



ITCO – Recommended Guidelines Remote Monitoring Equipment

***Prepared by ITCO Work Group on Tank Container Remote Monitoring Equipment
ITCO – International Tank Container Organisation***

PURPOSE AND SCOPE

The purpose of these guidelines are to assist the tank container industry in identifying the best location and installation approach for remote monitoring equipment (RME) on tank containers.

In this guideline document, the term Remote Monitoring Equipment (RME) applies to any device applied to a tank container that transmits a signal or records data that can be received by a satellite, cellular or other type of receiver. This may be data related to geographic location, shock and vibration, temperature or other condition of the load, tank level status, etc. Satellite Tracking Systems (STS) are location systems such as GPS, Magellan, or Glonass that determine the tank location. Wireless Data Communication: refers to data collected and transmitted from the tank container relating to geographic location and sensor information including temperature, hatch status, pressure, level, and more.

OVERVIEW

The industry for Remote Monitoring Equipment (RME) for transport has grown rapidly over the last five years, and it is now estimated that there are over 10,000 systems on tank containers.

This growth is driven by a number of factors including an increasing awareness of the safety and security benefits of RME, a competitive business environment that seeks out technology to improve logistics, and an overall improvement in performance and reduction in the investment costs for tracking equipment. There are many established hardware providers in the market, offering a wide range of RME form factors and sensors. This is evidenced by the dramatic increase in the numbers of RME vendors that are now members of ITCO. Currently, a number of operators, shippers, and leasing companies have been installing RME on tank containers in various locations based upon their own operational requirements or needs.

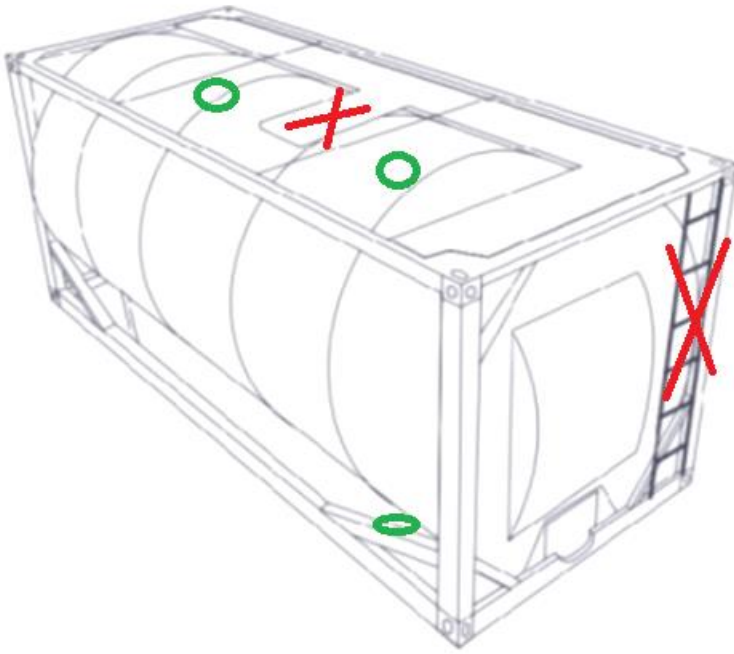
The tank container industry puts special emphasis on health and safety, which is crucial to sustainable success, not least because of the use of tanks for the carriage of dangerous goods. In addition, the industry strives to ensure standardization of the tank.

Therefore, the main drivers for tank container RME guidelines are summarized as follows:

- **Security:** Identify RME, that belong on tank containers from equipment that does not and which may cause a threat. It also understands the entire industry will benefit if RME do not pose an intrinsic safety risk.
- **Safety:** Poorly installed RME could create tripping hazards to personnel.
- **Efficiency:** Tank containers equipped with undefined RME might draw unnecessary attention from inspectors, which could disrupt operations.

Installation of Guidelines for RME

1. Installation of RME should not interfere with the operation of any equipment. The RME should not obstruct any equipment and should not be placed where it is likely to be exposed to overspill or cleaning operations, for example the top spill boxes are not a recommended location
2. RME should be placed in a location where it does not pose a safety hazard, such as a tripping hazard. Walkways and ladders should be kept clear at all times.
3. RME wiring should run under the cladding or be secured in conduit so it does not pose a security concern or safety risk. Care should be taken when cutting or drilling cladding to ensure that there is no damage to the tank.
4. Cables should be of materials do not react with the insulation of the tank or the substances transported in the tank.
5. Where cables are attached to parts of the tank, eg attached to a valve for purpose of monitoring, the attachment should be of compatible materials.
- 6 RME should be installed in the least conspicuous location, mindful of theft the RME should not be too visible.
7. RME should be installed so that it does not exceed the ISO dimensions tank container.
8. RME should be certified to intrinsically safe standards. The certifying body should be approved for the geographical area where the tank operates.
9. Areas that are preferred for installation include under a composite cladding, on the cladding away from walkways, on supporting framework if it does not violate the ISO dimensions of the tank and is clear of walkways or other safety equipment such as ladders, and strapped under the walkway if it does not pose a tripping hazard. The sketch below shows a number of acceptable and unacceptable locations for installing RME.



Use of Remote Monitoring Equipment

About ITCO

Established in 1998, the International Tank Container Organisation represents the international tank container industry to the public and to governmental bodies, with the aim of promoting the industry with its main players: operators, lessors, manufacturers, service providers, inspection, and surveyors. With over 150 members worldwide the organisation is representing around 90 percent of the global tank container capacity. ITCO's principle focus is on safety, regulatory, technical and environmental issues.

In case of questions about ITCO, please contact:

Patrick Hicks

ITCO - International Tank Container Organisation

Suite 3 - Charter House 26 Claremont Road Surbiton KT6 4QZ, UK Tel: +44 (0)20 8390 0000

hicks@itco.be www.itco.org

Disclaimer ITCO has taken great care to ensure the information published in this Guidelines of Recommended Practice is accurate, but it accepts no responsibility for any errors or omissions. All responsibility for action based on any information in this Guidelines of Recommended Practice rests with the reader. ITCO accepts no liability for any loss of whatever kind, arising from reliance on the contents of this document.