

Selective Radiation Meter SRM-3006



Selective measurement of high frequency electromagnetic fields

Compact, easy to use measuring system, consisting of basic unit, cable and measuring antennas, for isotropic (non-directional) measurement of electro-magnetic fields and their sources in the frequency range from 9 kHz to 6 GHz

- › Code selective EMF measurement of 5G NR signals
- › Measurements conforming to ICNIRP and national standards with results displayed directly in terms of the permitted limit value
- › Fast, reliable results using predefined measurement routines, setups, and automatic settings
- › Extrapolation to maximum exposure levels and evaluating pilot signal information with LTE - FDD/TDD and UMTS operating modes
- › Scope mode for short term analysis of pulsed signals and long term recording of variable exposure levels
- › Editable tables for automatic correlation of results with telecommunications services
- › Individual preparation of field campaigns with subsequent evaluation and handling of large quantities of measurement data
- › Suitable for outdoor use: Radiation protected, robust, splash-proof, ergonomically designed; uses exchangeable rechargeable batteries; equipped with integrated GPS and voice recorder



The SRM and its applications

The Selective Radiation Meter SRM is a compact, frequency-selective measuring system for safety analysis and environmental measurements of high-frequency electromagnetic fields. It covers broadcasting, mobile telephony, and industrial frequencies from the lowest long-wave range up to the latest wireless applications and evaluates the field exposure level in accordance with international or national standards.

Where the field environment is unknown – in offices, factory buildings, public places, or private homes – the SRM provides authorities and measurement service providers with a rapid overview of the field sources that are relevant to human safety.

Where the field situation is known, such as at so-called “shared sites”, where several service providers share a common antenna site, the SRM shows the overall field exposure level as well as the proportions due to each service as an absolute value or as a percentage of the permitted limit value.

Users can resolve services down to individual channel accuracy and measure their contribution to the field emission with the SRM. It is also possible to integrate over the entire frequency range of the service and display the absolute result or the value relative to the permitted limit.



Operation and use

All functions and parameters can be set directly on the SRM basic unit via menus and the numerical keypad, softkeys, or the rotary control. As well as this, the SRM also provides facilities for saving and recalling measurement settings (setups) and entire measurement sequences (routines). The PC software included with the device, “SRM-3006 Tools”, includes editable tables for antennas and cables from other manufacturers, user-defined evaluation curves, and lists of services and operators.



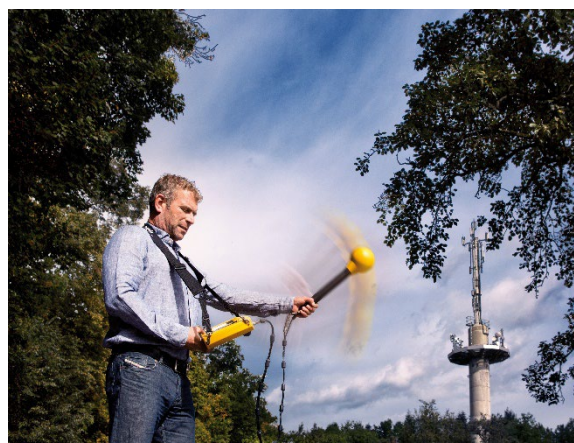
Operating modes

The SRM is designed for everyday use and has operating modes tailored to the main areas of application: Safety Evaluation, Spectrum Analysis, Level Recorder, Scope, UMTS, LTE and 5G. Details about these operating modes and other functions are given in the Specifications.

Antennas

Narda offers a broad range of three-axis and single-axis measuring antennas for electric fields (E-fields) and magnetic fields (H-fields).

The three-axis antennas are advantageous in practice because they give isotropic (i.e. non-directional) results automatically.



Definitions and conditions

Conditions

Unless otherwise noted, specifications apply after 30 minutes warm-up time within the specified environmental conditions. 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 $<$, \leq , $>$, \geq , \pm , max., min.) apply under the given conditions for the product and are tested during production, considering measurement uncertainty.

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 $<$, \leq , $>$, \geq , \pm , 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 the dispersion of the values attributed to the measurands with an estimated confidence level of approximately 95%. 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 to the Expression of Uncertainty in Measurement" (GUM).

Specifications – Basic Unit SRM-3006

| RF Data ^a | | |
|----------------------|---------------------------------------|--|
| Frequency | Frequency range | 9 kHz to 6 GHz |
| | Resolution bandwidth (RBW) | See specifications for each mode |
| | Phase noise (SSB) | < -100 dBc/Hz (@ 300 kHz carrier offset) verified at (57.5 / 2140.5 / 4500.5) MHz |
| | Reference frequency | Initial deviation < 1 ppm Aging < 1 ppm/year, < 5 ppm over 15 years Thermal drift < 1.5 ppm (-10 °C to +50 °C) |
| Amplitude | Display range | From Displayed Average Noise Level (DANL) to +20 dBm |
| | Measurement range (MR) | -30 dBm to +20 dBm in steps of 1 dB |
| | RF Input attenuation | 0 to 50 dB in steps of 1 dB (coupled with measurement range MR) |
| | Measurement range setting | Set individually from a list or using the "MR Search" function for determining the optimum measurement range at a given time |
| | Level uncertainty | ≤ 1.2 dB (15 °C to 30 °C) |
| | Displayed Average Noise Level (DANL) | f ≤ 30 MHz: < -160 dBm/Hz (noise figure < 14 dB) f ≤ 2 GHz: < -156 dBm/Hz (noise figure < 18 dB) MR = -30 dBm f ≤ 4 GHz: < -155 dBm/Hz (noise figure < 19 dB) (RF input attenuation = 0 dB) f ≤ 6 GHz: < -150 dBm/Hz (noise figure < 24 dB) |
| | 3 rd order intermodulation | < -60 dBc for two single tones with a level of 6 dB below MR, spaced by 1 MHz or more |
| | Spurious responses (input related) | < -60 dBc or MR-60 dB (whichever is worse) and a carrier offset of 1 MHz or more |
| | Spurious responses (residual) | < -90 dBm (MR = -30 dBm, RF input attenuation = 0 dB) For (294 to 306) MHz and (4534 to 4586) MHz limited to < -85 dBm |
| RF input | Type | N-Connector, 50 Ω, female |
| | Maximum RF power level | +27 dBm (destruction limit) |
| | Maximum DC voltage | ±50 V |
| | Return loss | f ≤ 4.5 GHz > 12 dB (typ.) MR ≥ -28 dBm f > 4.5 GHz > 10 dB (typ.) (RF 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 %.

| Mode spectrum analysis | | |
|---|---|--|
| Measurement principle | Spectrum analysis | |
| Resolution bandwidth RBW, (-3 dB nominal) | 10 Hz to 20 MHz (in steps of 1, 2, 3, 5, 10, 20, ...) | |
| Video bandwidth VBW | Off, 0.2 Hz to 2 MHz (in steps of 1, 2, 3, 5, 10, 20, ... coupled with selected RBW) | |
| Filter | Type | Gaussian |
| | Shape factor (-60 dB/ -3 dB) | 3.8 typical |
| Result types | Individually selectable traces for: Act: Displays instantaneous (actual) spectrum Max: Maximum hold function Avg: Average over a selectable number of spectra (4 to 256) or a selectable time period of 1 to 30 minutes Max Avg: Maximum hold function after averaging Min: Minimum hold function Min Avg: Minimum hold function after averaging Standard: Display of the selected safety standard SAVG: Spatial Averaging; Types: „continuous“ or „discrete“ | |
| Marker functions | Highest peak, next peak right, next peak left, next higher peak, next lower peak Information provided by Marker: frequency, level, service name according to the selected service table. Delta marker to measure difference in level and frequency of the same trace or to display the difference between two different traces e.g. average and maximum at the same frequency. | |
| Evaluation functions | Peak table (list of up to 50 highest peaks) Integration over a user-specified frequency range (channel power) | |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements | |
| Display functions | Y-scale range: | 20, 40, 60, 80, 100 or 120 dB |
| | Y-scale reference: | MR-100 dB to MR+20 dB (-130 dBm to +40 dBm) |
| | Screen arrangement: | help line, status lines on/off |
| Zoom | Zoom Min: | Sets the lower frequency limit of the zoom window |
| | Zoom Max: | Sets the upper frequency limit of the zoom window |
| | Zoom Cent: | Moves the zoom window along the frequency axis |
| | Zoom Span: | Changes the scale of the zoom window |
| | Execute Zoom: | Sets the zoom window limits to the selected frequency values |
| Extras (transfer of parameters) | “Go to: <i>mode</i> “ changes the operating mode with automatic parameter transfer for Fcent and Fspan. “Select Service“ allows easy frequency settings by means of predefined service tables | |

| Mode safety evaluation | |
|---|--|
| Measurement principle | Spectrum analysis, followed by integration over user-defined frequency bands ("services") |
| Number of services | 1 to 500, predefined by service tables on the instrument or created by PC software SRM-3006 Tools |
| Name of services | User definable, maximum 15 characters set by PC software SRM-3006 Tools |
| Channel bandwidth of a service (CBW) | Individually selectable for each channel, from 40 Hz to 6 GHz |
| Resolution bandwidth RBW, (-3 dB nominal) | Available bandwidths as for Spectrum Analysis mode. The following condition applies: $RBW \leq CBW_{(\text{narrowest service})} / 4$ Automatic: RBW setting depending on of the narrowest service Manual: can be set in the range of available RBWs Individual: separately defined for each individual service by PC software SRM-3006 Tools ("Others" needs to be switched off) |
| Detection | Root mean square value (RMS), integration time = 1 / RBW |
| Filter | See Spectrum Analysis mode |
| Result types | See Spectrum Analysis mode |
| Marker functions for bar graph view | Highest peak, next peak right, next peak left, next higher peak, next lower peak Information provided by Marker: frequency, level, service name according to the selected service table. Delta marker to measure difference in level and frequency of the same trace or to display the difference between two different traces (Result Types) at the same frequency. |
| Evaluation function | Distribution (percentage contribution of each service) |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements |
| Display functions | Table view showing service names, the corresponding frequency bands, field strength per result type and RBW (when set to individual) Screen arrangement: help line, status lines on/off Sort function according to various criteria Bar graph of services showing contribution of the selected Result Types |
| Noise threshold | Displays results only if they are above the typical noise floor when activated. The threshold is selectable (0, 3, 6, 10, 15, or 20 dB relative to the typical DANL). Measurement values below the threshold are shown as the absolute threshold value marked with "<" (less than threshold) |
| Others On/Off | Others On: field strength in the frequency gaps between the specified services is measured Others Off: field strength in the frequency gaps between the specified services is ignored |
| Extras (transfer of parameters) | "Go to: mode" changes the operating mode with automatic parameter transfer for Fcent and Fspan. „Select Service Table" allows switching between predefined service tables |

| Mode UMTS P-CPICH demodulation (option) | | |
|---|---|---|
| Measurement principle | Demodulation of the P-CPICH (Primary Common Pilot Channel) as the basis for automatic assignment of measured field strength values to the individual UMTS radio cells | |
| UMTS channel selection | By entering the center frequency (Fcent) | |
| Frequency setting resolution | 100 kHz (for Fcent frequency entry) | |
| Resolution bandwidth RBW, (-3 dB nominal) | 3.84 MHz (fixed) | |
| Detection | Root mean square value (RMS), integration time = 10 ms | |
| Filter | Type | Root-raised cosine (RRC) |
| | Roll-off factor | $\alpha = 0.22$ |
| Demodulation algorithms | P-CPICH decoding dynamic typically -20 dB according EN50492 / IEC 62232 | |
| Result types | Individually selectable for: | |
| | Act: | Displays instantaneous (actual) channel power |
| | Max: | Maximum hold function |
| | Avg: | Average over a selectable number of measurements (4 to 256) or a selectable time period of 1 to 30 minutes |
| | Max Avg: | Maximum hold function after averaging |
| | Min: | Minimum hold function |
| | Min Avg: | Minimum hold function after averaging |
| Standard: | Display of the selected safety standard | |
| Evaluation functions | Extrapolation factor adjustable from 1 to 100 in steps of 0.001 Ratio Pilot/Analog in dB | |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements | |
| Result display | Displayed items | Up to 16 scrambling codes simultaneously |
| | | Selection of individual scrambling codes |
| | | Channel power for the selected Result Types |
| | | Number of measurement runs since last reset |
| | Table layout | Table format: Index, Scrambling Code, selected result types |
| | | Total: Total power of all listed scrambling codes Analog: Analog measurement result for the selected UMTS frequency channel (no extrapolation) |
| Noise threshold | In case of "Analog" results: values are displayed only if they are above the typical noise floor when activated. The threshold is selectable (0, 3, 6, 10, 15, or 20 dB relative to the typical DANL). Measurement values below the threshold are shown as the absolute threshold value marked with "<" (less than threshold) | |
| Extras (transfer of parameters) | "Go to: <i>mode</i> " changes the operating mode with automatic parameter transfer for Fcent and RBW. "Select Service" allows easy frequency settings by means of predefined service tables | |

| Mode LTE (for FDD networks) (option) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|----------|-----------|-----------|-----------|-----|------|-----------|------|-----|-----|-----|------|----|------------------|------------|----------|----------|-----------|-----------|-----------|
| Measurement principle | Power level measurement of the cell specific and traffic independent signals PSS (Primary Sync Signal), SSS (Secondary Sync Signal) and RS (Reference Signal) of LTE cells. | | | | | | | | | | | | | | | | | | | | | |
| LTE channel selection | By entering the center frequency (Fcent) | | | | | | | | | | | | | | | | | | | | | |
| Frequency setting resolution | 100 kHz (for Fcent frequency entry) | | | | | | | | | | | | | | | | | | | | | |
| Channel bandwidth CBW, (-6 dB nom.) | <p>Can be set to the following values:</p> <table border="1"> <tr> <td>No. of subcarriers</td> <td>72</td> <td>180</td> <td>300</td> <td>600</td> <td>900</td> <td>1200</td> </tr> <tr> <td>TBW (MHz)</td> <td>1.08</td> <td>2.7</td> <td>4.5</td> <td>9.0</td> <td>13.5</td> <td>18</td> </tr> <tr> <td>CBW (MHz)</td> <td>1.4</td> <td>3</td> <td>5</td> <td>10</td> <td>15</td> <td>20</td> </tr> </table> <p>Transmit Bandwidth (TBW) is the occupied bandwidth of all subcarriers</p> | No. of subcarriers | 72 | 180 | 300 | 600 | 900 | 1200 | TBW (MHz) | 1.08 | 2.7 | 4.5 | 9.0 | 13.5 | 18 | CBW (MHz) | 1.4 | 3 | 5 | 10 | 15 | 20 |
| No. of subcarriers | 72 | 180 | 300 | 600 | 900 | 1200 | | | | | | | | | | | | | | | | |
| TBW (MHz) | 1.08 | 2.7 | 4.5 | 9.0 | 13.5 | 18 | | | | | | | | | | | | | | | | |
| CBW (MHz) | 1.4 | 3 | 5 | 10 | 15 | 20 | | | | | | | | | | | | | | | | |
| Detection | Root mean square value (RMS), integration time = 10 ms (5 ms at CBW 15 MHz, 20 MHz) | | | | | | | | | | | | | | | | | | | | | |
| Filter | Type | Steep cut-off channel filter (app. Raised-Cosine) | | | | | | | | | | | | | | | | | | | | |
| | Roll-off factor | $\alpha = 1 - (TBW/CBW)$ | | | | | | | | | | | | | | | | | | | | |
| Cell specific signals (Signal) <i>Display of the average power level per Resource Element out of all elements of the considered signal</i> | <p>Individually selectable for:</p> <ul style="list-style-type: none"> PSS (Primary Sync Signal) SSS (Secondary Sync Signal) RS Avg (Reference Signal Average) RS Sum (Reference Signal Sum) RS Max (Reference Signal Maximum) RS 0 (Reference Signal antenna 0) RS 1 (Reference Signal antenna 1) RS 2 (Reference Signal antenna 2) RS 3 (Reference Signal antenna 3) | | | | | | | | | | | | | | | | | | | | | |
| Result types <i>Applicable to all cell specific signals</i> | <p>Individually selectable for:</p> <ul style="list-style-type: none"> Act: Displays instantaneous (actual) channel power Max: Maximum hold function Avg: Average over a selectable number of measurements (4 to 256) or a selectable time period of 1 to 30 minutes Max Avg: Maximum hold function after averaging Min: Minimum hold function Min Avg: Minimum hold function after averaging Standard: Display of the selected safety standard | | | | | | | | | | | | | | | | | | | | | |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements | | | | | | | | | | | | | | | | | | | | | |
| Extrapolation function | Extrapolation factor adjustable from 1 to 10000 in steps of 0.001 | | | | | | | | | | | | | | | | | | | | | |
| Results display | Displayed items | Selection of individual Cell IDs | | | | | | | | | | | | | | | | | | | | |
| | | Number of measurement runs since last reset | | | | | | | | | | | | | | | | | | | | |
| | Table layout | Up to 16 Cell IDs simultaneously Table format: Index, Cell ID, No. Ant. (number of antennas), selected signals shown for each selected result type (up to 54 columns + Standard) | | | | | | | | | | | | | | | | | | | | |
| | | Total: Total power of all listed Cell IDs | | | | | | | | | | | | | | | | | | | | |
| Setting parameters | Synchronization (Cell Sync): Sync/ No Sync Cyclic Prefix Length (CP Length): Normal/Extended | | | | | | | | | | | | | | | | | | | | | |
| Noise threshold | In case of "Analog" results: values are displayed only if they are above the typical noise floor when activated. The threshold is selectable (0, 3, 6, 10, 15, or 20 dB relative to the typical DANL). Measurement values below the threshold are shown as the absolute threshold value marked with "<" (less than threshold) | | | | | | | | | | | | | | | | | | | | | |
| Extras (transfer of parameters) | "Go to: mode" changes the operating mode with automatic parameter transfer for Fcent and CBW. "Select Service" allows easy frequency settings by means of predefined service tables | | | | | | | | | | | | | | | | | | | | | |

| Mode LTE (for TDD networks) (option) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|----------|-----------|-----------|-----------|-----|------|-----------|------|-----|-----|-----|------|----|------------------|------------|----------|----------|-----------|-----------|-----------|
| Measurement principle | Power level measurement of the cell specific and traffic independent signals PSS (Primary Sync Signal), SSS (Secondary Sync Signal) and RS (Reference Signal) of LTE cells. | | | | | | | | | | | | | | | | | | | | | |
| LTE channel selection | By entering the center frequency (Fcent) | | | | | | | | | | | | | | | | | | | | | |
| Frequency setting resolution | 100 kHz (for Fcent frequency entry) | | | | | | | | | | | | | | | | | | | | | |
| Uplink-downlink configuration (3GPP TS 36.211) | Seven uplink-downlink (0-6) configurations according to the standard 3GPP TS 36.211 are supported. To obtain a reliable result the instrument should be adapted to the uplink-downlink configuration of the base station. | | | | | | | | | | | | | | | | | | | | | |
| Channel bandwidth CBW, (-6 dB nom.) | <p>Can be set to the following values:</p> <table border="1"> <tr> <td>No. of subcarriers</td> <td>72</td> <td>180</td> <td>300</td> <td>600</td> <td>900</td> <td>1200</td> </tr> <tr> <td>TBW (MHz)</td> <td>1.08</td> <td>2.7</td> <td>4.5</td> <td>9.0</td> <td>13.5</td> <td>18</td> </tr> <tr> <td>CBW (MHz)</td> <td>1.4</td> <td>3</td> <td>5</td> <td>10</td> <td>15</td> <td>20</td> </tr> </table> <p>Transmit Bandwidth (TBW) is the occupied bandwidth of all subcarriers</p> | No. of subcarriers | 72 | 180 | 300 | 600 | 900 | 1200 | TBW (MHz) | 1.08 | 2.7 | 4.5 | 9.0 | 13.5 | 18 | CBW (MHz) | 1.4 | 3 | 5 | 10 | 15 | 20 |
| No. of subcarriers | 72 | 180 | 300 | 600 | 900 | 1200 | | | | | | | | | | | | | | | | |
| TBW (MHz) | 1.08 | 2.7 | 4.5 | 9.0 | 13.5 | 18 | | | | | | | | | | | | | | | | |
| CBW (MHz) | 1.4 | 3 | 5 | 10 | 15 | 20 | | | | | | | | | | | | | | | | |
| Detection | Root mean square value (RMS), integration time = 10 ms (5 ms at CBW 15 MHz, 20 MHz) | | | | | | | | | | | | | | | | | | | | | |
| Filter | Type | Steep cut-off channel filter (app. Raised-Cosine) | | | | | | | | | | | | | | | | | | | | |
| | Roll-off factor | $\alpha = 1 - (TBW/CBW)$ | | | | | | | | | | | | | | | | | | | | |
| Cell specific signals (Signal) <i>Display of the average power level per Resource Element out of all elements of the considered signal</i> | <p>Individually selectable for:</p> <ul style="list-style-type: none"> PSS (Primary Sync Signal) SSS (Secondary Sync Signal) RS Avg (Reference Signal Average) RS Sum (Reference Signal Sum) RS Max (Reference Signal Maximum) RS 0 (Reference Signal antenna 0) RS 1 (Reference Signal antenna 1) RS 2 (Reference Signal antenna 2) RS 3 (Reference Signal antenna 3) | | | | | | | | | | | | | | | | | | | | | |
| Result types <i>Applicable to all cell specific signals</i> | <p>Individually selectable for:</p> <ul style="list-style-type: none"> Act: Displays instantaneous (actual) channel power Max: Maximum hold function Avg: Average over a selectable number of measurements (4 to 256) or a selectable time period of 1 to 30 minutes Max Avg: Maximum hold function after averaging Min: Minimum hold function Min Avg: Minimum hold function after averaging Standard: Display of the selected safety standard | | | | | | | | | | | | | | | | | | | | | |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements | | | | | | | | | | | | | | | | | | | | | |
| Extrapolation function | Extrapolation factor adjustable from 1 to 10000 in steps of 0.001 | | | | | | | | | | | | | | | | | | | | | |
| Results display | Displayed items | Selection of individual Cell IDs | | | | | | | | | | | | | | | | | | | | |
| | | Number of measurement runs since last reset | | | | | | | | | | | | | | | | | | | | |
| | Table layout | Up to 16 Cell IDs simultaneously Table format: Index, Cell ID, No. Ant. (number of antennas), selected signals shown for each selected result type (up to 54 columns + Standard) | | | | | | | | | | | | | | | | | | | | |
| | | Total: Total power of all listed Cell IDs | | | | | | | | | | | | | | | | | | | | |
| Setting parameters | Synchronization (Cell Sync): Sync/ No Sync Cyclic Prefix Length (CP Length): Normal/Extended | | | | | | | | | | | | | | | | | | | | | |
| Noise threshold | In case of "Analog" results: values are displayed only if they are above the typical noise floor when activated. The threshold is selectable (0, 3, 6, 10, 15, or 20 dB relative to the typical DANL). Measurement values below the threshold are shown as the absolute threshold value marked with "<" (less than threshold) | | | | | | | | | | | | | | | | | | | | | |
| Extras (transfer of parameters) | "Go to: <i>mode</i> " changes the operating mode with automatic parameter transfer for Fcent and CBW. "Select Service" allows easy frequency settings by means of predefined service tables | | | | | | | | | | | | | | | | | | | | | |

| Mode 5G NR (option) | | |
|---|---|---|
| Measurement principle | Code selective power level measurement of the cell specific and traffic independent signals SSS 0 to SSS 7 (Secondary Sync Signal) of 5G cells. | |
| 5G channel selection | By entering the center frequency (Fcent) of the SS/PBCH-Block (SSB) | |
| Frequency setting resolution | 5 kHz | |
| Subcarrier spacing (SCS) | 15 kHz, 30 kHz | |
| CBW (is set automatically) | CBW = 320 * SCS | |
| Detection | Root mean square value (RMS), integration time = 10 ms | |
| Filter | Type | Steep cut-off channel filter (app. Raised-Cosine) |
| | Roll-off factor | $\alpha = 1 - (TBW/CBW)$ |
| Cell specific signals (Signal) <i>Display of the average power level per Resource Element out of all elements of the considered signal</i> | Individually selectable for: | |
| | SSS Max: | Maximum SSS average power level of SSS 0 to SSS 7 |
| | SSS Sum | ERP radiated power per resource element of all SS/PBCH beams summed over SSS 0 to SSS 7 |
| | SSS 0 to SSS 7: | Secondary Sync Signal 0 to 7 (depends on the beam configuration of the base station) |
| Result types <i>Applicable to all cell specific signals</i> | Individually selectable for: | |
| | Act: | Displays instantaneous (actual) channel power |
| | Max: | Maximum hold function |
| | Avg: | Average over a selectable number of measurements (4 to 256) or a selectable time period of 1 to 30 minutes |
| | Max Avg: | Maximum hold function after averaging |
| | Min: | Minimum hold function |
| | Min Avg: | Minimum hold function after averaging |
| | Standard: | Display of the selected safety standard |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements | |
| Results display | Displayed items | Selection of individual Cell IDs |
| | | Number of measurement runs since last reset |
| | Table layout | Up to 16 Cell IDs simultaneously Table format: Index, Cell ID, No. SSSs, selected signals shown for each selected result type (up to 60 columns + Standard) |
| | | Total: Total power of all listed Cell IDs |
| | Analog: Analog measurement result for the selected 5G NR frequency channel | |
| Setting parameters | Sensitivity: Low, Normal und High | |
| Extras (transfer of parameters) | "Go to: mode" changes the operating mode with automatic parameter transfer for Fcent. "Select Service" allows easy frequency settings by means of predefined service tables. | |

| Level recorder mode | |
|--|--|
| Measurement principle | Selective level measurement at a fixed frequency setting (Zero Span) |
| Detection | Peak (holding time 480 ms) |
| | Root mean square value (RMS), RMS average time adjustable from 480 ms up to 30 min |
| Filter | Type |
| | Roll-off factor |
| | Steep cut-off channel filter (app. raised cosine) |
| | $\alpha = 0.16$ |
| Resolution bandwidth RBW (-6 dB nominal) | 100 Hz to 32 MHz (in steps of 100, 125, 160, 200, 250, 320, 400, 500, 640, 800, 1000, ..., 10 MHz, 13.333 MHz, 16 MHz, 20 MHz, 26.666 MHz, 32 MHz) |
| Video bandwidth (VBW) | Off, 0.01 Hz to 32 MHz (depending on the selected RBW) |
| Result Type | Peak ACT: Displays the actual peak value |
| | Peak Max: Max hold function for peak values |
| | RMS ACT: Averaging over a defined time period (0.48 seconds to 30 min) |
| | RMS Max: Max hold function for RMS values |
| | SAVG: Spatial Averaging; Types: „continuous“ or „discrete“ |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements |
| Noise threshold | Displays results only if they are above the typical noise floor when activated. The threshold is selectable (0, 3, 6, 10, 15, or 20 dB relative to the typical DANL). Measurement values below the threshold are shown as the absolute threshold value marked with “<” (less than threshold). Only applies to the numerical result display (Value) |
| Extras (transfer of parameters) | “Go to: mode” changes the operating mode with automatic parameter transfer for Fcent and RBW. “Select Service” allows easy frequency settings by means of predefined service tables |

| Scope mode (option) | | |
|--|--|--|
| Measurement principle | Selective level measurement at a fixed frequency setting (Zero Span) | |
| Filter | Type | Steep cut-off channel filter (app. raised cosine) |
| | Roll-off factor | $\alpha = 0.16$ |
| Sweep Time | 500 ns to 24 h (Time Span) | |
| Time Resolution | 31.25 ns up to 90 min | |
| Resolution bandwidth RBW (-6 dB nominal) | 100 Hz to 32 MHz (see Level Recorder Mode) | |
| Video bandwidth (VBW) | Off, 0.01 Hz to 32 MHz (depending on the selected RBW) | |
| Result Type | Magnitude Actual (high resolution) | Act: Displays the instantaneous (actual) value. (time resolution = 1/RBW) Standard: Displays the limit of the selected safety standard |
| | Magnitude Condensed (long observation) | Magnitude Condensed allows to display the results over a long time period MAX: Maximum value within the time resolution interval (corresponds to peak detector). AVG: Average value within the time resolution interval (corresponds to RMS detector). MIN: Minimum value within the time resolution interval. Standard: Displays the limit of the selected safety standard. |
| Marker function | Delta marker, Marker, highest peak, next peak right, next peak left, next highest peak, next lowest peak | |
| Evaluation functions | Duty cycle (ratio of average power to maximum power) | |
| Triggering | Programmable Trigger Delay, Trigger Edge and Trigger Level | |
| Trigger Mode | Free Run | Time signal runs continuously. |
| | Single | Single triggering as soon as the selected conditions apply for Trigger Level, Trigger Delay, and Trigger Edge |
| | Multiple | Same as for Single but with multiple subsequent triggering |
| | Manual Start | Time signals displayed instant by a button. |
| | Time Controlled | Time signals runs instant by date and time. |
| Axis | X, Y, Z axis selection for single-axis measurements using a Narda Three-Axis Antenna or selection of isotropic measurements | |
| Extras (transfer of parameters) | "Go to: <i>mode</i> " changes the operating mode with automatic parameter transfer for Fcent and RBW. "Select Service" allows easy frequency settings by means of predefined service tables | |

| Measurement functions | | |
|--|-------------------------|--|
| Detection of Narda measurement antennas | | Automatic consideration of antenna parameters after antenna is plugged in: antenna type, serial number, calibration date and antenna factors (see below). Automatic frequency range adjustment according to the connected antenna |
| Antenna factors | | Used to display measurement results in field strength units Stored in all Narda antennas during calibration Antenna factor lists for antennas from other manufacturers can be created and transferred to the instrument using the PC software SRM-3006 Tools/TS |
| Detection of Narda Cables | | Automatic consideration of cable parameters after cable is plugged in: Cable type, serial number, calibration date and loss factors (see below) Automatic frequency range adjustment according to the connected cable |
| Cable loss factors | | Used for frequency response compensation of the power level display Stored in all Narda cables during calibration Cable loss lists for cables from other manufacturers can be created and transferred to the instrument using the PC software SRM-3006 Tools/TS |
| Units | | With antenna: % (of the standard), V/m, A/m, W/m ² , mW/cm ² , dBV/m, dBmV/m, dBA/m, dBμV/m, dBm, dBV, dBmV, dBμV |
| | | Without antenna: dBm, dBV, dBmV, dBμV |
| Isotropic Measurements | | Automatic switching of the antenna axes when using one of Narda's three-axis measurement antennas followed by computation of the isotropic result. Support for sequential measurements using single-axis antennas with subsequent computation of the isotropic result. Both results are directly displayed as a spectrum curve or as numerical values |
| Weighted Display | | In % of standard for human safety standards like ICNIRP, IEEE, FCC etc. New lists of exposure limits can be created and transferred to the instrument using the PC software SRM-3006 Tools/TS |
| Correlation of results with telecom services | | Service Tables specify the used frequency band, the name and the required resolution bandwidth (RBW) of up to 500 individual services in a single list. Thus measurement results can be easily assigned to a service even without the knowledge of the frequency (marker functions, peak table evaluation function, Safety Evaluation mode). Service Tables can be created either directly on the instrument or conveniently created and transferred to the instrument using the PC software SRM-3006 Tools/TS |
| Setups | | Complete device configurations provide fast switching between different measurement tasks. Saved setups can be downloaded to a PC for archiving and uploaded back to the instrument using the PC software SRM-3006 Tools/TS |
| Measurement Routines | | Automated sequences of setups (created using the PC software SRM-3006 Tools/TS) |
| Results Memory | Memory modes | Result stored as: Spectrum in Spectrum Analysis mode (SPECTRUM), Table in Safety Evaluation mode (SAFETY), Values in UMTS P-CPICH Demodulation mode (UMTS) as well as for LTE mode (LTE FDDTDD) and 5G. Values for Level Recorder (LEVEL) and Scope (SCOPE) |
| | Conditional Storing | Conditional storing of results exceeding a specified threshold value (in all operating modes except "Scope") with individual storage rates and reset function |
| | Time Controlled Storing | Long term monitoring up to 99 hours (in all operating modes except "Scope"). Settings for: start date, start time, duration and time interval (6 s to 60 min) |
| | Memory capacity | 128 MB (up to 8000 spectra, 4000 screenshots) |
| Hold | | Button that "Freezes" the display; the measurement continues in the background. |
| Operating language | | Selectable: English (Default), French, Spanish, Turkish, Simplified Chinese |

| General Specifications | | | | |
|----------------------------------|------------------------------------|--|--|--|
| Operating temperature range | | -10 °C to +50 °C during normal operation with batteries 0 °C to +40 °C with external power supply | | |
| Compliance | Climatic | Storage | 1K3 (IEC 60721-3) extended to -10 °C to +50 °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 +50 °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) | |
| | EMC | EU | 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, 61000-4-8, 61000-4-11 | |
| | | 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 | | |
| Material | | Complies with European RoHS Directive 2011/65/EU | | |
| RF Immunity | | 200 V/m | | |
| Air humidity (operating range) | | < 29 g/m ³ (< 93 % RH at +30 °C), non-condensing | | |
| Weight | | 2.8 kg / 6.2 lbs (basic unit including battery) | | |
| Dimensions (H x W x D) | | 213 mm x 297 mm x 77 mm (8.4" x 11.7" x 3.0") | | |
| Display | Type | Color display TFT-LCD with backlight, for indoor and outdoor use | | |
| | Size, resolution | 7 inch (152 mm x 91 mm), 800 x 480 pixels | | |
| Interface | USB mini B (USB 2.0) | | | |
| | Optical RS 232 (Baud rate 115 200) | | | |
| | Earphone 3.5 mm TRS | | | |
| Power supply | Battery | Lithium-Ion rechargeable battery pack operating time: 2.5 hours (nominal) charging time: 4.5 hours (nominal) | | |
| | External power supply | Input: 9 to 15 V _{DC} Adapter 100-240 V _{AC} / 12 V _{DC} , 2.5 A (plug DIN 45323) | | |
| Recommended calibration interval | | 24 months | | |
| Country of origin | | Germany | | |

Specifications – Isotropic antennas

Three-axis antenna (E-field) 3501/03

| RF Data | | | |
|---|--|--|-----------------------|
| Frequency range | 27 MHz to 3 GHz The correction factors determined individually during calibration are stored in an EEPROM and are applied automatically when used in conjunction with the SRM basic unit. | | |
| Antenna type | E-field | | |
| Sensor type | Three-axis design with scanned axes | | |
| Dynamic range ^b | 0.2 mV/m to 200 V/m (typ.) | | |
| Maximum field strength (destruction limit) | 435 V/m or 50 mW/cm ² (nom.) | | |
| Displayed Average Noise Level (DANL) in conjunction with the SRM basic unit | Frequency range | Single-axis measurement with isotropic antenna | Isotropic measurement |
| | 900 MHz (RBW = 1 kHz) | 25 µV/m (typ.) | 40 µV/m (typ.) |
| | 2.1 GHz (RBW = 1 kHz) | 40 µV/m (typ.) | 70 µV/m (typ.) |
| Measurement range limit (for single CW signal) | 300 V/m (typ.) 1000 V/m (typ.) for $f \leq 110$ MHz | | |
| RF connector | N-Connector, 50 Ω, male | | |

| General specification | | | | |
|----------------------------------|--------------------|---|--|--|
| Operating temperature range | | -10 °C to +50 °C (same as SRM basic unit) | | |
| Compliance | Climatic | Storage | 1K3 (IEC 60721-3) extended to -10 °C to +50 °C | |
| | | Transport | 2K4 (IEC 60721-3) -40 °C to +70 °C | |
| | | 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) | |
| | Ingress protection | | IP 52 (antenna connected) | |
| | EMC | EU | 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, 61000-4-8, 61000-4-11 | |
| Emission | | 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 | | |
| Material | | Complies with European RoHS Directive 2011/65/EU | | |
| Air humidity (operating range) | | < 29 g/m ³ (< 93 % RH at +30 °C), non-condensing | | |
| Weight | | 450 g | | |
| Dimensions | | 450 mm length; 120 mm antenna head diameter | | |
| Calibration | | 20 reference points: (26; 45; 75; 100; 200; 300; 433; 600; 750; 900) MHz (1; 1.2; 1.4; 1.6; 1.8; 2; 2.2; 2.45; 2.7; 3) GHz The SRM basic unit applies linear interpolation between reference points | | |
| Recommended calibration interval | | 24 months | | |
| Country of origin | | Germany | | |

^b For a signal to noise ratio of 10 dB (RBW = 1 kHz); 800 MHz to 1.8 GHz

| Measurement uncertainty | | | |
|--|-------------------|--|-----------------------|
| Expanded measurement uncertainty [°] (in conjunction with SRM basic unit and 1.5 m RF cable) | Frequency range | Single-axis measurement with isotropic antenna | Isotropic measurement |
| | 27 – 85 MHz | +2.4 / -3.3 dB | +3.2 / -4.7 dB |
| | > 85 – 900 MHz | +2.4 / -3.4 dB | +2.5 / -3.6 dB |
| | > 900 – 1400 MHz | +2.3 / -3.1 dB | +2.5 / -3.4 dB |
| | > 1400 – 1600 MHz | +2.3 / -3.1 dB | +2.6 / -3.8 dB |
| | > 1600 – 1800 MHz | +1.8 / -2.3 dB | +2.2 / -3.0 dB |
| | > 1800 – 2200 MHz | +1.8 / -2.3 dB | +2.4 / -3.3 dB |
| | > 2200 – 2700 MHz | +1.9 / -2.4 dB | +2.7 / -3.8 dB |
| | > 2700 – 3000 MHz | +1.9 / -2.4 dB | +3.3 / -5.3 dB |

[°] Valid for the temperature range +15 °C to +30 °C, according to the definition on page 3

Three-axis antenna (E-field) 3502/01

| RF Data | | | |
|---|---|--|-----------------------|
| Frequency range | 420 MHz to 6 GHz The correction factors determined individually during calibration are stored in an EEPROM and are applied automatically when used in conjunction with the SRM basic unit. | | |
| Antenna type | E-field | | |
| Sensor type | Three-axis design with scanned axes | | |
| Dynamic range ^d | 0.14 mV/m to 160 V/m (typ.) | | |
| Maximum field strength (destruction limit) | 435 V/m or 50 mW/cm ² (nom.) | | |
| Displayed Average Noise Level (DANL) in conjunction with the SRM basic unit | Frequency range | Single-axis measurement with isotropic antenna | Isotropic measurement |
| | 900 MHz (RBW = 1 kHz) | 33 µV/m (typ.) | 60 µV/m (typ.) |
| | 2.1 GHz (RBW = 1 kHz) | 25 µV/m (typ.) | 43 µV/m (typ.) |
| Measurement range limit (for single CW signal) | 200 V/m (typ.) | | |
| RF connector | N-Connector, 50 Ω, male | | |

| General specification | | | | |
|----------------------------------|--------------------|--|--|--|
| Operating temperature range | | -10 °C to +50 °C (same as SRM basic unit) | | |
| Compliance | Climatic | Storage | 1K3 (IEC 60721-3) extended to -10 °C to +50 °C | |
| | | Transport | 2K4 (IEC 60721-3) -40 °C to +70 °C | |
| | | 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) | |
| | Ingress protection | | IP 52 (antenna connected) | |
| | EMC | EU | 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, 61000-4-8, 61000-4-11 | |
| | | Emission | 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 | |
| | Material | | Complies with European RoHS Directive 2011/65/EU | |
| Air humidity (operating range) | | < 29 g/m ³ (< 93 % RH at +30 °C), non-condensing | | |
| Weight | | 400 g | | |
| Dimensions | | 450 mm length; 120 mm antenna head diameter | | |
| Calibration | | 21 reference points: 420 MHz, 600 MHz, 750 MHz; 900 MHz (1; 1.2; 1.4; 1.6; 1.8; 2; 2.2; 2.45; 2.7; 3; 3.5; 4; 4.5; 5; 5.5; 5.8; 6) GHz The SRM basic unit applies linear interpolation between reference points | | |
| Recommended calibration interval | | 24 months | | |
| Country of origin | | Germany | | |

^d For a signal to noise ratio of 10 dB (RBW = 1 kHz); 1.8 GHz to 2.2 GHz

| Measurement uncertainty | | | |
|--|-------------------|--|-----------------------|
| Expanded measurement uncertainty [°] (in conjunction with SRM basic unit and 1.5 m RF cable) | Frequency range | Single-axis measurement with isotropic antenna | Isotropic measurement |
| | 420 – 750 MHz | +2.1 / -2.9 dB | +2.6 / -3.8 dB |
| | > 750 – 1800 MHz | +2.1 / -2.8 dB | +2.3 / -3.1 dB |
| | > 1800 – 4000 MHz | +1.7 / -2.2 dB | +2.0 / -2.6 dB |
| | > 4000 – 4500 MHz | +1.8 / -2.3 dB | +2.2 / -3.0 dB |
| | > 4500 – 5000 MHz | +1.9 / -2.5 dB | +2.5 / -3.5 dB |
| | > 5000 – 6000 MHz | +1.9 / -2.5 dB | +3.1 / -4.9 dB |

[°] Valid for the temperature range +15 °C to +30 °C, according to the definition on page 3

Three-axis antenna (H-field) 3581/02

| RF Data | | | |
|---|---|--|-----------------------|
| Frequency range | 9 kHz to 250 MHz The correction factors determined individually during calibration are stored in an EEPROM and are applied automatically when used in conjunction with the SRM basic unit. | | |
| Antenna type | H-field | | |
| Sensor type | Three-axis active magnetic loop design with scanned axes | | |
| Dynamic range ^f | 2.5 μ A/m to 560 mA/m (typ.) | | |
| Maximum field strength (destruction limit) | 250 A/m / f [MHz] (nom.) | | |
| Displayed Average Noise Level (DANL) in conjunction with the SRM basic unit | Frequency range | Single-axis measurement with isotropic antenna | Isotropic measurement |
| | > 1 MHz (RBW = 1 kHz) | 0.5 μ A/m (typ.) | 0.85 μ A/m (typ.) |
| RF connector | N-Connector, 50 Ω , male | | |

| General specification | | | | |
|----------------------------------|--------------------|---|--|--|
| Operating temperature range | | -10 °C to +50 °C (same as SRM basic unit) | | |
| Compliance | Climatic | Storage | 1K3 (IEC 60721-3) extended to -10 °C to +50 °C | |
| | | Transport | 2K4 (IEC 60721-3) -40 °C to +70 °C | |
| | | 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) | |
| | Ingress protection | | IP 52 (antenna connected) | |
| | EMC | EU | 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, 61000-4-8, 61000-4-11 | |
| Emission | | 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 | | |
| Material | | Complies with European RoHS Directive 2011/65/EU | | |
| Air humidity (operating range) | | < 29 g/m ³ (< 93 % RH at +30 °C), non-condensing | | |
| Weight | | 470 g | | |
| Dimensions | | 450 mm length; 120 mm antenna head diameter | | |
| Calibration | | 178 reference points: The SRM basic unit applies linear interpolation between reference points | | |
| Recommended calibration interval | | 24 months | | |
| Country of origin | | Germany | | |

^f For a signal to noise ratio of 10 dB (RBW = 1 kHz); 3 MHz to 250 MHz

| Measurement uncertainty | | | |
|---|-----------------|---|-----------------------|
| Expanded measurement uncertainty ⁹ (in conjunction with SRM basic unit and 1.5 m RF cable) | Frequency range | Single-axis measurement with isotropic antenna | Isotropic measurement |
| | 0.009 – 60 MHz | ±2.2 dB | ±2.5 dB |
| | > 60 – 250 MHz | ±2.3 dB | ±3.3 dB |

⁹ Valid for the temperature range +15 °C to +30 °C, according to the definition on page 3

Specifications – Single-axis antennas

Single-axis antenna (E-field) 3531/01

| RF Data | |
|---|--|
| Frequency range | 27 MHz to 3 GHz The correction factors determined individually during calibration are stored in an EEPROM and are applied automatically when used in conjunction with the SRM basic unit. |
| Antenna type | E-field |
| Sensor type | Single-axis passive broadband dipole |
| Dynamic range ^h | 60 µV/m to 80 V/m (typ.) |
| Maximum field strength (destruction limit) | > 300 V/m or 25 mW/cm ² (nom.) |
| Displayed Average Noise Level (DANL) in conjunction with the SRM basic unit | 20 µV/m (typ.) from 100 MHz to 2.2 GHz with RBW = 1 kHz |
| Measurement range limit (for single CW signal) | 160 V/m (typ.) |
| RF connector | N-Connector, 50 Ω, male |

| General specification | | | | |
|----------------------------------|--------------------|---|--|--|
| Operating temperature range | | -10 °C to +50 °C (same as SRM basic unit) | | |
| Compliance | Climatic | Storage | 1K3 (IEC 60721-3) extended to -10 °C to +50 °C | |
| | | Transport | 2K4 (IEC 60721-3) -40 °C to +70 °C | |
| | | 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) | |
| | Ingress protection | | IP 52 (antenna connected) | |
| | EMC | EU | 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, 61000-4-8, 61000-4-11 | |
| | | Emission | 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 | | |
| Material | | Complies with European RoHS Directive 2011/65/EU | | |
| Air humidity (operating range) | | < 29 g/m ³ (< 93 % RH at +30 °C), non-condensing | | |
| Weight | | 450 g | | |
| Dimensions | | 460 mm length; 135 mm x 90 mm antenna head diameter | | |
| Calibration | | 24 reference points: (26, 30, 40, 50, 60, 75, 100, 200, 300, 433, 600, 750, 900) MHz (1, 1.2, 1.4, 1.6, 1.8, 2, 2.2, 2.45, 2.6, 2.8, 3) GHz The SRM basic unit applies linear interpolation between reference points | | |
| Recommended calibration interval | | 24 months | | |
| Country of origin | | Germany | | |

^h For a signal to noise ratio of 10 dB (RBW = 1 kHz); 100 MHz to 2.2 GHz

| Measurement uncertainty | | |
|---|-------------------|-------------------------|
| Expanded measurement uncertainty ⁱ (in conjunction with SRM basic unit and 1.5 m RF cable) | Frequency range | Single-axis measurement |
| | 26 – 300 MHz | ±2.1 dB |
| | > 300 – 433 MHz | ±2.4 dB |
| | > 433 – 1600 MHz | ±2.2 dB |
| | > 1600 – 3000 MHz | ±1.9 dB |

ⁱ Valid for the temperature range +15 °C to +30 °C, according to the definition on page 3

Single-axis antenna (E-field) 3531/04

| RF Data | |
|---|---|
| Frequency range | 9 kHz to 300 MHz The correction factors determined individually during calibration are stored in an EEPROM and are applied automatically when used in conjunction with the SRM basic unit. |
| Antenna type | E-field |
| Sensor type | Single-axis active broadband dipole |
| Dynamic range ^j | 50 µV/m to 16 V/m (typ.) for 300 kHz to 10 MHz 50 µV/m to 36 V/m (typ.) for > 10 MHz to 300 MHz |
| Maximum field strength (destruction limit) | > 1000 V/m (nom.) |
| Displayed Average Noise Level (DANL) in conjunction with the SRM basic unit | 20 µV/m (typ.) for each frequency > 1 MHz with RBW = 1 kHz |
| Measurement range limit (for single CW signal) | 50 V/m (typ.) |
| RF connector | N-Connector, 50 Ω, male |

| General specification | | | | |
|----------------------------------|--------------------|---|--|--|
| Operating temperature range | | -10 °C to +50 °C (same as SRM basic unit) | | |
| Compliance | Climatic | Storage | 1K3 (IEC 60721-3) extended to -10 °C to +50 °C | |
| | | Transport | 2K4 (IEC 60721-3) -40 °C to +70 °C | |
| | | 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) | |
| | Ingress protection | | IP 52 (antenna connected) | |
| | EMC | EU | 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, 61000-4-8, 61000-4-11 | |
| Emission | | 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 | | |
| Material | | Complies with European RoHS Directive 2011/65/EU | | |
| Air humidity (operating range) | | < 29 g/m ³ (< 93 % RH at +30 °C), non-condensing | | |
| Weight | | 550 g | | |
| Dimensions | | 460 mm length; 135 mm x 90 mm antenna head diameter | | |
| Calibration | | 183 reference points: The SRM basic unit applies linear interpolation between reference points | | |
| Recommended calibration interval | | 24 months | | |
| Country of origin | | Germany | | |

^j For a signal to noise ratio of 10 dB (RBW = 1 kHz)

| Measurement uncertainty | | |
|---|-----------------|-------------------------|
| Expanded measurement uncertainty ^k (in conjunction with SRM basic unit and 1.5 m RF cable) | Frequency range | Single-axis measurement |
| | 0.009 – 300 MHz | ±2.0 dB |

^k Valid for the temperature range +15 °C to +30 °C, according to the definition on page 3

Single-axis antenna (H-field) 3551/02

| RF Data | |
|---|---|
| Frequency range | 9 kHz to 300 MHz The correction factors determined individually during calibration are stored in an EEPROM and are applied automatically when used in conjunction with the SRM basic unit. |
| Antenna type | H-field |
| Sensor type | Single-axis active magnetic loop |
| Dynamic range ¹ | 0.4 μ A/m to 71 A/m (typ.) |
| Maximum field strength (destruction limit) | > 2.65 A/m above 1 MHz (nom.) |
| Displayed Average Noise Level (DANL) in conjunction with the SRM basic unit | 0.12 μ A/m (typ.) for each frequency > 10 MHz with RBW = 1 kHz |
| Measurement range limit (for single CW signal) | 100 mA/m (typ.) |
| RF connector | N-Connector, 50 Ω , male |

| General specification | | | | |
|----------------------------------|--------------------|---|--|--|
| Operating temperature range | | -10 °C to +50 °C (same as SRM basic unit) | | |
| Compliance | Climatic | Storage | 1K3 (IEC 60721-3) extended to -10 °C to +50 °C | |
| | | Transport | 2K4 (IEC 60721-3) -40 °C to +70 °C | |
| | | 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) | |
| | Ingress protection | | IP 52 (antenna connected) | |
| | EMC | EU | 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, 61000-4-8, 61000-4-11 | |
| Emission | | 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 | | |
| Material | | Complies with European RoHS Directive 2011/65/EU | | |
| Air humidity (operating range) | | < 29 g/m ³ (< 93 % RH at +30 °C), non-condensing | | |
| Weight | | 450 g | | |
| Dimensions | | 460 mm length; 43 mm x 100 mm antenna head diameter | | |
| Calibration | | 183 reference points: The SRM basic unit applies linear interpolation between reference points | | |
| Recommended calibration interval | | 24 months | | |
| Country of origin | | Germany | | |

¹ For a signal to noise ratio of 10 dB (RBW = 1 kHz); for frequencies > 10 MHz

| Measurement uncertainty | | |
|---|-----------------|-------------------------|
| Expanded measurement uncertainty ^m (in conjunction with SRM basic unit and 1.5 m RF cable) | Frequency range | Single-axis measurement |
| | 0.009 – 300 MHz | ±2.0 dB |
| | > 1 – 300 MHz | ±1.8 dB |

^m Valid for the temperature range +15 °C to +30 °C, according to the definition on page 3

Ordering information

Instrument sets

SRM-3006, Selective Radiation Meter, Set 2

| Description | Part number |
|--|---|
| Basic Unit without Antenna Includes: <ul style="list-style-type: none"> › Selective Radiation Meter, Basic Unit, SRM-3006 › RF-Cable SRM, 9kHz-6GHz, N 50 Ohm, 1.5m (3602/01) › Carrying Strap for SRM (Basic Unit) (3001/90.02) › Holding Strap for SRM-3006 Basic Unit (3001/90.12) › Operating Manual SRM-3006, English (3006/98.21) › Power Supply 12VDC, 100V-240VAC, all Plugs (2259/92.04) › Software, SRM-3006 Tools (3006/93.01) › Cable, USB 2.0, Master/Slave - A/B mini (2260/90.55) › Reference Book Measuring RF Electromagnetic Fields (3006/98.25) › Safety Instructions (3300/98.10) › SRM Hardcase Trolley (3006/90.01) › Calibration Certificates: Basic Unit, RF-Cable | With Trolley Hardcase 3006/202 |

SRM-3006, Selective Radiation Meter, Set 4

| Description | Part number |
|--|---|
| Basic Unit plus one Isotropic Antenna (420 MHz – 6 GHz) Includes: <ul style="list-style-type: none"> › Selective Radiation Meter, Basic Unit, SRM-3006 › Antenna, Three-Axis, E-Field, 420 MHz-6GHz (3502/01) › RF-Cable SRM, 9kHz-6GHz, N 50 Ohm, 1.5m (3602/01) › Carrying Strap for SRM (Basic Unit) (3001/90.02) › Holding Strap for SRM-3006 Basic Unit (3001/90.12) › Operating Manual SRM-3006, English (3006/98.21) › Power Supply 12VDC, 100V-240VAC, all Plugs (2259/92.04) › Software, SRM-3006 Tools (3006/93.01) › Cable, USB 2.0, Master/Slave - A/B mini (2260/90.55) › Reference Book Measuring RF Electromagnetic Fields (3006/98.25) › Safety Instructions (3300/98.10) › SRM Hardcase Trolley (3006/90.01) › Calibration Certificates: Basic Unit, RF-Cable, Antenna | With Trolley Hardcase 3006/204 |

SRM-3006, Selective Radiation Meter, Set 6

| Description | Part number |
|---|---|
| Basic Unit plus two Isotropic Antennas Includes: <ul style="list-style-type: none"> › Selective Radiation Meter, Basic Unit, SRM-3006 › Antenna, Three-Axis, E-Field, 420 MHz-6GHz (3502/01) › Antenna, Three-Axis, E-Field, 27 MHz-3GHz (3501/03) › RF-Cable SRM, 9kHz-6GHz, N 50 Ohm, 1.5m (3602/01) › Carrying Strap for SRM (Basic Unit) (3001/90.02) › Holding Strap for SRM-3006 Basic Unit (3001/90.12) › Operating Manual SRM-3006, English (3006/98.21) › Power Supply 12VDC, 100V-240VAC, all Plugs (2259/92.04) › Software, SRM-3006 Tools (3006/93.01) › Cable, USB 2.0, Master/Slave - A/B mini (2260/90.55) › Reference Book Measuring RF Electromagnetic Fields (3006/98.25) › Safety Instructions (3300/98.10) › SRM Hardcase Trolley (3006/90.01) › Calibration Certificates: Basic Unit, RF-Cable, Antennas | With Trolley Hardcase 3006/206 |

SRM-3006, Selective Radiation Meter, Set 8

| Description | Part number |
|--|---|
| Basic Unit plus one Isotropic Antenna (27 MHz – 3 GHz) Includes: <ul style="list-style-type: none"> › Selective Radiation Meter, Basic Unit, SRM-3006 › Antenna, Three-Axis, E-Field, 27 MHz-3GHz (3501/03) › RF-Cable SRM, 9kHz-6GHz, N 50 Ohm, 1.5m (3602/01) › Carrying Strap for SRM (Basic Unit) (3001/90.02) › Holding Strap for SRM-3006 Basic Unit (3001/90.12) › Operating Manual SRM-3006, English (3006/98.21) › Power Supply 12VDC, 100V-240VAC, all Plugs (2259/92.04) › Software, SRM-3006 Tools (3006/93.01) › Cable, USB 2.0, Master/Slave - A/B mini (2260/90.55) › Reference Book Measuring RF Electromagnetic Fields (3006/98.25) › Safety Instructions (3300/98.10) › SRM Hardcase Trolley (3006/90.01) › Calibration Certificates: Basic Unit, RF-Cable, Antenna | With Trolley Hardcase 3006/208 |

Ordering Information Software and Accessories

Your local Narda representative will inform you of all possible options as well as the current ordering information and will be pleased to provide you with advice.

Antennas

| Description | Part number |
|--|-------------|
| Antenna, Three-Axis, E-Field, 27 MHz – 3 GHz | 3501/03 |
| Antenna, Three-Axis, E-Field, 420 MHz – 6 GHz | 3502/01 |
| Antenna, Three-Axis, H-Field, 9 kHz – 250 MHz | 3581/02 |
| Antenna, Single-Axis, E-Field, 27 MHz – 3 GHz | 3531/01 |
| Antenna, Single-Axis, E-Field, 9 kHz – 300 MHz | 3531/04 |
| Antenna, Single-Axis, H-Field, 9 kHz – 300 MHz | 3551/02 |

Options

| Description | Part number |
|-----------------------------------|-------------|
| Option, UMTS P-CPICH Demodulation | 3701/04 |
| Option, Scope | 3701/05 |
| Option, LTE (for FDD networks) | 3701/06 |
| Option, LTE (for TDD networks) | 3701/07 |
| Option, 5G NR | 3701/08 |

Software

| Description | Part number |
|---|-------------|
| Software, SRM-3006 Tools, Configuration SW (included in all sets) | - |
| Software, SRM-3006 TS, PC Evaluation and Remote | 3006/93.10 |

Accessories

| Description | Part number |
|---|-------------|
| Antenna Holder for Uniaxial/Triaxial Antenna | 3501/90.01 |
| Antenna Holder for Triaxial Antenna | 3501/90.02 |
| RF-Cable, 9kHz-6GHz, 1.5m, N 50 Ohm (included in all sets) | 3602/01 |
| RF-Cable, 9kHz-6GHz, 5m, N 50 Ohm | 3602/02 |
| Tripod, Non-Conductive, 1.65 m with carrying bag | 2244/90.31 |
| Tripod Extension, 0.50m, Non-Conductive | 2244/90.45 |
| Battery Pack, Rechargeable, 7V2 / 6200 mAh (one is included in each SRM Basic Unit) | 3001/90.15 |
| Charger Set for Battery Pack, External | 3001/90.07 |
| Power Supply DC Vehicle Adapter | 2260/90.56 |
| SRM Hardcase Trolley (for up to three antennas), replaces 3001/90.05 and 3001/90.03 | 3006/90.01 |
| Protective Soft Carrying Bag for SRM-3006 Basic Unit | 3001/90.13 |
| N-Connector Saver for SRM | 3001/90.14 |
| O/E Converter USB, RP-02/USB | 2260/90.07 |
| Cable, FO Duplex, F-SMA to RP-02, 0.3m | 2260/91.01 |
| Cable, FO Duplex, RP-02, 2m | 2260/91.02 |
| Cable, FO Duplex, RP-02, 5m | 2260/91.09 |
| Cable, FO Duplex, RP-02, 10m | 2260/91.07 |

| Description | Part number |
|---|-------------|
| Cable, FO Duplex, RP-02, 20m | 2260/91.03 |
| Cable, FO Duplex, RP-02, 50m | 2260/91.04 |
| Earphone, 3.5mm Plug | 2400/90.03 |
| Reference Book Measuring RF Electromagnetic Fields (included in all sets) | 3006/98.25 |
| Operating Manual SRM-3006, German (select for free instead of English) | 3006/98.01 |

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