

Keysight ENA Series Network Analyzers

Save Trace Data Operation Manual

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1. Main window



① Display the directory selection dialog.

② Show the directory of the file to save.

③ Input the file name (Channel number and the file extension is automatically assigned. Refer to the following for details).

④ Select the save type from the following.

CSV File (Refer to 2.2 CSV File)

MATLAB format (Refer to 2.3 MATLAB® format)

CITIFile (Refer to 2.4 CITIFile)

⑤ Select the Contents from the following.

Active Trace : Save the Active trace of Active channel.

Active Channel/All Traces : Save all traces of Active channel.

Displayed Channel/All Traces : Save all traces of all allocated channels.

⑥ Select the array type to be saved (Multiple selections are available).

Corrected Data : Data array that are corrected the errors.

This data is included Correction, Port extension, and the result of Fixture simulator.

Output data is shown with the Real/Imaginary format.

Corrected Memory : Memory array that are corrected the errors.

Formatted Data : Data array that formats the corrected data. It is as same as the data shown on the screen.

This data includes the result of Equation, Data math, Conversion, etc.

Output data is shown with the selected format. Refer to "Internal Data processing" in ENA online help for the detail.

Formatted Memory : Formatted memory array.

⑦ Save the data. After saving is done correctly, program is ended with the beep sound.

(Note) If the same file name is in the folder, an overwrite warning is shown.

⑧Cancel the operation and end the program.

⑨Display this help file.

2. Save type

2.1 Common

The case of Time domain is ON, Stimulus data keeps Frequency. It is impossible to save the time data in this program.

2.2 CSV File

This mode saves the data as comma separated value format.

The contents are as the followings:

Note: The case of Power sweep, it is impossible to save the following data.

- Power setting value
- Power sweep stimulus

Sample case: Saved data with CSV format.

```
"E5071C MY46100056 A.09.10"      Model# S/N FW_version
"Thursday, October 16, 2008"     Date
"06:52 PM"                       Time
"Channel",1                       Channel number
"Title Label","ON","Test"        Title label
"Power",1                          Power level [dBm]
"IFBW",500000                      IFBW [Hz]
"SweepType","LIN"                 Sweep type
"Correction","ON"                  Correction status
"PortExtension","ON"              Port extension status
"Fixture Simulator","ON"          Fixture Simulator status
"Frequency Offset","OFF"          Frequency offset mode status
"Trace number", "Parameter", "Format", "Correction type", "Equation editor", "Data math", "Gating",
"Electrical delay(s)", "Phase offset(deg)", "Time domain", "Parameter conversion", "Smoothing"
"Trace1", "S11", "PLOG", "ERES", "ON", "NORM", "ON", 0,0, "ON", "ON", "ON"
```

It is shown the following status or value from the left.

```
"Trace number", "Parameter", "Format", "Correction type", "Equation editor", "Data math", "Gating",
"Electrical delay(s)", "Phase offset(deg)", "Time domain", "Parameter conversion", "Smoothing"
```

```
"Trace2", "S12", "PLOG", "NONE", "OFF", "NORM", "ON", 0,0, "OFF", "ON", "OFF"
```

```
"Trace3", "S21", "POL", "NONE", "ON", "NORM", "OFF", 0,0, "OFF", "OFF", "OFF"
```

```
"Trace4", "S22", "SWR", "NONE", "OFF", "NORM", "OFF", 0,0, "OFF", "OFF", "OFF"
```

```
"Trace5", "S11", "REAL", "ERES", "ON", "NORM", "OFF", 0,0, "ON", "OFF", "ON"
```

```
Frequency,Tr1_S11_Corr_data_Re,Tr1_Corr_data_Im,Tr1_S11_Corr_mem_Re, . . . Note1
```

```
+1.000000000000E+005,+1.44519363630E-001,-2.89643716515E-001,+0.00000000000E+000, . . . Note2
```

```
+2.125075000000E+009,-8.25634430334E-001,-7.12645823188E-001,+0.00000000000E+000, . . .
```

```
+4.250050000000E+009,+1.10432482285E+000,-1.86842720904E-001,+0.00000000000E+000, . . .
```

```
+6.375025000000E+009,+1.06988077333E+000,+1.25117492791E-002,+0.00000000000E+000, . . .
```

```
+8.500000000000E+009,+1.11533994692E+000,+8.71917464565E-002,+0.00000000000E+000, . . .
```

Note 1: Tr1 Trace number

 S11 S parameter

 Corr_data Data array that are corrected the errors

 Corr_mem Memory array that are corrected the errors

Fmt_data	Formatted data array
Fmt_mem	Formatted memory array
Re	Real value in array
Im	Imaginary value in array

Note2: All measured frequency and the selected array is saved.

Note3: File name is automatically assigned as follows,
Input filename + "_" + Channel number + ".csv"
Sample: TraceData_001.csv

2.3 MATLAB® format

This mode saves the data as comma separated value format with MATLAB® compatible header.

%" is added at the header.

Other specification is same as "2.2 CSV file".

The contents are as the followings:

Note: The case of Power sweep, it is impossible to save the following data.

- Power setting value
- Power sweep stimulus

Sample case: Saved data with MATLAB format.

```
%"E5071C MY46100056 A.09.10"  
%"Thursday, October 16, 2008"  
%"06:52 PM"  
%"Channel",1  
%"Title Label","ON","Test"  
%"Power",1  
%"IFBW",500000  
%"SweepType","LIN"  
%"Correction","ON"  
%"PortExtension","ON"  
%"Fixture Simulator","ON"  
%"Frequency Offset","OFF"  
%"Trace number", "Parameter", "Format", "Correction type", "Equation editor", "Data math", "Gating",  
"Electrical delay(s)", "Phase offset(deg)", "Time domain", "Parameter conversion", "Smoothing"  
%"Trace1", "S11", "PLOG", "ERES", "ON", "NORM", "ON", 0,0, "ON", "ON", "ON"  
%"Trace2", "S12", "PLOG", "NONE", "OFF", "NORM", "ON", 0,0, "OFF", "ON", "OFF"  
%"Trace3", "S21", "POL", "NONE", "ON", "NORM", "OFF", 0,0, "OFF", "OFF", "OFF"  
%"Trace4", "S22", "SWR", "NONE", "OFF", "NORM", "OFF", 0,0, "OFF", "OFF", "OFF"  
%"Trace5", "S11", "REAL", "ERES", "ON", "NORM", "OFF", 0,0, "ON", "OFF", "ON"  
%Frequency,Tr1_S11_Corr_data_Re,Tr1_Corr_data_Im,Tr1_S11_Corr_mem_Re, . . .  
+1.000000000000E+005,+1.44519363630E-001,-2.89643716515E-001,+0.00000000000E+000, . . .  
+2.125075000000E+009,-8.25634430334E-001,-7.12645823188E-001,+0.00000000000E+000, . . .  
+4.250050000000E+009,+1.10432482285E+000,-1.86842720904E-001,+0.00000000000E+000, . . .  
+6.375025000000E+009,+1.06988077333E+000,+1.25117492791E-002,+0.00000000000E+000, . . .  
+8.500000000000E+009,+1.11533994692E+000,+8.71917464565E-002,+0.00000000000E+000, . . .
```

Note: File name is automatically assigned as follows,
Input filename + "_" + Channel number + ".dat"
Sample: TraceData_001.dat

2.4 CITIFile

This mode saves the data as CITIfile version A.01.00 format.

Note: The channel data that is selected the power sweep mode is not saved.

Sample case: Saved data with CITIFile format.

```
CITIFILE A.01.00
#E5071C MY46100056 A.09.10
#FORMAT TR1 PLIN
#FORMAT TR2 PLOG
#FORMAT TR3 POL
#FORMAT TR4 SWR
#FORMAT TR5 REAL
NAME FORMATTED
VAR FREQ MAG 5
DATA S[1,1] RI
DATA S[2,1] RI
DATA S[1,2] RI
DATA A[1] RI
DATA R1[1] RI
SEG_LIST_BEGIN
SEG 100000 8500000000 5
SEG_LIST_END
BEGIN
+8.81008756698E-001,-5.37583705873E+001
+9.35340379449E-002,+2.42290239557E+000
+8.83310861554E-001,-5.31041567686E+001
+9.37124399125E-002,+3.41131468381E+000
+8.85604328325E-001,-5.24505221679E+001
END
BEGIN
-2.57763742830E+000,+1.33199363937E+002
-7.98005659457E+001,+1.72394549289E+002
-7.16567085987E+001,-6.17466331593E+001
. . .
END
```

CITIFile version number
Model# S/N FW_version

Trace number data format
(It is displayed when formatted data or formatted memory is selected.)

Note 1
5 : NOP (the number of points)

S[1,1] : Measurement parameter of trace 1
"RI" is always displayed as format.

Note2

Note3

Note 1: Name keyword

Corrected Data : NAME DATA

Corrected Memory : NAME MEMORY

Formatted Data : NAME FORMATTED

Formatted Memory : NAME FORMATTED_MEMORY

Note 2: Output data is changed based on the Sweep type.

Lin Freq : SEG_LIST_BEGIN keyword

Log Freq : VAR_LIST_BEGIN keyword

Segment : VAR_LIST_BEGIN keyword

Power Sweep : Power sweep is not saved.

Note 3: BEGIN keyword

Output the array data that is selected between "BEGIN" and "END". Real part and Imaginary part is divided by comma.

Note 4: File name is automatically assigned as follows, based on the selection at Define data saves.

Corrected Data : File name + ".D" + channel number (Sample : TraceData.D1)
Corrected Memory : File name + ".SM" + channel number (Sample : TraceData.SM1)
Formatted Data : File name + ".F" + channel number (Sample : TraceData.F1)
Formatted Memory : File name + ".FM" + channel number (Sample : TraceData.FM1)