

Formula and details of use for calculating system noise figure from masthead preamp to transverter inclusive

$$F_t = F_1 + \frac{(1/G_1)-1}{G_1} + \frac{(F_2-1)}{G_1 \cdot G_2} + \frac{(1/G_4)-1}{G_1 \cdot G_2 \cdot G_3} + \frac{(F_3-1)}{G_1 \cdot G_2 \cdot G_3 \cdot G_4} + \dots \text{etc}$$

$F_t$  = overall system noise factor from first pre-amp input to transverter.

$F_1$  = noise factor estimated for first pre-amplifier.

$G_1$  = power gain of first pre-amp (NB not in dB).

$G_2$  = gain of cable inter connecting first and second pre-amps (entered either as 1, or as a fraction if cable present).

$F_2$  = noise factor of second pre-amp.

$G_3$  = power gain of second pre-amp.

$G_4$  = gain of second interconnection coax between second pre-amp and transverter input (allow also for inter-digital filter loss when placed here).

$F_3$  = transverter input noise factor.

NF (noise factor) = 10 (0.1 x noise figure) where noise figure is in dBs.

$G_p$  (power gain) = 10 (0.1 x  $G_L$ ) where  $G_L$  is power gain in dBs. (NB cable loss is negative dBs and  $G_p$  would be a fraction below 1.0).

## 23cm equipment used by G3 OSS.

1. MM 1269/144 transverter with TX output driving at 1.25W feeding linear amplifier.
2. Linear amplifier having three 3CX100A5 amplifier feeding a second 3XC100A5 PA at 60W output.
3. 25 metres Andrews LDF4/50 cable run, then 8 metres FSJ4s for turning radius up to mast head.
4. Through relay box (completely weather proof) to power divider and four 23 element Tonna yagis on square mounting frame at approximately 68ft above ground.
5. Mast head relay box includes Mitusbishi GaAsFET and MRF901 pre-amp.
6. Around 90ft of UR67 receive down lead.
7. Interdigital filter, then receive input to MM transverter.
8. Transverter is fed from another transverter with input on 28MHz and output 144MHz with receive section having very low gain.
9. Basic transceiver is TS830 Trio which controls relay switching box selecting TX RF and RX RF to various transverters for other bands.
10. Independent receiver, NRD505, which can be tuned on any receive converter output for cross band working, or FM reception.
11. 28MHz TX output to transverters feed through RF coaxial potentiometer for setting required drive level. Full power is obtained on all bands when this pot is flat out, with transverter internal gains adjusted accordingly.

144MHz 80 WATT LINEAR AMPLIFIER designed for the FT290R or any rig having output of 2½-3½ watts. FM/SSB operation power requirement for full output 13.8v at 13 amps. Straight through operation when switched off, built and designed by us to professional standards, colour storm grey, matt black heat sink £98.00.

27-30MHz RECEIVER PRE-AMP lives up to that old Rx. with one of these superb boards many sold to date, uses dualgate mosfet for super performance gain variable to 25db, size 40 x 60mm ready built and tested. ONLY £8.00.

N BFM ADAPTER for the FT101 (up to "E" model) gives FM on Tx and Rx on all bands, only one wire to solder to clarifier line, no holes to drill, no boards to fit inside FT101, built in tone burst for use with "transverter". Still the best available £70.00.

MOTOROLA CAR CASSETTE PLAYERS model 401 and BL512 etc. these are warranty returns and need repair. Guaranteed to be complete, supplied with circuit £5.00.

CRYSTAL FILTERS: STC LQU/445/909B 10.7MHz ± 7% KHz BW @ 3db 910 ohm imp. 1K for 2mtr FM ex-equip. £4.00.

ITT024DE 10.7MHz ± 3½KHz BW @ 3db Imp. 810 ohm. New. Only £8.00.

CATHODEON BP4133 10.7MHz SS B Lab only available new £5.00.

21.4MHz ± 7½KHz BW @ 3db OK FM, imp approx 2k ohm new £4.00.

6.0MHz TOY OCOM ± 6KHz BW @ 3db OK FM Imp 2k ohm. ex-equip. £3.00.

BOLT-IN FEEDTHROUGH CAPACITORS 2BA thread 1000pf 500v. Brand new and made for us by famous manufacturer. ONLY 40p each.

SOLDER-IN TYPE 1000pf 500v 3.2mm hole 57p per 10.

3SK88 OUALGATE MOSFET ideal replacement for most 2mtr Tcvt RF amps. Only 1db noise and 26db gain, also OK for 70cms. PRICE REDUCED £1.00 ea. or two for £1.75.

3SK87 same as above put approx 3db more gain £1.00 ea.

TRIMMER CAPS airspaced 9mm sq. 15pf 20p. 30pf 35p. solder in tubular ceramic 1-6pf 75p for 10.

FILM TRIMMERS 25pf 10mm dia. 10p ea. 32pf 10mm dia. 12p ea. 60pf 10mm dia 20p ea. 7mm sq. 1-10pf 12p ea.

CERAMIC COMPRESSION type 10-80pf PC mount OK 2mtr PA to 40 watts 15p ea. 10-40pf PC type 10p ea.

LOW PROFILE RELAY OK for ae. switching @ 2mtrs will handle 75 watts RF 2pco 12v coil £3.00.

FERRITES - bag mixed cores and beads approx 150 £1.00.

10.7MHz HC18/U crystal OK for FM detector IC etc. £1.50.

TBA120A FM IF amp-detector IC 40p.

TDA1010 9 watt 12v audio IC 9 pin s.i.l. with data and circuit £1.85.

MINIATURE TOGGLE SWITCHES spco 85p; 2pco centre off 70p.

2N6083 VHF RF POWER TRANSISTOR min. 30 watt out @ 2mtr for 6 watt input suitable for FM or SSB supplied with circuit of FM 2mtr amp £8.50.

TF14H/4S MARCONI AM SIGNAL GENERATOR 10KHz to 72MHz in 8 switched bands calibrated output 2uV to 2V into 50 ohms. Modulation adjustable to 80%, internal crystal calibrator, very good condition fully checked £80.00 buyer to collect by arrangement.

TF1000B/1 Signal generator 10 to 480MHz AM/FM P.O.A.

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S121 WAYNE KERR AUDIO OSCILLATOR 10Hz to 120KHz, 11 switched ranges output 0 to 30 volts into 500 ohm. Also has high imp. output, mains input, valve type circuit tested and in good condition ONLY £30.00 buyer to collect by arrangement.

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