Telemeter Electronic

narda
Safety Test Solutions

IDA 2

Detect, Analyze and Locate RF Signals

The IDA 2 is a light and portable field proven signal analyzer for detecting, analyzing and localizing RF signals and interference in the frequency range from 9 kHz to 6 GHz. IDA 2 combines a frequency scanner/receiver, transmitter detector, spectrum analyzer, signal analyzer and triangulation software in a single mobile device. It provides GPS, precision directional antennas as well as an antenna handle with built-in electronic compass, and switchable preamplifier.

- Extremely fast with a sweep rate of 12 GHz/s
- Impressively sensitive with a noise figure of 7 dB
- One of the lightest in its class with a weight of less than 3 kg
- Long operating times by hot-swappable batteries
- Embedded GPS receiver and electronic compass for easy emitter localization
- Convenient interference search with smartDF®: Automatic localization by triangulation of the bearings with result displayed on a map (optional)
- I/Q Analyzer with real-time trigger, spectrograms with time resolution down to 1 µs and digital afterglow effect (Persistence Spectrum)

smartDF®

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Several applications – one device

Portable device with GPS receiver

Description
IDA 2 combines excellent RF signal selectivity with fast monitor capabilities and integrated tools such as electronic 3-axis compass, GPS and map display for determining the location of RF sources.

The main tasks of the IDA 2 are the detection, analysis and localization of RF signals. Outstanding features are the Horizontal Scan with automatic azimuth determination and smartDF® for the calculation of the emitter position. The robust, ergonomic design is protected against mechanical stress, weather effects and high-power RF irradiation. The available operating modes include:

- Direction Finding
- Level Meter
- Multi-Channel Power
- Time Domain (Scope)
- I/Q Analyzer

Applications
The risk of RF interference due to unintentional emissions and interactions has greatly increased with the growth in the use of wireless technologies.

Some example applications of IDA 2:

- Eliminating faults in mobile telecommunications equipment
- Tracing interference caused by industrial plants
- Securing communication at large events
- Locating interference transmitters / jammers
- Monitoring radio frequencies and frequency bands
- Detecting signals in security operations
- Localizing bug transmitters (TSCM)
- Signal monitoring for border protection
- Localizing SOS beacons (SAR)

Definitions and Conditions

Conditions
Unless otherwise noted, specifications apply after 30 minutes warm-up time within the specified environmental conditions provided the product is within the recommended calibration cycle.

Specifications with limits
These describe product performance for the given parameter covered by warranty. Specifications with limits (shown as <, ≤, >, ≥, ±, max., min.) apply under the given conditions for the product and are tested during production, taking measurement uncertainty into account.

Specifications without limits
These describe product performance for the given parameter covered by warranty. Specifications without limits represent values with negligible deviations which are ensured by design (e.g. dimensions or resolution of a setting parameter).

Typical values (typ.)
These characterize product performance for the given parameter that is not covered by warranty. When stated as a range or as a limit (shown as <, ≤, >, ≥, ±, max., min.), they represent the performance met by approximately 80% of the instruments. Otherwise, they represent the mean value. The measurement uncertainty is not taken into account.

Nominal values (nom.)
These characterize expected product performance for the given parameter that is not covered by warranty. Nominal values are verified during product development but are not tested during production.

Uncertainties
These characterize an interval for a given measure and estimated to have a level of confidence of approximately 95 percent. Uncertainty is stated as the standard uncertainty multiplied by the coverage factor k=2 based on the normal distribution. The evaluation has been carried out in accordance with the rules of the "Guide for the Expression of Uncertainty in Measurement" (GUM).

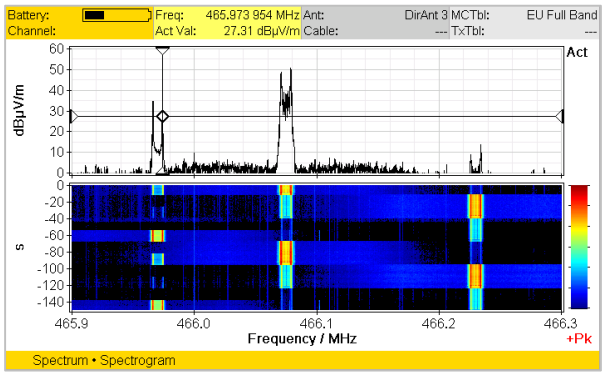
Operating Modes

An extensive set of equipment comprising frequency scanner/receiver, transmitter detector, spectrum analyzer, signal analyzer, directional antennas, amplifier, compass, triangulation software and maps was usually necessary in order to reliably detect, analyze and localize RF signals and interference. IDA 2 combines all these functions in one portable device.

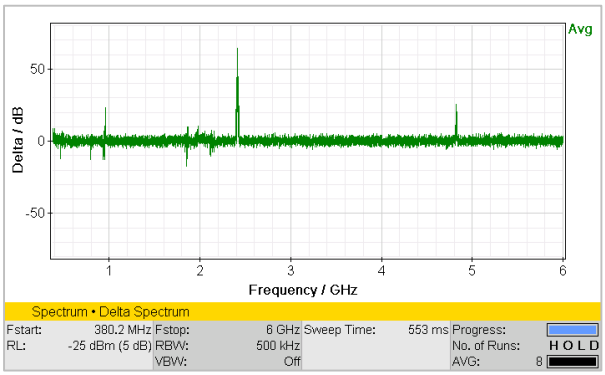
Operating Modes		
Operating modes	Measurements vs. frequency	Spectrum (including Spectrogram) Multi-Channel Power [Option] I/Q Analyzer [Option]
	Measurements vs. time	Level Meter [Option] Time Domain (Scope) [Option] I/Q Analyzer [Option]
	Measurement vs. orientation/position	Direction Finding [Option] including Horizontal Scan and Localization

Become aware of present signals

Spectrum		
Measurement principle		High resolution spectrum analysis with up to 27,000 frequency points per spectrum
Resolution bandwidth RBW, (-3 dB nominal)		10 Hz to 20 MHz (1-2-3-5 steps)
Video bandwidth VBW and RMS detection		0.2 Hz to 2 MHz (1-2-3-5 steps) or off Coupled with selected RBW (VBW = RBW/10 … RBW/1,000)RMS detection time: T ≈ 0.32 / VBW
Filter	Type	Gaussian
	Shape factor (-60 dB/ -3 dB)	3.8 typical
Measurement		Spectrum: Graphical analysis, peak table, channel power Delta Spectrum: Display of selected traces relative to reference trace (Ref) Spectrogram: Visual representation of recorded spectra Spectrogram & Spectrum: Visual representation of recorded spectra with simultaneous view of the actual trace
Trace (Spectrum)		Act: Clears previous spectrum, displays actual spectrum Max: Maximum hold function Avg: RMS averaging over selectable number of spectra (4 to 256) or selectable time period (1 to 30 min) Min: Minimum hold function Ref: User-definable reference trace (any measurement trace can be stored)
Detector (Spectrogram)		+Peak: Maximum value within an interval RMS: Root mean square average power within an interval -Peak: Minimum value within an interval All three detectors are used simultaneously for spectrogram recording
Spectrogram recording		Frequency resolution: ≥ Fspan / 860 Up to 400 traces Observation period: approx. 4 s up to 40 hours Time resolution: as fast as possible, 10 ms to 5 min (1-2-5 steps) or 6 min
Magnifier		Selected spectrum + magnified section of interest (10x or 50x)



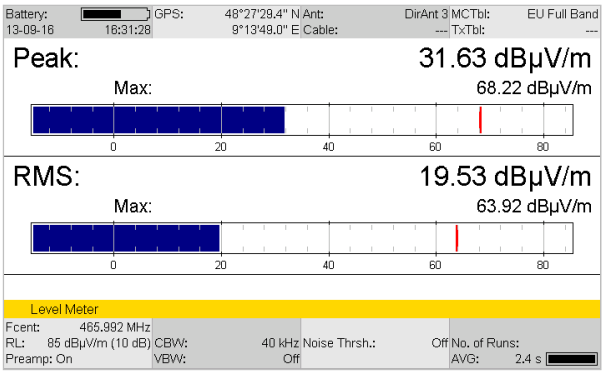
Spectrum and Spectrogram view for transient detection



Spectrum → Delta Spectrum: Measurement Trace (e.g.AVG) vs. Reference Trace. Example shows an ISM band transmitter

Observe a specific channel

Level [Option]		
Measurement principle		Selective level measurement (zero span mode at a tunable fixed frequency)
Detector		Peak (hold time = 120 ms)
		RMS (120 ms up to 30 min)
		Peak & RMS simultaneously
Channel bandwidth CBW (-6 dB)		100 Hz to 32 MHz (in steps of 100, 125, 160, 200, 250, 320, 400, 500, 640, 800, 1000 Hz, …, 10 MHz, 13.33 MHz, 16 MHz, 20 MHz, 26.67 MHz, 32 MHz)
Filter	Type	Steep cut-off channel filter (app. raised cosine)
	Roll-off factor	0.16
Video bandwidth (VBW)		0.01 Hz to 32 MHz or off Coupled with selected CBW (VBW = CBW/1 … CBW/10,000)
Max Hold		Available for peak and RMS detectors
Noise threshold		Selectable at 0, 3, 6, 10, 15, or 20 dB relative to device noise floor. Measurement values below threshold are shown as “< absolute threshold value”.

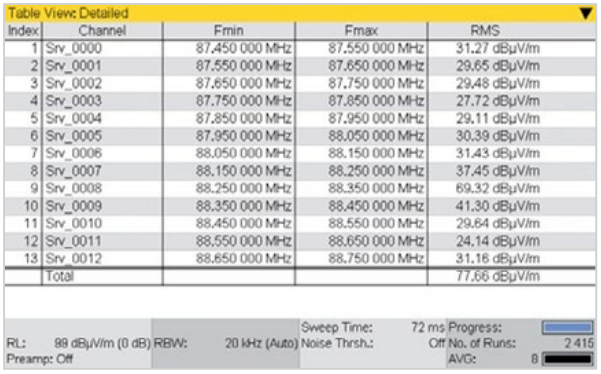


Level Meter for gapless signal measurements

Observe up to 500 channels

Multi-Channel Power [Option]		
Measurement principle		Spectrum analysis, followed by channel power evaluation
Number of channels		1 to 500
Channel bandwidth CBW, (-3 dB nominal)		Individually selectable for each channel, from 40 Hz to 6 GHz
Roll-off factor		< 4 * RBW / CBW
Applied RBW		Automatic: RBW ≤ CBW / 4 (RBW ≤ 20 MHz) Manually: 10 Hz to 20 MHz (1-2-3-5 steps), (RBW ≤ CBW / 4) Individual: separately defined for each channel using IDA Tools
Channel lists		Automatic creation on the unit or by PC configuration software. Channel name can be assigned automatically or by PC (15 characters max.). “Others” summarizes results of all frequency gaps within the list of channels.
Detection		Root mean square value (RMS), integration time T = 1 / RBW
Trace, RBW		See spectrum analysis mode
Display/Views	Table	Channel name, corresponding frequency band, measurement result, RBW if set individually for each channel. Sort function according to columns. Selectable evaluation function: distribution of each channel in relation to total amount
	Bar Graph	For measurement result of each channel
Noise threshold		Selectable at 0, 3, 6, 10, 15, or 20 dB relative to device noise floor. Measurement values below threshold are shown as “< absolute threshold value”.

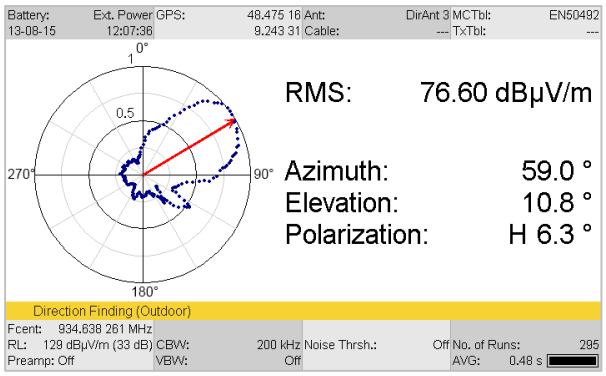
Multi-Channel Power for an overview of who is on air



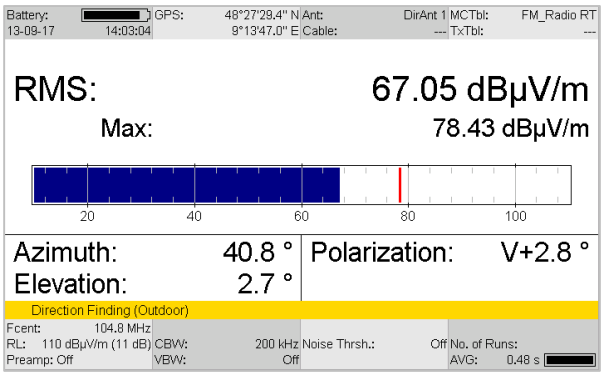
Multi-Channel Power provides 1 to 500 channels also as table view

Smart tools for transmitter and interference hunting

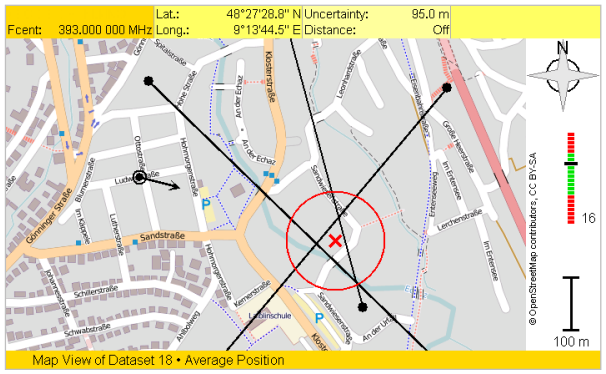
Direction Finding – requires Narda Active Antenna Handle [Option]		
Measurement principle		Selective level measurement (zero span mode at a tunable fixed frequency) **Possible parameters and settings as specified under "Level Meter"**
Antenna direction indication		Numerical display of azimuth, elevation and polarization
Position indication	Outdoor	Latitude and longitude (GPS WGS84) + graphical indication (optional)
	Indoor	Set manually on an editable rectangular room layout
Detector		Peak or RMS detection RMS averaging time: selectable, 120 ms to 30 min
Display modes	Manual Bearing	Bar graph + numerical display of the signal level and indication of the direction
	Horizontal Scan	Polar diagram of signal level vs. antenna orientation. Automatic direction indication
	smartDF® Localization	Graphical indication of triangulation results for all measurement positions. Possible with Manual Bearing or Horizontal Scan. Display of estimated emitter coordinates with Mapping Option.
Horizontal Scan	Continuous	Updated every 120 ms with current signal level and compass data. Key press for Start and Stop. 4 min maximum duration of scan. Automatic calculation of target azimuth.
	Discrete	Key press for updating polar diagram with current signal level and compass data. Minimum of 3 samples. Maximum 2,000 samples. Useful for longer averaging times.
	Discrete with Max Hold	Pushbutton for updating polar diagram with Max Hold signal level and compass data. Allows determination of the direction of even intermittent signals.
smartDF® Localization		Shows vector of target azimuth related to measurement position. Calculates triangulation results and displays geo coordinates of potential transmitter position.
Transmitter Table		Simplifies frequency settings and speeds up finding multiple transmitting sources at different frequencies. Tables can be created on-site and include Fcent and CBW.
Maps (Option)		Display of high-resolution street maps in various zoom levels. OpenStreetMap bitmap tiles can be downloaded from Internet free of charge using the Narda Map Download Tool. Map data are stored on microSD card and then plugged into the IDA card slot for portable use.



Horizontal scan is a quick direction finding tool



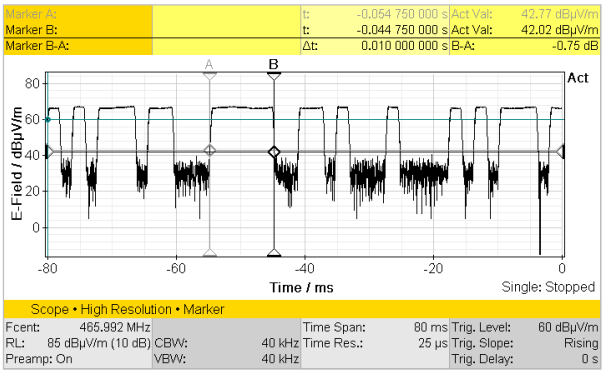
Direction finding using Manual Bearing



Optional maps support easier localization of an emitter

Get signal characteristics in time domain

Time Domain (Scope) [Option]		
Measurement principle		Selective level measurement vs. time (zero span mode at a tunable fixed frequency)
Channel bandwidth CBW, (-6 dB nominal)		100 Hz to 32 MHz (in steps of 100, 125, 160, 200, 250, 320, 400, 500, 640, 800, 1000 Hz,…,10 MHz, 13.33 MHz, 16 MHz, 20 MHz, 26.67 MHz, 32 MHz)
Filter	Type	Steep cut-off channel filter (app. raised cosine)
	Roll-off factor	0.16
Video bandwidth (VBW)		0.01 Hz to 32 MHz or off Coupled with selected CBW (VBW = CBW/1 … CBW/10,000)
Measurement	High Resolution Scope	Measures the actual magnitude Time resolution coupled to 1/CBW (31.25 ns to 10 ms), up to 250,000 samples
	Long-Time Scope	Uses selectable detectors. Sweep time 4 µs to 24 h (resolution ≥ 250 ns), up to 62,500 samples
Detector		+Peak, RMS, -Peak can be selected individually for Long-Time Scope
Magnifier		Selected period + magnified section of interest (long-time: 10x or 50x, high resolution: 25x or 500x)
Duty Cycle / Time Domain Power		Measurement function for average power, maximum power and ratio of both
Triggering (VBW taken into account)		Free-run, single, multiple, time-controlled. Programmable trigger level, trigger slope and trigger delay. Auto Save.



Scope view for detailed analysis versus time

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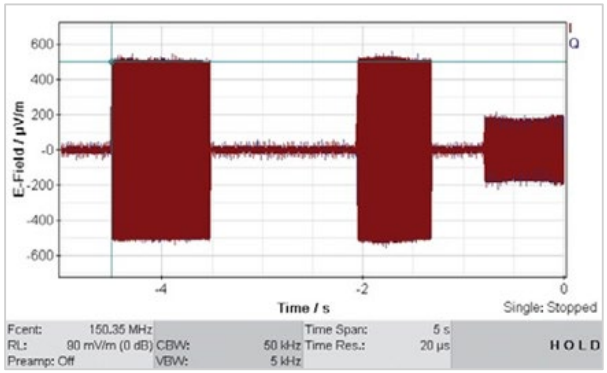
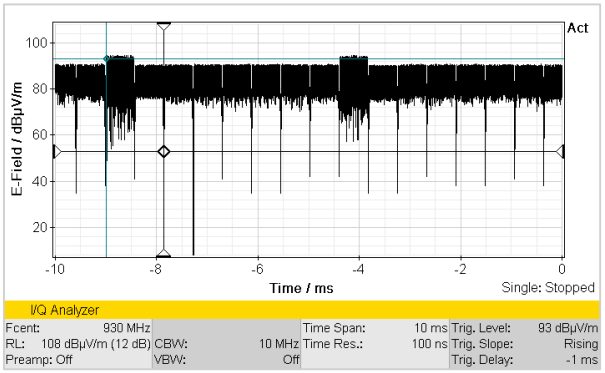
Discover hidden signals and signal details

I/Q Analyzer [Option]		
Measurement principle		The real (in-phase) and / or imaginary (quadrature phase) parts of the signal (up to 250,000 measured values each) are recorded and then evaluated. The tuning frequency and channel bandwidth are user adjustable.
Fast Fourier Transformation (FFT)		FFT points selectable: 256, 512, 1024, 2048 FFT overlapping selectable: 50%, 75%, 87.5% FFT windowing: Nuttall filter
Channel bandwidth CBW, (-6 dB nominal)		100 Hz to 32 MHz (in steps of 100, 125, 160, 200, 250, 320, 400, 500, 640, 800, 1000 Hz,…,10 MHz, 13.33 MHz, 16 MHz, 20 MHz, 26.67 MHz, 32 MHz)
Filter	Type	Steep cut-off channel filter (app. raised cosine)
	Roll-off factor	0.16
Video bandwidth (VBW)		0.01 Hz to 32 MHz or off Coupled with selected CBW (VBW = CBW/1 … CBW/10,000) Can be set to smooth the signal for triggering.
Views	I/Q*	Displays the captured raw data as I (in-phase demodulated signal) and Q (quadrature demodulated signal) components vs. time for determining modulation type and interference. Time resolution coupled to 1/CBW (31.25 ns to 10 ms), up to 250,000 samples
	Magnitude*	Displays signal power vs. time. The magnitude is also used as a trigger source in the I/Q Analyzer. A video bandwidth VBW can be set to smooth the signal for triggering. Time resolution coupled to 1/CBW (31.25 ns to 10 ms), up to 250,000 samples
	HiRes Spectrogram Zoom*	Displays signal as a gapless spectrogram with time resolution down to 1 µs. Colors represent the signal level. In Hold mode, you can scroll through the spectrogram, which can consist of up to 7,805 spectra. Fspan = CBW × 0.8 (< 22 MHz)
	HiRes Spectrogram Full*	Compressed time scale provides an overview of the entire measurement. The actual data are not compressed and can be selected with full resolution using the marker and viewed as spectra. Fspan = CBW × 0.8 (< 22 MHz)
	Persistence Spectrum*	Displays spectra as level versus frequency. Color indicates rate of occurrence allowing sporadic to CW signals to be viewed. The persistence range can be set automatically or selected manually. Fspan = CBW × 0.8 (< 22 MHz)
Detector (Spectrogram view)	HiRes Spectrogram Full	+Peak, RMS or -Peak (maximum value, averaged value or minimum value) selectable within compressed time and frequency range. The actual data are not compressed and can be selected with full resolution using the marker and viewed as spectra.
	HiRes Spectrogram Zoom	+Peak, RMS or -Peak (maximum value, averaged value or minimum value) selectable within compressed frequency range. The actual data are not compressed and can be selected with full resolution using the marker and viewed as spectra.
Magnifier		Selected period + magnified section of interest (I/Q: 25x or 500x, magnitude: 25x or 500x).
Trigger (magnitude; VBW taken into account)		Free-run, single, multiple, time-controlled Programmable trigger level, trigger slope, trigger delay. Auto Save on trigger
Probability of intercept – POI		Shortest signal duration for 100% probability of capture within an I/Q recording. HiRes Spectrogram/Persistence: T_{POI} = 9 µs with dT_{FFT} = 1 µs and RBW = 239.43 kHz Magnitude: T_{POI} ≤ 64 ns (@ CBW = 32 MHz)
I/Q Streaming (Option), I/Q Data		Controlled via the Ethernet interface using remote control commands. Gapless streaming possible for CBW settings from 100 Hz up to 400 kHz. Additionally, up to 250,000 I/Q data pairs can be retrieved block by block for all CBW settings.

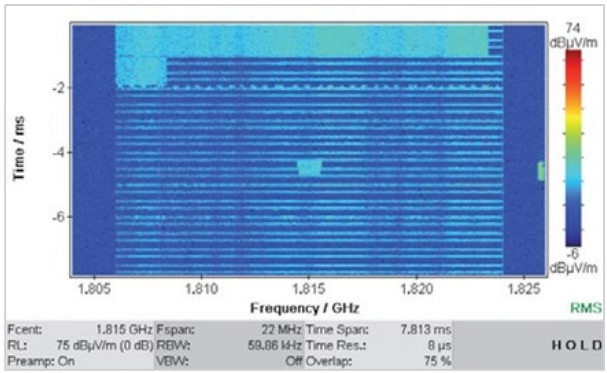
*See screenshot on next page



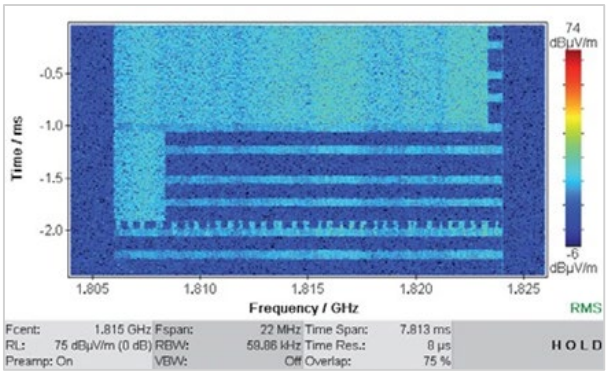
I/Q displays the captured raw data for expert analysis



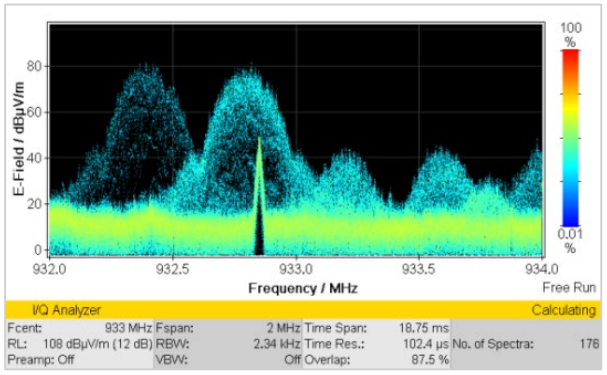
Magnitude view shows signal characteristics in time domain



Gapless signal analysis with HiRes Spectrogram Full



HiRes Spectrogram Zoom displays signals with time resolution down to 1 µs



Persistence Spectrum helps find even the most hidden or elusive emitters

Narda Signal Guide

http://signals.narda-sts.com

Find more examples on our website

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General Specifications

Basic Unit IDA-3106/02 (IDA 2) - RF DATA [a)]

Frequency			
Frequency range	9 kHz to 6 GHz		
Phase noise (SSB)	f_C	df = 10 kHz	df = 100 kHz
	57.5 MHz	≤ -121 dBc/Hz	≤ -126 dBc/Hz
	2.1405 GHz	≤ -92 dBc/Hz	≤ -100 dBc/Hz
	4.5005 GHz	≤ -97 dBc/Hz	≤ -100 dBc/Hz
Reference frequency	Initial deviation: Aging: Thermal drift:	< 1 ppm < 1 ppm/year, < 5 ppm over 15 years < 1.5 ppm (-10°C to +50°C)	

Amplitude			
Display range	From Displayed Average Noise Level (DANL) to +20 dBm		
Reference level (RL)	-30 dBm to +20 dBm in steps of 1 dB		
RF input attenuation	0 to 50 dB in steps of 1 dB (coupled with reference level)		
Reference level setting	Set individually from a list or using the “RL Search” function for determining the optimum reference level at a given time		
Level uncertainty	≤ 1.2 dB (15°C to 30°C) valid for Spectrum Analysis and Multi-Channel Power modes		
Displayed Average Noise Level (DANL) Basic unit only	f ≤ 50 MHz: f ≤ 2 GHz: f ≤ 4 GHz: f ≤ 6 GHz:	< -160 dBm/Hz (noise figure < 14 dB) < -156 dBm/Hz (noise figure < 18 dB) < -155 dBm/Hz (noise figure < 19 dB) < -150 dBm/Hz (noise figure < 24 dB)	RL=-30 dBm (input attenuation = 0 dB)
Displayed Average Noise Level (DANL) with Active Antenna Handle, preamp on (typ.)	f ≤ 3 GHz: f ≤ 4 GHz: f ≤ 6 GHz	< -167 dBm/Hz (noise figure < 7 dB) < -166 dBm/Hz (noise figure < 8 dB) < -164 dBm/Hz (noise figure < 10 dB)	
3rd order intermodulation (IP3)	f ≤ 50 MHz:	< -76 dBc for two single tones with a level of 6 dB below RL, 1 MHz or more apart IP3 ≥ +22 dBm (@ RL = -10 dBm)	
	f > 50 MHz:	< -60 dBc for two single tones with a level of 6 dB below RL, 1 MHz or more apart IP3 ≥ +14 dBm (@ RL = -10 dBm)	
Spurious response (input related)	< -60 dBc or RL -60 dB (whichever is worse) and a carrier offset of 100 kHz or more		
Spurious response (residual)	< -90 dBm (RL=-30 dBm, input attenuation = 0 dB)		

RF input		
Type	N-Connector, 50 Ω, female	
Maximum RF power level	+27 dBm (destruction limit)	
Maximum DC voltage	±50 V	
Return loss	> 12 dB (typ.), f ≤ 4.5 GHz > 10 dB (typ.), f > 4.5 GHz	Reference level RL ≥ -28 dBm (input attenuation ≥ 2 dB)

a) RF data apply in the temperature range of 20°C to 26°C and a relative humidity between 25% and 75%.

General Specifications – Basic Unit			
Instrument display		Type	TFT color display with backlight
		Size, resolution	7 inch (152 mm × 91 mm), 800 × 480 pixels
Interface			USB mini B (USB 2.0)
			Optical RS 232 (115,200 baud)
			Ethernet (100BaseT)
			Headphone 3.5 mm TRS, ≥ 16 ohms (mono), switches off the integrated speaker when connected
			microSD-card interface for maps and export of measurement data, screenshots and WAV
Cables and external devices			Narda RF cables automatically detected (type, frequency response, etc.) other cables and external devices possible.
Antenna detection			Narda Directional Antennas automatically detected (type, polarization, consideration of typical antenna factors, etc.), other antennas possible.
Result units		Anytime	dBm, dBV, dBmV, dBµV
		With antenna	V/m, A/m, W/m², mW/cm², dBV/m, dBmV/m, dBA/m, dBµV/m, dBm, dBV, dBmV, dBµV
Display functions			Y-scale reference: -130 dBm to 40 dBm Y-scale range: 20 dB, 40 dB, 60 dB, 80 dB, 100 dB, 120 dB Y-scale auto: automatic scaling
Marker functions			For graphical analysis of Spectrum, Spectrogram, Time Domain (Scope), I/Q Analyzer, MCP Bar Graph Single marker or Delta marker Peak marker: Highest, next, left, right. Adjustable peak threshold and excursion. Peak tracking (selectable)
Demodulation (Option)		Modulation types	AM, FM, LSB, USB, CW (Spectrum, Level Meter and Direction Finding modes) Demodulation bandwidth 100 Hz to 200 kHz (max. 16 kHz for LSB, USB)
		Audio output	Instrument speaker or external earphone
		Squelch	-120 dB to -40 dB nominal, off
		Audio recording	Format 16 kHz / 16 bit wave file recording (WAV)
Digital audio streaming (Option)			Capability to stream demodulated AM, FM, LSB, USB or CW signals over Ethernet. Demodulation bandwidth 100 Hz to 200 kHz (max. 16 kHz for LSB, USB).
Fast frequency setting			Manual frequency entry or by selection list
Fast mode switch			“Go to: mode” transfers center or marker frequency to selected operating mode
Setups			Up to 200 device configurations
Results Storage		Measurement results	ASCII format for further evaluation and import
		Comments	Voice (WAV file format) or text comments (ASCII)
		Screenshots	File format PNG
		Demodulation records	File format WAV
		Auto Save (on trigger)	Automatic saving of up to 500 results (Time Domain (Scope) and I/Q Analyzer mode only)
		Time Controlled Storing	Long-term monitoring up to 99 hours (Spectrum, Multi-Channel Power, Level Meter mode). Settings for: start date, start time, duration and time interval (6 s to 60 min)
		Memory capacity	128 MB internal memory to store up to 8,000 spectra or up to 4,000 screenshots
GPS / Compass			GPS receiver for position detection (WGS84) and electronic compass

General Specifications – Basic Unit (continued)				
Environmental	MIL-STD-810G, MIL-PRF-28800F Class 2		Temperature	
			Humidity	
			Vibration	
			Functional Shock	
	Altitude – operating		4,600 m or 15,000 ft	
	Temperature – operating		-10°C to +55°C with battery	
			0°C to +40°C with external power supply	
	Humidity		< 29 g/m³ (< 93% RH at +30°C), non-condensing	
Compliance	Climatic		Storage	1K3 (IEC 60721-3) extended to -10°C to +55°C
			Transport	2K4 (IEC 60721-3) restricted -30°C to +70°C due to display
			Operating	7K2 (IEC 60721-3) extended to -10°C to +55°C
	Mechanical		Storage	1M3 (IEC 60721-3)
			Transport	2M3 (IEC 60721-3)
			Operating	7M3 (IEC 60721-3)
	Ingress Protection		IP 52 (with antenna attached and interface protector closed) IP 67 (stored in the hardcase)	
	EMC	European Union	Complies with EMC Directive 2014/30/EU (previously 2004/108/EC) and IEC/EN 61326-1: 2013	
		Immunity	IEC/EN: 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-11 Basic unit tested up to 200 V/m (RF input power limited to permissible values)	
		Emissions	IEC/EN: 61000-3-2, 61000-3-3, IEC/EN 55011 (CISPR 11) Class B	
	Safety		Complies with European Low Voltage Directive 2014/35/EU (previously 2006/95/EC) and IEC/EN 61010-1: 2010	
Weight			2.8 kg / 6.2 lbs (basic unit including battery)	
Dimensions (H × W × D)			213 mm × 297 mm × 77 mm (8.4" × 11.7" × 3.0")	
Power supply	Battery		Lithium-ion rechargeable battery pack, hot-swappable during operation Operating time: 3 hours (nominal) Charging time: 5.5 hours (nominal)	
	External power supply		Input: 9 to 15 VDC Adapter 100–240 VAC / 12 V DC, 2.5 A	
Recommended calibration interval			24 months	
Country of origin			Germany	

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Specifcations of Antennas

General Specifications – Antenna Handle and Antennas				
Environmental	Operating temperature		-10°C to +50°C	
	Humidity		< 29 g/m³ (< 93% RH at +30°C), non-condensing	
Compliance	Climatic		Storage	1K3 (IEC 60721-3) extended to -10°C to +50°C
			Transport	2K4 (IEC 60721-3)
			Operating	7K2 (IEC 60721-3) extended to -10°C to +50°C
	Mechanical		Storage	1M3 (IEC 60721-3)
			Transport	2M3 (IEC 60721-3)
			Operating	7M3 (IEC 60721-3)
	EMC	European Union	Complies with EMC Directive 2014/30/EU and IEC/EN 61326 -1: 2013	
		Immunity	IEC/EN: 61000-4-2, 61000-4-3, 61000-4-4, 61000-4-5, 61000-4-6, 61000-4-11 Complete set tested up to 100 V/m (limited by the max. permissible field for the antennas)	
		Emissions	IEC/EN: 61000-3-2, 61000-3-3, IEC/EN 55011 (CISPR 11) Class B	
	Safety		Complies with European Low Voltage Directive 2014/35/EU and IEC/EN 61010-1:2010	
Dimensions (L × W × H), Weight (size without cable)			Handle: Dir. Antenna 1: Dir. Antenna 2: Dir. Antenna 3: Loop antenna 3100/14:	165 mm × 165 mm × 43 mm (6.5" × 6.5" × 1.7"), 470 g / 1.04 lbs 325 mm × 255 mm × 80 mm (12.8" × 10.0" × 3.1"), 400 g / 0.88 lbs 285 mm × 410 mm × 43 mm (11.2" × 16.1" × 1.7"), 300 g / 0.66 lbs 478 mm × 332 mm × 50 mm (18.8" × 13.1" × 2.0"), 350 g / 0.77 lbs 430 mm × 370 mm × 42 mm (16.9" × 14.6" × 1.7"), 380 g / 0.84 lbs
Country of origin			Germany	
Automatic frequency response correction			Typical antenna factor correction is applied automatically when used in conjunction with the IDA basic unit and Narda Active Antenna Handle	

Active Antenna Handle (3100/10) - with Electronic Compass and Preamplifier	
	
Frequency range [a]	9 kHz to 6 GHz Automatic frequency response correction
Preamplifier	Built in, can be switched off Amplification 20 dB, noise figure < 6 dB
Compass	Embedded electronic compass
Compass uncertainty (typ.)	Azimuth uncertainty < 1.5° RMS for tilt < 15° Pitch and roll uncertainty < 3° RMS in the range of +/- 30° (RMS means the standard deviation of the specified error)
Connection cable to IDA basic unit	RF cable and control cable combined in a flexible tube, length 1 m
RF connector to basic unit	N-connector, male, 50 Ω
RF connector to Narda directional antennas	BMA 50 Ω (female on handle side)
Antenna connectivity	Horizontal or vertical polarization, type and polarization detected automatically
Power supply	From basic unit
Mounting	Connecting thread on the underside of the handle for tripod mounting

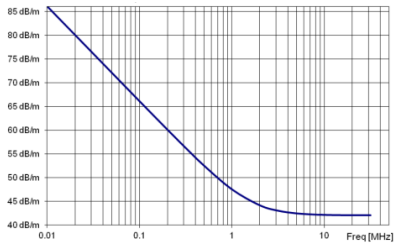
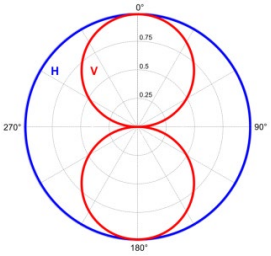
a) Preamplifier lower frequency is limited to 20 MHz for antenna handles produced before year 2013.

Directional Antenna 1 (3100/11)	
	
Frequency range	20 MHz to 250 MHz
Antenna type	Loop antenna
Antenna factor	21 dB (1/m) typical @ 200 MHz (passive mode)

Directional Antenna 2 (3100/12)	
	
Frequency range	200 MHz to 500 MHz
Antenna type	Dipole antenna
Antenna factor	21 dB (1/m) typical @ 350 MHz (passive mode)

Directional Antenna 3 (3100/13)	
	
Frequency range	400 MHz to 6 GHz
Antenna type	Log-periodic antenna
Antenna factor	18.5 dB (1/m) typical @ 500 MHz (passive mode)

Loop Antenna, H-FIELD (3100/14)

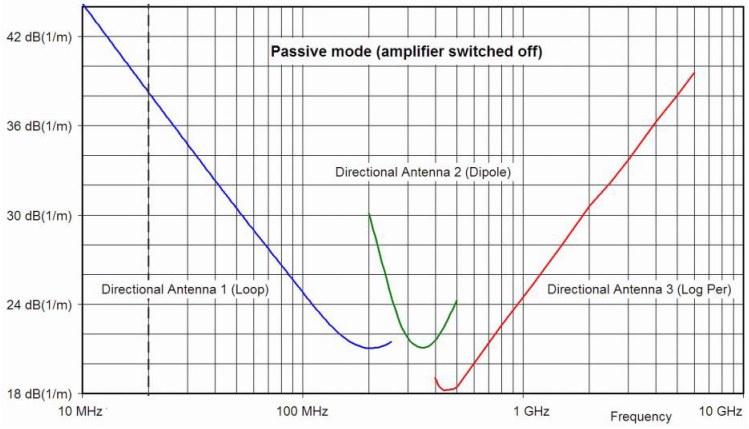
Frequency range	9 kHz to 30 MHz
Antenna type	Shielded loop antenna
Antenna factor / Radiation pattern	 Passive mode (preamp. off): 66.0 dB (1/m) typical @ 100 kHz 47.5 dB (1/m) typical @ 1 MHz 42.0 dB (1/m) typical @ f > 10 MHz Antenna (Loop) 9 kHz to 30 MHz  Radiation pattern (typ.) for a horizontal scan and vertical polarization (V) or horizontal polarization (H)

Antenna Adapter, N Male (3100/15)

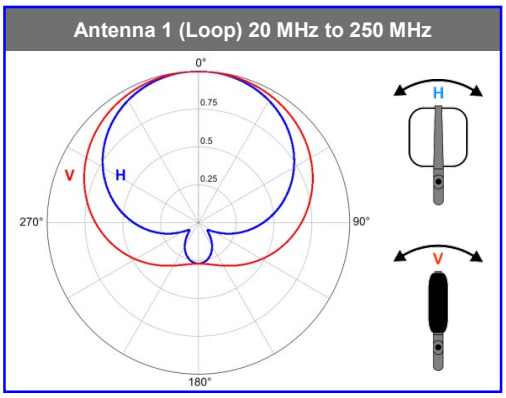
Description	With an adapter the internal 3D compass, built-in switchable preamplifier, and automatic polarization detection can be used with third-party antennas. Selects last third party antenna automatically.

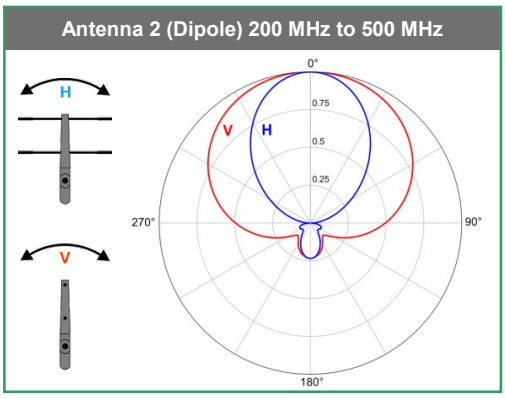
Directional Antennas and Characteristics

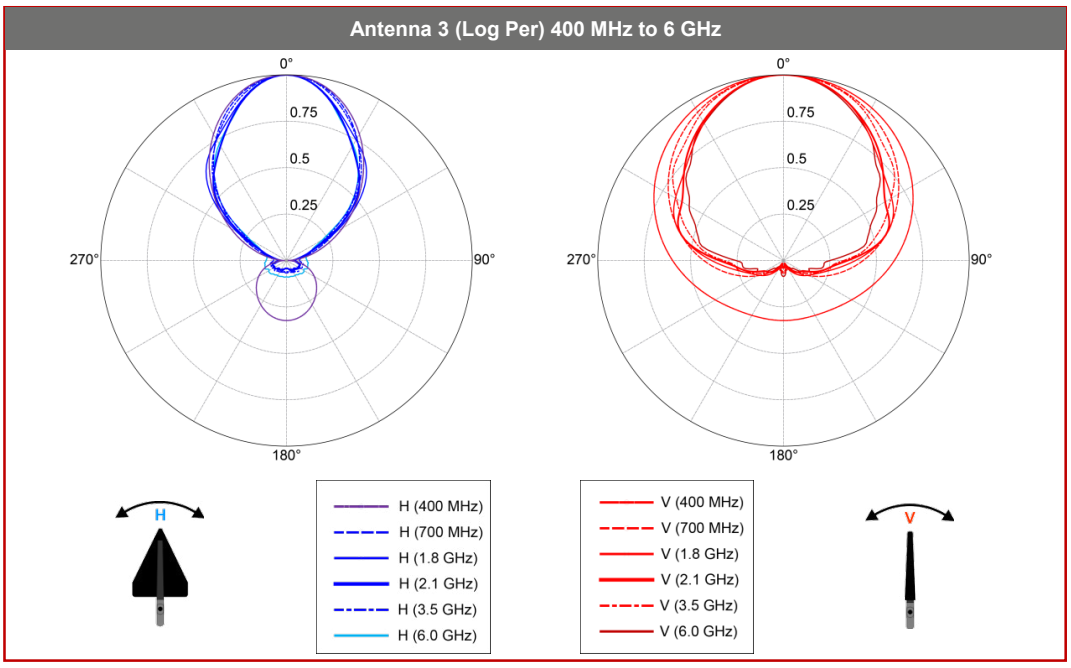
Antenna Factors (typical)



Radiation Pattern (typical)







Ordering Information

There are many applications in which IDA 2 can help make work easier and faster. Therefore, IDA 2 is equipped with several operating modes and accessories that are specially designed to meet the needs of these applications.

IDA 2 Basic Unit:

All configurations are based on the IDA 2 Basic Unit set.

IDA 2 Basic Unit Set	Part number
The Basic Unit set contains the IDA 2 as well as some basic accessories and supports spectrum analysis, delta spectrum and spectrogram. **Includes:** • IDA-3106/02 Basic Unit • Battery Pack, Rechargeable • Power supply Input: 100-240VAC, Output: 12VDC • Cable, USB 2.0, A/B mini, 1.8 m • Mem-Card Reader, microSD / USB • Memory Card, microSD 8 GB • Spectrum, Spectrogram, Delta Spectrum • Configuration Software IDA Tools • Operating Manual IDA-3106, English • Calibration Report	**3106/204**

Application Packages

The application packages are a tailor-made solution allowing you to adapt IDA 2 to your needs. A package typically consists of application dependent hardware accessories and/or firmware options and has a discount compared to an individual purchase. If needed, additional packages can be purchased also at a later time. Your local Narda representative will be happy to help you select the right application packages for your application.

Receiver	Part number
The Receiver Application Package provides functions for monitoring of 1 to 500 radio channels. It also enables demodulation of AM, FM, LSB, USB, and CW signals, which can then be saved, reproduced or streamed via the network. **Includes:** 3100/95.08 Option Multi-Channel Power 3100/95.06 Option Level Meter 3100/95.07 Option Demodulation 3100/95.11 Option Audio Streaming	**3106/92.01**

Direction Finding	Part number
This Application Package provides comprehensive functions to support hunting of interference signals and hidden transmitters. The device based GPS and the antenna handle with build in electronic compass make it possible to conveniently take bearings on a transmitter from various locations. Also included, the mode “Direction Finding” and the option ”Mapping” provides automatic computation of several bearings to give a transmitter location, which is then displayed on a map. **Includes:** 3100/95.09 Option Direction Finding, including Horiz. Scan, Tone Search, Localization 3100/95.01 Option Mapping 3100/10 Active Antenna Handle 3100/90.10 Arm Support	**3106/92.02**

Antenna Basic Kit (Mobile Operators)	Part number
This Application Package provides you with a light weight yet robust directional antenna for the frequency range from 400 MHz to 6 GHz and covers the cellular communication as well as other service bands. The Package also includes an antenna adapter that allows you to use your own antennas together with the IDA2 Antenna Handle. This enables you to benefit from the integrated compass, low noise amplifier, and automatic polarization detector in the handle when using your own antennas. **Includes:** 3100/13 Directional Antenna 3, 400 MHz - 6 GHz 3100/10 Antenna Adapter, N Male for Handle	**3106/92.03**

narda Safety Test Solutions

Antenna Extension Kit	Part number
This Application Package complements and completes the Antenna Basic Kit Application Package so that you can make the best use of the entire frequency range of the IDA 2 from 9 kHz to 6 GHz. **Includes:** 3100/11 Directional Antenna 1, 20 MHz - 250 MHz 3100/12 Directional Antenna 2, 200 MHz - 500 MHz 3100/14 Loop Antenna, H-Field, 9 kHz-30 MHz	**3106/92.04**

Off-Site Extension	Part number
This Application Package provides suitable accessories for applications that involve operation in vehicles or outdoors. A hard shell case with wheels and a retractable handle provides secure (IP 67) the transport of the IDA and all accessories. The DC adapter enables powering the device from a vehicle. An easily and quickly worn carry strap provides hands-free support for viewing the IDA allowing even long term measurements to be made comfortably. **Includes:** 2260/90.56 Power Supply DC Vehicle Adapter for SRM, IDA 3100/90.01 Hardcase for IDA Sets 3100/90.12 Carrying Strap for IDA/SRM Basic Unit 3100/90.16 Protective Rubber Cover for IDA/SRM Basic Unit	**3106/92.05**

I/Q Analyzer	Part number
If there are hidden signals or burst signals to analyze, you will appreciate these powerful detection tools to find even the most hidden or elusive emitters. **Includes:** 3100/95.05 Option I/Q Analyzer including I/Q, Magnitude, HRS, Persistence 3100/95.10 Option I/Q Streaming for IDA	**3106/92.06**

Typical Configurations

The following table shows some example configurations depending on typical applications.

APPLICATION	Basic Unit Set 3106/204	Receiver 3106/92.01	Direction Finding 3106/92.02	Antenna Basic Kit 3106/92.03	Antenna Extension Kit 3106/92.04	Off-Site Extension 3106/92.05	I/Q Analyzer 3106/92.06	Time Domain 3100/95.04
Laboratory measurements in industry and universities	☑						☑	☑
Mobile communication interference finding	☑		☑	☑		☑		
Border control	☑	☑	☑	☑	☑	☑		
Signal intelligence	☑	☑	☑	☑	☑	☑	☑	(☑)
Frequency spectrum regulation	☑	☑	☑	☑	☑	☑	☑	☑

Accessories

An application package has a discount compared to a single purchase but you can of course also order all firmware options and accessories separately. Your local Narda representative will inform you of all possible options and will be pleased to provide you with advice.

Accessory description	Part number
Tripod, Non-Conductive, 1.65 m	**2244/90.31**
Tripod Extension, 0.50 m	**2244/90.45**
Power supply Input: 100-240VAC, Output: 12VDC	**2259/92.04**
Power Supply DC Vehicle Adapter	**2260/90.56**
Charger Set, External	**3001/90.07**
Battery Pack, Rechargeable	**3001/90.15**
Cable, USB2.0	**2260/90.55**
O/E Converter USB, RP-02/USB	**2260/90.07**
Cable, FO Duplex, RP-02, 2 m	**2260/91.02**
Cable, FO Duplex, RP-02, 5 m	**2260/91.09**
Cable, FO Duplex, RP-02, 10 m	**2260/91.07**
Cable, FO Duplex, RP-02, 20 m	**2260/91.03**
Cable, FO Duplex, RP-02, 50 m	**2260/91.04**
N-Connector Saver	**3001/90.14**
RF-Cable, 9kHz-6GHz, 1.5m	**3602/01**
RF-Cable, 9kHz-6GHz, 5m	**3602/02**
Carrying Strap	**3100/90.12**
Protective Soft Carrying Bag for SRM-3006, IDA	**3001/90.13**
Hardcase	**3100/90.01**
Protective Rubber Cover	**3100/90.16**
Active Antenna Handle	**3100/10**
Arm Support	**3100/90.10**
Directional Antenna 1	**3100/11**
Directional Antenna 2	**3100/12**
Directional Antenna 3	**3100/13**
Loop Antenna, H-Field	**3100/14**
Antenna Adapter, N Male	**3100/15**
Headphone, 3.5 mm Plug	**3100/90.11**
Memory Card, microSD 8 GB	**3100/90.13**
Filter Mounting Kit for IDA	**3100/90.30**
Filters for IDA	*On request*