

DIGITAL AUDIO SIGNAL GENERATOR

Digital Audio Signal Generator DG-2630

OUTLINE

DG-2630 generates the test signal by the IEC61937 (with MPEG-2 AAC) and IEC60958 (with PCM) digital audio interface format and measures the characteristic of the equipment which processes the digital signal.
The sampling frequency of PCM test pattern is up to 96kHz.

FEATURES

MPEG-2 AAC and PCM

Pre-set test patterns of MPEG-2 AAC and PCM are generated by digital.
Test patterns of MPEG-2 AAC is fixed. PCM can be rewritten by using RS-232C.

BS digital broadcasting standard

The MPEG-2 AAC signal comply with the BS digital broadcasting standard in Japan.

Manual operation

Emphasis bit and copy bit of C-bit, validity flag and L/R-MUTE in digital audio interface formatting can be manually changed regardless of the test pattern.
However, L/R-MUTE is changeable at PCM MODE only.

Two kinds of output

The signals are output by coaxial terminal and optical terminal.

External control

The key operation of a front panel can be controlled through remote control terminal of the rear panel.

Seven segment LED display

The output signal frequency and the level or pattern No. is displayed by seven segments LED.

Easy test pattern change

The test pattern is output in order pre-set by the UP/DOWN/TOP key.

RS-232C

GP-IB
OPTION



SPECIFICATIONS

Memory backup

The status of memory data is backed up.

MPEG-2 AAC test pattern

Sampling frequency	48 kHz, 44.1 kHz, 32 kHz
Number of quantization bit	24 bit, 16 bit fixed
Profile	LC profile
Bit-stream form	ADTS
Sound mode	Monaural, Stereo, Multi-channel, Dual-monaural
Sound emphasis	Non
Bit rate	96 kbps, 128 bps, 144 kbps, 192 kbps
Test pattern frequency	18.75Hz, 46.875Hz, 93.75Hz, 187.5Hz, 281.25Hz, 375Hz, 562.5Hz, 937.5Hz, 1.125kHz, 1.875kHz, 2.25kHz, 3kHz, 4.5kHz, 5.25kHz, 9kHz, 10.125kHz, 15kHz, 20.25kHz fixed (at sampling frequency 48kHz) 12.5Hz, 31.25Hz, 62.5Hz, 125Hz, 187.5Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 5kHz, 8kHz, 10kHz, 14kHz fixed (at sampling frequency 32kHz) 43.0664Hz, 86.136Hz, 172.2656Hz, 258.398Hz, 516.797Hz, 689.0625Hz, 1.033594kHz, 1.378125kHz, 2.067186kHz, 2.75625kHz, 4.134375kHz, 5.5125kHz, 8.26875kHz, 19.29375kHz, fixed (at sampling frequency 44.1kHz)
Test pattern waveform	Sine wave
Number of test pattern	86 kinds
Sampling frequency accuracy	Fs \pm 50 ppm (when internal clock is used)
MUTE function	Fixed
Output format	Compliant with the IEC61937 digital audio interface standard

Test pattern output level 0 dBFS to -120 dBFS fixed

PCM test pattern

Sampling frequency	96 kHz, 48 kHz, 44.1 kHz, 32 kHz
Number of quantization bit	16 bit 2 channel, 24 bit 2 channel
Test pattern frequency	1 Hz to (Sampling frequency/2)Hz
Test pattern waveform	Sine wave, square wave
Number of test pattern	Maximum 100 kinds
Sampling frequency accuracy	Fs \pm 50 ppm (when internal clock is used)
MUTE function	L, R, L + R
Output format	Compliant with the IEC 60958 digital audio interface standard
Test pattern output range	-96 to 0 dBm (at 16bit), -144 to 0 dBm (at 24 bit) in 0.1 dBm steps

Connectors

Coaxial output	BNC-R
Output impedance	75 Ω
Output level	0.5 \pm 0.05 V p-p
Optical output 1 (Up to 48 kHz of the sampling frequency)	TOSLINK TOTX176
Output level	-19dBm fixed and -19dBm to -27dBm variable at 2 kinds
Optical output 2 (Up to 96 kHz of the sampling frequency)	TOSLINK TOTX179
Output level	-21dBm(min.) and -15dBm(max.) fixed

EXT. CLOCK input	BNC-R
Input level	TTL level
*256 times the sampling frequency is input at the 96 kHz of sampling frequency. 512 times the sampling frequency is input at the other sampling frequency.	
BIT CLOCK, Fs output	BNC-R
Output level	TTL level
Remote control terminal	D-sub 15 pin (female)
RS-232C terminal	D-sub 25 pin (female), Compliance with RS-232C standard
Dimensions	210 (W) \times 133 (H) \times 300 (D) mm
Weight	approx. 3.9 kg
Power source	100 to 240 VAC, 50/60 Hz, approx. 8 W
Operation temp.	0 to 50°C
Accessories	Optical fiber cable : 1 Power cord : 1 Instruction manual : 1

DIGITAL AUDIO SIGNAL GENERATOR

MPEG-2 AAC Test Pattern Table (Fixed)

MPEG-2 AAC Test Pattern Table - 1
(Sampling frequency = 48 kHz)

No.	Mode	Bits	L	R	LS	RS	C	LFE	Note
1	3/2/1	16	18.75Hz -20dBFS	18.75Hz -20dBFS	18.75Hz -20dBFS	18.75Hz -20dBFS	18.75Hz -20dBFS	18.75Hz -20dBFS	
2	3/2/1	16	46.875Hz -20dBFS	46.875Hz -20dBFS	46.875Hz -20dBFS	46.875Hz -20dBFS	46.875Hz -20dBFS	46.875Hz -20dBFS	
3	3/2/1	16	187.5Hz -20dBFS	187.5Hz -20dBFS	187.5Hz -20dBFS	187.5Hz -20dBFS	187.5Hz -20dBFS	187.5Hz -20dBFS	
4	3/2/1	16	375Hz -20dBFS	375Hz -20dBFS	375Hz -20dBFS	375Hz -20dBFS	375Hz -20dBFS	375Hz -20dBFS	
5	3/2/1	16	562.5Hz -20dBFS	562.5Hz -20dBFS	562.5Hz -20dBFS	562.5Hz -20dBFS	562.5Hz -20dBFS	562.5Hz -20dBFS	
6	3/2/1	16	937.5Hz -20dBFS	937.5Hz -20dBFS	937.5Hz -20dBFS	937.5Hz -20dBFS	937.5Hz -20dBFS	937.5Hz -20dBFS	
7	3/2/0	16	1.875kHz -20dBFS	1.875kHz -20dBFS	1.875kHz -20dBFS	1.875kHz -20dBFS	1.875kHz -20dBFS		
8	3/2/0	16	3kHz -20dBFS	3kHz -20dBFS	3kHz -20dBFS	3kHz -20dBFS	3kHz -20dBFS		
9	3/2/0	16	5250Hz -20dBFS	5250Hz -20dBFS	5250Hz -20dBFS	5250Hz -20dBFS	5250Hz -20dBFS		
10	3/2/0	16	10.125kHz -20dBFS	10.125kHz -20dBFS	10.125kHz -20dBFS	10.125kHz -20dBFS	10.125kHz -20dBFS		
11	3/2/0	16	15kHz -20dBFS	15kHz -20dBFS	15kHz -20dBFS	15kHz -20dBFS	15kHz -20dBFS		
12	3/2/0	16	20.250kHz -20dBFS	20.250kHz -20dBFS	20.250kHz -20dBFS	20.250kHz -20dBFS	20.250kHz -20dBFS		
13	3/2/1	24	93.75Hz 0dBFS	93.75Hz 0dBFS	93.75Hz 0dBFS	93.75Hz 0dBFS	93.75Hz 0dBFS	93.75Hz 0dBFS	
14	3/2/1	24	93.75Hz -20dBFS	93.75Hz -20dBFS	93.75Hz -20dBFS	93.75Hz -20dBFS	93.75Hz -20dBFS	93.75Hz -20dBFS	
15	3/2/1	24	93.75Hz -40dBFS	93.75Hz -40dBFS	93.75Hz -40dBFS	93.75Hz -40dBFS	93.75Hz -40dBFS	93.75Hz -40dBFS	
16	3/2/1	24	93.75Hz -60dBFS	93.75Hz -60dBFS	93.75Hz -60dBFS	93.75Hz -60dBFS	93.75Hz -60dBFS	93.75Hz -60dBFS	
17	3/2/1	24	93.75Hz -80dBFS	93.75Hz -80dBFS	93.75Hz -80dBFS	93.75Hz -80dBFS	93.75Hz -80dBFS	93.75Hz -80dBFS	
18	3/2/1	24	93.75Hz -100dBFS	93.75Hz -100dBFS	93.75Hz -100dBFS	93.75Hz -100dBFS	93.75Hz -100dBFS	93.75Hz -100dBFS	
19	3/2/1	24	93.75Hz -120dBFS	93.75Hz -120dBFS	93.75Hz -120dBFS	93.75Hz -120dBFS	93.75Hz -120dBFS	93.75Hz -120dBFS	
20	3/2/0	24	937.5Hz 0dBFS						
21	3/2/0	24		937.5Hz 0dBFS					
22	3/2/0	24			937.5Hz 0dBFS				
23	3/2/0	24				937.5Hz 0dBFS			
24	3/2/0	24					937.5Hz 0dBFS		
25	3/2/1	24						937.5Hz 0dBFS	
26	3/2/1	24	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS	281.25Hz 0dBFS	
27	3/2/1	24	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS	Matrix mixdown factor (PCE)	
28	1+1	24	937.5Hz 0dBFS	937.5Hz 0dBFS				Dual Mono (PCE)	
29	2/0/0	24	937.5Hz 0dBFS	937.5Hz 0dBFS				Stereo	
30	3/0/0	24	937.5Hz 0dBFS	937.5Hz 0dBFS			937.5Hz 0dBFS	L, C, R	
31	2/1/0	24	937.5Hz 0dBFS	937.5Hz 0dBFS		937.5Hz 0dBFS		L, C, R (PCE)	
32	3/1/0	24	937.5Hz 0dBFS	937.5Hz 0dBFS		937.5Hz 0dBFS	937.5Hz 0dBFS	L, C, R, S	
33	2/2/0	24	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS	937.5Hz 0dBFS		L, R, Ls, Rs (PCE)	
34	3/2/1	24	1125Hz 0dBFS	4500Hz 0dBFS	2250Hz 0dBFS	562.5Hz 0dBFS	9000Hz 0dBFS	93.75Hz 0dBFS	
35	3/2/1	24	1125Hz 0dBFS	4500Hz 0dBFS	2250Hz 0dBFS	562.5Hz 0dBFS	9000Hz 0dBFS	93.75Hz 0dBFS	PCE
36	3/2/1	24	1125Hz 0dBFS	4500Hz 0dBFS	2250Hz 0dBFS	562.5Hz 0dBFS	9000Hz 0dBFS	93.75Hz 0dBFS	bitrate= 96kbps
37	3/2/1	24	1125Hz 0dBFS	4500Hz 0dBFS	2250Hz 0dBFS	562.5Hz 0dBFS	9000Hz 0dBFS	93.75Hz 0dBFS	bitrate= 128kbps
38	3/2/1	24	1125Hz 0dBFS	4500Hz 0dBFS	2250Hz 0dBFS	562.5Hz 0dBFS	9000Hz 0dBFS	93.75Hz 0dBFS	bitrate= 192kbps

MPEG-2 AAC Test Pattern Table - 2
(Sampling frequency = 32 kHz)

No.	Mode	Bits	L	R	LS	RS	C	LFE	Note
39	3/2/1	16	12.5Hz -20dBFS	12.5Hz -20dBFS	12.5Hz -20dBFS	12.5Hz -20dBFS	12.5Hz -20dBFS	12.5Hz -20dBFS	
40	3/2/1	16	31.25Hz -20dBFS	31.25Hz -20dBFS	31.25Hz -20dBFS	31.25Hz -20dBFS	31.25Hz -20dBFS	31.25Hz -20dBFS	
41	3/2/1	16	125Hz -20dBFS	125Hz -20dBFS	125Hz -20dBFS	125Hz -20dBFS	125Hz -20dBFS	125Hz -20dBFS	
42	3/2/1	16	250Hz -20dBFS	250Hz -20dBFS	250Hz -20dBFS	250Hz -20dBFS	250Hz -20dBFS	250Hz -20dBFS	
43	3/2/1	16	500Hz -20dBFS	500Hz -20dBFS	500Hz -20dBFS	500Hz -20dBFS	500Hz -20dBFS	500Hz -20dBFS	
44	3/2/0	16	1kHz -20dBFS	1kHz -20dBFS	1kHz -20dBFS	1kHz -20dBFS	1kHz -20dBFS	1kHz -20dBFS	
45	3/2/0	16	2kHz -20dBFS	2kHz -20dBFS	2kHz -20dBFS	2kHz -20dBFS	2kHz -20dBFS	2kHz -20dBFS	
46	3/2/0	16	5kHz -20dBFS	5kHz -20dBFS	5kHz -20dBFS	5kHz -20dBFS	5kHz -20dBFS	5kHz -20dBFS	
47	3/2/0	16	14kHz -20dBFS	14kHz -20dBFS	14kHz -20dBFS	14kHz -20dBFS	14kHz -20dBFS	14kHz -20dBFS	
48	3/2/0	16	10.125kHz -20dBFS	10.125kHz -20dBFS	10.125kHz -20dBFS	10.125kHz -20dBFS	10.125kHz -20dBFS	10.125kHz -20dBFS	
49	3/2/1	24	62.5Hz 0dBFS	62.5Hz 0dBFS	62.5Hz 0dBFS	62.5Hz 0dBFS	62.5Hz 0dBFS	62.5Hz 0dBFS	62.5Hz 0dBFS
50	3/2/1	24	62.5Hz -20dBFS	62.5Hz -20dBFS	62.5Hz -20dBFS	62.5Hz -20dBFS	62.5Hz -20dBFS	62.5Hz -20dBFS	62.5Hz -20dBFS
51	3/2/1	24	62.5Hz -40dBFS	62.5Hz -40dBFS	62.5Hz -40dBFS	62.5Hz -40dBFS	62.5Hz -40dBFS	62.5Hz -40dBFS	62.5Hz -40dBFS
52	3/2/1	24	62.5Hz -60dBFS	62.5Hz -60dBFS	62.5Hz -60dBFS	62.5Hz -60dBFS	62.5Hz -60dBFS	62.5Hz -60dBFS	62.5Hz -60dBFS
53	3/2/1	24	62.5Hz -80dBFS	62.5Hz -80dBFS	62.5Hz -80dBFS	62.5Hz -80dBFS	62.5Hz -80dBFS	62.5Hz -80dBFS	62.5Hz -80dBFS
54	3/2/1	24	62.5Hz -100dBFS	62.5Hz -100dBFS	62.5Hz -100dBFS	62.5Hz -100dBFS	62.5Hz -100dBFS	62.5Hz -100dBFS	62.5Hz -100dBFS
55	3/2/1	24	62.5Hz -120dBFS	62.5Hz -120dBFS	62.5Hz -120dBFS	62.5Hz -120dBFS	62.5Hz -120dBFS	62.5Hz -120dBFS	62.5Hz -120dBFS
56	3/2/0	24	1kHz 0dBFS						
57	3/2/0	24		1kHz 0dBFS					
58	3/2/0	24			1kHz 0dBFS				
59	3/2/0	24				1kHz 0dBFS			
60	3/2/0	24					1kHz 0dBFS		
61	3/2/1	24						62.5Hz 0dBFS	
62	3/2/1	24	1kHz 0dBFS	1kHz 0dBFS	1kHz 0dBFS	1kHz 0dBFS	1kHz 0dBFS	187.5kHz 0dBFS	
63	3/2/1	24	1kHz 0dBFS	1kHz 0dBFS	1kHz 0dBFS	1kHz 0dBFS	1kHz 0dBFS	Matrix mixdown factor (PCE)	
64	1+1	24	1kHz 0dBFS	1kHz 0dBFS				Dual Mono (PCE)	
65	2/0/0	24	937.5Hz 0dBFS	937.5Hz 0dBFS				Stereo	
66	3/0/0	24	1Hz 0dBFS	1Hz 0dBFS			1Hz 0dBFS	L, C, R	
67	2/1/0	24	1Hz 0dBFS	1Hz 0dBFS		1Hz 0dBFS		L, C, R (PCE)	
68	3/1/0	24	1Hz 0dBFS	1Hz 0dBFS		1Hz 0dBFS	1Hz 0dBFS	L, C, R, S	
69	2/2/0	24	1Hz 0dBFS	1Hz 0dBFS	1Hz 0dBFS	1Hz 0dBFS		L, R, Ls, Rs (PCE)	
70	3/2/1	24	1kHz 0dBFS	4kHz 0dBFS	2kHz 0dBFS	500Hz 0dBFS	8kHz 0dBFS	62.5Hz 0dBFS	
71	3/2/1	24	1kHz 0dBFS	4kHz 0dBFS	2kHz 0dBFS	500Hz 0dBFS	8kHz 0dBFS	62.5Hz 0dBFS	PCE
72	3/2/1	24	1kHz 0dBFS	4kHz 0dBFS	2kHz 0dBFS	500Hz 0dBFS	8kHz 0dBFS	62.5Hz 0dBFS	bitrate= 96kbps
73	3/2/1	24	1kHz 0dBFS	4kHz 0dBFS	2kHz 0dBFS	500Hz 0dBFS	8kHz 0dBFS	62.5Hz 0dBFS	bitrate= 128kbps
74	3/2/1	24	1kHz 0dBFS	4kHz 0dBFS	2kHz 0dBFS	500Hz 0dBFS	8kHz 0dBFS	62.5Hz 0dBFS	bitrate= 192kbps

MPE2 AAC Test Pattern Table - 3
(Sampling frequency = 44.1 kHz)

No.	Mode	Bits	L	R	LS	RS	C	LFE	Note
75	3/2/1	16	430664Hz -20dBFS	430664Hz -20dBFS	430664Hz -20dBFS	430664Hz -20dBFS	430664Hz -20dBFS	430664Hz -20dBFS	
76	3/2/1	16	1722656Hz -20dBFS	1722656Hz -20dBFS	1722656Hz -20dBFS	1722656Hz -20dBFS	1722656Hz -20dBFS	1722656Hz -20dBFS	
77	3/2/1	16	689.0625Hz -20dBFS	689.0625Hz -20dBFS	689.0625Hz -20dBFS	689.0625Hz -20dBFS	689.0625Hz -20dBFS	689.0625Hz -20dBFS	
78	3/2/0	16	1378.125Hz -20dBFS	1378.125Hz -20dBFS	1378.125Hz -20dBFS	1378.125Hz -20dBFS	1378.125Hz -20dBFS	1378.125Hz -20dBFS	
79	3/2/0	16	2756.25Hz -20dBFS	2756.25Hz -20dBFS	2756.25Hz -20dBFS	2756.25Hz -20dBFS	2756.25Hz -20dBFS	2756.25Hz -20dBFS	
80	3/2/0	16	5512.5Hz -20dBFS	5512.5Hz -20dBFS	5512.5Hz -20dBFS	5512.5Hz -20dBFS	5512.5Hz -20dBFS	5512.5Hz -20dBFS	
81	3/2/0	16	19293.75Hz -20dBFS	19293.75Hz -20dBFS	19293.75Hz -20dBFS	19293.75Hz -20dBFS	19293.75Hz -20dBFS	19293.75Hz -20dBFS	
82	3/2/0	16	1033.594Hz -20dBFS	1033.594Hz -20dBFS	1033.594Hz -20dBFS	1033.594Hz -20dBFS	1033.594Hz -20dBFS	1033.594Hz -20dBFS	
83	3/2/1	24	1033.594Hz 0dBFS	4134.375Hz 0dBFS	2067.186Hz 0dBFS	516.797Hz 0dBFS	8268.75Hz 0dBFS	86.136Hz 0dBFS	
84	3/2/1	24	1033.594Hz 0dBFS	4134.375Hz 0dBFS	2067.186Hz 0dBFS	516.797Hz 0dBFS	8268.75Hz 0dBFS	86.136Hz 0dBFS	bitrate= 96kbps
85	3/2/1	24	1033.594Hz 0dBFS	4134.375Hz 0dBFS	2067.186Hz 0dBFS	516.797Hz 0dBFS	8268.75Hz 0dBFS	86.136Hz 0dBFS	bitrate= 128kbps
86	3/2/1	24	1033.594Hz 0dBFS	4134.375Hz 0dBFS	2067.186Hz 0dBFS	516.797Hz 0dBFS	8268.75Hz 0dBFS	86.136Hz 0dBFS	bitrate= 192kbps

PCM Test Pattern Table (initial value)

Data No.	Sampling freq.(Hz)	Test signal freq.(Hz)	Level (dBm)		channel status (C bit)			User data (U bit)	Validity flag
			L-ch	R-ch	Copy bit	Emphasis	Other bit		
1	44.1k	1k	-12	-12	Prohibit	OFF	all'0'	all'0'	'0'
2	↑	↑	0	0	↑	↑	↑	↑	↑
3	↑	4	-12	-12	↑	↑	↑	↑	↑
4	↑	8	↑	↑	↑	↑	↑	↑	↑
5	↑	16	↑	↑	↑	↑	↑	↑	↑
6	↑	63	↑	↑	↑	↑	↑	↑	↑
7	↑	125	↑	↑	↑	↑	↑	↑	↑
8	↑	250	↑	↑	↑	↑	↑	↑	↑
9	↑	500	↑	↑	↑	↑	↑	↑	↑
10	↑	1k	↑	↑	↑	↑	↑	↑	↑
11	↑	2k	↑	↑	↑	↑	↑	↑	↑
12	↑	4k	↑	↑	↑	↑	↑	↑	↑
13	↑	8k	↑	↑	↑	↑	↑	↑	↑
14	↑	10k	↑	↑	↑	↑	↑	↑	↑
15	↑	12.5k	↑	↑	↑	↑	↑	↑	↑
16	↑	16k	↑	↑	↑	↑	↑	↑	↑
17	↑	18k	↑	↑	↑	↑	↑	↑	↑
18	↑	20k	↑	↑	↑	↑	↑	↑	↑
19	↑	1k	MUTE	MUTE	↑	↑	↑	↑	↑
20	↑	↑	-12	-12	↑	ON	↑	↑	↑
21	↑	125	↑	↑	↑	ON	↑	↑	↑
22	↑	4k	↑	↑	↑	ON	↑	↑	↑
23	↑	10k	↑	↑	↑	ON	↑	↑	↑
24	↑	16k	↑	↑	↑	ON	↑	↑	↑
25	↑	1k	0	0	↑	OFF	↑	↑	↑
26	↑	↑	-1	-1	↑	↑	↑	↑	↑
27	↑	↑	-3	-3	↑	↑	↑	↑	↑
28	↑	↑	-6	-6	↑	↑	↑	↑	↑
29	↑	↑	-10	-10	↑	↑	↑	↑	↑
30	↑	↑	-30	-30	↑	↑	↑	↑	↑
31	↑	↑	-60	-60	↑	↑	↑	↑	↑
32	↑	↑	-90	-90	↑	↑	↑	↑	↑
33	↑	↑	0	0	SCMS 7Hz	↑	↑	↑	↑
34	↑	↑	↑	↑	OK	↑	↑	↑	↑
35	32k	↑	-12	-12	Prohibit	↑	↑	↑	↑
36	↑	↑	0	0	↑	↑	↑	↑	↑
37	↑	4	-12	-12	↑	↑	↑	↑	↑
38	↑	8	↑	↑	↑	↑	↑	↑	↑
39	↑	16	↑	↑	↑	↑	↑	↑	↑
40	↑	63	↑	↑	↑	↑	↑	↑	↑
41	↑	125	↑	↑	↑	↑	↑	↑	↑
42	↑	250	↑	↑	↑	↑	↑	↑	↑
43	↑	500	↑	↑	↑	↑	↑	↑	↑
44	↑	1k	↑	↑	↑	↑	↑	↑	↑
45	↑	2k	↑	↑	↑	↑	↑	↑	↑
46	↑	4k	↑	↑	↑	↑	↑	↑	↑
47	↑	8k	↑	↑	↑	↑	↑	↑	↑
48	↑	10k	↑	↑	↑	↑	↑	↑	↑
49	↑	12.5k	↑	↑	↑	↑	↑	↑	↑
50	↑	14k	↑	↑	↑	↑	↑	↑	↑
51	↑	14.5k	↑	↑	↑	↑	↑	↑	↑
52	↑	1k	-1	-1	↑	↑	↑	↑	↑
53	↑	↑	-3	-3	↑	↑	↑	↑	↑
54	↑	↑	-6	-6	↑	↑	↑	↑	↑
55	↑	↑	-10	-10	↑	↑	↑	↑	↑
56	↑	↑	-30	-30	↑	↑	↑	↑	↑
57	↑	↑	-60	-60	↑	↑	↑	↑	↑
58	↑	↑	-90	-90	↑	↑	↑	↑	↑
59	48k	↑	-12	-12	↑	↑	↑	↑	↑
60	↑	↑	0	0	↑	↑	↑	↑	↑
61	↑	4	-12	-12	↑	↑	↑	↑	↑
62	↑	8	↑	↑	↑	↑	↑	↑	↑
63	↑	16	↑	↑	↑	↑	↑	↑	↑
64	↑	63	↑	↑	↑	↑	↑	↑	↑
65	↑	125	↑	↑	↑	↑	↑	↑	↑
66	↑	250	↑	↑	↑	↑	↑	↑	↑
67	↑	500	↑	↑	↑	↑	↑	↑	↑
68	↑	1k	↑	↑	↑	↑	↑	↑	↑
69	↑	2k	↑	↑	↑	↑	↑	↑	↑
70	↑	4k	↑	↑	↑	↑	↑	↑	↑
71	↑	8k	↑	↑	↑	↑	↑	↑	↑
72	↑	10k	↑	↑	↑	↑	↑	↑	↑
73	↑	12.5k	↑	↑	↑	↑	↑	↑	↑
74	↑	16k	↑	↑	↑	↑	↑	↑	↑
75	↑	18k	↑	↑	↑	↑	↑	↑	↑
76	↑	20k	↑	↑	↑	↑	↑	↑	↑
77	↑	22k	↑	↑	↑	↑	↑	↑	↑
78	↑	1k	-1	-1	↑	↑	↑	↑	↑
79	↑	↑	-3	-3	↑	↑	↑	↑	↑
80	↑	↑	-6	-6	↑	↑	↑	↑	↑
81	↑	↑	-10	-10	↑	↑	↑	↑	↑
82	↑	↑	-30	-30	↑	↑	↑	↑	↑
83	↑	↑	-60	-60	↑	↑	↑	↑	↑
84	↑	↑	-90	-90	↑	↑	↑	↑	↑
85	96k	4	-12	-12	↑	↑	↑	↑	↑
86	↑	8	↑	↑	↑	↑	↑	↑	↑
87	↑	16	↑	↑	↑	↑	↑	↑	↑
88	↑	63	↑	↑	↑	↑	↑	↑	↑
89	↑	125	↑	↑	↑	↑	↑	↑	↑
90	↑	250	↑	↑	↑	↑	↑	↑	↑
91	↑	500	↑	↑	↑	↑	↑	↑	↑
92	↑	1k	↑	↑	↑	↑	↑	↑	↑
93	↑	2k	↑	↑	↑	↑	↑	↑	↑
94	↑	4k	↑	↑	↑	↑	↑	↑	↑
95	↑	8k	↑	↑	↑	↑	↑	↑	↑
96	↑	10k	↑	↑	↑	↑	↑	↑	↑
97	↑	14k	↑	↑	↑	↑	↑	↑	↑
98	↑	20k	↑	↑	↑	↑	↑	↑	↑
99	↑	40k	↑	↑	↑	↑	↑	↑	↑
100	↑	44k	↑	↑	↑	↑	↑	↑	↑