

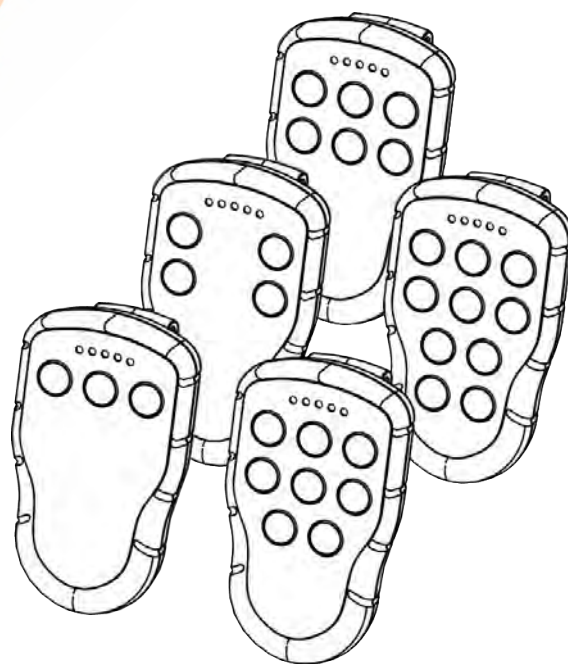
END USER INSTRUCTIONS

*Transmitters: T21-03, T21-04,
T21-06, T21-08, T21-10*

safe

smart

strong





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CHAPTER 1: INTRODUCTION

Thank you for using a Tele Radio AB product



READ ALL INSTRUCTIONS AND WARNINGS CAREFULLY BEFORE OPERATING THE PRODUCTS.

These End user instructions have been published by Tele Radio AB and are not subject to any guarantees. The End user instructions may be withdrawn or revised by Tele Radio AB at any time and without further notice. Corrections and updates will be added to the latest version of the manual. Always download the End user instructions from our website, www.tele-radio.com, for the latest available version. Keep the safety instructions for future reference.

IMPORTANT! These instructions are intended for end users. The instructions can be printed and handed to end user.

Tele Radio AB remote controls are often built into wider applications. This documentation is not intended to replace the determination of suitability or reliability of the product for specific user applications and should not be used for this purpose. It is the responsibility of any such users or integrators to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use. Tele Radio AB shall not be responsible or liable for misuse of the information contained herein.

Always refer to the applicable local regulations for installation and safety requirements relating to cranes, hoists, material handling applications, lifting equipment, industrial machinery, and/or mobile hydraulic applications using Tele Radio AB products, e.g.:

- applicable local and industrial standards and requirements,
- applicable occupational health and safety regulations,
- applicable safety rules and procedures for the factory where the equipment is being used,
- user and safety manuals or instructions of the manufacturer of the equipment where Tele Radio AB remote control systems are installed.

Tele Radio AB End user instructions do not include or address the specific instructions and safety warnings of the end product manufacturer.

For battery precautions, see "7.1 Battery precautions".

Tele Radio AB products are covered by a warranty against material, construction, or manufacturing faults. See "Chapter 8: Warranty, service, repairs, and maintenance".



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1.1 About this document

Before installing or operating the product, read the corresponding documentation carefully.

Tele Radio AB's product range is composed of transmitters, receivers, and accessories intended for use together as a system.

These End user instructions cover general safety issues, main technical specifications, standard operating instructions and battery information. Images shown in this document are for illustrative purposes only.

Please report any error or omission in this document, as well as any improvement or amendment suggestion to td@tele-radio.com.

1.1.1 COPYRIGHT

Information in this document is subject to change without notice. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, photographic, mechanical (including photocopying), recording or otherwise for any purpose other than the purchaser's personal use without the written permission of Tele Radio AB.

1.1.2 TERM AND SYMBOL DEFINITIONS

The capitalized terms and symbol used herein shall have the following meaning:

- **WARNING:** indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION:** indicates a hazardous situation which, if not avoided, will result in minor or moderate injury.
- **IMPORTANT:** is used for information that requires special consideration.
- **NOTE:** is used to address practices not related to physical injury.



This symbol is used to call attention to safety messages that would be assigned the signal words "WARNING" or "CAUTION".

1.2 About T21 transmitters

Tele Radio AB's remote control systems are suitable for a wide variety of applications for e.g. stationary or mobile equipments, hydraulic machines, construction, forestry or agriculture equipments and more. Tele Radio AB's transmitters and receivers are highly customizable and can be configured to suit the most wide-ranging application requirements & usage habits.

There are five models available, with three, four, six, eight and ten buttons.

Number of buttons	Article name	Old and alternative names		
3	T21-03	T21-3	T00021-03	PN-T21-3
4	T21-04	T21-4	T00021-04	PN-T21-4
6	T21-06	T21-6	T00021-06	PN-T21-6
8	T21-08	T21-8	T00021-08	PN-T21-8
10	T21-10	–	T00021-10	PN-T21-10

CHAPTER 2: SAFETY

2.1 Warnings & restrictions



Carefully read through the following safety instructions before proceeding with the installation, configuration, operation, or maintenance of the product. Failure to follow these warnings could result in death or serious injury.

This product must not be operated without having read and understood the End user instructions and having received the appropriate training. The purchaser of this product has been instructed how to handle the system safely. The following information is intended for use as a complement to applicable local regulations and standards.

IMPORTANT! Tele Radio AB remote controls are often built into wider applications. These systems should be equipped with:

- a wired emergency stop where necessary
- a brake
- an audible or visual warning signal

2.1.1 OPERATION



This radio system must not be used in areas where there is a risk of explosion.



Only qualified personnel should be permitted to access the transmitter and operate the equipment.

The user should:



- Always follow operating and maintenance instructions as well as all applicable safety procedures and requirements.
- Do not open the receiver encapsulation unless you are qualified.
- You must satisfy the age requirements in your country for operating the equipment.
- It is strictly prohibited to operate the equipment under the influence of drugs, alcohol and/or medications.
- Always test the transmitter stop button before operating it. Press the stop button then twist and pull it out. This test should be done on each shift, without a load.
- Never use a transmitter if the stop button is mechanically damaged. Contact your supervisor or representative for service immediately.
- Never leave the transmitter unattended.
- Always switch the transmitter off when not in use. Store in a safe place.
- Keep a clear view of the work area at all times.

2.1.2 MAINTENANCE



Before maintenance intervention on any remote controlled equipments:

- always remove all electrical power from the equipment.
- always follow lockout procedures.

- Keep the safety information for future reference. Always download the End user instructions from our website, www.tele-radio.com, for the latest available version.
- If error messages are shown, it is very important to find out what caused them. Contact your representative for help.
- Keep the product in a clean, dry place.
- Do not try to open the encapsulation.
- Always contact your representative for service and maintenance work on the product.
- Keep contacts and antennas clean.
- Wipe off dust using a clean, slightly damp cloth.
- Never use cleaning solutions.

-
- Check the encapsulation, foils and cable for damages every day. If you use the product although the encapsulation or foil is damaged, moisture can cause serious damage to the electronics.



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CHAPTER 3: TECHNICAL DATA

3.1 Transmitter specifications

	T21-03	T21-04	T21-06	T21-08	T21-10
Number of buttons	3 x 1-step button	4 x 1-step button	6 x 1-step button	8 x 1-step button	10 x 1-step button
Power supply	3 x 1.5 V AAA / LR03 alkaline				
I/O switch	Yes				
Radio communication	Simplex				
Frequency band	2405 – 2480 MHz				
Number of channels	16 (channel 11–26)				
Radio frequency output power	EIRP ¹ < 10 dBm (10 mW)				
Operating time (continuous usage)	~ 100 h with alkaline (depending on the configuration)				
IP code	IP67				
Operating temperature	-20...+55 °C / -4...+130 °F				
Dimensions	66 x 114 x 37.5 mm / 2.6 x 4.5 x 1.5 in				
Weight	135 g / 0.29 lbs				

¹Equivalent isotropic radiated power

3.2 Radio frequency band

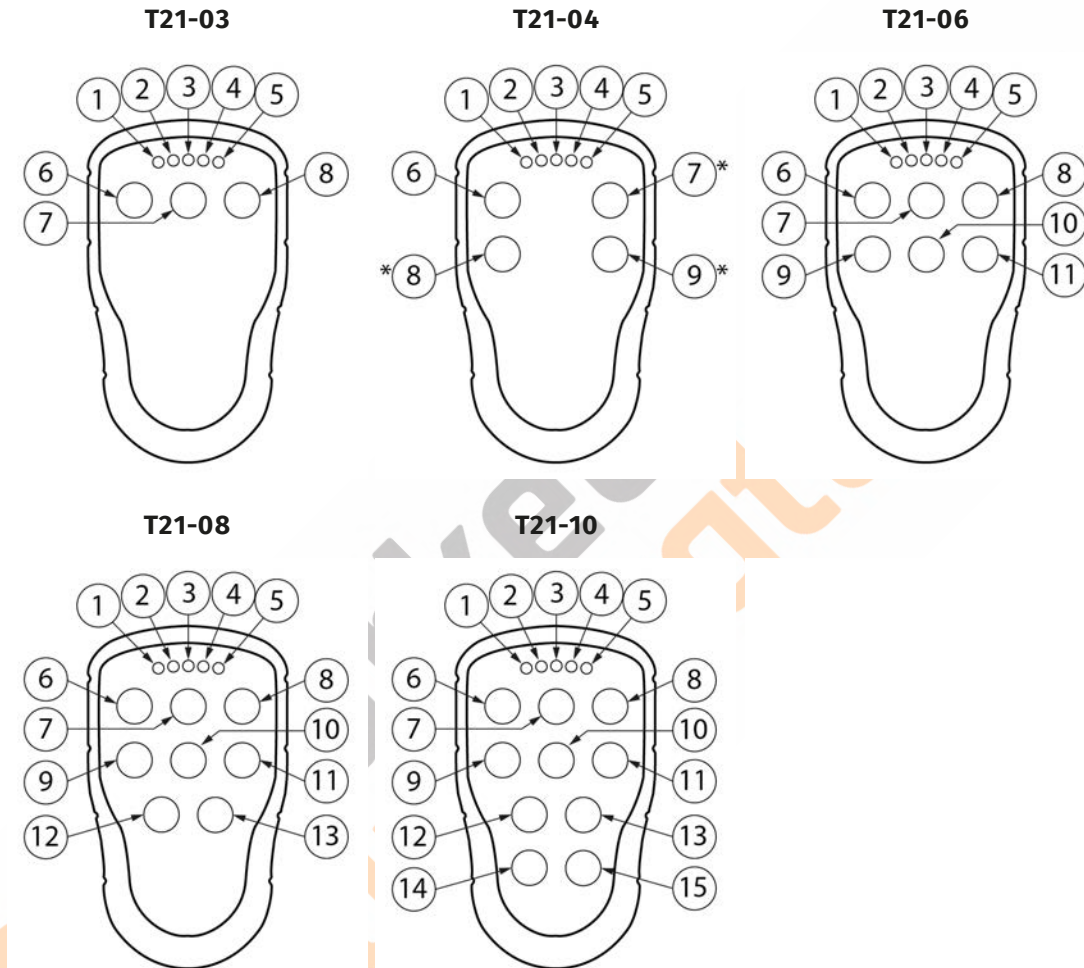
For radio systems operating on frequency band 2.4 GHz, the frequency band is divided into 16 channels (11 to 26). Once the channel has been selected on the transmitter, the receiver will automatically detect and switch to the same channel.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
11	2405	19	2445
12	2410	20	2450
13	2415	21	2455
14	2420	22	2460
15	2425	23	2465
16	2430	24	2470
17	2435	25	2475
18	2440	26	2480

CHAPTER 4: PRODUCT GENERAL DESCRIPTION

The pictures shown in this chapter are for illustrative purposes only.

4.1 Transmitter front



1. LED 1 (red)

2. LED 2 (red)

3. Top LED (red, green)

4. LED 3 (red)

5. LED 4 (red)

6. Button 1

7. Button 2

8. Button 3

9. Button 4

10. Button 5

11. Button 6

12. Button 7

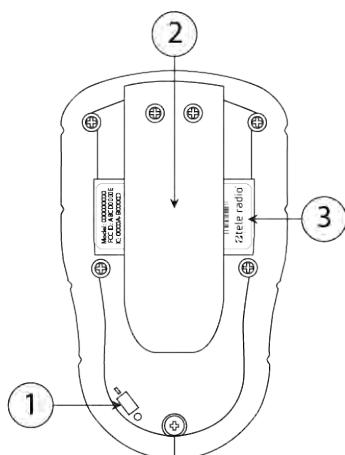
13. Button 8

14. Button 9

15. Button 10

*On T21-04, the default buttons 3, 4 and 6 have been remapped to work as buttons 2, 3 and 4. Contact your representative for more details.

4.2 Transmitter back



1. **I/O switch**
2. Clip
3. Product label

4.2.1 I/O SWITCH

The **I/O switch** on the back of the transmitter interrupts the power supply from the battery. When in the O/off position, the transmitter cannot be started.

IMPORTANT! When the transmitter is to be transported by air, the I/O switch must be in the O/off position.

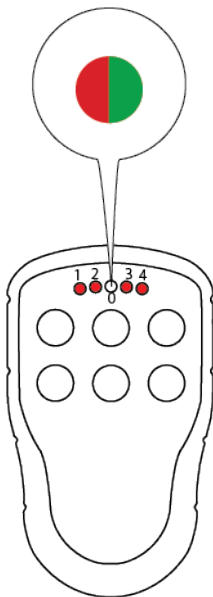
NOTE: The **I/O switch** should not be used as an on/off button for the transmitter.

4.3 Top LED status indication

The top LED is a multicolored LED that lights or flashes green when the battery capacity is good and red when the battery capacity is poor. When the top LED lights/flashes red, battery should be changed at the next convenient opportunity (see "7.2.1 Change the batteries").

CHAPTER 5: ERROR INDICATIONS AND CODE MESSAGES

Each error is identified by a code indicated by a LED combination including the top LED (LED 0) and LEDs 1–4.



●: LED is lit (red). ○: LED is off

⦿: LED is blinking green/red.

NOTE: The following error indications apply for models with **SW version 18 or higher**.

LED0 green/red	LED1 red	LED2 red	LED3 red	LED4 red	Indicates
⦿	●	○	○	○	Production data error
⦿	○	●	○	○	Radio initialization has failed

Contact your representative for assistance.

CHAPTER 6: OPERATION

6.1 General information

6.1.1 RECEIVERS WITH LOGIN/LOGOUT¹ FUNCTION ACTIVATED

To control a receiver, the transmitter must be registered and logged in to the receiver. If another transmitter is already logged in to the receiver, it must be logged out before a different transmitter can be logged in.

If no transmitter is logged in to the receiver, the first registered transmitter to be started will automatically log in to the receiver. Once a transmitter has been logged in, it will remain logged in until it is manually logged out.

More than one transmitter can be registered in the receiver, but only one transmitter can be logged in at a time.

NOTE: For the logout function to work, BOTH the receiver and the transmitter must have the logout function activated and be set to continuous radio mode.

6.1.2 RECEIVERS WITHOUT LOGIN/LOGOUT FUNCTION OR WITH LOGIN/LOGOUT FUNCTION INACTIVATED

To control a receiver, the transmitter must be registered in the receiver.

If no transmitter is controlling the receiver, the first registered transmitter to be started will automatically take control of the receiver. Switching the transmitter off will free the receiver and allow any other registered transmitter that is started to control the receiver.

More than one transmitter can be registered in the receiver, but only one transmitter can control the receiver at a time.

6.1.3 MULTIPLE TRANSMITTERS REGISTERED IN A SAME RECEIVER

If more than one transmitter is registered in the same receiver, it is recommended to select the same frequency channel on all transmitters.

¹For more information about login/logout, see the transmitter installation instruction

6.2 Radio mode

NOTE: To establish a radio link between the transmitter and the receiver, both units must be set to the same radio mode.

NOTE: The radio mode cannot be changed from the transmitter. Contact your representative for assistance.

This transmitter is set to **discontinuous** radio mode by default. The transmitter starts transmitting as soon as the batteries are inserted and any transmitter button is pressed. Radio transmission ends when all transmitter buttons are released.

NOTE: Some functions are only available when the products are transmitting continuously. Those functions are marked: "Only for continuous radio mode" in the manual.

6.3 Radio inactivity timeout (automatic shutdown)

NOTE: Only for **continuous** radio mode.

NOTE: The inactivity timeout cannot be changed from the transmitter. Contact your representative for assistance.

Automatic shutdown helps prolong battery capacity by automatically turning the transmitter off after a preset period of inactivity.

On T21 transmitters, the inactivity timeout is **deactivated** by default.

6.4 Load select mode

NOTE: Only for **continuous** radio mode.

NOTE: **Load select** mode cannot be changed from the transmitter. Contact your representative for assistance.


On T21 transmitters, the **Load select** mode is **deactivated** by default (**Load select** mode 0).

6.5 Functionality test

NOTE: This list is intended for use as a support for the manufacturer of the equipment where Tele Radio AB remote control systems are installed.

Before operating the radio system, follow the procedure below.

IMPORTANT! This test should be performed at each shift, without a load, and should include but not be limited to the following steps

- Make sure that the controlled object can not cause any harm in the event of unexpected movement.
 - Always follow local safety rules and start the equipment according to the corresponding instructions.
 - Make sure that the transmitter can control the receiver by testing all functions.
 - Make sure that the functions respond as expected.
 - Make sure that all movements are as planned.
 - Make sure the system stops when the batteries are removed from the transmitter.
- 

6.6 Start the transmitter in discontinuous mode

To control a receiver, the transmitter must be registered in the receiver.

If no transmitter is controlling the receiver, the first registered transmitter to be started will automatically take control of the receiver.



When not in use, transmitters must be stored in a secure storage space.



RISK OF UNINTENDED EQUIPMENT OPERATION. The transmitter will start transmitting as soon as a button is pressed.

NOTE: Go through the functionality test (see "6.5 Functionality test") before starting the transmitter.

1. Press a button on the transmitter to start controlling the receiver.
The top LED lights (green when the battery capacity is good, red when the battery capacity is poor).

NOTE: The radio transmission ends as soon as all buttons are released.

6.7 Log the transmitter out from a receiver

NOTE: Only for **continuous** radio mode.

NOTE: The logout function cannot be activated/deactivated from the transmitter. Contact your representative for assistance.

For this transmitter, the logout function is deactivated by default.

CHAPTER 7: BATTERY

7.1 Battery precautions

Carefully read the following safety instructions and warnings before using, charging or disposing of the batteries.



Batteries contain flammable substances such as lithium or other organic solvents, which may result in overheating, rupture or combustion. Failure to read and follow the below instructions may result in fire, personal injury and damage to property if charged or used improperly.

7.1.1 HANDLING AND STORAGE



- Risk of explosion if battery is replaced with a battery of an incorrect type.
- Do not short-circuit, disassemble, deform or heat batteries.
- Never attempt to charge a visibly damaged or frozen battery.
- Do not use or charge the battery if it appears to be leaking, deformed or damaged in any way.
- Do not solder directly onto batteries.
- Do not leave the battery in the charger once it is fully charged.
- Store in a cool location. Keep batteries away from direct sunlight, high temperature, and high humidity.
- Immediately discontinue use of the battery if, while using, charging, or storing the battery, the battery emits an unusual smell, feels hot, changes color, changes shape, or appears abnormal in any other way.
- Keep batteries out of reach of small children. Should a child swallow a battery, consult a physician immediately.

7.1.2 DISPOSAL

When discarding batteries, insulate the + and - terminals of batteries with insulating/ masking tape.



- **Do not place multiple batteries in the same plastic bag.**
- **Do not incinerate or dispose of batteries in fire.**
- **Do not place used batteries in the household waste. Dispose of used batteries in accordance with the applicable regulations and legal requirements.**
- **Batteries that have been disposed of incorrectly may short circuit, causing them to become hot, burst or ignite.**



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7.2 Battery information



Do not recharge the batteries. Attempts to recharge the batteries may cause rupture or hazardous liquids to leak, which will corrode the equipment.

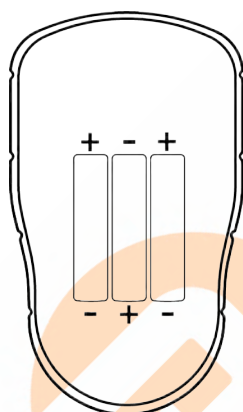
NOTE: Only batteries approved by Tele Radio AB should be used in T21 transmitters.

NOTE: When approximately 10 % of the battery capacity remains, the Top LED will light red.

	Description
Type of battery	3 x 1.5 V AAA / LR03 batteries ¹
Operating time	Approximately 100 h with alkaline (depending on settings)

NOTE: Electronics and batteries must be physically separated before disposal. Make sure that electronics or batteries are not disposed of in household waste.

7.2.1 CHANGE THE BATTERIES



Battery type: 3 x 1.5 V AAA / LR03 alkaline

1. Turn the transmitter and unscrew the 5 screws on the back.
2. Remove the back of the transmitter.
3. Replace the 3 x 1.5 V AAA batteries. Use alkaline batteries for optimal performance.
5. Screw the back of the transmitter into place.

NOTE: Electronics and batteries must be physically separated before disposal.

¹Not included.

CHAPTER 8: WARRANTY, SERVICE, REPAIRS, AND MAINTENANCE

Tele Radio AB products are covered by a warranty against material, construction and manufacturing faults. During the warranty period, Tele Radio AB may replace the product or faulty parts. Work under warranty must be performed by Tele Radio AB or by an authorized service center specified by Tele Radio AB.

The following are **not** covered by the warranty:

- Faults resulting from normal wear and tear
- Parts of a consumable nature
- Products that have been subject to unauthorized modifications
- Faults resulting from incorrect installation and use
- Damp and water damage

Maintenance

Repairs and maintenance must be performed by qualified personnel

Only use spare parts from Tele Radio AB

Contact your representative for service or any other assistance

Keep the product in a clean, dry place

Keep contacts and antennas clean

Wipe off dust using a slightly damp, clean cloth

NOTE: Never use cleaning solutions or high-pressure washer.

CHAPTER 9: REGULATORY INFORMATION

NOTE: Models including additional naming conventions:

Model	Article names	Additional naming conventions
T21	T21-03	PN-T21-3, PN-T21-03, T21-3, T00021-03
	T21-04	PN-T21-4, PN-T21-04, T21-4, T00021-04
	T21-06	PN-T21-6, PN-T21-06, T21-6, T00021-06
	T21-08	PN-T21-8, PN-T21-08, T21-8, T00021-08
	T21-10	PN-T21-10, T00021-10

9.1 Europe

Applies to:

T21-03, T21-04, T21-06, T21-08, T21-10

9.1.1 CE MARKING

Hereby, Tele Radio AB, declares that the radio equipment type(s) listed above is/are in compliance with the Radio Equipment Directive 2014/53/EU.

The latest version of the complete EU Declaration of Conformity is available on the Tele Radio AB website, www.tele-radio.com.

9.1.2 WEEE DIRECTIVE



This symbol means that inoperative electrical and electronic products must not be mixed with household waste. The European Union has implemented a collection and recycling system for which producers are responsible. For proper treatment, recovery and recycling, please take this product to a designated collection point.

Tele Radio AB strives to minimize the use of hazardous materials, promotes reuse and recycling, and reduces emissions to air, soil and water. When a commercially viable alternative is available, Tele Radio AB strives to restrict or eliminate substances and materials that pose an environmental, health or safety risk.

9.2 North America

Applies to:

T21-03, T21-04, T21-06, T21-08, T21-10

9.2.1 FCC STATEMENT

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.

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 or more 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.

9.2.2 IC STATEMENT

This product complies with Industry Canada's licence-exempt RSSs. 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 device.

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;
2. l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

9.2.3 FCC/IC LABELS

The FCC ID and IC numbers can be found on the product label.

FCC ID: ONFC1414A

IC: 4807A-C1414A

9.3 AEC

Applies to:

T21-03, T21-04, T21-06, T21-08, T21-10

9.3.1 AEC STATEMENT (ДЕКЛАРАЦИЯ ЕАС)

This product is declared as compliant within Eurasian Economic Union (EAC). EAC declaration is available on request.

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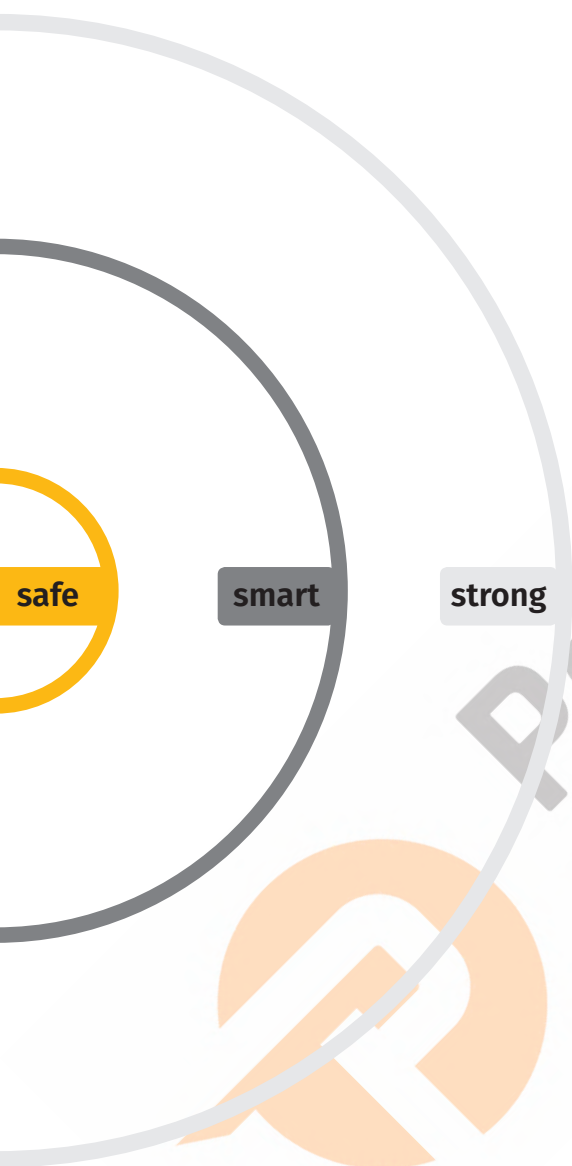
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