AS4028 Controller Configuration Manual

1. Equipment required

First of all, you need to prepare a laptop, ADS4 CE Configurator software installed on the computer, two debugging cables (USB to RS232 cable + communication cable).







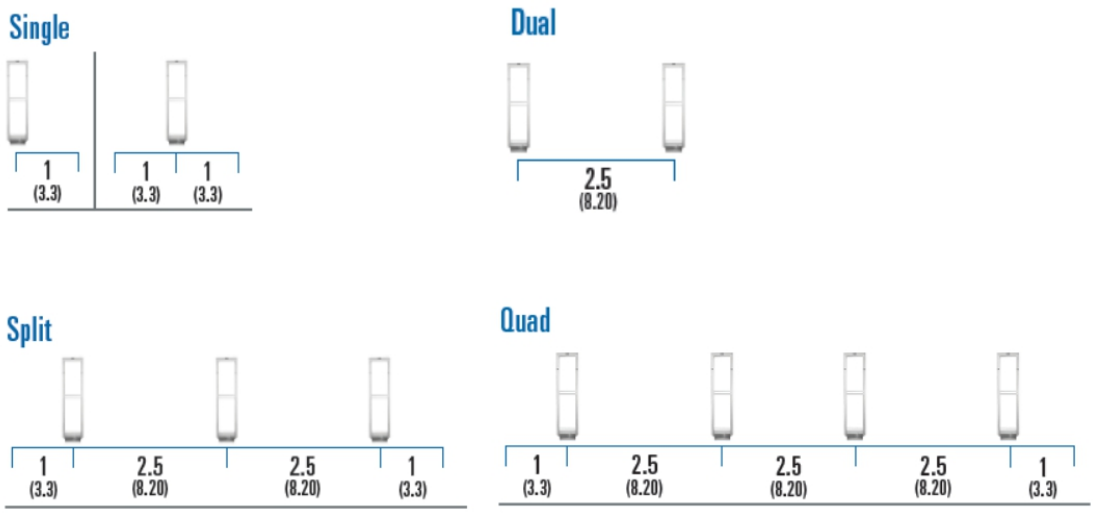
2. Connection of debugging cables

Correctly connect the debugging cables to the computer and the AMS-9060 Controller or communication board.



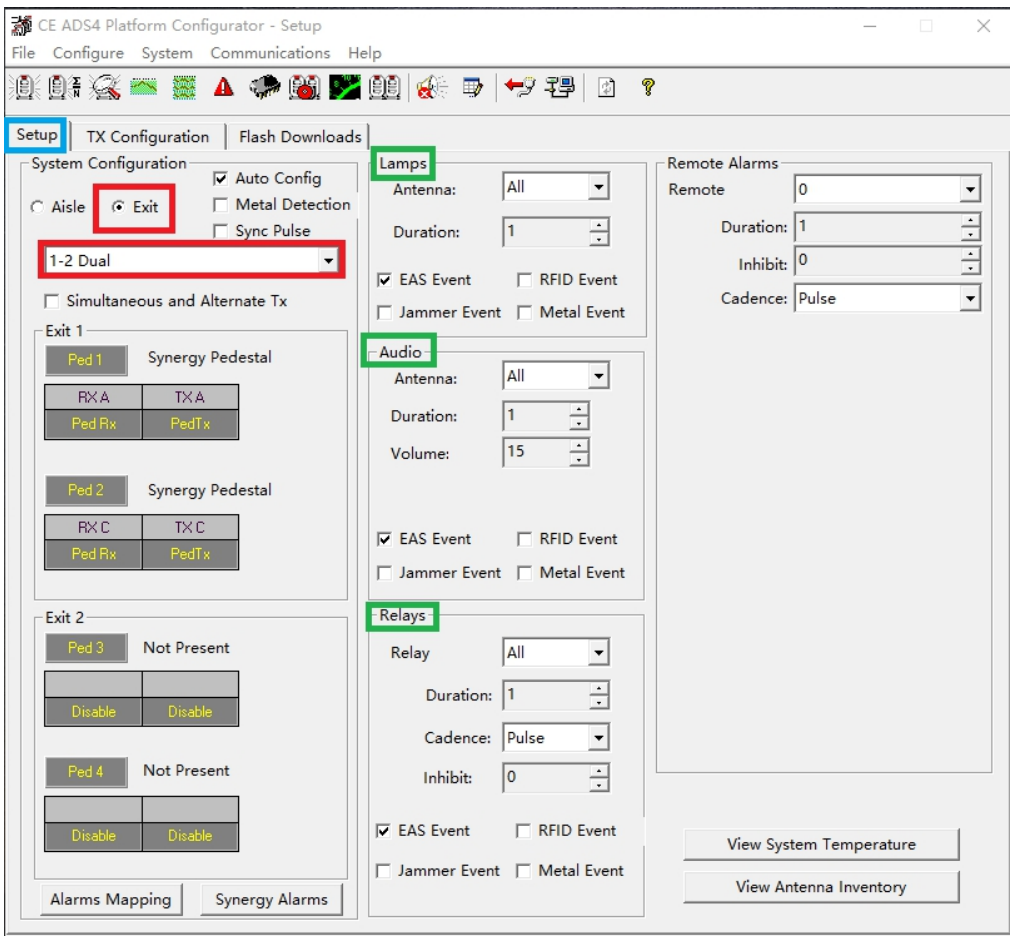
3. Antenna Configuration

Measurements-meters(feet)

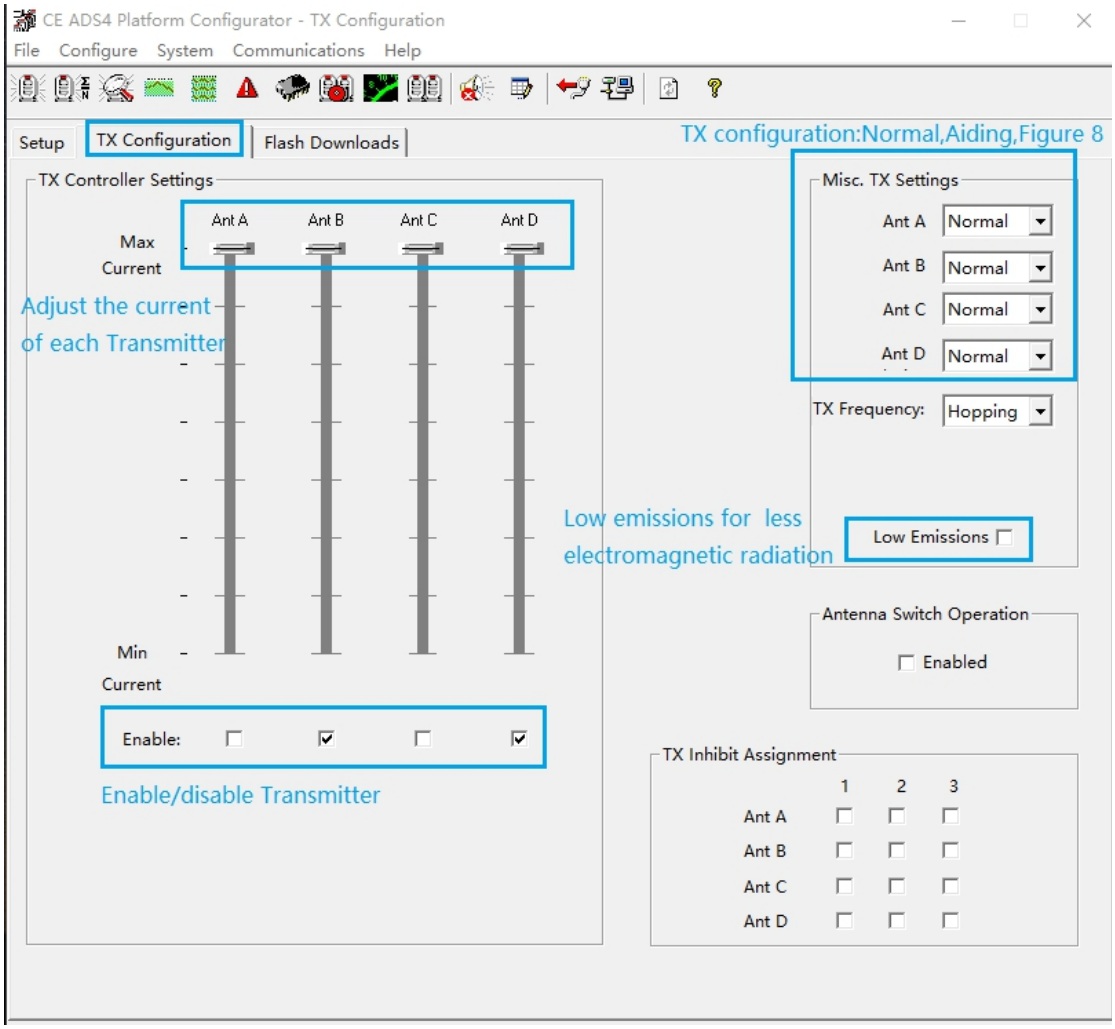


4. System Setup:

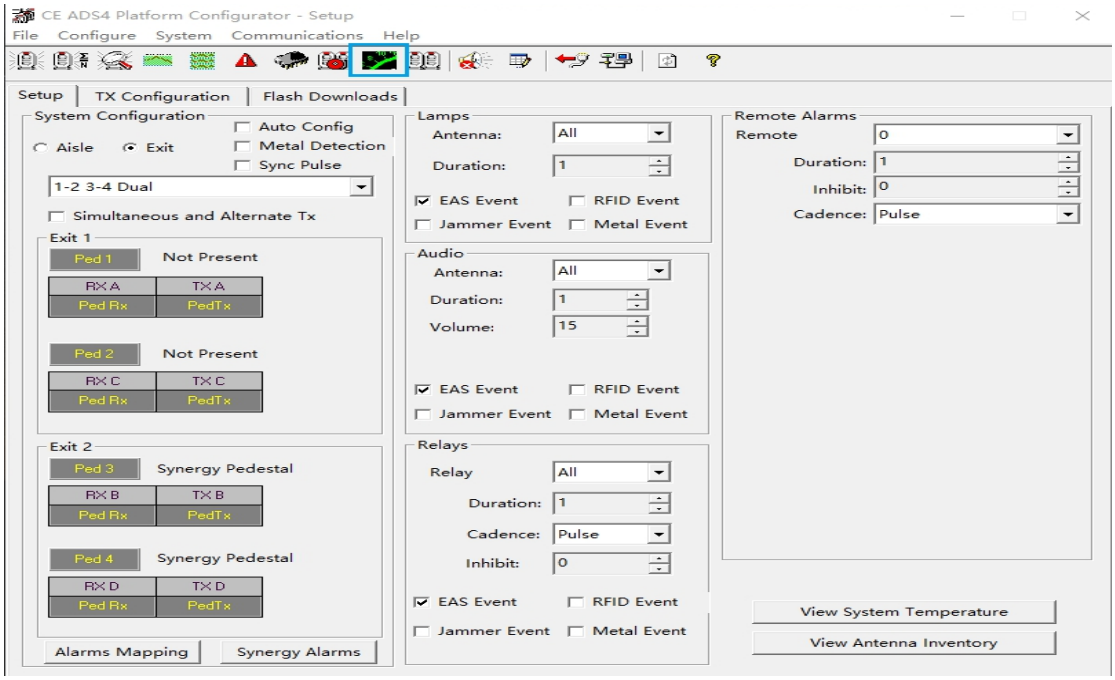
Pedestal mode selection and visual alarm light, sound and relay configuration.

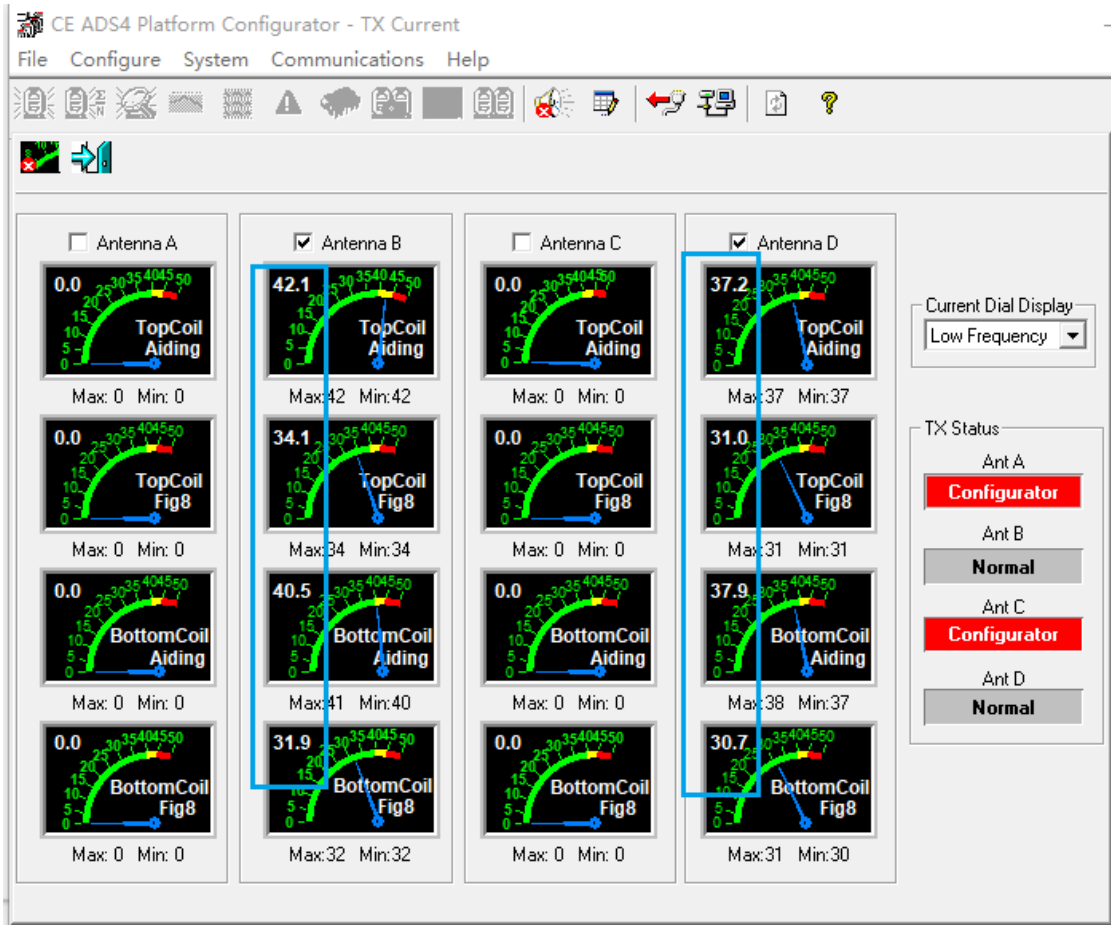


5. TX Configuration



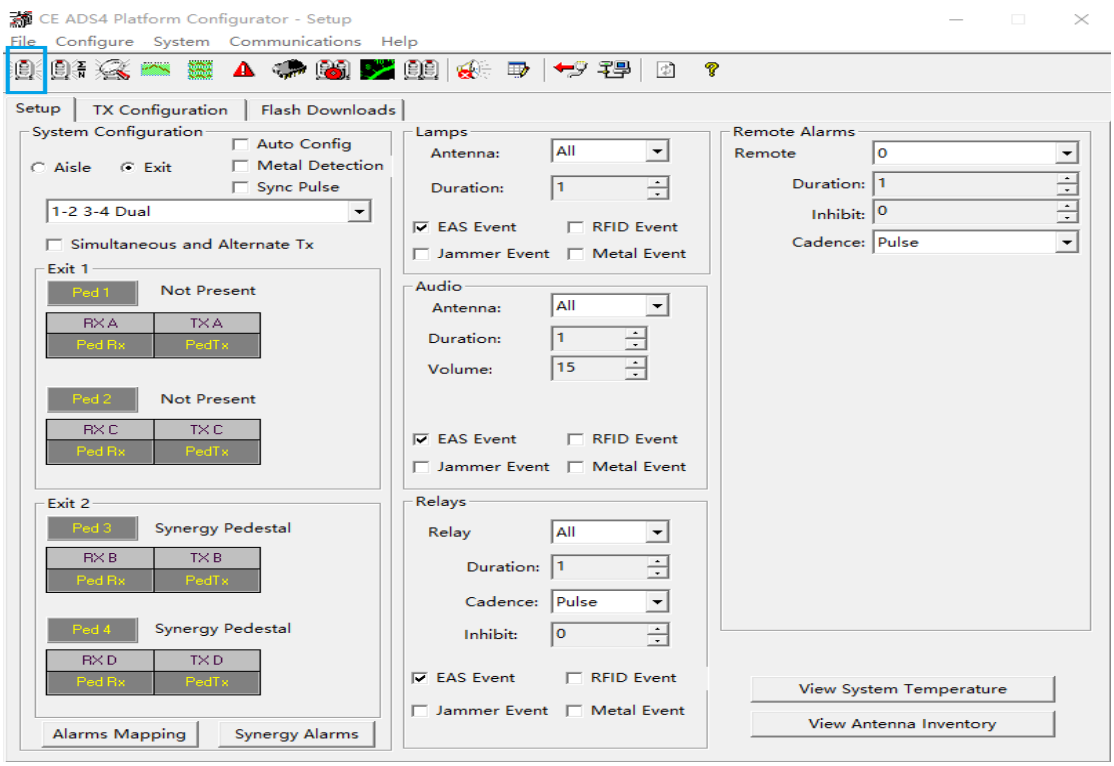
TX Current:

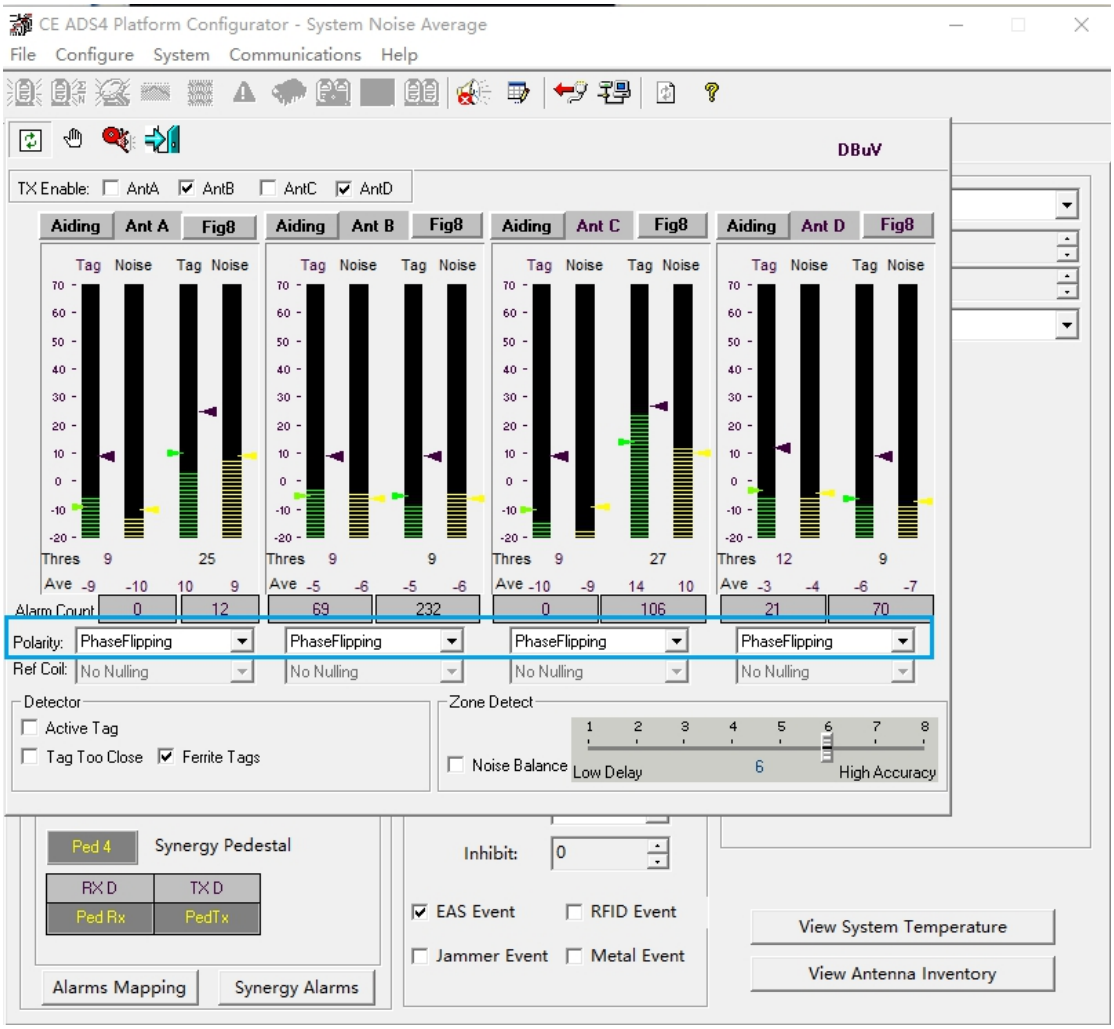




6. System Noise Averages

In this screen you can see the signal-noise level of the whole system.





Polarity: Aiding, Figure 8, Phase Flipping, Coil 1-2, Nulling

Coil 1-2: The signals of the top and bottom coils of the antenna are processed separately without superimposing.

Nulling: Noise reduction using signals from other coils as a reference.

I. If this antenna is selected as the reference frame, the system will reduce the noise of the bottom coil based on the signal of the top coil, and at the same time reduce the noise of the top coil based on the bottom coil.

II. If another antenna is selected as the reference, the system will use the other antenna top coil as the reference for the noise reduction of this antenna top coil. The bottom coil is the same. However, it does not affect the antenna selected as the reference.

How to choose the right Polarity?

I. Under the default setting, the noise level is normal or high?

- Normal-keep PhaseFlipping
- High-see II.

II. Is the top and bottom coil noise balanced?

If Figure 8 noise is similar to Aiding,then select Coil 1-2. This will cause the controller to

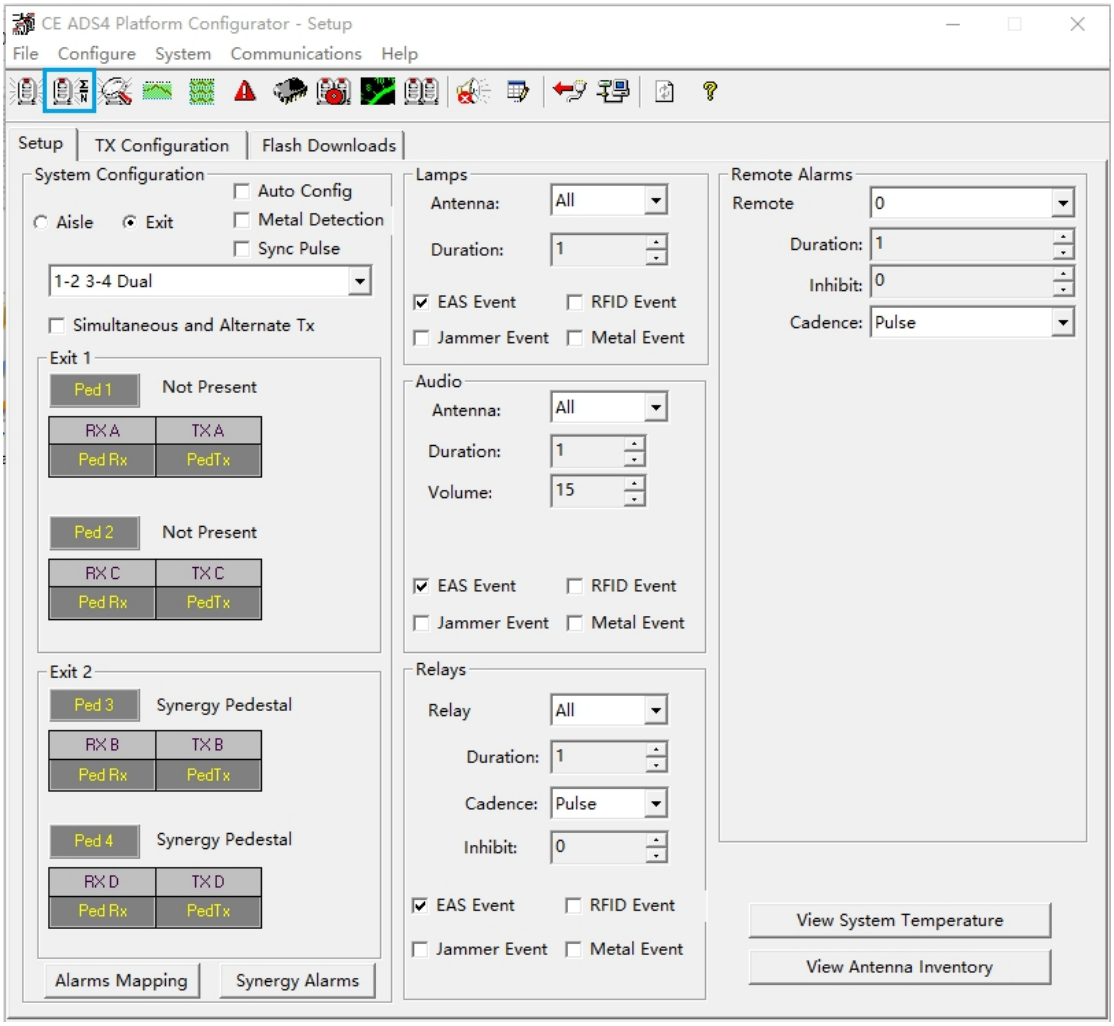
process the data from the top and bottom coils separately, and the noisier coil will not affect the smaller coil. However, it will result in reduced detection performance for the noisier coil.

If Figure 8 noise is lower than Aiding-see III.

III. First set Polarity to Figure 8, note the noise value, and then set it to Nulling. choose the one with less noise.

7. Individual Noise Averages

Display the specific settings for each antenna, one at a time.

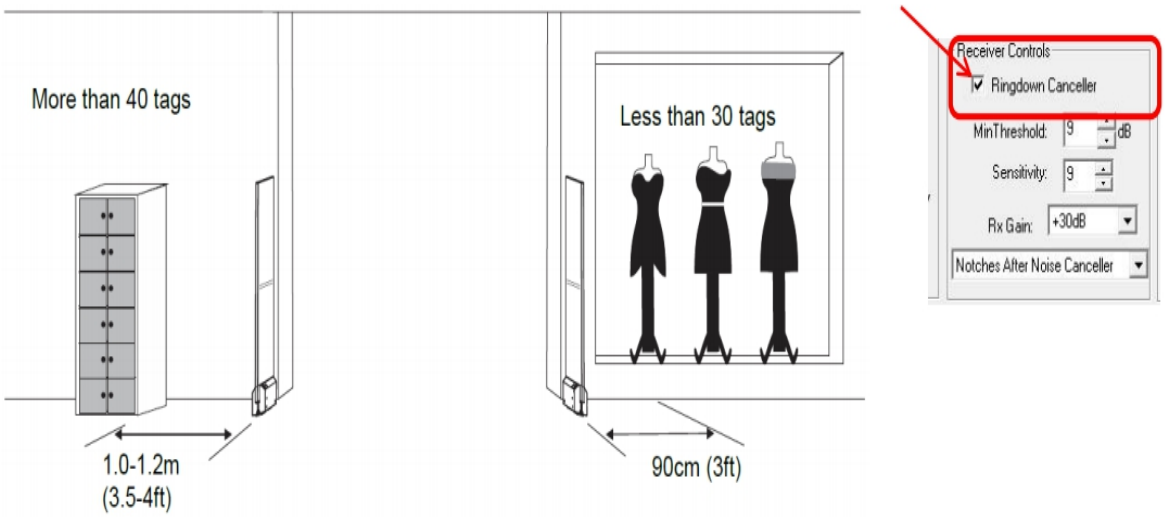


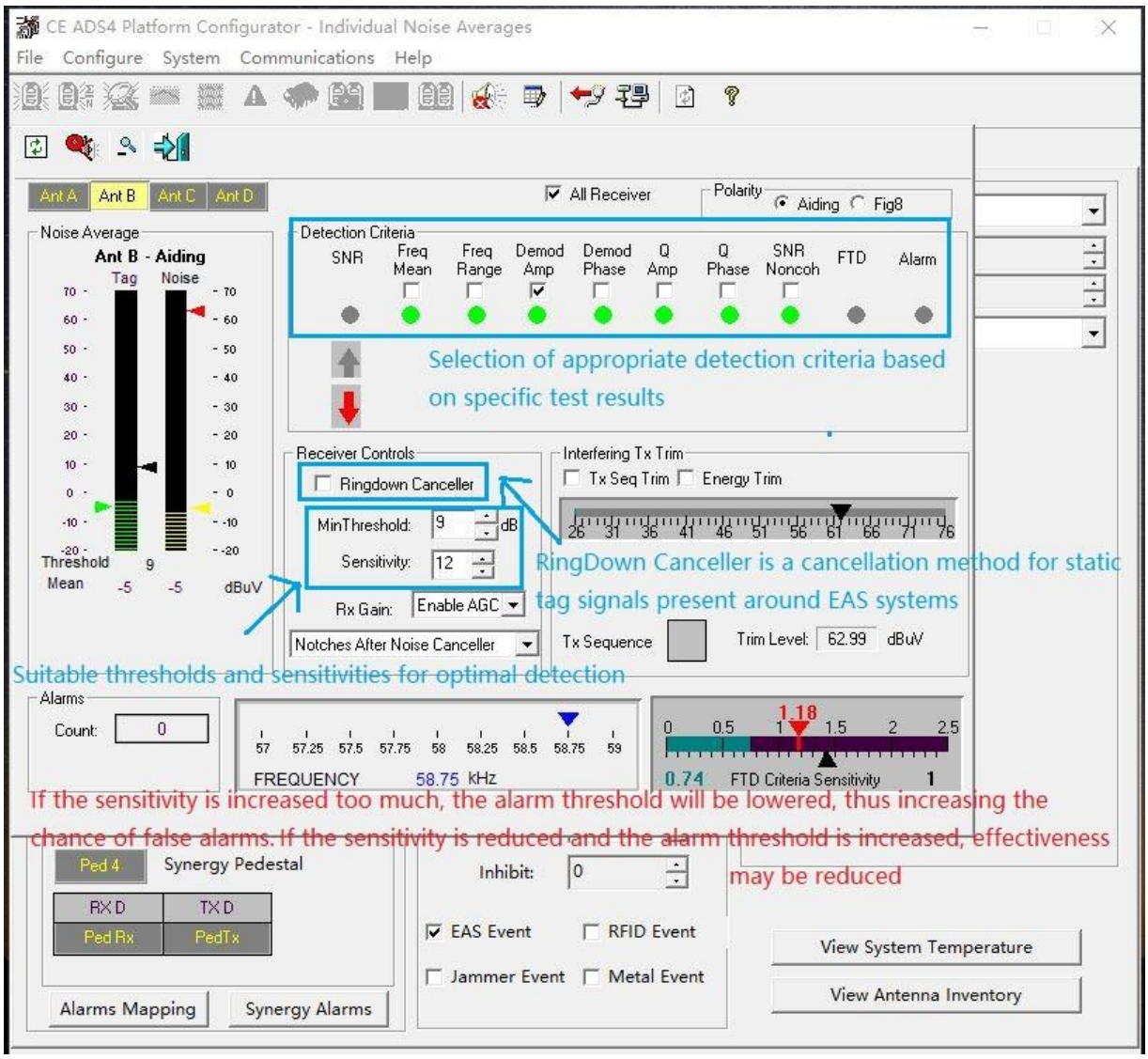
RingDown Canceller:

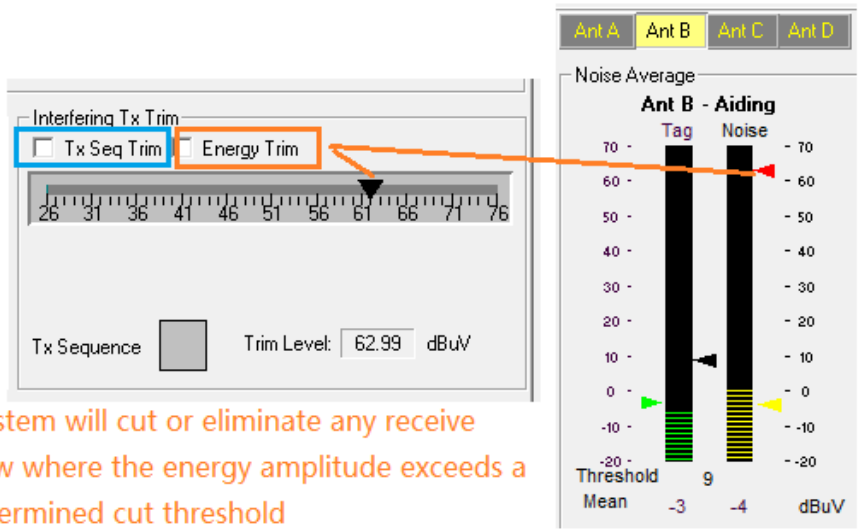
It is a cancellation method for static tag signals present around EAS systems, and can be used in Dual, Split and Quad systems.

The RDC function is available for the outer of antenna.

How close labeled/taged merchandise can be placed to the support depends on the placement and the number of labels/tags, but labeled/taged merchandise cannot be placed directly behind the support.


More than 40 tags
1.0-1.2m
(3.5-4ft)
Less than 30 tags
90cm (3ft)
Receiver Controls
Ringdown Canceller
MinThreshold: 9 dB
Sensitivity: 9
Rx Gain: +30dB
Notches After Noise Canceller

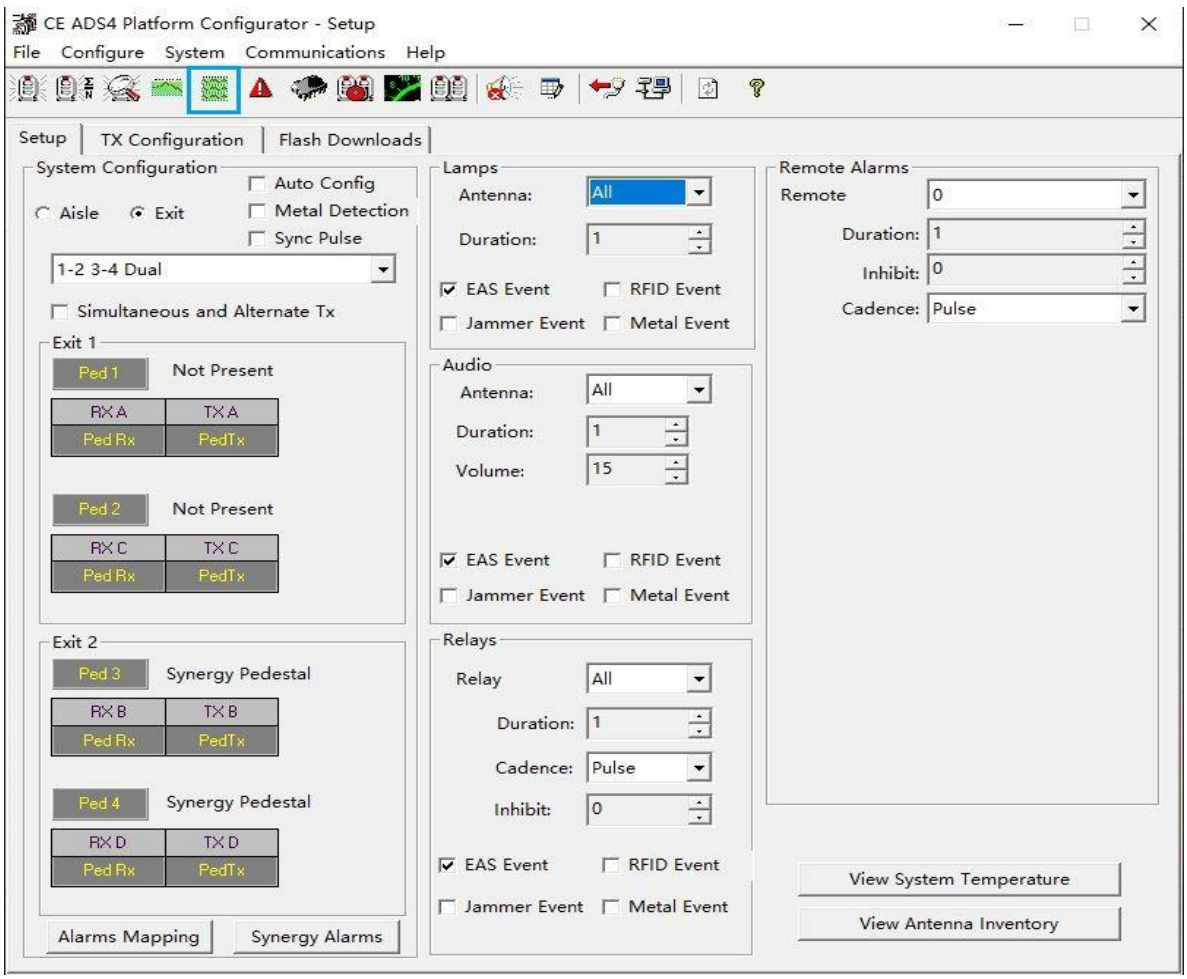

CE ADS4 Platform Configurator - Individual Noise Averages
File Configure System Communications Help
Ant A Ant B Ant C Ant D
All Receiver
Polarity Aiding Fig8
Noise Average
Ant B - Aiding
Tag Noise
Threshold 9
Mean -5 -5 dBuV
Detection Criteria
SNR Freq Mean Freq Range Demod Amp Demod Phase Q Amp Q Phase SNR Noncoh FTD Alarm
Selection of appropriate detection criteria based on specific test results
Receiver Controls
Ringdown Canceller
MinThreshold: 9 dB
Sensitivity: 12
Rx Gain: Enable AGC
Notches After Noise Canceller
Interfering Tx Trim
Tx Seq Trim Energy Trim
Tx Sequence
Trim Level: 62.99 dBuV
RingDown Canceller is a cancellation method for static tag signals present around EAS systems
Suitable thresholds and sensitivities for optimal detection
Alarms
Count: 0
FREQUENCY 58.75 kHz
0.74 FTD Criteria Sensitivity 1
If the sensitivity is increased too much, the alarm threshold will be lowered, thus increasing the chance of false alarms. If the sensitivity is reduced and the alarm threshold is increased, effectiveness may be reduced
Ped 4 Synergy Pedestal
RX D TX D
Ped Rx PedTx
Inhibit: 0
EAS Event RFID Event
Jammer Event Metal Event
View System Temperature
View Antenna Inventory
Alarms Mapping
Synergy Alarms

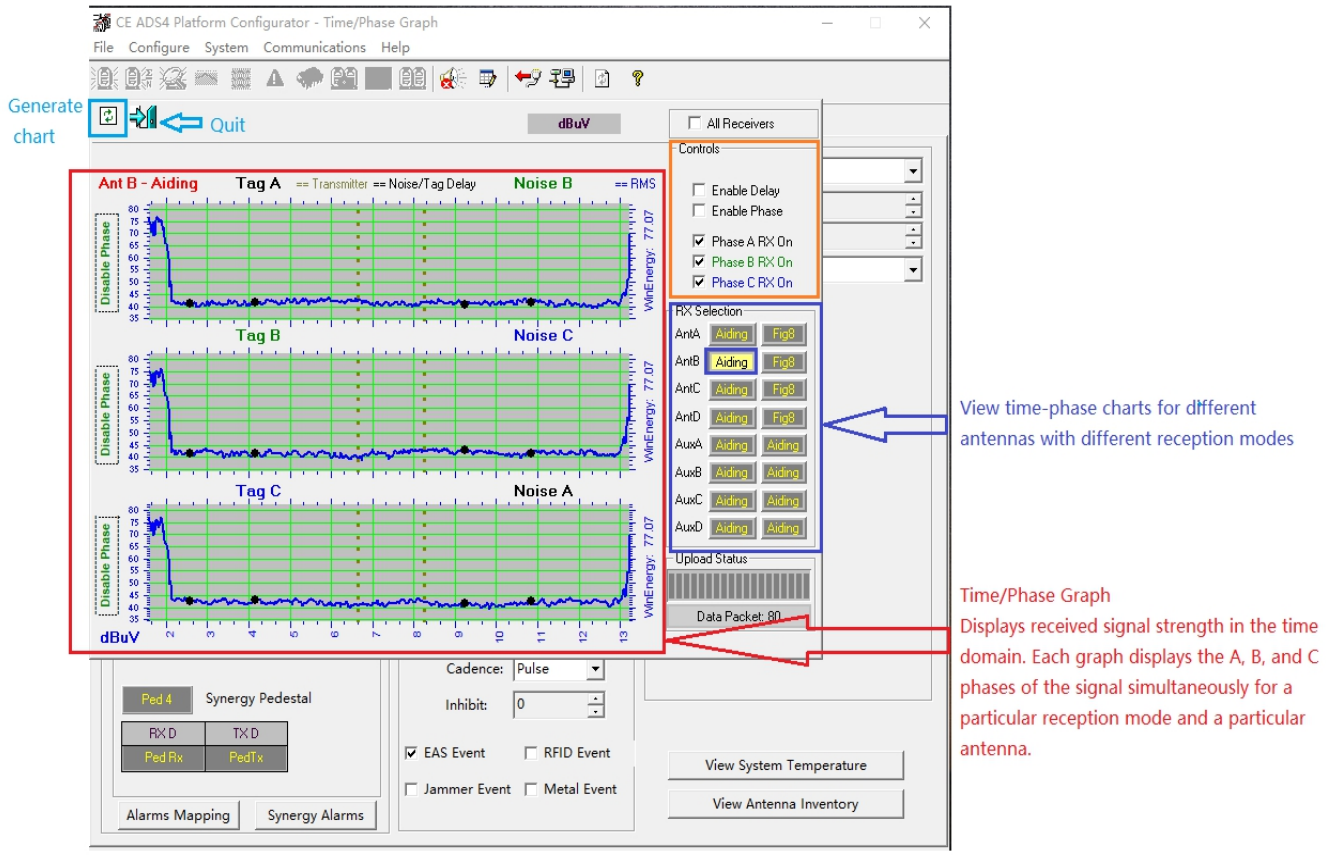


The system will cut or eliminate any receive window where the energy amplitude exceeds a predetermined cut threshold

The system will track and monitor specific emission patterns from competing systems and cut or remove a portion of their reception window

8. Time/Phase Graph





I. The graph begins to plot at the end of the transmit pulse, that is 1.6ms after the corresponding phase AC supply crosses the zero point. The blue curve represents the received signal.

II. There are three important areas on each chart:

a. Label signal receiving window

The first and second black dots represent the start and end times of the tag/label signal receiving window, respectively. During this time the system receives the response from the tag/label. Click and drag the black dots to change the position of the receiving window, and adjust it so that the curve between the two black dots is as smooth as possible.

b. Remote TX Window

The two vertical dotted lines in the center of the chart represent the start and end of the remote transmit window. If there are other synchronized acousto-magnetic systems nearby, their transmissions will only appear in this window.

c. Noise signal receiving window

Similar to the label signal receiving window

Using time/phase graph you can determine if there is a phase desynchronization problem.

Enable Delay:

The controller automatically adjusts the position of the label and noise reception windows to optimize performance. When enabled, the automatic adjustment is performed every 15 minutes. It is recommended that this be turned off as this feature can lead to erratic performance and occasional false alarms.

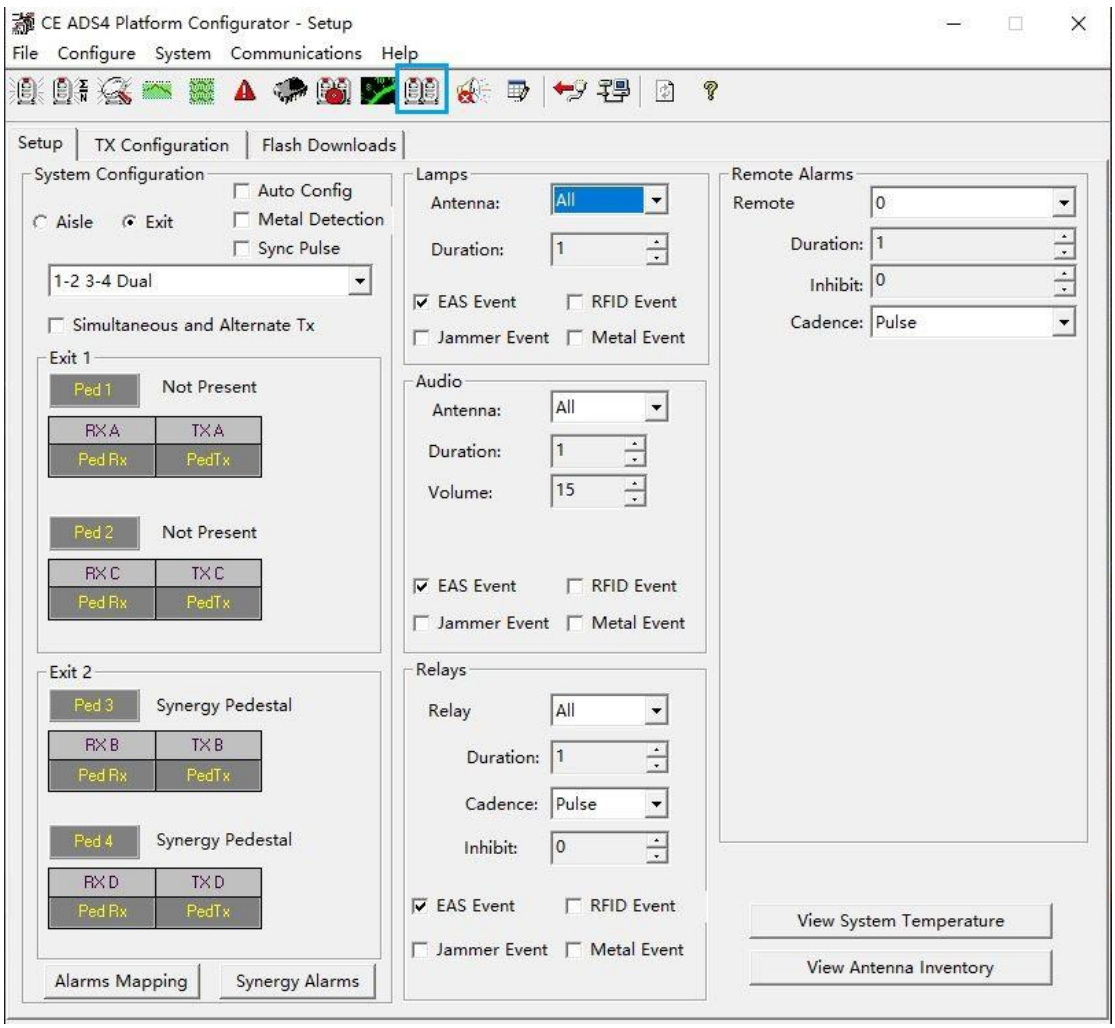
Enable Phase:

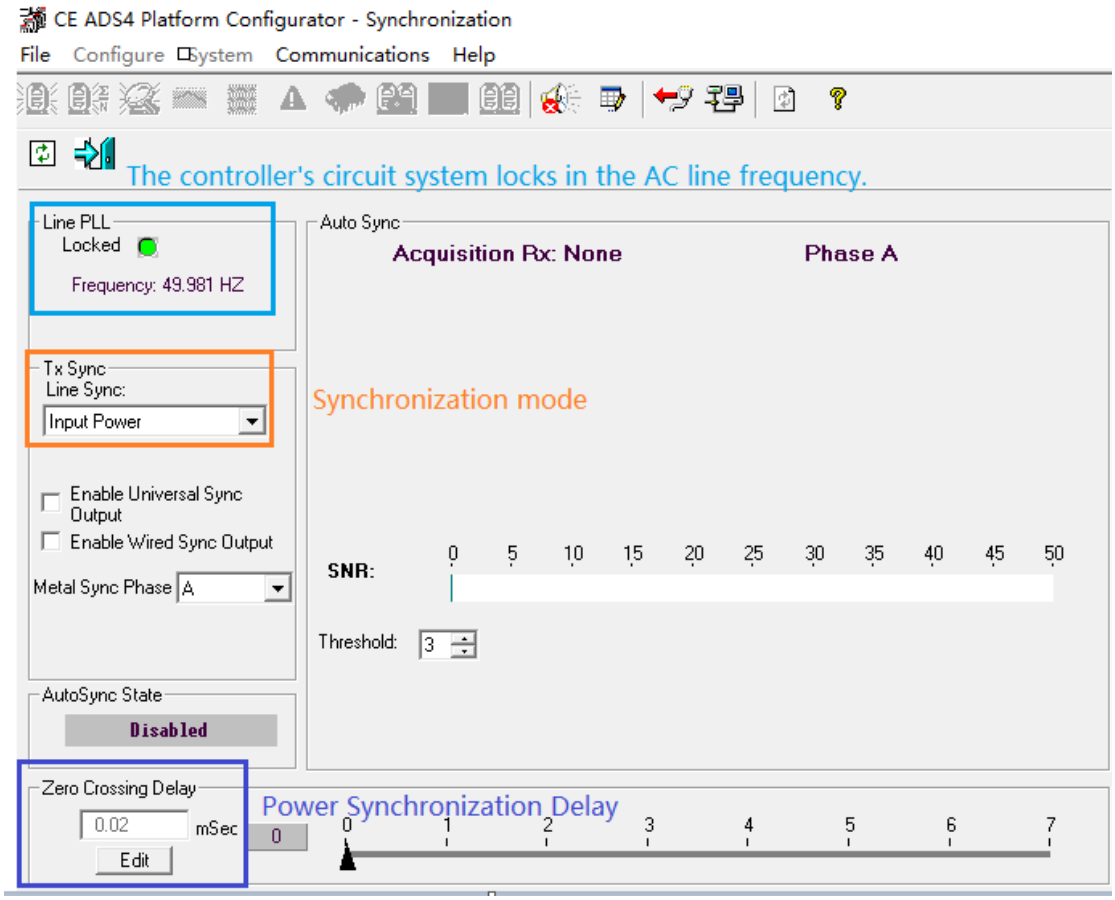
When turned on, the controller automatically selects which phase to turn on and off. If a problem is detected in a phase, the data received in that phase will be blocked. When this function is turned off, a phase can be turned on/off manually.

Phase A/B/C Rx On:

Manually select a phase to be turned on/off. Note that the “Enable Phase” must be canceled first.

9. Synchronization





Line PLL:

Power Supply Frequency Lockout. When the power frequency is shifted, noisy, or unstable, it may cause the system to fail to lock to the current power frequency. When the system does not detect tags, this option should be checked first.

Green light on: locked, normal

Green light off: not locked, not working

Line Sync:

Synchronization mode.

Input Power: Power Sync

Universal Sync: Wireless Sync (not recommended)

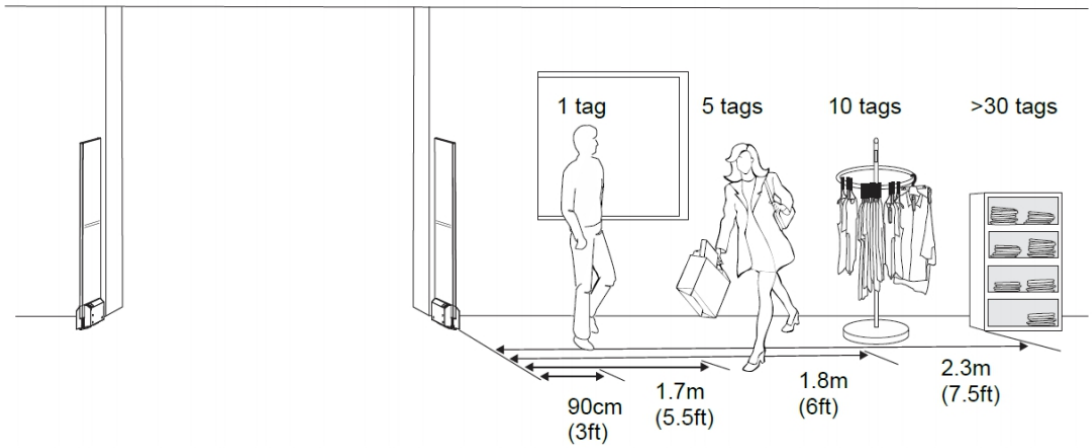
Wired Sync: Wired Sync

Zero Crossing Delay:

Based on the Time/Phase Graph and System Noise Averages, we can fine-tune the delay time to avoid external interference.

10. Backfield Reduction BFR

The backfield reduction function (BFR) reduces the detection range of the area behind the pedestal.



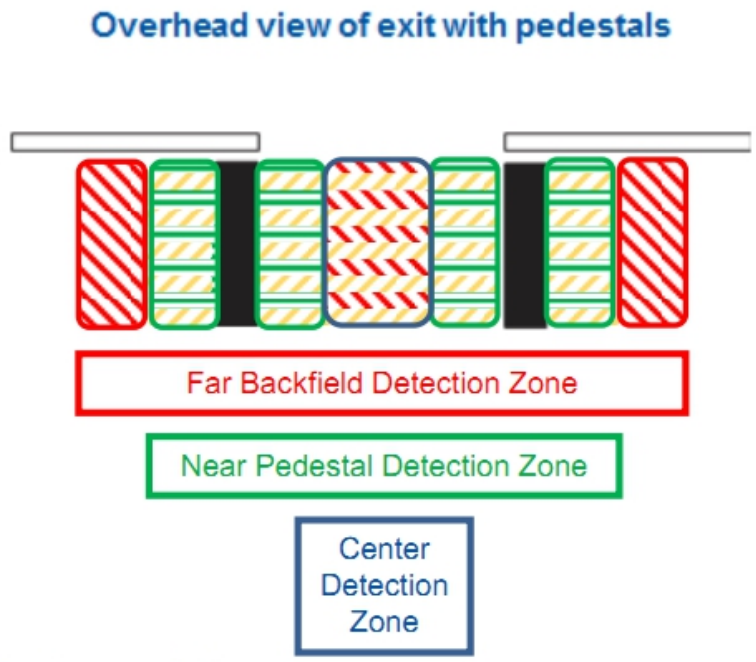
Back zones can be set individually for each outer of pedestal. However, only the back zones where the label/tag is actually detected are reduced; there is no back zone reduction in other directions.

The system analyzes the received tag/label and noise signals to determine the tag/label location.The analysis is based on three different types of criteria:

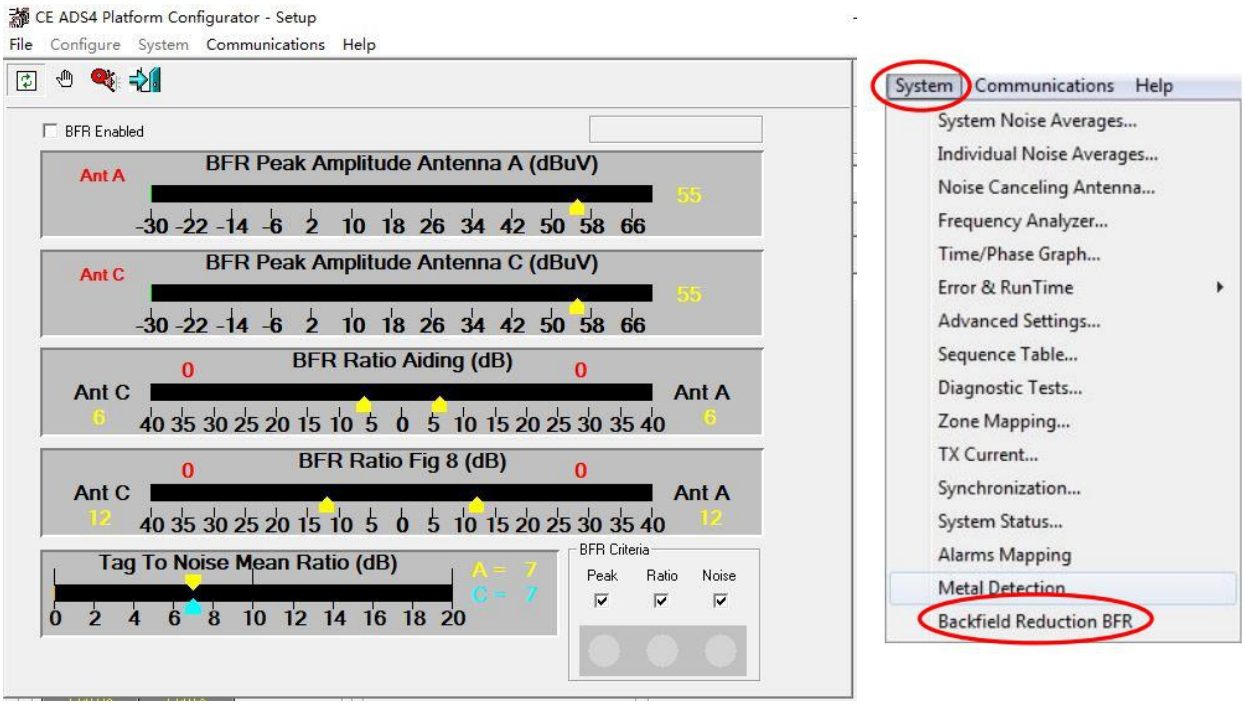
Peak Amplitude

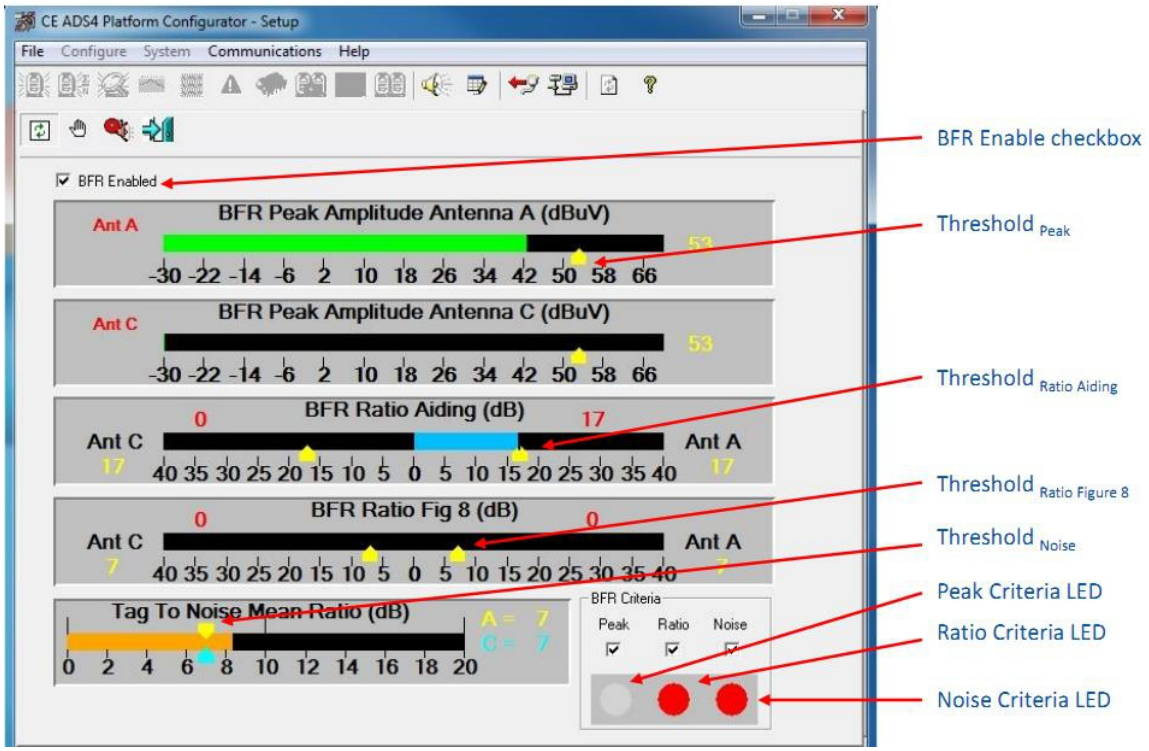
Ratio (Figure 8 and Aiding)

Tag to Noise Mean Ratio

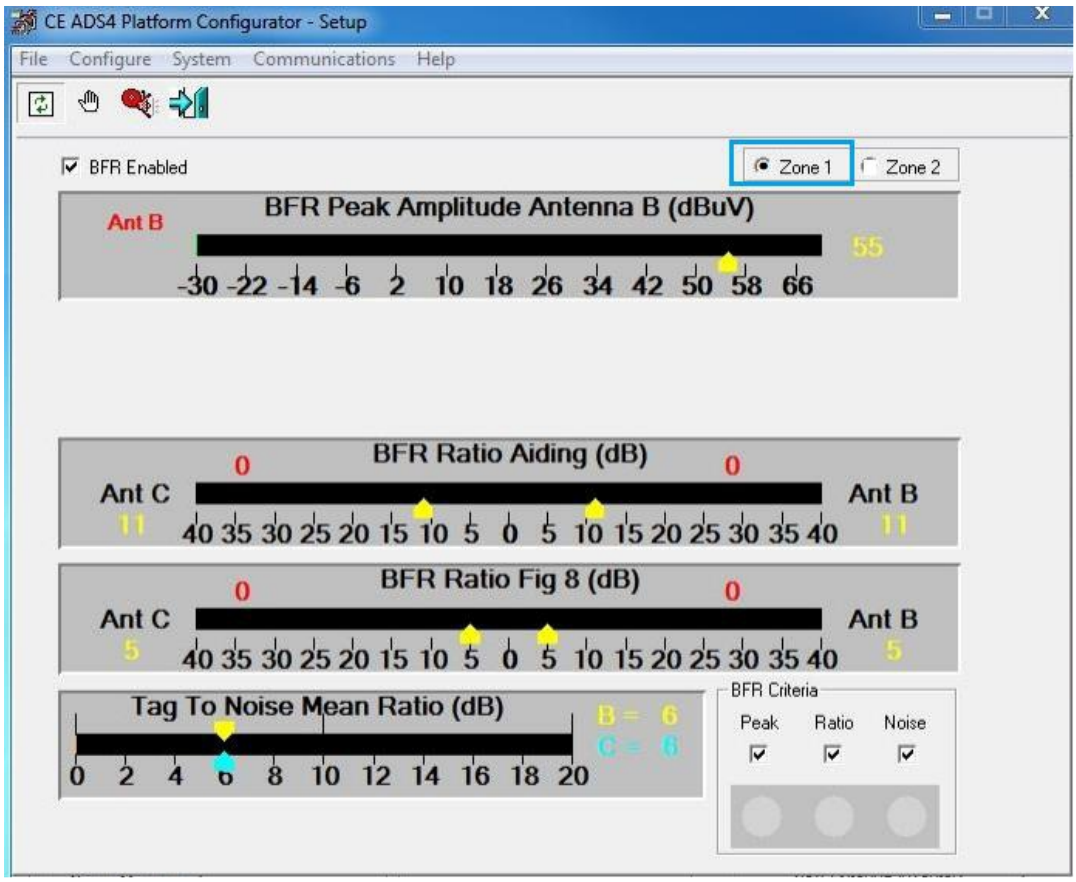


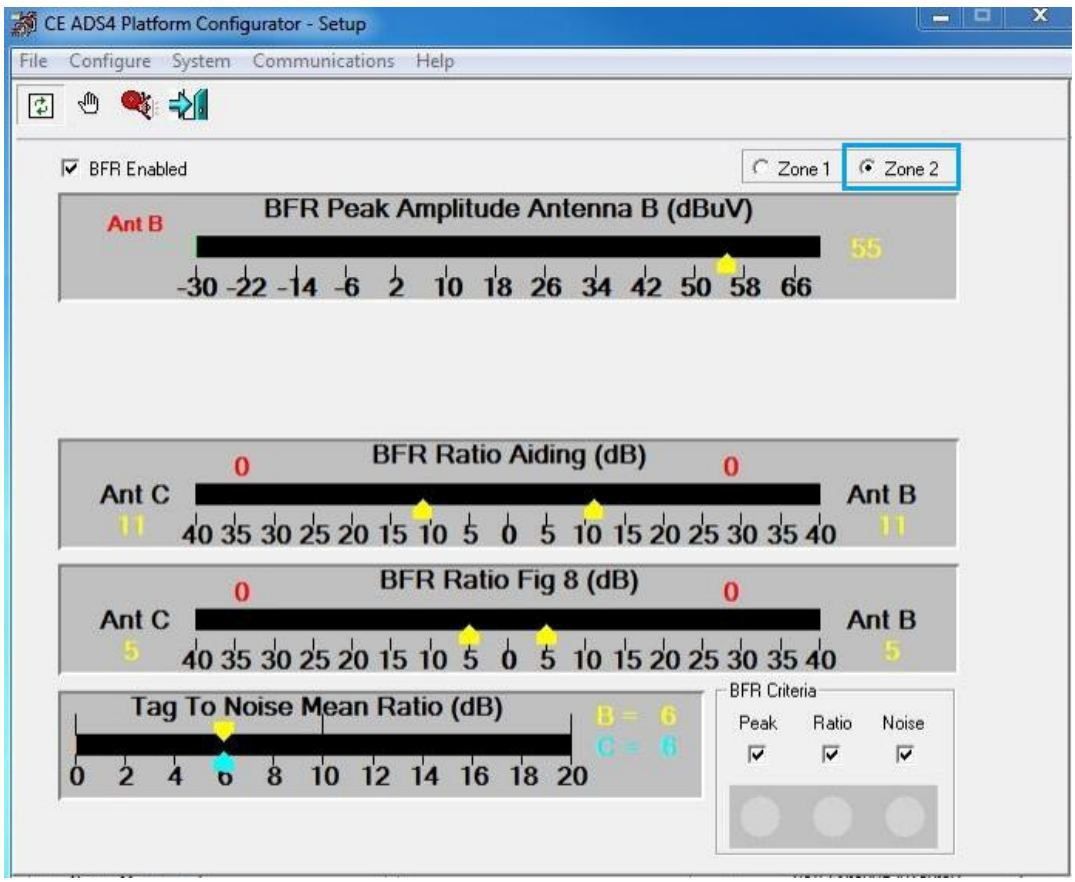
The figure above shows the detection area of a dual system and the areas corresponding to the different detection criteria.





BFR- Triple Antenna Configuration:





In a triple system, there are two areas that need to be set up, but only the two outer pedestals (A and B) can have their settings changed.

Configuration specifications

I. BFR helps the system ignore a single tag/label that is moving in the back zone of a pedestal; However, it does not work on multiple moving tags/labels and tags/labels that are stationary.

Ringdown Canceller applies to ignore stationary tags/labels in the back zone.

II. BFR can be set on the outer pedestal in Dual, Split and Quad system modes, independent of whether MFD is used or not.

III. BFR can only be used in Phase Flipping mode.

IV. BFR needs to be used in a favorable electromagnetic environment.

V. The effectiveness of BFR is affected if Ferrite tags are used in the field.

VI. The strength of the BFR depends on its location.

VII. System debugging may reduce the effectiveness of BFR.

VIII. Increasing the effect of BFR too much can have an impact on the detection of the system, but can be avoided by properly adjusting the parameters of the BFR.

IX. BFR can be used in multiple systems.

