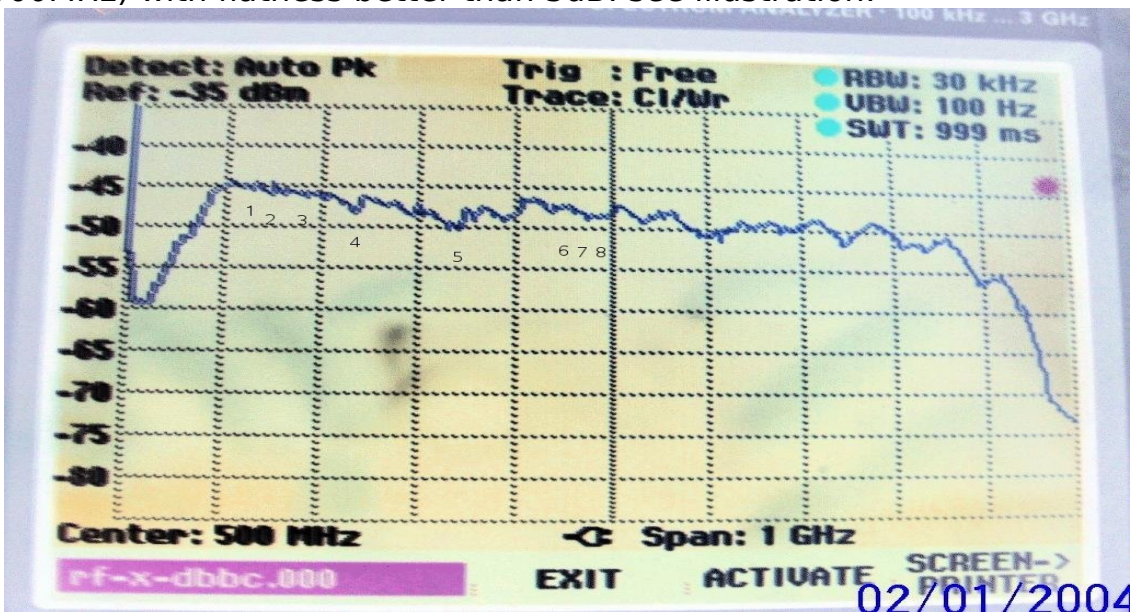
Quick look at dBBC in EURO90

The dBBC was used at Wettzell in EURO90. Quick check done against Wettzell analog terminal. Both S-band and X-band were connected to dBBC. Both signals are broadband: S-band is 300MHz wide (150-450MHz), X-band is 800MHz wide, (100-900MHz) with flatness better than 5dB: see illustration:

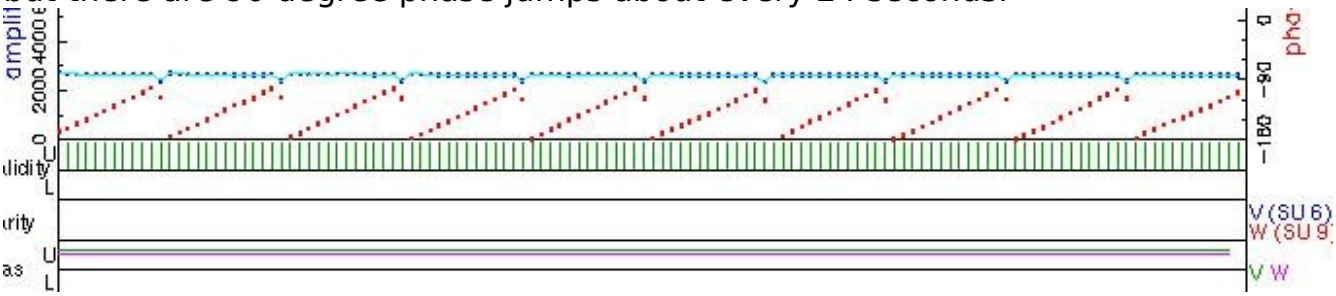


The positions of the eight X-band channels are shown as numbers 1-8 on the figure. Some extra distortions of the bandpass probably occur in the filtering and amplification ahead of the A/D converter in the dBBC.

Chan: 1	2	3	4	5	6	7	8
Corr 8000	10000	8000	6000	2000	2400	3300	4500

(Full correlation is 10000 units). For channel 1 (first X-band) USB value is taken, since there is no signal in LSB. Channel 8 is average of USB and LSB. It is seen that for channel 5, where signal power on input is lowest, the poorest result is seen. This is like EURO88, but not as extreme.
Suggest a look at: http://www.mathworks.com/matlabcentral/files/3216/firdesign.pdf

Also, for this test the average frequency has been corrected to be xxxx.99 MHz, but there are 90 degree phase jumps about every 24 seconds:



The frequency of all dBBC channels in Euro88 was .9899997711181640625 , not 0.99 MHz. This would lead to one phase turn in 4.37 seconds, so apparently the main problem of frequency difference has been corrected, but this effect remains. The jump is 90 degrees at both S- and X-band.