

THP

Tester of passive THz cameras



Fig. 1. Photo of the THP-8D-A-ST test system

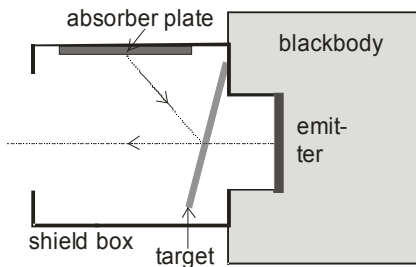


Fig.2. Block diagram of the THP test system

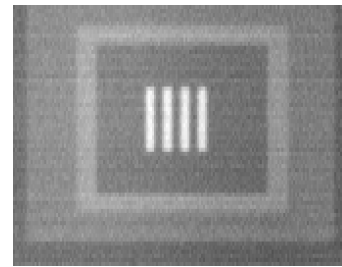


Fig.2. Image of the THP test system generated by the tested THz camera during MRTD measurements (obtained using scanning 64-element THz imagers)

BASIC INFORMATION:

Passive surveillance THz imagers can be tested using the same methodology as surveillance thermal imagers but significant modifications of test equipment are needed.

THP test system is a test system that enables expanded testing of passive THz imagers. The system is based on a concept of a large area THz blackbody and a set of exchangeable targets of different shapes.

The THP test system is located at some distance from the tested THz imagers that sees directly test patterns created by set THz blackbody-target plate. In detail tested imager seen blackbody through holes in the target plate and sees absorber plate reflected in target plate. Different test patterns can be projected into the direction of the tested imagers.

The tested camera generates copies of the projected images. Quality of the images generated by the camera is evaluated by human observers or by software and important characteristics of tested THz imager are measured.

The THP test set does not use collimator for image projection and the distance target-camera must be

longer than the minimal focusing distance of the tested camera. This conditions means practically necessity to use blackbodies of emitter area much bigger than typically used in systems for testing thermal imagers and capable to keep ultra high emissivity at THz spectral band.

THP test system uses a series of MAB blackbodies optimized for use as blocks of systems for testing THz imagers.

THP test system is the first commercially available test system for testing passive surveillance cameras.

FEATURES:

- No limitations on optical aperture of tested THz cameras
- Blackbody optimized for wavelengths from 0.01 mm to 10 mm (from 0.03 THz to 30 THz)
- High emissivity in entire spectral band

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SPECIFICATIONS

No	Parameter	Value
1	Modules	MAB blackbody, shield box, absorber plate, set of targets, frame grabber, portable PC, MAB Control program, TAS-TH program
<i>Blackbody</i>		
2	Blackbody aperture	from 150× 150 mm to 1000x1000mm
3	Spectral band	see MAB data sheet
4	Absolute temperature range	see MAB data sheet
5	Emissivity	see MAB data sheet
6	Temperature uniformity	see MAB data sheet
7	Regulation stability	see MAB data sheet
8	Total temperature uncertainty	see MAB data sheet
9		
10	Computer control	USB 2.0
11	Power supply	115-230VAC 50/60Hz
12	Operating temperature	+5°C ÷ +45°C (non condensing)
13	Storage temperature	-10°C ÷ +60 °C
<i>Set of targets</i>		
14	Dimension of the target	200x200 mm to 1200x1200mm (depends on selected MAB blackbody)
15	Target number	Set of eight 4-bar targets (for MRTD measurement), one edge target (for MTF measurement), one square target (for noise parameters measurement)
16	Bar width of 4-bar target	In range from 2 mm to 50mm (depends on blackbody size)
17	Target reflectivity	> 0.99
<i>Absorber plate</i>		
18	Dimensions	From 350x250 mm to 1400x1400mm
19	Emissivity	≥ 0.95
<i>Frame grabber</i>		
20	Standard type	Typically one of such frame grabbers: Analog video, CameraLink, GigE (other frame grabbers can be optionally delivered)
21	Non standard type	suitable to any type of electronic cameras if software driver for Windows 7 compatible with DirectX is delivered
<i>PC</i>		
22	PC type	typical commercially available PC working under Windows 7 operating system
<i>Test capabilities</i>		
23	List of measured parameters	MRTD, MTF, NETD, FPN, non-uniformity, FOV Option: 3D Noise model, NPSD

*specifications are subject to change without prior notice

VERSIONS:

THP test system is offered in a series of versions that differ in following crucial parameters:

1. blackbody area
2. blackbody spectral band
3. blackbody optional parameters.

Practically it means that the same code used to define version of MAB blackbody is used to define THP system (see data sheet of MAB blackbody). Code THP-16D- A-ST means blackbody of active area 400x400mm, optimized for spectral band from 0.1 mm to 1 mm ,for temperature range +5°C to 70°C

Version 3.2

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