FAQs FR2 Antenna

How to measure isotropic as required by many standards?

With the directional antenna it's not as easy, you must wipe around a lot. With the omnidirectional antenna it's already close to isotropic, if you hold it over head or place it pointing upwards onto a tripod. Placing it onto the antenna holder and do a 3-axis measurement according to the pre-defined sequence with SRM-3006, you will get an isotropic result.

Can I measure different services e.g., point-to-point communication with FR2 antennas?

Yes, for sure! The antennas have no restrictions to 5G, they can measure any service which falls into its frequency and dynamic range.

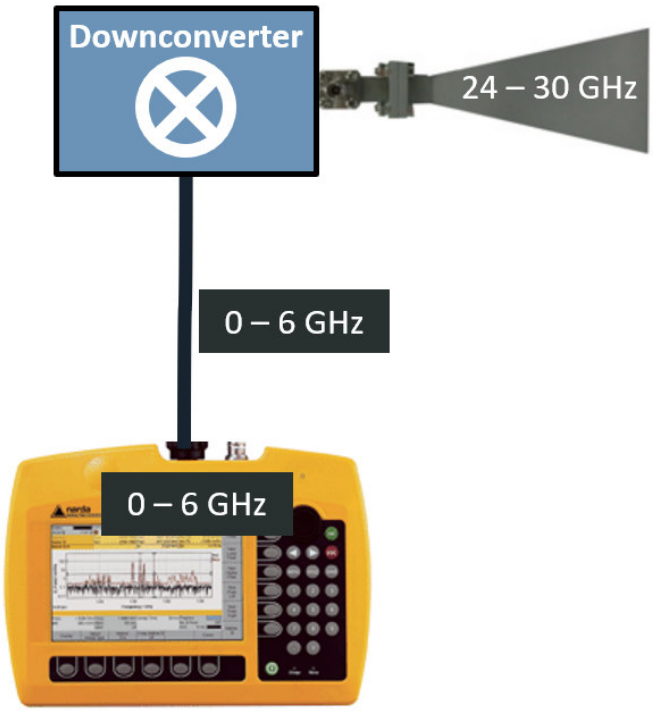
Can I measure in different bands?

With the FR2 Antenna, SRM can provide measurements in two different bands:

- Band A: 24.25 – 27.7 GHz
- Band B: 26.5 – 29.5 GHz

Bands are overlapping and fit to the frequency definitions of 3GPP. Full-span measurement e.g., from 24.25 – 29.5 GHz is not possible, same as a safety evaluation table including both bands.

What is the meaning of “LNB”?
LNB stands for “Low-Noise Block downconverter”, known from satellite TV-dishes.



It’s down converting mm-Waves into mid-frequency range so that the signal can be more easily transported and processed.

E.g.:	TV	11.70 – 12.75 GHz	down to	950 – 2150 MHz
	SRM	24.25 – 29.5 GHz	down to	9 kHz to 6 GHz

How to work with the attenuator?

The attenuator is positioned between antenna-element and input of the LNB. The attenuator provides an attenuation of 10 dB. If high field strength is measured, it can reduce the level at the input of the LNB to avoid saturation effects

How to handle horizontal and vertical polarization?
To measure field strength correctly with the directional antenna, you must measure both polarizations and sum both field strength quadratically. See video:
https://www.youtube.com/watch?v=uFi-LN653ig

How to orientate the antenna, horizontally or vertically?

1. Directional antenna: Point to the antenna

2. Omnidirectional antenna: Pointing it vertically into the sky

Can I make measurements against a standard?

Yes. The standards in SRM are defined beyond 6 GHz and can therefore also be used in FR2.

Are limit values and measurement procedures available for FR2?

The new 5G bands are covered by most national and international standards and measurement regulations. These were defined long before 5G up to 300 GHz.

How to measure the magnetic field or the power density in FR2?

Physically there are no antennas available to measure magnetic field in those frequencies with sufficient E-field suppression. As the wavelength is very short, nearly all measurements will be done under far-field conditions, so E-field measurements are sufficient. Under far-field condition power-density can be calculated (by SRM) from E-field provided by SRM.

How to measure a 5G NR service?

With exception of code-selective measurements all measurement modes are available:

- Safety Evaluation
- Spectrum
- Level Recorder
- Scope

How to measure code-selective in FR2?

Currently there is no technical solution to measure code-selective in FR2 with the SRM-3006. In FR2, the subcarrier spacing SCS is 60 or 120 kHz. This means that the bandwidth occupied by the synchronization signal is too wide to be detected by the SRM.

How to do extrapolation to maximum traffic?

Code-selective measurements are not possible in FR2. Extrapolation based on time analysis measurements (Scope-mode) are possible.

How can I suppress uplink signals?

In TDD systems, uplinks operate at same frequency range as downlink. If uplinks cannot be avoided, directional antenna can be the better solution to certify a base station.

FR2 goes >29 GHz, when will higher frequencies be available for SRM?

Up to now, only a small number of countries really use higher frequencies. If more response comes from the market, Narda is prepared to react.

Do I have to update SRM-TS/Tools?

Yes, available at Narda webpage free of charge.
SRM (narda-sts.com)

Is hardware modification essential to measure with the new antenna?

No, only a software update which the user can do by his own (see above).

Can SRM-3000 or SignalShark handle the new antenna?

SRM-3000: no. For SignalShark: not up to now.

Can I connect the antenna directly to the SRM or do I need a cable?

Mechanically it is possible to connect it directly to the SRM but due to mechanical stress not recommended by Narda.

Do I need a new cable up to 30 GHz?

No. The LNB inside the antenna changes the frequencies form 24.25 – 29.5 GHz to 9 kHz to 6 GHz. So, the re-use of the 6 GHz antenna-cable is possible.

Can I use any USB-C charger?

Yes, but it must supply min. 1 ampere.

For long term measurements, can I use external power supply?

Yes, but we recommend to use a power-bank instead of a charger for not grounding the antenna. Operation with internal battery appr. 4h.

Is it possible to replace the batterie in the FR2 Antenna?

Not by your own. Only service can do it.

Which are the antenna gains of the different antennas?

For the directional antenna:	typ. 10 dBi
For the omnidirectional antenna:	typ. 3 dBi

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