DENON AVR/AVC control protocol

Application model : AVR-4806/AVC-A11XV

Application terminal : RS-232C/Ethernet

Connector specification

Ⅰ. **RS-232C**

    Connector type : DB-9pin female type, slave straight connection (DCE type)
            (1pin : GND , 2pin : TxD , 3pin : RxD , 5pin : Common(GND) , 4,6,7,8,9pin : NC)
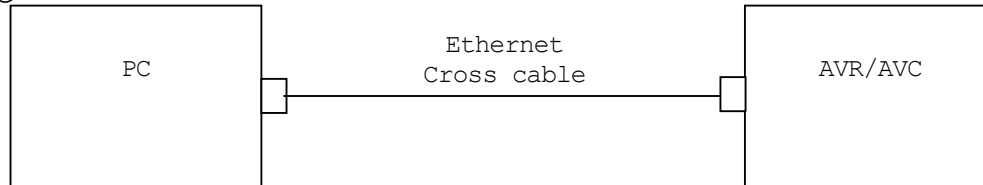   Communication format :
        Synchronous system   : Tone step synchronization
        Communication system   : A half duplex
        Communication speed   : 9600bps
        Character length   : 8 bits
        Parity control   : None
        Start bit   : 1 bit
        Stop bit   : 1 bit
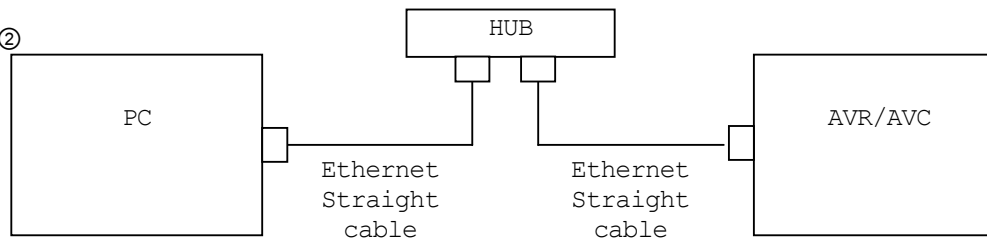   Communication procedure   : Non procedural
        Communication data length   : 135 bytes (maximum)

Ⅱ. Ethernet

Connector type   :   RJ-45(10BASE-T/100BASE-TX)

Example ①

```
┌──────────────┐          Ethernet          ┌──────────────┐
│              │         Cross cable        │              │
│     PC      ─┤├────────────────────────┤├─│   AVR/AVC    │
│              │                            │              │
└──────────────┘                            └──────────────┘
```

Example ②

```
                        ┌──────────┐
                        │   HUB    │
                        └─┤├──┤├───┘
┌──────────────┐          │    │        ┌──────────────┐
│              │          │    │        │              │
│     PC      ─┤├─────────┘    └────────┤├│   AVR/AVC    │
│              │                         │              │
└──────────────┘   Ethernet    Ethernet └──────────────┘
                   Straight    Straight
                     cable       cable
```

Communication format :

```
        Communication system        : A half duplex
        Communication speed         : 10Mbps/100Mbps
        Communication port          : TCP port 23 (telnet)
        Communication data length   : 135bytes (maximum)
```

NETWORK SETUP of AVR-4806/AVC-A11XV

>Procedure of Network Setup mode.

(1) Push the POWER switch during STANDARD button and INPUT MODE button press simultaneously.

(2) Press SYSTEM SETUP button, then System Setup Menu appears on FL-display(and OSD)

(3) Select Option Setup and select Network Setup.

(4) Set parameters described below.

  <DHCP>   "ON"---Use this setting when DHCP server is on the local network.

                "OFF"---Use this setting when DHCP server is not on the local network.

  <IP Address> When <DHCP> sets "OFF", please set IP address.

                When <DHCP> sets "ON", you can confirm the IP address that is set by server.

  <Subnet Mask> When <DHCP> sets "OFF", please set Subnet Mask.

                When <DHCP> sets "ON", you can confirm the Subnet Mask that is set by server.

  <Gateway>   Set the address of Gateway when Gateway is on the local network.

                Do not set this parameter when Gateway is not on the local network.

  <Primary DNS> Do not set this parameter.

  <Second DNS> Do not set this parameter.

  <Proxy>   Set this parameter "OFF".

Protocol specification

The following three data forms is defined.

  COMMAND : The message sent to a system(AVR/AVC) from a controller(Touch Panel etc.)
        A command to a system is given from a controller.

  EVENT   : The message sent to a controller(Touch Panel etc.) from a system(AVR/AVC)
        The result is sent, when a system is operated directly and a state changes.
        *The form of **EVENT** presupposes that it is the same as that of **COMMAND**.
        Refer to the following table for the contents of **COMMAND and **EVENT**.

  RESPONSE : The message sent to a controller(Touch Panel etc.) from a system(AVR/AVC)
        if the 'request command' (**COMMAND**+**?**+CR(0x0D)) has came from a controller.
        The **RESPONSE** should be sent within 200ms of receiving the **COMMAND**.
        *The form of **RESPONSE** presupposes that it is the same as that of **EVENT**.

Basic specification : The command by ASCII CODE, parameter expression
  *ASCII CODE which can be used is from 0x20 to 0x7F : the alphabet and the number of 0-9 , and space (0x20) , Some signs ,
                AND carriage return(0x0D)--- It is used only as a pause sign.

Command structure : COMMAND + PARAMETER + CR(0x0D)
  COMMAND : ASCII CODE of 2 characters
      ex.   SI : Select Input source
          MS : surround Mode Setting
          MV : Master Volume setting
          PW : system PoWer setting
  PARAMETER : ASCII CODE (up to 25 characters)
      ex.   DVD : function name
          CDR/TAPE-1 : function name
          THX SURROUND EX : surround mode name
          SUPER STADIUM : surround mode name
     *Special Parameter--- ? : for request command

The example of a command   * <CR> is the meaning of 0x0D.

    SIDVD<CR> : Select Input source DVD

    MSTHX SURROUND EX<CR> : surround Mode Set to THX SURROUND EX

    MVUP<CR> : Master Volume UP

    PWON<CR> : system PoWer ON

    PWSTANDBY<CR> : system PoWer STANDBY

    SI?<CR> : Request command for now playing input source >> Return **RESPONSE** 'SI***<CR>'

Others

A) *COMMAND* is receivable also during transmission of *EVENT*.

B) Since CHANNEL VOLUME changes simultaneously when the SURROUND MODE changes, the value of the channel volume of all channels returns as *EVENT*.

C) CHANNEL VOLUME returns the data of ALL channels by the present SURROUND MODE also including an intact channel. In this case, the data of an intact channel is set to "50".

D) Since SURROUND MODE changes simultaneously when the INPUT source changes, the SURROUND MODE (and also the value of the channel volume of all channels , It described in B)) returns as *EVENT*.

E) When SURROUND MODE is the same in between INPUT source change before and after, *EVENT* of SURROUND MODE and CHANNEL VOLUME does NOT return.

F) Although *EVENT* of SURROUND MODE returns when the present SURROUND MODE is set up again, CHANNEL VOLUME does NOT return.

G) When SURROUND MODE is changed, before returning SURROUND MODE after change as *EVENT*, the present SURROUND MODE is returned.

H) The *RESPONSE* should be sent as opposed to the request command by all the commands with which an *EVENT* exists , not need to the another request commands(ex. SV command).

I) The *PARAMETER* (with *COMMAND* and *RESPONSE*, *EVENT*) of minimum level of MASTER VOLUME defines "99".

J) If the MASTER VOLUME & CHANNEL VOLUME set with 0.5dB step, the *PARAMETER* (with *COMMAND* and *RESPONSE*, *EVENT*) defines three ASCII characters as bellows.

```
    ex.    MASTER VOLUME = +1.0dB :      MV81<CR>
                           +0.5dB :      MV805<CR>
                            0dB :        MV80<CR>
                           -0.5dB :      MV795<CR>
                           -1.0dB :      MV79<CR>
                             |            |
                          -79.5dB :      MV005<CR>
                          -80.0dB :      MV00<CR>
                          ---    :       MV99<CR>
```

   * At the **.0dB step, only uses two ASCII characters as *PARAMETER*, same as usual.

COMMAND and PARAMETER list

COMMAND	PARAMETER	function	example
PW	ON	POWER ON/STANDBY change	PWON\<CR>
	STANDBY		PWSTANDBY\<CR>
MV	UP	MASTER VOLUME UP/DOWN , direct change to **dB	MVUP\<CR>
	DOWN		MVDOWN\<CR>
	**	**:00 to 99 by ASCII , 80=0dB, 99=---(MIN)	MV80\<CR>
CV	FL UP	CHANNEL VOLUME UP/DOWN , direct change to **dB	CVFL UP\<CR>
	FL DOWN	---FRONT Lch	CVFL DOWN\<CR>
	FL **	**:38 to 62 by ASCII , 50=0dB	CVFL 50\<CR>
	FR UP		CVFR UP\<CR>
	FR DOWN	---FRONT Rch	CVFR DOWN\<CR>
	FR **	**:38 to 62 by ASCII , 50=0dB	CVFR 50\<CR>
	C UP		CVC UP\<CR>
	C DOWN	---CENTERch	CVC DOWN\<CR>
	C **	**:38 to 62 by ASCII , 50=0dB	CVC 50\<CR>
	SW UP		CVSW UP\<CR>
	SW DOWN	---SUBWOOFERch	CVSW DOWN\<CR>
	SW **	**:00,38 to 62 by ASCII , 50=0dB,00=OFF	CVSW 50\<CR>
	SL UP		CVSL UP\<CR>
	SL DOWN	---SURROUND Lch	CVSL DOWN\<CR>
	SL **	**:38 to 62 by ASCII , 50=0dB	CVSL 50\<CR>
	SR UP		CVSR UP\<CR>
	SR DOWN	---SURROUND Rch	CVSR DOWN\<CR>
	SR **	**:38 to 62 by ASCII , 50=0dB	CVSR 50\<CR>
	SBL UP	---SURROUND BACK Lch (SBch 2SP)	CVSBL UP\<CR>
	SBL DOWN		CVSBL DOWN\<CR>
	SBL **	**:38 to 62 by ASCII , 50=0dB	CVSBL 50\<CR>
	SBR UP	---SURROUND BACK Rch (SBch 2SP)	CVSBR UP\<CR>
	SBR DOWN		CVSBR DOWN\<CR>
	SBR **	**:38 to 62 by ASCII , 50=0dB	CVSBR 50\<CR>

MV , CV **COMMAND** : "*" parameter uses two or three ASCII characters. (see page4 J) section)

COMMAND	PARAMETER	function	example
CV	SB UP	---SURROUND BACKch (SBch 1SP)	CVSB UP<CR>
	SB DOWN		CVSB DOWN<CR>
	SB **	**:00 to 99 by ASCII , 50=0dB	CVSB 50<CR>
MU	ON	OUTPUT MUTE ON/OFF change	MUON<CR>
	OFF		MUOFF<CR>
SI	PHONO	Select INPUT source	SIPHONO<CR>
	CD		SICD<CR>
	TUNER		SITUNER<CR>
	DVD		SIDVD<CR>
	VDP		SIVDP<CR>
	TV		SITV<CR>
	DBS		**SIDBS<CR>**
	VCR-1		SIVCR-1<CR>
	VCR-2		SIVCR-2<CR>
	VCR-3		SIVCR-3<CR>
	V.AUX		SIV.AUX<CR>
	CDR/TAPE		**SICDR/TAPE<CR>**
ZM	ON	MAIN-ZONE ON/OFF change at AVR-4806	ZMON<CR>
	OFF		ZMOFF<CR>
Z2	PHONO | **CDR/TAPE**	MULTI ZONE-2 mode set , and select source at AVR-4806 ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z2PHONO<CR> | **Z2CDR/TAPE**
	SOURCE	MULTI ZONE-2 mode cancel at AVR-4806	Z2SOURCE<CR>
	UP	MULTI ZONE-2 VOLUME UP/DOWN , direct change to **dB	Z2UP<CR>
	DOWN	at AVR-4806	Z2DOWN<CR>
	**	**:10 to 99 by ASCII , 80=0dB, 99=---(MIN)	Z280<CR>
	ON	MULTI ZONE-2 ON/OFF change at AVR-4806	Z2ON<CR>
	OFF		Z2OFF<CR>
Z2MU	**ON**	ZONE2 OUTPUT MUTE ON/OFF change	Z2MUON<CR>
	OFF		Z2MUOFF<CR>

CV , Z2 **COMMAND** : "*" parameter uses two ASCII characters. (see page4 J) section)

COMMAND	PARAMETER	function	example
Z3	**PHONO** | **CDR/TAPE**	MULTI ZONE-3 mode set , and select source at AVR-4806 ---The name of PARAMETER is the same as that of the time of SI COMMAND.	**Z3PHONO\<CR>** | **Z3CDR/TAPE\<CR>**
	SOURCE	MULTI ZONE-3 mode cancel	**Z3SOURCE\<CR>**
	UP	MULTI ZONE-3 VOLUME UP/DOWN , direct change to **dB	**Z3UP\<CR>**
	DOWN		**Z3DOWN\<CR>**
	****	**:10 to 99 by ASCII , 80=0dB, 99=---(MIN)	**Z380\<CR>**
	ON	MULTI ZONE-3 ON/OFF change at AVR-4806	**Z3ON\<CR>**
	OFF		**Z3OFF\<CR>**
Z3MU	**ON**	ZONE3 OUTPUT MUTE ON/OFF change	**Z3MUON\<CR>**
	OFF		**Z3MUOFF\<CR>**
SR	PHONO | **CDR/TAPE**	REC SELECT mode set , and select source ---The name of PARAMETER is the same as that of the time of SI COMMAND.	SRPHONO\<CR> | **SRCDR/TAPE\<CR>**
	SOURCE	REC SELECT mode cancel	SRSOURCE\<CR>
SV	DVD	VIDEO SELECT mode set , and select source	SVDVD\<CR>
	VDP		SVVDP\<CR>
	TV		SVTV\<CR>
	DBS		**SVDBS\<CR>**
	VCR-1		SVVCR-1\<CR>
	VCR-2		SVVCR-2\<CR>
	VCR-3		SVVCR-3\<CR>
	V.AUX		SVV.AUX\<CR>
	SOURCE	VIDEO SELECT mode cancel	SVSOURCE\<CR>
SD	AUTO	set DIGITAL INPUT AUTO mode	SDAUTO\<CR>
	PCM	set DIGITAL INPUT force PCM mode	SDPCM\<CR>
	DTS	set DIGITAL INPUT force DTS mode	SDDTS\<CR>
	RF	---Invalid at AVR-4806	SDRF\<CR>
	ANALOG	set force ANALOG INPUT mode	SDANALOG\<CR>
	EXT.IN-1	---Set EXT.IN mode at AVR-4806	SDEXT.IN-1\<CR>
	EXT.IN-2	---Invalid at AVR-4806	SDEXT.IN-2\<CR>

Z3 **COMMAND** : "*" parameter uses two ASCII characters. (see page4 J) section)

EVENT	*PARAMETER*	function	example
MS	DIRECT	SURROUND mode set	MSDIRECT<CR>
	PURE DIRECT		MSPURE DIRECT<CR>
	STEREO		MSSTEREO<CR>
	MULTI CH IN	---This is received as "SATNDARD".	MSMULTI CH IN<CR>
	MULTI CH DIRECT		MSMULTI CH DIRECT<CR>
	MULTI CH PURE D		MSMULTI CH PURE D<CR>
	DOLBY PRO LOGIC	All are received as "STANDARD" ,	MSDOLBY PRO LOGIC<CR>
	DOLBY PL2	the surround mode which changed return as *EVENT*.	MSDOLBY PL2<CR>
	DOLBY PL2x		MSDOLBY PL2X<CR>
	DOLBY DIGITAL		MSDOLBY DIGITAL<CR>
	DOLBY D EX		MSDOLBY D EX<CR>
	DTS NEO:6	All are received as "DTS SURROUND" ,	MSDTS NEO:6<CR>
	DTS SURROUND		MSDTS SURROUND<CR>
	DTS ES DSCRT6.1		MSDTS ES DSCRT6.1<CR>
	DTS ES MTRX6.1		MSDTS ES MTRX6.1<CR>
	DOLBY H/P		**MSDOLBY H/P<CR>**
	DTS+DOLBY H/P		**MSDTS+DOLBY H/P<CR>**
	HOME THX CINEMA	All are received as "THX SURROUND" ,	**MSHOME THX CINEMA<CR>**
	THX5.1	the surround mode which changed return as *EVENT*.	**MSTHX5.1<CR>**
	THX U2 CINEMA		**MSTHX U2 CINEMA<CR>**
	THX MUSIC MODE		**MSTHX MUSIC MODE<CR>**
	THX GAMES MODE		**MSTHX GAMES MODE<CR>**
	THX6.1		**MSTHX6.1<CR>**
	THX SURROUND EX		**MSTHX SURROUND EX<CR>**
	WIDE SCREEN		MSWIDE SCREEN<CR>
	5CH STEREO	Both are received as "5CH/7CH/9CH STEREO" ,	MS5CH STEREO<CR>
	7CH STEREO	the surround mode which changed return as *EVENT*.	MS7CH STEREO<CR>
	9CH STEREO		**MS9CH STEREO<CR>**
	SUPER STADIUM		MSSUPER STADIUM<CR>
	ROCK ARENA		MSROCK ARENA<CR>
	JAZZ CLUB		MSJAZZ CLUB<CR>
	CLASSIC CONCERT		MSCLASSIC CONCERT<CR>
	MONO MOVIE		MSMONO MOVIE<CR>
	MATRIX		MSMATRIX<CR>
	VIDEO GAME		MSVIDEO GAME<CR>

EVENT	PARAMETER	function	example
MS	VIRTUAL	---Invalid at AVR-4806 model	MSVIRTUAL<CR>
	MPEG2 AAC	---Invalid at AVR model	MSMPEG2 AAC<CR>
	AAC+DOLBY EX	---Invalid at AVR model	MSAAC+DOLBY EX<CR>
	USER1		**MSUSER1<CR>**
	USER2		**MSUSER2<CR>**
	USER3		**MSUSER3<CR>**
PS	TONE DEFEAT ON	PARAMETER setting	PSTONE DEFEAT ON<CR>
	TONE DEFEAT OFF	TONE DEFEAT ON/OFF	PSTONE DEFEAT OFF<CR>
	SB:MTRX ON	SURROUND BACK SP MODE set	PSSB:MTRX ON<CR>
	SB:NON MTRX	---MTRX ON = SURR.EX ON = DSCRT ON	PSSB:NON MTRX<CR>
	SB:PL2xCINEMA	(@THX) (@ES DSCRT)	PSSB:PL2X CINEMA<CR>
	SB:PL2xMUSIC		PSSB:PL2X MUSIC<CR>
	SB:OFF		PSSB:OFF<CR>
	CINEMA EQ.ON	CINEMA EQ. ON/OFF	PSCINEMA EQ.ON<CR>
	CINEMA EQ.OFF		PSCINEMA EQ.OFF<CR>
	MODE : MUSIC	CINEMA / MUSIC / GAME / PL mode change	PSMODE:MUSIC<CR>
	MODE : CINEMA	(This parameter can change DOLBY PL2,PL2x,NEO:6 mode.)	PSMODE:CINEMA<CR>
	MODE : GAME	---SB=ON : PL2x mode / SB=OFF : PL2 mode	PSMODE:GAME<CR>
	MODE : PRO LOGIC	--- GAME can change DOLBY PL2 & PL2x mode --- PL can change ONLY DOLBY PL2 mode	PSMODE:PRO LOGIC<CR>
	ROOM EQ:AUDYSSEY	ROOM EQ mode direct change	**PSROOM EQ:AUDYSSEY<CR>**
	ROOM EQ:FRONT		PSROOM EQ:FRONT<CR>
	ROOM EQ:FLAT		PSROOM EQ:FLAT<CR>
	ROOM EQ:MANUAL		PSROOM EQ:MANUAL<CR>
	ROOM EQ:OFF		PSROOM EQ:OFF<CR>
	DELAY UP	AUDIO DELAY UP/DOWN , direct change to ***dB	**PSDELAY UP<CR>**
	DELAY DOWN	***:000 to 999 by ASCII , 000=0ms, 200=200ms	**PSDELAY DOWN<CR>**
	DELAY ***	---AVR-4806 can be operated from 0 to 200	**PSDELAY 200<CR>**

EVENT	PARAMETER	function	example	
TF	UP	TUNER Frequency UP/DOWN , direct change	TFUP<CR>	*
	DOWN		TFDOWN<CR>	*
	****** (6 digits)	--- ****.** kHz at AM band (>050000 is AM.) ****.** MHz at FM band (<050000 is FM.)	TF105000<CR> (1050.00kHz at AM)	
	XM* (channel No.)**	**--- *** at XM mode**	**TFXM001<CR> (channel 1 at XM)**	
TP	UP	TUNER PRESET CH UP/DOWN , direct change to No.**	TPUP<CR>	
	DOWN		TPDOWN<CR>	
	**(PRESET No.)		TPA1<CR> (PRESET No."A1")	
TM		TUNER BAND , MODE Select		
	AM	---Band set to AM	TMAM<CR>	
	FM	---Band set to FM	TMFM<CR>	
	XM	**---Band set to XM**	**TMXM<CR>**	
	AUTO	---Tuning mode set to AUTO mode	TMAUTO<CR>	*
	MANUAL	---Tuning mode set to MANUAL mode	TMMANUAL<CR>	*

TF, TP, TM **COMMAND** : '*' parameters can NOT operate when INPUT source isn't TUNER.

EVENT(or RESPONSE) and PARAMETER list

EVENT	*PARAMETER*	function	example	*RES.
PW	ON	POWER ON/STANDBY change	PWON<CR>	
	STANDBY		PWSTANDBY<CR>	
MV	**	MASTER VOLUME change , **:00 to 99 by ASCII 98 = +18dB(MAX) 80 = 0dB 00 = -80dB 99 = ---(MIN)	MV80<CR>	
CV	FL **	CHANNEL VOLUME change , **:00,38 to 62 by ASCII	CVFL 50<CR>	
	FR **	62 = +12dB(MAX)	CVFR 50<CR>	
	C **	50 = 0dB	CVC 50<CR>	
	SW **	38 = -12dB(MIN)	CVSW 50<CR>	
	SL **	00 = OFF (define ONLY SWch in DIRECT mode.)	CVSL 50<CR>	
	SR **		CVSR 50<CR>	
	SBL **	(at SBch 2SP)	CVSBL 50<CR>	
	SBR **	(at SBch 2SP)	CVSBR 50<CR>	
	SB **	(at SBch 1SP)	CVSB 50<CR>	
MU	ON	OUTPUT MUTE ON/OFF change	MUON<CR>	
	OFF		MUOFF<CR>	
SI	PHONO	INPUT source change	SIPHONO<CR>	
	CD		SICD<CR>	
	TUNER		SITUNER<CR>	
	DVD		SIDVD<CR>	
	VDP		SIVDP<CR>	
	TV		SITV<CR>	
	DBS		**SIDBS<CR>**	
	VCR-1		SIVCR-1<CR>	
	VCR-2		SIVCR-2<CR>	
	VCR-3		SIVCR-3<CR>	
	V.AUX		SIV.AUX<CR>	
	CDR/TAPE		**SICDR/TAPE<CR>**	

RES. : NOT returns '' parameters as *RESPONSE*.

The *PARAMETER* of MV, CV *EVENT* : Uses two or three ASCII characters. (see page4 J) section)

EVENT	*PARAMETER*	function	example	*RES.
ZM	ON	MAIN-ZONE ON/OFF change	ZMON<CR>	
	OFF		ZMOFF<CR>	
Z2	PHONO | **CDR/TAPE**	MULTI ZONE-2 source change ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z2PHONO<CR> | **Z2CDR/TAPE<CR>**	
	SOURCE	MULTI ZONE-2 mode cancel	Z2SOURCE<CR>	

	**	MULTI ZONE-2 VOLUME change , **:10 to 99 by ASCII
		       98 = +18dB(MAX)
		       80 = 0dB
		       10 = -70dB
		       99 = ---(MIN)
			Z280<CR>	

	ON	MULTI ZONE-2 ON/OFF change	Z2ON<CR>	
	OFF		Z2OFF<CR>	
Z2MU	**ON**	ZONE2 OUTPUT MUTE ON/OFF change	**Z2MUON<CR>**	
	OFF		**Z2MUOFF<CR>**	
Z3	**PHONO** **|** **CD/TAPE**	MULTI ZONE-3 source change ---The name of PARAMETER is the same as that of the time of SI COMMAND.	**Z3PHONO<CR>** **|** **Z3CDR/TAPE<CR>**	
	SOURCE	MULTI ZONE-3 mode cancel	**Z3SOURCE<CR>**	

	**	MULTI ZONE-3 VOLUME change , **:10 to 99 by ASCII
		       98 = +18dB(MAX)
		       80 = 0dB
		       10 = -70dB
		       99 = ---(MIN)
			Z380<CR>	

	ON	MULTI ZONE-3 ON/OFF change	**Z3ON<CR>**	
	OFF		**Z3OFF<CR>**	
Z3MU	**ON**	ZONE3 OUTPUT MUTE ON/OFF change	**Z3MUON<CR>**	
	OFF		**Z3MUOFF<CR>**	
SR	PHONO | **CD/TAPE**	REC SELECT source change ---The name of PARAMETER is the same as that of the time of SI COMMAND.	SRPHONO<CR> | **SRCDR/TAPE<CR>**	
	SOURCE	REC SELECT mode cancel	SRSOURCE<CR>	

The **PARAMETER** of Z2, Z3 *EVENT* : Uses two ASCII characters. (see page4 J) section)

EVENT	PARAMETER	function	example	*RES.
TF	****** (6 digits)	TUNER Frequency change --- ****.** kHz at AM band ****.** MHz at FM band	TF105000<CR> (1050.00kHz at AM)	
	XM* (channel No.)**	**--- *** at XM mode**	**TFXM001<CR> (channel 1 at XM)**	
TP	**(PRESET No.)	TUNER PRESET change to No.**	TPA1<CR> (PRESET No."A1")	
TM		TUNER BAND , MODE change		
	AM	---Band set to AM	TMAM<CR>	
	FM	---Band set to FM	TMFM<CR>	
	XM	**---Band set to XM**	**TMXM<CR>**	
	AUTO	---Tuning mode set to AUTO mode	TMAUTO<CR>	*
	MANUAL	---Tuning mode set to MANUAL mode	TMMANUAL<CR>	*

RES. : NOT returns '' parameters as **RESPONSE**.

EVENT	PARAMETER	function	example	*RES.
MS	DIRECT	SURROUND mode change	MSDIRECT<CR>	
	PURE DIRECT		MSPURE DIRECT<CR>	
	STEREO		MSSTEREO<CR>	
	MULTI CH IN		MSMULTI CH IN<CR>	
	MULTI CH IN +PL2x CINEMA		MSM CH IN+PL2X C<CR>	
	MULTI CH IN +PL2x MUSIC		MSM CH IN+PL2X M<CR>	
	MULTI CH DIRECT		MSMULTI CH DIRECT<CR>	
	MULTI CH DIRECT +PL2x CINEMA		MSM CH DRCT+PL2X C <CR>	
	MULTI CH DIRECT +PL2x MUSIC		MSM CH DRCT+PL2X M <CR>	
	MULTI CH PURE D		MSMULTI CH PURE D<CR>	
	MULTI CH PURE D +PL2x CINEMA		MSM CH PURE D+PL2X C <CR>	
	MULTI CH PURE D +PL2x MUSIC		MSM CH PURE D+PL2X M <CR>	
	DOLBY PRO LOGIC		MSDOLBY PRO LOGIC<CR>	
	DOLBY PL2 CINEMA		MSDOLBY PL2 C<CR>	
	DOLBY PL2 MUSIC		MSDOLBY PL2 M<CR>	
	DOLBY PL2 GAME		MSDOLBY PL2 G<CR>	
	DOLBY PL2x CINEMA		MSDOLBY PL2X C<CR>	
	DOLBY PL2x MUSIC		MSDOLBY PL2X M<CR>	
	DOLBY PL2x GAME		MSDOLBY PL2X G<CR>	
	DOLBY DIGITAL		MSDOLBY DIGITAL<CR>	
	DOLBY D EX		MSDOLBY D EX<CR>	
	DOLBY D +PL2x CINEMA		MSDOLBY D+PL2X C<CR>	
	DOLBY D +PL2x MUSIC		MSDOLBY D+PL2X M<CR>	

EVENT	PARAMETER	function	example	*RES.
	DTS NEO:6 CINEMA		MSDTS NEO:6 C<CR>	
	DTS NEO:6 MUSIC		MSDTS NEO:6 M<CR>	
	DTS SURROUND		MSDTS SURROUND<CR>	
	DTS ES DSCRT6.1		MSDTS ES DSCRT6.1<CR>	
	DTS ES MTRX6.1		MSDTS ES MTRX6.1<CR>	
	DTS+PL2x CINEMA		MSDTS+PL2X C<CR>	
	DTS+PL2x MUSIC		MSDTS+PL2X M<CR>	
	DOLBY H/P		**MSDOLBY H/P<CR>**	
	DTS+DOLBY H/P		**MSDTS+DOLBY H/P<CR>**	
	PL2x C+THX		**MSPL2X C+THX**	
	PL2 C+THX		**MSPL2 C+THX**	
	PL+THX		**MSPL+THX**	
	NEO:6 C+THX		**MSNEO:6 C+THX**	
	THX5.1		**MSTHX5.1<CR>**	
	THX U2 CINEMA		**MSTHX U2 CINEMA<CR>**	
	THX MUSIC MODE		**MSTHX MUSIC MODE<CR>**	
	THX GAMES MODE		**MSTHX GAMES MODE<CR>**	
	THX6.1		**MSTHX6.1<CR>**	
	THX SURROUND EX		**MSTHX SURROUND EX<CR>**	
	WIDE SCREEN		MSWIDE SCREEN<CR>	
	5CH STEREO		MS5CH STEREO<CR>	
	7CH STEREO		MS7CH STEREO<CR>	
	9CH STEREO	---Invalid at AVR-4806 model	MS9CH STEREO<CR>	
	SUPER STADIUM		MSSUPER STADIUM<CR>	
	ROCK ARENA		MSROCK ARENA<CR>	
	JAZZ CLUB		MSJAZZ CLUB<CR>	
	CLASSIC CONCERT		MSCLASSIC CONCERT<CR>	
	MONO MOVIE		MSMONO MOVIE<CR>	
	MATRIX		MSMATRIX<CR>	
	VIDEO GAME		MSVIDEO GAME<CR>	

EVENT	PARAMETER	function	example	*RES.
MS	VIRTUAL	---Invalid at AVR-4806 model	MSVIRTUAL<CR>	
	MPEG2 AAC	---Invalid at AVR model	MSMPEG2 AAC<CR>	
	AAC+DOLBY EX	---Invalid at AVR model	MSAAC+DOLBY EX<CR>	
	AAC+PL2x CINEMA	---Invalid at AVR model	MSAAC+PL2X C<CR>	
	AAC+PL2x MUSIC	---Invalid at AVR model	MSAAC+PL2X M<CR>	
	USER1		**MSUSER1<CR>**	
	USER2		**MSUSER2<CR>**	
	USER3		**MSUSER3<CR>**	
PS	**ROOM EQ:AUDYSSEY**	ROOM EQ mode direct change	**PSROOM EQ:AUDYSSEY<CR>**	
	ROOM EQ:FRONT		PSROOM EQ:FRONT<CR>	
	ROOM EQ:FLAT		PSROOM EQ:FLAT<CR>	
	ROOM EQ:MANUAL		PSROOM EQ:MANUAL<CR>	
	ROOM EQ:OFF		PSROOM EQ:OFF<CR>	
	DELAY ***	AUDIO DELAY change, ***:000 to 999 by ASCII ---AVR-4806:200=200ms (MAX) 100=100ms, 000=0ms	**PSDELAY 200<CR>**	