

# **Programs After Market Services (PAMS) Technical Documentation**

## **Chapter 2**

### **NHE-6 TECHNICAL INFORMATION**

## CHAPTER 2 – TECHNICAL INFORMATION

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# Introduction

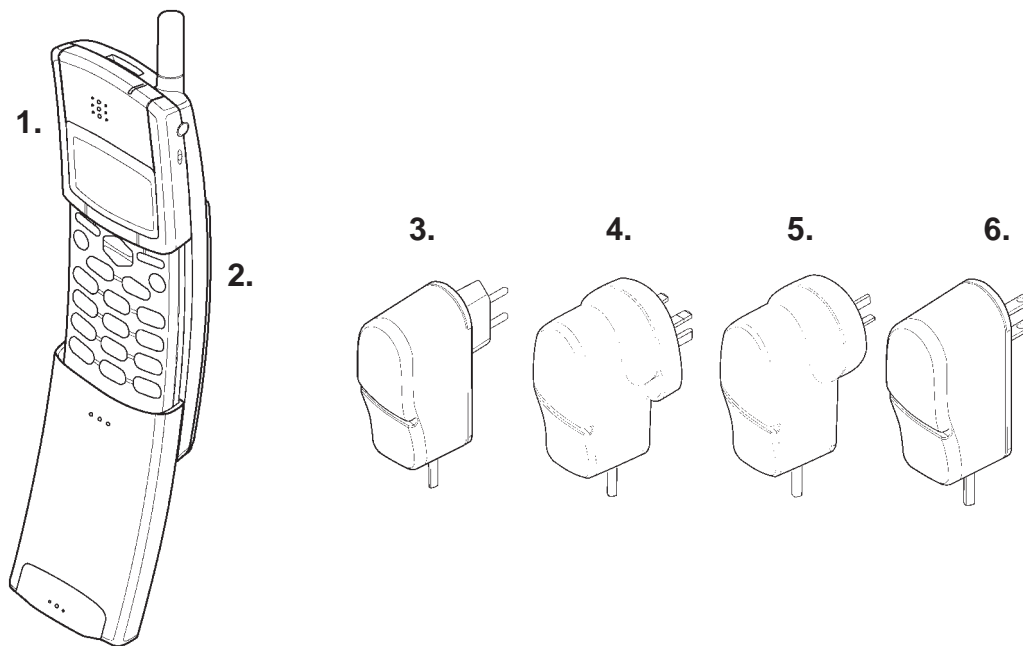
This chapter contains a list of products/modules together with their associated order codes, and details of the performance specifications for the NHE-6 Series Transceiver. The performance specifications are split into general, transmitter and receiver functions.

# Product Selection

## Handportable

The NHE-6 is a handportable cellular phone for the pan-European GSM network. It is a GSM phase 2 power class 4 transceiver providing 15 power levels with a maximum output power of 2 W.

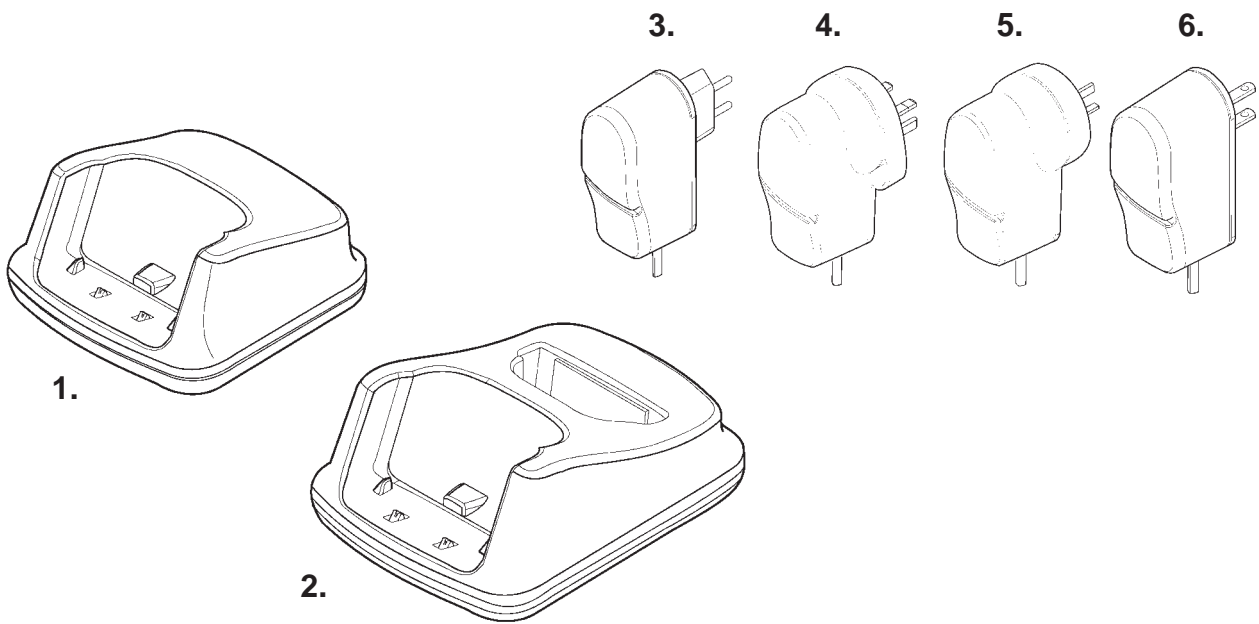
The basic handportable package offers the user a standard battery pack and travel charger for charging from mains. The package contains the following product:



Item/name:	Type:	Product code:
1. Handportable	(see Variant Appendixes)	
2. Standard battery (400 mAh)	BLJ-2	0670129
3. Fast travel charger (Euro plug)	ACH-6E	0675084
4. Fast travel charger (UK plug)	ACH-6X	0675087
5. Fast travel charger (Australia plug)	ACH-6A	0675086
6. Fast travel charger (US plug)	ACH-6U	0675085

## Desktop Option

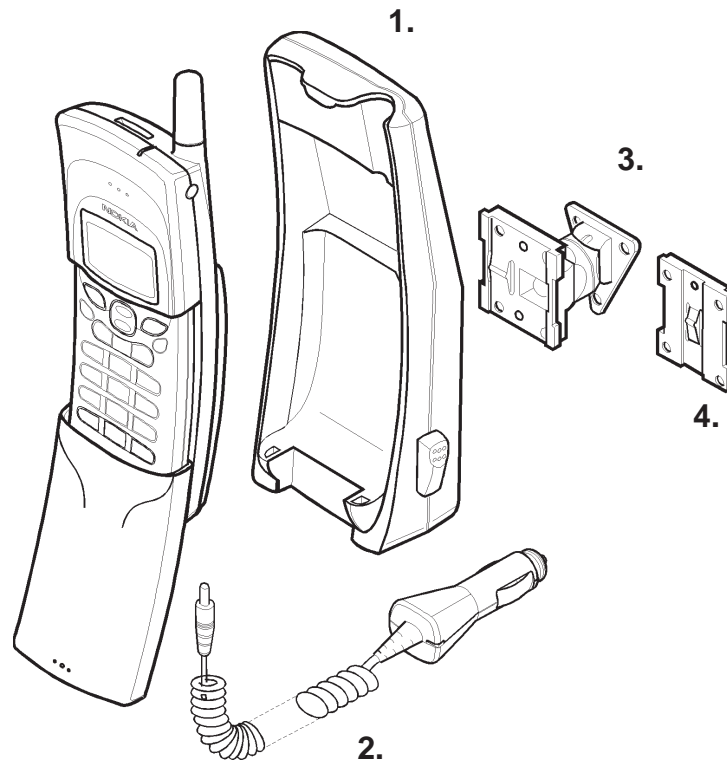
The desktop option allows the user to charge the handportable and spare battery from mains. With this option the user can also discharge the spare battery. The desktop option contains the following product:



Item/name:	Type:	Product code:
1. Light desktop stand	CGH-5	0700036
2. Desktop stand	CGH-6	0675080
3. Fast travel charger (Euro plug)	ACH-6E	0675084
4. Fast travel charger (UK plug)	ACH-6X	0675087
5. Fast travel charger (Australia plug)	ACH-6A	0675086
6. Fast travel charger (US plug)	ACH-6U	0675085

## Basic Car Kit Option

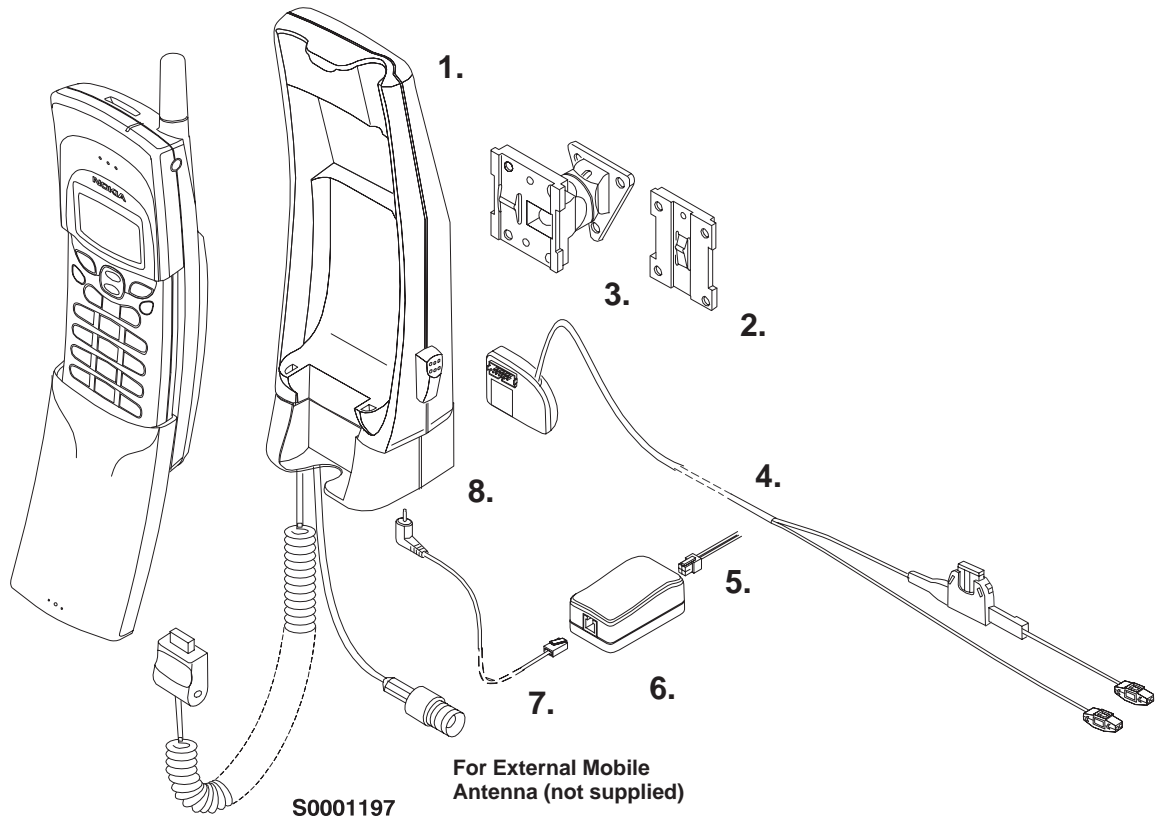
This option (Basic Car Kit) offers a passive cradle and charging functions to the user in the car installation. The light car kit option contains the following product:



Item/name:	Type:	Product code:
1. Mobile holder	MBT-5	0620030
2. Cigarette lighter charger	LCH-6	0675076
3. Swivel plate	HHS-7	0650020
4. Mounting plate	MKE-7	0650007

## Extended Car Kit Option

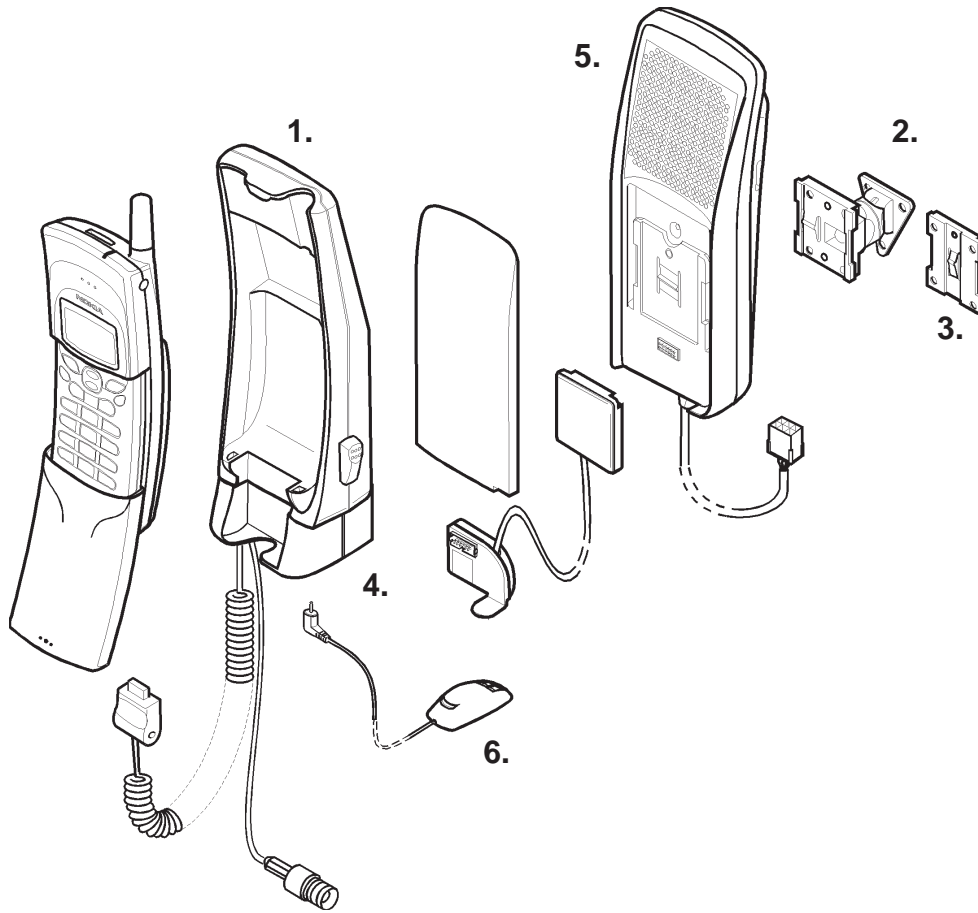
This option (Extended Car Kit) offers a passive cradle and charging functions to the user in the car installation. The light car kit option contains the following product:



Item/name:	Type:	Product code:
1. Phone holder	MBT-5	0620030
2. Mounting plate	MKE-7	0650007
3. Swivel mounting plate	HHS-7	0650020
4. Light guide cable	XLC-1	0730062
5. Output power cable	PCM-5	0730058
6. Fixed mobile charger	LCM-1	0675077
7. Power cable	PCC-2	0730076
8. External antenna unit	AAH-1D	0750077

## Complete Car Kit Option

This option (Complete Car Kit) contains the same functions as the light car kit option and also offers full handsfree and external antenna functions. The use of the product can be extended for car use with the following accessories:



Item/name:	Type:	Product code:
1. Mobile holder	MBT-5	0620030
2. Swivel mounting plate	HHS-7	0650020
3. Mounting plate	MKE-7	0650007
4. External antenna unit	AAH-1	0750076
5. Handsfree unit	PHF-3	0694030
6. Handsfree microphone	HFM-7	0690012

## Product and Module List

Unit/type:	Product code:	Module code:
Transceiver NHE-6	See variant Appendixes	
Standard Battery BLJ-2 (400 mAh)	0670129	
Extended Battery BLJ-5 (900 mAh)	0670127	
Fast Travel Charger ACH-6X (UK)	0675087	
Fast Travel Charger ACH-6E (EUR)	0675084	
Fast Travel Charger ACH-6A (AUS)	0675086	
Fast Travel Charger ACH-6U (US)	0675085	
Universal Mobile Charger LCH-6	0675076	
Light Desktop Stand CGH-5	0700036	
Desktop Stand CGH-6	0675080	
Mobile Holder MBT-5	0620030	
External Antenna Unit AAH-1	0750076	
Handsfree Unit PHF-3	0694030	
• HF/charger module DC9		0200656
• mechanics MPHF3		0260681
Handsfree Unit with Voice Recognition PHF-4	0694031	
External Antenna Unit for Data AAH-1D	0750077	
Power Cable PCH-4J	0730055	
HF Microphone HFM-7	0690012	
HF Speaker HFS-9	0692007	
Mounting Plate MKE-7	0650007	
Swivel Plate HHS-6	0650019	
Headset HDC-3	0694041	
Headset Adapter HDA-4	0694042	
Headset HDC-2	0694017	
PCMCIA Card DTP-2C		
Data Cable DLH-5	0730059	
Data Cable DAU-4F	0730056	
I.R.Link Module JLP-1	0750079	
I.R.Connector JLC-1	0750078	



## Technical Specifications

### General Specifications of NHE-6 Series Transceiver

Temperature range (Nominal)	<i>+5° C to +40° C</i>
Temperature range (Extreme conditions) –specifications fulfilled	<i>–10° C to +55° C</i>
Operating time (with BLJ-2)	
• talk time	<i>up to 80 min (DTX OFF, 2W) up to 150 min (0 speech, DTX ON)</i>
• standby time	<i>up to 70 hrs</i>
Battery voltage	<i>7.2 V</i>
Nominal current consumption	
• power off mode m(max):	<i>1.5 mA</i>
• idle mode (SIM clock OFF)	<i>4.6 mA (strong field, no neighbours) 9.1 mA (weak field, 5 weak + 1 strong neighbours) / paging period 9</i>
• call mode, 2W (typ):	<i>224 mA (50% speech ratio, DTX ON)</i>
Dimensions (h x w x d) (NOKIA 2)	
• transceiver + BLJ-2	<i>141 x 48 x 26 mm</i>
Weight (NOKIA 2)	
• transceiver + BLJ-2	<i>151 g</i>
• transceiver + BLJ-5	<i>181 g</i>

## Electrical Specifications

### Transceiver General Features

Cellular system	<i>Global System for Mobile communications (GSM)</i>
Number of RF channels	<i>124</i>
Number of time domain channels	<i>81 RF channel</i>
Duplex spacing	<i>45 MHz</i>
Channel spacing	<i>200 kHz</i>
Modulation type	<i>GMSK</i>

### Receiver Branch

Frequency band	<i>935.2...959.8 MHz</i>
Type	<i>linear, 2 IFs</i>
IF	<i>71 MHz and 13 MHz</i>
3 dB bandwidth	<i>± 100 kHz</i>
Reference noise bandwidth	<i>270 kHz</i>
Sensitivity	<i>-102 dBm RX channel input I/Q S/N ratio &gt; 8 dB</i>
AGC dynamic range	<i>94 dB, typ</i>
Receiver gain	<i>65 dB (voltage gain)</i>
RF front end gain control range	<i>40 dB</i>
2nd IF gain control range	<i>57 dB</i>
Input dynamic range	<i>-102...-10 dBm</i>
Gain relative accuracy in receiving band	<i>± 1.5 dB</i>
Gain relative accuracy on channel	<i>± 0.4 dB</i>

## Transmitter Branch

Frequency band	890.2...914.8 MHz
Type	Upconversion
Intermediate frequency	116 MHz
Gain control range	28 dB
Power class	4
Output power	5–33 dBm/3 mW...2 W
Power levels	15 (5...19)
Power level step size	2 dB $\pm$ 1.5 dB
Tolerance at 2 W power	$< \pm 2$ dB (ext. temp. $\pm 2.5$ dB)
Tolerance at other levels (6–15)*	$\pm 3$ dB (ext. temp. $\pm 4$ dB)
Frequency error	$\pm 0.1$ ppm
RMS phase error	$< 5^\circ$
Peak phase error	$< 20^\circ$

\* Tolerance of levels 16–19  $\pm 5$  dB (ext. temp.  $\pm 6$  dB)

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