

# **PAMS Technical Documentation RPE-1 Series Transceiver**

## **Chapter 2**

# **TECHNICAL INFORMATION**



## CHAPTER 2 – GENERAL INFORMATION

Introduction .....	Page 2-4
Product Selection .....	Page 2-4
Transceiver RPE-1 .....	Page 2-4
Product and Module List .....	Page 2-5
NOTICE TO USER .....	Page 2-5
Environmental conditions .....	Page 2-5
Technical Specifications .....	Page 2-6
General Specifications of RPE-1 Series Transceiver .....	Page 2-6
Electrical Specifications .....	Page 2-6
Transceiver General Features .....	Page 2-6
Receiver Branch .....	Page 2-7
Transmitter Branch .....	Page 2-7

## Introduction

This chapter contains a list of products/modules together with their associated order codes, and details of the performance specifications for the RPE-1 Transceiver. The performance specifications are split into general, transmitter and receiver functions.

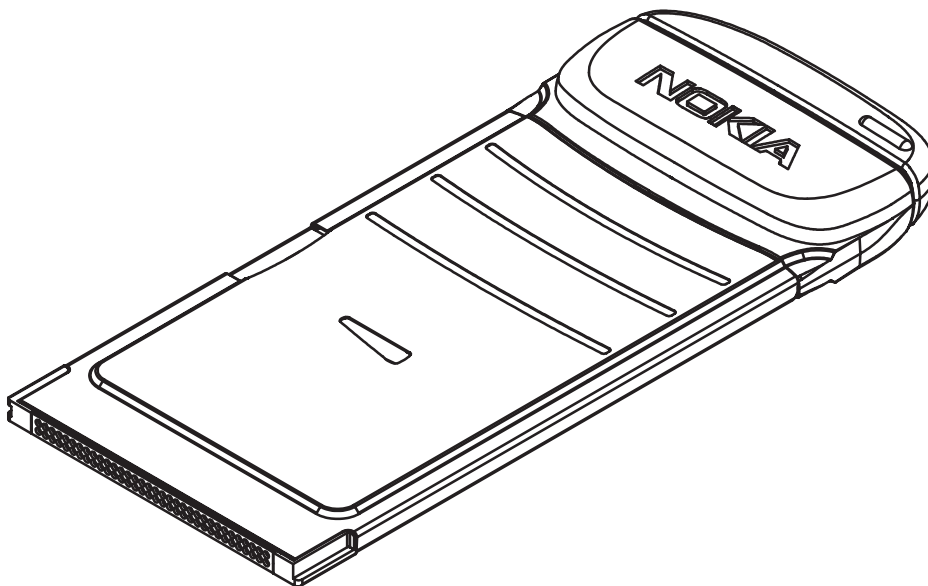
## Product Selection

### Transceiver RPE-1

The Cellular Card Phone RPE-1 is a GSM class 5 compatible cellular phone without a battery or user interface of its own. Instead, the device is computer controlled through the 68-pin PCMCIA connector. This connector is used to:

- 1) supply the card with all operating power it needs,
- 2) transfer operating commands and their responses,
- 3) transfer digitized speech or GSM data and control messages and
- 4) during production or servicing transfer tuning parameters and FLASH download data.

Physically the Cellular Card Phone is compatible with the PC Card '95 standard (and earlier PCMCIA standard) for type II extended cards:



Item/name:	Type:	Product code:
1. Transceiver	RPE-1	0630080

## Product and Module List

Name of module	Type code	Material code	Notes
RF/System module GX8	GX8	0200830	
Mechanics	MRP-1	0261129	
Transceiver card	RPE-1	0630080	
RPE-1 service manual	RPE-1	0275326	
RPE-1 transceiver card	RPE-1	0630080	PCMCIA GSM transceiver card

## NOTICE TO USER

The RPE-1 receiver must be kept in its original protective case when not inserted in a PCMCIA slot. The reason is to protect the connector from contaminants that may affect the functioning of the unit.

## Environmental conditions

Environmental condition	Ambient temperature (degrees Celcius)	Notes
Extreme operation temperature	-20 to +55	GSM specification fulfilled, customer information.
Storage temperature	-40 to +85	

## Technical Specifications

### General Specifications of RPE-1 Series Transceiver

Extremes of allowed operating ambient temperature	$-20^{\circ}\text{C}$ to $+55^{\circ}\text{C}$ (GSM specification)
Extremes of allowed storage ambient temperature	$-40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$
Supply voltage	3.0 V...5,25V
Supply current (max.)	700 mA allowed
Dimensions (h x w x d) (NOKIA 2)	
• transceiver + antenna	124 x 54 x 10 mm
Weight (NOKIA 2)	
• transceiver + antenna	60 g

### Electrical Specifications

#### Transceiver General Features

Parameter	Unit
Cellular system	GSM
RX frequency band	935 ... 960 MHz
TX frequency band	890 ... 915 MHz
Output power	13 ... 29 dBm (20 mW ... 0.8 W)
Duplex spacing	45 MHz
Number of RF channels	124
Channel spacing	200 kHz
Number of TX power levels	9
Sensitivity	-102 dBm, S/N > 8 dB
Frequency error	< +/- 0.1 ppm
RMS phase error	< 5.0 °
peak phase error	< +/- 20 °

## Receiver Branch

Item	Values
RX frequency range	935... 960 MHz
Type	Linear, two IFs
Intermediate frequencies	71 MHz, 13 MHz
3 dB bandwidth	$\pm$ 100 kHz
Reference noise bandwidth	270 kHz
Sensitivity	-102 dBm, S/N > 8 dB, BN=135 kHz
AGC dynamic range	94 dB, typ.
Receiver gain	65 dB (voltage gain)
RF front end gain control range	40 dB
2nd-IF gain control range	57 dB
Input dynamic range	-102 ... -10 dBm
Gain relative accuracy in receiving band	+/- 1.5 dB
Gain relative accuracy on channel	+/- 0.4 dB

## Transmitter Branch

Item	Values
TX frequency range	890 ... 915 MHz
Type	Up conversion
Intermediate frequency	116 MHz
Maximum output power	0.8 W (29 dBm)
Power control range	16 dB
Maximum RMS phase error	5 deg.
Maximum peak phase error	20 deg.

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