Optical Calibration Night

Wednesday 6th June 2007 was a great night of optical history, optical show and tell and practical calibration.

In fact, the clubrooms were so full of optical transceivers and test equipment with four transceivers, five separate transmitters, one dedicated receiver and six pieces of optical test equipment with calibrated transmitters and receivers that there was hardly any room for the people attending...HIHI.

REAST clubrooms full of optical transceivers and test equipment, in fact almost no room for people...HIHI!

Mike VK7MJ our optical guru initially took us through a brief history of optical communications which started back with Alexander Graham Bell who patented the Photo-phone back in 1880s.

Mike took us through the various developments prior to the development of electronics as we know it, through the use of different types of lamps from incandescents, arc, vapour and into lasers and ending in LEDs and finally the recent development of the Luxeon.

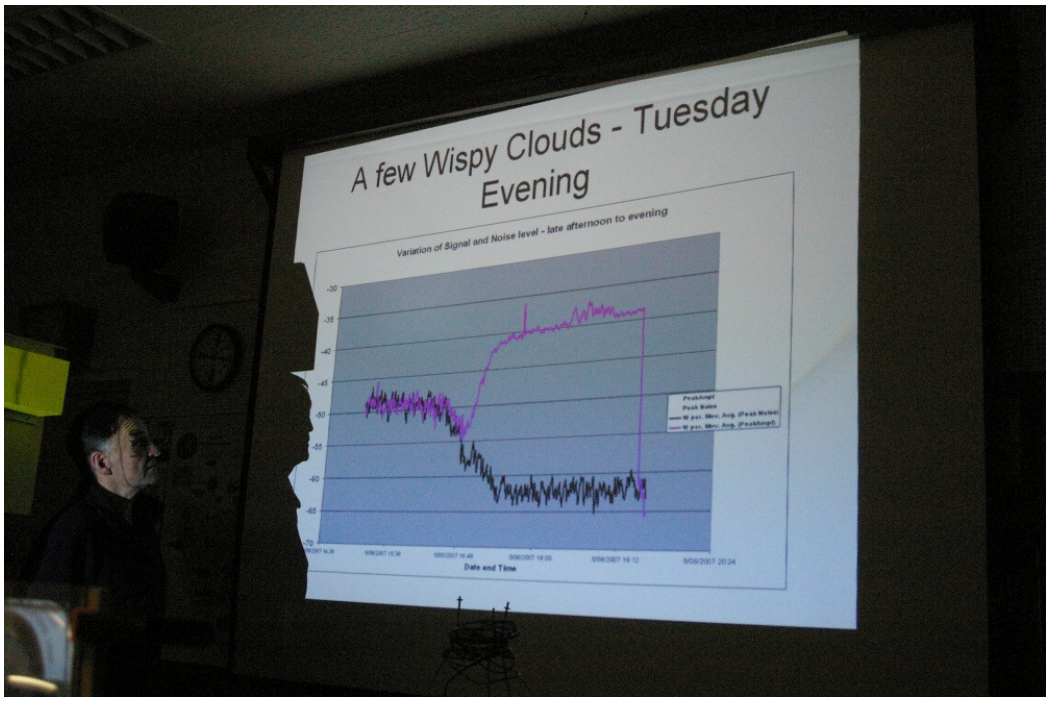
Mike, VK7MJ with light theory 101

Mike then did a quick theory lesson and explanation of the various measurements of light and light intensity.

We then headed into a show and tell of the optical equipment that was present starting with Mike who had three versions of transceivers present, Rex, VK7MO who had two types of transmitters and Justin VK7TW who had a transceiver and separate transmitter and a receiver.

Mike, VK7MJ with the show and tell

Rex, VK7MO then did a short presentation on his recent near vertical cloud bounce tests and showed some interesting charts of the noise versus bounced signal.



Rex, VK7MO with cloud bounce charts

We then rugged up and headed out into the cold night and Mike setup the calibrated transmitter and receiver about 86metres down the clubhouse drive way.


The optical test equipment

We progressively moved through the transceivers, transmitters and receivers to test their relative powers and sensitivities.

One of Rex's transmitters under test - adjustments in progress!

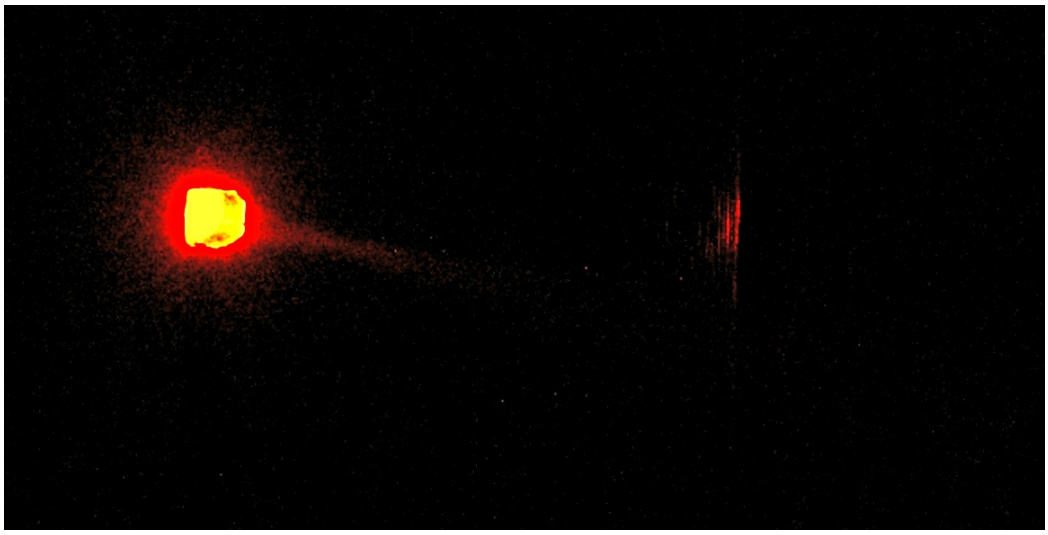
The Results:

Transmitters:
VK7MO optical bench 30.6 dBW 1150 W/sterad
VK7MO 30 Luxeon 21.2 dBW 130 W/sterad

VK7TW transceiver 30.4 dBW 1110 W/sterad
VK7TW theatre flood 11.6 dBW 14 W/sterad

VK7MJ small box 26 dBW 400 W/sterad
VK7MJ large box 31.6 dBW 1450 W/sterad
VK7MJ Chopper 33.8 dBW 2400 W/sterad

Receiver sensitivities:
VK7MJ small box -86 dBW/m^2 2.5 nW/m^2
VK7MJ large box -93 dBW/m^2 500pW/m^2
VK7TW transceiver -93 dBW/m^2 500 pW/m^2
VK7TW dish receiver -93 dBW/m^2 500 pW/m^2



That familiar warm red Luxeon glow!

All in all a fantastic hands on night and I got some great comments from all those who cam along.

73, Justin, VK7TW

http://reast.asn.au/events.php#opticalcalibration