



About CMC Models in Open Source Simulators

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- Open source simulators like GNUCAP, QUCS, QUCSstudio, NGSPICE, XYCE... are fantastic tools...
- Especially for Universities and students who want to learn SPICE and to make simulations for free
- Up to now, I used (and my Ph.D. students) QUCS because it was the only open source simulator where HICUM models (both Level 2 and Level 0) were implemented
 - Version 0.0.18
- Unfortunately, in the new version 0.0.19 HICUM models were removed, and other CMC models. Why?
- The reason: CMC licenses not GPL compatible. Why?
- Is it possible to solve this issue and how? knowing that a simulator without advanced models (CMC) is more or less useless...

QUCS 0.0.18 vs. QUCS 0.0.19

- All CMC models are removed (BSIM, HICUM)

verilog-a devices **QUCS 0.0.18**

The screenshot shows a grid of components in the QUCS 0.0.18 library. The components are arranged in rows and columns. The first row contains HICUM L2 v..., FBH HBT, Modular Op..., and HICUM L2 v... (highlighted with a red box). The second row contains Logarithmic ..., npn HICUM ..., pnp HICUM ..., and Potentiometer. The third row contains MESFET, EPFL-EKV ..., EPFL-EKV ..., and bsim3v34n... (highlighted with a red box). The fourth row contains bsim3v34p..., bsim4v30n..., bsim4v30p..., and npn HICUM The fifth row contains pnp HICUM ..., npn HICUM ..., pnp HICUM ..., and npn HICUM The sixth row contains pnp HICUM ..., HICUM L2 v..., HICUM L2 v..., and HICUM L2 V... The seventh row contains Photodiode, Phototransis..., NIGBT, and Voltage Con...

HICUM L2 v...	FBH HBT	Modular Op...	HICUM L2 v...
Logarithmic ...	npn HICUM ...	pnp HICUM ...	Potentiometer
MESFET	EPFL-EKV ...	EPFL-EKV ...	bsim3v34n...
bsim3v34p...	bsim4v30n...	bsim4v30p...	npn HICUM ...
pnp HICUM ...	npn HICUM ...	pnp HICUM ...	npn HICUM ...
pnp HICUM ...	HICUM L2 v...	HICUM L2 v...	HICUM L2 V...
Photodiode	Phototransis...	NIGBT	Voltage Con...

verilog-a devices **QUCS 0.0.19**

The screenshot shows a grid of components in the QUCS 0.0.19 library. The components are arranged in rows and columns. The first row contains Modular Op..., Logarithmic ..., Potentiometer, and MESFET. The second row contains EPFL-EKV ..., EPFL-EKV ..., Photodiode, and Phototransis... The third row contains NIGBT and Voltage Con...

Modular Op...	Logarithmic ...	Potentiometer	MESFET
EPFL-EKV ...	EPFL-EKV ...	Photodiode	Phototransis...
NIGBT	Voltage Con...		

Example of HICUM license (CMC)

The terms under which the HICUM/L2 software is provided are as follows:

Software is distributed as is, completely without warranty or service support.

Michael Schroter and his team members are not liable for the condition or performance of the software.

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2. In any product based on the software, the users agree to acknowledge Michael Schroter who developed the model and software. This acknowledgment shall appear in the product documentation.
3. Redistributions to others of source code and documentation must retain the copyright notice, disclaimer, and list of conditions.
4. Redistributions to others in binary form must reproduce the copyright notice, disclaimer, and list of conditions in the documentation and/or other materials provided with the distribution

■ Why CMC licenses are not GPL?

Clause 1: It establishes a non-commercial clause, which is incompatible with GPL. If the code is included in a media which is sold (by the cost of the media or shipping cost) it is impossible to discern if the distributor is charging for your source or not. This is incompatible with GPL.

Clause 2: It essentially requests to keep the copyright notice, which is fine. However the request for documentation (shall? must?) creates a practical problem which makes it incompatible with GPL.

Clause 3: First, which government? Second, it imposes further restrictions that are incompatible with GPL

Clause 4: This seems fine, enforces the copyright retention, but the documentation part looks like Clause 2 again (?)

The Free Software Foundation (FSF) has a nice commented page on the widely used licenses and the compatibility to GPL: <https://www.gnu.org/licenses/license-list.en.html>

The FSF suggestion is to adopt an existing license instead of creating new ones. Proliferation of licenses is bad because it creates a complex scenario where each license has to be carefully checked for compatibility with other existing licenses.

The HICUM license (similar to CMC license for that matter) looks like the "original BSD" also known as "**4-clause BSD**". This license **is not** compatible with GPL.

<https://www.gnu.org/licenses/license-list.en.html#OriginalBSD>

http://directory.fsf.org/wiki/License:BSD_4Clause

To solve the compatibility issues of the above license the "modified BSD" also known as "**3-clause BSD**" was created. The modified license **is** compatible with GPL.

<https://www.gnu.org/licenses/license-list.en.html#ModifiedBSD>

http://directory.fsf.org/wiki/License:BSD_3Clause

Solutions?

- From these comments, is it possible to make CMC licenses GPL compatible?