

# PCM2900C/2902C/2906CEVM-U

## User's Guide



Literature Number: SBAU195  
September 2011



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## **PCM2900C/2902C/2906CEVM-U**

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### **1 Description**

The PCM2900C/2902C/2906CEVM-U (PCM290xCEVM-U) is an evaluation board for Texas Instruments' newly developed USB interface codecs, the [PCM2900C](#), [PCM2902C](#), and [PCM2906C](#). The PCM2900C includes a PCM2900C device, a bus-powered USB codec without an S/PDIF interface. The PCM2902C includes a PCM2902C device, a bus-powered USB codec with an S/PDIF interface. The PCM2906C includes a PCM2906C device, a bus-powered (500 mA) USB codec with an S/PDIF interface. Each evaluation board also includes operational amplifiers for line input/output buffers, a 3.3-V regulator, and a USB connector.

For information about the differences between the PCM290xCEVM-U and the DEM-PCM290xB-EVM demonstration fixtures, see Application Report [SBFA020](#).

The USB connector is mounted on the PCM2900C/2902C/2906C printed circuit board (PCB). Connecting a USB interface to this USB connector enables the evaluation of codec performance.

The PCM2900C/2902C/2906C operates from the 5-V bus power supply of the USB. A 3.3-V IC regulator is mounted on the board to provide power for analog circuitry and optionally for the codec.

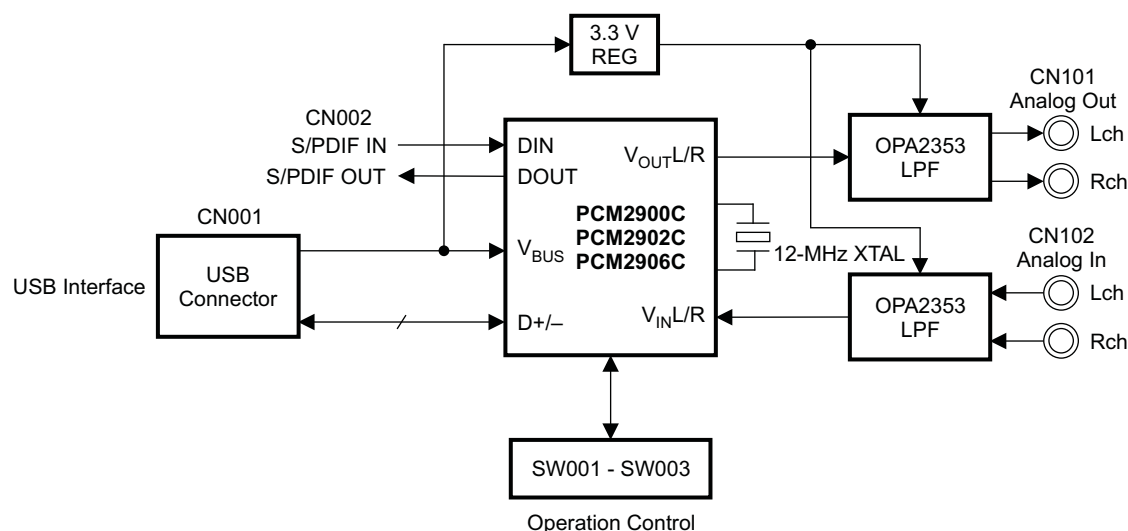
Stereo audio output and input are available on two stereo mini-jacks.

The PCM2900C/2902B/2906B support the following USB features:

- Fully compliant with USB2.0 specification
- Full-speed transceivers
- Partially-programmable descriptors
- USB adaptive mode for playback
- USB asynchronous mode for record
- Bus-powered
- Full-speed transceivers

## 1.1 Block Diagram

A block diagram of the PCM2900C/2902C/2906C is shown in [Figure 1](#).



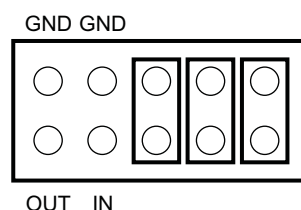
**Figure 1. PCM290xCEVM-U Block Diagram**

## 1.2 Connectors and Jumpers

[Table 1](#) summarizes the connectors and jumpers on the PCM290xCEVM-U. [Figure 2](#) illustrates the pinout for CN002.

**Table 1. Connectors and Jumpers**

Connector/Jumper	Description
CN001	USB port (series B connector); connects to a USB cable/connector
CN101	Audio LINE OUT (stereo mini-jack, 1.98 V <sub>pp</sub> full-scale)
CN102	Audio LINE IN (stereo mini-jack, 1.98 V <sub>pp</sub> full-scale)
CN002	S/PDIF IN/OUT for PCM2902C/PCM2906C



**Figure 2. CN002 Pinout**

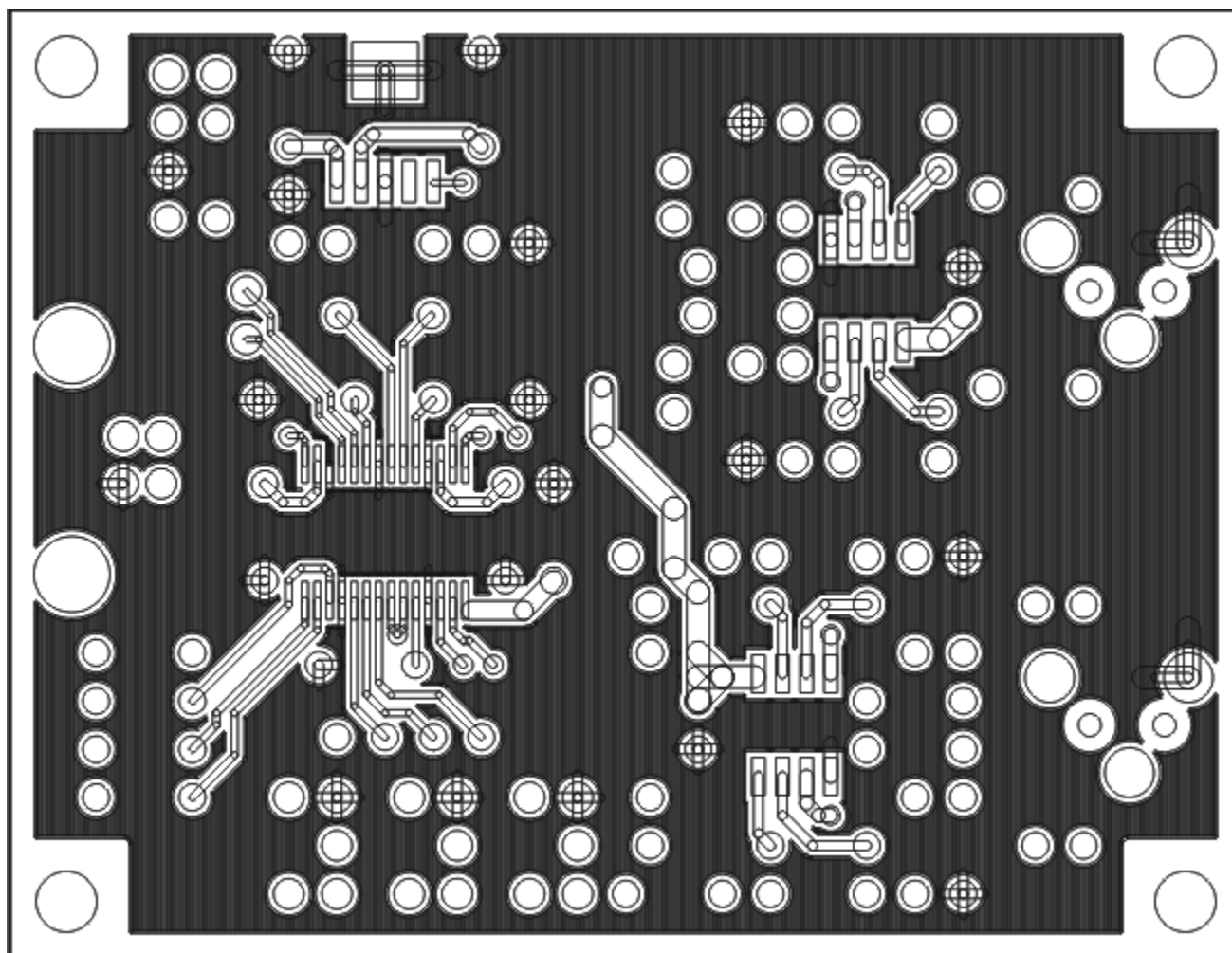
## 1.3 Switch Settings

- SW001: Human interface device (HID) key state (mute)
- SW002: HID key state (volume up)
- SW003: HID key state (volume down)

These switches should be set to logic level low when no HID is being used, or toggled high for HID control of the respective parameters.

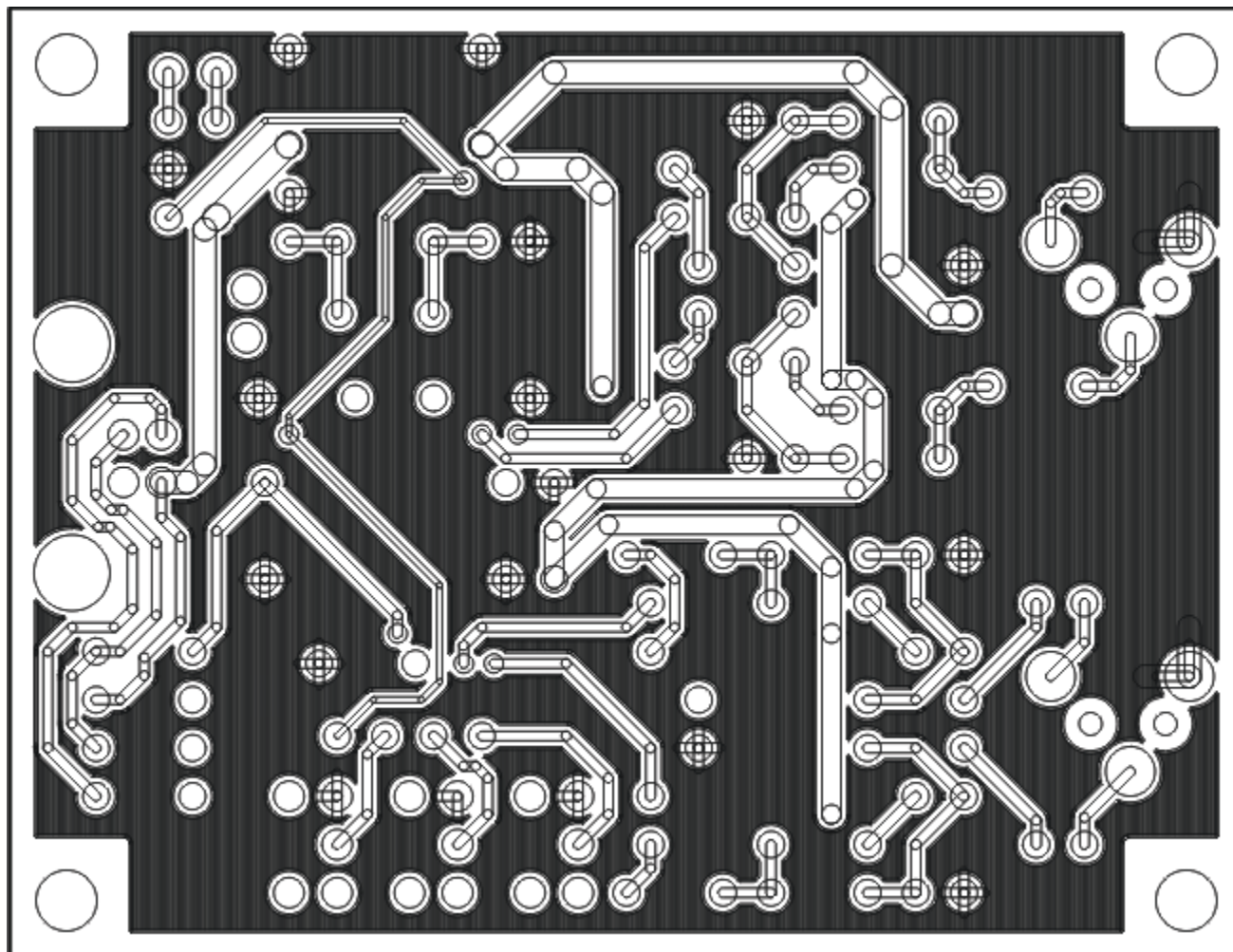
This section presents the PCM290xCEVM-U PCB layout. A full-size schematic of the evaluation fixture is appended to this user guide.

**Figure 3. PCM2900CEVM/2902CEVM/2906CEVM-U Silkscreen**

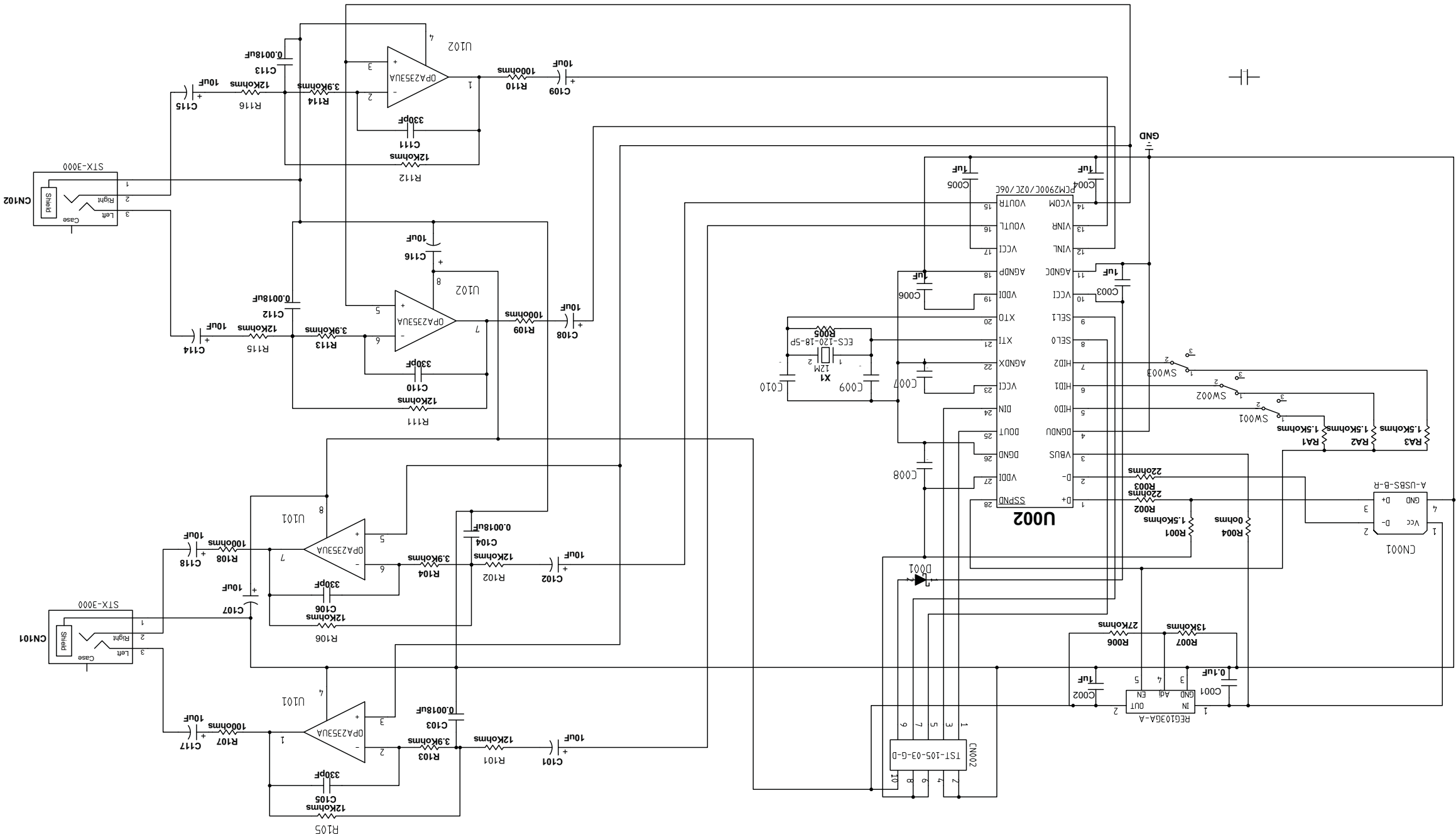
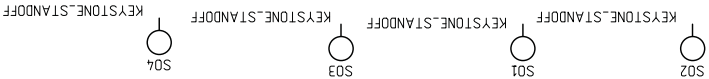


**Figure 4. PCM2900CEVM/2902CEVM/2906CEVM-U Top View**





**Figure 5. PCM2900CEVM/2902CEVM/2906CEVM-U Bottom View**



DEM-PCM2900C/2902C/2906C

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### General Statement for EVMs including a radio

*User Power/Frequency Use Obligations:* This radio is intended for development/professional use only in legally allocated frequency and power limits. Any use of radio frequencies and/or power availability of this EVM and its development application(s) must comply with local laws governing radio spectrum allocation and power limits for this evaluation module. It is the user's sole responsibility to only operate this radio in legally acceptable frequency space and within legally mandated power limitations. Any exceptions to this are strictly prohibited and unauthorized by Texas Instruments unless user has obtained appropriate experimental/development licenses from local regulatory authorities, which is responsibility of user including its acceptable authorization.

### For EVMs annotated as FCC – FEDERAL COMMUNICATIONS COMMISSION Part 15 Compliant

#### Caution

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Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### FCC Interference Statement for Class A EVM devices

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **FCC Interference Statement for Class B EVM devices**

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### **For EVMs annotated as IC – INDUSTRY CANADA Compliant**

This Class A or B digital apparatus complies with Canadian ICES-003.

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### **Concerning EVMs including radio transmitters**

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

### **Concerning EVMs including detachable antennas**

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

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Les changements ou les modifications pas expressément approuvés par la partie responsable de la conformité ont pu vider l'autorité de l'utilisateur pour actionner l'équipement.

### **Concernant les EVMs avec appareils radio**

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### **Concernant les EVMs avec antennes détachables**

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

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2. Use this product only after you obtained the license of Test Radio Station as provided in Radio Law of Japan with respect to this product, or
3. Use of this product only after you obtained the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to this product. Also, please do not transfer this product, unless you give the same notice above to the transferee. Please note that if you could not follow the instructions above, you will be subject to penalties of Radio Law of Japan.

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Security	<a href="http://www.ti.com/security">www.ti.com/security</a>
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