

Instruction manual and data sheet PCA-180-01-10-800-x

Photoconductive bow-tie antenna with finger gap structure for
laser wavelengths $\lambda \sim 500 \text{ nm} \dots 850 \text{ nm}$

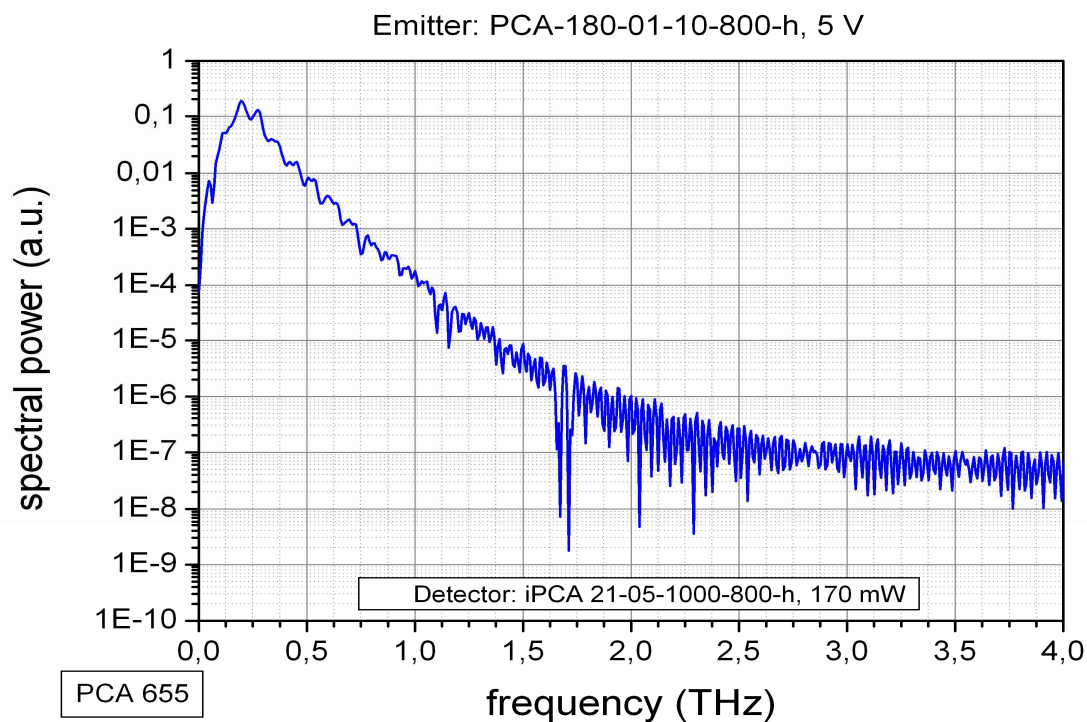
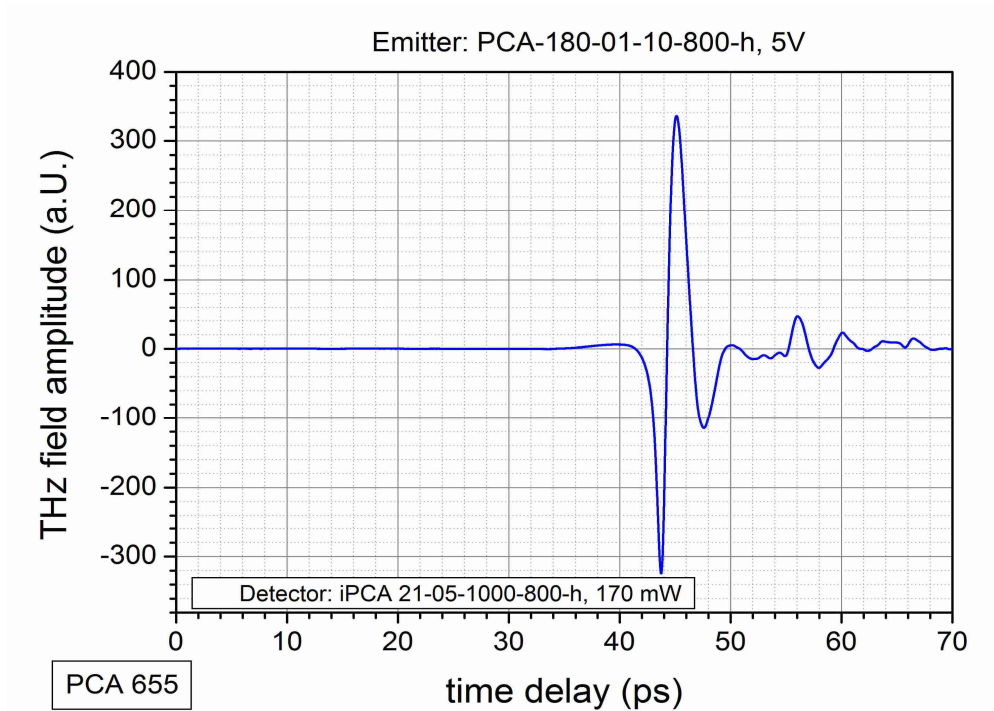
PCA – Photoconductive Antenna

Table of contents:

1. Spectral performance	2
2. Antenna parameters	4
3. Antenna design	5
4. Order information	6



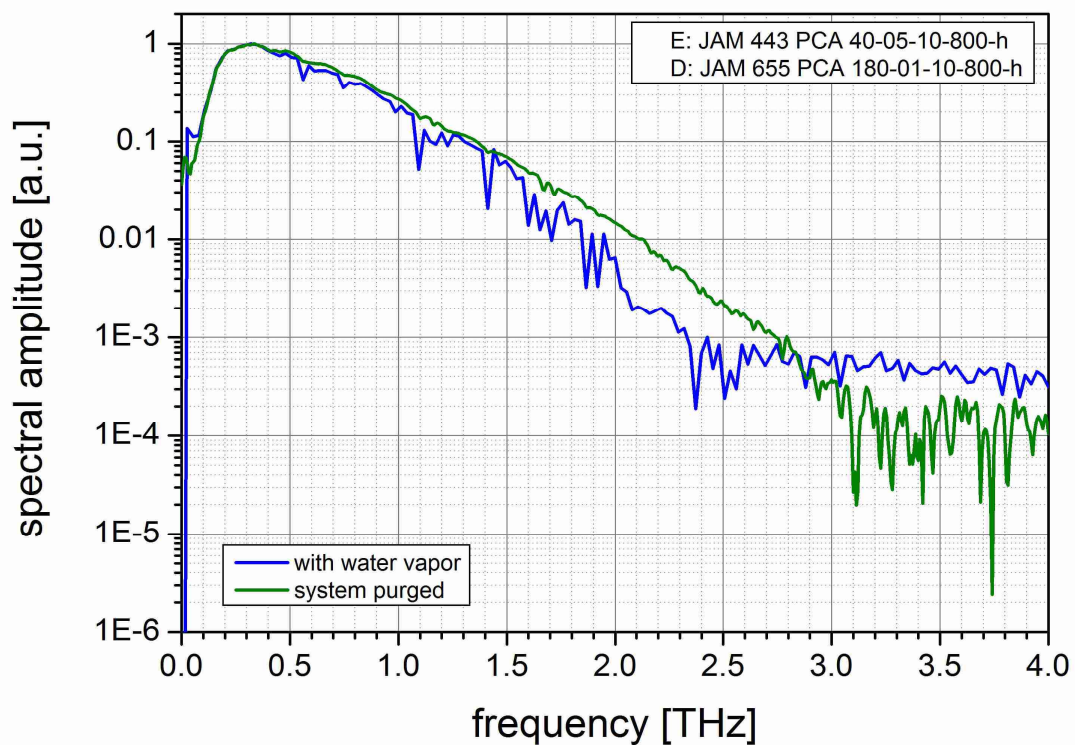
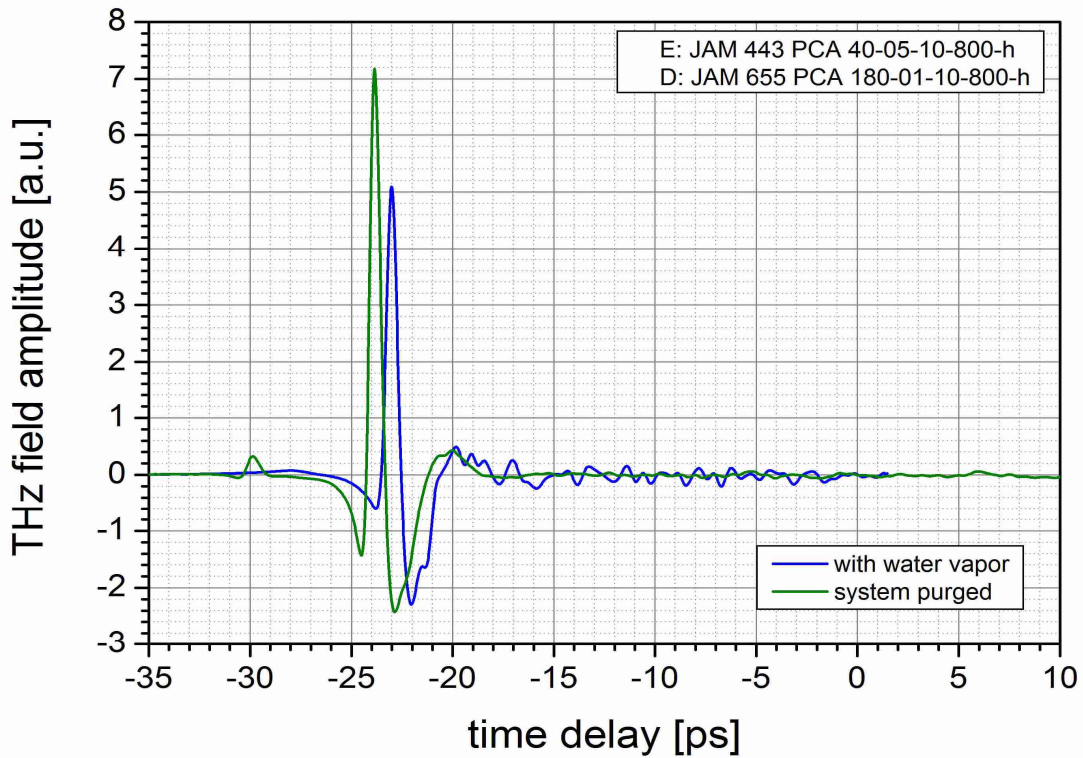
1. Spectral performance



Time domain measurements with PCA-180-01-10-800-h as detector

Emitter antenna: PCA-40-05-01-800-h; Detector antenna: PCA-180-01-10-800-h

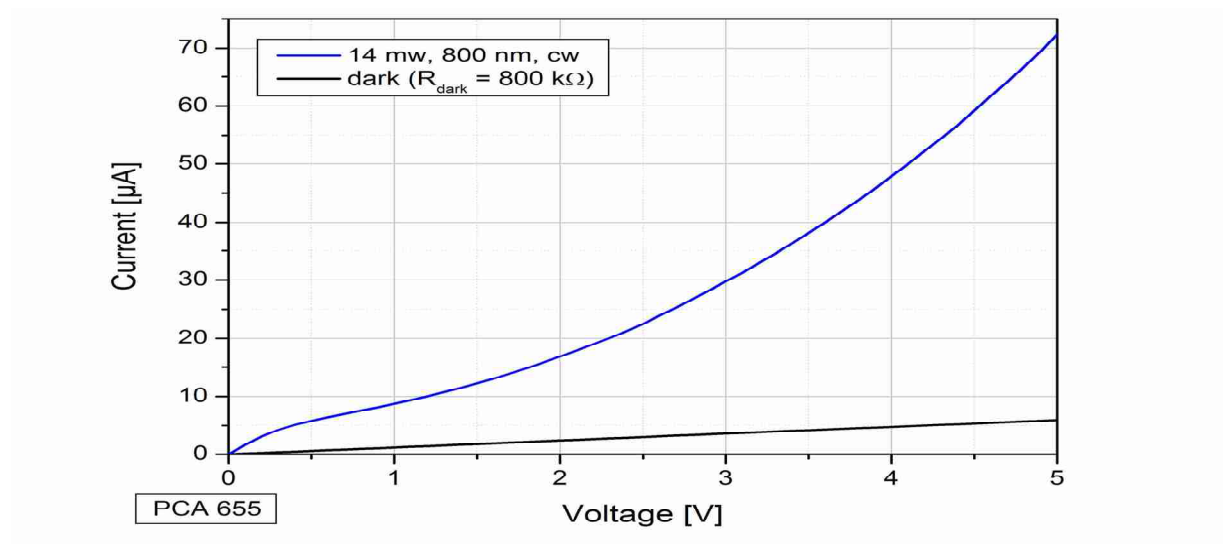
Measured by Dr Edward Parrott who is in Prof Emma MacPherson's research group on the THz system at the Chinese University of Hong Kong



2. Antenna parameters

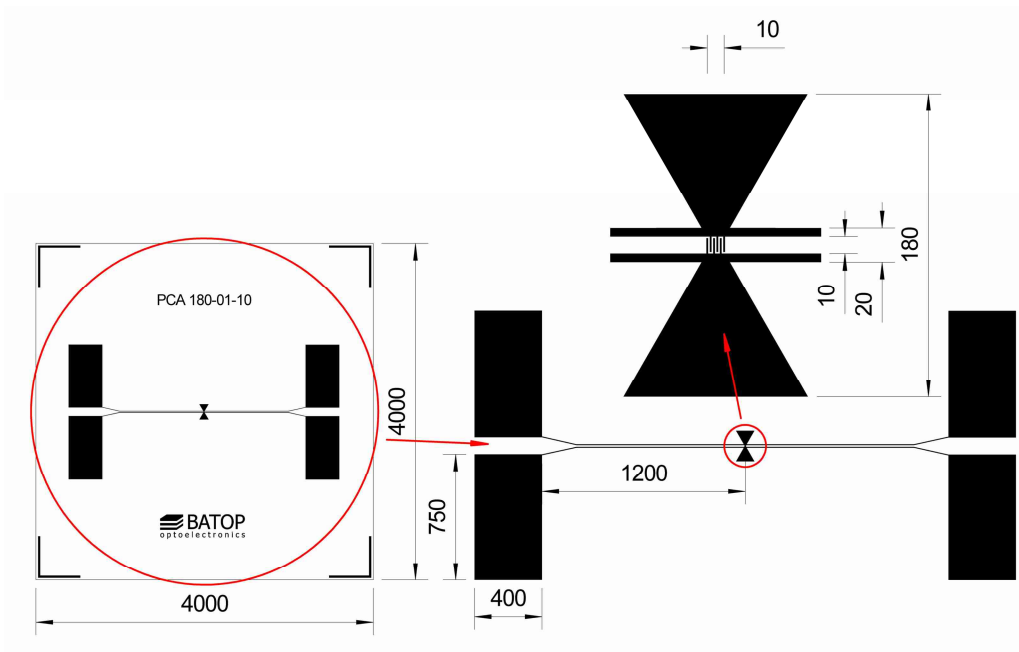
Parameter	minimum ratings	standard	maximum ratings
Dark resistance	600 k Ω	800 k Ω	1 M Ω
Voltage		4 V	5 V
Optical mean power		10 mW	20 mW

Current voltage characteristic of PCA-180-01-10-800

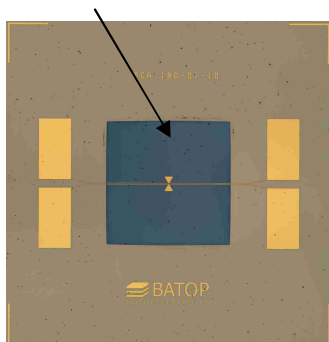


- Main PCA data
- Laser excitation wavelength 800 nm
 - Finger gap: 1 μm
 - Antenna length 180 μm
 - Antenna chip size 4 mm x 4 mm

3. Antenna design

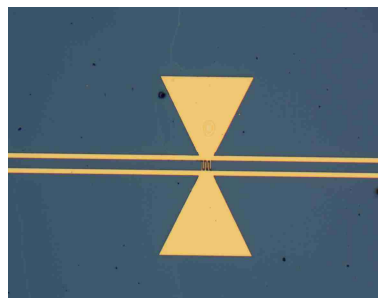


*Photo PCA 180-01-10-800
survey*

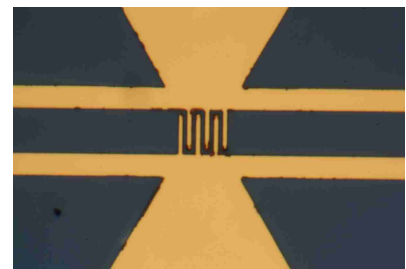


Dielectric cover

Photo PCA 180-01-10-800



*Photo PCA 180-01-10-800
detail*



- | | | |
|---------------|-------------------------------|-------------------|
| Main PCA data | • Laser excitation wavelength | 800 nm |
| | • Finger gap: | 1 μm |
| | • Antenna length | 180 μm |
| | • Antenna chip size | 4 mm x 4 mm |

4. Order information

PCA-180-01-10-800-x	Photoconductive antenna	
	length of the bow-tie antenna	$l = 180 \mu\text{m}$
	gap distance between the fingers	$g = 1 \mu\text{m}$
	width of the finger gap structure	$w = 10 \mu\text{m}$
	laser wavelength	$\lambda = 800 \text{ nm}$

x denotes the type of mounting as follows:

- x** = 0 unmounted chip 2 mm x 2 mm with 4 bond contact pads
- x** = h mounted on an Al disc with 25.4 mm \varnothing and [hyperhemispherical silicon substrate lens](#), 1m coaxial cable with BNC or SMA connector
- x** = a mounted on an Al disc with 25.4 mm \varnothing and [aspheric focusing silicon substrate lens](#), 1m coaxial cable with BNC or SMA connector
- x** = c mounted on an Al disc with 25.4 mm \varnothing and aspheric collimating silicon substrate lens CL-12 for 12 mm THz beam diameter, 1m coaxial cable with BNC or SMA connector
- x** = h-f [fiber coupled antenna](#) with hyperhemispherical silicon substrate lens
- x** = l with [aspheric focusing optical lens](#) for free space laser excitation
- x** = p with [preamplifier](#) for detector antenna