ODF[1]-CTD File Example (MLI)

```
ODF_HEADER,
  FILE_SPECIFICATION = 'CTD_2000037_102_1_DN',
CRUISE_HEADER,
  COUNTRY_INSTITUTE_CODE = 1830,
  CRUISE_NUMBER = '2000037',
  ORGANIZATION = 'DPMM',
  CHIEF_SCIENTIST = 'DArchambault, BMorin',
  START_DATE = '03-AUG-2000 00:00:00.00',
  END_DATE = '02-SEP-2000 23:50:00.00',
  PLATFORM = 'Needler',
  CRUISE_NAME = 'Releve estival multidisciplinaire 2000',
  CRUISE_DESCRIPTION = '',
EVENT_HEADER,
  DATA_TYPE= 'CTD',
  EVENT_NUMBER= '102',
  EVENT_QUALIFIER1= '1',
  EVENT_QUALIFIER2= 'DN',
  CREATION_DATE= '30-OCT-2000 09:01:31.34',
  ORIG_CREATION_DATE= '23-AUG-2000 11:56:23.00',
  START_DATE_TIME= '14-AUG-2000 17:24:52.00',
  END_DATE_TIME= '14-AUG-2000 17:30:00.00',
  INITIAL_LATITUDE= 50.775500,
  INITIAL_LONGITUDE= -57.380333,
  END_LATITUDE= 50.777330,
  END_LONGITUDE= -57.379330,
  MIN_DEPTH= 1.19,
  MAX_DEPTH= 35.29,
  SAMPLING_INTERVAL= -99.0,
  SOUNDING= 43.00,
  DEPTH_OFF_BOTTOM= 7.71,
  EVENT_COMMENTS= '',
METEO_HEADER,
  AIR_TEMPEMPERATURE= 17.20,
  ATMOSPHERIC_PRESSURE= 1019.50,
  WIND_SPEED= 9.25,
  WIND_DIRECTION= 200.00,
  SEA_STATE= -99,
  CLOUD_COVER= -99,
  ICE_THICKNESS= -99.00,
```

[1] Refer to URL : http://www.mar.dfo-mpo.gc.ca/science/ocean/home.html

```
  METEO_COMMENTS= 'Air_Temperature: degrees C',
  METEO_COMMENTS= 'Wind_Speed: m/s',
  METEO_COMMENTS= 'Wind_Direction(0-360): True North degrees',
  METEO_COMMENTS= 'Atmospheric_Pressure: hpa',
  METEO_COMMENTS= 'Sea_State(0->9): WMO code table 3700',
  METEO_COMMENTS= 'Cloud_Cover(0->9): WMO code table 2700',
  METEO_COMMENTS= 'Ice_Thickness: m',
INSTRUMENT_HEADER,
  INST_TYPE= 'Sea-Bird',
  MODEL= 'SBE 9',
  SERIAL_NUMBER= '516',
  DESCRIPTION= 'Q0037102.DAT Q0037102.CON',
QUALITY_HEADER,
  QUALITY_DATE= '25-AUG-2000 10:44:51.65',
  QUALITY_TESTS= 'Test 1.1: GTSPP Platform Identification',
  QUALITY_TESTS= 'Test 1.2: GTSPP Impossible Date/Time',
  QUALITY_TESTS= 'Test 1.3: GTSPP Impossible Location',
  QUALITY_TESTS= 'Test 1.4: GTSPP Position on Land',
  QUALITY_TESTS= 'Test 1.5: GTSPP Impossible Speed',
  QUALITY_TESTS= 'Test 1.6: GTSPP Impossible Sounding',
  QUALITY_TESTS= 'Test 5.1: GTSPP Cruise Track Visual Inspection',
  QUALITY_TESTS= 'Test 2.0: IML Minimum Descent Rate (2) (0.10m/s)',
  QUALITY_TESTS= 'Test 2.1: GTSPP Global Impossible Parameter Values (4)',
  QUALITY_TESTS= 'Test 2.2: GTSPP Regional Impossible Parameter Values (8)',
  QUALITY_TESTS= 'Test 2.3: GTSPP Increasing Depth (16)',
  QUALITY_TESTS= 'Test 2.4: GTSPP Profile Envelope (Temperature and Salinity) (32)',
  QUALITY_TESTS= 'Test 2.6: GTSPP Freezing Point (128)',
  QUALITY_TESTS= 'Test 2.7: GTSPP Spike in Temperature and Salinity (one point) (256)',
  QUALITY_TESTS= 'Test 2.8: GTSPP Top and Bottom Spike in Temperature and Salinity (512)',
  QUALITY_TESTS= 'Test 2.9: GTSPP Gradient in Temperature and Salinity (1024)',
  QUALITY_TESTS= 'Test 2.10: GTSPP Density Inversion (point to point) (2048)',
  QUALITY_TESTS= 'Test 2.11: IML Spike in Pressure, Temperature and Salinity (one point or more) (4096)',
  QUALITY_TESTS= 'Test 2.12: IML Density Inversion (overall profile) (8192)',
  QUALITY_TESTS= 'Test 3.5: IML Petrie Monthly Climatology (Temperature, Salinity and Sigma-T)',
  QUALITY_TESTS= 'Test 4.2: IML Annual Deep Water Profile Consistency',
  QUALITY_TESTS= 'Test 5.2: GTSPP Profile Visual Inspection',
  QUALITY_COMMENTS= 'QCFF values are derived from tests of GTSPP stage 2',
  QUALITY_COMMENTS= 'A quality flag modified by hand has a QCFF value of 1',
  QUALITY_COMMENTS= 'Salinity-Bottle differences: Mean(AutoSAL-CTD) = 0.032 ±0.022 (22 data)',
GENERAL_CAL_HEADER,
  PARAMETER_CODE= 'PRES_01',
  CALIBRATION_TYPE= 'PRES04',
  CALIBRATION_DATE= '04-NOV-1997 00:00:00.00',
  APPLICATION_DATE= '23-AUG-2000 11:56:23.00',
  NUMBER_COEFFICIENTS= 4,
  COEFFICIENTS= -3.97110200e-002  -7.14514600e+003  0.00000000e+000  0.00000000e+000 ,
  CALIBRATION_EQUATION= 'PRES = (C0 + C1*N + C2*N^2 + C3)/1.450377',
  CALIBRATION_COMMENTS= '',
```

```
GENERAL_CAL_HEADER,
  PARAMETER_CODE= 'TE90_01',
  CALIBRATION_TYPE= 'TEMP06',
  CALIBRATION_DATE= '27-FEB-1999 00:00:00.00',
  APPLICATION_DATE= '23-AUG-2000 11:56:23.00',
  NUMBER_COEFFICIENTS= 7,
  COEFFICIENTS= 4.32348185e-003  6.39877778e-004  2.27959612e-005  2.20480176e-006  1.0000000e+003  1.0000000e+000  0.00000000e+000,
  CALIBRATION_EQUATION= 'TE90 = ( 1 / (C0 + C1*ln(C4/N) + C2*(ln(C4/N))^2 + C3*(ln(C4/N))^3) - 273.15)*C5 + C6',
  CALIBRATION_COMMENTS= '',
GENERAL_CAL_HEADER,
  PARAMETER_CODE= 'CNDC_01',
  CALIBRATION_TYPE= 'COND04',
  CALIBRATION_DATE= '16-MAR-1999 00:00:00.00',
  APPLICATION_DATE= '23-AUG-2000 11:56:23.00',
  NUMBER_COEFFICIENTS= 8,
  COEFFICIENTS= -1.06834400e+001  1.45043845e+000  -2.83460452e-003  2.98323276e-004  3.2500e-006  -9.5700e-008  1.00e+000  0.0e+000,
  CALIBRATION_EQUATION= 'CNDC = ((C0 + C1*N^2 + C2*N^3 + C3*N^4)/(10(1+C4*TEMP+C5*PRES)))*C6 + C7',
  CALIBRATION_COMMENTS= '',
GENERAL_CAL_HEADER,
  PARAMETER_CODE= 'FLOR_01',
  CALIBRATION_TYPE= 'FLUO02',
  CALIBRATION_DATE= '27-FEB-1997 00:00:00.00',
  APPLICATION_DATE= '23-AUG-2000 11:56:23.00',
  NUMBER_COEFFICIENTS= 2,
  COEFFICIENTS= 7.30000000e-002  1.68580000e+001 ,
  CALIBRATION_EQUATION= 'FLOR = (N - C0)*C1',
  CALIBRATION_COMMENTS= '',
HISTORY_HEADER,
  CREATION_DATE= '24-AUG-2000 10:03:18.00',
  PROCESS= '* Sea-Bird SBE 9 Raw Data File:',
  PROCESS= '* FileName = D:\DONNEES\NEEDLER\DAT\Q0037102.DAT',
  PROCESS= '* Software Version 4.243',
  PROCESS= '* Temperature SN = 2701',
  PROCESS= '* Conductivity SN = 2269',
  PROCESS= '* Number of Bytes Per Scan = 18',
  PROCESS= '* Number of Voltage Words = 2',
  PROCESS= '* Number of Scans Averaged by the Deck Unit = 1',
  PROCESS= '* System UpLoad Time = Aug 14 2000  17:24:52',
  PROCESS= '* NMEA Latitude = 50 46.53 N',
  PROCESS= '* NMEA Longitude = 057 22.82 W',
  PROCESS= '* NMEA UTC (Time) = Aug 14 2000  17:24:52',
  PROCESS= '* Store Lat/Lon Data = Add to Header Only',
  PROCESS= '* Command Line = seasave',
  PROCESS= '** Mission Needler2000',
  PROCESS= '** Chef de Mission: Diane Archambault',
  PROCESS= '** Navire: Needler',
  PROCESS= '** Latitude:  50 46.52',
  PROCESS= '** Longitude: 57 22.83',
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PROCESS= '** Profondeur: 43',
PROCESS= '** Station: 102',
PROCESS= '# nquan = 11',
PROCESS= '# nvalues = 350',
PROCESS= '# units = metric',
PROCESS= '# name 0 = scan: scan number',
PROCESS= '# name 1 = pr: pressure [db]',
PROCESS= '# name 2 = t090: temperature, ITS-90 [deg C]',
PROCESS= '# name 3 = c0S/m: conductivity [S/m]',
PROCESS= '# name 4 = wetStar: WET Labs, WETStar chlorophyll concentration [æg/l]',
PROCESS= '# name 5 = dz/dt: descent rate [m/s]',
PROCESS= '# name 6 = sigma-t00: density, sigma-t [kg/m^3]',
PROCESS= '# name 7 = depS: depth, salt water [m]',
PROCESS= '# name 8 = sal00: salinity, PSS-78 [PSU]',
PROCESS= '# name 9 = flag:  0.000e+00',
PROCESS= '# name 10 = nbin: number of scans per bin',
PROCESS= '# span 0 = 3082, 6725',
PROCESS= '# span 1 = 0.200, 35.600',
PROCESS= '# span 2 = 9.5792, 16.5647',
PROCESS= '# span 3 = 3.372962, 3.908612',
PROCESS= '# span 4 = 1.5813, 3.0683',
PROCESS= '# span 5 = -1.525, 1.255',
PROCESS= '# span 6 = 21.8792, 23.8868',
PROCESS= '# span 7 = 0.198, 35.289',
PROCESS= '# span 8 = 30.1294, 30.9921',
PROCESS= '# span 9 = 0.000e+00, 0.000e+00',
PROCESS= '# span 10 = 3.0000, 23.0000',
PROCESS= '# interval = decibars: 0.2',
PROCESS= '# start_time = Aug 14 2000 17:24:52',
PROCESS= '# bad_flag = -9.990e-29',
PROCESS= '# sensor 0 = Frequency  0  temperature, 2701, 27 Feb 99',
PROCESS= '# sensor 1 = Frequency  1  conductivity, 2269, 16 Mar 99, cpcor = -9.5700e-08',
PROCESS= '# sensor 2 = Frequency  2  pressure, 70966, 04 Nov 97',
PROCESS= '# sensor 3 = Extrnl Volt  0  WET Labs, WETStar fluorometer, 251, 27-02-1997',
PROCESS= '# sensor 4 = Extrnl Volt  2  userpoly 0, altimetre, 02-09-1999',
PROCESS= '# datcnv_date = Aug 23 2000 11:56:23, 4.245',
PROCESS= '# datcnv_in = Q0037102.DAT Q0037102.CON',
PROCESS= '# datcnv_skipover = 0',
PROCESS= '# wildedit_date = Aug 23 2000 15:48:55, 4.245',
PROCESS= '# wildedit_in = Q0037102.CNV',
PROCESS= '# wildedit_pass1_nstd = 2.0',
PROCESS= '# wildedit_pass2_nstd = 4.0',
PROCESS= '# wildedit_pass2_mindelta = 0.000e+000',
PROCESS= '# wildedit_npoint = 12',
PROCESS= '# wildedit_vars = pr t090 c0S/m wetStar dz/dt',
PROCESS= '# wildedit_excl_bad_scans = yes',
PROCESS= '# alignctd_date = Aug 23 2000 15:57:54, 4.245',
PROCESS= '# alignctd_in = Q0037102.CNV',
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  PROCESS= '# alignctd_cond_advSecs = 0.000, 0.000',
  PROCESS= '# alignctd_temp_advSecs = 0.000, 0.000',
  PROCESS= '# alignctd_oxygen_current_advSecs = 0.000, 0.000',
  PROCESS= '# alignctd_oxygen_temp_advSecs = 0.000, 0.000',
  PROCESS= '# alignctd_wetstar_advSecs = 5.000',
  PROCESS= '# filter_date = Aug 23 2000 16:13:11, 4.245',
  PROCESS= '# filter_in = Q0037102.CNV',
  PROCESS= '# filter_low_pass_tc_A = 0.150',
  PROCESS= '# filter_low_pass_tc_B = 0.050',
  PROCESS= '# filter_low_pass_A_vars = pr',
  PROCESS= '# filter_low_pass_B_vars = t090 c0S/m',
  PROCESS= '# loopedit_date = Aug 23 2000 16:25:05, 4.245',
  PROCESS= '# loopedit_in = Q0037102.CNV',
  PROCESS= '# loopedit_minVelocity = 0.100',
  PROCESS= '# loopedit_excl_bad_scans = yes',
  PROCESS= '# celltm_date = Aug 23 2000 16:33:55, 4.245',
  PROCESS= '# celltm_in = Q0037102.CNV',
  PROCESS= '# celltm_alpha = 0.0300, 0.0000',
  PROCESS= '# celltm_tau = 7.0000, 0.0000',
  PROCESS= '# celltm_temp_sensor_use_for_cond = primary,',
  PROCESS= '# binavg_date = Aug 23 2000 16:41:55, 4.245',
  PROCESS= '# binavg_in = Q0037102.CNV',
  PROCESS= '# binavg_bintype = Pressure Bins',
  PROCESS= '# binavg_binsize = 0.20',
  PROCESS= '# binavg_excl_bad_scans = yes',
  PROCESS= '# binavg_downcast_only = no',
  PROCESS= '# binavg_skipover = 0',
  PROCESS= '# binavg_surface_bin = no, min = 0.000, max = 0.000, value = 0.000',
  PROCESS= '# derive_date = Aug 24 2000 10:03:18, 4.245',
  PROCESS= '# derive_in = Q0037102.CNV Q0037102.CON',
  PROCESS= '# file_type = ascii',
  PROCESS= '*END*',
HISTORY_HEADER,
  CREATION_DATE= '25-AUG-2000 10:28:57.87',
  PROCESS= 'Conversion from CNV to ODF',
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Counter',
  UNITS= '(none)',
  CODE= 'CNTR_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 0,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 3082,
  MAXIMUM_VALUE= 4199,
```

```
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Sea Pressure (sea surface - 0)',
  UNITS= 'decibars',
  CODE= 'PRES_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 3,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1.2,
  MAXIMUM_VALUE= 35.6,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Quality flag: Sea Pressure (sea surface - 0)',
  UNITS= 'none',
  CODE= 'QQQQ_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 1,
  PRINT_DECIMAL_PLACES= 0,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1,
  MAXIMUM_VALUE= 1,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Temperature (1990 scale)',
  UNITS= 'degrees C',
  CODE= 'TE90_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 4,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 9.5792,
  MAXIMUM_VALUE= 16.5593,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
```

```
  TYPE= 'DOUB',
  NAME= 'Quality flag: Temperature (1990 scale)',
  UNITS= 'none',
  CODE= 'QQQQ_02',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 1,
  PRINT_DECIMAL_PLACES= 0,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1,
  MAXIMUM_VALUE= 1,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Sensor Depth below Sea Surface',
  UNITS= 'metres',
  CODE= 'DEPH_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 3,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1.19,
  MAXIMUM_VALUE= 35.289,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Quality flag: Sensor Depth below Sea Surface',
  UNITS= 'none',
  CODE= 'QQQQ_03',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 1,
  PRINT_DECIMAL_PLACES= 0,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1,
  MAXIMUM_VALUE= 1,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Practical Salinity',
  UNITS= 'psu',
```

```
  CODE= 'PSAL_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 4,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 30.1348,
  MAXIMUM_VALUE= 30.9921,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Quality flag: Practical Salinity',
  UNITS= 'none',
  CODE= 'QQQQ_04',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 1,
  PRINT_DECIMAL_PLACES= 0,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1,
  MAXIMUM_VALUE= 3,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Sigma-T',
  UNITS= 'kg/m**3',
  CODE= 'SIGT_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 4,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 21.885,
  MAXIMUM_VALUE= 23.8868,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Quality flag: Sigma-T',
  UNITS= 'none',
  CODE= 'QQQQ_05',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 1,
```

```
  PRINT_DECIMAL_PLACES= 0,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1,
  MAXIMUM_VALUE= 3,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Lowering Rate',
  UNITS= 'metres/sec',
  CODE= 'DPDT_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 3,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= -0.449,
  MAXIMUM_VALUE= 1.255,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Electrical Conductivity',
  UNITS= 'mhos/m',
  CODE= 'CNDC_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 6,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 3.373,
  MAXIMUM_VALUE= 3.9086,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Fluorescence',
  UNITS= 'mg/m**3',
  CODE= 'FLOR_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 10,
  PRINT_DECIMAL_PLACES= 4,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
```

```
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 1.5813,
  MAXIMUM_VALUE= 3.0683,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
PARAMETER_HEADER,
  TYPE= 'DOUB',
  NAME= 'Quality flag: QCFF',
  UNITS= 'none',
  CODE= 'QCFF_01',
  NULL_VALUE= -9.900000E+001,
  PRINT_FIELD_WIDTH= 4,
  PRINT_DECIMAL_PLACES= 0,
  ANGLE_OF_SECTION= 0.000000,
  MAGNETIC_VARIATION= 0.000000,
  DEPTH= 0.000000 ,
  MINIMUM_VALUE= 0,
  MAXIMUM_VALUE= 4096,
  NUMBER_VALID= 173,
  NUMBER_NULL= 0,
RECORD_HEADER,
  NUM_CALIBRATION= 4,
  NUM_SWING= 0,
  NUM_HISTORY= 2,
  NUM_CYCLE= 173,
  NUM_PARAM= 15,
 -- DATA --
       3082       1.200  1     16.5535  1       1.190  1     30.1362  1     21.8867  1      -0.449    3.887753      2.2152     0
       3101       1.400  1     16.5536  1       1.388  1     30.1361  1     21.8866  1      -0.116    3.887760      2.2334     0
       3130       1.600  1     16.5540  1       1.586  1     30.1361  1     21.8865  1       0.169    3.887796      2.1677     0
       3150       1.800  1     16.5555  1       1.784  1     30.1363  1     21.8863  1       0.160    3.887967      2.2462     0
       3157       2.000  1     16.5559  1       1.983  1     30.1361  1     21.8861  1       0.203    3.887986      2.2740     0
       3162       2.200  1     16.5541  1       2.181  1     30.1361  1     21.8865  1       0.278    3.887839      2.2980     0
       3167       2.400  1     16.5538  1       2.379  1     30.1364  1     21.8868  1       0.370    3.887855      2.3048     0
       3171       2.600  1     16.5538  1       2.578  1     30.1364  1     21.8868  1       0.473    3.887856      2.2942     0
       3175       2.800  1     16.5537  1       2.776  1     30.1364  1     21.8868  1       0.587    3.887861      2.3409     0
       3179       3.000  1     16.5548  1       2.974  1     30.1363  1     21.8865  1       0.706    3.887953      2.3091     0
       3183       3.200  1     16.5569  1       3.172  1     30.1360  1     21.8858  1       0.828    3.888104      2.3375     0
       3187       3.400  1     16.5564  1       3.371  1     30.1355  1     21.8855  1       0.939    3.888013      2.3552     0
       3191       3.600  1     16.5552  1       3.569  1     30.1356  1     21.8859  1       1.030    3.887930      2.3265     0
       3195       3.800  1     16.5555  1       3.767  1     30.1360  1     21.8861  1       1.096    3.888010      2.3457     0
       3200       4.000  1     16.5559  1       3.965  1     30.1359  1     21.8859  1       1.137    3.888039      2.3133     0
       3205       4.200  1     16.5569  1       4.164  1     30.1360  1     21.8857  1       1.146    3.888142      2.3533     0
       3210       4.400  1     16.5575  1       4.362  1     30.1355  1     21.8853  1       1.135    3.888154      2.3550     0
       3215       4.600  1     16.5558  1       4.560  1     30.1350  1     21.8853  1       1.105    3.887953      2.3550     0
       3220       4.800  1     16.5566  1       4.758  1     30.1355  1     21.8855  1       1.074    3.888085      2.3742     0
       3225       5.000  1     16.5575  1       4.957  1     30.1354  1     21.8852  1       1.042    3.888158      2.3756     0
       3230       5.200  1     16.5574  1       5.155  1     30.1354  1     21.8852  1       1.008    3.888160      2.3477     0
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3236	5.400	1	16.5573	1	5.353	1	30.1355	1	21.8853	1	0.969	3.888173	2.3675	0
3243	5.600	1	16.5563	1	5.552	1	30.1355	1	21.8855	1	0.923	3.888093	2.3399	0
3249	5.800	1	16.5547	1	5.750	1	30.1353	1	21.8857	1	0.881	3.887937	2.3774	0
3255	6.000	1	16.5534	1	5.948	1	30.1356	1	21.8862	1	0.842	3.887864	2.3687	0
3261	6.200	1	16.5561	1	6.146	1	30.1356	1	21.8856	1	0.814	3.888105	2.3754	0
3267	6.400	1	16.5571	1	6.345	1	30.1352	1	21.8851	1	0.799	3.888158	2.4345	0
3273	6.600	1	16.5575	1	6.543	1	30.1354	1	21.8851	1	0.794	3.888219	2.4247	0
3279	6.800	1	16.5578	1	6.741	1	30.1353	1	21.8851	1	0.791	3.888249	2.4468	0
3286	7.000	1	16.5573	1	6.939	1	30.1355	1	21.8853	1	0.786	3.888232	2.4294	0
3294	7.200	1	16.5580	1	7.138	1	30.1355	1	21.8851	1	0.769	3.888299	2.5219	0
3301	7.400	1	16.5555	1	7.336	1	30.1352	1	21.8855	1	0.734	3.888057	2.4797	0
3309	7.600	1	16.5547	1	7.534	1	30.1351	1	21.8856	1	0.692	3.887988	2.3979	0
3316	7.800	1	16.5535	1	7.732	1	30.1351	1	21.8859	1	0.664	3.887888	2.4744	0
3323	8.000	1	16.5536	1	7.931	1	30.1350	1	21.8858	1	0.652	3.887893	2.4331	0
3330	8.200	1	16.5534	1	8.129	1	30.1350	1	21.8858	1	0.652	3.887882	2.5202	0
3336	8.400	1	16.5524	1	8.327	1	30.1348	1	21.8859	1	0.665	3.887785	2.4731	0
3341	8.600	1	16.5534	1	8.525	1	30.1351	1	21.8859	1	0.688	3.887909	2.4810	0
3347	8.800	1	16.5541	1	8.724	1	30.1351	1	21.8857	1	0.720	3.887982	2.5093	0
3352	9.000	1	16.5545	1	8.922	1	30.1352	1	21.8857	1	0.757	3.888037	2.4767	0
3357	9.200	1	16.5548	1	9.120	1	30.1353	1	21.8857	1	0.797	3.888083	2.4396	0
3362	9.400	1	16.5548	1	9.319	1	30.1354	1	21.8858	1	0.838	3.888101	2.4640	0
3367	9.600	1	16.5558	1	9.517	1	30.1353	1	21.8855	1	0.877	3.888183	2.4852	0
3372	9.800	1	16.5565	1	9.715	1	30.1353	1	21.8854	1	0.910	3.888257	2.4907	0
3377	10.000	1	16.5557	1	9.913	1	30.1354	1	21.8856	1	0.933	3.888199	2.4616	0
3383	10.200	1	16.5542	1	10.112	1	30.1355	1	21.8860	1	0.942	3.888089	2.4397	0
3388	10.400	1	16.5545	1	10.310	1	30.1355	1	21.8859	1	0.936	3.888127	2.5253	0
3395	10.600	1	16.5534	1	10.508	1	30.1353	1	21.8861	1	0.913	3.888019	2.4836	0
3403	10.800	1	16.5536	1	10.706	1	30.1359	1	21.8864	1	0.861	3.888105	2.5188	0
3411	11.000	1	16.5537	1	10.905	1	30.1358	1	21.8863	1	0.773	3.888110	2.5250	0
3420	11.200	1	16.5542	1	11.103	1	30.1358	1	21.8862	1	0.681	3.888160	2.5224	0
3429	11.400	1	16.5548	1	11.301	1	30.1358	1	21.8861	1	0.609	3.888230	2.5260	0
3437	11.600	1	16.5560	1	11.499	1	30.1358	1	21.8858	1	0.567	3.888342	2.5393	0
3444	11.800	1	16.5580	1	11.698	1	30.1361	1	21.8856	1	0.561	3.888550	2.4899	0
3451	12.000	1	16.5593	1	11.896	1	30.1360	1	21.8852	1	0.581	3.888667	2.5256	0
3458	12.200	1	16.5588	1	12.094	1	30.1356	1	21.8850	1	0.609	3.888578	2.5224	0
3464	12.400	1	16.5534	1	12.292	1	30.1354	1	21.8861	1	0.641	3.888097	2.5836	0
3470	12.600	1	16.5411	1	12.491	1	30.1366	1	21.8898	1	0.675	3.887172	2.6344	0
3476	12.800	1	16.5340	1	12.689	1	30.1380	1	21.8925	1	0.712	3.886720	2.6115	0
3481	13.000	1	16.5316	1	12.887	1	30.1390	1	21.8938	1	0.748	3.886635	2.5901	0
3486	13.200	1	16.5311	1	13.086	1	30.1393	1	21.8941	1	0.783	3.886638	2.6103	0
3491	13.400	1	16.5309	1	13.284	1	30.1393	1	21.8942	1	0.818	3.886624	2.6925	0
3496	13.600	1	16.5284	1	13.482	1	30.1405	1	21.8956	1	0.851	3.886550	2.7705	0
3501	13.800	1	16.5247	1	13.680	1	30.1422	1	21.8978	1	0.882	3.886442	2.7229	0
3506	14.000	1	16.5252	1	13.879	1	30.1423	1	21.8977	1	0.911	3.886499	2.7214	0
3510	14.200	1	16.5243	1	14.077	1	30.1424	1	21.8980	1	0.936	3.886436	2.6288	0
3515	14.400	1	16.5253	1	14.275	1	30.1420	1	21.8975	1	0.958	3.886490	2.6350	0
3520	14.600	1	16.5248	1	14.473	1	30.1422	1	21.8977	1	0.978	3.886474	2.6623	0
3525	14.800	1	16.5243	1	14.672	1	30.1423	1	21.8979	1	0.993	3.886451	2.6678	0

3530	15.000	1	16.5231	1	14.870	1	30.1428	1	21.8986	1	0.997	3.886411	2.6666	0
3537	15.200	1	16.5237	1	15.068	1	30.1424	1	21.8981	1	0.981	3.886426	2.6855	0
3545	15.400	1	16.5219	1	15.266	1	30.1433	1	21.8993	1	0.916	3.886388	2.6551	0
3556	15.600	1	16.5201	1	15.465	1	30.1440	1	21.9002	1	0.752	3.886311	2.6511	0
3571	15.800	1	16.5158	1	15.663	1	30.1473	1	21.9037	1	0.502	3.886325	2.6509	0
3583	16.000	1	16.5129	1	15.861	1	30.1488	1	21.9055	1	0.376	3.886261	2.6369	0
3591	16.200	1	16.5081	1	16.059	1	30.1509	1	21.9082	1	0.366	3.886095	2.6808	0
3596	16.400	1	16.4983	1	16.258	1	30.1646	1	21.9209	1	0.405	3.886833	2.6758	0
3601	16.600	1	16.4941	1	16.456	1	30.1717	1	21.9273	1	0.469	3.887294	2.6460	0
3606	16.800	1	16.4930	1	16.654	1	30.1716	1	21.9274	1	0.547	3.887190	2.6857	0
3610	17.000	1	16.4925	1	16.852	1	30.1717	1	21.9276	1	0.636	3.887167	2.6432	0
3614	17.200	1	16.4934	1	17.051	1	30.1712	1	21.9271	1	0.731	3.887205	2.6076	0
3617	17.400	1	16.4959	1	17.249	1	30.1782	1	21.9319	1	0.825	3.888241	2.6690	0
3621	17.600	1	16.5018	1	17.447	1	30.1934	1	21.9422	1	0.913	3.890517	2.6365	0
3625	17.800	1	16.5105	1	17.645	1	30.2078	1	21.9513	1	0.994	3.892954	2.6390	0
3629	18.000	1	16.5154	1	17.844	1	30.2120	1	21.9534	1	1.065	3.893882	2.7234	0
3632	18.200	1	16.5189	1	18.042	1	30.2172	1	21.9566	1	1.129	3.894795	2.6350	0
3636	18.400	1	16.5215	1	18.240	1	30.2191	1	21.9575	1	1.183	3.895248	2.5234	0
3640	18.600	1	16.5225	1	18.438	1	30.2222	1	21.9596	1	1.227	3.895704	2.5521	0
3644	18.800	1	16.5271	1	18.637	1	30.2322	1	21.9662	1	1.255	3.897270	2.5162	0
3650	19.000	1	16.5396	1	18.835	1	30.2591	1	21.9841	1	1.249	3.901496	2.5246	0
3659	19.200	1	16.5467	1	19.033	1	30.2735	1	21.9935	1	1.145	3.903794	2.5757	0
3675	19.400	1	16.5489	1	19.231	1	30.2767	1	21.9954	1	0.727	3.904357	2.5821	0
3697	19.600	1	16.5517	1	19.430	1	30.2855	1	22.0015	1	0.234	3.905631	2.6515	0
3706	19.800	1	16.5508	1	19.628	1	30.2821	1	21.9992	1	0.228	3.905173	2.6600	0
3712	20.000	1	16.5304	1	19.826	1	30.3218	1	22.0342	1	0.282	3.907984	2.5734	0
3717	20.200	1	16.4865	1	20.024	1	30.3604	1	22.0737	1	0.366	3.908612	2.6094	0
3721	20.400	1	16.4284	1	20.223	1	30.3767	1	22.0992	1	0.467	3.905398	2.6285	0
3726	20.600	1	16.3959	1	20.421	1	30.3863	1	22.1139	1	0.577	3.903661	2.7215	0
3730	20.800	1	16.3714	1	20.619	1	30.3893	1	22.1217	1	0.689	3.901874	2.6650	0
3734	21.000	1	16.3507	1	20.817	1	30.3936	1	22.1296	1	0.793	3.900555	2.5932	0
3738	21.200	1	16.3328	1	21.016	1	30.3963	1	22.1357	1	0.886	3.899301	2.6394	0
3742	21.400	1	16.3163	1	21.214	1	30.3994	1	22.1418	1	0.969	3.898217	2.6624	0
3746	21.600	1	16.3041	1	21.412	1	30.4015	1	22.1461	1	1.038	3.897401	2.6201	0
3750	21.800	1	16.2902	1	21.610	1	30.4024	1	22.1500	1	1.095	3.896297	2.5954	0
3754	22.000	1	16.2751	1	21.809	1	30.4081	1	22.1577	1	1.139	3.895637	2.6405	0
3759	22.200	1	16.2538	1	22.007	1	30.4210	1	22.1723	1	1.166	3.895254	2.6829	0
3764	22.400	1	16.2470	1	22.205	1	30.4289	1	22.1799	1	1.166	3.895575	2.6738	0
3771	22.600	1	16.2426	1	22.403	1	30.4324	1	22.1836	1	1.121	3.895598	2.6915	0
3779	22.800	1	16.2067	1	22.602	1	30.4239	1	22.1851	1	1.020	3.891483	2.6931	0
3787	23.000	1	16.1420	1	22.800	1	30.4236	1	22.1992	1	0.865	3.885778	2.7057	0
3796	23.200	1	16.0526	1	22.998	1	30.4264	1	22.2212	1	0.702	3.878265	2.7584	0
3806	23.400	1	15.9640	1	23.196	1	30.4400	1	22.2512	1	0.588	3.872055	2.8043	0
3814	23.600	1	15.9049	1	23.395	1	30.4501	1	22.2720	1	0.546	3.868039	2.7623	0
3821	23.800	1	15.8591	1	23.593	1	30.4572	1	22.2875	1	0.545	3.864848	2.8044	0
3827	24.000	1	15.8431	1	23.791	1	30.4644	1	22.2965	1	0.571	3.864266	2.8038	0
3833	24.200	1	15.8365	1	23.989	1	30.4663	1	22.2994	1	0.609	3.863913	2.8203	0
3839	24.400	1	15.8287	1	24.188	1	30.4657	1	22.3007	1	0.657	3.863172	2.7956	0

3844	24.600	1	15.7781	1	24.386	1	30.4595	1	22.3070	1	0.707	3.858044	2.8581	0
3850	24.800	1	15.7108	1	24.584	1	30.4617	1	22.3234	1	0.755	3.852407	2.9236	0
3856	25.000	1	15.6756	1	24.782	1	30.4650	1	22.3336	1	0.791	3.849710	2.9066	0
3862	25.200	1	15.6415	1	24.981	1	30.4638	1	22.3401	1	0.815	3.846590	2.8979	0
3868	25.400	1	15.6110	1	25.179	1	30.4602	1	22.3440	1	0.824	3.843524	2.8834	0
3875	25.600	1	15.5357	1	25.377	1	30.4575	1	22.3582	1	0.819	3.836635	2.8577	0
3882	25.800	1	15.4904	1	25.575	1	30.4627	1	22.3720	1	0.799	3.833271	2.9147	0
3889	26.000	1	15.4729	1	25.774	1	30.4622	1	22.3754	1	0.769	3.831691	2.9296	0
3896	26.200	1	15.4169	1	25.972	1	30.4604	1	22.3861	1	0.738	3.826602	3.0683	0
3902	26.400	1	15.3162	1	26.170	1	30.4588	1	22.4065	1	0.713	3.817635	2.9539	0
3909	26.600	1	15.1875	1	26.368	1	30.4756	1	22.4469	1	0.702	3.808296	2.9134	0
3914	26.800	1	15.1334	1	26.567	1	30.4857	1	22.4662	1	0.706	3.804714	2.8375	0
3920	27.000	1	15.0590	1	26.765	1	30.4829	1	22.4799	1	0.725	3.797917	2.7679	0
3925	27.200	1	14.9308	1	26.963	1	30.4984	1	22.5190	1	0.754	3.788490	2.7863	0
3930	27.400	1	14.8412	1	27.161	1	30.5093	1	22.5462	1	0.790	3.781904	2.6663	0
3935	27.600	1	14.7374	1	27.360	1	30.5234	1	22.5788	1	0.830	3.774431	2.5053	0
3940	27.800	1	14.6378	1	27.558	1	30.5365	1	22.6097	1	0.870	3.767221	2.3714	0
3945	28.000	1	14.5458	1	27.756	1	30.5520	1	22.6407	1	0.904	3.760930	2.3712	0
3950	28.200	1	14.5062	1	27.954	1	30.5602	1	22.6553	1	0.929	3.758403	2.3050	0
3956	28.400	1	14.4823	1	28.153	1	30.5623	1	22.6618	1	0.936	3.756556	2.2962	0
3963	28.600	1	14.4393	1	28.351	1	30.5648	1	22.6726	1	0.915	3.753097	2.1259	0
3971	28.800	1	14.3919	1	28.549	1	30.5685	1	22.6852	1	0.856	3.749389	2.0299	0
3979	29.000	1	14.2737	1	28.747	1	30.5844	1	22.7218	1	0.770	3.740867	1.8658	0
3988	29.200	1	14.2018	1	28.946	1	30.6065	1	22.7535	1	0.680	3.737043	1.7473	0
3996	29.400	1	14.1811	1	29.144	1	30.6122	1	22.7621	1	0.614	3.735878	1.7314	0
4004	29.600	1	14.0997	1	29.342	1	30.6182	1	22.7833	1	0.584	3.729470	1.7133	0
4011	29.800	1	13.8769	1	29.540	1	30.6532	1	22.8553	1	0.582	3.713930	1.7511	0
4017	30.000	1	13.6971	1	29.739	1	30.6823	1	22.9138	1	0.603	3.701478	1.6899	0
4022	30.200	1	13.4862	1	29.937	1	30.6991	1	22.9686	1	0.639	3.684999	1.6685	0
4028	30.400	1	13.1417	1	30.135	1	30.7121	1	23.0461	1	0.681	3.656542	1.6477	0
4033	30.600	1	12.7124	1	30.333	1	30.7155	1	23.1311	1	0.727	3.619797	1.6309	0
4038	30.800	1	12.4040	1	30.532	1	30.7667	1	23.2288	1	0.776	3.598612	1.6344	0
4042	31.000	1	12.2135	1	30.730	1	30.7889	1	23.2814	1	0.824	3.584533	1.5813	0
4047	31.200	1	12.0413	1	30.928	1	30.7840	1	23.3093	1	0.872	3.569199	1.5890	0
4051	31.400	1	11.9237	1	31.126	1	30.7929	1	23.3377	1	0.916	3.560018	1.5993	0
4056	31.600	1	11.8538	1	31.324	1	30.7953	1	23.3522	1	0.954	3.554264	1.6531	0
4060	31.800	1	11.7695	1	31.523	1	30.7846	1	23.3592	1	0.989	3.545921	1.8242	0
4065	32.000	1	11.6230	1	31.721	1	30.7805	1	23.3823	1	1.017	3.532933	1.9099	0
4070	32.200	1	11.4497	1	31.919	1	30.7974	1	23.4263	1	1.038	3.519833	1.9105	0
4075	32.400	1	11.2207	1	32.117	1	30.8046	1	23.4722	1	1.047	3.500976	1.9229	0
4081	32.600	1	10.9396	1	32.316	1	30.8246	1	23.5365	1	1.031	3.478999	1.9664	0
4088	32.800	1	10.6829	1	32.514	1	30.8699	1	23.6156	1	0.977	3.461690	1.8507	0
4098	33.000	1	10.5686	1	32.712	1	30.8765	1	23.6401	1	0.860	3.452611	1.7870	0
4110	33.200	1	10.4831	1	32.910	1	30.8905	1	23.6653	1	0.650	3.446741	1.8196	0
4125	33.400	1	10.4576	1	33.109	1	30.8948	1	23.6729	1	0.425	3.445008	1.8721	0
4135	33.600	1	10.4380	1	33.307	1	30.8925	1	23.6744	1	0.359	3.443116	1.9031	0
4142	33.800	1	10.3964	1	33.505	1	30.8902	1	23.6796	1	0.374	3.439348	1.8920	0
4148	34.000	1	10.3495	1	33.703	1	30.8958	1	23.6917	1	0.426	3.435920	1.8655	0

4153	34.200	1	10.3283	1	33.902	1	30.8997	1	23.6982	1	0.499	3.434511	1.8819	0
4158	34.400	1	10.2824	1	34.100	1	30.8994	1	23.7056	1	0.584	3.430578	1.8934	0
4162	34.600	1	10.1786	1	34.298	1	30.8938	1	23.7184	1	0.672	3.421199	1.9268	0
4166	34.800	1	10.0551	1	34.496	1	30.8955	1	23.7399	1	0.759	3.410881	1.9493	0
4171	35.000	1	9.8902	1	34.695	1	30.8756	1	23.7511	1	0.841	3.394913	1.9601	0
4175	35.200	1	9.7129	1	34.893	1	30.8728	3	23.7774	3	0.917	3.379624	1.9598	4096
4179	35.400	1	9.5792	1	35.091	1	30.9200	1	23.8354	1	0.989	3.372962	1.8982	0
4199	35.600	1	9.6099	1	35.289	1	30.9921	1	23.8868	1	0.760	3.382665	1.9025	0