KAUNAS UNIVERSITY OF TECHNOLOGY

FACULTY OF ELECTRICAL AND ELECTRONICS ENGINEERING

DEPARTMENT OF ELECTRONICS ENGINEERING

APPLIED ELECTRODYNAMICS

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Waveguide

f=2450Hz

1st (0V) =63mm λ/2=82mm

2nd (0V) =145mm

Distance(mm)	Short waveguide (mV)	Distance(mm)	Absorber (mV)	Distance(mm)	Open end (mV)
0	60	0	39	0	26
5	70	5		5	28
10	75	10	40	10	30
15	80	15		15	35
20	85	20	41	20	41
25	85	25		25	46
30	80	30	41	30	49
35	72	35		35	48
40	72	40	41.5	40	52
45	62	45		45	52
50	45	50	42	50	51
55	25	55		55	49
60	5	60	40.5	60	42
65	0	65		65	40
70	20	70	41	70	35
75	40	75		75	32
80	55	80	41	80	29
85	68	85		85	28
90	74	90	40.5	90	29
95	76	95		95	30
100	84	100	41	100	28
105	86	105		105	45
110	86	110	41	110	49
115	81	115		115	51
120	78	120	41	120	51
125	65	125		125	51
130	54	130	41	130	52
135	25	135		135	50.5
140	15	140	40	140	48
145	0	145		145	43
150	10	150	39	150	39
155	30	155		155	22
160	48	160	37	160	28
165	62	165		165	28

SWR(Standing wave ratio)			SWR=Vmax/Vmin		
SWR1	∞	SWR2	1.13513513513514	SWR3	2.36363636363636

$$K_{sw} = E_{max} / E_{min}$$

Conclusion:

The objective of this lab is to examine experimentally the structure of the electromagnetic field in waveguide with different loads the lab was 3 part with short circuit, absorver and open end so we examined short end and the voltage we get was very high and it increased on certain distance but furthermore it started to decrease and finally we got 0 voltage on meter. The standing ratio was infinity and we have achieved nearly complete reflection of standing waves

On the other hand when we changed the end of waveguide to absorver the voltages we observed was slightly different, the changes were too little so instead of changing the distance to every 5 mm we have done it every 10 mm therefore the reflections changes were quite stable on every distance

so the standing wave ratio is very low. However when we removed end of the waveguide in order to get open end waveguide the voltages we get were quite different from other ends. The ratio was smaller than short end and bigger than absorver so we have more reflections on open end compared to absorver end