

## Y-107 and Y-102 Hydrophones



The passive cavitation detecting (PCD) hydrophones are highly sensitive with broad bandwidth intended for measuring acoustic energy radiating from the focal region of high-intensity focused ultrasound (HIFU) transducers. One application is as a passive cavitation detector (PCD).

The Y-107 hydrophone can also provide acoustic maps of the energy radiating from the focal zone, as a result of spherical focusing, while the Y-102 with cylindrical focusing can resolve lateral source details of the energy radiating from the focal zone.

### Features

- Useful in the measurement of harmonics radiating from high intensity focused ultrasound (HIFU) focal regions
- Large bandwidth (10 kHz to 15 MHz)
- Water proof housing
- Also useful as a source transducer
- Optional MRI Compatible version

### Configuration Specifications

#### Y-107 (see Appendix A)

Spherically focused 63.2 radius

Superimpose on axis to a focused transducer with a central opening

#### Y-102 (see Appendix B)

Cylindrically focused 50.0 mm radius

Superimpose perpendicular to a focused transducer sources focal axial length

### Characteristics

#### HOUSING

RG-174 coax cable, 1 meter length, 50 Ohms, BNC Male Plug, exits on side (Y-107) and rear (Y-102) of housing

Waterproof, 0-50 degrees C, up to BNC connector

Plastic housing (standard)

Housing dimensions:

Y-107: Length = 14.70 mm; Outside diameter = 19.75 mm

Y-102: Length = 50.80 mm; Outside diameter = 25.40 mm, alignment flat on one side

#### TRANSDUCER

Operating frequency range: 10 kHz – 15 MHz to 6 dB points

Focus:

Y-107 Spherical focus, 17.5 mm active diameter x 64 mm geometric focal length

Y-102 Cylindrical focus, 19 mm active diameter x 50 mm geometric focal length

Sensing area is encapsulated in a rigid, waterproof material

Operates in aqueous, pH-neutral liquids (no need to use distilled or DI water)

RF shielding throughout (except MR compatible version)

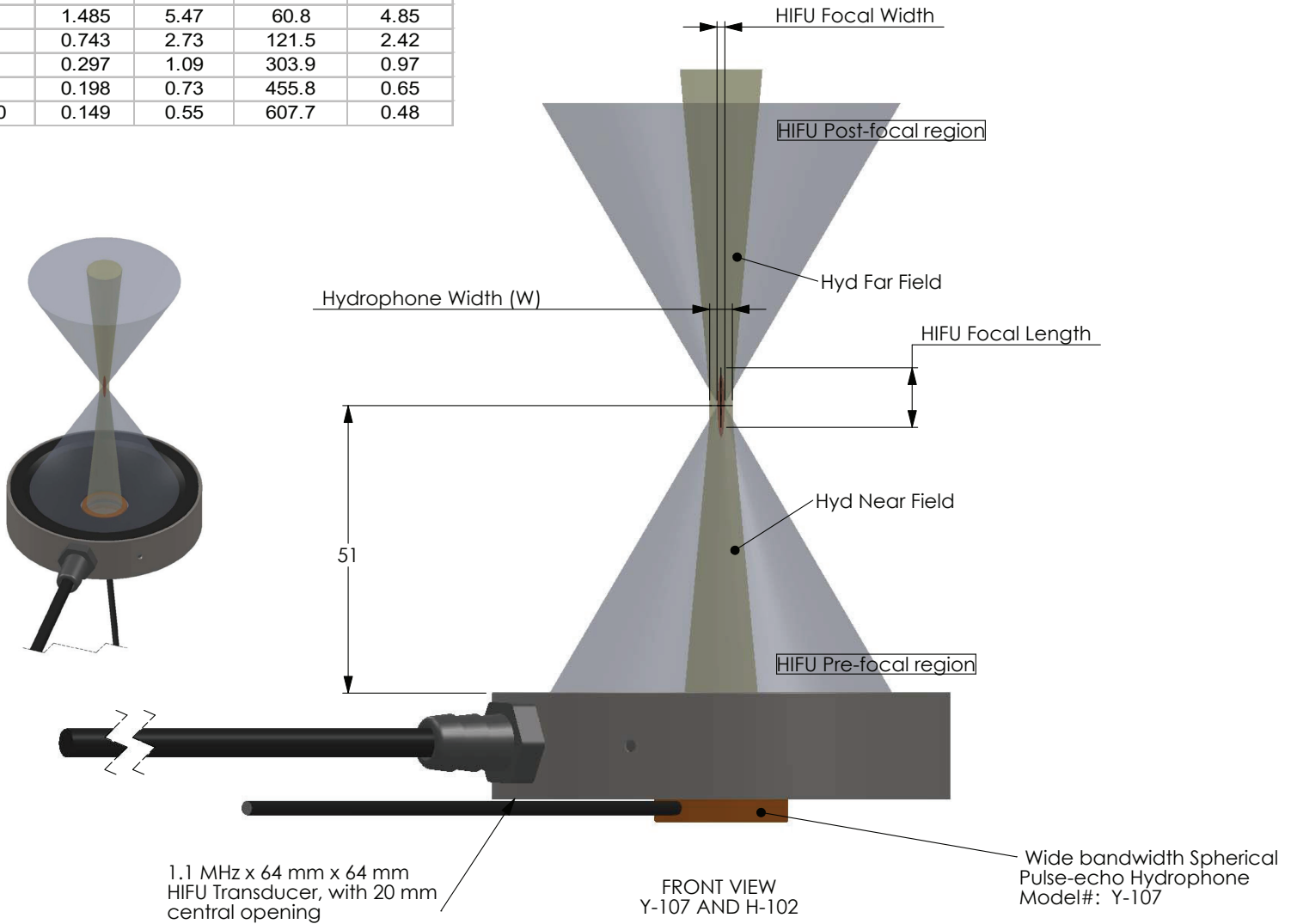
#### ELECTRICAL TRANSMIT LIMITS

NOTE: This section pertains to using PCD hydrophones as a source transducer

Transmit voltage limits up to 10 Vpp continuous (CW); with unit in water; up to 100 Vpp at low duty cycle (0.1% or less); with unit in water

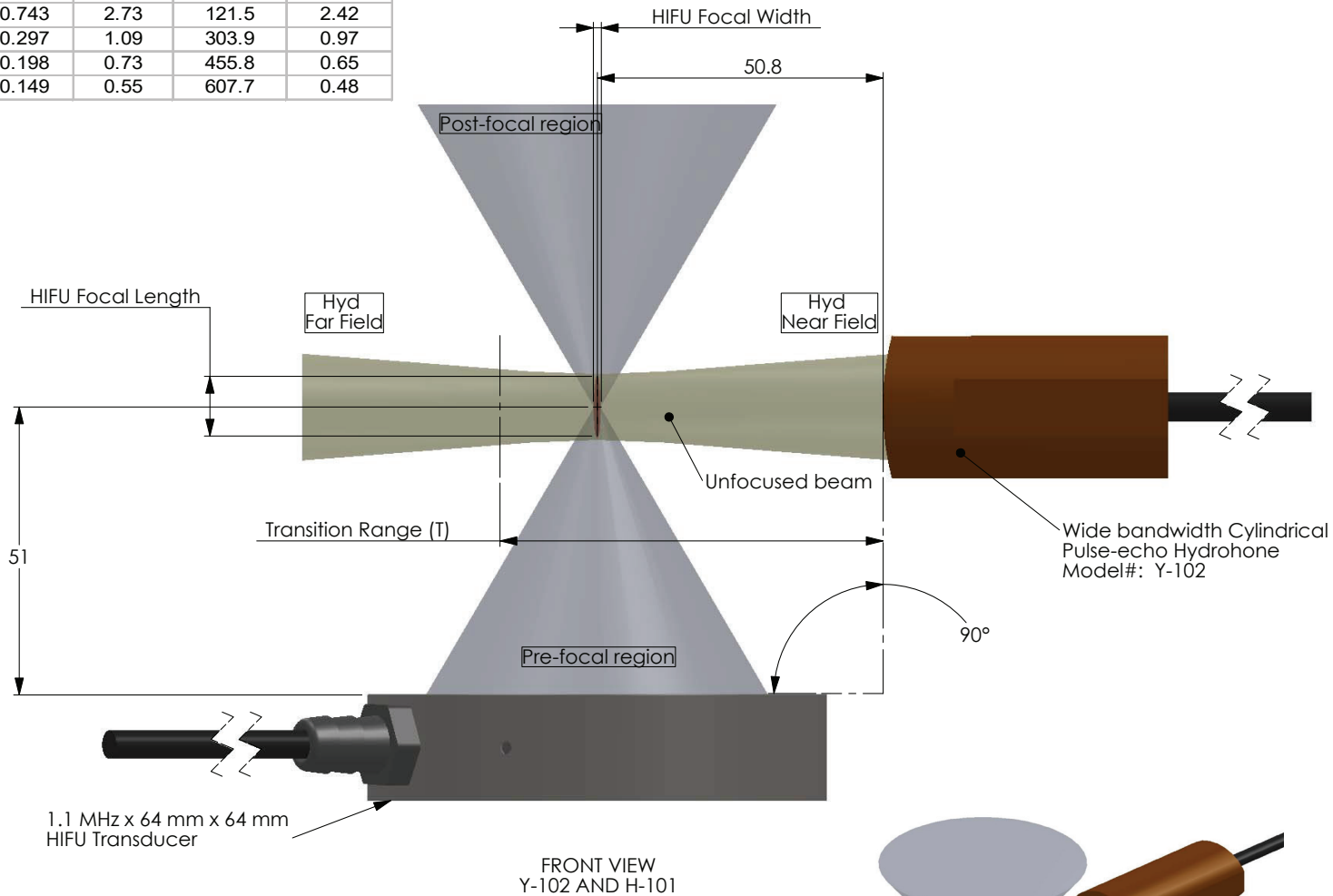
Appendix A

Frequency MHz	Lambda mm	Theta Degrees	Range T mm	Width W mm
0.25	5.940	22.42	15.2	19.88
0.50	2.970	10.99	30.4	9.75
1.00	1.485	5.47	60.8	4.85
2.00	0.743	2.73	121.5	2.42
5.00	0.297	1.09	303.9	0.97
7.50	0.198	0.73	455.8	0.65
10.00	0.149	0.55	607.7	0.48



Appendix B

Frequency MHz	Lambda mm	Theta Degrees	Range T mm	Width W mm
0.25	5.940	22.42	15.2	19.88
0.50	2.970	10.99	30.4	9.75
1.00	1.485	5.47	60.8	4.85
2.00	0.743	2.73	121.5	2.42
5.00	0.297	1.09	303.9	0.97
7.50	0.198	0.73	455.8	0.65
10.00	0.149	0.55	607.7	0.48



Appendix B (continued)

Frequency MHz	Lambda mm	Theta Degrees	Range T mm	Width W mm
0.25	5.940	22.42	15.2	19.88
0.50	2.970	10.99	30.4	9.75
1.00	1.485	5.47	60.8	4.85
2.00	0.743	2.73	121.5	2.42
5.00	0.297	1.09	303.9	0.97
7.50	0.198	0.73	455.8	0.65
10.00	0.149	0.55	607.7	0.48

