DENON AVR/AVC control protocol

Application model : AVR-3806/AVC-3920
Application terminal : RS-232C

Connector specification

? . 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)

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

    MSSTEREO<CR> : surround Mode Set to STEREO

    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	**---Invalid at AVR-3806**	**SIVCR-3<CR>**
	V.AUX		SIV.AUX<CR>
	CDR/TAPE		SICDR/TAPE<CR>
ZM	ON	MAIN-ZONE ON/OFF change at AVR-3806	ZMON<CR>
	OFF		ZMOFF<CR>
Z2	PHONO ⏐ CDR/TAPE	MULTI ZONE-2 mode set , and select source at AVR-3806 ---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-3806	Z2SOURCE<CR>
	UP	MULTI ZONE-2 VOLUME UP/DOWN , direct change to **dB	Z2UP<CR>
	DOWN	at AVR-3806	Z2DOWN<CR>
	**	**:10 to 99 by ASCII , 80=0dB, 99=---(MIN)	Z280<CR>
	ON	MULTI ZONE-2 ON/OFF change at AVR-3806	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-3806 ---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-3806	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	**---Invalid at AVR-3806**	**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-3806	SDRF<CR>
	ANALOG	set force ANALOG INPUT mode	SDANALOG<CR>
	EXT.IN-1	---Set EXT.IN mode at AVR-3806	SDEXT.IN-1<CR>
	EXT.IN-2	---Invalid at AVR-3806	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	---Invalid at AVR-3806 model	**MSDOLBY H/P<CR>**
	DTS+DOLBY H/P	---Invalid at AVR-3806 model	**MSDTS+DOLBY H/P<CR>**
	HOME THX CINEMA	---Invalid at AVR-3806 model	**MSHOME THX CINEMA<CR>**
	THX5.1	---Invalid at AVR-3806 model	**MSTHX5.1<CR>**
	THX U2 CINEMA	---Invalid at AVR-3806 model	**MSTHX U2 CINEMA<CR>**
	THX MUSIC MODE	---Invalid at AVR-3806 model	**MSTHX MUSIC MODE<CR>**
	THX GAMES MODE	---Invalid at AVR-3806 model	**MSTHX GAMES MODE<CR>**
	THX6.1	---Invalid at AVR-3806 model	**MSTHX6.1<CR>**
	THX SURROUND EX	---Invalid at AVR-3806 model	**MSTHX SURROUND EX<CR>**
	WIDE SCREEN		MSWIDE SCREEN<CR>
	5CH STEREO	Both are received as "5CH/7CH STEREO" ,	MS5CH STEREO<CR>
	7CH STEREO	the surround mode which changed return as *EVENT*.	MS7CH STEREO<CR>
	9CH STEREO	---Invalid at AVR-3806 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
MS	**VIRTUAL**	---Invalid at AVR model	MSVIRTUAL<CR>
	MPEG2 AAC	---Invalid at AVR model	MSMPEG2 AAC<CR>
	AAC+DOLBY EX		MSAAC+DOLBY EX<CR>
	USER1		MSUSER1<CR>
	USER2		MSUSER2<CR>
	USER3		MSUSER3<CR>
	USER1 MEMORY		**MSUSER1 MEMORY<CR>**
	USER2 MEMORY		**MSUSER2 MEMORY<CR>**
	USER3 MEMORY		**MSUSER3 MEMORY<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		PSSB:NON MTRX<CR>
	SB:PL2xCINEMA		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	PSMODE:PRO LOGIC<CR>
		--- PL can change ONLY DOLBY PL2 mode	
	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-3806 can be operated from 0 to 200	PSDELAY 200<CR>
	NIGHT ON	**NIGHT MODE ON/OFF**	**PSNIGHT ON<CR>**
	NIGHT OFF	**(This parameter can change DOLBY DIGITAL SIGNAL)**	**PSNIGHT OFF<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* (3 digits)**	**--- *** CH at XM band**	**TFXM001<CR>** **(XM001 CH 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")	*
	MEMORY	**PRESET MEMORY**	**TPMEMORY<CR>**	*
TM		TUNER BAND , MODE Select		*
	AM	---Band set to AM	TMAM<CR>	*
	FM	---Band set to FM	TMFM<CR>	*
	XM	**---Band set to FM**	**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	PARAMETER	function	example	
SY	**REMOTE LOCK ON**	**REMOTE CONTROL LOCK ON/OFF**	**SYREMOTE LOCK ON<CR>**	
	REMOTE LOCK OFF		**SYREMOTE LOCK OFF<CR>**	
	PANEL LOCK ON	**PANEL BUTTON(Except MASTER VOL.)CONTROL LOCK ON**	**SYPANEL LOCK ON<CR>**	
	PANEL+V LOCK ON	**PANEL BUTTON & MASTER VOL. CONTROL LOCK ON**	**SYPANEL+V LOCK ON<CR>**	
	PANEL LOCK OFF	**PANEL BUTTUM & MASTER VOL. CONTROL LOCK OFF**	**SYPANEL LOCK OFF<CR>**	

EVENT(or RESPONSE) and PARAMETER list

EVENT	PARAMETER	function	example
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	**---Invalid at AVR-3806 model**	**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
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	
SV	DVD	VIDEO SELECT mode source change	SVDVD<CR>	
	VDP		SVVDP<CR>	
	TV		SVTV<CR>	
	DBS		SVDBS<CR>	
	VCR-1		SVVCR-1<CR>	
	VCR-2		SVVCR-2<CR>	
	VCR-3	**---Invalid at AVR-3806**	**SVVCR-3<CR>**	
	V.AUX		SVV.AUX<CR>	
	SOURCE		SVSOURCE<CR>	
SD	AUTO	INPUT mode change	SDAUTO<CR>	
	PCM		SDPCM<CR>	
	DTS		SDDTS<CR>	
	RF		SDRF<CR>	
	ANALOG		SDANALOG<CR>	
	EXT.IN-1	---Set EXT.IN mode at AVR-3806	SDEXT.IN-1<CR>	
	EXT.IN-2	**---Invalid at AVR-3806**	**SDEXT.IN-2<CR>**	

EVENT	PARAMETER	function	example	
TF	****** (6 digits)	TUNER Frequency change --- ****.** kHz at AM band ****.** MHz at FM band	TF105000<CR> (1050.00kHz at AM)	
	XM* (3 digits)**	**--- *** CH at XM band**	**TFXM001<CR>** **(XM001 CH 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>	
	AUTO	---Tuning mode set to AUTO mode	TMAUTO<CR>	
	MANUAL	---Tuning mode set to MANUAL mode	TMMANUAL<CR>	
	CH NAME ****** (8 digit)**	**XM CH NAME change**	**TMCH NAME 20 on 20<CR>**	
	ARTIST ************** (16 digit)**	**XM ARTIST NAME change**	**TMARTIST EMINEM <CR>**	
	TITLE ************** (16 digit)**	**XM TITLE NAME change**	**TMTITLE JUST LOSE IT <CR>**	
	XMID ****** (8 digit)**	**XM RADIO ID(XM000 Selected)**	**TMXMID J3JU703B<CR>**	
	SIGNAL GOOD	**XM ANTENNA SIGNAL STATUS chang**	**TMSIGNAL GOOD<CR>**	
	SIGNAL WEAK		**TMSIGNAL WEAK<CR>**	
	SIGNAL MARGINAL		**TMSIGNAL MARGINAL<CR>**	
	SIGNAL NOSIGNAL		**TMSIGNAL NOSIGNAL<CR>**	

EVENT	PARAMETER	function	example
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 C		MSM CH IN+PL2X C<CR>
	MULTI CH IN +PL2x M		MSM CH IN+PL2X M<CR>
	MULTI CH DIRECT		MSMULTI CH DIRECT<CR>
	MULTI CH DIRECT +PL2x C		MSM CH DRCT+PL2X C <CR>
	MULTI CH DIRECT +PL2x M		MSM CH DRCT+PL2X M <CR>
	MULTI CH PURE D		MSMULTI CH PURE D<CR>
	MULTI CH PURE D +PL2x C		MSM CH PURE D+PL2X C <CR>
	MULTI CH PURE D +PL2x M		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 G		MSDOLBY PL2 G<CR>
	DOLBY PL2x C		MSDOLBY PL2X C<CR>
	DOLBY PL2x M		MSDOLBY PL2X M<CR>
	DOLBY PL2x G		MSDOLBY PL2X G<CR>
	DOLBY DIGITAL		MSDOLBY DIGITAL<CR>
	DOLBY D EX		MSDOLBY D EX<CR>
	DOLBY D +PL2x C		MSDOLBY D+PL2X C<CR>
	DOLBY D +PL2x M		MSDOLBY D+PL2X M<CR>

EVENT	PARAMETER	function	example
MS	DTS NEO:6 C		MSDTS NEO:6 C<CR>
	DTS NEO:6 M		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 C		MSDTS+PL2X C<CR>
	DTS+PL2x M		MSDTS+PL2X M<CR>
	DOLBY H/P	---Invalid at AVR-3806 model	**MSDOLBY H/P<CR>**
	DTS+DOLBY H/P	---Invalid at AVR-3806 model	**MSDTS+DOLBY H/P<CR>**
	PL2x C+THX	---Invalid at AVR-3806 model	**MSPL2X C+THX<CR>**
	PL2 C+THX	---Invalid at AVR-3806 model	**MSPL2 C+THX<CR>**
	PL+THX	---Invalid at AVR-3806 model	**MSPL+THX<CR>**
	NEO:6 C+THX	---Invalid at AVR-3806 model	**MSNEO:6 C+THX<CR>**
	THX5.1	---Invalid at AVR-3806 model	**MSTHX5.1<CR>**
	THX U2 CINEMA	---Invalid at AVR-3806 model	**MSTHX U2 CINEMA<CR>**
	THX MUSIC MODE	---Invalid at AVR-3806 model	**MSTHX MUSIC MODE<CR>**
	THX GAMES MODE	---Invalid at AVR-3806 model	**MSTHX GAMES MODE<CR>**
	THX6.1	---Invalid at AVR-3806 model	**MSTHX6.1<CR>**
	THX SURROUND EX	---Invalid at AVR-3806 model	**MSTHX SURROUND EX<CR>**
	WIDE SCREEN		MSWIDE SCREEN<CR>
	5CH STEREO		MS5CH STEREO<CR>
	7CH STEREO		MS7CH STEREO<CR>
	9CH STEREO	---Invalid at AVR-3806 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
MS	**VIRTUAL**		**MSVIRTUAL<CR>**
	MPEG2 AAC	---Invalid at AVR model	MSMPEG2 AAC<CR>
	AAC+DOLBY EX	---Invalid at AVR model	MSAAC+DOLBY EX<CR>
	AAC+PL2x C	---Invalid at AVR model	MSAAC+PL2X C<CR>
	AAC+PL2x M	---Invalid at AVR model	MSAAC+PL2X M<CR>
	DSD DIRECT		**MSDSD DIRECT<CR>**
	DSD PURE DIRECT		**MSDSD PURE DIRECT<CR>**
	DSD MULTI DRCT		**MSDSD MULTI DRCT<CR>**
	DSD MULTI PURE		**MSDSD MULTI PURE<CR>**
	USER1	**USER mode change**	**MSUSER1<CR>**
	USER2		**MSUSER2<CR>**
	USER3		**MSUSER3<CR>**
	USER0	**---User 1(or User 2 or User 3) Change User OFF**	**MSUSER0<CR>**
PS	TONE DEFEAT ON	TONE DEFEAT ON/OFF change	PSTONE DEFEAT ON<CR>
	TONE DEFEAT OFF		PSTONE DEFEAT OFF<CR>
	SB:MTRX ON	SURROUND BACK MODE change	PSSB:MTRX ON<CR>
	SB:NON MTRX		PSSB:NON MTRX<CR>
	SB:PL2xC		PSSB:PL2X CINEMA<CR>
	SB:PL2xM		PSSB:PL2X MUSIC<CR>
	SB:OFF		PSSB:OFF<CR>
	SB:ESDSCRT		PSSB:ESDSCRT<CR>
	SB:ESMTRX		PSSB:ESMTRX<CR>
	SB:ON		PSSB:ON<CR>
	SB:MUSIC		PSSB:MUSIC<CR>
	SB:DSCRT ON		PSSB:DSCRT ON<CR>
	SB:GAME		PSSB:GAME<CR>
	CINEMA EQ.ON	CINEMA EQ. ON/OFF Change	PSCINEMA EQ.ON<CR>
	CINEMA EQ.OFF		PSCINEMA EQ.OFF<CR>
	MODE:MUSIC	CINEMA / MUSIC / GAME / PL mode change	PSMODE:MUSIC<CR>
	MODE:CINEMA		PSMODE:CINEMA<CR>
	MODE:GAME		PSMODE:GAME<CR>
	MODE:PRO LOGIC		PSMODE:PRO LOGIC<CR>

EVENT	PARAMETER	function	example
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	PSDELAY 200<CR>
		---AVR-3806: 200=200ms(MAX)	
		100=100ms, 000=0ms	
	NIGHT:ON	**NIGHT mode ON/OFF change**	**PSNIGHT:ON<CR>**
	NIGHT:OFF		**PSNIGHT:OFF<CR>**