

DENON AVR control protocol

Ver. 5.1.0_a

Application model : AVR-4308

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:

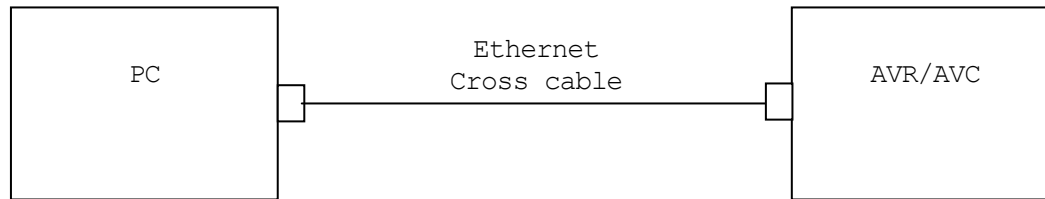
Synchronous system : Tone step synchronization
Communication system : A half duplex
Communication speed : 9600bps
Character length : 8 bits
Parity control : None
Start bit : 1 bit
Stop bit : 1 bit
Communication procedure : Non procedural
Communication data length : 135 bytes (maximum)

Version	Date	Contents	Page
5.1.0	06.Jul.'07	Original	
5.1.0_a	23.Jan.'08	1.Added NSE,NSB,NSC for iRadio Control.	24,42
		2.Corrected the Command of IPE,IPA for iPod Control.	25,43,44,45,46
		3.Added Response MS Command for DTS Mode.	31,32
		4.Corrected the Response Command of PSMODE.	33

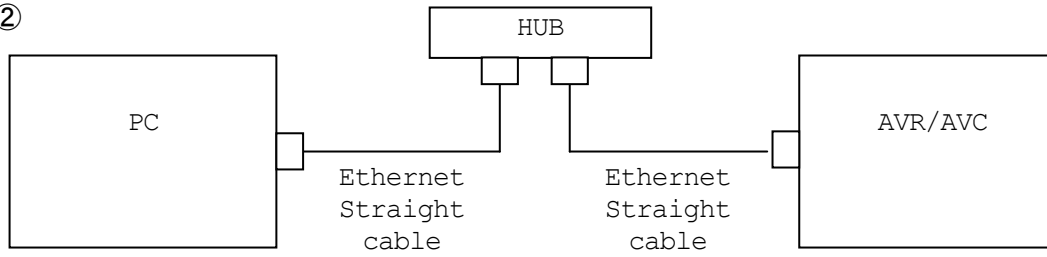
II. Ethernet

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

Example ①



Example ②



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-4308

>Procedure of Network Setup mode.

- (1) Press SYSTEM SETUP button, then System Setup Menu appears on FL-display (and GUI)
- (2) Select "Network Setup > Detail" .
- (3) 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".

<Network Option: Standby Mode Power Saving>

- (1) Press MENU button, then Menu appears on FL-display (and GUI)
- (2) Select "Manual Setup > Network Setup > Other > Power Saving"
- (3) Set parameters described below.
 - "OFF"---Use this setting when using the AVR-4308 connected in a network.
 - "ON"--- Use this setting when not using the AVR-4308 connected in a network.
This setting is reducing the power consumption in the standby mode.

Protocol specification

The following three data forms are defined.

- COMMAND** : The message sent to a system(AVR) 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)
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)
if the 'request command' (**COMMAND**+?**CR**(0x0D)) has come 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

 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.
- K) Four seconds later, please transmit the next **COMMAND** after transmitting a power on **COMMAND** (PWON) .

COMMAND and PARAMETER list

COMMAND	PARAMETER	function	example
PW	ON	POWER ON/STANDBY change	PWON<CR>
	STANDBY		PWSTANDBY<CR>
	?	Return PW Status	PW?<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>
	?	Return MV Status	MV?<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>
	?	Return CV Status	CV?<CR>
MU	ON	OUTPUT MUTE ON/OFF change	MUON<CR>
	OFF		MUOFF<CR>
	?	Return MU Status	MU?<CR>
SI	PHONO	Select INPUT source	SIPHONO<CR>
	CD		SICD<CR>
	TUNER		SITUNER<CR>
	DVD		SIDVD<CR>
	HDP		SIHDP<CR>
	TV/CBL		SITV/CBL<CR>
	SAT		SISAT<CR>
	VCR		SIVCR<CR>
	DVR		SIDVR<CR>
	V.AUX		SIV.AUX<CR>
	NET/USB		SINET/USB<CR>
	XM	(North America model Only)	SIXM<CR>
	HDRADIO	(North America model Only)	SIHDRADIO<CR>
	DAB	(Europe model Only)	SIDAB<CR>
	IPOD		SIIPOD<CR>
?	Return SI Status	SI?<CR>	
ZM	ON	MAIN-ZONE ON/OFF change at AVR-4308	ZMON<CR>
	OFF		ZMOFF<CR>
	?	Return ZM Status	ZM?<CR>
SR	PHONO	REC SELECT mode set , and select source	SRPHONO<CR>
	 IPOD	---The name of PARAMETER is the same as that of the time of SI COMMAND.	 SRIPOD<CR>
	SOURCE	REC SELECT mode cancel	SRSOURCE<CR>
	?	Return SR Status	SR?<CR>

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

COMMAND	PARAMETER	function	example	
SD	AUTO	set AUTO mode (Priority:HDMI>>DIGITAL>>ANALOG)	SDAUTO<CR>	
	HDMI	set force HDMI INPUT mode	SDHDMI<CR>	
	DIGITAL	set force DIGITAL INPUT (Optical,Coaxial)mode	SDDIGITAL<CR>	
	ANALOG	set force ANALOG INPUT mode	SDANALOG<CR>	
	EXT.IN-1	---Set EXT.IN mode at AVR-4308	SDEXT.IN-1<CR>	
	?	Return SD Status	SD?<CR>	
DC	AUTO	set DIGITAL INPUT AUTO mode	DCAUTO<CR>	
	PCM	set DIGITAL INPUT force PCM mode	DCPCM<CR>	
	DTS	set DIGITAL INPUT force DTS mode	DCDTS<CR>	
	?	Return DC Status	DC?	
SV	DVD	VIDEO SELECT mode set , and select source	SVDVD<CR>	
	HDP		SVVDP<CR>	
	TV/CBL		SVTV/CBL<CR>	
	SAT		SVSAT<CR>	
	VCR		SVVCR<CR>	
	DVR		SVDVR<CR>	
	V.AUX		SVV.AUX<CR>	
	SOURCE		VIDEOSOURCE mode cancel	SVSOURCE<CR>
	?		Return SV Status	SV?<CR>
MS	DIRECT	Select SURROUND mode	MSDIRECT<CR>	
	PURE DIRECT		MSPURE DIRECT<CR>	
	STEREO		MSSTEREO<CR>	
	STANDARD		MS STANDARD<CR>	
	DOLBY DIGITAL		MSDOLBY DIGITAL<CR>	
	DTS SUROUND		MSDTS SURROUND<CR>	
	NEURAL		MS NEURAL<CR> North America model only	
	WIDE SCREEN		MSWIDE SCREEN	
	7CH STEREO		MS7CH STEREO<CR>	
	SUPER STADIUM		MSSUPER STADIUM<CR>	
	ROCK ARENA		MSROCK ARENA<CR>	
	JAZZ CLUB		MSJAZZ CLUB<CR>	

COMMAND	PARAMETER	function	example
MS	CLASSIC CONCERT		MSCLASSIC CONCERT<CR>
	MONO MOVIE		MSMONO MOVIE<CR>
	MATRIX		MSMATRIX<CR>
	VIDEO GAME		MSVIDEO GAME<CR>
	VIRTUAL		MSVIRTUAL<CR>
	?	Return MS Status	MS?<CR>
	QUICK1	QUICK SELECT 1-3 MODE SELECT	MSQUICK1<CR>
	QUICK2		MSQUICK2<CR>
	QUICK3		MSQUICK3<CR>
	QUICK1 MEMORY	USER1-3 MODE MEMORY	MSQUICK1 MEMORY<CR>
	QUICK2 MEMORY		MSQUICK2 MEMORY<CR>
	QUICK3 MEMORY		MSQUICK3 MEMORY<CR>
	QUICK ?	Return MSQUICK Status	MSQUICK ?<CR>
VS	MONIAUTO	Set HDMI MONITOR automatic detection	VSMONIAUTO<CR>
	MONI1	Set HDMI MONITOR OUT-1	VSMONI1<CR>
	MONI2	Set HDMI MONITOR OUT-2	VSMONI2<CR>
	MONI?	Return VSMONITOR Status	VSMONI?<CR>
	ASPNRM	Set Normal mode	VSASPNRM<CR>
	ASPFUL	Set FULL mode	VSASPFUL<CR>
	ASP?	Return VSASPECT Status	VSASP?<CR>
	SC48P	Set Resolution to 480p/576p	VSSC48P<CR>
	SC10I	Set Resolution to 1080i	VSSC10I<CR>
	SC72P	Set Resolution to 720p	VSSC72P<CR>
	SC10P	Set Resolution to 1080p	VSSC10P<CR>
	SC AUTO	Set Resolution to AUTO	VSSCAUTO<CR>
	SC?	Return VSSCALE Status	VSSC?<CR>

COMMAND	PARAMETER	function	example	
PS	TONE DEFEAT ON	PARAMETER setting	PSTONE DEFEAT ON<CR>	
	TONE DEFEAT OFF	TONE DEFEAT ON/OFF	PSTONE DEFEAT OFF<CR>	
	TONE DEFEAT ?	Return PSTONE DEFEAT Status	PSTONE DEFEAT ?<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:ON		PSSB:ON<CR>	
	SB:OFF		PSSB:OFF<CR>	
	SB: ?		Return PSSB: Status	PSSB: ?<CR>
	CINEMA EQ.ON	CINEMA EQ. ON/OFF	PSCINEMA EQ.ON<CR>	
	CINEMA EQ.OFF		PSCINEMA EQ.OFF<CR>	
	CINEMA EQ. ?		Return PSCINEMA EQ.Status	PSCINEMA EQ. ?<CR>
	MODE:MUSIC	CINEMA / MUSIC / GAME / PL mode change (This parameter can change DOLBY PL2, PL2x, NEO:6 mode.) ---SB=ON : PL2x mode / SB=OFF : PL2 mode --- GAME can change DOLBY PL2 & PL2x mode --- PL can change ONLY DOLBY PL2 mode	PSMODE:MUSIC<CR>	
	MODE:CINEMA		PSMODE:CINEMA<CR>	
	MODE:GAME		PSMODE:GAME<CR>	
	MODE:PRO LOGIC		PSMODE:PRO LOGIC<CR>	
	MODE: ?		Return PSMODE: Status	PSMODE: ?<CR>
	ROOM EQ:AUDYSSEY	ROOM EQ mode direct change	PSROOM EQ:AUDYSSEY<CR>	
	ROOM EQ:BY.P.LR		PSROOM EQ:BY.P.LR<CR>	
	ROOM EQ:FLAT		PSROOM EQ:FLAT<CR>	
	ROOM EQ:MANUAL		PSROOM EQ:MANUAL<CR>	
	ROOM EQ:OFF		PSROOM EQ:OFF<CR>	
	ROOM EQ ?		Return PSROOM EQ: Status	PSROOM EQ: ?<CR>
	BAS UP		BASS UP/DOWN , direct change to **dB	PSBAS UP<CR>
	BAS DOWN	** : 00 to 99 by ASCII , 50=0dB	PSBAS DOWN<CR>	
	BAS **	---AVR-4308 can be operated from -6 to +6(44 to 56)	PSBAS 50<CR>	
	BAS ?	Return PSBAS Status	PSBAS ?<CR>	

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

COMMAND	PARAMETER	function	example	
PS	TRE UP	TREBLE UP/DOWN , direct change to **dB	PSTRE UP<CR>	
	TRE DOWN	** : 00 to 99 by ASCII , 50=0dB	PSTRE DOWN<CR>	
	TRE **	---AVR-4308 can be operated from -6 to +6(44 to 56)	PSTRE 50<CR>	
	TRE ?	Return PSTRE Status	PSTRE ?<CR>	
	DRC AUTO	DRC direct change	PSDRC AUTO<CR>	
	DRC LOW		PSDRC LOW<CR>	
	DRC MID		PSDRC MID<CR>	
	DRC HI		PSDRC HI<CR>	
	DRC OFF		PSDRC OFF<CR>	
	DRC ?		PSDRC ?<CR>	
	DCO OFF		D.COMP direct change	PSDCO OFF<CR>
	DCO LOW			PSDCO LOW<CR>
	DCO MID	PSDCO MID<CR>		
	DCO HIGH	PSDCO HIGH<CR>		
	DCO ?	Return PSDCO Status	PSDCO ?<CR>	
	LFE UP	LFE UP/DOWN , direct change to **dB	PSLEE UP<CR>	
	LFE DOWN	** : 00 to 99 by ASCII , 00=0dB, 10=-10dB	PSLFE DOWN<CR>	
	LFE **	---AVR-4308 can be operated from 0 to -10	PSLFE 10<CR>	
	LFE ?	Return PSLFE Status	PSLFE ? <CR>	
	EFF ON	EFFECT ON/OFF , EFFECT LEVEL direct change to **dB	PSEFF UP<CR>	
	EFF OFF	** : 00 to 99 by ASCII , 00=0dB, 10=10dB	PSEFF DOWN<CR>	
	EFF **	---AVR-4308 can be operated from 1 to 15	PSEFF **<CR>	
	EFF ?	Return PSEFF Status	PSEFF ?<CR>	
	DEL UP	DELAY UP/DOWN , direct change to ***dB	PSDEL UP<CR>	
	DEL DOWN	*** : 000 to 999 by ASCII , 000=0ms, 300=300ms	PSDEL DOWN<CR>	
	DEL ***	---AVR-4308 can be operated from 0 to 300	PSDEL ***<CR>	
	DEL ?	Return PSDEL Status	PSDEL ?<CR>	
	AFD ON	AFDM ON/OFF	PSAFD ON<CR>	
	AFD OFF		PSAFD OFF<CR>	
	AFD ?	Return PSAFD Status	PSAFD ?<CR>	

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

COMMAND	PARAMETER	function	example
PS	PAN ON	PANORAMA ON/OFF	PSPAN ON<CR>
	PAN OFF		PSPAN OFF<CR>
	PAN ?	Return PSPAN Status	PSPAN ?<CR>
	DIM UP	DIMENSION UP/DOWN , direct change to **dB	PSDIM UP<CR>
	DIM DOWN	** :00 to 99 by ASCII , 00=0,	PSDIM DOWN<CR>
	DIM **	---AVR-4308 can be operated from 0 to 6	PSDIM **<CR>
	DIM ?	Return PSDIM Status	PSDIM ?<CR>
	CEN UP	CENTER WIDTH UP/DOWN , direct change to **dB	PSCEN UP<CR>
	CEN DOWN	** :00 to 99 by ASCII , 00=0	PSCEN DOWN<CR>
	CEN **	---AVR-4308 can be operated from 0 to 7	PSCEN 07<CR>
	CEN ?	Return PSCEN Status	PSCEN ?<CR>
	CEI UP	CENTER IMAGE UP/DOWN , direct change to **dB	PSCEI UP<CR>
	CEI DOWN	** :00 to 99 by ASCII , 00=0.0	PSCEI DOWN<CR>
	CEI **	---AVR-4308 can be operated from 0.0 to 1.0	PSCEI 10<CR>
	CEI ?	Return PSCEI Status	OSCEI ?<CR>
	ATT ON	SW ATT ON/OFF	PSATT ON<CR>
	ATT OFF		PSATT OFF<CR>
	ATT ?	Return PSATT Status	PSATT ?<CR>
	SWR ON	SW ON/OFF	PSSWR ON<CR>
	SWR OFF		PSSWR OFF<CR>
	SWR ?	Return PSSWR Status	PSSWR ?<CR>
	RSZ S	ROOM SIZE direct change	PSRSZ S<CR>
	RSZ MS		PSRSZ MS<CR>
	RSZ M		PSRSZ M<CR>
	RSZ ML		PSRSZ ML<CR>
	RSZ L		PSRSZ L<CR>
	RSZ ?		Return PSRSZ Status
	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-4308 can be operated from 0 to 200	PSDELAY 200<CR>

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

<i>COMMAND</i>	<i>PARAMETER</i>	function	example
PS	NIGHT OFF	NIGHT MODE direct change	PSNIGHT OFF<CR>
	NIGHT LOW		PSNIGHT LOW<CR>
	NIGHT MID		PSNIGHT MID<CR>
	NIGHT HI		PSNIGHT HI<CR>
	NIGHT ?	Return PSNIGHT Status	PSNIGHT ?<CR>
	RSTR OFF	AUDIO RESTORER direct change	PSRSTR OFF<CR>
	RSTR MODE1		PSRSTR MODE1<CR>
	RSTR MODE2		PSRSTR MODE2<CR>
	RSTR MODE3		PSRSTR MODE3<CR>
	RSTR ?	Return PSRSTR Status	PSRSTR ?<CR>
PV	CN UP	CONTRAST UP/DOWN , direct change to **dB	PVCN UP<CR>
	CN DOWN	** :44 to 56 by ASCII , 50=0	PVCN DOWN<CR>
	CN **	---AVR-4308 can be operated from -6 to +6(44 to 56)	PVCN 06<CR>
	CN ?	Return PSCN Status	PVCN ?<CR>
	BR UP	BRIGHTNESS UP/DOWN , direct change to **dB	PVBR UP<CR>
	BR DOWN	** :00 to 12 by ASCII , 00=0	PVBR DOWN<CR>
	BR **	---AVR-4308 can be operated from 0 to 12	PVBR 12<CR>
	BR ?	Return PSBR Status	PVBR ?<CR>
	CM UP	CROMA LEVET UP/DOWN , direct change to **dB	PVCM UP<CR>
	CM DOWN	** :44 to 56 by ASCII , 50=0	PVSCM DOWN<CR>
	CM **	---AVR-4308 can be operated from -6 to +6(44 to 56)	PVCM 06<CR>
	CM ?	Return PSCN Status	PVCM ?<CR>
	HUE UP	HUE UP/DOWN , direct change to **dB	PVHUE UP<CR>
	HUE DOWN	** :44 to 56 by ASCII , 50=0	PVHUE DOWN<CR>
	HUE **	---AVR-4308 can be operated from -6 to +6(44 to 56)	PVHUE 06<CR>
	HUE ?	Return PSCN Status	PVHUE ?<CR>

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

COMMAND	PARAMETER	function	example
Z2	PHONO IPOD	MULTI ZONE-2 mode set , and select source at AVR-4308 ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z2PHONO<CR> Z2IPOD<CR>
	SOURCE	MULTI ZONE-2 mode cancel at AVR-4308	Z2SOURCE<CR>
	UP	MULTI ZONE-2 VOLUME UP/DOWN , direct change to **dB at AVR-4308 **:10 to 99 by ASCII , 80=0dB, 99=--- (MIN)	Z2UP<CR>
	DOWN		Z2DOWN<CR>
	**		Z280<CR>
	ON	MULTI ZONE-2 ON/OFF change at AVR-4308	Z2ON<CR>
	OFF		Z2OFF<CR>
	?	Return Z2 Status	Z2?<CR>
Z2MU	ON	ZONE2 OUTPUT MUTE ON/OFF change	Z2MUON<CR>
	OFF		Z2MUOFF<CR>
	?	Return Z2MU Status	Z2MU?<CR>
Z2CS	ST	ZONE2 Channel setting	Z2CSST
	MONO		Z2CSMONO
	?	Return Z2CS Status	Z2CS?
Z2CV	FL UP	ZONE2 CHANNEL VOLUME UP/DOWN , direct change to **dB ---FRONT Lch **:38 to 62 by ASCII , 50=0dB	Z2CVFL UP<CR>
	FL DOWN		Z2CVFL DOWN<CR>
	FL **		Z2CVFL 50<CR>
	FR UP	ZONE2 CHANNEL VOLUME UP/DOWN , direct change to **dB ---FRONT Rch **:38 to 62 by ASCII , 50=0dB	Z2CVFR UP<CR>
	FR DOWN		Z2CVFR DOWN<CR>
	FR **		Z2CVFR 50<CR>
	?	Return Z2CV Status	Z2CV?<CR>
Z2HPF	ON	ZONE2 HPF ON/OFF	Z2HPFON<CR>
	OFF		Z2HPFOFF<CR>
	?	Return Z2HPF Status	Z2HPF?<CR>

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

<i>COMMAND</i>	<i>PARAMETER</i>	function	example
Z2PS	BAS UP	ZONE2 BASS UP/DOWN , direct change to **dB	Z2PSBAS UP<CR>
	BAS DOWN	** :00 to 99 by ASCII , 00=0dB	Z2PSBAS DOWN<CR>
	BAS **	---AVR-4308 can be operated from -10 to +10(40 to 60)	Z2PSBAS 00<CR>
	BAS ?	Return Z2PSBAS Status	Z2PSBAS ?<CR>
	TRE UP	ZONE2 TREBLE UP/DOWN , direct change to **dB	Z2PSTRE UP<CR>
	TRE DOWN	** :00 to 99 by ASCII , 00=0dB	Z2PSTRE DOWN<CR>
	TRE **	---AVR-4308 can be operated from -10 to +10(40 to 60)	Z2PSTRE 00<CR>
	TRE ?	Return Z2PSTRE Status	Z2PSTRE ?<CR>

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

COMMAND	PARAMETER	function	example
Z3	PHONO IPOD	MULTI ZONE-3 mode set , and select source at AVR-4308 ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z3PHONO<CR> Z3IPOD<CR>
	SOURCE	MULTI ZONE-3 mode cancel	Z3SOURCE<CR>
	UP	MULTI ZONE-3 VOLUME UP/DOWN , direct change to **dB **: **:10 to 99 by ASCII , 80=0dB, 99=--- (MIN)	Z3UP<CR>
	DOWN		Z3DOWN<CR>
	**		Z380<CR>
	ON	MULTI ZONE-3 ON/OFF change at AVR-4308	Z3ON<CR>
	OFF		Z3OFF<CR>
	?		Return Z3 Status Z2?<CR>
Z3MU	ON	ZONE3 OUTPUT MUTE ON/OFF change	Z3MUON<CR>
	OFF		Z3MUOFF<CR>
	?		Return Z3MU Status Z3MU?<CR>
Z3CS	ST	ZONE3 Channel setting	Z3CSST
	MONO		Z3CSMONO
	?		Return Z3CS Status Z3CS?
Z3CV	FL UP	ZONE3 CHANNEL VOLUME UP/DOWN , direct change to **dB ---FRONT Lch	Z3CVFL UP<CR>
	FL DOWN		Z3CVFL DOWN<CR>
	FL **		Z3CVFL 50<CR>
	FR UP	ZONE3 CHANNEL VOLUME UP/DOWN , direct change to **dB ---FRONT Rch	Z3CVFR UP<CR>
	FR DOWN		Z3CVFR DOWN<CR>
	FR **		Z3CVFR 50<CR>
	?	Return Z2CV Status Z3CV?<CR>	
Z3HPF	ON	ZONE3 HPF ON/OFF	Z3HPFON<CR>
	OFF		Z3HPFOFF<CR>
	?		Return Z3HPF Status Z3HPF?<CR>

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

<i>COMMAND</i>	<i>PARAMETER</i>	function	example
Z3PS	BAS UP	ZONE3 BASS UP/DOWN , direct change to **dB	Z3PSBAS UP<CR>
	BAS DOWN	** :00 to 99 by ASCII , 00=0dB	Z3PSBAS DOWN<CR>
	BAS **	---AVR-4308 can be operated from -10 to +10(40 to 60)	Z3PSBAS 00<CR>
	BAS ?	Return Z3PSBAS Status	Z3PSBAS ?<CR>
	TRE UP	ZONE3 TREBLE UP/DOWN , direct change to **dB	Z3PSTRE UP<CR>
	TRE DOWN	** :00 to 99 by ASCII , 00=0dB	Z3PSTRE DOWN<CR>
	TRE **	---AVR-4308 can be operated from -10 to +10(40 to 60)	Z3PSTRE 00<CR>
	TRE ?	Return Z3PSTRE Status	Z3PSTRE ?<CR>

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

COMMAND	PARAMETER	function	example
Z4	CD	MULTI ZONE-4 mode set , and select source at AVR-4308 ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z4CD<CR>
	V.AUX		Z4V.AUX<CR>
	SOURCE	MULTI ZONE-4 mode cancel	Z4SOURCE<CR>
	ON	MULTI ZONE-4 ON/OFF change at AVR-4308	Z4ON<CR>
	OFF		Z4OFF<CR>
?	Return Z4 Status	Z4?<CR>	

✳ANALOG TUNER Control

COMMAND	PARAMETER	function	example
TF	ANUP	TUNER Frequency UP/DOWN	TFANUP<CR>
	ANDOWN		TFANDOWN<CR>
	AN***** (6 digits)	--- ****.** kHz at AM band (>050000 is AM.) ****.** MHz at FM band (<050000 is FM.)	TFAN105000<CR> (1050.00kHz at AM)
	AN?	Return TF Status	TFAN?<CR>
TP	ANUP	TUNER PRESET CH UP/DOWN , direct change to No.**	TPANUP<CR>
	ANDOWN		TPANDOWN<CR>
	AN** (PRESET No.)		TPANA1<CR> (PRESET No. "A1")
	AN?	Return TP Status	TPAN?<CR>
	ANMEMORY	TUNER PRESET MEMORY	TPANMEMORY<CR>
TM	ANAM	TUNER BAND , MODE Select ---Band set to AM	TMANAM<CR>
	ANFM	---Band set to FM	TMANFM<CR>
	AN?	Return TM Status	TMAN?<CR>
	ANAUTO	---Tuning mode set to AUTO mode	TMANAUTO<CR>
	ANMANUAL	---Tuning mode set to MANUAL mode	TMANMANUAL<CR>

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

※XM Control (North America model only)

COMMAND	PARAMETER	function	example
TF	XMUP	XM Channel UP/DOWN	TFXMUP<CR>
	XMDOWN		TFXMDOWN<CR>
	XM*** (3 digits)	--- **:XM CH No.	TFXM001<CR> (XM001 CH at XM)
	XM?	Return TFXM Status	TFXM?<CR>
TP	XMUP	XM PRESET CH UP/DOWN , direct change to No.**	TPXMUP<CR>
	XMDOWN		TPXMDOWN<CR>
	XM** (PRESET No.)		TPXMA1<CR> (PRESET No. "A1")
	XM?	Return TPXM Status	TPXM?<CR>
	XMMEM	XM PRESET MEMORY	TPXMMEM<CR>
XM	?	Return XM Status - CHANNEL NAME, ARTIST, TITLE, SIGNAL LEVEL	XM?<CR>

※HD RADIO Control (North America model only)

COMMAND	PARAMETER	function	example
TF	HDUP	HD Channel UP/DOWN , direct change	TFHDUP<CR>
	HDDOWN		TFHDDOWN<CR>
	HD***** (6 digits)	--- ****.** kHz at AM band (>050000 is AM.) ****.** MHz at FM band (<050000 is FM.)	TFHD105000<CR> (1050.00kHz at AM)
	HDMC*(1 digit)	---HD Multi Cast CH Select(*:0~8)	TFHDMC2<CR>
	HD?	Return TFHD Status	TFHD?<CR>
TP	HDUP	HD PRESET CH UP/DOWN , direct change to No.**	TPHDUP<CR>
	HDDOWN		TPHDDOWN<CR>
	HD** (PRESET No.)		TPHDA1<CR> (PRESET No."A1")
	HD?	Return TPHD Status	TPHD?<CR>
	HDMEM	HD PRESET MEMORY	TPHDMEM<CR>
TM	HDAM	HD RADIO BAND , MODE Select ---Band set to AM	TMHDAM<CR>
	HDFM	---Band set to FM	TMHDFM<CR>
	HD?	Return TMHD Status	TMHD?<CR>
	HDAUTOHD	---Tuning mode set to AUTO-HD mode	TMHDAUTOHD<CR>
	HDAUTO	---Tuning mode set to AUTO mode	TMHDAUTO<CR>
	HDMANU	---Tuning mode set to MANUAL mode	TMHDMANU<CR>
HD	?	Return HD Status ---BAND, STATION NAME, STATION LONG NAME, MULTI CAST CURRENT, MULTI CAST PROGRAM, SIGNAL LEVEL, ARTIST, TITLE,ALBUM, GENRE, PROGRAM TYPE,	HD?<CR>

✳DAB Control (Europe model only)

COMMAND	PARAMETER	function	example
TF	DAUP	DAB Channel UP/DOWN	TFDAUP<CR>
	DADOWN		TFDADOWN<CR>
	DA***** (6 digits)	--- ***.*** kHz	TFDA174928<CR> (174.928kHz)
	DA?	Return TFDAB Status	TFDA?<CR>
TP	DAUP	DAB PRESET CH UP/DOWN , direct change to No.**	TPDAUP<CR>
	DADOWN		TPDADOWN<CR>
	DA** (PRESET No.)		TPDAA1<CR> (PRESET No."A1")
	DA?	Return TPDAB Status	TPDA?<CR>
	DAMEM	DAB PRESET MEMORY	TPDAMEM<CR>
TM	DAMULTI	DAB MODE Select ---Tuning mode set to MULTIPLEX mode	TMDAMULTI<CR>
	DAALPHA	---Tuning mode set to ALPHANUMERIC mode	TMDAALPHA<CR>
	DAPTY	---Tuning mode set to PROGRAM TYPE mode	TMDAPTY<CR>
	DAAS	---Tuning mode set to ACTIVE STATION mode	TMDAAS<CR>
	DAFS	---Tuning mode set to FAVORITE STATION mode	TMDA<FS>
	DA?	Return TMDAB Status	TMDA?<CR>
DA	?	Return HD Status ---STATION NAME, STATION LONG NAME, ENSEMBLE NAME, PROGRAM TYPE, CH No., FREQUENCY, BIT RATE, MONO/STEREO, SIGNAL QUALITY, TIME, DATE,	DA?<CR>

❖iRadio/mServer/USB Extended Control

COMMAND	PARAMETER	function	example
SI	USB	Select INPUT source NET/USB and USB Start Playback	SIUSB<CR>
Z2	USB	Select MULTI ZONE-2 source NET/USB and USB Start Playback	Z2USB<CR>
Z3	USB	Select MULTI ZONE-3 source NET/USB and USB Start Playback	Z3USB<CR>
Z4	USB	Select MULTI ZONE-4 source NET/USB and USB Start Playback	Z4USB<CR>
NS	90	"Cursor Up" Control	NS90<CR>
	91	"Cursor Down" Control	NS91<CR>
	92	"Cursor Left" Control	NS92<CR>
	93	"Cursor Right" Control	NS93<CR>
	94	"Enter (Play/Pause)" Control	NS94<CR>
	9A	"Play" Control	NS9A<CR>
	9B	"Pause" Control	NS9B<CR>
	9C	"Stop" Control	NS9C<CR>
	9D	"Skip Plus" Control	NS9D<CR>
	9E	"Skip Minus" Control	NS9E<CR>
	9H	"Repeat One" (USB Only)	NS9H<CR>
	9I	"Repeat All" (USB Only)	NS9I<CR>
	9J	"Repeat Off" (USB Only)	NS9J<CR>
	9K	"Random On/Repeat ALL" (USB Only)	NS9K<CR>
	9L	"Random Off" (USB Only)	NS9L<CR>
	9X	"Page Up" Control	NS9X<CR>
	9Y	"Page Down" Control	NS9Y<CR>
NSA		Return Onscreen Display Information List (ASCII CODE Character)	NSA<CR> (Return NSA0-NSA8, Refer to Page 41)
NSE		Request Onscreen Display Information List (UTF-8 CODE Character)	NSE<CR> (Return NSE0-NSE8, Refer to Page 42)
NSB	**	"Direct Preset CH Play"	NSB00<CR> (** : 00-55, 00=A1, 01=A2, B1=08, G8=55)
NSC	**	"Direct Preset CH Memory"	NSC00<CR> (** : 00-55, 00=A1, 01=A2, B1=08, G8=55)
NSD	*	"Direct Character Search"	NSD0<CR> (* : 0-9, A-Z)

※iPod Extended Control

COMMAND	PARAMETER	function	example
IP	90	"Cursor Up" Control	IP90<CR>
	91	"Cursor Down" Control	IP91<CR>
	92	"Cursor Left" Control	IP92<CR>
	93	"Cursor Right" Control	IP93<CR>
	94	"Enter (Play/Pause)" Control	IP94<CR>
	9A	"Play/Pause" Control	IP9A<CR>
	9C	"Stop" Control	IP9C<CR>
	9D	"Skip Plus" Control	IP9D<CR>
	9E	"Skip Minus" Control	IP9E<CR>
	9F	"Manual Search Plus" Control	IP9F<CR>
	9G	"Manual Search Minus" Control	IP9G<CR>
	9H	"Repeat One" Control	IP9H<CR>
	9I	"Repeat All" Control	IP9I<CR>
	9J	"Repeat Off" Control	IP9J<CR>
	9K	"Shuffle Songs" Control	IP9K<CR>
	9L	"Shuffle Album" Control	IP9L<CR>
	9M	"Shuffle Off" Control	IP9M<CR>
	9N	"MENU" Control	IP9N<CR>
	9P	Switch the "Browse Mode" Control	IP9P<CR>
	9Q	Switch the "Remote Mode" Control	IP9Q<CR>
	9X	"Page Up" Control	IP9X<CR>
	9Y	"Page Down" Control	IP9Y<CR>
IPA		Return Onscreen Display Information List(iPOD) (ASCII CODE Character)	IPA<CR> (Return IPA0-IPA9,Refer to Page 43-44)
IPE		Request Onscreen Display Information List(iPOD) (UTF-8 CODE Character)	IPE<CR> (Return IPE0-IPE9,Refer to Page 45-46)

※Cursor/Enter/Menu (Setup)

<i>COMMAND</i>	<i>PARAMETER</i>	function	example
MN	CUP	"Cursor Up" Control	MNCUP<CR>
	CDN	"Cursor Down" Control	MNCDN<CR>
	CLT	"Cursor Left" Control	MNCLT<CR>
	CRT	"Cursor Right" Control	MNCRT<CR>
	ENT	"Enter" Control	MNENT<CR>
	RTN	"RETURN" Control	MNRTN<CR>
	MEN ON	"GUI Menu ON" Control	MNMEN ON<CR>
	MEN OFF	"GUI Menu OFF" Control	MNMEN OFF<CR>

***Remote Lock/Panel Lock**

COMMAND	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 62 = +12dB (MAX) 50 = 0dB 38 = -12dB (MIN) 00 = OFF (define ONLY SWch in DIRECT mode.) (at SBch 2SP) (at SBch 2SP) (at SBch 1SP)	CVFL 50<CR>
	FR **		CVFR 50<CR>
	C **		CVC 50<CR>
	SW **		CVSW 50<CR>
	SL **		CVSL 50<CR>
	SR **		CVSR 50<CR>
	SBL **		CVSBL 50<CR>
	SBR **		CVSBR 50<CR>
	SB **		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>
	HDP		SIHDP<CR>
	TV/CBL		SITV/CBL<CR>
	SAT		SISAT<CR>
	VCR		SIVCR<CR>
	DVR		SIDVR<CR>
	V.AUX		SIV.AUX<CR>

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

EVENT	PARAMETER	function	example
SI	NET/USB	(North America model Only) (North America model Only) (Europe model Only)	SINET/USB<CR>
	XM		SIXM<CR>
	HDRADIO		SIHDRADIO<CR>
	DAB		SIDAB<CR>
	USB		SIUSB<CR>
	IPOD		SIIPOD<CR>
ZM	ON	MAIN-ZONE ON/OFF change	ZMON<CR>
	OFF		ZMOFF<CR>
SR	PHONO	REC SELECT source change ---The name of PARAMETER is the same as that of the time of SI COMMAND.	SRPHONO<CR>
	IPOD		SRAUXIPOD<CR>
	SOURCE		SRSOURCE<CR>
SD	AUTO	INPUT mode change ---Set EXT.IN mode at AVR-4308	SDAUTO<CR>
	HDMI		SDHDMI<CR>
	DIGITAL		SDDIGITAL<CR>
	ANALOG		SDANALOG<CR>
	EXT.IN-1		SDEXT.IN-1<CR>
DC	AUTO	DIGITAL INPUT mode change	DCAUTO<CR>
	PCM		DCPCM<CR>
	DTS		DCDTS<CR>
SV	DVD	VIDEO SELECT mode source change	SVDVD<CR>
	HDP		SVVDP<CR>
	TV/CBL		SVTV/CBL<CR>
	SAT		SVSAT<CR>
	VCR		SVVCR<CR>
	DVR		SVDVR<CR>
	V.AUX		SVV.AUX<CR>
	SOURCE		SVSOURCE<CR>

<i>EVENT</i>	<i>PARAMETER</i>	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>
	MULTI CH IN 7.1		MSMULTI CH IN 7.1<CR>
	M DIRECT 7.1		MSM DIRECT 7.1<CR>
	M CH PURE D 7.1		MSM CH PURE D 7.1<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>

<i>EVENT</i>	<i>PARAMETER</i>	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>
	DTS+NEO:6		MSDTS+NEO:6<CR>
	DTS96/24		MSDTS96/24<CR>
	DTS96 ES MTRX		MSDTS96 ES MTRX<CR>
	WIDE SCREEN		MSWIDE SCREEN<CR>
	5CH STEREO		MS5CH STEREO<CR>
	7CH STEREO		MS7CH 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>
	VIRTUAL		MSVIRTUAL<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>

EVENT	PARAMETER	function	example	
MS	NEURAL	(North America model Only)	MSNEURAL<CR>	
	DOLBY D+		MSDOLBY D+<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>	
	DOLBY TRUEHD		MSDOLBY HD<CR>	
	DOLBY HD		MSDOLBY HD<CR>	
	DOLBY HD+EX		MSDOLBY HD+EX<CR>	
	DOLBY HD+PL2x C		MSDOLBY HD+PL2X C<CR>	
	DOLBY HD+PL2x M		MSDOLBY HD+PL2X M<CR>	
	DTS HD		MSDTS HD<CR>	
	DTS HD MSTR		MSDTS HD MSTR<CR>	
	DTS HD+NEO:6		MSDTS HD+NEO:6<CR>	
	DTS HD+PL2X C		MSDTS HD+PL2X C<CR>	
	DTS HD+PL2X M		MSDTS HD+PL2X M<CR>	
	DTS ES 8CH DSCRT		MSDTS ES 8CH DSCRT<CR>	
	QUICK1		QUICK SELECT mode change	MSQUICK1<CR>
	QUICK2			MSQUICK2<CR>
	QUICK3			MSQUICK3<CR>
	QUICK0			MSQUICK0<CR>
VS	MONIAUTO	HDMI MONITOR setting change	VSMONIAUTO<CR>	
	MONI1		VSMONI1<CR>	
	MONI2		VSMONI2<CR>	
	ASPNRM	ASPECT setting change	VSASPNRM<CR>	
	ASPFUL		VSASPFUL<CR>	
	SC48P	SCALER setting change	VSSC48P<CR>	
	SC10I		VSSC10I<CR>	
	SC72P		VSSC72P<CR>	
	SC10P		VSSC10P<CR>	
	SCAUTO		VSSCAUTO<CR>	

EVENT	PARAMETER	function	example	
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:ON		PSSB:ON<CR>	
	SB:OFF		PSSB:OFF<CR>	
	SB:ESDSCRT		PSSB:ESDSCRT<CR>	
	SB:ESMTRX		PSSB:ESMTRX<CR>	
	CINEMA EQ.ON		CINEMA EQ. ON/OFF Change	PSCINEMA EQ.ON<CR>
	CINEMA EQ.OFF			PSCINEMA EQ.OFF<CR>
	MODE:CINEMA	CINEMA / MUSIC / GAME / PL mode change	PSMODE:CINEMA<CR>	
	MODE:MUSIC		PSMODE:MUSIC<CR>	
	MODE:GAME		PSMODE:GAME<CR>	
	MODE:PRO LOGIC		PSMODE:PRO LOGIC<CR>	
	ROOM EQ:AUDYSSEY	ROOM EQ mode direct change	PSROOM EQ:AUDYSSEY<CR>	
	ROOM EQ:BYP.LR		PSROOM EQ:BYP.LR<CR>	
	ROOM EQ:FLAT		PSROOM EQ:FLAT<CR>	
	ROOM EQ:MANUAL		PSROOM EQ:MANUAL<CR>	
	ROOM EQ:OFF		PSROOM EQ:OFF<CR>	
	BAS **		BASS change	PSBAS 00<CR>
	TRE **	TREBLE change	PSTRE 00<CR>	

<i>EVENT</i>	<i>PARAMETER</i>	function	example
PS	DRC AUTO	DRC change	PSDRC AUTO<CR>
	DRC LOW		PSDRC LOW<CR>
	DRC MID		PSDRC MID<CR>
	DRC HI		PSDRC HI<CR>
	DRC OFF		PSDRC OFF<CR>
	DCO OFF	D.COMP change	PSDCO OFF<CR>
	DCO MID		PSDCO MID<CR>
	DCO LOW		PSDCO LOW<CR>
	DCO MID		PSDCO MID<CR>
	DCO HIGH		PSDCO HIGH<CR>
	LFE **	LFE change	PSLFE 10<CR>
	EFF ON	EFFECT change	PSEFF UP<CR>
	EFF OFF		PSEFF DOWN<CR>
	EFF **		PSEFF **<CR>
	DEL ***	DELAY change	PSDEL ***<CR>
	AFD ON	AFDM change	PSAFD ON<CR>
	AFD OFF		PSAFD OFF<CR>
	PAN ON	PANORAMA change	PSPAN ON<CR>
	PAN OFF		PSPAN OFF<CR>
	DIM **	DIMMENSION change	PSDIM **<CR>
	CEN **	CENTER WIDTH change	PSCEN 07<CR>
	CEI **	CENTER IMAGE change	PSCEI 10<CR>
	ATT ON	SW ATT change	PSATT ON<CR>
	ATT OFF		PSATT OFF<CR>
	SWR ON	SW ON/OFF change	PSSWR ON<CR>
	SWR OFF		PSSWR OFF<CR>
	RSZ S	ROOM SIZE change	PSRSZ S<CR>
	RSZ MS		PSRSZ MS<CR>
	RSZ M		PSRSZ M<CR>
	RSZ ML		PSRSZ ML<CR>
RSZ L	PSRSZ L<CR>		

<i>EVENT</i>	<i>PARAMETER</i>	<i>function</i>	<i>example</i>
PS	DELAY ***	AUDIO DELAY change, ***:000 to 999 by ASCII ---AVR-4308 : 200=200ms (MAX) 100=100ms, 000=0ms	PSDELAY 200<CR>
	NIGHT OFF	NIGHT MODE change	PSNIGHT OFF<CR>
	NIGHT LOW		PSNIGHT LOW<CR>
	NIGHT MID		PSNIGHT MID<CR>
	NIGHT HI		PSNIGHT HI<CR>
	RSTR OFF	AUDIO RESTORER change	PSRSTR OFF<CR>
	RSTR MODE1		PSRSTR MODE1<CR>
	RSTR MODE2		PSRSTR MODE2<CR>
RSTR MODE3	PSRSTR MODE3<CR>		
PV	CN **	CONTRAST change	PVCN 06<CR>
	BR **	BRIGHTNESS Change	PVBR 12<CR>
	CM **	CROMA LEVEL change	PVCM 06<CR>
	HUE **	Hue Change	PVHUE 06<CR>

EVENT	PARAMETER	function	example
Z2	PHONO IPOD	MULTI ZONE-2 source change ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z2PHONO<CR> Z2IPOD<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>
Z2CS	ST	ZONE2 Channel setting	Z2CSST
	MONO		Z2CSMONO
Z2CV	FL **	** : 38 to 62 by ASCII , 50=0dB	Z2CVFL 50<CR>
	FR **	** : 38 to 62 by ASCII , 50=0dB	Z2CVFR 50<CR>
Z2HPF	ON	ZONE2 HPF ON/OFF change	Z2HPFON<CR>
	OFF		Z2HPFOFF<CR>
Z2PS	BAS **	ZONE2 BASS change	Z2PSBAS 00<CR>
	TRE **	ZONE2 TEBLE change	Z2PSTRE 00<CR>

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

EVENT	PARAMETER	function	example
Z3	PHONO POD	MULTI ZONE-3 source change ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z3PHONO<CR> Z3IPOD<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>
Z3CS	ST	ZONE3 Channel setting	Z3CSST
	MONO		Z3CSMONO
Z3CV	FL **	** : 38 to 62 by ASCII , 50=0dB	Z3CVFL 50<CR>
	FR **	** : 38 to 62 by ASCII , 50=0dB	Z3CVFR 50<CR>
Z3HPF	ON	ZONE3 HPF ON/OFF change	Z3HPFON<CR>
	OFF		Z3HPFOFF<CR>
Z3PS	BAS **	ZONE3 BASS change	Z3PSBAS 00<CR>
	TRE **	ZONE3 TEBLE change	Z3PSTRE 00<CR>
Z4	CD V.AUX	MULTI ZONE-4 source change ---The name of PARAMETER is the same as that of the time of SI COMMAND.	Z4CD<CR> Z4V.AUX<CR>
	SOURCE	MULTI ZONE-4 mode cancel	Z4SOURCE<CR>
	ON	MULTI ZONE-4 ON/OFF change	Z4ON<CR>
	OFF		Z4OFF<CR>

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

✳ANALOG TUNER Control

<i>EVENT</i>	<i>PARAMETER</i>	function	example
TF	AN***** (6 digits)	TUNER Frequency change --- ****.** kHz at AM band ****.** MHz at FM band	TFAN105000<CR> (1050.00kHz at AM)
TP	AN** (PRESET No.)	TUNER PRESET change to No.**	TPANA1<CR> (PRESET No."A1")
TM		TUNER BAND , MODE change	
	ANAM	---Band set to AM	TMANAM<CR>
	ANFM	---Band set to FM	TMANFM<CR>
	ANAUTO	---Tuning mode set to AUTO mode	TMANAUTO<CR>
	ANMANUAL	---Tuning mode set to MANUAL mode	TMANMANUAL<CR>

✳XM Control (North America model only)

<i>EVENT</i>	<i>PARAMETER</i>	function	example
TF	XM*** (3 digits)	--- **:XM CH No.	TFXM001<CR> (XM001 CH)
TP	XM** (PRESET No.)	XM PRESET change to No.**	TPXMA1<CR> (PRESET No."A1")
XM	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 change	TMSIGNAL GOOD<CR>
	SIGNAL WEAK		TMSIGNAL WEAK<CR>
	SIGNAL MARGINAL		TMSIGNAL MARGINAL<CR>
SIGNAL NOSIGNAL	TMSIGNAL NOSIGNAL<CR>		

✳️HD RADIO Control (North America model only)

<i>EVENT</i>	<i>PARAMETER</i>	function	example
TF	HD***** (6 digits)	--- ****.* kHz at AM band (>050000 is AM.) ****.* MHz at FM band (<050000 is FM.)	TPHD105000<CR> (1050.00kHz at AM)
	HDMC*(1 digit)	---HD Multi Cast CH change(*:0~8)	TFHDMC2<CR>
TP	HD**(PRESET No.)	HD PRESET change to No.**	TPHDA1<CR> (PRESET No."A1")
TM	HDAM	HD RADIO BAND , MODE change ---Band set to AM	TMHDAM<CR>
	HDFM	---Band set to FM	TMHDFM<CR>
	HDAUTOHD	---Tuning mode set to AUTO-HD mode	TMHDAUTOHD<CR>
	HDAUTO	---Tuning mode set to AUTO mode	TMHDAUTO<CR>
	HDMANU	---Tuning mode set to MANUAL mode	TMHDMANU<CR>
HD	ST NAME (8 digits)	HD STATION NAME change	HDST NAME *****<CR>
	STL NAME (56 digits)	HD STATION LONG NAME change	HDSTL NAME (56 digits)<CR>
	SIG LEV* (1 digit)	HD ANTENNA SIGNAL STATUS change	HDSIG LEV0<CR>
			HDSIG LEV1<CR>
			HDSIG LEV2<CR>
			HDSIG LEV3<CR>
			HDSIG LEV4<CR>
			HDSIG LEV5<CR>
	HDSIG LEV6<CR>		
	MLT CURRENT* (1 digit)	HD MULTI CAST CURRENT CH change	HDMLT CURRENT*<CR>
	MLT CAST CH (8 digits)	HD MULTI CAST CH change	HDMLT CAST CH*****<CR>
PTY (18 digits)	HD PROGRAM TYPE change	HDPTY (18 digits)<CR>	
ARTIST(40 digits)	HD ARTIST NAME change	HD ARTIST (40 digits)<CR>	
TITLE(40 digits)	HD TITLE NAME change	HD TITLE (40 digits)<CR>	
ALBUM(40 digits)	HD ALBUM NAME change	HD ALBUM (40 digits)<CR>	
GENRE(23 digits)	HD GANRE change	HD GENRE (23 digits)<CR>	

✳DAB Control (Europe model only)

<i>EVENT</i>	<i>PARAMETER</i>	<i>function</i>	<i>example</i>
TF	DAB***** (6 digits)	--- ***.*** kHz	TFDAB174928<CR> (174.928kHz)
TP	DAB** (PRESET No.)	HD PRESET change to No.**	TPDABA1<CR> (PRESET No."A1")
TM	DABMULTI	DAB MODE change ---Tuning mode set to MULTIPLEX mode	TMDABMULTI<CR>
	DABALPHA	---Tuning mode set to ALPHANUMERIC mode	TMDABALPHA<CR>
	DABPTY	---Tuning mode set to PROGRAM TYPE mode	TMDABPTY<CR>
	DABAS	---Tuning mode set to ACTIVE STATION mode	TMDABAS<CR>
	DABFS	---Tuning mode set to FAVORITE STATIONmode	TMDABFS<CR>
DAB	ST NAME (8 digits)	DAB STATION NAME change	DABST NAME *****<CR>
	STL NAME (16 digits)	DAB STATION LONG NAME change	DABSTL NAME (16 digits)<CR>
	EN NAME (16 digits)	DAB ENSEMBLE NAME change	DABEN NAME (16 digits)<CR>
	PTY (16 digits)	DAB PROGRAM TYPE change	DABPTY (16 Digits)<CR>
	CHANNEL***	DAB CHANNLE change	DAB12C<CR>
	FREQ***** (6 digits)	DAB FREQUENCY change	DAB174928<CR> (174.928kHz)
	MODE	DAB MODE (MONO/STEREO) change	DABMODE ST<CR> DABMODE MN<CR>
	SIGNAL***	DAB SIGNAL QUALITY change	DABSIGNAL100<CR>
	TIME** : **	DAB TIME display (only when request ("DAB?") is received)	DABTIME14:41<CR>
	DATE**/**/****	DAB DATE display (only when request ("DAB?") is received)	DABDATE11/18/2006<CR>

※iRadio/mServer/USB Extended Control

EVENT	PARAMETER	function	
NSA		Onscreen Display Information is Answered By the NSA Command.	
	0	Display Line1 Information	NSA0***** ??????<CR>
	1	Display Line3 Information	NSA1※***** ??????<CR>
	2	Display Line4 Information	NSA2※***** ??????<CR>
	3	Display Line5 Information	NSA3※***** ??????<CR>
	4	Display Line6 Information	NSA4※***** ??????<CR>
	5	Display Line7 Information	NSA5※***** ??????<CR>
	6	Display Line8 Information	NSA6※***** ??????<CR>
	7	Display Line9 Information	NSA7***** ??????<CR>
	8	Display Line10 Information	NSA8***** ??????<CR> *:Character Length MAX96 _:Null ?:Exclusion (The character after Null should be disregarded) ※:Cursor&Playable Music Infomation Data (1Byte) Bit1:Playable Music =1 Bit2,3:Don't Care Bit4:CURSOR SELECT=1 Bit5,6,7,8:Don't Care
			<example> NSA0Now Playing USB_????<CR> NSA1※Come Away With Me_????<CR> NSA2※Norah Jones_????????<CR> NSA3※_????????????????????<CR> NSA4※_????????????????????<CR> NSA5※00:11 100%_????????<CR> NSA6※_????????????????????<CR> NSA7_????????????????????<CR> NSA8_????????????????????<CR>

EVENT	PARAMETER	function	
NSE		Onscreen Display Information(mserver/iRadio) is Answered By the NSE Command.	
	0	Display Line1 Information	NSE0***** _?????<CR>
	1	Display Line3 Information	NSE1※***** _?????<CR>
	2	Display Line4 Information	NSE2※***** _?????<CR>
	3	Display Line5 Information	NSE3※***** _?????<CR>
	4	Display Line6 Information	NSE4※***** _?????<CR>
	5	Display Line7 Information	NSE5※***** _?????<CR>
	6	Display Line8 Information	NSE6※***** _?????<CR>
	7	Display Line9 Information	NSE7***** _?????<CR>
8	Display Line10 Information	NSE8***** _?????<CR> *:UTF-8 CODE Character(MAX95byte) _:Null ?: Don't Care (The character after Null should be disregarded) ※:Cursor&Playable Music Information Data(1Byte) Bit1:Playable Music =1 Bit2,3:Don't Care Bit4:CURSOR SELECT=1 Bit5,6,7,8:Don't Care ***** _?????:96byte Fixed	
		<example> NSE0Now Playing USB_????<CR> NSE1※Come Away With Me_??<CR> NSE2※Norah Jones_????????<CR> NSE3※_????????????????<CR> NSE4※_????????????????<CR> NSE5※00:11 100%_????????<CR> NSE6※_????????????????<CR> NSE7_????????????????<CR> NSE8 ?????????????????<CR>	

※iPod Extended Control

<i>EVENT</i>	<i>PARAMETER</i>	function	
IPA		Onscreen Display Information is Answered By the IPA Command.	
	0	Display Line1 Information	IPA0***** _??<CR>
	1	Display Line3 Information	IPA1※***** _??<CR>
	2	Display Line4 Information	IPA2※***** _??<CR>
	3	Display Line5 Information	IPA3※***** _??<CR>
	4	Display Line6 Information	IPA4※***** _??<CR>
	5	Display Line7 Information	IPA5※***** _??<CR>
	6	Display Line8 Information	IPA6※***** _??<CR>
	7	Display Line9 Information	IPA7※***** _??<CR>
	8	Display Line10 Information	IPA8#***** _??<CR>
	9	Display Line11 Information	IPA9***** _??<CR>
			*:Character Length MAX96 _:Null ?:Exclusion(The character after Null should be disregarded) ※:Cursor Infomation Data(1Byte) Bit1:Playable Music=1 Bit2:Display Only=1 Bit3:Don't Care Bit4:CURSOR SELECT=1 Bit5,6,7,8:Don't Care # :Bit1-8:Don't Care

<i>EVENT</i>	<i>PARAMETER</i>	function	
IPA			<pre> <example1> IPA0Artist????????????????????<CR> IPA1✘ Ana Caram_????????????????<CR> IPA2✘ Badi Assad_????????????????<CR> IPA3✘ Christy Baron_????????????????<CR> IPA4✘ Marta Gomez_????????????????<CR> IPA5✘ Rebecca Pidgeon_????????????<CR> IPA6✘ Sara K_????????????????????<CR> IPA7✘ Valerie Joyce_????????????????<CR> IPA8# SFL Songs RPT All_???<CR> IPA9 [2/ 6]_????????????????<CR> <example2> IPA0Now Playing iPod_????????????<CR> IPA1✘ A HARD DAY'S NIGHT._??<CR> IPA2✘ /The Beatles_????????????????<CR> IPA3✘_????????????????????????????<CR> IPA4✘ A HARD DAY'S NIGHT_??<CR> IPA5✘ 00:04_????????????????????<CR> IPA6✘_????????????????????????????<CR> IPA7✘_????????????????????????????<CR> IPA8# SFL Songs RPT All_???<CR> IPA9????????????????????????????<CR> </pre>

<i>EVENT</i>	<i>PARAMETER</i>	<i>function</i>	
IPE		Onscreen Display Information(iPod) is Answered By the IPA Command.	
	0	Display Line1 Information	IPE0***** ???<CR>
	1	Display Line3 Information	IPE1※***** ???<CR>
	2	Display Line4 Information	IPE2※***** ???<CR>
	3	Display Line5 Information	IPE3※***** ???<CR>
	4	Display Line6 Information	IPE4※***** ???<CR>
	5	Display Line7 Information	IPE5※***** ???<CR>
	6	Display Line8 Information	IPE6※***** ???<CR>
	7	Display Line9 Information	IPE7※***** ???<CR>
	8	Display Line10 Information	IPE8#***** ???<CR>
9	Display Line11 Information	IPE9***** _ ???<CR> *:UTF-8 CODE Character (MAX95byte) _:Null ?:Exclusion (The character after Null should be disregarded) ※:Cursor Information Data (1Byte) Bit1: Playable Music=1 Bit2: Display Only=1 Bit3: Don't Care Bit4: CURSOR SELECT=1 Bit5-8: Don't Care # : Bit1-8: Don't Care	

EVENT	PARAMETER	function	
IPE			<pre> <example1> IPE0Artist????????????????????<CR> IPE1✘ Ana Caram_????????????????<CR> IPE2✘ Badi Assad_????????????????<CR> IPE3✘ Christy Baron_????????????????<CR> IPE4✘ Marta Gomez_????????????????<CR> IPE5✘ Rebecca Pidgeon_????????????<CR> IPE6✘ Sara K_????????????????????<CR> IPE7✘ Valerie Joyce_????????????<CR> IPE8# SFL Songs RPT All_???<CR> IPE9 [2/ 6]_????????????<CR> <example2> IPE0Now Playing iPod_????????<CR> IPE1✘ A HARD DAY'S NIGHT._??<CR> IPE2✘ /The Beatles_????????????<CR> IPE3✘_????????????????????????????<CR> IPE4✘ A HARD DAY'S NIGHT_??<CR> IPE5✘ 00:04_????????????????????<CR> IPE6✘_????????????????????????????<CR> IPE7✘_????????????????????????????<CR> IPE8# SFL Songs RPT All_???<CR> IPE9_????????????????????????????<CR> </pre>

✳Remote Lock/Panel Lock

<i>EVENT</i>	<i>PARAMETER</i>	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>