



Tutorial About SuperDF:

Hunting AM Transmitters

(Aircraft Band)

We are often asked if SuperDF can hunt AM transmitters, and to compare SuperDF with the L-Tronics Little L-Per. We hope the the following will answer any questions you may have. If not, please contact us.

1. Will SuperDF hunt the Amplitude Modulated ELT signal? Yes it will, and do a very good job, too, as long as the receiver uses an FM detector. Some scanners allow manual selection of an FM detector. Most scanners can be modified to allow manually forcing them into FM mode while tuned to the aircraft frequencies.

WARNING!

SuperDF requires the use of an FM detector.

2. Because of its light weight and compactness, L-Per is the better system for pack-in wilderness searches for downed aircraft and lost hikers, searching on 121.5 MHz, the ELT frequency.
3. The SuperDF antennas are all **very rugged**, while the field Little L-Per antenna is easily damaged.
4. In appearance the two units have similar antennas, and each provide left/right indicators. Each is used in a similar manner; the antenna is rotated in the indicated direction until an on-bearing indication is obtained.
5. Both systems are able to DF signals which are so weak as to be **inaudible to the human ear**.
6. Both systems provide accuracy and **resolution of 1 to 2 degrees**. This is about as good as a handheld compass can be read.
7. The L-Per is a switched beam-pattern RDF system. The SuperDF is not a beam, but two separate dipoles selected alternately. Because its dipole elements are not used together to form a beam pattern, the SuperDF does not use a frequency sensitive antenna phasing harness like the L-Per. Thus the **very wide frequency range** of operation.
8. L-Per uses its own built-in crystal controlled receiver. **SuperDF uses any Narrow Band FM (NBFM) receiver** on the frequency of interest. This cuts costs to the buyer, as he uses his own receiver.
9. L-Per is limited to the frequencies for which crystals are installed. The required crystals cost about \$17 for frequencies not stocked by L-Tronics. Up to 4 crystals can be installed. **SuperDF uses any external NBFM receiver**, which can have synthesized frequency control. **SuperDF works very well with scanners.**
10. L-Per is limited to a small part of the frequency spectrum. The manufacturer specifies 0.5 MHz range at full sensitivity (without realignment), and reduced sensitivity over a 6 MHz range. SuperDF will operate from 100 to 250 MHz with the VHF antenna, 250 to 550 with the UHF antenna, and 550 to 1300 MHz with the GHz antenna. This is a **1200 MHz range! Thus the unit can be used for most any DF need**. One control unit works with all antennas.
11. L-Per requires manual sensitivity adjustment while hunting. This is required to prevent its internal AM receiver from being overloaded with too much signal. **SuperDF is free of adjustments while hunting**. This is because SuperDF uses RF phase difference between the two dipoles, rather than an amplitude difference between two antenna patterns. SuperDF works fine when the receiver it is connected to is fully saturated!
12. SuperDF can use an L-Per antenna without modification. L-Per will not work well with a SuperDF antenna.
13. Both units use 9 volt transistor radio batteries. L-Per uses one (or two in parallel). SuperDF has two installed. One operates the unit while the other is a spare which can be switched in from the front panel. The L-Per battery drain is advertised as a minimum of 22 ma with very low speaker volume, with up to 130 ma at full volume. SuperDF drain is 22 to 28 ma when using the LED display. (Speaker audio power is delivered by the radio to which SuperDF is connected.) SuperDF drain is about 7 ma when using the tone display. In this mode, it should **operate 3 to 18 times longer than L-Per, each using its two batteries**.
14. L-Per requires the operator to watch a meter in order to DF. This can be dangerous if the operator is driving a vehicle or walking. SuperDF has a tone pitch indicator mode. This allows **safe, eyes-free operation**.
15. SuperDF does a **very good job of averaging out multipath while mobile in motion**. A road speed of 35 MPH or more results in a very accurate and stable bearing on the strongest path present. Accuracy should be so good that the slightest movement (1 or 2 degrees) off of bearing will be indicated. This improves bearing accuracy and reduces the time needed to reach the transmitter. (To gain an understanding of how this is possible, refer to the QST article, "Direction Finding with the Interferometer," page 33, Nov, 1985. SuperDF behaves Mobile-In-Motion, second by second, in the same way the authors describe for their technique.) (The writer does not have enough experience with L-Per to allow comparing their averaging ability.)

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(31 Jan 1996, updated 17 Sep 96)

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