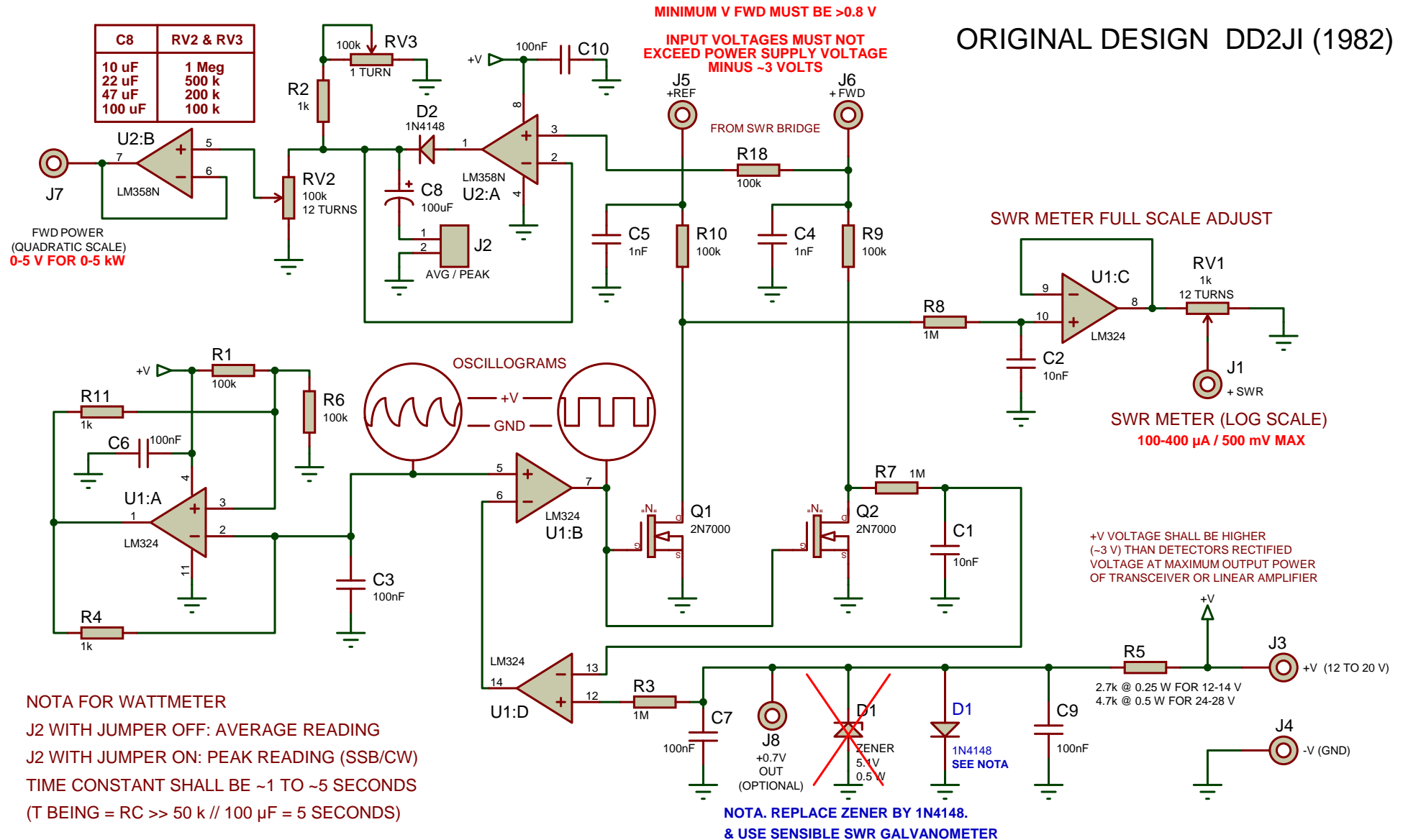


# ORIGINAL DESIGN DD2JI (1982)



## SCHEMATIC DIAGRAM AUTOMATIC SWR & PEAK POWER METERS

Rev 7: Modified U1C & RV1 wiring, & Zener value.

Rev 7a: Replaced D1 Zener by 1N4148

DOC N°: AMATEUR RADIO  
BY: f1frv@sfr.fr <http://f1frv.free.fr>  
DATE: 23/09/19 REV: 7a PAGE:1/2

# AUTOMATIC SWR METER & PEAK WATTMETER (AVERAGE WATTMETER BY REMOVING J2)

DATE: 08/2019 REV: 7a  
BY: F1FRV@SFR.FR  
DOC Nr: AMATEUR RADIO

## AUTOMATIC SWR METER ADJUSTEMENT PROCEDURE

CONNECT CIRCUIT TO DC SUPPLY (12 TO 20 V)  
CONNECT TOGETHER J5 AND J6 TO AN OTHER TEST  
SUPPLY, MAX VOLTAGE = DC SUPPLY - 3 VOLTS  
ADJUST RV1 FOR SWR METER FULL SCALE

DISCONNECT J5 AND J6 FROM TEST SUPPLY

WITH THE SAME TEST DC SUPPLY, APPLY ANY DC VOLTAGE  
(MAXI = DC SUPPLY - 3 V) ON J6 AND HIS EXACT HALF ON J5  
METER SHALL INDICATE PRECISELY MID SCALE (SWR = 3)

METER INDICATES RATIO OF FWD/REF VOLTAGES  
TO HAVE SWR INDICATION, USE LOGARITHMIC METER SCALE

YOU CAN NOW CONNECT TO YOUR SWR BRIDGE AND ENJOY

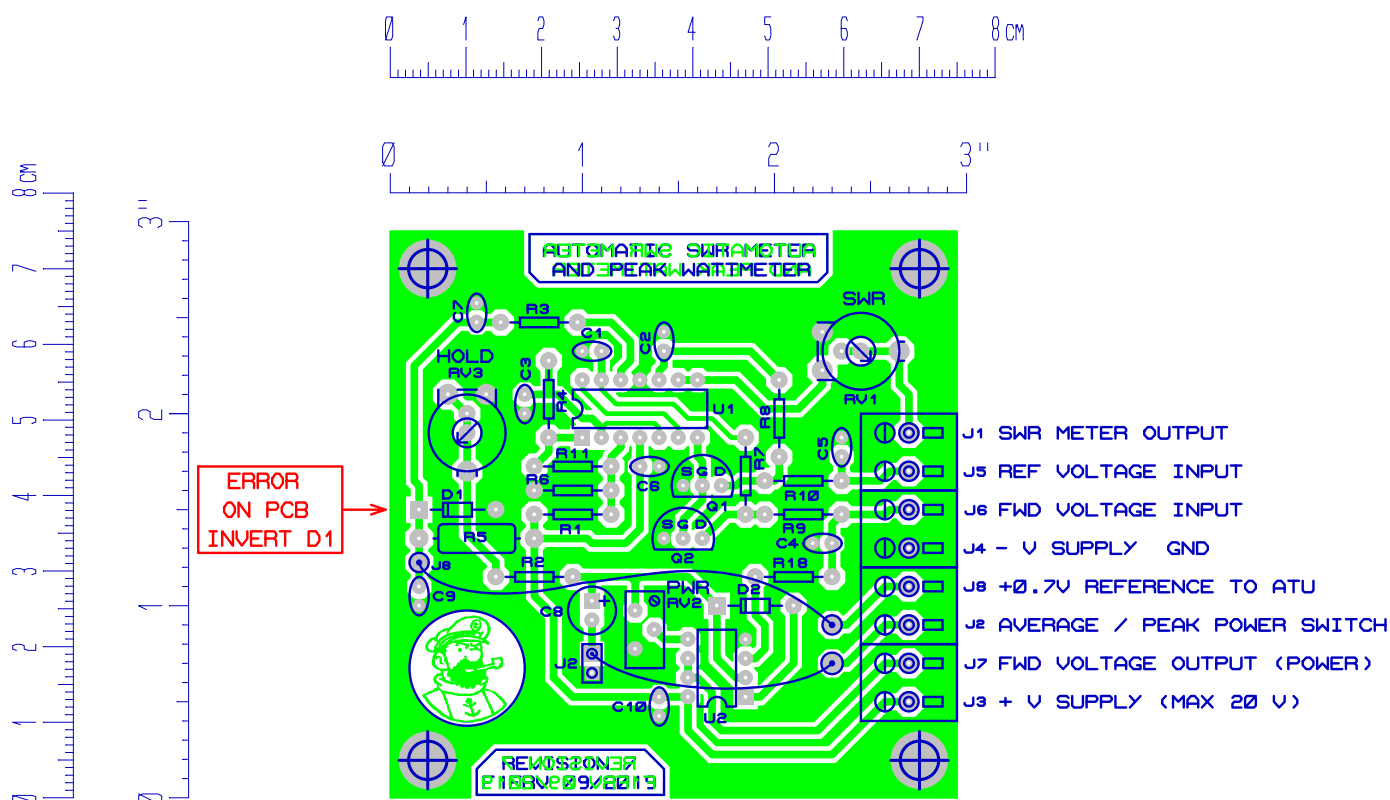
ADJUST RV2 FOR POWER METER SCALE, BY COMPARISON WITH  
AN ACURATE POWER METER ON 50 OHMS DUMMY LOAD  
TO HAVE PWR INDICATION, USE QUADRATIC METER SCALE  
WITH 25% AT MID SCALE AND 100% FULL SCALE

TO DRAW YOUR OWN METER SCALE, YOU CAN USE F5BU's  
FREEWARE "GALVA" AT: <http://f1frv.free.fr> PAGE "LINKS"

## THAT'S ALL FOX !!!!!

## (AVERAGE WATTMETER BY REMOVING J2 JUMPER)

PCB SINGLE SIDE: 75 x 75 mm (2.95" x 2.95") WITH 106 HOLES  
FIXATION: 4 x 3.2 mm DIA, AXIS 65 x 65 mm (2.56" x 2.56")



THESE TYPES OF VARIABLE  
RESISTORS CAN BE USED



J2 & J8 WIRINGS ARE OPTIONAL

USE 12 TURNS FOR RV1 & RV2

REV 7: 08/2019 Modified SWR output arrangement  
REV 7a: Replaced D1 Zener by 1N4148

# Bill Of Materials

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Design: AUTOMATIC SWR & PEAK POWER WATTMETER

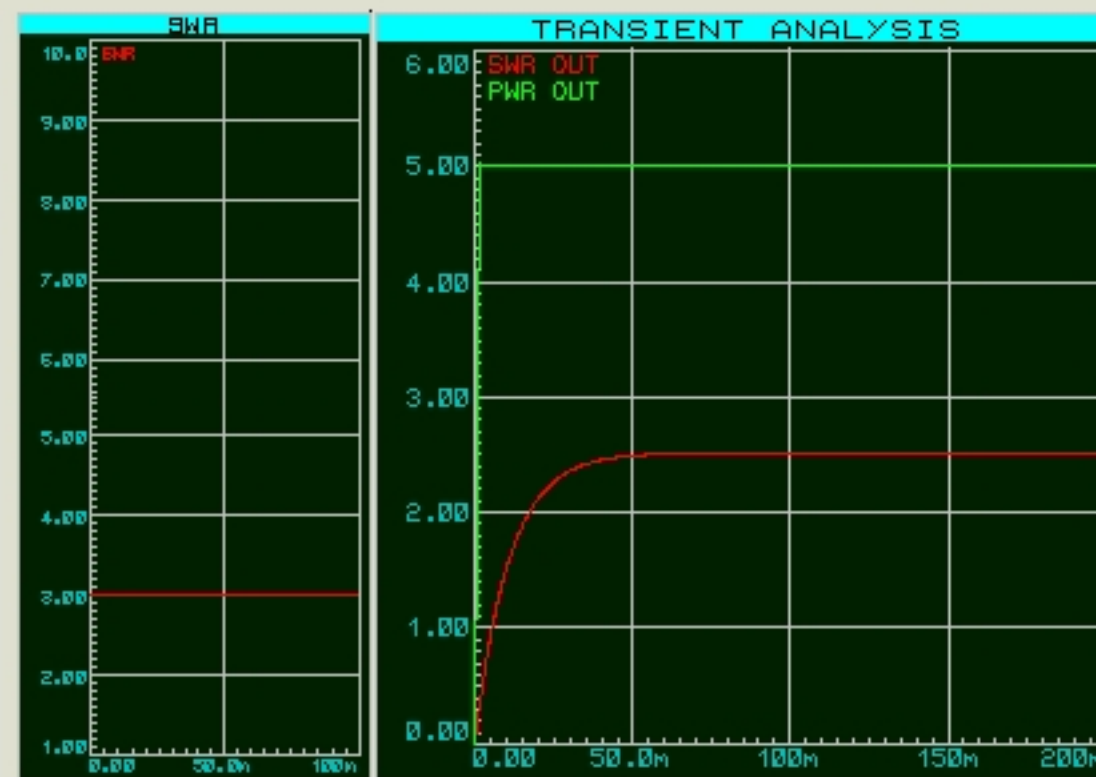
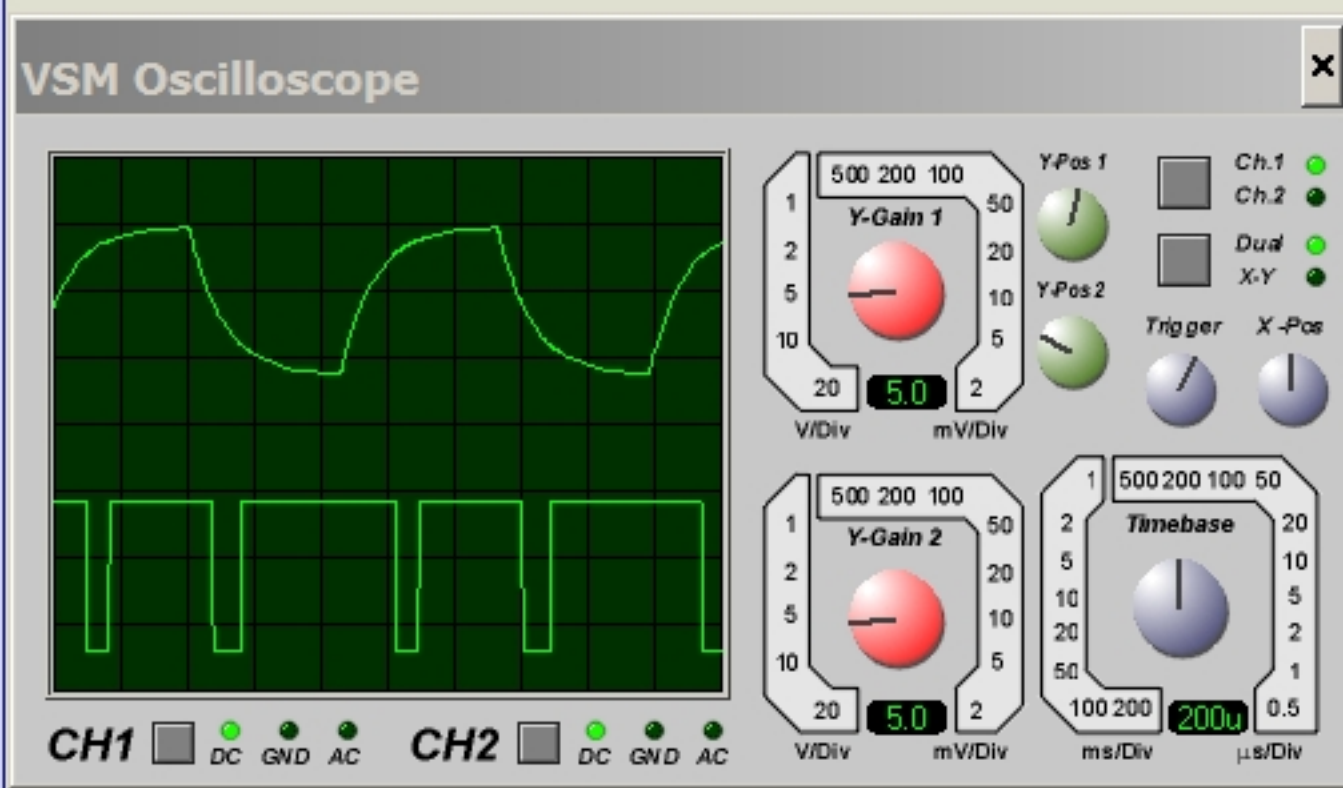
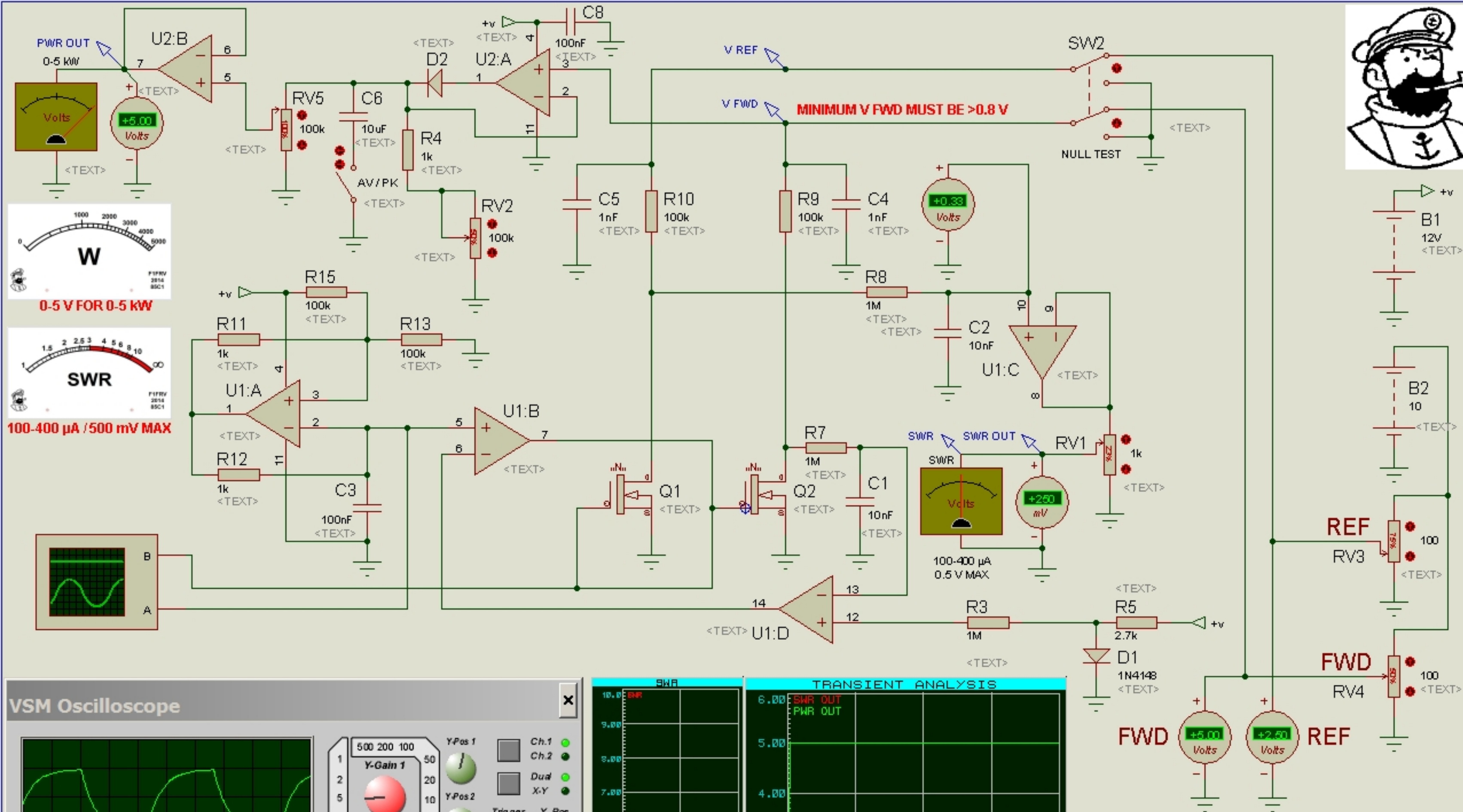
Doc. no.: AMATEUR RADIO

Revision: 7 to 7c

Author: [flfrv@sfr.fr](mailto:flfrv@sfr.fr)

Modified: 05/2021

QTY	PART-REFS	VALUE	PACKAGE
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Resistors			
-----			
5	R1,R6,R9,R10,R18	100k 1%	RES 0.25W
3	R2,R4,R11	1k	RES 0.25W
3	R3,R7,R8	1M 1%	RES 0.25W
1	R5	2.7k (for 12-14 V supply)	RES 0.25W
0	R5	4.7k (for 14-20 V supply)	RES 0.5W
Capacitors			
-----			
2	C1,C2	10nF	PITCH 2.54
5	C3,C6,C7,C9,C10	100nF	PITCH 2.54
2	C4,C5	1nF	PITCH 2.54
1	C8	100uF	PITCH 2.54
Integrated Circuits			
-----			
1	U1	LM324 + SOCKET	DIL14
1	U2	LM358N + SOCKET	DIL08
Transistors			
-----			
2	Q1,Q2	BS170	TO92
Diodes			
-----			
2	D1,D2	1N4148 OR 1N914	DO35
1	D3	1N4007	DO41
Miscellaneous			
-----			
5	Jx	TERMINAL BLOCK 2 POLES	PITCH 5.08
OR 10	Jx	PRESS FIT PINS	DIA 1.32
1	J2	AVG / PEAK JUMPER	PITCH 2.54
1	RV1	1k	3296W OR 3266W
1	RV2	100k	3296W OR 3266W
1	RV3	100k	POT 1 TURN



### EXAMPLE

Vmax	5	V
V mesuré	2,5	V
Vmax / V mesuré	2	
Vmesuré / V max	50	%
Coeff Reflection	0,5	
Reflected power	25	%
ROS en dB	6,0206	dB
ROS	3	/ 1