

Users Manual

TALKBOX

Signal Source

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The Talkbox, a portable accessory used with models DSP30 and DSP2 Intelligibility Analyzers, generates STI-PA Test Tones into the voice evacuation system by way of the voice alarm panel's microphone. The test signal, which is contained on a long-playing CD, is played continuously on an integrated CD player through a powered speaker and into the alarm panel microphone. Because the microphone holder is universal, any brand of voice evacuation system with a microphone can be tested. The CD player on the Talkbox has been modified to accurately simulate the use of the voice evacuation system by emergency personnel and ensures that the entire voice system, including the microphone, is tested.

The test tones, developed by TNO Laboratories, make use of the DSP30 or DSP2B analyzers and OPTSTICis™

The following standard features are supplied:

- STI-PA Test Tone CD
- Built-in CD player (modified)
- Built-in Speaker
- Universal microphone holder (microphone and cable not supplied) which enables testing via voice evacuation system microphones and other microphones
- Line Level output jack
- Volume control
- Detachable shoulder strap

SPECIFICATIONS:

- CD TEST TONES: 60 minutes of STI-PA Continuous and intermittent
- INPUTS: Speaker input: unbalanced 6.5mm ¼" phone jack
- OUTPUTS: Line Level: unbalanced, 6.5mm ¼" phone jack, 1Vp-p
- CD ACCURACY: 0.0001% frequency drift
- FUNCTION CONTROLS: On/Off Switch
- VOLUME CONTROL: Yes
- POWER INTERNAL: Eight "AA" alkaline or nicad batteries
- POWER EXTERNAL: 12Vdc @ 500mA via 2.1mm jack
- APPROVALS:
 - EMISSIONS: EN55022 B
 - FCC CLASS B
 - IMMUNITY: EN55024 B
- DIMENSIONS: Size 18" X 7" X 13" (W x H x D)
- WEIGHT: 10 lbs.
- CASE MATERIAL: Reinforced Aluminum

Preparations for use:

The Talkbox may be powered from either the power supply provided, or from 8 AA batteries. If the Talkbox is to be used on battery power:

1. Open the battery compartment by loosening the 4 hold-down screws and sliding the cover off.
2. Install 8 AA batteries, paying attention to the polarity of each battery.
3. Position the switch labeled NIC/ALK to the appropriate position. The switch should be in the ALK position for non-rechargeable alkaline batteries, and in the NIC position for rechargeable batteries.
4. Replace the battery cover.

Instructions for use:

1. Open the case lid fully so the lid does not interfere with measurements
2. Turn the power on.
3. Press play on the CD player to start the STI-PA test tone.
4. Using an SPL meter set the playback level. For normal speech, this should be 60 dBA at 1 meter. The level can be set lower to simulate quiet talking (the Canadian standard is 55 dBA) or higher to simulate an excited talker (usually 70 dBA). Check below for specific instructions on how to measure the STI value for a particular system.
5. Attach the PA microphone into the holder, with the cable coming out of the top.
6. Close the microphone clamp to grip the microphone and hold the Push To Talk button in the on position.
7. Set the distance between the talker speaker and the PA microphone by sliding the speaker along the channel at the rear of the case. The distance should approximate that of the normal usage for the PA microphone, which would be around 2 inches.

The system will now be playing the test signal through the PA at a level that matches that of the system in normal use.

Additional Features:

A line level output directly from the CD player is available on the panel via the ¼" jack labeled "Test Tone Output" This Output allows the injection of test tones into the sound system.

An external test signal may be injected into the talker speaker through the ¼" jack on the panel labeled "Speaker Input". A signal connected here will disconnect the CD output but may still be adjusted by the volume control.

The CD player supplied with the Talkbox has been modified from the manufacturer's specifications. The modifications permit the player to accurately play back the STI-PA test signal without introducing any frequency coloration or distortion. This is not true of several brands of CD players that are commercially available.

Overview of the STI-PA test:

There is only one validation method. The method is:

- 1) Produce an STI-PA signal and broadcast it through the speakers that are normally used for public announcement in a desired area for evaluation.
- 2) The STI-PA signal must be broadcast at the same dBA level as the system produces when operated under normal conditions
- 3) The analyzer is placed at the evaluation location, which is where the listeners are situated during normal operation. Some areas have more than one zone, caused by overlapping speaker coverage or architectural features; each zone needs to be evaluated separately.

Performing the STI test:

This is the test for direct measurement. A different test (3 part test) exists for non-intrusive testing of occupied areas. The Add Noise method test procedure is listed in the OptSTICis manual and requires the use of a computer to perform. Follow the procedure that is appropriate for your installation.

-- Using a fire alarm board that has a built-in announce message (on a chip):

- 1) Run a test of the standard announce message in the first test areas.
- 2) Use the analyzer to determine the sound pressure dBA level of the standard announce in that area. The analyzer will report the SPL level in dBA.
- 3) Set the dBA level of the STI-PA signal to produce the same sound pressure dBA level in that area. The signal can be recorded on the chip, inserted through a patch cable or built-in CD player or through an auxiliary input, such as a microphone (See below using microphone). In each case, the level is measured at the listening area.
- 4) Run a STI-PA test using the analyzer in that area.
- 5) Run subsequent STI-PA tests in each desired area. Do not reset the level of the STI-PA signal.

-- Using microphone to test STI only:

-- Calibration of the microphone for making a STI-PA measurement

- 1) Run a test of the standard announce message in the first test areas.
- 2) Use the analyzer to determine the sound pressure dBA level of the standard announce in that area. The analyzer will report the SPL level in dBA.
- 3) Set the dBA level of the STI-PA signal to produce the same sound pressure dBA level in that area.
- 4) Place the microphone in the microphone holder.
- 5) Place the talkbox speaker in proximity to the microphone holder. About two inches is often used as a distance.

-- Making the STI-PA test after calibration

- 1) Place the announcement microphone in the holder. The holder can be used to depress the push-to-talk button on the microphone.

- 2) Place the Talkbox speaker in proximity to the microphone holder. Two inches is often used as a distance.
- 3) Start the STI-PA signal tone.
- 4) Run a STI-PA test using the analyzer in a desired area.
- 5) Run subsequent STI-PA tests in each desired area.

Performing a push-to-talk STI microphone test:

--Using a fire alarm system that has a push-to-talk microphone

-- Calibration of the microphone for making a STI-PA measurement

- 1) Start the STI-PA test signal.
- 2) Use the analyzer to measure the signal dBA level at a distance of 1 meter on axis.
- 3) Adjust the level to obtain a reading between 60 and 70 dBA (see notes).
- 3) Place the microphone in the microphone holder.
- 4) Place the speaker at a distance of about 2 inches from the microphone.

-- Notes on making a microphone measurement

Note: This is not the primary test on some systems. Therefore, the results will have less significance on those systems. The purpose of the test is to simulate the conditions of a real announcement.

Note: The level that you use to calibrate the STI-PA signal is based on an evaluation of the person who will be making the announcements. A mid-point value of 65 dBA can be used when this information is not available.

-- Making the STI-PA test after calibration

- 1) Place the announcement microphone in the holder. The holder can be used to depress the push-to-talk button on the microphone.
- 2) Place the Talkbox speaker in proximity to the microphone holder. About two inches is often used as a distance.
- 3) Start the STI-PA signal tone.
- 4) Do a spot STI-PA test using the analyzer in a desired area.
- 5) Do a spot subsequent STI-PA test in each desired area.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.