;only for topspin 1.3 version

;mf\_hmbc\_cosy
;2D H-1/X correlation via heteronuclear zero and double quantum coherence
;optimized on long range couplings
;with low-pass J-filter to suppress one-bond correlations
;no decoupling during acquisition
;using gradient pulses for selection

#include <Avance.incl>
#include <Grad.incl>
#include <Delay.incl>

"p2=p1\*2"
"d0=3u"
"d13=3u"
"d2=1s/(cnst4\*2)"
"d6=1s/(cnst13\*2)"
"DELTA1=50u+p16+d16+4u"

1 ze
2 d1
3 p1 ph1

  d6
  p3:f2 ph4
  d0
  50u UNBLKGRAD
  p16:gp1
  d16
  p2 ph2
  50u
  p16:gp2
  d16
  d0
  p3:f2 ph5
  goscnp ph31
  50u wr #1
  p16:gp3
  d16
  p1 ph11
  50u
  p16:gp3\*-1
  d16 BLKGRAD
  gosc ph31
  d1 wr #2
  lo to 3 times 2
  10m if #1
  10m if #2
  10m id0
  lo to 3 times td1
  exit

ph1=0
ph11=1
ph2=0
ph3=0
ph4=0 2
ph5=0 0 2 2
ph31=0 2 2 0

;pl1 : f1 channel - power level for pulse (default)
;pl2 : f2 channel - power level for pulse (default)
;p1 : f1 channel -  90 degree high power pulse
;p2 : f1 channel - 180 degree high power pulse
;p3 : f2 channel -  90 degree high power pulse
;p16: homospoil/gradient pulse
;d0 : incremented delay (2D)                  [3 usec]
;d1 : relaxation delay; 1-5 \* T1
;d2 : 1/(2J)XH
;d6 : delay for evolution of long range couplings
;d16: delay for homospoil/gradient recovery
;cnst2: = J(XH)
;cnst13: = J(XH) long range
;in0: 1/(2 \* SW(X)) = DW(X)
;nd0: 2
;NS: 2 \* n
;DS: 16
;td1: number of experiments
;FnMODE: QF

;use gradient ratio:     gp 1 : gp 2 : gp 3
;              50 :   30 : 40.1   for C-13
;              70 :   30 : 50.1   for N-15

;for z-only gradients:
;gpz1: 50% for C-13, 70% for N-15
;gpz2: 30%
;gpz3: 40.1% for C-13, 50.1% for N-15

;use gradient files:
;gpnam1: SINE.100
;gpnam2: SINE.100
;gpnam3: SINE.100

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