

# **RS-232C standard command specification**

**MODEL:           RX-V1900**  
**HTR-6290**

**Revision 1.00**

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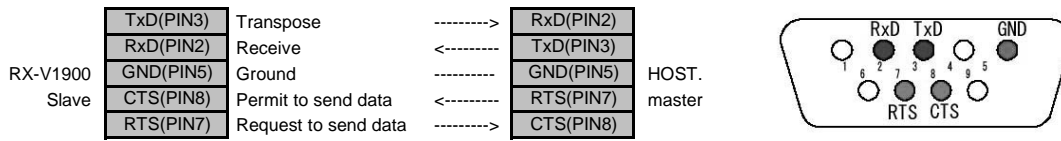
Rev.	Date	Contents
1.00	06/19/2008	First release

## 1. Outline

RX-V1900 in this protocol refers to the RX-V1900 and HTR-6290.

### 1.1 Connection

5 wire system



\*When not connected, data transmission to RX-V1900 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

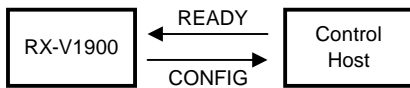
\*The RX-V1900 RTS port outputs at low level when the AC plug is disconnected.  
 If RTS output stays low even when the AC plug is connected, a problem may occur.

### 1.3 Data block timeout

It takes the RX-V1900 a maximum of 500msec to send one data block. If a complete data block is not received within 500msec, cancel the transaction. A problem may occur.

## 2. Start Commands

### 2.1 Starting Communication

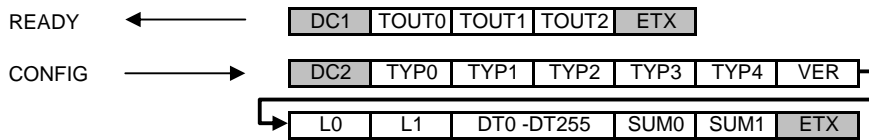


The Ready command is the first command to be sent to the RX-V1900 at the start of communication. TOUT0 - 2 in the Ready Command sets communication timeout.

RX-V1900 sends a Configuration command (Model ID, software version and setting data) to the host in reply to the Ready command.

The RX-V1900 will send a Configuration command within 1 sec. after receiving a Ready command from the host. If not, send a Ready Command again (max 5 times).

If the RX-V1900 won't send a Configuration command after the fifth retry, cancel the transaction because there may be a problem.



- \*TYPx      Model ID = "R0240" (RX-V1900)  
              Model ID = "R0241" (HTR-6290)
- \*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	0 - 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

When the power is OFF, only DT0,1,...,9 are sent to the Host.

data	Report			
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	00	0 / 2	System	0: OK / 1: Busy / 2: Standby
DT8	20	0 - 7	Power	Main Room / Zone2 / Zone3 Power Status (All off , All on, Main on...)
DT9	21	0 - F	Input	Upper 4 bit
DT10		0 - F	Input	Lower 4 bit
DT11	22	0 - 8	Audio Select	0: Auto / 3: COAX/OPT / 4: Analog / 8:HDMI
DT12	23	0 - 1	Audio Mute	0: Off / 1: On
DT13	24	0 - E	Zone2 Input	0: PHONO / 1: CD / 2: TUNER / 3: MD/CD-R / 4: MD/TAPE / 5: DVD / 6: TV / 7: CBL/SAT 8: DOCK (BLUETOOTH) / 9: VCR / A: DVR / B: SIRIUS** / C: V-AUX / D: USB* / E:XM** F: BD/HD DVD *Except USA & Canada **Only USA & Canada
DT14	25	0 / 1	Zone2 Mute	0: Off / 1: On
DT15	26	0 - F	Master Volume	Upper 4 bit
DT16		0 - F	Master Volume	Lower 4 bit
DT17	27	0 - F	Zone2 Volume	Upper 4 bit
DT18		0 - F	Zone2 Volume	Lower 4 bit
DT19	28	0 - F	Program	Upper 4 bit
DT20		0 - F	Program	Lower 4 bit
DT21	28	0 / 1	Effect	0: Off / 1: On
DT22	2D	0 - 6	Extended Surround	0: Off / 1: EX/ES / 3: Auto / 4: EX / 5: PLIIx Movie / 6: PLIIx Music 7: Neural THX
DT23	2B	1 - 2	Short Message	1: On / 2: Off
DT24	2C	0 - 4	System Sleep	0: 120 / 1: 90 / 2: 60 / 3: 30 / 4: OFF
DT25	29	0 - 4	Tuner Preset Page	0: Page A / 1: Page B / 2: Page C / 3: Page D / 4: Page E
DT26	2A	0 - 7	Tuner Preset Number	0: No.1 / 1: No.2 / 2: No.3 / 3: No.4 / 4: No.5 / 5: No.6 / 6: No.7 / 7: No.8
DT27	8B	0 - 2	Night Mode	Upper 4 bit 0: OFF / 1: Cinema / 2: Music
DT28	8B	0 - 2	Night Mode Parameter	Lower 4 bit 0: Low / 1: Mid / 2: High
DT29	2E	0 / 1	Speaker Relay A	0: Off / 1: On
DT30	2F	0 / 1	Speaker Relay B	0: Off / 1: On
DT31	10	0 - F	Format	Upper 4 bit
DT32		0 - F	Format	Lower 4 bit
DT33	11	0 - F	Sampling	Upper 4 bit
DT34		0 - F	Sampling	Lower 4 bit
DT35	12	0 - F	Channel Front/Rear	0: 1+1 / 1: 1/0 / 2: 2/0 / 3: 3/0 / 4: 2/1 / 5: 3/1 / 6: 2/2 / 7: 3/2 / 8: 2/3 / 9: 3/3 A: 2/4 / B: 3/4 / C: MLT / F: ---
DT36	34	0 / 1	Head Phone	0: Off / 1: On
DT37	35	0 / 1	Tuner Band	0: FM / 1: AM
DT38	13	0 - F	Channel LFE	0: 0.1 / 1: 0.2 / F: ---
DT39	36	0 / 1	Trigger1 Output	0: Low / 1: High
DT40	5E	0 - 2	Decoder Mode	0: Auto / 1: DTS / 2: AAC* *Only Japanese Model
DT41	39	0 - 2	Dual Mono	0: Main / 1: Sub / 2: All (Only Japanese Model)
DT42	3A	0 - 3	Trigger1 Control	0: All (Zone1-3) / 1: Main / 2: Zone2 / 3: Zone3
DT43			Don't care	
DT44	3B	0 - 3	Trigger2 Control	0: All (Zone1-3) / 1: Main / 2: Zone2 / 3: Zone3
DT45	3C	0 / 1	Trigger2 Output	0: Low / 1: High
DT46	3D	0 / 1	Speaker B set	0: Main / 1: Zone B
DT47	3E	0 - 3	Zone 2 Amplifier	0: EXT / 1: INT: Speaker[1] / 2: INT: Speaker[2] / 3: INT Both
DT48	40	0 - F	Level Front R	Upper 4 bit
DT49		0 - F	Level Front R	Lower 4 bit
DT50	41	0 - F	Level Front L	Upper 4 bit
DT51		0 - F	Level Front L	Lower 4 bit
DT52	42	0 - F	Level Center	Upper 4 bit
DT53		0 - F	Level Center	Lower 4 bit
DT54	43	0 - F	Level Surround R	Upper 4 bit
DT55		0 - F	Level Surround R	Lower 4 bit
DT56	44	0 - F	Level Surround L	Upper 4 bit
DT57		0 - F	Level Surround L	Lower 4 bit
DT58	45	0 - F	Level Surround Back R	Upper 4 bit
DT59		0 - F	Level Surround Back R	Lower 4 bit
DT60	46	0 - F	Level Surround Back L	Upper 4 bit
DT61		0 - F	Level Surround Back L	Lower 4 bit

DT62	47	0 - F	Level Presence R	Upper 4 bit
DT63		0 - F	Level Presence R	Lower 4 bit
DT64	48	0 - F	Level Presence L	Upper 4 bit
DT65		0 - F	Level Presence L	Lower 4 bit
DT66	49	0 - F	Level Subwoofer	Upper 4 bit
DT67		0 - F	Level Subwoofer	Lower 4 bit
DT68	90	0 - 4	XM Preset Page	0: Page A / 1: Page B / 2: Page C / 3: Page D / 4: Page E (Only USA & Canada)
DT69	91	0 - 7	XM Preset Number	(Only USA & Canada)
DT70	92	0 - 2	XM Search Mode	0: All CH / 1: Category / 2: Preset (Only USA & Canada)
DT71	93	1 - 3	On Screen	1: 10sec / 2: 30sec / 3: Always
DT72	94	0 - F	XM Channel Number	Upper 4 bit (Only USA & Canada)
DT73		0 - F	XM Channel Number	Lower 4 bit (Only USA & Canada)
DT74	51	0 - F	LFE Level SP	Upper 4 bit
DT75		0 - F	LFE Level SP	Lower 4 bit
DT76	52	0 - F	LFE Level HP	Upper 4 bit
DT77		0 - F	LFE Level HP	Lower 4 bit
DT78	53	0 - F	Manual Audio Delay	Upper 4 bit
DT79		0 - F	Manual Audio Delay	Lower 4 bit
DT80	5B	0 - F	Initial Volume	Upper 4 bit
DT81		0 - F	Initial Volume	Lower 4 bit
DT82	5A	0 - A	Max Volume	0: -30dB / 1: -25dB / 2: -20dB / 3: -15dB / 4: -10dB / 5: -5dB / 6: 0dB / 7: 5dB / 8: 10dB / 9: 15dB / A: 16.5dB
DT83	5F	0 / 1	Decoder Mode Set	0: Auto / 1: Last
DT84	60	0 / 1	Audio Select Set	0: Auto / 1: Last
DT85	61	0 - 4	Dimmer	0: -4 / 1: -3 / 2: -2 / 3: -1 / 4: 0
DT86			<b>Don't care</b>	
DT87	62	0 - A	OSD Shift / GUI position	Upper 4 bit
DT88		0 - A	OSD Shift / GUI position	Lower 4 bit
DT89	63	0 / 1	Gray back	0: Off / 1: Auto
DT90	69	0 / 1	Video conversion	0: Off / 1: On
DT91	64	0 - 2	D. Rang SP	0: MAX / 1: STD / 2: MIN
DT92	65	0 - 2	D. Rang HP	0: MAX / 1: STD / 2: MIN
DT93	66	0 / 1	Zone2 Volume Out	0: Variable / 1: Fixed
DT94	6B	0 / 1	Zone3 Volume Out	0: Variable / 1: Fixed
DT95	68	0 / 1	Memory guard	0: Off / 1: On
DT96	70	0 - 2	SP set Center	0: Large / 1: Small / 2: None
DT97	71	0 / 1	Front	0: Large / 1: Small
DT98	72	0 - 2	Sur. L/R	0: Large / 1: Small / 2: None
DT99	73	0 - 4	Sur. Back	0: Large x2 / 1: Large x1 / 2: Small x2 / 3: Small x1 / 4: None
DT100	3F	0 - 3	Zone3 Amplifier	0: EXT / 1: INT: Speaker[1] / 2: INT: Speaker[2] / 3: INT Both
DT101	74	0 / 1	SP set Presence	0: Yes / 1: None
DT102	75	0 - 2	LFE/BASS	0: SWFR / 1: Front / 2: Both
DT103	76	0 / 1	Subwoofer Phase	Upper 4 bit : Phase 0: Normal / 1: Reverse
DT104			Subwoofer Phase	Lower 4 bit : Don't Care
DT105	80	0 / 1	Test mode	0: OFF / 1: ON
DT106	A7	0 - 2	EQ Select	0: Auto PEQ / 1: GEQ / 2: Off
DT107	58	0 - F	Wall Paper	0: Yes / E: Gray / F: None <span style="float: right;">Deletion</span>
DT108			<b>Don't care</b>	
DT109			<b>Don't care</b>	
DT110			<b>Don't care</b>	
DT111	8F	0 / 1	HDMI Support Audio	<b>0: AMP / 1: AMP+TV</b>
DT112	85	0 / 1	Component I/P	0: Off / 1: On
DT113	86	0 / 1	HDMI I/P	0: Off / 1: On
DT114	B6	0 - 5	GUI Language	0: English / 1: Japanese / 2: French / 3: German / 4: Spanish / 5: Russian <span style="float: right;">Deletion</span>
DT115	87	0 - 4	HDMI Up-Scaling	0: Through / 1: 480p(576p) / 2: 1080i / 3: 720p / 4: 1080p
DT116	88	0 - 2	HDMI Aspect	0: Through / 1: 16: 9 Normal / 2: Smart Zoom
DT117	8A	0 - 2	THX SB Speaker Distance	0: under 1ft(0.3m) / 1: 1-4ft(0.3-1.2m) / 2: over 4ft(1.2m)
DT118	6C	0 - 2	Zone OSD	0: Off / 1: Zone2 / 2: Zone2 & Zone3 <span style="float: right;">Deletion</span>
DT119	6E	0 - 9	Decoder Select	0: Pro Logic / 1: PLIIx Movie / 2: PLIIx Music / 3: PLIIx Game / 4: Neo: 6 Cinema / 5: Neo: 6 Music / 6: CSII Cinema* / 7: CSII Music* / 9: Neural Sur. *Only Japanese Model
DT120	B5	0 / 1	Remote ID Tuner	0: ID1 / 1: ID2 <span style="float: right;">Deletion</span>
DT121	B0	0 / 1	Advanced Setup	0: Off / 1: On
DT122	B1	0 / 1	<b>Remote ID</b>	0: ID1 / 1: ID2
DT123	B2	0 / 1	Fan Control Mode	0: Auto / 1: Cont
DT124	B3	0 / 1	Speaker Impedance	0: 8 ohm / 1: 6 ohm (Except Japanese Model)
DT125	B4	0 / 1	Tuner Setup	0: AM10/FM100 / 1: AM9/FM50 (Only Destination R & L)
DT126	8C	0 / 1	Pure Direct	0: Off / 1: On
DT127	A0	0 - E	Zone3 Input	0: PHONO / 1: CD / 2: TUNER / 3: MD/CD-R / 4: MD/TAPE / 5: DVD / 6: TV / 7: CBL/SAT 8: DOCK (BLUETOOTH) / 9: VCR / A: DVR / B: SIRIUS** / C: V-AUX / D: USB* / E: XM** F: BD/HD DVD <span style="float: right;">*Except USA &amp; Canada **Only USA &amp; Canada</span>

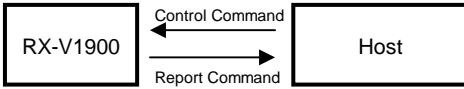
DT128	A1	0 / 1	Zone3 Mute	0: Off / 1: On	
DT129	A2	0 - F	Zone3 Volume	Upper 4 bit	
DT130		0 - F		Lower 4 bit	
DT131	B9	0 / 1	Remote Sensor	0: On / 1: Off	
DT132	7B	0 - C	Multi CH Select	0: 6ch / 2: 8ch CD / 3: 8ch MD/CD-R / 4: 8ch MD/TAPE / 5: 8ch DVD / 6: 8ch TV / 7: 8ch CBL/SAT / 9: 8ch VCR / A: 8ch DVR / C: 8ch V-AUX / F: 8ch BD/HD DVD	
DT133	BA	0 / 1	Remote ID XM	0: ID1 / 1: ID2 (Only USA & Canada)	Deletion
DT134	BB	0 / 1	Bi - AMP	0: On / 1: Off	
DT135	7E	0 - 8	Subwoofer Crossover	0: 40Hz / 1: 60Hz / 2: 80Hz / 3: 90Hz / 4: 100Hz / 5: 110Hz / 6: 120Hz / 7: 160Hz / 8: 200Hz	
DT136	BC	0 / 1	TV Format	0: PAL / 1: NTSC	Deletion
DT137	7D	0 / 1	PR/SB Priority	0: Presence / 1: Surround Back	Deletion
DT138			Don't care		
DT139	4B	0 - F	Zone2 Tone Control Bass	Upper 4 bit	
DT140		0 - F		Lower 4 bit	
DT141	4C	0 - F	Zone2 Tone Control Treble	Upper 4 bit	
DT142		0 - F		Lower 4 bit	
DT143	A8	0 / 1	Tone Bypass	0: Auto / 1: Off	
DT144	BD	0 / 1	Wake on RS-232C Access	0: No / 1: Yes	
DT145	14	0 - F	Bit Rate	Upper 4 bit	
DT146		0 - F	Bit Rate	Lower 4 bit	
DT147	15	0 - F	Dialog	Upper 4 bit	
DT148		0 - F	Dialog	Lower 4 bit	
DT149	67	0 - 1	FL Scroll	0: Continue / 1: Once	
DT150	6F	0 - C	Multi CH BGV	0: Off / 1: Last / 5: DVD / 6: DTV/CBL / 9: VCR / A: DVR / C: V-AUX / F: BD	Deletion
DT151	96	0 - 1	iPod Charge on Standby	0: Off / 1: Auto	
DT152	97	0 - 2	iPod Repeat	0: Off / 1: One / 2: All	
DT153	98	0 - 2	iPod Shuffle	0: Off / 1: Songs / 2: Albums	
DT154	99	0 - 2	USB Repeat	0: Off / 1: Single / 2: All (Except USA & Canada)	
DT155	9A	0 - 1	USB Shuffle	0: Off / 1: On (Except USA & Canada)	
DT156	A9	0 - A	Zone2 Max Volume	0: -30dB / 1: -25dB / 2: -20dB / 3: -15dB / 4: -10dB / 5: -5dB / 6: 0dB / 7: 5dB / 8: 10dB / 9: 15dB / A: 16.5dB	
DT157	AB	0 - F	Zone2 Initial Volume	Upper 4 bit	
DT158		0 - F	Zone2 Initial Volume	Lower 4 bit	
DT159	AD	0 - F	Zone2 Balance	Upper 4 bit	
DT160		0 - F	Zone2 Balance	Lower 4 bit	
DT161	AA	0 - A	Zone3 Max Volume	0: -30dB / 1: -25dB / 2: -20dB / 3: -15dB / 4: -10dB / 5: -5dB / 6: 0dB / 7: 5dB / 8: 10dB / 9: 15dB / A: 16.5dB	
DT162	AC	0 - F	Zone3 Initial Volume	Upper 4 bit	
DT163		0 - F	Zone3 Initial Volume	Lower 4 bit	
DT164	AE	0 - F	Zone3 Balance	Upper 4 bit	
DT165		0 - F	Zone3 Balance	Lower 4 bit	
DT166	9B	0 - 2	NET/USB Source Select	0: PC/MCX / 1: NET Radio / 2: USB	Deletion
DT167	BF	0 - 1	Monitor Check	0: Skip / 1: Yes	
DT168	4D	0 - F	Zone3 Tone Control Bass	Upper 4 bit	
DT169		0 - F		Lower 4 bit	
DT170	4E	0 - F	Zone3 Tone Control Treble	Upper 4 bit	
DT171		0 - F		Lower 4 bit	
DT172	16	0 - F	Flag	Upper 4 bit	
DT173		0 - F		Lower 4 bit	
DT174	56	0 - F	Auto Audio Delay	Upper 4bit	
DT175		0 - F	Auto Audio Delay	Lower 4bit	
DT176	59	0 - 1	HDMI Lipsync	0: Auto / 1: Off	
DT177	5C	0 - 1	Extended Surround Auto/Last	0: Auto / 1: Last	
DT178	5D	0 - 1	Adaptive DSP Level Auto/Off	0: Auto / 1: Off	
DT179	6D	0 - 1	Adaptive DRC Auto/Off	0: Auto / 1: Off	
DT180	57	0 - 1	3D DSP	0: Off / 1: On	
DT181	C0	0 - 4	SIRIUS Preset Page	0: Page A / 1: Page B / 2: Page C / 3: Page D / 4: Page E (Only USA & Canada)	
DT182	C1	0 - 7	SIRIUS Preset Number	0: No.1 / 1: No.2 / 2: No.3 / 3: No.4 / 4: No.5 / 5: No.6 / 6: No.7 / 7: No.8 (Only USA & Canada)	
DT183	C2	0 - 2	SIRIUS Search Mode	0: All CH / 1: Category / 2: Preset (Only USA & Canada)	
DT184	C3	0 - F	SIRIUS Channel Number	Upper 4bit (Only USA & Canada)	

<b>DT185</b>	<b>C4</b>	0 - F	SIRIUS Channel Number	Lower 4bit (Only USA & Canada)
<b>DT186</b>	<b>C5</b>	0 - 4	MAIN Sleep	0: 120 / 1: 90 / 2: 60 / 3: 30 / 4: OFF
<b>DT187</b>	<b>C6</b>	0 - 4	ZONE2 Sleep	0: 120 / 1: 90 / 2: 60 / 3: 30 / 4: OFF
<b>DT188</b>	<b>C7</b>	0 - 4	ZONE3 Sleep	0: 120 / 1: 90 / 2: 60 / 3: 30 / 4: OFF
<b>DT189</b>	<b>8D</b>	0 - 1	Pure Direct Video	0: Audio / 1: Audio+Video
<b>DT190</b>	<b>8D</b>	0 - 2	PEQ Select Type	0: Natural / 1: Flat / 2:Front

\*OSD = On Screen Display



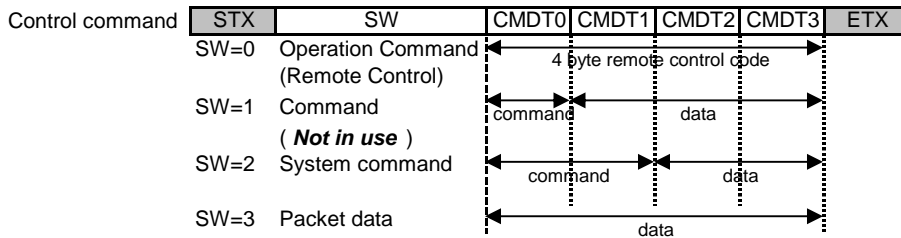
### 3. Control Commands



- \* The RX-V1900 can receive control commands only when the power is on (except Power commands and System commands\*).
- \* Do not send any control commands when the system status is Wait. No commands are permitted until the RX-V1900 reports OK.
- \* The RX-V1900 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 the RX-V1900 doesn't send a Report Command after the fifth retry, cancel the transaction because there may be a problem.
- \* 'SW' switches the type of the control command. When the 'SW' is set to '0', you can control the RX-V1900 remotely via RS-232C.
- \* The RX-V1900 will only send one report command for each type of control. The Report Command will report only the final status of all settings in strings of commands (may not report all steps in a status, only final status).  
For example, if the user sets the input selector on the unit to DTV just after the host sends a command to change the input to CD, the RX-V1900 may report only the final status that the input was changed to DTV by the system operation.

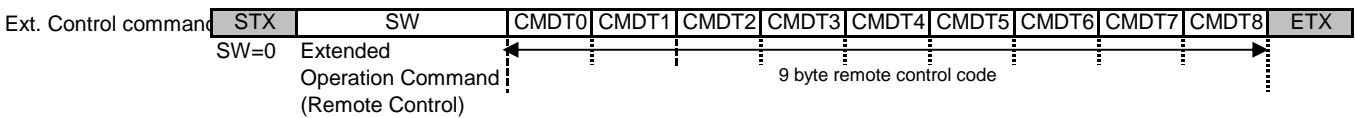
\*System command, \*\*Report command --> described in later

#### - 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

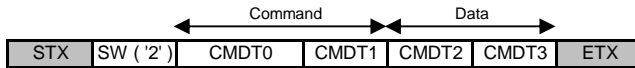
- \* 'SW' switches the command type of the Control Command.
- SW=0 : 4 byte command for remote control code ( **CMDT0 = '7'** )
- SW=1 : 1 byte command 0 - F (HEX expression in ASCII)
- SW=2 : 2 byte command 10 - FF (HEX expression in ASCII)
- SW=3 : 4 byte packet data for test data transmission



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

- \* 'SW' switches the command type of the Control Command.
- SW=0 : 9 byte command for remote control code ( **CMDT0 = 'F'** )

## 3.1 System Commands ( SW = '2' )



System Commands can be made by setting the 'SW' byte in the Control Command to '2'. With System commands you can control the RX-V1900'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 RX-V1900 text data regarding tuner freq., master volume, input name, zone 2 input name.

SW	Command			Data			Report command			Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	RDAT1,2	
2	0	0	Report Command Code	0	0	Enable	0	00	00(OK)	
				0	1	Disable				
2	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				
2	1	0	OSD message start command	0	0	Start	0	00	00(OK)	
2	2	0	Tuning frequency text request	0	0		Refer to the following section			
			Main volume value text request	0	1					
			Zone2 volume value text request	0	2					
			Main Input name text request	0	3					
			Zone2 input name text request	0	4					
			Zone3 volume value text request	0	5					
			Zone3 input name text request	0	6					
2	2	B	Short Message	0	1	ON	0	2B		
				0	2	OFF				
2	2	F	Firmware version request	0	0		0	00		
2	3	0	Main volume direct setting	X	X		0	26		
2	3	1	Zone2 volume direct setting	X	X		0	27		
2	3	4	Zone3 volume direct setting	X	X		0	A2		
2	3	8	Mute Type	0	0	Full	0	A5		
				0	1	-20dB				
2	3	E	Zone2 Amplifier	0	0	EXT	0	3E		
				0	1	INT: Speaker[1]				
				0	2	INT: Speaker[2]				
				0	3	INT: Both				
2	3	F	Zone3 Amplifier	0	0	EXT	0	3F		
				0	1	INT: Speaker[1]				
				0	2	INT: Speaker[2]				
				0	3	INT: Both				
2	4	0	Level Front R	X	X		0	40		
2	4	1	Level Front L	X	X		0	41		
2	4	2	Level Center	X	X		0	42		
2	4	3	Level Surround R	X	X		0	43		
2	4	4	Level Surround L	X	X		0	44		
2	4	5	Level Presence R	X	X		0	47		
2	4	6	Level Presence L	X	X		0	48		
2	4	7	Level Surround Back R	X	X		0	45		
2	4	8	Level Surround Back L	X	X		0	46		
2	4	9	Level Subwoofer (1)	X	X		0	49		
2	4	A	Level Subwoofer (2)	X	X		0	4A		
2	4	B	Zone2 Tone Control Bass	X	X		0	4B		
2	4	C	Zone2 Tone Control Treble	X	X		0	4C		
2	4	D	Zone3 Tone Control Bass	X	X		0	4D		
2	4	E	Zone3 Tone Control Treble	X	X		0	4E		
2	5	1	LFE Level for Speaker	X	X		0	51		
2	5	2	LFE Level for Headphone	X	X		0	52		
2	5	3	Manual Audio Delay	X	X		0	53		
2	5	6	HDMI Auto Audio Delay				0	56		
2	5	7	DSP 3D	0	0	Off	0	57		
				0	1	On				
2	5	8	Wall Paper	0	0	Yes	0	58		Deletion
				0	E	Gray				
				0	F	None				

SW	Command			Data			Report command			Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	RDAT1,2	
2	5	9	HDMI Auto Lipsync	0	0	Auto	0	59		
				0	1	Off				
2	5	A	MAX Volume	X	X		0	5A		
2	5	B	Initial Volume	X	X		0	5B		
2	5	C	Extended Surround Set	0	0	Auto	0	5C		
				0	1	Last				
2	5	D	Adaptive DSP Level	0	0	Auto	0	5D		
				0	1	Off				
2	5	E	Decoder Mode	0	0	AUTO	0	22		Only Japan
				0	1	DTS				
				0	2	AAC				
2	5	F	Decoder Mode Set	0	0	Auto	0	5F		
				0	1	Last				
2	6	0	Audio Select Set	0	0	Auto	0	60		
				0	1	Last				
2	6	1	Dimmer	0	0	-4	0	61		
				0	1	-3				
				0	2	-2				
				0	3	-1				
				0	4	0				
2	6	2	OSD Shift	X	X		0	62		
2	6	3	Gray Back	0	0	Off	0	63		
				0	1	Auto				
2	6	4	Dynamic Range for Speaker	0	0	MAX	0	64		
				0	1	STD				
				0	2	MIN				
2	6	5	Dynamic Range for Headphone	0	0	MAX	0	65		
				0	1	STD				
				0	2	MIN				
2	6	6	Zone2 Volume Out	0	0	Variable	0	66		
				0	1	Fixed				
2	6	7	FL Scroll	0	0	Continue	0	67		
				0	1	Once				
2	6	8	Memory Guard	0	0	Off	0	68		
				0	1	On				
2	6	9	Video Conversion	0	0	Off	0	69		
				0	1	On				
2	6	B	Zone3 Volume Out	0	0	Variable	0	6B		
				0	1	Fixed				
2	6	C	Zone OSD	0	0	Off	0	6C		Deletion
				0	1	Zone2				
				0	2	Zone2 & 3				
2	6	D	Adaptive DRC	0	0	Auto	0	6D		
				0	1	Last				
2	6	F	Multi CH BGV	0	0	Off				Deletion
				0	1	Last				
				0	5	DVD				
				0	6	DTV/CBL				
				0	7	CBL/SAT				
				0	9	VCR				
				0	A	DVR				
				0	C	V-AUX				
				0	F	BD/HD DVD				
2	7	0	Speaker Set Center	0	0	Large	0	70		
				0	1	Small				
				0	2	None				
2	7	1	Speaker Set Front	0	0	Large	0	71		
				0	1	Small				
2	7	2	Speaker Set Surround	0	0	Large	0	72		
				0	1	Small				
				0	2	None				
2	7	3	Speaker Set Surround Back	0	0	Large x2	0	73		
				0	1	Large x1				
				0	2	Small x2				
				0	3	Small x1				
				0	4	None				
2	7	4	Speaker Set Presence	0	0	Yes	0	74		
				0	1	None				
2	7	5	Speaker Set Bass Out	0	0	Subwoofer	0	75		
				0	1	Front				
				0	2	Both				

SW	Command			Data			Report command			Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	RDAT1,2	
2	7	6	Speaker Set Subwoofer Phase	0	X	Normal	0	76		Lower 4 bit: Don't care
				1	X	Reverse				
2	7	B	Multi CH Select	0	0	6ch	0	7B		Deletion
				0	2	8ch CD				
				0	3	8ch MD/CD-R				
				0	4	8ch MD/TAPE				
				0	5	8ch DVD				
				0	6	8ch TV				
				0	7	8ch CBL/SAT				
				0	9	8ch VCR				
				0	A	8ch DVR				
				0	C	8ch V-AUX				
				0	F	8ch BD/HD DVD				
2	7	D	PR/SB Priority	0	0	Presence	0	7D		Deletion
				0	1	Sur. Back				
2	7	E	Subwoofer Crossover	0	0	40Hz	0	7E		
				0	1	60Hz				
				0	2	80Hz				
				0	3	90Hz				
				0	4	100Hz				
				0	5	110Hz				
				0	6	120Hz				
				0	7	160Hz				
				0	8	200Hz				
2	8	0	Test Tone	0	0	Off	0	80		
				0	1	On				
2	8	5	Component I/P	0	0	Off	0	85		
				0	1	On				
2	8	6	HDMI I/P	0	0	Off	0	86		
				0	1	On				
2	8	7	HDMI Up-Scaling	0	0	Through	0	87		
				0	1	480p(576p)				
				0	2	1080i				
				0	3	720p				
				0	4	1080p				
2	8	8	HDMI Aspect	0	0	Through	0	88		
				0	1	16:9 Normal				
				0	2	Smart Zoom				
2	8	A	THX SB Speaker Dist.	0	0	under 1ft (0.3m)	0	8A		
				0	1	1-4ft (0.3-1.2m)				
				0	2	over 4ft (1.2m)				
2	8	B	Night Mode	0	0	Off	0	8B		
				1	0	Cinema Low				
				1	1	Cinema Mid				
				1	2	Cinema High				
				2	0	Music Low				
				2	1	Music Mid				
				2	2	Music High				
2	8	D	Pure Direct Video	0	0	Audio	0	8D		
				0	1	Audio+Video				
2	8	F	HDMI Support Audio	0	0	AMP	0	8F		
				0	1	AMP+TV				
2	9	3	On Screen	0	0	Off	0	93		
				0	1	10sec				
				0	2	30sec				
				0	3	Always				
2	9	4	XM Channel Number	X	X		0	94		Only USA & Canada
2	9	5	Hold / Release XM Display	0	0	Release	0	95		Only USA & Canada
				0	1	Hold				
2	9	6	iPod Charge on Standby	0	0	Off	0	96		
				0	1	Auto				
2	9	7	iPod Repeat	0	0	Off	0	97		
				0	1	One				
				0	2	All				
2	9	8	iPod Shuffle	0	0	Off	0	98		
				0	1	Songs				
				0	2	Albums				
2	9	9	USB Repeat	0	0	Off	0	99		Except USA & Canada
				0	1	Single				
				0	2	All				
2	9	A	USB Shuffle	0	0	Off	0	9A		Except USA & Canada
				0	1	On				

SW	Command			Data			Report command		Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	
2	9	C	USB Preset Recall	X	X		0	9C	Except USA & Canada
2	9	D	USB Preset Memory	X	X		0	9D	Except USA & Canada
2	A	7	EQ (Equalizer) Select	0	0	Auto PEQ	0	A7	
				0	1	GEQ			
				0	2	EQ Off			
2	A	8	Tone Control Auto Bypass	0	0	Auto	0	A8	
				0	1	Off			
2	A	9	Zone2 MAX Volume	X	X		0	A9	
2	A	A	Zone3 MAX Volume	X	X		0	AA	
2	A	B	Zone2 Initial Volume	X	X		0	AB	
2	A	C	Zone3 Initial Volume	X	X		0	AC	
2	A	D	Zone2 Balance	X	X		0	AD	
2	A	E	Zone3 Balance	X	X		0	AE	
2	A	F	Music Enhancer	0	0	Off	0	28	
				0	1	2ch Low			
				0	2	2ch High			
				0	3	7ch Low			
				0	4	7ch High			
2	B	0	Advanced Setup	0	0	Off	0	B0	Effective in STANDBY
				0	1	On			
2	B	1	Remote ID	0	0	ID1	0	B1	
				0	1	ID2			
2	B	2	Fan Control Mode	0	0	Auto	0	B2	
				0	1	Cont.			
2	B	3	Speaker Impedance	0	0	8 ohm	0	B3	Except Japan
				0	1	6 ohm			
2	B	4	Tuner Frequency Step	0	0	10k/100kHz	0	B4	Only Destination R & L
				0	1	9k/50kHz			
2	B	5	Remote ID for Tuner	0	0	ID1	0	B5	Deletion
				0	1	ID2			
2	B	6	Language	0	0	English	0	B6	Deletion
				0	1	Japanese			
				0	2	French			
				0	3	German			
				0	4	Spanish			
				0	5	Russian			
2	B	7	User Preset	0	0	Cancel	0	B7	
				0	1	All			
				0	2	DSP Parameter			
				0	3	Video			
				0	4	Network			
2	B	8	Video Reset	0	0	Cancel	0	B8	
				0	1	Yes			
2	B	9	Remote Sensor	0	0	On	0	B9	
				0	1	Off			
2	B	A	Remote ID for XM	0	0	ID1	0	BA	Deletion
				0	1	ID2			
2	B	B	Bi-Amplifier	0	0	On	0	BB	
				0	1	Off			
2	B	C	TV Format	0	0	PAL	0	BC	Deletion
				0	1	NTSC			
2	B	D	Wake on RS-232C Access	0	0	No	0	BD	
				0	1	Yes			
2	B	E	Network Reset	0	0	Cancel	0	BE	
				0	1	Yes			
2	B	F	Monitor Check	0	0	Skip	0	BF	
				0	1	Yes			
2	C	3	SIRIUS Channel Number	X	X		0	C3	Only USA & Canada
2	C	4	Hold/Release SIRIUS Display	0	0	Release	0	C4	Only USA & Canada
				0	1	Hold			
2	C	5	Main Sleep	0	0	120	0	C5	
				0	1	90			
				0	2	60			
				0	3	30			
				0	4	OFF			
				0	4	OFF			
2	C	6	Zone2 Sleep	0	0	120	0	C6	
				0	1	90			
				0	2	60			
				0	3	30			
				0	4	OFF			
				0	4	OFF			

SW	Command			Data			Report command			Note
	CMDT0	CMDT1	Function	CMDT2	CMDT3	Parameter	Type	RCMD1,2	RDAT1,2	
2	C	7	Zone3 Sleep	0	0	120	0	C7		
				0	1	90				
				0	2	60				
				0	3	30				
				0	4	OFF				
2	C	8	PEQ Select Type	0	0	Natural	0	C8		
				0	1	Flat				
				0	2	Front				
2	C	9	Bluetooth Control	0	0	Pairing Start	0	C9		
				0	1	Pairing Chancel				
				0	2	Connect				
				0	3	Disconnect				

**\*OSD message function**

The OSD Message function can display a message of 16 characters to the RX-V1900's OSD for a few seconds.

The command sequence block will start by sending "start command" as mentioned above, followed by four bytes of packet data (SW:3) repeated four times. Then a message of sixteen characters (ASCII) will display and the command block will finish automatically.

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

1. Send the start command.

STX	2	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.

Characters available for displaying the message are as follows:

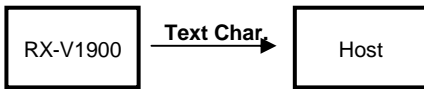
" "(SPACE) !" "#" "%" "&" "(" ")" "\*" "+" "," "-" "." "0" "1" "2" "3" "4" "5" "6" "7" "8" "9" ":" "<" "=" ">" "?" "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N" "O" "P" "Q" "R" "S" "T" "U" "V" "W" "X" "Y" "Z" "[" "]" "\_" "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n" "o" "p" "q" "r" "s" "t" "u" "v" "w" "x" "y" "z"

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

This command can get certain text data (ASCII) from the RX-V1900 to be used by a host device as follows.

- Tuner frequency characters : " 1 07.9 "(MHz)
- Master volume value characters : " -40.0dB' / " MUTE"
- Input name : " MY PC " (Even renamed by "SET MENU:INPUT RENAME")
- Zone2 input name : " PS 3 " (Even renamed by "SET MENU:INPUT RENAME")

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



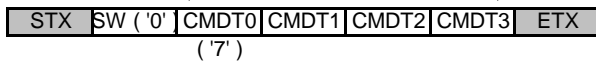
RCMD0,1	COMMAND	0 - 9, A - F	0...0xFF
DDAT 0 - 8	DATA	0 - 9, A - Z SP	ASCII char. Space char.

Report Command

	DC1	RCMD0	RCMD1	DDAT 0	DDAT 1	DDAT 2	DDAT 3	DDAT 4	DDAT 5	DDAT 6	DDAT 7	DDAT 8	ETX
Tuner Frequency	DC1	0	0	SP	SP	x	x	x	x	x	x	x	ETX
Main Volume Value	DC1	0	1	SP	x	x	x	x	x	x	x	SP	ETX
Zone2 Volume Value	DC1	0	2	SP	x	x	x	x	x	x	x	x	ETX
Input Name	DC1	0	3	x	x	x	x	x	x	x	x	x	ETX
Zone2 Input Name	DC1	0	4	x	x	x	x	x	x	x	x	x	ETX
Zone3 Volume Value	DC1	0	5	SP	x	x	x	x	x	x	x	x	ETX
Zone3 Input Name	DC1	0	6	x	x	x	x	x	x	x	x	x	ETX

## 3.2 Operation Commands ( SW = '0', CMDT0 = '7' )

4 Byte Remote Control



SW	CMDT_				Function	Setting	Report Command		Note
	0	1	2	3			Type	RCMD1,2	
0	7	A	1	A	Main Volume	Up	0	26	
0	7	A	1	B		Down			
0	7	E	A	2	Audio Mute	On (Full)	0	23	
0	7	E	D	F		On (-20dB)			
0	7	E	A	3		Off			
0	7	A	1	4	Input	PHONO	0	21	
0	7	A	1	5		CD			
0	7	A	1	6		TUNER			
0	7	A	1	9		MD/CD-R			
0	7	A	1	8		MD/TAPE			Deletion
0	7	A	C	8		BD/HD DVD			
0	7	A	C	1		DVD			
0	7	A	5	4		TV			
0	7	A	C	0		CBL/SAT			
0	7	A	0	F		VCR			
0	7	A	1	3		DVR			
0	7	A	5	5		V-AUX			
0	7	A	8	7		MULTI CH			
0	7	A	B	4		XM			Only USA & Canada
0	7	A	3	9		SIRIUS			Only USA & Canada
0	7	E	A	4	Multi CH Input	On	0	21	
0	7	E	A	5		Off			
0	7	E	8	0	Pure Direct	On	0	8C	
0	7	E	8	2		Off			
0	7	E	A	6	Audio Select	Auto	0	22	
0	7	E	A	9		COAX/OPT			
0	7	E	A	A		Analog			
0	7	E	D	A		HDMI			
0	7	E	D	B	Decoder Mode	AUTO	0	5E	Deletion
0	7	E	A	8		DTS			
0	7	E	3	B		AAC			
0	7	A	D	A	Zone2 Volume	Up	0	27	
0	7	A	D	B		Down			
0	7	E	A	0	Zone2 Mute	On	0	25	
0	7	E	A	1		Off			
0	7	A	D	0	Zone2 Input	PHONO	0	24	
0	7	A	D	1		CD			
0	7	A	D	2		TUNER			
0	7	A	D	4		MD/CD-R			
0	7	A	D	3		MD/TAPE			Deletion
0	7	A	C	E		BD/HD DVD			
0	7	A	C	D		DVD			
0	7	A	D	9		TV			
0	7	A	C	C		CBL/SAT			
0	7	A	D	6		VCR			
0	7	A	D	7		DVR			
0	7	A	D	8		V-AUX			
0	7	A	B	8		XM			Only USA & Canada
0	7	A	3	A		SIRIUS			Only USA & Canada
0	7	A	1	D		All Zone Power	On	0	20
0	7	A	1	E	Standby				
0	7	E	7	E	Main Zone Power	On	0	20	
0	7	E	7	F		Standby			
0	7	E	B	A	Zone2 Power	On	0	20	
0	7	E	B	B		Standby			
0	7	A	E	D	Zone3 Power	On	0	20	
0	7	A	E	E		STANDBY			
0	7	E	2	6	Zone3 Mute	On	0	A1	
0	7	E	6	6		Off			
0	7	A	F	D	Zone3 Volume	Up	0	A2	
0	7	A	F	E		Down			



SW	CMDT				Function	Setting	Report Command		Note		
	0	1	2	3			Type	RCMD1,2			
0	7	A	F	1	Zone3 Input	PHONO	0	A0			
0	7	A	F	2		CD					
0	7	A	F	3		TUNER					
0	7	A	F	5		MD/CD-R					
0	7	A	F	4		MD/TAPE				Deletion	
0	7	A	F	B		BD/HD DVD					
0	7	A	F	C		DVD					
0	7	A	F	6		TV					
0	7	A	F	7		CBL/SAT					
0	7	A	F	9		VCR					
0	7	A	F	A		DVR					
0	7	A	B	0		V-AUX					
0	7	A	B	9		XM			Only USA & Canada		
0	7	A	3	B		SIRIUS			Only USA & Canada		
0	7	E	B	0	Short Message	Off	0	2B	Deletion		
0	7	E	B	1		On					
0	7	E	B	2		Full					
0	7	E	B	3	System 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	A	5	7		TOGGLE					
0	7	E	B	8		EXTD SUR.			EX/ES	0	2D
0	7	E	B	9	Off						
0	7	E	7	C	Auto						
0	7	E	D	C	EX			Deletion			
0	7	E	D	D	PLIIX Movie						
0	7	E	D	E	PLIIX Music						
0	7	E	9	C	Night Listening Mode	Off	0	8B			
0	7	E	9	B		Cinema					
0	7	E	C	F		Music					
0	7	E	2	7	EFFECT	ON	0	28			
0	7	E	E	0	STRAIGHT		0	28			
0	7	E	D	8	DSP / Surround	Straight Enhancer	0	28			
0	7	E	D	9		Off					
0	7	E	E	1	DSP / Surround	Munich	0	28			
0	7	E	E	5		Vienna					
0	7	E	E	6		Amsterdam					
0	7	E	E	8		Freiburg					
0	7	E	A	F		Chamber					
0	7	E	E	B		Village Vanguard					
0	7	E	E	E		Warehouse Loft					
0	7	E	C	D		Cellar Club					
0	7	E	E	C		The Bottom Line					
0	7	E	E	D		The Roxy Theatre					
0	7	E	F	0		Disco					
0	7	E	F	2		Game					
0	7	E	F	F		7ch Stereo					
0	7	E	C	0		2ch Stereo					
0	7	E	F	8	Sports						
0	7	E	F	2	Action Game						
0	7	E	C	E	Roleplaying Game						
0	7	E	F	3	Music Video						
0	7	E	F	5	Recital/Opera						
0	7	E	F	E	Standard						
0	7	E	F	9	Spectacle						
0	7	E	F	A	Sci-Fi						
0	7	E	F	B	Adventure						
0	7	E	F	C	Drama						
0	7	E	F	7	Mono Movie						
0	7	E	F	D	Surround Decode						
0	7	E	C	2	THX Cinema						
0	7	E	C	3	THX Music						
0	7	E	C	8	THX Game						
0	7	A	E	0	Tuner Preset Page	A	0	29	Except USA		
0	7	A	E	1		B					
0	7	A	E	2		C					
0	7	A	E	3		D					
0	7	A	E	4		E					

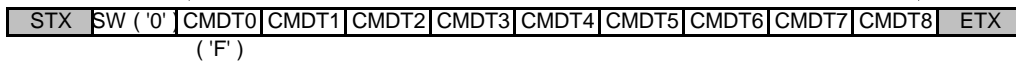
SW	CMDT				Function	Setting	Report Command		Note
	0	1	2	3			Type	RCMD1,2	
0	7	A	E	5	Tuner Preset Number/CH	1	0	2A	Except USA
0	7	A	E	6		2			
0	7	A	E	7		3			
0	7	A	E	8		4			
0	7	A	E	9		5			
0	7	A	E	A		6			
0	7	A	E	B		7			
0	7	A	E	C		8			
0	7	A	B	1	Tuner CH	9	0	2A	Except USA
0	7	A	B	2	0				
0	7	A	B	3	ENT				
0	7	E	B	C	Tuner Band	FM	0	35	Except USA
0	7	E	B	D	AM				
0	7	E	B	E	Tuner Auto Tuning	Up	0	15	Except USA
0	7	E	B	F	Down				
0	7	E	A	B	Speaker Relay A	On	0	2E	
0	7	E	A	C	Off				
0	7	E	A	D	Speaker Relay B	On	0	2F	
0	7	E	A	E	Off				
0	7	E	2	B	System Memory Save	1	0	31	
0	7	E	2	C		2			
0	7	E	2	D		3			
0	7	E	2	E		4			
0	7	E	2	F		5			
0	7	E	3	0		6			
0	7	E	3	5	System Memory Load	1	0	30	
0	7	E	3	6		2			
0	7	E	3	7		3			
0	7	E	3	8		4			
0	7	E	3	9		5			
0	7	E	3	A		6			
0	7	E	6	B	Main Volume Memory Save	1	0	33	
0	7	E	6	C		2			
0	7	E	6	D		3			
0	7	E	6	E		4			
0	7	E	6	F		5			
0	7	E	7	0		6			
0	7	E	7	5	Main Volume Memory Load	1	0	32	
0	7	E	7	6		2			
0	7	E	7	7		3			
0	7	E	7	8		4			
0	7	E	7	9		5			
0	7	E	7	A		6			
0	7	E	8	7	Zone2 Volume Memory Save	1	0	38	
0	7	E	8	8		2			
0	7	E	8	9		3			
0	7	E	8	A		4			
0	7	E	8	B		5			
0	7	E	8	C		6			
0	7	E	8	D	Zone2 Volume Memory Load	1	0	37	
0	7	E	8	E		2			
0	7	E	8	F		3			
0	7	E	9	0		4			
0	7	E	9	1		5			
0	7	E	9	2		6			
0	7	E	2	0	Zone3 Volume Memory Save	1	0	A4	
0	7	E	2	1		2			
0	7	E	2	2		3			
0	7	E	2	3		4			
0	7	E	2	4		5			
0	7	E	2	5		6			
0	7	E	6	0	Zone3 Volume Memory Load	1	0	A3	
0	7	E	6	1		2			
0	7	E	6	2		3			
0	7	E	6	3		4			
0	7	E	6	4		5			
0	7	E	6	5		6			
0	7	E	D	4	Zone2 Balance	Left	0	AD	
0	7	E	D	5		Right			

SW	CMDT				Function	Setting	Report Command		Note	
	0	1	2	3			Type	RCMD1,2		
0	7	E	D	6	Zone3 Balance	Left	0	AE		
0	7	E	D	7		Right				
0	7	E	3	2	Trigger1 Control	Main	0	3A		
0	7	E	3	3		Zone2				
0	7	E	3	1		Zone3				
0	7	E	3	4		All (Zone1-3)				
0	7	E	7	3	Trigger1 Main	High	0	36		
0	7	E	7	4		Low				
0	7	E	7	1	Trigger1 Zone2	High	0	36		
0	7	E	7	2		Low				
0	7	E	8	3	Trigger1 Zone3	High	0	36		
0	7	E	8	4		Low				
0	7	E	9	3	Dual Mono Mode	Main	0	39	Only Japanese Model	
0	7	E	9	4		Sub				
0	7	E	9	5		All				
0	7	E	9	6	Trigger2 Control	Main	0	3B		
0	7	E	9	7		Zone2				
0	7	E	9	F		Zone3				
0	7	E	9	8	All (Zone1-3)					
0	7	E	3	E	Trigger2 Main	High	0	3C		
0	7	E	3	F		Low				
0	7	E	3	C	Trigger2 Zone2	High	0	3C		
0	7	E	3	D		Low				
0	7	E	8	5	Trigger2 Zone3	High	0	3C		
0	7	E	8	6		Low				
0	7	E	2	8	Speaker B SET	Main	0	3D		
0	7	E	2	9		Zone B				
0	7	E	9	9	ZONE2 Amp	INT: Presence	0	3E		
0	7	E	9	A		EXT				
0	7	E	6	7	2ch Decoder	PLIIx Movie	0	6E		
0	7	E	6	8		PLIIx Music				
0	7	E	6	9		Neo:6 Cinema				
0	7	E	6	A		Neo:6 Music				
0	7	E	C	7		PLIIx Game				
0	7	E	C	9		Pro Logic				
0	7	E	C	A		CSII Cinema				Only USA & Japan
0	7	E	C	B		CSII Music				Only USA & Japan
0	7	E	C	C		Neural-THX				Only USA & Canada
0	7	A	6	0		XM CH Number			0	0
0	7	A	6	1	XM CH/Preset Number	1	0	91*	*Preset Number	
0	7	A	6	2	XM CH/Preset Number	2	0	91*		
0	7	A	6	3	XM CH/Preset Number	3	0	91*		
0	7	A	6	4	XM CH/Preset Number	4	0	91*		
0	7	A	6	5	XM CH/Preset Number	5	0	91*		
0	7	A	6	6	XM CH/Preset Number	6	0	91*		
0	7	A	6	7	XM CH/Preset Number	7	0	91*		
0	7	A	6	8	XM CH/Preset Number	8	0	91*		
0	7	A	6	9	XM CH Number	9	0			
0	7	A	6	A	XM CH/Preset Number	Up	0	91 / 94	91:Preset Number 94:Channel Number	
0	7	A	6	B		Down				
0	7	A	6	C	XM Category / Preset Page	Up	0	90	90:Preset Page	
0	7	A	6	E		Down				
0	7	A	6	F	XM Hold/Release Display	Toggle	0	95		
0	7	A	7	0	XM History Next	Toggle			Deletion	
0	7	A	7	1	XM Preset Memory					
0	7	A	B	5	XM Search Mode	All CH	0	92		
0	7	A	B	6		Category				
0	7	A	B	7		Preset				
0	7	A	B	A	XM Preset Page	A	0	90		
0	7	A	B	B		B				
0	7	A	B	C		C				
0	7	A	B	D		D				
0	7	A	B	E		E				
0	7	A	B	F	XM ENT.				Decide CH Number	

SW	CMDT_				Function	Setting	Report Command		Note
	0	1	2	3			Type	RCMD1,2	
0	7	A	7	3	Zone2 Tone Control	Bass +	0	4B	
0	7	A	7	4		Bass -			
0	7	A	7	5		Treble +	0	4C	
0	7	A	7	6		Treble -			
0	7	A	7	7	Zone3 Tone Control	Bass +	0	4D	
0	7	A	7	8		Bass -			
0	7	A	7	9		Treble +	0	4E	
0	7	A	7	A		Treble -			
0	7	A	A	0	OSD Operation	Top Menu		No Report	Deletion
0	7	A	D	E		Enter			
0	7	A	A	1		Exit			Deletion
0	7	A	9	D		Cursor Up			
0	7	A	9	C		Cursor Down			
0	7	A	9	E		Cursor Right			
0	7	A	9	F		Cursor Left			
0	7	E	D	0	Main Source	On	0	No Report	
0	7	E	D	1	Display	Off			
0	7	E	D	2	Zone2 Source	On	0	No Report	Deletion
0	7	E	D	3	Display	Off			

3.3 Extended Operation Command ( SW = '0', CMDT0 = 'F' )

9 Byte Remote Control



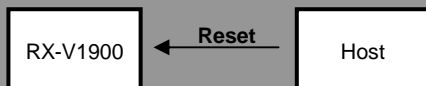
SW	CMDT_									Function	Setting	Report Command		Note	
	0	1	2	3	4	5	6	7	8			Type	RCMD1,2		
0	F	7	F	0	1	0	F	F	0	iPod OSD (GUI) Operation	Menu		No Report		
0	F	7	F	0	1	1	1	E	E		Enter				
0	F	7	F	0	1	1	5	E	A		Display				Deletion
0	F	7	F	0	1	0	E	F	1		Cursor Up				
0	F	7	F	0	1	1	4	E	B		Cursor Down				
0	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		No Report		
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 -				
0	F	7	F	0	1	4	A	B	5	Input	DOCK	0	21		
0	F	7	F	0	1	4	B	B	4	Zone2 Input	DOCK	0	24		
0	F	7	F	0	1	4	C	B	3	Zone3 Input	DOCK	0	A0		
0	F	7	F	0	1	3	F	C	0	Input	USB	0	21	Except USA & Canada	
0	F	7	F	0	1	4	0	B	F	Zone2 Input	USB	0	24	Except USA & Canada	
0	F	7	F	0	1	4	1	B	E	Zone3 Input	USB	0	A0	Except USA & Canada	
0	F	7	F	0	1	3	6	C	9	NET/USB Source Select	PC/MCX	0	9B	Deletion	
0	F	7	F	0	1	3	7	C	8		NET Radio				
0	F	7	F	0	1	3	8	C	7		USB				
0	F	7	F	0	1	2	F	D	0	USB OSD Operation	Menu		No Report	Except USA & Canada	
0	F	7	F	0	1	3	1	C	E		Enter				
0	F	7	F	0	1	3	5	C	A	Display			Deletion		
0	F	7	F	0	1	2	E	D	1	Cursor Up					
0	F	7	F	0	1	3	4	C	B	Cursor Down					
0	F	7	F	0	1	3	2	C	D	Cursor Right					
0	F	7	F	0	1	3	0	C	F	Cursor Left					
0	F	7	F	0	1	3	E	C	1	USB Operation	Play		No Report	Except USA & Canada	
0	F	7	F	0	1	3	D	C	2		Stop				
0	F	7	F	0	1	3	C	C	3		Skip +				
0	F	7	F	0	1	3	B	C	4		SKip -				
0	F	7	A	8	5	0	0	7	F		Play	0			30 (Load)
0	F	7	A	8	5	0	3	7	C	Stop		31 (Save)			
0	F	7	A	8	5	0	6	7	9	Skip +					
0	F	7	A	8	5	0	9	7	6	SKip -					
0	F	7	E	8	1	1	4	6	B	DSP / Surround	7ch Enhancer	0	28		
0	F	7	E	8	1	7	4	0	B	Adaptive DRC	Auto	0	6D		
0	F	7	E	8	1	7	5	0	A		Off				
0	F	7	E	8	1	7	6	0	9	Adaptive DSP Level	Auto	0	5D		
0	F	7	E	8	1	7	7	0	8		Off				
0	F	7	E	8	1	3	3	4	C	DSP 3D	On	0	57		
0	F	7	E	8	1	3	4	4	B		Off				
0	F	7	E	8	1	1	5	6	A	EXTD SUR.	Neural-THX	0	2D	Only USA & Canada	
0	F	7	E	8	1	A	3	D	C	2ch Decoder	Neural-THX Music	0	6E	Only USA & Canada	
0	F	7	E	8	1	1	6	6	9	Main Sleep Timer	On	0	C5		
0	F	7	E	8	1	1	B	6	4		Off				
0	F	7	E	8	1	1	7	6	8	Zone2 Sleep Timer	On	0	C6		
0	F	7	E	8	1	1	C	6	3		Off				
0	F	7	E	8	1	1	8	6	7	Zone3 Sleep Timer	On	0	C7		
0	F	7	E	8	1	1	D	6	2		Off				
0	F	7	F	0	1	F	D	0	2	Tuner Search Mode	Preset			Except USA	
0	F	7	F	0	1	F	E	0	1		Manual				
0	F	7	F	0	1	4	A	3	5	Tuner Broadcast	Stereo			Except USA	
0	F	7	F	0	1	4	B	3	4		Mono				
0	F	7	F	0	1	D	1	2	E	SIRIUS Preset / CH	1	0	C1	Only USA & Canada	
0	F	7	F	0	1	D	2	2	D		2				
0	F	7	F	0	1	D	3	2	C		3				
0	F	7	F	0	1	D	4	2	B		4				
0	F	7	F	0	1	D	5	2	A		5				
0	F	7	F	0	1	D	6	2	9		6				
0	F	7	F	0	1	D	7	2	8		7				
0	F	7	F	0	1	D	8	2	7		8				
0	F	7	F	0	1	D	9	2	6		9				
0	F	7	F	0	1	D	A	2	5	SIRIUS CH	0			Only USA & Canada	
0	F	7	F	0	1	D	C	2	3	SIRIUS NUMBER ENTER	Enter			Only USA & Canada	

SW	CMDT_								Function	Setting	Report Command		Note	
	0	1	2	3	4	5	6	7			8	Type		RCMD1,2
0	F	7	F	0	1	0	A	7	5	SIRIUS Preset	A	0	C1	Only USA & Canada
0	F	7	F	0	1	0	B	7	4		B			
0	F	7	F	0	1	0	C	7	3		C			
0	F	7	F	0	1	0	D	7	2		D			
0	F	7	F	0	1	0	E	7	1		E			
0	F	7	F	0	1	E	1	1	E	SIRIUS CH/Preset Number	Up	0	C1	Only USA & Canada
0	F	7	F	0	1	E	5	1	A	Down				
0	F	7	F	0	1	E	4	1	B	SIRIUS Category/Preset Page	Up	0	C1	Only USA & Canada
0	F	7	F	0	1	E	2	1	D		Down			
0	F	7	F	0	1	E	3	1	C	SIRIUS Hold/Release Display	Toggle			Only USA & Canada
0	F	7	F	0	1	0	F	7	0	SIRIUS Search Mode	All Ch	0	C2	Only USA & Canada
0	F	7	F	0	1	0	6	F	0		Category			
0	F	7	F	0	1	1	1	6	E	Preset				
0	F	7	F	0	1	2	1	5	E	HD RADIO Preset / CH	1	0	2A	Only USA
0	F	7	F	0	1	2	2	5	D		2			
0	F	7	F	0	1	2	3	5	C		3			
0	F	7	F	0	1	2	4	5	B		4			
0	F	7	F	0	1	2	5	5	A		5			
0	F	7	F	0	1	2	6	5	9		6			
0	F	7	F	0	1	2	7	5	8		7			
0	F	7	F	0	1	2	8	5	7		8			
0	F	7	F	0	1	2	9	5	6		9			
0	F	7	F	0	1	2	A	5	5	0				Only USA
0	F	7	F	0	1	2	C	5	3	HD RADIO NUMBER ENTER	Enter			Only USA
0	F	7	F	0	1	F	0	0	F	HD RADIO Preset	A	0	29	Only USA
0	F	7	F	0	1	F	1	0	E		B			
0	F	7	F	0	1	F	2	0	D		C			
0	F	7	F	0	1	F	3	0	C		D			
0	F	7	F	0	1	F	4	0	B		E			
0	F	7	F	0	1	3	1	4	E	HD RADIO CH /Preset Numbe	Up			Only USA
0	F	7	F	0	1	3	5	4	A	Down				
0	F	7	F	0	1	3	4	4	B	HD RADIO Preset Page	Up			Only USA
0	F	7	F	0	1	3	2	4	D	Down				
0	F	7	F	0	1	3	3	4	C	HD RADIO Hold/Release Display	Toggle			Only USA
0	F	7	F	0	1	3	D	4	2	HD RADIO Program Select	Up			Only USA
0	F	7	F	0	1	3	C	4	3		Down			
0	F	7	F	0	1	F	8	0	7	HD RADIO Auto Tuning	Up			Only USA
0	F	7	F	0	1	F	7	0	8	Down				
0	F	7	F	0	1	0	0	7	F	HD RADIO Search Mode	Preset			Only USA
0	F	7	F	0	1	0	1	7	E	Manual				
0	F	7	F	0	1	4	C	3	3	HD RADIO Broadcast	Stereo			Only USA
0	F	7	F	0	1	4	D	3	2		Mono			
0	F	7	F	0	1	F	6	0	9	HD RADIO Band	FM			Only USA
0	F	7	F	0	1	F	5	0	A		AM			

#### 4. Reset Command

The Reset Command recalls factory preset data. Once the factory presets are recalled, all user controllable setting / parameter data will be deleted and replaced with original factory settings.

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, request the Configuration Command using the Ready Command (see section 2) in order to get accurate feedback of RX-V1900 status to your touch panel system.

Ready ←

DC3

DEL

DEL

DEL

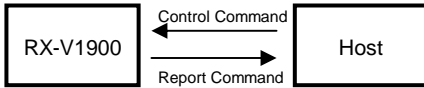
ETX

\*recall factory preset of all data

This command was abolished.

## 5. Report Command

The RX-V1900 will send a Report Command in response to Control Commands from the host controller. From the Report Command you can receive the current status of the RX-V1900.



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

- System Status Report      RX-V1900 reports a System Status Report when the system status has changed.
- Playback Status Report      RX-V1900 reports a Playback Status Report when the internal playback status has changed.
- Operation Report      When the RX-V1900 is controlled by remote controller, front panel, RS-232C or system controller, the RX-V1900 sends an Operation Report, which includes the latest setting status of the controlled function.

\*The RX-V1900 reports a System State Report with system guard to inform its power status (power off) if it receives a control command while it is turned off.

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

On the contrary the guard status will be 'System Guard' or 'Setting Guard' if the command was guarded for some reason. (e.g. If you send a 'Speaker A ON' command while you are using a headphone, the guard status will be 'System Guard' because the speaker controls are prohibited when a headphone is being used).

\*If a status changes multiple times in a certain time, the RX-V1900 reports 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.

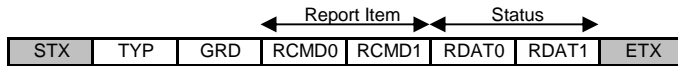
TYP	control type
0	controlled by RS-232C
1	controlled by remote controller (IR)
2	controlled by keys in the unit
3	controlled by system
4	controlled by encoder

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

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



5.1 System Status Reports



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

Ready to accept control commands  
 Start of the term prohibits sending commands  
 Report against commands which cannot be accepted when Power is on Standby

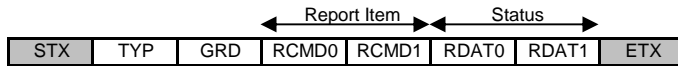
\*RX-V1900 sends this report when the system is reset or the power turns off.  
 It can be used for observation of the system revival.

RCMD0, 1	Report Item	RDAT0, 1	Status
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)

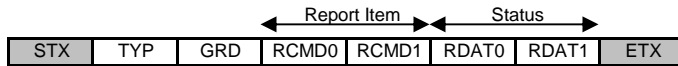
RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status		
06	XM Message	00	Check Antenna	09	Cmd Error	00	Remoto control cmmand buffer over		
		01	Updating			0A	SIRIUS Message	00	Check Tuner
		02	No Signal					01	FW update
		03	Loading					02	Not Support
		04	Off Air					03	Sub update
		05	Unavailable					04	Ch Map update
07	iPod Message	00	Loading	05	Invalid				
		01	Connect Error	06	Unsubscribed				
		02	Unknown iPod	07	Antenna Error				
		03	iPod connected	08	Acquiring				
		04	Disconnected	09	No error				
		05	Unable to play						
08	NET/USB Message	00	Please wait						
		01	Connected						
		02	Disconnected						
		03	Access error						
		04	List updated						
		05	Startup server						
		06	Unable to play						
		07	Connect error						
		08	Bookmark ON						
		09	Bookmark OFF						
		0A	Not found						

5.2 Playback Status Reports



RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status				
10	Format	00	Analog	14	Bit Rate	00	32kbps				
		01	PCM			01	40kbps				
		02	DSD			02	48kbps				
		03	Digital			03	56kbps				
		04	Dolby Digital			04	64kbps				
		05	DTS			05	72kbps				
		06	AAC			06	80kbps				
		07	DTS-HD			07	96kbps				
		08	DTS-HD MSTR			08	112kbps				
		09	DD Plus			09	128kbps				
		0A	TrueHD			0A	144kbps				
		0B	WMA			0B	160kbps				
		0C	MP3			0C	192kbps				
		FE	???			0D	224kbps				
		FF	---			0E	256kbps				
		11	Sampling			00	Analog	0F	288kbps		
01	8kHz			10	320kbps						
02	11.025kHz			11	384kbps						
03	12kHz			12	448kbps						
04	16kHz			13	512kbps						
05	22.05kHz			14	576kbps						
06	24kHz			15	640kbps						
07	32kHz			16	768kbps						
08	44.1kHz			17	960kbps						
09	48kHz			18	1024kbps						
0A	64kHz			19	1152kbps						
0B	88.2kHz			1A	1280kbps						
0C	96kHz			1B	1344kbps						
0D	128kHz			1C	1408kbps						
0E	176.4kHz			1D	1411.2kbps						
0F	192kHz			1E	1472kbps						
10	2.8MHz (DSD)	1F	1536kbps								
FE	???	20	1920kbps								
FF	---	21	2048kbps								
12	Channel Front/Rear	00	1+1	22	3072kbps						
		01	1/0	23	3840kbps						
		02	2/0	24	Open						
		03	3/0	25	Variable						
		04	2/1	26	Loss less						
		05	3/1	FF	---						
		06	2/2	15	Dialog	00	-31dB				
		07	3/2			01	-30dB				
		08	2/3			...					
		09	3/3			1E	-1dB				
		0A	2/4			1F	+0dB				
		0B	3/4			FF	---				
		0C	MLT			16	Flag	xx			
		0F	---					bit0	DD Karaoke		
		13	Channel LFE					00	0.1	bit1	DD 6.1
								01	0.2	bit2	dts ES Matrix 6.1
FF	---			bit3	dts ES Discrete 6.1						
				bit4	dts 96kHz/24bit						
				bit5	Pre Emphasis						
				bit6	DPL Encoded						
		bit7	Don't Care								

5.3 Operation Reports



RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status
20	Power	00	ALL (Main/Zone2/3) OFF	27	Zone 2 Vol.	00	-oo (Infinite Attenuation)
		01	ALL (Main/Zone2/3) ON			27	-80dB
		02	Main On / Zone2 Off / Zone3 Off			...	
		03	Main Off / Zone2 On / Zone3 On			C7	0dB
		04	Main On / Zone2 On / Zone3 Off			...	
		05	Main On / Zone2 Off / Zone3 On			E8	16.5dB
		06	Main Off / Zone2 On / Zone3 Off				
		07	Main Off / Zone2 Off / Zone3 On				
21	Input	00	PHONO	28	Program	00	Munich
		01	CD			01	Hall B
		02	TUNER			02	Hall C
		03	MD/CD-R			04	Hall D
		04	MD/TAPE			05	Vienna
		05	DVD			06	Live Concert
		06	TV			07	Hall in Amsterdam
		07	CBL/SAT			08	Tokyo
		08	SAT			09	Freiburg
		09	VCR			0A	Royaumont
		0A	DVR			0B	Chamber
		0C	V-AUX			0C	Village Gate
		0D	USB			0D	Village Vanguard
		0E	XM			0E	The Bottom Line
10	MULTI CH	0F	Cellar Club				
11	BD/HD DVD	10	The Roxy Theater				
12	DOCK / BLUETOOTH	11	Warehouse Loft				
13	SIRIUS	12	Arena				
22	Audio Select	x, 0	AUTO	14	Disco	15	Party
		x, 3	COAX / OPT	16	Game	17	7ch Stereo
		x, 4	ANALOG	18	Music Video	19	DJ
		x, 8	HDMI	1C	Recital/Opera	1E	Action Game
	Decoder Mode	0, x	AUTO	1F	Roleplaying Game	1D	Pavilion
		1, x	DTS	20	Mono Movie	21	Sports
		2, x	AAC	24	Spectacle	24	Spectacle
				25	Sci-Fi	25	Sci-Fi
23	Audio Mute	00	Off	28	Adventure	28	Adventure
		01	On	29	Drama	29	Drama
24	Zone2 Input	00	PHONO	2C	Surround Decode	2C	Surround Decode
		01	CD	2D	Standard	2D	Standard
		02	TUNER	30	PLII Movie	30	PLII Movie
		03	MD/CD-R	31	PLII Music	31	PLII Music
		04	MD/TAPE	32	Neo-6 Movie	32	Neo-6 Movie
		05	DVD	33	Neo-6 Music	33	Neo-6 Music
		06	TV	34	2ch Stereo	34	2ch Stereo
		07	CBL/SAT	35	Stereo B / 2ch Direct Stereo	35	Stereo B / 2ch Direct Stereo
		08	DOCK / BLUETOOTH	36	THX Cinema	36	THX Cinema
		09	VCR	37	THX Music	37	THX Music
		0A	DVR	3C	THX Game	3C	THX Game
		0B	SIRIUS	40	Enhancer 2ch Low	40	Enhancer 2ch Low
		0C	V-AUX	41	Enhancer 2ch High	41	Enhancer 2ch High
		0D	USB	42	Enhancer 7ch Low	42	Enhancer 7ch Low
		0E	XM	43	Enhancer 7ch High	43	Enhancer 7ch High
		0F	BD/HD DVD	42	Enhancer 7ch Low	43	Enhancer 7ch High
25	Zone2 Mute	00	Off	80	STRAIGHT		
		01	On				
26	Main Volume	00	-oo (Infinite Attenuation)				
		27	-80dB				
		...					
		C7	0dB				
		...					
		E8	16.5dB				

RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status
29	Tuner Page	00	A	2C	System Sleep	00	120
		01	B			01	90
		02	C			02	60
		03	D			03	30
		04	E			04	Off
2A	Preset No.	00	1	2D	EXTD SUR	00	Off
		01	2			01	EX/ES
		02	3			03	Auto
		03	4			04	EX
		04	5			05	PLIIx Movie
		05	6			06	PLIIx Music
		06	7			07	Neural-THX
		07	8				
2B	Short Message	00	Full	2E	SP Relay A	00	Off
		01	On	01	On		
		02	Off	2F	SP Relay B	00	Off
				01	On		

RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status
30	System Memory	01	Load 1	37	Zone 2 Vol. Memory	01	Load 1
		02	2			02	2
		03	3			03	3
		04	4			04	4
		05	5			05	5
		06	6			06	6
		31	System Memory			01	Save 1
02	2			02	2		
03	3			03	3		
04	4			04	4		
05	5			05	5		
06	6			06	6		
32	Volume Memory	01	Load 1	39	Dual Mono	00	Main
		02	2			01	Sub
		03	3			02	All
		04	4	3A	Trigger1 Control	00	All (Zone1-3)
		05	5			01	Main
		06	6			02	Zone 2
33	Volume Memory	01	Save 1	03	Zone 3		
		02	2	3B	Trigger2 Control	00	All (Zone1-3)
		03	3			01	Main
		04	4			02	Zone2
		05	5	03	Zone3		
		06	6	3C	Trigger2 Output	00	Low (Due to the delay)
		01	High (Due to the delay)				
34	Headphone	00	Off	3D	SP B SET	00	Main
		01	On	01	Zone B		
35	Tuner Band	00	AM	3E	Zone 2 Amp	00	EXT
		01	FM			01	INT: Speaker[1]
36	Trigger1 Output	00	Low (Due to the delay)			02	INT: Speaker[2]
		01	High (Due to the delay)	03	INT: Both		
				3F	Zone 3 Amp	00	EXT
		01	INT: Speaker[1]				
		02	INT: Speaker[2]				
				03	INT: Both		

RCMD0, 1	Report Item	RDATA0, 1	Status	RCMD0, 1	Report Item	RDATA0, 1	Status
40	Level Front R	14	-10dB	47	Level Presence R	14	-10dB
		15	-9.5dB			15	-9.5dB
		...				...	
		3C	+10dB			3C	+10dB
41	Level Front L	14	-10dB	48	Level Presence L	14	-10dB
		15	-9.5dB			15	-9.5dB
		...				...	
		3C	+10dB			3C	+10dB
42	Level Center	14	-10dB	49	Level Subwoofer	14	-10dB
		15	-9.5dB			15	-9.5dB
		...				...	
		3C	+10dB			3C	+10dB
43	Level Surround R	14	-10dB	4B	Zone2 Tone Control Bass	00	-10dB
		15	-9.5dB			01	-9dB
		...				...	
		3C	+10dB			14	+10dB
44	Level Surround L	14	-10dB	4C	Zone2 Tone Control Treble	00	-10dB
		15	-9.5dB			01	-9dB
		...				...	
		3C	+10dB			14	+10dB
45	Level Surround Back R	14	-10dB	4D	Zone3 Tone Control Bass	00	-10dB
		15	-9.5dB			01	-9dB
		...				...	
		3C	+10dB			14	+10dB
46	Level Surround Back L	14	-10dB	4E	Zone3 Tone Control Treble	00	-10dB
		15	-9.5dB			01	-9dB
		...				...	
		3C	+10dB			14	+10dB

RCMD0, 1	Report Item	RDATA0, 1	Status	RCMD0, 1	Report Item	RDATA0, 1	Status		
50	Main L/R Balance	00	Lch Max	5B	Initial Volume	00	Off		
		...				01	-∞ (Infinite Attenuation)		
		14	Mid			27	-80dB		
		...				...			
28	Rch Max	C7	0dB						
...		...							
...		E8	16.5dB						
51	LFE Level SP	00	-20dB			5C	Extended Surround Set	00	Auto
		01	-19dB					01	Off
		...				5D	Adaptive DSP Level	00	Auto
		14	0dB	01	Off				
52	LFE Level HP	00	-20dB	5E	Decoder Mode	0, x	Auto		
		01	-19dB			1, x	DTS		
		...				2, x	AAC		
		14	0dB			x, 0	PHONO		
53	Manual Audio Delay	00	0ms			x, 1	CD		
		01	1ms			x, 2	TUNER		
		...				x, 3	CD-R		
		F0	240ms			x, 4	MD/TAPE		
56	HDMI Auto Audio Delay	00	0ms			x, 5	DVD		
		01	1ms			x, 6	DTV		
		...		x, 7	CBL/SAT				
		F0	240ms	x, 9	VCR1				
57	DSP 3D	00	OFF	x, A	DVR / VCR2				
		01	ON	x, C	V-AUX				
58	Wall Paper	00	YES	x, E	XM				
		0E	Gray						
		0F	NONE						
59	HDMI AUTO Lipsync	00	Auto	5F	Decoder Mode Set	00	Auto		
		01	Off			01	Last		
5A	MAX Volume	00	-30dB						
		01	-25dB						
		02	-20dB						
		...							
		08	10dB						
		09	15dB						
		0A	16.5dB						

RCMD0, 1	Report Item	RDATA0, 1	Status	RCMD0, 1	Report Item	RDATA0, 1	Status
60	Audio Select Set	00 01	Auto Last	68	Memory Guard	00 01	Off On
61	Dimmer	00 01 02 03 04	-4 -3 -2 -1 0	69	Video Conversion	00 01	Off On
62	OSD Shift	00 ... 0A	-5  5	6B	Zone3 Volume Out	00 01	Variable Fixed
	GUI Position	x, 0 ... x, A 0, x ... A, x	Horizontal -5   Vertical -5  5	6C	Zone OSD	00 01 02	Off Zone2 Zone2 & Zone3
63	Gray Back	00 01	Off Auto	6D	Adaptive DRC	00 01	Auto Off
64	Dynamic Range SP	00 01 02	Max. Std. Min.	6E	2ch Decoder	00 01 02 03 04 05 06 07 09 0A	Pro Logic PLIIx Movie PLIIx Music PLIIx Game Neo:6 Cinema Neo:6 Music CSII Cinema CSII Music Neural Sur. Neural Sur. Music
65	Dynamic Range HP	00 01 02	Max. Std. Min.	6F	Multi CH BGV	00 01 05 06 07 09 0A 0C 0F	Off Last DVD DTV/CBL CBL/SAT VCR DVR V-AUX BD/HD DVD
66	Zone2 Volume Out	00 01	Variable Fixed				
67	FL Scroll	00 01	Continue Once				

RCMD0, 1	Report Item	RDATA0, 1	Status	RCMD0, 1	Report Item	RDATA0, 1	Status
70	Center SP	00 01 02	Large Small None	7B	Multi CH Select	00 02 03 04 05 06 07 09 0A 0C 0F	6ch 8ch CD 8ch MD/CD-R 8ch MD/TAPE 8ch DVD 8ch TV 8ch CBL/SAT 8ch VCR 8ch DVR 8ch V-AUX 8ch BD/HD DVD
71	Front	00 01	Large Small	7D	PR/SB Priority	00 01	Presence Surround Back
72	Surround SP	00 01 02	Large Small None	7E	Subwoofer Crossover	00 01 02 03 04 05 06 07 08	40 Hz 60 Hz 80 Hz 90 Hz 100 Hz 110 Hz 120 Hz 160 Hz 200 Hz
73	Surround Back	00 01 02 03 04	Large x2 Large x1 Small x2 Small x1 None				
74	Presence	00 01	Yes None				
75	LFE Bass Out	00 01 02	SWFR Main Both				
76	Subwoofer Phase	0, x 1, x	Normal Reverse				

RCMD0, 1	Report Item	RDATA0, 1	Status	RCMD0, 1	Report Item	RDATA0, 1	Status
80	Test	00 01	Off On	88	HDMI Aspect	00 01 02	Through 16:9 Normal Smart Zoom
85	Component I/P	00 01	Off On	8A	THX SB Dist	00 01 02	Under 1f (0.3m) 1 - 4ft (0.3 - 1.2m) Over 4ft (1.2m)
86	HDMI I/P	00 01	Off On	8C	Pure Direct	00 01	Off On
87	HDMI Up-Scaling	00 01 02 03 04	Through 480p / 576p (NTSC / PAL) (*2) 1080i 720p 1080p	8D	Pure Direct Video	00 01	Audio Audio + Video
				8F	HDMI Support Audio	00 01	AMP AMP + TV

RCMD0, 1	Report Item	RDATA0, 1	Status	RCMD0, 1	Report Item	RDATA0, 1	Status		
90	XM Preset Page	00	A	96	iPod Charge on Standby	00	Off		
		01	B			01	Auto		
		02	C			97	iPod Repeat	00	Off
		03	D					01	One
		04	E					02	All
91	XM Preset Num	00	1	98	iPod Shuffle	00	Off		
		01	2			01	Songs		
		02	3			02	Albums		
		03	4	99	USB Repeat	00	Off		
		04	5			01	Single		
		05	6			02	All		
		06	7			9A	USB Shuffle	00	Off
		07	8					01	On
92	XM Search Mode	00	All CH	9B	NET/USB Source Select	00	PC/MCX		
		01	Category			01	NET Radio		
		02	Preset			02	USB		
93	On Screen	00	Off	9C	USB Preset Recall	00	Parameter Error		
		01	10sec			01	1		
		02	30sec			02	2		
		03	Always			...	...		
08	8								
94	XM CH Number	00	CH #0	9D	USB Preset Memory	00	Parameter Error		
		01	CH #1			01	1		
		...	...			02	2		
		FF	CH #255			...	...		
08	8								
95	XM Display Hold / Release	00	Release			...	...		
		01	Hold			08	8		

RCMD0, 1	Report Item	RDATA0, 1	Status	RCMD0, 1	Report Item	RDATA0, 1	Status
A0	Zone 3 Input	00	PHONO	A5	Mute Type	00	Full
		01	CD			01	-20dB
		02	TUNER	A7	EQ Select Type	00	Auto PEQ
		03	MD/CD-R			01	GEQ
		04	MD/TAPE	02	EQ Off		
		05	DVD	A8	Tone Bypass	00	Auto
		06	TV			01	off
		07	CBL/SAT	A9	Zone2 MAX Volume	00	-30dB
		08	DOCK / BLUETOOTH			01	-25dB
		09	VCR			02	-20dB
		0A	DVR			...	...
		0B	SIRIUS			08	10dB
		0C	V-AUX	09	15dB		
		0D	USB	0A	16.5dB		
		0E	XM	AA	Zone3 MAX Volume	00	-30dB
		0F	BD/HD DVD			01	-25dB
A1	Zone 3 Mute	00	Off	02	-20dB		
		01	On	...	...		
A2	Zone 3 Volume	00	-∞ (Infinite Attenuation)	08	10dB		
		27	-80dB	09	15dB		
		...	...	0A	16.5dB		
		C7	0dB	AB	Zone2 Initial Volume	00	Off
		...	...			01	-∞ (Infinite Attenuation)
E8	16.5dB	27	-80dB				
A3	Zone 3 Volume Memory	01	Load 1	...	...		
		02	2	C7	0dB		
		03	3	...	...		
		04	4	E8	16.5dB		
		05	5	AC	Zone3 Initial Volume	00	Off
		06	6			01	-∞ (Infinite Attenuation)
		A4	Zone 3 Volume Memory			01	Save 1
02	2					...	...
03	3	C7	0dB				
04	4	...	...				
05	5	E8	16.5dB				
06	6						

RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status
AD	Zone2 Balance	00	L20	AE	Zone3 Balance	00	L20
		01	L19			01	L19
		...				...	
		14	Mid			14	Mid
		...				...	
		27	R19			27	R19
		28	R20			28	R20

RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status
B0	Advanced Setup	00	Off	B7	Initialize	00	Cancel
		01	On			01	All
B1	Remote ID	00	ID1			02	DSP Parameter
		01	ID2			03	Video
B2	Fan Control Mode	00	Auto	B8	Video Reset	00	Cancel
		01	Cont			01	Yes
B3	Speaker Impedance	00	8 ohm	B9	Remote Sensor	00	On
		01	6 ohm			01	Off
B4	Tuner Step	00	AM10 / FM100 (kHz)	BA	Remote ID for XM	00	ID1
		01	AM 9 / FM50 (kHz)			01	ID2
B5	Remote ID for Tuner	00	ID1	BB	Bi-AMP	00	On
		01	ID2			01	Off
B6	Language	00	English	BC	TV Format	00	PAL
		01	Japanese			01	NTSC
		02	French	BD	Wake on RS232C	00	No
		03	German			01	Yes
		04	Spanish			BE	SIRIUS PIN
05	Russian	01	Reset				
				BF	Monitor Check	00	Skip
						01	Yes

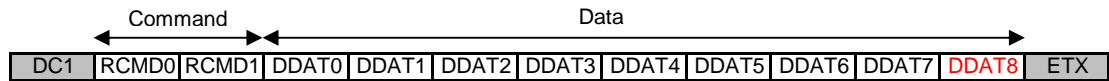
RCMD0, 1	Report Item	RDAT0, 1	Status	RCMD0, 1	Report Item	RDAT0, 1	Status
C0	SIRIUS Preset Page	00	A	C5	MAIN Sleep	00	120
		01	B			01	90
		02	C			02	60
		03	D			03	30
		04	E			04	Off
C1	SIRIUS Preset Num	00	1	C6	ZONE2 Sleep	00	120
		01	2			01	90
		02	3			02	60
		03	4			03	30
		04	5	C7	ZONE3 Sleep	00	120
		05	6			01	90
		06	7			02	60
		07	8			03	30
C2	SIRIUS Search Mode	00	All CH	C8	PEQ Select Type	00	Natural
		01	Category			01	Flat
		02	Preset			02	Front
C3	SIRIUS CH Number	00	CH #0			C9	Bluetooth Control
		01	CH #1	01	Pairing End (User Cancel)		
		...		02	Connect		
FF	CH #255	03	Disconnect				
C4	SIRIUS Display Hold / Release	00	Release	04	Pairing End (OK)		
		01	Hold	05	Pairing End (Timeout)		

**Attention**

- \* When the Input is changed, the RX-V1900 sends an Operation Report for Input (RCMD0,1="21") and Audio Select (RCMD0,1="22").
- \* When the System Memory is changed, the RX-V1900 sends an Operation Report for System Memory (RCMD0,1="30") and Configuration Command.
- \* When a headphone is plugged into the headphone jack and the Speaker Relay is turned off, the RX-V1900 sends an Operation Report for Speaker Relay A and B (RCMD0,1="2E", "2F", RDAT="00(OFF)").  
The RX-V1900 sends an Operation Command for Speaker Relay A and B when the headphone is removed also.
- \* Each time the source from the Inputs or playback status (ex. 6.1/ES, RED DTS etc.) of the system changes, the RX-V1900 sends a Playback Status report.
- \* Each time the busy status of the system changes, the RX-V1900 sends a System Status report.



## 5.4 Display Text Data Report



RCMD0,1	ITEM	DDAT0-1	DDAT2-7	DDAT8
00	Tuner Frequency	SP	6digits <Upper Lower>	SP

(example)

AM 1710kHz = 'SP' 'SP' '1' '7' '1' '0'

FM 108.5MHz = 'SP' 'SP' '1' '0' '8' '5' '0'

RCMD0,1	ITEM	DDAT0	DDAT1-7	DDAT8
01	Main Volume	SP	7digits <Upper Lower>	SP

(example)

-40.0dB = 'SP' '-' '4' '0' '.' '0' '0' 'd' 'B'

RCMD0,1	ITEM	DDAT0	DDAT1-7	DDAT8
02	Zone2 Volume	SP	7digits <Upper Lower>	SP

RCMD0,1	ITEM	DDAT0-8
03	Input name	9letters <Upper Lower>

RCMD0,1	ITEM	DDAT0-8
04	Zone 2 Input name	9letters <Upper Lower>

RCMD0,1	ITEM	DDAT0-2	DDAT3-7	DDAT8
05	Zone3 Volume	SP	5digits <Upper Lower>	SP

RCMD0,1	ITEM	DDAT0-8
06	Zone 3 Input name	9letters <Upper Lower>

RCMD0,1	ITEM	DDAT0-3	DDAT4-7	DDAT8
F0	Remote Code	SP	4digits <Upper Lower>	SP

RCMD0,1	ITEM	DDAT0	DDAT1-3	DDAT4	DDAT5	DDAT6-8
FF	Version Information	MAIN Version	DSP1 Version	RS-232C Version	VIDEO Version	USB Version

FUNCTION	ITEM	DATA (ASCII)	RANGE
RCMD0,1	Command	0-9, A-F	0...0xFF
DDAT	Data	0-9, A-Z	ASCII
0-7		SP, other ASCII	Space, dots

**Example of RX-V1900 Control Procedure**

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

When the AC plug / RS-232C cable are not connected, the RX-V1900 cannot send any data to the host. If the host doesn't receive a configuration command after sending a Ready command 5 times, the host should disable the RS-232C communication and send an alert to the graphic user interface (GUI).

[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 the AC plug/RS-232 cable ( cf. [1] ).

When the RS-232C cable is disconnected, the commands generated inside the RX-V1900 are stored in the sending buffer. If the stored commands exceed the buffer memory size (buffer overflow), the RX-V1900 stops reporting any commands. In this case, reconnecting the AC plug or Connection Start procedure [1] will be needed in order to enable the command report.

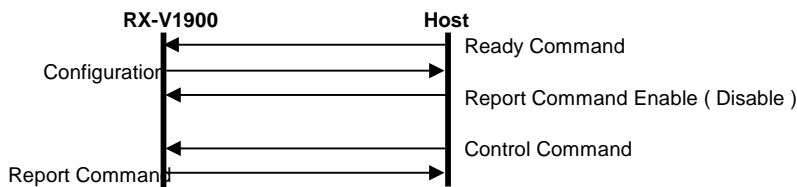
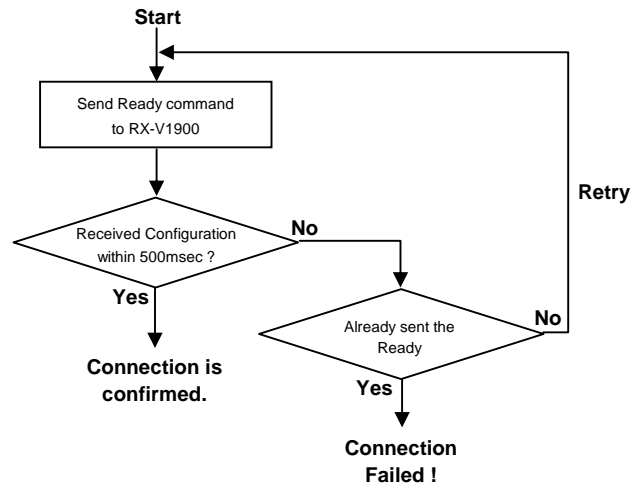
[3] AC plug connection detection ( after [1],[2] )

When the AC connection is reset, the RX-V1900 sends a Configuration Command to the host. The host can display the status of the RX-V1900 to its GUI.

[4] Getting the status of the RX-V1900 when the host boots up

At first, the host should send a Ready command and receive the Configuration Command from the RX-V1900 ( cf. [1] ). Once the connection is confirmed, the host can send Control Commands to the RX-V1900. When the RX-V1900 is turned off, it accepts only System Commands and Power ON command.

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



[5] Error transactions after [4]

While sending a control command, if the RX-V1900 didn't send any corresponding Report Commands regardless of re-trying for 5 times, the host should clear its send buffer and then check the AC plug / RS-232C connection sequence (cf. [1]). When the RX-V1900 responds, the host can display the RX-V1900 status to its GUI then return to the normal communication sequence. If not, the host should cancel the communication and report the alert to its GUI.

## 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

\* Column numbers = the first hexadecimal digit  
 Row numbers = the second hexadecimal digit

\* The characters in the gray cells are available for RS-232C communication.