

[Pro-Pro sample stage]

CONTROL COMMAND OF VK-S454 SERIES

[REV. 1.1]

This manual applies following models:

<NTSC> VK-S454

<PAL> VK-S454E (not completed)

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[Note] ■ is difference of data between VK-S354 series and VK-S454 series.

PART
ONE

- EXTERNAL CONTROL

1. Communication protocol

Communication between the microcomputer of the camera and the PC is available by using the RS-232C protocol. The microcomputer receives each control command given by the PC and echoes it back to the PC.

2. Connect condition

Data length	8 bit
Stop bit	1 bit
Parity	even
Baudrate	4800 bps

3. Communication data format

All communication data consist of eight or ten ASCII characters (8 bytes or 10 bytes).

The format of the communication data is shown in Fig. 1.

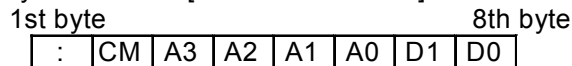
a) Normal command

Communication data start with the character ":"(colon).

b) Special command

Communication data start with the character "/"(slash).

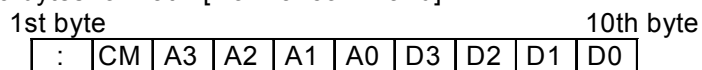
(a) 8 bytes format [Normal command]



CM Command as follows
 R :Read 1 byte data of micro-Com. RAM or EEPROM
 W :Write 1 byte data of micro-Com. RAM or EEPROM

A3-A0 Address data of micro-Com. RAM or EEPROM (write in hex. 0000-FFFF)
 D1-D0 Data of micro-Com. RAM or EEPROM (write in hex. 00-FF)

(b) 10 bytes format [Normal command]



CM Command as follows
 r :Read 2 bytes data of micro-Com. RAM or EEPROM
 w :Write 2 bytes data of micro-Com. RAM or EEPROM

A3-A0 Address data of micro-Com. RAM or EEPROM (write in hex. 0000-FFFF)
 D3-D0 Data of micro-Com. RAM or EEPROM (write in hex. 0000-FFFF)

(c) 8 bytes format [Special command]



CM Command as follows
 M : <Privacy mask> DEGREE WRITE command

D5-D0 Data of micro-Com. RAM or EEPROM (write in hex. 000000-FFFFFF)

Fig. 1 Communication data format

4. Control commands

a) Switch the auto focus / manual focus

```

:RFF0E00
:WFF0EX1X0
      bit 3 of X1X0 : 0-Auto 1-Manual
or
:WFCBBA8      ;Change
:WFCBBFE      ;Neutral

```

b) Move focus to FAR in manual focus mode

```

:WFCBBA9      ;Start
:WFCBBFE      ;Stop

```

c) Move focus to NEAR in manual focus mode

```

:WFCBBAA      ;Start
:WFCBBFE      ;Stop

```

d) Move zoom to TELE

```

:WFCBB99      ;Start
:WFCBBFE      ;Stop

```

e) Move zoom to WIDE

```

:WFCBB9B      ;Start
:WFCBBFE      ;Stop

```

f) Select the zoom speed of optical zoom

```

:RFDFC00
:WFDFCX1X0
      Super HIGH SPEED (2.9 s) * ;
      X1X0 : Set bit 3 of echo back data to "0".
              Set bit 2 of echo back data to "1".
      HIGH SPEED (4.2 s);
      X1X0 : Set bit 3 of echo back data to "0".
              Set bit 2 of echo back data to "0".
      NORMAL SPEED (5.8 s);
      X1X0 : Set bit 3 of echo back data to "1".
              Set bit 2 of echo back data to "0".

```

[Note] * mark : for "Zoom Trace Preset Mode" only

g) Get the status of zoom position

:RFC9100

If echo back data is not "FF", zoom position is calculated by following equation.

$$\text{zoom position} = 23 * 256 / (XX + 1)$$

XX; echo back data

If echo back data is "FF", then following commands should be sent.

:rF7200000

Echo back data shows zoom position.

[Please refer to the attached Table.1.]

Table.1 Zoom position data table (reference value)

Zoom position	x1	x2	x3	x4	x5	x6	x7	x8
Echoback data	182A less	2F13 less	3AE2 less	427C Less	47F3 less	4C29 less	4F9B less	528F less
Zoom position	x9	x10	x11	x12	x13	x14	x15	x16
Echoback data	5512 less	5742 less	5948 less	5B18 less	5C9E less	5E0A less	5F3E less	6048 less
Zoom position	x17	x18	x19	x20	x21	x22	x23	
Echoback data	6136 less	61FA less	62A2 less	632E less	639E Less	63D6 less	63D6 more	

h) Switch the continuous digi. zoom ON/OFF

:RFCCB00

:WFCCBX₁X₀

X₁X₀=00 ; OFF X₁X₀=01 ; ON

i) Set the maximum mag. tuning value in continuous digi. zoom ON mode

:WFDF0X₁X₀

$$X_1X_0 \text{ (hex)} = \{256 - (256 / MM)\} \text{ (dec)}$$

MM; maximum mag.

[EX. mag.1; MM=1 -> X₁X₀=00

mag.2; MM=2 -> X₁X₀=80

mag.10; MM=10 -> X₁X₀=E7 max.]

- j) Switch the instant digi. zoom ON/OFF

:RFF0F00

:WFF0FX₁X₀

bit 7 of X₁X₀ : 0-OFF 1-ON

- k) Set the instant mag. tuning value in instant digi. zoom ON mode

:WFDE6X₁X₀

X₁X₀ (hex) = IM * 10(dec)

IM; instant mag.

(more than 1.0 and 0.1 step)

[EX. mag.1; IM=1.0 -> X₁X₀=0A

mag.2; IM=2.0 -> X₁X₀=14 ; max.]

- l) Switch the auto / manual shutter speed

Please attached Program AE command sheet.

- m) Set the shutter speed tuning value in manual shutter mode

Please attached Program AE command sheet

- n) Switch the auto / manual exposure

Please attached Program AE command sheet.

- o) Set the brighter exposure tuning value in manual exposure mode

Please attached Program AE command sheet.

- p) Set the darker exposure tuning value in manual exposure mode

Please attached Program AE command sheet.

- q) Switch the auto gain control (AGC) ON/OFF

Please attached Program AE command sheet.

- r) Set the fixed AGC level tuning value in AGC OFF mode

Please attached Program AE command sheet.

- s) Switch the auto / manual white balance

:RFBFF00
 :WFBFFX₁X₀
 bit 3 of X₁X₀ : 0-Auto 1-Manual

- t) Set the white balance (R gain) tuning value in manual white balance mode

:wFBBCX₃X₂X₁X₀
 X₃X₂X₁X₀ : tuning value
 (min. H'0080, max. H'03FF)
 data range: H'0080 - H'00FF
 H'0180 - H'01FF
 H'0280 - H'02FF
 H'0380 - H'03FF

- u) Set the white balance (B gain) tuning value in manual white balance mode

:wFBBCX₃X₂X₁X₀
 X₃X₂X₁X₀ : tuning value
 (min. H'0080, max. H'03FF)
 data range: H'0080 - H'00FF
 H'0180 - H'01FF
 H'0280 - H'02FF
 H'0380 - H'03FF

- v) Switch the Reverse ON/OFF

:RFF3000
 :WFF30X₁X₀
 X₁X₀=00 ; OFF X₁X₀=01 ; ON

- w) Switch the instant fade(black) ON/OFF

:RFF3200
 :WFF32X₁X₀
 X₁X₀=00 ; OFF X₁X₀=01 ; ON

- x) Switch the Memory Freeze ON/OFF

:RFF3300
 :WFF30X₁X₀
 X₁X₀=00 ; OFF X₁X₀=01 ; ON

[note] Freeze ON is PAE(non-DSS) mode only.
 In case of DSS ON, Freeze will be changed to Freeze OFF.

5. Others

[Note] * mark : It is available after power reset.
Default value in EEPROM area are subject to change without notice.

a) Get the camera type

[EEPROM area]

:RE1EDX₁X₀:RE1EEX₁X₀

	Type data (X ₁ X ₀ =)					
MODEL	VK-S454	VK-S454E				
TYPE	Hi-BAND	Hi-BAND				
FORMAT	NTSC	PAL				
EEPROM area "E1ED"	B1	B1				
EEPROM area "E1EE"	0X₀	1X₀				

b) Set the minimum focus length tuning value in zoom-wide

[EEPROM area]*

:WE139X₁X₀(X₁X₀=00 ; 1cm (approx.) ; defaultX₁X₀=F9 ; 10cm (approx.)X₁X₀=F8 ; 30cm (approx.)X₁X₀=F7 ; 1m (approx.) ; max.)

c) Set the auto iris control level tuning value in auto exposure mode

i) Iris offset (average) level (**WDR OFF**)

[RAM area]

:WFD9EX₁X₀ (X₁X₀=00 - FF ; 256 step)

[EEPROM area]*

:WE09EX₁X₀ (X₁X₀=00 - FF ; 256 step)

	default value (X ₁ X ₀ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area "E09E"	60					

ii) Iris offset (average) level (WDR ON)

[RAM area]

:WFD90X₁X₀ (X₁X₀=00 - FF ; 256 step)

[EEPROM area]*

:W13CEX₁X₀ (X₁X₀=00 - FF ; 256 step)

	default value (X ₁ X ₀ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area "13CE"	70					

iii) Iris offset (peak) level (WDR OFF)

[RAM area]

:WFD9FX₁X₀ (X₁X₀=00 - 7F ; 128 step)

[EEPROM area]*

:WE09FX₁X₀ (X₁X₀=00 - 7F ; 128 step)

	default value (X ₁ X ₀ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area "E09F"	10					

iv) Iris offset (peak) level (WDR ON)

[EEPROM area]*

:W13CFX₁X₀ (X₁X₀=00 - 7F ; 128 step)

	default value (X ₁ X ₀ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area "13CE"	10					

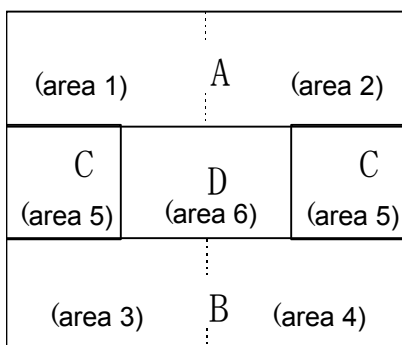
d) Get the luminance data for the 6 screen areas

[RAM area]

area 1 :RFAE0000000 ; data length 3Byte
 area 2 :RFAE3000000 ; data length 3Byte
 area 3 :RFAE6000000 ; data length 3Byte
 area 4 :RFAE9000000 ; data length 3Byte
 area 5 :RFAEC000000 ; data length 3Byte
 area 6 :RFAEF000000 ; data length 3Byte

[Note] This is the average data per one field.

< screen areas >



< weighting areas >

A= area 1 + area 2

B= area 3 + area 4

C= area 5

D= area 6

< default weighting-ratio >

A:B:C:D = (K_a+1): (K_b+1): (K_c+1): (K_d+1)

= (4+1): (6+1): (9+1): (F+1)

= (5): (7): (10): (16) ←

e) Set the luminance weighting data tuning value

[RAM area]

:wFDA0X₃X₂X₁X₀

(X₃=X₂=X₁=X₀=0 - F ; 16 step)

(X₃: K_a , X₂: K_b , X₁: K_c , X₀: K_d)

[EEPROM area]*

:wE0A0X₃X₂X₁X₀

(X₃=X₂=X₁=X₀=0 - F ; 16 step)

(X₃: K_a , X₂: K_b , X₁: K_c , X₀: K_d)

[X₃X₂X₁X₀=469F ; default]

- f) Switch the back light compensation (BLC) ON/OFF (WDR OFF ONLY)

[RAM area]

:RFECE0

:WFECEX₁X₀X₁X₀=00 ; OFFX₁X₀=02 ; ON

[note] BLC ON is WDR ON mode only.

- g) Set the BLC level tuning value in BLC ON mode (WDR OFF ONLY)

[RAM area]

:WFD8EX₁X₀(X₁X₀=00 - FF ; 256 step)

[EEPROM area]*

:WE08EX₁X₀(X₁X₀=00 - FF ; 256 step)

	default value (X ₁ X ₀ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area "E08E"	10					

[note] BLC ON is WDR ON mode only.

- h) Set the burst ON/OFF

[EEPROM area]*

:WE198X₁X₀(X₁X₀=00 - FF ; 256 step):WE199X₁X₀(X₁X₀=00 - FF ; 256 step):WE19AX₁X₀(X₁X₀=00 - FF ; 256 step):WE19BX₁X₀(X₁X₀=00 - FF ; 256 step)

	default value (X ₁ X ₀ =)				
MODEL	VK-S454	VK-S454E			
FORMAT	Hi-BAND	Hi-BAND			NTSC / PAL
MODE	NTSC	PAL			
EEPROM area	burst ON				OFF
"E198"	50				00
"E199"	80				00
"E19A"	00				00
"E19B"	00				00

- i) Set the chroma suppression level tuning value in AGC range

[RAM area]

AGC gain		- AGC ON	:WFC10X ₄ Y ₄
AGC gain	AGC ON	- 1/3 maximum AGC level	:WFC11X ₃ Y ₃
AGC gain	1/3 maximum AGC level	- 2/3 maximum AGC level	:WFC12X ₂ Y ₂
AGC gain	2/3 maximum AGC level	- maximum AGC level	:WFC13X ₁ Y ₁
AGC gain	Maximum AGC level	-	:WFC14X ₀ Y ₀

(X₇X₇=00 - FF ; 256 step)

darker (H'00) < center (H'7F) < brighter (H'FF)

[Note] maximum AGC level setting at [page 19](#) - item m)
chroma suppression level tuning values at Fig. 1

[EEPROM area]*

AGC gain		- AGC ON	:W1360X ₄ Y ₄
AGC gain	AGC ON	- 1/3 maximum AGC level	:W1361X ₃ Y ₃
AGC gain	1/3 maximum AGC level	- 2/3 maximum AGC level	:W1362X ₂ Y ₂
AGC gain	2/3 maximum AGC level	- Maximum AGC level	:W1363X ₁ Y ₁
AGC gain	maximum AGC level	-	:W1364X ₀ Y ₀

(X₇X₇=00 - FF ; 256 step)

darker (H'00) < center (H'7F) < brighter (H'FF)

[Note] maximum AGC level setting at [page 19](#) - item m)
chroma suppression level tuning values at Fig. 1

	default value (X ₇ X ₇ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area						
"1360"	7F					
"1361"	8C					
"1362"	7C					
"1363"	6E					
"1364"	32					

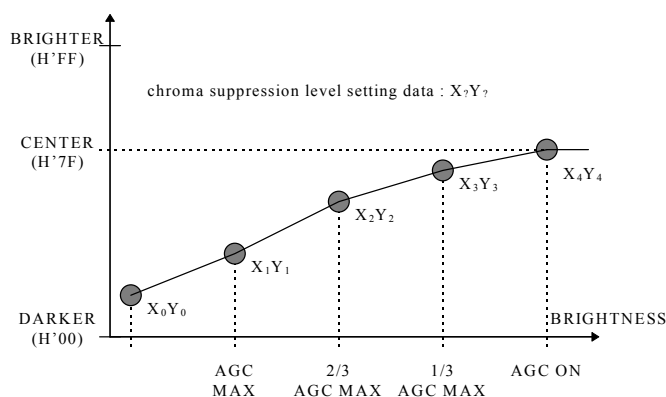


Fig. 1 Chroma suppression level

j) Select the manual aperture mode

[RAM area]

:RFBFF00

:WFBFFX₁X₀

X₁X₀ : Set bit 1 of echo back data to "1".

[bit 1 of X₁X₀ : 0-Auto 1-Manual]

k) Set the horizontal aperture level tuning value

:WFBF6X₁X₀ (X₁X₀=00 - 3F ; 64 step)

[EEPROM area]*

AGC gain - AGC ON :W136AX₄Y₄

AGC gain AGC ON - 1/3 maximum AGC level :W136BX₃Y₃

AGC gain 1/3 maximum AGC level - 2/3 maximum AGC level :W136CX₂Y₂

AGC gain 2/3 maximum AGC level - Maximum AGC level :W136DX₁Y₁

AGC gain Maximum AGC level - :W136EX₀Y₀

(X₇X₇=00 - 3F ; 64 step)

[Note] maximum AGC level setting at [page 19](#) - item m)
horizontal aperture level tuning values at Fig. 2

	default value (X ₇ X ₇ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area						
"136A"	32					
"136B"	2A					
"136C"	14					
"136D"	08					
"136E"	06					

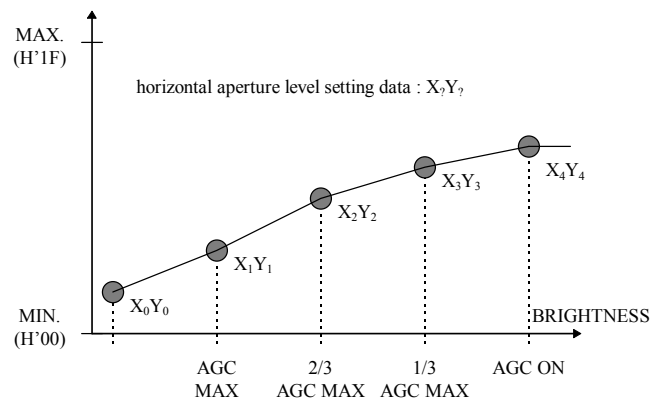


Fig. 2 horizontal aperture level

l) Set the vertical aperture level tuning value

:WBF9X₁X₀ (X₁X₀=00 - 3F ; 64 step)

[EEPROM area]*

AGC gain		- AGC ON	:W1374X ₄ Y ₄
AGC gain	AGC ON	- 1/3 maximum AGC level	:W1375X ₃ Y ₃
AGC gain	1/3 maximum AGC level	- 2/3 maximum AGC level	:W1376Y ₂ Y ₂
AGC gain	2/3 maximum AGC level	- Maximum AGC level	:W1377X ₁ Y ₁
AGC gain	maximum AGC level	-	:W1378X ₀ Y ₀

(X₇X₇=00 - 3F ; 64 step)

[Note] maximum AGC level setting at **page 19** - item m)
vertical aperture level tuning values at Fig. 3

	default value (X ₇ X ₇ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area						
"1374"	28					
"1375"	20					
"1376"	12					
"1377"	08					
"1378"	06					

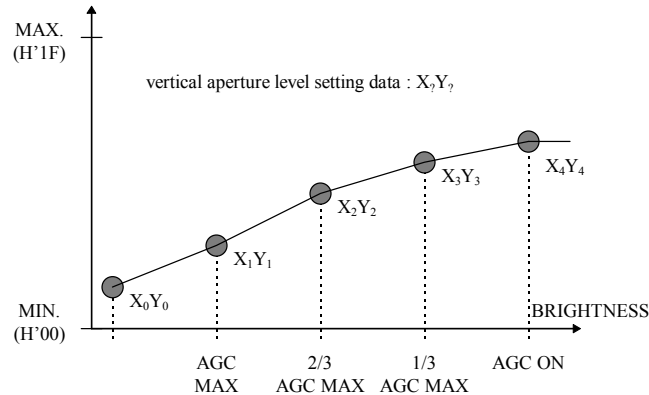


Fig. 3 vertical aperture level

- m) Set the maximum AGC gain tuning value in AGC ON mode

[RAM area]

:wFD46X₃X₂X₁X₀

:WFA20Y₁Y₀

(X₃X₂X₁X₀=0000 - 0500 ; 0.03125dB/step)

[Note] condition between X₃X₂X₁X₀ and Y₁Y₀

$$Y_1Y_0 = X_3X_2X_1X_0 / 8$$

[X₃X₂X₁X₀=0000, Y₁Y₀=00 ; 0dB ,

X₃X₂X₁X₀=0500, Y₁Y₀=A0; 40dB]

[EEPROM area]*

:wE046X₃X₂X₁X₀

:W116CY₁Y₀

(X₃X₂X₁X₀=0000 - 0500 ; 0.03125dB/step)

[Note] condition between X₃X₂X₁X₀ and Y₁Y₀

$$Y_1Y_0 = X_3X_2X_1X_0 / 8$$

[X₃X₂X₁X₀=0000, Y₁Y₀=00 ; 0dB ,

X₃X₂X₁X₀=0500, Y₁Y₀=A0; 40dB]

	default value (X ₃ X ₂ X ₁ X ₀ =)					
MODEL	VK-S454	VK-S454E				
FORMAT	Hi-BAND	Hi-BAND				
MODE	NTSC	PAL				
EEPROM area						
"E046"	0380					
"116C"	70					
maximum AGC Gain	28 dB					

- n) Change Communication Baudrate

[EEPROM area]*

:WE05EX₁X₀

(X₁X₀=80 or 00

; 4800 bps , even Parity ; default

X₁X₀=B0 ; 9600 bps , even Parity

X₁X₀=C0 ; 4800 bps , non Parity

X₁X₀=F0 ; 9600 bps , non Parity)

- o) Set RAM initialize

[RAM area]

:WFCAC00

~~p) Switch the HORIZONTAL MODE~~

~~[NOTHING]~~

~~q) Change the MODE (NTSC or PAL)~~

~~[NOTHING]~~

r) Switch the Tunnel Effect Compensation ON / OFF

[EEPROM area]*

:W11E3X₁X₀

Bit 7 of X₁X₀ ; 0 - OFF

1 - ON [default]

6. Other useful commands

a) PRESET MODE

(MF, No-Trace, Zoom Speed ; 1.6sec)

- Preset mode - Flow chart

See an annexed document "<TYPE-1> TRACE PRESET"

<TYPE-1> TRACE PRESET : S454_pp1.doc

b) ZOOM TRACE PRESET MODE

(MF, Trace, Zoom Speed ; 2.9sec)

- Zoom trace preset mode - Flow chart

See an annexed document "<TYPE-2> TRACE PRESET"

<TYPE-2> TRACE PRESET : S454_zt1.doc

c) PRIVACY MASK

- PRIVACY MASK SPECIFICATION

See an annexed document "PRIVACY MASK"

PRIVACY MASK S454_Pmask.doc

PART TWO

- PROGRAM AE CONTROL COMMAND
- IR REMOVE CONTROL COMMAND
- WIDE DYNAMIC RANGE COMMAND

1. Program AE mode

The following Control Commands are Program AE added to VK-S454.

• Program AE control	Program AE	[WDR ON/OFF]
	Program AER 1 [IR Remove - 1]	[WDR ON/OFF]
	Program AER 2 [IR Remove - 2]	[WDR ON/OFF]
	Program AE+ (DSS)	[WDR ON/OFF]
	Program AER+1 (DSS) [IR Remove - 1]	[WDR ON/OFF]
	Program AER+2* (DSS) [IR Remove - 2]	[WDR ON/OFF]
	Program AER+3 (DSS) [IR Remove - 3]	[WDR ON/OFF]
	Shutter priority	
	Exposure priority	
	AGC priority	

[Note] * mark is default mode.

———— VK-S454 Program AE control ————

2. Program AE mode
- a) Function of program AE mode
[Please attached Table 1.]

Table. 1 Program AE mode table

Program AE mode / function	DSS	IR Remove	WDR
Program AE	X	O [Manual]	O [on/off]
Program AER1 [IR Remove – 1]	X	O [auto] : Hi sensitivity	O [on/off]
Program AER2 [IR Remove – 2]	X	O [auto] : Mid sensitivity	O [on/off]
Program AE+ (DSS)	O [auto]	O [Manual]	O [on/off]
Program AER+1 (DSS) [IR Remove – 1]	O [auto]	O [auto] : Hi sensitivity	O [on/off]
Program AER+2 (DSS) [IR Remove – 2]	O [auto]	O [auto] : Mid sensitivity	O [on/off]
Program AER+3 (DSS) [IR Remove – 3]	O [auto]	O [auto] : Lo sensitivity	O [on/off]
Shutter priority	O [Manual]	O [Manual]	X
Exposure priority	X	O [Manual]	X
AGC priority	X	O [Manual]	X

- b) Mode switch

:RFCC800

:WFCC8X₁X₀

[Please attached Table 2.]

Table. 2 Program AE mode data

Program AE mode	X ₁ X ₀
Program AE	00
Program AER [IR Remove – 1]	10
Program AER [IR Remove – 2]	20
Program AE+ (DSS)	01
Program AER+ (DSS) [IR Remove – 1]	11
Program AER+ (DSS) [IR Remove – 2]	21
Program AER+ (DSS) [IR Remove – 3]	31
Shutter priority	07
Exposure priority	08
AGC priority	09

3. Digital Slow Shutter

a) digital slow shutter status

:RFCC700

Echo back data is digital slow shutter status.

[Please attached Table 3.]

Table. 3 Digital slow shutter table

X ₁ X ₀ (echo back data)	Shutter Speed (s)	
	NTSC	PAL
01	- 1/60	- 1/50
02	1/60 - 1/30	1/50 - 1/25
04	1/30 - 1/15	1/25 - 1/12
08	1/15 - 1/ 8	1/12 - 1/ 6
10 [default]	1/ 8 - 1/ 4	1/ 6 - 1/ 3
20	1/ 4 - 1/ 2	1/ 3 - 1/ 1.5

b) Auto digital slow shutter limit

:R11E500

:W11E5X₁X₀

[Please attached Table 4.]

Table. 4 Digital slow shutter limit table

X ₁ X ₀ (echo back data)	Shutter Speed (s)	
	NTSC	PAL
01	1/60	1/50
02	1/30	1/25
04	1/15	1/12
08	1/ 8	1/ 6
10 [default]	1/ 4	1/ 3
20	1/ 2	1/ 1.5

4. IR Remove

a) ir remove status

:RFFE700

Echo back data is ir remove status.

[Please attached Table. 5.]

Table. 5 IR remove status table

X_1X_0 (echo back data)	
00	IR cut filter OFF
01	IR cut filter ON

b) Switch the IR ON / OFF manual control

:RFFE600

:WFFE6 X_1X_0

[Please attached Table. 6.]

Table. 6 IR remove status table

X_1X_0 (echo back data)	
C0	IR cut filter OFF=>ON
80	IR cut filter ON =>OFF

[Note] This mode is Program AE and Program AE+ and priority (shutter/exposure/agc) mode only.

c) Select the color (IR OFF only)

:R11E300

:W11E3 X_1X_0

bit 1 of X_1X_0 : 0-B/W [default]
1-COLOR

5. Shutter priority
a) Mode switch

:RFCC800
:WFCC8X₁X₀
X₁X₀=07

- b) Set the shutter speed tuning value

:RFCC900
:WFCC9X₁X₀
X₁X₀ ; tuning value
[Please refer to the attached Table.7.]

Table. 7 Shutter speed data table in shutter priority mode

X ₁ X ₀ (setting data)	Shutter Speed (s)	
	NTSC	PAL
00	1/2	1/1.5
01	1/4	1/3
02	1/8	1/6
03	1/15	1/12
04	1/30	1/25
05	1/60	1/50
06	1/120	1/100
07	1/180	1/150
08	1/250	1/250
09	1/500	1/500
0A	1/1000	1/1000
0B	1/2000	1/2000
0C	1/4000	1/4000
0D	1/10000	1/10000
0E	1/30000	1/30000

6. Exposure priority

a) Mode switch

:RFCC800
:WFCC8X₁X₀
X₁X₀=08

b) Set the exposure tuning value

:RFCC900
:WFCC9X₁X₀
X₁X₀ ; tuning value
[Please refer to the attached Table.8.]

Table. 8 Exposure data table
in exposure priority mode

F-value	X ₁ X ₀ (setting data)
F1.6	00
F2.2	01
F3.2	02
F4.4	03
F6.4	04
F8.8	05
F12	06
F17	07
F24	08
F34	09

7. AGC priority

a) Mode switch

:RFCC800
:WFCC8X₁X₀
X₁X₀=09

b) Set the AGC tuning value

:RFCC900
:WFCC9X₁X₀
X₁X₀ ; tuning value
[Please refer to the attached Table.9.]

Table. 9 AGC data table in AGC priority mode

AGC gain	X ₁ X ₀ (setting data)
0 [dB]	00
6 [dB]	01
12 [dB]	02
18 [dB]	03
24 [dB]	04
30 [dB]	05

8. WIDE DYNAMIC RANGE

a) Mode switch

:RFF3200
:WFF32X₁X₀
X₁X₀=00 ; OFF [default]
X₁X₀=01 ; ON

b) Switch the WDR Manual mode ON / OFF

:RFF3400
:WFF34X₁X₀
X₁X₀=00 ; auto [default]
X₁X₀=01 ; manual

c) Ratio level at WDR Manual mode

:RFF3500
:WFF34X₁X₀
(X₁X₀=00 - 80 ; 128 step)

d) Hi-Speed shutter speed at WDR Manual mode

:rFF360000
:wFF36X₃X₂X₁X₀
(X₃X₂X₁X₀=0000 - 0544 ; 1349 step)

e) Iris level offset data at WDR Manual mode

:rFF380000
:wFF38X₃X₂X₁X₀
(X₃X₂X₁X₀=0000 - 0400 ; 1025 step)

PART THREE

- PRIVACY MASK

1. Privacy Mask

[Please attached Fig. 1]

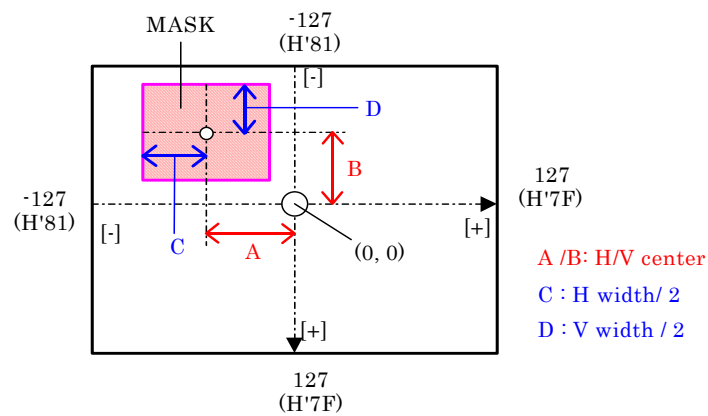


Fig. 1 VK-S454 Privacy Mask

a) Switch the Privacy Mask ON/OFF

```
:RF9000
:WF900X1X0
  X1X0=00 ; OFF
  X1X0=01 ; ON [default]
```

b) Privacy Mask shade setting

```
:RF90100
:WF901X1X0
  ( X1X0=00 - 0F ; 16 step )
    H'00 ; Black
    H'08 ; Gray [default]
    H'0F ; White
```

c) Privacy Mask position setting

i) Mask1

```
[ New data set ] :WF90EX1X0
                  H'01 ; New data set
After the data was set, It will be returned to H'00.
                  H'00 ; Mask data modify
[ H center ]     :WF904X1X0
                  ( X1X0=81 (nega) - 00 (center) - 7F (plus) )
[ V center ]     :WF905X1X0
                  ( X1X0=81 (nega) - 00 (center) - 7F (plus) )
[ H size ]       :WF906X1X0
                  ( X1X0=00 - 7F ; 128 step )
[ V size ]       :WF907X1X0
                  ( X1X0=00 - 7F ; 128 step )
```

ii) Mask2

```
[ New data set ] :WF90FX1X0
                  H'01 ; New data set
After the data was set, It will be returned to H'00.
                  H'00 ; Mask data modify
[ H center ]     :WF908X1X0
                  ( X1X0=81 (nega) - 00 (center) - 7F (plus) )
[ V center ]     :WF909X1X0
                  ( X1X0=81 (nega) - 00 (center) - 7F (plus) )
[ H size ]       :WF90AX1X0
                  ( X1X0=00 - 7F ; 128 step )
[ V size ]       :WF90BX1X0
                  ( X1X0=00 - 7F ; 128 step )
```

d) Read the setting degree data of MASK1 / MASK2

```

:rF9140000
; Mask 1 H degree data
( data range ; H'00000 - H'1680 )
:rF9160000
; Mask 1 H degree data
( data range ; H'00000 - H'1680 )
:rF9180000
; Mask 2 H degree data
( data range ; H'00000 - H'1680 )
:rF91A0000
; Mask 2 H degree data
( data range ; H'00000 - H'1680 )

```

2. Degree data (Pan / Tilt)

a) Set the degree data

```

/MX2X1X0Y2Y1Y0 [special command]
X2X1X0 ; PAN degree
Y2Y1Y0 ; TILT degree
( X2X1X0 / Y2Y1Y0 000 - B40 ; 0.125 degree/step )

```

3. Demo mode

a) Moving of mask

```

:RFF9200
:WF92X1X0
X1X0=00 ; STOP [default]
X1X0=31 ; Mask UP
X1X0=32 ; Mask DOWN
X1X0=34 ; Mask LEFT
X1X0=35 ; Mask UP + LEFT
X1X0=36 ; Mask DOWN + LEFT
X1X0=38 ; Mask RIGHT
X1X0=39 ; Mask UP + RIGHT
X1X0=3A ; Mask DOWN + RIGHT

```

PART
FOUR

- CONTROL COMMAND TIMING

1. Timing table program AE command
(Fig. 1)

[Nete]

AE_MODE command address is 0xFCC8

[A] : Send to AE_MODE change command

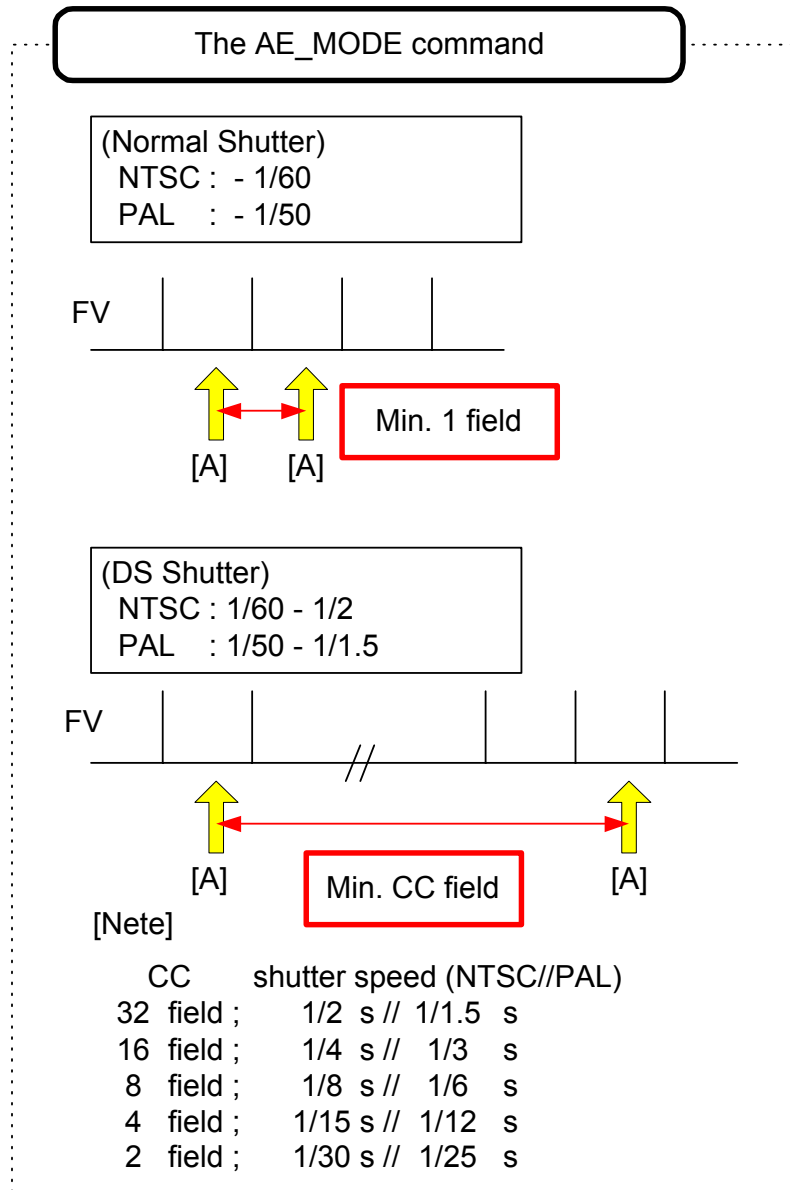


Fig. 1 Changed to AE_MODE timing

2. Timing table after ZOOM commands (DSS mode only)
(Fig. 2)

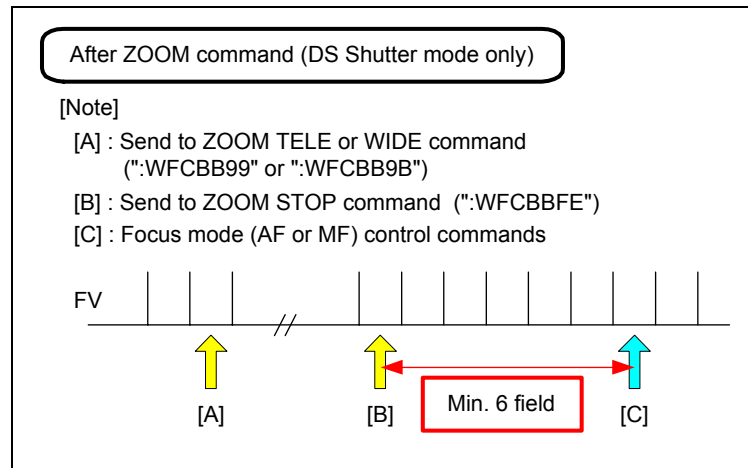


Fig. 2 After ZOOM commands timing

3. Timing table other commands
(Fig. 3)

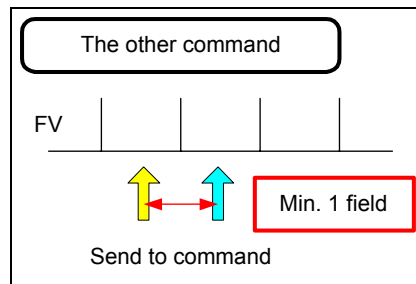


Fig. 3 Changed to other command timing

PART
FIVE

- FOCUS MODE IN DSS

1. Focus mode in DSS
(Table 1)

Table 1

shutter speed		zoom	focus mode
NTSC/EIA	PAL/CCIR		
1/60 - 1/8	1/50 - 1/6	no	AF or MF
1/8 - 1/2	1/6 - 1/1.5	no	MF
1/60 - 1/2	1/50 - 1/1.5	yes[*1]	MF

[*1] The following fig.1 is zoom mode in DSS.

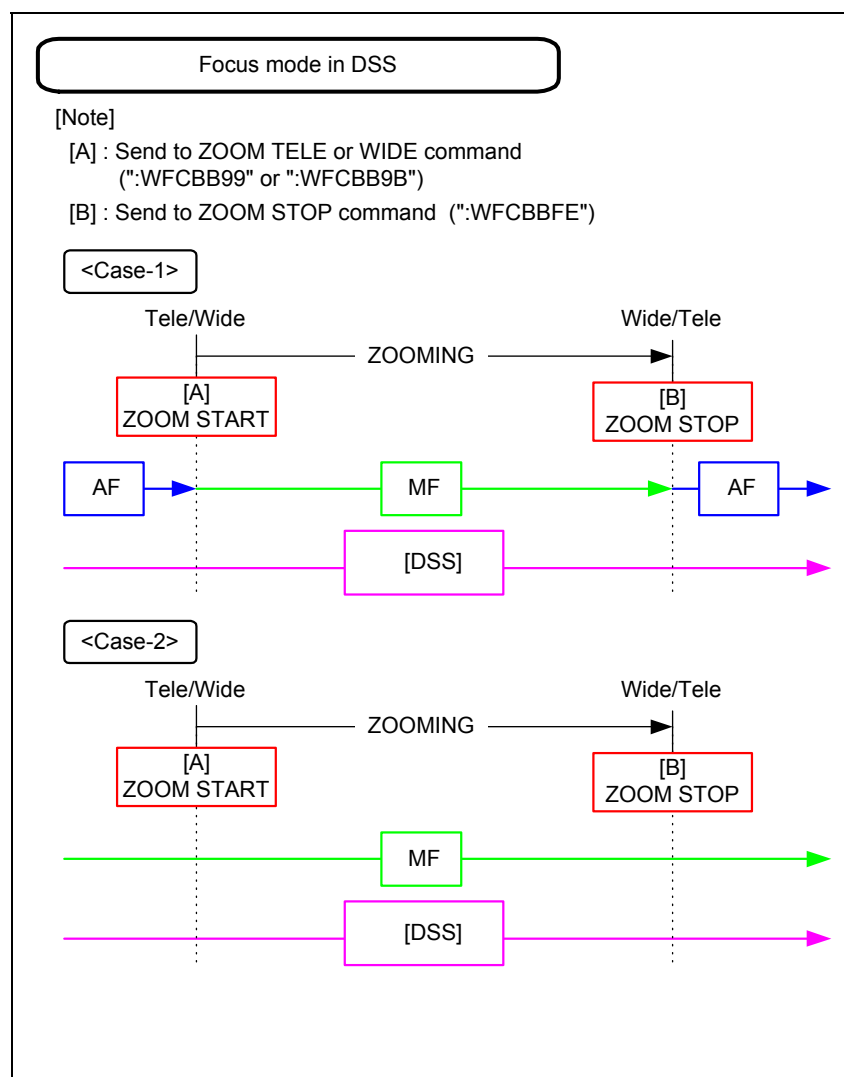


Fig. 1 Zoom mode in DSS

• APPENDIX

[REV. 1.0]

2000/12/11 * New Version (VK-S454)

[REV. 1.1]

2000/12/25 * Pre-Pro Sample Version

page - 11 : 4.x) **<addition comment>**
Switch the Memory Freeze ON/OFF

page - 16 : 5.i) **<data mistake>**
Set the chroma suppression level tuning value in AGC range

page - 18 : 5.l) **<data mistake>**
Set the vertical aperture level tuning value

page - 20 : 6.c:d) **<delete>**

page - 20 : 6.c) **<addition>**
Privacy mask specifications

page - 30 : 1.b) **<address mistake>**
Privacy Mask shade setting