IS-Specific Safety and Compliance Information for TP9300/TP9400 Portable Radios with IECEx Certification

Intrinsically Safe radios and accessories

Intrinsically Safe (IS) radios and accessories are certified by a third party to be in compliance with the published IEC and EN standards for equipment meant for use in particular hazardous locations, or in potentially explosive atmospheres.

Warning ***Explosion hazard!*** IS certification applies only while the product is used in accordance with these instructions.

Warning ***Explosion hazard!*** Ensure that the ratings printed on a label on the equipment will permit your IS radio and accessories to be used in your hazardous location. Refer also to "Rating matching" on page 5.

Warning ***Explosion hazard!*** Use only a Tait-supplied, IS-approved battery, charger, antenna, audio accessory, carry accessory or programming adapter with an IS radio. Fitting a battery or accessory that is not IS-approved, using a charger that is not IS-approved, or failing to use the IS programming adapter, creates a risk of explosion which could cause serious injury or death. For an up-to-date list of approved accessories, contact your regional Tait office.

Warning ***Explosion hazard!*** Do not charge the battery, change the antenna or allow any other antenna port connection in a hazardous location. An explosion could cause serious injury or death.

Warning ***Explosion hazard!*** You must use a battery carry case when carrying a spare battery into a hazardous area.

IS radios, batteries, antennas and accessories must not be engraved or modified in any way. Do not use the radio, battery or accessory if it is cracked or damaged. Do not use the antenna if the sheathing is split or the end cap is missing. Do not expose the radio to solvents. IS radios and accessories must be serviced only by an agency certified by both the approval authority and by Tait International Limited. Any unauthorized repair or substitution of parts invalidates the IS rating and the third party IS approval. To have an IS radio serviced, return it to your regional Tait office.

Radios

One or more of the following marks identifies a TP9300/TP9400 radio as an IS radio:

- an IS circle logo (IS) on the radio's front panel
- a label on the radio, showing IS information
- a label on the radio battery, showing IS information

Radios with the product code "T03-22xxx-xxxx" have IS approval and are approved to one or several of the following ratings. Refer also to "Rating

matching" on page 5.

- Ex ib IIC T4...T3 Gb (IECEx)
- Ex ib IIA T4...T3 Gb (IECEx)

T4: –20°C ≤ Ta ≤ +50 °C
T3: –20°C ≤ Ta ≤ +60 °C

Batteries
The following batteries have been approved for use with TP9300/TP9400 IS portable radios. Refer also to "Rating matching" on page 5.

Description	Product code
Li-Ion, 2300 mAh, IECEx, IIA	T03-22001-ADAA
Li-Ion, 2300 mAh, IECEx, IIC	T03-22001-ADCA

Chargers
The chargers for IS batteries are marked with an IS circle logo (IS) and have the following product code: T03-22011-xDxx

You must use these chargers with an IS battery, as their internal circuitry provides additional protection for the IS circuitry in the battery and radio.

Warning ***Explosion hazard!*** Do not use the charger in a hazardous location. An explosion could cause serious injury or death.

Notice The IS battery can only be charged in the chargers identified above. It will not charge in other TP8100/TP9300/TP9400 chargers. However, the chargers identified above can charge non-IS TP8100/TP9300/TP9400 batteries.
The operating temperature range for the charger is 0 °C to +40 °C.

401-00056-07

Audio accessories
One or more of the following marks identifies a TP9300/TP9400 audio accessory as an IS audio accessory:

- an IS circle logo (IS) on the audio accessory
- a label on the audio accessory, showing IS information

The TP9300/TP9400 IS approved audio accessories have the following product code: T03-22008-xxxx. Refer also to "Rating matching" on page 5.

Description	Product code
Headset, heavy duty, over-the-head, Ex/Div1	T03-22008-BAAB
Headset, heavy duty, behind-the-head, Ex/Div1	T03-22008-BABB
Earphone, in-ear, 2.5 mm jack, Ex/Div1	T03-22008-CAAB
Speaker microphone, Storm, IP68-rated, emergency button, High/Low volume button, 2.5 mm jack, Ex/Div1	T03-22008-AAAB
C-C550 Ex speaker microphone	T03-22008-AACA
Headset, heavy duty, over-the-head	T03-22008-BAAA
Headset, heavy duty, behind-the-head	T03-22008-BABA
Earphone, in-ear, 2.5 mm jack	T03-22008-CAAA
Speaker microphone, Storm, IP68-rated, emergency button, High/Low volume button, 2.5 mm jack	T03-22008-AAAA

Carry accessories
IS/NI leather carry cases are marked with an IS circle logo (IS). The following carry cases have been approved for use with TP9300/TP9400 IS portable radios and batteries.

Description	Product code
Carry case, heavy-duty, leather, belt loop with D-stud	T03-22007-0001
Carry case, heavy-duty, leather, spring clip	T03-22007-0002
Carry case, heavy-duty, leather, belt loop	T03-22007-0003[a]
Battery carry case, heavy-duty, leather	T03-22007-0004
Battery carry case, heavy-duty, leather, belt loop with D-stud	T03-22007-0005

Description	Product code
Battery carry case, heavy-duty, leather, spring clip	T03-22007-0006
Battery carry case, heavy-duty, leather, belt loop	T03-22007-0007
Carry case, heavy-duty, leather, belt loop, D-ring	T03-22007-0008
Chest harness (for T03-22007-0008)	T03-22007-0009
Belt loop for D-stud, 55 mm	T03-00038-0022
Spring clip for D-stud, 40 mm	T03-00038-0023
Shoulder strap	T03-00038-0034
Belt clip, 55 mm	TPA-CA-201
Belt clip adaptor for 55 mm belt clip	TPA-CA-208

a. Must not be used with H7 band radios with whip antenna (TPA-AN-012).

Carry accessories are not specifically rated, and may be used in any area, subject to the rating restrictions of the overall radio system.

Warning ***Explosion hazard!*** You must use a battery carry case when carrying a spare battery into a hazardous area.

Antenna

Use only genuine Tait-supplied antennas. Antennas are not specifically rated and may be used in any area, subject to the rating restrictions of the overall radio system.

Antenna port connections in a non-hazardous area

Antenna port connections are permitted under the following conditions:

- The radio being tested can only be powered by a correctly rated battery.
- The connection must be a direct coaxial cable connection between radio and radio frequency test equipment, such as a communication test set.
- Any AC powered test equipment being used must have a valid Portable Appliance Test (PAT) certificate.
- Connection and measurement must only be carried out by a qualified technician.

Warning ***Explosion hazard!*** Do not change antenna port connections in a hazardous location.

Programming adapter

The IS programming adapter is marked with an IS circle logo (IS) and has the product code: T03-22009-ADAA.

Warning ***Explosion hazard!*** Do not use the IS programming adapter in a hazardous location. You must use the IS programming adapter with an IS radio, as its internal circuitry provides additional protection for the IS circuitry in the radio. All programming activities are permitted. Calibration activities are only permitted if the activity can be done with the programming adapter.

Equipment repair

Warning ***Explosion hazard!*** IS radios and accessories are not user-serviceable. IS radios and accessories must be serviced only by an agency certified by both the approval authority and by Tait International Limited. Any unauthorized repair or substitution of parts invalidates the intrinsic safety rating and the third party IS approval. To have an IS radio serviced, return it to your regional Tait office.

Rating matching

The rating of the radio, battery and accessories must be reviewed to ensure a safe IS radio system. IS ratings must be "matched", and the lowest approval level determines the overall IS radio system approval. Equipment labels clearly identify the item's ratings and regional approvals.

Zone ratings

- Use only Gas Group IIC batteries with Gas Group IIC radios. Use only Gas Group IIA batteries with Gas Group IIA radios.
- Gas Group IIC rated accessories may be used with IIA radios, but the combination may only be used in a IIA Gas atmosphere.
- Gas Group IIC and Dust Group IIIC rated accessories may be used with Gas Group IIC or IIA radios, but the combination may only be used in a gas atmosphere.
- Gas Group IIC rated radios and accessories may be used in Gas Group IIB or IIA areas.
- Zone 1 rated radios and accessories may be used in Zone 2 areas.
- Any item approved to Gas Group IIA will limit the radio system to a Gas Group IIA area. For use in a Gas Group IIC area, all items must be approved to Gas Group IIC.

Temperature class

Different ambient temperature ranges apply for the T3 and T4 temperature classes. The item with the most restrictive temperature range will determine the allowed temperature range of the radio system. T4-rated radios and accessories can be used in T3 areas, within the rules stated above.

Entity parameters

The Entity Concept allows interconnection of IS equipment with associated equipment when the following is true:
Ui ≥ Uo, Ii ≥ Io, Pi ≥ Po, Ci ≤ Co, Li ≤ Lo, and Li/Ri ≤ Lo/Ro.
The installation must be in accordance with the following standards:

- EN IEC 60079-25
- Relevant local regulations.

TP9300/TP9400 IS radios have the following entity parameters.
Radio accessory port:

• Uo: 7.2 V • Io: 0.42 A • Po: 1.3 W	• Co: 1.97 µF • Lo: 100 µH • Lo/Ro: 20 µH/Ω

Radio battery port:

• Ui: 8.4 V • Ii IIA: 2.9 A • Ii IIC: 1.9 A • Um: 9.0 V (charging)	• Ci: 1.2 µF • Li: 5.7 µH

Battery:

Charging Terminals • Um: 9.0 V	Battery Output (radio port) • Uo: 8.4 V • Io IIA: 2.9 A • Io IIC: 1.9 A • Co: 1.2 µF • Lo: 5.7 µH

Vehicle charger:

Input • Um: 18.0 V	Charging Terminals • Uo: 9.0 V • Io: 2.3 A

Ambient pollution degree: 4
Over voltage category: I

Certificates

Radio	Battery
• IECEx ITA 15.0015X •	• IECEx ITA 15.0009X •

Standards

- IEC 60079-0:2017 7th edition
- IEC 60079-11:2011 6th edition