--Supporting Information--

**Ruthenium-Catalyzed Cyclopropanation of Alkenes Using
Propargylic Carboxylates as Precursors of Vinylcarbenoids**

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Contents

X-ray Crystallographic Studies of <i>cis</i> - 2c and <i>cis</i> - 2f	S2-S6
¹ H and ¹³ C NMR Spectra	
cyclopropane 2a	S7-S10
cyclopropane 2b	S11-S14
cyclopropane 2c	S15-S18
cyclopropane 2d	S19-S22
cyclopropane 2e	S23-S26
cyclopropane 2f	S27-S30
cyclopropane 2l	S31-S34
cyclopropane 2m	S35-S36
cyclopropane 2n	S37-S38
cyclopropane 2o	S39-S42
cyclopropane 2p	S43-S46
cyclopropane 2q	S47-S48
cyclopropane 2r and cycloheptadiene 5r	S49-S52
cyclopropane 2s and cycloheptadiene 5s	S53-S56
cyclopropane 2t and bicyclic compound 5t	S57-S60
bicyclic compound 5u	S61-S62
bicyclic compound 5v	S63-S64

X-ray Crystallographic Studies of *cis*-2c and *cis*-2f. Colorless crystals of *cis*-2c or *cis*-2f suitable for X-ray analysis were obtained by recrystallization from AcOEt-hexane or *n*-pentane. The single crystal was sealed in a Pyrex glass capillary under N₂ atmosphere and used for data collection. All measurements were made on a Rigaku RAXIS imaging plate area detector with graphite monochromated Mo-K α radiation. Details of crystal and data collection parameters are summarized in Tables 1 and 2. The positions of non-hydrogen atoms were determined by direct methods (SIR92) and subsequent Fourier syntheses (DIRDIF PATTY). An ORTEP drawing of *cis*-2c and *cis*-2f is shown in Figures 1 and 2.

Figure 1. Crystal structure of *cis*-2c

Table 1. Summary of Crystallographic Data of *cis*-2c

empirical formula	C ₁₈ H ₂₂ O ₂
fw	270.37
crystal syst	monoclinic
space group	<i>P</i> 2 ₁ / <i>n</i> (No. 14)
cryst color	colorless
lattice params	
<i>a</i> (Å)	15.625(0)
<i>b</i> (Å)	5.935(4)
<i>c</i> (Å)	17.382(1)
β (Å)	106.92(9)
<i>V</i> (Å ³)	1542.(2)
<i>Z</i>	4
<i>D</i> _{calc} (g cm ⁻³)	1.164
μ (Mo K α) (cm ⁻¹)	0.74
<i>F</i> (000)	584
diffractometer	Rigaku RAXIS-RAPID
radiation	MoK α (λ = 0.71069 Å) graphite monochromated
temp (°C)	23.0
scan type	ω -2 θ
Max. 2 θ (°)	55
no. of rflns measd	total, 127980; unique, 3275 (<i>R</i> _{int} = 0.025)
no. of observns (<i>I</i> > 3.00 σ (<i>I</i>))	2004
structure soln	direct methods (SIR92)
refinement	full-matrix least squares
no. of variables	260
reflection/parameter ratio	7.71
residuals: <i>R</i> ; <i>R</i> _w	0.046; 0.043
goodness of fit (GOF)	1.72
max shift/error in final cycle	0.09
maximum peak in final diff map (e Å ⁻³)	0.18
maximum peak in final diff map (e Å ⁻³)	-0.15

Figure 2. Crystal structure of *cis*-2f

Table 2. Summary of Crystallographic Data of *cis*-2f

empirical formula	C ₁₉ H ₁₈ O ₂
fw	278.35
crystal syst	monoclinic
space group	<i>P</i> 2 ₁ (No. 4)
cryst color	colorless
lattice params	
<i>a</i> (Å)	8.115(9)
<i>b</i> (Å)	9.330(1)
<i>c</i> (Å)	10.366(1)
β (Å)	97.600(8)
<i>V</i> (Å ³)	778.(0)
<i>Z</i>	2
<i>D</i> _{calc} (g cm ⁻³)	1.188
μ (Mo K α) (cm ⁻¹)	0.76
<i>F</i> (000)	296
diffractometer	Rigaku RAXIS-RAPID
radiation	MoK α (λ = 0.71069 Å) graphite monochromated
temp (°C)	23.0
scan type	ω -2 θ
Max. 2 θ (°)	54.7
no. of rflns measd	total, 6774; unique, 1863 (<i>R</i> _{int} = 0.022)
no. of observns (<i>I</i> > 3.00 σ (<i>I</i>))	1649
structure soln	direct methods (SIR92)
refinement	full-matrix least squares
no. of variables	253
reflection/parameter ratio	6.52
residuals: <i>R</i> ; <i>R</i> _w	0.042; 0.048
goodness of fit (GOF)	3.43
max shift/error in final cycle	0.08
maximum peak in final diff map (e Å ⁻³)	0.15
maximum peak in final diff map (e Å ⁻³)	-0.16

C:\WINNR98\COMMON_DEFAULT.ALS
KR-501

DFILE C:\WINNR98\COMMON_DEFAULT.ALS
COMNT KR-501
DATIM Tue Nov 19 17:09:30 2002
OBNUC 13C
EXMOD BCM
OBFRQ 67.80 MHz
OBSET 135.00 KHz
OBFIN 5200.0 Hz
POINT 32768
FREQU 18315.0 Hz
SCANS 58
ACQTM 1.789 sec
PD 1.211 sec
PW1 4.2 us
IRNUC 1H
CTEMP 24.1 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 0.12 Hz
RGAIN 28

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-501-1

DEFILE C:\WINNMR98\COMMON_DEFAULT.ALS
COMNT KR-501-1
DATIM Tue Nov 19 17:20:22 2002
OBNUC 1H
EXMOD NON
OBFRQ 270.05 MHz
OBSET 112.00 KHz
OBFIN 5800.0 Hz
POINT 16384
FREQU 5402.4 Hz
SCANS 16
ACQTM 3.033 sec
PD 2.000 sec
PWL 5.6 us
IRNUC 1H
CTEMP 23.4 C
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 20

C:\WINMR98\COMMON_DEFAULT.ALS
KR-501-1

DFILE C:\WINMR98\COMMON_DEFAULT.ALS
COMNT KR-501-1
DATIM Tue Nov 19 17:35:06 2002

OBNUC 13C
EXMOD ECM
OBFREQ 67.80 MHz
OBSET 135.00 KHz
OBFIN 5200.0 Hz
POINT 32768
FREQ 18315.0 Hz
SCANS 213
ACQIM 1.789 sec
PD 1.211 sec
PWL 4.2 us
IRNUC 1H
CTEMP 24.2 C
SLVNT CDCL3
EXREF 77.00 ppm
BF 0.12 Hz
RGAIN 28

D:\NMR\KR(700-)\KR-70xBzH(300).als
KR-70x-BzH(300)

DEFILE D:\NMR\KR(700-)\KR-70xBzH(300).als
COMNT KR-70x-BzH(300)
DATIM Mon Aug 04 19:19:21 2003
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQ 6013.2 Hz
SCANS 8
ACQTM 5.449 sec
FD 1.551 sec
5.6 us
PW1 1H
IRNUC 23.7 c
CDCL3
SLVNT
EXREF 0.00 ppm
BF 0.10 Hz
RGAIN 19

D:\NMR\KR(700-)\KR-70xBzC(300).als
KR-70x-BzH(300)

DTITLE D:\NMR\KR(700-)\KR-70xBzC(300).als

CONNT KR-70x-BzH(300)

DATE Mon Aug 04 19:27:16 2003

OBNUC ¹³C

EXMOD BCM

OBFRQ 75.45 MHz

OBSET 124.00 KHz

OBFIN 1840.0 Hz

POINT 32768

FREQ 20408.1 Hz

SCANS 80

ACQTM 1.606 sec

PD 1.394 sec

PWL 4.5 us

IRNUC ¹H

CTEMP 24.7 c

SLVNT CDCL3

EXREF 77.00 ppm

BF 0.10 Hz

RGAIN 24

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-544

DFILE
COMNT KR-544
DATIM Sat Dec 07 19:07:21 2002
OBNUC 1H
EXMOD NON
OBFRQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 6013.2 Hz
SCANS 8
ACQTM 5.449 sec
PD 1.551 sec
PWL 5.7 us
IRNUC 1H
CTEMP 22.4 C
SIVNT CDCL3
EXREF 0.00 ppm
BF 0.12 Hz
RGAIN 13

mixture

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-544

DFILE
 COMNT KR-544
 DATIM Sat Dec 07 19:15:45 2002
 OENUC 13C
 EXMOD BCM
 OBFRQ 75.45 MHz
 OBSET 124.00 KHz
 OBFIN 1840.0 Hz
 POINT 32768
 FREQU 20408.1 Hz
 SCANS 158
 ACQTM 1.606 sec
 PD 1.394 sec
 PW 4.4 us
 IIRNUC 1H
 CTEMP 22.9 c
 SIVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 25

mixture

D:\NMR\KR(700-)\KR-70x6H(300).als
KR-70x-6H(300)

DFILE D:\NMR\KR(700-)\KR-70x6H(300).als
COMNT KR-70x-6H(300)
DATIM Mon Aug 04 18:49:28 2003
OBNUC 1H
EXMOD NON
OBFREQ 300.40 MHz
OBFSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQU 6013.2 Hz
SCANS 8
ACQTM 5.449 sec
PD 1.551 sec
PWL 5.6 us
IRNUC 1H
CTEMP 23.7 C
SIVNT CDCL3
EXREF 0.00 ppm
BF 0.10 Hz
RGAIN 17

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-70X-6C(300)

C:\WINNMR9\COMMON_DEFAULT.ALS	
PROFNAME	
PROBHD	5 mm QNP 1H/13
PULPROG	zgpg30
TD	65536
DELTA	1.00
DELTAD	0.00
DELTA2	0.00
DELTA3	0.00
DELTA4	0.00
DELTA5	0.00
DELTA6	0.00
DELTA7	0.00
DELTA8	0.00
DELTA9	0.00
DELTA10	0.00
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DELTA14	0.00
DELTA15	0.00
DELTA16	0.00
DELTA17	0.00
DELTA18	0.00
DELTA19	0.00
DELTA20	0.00
DELTA21	0.00
DELTA22	0.00
DELTA23	0.00
DELTA24	0.00
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DELTA26	0.00
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DELTA28	0.00
DELTA29	0.00
DELTA30	0.00
DELTA31	0.00
DELTA32	0.00
DELTA33	0.00
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DELTA35	0.00
DELTA36	0.00
DELTA37	0.00
DELTA38	0.00
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DELTA40	0.00
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DELTA42	0.00
DELTA43	0.00
DELTA44	0.00
DELTA45	0.00
DELTA46	0.00
DELTA47	0.00
DELTA48	0.00
DELTA49	0.00
DELTA50	0.00
DELTA51	0.00
DELTA52	0.00
DELTA53	0.00
DELTA54	0.00
DELTA55	0.00
DELTA56	0.00
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DELTA58	0.00
DELTA59	0.00
DELTA60	0.00
DELTA61	0.00
DELTA62	0.00
DELTA63	0.00
DELTA64	0.00
DELTA65	0.00
DELTA66	0.00
DELTA67	0.00
DELTA68	0.00
DELTA69	0.00
DELTA70	0.00
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DELTA74	0.00
DELTA75	0.00
DELTA76	0.00
DELTA77	0.00
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DELTA79	0.00
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DELTA82	0.00
DELTA83	0.00
DELTA84	0.00
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DELTA86	0.00
DELTA87	0.00
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DELTA104	0.00
DELTA105	0.00
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DELTA107	0.00
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DELTA109	0.00
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DELTA111	0.00
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DELTA114	0.00
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DELTA116	0.00
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DELTA121	0.00
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DELTA123	0.00
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DELTA125	0.00
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DELTA128	0.00
DELTA129	0.00
DELTA130	0.00
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DELTA132	0.00
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DELTA159	0.00
DELTA160	0.00
DELTA161	0.00
DELTA162	0.00
DELTA163	0.00
DELTA164	0.00
DELTA165	0.00
DELTA166	0.00
DELTA167	0.00
DELTA168	0.00
DELTA169	0.00
DELTA170	0.00
DELTA171	0.00
DELTA172	0.00
DELTA173	0.00
DELTA174	0.00
DELTA175	0.00
DELTA176	0.00
DELTA177	0.00

C:\WINNR98\COMMON_DEFAULT.ALS
KR-70x-TM5H

C:\WINNR98\COMMON_DEFAULT.ALS

COMPT KR-70x-TM5H
DATE Wed Aug 06 13:09:38 2003

ORNUC 1H
EXMOD NON
OBFFQ 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
POINT 32768
FREQ 6013.2 Hz
SCANS 8
ACQTM 5.449 sec
PD 1.551 sec
PWL 5.6 us
IRNUC 1H
CTEMP 24.1 C
SOLVT CDCL3
EXREF 0.00 ppm
BF 0.10 Hz
RGAIN 12

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-70x-6C

DFILE
COMNT
DATIM Wed Aug 06 13:16:56 2003
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 85
ACQTM 1.606 sec
PD 1.394 sec
PWL 4.5 us
IRNUC 1H
CTEMP 24.6 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 0.10 Hz
RGAIN 24

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-70x-6C
Wed Aug 06 13:16:56 2003

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-70x-5C(300)

DEFILE C:\WINNMR98\COMMON_DEFAULT.ALS
COMINT KR-70x-5C(300)
DATIM Mon Aug 04 19:14:00 2003

OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQ 20408.1 Hz
SCANS 100
ACQTM 1.606 sec
PD 1.394 sec
PWL 4.5 us
IRNUC 1H
CTEMP 24.6 c
SIVNT CDCL3
EXREF 77.00 ppm
BF 0.10 Hz
RGAIN 24

```

C:\WINDOWS\A&P4_K-Ia\KR-70x-5sakih (
KR-70x-5sak
Tue Aug 05 13:19:41 2003
1H
OBNUC 1H
OBNEXOD NON
300.40 MHz
130.00 KHz
1150.0 Hz
32768
6013.2 Hz
8
5.449 sec
1.551 sec
5.6 us
1H
IRNUC 1H
CTEMP 23.4 c
CDCL3
0.00 ppm
0.10 Hz
BF
RGAIN 17

```

trans.

GPC (先1=出7<3.)

trans-2d

C:\WINNR98\COMMON_DEFAULT.ALS
KR-70x-5saki

DFILE C:\WINNR98\COMMON_DEFAULT.ALS
COMNT KR-70x-5saki
DATIM Tue Aug 05 13:40:17 2003
OBNUC 13C
EXMOD BCM
OBFRQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 241
ACQTM 1.606 sec
PD 1.394 sec
FID 4.5 us
IRNUC 1H
CTEMP 25.0 c
SOLVT CDCL3
SLVNT CDCL3
EXREF 77.00 ppm
BF 0.10 Hz
RGAIN 26

trans

C:\WINDOWS\AP4_A-16\KR-70x-4H(300).als
 KR-70x-4H
 DFIL C:\WINDOWS\AP4_A-16\KR-70x-4H(300)
 COUNT KR-70x-4H
 DATIM Tue Aug 05 19:17:26 2003

EXMOD NON
 OBNUC 1H
 OBFRQ 300.40 MHz
 OBSET 130.00 KHz
 OBTIN 1150.0 Hz
 POINT 32768
 FREQU 6013.2 Hz
 SCANS 8
 ACQTM 5.449 sec
 PD 1.551 sec
 PW1 5.6 us
 IRNUC 1H
 CTMP 23.8 c
 SILNT CDCL3
 EXREF 0.00 ppm
 BF 0.10 Hz
 RGAIN 18

C:\WINNME98\COMMON_DEFAULT.ALS
KR-70x-4C

C:\WINNMR98\COMMON_DEFAULT.ALS
COMNT KR-70x-4C
DATIM Tue Aug 05 19:22:27 2003

OBNUC 13C
EXMOD BCM
OBSFQ 75.45 MHz
OBSFT 124.00 KHz
OBSFT 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 51
ACQTM 1.606 sec
PD 1.394 sec
PW1 4.5 us
IRNUC 1H
CTEMP 24.8 C
SLVNT CDCL3
EXREF 77.00 ppm
BF 0.10 Hz
RGAIN 24

C:\WINDOWS\APPX_A^-1A\KR-70x-4H(300).als
KR-70x-4H

DFILE C:\WINDOWS\APPX_A^-1A\KR-70x-4H(300)

```

C:\WINDOWS\A&P4_Kr-70x-4H
KR-70x-4H
Wed Aug 06 13:04:20 2003
1H
NON
300.40 MHz
130.00 kHz
1150.0 Hz
32768
6013.2 Hz
8
5.449 sec
1.551 sec
5.6 us
23.1 c
CDCL3
0.00 ppm
0.10 Hz
18
RGAIN

```

trans

trans-2e

C:\WINNR98\COMMON_DEFAULT.ALS
KR-70x-4C

DFILE
COMNT
DATIM
OBNUC
EXMOD
OBFREQ
OBSET
OBFIN
POINT
FREQ
SCANS
ACQTM
PD
PW1
IRNUC
CTEMP
SLVNT
EXREF
BF
RGAIN

C:\WINNR98\COMMON_DEFAULT.ALS
KR-70x-4C
Wed Aug 06 13:41:09 2003
13C
BCM
75.45 MHz
124.00 KHz
1840.0 Hz
32768
20408.1 Hz
448
1.606 sec
1.394 sec
4.5 us
1H
24.5 C
CDCl3
77.00 ppm
0.10 Hz
25

C:\WINNMR98\COMMON_DEFAULT.ALS
 KR-586
 COMINT
 DATIM Sat Jan 11 17:52:44 2003
 ORNUC 1H
 EXMOD NON
 OBPRO 399.65 MHz
 OBSET 124.00 KHz
 ORFIN 10500.0 Hz
 POINT 16384
 FREQ 8000.0 Hz
 SCANS 16
 ACQTM 2.048 sec
 PD 2.952 sec
 PW 8.5 us
 IRNUC 1H
 CTEMP 24.5 c
 SIVNT CDCL3
 EXREF 0.00 ppm
 BF 0.12 Hz
 RGAIN 22

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-586

DEFILE C:\WINNMR98\COMMON_DEFAULT.ALS
COMNT KR-586
DATIM Sat Jan 11 17:47:41 2003
ORNUC 13C
EXMOD BCM
ORFREQ 100.40 MHz
ORSET 125.00 KHz
ORFIN 10500.0 Hz
POINT 32768
FREQU 27173.9 Hz
SCANS 1288
ACQTM 1.206 sec
PD 1.794 sec
PW1 5.0 us
IRNUC 1H
CTEMP 25.1 c
SIVNT CDCL3
EXREF 77.00 ppm
BF 0.12 Hz
RGAIN 33

D:\KR(511-)\KR-586-1H(400).als
KR-586-1

DFILE D:\KR(511-)\KR-586-1H(400).als
COMNT KR-586-1
DATIM Mon Dec 23 15:14:10 2002
EXMOD 1H
OBNUC NON
OBPRO 399.65 MHz
OBSET 124.00 KHz
OBFIN 10500.0 Hz
POINT 16384
FREQU 6501.9 Hz
SCANS 8
ACQTM 2.520 sec
PD 2.952 sec
PWI 8.5 us
IRNUC 1H
CTEMP 25.5 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.25 Hz
RGAIN 15

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-586-1

DFILE
COMNT
DATIM
OBNUC
EXMOD
OBSRO
OBSRT
OBSIN
POINT
FREQU
SCANS
ACQTM
PD
PWL
IRNUC
CTEMP
SLVNT
EXREF
BF
RGAIN

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-586-1
Mon Dec 23 15:27:29 2002
13C
BCM
100.40 MHz
125.00 kHz
10500.0 Hz
32768
27173.9 Hz
238
1.206 sec
1.794 sec
5.0 us
1H
26.3 c
CDCL3
77.00 ppm
0.25 Hz
33

C:\WINNMR98\COMMON_DEFAULT.ALS
XR-635-sita

MENUF BCM
OENUC 13C
OFR 75.45 MHz
ORSET 124.00 KHz
ORFIN 1840.0 Hz
PWL 4.5 us
DEADT 27.2 us
PREDL 0.2000 ms
IWT 1.0 sec
POINT 32768
SPO 32768
TIMES 6000
SCANS 139
DUMY 1
FREQU 20408.1 Hz
FLT 10200 Hz
DELAY 19.6 us
ACQTM 1.606 sec
PD 1.394 sec
ADBIT 16.00
RGAIN 24
BF 0.12 Hz
T1 0.00
T2 0.00
T3 90.00
T4 100.00
EXMOD BCM
EXPCM Bilevel.complete.decoupling: Set_IR
IRNUC 1H
IFR 300.40 MHz
IRSET 130.00 KHz
IRFIN 1150.0 Hz
IRPW 45 us
IRATN 511
DEFILE C:\WINNMR98\COMMON_DEFAULT.ALS
SF THS
LXSET 25.60 KHz
LXFIN 52.0 Hz
LKLEV 200
LGAIN 20
LKPHS 83
LKSIG 518
CSFED 11 Hz
FILDG
FILDG

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-635-ue

MENUP BCM
OBNUC 13C
OFR 75.45 MHz
OBSET 124.00 KHz
ORFIN 1840.0 Hz
FW1 4.5 us
DEADT 27.2 us
FREDL 0.2000 ms
IWT 1.0 sec
POINT 32768
SFO 32768
TIMES 1200
SCANS 606
DUMMY 1
FREQ 20408.1 Hz
FLT 10200 Hz
DELAY 19.6 us
ACQTM 1.606 sec
FD 1.394 sec
ADBIT 16.00
RGAIN 24
BF 0.12 Hz
T1 0.00
T2 0.00
T3 90.00
T4 100.00
EXMOD BCM
EXPCM Bilevel.complete.decoupling: Set_IR
IRNUC 1H
IFR 300.40 MHz
TRSET 130.00 KHz
TRFIN 1150.0 Hz
TERP 45 us
TRRN 511
DEFILE
SF C:\WINNMR98\COMMON_DEFAULT.ALS
THS
LKSET 25.60 KHz
LKFIN 52.0 Hz
LKLEV 200
LGAIN 20
LKPHS 83
LKSIG 640
CSPED 9 Hz
FILDC
FILDF

minor-21

C:\WINMR98\COMMON_DEFAULT.ALS
KR-559

C:\WINMR98\COMMON_DEFAULT.ALS

FILE KR-559
DATE Wed Dec 11 22:55:11 2002
CONTC 1H
EXMOD NON

OBFRQ 399.65 MHz
OBSET 124.00 KHz
OBFIN 10500.0 Hz
POINT 16384
FREQU 8000.0 Hz
SCANS 16
ACQTM 2.048 sec
PD 2.952 sec
PWL 8.5 us
IRNUC 1H
CTEMP 26.2 c
SLVNT CDCL3
EXREF 0.00 ppm
BF 0.25 Hz
RGAIN 12

KR-559

2m

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-559

DEFILE C:\WINNMR98\COMMON_DEFAULT.ALS
COMNT KR-559
DATIM Wed Dec 11 22:53:23 2002
ORNUC 13C
EXMOD BCM
OBFRQ 100.40 MHz
OBSET 125.00 KHz
OBFIN 10500.0 Hz
POINT 32768
FREQU 27173.9 Hz
SCANS 103
ACQTM 1.206 sec
PD 1.794 sec
PWL 5.0 us
IRNUC 1H
CTEMP 26.8 c
SOLVT CDCL3
EXREF 77.00 ppm
BF 0.25 Hz
RGAIN 33

C:\WINNR98\COMMON_DEFAULT.ALS
 KR-550
 DFILF
 COUNT KR-550
 DATIM Mon Dec 09 15:52:33 2002
 OBNUC 1H
 EXMOD NON
 QBFREQ 300.40 MHz
 OBSET 130.00 KHz
 OBFIN 1150.0 Hz
 POINT 32768
 FREQU 6013.2 Hz
 SCANS 8
 ACQTM 5.449 sec
 PD 1.551 sec
 PW1 5.7 us
 TRNUC 1H
 CTEMP 21.8 c
 SLYNT CDCL3
 EXREF 0.00 ppm
 BF 1.20 Hz
 RGAIN 12

KR-550

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-550

DFILE C:\WINNMR98\COMMON_DEFAULT.ALS
COMINT KR-550
DATIM Mon Dec 09 15:58:29 2002

EXMOD BCM
OBRUC 13C
OBFREQ 75.45 MHz
OBSSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQU 20408.1 Hz
SCANS 108
ACQTM 1.606 sec
PD 1.394 sec
FW 4.4 us
IRNUC 1H
CTEMP 23.2 c
SIVNT CDCl3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 24

C:\WINDOWS\AP4_A-16\KR-70x-TM5H(300).als
KR-70x-TM5H

DFILE C:\WINDOWS\AP4_A-16\KR-70x-TM5H(300).als
COMINT KR-70x-TM5H
DATIM Tue Aug 05 19:25:51 2003
OBNUC 1H
EXMOD NON
OBFREQ 300.40 MHz
OBFREQ 130.00 KHz
OBFREQ 1150.0 Hz
POINT 32768
FREQ 6013.2 Hz
SCANS 8
ACQTM 5.449 sec
PD 1.551 sec
FW 5.6 us
IRNUC 1H
CTEMP 23.9 C
CDCL3
SLVNT
EXREF 7.26 ppm
BF 0.10 Hz
RGAIN 17

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-70x-TMSC

DETAIL C:\WINNMR98\COMMON_DEFAULT.ALS
COMMT KR-70x-TMSC
DATIM Tue Aug 05 19:31:29 2003
ORNUC 13C
EXMOD BCM
OBFREQ 75.45 MHz
OBSET 124.00 KHz
OBFIN 1840.0 Hz
POINT 32768
FREQ 20408.1 Hz
SCANS 53
ACQTM 1.606 sec
PD 1.394 sec
PWI 4.5 us
IRNUC 1H 24.8 c
CTEMP CDCL3
SIVNT 77.00 ppm
EXREF 0.10 Hz
BF 24
RGAIN

cis 70x

cis-20

C:\WINNR98\COMMON\DEFAULT.ALS
 KR-70x-TMstransH(300)
 DFIL C:\WINNR98\COMMON\DEFAULT.ALS
 COMNT KR-70x-TMstransH(300)
 DARTM Thu Aug 07 11:38:34 2003
 EXMOD 1H
 OBNUC NON
 EXMOD 300.40 MHz
 ORFQ 130.00 KHz
 OBSF 1150.0 Hz
 OFIN 32768
 POINT 6013.2 Hz
 FREQU 8
 SCANS 5.449 sec
 ACQTM 1.551 sec
 PD 5.6 us
 PW1 1H
 TRNUC 23.0 c
 CTMP CDCL3
 SILVT 7.26 ppm
 EXREF 0.10 Hz
 BF 12
 RGAIN

C:\WINNMR98\COMMON\DEFAULT.ALS
KR-70x-TMStranSH(300)

C:\WINNMR98\COMMON\DEFAULT.ALS
COMNT KR-70x-TMStranSH(300)
DATIM Thu Aug 07 11:47:25 2003

EXMOD BCM 75.45 MHz
OBFRQ 124.00 KHz
OBSET 1840.0 Hz
POINT 32768
FREQ 20408.1 Hz
SCANS 166
ACQTM 1.606 sec
PD 1.394 sec
PW1 4.5 us
IRNUC 1H
CTEMP 24.8 c
SIVNT CDCL3
EXREF 77.00 ppm
BF 0.10 Hz
RGAIN 24

Trans ? (minor)
OK

C:\WINNMR98\COMMON\DEFAULT.ALS
 KR-584-2

DFILF C:\WINNMR98\COMMON\DEFAULT.ALS
 COMNT KR-584-2
 DATIM Mon Dec 23 19:03:07 2002
 EXMOD 1H
 EXMOD NON
 OBERQ 399.65 MHz
 OBSET 124.00 KHz
 OFBIN 10500.0 Hz
 POINT 16384
 FREQU 8000.0 Hz
 SCANS 8
 ACQTM 2.048 sec
 PD 2.952 sec
 PW1 8.5 us
 IRNUC 1H
 CTMP 24.8 C
 CD2CL
 SLVNT 5.26 ppm
 EXREF 0.25 Hz
 RF 14
 RGAIN

D:\KR(511-)\KR-584-1C(400).als
KR-584-1

D:\KR(511-)\KR-584-1C(400).als
COMET KR-584-1
DATIM Mon Dec 23 18:49:38 2002
OBNUC 13C
EXMOD BCM
OBFREQ 100.40 MHz
OBSSET 125.00 KHz
OBFIN 10500.0 Hz
POINT 32768
FREQU 27173.9 Hz
SCANS 203
AQCTM 1.206 sec
PD 1.794 sec
PWL 5.0 us
IRNUC 1H
CTEMP 26.3 c
SIVNT CD2CL
EXREF 53.80 ppm
BF 0.25 Hz
RGAIN 33

```

D:\FILE C:\WINNR98\COMMON\_DEFAULT.ALS
COMNT KR-584-1
DATIM Mon Dec 23 18:38:52 2002

```

D:\KR(511-)\KR-584-1C(400).als
KR-584-1

DFILE D:\KR(511-)\KR-584-1C(400).als
 COMNT KR-584-1
 DATIM Mon Dec 23 18:49:38 2002
 OBNUC 13C
 EXMOD BCM
 OBFRQ 100.40 MHz
 OBSET 125.00 KHz
 OBFIN 10500.0 Hz
 POINT 32768
 FREQU 27173.9 Hz
 SCANS 203
 ACQTM 1.206 sec
 PD 1.794 sec
 FWH 5.0 us
 IRNUC 1H
 CTEMP 26.3 c
 CD2CL
 SIVNT 53.80 ppm
 EXREF 0.25 Hz
 BF 33
 RGAIN

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-70x-OAGH(300)

DFILE
COMNT
DATIM
OBNUC
EXMOD
OBFRO
OBFSE
OBFIN
POINT
FREQU
SCANS
ACQTM
PD
PWL
IRNUC
CTEMP
SIVNT
EXREF
BF
RGAIN

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-70x-OAGH(300)
Thu Aug 07 12:31:10 2003
13C
BCM

75.45 MHz
124.00 KHz
1840.0 Hz
32768
20408.1 Hz
803
1.606 sec
1.394 sec
4.5 us
1H
24.5 c
CDCL3
77.00 ppm
0.10 Hz
25

cis/trans mixture

C:\WINNR98\COMMON_DEFAULT.ALS
KR-556-GPC(sak1)

DEFILE C:\WINNR98\COMMON_DEFAULT.ALS
COMMT KR-556-GPC(sak1)
DATIM Thu Dec 12 13:24:01 2002
CENUC 1H
EXMOD NON
OBFRQ 399.65 MHz
OBSET 124.00 KHz
OBFIN 10500.0 Hz
POINT 16384
FREQU 8000.0 Hz
SCANS 8
ACQTM 2.048 sec
PD 2.952 sec
PWL 8.5 us
IRNUC 1H
CTEMP 26.6 c
SIVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 12

C:\WINNR98\COMMON_DEFAULT.ALS
KR-556-GPC (saki)

C:\WINNR98\COMMON_DEFAULT.ALS
COMNT KR-556-GPC (saki)
DATIM Thu Dec 12 13:29:48 2002
GENUC 13C

EXMOD BCM
OBFRQ 100.40 MHz
OBSET 125.00 KHz
OBFIN 10500.0 Hz
POINT 32768
FREQ 27173.9 Hz
SCANS 106
ACQTM 1.206 sec
PD 1.794 sec
PWI 5.0 us
IRNUC 1H
CTEMP 27.2 c
SOLVT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 33

C:\WINNR98\COMMON_DEFAULT.ALS
KR-556-GPC(ato)

C:\WINNR98\COMMON_DEFAULT.ALS
KR-556-GPC(ato)
Thu Dec 12 13:32:31 2002

COMNT
DATIM
ORNUC
EXMOD
OBFRQ
OBSEI
OBFIN
POINT
FREQU
SCANS
ACQTM
PD
PWL
IRNUC
CTEMP
SIVNT
EXREF
BF
RGAIN

1H
CDCL3
26.7 C
0.00 ppm
1.20 Hz
13

399.65 MHz
124.00 KHz
10500.0 Hz
16384
8000.0 Hz
8
2.048 sec
2.952 sec
8.5 us

C:\WINNR98\COMMON_DEFAULT.ALS
RR-S56-GFC(ato)

DFILE C:\WINNR98\COMMON_DEFAULT.ALS
COMNT RR-S56-GFC(ato)
DATIM Thu Dec 12 13:39:50 2002
OBNUC 13C
EXMOD BCM
OBFRQ 100.40 MHz
OBSET 125.00 KHz
OBFIN 10500.0 Hz
POINT 32768
FREQ 27173.9 Hz
SCANS 130
ACQTM 1.206 sec
PD 1.794 sec
FW 5.0 us
IRNUC 1H
CTEMP 27.1 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 33

C:\WINMR98\COMMON_DEFAULT.ALS
KR-652-saki

MENUF NON
OBNUC 1H

OFR 300.40 MHz
OBSET 130.00 KHz
OBFIN 1150.0 Hz
PWI 5.6 us
DEADT 97.2 us
PREDL 0.2000 ms
TWT 1.0 sec
POINT 32768
SPO 32768
TIMES 8
SCANS 8
DUMMY 1
FREQU 6013.2 Hz
FLT 3000 Hz
DELAY 66.7 us
ACQTM 5.449 sec
PD 1.551 sec
ADBIT 16.00
RGAIN 13
BF 0.12 Hz
T1 0.00
T2 0.00
T3 90.00
T4 100.00

EXMOD NON
EXPCM Single, coupled: FW1, ACQTM, PD: 1H
IRNUC 1H

IFR 300.40 MHz
IRSET 130.00 KHz
IRFIN 1150.0 Hz
IRREW 45 us
IRATN 511
DFILE C:\WINMR98\COMMON_DEFAULT.ALS
SF TH5
UKSET 25.60 KHz
UKFIN 52.0 Hz
UKLEV 200
UGAIN 22
UKPHS 83
UKSIG 808
CSPED 8 Hz
FILDG
FILDG

C:\WINNR98\COMMON_DEFAULT.ALS
KR-652-saki

trans-2s

C:\WINNMR98\COMMON_DEFAULT.ALS
XR-652-ato

MENUF NON
OBNUC 1H

OPR 300.40 MHz
OSSET 130.00 KHz
OBFIN 1150.0 Hz
PWI 5.6 us
DEADT 97.2 us
FREDL 0.2000 ms
IWT 1.0 sec
POINT 32768
SPO 32768
TIMES 8
SCANS 1
DUNNY 1
FREQU 6013.2 Hz
FLT 3000 Hz
DELAY 66.7 us
ACQTM 5.449 sec
PD 1.551 sec
ADBIT 16.00
RGAIN 13
BF 0.12 Hz
T1 0.00
T2 0.00
T3 90.00
T4 100.00

EXMOD NON
EXPCM NON:Single.coupled:PW1_ACQTM_PD:1H

IRNUC 1H
IFR 300.40 MHz
IRSET 130.00 KHz
IRFIN 1150.0 Hz
IRRPW 45 us
IRATN 511

DFILE C:\WINNMR98\COMMON_DEFAULT.ALS
SF THS

LKSET 25.60 KHz
LKFIN 52.0 Hz
LKLEV 200
LGAIN 22
LKPHS 83
LKSIG 854
CSPED 10 Hz
FILDG
FILDG

5s

C:\WINMR98\COMMON_DEFAULT.ALS
KR-652-ato

MENUF BCM
OBNUC 13C

75.45 MHz
124.00 KHz
1840.0 Hz
4.5 us
27.2 us
0.2000 ms
1.0 sec

POINT 32768
SPO 32768
TIMES 1200
SCANS 120

20408.1 Hz
10200 Hz
19.6 us
1.606 sec
1.394 sec
16.00

RGAIN 25
BF 0.12 Hz
T1 0.00
T2 0.00
T3 90.00
T4 100.00

BCM EXMOD BCM
Bilevel.complete.decoupling: Set_If

IRNUC 1H
300.40 MHz
130.00 KHz
1150.0 Hz
45 us

511
C:\WINMR98\COMMON_DEFAULT.ALS
THS

SF 25.60 KHz
LKSET 52.0 Hz
LKFIN 200
LKLEV 22
LGAIN 83
LKPHS 914
LKSIG 10 Hz

CSPED
FLDC
FLDF

5s

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-665-saki

DFILE C:\WINNMR98\COMMON_DEFAULT.ALS
COMNT KR-665-saki
DATIM Thu Mar 27 15:11:35 2003
OBNUC 1H
EXMOD NON
OBFRQ 399.65 MHz
OBSET 124.00 KHz
OBFIN 10500.0 Hz
POINT 16384
FREQU 8000.0 Hz
SCANS 8
ACQTM 2.048 sec
PD 2.952 sec
PW1 5.4 us
IRNUC 1H
CTEMP 25.7 C
SIVNT CDCL3
EXREF 0.00 ppm
BF 1.20 Hz
RGAIN 14

C:\WINNR98\COMMON\DEFAULT.ALS
KR-665-sak1

DFILE C:\WINNR98\COMMON\DEFAULT.ALS
COMMT KR-665-sak1
DATIM Thu Mar 27 15:17:43 2003

ORNUC 13C
EXMOD BCM
OBFRQ 100.40 MHz
OBSET 125.00 KHz
OBFIN 10500.0 Hz
POINT 32768
FREQU 27173.9 Hz
SCANS 102
ACQTM 1.206 sec
PD 1.794 sec
PWL 5.0 us
IRNUC 1H
CTEMP 26.4 c
SLVNT CDCL3
EXREF 77.00 ppm
BF 1.20 Hz
RGAIN 34

trans-2t

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-673sita-tol

5t

C:\WINNMR98\COMMON_DEFAULT.ALS
KR-675

DF COMNT KR-675
OBNUC 13C
OFR 100.40 MHz
OBSET 125.00 KHz
OBTIN 10500.0 Hz
PW1 5.0 us
PW2 10.0 us
FW3 10.0 us
F11 1.000 ms
F12 1.000 ms
F13 1.00 ms
LOOP1 1
POINT 32768
SPO 32768
SCANS 333
DUMMY 1
FREQ 27173.9 Hz
ACQTM 1.206 sec
PD 1.794 sec
RGAIN 35
BF 0.12 Hz
EXMOD BCM
IRNUC 1H
IFR 399.65 MHz
IRSET 124.00 KHz
IRFIN 10500.0 Hz
IRREW 50 us
IRAIN 511
CSPED 12 Hz
CTEMP 26.6 C
XE
XS

5t

DF	COMNT	KR-675
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DF	COMNT	KR-675
CONUC	1H	
OFER		399.65 MHz
OSSET		124.00 KHz
OSFIN		10500.0 Hz
PW1		5.4 us
PW2		10.0 us
PW3		10.0 us
P11		1.000 ms
P12		1.000 ms
P13		1.00 ms
LOOP1		1
POINT		16384
SFO		16384
SCANS		8
DUMMY		1
FREQU		8000.0 Hz
ACQTM		2.048 sec
PD		2.952 sec
RGAIN		21
BF		0.12 Hz
EMUC	NON	
IRNOD	1H	
IFR		399.65 MHz
IRSET		124.00 KHz
IRFIN		10500.0 Hz
IREPW		50 us
IRATN		511
CSFED		9 Hz
CTEMP		26.5 c
XE		
XS		

KB-675

5u

C:\WINMR98\COMMON_DEFAULT.ALS
KR-675

DF
COMNT
OBNUC 13C
OFR 100.40 MHz
OSSET 125.00 KHz
OBFIN 10500.0 Hz
PFI 5.0 us
PW2 10.0 us
PW3 10.0 us
PFI 1.000 ms
PI2 1.000 ms
PI3 1.00 ms
LOPFI 1
POINT 32768
SPO 32768
SCANS 429
DUMMY 1
FREQU 27173.9 Hz
ACQTM 1.206 sec
PD 1.794 sec
RGAIN 34
BF 0.12 Hz
EXMOD BCM
IRNUC 1H
IFR 399.65 MHz
IRSET 124.00 KHz
IRFIN 10500.0 Hz
IRPW 50 us
IRATN 511
CSPED 8 Hz
CTEMP 26.7 C
XE
XS

5u

C:\WINNR98\COMMON_DEFAULT.ALS
KR-675-ato

DF
COMNT KR-675-ato
CHNUC 1H
OFR 399.65 MHz
OBSET 124.00 KHz
ORFIN 10500.0 Hz
PW1 5.4 us
PW2 10.0 us
PW3 10.0 us
PI1 1.000 ms
PI2 1.000 ms
PI3 1.00 ms
LOOP1 1
POINT 16384
SFO 16384
SCANS 8
DUMMY 1
FREQU 8000.0 Hz
ACQTM 2.048 sec
PD 2.952 sec
RGAIN 17
BF 0.12 Hz
EXMOD NON
IRNUC 1H
IRSET 399.65 MHz
IRFIN 124.00 KHz
IRPW 10500.0 Hz
IRATN 50 us
SII 511
CSFED 10 Hz
CTEMP 27.3 C
XE
XS

C:\WINNR98\COMMON_DEFAULT.ALS
KR-675-ato

DF COMNT KR-675-ato
OBNUC 13C
OPR 100.40 MHz
OBSET 125.00 KHz
OBFIN 10500.0 Hz
FW1 9.0 us
FW2 10.0 us
FW3 10.0 us
F11 1.000 ms
F12 1.000 ms
F13 1.00 ms
LOOP1 1
POINT 32768
SPO 32768
SCANS 62
DUMMY 1
FREQU 27173.9 Hz
ACQTM 1.206 sec
PD 1.794 sec
RGAIN 34
B1 0.12 Hz
EXMOD BCM
IRNUC 1H
IFR 399.65 MHz
IRSET 124.00 KHz
IRFIN 10500.0 Hz
IRRFW 50 us
IRATN 511
CSPED 10 Hz
CTEMP 26.8 C
XE
XS

5v