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To: RFI Group

From: Alan E.E. Rogers

Subject: NI/Tektronix Comparison

On 8 Dec 04 we had a Tektronix spectrum analyzer in for a demo. We set-up the analyzer in the tapehead laboratory. Several tests were made using 1 MHz resolution and a span from 30 MHz to 1500 MHz.

		NI		Tektronix		Output
Input freq	Levels	Output	Attn	Output	attn	Freq
None	-	-76	0	-93	0	Noise
350/400	-10	-68	0	-55	0	750
350/400	-10	< - 76	0	-59	0	50
350/400	-10	-69	0	-67	0	300

Note: all levels in dBm and frequencies in MHz

From these measurements the input IP2 and IP3 can be calculated as follows:

	NI	Tek	
IP2	+48	+35	+56
IP3	+19	+18	+50

The second column for the Tektronix are the IP2 and IP3 estimated for the case of adding 17 dB input attenuation to make the noise floor the same in both cases.

Additional

Comments about the Tektronix

1] Spectrum seams.

There were no noticeable seams in the spectrum at the 10 MHz points where the FFT chunks were joined.

2] Tektronix preamp

With the 20 dB Tektronix preamp the noise floor dropped from -93 to -97 dBm which is equivalent to a 16 dB N.F. which is poor. However, I think the input attenuator was set at 20 dB when it should have been set to 0 dB to realize the 7 dB N.F. advertised in the specification. In any event 20 dB is probably too much gain to add without pre-selection filters.