## Marantz

# **RS232C Control Specification**

for

SR7400/8400

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 SR6400/SR5400]. (It's referred to as "This product" after this.)

#### 1-3. Abbreviations

Abbreviation	Description

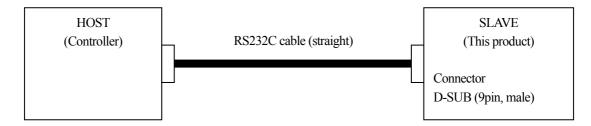
#### 1-4. References

#### 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 connecter specification of This Product

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

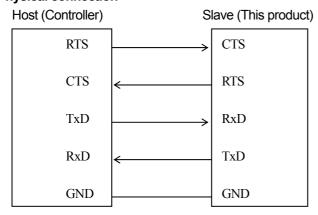
#### 2-4. Assumptions and Dependencies

#### 3. Detailed Description

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

#### 3-1. Connection format

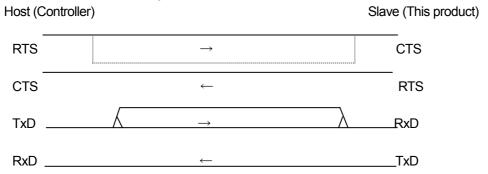
#### 3-1-1. Physical connection



(Serial setting <RS232C basic>)
Baud Rate : 9600bps
Data Bits : 8bit
Parity : None
Stop bit : 1bit

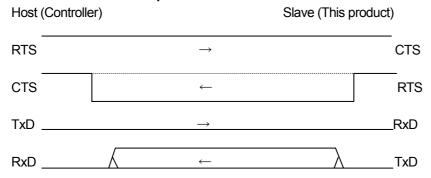
Handshaking : (RTS/CTS)

#### 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

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

NAK 15h

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

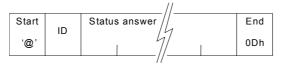
Status answers are reply data when Slave got an acceptable Request status data from Host.

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.

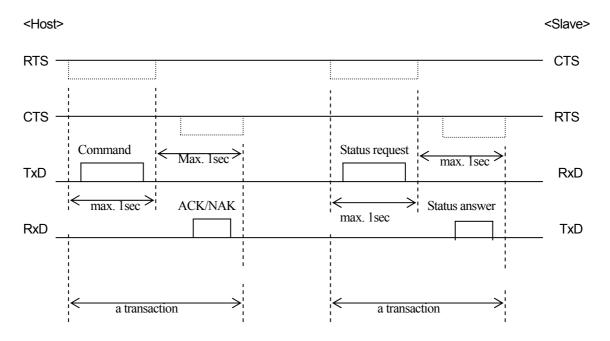
- \*A transaction is a Command from Host then the Slave will be an answer by ACK or NAK.
- \*A transaction is a Status request from Host then the Slave will be an answer by Status answer.

#### 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) transmittion 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".

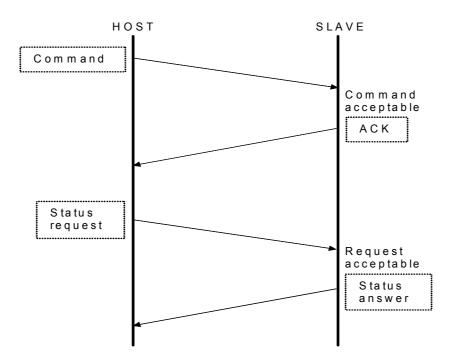
#### 3-3-3. Example of the transactions



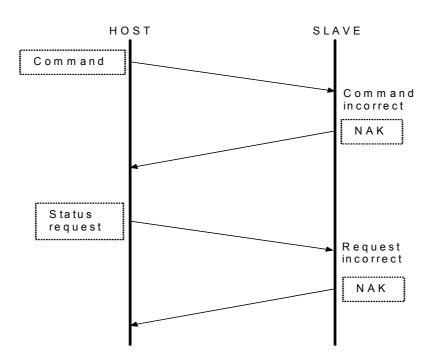
**Example of the transactions** 

#### 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'.)

(Samples indicated the ID se			
Command		Character	Sample
	POWER ON	AA	"@1AA",0x0D
POWER	POWER OFF	AB	"@1AB",0x0D
	POWER(Toggle)	AC	"@1AC",0x0D
	DSS	CA	"@1CA",0x0D
	TV	СВ	"@1CB",0x0D
	DVD	CD	"@1CD",0x0D
	VCR1	CE	"@1CE",0x0D
	AUX1	CG	"@1CG",0x0D
INPUT SELECT	AUX2	CH	"@1CH",0x0D
	CD	CJ	"@1CJ",0x0D
	TAPE	CK	"@1CK",0x0D
	CD-R	CL	"@1CL",0x0D
	FM	CN	"@1CN",0x0D
	AM(MW)	CO	"@1CO",0x0D
	TUNER	CQ	"@1CQ",0x0D
	MULTI-CHANNEL INPUT ON	CS	"@1CQ ,0x0D
MULTI-CHANNEL			
	MULTI-CHANNEL INPUT OFF	CT	"@1CT,0x0D
INDUT CLONIAL	A/D DIG AUTO	DA	"@1DA",0x0D
INPUT SIGNAL	A/D DIG FIX	DB	"@1DB",0x0D
	A/D ANA	DC	"@1DC",0x0D
	VOLUME UP	EA	"@1EA",0x0D
VOLUME	VOLUME DOWN	EB	"@1EB",0x0D
10201112	VOLMUE UP FAST	EC	"@1EC",0x0D
	VOLUME DOWN FAST	ED	"@1ED",0x0D
	BASS UP	FA	"@1FA",0x0D
TONE	BASS DOWN	FB	"@1FB",0x0D
TONE	TREBLE UP	FC	"@1FC",0x0D
	TREBLE DOWN	FD	"@1FD",0x0D
AUDIO MUTE	MUTE OFF	GA	"@1GA",0x0D
AODIO MOTE	MUTE ON	GB	"@1GB",0x0D
VIDEO MUTE	VIDEO MUTE OFF	HA	"@1HA",0x0D
VIDEO WOTE	VIDEO MUTE ON	HB	"@1HB",0x0D
ATT	ATT OFF	IA	"@1IA",0x0D
ATT	ATT ON	IB	"@1IB",0x0D
SPEAKER A OFF	SPEAKER A OFF	JA	"@1JA",0x0D
SPEAKER A ON	SPEAKER A ON	JB	"@1JB",0x0D
SPEAKER B OFF	SPEAKER B OFF	KA	"@1KA",0x0D
SPEAKER B ON	SPEAKER B ON	KB	"@1KB",0x0D
	SLEEP OFF	LA	"@1LA",0x0D
	SLEEP 10min	LB	"@1LB",0x0D
	SLEEP 20min	LC	"@1LC",0x0D
	SLEEP 30min	LD	"@1LD",0x0D
	SLEEP 40min	LE	"@1LE",0x0D
SLEEP MODE	SLEEP 50min	LF	"@1LF",0x0D
	SLEEP 60min	LG	"@1LG",0x0D
	SLEEP 70min	LH	"@1LH",0x0D
	SLEEP 80min	LI	"@1LI",0x0D
	SLEEP 90min	LJ	"@1LJ",0x0D
DICD			
DISP	DISP (Toggle)	MA	"@1MA",0x0D
OSD	OSD OFF	NA	"@1NA",0x0D
	OSD ON	NB	"@1NB",0x0D

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MENUL	MENU OFF	ZA	"@1ZA",0x0D
MENU	MENU (OK)	ZB	"@1ZB",0x0D
	CURSOL UP	ZC	"@1ZC",0x0D
CURSOL	CURSOL DOWN	ZD	"@1ZD",0x0D
CORSOL	CURSOL LEFT	ZE	"@1ZE",0x0D
	CURSOL RIGHT	ZF	"@1ZF",0x0D
	FREQ. UP	PB	"@1PB",0x0D
TUNER FREQUENCY	FREQ. DOWN	PC	"@1PC",0x0D
	AUTO UP START/STOP	PD	"@1PD",0x0D
	AUTO DOWN START/STOP	PE	"@1PE",0x0D
	PRESET INFO.	QA	"@1QA",0x0D
TUNER PRESET	P-SCAN	QB	"@1QB",0x0D
TONERTRESET	PRESET UP	QC	"@1QC",0x0D
	PRESET DOWN	QD	"@1QD",0x0D
F-DIRECT	F-DIRECT OFF	RA	"@1RA",0x0D
F-DIRECT	F-DIRECT ON	RB	"@1RB",0x0D
TUNER MODE	STEREO	RC	"@1RC",0x0D
TONER MODE	MONO	RD	"@1RD",0x0D
MEMO/CLR	CLR	RE	"@1RE",0x0D
WIEWO/CEIX	MEMO	RF	"@1RF",0x0D
	DIRECT KEY 0	SA	"@1SA",0x0D
	DIRECT KEY 1	SB	"@1SB",0X0D
	DIRECT KEY 2	SC	"@1SC",0x0D
	DIRECT KEY 3	SD	"@1SD",0x0D
DIRECT KEY	DIRECT KEY 4	SE	"@1SE",0x0D
DIRECTRET	DIRECT KEY 5	SF	"@1SF",0x0D
	DIRECT KEY 6	SG	"@1SG",0x0D
	DIRECT KEY 7	SH	"@1SH",0x0D
	DIRECT KEY 8	SI	"@1SI",0x0D
	DIRECT KEY 9	SJ	"@1SJ",0x0D
RDS	RDS DISP MODE	TA	"@1TA",0x0D
	RDS PTY	TB	"@1TB",0x0D
SURROUND MODE	AUTO	U0	"@1U0",0x0D
	DOLBY	U6	"@1U6",0x0D
	DD+PLIIx MOVIE	U7	"@1U7",0x0D
	DD+PLIIx MUSIC	U8	"@1U8",0x0D
	AAC+PLIIx MOVIE	U9	"@1U9",0x0D
	AAC+PLIIx MUSIC	UA	"@1UA",0x0D
	DOLBY PL II x MOVIE	UB	"@1UB",0x0D
	DOLBY PL II x MUSIC	UC	"@1UC",0x0D
	DOLBY PL II x GAME	UD	"@1UD",0x0D
	DOLBY PL II MOVIE	UE	"@1UE",0x0D
	DOLBY PL II MUSIC	UF	"@1UF",0x0D
	DOLBY PL II GAME	UG	"@1UG",0x0D
	DOLBY PROLOGIC	UH	"@1UH",0x0D
	EX/ES	UI	"@1UI",0x0D
	VIRTUAL6.1	UJ	"@1UJ",0x0D
	DOLBY DIGITAL EX	UK	"@1UK",0x0D
	DTS ES	UL	"@1UL",0x0D
	NEO6 CINEMA	UO	"@1UO",0x0D
	NEO6 MUSIC	UP	"@1UP",0x0D
	Mch-STEREO	UQ	"@1UQ",0x0D
	CS II CINEMA	UR	"@1UR",0x0D
	CS II MUSIC	US	"@1US",0x0D
	CSII MONO	UT	"@1UT",0x0D
	VIRTUAL	Uc	"@1Uc",0x0D
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	STEREO	Ud	"@1Ud",0x0D
	DTS-MODE	UV	"@1UV",0x0D
	SRS-MODE	UW	"@1UW",0x0D
	SOURCE DIRECT	UX	"@1UX",0x0D
	SURR. MODE NEXT	UY	"@1UY",0x0D
	SURR. MODE PREV	UZ	"@1UZ",0x0D
TEST TONE	TEST TONE OFF	VA	"@1VA",0x0D
	TEST TONE ON	VB	"@1VB",0x0D
NIGHT	NIGHT OFF	WA	"@1WA",0x0D
NIGHT	NIGHT ON	WB	"@1WB",0x0D
RE-EQ (HT-EQ)	RE-EQ ON	XA	"@1XA",0x0D
RE-EQ (HI-EQ)	RE-EQ OFF	XB	"@1XB,0x0D
	MAIN+SUB	YGA	"@1YGA",0x0D
BILINGUAL	MAIN	YGB	"@1YGB",0x0D
	SUB	YGC	"@1YGC",0x0D
REMOTE DC TREGGER	DC TRG ON	YJA	"@1YJA",0x0D
REMOTE DO TREGGER	DC TRG OFF	YJB	"@1YJB",0x0D

#### Multi Room control commands as from MULTI ROOM

Command		Character	Sample
MULTI ROOM	MULTI ROOM OFF	aA	"@1aA",0x0D
WOLTI ROOW	MULTI ROOM ON	aB	"@1aB",0x0D
	DSS	cA	"@1cA",0x0D
	TV	cB	"@1cB",0x0D
	DVD	cD	"@1cD",0x0D
	VCR1	сE	"@1cE",0x0D
	AUX1	сG	"@1cG",0x0D
INDUT CELECT	AUX2	сH	"@1cH",0x0D
INPUT SELECT	CD	င၂	"@1cJ",0x0D
	TAPE	cK	"@1cK",0x0D
	CD-R	cL	"@1cL",0x0D
	FM	cN	"@1cN",0x0D
	AM(MW)	cO	"@1cO",0x0D
	TUNER	cQ	"@1cQ",0x0D
INPUT SIGNAL	A/D(Toggle)	dD	"@1dD",0x0D
A 41 II TI DOOMAN (OLI INAE	MULTI VOL. UP	eA	"@1eA",0x0D
MULTI ROOM VOLUME	MULTI VOL. DOWN	eB	"@1eB",0x0D
MULTI ROOM	MULTI VOL. VARIABLE	fA	"@1fA",0x0D
VOLUME MODE	MULTI VOL. FIXED	fB	"@1fB",0x0D
AUUTIODEALCED	MULTI ROOM SPEAKER OFF	ja	"@1ja",0x0D
MULTI SPEAKER	MULTI ROOM SPEAKER ON	jb	"@1jb",0x0D
MULTI SPEAKER MUTE	MULTI ROOM SPEAKER MUTEOFF	ga	"@1ga",0x0D
WOLITSPEAKER WOTE	MULTI ROOM SPEAKER MUTE ON	gb	"@1gb",0x0D
MULTI ROOM SPEAKER	MULTI SPK. UP	hΑ	"@1hA",0x0D
VOLUME	MULTI SPK. DOWN	hB	"@1hB",0x0D
MULTI ROOM SPEAKER	MULTI SPK. VARIABLE	kA	"@1kA",0x0D
VOLUME MODE	MULTI SPK. FIXED	kB	"@1kB",0x0D
MULTI ROOM MUTE	MULTI ROOM MUTE OFF	gA	"@1gA",0x0D
MOLTIROOMINOTE	MULTI ROOM MUTE ON	gB	"@1gB",0x0D
	MR SLEEP OFF	IA	"@1IA",0x0D
	MR SLEEP 10min	IB	"@1IB",0x0D
	MR SLEEP 20min	IC	"@1IC",0x0D
	MR SLEEP 30min	ID	"@1ID",0x0D
MULTIOLEEDMODE	MR SLEEP 40min	ΙE	"@1IE",0x0D
MULTI SLEEP MODE	MR SLEEP 50min	IF	"@1IF",0x0D
	MR SLEEP 60min	IG	"@1IG",0x0D
	MR SLEEP 70min	ΙΗ	"@1IH",0x0D
	MR SLEEP 80min	II	"@1II",0x0D
	MR SLEEP 90min	IJ	"@1IJ",0x0D
MULTI DOOM OCD	MULTI ROOM OSD OFF	nA	"@1nA",0x0D
MULTI ROOM OSD	MULTI ROOM OSD ON	nB	"@1nB",0x0D

#### Multi Room control commands as from MULTI ROOM

Command		Character	Sample
	FREQ. UP	pB	"@1pB",0x0D
TUNER FREQUENCY	FREQ. DOWN	pC	"@1pC",0x0D
	AUTO UP START/STOP	pD	"@1pD",0x0D
	AUTO DOWN START/STOP	рE	"@1pE",0x0D
	P-SCAN	qB	"@1qB",0x0D
TUNER PRESET	PRESET UP	qC	"@1qC",0x0D
	PRESET DOWN	qD	"@1qD",0x0D
F-DIRECT	F-DIRECT OFF	rA	"@1rA",0x0D
F-DIRECT	F-DIRECT ON	rB	"@1rB",0x0D
T-MODE	STEREO	rC	"@1rC",0x0D
I I-MODE	MONO	rD	"@1rD",0x0D
	DIRECT KEY 0	sA	"@1sA",0x0D
	DIRECT KEY 1	sB	"@1sB",0X0D
	DIRECT KEY 2	sC	"@1sC",0x0D
	DIRECT KEY 3	sD	"@1sD",0x0D
DIRECT KEY	DIRECT KEY 4	sE	"@1sE",0x0D
DIRECTRET	DIRECT KEY 5	sF	"@1sF",0x0D
	DIRECT KEY 6	sG	"@1sG",0x0D
	DIRECT KEY 7	sH	"@1sH",0x0D
	DIRECT KEY 8	sl	"@1sl",0x0D
	DIRECT KEY 9	sJ	"@1sJ",0x0D
	DSS	ca	"@1cA",0x0D
	TV	cb	"@1cB",0x0D
	DVD	cd	"@1cD",0x0D
	VCR1	ce	"@1cE",0x0D
	AUX1	cg	"@1cG",0x0D
INPUT SELECT(M-SPKR)	AUX2	ch	"@1cH",0x0D
INFOT SELECT(INFSFRR)	CD	cj	"@1cJ",0x0D
	TAPE	ck	"@1cK",0x0D
	CD-R	cl	"@1cL",0x0D
	FM	cn	"@1cN",0x0D
	AM(MW)	СО	"@1cO",0x0D
	TUNER	cq	"@1cQ",0x0D

#### 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
Request Status	Criai. & Sample	POWER ON	AA ("@1AA",0x0D)
POWER Status	'A' ("@1?A",0x0D)	POWER OFF	, ,
		DSS	AB
		TV	BA BB
VIDEO INDLIT	(D' ("@13D" 0:40D)	DVD	BD
VIDEO INPUT	'B' ("@1?B",0x0D)	VCR1	BE
		AUX1	BG
		DSS	CA
		TV	CB
		DVD	CD
		VCR1	CE
		AUX1	CG
		AUX2	
ALIDIO INDLIT	(C' ("@12C" 0:40D)		CH
AUDIO INPUT	'C' ("@1?C",0x0D)	CD	CJ
		TAPE	CK
		CD-R	CL
		FM	CN
		AM(MW)	CO
		TUNER	CQ
		MULTI-CHANNEL INPUT ON	CR
INDUTATION	'D' ("@1?D",0x0D)	A/D DIG AUTO	DA
INPUT MODE		A/D DIG FIX	DB
		A/D ANA	DC
	'E' ("@1?E",0x0D)	VOL.= XXXdB	EAXXX
VOLUME Status		(XXX = -90∼+99)	("@1EA-15",0x0D)
		max	EB
		$min (-\infty)$	EC
BASS Status	'FA' ("@1?FA",0x0D)	BASS:xxdB(xx=-9 $\sim$ +9)	FAxx
TREBLE Status	'FC' ("@1?FC",0x0D)	TREBLE:xxdB(xx=-9~+9)	FCxx
ALIDIO MILITE	(C)("@40C" 0:-0D)	AUDIO MUTE OFF	GA
AUDIO MUTE	'G'("@1?G",0x0D)	AUDIO MUTE ON	GB
VIDEO MUTE	" " (" @ 4 2 L L" OO.D.)	VIDEO MUTE OFF	HA
VIDEO MUTE	'H' ("@1?H",0x0D)	VIDEO MUTE ON	НВ
ATT Ctatus	(I' ("@13I" 0x0D)	ATT OFF	IA
ATT Status	'l' ("@1?l",0x0D)	ATT ON	IB
ODEAL/ED A	( II (" O 40 III 0 0F)	SPEAKER A OFF	JA
SPEAKER A	'J' ("@1?J",0x0D)	SPEAKER A ON	JB
		SPEAKER B OFF	KA
SPEAKER B	'K' ("@1?K",0x0D)		
	( ) , ,	SPEAKER B ON	KB
SLEEP MODE	'L' ("@1?L",0x0D)	SLEEP OFF	LA
	( ) , ,	SLEEP ON : XXX (001-120)	LBXXX
		DISP ON(INPUT)	MA
DISPLAY Status	'M' ("@1?M",0x0D)	DISP ON(SURR)	MB
		AUTO DISPLAY OFF	MC
		DISP OFF	MD
OSD Status	'N' ("@1?N",0x0D)	OSD OFF	NA
	(@,5,65)	OSD ON	NB
MENU	'O' ("@1?Z",0x0D)	MENU OFF	OA
	0 ( 1:2 ,0,00)	MENU ON	OB

TUNER FFREQUENCY  TUNER PRESET	'P' ("@1?P",0x0D)  FM:076.00-108.00  AM,MW:520-1710  LW:152-282  'Q' ("@1?Q",0x0D)	TUNER FREQUENCY PAxxxx:(Not tuned+Freq.) PBxxxx:(Tuned+Freq.) Frequency Scaning Not available Preset No. (XX=01~50) Not Preset mode (XX=00) Not available	(FM: 87.55 = "8755") (FM:108.00 = "0800") (MW: 520="0520") (LW:282="0282") PC ("@1PC",0x0D) P- ("@1P-",0x0D) QAXX or QBXX (A=!tuned, B=tuned) Q- ("@1Q-",0x0D)
F-DIRECT TUNER MODE	'R' ("@1?R",0x0D) (answer) R[D-DIR][T-MODE]	F-DIRECT OFF F-DIRECT ON Not available AUTO STEREO MONO Not available	RA* ("@1TAC",0x0D)  RB*  R-*  R*C  R*D  R*-
SURROUND MODE	'U' ("@1?U",0x0D)	AUTO DOLBY DD+PLIIx MOVIE DD+PLIIx MUSIC AAC+PLIIx MUSIC AAC+PLIIx MUSIC DOLBY PLIIx MUSIC DOLBY PLIIx MUSIC DOLBY PLIIx MUSIC DOLBY PLII MUSIC DOLBY PLII MOVIE DOLBY PLII MUSIC DOLBY PLII MUSIC DOLBY PLII GAME DOLBY PROLOGIC EX/ES VIRTUAL6.1 DOLBY DIGITAL EX DTS ES DTS CINEMA(DTS) NEO6 CINEMA NEO6 MUSIC Mch-STEREO CS II CINEMA CS II MUSIC CS II MONO VIRTUAL STEREO S-DIRECT	U0 ("@1U0",0x0D) U6 U7 U8 U9 UA UB UC UD UE UF UG UH UI UJ UL UM UL UM UO UP UQ UR US UT UC UD UC UD UC UD UD UC UD UI UI UJ
TEST TONE Status (with T-TONE MDOE)	'V' ("@1?V",0x0D)	TEST TONE OFF TEST TONE L TEST TONE C TEST TONE R TEST TONE SR TEST TONE SBR TEST TONE SBL TEST TONE SL TEST TONE SW	V*A ("@1VBA",0x0D)  V*B *=T-MODE  V*C A=AUTO  V*D B=MANUAL  V*E  V*F  V*G  V*H  V*I
NIGHT MODE  RE-EQ (HT-EQ)	'W' ("@1?W",0x0D) 'X' ("@1?X",0x0D)	NIGHT MODE OFF NIGHT MODE ON RE-EQ OFF	WA WB XA
NE-EQ (HI-EQ)	\ (\(\Omega\)!\(\Omega\)	RE-EQ ON	XB

Document Version [1.00]

D DGITAL(AC-3)				
SIGNAL FORMAT				uA
SIGNAL FORMAT			DD SURROUND	
SIGNAL FORMAT				
SIGNAL FORMAT				
AAC				
PCM	SIGNAL FORMAT	'u' ("@1?u",0x0D)		
HDCD		_		
OTHER   NONE_DETECTION   UN				
NONE_DETECTION				
SAMPLING FREQ.   V' ("@1?v",0x0D)				
SAMPLING FREQ.  V ("@1?v",0x0D)  88.2K				
SAMPLING FREQ.   V ("@1?v",0x0D)   48K   VC   88.2K   VD   96K   VE   OUT OF RANGE   VH   Not available   V-   See below   WA\$%   Not available   W-   VC   VC   VC   VC   VC   VC   VC   V				
SAMPLING FREQ.   V' ("@1?V",0x0D)   88.2K   VE   OUT OF RANGE   VH   Not available   V-   V' ("@1?W",0x0D)   See below   WA\$%   Not available   V-   Was				
96K				
CHANNEL STATUS   W ("@1?w",0x0D)   See below   WA\$%   Not available   V-	SAMPLING FREQ.	'v' ("@1?v",0x0D)		
Not available		<u> </u>		
CHANNEL STATUS		<u> </u>		
**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.)				•
* 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.)	CHANNEL STATUS	'w' ("@1?w",0x0D)		·
Character \$ and % would be '0' to '9' or 'A' to 'F', it uses to as hex. bit data.)		` _		W-
State   Stat				
Bit   3	(Character \$ and % would	be to to 9 or A to F,	,it uses to as nex. bit data.)	
Bit   3	L ¢ bit	l 0/ hit	1	
LFE   SL   SR   S   L   R   C   L   C   R	_ ·		0	
When a bit of channel status is effective, it sets to 1.  And when it is opposite condition, it sets to 0.  ex.)  * If front L and R channel status are only effective, it will send "@1w146",0Dh.  * If front and surr. L/R channel status are effective, it will send "@1w1B6",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w18",0Dh.  * If all channel status are effective, it will send "@1w18",0Dh.  * If all channel status are effective, it will send "@1w18",0Dh.	BIL 3 2 1	0 3 2 1		
When a bit of channel status is effective, it sets to 1.  And when it is opposite condition, it sets to 0.  ex.)  * If front L and R channel status are only effective, it will send "@1w146",0Dh.  * If front and surr. L/R channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w186",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh	1 LFE SI	SRSL	$R \mid C \mid I \mid I$	
And when it is opposite condition, it sets to 0.  ex.)  * If front L and R channel status are only effective, it will send "@1w146",0Dh.  * If front and surr. L/R channel status are effective, it will send "@1w1B6",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  SL  SR  SR  C: 'YC'  R: 'YD'  SR: 'YF'  SBL: 'YF'  SBL: 'YG'  SL: 'YH'  SW: 'YI'  Not available  "xA" ("@1?xA", 0x0D)  SPEAKER DISTANCE  [  XX: (00~30)  (1 foot = "01")  (10 feet="10")  "xB" ("@1?xF", 0x0D)  SURR. R DISTANCE  "xF"  "xG" ("@1?xF", 0x0D)  SURR. R DISTANCE  xFXX  "xG" ("@1?xG", 0x0D)  SURR. R DISTANCE  xFXX  "xG" ("@1?xG", 0x0D)  SURR. R DISTANCE  xGXX				
And when it is opposite condition, it sets to 0.  ex.)  * If front L and R channel status are only effective, it will send "@1w146",0Dh.  * If front and surr. L/R channel status are effective, it will send "@1w1B6",0Dh.  * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  SL  SR  SR  C: 'YC'  R: 'YD'  SR: 'YF'  SBL: 'YF'  SBL: 'YG'  SL: 'YH'  SW: 'YI'  Not available  "xA" ("@1?xA", 0x0D)  SPEAKER DISTANCE  [  XX: (00~30)  (1 foot = "01")  (10 feet="10")  "xB" ("@1?xF", 0x0D)  SURR. R DISTANCE  "xF"  "xG" ("@1?xF", 0x0D)  SURR. R DISTANCE  xFXX  "xG" ("@1?xG", 0x0D)  SURR. R DISTANCE  xFXX  "xG" ("@1?xG", 0x0D)  SURR. R DISTANCE  xGXX	When a bit of channe	el status is effective, it se	ets to 1.	
* If front L and R channel status are only effective, it will send "@1w146",0Dh. * If front and surr. L/R channel status are effective, it will send "@1w186",0Dh. * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  SR    L: 'YB'	And when it is oppos	ite condition, it sets to 0	).	
* If front and surr. L/R channel status are effective, it will send "@1w1B6",0Dh. * If all channel status are effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  SL  SR    L : YB'	ex.)			LFE
* If all channel status are effective, it will send "@1w1FF",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  * If all channel status are not effective, it will send "@1w180",0Dh.  **If all channel status are not effective, it will send "@1w180",0Dh.  **SE: 'YB'    C: 'YC'				
* If all channel status are not effective, it will send "@1w180",0Dh.  SL  S  SR  L : 'YB' C : 'YC' R : 'YD' SR : 'YE' SBL : 'YF' SBL : 'YH' SW : 'YI' Not available  *XA" ("@1?XA", 0x0D)  SPEAKER DISTANCE [ XX: (00~30) (1 foot = "01") (10 feet="10") (10 feet="10") (10 feet="10")  *XB" ("@1?xG", 0x0D)  *XB" ("@1?xB", 0x0D)  SPEAKER DISTANCE ("@1YB**"*,0x0D) **** = +/-?(? = 00~99)  **** = +/-?(? = 00~99)				
L: 'YB'				a an
C: YC' R: YD' SR: YE' SBR: YF' SBL: YG' SL: YH' SW: YI' Not available  "XA" ("@1?xA", 0x0D)  SPEAKER DISTANCE [ XXS: (00~30) (1 foot = "01") (10 feet="10")  ("@1?xA", 0x0D)  "XB" ("@1?xE", 0x0D) SURR. R DISTANCE  "XE" ("@1?xE", 0x0D) SURR. R DISTANCE  "XE" ("@1?xF", 0x0D) SURR. R DISTANCE  "XE" ("@1?xF", 0x0D) SURR. R DISTANCE  "XEX  "XC" ("@1?xC", 0x0D) SURX  "XE" ("@1?xE", 0x0D) SURR. R DISTANCE  "XEX  "XC" ("@1?xC", 0x0D) SURR. R DISTANCE  "XEX  "XCX  "XC	* If all channel status are r	not effective, it will send	1 "@1w180",0Dh.   SL	S SR
C: 'YC' R: 'YD' SR: 'YE' SBR: 'YF' SBL: 'YH' SW: 'YI' Not available  "xA" ("@1?xA", 0x0D)  SPEAKER DISTANCE [ XX: (00~30) (1 foot = "01") (10 feet="10") ("@1?xG", 0x0D)  "xB" ("@1?xE", 0x0D) SPEAKER DISTANCE SR: 'YE' SBL: 'YG' SL: 'YH' SW: 'YI' Not available  "xAX" ("@1?xA", 0x0D) LEFT DISTANCE xAXX ("@1xA10"0x0D) RIGHT DISTANCE xBXX  "xC" ("@1?xC", 0x0D) CENTER DISTANCE xDXX  "xD" ("@1?xD", 0x0D) SUBWF DISTANCE xDXX  "xE" ("@1?xE", 0x0D) SURR. L DISTANCE xEXX  "xF" ("@1?xF", 0x0D) SURR. R DISTANCE xFXX  "xG" ("@1?xG", 0x0D) BACK L DISTANCE xGXX				
CHANNEL LEVEL  'Y' ("@1?Y*",0x0D)  SR: 'YE'  SBR: 'YF'  SBL: 'YG'  SL: 'YH'  SW: 'YI'  Not available  "xA" ("@1?xA", 0x0D)  SPEAKER DISTANCE  [ XX: (00~30)  (1 foot = "01")  (10 feet="10")  (10 feet="10")  "X" ("@1?xG", 0x0D)  SR: 'YE'  SBR: 'YF'  SBL: 'YG'  SBL: 'YG'  SBL: 'YH'  SW: 'YI'  Not available  FNot available  *XAXX ("@1xA10"0x0D)  RIGHT DISTANCE  XBXX  "xC" ("@1?xC", 0x0D)  CENTER DISTANCE  XCXX  XCX  XCX  XCX  XCX  XCX  XE" ("@1?xC", 0x0D)  SUBWF DISTANCE  XDXX  "xE" ("@1?xE", 0x0D)  SURR. L DISTANCE  XEXX  "xF" ("@1?xF", 0x0D)  SURR. R DISTANCE  XFXX  "xG" ("@1?xG", 0x0D)  BACK L DISTANCE  XGXX				("@1YB**"*,0x0D)
CHANNEL LEVEL  'Y' ("@1?Y*",0x0D)  SBR: 'YE' SBL: 'YG' SL: 'YH' SW: 'YI' Not available  "xA" ("@1?xA", 0x0D)  SPEAKER DISTANCE [ XX: (00~30) (1 foot = "01") (10 feet="10")  (10 feet="10")  "X" ("@1?xG", 0x0D)  SBR: 'YE' SBR: 'YF' SBL: 'YG' SL: 'YH' SW: 'YI' ("@1YB",0x0D) INITIANCE SBR: 'YE' SBL: 'YG' SBR: 'YE' SBL: 'YG' SBR: 'YE' SBR: 'YE' SBR: 'YE' SBR: 'YE' SBR: 'YE' SBR: 'YE' SBL: 'YG' SBR: 'YE' SBL: 'YG' SBR: 'YE' SBL: 'YG' SBR: 'YE' SBR: 'YE' SBR: 'YE' SBL: 'YG' SL: 'YH' SW: 'YI' SW: 'Y				*** = +/-'?('? = 00~99)
CHANNEL LEVEL  Y' ("@1?Y*",0x0D)  SBR : 'YF' SBL : 'YG' SL : 'YH' SW : 'YI' Not available  "XA" ("@1?xA", 0x0D)  SPEAKER DISTANCE [ XB" ("@1?xB", 0x0D)  SPEAKER DISTANCE [ XX: (00~30) (1 foot = "01") (10 feet="10")  "XB" ("@1?xE", 0x0D)  SURR. R DISTANCE  "XC" ("@1?xE", 0x0D)  SURR. R DISTANCE  XEXX  "XC" ("@1?xF", 0x0D)  SURR. R DISTANCE  XEXX  "XC" ("@1?xF", 0x0D)  SURR. R DISTANCE  XEXX  "XG" ("@1?xF", 0x0D)  SURR. R DISTANCE  XFXX  "XG" ("@1?xG", 0x0D)  SURR. R DISTANCE  XFXX				4
SBL: 'YG'   SL: 'YH'   ("@1YB",0x0D)   SW: 'YI'   ("@1YB",0x0D)   Not available   Not available   Not available   SPEAKER DISTANCE   ("&1?xA", 0x0D)   LEFT DISTANCE   xAXX ("@1xA10"0x0D)   XB" ("@1?xB", 0x0D)   RIGHT DISTANCE   xBXX   ("&1.00~30)   ("&1.00~30)   ("&1.00~30)   ("&1.00~30)   ("&1.00~30)   ("&1.00~30)   SUBWF DISTANCE   xDXX   ("&1.00~30)   ("&1.00~30)   SUBWF DISTANCE   xDXX   ("&1.00~30)   ("&1.00~30)   SURR. L DISTANCE   xEXX   ("&1.00~30)   ("&1.00~30)   SURR. R DISTANCE   xEXX   ("&1.00~30)   ("&1.00~30)   SURR. R DISTANCE   xEXX   ("&1.00~30)   ("&1.00~30)   SURR. R DISTANCE   xEXX   ("&1.00~30)   SURR. R DISTANCE   xEXX   ("&1.00~30)   ("&1.00~30)   SURR. R DISTANCE   xEXX   ("&1.00~30)   ("&1.00~30)   SURR. R DISTANCE   xEXX   ("&1.00~30)	CHANNEL LEVE	W' ("@40\/*" 0\-0D\		4
SL: 'YH'   ("@1YB",0x0D)   Not available   Not available   Not available   Not available   SPEAKER DISTANCE   "xA" ("@1?xA", 0x0D)   LEFT DISTANCE   xAXX ("@1xA10"0x0D)   XB" ("@1?xB", 0x0D)   RIGHT DISTANCE   xBXX   XC" ("@1?xC", 0x0D)   CENTER DISTANCE   xCXX   XX: (00~30)   "xD" ("@1?xD", 0x0D)   SUBWF DISTANCE   xDXX   XD" ("@1?xE", 0x0D)   SURR. L DISTANCE   xEXX   XE" ("@1?xE", 0x0D)   SURR. R DISTANCE   xFXX   XF" ("@1?xF", 0x0D)   SURR. R DISTANCE   xFXX   XG" ("@1?xG", 0x0D)   BACK L DISTANCE   xGXX   XGXX   XGX	CHAININEL LEVEL	r (@1?r",UXUD)		4
SW:'YI'				4
Not available				("@1VR " 0v0D)
"XA" ("@1?xA", 0x0D)       LEFT DISTANCE       xAXX ("@1xA10"0x0D)         SPEAKER DISTANCE       "xB" ("@1?xB", 0x0D)       RIGHT DISTANCE       xBXX         "xC" ("@1?xC", 0x0D)       CENTER DISTANCE       xCXX         "XX: (00~30)       "xD" ("@1?xD", 0x0D)       SUBWF DISTANCE       xDXX         (1 foot = "01")       "xE" ("@1?xE", 0x0D)       SURR. L DISTANCE       xEXX         (10 feet="10")       "xF" ("@1?xF", 0x0D)       SURR. R DISTANCE       xFXX         ]       "xG" ("@1?xG", 0x0D)       BACK L DISTANCE       xGXX				, _
SPEAKER DISTANCE       "xB" ("@1?xB", 0x0D)       RIGHT DISTANCE       xBXX         [       "xC" ("@1?xC", 0x0D)       CENTER DISTANCE       xCXX         XX: (00~30)       "xD" ("@1?xD", 0x0D)       SUBWF DISTANCE       xDXX         (1 foot = "01")       "xE" ("@1?xE", 0x0D)       SURR. L DISTANCE       xEXX         (10 feet="10")       "xF" ("@1?xF", 0x0D)       SURR. R DISTANCE       xFXX         ]       "xG" ("@1?xG", 0x0D)       BACK L DISTANCE       xGXX		".A" ("@40:-A" 0 0"		
[	ODE ALCED BLOTALIOE			
XX: (00~30)       "xD" ("@1?xD", 0x0D)       SUBWF DISTANCE       xDXX         (1 foot = "01")       "xE" ("@1?xE", 0x0D)       SURR. L DISTANCE       xEXX         (10 feet="10")       "xF" ("@1?xF", 0x0D)       SURR. R DISTANCE       xFXX         ]       "xG" ("@1?xG", 0x0D)       BACK L DISTANCE       xGXX	SPEAKER DISTANCE			
(1 foot = "01")       "xE" ("@1?xE", 0x0D)       SURR. L DISTANCE       xEXX         (10 feet="10")       "xF" ("@1?xF", 0x0D)       SURR. R DISTANCE       xFXX         ]       "xG" ("@1?xG", 0x0D)       BACK L DISTANCE       xGXX				
(10 feet="10")	, ,			
[ "xG" ("@1?xG", 0x0D) BACK L DISTANCE xGXX				
	( 10 feet= 10")			
XH ("(Q)"  /XH", UXUD)   LBACK R DISTANCE   XHXX	1			
(G, 5.05)   5.15.1.1.10L		XH ("@"1: XH", UXU	D) BACK KIDISTANCE	XUXX

	_		
	"yA" ("@1?yA", 0x0D)	FRONT LAGE	yAA
	yA (@1:yA,0x0D)	FRONT SMALL	yAB
		CENTER LAGE	yBA
	"yB" ("@1?yB", 0x0D)	CENTER SMALL	yBB
		CENTER OFF	yBC
		SUBWF ON	yCA
SPEAKER SIZE	"yC" ("@1?yC", 0x0D)	SUBWF OFF	уСВ
OI LAKER SIZE		SURR. LAGE	
	", D" ("@12, D", 0, 0D)	SURR. SMALL	yDA
	"yD" ("@1?yD", 0x0D)		yDB
		SURR. OFF	yDC
	" - " " - 10 - " - 10 - " · 10 - " · 10 · 10 · 10 · 10 · 10 · 10 · 10 ·	BACK LAGE	yEA
	"yE" ("@1?yE", 0x0D)	BACK SMALL	yEB
		BACK OFF	yEC
		BACK 1ch	yFA
SPEAKER BACK	'yF' ("@1?yF", 0x0D)	BACK 2ch	yFB
		BACK NONE	yFC
		MAIN+SUB	yGA
BILINGUAL	'yG' ("@1?yG",0x0D)	MAIN	yGB
	, = ( ) = , = , = , = ,	SUB	yGC
		DC TRG ON	yJA
REMOTE DC TRIGGER	'yJ' ("@1?yJ",0x0D)	DC TRG OFF	yJB
		MULTI ROOM OFF	a0 ("@1a0",0x0D)
MULTIROOM Status	'a' ("@1?a",0x0D)	MULTI ROOM ON	a1 ("@1a1",0x0D)
WOLTHOOM Status	a (@1:a,0x0D)	Not available	a- ("@1a-",0x0D)
		DSS	bA
		TV	bB
VIDEO INPUT		DVD	bD
(Multi Room)	'b' ("@1?b",0x0D)	VCR1	bE
(Maia r toom)		AUX1	bG
		Not available	b-
		DSS	cA
		TV	СВ
		DVD	cD
		VCR1	cE
		AUX1	cG
ALIDIO INDLIT		AUX2	cH
AUDIO INPUT	'c' ("@1?c",0x0D)	CD	cJ
(Multi Room)		TAPE	cK
		CD-R	cL
		FM	cN
		AM(MW)	cO
		TUNER	cQ
		Not available	C-
VOLUME Status		VOL .XXX(-90∼+99)	eAXXX
(Multi Room)	'e' ("@1?e",0x0D)	MAX.	eВ
, ,		MIN.(-∞)	eC
VOLUME SET Status	'f' ("@1?f",0x0D)	VARIABLE	fA
(Multi Room)	1 ( @1!1 ,UXUD)	FIXED	fB
MUTE Status	'a' ("@12a" 0v0D\	MUTE OFF (MR)	gA
(Multi Room)	'g' ("@1?g",0x0D)	MUTE ON (MR)	gB
SPEAKER Status	67 ("@403" 0:-0D)	MULTI SPEAKER OFF	jA
(Multi Room)	'j' ("@1?j",0x0D)	MULTI SPEAKER ON	jB
		VOL .XXX(-90∼+99)	hAXXX
VOLUME Mode Status	'h'("@1?h",0X0D)	MAX.	hB
(Multi Room SPK)	(3,3.62)	MIN.(-∞)	hC
VOLUME Status		MULTI SPK VARIABLE	kA
(Multi Room SPK)	'k' ("@1?k",0x0D)	MULTI SPK VARIABLE	kB
SLEEP TIMER Status	'l' ("@1?l",0x0D)	SLEEP OFF	IA IDVOCA
(Multi Room)	_ ` _ ′ /	SLEEP XXX(1~120)	IBXXX

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OSD Status	'z' ("@1?z",0x0D)	MULTI OSD OFF	zA
(Multi Room)		MULTI OSD ON	zB
TUNER FREQUENCY (Multi Room)	'p' ("@1?p",0x0D)	TUNER FREQUENCY XXXX=076.00-108.00(FM) =520-1710(AM,MW) = 152-282(LW)	pAXXXX or pBXXXX (FM:87.50 = "8750") (FM:108.00="0800") (MW: 520="0520") (MW:1710="1710")
		Not available	p- ("@1p-",0x0D)
TUNER PRESET (Multi Room)	ʻq' ("@1?q",0x0D)	Preset No. (XX=01~50)	qAXX or qBXX
		Not Preset mode (XX=00)	(A=!tuned, B=tuned)
		Not available	q- ("@1q-",0x0D)

## 4. Revision history

SR7400/8400

Re	ev.	Date	Owner	Change description
	00	11/20/03	MAI	Released