User's Guide

CDCBT1001EVM Evaluation Instructions

ABSTRACT

The CDCBT1001EVM is designed to evaluate the performance of CDCBT1001. This board consists of a CDCBT1001 device.

CDCBT1001 is a 1.2-V to 1.8-V clock buffer and level translator. The VDD_IN pin supply voltage defines the input clock LVCMOS voltage level. The VDD_OUT pin supply voltage defines the output clock LVCMOS voltage level.

This device has < 1-ps (12 kHz to 5 MHz) additive RMS jitter at 24 MHz.

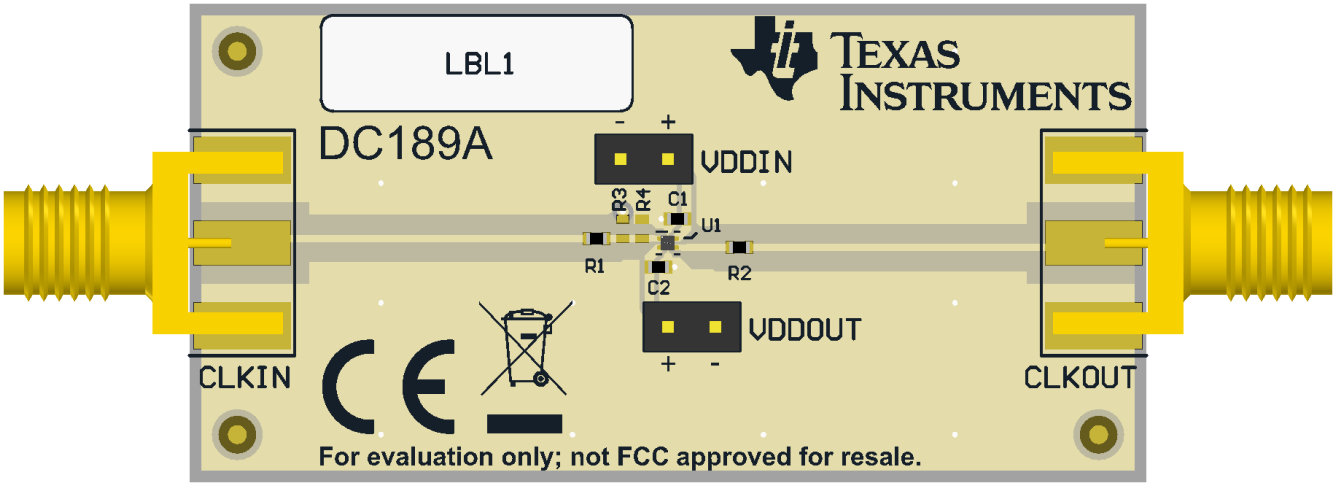


Table of Contents

Trademarks

1 CDCBT1001EVM Evaluation Module

1.1 Evaluation Module Contents

In the box, there is one CDCBT1001EVM board (DC189-001).

1.2 Resources

Related evaluation and development resources are as follows:

- CDCBT1001 data sheet

2 Setup

2.1 Connection Diagram

Figure 2-1 shows the connection diagram.

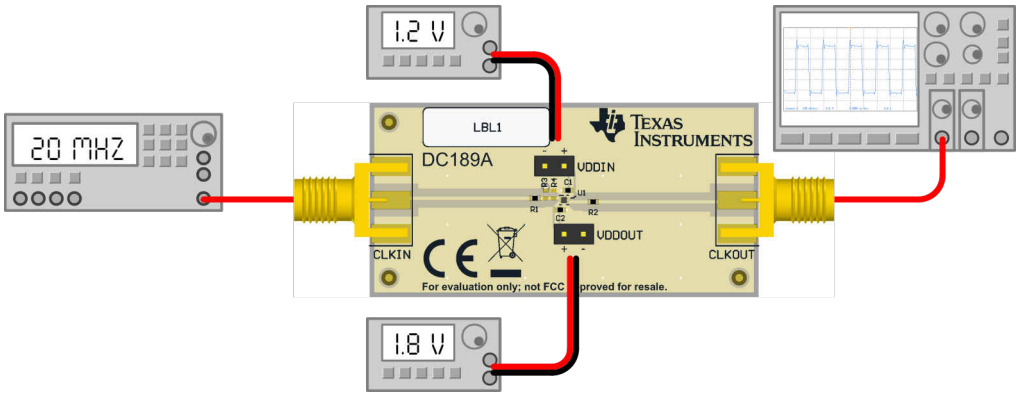


Figure 2-1. Connection Diagram

2.2 Power Supplies

Apply 1.2 V to the VDDIN header. The acceptable supply voltage range is 1.08 V to 1.32 V. The maximum current consumption in the most extreme configuration must not exceed 10 mA.

Apply 1.8 V to the VDDOUT header. The acceptable supply voltage range is 1.62 V to 1.98 V. The maximum current consumption in the most extreme configuration must not exceed 10 mA.

2.3 Input Clock

Connect the CLKIN SMA connector to a signal generator. The voltage swing of this clock should be between 0 V and the supply voltage applied to the VDDIN header.

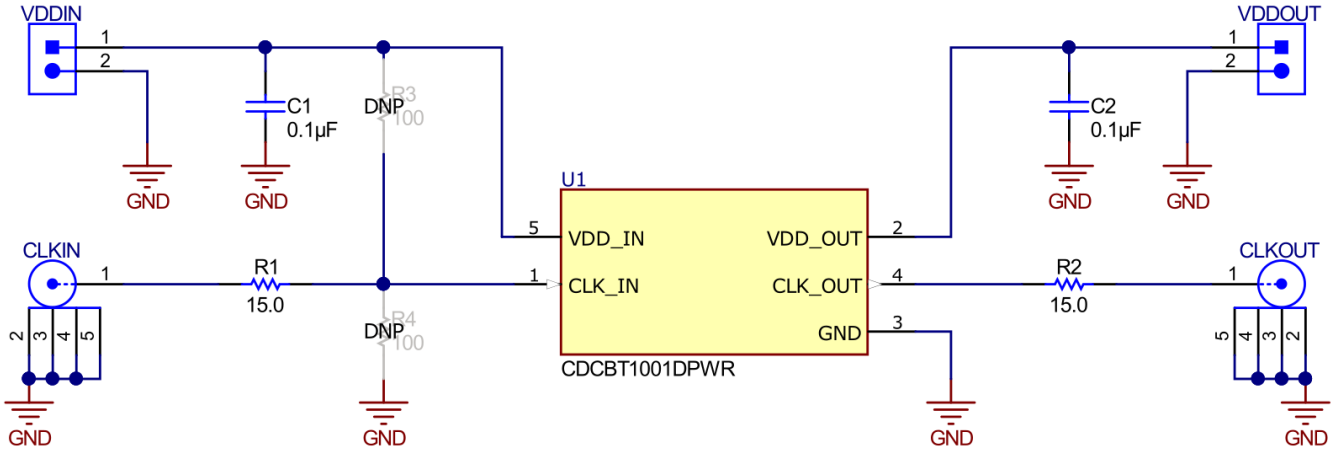
2.4 Output Clock

Connect the CLKOUT SMA connector to test equipment like an oscilloscope.

3 Schematic

Figure 3-1 shows the CDCBT1001EVM schematic.

Figure 3-1. CDCBT1001EVM Schematic



4 Board Structure

4.1 PCB Layer Stack-Up

Figure 4-1 shows the CDCBT1001 printed circuit board (PCB) layer stack-up.

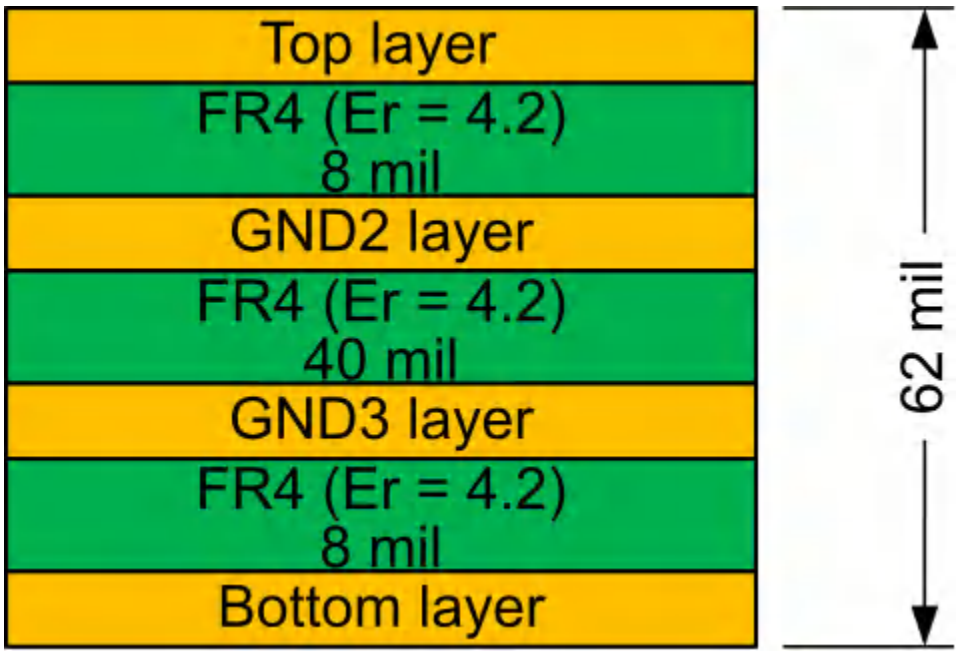


Figure 4-1. PCB Layer Stack-Up

4.2 PCB Layout

The following figures show the CDCBT1001 printed circuit board (PCB) layout.

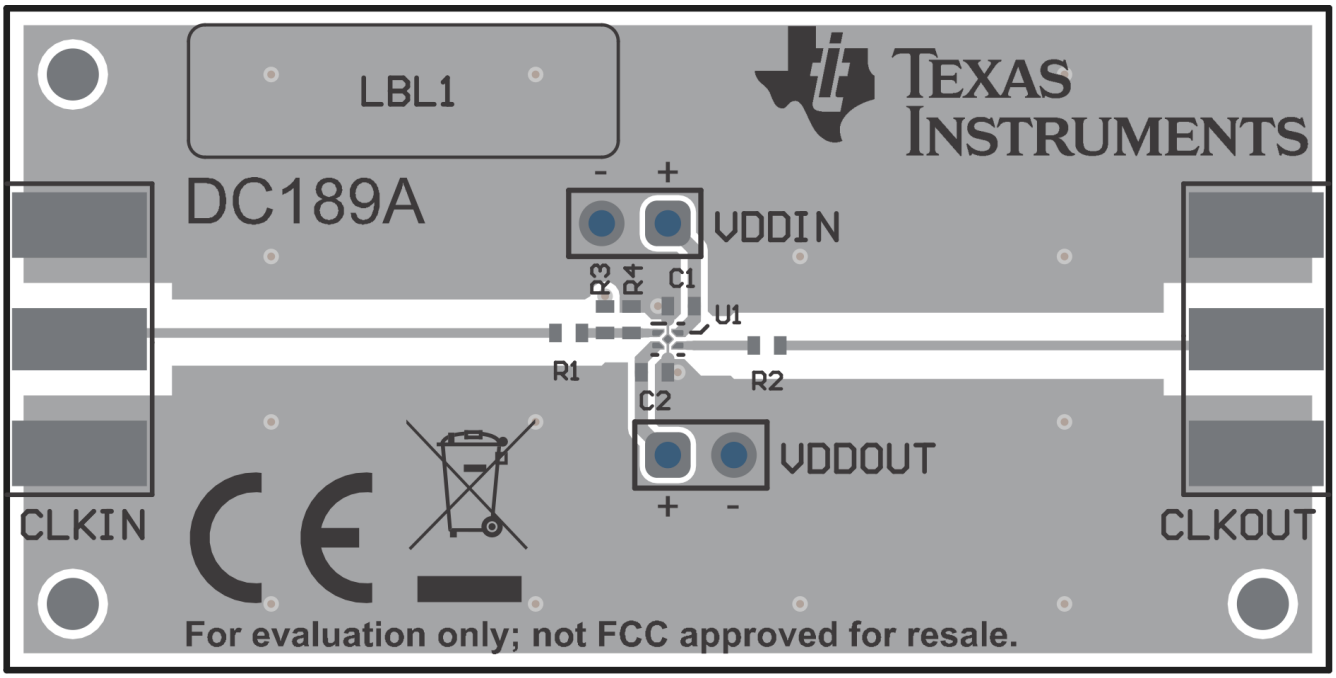


Figure 4-2. Top Layer

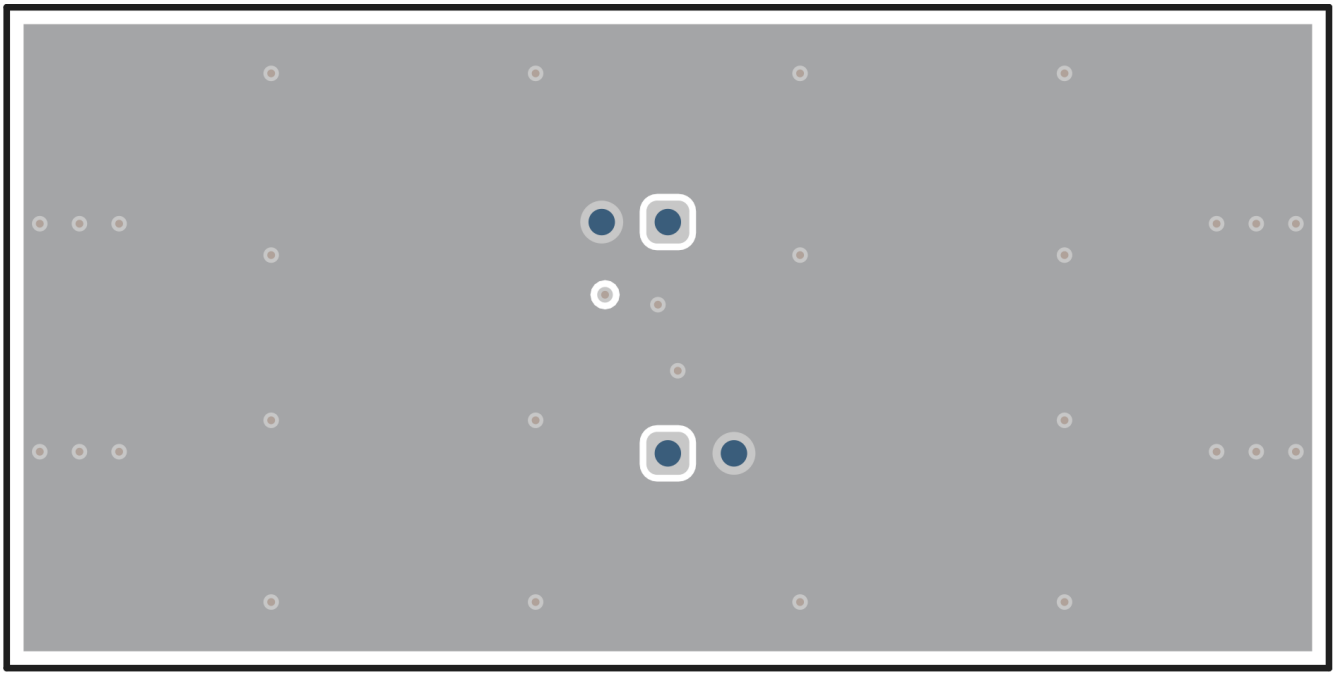


Figure 4-3. GND Layer

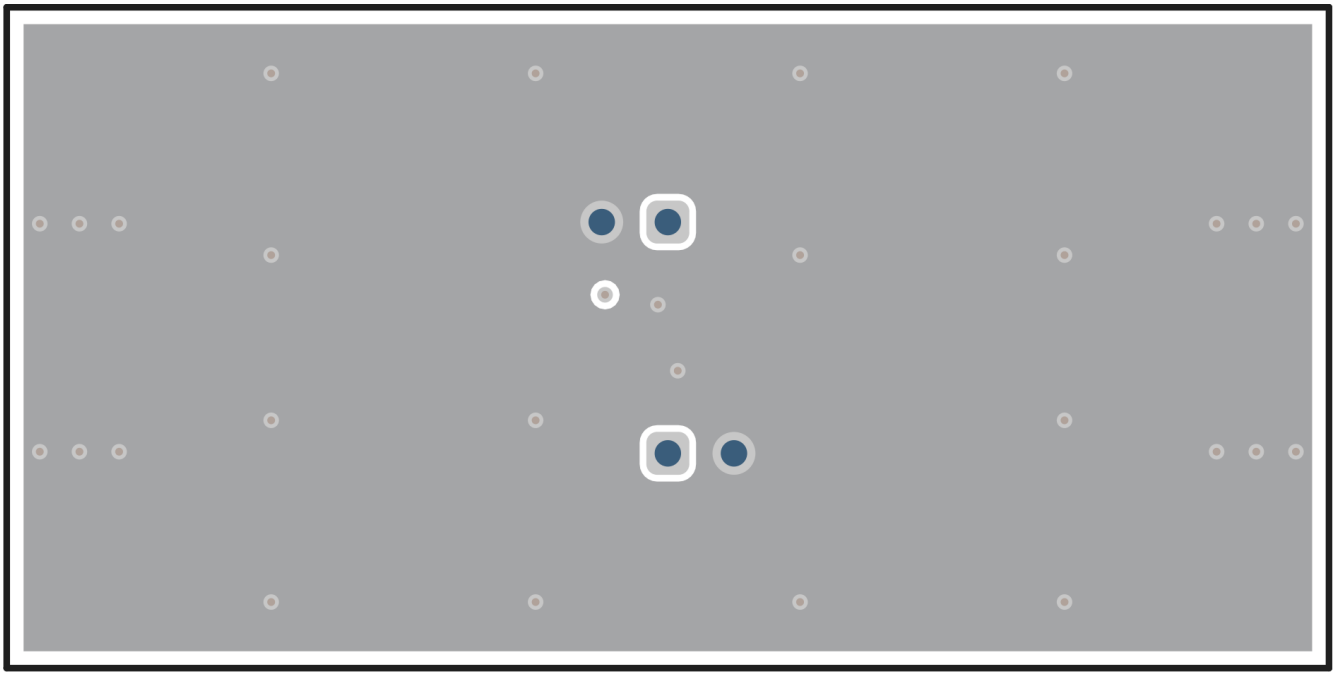


Figure 4-4. GND Layer

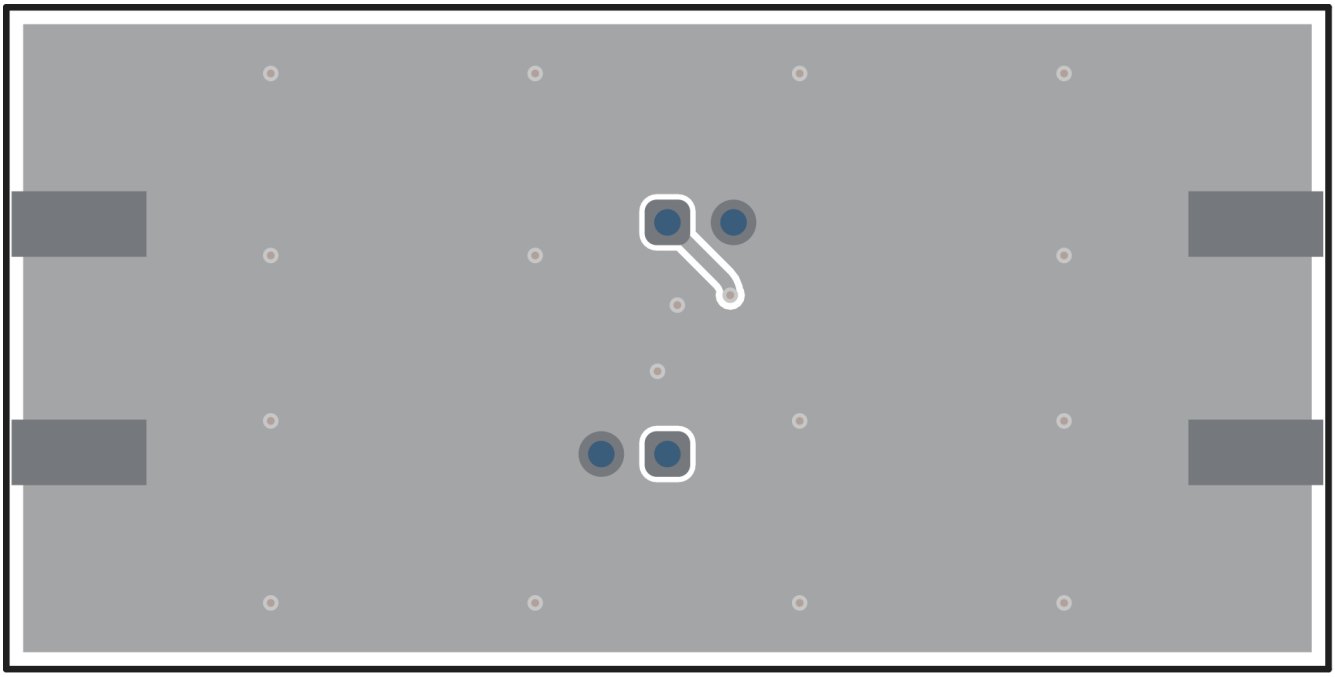


Figure 4-5. Bottom Layer

5 Bill of Materials

Table 5-1 lists the CDCBT1001EVM Bill of Materials (BOM).

Table 5-1. Bill of Materials

DESIGNATOR	QTY	DESCRIPTION	PART NUMBER	MANUFACTURER
C1, C2	2	CAP, CERM, 0.1 µF, 16 V, +/- 10%, X7R, 0402	885012205037	Wurth Elektronik
J1, J2	2	Header, 100mil, 2x1, Gold, TH	TSW-102-07-G-S	Samtec
J3, J4	2	Connector, End launch SMA, 50 ohm, SMT	142-0701-851	Cinch Connectivity
R1, R2	2	RES, 15.0, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	CRCW040215R0FKED	Vishay-Dale
U1	1	1.2 to 1.8-V Clock Buffer and Level Translator	CDCBT1001DPWR	Texas Instruments

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CAUTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

NOTE: 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.

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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.*

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3.2.1 *For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210 or RSS-247*

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(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.

Concernant les EVMs avec appareils radio:

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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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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. Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur

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http://www.tij.co.jp/lsds/ti_ja/general/eStore/notice_01.page

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3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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