

2017 report on noise calibration

After lunch did the noise power calibration of receivers talk and demonstration. Invented discussion based on receiver outline on white board which took >45 mins (overall RX connections; gains; noise temps etc etc) and stressed primary calibration (via black body) and secondary noise diode calibration which is more flexible and can be switched on an off etc. Noise diode is 10,000K equivalent which is a strong noise signal. Althea took a photo of the white board. Demonstration went well – took pictures of the set up – injected noise via 20 dB pad. In demonstration to class we got 1 dB raise – equivalent to 85 K assuming ambient at 300K. This is too high.

➔ Afterwards we did it again carefully and got 1.17 dB rise ON/OFF which gives more like 35K – as expected and as previously demonstrated at JBO (A5 black and red book for 2017)

2017 photograph shows set-up with diode+20dB feeding into the Res.Comms LNA followed by the Triax LNA and thence into FCD ProPlus. Had previously established at JBO that for good linear performance this amount of gain is needed to add to the 49 dB of FCD (23 dB + 35 dB + 49 dB = 107 dB).