

CC3000 Product Certification

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Introduction

The TI CC3000 Module is now certified for FCC, IC, CE and TELEC as well as by the Wi-Fi Alliance®. TI Customers that build products based on the TI CC3000 module can save, in testing cost, and time per product family.

- This feature can realize customers savings of over \$25K per model family along with avoidance of test cycling and support resources.
- For more details please refer to the information below.

Certifications & Compliance

			
<ul style="list-style-type: none"> • Certified for United States • Tests reports recognized by other countries for filing 	<ul style="list-style-type: none"> • Certified for Canada • Accepts FCC test reports for filing certifications 	<ul style="list-style-type: none"> • CE Radio Approval • ETSI testing is recognized by 40+ countries for filing 	<ul style="list-style-type: none"> • Certified for Japan • TELEC Test reports are available

FCC ^[1] Certification

Module

The TI CC3000 module is now certified for FCC as a single-modular transmitter.

- The TI CC3000MOD is a FCC certified radio module that carries a **“Modular”** grant
- Certified radio modules complies to the **“Intentional Radiator”** portion (Part 15c) for FCC certification: **Part 15.247 Transmitter tests**.
 - Part 15.247 transmitter tests consists of
 - AC Power Conducted Emissions
 - Radiated Emissions
 - Band Edge Measurements
 - 6dB bandwidth
 - Conducted Power
 - Power Spectral Density
 - Meeting Antenna Requirements
- The customer can refer to TI's CC3000 FCC certification ^[2], approved in December 2012.
- **“Modular”** certified radio modules are allowed for integration into multiple host end products by the FCC

Useful Links:

[CC3000MOD FCC modular grant ^{\[2\]}](#)

App note on modular FCC certification ^[3]

Host End Products

- An end product, incorporating CC3000 module, does not require additional testing or authorization for the WiFi transmitter as long as
 - An antenna of the same or similar type **and** equal or less gain to the antenna used in the CC3000MOD EM Board is used on the product
 - Any restrictions found in the grants are followed in the OEM’s end product integrating the TI module.
- Host end products can use the FCC ID of the certified module as the FCC ID of the host end product
- A label displaying the module’s FCC ID must be affixed and visible on the host end product for approval
- FCC IDs are required for host end products with radio transmitters

Customer's Responsibilities

- The manufacturer of the host end products are still responsible for any additional testing covered by the Class of the product. Device Class A and B.
- Customers still need to take their products through other FCC/IC testing such as unintentional radiators (FCC sub part 15B) including any other required regionally driven end product certifications including but not limited to EU directives.

FCC Part 15 Cert. Process/Flow

Step 1	Step 2	Step 3	Step 4
<p>Sub Part A</p> <ul style="list-style-type: none"> • General Provisions & Definitions 	<p>Sub Part B</p> <ul style="list-style-type: none"> • Unintentional Radiators • Devices, whose purpose is not to produce radio waves, but which do anyway, such as computers. 	<p>Sub Part C</p> <ul style="list-style-type: none"> • Intentional Radiators • Devices designed to produce coherent radio waves, such as small transmitters • Customers can reuse TI's Certifications 	<p>Device Class A and B</p> <ul style="list-style-type: none"> • Additional testing for intended use

Additional testing maybe required for Host end product type.

- Class A: Digital Device for use in a commercial, industrial or business environment.
- Class B: Digital Device for use in a residential environment not withstanding use in commercial, business and industrial environments.
- The FCC allows for self-declaration for Part B so the process should be relatively painless

The customer can refer to the Electronic Code of Federal Regulation for Telecommunications, Part 15: Radio Frequencies Devices ^[4] for more details on each sub part.

IC ^[5] Certification

The TI CC3000 module is now certified for Industry Canada (IC) as a single-modular transmitter.

- For Industry Canada, the TI SimpleLink™ CC3000 module meets modular approval and labeling requirements.
- Industry Canada follows the same testing and rules as the FCC in regards to certified modules in authorized equipment.

Host Product

- The IC ID of TI CC3000MOD can be used on the Host End Product with a label that is visible, and displays the IC ID of the CC3000 module
- The customer can refer to TI's CC3000 IC certification ^[6], approved in January of 2013.

Useful Links:

CC3000MOD IC modular grant ^[6]

App note on IC modular certification (see section 3.2 inside) ^[7]

ETSI ^[8]/CE Certification**CC3000 is CE Certified**

The TI CC3000 module has certifications to the appropriate EU radio and EMC directives summarized in TI's Declaration of Conformity ^[9] and evidenced by the CE Mark.

This certification eliminates EU RTTE based retesting efforts, resulting in savings of more than \$25K per product model family including test cycling and support resource benefits.

For the conformity implications of attaching the antenna to a module that already has a conformance document - From *section 1.3.1* of the Guide to the R&TTE Directive 1999/5/EC ^[10]

"Manufacturers who place on the market products without an antenna or with an antenna that is intended to allow replacement have a responsibility to provide information on the general types and/or characteristics of antennas that may be used with their equipment in order that the overall radio equipment remains compliant. The guidance of the transmitter manufacturer has to be followed when they are installed."

It is important to note that

- ETSI reports meet CE Radio Approval requirements of the R&TTE (Europe) directive
- TI CC3000MOD module is tested with ETSI EN300-328 radio tests which can be accepted by a number of countries for radio compliance.
- ETSI is not a certification or regulatory body but a set of standards.

Host Products

- If a product has minimal risk, it can be self-certified where manufacturers complete a Declaration of Conformity and affixes the CE marking to their own product.

Warning: EMC testing obligations may still be required as determined by the specific end product requirements.

- The end product will need to be filed in each country for certification using the FCC/ETSI reports.
- 40+ countries recognize and accept radio test reports compliant to ETSI standards as part of the filing process. Note that some countries do not recognize modular approval.
- ETSI reports help with End product testing with the module integrated, thus the tests do not need to be repeated.

WiFi® Certification**CC3000 is WiFi® Certified**

- The CC3000 TI Module is now certified by the Wi-Fi Alliance as an embedded module.
- It is compliant for
 - IEEE 802.11 b/g, 2.4GHz
 - Security: WPA-personal, and WPA2-personal::

Refer to the CC3000 Wi-Fi Alliance certification ^[11]

TI customers that are members of the Wi-Fi Alliance, and that build a product using the TI CC3000 module, can request a certificate transfer from TI to them, without the need to retest their product to achieve Wi-Fi certification. This capability can save customers thousands of dollars per product model family and weeks of work.

Useful Links

CC3000MOD WiFi Alliance certificate ^[11]

TELEC ^[12] Certification

CC3000 is TELEC Certified

- TELEC Certification number for the TI CC3000 Module is available upon request.
- TI passed the certification with max power value for several antennas: TDK, Mitsubishi, TaiyoYuden and ACX.
- Customer does not need to take additional test for Japan radio law for CC3000MOD, when they use the recommended antenna with CC3000MOD.
 - See the table below for the antennas which were used for certification in Japan.
- Customers can find more information about TELEC certifications at these websites
 - Ministry of Internal Affairs and communications (Japan) ^[13]
 - Test and Certification Services for Wireless Devices under Japanese Radio Law ^[14]

CC3000MOD Telec Certified Antenna

With the below Antenna, customer does not need to take additional test for Japan radio law for CC3000MOD

Antenna Maker	Antenna type	Parts number	Size
TDK-EPC Corporation 川野直樹様 Naoki Kanano nkanano@tdk.com IC 部品・EMC推進部 IC 部品グループ	Chip Antenna /Monopole Type	ANT8030-ZR4-01A (4K reel)	8.0*3.0*1.0 mm
	Chip Antenna/Loop type	ANT016008LCD2442MA1 (4K reel)	1.6*0.8*0.4 mm
		ANT016008LCD1575MA1 (4K reel)	1.6*0.8*0.4 mm
Mitsubishi Materials Corporation 堀内英明様 Hidaki Horiuchi horiuchi@mmcs.co.jp 電子デバイス事業部 営業部	Chip Antenna/Monopole type	AM03DC-ST01 (100pcs/pk)	3.2*1.5*0.4 mm
	Antenna Unit	UB18CP-100ST01(1pcs)	30.0*5.0*0.8 mm
Taiyo Yuden CO.,LTD 大野新電様 Shinno Ohtsuka osaito@ty.yuden.co.jp 電子デバイス事業部 ビジネス企画課 営業部	Chip Antenna /Inverted-F Antenna	AH104F2450S1 (2K reel)	10.0*4.0*1.0 mm
	Chip antenna/Monopole type	AH212M245001 (4K reel)	2.0x1.25x0.85
		AH316M245001 (3K reel)	3.2x1.6x0.5 mm
Advanced Ceramio X Corp. http://www.acxc.com.tw/products.php	Chip Antenna/Monopole type	AT8010-E2R9HAA	8.0x1.0x1.0 mm

Countries Accepting FCC/ETSI Reports

TI's FCC/ETSI test reports can be used to file for certifications with 40+ other countries.

The end product's manufacturer will need to file in each country for certification using the FCC/ETSI reports. Some countries do not recognize modular approval. FCC/ETSI reports help with End product testing with the module integrated and the tests do not need to be repeated.

- Countries in **red**, can file FCC/ETSI reports.
 - Certification in these countries, can be as easy as a paperwork exercise and Fees, when accompanied with the FCC/ETSI reports during the filing process.
- Countries in **blue** are covered by CE Marking

Chile	Costa Rica	Ecuador	Honduras	Mexico	Nicaragua	Paraguay	Peru	Uruguay	Venezuela
Brazil	China	India	Austria	Denmark	Luxembourg	Norway	Slovenia	United States	Albania
Belgium	Germany	Iceland	Latvia	Estonia	Malta	Poland	Spain	Romania	Azerbaijan
Cyprus	Greece	Ireland	Liechtenstein	Finland	Monaco	Portugal	Sweden	Turkey	Bahrain
Czech Republic	Hungary	Italy	Lithuania	France	Netherlands	Slovak Republic	Switzerland	United Kingdom	Croatia
Egypt	Israel	Kazakhstan	Kuwait	Macedonia	Mozambique	Nigeria	Qatar	Saudi Arabia	Serbia
Ghana	Jordan	Kenya	Lebanon	Morocco	Namibia	Oman	Russia	Senegal	South Africa
Uganda	Indonesia	Pakistan	Thailand	Australia	Canada	Japan	Zimbabwe	Malaysia	Taiwan
Ukraine	Papua New Guinea	Philippines	Vietnam	New Zealand	United Arab Emirates	South Korea	Singapore		

Note: Please consult with your Telecommunication Certification Body (TCB) regarding any regulatory certifications. The information are recommended guidelines only and shall not be used as a process for regulatory Host End Product, Module or any other regulatory certifications

FAQ

- **Q: How can the customer leverage and reuse the regulatory ID of TI module.**

A: The customer does not need further certification (meaning a filing to FCC)

Warning: The testing for EMC (and electrical safety if applicable) must be performed on the final product. These test results are not filed with FCC but are kept by the manufacturer of the final product.

- **Q: Is the CC3000 TI regulatory certification eliminating the customer to recertify it?** Is there any test that the customer needs to apply on top of TI certification to the end product?

A: Yes. There is no requirement to re-certify the final product as long as the final product is using the TI radio module within the constraints of the FCC grant

Meaning, there is no co-location with other radios and the radio antenna is separated from the user by a minimum distance of 20 cm.

- **Q: What is the antenna limitation of this certification- is it attached to a specific antenna type or gain?**

A: The existing certificate includes the chip antenna. If a different chip antenna is used it must have the same gain or less. The "specific type" means a chip antenna in this case but does not mean the chip antenna has to be from the same manufacturer.

The antenna used and recommended is **p/n: AT8010-E2R9HAA is Johanson p/n: 2500AT44M0400** and is featured and stocked on Digikey ^[15]

- **Q: The CC3000 was certified with chip antenna. Can the customer use external dipole antenna with the same peak gain and reuse the TI certification?**

A: If the customer wishes to use an external dipole antenna they could still re-use the TI certification but would be required to do a Class II modification filing with the antenna(s) that they would like to add to the certification.

This filing can be done by TI or TI could give their customer permission to do a Change of ID which would create another grant that the customer could modify on their own

- **Q: If the thickness of the antenna trace changes, will this affect the FCC certification**

A: No, it will not, as long as the antenna is presented with 50 Ohm as impedance

References

- [1] <http://www.fcc.gov/>
 - [2] https://apps.fcc.gov/oetcf/eas/reports/ViewExhibitReport.cfm?mode=Exhibits&RequestTimeout=500&calledFromFrame=N&application_id=920055&fcc_id=Z64-CC3000EM
 - [3] <https://apps.fcc.gov/kdb/GetAttachment.html?id=%2BfFRmd2u009kcjrH4nqK9A%3D%3D>
 - [4] <http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=a9f9d244cc20be8b56099003689d6cc3&rgn=div5&view=text&node=47:1.0.1.1.16&idno=47>
 - [5] <http://www.ic.gc.ca/Intro.html>
 - [6] http://www.ic.gc.ca/app/sitt/reltel/srch/dsplyRELDtls.do;jsessionid=000128NH0BD8ODxSz5us1TzY3_9:1EU1NVKPFQ?mdlID=162873&lang=eng&STTyp=REL&PageTitle=REL_SEARCH_RESULTS
 - [7] [http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/rssgen-i3.pdf/\\$file/rssgen-i3.pdf](http://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/rssgen-i3.pdf/$file/rssgen-i3.pdf)
 - [8] <http://www.etsi.org/>
 - [9] <http://proddms.itg.ti.com/stage/lit/ml/swrq004/swrq004.pdf>
 - [10] http://ec.europa.eu/enterprise/sectors/rtte/files/guide2009-04-20_en.pdf
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 - [12] <http://www.telec.or.jp/ENG/services/index.html>
 - [13] <http://www.tele.soumu.go.jp/e/index.htm>
 - [14] <http://www.ul.com/japan/eng/pages/services/emc/certification/japanradiolaw/>
 - [15] <http://www.digikey.com/product-search/en?x=13&y=15&lang=en&site=us&KeyWords=2500AT44M0400>
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