HITACHI

REF. No. NL73M1152

HITACHI ELECTRON TUBE

HITACHI 2M131
CW MAGNETRON

26 January 2001
【TENTATIVE DATA】

2M131

The HITACHI 2M131 is fixed frequency continuous wave magnetron intended for use in microwave ovens and industrial microwave heating applications.
The useful RF power output at 2450 MHz band is approx. 1600 watts into a matched load.

FEATURES

1. Light weight and compact structure with vertical air cooling
2. Stable performance by using ALNICO magnets
3. Sufficient noise suppression with the improvement of integrated filter circuit
4. Suitable performance and excellent reliability for use in microwave ovens and industrial microwave heating applications

GENERAL DATA

ELECTRICAL

Filament Voltage (Stand-by)	·····	4.6 V
Filament Voltage (Operation)	·····	(Fig. 1)
Filament Current (Stand-by)	·····	20 A
Filament Surge Current (peak)	·····	100 A
Filament Pre-heating Time	·····	8 sec
Frequency (with matched load)	·····	2455 MHz
Recommending Operation	·····	Continuous
Anode Potential	·····	Grounded
Filament Potential	·····	Negative High Voltage - 3.6 kV
Magnet	·····	Permanent Magnet

MECHANICAL

Dimensions : See dimensional outline (Fig. 5).

Width	·····	117 mm MAX.
Length	·····	134 mm MAX.
Height (antenna height is excluded.)	····	160 mm MAX.
Antenna height	·····	48 mm MAX.
Weight	·····	Approx. 1.9 kg
Mounting Position	·····	Vertical axis either end up
Cooling	·····	Forced Air (Fig. 4)

ABSOLUTE MAXIMUM RATINGS

		Min.	Max.	Unit
Filament Voltage (Stand-by)	·····	4.4	5.0	V
Filament Voltage (Operation)	·····	(Fig. 1)	(Fig. 1)	V
Preheating Time	·····	5	—	s
Average Anode Current	·····	—	750	mAdc
Peak Anode Current	·····	—	2100	mAdc
Average Anode Input	·····	—	2600	W
Load VSWR (Continuously)	·····	—	4	
Anode Core Temperature	·····	—	160	℃
Storage Temperature	·····	-30	60	℃
Antenna Temperature (metal-ceramic seal point)	··	—	350	℃
Case Temperature	·····	—	100	℃

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TYPICAL OPERATION

Test conditions : at a matched load, and with the power supply of single phase full-wave rectifier without filter

Filament Voltage (Stand-by)	4.6	V
Filament Voltage (Operation)	3.5	V
Average Anode Current	725	mA
Peak Anode Voltage	3.6	kV
Average Power Output (matched load)	1600	W
Frequency (matched load)	2455	MHz
Cooling Air Flow	3.3	m³/min
Static Pressure Drop	300	Pa

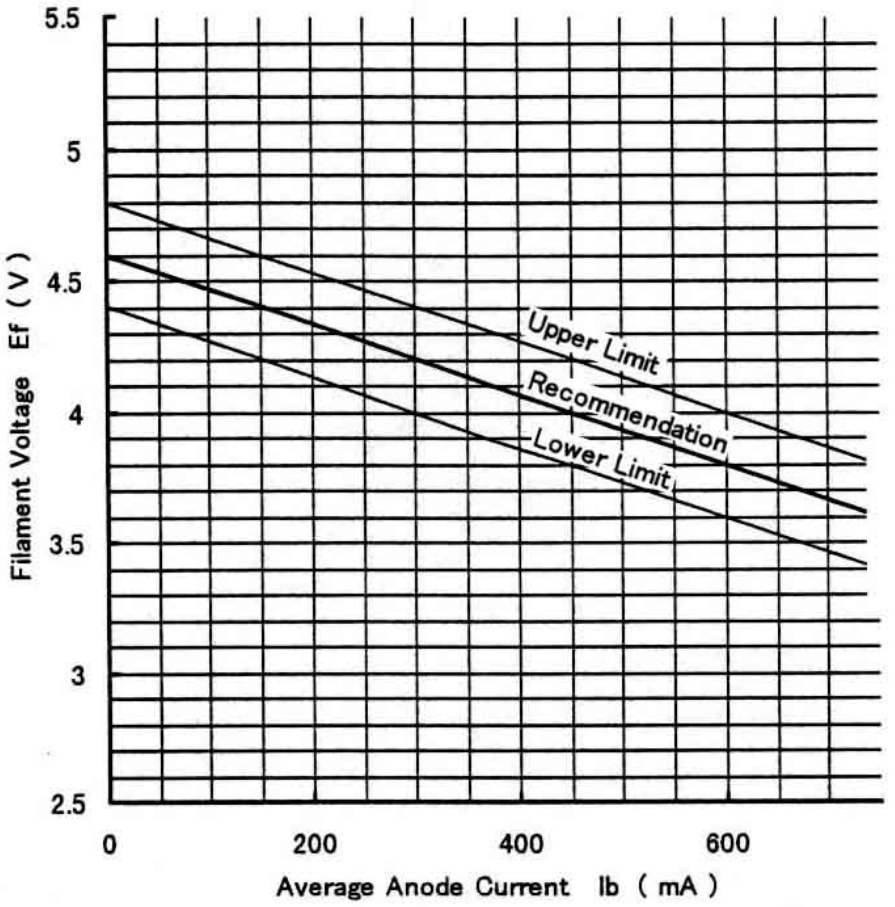

Fig. 1 Reduction Chart of Filament Voltage

Note :

(1) The information contained herein is tentative and may be changed without prior notice. It is therefore advisable to contact HITACHI before proceeding with the design of equipment incorporating this product.

(2) Data are based on the Testing Methods for Continuous Wave Magnetrons ED-1501 (ET-145A) set by the Electronic Industries Association of Japan (EIAJ).

(3) Precautions for Safety : Please see attached news letter of No. NL73M1053.

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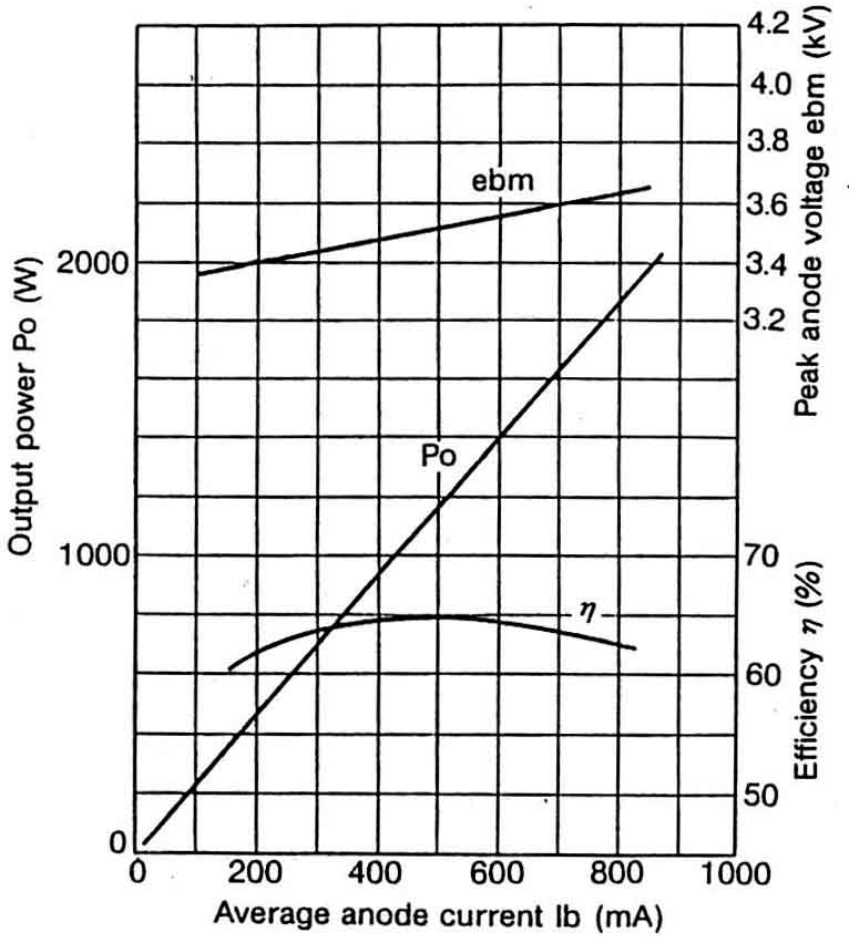
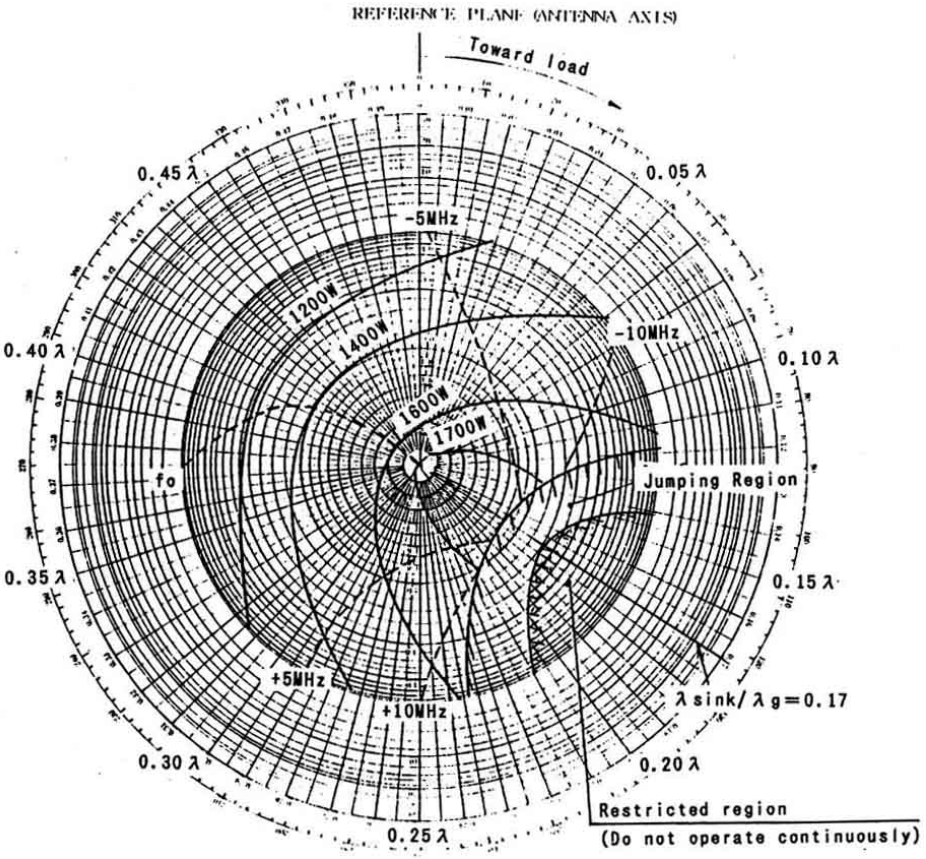


Test conditions :
1. Load VSWR : 1.1 : 1
2. Anode supply : Single phase, full wave doubler.

Fig. 2 Performance Chart of The 2M131



Operating conditions :
Power supply : Single phase, full-wave doubler.
Average anode current : 725mA
Filament voltage : 3.8V
———— Power output
---------- Frequency (fo=2465MHz)

Fig. 3 Rieke Diagram of The 2M131

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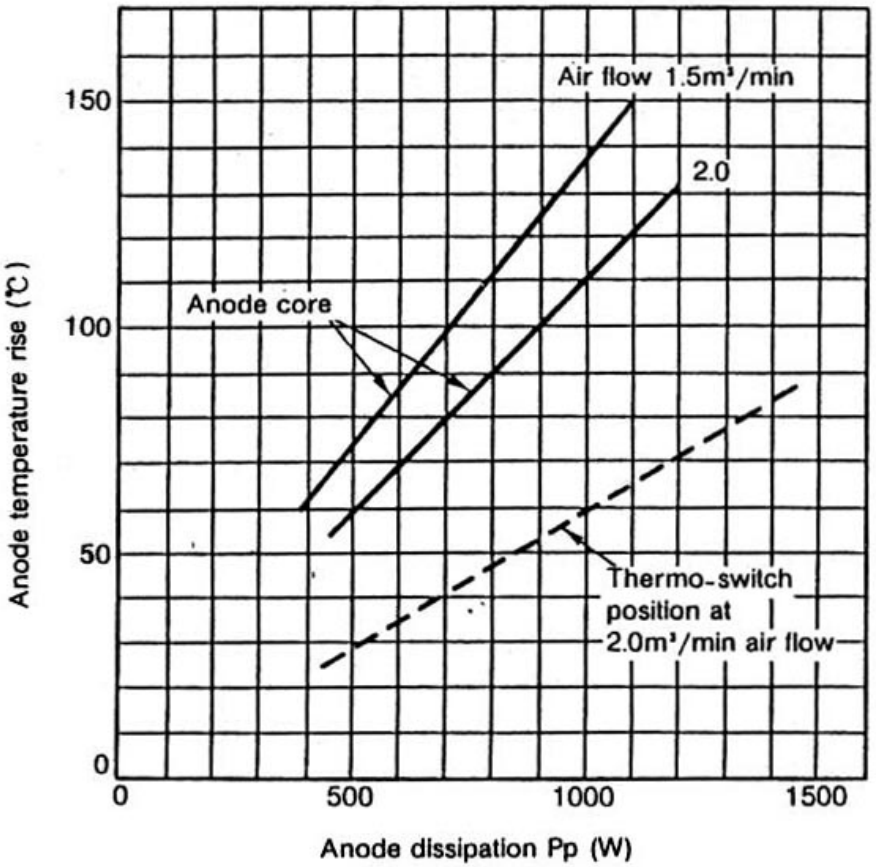
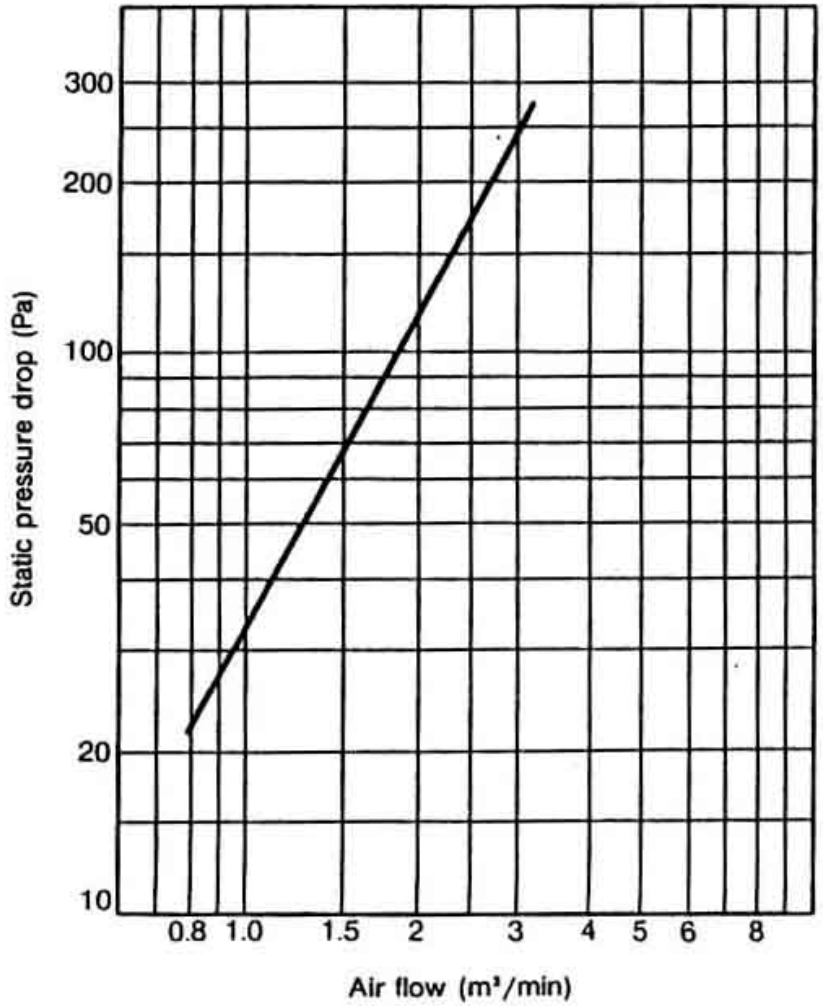


Anode dissipation vs. Temperature rise

Fig. 4(A) Cooling Requirements of The 2M131



Air flow vs. Static pressure drop

Fig. 4(B) Cooling Requirements of The 2M131

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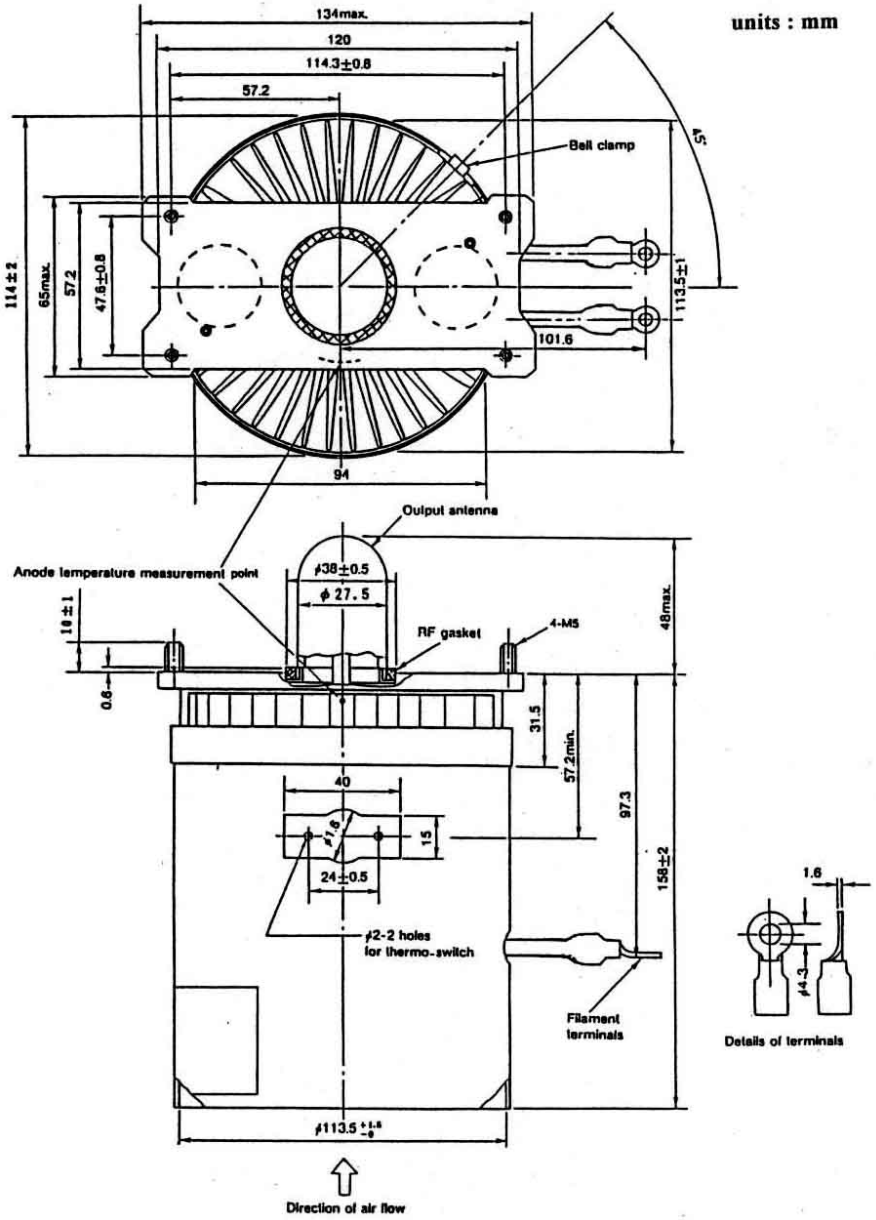
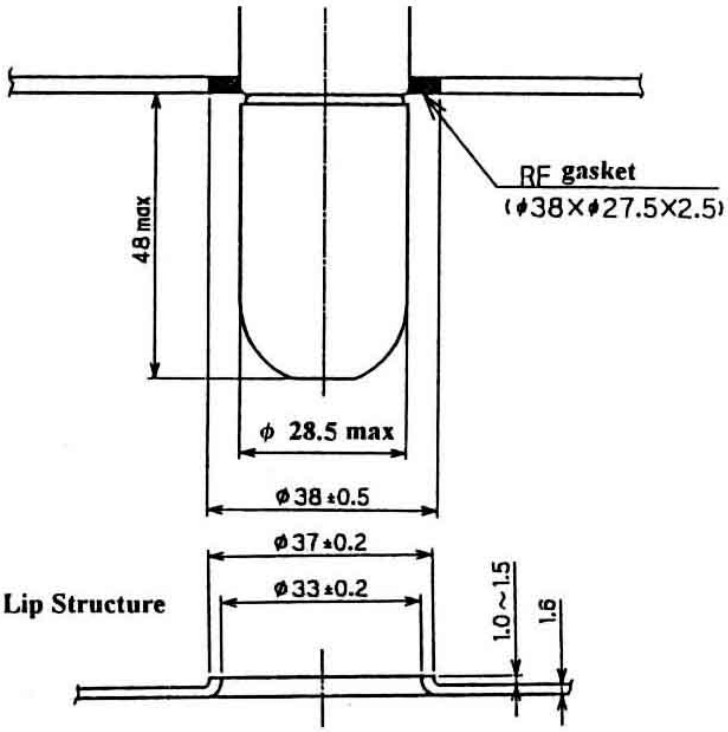


Fig. 5 Dimensional Outline of The 2M131

Output Structure of Magnetron

units : mm



Recommended Lip Structure of Launcher

(1) Materials : Stainless Steel
(2) Flatness of Lip : 0.1 mm max.
(3) Contacting Pressure to Gasket : 20 to 40 kg

Fig. 6 Details of Output Coupling Portion and Recommended Launcher Design

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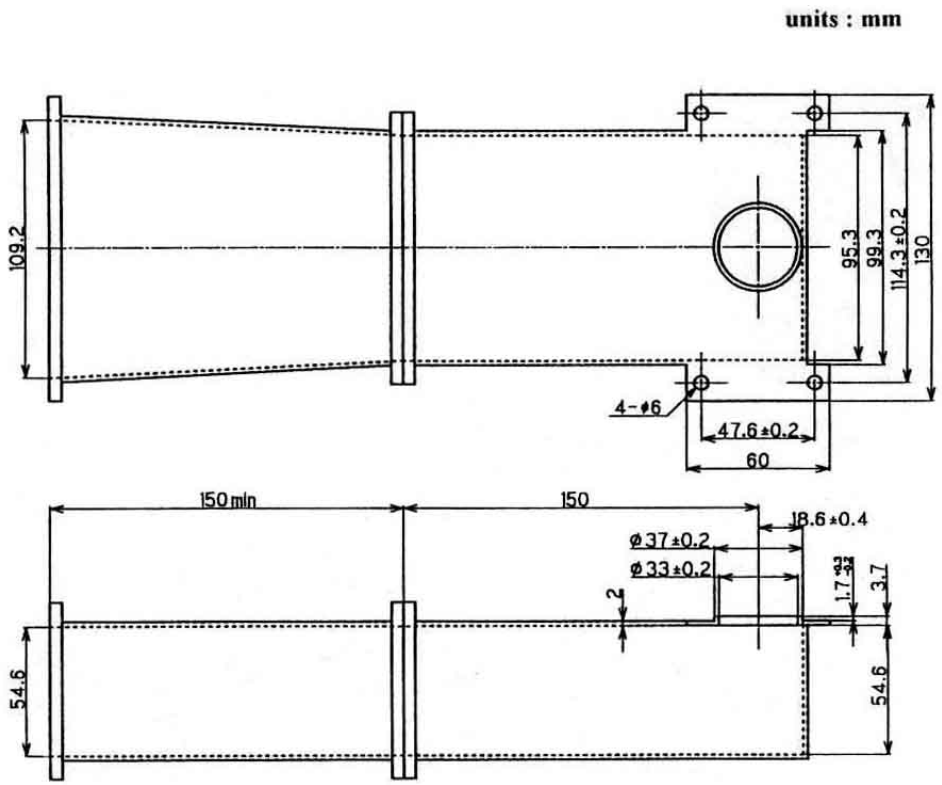

Fig. 7 Launcher and Tapered Waveguide for Testing

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