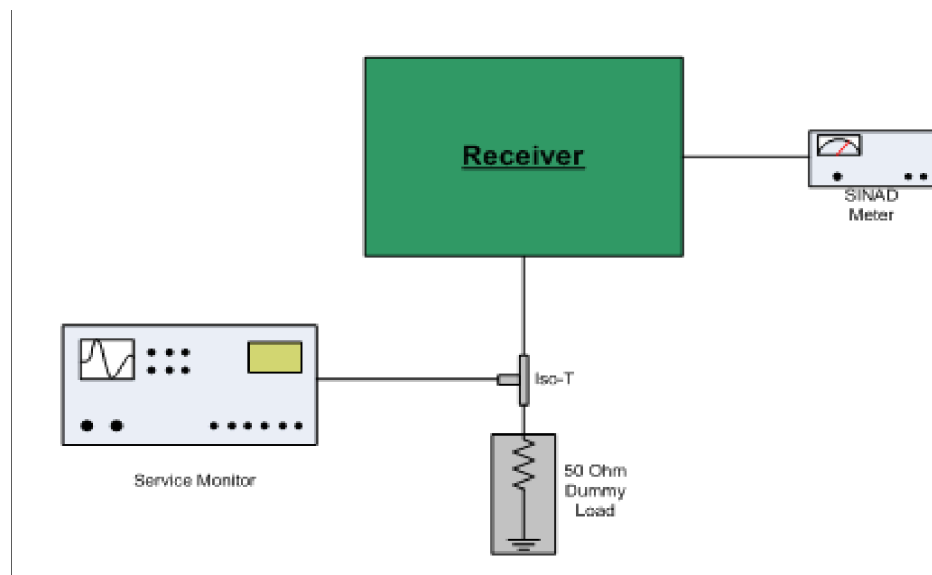


Effective Receiver Sensitivity Calculations

This document demonstrates the recommended method to determine the “Effective Receiver Sensitivity” (ERS) for your site receiver. The process consist of three separate measurement processes.

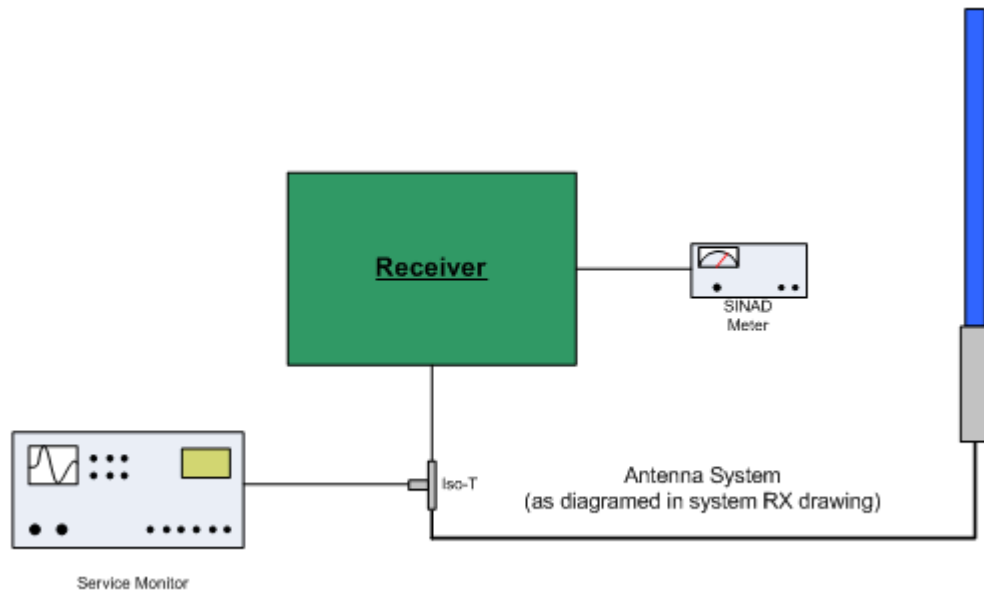
Please use this recommended procedure before starting the application for a New Coordination.

Test #1 Baseline Sensitivity at 12dB SINAD



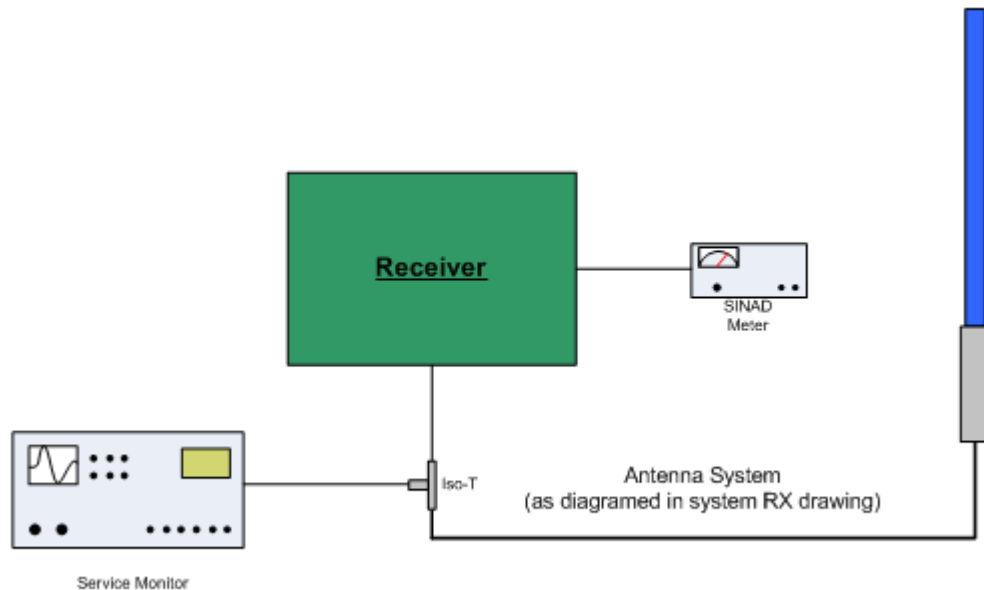
- Lock ISO-T into stable position to prevent changes in attenuation during test.
- Attach SINAD Meter to Audio output of receiver.
- Open Squelch on Receiver.
- Set Service Monitor to RX frequency and generate a 1 kHz tone to a level where the RX becomes active.
- Adjust Service monitor to measure 12 dB sensitivity in SINAD meter.
- The ISO-T has a typical loss of -20 to -40 dB, so expect the 12 dB reading to be reduced by this amount.
- Write down the value (example: -80 dBm).

Test #2 Site Desense at 12 dB SINAD



- Lock ISO-T into stable position to prevent changes in attenuation during test.
- Attach SINAD Meter to Audio output of receiver.
- Open Squelch on Receiver.
- Set Service Monitor to RX frequency and generate a 1 kHz tone to a level where the RX becomes active.
- Adjust Service monitor to measure 12 dB sensitivity in SINAD meter.
- The ISO-T has a typical loss of -20 to -40 dB so expect the 12 dB reading to be reduced by this amount.
- Write down the value (example: -78 dBm ... -2 dBm site desense).

Test #3 Site / TX Desense at 12 dB SINAD



- Lock ISO-T into stable position to prevent changes in attenuation during test.
- Attach SINAD Meter to Audio output of receiver.
- Open Squelch on Receiver.
- Set Service Monitor to RX frequency and generate a 1 kHz tone to a level where the RX becomes active.
- Key up Repeater / Link Transmitter.
- Adjust Service monitor to measure 12 dB sensitivity in SINAD meter.
- The ISO-T has a typical loss of -20 to -40 dB so expect 12 dB reading to be reduced by this amount.
- Write down the value (example: -77 dBm ... -3 dBm transmitter (and Site) desense). The TX desense is the Site / TX desense minus the Site desense (Test #2 result) ... or -1 dB TX desense.

To calculate the Effective Receiver Sensitivity (ERS) use the measurements obtained above in the outlined test procedures and the following calculations.

Baseline Sensitivity = Bs (value from step 1)
Site Desense = Sd (value from step 2)
Site/TX Desense = Td (value from step 3)

$$\text{ERS} = \text{Bs} - \text{Td} - \text{Sd}$$