

RadioOps TinySA Field Setup Procedure

RadioOps RDF Tracker • Version 1.2.0

v1.2.0 APPLICATION UPDATE

- This procedure is aligned with the RadioOps RDF Tracker v1.2.0 production release.
- The TinySA procedure remains instrument-focused. RadioOps v1.2.0 is the shared map and operational-control layer used alongside it.
- Confirm the team slot and assignment before entering bearings. During directional work, report bearing, location, and significant signal observations to NCS and enter the appropriate observation in RadioOps.
- As the search transitions Yagi → Omni → No Antenna, continue using the map as the shared operational picture. NCS remains responsible for overall Live operation control.
- Do not use a TinySA signal reading as a guaranteed distance measurement.
- If RadioOps shows a connection-loss/resync condition, verify server state before entering additional bearings.
- When a transmitter is turned off or its display is otherwise disabled by operational state, associated map display elements should no longer remain visible.

Current Training Procedure

1. Purpose

This procedure establishes the standard TinySA setup for RadioOps Dog Teams.

The TinySA is used in three stages:

Directional antenna → Omni antenna → No antenna The instrument settings remain generally the same while the antenna configuration changes as the team moves closer to the RF source.

2. Initial TinySA Setup

Step 1 — Select the Low Input

From the main screen:

MODE → LOW INPUT Connect the directional antenna to the LOW input. The Low input is the appropriate input for 2-meter RF work. The TinySA Low input covers frequencies through 350 MHz. Step 2 — Set the Frequency

From the main menu:

FREQUENCY → CENTER Enter the known transmission frequency.

For example:

146.565 MHz Press ENTER. Step 3 — Set the Span

Go to:

FREQUENCY → SPAN

Set:

100 kHz This gives the operator a narrow view around the expected transmission frequency while still allowing some frequency movement to be observed. For a signal centered at 146.565 MHz, the display will cover approximately: 146.515–146.615 MHz The TinySA supports both center/span and start/stop scanning.

3. Set the RBW

Go to:

FREQUENCY → RBW

Select:

10 kHz A 10-kHz RBW provides a useful balance between signal visibility and scan speed for this application. The TinySA supports fixed RBW selections including 3, 10, 30, 100, 300 and 600 kHz. Lower RBW settings can reduce the noise floor but increase scanning time.

4. Set the Level**Go to:**

LEVEL → UNIT

Select:

dBm

Then:

LEVEL → ATTENUATE

Select:

AUTO Automatic attenuation attempts to keep the strongest signal below approximately –25 dBm at the input, which is also the TinySA's recommended region for best measurements.

Important

As the Dog Team approaches a strong transmitter, the TinySA may increase attenuation automatically. If the display becomes overloaded or the signal is driven against the top of the display: Stop → increase attenuation → verify the signal → continue. Do not continue moving closer with an obviously overloaded display.

5. Set Marker 1**Go to:**

MARKER → MODIFY MARKER

Select:

MARKER 1

Then:

SEARCH → TRACKING Marker 1 will track the strongest signal in the displayed span. On many TinySA configurations, Marker 1 is already enabled and configured as a tracking marker by default. If the operator only wants to identify the strongest peak at a particular moment, use: MARKER → SEARCH MARKER → PEAK SEARCH

The distinction is:

TRACKING: continuously follows the strongest signal. PEAK SEARCH: moves the marker to the strongest signal during the current search.

6. Directional Antenna — Initial Dog Approach

Typical operating range Several miles down to approximately 500 ft or closer, depending on transmitter power, antenna, terrain, and RF environment. The directional antenna is used primarily to determine direction.

The Dog Team:

- 1. Points the Yagi through the suspected area.**
- 2. Finds the strongest consistent peak.**
- 3. Takes a bearing.**
- 4. Reports the bearing and location to NCS.**
- 5. Moves toward the suspected source.**

6. Repeats the process.

The objective is not to get the highest possible signal level. The objective is to establish a reliable direction.

7. Transition to Omni

Typical transition zone Approximately 100–500 ft This is a planning range only. The actual transition should occur when the directional antenna stops providing a useful advantage or the signal becomes extremely strong.

Change:

Yagi → Omni The omni antenna is now used to determine the strongest area rather than a precise bearing.

Omni Procedure

- 1. Stop.**
- 2. Observe the signal.**
- 3. Move several feet.**
- 4. Observe the signal again.**
- 5. Compare readings.**
- 6. Repeat from different directions.**
- 7. Look for a consistent increase in signal strength.**

The Dog Team may now communicate directly with other Dog Teams. Continue reporting significant findings to NCS.

8. Transition to No Antenna

Typical transition zone Approximately 0–100 ft Again, this is only a planning range. The actual transition occurs when the omni antenna is no longer useful because the signal is extremely strong or the search area has become sufficiently small.

Change:

Omni → No Antenna Remove the antenna completely from the TinySA input. The TinySA is now being used as a short-range proximity indicator.

9. No-Antenna Search

Move slowly. Compare signal levels at different positions.

Search:

Around vehicles Around buildings Behind objects Along fences Around bushes At ground level Inside likely hiding locations Do not use a specific dBm number as a guaranteed distance measurement.

For example:

–40 dBm does NOT automatically mean 50 feet. The reading depends on transmitter power, frequency, antenna configuration, reflections, terrain and nearby objects. The objective is to identify the location producing the strongest repeatable response.

10. Close-In Communication

Directional Antenna Dog → NCS

The Dog Team reports:

Position Bearing Signal observations Significant changes NCS directs the operation. Omni Antenna Dog ↔ Dog permitted

Dog Teams may compare:

Signal strength Locations Observations Search areas NCS remains responsible for overall coordination. No Antenna Dog ↔ Dog freely permitted Teams may coordinate the final search directly. Significant findings are still reported to NCS.

11. Standard Dog Team Progression

LONG RANGE YAGI Find the direction. ↓ CLOSE RANGE OMNI Find the strongest area. ↓ FINAL SEARCH NO ANTENNA Find the source.

12. Operator Rule

Do not change antennas because a specific distance has been reached. Change antennas because the current antenna is no longer giving useful information. Distance ranges are only planning guidelines. The RF environment determines the actual transition point.