USER MANUAL

WIRELESS RF DEVICE

RF_CC2541 Module
TRK-RF-05

REVISION 1.0

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i) Notice

DIGI®

The material contained in this document is proprietary and for information only and is subject to change without notice. Teraoka Weigh-System assumes no responsibility for any errors or damages arising from misinterpretation of any procedure.

Screen displays, operating procedures and supporting features might vary with different software version releases.

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ii) Safety Information

The operator of the equipment shall comply with the safety and warning indications and procedures outlined in this document. Teraoka Weigh-System Pte Ltd assumes no responsibility or liability for failure to comply with these requirements.

- For continued protection against fire hazard replace only with battery of same rating and type.
- Avoid overloading the product beyond its rated maximum capacity
- Trained and qualified personnel shall only carry out repair and servicing of product.

Disclaimer:

Specifications are subject to change without notice. All dimensions shown are approximate. Please be aware that Teraoka has indicated that its hardware and software used in the product may require additional updates in the future as our product is continually under development. The need for such updates most likely applies to the Printer software.

iii) Safety Regulations

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television
reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- 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.

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.
FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC /IC radiation exposure limits set forth for an uncontrolled environment and is safe for intended operation as described in this manual.

This device is intended only for OEM integrators under the following conditions:

1) The transmitter module may not be co-located with any other transmitter or antenna.

As long as condition above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions do not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID could not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling
The final end product must be labeled in a visible area with the following: “Contains FCC ID: SUFTRKRF05”.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.
The end user manual shall include all required regulatory information/warning as show in this manual.

Canada Regulatory Wireless Notice:

This device complies with RSS-210 of the Industry Canada Rules. 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

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes:

1) le dispositif ne doit pas produire de brouillage préjudiciable, et
2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable

IC Radiation Exposure Statement:

This equipment complies with FCC /IC radiation exposure limits set forth for an uncontrolled environment and is safe for intended operation as described in this manual.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux normes FCC / IC exposition aux radiations limites définies pour un environnement non contrôlé et est sans danger pour l'opération que celle décrite dans ce manuel.

This device is intended only for OEM integrators under the following conditions:

1) The transmitter module may not be co-located with any other transmitter or antenna.

As long as condition above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)

1) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les condition ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the IC authorization is no longer considered valid and the IC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate IC authorization.

NOTE IMPORTANTE:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

The final end product must be labeled in a visible area with the following: “Contains IC:5663A-TRKRF05”.

Plaque signalétique du produit final

Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 5663A-TRKRF05".

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.
The end user manual shall include all required regulatory information/warning as show in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.
Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

For Taiwan 警語:

✖ 第十二條

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

✖ 第十四條

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

IMPORTANT NOTE:

1. 本模組於取得認證後將依規定於模組本體標示審驗合格標籤
2. 系統廠商應於平台上標示「本產品內含射頻模組**:** CCXXXXYYyyyZzW」字樣

1. General

The module design is based on RF transceiver with integrated mcu core, CC254. It implements a proprietary communications protocol streamlined to lower cost and power consumption. The antenna used is a surface mount LTCC chip antenna. The module will be FCC and CE certified for fast and simple integration into end applications. Teraoka can modify the firmware to accommodate specific application requirements. This module may be integrated into a wireless application which operates in 2.4G ISM frequency band and requires low data rate /low power consumption.

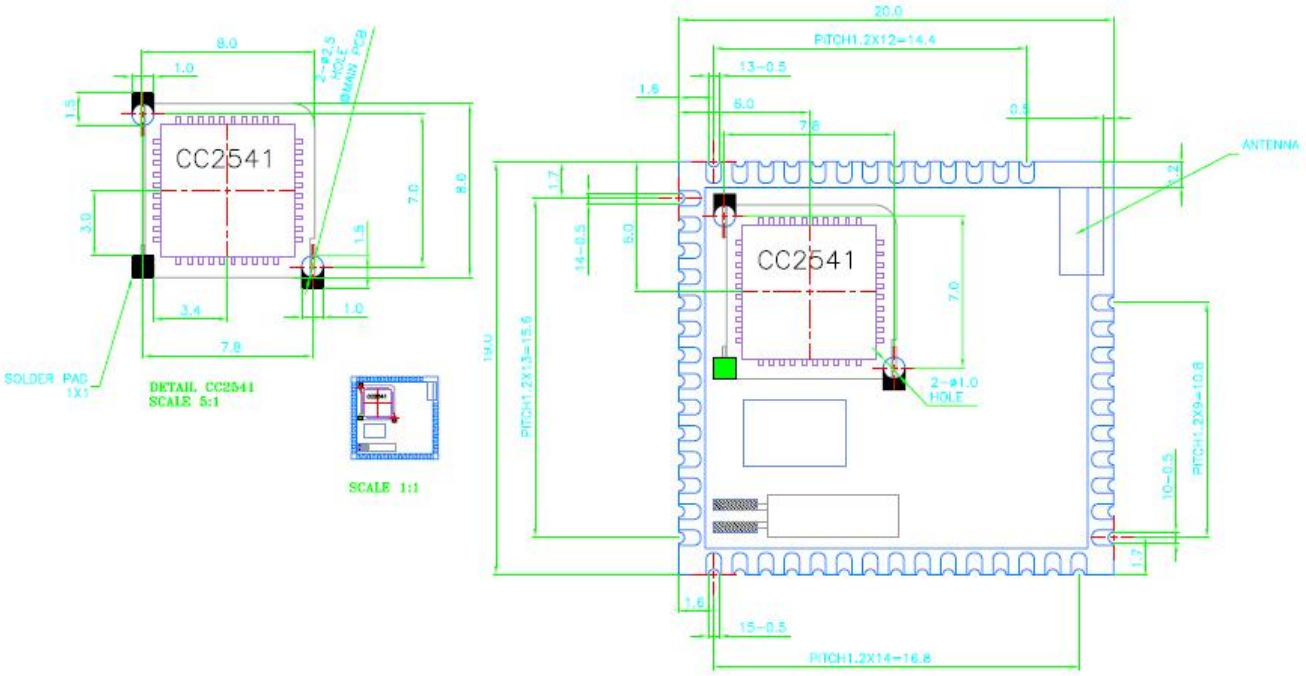
1.1 Product Features

Model	:	TRK-RF-05 (RF_CC2541 Module)
Dimension (in mm)	:	20.0(L) X 19.0(W) X 4.0(H)
RF Standard	:	FCC ARIB STD-T66 NCC, C-TICK, IC, CE
Modulation	:	GFSK
Frequency Band	:	2.402 GHz – 2.480 GHz
Channel list	:	79 Channels at 1MHz step 2402MHz +(n-1)MHz where n = 1 to 79
Radio Range	:	Up to 100m, L.O.S
Transmit Power	:	0dBm (max)
Receiver Sensitivity	:	-90dBm (typical), PER = 1%
General purpose I/O	:	47

1.2 Operating Specification

Voltage	:	DC 3.0V (+2.7V ~+3.6V)
Current	:	25mA (typical), standby: <2uA
Operating Temperature	:	-20 °C to 55 °C
Storage Temperature	:	-40 to +85° C
Humidity	:	95% max non condensing

2 Dimension



3. Label Information

4. Interface

Interface pin assignments

1	VDD	25	P17
2	VDD	26	P18
3	P01	27	P19
4	P02	28	P20
5	GND	29	P21
6	GND	30	GND
7	GND	31	GND
8	GND	32	GND
9	P03	33	GND
10	P04	34	GND
11	P05	35	GND
12	P06	36	GND
13	P07	37	GND
14	P08	38	GND
15	P09	39	GND
16	P10	40	GND
17	GND	41	GND
18	P11	42	GND
19	P12	43	GND
20	P13	44	
21	P14	45	
22	GND	46	
23	P13	47	
24	P16		

Notes:

1. The I/O pins is connected to the external interface port directly.
2. The voltage level is TTL high/low voltage level.

5. Revision Records

Serial No.	Date	Edition Status	Description of Changes	Software Version	Remarks
1	20/01/2013	1.0	INITIAL RELEASE		
2	20/03/2013	1.1	UPDATE IC STATEMENT		
3	16/04/2013	1.2	UPDATE NAMEPLATE		
4	19/04/2013	1.3	UPDATE FCC/IC STATEMENT		