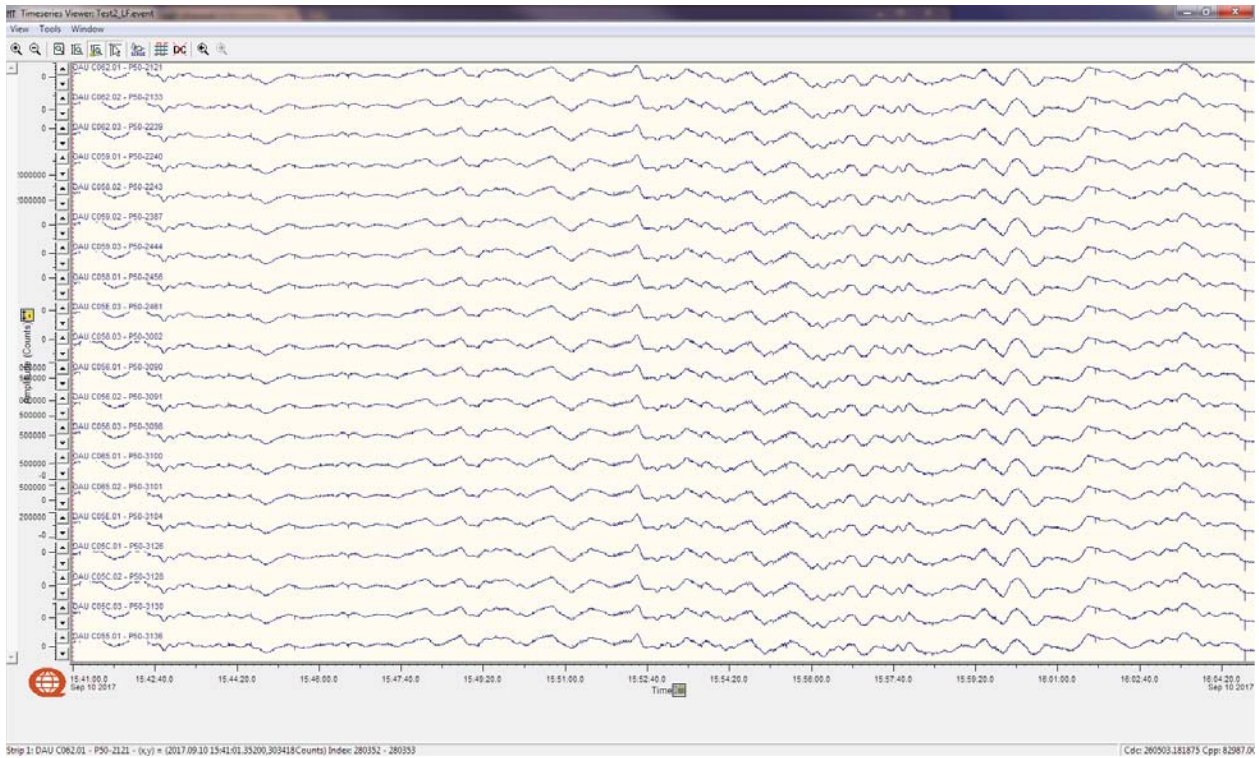
Channels	Sensor Name	Instrument Name	Sensor Impedance	Sensor Azimuth	Sensor Start: x	Sensor Start: y	Sensor Start: z	Sensor End: x	Sensor End: y	Sensor End: z
DAU C062.01 ...	P50-2121	P50-2121	110	0	550822.00	6863552.00	534.00			
DAU C062.02 ...	P50-2133	P50-2133	110	0	550822.00	6863552.00	534.00			
DAU C062.03 ...	P50-2239	P50-2239	110	0	550822.00	6863552.00	534.00			
DAU C059.01 ...	P50-2240	P50-2240	110	0	550826.00	6863550.00	531.00			
DAU C058.02 ...	P50-2243	P50-2243	110	0	550826.00	6863554.00	536.00			
DAU C059.02 ...	P50-2387	P50-2387	110	0	550826.00	6863550.00	531.00			
DAU C059.03 ...	P50-2444	P50-2444	110	0	550826.00	6863550.00	531.00			
DAU C058.01 ...	P50-2456	P50-2456	110	0	550828.00	6863554.00	536.00			
DAU C05E.03 ...	P50-2461	P50-2461	110	0	550803.00	6863543.00	533.00			
DAU C058.03 ...	P50-3002	P50-3002	110	0	550828.00	6863554.00	536.00			
DAU C056.01 ...	P50-3090	P50-3090	110	0	550835.00	6863565.00	530.00			
DAU C056.02 ...	P50-3091	P50-3091	110	0	550835.00	6863565.00	530.00			
DAU C056.03 ...	P50-3098	P50-3098	110	0	550835.00	6863565.00	530.00			
DAU C065.01 ...	P50-3100	P50-3100	110	0	550818.00	6863565.00	533.00			
DAU C065.02 ...	P50-3101	P50-3101	110	0	550818.00	6863565.00	533.00			
DAU C05E.01 ...	P50-3104	P50-3104	110	0	550803.00	6863543.00	533.00			
DAU C05C.01 ...	P50-3126	P50-3126	110	0	550834.00	6863573.00	532.00			
DAU C05C.02 ...	P50-3128	P50-3128	110	0	550834.00	6863573.00	532.00			
DAU C05C.03 ...	P50-3130	P50-3130	110	0	550834.00	6863573.00	532.00			
DAU C055.01 ...	P50-3136	P50-3136	110	0	550838.00	6863573.00	537.00			

D.7.1. Problem notes

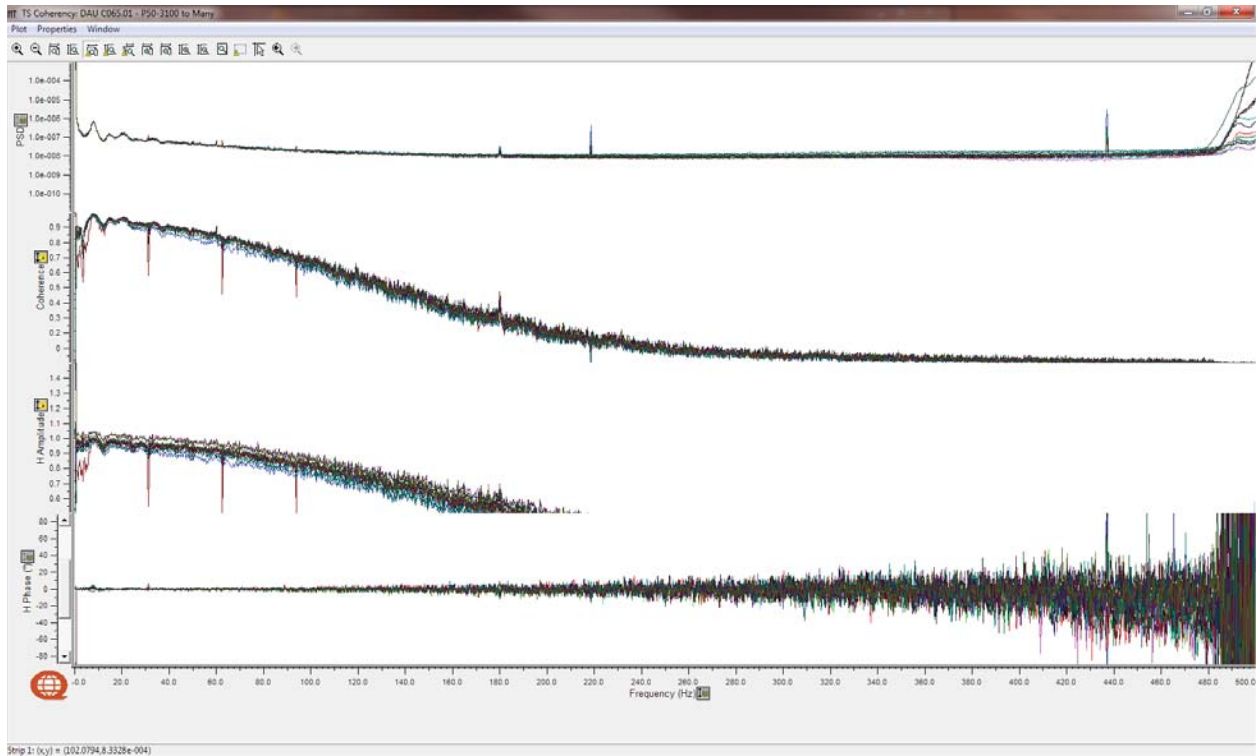
Serial ID	Pass / Fail	Notes
P50-2461	Retest	

Time Series:

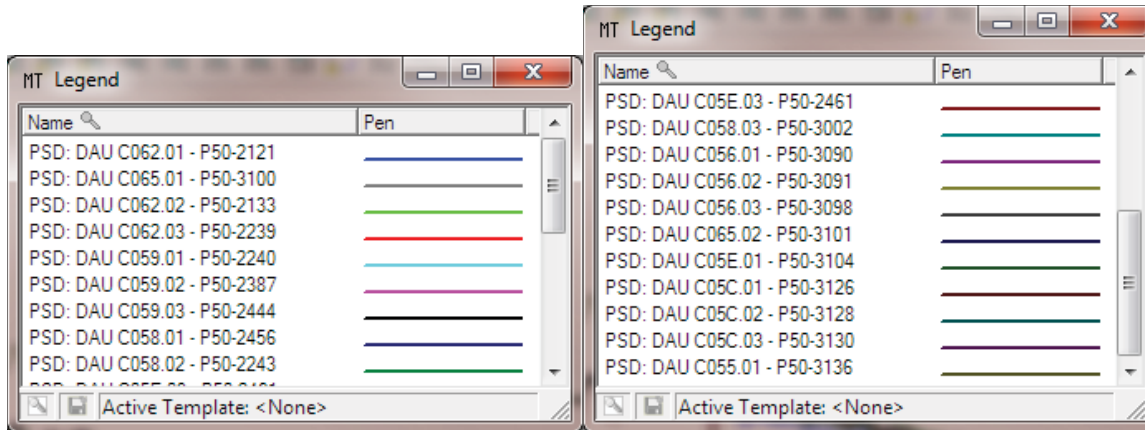
@1000 samples per second



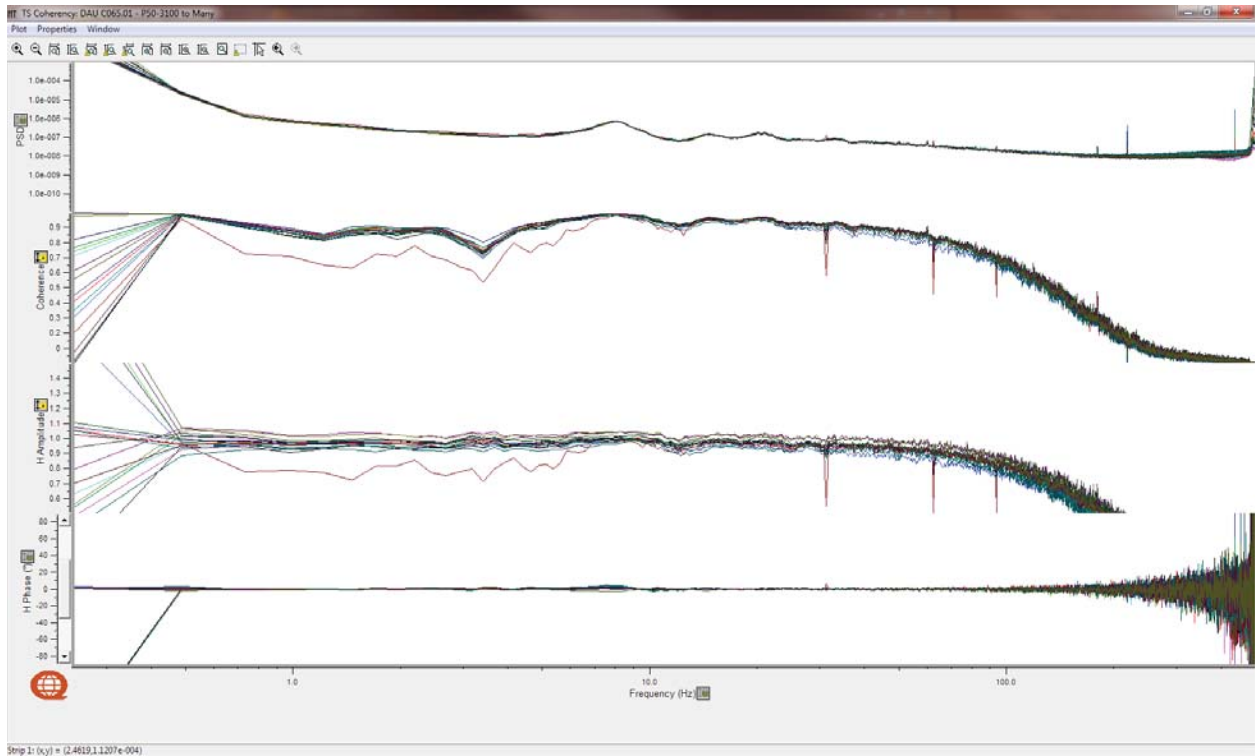
Test 4@ 1000 sps



Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Linear frequency scale*

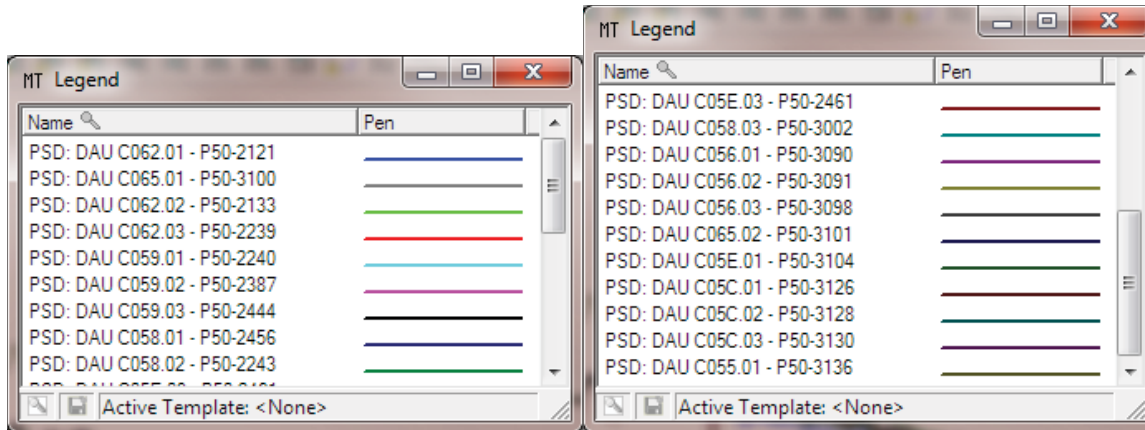


Test 4 @ 1000 sps

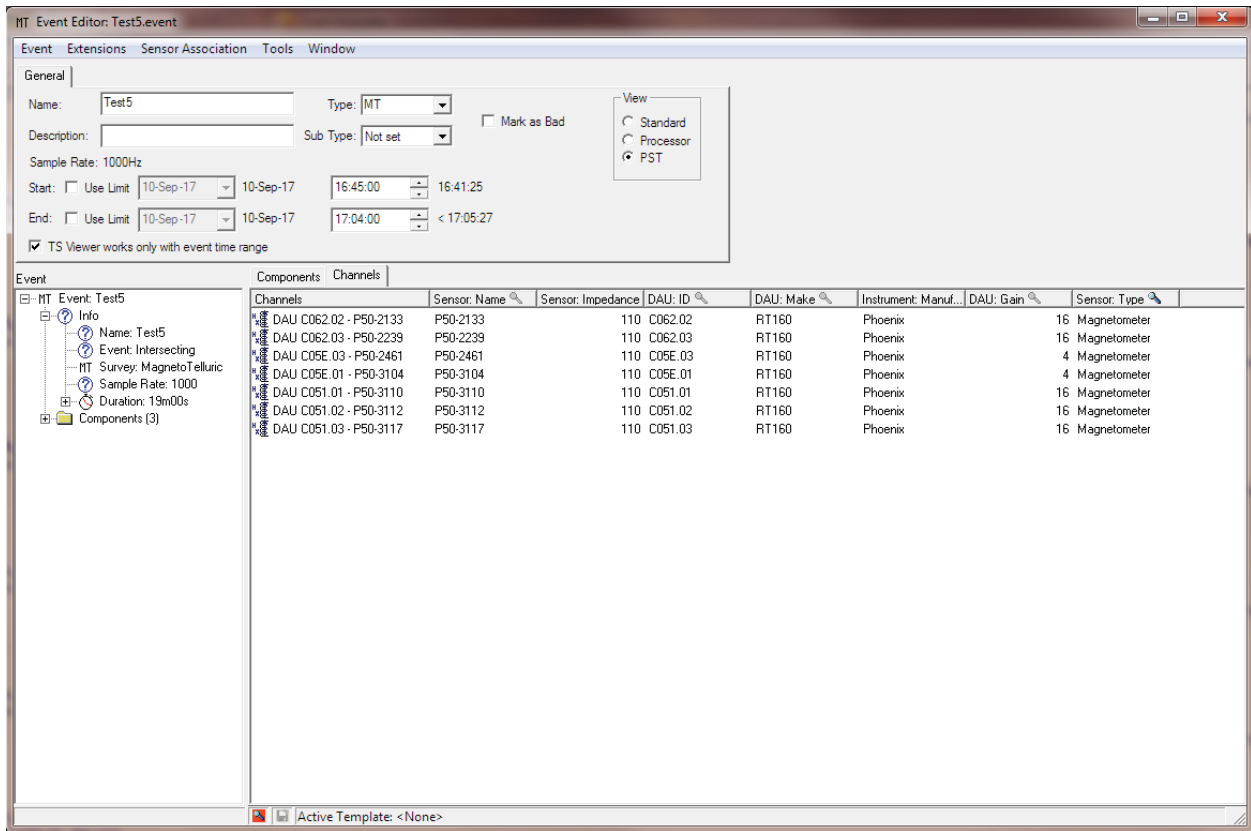


Step 1: (x,y) = (2.4619,1.1207e-004)

Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – *Logarithmic frequency scale*



D.8. RESULTS TEST 5

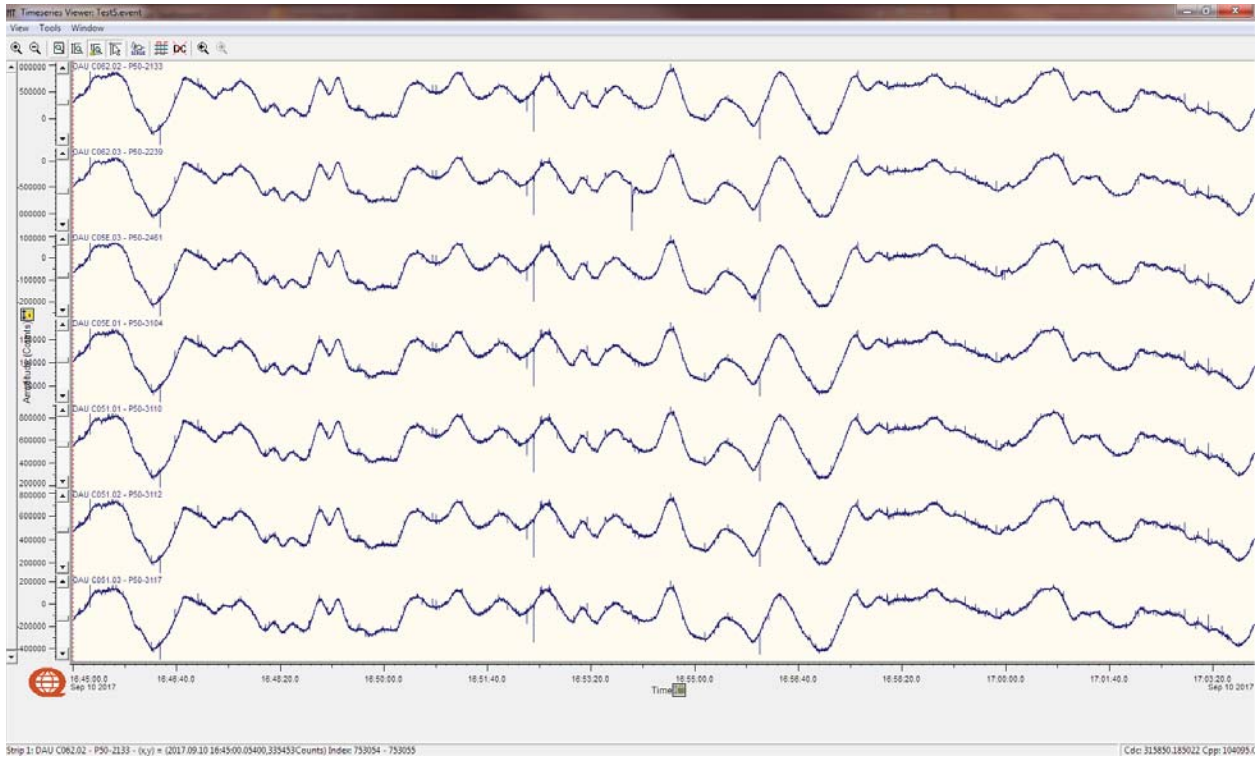


D.8.1. Problem notes

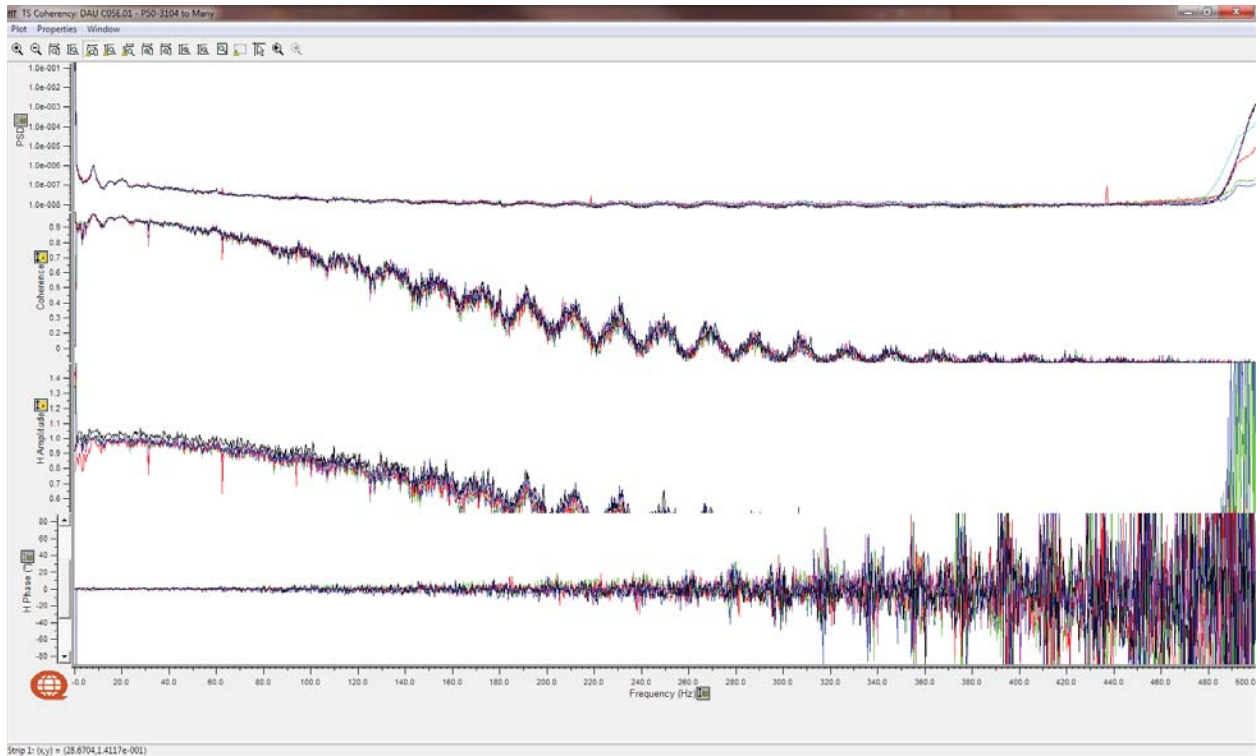
Serial ID	Pass / Fail	Notes
P50-2461	Fail?	Still lower coherency even after swapping coil cable, locations, logger, and spider.

Time Series:

@1000 samples per second



Test 5@ 1000 sps

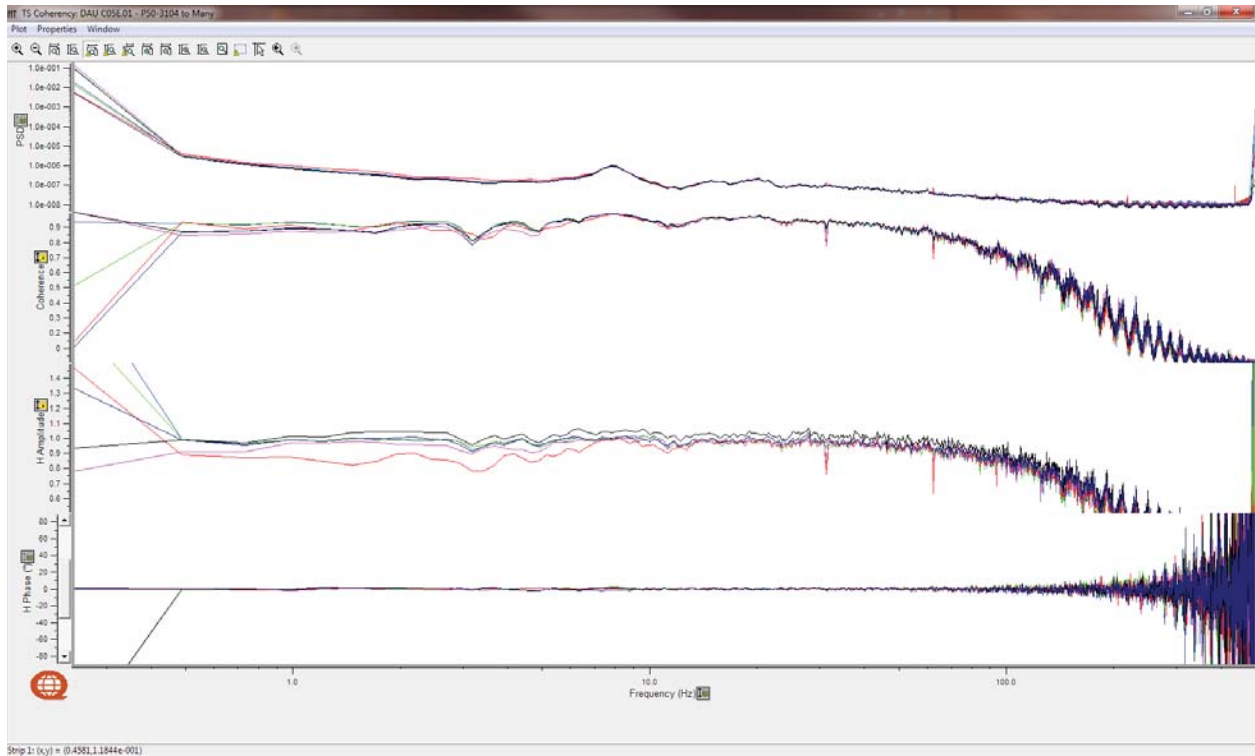


Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – Linear frequency scale

Name	Pen
PSD: DAU C062.02 - P50-2133	—
PSD: DAU C051.03 - P50-3117	—
PSD: DAU C062.03 - P50-2239	—
PSD: DAU C05E.03 - P50-2461	—
PSD: DAU C05E.01 - P50-3104	—
PSD: DAU C051.01 - P50-3110	—
PSD: DAU C051.02 - P50-3112	—

Active Template: <None>

Test 5 @ 1000 sps



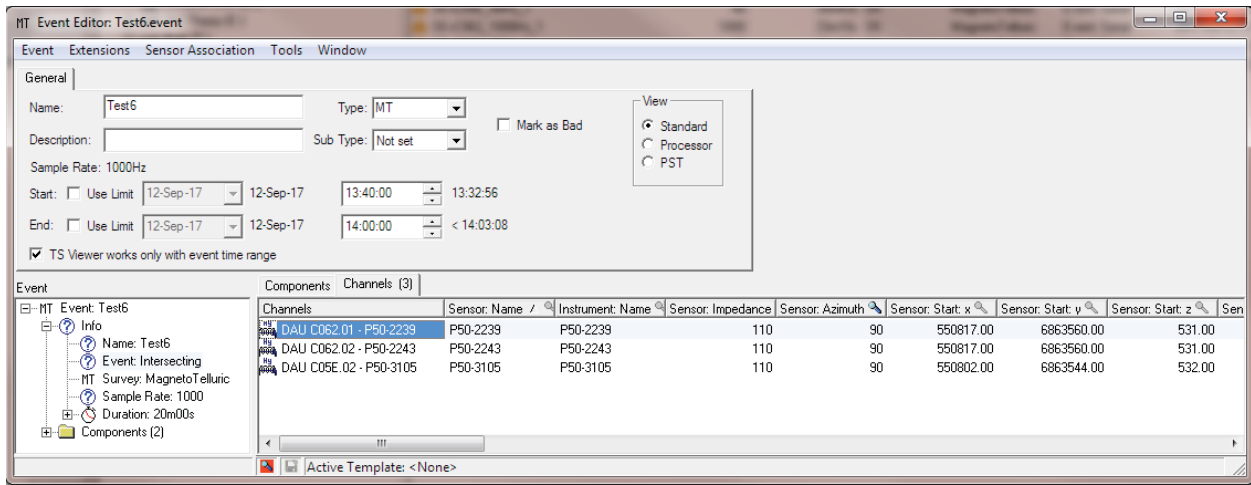
Step 1: (x,y) = (0.4561, 1.1844e-001)

Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – Logarithmic frequency scale

Name	Pen
PSD: DAU C062.02 - P50-2133	Blue line
PSD: DAU C051.03 - P50-3117	Dark Blue line
PSD: DAU C062.03 - P50-2239	Green line
PSD: DAU C05E.03 - P50-2461	Red line
PSD: DAU C05E.01 - P50-3104	Cyan line
PSD: DAU C051.01 - P50-3110	Purple line
PSD: DAU C051.02 - P50-3112	Black line

Active Template: <None>

D.9. RESULTS TEST 6

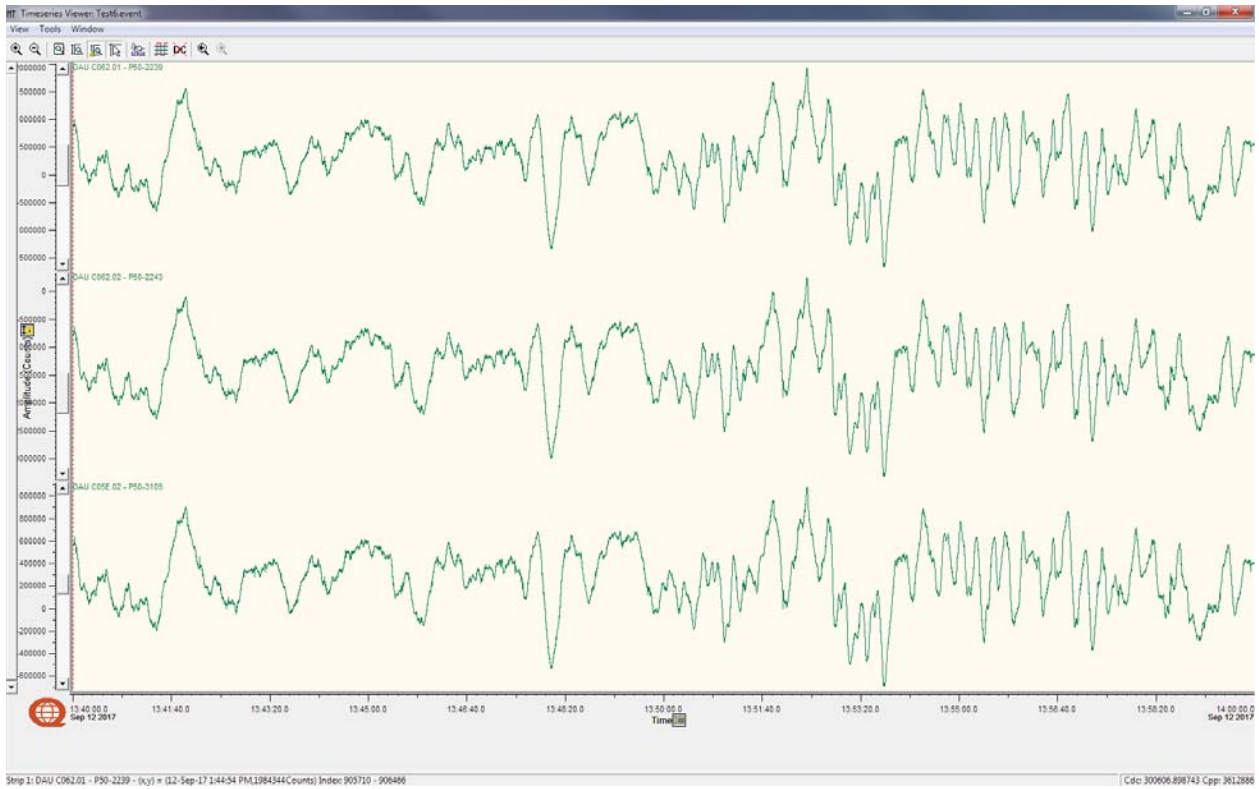


D.9.1. Problem notes

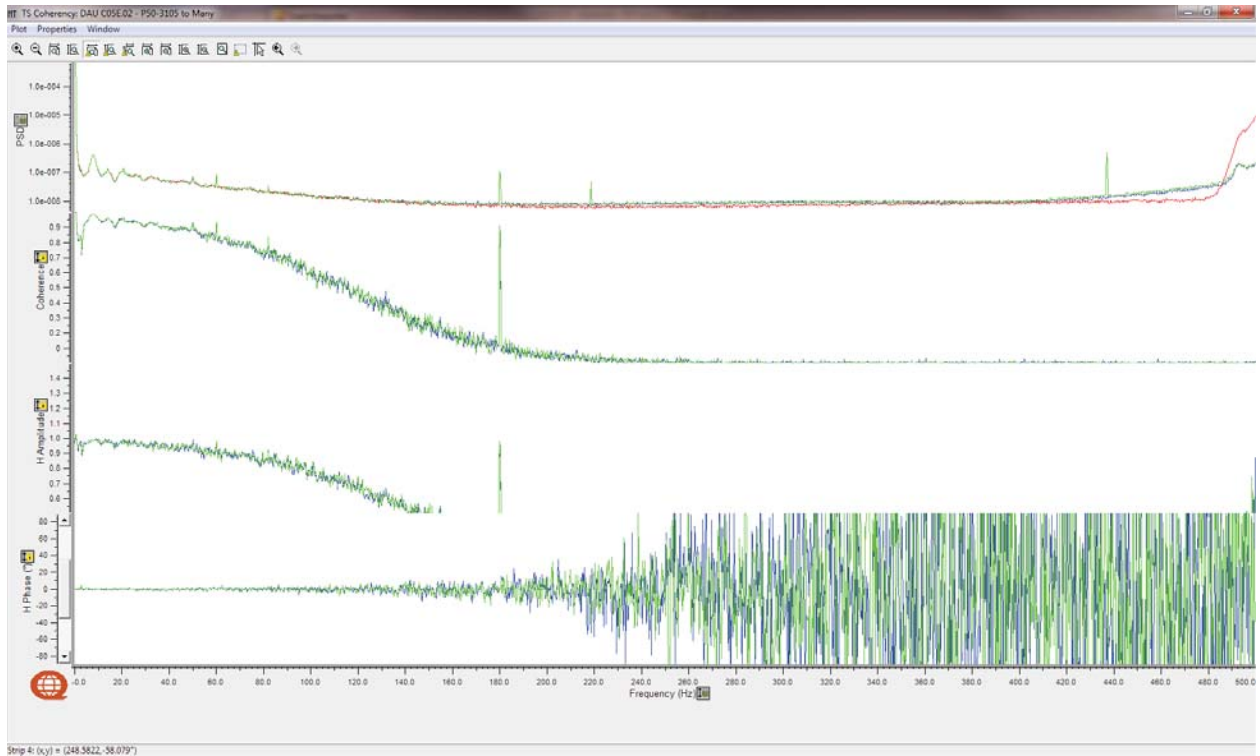
Serial ID	Pass / Fail	Notes
All OK		

Time Series:

@1000 samples per second



Test 6@ 1000 sps

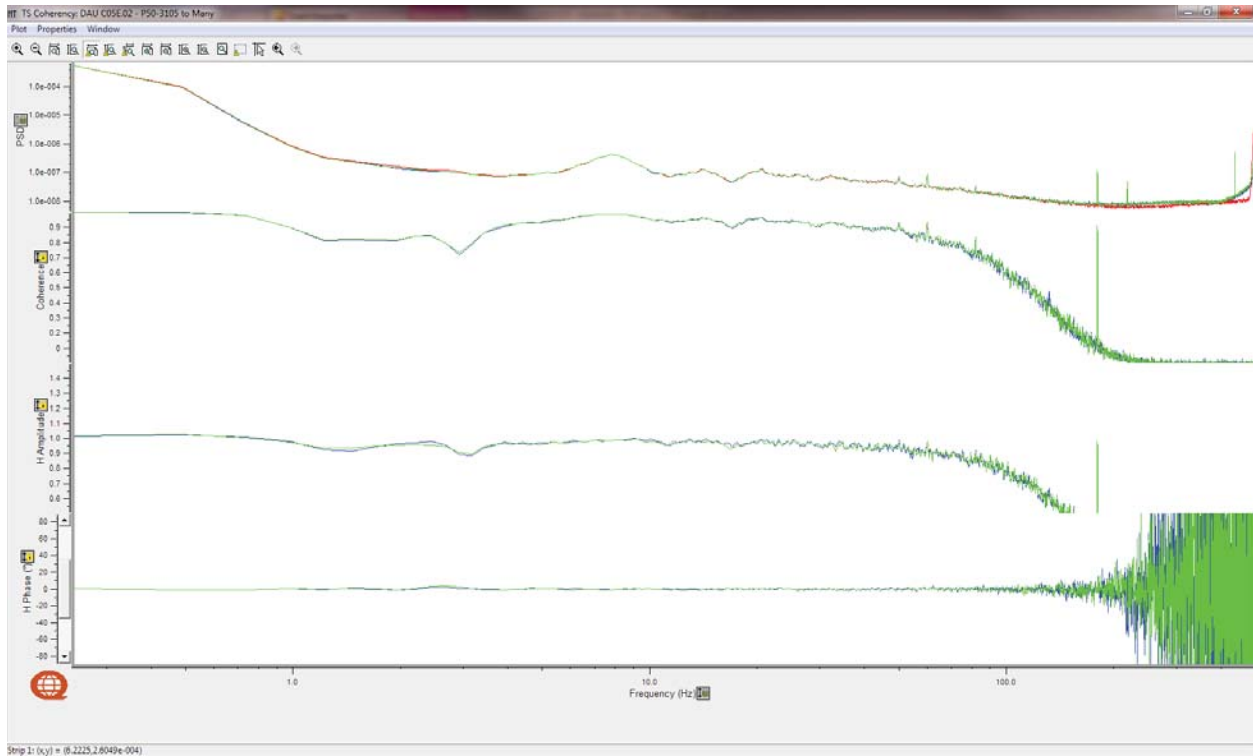


Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – Linear frequency scale

MT Legend	
Name	Pen
PSD: DAU C062.01 - P50-2239	
PSD: DAU C05E.02 - P50-3105	
PSD: DAU C062.02 - P50-2243	

Active Template: <None>

Test 5 @ 1000 sps



Step 1: (x,y) = (8.2225, 2.6049e-004)

Power Spectral Density (PSD) of channels (strip 1); Coherency (strip 2) and Response Function (strips 3&4; Amplitude and Phase) – Logarithmic frequency scale

Name	Pen
PSD: DAU C062.01 - P50-2239	
PSD: DAU C05E.02 - P50-3105	
PSD: DAU C062.02 - P50-2243	

Active Template: <None>

APPENDIX E. MT REMOTE TEST

E.1. GENERAL INFORMATION

Project:	CA01113S
Date:	September 10, 2017
Prepared by:	Emily Data
QuickLay version:	ver.5.1.8.2
Common folder:	ver.1.801 (released: 2017/08/03)
Datum & Projection:	WGS 84 / UTM 18 North
Site Location:	550825mE / 6863549mN
Magnetic Declination:	23° W
Sensor Information:	see Table below and figure next page.

Channel	Azimuth	Length	Channel	Azimuth
Ex	00° North	100m	Hx	00° North
Ey	270° West	100m	Hy	90° East

Culture: Repeater station ~900m NE of site. Deception Bay Road ~300m E of site

Event Editor: SEV-COSE_1000Hz_1_event

Event Extensions Sensor Association Tools Window

General

Name: SEV-COSE_1000Hz_1 Type: MT

Description: Sub Type: Reference

Sample Rate: 1000Hz

Start: Use Limit 10-Sep-17 17:35:00 17:22:02

End: Use Limit 11-Sep-17 12:55:00 < 13:05:18

Mark as Bad

Standard
 Processor
 PST

TS Viewer works only with event time range

Event Components Channels (4)

Channel	Instrument Name	Sensor Name	Sensor Dipole Le.	Sensor Impedance	Sensor Azimuth	Sensor Component	Sensor Polarity	Sensor Start x	Sensor End x	Sensor Start y	Sensor End y
DAU COSE 01 - Rm.Hx	P50-3104	Rm.Hx		110	0	Inline	Positive	550803.00		6863541.00	
DAU COSE 02 - Rm.Hy	P50-0105	Rm.Hy		110	90	Crossline	Positive	550803.00		6863541.00	
DAU COSE 04 - Rm.Ex	GL	Rm.Ex	100m	3000	0	Inline	Positive	550803.00	550803.00	6863541.00	6863641.00
DAU COSE 05 - Rm.Ey	GL	Rm.Ey	100m	3000	270	Crossline	Positive	550803.00	550703.00	6863541.00	6863541.00

Active Template: <None>

NetEvent Editor: File: "F:\CA011135_Glencore\Z58_ZT0911\Sites\Remote\Rm_COSE_2017253180000_12.0k\Rm_COSE_2017253180000_12.0k.net"

NetEvent Sensor Association Tools Special Window

General

Name: Rm_201725318000 Type: MT

Description: J:\2017253 COSE\111\17595600070 Sub Type: Reference

Mark as Bad

Acc Mode Type: Logger Site

Instrumentation: Mini SEED File Start: Sep 10, 2017 18:00:00.000

Sample Rate: 12000Hz End: Sep 10, 2017 18:04:00.450

Standard
 Processor
 PST

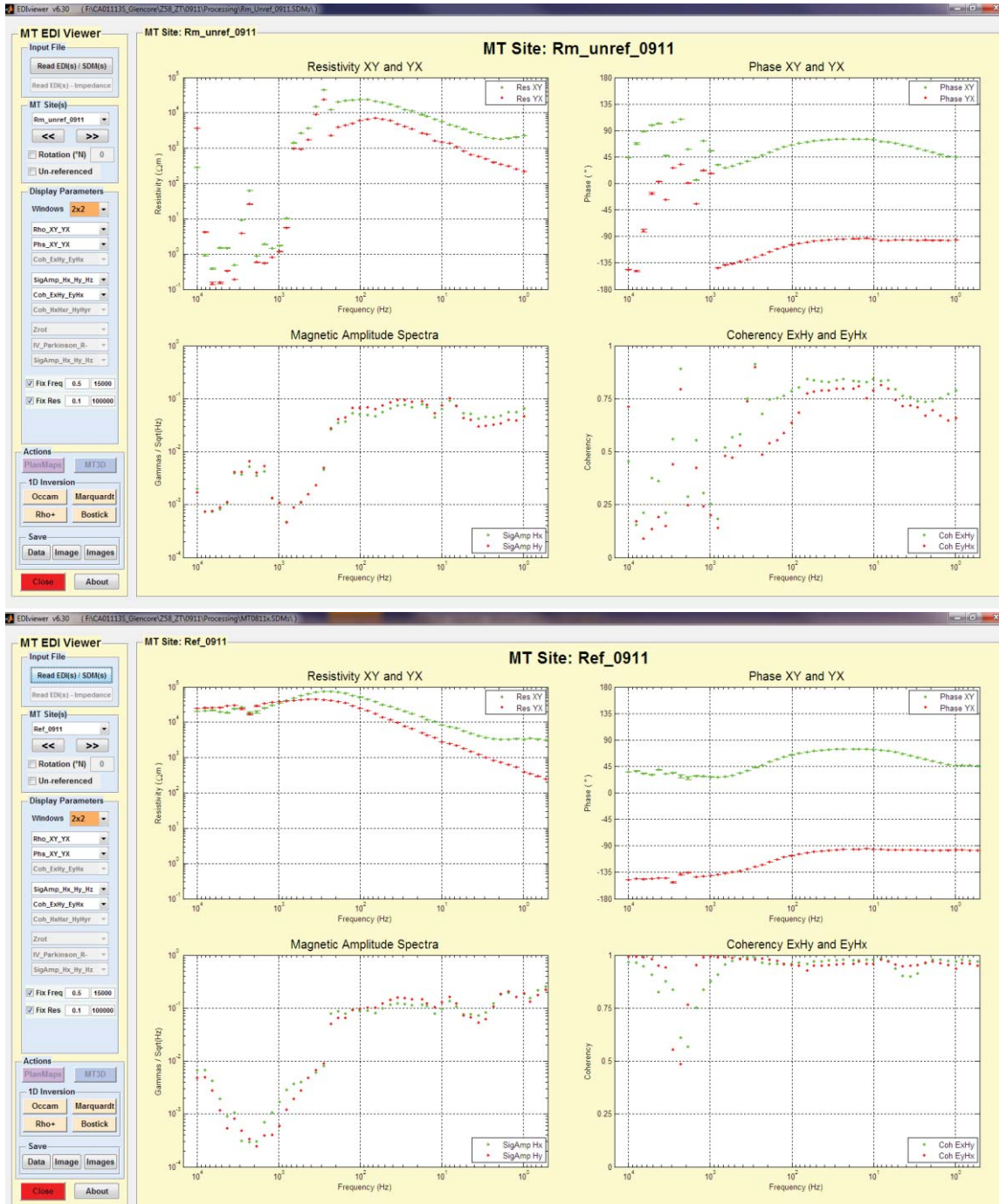
Net Event Components Channels (4 of 4)

Channel	Instrument Name	Sensor Name	Sensor Dipole Le.	Sensor Impedance	Sensor Azimuth	Sensor Component	Sensor Polarity	Sensor Start x	Sensor End x	Sensor Start y	Sensor End y
DAU COSE 07 - Rm.Hx	GHF-1120	Rm.Hx		50	0	Inline	Positive	550803.00		6863541.00	
DAU COSE 08 - Rm.Hy	GHF-1122	Rm.Hy		50	90	Crossline	Positive	550803.00		6863541.00	
DAU COSE 10 - Rm.Ex	GL	Rm.Ex	100m	3000	0	Inline	Positive	550803.00	550803.00	6863541.00	6863641.00
DAU COSE 11 - Rm.Ey	GL	Rm.Ey	100m	3000	270	Crossline	Positive	550803.00	550703.00	6863541.00	6863541.00

Active Template: <None>

E.2. SOUNDING CURVES – UNREFERENCED (TOP), REFERENCED (BOTTOM)

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



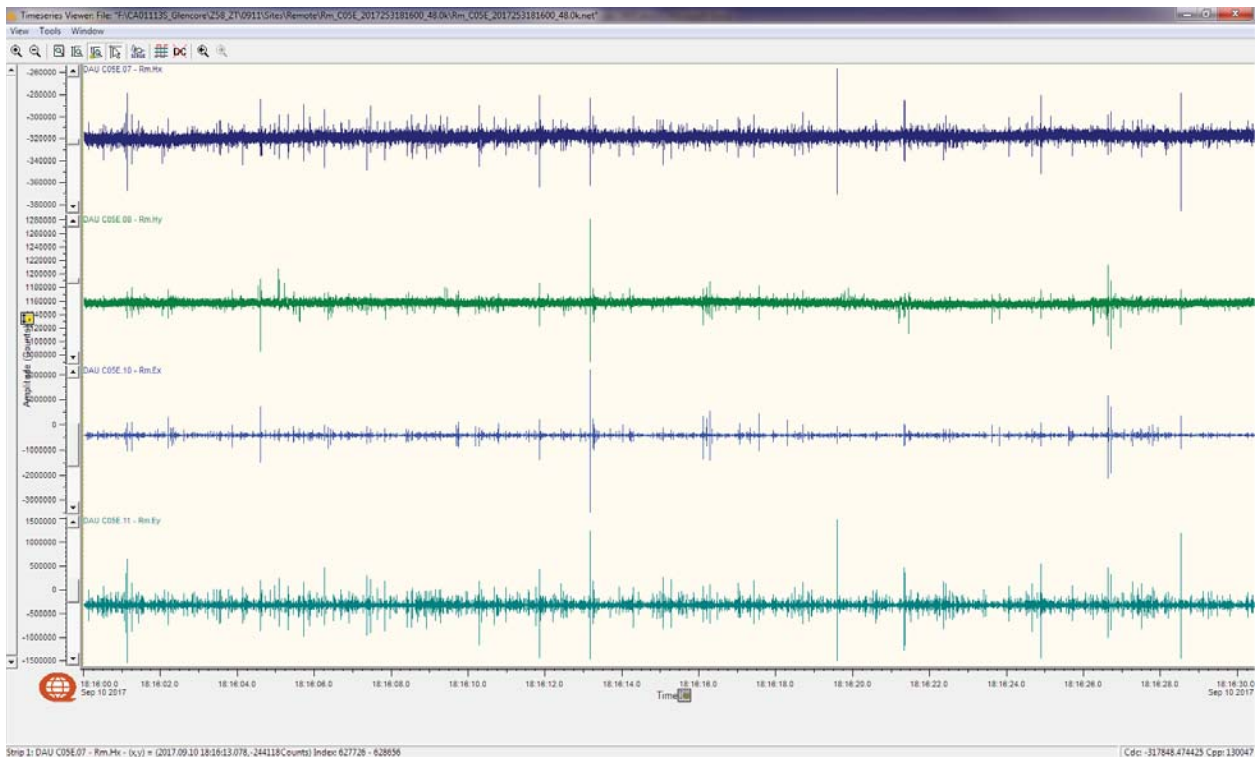
E.3. LIST OF EVENTS ACQUIRED AND USED ON THE PROCESSING

Sample rate	Net Events	TS Length	Observation
48,000 sps	6 netEvents between 300 and 600 UTC	30s each	Numerous overscales in all channels. May reduce gains in next days.
12,000 sps	13 netEvents between 0300 and 0600 UTC	4m each	
1,000 sps	SEvC05E_1000Hz.1	5h subevent	

E.4. SCREEN CAPTURE OF TIME SERIES

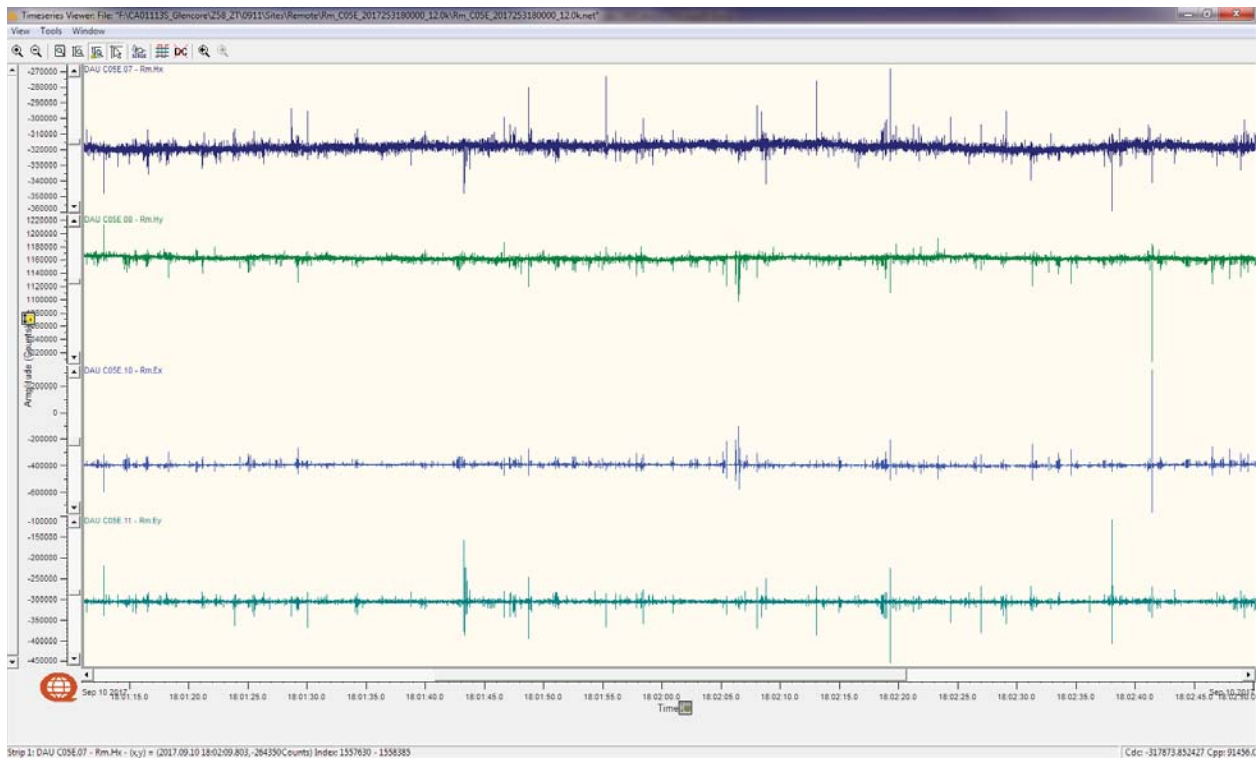
Time Series:

@48,000 samples per second



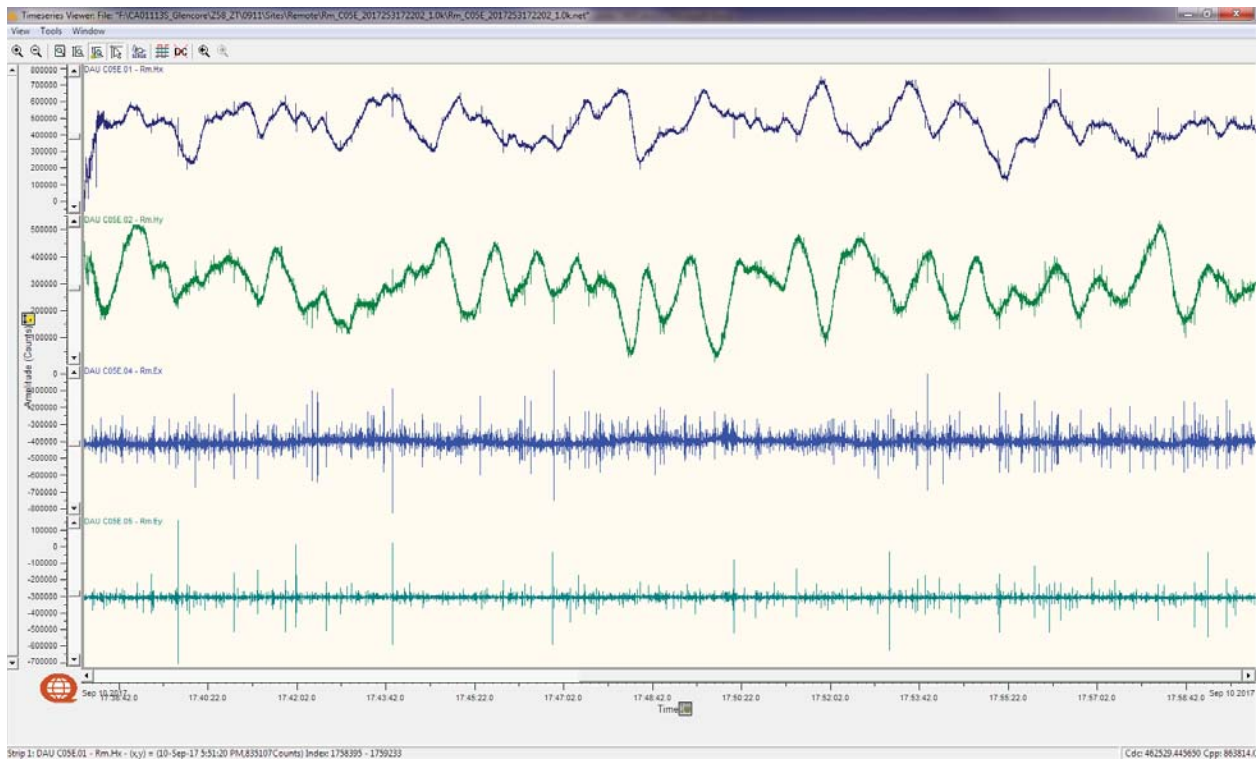
Time Series:

@ 12,000 samples per second

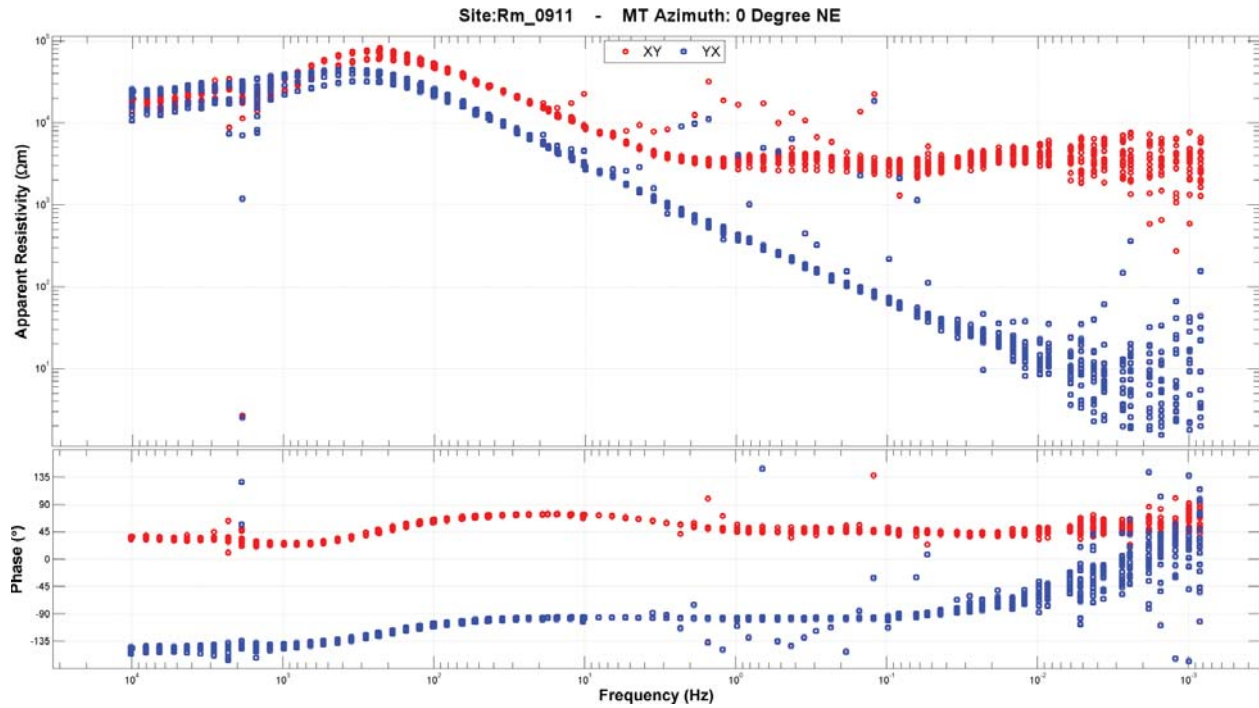


Time Series:

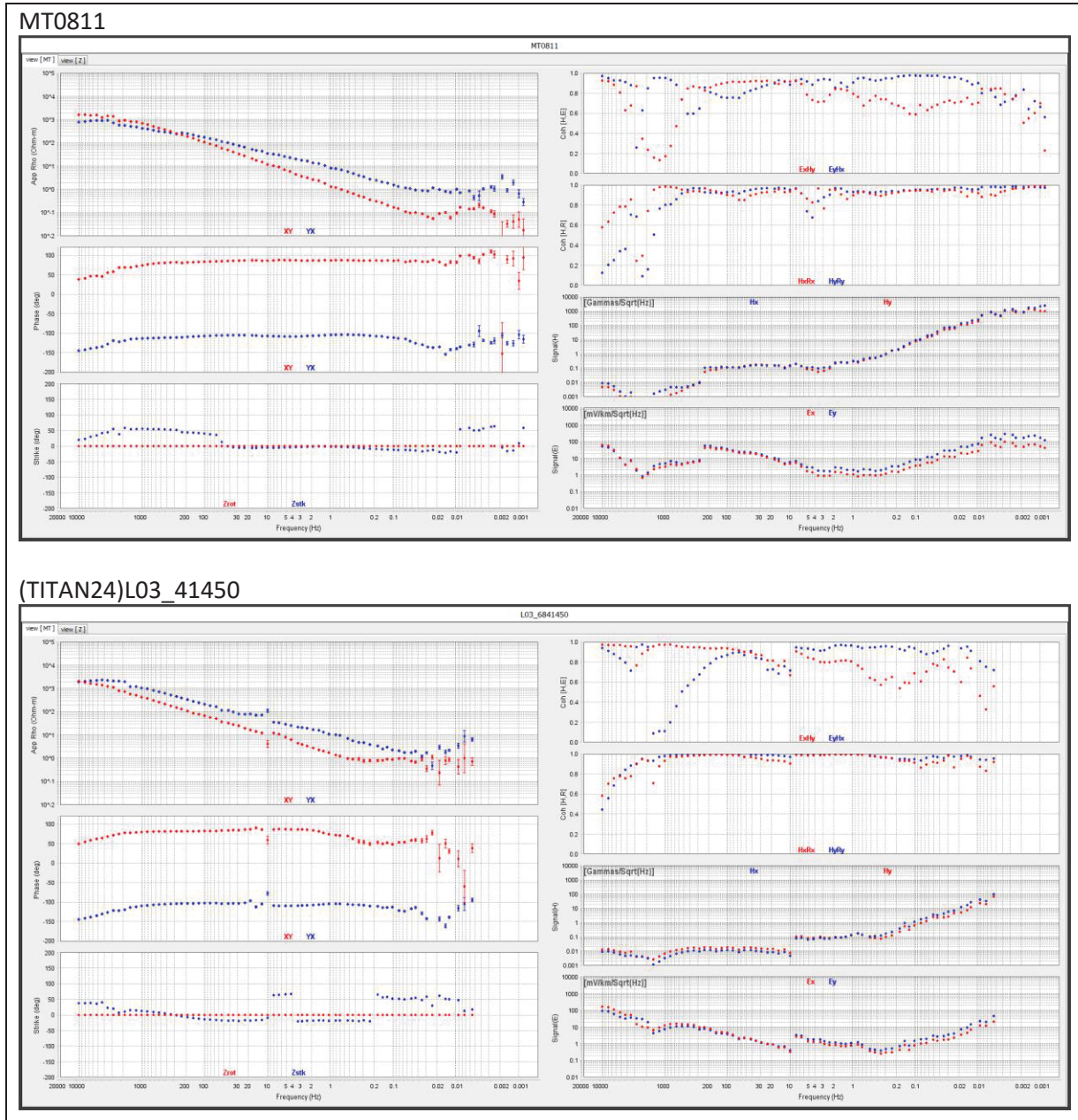
@1,000 samples per second



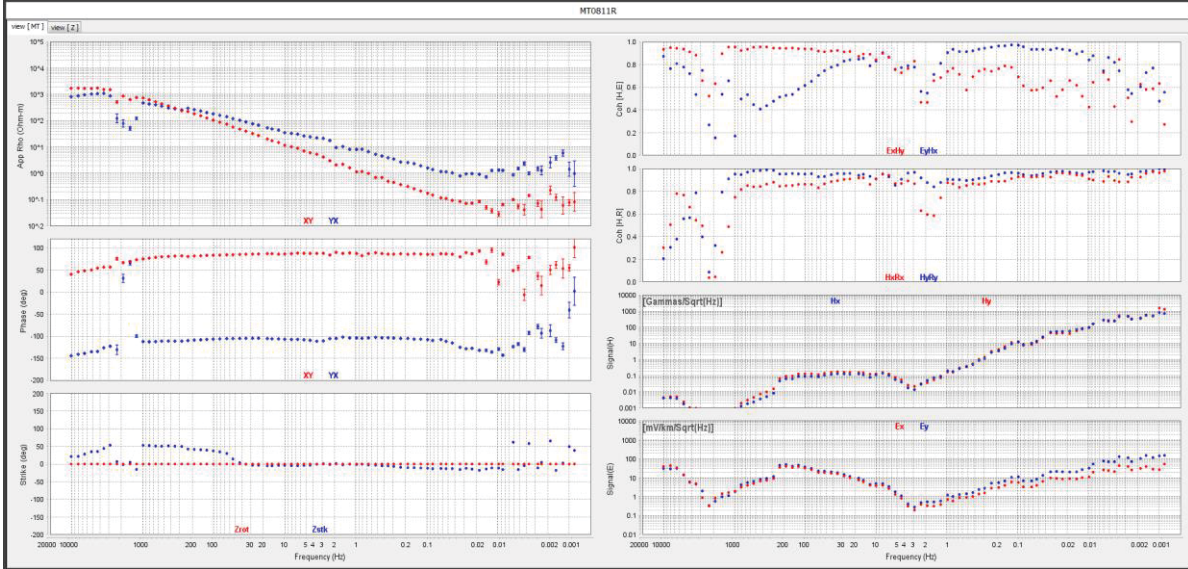
E.5. REPEATABILITY OF THE REMOTE DATA



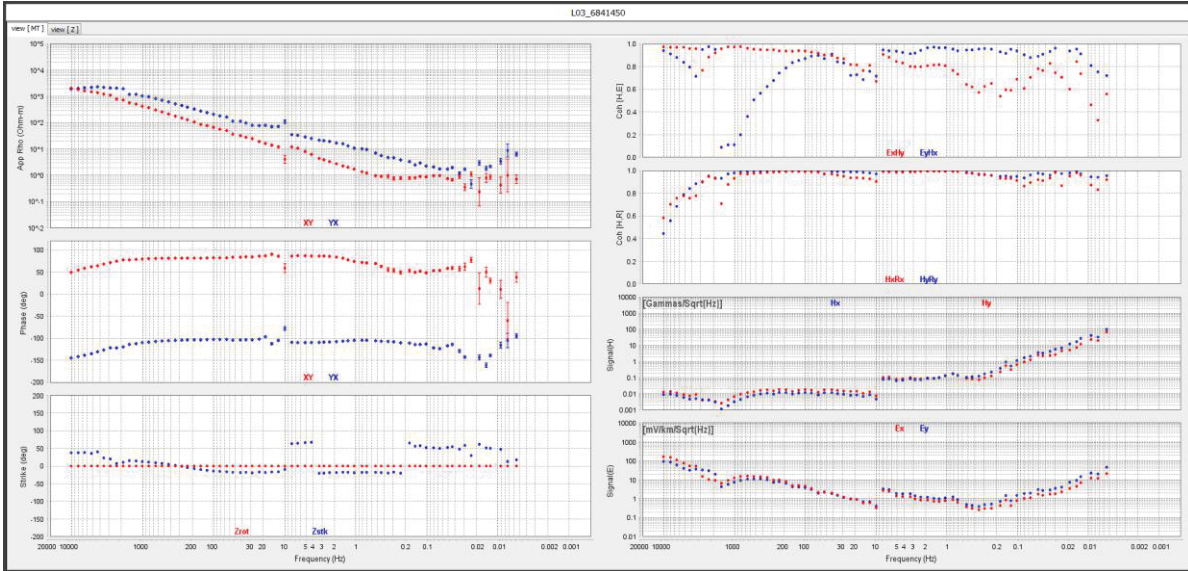
APPENDIX F. COMPARISON OF SPARTAN AND TITAN24 MT DATA



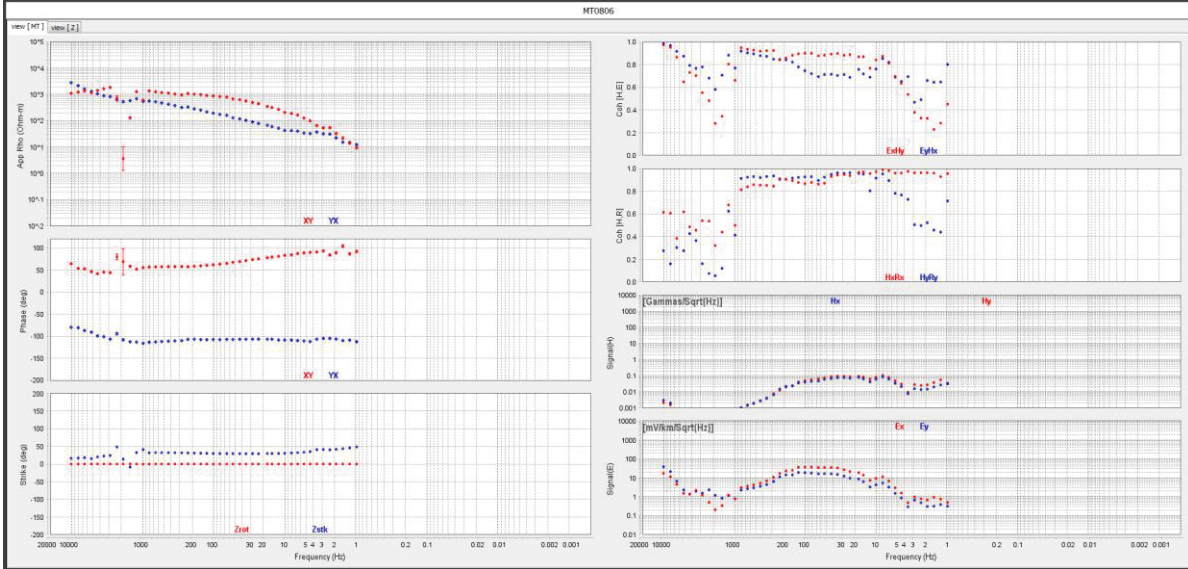
MT0811R (MT0811 repeated using plate)



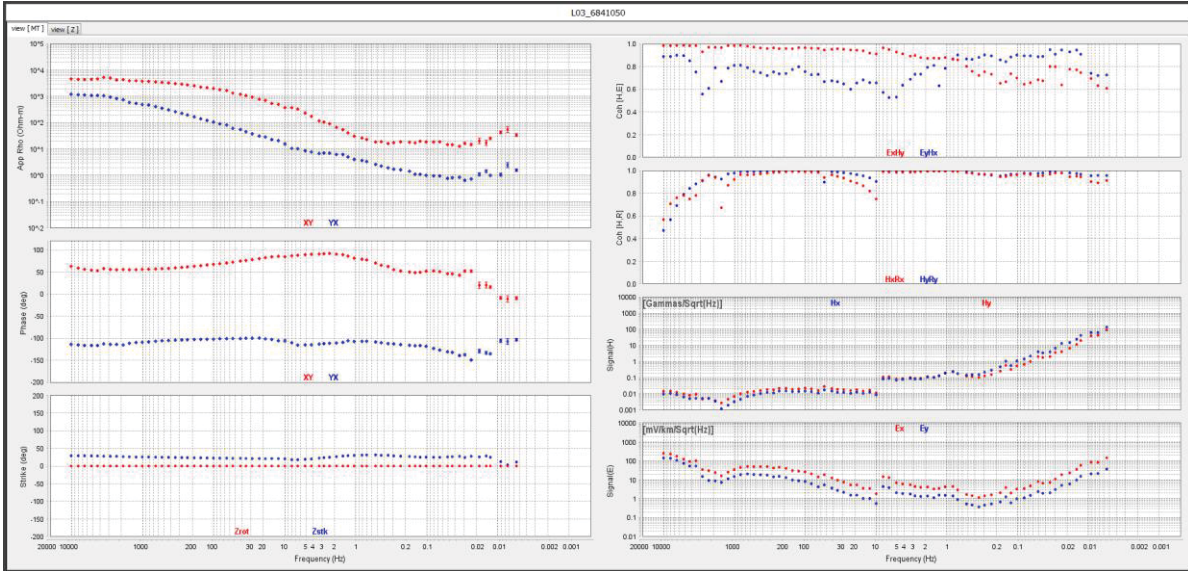
(TITAN24)L03_41450



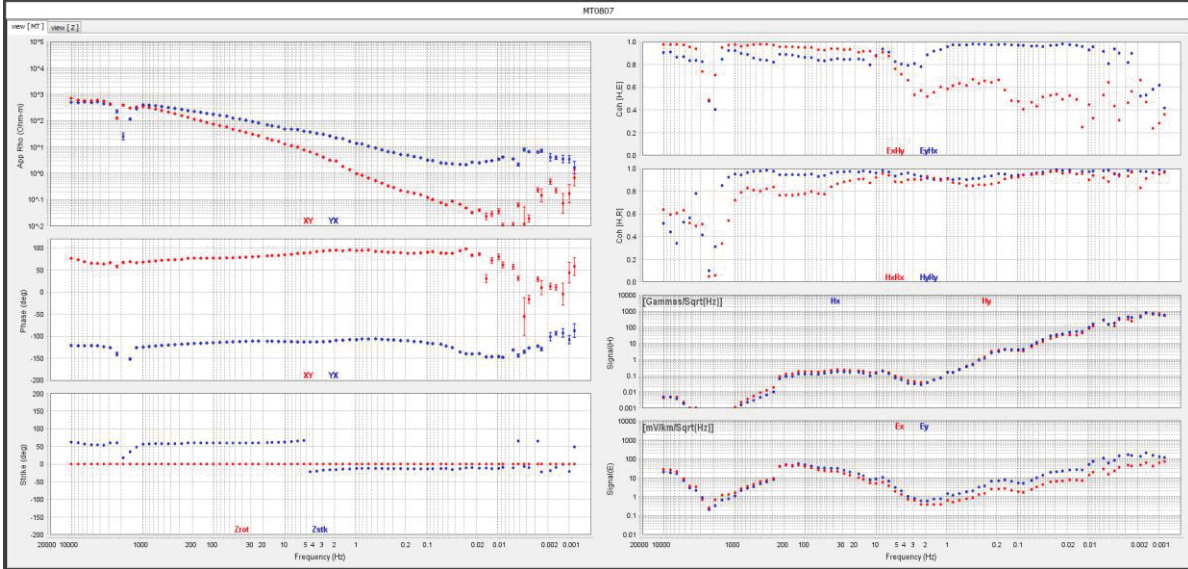
MT0806



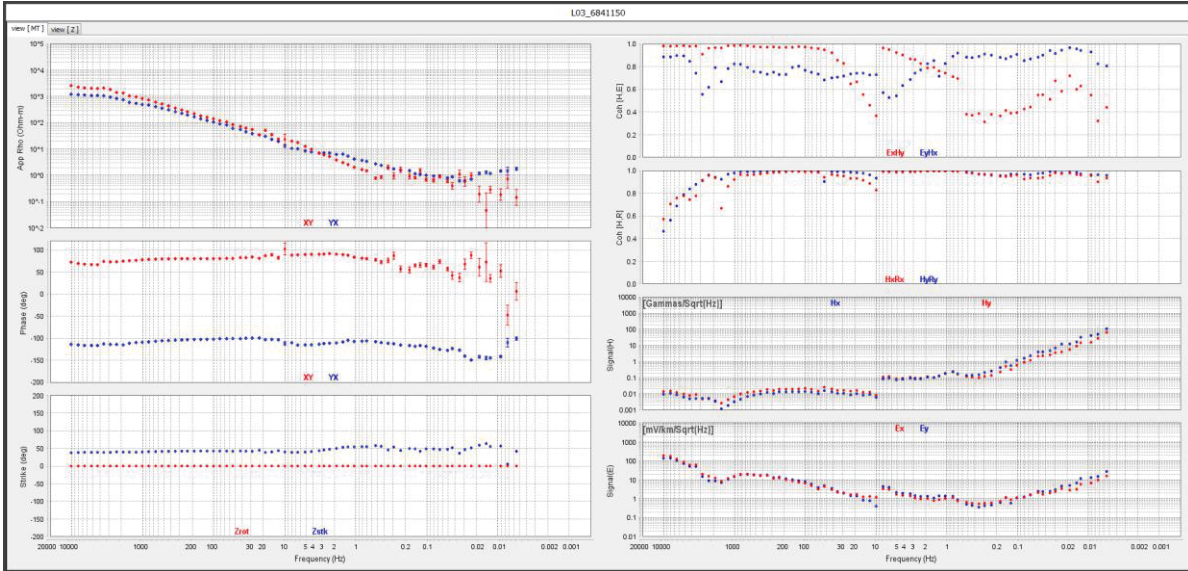
(TITAN24)L03_41050



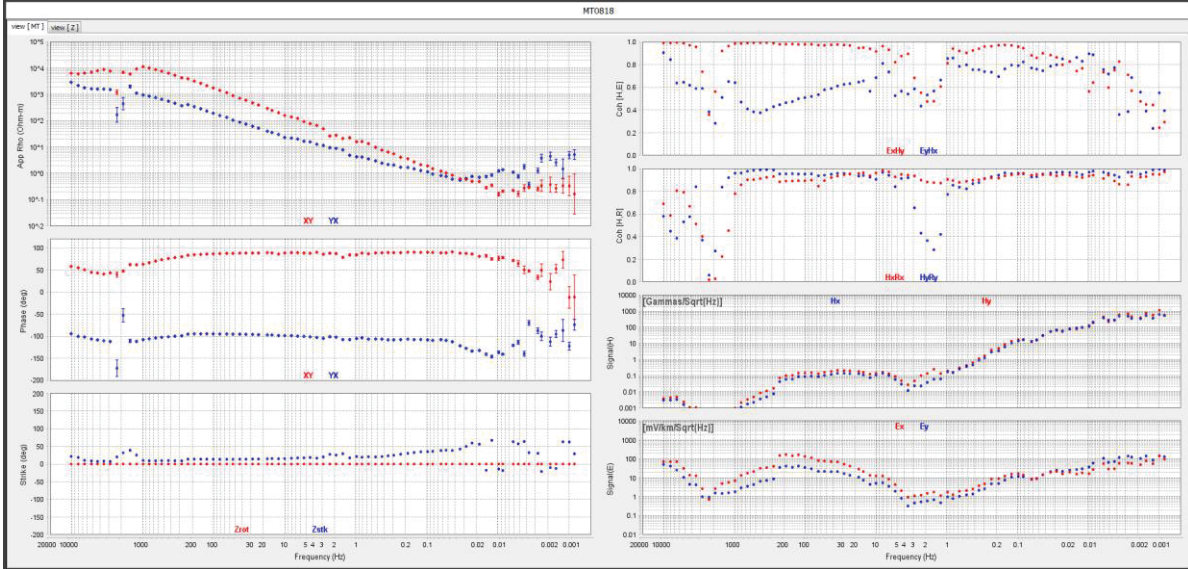
MT0807



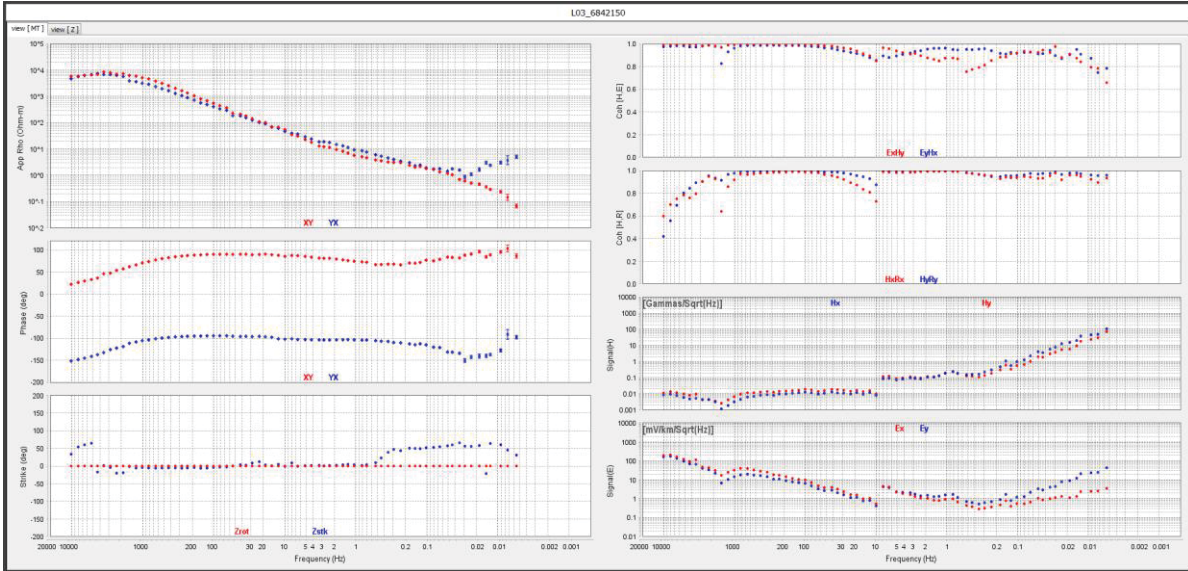
(TITAN24)L03_41150



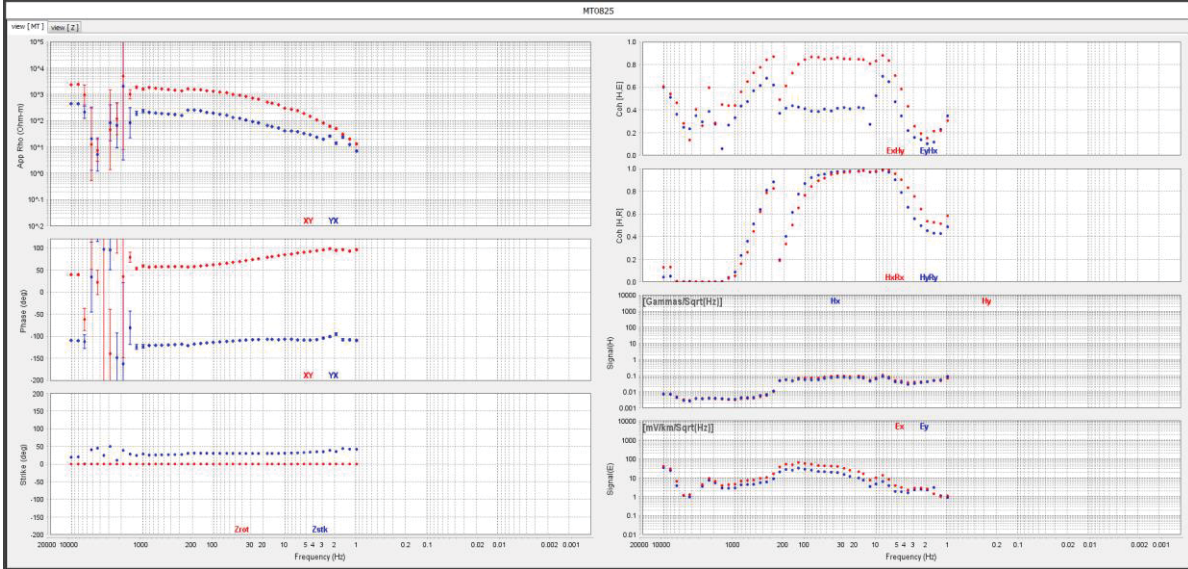
MT0818



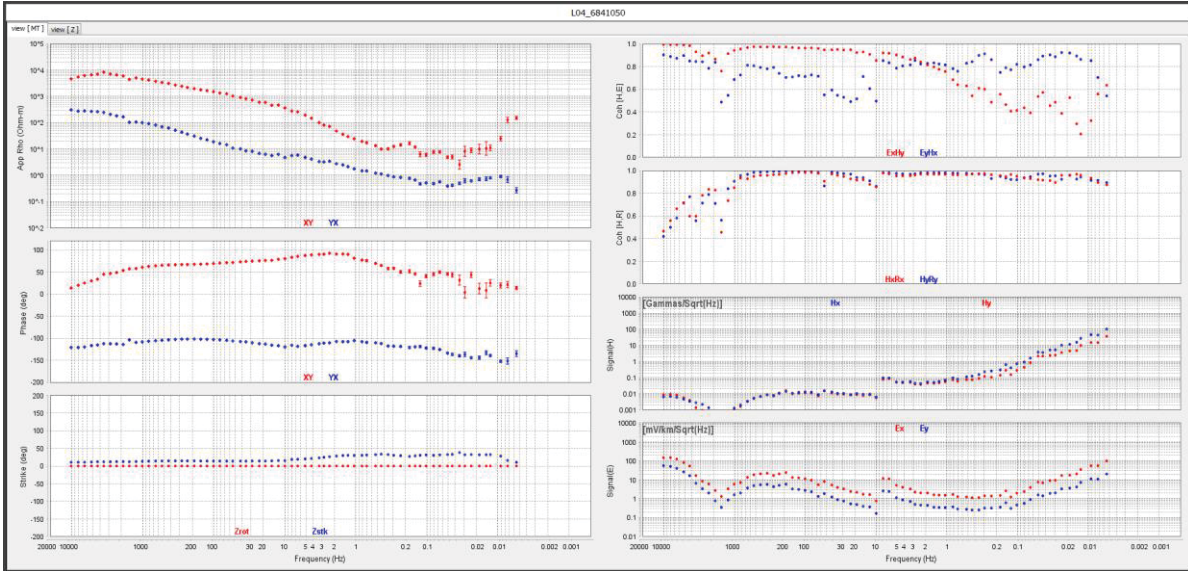
(TITAN24)L03_42150



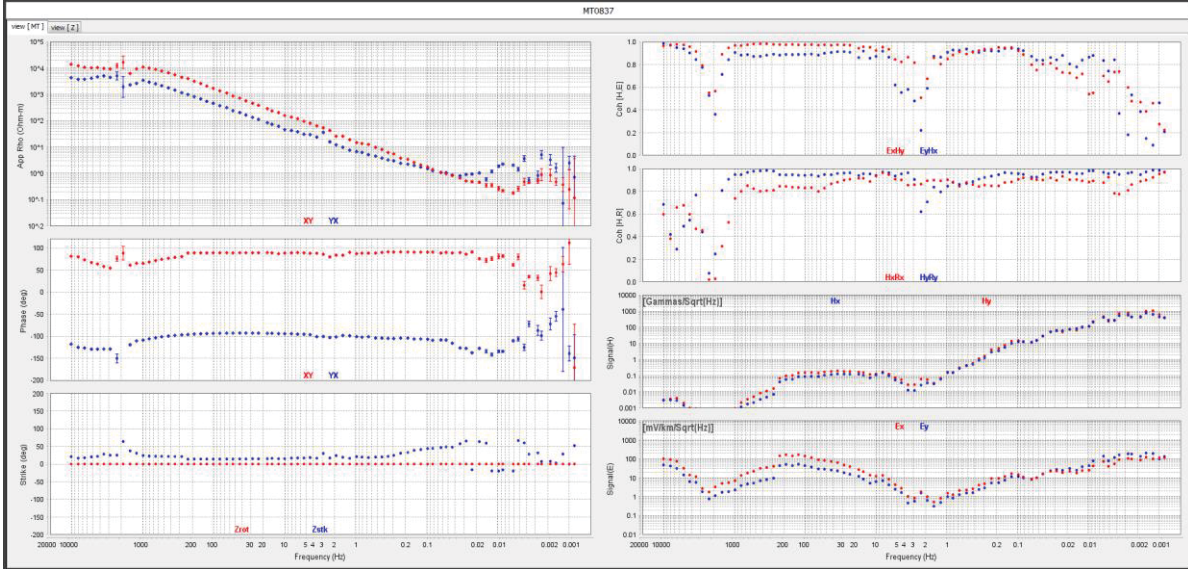
MT0825



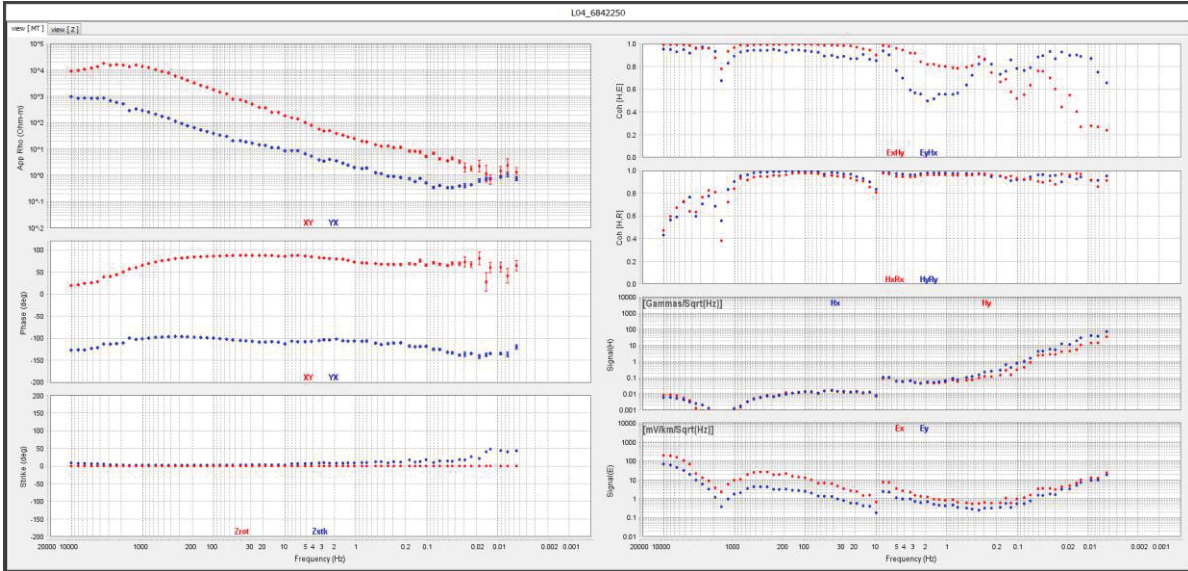
(TITAN24)L04_41050



MT0837



(TITAN24)L04_42250



APPENDIX G. MEMO #1 (2017/09/21): COMPARISON OF DATA PROCESSED USING THE REMOTE AND CROSS-REFERENCE (I.E., SITE AS REMOTE)

Date: 2017/09/21

To: Mathieu Landry (Glencore – Raglan)

Cc: Daryl Ball, Jeremy Kilner; Neil Bradbury (Glencore – Raglan)
Mark Morrison, Emily Data, Jeff Nichols (Quantec Geoscience)

From: Benoît Tournerie

Re: Comparison of data processed using the remote and Cross-Reference (i.e., site as remote)

Comments:

- Data processed using the remote and a site as remote as similar;
 - Small changes in amplitude in the app-res may be because of the use of the DGPS versus the field notes information (small variation in dipole length, adjustment in azimuth).
- The only impact is that overnight reading will not have the $F < 1\text{Hz}$ data.
 - See example MT1038

I would recommend the MT data can be processed using a 'local' site as remote in case the Remote site failed.

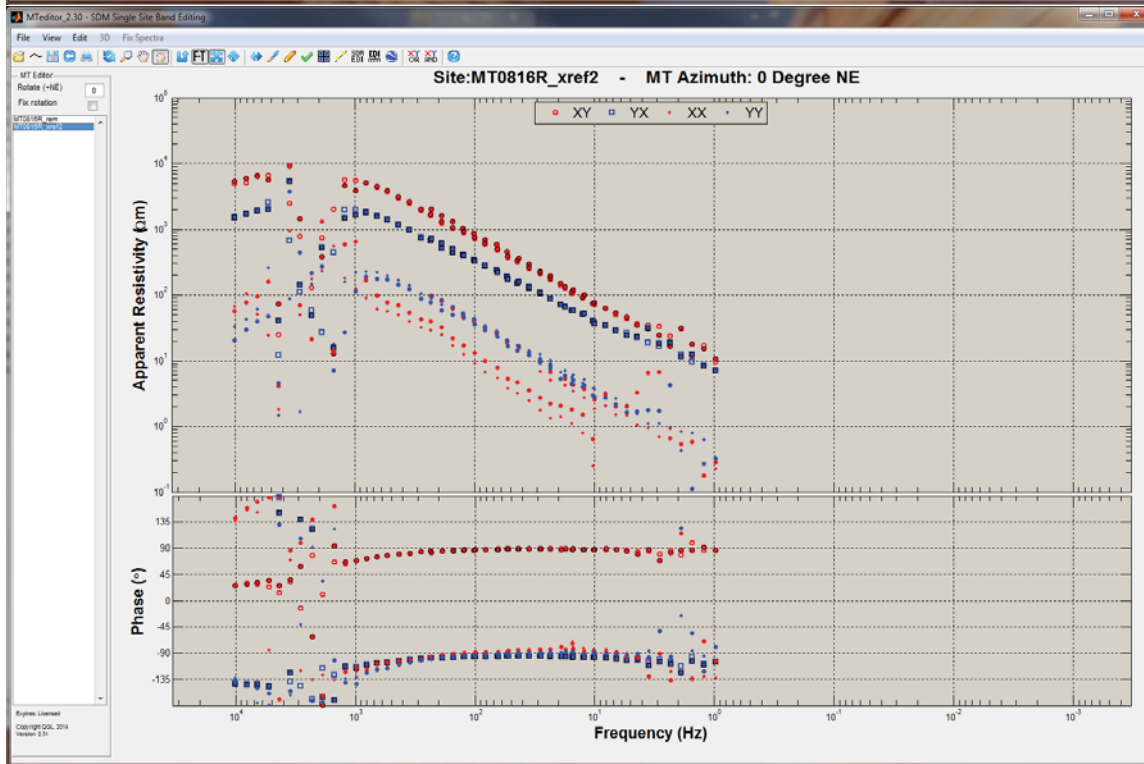
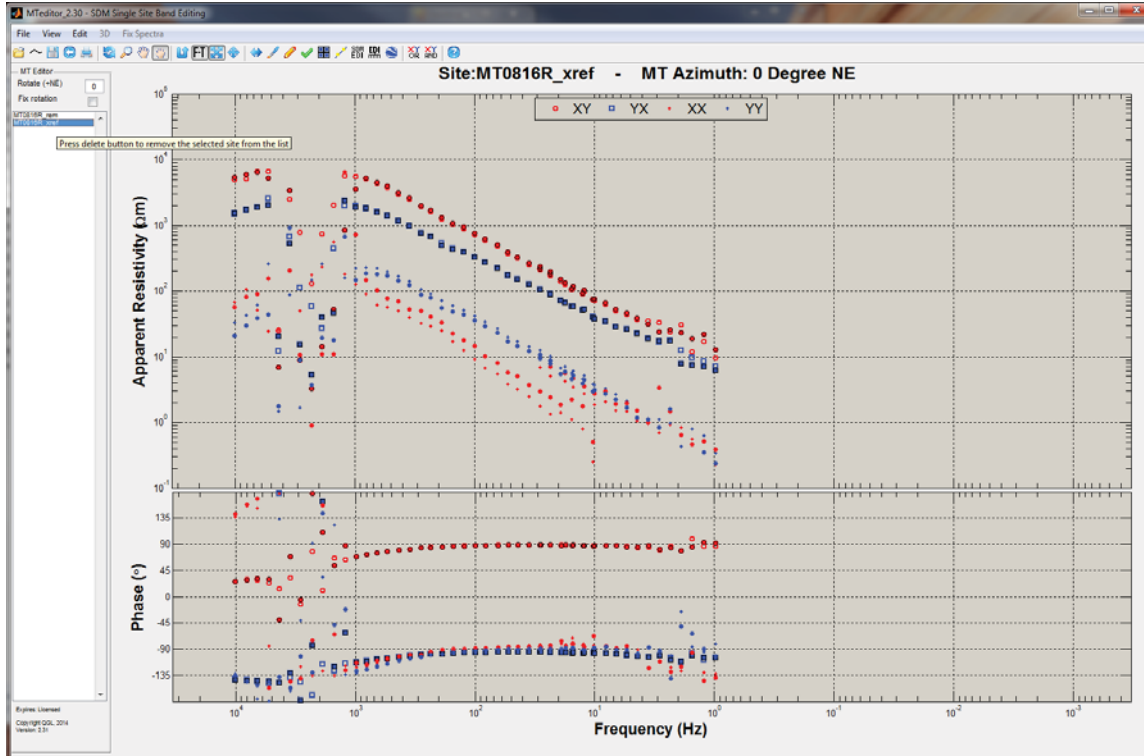
Benoît Tournerie, PGeo.

Data Presented:

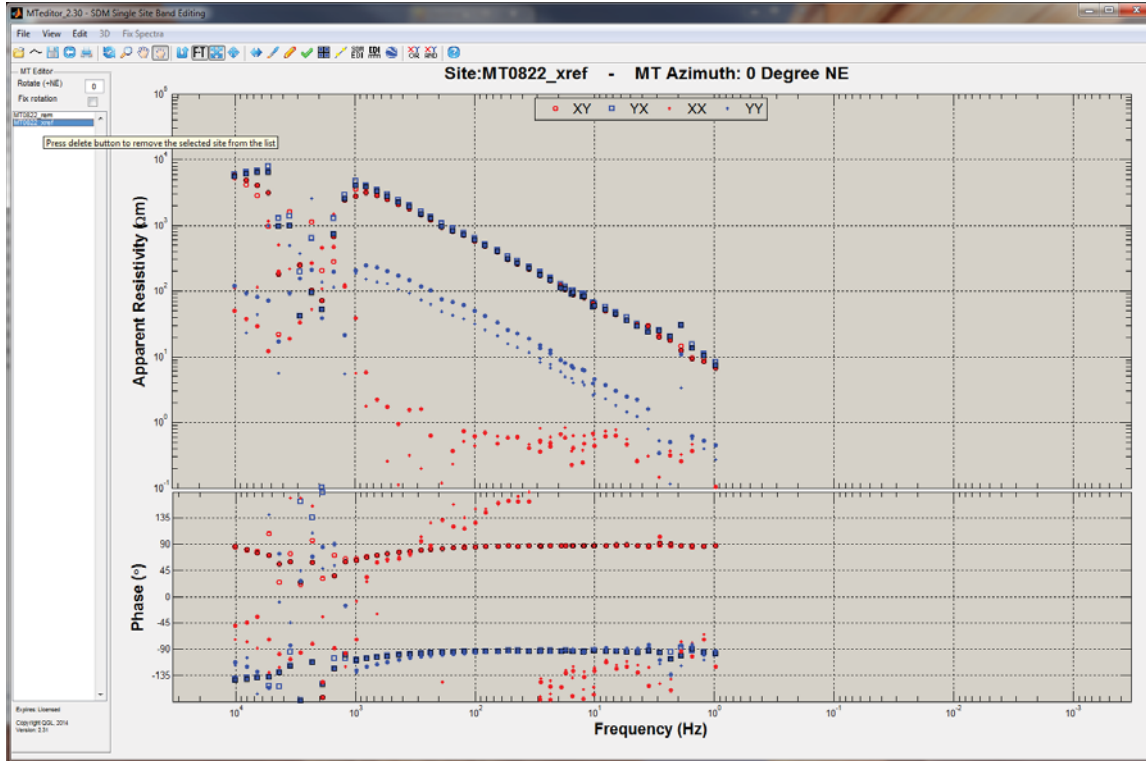
1. Labels are:
 - a. Site using the remote as reference: `_rem`
 - i. Data processed using the Field Notes information
 - b. Site using another site as reference: `_xref`
 - i. Data were processed using the DGPS information
 - ii. Site on the east (MT1000's) are using a western site (MT0800's), site on the west are using an eastern site.
 1. Distance ~3km
2. Screen Capture in this document:
 - a. Selected site is always the data from the site processed using the 'site' as reference.
 - b. Image presents the XY-YX and the XX -YY modes, app-resistivity and phase

0915	Remote (REM)	Xref	Xref site ID
MT0816R	MT0816R_rem	MT0816R_xref	MT1026
		MT0816R_xref2	MT1037
MT0822	MT0822_rem	MT0822_xref	MT1050
MT0828R	MT0828R_rem	MT0828R_xref	MT1026
MT0834R	MT0834R_rem	MT0834R_xref	MT1026
MT1026	MT1026_rem	MT1026_xref	MT0828R
MT1037	MT1037_rem	MT1037_xref	MT0816R
MT1038	MT1038_rem	MT1038_xref	

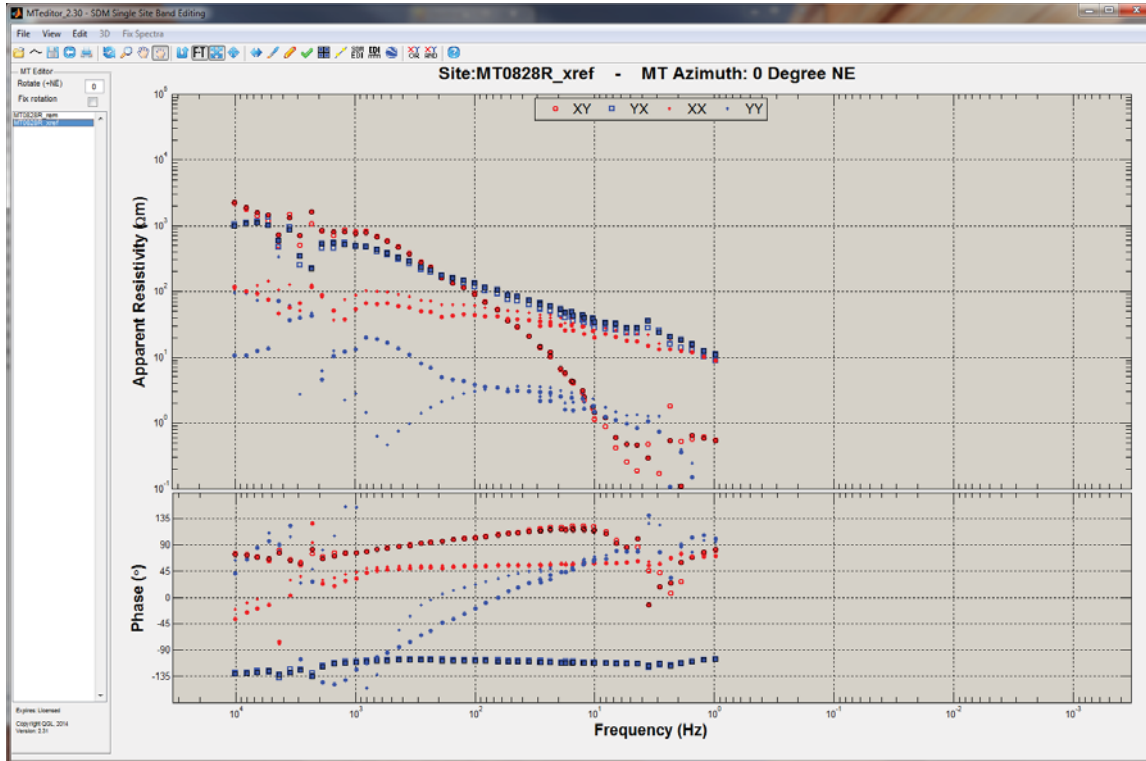
Site MT0816R



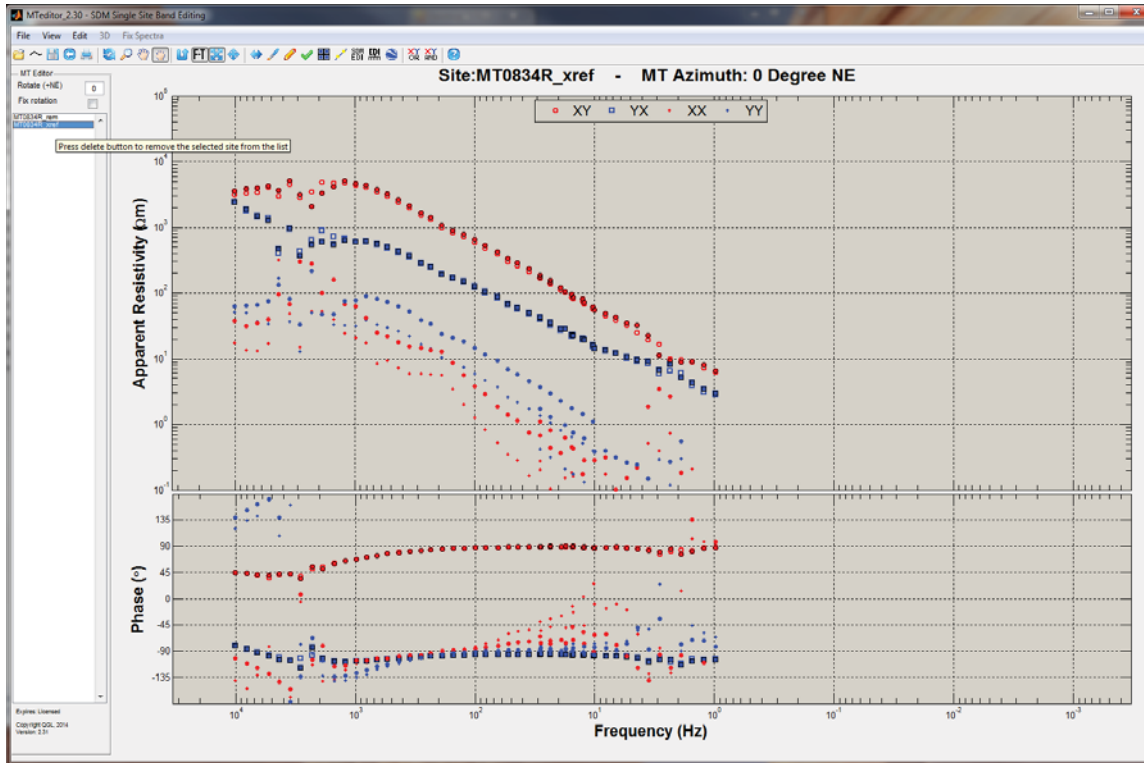
Site MT0822



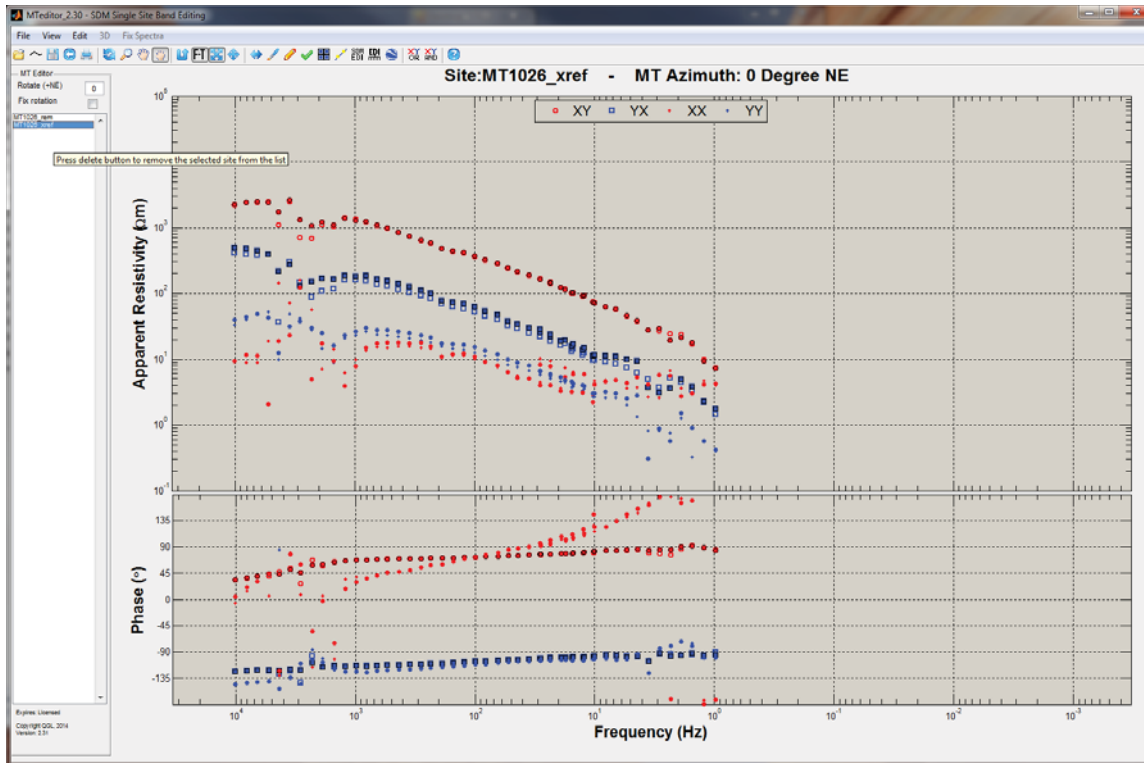
Site MT0828R



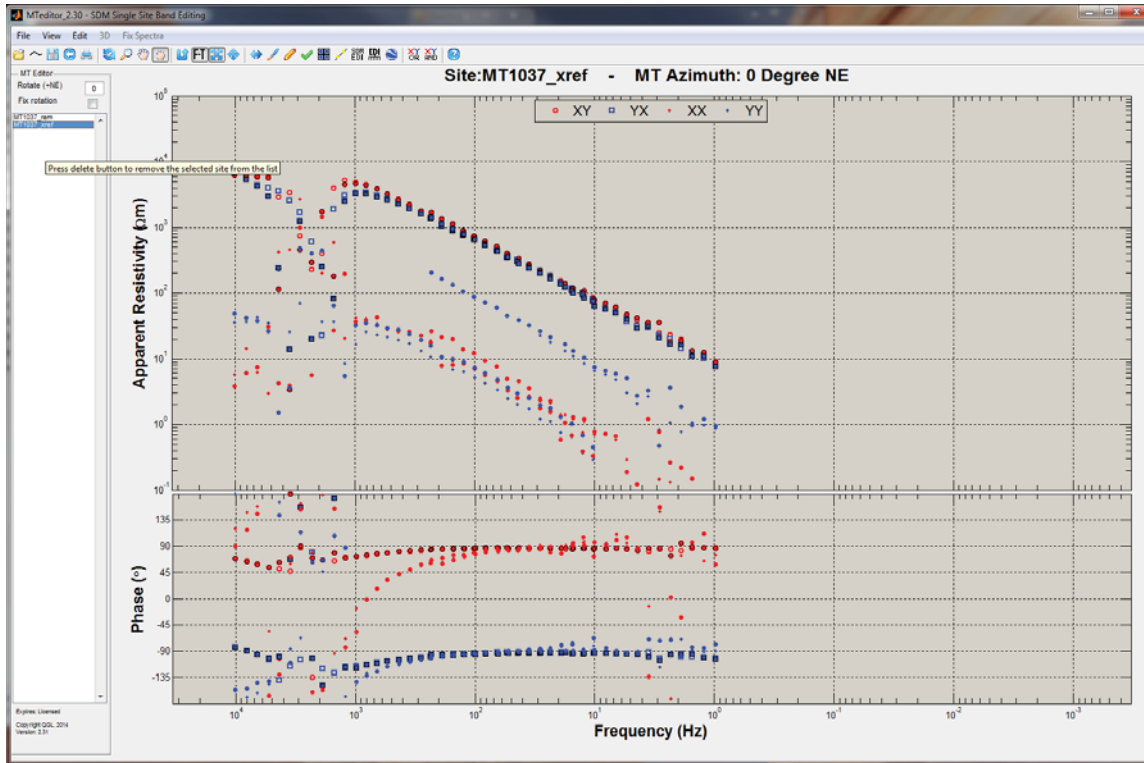
Site MT0834R



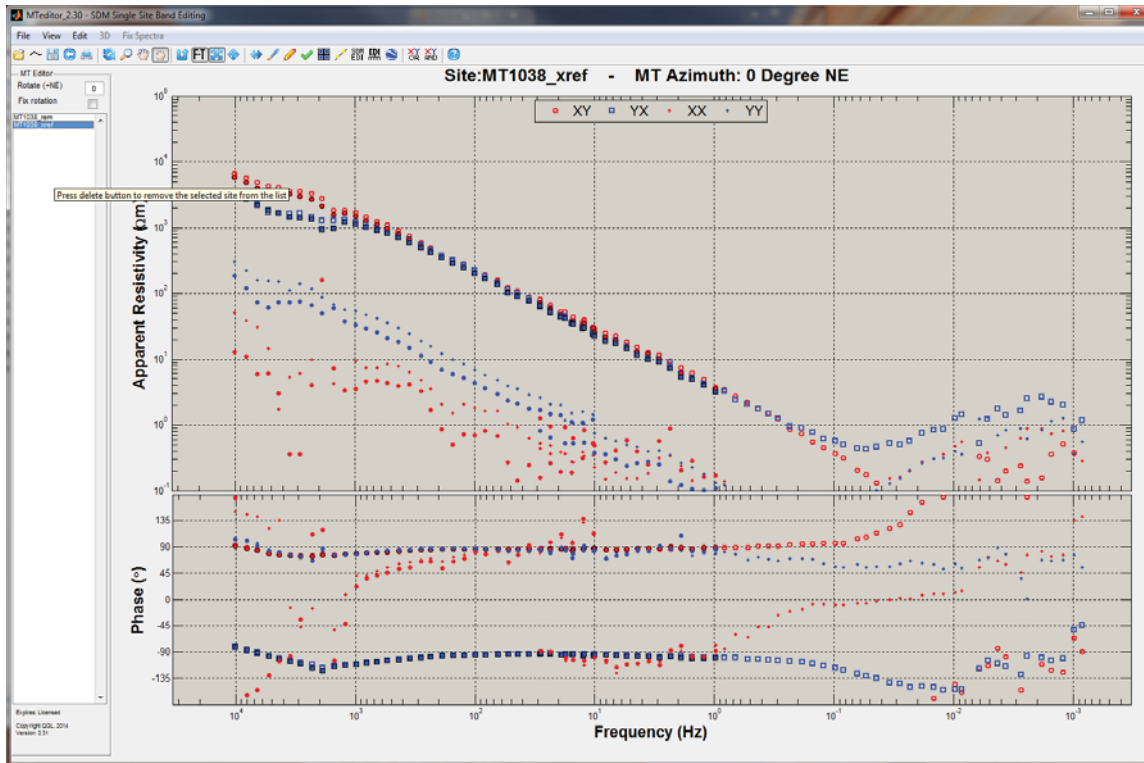
Site MT1026



Site MT1037



Site MT1038



**APPENDIX H. MEMO #2 (2017/09/24): FREQUENCY OF THE
MT SITES: 10Hz VERSUS 1Hz**

Date: 2017/09/24
To: Mathieu Landry (Glencore – Raglan)
Cc: Daryl Ball, Jeremy Kilner; Neil Bradbury (Glencore – Raglan)
Mark Morrison, Emily Data, Jeff Nichols (Quantec Geoscience)
From: Benoît Tournerie
Re: 10Hz versus 1Hz

Comments:

- Based on these two sites:
 - Acquisition X=0; but profiles are also NS, so XY=TM, YX=TE (2D concept)
- In general, the first 500-750m (approx.) are similar
- MT0806: variation between 1hz (measured) and 10hz (edited)
 - Changes on the 1D models are just near 1km, but no major variation are observed.
 - Note here noisy data near 10-1hz; the 1D seems to ‘filter out’ this, which may explain why the two 1D models looks similar.
- MT0807: variation between 0.001hz (measured; good only to 0.01hz) and 10hz (edited), and 1Hz (edited)
 - Variation on the YX 1D models are small on the near surface; very low frequencies seems to map some potential deep (>5km) variation;
 - Variation on the XY 1D models: extreme low resistivity on the MT0807 site are better bounded to near 0.1ohm-m on the MT0807_10hz (and _01hz) XY data
- The Bostick models also tend to show that the 1Hz MT confidence level of the MT would be near 1km depth, and that 10Hz MT will be near 500-700m.

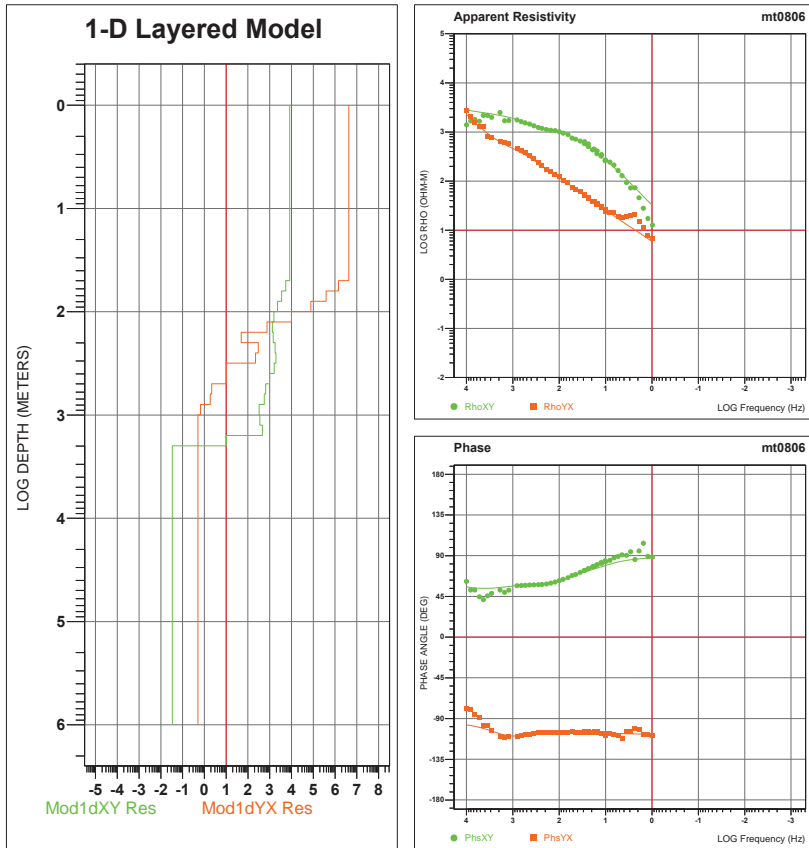
Benoît Tournerie, PGeo.

Data Presented:

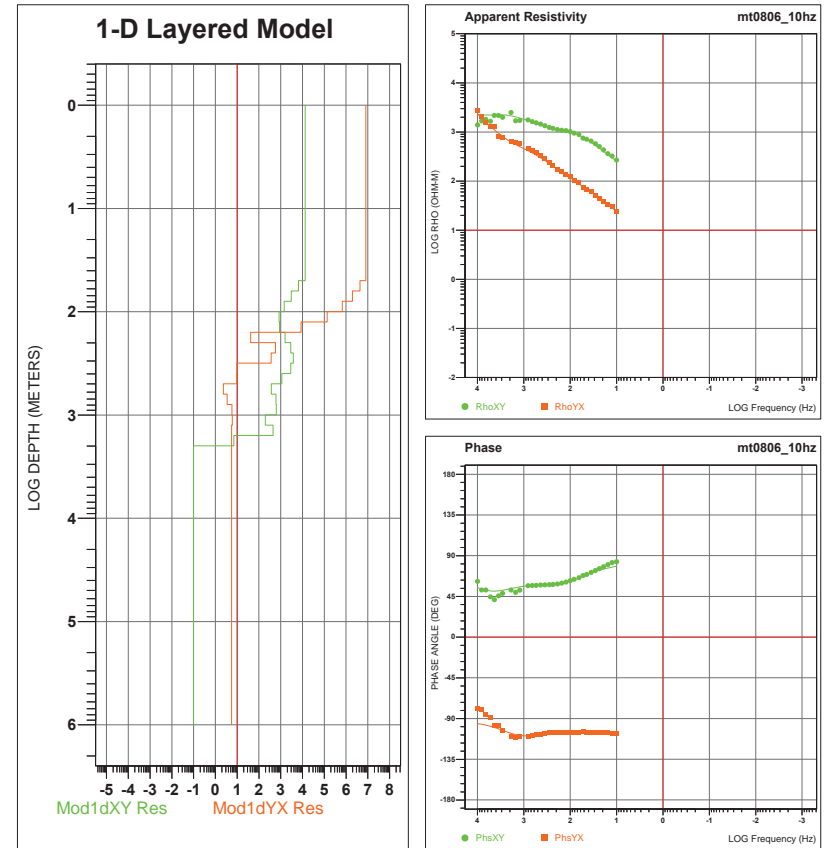
- c. Quick 1D Occam of XY and YX –
 - i. Include Data:
 - 1. Raw: dot
 - 2. 1d response: curve
- d. Bostik 1D
 - i. Estimated from an automatic smoothing & interpolation of the raw data (ie to ensure smooth Bostick1D)

MT0806	1Hz	MT0806_10Hz	10Hz
MT0807	0.01Hz (good)	MT0807_10Hz	10Hz
		MT0807_01Hz	1Hz

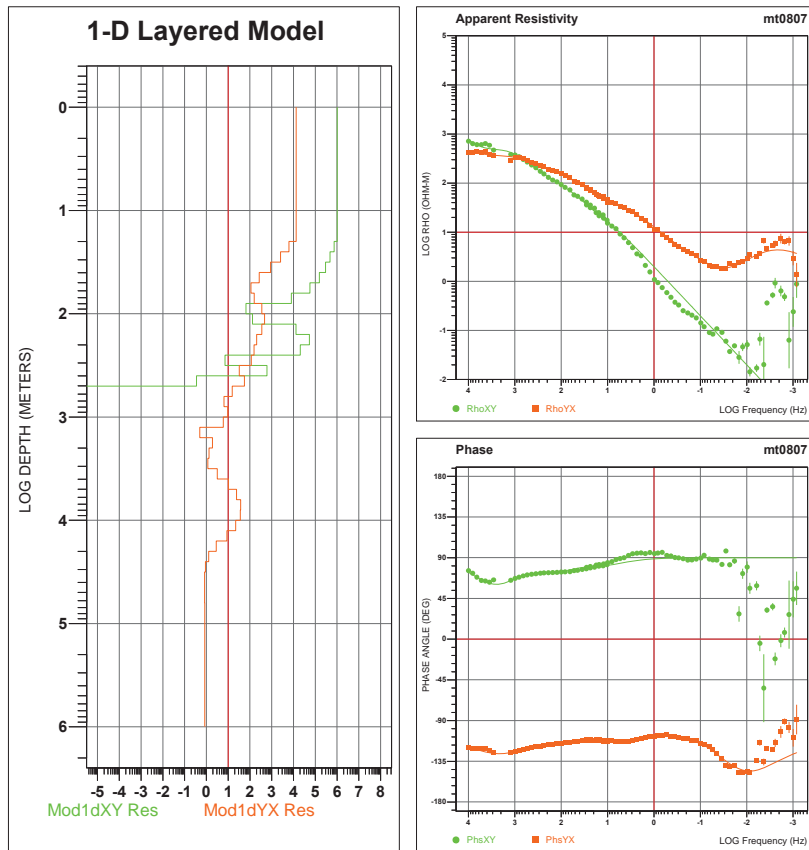
Site MT0806



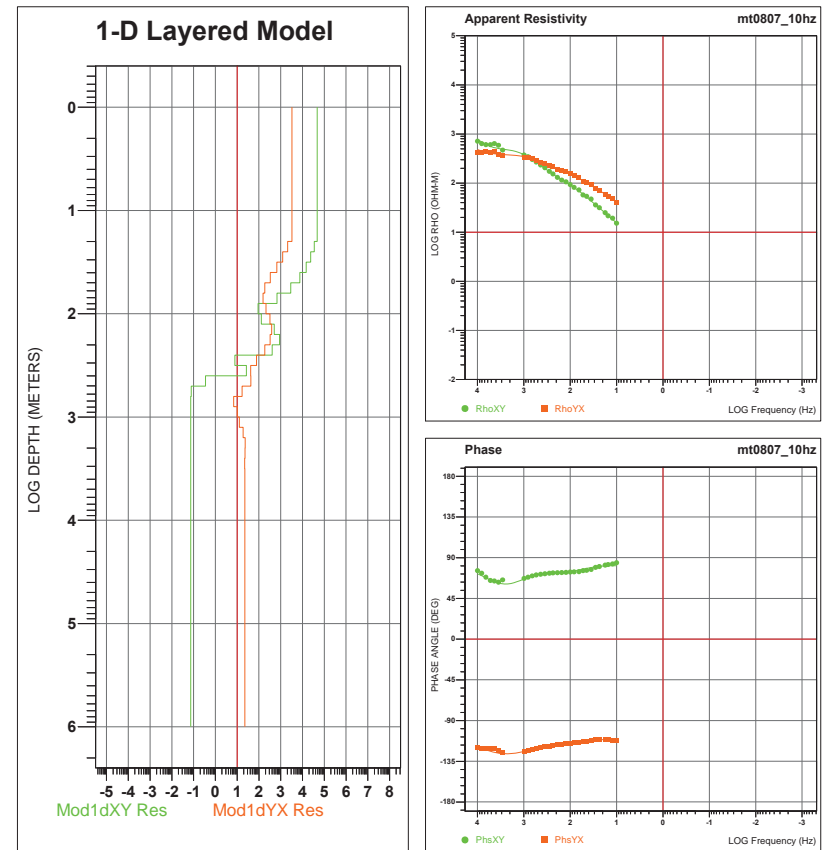
Site MT0806_10Hz



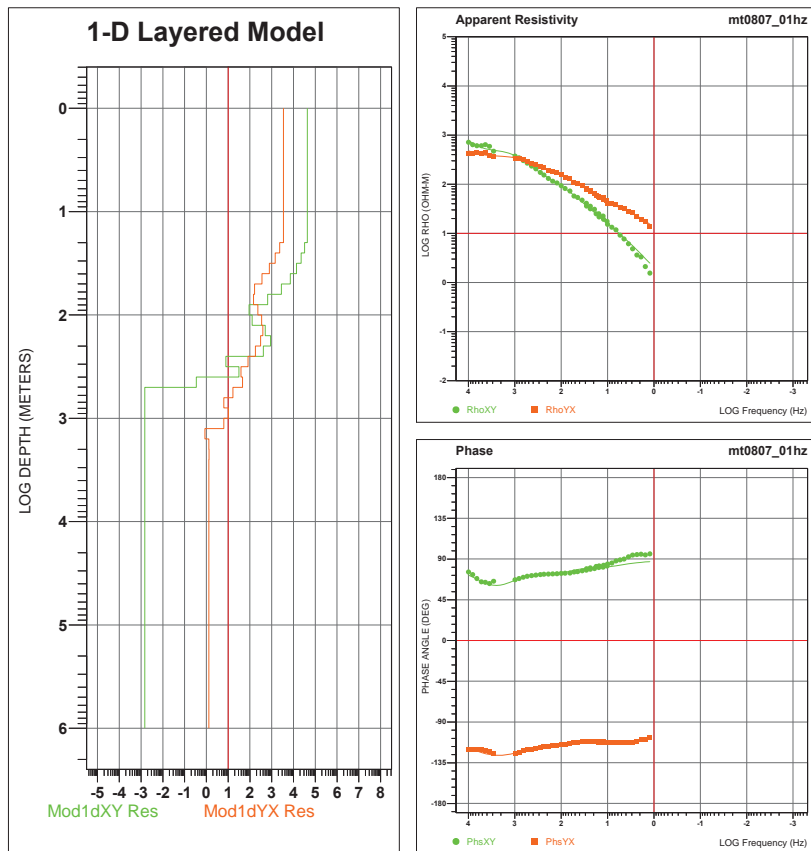
Site MT0807



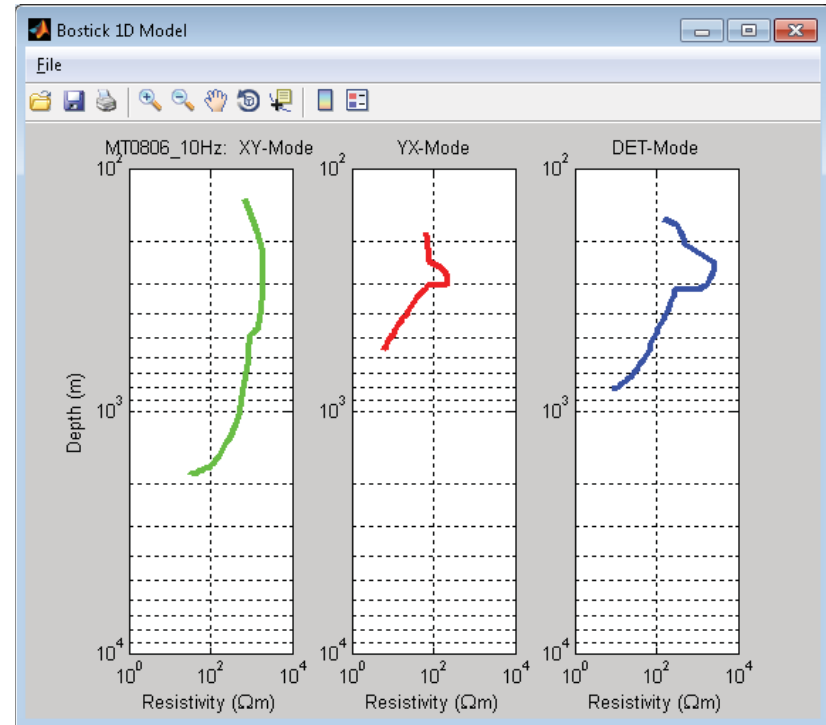
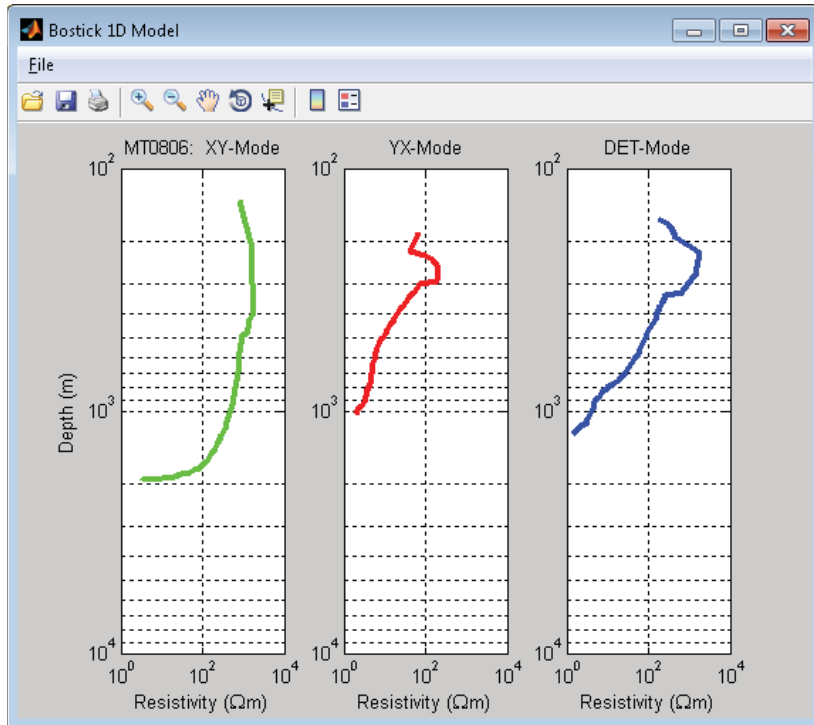
Site MT0807_10Hz

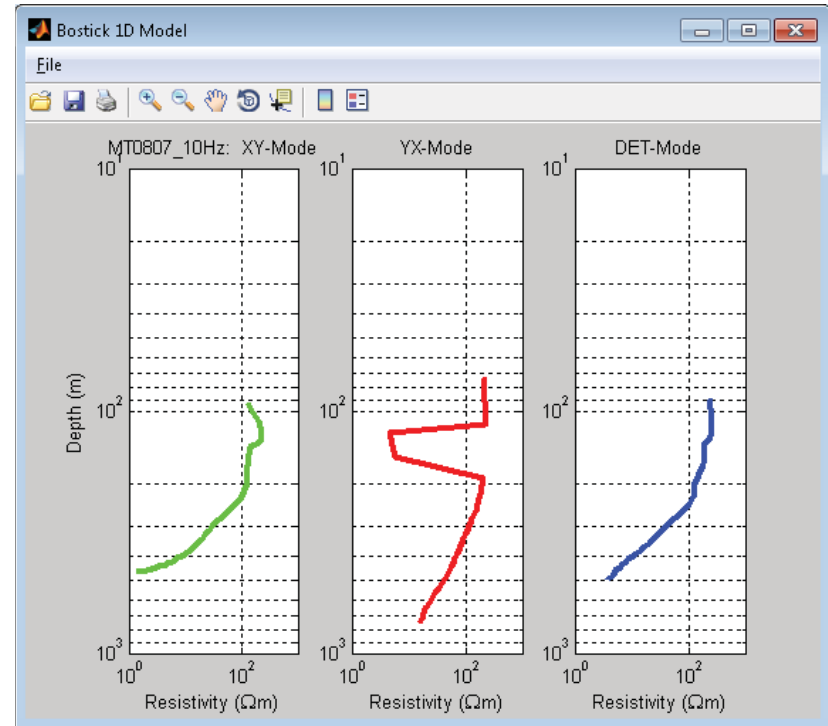
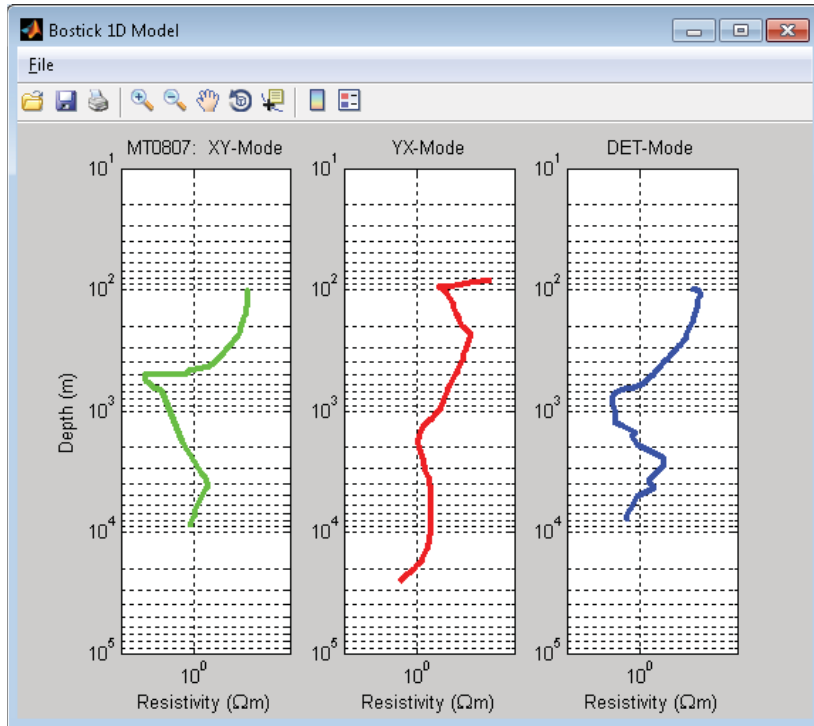


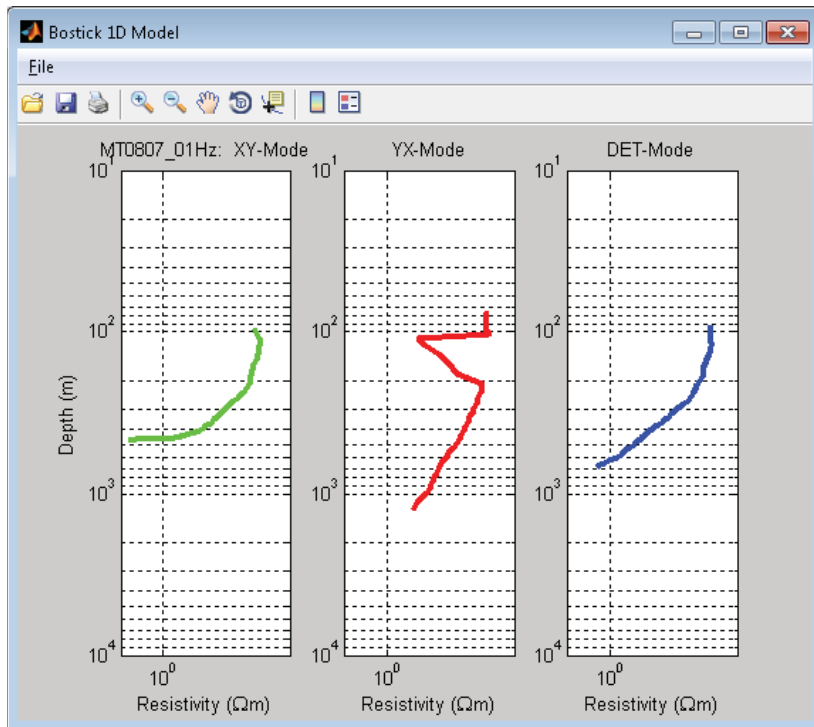
Site MT0807_01Hz



Using Bostick 1D:







APPENDIX I. INSTRUMENT SPECIFICATIONS

I.1. REF TEK – 160 QUANTEC DATA ACQUISITION SYSTEM

Refraction Technology Inc. – Plano, Texas

Specification	Description			
Mechanical – DAS				
Size:	130mm high x 240mm wide x 400mm long			
Weight:	16 lbs			
Shock:	Survives a 1 meter drop on any axis			
Operating Temperature:	-20°C to +60°C			
Connectors				
Channel Input:	PTO7A14-19S (2 each for 6-Channel DAS)			
Power:	PTO7A12-4S			
GPS Antenna:	standard			
Power				
Input Voltage:	10 to 15 VDC			
Average Power:	~6 W (5-6 channel)			
	~8 W (10-12 channel)			
A/D Converter				
Type:	Δ - Σ modulation, 256 KHz base rate, 24-bit output resolution			
Channels:	12 (6 @ LS and 6 @ HS)			
Input Impedance:	100 Mohm			
Sensor Input Signal Range:	Gain	Input Full Scale (volts)	Bit Weight	
			Actual	Reported
	1	± 32 V	3.81 μ V	
	2	± 16 V		
	4	± 8 V	954 nV	
	8	± 4 V		
	16	± 2 V	238 nV	
	32	± 1 V		
	64	± 500 mV	59.6 nV	
	128	± 250 mV		
256	± 125 mV	14.9 nV		

Specification	Description
Sample Rates HS:	48000, 12000, 9600, 8000 sps
Sample Rates LS:	4000, 2000, 1600, 1000, 960, 800, 500, 480, 400, 250, 240, 200, 125, 120, 100, 60, 50 sps
Time Base	
Type:	GPS Receiver/Clock plus a disciplined oscillator
Accuracy with GPS:	+/- 100 µsec after validated 3-D fix and locked
Free-Running Accuracy:	0.1 ppm over the temperature range of 0°C to 40°C, and 0.2 ppm from -20°C to 0°C
Recording Modes	
Continuous:	All LS modes
HS Mode 0	8000 sps for 360 s; once
HS Mode 1	8000 sps for 360 s; every 10 minutes on the 0, 10, 20, 30, 40, 50 minute marks
HS Mode 2	12000 sps for 240 s; every 10 minutes on the 0, 10, 20, 30, 40, 50 minute marks
HS Mode 3	48000 sps for 60 s; every 10 minutes on the 0, 10, 20, 30, 40, 50 minute marks
HS Mode 4	2 @ 12 ksps for 240 s and 1 @ 48 ksps for 30 s; repeated 20 minutes (12 ksps on 0, 8, 20, 28, 40, 48 minute marks and 48 ksps on 16, 36, and 56 minute marks)
Recording Capacity	
Battery Backed SRAM:	64 Mbytes
Removable Storage:	3 @ 8 GB industrial USB 2 sticks
Recording Format	
Format:	SEED and miniSEED Recording Formats

I.2. GHF MAGNETIC FIELD INDUCTION SENSOR

Geometrics



Geometrics G100K Magnetic Induction Sensor



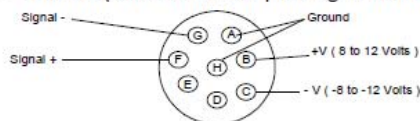
The Geometrics G100K Magnetic Induction Sensors is a highly sensitive, low-noise coil induction sensor. The sensor response is stable and flat over a broad range of frequencies to provide a consistent and reliable measurement for AMT, CSAMT, and other geophysical measurements requiring vector magnetic field measurements four decades of frequencies from 10 Hz to 100k Hz.

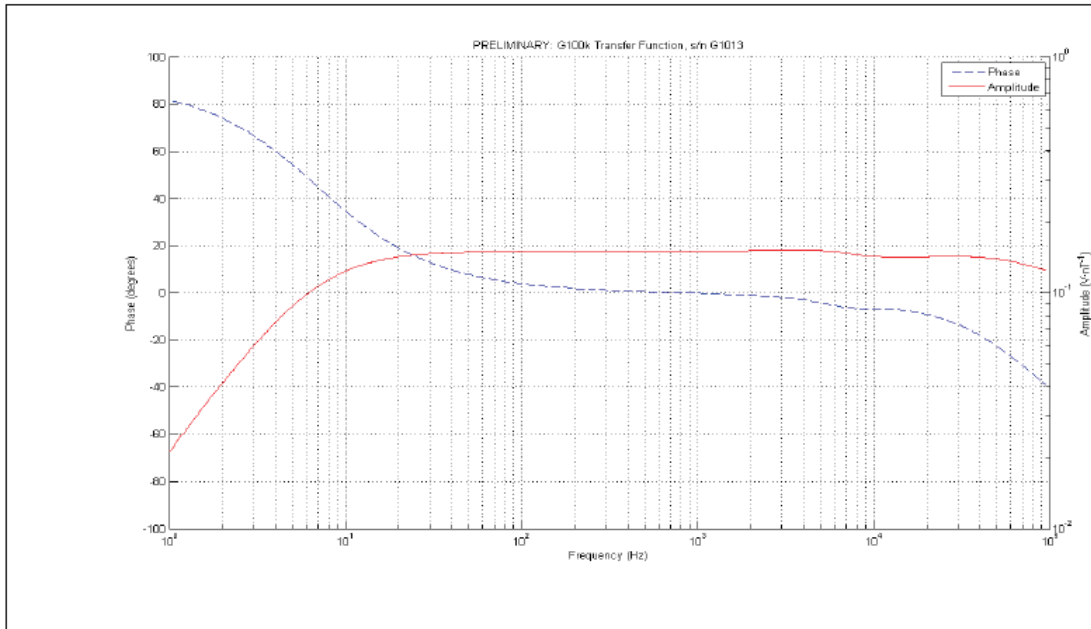
Features:

- Rugged G10 casing
- Low noise
- Stable amplitude and phase response over time and operating temperature
- Low power consumption (480 mW)
- Small diameter and light weight
- Frequency range: 10 Hz to 100 kHz

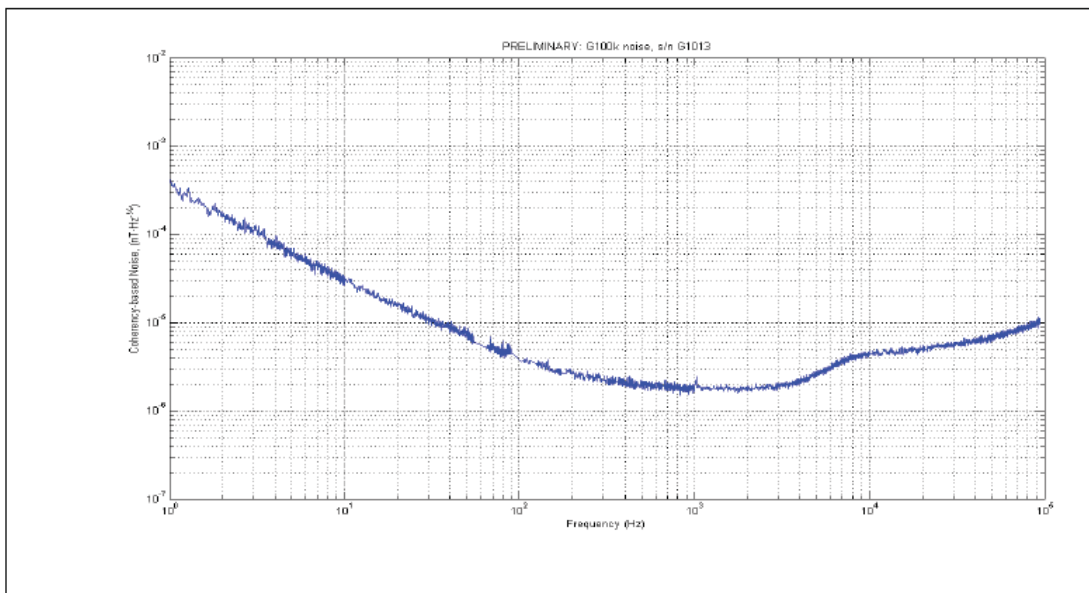
Technical Specifications:

- 3 dB point: 7 Hz and 100 kHz
- Power consumption: 20 mA at +/- 12 V
- Sensitivity in flat region: 150 mV/nT
- Mechanical
 - Length: 76.2 cm (30 in)
 - Diameter: 4.1 cm (1.63 in)
 - Weight: 2.04 kg (4.5 lbs)
- Connector
 - Type: Tajimi 8-pin (23A16-8AM)
 - Mating type: Tajimi 8-pin (23B16-8AF)
 - Dust cap: Tajimi (16 RC)
 - Pin out (show connector pin diagram below)





Typical transfer function (coil response)



Typical noise curve

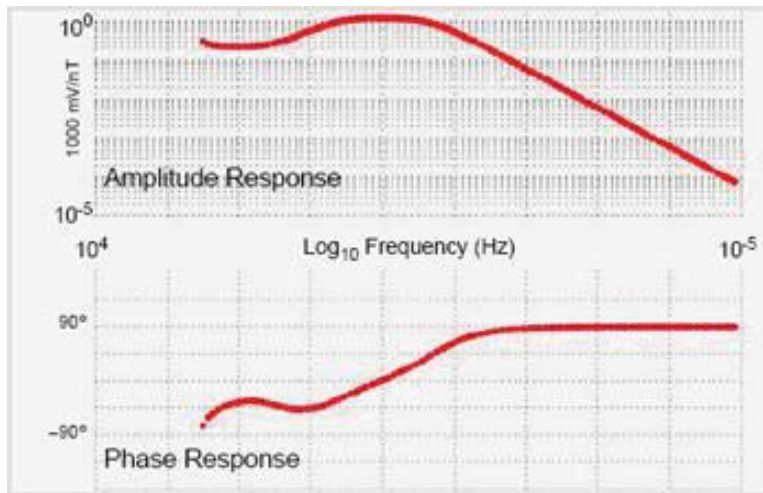


December 2, 2011

I.3. MTC 50 (P50) SERIES MAGNETIC SENSORS

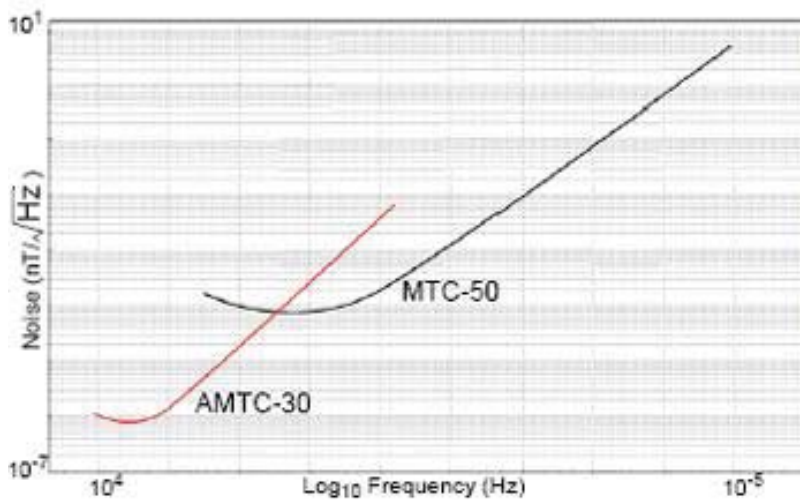
Phoenix Geophysics Ltd

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



I.4. TRIMBLE R8 GNSS MODEL 3 GPS RECEIVER SPECIFICATION

GENERAL SPECIFICATIONS

PERFORMANCE SPECIFICATIONS¹

Measurements

- Advanced Trimble Maxwell™ 6 Custom Survey GNSS chips with 440 channels
- Future-proof your investment with Trimble 360 tracking
- High precision multiple correlator for GNSS pseudorange measurements
- Unfiltered, un-smoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
- Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Signal-to-Noise ratios reported in dB-Hz
- Proven Trimble low elevation tracking technology
- Satellite signals tracked simultaneously:
 - GPS: L1C/A, L1C, L2C, L2E
 - GLONASS: L1C/A, L1P, L2C/A, L2P, L3
 - Galileo: E1, ESA, E5B
 - BeiDou (COMPASS): B1, B2
- Positioning rates: up to 20 Hz

POSITIONING PERFORMANCE²

Real Time Kinematic surveying

Single Baseline <30 km

Horizontal	8 mm + 1 ppm RMS
Vertical	15 mm + 1 ppm RMS
Network RTK ³	
Horizontal	8 mm + 0.5 ppm RMS
Vertical	15 mm + 0.5 ppm RMS
Initialization time ⁴	typically <8 seconds
Initialization reliability ⁵	typically >99.9%

HARDWARE

Physical

Dimensions	19 cm x 10.4 cm (7.5 in x 4.1 in), including connectors
Weight	1.52 kg (3.35 lb) with internal battery, internal radio and antenna 3.81 kg (8.40 lb) items above plus range pole, controller & internal radio
Operating Temperature ⁶	-40° C to +65° C (-40° F to +149° F)
Storage Temperature	-40° C to +75° C (-40° F to +167° °F)
Humidity	100%, condensing
Ingress Protection	IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)
Shock and vibration	Tested and meets the following environmental standards:
Shock	Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete. Operating: to 40 G, 10 msec, sawtooth
Vibration	MIL-STD-810F, FIG.514.5C-1

¹ Based on Trimble R8i GNSS receiver configuration

² Precision and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry and atmospheric conditions. The specifications stated recommend the use of static mounts in an open sky view, EM and multipath clean environment, optimal GNSS constellation configurations, along with the use of survey practices that are generally accepted for performing the highest-order surveys for the applicable application including occupation time appropriate for baseline length. Baselines longer than 30 km require precise ephemeris and occupations up to 24 hours may be required to achieve the high precision static specification.

³ Network RTK PPM values are reference to the closest physical reference station

⁴ May be affected by atmospheric conditions, signal multipath, obstructions and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.

⁵ Receiver will operate normally to -40° C, internal batteries are rated to -20° C, optional internal cellular modem operates to -40° C.

⁶ Tracking GPS and GLONASS

⁷ Varies with temperature and wireless data rate. When using a receiver and internal radio in the transmit mode, it is recommended that an external 6 Ah or higher battery is used.

⁸ Varies with terrain and operating conditions.

⁹ Bluetooth type approvals are country specific.

ELECTRICAL

- Power 11 V DC to 24 V DC external power input with over-voltage protection on Port 1 (7-pin Lemo)
- Rechargeable, removable 7.4 V, 2.8 Ah Lithium-ion smart battery
- Power consumption is <3.2 W in RTK rover mode with internal radio and Bluetooth[®] in use⁶
- Operating times on internal battery⁷:
 - 450 MHz receive only option 5.0 hours
 - 450 MHz receive/transmit option (0.5 W) 2.5 hours

COMMUNICATIONS

- Serial: 3-wire serial (7-pin Lemo) on Port 1; full RS-232 serial (Dsub 9 pin) on Port 2
- Radio Modem¹: fully integrated, sealed 450 MHz wide band receiver/transmitter with frequency range of 403 MHz to 473 MHz:
 - Transmit power: 0.5 W
 - Range: 3-5 km typical / 10 km optimal⁸
- Bluetooth: fully integrated, fully sealed 2.4 GHz communications port (Bluetooth)⁹

Data Formats

- CMRx

Supported Trimble Controllers¹

- Trimble Field Tablet

CERTIFICATIONS

FCC Part 15 (Class B device), Part 15.247 and Part 90; ICES-003, RSS-210 and RSS-119; CE Mark; C-Tick; Bluetooth EPL

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Specifications subject to change without notice.



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Westminster, CO 80021
800.234.3758

Trimble.
<http://mep.trimble.com>

1.5. TRIMBLE TSC3 DATA COLLECTOR

Trimble TSC3 Controller

TECHNICAL SPECIFICATIONS

- Standard software
- Windows Embedded Handheld 6.5 Professional operating system, including:
 - SMS Text Messaging Support
 - Microsoft Office Mobile:
 - Word Mobile
 - Excel Mobile
 - PowerPoint Mobile
 - Outlook Mobile
 - Internet Explorer Mobile
 - Notes / Tasks
 - Task Manager
 - Calculator
 - Microsoft Pictures and Videos
 - Customized Camera and Flash control including geo-tagging through Microsoft Pictures & Videos software
 - Flashlight mode control application
 - Calendar / Contacts
 - Windows Media Player
 - Messenger
 - Adobe Acrobat Reader
 - Trimble SatViewer (GPS interface software application)

Operating system languages (optional): Simplified Chinese, English, French, German, Japanese, Spanish

Trimble Field Software Solutions

The Trimble TSC3 controller runs the Trimble Access field software. In addition, a number of regional solutions are available. For more information on the field software that's best for you, contact your local Trimble authorized distribution partner.

Standard Accessories (included)

- 28.8 Wh Li-Ion battery
- International AC power supply
- Hand strap
- USB cable (mini)
- Stylus tether
- Stylus with spring tip (pkg of 2)
- Screen protectors
- Audio port dust cover
- I/O port dust covers
- Standard soft case
- Quick start guide sheet
- Radio antenna for integrated 2.4 GHz radio mode m (optional)

Optional Accessories

- Deluxe carry case
- Individual battery charger
- Range pole bracket
- 12 V vehicle charging kit
- Desk docking cradle with USB host, USB client, and 10/100 Mbps Ethernet connections

All standard accessories are also available to order separately.

HARDWARE

Physical Specifications

Size	141 mm x 278 mm x 64 mm (5.6 in x 10.9 in x 2.5 in)
Weight	1.04 kg (2.3 lb) including rechargeable battery 1.10 kg (2.4 lb) including rechargeable battery and optional internal 2.4 GHz radio-modem
Housing	Polycarbonate (case), Hytrel® (cover/mold)

1. Unit inside with backlight turned on, no radio turned on, moderate temperatures
2. CDMA modem only supports Ev-DO network (450)

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ENVIRONMENTAL SPECIFICATIONS

- Meets or exceeds:
- Operating Temperature: -30 °C to 60 °C (-22 °F to 140 °F)
 - Storage Temperature: -40 °C to 70 °C (-40 °F to 158 °F)
 - Temperature shock: -35 °C/65 °C (-31 °F/149 °F)
 - Humidity: MIL-STD-810G, Method 503.5, Procedure I
90%RH temp cycle -20 °C/60 °C (-4 °F/140 °F)
MIL-STD-810G, Method 507.5
 - Sand & dust: IP6x: 8 hours of operation with blowing talcum powder (IEC-529)
 - Water: IPx7: Immersed in 1 m of water for 30 minutes (IEC-529)
 - Drop: 26 drops at room temperature from 1.22 m (4 ft) onto plywood over concrete
MIL-STD-810G, Method 516.6, Procedure IV
 - Vibration: General Minimum Integrity and Loose Cargo test
MIL-STD-810G, Method 514.6, Procedures I, II
 - Altitude: 4,572 m (15,000 ft) at 23 °C (73 °F)
and 12,192 m (40,000 ft.) at -30 °C (-22 °F)
MIL-STD-810G, Method 500.5, Procedures I, II, III

ELECTRICAL SPECIFICATIONS

- Processor: Texas Instrument Sitara™ 3715 series ARM® Cortex™-A8 Processor (800 MHz)
- Memory: 256 MIB RAM
- Storage: 8 GB non-volatile NAND Flash onboard
- Expansion: SDHC memory slot, USB host internal embedded expansion slot (for future use)
- Batteries: 11.1 V, 2600 mAh, 28.8 Wh Li-Ion rechargeable pack
 - Battery life of 34 hours under normal operating conditions¹.
 - Full charge in 3.0 hours.
- Notification LEDs: 3 x tri-colored notification LEDs
- Display:
 - 4.2 in (107 mm) landscape VGA display, 640 x 480 pixels
 - Sunlight-readable color TFT with LED backlight, resistive touchscreen
- Keyboard:
 - Full QWERTY keypad with 10-key number pad, directional buttons, and 4 programmable buttons
 - "ABCD" style keypad option with 10-key number pad, directional buttons, and 4 programmable buttons available
- Audio: Integrated speaker and microphone with 3.5 mm stereo headset connection for audio system events, warnings, and notifications.
- I/O: USB Host (full speed), USB Client (high speed), DC power port, 9-pin serial RS-232
- Wireless:
 - Integrated Bluetooth 2.0+EDR, integrated Wi-Fi 802.11 b/g
 - Integrated quad-band GSM/GPRS/EDGE: 850/900/1800/1900 MHz
 - 2.6 Mbit/s 3G HSDPA, GSM WWAN
 - Integrated 2.4 GHz frequency-hopping spread-spectrum radio mode m (optional)
 - Dual band CDMA2000 in Bands BC0 and BC1 (800/900MHz)²
- Camera / GPS / Compass / Accelerometer:
 - 5 MP auto focus camera with dual white light LED flash, LED flashlight function
 - Integrated GPS (WAAS enabled)
 - Integrated compass
 - Integrated accelerometer

CERTIFICATIONS

Class B Part 15 FCC certification, CE Mark approval and C-tick approval. RoHS compliant. Bluetooth type approvals and regulations are country specific. MIL-STD-810G, IP 67, MIL-STD-461, PTCRB, GCF compliant, Wi-Fi Alliance certified, AT&T Network Compatible.

Country type certifications: USA, Canada, EU, New Zealand, Australia, Brazil. Pending certifications: Malaysia, China (PRC), India, Japan, Republic of Korea, Russia, Taiwan, Thailand, UAE.

RECYCLING INFORMATION

For product recycling instructions and more information, please go to www.trimble.com/environments/umma/gj.html.

specification subject to change without notice.



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PROJECT INFORMATION	
Client Name:	Glencore Canada Corporation
Project Name:	Raglan Exploration – 2017 MT Survey
Project Location:	Raglan Mine, Nunavik, Québec
Project Type:	Spartan MT
Project Number:	CA01113S
Project Manager:	Mark Morrison
Project Period:	September 7 – October 1, 2017
Report Type:	Logistics Report
Report Author(s):	Benoît Tournier, P.Geo
Report date:	November 29, 2017
Revision #1	March 1, 2018