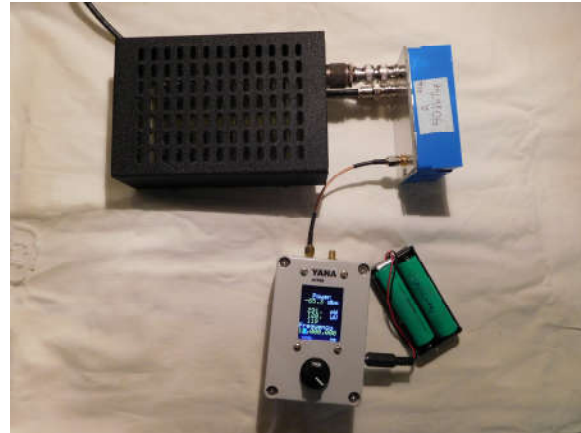


PWR ... Measure Transmitter Power

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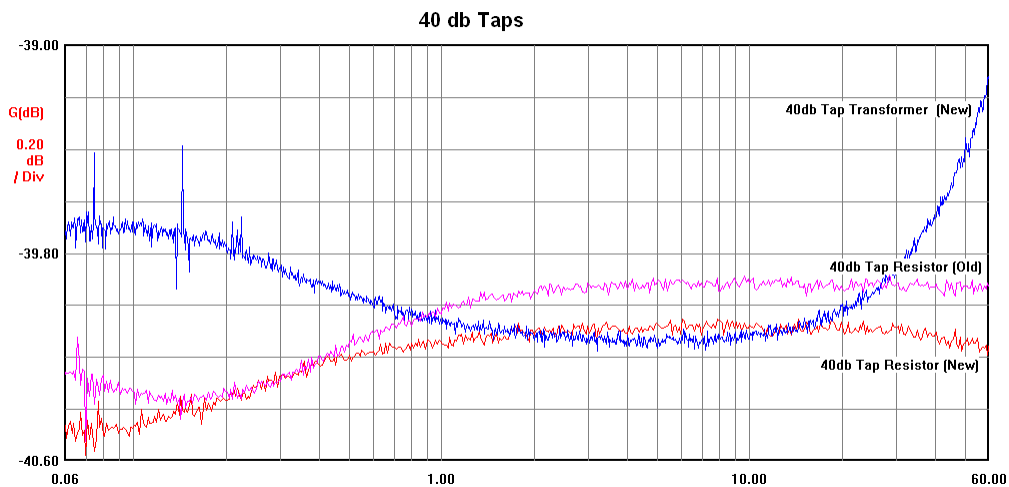
The picture shows how things are connected. The connection from the dummy load to the 40db tap should be as short as possible. The tap is connected to the detector on Yana. The tap input cable goes to the transmitter output.



Choose the PWR mode of Yana and run the mode.

My transceiver is an Icom 718. It has a power setting knob that turns from LO to HI while varying between 0 and 100. The maximum output of the 718 is supposed to be 100 watts. Is the power number meaningful? I.e. if set to 50, is the power 50 watts? I decided to check the power at certain settings, and to determine the settings that produce 5 and 30 watts. The QRP limit is 5 watts and 30 watts is the agreed limit for PSK31.

Below the N2PK vna readings are shown for the 40db taps. The taps attenuate mostly about 40.1db. The attenuation of the L Tap is less than 40.1db above 20 meters so those readings will be a bit higher. The attenuation is a little more than 40db so, in general the readings are bit low. However, I consider the accuracy very good: 0.1db of 100 watts is a little over 2 watts. Your taps will be slightly different from mine, but not by much. Maybe they'll be even closer to -40db.



Below is the table of data gathered for power settings on the Icom 718. I repeated readings for both the R tap and the L tap. I added 40db to every reading of dbm then converted to watts.

40db R tap Freq/Settin L	Tap taken to be -40db										Setting		
	10	20	30	40	50	60	70	80	90 H	-3.01dbm 5w	4.77dbm 30w		
1.9MHz	0.83	3.97	8.89	14.83	21.93	32.43	44.57	58.75	72.28	86.9	93.54	12	48
3.75MHz	0.83	3.88	8.89	14.13	20.94	31.55	43.55	56.1	69.02	86.9	93.54	13	49
7.15MHz	0.83	3.81	8.49	14.16	20.94	30.13	41.59	53.58	65.92	82.99	85.31	13	50
10.125MHz	0.81	3.71	8.11	13.52	20	29.44	38.99	51.17	64.42	79.25	93.54	13	51
14.175MHz	0.81	3.64	8.11	13.52	20	29.44	39.72	51.17	64.42	79.25	85.31	13	51
18.118MHz	0.81	3.71	8.11	13.52	19.54	28.91	39.72	51.17	63.97	79.25	81.47	13	51
21.225MHz	0.78	3.71	7.96	13.21	19.54	28.12	37.93	50.35	61.52	75.68	81.47	14	52
24.94MHz	0.78	3.53	7.74	13.21	19.54	28.12	37.93	48.87	61.52	75.68	77.8	14	53
28.45MHz	0.78	3.54	7.74	13.21	18.66	27.73	37.24	48.87	61.52	75.68	77.8	14	53
29.35MHz	0.74	3.54	7.74	13.21	18.62	27.61	37.93	48.87	61.52	72.28	77.8	14	53
Average	0.8	3.704	8.178	13.652	19.971	29.348	39.917	51.89	64.611	79.386	84.758		

40db L tap Freq/Settin L	Tap taken to be -40.0db										Setting		
	10	20	30	40	50	60	70	80	90 H	-3.01dbm 5w	4.77dbm 30w		
1.9MHz	0.95	4.15	9.04	15	22.08	32.43	43.85	57.81	71.12	89.54	98.17	12	47
3.75MHz	0.91	3.94	8.91	15	22.08	31.33	42.85	55.21	68.55	85.51	93.76	12	48
7.15MHz	0.91	3.94	8.43	14.32	21.09	29.79	42.85	52.72	67.92	81.66	85.31	13	49
10.125MHz	0.87	3.94	8.36	14.16	21.09	29.79	40.93	52.72	67.92	81.85	93.76	13	49
14.175MHz	0.91	3.85	8.39	13.68	20.14	29.99	40.93	52.72	64.86	77.98	86.7	13	49
18.118MHz	0.91	3.84	8.43	14.32	21.09	29.79	40.93	52.72	67.92	77.98	85.51	13	49
21.225MHz	0.91	3.85	8.43	14.32	21.09	29.79	40.93	52.72	67.92	81.66	85.9	13	49
24.94MHz	0.91	3.94	8.43	14.32	21.18	29.92	40.74	52.72	68.55	77.98	85.51	13	49
28.45MHz	0.91	3.93	8.51	14.32	21.09	29.79	42.85	52.72	67.92	81.66	85.51	13	49
29.35MHz	0.91	3.94	8.43	14.32	21.09	29.79	42.85	52.72	67.92	81.66	85.51	13	49
Average	0.91	3.932	8.536	14.376	21.202	30.241	41.971	53.478	68.06	81.748	88.564		

For frequencies above 20 meters the L Tap attenuates less, so that the power readings run a bit high and the 5w and 30w setting are low. In general, the R Tap is the more accurate tap. Thus if only one tap is made, it should be the R Tap.

The maximum output of the Icom 718 is a bit low and the setting numbers are all higher than the power, often by quite a bit. The R Tap table is a handy piece of information to keep next to the transceiver.