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# ME5

# Generate MOS Model Parameter Table

**Application Note** 

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## Generate MOS Model Parameter Table

## **Application Note**

This application note describes how to use Lib Explorer to generate a MOS model parameter table. **Note**: This document was originally released for Model Quality Assurance (MQA) V2010.2.0 in May 2011.

#### Introduction

MQA can generate many special tables, one of which is called the MOS model parameter table. It is populated with parameter values that have been fetched from the model library. The user can customize parameter names in this table using a config file.

This special table generation function is a feature of MQA's Lib Explorer and is found in MQA version 2010.1.0 and on. For more information go to <u>www.agilent.com/find/eesof</u> or contact your local Agilent office. The complete list is available at: <u>www.agilent.com/find/contactus</u>.

#### **Config File**

MQA uses an XML format config file for the user to define which parameters to be exported into the table. By default, the config file is put under the folder *\$MQAHOME/bin/report/*.

To begin, choose *Report -> Properties* from the main menu. The window shown in Figure 1 pops up.

🙀 Configure Report		x			
General PPI					
Report configure					
Configuration directory : C:\Accelicon\mqa\bin detail					
Office Selection		51			
MS Office Graph Option					
Word, PPT : 💿 Image	Excel Object				
Excel : 💿 Image	🔘 Chart				
Open Office Filter					
Word Filter: 🔘 .odt 🔘 .doc					
PPT Filter : 🔘 .odp 🔘 .ppt					
Excel Filter: 🔘 .ods 🔘 .xls					
0K Cance	el Help				

Figure 1. Configure report

Next, click the *detail* button on the right top of the Configuration Report window. The config window shown in Figure 2 will pop up.

keek config	×
order.config	edit
report.properties	edit
table_configure.xml	edit
mixedparam_configure.xml	edit
OK Cancel	

Figure 2. Config window

Then, click the *edit* button for *mixedparam\_configure.xml*. Doing so opens the config file for customizing the MOS model parameter table (Figure 3).

```
Editor - [C:\Accelicon\mqa\bin\report\mixedparam_configure.xml]
File Edit
Save Save As Undo Redo Find Find Next Find Previous
    1
      <?xml version="1.0"?>
   2
      <configuration>
   3
    4
      <group name="mos model" description="">
   5
                  <parameter name="Vth0" description=""/>
   6
                  <parameter name="LINT" description=""/>
   7
                  <parameter name="Vsat" description=""/>
   8
                  <parameter name="Rdsw" description=""/>
   9
                  <parameter name="CGD0" description=""/>
  10
                  <parameter name="CGS0" description=""/>
   11
                  <parameter name="CGDL" description=""/>
  12
                  <parameter name="CGSL" description=""/>
  13
                  <parameter name="NOFF" description=""/>
  14
                  <parameter name="VOFFCV" description=""/>
  15
      (/group)
  16
  17
      √configuration>
```

#### Figure 3. Editor

Users can follow the XML format, or they can add or modify parameter names, for example "*Vth0*." Note that the name is case-insensitive and one parameter is declared in one line. Also, be sure to save the file before it's closed.

#### **Enable MOS Parameter Table in Lib Explorer**

Choose *Model -> Lib Explorer* from the main menu. Then, click the *setting window of Lib Explorer* to pop up, as shown in Figure 4.

🙀 Lib Explorer		X
😤 Library	K Setting	
ф=	Rules     ICF and PCS     Others       Lib Tables     Lib Tables       Table - MOS model parameter Table[TarDeviceParamTable]     Add       Remove	
	Modify         Project Report Dump Option         Bias Condition         Device Geometry         Summary Information	
<ul> <li>Project and Rep</li> <li>All Projects</li> <li>Report Generato</li> </ul>		
	OK Cancel	

Figure 4. Setting window of Lib Explorer

Next, go to the *Others* tab. Click the *Add* button to add a MOS model parameter table, as shown in Figure 5.

Modify Lib Table Entry		
Name : MOS model parameter Table		
Class : TarDeviceParamTable		
OK Cancel		

Figure 5. Modify Lib Table Entry

Finally, click *OK* to close the setting window.

#### **Create Combined Report Project in Lib Explorer**

Now, the user can go to the Report panel of Lib Explorer and create a combined report project, as shown in Figure 6.

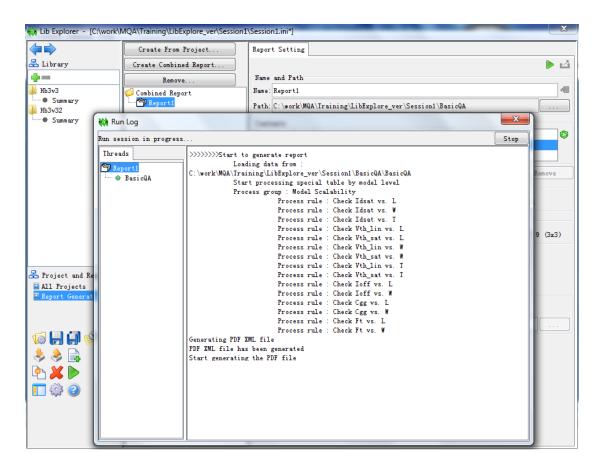
Lib Explorer - [C:\work\MQA\Training\LibExplore_ver\Session1.ini]					
	Create From Project Report Setting				
🐣 Library	Create Combined Report				
<b>4</b> -	Remove				
퉬 НьЗv3					
Summary Hb3v32					
Summary	Create Combined Report - Step 1 of 2				
	Projects Tables				
	↓ Lib Tables ↓ ① GisewTable				
	₩ ₩ Skewlable ₩ MOS model parameter Table				
😤 Project and Report 🖬 All Projects					
Report Generator	Result :				
	Project - BasicQA Move Up				
	Iable - MOS model parameter Iable[TarDevicePa Move down				
vi 🗐 💭 😒	Remove				
🚿 🍣 📑	۲ <u>ــــــــــــــــــــــــــــــــــــ</u>				
P 💥 🕨	< Back Next > OK Cancel				
T 🔅 🕗					

Figure 6. Create combined report

In the wizard window (step 1 of 2), the user will find a new tab named *Tables* besides the *Projects* tab. Check the checkbox of *MOS model parameter Table* to include it in the report.

Then, click the *Next* > button to finish the report project creation.

Finally, click the button on the top right to run the report (Figure 7). The corresponding document (PDF file by default) can be found under the folder assigned by *Path*. For example, in this demo, it's given by:  $C:\work\MQA\Training\LibExplorer\_ver\Session1\BasicQA$ .



#### Figure 7. Run log

The resulting MOS model parameter table is shown in Table 1.

#### Table 1. MOS Model Parameter Table

MOSFET	NCH	РСН	ESD
Vth0	0.584049	-0.6513801	0.5761882
LINT	4.0E-8	5.0E-8	2.65E-8
Vsat	250216.5	250000.0	141052.1
Rdsw	750.0	900.0	843.02
CGDO	2.79009E-10	2.30748E-10	2.79009E-10
CGSO	2.79009E-10	2.30748E-10	2.79009E-10
CGDL			0.0
CGSL			0.0
NOFF			
VOFFCV			

Note that the table cell will be empty if no such parameters are found in the model card, such as in the case of "NOFF" and "VOFFCV" in the above table.