54G5、54G10 Camera Serial Communication Interface Specification

1. BRIEF

The specification of interface, by RS-232 to control 54G5 & 54G10.
By this interface of communication to control zoom, focus, lens iris, slow scan, back light compensation, white balance etc.
The adjustment can be executed from the controller. Below is the detail.

2. SERIAL COMMUNICATION I/F
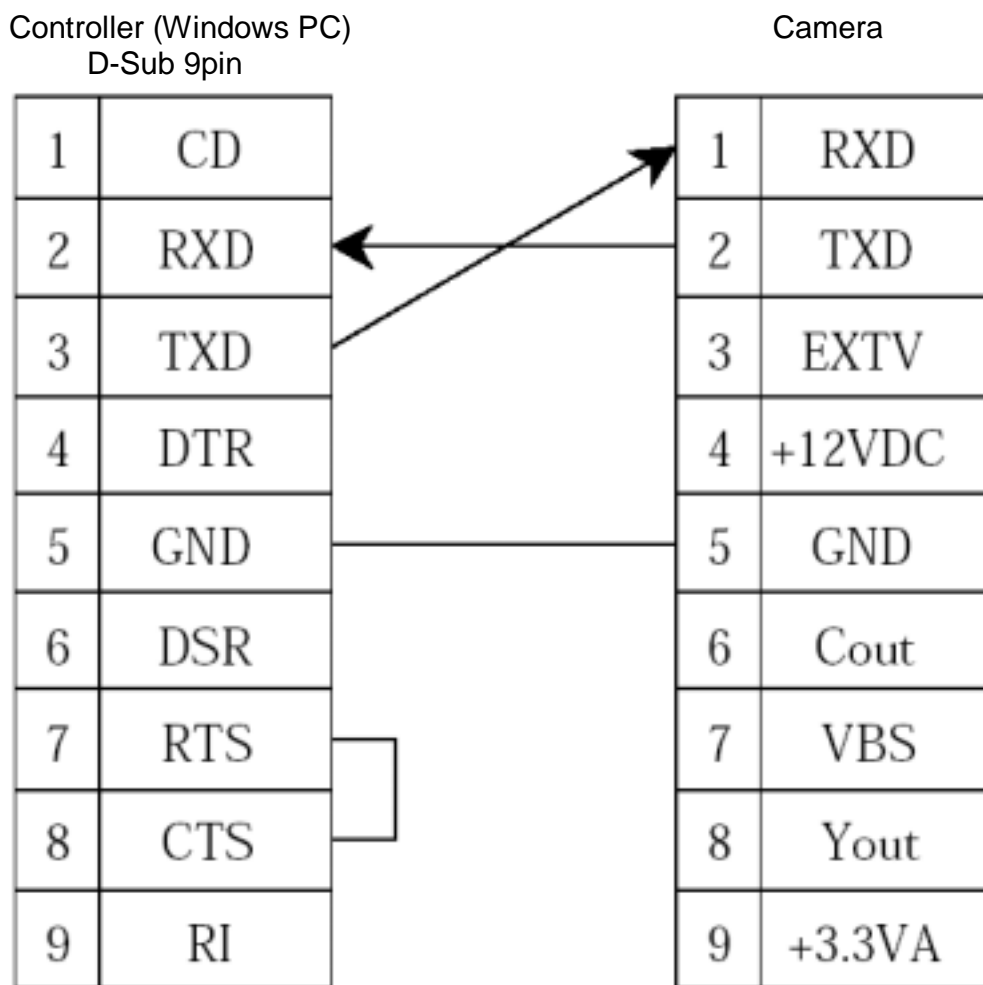
2.1 The connection of controller & camera

Controller (Windows PC)   Camera
D-Sub 9pin

	Controller			Camera
1	CD		1	RXD
2	RXD		2	TXD
3	TXD		3	EXTV
4	DTR		4	+12VDC
5	GND		5	GND
6	DSR		6	Cout
7	RTS		7	VBS
8	CTS		8	Yout
9	RI		9	+3.3VA

Fig-1 Connection of Controller & Camera

The connection between Controller and Camera, please refer to Fig_1。

2.2 Communication sequence

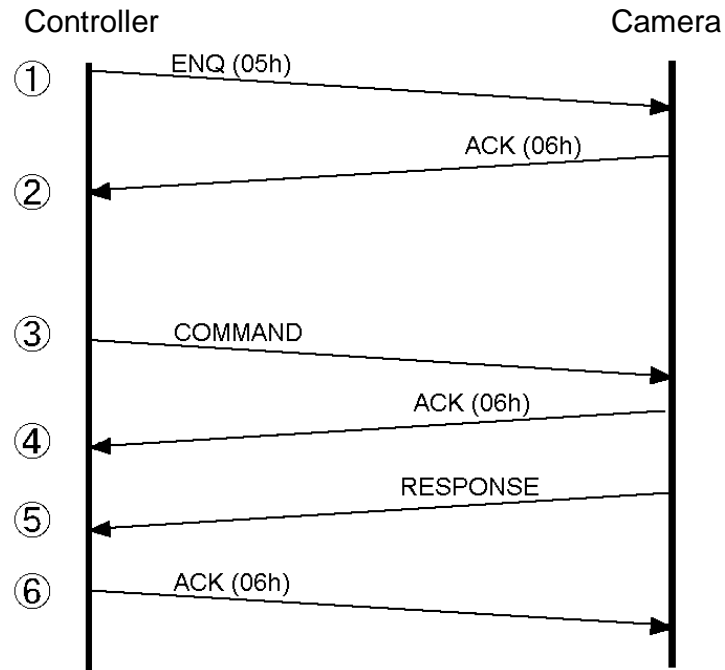Controller   Camera

① ENQ (05h)

② ACK (06h)

③ COMMAND

④ ACK (06h)

⑤ RESPONSE

⑥ ACK (06h)

Fig-2 Communication sequence

The communication flow, please refer to Fig-2.
Make sure the connection,①Controller send out of
"ENQ", after ②receive "ACK" from Camera.
(Confirm the connection can be omitted)

From controller to ③send "COMMAND" signal into
camera, when camera received "command signal"
then ④return "ACK" back, after that the camera will
proceed the "command" then ⑤send "RESPONSE"
signal back to controller, after the controller received
the signal then it will ⑥sends "ACK" signal to the
camera.
Repeat following③~⑥to communicate

TABLE-1 Serial communication parameter

TABLE -1
Serial communication parameter

Baud rate	9600BPS
Data length	8Bit
Parity	NO
Stop bit	1Bit
Flow control	NO
Synchrony	Internal

＊RS-485 Correspond
For corresponding 1 controller to multiple (1:N) cameras, ID is added.
Transmitted commend from controller, only to process same ID cameras. When the commended
camera and after commend processing then transmit response data.
At the occasion of setting ID to 00h from controller and transmitted commend, all of the cameras will
process the commend. (When ID at 00h, response data can not be transmitted.)
At the occasion of 1 to N, do not transmit (ENQ, ACK from controller)
(Refer to Fig-2 communication flow). Camera would not transmit (ACK.

3. COMMUNICATION FORMAT
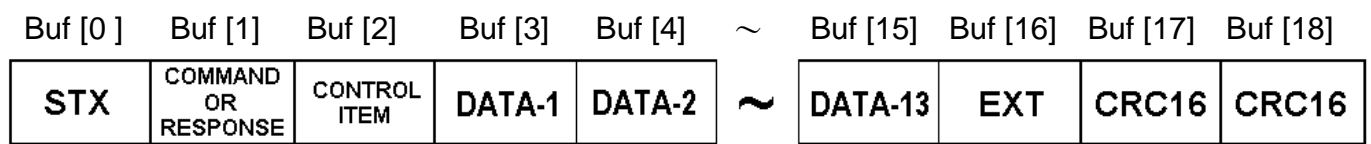
(1)ENQ   Data length   1byte

05h

(2)ACK:OK   Data length   1byte

06h

(3)NAK:ERROR   Data length   1byte

15h

(4) COMMAND & RESPONSE   Data length   19byte

Buf [0]	Buf [1]	Buf [2]	Buf [3]	Buf [4]	∼	Buf [15]	Buf [16]	Buf [17]	Buf [18]
STX	COMMAND OR RESPONSE	CONTROL ITEM	DATA-1	DATA-2	∼	DATA-13	EXT	CRC16	CRC16

19 byte commend line, response line
· Buf [0] = 0x02 (STX: Start code)
At the occasion of commend line
· Buf [1] = 0x21 (Write commend)
           0x31 (Read commend)
At the occasion of response line
· Buf [1] = 0xA0 (OK response),
           0xA2 (Buf [1] invalid response),
           0xA3 (Buf [2]. Buf [15] invalid response),
           0xA4 (setting to preserve an error response),
           0xA5 the other response
· Buf [2] = 0x00. 0xFF (Control item)
· Buf [3]~Buf [15] = 0x00. 0xFF (According to Buf [2] comes to difference)
 (Buf [2]~Buf [15] valid figure will be mentioned later)
· Buf [16] = 0x03 (ETX: Ending code)
· Buf[17]=Buf[1]~Buf[16] CRC code (calculation $X^{16} + X^{15} + X^2 + 1$)HIGH BYTE
· Buf[18]=Buf[1]~Buf[16] CRC code (calculation $X^{16} + X^{15} + X^2 + 1$)LOW BYTE

At the occasion of 1 to N communication, Buf [15] The ID to identify camera
· Buf [15] = 0x00 (All camera, non response)
           0xFF (All camera, response effect.)
           0x01 ~ 0xEF (ID for identifying camera)
           0xF0 ~ 0xFE (No access)

4. COMMAND TYPES

Regarding 54G1camera & exchanging possibility of commend.
Regarding 54G2AB camera & exchanging possibility of commend. Refer to 6. Adding commend (1).
Regarding 54G5 & 54G10 camera adding command . Refer to 7. Adding commend (2).
Regarding "Total Read" commend, please refer to 8. TOTAL READ commend.

4.1 Write Command

Regarding the write command (Buf[1]=0x21) setting as below.

(1)IRIS item,"Peak ON/OFF" setting
   Peak set to ON,BLC will be automatic set to OFF。
‧Buf[2]=0x48
‧Buf[3]=0x00(Peak setting)
‧Buf[4]=0x00(ON/OFF setting)
‧Buf[5]=0x00(OFF),0x01(ON)
‧Buf[6]~Buf[15]= non-use

(2)IRIS item,"Peak ON level" setting (Settable at "Peak ON" condition)
‧Buf[2]=0x48
‧Buf[3]=0x00(Peak setting)
‧Buf[4]=0x01(level setting)
‧Buf[5]=0x00~0x08(level),(0x00 min,0x08 max)
‧Buf[6]~Buf[15]= non-use

(3)IRIS item,"ALC AUTO/FIX" setting
   ALC set to AUTO,AES will be automatic set to FIX.
‧Buf[2]=0x48
‧Buf[3]=0x01(ALC setting)
‧Buf[4]=0x00(AUTO/FIX setting)
‧Buf[5]=0x00(AUTO),0x01(FIX)
‧Buf[6]~Buf[15]= non-use

(4)IRIS item,"ALC AUTO level" setting (settable at "ALC AUTO" condition)
‧Buf[2]=0x48
‧Buf[3]=0x01(ALC setting)
‧Buf[4]=0x01(level setting)
‧Buf[5]=0x00(AUTO level)
‧Buf[6]=0x00~0x08(level),(0x00 min,0x08 max)
‧Buf[7]~Buf[15]= non-use

(5)IRIS item,"ALC FIX level" setting (settable at "ALC FIX" condition)
·Buf[2]=0x48
·Buf[3]=0x01(ALC setting)
·Buf[4]=0x01(level setting)
·Buf[5]=0x01(FIX level)
·Buf[6]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[7]~Buf[15]= non-use

(6)IRIS item, AES AUTO/FIX setting
　When AES set to AUTO,ALC will be automatic set to FIX。
·Buf[2]=0x48
·Buf[3]=0x02(AES setting)
·Buf[4]=0x00(AUTO/FIX setting)
·Buf[5]=0x00(AUTO),0x01(FIX)
·Buf[6]~Buf[15]= non-use

(7)IRIS item,"AES AUTO level" setting (settable at "AES AUTO" condition)
·Buf[2]=0x48
·Buf[3]=0x02(AES setting)
·Buf[4]=0x01(level setting)
·Buf[5]=0x00(AUTO level)
·Buf[6]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[7]~Buf[15]= non-use

(8)IRIS item,"AES FIX Selection" setting (settable at "AES FIX" condition)
·Buf[2]=0x48
·Buf[3]=0x02(AES setting)
·Buf[4]=0x01(level setting)
·Buf[5]=0x01(FIX selection)
·Buf[6]=0x00~0x07(selection),
　(00-OFF,01-1/100(1/120),02-1/250,03-1/500,04-1/1000,05-1/2000,06-1/4000,07-1/10000)
·Buf[7]~Buf[15]= non-use

(9)BLC item,"ON/OFF" setting
　When BLC ON, and IRIS Peak will OFF
·Buf[2]=0x18
·Buf[3]=0x00(ON/OFF setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(10)BLC item,"Area Selection" setting (Settable at "BLC ON" condition)
·Buf[2]=0x19
·Buf[3]=0x00~0xFF(Area 1st line:left LSB, right MSB)
·Buf[4]=0x00~0xFF(Area 2nd line: left LSB, right MSB)
·Buf[5]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
·Buf[6]=0x00~0xFF(Area 4th line:left LSB, right MSB)
·Buf[7]=0x00~0xFF(Area 5th line : left LSB, right MSB)
·Buf[8]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  (Buf[3]~Buf[8] Area , selected bit=1)
·Buf[9]~Buf[15]= non-use

	LSB						MSB
Buf[3]	0	0	0	0	0	0	0
Buf[4]	0	0	0	0	0	0	0
Buf[5]	0	0	1	1	1	0	0
Buf[6]	0	0	1	1	1	0	0
Buf[7]	0	0	1	1	1	0	0
Buf[8]	0	0	0	0	0	0	0

(11)BLC item,"Sens Level" setting (Settable at "BLC ON" condition)
·Buf[2]=0x50
·Buf[3]=0x00~0x07(level),(0x00 min,0x07 max)
·Buf[4]~Buf[15]= non-use

(12)AGC·SENS item,"Freeze ON/OFF" setting
·Buf[2]=0x1A
·Buf[3]=0x03(Freeze setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(13)AGC·SENS item,"AGC Level" setting
·Buf[2]=0x1A
·Buf[3]=0x01(AGC setting)
·Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
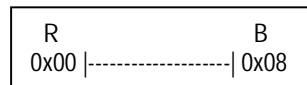·Buf[5]~Buf[15]= non-use

(14)AGC·SENS item,"Sens Level" setting
·Buf[2]=0x1A
·Buf[3]=0x02(Sens setting)
·Buf[4]=0x00~0x08(level)
·Buf[5]~Buf[15]= non-use

(15)COLOR item,"WB ATW/AWB" setting
·Buf[2]=0x1B
·Buf[3]=0x00(WB setting)
·Buf[4]=0x00(ATW),0x01(AWB)
·Buf[5]~Buf[15]= non-use

(16)COLOR item,"WB ATW Level" setting (settable, when WB at ATW mode condition)
·Buf[2]=0x1B
·Buf[3]=0x05(ATW setting)

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R                        B
0x00 |-------------------| 0x08
```
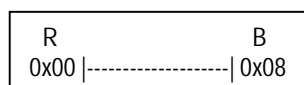
·Buf[4]=0x00~0x08(level)
·Buf[5]~Buf[15]= non-use

(17)COLOR item,"WB AWB " (settable, when WB at AWB mode condition)
·Buf[2]=0x1B
·Buf[3]=0x04(AWB action)
·Buf[4]~Buf[15]= non-use

(18)COLOR item,"WB AWB Level" setting (settable, when WB at AWB mode condition)
·Buf[2]=0x1B
·Buf[3]=0x06(AWB setting)

```
R                        B
0x00 |-------------------| 0x08
```

·Buf[4]=0x00~0x08(level)
·Buf[5]~Buf[15]= non-use

(19)COLOR item,"GAIN R-Y Level" setting
·Buf[2]=0x1B
·Buf[3]=0x02(R-Y setting)
·Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[5]~Buf[15]= non-use

(20)COLOR item,"GAIN B-Y Level" setting
·Buf[2]=0x1B
·Buf[3]=0x03(B-Y setting)
·Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[5]~Buf[15]= non-use

(21)APC item,"H·GAIN Level" setting
·Buf[2]=0x47
·Buf[3]=0x00(H·GAIN setting)
·Buf[4]=0x00~0x0C(level),(0x00 min,0x0C max)
·Buf[5]~Buf[15]= non-use

(22)APC item,"V·GAIN Level" setting
·Buf[2]=0x47
·Buf[3]=0x01(V·GAIN setting)
·Buf[4]=0x00~0x0C(level),(0x00 min,0x0C max)
·Buf[5]~Buf[15]= non-use

(23)LENS item,"ZOOM Position" setting
　　(this item settable only at "INITIAL ON" & "Freeze" OFF & ZOOM condition, and settable range,
　　Digital ZOOM ON/OFF changeable condition.)
　　Buf[6]~Buf[11] by non-setting condition to get the data from camera.
・Buf[2]=0x45
・Buf[3]=0x00 (ZOOM position setting)
・Buf[4]=0x00~0xFF(ZOOM target position HIGH BYTE)
・Buf[5]=0x00~0xFF(ZOOM target position LOW BYTE)
・Buf[6]=0x00~0xFF(ZOOM current position HIGH BYTE)
・Buf[7]=0x00~0xFF(ZOOM current position LOW BYTE)
・Buf[8]=0x00~0xFF(FOCUS settable maximum position HIGH BYTE)
・Buf[9]=0x00~0xFF(FOCUS settable maximum position LOW BYTE)
・Buf[10]=0x00~0xFF(FOCUS settable minimum position HIGH BYTE)
・Buf[11]=0x00~0xFF(FOCUS settable minimum position LOW BYTE)
・Buf[12]~Buf[15]= non-use

(24)LENS item,"FOCUS MANUAL/AUTO" setting
　　(this item settable only at "INITIAL ON" & Freeze OFF condition)
・Buf[2]=0x45
・Buf[3]=0x02(FOCUS setting)
・Buf[4]=0x00(MANUAL),0x01(AUTO)
・Buf[5]~Buf[15]= non-use

(25)LENS item,"FOCUS Position" setting
　　(this item settable only at "INITIAL ON" & Freeze OFF & FOCUS MANUAL" condition and
　　FOCUS at within settable range (ZOOM position changeable))
　　Buf[6],Buf[7] by non-setting condition to get the data from camera
・Buf[2]=0x45
・Buf[3]=0x01(FOCUS position setting)
・Buf[4]=0x00~0xFF(FOCUS target position HIGH BYTE)
・Buf[5]=0x00~0xFF(FOCUS target position LOW BYTE)
・Buf[6]=0x00~0xFF(FOCUS current position HIGH BYTE)
・Buf[7]=0x00~0xFF(FOCUS current position LOW BYTE)
・Buf[8]~Buf[15]= non-use

(26)LENS item,"One Push Auto Focus"
　　(this item settable only at "INITIAL ON" & Freeze OFF & FOCUS MANUAL" condition)
　　OSD Manual (No this item on it)
・Buf[2]=0x45
・Buf[3]=0x03(One Push Auto Focus)
・Buf[4]~Buf[15]= non-use

(27)REV item,"H·REV ON/OFF" setting. (settable at "AGC·SENS Freeze OFF" condition)
   (29) If have not executed REV item renew command, the setting data would not be stored.
·Buf[2]=0x1D
·Buf[3]=0x05(H·REV setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(28)REV item,"V·REV ON/OFF" setting. (settable at "AGC·SENS Freeze OFF" condition)
   (29) If have not executed REV item renew command, the setting data would not be stored
·Buf[2]=0x1D
·Buf[3]=0x04(V·REV setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(29)REV item,"Renew"
·Buf[2]=0x1D
·Buf[3]=0x06(renew)
·Buf[4]~Buf[15]= non-use

(30)POSITION item,"ALARM NO" setting. (this item settable only at "INITIAL ON" & "AGC·SENS
    Freeze OFF" & "POSITION Freeze OFF" condition)
·Buf[2]=0x51
·Buf[3]=0x00~0x40(ALARM NO)
·Buf[4]~Buf[15]= non-use

(31)POSITION item,"POSITION" setting (this item settable only at "INITIAL ON" &
    "AGC·SENS Freeze OFF" condition)
   Store ZOOM current position, FOCUS current position
·Buf[2]=0x52
·Buf[3]=0x01(POSITION setting)
·Buf[4]=0x01~0x40(POSITION NO)
·Buf[5]~Buf[15]= non-use

(32)TITLE item,"ID Character" setting
·Buf[2]=0x10
·Buf[3]=0x01(character setting)
·Buf[4]=0x00(n=1:character 1 ~ 5)
          0x01(n=6:character 6 ~ 10)
          0x02(n=11:character 11 ~ 15)
          0x03(n=16:character16 ~ 20)
·Buf[5]=0x00~0xFF(n character ASCII CODE HIGH BYTE)
·Buf[6]=0x00~0xFF(n character ASCII CODE LOW BYTE)
·Buf[7]=0x00~0xFF((n+1) character ASCII CODE HIGH BYTE)
·Buf[8]=0x00~0xFF((n+1) character ASCII CODE LOW BYTE)
·Buf[9]=0x00~0xFF((n+2) character ASCII CODE HIGH BYTE)
·Buf[10]=0x00~0xFF((n+2) character ASCII CODE LOW BYTE)
·Buf[11]=0x00~0xFF((n+3) character ASCII CODE HIGH BYTE)
·Buf[12]=0x00~0xFF((n+3) character ASCII CODE LOW BYTE)
·Buf[13]=0x00~0xFF((n+4) character ASCII CODE HIGH BYTE)
·Buf[14]=0x00~0xFF((n+4) character ASCII CODE LOW BYTE)
·Buf[15]= non-use

(33)TITLE item, ID display position "UP/DOWN" setting
·Buf[2]=0x10
·Buf[3]=0x03(display position setting)
·Buf[4]=0x00(UP),0x01(DOWN)
·Buf[5]~Buf[15]= non-use

(34)PRESET item,"PRESET ON/OFF" setting
·Buf[2]=0x20
·Buf[3]=0x02(ON/OFF setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(35)PRESET item,"PRESET " (this item settable only at "PRESET ON" condition)
·Buf[2]=0x20
·Buf[3]=0x01(action)
·Buf[4]~Buf[15]= non-use

(36)PRESET item,"INITIAL ON/OFF" setting
·Buf[2]=0x49
·Buf[3]=0x00(OFF),0x01(ON)
·Buf[4]~Buf[15]= non-use

(37)PRESET item,"PHASE ON/OFF" setting
·Buf[2]=0x1C
·Buf[3]=0x00(ON/OFF setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(38)PRESET item,"PHASE Position" setting ("PHASE ON" & "PHASE" at within settable range
    (TV mode & resolution changeable) condition.)
·Buf[2]=0x1C
·Buf[3]=0x01(position setting)
·Buf[4]=0x00~0xFF(PHASE position HIGH BYTE)
·Buf[5]=0x00~0xFF(PHASE position LOW BYTE)
·Buf[6]~Buf[15]= non-use

(39)LENS item,"ZOOM Speed level" setting
    (this item settable at "INITIAL ON" & "AGC·SENS Freeze OFF" condition)
·Buf[2]=0x45
·Buf[3]=0x05(ZOOM Speed setting)
·Buf[4]=0x00~0x04(Level)
·Buf[5]~Buf[15]= non-use

(40)LENS item,"FOCUS Speed level" setting
    (this item settable at "INITIAL ON" & "Freeze OFF" condition)
·Buf[2]=0x45
·Buf[3]=0x07(FOCUS Speed setting)
·Buf[4]=0x00~0x04(Level)
·Buf[5]~Buf[15]= non-use

(41)LENS item,"Digital ZOOM ON/OFF" setting.
    This item has some change for 54G 5 & 54G 10 cameras.
    Refer to 7. Adding commend (2).

(42)AGC·SENS item,"Freeze mode Filed or Frame" setting
·Buf[2]=0x1A
·Buf[3]=0x04(Freeze setting)
·Buf[4]=0x00(Field),0x01(Frame)
·Buf[5]~Buf[15]= non-use

(43)POSITION item, Freeze NO/OFF setting
    (this item settable at "INITIAL ON" & "AGC.SENS Freeze OFF" condition)
·Buf[2]=0x52
·Buf[3]=0x04(Freeze setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(44)REV item, image POSI/NEGA setting
·Buf[2]=0x1D
·Buf[3]=0x07(POSI/NEGA setting)
·Buf[4]=0x00(POSI),0x01(NEGA)
·Buf[5]~Buf[15]=non-use

(45)MARK item, ON/OFF setting
·Buf[2]=0x56
·Buf[3]=0x00(MARK setting)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]=non-use

(46)MARK display position setting
    This item has some change for 54G 5 & 54G 10 cameras.
    Refer to 7. Adding commend (2).

4.2 Read COMMAND

Regarding Read Command (Buf[1]=0x31) setting as below.

(1)IRIS item,"Peak ON/OFF" reading
   Buf[5] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x00(Peak reading)
·Buf[4]=0x00(ON/OFF reading)
·Buf[5]=0x00(OFF),0x01(ON)
·Buf[6]~Buf[15]= non-use

(2)IRIS item,"Peak ON Level" reading
   Buf[5] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x00(Peak reading)
·Buf[4]=0x01(level reading)
·Buf[5]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[6]~Buf[15]= non-use

(3)IRIS item, "ALC AUTO/FIX" reading
   Buf[5] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x01(ALC reading)
·Buf[4]=0x00(AUTO/FIX reading)
·Buf[5]=0x00(AUTO),0x01(FIX)
·Buf[6]~Buf[15]= non-use

(4)IRIS item,"ALC AUTO Level" reading
　Buf[6] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x01(ALC reading)
·Buf[4]=0x01(level reading)
·Buf[5]=0x00(AUTO level)
·Buf[6]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[7]~Buf[15]= non-use

(5)IRIS item,"ALC FIX Level" reading
　Buf[6] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x01(ALC reading)
·Buf[4]=0x01(level reading)
·Buf[5]=0x01(FIX level)
·Buf[6]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[7]~Buf[15]= non-use

(6)IRIS item,"AES AUTO/FIX" reading
　Buf[5] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x02(AES reading)
·Buf[4]=0x00(AUTO/FIX reading)
·Buf[5]=0x00(AUTO),0x01(FIX)
·Buf[6]~Buf[15]= non-use

(7)IRIS item,"AES AUTO Level" reading
　Buf[6] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x02(AES reading)
·Buf[4]=0x01(level reading)
·Buf[5]=0x00(AUTO level)
·Buf[6]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[7]~Buf[15]= non-use

(8)IRIS item,"AES FIX Selection" reading
　Buf[6] by non-setting condition to get the data from camera
·Buf[2]=0x48
·Buf[3]=0x02(AES reading)
·Buf[4]=0x01(level reading)
·Buf[5]=0x01(FIX selecting)
·Buf[6]=0x00~0x07(selecting)
　(00-OFF,01-1/100(1/120),02-1/250,03-1/500,04-1/1000,05-1/2000,06-1/4000,07-1/10000)
·Buf[7]~Buf[15]= non-use

(9)BLC item,"ON/OFF" reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x18
·Buf[3]=0x00(ON/OFF reading)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(10)BLC item,"Area Selection" reading
   Buf[3]~Buf[8] by non-setting condition to get the data from camera
·Buf[2]=0x19
·Buf[3]=0x00~0xFF(Area 1st line:left LSB, right MSB)
·Buf[4]=0x00~0xFF(Area 2nd line:left LSB, right MSB)
·Buf[5]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
·Buf[6]=0x00~0xFF(Area 4th line:left LSB, right MSB)
·Buf[7]=0x00~0xFF(Area 5th line:left LSB, right MSB)
·Buf[8]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  (Buf[3]~Buf[8]Area selected bit=1)
·Buf[9]~Buf[15]= non-use

	LSB						MSB
Buf[3]	0	0	0	0	0	0	0
Buf[4]	0	0	0	0	0	0	0
Buf[5]	0	0	1	1	1	0	0
Buf[6]	0	0	1	1	1	0	0
Buf[7]	0	0	1	1	1	0	0
Buf[8]	0	0	0	0	0	0	0

(11)BLC item,"Sens Level" reading
   Buf[3] by non-setting condition to get the data from camera
·Buf[2]=0x50
·Buf[3]=0x00~0x07(level),(0x00 min,0x07 max)
·Buf[4]~Buf[15]= non-use

(12)AGC·SENS item,"Freeze ON/OFF " reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x1A
·Buf[3]=0x03(Freeze reading)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(13)AGC·SENS item,"AGC Level" reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x1A
·Buf[3]=0x01(AGC reading)
·Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[5]~Buf[15]= non-use

(14)AGC·SENS item,"Sens Level" reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x1A
·Buf[3]=0x02(Sens reading)
·Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
·Buf[5]~Buf[15]= non-use

(15)COLOR item,"WB ATW/AWB" reading
　Buf[4] by non-setting condition to get the data from camera
･Buf[2]=0x1B
･Buf[3]=0x00(WB reading)
･Buf[4]=0x00(ATW),0x01(AWB)
･Buf[5]~Buf[15]= non-use

(16)COLOR item,"WB ATW Level" reading
　Buf[4] by non-setting condition to get the data from camera
･Buf[2]=0x1B
･Buf[3]=0x05(ATW reading)
･Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
･Buf[5]~Buf[15]= non-use

(17)COLOR item,"WB AWB" reading
　Buf[4] by non-setting condition to get the data from camera
･Buf[2]=0x1B
･Buf[3]=0x04(AWB reading)
･Buf[4]=0x00(stop),0x01(operation)
･Buf[5]~Buf[15]= non-use

(18)COLOR item,"WB AWB Level" reading
　Buf[4] by non-setting condition to get the data from camera
･Buf[2]=0x1B
･Buf[3]=0x06(AWB reading)
･Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
･Buf[5]~Buf[15]= non-use

(19)COLOR item,"GAIN R-Y Level" reading
　Buf[4] by non-setting condition to get the data from camera
･Buf[2]=0x1B
･Buf[3]=0x02(R-Y reading)
･Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
･Buf[5]~Buf[15]= non-use

(20)COLOR item,"GAIN B-Y Level" reading
　Buf[4] by non-setting condition to get the data from camera
･Buf[2]=0x1B
･Buf[3]=0x03(B-Y reading)
･Buf[4]=0x00~0x08(level),(0x00 min,0x08 max)
･Buf[5]~Buf[15]= non-use

(21)APC item,"H･GAIN Level" reading
　Buf[4] by non-setting condition to get the data from camera

·Buf[2]=0x47
·Buf[3]=0x00(H·GAIN reading)
·Buf[4]=0x00~0x0C(level),(0x00 min,0x0C max)
·Buf[5]~Buf[15]= non-use

(22)APC item,"V·GAIN Level" reading
　Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x47
·Buf[3]=0x01(V·GAIN reading)
·Buf[4]=0x00~0x0C(level),(0x00 min,0x0C max)
·Buf[5]~Buf[15]= non-use

(23)LENS item,"ZOOM Position" reading
　Buf[4]~Buf[11] by non-setting condition to get the data from camera
·Buf[2]=0x45
·Buf[3]=0x00(ZOOM position reading)
·Buf[4]=0x00~0xFF(ZOOM target position HIGH BYTE)
·Buf[5]=0x00~0xFF(ZOOM target position LOW BYTE)
·Buf[6]=0x00~0xFF(ZOOM current position HIGH BYTE)
·Buf[7]=0x00~0xFF(ZOOM current position LOW BYTE)
·Buf[8]=0x00~0xFF(FOCUS settable maximum position HIGH BYTE)
·Buf[9]=0x00~0xFF(FOCUS settable maximum position LOW BYTE)
·Buf[10]=0x00~0xFF(FOCUS settable minimum position HIGH BYTE)
·Buf[11]=0x00~0xFF(FOCUS settable minimum positon LOW BYTE)
·Buf[12]~Buf[15]= non-use

(24)LENS item,"FOCUS MANUAL/AUTO" reading
　Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x45
·Buf[3]=0x02(FOCUS reading)
·Buf[4]=0x00(MANUAL),0x01(AUTO)
·Buf[5]~Buf[15]= non-use

(25)LENS item,"FOCUS Position" reading
　Buf[4]~Buf[7] by non-setting condition to get the data from camera
·Buf[2]=0x45
·Buf[3]=0x01(FOCUS position reading)
·Buf[4]=0x00~0xFF(FOCUS target position HIGH BYTE)
·Buf[5]=0x00~0xFF(FOCUS target position LOW BYTE)
·Buf[6]=0x00~0xFF(FOCUS current position HIGH BYTE)
·Buf[7]=0x00~0xFF(FOCUS current position LOW BYTE)
·Buf[8]~Buf[15]= non-use

(26)REV item,"H·REV ON/OFF" reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x1D
·Buf[3]=0x05(H·REV reading)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(27)REV item,"V·REV ON/OFF" reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x1D
·Buf[3]=0x04(V·REV reading)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(28)POSITION item,"ALARM NO" reading
   Buf[3] by non-setting condition to get the data from camera
·Buf[2]=0x51
·Buf[3]=0x00~0x40(ALARM NO)
·Buf[4]~Buf[15]= non-use

(29)POSITION item,"POSITION NO" reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x52
·Buf[3]=0x00(POSITION NO reading)
·Buf[4]=0x01~0x40(POSITION NO)
·Buf[5]~Buf[15]= non-use

(30)POSITION item,"POSITION" reading
   (this item readable at "INITIAL ON" & "AGC·SENS Freeze OFF" condition)
   Camera POSITION NO / "ZOOM position" & "FOCUS position".
·Buf[2]=0x52
·Buf[3]=0x01(POSITION reading)
·Buf[4]=0x01~0x40(POSITION NO)
·Buf[5]~Buf[15]= non-use

(31)TITLE item,"ID Character" reading
   Buf[5]~Buf[14] by non-setting condition to get the data from camera
·Buf[2]=0x10
·Buf[3]=0x01(character reading)
·Buf[4]=0x00(character 1 ~ 5 ;n=1)
        0x01(character 6 ~ 10 ;n=6)
        0x02(character 11 ~ 15 ;n=11)
        0x03(character 16 ~ 20 ;n=16)
·Buf[5]=0x00~0xFF(n character ASCII CODE   HIGH BYTE)
·Buf[6]=0x00~0xFF(n character ASCII CODE   LOW BYTE)
·Buf[7]=0x00~0xFF((n+1) character ASCII CODE   HIGH BYTE)
·Buf[8]=0x00~0xFF((n+1) character ASCII CODE   LOW BYTE)
·Buf[9]=0x00~0xFF((n+2) character ASCII CODE   HIGH BYTE)
·Buf[10]=0x00~0xFF((n+2) character ASCII CODE   LOW BYTE)
·Buf[11]=0x00~0xFF((n+3) character ASCII CODE   HIGH BYTE)
·Buf[12]=0x00~0xFF((n+3) character ASCII CODE   LOW BYTE)
·Buf[13]=0x00~0xFF((n+4) character ASCII CODE   HIGH BYTE)
·Buf[14]=0x00~0xFF((n+4) character ASCII CODE   LOW BYTE)
·Buf[15]= non-use

(32)TITLE item,"ID position" UP/DOWN reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x10
·Buf[3]=0x03(position reading)
·Buf[4]=0x00(UP),0x01(DOWN)
·Buf[5]~Buf[15]= non-use

(33)PRESET item,"PRESET ON/OFF" reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x20
·Buf[3]=0x02(PRESET reading)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]~Buf[15]= non-use

(34)PRESET item,"INITIAL ON/OFF" reading
   Buf[3] by non-setting condition to get the data from camera
·Buf[2]=0x49
·Buf[3]=0x00(OFF),0x01(ON)
·Buf[4]~Buf[15]= non-use

(35)PRESET item,"PHASE ON/OFF" reading
  Buf[4]~Buf[8] by non-setting condition to get the data from camera
·Buf[2]=0x1C
·Buf[3]=0x00(PHASE reading)
·Buf[4]=0x00(OFF),0x01(ON)
·Buf[5]=0x00~0xFF(PHASE settable maximum position HIGH BYTE)
·Buf[6]=0x00~0xFF(PHASE settable maximum position LOW BYTE)
·Buf[7]=0x00~0xFF(PHASE settable minimum position HIGH BYTE)
·Buf[8]=0x00~0xFF(PHASE settable minimum position LOW BYTE)
·Buf[9]~Buf[15]= non-use

(36)PRESET item,"PHASE Position" reading
  Buf[4],Buf[5] by non-setting condition to get the data from camera
·Buf[2]=0x1C
·Buf[3]=0x01(PHASE reading)
·Buf[4]=0x00~0xFF(PHASE position HIGH BYTE)
·Buf[5]=0x00~0xFF(PHASE position LOW BYTE)
·Buf[6]~Buf[15]= non-use

(37)LENS item,"ZOOM Speed level" position reading
  Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x45
·Buf[3]=0x05(ZOOM Speed reading)
·Buf[4]=0x00~0x04(Level)
·Buf[5]~Buf[15]= non-use

(38)LENS item,"FOCUS Speed level" position reading
  Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x45
·Buf[3]=0x07(FOCUS Speed reading)
·Buf[4]=0x00~0x04(Level)
·Buf[5]~Buf[15]= non-use

(39)LENS item,"Digital ZOOM ON/OFF "reading
   This item has some change for 54G5 & 54G10 cameras.
   Refer to 7. Adding commend (2).

(40)AGC.SENS item,"Freeze Field/Frame" mode reading
  Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x1A
·Buf[3]=0x04(Freeze mode reading)
·Buf[4]=0x00 (Field),0x01 (Frame)
·Buf[5]~Buf[15]=non-use

(41)POSITION item Freeze ON/OFF state reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x52
·Buf[3]=0x02(Freeze state reading)
·Buf[4]=0x00 (OFF),0x01 (ON)
·Buf[5]~Buf[15]=non-used

(42)REV item,"POSI/NEGA" mode reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x1D
·Buf[3]=0x07(POSI/NEGA mode reading)
·Buf[4]=0x00 (POSI),0x01 (NEGA)
·Buf[5]~Buf[15]=non-use

(43)MARK item,"ON/OFF" state reading
   Buf[4] by non-setting condition to get the data from camera
·Buf[2]=0x56
·Buf[3]=0x00(MARK state reading)
·Buf[4]=0x00 (OFF),0x01 (ON)
·Buf[5]~Buf[15]=non-use

(44)MARK item display position data reading
   This item has some change for 54G5 & 54G10 cameras.
   Refer to 7. Adding commend (2).

5. RESPONSE TYPES
Regarding19byte Response Buf[2]~Buf[15], it's the same, from Buf[1] changed to "response"19byte Command. Regarding Write Command Corresponding Response   to "Write Command Response",and to "Read Command Response",Please refer to the individual "Read Command".

6. ADDING COMMEND (1)
Regarding 54G1camera & exchanging possibility of commend.

6.1 Write command
Regarding the write command (Buf[1]=0x21) COMMAND ROW and RESPONSE ROW setting as below.

(1)AGC･SENS item, Priority setting
  COMMAND ROW
  ･Buf[2]=0x1A
  ･Buf[3]=0x05(Priority setting)
  ･Buf[4]=0x00(AGC priority),0x01(SENS priority)
  ･Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ･Buf[1]=0xA0(normal),other(ERROR)
  ･Buf[2]=0x1A
  ･Buf[3]=0x05
  ･Buf[4]=0x00(AGC priority),0x01(SENS priority)

(2)GAMMA item, TYPE A/TYPE B setting
  COMMAND ROW
  ･Buf[2]=0x59
  ･Buf[3]=0x00(TYPE A/TYPE B setting)
  ･Buf[4]=0x00(TYPE A),0x01(TYPE B)
  ･Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ･Buf[1]=0xA0(normal),other(ERROR)
  ･Buf[2]=0x59
  ･Buf[3]=0x00
  ･Buf[4]=0x00(TYPE A),0x01(TYPE B)

(3)LANGUAGE item, ENGLISH / CHINESS_Simp / JAPANESE setting
  COMMAND ROW
  ･Buf[2]=0x5B
  ･Buf[3]=0x00(LANGUAGE setting)
  ･Buf[4]=0x00(ENGLISH),0x01(CHINESS_Simp),0x02(JAPANESE)
  ･Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ･Buf[1]=0xA0(normal),other(ERROR)
  ･Buf[2]=0x5B
  ･Buf[3]=0x00
  ･Buf[4]=0x00(ENGLISH),0x01(CHINESS_Simp),0x02(JAPANESE)

(4)SWITCH item,
　COMMAND ROW
　・Buf[2]=0x32
　・Buf[3]=0x00(PRI),0x01(ENTER),0x02(DOWN),0x03(UP)
　・Buf[4]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x32
　・Buf[3]=0x00(PRI),0x01(ENTER),0x02(DOWN),0x03(UP)
　・Buf[4]~Buf[15]=non-use

(5)LENS item, ZOOM setting
　COMMAND ROW
　・Buf[2]=0x55
　・Buf[3]=0x00(ZOOM setting)
　・Buf[4]=0x00(STOP),0x01(TELE),0x02(WIDE)
　・Buf[5]=0x00(fix)
　・Buf[6]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x55
　・Buf[3]=0x00(ZOOM setting)
　・Buf[4]=0x00(STOP),0x01(TELE),0x02(WIDE)
　・Buf[5]=0x00(fix)
　・Buf[6]~Buf[15]=non-use

(6)LENS item, FOCUS setting
　COMMAND ROW
　・Buf[2]=0x55
　・Buf[3]=0x01(FOCUS setting)
　・Buf[4]=0x00(STOP),0x01(NEAR),0x02(INF)
　・Buf[5]=0x00(fix)
　・Buf[6]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x55
　・Buf[3]=0x01(FOCUS setting)
　・Buf[4]=0x00(STOP),0x01(NEAR),0x02(INF)
　・Buf[5]=0x00(fix)
　・Buf[6]~Buf[15]=non-use

(7)LENS item, after "ZOOM" and to "One Push Auto Focus" setting
   COMMAND ROW
   ·Buf[2]=0x5A
   ·Buf[3]=0x01(after "ZOOM" and to "One Push Auto Focus" setting)
   ·Buf[4]=0x00(OFF),0x01(ON)
   ·Buf[5]~Buf[15]=non-use
   RESPONSE ROW
   ·Buf[1]=0xA0(normal),other(ERROR)
   ·Buf[2]=0x5A
   ·Buf[3]=0x01(after "ZOOM" and to "One Push Auto Focus" setting)
   ·Buf[4]=0x00(OFF),0x01(ON)
   ·Buf[5]~Buf[15]=non-use

(8)MASK item
   This item has some change for 54G 5 & 54G 10 cameras.
   Refer to 7. Adding commend (2).

6.2 Read command
   Regarding the Read command (Buf[1]=0x31) COMMAND ROW and RESPONSE ROW setting as below.

(1)AGC·SENS item, Priority reading
   COMMAND ROW
   ·Buf[2]=0x1A
   ·Buf[3]=0x05(Priority setting)
   ·Buf[4]~Buf[15]=non-use
   RESPONSE ROW
   ·Buf[1]=0xA0(normal),other(ERROR)
   ·Buf[2]=0x1A
   ·Buf[3]=0x05
   ·Buf[4]=0x00(AGC priority),0x01(SENS priority)

(2)GAMMA item, reading
   COMMAND ROW
   ·Buf[2]=0x59
   ·Buf[3]~Buf[15]=non-use
   RESPONSE ROW
   ·Buf[1]=0xA0(normal),other(ERROR)
   ·Buf[2]=0x59
   ·Buf[3]=non-use
   ·Buf[4]=0x00(TYPE A),0x01(TYPE B)

(3)LANGUAGE item, ENGLISH / CHINESS_Simp / JAPANESE reading
  COMMAND ROW
  ・Buf[2]=0x5B
  ・Buf[3]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x5B
  ・Buf[3]=non-use
  ・Buf[4]=0x00(ENGLISH),0x01(CHINESS_Simp),0x02(JAPANESE)

(4)LENS item, after "ZOOM" and to "One Push Auto Focus" state reading
  COMMAND ROW
  ・Buf[2]=0x5A
  ・Buf[3]=0x01(after "ZOOM" and to "One Push Auto Focus" state reading)
  ・Buf[4]=0x00(OFF),0x01(ON)
  ・Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x5A
  ・Buf[3]=0x01(after "ZOOM" and to "One Push Auto Focus" state reading)
  ・Buf[4]=0x00(OFF),0x01(ON)
  ・Buf[5]~Buf[15]=non-use

(5)MASK item, reading
  This item has some change for 54G 5 & 54G 10 cameras.
  Refer to 7. Adding commend (2).

6.3 Reset command
      Camera RESET action.

  COMMAND ROW
  ・Buf[1]=0xF1
  ・Buf[2]~Buf[15]=non-use
  RESPONSE ROW
   non

7. ADDING COMMEND (2)

   Regarding 54G5 & 54G10 camera adding and some change command

7.1 Write COMMAND

   Regarding the write command (Buf[1]=0x21) COMMAND ROW and RESPONSE ROW setting as below.

(1)COLOR item, Color setting
   COMMAND ROW
   ・Buf[2]=0x1B
   ・Buf[3]=0x07(Color setting)
   ・Buf[4]=0x00(MonoCrome),0x01(Color)、0x02(Auto)
   ・Buf[5]~Buf[15]=non-use
   RESPONSE ROW
   ・Buf[1]=0xA0(normal),other(ERROR)
   ・Buf[2]=0x1B
   ・Buf[3]=0x07
   ・Buf[4]=0x00(MonoCrome),0x01(Color)、0x02(Auto)

(2)LENS item, Digital ZOOM maximum times setting
   COMMAND ROW
   ・Buf[2]=0x45
   ・Buf[3]=0x06(Digital ZOOM maximum times setting)
   ・Buf[4]=0x00(OFF),0x01(x2)、0x02(x4)、0x03(x6)、0x04(x8)、0x05(x10)
   ・Buf[5]~Buf[15]=non-use
   RESPONSE ROW
   ・Buf[1]=0xA0(normal),other(ERROR)
   ・Buf[2]=0x45
   ・Buf[3]=0x06
   ・Buf[4]=0x00(OFF),0x01(x2)、0x02(x4)、0x03(x6)、0x04(x8)、0x05(x10)

(3)LENS item, AF SLEEP setting
   COMMAND ROW
   ・Buf[2]=0x45
   ・Buf[3]=0x08(AF SLEEP setting)
   ・Buf[4]=0x00(AF SLEEP OFF),0x01(AF SLEEP ON)
   ・Buf[5]~Buf[15]=non-use
   RESPONSE ROW
   ・Buf[1]=0xA0(normal),other(ERROR)
   ・Buf[2]=0x45
   ・Buf[3]=0x08
   ・Buf[4]=0x00(AF SLEEP OFF),0x01(AF SLEEP ON)

(4)POSITION item, OSD setting
　COMMAND ROW
　·Buf[2]=0x52
　·Buf[3]=0x03(OSD setting)
　·Buf[4]=0x00(POSITION OSD OFF)、0x01(POSITION OSD ON)
　·Buf[5]~Buf[15]=non-use
　RESPONSE ROW
　·Buf[1]=0xA0(normal),other(ERROR)
　·Buf[2]=0x52
　·Buf[3]=0x03
　·Buf[4]=0x00(POSITION OSD OFF)、0x01(POSITION OSD ON)
　·Buf[5]~Buf[15]=non-use

(5)MARK item, display position setting
　COMMAND ROW
　·Buf[2]=0x56
　·Buf[3]=0x01(display position setting)
　·Buf[4]=0x00~0x03(Hor. Position High Byte)
　·Buf[5]=0x00~0xFF(Hor. Position Low Byte)
　·Buf[6]=0x00~0x01(Ver. Position High Byte)
　·Buf[7]=0x00~0xFF(Ver. Position Low Byte)
　·Buf[8]~Buf[15]=non-use
　RESPONSE ROW
　·Buf[1]=0xA0(normal),other(ERROR)
　·Buf[2]=0x56
　·Buf[3]=0x01(display position setting)
　·Buf[4]=0x00~0x03(Hor. Position High Byte)
　·Buf[5]=0x00~0xFF(Hor. Position Low Byte)
　·Buf[6]=0x00~0x01(Ver. Position High Byte)
　·Buf[7]=0x00~0xFF(Ver. Position Low Byte)
　·Buf[8]~Buf[15]=non-use

(6)MASK item, ALL setting
  COMMAND ROW
  ·Buf[2]=0x57
  ·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
  ·Buf[4]=0x00(ALL setting)
  ·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
  ·Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
  ·Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
  ·Buf[8]=0x00~0xFF(MASK Hor. START position)
  ·Buf[9]=0x00~0xFF(MASK Hor. END position)
  ·Buf[10]=0x00~0xFF(MASK Ver. START position)
  ·Buf[11]=0x00~0xFF(MASK Ver. END position)
  ·Buf[12]=0x01~0x40(POSITION No.)
  ·Buf[13]~Buf[15]=non-use
  RESPONSE ROW
  ·Buf[1]=0xA0(normal),other(ERROR)
  ·Buf[2]=0x57
  ·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
  ·Buf[4]=0x00(ALL setting)
  ·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
  ·Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
  ·Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
  ·Buf[8]=0x00~0xFF(MASK Hor. START position)
  ·Buf[9]=0x00~0xFF(MASK Hor. END position)
  ·Buf[10]=0x00~0xFF(MASK Ver. START position)
  ·Buf[11]=0x00~0xFF(MASK Ver. END position)
  ·Buf[12]=0x00~0xFF(MASK Hor. Center position)
  ·Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
  ·Buf[14]=0x00~0x40(POSITION No.)
  ·Buf[15]=non-use

(7)MASK item, MASK ON/OFF setting
  COMMAND ROW
   ·Buf[2]=0x57
   ·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
   ·Buf[4]=0x01(MASK ON/OFF setting)
   ·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
   ·Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
   ·Buf[7]=0x01~0x40(POSITION No.)
   ·Buf[8]~Buf[15]=non-use
  RESPONSE ROW
   ·Buf[1]=0xA0(normal),other(ERROR)
   ·Buf[2]=0x57
   ·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
   ·Buf[4]=0x01(MASK ON/OFF setting)
   ·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
   ·Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
   ·Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
   ·Buf[8]=0x00~0xFF(MASK Hor. START position)
   ·Buf[9]=0x00~0xFF(MASK Hor. END position)
   ·Buf[10]=0x00~0xFF(MASK Ver. START position)
   ·Buf[11]=0x00~0xFF(MASK Ver. END position)
   ·Buf[12]=0x00~0xFF(MASK Hor. Center position)
   ·Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
   ·Buf[14]=0x00~0x40(POSITION No.)
   ·Buf[15]=non-use

(8)MASK item, MASK CONNECT ON/OFF setting
　COMMAND ROW
　・Buf[2]=0x57
　・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
　・Buf[4]=0x02(MASK CONNECT ON/OFF setting)
　・Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
　・Buf[6]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
　・Buf[7]=0x01~0x10(POSITION No.)
　・Buf[8]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x57
　・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
　・Buf[4]=0x02(MASK CONNECT ON/OFF setting)
　・Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
　・Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
　・Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
　・Buf[8]=0x00~0xFF(MASK Hor. START position)
　・Buf[9]=0x00~0xFF(MASK Hor. END position)
　・Buf[10]=0x00~0xFF(MASK Ver. START position)
　・Buf[11]=0x00~0xFF(MASK Ver. END position)
　・Buf[12]=0x00~0xFF(MASK Hor. Center position)
　・Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
　・Buf[14]=0x00~0x40(POSITION No.)
　・Buf[15]=non-use

(9)MASK item, MASK H-POSITION setting
  COMMAND ROW
   ·Buf[2]=0x57
   ·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
   ·Buf[4]=0x03(MASK H-POSITION setting)
   ·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
   ·Buf[6]=0x00(LEFT move)、0x01(RIGHT move)
   ·Buf[7]=0x00~xFF(MOVE quantity)
   ·Buf[8]=0x01~0x40(POSITION No.)
   ·Buf[9]~Buf[15]=non-use
  RESPONSE ROW
   ·Buf[1]=0xA0(normal),other(ERROR)
   ·Buf[2]=0x57
   ·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
   ·Buf[4]=0x03(MASK H-POSITION setting)
   ·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
   ·Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
   ·Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
   ·Buf[8]=0x00~0xFF(MASK Hor. START position)
   ·Buf[9]=0x00~0xFF(MASK Hor. END position)
   ·Buf[10]=0x00~0xFF(MASK Ver. START position)
   ·Buf[11]=0x00~0xFF(MASK Ver. END position)
   ·Buf[12]=0x00~0xFF(MASK Hor. Center position)
   ·Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
   ·Buf[14]=0x00~0x40(POSITION No.)
   ·Buf[15]=non-use

(10)MASK item, MASK V-POSITION setting
  COMMAND ROW
  ・Buf[2]=0x57
  ・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
  ・Buf[4]=0x04(MASK V-POSITION setting)
  ・Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
  ・Buf[6]=0x00(UP move)、0x01(DOWN move)
  ・Buf[7]=0x00~xFF(MOVE quantity)
  ・Buf[8]=0x01~0x40(POSITION No.)
  ・Buf[9]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x57
  ・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
  ・Buf[4]=0x04(MASK V-POSITION setting)
  ・Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
  ・Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
  ・Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
  ・Buf[8]=0x00~0xFF(MASK Hor. START position)
  ・Buf[9]=0x00~0xFF(MASK Hor. END position)
  ・Buf[10]=0x00~0xFF(MASK Ver. START position)
  ・Buf[11]=0x00~0xFF(MASK Ver. END position)
  ・Buf[12]=0x00~0xFF(MASK Hor. Center position)
  ・Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
  ・Buf[14]=0x00~0x40(POSITION No.)
  ・Buf[15]=non-use

(11)MASK item, MASK H-SIZE setting
   COMMAND ROW
   ・Buf[2]=0x57
   ・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
   ・Buf[4]=0x05(MASK H-SIZE setting)
   ・Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
   ・Buf[6]=0x00(- setting)、0x01(+ setting)
   ・Buf[7]=0x00~xFF(CHANGE quantity)
   ・Buf[8]=0x01~0x40(POSITION No.)
   ・Buf[9]~Buf[15]=non-use
   RESPONSE ROW
   ・Buf[1]=0xA0(normal),other(ERROR)
   ・Buf[2]=0x57
   ・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
   ・Buf[4]=0x05(MASK H-SIZE setting)
   ・Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
   ・Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
   ・Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
   ・Buf[8]=0x00~0xFF(MASK Hor. START position)
   ・Buf[9]=0x00~0xFF(MASK Hor. END position)
   ・Buf[10]=0x00~0xFF(MASK Ver. START position)
   ・Buf[11]=0x00~0xFF(MASK Ver. END position)
   ・Buf[12]=0x00~0xFF(MASK Hor. Center position)
   ・Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
   ・Buf[14]=0x00~0x40(POSITION No.)
   ・Buf[15]=non-use

(12)MASK item, MASK V-SIZE setting
　COMMAND ROW
　·Buf[2]=0x57
　·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
　·Buf[4]=0x06(MASK V-SIZE setting)
　·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
　·Buf[6]=0x00(- setting)、0x01(+ setting)
　·Buf[7]=0x00~xFF(CHANGE quantity)
　·Buf[8]=0x01~0x40(POSITION No.)
　·Buf[9]~Buf[15]=non-use
　RESPONSE ROW
　·Buf[1]=0xA0(normal),other(ERROR)
　·Buf[2]=0x57
　·Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
　·Buf[4]=0x06(MASK H-SIZE setting)
　·Buf[5]=0x00(EEPROM NO SAVE)、0x01(EEPROM SAVE)
　·Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
　·Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
　·Buf[8]=0x00~0xFF(MASK Hor. START position)
　·Buf[9]=0x00~0xFF(MASK Hor. END position)
　·Buf[10]=0x00~0xFF(MASK Ver. START position)
　·Buf[11]=0x00~0xFF(MASK Ver. END position)
　·Buf[12]=0x00~0xFF(MASK Hor. Center position)
　·Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
　·Buf[14]=0x00~0x40(POSITION No.)
　·Buf[15]=non-use

(13)MOTION item, MOTION ON/OFF setting
  COMMAND ROW
  ・Buf[2]=0x5C
  ・Buf[3]=0x00(MOTION ON/OFF setting)
  ・Buf[4]=0x00(OFF)、0x01(ON)
  ・Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x5C
  ・Buf[3]=0x00(MOTION ON/OFF setting)
  ・Buf[4]=0x00(MOTION OFF)、0x01(MOTION ON)
  ・Buf[5]=0x00~0x07(MOTION Level)
  ・Buf[6]=0x00~0xFF(Area 1st line:left LSB, right MSB)
  ・Buf[7]=0x00~0xFF(Area 2nd line: left LSB, right MSB)
  ・Buf[8]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
  ・Buf[9]=0x00~0xFF(Area 4th line:left LSB, right MSB)
  ・Buf[10]=0x00~0xFF(Area 5th line : left LSB, right MSB)
  ・Buf[11]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  ・Buf[12]=0x00~0x02(MOTION TIME)
  ・Buf[13]=0x00(MOTION OSD OFF)、0x01(MOTION OSD ON)
  ・Buf[14]~Buf[15]=non-use

(14)MOTION item, MOTION Level setting
  COMMAND ROW
  ・Buf[2]=0x5C
  ・Buf[3]=0x01(MOTION Level setting)
  ・Buf[4]=0x00~0x07(MOTION Level)
  ・Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x5C
  ・Buf[3]=0x01(MOTION Level setting)
  ・Buf[4]=0x00(MOTION OFF)、0x01(MOTION ON)
  ・Buf[5]=0x00~0x07(MOTION Level)
  ・Buf[6]=0x00~0xFF(Area 1st line:left LSB, right MSB)
  ・Buf[7]=0x00~0xFF(Area 2nd line:left LSB, right MSB)
  ・Buf[8]=0x00~0xFF(Area 3rd line: left LSB, right MSB)
  ・Buf[9]=0x00~0xFF(Area 4th line:left LSB, right MSB)
  ・Buf[10]=0x00~0xFF(Area 5th line:left LSB, right MSB)
  ・Buf[11]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  ・Buf[12]=0x00~0x02(MOTION TIME)
  ・Buf[13]=0x00(MOTION OSD OFF)、0x01(MOTION OSD ON)
  ・Buf[14]~Buf[15]=non-use

(15)MOTION item, MOTION AREA setting
  COMMAND ROW
  ·Buf[2]=0x5C
  ·Buf[3]=0x02(MOTION AREA setting)
  ·Buf[4]=0x00~0xFF(Area 1st line:left LSB, right MSB)
  ·Buf[5]=0x00~0xFF(Area 2nd line:left LSB, right MSB)
  ·Buf[6]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
  ·Buf[7]=0x00~0xFF(Area 4th line:left LSB, right MSB)
  ·Buf[8]=0x00~0xFF(Area 5th line:left LSB, right MSB)
  ·Buf[9]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  ·Buf[10]~Buf[15]=non-use
  RESPONSE ROW
  ·Buf[1]=0xA0(normal),other(ERROR)
  ·Buf[2]=0x5C
  ·Buf[3]=0x02(MOTION AREA setting)
  ·Buf[4]=0x00(MOTION OFF)、0x01(MOTION ON)
  ·Buf[5]=0x00~0x07(MOTION Level)
  ·Buf[6]=0x00~0xFF(Area 1st line:left LSB, right MSB)
  ·Buf[7]=0x00~0xFF(Area 2nd line:left LSB, right MSB)
  ·Buf[8]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
  ·Buf[9]=0x00~0xFF(Area 4th line:left LSB, right MSB)
  ·Buf[10]=0x00~0xFF(Area 5th line:left LSB, right MSB)
  ·Buf[11]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  ·Buf[12]=0x00~0x02(MOTION TIME)
  ·Buf[13]=0x00(MOTION OSD OFF)、0x01(MOTION OSD ON)
  ·Buf[14]~Buf[15]=non-use

(16)MOTION item, MOTION TIME setting
  COMMAND ROW
  ・Buf[2]=0x5C
  ・Buf[3]=0x03(MOTION TIME setting)
  ・Buf[4]=0x00~0x02(MOTION TIME)
  ・Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x5C
  ・Buf[3]=0x03(MOTION TIME setting)
  ・Buf[4]=0x00(MOTION OFF)、0x01(MOTION ON)
  ・Buf[5]=0x00~0x07(MOTION Level)
  ・Buf[6]=0x00~0xFF(Area 1st line:left LSB, right MSB)
  ・Buf[7]=0x00~0xFF(Area 2nd line:left LSB, right MSB)
  ・Buf[8]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
  ・Buf[9]=0x00~0xFF(Area 4th line:left LSB, right MSB)
  ・Buf[10]=0x00~0xFF(Area 5th line:left LSB, right MSB)
  ・Buf[11]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  ・Buf[12]=0x00~0x02(MOTION TIME)
  ・Buf[13]=0x00(MOTION OSD OFF)、0x01(MOTION OSD ON)
  ・Buf[14]~Buf[15]=non-use

(17)MOTION item, MOTION OSD ON/OFF setting
  COMMAND ROW
  ・Buf[2]=0x5C
  ・Buf[3]=0x04(MOTION OSD ON/OFF setting)
  ・Buf[4]=0x00(MOTION OSD OFF)、0x01(MOTION OSD ON)
  ・Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x5C
  ・Buf[3]=0x04(MOTION OSD ON/OFF setting)
  ・Buf[4]=0x00(MOTION OFF)、0x01(MOTION ON)
  ・Buf[5]=0x00~0x07(MOTION Level)
  ・Buf[6]=0x00~0xFF(Area 1st line:left LSB, right MSB)
  ・Buf[7]=0x00~0xFF(Area 2nd line:left LSB, right MSB)
  ・Buf[8]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
  ・Buf[9]=0x00~0xFF(Area 4th line:left LSB, right MSB)
  ・Buf[10]=0x00~0xFF(Area 5th line:left LSB, right MSB)
  ・Buf[11]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  ・Buf[12]=0x00~0x02(MOTION TIME)
  ・Buf[13]=0x00(MOTION OSD OFF)、0x01(MOTION OSD ON)
  ・Buf[14]~Buf[15]=non-use

(18)POWER ON item, BLUE BACK setting
 COMMAND ROW
 ·Buf[2]=0x5D
 ·Buf[3]=0x00(BLUE BACK setting)
 ·Buf[4]=0x00(BLUE BACK OFF)、0x01(BLUE BACK ON)
 ·Buf[5]~Buf[15]=non-use
 RESPONSE ROW
 ·Buf[1]=0xA0(normal),other(ERROR)
 ·Buf[2]=0x5D
 ·Buf[3]=0x00(BLUE BACK setting)
 ·Buf[4]=0x00(BLUE BACK OFF)、0x01(BLUE BACK ON)
 ·Buf[5]=0x00(POWER ON POSITION OFF)、0x01(POWER ON POSITION ON)
 ·Buf[6]=0x01~0x40(POWER ON POSITION No.)
 ·Buf[7]~Buf[8]=non-use
 ·Buf[9]=0x00(COLOR BAR OFF)、0x01(COLOR BAR ON)
 ·Buf[10]~Buf[15]=non-use

(19)POWER ON item, POWER ON POSITION ON/OFF setting
 COMMAND ROW
 ·Buf[2]=0x5D
 ·Buf[3]=0x01(POWER ON POSITION ON/OFF setting)
 ·Buf[4]=0x00(POWER ON POSITION OFF)、0x01(POWER ON POSITION ON)
 ·Buf[5]~Buf[15]=non-use
 RESPONSE ROW
 ·Buf[1]=0xA0(normal),other(ERROR)
 ·Buf[2]=0x5D
 ·Buf[3]=0x01(POWER ON POSITION ON/OFF setting)
 ·Buf[4]=0x00(BLUE BACK OFF)、0x01(BLUE BACK ON)
 ·Buf[5]=0x00(POWER ON POSITION OFF)、0x01(POWER ON POSITION ON)
 ·Buf[6]=0x01~0x40(POWER ON POSITION No.)
 ·Buf[7]~Buf[8]=non-use
 ·Buf[9]=0x00(COLOR BAR OFF)、0x01(COLOR BAR ON)
 ·Buf[10]~Buf[15]=non-use

(20)POWER ON item, POSITION No. setting
　COMMAND ROW
　・Buf[2]=0x5D
　・Buf[3]=0x02(POWER ON POSITION No. setting)
　・Buf[4]=0x01~0x40(POWER ON POSITION No.)
　・Buf[5]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x5D
　・Buf[3]=0x02(POWER ON POSITION No. setting)
　・Buf[4]=0x00(BLUE BACK OFF)、0x01(BLUE BACK ON)
　・Buf[5]=0x00(POWER ON POSITION OFF)、0x01(POWER ON POSITION ON)
　・Buf[6]=0x01~0x40(POWER ON POSITION No.)
　・Buf[7]~Buf[8]=non-use
　・Buf[9]=0x00(COLOR BAR OFF)、0x01(COLOR BAR ON)
　・Buf[10]~Buf[15]=non-use

(21)COLOR BAR setting
　COMMAND ROW
　・Buf[2]=0x5D
　・Buf[3]=0x05(COLOR BAR setting)
　・Buf[4]=0x00(COLOR BAR OFF)、0x01(COLOR BAR ON)
　・Buf[5]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x5D
　・Buf[3]=0x05(COLOR BAR setting)
　・Buf[4]=0x00(BLUE BACK OFF)、0x01(BLUE BACK ON)
　・Buf[5]=0x00(POWER ON POSITION OFF)、0x01(POWER ON POSITION ON)
　・Buf[6]=0x01~0x40(POWER ON POSITION No.)
　・Buf[7]~Buf[8]=non-use
　・Buf[9]=0x00(COLOR BAR OFF)、0x01(COLOR BAR ON)
　・Buf[10]~Buf[15]=non-use

(22)COMM.ID item, COMM. ID setting
　COMMAND ROW
　・Buf[2]=0x5F
　・Buf[3]=0x00(COMM. ID setting)
　・Buf[4]=0x01~0xEF(COMM. ID)
　・Buf[5]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x5F
　・Buf[3]=0x00(COMM. ID setting)
　・Buf[4]=0x01~0xEF(COMM. ID)
　・Buf[5]=0x01~0xEF(COMM. ID)
　・Buf[6]=0x00(COMM MODE 1:1)、0x01(COMM MODE 1:N)
　・Buf[7]=0x00(1:N ,not support)、0x01(1:N , support)
　・Buf[8]~Buf[15]=non-use

(23)COMM.ID item, COMM MODE setting
　COMMAND ROW
　・Buf[2]=0x5F
　・Buf[3]=0x01(COMM MODE setting)
　・Buf[4]=0x00(COMM MODE 1:1)、0x01(COMM MODE 1:N)
　・Buf[5]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x5F
　・Buf[3]=0x01(COMM MODE setting)
　・Buf[4]=0x00(COMM MODE 1:1)、0x01(COMM MODE 1:N)
　・Buf[5]=0x01~0xEF(COMM. ID)
　・Buf[6]=0x00(COMM MODE 1:1)、0x01(COMM MODE 1:N)
　・Buf[7]=0x00(1:N ,not support)、0x01(1:N , support)
　・Buf[8]~Buf[15]=non-use

(24)LENS item, ZOOM MAG setting
　COMMAND ROW
　・Buf[2]=0x45
　・Buf[3]=0x09(ZOOM MAG setting)
　・Buf[4]=0x00(ZOOM MAG OFF),0x01(ZOOM MAG ON)
　・Buf[5]~Buf[15]=non-use
　RESPONSE ROW
　・Buf[1]=0xA0(normal),other(ERROR)
　・Buf[2]=0x45
　・Buf[3]=0x09(ZOOM MAG setting)
　・Buf[4]=0x00(ZOOM MAG OFF),0x01(ZOOM MAG ON)
　・Buf[5]~Buf[15]=non-use

7.2 Read COMMAND
Regarding the read command (Buf[1]=0x31) COMMAND ROW and RESPONSE ROW setting as below.

(1)COLOR item, Color reading
  COMMAND ROW
  ・Buf[2]=0x1B
  ・Buf[3]=0x07(Color reading)
  ・Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x1B
  ・Buf[3]=0x07
  ・Buf[4]=0x00(MonoCrome),0x01(Color)、0x02(Auto)

(2)LENS item, Digital ZOOM maximum times reading
  COMMAND ROW
  ・Buf[2]=0x45
  ・Buf[3]=0x06(Digital ZOOM maximum times reading)
  ・Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x45
  ・Buf[3]=0x06
  ・Buf[4]=0x00(OFF),0x01(x2)、0x02(x4)、0x03(x6)、0x04(x8)、0x05(x10)

(3)LENS item, AF SLEEP reading
  COMMAND ROW
  ・Buf[2]=0x45
  ・Buf[3]=0x08(AF SLEEP reading)
  ・Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x45
  ・Buf[3]=0x08
  ・Buf[4]=0x00(AF SLEEP OFF),0x01(AF SLEEP ON)

(4)POSITION item, OSD reading
  COMMAND ROW
  ·Buf[2]=0x52
  ·Buf[3]=0x03(OSD reading)
  ·Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ·Buf[1]=0xA0(normal),other(ERROR)
  ·Buf[2]=0x52
  ·Buf[3]=0x03
  ·Buf[4]=0x00(POSITION OSD OFF)、0x01(POSITION OSD ON)
  ·Buf[5]~Buf[15]=non-use

(5)LENS item, ZOOM MAG reading
  COMMAND ROW
  ·Buf[2]=0x45
  ·Buf[3]=0x09(ZOOM MAG reading)
  ·Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ·Buf[1]=0xA0(normal),other(ERROR)
  ·Buf[2]=0x45
  ·Buf[3]=0x09(ZOOM MAG reading)
  ·Buf[4]=0x00(ZOOM MAG OFF),0x01(ZOOM MAG ON)

(6)MARK item, display position reading
  COMMAND ROW
  ·Buf[2]=0x56
  ·Buf[3]=0x01(display position reading)
  ·Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ·Buf[1]=0xA0(normal),other(ERROR)
  ·Buf[2]=0x56
  ·Buf[3]=0x01(display position setting)
  ·Buf[4]=0x00~0x03(Hor. Position High Byte)
  ·Buf[5]=0x00~0xFF(Hor. Position Low Byte)
  ·Buf[6]=0x00~0x01(Ver. Position High Byte)
  ·Buf[7]=0x00~0xFF(Ver. Position Low Byte)
  ·Buf[8]~Buf[15]=non-use

(7)MASK item, TOTAL READ
  COMMAND ROW
  ・Buf[2]=0x57
  ・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
  ・Buf[4]=0x01~0x40(POSITION No.)
  ・Buf[5]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x57
  ・Buf[3]=0x00(MASK 1)、0x01(MASK 2)、0x02(MASK 3)、0x03(MASK 4)
  ・Buf[4]=0x01~0x40(POSITION No.)
  ・Buf[5]=non-use
  ・Buf[6]=0x00(MASK OFF)、0x01(MASK ON)
  ・Buf[7]=0x00(MASK CONNECT OFF)、0x01(MASK CONNECT ON)
  ・Buf[8]=0x00~0xFF(MASK Hor. START position)
  ・Buf[9]=0x00~0xFF(MASK Hor. END position)
  ・Buf[10]=0x00~0xFF(MASK Ver. START position)
  ・Buf[11]=0x00~0xFF(MASK Ver. END position)
  ・Buf[12]=0x00~0xFF(MASK Hor. Center position)
  ・Buf[13]=0x00~0xFF(MASK Ver. Centerposition)
  ・Buf[14]=0x00~0x40(POSITION No.)
  ・Buf[15]=non-use

(8)MOTION item, MOTION TOTAL READ
  COMMAND ROW
  ・Buf[2]=0x5C
  ・Buf[3]=0x00(MOTION TOTAL READ)
  ・Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ・Buf[1]=0xA0(normal),other(ERROR)
  ・Buf[2]=0x5C
  ・Buf[3]=0x00(MOTION TOTAL READ setting)
  ・Buf[4]=0x00(MOTION OFF)、0x01(MOTION ON)
  ・Buf[5]=0x00~0x07(MOTION Level)
  ・Buf[6]=0x00~0xFF(Area 1st line:left LSB, right MSB)
  ・Buf[7]=0x00~0xFF(Area 2nd line:left LSB, right MSB)
  ・Buf[8]=0x00~0xFF(Area 3rd line:left LSB, right MSB)
  ・Buf[9]=0x00~0xFF(Area 4th line:left LSB, right MSB)
  ・Buf[10]=0x00~0xFF(Area 5th line:left LSB, right MSB)
  ・Buf[11]=0x00~0xFF(Area 6th line:left LSB, right MSB)
  ・Buf[12]=0x00~0x02(MOTION TIME)
  ・Buf[13]=0x00(MOTION OSD OFF)、0x01(MOTION OSD ON)
  ・Buf[14]~Buf[15]=non-use

(9)POWER ON item, TOTAL READ
  COMMAND ROW
  ·Buf[2]=0x5D
  ·Buf[3]=0x00(TOTAL READ)
  ·Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ·Buf[1]=0xA0(normal),other(ERROR)
  ·Buf[2]=0x5D
  ·Buf[3]=0x00(TOTAL READ)
  ·Buf[4]=0x00(BLUE BACK OFF)、0x01(BLUE BACK ON)
  ·Buf[5]=0x00(POWER ON POSITION OFF)、0x01(POWER ON POSITION ON)
  ·Buf[6]=0x01~0x40(POWER ON POSITION No.)
  ·Buf[7]~Buf[8]=non-use
  ·Buf[9]=0x00(COLOR BAR OFF)、0x01(COLOR BAR ON)
  ·Buf[10]~Buf[15]=non-use

(10)COMM.ID item TOTAL READ
  COMMAND ROW
  ·Buf[2]=0x5F
  ·Buf[3]=0x00(TOTAL READ)
  ·Buf[4]~Buf[15]=non-use
  RESPONSE ROW
  ·Buf[1]=0xA0(normal),other(ERROR)
  ·Buf[2]=0x5F
  ·Buf[3]=0x00(TOTAL READ)
  ·Buf[4]=non-use
  ·Buf[5]=0x01~0xEF(COMM. ID)
  ·Buf[6]=0x00(COMM MODE 1:1)、0x01(COMM MODE 1:N)
  ·Buf[7]=0x00(1:N, not support)、0x01(1:N, support)
  ·Buf[8]~Buf[15]=non-use

8. TOTAL READ COMMAND
Read out the shortened commend from 54G5 & 54G10,This commend is designed for getting the shortened time of the setting condition from 54G5 & 54G10.

This commend have some change for 54G5 & 54G10 camera.

TOTAL READCOMMAND (Buf[1]=0x31) setting as below.

(1)Macro readout instruction 1
  Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x00(Instruction 1)
·Buf[4]=0x00~0xFF(TITLE item 1st ID character ASCII CODE HIGH BYTE)
·Buf[5]=0x00~0xFF(TITLE item 1st ID character ASCII CODE LOW BYTE)
·Buf[6]=0x00~0xFF(TITLE item 2nd ID character ASCII CODE HIGH BYTE)
·Buf[7]=0x00~0xFF(TITLE item 2nd ID character ASCII CODE LOW BYTE)
·Buf[8]=0x00~0xFF(TITLE item 3rd ID character ASCII CODE HIGH BYTE)
·Buf[9]=0x00~0xFF(TITLE item 3rd ID character ASCII CODE LOW BYTE)
·Buf[10]=0x00~0xFF(TITLE item 4th ID character ASCII CODE HIGH BYTE)
·Buf[11]=0x00~0xFF(TITLE item 4th ID character ASCII CODE LOW BYTE)
·Buf[12]=0x00~0xFF(TITLE item 5th ID character ASCII CODE HIGH BYTE)
·Buf[13]=0x00~0xFF(TITLE item 5th ID character ASCII CODE LOW BYTE)
·Buf[14]～Buf[15]=non-use

(2) Macro readout instruction 2
  Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x01(Instruction 2)
·Buf[4]=0x00~0xFF(TITLE item 6th ID character ASCII CODE HIGH BYTE)
·Buf[5]=0x00~0xFF(TITLE item 6th ID character ASCII CODE LOW BYTE)
·Buf[6]=0x00~0xFF(TITLE item 7th ID character ASCII CODE HIGH BYTE)
·Buf[7]=0x00~0xFF(TITLE item 7th ID character ASCII CODE LOW BYTE)
·Buf[8]=0x00~0xFF(TITLE item 8th ID character ASCII CODE HIGH BYTE)
·Buf[9]=0x00~0xFF(TITLE item 8th ID character ASCII CODE LOW BYTE)
·Buf[10]=0x00~0xFF(TITLE item 9th ID character ASCII CODE HIGH BYTE)
·Buf[11]=0x00~0xFF(TITLE item 9th ID character ASCII CODE LOW BYTE)
·Buf[12]=0x00~0xFF(TITLE item 10th ID character ASCII CODE HIGH BYTE)
·Buf[13]=0x00~0xFF(TITLE item 10th ID character ASCII CODE LOW BYTE)
·Buf[14]～Buf[15]=non-use

(3) Macro readout instruction 3
  Buf[4]~Buf[15] by non-setting condition to get the data from camera

·Buf[2]=0x60(Macro read)
·Buf[3]=0x02(Instruction 3)
·Buf[4]=0x00~0xFF(TITLE item 11th ID character ASCII CODE HIGH BYTE)
·Buf[5]=0x00~0xFF(TITLE item 11th ID character ASCII CODE LOW BYTE)
·Buf[6]=0x00~0xFF(TITLE item 12th ID character ASCII CODE HIGH BYTE)
·Buf[7]=0x00~0xFF(TITLE item 12th ID character ASCII CODE LOW BYTE)
·Buf[8]=0x00~0xFF(TITLE item 13th ID character ASCII CODE HIGH BYTE)
·Buf[9]=0x00~0xFF(TITLE item 13th ID character ASCII CODE LOW BYTE)
·Buf[10]=0x00~0xFF(TITLE item 14th ID character ASCII CODE HIGH BYTE)
·Buf[11]=0x00~0xFF(TITLE item 14th ID character ASCII CODE LOW BYTE)
·Buf[12]=0x00~0xFF(TITLE item 15th ID character ASCII CODE HIGH BYTE)
·Buf[13]=0x00~0xFF(TITLE item 15th ID character ASCII CODE LOW BYTE)
·Buf[14]～Buf[15]=non-use

(4) Macro readout instruction 4
   Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x03(Instruction 4)
·Buf[4]=0x00~0xFF(TITLE item 16th ID character ASCII CODE HIGH BYTE)
·Buf[5]=0x00~0xFF(TITLE item 16th ID character ASCII CODE LOW BYTE)
·Buf[6]=0x00~0xFF(TITLE item 17th ID character ASCII CODE HIGH BYTE)
·Buf[7]=0x00~0xFF(TITLE item 17th ID character ASCII CODE LOW BYTE)
·Buf[8]=0x00~0xFF(TITLE item 18th ID character ASCII CODE HIGH BYTE)
·Buf[9]=0x00~0xFF(TITLE item 18th ID character ASCII CODE LOW BYTE)
·Buf[10]=0x00~0xFF(TITLE item 19th ID character ASCII CODE HIGH BYTE)
·Buf[11]=0x00~0xFF(TITLE item 19th ID character ASCII CODE LOW BYTE)
·Buf[12]=0x00~0xFF(TITLE item 20th ID character ASCII CODE HIGH BYTE)
·Buf[13]=0x00~0xFF(TITLE item 20th ID character ASCII CODE LOW BYTE)
·Buf[14]=0x00(UP),0x01(DOWN) ;TITLE itemID display UP/DOWN
·Buf[15]=non-use

(5) Macro readout instruction 5
   Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x04(Instruction 5)
·Buf[4]=0x00~0xFF(BLC item Area 1ST line:LEFT-LSB,RIGHT-MSB)
·Buf[5]=0x00~0xFF(BLC item Area 2nd line:LEFT-LSB,RIGHT-MSB)
·Buf[6]=0x00~0xFF(BLC item Area 3rd line:LEFT-LSB,RIGHT-MSB)
·Buf[7]=0x00~0xFF(BLC item Area 4th line:LEFT-LSB,RIGHT-MSB)
·Buf[8]=0x00~0xFF(BLC item Area 5th line:LEFT-LSB,RIGHT-MSB)
·Buf[9]=0x00~0xFF(BLC item Area 6th line:LEFT-LSB,RIGHT-MSB)
(Buf[4]~Buf[9] Area select bit=1)
·Buf[10]=0x00(ATW),0x01(AWB) ;COLOR item WB ATW/AWB)
·Buf[11]=0x00~0x08(COLOR item ATW Level)
·Buf[12]=0x00~0x08(COLOR item AWB Level)
·Buf[13]=0x00~0x08(COLOR item GAIN R-Y Level)
·Buf[14]=0x00~0x08(COLOR item GAIN B-Y Level)
·Buf[15]=non-use

	LSB						MSB
Buf[4]	0	0	0	0	0	0	0
Buf[5]	0	0	0	0	0	0	0
Buf[6]	0	0	1	1	1	0	0
Buf[7]	0	0	1	1	1	0	0
Buf[8]	0	0	1	1	1	0	0
Buf[9]	0	0	0	0	0	0	0

(6) Macro readout instruction 6
   Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x05(Instruction 6)
·Buf[4]=0x00(OFF),0x01(ON) ;PRESET item PHASE ON/OFF
·Buf[5]=0x00~0xFF(PRESET item PHASE settable maximum position HIGH BYTE)
·Buf[6]=0x00~0xFF(PRESET item PHASE settable maximum position LOW BYTE)
·Buf[7]=0x00~0xFF(PRESET item PHASE settable minimum position HIGH BYTE)
·Buf[8]=0x00~0xFF(PRESET item PHASE settable minimum position LOW BYTE)
·Buf[9]=0x00~0xFF(PRESET item PHASE current position HIGH BYTE)
·Buf[10]=0x00~0xFF(PRESET item PHASE current position LOW BYTE)
·Buf[11]=0x00~0x07(BLC item SENS level)
·Buf[12]=0x00~0x08(AGC·SENS item AGC level)
·Buf[13]=0x00~0x08(AGC·SENS item SENS level)
·Buf[14]=0x00(OFF),0x01(ON) ;AGC·SENS itemFreeze ON/OFF
·Buf[15]=non-use

(7) Macro readout instruction 7
   Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x06(Instruction 7)
·Buf[4]=0x00(OFF),0x01(ON) ;IRIS item Peak ON/OFF
·Buf[5]=0x00～0x08(IRIS item Peak ON level)
·Buf[6]=0x00(AUTO),0x01(FIX) ;IRIS item ALC AUTO/FIX
·Buf[7]=0x00～0x08(IRIS item ALC AUTO level)
·Buf[8]=0x00～0x08(IRIS item ALC FIX level)
·Buf[9]=0x00(AUTO),0x01(FIX) IRIS item AES AUTO/FIX
·Buf[10]=0x00～0x08(IRIS item AES AUTO level)
·Buf[11]=0x00～0x07(IRIS item AES FIX select)
·Buf[12]=0x00～0x0C(APC item H·GAIN level)
·Buf[13]=0x00～0x0C(APC item V·GAIN level)
·Buf[14]=0x00～0x40(POSITION item ALARM NO)
·Buf[15]=non-use

(8) Macro readout instruction 8
   Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x07(Instruction 8)
·Buf[4]=0x00~0xFF(LENS item ZOOM target position HIGH BYTE)
·Buf[5]=0x00~0xFF(LENS item ZOOM target position LOW BYTE)
·Buf[6]=0x00~0xFF(LENS item ZOOM current position HIGH BYTE)
·Buf[7]=0x00~0xFF(LENS item ZOOM current position LOW BYTE)
·Buf[8]=0x00~0xFF(LENS item FOCUS settable maximum position HIGH BYTE)
·Buf[9]=0x00~0xFF(LENS item FOCUS settable maximum position LOW BYTE)
·Buf[10]=0x00~0xFF(LENS item FOCUS settable minimum position HIGH BYTE)
·Buf[11]=0x00~0xFF(LENS item FOCUS settable minimum position LOW BYTE)
·Buf[12]～Buf[15]=non-use

(9) Macro readout instruction 9
　Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x08(Instruction 9)
·Buf[4]=0x00(MANUAL),0x01(AUTO) ;LENS itemFOCUS MANUAL/AUTO
·Buf[5]=0x00～0x04(LENS item ZOOM Speed level)
·Buf[6]=0x00～0x04(LENS item FOCUS Speed level)
·Buf[7]=0x01～0x40(POSITION item POSITION NO)
·Buf[8]=0x00(OFF),0x01(ON) ;PRESET item PRESET ON/OFF
·Buf[9]=0x00(OFF),0x01(ON) ;POSITION item Freeze ON/OFF
·Buf[10]=0x00(Field),0x01(Frame) ;AGC·SENS item Freeze Field/Frame
·Buf[11]=0x00(POSI),0x01(NEGA) ;REV item POSI/NEGA POSI/NEGA
·Buf[12]=0x00(AGC priority),0x01(SENS priority) ;AGC·SENS item Priority
·Buf[13]=0x00(OFF),0x01(ON) ;ZOOM+AF item ZOOM+AF OFF/ON
·Buf[14]～Buf[15]=non-use

(10) Macro readout instruction 10
　Buf[4]~Buf[15] by non-setting condition to get the data from camera
·Buf[2]=0x60(Macro read)
·Buf[3]=0x09(Instruction 10)
·Buf[4]=0x00(OFF),0x01(ON) ;MARK item ON/OFF
·Buf[5]=0x00～0xFF(MARK Hor. Position HIGH BYTE)
·Buf[6]=0x00～0xFF(MARK Hor. Position LOW BYTE)
·Buf[7]=0x00～0xFF(MARK Ver. Position HIGH BYTE)
·Buf[8]=0x00～0xFF(MARK Ver. Position LOW BYTE)
·Buf[9]=non-use
·Buf[10]=non-use
·Buf[11]=0x00(0.45),0x01(1.0) ;GAMMA item
·Buf[12]=0x00(English),0x01(Chinese),0x02(Japanese) ;Language item
·Buf[13]～Buf[15]=non-use

(11) Macro readout instruction 11
　　Buf[4]~Buf[15] by non-setting condition to get the data from camera
・Buf[2]=0x60(Macro read)
・Buf[3]=0x0A(Instruction 11)
・Buf[4]=0x00(OFF),0x01(ON) 0x02(AUTO) ;COLOR item
・Buf[5]=0x00(OFF),0x01(ON) ;OSD item Position displayON/OFF
・Buf[6]=0x00(OFF),0x01(ON) ;OSD item ZOOM MAG display ON/OFF
・Buf[7]=0x00(OFF),0x01(ON) ;LENS item Digital ZOOM ON/OFF
・Buf[8]=0x00～0xFF(LENS item FOCUS target position HIGH BYTE)
・Buf[9]=0x00～0xFF(LENS item FOCUS target position LOW BYTE)
・Buf[10]=0x00～0xFF(LENS item FOCUS current position HIGH BYTE)
・Buf[11]=0x00～0xFF(LENS item FOCUS current position LOW BYTE)
・Buf[12]=0x00(OFF),0x01(ON) ;ZOOM+AF item AF SLEEP OFF/ON
・Buf[13]～Buf[15]=non-use

(12) Macro readout instruction 12
　　Buf[4]~Buf[15] by non-setting condition to get the data from camera
・Buf[2]=0x60(Macro read)
・Buf[3]=0x0B(Instruction 12)
・Buf[4]=0x00～0xFF(DSP address 0x01 setting data HIGH BYTE)
・Buf[5]=0x00～0xFF(DSP address 0x01 setting data LOW BYTE)
・Buf[6]=0x00～0xFF(DSP address 0x40 setting data HIGH BYTE)
・Buf[7]=0x00～0xFF(DSP address 0x40 setting data LOW BYTE)
・Buf[8]=0x00(OFF),0x01(ON) ;REV item V・REV ON/OFF
・Buf[9]=0x00(OFF),0x01(ON) ;REV item H・REV ON/OFF
・Buf[10]=0x00(OFF),0x01(ON) ;BLC item ON/OFF
・Buf[11]=0x00(stop),0x01(operation) ;COLOR item WB AWB state
・Buf[12]=0x00(OFF),0x01(ON) ;PRESET item INITIAL ON/OFF
・Buf[14]～Buf[15]=non-use

9. TITLE CODE TABLE

TITLE CODE TABLE

ASCII CODE (1byte HEX)	TITLE CODE (2byte HEX)	Letter	ASCII CODE (1byte HEX)	TITLE CODE (2byte HEX)	Letter
20	01FE	SP	51	0020	Q
22	0103	"	52	0021	R
27	0102	'	53	0022	S
28	0109	(	54	0023	T
29	010A	)	55	0024	U
2A	0126	*	56	0025	V
2C	0106		57	0026	W
2D	0120	-	58	0027	X
2E	0105	.	59	0028	Y
2F	0117	/	5A	0029	Z
30	0000	0	5B	010B	
31	0001	1	5D	010C	
32	0002	2	61	0030	a
33	0003	3	62	0031	b
34	0004	4	63	0032	c
35	0005	5	64	0033	d
36	0006	6	65	0034	e
37	0007	7	66	0035	f
38	0008	8	67	0036	g
39	0009	9	68	0037	h
3A	0100	:	69	0038	i
3B	0101	;	6A	0039	j
3C	0107	<	6B	003A	k
3E	0108	>	6C	003B	l
41	0010	A	6D	003C	m
42	0011	B	6E	003D	n
43	0012	C	6F	003E	o
44	0013	D	70	003F	p
45	0014	E	71	0040	q
46	0015	F	72	0041	r
47	0016	G	73	0042	s
48	0017	H	74	0043	t
49	0018	I	75	0044	u
4A	0019	J	76	0045	v
4B	001A	K	77	0046	w
4C	001B	L	78	0047	x
4D	001C	M	79	0048	y
4E	001D	N	7A	0049	z
4F	001E	O	7B	010D	
50	001F	P	7D	010E	

Ver. (A2)

10. SETTABLE RANGE

Communicating protocol in relevance lens ZOOM and FOCUS can set up range, and PHASE regulative can set up range, illustrate as follow.

(1) LENS ZOOM can set up range.
  54G5 and 54G10 can set up range not same, 54G5 is for X22 ZOOM lens,
  54G10 is for X10 ZOOM lens.

  54G5 can set up range.

NO.	MIN.,(WIDE)	MAX.,(TELE)	DIGITAL ZOOM
1	0x1000	0x18C8	OFF
2	0x1000	0x20C8	X2
3	0x1000	0x24C8	X4
4	0x1000	0x2648	X6
5	0x1000	0x26C8	X8
6	0x1000	0x2708	X10

  54G10 can set up range.

NO.	MIN.,(WIDE)	MAX.,(TELE)	DIGITAL ZOOM
1	0x1000	0x145B	OFF
2	0x1000	0x1C5B	X2
3	0x1000	0x205B	X4
4	0x1000	0x21DB	X6
5	0x1000	0x225B	X8
6	0x1000	0x229B	X10

(2) LENS FOCUS can set up range.
  54G5 and 54G10 can set up range not same.
  ZOOM's position does not in the meantime set up range not same also.
  Different camera can some praise different also, difference about act for number Steps.

  Each camera's now ZOOM's position and parallel FOCUS but set up range, can by following style hear of.
  in read in (Write) Order in the 23th " LENS item,"ZOOM Position" setting "Order executes behind, in response information lists.
  Buf[8] ~Buf[11] Respond namely, this institute set up ZOOM worth parallel FOCUS but set up range.
  in read out (Read)Order in the 23th " LENS item,"ZOOM Position" reading "Order executes behind, in response information lists.
  Buf[8] ~Buf[11] Respond namely, now ZOOM position parallel FOCUS but set up range.

  ・Buf[8]   FOCUS settable maximum data HIGH BYTE (NEAR)
  ・Buf[9]   FOCUS settable maximum data LOW BYTE (NEAR)
  ・Buf[10]   FOCUS settable minimum data HIGH BYTE (FAR)
  ・Buf[11]   FOCUS settable minimum data LOW BYTE (FAR)

(3) Zoom Ratio and Zoom Position (for reference)

MTV-54G5 Zoom Ratio and Zoom Position (for reference)

Optical Zoom	Position Data	Digital Zoom	Position Data
X1	1000	X1.5	20A0
X2	1400	X2	20C8
X3	1500	X4	24C8
X4	15B0	X6	2648
X5	1640	X8	26C8
X6	16A0	X10	2708
X7	16F0		
X8	1740		
X9	1780		
X10	17A0		
X11	17E0		
X12	1800		
X13	1830		
X14	1850		
X15	1865		
X16	1879		
X17	1889		
X18	18A0		
X19	18AC		
X20	18B5		
X21	18BC		
X22	18C5		

MTV-54G10 Zoom Ratio and Zoom Position (for reference)

Optical Zoom	Position Data	Digital Zoom	Position Data
X1	1000	X1.5	1A40
X2	123C	X2	1E40
X3	12EC	X4	2100
X4	134C	X6	2200
X5	138C	X8	2260
X6	13D0	X10	228D
X7	140C		
X8	1438		
X9	1450		
X10	1459		

(4) PHASE can set up range
     54G5 and 54G10 can set up range is same,

NO.	Maximum	Minimum	TV-System
1	0x0000	0x0208	NTSC
2	0x0000	0x0270	PAL

(5) DSP Address [0x01] & [0x40] Purpose (TOTAL READ COMMAND)
     DSP address [0x01] Record is used for adjudge camera, resolution message.
       ・Buf[4] :DSP address [0x01] HIGH BYTE
      Bit6=1:High Resolution (410K,pixels)
      Bit6=0:Low Resolution (270K, pixels)

     DSP address[0x40] Record is used for adjudge camera, system format message.
       ・Buf[7] :DSP address [0x40] LOW BYTE
      Bit0=1:PAL
      Bit0=0:NTSC