PART SPECIFICATION SHEETS

PART NUMBER : RV-MZA364WRZZ

PART NAME : MAGNETRON

VENDOR : LG ELECTRONICS

MANUFACTURER : LG ELECTRONICS

NOTE : NEW "HP" LOW NOISE TYPE

REVISION :

SHARP CORP.
APPROVAL

APPROVED DATE / /

MODEL	PART	SAFETY

SUKM	SATL	SMCA	JGB
APPROVAL:			
APPROVED DATE: 25/2/08	/ /	/ /	/ /
ISSUED DATE: / /	/ /	/ /	/ /

SHARP

LG

FOR MESSRS : **SHARP**

CUSTOMER'S ACCEPTANCE SPECIFICATIONS

MAGNETRON : **2M226 – 22GDH**

DATE : JAN.24,2008

CONTENTS

SIGNATURES :

PROPOSED BY **B. T. CHOI**

GENERAL MANAGER OF
MGT DIV. DESIGN DEPT.

SIGNATURES :

APPROVED BY

PLEASE RETURN ONE VOLUME OF THIS SPEC WITH YOUR SIGNATURE FOR APPROVAL.

RECORD OF REVISION

Rev. No	DATE	REVISION CONTENTS	SHEET NO.
0	JAN.24,2008	-	-

TEST SPECIFICATION

Description : Continuous Wave Magnetron, 2450MHz, Fixed Frequency

1. Absolute Maximum Ratings :

	Symbol	Min	Max	Unit	Note
Filament Voltage	Ef	2.85	3.75	Vac	
Pre-heating Time	tk	0	-	sec	
Average Anode Current	Ib	-	350	mAdc	
Peak Anode Current	ibm	-	1.2	Ap	
Peak Anode Voltage	ebm	-	4.5	kVp	
Average Anode Input	pi	-	1.4	kW	
Load VSWR (continuous)	σL	-	4	-	(15)
Anode Core Temperature	Tp	-	300	° C	(3)
Filter Case Temperature	Tcase	-	120	° C	
Antenna Temperature	Ta	-	360	° C	
Storage Temperature	-	-30	60	° C	

2. General Test Condition :

	Symbol	Value
Filament Voltage	Ef	3.3 Vac
Pre-heating Time	tk	8 sec
Average Anode Current	Ib	300 mAdc
Load VSWR	σL	1.1 Max
Cooling Air Flow	Q	1.0 m^3/min
Test Equipment		Page 13~14 / 14
Power Supply ..... single-phase, full-wave rectifier without filter		

3. Test Specifications :

Item	Symbol	Nominal	Min	Max	Unit	Note
Filament Current	If	10.5	9.0	12.0	Aac	
Peak Anode Voltage	ebm	4.20	4.00	4.40	kVp	(5)
Average Output Power	Po	900	860	950	W	(5)
Frequency	fo	2460	2450	2470	MHz	

Test Specifications (Continued) :

Item	Symbol	Nominal	Min	Max	Unit	Note
** Sink Phase (at σL=4)	ℓo/λg	0.30	0.27	0.33	-	(6)
** Pulling Figure (at σL=4)	fpℓ	40	-	48	MHz	(6)
* Stability (at σL≤4)	(STIb)	-	300	-	mAdc	(10)(13)
Breakdown Voltage	(Et)	-	10	-	kVdc	(14)
(Raising voltage gradually, positive potential to anode : RL=100 KΩ)						
* Insulation (Et=1000vdc)	Rpf	-	100	-	MΩ	
* Leakage microwave	pℓ	-	-	1	mW/cm²	(7)(8)
(with 275mℓ water load, at 5cm from magnetron)						
* Leakage 5th Harmonics	-	-	-	Note	dBpW	(16)(17)
* Vibration Test	-	-	-	-	-	(2)(12)
** Mechanical strength (A)	-	-	4	-	kg	(9)
** Mechanical strength (B)	-	-	3	-	kg	(9)
** Mechanical strength (C)	-	-	10	-	kg	(9)
* Surge voltage	(epo)	-	-	10	kVp	(8)(11)(14)

Notes :

(1) "EIAJ-ED-1501/(old)ET-145 Testing methods for continuous wave magnetron" by Electronic Industries Association of Japan, is referred.

(2) Breaking of filament should not be observed.

(3) Maximum rating for short time operation is given as follows.
1. 350℃ ------ Allowable at an operating for within 30 minutes
(cumulated operating time should be within 50 hours)

(4) Classification of tests is given as follows.

Mark	Class
None	Production test
*	Design test
**	Type approval test

Marks are at the left of each test item.
(ex. *Surge voltage)

(5) These limits are defined as converted values to 25 ℃
Conversion should be done using the equation shown below.
ebm (T) = {1-0.002(T-25)} ebm
Po (T) = {1-0.002(T-25)} Po
(Where, ebm(T), Po(T) : Values at ambient temperature T(℃))

Notes (continued) :

(6) pulling figure is the difference between the maximum and the minimum frequency of oscillation that occurs when the phase of the reflection coefficient of the load is varied over the λg/2.
The sink phase is defined as the phase to give maximum change of the frequency and to give the same oscillating frequency as that at matched load.
In both cases, with the variation of phase, the load VSWR should be held at the stated value (σ L=4)

(7) Measured with Narda type 8110 radiation monitor.

(8) Measured with the microwave oven accepted by both parties.

(9) Mechanical strength (A)
: The antenna cover should not be drawn out when it is pulled to the direction of antenna axis with stated force.
Mechanical strength (B)
: Any degradation of breakdown voltage should not be observed after pressing the filter box with standard test finger with stated force.
Mechanical strength (C)
: The terminals should withstand stated pulling force to the direction of terminal axis.

(10) Any instability such as moding if run-away should not be observed at any load phase.

(11) Filament terminal with in-phase mark ("F") should be connected to the filament transformer so as to have the same polarity as anode.

(12) Test conditions are as follows.
Amplitude : 2 mm (peak to peak)
Frequency : 25 Hz
Time of vibration : 10 minutes (for each of three directions)

(13) Distance from reference place of magnetron (antenna axis) to mismatched point should be 27.6 inches (700mm) min.

(14) Should not discharge continuously.

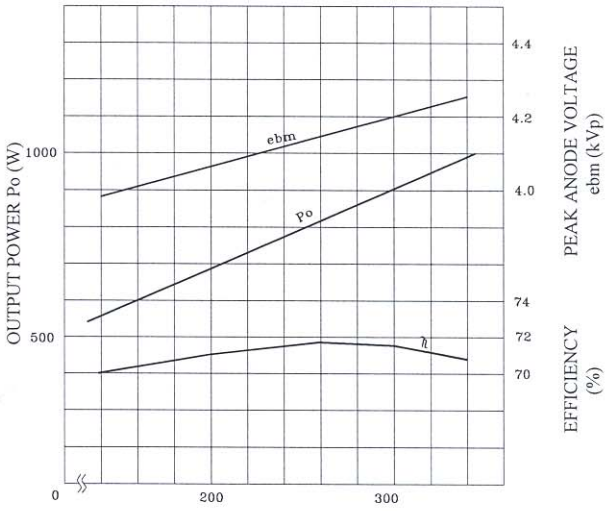
(15) Load match may vary to higher VSWR in application, but must be reviewed by LG with regard magnitude, phase and dwell time.

(16) Microwave Oven : LG Standard Model
Method of measurement : open field.
Load condition : volume of water : 1000 ㎖ Bowl
position of load : center

(17) Maximum 73 dBμ/m at 80% of production.

CHARACTERISTIC CHART

1. PERFORMANCE CHART

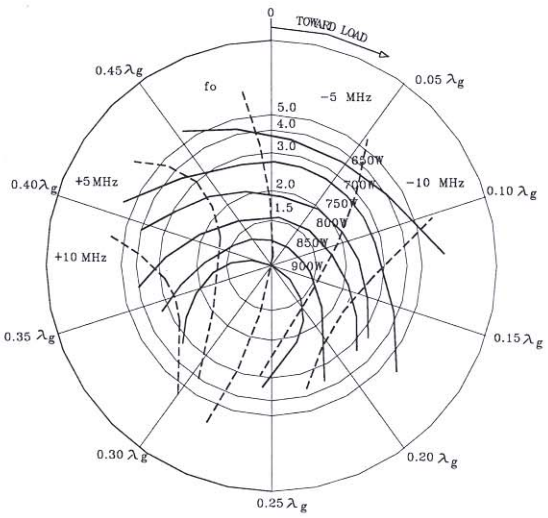


OPERATING CONDITIONS :

POWER SUPPLY SINGLE PHASE FULL-WAVE RECTIFIER
WITHOUT FILTER
LOAD : MATCHED LOAD ($\sigma \leq 1.1$)
FILAMENT VOLTAGE : 3.3V

2. TYPICAL RIEKE DIAGRAM

REFERENCE PLANE (AXIS OF OUTPUT ANTENNA)



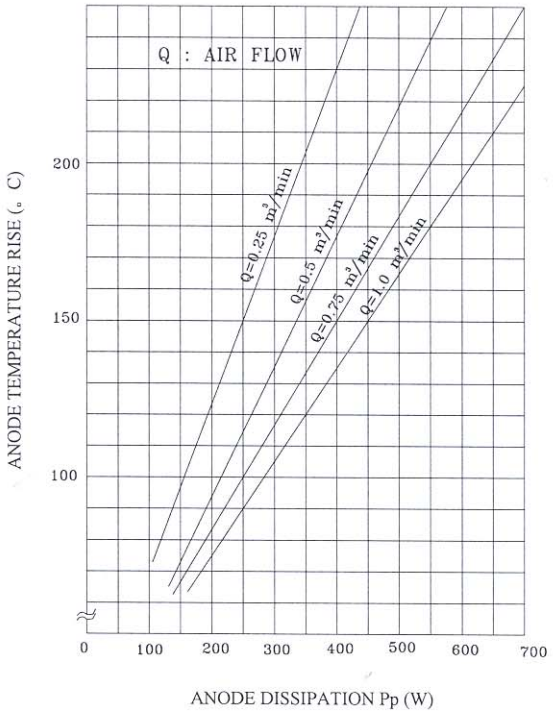
OPERATING CONDITIONS :

POWER SUPPLY SINGLE PHASE,
FULL-WAVE RECTIFIER WITHOUT FILTER
AVERAGE ANODE CURRENT 300 mA
WAVE GUIDE : LG STANDARD LAUNCHER.

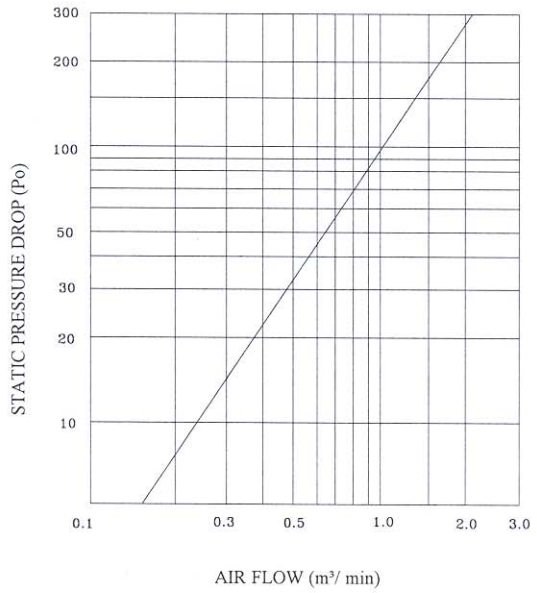
———— OUTPUT POWER (W)

- - - - - - FREQUENCY (MHz)

3. ANODE DISSIPATION VS ANODE TEMPERATURE RISE



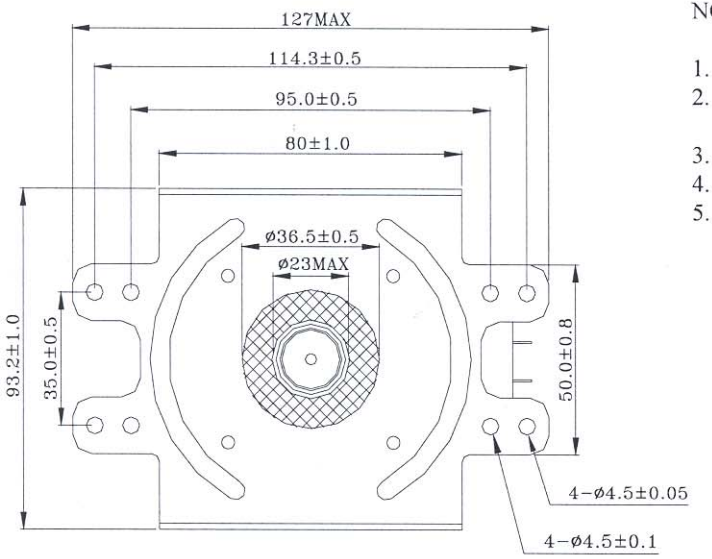
4. AIR FLOW VS STATIC PRESSURE DROP



DIMENSIONAL OUTLINE OF 2M226

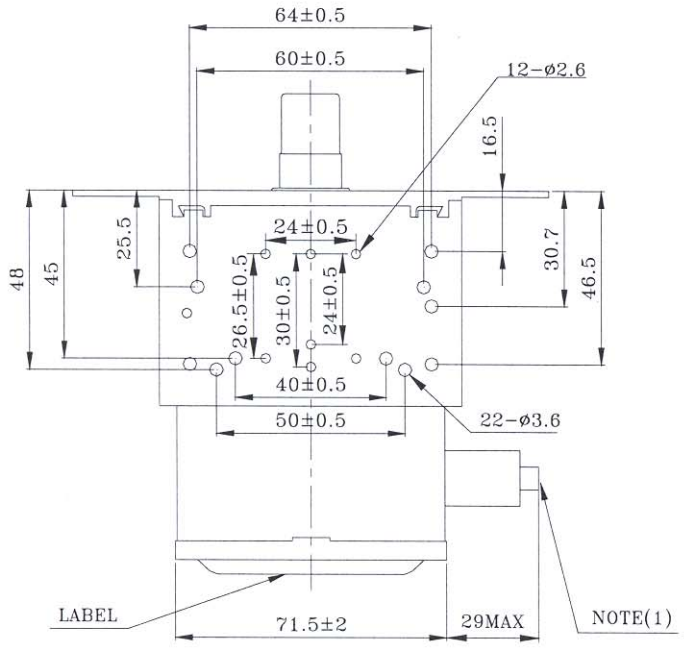
DIMENSIONS IN MILLIMETERS

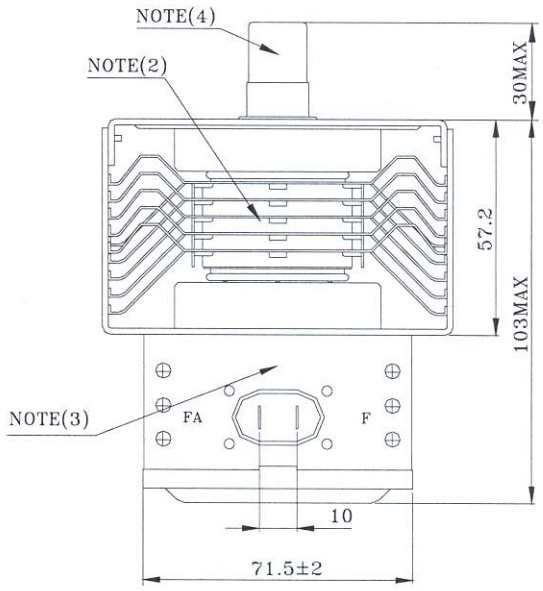
2M226-22GDH TYPE



NOTE :

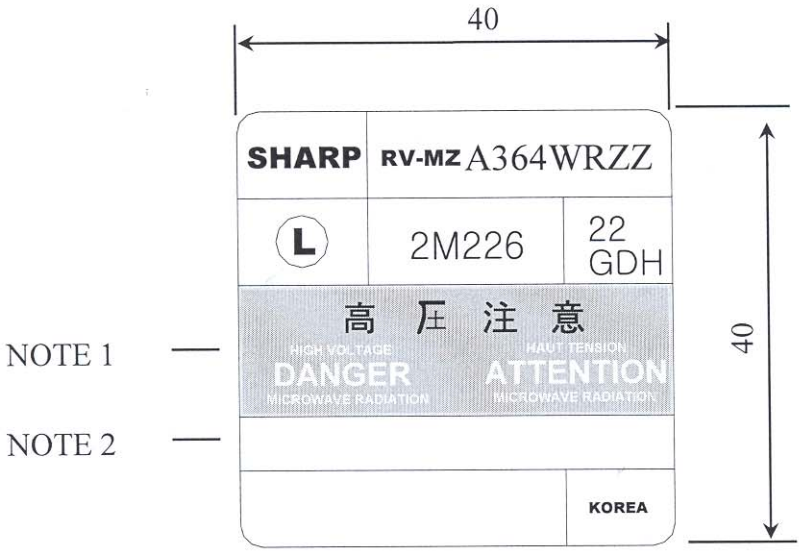
1. ADATABLE TO FASTON 250 SERIES RECEPTACLE.
2. ANODE TEMPERATURE MEASURING POINT. (DOWN STREAM AIR)
3. CASE TEMPERATURE MEASURING POINT.
4. ANTENNA TEMPERATURE MEASURING POINT.
5. GASKET RING'S DIAMETER IS MAX 23MM.





LABEL SPECIFICATION

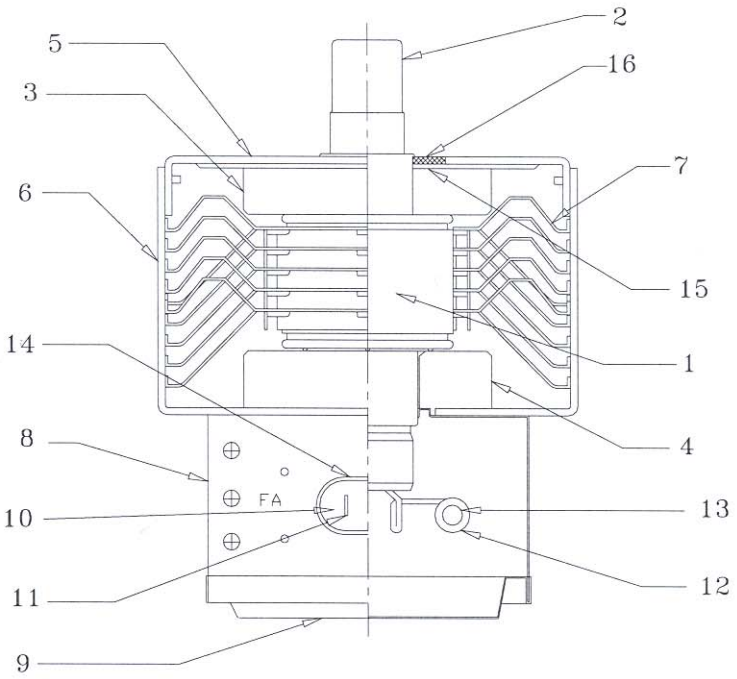
DIMENSIONS IN MILLMETERS



NOTE :

1. It indicates Caution and area indicated to be red with white letters.
2. It indicates Bar code with magnetron information.

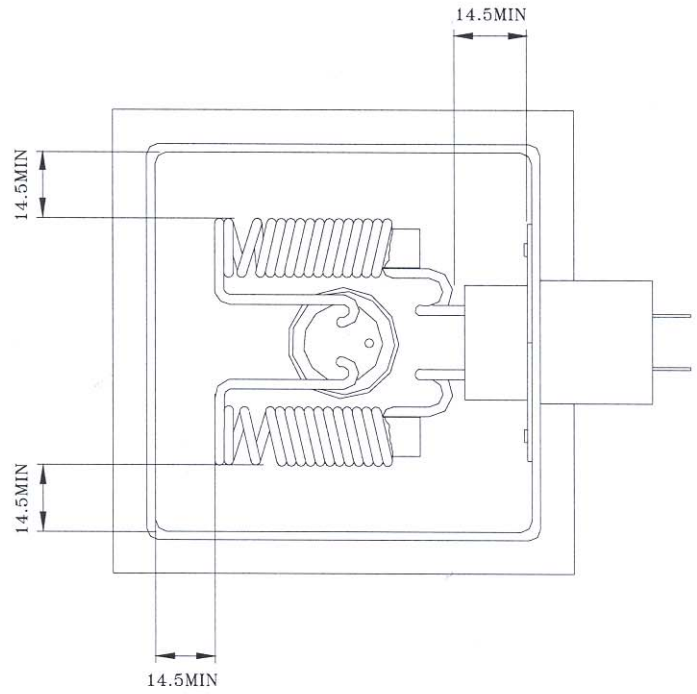
2M226 MATERIAL AND STRUCTURE

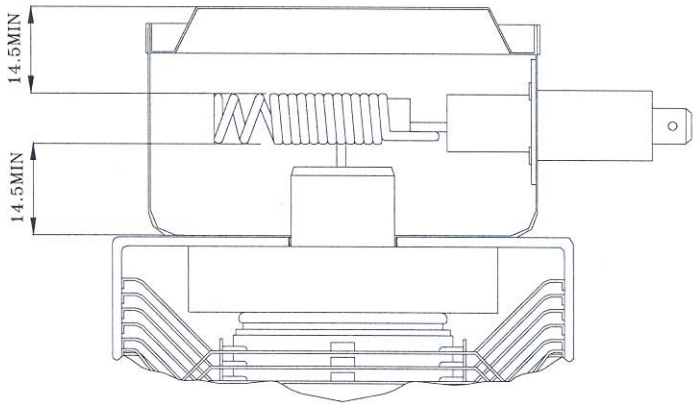


NO	PART NAME	MATERIAL	NOTE
1	VACUUM TUBE	(2M226)	
2	ANTENNA CAP	STAINLESS STEEL	
3	MAGNET	Sr FERRITE	Φ57 x Φ21 x t12.4
4	MAGNET	Sr FERRITE	Φ57 x Φ21 x t12.4
5	YOKE	STEEL (ZINC PLATED)	t1.4mm or t1.6mm
6	YOKE	STEEL (ZINC PLATED)	t1.4mm or t1.6mm
7	FIN	ALUMINUM	t0.6(or t0.65), 80 x 90 , 5pcs
8	FILTER BOX	STEEL (ZINC PLATED)	t0.4 71×71×40
9	FILTER BOX (LID)	STEEL (ZINC PLATED)	t0.3
10	CAPACITOR	$BaTi_3$ (EPOXY RESIN MOLDED) 10kVdc 500PF×2	TDK
11	TAB	STEEL (THIN PLATED)	
12	CHOKE COIL	COPPER WIRE Φ1.4 ×15.6 TURNS 1.2μH	
13	CORE	FERRITE	Φ5.6 x 14
14	COVER	POLYETHYLENE - TELEPTHALATE	
15	BASE	STEEL (ZINC PLATED)	
16	GASKET	BRASS	t1.6

INSULATING DISTANCES IN THE FILTER BOX

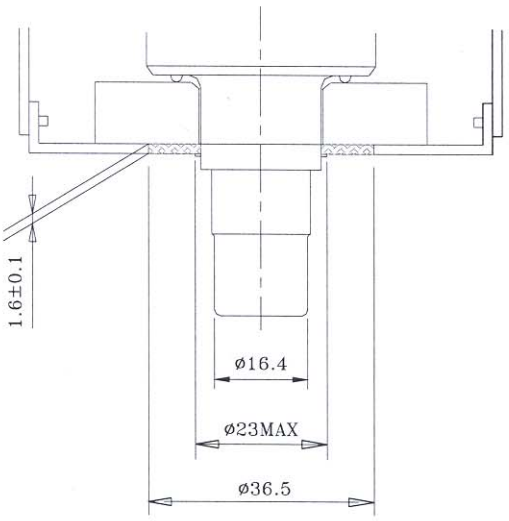
DIMENSIONS IN MILLIMETERS





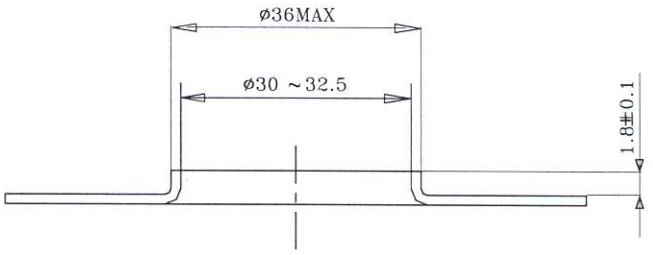
MOUNTING ON LAUNCHER

DIMENSIONS IN MILLIMETERS



NOTE : 1. This figure is without gasket.

2. Recommended structure of launcher

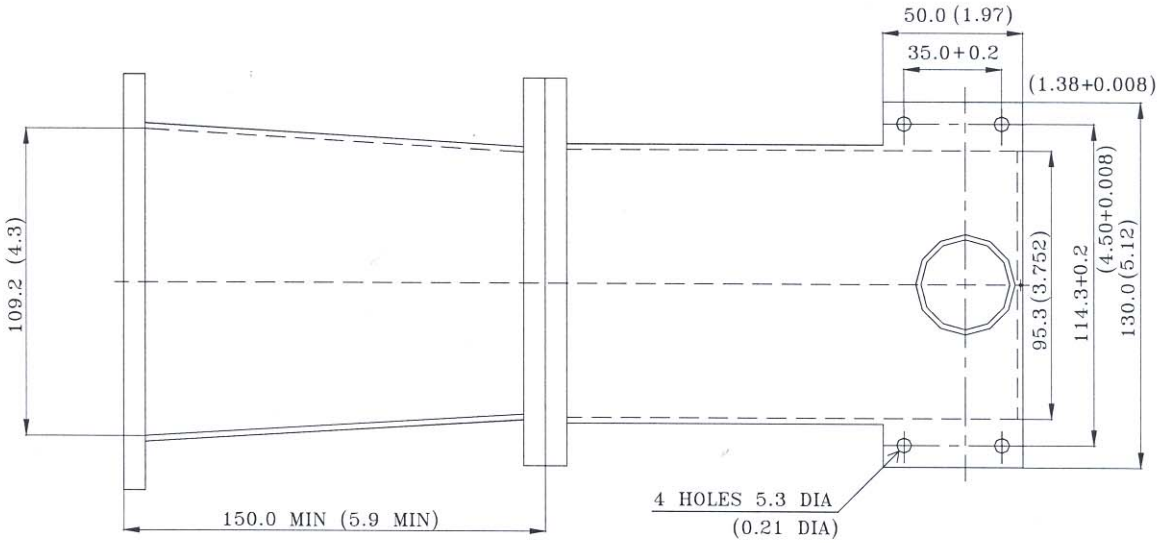


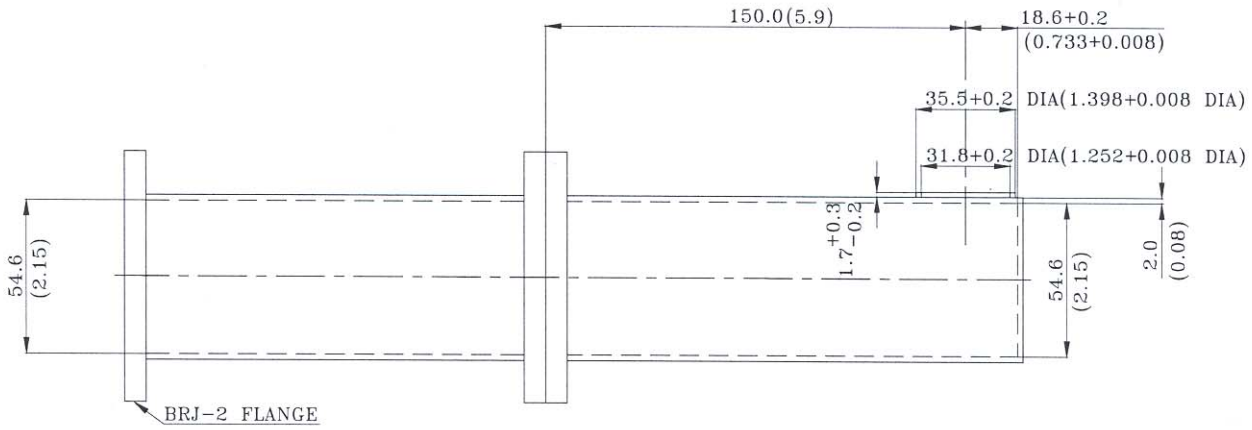
NOTE :

1. Flatness of embossed edge should be better than 0.1mm to avoid microwave leakage.
2. Recommended pressure on gasket is 20 to 40kg.

LAUNCHER AND TAPERED WAVEGUIDE FOR TESTING

DIMENSIONS IN MILLIMETERS
(IN INCHES)





BLOCK DIAGRAM OF TEST EQUIPMENT