;only for topspin 1.3 version
;mfa\_cosy-tocsy(DIPSI)-relay
;2D homonuclear shift correlation
;using gradient pulses for selection

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

"p7=p6\*2"
"d13=4u"

"d0=in0/2-p1\*2/3.1416-4u"
"FACTOR1=(d9/(p6\*115.112))/2+0.5"
"l1=FACTOR1\*2"

1 ze
2 d1
3 50u
  p1 ph1
  d0
  d13 UNBLKGRAD
  p16:gp1
  d16
  p1 ph2
  d13
  p16:gp1
  d16
  goscnp ph31
  d13 wr #1

  p1 ph2
  p16:gp3
  d16
  4u pl10:f1

                        ;begin DIPSI2
4 p6\*3.556 ph23
  p6\*4.556 ph25
  p6\*3.222 ph23
  p6\*3.167 ph25
  p6\*0.333 ph23
  p6\*2.722 ph25
  p6\*4.167 ph23
  p6\*2.944 ph25
  p6\*4.111 ph23

  p6\*3.556 ph25
  p6\*4.556 ph23
  p6\*3.222 ph25
  p6\*3.167 ph23
  p6\*0.333 ph25
  p6\*2.722 ph23
  p6\*4.167 ph25
  p6\*2.944 ph23
  p6\*4.111 ph25

  p6\*3.556 ph25
  p6\*4.556 ph23
  p6\*3.222 ph25
  p6\*3.167 ph23
  p6\*0.333 ph25
  p6\*2.722 ph23
  p6\*4.167 ph25
  p6\*2.944 ph23
  p6\*4.111 ph25

  p6\*3.556 ph23
  p6\*4.556 ph25
  p6\*3.222 ph23
  p6\*3.167 ph25
  p6\*0.333 ph23
  p6\*2.722 ph25
  p6\*4.167 ph23
  p6\*2.944 ph25
  p6\*4.111 ph23
  lo to 4 times l1
                        ;end DIPSI2
  d12 pl1:f1
  p1 ph2

  d13
  p16:gp2
  d16 BLKGRAD
  goscnp ph31
  d1 wr #2
  lo to 3 times 2
  30u if #1
  30u if #2
  30u id0
  lo to 3 times td1
exit

ph1=0 2
ph2=0
ph23=3
ph25=1
ph31=0 2

;pl1 : f1 channel - power level for pulse (default)
;pl10: f1 channel - power level for TOCSY-spinlock
;p1 : f1 channel -  90 degree high power pulse
;p5 : f1 channel -  60 degree low power pulse
;p6 : f1 channel -  90 degree low power pulse
;p7 : f1 channel - 180 degree low power pulse
;p17: f1 channel - trim pulse                        [2.5 msec]
;d0 : incremented delay (2D)
;d1 : relaxation delay; 1-5 \* T1
;d9 : TOCSY mixing time
;d12: delay for power switching                      [20 usec]
;l1: loop for MLEV cycle: (((p6\*64) + p5) \* l1) + (p17\*2) = mixing time
;in0: 1/(1 \* SW) = 2 \* DW
;nd0: 1
;NS: 8 \* n
;DS: 16
;td1: number of experiments
;FnMODE: States-TPPI, TPPI, States or QSEQ