



# XIRIUM

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# PRO

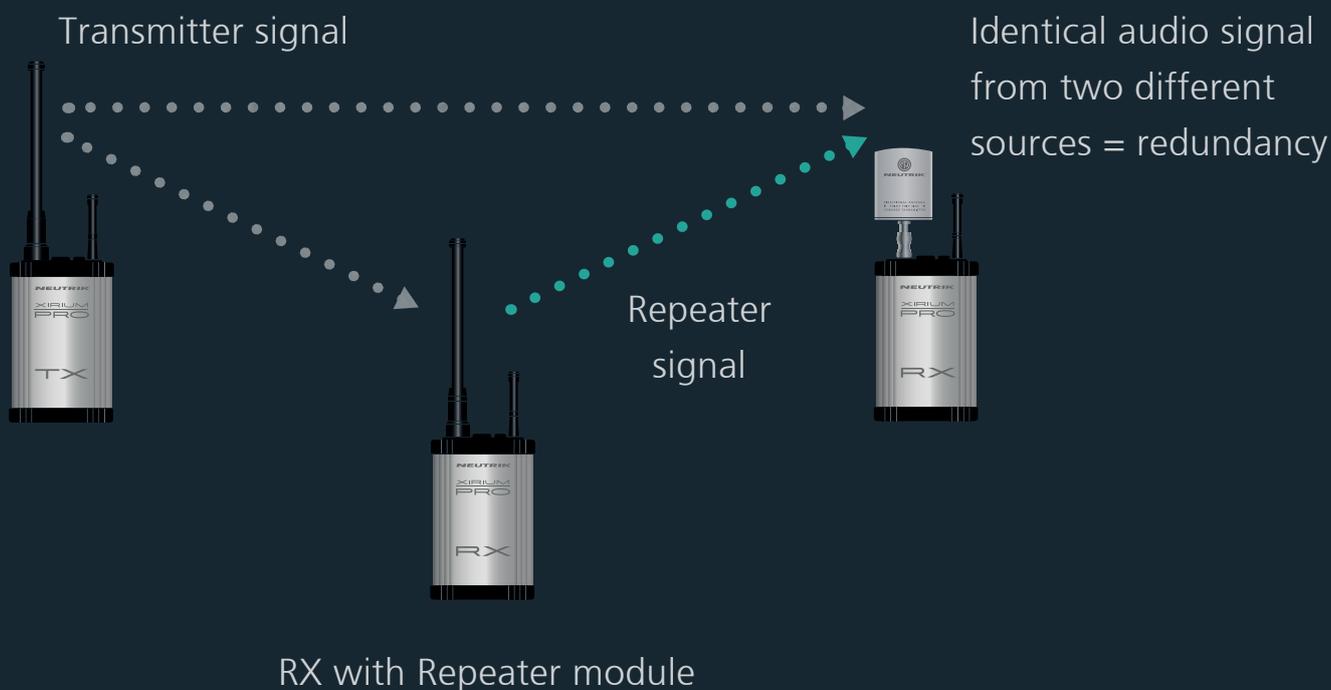
# Mounting Guide

Certified for U-NII-3 ISM band

## Line-of-sight + redundant RF path

For a reliable wireless audio link, make sure all XIRIUM PRO devices have line-of-sight. If a link cannot be established with line-of-sight, the receiver may be in a drop-out zone.

A drop-out zone is a point where phase cancellation occurs between the direct signal and the deflected one. Relocating the transmitter (TX) and/or receiver (RX) can help eliminate this phase anomaly. The use of a repeater can eliminate this problem as it provides a redundant RF path to all receivers within range. The RX receives the identical audio signal from two different sources (Transmitter and Repeater).

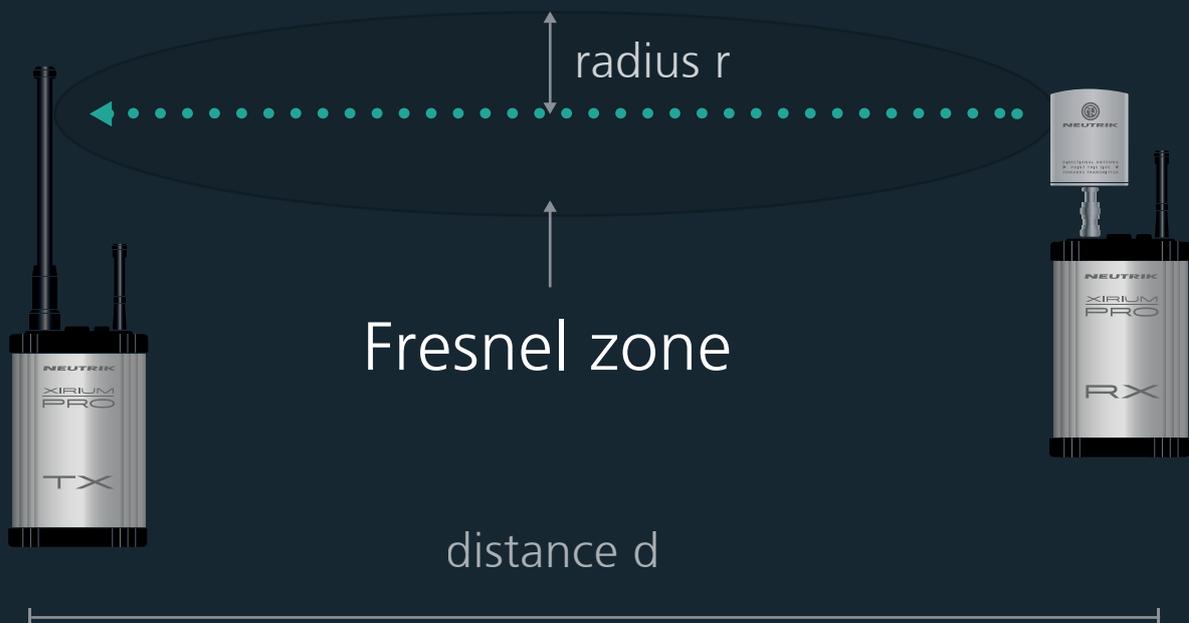


Repeater as a redundant RF path

## Antenna height + distance

Consider the Fresnel zone, which is an ellipsoid shaped area between wireless devices. XIRIUM PRO TX and RX units should be free of any obstacles within the Fresnel Zone. Maintaining proper antenna height becomes essential to ensure trouble-free communication between XIRIUM PRO devices.

To define an area that is free of obstacles, use the following chart to estimate proper antenna height.



This chart lists the radius of an ellipsoid for specific distances between TX and RX antennas:

distance d	50 m	100 m	300 m	500 m
radius r	0,87 m	1,22 m	2,12 m	2,74 m

Any wireless RF system design employing XIRIUM PRO should consider the height of the antennas and the distance between devices. For a setup with a single transmitter and a number of receivers the minimum distance between the TX and any RX should be 10 meter\*.



When these factors are properly addressed, consistent links can be established.

\* For shorter distances enter Advanced Mode in the Xirium PRO app to enable the RF attenuator on the RX.

# Antennas

Neutrik offers two different antennas for the XIRIUM PRO Europe version:

## NXPA-6-360-25



Use this antenna for each TX and for a RX with a repeater module inserted!



Transmitter



Repeater

## NXPA-14-40-35



To increase the RSSI level all other RX modules should be used with a RX in combination with the directional antenna NXPA-14-40-35



Receiver

Use this antenna in combination with an antenna cable (e.g. Neutrik's NKXPA-5) as a remote antenna setup:

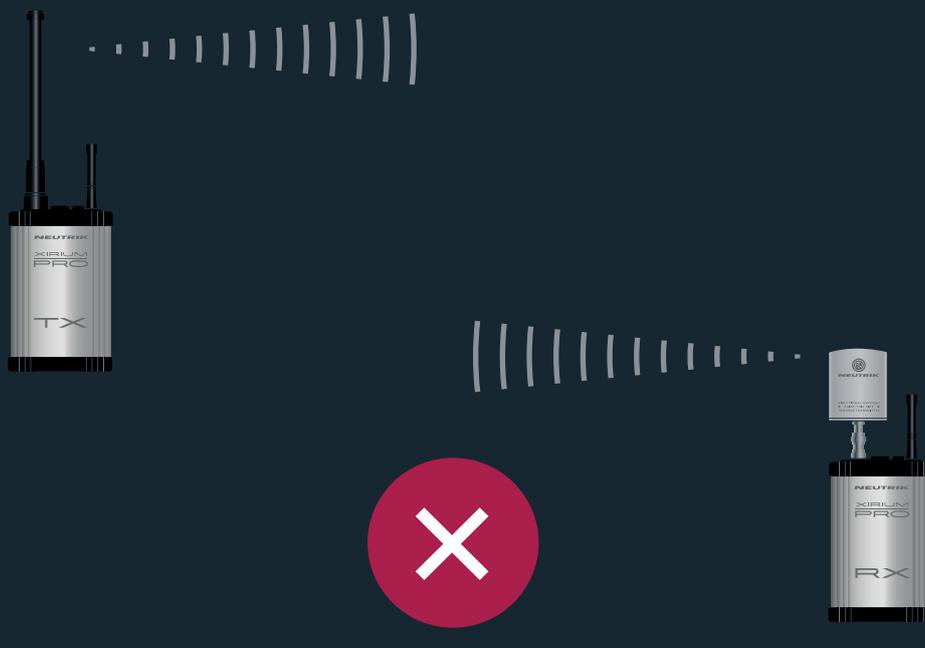
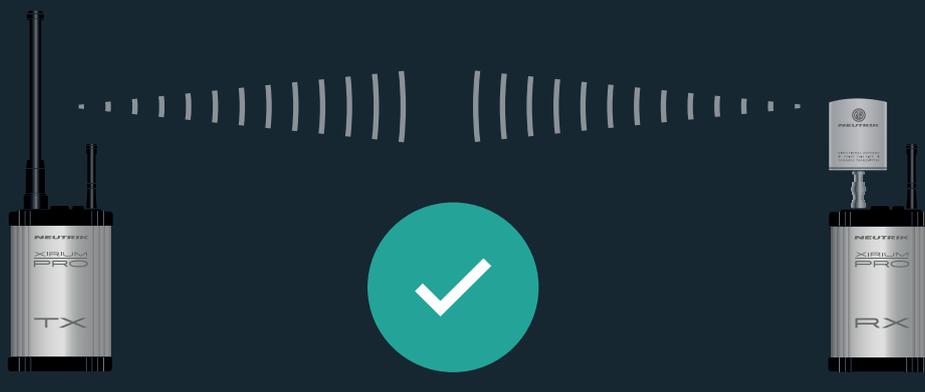
## NXPA-18-18-18



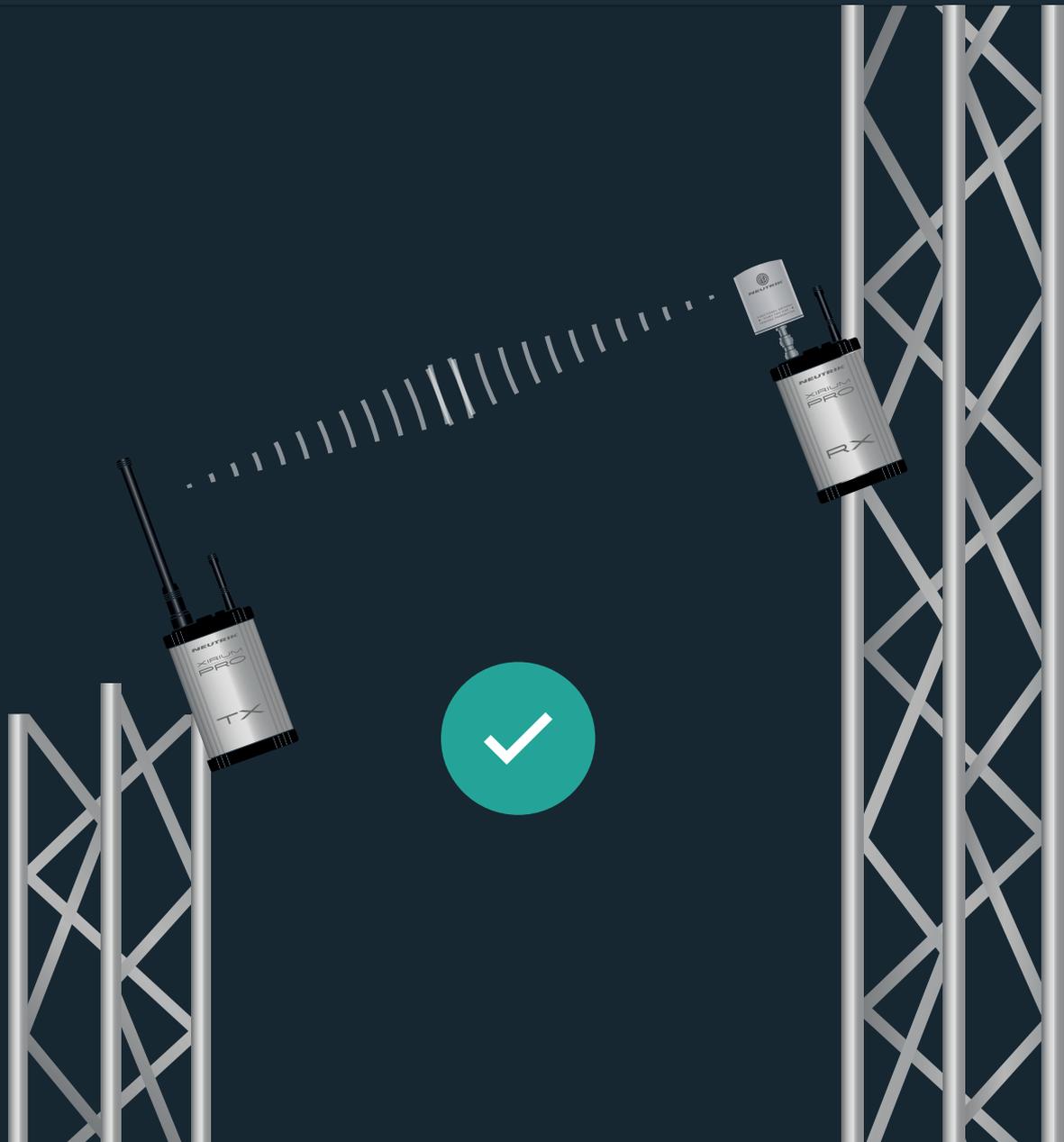
18° horizontal

Due to RF regulations, directional antennas NXPA-14-40-35 and NXPA-18-18-18 may only be used with audio module equipped receivers, not with repeaters or transmitters.

Please make sure that the antennas of each device are at the same height with respect to each other (this is not the same as having equal height from ground-level).



Here, antennas are shown at different heights, but are aligned at the same angle with a clear line-of-sight.



## Signal quality display

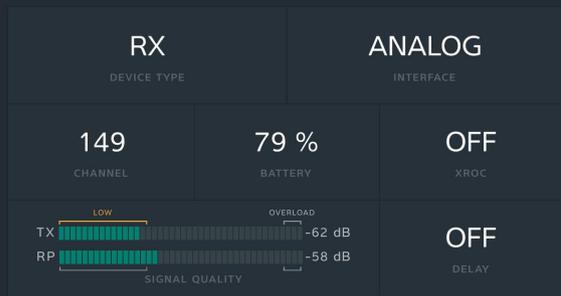
The Signal quality bar displays both RSSI level and packet loss. The number of bars (left to right) refers to the RSSI level (Received Signal Strength Indicator), whereas the color of the bar meter displays the packet loss. Green bars indicate low packet-loss, amber bars indicate moderate to bad packet loss, and red bars indicate critical packet loss.

RSSI level should remain between the “low” and “overload” areas. The colour of the bars should be green!



Good signal quality is not only measured by having the highest RSSI level. It's more important to have low packet loss (i.e. green bars). When necessary, engage the RX -30 dB attenuator in the app by setting it to ON.

## RX PRO 600007



Name RX PRO 600007 >

Delay

Delay Time 3000 ms >

Info & Settings >

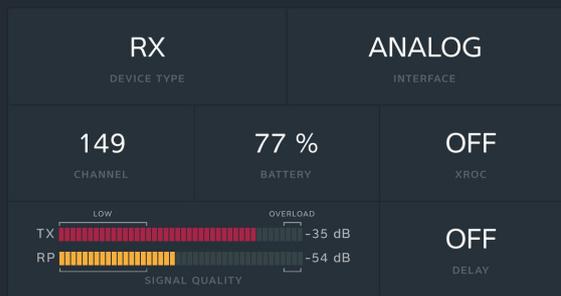
IDENTIFY DEVICE

RESET DEVICE

### Example 1

Although the RSSI level from the TX is low (indicated by the amber colored low bar and bracket), the packet-loss is good (green). The solution to improve the transmission path would be a repositioning of the devices.

## RX PRO 600007



Name RX PRO 600007 >

Delay

Delay Time 3000 ms >

Info & Settings >

IDENTIFY DEVICE

RESET DEVICE

### Example 2

The RSSI level is good from the TX. The transmission power of the repeater could be increased slightly. The colors of the signal bars indicate a critical (TX) and moderate/bad (RP) packet-loss. In this example, relocating the devices should be considered. It might also be worth to change the RF channel. Maybe there are other RF devices transmitting on this channel. A change to a different channel solves this problem then.

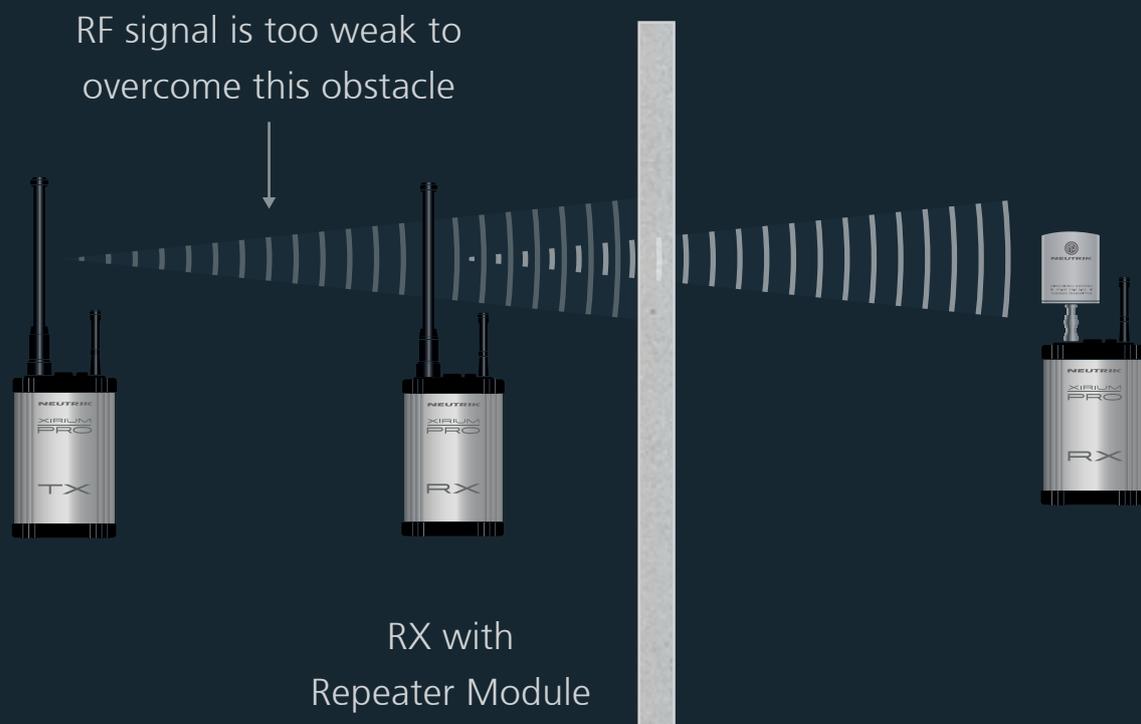
## XROC mode

When a Transmitter is sending a single audio channel, consider activating XROC mode. XROC stands for “Extreme ruggedized one channel”. XROC mode employs a different modulation technique, which alters the data-rate. This creates a wireless link which is less susceptible to RF interference, while still maintaining the studio quality and zero compression of the audio signal. To properly measure the signal quality with XROC mode on, the RX signal strength meter (RSSI) will scale to display a smaller “low” area, adjusting for the increased headroom XROC mode provides. XROC mode may be switched on and off individually from any TX in the Edit menu.



# Overcoming obstacles

The use of a repeater (RX base station with Repeater module installed), will provide a redundant RF path, allowing audio transmission from a second location. The use of a repeater also helps overcome RF signal barriers, such as walls, glass, and corners. Only one repeater may be used with a transmitter.

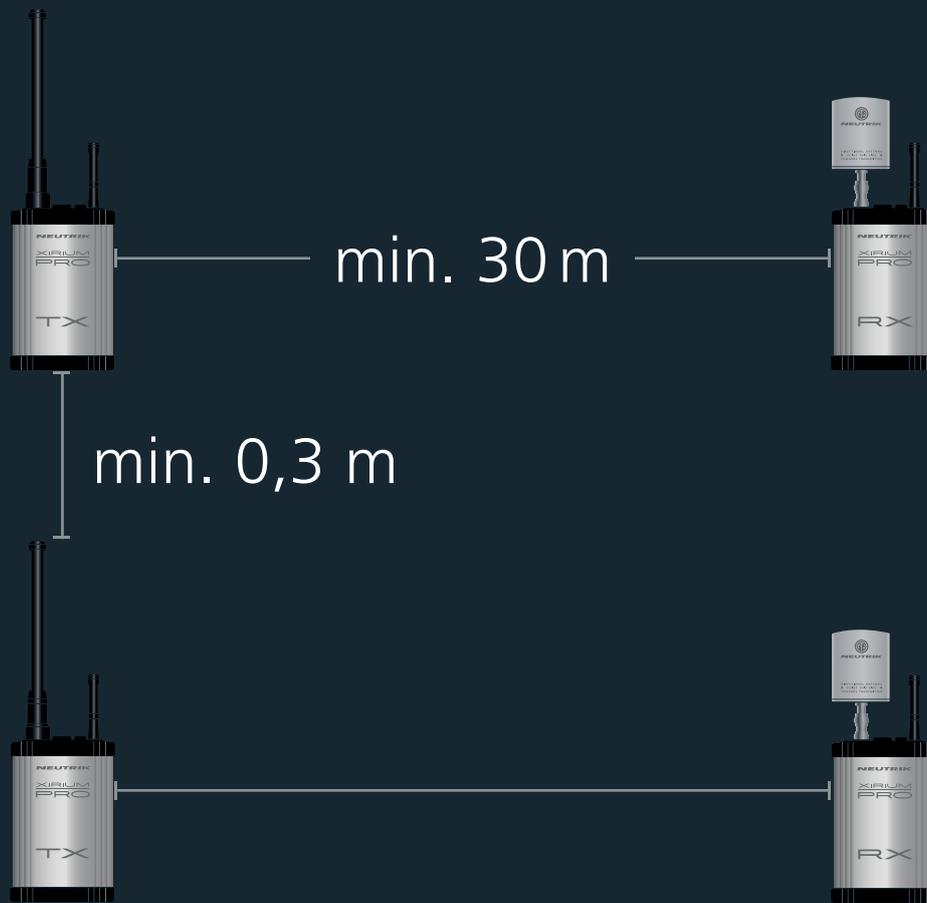


Repeater as a wallbreaker

# Multiple Transmitters

When using more than one transmitter, review the following design considerations:

- Prevent one TX from overpowering another TX. This can be done by using a different height for each transmission path. If overpowering occurs, it could interrupt the audio signal of the transmission.
- Keep a distance of at least 30 cm between each transmitter.
- When multiple transmitters are used the recommended distance between TX and RX increases from 10 m to 30 m. This distance compensates for higher overall RF power levels when multiple transmitters are used in close proximity to one another.
- Maintain one unoccupied RF channel between transmitters. The XIRIUM PRO app performs this function automatically. If the transmitter channel is selected manually the user must make sure to assign non-adjacent channels.
- Generally we recommend using the RX RF attenuator, if the RSSI-level allows it.



Enjoy using the XIRIUM PRO system!