

Section 20 CONTROL COMMAND

- Remote jack (CI-V) information20-2**
 - ◇ CI-V connection example20-2
 - ◇ Data format.....20-2
 - ◇ Command table20-3
 - ◇ Data content description20-11

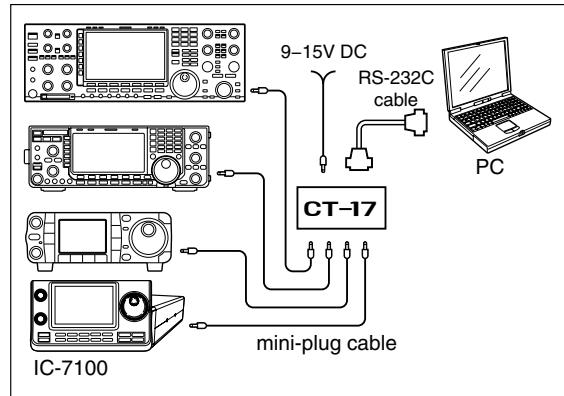
20 CONTROL COMMAND

Remote jack (CI-V) information

◇ CI-V connection example

The transceiver can be connected through an optional CT-17 CI-V LEVEL CONVERTER to a PC equipped with an RS-232C port. The Icom Communications Interface-V (CI-V) controls the transceiver.

Up to 4 Icom CI-V transceivers or receivers can be connected to the PC. See page 17-25 for setting the CI-V condition using the set mode.

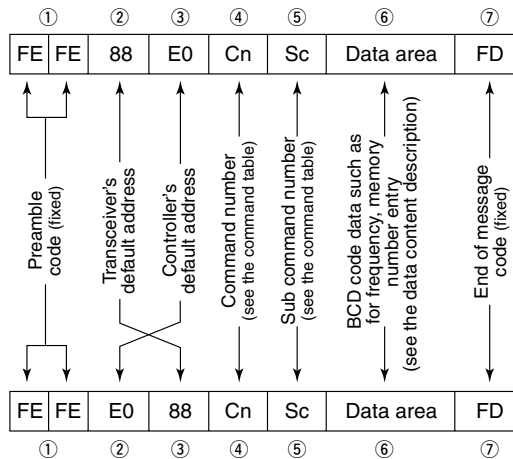


When the transceiver is connected to a PC with the supplied USB cable, the optional CT-17 is not required.

◇ Data format

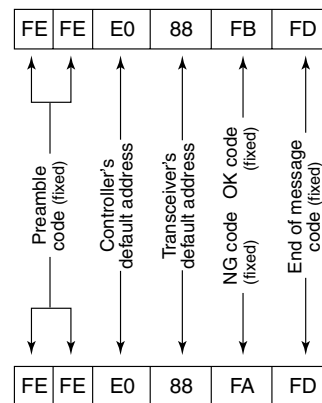
The CI-V system can be operated using the following data formats. Data formats differ depending on command numbers. A data area or sub command is added to some commands.

Controller to IC-7100



IC-7100 to controller

OK message to controller



NG message to controller

20 CONTROL COMMAND

Remote jack (CI-V) information (Continued)

◇ Command table

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description
00		see p. 20-11	Send the operating frequency for transceive	0F		00	Read Split function OFF
01		see p. 20-11	Send the operating mode for transceive			01	Read Split function ON
02		see p. 20-12	Read the band edge frequencies			11	Read DUP- operation
03		see p. 20-11	Read the operating frequency			12	Read DUP+ operation
04		see p. 20-11	Read the operating mode		00		Set Split function OFF
05		see p. 20-11	Send the operating frequency		01		Set Split function ON
06		00	Select the LSB mode		10		Set the simplex operation
		01	Select the USB mode		11		Set DUP- operation
		02	Select the AM mode		12		Set DUP+ operation
		03	Select the CW mode	10		00	Send/read the 10 Hz (1 Hz) tuning step
		04	Select the RTTY mode			01	Send/read the 0.1 kHz tuning step
		05	Select the FM mode			02	Send/read the 1 kHz tuning step
		06	Select the WFM mode			03	Send/read the 5 kHz tuning step
		07	Select the CW-R mode			04	Send/read the 6.25 kHz tuning step
		08	Select the RTTY-R mode			05	Send/read the 9 kHz tuning step
		17	Select the DV mode			06	Send/read the 10 kHz tuning step
07			Select the VFO mode			07	Send/read the 12.5 kHz tuning step
	00		Select VFO A			08	Send/read the 20 kHz tuning step
	01		Select VFO B			09	Send/read the 25 kHz tuning step
	A0		Equalize VFO A and VFO B			10	Send/read the 50 kHz tuning step
	B0		Exchange VFO A and VFO B			11	Send/read the 100 kHz tuning step
08			Select the Memory mode			12	Send/read the 1 MHz tuning step
		0001 to 0109	Select the Memory channel (0001=M-CH01 to 0099=M-CH99, 0100=1A, 0101=1B, 0102=2A, 0103=2B, 0104=3A, 0105=3B, 0106=144-C1, 0107=144-C2, 0108=430-C1, 0109=430-C2)	11		00	Send/read Attenuator OFF
	A0	01	Select Memory Bank A			12	Send/read 12 dB attenuator
		02	Select Memory Bank B	13	00		Announce the operating frequency, operating mode and S-meter level by voice synthesizer
		03	Select Memory Bank C		01		Announce the operating frequency and S meter level by voice synthesizer
		04	Select Memory Bank D		02		Announce the operating mode by voice synthesizer
		05	Select Memory Bank E	14	01	0000 to 0255	Send/read the AF level (0000=min. to 0255=max.)
09			Memory write		02	0000 to 0255	Send/read the RF gain level (0000=min., 0255=max.)
0A			Memory copy to VFO		03	0000 to 0255	Send/read the squelch level (0000=min. to 0255=max.)
0B			Memory clear		06	0000 to 0255	Send/read the NR level (0000=0% to 0255=100%)
0C			Read offset frequency		07	0000 to 0255	Send/read the inner [TWIN PBT] position (0000=Cutting the higher passband edge, 0128=center, 0255=Cutting the lower passband edge)
0D			Send offset frequency		08	0000 to 0255	Send/read the outer [TWIN PBT] position (0000=Cutting the higher passband edge, 0128=center, 0255=Cutting the lower passband edge)
0E	00		Scan stop		09	0000 to 0255	Send/read the CW PITCH (0000=300 Hz, 0128=600 Hz, 0255=900 Hz)
	01		Programmed/memory scan start		0A	0000 to 0255	Send/read the RF power level (0000=min. to 0255=max.)
	02		Programmed scan start		0B	0000 to 0255	Send/read the MIC gain level (0000=min. to 0255=max.)
	03		Δ F scan start		0C	0000 to 0255	Send/read the KEY SPEED (0000=6 WPM to 0255=48 WPM)
	12		Fine programmed scan start		0D	0000 to 0255	Send/read the NOTCH setting (0000=lowest, 0128=center, 0255=highest)
	13		Fine Δ F scan start				
	22		Memory scan start				
	23		Select memory scan start				
	24		Mode select scan start				
	A1		Set the ± 5 kHz Δ F scan span				
	A2		Set the ± 10 kHz Δ F scan span				
	A3		Set the ± 20 kHz Δ F scan span				
	A4		Set the ± 50 kHz Δ F scan span				
	A5		Set the ± 100 kHz Δ F scan span				
	A6		Set the ± 500 kHz Δ F scan span				
	A7		Set the ± 1 MHz Δ F scan span				
	B0		Set as the Non-select Memory channel				
	B1		Set as the Select Memory channel				
	D0		Set Scan resume function OFF				
	D3		Set Scan resume function ON				

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description
14	0E	0000 to 0255	Send/read the COMP level (0000=0 to 0255=10)	16	44	00	Send/read Speech compressor OFF
	0F	0000 to 0255	Send/read the Break-IN Delay setting (0000=2.0d to 0255=13.0d)			01	Send/read Speech compressor ON
	12	0000 to 0255	Send/read NB level (0000=0% to 0255=100%)		45	00	Send/read Monitor function OFF
	15	0000 to 0255	Send/read the Monitor gain level (0000=0% to 0255=100%)			01	Send/read Monitor function ON
	16	0000 to 0255	Send/read the VOX gain level (0000=0% to 0255=100%)		46	00	Send/read VOX function OFF
	17	0000 to 0255	Send/read the Anti VOX gain level (0000=0% to 0255=100%)			01	Send/read VOX function ON
	18	0000 to 0255	Send/read the LCD contrast level (0000=0% to 0255=100%)		47	00	Send/read BK-IN function OFF
	19	0000 to 0255	Send/read the LCD backlight level (0000=0% to 0255=100%)			01	Send/read Semi BK-IN function ON
02						Send/read Full BK-IN function ON	
15	01	00	Read the squelch status (squelch closed)		48	00	Send/read Manual notch function OFF
		01	Read the squelch status (squelch open)			01	Send/read Manual notch function ON
	02	0000 to 0255	Read the S-meter level (0000=S0, 0120=S9, 0241=S9+60 dB)		4B	00	Send/read DTCS OFF
	05	00	Read various SQL function's status (squelch closed)			01	Send/read DTCS ON
					01	Read various SQL function's status (squelch open)	4C
	11	0000 to 0255	Read the PO meter level (0000=0%, 0143=50%, 213=100%)		01	Send/read VSC function ON	
					12	0000 to 0255	Read the SWR meter level (0000=SWR1.0, 0048=SWR1.5, 0080=SWR2.0, 0120=SWR3.0)
	01	Send/read Twin Peak Filter ON					
	13	0000 to 0255	Read the ALC meter level (0000=Min. to 0120=Max.)		50	00	Send/read Dial lock function OFF
				01		Send/read Dial lock function ON	
	14	0000 to 0255	Read the COMP meter level (0000=0 dB, 0130=15 dB, 0241=30 dB)	56	00	Send/read DSP filter type SHARP	
					01	Send/read DSP filter type SOFT	
	15	0000 to 0255	Read the Vd meter level (0000=0 V, 0013=10 V, 0241=16 V)	57	00	Send/read manual notch width WIDE	
					01	Send/read manual notch width MID	
	02	Send/read manual notch width NAR					
	16	0000 to 0255	Read the Id meter level (0000=0, 0097=10, 0146=15, 0241=25)	58	00	Send/read SSB transmit bandwidth WIDE	
01					Send/read SSB transmit bandwidth MID		
16	02	00	Send/read Preamp OFF	02	Send/read SSB transmit bandwidth NAR		
		01	Send/read Preamp ON (144/430 MHz)		5B	00	Send/read DSQ/CSQ OFF (DV mode only)
		02	Send/read Preamp 1 ON (HF/50 MHz)			01	Send/read DSQ ON (DV mode only)
	12	01	Send/read AGC FAST	02		Send/read CSQ ON (DV mode only)	
		02	Send/read AGC MID	17		see p. 20-11	Send CW messages*1
		03	Send/read AGC SLOW				
	22	00	Send/read Noise Blanker OFF	01	Turn ON the transceiver*2		
		01	Send/read Noise Blanker ON				
	40	00	Send/read Noise Reduction OFF				
		01	Send/read Noise Reduction ON				
	41	00	Send/read Auto Notch function OFF				
		01	Send/read Auto Notch function ON				
	42	00	Send/read Repeater tone OFF				
		01	Send/read Repeater tone ON				
	43	00	Send/read Tone squelch OFF				
		01	Send/read Tone squelch ON				

*1 In the CW mode, if an external TX switch is ON, or the Break-in function is ON, a message will be transmitted as CW code when you send it from your PC.

*2 When sending the power ON command (18 01), the command "FE" must be sent before the basic format.

- 19200 bps: 25, • 9600 bps: 13, • 4800 bps: 7,
- 1200 bps: 3, • 300 bps: 2

Example: When operating with 4800 bps

			①			②		③		④		⑤		⑦	
F	E	F	E	F	E	8	8	E	O	1	8	0	1	F	D

× 7

- ① Preamble code (fixed)
- ② Transceiver's default address
- ③ Controller's default address
- ④ Command number
- ⑤ Sub command number
- ⑦ End of message code (fixed)

*1 In the CW mode, if an external TX switch is ON, or the Break-in function is ON, a message will be transmitted as CW code when you send it from your PC.

*2 When sending the power ON command (18 01), the command "FE" must be sent before the basic format.

- 19200 bps: 25, • 9600 bps: 13, • 4800 bps: 7,
- 1200 bps: 3, • 300 bps: 2

Example: When operating with 4800 bps

		①		②		③		④		⑤		⑦			
F	E	F	E	F	E	8	8	E	O	1	8	0	1	F	D
x 7															

- × 7
- ① Preamble code (fixed)
 - ② Transceiver's default address
 - ③ Controller's default address
 - ④ Command number
 - ⑤ Sub command number
 - ⑦ End of message code (fixed)

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description
19	00		Read the transceiver ID	1A	05	0015	00/01 Send/read the Quick Split function setting (00=OFF, 01=ON)
1A	00	see p. 20-16	Send/read the Memory channel contents			0016	see p. 20-13 Send/read the Split offset frequency
	01	see p. 20-12	Send/read the Band stacking register contents			0017	00/01 Send/read the Split Lock function setting (00=OFF, 01=ON)
	02	see p. 20-13	Send/read the Memory keyer contents*			0018	see p. 20-13 Send/read the Duplex offset frequency
	03	00 to 49	Send/read the selected filter width (AM: 00=200 Hz to 49=10 kHz; other than AM modes: 00=50 Hz to 40/31=3600 Hz/2700 Hz)			0019	00/01 Send/read the One Touch Repeater setting (00=DUP-, 01=DUP+)
	04	00 to 13	Send/read the selected AGC time constant (00=OFF, AM: 01=0.3 sec. to 13=8.0 sec., SSB/CW/RTTY: 01=0.1 sec. to 13=6.0 sec.)			0020	00 to 02 Send/read the Auto Repeater setting (0=OFF, 1=ON(DUP) (for USA version) or ON (for Korea version), 2=ON(DUP,TONE)(for USA version)
	05	0001	00/01 Send/read the TX Monitor function setting (00=OFF, 01=ON)			0021	00/01 Send/read the Tuner Auto Start setting (00=OFF, 01=ON)
		0002	0000 to 0255 Send/read the TX Monitor level (0000=0% to 0255=100%)			0022	00/01 Send/read the PTT Tune setting (00=OFF, 01=ON)
		0003	Send/read the Beep level (0000=0% to 0255=100%)			0023	00 Send/read the Manual selection for the [TUNER] Switch function.
		0004	00/01 Send/read the Beep level limit setting (00=OFF, 01=ON)			01	Send/read the Auto selection for the [TUNER] Switch function.
		0005	00/01 Send/read the Confirmation beep setting (00=OFF, 01=ON)			0024	00/01 Send/read [SPEECH/LOCK] key function setting (00=Push: SPEECH, Hold down: LOCK), 01=Push: LOCK, Hold down: SPEECH)
		0006	00 to 03 Send/read the Band edge beep setting (00=OFF, 01=ON(Default), 02=ON(User), 03=ON(User & TX Limit))			0025	00/01 Send/read the Lock function setting (00=MAIN DIAL, 01=PAGE)
		0007	00 to 02 Send/read the RF/SQL Control setting (00=Auto, 01=SQL, 02=RF+SQL)			0026	00/01 Send/read the number of memo pad channels (00=5CH, 01=10CH)
		0008	00 to 05 Send/read the TX Delay setting (HF) (00=OFF, 01=10ms, 02=15ms, 03=20ms, 04=25ms, 05=30ms)			0027	00 to 02 Send/read the Auto TS setting for the Dial (00=OFF, 01=LOW, 02=HIGH)
		0009	00 to 05 Send/read the TX Delay setting (50M) (00=OFF, 01=10ms, 02=15ms, 03=20ms, 04=25ms, 05=30ms)			0028	00/01 Send/read the microphone Up/Down speed setting (00=Slow, 01=Fast)
		0010	00 to 05 Send/read the TX Delay setting (70M) (00=OFF, 01=10ms, 02=15ms, 03=20ms, 04=25ms, 05=30ms)			0029	00 to 02 Send/read the Notch function setting for SSB mode (00=Auto, 01=Manual, 02=Auto/Manual)
		0011	00 to 05 Send/read the TX Delay setting (144M) (00=OFF, 01=10ms, 02=15ms, 03=20ms, 04=25ms, 05=30ms)			0030	00 to 02 Send/read the Notch function setting for AM mode (00=Auto, 01=Manual, 02=Auto/Manual)
		0012	00 to 05 Send/read the TX Delay setting (430M) (00=OFF, 01=10ms, 02=15ms, 03=20ms, 04=25ms, 05=30ms)			0031	00/01 Send/read the SSB/CW Synchronous Tuning function setting (00=OFF, 01=ON)
		0013	00 to 05 Send/read the Time-Out Timer setting (0=OFF, 1=3 min., 2=5 min., 3=10 min., 4=20 min., 5=30 min.)			0032	00/01 Send/read the CW normal side setting (00=LSB, 01=USB)
		0014	00/01 Send/read the PTT Lock function setting (00=OFF, 01=ON)			0033	00/01 Send/read the voice 1st menu (00=VOICE-Root, 01=VOICE-TX)
						0034	00/01 Send/read the keyer 1st menu (00=KEYER-Root, 01=KEYER-SEND)

* The counter can be inserted into only one channel. Before inserting the counter, be sure to clear the counter on another channel.

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description		
1A	05	0035	00/01	Send/read the Speaker output setting (00=OFF, 01=ON)	1A	05	0050	00/01	Send/read the S-Level SPEECH function setting (00=OFF, 01=ON)
		0036	00/01	Send/read the MIC AF output setting (00=OFF, 01=ON)			0051	00/01	Send/read the MODE SPEECH function setting (00=OFF, 01=ON)
		0037	00 to 22	Send/read the function of [F-1] on the HM-151 (00=---, 01=P.AMP/ATT, 02=AGC, 03=NB, 04=NR, 05=NOTCH, 06=RIT, 07=AUTOTUNE/RX>CS, 08=TS, 09=MPAD, 10=M-CLR, 11=BANK, 12=SPLIT, 13=A/B, 14=DUP, 15=TONE/DSQL, 16=COMP, 17=TBW, 18=METER, 19=DR, 20=FROM/TO (DR), 21=SCAN, 22=Voice TX (T1))			0052	00/01	Send/read the speech language (00=English, 01=Japanese)
		0038	00 to 22	Send/read the function of [F-2] on the HM-151 (00=---, 01=P.AMP/ATT, 02=AGC, 03=NB, 04=NR, 05=NOTCH, 06=RIT, 07=AUTOTUNE/RX>CS, 08=TS, 09=MPAD, 10=M-CLR, 11=BANK, 12=SPLIT, 13=A/B, 14=DUP, 15=TONE/DSQL, 16=COMP, 17=TBW, 18=METER, 19=DR, 20=FROM/TO (DR), 21=SCAN, 22=Voice TX (T1))			0053	00/01	Send/read the Alphabet setting for SPEECH (00=Normal, 01=Phonetic Code)
							0054	00/01	Send/read the speech speed setting (00=Slow, 01=Fast)
							0055	0000 to 0255	Send/read the speech level (0000=0% to 0255=100%)
							0056	see p. 20-11	Send/read the SSB RX HPF/LPF setting
							0057	00 to 10	Send/read the SSB RX Tone (Bass) level (00=-5 to 10=+5)
							0058	00 to 10	Send/read the SSB RX Tone (Treble) level (00=-5 to 10=+5)
		0039	00/01	Send/read the SSB mode selection of the [MODE] key on the HM-151 (00=OFF, 01=ON)			0059	see p. 20-11	Send/read the AM RX HPF/LPF setting
		0040	00/01	Send/read the CW mode selection of the [MODE] key on the HM-151 (00=OFF, 01=ON)			0060	00 to 10	Send/read the AM RX tone (Bass) level (00=-5 to 10=+5)
		0041	00/01	Send/read the RTTY mode selection of the [MODE] key on the HM-151 (00=OFF, 01=ON)			0061	00 to 10	Send/read the AM RX Tone (Treble) level (00=-5 to 10=+5)
		0042	00/01	Send/read the AM mode selection of the [MODE] key on the HM-151 (00=OFF, 01=ON)			0062	see p. 20-11	Send/read the FM RX HPF/LPF setting
		0043	00/01	Send/read the FM mode selection of the [MODE] key on the HM-151 (00=OFF, 01=ON)			0063	00 to 10	Send/read the FM RX tone (Bass) level (00=-5 to 10=+5)
		0044	00/01	Send/read the DV mode selection of the [MODE] key on the HM-151 (00=OFF, 01=ON)			0064	00 to 10	Send/read the FM RX Tone (Treble) level (00=-5 to 10=+5)
0045	00/01	Send/read the WFM mode selection of the [MODE] key on the HM-151 (00=OFF, 01=ON)	0065	see p. 20-11	Send/read the DV RX HPF/LPF setting				
0046	00/01	Send/read the Power OFF setting when no controller is connected. (00=OFF, 01=ON)	0066	00 to 10	Send/read the DV RX tone (Bass) level (00=-5 to 10=+5)				
0047	0000 to 0255	Send/read the REF Adjust setting (0000=0%, 0128=50%, 0255=100%)	0067	00 to 10	Send/read the DV RX Tone (Treble) level (00=-5 to 10=+5)				
0048	00 to 02	Send/read the RX Call Sign SPEECH setting (00=OFF, 01=ON (Kerchunk), 02=ON (All))	0068	00 to 10	Send/read the WFM RX Tone (Bass) level (00=-5 to 10=+5)				
0049	00/01	Send/read the RX>CS SPEECH function setting (00=OFF, 01=ON)	0069	00 to 10	Send/read the WFM RX Tone (Treble) level (00=-5 to 10=+5)				
				0070	00 to 10	Send/read the CW RX HPF/LPF setting			
				0071	00 to 10	Send/read the RTTY RX HPF/LPF setting			
				0072	00 to 10	Send/read the SSB TX Tone (Bass) level (00=-5 to 10=+5)			
				0073	00 to 10	Send/read the SSB TX Tone (Treble) level (00=-5 to 10=+5)			

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description
1A	05	0074	see p. 20-11 Send/read the WIDE SSB TX bandwidth	1A	05	0096	00 to 02 Send/read the "USB2" (COM port) function setting (00=OFF, 01=RTTY Decode, 02=DV Data)
		0075	see p. 20-11 Send/read the MID SSB TX bandwidth			0097	00 to 03 Send/read the [DATA1] function setting (00=OFF, 01=RTTY Decode, 02=DV Data, 03=GPS)
		0076	see p. 20-11 Send/read the NARROW SSB TX bandwidth			0098	00/01 Send/read the GPS output setting (00=OFF, 01=DATA1→USB2)
		0077	00 to 10 Send/read the AM TX tone (Bass) level (00=-5 to 10=+5)			0099	00/01 Send/read the DV or GPS data transfer speed (00=4800 bps, 01=9600 bps)
		0078	00 to 10 Send/read the AM TX Tone (Treble) level (00=-5 to 10=+5)			0100	00 to 04 Send/read the RTTY decode speed (00=300 bps, 01=1200 bps, 02=4800 bps, 03=9600 bps, 04=19200 bps)
		0079	00 to 10 Send/read the FM TX tone (Bass) level (00=-5 to 10=+5)			0101	00 to 02 Send/read the band setting for the [ACC] socket's pin 7 (VSEND usage) (00=OFF, 01=UHF, 02=VHF/UHF)
		0080	00 to 10 Send/read the FM TX Tone (Treble) level (00=-5 to 10=+5)			0102	00/01 Send/read the 9600bps Mode setting (00=OFF, 01=ON)
		0081	00 to 10 Send/read the DV TX tone (Bass) level (00=-5 to 10=+5)			0103	0000 to 0255 Send/read the LCD contrast setting (0000=0% to 0255=100%)
		0082	00 to 10 Send/read the DV TX Tone (Treble) level (00=-5 to 10=+5)			0104	0000 to 0255 Send/read the LCD Backlight setting (0000=0% to 0255=100%)
		0083	00/01 Send/read the USB audio squelch setting (00=OFF (OPEN), 01=ON)			0105	0000 to 0255 Send/read the Key Backlight setting (0000=0% to 0255=100%)
		0084	00/01 Send/read the ACC and USB output setting (00=AF, 01=IF)			0106	00/01 Send/read the Meter Peak Hold setting (00=OFF, 01=ON)
		0085	0000 to 0255 Send/read the ACC and USB AF output Level (0000=0% to 0255=100%)			0107	00/01 Send/read the PBT shifting value display setting while rotating [TWIN PBT] (00=OFF, 01=ON)
		0086	0000 to 0255 Send/read the ACC and USB IF output Level (0000=0% to 0255=100%)			0108	00/01 Send/read the IF filter width and shifting value display setting when the IF filter is switched (00=OFF, 01=ON)
		0087	0000 to 0255 Send/read the ACC modulation level (0000=0% to 0255=100%)			0109	00 to 02 Send/read the RX Call sign display setting (00=OFF, 01=AUTO, 02=Auto (RX Hold))
		0088	0000 to 0255 Send/read the DATA modulation level (0000=0% to 0255=100%)			0110	00/01 Send/read the RX message display setting (00=OFF, 01=ON)
		0089	0000 to 0255 Send/read the USB modulation level (0000=0% to 0255=100%)			0111	00/01 Send/read the RX position display setting when the received Auto Reply signal includes the position (00=OFF, 01=ON)
		0090	00 to 03 Send/read the modulation input setting in the DATA mode OFF (00=MIC, 01=ACC, 02=MIC,ACC, 03=USB)			0112	00 to 02 Send/read the TX Call sign display setting (00=OFF, 01=Your Call Sign, 02=My Call Sign)
		0091	00 to 03 Send/read the modulation input setting in the DATA mode ON (00=MIC, 01=ACC, 02=MIC,ACC, 03=USB)			0113	00/01 Send/read the Scroll Speed setting (00=Slow, 01=Fast)
		0092	00/01 Send/read the external keypad setting for VOICE (00=OFF, 01=ON)			0114	00/01 Send/read the VOICE TX Name Display setting (00=OFF, 01=ON)
		0093	00/01 Send/read the external keypad setting for Memory KEYS (00=OFF, 01=ON)			0115	00/01 Send/read the KEYS Memory Display setting (00=OFF, 01=ON)
		0094	00/01 Send/read the external keypad setting for RTTY Memory (00=OFF, 01=ON)				
		0095	00/01 Send/read the CI-V transceive setting (00=OFF, 01=ON)				

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description		
1A	05	0116	00/01	Send/read the Opening Message (00=OFF, 01=ON)	1A	05	0139	00/01	Send/read Mic. up/down keyer setting (00=OFF, 01=ON)
		0117	00/01	Send/read the Power ON Check setting (00=OFF, 01=ON)			0140	00/01	Send/read the Twin Peak Filter setting (00=OFF, 01=ON)
		0118	00/01	Send/read the Display Language (00=English, 01=Japanese)			0141	00 to 02	Send/read the RTTY mark frequency (00=1275 Hz, 01=1615 Hz, 02=2125 Hz)
		0119	00/01	Send/read the System Language (00=English, 01=Japanese)			0142	00 to 02	Send/read the RTTY shift width (00=170 Hz, 01=200 Hz, 02=425 Hz)
		0120	20000101 to 20991231	Send/read the date setting (20000101=2000/01/01 to 20991231=2099/12/31)			0143	00/01	Send/read the RTTY keying polarity (00=Normal, 01=Reverse)
		0121	0000 to 2359	Send/read the time setting (0000(0:00) to 2359(23:59))			0144	00/01	Send/read the RTTY decode USOS setting (00=OFF, 01=ON)
		0122	00/01	Send/read the GPS time correction setting (00=OFF, 01=Auto)			0145	00/01	Send/read the RTTY decode new line code setting (00=CR,LF,CR+LF, 01=CR+LF)
		0123	see p. 20-13	Send/read the UTC offset setting			0146	00/01	Send/read the RTTY TX USOS setting (00=OFF, 01=ON)
		0124	00/01	Send/read the clock display mode (00=LOCAL, 01=UTC)			0147	00/01	Send/read the RTTY Decode Log setting (00=OFF, 01=ON)
		0125	00 to 04	Send/read the Auto Power OFF function setting (00=OFF, 01=30 min., 02=60 min., 03=90 min., 04=120 min.)			0148	00/01	Send/read the RTTY Decode Log file type (00=Text, 01=HTML)
		0126	00 to 10	Send/read the compression level (00=0 to 10=10)			0149	00/01	Send/read the RTTY Decode Log Time Stamp setting (00=OFF, 01=ON)
		0127	00 to 14	Send/read the repeat interval to transmit the recorded voice audio (00=1 sec. to 14=15 sec.)			0150	00/01	Send/read the RTTY Decode Log Time Stamp (Time) (00=Local, 01=UTC)
		0128	00/01	Send/read the TX voice audio monitor function setting (00=OFF, 01=ON)			0151	00/01	Send/read the RTTY Decode Log Time Stamp (Frequency) (00=OFF, 01=ON)
		0129	00 to 04	Send/read the numbering system used for contest (serial) numbers (00=Normal, 01=190 ANO, 02=190 ANT, 03=90 NO, 04=90 NT)			0152	00 to 03	Send/read the DTMF Speed setting (00=100 msec., 01=200 msec., 02=300 msec., 03=500 msec.)
		0130	01 to 04	Send/read the count-up trigger channel (01=M1 to 04=M4)			0153	00/01	Send/read the Scan speed setting (00=Slow, 01=Fast)
		0131	0001 to 9999	Send/read the current contest serial number (0001=1 to 9999=9999)			0154	00/01	Send/read the Scan resume setting (00=OFF, 01=ON)
		0132	0000 to 0255	Send/read the CW sidetone level (0000=0% to 0255=100%)			0155	00 to 10	Send/read the Scan pause timer setting (00=2 sec. to 09=20 sec., 10=HOLD)
		0133	00/01	Send/read the CW sidetone level limit setting (00=OFF, 01=ON)			0156	00 to 06	Send/read the Scan resume timer (00=0 sec. to 05=5 sec., 6=HOLD)
		0134	01 to 60	Send/read the CW keyer repeat time (01=1 sec. to 60=60 sec.)			0157	00/01	Send/read the Dial function during a scan (00=OFF, 01=Up/Down)
		0135	28 to 45	Send/read the CW keyer dot/dash ratio (28=1:1.2:8 to 45=1:1.4:5)			0158	0000 to 0255	Send/read the NB level (0000=0% to 0255=100%)
		0136	00 to 03	Send/read the CW Rise time setting (00=2 msec, 01=4 msec, 02=6 msec, 03=8 msec)			0159	00 to 09	Send/read the NB depth (00=1 to 09=10)
		0137	00/01	Send/read the paddle polarity setting (00=Normal, 01=Reverse)			0160	0000 to 0255	Send/read the NB width (0000=1 to 0255=100)
		0138	00 to 02	Send/read the keyer type setting (00=Straight, 01=BUG-Key, 02=ELEC-Key)			0161	00 to 15	Send/read the NR level for other than the DR mode (00=0 to 15=15)

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description
1A	05	0162	00 to 15 Send/read NR level for the DR mode (00=0 to 15=15)	1A	05	0186	see p. 20-13 Send/read the manually programmed position
		0163	0000 to 0255 Send/read the VOX gain (0000=0% to 0255=100%)			0187	00/01 Send/read the GPS Indicator setting (00=OFF, 01=ON)
		0164	0000 to 0255 Send/read the ANTI-VOX gain (0000=0% to 0255=100%)			0188	00/01 Send/read the Position Format setting (00=ddd°mm.mm', 01=ddd°mm'ss")
		0165	00 to 20 Send/read the VOX delay time (00=0.0 sec. to 20=2.0 sec.)			0189	00/01 Send/read the Distance and Altitude unit (00=meter, 01=feet/mile)
		0166	0020 to 0130 Send/read the BK-IN delay time (0020=2.0d to 0130=13.0d)			0190	00 to 02 Send/read the GPS speed unit (00=km/h, 01=mph, 02=knots)
		0167	00/01 Send/read the recording mode (00=TX&RX, 01=RX Only)			0191	see p. 20-13 Send/read GPS alarm area (Group)
		0168	00/01 Send/read the squelch status for the RX voice audio recording (00=Always, 01=Squelch Auto)			0192	00 to 02 Send/read GPS alarm area (RX/Memory) (00=Limited, 01=Extended, 02=Both)
		0169	00/01 Send/read the QSO audio record file Split function setting (00=OFF, 01=ON)			0193	00 to 02 Send/read the GPS TX Mode setting (00=OFF, 01=GPS(DV-G), 02=GPS-A(DV-A))
		0170	00/01 Send/read the PTT Automatic Recording function setting (00=OFF, 01=ON)			0194	00/01 Send/read the GPS (RMC) Sentence setting (00=OFF, 01=ON)
		0171	00 to 03 Send/read the Skip Timer setting while playing back (00=3 sec., 01=5 sec., 02=10 sec., 03=30 sec.)			0195	00/01 Send/read the GPS (GGA) Sentence setting (00=OFF, 01=ON)
		0172	00 to 02 Send/read the Standby Beep setting (00=OFF, 01=ON, 02=ON (to me:High Tone))			0196	00/01 Send/read the GPS (GLL) Sentence setting (00=OFF, 01=ON)
		0173	00 to 02 Send/read Auto Reply setting (00=OFF, 01=ON, 02=Voice)			0197	00/01 Send/read the GPS (GSA) Sentence setting (00=OFF, 01=ON)
		0174	00/01 Send/read the DV Data TX setting (00=PTT, 01=Auto)			0198	00/01 Send/read the GPS (VTG) Sentence setting (00=OFF, 01=ON)
		0175	00 to 02 Send/read the Digital Monitor setting (00=Auto, 01=Digital, 02=Analog)			0199	00/01 Send/read the GPS (GSV) Sentence setting (00=OFF, 01=ON)
		0176	00/01 Send/read the Digital Repeater setting function setting (00=OFF, 01=ON)			0200	see p. 20-14 Send/read the GPS Message
		0177	00/01 Send/read the RX Call Sign Auto Write setting (00=OFF, 01=Auto)			0201	see p. 20-13 Send/read the Unproto Address
		0178	00/01 Send/read the RX RPT Call Sign Auto Write setting (00=OFF, 01=Auto)			0202	00/01 Send/read the position data extension setting (00=OFF, 01=COURSE/SPEED)
		0179	00/01 Send/read the DV Auto Detect setting (00=OFF, 01=ON)			0203	00 to 02 Send/read the GPS-A Time Stamp setting (00=OFF, 01=DHM, 02=HMS)
		0180	00/01 Send/read the RX Record (RPT) setting (00=ALL, 01=Latest Only)			0204	00/01 Send/read the GPS-A altitude setting (00=OFF, 01=ON)
		0181	00/01 Send/read the BK function setting (00=OFF, 01=ON)			0205	00 to 03 Send/read the GPS-A Symbol (00=No.1, 01=No.2, 02=No.3, 03=No.4)
		0182	00/01 Send/read the EMR mode setting (00=OFF, 01=ON)			0206	see p. 20-13 Send/read the GPS-A Symbol No.1 setting
		0183	0000 to 0255 Send/read EMR AF Level (0000=0% to 0255=100%)			0207	see p. 20-13 Send/read the GPS-A Symbol No.2 setting
		0184	00 to 02 Send/read the external GPS receiver setting (00=OFF, 01=External GPS, 02=Manual)			0208	see p. 20-13 Send/read the GPS-A Symbol No.3 setting
		0185	00/01 Send/read the GPS Receiver Baud setting (00=4800 bps, 01=9600 bps)			0209	see p. 20-13 Send/read the GPS-A Symbol No.4 setting
				0210	00 to 42 Send/read the GPS-A SSID (00=---, 01=(-), 02=-1 to 16=-15, 17=-A to 42=-Z)		

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Command table (Continued)

Cmd.	Sub cmd.	Data	Description	Cmd.	Sub cmd.	Data	Description									
1A	05	0211	see p. 20-14	1C	00	00	Send/read transceiver's status (RX). When "CI-V Output (for ANT)" (Command: 1C 04) is set to "ON," automatically outputs when changed.									
		0212	00 to 08			01	Send/read transceiver's status (TX). When "CI-V Output (for ANT)" (Command: 1C 04) is set to "ON," automatically outputs when changed.									
		0213	00/01		01	00	Send/read Antenna tuner OFF (through)									
		0214	00/01			01	Send/read Antenna tuner ON									
		0215	00 to 02			02	Send/read the Manual tuning selec- tion									
		0216	00 to 02		00=OFF, 01=ON	02	00	Send/read Transmit frequency monitor check OFF								
							01	Send/read Transmit frequency monitor check ON								
						03	see p. 20-11	04	00	Send/read Transmit frequency. When "CI-V Output (for ANT)" (Com- mand: 1C 04) is set to "ON," auto- matically outputs when changed.						
									01	Send/read command to disable to output the antenna controller status (frequency and so on) from [REMOTE].						
		0217	00/01		1E	00	Read number of available TX fre- quency band									
	0218	00 to 02	01	see p. 20-12												
	0219	00/01	02	Read the TX band edge frequen- cies												
	0220	00 to 02	00=Normal, 01=Large	03	see p. 20-12	1F	00	Send/read the User-set TX band edge frequencies								
							01	see p. 20-14								
02							see p. 20-14									
00							00/01*3	Send/read the DV MY call sign								
01							see p. 20-14	Send/read the DV TX call signs								
1B	06	see p. 20-14	Send/read the DATA mode setting	20	00	00	00/01*3	Send/read the Auto DV RX Call signs output setting (00=OFF, 01=ON)								
									01	see p. 20-15	Output the DV RX Call signs					
												02	see p. 20-15	Read the DV RX Call signs		
					01	00	00/01*3	Send/read the Auto DV RX mes- sage output setting (00=OFF, 01=ON)								
									02	see p. 20-15	Output the DV RX message					
	07	see p. 20-14	Send/read the Tone squelch fre- quency	02	00	00/01*3	Send/read the Auto DV RX status output setting (00=OFF, 01=ON)									
								01	see p. 20-15	Output the DV RX status						
											02	see p. 20-15	Read the DV RX status			
														00	see p. 20-17	Send/read RIT frequency.
01		01	Send/read RIT setting ON.													
				25		see p. 20-17	Send/read the selected or unse- lected VFO frequency.									
26		see p. 20-17	Send/read the selected or unselec- ted VFO's operating mode and filter.													

*3 Output setting is automatically turned OFF after turning the power OFF, then ON.

*³ Output setting is automatically turned OFF after turning the power OFF, then ON.

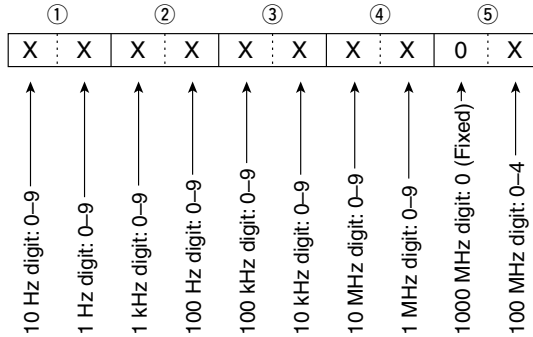
20 CONTROL COMMAND

Remote jack (CI-V) information (Continued)

◇ Data content description

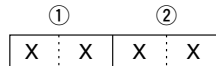
• Operating frequency

Command: 00, 03, 05, 1C 03



• Operating mode

Command: 01, 04, 06

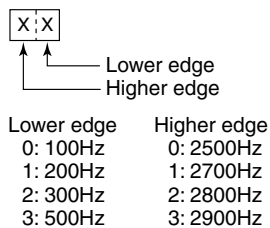


① Operating mode	② Filter setting
00: LSB	05: FM
01: USB	06: WFM
02: AM	07: CW-R
03: CW	08: RTTY-R
04: RTTY	17: DV

- Filter setting (②) can be skipped with command 01 and 06. In that case, "FIL1" is automatically selected with command 01, and the default filter setting of the operating mode is automatically selected with command 06.
- When the WFM mode is selected with command 06, "FIL1" is automatically selected with command 01.

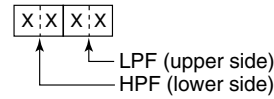
• SSB transmission **bandwidth** setting

Command: 1A 05 0074, 0075, 0076



• RX HPF and LPF settings in each operating mode

Command: 1A 05 0056, 0059, 0062, 0065



HPF
00: through
01 to 20: 100 to 2000 Hz

LPF
05 to 24: 500 to 2400 Hz
25: through

Set the LPF value larger than HPF one.

• CW message contents

Command: 17

Set a CW message of up to 30 characters.

• Character's code

Character	ASCII code	Description
0-9	30-39	Number
A-Z	41-5A	Alphabetical characters
a-z	61-7A	Alphabetical characters
space	20	Word space
/	2F	Symbol
?	3F	Symbol
.	2E	Symbol
-	2D	Symbol
,	2C	Symbol
:	3A	Symbol
'	27	Symbol
(28	Symbol
)	29	Symbol
=	3D	Symbol
+	2B	Symbol
"	22	Symbol
@	40	Symbol

- "FF" stops sending CW messages.
- "^" is used to transmit a string of characters with no inter-character space.

20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Data content description (Continued)

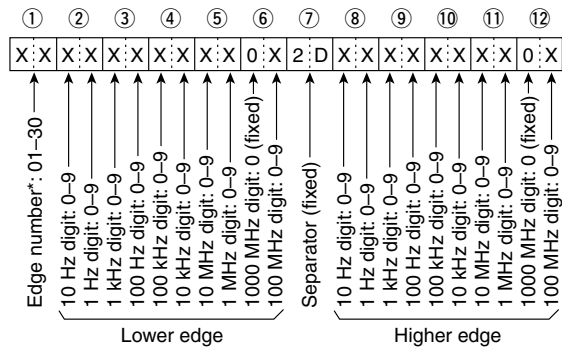
• Character code setting

Command: 1A 00, 1A 05 0200, 1A 05 0201,
1A 05 0206, 1A 05 0207, 1A 05 0208,
1A 05 0209, 1A 05 0211, 1F 02, 20 0001,
20 0002

Character	ASCII code	Character	ASCII code
A–Z	41–5A	a–z	61–7A
0–9	30–39	Space	20
!	21	#	23
\$	24	%	25
&	26	\	5C
?	3F	"	22
'	27	`	60
^	5E	+	2B
–	2D	*	2A
/	2F	.	2E
,	2C	:	3A
;	3B	=	3D
<	3C	>	3E
(28)	29
[5B]	5D
{	7B	}	7D
!	7C	_	5F
-	7E	@	40

• Band edge frequency setting

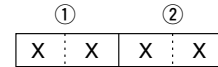
Command: 02*, 1E 01, 1E 03



* Edge number (①) is not sent with command 02 (reading the band edge frequencies).

• Band stacking register

Command: 1A 01



When sending the contents, the codes, such as operating frequency and operating mode*, should be added after the frequency band code and register code, as shown below.

*See ⑤ to ⑤① on 'Memory content setting.' (p. 20-16)

① Frequency band code

Code	Freq. band	Frequency range (unit: MHz)
01	1.8	1.800000–1.999999
02	3.5	3.400000–4.099999
03	7	6.900000–7.499999
04	10	9.900000–10.499999
05	14	13.900000–14.499999
06	18	17.900000–18.499999
07	21	20.900000–21.499999
08	24	24.400000–25.099999
09	28	28.000000–29.999999
10	50	50.000000–54.000000
11	144	144.000000–148.000000
12	430	420.000000–450.000000
13	GENE	Other than above

② Register code

Code	Registered No.
01	1 (latest)
02	2
03	3 (oldest)

To read the contents, the register code should be added after the frequency band code, as shown below.

Example: When reading the oldest contents in the 21 MHz band, the code "0703" is used.

20-13

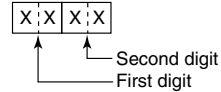
20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Data content description (Continued)

• **GPS-A Symbol setting**

Command : 1A 05 0206, 0207, 0208, 0209



/, \, 0 to 9, A to Z can be used for the first digit character.

See 'Character code setting' for the second digit character. (p. 20-12)

• **Comment setting**

Command: 1A 05 0211

Set a comment of up to 43 characters.

See 'Character code setting.' (p. 20-12)

• **GPS message setting**

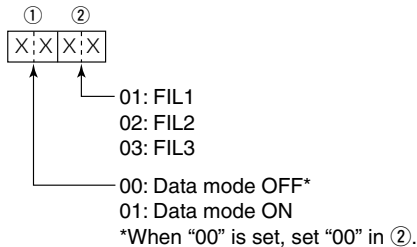
Command: 1A 05 0200

Set a GPS message of up to 20 characters.

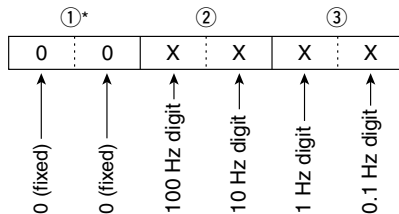
See 'Character code setting.' (p. 20-12)

• **Data mode with filter width setting**

Command: 1A 06

• **Repeater tone/tone squelch frequency setting**

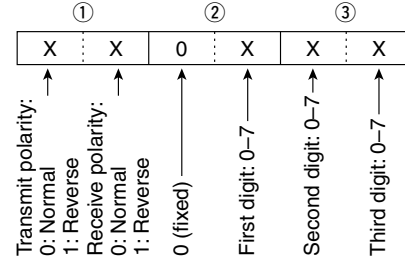
Command: 1B 00, 1B 01



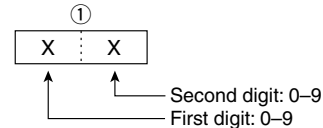
*Not necessary when setting a frequency.

• **DTCS code and polarity setting**

Command: 1B 02

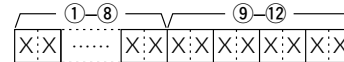
• **Digital code squelch setting**

Command: 1B 07

• **DV MY call sign setting**

Command: 1F 00

Set your own call sign and note of up to 12 characters.



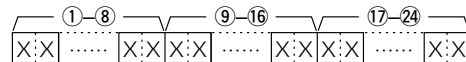
①-⑧ Your own call sign setting

⑨-⑫ Note setting

• **DV TX call signs setting**

Command: 1F 01

Set "UR," "R1" and "R2" call signs of 8 characters (fixed).



①-⑧ UR (Destination) call sign setting

⑨-⑯ R1 (Access repeater) call sign setting

⑰-⑳ R2 (Gateway/Link repeater) call sign setting

• Character's code of the call sign

Character	ASCII code	Character	ASCII code
0-9	30-39	A-Z	41-5A
Space	20	/	2F

• **DV TX message setting**

Command: 1F 02

Set the transmit message of up to 20 characters.

See 'Character code setting.' (p. 20-12)

/// "FF" stops sending or reading messages.

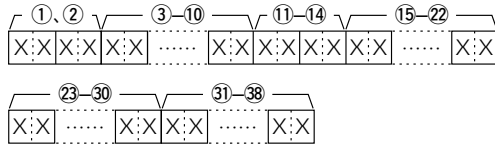
20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Data content description (Continued)

• DV RX call sign setting

Command: 20 0001, 20 0002



① Header flag data (First byte)

Data		Description
Bit		
7	0 (fixed)	—
6	0 (fixed)	—
5	0 (fixed)	—
4	0/1	0= Voice, 1= Data
3	0/1	0= Direct, 1= Through repeater
2	0/1	0= No Break-in, 1= Break-in
1	0/1	0= Data, 1= Control
0	0/1	0= Normal, 1= Emergency

② Header flag data (Second byte)

Data			Function
Bit 2	Bit 1	Bit 0	
1	1	1	Repeater control
1	1	0	Send auto acknowledge
1	0	1	(Not used)
1	0	0	Request to re-transmit
0	1	1	Send acknowledge
0	1	0	Receive no reply
0	0	1	Repeater disabled
0	0	0	NULL

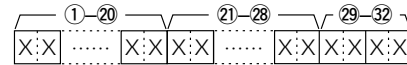
- ③—⑩ Caller station's **call sign** (8 characters; fixed)
 ⑪—⑭ Caller station's note (4 characters; fixed)
 ⑮—⑲ Called station's call sign (8 characters; fixed)
 ⑳—㉓ Access repeater's call sign (R1) (8 characters)
 ㉔—㉗ Gateway/Link repeater's call sign (R2) (8 characters; fixed)

See 'Character code setting.' (p. 20-12)

/// "FF" stands for no call sign receiving after turning ON the transceiver.

• DV RX message setting

Command: 20 0101, 20 0102



- ①—⑲ RX message (20 characters; fixed)
 ㉑—㉔ Call sign of the calling station (8 characters; fixed)
 ㉕—㉗ Note of the calling station (4 characters; fixed)

See 'Character code setting.' (p. 20-12)

/// "FF" stands for no message receiving after turning ON the transceiver.

• DV RX Status setting

Command: 20 0201, 20 0202

Data		Status	Description
Bit			
7	0	—	—
6	0/1	Receiving a voice call	During receiving a digital voice signal, select "1." (Regardless of DSQL and CSQL setting)
5	0/1	Last call finisher	When the last call was finished by you, select "1."
4	0/1	Receiving a signal	When the audio tone can be heard, select "1."
3	0/1	Receiving a BK call	During receiving a BK call, select "1."
2	0/1	Receiving a EMR call	During receiving a EMR call, select "1."
1	0/1	Receiving a signal other than DV	When "DV" and "FM" are blinking, select "1."
0	0/1	Packet loss status	During displaying a packet loss

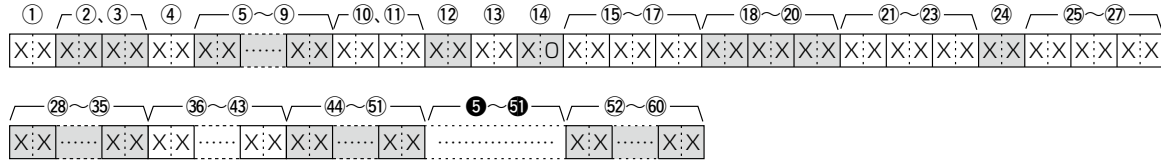
20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Data content description (Continued)

• Memory content setting

Command: 1A 00



① Bank number

01: A, 02: B, 03: C, 04: D, 05: E

②, ③ Memory channel number

0001–0099: Memory channel 1 to 99

0100: Programmed scan edge 1A

0101: Programmed scan edge 1b

0102: Programmed scan edge 2A

0103: Programmed scan edge 2b

0104: Programmed scan edge 3A

0105: Programmed scan edge 3b

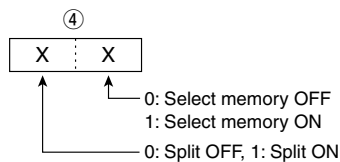
0106: Call channel 144-C1

0107: Call channel 144-C2

0108: Call channel 430-C1

0109: Call channel 430-C2

④ Split and Select memory settings



When the program channel is selected, both settings should be "0."

When the Call channel is selected, the Select memory setting should be "0."

⑤–⑨ Operating frequency setting

See '• Operating frequency.' (p. 20-11)

⑩, ⑪ Operating mode setting

See '• Operating mode.' (p. 20-11)

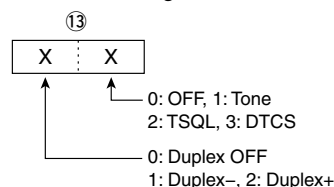
⑫ Data mode setting

1 byte data (XX)

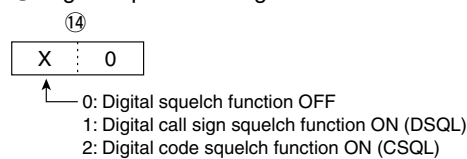
00: Data mode OFF

01: Data mode ON

⑬ Duplex and Tone settings



⑭ Digital squelch setting



⑮–⑰ Repeater tone frequency setting

⑱–⑳ Tone squelch frequency setting

See '• Repeater tone/tone squelch frequency setting.' (p. 20-14)

㉑–㉓ DTCS code setting

See '• DTCS code and polarity setting.' (p. 20-14)

㉔ Digital code squelch setting

See '• Digital code squelch setting.' (p. 20-14)

㉕–㉗ Duplex offset frequency setting

See '• Duplex Offset frequency setting.' (p. 20-13)

㉘–㉚ Destination call sign setting

(8 characters; fixed)

㉛–㉝ R1 (Access repeater) call sign setting

(8 characters; fixed)

㉞–㉠ R2 (Gateway/Link repeater) call sign setting

(8 characters; fixed)

See '• DV TX call signs setting.' (p. 20-14)

㉡–㉣ Memory name setting

16 characters (Fixed)

See '• Character code setting.' (p. 20-12)

About clearing operation:

"1A 00" command with the format as below clears the data of the selected memory channel.

②, ③: Memory channel 0 to 99

④: FF

⑤ or later: None

NOTE:

- The same data as ⑤–⑤ are stored in ⑤–⑤.
- When the Split function is ON, the data of ⑤–⑤ is used for transmit.
- Even if the Split function is OFF, enter the data into ⑤–⑤ to match your transceiver. We recommend that you set the same data as ⑤–⑤.

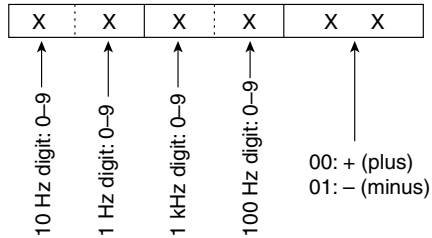
20 CONTROL COMMAND

Remote jack (CI-V) information

◇ Data content description (Continued)

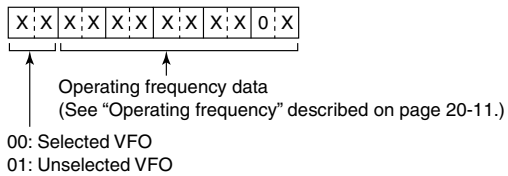
• RIT frequency settings

Command: 21 00



• Selected or unselected VFO frequency settings

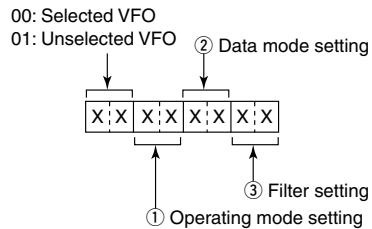
Command: 25



• Selected or unselected VFO's operating mode and filter settings

Command: 26

Both data and filter settings can be skipped. In that case, "DATA OFF" and the default filter setting of the operating mode is automatically selected.



① Operating mode		② Data mode setting	③ Filter setting
00: LSB	05: FM	00: Data mode OFF	01: FIL1
01: USB	06: WFM	01: Data mode ON	02: FIL2
02: AM	07: CW-R	—	03: FIL3
03: CW	08: RTTY-R	—	—
04: RTTY	17: DV	—	—