Trimble

Application Note

#AN-P0001

To: Placer GPS 45X Resellers and Users Date: January 22, 1998

From: Mobile Positioning and Communications Marketing

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Subject: **Placer GPS 45X/RDI Products and EDACS Networks**

1. Background

The Placer GPS 45X family features built-in communications protocols to support their use in wireless networks. This application note addresses the applicability of the Placer GPS 45X family for Ericsson EDACS RDI networks. EDACS is a trunked radio network developed by Ericsson that simultaneously supports both voice and data. Data support is provided over the network through a protocol known as RDI. Ericsson offers a variety of radio products, some of which are compatible with the EDACS RDI protocol and are thus data-capable.

EDACS is not a "Plug and Play" network.[1] The EDACS network is a variable platform and each network has different behavior. Even though the Placer GPS 45X/RDI family has been certified by Ericsson as being compatible with their most recent specification, Ericsson has advised us that Placer GPS 45X/RDI units should only be installed in conjunction with EDACS data integration services. These services must be provided by either: (a) the Trimble authorized reseller (after Ericsson training); (b) an Ericsson authorized network consultant; and/or (c) Ericsson itself. Trimble itself will not provide these services.

2. Using Placer GPS 45X/RDI in an EDACS- RDI Network

The following guidelines can be used to determine the suitability of an EDACS RDI network for a Placer GPS 45X data application:

- Radios must support data and must be "Placer GPS 45X approved" according to the radio compatibility guide below (determine firmware version for existing radios).
- If radios require an external RDI unit, the RDI unit should have firmware version 4.06 (350A1352G1) or later (older version is 19A149657G3) and should have default settings, including "MDT priority" for collisions.

[1] Source: Ericsson

- If both voice and data are required, radios should support voice preemption. (The Orion radio provides voice preemption and does not allow data to interrupt voice calls.) Your Ericsson representative should be consulted for additional voice preemption radio choices.
- The network must support trunking of data and should be single-site.
- Ericsson Consulting Services should approve network loading. Contact Ron Lyons of Ericsson at (619) 582-6381. Loading questions to be answered include:
    - Are there other data users on the network ?
    - Are any channels dedicated to data ?
    - If any channels are dedicated to data, are they shared with other users ?
    - What Placer report frequency is required ? Polled, TDR, or exception?
    - Is there a measure of existing system loading available ?

3. Ericsson Data Gateway *Not Presently Supported by Placer GPS 45X/RDI*

The Ericsson Data Gateway (EDG) is an Ericsson implementation of a multi-site network that includes EDACS RDI. Base access is via a conventional network connection (TCI/IP, UDP) rather than with RDI radio/modems directly. There are several configurations of EDG, each of which differs greatly from the others in how a mobile unit participates on an RDI network. The differences have to do with how and where address translation is done between RDI 5-digit addresses and network IP addresses. The Placer GPS45X/RDI uses 5-digit RDI addresses only and does not implement a network layer (no internal support for IP or EDG headers).

4. Ericsson EDACS Radios and Compatibility

Ericsson manufactures many types of radios for different purposes. Of the radios compatible with the EDACS network, only a subset of these are configurable for data using the RDI interface. The Orion and the newer MRK, LPE, and HPE radios support the RDI data interface directly without any additional devices. Others, such as the MDX and Rangr, require an RDI interface box between the radio and the data device (e.g., the Placer).

Radio Compatibility Guide

The table below lists the radios that are compatible with Placer GPS 45X/RDI products.

Radio model	EDACS frequency	RDI Box Required?	Voice preemption support?	Supported Firmware Revs	Ericsson Lab Tested??	Placer GPS 45X Field Tested?	Placer GPS 45X Approved?
Orion	800MHz, 900MHz	No No	Yes	G19.400, G28.400	Yes Yes -	Yes	Yes
MDX	800MHz, 900MHz	Yes Yes	Yes	G14.V00, G15.V00 G4.V16	Yes Yes Yes	Yes	Yes
Rangr	800MHz	Yes	No	G19	Yes	Yes	Yes
FMD A/N, Numeric, No display	800MHz	Yes	No	G3	Yes	No	with Beta test
MDX (Data-Only)	800MHz	No	N/A	-	not available for test	-	No
MRK II **MRK I**	800 MHz, 900 MHz	No No	? ?	G26-3.01 G24-3.00	Yes Yes	-	with Beta test
LPE	800 MHz	No	?	-	not available for test	-	-
HPE	800 MHz	No	?	-	-	-	-