

TOUCHSTONE CONVERSION WRAPPER

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AGENDA



- › Using TSCHK2 for touchstone format conversion
- › Problem statement
- › Fixing the problem using a Wrapper
- › A Perl wrapper
- › Solves the current issue of losing comments
- › Wrapper available on the IBIS webpage.

USING TSCHK2 FOR TOUCHSTONE FORMAT CONVERSION



The touchstone checker TSCHK2 from IBIS Open Forum can also be used for converting Touchstone models (TS) to Touchstone 2 model format.

To do so use the option `–canonical` e.g.:

```
Tschk2 –canonical ts1.s4p > ts2.s4p
```

This will fit the data into the TS2 model format, but will not add any extra data.

PROBLEM STATEMENT



However, doing so strips out any comments from the original touchstone file e.g.,

!Murata Part Number: GRM15XR11E222KA86

!These Parameters are Measured in Series Mode Connection

! o--||--o

!Port1 Port2

! o-----o

!Operation Temp=25[C], DC Bias Voltage=0[V]

!Freq. Start=300[kHz] Stop=6000000[kHz] 401[Steps]

Hz S RI R 50

!Freq.(Hz)	S 11(Real)	S 11(Imag)	S 21(Real)	S 21(Imag)	S 12(Real)	S 12(Imag)	S 22(Real)	S 22(Imag)
300000	0.8473370	-0.3552390	0.1526630	0.3552390	0.1526630	0.3552390	0.8473370	-0.3552390
307520	0.8409069	-0.3612905	0.1590931	0.3612905	0.1590931	0.3612905	0.8409069	-0.3612905

PROBLEM STATEMENT



Becomes:

! Touchstone data file

[Version] 2.0

Hz S RI R 50

[Number of Ports] 2

[Two-Port Data Order] 12_21

[Number of Frequencies] 401

[Network Data]

! freq	S11re	S11im	S12re	S12im	S21re	S21im	S22re
S22im							
300000	0.847337	-0.355239	0.152663	0.355239	0.152663	0.355239	
0.847337	-0.355239						
307520	0.8409069	-0.3612905	0.1590931	0.3612905	0.1590931	0.3612905	
0.8409069	-0.3612905						

FIXING THE PROBLEM USING A WRAPPER



So to mitigate the problem without having to change TSCHK2, I wrote a small Perl wrapper.

Wrapper is a software code that sort of wraps around another code in this case the tschk2.

- › The Perl wrapper will take the file to convert as input. It will read all the comments before the data and all the comments after the data and save those in memory.
- › It will then run the tschk2 on the file to convert and save the result in temp.ts2
- › Then it will read the temp.ts2 file and reinsert the comments into the output file xxxxx.snp

A PERL WRAPPER



```
#!/usr/bin/perl
```

```
#TS1toTS2 is a small wrapper to IBIS Open Forums tschk2, since using the IBIS Open Forums converting feature to  
convert models will not retain comments from the original file
```

```
#So this wrapper will read and save the comments run tschk2 and convert the model, after this it will read the converted  
model and add the comments
```

```
#and output that as the converted file. It will use the same file name for the output and the old touchstone file will be saved  
as .TS1
```

```
#It will only convert touchstone files into touchstone 2 files.
```

```
#It is a command line tool. It implemented as a quick & dirty solution so feel free to enhance it if you need to.
```

```
#This section will pick up the ts filename from the command line if missing give you an error
```

```
$options=join " ",@ARGV;
```

```
if ($ARGV=~/-h/)
```

```
.....
```

```
#read all the comments in the original file
```

```
open FIL,"<$file" or die "\n\nCan't open file: $file";
```

```
.....
```

```
#Run tschk to convert file
```

```
..... system "copy $file $newfile";
```

```
# add the comments in the final model.
```

```
open FIL,"<temp.ts2" or die "\n\nCan't open file: temp.ts2";
```

```
.....
```

SOLVES THE CURRENT ISSUE OF LOSING COMMENTS



This solves our current problem of losing information from the original model when converting it into TS2.

We are trying to standardize on our S-parameter models in TS2 format.

WRAPPER AVAILABLE ON THE IBIS WEBPAGE



The wrapper has been made available on the IBIS Open Forum webpage.

Please feel free to use it.

It is distributed in source code format so you can adapt it to your specific needs.

<http://www.ibis.org/tschk2/>



ERICSSON