

**Marantz**

**RS232C Control Specification**

**for**

**SR7300/SR7300SE**

**Category** : *AV Receiver*

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**1. Introduction**

**1-1. Purpose**

This document was written in order to clarify specification for control this product by the host controller.

**1-2. Scope**

This document would be using by software or hardware engineers for production of this product.

This product is [marantz SR7300/SR7300OSE]. (It's referred to as "This product" after this.)

**1-3. Abbreviations**

Abbreviation	Description

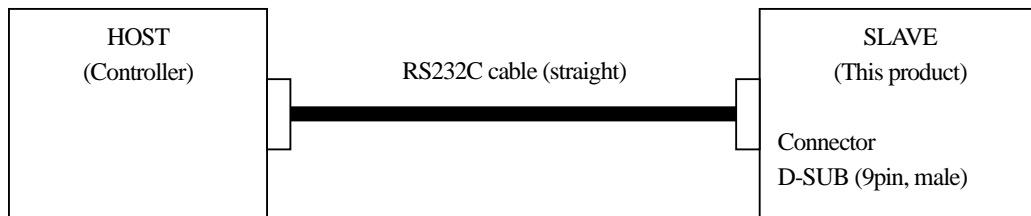
**1-4. References**

**2. Global Description**

**2-1. Overview**

A Host controller can control or watch out this product as a Slave very easily via the communication cable.

**2-2. Block Diagram**



**2-3. Interface connector specification of This Product**

Processor Interface	Signal name	Connection device	D-Sub Pin	Connector
-	N.C.	-	1	RS232C D-SUB (9pin,male)
UART	TxD (output)	RS232C Level shift driver	2	
	RxD (input)		3	
-	N.C.	-	4	
-	GND	-	5	
-	N.C.	-	6	
GENERAL PORT	CTS (input)	RS232C Level shift driver	7	
	RTS (output)		8	
-	N.C.	-	9	

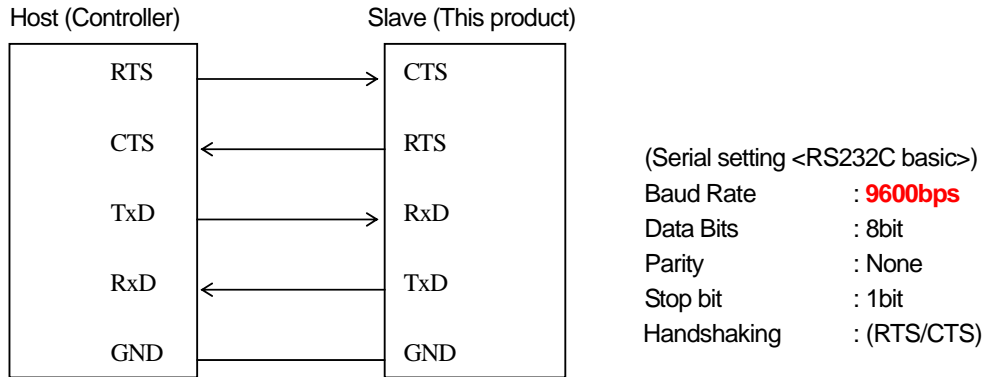
**2-4. Assumptions and Dependencies**

### 3. Detailed Description

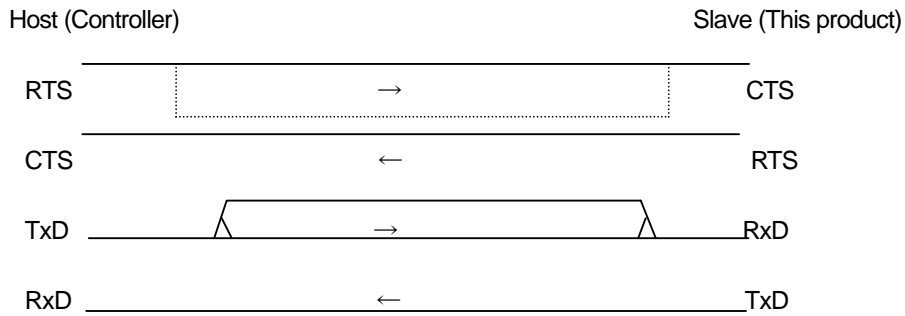
The interface specification between this product and a Host controller is described below.

#### 3-1. Connection format

##### 3-1-1. Physical connection

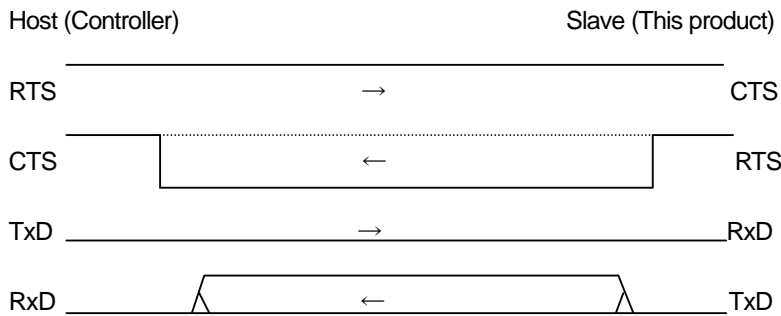


##### 3-1-1-1. Data transmission sequence from Host to Slave



1. The host checks that CTS is High, then starts a data transmission from TxD.
  2. The host performs the data transmission of the number of required bytes, and ends a transmission.
- \* The host can do RTS to Low during the transmission for disable data transmission from a slave.

##### 3-1-1-2. Data transmission sequence from Slave to Host



1. The slave checks that CTS is High, then starts a data transmission from TxD.
  2. The slave performs the data transmission of the number of required bytes, and ends a transmission.
- \* The slave can do RTS to Low during the transmission for disable data transmission from a host.

**3-2. Transmission data format**

**3-2-1. Transmission data format from Host to Slave**

There are two kinds of transmission data form from Host shown below.

**3-2-1-1. Form1: Command**

Command is a data that requests some status change.

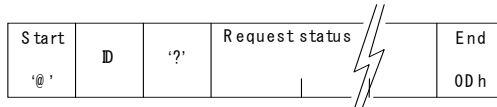
- Start character : '@'
- ID : '0' ~ '9' (A Slave has own ID, A Host has to set the ID.)
- COMMAND : see "Command list"
- End character : 0Dh



**3-2-1-2. Form2: Status request**

Status request is a data that requests a answer of some status.

- Start character : '@'
- ID : '0' ~ '9' (A Slave has own ID, A Host has to set the ID.)
- Request character : '?'
- Request status : see "Status request list"
- End character : 0Dh



**3-2-2. Transmission data format from Slave to Host**

There are two kinds of transmission data form from Slave shown below.

**3-2-2-1. Form1: ACK/NAK**

ACK is a reply data from Slave when Slave got an acceptable command data from Host.

- ACK : 06h



NAK is a reply data from Slave when Slave got an incorrect Command data, Status request data or some other data from Host.

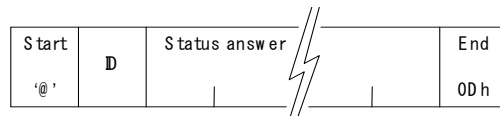
- NAK : 15h



**3-2-2-2. Form2: Status answer**

Status answers are reply data when Slave got an acceptable Request status data from Host.

- Start character : '@'
- ID : '0' ~ '9' (A Slave will set own ID.)
- Answer character : see "Status answer list"
- End character : 0Dh



**3-3. The transaction sequences and the regulations**

**3-3-1. The transaction sequences**

The transactions have two kinds of sequence.

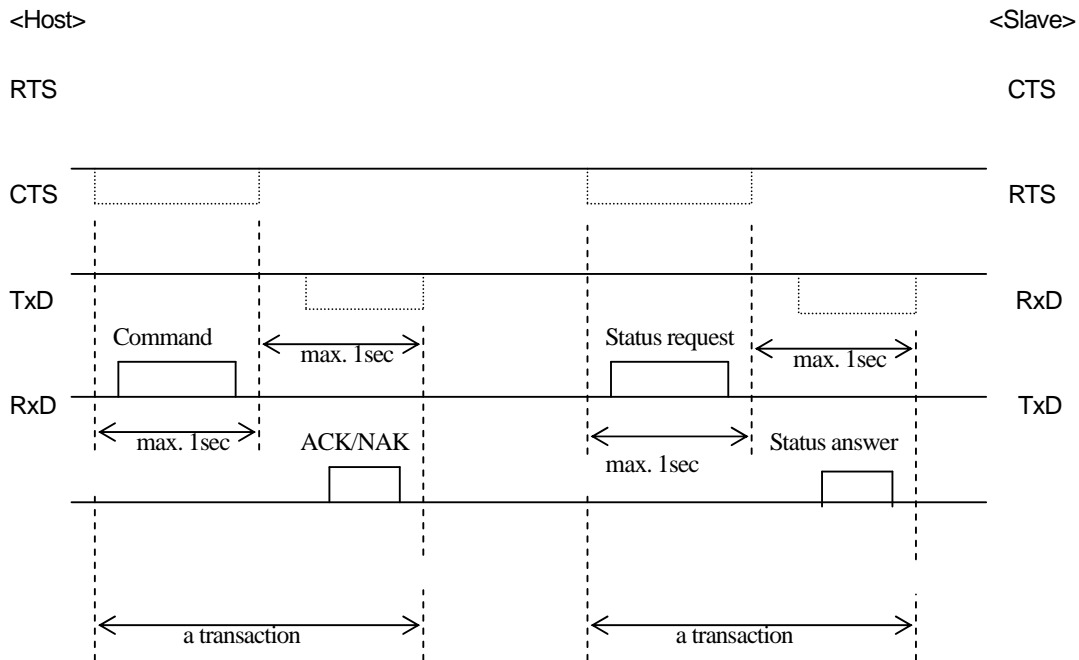
- \* A transaction is a Command from Host then the Slave will be an answer by ACK or NAK.
- \* A transaction is a Status request from Host then the Slave will be an answer by Status answer.

**3-3-2. The transaction regulations**

The transactions have some kinds of regulation.

- \* A Command or a Status request transmission by the Host has to finish within one second.
- \* An answer (ACK, NAK or Status answer) transmission by the Slave has to finish within one second when got a Command or a Status request from the Host.
- \* The Host must not transmit an another Command or Status request until "it receives a answer by a previous Command or Status request" or "it passes one second from a finishing of previous transmission of a Command or a Status request".

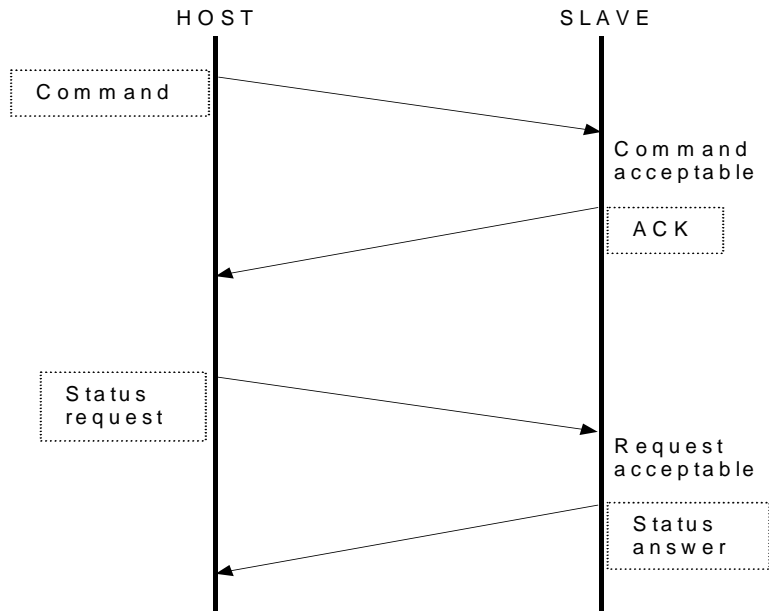
**3-3-3. Example of the transactions**



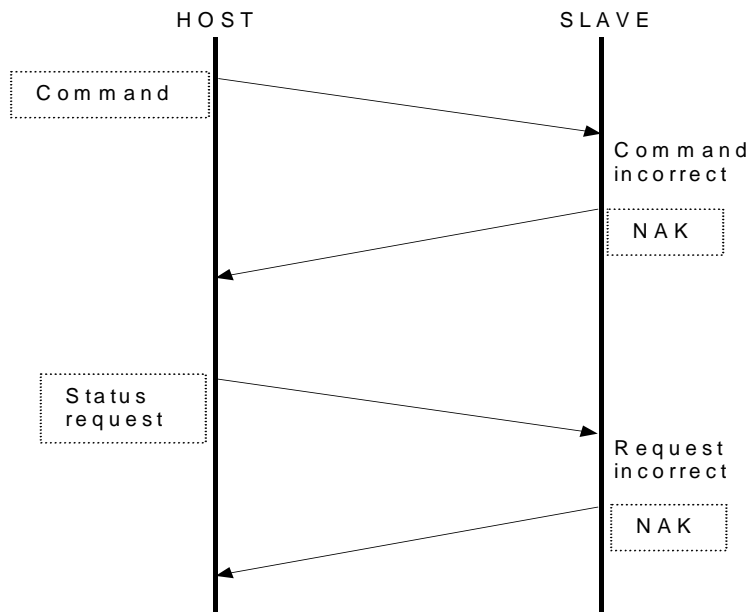
**Example of the transactions**

3-3-4. Examples of the handshaking flowchart

3-3-4-1. Example of successful handshaking



3-3-4-2. Example of error handshaking



3-4. Command list

3-4-1. Normal Command list

(Samples indicated the ID set to as '1'.)

Command		Character	Sample
POWER	POWER	A0	"@1A0",0x0D
	POWER ON	A1	"@1A1",0x0D
	POWER OFF	A2	"@1A2",0x0D
INPUT SELECT	DSS	B0	"@1B0",0x0D
	TV	B1	"@1B1",0x0D
	LD	B2	"@1B2",0x0D
	DVD	B3	"@1B3",0x0D
	VCR1	B4	"@1B4",0x0D
	VCR2/DVD-R	B5	"@1B5",0x0D
	AUX1	B6	"@1B6",0x0D
	AUX2	B7	"@1B7",0x0D
	<del>DVD-R</del>	<del>B8</del>	<del>"@1B8",0x0D</del>
	CD	B9	"@1B9",0x0D
	TAPE	BA	"@1BA",0x0D
	CD-R	BB	"@1BB",0x0D
	FM	BC	"@1BC",0x0D
	AM	BD	"@1BD",0x0D
	MW	BE	"@1BE",0x0D
	LW	BF	"@1BF",0x0D
	TUNER	BG	"@1BG",0x0D
MULTI-CHANNEL	MULTI-CHANNEL INPUT ON	BH	"@1BH",0x0D
	MULTI-CHANNEL INPUT OFF	BI	"@1BI",0x0D
INPUT SIGNAL	A/D	BJ	"@1BJ",0x0D

Multi Room control command as from MULTI ROOM

Command		Character	Sample
INPUT SELECT	DSS	Ba	"@1Ba",0x0D
	TV	Bb	"@1Bb",0x0D
	LD	Bc	"@1Bc",0x0D
	DVD	Bd	"@1Bd",0x0D
	VCR1	Be	"@1Be",0x0D
	VCR2/DVD-R	Bf	"@1Bf",0x0D
	AUX1	Bg	"@1Bg",0x0D
	AUX2	Bh	"@1Bh",0x0D
	<del>DVD-R</del>	<del>Bi</del>	<del>"@1Bi",0x0D</del>
	CD	Bj	"@1Bj",0x0D
	TAPE	Bk	"@1Bk",0x0D
	CD-R	Bl	"@1Bl",0x0D
	FM	Bm	"@1Bm",0x0D
	AM	Bn	"@1Bn",0x0D
	MW	Bo	"@1Bo",0x0D
	LW	Bp	"@1Bp",0x0D
	TUNER	Bq	"@1Bq",0x0D
INPUT SIGNAL	A/D	Br	"@1Br",0x0D



Command		Character	Sample
TUNNER FREQUENCY	AUTO-TUNE	C0	"@1C0",0x0D
	FREQ. UP	C1	"@1C1",0x0D
	FREQ. DOWN	C2	"@1C2",0x0D
TUNNER PRESET	PRESET INFO.	C3	"@1C3",0x0D
	P-SCAN	C4	"@1C4",0x0D
	PRESET UP	C5	"@1C5",0x0D
	PRESET DOWN	C6	"@1C6",0x0D
F-DIRECT	F-DIRECT	C7	"@1C7",0x0D
TUNER MODE	T-MODE	C8	"@1C8",0x0D
AUTO FREQ. TUNING	AUTO UP START/STOP	C9	"@1CA",0x0D
	AUTO DOWN START/STOP	CA	"@1CB",0x0D
MEMO/CLR	CLR	D0	"@1D0",0x0D
	MEMO	D1	"@1D1",0x0D
DIRECT KEY	DIRECT KEY 0	E0	"@1E0",0x0D
	DIRECT KEY 1	E1	"@1E1",0x0D
	DIRECT KEY 2	E2	"@1E2",0x0D
	DIRECT KEY 3	E3	"@1E3",0x0D
	DIRECT KEY 4	E4	"@1E4",0x0D
	DIRECT KEY 5	E5	"@1E5",0x0D
	DIRECT KEY 6	E6	"@1E6",0x0D
	DIRECT KEY 7	E7	"@1E7",0x0D
	DIRECT KEY 8	E8	"@1E8",0x0D
	DIRECT KEY 9	E9	"@1E9",0x0D

Multi Room control command as from MULTI ROOM

Command		Character	Sample
TUNNER FREQUENCY	FREQ. UP	Ca	"@1Ca",0x0D
	FREQ. DOWN	Cb	"@1Cb",0x0D
TUNNER PRESET	PRESET INFO.	Cc	"@1Cc",0x0D
	P-SCAN	Cd	"@1Cd",0x0D
	PRESET UP	Ce	"@1Ce",0x0D
	PRESET DOWN	Cf	"@1Cf",0x0D
TUNER MODE	T-MODE	Cg	"@1Cg",0x0D
AUTO FREQ. TUNING	AUTO UP START/STOP	Ch	"@1Ch",0x0D
	AUTO DOWN START/STOP	Ci	"@1Ci",0x0D
DIRECT KEY	DIRECT KEY 0	Ea	"@1Ea",0x0D
	DIRECT KEY 1	Eb	"@1Eb",0x0D
	DIRECT KEY 2	Ec	"@1Ec",0x0D
	DIRECT KEY 3	Ed	"@1Ed",0x0D
	DIRECT KEY 4	Ee	"@1Ee",0x0D
	DIRECT KEY 5	Ef	"@1Ef",0x0D
	DIRECT KEY 6	Eg	"@1Eg",0x0D
	DIRECT KEY 7	Eh	"@1Eh",0x0D
	DIRECT KEY 8	Ei	"@1Ei",0x0D
	DIRECT KEY 9	Ej	"@1Ej",0x0D

Command		Character	Sample
SURROUND MODE	AUTO	F0	"@1F0",0x0D
	THX MUSIC	F1	"@1F1",0x0D
	THX SURR EX	F2	"@1F2",0x0D
	THX CINEMA	F3	"@1F3",0x0D
	DTS	F4	"@1F4",0x0D
	DTS ES	F5	"@1F5",0x0D
	DOLBY	F6	"@1F6",0x0D
	DOLBY PROLOGIC	F7	"@1F7",0x0D
	DOLBY PL II MOVIE	F8	"@1F8",0x0D
	DOLBY PL II MUSIC	F9	"@1F9",0x0D
	VIRTUAL	FA	"@1FA",0x0D
	S DIRECT	FB	"@1FB",0x0D
	MOVIE	FC	"@1FC",0x0D
	HALL	FD	"@1FD",0x0D
	MATRIX	FE	"@1FE",0x0D
	Mch-STEREO	FF	"@1FF",0x0D
	STEREO	FG	"@1FG",0x0D
	NEO6 CINEMA	FI	"@1FI",0x0D
	NEO6 MUSIC	FJ	"@1FJ",0x0D
	THX ULTRA2	FK	"@1FK",0x0D
	CS II MUSIC	FL	"@1FL",0x0D
CS II CINEMA	FM	"@1FM",0x0D	
SURR MODE	FN	"@1FN",0x0D	
CS II MONO	FO	"@1FO",0x0D	
<del>SURR. MODE NEXT</del>	<del>FX</del>	<del>"@1FX",0x0D</del>	
<del>SURR. MODE PREV.</del>	<del>FY</del>	<del>"@1FY",0x0D</del>	
VOLUME	VOLUME UP	G0	"@1G0",0x0D
	VOLUME DOWN	G1	"@1G1",0x0D
	<del>VOLUME UP FAST</del>	<del>G2</del>	<del>"@1G2",0x0D</del>
	<del>VOLUME DOWN FAST</del>	<del>G3</del>	<del>"@1G3",0x0D</del>
TONE	BASS UP	G4	"@1G4",0x0D
	BASS DOWN	G5	"@1G5",0x0D
	TREBLE UP	G6	"@1G6",0x0D
	TREBLE DOWN	G7	"@1G7",0x0D
SLEEP MODE	SLEEP	H0	"@1H0",0x0D
MUTE	MUTE OFF	H1	"@1H1",0x0D
	MUTE ON	H2	"@1H2",0x0D
VIDEO MUTE	VIDEO MUTE	H3	"@1H3",0x0D
ATT	ATT	H4	"@1H4",0x0D
TEST TONE	TEST TONE	I0	"@1I0",0x0D
<b>SPEAKER A ON</b>	<b>SPEAKER A ON</b>	<b>I1</b>	<b>"@1I1",0x0D</b>
<b>SPEAKER A OFF</b>	<b>SPEAKER A OFF</b>	<b>I2</b>	<b>"@1I2",0x0D</b>
<b>SPEAKER B ON</b>	<b>SPEAKER B ON</b>	<b>I3</b>	<b>"@1I3",0x0D</b>
<b>SPEAKER BOFF</b>	<b>SPEAKER BOFF</b>	<b>I4</b>	<b>"@1I4",0x0D</b>
<del>SPEAKER A</del>	<del>SPEAKER A ON/OFF</del>	<del>I5</del>	<del>"@1I5",0x0D</del>
<del>SPEAKER B</del>	<del>SPEAKER B ON/OFF</del>	<del>I6</del>	<del>"@1I6",0x0D</del>
NIGHT	NIGHT	J0	"@1J0",0x0D

Command		Character	Sample
DISP	DISP	J1	"@1J1",0x0D
OSD	OSD	J2	"@1J2",0x0D
MENU	MENU (OK)	J3	"@1J3",0x0D
	MENU OFF	J4	"@1J4",0x0D
CURSOL	CURSOL UP	J5	"@1J5",0x0D
	CURSOL DOWN	J6	"@1J6",0x0D
	CURSOL LEFT	J7	"@1J7",0x0D
	CURSOL RIGHT	J8	"@1J8",0x0D
RDS	RDS DISP MODE	J9	"@1J9",0x0D
	RDS PTY	JA	"@1JA",0x0D
VOLUME RESET	VOL. RESET	JB	"@1JB",0x0D
RE-EQ	RE-EQ	JC	"@1JC",0x0D
CHANNEL SELECT	CH. SEL.	JD	"@1JD",0x0D
CHANNEL LEVEL	CH. LEVEL UP	JE	"@1JE",0x0D
	CH. LEVEL DOWN	JF	"@1JF",0x0D
SELECT	SELECT	JG	"@1JG",0x0D
ENTER	ENTER	JH	"@1JH",0x0D
UP/DOWN	UP>>	JI	"@1JI",0x0D
	DOWN<<	JK	"@1JK",0x0D
FACTORY MODE	into FACTORY MODE	K1	"@1K1",0x0D
SERVICE MODE	into SERVICE MODE	K2	"@1K2",0x0D

Multi Room control command as from MAIN ROOM

Command		Character	Sample
MULTI ROOM	MULTI ROOM ON/OFF	<b>LA</b>	"@1LA",0x0D
	MULTI ROOM ON	<b>LB</b>	"@1LB",0x0D
	MULTI ROOM OFF	<b>LC</b>	"@1LC",0x0D
MULTI ROOM MUTE	MULTI ROOM MUTE ON/OFF	<b>LD</b>	"@1LD",0x0D
	<del>MULTI ROOM MUTE ON</del>	<del>LE</del>	<del>"@1LE",0x0D</del>
	<del>MULTI ROOM MUTE OFF</del>	<del>LF</del>	<del>"@1LF",0x0D</del>
MULTI ROOM OSD	MULTI ROOM OSD ON/OFF	<b>LG</b>	"@1LG",0x0D
	<del>MULTI ROOM OSD ON</del>	<del>LH</del>	<del>"@1LH",0x0D</del>
	<del>MULTI ROOM OSD OFF</del>	<del>LI</del>	<del>"@1LI",0x0D</del>
MULTI ROOM VOLUME	MULTI VOL. UP	<b>LJ</b>	"@1LJ",0x0D
	MULTI VOL. DOWN	<b>LK</b>	"@1LK",0x0D
	<del>MULTI VOL. UP FAST</del>	<del>LL</del>	<del>"@1LL",0x0D</del>
	<del>MULTI VOL. DOWN FAST</del>	<del>LM</del>	<del>"@1LM",0x0D</del>
	<del>MULTI VOL. VALUE</del>	<del>LN</del>	<del>"@1LN+05",0x0D</del>
MULTI SLEEP MODE	MULTI ROOM SLEEP MODE	<b>LO</b>	"@1LO",0x0D
<del>MULTI SPEAKER</del>	<del>MULTI ROOM SPK ON/OFF</del>	<del>LP</del>	<del>"@1LP",0x0D</del>
	<del>MULTI ROOM SPEAKER ON</del>	<del>LQ</del>	<del>"@1LQ",0x0D</del>
	<del>MULTI ROOM SPEAKER OFF</del>	<del>LR</del>	<del>"@1LR",0x0D</del>

Multi Room control command as from MULTI ROOM

Command	Character	Sample
MULTI ROOM	MULTI ROOM ON/OFF	"@1La",0x0D
	MULTI ROOM ON	"@1Lb",0x0D
	MULTI ROOM OFF	"@1Lc",0x0D
MULTI ROOM MUTE	MULTI ROOM MUTE ON/OFF	"@1Ld",0x0D
	<del>MULTI ROOM MUTE ON</del>	<del>"@1Le",0x0D</del>
	<del>MULTI ROOM MUTE OFF</del>	<del>"@1Lf",0x0D</del>
MULTI ROOM OSD	MULTI ROOM OSD ON/OFF	"@1Lg",0x0D
	<del>MULTI ROOM OSD ON</del>	<del>"@1Lh",0x0D</del>
	<del>MULTI ROOM OSD OFF</del>	<del>"@1Lii",0x0D</del>
MULTI ROOM VOLUME	MULTI VOL. UP	"@1Lj",0x0D
	MULTI VOL. DOWN	"@1Lk",0x0D
	<del>MULTI VOL. UP FAST</del>	<del>"@1Li",0x0D</del>
	<del>MULTI VOL. DOWN FAST</del>	<del>"@1Lm",0x0D</del>
	<del>MULTI VOL. VALUE</del>	<del>"@1Ln+05",0x0D</del>
MULTI SLEEP MODE	MULTI ROOM SLEEP MODE	"@1Lo",0x0D
<del>MULTI SPEAKER</del>	<del>MULTI ROOM SPK ON/OFF</del>	<del>"@1Lp",0x0D</del>
	<del>MULTI ROOM SPEAKER ON</del>	<del>"@1Lq",0x0D</del>
	<del>MULTI ROOM SPEAKER OFF</del>	<del>"@1Lr",0x0D</del>

3-5. Status request and Status answer list

3-5-1. Normal Status request and Status answer list

(Samples indicated the ID set to as '1'.)

Request Status	Char. & Sample	Status answer	Char. & Sample
POWER Status	'A' ("@1?A",0x0D)	POWER ON	A0 ("@1A0",0x0D)
		POWER OFF	A1
VIDEO INPUT	'B' ("@1?B",0x0D)	DSS	B0
		TV	B1
		LD	B2
		DVD	B3
		VCR-1	B4
		VCR-2	B5
		AUX1	B6
		<del>AUX2</del>	<del>B7</del>
		<del>DVD-R</del>	<del>B8</del>
		AUDIO INPUT	'C' ("@1?C",0x0D)
TV	C1		
LD	C2		
DVD	C3		
VCR-1	C4		
VCR-2/DVD-R	C5		
AUX1	C6		
AUX2	C7		
<del>DVD-R</del>	<del>C8</del>		
CD	C9		
TAPE	CA		
CD-R	CB		
FM (TUNER)	CC		
AM	CD		
MW	CE		
LW	CF		
MULTI-CHANNEL INPUT	CG		
<del>TUNER</del>	<del>CH</del>		
INPUT MODE	'D' ("@1?D",0x0D)	DIGIAL	D0
		ANALOGUE	D1
TUNER FFREQUENCY	'E' ("@1?E",0x0D) FM:076.0-108.0 AM,MW:520-1710 LW:152-282	TUNER FREQUENCY E0xxx:(Not tuned+Freq.) E1xxx:(Tuned+Freq.)	(FM: 87.55 = "8755") (FM:108.00 = "0800") (MW: 520="0520") (LW:282="0282")
		<b>Frequency Scanning</b>	<b>E2 ("@1E2",0x0D)</b>
		Not available	E- ("@1E-",0x0D)
TUNER PRESET	'F' ("@1?F",0x0D)	Preset No (XX=01~50)	F0XX
		Not Preset mode (XX=00)	F-
		Not available	F- ("@1F-",0x0D)
TUNER MODE	'G' ("@1?G",0x0D)	AUTO STEREO	G1
		MONO	G0
		Not available	G-
VOLUME Status	'H' ("@1?H",0x0D)	VOL.= XXXdB (XXX = -90~+99)	H0XXX ("@1H0-15",0x0D)
		max	H1
		min (-∞)	H2
BASS Status	'I' ("@1?I",0x0D)	BASS:xxdB(xx=-9~+9)	I0xx
TREBLE Status	'J' ("@1?J",0x0D)	TREBLE:xxdB(xx=-9~+9)	J0xx
ATT Status	'K' ("@1?K",0x0D)	ATT ON	K1
		ATT OFF	K0

Request Status	Char. & Sample	Status answer	Char. & Sample
SURROUND MODE	'L' ("@1?L",0x0D)	AUTO	L0 ("@1L0",0x0D)
		THX 5.1	L1
		THX SURR EX	L2
		THX CINEMA	L3
		THX MUSIC	L4
		DTS MUSIC	L5
		DTS CINEMA	L6
		DTS ES	L7
		NEO 6 CINEMA	L8
		NEO 6 MUSIC	L9
		D DIGITAL	LA
		DD PROLOGIC	LB
		DD PL II MOVIE	LC
		DD PL II MUSIC	LD
		CS II CINEMA	LE
		CS II MUSIC	LF
		VIRTUAL	LG
		S DIRECT	LH
		MOVIE	LI
		HALL	LJ
MATRIX	LK		
Mch-STEREO	LL		
STEREO	LM		
MONO	LN		
THX ULTRA2	LO		
CS II MONO	LP		
SLEEP TIMER Status	'M' ("@1?M",0x0D)	SLEEP OFF	M0
		SLEEP XXX(001~120)	M1XXX
DISPLAY Status	'N' ("@1?N",0x0D)	DISPLAY ON	N0
		DISPLAY OFF	N1
		<del>AUTO DISPLAY OFF</del>	<del>N2</del>
		<del>DISPLAY DIMMER</del>	<del>N3~N9 (dimmer level)</del>
OSD Status	'O' ("@1?O",0x0D)	OSD ON	O0
		OSD OFF	O1
TEST TONE Status	'P' ("@1?P",0x0D)	TEST TONE OFF	P0
		TEST TONE L	P1
		TEST TONE C	P2
		TEST TONE R	P3
		TEST TONE SR	P4
		TEST TONE SBR	P5
		TEST TONE SBL	P6
		TEST TONE SL	P7
TEST TONE MODE	'Q' ("@1?Q",0x0D)	TEST TONE SW	P8
		TEST TONE AUTO	Q0
NIGHT MODE	'R' ("@1?R",0x0D)	TEST TONE MANUAL	Q1
		NIGHT MODE ON	R0
MENU	'S' ("@1?S",0x0D)	NIGHT MODE OFF	R1
		MENU ON	S0
		MENU OFF	S1

Request Status	Char. & Sample	Status answer	Char. & Sample																																																
F-DIRECT	'T' ("@1?T",0x0D)	F-DIRECT ON	T1 ("@1T1",0x0D)																																																
		F-DIRECT OFF	T0																																																
		Not available	T-																																																
SIGNAL FORMAT	'U' ("@1?U",0x0D)	D DIGITAL(AC-3)	U0																																																
		DD SURROUND	U1																																																
		DD SURR EX	U2																																																
		DTS	U3																																																
		DTS ES	U4																																																
		AAC	U5																																																
		MPEG	U6																																																
		MLP	U7																																																
		PCM	U8																																																
		HDCD	U9																																																
		DSD	UA																																																
		OTHER	UB																																																
		NONE_DETECTION	UC																																																
		<b>DTS ES DISCRATE</b>	<b>UE</b>																																																
<b>DTS ES MATRIX</b>	<b>UF</b>																																																		
SAMPLING FREQ.	'V' ("@1?V",0x0D)	32K	V0																																																
		44.1K	V1																																																
		48K	V2																																																
		88.2K	V3																																																
		96K	V4																																																
		176.4K	V5																																																
		192K	V6																																																
		OUT OF RANGE	V7																																																
		Not available	V-																																																
CHANNEL STATUS	'W' ("@1?W",0x0D)	See below	W1\$%																																																
		Not available	W-																																																
<p>* Description of CHANNEL STATUS answer character. (about : \$%)                      (Character \$ and % would be '0' to '9' or 'A' to 'F',it uses to as hex. bit data.)</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td colspan="4" style="width: 20%;">\$ bit</td> <td colspan="4" style="width: 20%;">% bit</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> </tr> <tr> <td>Bit</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>LFE</td> <td>SL</td> <td>SR</td> <td>S</td> <td>L</td> <td>R</td> <td>C</td> <td>L</td> <td>C</td> <td>R</td> <td></td> <td></td> <td></td> </tr> </table> <p>When a bit of channel status is effective, it sets to 1.                      And when it is opposite condition, it sets to 0.</p> <p>ex.)</p> <ul style="list-style-type: none"> <li>* If front L and R channel status are only effective, it will send "@1W146",0Dh.</li> <li>* If front and surr. L/R channel status are effective, it will send "@1W1B6",0Dh.</li> <li>* If all channel status are effective, it will send "@1W1FF",0Dh.</li> <li>* If all channel status are not effective, it will send "@1W180",0Dh.</li> </ul> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center; margin-top: 10px;"> <tr> <td style="width: 25%;">SL</td> <td style="width: 25%;">S</td> <td style="width: 25%;">SR</td> <td style="width: 25%;"></td> </tr> </table>						\$ bit				% bit								Bit	3	2	1	0	3	2	1	0								1	LFE	SL	SR	S	L	R	C	L	C	R				SL	S	SR	
		\$ bit				% bit																																													
Bit	3	2	1	0	3	2	1	0																																											
	1	LFE	SL	SR	S	L	R	C	L	C	R																																								
SL	S	SR																																																	

Request Status	Char. & Sample	Status answer	Char. & Sample
MULTIROOM Status	'X' ("@1X?",0x0D)	MULTI ROOM ON	X0 ("@1X0",0x0D)
		MULTI ROOM OFF	X1
		Not available	X-
VIDEO INPUT (Multi Room)	'Y' ("@1?Y",0x0D)	DSS	Y0
		TV	Y1
		LD	Y2
		DVD	Y3
		VCR1	Y4
		VCR2/DVD-R	Y5
		AUX1	Y6
		<del>AUX2</del>	<del>Y7</del>
		<del>DVD-R</del>	<del>Y8</del>
		Not available	Y-
AUDIO INPUT (Multi Room)	'Z' ("@1?Z",0x0D)	DSS	Z0
		TV	Z1
		LD	Z2
		DVD	Z3
		VCR1	Z4
		VCR2 / (DVD-R)	Z5
		AUX1	Z6
		AUX2	Z7
		<del>DVD-R</del>	<del>Z8</del>
		CD	Z9
		TAPE	ZA
		CD-R	ZB
		<del>MD</del>	<del>ZC</del>
		FM	ZD
		AM	ZE
		MW	ZF
		LW	ZG
		TUNER	ZH
Not available	Z-		
TUNER FREQUENCY (Multi Room)	'a' ("@1?a",0x0D)	TUNER FREQUENCY XXXX=076.00-108.00(FM) =520-1710(AM,MW) = 152-282(LW)	a0XXXX (FM:87.50 = "8750") (FM:108.00="0800") (MW: 520="0520") (MW:1710="1710")
		Not available	a- ("@1a-",0x0D)
TUNER PRESET (Multi Room)	'b' ("@1?b",0x0D)	Preset No. (XX=01~50) Not Preset mode (XX=00)	b0XX
		Not available	b- ("@1b-",0x0D)
VOLUME Status (Multi Room)	'c' ("@1?c",0x0D)	VOL .XXX(-90~+99)	c0XXX
		MAX.	c1
		MIN.(-∞)	c2
VOLUME SET Status (Multi Room)	'd' ("@1?d",0x0D)	VARIABLE	d0
		FIXED	d1
SLEEP TIMER Status (Multi Room)	'e' ("@1?e",0x0D)	SLEEP OFF	e0
		SLEEP XXX(1~120)	e1XXX
OSD Status (Multi Room)	'f' ("@1?f",0x0D)	MULTI OSD ON	f0
		MULTI OSD OFF	f1
SPEAKER Status (Multi Room)	'g' ("@1?g",0x0D)	MULTI SPEAKER ON	g0
		MULTI SPEAKER OFF	g1
MUTE Status (Multi Room)	'h' ("@1?h",0x0D)	MUTE ON (MR)	h0
		MUTE OFF (MR)	h1



Request Status	Char. & Sample	Status answer	Char. & Sample
CHANNEL LEVEL [ XX: (0="10") (+01="11"~+10="20") (-01="09"~ -10="00") (-11="55" ~ -15="51") ]	"i0" ("@1?i0", 0x0D)	LEFT LEVEL	i0XX ("@1i010"0x0D)
	"i1" ("@1?i1", 0x0D)	RIGHT LEVEL	i1XX
	"i2" ("@1?i2", 0x0D)	CENTER LEVEL	i2XX
	"i3" ("@1?i3", 0x0D)	SUBWF LEVEL	i3XX
	"i4" ("@1?i4", 0x0D)	SURR L LEVEL	i4XX
	"i5" ("@1?i5", 0x0D)	SURR R LEVEL	i5XX
	"i6" ("@1?i6", 0x0D)	BACK L (or 1ch) LEVEL	i6XX
	"i7" ("@1?i7", 0x0D)	BACK R LEVEL	i7XX
SPEAKER DISTANCE [ XX: (00~30) (1 foot = "01") (10 feet="10") ]	"j0" ("@1?j0", 0x0D)	LEFT DISTANCE	j0XX
	"j1" ("@1?j1", 0x0D)	RIGHT DISTANCE	j1XX
	"j2" ("@1?j2", 0x0D)	CENTER DISTANCE	j2XX
	"j3" ("@1?j3", 0x0D)	SUBWF DISTANCE	j3XX
	"j4" ("@1?j4", 0x0D)	SURR. L DISTANCE	j4XX
	"j5" ("@1?j5", 0x0D)	SURR. R DISTANCE	j5XX
	"j6" ("@1?j6", 0x0D)	BACK L DISTANCE	j6XX
	"j7" ("@1?j7", 0x0D)	BACK R DISTANCE	j7XX
SPEAKER SIZE	"k0" ("@1?k0", 0x0D)	FRONT LAGE	k00
		FRONT SMALL	k01
	"k1" ("@1?k1", 0x0D)	CENTER LAGE	k10
		CENTER SMALL	k11
		CENTER OFF	k12
	"k2" ("@1?k2", 0x0D)	SUBWF ON	k20
		SUBWF OFF	k22
	"k3" ("@1?k3", 0x0D)	SURR. LAGE	k30
		SURR. SMALL	k31
		SURR. OFF	k32
	"k4" ("@1?k4", 0x0D)	BACK LAGE	k40
		BACK SMALL	k41
BACK OFF		k42	
SPEAKER BACK	"l" ("@1?l", 0x0D)	BACK 1ch	l0
		BACK 2ch	l1
		BACK NONE	l2
SPEAKER A	'o' ("@1?o", 0x0D)	SPEAKER A OFF	o0
		SPEAKER A ON	o1
SPEAKER B	'p' ("@1?p", 0x0D)	SPEAKER B OFF	p0
		SPEAKER B ON	p1
BILINGUAL	'q' ("@1?q", 0x0D)	MAIN+SUB	q0
		MAIN	q1
		SUB	q2
AUDIO MUTE	'r' ("@1?r", 0x0D)	AUDIO MUTE OFF	r0
		AUDIO MUTE ON	r1
VIDEO MUTE	's' ("@1?s", 0x0D)	VIDEO MUTE OFF	s0
		VIDEO MUTE ON	s1

3-5-2. Special Status request and Status answer list

Request Status	Char. & Sample	Status answer	Char. & Sample
SERIAL NUMBER	'n' ("@1?n", 0x0D)	SERIAL NUMBER	"n0XXXXXXXXX" ("@1n0123456789",0x0D)
ERROR DETECT	'm' ("@1?m", 0x0D)	see blow	m0#\$\$%& ("@1m0#\$\$%&",0x0D)
		No error	m- ("@1m-",0x0D)
Descriptions of ERROR DETECT status answer character. (about : #\$\$%& (Character #, \$, % and & would be '0' to '9' or 'A' to 'F', it uses to as hex. bit data.)			
* # :	Bit ErrorName	ERROR	SAFE
	3 Reserved	1	1
	2 Reserved	0	0
	1 Reserved	0	0
	0 Reserved	0	0
* \$ :	Bit ErrorName	ERROR	SAFE
	3 Reserved	0	0
	2 Reserved	0	0
	1 PROTECT	1	0
	0 DSP1 ERROR	1	0
* % :	Bit ErrorName	ERROR	SAFE
	3 Reserved	1	1
	2 DSP2 ERROR	1	0
	1 ADC ERROR	1	0
	0 EEPROM ERROR	1	0
* & :	Bit ErrorName	ERROR	SAFE
	3 EEPROM IF ERROR	1	0
	2 DSP CODE ERROR	1	0
	1 RS232C ERROR	1	0
	0 POWER 5V ERROR	1	0
ex.)			
* If the POWER 5V ERROR only occurs that will send ["@1m08081",0x0D].			
* If the RS232C ERROR only occurs that will send ["@1m08082",0x0D].			
* If the ADC ERROR only occurs that will send ["@1m080A0",0x0D].			
* If the DSP1 ERROR only occurs that will send ["@1m09080",0x0D].			

#### 4. Revision history

Rev.	Date	Owner	Change description
2.0	'03-01-31	N.Sakamoto	Renewal issued
2.1	'03-02-06	N.Sakamoto	<ul style="list-style-type: none"><li>- Auto Freq. up/down command were changed to Auto Freq. up/down Start/Stop に変更.</li><li>- Added status answers "Not tuned", "Tuned, Scanning" for the statu request for the tuner frequency section. (Not tuned :E0xxxx, Tuned:E1xxxx, Scanning:E2)</li><li>- Added the commands for "OSD ON/OFF".</li><li>- Added the commands for Speaker A,B.</li><li>- modified SpeakerA ON (H1), OFF (H2), Speaker B ON (H3), OFF (H4) commands to I1, I2, I3, I4.</li></ul>