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narda®
Safety Test Solutions
an **L3** Technologies Company

PERSONAL MONITOR

Nardalert S3

Conforms to
EMF Directive
2013/35/EU

Non-Ionizing Radiation Monitor

Warning of hazardous radiation from broadcast transmitters, mobile phone base stations and radar systems

⚠ **Wide frequency monitoring up to 100 GHz**   `5G`

⚠ **Field Replaceable Sensor Modules**

⚠ **Full Color LCD Display**

⚠ **Multi-Color Alarm LED's**

⚠ **USB Interface for Data and Charging**

⚠ **Immunity at 50/60 Hz up to 100 kV/m**

⚠ **Interchangeable Lanyard or Belt Clips**

⚠ **Comprehensive Software Included**

⚠ **Standard and Optioned Models**

⚠ **Fiber Optic Port for Remote Monitoring**

⚠ **Fail-Safe Design**

DESCRIPTION

The personal monitor Nardalert S3 provides warnings wherever people can be in danger from strong electromagnetic fields, in particular in areas like telecommunications, broadcasting, industry, military and air traffic control. The device is worn on the body and warns its user in good time before the permitted limit values are exceeded. The unique sensor technology in the Nardalert S3 is packaged in a field replaceable housing containing all the electronic data necessary to maintain calibrated operation. This new feature allows your S3 to stay in service without costly logistics to keep multiple units calibrated – a major advantage for any Non-Ionizing Radiation (NIR) Safety Program. Your Nardalert S3 will always be capable of supporting new standards or guidance's, allowing future expandability and extending longevity.

LCD DISPLAY

Alarm events are always evident with visual LED's combined with vibration and audible notifications. However, to provide the user more accurate information than just simple alarms we've incorporated a top mounted LCD. The LCD simplifies operation, showing key data at start-up such as battery state and sensor information that the operator needs. With RF/ microwave sensors attached, the display indicates to the user the bands (<> 1 GHz) that are being detected. Optioned units use the display to provide even more information such as exposure history, logged data, alarm indications and more.

HOUSING

We packaged everything in a rugged plastic housing that allows you to use it mounted in a common shirt pocket or secure it with the supplied lanyard or belt-clip mounts. We supply a strong silicon rubber skin that provides additional shock protection as a standard accessory.
The Nardalert S3 operates from a single standard Type RCR123A battery. This battery is automatically recharged whenever it is plugged into a computer and we supply a universal charger to accelerate charging from any common AC source or mains plug. The included automotive USB adapter can also be used for charging, so your monitor is always ready to work.
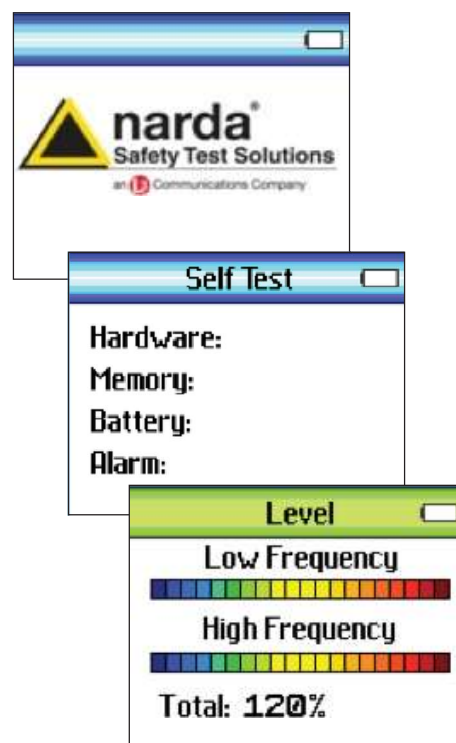
The Nardalert S3 is packaged in a rugged plastic housing and is available with a strong silicon rubber skin for additional shock protection

SENSORS

The available sensors cover the most common international exposure limits. We offer sensors to follow the RF/microwave frequency limits promoted by the US FCC, IEEE (C95.1), Canada's Safety Code 6 and ICNIRP. Many users around the world will find that one of these limits meets their local requirements for RF and microwave exposures.

STANDARD AND OPTIONED MODELS

The Nardalert S3 can be supplied in one of two different capabilities. Standard units provide all of the basic performance necessary for normal operations. Alarm levels are factory set at 50% and 200% of reference levels and basic screens provide all the information the user needs. Advanced users and applications should consider the additional capabilities of the NS3 Option Key. By entering a software code through the user software you can expand the operation of your Nardalert to store, display and download exposure data, alter alarm modes and levels, display historical data on the Nardalert S3's display and reconfigure the interface for fiber optic connections.

SOFTWARE

The Nardalert S3 software (NS3-TS) is supplied standard with every unit. Readings can be downloaded and displayed numerically (Figure 1) or graphically (Figure 2) by simply installing the software and plugging in the supplied USB cable.

Users can download stored data into a database that is stored in the software for future recall. The six major software controls are:

1. *File* – Allows file manipulation. Storing, sorting and exporting
2. *Database* – Database management of files stored on computer (Figures 1 and 2)
3. *Device Memory* – Data management of readings stored on Nardalert (Figure 3)
4. *Measurement* – Displays real-time measurements on computer (Figure 4)
5. *Configuration* – Configures Nardalert S3 for use. Set alarm thresholds, logging rate, backlight time, etc.
6. *Extras* – sets unit up for regional preferences, installs options, general settings

This software builds on the well-known NBM-TS software used by our customers with the NBM-500 broadband instrument family. Maintaining a common user interface allows new users to quickly get up to full speed and explore all of the units's functions.

MODEL SELECTION GUIDE

STANDARD / GUIDANCE	Nardalert S3 with Sensor	Sensor alone *
ACGIH	2271/111	2271/11
ARPANSA RP3	2271/131	2271/31
NATO STANAG 2345	2271/111	2271/11
Canada Safety Code 6 (2015)	2271/122	2271/22
EMF Directive 2013/35/EU	2271/131	2271/31
FCC	2271/101	2271/01
ICNIRP 1998	2271/131	2271/31
IEEE C95.1	2271/111	2271/11
Japan RCR-38	2271/101	2271/01

Requires Nardalert S3 Mainframe P/N 2270/01 to form operable set

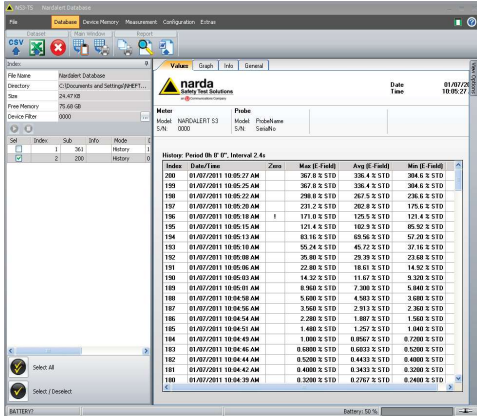
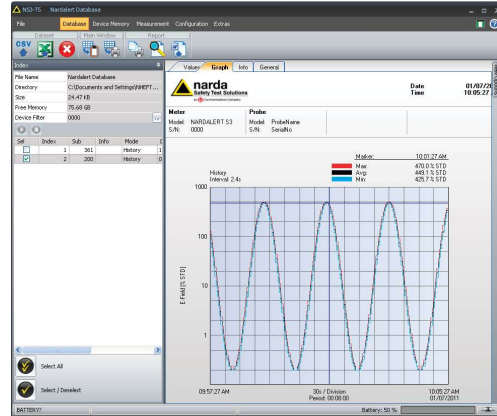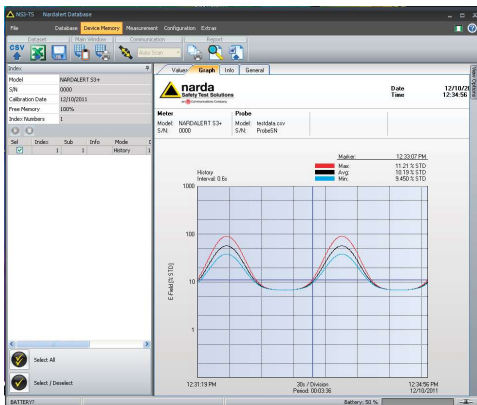*Nardalert S3 Mainframe shown with interchangeable sensor*
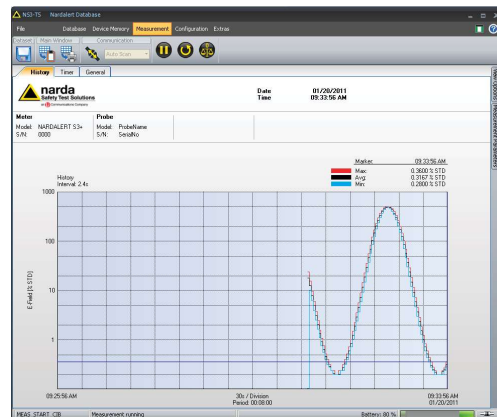
Figure 1

Figure 2

Figure 3

Figure 4

Instruction Manual and NS3-TS Software

Carrying Case

Nardalert S3 connected to laptop computer

Optional Weatherproof Pouch P/N 2270/92.01

Nardalert S3 with silicon rubber skin

SPECIFICATIONS [a]

Personal Monitor		2271/101 FCC	2271/111 IEEE	2271/122 SC6	2271/131 ICNIRP
Frequency Range		100 kHz to 100 GHz	3 MHz to 100 GHz	100 kHz to 100 GHz	100 kHz to 100 GHz
Field Measured		Electric Field, V^2/m^2			
Sensor Design		Radial field, Diode-Dipole and Thermocouple Array			
Alarm Accuracy [b] (Frequency Sensitivity and Polarization Uncertainty)		+4.5 / -3.0 dB (100 kHz to 30 GHz) +2.5 / -6.0 dB (30 to 50 GHz) +2.5 / -6.0 dB (50 to 100 GHz, Typical)			
Monitor Range [c]		5% to 200% of Standard or Guidance			
Immunity at 50/60 Hz		100 kV/m			
Alarm Thresholds		Standard is two alarms. May be programmed through NS3-TS for one alarm			
	Alarm 1, Default Setting Range of Adjustment	50% of Standard or Guidance 10% to 100% (in 5% increments) and OFF			
	Alarm 2, Default Setting Range of Adjustment	200% of Standard or Guidance 20% to 200% (in 5% increments)			
Alarm Indications		Visual (LCD and LED) with Audible and/or Vibrate			
CW Overload		3000% of Standard or Guidance			
Peak Overload		32 dB above Standard or Guidance			
Display	Type	TFT color LCD, transmissive			
	Size	1.77 inches, 28 x 35 mm, 128 x 160 pixels			
	Backlight	White LED's			
	Refresh-Rate	250 msec.			
	Displayed Items on LCD	All units display Model Information, Self Test Results, Calibration Date and real-time readings during operation			
NS3 Option Key (P/N 2270/90.01)		Allows access to stored data from NS3-TS and/or LCD screen. Additional items made available include Alarm Mode, Alarm Set, Backlight, Data Log, Fiber Optic Interface, and History			
Memory [d]	Size	62,000 events			
	Storage Rate	4 per second, 1 per 1, 5, 10, 20 or 60 seconds			
	Storage Time	Variable - from 4.3 hours (4 per second), to 43 days (1 per 60 seconds)			
Remote Operation	Interface	USB or Optical RS-232			
	USB	Serial, Full Duplex, 57600 baud (virtual com port), USB 2.0 mini B jack			
	Optical	Serial, Full Duplex, 57600 baud, no parity, 1 start bit, 1 stop bit. Optical connector type RP-02.			
Accessories Included		Carrying Case, AC Charger with Plugs, Car Charger Adapter, Charger/Data cable (USB 2.0), Belt Clip, Lanyard Clip, Screwdriver, Manual, NS3-TS Software, Calibration Certificate			

GENERAL SPECIFICATIONS					
Recommended calibration interval		4 Years for Mainframe (P/N 2270/01) and 2 Years for Sensors (2271/XX)			
Battery Type/ Approximate Life		RCR123A, Li-Ion (rechargeable via USB port) / 25 hours			
Temperature Range	Operating	-10 °C to +50 °C (14 °F to 122 °F)			
	Non-operating	-30 °C to +70 °C (-22 °F to 158 °F)			
Humidity		5% to 95%, non-condensing (≤ 29 g/m³, IEC 60721-3-2 class 7K2)			
Dimensions (H x W x D)		117 mm x 83 mm x 32 mm (4.6 in x 3.25 in x 1.25 in), mainframe with sensor			
Weight		230 g (0.5 lb), mainframe with sensor			
Country of origin		Germany			

Notes:
a Specifications are given for the unit mounted on the human body facing the emitter.
b Accuracy specified as the mean of the radial and vertical orientations (10 to 1600 MHz) and mean of the vertical and horizontal orientations (1600 MHz to 50 GHz).
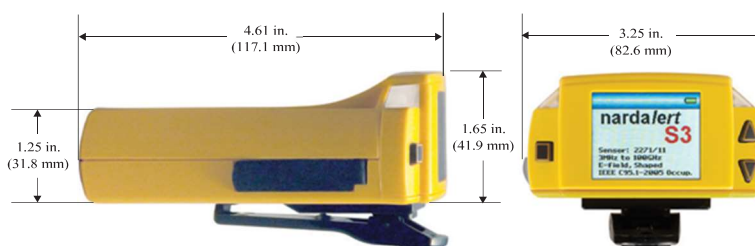c Percentages related to the highest power density allowed by Standard or Guidance (Controlled, Occupational).
d Memory function only available to "Optioned" units.

ORDERING INFORMATION

Description	Part Number
Nardalert S3 - Personal Monitor Sets	
NARDALERT S3 MONITOR SET INCLUDES:	
Nardalert S3 Mainframe (2270/01)	
Carrying Case (2270/90.02)	
Silicon Sleeve (2270/90.03), attached to the mainframe	
Lanyard Clip, non-conductive (2270/90.04)	
Belt Clip, non-conductive (2270/90.05)	
Screwdriver Phillips 0 (2270/90.06)	
User's Guide and CD-ROM with Software NS3-TS (2270/90.07)	
Car Charger Adapter, USB 5V (2259/92.20)	
Power Supply, USB 5VDC, 100V-240VAC (2259/92.24)	
Battery, rechargeable (2259/92.25)	
Cable, USB2.0 Master/Slave - A/B mini, 0.9m (2260/90.58)	
Calibration Certificate	
AND YOUR CHOICE of SENSOR MODULE:	
with **FCC** Sensor Module	**2271/101**
with **IEEE** Sensor Module	**2271/111**
with **SC6** Sensor Module	**2271/122**
with **ICNIRP** Sensor Module	**2271/131**
Nardalert S3 Optioned Model (enables Data Logging, Histogram and Alarm Varying)	
Option Key, Nardalert S3	**2270/90.01**
Individual Sensor Modules (without Nardalert S3 Mainframe)	
Sensor Module, FCC 1997 "Occupational/ Controlled"	**2271/01**
Sensor Module, IEEE C95.1-2005, "Controlled"	**2271/11**
Sensor Module, Safety Code 6, "Controlled"	**2271/22**
Sensor Module, ICNIRP 1998, "Occupational"	**2271/31**
Optional Accessories	
Nardalert Weatherproof Pouch	**2270/92.01**
Cable, FO Duplex, RP-02, 2m	**2260/91.02**
Cable, FO Duplex, RP-02, 10m	**2260/91.07**
Cable, FO Duplex, RP-02, 20m	**2260/91.03**
Cable, FO Duplex, RP-02, 50m	**2260/91.04**
Cable, FO Duplex, F-SMA to RP-02, 0.3m	**2260/91.01**
O/E Converter RS232, RP-02/DB9	**2260/90.06**
O/E Converter USB, RP-02/USB	**2260/90.07**
Cable, Adapter, USB2.0 - RS232, 0.8m	**2260/90.53**