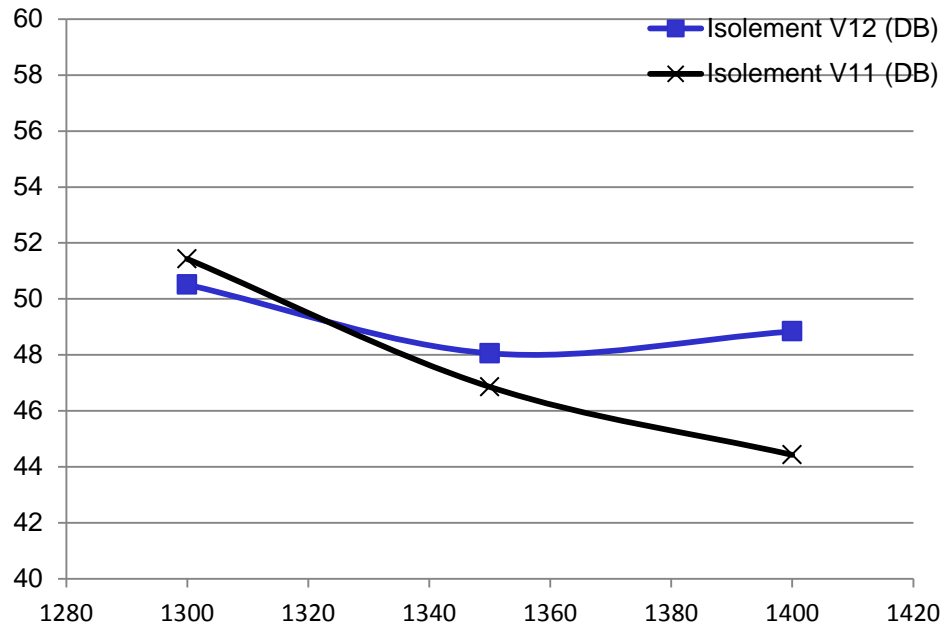
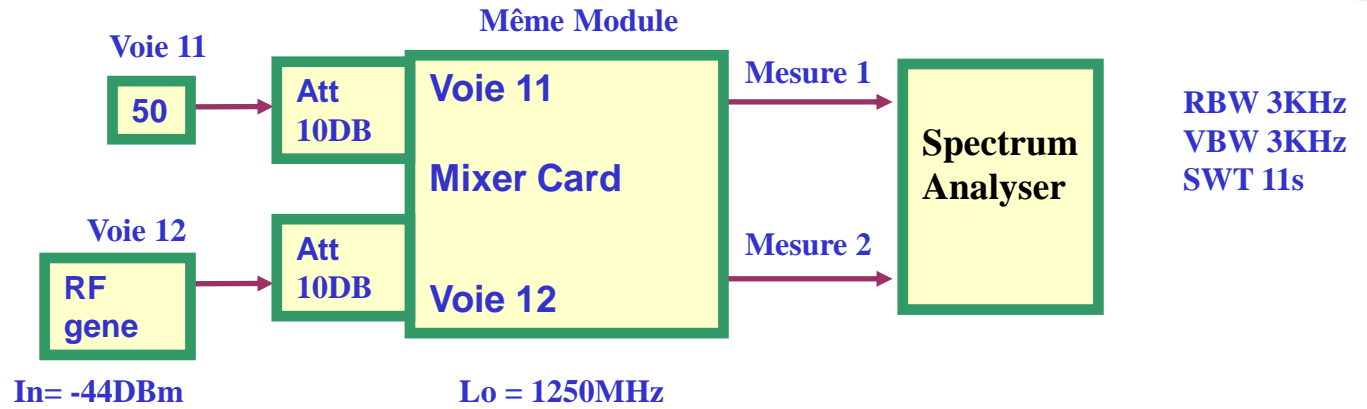
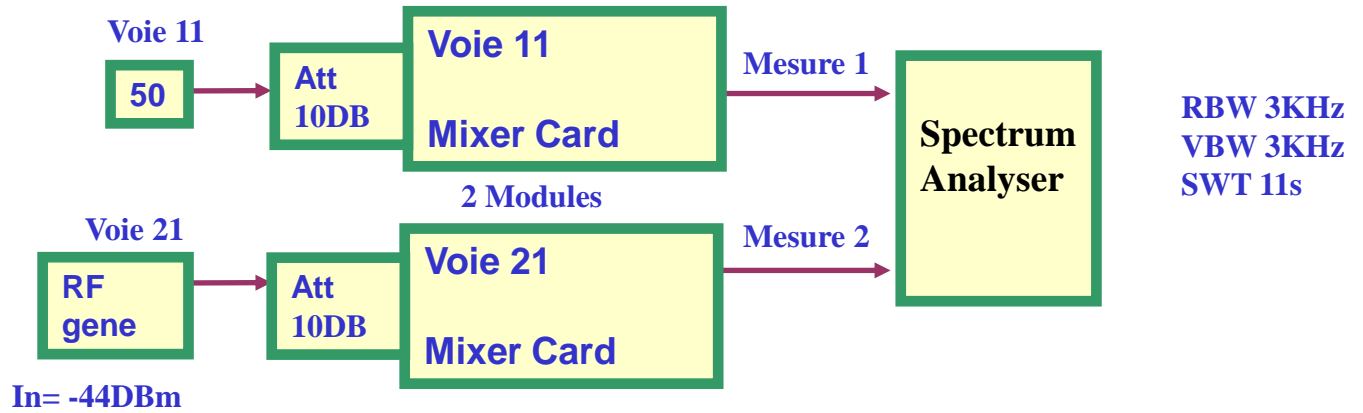


Cross Talk : Test Saclay Avril 2015

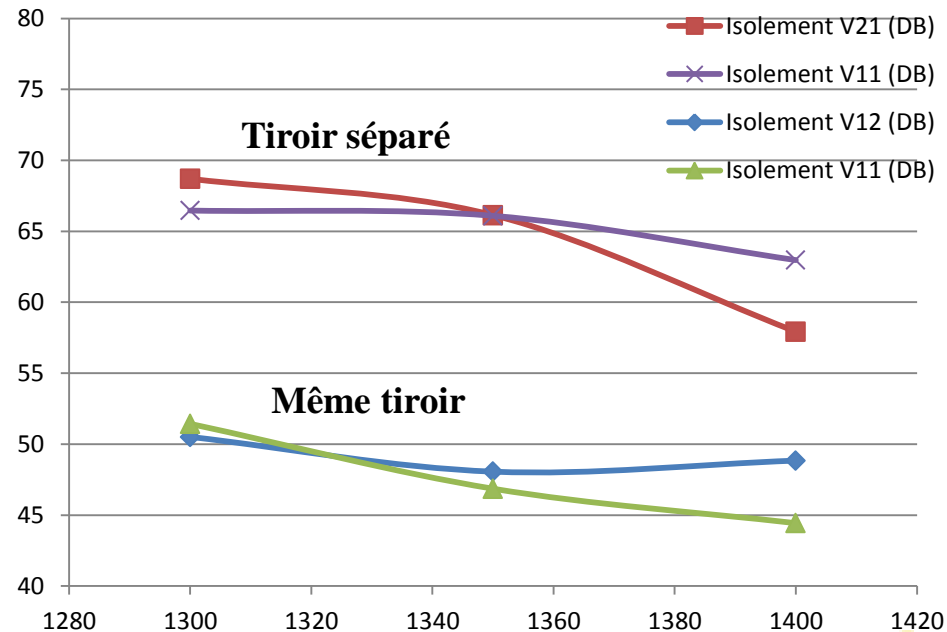
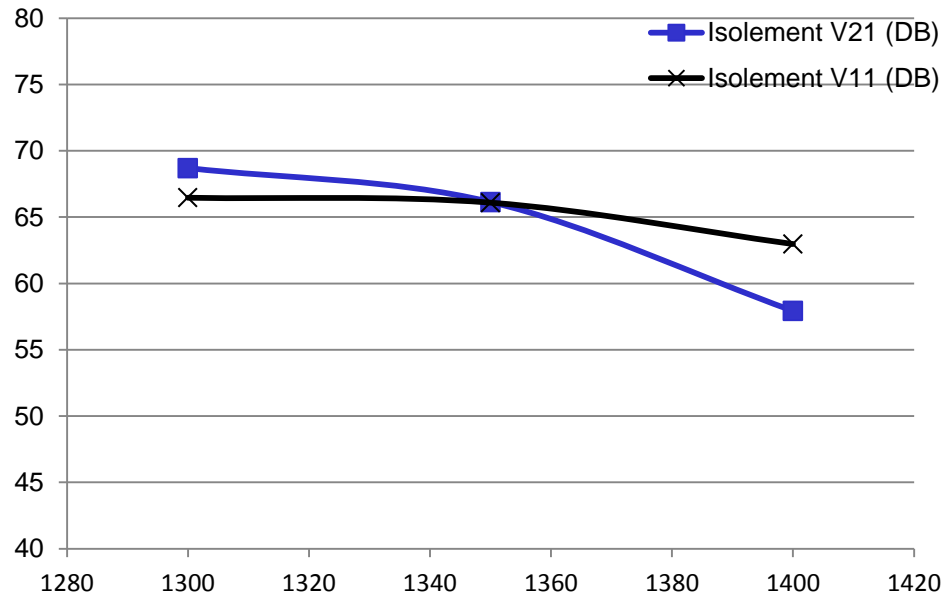


Cross Talk : Test Saclay Avril 2015

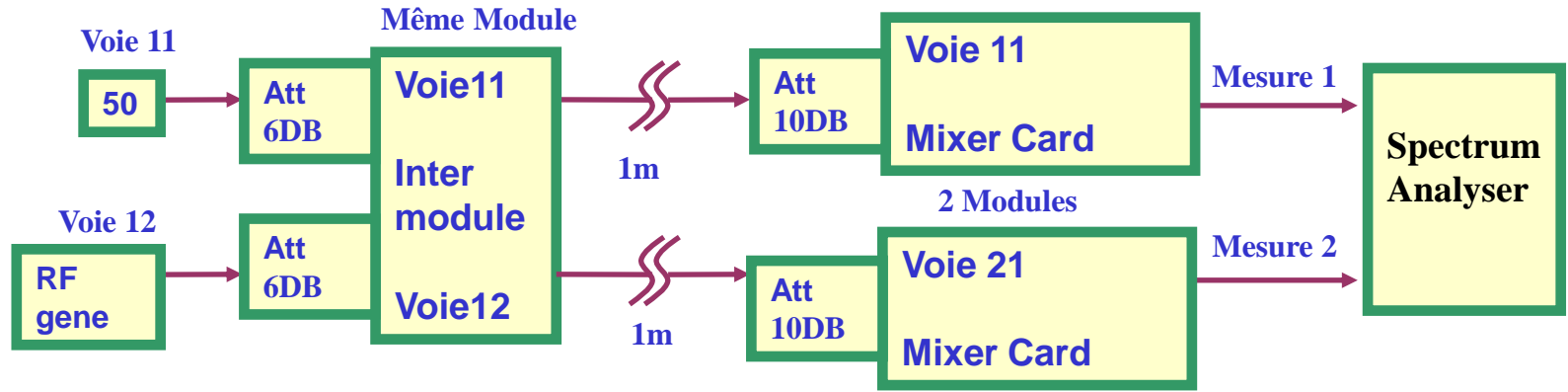


Cross talk (DB)

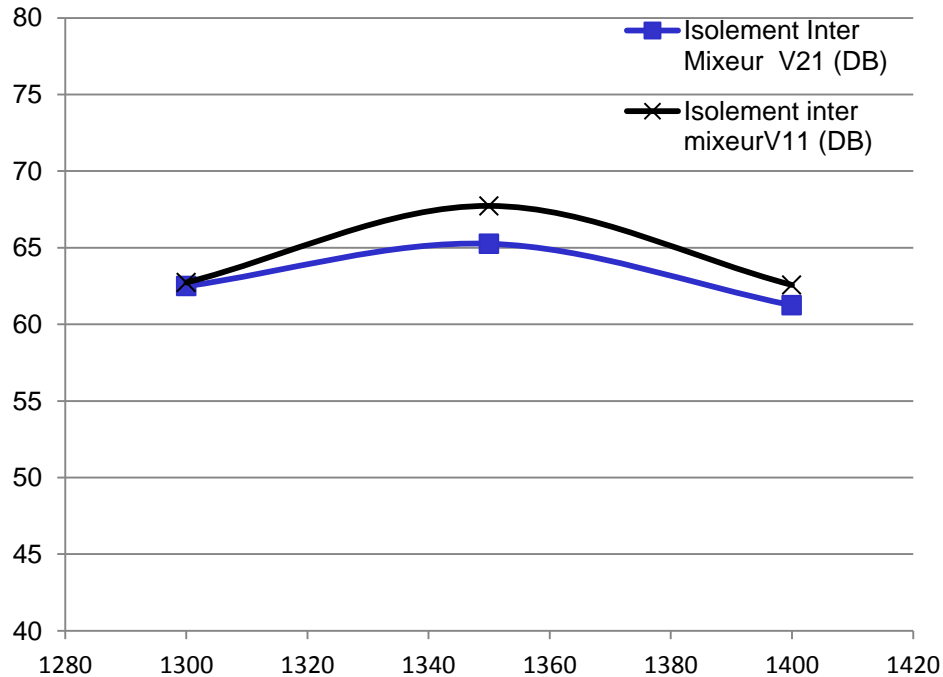
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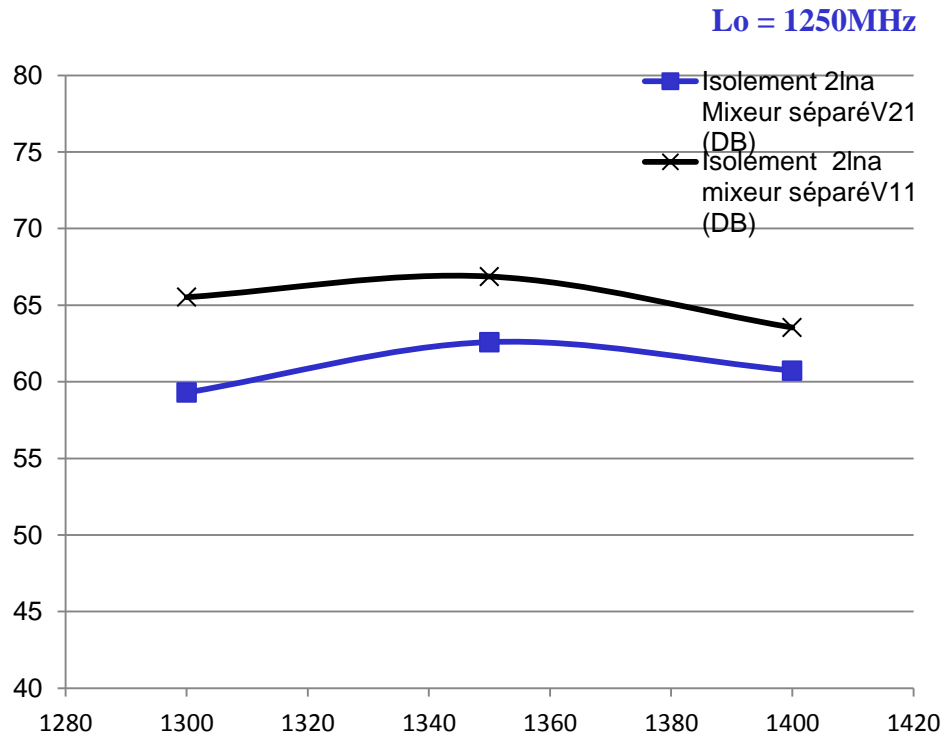
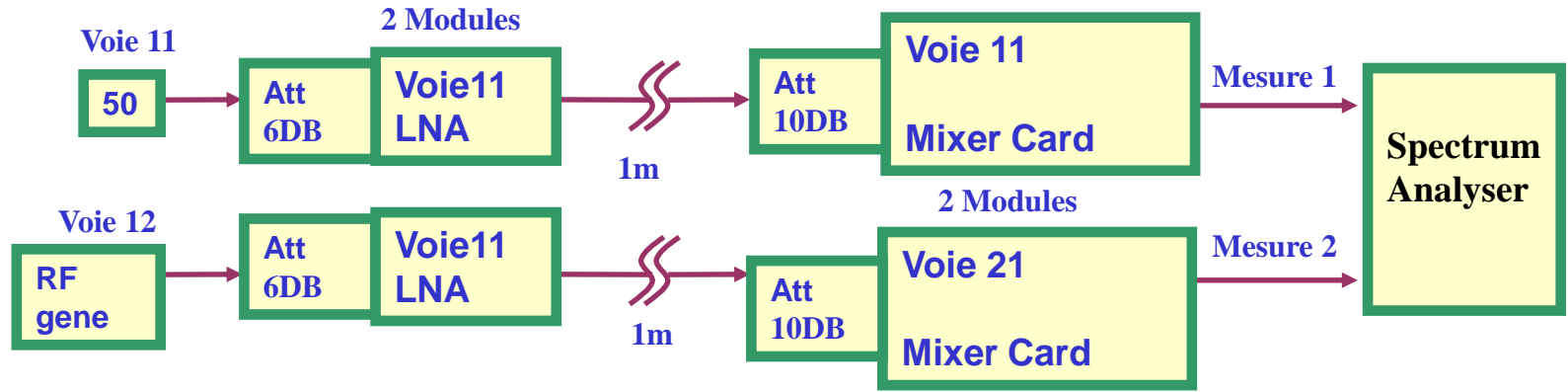
Cross Talk : Test Saclay Avril 2015



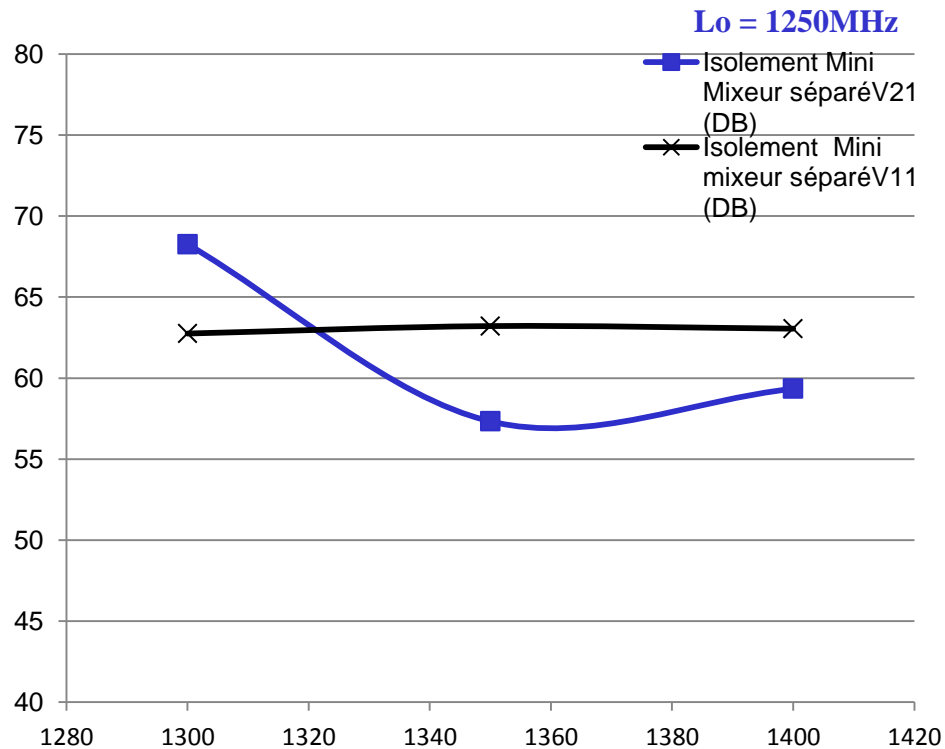
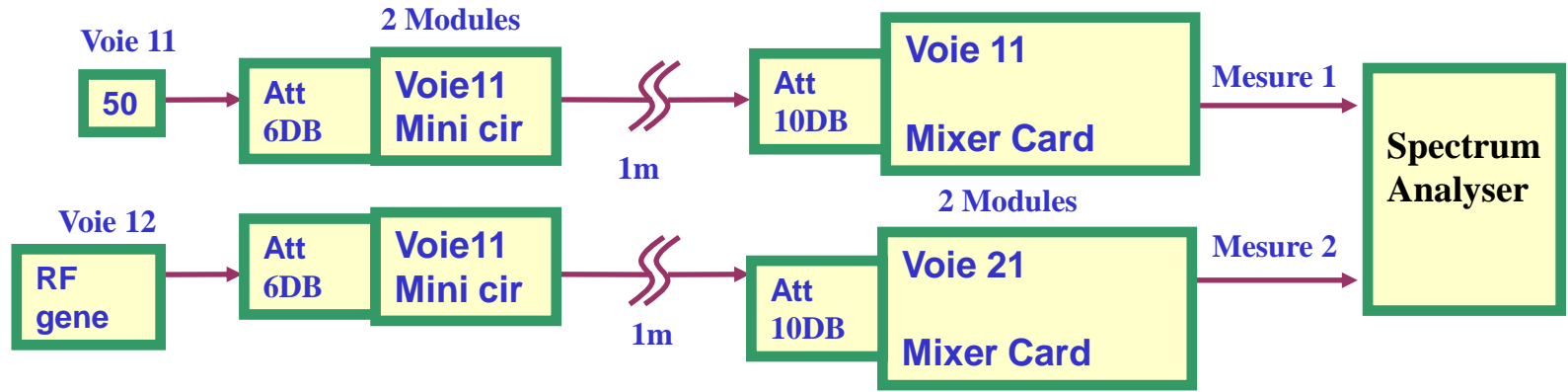
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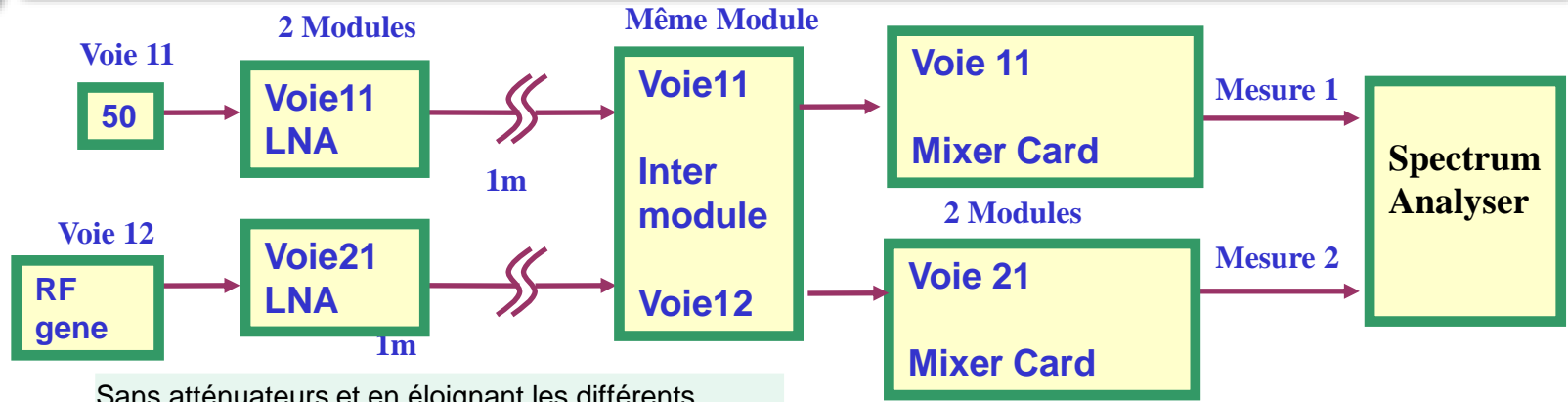
Cross Talk : Test Saclay Avril 2015



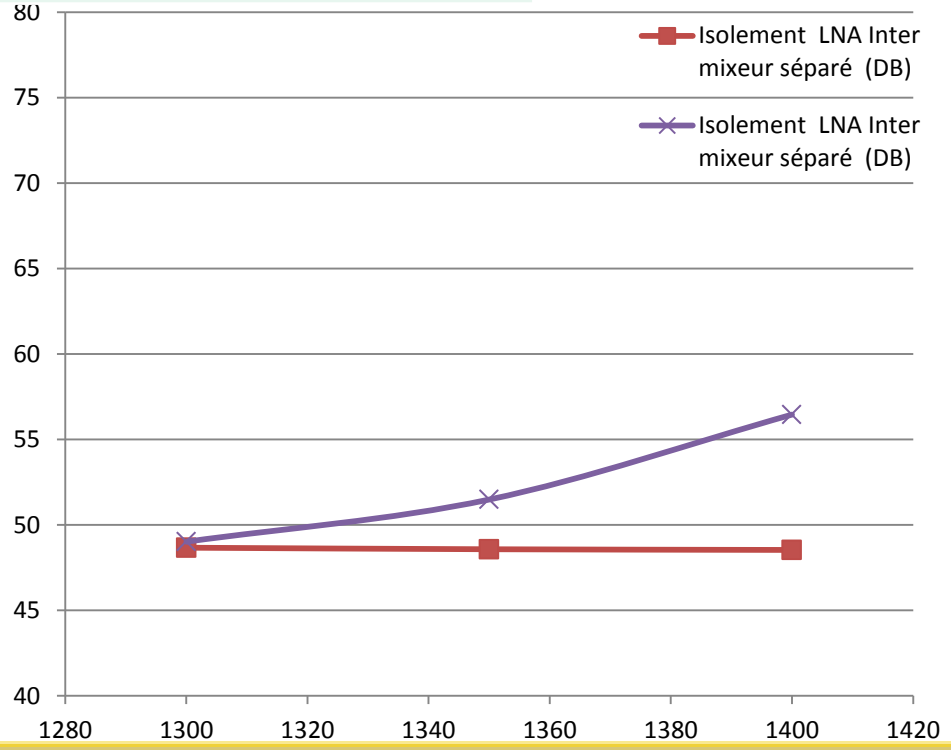
Cross Talk : Test Saclay Avril 2015



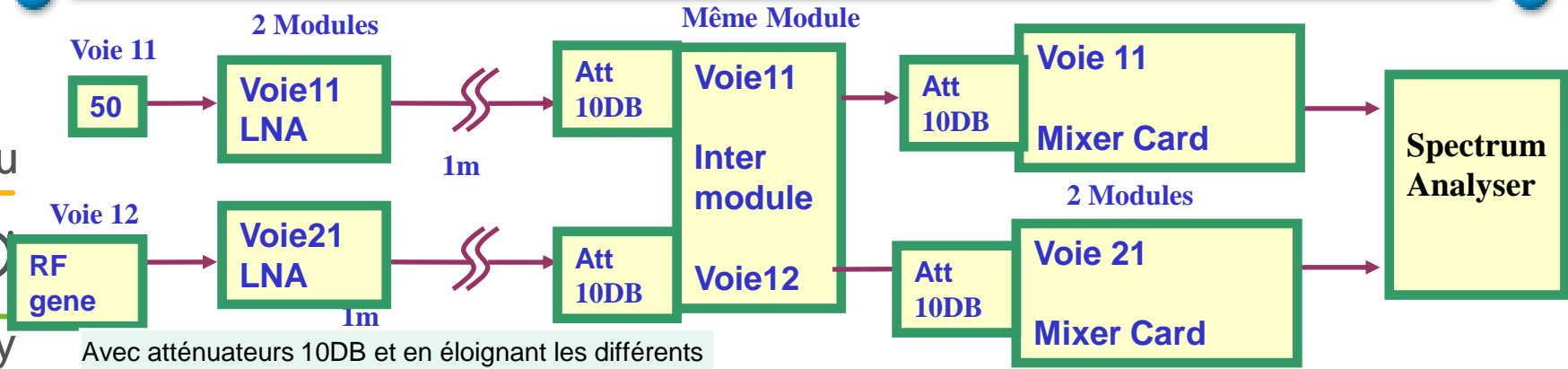
Cross Talk : Test Saclay Avril 2015



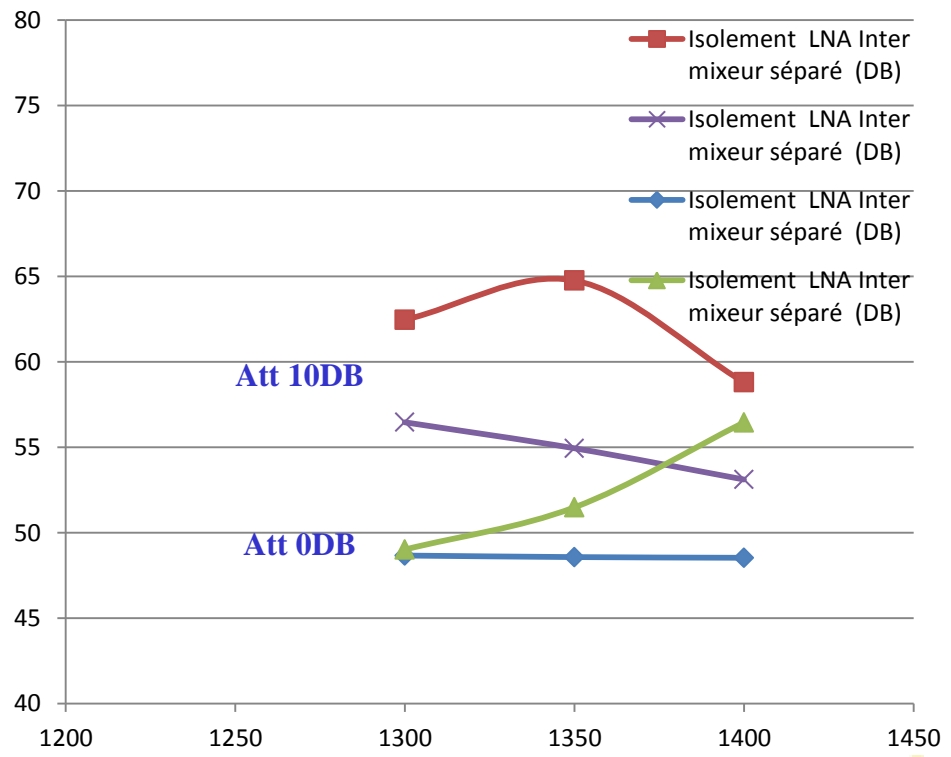
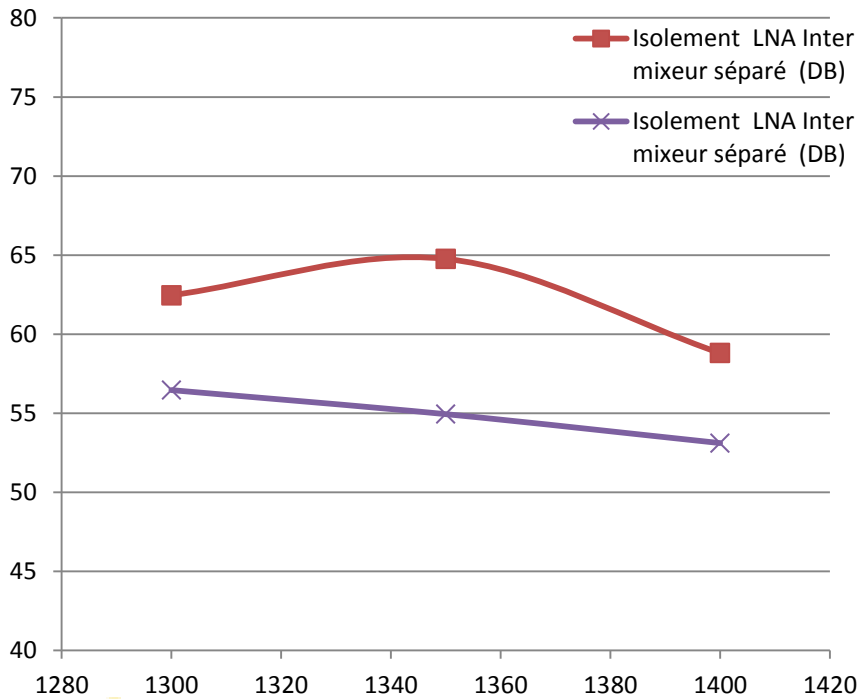
Sans atténuateurs et en éloignant les différents modules de l'ordre 40 cm



Cross Talk : Test Saclay Avril 2015

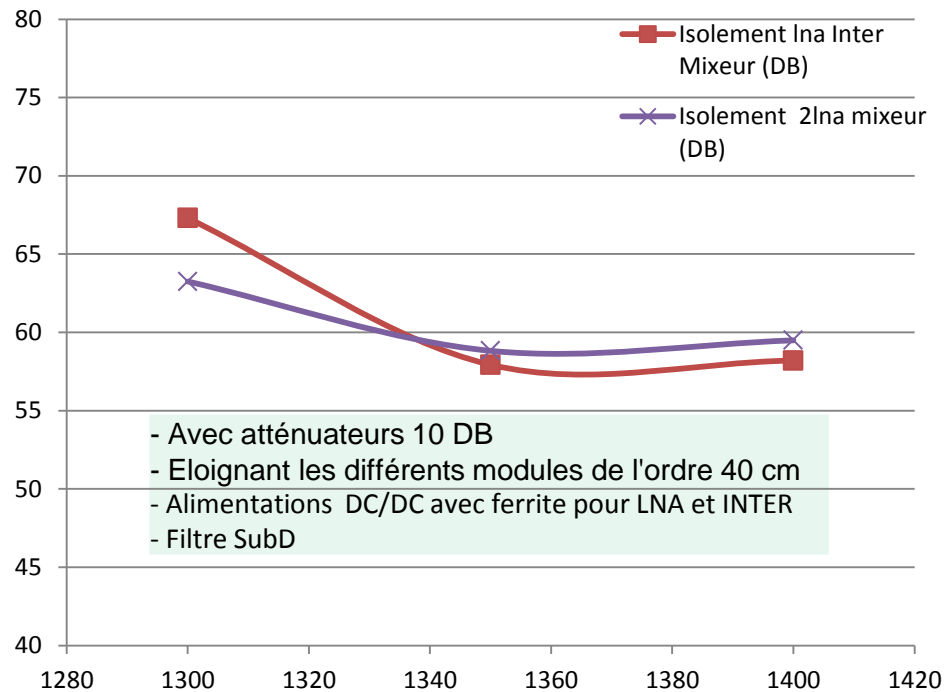
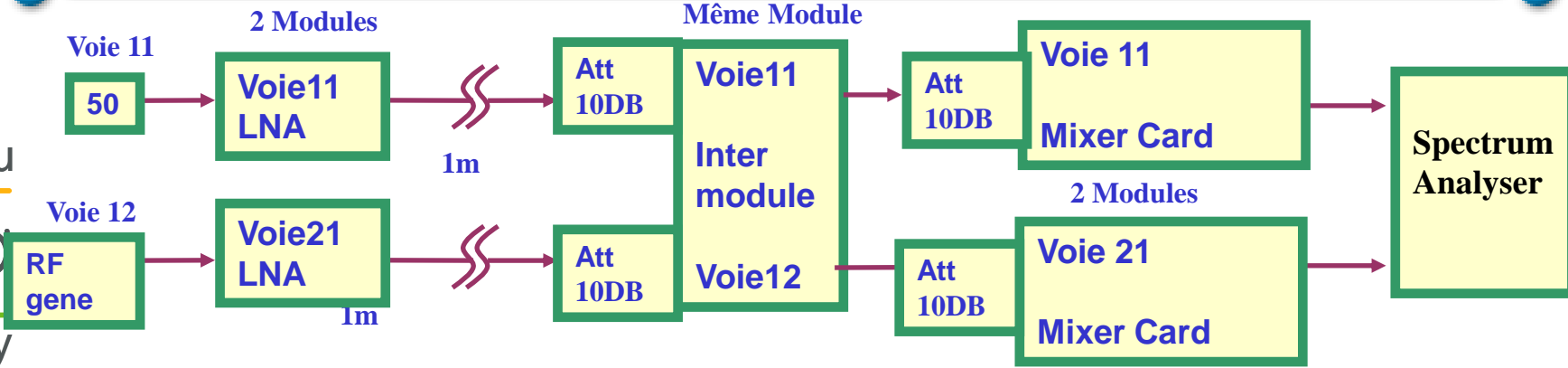


Avec atténuateurs 10DB et en éloignant les différents modules de l'ordre 40 cm

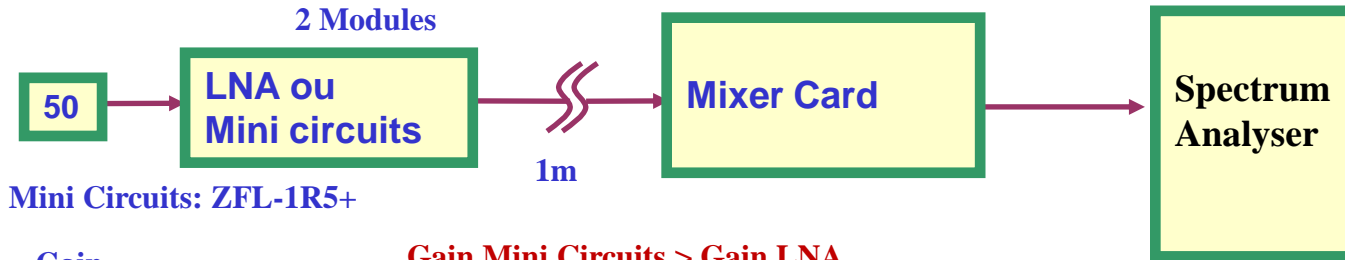


Cross Talk : Test Saclay Avril 2015

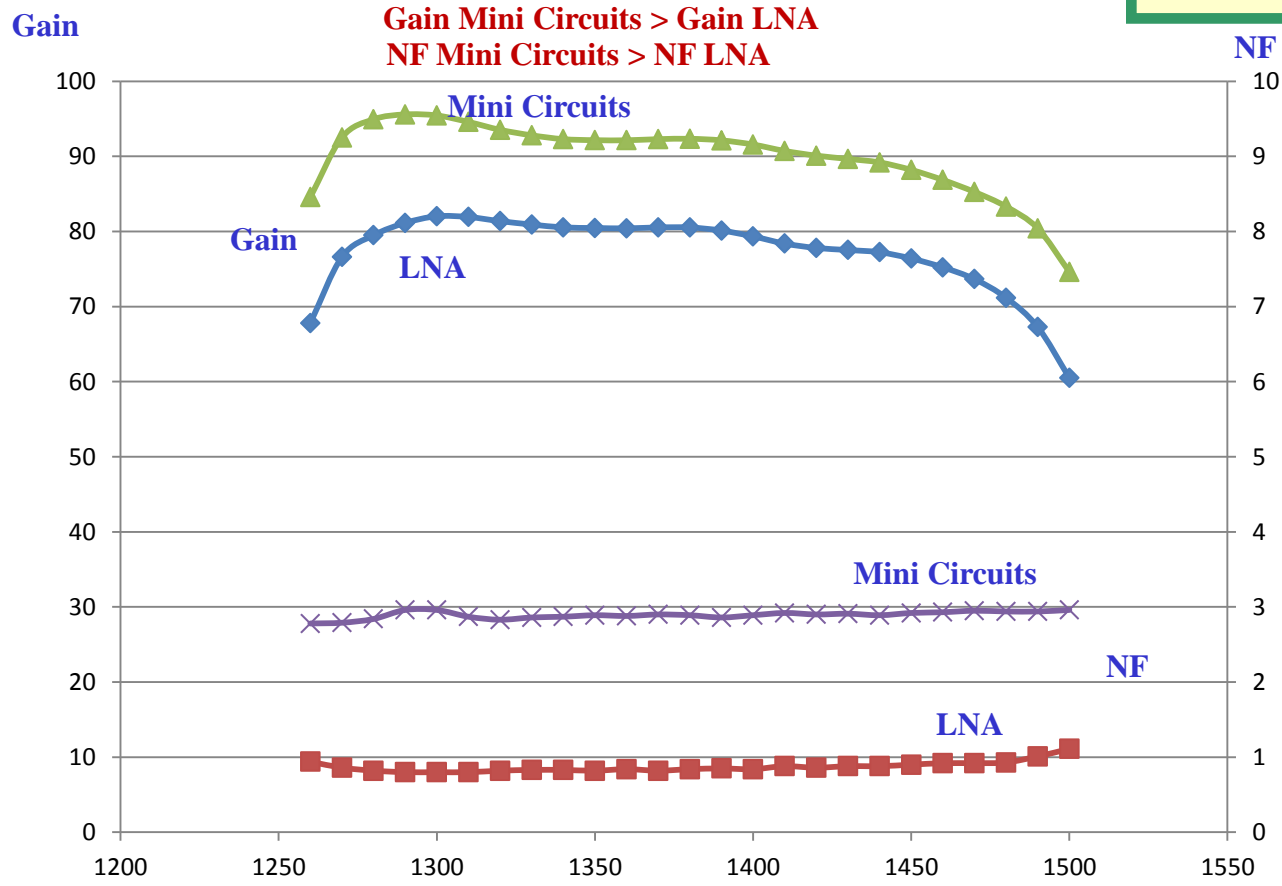
irfu
cea
saclay



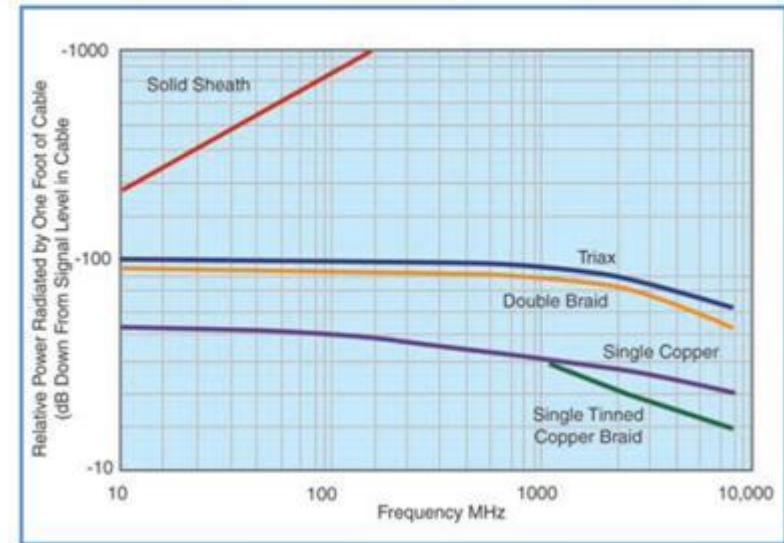
Cross Talk : Test Saclay Avril 2015



Mini Circuits: ZFL-1R5+



Shielding Effectiveness



RG142:

RF shielding effectiveness , 1GHz(dB/ft) > 60DB

RG405:

RF shielding effectiveness , 1GHz(dB/ft) > 100DB

RG58:

RF shielding effectiveness =70DB

RG223:

RF shielding effectiveness , 1GHz(dB/ft) > 60DB

RG214:

RF shielding effectiveness , 1GHz(dB/ft) > 90 DB

Thus, typical values at 100MHz:

RG174 or RG58: 300 milliohms per foot

RG223 (double shielded): 2 milliohms per foot.

RG405 (semi rigid): 0 milliohms per foot

Pour diminuer le cross talk:

- 1/ Enlever ou diminuer les atténuateurs
- 2/ Meilleurs câbles : efficacité du blindage >100DB
- 3/Eloigner les câbles, modules LNA Inter Mixeur
- 4/ Alimentations linéaires
- 5/

Cross Talk : Test Saclay Avril 2015

ADF4360-7

NOISE CHARACTERISTIC ⁵			
VCO Phase-Noise Performance ⁸	-116	dBc/Hz typ	@ 100 kHz offset from carrier.
	-138	dBc/Hz typ	@ 1 MHz offset from carrier.
	-144	dBc/Hz typ	@ 3 MHz offset from carrier.
	-148	dBc/Hz typ	@ 10 MHz offset from carrier.
Synthesizer Phase-Noise Floor ⁹	-172	dBc/Hz typ	@ 25 kHz PFD frequency.
	-163	dBc/Hz typ	@ 200 kHz PFD frequency.
	-147	dBc/Hz typ	@ 8 MHz PFD frequency.
In-Band Phase Noise ^{10, 11}	-92	dBc/Hz typ	@ 1 kHz offset from carrier.
RMS Integrated Phase Error ¹²	0.3	Degrees typ	100 Hz to 100 kHz.
Spurious Signals due to PFD Frequency ^{11, 13}	-70	dBc typ	
Level of Unlocked Signal with MTL D Enabled	-44	dBm typ	

R&S®SMB100A

SSB phase noise

carrier offset 20 kHz, measurement bandwidth 1 Hz, CW

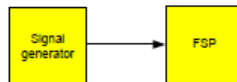
f = 100 MHz, level = 10 dBm	< -141 dBc, -145 dBc (typ.)
f = 1 GHz	< -122 dBc, -128 dBc (typ.)
f = 2 GHz	< -116 dBc, -122 dBc (typ.)
f = 3 GHz	< -112 dBc, -118 dBc (typ.)
f = 4 GHz	< -110 dBc, -116 dBc (typ.)
f = 6 GHz	< -106 dBc, -112 dBc (typ.)
f = 10 GHz	< -102 dBc, -108 dBc (typ.)
f = 20 GHz	< -96 dBc, -102 dBc (typ.)
f = 40 GHz	< -90 dBc, -96 dBc (typ.)

2.4.3 Measuring Phase Noise

The R&S FSP has an easy-to-use marker function for phase noise measurements. This marker function indicates the phase noise of an RF oscillator at any carrier in dBc in a bandwidth of 1 Hz.

2.4.3.1 Measurement Example – Measuring the phase noise of a signal generator at a carrier offset of 10 kHz

Test setup:



Settings on the signal generator (e.g. R&S SMIQ):

Frequency: 100 MHz
Level: 0 dBm

Measurement using R&S FSP:

1. Set the R&S FSP to its default state
 - Press the **PRESET** key. R&S FSP is in its default state.
2. Set the center frequency to 100 MHz and the span to 50 kHz
 - Press the **FREQ** key and enter 100 MHz.
 - Press the **SPAN** key and enter 50 kHz.
3. Set the R&S FSP's reference level to 0 dBm (=signal generator level)
 - Press the **AMPT** key and enter 0 dBm.
4. Enable phase noise measurement
 - Press the **MKR FCTN** key.
 - Press the **PHASE NOISE** softkey.

The R&S FSP activates phase noise measurement. Marker 1 (=main marker) and marker 2 (= delta marker) are positioned on the signal maximum. The position of the marker is the reference (level and frequency) for the phase noise measurement. A horizontal line represents the level of the reference point and a vertical line the frequency of the reference point. Data entry for the delta marker is activated so that the frequency offset at which the phase noise is to be measured can be entered directly.

5. 10 kHz frequency offset for determining phase noise.

- Enter 10 kHz.
- The R&S FSP displays the phase noise at a frequency offset of 10 kHz. The magnitude of the phase noise in dBc/Hz is displayed in the delta marker output field at the top right of the screen (delta 2 [T1 PHN]).

R&S®FSP Spectrum Analyzer Operating Manual

6. Stabilize the measurement result by activating trace averaging.

- Press the **TRACE** key.
- Press the **AVERAGE** softkey.

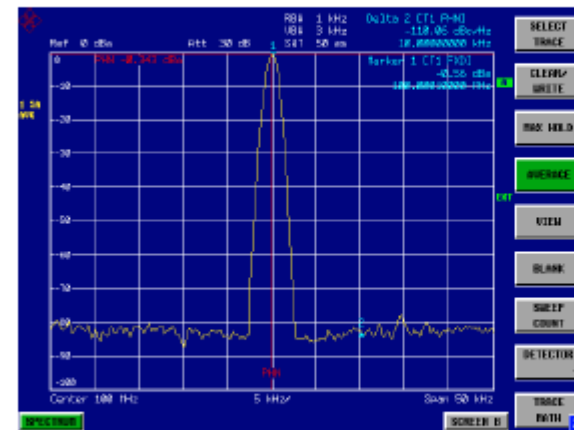


Fig. 2-1 Measuring phase noise with the phase-noise marker function

The frequency offset can be varied by moving the marker with the spinwheel or by entering a new frequency offset as a number.