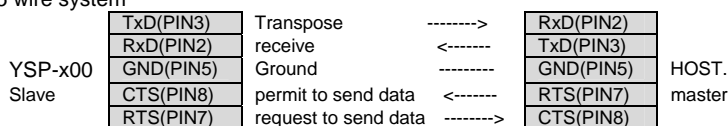


## 1. Outline

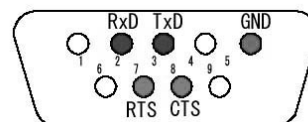
In case no comments in particular as for the contents of this papers, the descriptions are effective for the YSP-x00. YSP-x00 in this paper means YSP-4000/HTY-7040/YSP-40D.

### 1.1 Connection

5 wire system



\*When not connected, data sending to YSP-x00 is prohibited (CTS port pull down).



### 1.2 RS-232C Settings

\* Full duplex, start-stop synchronization communication

Baud rate : 9600bps  
Data bits : 8  
Parity : No  
Stop bit : 1bit  
Handshaking : Hardware

\*RTS port of YSP-x00 outputs low level while the AC plug is disconnected.

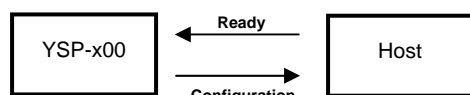
If RTS output stays low even when the AC plug is connected, there might be some trouble.

### 1.3 Data block timeout

It takes YSP-x00 maximum 500msec to send one data block. If a complete data block is not received within 500msec, please cancel the transaction. There might be some trouble.

## 2. Start transactions

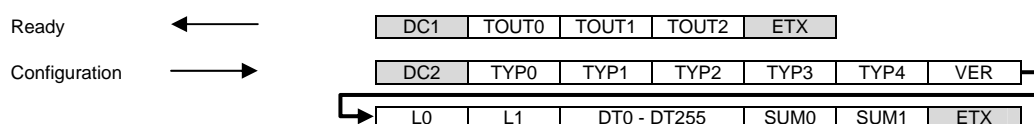
### 2.1 Starting Communication



Ready command is the very first command to be sent to YSP-x00 at the start of the communication. TOUT0 - 2 in Ready Command sets timeout of the communication.

YSP-x00 sends Configuration command ( Model ID, software version, and setting data ) to the host in reply to the Ready command.

YSP-x00 will send a Configuration command within 1 sec. after receiving a Ready command from the host. If not, please send a Ready command again (max 5 times). If YSP-x00 won't send any Configuration commands after fifth retry, please cancel the transaction because there might be some problems.



\*TYPx : Model ID = "G0079" (YSP-4000/HTY-7040/YSP-40D)

\*VER : Software Version

\*SUM : the sum of all data except for the header and footer

function name	function	data (ASCII)	range (HEX)
TOUT0 - 2	communication timeout	0 - 9, A - F	0 - 0xFFFF

\*timeout between the header and the footer

\*timeout=0 means no timeout

function name	function	data (ASCII)	range (HEX)
TYP0 - 4	model ID	0 - 9, A - F	voluntary
VER	software version	A - Z	voluntary
L0 - 1	data length	0 - 9, A - F	1 - 0xFF
DT0 - 255	data	0 - 9, A - F	0 - 0xF
SUM0	upper 4 bit of SUM	0 - 9, A - F	0 - 0xF
SUM1	lower 4 bit of SUM	0 - 9, A - F	0 - 0xF

## \*Data Structure of Configuration command

data	When the power is OFF, only DT0,1,...,9 are sent to the Host.			
DT0	Fixed	Baud Rate		Don't care ( '@' )
DT1	Fixed	Receive Buffer		Don't care ( 'E' )
DT2	Fixed	Receive Buffer		Don't care ( '0' )
DT3	Fixed	Command Timeout		Don't care ( '1' )
DT4	Fixed	Command Timeout		Don't care ( '9' )
DT5	Fixed	Command Timeout		Don't care ( '0' )
DT6	Fixed	Handshaking		Don't care ( '0' )
DT7	0 - 2	System		0: OK / 1: Busy / 2: P-Off
DT8	0 / 1	Power		0: Off / 1: On
DT9	0 - 8	Input		0: TV/STB / 1: DVD / 2: AUX1 / 3: AUX2 / 4: AUX3 / 5: DOCK / 6: FM / 7: XM ( Dest.U,C Only) / 8: DAB ( Dest.B Only)
DT10	0 - 6	Input Mode		0: Auto / 1: D.D.RF / 2: DTS / 3: Digital / 4: Analog / 5: Analog Only / 6: AAC
DT11	0 / 1	Audio Mute		0: Off / 1: On
DT12	0 - E	Master Volume		Upper 4 bit ( 00: - / 2C:1(-97.0dB) ~ EE: MAX(0dB) )
DT13	0 - E			Lower 4 bit
DT14	0 - 7	Program		Upper 4 bit ( 0: Cinema DSP Off / 1: Movie Sci-Fi / 2: Movie Spectacle / 3: Movie Adventure / 4: Music Concert Hall / 5: Music Jazz Club / 6: Music Sports )
DT15	0 - 7	Surround		Lower 4 bit ( 0: Off / 1: ProLogic / 2: PL Movie / 3: PL Music / 4: PL Game / 5: Neo:6 Cinema / 6: Neo:6 Music / 7: neural surround )
DT16		Don't care		
DT17	0 - 4	Sleep		0: 120 / 1: 90 / 2: 60 / 4: 30 / 4: OFF
DT18	0 - 9	Night Mode		0: OFF / 1: Cinema Min / 2: Cinema Mid / 3: Cinema Max / 4: Music Min / 5: Music Mid / 6: Music Max / 7: TV Equal Vol Min / 8: TV Equal Vol Mid / 9: TV Equal Vol Max
DT19	0 - B	Playback		1: Analog / 2: PCM / 3: DD*(except 2.0) / 4: DD(2.0) / 5: DD.Karaoke / 6: DD.EX / 7: DTS / 8: DTS-ES / 9: Other DIGITAL / A: DTS Analog Mute / B: DTS Discrete / C: AAC(except 2.0) / D: AAC(2.0)
DT20	0 - B	Fs		0: Analog / 1: 32kHz / 2: 44.1kHz / 3: 48kHz / 4: 64kHz / 5: 88.2kHz / 6: 96kHz / 7: Unknown / 8: Unknown / 9: Unknown / A: Unknown / B: 48kHz(96kHz) DTS 96/24
DT21	0 - 4	Tuner Page		0: A / 1: B / 2: C / 3: D / 4: E
DT22	0 / 1	RED dts		0: Release / 1: Wait
DT23	0 - 7	Tuner Preset No.		0: No.1 / 1: No.2 / 2: No.3 / 3: No.4 / 4: No.5 / 5: No.6 / 6: No.7 / 7: No.8
DT24	0 - F	Tone Control	Treble	Upper 4 bit ( 00:-12dB ~ 18:0dB ~ 30:+12dB )
DT25	0 - F			Lower 4 bit
DT26	0 - F		Bass	Upper 4 bit ( 00:-12dB ~ 18:0dB ~ 30:+12dB )
DT27	0 - F			Lower 4 bit
DT28	0 - 2	TruBass		0: Off / 1: Mid / 2: Deep(On)
DT29	0 - 4	Beam Mode		0: 5Beam / 1: ST+3Beam / 2: 3Beam / 3: Stereo / 4: Target
DT30	0 / 1	Mute Level		0: Mute / 1: -20dB
DT31	0 - 2	Dual Mono		0: Main / 1: Sub / 2: All (Only Japanese Model)
DT32	0 - 2	Music Enhancer		0: Off / 1: Low / 2: High
DT33	0 - F	Level ( 5Beam )	Front R	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT34	0 - F			Lower 4bit
DT35	0 - F		Front L	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT36	0 - F			Lower 4bit
DT37	0 - F		Center	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT38	0 - F			Lower 4bit
DT39	0 - F		Surround R	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT40	0 - F			Lower 4bit
DT41	0 - F		Surround L	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT42	0 - F			Lower 4bit
DT43	0 - F		SWFR	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT44	0 - F			Lower 4bit
DT45	0 - F	Level ( ST+3Beam )	Front R	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT46	0 - F			Lower 4bit
DT47	0 - F		Front L	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT48	0 - F			Lower 4bit
DT49	0 - F		Center	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT50	0 - F			Lower 4bit
DT51	0 - F		Surround R	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT52	0 - F			Lower 4bit
DT53	0 - F		Surround L	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT54	0 - F			Lower 4bit
DT55	0 - F		SWFR	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT56	0 - F			Lower 4bit
DT57	0 - F	Level ( 3Beam )	Front R	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT58	0 - F			Lower 4bit
DT59	0 - F		Front L	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT60	0 - F			Lower 4bit
DT61	0 - F		Center	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT62	0 - F			Lower 4bit
DT63	0 - F		Surround R	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT64	0 - F			Lower 4bit

DT65	0 - F	Level ( 3Beam )	Surround L	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT66	0 - F			Lower 4bit
DT67	0 - F		SWFR	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT68	0 - F			Lower 4bit
DT69	0 - F	Level ( My Surround )	SWFR	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT70	0 - F			Lower 4bit
DT71	0 - F	Level ( 5ch Stereo )	SWFR	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT72	0 - F			Lower 4bit
DT73	0 - F	Level ( Stereo )	SWFR	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT74	0 - F			Lower 4bit
DT75	0 - F	Level ( My Beam )	Center	Upper 4bit ( 14:-10dB ~ 3C:+10dB )
DT76	0 - F			Lower 4bit
DT77	0 - F	My Beam Angle	Surround L	Upper 4bit ( 00:L90 ° ~ 5A: 0 ° ~ B4:R90 ° )
DT78	0 - F			Lower 4bit
DT79	0 / 1	Test Mode		0: OFF / 1: Dolby
DT80	0 / 1	Unit Set		0: Meter / 1: Feet
DT81	0 - F	SWFR Set	LFE Level	Upper 4bit ( 00:-20dB ~ 14:0dB )
DT82	0 - F			Lower 4bit
DT83	0 / 1		Bass Out	0:SWFR / 1:Front
DT84	0 - F		Distance (Meter)	Upper 4bit ( 03:0.3m ~ 96:15.0m )
DT85	0 - F			Lower 4bit
DT86	0 - F		Distance (Feet)	Upper 4bit ( 02:1.0ft ~ 64:50.0ft )
DT87	0 - F			Lower 4bit
DT88	0 - A		Cross Over	0:80Hz / 1:100Hz / 2:120Hz
DT89	0 - F	Audio Delay		Upper 4bit ( 00:0ms ~ A0:160ms )
DT90	0 - F			Lower 4bit
DT91	0 / 1	Room EQ	Mounting	0: Shelf / 1: Wall
DT92	0 / 1		Acoustics	0: Normal / 1: Hi Echo
DT93	0 / 1	Input Mode		0:Auto / 1:Last
DT94	0 - 4	Dimmer		2: -2 / 3: -1 / 4: Off
DT95	0 - 4	Auto Dimmer		0: Auto Display Off / 1: -3 / 2: -2 / 3: -1 / 4: Off
DT96	0	OSD position		Upper 4bit ( 0:-5 ~ 5:0 ~ A:+5 )
DT97	0 - A			Lower 4bit
DT98	0 / 1	Blue / Gray back		0: Blue / 1: Gray
DT99	0 - 2	D. Range		0: MAX / 1: STD / 2: MIN
DT100	0 - F	Input AUX3	Program	Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT101	0 - F		Surround	Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT102	0 - F	Input DVD	Program	Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT103	0 - F		Surround	Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT104	0 - F	Input AUX1	Program	Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT105	0 - F		Surround	Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT106	0 - F	Input TV/STB	Program	Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT107	0 - F		Surround	Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT108	0 - F	Treble Gain	Front L	Upper 4bit ( 00:-12dB ~ 18:0dB ~ 30:+12dB )
DT109	0 - F			Lower 4bit
DT110	0 - F		Front R	Upper 4bit ( 00:-12dB ~ 18:0dB ~ 30:+12dB )
DT111	0 - F			Lower 4bit
DT112	0 - F		Center	Upper 4bit ( 00:-12dB ~ 18:0dB ~ 30:+12dB )
DT113	0 - F			Lower 4bit
DT114	0 - F		Surround L	Upper 4bit ( 00:-12dB ~ 18:0dB ~ 30:+12dB )
DT115	0 - F			Lower 4bit
DT116	0 - F		Surround R	Upper 4bit ( 00:-12dB ~ 18:0dB ~ 30:+12dB )
DT117	0 - F			Lower 4bit
DT118	0 / 1	Image Location	ON/OFF	0:OFF / 1:ON
DT119	0 - F		Left	Upper 4bit ( 00:0% ~ 13:95% )
DT120	0 - F			Lower 4bit
DT121	0 - F		Right	Upper 4bit ( 00:0% ~ 13:95% )
DT122	0 - F			Lower 4bit

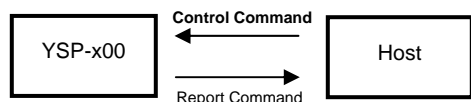
DT123	0 - F	Input AUX2	Program	Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT124	0 - F		Surround	Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT125	0 - F	Input DAB		Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT126	0 - F			Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT127	0 - F	Input FM		Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT128	0 - F			Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT129	0 - F	Input XM		Upper 4bit ( 0X:Cinema DSP Off / 1X:Movie Sci-Fi(SFX) / 2X:Movie Spectacle / 3X:Movie Adventure / 4X:Music Video / 5X:Music Concert Hall / 6X:Music Jazz Club / 7X:Sports )
DT130	0 - F			Lower 4bit ( X0:Off / X1:ProLogic / X2:PL Movie / X3: PL Music / X4: PL Game / X5:Neo:6 Cinema / X6:Neo:6 Music )
DT131	0 - 2	OSD DISPLAY TIME		0: 10sec / 1: 30sec / 2: Always
DT132	0 / 1	FL SCROLL		0: Continue / 1: Once
DT133	0 - 7	OSD LANGUAGE		0: Japanese / 1: English / 2: French / 3: German / 4: Spanish / 5: Italian / 6: Dutch / 7: Russian
DT134	0 / 1	HDMI SUPPORT AUDIO		0: YSP-4000/HTY-7040/YSP-40D / 1: Other ( Dest.U,C Only)
DT135	0 - 4	HDMI UP-SCALING		0: Off / 1: Through / 2: 480p(576p) / 3: 1080i / 4: 720p ( Dest.U,C Only)
DT136	0 / 1	HDMI ASPECT		0: THROUGH / 1: 16:9 NORMAL / 2: SMART ZOOM ( Dest.U,C Only)
DT137	0 / 1	HDMI CONTROL		0: Off / 1: On ( Dest.U,C Only)
DT138	0 - 4	XM PRESET PAGE		0: A / 1: B / 2: C / 3:D / 4: E ( Dest.U,C Only)
DT139	0 - 7	XM PRESET NO.		0: No.1 / 1: No.2 / 2: No.3 / 3: No.4 / 4: No.5 / 5: No.6 / 6: No.7 / 7: No.8 ( Dest.U,C Only)
DT140	0 - 2	XM SEARCH MODE		0: All CH / 1: Category / 2:Preset ( Dest.U,C Only)
DT141	0 - F	XM CHANNEL NO.		00: 000ch / 01: 001ch / ~ / FF: 255ch ( Dest.U,C Only)
DT142	0 - F			
DT143	0 - 4	DAB SEARCH MODE		0:ALPHANUMERIC / 1:ACTIVE / 2:ENSEMBLE / 3:FAVOURITE / 4:PRESET ( Dest.B Only)

\*DD = Dolby Digital

\*OSD = On Screen Display

**3.**

## Control Command



\*YSP-x00 can receive control commands only while the power is on.  
(Except Power commands and System commands\*)

\*Please do not send any control commands while the system status is in wait. No commands are permitted until YSP-x00 reports OK

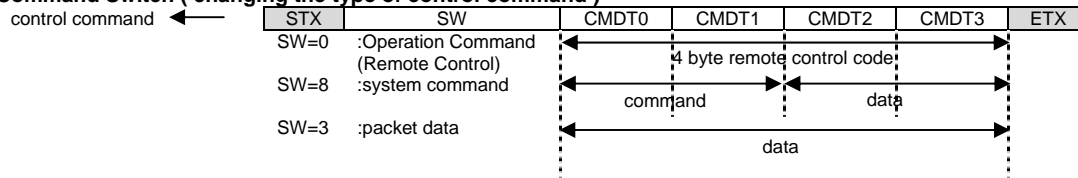
\*YSP-x00 will send a Report Command\*\* within 1 sec of receiving the Control Command. If no Report Command is received, resend control command (max 5 times) If YSP-x00 doesn't send a Report Commands after fifth retry, cancel the transaction because there might be some troubles.

\*'SW' switches the type of the control command. When the 'SW' is set to '0', you can control YSP-x00 remotely via RS-232C.

\*YSP-x00 will only send one report command for each type of control. The Report Command will report only the final status of all settings in a strings of commands ( may not report all steps in a status, only final status).  
For example, if a user set the input selector on the unit to DVD just after the host sends command to change input to AUX, YSP-x00 may report only the final status that the input was changed to DVD by the system operation.

\*System command, \*\*Report command --> described in later

### - Command Switch ( changing the type of control command )



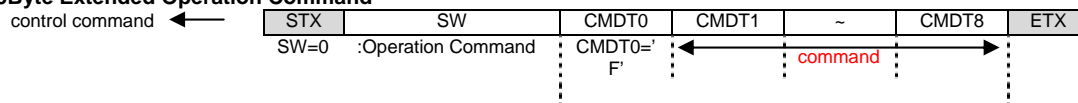
function name	function	data (ASCII)	range (HEX)
SW	command switch	0 - 9	0 - 9
CMDT0 - 3	command & data	0 - 9, A - F	variable

\* 'SW' switches the command type of the Control Command.  
 SW=0 : 4 byte command for remote control code  
 SW=8 : 2 byte command 10 - FF (HEX expression in ASCII)  
 SW=3 : 4 byte packet data

\* YSP-x00 uses following three types of Control Command.

- Operation Commands for remote control ( SW = 0 )
- System Commands for system setting ( SW = 8 )
- packet data for test data transmission ( SW = 3 )

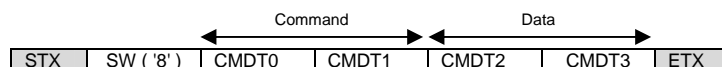
### - 9Byte Extended Operation Command



function name	function	data (ASCII)	range (HEX)
SW	command switch	0	Fix
CMDT0	command & data	F	Fix
CMDT1 - 8	command & data	0 - 9, A - F	variable

\* 'SW' switches the command type of the Control Command.  
 SW=0 : control code

## 3.1 System Command ( SW = '8' )



System Command can be made by setting the 'SW' byte in the Control Command to '8'. With System command you can control YSP-x00's system settings ( Report Command Enable / Disable, Report Command delay, etc )

With a System Command you can also ...

- set absolute master volume value.
- send text strings to the On Screen Display (OSD).
- request YSP-x00 text data regarding master volume, input name.

SW	Command			Data			Report Command			Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	RDAT1,2	
8	0	0	Report Command Code	0	0	Enable	0	00	00(OK)	
				0	1	Disable				
8	0	1	time between two report commands (Report Command Delay)	0	0	real time	0	00	00(OK)	
				0	1	50ms				
				0	2	100ms				
				0	3	150ms				
				0	4	200ms				
				0	5	250ms				
				0	6	300ms				
				0	7	350ms				
				0	8	400ms				
8	1	0	OSD message start command	0	0	Start	0	00	00(OK)	
8	2	0	Tuner Frequency data text request	0	0			00		
			Volume value text request	0	1			01		
			Input name text request	0	3			03		
8	3	0	Volume direct setting	X	X		0	26		
8	3	8	Audio Mute	0	0	Full Mute	0	AF		
				0	1	-20dB				
8	4	0	Level Front R (Current Beam Mode)	X	X		0	40		
8	4	1	Level Front L (Current Beam Mode)	X	X		0	41		
8	4	2	Level Center (Current Beam Mode)	X	X		0	42		
8	4	3	Level Sur. R (Current Beam Mode)	X	X		0	43		
8	4	4	Level Sur. L (Current Beam Mode)	X	X		0	44		
8	4	5	Level SWFR (Current Beam Mode)	X	X		0	45		
8	4	8	Tone Treble	X	X		0	48		
8	4	9	Tone Bass	X	X		0	49		
8	5	1	LFE Level for Speaker	X	X		0	51		
8	5	2	LFE Level for Headphone	X	X		0	52		
8	5	3	Audio Delay	X	X		0	53		
8	6	0	Input Mode	0	0	Auto	0	60		
				0	1	Last				
8	6	1	Standard Dimmer	X	X		0	61		
8	6	2	OSD Shift	X	X		0	62		
8	6	3	Blue/Gray Back	0	0	Blue	0	63		
				0	1	Gray				
8	6	4	Dynamic Range for Speaker	0	0	MAX	0	64		
				0	1	STD				
				0	2	MIN				
8	6	5	Dynamic Range for Headphone	0	0	MAX	0	65		
				0	1	STD				
				0	2	MIN				
8	6	6	Auto Dimmer	X	X		0	66		
8	6	D	FL Scroll	0	0	Continue	0	6D		
				0	1	Once				
8	6	E	Display Time	0	0	ON(Always)	0	6E		
				0	1	30s				
				0	2	10s				
8	6	F	SP Distance Unit	0	0	Meter	0	6F		
				0	1	Feet				

Refer to the following section

SW	Command			Data			Report Command			Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	RDAT1,2	
8	7	5	Bass Out	0	0	Subwoofer	0	75		
				0	1	Front				
				0	2	Both				
8	7	C	Subwoofer Distance (Meter)	X	X		0	7C		
8	7	D	Subwoofer Distance (Feet)	X	X		0	7D		
8	7	E	Subwoofer Crossover	0	0	80Hz	0	7E		
				0	1	100Hz				
				0	2	120Hz				
8	8	0	Test Tone	0	0	Off	0	80		
				0	1	On (Dolby)				
				0	2	On (Dolby)				
8	8	2	Night Mode	0	0	Off	0	82		
				0	1	Cinema Min				
				0	2	Cinema Mid				
				0	3	Cinema Max				
				0	4	Music Min				
				0	5	Music Mid				
				0	6	Music Max				
				0	7	TV Mode Min				
				0	8	TV Mode Mid				
				0	9	TV Mode Max				
8	8	6	TruBass	0	0	OFF	0	86		
				0	1	MID				
				0	2	DEEP				
8	8	7	Music Enhancer	0	0	OFF	0	87		
				0	1	LOW				
				0	2	HIGH				
8	9	0	Level Front R (5 Beam)	X	X		0	90		
8	9	1	Level Front L (5 Beam)	X	X		0	91		
8	9	2	Level Center (5 Beam)	X	X		0	92		
8	9	3	Level Sur. R (5 Beam)	X	X		0	93		
8	9	4	Level Sur. L (5 Beam)	X	X		0	94		
8	9	5	Level SWFR (5 Beam)	X	X		0	95		
8	9	6	Level Front R (ST+3 Beam)	X	X		0	96		
8	9	7	Level Front L (ST+3 Beam)	X	X		0	97		
8	9	8	Level Center (ST+3 Beam)	X	X		0	98		
8	9	9	Level Sur. R (ST+3 Beam)	X	X		0	99		
8	9	A	Level Sur. L (ST+3 Beam)	X	X		0	9A		
8	9	B	Level SWFR (ST+3 Beam)	X	X		0	9B		
8	9	C	Level Front R (3 Beam)	X	X		0	9C		
8	9	D	Level Front L (3 Beam)	X	X		0	9D		
8	9	E	Level Center (3 Beam)	X	X		0	9E		
8	9	F	Level Sur. R (3 Beam)	X	X		0	9F		
8	A	0	Level Sur. L (3 Beam)	X	X		0	A0		
8	A	1	Level SWFR (3 Beam)	X	X		0	A1		
8	A	2	Level Front R (Stereo)	X	X		0	A2		
8	A	3	Level Front L (Stereo)	X	X		0	A3		
8	A	7	Level SWFR (Stereo)	X	X		0	A7		
8	A	A	Level Center (My Beam)	X	X		0	AA		
8	A	B	Level SWFR (5ch Stereo)	X	X		0	AB		
8	A	C	Level SWFR (My Surround)	X	X		0	AC		
8	B	3	Target Horizontal Angle	X	X		0	B3		
8	B	6	Language	0	0	Japanese	0	B6		
				0	1	English				
				0	2	German				
				0	3	French				
				0	4	Spanish				
				0	5	Italian				
				0	6	Dutch				
8	C	0	Beam Parameter SP Position	0	0	Wall	0	C0		
				0	1	Corner				
8	C	1	Beam Parameter SP Height (m)	X	X		0	C1		
8	C	2	Beam Parameter Room Width(m)	X	X		0	C2		Wall
8	C	3	Beam Parameter Left Wall(m)	X	X		0	C3		Corner
8	C	4	Beam Parameter Room Length(m)	X	X		0	C4		Wall
8	C	5	Beam Parameter Right Wall(m)	X	X		0	C5		Corner
8	C	6	Beam Parameter User Position(m)	X	X		0	C6		

Refer to the following section

SW	Command			Data			Report Command			Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	RDAT1,2	
8	C	7	Beam Parameter To L Wall(m)	X	X		0	C7		Wall only
8	C	8	Beam Parameter SP Height(ft)	X	X		0	C8		
8	C	9	Beam Parameter Room Width(ft)	X	X		0	C9		Wall
8	C	A	Beam Parameter Left Wall(ft)	X	X		0	CA		Corner
8	C	B	Beam Parameter Room Length(ft)	X	X		0	CB		Wall
8	C	C	Beam Parameter Right Wall(ft)	X	X		0	CC		Corner
8	C	D	Beam Parameter User Position(ft)	X	X		0	CD		
8	C	E	Beam Parameter To L Wall(ft)	X	X		0	CE		Wall only
8	D	0	Beam Tone Front L Treble	X	X		0	D0		
8	D	1	Beam Tone Front L Bass	X	X		0	D1		
8	D	2	Beam Tone Front R Treble	X	X		0	D2		
8	D	3	Beam Tone Front R Bass	X	X		0	D3		
8	D	4	Beam Tone Center Treble	X	X		0	D4		
8	D	5	Beam Tone Center Bass	X	X		0	D5		
8	D	6	Beam Tone Sur.L Treble	X	X		0	D6		
8	D	7	Beam Tone Sur.L Bass	X	X		0	D7		
8	D	8	Beam Tone Sur.R Treble	X	X		0	D8		
8	D	9	Beam Tone Sur.R Bass	X	X		0	D9		
8	D	A	Beam Image Location On/Off	0	0	Off	0	DA		
				0	1	On				
8	D	B	Beam Image Location Left	X	X		0	DB		
8	D	C	Beam Image Location Right	X	X		0	DC		
8	D	D	Room EQ Mounting	0	0	Shelf	0	DD		
				0	1	Wall				
8	D	E	Room EQ Acoustics	0	0	Normal	0	DE		
				0	1	Hi Echo				
8	E	0	HDMI Support Audio	0	0	YSP-4000 HTY-7040 YSP-40D	0	E0		
				0	1	OTHER				
8	E	1	HDMI Up-Scaling	0	0	Off	0	E1		
				0	1	Through				
				0	2	480p (NTSC) 576p (PAL)				
				0	3	1080i				
				0	4	720p				
8	E	2	HDMI Aspect	0	0	Through	0	E2		
				0	1	16:9 Normal				
				0	2	SMART ZOOM				
8	E	3	HDMI Control	0	0	OFF	0	E3		
				0	1	ON				
8	E	A	XM Channel No.	X	X		0	EA		
8	E	B	XM Hold Display	0	0	RELEASE	0	EB		
				0	1	HOLD				
8	E	D	DAB Preset No.	X	X		0	ED		Dest.B only
8	F	0	Test Command for DIAG (Usually, don't transmit at the time.)	0	0	RTS On	0	00	00(OK)	
				0	1	RTS Off				
				0	2	Test Dummy				
8	F	1	Sub-CPU Configuration request	0	0	Static information	Special type	Special command		
				0	1	Dynamic information				
8	F	2	Remote Code report	0	0	Start	0	Display data reporting		
				0	1	End				
8	F	3	Parameter Temporary dump	0	0	DSP#1	0			
				0	1	DSP#2				
8	F	F	Push-write in mode changes	F	F		0	00	00(OK)	

Refer to the following section



**\*OSD message function**

OSD Message function can display a message of 16 characters to YSP-x00's OSD for a few seconds. The command sequence block will start by sending "start command" as mentioned above, followed by 4 bytes of packet data (SW:3) repeated four times. Then the message of sixteen characters(ASCII) will display and the command block finish automatically.

(ex.)Want to display " Test message !" characters to OSD.

1. Send the start command.

STX	8	1	0	0	0	ETX
-----	---	---	---	---	---	-----

2. Send SW:3 commands four times as follows.

STX	3	' '	'T'	'e'	's'	ETX
STX	3	't'	' '	'm'	'e'	ETX
STX	3	's'	's'	'a'	'g'	ETX
STX	3	'e'	' '	'!'	' '	ETX

3. The command block will be finished automatically.

The available characters to display the message are as follows.

""(SPACE)!"#"%&'(")""\*"+", "-."0123456789":;<=">?"A"B"C"D"E"F"G"H"I"J"  
K"L"M"N"O"P"Q"R"S"T"U"V"W"X"Y"Z"[ ]\_"`a"b"c"d"e"f"g"h"i"j"k"l"m"n"o"p"q"r"s"t  
"u"v"w"x"y"z"

**\*Commands to get the display characters as text data(ASCII)**

This command can get certain of text data(ASCII) from the YSP-x00 to be used by Host device as follows.

- Volume value characters : " -99.0dB" / " MUTE"
- Input name : " MY PC " (Even renamed by "SET MENU:INPUT RENAME")

The response protocol for the text request commands are as follows.

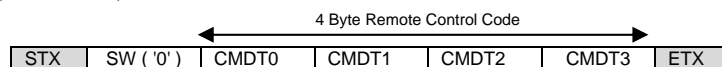


Function Name	Function	Data(ASCII)	Range (HEX)
RCMD0,1	COMMAND	0 - 9, A - F	0...0xFF
DDAT 0 - 7	DATA	0 - 9, A - Z SP	ASCII char. Space char.

Report Command

	DC1	RCMD0	RCMD1	DDAT	DDAT	DDAT	DDAT	DDAT	DDAT	DDAT	DDAT	ETX
Volume Value	DC1	0	1	SP	x	x	x	x	x	x	x	ETX
Input Name	DC1	0	3	x	x	x	x	x	x	x	x	ETX

## 3.2 Operation Command ( SW = '0' )



Operation Command supports all **direct codes** from the standard and extended IR code library for the RX-x600.

SW	0	CMDT_	1	2	3	Function	Setting	Report Command Type	RCMD1,2	Note
0	7	8	1	E		Volume	Up	0	26	
0	7	8	1	F			Down	0	26	
0	7	E	A	2		Audio Mute	On (Full)	0	23	
0	7	E	D	F			On (-20dB)	0	23	
0	7	E	A	3			Off	0	23	
0	7	8	D	F		Input	TV	0	21	
0	7	8	4	9			AUX1			
0	7	8	4	A			DVD			
0	7	8	4	B			XM/FM			Dest.U,C only
0	7	8	4	B			DAB			Dest.B only
0	7	8	B	C			AUX3			
0	7	8	D	E			AUX2			
0	7	8	B	6			FM			
0	7	8	7	D			XM			Dest.U,C only
0	7	E	A	6		Audio Select	Auto	0	22	
0	7	E	A	8			DTS			
0	7	E	A	A			Analog			
0	7	E	3	B			AAC			
0	7	8	7	E		Power	On	0	20	
0	7	8	7	F			Standby			
0	7	E	B	3		Sleep Timer	Off	0	2C	
0	7	E	B	4			120			
0	7	E	B	5			90			
0	7	E	B	6			60			
0	7	E	B	7			30			
0	7	E	9	C		Night Mode	Off	0	82	
0	7	E	9	B			Cinema			
0	7	E	C	F			Music			
0	7	8	7	C			TV Equal Vol			
0	7	8	6	E		SRS TruBass	Deep(On)	0	86	
0	7	8	6	D			Mid(On)			
0	7	8	6	F			Off			
0	7	8	C	B		Enhancer	OFF/LOW/HIGH	0	87	
0	7	E	D	8			HIGH(ON)			
0	7	E	D	9			OFF			
0	7	E	F	9		DSP Program	Spectacle	0	28	
0	7	E	F	A			Sci-Fi			
0	7	E	F	B			Adventure			
0	7	E	E	1			Concert Hall			
0	7	E	E	C			Jazz Club			
0	7	E	F	3			Music Video			
0	7	E	F	8			Sports			
0	7	8	9	B			Cinema DSP Off			
0	7	E	F	D		Surround Mode	ProLogic	0	28	
0	7	E	6	7			PL Movie			
0	7	E	6	8			PL Music			
0	7	E	C	7			PL Game			
0	7	E	6	9			Neo:6 Cinema			
0	7	E	6	A			Neo:6 Music			
0	7	E	C	C			Neural surround			
0	7	8	7	0		Volume Memory	A	0	33	
0	7	8	7	2			B			
0	7	8	7	4			C			
0	7	8	7	1		Volume Recall	A	0	32	
0	7	8	7	3			B			
0	7	8	7	5			C			
0	7	E	9	3		Dual Mono	Main	0	39	
0	7	E	9	4			Sub			
0	7	E	9	5			All(Main+Sub)			
0	7	8	C	2		Beam Mode	5Beam	0	B0	
0	7	8	C	3			ST+3Beam			
0	7	8	C	4			3Beam			
0	7	8	5	0			Stereo / 5ch Stereo			
0	7	E	F	F			5ch Stereo			
0	7	8	C	5			My Beam			
0	7	8	C	6			My Surround			

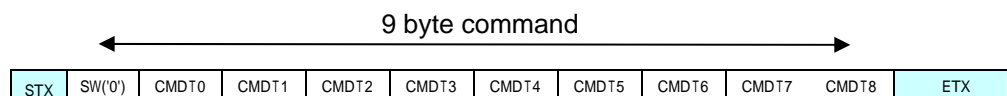
Operation Command supports all **direct codes** from the standard and extended IR code library for the RX-x600.

SW	CMDT_				Function	Setting	Report Command		Note
	0	1	2	3			Type	RCMD1,2	
0	7	8	7	6	Memory Save	User1	0	B1	
0	7	8	7	8		User 2			
0	7	8	7	A		User 3			
0	7	8	7	7	Memory Load	User 1	0	B2	
0	7	8	7	9		User 2			
0	7	8	7	B		User 3			
0	7	8	B	1	AUTO TUNING	Up		-	
0	7	8	B	0	"	Down		"	
0	7	8	A	A	TUNING/PRESET DAB Service/Presel	Up		-/2A ED (Presel)	Dest.B only
0	7	8	A	9	TUNING/PRESET DAB Service/Presel	Down		-/2A ED (Presel)	Dest.B only
0	7	8	A	8	PRESET/TUNE (MODE) DAB SEARCH MODE			- EC	Dest.B only
0	7	8	1	B	Tuner Preset No. XM Preset No. XM Channel No. DAB Service/Presel	Up		2A E8 EA ED (Presel)	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	1	C	Tuner Preset No. XM Preset No. XM Channel No. DAB Service/Presel	Down		"	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	1	D	Tuner Preset Page XM Preset Page XM Category DAB Service/Presel	Up		29 E7 - ED (Presel)	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	B	B	Tuner Preset Page XM Preset Page XM Category DAB Service/Presel	Down		"	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	B	D	XM ENTER	Enter		EB	Dest.U,C only
0	7	8	A	F	Tuner Preset Page XM Preset Page	A		29 E7	Dest.U,C only
0	7	8	A	E	Tuner Preset Page XM Preset Page	B		"	Dest.U,C only
0	7	8	A	D	Tuner Preset Page XM Preset Page	C		"	Dest.U,C only
0	7	8	A	C	Tuner Preset Page XM Preset Page	D		"	Dest.U,C only
0	7	8	A	B	Tuner Preset Page XM Preset Page	E		"	Dest.U,C only
0	7	8	1	0	XM No. Input DAB Preset No.	0		EA ED	Dest.U,C only Dest.B only
0	7	8	1	1	Tuner Preset No. XM Preset No. XM No. Input DAB Preset No.	1		2A E8 EA ED	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	1	2	Tuner Preset No. XM Preset No. XM No. Input DAB Preset No.	2		"	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	1	3	Tuner Preset No. XM Preset No. XM No. Input DAB Preset No.	3		"	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	1	4	Tuner Preset No. XM Preset No. XM No. Input DAB Preset No.	4		"	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	1	5	Tuner Preset No. XM Preset No. XM No. Input DAB Preset No.	5		"	Dest.U,C only Dest.U,C only Dest.B only
0	7	8	1	6	Tuner Preset No. XM Preset No. XM No. Input DAB Preset No.	6		"	Dest.U,C only Dest.U,C only Dest.B only

Operation Command supports all **direct codes** from the standard and extended IR code library for the RX-x600.

CMDT_					Function	Setting	Report Command		Note
SW	0	1	2	3			Type	RCMD1,2	
0	7	8	1	7	Tuner Preset No.	7		2A	
					XM Preset No.			E8	Dest.U,C only
					XM No. Input			EA	Dest.U,C only
					DAB Preset No.			ED	Dest.B only
0	7	8	1	8	Tuner Preset No.	8		"	
					XM Preset No.				Dest.U,C only
					XM No. Input				Dest.U,C only
					DAB Preset No.				Dest.B only
0	7	8	1	9	Tuner Preset No.	9		EA	
					XM Preset No.			ED	Dest.U,C only
0	7	8	B	7	XM Search Mode	All CH / Category / Preset (toggle)		E9	Dest.U,C only
0	7	8	6	7	XM Search Mode	All CH		"	Dest.U,C only
0	7	8	6	8	"	Preset		"	Dest.U,C only
0	7	8	B	2	XM Memory Mode			-	Dest.U,C only
0	7	8	B	8	XM Display / RDS Mode			-	Dest.U,C only
0	7	8	B	D	XM Enter	XM Hold/Release Display, XM Decide the Number		EB	Dest.U,C only
0	7	8	B	F	XM Return	XM History		-	Dest.U,C only

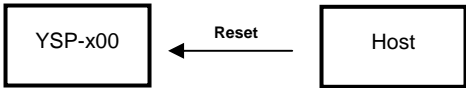
### 3.3 9 Byte Extended Operation Command ( SW = '0' )



SW	コマンド (CMDT)										Function	Setting	Report
	0	1	2	3	4	5	6	7	8				
0	F	7	F	0	1	0	F	F	0	iPod OSD Operation	Menu	No Report	
0	F	7	F	0	1	1	1	E	E		Enter		
0	F	7	F	0	1	1	5	E	A		Display		
0	F	7	F	0	1	0	E	F	1		Cursor Up		
0	F	7	F	0	1	1	4	E	B		Cursor Down		
0	F	7	F	0	1	1	2	E	D		Cursor Right		
0	F	7	F	0	1	1	0	E	F		Cursor Left		
0	F	7	F	0	1	1	E	E	1		iPod Operation		Play
0	F	7	F	0	1	1	D	E	2	Stop			
0	F	7	F	0	1	1	A	E	5	Pause			
0	F	7	F	0	1	1	C	E	3	Skip +			
0	F	7	F	0	1	1	B	E	4	SKip -			

4. Reset Command

Reset Command recalls factory preset data. Once the factory preset are recalled, all user controllable setting / parameter data will be deleted and replaced with original factory settings.  
Please do not use this command unless you have been experiencing problems with the system or if you just want to clean up the system.



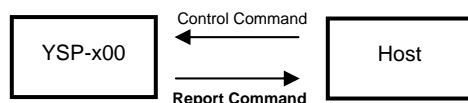
After the system is reset, please request the Configuration Command using Ready Command (see section 2 ) in order to get accurate feedback of status of YSP-x00 to your touch panel system.



5.

## Report Command

YSP-x00 will send Report Command in response to Control Commands from the host controller. From Report Command you can receive the current status of the YSP-x00.



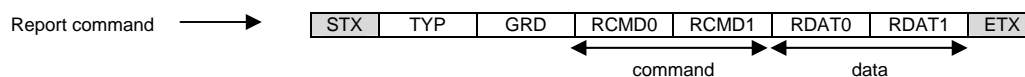
There are three types of Report Command classified by their information type.

- System Status Report : YSP-x00 reports a System Status Report when the system status changed.
- Playback Status Report : YSP-x00 reports a Playback Status Report when the internal playback status changed.
- Operation Report : When the YSP-x00 is controlled by remote controller, front panel, RS-232C or by system controller, YSP-x00 sends a Operation Report, which includes the latest setting status of the controlled function.

\*YSP-x00 reports a System State Report with system guard to inform its power status (power off) when a control command was sent to YSP-x00 while it's turned off.

\*The guard status is included in the Report Command (GRD). If the control command the host sent was accepted by YSP-x00, the guard status in the Report Command is '0' (No Guard).

\*If a status changed multiple times in a certain time, YSP-x00 report only one report command.



function name	function	data (ASCII)	range (HEX)
TYP	control type	0 - 9	0 - 9
GRD	guard status	0 - 9	0 - 9
RCMD0, 1	command	0 - 9, A - F	0 - 0xFF
RDAT0, 1	data	0 - 9, A - F	0 - 0xFF

<Control type> This indicates for which type of control the report command is.

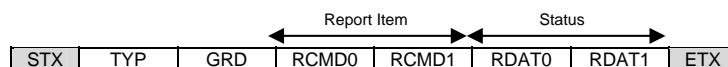
TYP	control type
0	controlled by RS-232C
1	controlled by remote controller (I/R)
2	controlled by keys in the unit
3	controlled by system
4	controlled by HDMI CEC

<Guard status> This indicates guard status against all control command

GRD	Guard status*
0	no guard
1	system guard
2	setting guard

\*see the following chart

## 5.1 System Status Reports



RCMD0, 1	Report Item	RDAT0, 1	Status
00	system	00	OK
		01	Busy
		02	Standby

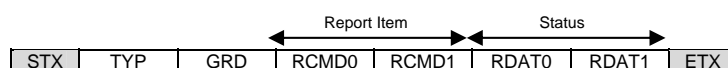
ready for accepting the control commands  
 start of the term prohibits sending commands  
 report against the command which cannot be accepted when the Power is Standby

\*YSP-x00 sends this report when the system is reset or the power turns off.  
 It can be used for observation of the system revival.

01	warning	00	Over Current
		01	DC Detect
		02	Power Trouble
		03	Over Heat

report of abnormal states  
 (Only when it's possible to report)

## 5.2 Playback Status Reports



RCMD0, 1	Report Item	RDAT0, 1	Status
06	XM Message	00	Check Antenna t
		01	Updating
		02	No Signal
		03	Loading
		04	Off Air
		05	Unavailable
07	iPod Message	00	Loading
		01	Connect Error
		02	Unknown iPod
		03	iPod connected
		04	Disconnected
		05	Unable to play
10	Playback	00	Multi CH Input
		01	Analog
		02	PCM
		03	D.D.(except for 2/0)
		04	D.D.(2/0)
		05	D.D.karaoke
		06	D.D.EX
		07	DTS
		08	DTS. ES
		09	Other Digital
		0A	DTS Analog Mute
		0B	DTS Discrete
		0C	Other than AAC 2/0
		0D	AAC 2/0
11	Fs	00	Analog
		01	32kHz
		02	44.1kHz
		03	48kHz
		04	64kHz
		05	88.2kHz
		06	96kHz
		07	Unknown
		08	Unknown
		09	Unknown
		0A	Unknown
		0B	48kHz (96kHz)
12	EX/ES	00	Off
		01	Matrix On
		02	Discrete ON
13	Thr / Bypass	00	Off
		01	On
14	RED dts	00	Release
		01	Wait
15	Tuner tuned	00	Not tuned
		01	Tuned
16	Dts 96/24	00	Off
		01	On

Dest.U,C only

When audio code mode is other than 2/0  
 When audio code mode is 2/0

When waiting for decoding, etc.

128KHz  
 176.4KHz  
 192.0KHz  
 DTS 96/24 signal (A/B)

Playback status

Fs when other than 32/44.1/48kHz

RED dts status\*

This report will be sent in case of signal changed.

DTS 96/24 decode  
 (A/B)

## 5.3 Operation Reports

Report Item				Status				
STX	TYP	GRD	RCMD0	RCMD1	RDAT0	RDAT1	ETX	
RCMD0, 1	Report Item	RDAT0, 1	Status		RCMD0, 1	Report Item	RDAT0, 1	Status
20	Power	00 OFF			48	TONE TREBLE	00 -12dB	
		01 ON					- -	
21	Input	00 TV/STB					18 0dB	
		01 DVD					- -	
		02 AUX1					30 +12dB	
		03 AUX2			49	TONE BASS	00 -12dB	
		04 AUX3					- -	
		05 DOCK					18 0dB	
		06 FM					- -	
		07 XM					30 +12dB	
		08 DAB						
22	Input Mode	00 AUTO			51	LFE LEVEL	00 -20dB	
		01 D.D.RF					01 -19dB	
		02 DTS					- -	
		03 DIGITAL					14 0dB	
		04 ANALOG			53	AUDIO DELAY	00 0ms	
		05 ANALOG ONLY					01 1ms	
							- -	
		06 AAC					A0 160ms	
23	Mute	00 Off			60	Input Mode	00 Auto	
		01 On					01 Last	
26	Volume	00 0 ( -∞ )			61	Dimmer	00 -4	
		01 1 ( -97.0dB )					01 -3	
		...					02 -2	
							03 -1	
		64 100 ( 0dB )					04 0	
28	Program	0X CINEMA DSP OFF			62	OSD Shift	00 -5	
		1X MOVIE Sci-Fi (SFX)					...	
		2X MOVIE Spectacle					05 0	
		3X MOVIE Adventure					...	
		4X MUSIC Music Video					0A +5	
		5X MUSIC Concert Hall			63	Blue/Gray Back	00 Blue	
		6X MUSIC Jazz Club					01 Gray	
		7X SPORTS						
	Surround	X0 Off			64	Dynamic Range	00 Max.	
		X1 ProLogic					01 Std.	
		X2 PLII Movie					02 Min.	
		X3 PLII Music			66	Auto Dimmer	00 AT DISPLAY OFF	
		X4 PLII Game					01 -3	
		X5 Neo: 6 Cinema					02 -2	
		X6 Neo: 6 Music					03 -1	
		X7 neural Surround					04 OFF	
29	FM Preset Page	00 A			6D	FL Scroll	00 Continue	
		01 B					01 Once	
		02 C			6E	OSD Display Time	00 On(Always)	
		03 D					01 30s	
		04 E					02 10s	
2A	FM Preset No.	00 1			6F	UNIT SET	00 METER	
		01 2					01 FEET	
		02 3			75	Bass Out	00 SWFR	
		03 4					01 Front	
		04 5			7C	SW DISTANCE (meter)	03 0.3m	
		05 6					04 0.4m	
		06 7					- -	
		07 8					96 15.0m	
2C	Sleep	00 120			7D	SW DISTANCE (feet)	02 1.0ft	
		01 90					03 1.5ft	
		02 60					- -	
		03 30					64 50.0ft	
		04 Off			7E	SW CROSS OVER	00 80 Hz	
32	Volume Preset	01 Preset A					01 100 Hz	
		02 Preset B					02 120 Hz	
		03 Preset C						
33	Volume Memory	01 Memory A						
		02 Memory B						
		03 Memory C						
39	DUAL MONO	00 MAIN						
		01 SUB						
		02 ALL (MAIN+SUB)						



RCMD0, 1	Report Item	RDATA, 1	Status	RCMD0, 1	Report Item	RDATA, 1	Status
80	Test	00	Off	9F	3 BEAM LEVEL Sur. R	14	-10dB
		01	On (Dolby)			~	~
82	Night Mode  (TV Equal Vol)	00	Off	A0	3 BEAM LEVEL Sur. L	3C	+10dB
		01	Cinema Min			14	-10dB
		02	Cinema Mid			~	~
		03	Cinema Max	A1	3 BEAM LEVEL SWFR	3C	+10dB
		04	Music Min			14	-10dB
		05	Music Mid			~	~
		06	Music Max	A2 STEREO	LEVEL Front R	3C	+10dB
		07	TV Equal Vol Min			14	-10dB
		08	TV Equal Vol Mid			~	~
86	TruBass	09	TV Equal Vol Max	A3 STEREO	LEVEL Front L	3C	+10dB
		00	Off			14	-10dB
		01	Mid (On)			~	~
87	Music Enhancer	02	Deep (On)	A7 STEREO	LEVEL SWFR	3C	+10dB
		00	OFF			14	-10dB
		01	LOW			~	~
90	5 BEAM LEVEL Front R	02	HIGH	AA	MY BEAM LEVEL Center	3C	+10dB
		14	-10dB			14	-10dB
		~	~			~	~
91	5 BEAM LEVEL Front L	3C	+10dB	AB	5CH STEREO LEVEL SWFR	3C	+10dB
		14	-10dB			14	-10dB
		~	~			~	~
92	5 BEAM LEVEL Center	3C	+10dB	AC	MY SURROUND LEVEL SWFR	3C	+10dB
		14	-10dB			14	-10dB
		~	~			~	~
93	5 BEAM LEVEL Sur. R	14	-10dB	AF	Mute	00	MUTE
		~	~			01	-20dB
		3C	+10dB	B0	BEAM MODE	00	5 BEAM
94	5 BEAM LEVEL Sur. L	14	-10dB			01	ST+3BEAM
		~	~			02	3 BEAM
		3C	+10dB			03	STEREO
95	5 BEAM LEVEL SWFR	14	-10dB			04	5CH STEREO
		~	~			05	MY BEAM
		3C	+10dB			06	MY SURROUND
96	ST+3 BEAM LEVEL Front R	14	-10dB	B1	MEMORY SAVE	00	USER1
		~	~			01	USER2
		3C	+10dB			02	USER3
97	ST+3 BEAM LEVEL Front L	14	-10dB	B2	MEMORY LOAD	00	USER1
		~	~			01	USER2
		3C	+10dB			02	USER3
98	ST+3 BEAM LEVEL Center	14	-10dB	B3	MY BEAM BEAM HORIZONTAL ANGLE	00	L90°
		~	~			~	~
		3C	+10dB			5A	0°
99	ST+3 BEAM LEVEL Sur. R	14	-10dB	B6	Language	~	~
		~	~			B4	R90°
		3C	+10dB			00	Japanese
9A	ST+3 BEAM LEVEL Sur. L	14	-10dB			01	English
		~	~			02	German
		3C	+10dB			03	French
9B	ST+3 BEAM LEVEL SWFR	14	-10dB			04	Spanish
		~	~			05	Italian
		3C	+10dB			06	Dutch
9C	3 BEAM LEVEL Front R	14	-10dB			07	Russian
		~	~				
		3C	+10dB				
9D	3 BEAM LEVEL Front L	14	-10dB				
		~	~				
		3C	+10dB				
9E	3 BEAM LEVEL Center	14	-10dB				
		~	~				
		3C	+10dB				
9F	3 BEAM LEVEL Sur. R	14	-10dB				
		~	~				
		3C	+10dB				

RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status
C0	BEAM PARAMETER SP Position	00	WALL	D0	BEAM TONE Front L TREBL	00	-12dB
		01	CORNER			~	~
		~	~			18	0dB
C1	BEAM PARAMETER SP Height	00	0m			~	~
		~	~			30	+12dB
		1E	3m	D1	BEAM TONE Front L BASS	00	-12dB
		~	(Unit = meters)			~	~
C2	BEAM PARAMETER Room Width (POSITION= WALL)	14	2.0m			18	0dB
		~	~			~	~
		78	12.0m			30	+12dB
		~	(Unit = meters)	D2	BEAM TONE Front R TREBL	00	-12dB
C3	BEAM PARAMETER Left Wall (POSITION= CORNER)	14	2.0m			~	~
		~	~			18	0dB
		78	12.0m			~	~
		~	(Unit = meters)			30	+12dB
C4	BEAM PARAMETER Room Length (POSITION= WALL)	14	2.0m	D3	BEAM TONE Front R BASS	00	-12dB
		~	~			~	~
		78	12.0m			18	0dB
		~	(Unit = meters)			~	~
C5	BEAM PARAMETER Right Wall (POSITION= CORNER)	14	2.0m	D4	BEAM TONE Center TREBL	00	-12dB
		~	~			~	~
		78	12.0m			18	0dB
		~	(Unit = meters)			~	~
C6	BEAM PARAMETER User Position	14	2.0m			30	+12dB
		~	~	D5	BEAM TONE Center BASS	00	-12dB
		5A	9.0m			~	~
		~	(Unit = meters)			18	0dB
C7	BEAM PARAMETER TO L WALL (POSITION= WALL)	06	0.6m			~	~
		~	~	D6	BEAM TONE Sur. L TREBL	00	-12dB
		72	11.4m			~	~
		~	(Unit = meters)			18	0dB
C8	BEAM PARAMETER SP Height	00	0ft			~	~
		~	~			30	+12dB
		14	10ft	D7	BEAM TONE Sur. L BASS	00	-12dB
		~	(Unit = feet)			~	~
C9	BEAM PARAMETER Room Width (POSITION= WALL)	0D	6.5ft			18	0dB
		~	~			~	~
		50	40.0ft	D8	BEAM TONE Sur. R TREBL	00	-12dB
		~	(Unit = feet)			~	~
CA	BEAM PARAMETER Left Wall (POSITION= CORNER)	0D	6.5ft			18	0dB
		~	~			~	~
		50	40.0ft			30	+12dB
		~	(Unit = feet)	D9	BEAM TONE Sur. R BASS	00	-12dB
CB	BEAM PARAMETER Room Length (POSITION= WALL)	0D	6.5ft			~	~
		~	~			18	0dB
		50	40.0ft			~	~
		~	(Unit = feet)	D0	BEAM TONE Front L TREBL	00	-12dB
CC	BEAM PARAMETER Right Wall (POSITION= CORNER)	0D	6.5ft			~	~
		~	~			18	0dB
		50	40.0ft			~	~
		~	(Unit = feet)	D1	BEAM TONE Front R BASS	00	-12dB
CD	BEAM PARAMETER User Position	0D	6.5ft			~	~
		~	~			18	0dB
		3C	30.0ft			~	~
		~	(Unit = feet)	D2	BEAM TONE Center TREBL	00	-12dB
CE	BEAM PARAMETER TO L WALL (POSITION= WALL)	04	2.0ft			~	~
		~	~			18	0dB
		4C	38.0ft			~	~
		~	(Unit = feet)			30	+12dB

RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status		
DA	BEAM	00	OFF	EA	XM CH NO, (Dest.U,C only)	00	000CH		
	Image Location	01	ON			01	001CH		
DB	BEAM	00	0%			EB	XM HOLD DISPLAY (Dest.U,C only)	~	~
	Image Location	~	~					FF	255CH
DC	BEAM Image Location Left	13	95%	EC	DAB SEARCH MODE (Dest.B only)			00	ALPHANUMERIC
		00	0%					01	ACTIVE
		~	~			02	ENSEMBLE		
		13	95%			03	FAVOURITE		
DD	ROOM EQ	00	SHELF	ED	DAB PRESET NO (Dest.B only)	04	PRESET		
MOUNTING	01	WALL	00			EMPTY			
DE	ROOM EQ	00	NORMAL			01	PRESET 01		
	ACOUSTICS	01	HI ECHO			~	~		
E0	HDMI SUPPORT	00	YSP-4000/HTY-7040/YSP-40D			63	PRESET 99		
AUDIO	01	OTHER	E1			HDMI UP-SCALING	00	Off	
	01	Through					01	480p(NTSC) / 576p(PAL)	
E2	HDMI ASPECT	02					1080i		
		03					720p		
		04					Through		
		01	16:9Normal						
E3	HDMI CONTROL	02	Smart Zoom			E7	XM PRESET PAGE (Dest.U,C only)	00	A
		00	Off					01	B
01	On	02	C						
E8	XM PRESET NO (Dest.U,C only)	03	D						
		04	E						
		00	1						
		01	2						
		02	3						
		03	4						
		04	5						
		05	6						
E9	XM SEARCH MODE (Dest.U,C only)	06	7						
		07	8						
		00	All CH						
01	Category	02	Preset						

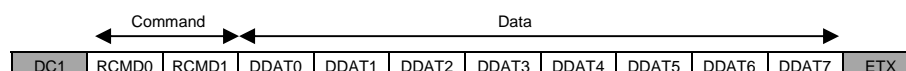
**Attention**

\*When the Input is changed, YSP-x00 sends Operation Report for Input (RCMD0,1="21") and Audio Select(RCMD0,1="22").

\*Each time the source from the Inputs or playback status (ex. 6.1/ES, RED dts etc.) of the system changes, YSP-x00 send a Playback Status report.

\*Each time the busy status of the system changes, YSP-x00 send the System Status report.

## 5.4 Display Text Data Report



RCMD0,1	ITEM	DDAT 0-1	DDAT2-7
00	Tuner Frequency	SP	6digits <Upper Lower>

(example)  
107.50(FM MHz) = 'SP' '1' '0' '5' '1' '5' '0'

RCMD0,1	ITEM	DDAT 0	DDAT1-7
01	Volume	SP	7digits <Upper Lower>

(example)  
-99dB = 'SP' '1' '9' '9' '1' '0' 'd' 'B'

RCMD0,1	ITEM	DDAT0-7
03	Input name SP	8letters <Right Left>

(example)  
MY PC = 'SP' 'M' 'Y' 'P' 'C'

## Example of YSP-x00 Control Procedure

- [1] Connection Start procedure ( AC Plug / RS-232C cable connection )

When the AC plug / RS-232C cable are not connected, YSP-x00 cannot send any data to host. If the host doesn't receive a configuration command after sending Ready command 5 times, host should disable the RS-232C communication of the host and send alert.

- [2] AC plug / RS-232C connection check sequence after the connection has been confirmed in the procedure [1].

If the host doesn't receive a Report Command within 500ms of sending a command, the host should resend the command. If no Report Command is received after sending 5 times, check AC plug/RS-232 cable ( cf. [1] ).

When the RS-232C cable is disconnected, the commands generated inside YSP-x00 are stored in the sending buffer. If the stored commands exceed the bufer memory size ( buffer overflow ), YSP-x00 stops reporting any commands. In this case, reconnecting AC plug or Connection Start procedure [1] will be needed in order to enable the command report.

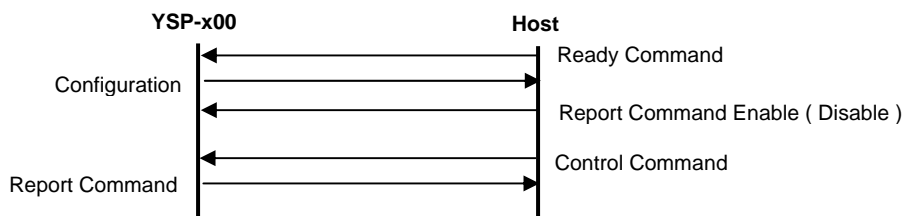
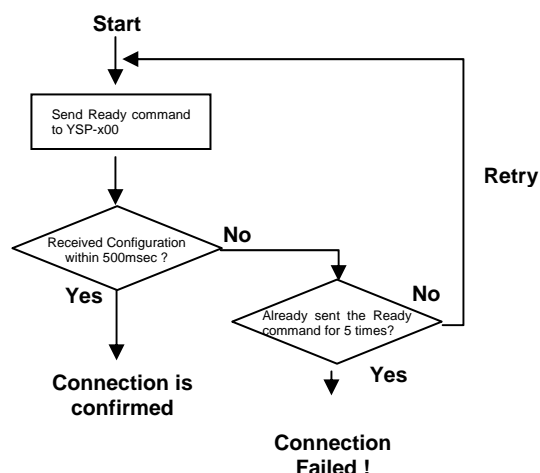
- [3] AC plug connection detection ( after [1],[2] )

When the AC connection is reset, YSP-x00 sends Configuration Command to the host.  
The host can display the status of YSP-x00.

- [4] Getting the status of the YSP-x00 when the host boot up

At first, host should send Ready command and receive the Configuration Command from YSP-x00 ( cf. [1] ).  
Once the connection is confirmed, host can send Control Commands to YSP-x00.  
While the YSP-x00 is turned off, YSP-x00 accepts only System Command and Power ON command.

### [1] : AC Plug / RS-232C connection check ( Start transaction )



- [5] Error transactions after [4]

While sending control command, if YSP-x00 didn't send any corresponding Report Commands regardless of re-trying for 5 times, host should clear its send buffer and then check AC plug / RS-232C connection sequence ( cf. [1] ). When the YSP-x00 responded, the host can display the YSP-x00 status then return to the normal communication sequence. If not, the host should cancel the communication and report the alert.

## Appendix

## \* ASCII Chart

	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	\$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	EXC	+	;	K	[	k	{
C	FF	FS	,	<	L	¥	l	
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	...
F	SI	US	/	?	O	_	o	DEL

\* the column number = the first hexadecimal digit  
the row number = the second hexadecimal digit

\* The characters in the gray sells are available in the RS-232C communications.