Multi-port element defined by its port-based y parameters   nport

Form: `nport:`⟨`instance name`⟩ n_1 n_2 $\cdots$ ⟨`parameter list`⟩

n_1, n_2 $\cdots$ are the element nodes.

Parameters:

Parameter	Type	Default value	Required?
filename: File containing the port-based parameter matrix.	STRING	n/a	yes
max_freq: Maximum number of frequency points in data file	INTEGER	200	no

Example:

```
nport: cpw2 10 20 100 200 filename = "unitcell.yp"
nport: amplifier 1 2 0 filename = "ne3210s1.yp"
```

Notes:

There is no equivalent SPICE element.

Version:

2000.09.01

Credits:

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Format of File having Port-based Y parameter data

```
# port:group
1:1
2:2
3:3
4:4
.
.
.
# GHZ Y RI R 50
.
.
.
```

   #   Comment character.

port:group   List of ports and local reference group number

GHZ Y RI R 50 Indicates that frequency is in GHz, Y-paranmeter data, Real-Imaginary format, Referenced to 50 Ω.

Example: The example file below has 8 ports and these are assigned to local reference groups. After each frequency is specified there are 64 entries of real-imaginary pairs.

```
# port:group
1:1
2:2
```

```
3:3
4:4
5:5
6:6
7:7
8:8
# GHZ Y RI R 50
0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
```

```
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0
0.0 0.0


3.6
0.00522284  -0.041996
0.00067722  -0.00237043
-0.00213446 -0.0110758
0.000548992 0.00329698
0.0033208   0.00413753
-2.01982e-05    -0.00181815
-0.00102553 0.000261219
0.000459317 0.000656382
0.00067722  -0.00237043
0.00566197  -0.0418234
-0.000818445    0.000894279
-0.00221309 -0.0110795
0.000206649 -0.0015206
0.0037417   0.00412563
-0.000358843    0.000857255
-0.00115753 0.000215169
-0.00213446 -0.0110758
-0.000818445    0.000894279
0.00622661  -0.0428377
0.00249813  0.00013694
-0.000671719    0.00780238
-0.000126761    0.000650586
0.00300129  -0.00161467
0.000860096 -0.00148739
0.000548992 0.00329698
-0.00221309 -0.0110795
0.00249813  0.00013694
0.00639119  -0.0429131
0.00038279  0.000208487
-0.000771945    0.00779066
0.000976518 -0.00120355
0.00300894  -0.00177455
0.0033208   0.00413753
0.000206649 -0.0015206
```

```
-0.000671719    0.00780238
0.00038279  0.000208487
0.00573979  -0.0415316
0.000591287 -0.00277989
-0.00192149 -0.0108229
0.000306518 0.00320484
-2.01982e-05    -0.00181815
0.0037417   0.00412563
-0.000126761    0.000650586
-0.000771945    0.00779066
0.000591287 -0.00277989
0.00620939  -0.0413929
-0.000971609    0.000662786
-0.00200183 -0.0108488
-0.00102553 0.000261219
-0.000358843    0.000857255
0.00300129  -0.00161467
0.000976518 -0.00120355
-0.00192149 -0.0108229
-0.000971609    0.000662786
0.00599585  -0.0414654
0.00268443  0.000468388
0.000459317 0.000656382
-0.00115753 0.000215169
0.000860096 -0.00148739
0.00300894  -0.00177455
0.000306518 0.00320484
-0.00200183 -0.0108488
0.00268443  0.000468388
0.00613474  -0.0415669

3.8
0.00443444  -0.0306358
0.00153369  -0.000224866
0.00182379  -0.00164763
0.000305757 -0.00110014
-0.00165196 -0.00685206
-0.000422159    0.000749884
-0.000276126    0.00488612
0.000105213 0.000455334
0.00153369  -0.000224866
0.0045533   -0.0306805
0.000370778 -0.00097857
0.00182818  -0.00176034
0.000542231 0.00212819
-0.00173054 -0.00682749
0.000398886 1.29293e-05
-0.00034762 0.00493095
0.00182379  -0.00164763
0.000370778 -0.00097857
0.00441402  -0.0299137
0.00173554  -8.34751e-05
-0.000768567    0.000228283
-6.50925e-05    0.000728724
```

```
-0.00153913 -0.00687699
-0.000564454    0.00064183
0.000305757 -0.00110014
0.00182818  -0.00176034
0.00173554  -8.34751e-05
0.00452215  -0.0299687
0.000485054 0.000436157
-0.000888582    0.000260081
0.000386311 0.00214292
-0.00165453 -0.00686944
-0.00165196 -0.00685206
0.000542231 0.00212819
-0.000768567    0.000228283
0.000485054 0.000436157
0.00396465  -0.0300726
5.56293e-05 -0.00183007
0.00239962  0.00229614
-0.000347025    -0.0012207
-0.000422159    0.000749884
-0.00173054 -0.00682749
-6.50925e-05    0.000728724
-0.000888582    0.000260081
5.56293e-05 -0.00183007
0.00425576  -0.0300942
-0.000207627    -0.00109448
0.00266204  0.00216691
-0.000276126    0.00488612
0.000398886 1.29293e-05
-0.00153913 -0.00687699
0.000386311 0.00214292
0.00239962  0.00229614
-0.000207627    -0.00109448
0.00427994  -0.0296172
-1.92447e-05    -0.00207526
0.000105213 0.000455334
-0.00034762 0.00493095
-0.000564454    0.00064183
-0.00165453 -0.00686944
-0.000347025    -0.0012207
0.00266204  0.00216691
-1.92447e-05    -0.00207526
0.0046018   -0.0296677
```